

作りましょう 0.5  
パラメタほうしきフォントファミリ  
校とプリティプリントのソース

Tsukurimashou 0.5  
Parametric Font Family  
Proofs and pretty-printed  
source code

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Proofs and pretty-printed source code for Tsukurimashou  
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Part I

# Resources





# preintro.mp

```
1 %
2 % Early shared code for Tsukurimashou
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4 %
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25 %
26 % Matthew Skala
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28 % mskala@ansuz.sooke.bc.ca
29 %
30
31 

---


32
```

## Tsukurimashou Pre-Intro

```
33 % TSUKURIMASHOU PRE-INTRO
34
35 % When I say nonstopmode I mean nonstopmode, dammit!
36 nonstopmode;
37 def errorstopmode = nonstopmode enddef;
38
39 % load library
40 input type1.mp;
41
42 % file inclusion gatekeeper
43 vardef inclusion_lock(suffix fn) =
44   if known already_included.fn:
```

```

45     endinput;
46     fi;
47     boolean already_included.fn;
48     already_included.fn:=true;
49 enddef;
50
51 % basic brush definition
52 transform tsu_brush_xf;
53 tsu_brush_shape:=1.0;
54 tsu_brush_angle:=0;
55
56 % special brush for punctuation
57 tsu_pbrush_size:=50;
58 tsu_pbrush_shape:=1.0;
59 tsu_pbrush_angle:=0;
60 tsu_punct_size:=100;
61
62 % size the handakuten
63 handakuten_inner:=120;
64 handakuten_outer:=200;
65
66 % general shape tweaker
67 mincho:=0;
68
69 % control appearance of corners
70 boolean sharp_corners;
71 sharp_corners:=false;
72
73 % for naming the font
74 string stylename;
75 stylename:="";
76
77 % brush option override
78 def tsu_brush_opt(expr n,l) = nib(n)(l) enddef;
79
80 % bo_serif type; point lp; direction lp; brush tip size
81 vardef tsu_serif.choose(expr bst,plp,dlp,l,bts,bos) =
82 enddef;
83
84 % do "modern" width alternation
85 boolean do_alteration;
86 do_alteration:=false;
87
88 % handle outline mode for Genjimon
89 boolean genji_outline;
90 genji_outline:=false;
91
92 % prepare to detect proportional spacing

```

```
93 boolean is_proportional;  
94 is_proportional:=false;  
95  
96 % prepare to detect blackletter  
97 boolean is_blackletter;  
98 is_blackletter:=false;
```

# tsuku-at.mp

```
1 %  
2 % Tsukurimashou Anbiruteki  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30
```

## Tsukurimashou Anbiruteki

```
31 % TSUKURIMASHOU ANBIRUTEKI  
32  
33 input preintro.mp;  
34  
35 stylename:="Anbiruteki";  
36  
37 (0,4) transformed tsu_brush_xf = (4,1.5);  
38 (1,1) transformed tsu_brush_xf = (1,1.5);  
39 (4,0) transformed tsu_brush_xf = (0,1.5);  
40  
41 tsu_brush_min:=1.5;  
42 tsu_brush_max:=1.5;  
43  
44 tsu_pbrush_size:=115;  
45 tsu_punct_size:=130;  
46  
47 handakuten_outer:=260;  
48  
49 input intro.mp;
```

# tsuku-bk.mp

```
1 %
2 % Tsukurimashou Bokukko
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
```

## Tsukurimashou Bokukko

```
31 % TSUKURIMASHOU BOKUKKO
32
33 input preintro.mp;
34
35 stylename:="Bokukko";
36
37 mincho:=0.3;
38
39 (0,4) transformed tsu_brush_xf = (0.8,0.95);
40 (1,1) transformed tsu_brush_xf = (1.02,0.80);
41 (4,0) transformed tsu_brush_xf = (3.8,0.95);
42
43 tsu_brush_min:=0.80;
44 tsu_brush_max:=0.95;
45 tsu_brush_shape:=0.3;
46 tsu_brush_angle:=20;
47
48 tsu_pbrush_size:=60;
49 tsu_pbrush_shape:=0.3;
50 tsu_pbrush_angle:=20;
51
52 def tsu_brush_opt(expr n,l) = cut(n,rel 120)(l) endif;
53 sharp_corners:=true;
54
55 genji_outline:=true;
56 genji_hw:=0.55;
57
58 input intro.mp;
```

# tsuku-kg.mp

```
1 %  
2 % Tsukurimashou Kaku  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30
```

## Tsukurimashou Kaku

```
31 % TSUKURIMASHOU KAKU  
32  
33 input preintro.mp;  
34  
35 stylename:="Kaku";  
36  
37 (0,4) transformed tsu_brush_xf = (4,0.75);  
38 (1,1) transformed tsu_brush_xf = (1,0.62);  
39 (4,0) transformed tsu_brush_xf = (0,0.75);  
40  
41 tsu_brush_min:=0.62;  
42 tsu_brush_max:=0.75;  
43  
44 def tsu_brush_opt(expr n,l) = cut(n,rel 90)(l) enddef;  
45 sharp_corners:=true;  
46  
47 input intro.mp;
```

# tsuku-mg.mp

```
1 %  
2 % Tsukurimashou Maru  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30
```

## Tsukurimashou Maru

```
31 % TSUKURIMASHOU MARU  
32  
33 input preintro.mp;  
34  
35 stylename:="Maru";  
36  
37 (0,4) transformed tsu_brush_xf = (4,0.74);  
38 (1,1) transformed tsu_brush_xf = (1,0.65);  
39 (4,0) transformed tsu_brush_xf = (0,0.74);  
40  
41 tsu_brush_min:=0.65;  
42 tsu_brush_max:=0.74;  
43  
44 input intro.mp;
```

# tsuku-mi.mp

```
1 %  
2 % Tsukurimashou Mincho  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30
```

## Tsukurimashou Mincho

```
31 % TSUKURIMASHOU MINCHO  
32  
33 input preintro.mp;  
34  
35 stylename:="Mincho";  
36  
37 mincho:=1;  
38  
39 (0,4) transformed tsu_brush_xf = (0.0,1.1);  
40 (1,1) transformed tsu_brush_xf = (1.2,0.35);  
41 (4,0) transformed tsu_brush_xf = (4.8,1.1);  
42  
43 tsu_brush_min:=0.35;  
44 tsu_brush_max:=1.05;  
45  
46 tsu_brush_shape:=0.38;  
47 tsu_brush_angle:=1;  
48  
49 tsu_pbrush_size:=60;  
50 tsu_pbrush_shape:=0.38;  
51 tsu_pbrush_angle:=1;  
52  
53 input serif.mp;  
54  
55 for i=1 upto 10:  
56   tsu_do_serif[i]:=true;  
57 endfor;  
58  
59 do_alteration:=true;  
60  
61 genji_outline:=true;  
62 genji_hw:=0.2;  
63  
64 input intro.mp;
```



# tsuku-tn.mp

```
1 %  
2 % Tsukurimashou Tenshi no Kami  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30
```

## Tsukurimashou Tenshi No Kami

```
31 % TSUKURIMASHOU TENSHI NO KAMI  
32  
33 input preintro.mp;  
34  
35 stylename:="TenshinoKami";  
36  
37 (0,4) transformed tsu_brush_xf = (4,0.15);  
38 (1,1) transformed tsu_brush_xf = (1,0.15);  
39 (4,0) transformed tsu_brush_xf = (0,0.15);  
40  
41 tsu_brush_min:=0.15;  
42 tsu_brush_max:=0.15;  
43  
44 tsu_pbrush_size:=15;  
45  
46 handakuten_inner:=170;  
47  
48 input intro.mp;
```

# tsuku-ps.mp

```
1 %
2 % Proportional spacing modifications for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 vardef tsu_rescale_half = tsu_rescale_full; enddef;
34 vardef tsu_rescale_half_lc = tsu_rescale_full; enddef;
35 vardef tsu_rescale_half_katakana = tsu_rescale_full; enddef;
36 vardef tsu_rescale_decenter = tsu_rescale_full; enddef;
37
38 is_proportional:=true;
39
40 tsu_rescale_full;
```

# intro.mp

```
1 %
2 % General shared code for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(intro);
32
33 

---


34
35 %
36 % Tsukurimashou intro - utility routines for all pages
37 %
38
39 pf_info_quad 1000;
40 pf_info_space 1000, 0, 0;
41 pf_info_familyname "Tsukurimashou" & stylenamename;
42 pf_info_fixedpitch true;
43 pf_info_capheight 900;
44 pf_info_xheight 585;
45 % pf_info_ascender 900;
46 % pf_info_descender 100;
47 pf_info_ascender 985;
48 pf_info_descender 265;
49
50 pair centre_pt;
51 centre_pt=(500,390);
52 latin_vcentre:=430;
53 latin_wide_baseline:=25;
54 latin_wide_top:=750;
55 wide_margin:=30;
56 narrow_margin:=40;
57
58 

---


59
60 input bcircle.mp;
61 input obstack.mp;
62
63 

---


64
65 % get rid of degeneracies
66 vardef regenerate(expr p) =
67   begingroup
68     save q;
69     path q;
70     for t=1 step 1 until length p:
```

```

71   if abs((point t of p)-(point (t-1) of p))>3:
72     if unknown q:
73       q:=subpath (t-1,t) of p;
74     elseif length(q)=1:
75       q:=(point 0 of q)..
76         controls (postcontrol 0 of q) and (precontrol 1 of q)..
77         (0.5[point 1 of q,point t-1 of p])..
78         controls (postcontrol t-1 of p) and (precontrol t of p)..
79         (point t of p);
80     else:
81       q:=(subpath (0,length(q)-1) of q)..
82         controls (postcontrol length(q)-1 of q)
83           and (precontrol length(q) of q)..
84         (0.5[point length(q) of q,point t-1 of p])..
85         controls (postcontrol t-1 of p) and (precontrol t of p)..
86         (point t of p);
87     fi;
88   fi;
89   endfor;
90   if cycle p:
91     q:=subpath (0,length(q)-1) of q..
92       controls (postcontrol length(q)-1 of q)
93         and (precontrol length(q) of q)..
94     cycle;
95   fi;
96   q
97   endgroup
98   enddef;
99
100 % like Fill, but doesn't complain about turning number
101 def dangerousFill text glist =
102   begingroup
103     save h_; path h_;
104     for g_:=glist:
105       h_:=g_ start.default; % JMN's suggestion
106       if glyph_usage div store = 1: % storing
107         glyph_stored.glyph_name[incr glyph_stored.glyph_name.num]=h_;
108       fi
109       glyph_list[incr glyph_list.num]:=round_node_values(h_ italicized);
110       update_glyph_bb(glyph_list[glyph_list.num]);
111     endfor;
112   endgroup
113   enddef;
114
115 default_nib:=fix_nib(100,100,0);
116
117 def begintsuglyph(expr name,code) =
118   message name;

```

```

119 encode(name) (code); standard_introduce(name);
120 write ("BEGINGLYPH ""&name& "" ""&decimal code) to "proof.prf";
121 beginglyph(name);
122     init_obstack;
123 enddef;
124
125 def endsuglyph =
126     fix_hsbw((rescale_to.left+rescale_to.right),0,0);
127     endglyph;
128     if rescale_to.right=0:
129         write "ENDGLYPH -10 0" to "proof.prf";
130     else:
131         write ("ENDGLYPH 0 ""&decimal (rescale_to.left+rescale_to.right))
132             to "proof.prf";
133     fi;
134 enddef;
135
136 def tsu_brush_tip_size(expr l,q) =
137     begingroup
138         numeric y,yy;
139         y:=ypart (point l of q);
140         if y<tsu_brush_min:
141             yy:=tsu_brush_min;
142         elseif y>tsu_brush_max:
143             yy:=tsu_brush_max;
144         else:
145             yy:=y;
146         fi;
147         yy
148     endgroup
149 enddef;
150
151 def tsu_brush_tip(expr l,p,q,bsi,is_start,is_end,is_alt) =
152     begingroup
153         numeric y;
154         y:=tsu_brush_tip_size(l,q);
155         if is_alt and do_alteration:
156             fix_nib(bsi*y*tsu_brush_shape,bsi*y*tsu_brush_shape,tsu_brush_angle)
157         else:
158             fix_nib(bsi*y,bsi*y*tsu_brush_shape,tsu_brush_angle)
159         fi
160     endgroup
161 enddef;
162
163 % rescaling for half/double width
164 % this is basically global because it will be shared by most glyphs in a file
165
166 path width_curve;

```

```

167
168 vardef tsu_rescale_full =
169   rescale_from.left:=wide_margin;
170   rescale_from.right:=1000-wide_margin;
171   rescale_from.top:=ypart centre_pt;
172   rescale_from.bottom:=latin_wide_baseline;
173
174   rescale_to.left:=wide_margin;
175   rescale_to.right:=1000-wide_margin;
176   rescale_to.top:=ypart centre_pt;
177   rescale_to.bottom:=latin_wide_baseline;
178
179   rescale_skew:=0;
180
181   width_curve:=(-1,-1)-(2000,2000);
182 enddef;
183
184 vardef tsu_rescale_half =
185   rescale_from.left:=wide_margin;
186   rescale_from.right:=1000-wide_margin;
187   rescale_from.top:=ypart centre_pt;
188   rescale_from.bottom:=latin_wide_baseline;
189
190   rescale_to.left:=narrow_margin;
191   rescale_to.right:=500-narrow_margin;
192   rescale_to.top:=latin_vcentre;
193   rescale_to.bottom:=0;
194
195   rescale_skew:=0;
196
197   width_curve:=((-1,-1)-(100,100))..(940,410)..{right}(2000,1000);
198 enddef;
199
200 vardef tsu_rescale_half_lc =
201   rescale_from.left:=wide_margin*3.5;
202   rescale_from.right:=1000-wide_margin*3.5;
203   rescale_from.top:=ypart centre_pt;
204   rescale_from.bottom:=latin_wide_baseline;
205
206   rescale_to.left:=narrow_margin;
207   rescale_to.right:=500-narrow_margin;
208   rescale_to.top:=latin_vcentre;
209   rescale_to.bottom:=0;
210
211   rescale_skew:=0;
212
213   width_curve:=((-1,-1)-(100,100))..(780,410)..{right}(2000,1000);
214 enddef;

```

```

215
216 vardef tsu_rescale_half_katakana =
217   rescale_from.left:=wide_margin;
218   rescale_from.right:=1000-wide_margin;
219   rescale_from.top:=700;
220   rescale_from.bottom:=0;
221
222   rescale_to.left:=narrow_margin;
223   rescale_to.right:=500-narrow_margin;
224   rescale_to.top:=670;
225   rescale_to.bottom:=30;
226
227   rescale_skew:=8;
228
229   width_curve:=((-1,-1)-(100,100)).(860,440)..{right}(2000,1000);
230 enddef;
231
232 vardef tsu_rescale_double =
233   rescale_from.left:=narrow_margin;
234   rescale_from.right:=500-narrow_margin;
235   rescale_from.top:=latin_vcentre;
236   rescale_from.bottom:=0;
237
238   rescale_to.left:=wide_margin;
239   rescale_to.right:=1000-wide_margin;
240   rescale_to.top:=ypart centre_pt;
241   rescale_to.bottom:=latin_wide_baseline;
242
243   rescale_skew:=0;
244
245   width_curve:=(-1,-1)-(2000,2000);
246 enddef;
247
248 vardef tsu_rescale_decenter =
249   rescale_from.left:=300;
250   rescale_from.right:=700;
251   rescale_from.top:=ypart centre_pt;
252   rescale_from.bottom:=latin_wide_baseline;
253
254   rescale_to.left:=50;
255   rescale_to.right:=450;
256   rescale_to.top:=latin_vcentre;
257   rescale_to.bottom:=0;
258
259   rescale_skew:=0;
260
261   width_curve:=(-1,-1)-(2000,2000);
262 enddef;

```

```

263
264 vardef tsu_rescale_native_narrow =
265   rescale_from.left:=narrow_margin;
266   rescale_from.right:=500-narrow_margin;
267   rescale_from.top:=latin_vcentre;
268   rescale_from.bottom:=0;
269
270   rescale_to.left:=narrow_margin;
271   rescale_to.right:=500-narrow_margin;
272   rescale_to.top:=latin_vcentre;
273   rescale_to.bottom:=0;
274
275   rescale_skew:=0;
276
277   width_curve:=(-1,-1)-(2000,2000);
278 enddef;
279
280 vardef tsu_rescale_native_zero =
281   rescale_from.left:=0;
282   rescale_from.right:=0;
283   rescale_from.top:=1000;
284   rescale_from.bottom:=0;
285
286   rescale_to.left:=0;
287   rescale_to.right:=0;
288   rescale_to.top:=1000;
289   rescale_to.bottom:=0;
290
291   rescale_skew:=0;
292
293   width_curve:=(-1,-1)-(2000,2000);
294 enddef;
295
296 vardef tsu_rescale_native_conditional =
297   if is_proportional:
298     tsu_rescale_full;
299   else:
300     tsu_rescale_native_narrow;
301   fi;
302 enddef;
303
304 tsu_rescale_full;
305
306 vardef tsu_rescale_xform =
307   begingroup
308     save t;
309     transform t;
310     t:=identity;

```



```

311 % check if rescaling is active
312 if (rescale_from.left<>rescale_to.left)
313 or (rescale_from.right<>rescale_to.right): begingroup
314     save i,xa,xb,lf,rf,wf,lt,rt,wt;
315     numeric i,xa,xb,lf,rf,wf,lt,rt,wt;
316     transform t;
317     % find the bounds of the paths
318     if find_stroke(0)<=0:
319         xa=0.5[rescale_from.left,rescale_from.right];
320         xb=0.5[rescale_from.left,rescale_from.right];
321     else:
322         xa=infinity;
323         xb=-infinity;
324         for i=1 upto sp-1:
325             if obstacktype[i]=otstroke:
326                 if (xpart llcorner obstackp[i])<xa:
327                     xa=xpart llcorner obstackp[i];
328                 fi;
329                 if (xpart lrcorner obstackp[i])>xb:
330                     xb=xpart lrcorner obstackp[i];
331                 fi;
332             fi;
333         endfor;
334     fi;
335     % compute bearings and widths
336     lf=xa-rescale_from.left;
337     rf=rescale_from.right-xb;
338     lf+rf+wf=rescale_from.right-rescale_from.left;
339     lt+rt+wt=rescale_to.right-rescale_to.left;
340     (lt,rt)=whatever[(0,0),(lf,rf)];
341     wt=ypart (width_curve intersectionpoint ((wf,-infinity)-(wf,infinity)));
342     % find transformation
343     if wf>0:
344         (rescale_from.left+lf,rescale_from.bottom) transformed t=
345             (rescale_to.left+lt,rescale_to.bottom-rescale_skew);
346         (rescale_from.left+lf,rescale_from.top) transformed t=
347             (rescale_to.left+lt,rescale_to.top-rescale_skew);
348         (rescale_from.right-rf,rescale_from.bottom) transformed t=
349             (rescale_to.right-rt,rescale_to.bottom+rescale_skew);
350     else:
351         (rescale_from.left+lf,rescale_from.bottom) transformed t=
352             (rescale_to.left+lt,rescale_to.bottom);
353         (rescale_from.left+lf,rescale_from.top) transformed t=
354             (rescale_to.left+lt,rescale_to.top);
355         (rescale_from.left+lf+1,rescale_from.bottom) transformed t=
356             (rescale_to.left+lt+1,rescale_to.bottom);
357     fi;
358 endgroup; fi;

```

```

359     t
360 endgroup
361 enddef;
362
363 % render a single segment - pulled out to make it easier to override
364 vardef tsu_render_segment(expr i,p,q) =
365     if do_alteration and obstackba.boalternate[i]:
366         default_nib:=fix_nib(obstackna.bosize[i]*tsu_brush_max
367             *tsu_brush_shape,
368             obstackna.bosize[i]*tsu_brush_max
369             *tsu_brush_shape,
370             0);
371     else:
372         default_nib:=fix_nib(obstackna.bosize[i]*tsu_brush_max,
373             obstackna.bosize[i]*tsu_brush_max
374             *tsu_brush_shape,
375             tsu_brush_angle);
376     fi;
377     path mytip[],glyph;
378     for l=0 step 1 until length(p):
379         mytip[l]:=tsu_brush_tip(l,p,q,obstackna.bosize[i],s<1,
380             t>(length obstackp[i])-1,obstackba.boalternate[i]);
381     endfor;
382     pen_stroke(for l=0 step 1 until length(p):
383         if sharp_corners and known obstacknaa.botip[i][ltime[l]]:
384             tip(obstacknaa.botip[i][ltime[l]])(l)
385         else:
386             tsu_brush_opt(mytip[l])(l)
387         fi
388     endfor)(p)(glyph);
389     glstk[npls]:=regenerate(glyph);
390     npls:=npls+1;
391     for l=0 step 1 until length(p):
392         si:=floor (ltime[l]+0.5);
393         if known obstacknaa.boserif[i][si]:
394             tsu_serif.choose(obstacknaa.boserif[i][si],
395                 point l of p,direction l of p,l,
396                 obstackna.bosize[i],tsu_brush_tip_size(l,q));
397             write ("SERIF "&(decimal obstacknaa.boserif[i][si])&" "&
398                 (decimal xpart point l of p)&""&
399                 (decimal ypart point l of p)) to "proof.prf";
400         fi;
401     endfor;
402 enddef;
403
404 def tsu_render_in_circle(expr fitcircle) =
405     %
406     % find and apply rescaling xform

```

```

407 %
408 transform tsu_rescaling_xf;
409 tsu_rescaling_xf:=tsu_rescale_xform;
410 for i=1 upto sp-1:
411   if known obstackp[i]:
412     obstackp[i]:=obstackp[i] transformed tsu_rescaling_xf;
413   fi;
414   if known obstackt[i]:
415     obstackt[i]:=obstackt[i] transformed tsu_rescaling_xf;
416   fi;
417 endfor;
418 %
419 % main render
420 %
421 begingroup
422   numeric i,j,k,l,s,t,si,ngls,flati;
423   path bqi,p,q,glstk[];
424   ngls:=0;
425   flati:=1;
426   for i=1 upto sp-1: if obstacktype[i]=otstroke:
427     if unknown obstackba,boalternate[i]:
428       obstackba.boalternate[i]:=false;
429     fi;
430 % message "suffix " & str i;
431     bqi:=obstackq[i] transformed tsu_brush_xf;
432     s:=0;
433     for j=0 step 1 until (length obstackp[i])-1:
434       k:=j+1;
435 % message " j=" & decimal j & " thr " & decimal (xpart point j of bqi)
436 % & "/" & decimal (xpart point k of bqi);
437       if ((xpart point j of bqi)<1)
438         and ((xpart point k of bqi)>=1):
439 % message " START";
440         if (xpart point k of bqi)=1:
441           s:=k;
442         else:
443           s:=j+(xpart ((subpath (j,k) of bqi)
444             intersectiontimes ((1,-infinity)
445               -(1,infinity))));
446         fi;
447       fi;
448       if (((xpart point j of bqi)>=1) and ((xpart point k of bqi)<1))
449         or (k=length obstackp[i])):
450 % message " END";
451         if (xpart point k of bqi)>=1:
452           t:=k;
453         else:
454           t:=j+(xpart ((subpath (j,k) of bqi)

```

```

455         intersectiontimes ((1,-infinity)
456         -(1,infinity)));
457     fi;
458     if ((t-s)>0.02) and (obstackna.bosize[i]>0):
459         boolean is_cycle;
460         is_cycle:=((point s of obstackp[i])=(point t of obstackp[i]));
461         p:=subpath (s,t) of obstackp[i];
462         q:=subpath (s,t) of bqi;
463 % message "ltiming..";
464         numeric ltime[];
465         ltime[0]:=s;
466 % message decimal s;
467         for l=1 step 1 until (length p)-1:
468             ltime[l]:=floor (s+l);
469 % message decimal floor (s+l);
470         endfor;
471         ltime[length p]:=t;
472 % message decimal t;
473         write ("SEGMENT "&(decimal flati)&" "&(decimal s)&" "&(decimal t))
474             to "proof.prf";
475         for lcbj=0 upto length p:
476             write ("POINT "&(decimal flati)&" "&(decimal ltime[lcbj])&" "
477                 &(decimal xpart point lcbj of p)&" "
478                 &(decimal ypart point lcbj of p)) to "proof.prf";
479         endfor;
480         flati:=flati+1;
481         tsu_render_segment(i,p,q);
482     fi;
483 fi;
484 endfor;
485 elseif obstacktype[i]=otlcblob:
486     glstk[ngls]:=regenerate(obstackp[i]);
487     ngls:=ngls+1;
488 fi; endfor;
489 %
490 % handle bounding circle
491 %
492 if xxpart fitcircle>0:
493     beingroup
494         save d,tmppt,pind,xpt,pts,pcnt,tmpxf;
495         pair pts[];
496         transform d;
497         pcnt:=0;
498         for j=0 upto ngls-1:
499             for i=0 step 0.1 until length glstk[j]:
500                 pts[pcnt]:=point i of glstk[j];
501                 pcnt:=pcnt+1;
502             endfor

```

```

503     endfor;
504     save lowpt; numeric lowpt;
505     lowpt:=0;
506     for i=0 upto pcnt-2:
507         for j=i+1 upto pcnt-1:
508             if (i>=lowpt) and (j>=lowpt) and (abs(pts[i]-pts[j])<2):
509                 swap_pts(j,lowpt);
510                 lowpt:=lowpt+1;
511             fi;
512         endfor;
513     endfor;
514     d:=bcircle.internal(lowpt,pcnt,pcnt);
515     transform tmpxf;
516     tmpxf=identity shifted (((0,0) transformed fitcircle)-
517                             ((0,0) transformed d));
518     for j=0 upto ngls-1:
519         glstk[j]:=glstk[j] transformed tmpxf;
520     endfor;
521 endgroup
522 fi;
523 %
524 % finally render it all
525 %
526 for i=0 upto ngls-1:
527     dangerousFill glstk[i];
528 endfor;
529 %
530 % write misc. proof file stuff
531 %
532 blobcount:=0;
533 boxcount:=0;
534 for i=1 upto sp-1:
535     if obstacktype[i]=otlcblob:
536         beingroup
537             save spt,n;
538             pair spt;
539             spt:=(0,0);
540             n:=0;
541             for j=1 upto length obstackp[i]:
542                 n:=n+1;
543                 spt:=spt+(point j of obstackp[i]);
544             endfor;
545             spt:=spt/n;
546             blobcount:=blobcount+1;
547             write ("BLOBCENTRE "&(decimal blobcount)&" "
548                 &(decimal xpart spt)&" "&(decimal ypart spt)) to "proof.prf";
549         endgroup;
550     elseif obstacktype[i]=otpbox:

```

```

551     boxcount:=boxcount+1;
552     write ("PBOX "&
553           (decimal boxcount)&" "&
554           (decimal xpart ((0,0) transformed obstackt[i]))&" "&
555           (decimal ypart ((0,0) transformed obstackt[i]))&" "&
556           (decimal xpart ((1,0) transformed obstackt[i]))&" "&
557           (decimal ypart ((1,0) transformed obstackt[i]))&" "&
558           (decimal xpart ((1,1) transformed obstackt[i]))&" "&
559           (decimal ypart ((1,1) transformed obstackt[i]))&" "&
560           (decimal xpart ((0,1) transformed obstackt[i]))&" "&
561           (decimal ypart ((0,1) transformed obstackt[i]))&" "&
562           obstacks[i]&"") to "proof.prf";
563     if known obstackba.botoexpand[i]:
564         if obstackba.botoexpand[i]:
565             errmessage "Unexpanded PBOX: " & obstacks[i];
566         fi;
567     fi;
568     elseif obstacktype[i]=otanchor:
569         begingroup
570             save topanchor;
571             numeric topanchor;
572             topanchor:=i;
573             for j:=sp-1 downto i+1:
574                 if obstacktype[j]=otanchor:
575                     if obstackn[j]=obstackn[i]:
576                         topanchor:=j;
577                     fi;
578                 fi;
579             exitif topanchor<>i;
580         endfor;
581         if topanchor=i:
582             write ("ANCHOR "&
583                   (decimal obstackn[i])&" "&
584                   (decimal xpart ((-35,0) transformed obstackt[i]))&" "&
585                   (decimal ypart ((-35,0) transformed obstackt[i]))&" "&
586                   (decimal xpart ((35,0) transformed obstackt[i]))&" "&
587                   (decimal ypart ((35,0) transformed obstackt[i]))&" "&
588                   (decimal xpart ((0,-35) transformed obstackt[i]))&" "&
589                   (decimal ypart ((0,-35) transformed obstackt[i]))&" "&
590                   (decimal xpart ((0,35) transformed obstackt[i]))&" "&
591                   (decimal ypart ((0,35) transformed obstackt[i]))
592                   to "proof.prf";
593             fi;
594         endgroup;
595     fi;
596     endfor;
597     endgroup;
598 enddef;

```

```

599
600 % the usual case - just render it without fitting into a circle
601 def tsu_render =
602   tsu_render_in_circle(identity scaled -1);
603 enddef;
604
605 transform tsu_xf.smallkana;
606
607 tsu_xf.smallkana = identity shifted (-500,0) scaled 5.5/8 shifted (500,0);
608
609 vardef tsu_xform(expr xform)(text curves) =
610   begingroup
611     save txfsp;
612     txfsp:=sp;
613     curves;
614     size_scale:=(abs(((0,0) transformed xform)
615       -((1,0) transformed xform))
616       *abs(((0,0) transformed xform)
617       -((0,1) transformed xform)))*0.16667;
618     for i=txfsp upto sp-1:
619       if known obstackp[i]:
620         obstackp[i]:=obstackp[i] transformed xform;
621       fi;
622       if known obstackna.bosize[i]:
623         obstackna.bosize[i]:=obstackna.bosize[i]*size_scale;
624       fi;
625       if known obstackt[i]:
626         obstackt[i]:=obstackt[i] transformed xform;
627       fi;
628     endfor;
629   endgroup;
630 enddef;
631
632 

---


633
634 def anc_upper_accent = 1 enddef;
635 def anc_lower_accent = 2 enddef;
636 def anc_centre_accent = 3 enddef;
637 def anc_upper_left = 4 enddef;
638 def anc_upper_right = 5 enddef;
639 def anc_upper_ring = 6 enddef;
640 def anc_caron_comma = 7 enddef;
641 def anc_dakuten = 8 enddef;
642 vardef anc_iching_line(expr lnum) = (8+lnum) enddef;
643
644 transform accent_default[];
645 numeric anchor_parent[];
646

```

```

647 vardef tsu_default_anchor(expr aindex, avalue) =
648   if numeric avalue:
649     write ("DEFAULTANCHOR "&(decimal aindex)&" FALSE") to "proof.prf";
650   elseif transform avalue:
651     write ("DEFAULTANCHOR "&
652           (decimal aindex)&" "&
653           (decimal xpart ((0,0) transformed avalue))&" "&
654           (decimal ypart ((0,0) transformed avalue)))
655           to "proof.prf";
656   elseif pair avalue:
657     write ("DEFAULTANCHOR "&
658           (decimal aindex)&" "&
659           (decimal xpart avalue)&" "&
660           (decimal ypart avalue))
661           to "proof.prf";
662   fi;
663 enddef;
664
665
666
667 % there is some kind of bug in MetaType1 causing it to blow up when
668 % stroking a path at a certain angle of about 290 degrees. Exactly why,
669 % I don't know; the code is documented primarily in Polish and not well
670 % documented at all. The code below is a workaround to prevent it from
671 % evaluating turning angles on zero vectors; in addition to this, it is
672 % sometimes necessary to add extra points to paths to get correct-looking
673 % behaviour.
674
675 % "fixed" version
676 vardef pen_stroke_edge(expr p) =
677   save e_, e___, l_, i_, i___, myflag; path e_[\{ }\{ }], e___[\{ }\{ }];
678   l_:=length(p);
679   for i_:=0 upto l_-1:
680     e_[i_]=pen_stroke_edge_(subpath (i_, i_+1) of p,
681     local_nib_(i_), local_nib_(i_+1));
682   endfor
683   for i_:=0 upto l_ if cycle p: -1 else: -2 fi:
684     i___:=(i_+1) mod l_;
685     boolean myflag;
686     if ((direction 1 of e_[i_])=(0,0)) or ((direction 0 of e_[i___])=(0,0)):
687       myflag:=true;
688     elseif abs(turn_ang(direction 1 of e_[i_], direction 0 of e_[i___]))>1:
689       myflag:=true;
690     else:
691       myflag:=false;
692     fi;
693     if myflag:
694       save t_; (t_.a,t_.b)=e_[i_] intersectiontimes reverse e_[i___];

```



```

695 if t_.a>0:
696   e_[i_]:=subpath (0,t_.a) of e_[i_];
697   e_[i__]:=subpath (1-t_.b,1) of e_[i__];
698 elseif known local_tip_(i__):
699   e__1:=extrapolate (0,xpart local_tip_(i__)) of e_[i_];
700   e__2:=extrapolate (ypart local_tip_(i__),1) of e_[i__];
701   save t_; (t_.a,t_.b)=e__1 intersectiontimes reverse e__2;
702   if t_.a>0:
703     e_[i_]:=subpath (0,t_.a) of e__1;
704     e_[i__]:=subpath (1-t_.b,1) of e__2;
705   fi
706 fi
707 fi
708 endfor
709 for i_:=0 upto l_-1:
710   hide(i__:=i_-1) mod l_)
711   if cycle p or (i_>0):
712     if length((point 1 of e_[i__])-(point 0 of e_[i_]))>1/4ignore_nib_limit:
713       % the constant 1/4ignore_nib_limit| plays a similar role
714       % to that of the ISNAP_TO_NODE| variable in pf2mt1.awk
715       (point 1 of e_[i__])
716       if known local_tip_(i_): - else:
717         && pen_join(predir 1 of e_[i__],postdir 0 of e_[i_],point i_ of p,
718           local_nib_(i_)) &&
719       fi
720     fi
721   fi
722   % reconstruct le_[i_] (possibly ignoring direction(s)):
723   (point 0 of e_[i_])
724   if is_line(e_[i_]):
725     % this circumvents \{}MF{}//\{}MP{} instable behaviour
726     % (the operator |..| may cause that a control point and
727     % a node coincide; note that this is feature, not a bug),
728     % and thus is advisable:
729     -
730   else:
731     if not ignore_dir_(i_): {direction 0 of e_[i_]} fi ...
732     if not ignore_dir_(i_+1): {direction 1 of e_[i_]} fi
733   fi
734 endfor
735 if cycle p: cycle else: (point 1 of e_[l_-1]) fi
736 enddef;
737
738 % figure out size of brush
739 (mbrush_width,mbrush_height)=urcorner (
740   fullcircle xscaled (tsu_brush_max*100)
741   yscaled (tsu_brush_max*tsu_brush_shape*100)
742   rotated tsu_brush_angle

```

```
743 );  
744 alternate_adjust:=abs(mbrush_height-mbrush_width);  
745  
746 serif_size:=2;
```

# frac-intro.mp

```
1 %
2 % Common code for Tsukurimashou fractions
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(fracintro);
32
33 

---


34
35 transform nxf[];
36
37 frac.in.x1=200;
38 frac.in.x2=800;
39 frac.in.y1=latin_wide_baseline;
40 frac.in.y2=latin_wide_top;
41
42 frac.one.y1=0.02[frac.in.y1,frac.in.y2];
43 frac.one.y2=0.40[frac.in.y1,frac.in.y2];
44 frac.one.y3=0.51[frac.in.y1,frac.in.y2];
45 frac.one.y4=0.60[frac.in.y1,frac.in.y2];
46 frac.one.y5=0.98[frac.in.y1,frac.in.y2];
47
48 (frac.one.x1+frac.one.x2)/2=500;
49 frac.one.x2-frac.one.x1=320;
50
51 frac.two.y1=0.04[frac.in.y1,frac.in.y2];
52 frac.two.y2=0.38[frac.in.y1,frac.in.y2];
53 frac.two.y3=0.51[frac.in.y1,frac.in.y2];
54 frac.two.y4=0.62[frac.in.y1,frac.in.y2];
55 frac.two.y5=0.96[frac.in.y1,frac.in.y2];
56
57 (frac.two.x1+frac.two.x3)/2=500;
58 (frac.two.x3-frac.two.x2)=
59 (frac.two.x2-frac.two.x1);
60 frac.two.x3-frac.two.x1=600;
61
62 frac.three.y1=0.06[frac.in.y1,frac.in.y2];
63 frac.three.y2=0.36[frac.in.y1,frac.in.y2];
64 frac.three.y3=0.51[frac.in.y1,frac.in.y2];
65 frac.three.y4=0.64[frac.in.y1,frac.in.y2];
66 frac.three.y5=0.94[frac.in.y1,frac.in.y2];
67
68 (frac.three.x1+frac.three.x4)/2=500;
69 (frac.three.x4-frac.three.x3)=
70 (frac.three.x3-frac.three.x2)=
```

```

71 (frac.three.x2-frac.three.x1);
72 frac.three.x4-frac.three.x1=700;
73
74 frac.four.y1=0.08[frac.in.y1,frac.in.y2];
75 frac.four.y2=0.34[frac.in.y1,frac.in.y2];
76 frac.four.y3=0.51[frac.in.y1,frac.in.y2];
77 frac.four.y4=0.66[frac.in.y1,frac.in.y2];
78 frac.four.y5=0.92[frac.in.y1,frac.in.y2];
79
80 (frac.four.x1+frac.four.x5)/2=500;
81 (frac.four.x5-frac.four.x4)=
82 (frac.four.x4-frac.four.x3)=
83 (frac.four.x3-frac.four.x2)=
84 (frac.four.x2-frac.four.x1);
85 frac.four.x5-frac.four.x1=800;
86
87 frac.half.y1=0.10*latin_vcentre;
88 frac.half.y2=0.82*latin_vcentre;
89 frac.half.y3=latin_vcentre;
90 frac.half.y4=1.18*latin_vcentre;
91 frac.half.y5=1.90*latin_vcentre;
92
93 (frac.half.x1+frac.half.x2)/2=250;
94 frac.half.x2-frac.half.x1=330;
95
96 vardef hexdig(expr d) =
97   if d<10: decimal d else: char (d+87) fi
98 enddef;
99
100 vardef make_digit_set(expr xfm,thispage,place) =
101   numeric ccount;
102   ccount:=0;
103   forsuffices i=zero,one,two,three,four,five,six,seven,eight,nine:
104     begint Suglyph("uFF" & thispage & place & hexdig(ccount),
105       hex(place & hexdig(ccount)));
106     tsu_xform(xfm)(numeral.i);
107     tsu_render;
108     endtsuglyph;
109     ccount:=ccount+1;
110   endfor;
111 enddef;

```

# latin-intro.mp

```
1 %
2 % Shared code for Tsukurimashou latin
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(latinintro);
32
33 _____
34
35 latin_wide_low_h:=latin_wide_baseline+mbrush_height*0.8;
36 latin_wide_high_h:=latin_wide_top-mbrush_height*0.8;
37 latin_wide_low_r:=latin_wide_baseline+mbrush_height*0.8-7;
38 latin_wide_high_r:=latin_wide_top-mbrush_height*0.8+15;
39 if sharp_corners:
40   latin_wide_low_v:=latin_wide_baseline;
41   latin_wide_high_v:=latin_wide_top;
42 else:
43   latin_wide_low_v:=latin_wide_baseline+mbrush_height*0.8;
44   latin_wide_high_v:=latin_wide_top-mbrush_height*0.8;
45 fi;
46
47 vardef vmetric(expr a) =
48   (a[latin_wide_low_h,latin_wide_high_h])
49 enddef;
50
51 latin_wide_xheight:=vmetric(0.65);
52 latin_wide_xheight_h:=latin_wide_xheight-mbrush_height*0.6;
53 latin_wide_xheight_r:=latin_wide_xheight-mbrush_height*0.6+15;
54 if sharp_corners:
55   latin_wide_xheight_v:=latin_wide_xheight;
56 else:
57   latin_wide_xheight_v:=latin_wide_xheight-mbrush_height*0.5;
58 fi;
59
60 latin_wide_desc:=vmetric(-0.35);
61 latin_wide_desc_h:=latin_wide_desc+mbrush_height*0.6;
62 latin_wide_desc_r:=latin_wide_desc+mbrush_height*0.6-10;
63 if sharp_corners:
64   latin_wide_desc_v:=latin_wide_desc;
65 else:
66   latin_wide_desc_v:=latin_wide_desc+mbrush_height*0.5;
67 fi;
68
69 latin_wide_lc_baselift:=vmetric(0.02);
70
```

```

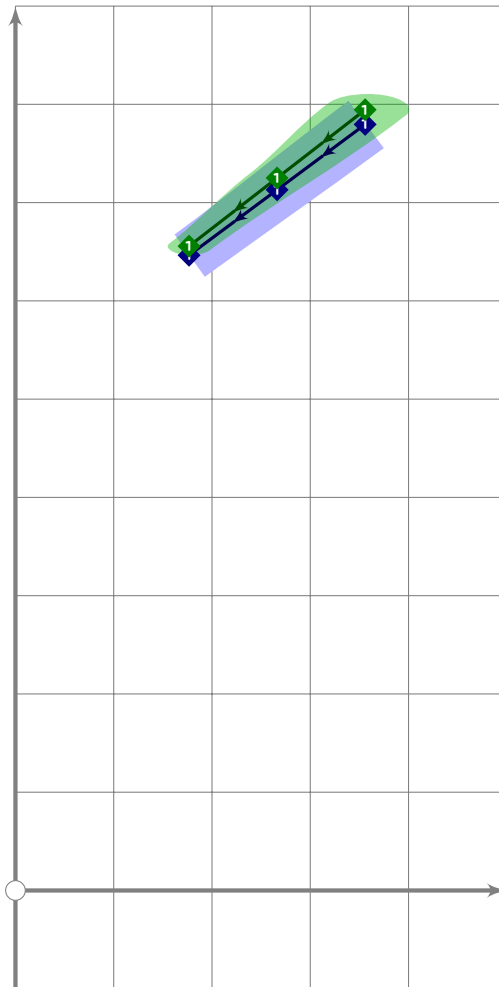
71 transform tsu_xf.accentedcap,tsu_xf.cap_upper_accent,tsu_xf.low_centre_accent;
72
73 xpart tsu_xf.accentedcap=1;
74 ypart tsu_xf.accentedcap=yxpart tsu_xf.accentedcap=0;
75 (500,vmetric(0)) transformed tsu_xf.accentedcap=(500,vmetric(0));
76 (500,vmetric(1)) transformed tsu_xf.accentedcap=(500,vmetric(0.85));
77
78 accent_default[anc_upper_accent]=identity shifted (500,vmetric(0.75));
79 accent_default[anc_lower_accent]=identity shifted (520,vmetric(-0.21));
80 accent_default[anc_centre_accent]=identity
81   scaled ((latin_wide_high_r-latin_wide_low_r)/200) shifted centre_pt;
82 anchor_parent[anc_upper_left]=anc_upper_accent;
83 anchor_parent[anc_upper_right]=anc_upper_accent;
84 anchor_parent[anc_upper_ring]=anc_upper_accent;
85 accent_default[anc_caron_comma]=identity shifted (730,vmetric(0.94));
86
87 % this one is for capitals that have NOT been shrunk
88 tsu_xf.cap_upper_accent=identity shifted (500,vmetric(1.05));
89
90 tsu_xf.low_centre_accent=identity
91   scaled ((latin_wide_xheight_r-latin_wide_low_r)/200)
92   shifted (xpart centre_pt,(latin_wide_xheight_r+latin_wide_low_r)/2);

```

# accent.mp

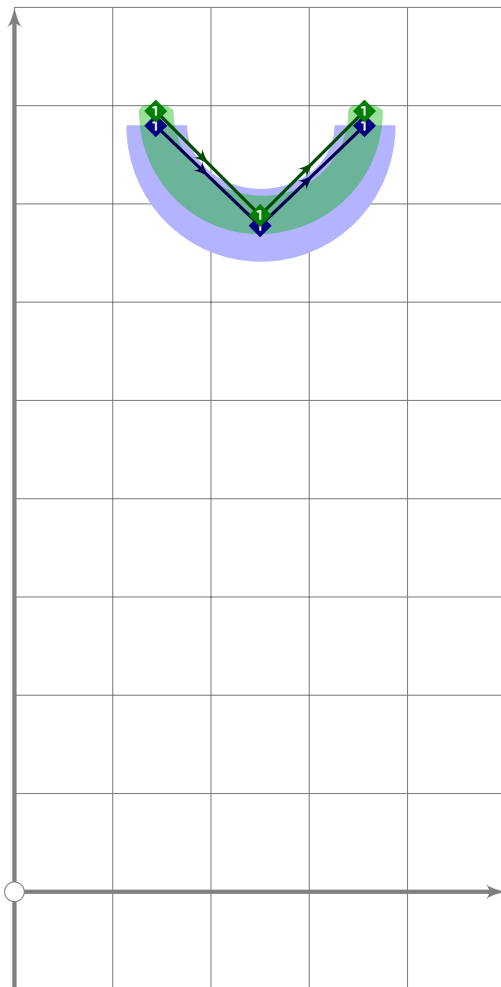
```
1 %  
2 % Accents for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 inclusion_lock(accent);  
32  
33
```

---



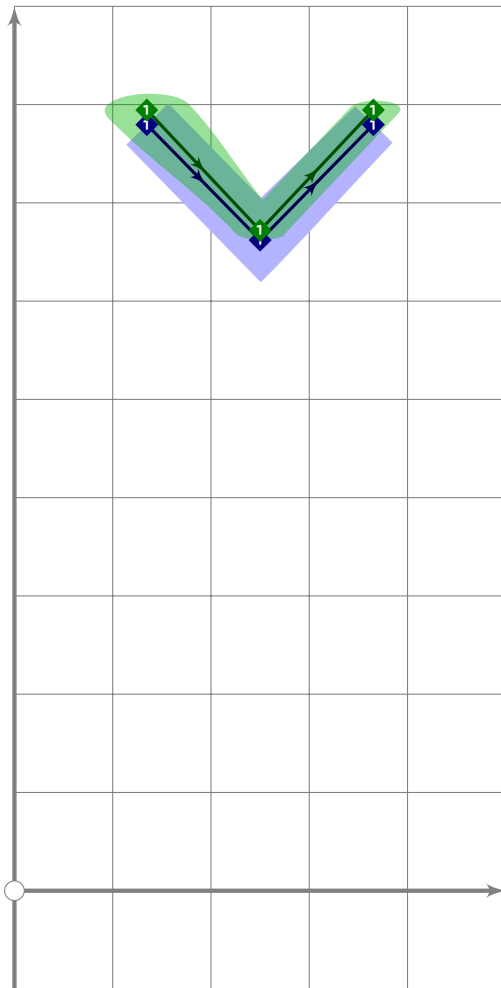
```
34  
35 vardef tsu_accent.acute =  
36   push_anchor(-anc_upper_accent,accent_default[anc_upper_accent]);  
37   push_stroke(  
38     (500+1.5*tsu_punct_size,vmetric(0.95))-  
39     (500-0.5*tsu_punct_size,vmetric(0.78)),  
40     (2,2)-(1.6,1.6)-(1.3,1.3));  
41   replace_strokep(0)(insert_nodes(oldp)(0.5));  
42   set_bosize(0,80);  
43   set_botip(0,1);
```

44 enddef;



```
45
46 vardef tsu_accent.breve =
47   push_anchor(-anc_upper_accent,accent_default[anc_upper_accent]);
48   push_stroke((500-1.3*tsu_punct_size,vmetric(0.95)){down}..
49     (500,vmetric(0.82))..
50     {up}(500+1.3*tsu_punct_size,vmetric(0.95)),
51     (1,1)-(1.9,1.9)-(1,1));
52 enddef;
```





```

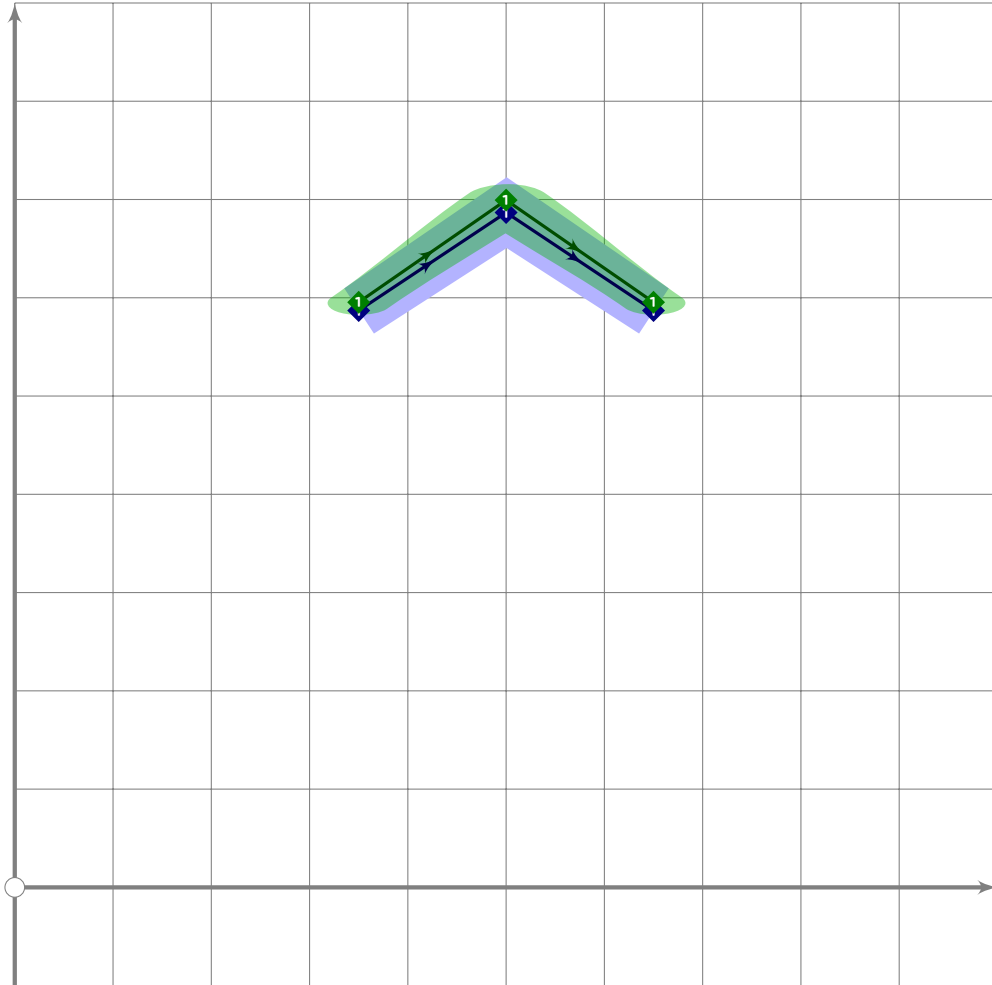
53
54 vardef tsu_accent.caron =
55   push_anchor(-anc_upper_accent,accent_default[anc_upper_accent]);
56   push_stroke((500-1.5*tsu_punct_size,vmetric(0.95))-
57     (500,vmetric(0.80))-
58     (500+1.5*tsu_punct_size,vmetric(0.95)),
59   (2,2)-(1.4,1.4)-(1.4,1.4));
60   set_bosize(0,80);
61   set_botip(0,1,1);
62 enddef;
63
64 vardef tsu_accent.caron_comma =
65   push_anchor(-anc_caron_comma,accent_default[anc_caron_comma]);
66   punct.make_comma((0,0) transformed accent_default[anc_caron_comma],0);
67 enddef;
68
69 vardef tsu_accent.cedilla =
70   push_anchor(-anc_lower_accent,accent_default[anc_lower_accent]);
71   push_stroke(
72     ((0,0)-(-0.3,-1.8){curl 0.7}..(2.6,-2.5)..{curl 0.2}(-2.5,-3.0))
73     scaled (0.5*tsu_punct_size) shifted (500,latin_wide_low_r),

```

```

74 (1.4,1.4)-(1.4,1.4)-(1.7,1.7)-(1.3,1.3));
75 set_bosize(0,80);
76 set_botip(0,1,1);
77 enddef;

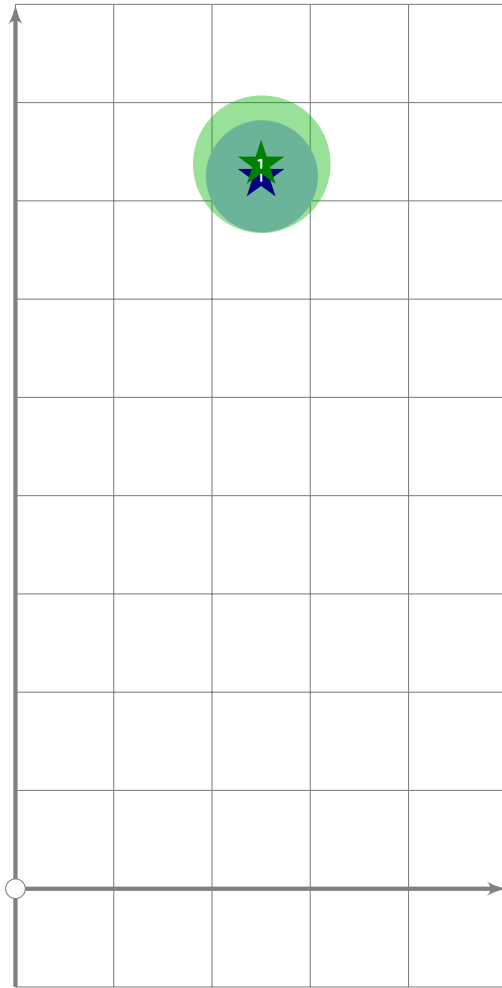
```



```

78
79 vardef tsu_accent.circumflex =
80   push_anchor(-anc_upper_accent,accent_default[anc_upper_accent]);
81   push_stroke((500-1.5*tsu_punct_size,vmetric(0.80))-
82     (500,vmetric(0.95))-
83     (500+1.5*tsu_punct_size,vmetric(0.80)),
84     (1.6,1.6)-(2,2)-(1.6,1.6));
85   set_bosize(0,80);
86   set_botip(0,1,1);
87 enddef;
88
89 vardef tsu_accent.commbelow =
90   push_anchor(-anc_lower_accent,accent_default[anc_lower_accent]);
91   punct.make_comma((0,0) transformed accent_default[anc_lower_accent],0);
92 enddef;

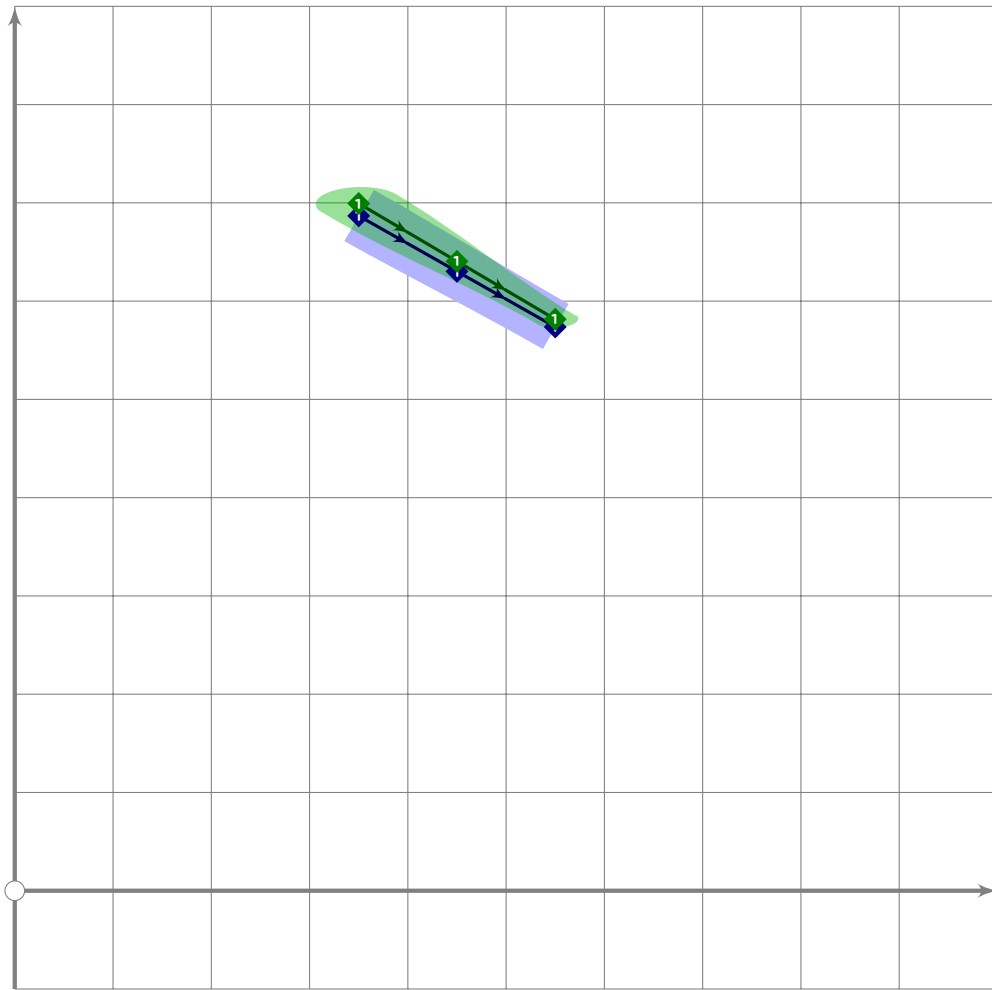
```



```

93
94 vardef tsu_accent.dotabove =
95   push_anchor(-anc_upper_accent,accent_default[anc_upper_accent]);
96   push_lcblob(fullcircle rotated 45 scaled (mbrush_width*1.72+50)
97     shifted ((500,vmetric(0.88))
98       transformed tsu_rescale_xform)
99     transformed inverse tsu_rescale_xform);
100 enddef;

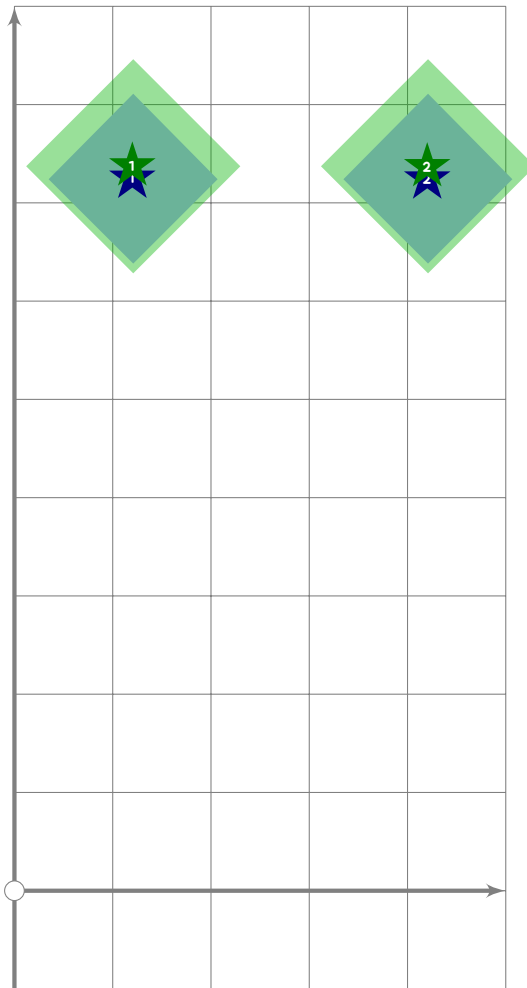
```



```

101
102 vardef tsu_accent.grave =
103   push_anchor(-anc_upper_accent,accent_default[anc_upper_accent]);
104   push_stroke((500-1.5*tsu_punct_size,vmetric(0.95))-
105     (500+0.5*tsu_punct_size,vmetric(0.78)),
106     (2,2)-(1.6,1.6)-(1.3,1.3));
107   replace_stroke(0)(insert_nodes(oldp)(0.5));
108   set_bosize(0,80);
109   set_botip(0,1,1);
110 enddef;

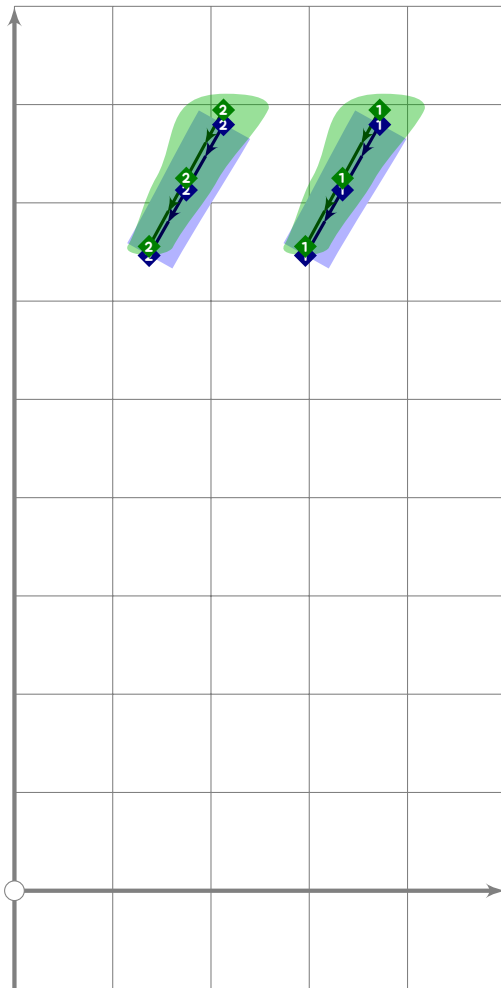
```



```

111
112 vardef tsu_accent.heavy_metal_umlaut =
113   push_anchor(-anc_upper_accent,accent_default[anc_upper_accent]);
114   push_lcblob((up-left-down-right-cycle) scaled (mbrush_width*1.5+30)
115     shifted ((520-1.5*tsu_punct_size,vmetric(0.88))
116       transformed tsu_rescale_xform)
117     transformed inverse tsu_rescale_xform);
118   push_lcblob((up-left-down-right-cycle) scaled (mbrush_width*1.5+30)
119     shifted ((520+1.5*tsu_punct_size,vmetric(0.88))
120       transformed tsu_rescale_xform)
121     transformed inverse tsu_rescale_xform);
122 enddef;

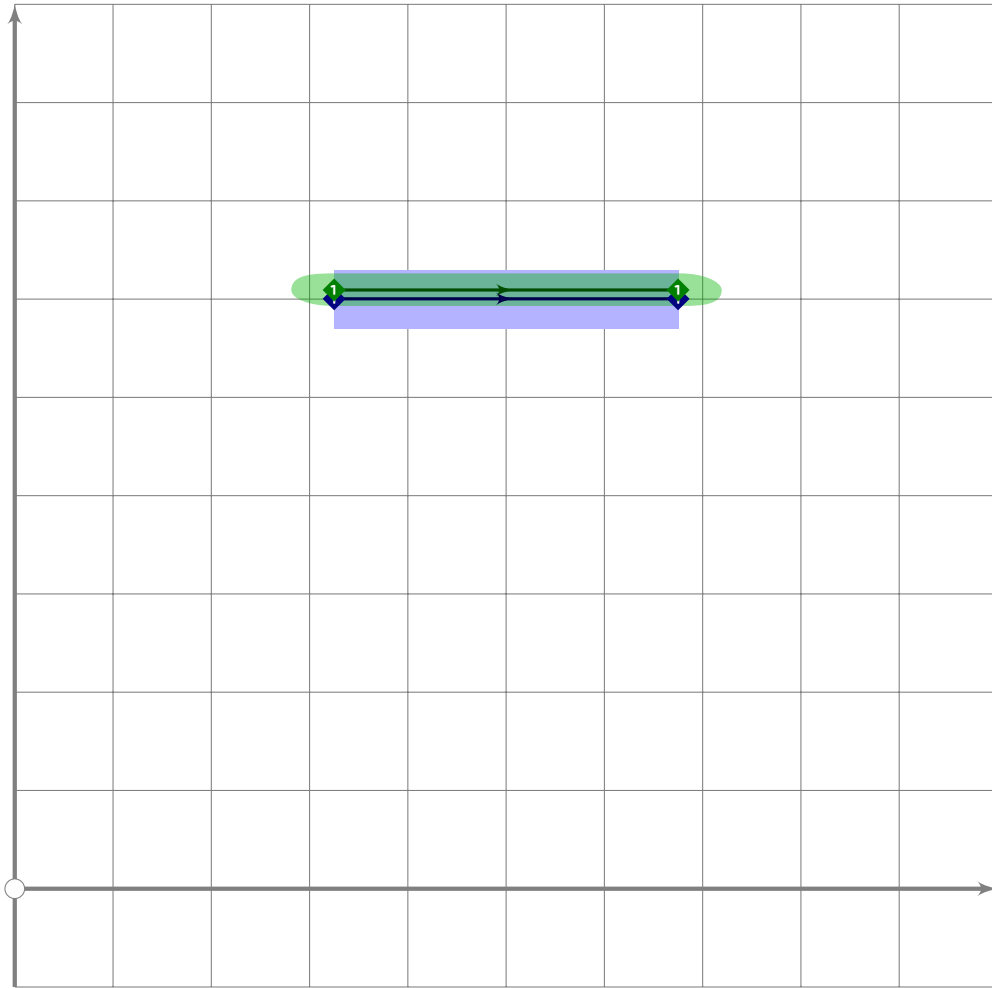
```



```

123
124 vardef tsu_accent.hungarian_umlaut =
125   push_anchor(-anc_upper_accent,accent_default[anc_upper_accent]);
126   push_stroke((500+1.7*tsu_punct_size,vmetric(0.95))-
127     (500+0.7*tsu_punct_size,vmetric(0.78)),
128     (2,2)-(1.6,1.6)-(1.3,1.3));
129   replace_stroke(0)(insert_nodes(oldp)(0.5));
130   set_bosize(0,80);
131   set_botip(0,1,1);
132
133   push_stroke((500-0.4*tsu_punct_size,vmetric(0.95))-
134     (500-1.4*tsu_punct_size,vmetric(0.78)),
135     (2,2)-(1.6,1.6)-(1.3,1.3));
136   replace_stroke(0)(insert_nodes(oldp)(0.5));
137   set_bosize(0,80);
138   set_botip(0,1,1);
139 enddef;

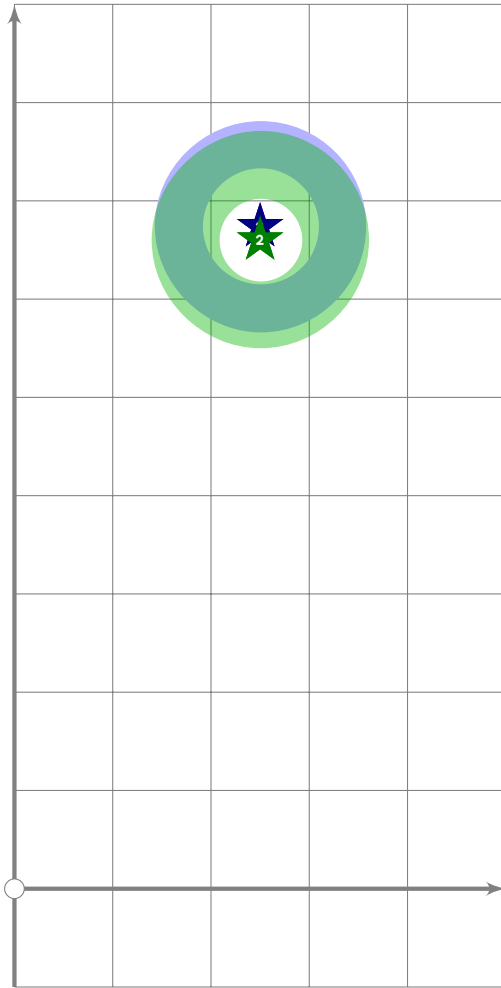
```



```

140
141 vardef tsu_accent.macron =
142   push_anchor(-anc_upper_accent,accent_default[anc_upper_accent]);
143   push_stroke((500-1.75*tsu_punct_size,vmetric(0.82))-
144     (500+1.75*tsu_punct_size,vmetric(0.82)),
145     (2,2)-(2,2));
146   set_bosize(0,80);
147 enddef;

```

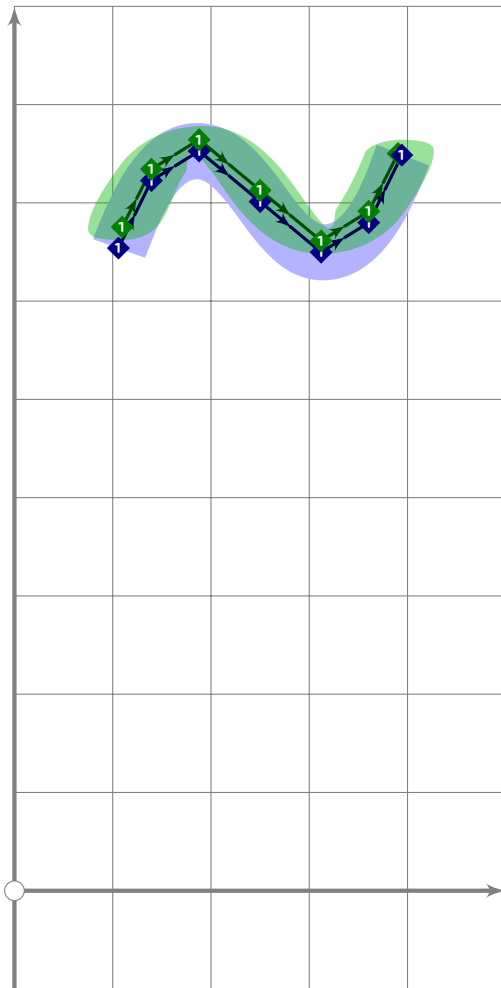


```

148
149 vardef tsu_accent.ringabove =
150   push_anchor(-anc_upper_accent,accent_default[anc_upper_accent]);
151   push_lcblob(fullcircle rotated 45
152     scaled (2*tsu_punct_size+20*tsu_brush_max)
153     shifted ((500,vmetric(0.83-0.03*mincho)-10)
154       transformed tsu_rescale_xform)
155     transformed inverse tsu_rescale_xform);
156   push_lcblob(reverse fullcircle rotated 45
157     scaled (2*tsu_punct_size-110*tsu_brush_max)
158     shifted ((500,vmetric(0.83-0.03*mincho)-10)
159       transformed tsu_rescale_xform)
160     transformed inverse tsu_rescale_xform);
161   enddef;
162
163 vardef tsu_accent.slash =
164   push_anchor(-anc_centre_accent,accent_default[anc_centre_accent]);
165   push_stroke(((100,-130)-(100,130))
166     transformed accent_default[anc_centre_accent],(2,2)-(2,2));
167   set_bosize(0,86);
168   enddef;

```





```

169
170 vardef tsu_accent.tilde =
171   push_anchor(-anc_upper_accent,accent_default[anc_upper_accent]);
172   push_stroke(
173     ((-3.5,-0.5){curl 0}{-1.4,1)..(0,0)..(1.4,-1)..{curl 0}(3.5,0.5))
174     rotated 5 xyscaled (0.7*tsu_punct_size,0.5*tsu_punct_size)
175     shifted (500,vmetric(0.85)),
176     (0.7,2.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-
177     (1.7,1.7)-(0.7,2.7));
178   replace_strokep(0)(insert_nodes(oldp)(0.5,3.5));
179   set_bosize(0,80);
180 enddef;

```



```

181
182 vardef tsu_accent.umlaut =
183   push_anchor(-anc_upper_accent,accent_default[anc_upper_accent]);
184   push_lcblob(fullcircle rotated 45 scaled (mbrush_width*1.72+50)
185     shifted ((520-1.5*tsu_punct_size,vmetric(0.88))
186       transformed tsu_rescale_xform)
187     transformed inverse tsu_rescale_xform);
188   push_lcblob(fullcircle rotated 45 scaled (mbrush_width*1.72+50)
189     shifted ((520+1.5*tsu_punct_size,vmetric(0.88))
190       transformed tsu_rescale_xform)
191     transformed inverse tsu_rescale_xform);
192 enddef;
193
194
195
196 vardef tsu_accent.capital(text curves) =
197   tsu_xform(tsu_xf.accentedcap)(curves);
198   if get_anchor_with_default(anc_upper_accent,identity)=identity:
199     push_anchor(anc_upper_accent,
200       accent_default[anc_upper_accent]
201       shifted (0,vmetric(0.98)-vmetric(0.8)));

```

```

202 fi;
203 enddef;
204
205 vardef tsu_accent.apply(text basecurves)(text markcurves) =
206 begingroup;
207   save xsp,ysp,bmi,mbi,bmt,killflag;
208   numeric xsp,ysp,bmi,mbi;
209   transform bmt;
210   boolean killflag;
211   basecurves;
212   xsp:=sp;
213   markcurves;
214   killflag:=false;
215   for i:=sp-1 downto xsp:
216     if obstacktype[i]=otanchor:
217       if obstackn[i]<0:
218         mbi:=i;
219         killflag:=true;
220         fi;
221         fi;
222         exitif killflag;
223   endfor;
224   bmt:=accent_default[-obstackn[mbi]];
225   killflag:=false;
226   for i:=xsp-1 downto 1:
227     if obstacktype[i]=otanchor:
228       if obstackn[i]=-obstackn[mbi]:
229         bmi:=i;
230         bmt:=obstackt[i];
231         killflag:=true;
232         fi;
233         fi;
234         exitif killflag;
235   endfor;
236   obstacktype[mbi]=otnull;
237   if known bmi:
238     obstacktype[bmi]=otnull;
239   fi;
240   ysp:=sp;
241   sp:=xsp;
242   tsu_xform((inverse obstackt[mbi]) transformed bmt)(sp:=ysp);
243 endgroup;
244 enddef;

```

## bcircle.mp

```
1 %
2 % Bounding circle algorithm of E. Welzl
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(bcircle);
32
33 % swap points in pts[] array
34 vardef swap_pts(expr a,b)=
35   pair tmppt;
36   tmppt:=pts[a];
37   pts[a]:=pts[b];
38   pts[b]:=tmppt;
39 enddef;
40
41 % compute bounding circle on up to three points
42 vardef bcircle.basis(expr rstart,rend) =
43   if rend<=rstart+1:
44     identity
45   else:
46     begingroup
47       save x,y,myt;
48       numeric x[],y[];
49       transform myt;
50       z1=pts[rstart];
51       z2=pts[rstart+1];
52       xypart myt=0;
53       yxpart myt=0;
54       if rend=rstart+2:
55         z3=(z1+z2)/2;
56         (0,0) transformed myt=(z1+z2)/2;
57         xxpart myt=yypart myt=abs(z1-z3);
58       else:
59         z3=pts[rstart+2];
60         z4=(z1+z2)/2;
61         z5=(z1+z3)/2;
62         z6=z4+whatever*((z2-z1) rotated 90);
63         z6=z5+whatever*((z3-z1) rotated 90);
64         (0,0) transformed myt=z6;
65         xxpart myt=yypart myt=abs(z1-z6);
66       fi;
67       myt
68     endgroup
69   fi
70 enddef;
```

```

71
72 % recursion to compute bounding circle.
73 % Input point sets are in pts[] array, arguments are indices into it
74 vardef bcircle.internal(expr pstart,rstart,rend) =
75   if (pstart=rstart) or (rend-rstart=3):
76     bcircle.basis(rstart,rend)
77   else:
78     begingroup
79     transform d;
80     pind:=floor ((rstart-pstart)*uniformdeviate 1)+pstart;
81     swap_pts(pstart,pind);
82     d=bcircle.internal(pstart+1,rstart,rend);
83     pair xpt;
84     xpt transformed d=pts[pstart];
85     if abs(xpt)>1:
86       swap_pts(pstart,(rstart-1));
87       d:=bcircle.internal(pstart,rstart-1,rend);
88     fi;
89     d
90   endgroup
91   fi
92 enddef;
93
94 % wrapper for bounding circle algorithm - compute bcircle of points
95 vardef bcircle.points(text txt) =
96   begingroup
97     save d,tmppt,pind,xpt,pts,pcnt;
98     pcnt:=0;
99     for myp=txt:
100       pts[pcnt]:=myp;
101       pcnt:=pcnt+1;
102     endfor;
103     bcircle.internal(0,pcnt,pcnt)
104   endgroup
105 enddef;
106
107 % wrapper for bounding circle algorithm - compute bcircle of paths
108 vardef bcircle.paths(text txt) =
109   begingroup
110     save d,tmppt,pind,xpt,pts,pcnt;
111     pcnt:=0;
112     for myp=txt:
113       for i=0 step 0.1 until length myp:
114         pts[pcnt]:=point i of myp;
115         pcnt:=pcnt+1;
116       endfor
117     endfor;
118     bcircle.internal(0,pcnt,pcnt)

```

```
119 endgroup  
120 enddef;
```

# bottomrad.mp

```
1 %
2 % Radicals for bottom (often special forms of other radicals)
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(bottomrad);
32
33 

---


34
35 vardef kanji.bottomrad.four_ticks =
36   push_pbox_toexpand("kanji.bottomrad.four_ticks");
37   push_stroke((210,750)..tension 1.2..(160,250)..(100,-30),
38     (1,1)-(1.3,1.3)-(1.8,1.8));
39   push_stroke((350,700)..tension 1.2..(390,300)..(400,-50),
40     (1.1,1.1)-(1.4,1.4)-(1.9,1.9));
41   push_stroke((540,750)..tension 1.2..(610,320)..(630,-40),
42     (1.1,1.1)-(1.4,1.4)-(1.9,1.9));
43   push_stroke((740,800)..tension 1.2..(850,360)..(890,-20),
44     (1.1,1.1)-(1.4,1.4)-(1.9,1.9));
45   expand_pbox;
46 enddef;
47
48 vardef kanji.bottomrad.heart =
49   push_pbox_toexpand("kanji.bottomrad.heart");
50   tsu_xform(identity shifted (-100,0))
51     (push_stroke((450,670),(1.6,1.6));
52     build_kanji.add_tail(0));
53   set_boserif(0,0,10);
54   push_stroke((210,540)..tension 1.2..(130,280)..(60,150),
55     (1,1)-(1.5,1.5)-(1.8,1.8));
56   push_stroke((500,720)..tension 1.2..(570,520)..(600,270),
57     (1,1)-(1.3,1.3)-(1.6,1.6));
58   push_stroke((790,540)..tension 1.2..(880,310)..(930,130),
59     (1,1)-(1.5,1.5)-(1.8,1.8));
60   expand_pbox;
61 enddef;
62
63 vardef kanji.bottomrad.moon =
64   push_pbox_toexpand("kanji.bottomrad.moon");
65   push_stroke((250,-20)..{up}(250,760)-(750,760),
66     (1.4,1.4)-(1.6,1.6)-(1.6,1.6));
67   build_kanji.add_tail(0);
68   set_botip(0,1,1);
69   set_botip(0,2,1);
70   set_boserif(0,1,4);
```

```
71 set_bosserif(0,2,4);
72 push_stroke((250,520)-(750,520),
73   (1.5,1.5)-(1.5,1.5));
74 push_stroke((250,270)-(750,270),
75   (1.5,1.5)-(1.5,1.5));
76 expand_pbox;
77 endif;
```



# dakuten.mp

```
1 %
2 % Dakuten and handakuten for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(dakuten);
32
33 

---


34
35 vardef dakuten(expr xf) =
36   push_pbox_explicit("dakuten",
37     identity shifted (-0.4,-0.5) scaled 200 rotated -50 transformed xf);
38
39   push_stroke(((0,80)..(50,30)..(100,-30)) transformed xf,
40     (1,1)..(1.4,1.4)..(1.8,1.8));
41   set_bosize(0,85);
42   set_boserif(0,2,4);
43
44   push_stroke(((0,80)..(50,30)..(100,-30)) transformed xf,
45     (1,1)..(1.4,1.4)..(1.8,1.8));
46   set_bosize(0,85);
47   set_boserif(0,2,4);
48 enddef;
49
50 vardef handakuten(expr location) =
51   push_lcblob(fullcircle scaled handakuten_outer shifted location
52     transformed inverse tsu_rescale_xform);
53   push_lcblob(reverse fullcircle scaled handakuten_inner shifted location
54     transformed inverse tsu_rescale_xform);
55 enddef;
```

# enclosed.mp

```
1 %
2 % Enclosed characters for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(enclosed);
32
33 

---


34
35 vardef circle.single =
36   Fill fullcircle scaled (810+53*tsu_brush_max) shifted centre_pt;
37   unFill reverse fullcircle scaled (810-53*tsu_brush_max) shifted centre_pt;
38 enddef;
39
40 vardef circle.double =
41   Fill fullcircle scaled (880+60*tsu_brush_max) shifted centre_pt;
42   unFill reverse fullcircle scaled (880-20*tsu_brush_max) shifted centre_pt;
43   Fill fullcircle scaled (740+40*tsu_brush_max) shifted centre_pt;
44   unFill reverse fullcircle scaled (740-40*tsu_brush_max) shifted centre_pt;
45 enddef;
46
47 vardef square.single(text curves) =
48   tsu_xform(tsu_xf.sletter)(curves);
49   push_stroke(
50     (500,790)-(100,790)-(100,-10)-(900,-10)-(900,790)-cycle,
51     (2,2)-(2,2)-(2,2)-(2,2)-(2,2)-cycle);
52   set_bosize(0,80);
53   set_botip(0,1,1);
54   set_botip(0,2,1);
55   set_botip(0,3,1);
56   set_botip(0,4,1);
57 enddef;
58
59 

---


60
61 transform tsu_xf.circled;
62 xypart tsu_xf.circled=yypart tsu_xf.circled=0.68;
63 xypart tsu_xf.circled=yxpart tsu_xf.circled=0;
64 centre_pt transformed tsu_xf.circled=centre_pt;
65
66 transform tsu_xf.cletter;
67 xypart tsu_xf.cletter=yypart tsu_xf.cletter=0.56;
68 xypart tsu_xf.cletter=yxpart tsu_xf.cletter=0;
69 centre_pt transformed tsu_xf.cletter=centre_pt;
70
```

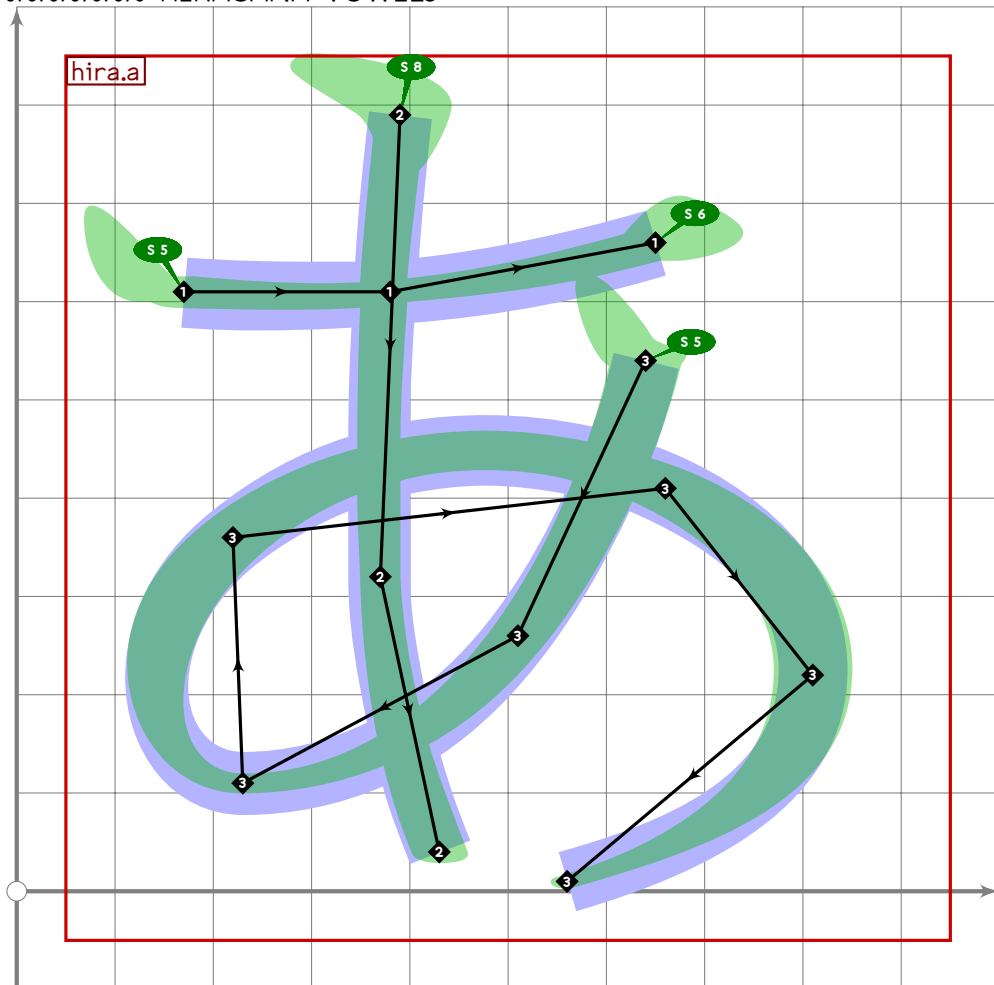
```
71 transform tsu_xf.ctwo.left;
72 xxpart tsu_xf.ctwo.left=yypart tsu_xf.ctwo.left=0.48;
73 xypart tsu_xf.ctwo.left=yxpart tsu_xf.ctwo.left=0;
74 (centre_pt+290*right) transformed tsu_xf.ctwo.left=centre_pt;
75
76 transform tsu_xf.ctwo.right;
77 xxpart tsu_xf.ctwo.right=yypart tsu_xf.ctwo.right=0.48;
78 xypart tsu_xf.ctwo.right=yxpart tsu_xf.ctwo.right=0;
79 (centre_pt+310*left) transformed tsu_xf.ctwo.right=centre_pt;
80
81 transform tsu_xf.sletter;
82 xxpart tsu_xf.sletter=yypart tsu_xf.sletter=0.71;
83 xypart tsu_xf.sletter=yxpart tsu_xf.sletter=0;
84 centre_pt transformed tsu_xf.sletter=centre_pt+10*up;
85
86 _____
87
88 transform tsu_xf.cbound;
89 tsu_xf.cbound=identity scaled 340 shifted centre_pt;
```

# hiragana.mp

```
1 %  
2 % Hiragana for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 inclusion_lock(hiragana);  
32  
33  
34
```

## Hiragana Vowels

```
35 %%%%%%%%%% HIRAGANA VOWELS
```

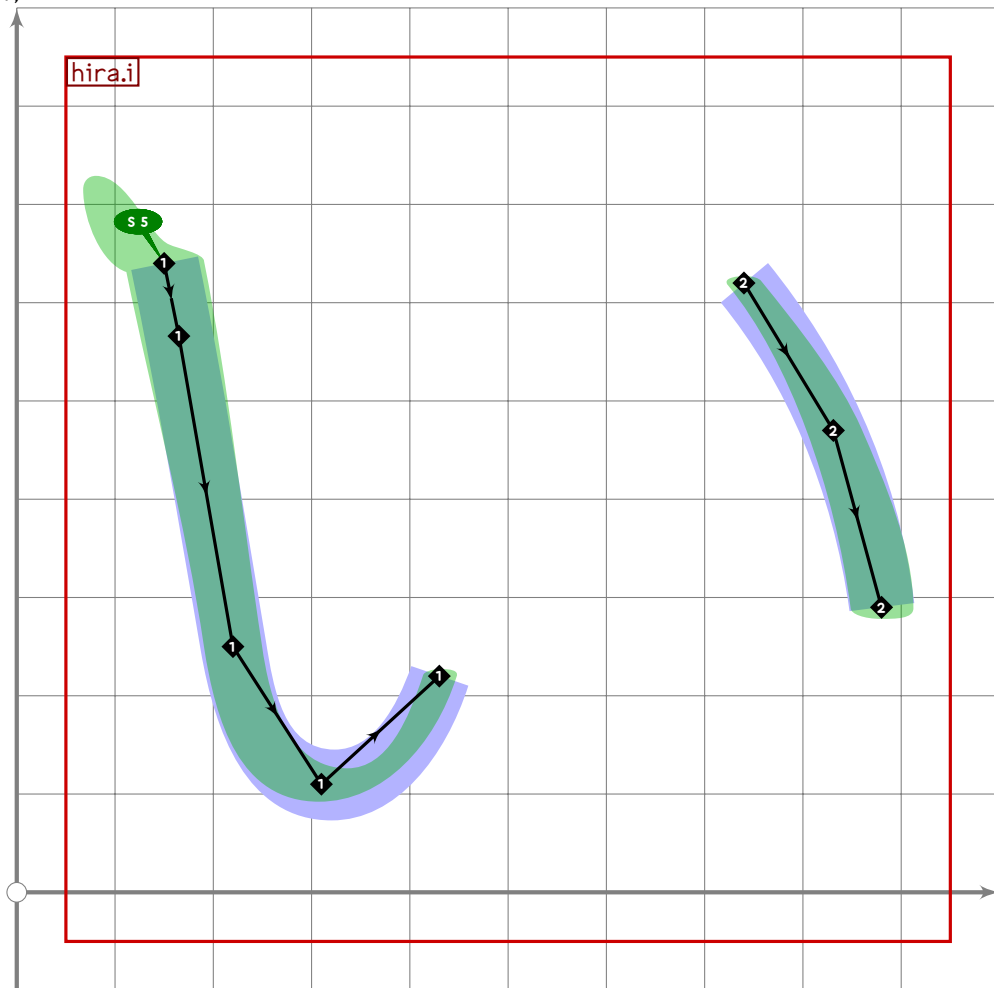


```
36  
37 vardef hira.a =  
38   push_pbox_toexpand("hira.a");  
39  
40   push_stroke((170,610)..(380,610)..(650,660),  
41     (1.6,1.7)-(1.4,1.4)-(1.6,1.6));
```

```

42 set_boserif(0,0,5);
43 set_boserif(0,2,6);
44
45 push_stroke((390,790)..tension 1.5..(370,320)..(430,40),
46   (1.2,1.2)-(1.1,1.1)-(1.3,1.3));
47 set_boserif(0,0,8);
48
49 push_stroke((640,540)..tension 1.2..(510,260)..(230,110){left}..
50   (220,360)..(660,410)..(810,220)..{curl 0}(560,10),
51   (1.5,1.5)-(1.4,1.4)-(1.2,1.2)-
52   (1.7,1.7)-(1.8,1.8)-(1.6,1.6)-(1,1));
53 set_boserif(0,0,5);
54 expand_pbox;
55 enddef;

```



```

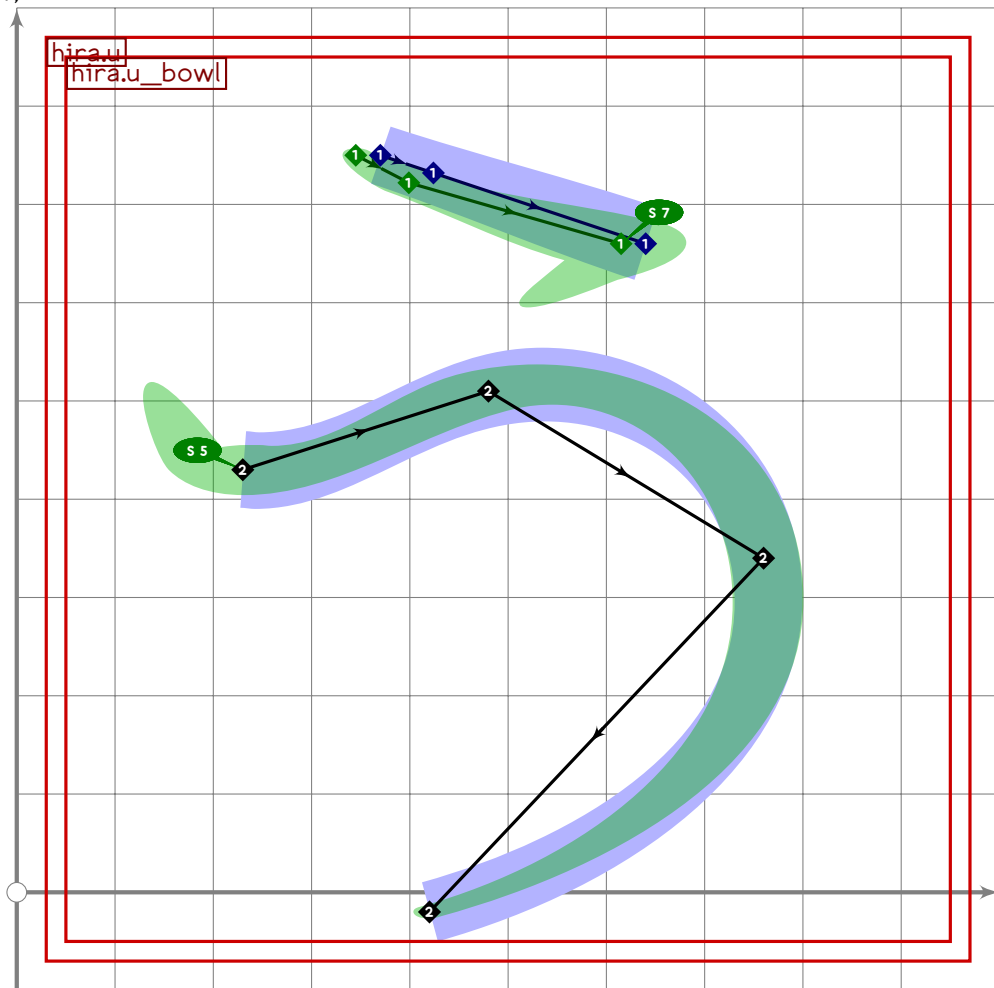
56
57 vardef hira.i =
58   push_pbox_toexpand("hira.i");
59
60   push_stroke((150,640)..(165,566)..(220,250)..(310,110)..{curl 0.1}(430,220),
61     (1.6,1.6)..(1.6,1.6)..(1.3,1.3)..(1.8,1.8)..(1,1));
62   set_boserif(0,0,5);

```

```

63
64 push_stroke((740,620)..(831,470)..(880,290),
65 (1,1)..(1.3,1.3)..(1.4,1.4));
66 expand_pbox;
67 enddef;
68
69 vardef hira.u_bowl =
70 push_pbox_toexpand("hira.u_bowl");
71
72 push_stroke((230,430){dir 355}..(480,510)..(760,340)..{curl 0.1}(420,-20),
73 (2.3,2.3)..(2,2)..(1.5,1.5)..(1,1));
74 set_boserif(0,0,5);
75 expand_pbox;
76 enddef;

```



```

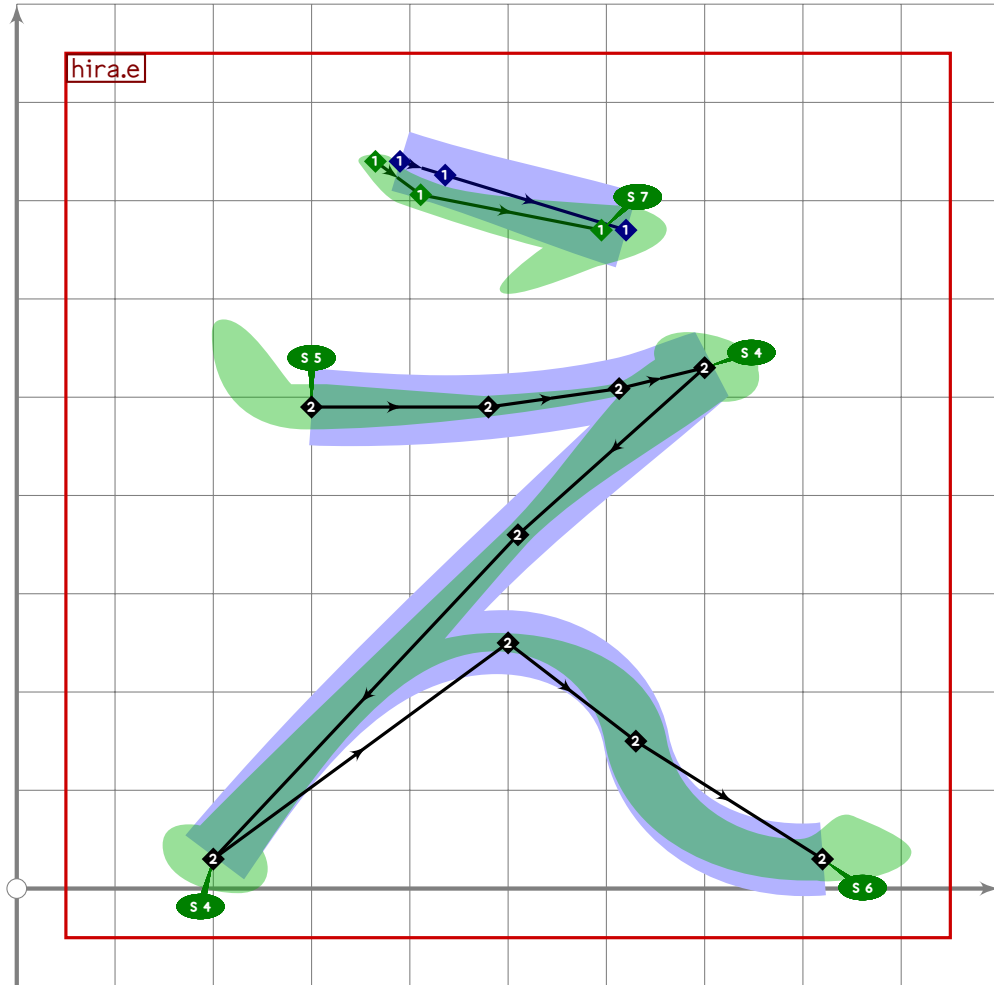
77
78 vardef hira.u =
79 push_pbox_toexpand("hira.u");
80
81 push_stroke(((370,750)..(0.2[(370,750),(640,660)]+10*down*mincho)..
82 tension 2..(640,660)) shifted (25*left*mincho),
83 (1,1)..(1.4,1.4)..(2.3,2.3));

```

```

84 set_boserif(0,2,7);
85
86 hira.u_bowl;
87 expand_pbox;
88 enddef;

```



```

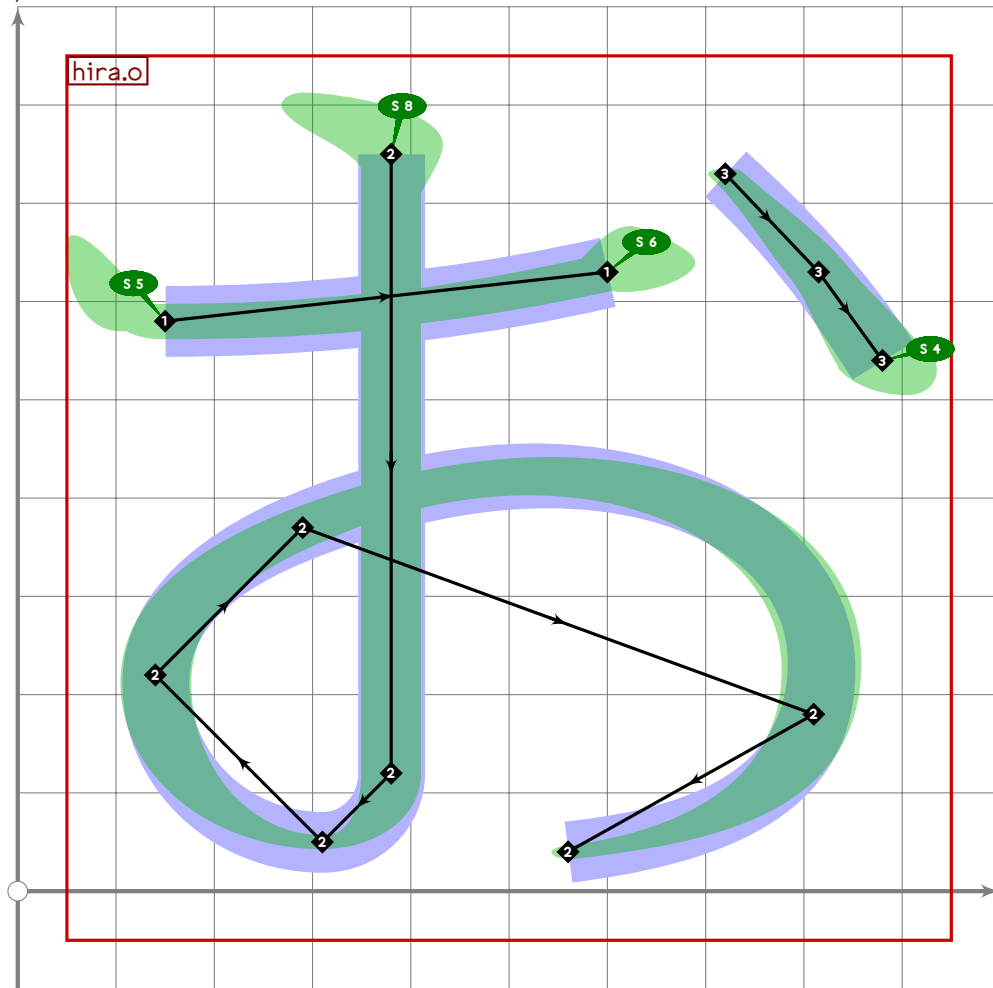
89
90 vardef hira.e =
91   push_pbox_toexpand("hira.e");
92
93   push_stroke(((390,740)..(0.2[(390,740),(620,670)]+20*down*mincho)..
94     tension 2..(620,670)) shifted (25*left*mincho,
95     (1,1)..(14,14)..(2.3,2.3));
96   set_boserif(0,2,7);
97
98   push_stroke((300,490)..(480,490)..{curl 1}{700,530}{curl 1}..
99     (510,360)..{curl 1}{200,30}{curl 0}..
100     (500,250)..(630,150){dir 280}{dir 5}{820,30},
101     (2.2,2.2)-(1.3,1.3)-(1,1)-(2.01,2.01)
102     -(1,1)-(1.7,1.7)
103     -(1.2,1.2)-(1.4,1.4)-(2,2));
104   replace_strokep(0)(insert_nodes(oldp)(1.6));

```

```

105 set_botip(0,3,0);
106 set_botip(0,5,0);
107 set_boserif(0,0,5);
108 set_boserif(0,3,4);
109 set_boserif(0,5,4);
110 set_boserif(0,8,6);
111 expand_pbox;
112 enddef;

```



```

113
114 vardef hira.o =
115   push_pbox_toexpand("hira.o");
116
117   push_stroke((150,580){right}..(600,630),
118     (1.8,1.8)..(1.8,1.8));
119   set_boserif(0,0,5);
120   set_boserif(0,1,6);
121
122   push_stroke((380,750)..(380,120){down}..(310,50){left}..tension 1.1..
123     (140,220)..(290,370)..(810,180)..fcurl 0}(560,40),
124     (1.4,1.4)..(1.3,1.3)..(1,1)..(1.5,1.5)..(1.6,1.6)..
125     (1.6,1.6)..(1,1));

```



```

126 set_boserif(0,0,8);
127
128 push_stroke((720,730)..(815,630)..(880,540),
129   (1,1)..(14,14)..(18,18));
130 set_boserif(0,2,4);
131 expand_pbox;
132 enddef;
133

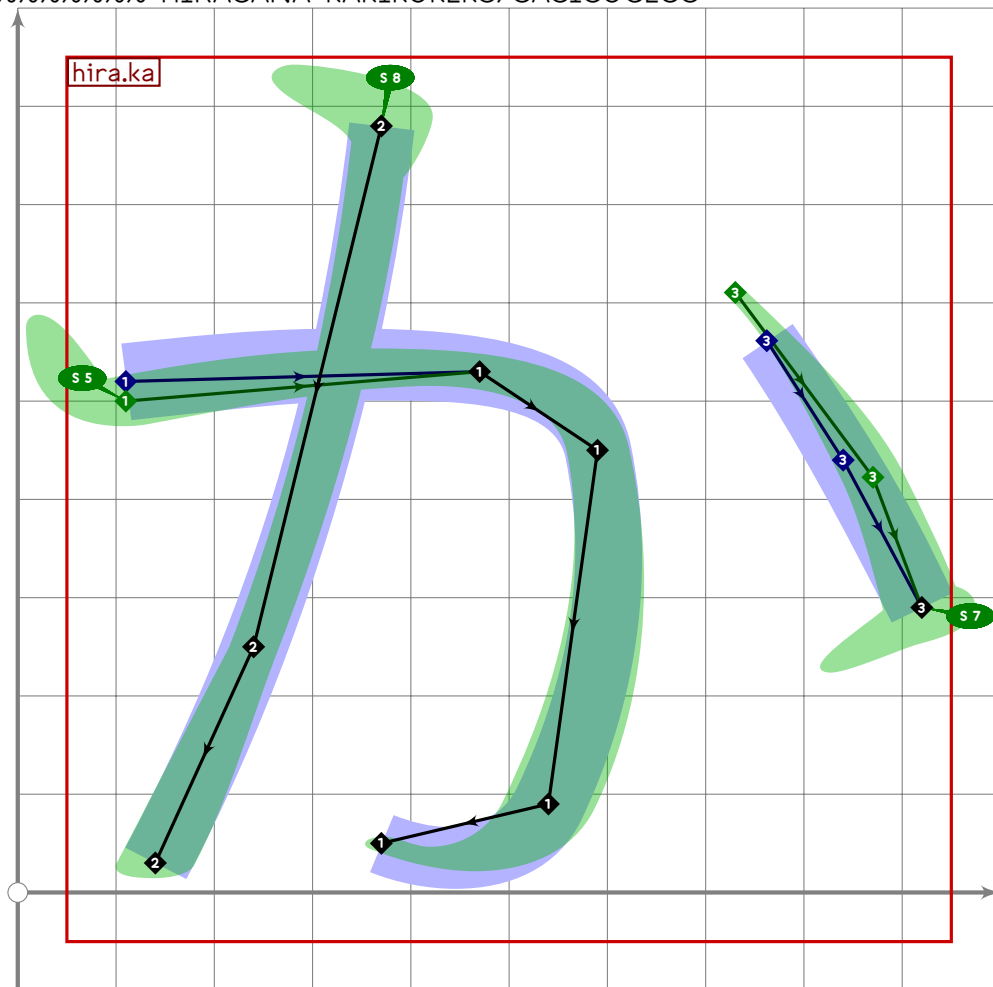
```

## Hiragana Kakikukeko/Gagigugego

```

134 %%%%%%%%%% HIRAGANA KAKIKUKEKO/GAGIGUGEGO

```



```

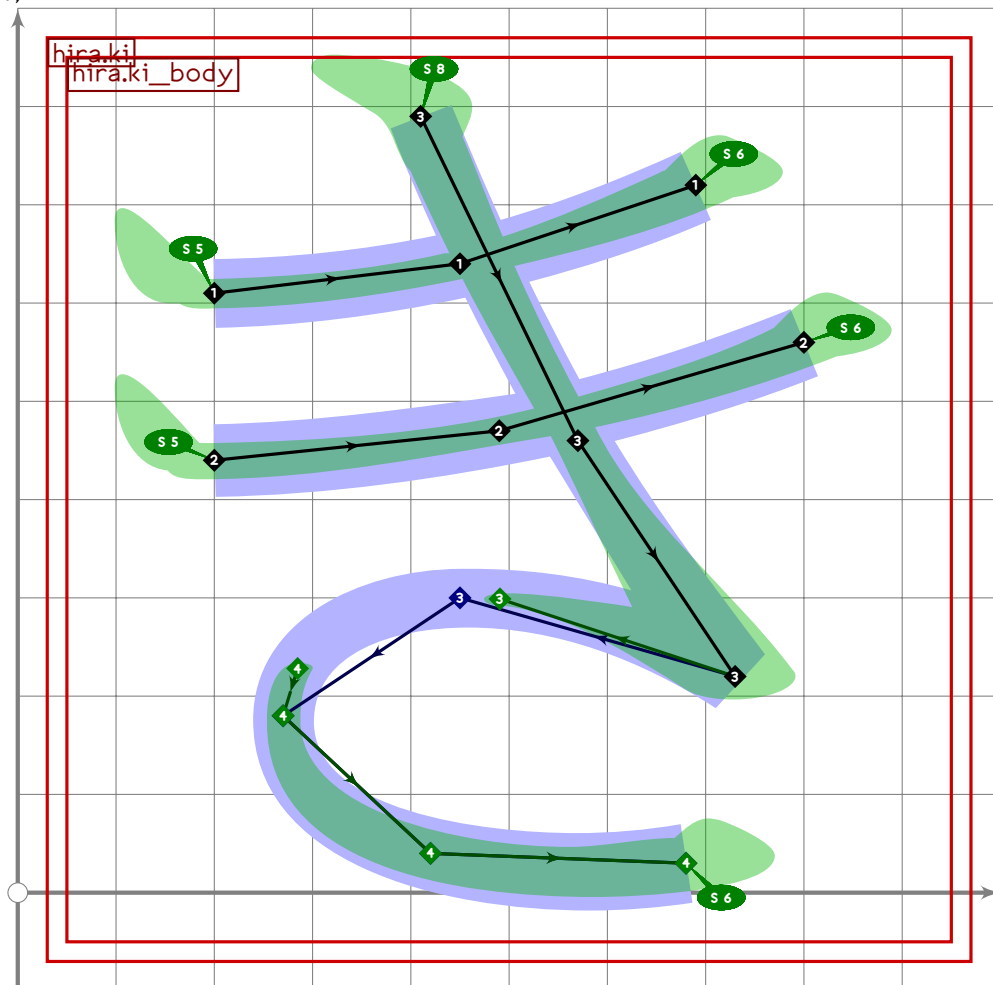
135
136 vardef hira.ka =
137   push_pbox_toexpand("hira.ka");
138
139   push_stroke(((110,520)+20*mincho*down){curl 0}..(470,530)..(590,450)..
140     tension 2..(540,90)..{curl 0.3}(370,50),
141     (2.3,2.3)..(1.7,1.7)..(1.4,1.4)..(1.8,1.8)..(1,1));
142   set_boserif(0,0,5);
143
144   push_stroke((370,780)..(240,250)..(140,30),

```

```

145 (1.3,1.3)..(1.2,1.2)..(1.6,1.6));
146 set_boserif(0,0,8);
147
148 push_stroke((720,620)..((840,440)+35*mincho*(dir -30))..(920,290),
149 (0,8,0.8)..(1.4,1.4)..(1.6,1.6));
150 set_boserif(0,2,7);
151 expand_pbox;
152 enddef;
153
154 vardef hira.ki_body =
155 push_pbox_toexpand("hira.ki_body");
156
157 push_stroke((410,790)..(570,460)..{curl 1}(730,220){curl 1}..
158 (450,300)..(270,180)..(420,40)..(680,30),
159 (1.4,1.4)-(1.2,1.2)-(2.3,2)-(0.60,1)..(0.9,1)..
160 (2.1,2.1)..(2.4,2.4));
161 set_botip(0,2,0);
162 set_boserif(0,0,8);
163 set_boserif(0,6,6);
164 expand_pbox;
165 enddef;

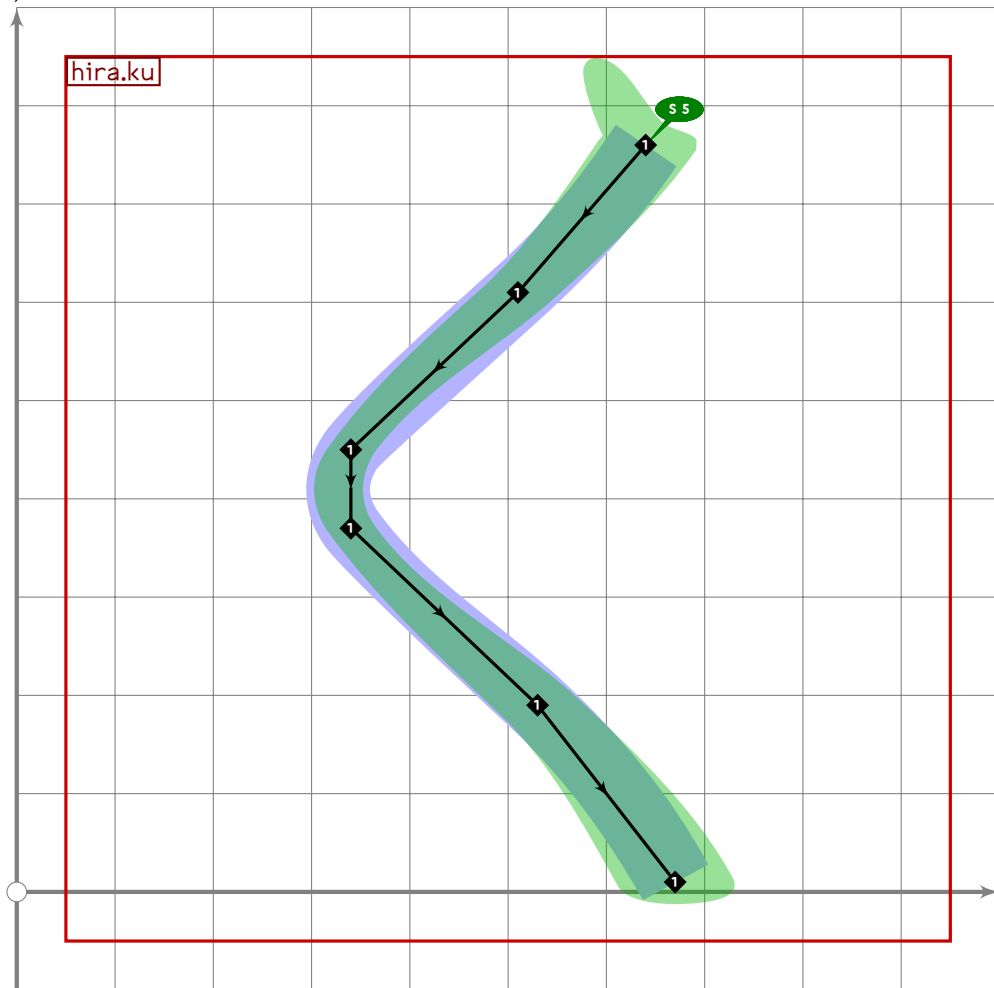
```



```

166
167 vardef hira.ki =
168   push_pbox_toexpand("hira.ki");
169
170   push_stroke((200,610)..(450,640)..(690,720),
171     (1.6,1.6)-(1.4,1.4)-(1.9,1.9));
172   set_boserif(0,0,5);
173   set_boserif(0,2,6);
174
175   push_stroke((200,440)..(490,470)..(800,560),
176     (1.9,1.9)-(1.5,1.5)-(1.9,1.9));
177   set_boserif(0,0,5);
178   set_boserif(0,2,6);
179
180   hira.ki_body;
181   expand_pbox;
182 enddef;

```



```

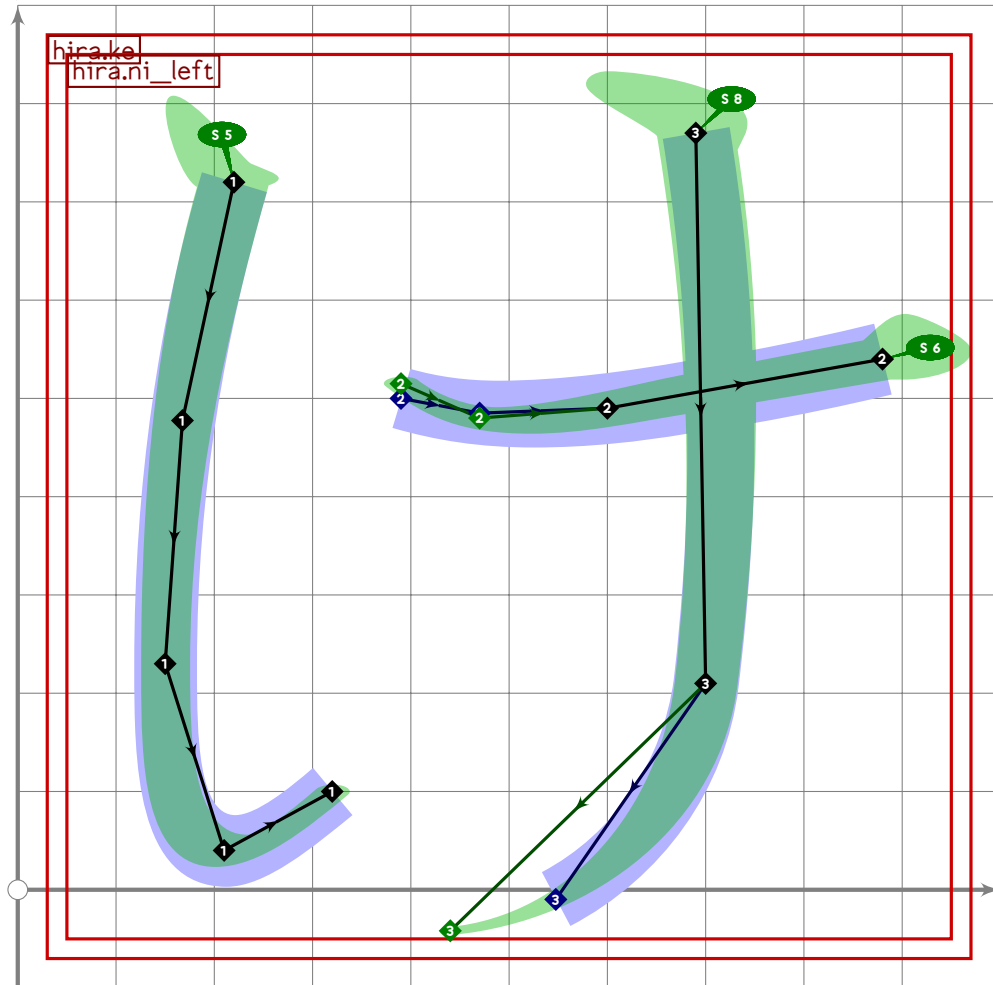
183
184 vardef hira.ku =
185   push_pbox_toexpand("hira.ku");
186

```

```

187 push_stroke((640,760)..(510,610)..(340,450)..
188     tension 0.75..(340,370)..(530,190)..(670,10),
189     (1,9)..(1,6)..(1,2)..(1,2)..(1,7)..(2,1));
190 set_boserif(0,0,5);
191 expand_pbox;
192 enddef;

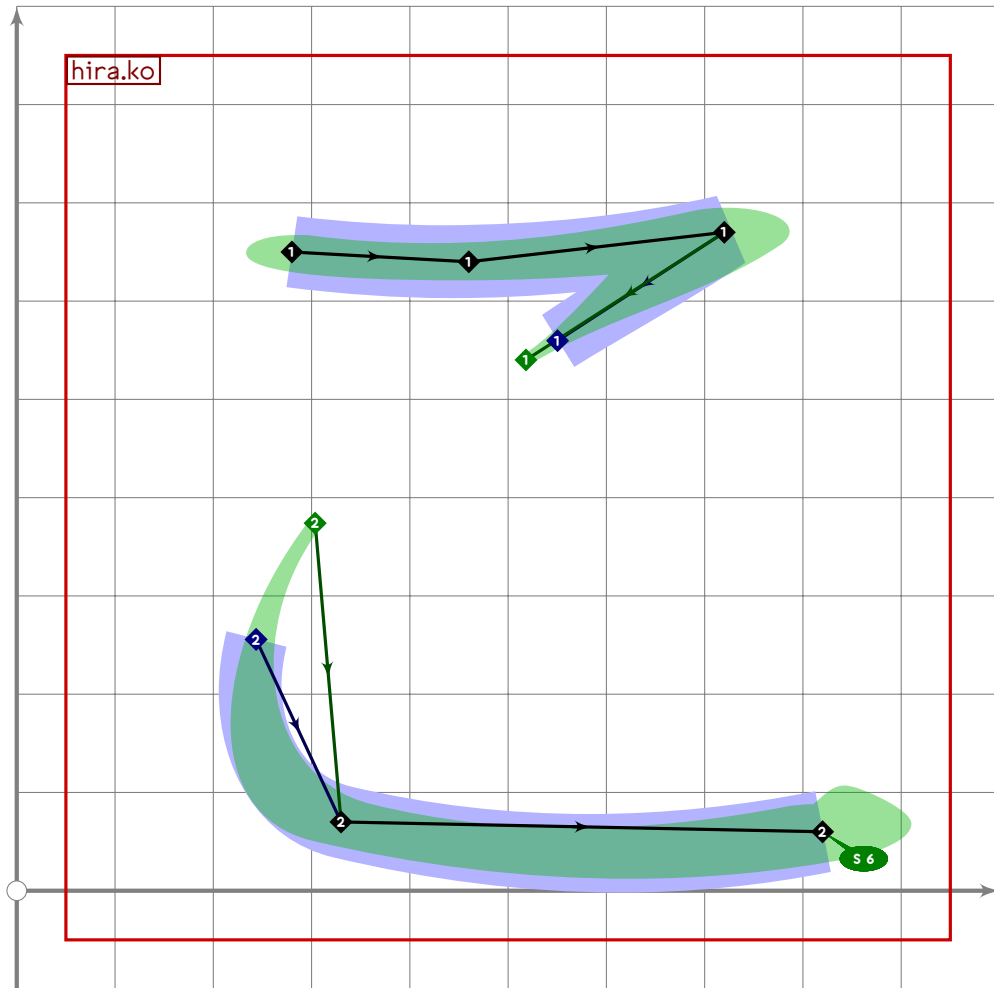
```



```

193
194 vardef hira.ke =
195     push_pbox_toexpand("hira.ke");
196
197     hira.ni_left;
198
199     push_stroke((390,500+15*mincho)..(470,485-5*mincho)..(600,490)..(880,540),
200         (1,1)..(1,4)..(1,8)..(2,2));
201     set_boserif(0,3,6);
202
203     push_stroke((690,770)..tension 2..(700,210)..(280,-10),
204         (1,6)-(1,4)-(0,6));
205     set_boserif(0,0,8);
206     expand_pbox;
207 enddef;

```



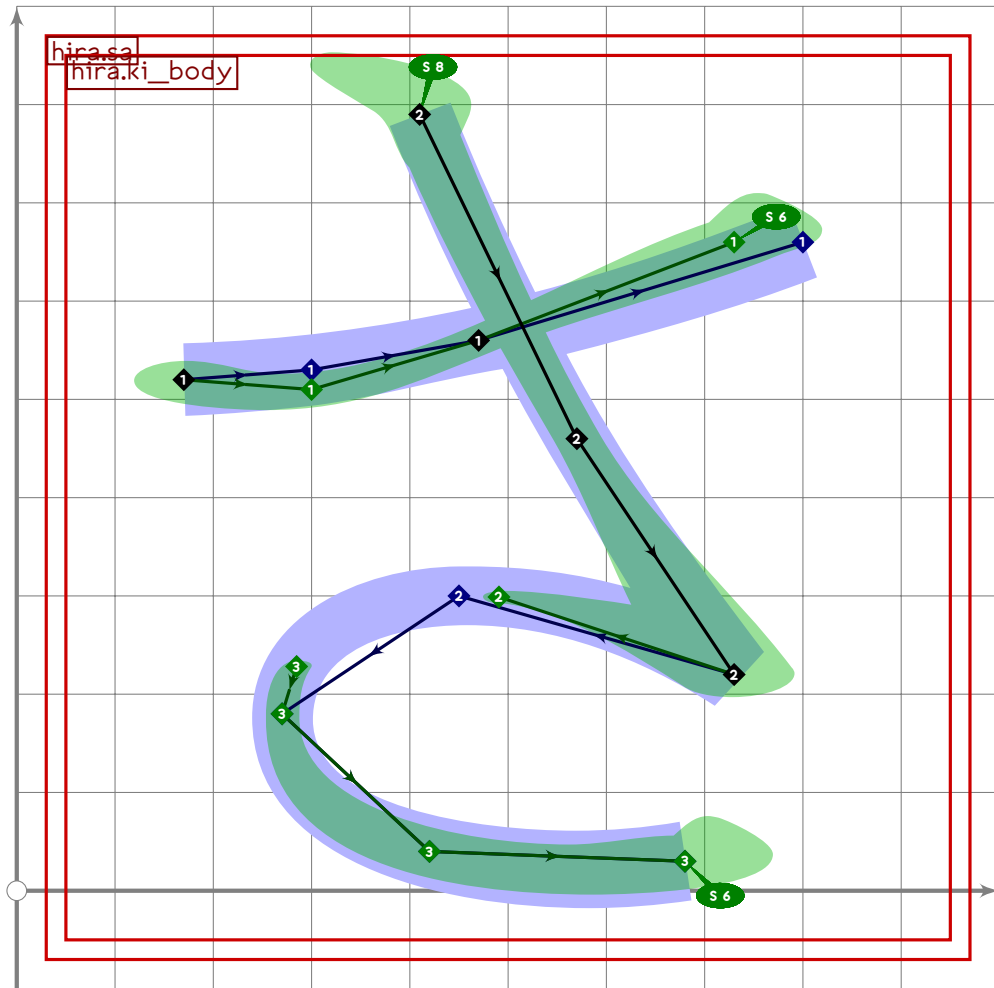
```

208
209 vardef hira.ko =
210   push_pbox_toexpand("hira.ko");
211
212   push_stroke((280,650)..(460,640)..{curl 1}(720,670){curl 1}..
213     (450,500)..(330,70)..tension 2.4..(820,60),
214     (1.8,1.8)-(1.9,1.9)-(2.3,2.3)-
215     (0.35,0.25)-(2.2,1.8)..(2.8,2.4));
216   set_botip(0,2,0);
217   set_boserif(0,5,6);
218   expand_pbox;
219 enddef;
220

```

## Hiragana Sashisuseso/Zajizuzezo

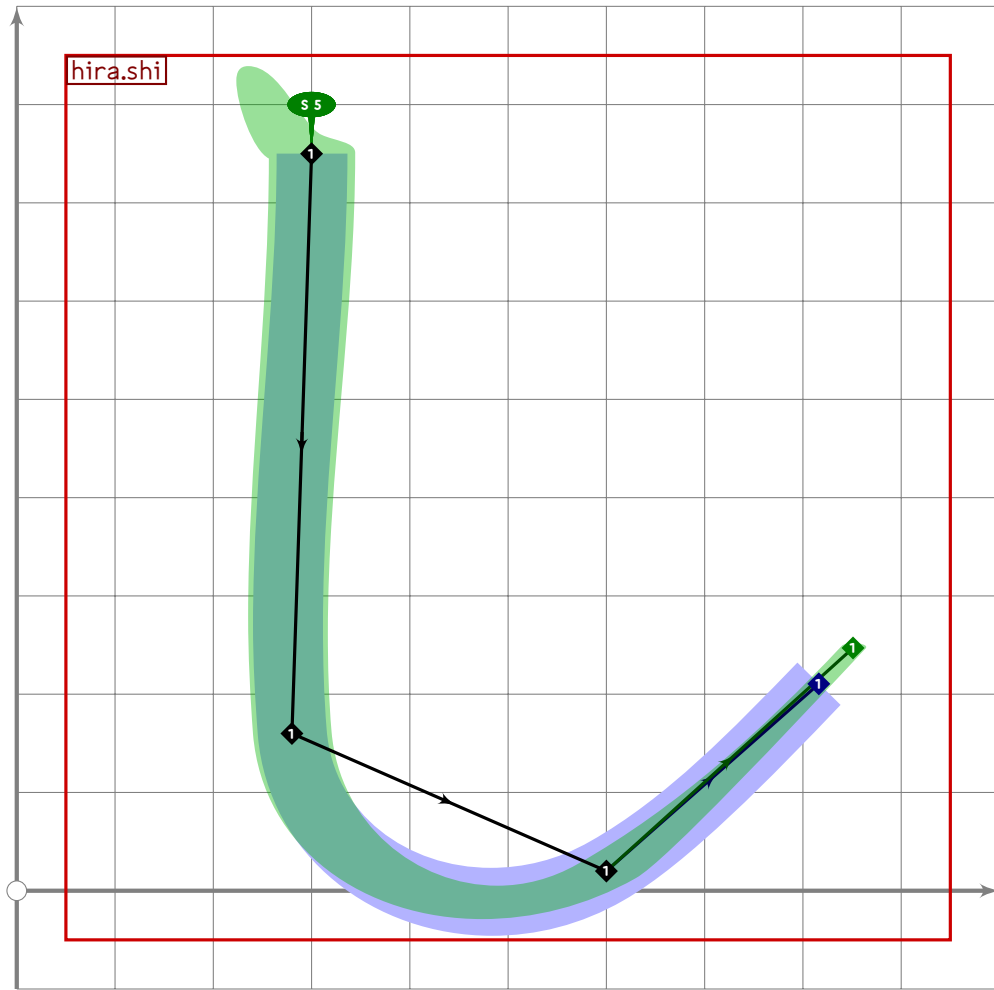
221 %%%%%%%%%% HIRAGANA SASHISUSES0/ZAJIZUZEZO



```

222
223 vardef hira.sa =
224   push_pbox_toexpand("hira.sa");
225
226   push_stroke((170,520)..(300,530-20*mincho)..(470,560)..(800-70*mincho,660),
227     (1.9,1.9)-(1.8,1.8)-(1.4,1.4)-(2.1,2.1));
228   set_boserif(0,3,6);
229
230   hira.ki_body;
231   expand_pbox;
232 enddef;

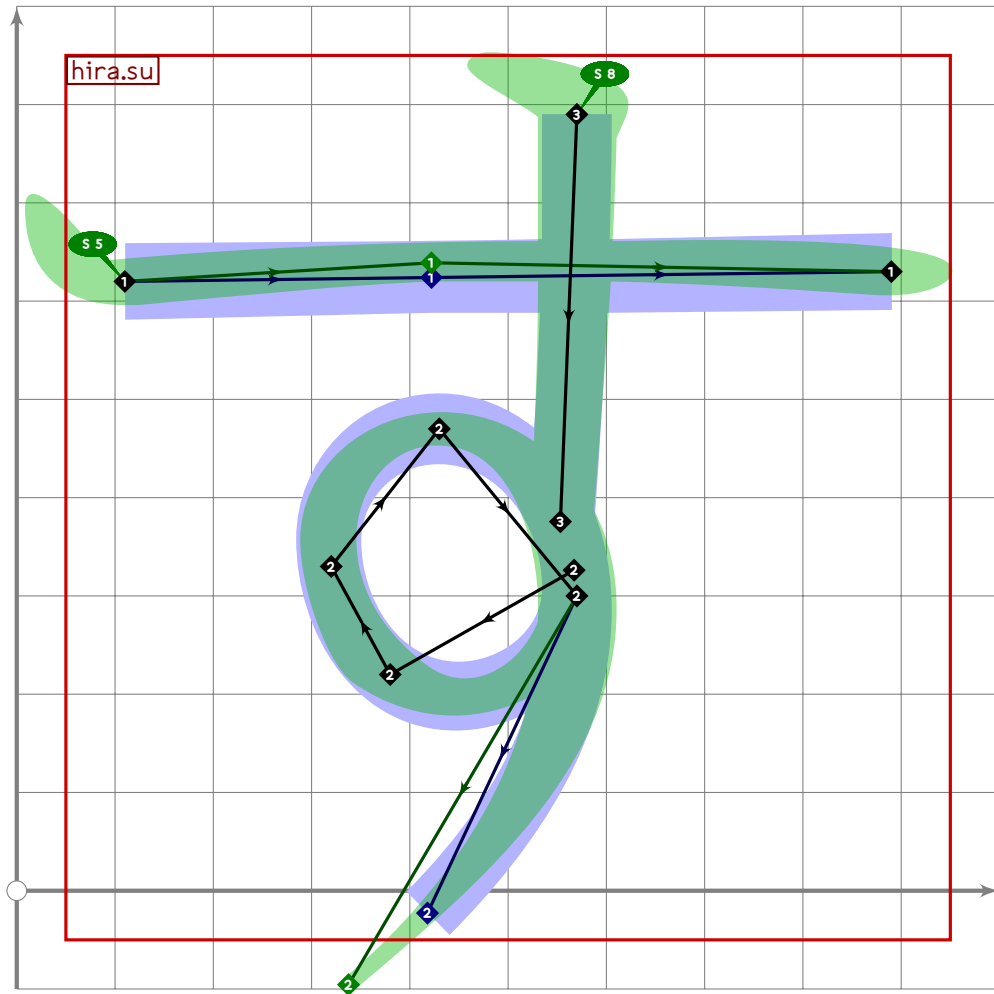
```



```

233
234 vardef hira.shi =
235   push_pbox_toexpand("hira.shi");
236
237   push_stroke((300,750){down}..tension 2.5..(280,160)..
238     (600,20)..tension 1.5..{curl 0}(990,400),
239     (1.7,1.7)..(1.6,1.6)-(1.5,1.5)-(0.4,0.55));
240   set_boserif(0,0,5);
241   expand_pbox;
242 enddef;

```

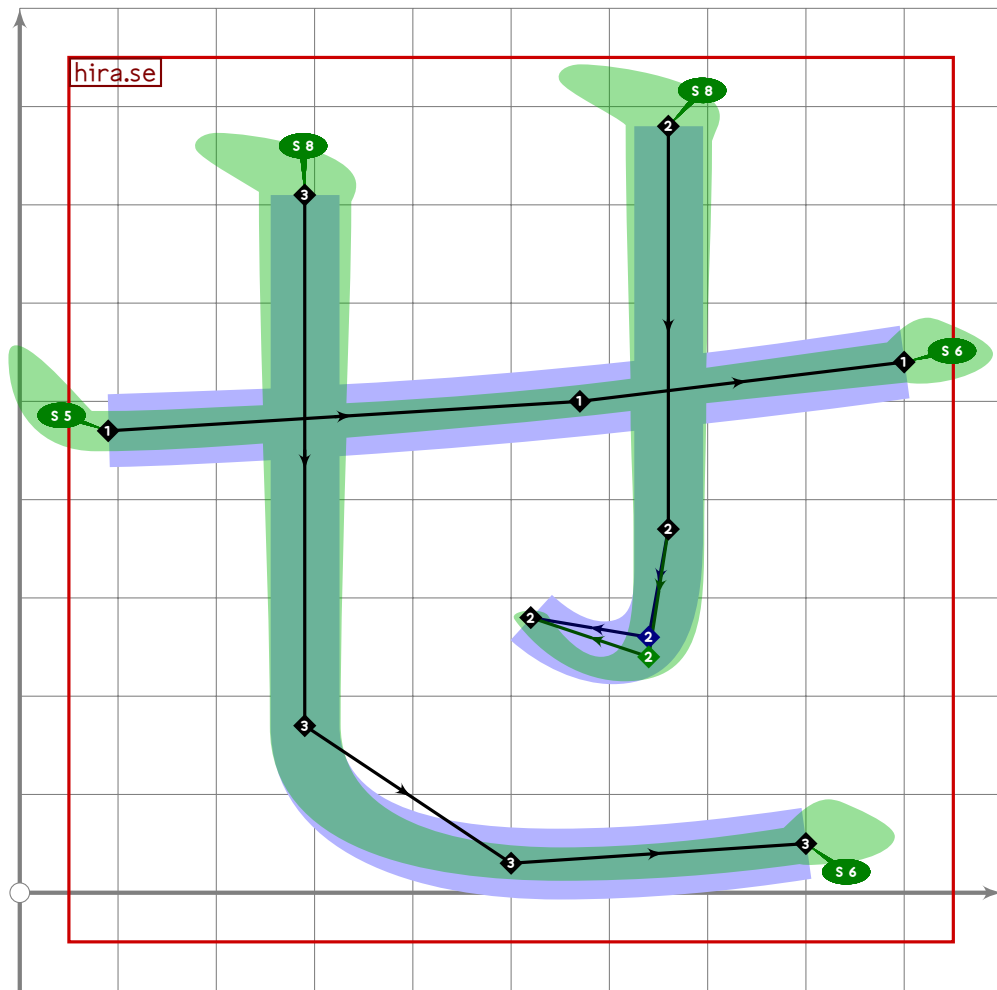


```

243
244 vardef hira.su =
245   push_pbox_toexpand("hira.su");
246
247   push_stroke((110,620)..(0.4[(110,620),(890,630)]+15*up*mincho)..(890,630),
248     (2.2,2.2)-(1.9,1.9)-(2.2,2.2));
249   set_boserif(0,0,5);
250
251   push_stroke((320,330)..(430,470)..(570,300)..{curl 0}(270,-150),
252     (1.3,1.3)-(1.7,1.7)-(1.3,1.3)-(1.7,1.7)-(1.6,1.6)-(0.7,0.7));
253   replace_strokep(0)((point 1.9 of oldp)..(380,220)..oldp);
254
255   push_stroke((570,790){down}..(point 3.7 of get_strokep(0)),
256     (1.6,1.6)..(1.4,1.4));
257   set_boserif(0,0,8);
258   expand_pbox;
259 enddef;

```

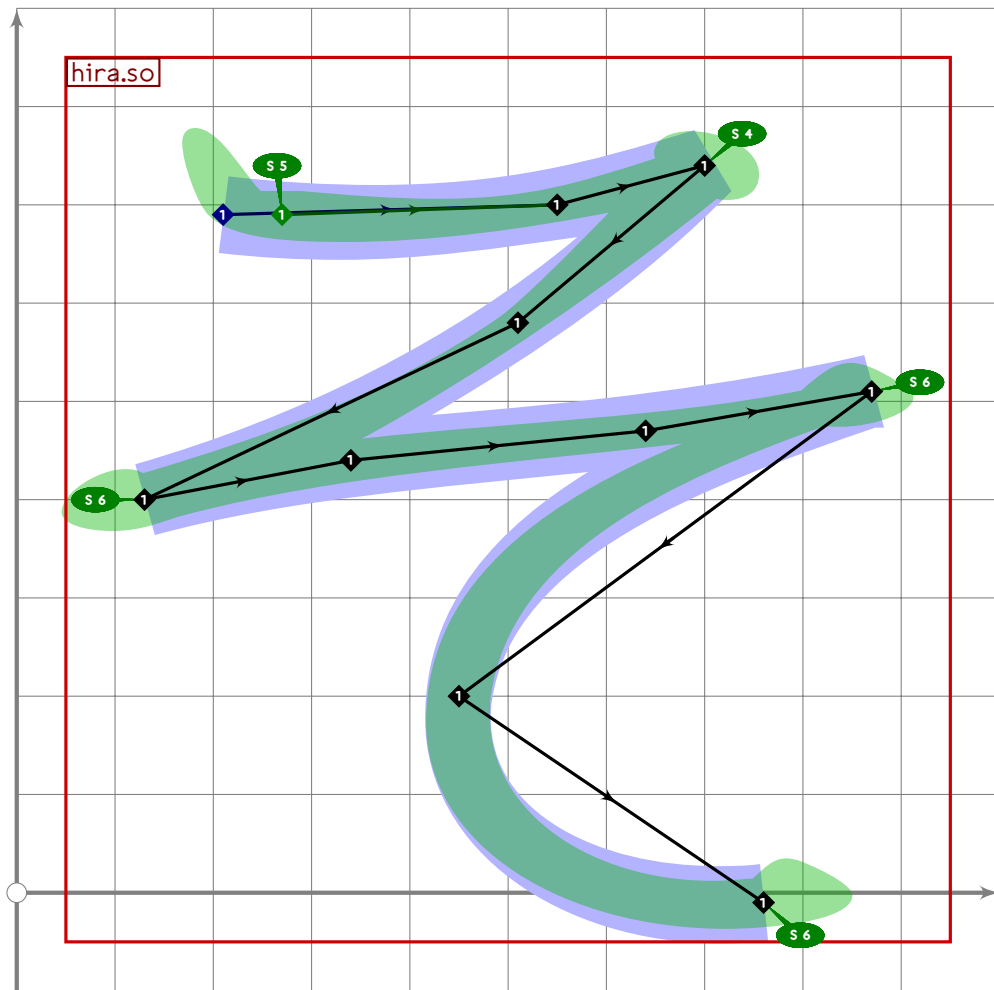




```

260
261 vardef hira.se =
262   push_pbox_toexpand("hira.se");
263
264   push_stroke((90,470)..(570,500)..(900,540),
265     (2,2)..(1,6,1,6)..(2,2));
266   set_boserif(0,0,5);
267   set_boserif(0,2,6);
268
269   push_stroke((660,780)..(660,370){down}..(640,260-20*mincho)..
270     {curl 0.2}(520,280),
271     (1,7,1,7)..(1,5,1,5)..(1,5,1,5)..(1,1));
272   set_boserif(0,0,8);
273
274   push_stroke((290,710)..(290,170){down}..(500,30)..
275     {direction infinity of get_stroke(-1)}(800,50),
276     (1,8,1,8)..(1,5,1,5)..(1,7,1,7)..(1,8,1,8));
277   set_boserif(0,0,8);
278   set_boserif(0,3,6);
279   expand_pbox;
280 enddef;

```



```

281
282 vardef hira.so =
283   push_pbox_toexpand("hira.so");
284
285   push_stroke(
286     (210+60*mincho,690)..tension 1.2..(550,700)..
287     {curl 0}{(700,740){curl 1}..
288     (510,580)..
289     {curl 1}{(130,400){curl 2}..(340,440)..(640,470)..
290     {curl 1}{(870,510){curl 0}..tension 1.2..(450,200)..{curl 0.2}{(760,-10),
291     (2.3,2.3)-(1.7,1.7)-(1.8,1.8)-
292     (1.2,1.2)-
293     (2.1,2.1)-(1.9,1.9)-(1.7,1.7)-(1.5,1.5)-
294     (1.4,1.4)-(2.3,2.3));
295   set_botip(0,2,0);
296   set_botip(0,4,0);
297   set_botip(0,7,0);
298   set_boserif(0,0,5);
299   set_boserif(0,2,4);
300   set_boserif(0,4,6);
301   set_boserif(0,7,6);

```

```

302 set_boserif(0,9,6);
303 expand_pbox;
304 enddef;
305

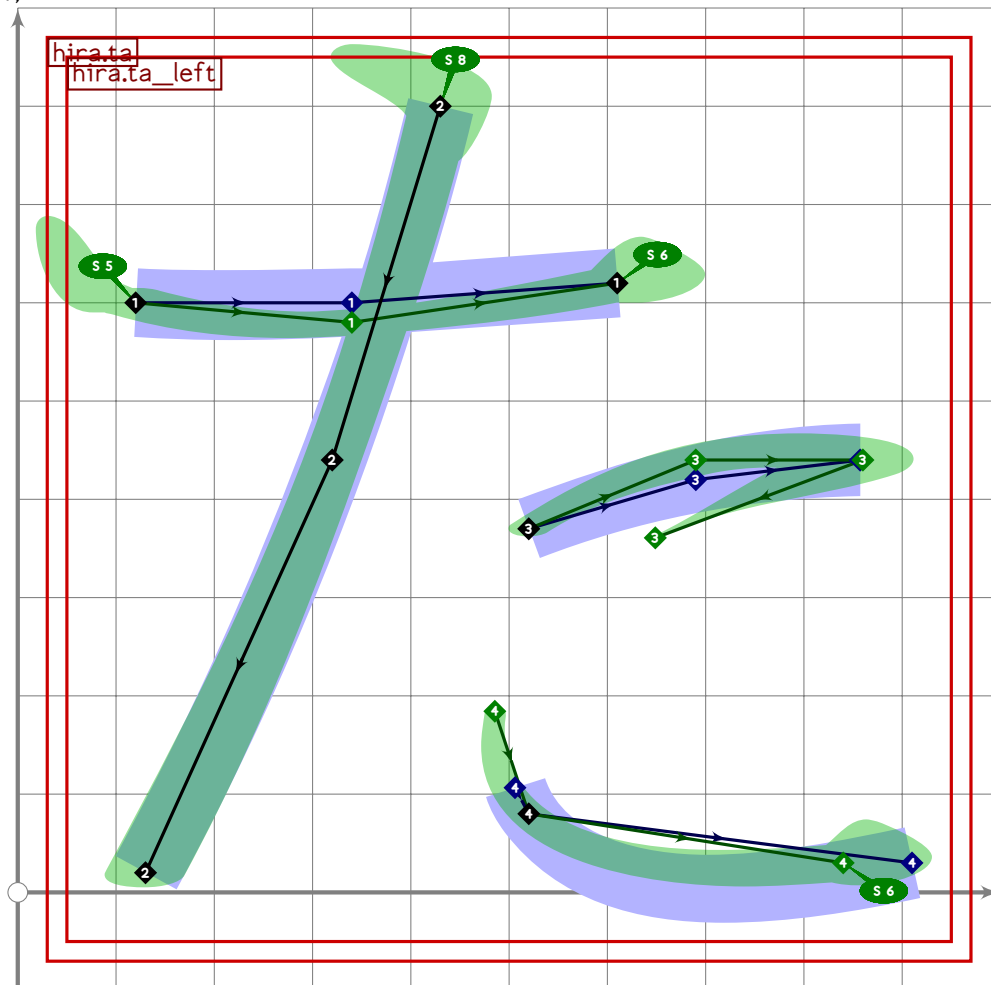
```

## Hiragana Tachitsuteto/Dajizudedo

```

306 %%%%%%%%%%% HIRAGANA TACHITSUTETO/DAJIZUDEDO
307
308 vardef hira.ta_left =
309   push_pbox_toexpand("hira.ta_left");
310
311   push_stroke((120,600)..(340,600-20*mincho)..tension 1.5..(610,620),
312     (1.6,1.6)..(1.5,1.5)..(1.7,1.7));
313   set_boserif(0,0,5);
314   set_boserif(0,2,6);
315
316   push_stroke((430,800)..(320,440)..(130,20),
317     (1.4,1.4)..(1.3,1.3)..(1.6,1.6));
318   set_boserif(0,0,8);
319   expand_pbox;
320 enddef;

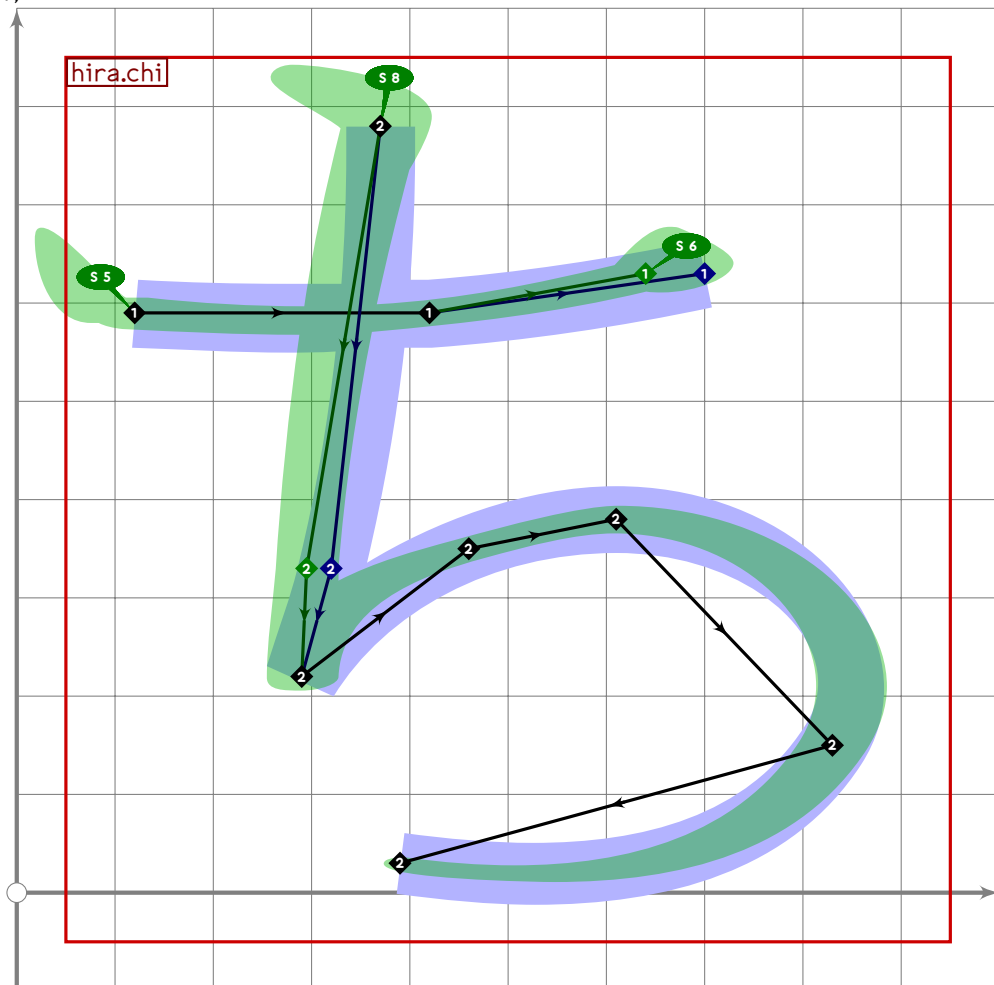
```



```

321
322 vardef hira.ta =
323   push_pbox_toexpand("hira.ta");
324
325   hira.ta_left;
326
327   push_stroke((520,370)..(690,420+20*mincho)..{curl 1.5}(860,440){curl 0}..
328     (610,280+60*mincho)..(520,80)..tension 1.2 and 3..
329     {curl 0.2}(910-70*mincho,30),
330     (1,1,1)-(1.6,1.6)-(2.8,0.99)-(0.45,0.35)-(1,1,1)-(1.9,1.9));
331   set_botip(0,2,0);
332   set_boserif(0,5,6);
333   expand_pbox;
334 enddef;
335
336 vardef hira.chi_bottom =
337   replace_strokep(0)((oldp){-direction infinity of oldp xscaled 2}..
338     (460,350)..(610,380){right}..(830,150)..
339     tension 1.4..{curl 0.3}(390,30));
340   replace_strokeq(0)((oldq)..(1.3,1.3)..(1.5,1.5)..(1.5,1.5)..(1,1));
341 enddef;

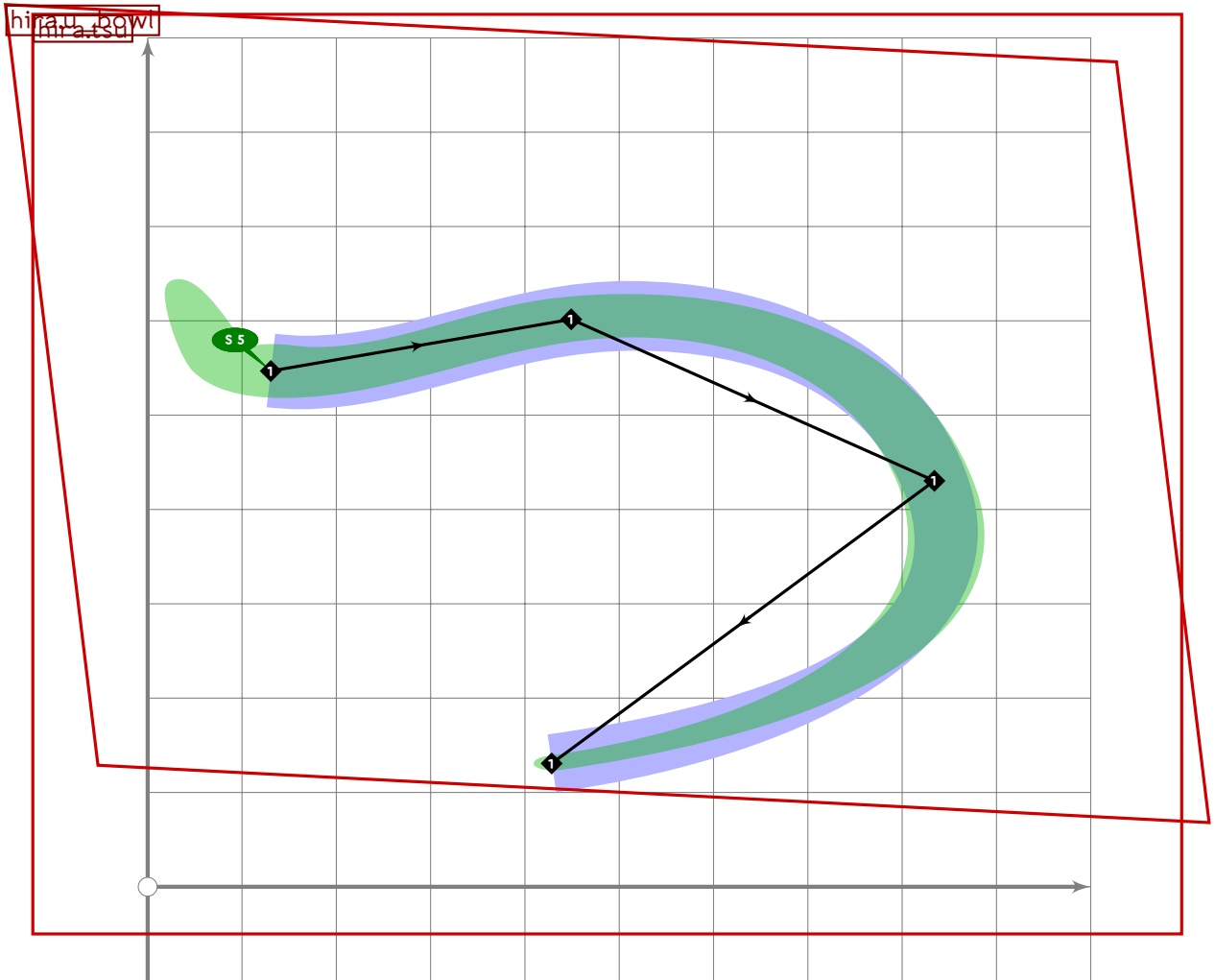
```



```

342
343 vardef hira.chi =
344   push_pbox_toexpand("hira.chi");
345
346   push_stroke((120,590)..(420,590)..(700-60*mincho,630),
347     (1.7,1.7)..(1.5,1.5)..(1.6,1.6));
348   set_boserif(0,0,5);
349   set_boserif(0,2,6);
350
351   push_stroke((370,780)..(320-25*mincho,330)..(290,220),
352     (1.6,1.6)..(1.4,1.4)..(1.5,1.5));
353   hira.chi_bottom;
354   set_botip(0,2,0);
355   set_boserif(0,0,8);
356   expand_pbox;
357 enddef;

```



```

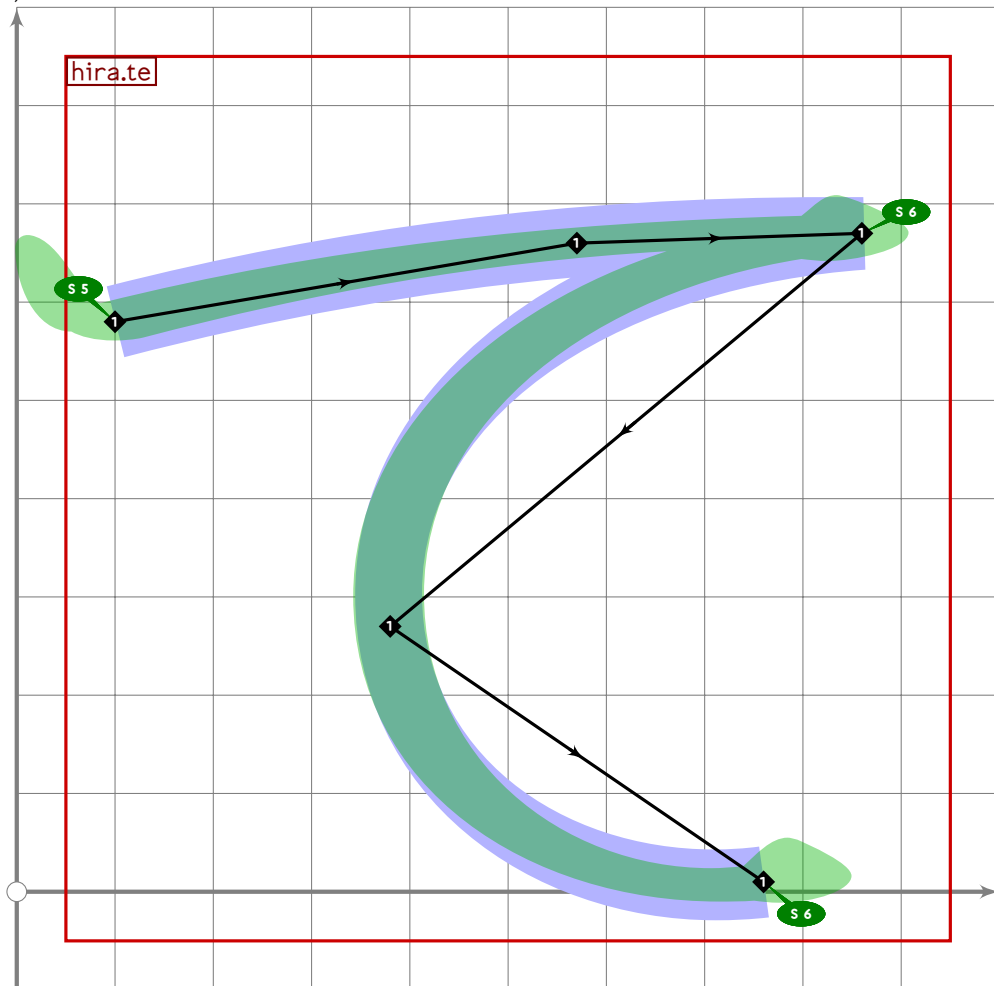
358
359 vardef hira.tsu =
360   push_pbox_toexpand("hira.tsu");
361

```

```

362 begingroup
363   save xf;
364   transform xf;
365   (300,450) transformed xf=(220,560);
366   (750,350) transformed xf=(820,440);
367   (400,0) transformed xf=(400,150);
368   tsu_xform(xf)(hira.u_bowl);
369   set_bosize(0)(100+10*mincho);
370 endgroup;
371 expand_pbox;
372 enddef;

```



```

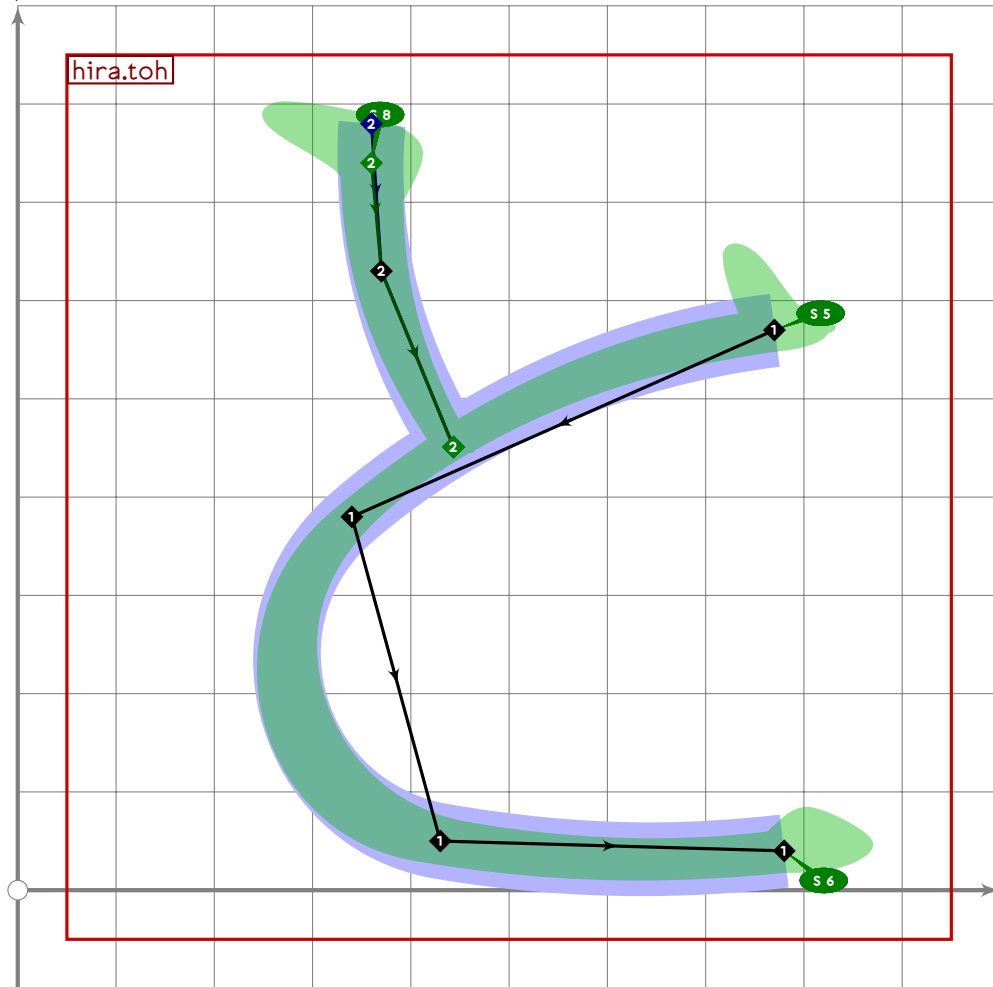
373
374 vardef hira.te =
375   push_pbox_toexpand("hira.te");
376
377   push_stroke((100,580)..(570,660)..{curl 1}(860,670){curl 0.2}..
378     (380,270)..{curl 0.6}(760,10),
379     (1,1,9)-(1,5,1,5)-(1,8,1,8)-(1,5,1,5)-(1,8,1,8));
380   set_botip(0,2,0);
381   set_boserif(0,0,5);
382   set_boserif(0,2,6);

```

```

383 set_boserif(0,4,6);
384 expand_pbox;
385 enddef;

```



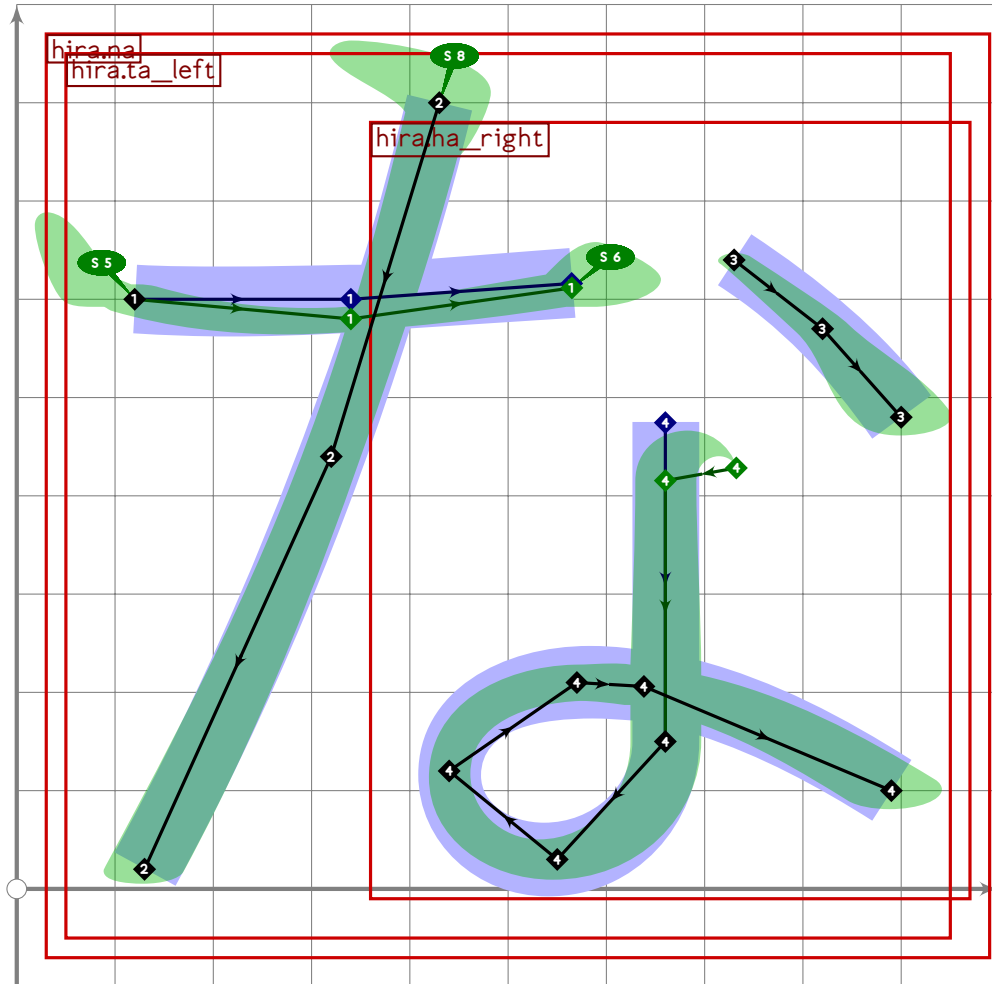
```

386
387 vardef hira.toh =
388   push_pbox_toexpand("hira.toh");
389
390   push_stroke((770,570)..tension 1.7..(340,380)..(430,50)..
391     tension 2..(780,40),
392     (2,2)-(1.2,1.2)-(2.1,2.1)-(2,2));
393   set_boserif(0,0,5);
394   set_boserif(0,3,6);
395
396   push_stroke(subpath (0,1,97) of
397     ((360,780-40*mincho)..(370,630)..(point 0.7 of get_strokep(0))),
398     (1.4,1.4)-(1.3,1.3)-(1.1,1.1));
399   set_boserif(0,0,8);
400   expand_pbox;
401 enddef;
402

```

# Hiragana Naninuneno

403 %%%%%%%%%% HIRAGANA NANINUNENO



```

404
405 vardef hira.na =
406   push_pbox_toexpand("hira.na");
407
408   hira.ta_left;
409   replace_stroke(-1)(subpath (0,1.8) of oldp);
410
411   push_stroke((730,640)..(820,570)..(900,480),
412     (1,1)..(1.3,1.3)..(1.9,1.9));
413
414   hira.ha_right;
415
416   replace_stroke(0)((point infinity of oldp){-direction infinity of oldp}
417     ..(subpath (0.45+0.1*mincho,infinity) of oldp));
418   replace_strokeq(0)((0,-0.4)-(1.7,1)-(1.5,1.5)-(2,2)-
419     (1.1,1.1)-(1.9,1.9));
420   expand_pbox;
421 enddef;

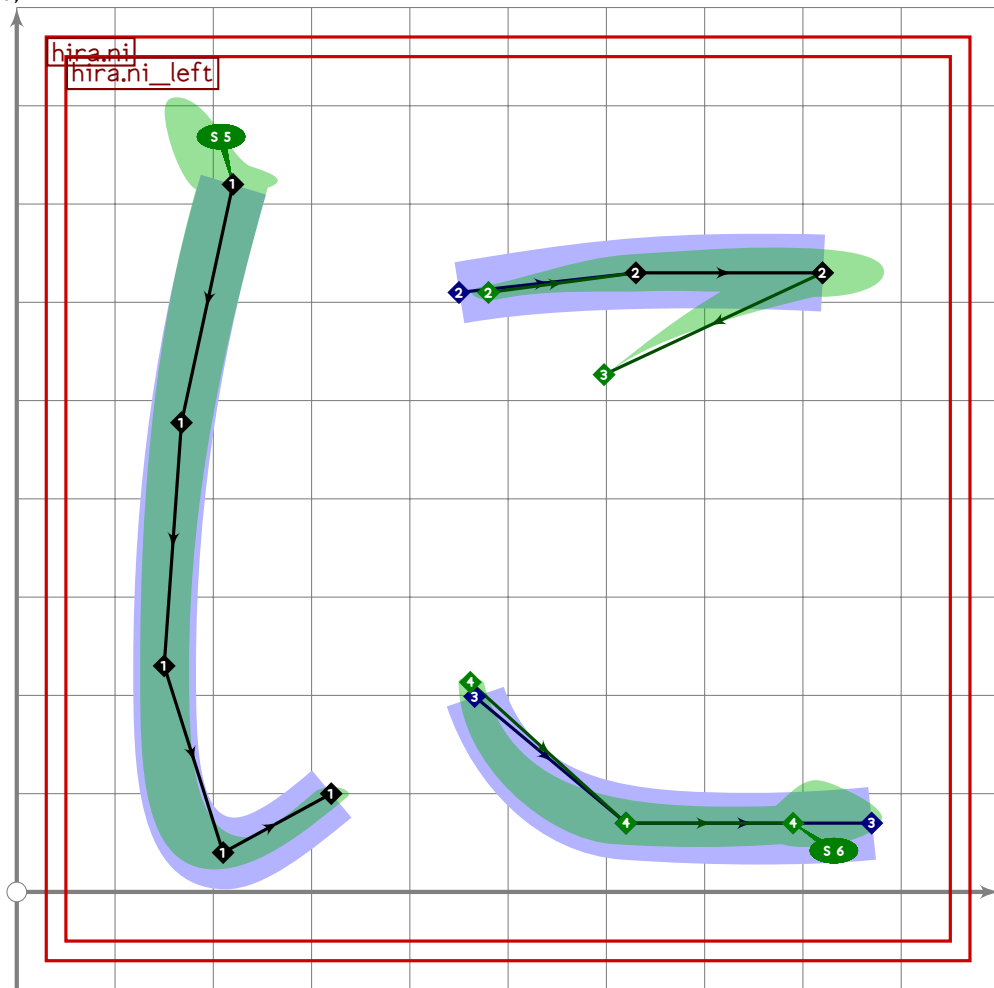
```



```

422
423 vardef hira.ni_left =
424   push_pbox_toexpand("hira.ni_left");
425
426   push_stroke((220,720)..(150,230){down}..tension 1.5..(210,40)..
427     tension 1.5..{curl 0}(320,100),
428     (1.5,1.5)..(1.2,1.2)..(1.8,1.8)..(1,1));
429   replace_strokep(0)(insert_nodes(oldp)(0.5));
430   replace_strokeq(0)(insert_nodes(oldq)(0.5));
431   set_boserif(0,0,5);
432   expand_pbox;
433 enddef;

```



```

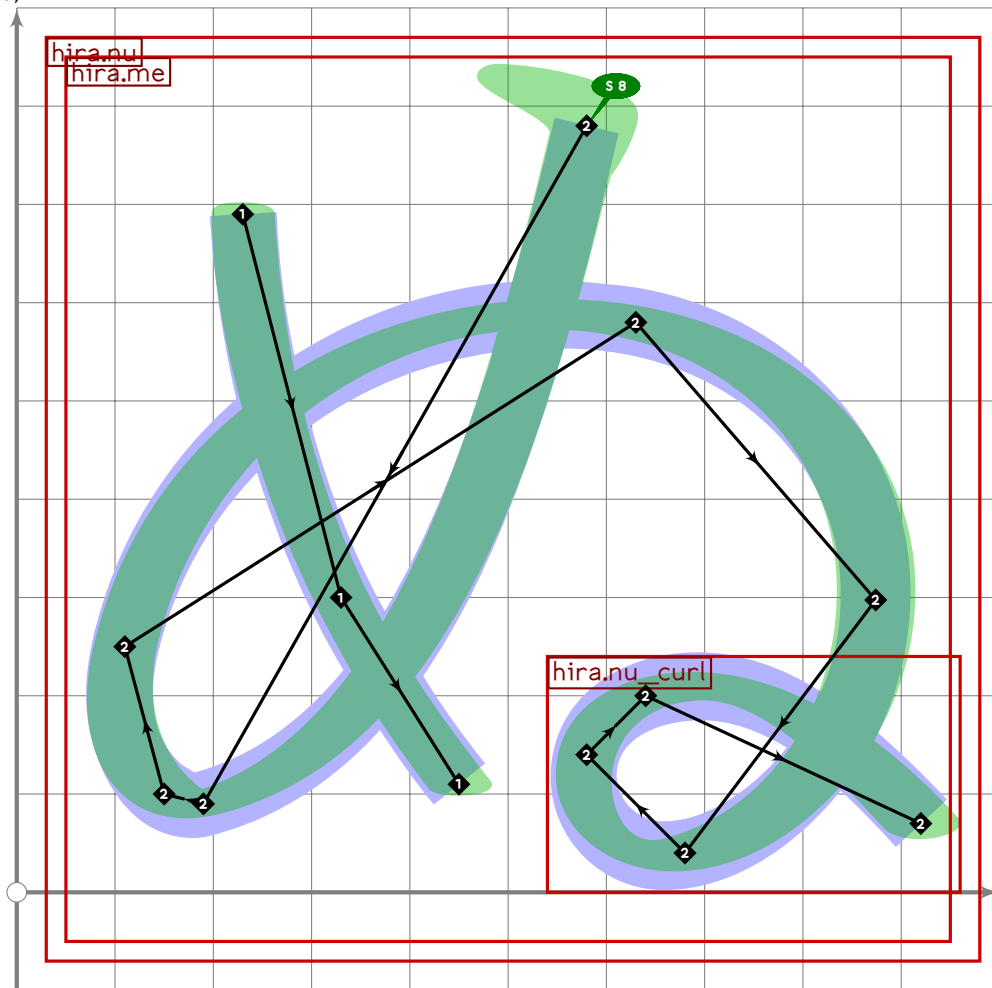
434
435 vardef hira.ni =
436   push_pbox_toexpand("hira.ni");
437
438   hira.ni_left;
439
440   push_stroke((450+30*mincho,610)..(630,630)..(820,630),
441     (1,1)..(1.9,1.9)..(2.2,2.2));
442

```

```

443 push_stroke((point infinity of get_stroke(0)){curl 0.6}..(530,460)..
444   (460,220)..(620,70)..tension 2..(870-80*mincho,70),
445   (3,0,7)-(0,0)-(0.8,0,9)-(2,2)-(1,9,1,9));
446 set_boserif(0,4,6);
447 expand_pbox;
448 enddef;
449
450 vardef hira.nu_curl =
451   begingroup
452     push_pbox_explicit("hira.nu_curl",
453       identity xyscaled (420,240) shifted (540,0));
454     (680,40)..(580,140)..(640,200)..{curl 0}(920,70)
455   endgroup
456 enddef;

```



```

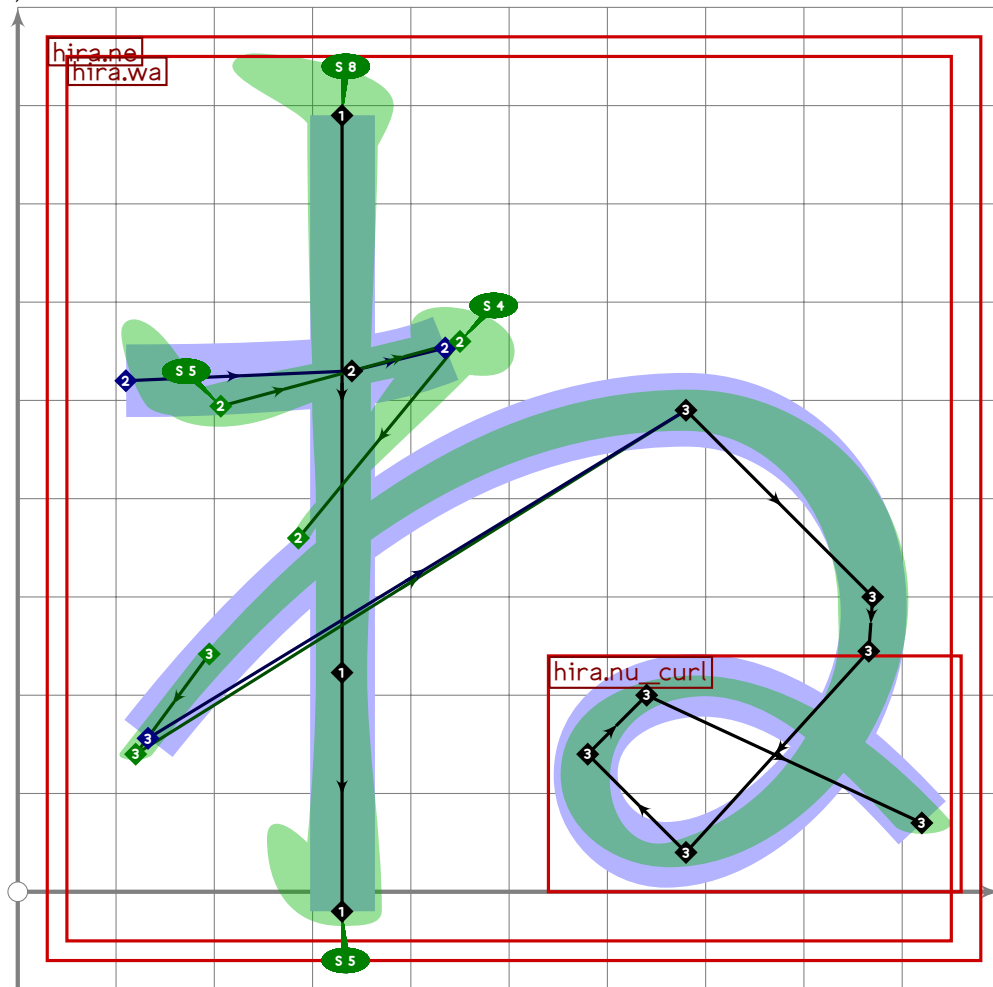
457
458 vardef hira.nu =
459   push_pbox_toexpand("hira.nu");
460
461   hira.me;
462
463   replace_stroke(0)((subpath (0,4,8) of oldp)..tension 1.2..

```

```

464 hira.nu_curl);
465 replace_strokeq(0)((1.5,1.5)-(1.4,1.4)-(1.6,1.6)-(1.4,1.4)-
466 (1.6,1.6)-(1.6,1.6)-(1.7,1.7)-(1.3,1.3)-(1.6,1.6));
467 set_bosserif(0,0,8);
468 expand_pbox;
469 enddef;

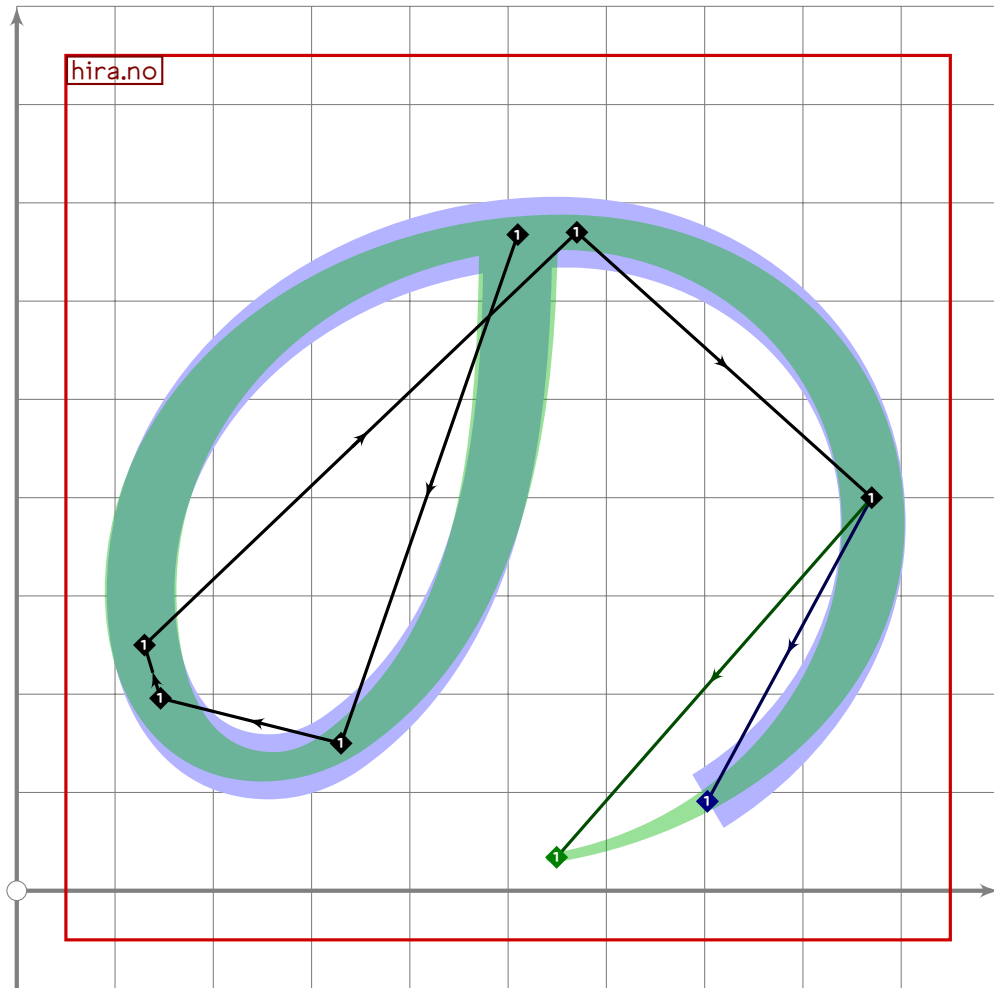
```



```

470
471 vardef hira.ne =
472   push_pbox_toexpand("hira.ne");
473
474   hira.wa;
475
476   replace_strokep(0)((subpath (0,6.1) of oldp)..tension 1.2..
477     hira.nu_curl);
478   replace_strokeq(0)((2,2)-(1.6,1.6)-(2.2,0.9)-(0.7,0.7)-(0.97,0.97)-
479     (2,2)-(1.5,1.5)-(1.4,1.4)-(1.4,1.4)-(1.2,1.2)-(1.3,1.3));
480   expand_pbox;
481 enddef;

```



```

482
483 vardef hira.no =
484   push_pbox_toexpand("hira.no");
485
486   begingroup
487     save px,py;
488     path px,py;
489     px:=(410,30)..(130,250)..tension 11..(570,670)..(870,400)..cycle;
490     py:=(510,770){down}{dir 215}(330,150);
491
492     px:=subpath (0.85,4) of px;
493     push_stroke(
494       (subpath (xpart (py intersectiontimes px),infinity) of py)..px,
495       (1.6,1.6)-(1.3,1.3)-(1.4,1.4)-(1.5,1.5)-(1.8,1.8)-
496       (1.4,1.4)-(0.7,0.7));
497   endgroup;
498   expand_pbox;
499 enddef;
500

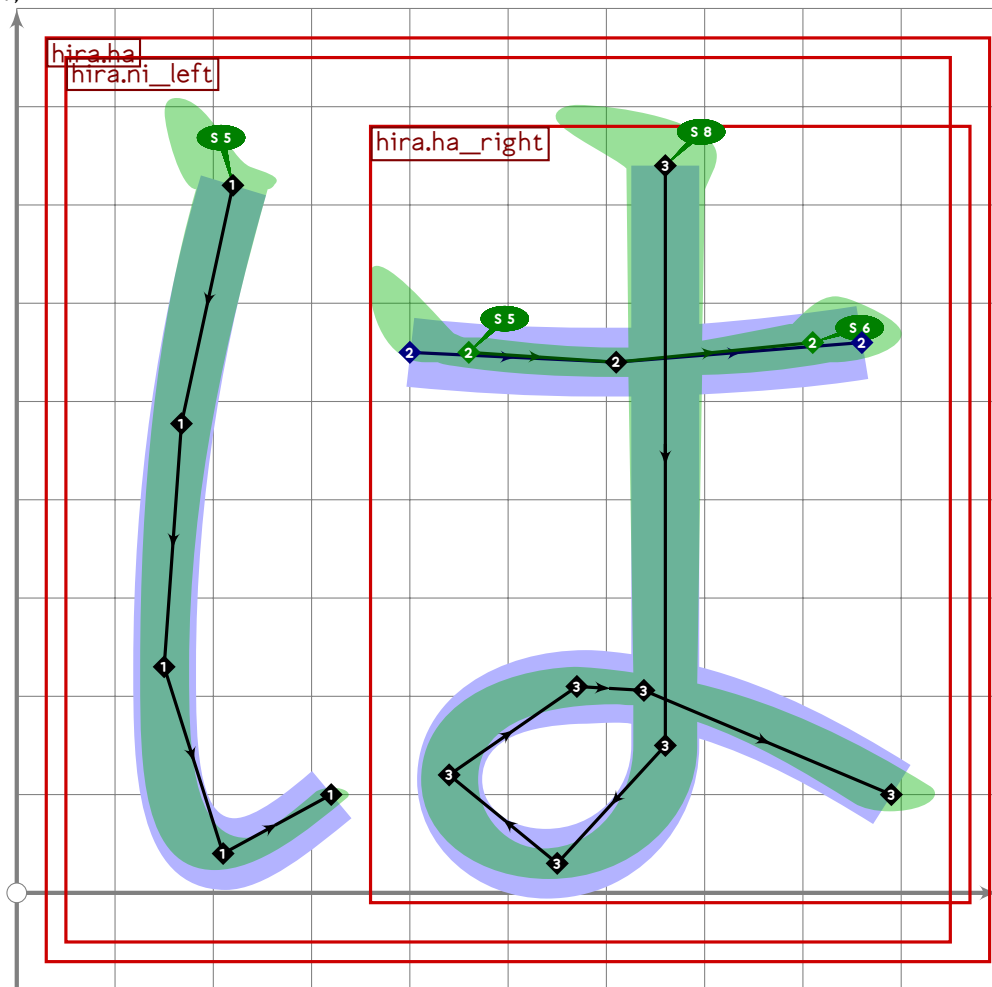
```

# Hiragana Hahifuheho/Babibubebo/Papipupepo

```

501 %%%%%%%%%% HIRAGANA HAHIFUHEHO/BABIBUBEBO/PAPIPUPEPO
502
503 vardef hira.ha_right =
504   push_pbox_explicit("hira.ha_right",
505     identity xyscaled (610,790) shifted (360,-10));
506
507   push_stroke(insert_nodes((660,740)..(660,150){down}..(550,30)..(440,120)..
508     (570,210)..{curl 0.17}(890,100))(4.2),
509     (1.6,1.6)-(1.4,1.4)-(1.6,1.6)-(1.3,1.3)-
510     (2,2)-(1.6,1.6)-(1.7,1.7));
511 enddef;

```



```

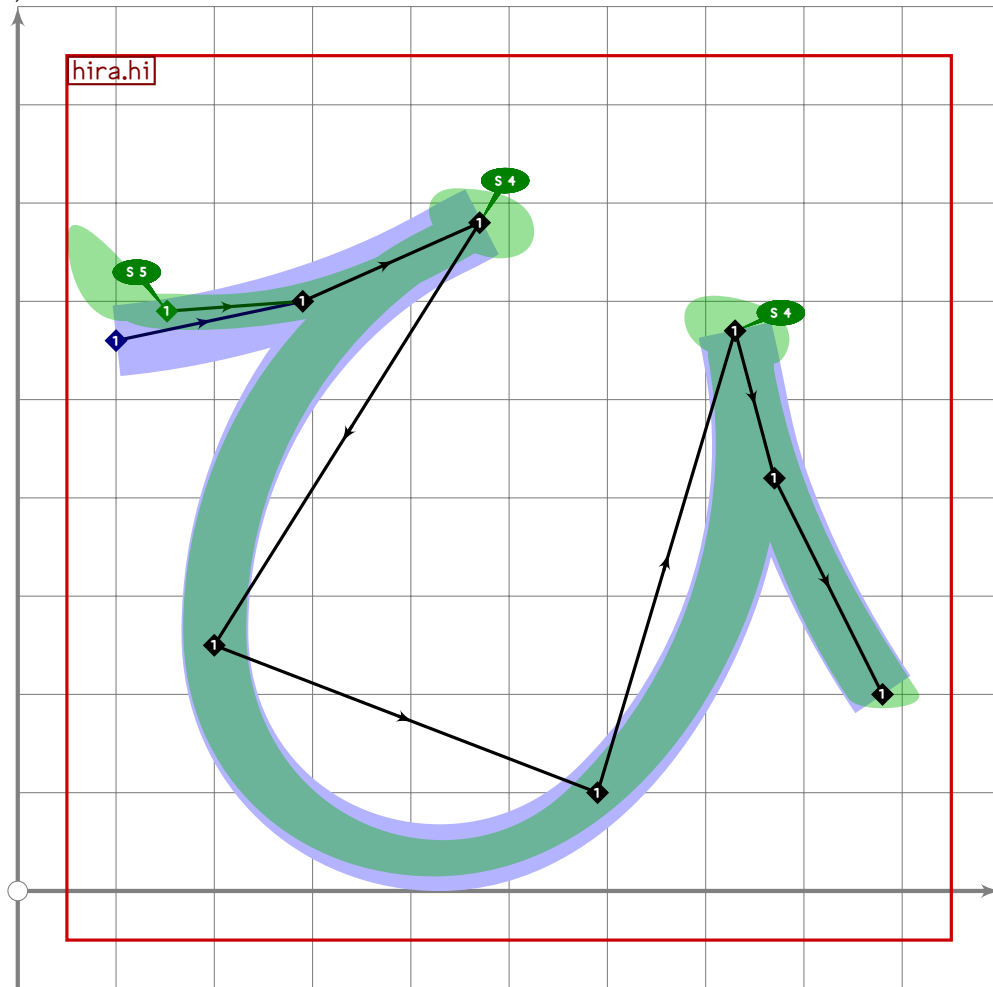
512
513 vardef hira.ha =
514   push_pbox_toexpand("hira.ha");
515
516   hira.ni_left;
517
518   push_stroke((400+60*mincho,550)..(610,540)..(860-50*mincho,560),
519     (1.6,1.6)..(1.6,1.6)..(2,2));

```

```

520 set_boserif(0,0,5);
521 set_boserif(0,2,6);
522
523 hira.ha_right;
524 set_boserif(0,0,8);
525 expand_pbox;
526 enddef;

```



```

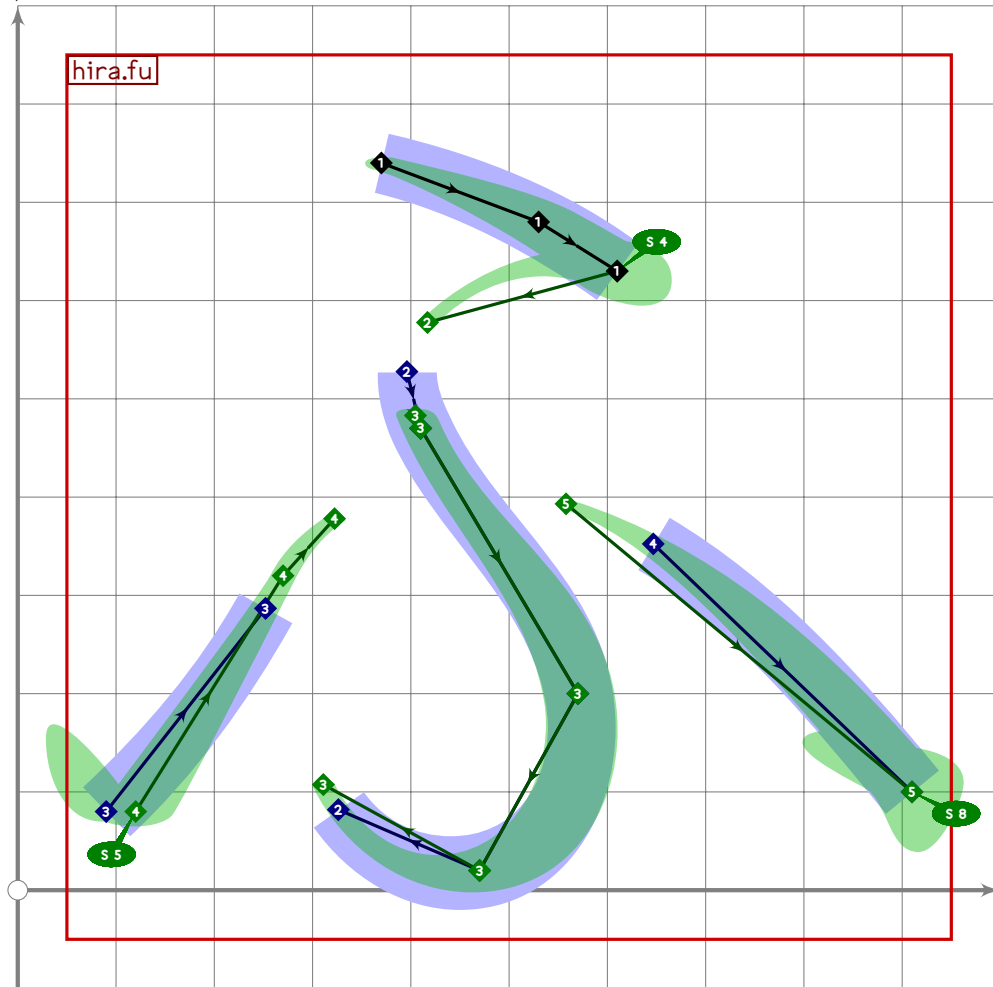
527
528 vardef hira.hi =
529   push_pbox_toexpand("hira.hi");
530
531   push_stroke(((100,560)+60*mincho*dir 30)..(290,600)..
532     {curl 1}(470,680){curl 1}..
533     tension 1.3..(200,250)..(590,100)..tension 1.3..
534     {curl 1}(730,570){curl 1}..(770,420)..(880,200),
535     (1.8,1.8)-(1.7,1.7)-(1.5,1.5)-
536     (1.4,1.4)-(1.4,1.4)-(1.4,1.4)-(1.3,1.3)-(1.5,1.5));
537   set_botip(0,2,0);
538   set_botip(0,5,0);
539   set_boserif(0,0,5);
540   set_boserif(0,2,4);

```

```

541 set_boserif(0,5,4);
542 expand_pbox;
543 endif;

```

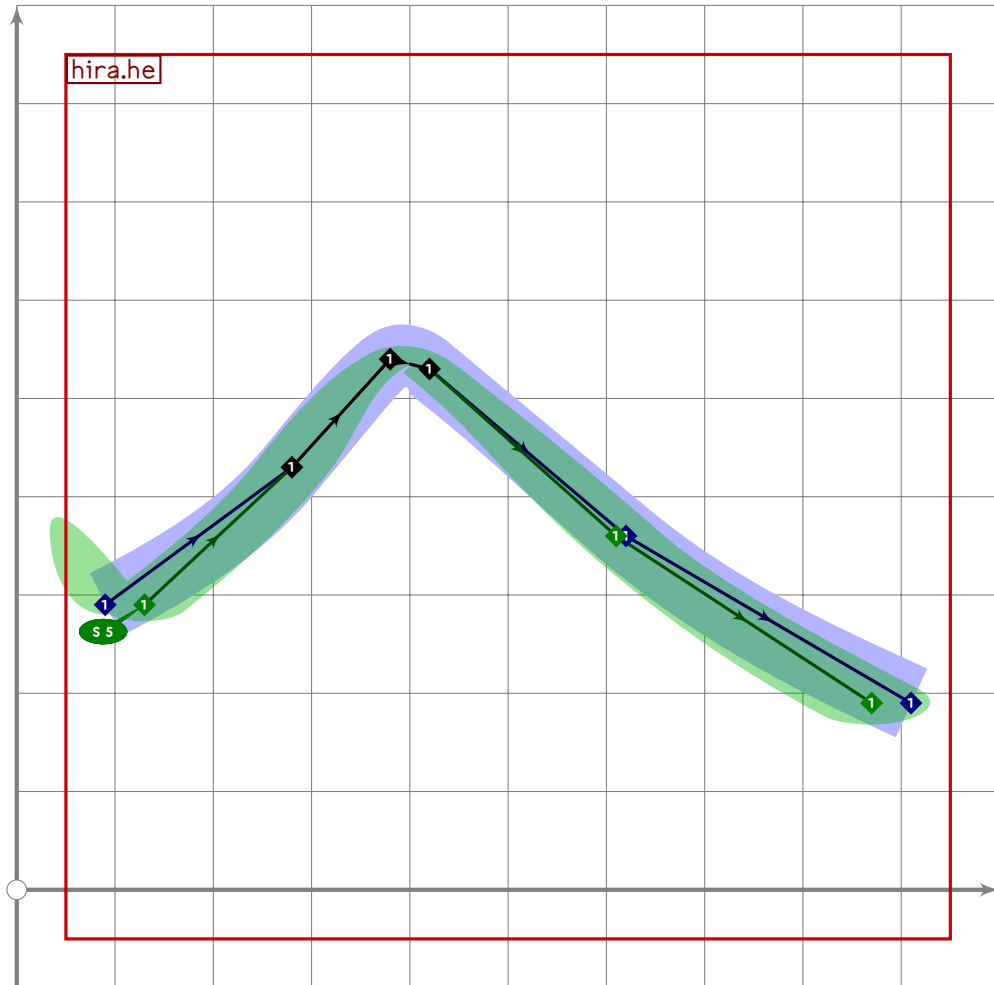


```

544
545 vardef hira.fu =
546   push_pbox_toexpand("hira.fu");
547
548   push_stroke((370,740)..(530,680)..(610,630),
549     (1,1)-(1.7,1.7)-(1.8,1.8));
550   set_boserif(0,2,4);
551
552   push_stroke((610,630)..tension 1.4..(410,570)..(410,470)..
553     (570,200)..(470,20)..{curl 0.3}(290,270),
554     (2.6,0.79)-(0.72,0.72)-(0.85,1.35)-(1.5,1.5)-(2,2)-(0,0));
555
556   push_stroke((90+30*mincho,80)..(270,320){dir 63}..(480,410)..
557     {curl 0}(910,100),
558     (1.4,1.7)-(0.9,0.9)-(0.7,0.7)-(1.6,1.6));
559   set_boserif(0,0,5);
560   set_boserif(0,3,8);
561   expand_pbox;

```

562 enddef;



563

564 vardef hira.he =

565 push\_pbox\_toexpand("hira.he");

566

567 push\_stroke((90+40\*mincho,290){curl 0.2}..(280,430)..tension 2..(380,540)..

568 (420,530)..tension 2..(620-10\*mincho,360)..{curl 0.2}(910-40\*mincho,190),

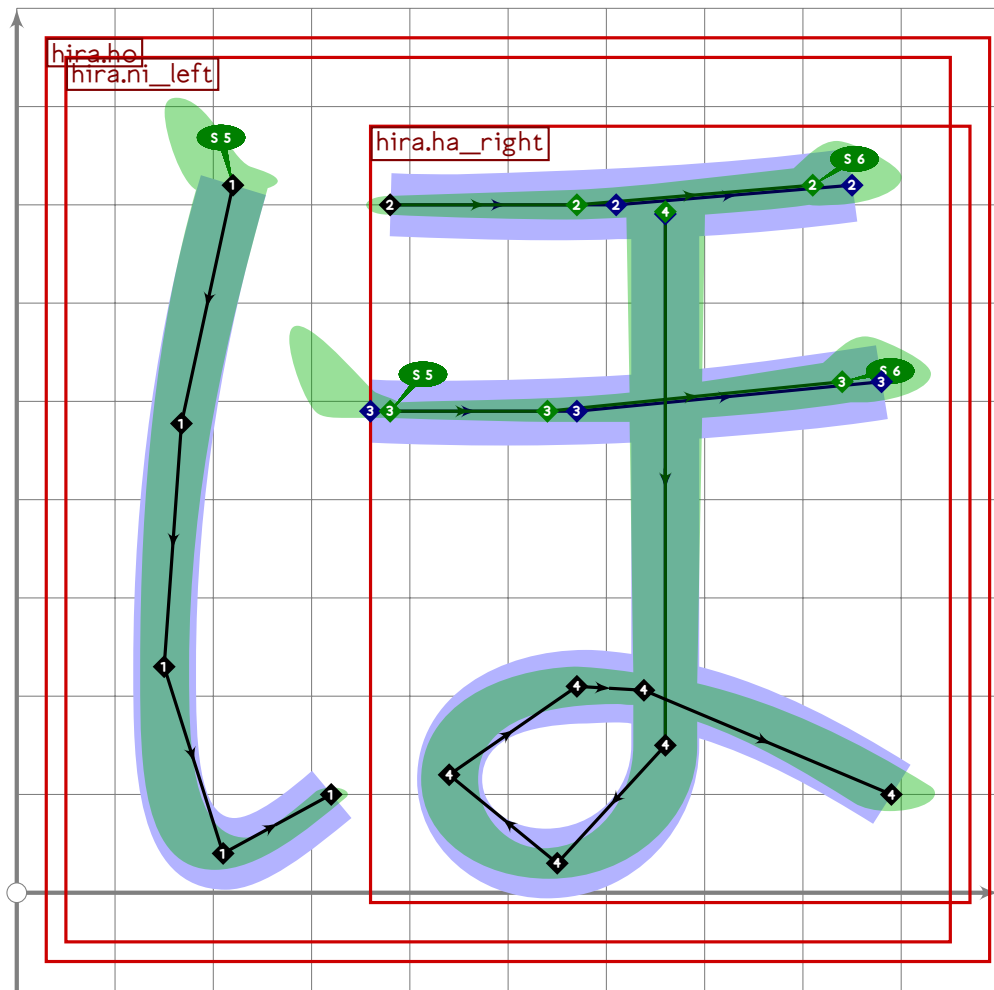
569 (1.7,1.7)..(1.6,1.6)..(1.2,1.2)..(1.3,1.3)..(1.7,1.7)..(2.1,2.1));

570 set\_boserif(0,0,5);

571 expand\_pbox;

572 enddef;





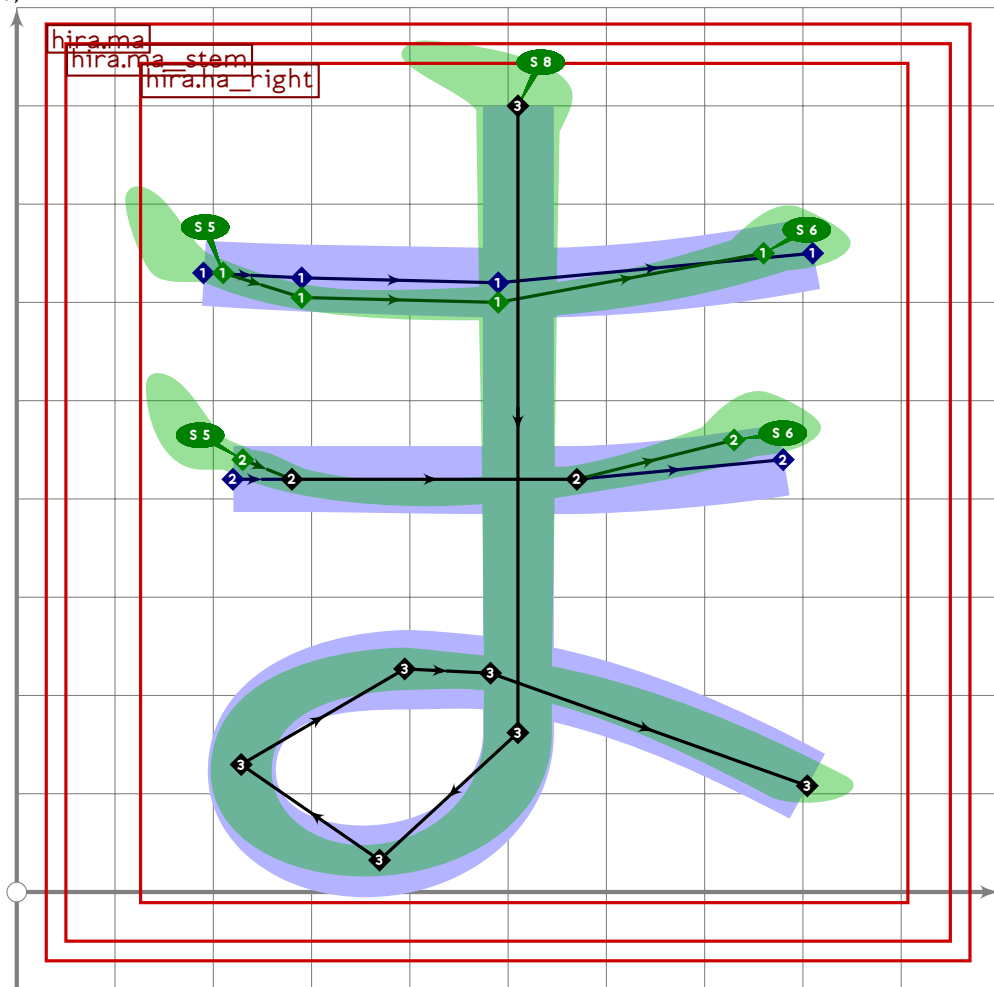
```

573
574 vardef hira.ho =
575   push_pbox_toexpand("hira.ho");
576
577   hira.ni_left;
578
579   push_stroke((380,700)..(610-40*mincho,700)..(850-40*mincho,720),
580     (1,2,1,2)..(1,6,1,6)..(1,9,1,9));
581   set_boserif(0,2,6);
582
583   push_stroke((360+20*mincho,490)..(570-30*mincho,490)..(880-40*mincho,520),
584     (1,2,1,2)..(1,5,1,5)..(2,2));
585   set_boserif(0,0,5);
586   set_boserif(0,2,6);
587
588   hira.ha_right;
589   replace_stroke(0)(subpath
590     (xpart (oldp intersectiontimes get_stroke(-2))+0.02,infinity) of oldp);
591   expand_pbox;
592 enddef;
593

```

# Hiragana Mamimumemo

```
594 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%% HIRAGANA MAMIMUMEMO
595
596 vardef hira.ma_stem =
597   push_pbox_toexpand("hira.ma_stem");
598
599   begingroup
600     transform xf;
601
602     (660,0) transformed xf = (510,0);
603     (660,740) transformed xf = (510,800);
604     (910,0) transformed xf = (830,0);
605
606     tsu_xform(xf)(hira.ha_right);
607     set_boserif(0,0,8);
608   endgroup;
609   expand_pbox;
610 enddef;
```

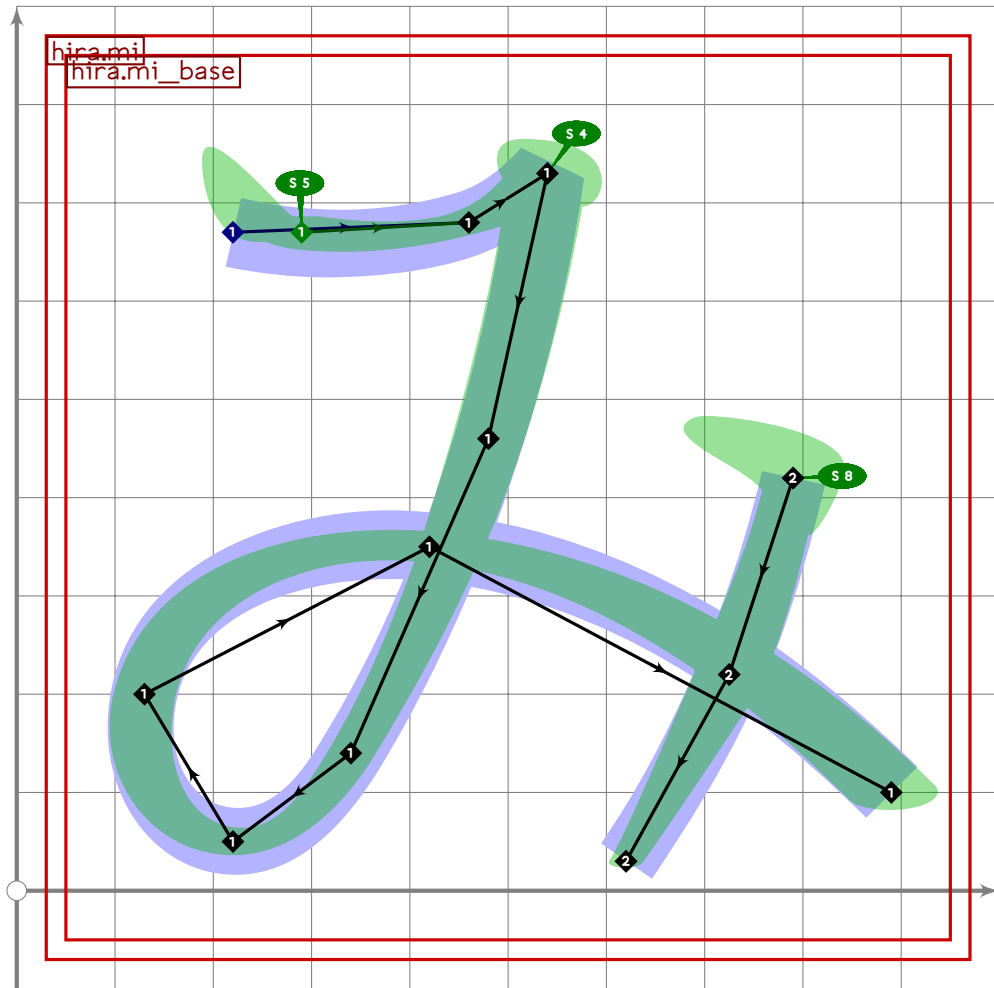


```
611
612 vardef hira.ma =
```

```

613 push_pbox_toexpand("hira.ma");
614
615 push_stroke((190+20*mincho,630)..(290,625-20*mincho)..tension 1.3..
616 (490,620-20*mincho)..(810-50*mincho,650),
617 (1.3,1.3)-(1.4,1.4)-(1.7,1.7)-(1.9,1.9));
618 set_boserif(0,0,5);
619 set_boserif(0,3,6);
620
621 push_stroke((220+10*mincho,420+20*mincho)..(280,420)..tension 1.3..
622 (570,420)..(780-50*mincho,440+20*mincho),
623 (1.3,1.3)-(1.3,1.3)-(1.6,1.6)-(1.8,1.8));
624 set_boserif(0,0,5);
625 set_boserif(0,3,6);
626
627 hira.ma_stem;
628 expand_pbox;
629 enddef;
630
631 vardef hira.mi_base =
632 push_pbox_toexpand("hira.mi_base");
633
634 push_stroke(
635 (220+70*mincho,670)..tension 1.3..(460,680)..
636 {curl 1}(540,730){curl 1}..
637 (480,460)..(340,140)..(220,50)..(130,200)..(420,350)..
638 {curl 0.4}(890,100),
639 (1.7,1.7)-(1.3,1.3)-(1.6,1.6)-
640 (1.5,1.5)-(1.2,1.2)-(1.5,1.5)-(1.4,1.4)-(1.6,1.6)-
641 (1.8,1.8));
642 set_botip(0,2,0);
643 set_boserif(0,0,5);
644 set_boserif(0,2,4);
645 expand_pbox;
646 enddef;

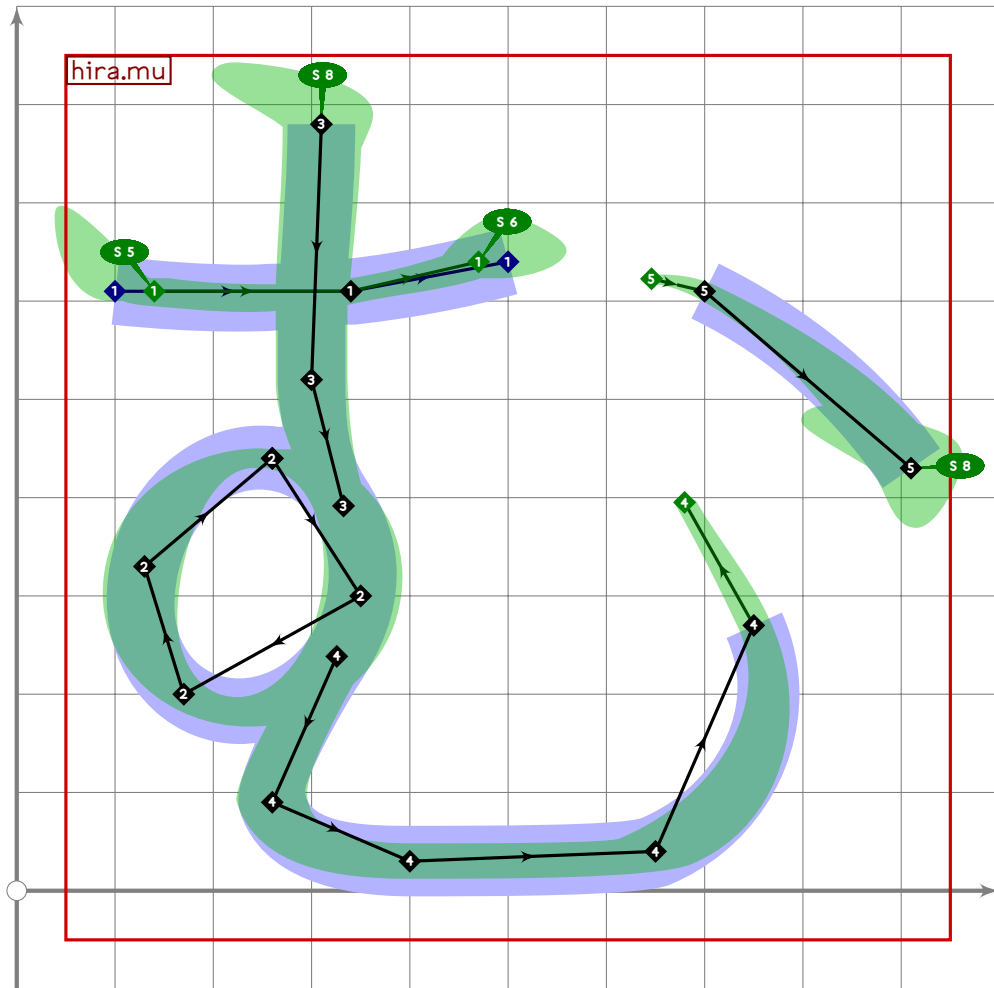
```



```

647
648 vardef hira.mi =
649   push_pbox_toexpand("hira.mi");
650
651   hira.mi_base;
652
653   push_stroke((790,420)..(725,220)..(620,30),
654     (1,3,1,3)-(1,5,1,5)-(1,1));
655   set_boserif(0,0,8);
656   expand_pbox;
657 enddef;

```



```

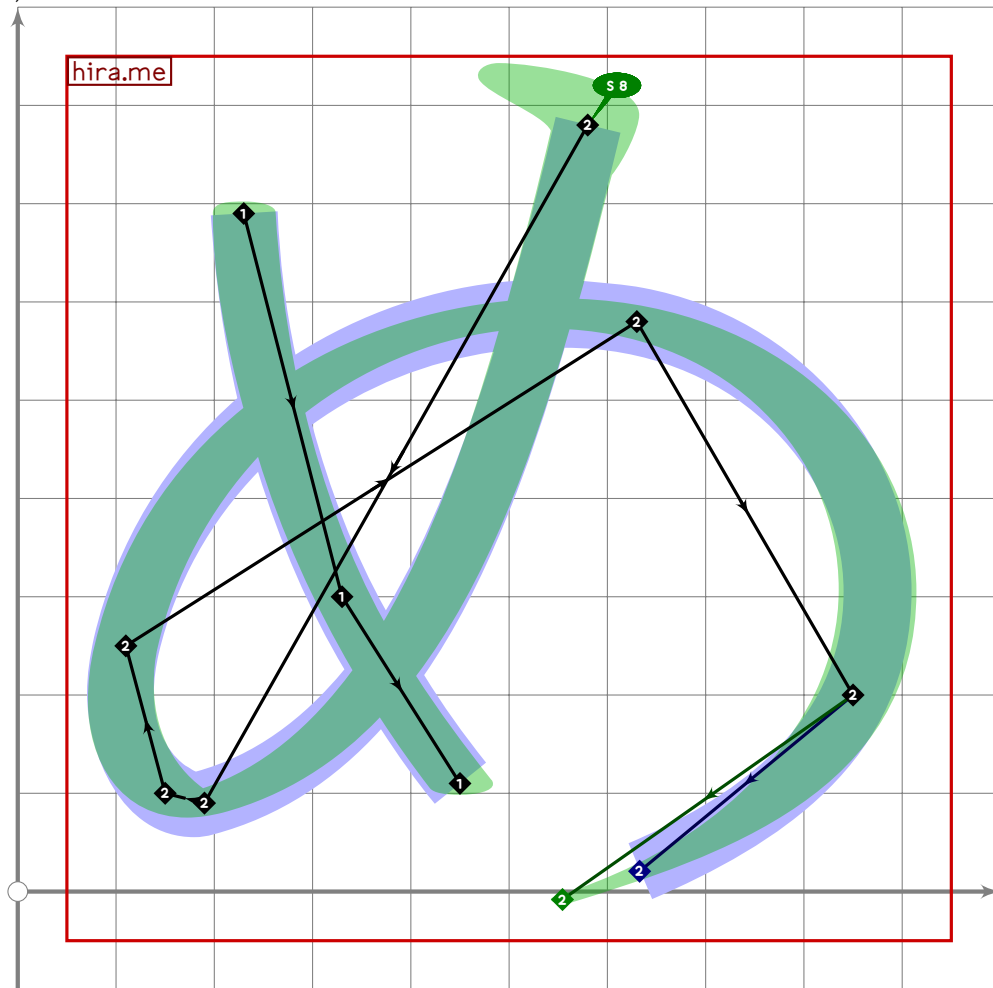
658
659 vardef hira.mu =
660   push_pbox_toexpand("hira.mu");
661
662   push_stroke((100+40*mincho,610)..(340,610)..(500-30*mincho,640),
663     (1.6,1.6)-(1.4,1.4)-(1.5,1.5));
664   set_boserif(0,0,5);
665   set_boserif(0,2,6);
666
667   push_stroke((260,440)..(350,300)..(170,200)..(130,330)..cycle,
668     (1.3,1.3)..(1.6,1.6)..(1.3,1.3)..(1.6,1.6)..cycle);
669
670   push_stroke((310,780){down}..(300,520)..
671     (point 0.5 of get_stroke(0)){direction 0.5 of get_stroke(0)},
672     (1.6,1.6)-(1.5,1.5)-(1.2,1.2));
673   set_boserif(0,0,8);
674
675   push_stroke(
676     (point 1.25 of get_stroke(-1)){direction 1.20 of get_stroke(-1)}..
677     (260,90)..(400,30){right}..(650,40)..(750,270)..
678     tension 2..(600,590)..(700,610)..(910,430),

```

```

679 (1,4,1,4)-(1,5,1,5)-(1,8,1,8)-(1,9,1,9)-
680 (1,1)-(0,6,0,6)-(1,1)-(1,6,1,6));
681 set_boserif(0,7,8);
682 expand_pbox;
683 enddef;

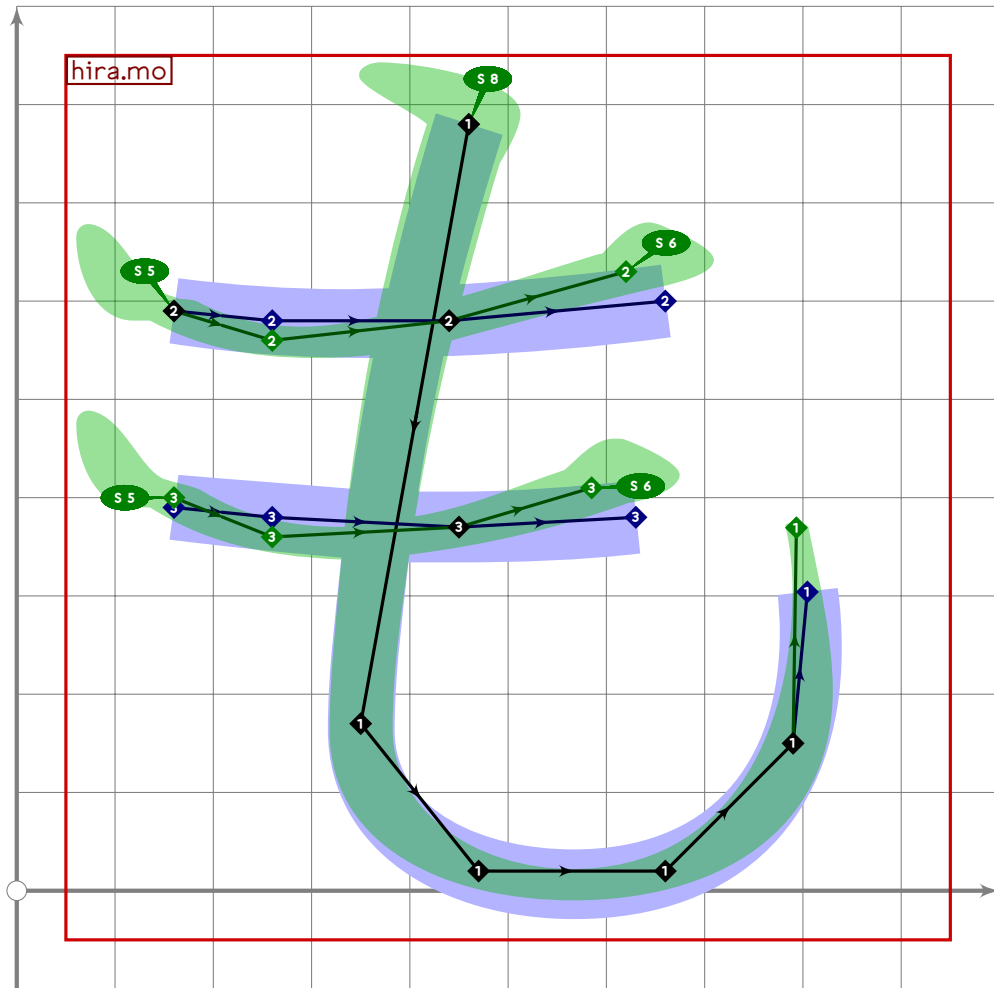
```



```

684
685 vardef hira.me =
686   push_pbox_toexpand("hira.me");
687
688   push_stroke((230,690)..(330,300)..(450,110),
689     (1,4,1,4)-(1,3,1,3)-(1,4,1,4));
690
691   push_stroke((580,780){curl 0.2}..tension 2.5..(190,90)..
692     (150,100)..(110,250)..tension 1.1..(630,580)..
693     (850,200)..tension 1.1..{curl 0.2}(470,-30),
694     (1,5,1,5)-(1,4,1,4)-(1,6,1,6)-(1,4,1,4)-
695     (1,6,1,6)-(1,6,1,6)-(0,65,0,65));
696   set_boserif(0,0,8);
697   expand_pbox;
698 enddef;

```



```

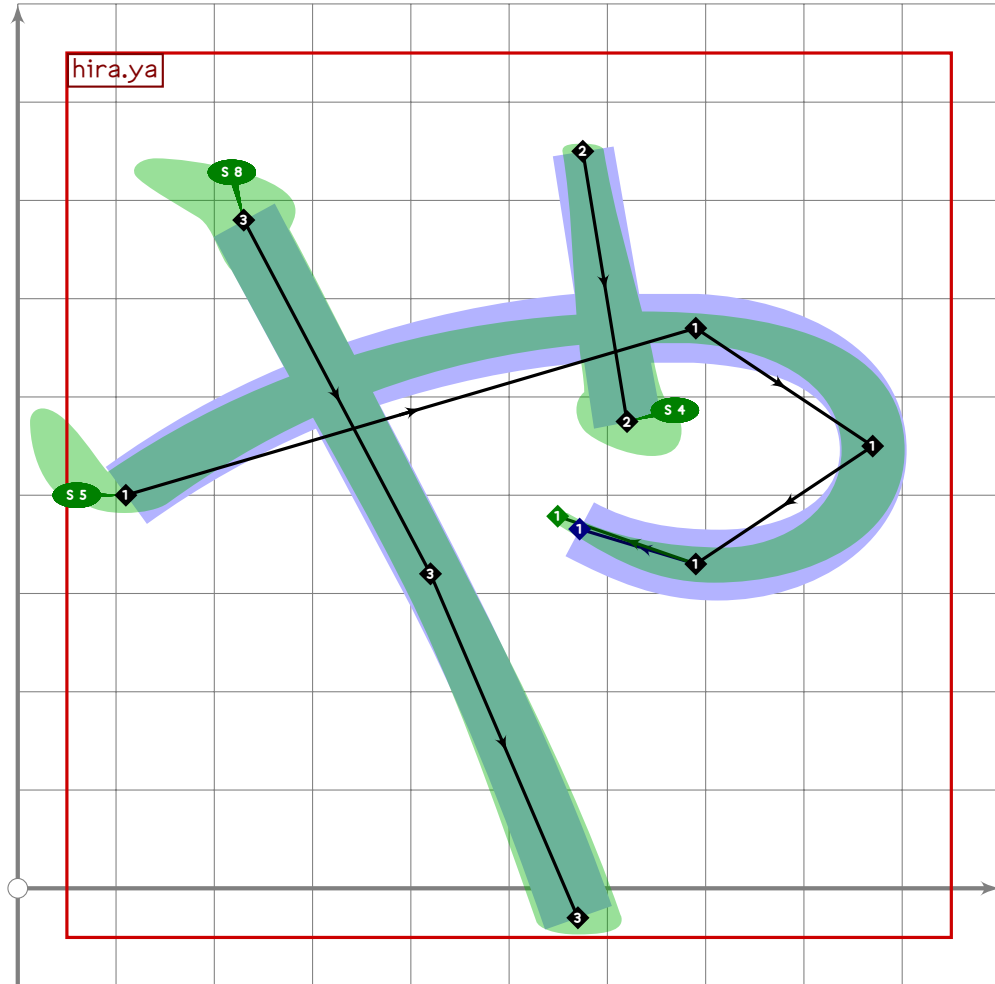
699
700 vardef hira.mo =
701   push_pbox_toexpand("hira.mo");
702
703   push_stroke((460,780)..tension 3..(350,170)..(470,20)..
704     tension 1.2..(660,20)..(790,150)..{curl 0}(770,460),
705     (1.7,1.7)-(1.4,1.4)-(1.6,1.6)-(1.7,1.7)-(1.4,1.4)-(0.6,0.6));
706   set_boserif(0,0,8);
707
708   push_stroke((160,590)..(260,580-20*mincho)..(440,580)..
709     (660-40*mincho,600+30*mincho),
710     (1.4,1.4)-(1.6,1.6)-(1.8,1.8)-(2,2));
711   set_boserif(0,0,5);
712   set_boserif(0,3,6);
713
714   push_stroke((160,390+10*mincho)..(260,380-20*mincho)..(450,370)..
715     (630-45*mincho,380+30*mincho),
716     (1.4,1.4)-(1.6,1.6)-(1.8,1.8)-(2,2));
717   set_boserif(0,0,5);
718   set_boserif(0,3,6);
719   expand_pbox;

```

```
720 enddef;
721
```

## Hiragana Yayuyo

```
722 %%%%%%%%%% HIRAGANA YAYUYO
```



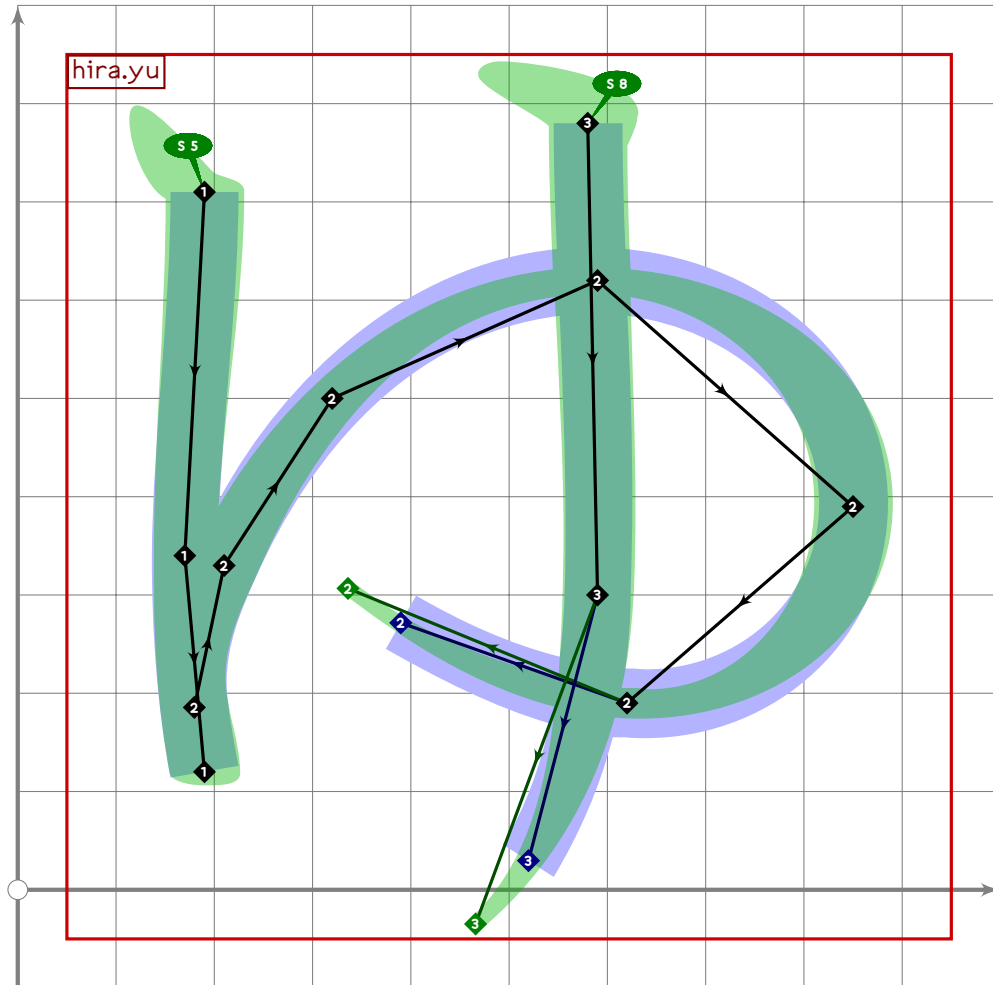
```

723
724 vardef hira.ya =
725   push_pbox_toexpand("hira.ya");
726
727   push_stroke((110,400)..(690,570)..(870,450)..(690,330)..(520,400),
728     (1.8,1.8)-(1.6,1.6)-(1.4,1.4)-(1.8,1.8)-(0.6,0.6));
729   set_boserif(0,0,5);
730
731   push_stroke((575,750)-(620,475),
732     (1.1,1.1)-(1.6,1.6));
733   set_boserif(0,1,4);
734
735   push_stroke((230,680)..tension 2..(420,320)..(570,-30),
736     (1.6,1.6)-(1.4,1.4)-(1.7,1.7));
737   set_boserif(0,0,8);
738   expand_pbox;

```



739 enddef;



740

741 vardef hira.yu =

742 push\_pbox\_toexpand("hira.yu");

743

744 push\_stroke((190,710){down}...(170,340)..(190,120),

745 (1.6,1.6)-(1.4,1.4)-(1.5,1.5));

746 set\_boserif(0,0,5);

747

748 push\_stroke((point 1.7 of get\_strokep(0))

749 {direction 1.7 of get\_strokep(0)}...(210,330)..

750 (320,500)..(590,620)..(850,390)..(620,190)..tension 1.3..(320,320),

751 (1.4,1.4)-(1.5,1.5)-(1.4,1.4)-(1.5,1.5)-(1.6,1.6)-

752 (1.6,1.6)-(0.77,0.77));

753

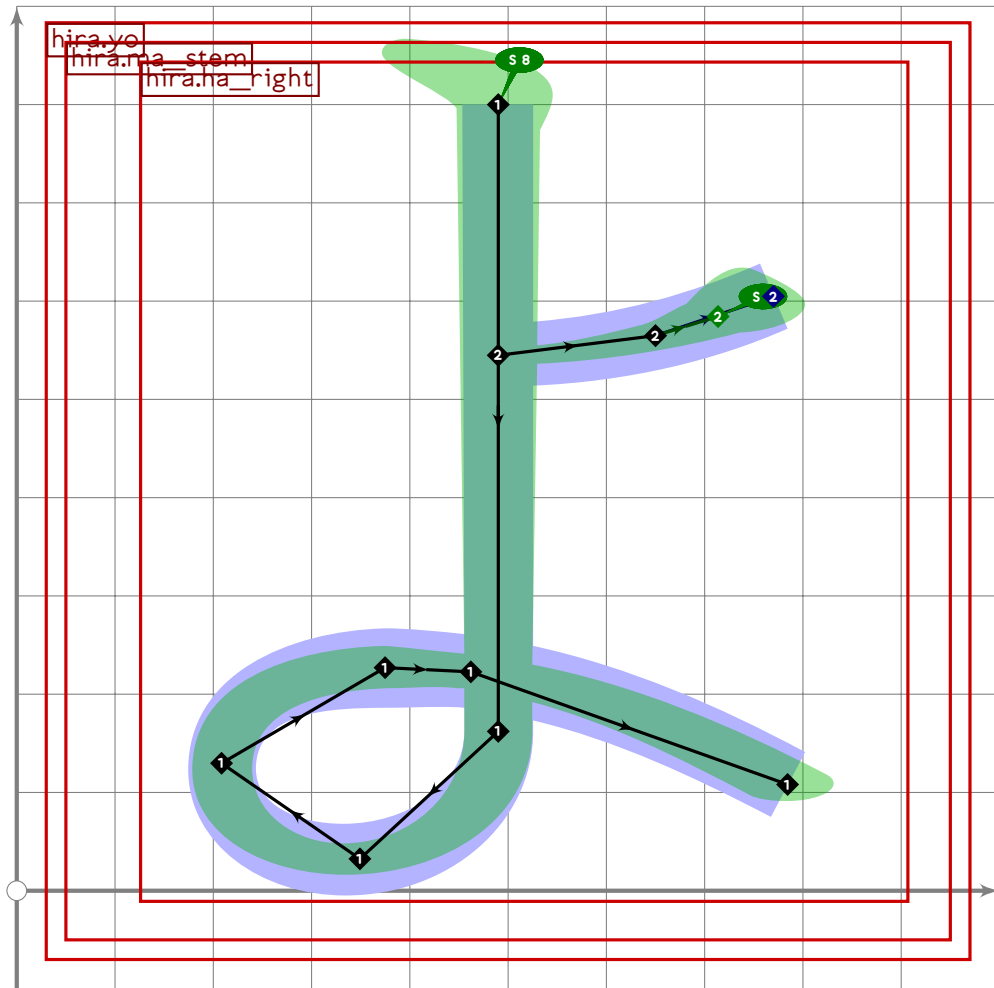
754 push\_stroke((580,780){down}...(590,300)..{dir 190}(360,-85),

755 (1.6,1.6)-(1.5,1.5)-(0.6,0.6));

756 set\_boserif(0,0,8);

757 expand\_pbox;

758 enddef;



```

759
760 vardef hira.yo =
761   push_pbox_toexpand("hira.yo");
762
763   hira.ma_stem;
764
765   replace_strokep(0)(oldp shifted (-20,0));
766   z0=point 0.4 of get_strokep(0);
767
768   push_stroke(z0..(z0+(160,20))..(z0+(280,60))+60*mincho*dir 200,
769     (1.2,1.2)-(1.4,1.4)-(1.8,1.8));
770   set_boserif(0,2,6);
771   expand_pbox;
772 enddef;
773

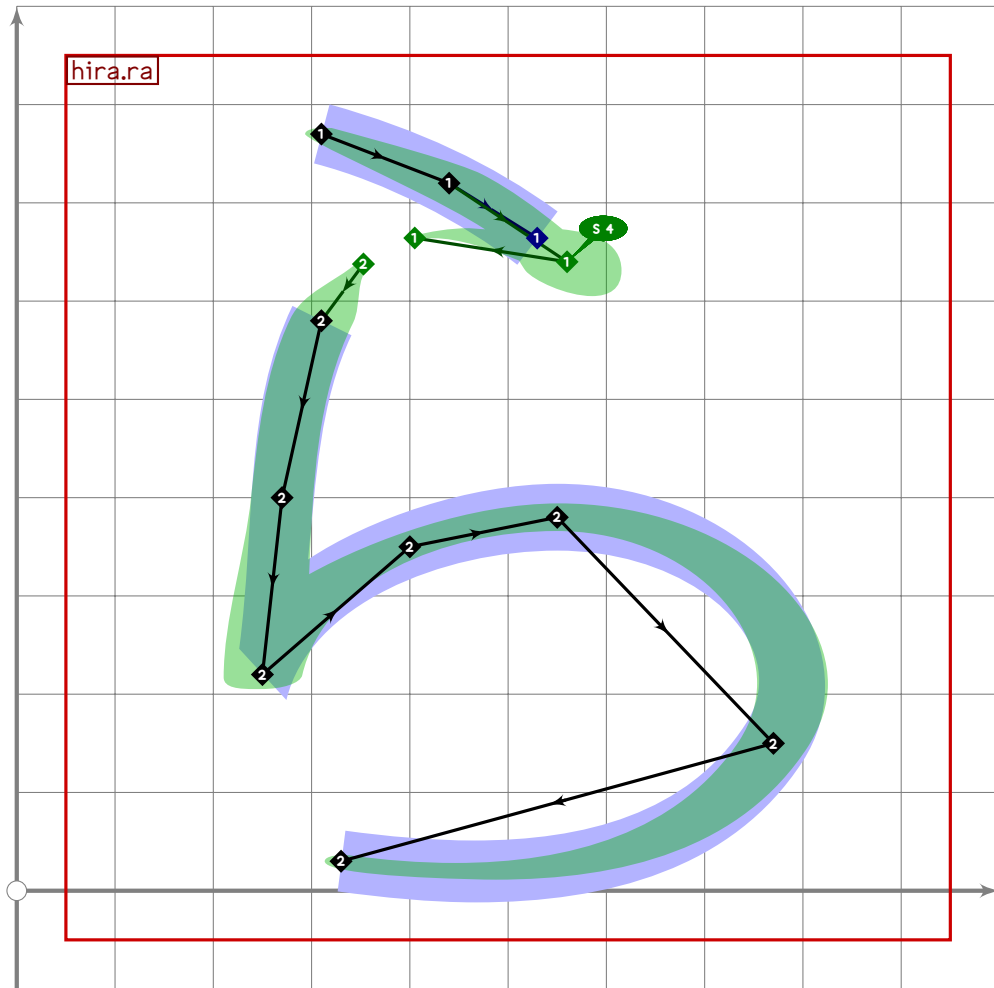
```

## Hiragana Rarirurero

```

774 %%%%%%%%%% HIRAGANA RARIRURERO

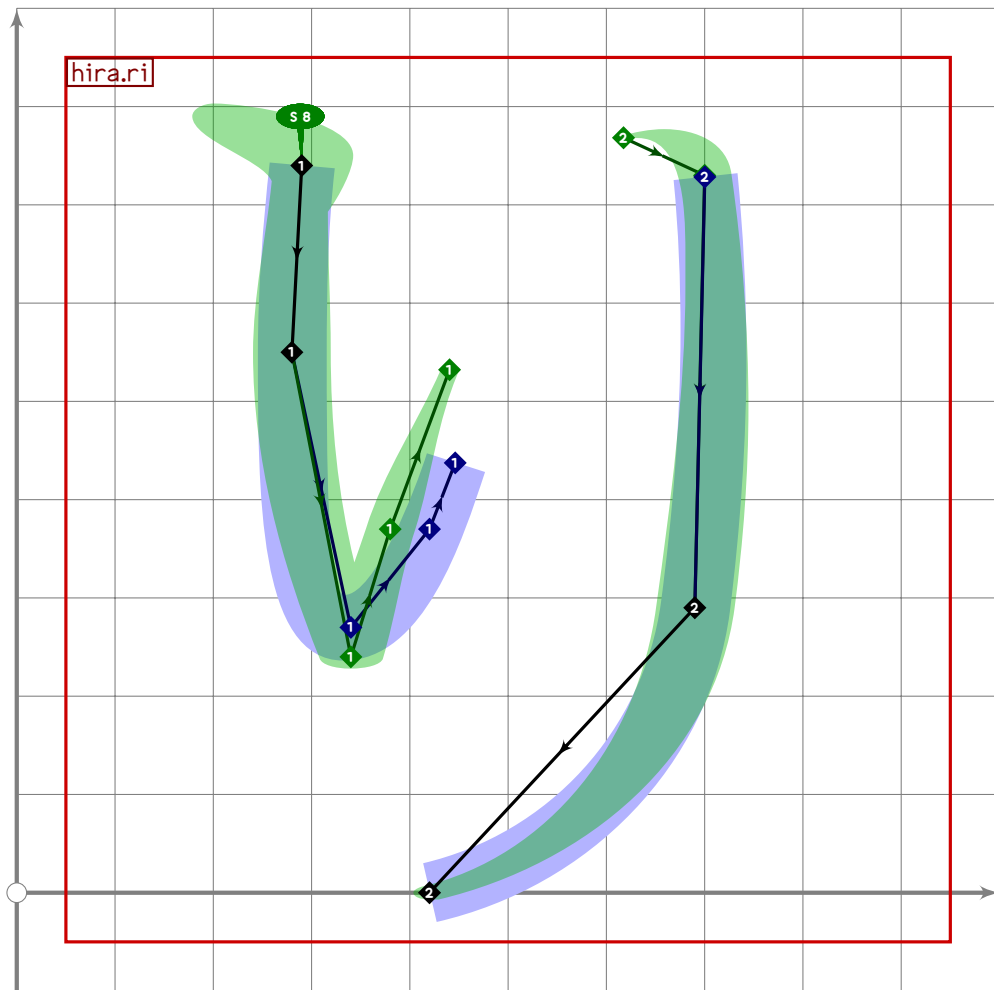
```



```

775
776 vardef hira.ra =
777   push_pbox_toexpand("hira.ra");
778
779   push_stroke((370,770)..(500,720)..{curl 1}(620,640){curl 0}..
780     (430,650)..(370,580)..(330,400)..(310,220),
781     (1,1)-(1.6,1.6)-(2,0.78)-(0.55,0.55)-
782     (1.8,1)-(1.4,1.4)-(1.6,1.6));
783   set_boserif(0,2,4);
784
785   hira.chi_bottom;
786   set_botip(0,2,0);
787
788   replace_strokep(0)(oldp shifted (-60,0));
789   expand_pbox;
790 enddef;

```



```

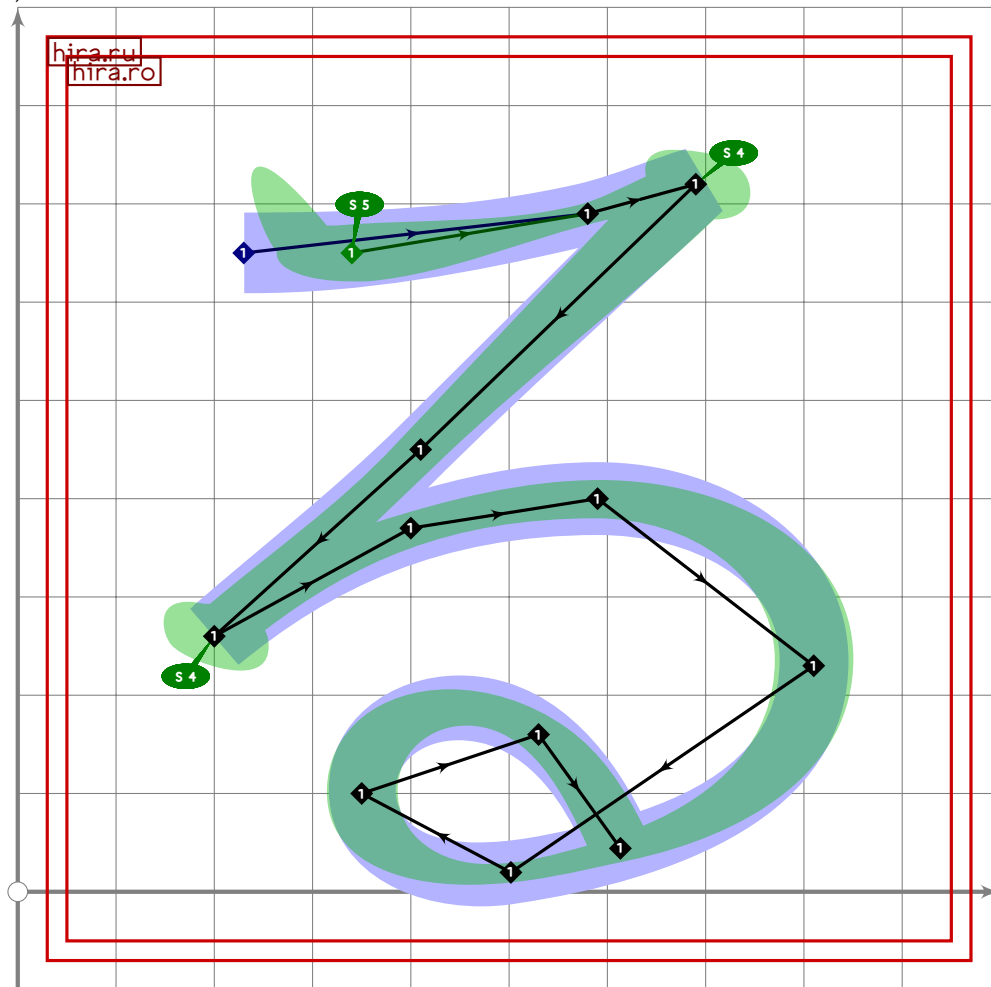
791
792 vardef hira.ri =
793   push_pbox_toexpand("hira.ri");
794
795   begingroup
796     save ripx,ripy,ripz,x,y;
797     path ripx,ripy,ripz;
798     numeric x[],y[];
799     z1=(290,740);
800     z2=(280,550);
801     z3=(340,270-30*mincho);
802     z4=(420-40*mincho,370);
803     z5=(540,710);
804     z6=(700,730);
805     ripx=z1..z2{down}..tension 1.5..z3..
806       tension 1.5..z4..z5..z6..tension 5 and 1.2..
807       (690,290)..tension 0.75 and 1..{curl 0.45}(420,0);
808     ripy=z1..z2{down}..tension 1.5..{curl 1}z3{curl 1}..
809       tension 1.5..z4..z5..z6..tension 5 and 1.2..
810       (690,290)..tension 0.75 and 1..{curl 0.45}(420,0);
811     push_stroke(interpath(mincho,ripx,ripy),

```

```

812 (1.3,1.3)-(1.6,1.6)-(1.4,1.4)-(1.2,1.2)-(0.4,0.2)-
813 (1.5,0.99)-(1.6,1.6)-(1,1));
814 set_boserif(0,0,8);
815 endgroup;
816 expand_pbox;
817 enddef;

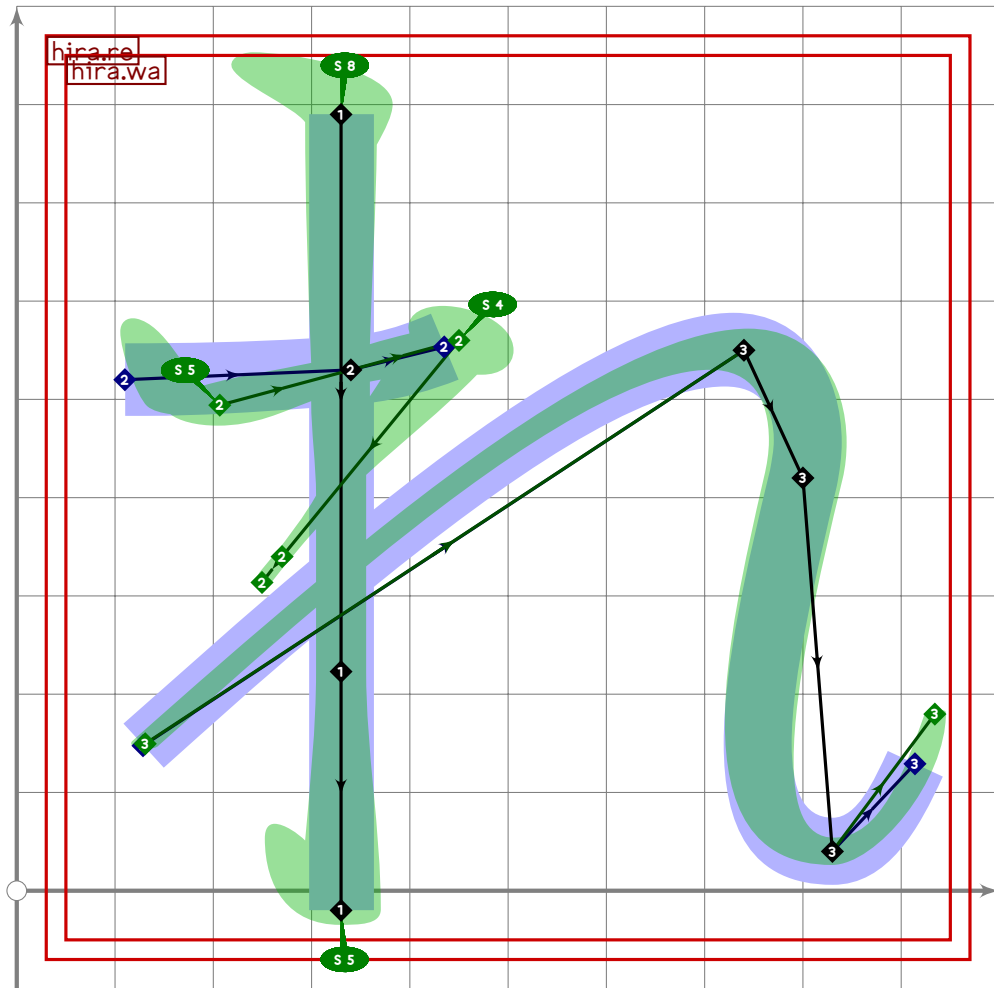
```



```

818
819 vardef hira.ru =
820   push_pbox_toexpand("hira.ru");
821
822   hira.ro;
823
824   replace_strokep(0)((subpath (0,7.8) of oldp)..(350,100)..(530,160)..
825     {curl 0.2}(point 7.6 of oldp));
826   replace_strokeq(0)((2.6,2.6)-(1.2,1.2)-(1.9,1.9)-
827     (1.3,1.3)-(1.6,1.6)-
828     (1.5,1.5)-(1.9,1.9)-(1.6,1.6)-
829     (1.2,1.2)-(1.5,1.5)-(1.4,1.4));
830   expand_pbox;
831 enddef;

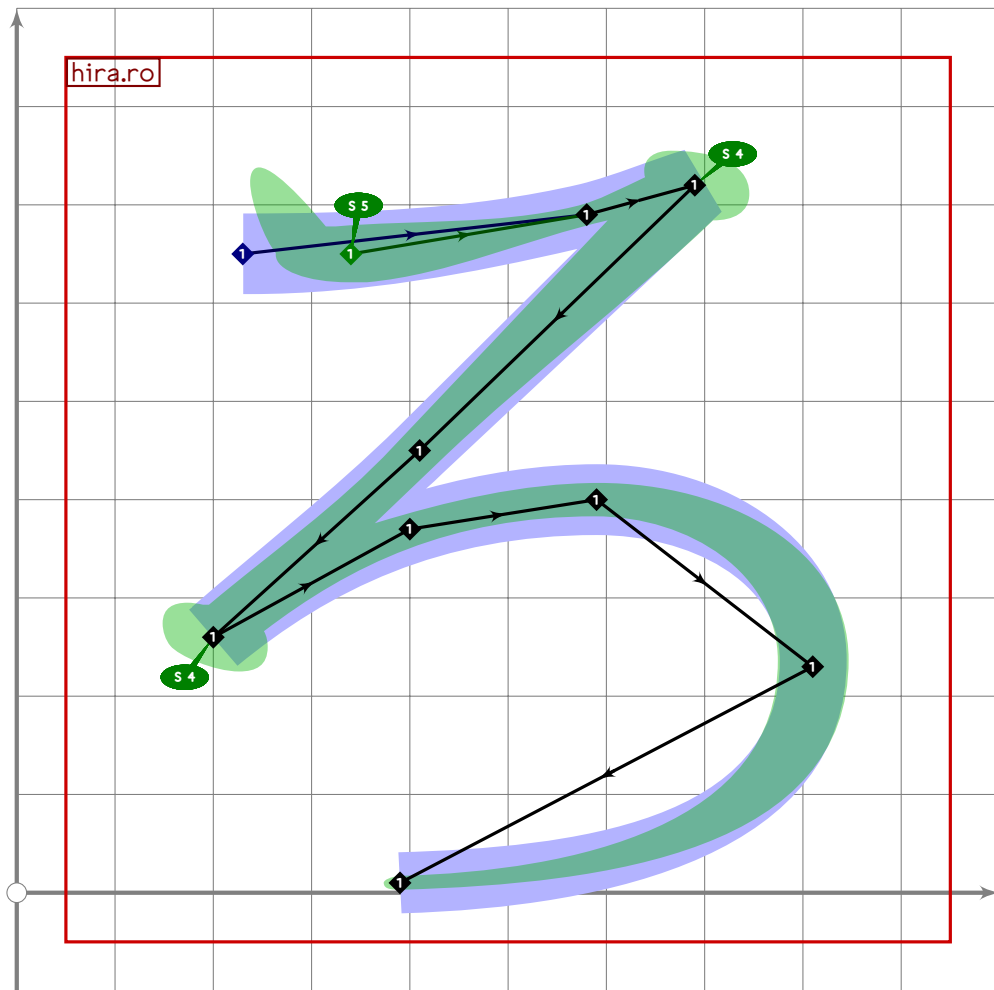
```



```

832
833 vardef hira.re =
834   push_pbox_toexpand("hira.re");
835
836   hira.wa;
837
838   replace_strokeq(0)((subpath (0,4) of old){curl 0}..
839     tension 2..(740,550)..(800,420)..
840     (830,40){right}..tension 1.5..{curl 0}(960,270));
841   replace_strokeq(0)((2,2)-(1.6,1.6)-(2.7,0.9)-
842     (0.84,0.7)-(0.79,0.97)-
843     (2.1,2.1)-(1.6,1.6)-(1.5,1.5)-(0.5,0.5));
844   set_boserif(0,2,4);
845   expand_pbox;
846 enddef;

```



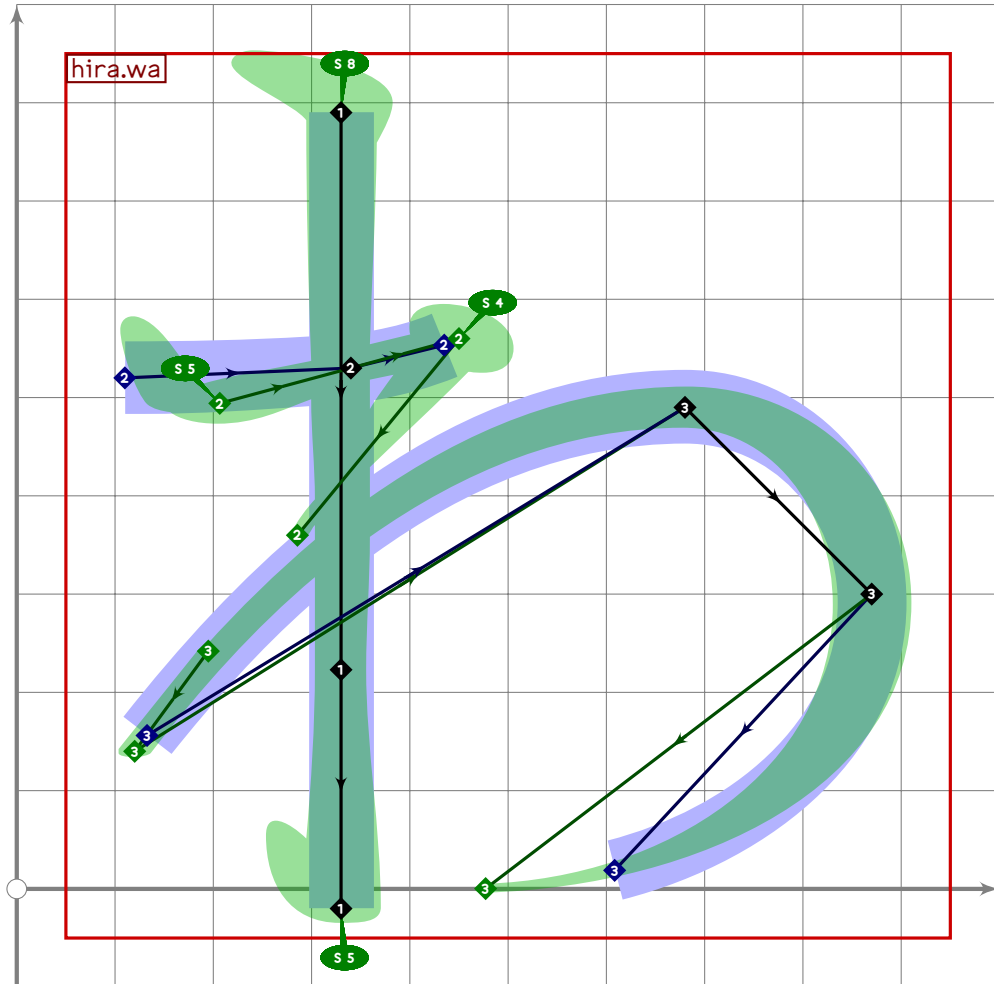
```

847
848 vardef hira.ro =
849   push_pbox_toexpand("hira.ro");
850
851   push_stroke((230+110*mincho,650)..(580,690)..{curl 1}{690,720}{curl 1}..
852     (410,450)..{curl 1}{200,260}{curl 1}..
853     (400,370)..(590,400){right}..(810,230)..
854     tension 11..{curl 0}{390,10},
855     (2.6,2.6)-(1.2,1.2)-(1.9,1.9)-
856     (1.3,1.3)-(1.6,1.6)-
857     (1.5,1.5)-(1.7,1.7)-(1.5,1.5)-(1,1));
858   set_botip(0,2,0);
859   set_botip(0,4,0);
860   set_boserif(0,0,5);
861   set_boserif(0,2,4);
862   set_boserif(0,4,4);
863   expand_pbox;
864 enddef;
865

```

# Hiragana Wawiwewo/N/Iteration

866 %%% HIRAGANA WAWIWEWO/N/ITERATION



```

867
868 vardef hira.wa =
869   push_pbox_toexpand("hira.wa");
870
871   push_stroke((330,790)-(0.7[(330,790),(330,-20)])-(330,-20),
872     (1.5,1.5)-(1.2,1.2)-(1.6,1.6));
873   set_boserif(0,0,8);
874   set_boserif(0,2,5);
875
876   push_stroke(((110,520)+100*mincho*dir -15)..tension 2..(340,530)..
877     {curl 1}(450,560){curl 1}..
878     (270,340)..{curl 1}(120,140){curl 0.2}..
879     (680,490){right}..(870,300)..{curl 0.2}(450,0),
880     (2,2)-(1.6,1.6)-(2.2,0.9)-
881     (0.7,0.7)-(0.97,0.97)-
882     (2,2)-(1.6,1.6)-(0.8,0.8));
883   set_botip(0,2,0);
884   set_botip(0,4,0);

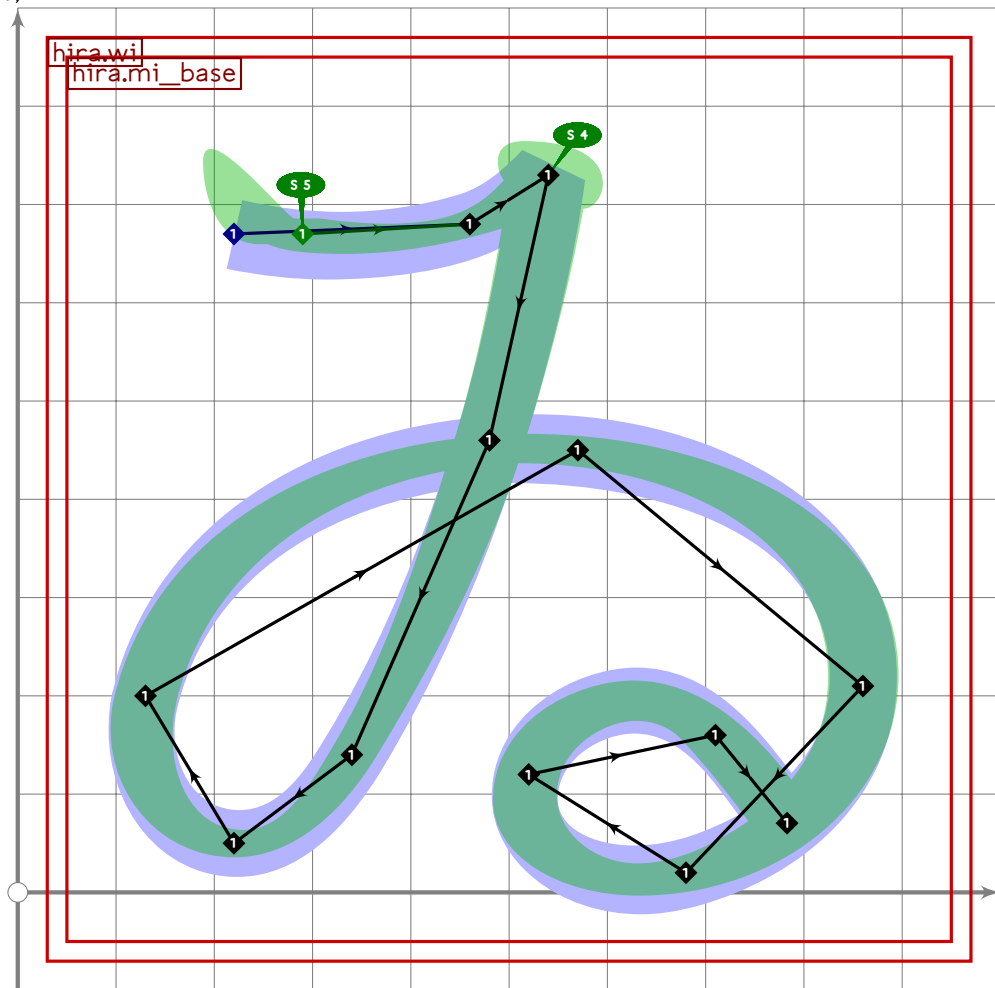
```



```

885 set_boserif(0,0,5);
886 set_boserif(0,2,4);
887 expand_pbox;
888 enddef;

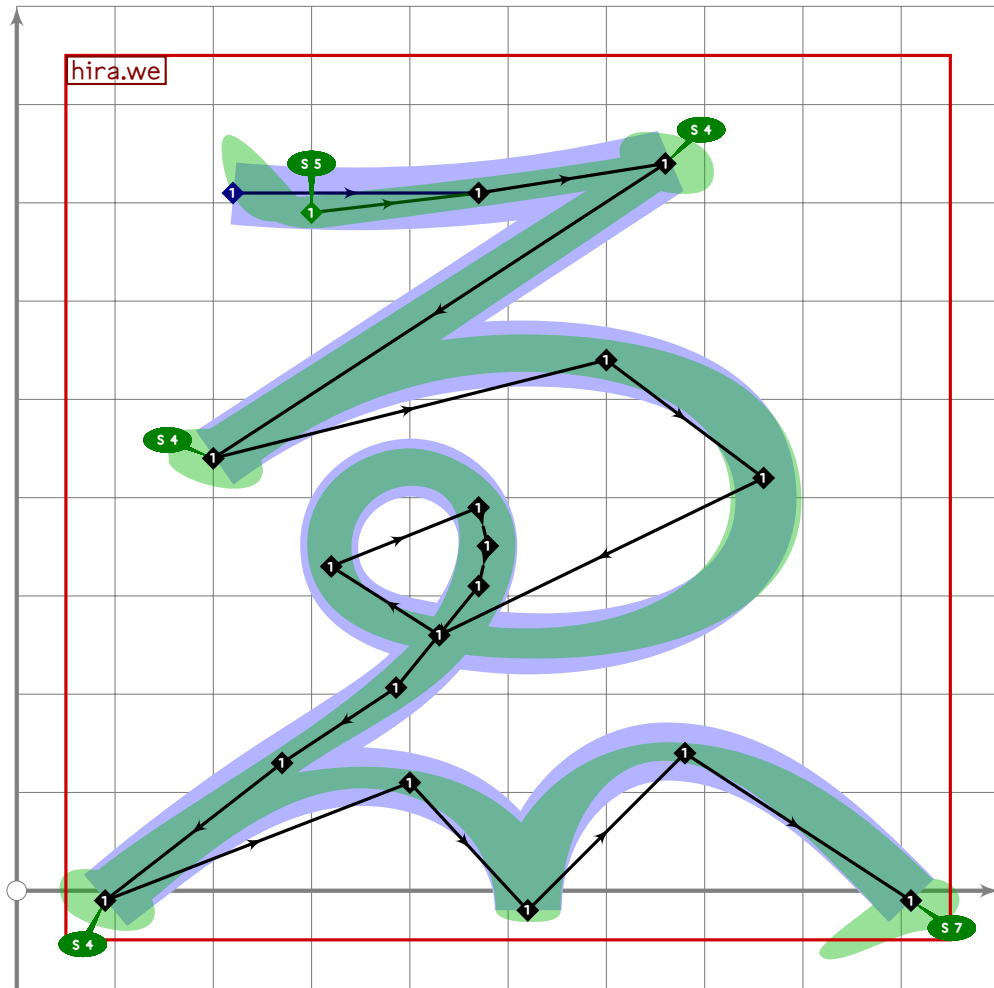
```



```

889
890 vardef hira.wi =
891   push_pbox_toexpand("hira.wi");
892   hira.mi_base;
893
894
895   replace_stroke(0)((subpath (0,6) of oldp)..(570,450)..(860,210)..(680,20)..
896     (520,120)..tension 1.2..(710,160));
897   replace_stroke(0)(oldp..{curl 0.3}(point 8.6 of oldp));
898
899   replace_strokeq(0)((1.7,1.7)-(1.3,1.3)-(1.6,1.6)-
900     (1.5,1.5)-(1.2,1.2)-(1.5,1.5)-(1.4,1.4)-
901     (1.6,1.6)-(1.5,1.5)-(1.7,1.7)-(1.4,1.4)-(1.5,1.5));
902   expand_pbox;
903 enddef;

```



```

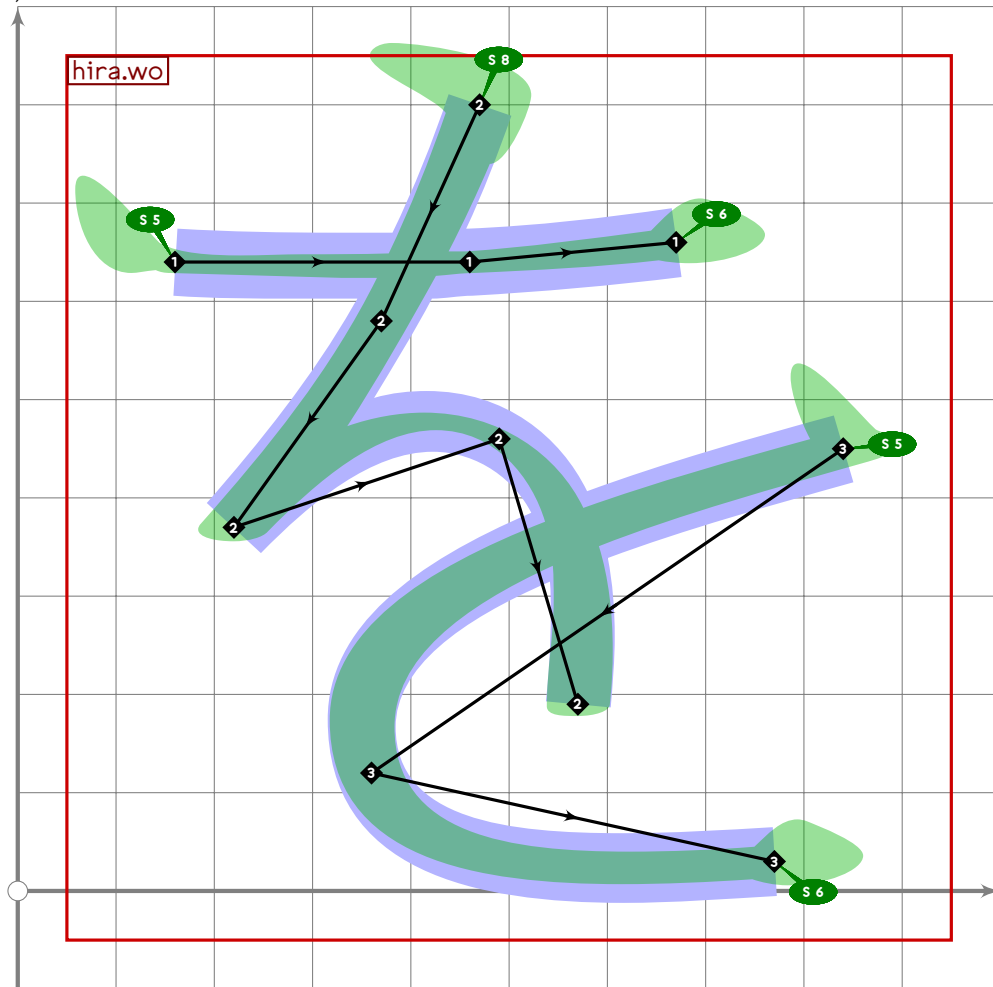
904
905 vardef hira.we =
906   push_pbox_toexpand("hira.we");
907
908   push_stroke((220+80*mincho,710-20*mincho)..(470,710)..{curl 1}(660,740)-
909     (200,440){curl 1}..
910     (600,540)..(760,420)..(430,260)..(320,330)..(470,390)..(470,310)..
911     (270,130)..{curl 0}(90,-10){curl 0.1}..
912     (400,110)..{down}(520,-20){up}..
913     (680,140)..tension 1.3..{curl 0.2}(910,-10),
914     (1.8,1.8)-(1.6,1.6)-(1.5,1.5)-(1.9,1.9)-
915     (2,2)-(1.6,1.6)-(1.7,1.7)-(1.2,1.2)-(1.3,1.3)-(1.35,1.35)-
916     (1.4,1.4)-(1.5,1.5)-(1.3,1.3)-(1.8,1.8)-
917     (1.4,1.4)-(1.5,1.5)-
918     (1.3,1.3)-(1.7,1.7));
919   replace_strokep(0)(insert_nodes(oldp)(8.5,9.5));
920   set_bosize(0,90);
921   set_botip(0,2,0);
922   set_botip(0,3,0);
923   set_botip(0,13,0);
924   set_botip(0,15,0);

```

```

925 set_boserif(0,0,5);
926 set_boserif(0,2,4);
927 set_boserif(0,3,4);
928 set_boserif(0,13,4);
929 set_boserif(0,17,7);
930 expand_pbox;
931 enddef;

```



```

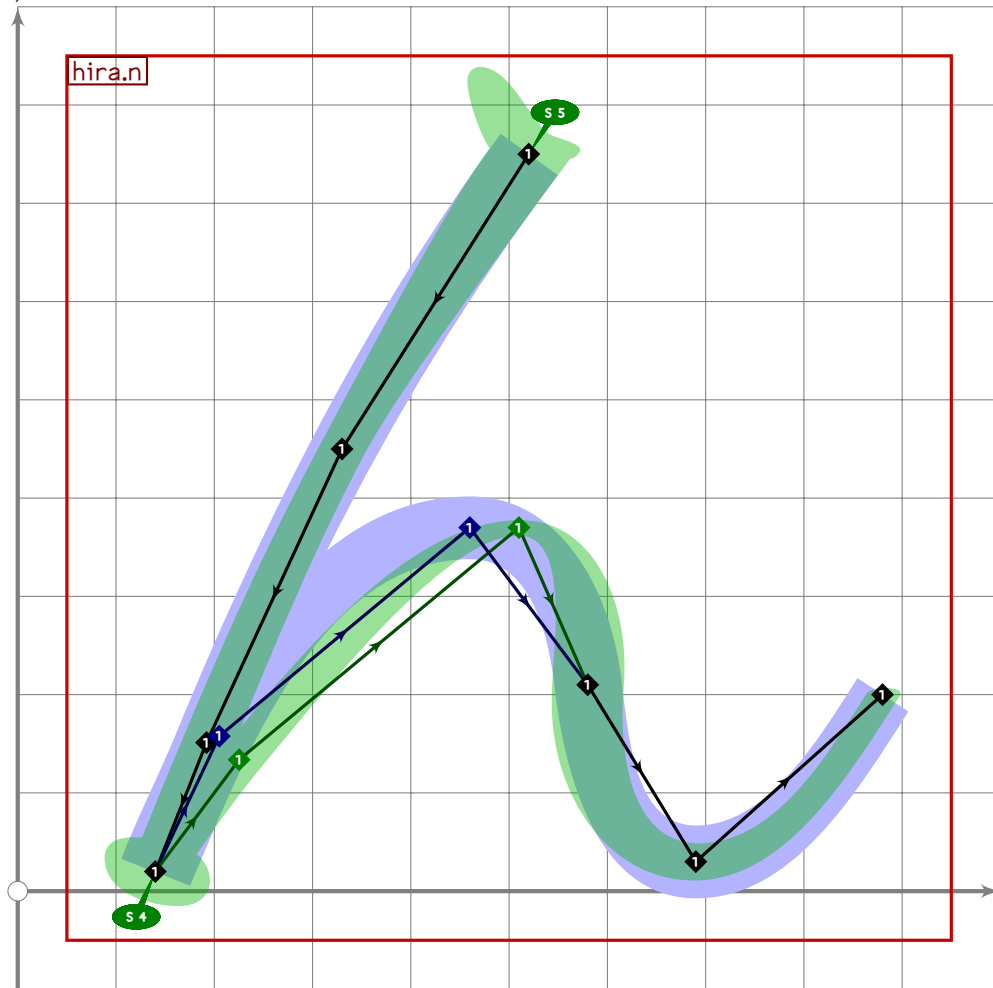
932
933 vardef hira.wo =
934   push_pbox_toexpand("hira.wo");
935
936   push_stroke((160,640)..(460,640)..(670,660),
937     (1.3,1.3)-(1.4,1.4)-(1.6,1.6));
938   set_boserif(0,0,5);
939   set_boserif(0,2,6);
940
941   push_stroke((470,800)..(370,580)..{curl 1}(220,370){curl 0.1}..
942     (490,460)..{curl 0}(570,190),
943     (1.4,1.4)-(1.3,1.3)-(1.5,1.5)-(1.01,1.01)-(1.4,1.4));
944   set_botip(0,2,0);
945   set_boserif(0,0,8);

```

```

946
947 push_stroke((840,450){curl 0.017}..tension 1 and 2..(360,120)..
948   tension 2 and 1..{curl 0.03}(770,30),
949   (1.7,1.7)-(1.4,1.4)-(1.7,1.7));
950 set_boserif(0,0,5);
951 set_boserif(0,2,6);
952 expand_pbox;
953 enddef;

```



```

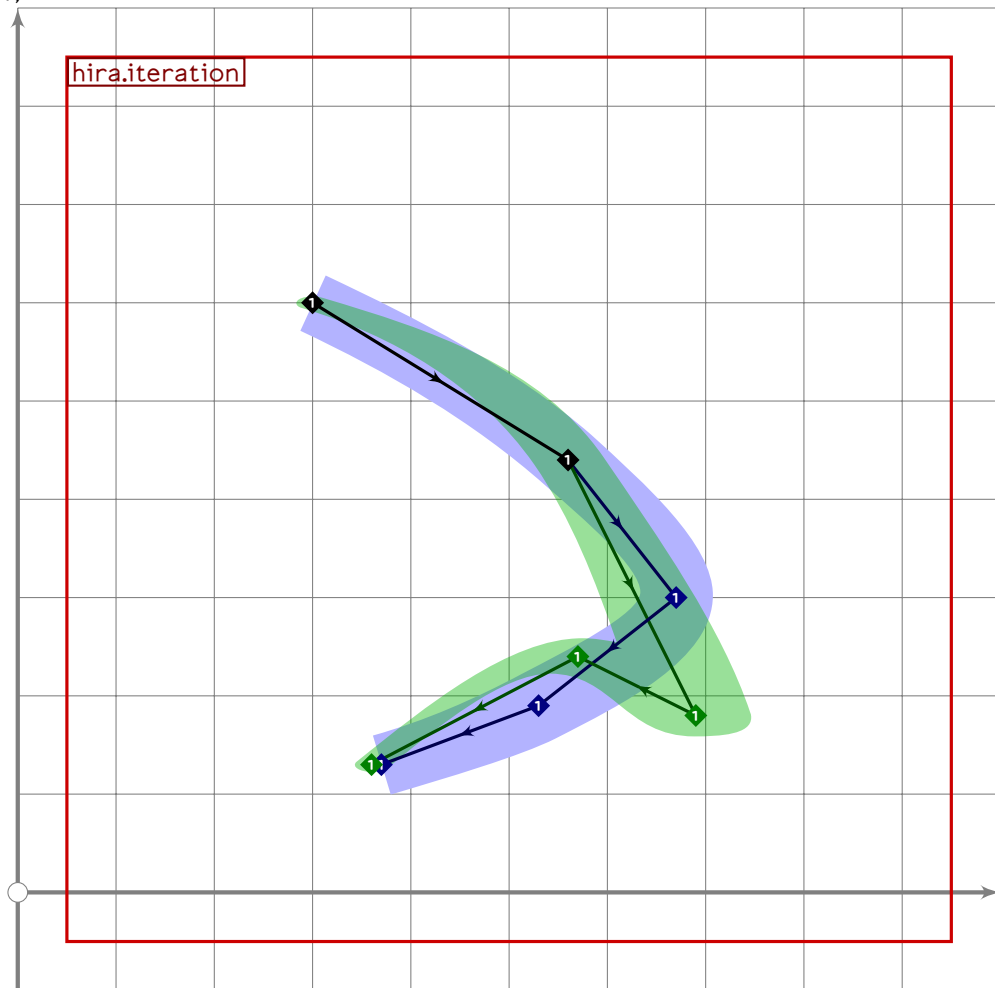
954
955 vardef hira.n =
956   push_pbox_toexpand("hira.n");
957
958   push_stroke((520,750)..(330,450)..{curl 0.2}(140,20){curl 0.1}..
959     tension (1.2+0.6*mincho)..(460+50*mincho,370){right}..
960     (580,210)..(690,30){right},
961     (1.7,1.7)-(1.2,1.2)-(1.3,1.3)-
962     (1.1,1.1)-(1.5,1.5)-(1.9,1.9)-(1,1));
963   replace_strokep(0)(oldp{right}..(880,200){direction 0.5 of oldp});
964   replace_strokep(0)(insert_nodes(oldp)(1.7,2.3));
965   replace_strokeq(0)(insert_nodes(oldq)(1.7,2.3));
966   set_botip(0,3,0);

```

```

967 set_boserif(0,0,5);
968 set_boserif(0,3,4);
969 expand_pbox;
970 enddef;

```



```

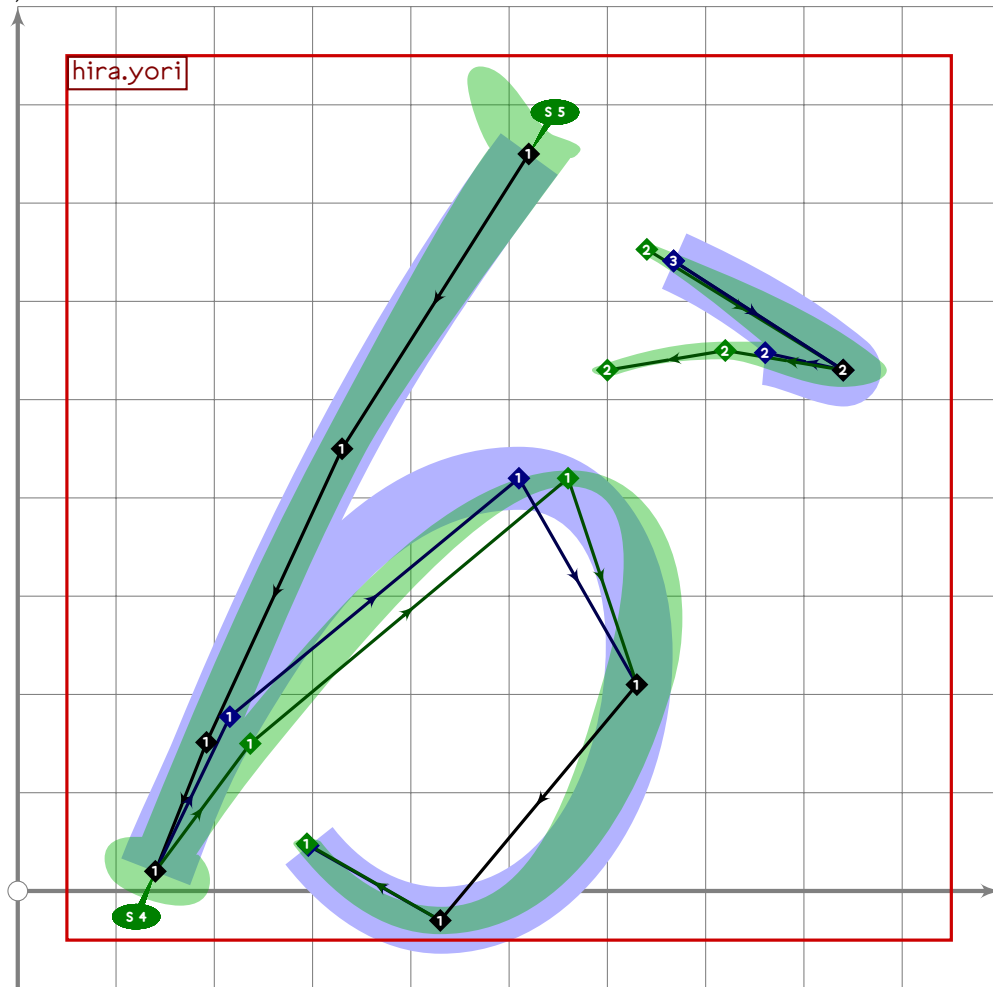
971
972 vardef hira.iteration =
973   push_pbox_toexpand("hira.iteration");
974
975   push_stroke(begingroup
976     save ripx,ripy;
977     path ripx,ripy;
978     ripx:=(300,600){curl 0.2}..(560,440)..
979       tension 1.5 and 2..(670,300)..
980       tension 2 and 1.5..(530,190)..{curl 0.2}(370,130);
981     ripy:=(300,600){curl 0.2}..(560,440)..
982       tension 1.5..{curl 1}(690,180){curl 1}..
983       tension 2 and 1.5..(570,240)..tension 1.4..{curl 0}(360,130);
984     interpath(mincho,ripx,ripy)
985   endgroup,
986   (1,1)-(1.5,1.5)-(2,2)-(1.9,1.9)-(1,1));
987   set_botip(0,2,0);

```

```

988 expand_pbox;
989 enddef;

```



```

990
991 vardef hira.yori =
992   push_pbox_toexpand("hira.yori");
993
994   push_stroke((520,750)..(330,450)..{curl 0.2}(140,20){curl 0.1}..
995     tension (1.2+0.6*mincho)..(510+50*mincho,420){right}..
996     (630,210)..(430,-30){left}..tension 1.3..(290,600)..
997     {curl 0.1}(840,530){curl 1}..(720,550)..(600,530),
998     (1.7,1.7)-(1.2,1.2)-(1.3,1.3)-
999     (1.1,1.1)-
1000    (1.5,1.5)-(1.5,1.5)-(-1,-0.4)-
1001    (1.8,1.6)-(1.6,0.7)-(1.9,0));
1002   replace_strokep(0)(insert_nodes(oldp)(1.7,2.3));
1003   replace_strokeq(0)(insert_nodes(oldq)(1.7,2.3));
1004   set_botip(0,3,0);
1005   set_botip(0,9,0);
1006   set_boserif(0,0,5);
1007   set_boserif(0,3,4);
1008   expand_pbox;

```

1009 enddef;

# iching.mp

```
1 %
2 % I Ching characters for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(iching);
32
33 _____
34
35 iching.size:=680;
36
37 vardef make_iching_xform(expr numlines) =
38   transform iching_xform;
39   numeric x[];
40
41   x2-x1=iching.size;
42   (x1+x2)/2=500;
43
44   (-1,(numlines+1)/2) transformed iching_xform=
45     (x1,0.5[latin_wide_low_h,latin_wide_high_h]);
46   (1,(numlines+1)/2) transformed iching_xform=
47     (x2,0.5[latin_wide_low_h,latin_wide_high_h]);
48   (-1,(numlines+1)/2-2.5) transformed iching_xform=
49     (x1,latin_wide_low_h);
50 enddef;
51
52 vardef iching.line(expr line,numlines,linetype) =
53   make_iching_xform(numlines);
54   if linetype=0:
55     push_stroke(((1,line)-(-0.28,line)) transformed iching_xform,
56       (2,2)-(2,2));
57     push_stroke(get_strokep(0) reflectedabout (centre_pt,centre_pt+down),
58       (2,2)-(2,2));
59   else:
60     push_stroke(((1,line)-(1,line)) transformed iching_xform,
61       (2,2)-(2,2));
62   fi;
63   push_anchor(anc_iching_line(line),
64     identity shifted (((1,line) transformed iching_xform)
65       +(1000-iching.size)*0.25*right));
66 enddef;
67
68 % WARNING, nonstandard calling convention, simply returns a path to fill
69 vardef iching.dot(expr line,numlines) =
70   begingroup;
```



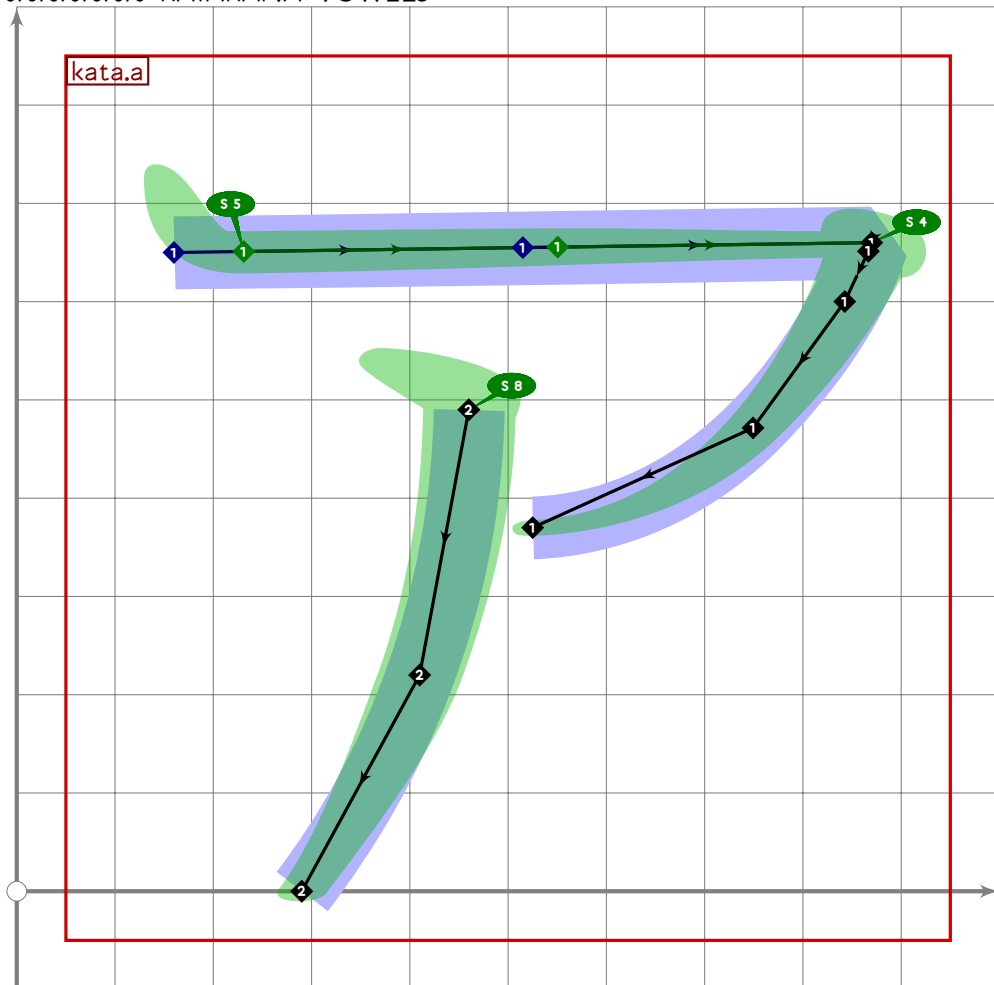
```
71   make_iching_xform(numlines);
72   (fullcircle scaled (tsu_punct_size*1.10)
73     shifted (((1,line) transformed iching_xform)
74             +(1000-iching.size)*0.25*right))
75   endgroup
76 enddef;
```

# katakana.mp

```
1 %  
2 % Katakana for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 inclusion_lock(katakana);  
32  
33  
34
```

## Katakana Vowels

```
35 %%%%%%%%%%%%%%%%% KATAKANA VOWELS
```

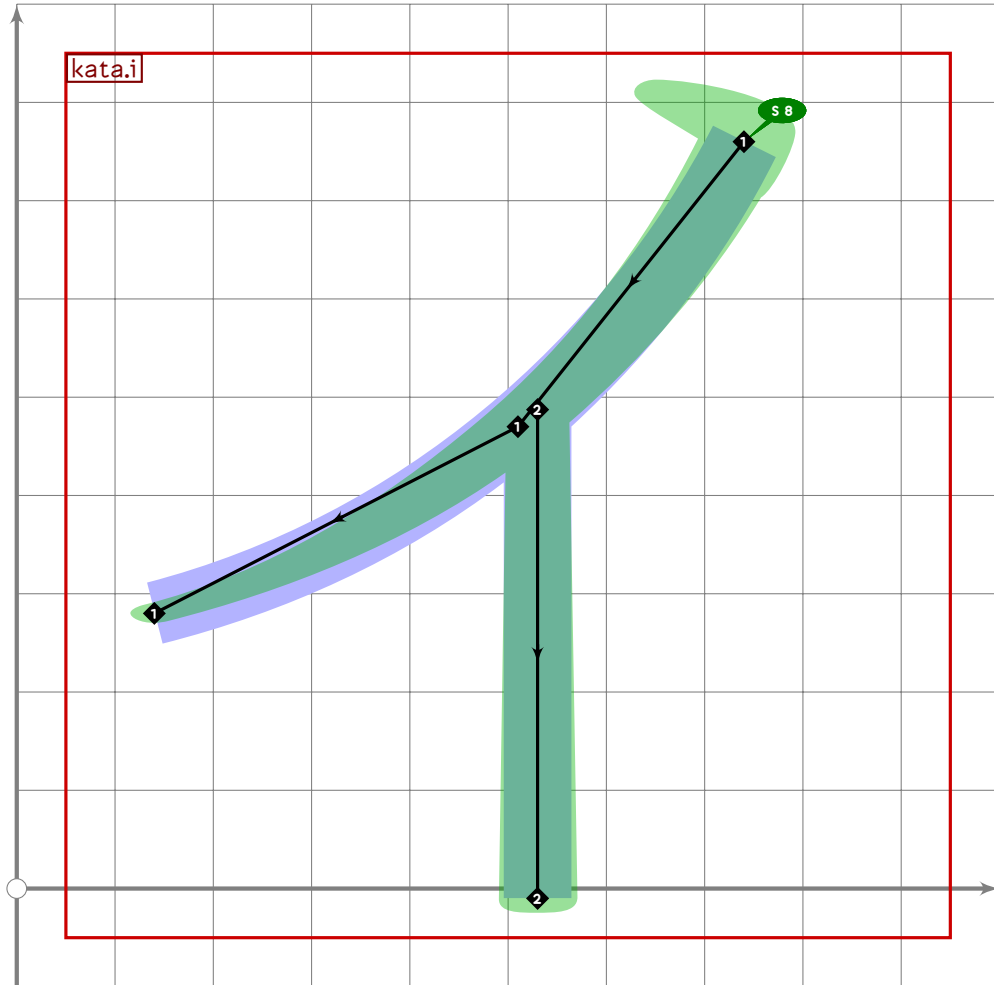


```
36  
37 vardef kata.a =  
38   push_pbox_toexpand("kata.a");  
39  
40   kata.fu_stroke((160,650),(870,660),(525,370));  
41
```

```

42 push_stroke((460,490)..(410,220)..(290,0),
43   (1.8,1.8)-(1.7,1.7)-(1.2,1.2));
44 set_boserif(0,0,8);
45 expand_pbox;
46 enddef;

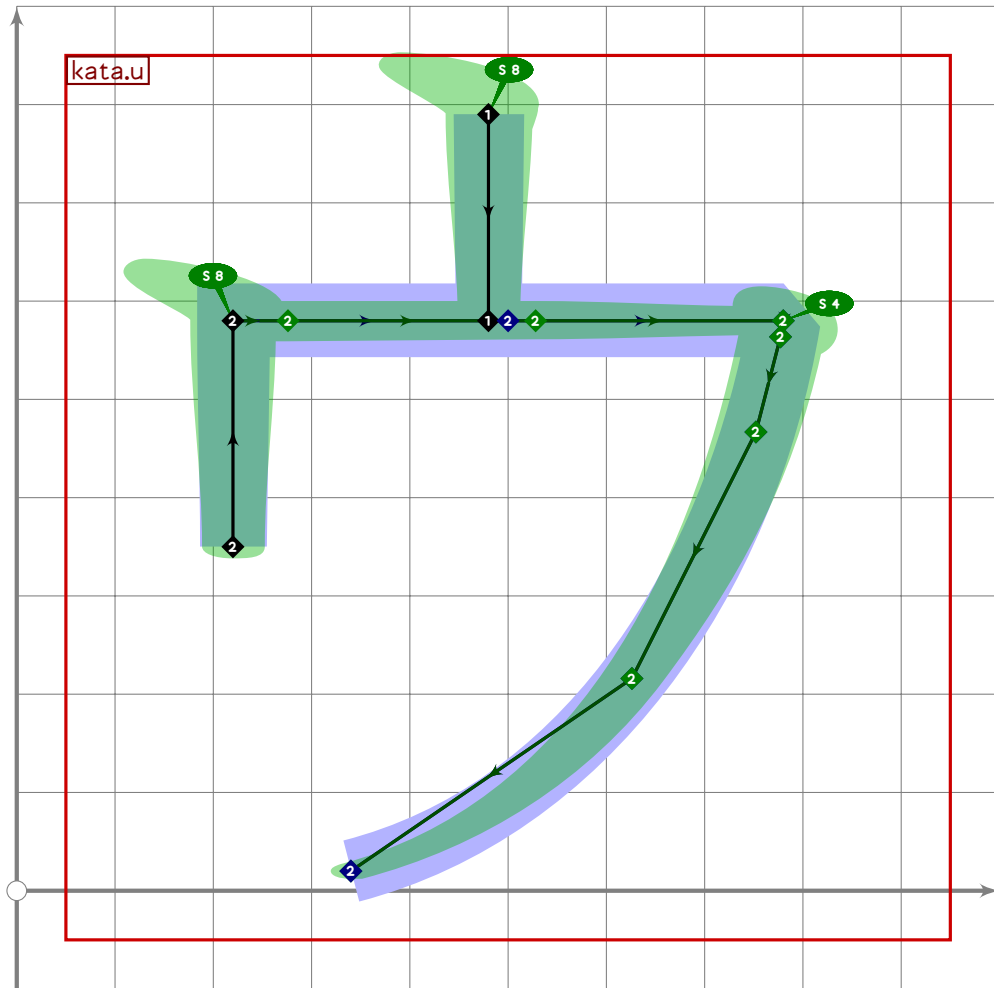
```



```

47
48 vardef kata.i =
49   push_pbox_toexpand("kata.i");
50
51   push_stroke((740,760)..(510,470)..(140,280),
52     (1.8,1.8)-(1.7,1.7)-(1.2,1.2));
53   set_boserif(0,0,8);
54
55   push_stroke((get_strokep(0) intersectionpoint
56     ((530,-infinity)-(530,infinity)))-(530,-10),
57     (1.4,1.4)-(1.6,1.6));
58   expand_pbox;
59 enddef;

```



```

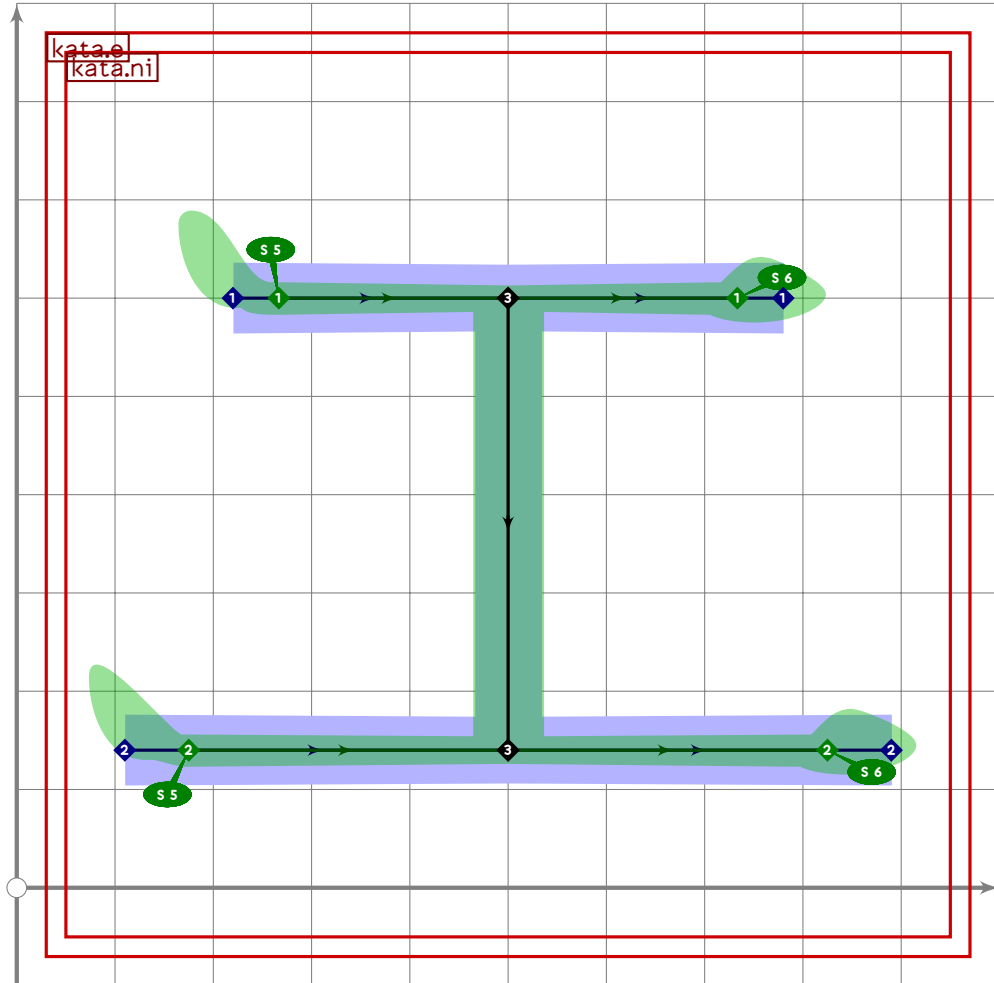
60
61 vardef kata.u =
62   push_pbox_toexpand("kata.u");
63
64   push_stroke((480,790)-(480,580),
65     (1.7,1.7)-(1.4,1.4));
66   set_boserif(0,0,8);
67
68   kata.fu_stroke((220,580),(780,580),(340,20));
69   if mincho>0.01:
70     replace_strokep(0)((220,350)-(220,580)-oldp);
71     replace_strokeq(0)((1.4,1.4)-(1.7,1.7)-oldq);
72     set_botip(0,2,1);
73     set_botip(0,4,0);
74     set_boserif(0,2,whatever);
75     set_boserif(0,4,4);
76   else:
77     replace_strokep(0)((220,350)-oldp);
78     replace_strokeq(0)((1.4,1.4)-oldq);
79     set_botip(0,1,1);
80     set_botip(0,3,0);

```

```

81 set_boserif(0,3,4);
82 fi;
83 set_boserif(0,0,whatever);
84 set_boserif(0,1,8);
85 expand_pbox;
86 endif;

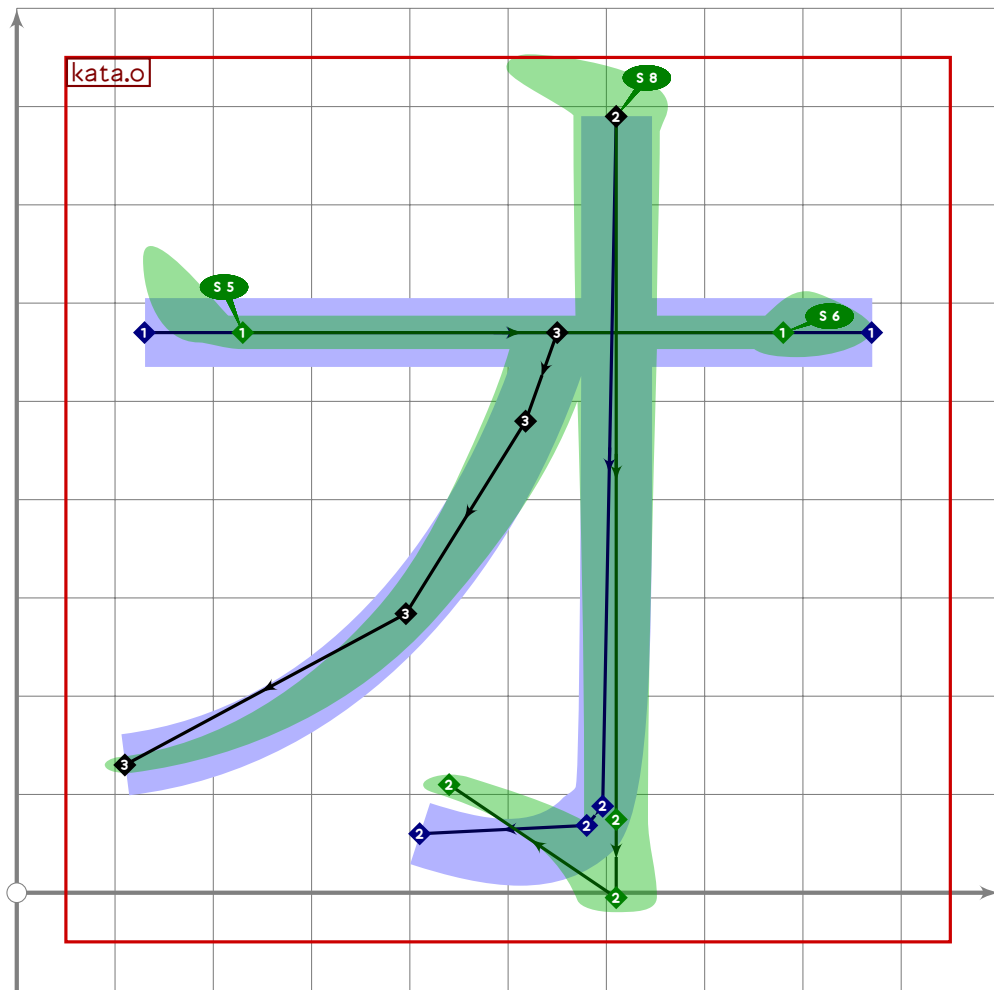
```



```

87
88 vardef kata.e =
89   push_pbox_toexpand("kata.e");
90
91   kata.ni;
92
93   push_stroke((point 1 of get_stroke(-1))-(point 1 of get_stroke(0)),
94     (1.5,1.5)-(1.5,1.5));
95   expand_pbox;
96 endif;

```



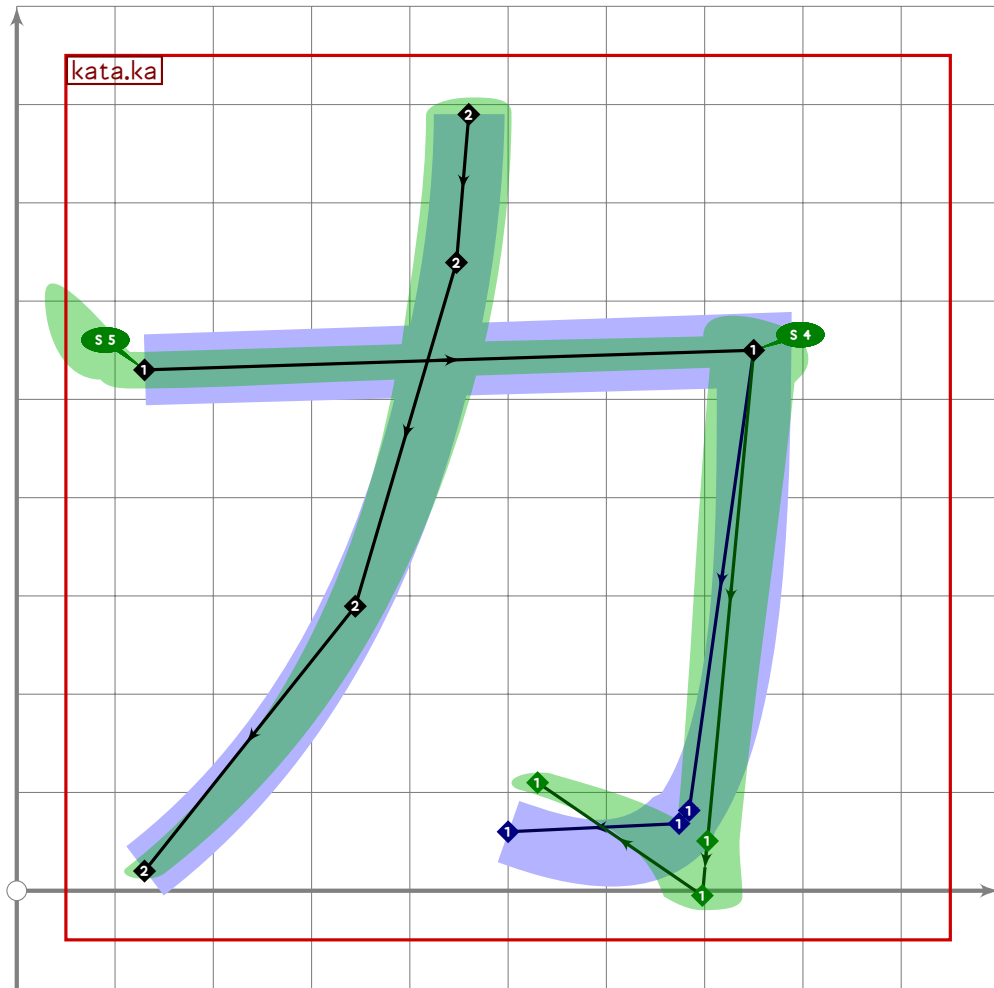
```

97
98 vardef kata.o =
99   push_pbox_toexpand("kata.o");
100
101   push_stroke((130+100*mincho,570)-(870-90*mincho,570),
102     (1.8,1.8)-(1.6,1.6));
103   set_boserif(0,0,5);
104   set_boserif(0,1,6);
105
106   kata.ho_centre((610,790),(610,20));
107
108   kata.no_stroke((550,570),(110,130));
109   expand_pbox;
110 enddef;
111

```

## Katakana Kakikukeko/Gagigugego

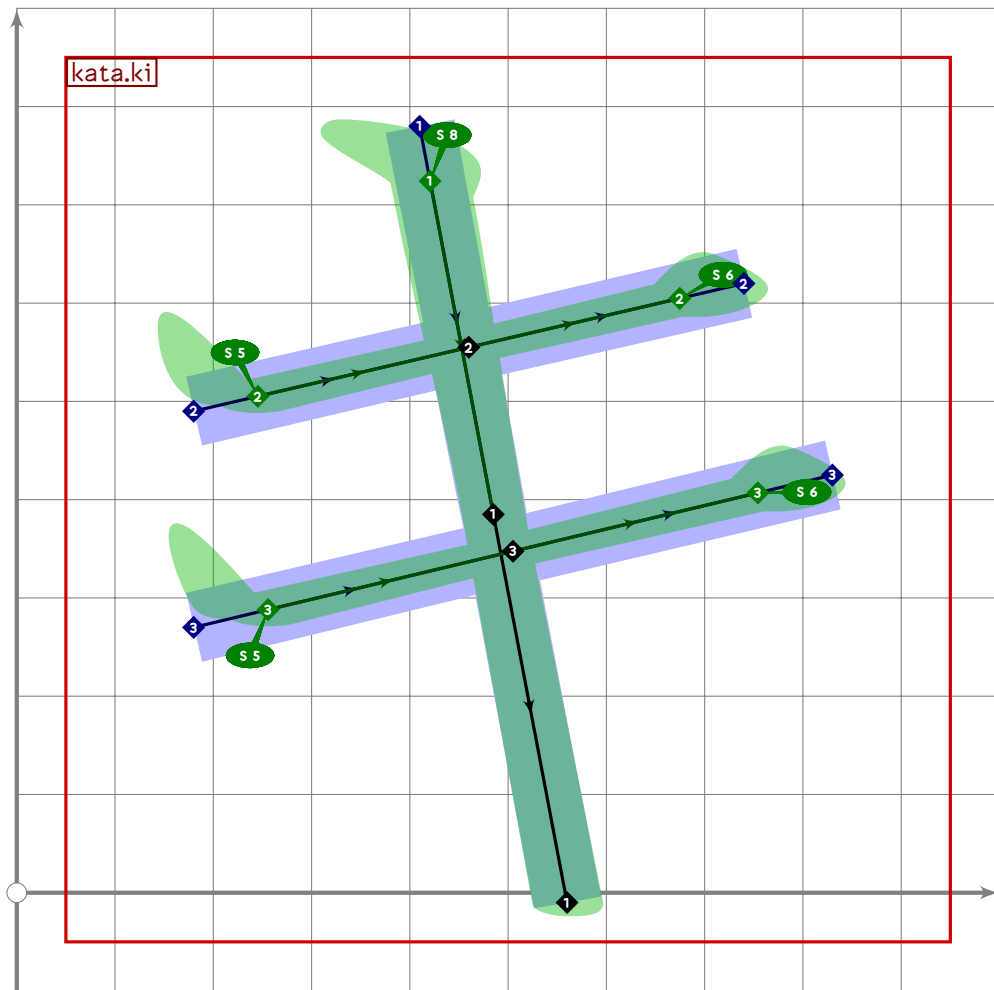
112 %%% KATAKANA KAKIKUKEKO/GAGIGUGEGO



```

113
114 vardef kata.ka =
115   push_pbox_toexpand("kata.ka");
116
117   kata.ho_centre((750,550),(700,20));
118
119   replace_strokep(0)((130,530)-oldp);
120   replace_strokeq(0)((1.8,1.8)-oldq);
121   set_botip(0,1,1);
122   set_botip(0,2,whatever);
123   set_botip(0,3,0);
124   set_boserif(0,0,5);
125   set_boserif(0,1,4);
126
127   kata.no_stroke((460,790),(130,20));
128   expand_pbox;
129 enddef;

```



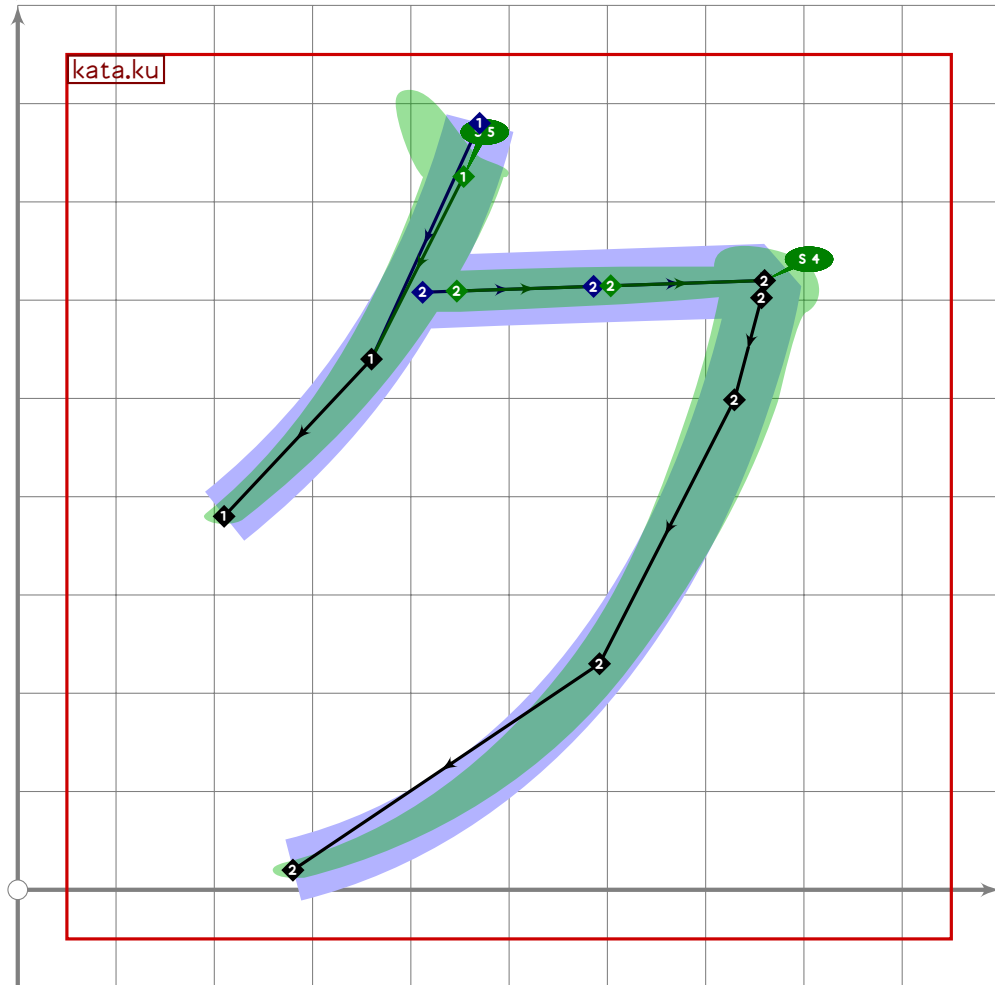
```

130
131 vardef kata.ki =
132   push_pbox_toexpand("kata.ki");
133
134   push_stroke((410,780)-(560,-10),
135     (0.74,2.55)-(1.4,1.4)-(1.5,1.5));
136   replace_strokep(0)(insert_nodes(oldp)(0.5));
137   set_boserif(0,0,8);
138
139   push_stroke((180,490)-(740,620),
140     (0.6,3)-(1.6,1.6)-(0.6,3));
141   replace_strokep(0)(insert_nodes(oldp)(0.5));
142   set_boserif(0,0,5);
143   set_boserif(0,2,6);
144
145   push_stroke((180,270)-(830,425),
146     (0.6,3)-(1.6,1.6)-(0.6,3));
147   replace_strokep(0)(insert_nodes(oldp)(0.5));
148   set_boserif(0,0,5);
149   set_boserif(0,2,6);
150   expand_pbox;

```



151 enddef;



152

153 vardef kata.ku =

154 push\_pbox\_toexpand("kata.ku");

155

156 push\_stroke((470,780)..(360,540)..(210,380),

157 (0.68,2.7)-(1.4,1.4)-(1.1,1.1));

158 set\_boserif(0,0,5);

159

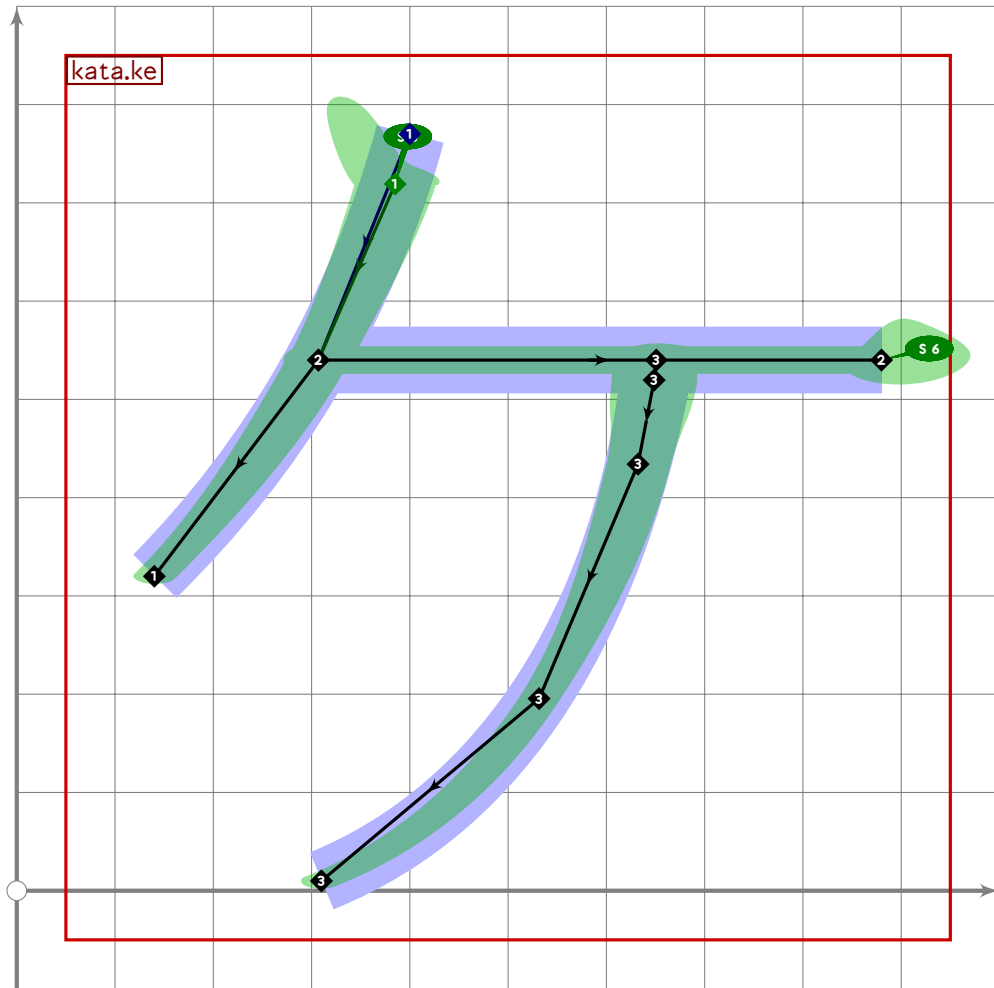
160 z1=(get\_strokep(0) intersectionpoint ((0,600)-(1000,620)))+10\*right;

161 kata.fu\_stroke(z1,(760,620),(280,20));

162 set\_boserif(0,0,whatever);

163 expand\_pbox;

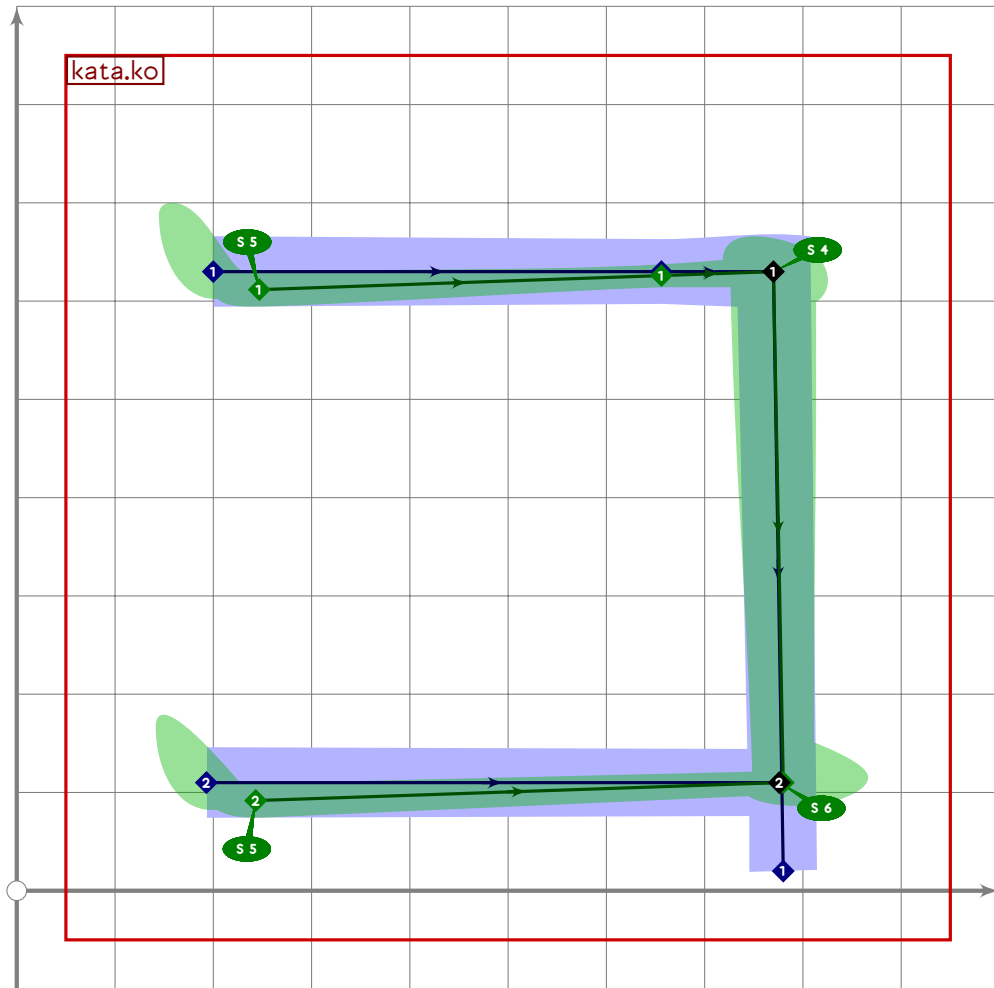
164 enddef;



```

165
166 vardef kata.ke =
167   push_pbox_toexpand("kata.ke");
168
169   push_stroke((400,770)..(307,540)..(140,320),
170     (0.68,2.7)-(1.4,1.4)-(1.1,1.1));
171   set_boserif(0,0,5);
172
173   z1=(get_strokep(0) intersectionpoint ((0,540)-(1000,540)));
174   push_stroke(z1-(880,540),(1.5,1.5)-(1.5,1.5)-(0.75,2.85));
175   set_boserif(0,1,6);
176
177   kata.no_stroke(point 0.6 of (z1-(880,540)),(310,10));
178   replace_strokep(0)(insert_nodes(oldp)(0.2));
179   expand_pbox;
180 enddef;

```



```

181
182 vardef kata.ko =
183   push_pbox_toexpand("kata.ko");
184
185   push_stroke((200,630-20*mincho)-(770,630)-(780,mincho[20,110]),
186     (0.78,2.83)-(1.3,1.3)-(1.7,1.7)-(1.4,1.4));
187   replace_strokep(0)(insert_nodes(oldp)(0.8));
188   set_botip(0,2,1);
189   set_boserif(0,0,5);
190   set_boserif(0,2,4);
191
192   push_stroke((193,110-20*mincho)-(776,110),
193     (0.78,2.83)-(1.4,1.4));
194   set_boserif(0,0,5);
195   set_boserif(0,1,6);
196   expand_pbox;
197 enddef;
198

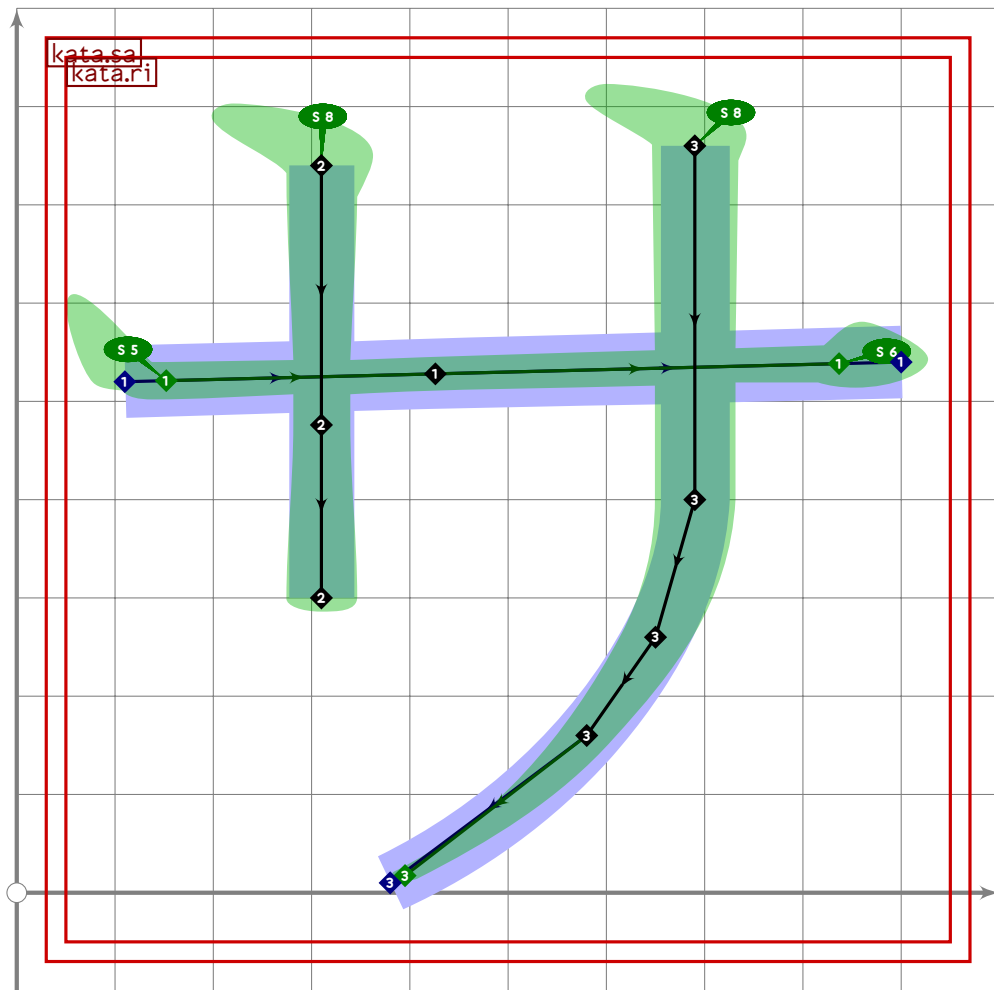
```

### Katakana Sashisuseso/Zajizuzezo

```

199 %%%%%%%%% KATAKANA SASHISUSES0/ZAJIZUZEZO

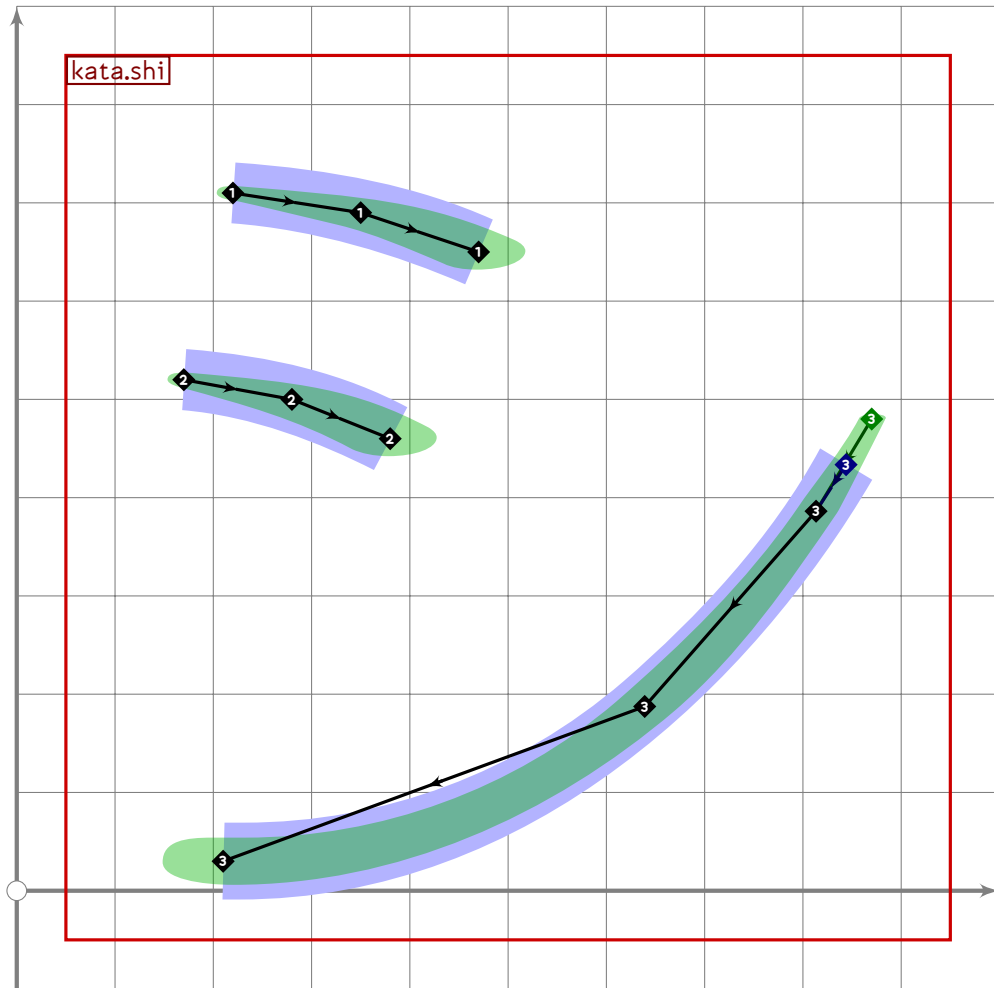
```



```

200
201 vardef kata.sa =
202   push_pbox_toexpand("kata.sa");
203
204   push_stroke((110,520)-(900,540),
205     (0.7,3)-(1.7,1.7)-(0.7,3));
206   replace_strokep(0)(insert_nodes(oldp)(0.4));
207   set_boserif(0,0,5);
208   set_boserif(0,2,6);
209
210   kata.ri;
211   expand_pbox;
212 enddef;

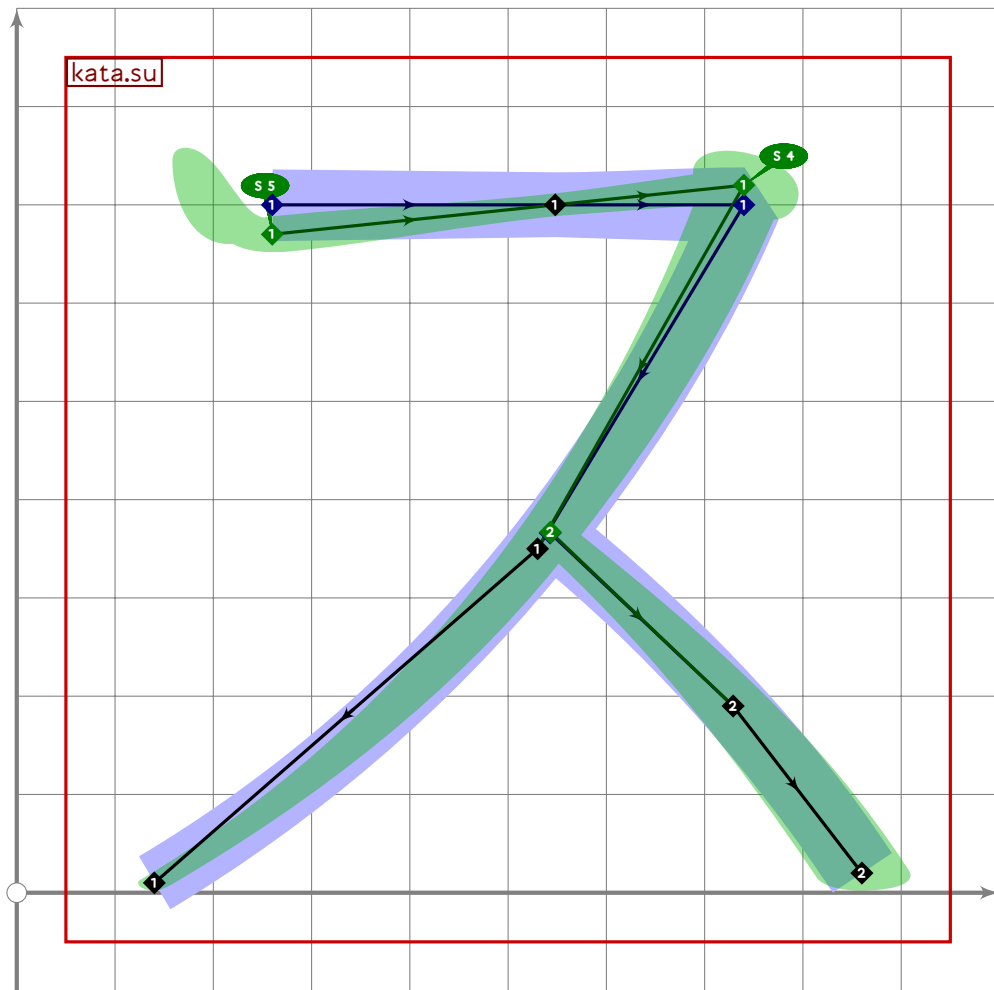
```



```

213
214 vardef kata.shi =
215   push_pbox_toexpand("kata.shi");
216
217   push_stroke((220,710)..(350,690)..(470,650),
218     (1,1)..(1,6,1,6)..(1,8,1,8));
219
220   push_stroke((170,520)..(280,500)..(380,460),
221     (1,1)..(1,6,1,6)..(1,8,1,8));
222
223   kata.no_stroke((870,480),(210,30));
224
225   replace_strokeq(0)((0,9,0,9)-(1,1,1,1)-(1,4,1,4)-(2,2,2,2));
226   set_boserif(0,4,5);
227   expand_pbox;
228 enddef;

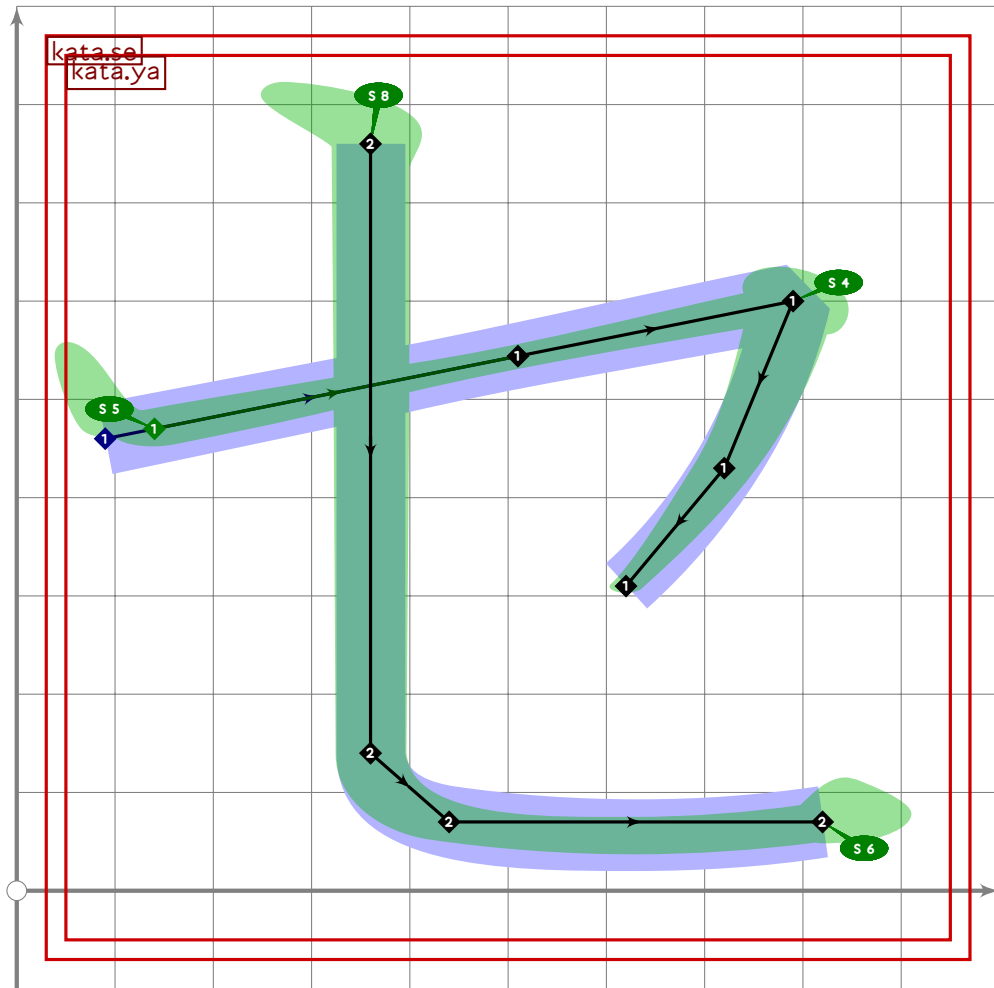
```



```

229
230 vardef kata.su =
231   push_pbox_toexpand("kata.su");
232
233   push_stroke((260,700-30*mincho)-(740,700+20*mincho)..(530,350)..(140,10),
234     (1.8,1.8)-(1.3,1.3)-(1.7,1.7)-(1.4,1.4)-(1,1));
235   replace_strokep(0)(insert_nodes(oldp)(0.6));
236   set_botip(0,2,0);
237   set_boserif(0,0,5);
238   set_boserif(0,2,4);
239
240   push_stroke((point 2.95 of get_strokep(0))..(729,190)..(860,20),
241     (1.2,1.2)-(1.6,1.6)-(1.8,1.8));
242   expand_pbox;
243 enddef;

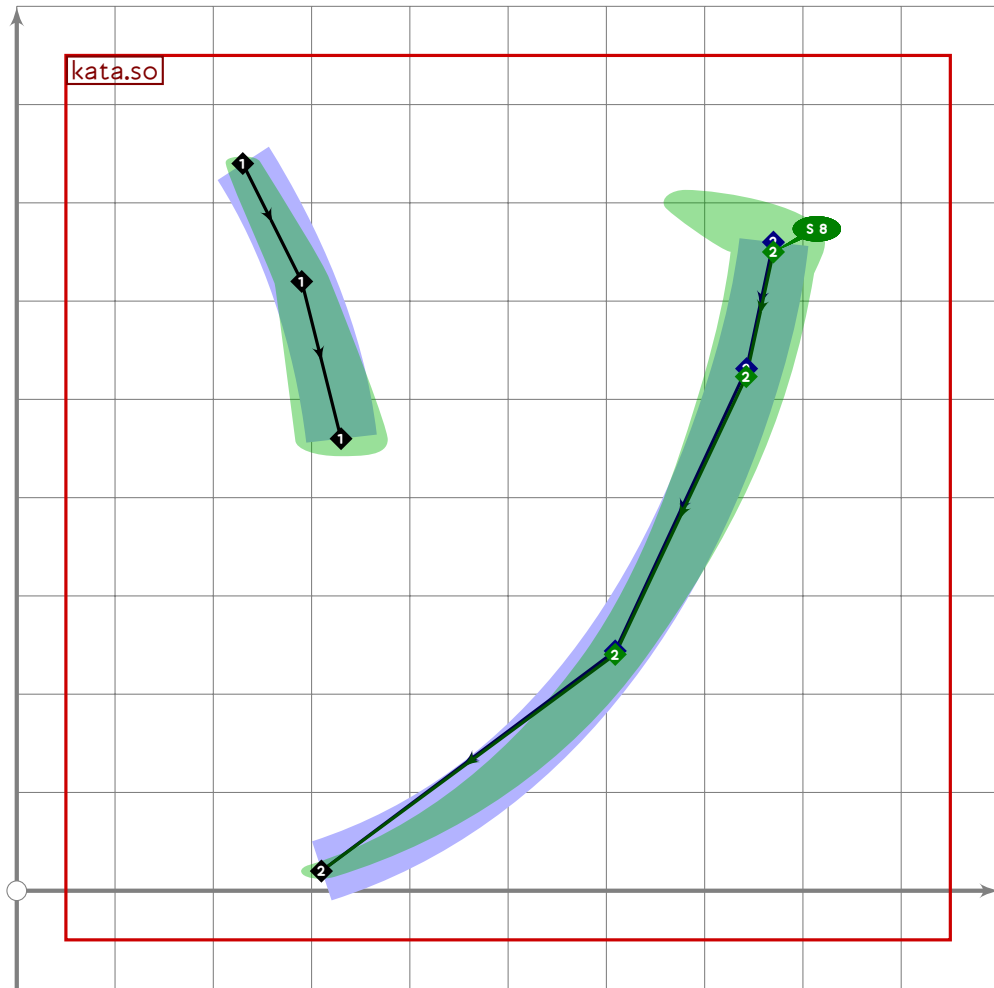
```



```

244
245 vardef kata.se =
246   push_pbox_toexpand("kata.se");
247
248   kata.ya;
249
250   replace_strokep(-1)(oldp shifted (-30,0));
251
252   replace_strokep(0)((360,760)-(360,140){dir 274}..
253     (440,70)..tension 2.1..(820,70));
254   replace_strokeq(0)((1.6,1.6)-(1.5,1.5)-(1.9,1.9)-(1.8,1.8));
255   set_boserif(0,0,8);
256   set_boserif(0,3,6);
257   expand_pbox;
258 enddef;

```



```

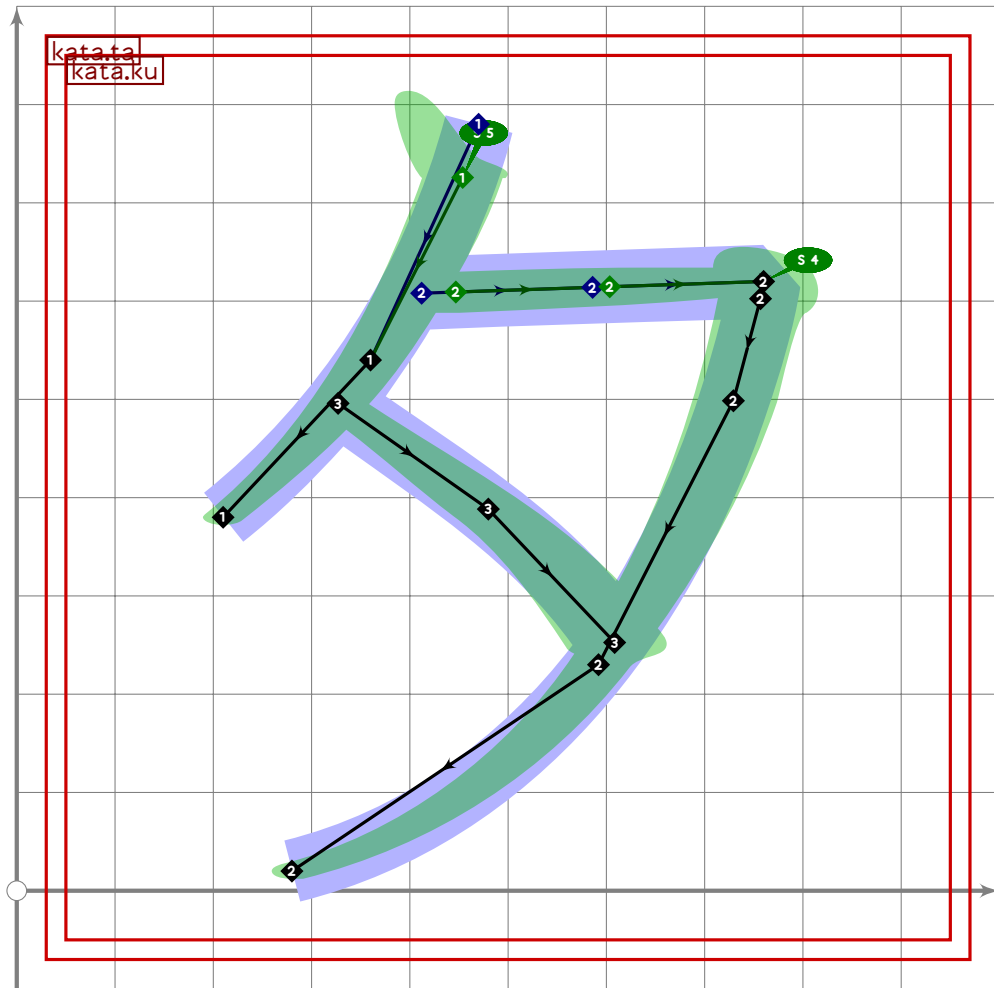
259
260 vardef kata.so =
261   push_pbox_toexpand("kata.so");
262
263   push_stroke((230,740)..(290,620)..(330,460),
264     (1)..(1,3,1,3)..(1,8,1,8));
265
266   kata.no_stroke((770,660-10*mincho),(310,20));
267   set_boserif(0,0,8);
268   expand_pbox;
269 enddef;
270

```

## Katakana Tachitsuteto/Dajizudedo

271 %%% KATAKANA TACHITSUTETO/DAJIZUDEDO

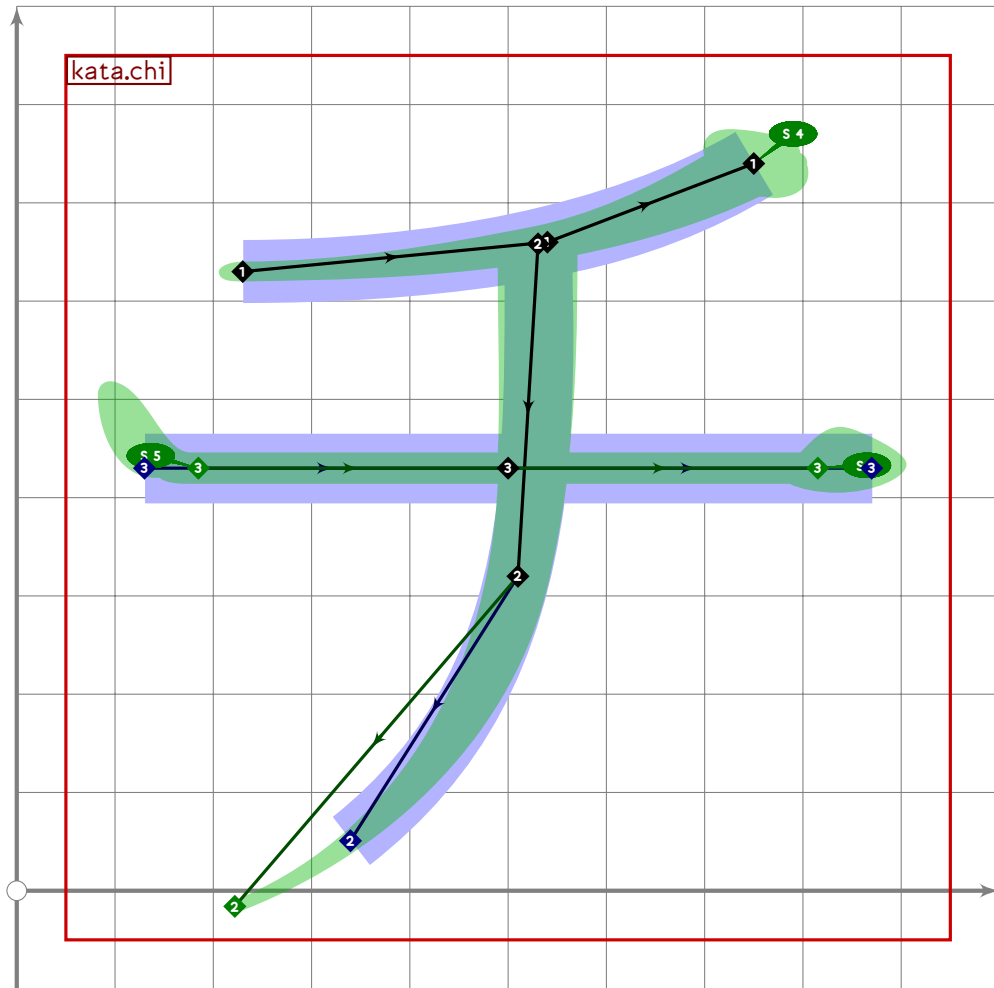




```

272
273 vardef kata.ta =
274   push_pbox_toexpand("kata.ta");
275
276   kata.ku;
277
278   numeric x[],y[];
279   z1=point 1.25 of get_strokep(-1);
280   z3=point 4.9 of get_strokep(0);
281   z2=(0.5[z1,z3])+0.05*((z3-z1) rotated 90);
282   push_stroke(z1..tension 2..z2..z3,
283     (1.2,1.2)-(1.6,1.6)-(1.9,1.9));
284   expand_pbox;
285 enddef;

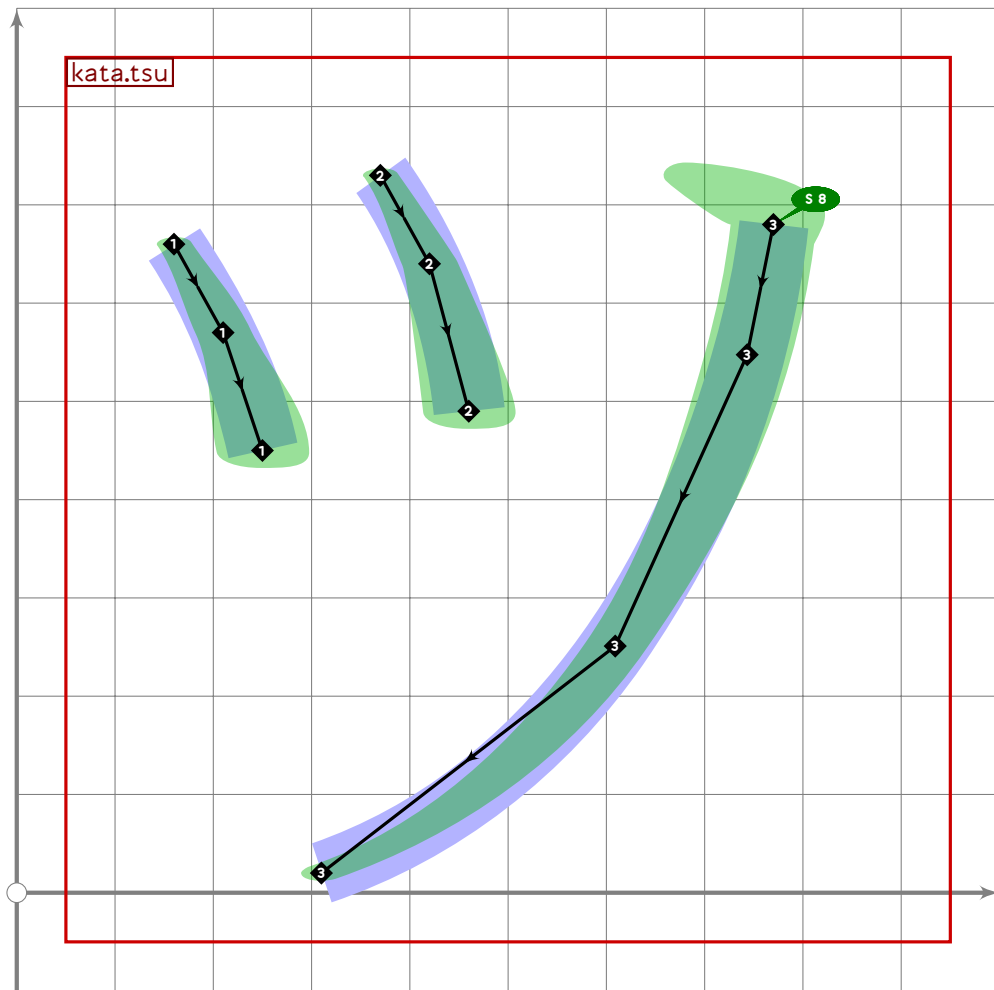
```



```

286
287 vardef kata.chi =
288   push_pbox_toexpand("kata.chi");
289
290   push_stroke((230,630)..tension 1.3..(540,660)..(750,740),
291     (1,2,1,2)-(1,7,1,7)-(2,2));
292   set_boserif(0,2,4);
293
294   kata.na_centre;
295   replace_strokep(0)(subpath (xpart (oldp intersectiontimes
296     get_strokep(-1)),infinity) of oldp);
297
298   push_stroke((130,430)-(870,430),
299     (0,7,2,7)-(1,6,1,6)-(0,7,2,7));
300   replace_strokep(0)(insert_nodes(oldp)(0,5));
301   set_boserif(0,0,5);
302   set_boserif(0,2,6);
303   expand_pbox;
304 enddef;

```



```

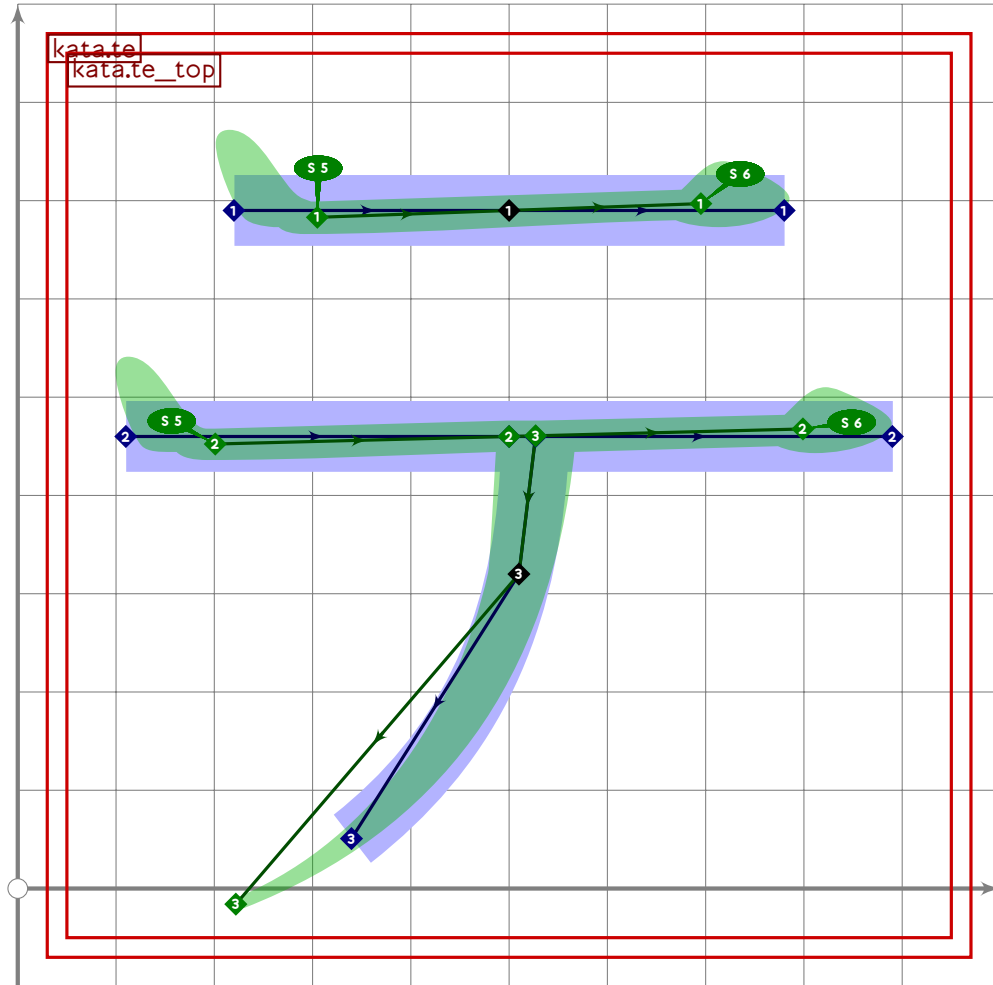
305
306 vardef kata.tsu =
307   push_pbox_toexpand("kata.tsu");
308
309   push_stroke((160,660)..(210,570)..(250,450),
310     (1,1)..(1.3,1.3)..(1.8,1.8));
311
312   push_stroke((370,730)..(420,640)..(460,490),
313     (1,1)..(1.3,1.3)..(1.8,1.8));
314
315   kata.no_stroke((770,680),(310,20));
316   set_boserif(0,0,8);
317   expand_pbox;
318 enddef;
319
320 vardef kata.te_top =
321   push_pbox_toexpand("kata.te_top");
322
323   push_stroke((220,690-10*mincho)-(780,690+10*mincho),
324     (0.5,2.9)-(1.6,1.6)-(0.5,2.9));
325   replace_strokep(0)(insert_nodes(olddp)(0.5));

```

```

326 set_boserif(0,0,5);
327 set_boserif(0,2,6);
328
329 push_stroke((110,460-10*mincho)-(890,460+10*mincho),
330 (0.6,2.8)-(1.6,1.6)-(0.6,2.8));
331 replace_stroke(0)(insert_nodes(oldp)(0.5));
332 set_boserif(0,0,5);
333 set_boserif(0,2,6);
334 expand_pbox;
335 enddef;

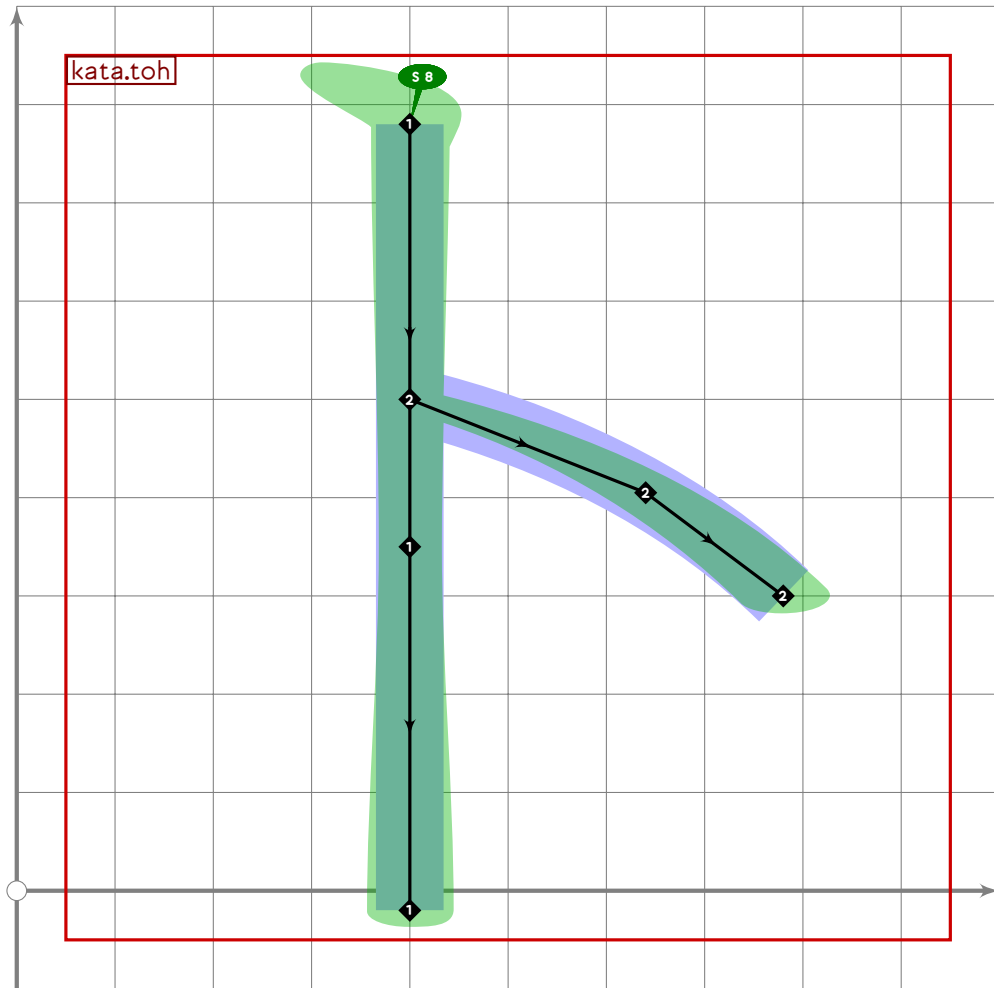
```



```

336
337 vardef kata.te =
338   push_pbox_toexpand("kata.te");
339
340   kata.te_top;
341
342   kata.na_centre;
343   replace_stroke(0)(subpath (xpart (oldp intersectiontimes get_stroke(-1)),
344     infinity) of oldp);
345   expand_pbox;
346 enddef;

```



```

347
348 vardef kata.toh =
349   push_pbox_toexpand("kata.toh");
350
351   push_stroke((400,780)--(400,350)--(400,-20),
352     (1.6,1.6)--(1.4,1.4)--(1.7,1.7));
353   set_boserif(0,0,8);
354
355   push_stroke((400,500)..tension 1.1..(640,405)..(780,300),
356     (1.3,1.3)--(1.6,1.6)--(1.8,1.8));
357   expand_pbox;
358 enddef;
359

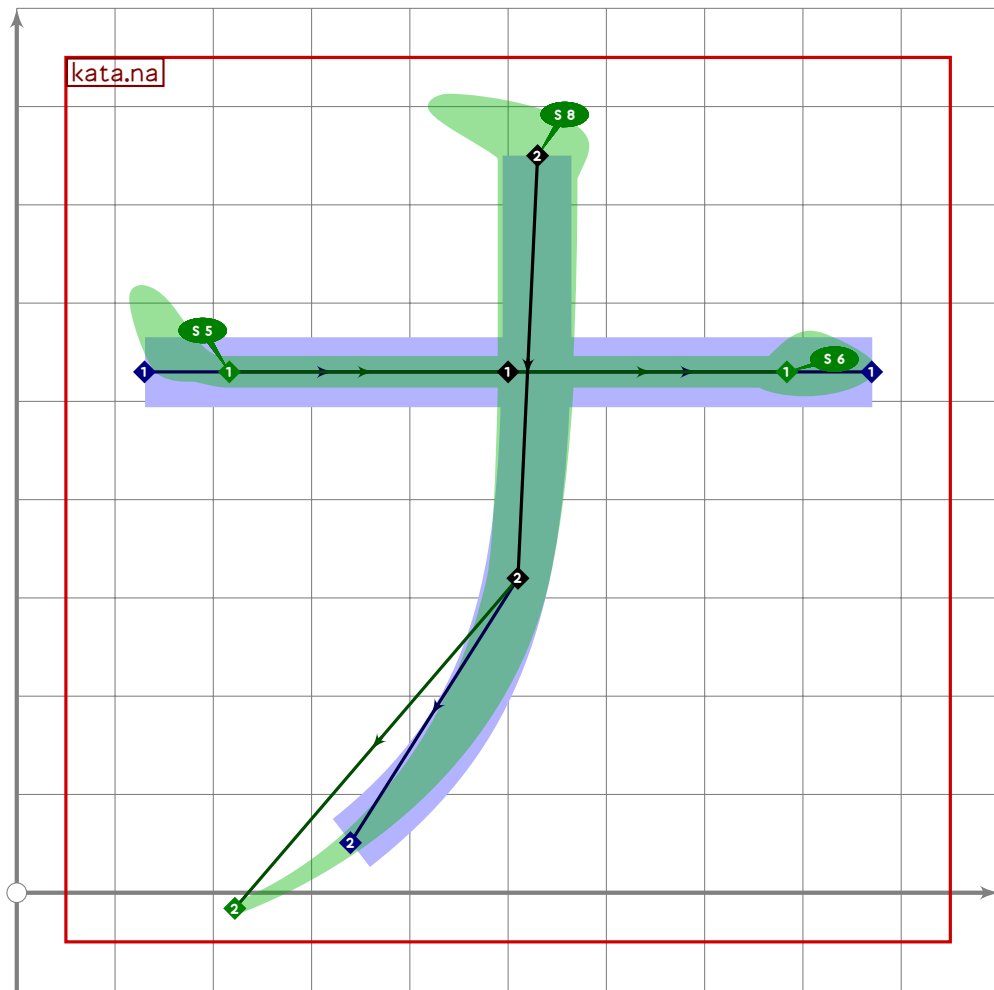
```

### Katakana Naninuneno

```

360 %%% KATAKANA NANINUNENO
361
362 vardef kata.na_centre =
363   push_stroke((530,750){down}..tension 1.2..(510,320)..(180,-30),
364     (1.6,1.6)--(1.4,1.4)--(0.78,0.78));
365 enddef;

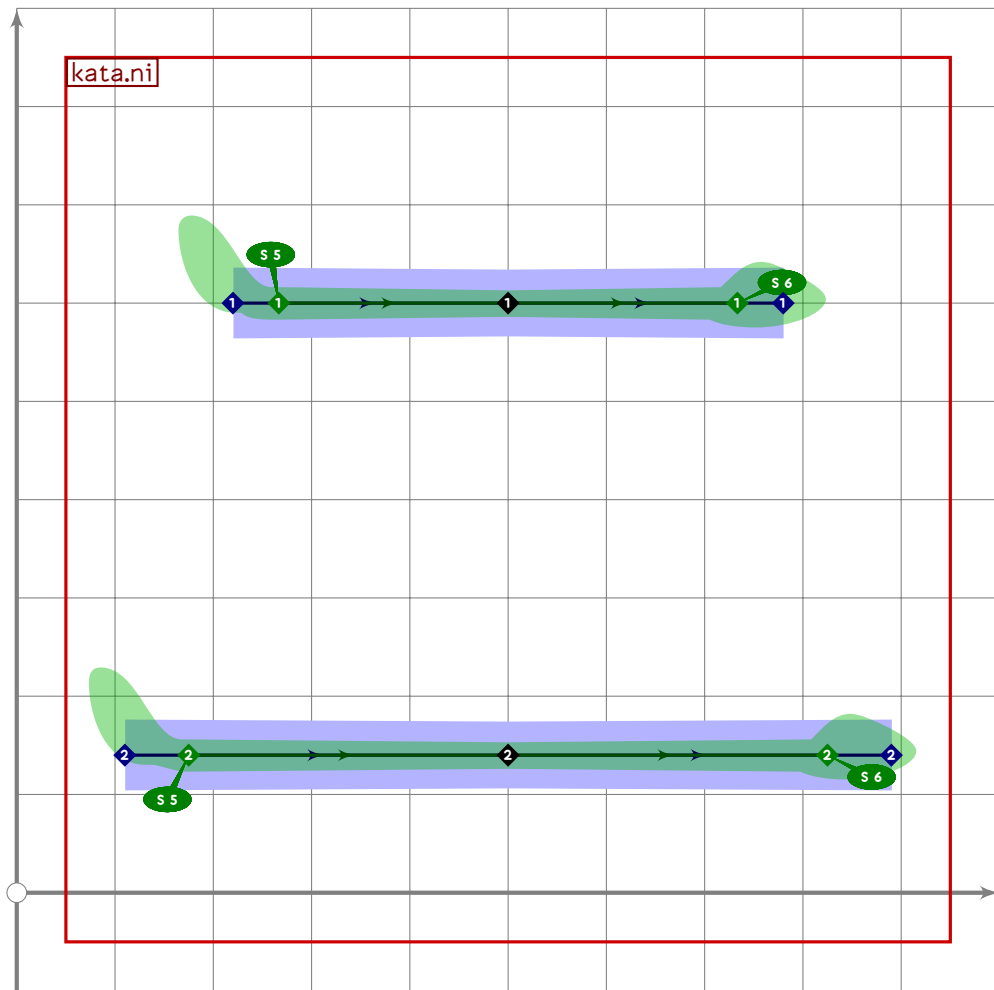
```



```

366
367 vardef kata.na =
368   push_pbox_toexpand("kata.na");
369
370   push_stroke((130,530)-(870,530),
371     (0.6,2.8)-(1.6,1.6)-(0.6,2.8));
372   replace_strokep(0)(insert_nodes(oldp)(0.5));
373   set_boserif(0,0,5);
374   set_boserif(0,2,6);
375
376   kata.na_centre;
377   set_boserif(0,0,8);
378   expand_pbox;
379 enddef;

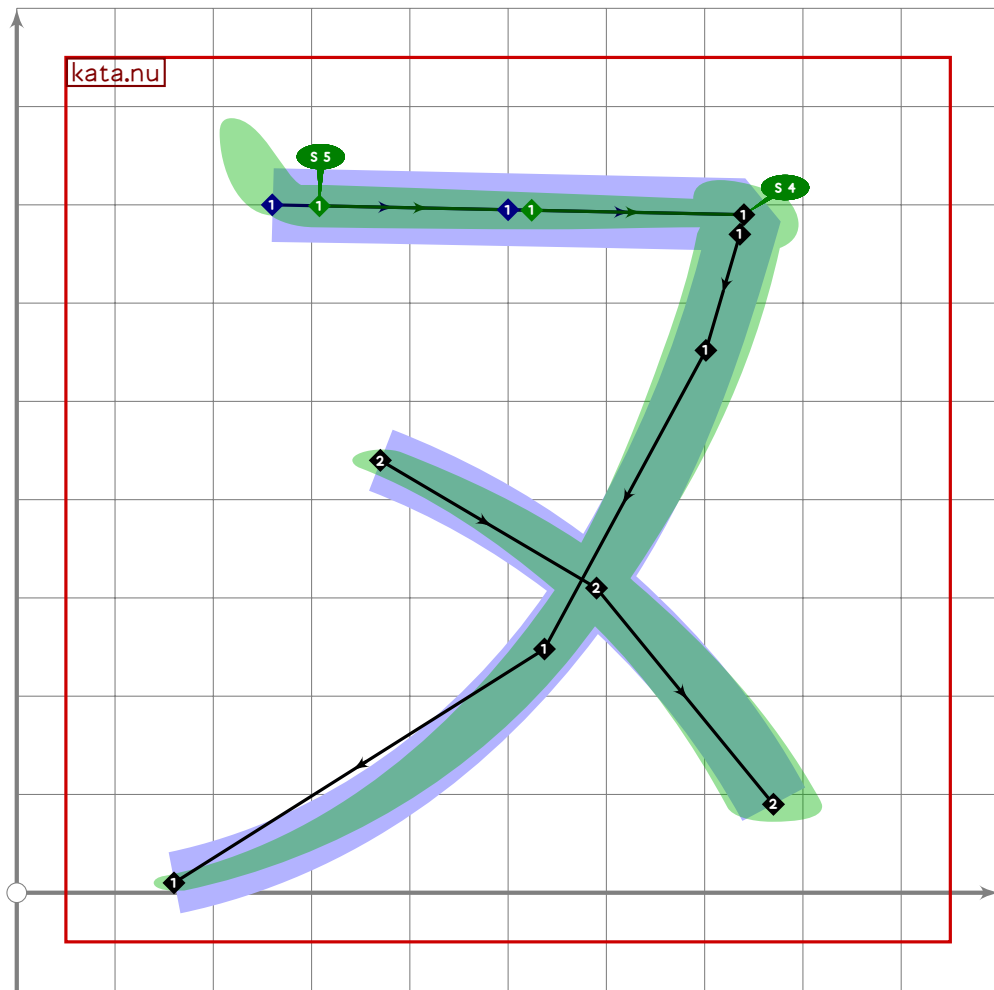
```



```

380
381 vardef kata.ni =
382   push_pbox_toexpand("kata.ni");
383
384   push_stroke((220,600)-(500,600)-(780,600),
385     (0,7,2.7)-(1.5,1.5)-(0.7,2.9));
386   set_boserif(0,0,5);
387   set_boserif(0,2,6);
388
389   push_stroke((110,140)-(500,140)-(890,140),
390     (0,7,2.7)-(1.5,1.5)-(0.7,2.9));
391   set_boserif(0,0,5);
392   set_boserif(0,2,6);
393   expand_pbox;
394 enddef;

```

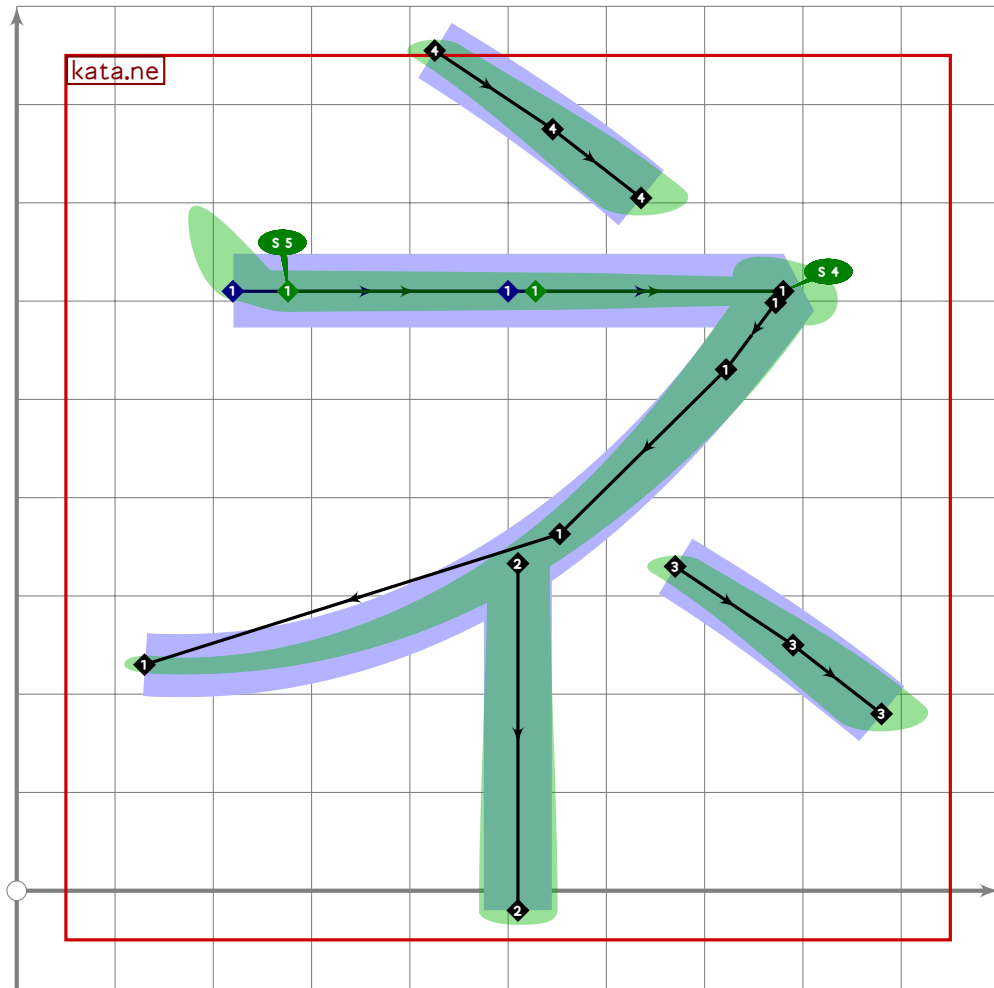


```

395
396 vardef kata.nu =
397   push_pbox_toexpand("kata.nu");
398
399   kata.fu_stroke((260,700),(740,690),(160,10));
400
401   push_stroke((370,440)..(590,310)..(770,90),
402     (1.3,1.3)-(1.6,1.6)-(1.8,1.8));
403   expand_pbox;
404 enddef;

```





```

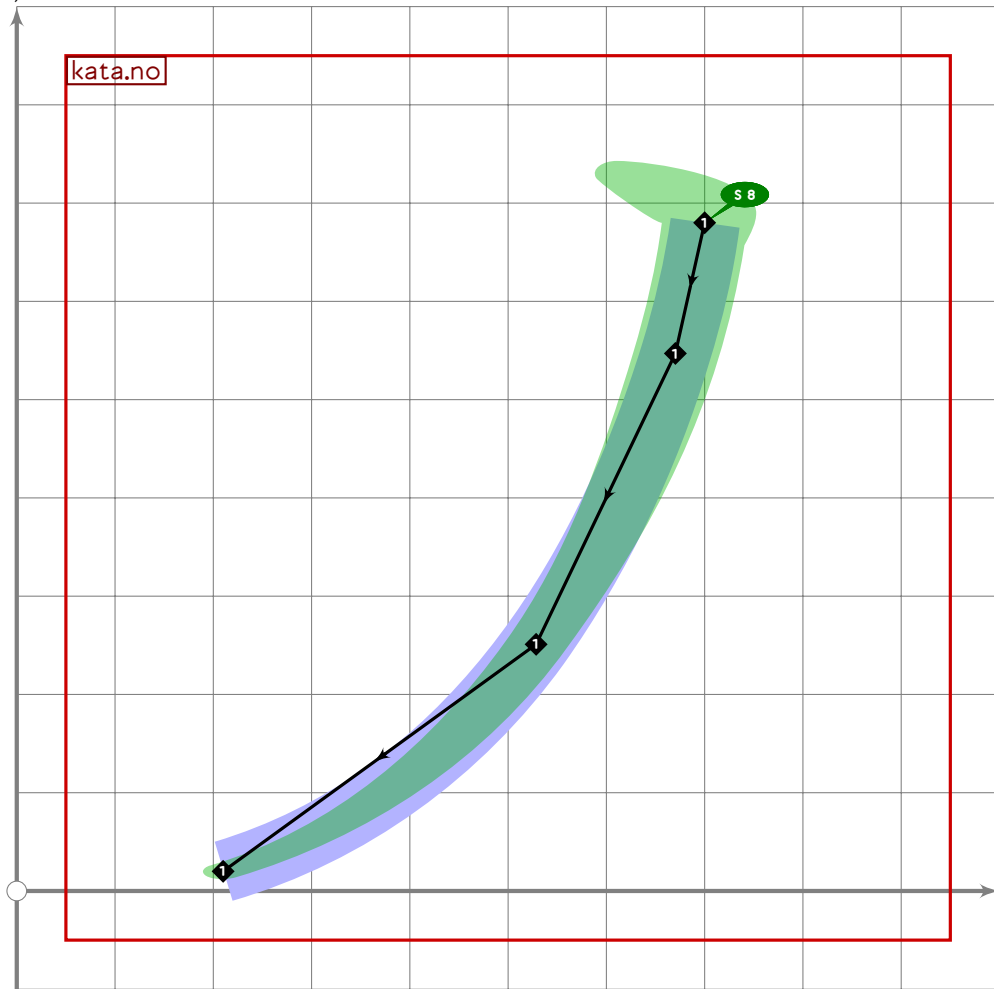
405
406 vardef kata.ne =
407   push_pbox_toexpand("kata.ne");
408
409   kata.fu_stroke((220,610),(780,610),(130,230));
410
411   push_stroke(((510,0)-(510,1000)) intersectionpoint
412     reverse get_strokep(0)-(510,-20),
413     (1.4,1.4)-(1.6,1.6));
414
415   push_stroke((670,330)..(790,250)..(880,180),
416     (1.3,1.3)-(1.6,1.6)-(1.8,1.8));
417
418   push_stroke(get_strokep(0) shifted ((510,800)-point 0.7 of get_strokep(0)),
419     get_strokep(0));
420   expand_pbox;
421 enddef;
422
423 vardef kata.no_stroke(expr ur,l) =
424   push_stroke(insert_nodes(ur..tension 1.1.
425     (0.65[xpart ll,xpart ur],0.35[ypart ll,ypart ur]).{curl 1.2}l)(0.3),

```

```

426 (1.7,1.7)-(1.7,1.7)-(1.4,1.4)-(1.1,1.1));
427 enddef;

```



```

428
429 vardef kata.no =
430   push_pbox_toexpand("kata.no");
431
432   kata.no_stroke((700,680),(210,20));
433   set_boserif(0,0,8);
434   expand_pbox;
435 enddef;
436

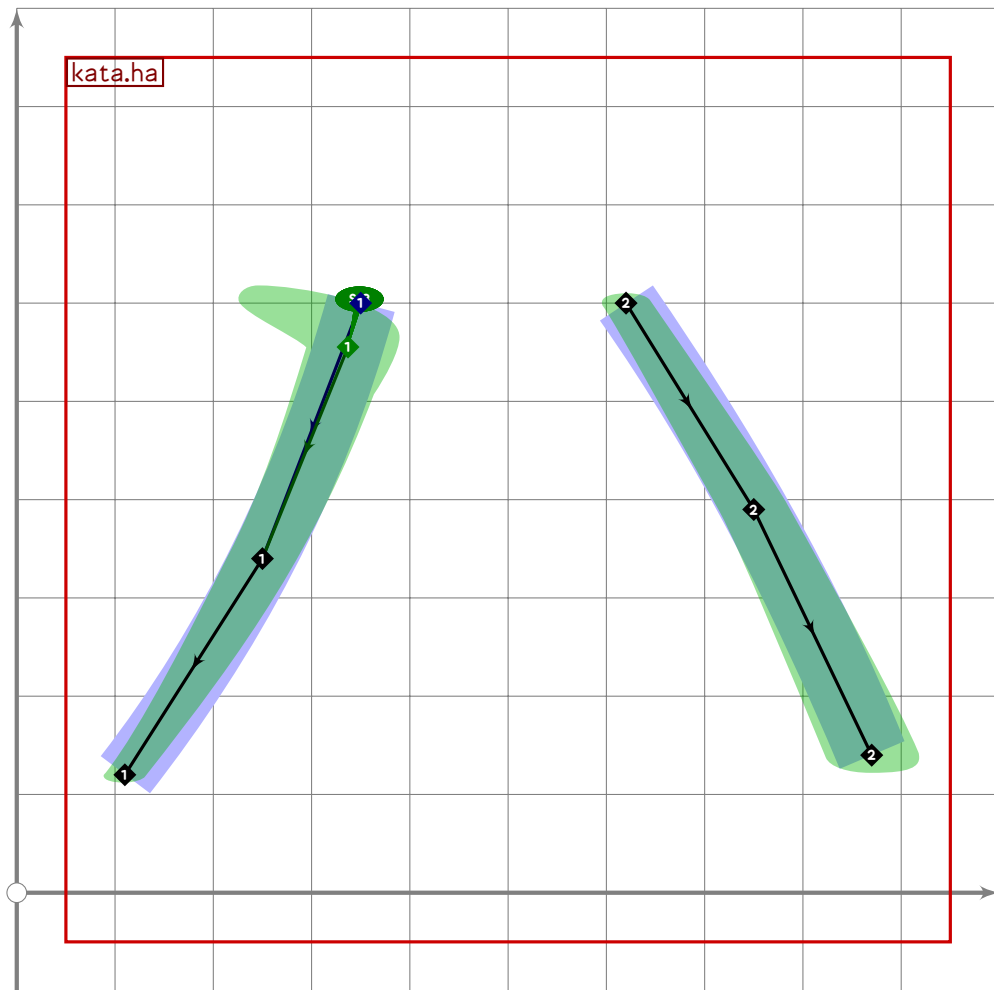
```

## Katakana Hahifuheho/Babibubebo/Papipupepo

```

437 %%%%%%%%% KATAKANA HAHIFUHEHO/BABIBUBEBO/PAPIPUPEPO

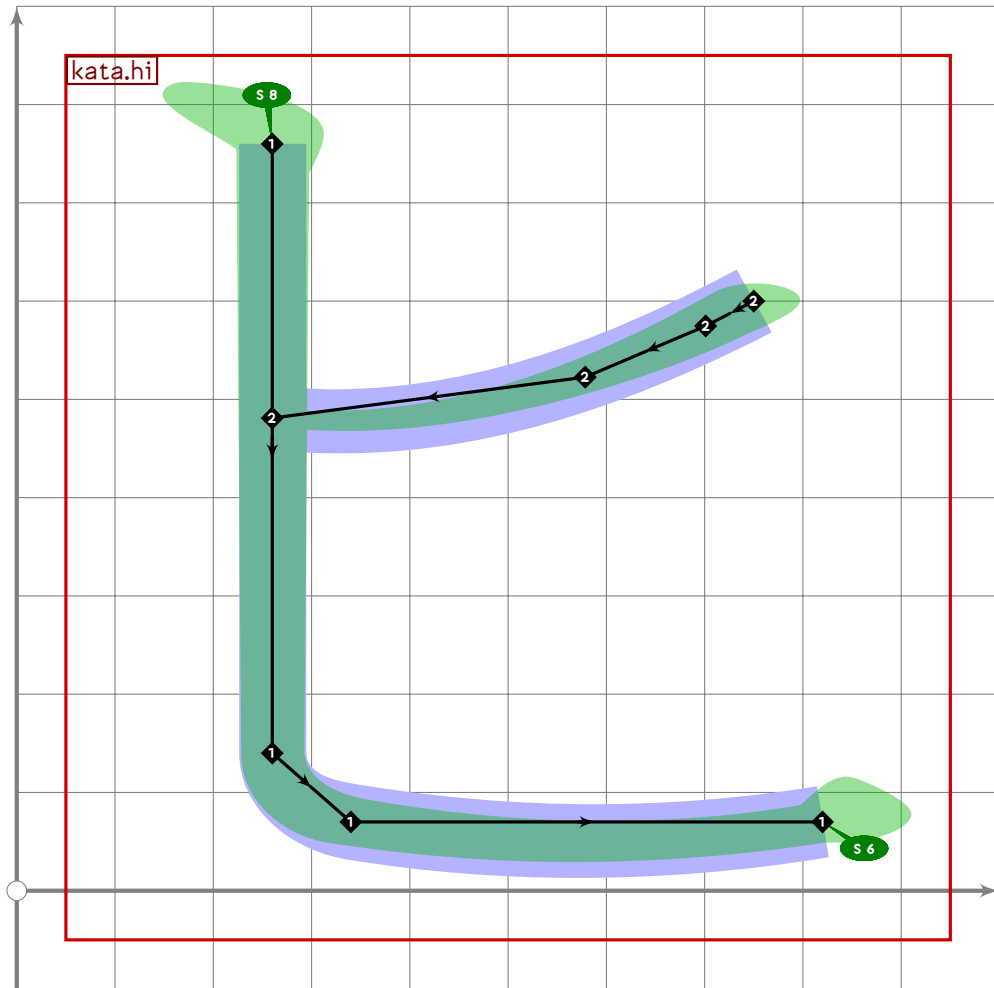
```



```

438
439 vardef kata.ha =
440   push_pbox_toexpand("kata.ha");
441
442   push_stroke((350,600)..(250,340)..(110,120),
443     (0.7,2.7)-(1.5,1.5)-(1.1,1.1));
444   set_boserif(0,0,8);
445
446   push_stroke((620,600)..(750,390)..(870,140),
447     (1.2,1.2)-(1.5,1.5)-(1.8,1.8));
448   expand_pbox;
449 enddef;

```

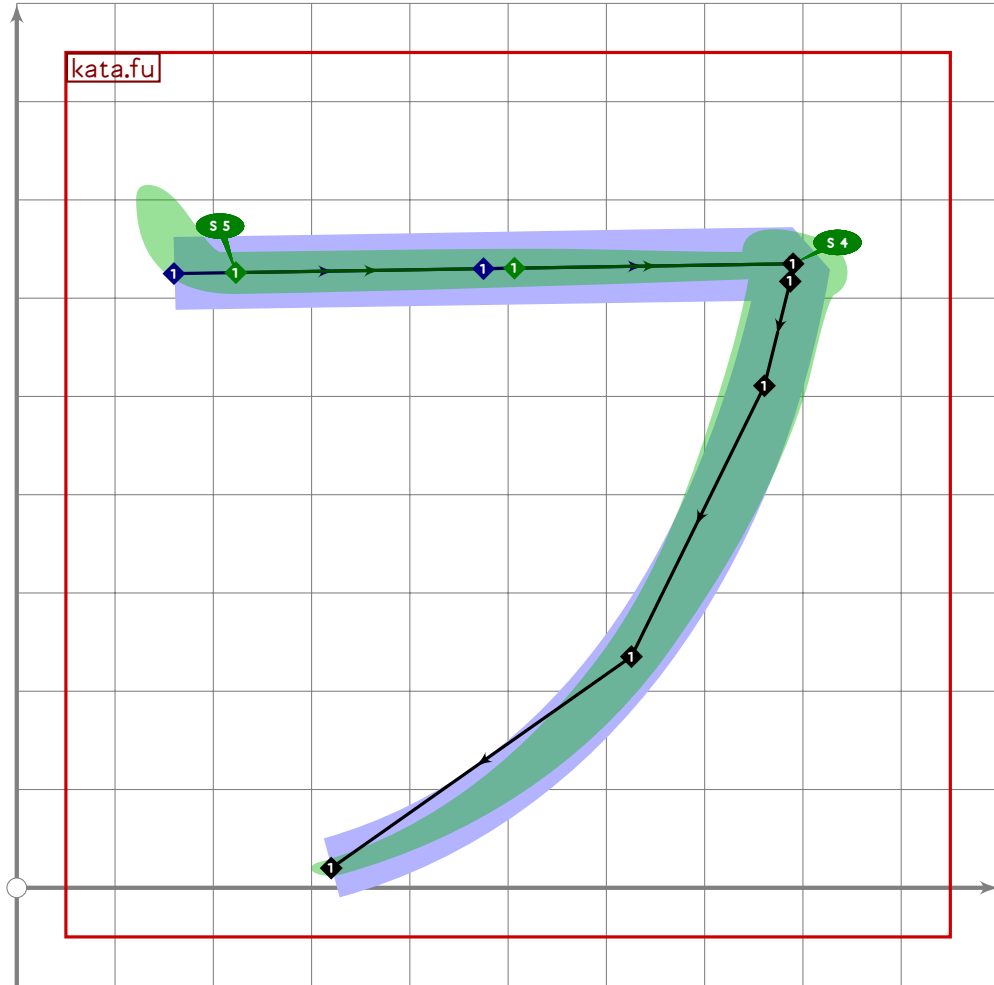


```

450
451 vardef kata.hi =
452   push_pbox_toexpand("kata.hi");
453
454   push_stroke((260,760)-(260,140){dir 274}..(340,70)..tension 2.1..(820,70),
455     (0.84,2.18)-(1.4,1.4)-(2.1,2.1)-(1.9,1.9));
456   set_boserif(0,0,8);
457   set_boserif(0,3,6);
458
459   kata.no_stroke((750,600),point 0.45 of get_strokep(0));
460   replace_strokeq(0)(oldq shifted (0.1,0.1));
461   expand_pbox;
462 enddef;
463
464 vardef kata.fu_stroke(expr ul,ur,ll) =
465   kata.no_stroke(ur,ll);
466   replace_strokep(0)(insert_nodes(((mincho*0.1)[ul,ur])—oldp)(0.5,1.15));
467   replace_strokeq(0)((2,2)-(1.9,1.9)-(1.5,1.5)—oldq);
468   set_botip(0,2,0);
469   set_boserif(0,0,5);
470   set_boserif(0,2,4);

```

471 enddef;



472

```
473 vardef kata.fu =
```

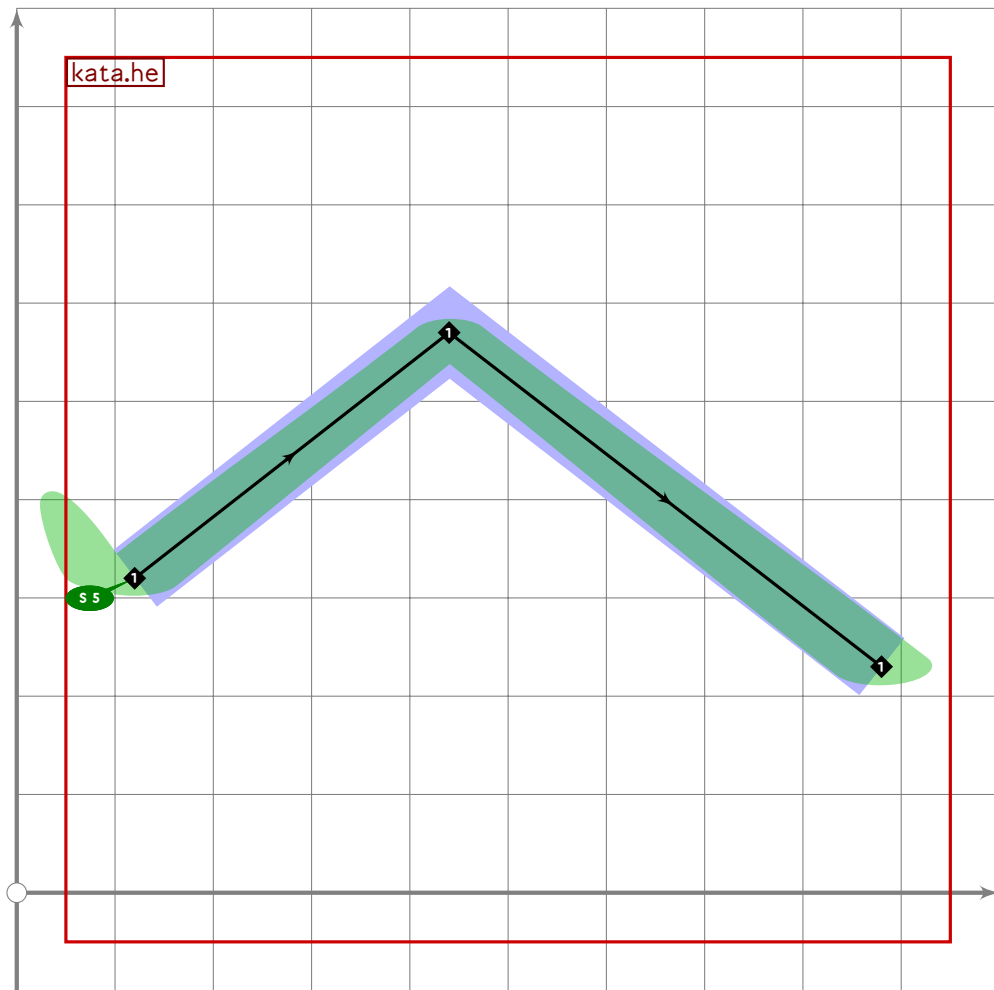
```
474   push_pbox_toexpand("kata.fu");
```

475

```
476   kata.fu_stroke((160,625),(790,635),(320,20));
```

```
477   expand_pbox;
```

```
478 enddef;
```



```

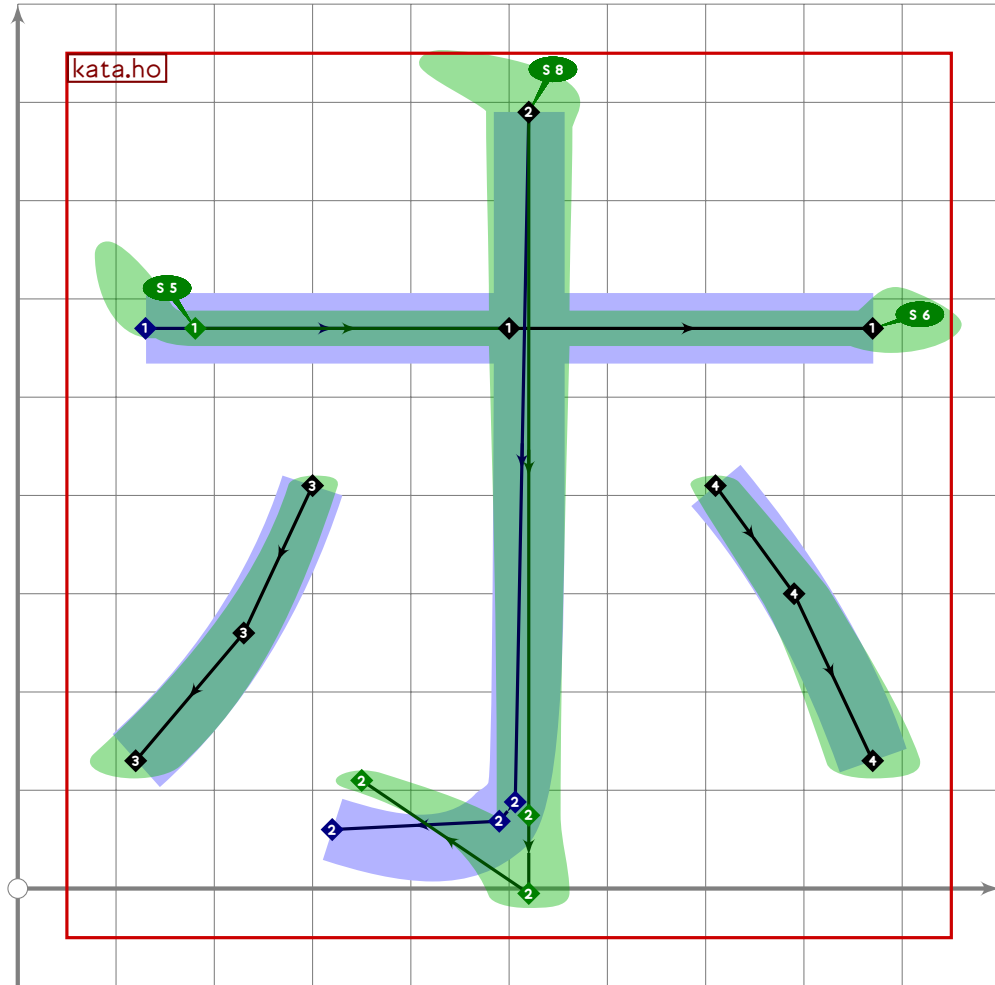
479
480 vardef kata.he =
481   push_pbox_toexpand("kata.he");
482
483   push_stroke((120,320)-(440,570)-(880,230),
484     (1.8,1.8)-(1.5,1.5)-(1.9,1.9));
485   set_botip(0,1);
486   set_boserif(0,0,5);
487   expand_pbox;
488 enddef;
489
490 vardef kata.ho_centre(expr pta,ptb) =
491   push_stroke(begingroup
492     numeric x[],y[];
493     path mycirc,ripx,ripy;
494     mycirc:=fullcircle scaled 100 shifted ptb;
495     z1=(pta-ptb) intersectionpoint mycirc;
496     z2=ptb+(-200,40);
497     z3=0.85[z2,z1];
498     ripx:=pta{down}..tension 1.6..z3..{curl 0}z2;
499     ripx:=insert_nodes(ripx)(0.95);

```

```

500 z4=1.5[z1,ptb];
501 z5=ptb+(-170,90);
502 ripy:=pta-z4{z3-z4}..{curl 0}z5;
503 ripy:=insert_nodes(ripy)(0.90);
504 interpath(mincho,ripx,ripy)
505 endgroup,
506 (1.7,1.7)-(1.4,1.4)-(1.6,1.6)-(0.9,1.6));
507 set_botip(0,2,0);
508 set_boserif(0,0,8);
509 enddef;

```



```

510
511 vardef kata.ho =
512   push_pbox_toexpand("kata.ho");
513
514   push_stroke((130,570)-(500,570)-(870,570),
515             (0.68,2.92)-(1.8,1.8)-(1.9,1.9));
516   set_boserif(0,0,5);
517   set_boserif(0,2,6);
518
519   kata.ho_centre((520,790),(520,20));
520

```

```

521 push_stroke((300,410)..(230,260)..(120,130),
522   (1.2,1.2)-(1.5,1.5)-(1.8,1.8));
523
524 push_stroke((710,410)..(790,300)..(870,130),
525   (1.2,1.2)-(1.5,1.5)-(1.8,1.8));
526 expand_pbox;
527 enddef;
528

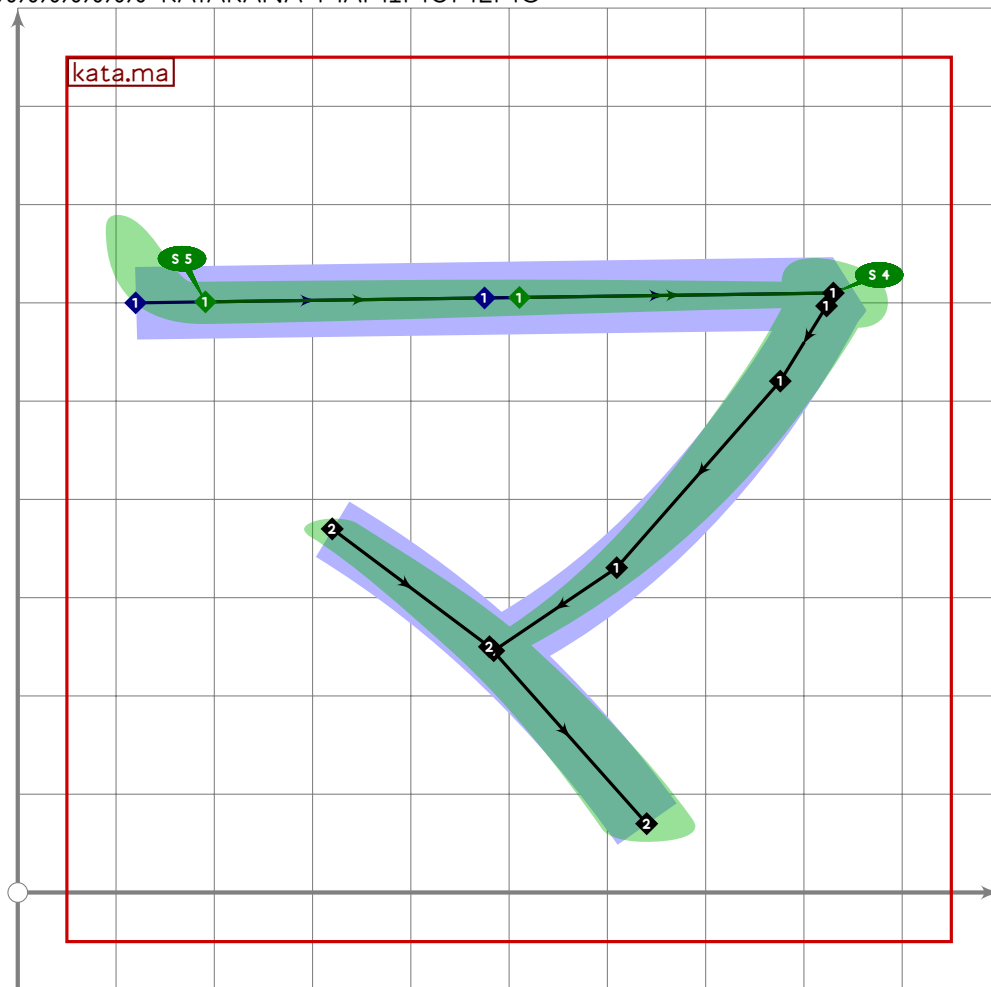
```

## Katakana Mamimumemo

```

529 %%% KATAKANA MAMIMUMEMO

```



```

530
531 vardef kata.ma =
532   push_pbox_toexpand("kata.ma");
533
534   kata.fu_stroke((120,600),(830,610),(200,180));
535
536   push_stroke((320,370)..(480,250)..(640,70),
537     (1.3,1.3)-(1.6,1.6)-(1.8,1.8));
538   replace_stroke(-1)(subpath (0,xpart (oldp intersectiontimes
539     get_stroke(0))) of oldp);

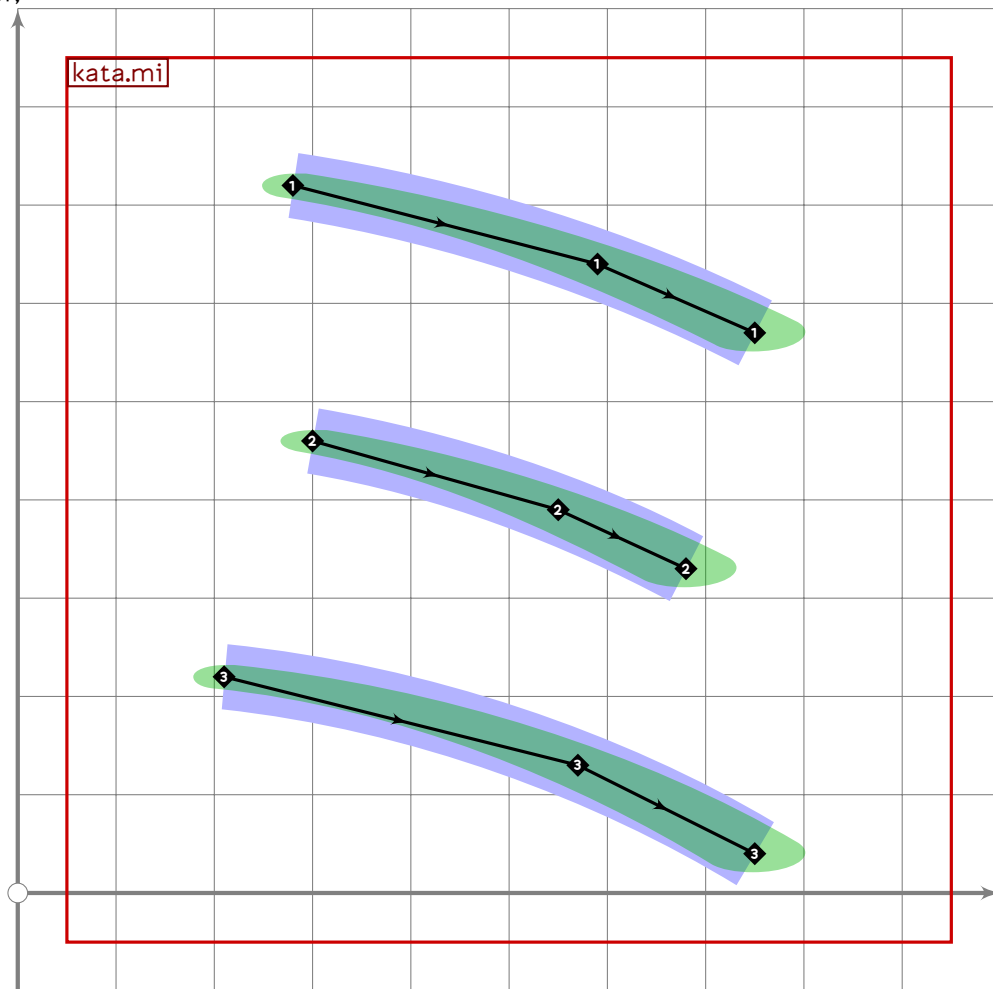
```



```

540 expand_pbox;
541 enddef;

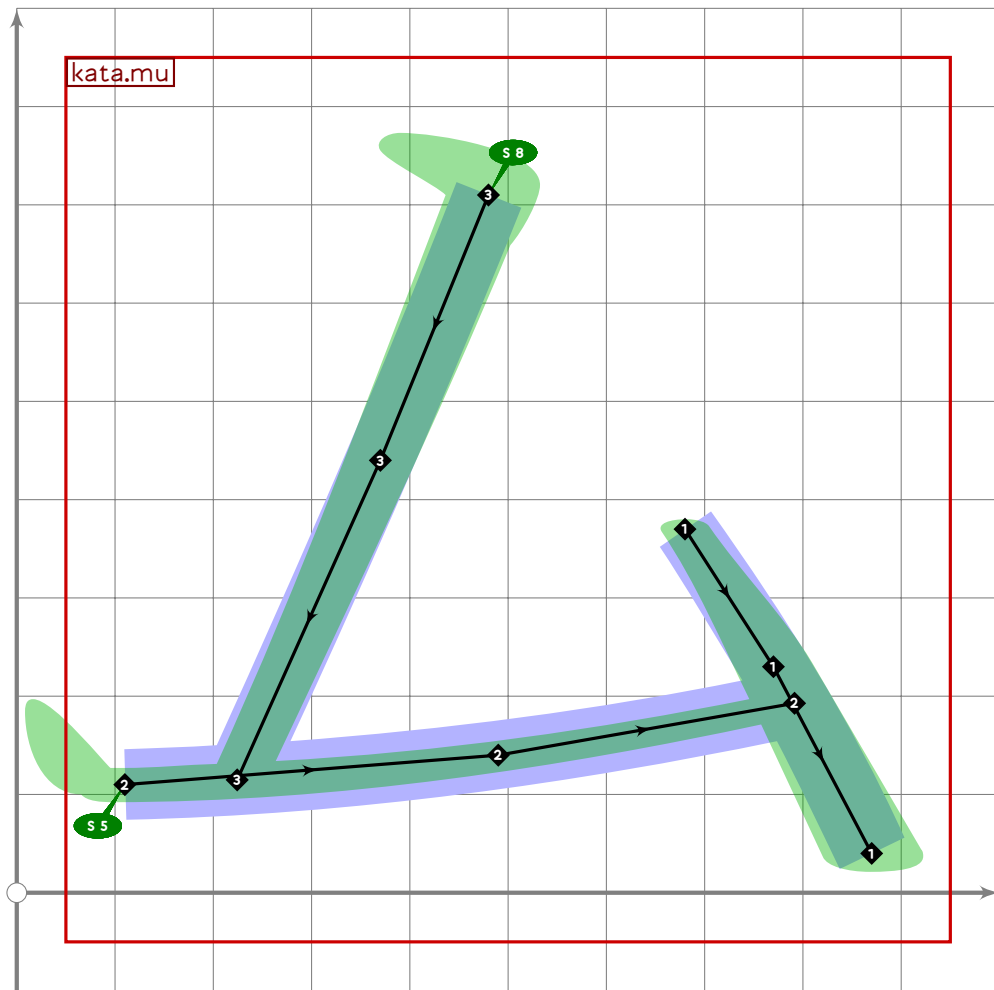
```



```

542
543 vardef kata.mi =
544   push_pbox_toexpand("kata.mi");
545
546   push_stroke((280,720)..(590,640)..(750,570),
547     (1.4,1.4)-(1.7,1.7)-(1.9,1.9));
548
549   push_stroke((300,460)..(550,390)..(680,330),
550     (1.4,1.4)-(1.7,1.7)-(1.9,1.9));
551
552   push_stroke((210,220)..(570,130)..(750,40),
553     (1.4,1.4)-(1.7,1.7)-(1.9,1.9));
554   expand_pbox;
555 enddef;

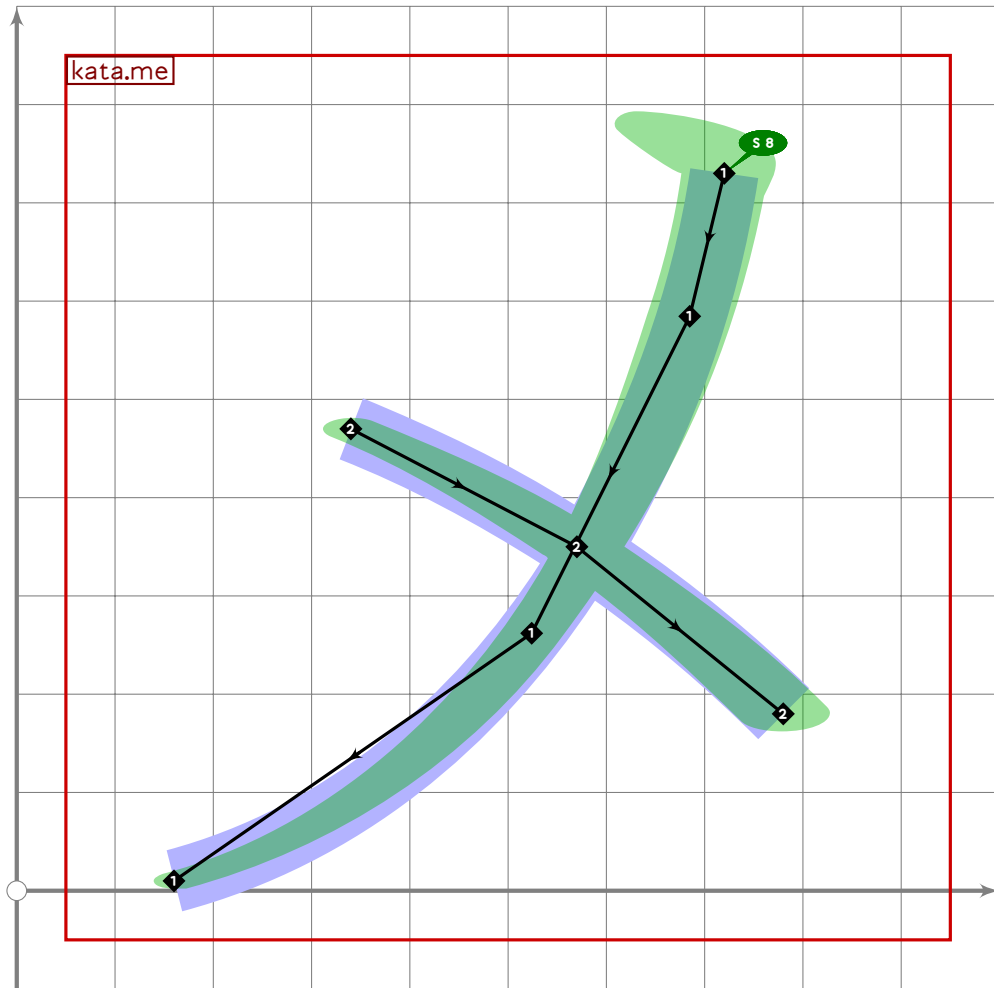
```



```

556
557 vardef kata.mu =
558   push_pbox_toexpand("kata.mu");
559
560   push_stroke((680,370)..(770,230)..(870,40),
561     (1.2,1.2)-(1.6,1.6)-(1.9,1.9));
562
563   push_stroke((110,110)..(490,140)..(point 1.2 of get_strokep(0)),
564     (1.8,1.8)-(1.6,1.6)-(1.4,1.4));
565   set_boserif(0,0,5);
566
567   push_stroke((480,710)..(370,440)..(point 0.3 of get_strokep(0)),
568     (1.7,1.7)-(1.5,1.5)-(1.3,1.3));
569   set_boserif(0,0,8);
570   expand_pbox;
571 enddef;

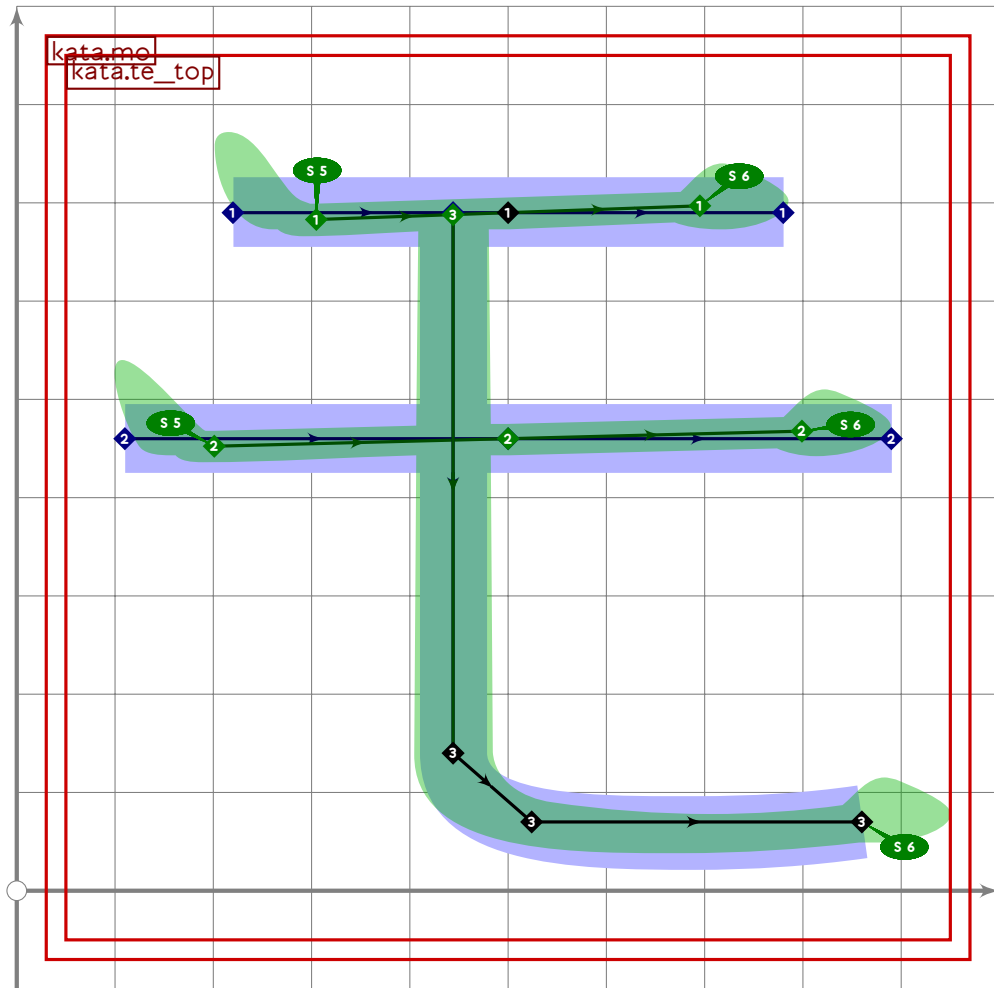
```



```

572
573 vardef kata.me =
574   push_pbox_toexpand("kata.me");
575
576   kata.no_stroke((720,730),(160,10));
577   set_boserif(0,0,8);
578
579   push_stroke((340,470)..(570,350)..(780,180),
580     (1.3,1.3)-(1.6,1.6)-(1.8,1.8));
581   expand_pbox;
582 enddef;

```



```

583
584 vardef kata.mo =
585   push_pbox_toexpand("kata.mo");
586
587   kata.te_top;
588
589   push_stroke((point 0.8 of get_stroke(-1))-
590     (xpart point 0.8 of get_stroke(-1),140){dir 274}..
591     (80+xpart point 0.8 of get_stroke(-1),70)..tension 2.1..(860,70),
592     (1.5,1.5)-(1.6,1.6)-(2,2)-(1.9,1.9));
593   set_boserif(0,3,6);
594   expand_pbox;
595 enddef;
596

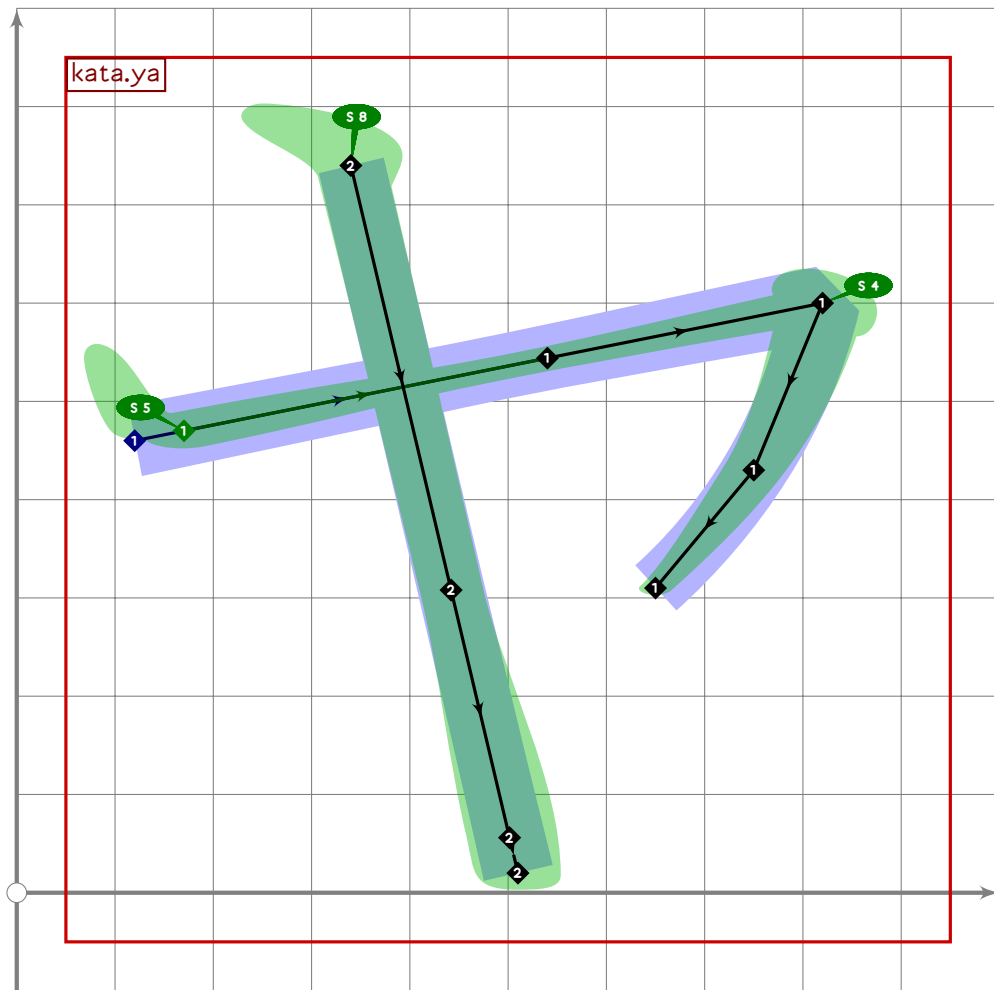
```

## Katakana Yayuyo

```

597 %%%%%%%%% KATAKANA YAYUYO

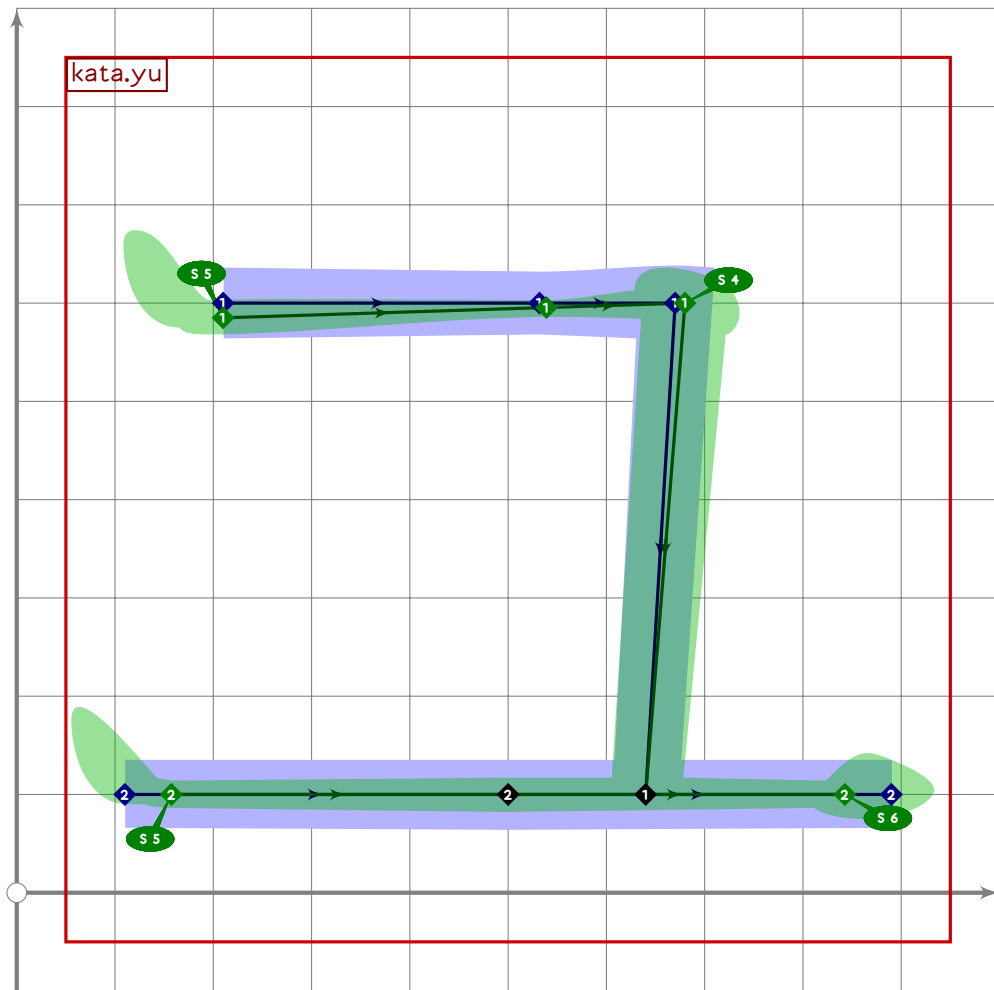
```



```

598
599 vardef kata.ya =
600   push_pbox_toexpand("kata.ya");
601
602   push_stroke((120,460)-(820,600)..(750,430)..(650,310),
603     (0.77,2.9)-(1.3,1.3)-(1.7,1.7)-(1.4,1.4)-(1,1));
604   replace_stroke(0)(insert_nodes(oldp)(0.6));
605   set_botip(0,2,0);
606   set_boserif(0,0,5);
607   set_boserif(0,2,4);
608
609   push_stroke((340,740)-(510,20),
610     (1.5,1.5)-(1.4,1.4)-(1.7,1.7)-(1.7,1.7));
611   replace_stroke(0)(insert_nodes(oldp)(0.6,0.95));
612   set_boserif(0,0,8);
613   expand_pbox;
614 enddef;

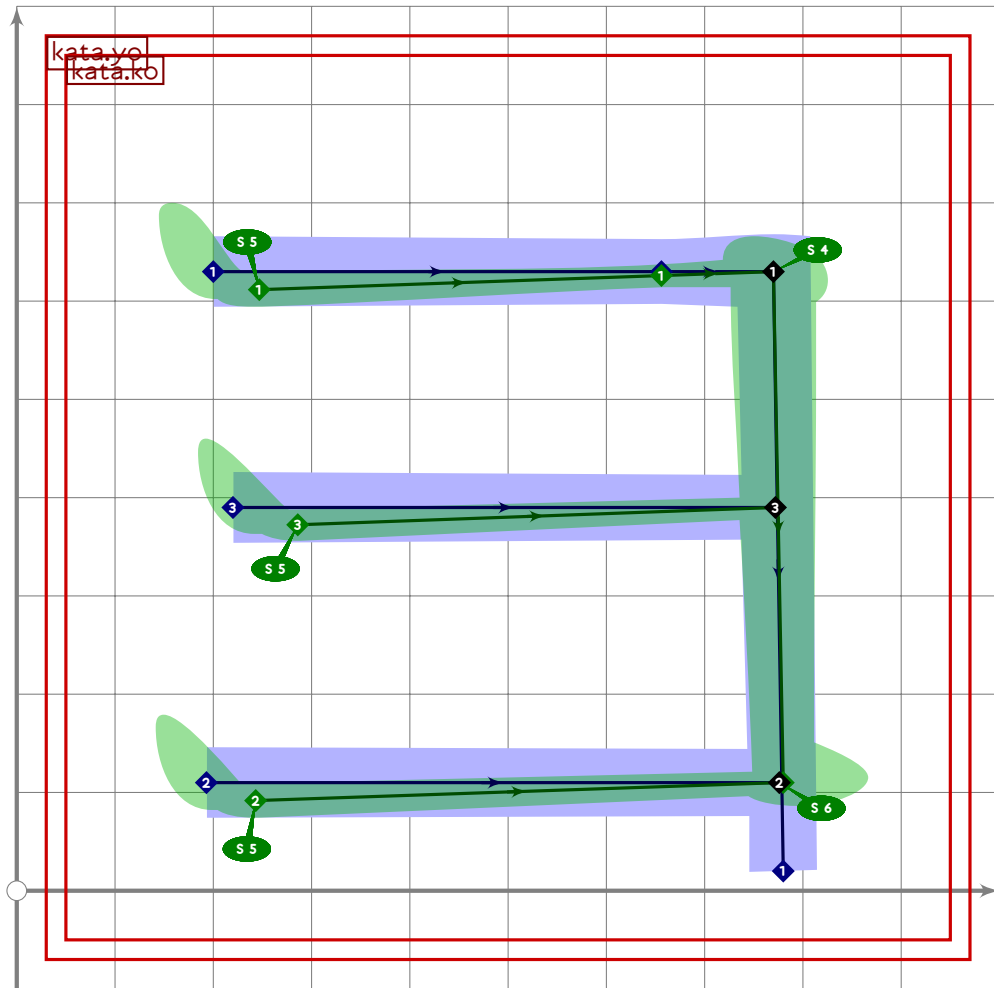
```



```

615
616 vardef kata.yu =
617   push_pbox_toexpand("kata.yu");
618
619   push_stroke((210,600-15*mincho)-(670+10*mincho,600)-(640,100),
620     (1.8,1.8)-(1.2,1.2)-(1.7,1.7)-(1.5,1.5));
621   replace_strokep(0)(insert_nodes(oldp)(0.7));
622   set_botip(0,2,1);
623   set_boserif(0,0,5);
624   set_boserif(0,2,4);
625
626   push_stroke((110,100)-(500,100)-(890,100),
627     (0.7,2.2)-(1.8,1.8)-(0.7,2.2));
628   set_boserif(0,0,5);
629   set_boserif(0,2,6);
630   expand_pbox;
631 enddef;

```



```

632
633 vardef kata.yo =
634   push_pbox_toexpand("kata.yo");
635
636   kata.ko;
637
638   push_stroke((220,390-20*mincho)-(772,390),
639     (0.77,2.7)-(1.3,1.3));
640   set_boserif(0,0,5);
641   expand_pbox;
642 enddef;
643

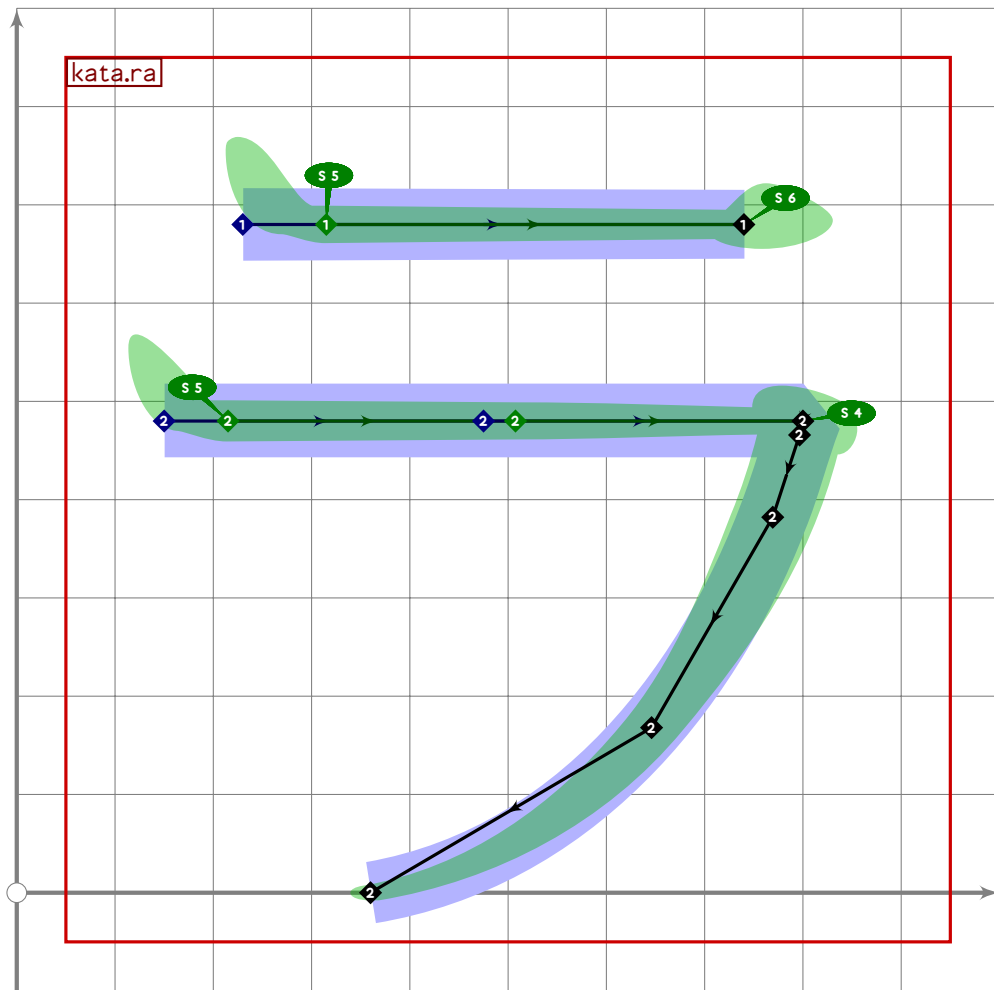
```

## Katakana Rarirurero

```

644 %%% KATAKANA RARIRURERO

```

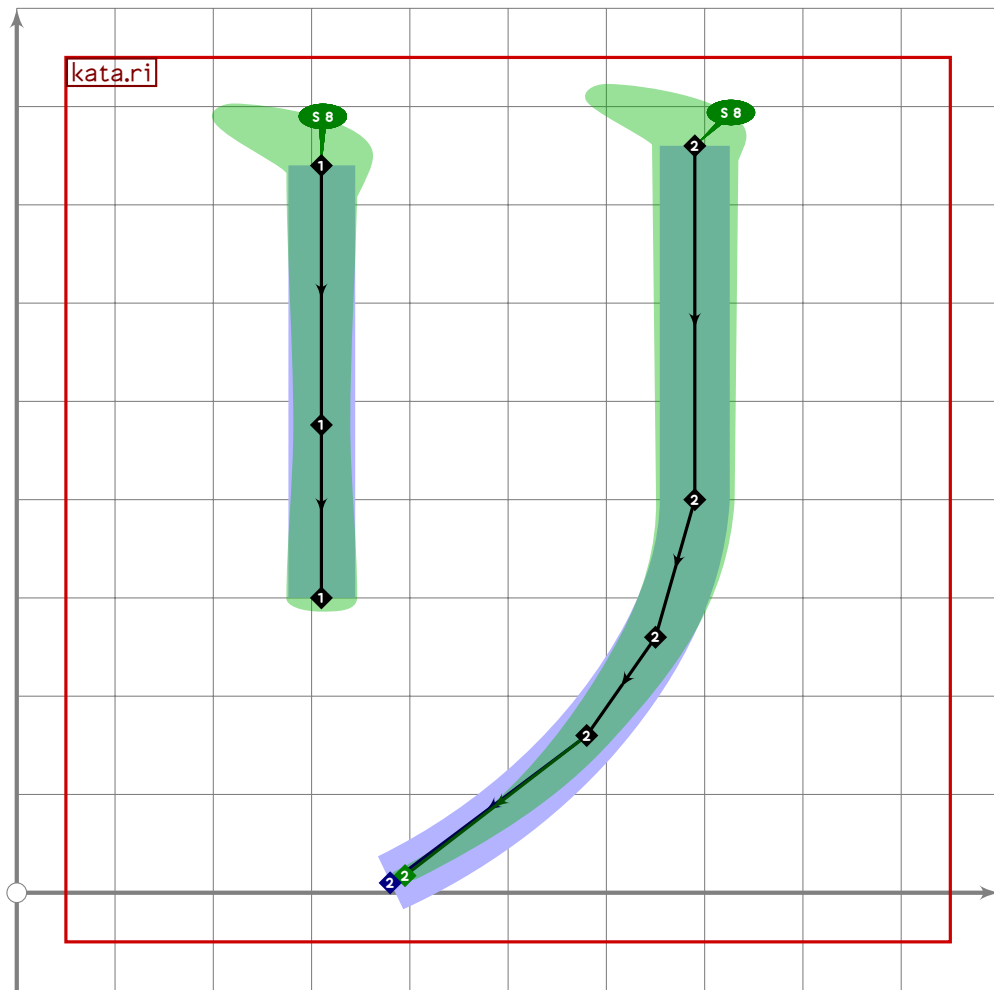


```

645
646 vardef kata.ra =
647   push_pbox_toexpand("kata.ra");
648
649   push_stroke((230,680)-(740,680),
650     (0.68,3.12)-(1.6,1.6));
651   set_boserif(0,0,5);
652   set_boserif(0,1,6);
653
654   kata.fu_stroke((150,480),(800,480),(360,0));
655   expand_pbox;
656 enddef;

```

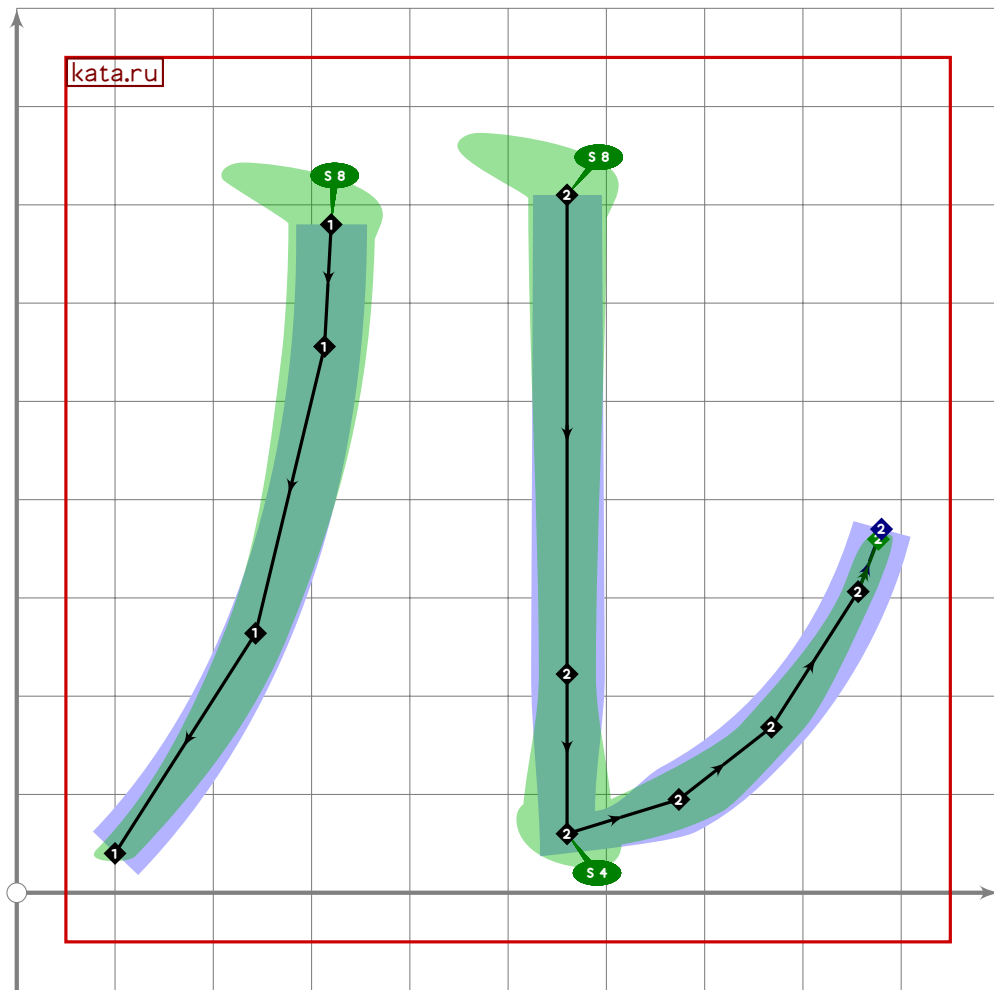




```

657
658 vardef kata.ri =
659   push_pbox_toexpand("kata.ri");
660
661   push_stroke((310,740)-(310,300),
662     (1.5,1.5)-(1.3,1.3)-(1.5,1.5));
663   replace_strokep(0)(insert_nodes(oldp)(0.6));
664   set_boserif(0,0,8);
665
666   push_stroke((690,760)-(690,400){dir 267}..(650,260)..(580,160)..(380,10),
667     (1.7,1.7)-(1.6,1.6)-(1.5,1.5)-(1.3,1.3)-(0.8,1));
668   set_boserif(0,0,8);
669   expand_pbox;
670 enddef;

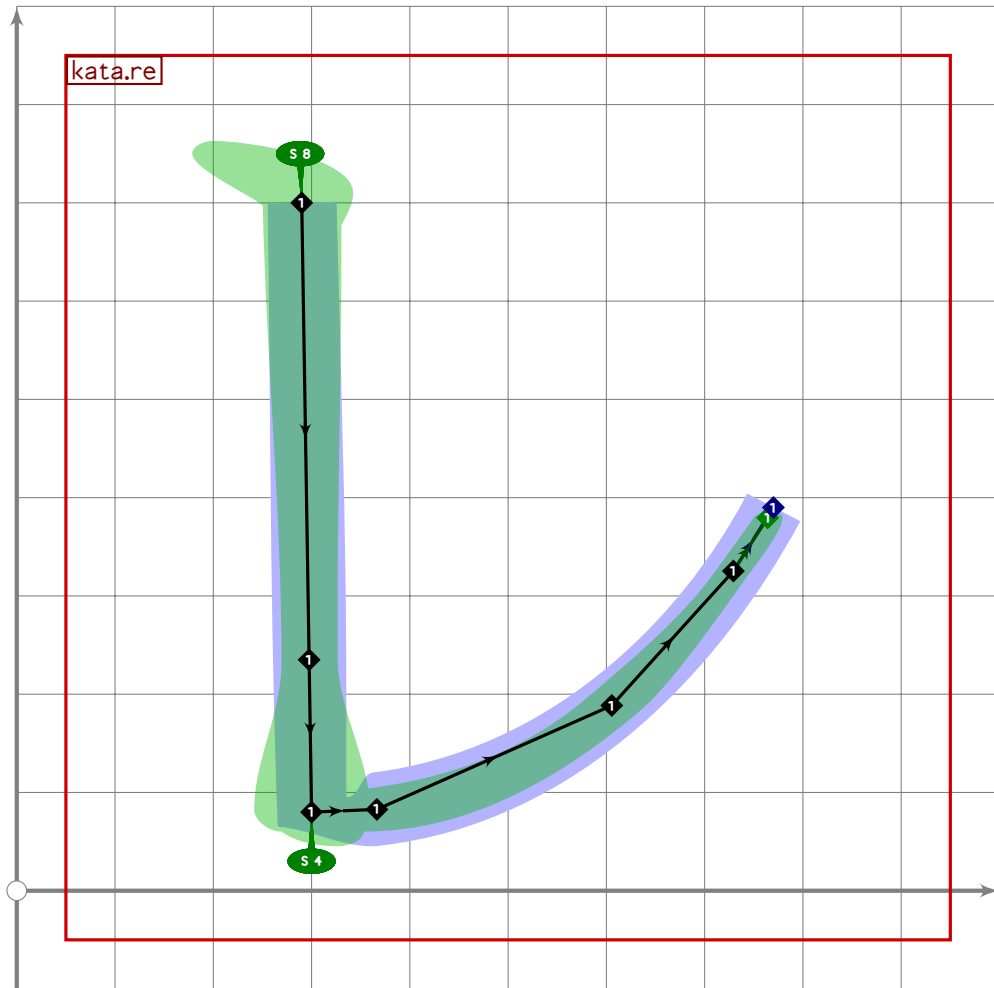
```



```

671
672 vardef kata.ru =
673   push_pbox_toexpand("kata.ru");
674
675   kata.no_stroke((320,680),(100,40));
676   set_boserif(0,0,8);
677
678   kata.no_stroke((880,370),(560,60));
679   replace_strokep(0)(insert_nodes((560,710)-reverse oldp)(0.75,1.5));
680   replace_strokeq(0)((1.6,1.6)-(1.3,1.3)-(1.8,1.8)-
681     (2,2)-(1.4,1.4)-(1,1)-(0.8,1));
682   set_botip(0,1,0);
683   set_boserif(0,0,8);
684   set_boserif(0,2,4);
685   expand_pbox;
686 enddef;

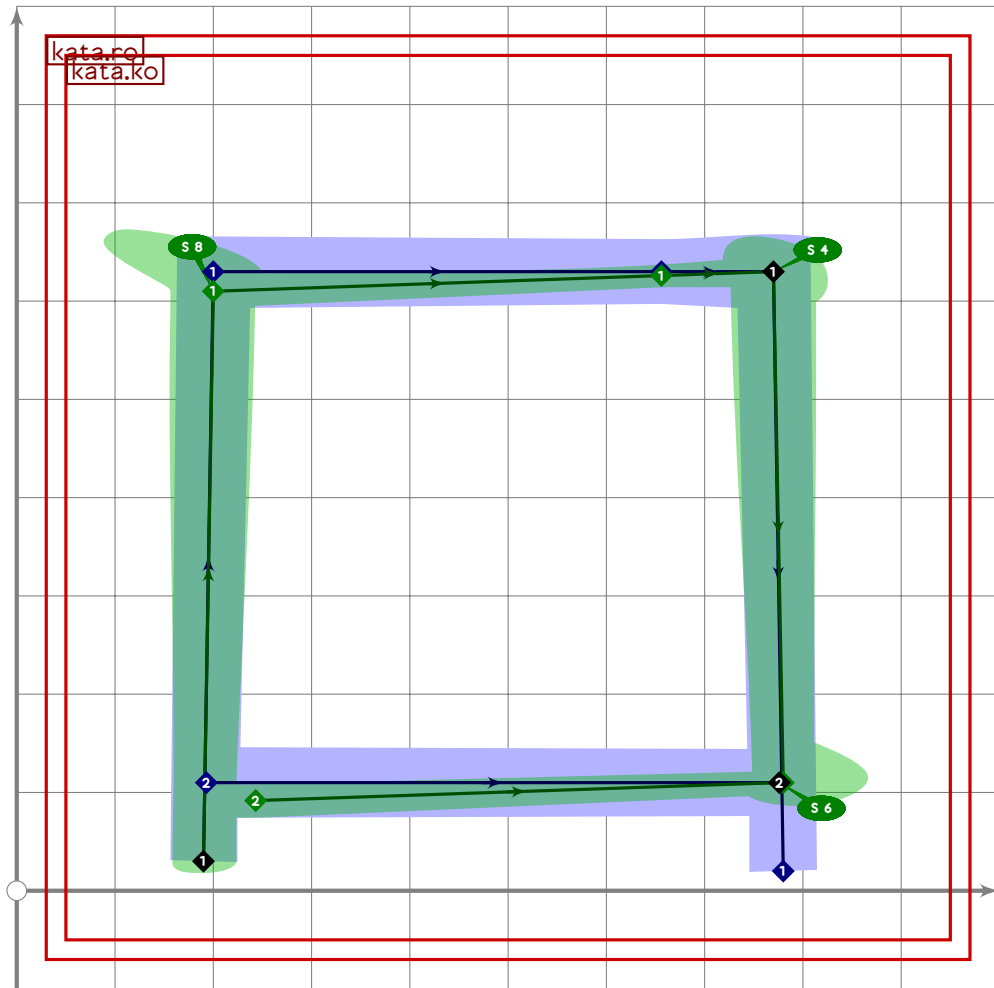
```



```

687
688 vardef kata.re =
689   push_pbox_toexpand("kata.re");
690
691   kata.no_stroke((770,390),(300,80));
692   replace_strokep(0)(insert_nodes((290,700)-reverse oldp)(0.75,1.2));
693   replace_strokeq(0)((1.6,1.6)-(1.3,1.3)-(2.1,2.1)-
694     (2,2)-(1.4,1.4)-(1,1)-(0.8,1));
695   set_botip(0,1,0);
696   set_boserif(0,0,8);
697   set_boserif(0,2,4);
698   expand_pbox;
699 enddef;

```



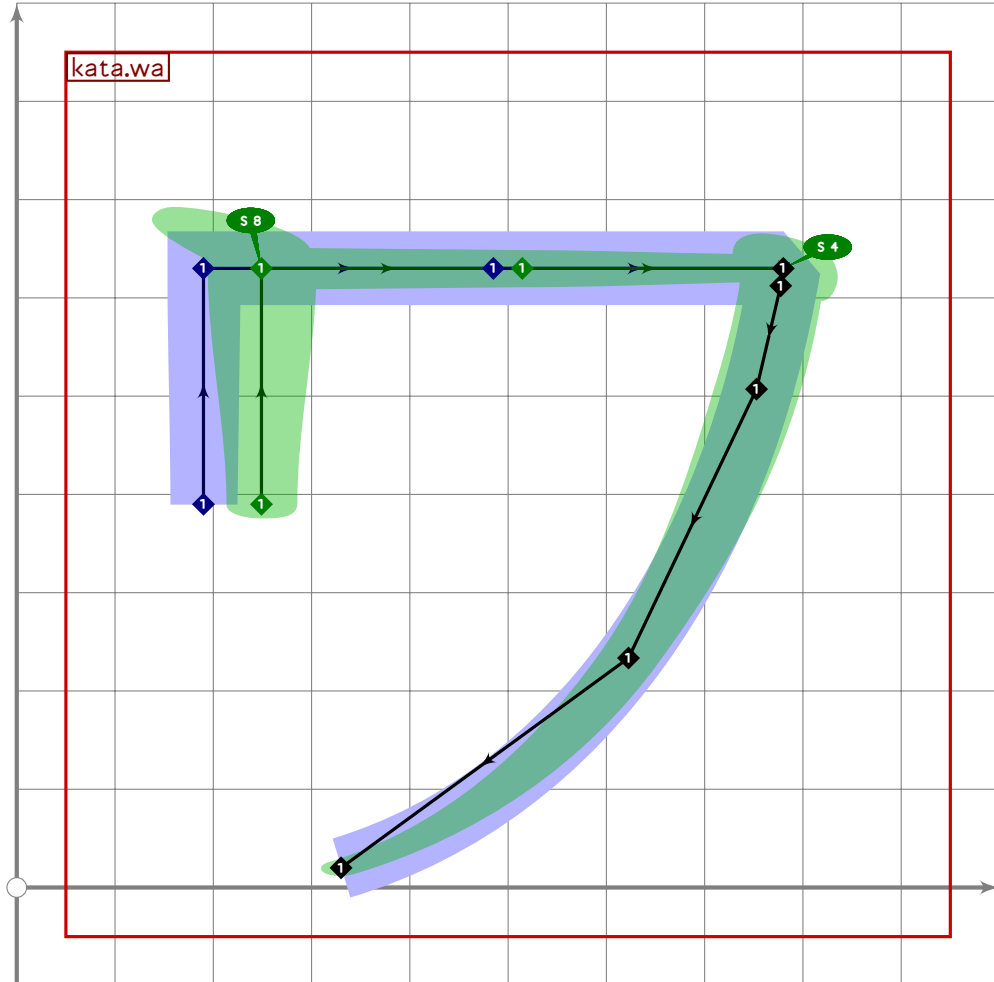
```

700
701 vardef kata.ro =
702   push_pbox_toexpand("kata.ro");
703
704   kata.ko;
705
706   replace_strokep(-1)((190,30)-oldp);
707   replace_strokeq(-1)((1.4,1.4)-(1.7,1.7)-(subpath (1,infinity) of oldq));
708   set_botip(-1,1,1);
709   set_botip(-1,2,whatever);
710   set_botip(-1,3,1);
711   set_boserif(-1,0,whatever);
712   set_boserif(-1,1,8);
713   set_boserif(-1,2,whatever);
714   set_boserif(-1,3,4);
715   set_boserif(0,0,whatever);
716   expand_pbox;
717 enddef;
718

```

# Katakana Wawiwewo/N/Iteration

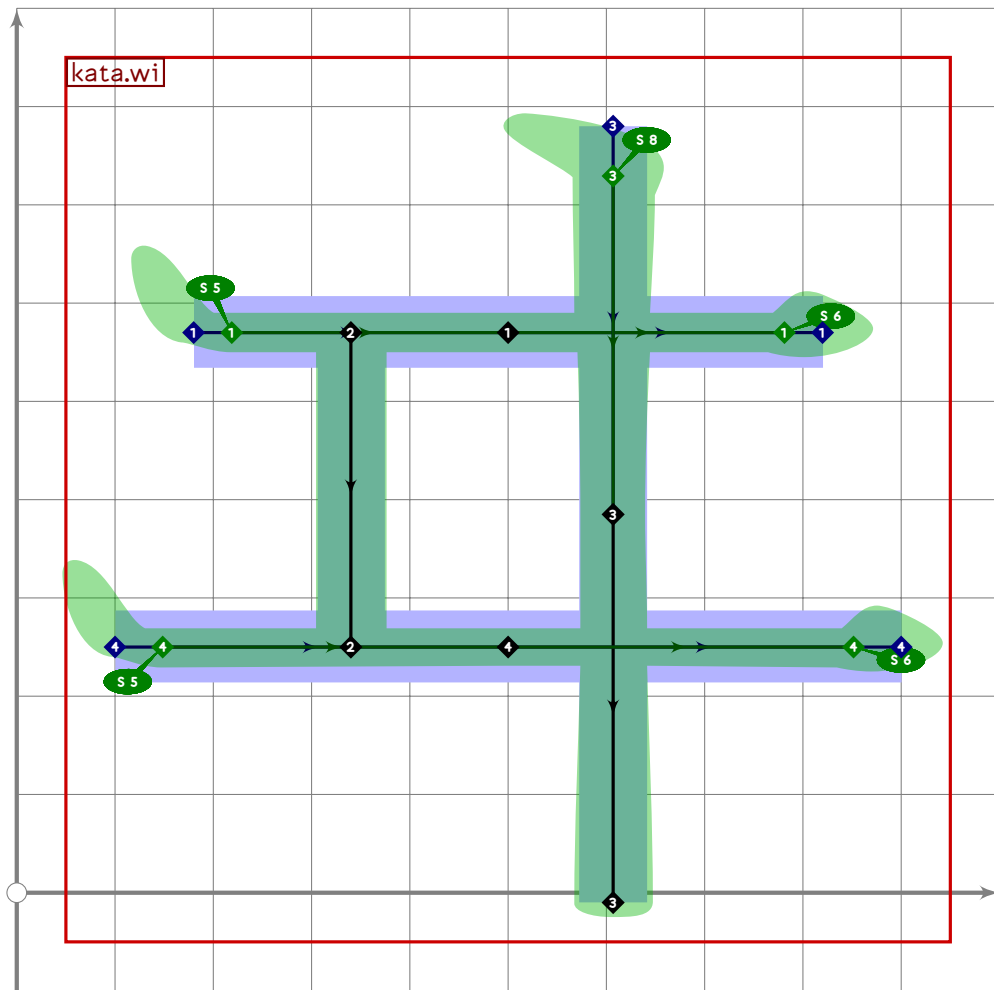
719 %%% KATAKANA WAWIWEWO/N/ITERATION



```

720
721 vardef kata.wa =
722   push_pbox_toexpand("kata.wa");
723
724   kata.fu_stroke((190,630),(780,630),(330,20));
725   replace_strokep(0)((xpart point 0 of oldp,390)-oldp);
726   replace_strokeq(0)((1.5,1.5)-oldq);
727   set_botip(0,1);
728   set_botip(0,3,0);
729   set_boserif(0,0,whatever);
730   set_boserif(0,1,8);
731   set_boserif(0,2,whatever);
732   set_boserif(0,3,4);
733   expand_pbox;
734 enddef;

```



```

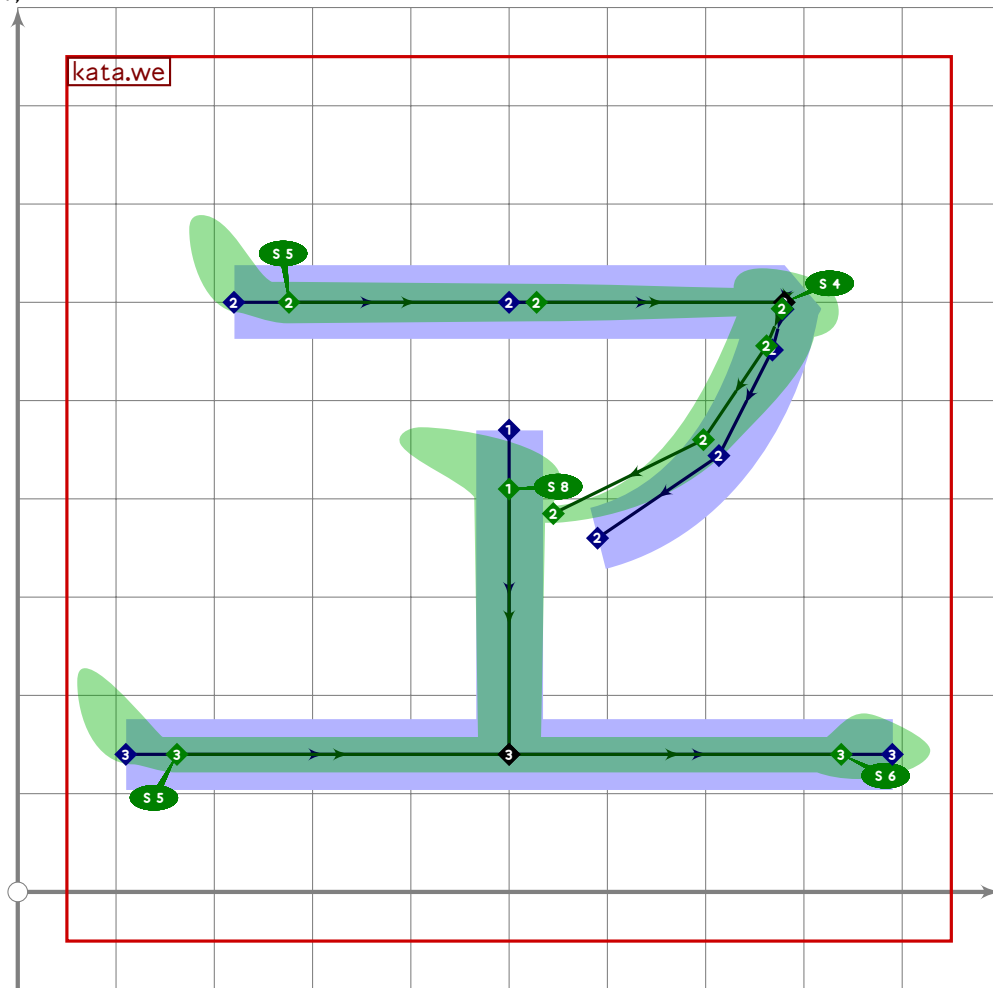
735
736 vardef kata.wi =
737   push_pbox_toexpand("kata.wi");
738
739   x1=100;
740   x2=180;
741   x3=0.25[x2,x5];
742   x4=0.667[x2,x5];
743   (x5+x2)/2=(x1+x6)/2=500;
744   y1=-10;
745   y2=250;
746   y3=570;
747   y4=780;
748   push_stroke((x2,y3)-(x5,y3),
749     (0.7,3.3)-(1.8,1.8)-(0.7,3.3));
750   replace_strokep(0)(insert_nodes(oldp)(0.5));
751   set_boserif(0,0,5);
752   set_boserif(0,2,6);
753
754   push_stroke((x3,y3)-(x3,y2),
755     (1.5,1.5)-(1.5,1.5));

```

```

756
757 push_stroke((x4,y4)-(x4,0.5[y4,y1])-(x4,y1),
758   (0.75,2.65)-(1.4,1.4)-(1.6,1.6));
759 set_boserif(0,0,8);
760
761 push_stroke((x1,y2)-(x6,y2),
762   (0.7,3.3)-(1.8,1.8)-(0.7,3.3));
763 replace_strokep(0)(insert_nodes(oldp)(0.5));
764 set_boserif(0,0,5);
765 set_boserif(0,2,6);
766 expand_pbox;
767 enddef;

```



```

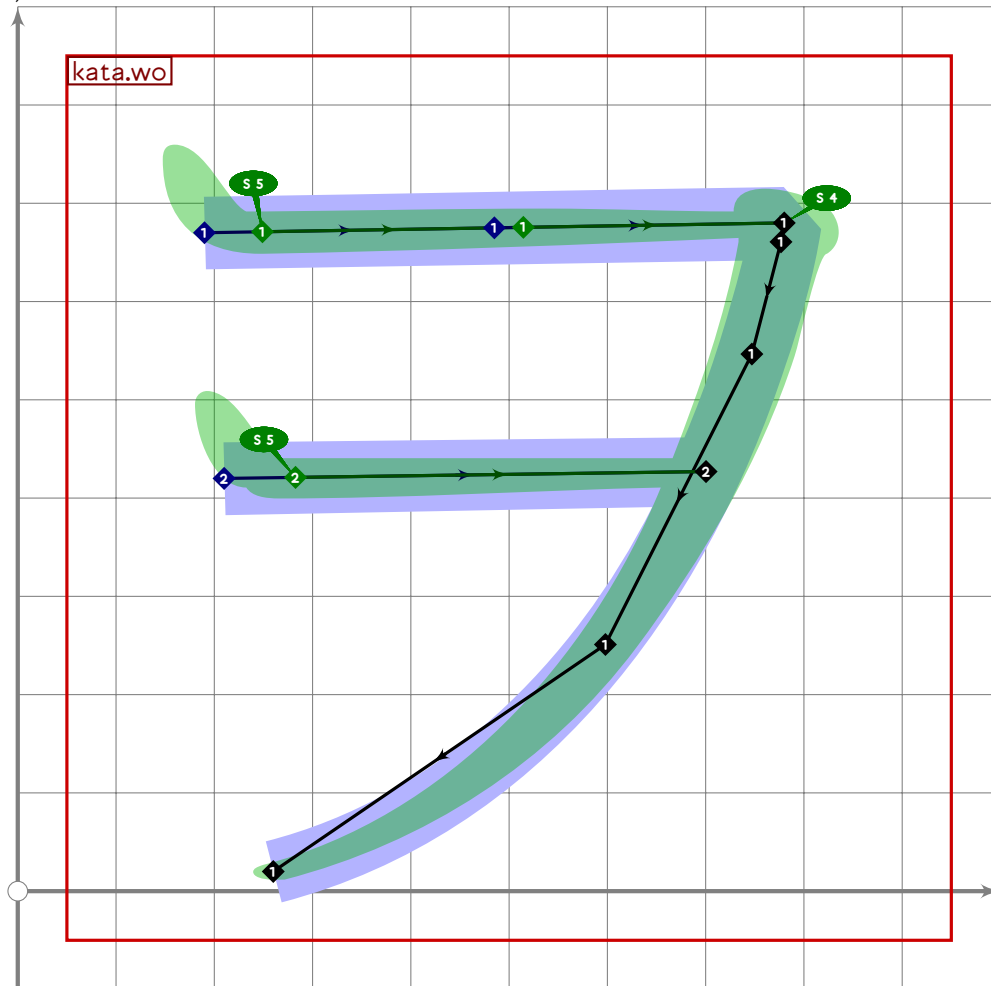
768
769 vardef kata.we =
770   push_pbox_toexpand("kata.we");
771
772   push_stroke((500,470-60*mincho)-(500,140),
773     (1.5,1.5)-(1.4,1.4));
774   set_boserif(0,0,8);
775
776   kata.fu_stroke((220,600),(780,600),

```

```

777 (0.5*mincho)[(590,360),point 0 of get_stroke(0)];
778
779 push_stroke((110,140)-(500,140)-(890,140),
780 (0.7,2.9)-(1.7,1.7)-(0.7,2.9));
781 set_boserif(0,0,5);
782 set_boserif(0,2,6);
783 expand_pbox;
784 enddef;

```

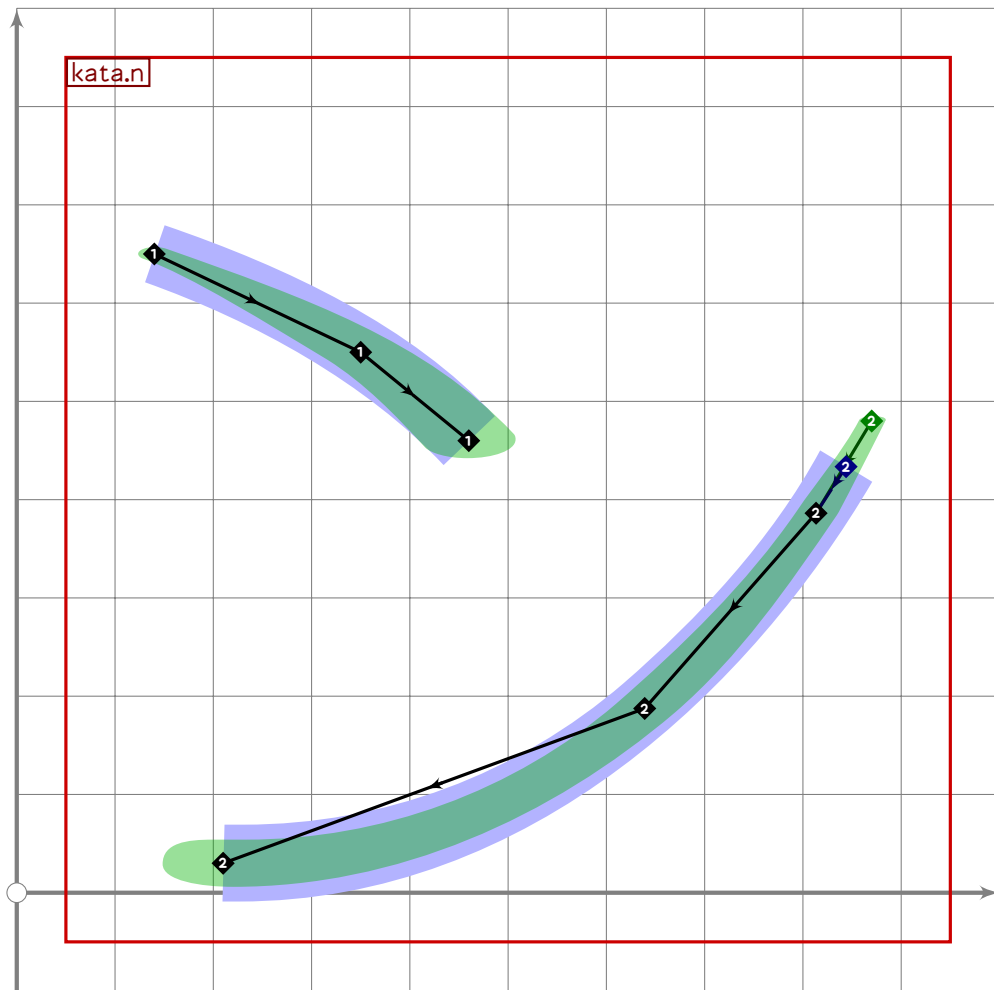


```

785
786 vardef kata.wo =
787   push_pbox_toexpand("kata.wo");
788
789   kata.fu_stroke((190,670),(780,680),(260,20));
790
791   z1=get_stroke(0) intersectionpoint ((0,420)-(1000,430));
792   push_stroke((210,420)-z1,
793 (0.7,3.3)-(1.6,1.6));
794   set_boserif(0,0,5);
795   expand_pbox;
796 enddef;

```

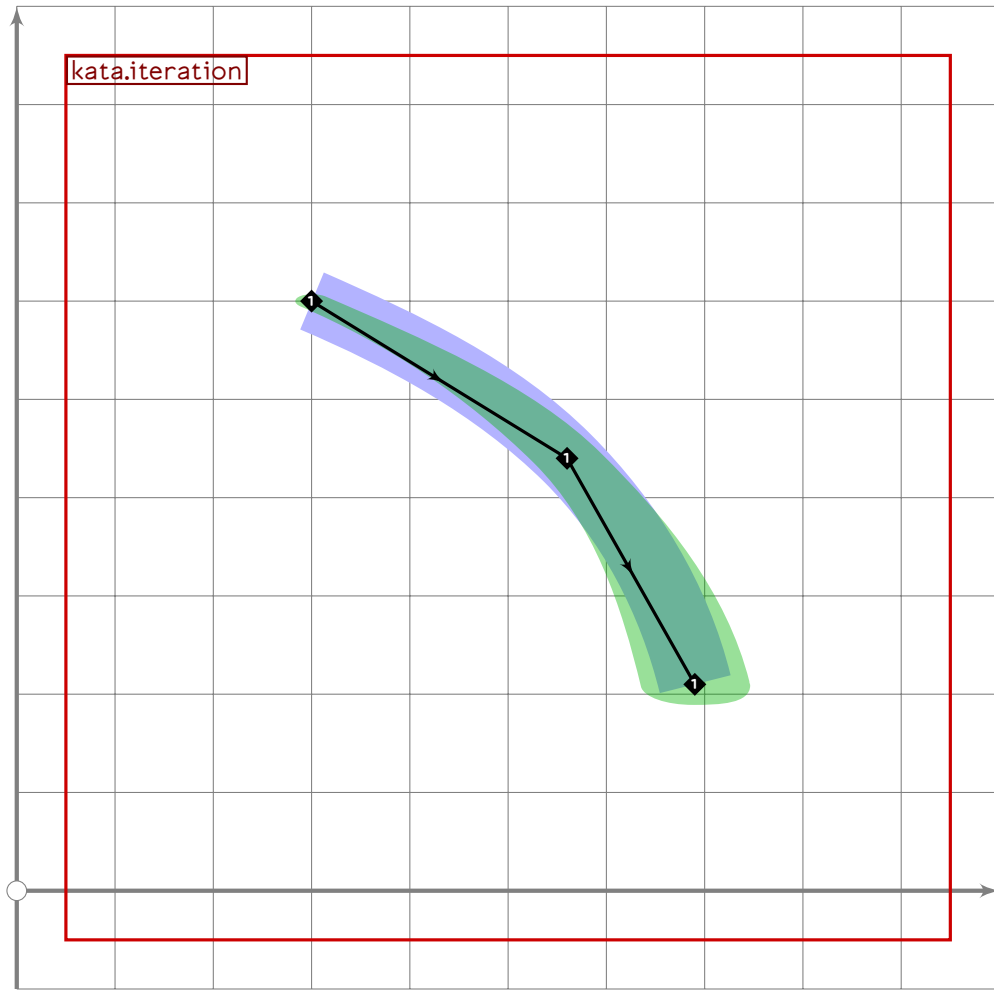




```

797
798 vardef kata.n =
799   push_pbox_toexpand("kata.n");
800
801   push_stroke((140,650)..tension 1.2..(350,550)..(460,460),
802     (1,1)..(1.6,1.6)..(1.8,1.8));
803
804   kata.no_stroke((870,480),(210,30));
805   replace_strokeq(0)((0,9,0,9)-(1,1,1,1)-(1,4,1,4)-(2,2,2,2));
806   set_boserif(0,4,5);
807   expand_pbox;
808 enddef;

```



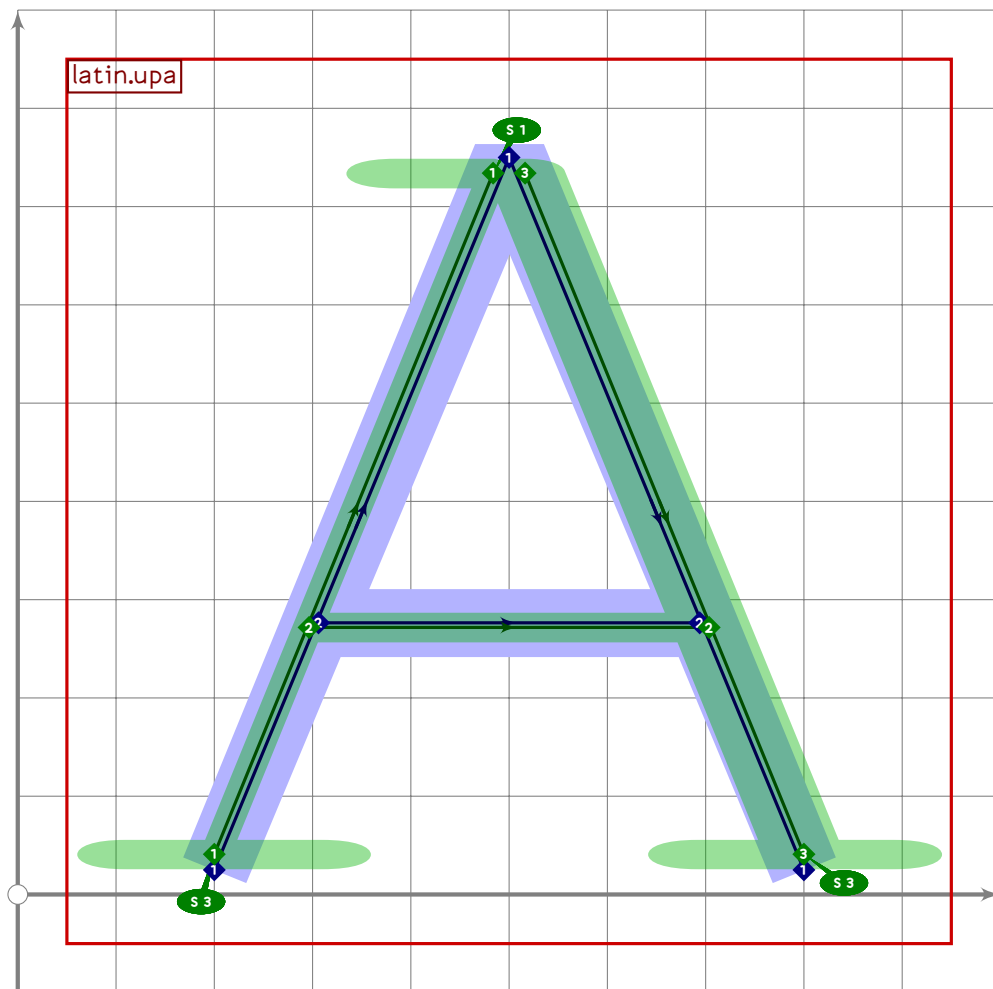
```

809
810 vardef kata.iteration =
811   push_pbox_toexpand("kata.iteration");
812
813   push_stroke((300,600){curl 0.2}..(560,440)..(690,210),
814     (1,1)-(1.5,1.5)-(2,2));
815   expand_pbox;
816 enddef;

```

# latin.mp

```
1 %
2 % Latin and related letters for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(latin);
32
33
```

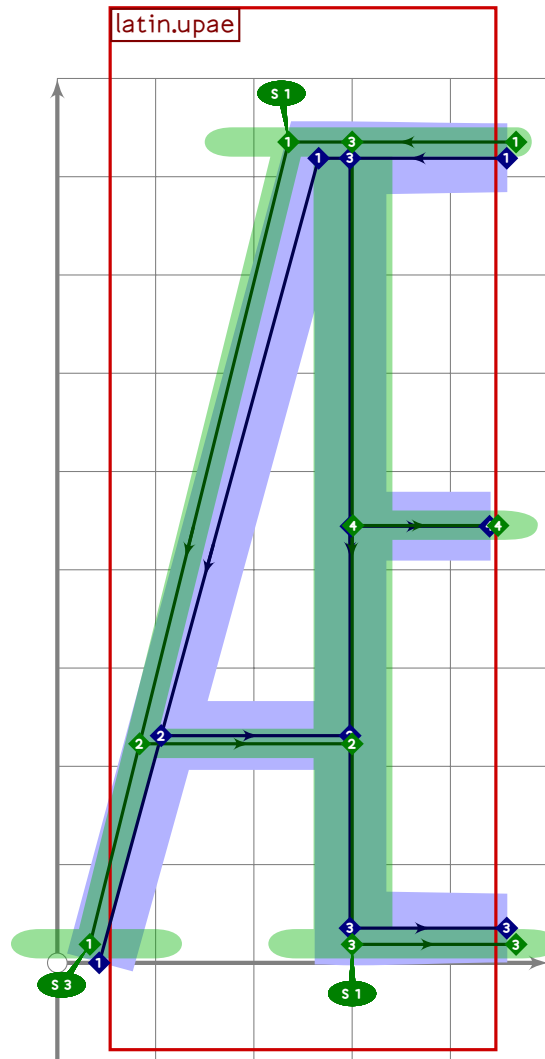


```
34
35 vardef latin.upa =
36   push_pbox_toexpand("latin.upa");
37   z1=(200,latin_wide_low_v);
38   z2=(500,latin_wide_high_v);
39   z3=(800,latin_wide_low_v);
40
41   if do_alteration:
42     z4=whatever[z1,(z2+alternate_adjust*left/2)]+(2,0);
43     z5=whatever[(z2+alternate_adjust*right/2),z3]-(2,0);
```

```

44 y4=y5=vmetric(0.333);
45
46 push_stroke(z1-(z2+alternate_adjust*left/2),(1.6,1.6)-(1.6,1.6));
47 set_boalternate(0);
48 set_botip(0,1,0);
49 set_boserif(0,0,3);
50 set_boserif(0,1,1);
51
52 push_stroke(z4-z5,(1.6,1.6)-(1.6,1.6));
53 set_boalternate(0);
54
55 push_stroke((z2+alternate_adjust*right/2)-z3,(1.6,1.6)-(1.6,1.6));
56 set_boserif(0,1,3);
57 else:
58 z4=whatever[z1,z2]+(2,0);
59 z5=whatever[z2,z3]-(2,0);
60 y4=y5=vmetric(0.333);
61
62 push_stroke(z1-z2-z3,(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
63 set_botip(0,1,0);
64 set_boserif(0,0,3);
65 set_boserif(0,1,1);
66 set_boserif(0,2,3);
67
68 push_stroke(z4-z5,(1.6,1.6)-(1.6,1.6));
69 fi;
70 expand_pbox;
71 endif;

```



```

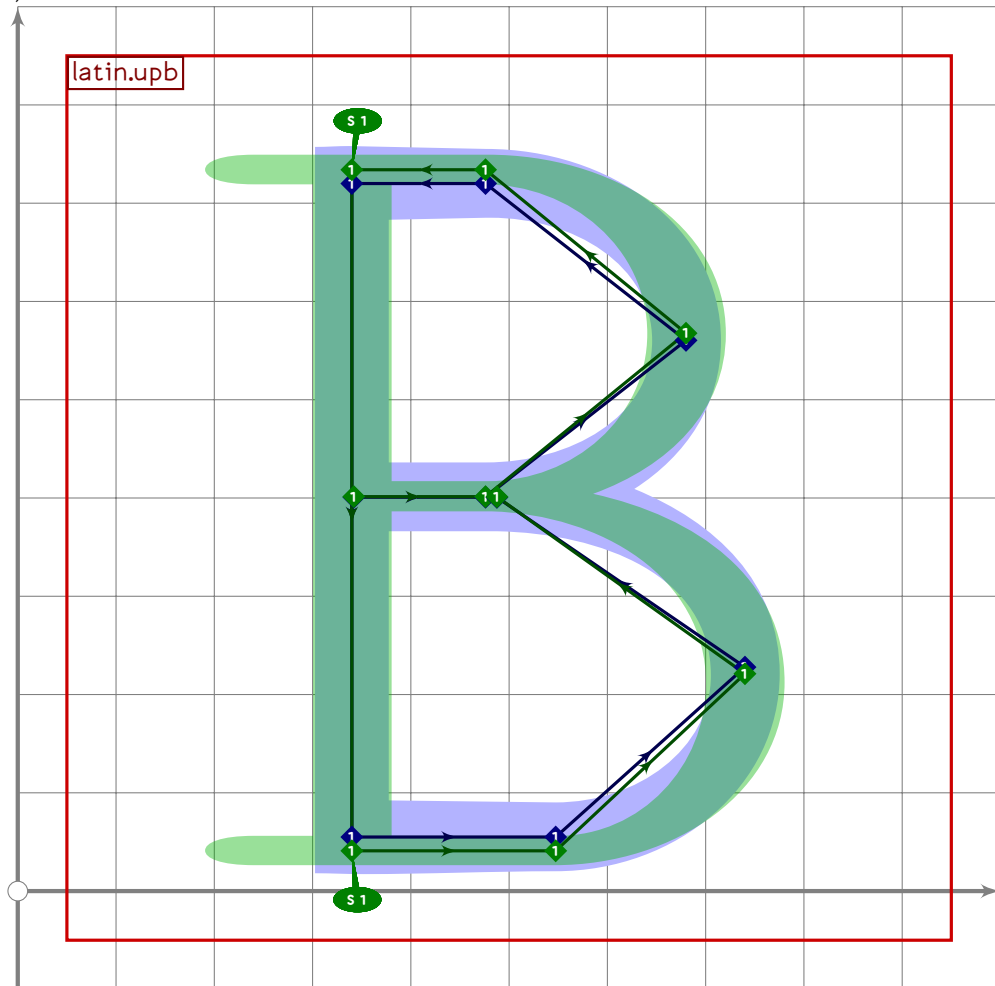
72
73 vardef latin.upae =
74   push_pbox_toexpand("latin.upae");
75   y1=y2=latin_wide_high_h;
76   y3=y4=latin_wide_low_h;
77   y5=y6=vmetric(0.522);
78
79   (x1+x7)/2=500;
80   x2=x3;
81   x1=x4;
82   x5=x2+2;
83   x6=0.89[x2,x1];
84   (x1-x2)=(y2-y3)*0.55;
85
86   y7=latin_wide_low_v;
87   x7=(-1.6)[x2,x1];
88   z10=(-0.2)[z2,z1]+2.2*alternate_adjust*left;
89   z8=whatever[z7,z10];
90   z9=whatever[z2,z3];

```

```

91 y8=y9=vmetric(0.250);
92
93 push_stroke(z1-z10-z7,(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
94 set_botip(0,1,1);
95 set_boserif(0,1,1);
96 set_boserif(0,2,3);
97 set_boalternate(0);
98
99 push_stroke(z8-z9,(1.6,1.6)-(1.6,1.6));
100 set_boalternate(0);
101
102 push_stroke(z2-z3-z4,(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
103 set_botip(0,1,1);
104 set_boserif(0,1,1);
105
106 push_stroke(z5-z6,(1.6,1.6)-(1.6,1.6));
107 expand_pbox;
108 enddef;

```



```

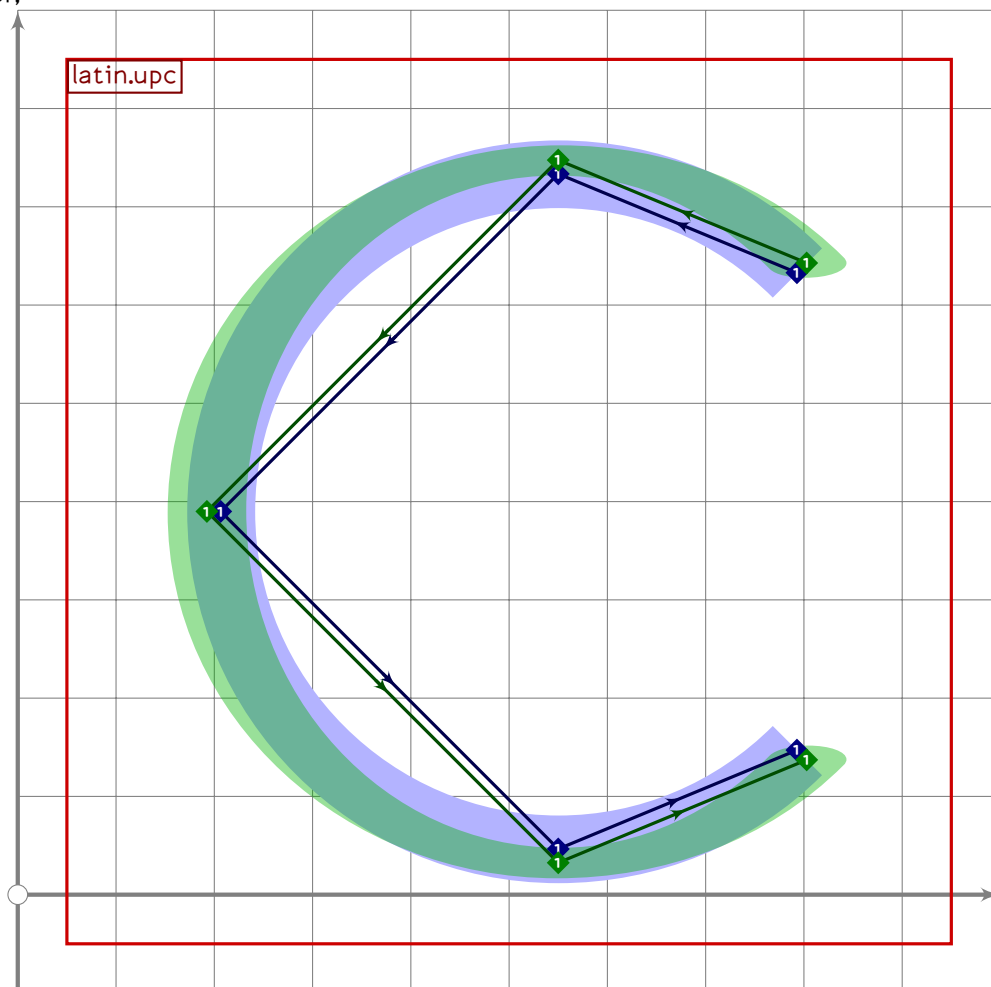
109
110 vardef latin.upb =
111   push_pbox_toexpand("latin.upb");

```

```

112 latin.upp_base(340);
113
114 x6=x5;
115 x7=0.61[x5,x3];
116 x8=x5+400;
117
118 y6=y7=latin_wide_low_h;
119 y8=0.5[y6,y1];
120
121 z9=z2;
122
123 replace_strokep(0)(oldp-z6-z7{right}..z8..{left}z9);
124 replace_strokep(0)(subpath (0,797) of oldp);
125 replace_strokeq(0)(oldq-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
126
127 set_botip(0,4,1);
128 set_botip(0,5,1);
129 set_boserif(0,4,1);
130 set_boserif(0,5,1);
131 expand_pbox;
132 enddef;

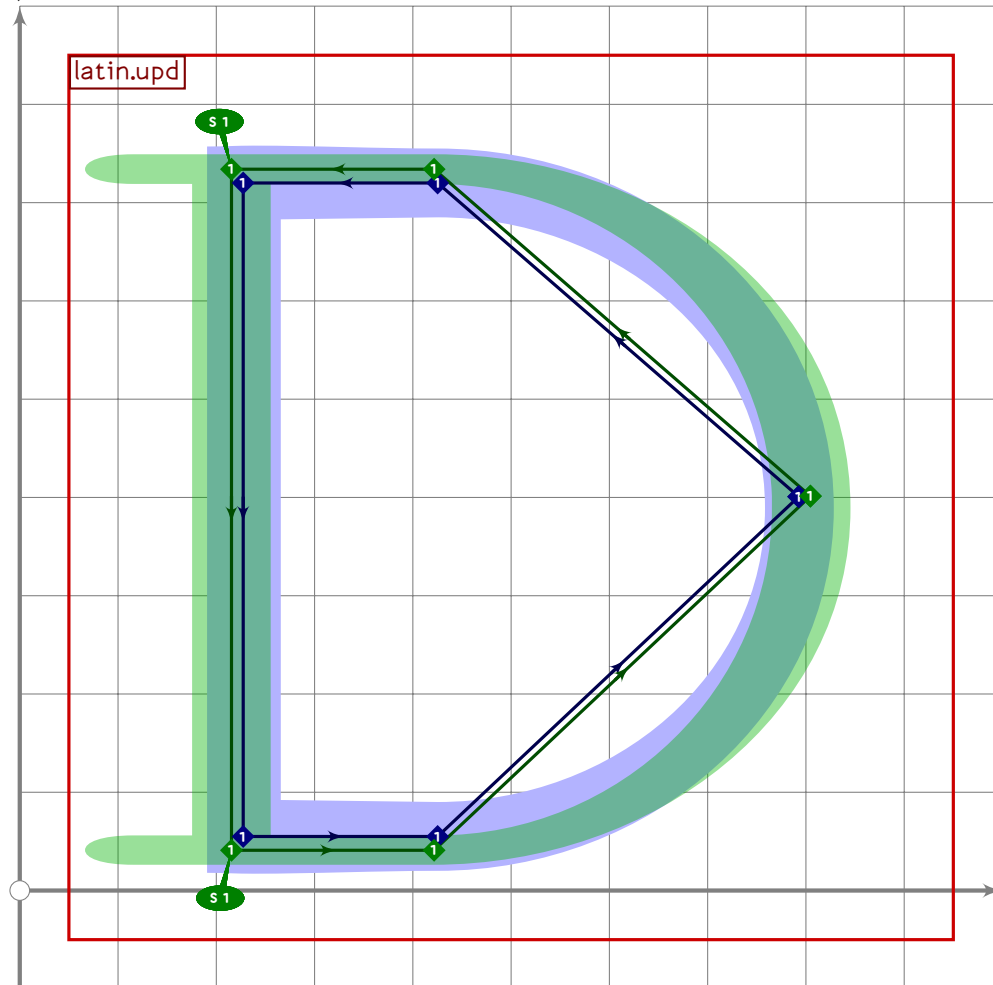
```



```

133
134 vardef latin.upc =
135   push_pbox_toexpand("latin.upc");
136   push_stroke(
137     (subpath (0.5,3.5) of ((1,0)..(0,1)..(-1,0)..(0,-1)..cycle))
138     scaled ((latin_wide_high_r-latin_wide_low_r)/2)
139     shifted (centre_pt+(50,0)),
140     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
141   expand_pbox;
142 enddef;

```



```

143
144 vardef latin.upd =
145   push_pbox_toexpand("latin.upd");
146   y1=y5=latin_wide_high_h;
147   y2=y3=latin_wide_low_h;
148   y4=0.52[y2,y1];
149
150   (x1+x4)/2=510;
151   (x4-x1)=0.85*(y1-y2);
152   x1=x2;
153   x3=x5=0.35[x1,x4];

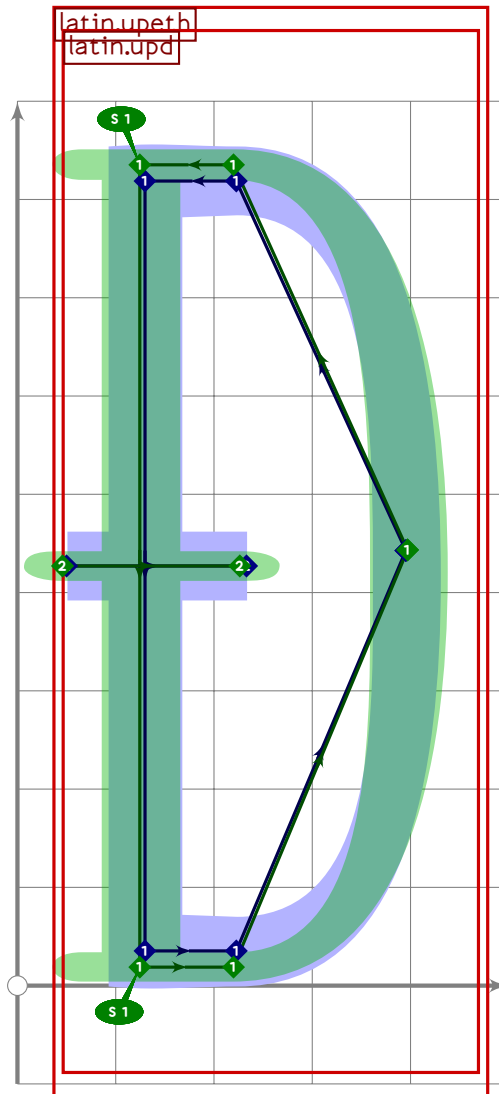
```



```

154
155 push_stroke(z4.{left}z5-z1-z2-z3{right}..cycle,
156   (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-cycle);
157 set_botip(0,2,1);
158 set_botip(0,3,1);
159 set_boserif(0,2,1);
160 set_boserif(0,3,1);
161 expand_pbox;
162 enddef;

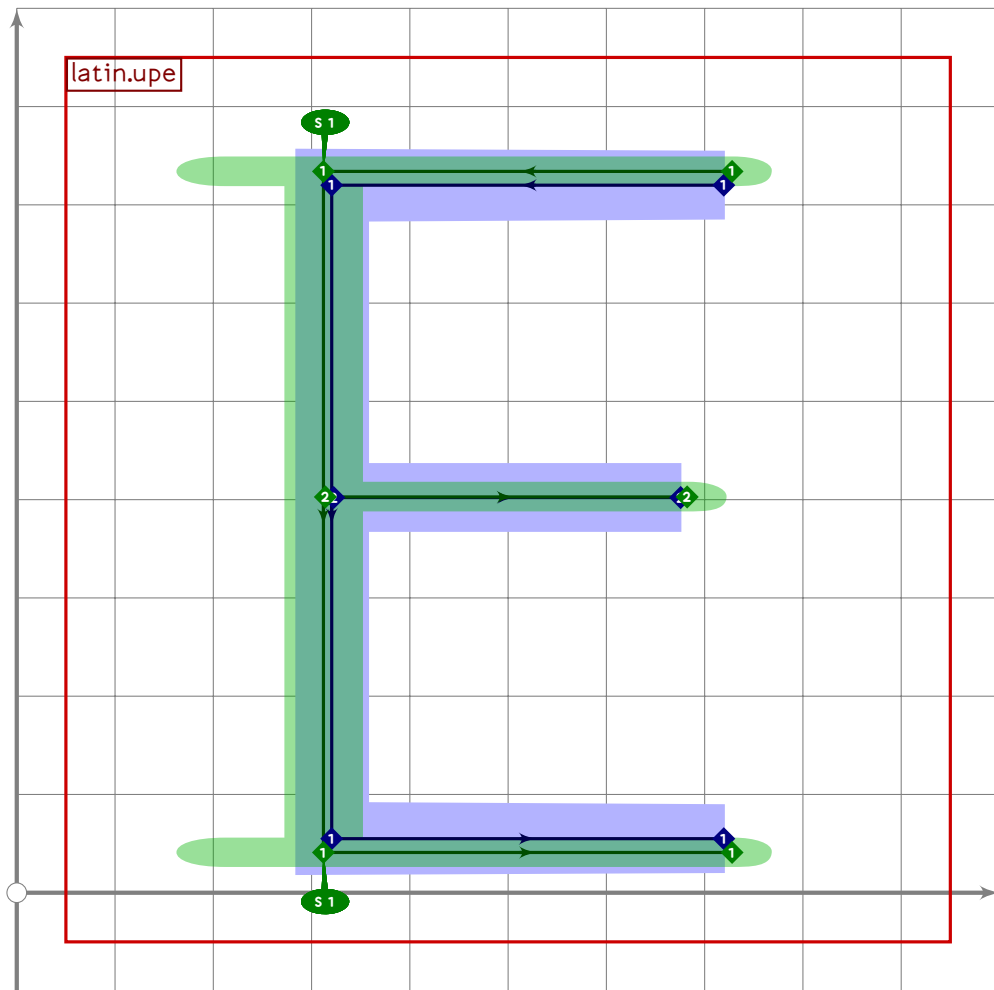
```



```

163
164 vardef latin.upeth =
165   push_pbox_toexpand("latin.upeth");
166   latin.upd;
167   push_stroke((0.5[z1,z2]+(-170,0))-(0.5[z1,z2]+(220,0)),
168     (1.6,1.6)-(1.6,1.6));
169   expand_pbox;
170 enddef;

```



```

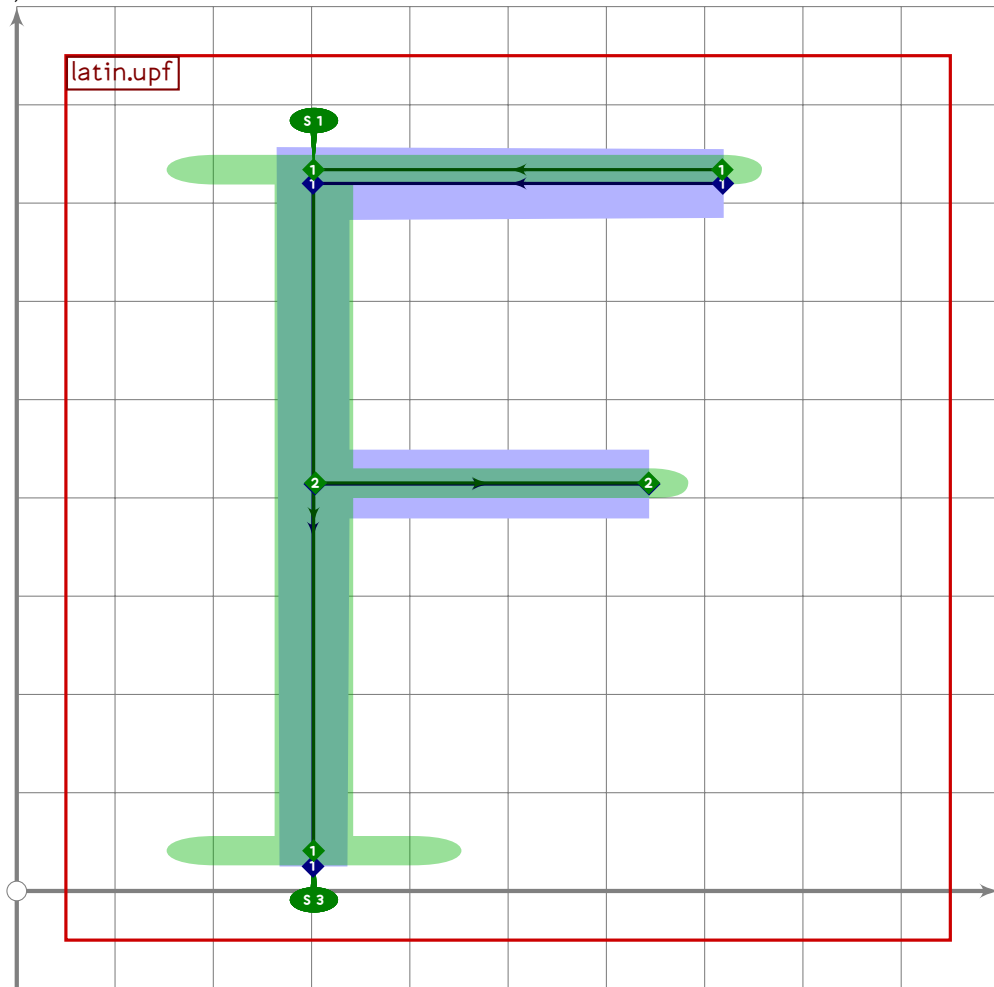
171
172 vardef latin.upe =
173   push_pbox_toexpand("latin.upe");
174   y1=y2=latin_wide_high_h;
175   y3=y4=latin_wide_low_h;
176   y5=y6=vmetric(0.522);
177
178   (x1+x2)/2=520;
179   x2=x3;
180   x1=x4;
181   x5=x2+2;
182   x6=0.89[x2,x1];
183   (x1-x2)=(y2-y3)*0.6;
184
185   push_stroke(z1-z2-z3-z4,(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
186   set_botip(0,1,1);
187   set_botip(0,2,1);
188   set_boserif(0,1,1);
189   set_boserif(0,2,1);
190
191   push_stroke(z5-z6,(1.6,1.6)-(1.6,1.6));

```

```

192 expand_pbox;
193 enddef;

```



```

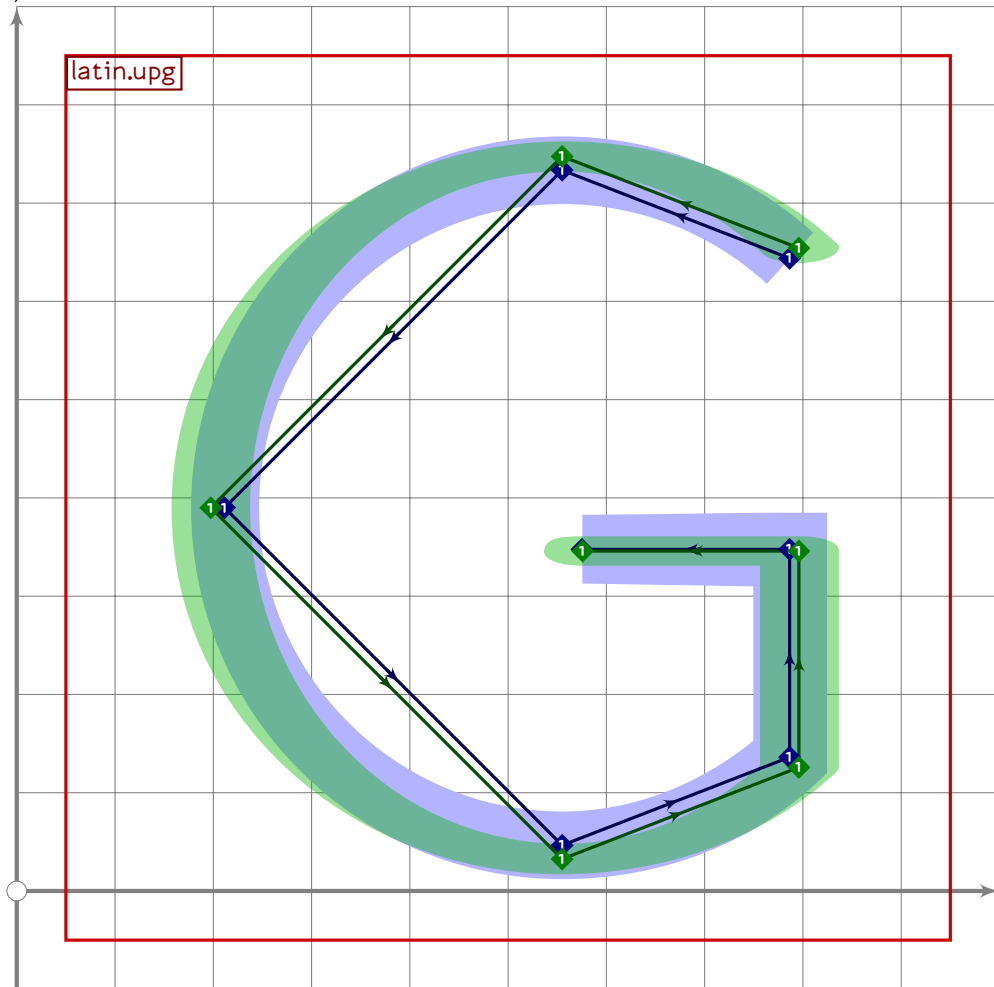
194
195 vardef latin.upf =
196   push_pbox_toexpand("latin.upf");
197   y1=y2=latin_wide_high_h;
198   y3=latin_wide_low_v;
199   y4=y5=vmetric(0.54);
200
201   (x1+x2)/2=510;
202   x3=x2;
203   x4=x2+2;
204   x5=0.82[x2,x1];
205   (x1-x2)=(y2-y3)*0.6;
206
207   push_stroke(z1-z2-z3,(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
208   set_botip(0,1,1);
209   set_boserif(0,1,1);
210   set_boserif(0,2,3);
211
212   push_stroke(z4-z5,(1.6,1.6)-(1.6,1.6));

```

```

213 expand_pbox;
214 enddef;

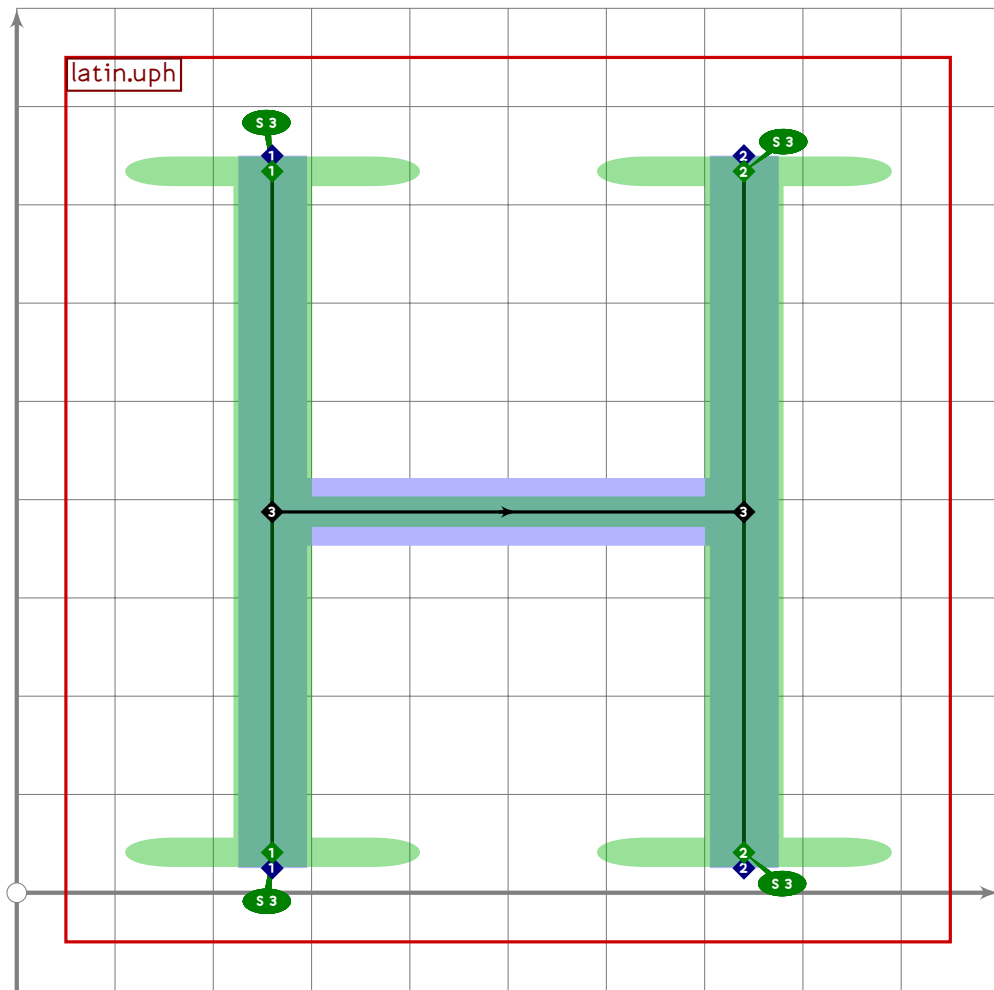
```



```

215
216 vardef latin.upg =
217   push_pbox_toexpand("latin.upg");
218   push_stroke(
219     (subpath (0.53,3.47) of ((1,0)..(0,1)..(-1,0)..(0,-1)..cycle))
220     scaled ((latin_wide_high_r-latin_wide_low_r)/2)
221     shifted (centre_pt+(55,0)),
222     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-
223     (1.6,1.6)-(1.6,1.6));
224
225   x1=xpart point 4 of get_strokep(0);
226   y1=y2=vmetric(0.44);
227   x1-x2=y1-(ypart point 4 of get_strokep(0))*1.0;
228
229   replace_strokep(0)(oldp-z1-z2);
230   set_botip(0,4,1);
231   set_botip(0,5,1);
232   expand_pbox;
233 enddef;

```



```

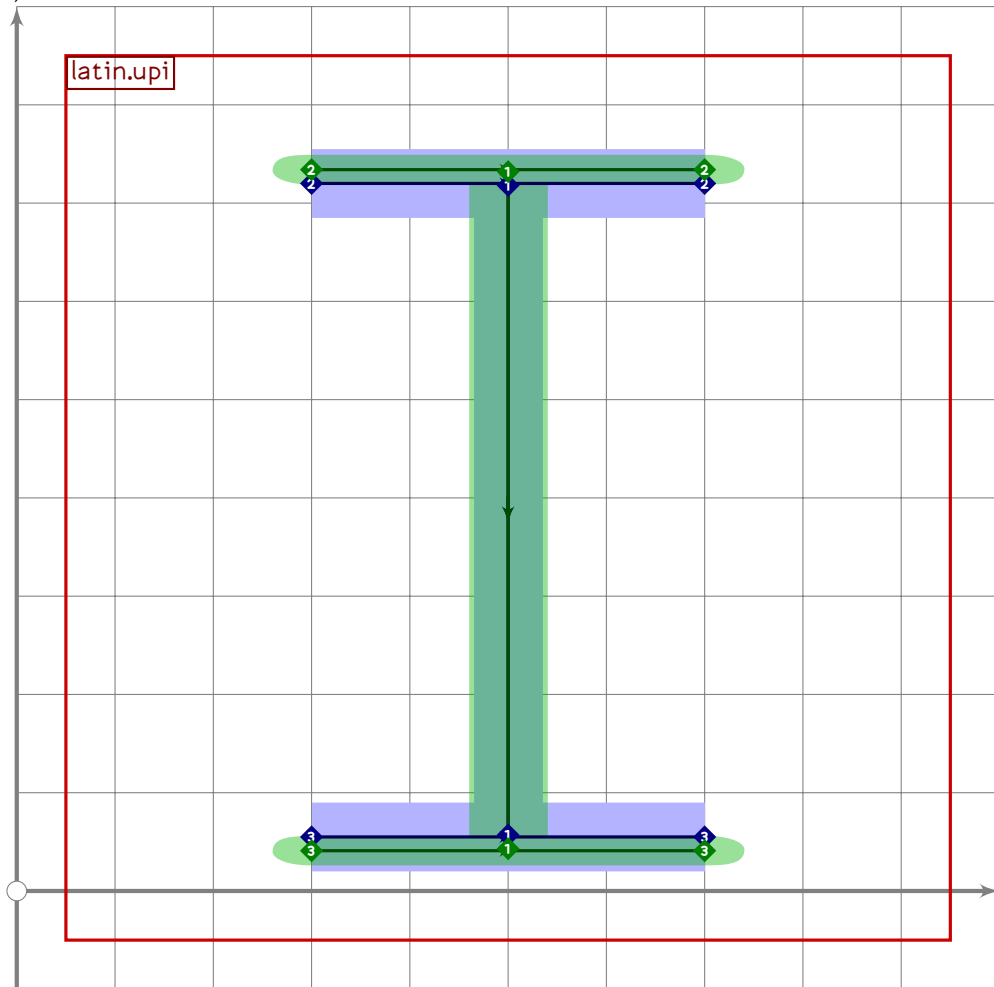
234
235 vardef latin.uph =
236   push_pbox_toexpand("latin.uph");
237   z1=(260,latin_wide_high_v);
238   z2=(740,latin_wide_high_v);
239   z3=(260,latin_wide_low_v);
240   z4=(740,latin_wide_low_v);
241
242   z5=whatever[z1,z3];
243   z6=whatever[z2,z4];
244   y5=y6=vmetric(0.5);
245
246   push_stroke(z1-z3,(1.6,1.6)-(1.6,1.6));
247   set_boserif(0,0,3);
248   set_boserif(0,1,3);
249
250   push_stroke(z2-z4,(1.6,1.6)-(1.6,1.6));
251   set_boserif(0,0,3);
252   set_boserif(0,1,3);
253
254   push_stroke(z5-z6,(1.6,1.6)-(1.6,1.6));

```

```

255 expand_pbox;
256 enddef;

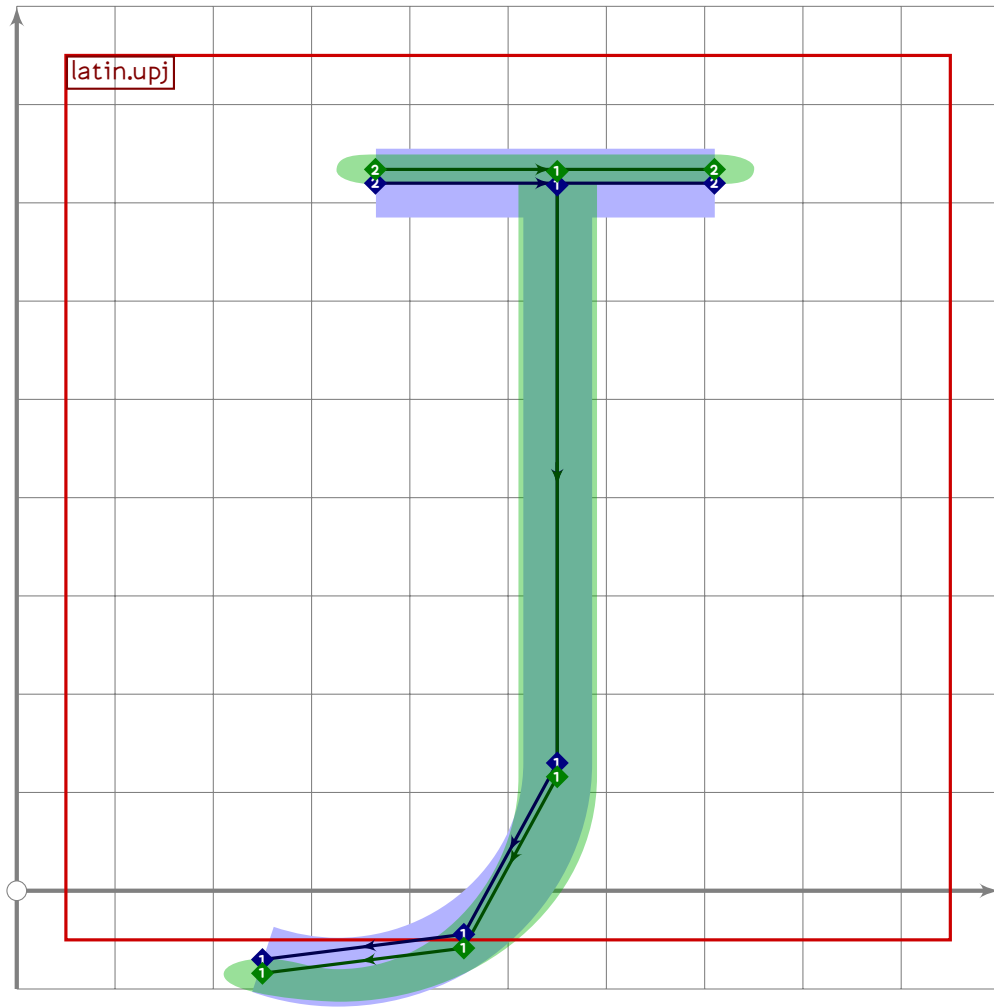
```



```

257
258 vardef latin.upi =
259   push_pbox_toexpand("latin.upi");
260   push_stroke((500,latin_wide_high_h-2)-(500,latin_wide_low_h+2),
261     (1.6,1.6)-(1.6,1.6));
262
263   push_stroke((300,latin_wide_high_h)-(700,latin_wide_high_h),
264     (1.6,1.6)-(1.6,1.6));
265
266   push_stroke((300,latin_wide_low_h)-(700,latin_wide_low_h),
267     (1.6,1.6)-(1.6,1.6));
268   expand_pbox;
269 enddef;

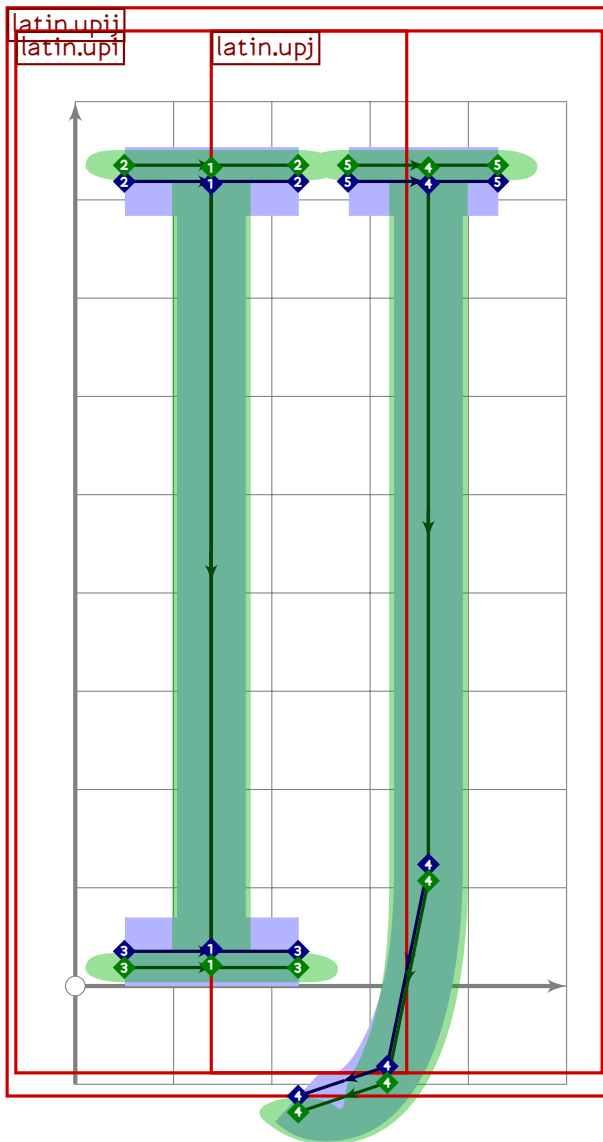
```



```

270
271 vardef latin.upj =
272   push_pbox_toexpand("latin.upj");
273   z1=(550,latin_wide_high_h-2);
274   z2=(550,latin_wide_low_h+75);
275   z3=z2+(-300,-200);
276
277   push_stroke((z1-z2)..{curl 0.8}z3,
278     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
279   replace_strokep(0)(insert_nodes(oldp)(1.5));
280
281   push_stroke((365,latin_wide_high_h)-(710,latin_wide_high_h),
282     (1.6,1.6)-(1.6,1.6));
283   expand_pbox;
284 enddef;

```

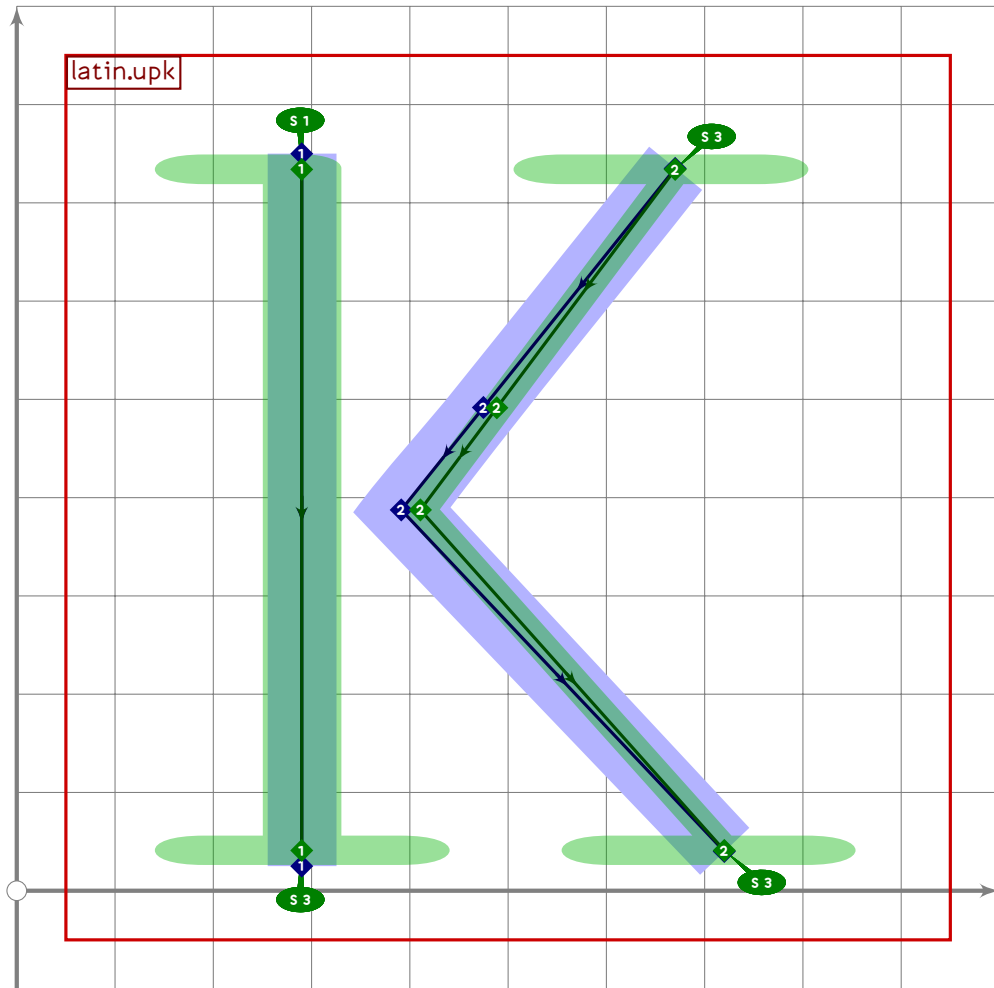


```

285
286 vardef latin.upij =
287   push_pbox_toexpand("latin.upij");
288   tsu_xform(identity shifted (-250,0))(latin.upi);
289   tsu_xform(identity shifted (200,0))(latin.upj);
290   expand_pbox;
291 enddef;

```





```

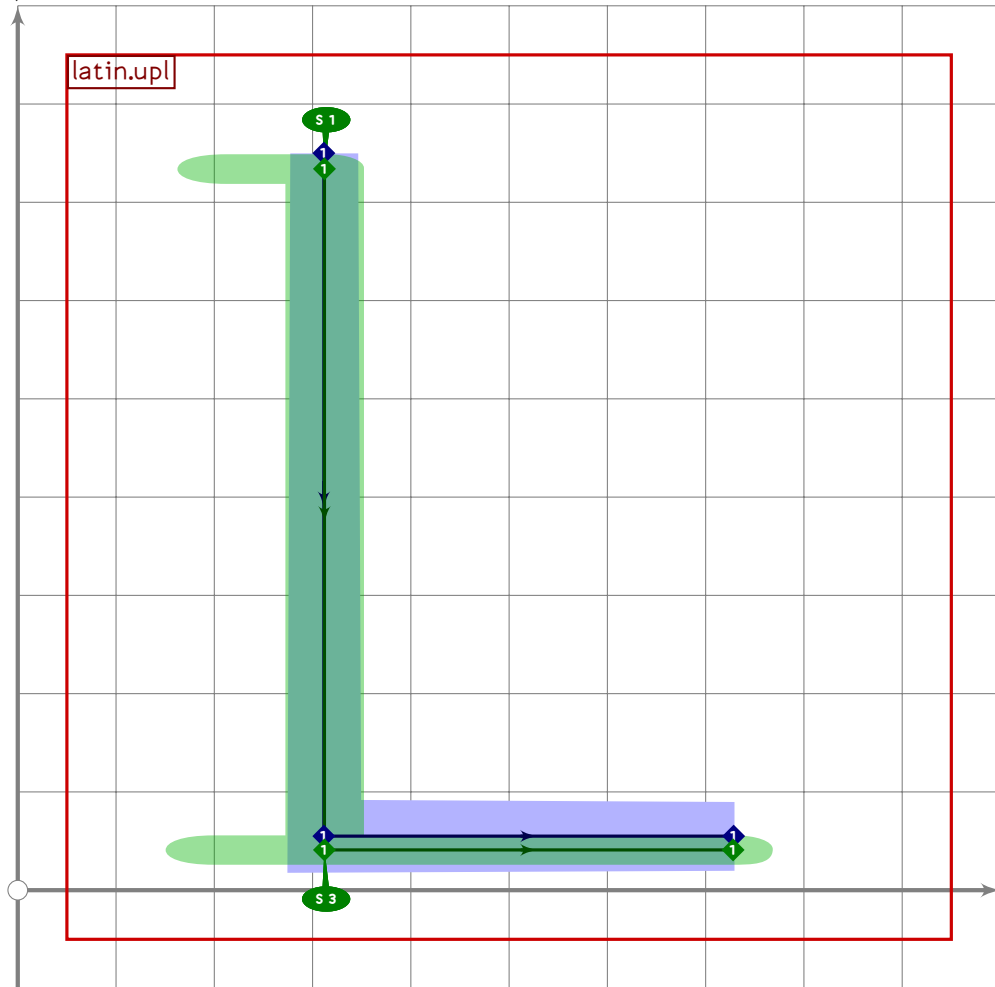
292
293 vardef latin.upk =
294   push_pbox_toexpand("latin.upk");
295   z1=(290,latin_wide_high_v);
296   z2=(290,latin_wide_low_v);
297   z3=(670,0.5[latin_wide_high_h,latin_wide_high_v]);
298   x4=290+mbrush_width*if sharp_corners: 2.7 else: 2.3 fi;
299   y4=vmetric(0.5);
300   z5=(720,0.5[latin_wide_low_h,latin_wide_low_v]);
301
302   push_stroke(z1-z2,(1.6,1.6)-(1.6,1.6));
303   set_boserif(0,0,1);
304   set_boserif(0,1,3);
305
306   push_stroke(z3-(0.7[z3,z4])-z4-z5,
307     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
308   set_botip(0,2,1);
309   if do_alteration:
310     set_boalternate(0);
311     set_boserif(0,0,3);
312     set_boserif(0,3,3);

```

```

313 fi;
314 expand_pbox;
315 enddef;

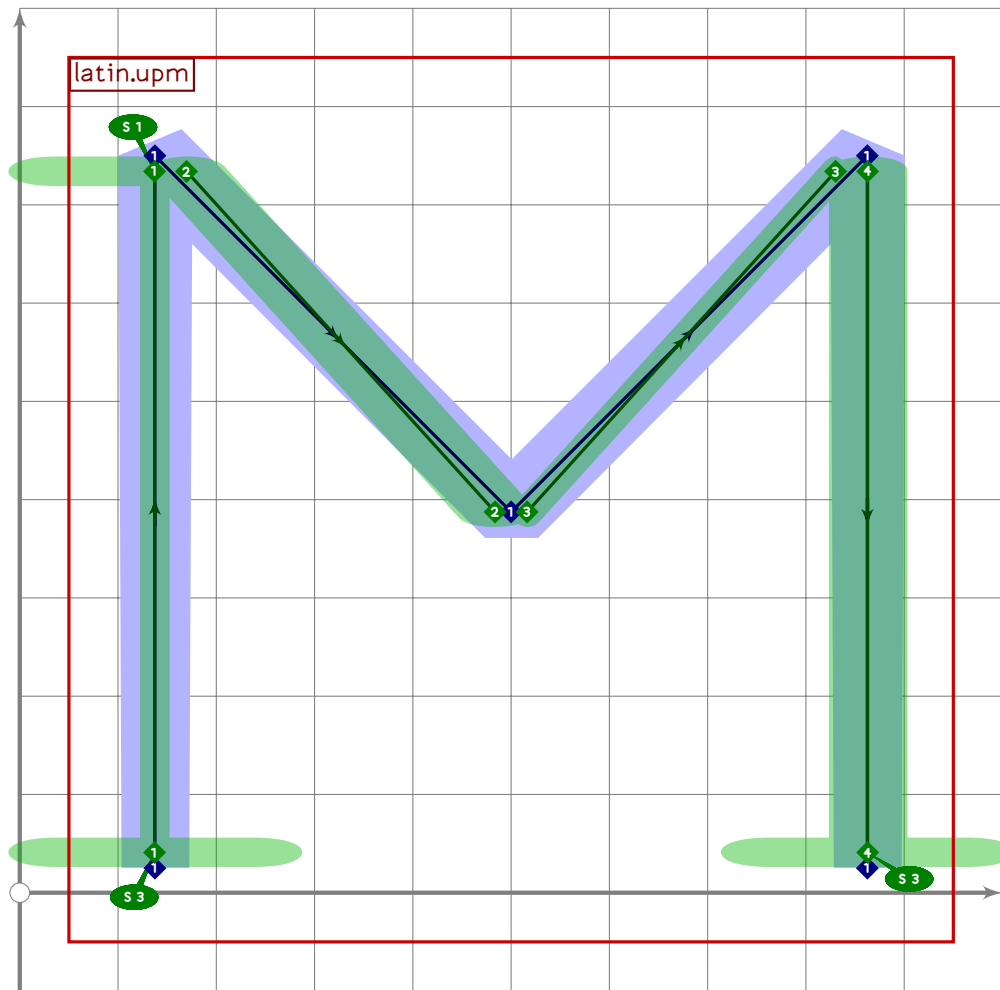
```



```

316
317 vardef latin.upl =
318   push_pbox_toexpand("latin.upl");
319   y1=latin_wide_high_v;
320   y2=y3=latin_wide_low_h;
321   x1=x2;
322   (x1+x3)/2=520;
323   (x3-x1)=(y1-y2)*0.6;
324
325   push_stroke(z1-z2-z3,(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
326   set_botip(0,1,1);
327   set_boserif(0,0,1);
328   set_boserif(0,1,3);
329   expand_pbox;
330 enddef;

```



```

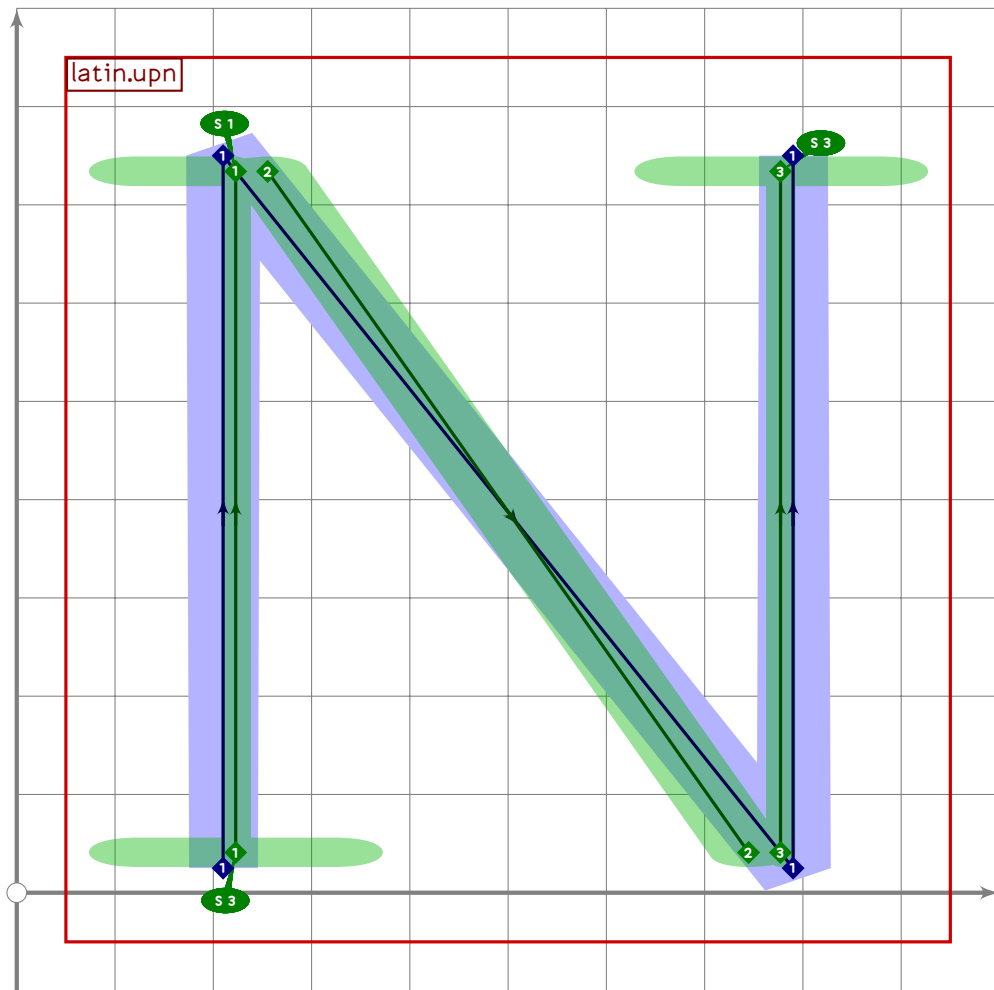
331
332 vardef latin.upm =
333   push_pbox_toexpand("latin.upm");
334   y1=y5=latin_wide_low_v;
335   y2=y4=latin_wide_high_v;
336   y3=(y1+y2)/2;
337
338   if do_alteration:
339     x1=x2;
340     x3=500+alternate_adjust/2;
341     x4=x5;
342     (x3-x1)=(x5-x3);
343
344     (x5-x1)=(y2-y1);
345
346   push_stroke((z1-z2) shifted (alternate_adjust*left),
347     (1.6,1.6)-(1.6,1.6));
348   set_boserif(0,0,3);
349   set_boserif(0,1,1);
350   set_boalterate(0);
351

```

```

352     push_stroke(z2-(z3+alternate_adjust*left),(1.6,1.6)-(1.6,1.6));
353
354     push_stroke(z3-(z4+alternate_adjust*left),(1.6,1.6)-(1.6,1.6));
355     set_boalternate(0);
356
357     push_stroke(z4-z5,(1.6,1.6)-(1.6,1.6));
358     set_boserif(0,1,3);
359 else:
360     x1=x2;
361     x3=500;
362     x4=x5;
363     (x3-x1)=(x5-x3);
364
365     (x5-x1)=(y2-y1);
366
367     push_stroke(z1-z2-z3-z4-z5,
368         (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
369     set_botip(0,1,0);
370     set_botip(0,2,0);
371     set_botip(0,3,0);
372     set_boserif(0,0,3);
373     set_boserif(0,1,1);
374     set_boserif(0,4,3);
375 fi;
376 expand_pbox;
377 enddef;

```



```

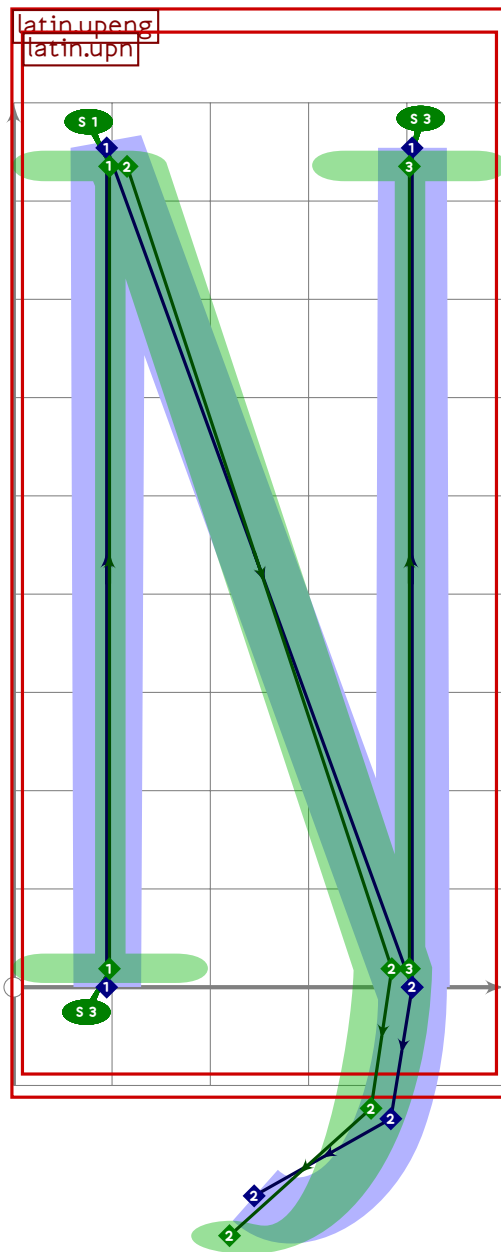
378
379 vardef latin.upn =
380   push_pbox_toexpand("latin.upn");
381   y1=y3=latin_wide_low_v;
382   y2=y4=latin_wide_high_v;
383
384   x1=x2;
385   x3=x4;
386   (x1+x3)/2=500;
387   (x3-x1)=(y2-y1)*4/5;
388
389   if do_alteration:
390     push_stroke(z1-z2,(1.6,1.6)-(1.6,1.6));
391     set_boserif(0,0,3);
392     set_boserif(0,1,1);
393     set_boalterate(0);
394
395     push_stroke((z2+alternate_adjust*right)-(z3+alternate_adjust*left),
396               (1.6,1.6)-(1.6,1.6));
397
398     push_stroke(z3-z4,(1.6,1.6)-(1.6,1.6));

```

```

399   set_boserif(0,1,3);
400   set_boalternate(0);
401   else:
402     push_stroke(z1-z2-z3-z4,(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
403     set_botip(0,1,0);
404     set_botip(0,2,0);
405     set_boserif(0,0,3);
406     set_boserif(0,1,1);
407     set_boserif(0,3,3);
408   fi;
409   expand_pbox;
410 enddef;

```



```

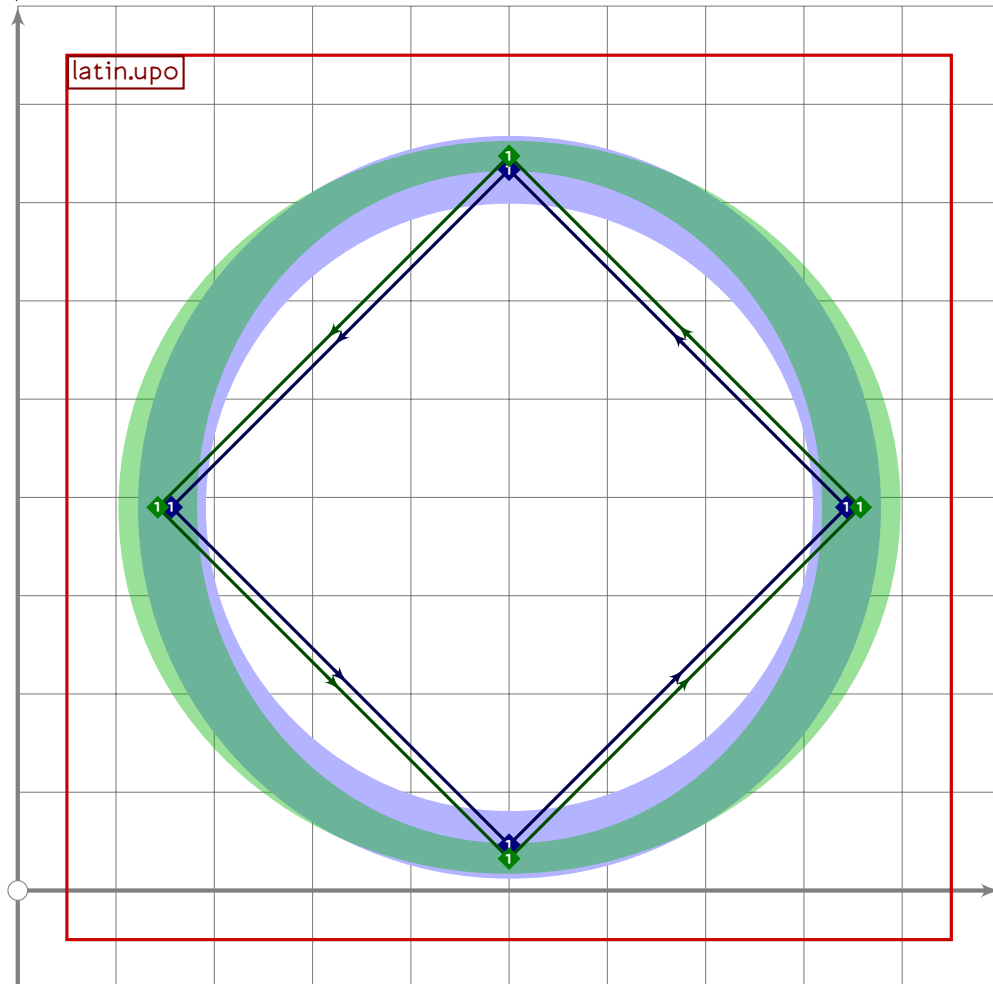
411
412 vardef latin.upeng =

```

```

413 push_pbox_toexpand("latin.upeng");
414 latin.upn;
415 y5=latin_wide_desc_h;
416 if do_alteration:
417   x5=x3-alternate_adjust-300;
418   replace_strokep(-1)(oldp{dir 268}..{curl 0.8}z5);
419   replace_strokep(-1)(insert_nodes(oldp)(1.3));
420   replace_strokeq(-1)(oldq-(1.6,1.6)-(1.6,1.6));
421 else:
422   x5=x3-300;
423   push_stroke(z3{dir 268}..{curl 0.8}z5,(1.6,1.6)-(1.6,1.6));
424   replace_strokep(0)(insert_nodes(oldp)(0.3));
425 fi;
426 expand_pbox;
427 enddef;

```



```

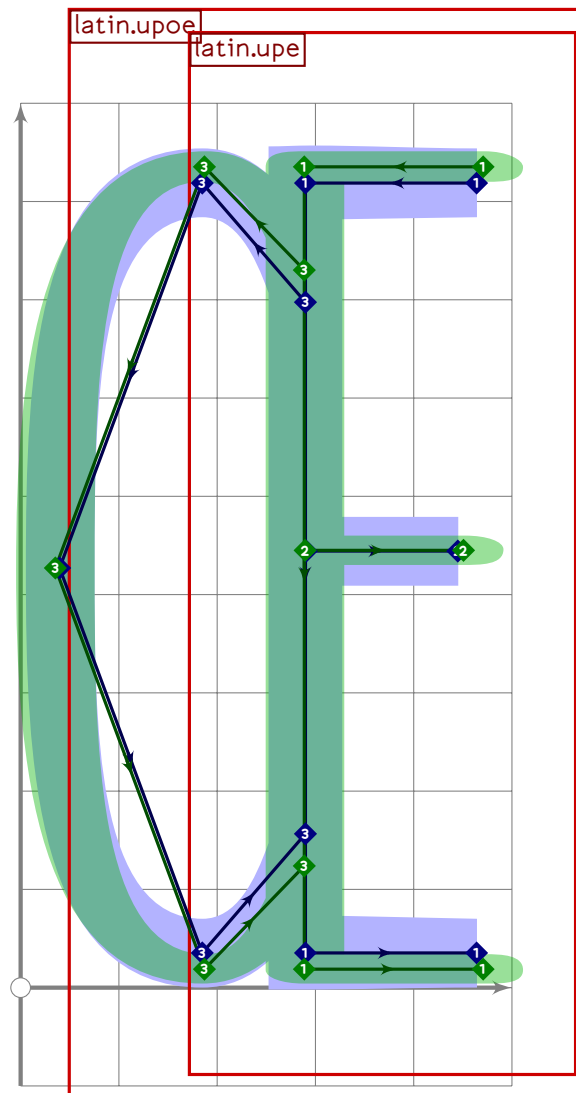
428
429 vardef latin.upo =
430   push_pbox_toexpand("latin.upo");
431   push_stroke(
432     ((1,0)..(0,1)..(-1,0)..(0,-1)..cycle)
433     scaled ((latin_wide_high_r-latin_wide_low_r)/2)

```

```

434   shifted centre_pt,
435   (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-cycle);
436   expand_pbox;
437 enddef;

```



```

438
439 vardef latin.upoe =
440   push_pbox_toexpand("latin.upoe");
441   tsu_xform(identity shifted (280,0))(latin.upe);
442   set_boserif(-1,1,whatever);
443   set_boserif(-1,2,whatever);
444   push_stroke(
445     ((1,0)..(0,1)..(-1,0)..(0,-1)..(1,0))
446     scaled ((latin_wide_high_h-latin_wide_low_h)/2)
447     shifted (360,0.5[latin_wide_high_h,latin_wide_low_h]),
448     (1.2,1.2)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.2,1.2));
449   replace_strokep(0)(
450     subpath (xpart (oldp intersectiontimes get_strokep(-2)),
451             4-xpart ((reverse oldp) intersectiontimes get_strokep(-2))))

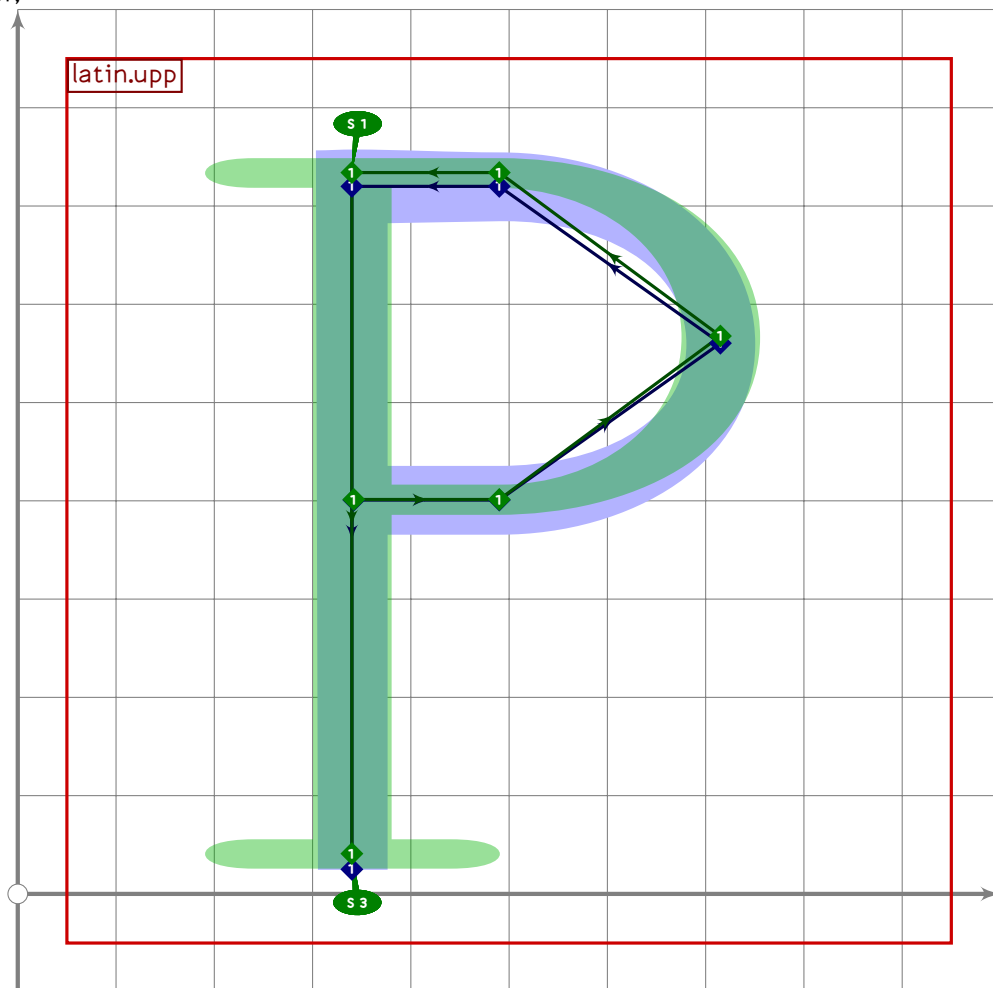
```



```

452   of oldp);
453   expand_pbox;
454 enddef;
455
456 vardef latin.upp_base(expr b) =
457   x1=x5+2;
458   x5=340;
459   x2=x4=x5+b*0.4;
460   x3=x5+b;
461
462   y1=y2=vmetric(0.52);
463   y3=(y2+y4)/2;
464   y4=y5=latin_wide_high_h;
465
466   push_stroke(z1-z2{right}..z3..{left}z4-z5,
467     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
468 enddef;

```



```

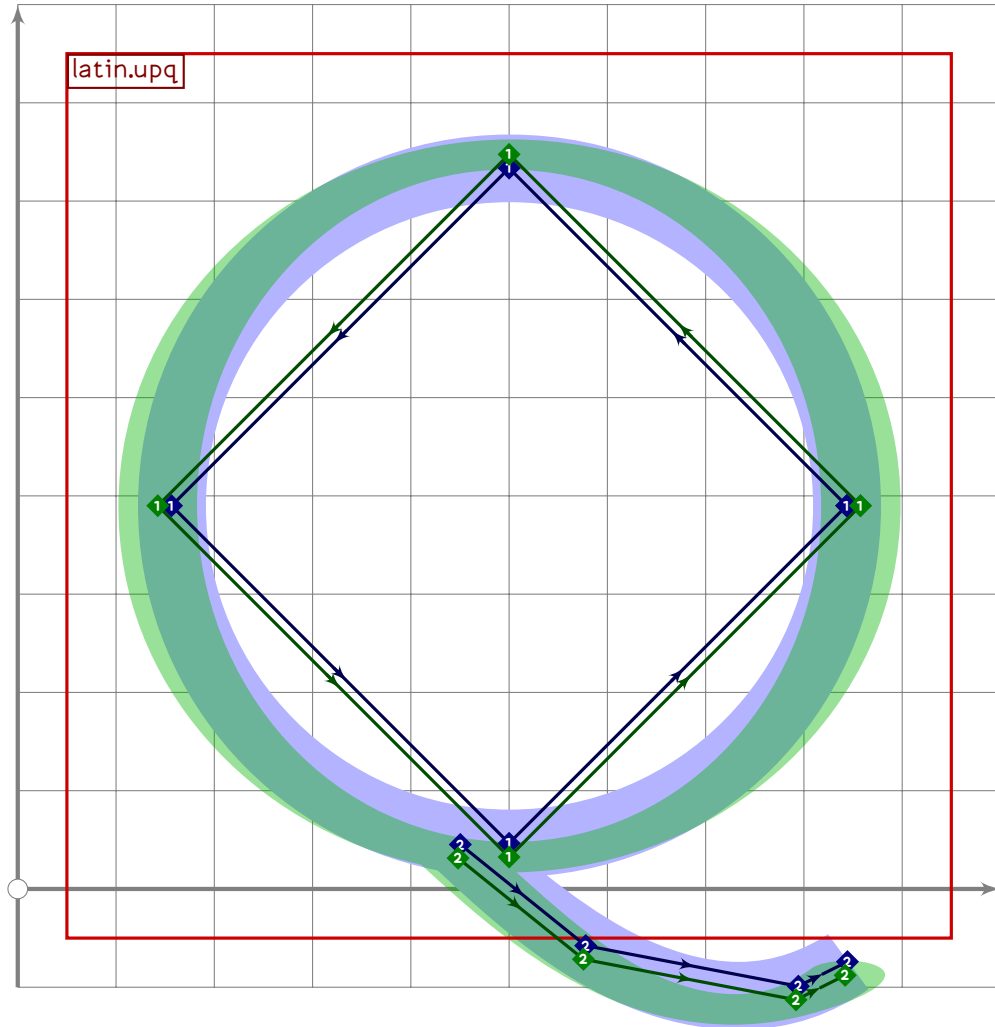
469
470 vardef latin.upp =
471   push_pbox_toexpand("latin.upp");
472   latin.upp_base(375);

```

```

473 replace_strokep(0)(oldp--(xpart point infinity of oldp,latin_wide_low_v));
474 replace_strokeq(0)(oldq--(1.6,1.6));
475 set_botip(0,4,1);
476 set_boserif(0,4,1);
477 set_boserif(0,5,3);
478 expand_pbox;
479 enddef;

```



```

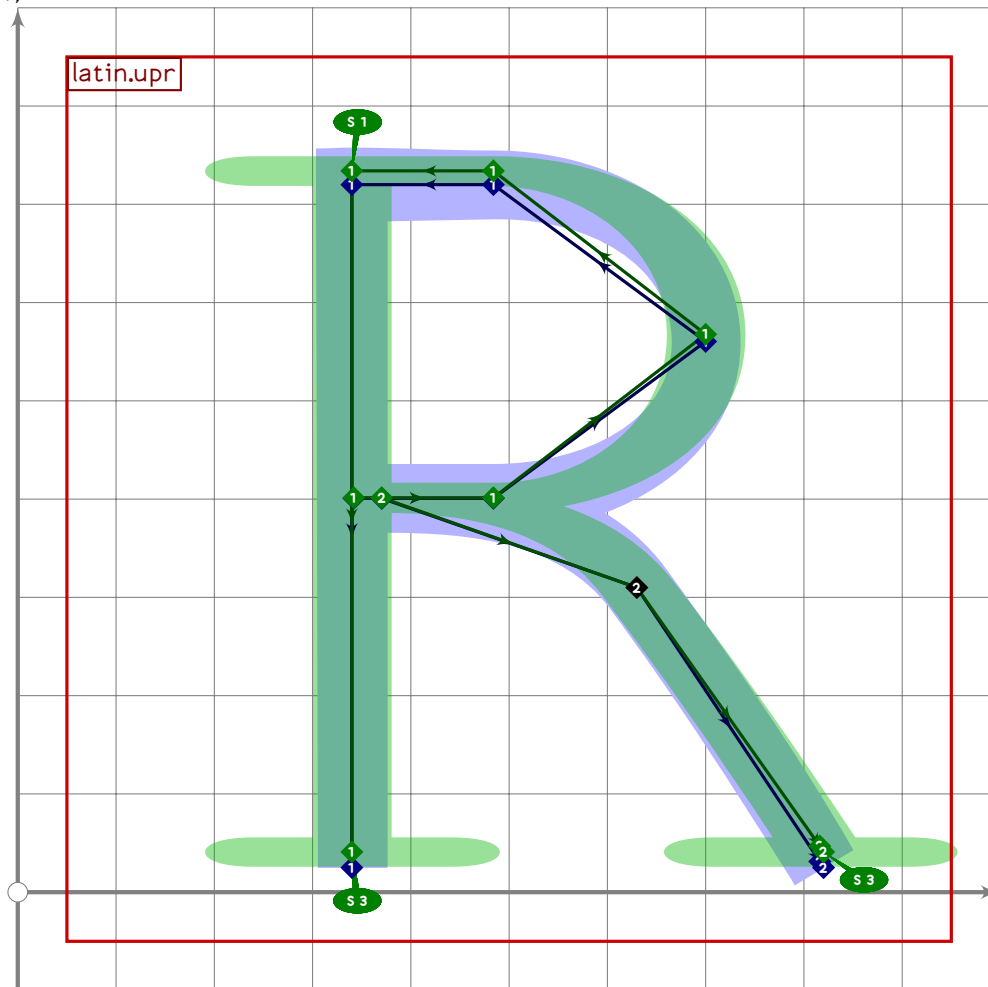
480
481 vardef latin.upq =
482   push_pbox_toexpand("latin.upq");
483   push_stroke(((1,0)..(0,1)..(-1,0)..(0,-1)..cycle)
484     scaled ((latin_wide_high_r-latin_wide_low_r)/2)
485     shifted centre_pt,
486     (1.6,1.6)--(1.6,1.6)--(1.6,1.6)--(1.6,1.6)--cycle);
487
488   z1=point 2.9 of get_strokep(0);
489   z2=z1+(350,-150);
490   z3=z2+(50,25);
491   push_stroke(subpath (0,02,2) of (z1{curl 0}..z2..z3),
492     (1.6,1.6)--(1.6,1.6)--(1.6,1.6)--(1.6,1.6));

```

```

493 replace_strokep(0)(insert_nodes(oldp)(0.4));
494 expand_pbox;
495 enddef;

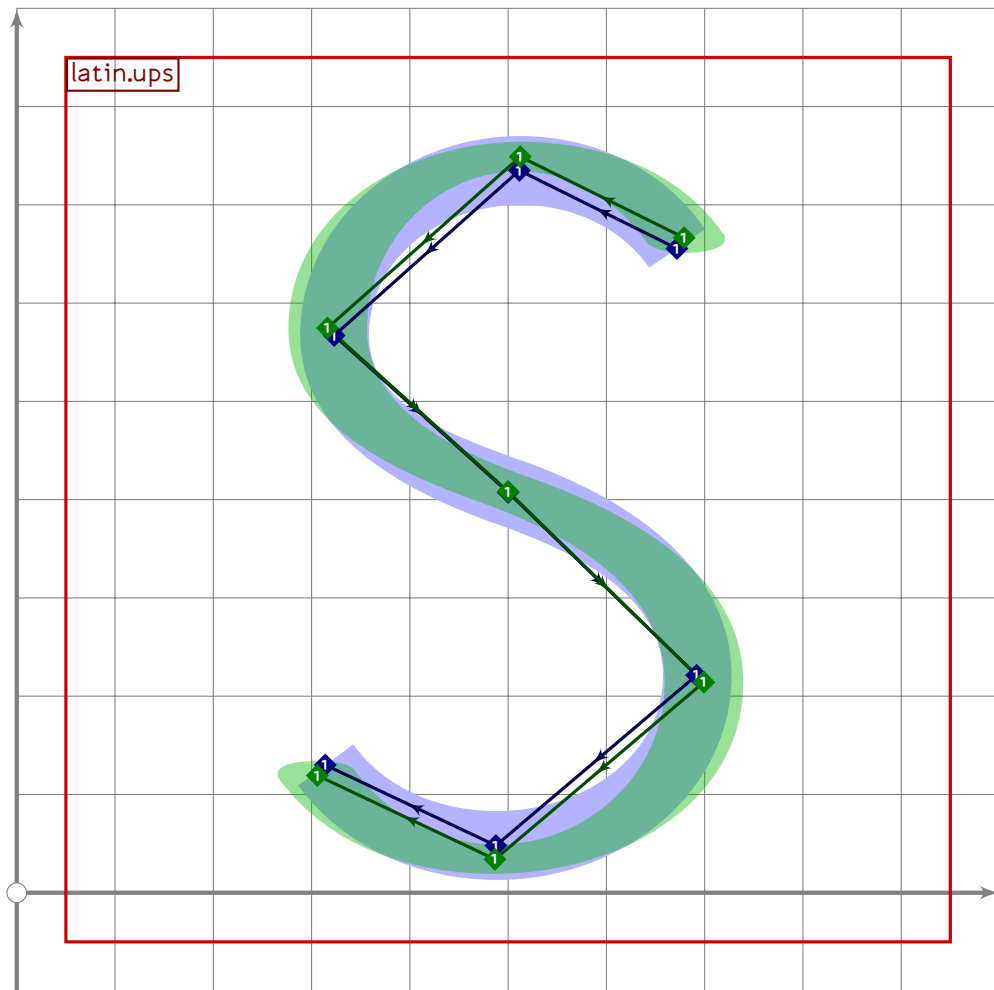
```



```

496
497 vardef latin.upr =
498   push_pbox_toexpand("latin.upr");
499   latin.upp_base(360);
500   replace_strokep(0)(oldp-(xpart point infinity of oldp,latin_wide_low_v));
501   replace_strokeq(0)(oldq-(1.6,1.6));
502   set_botip(0,4,1);
503   set_boserif(0,4,1);
504   set_boserif(0,5,3);
505
506   push_stroke((point 0.2 of get_strokep(0)){right}..(630,310)..
507     tension 3..(820,latin_wide_low_v),
508     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
509   replace_strokep(0)(insert_nodes(oldp)(1.95));
510   set_boserif(0,3,3);
511   expand_pbox;
512 enddef;

```



```

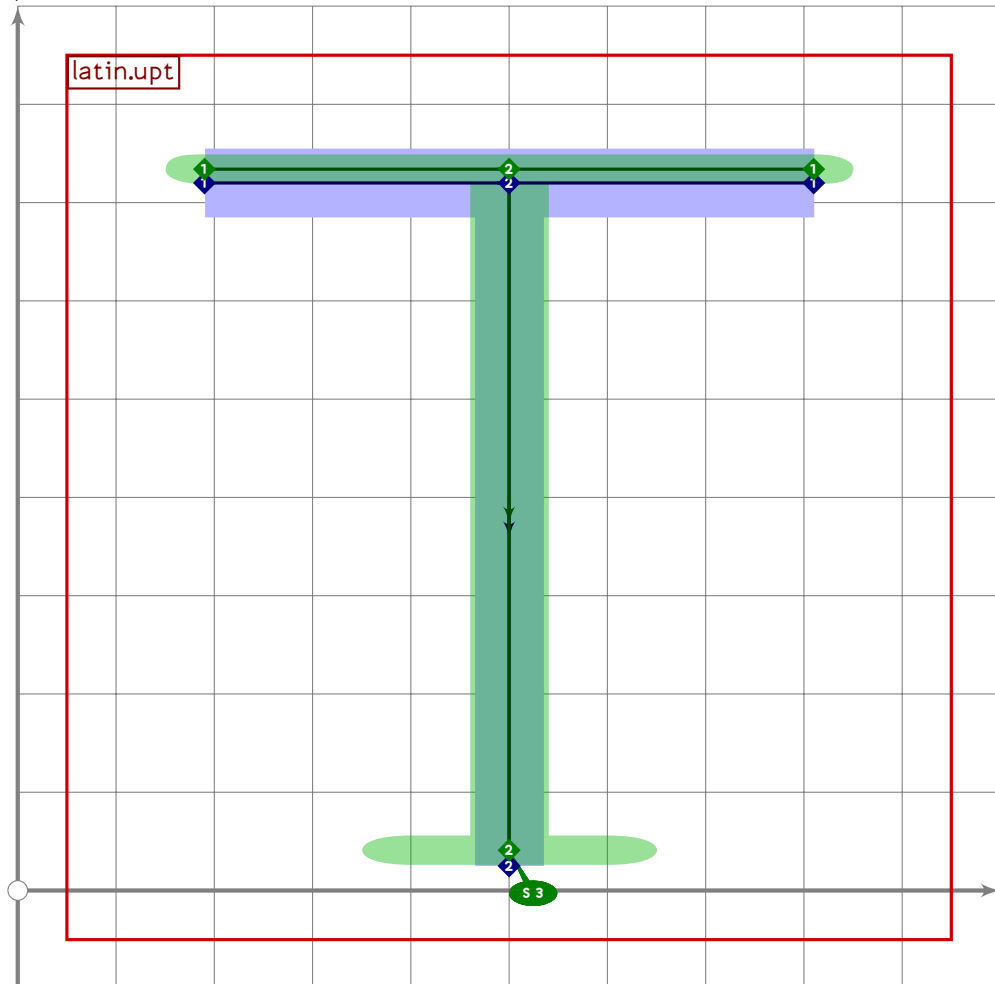
513
514 vardef latin.ups =
515   push_pbox_toexpand("latin.ups");
516   transform ta,tb;
517   path mycurve;
518
519   mycurve:=(1,0)..(0,1)..(-1,0);
520
521   y2=latin_wide_high_r;
522   y0=y3=vmetric(0.77);
523   y4=vmetric(0.53);
524   y5=y8=vmetric(0.25);
525   y6=latin_wide_low_r;
526
527   0.48[x1,x7]=0.48[x2,x6]=0.48[x3,x5]=x4=500;
528   x5-x1=20;
529   x5-x7=(y2-y6)*0.55;
530
531   (point 0 of mycurve) transformed ta=z0;
532   (point 0.35 of mycurve) transformed ta=z1;
533   (point 1 of mycurve) transformed ta=z2;

```

```

534 (point 2 of mycurve) transformed ta=z3;
535 xypart ta=0;
536
537 (point 0 of mycurve) transformed tb=z8;
538 (point 0.35 of mycurve) transformed tb=z7;
539 (point 1 of mycurve) transformed tb=z6;
540 (point 2 of mycurve) transformed tb=z5;
541
542 mycurve:=subpath (0.35,2) of mycurve;
543
544 push_stroke((mycurve transformed ta)..z4..(reverse mycurve transformed tb),
545 (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)
546 -(1.6,1.6));
547 expand_pbox;
548 enddef;

```



```

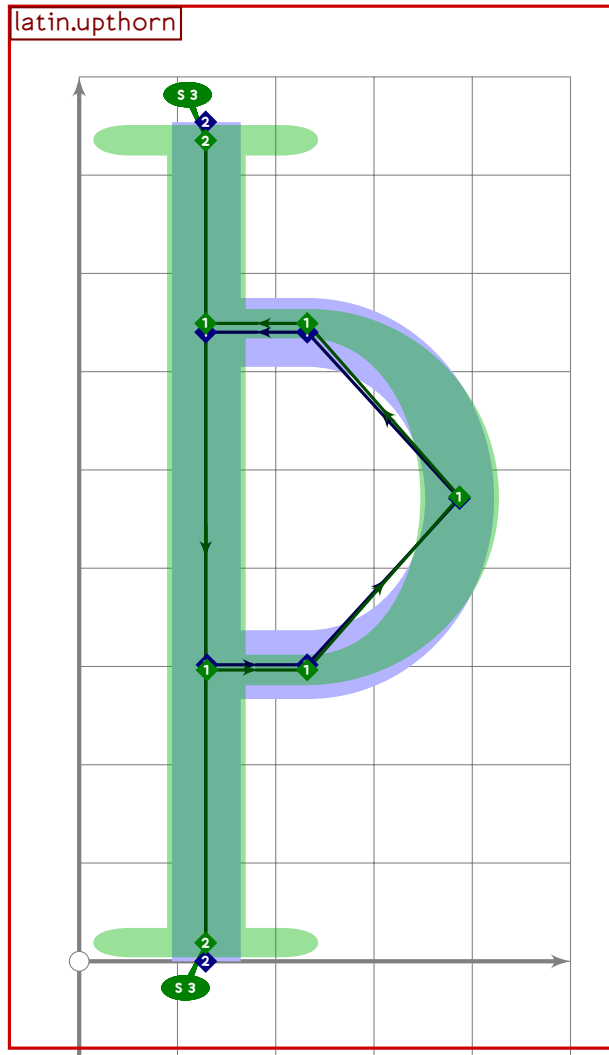
549
550 vardef latin.upt =
551   push_pbox_toexpand("latin.upt");
552   z1=(190,latin_wide_high_h);
553   z2=(500,latin_wide_high_h);
554   z3=(810,latin_wide_high_h);

```

```

555 z4=(500,latin_wide_low_v);
556
557 push_stroke(z1-z3,(1.6,1.6)-(1.6,1.6));
558
559 push_stroke(z2-z4,(1.6,1.6)-(1.6,1.6));
560 set_boserif(0,1,3);
561 expand_pbox;
562 enddef;

```



```

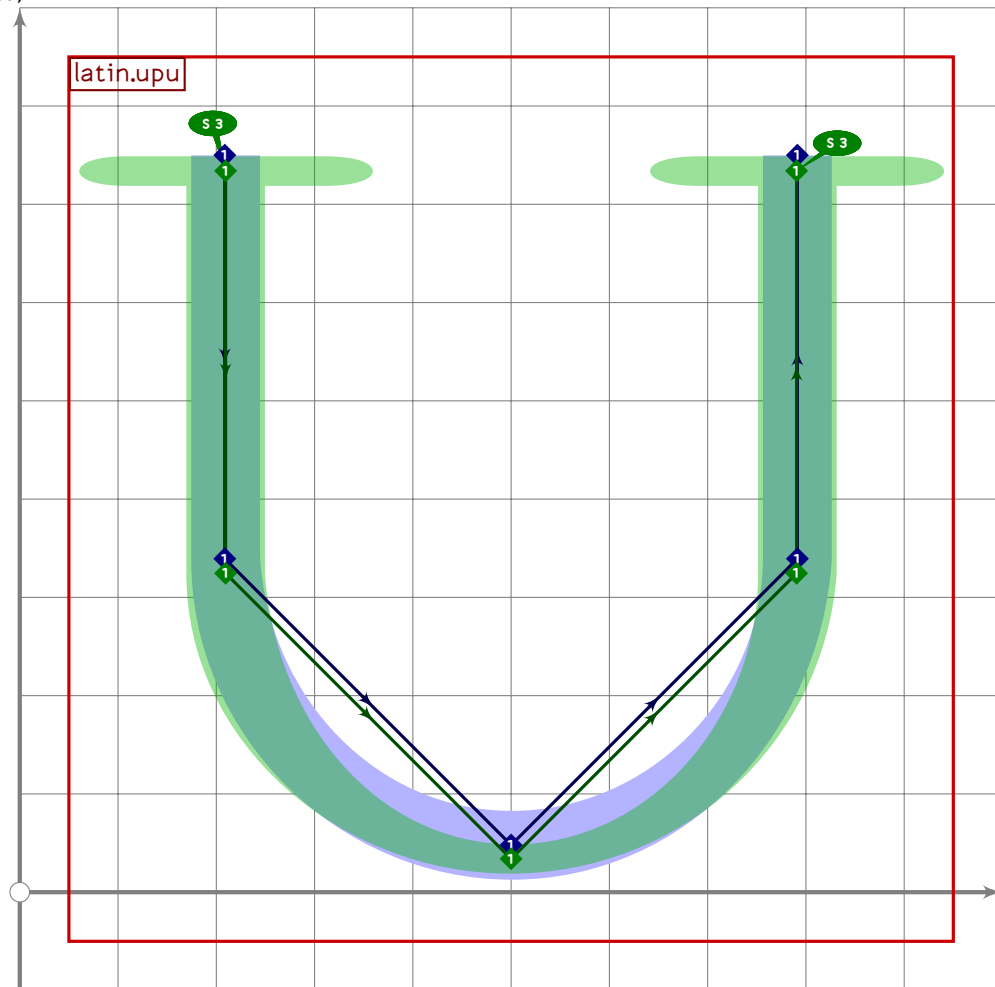
563
564 vardef latin.upthorn =
565   push_pbox_toexpand("latin.upthorn");
566   latin.upp_base(375);
567   replace_strokep(0)(oldp
568     shifted (-llcorner oldp) yscaled 0.9
569     shifted ((llcorner oldp)+(0,vmetric(0)-vmetric(0.18))));
570   push_stroke((xpart point infinity of get_strokep(0),latin_wide_high_v)
571     -(xpart point infinity of get_strokep(0),latin_wide_low_v),
572     (1.6,1.6)-(1.6,1.6));
573   set_boserif(0,0,3);

```

```

574 set_boserif(0,1,3);
575 expand_pbox;
576 enddef;

```



```

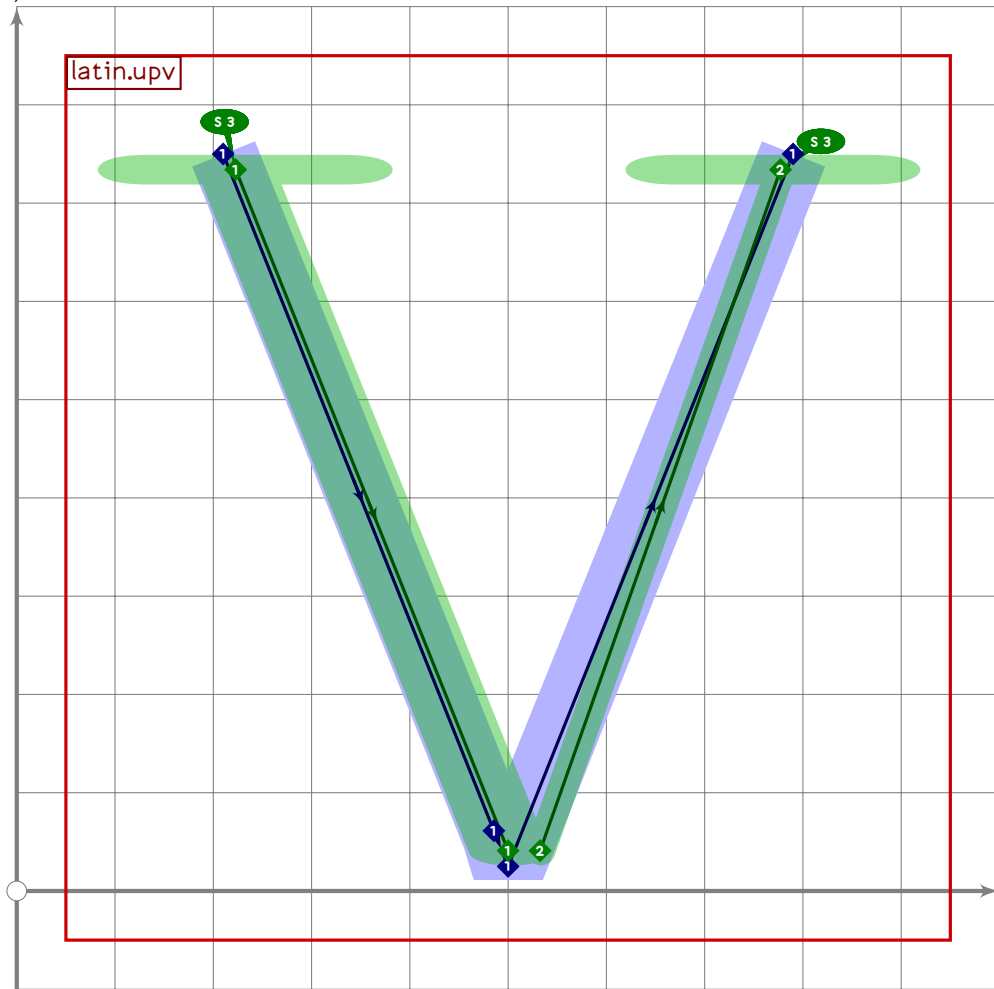
577
578 vardef latin.upu =
579   push_pbox_toexpand("latin.upu");
580   x1=x2;
581   x3=500;
582   x4=x5;
583   (x1+x5)/2=x3;
584   (x5-x1)=(y1-y3)*0.83;
585
586   y1=y5=latin_wide_high_v;
587   y2=y4;
588   y2-y3=x3-x2;
589   y3=latin_wide_low_r;
590
591   push_stroke(z1-z2{dir 274}..z3..{dir 86}z4-z5,
592     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
593   set_boserif(0,0,3);
594   set_boserif(0,4,3);

```

```

595 expand_pbox;
596 enddef;

```



```

597
598 vardef latin.upv =
599   push_pbox_toexpand("latin.upv");
600   (x1+x3)/2=x2=500;
601
602   y1=y3=latin_wide_high_v;
603   y2=latin_wide_low_v;
604
605   (x3-x1)=(y1-y2)*0.8;
606
607   if do_alteration:
608     push_stroke(z1-z2,(1.6,1.6)-(1.6,1.6));
609     set_boserif(0,0,3);
610
611     push_stroke((z2+alternate_adjust*right)-z3,(1.6,1.6)-(1.6,1.6));
612     set_boserif(0,1,3);
613     set_boalterate(0);
614   else:
615     push_stroke(z1-(0.95[z1,z2])-z2-z3,

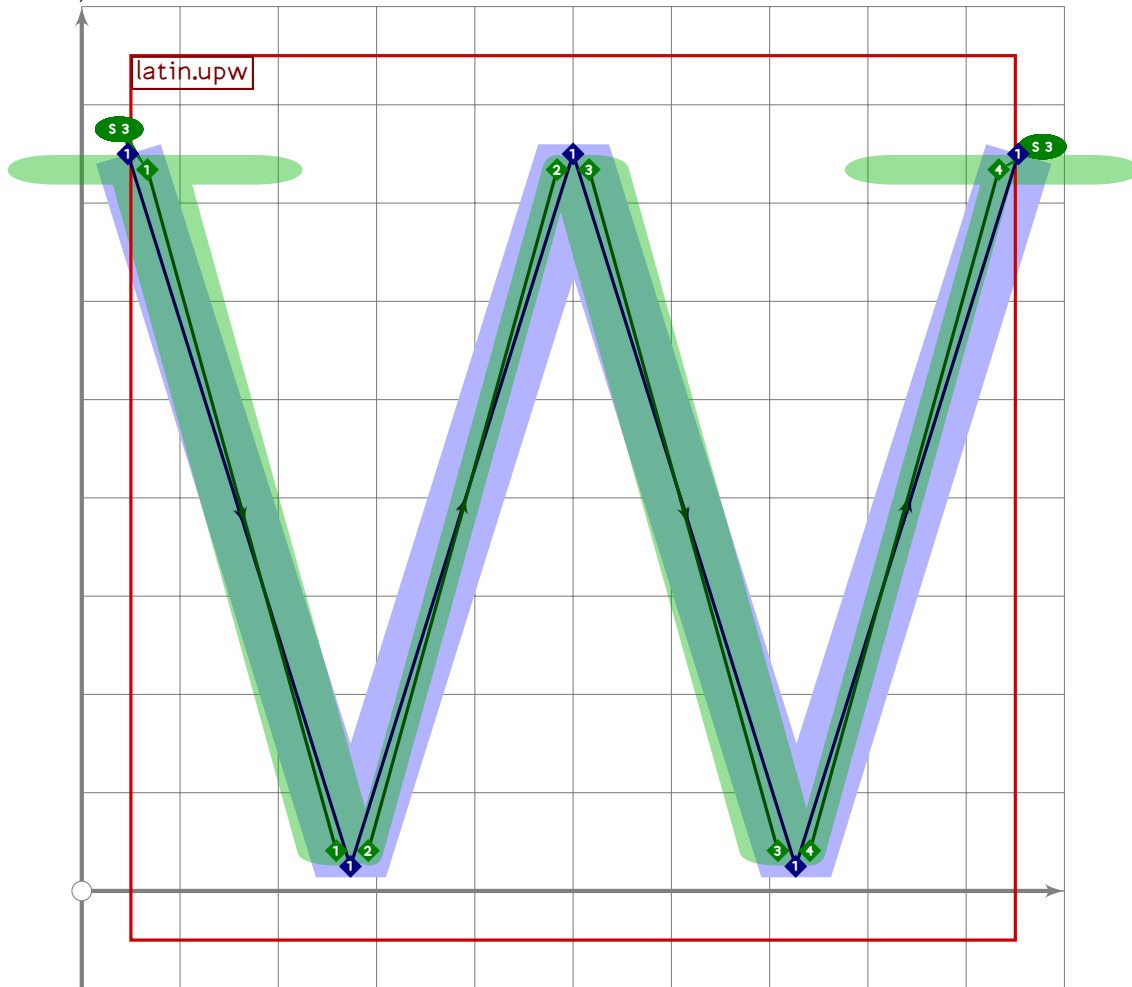
```



```

616     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
617     set_botip(0,2,0);
618     set_boserif(0,0,3);
619     set_boserif(0,3,3);
620     fi;
621     expand_pbox;
622 enddef;

```



```

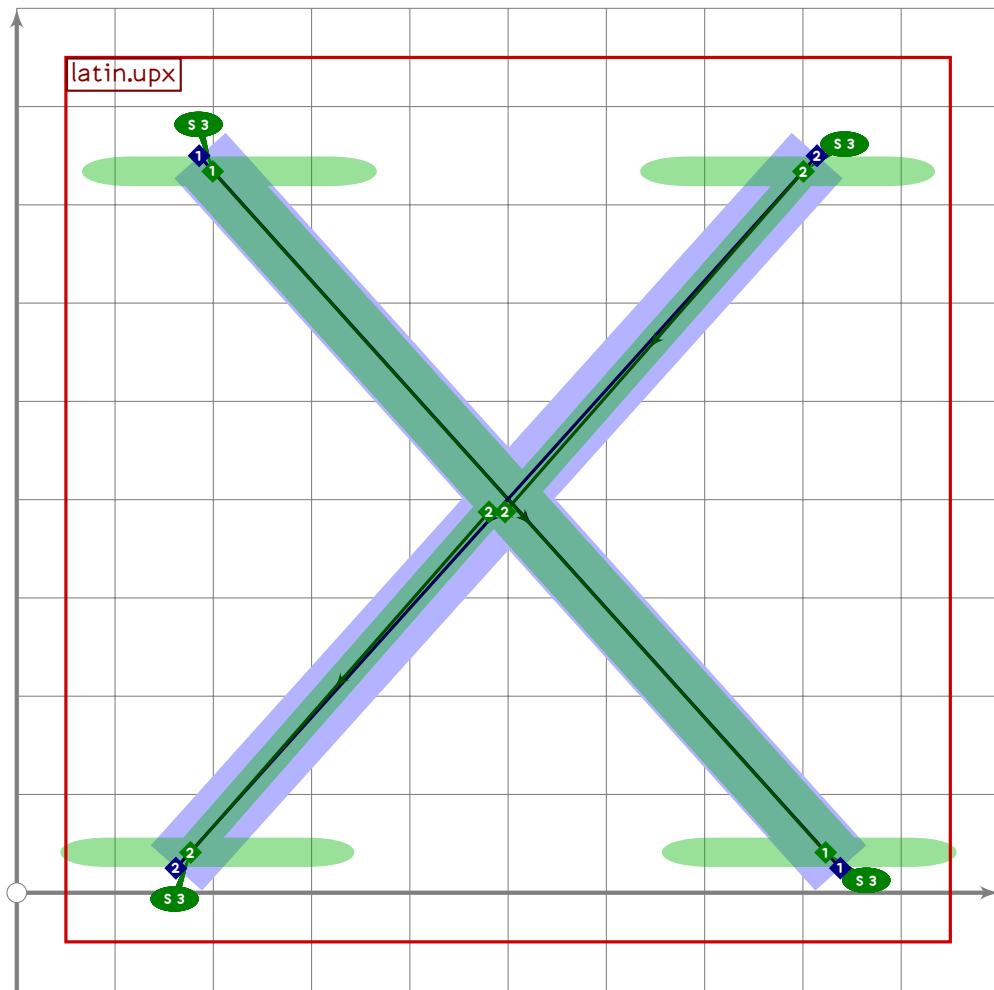
623
624 vardef latin.upw =
625     push_pbox_toexpand("latin.upw");
626     if do_alteration:
627         (x1+x5)/2=(x2+x4)/2=x3=500-alternate_adjust/2;
628         (x3-x2)=(x2-x1);
629
630         y1=y3=y5=latin_wide_high_v;
631         y2=y4=latin_wide_low_v;
632
633         (x5-x1)=(y1-y2)*1.25-(3*alternate_adjust);
634
635         push_stroke((z1-z2) shifted (alternate_adjust*left),
636             (1.6,1.6)-(1.6,1.6));

```

```

637     set_boserif(0,0,3);
638
639     push_stroke(z2-z3,(1.6,1.6)-(1.6,1.6));
640     set_boalternate(0);
641
642     push_stroke((z3-z4) shifted (alternate_adjust*right),
643               (1.6,1.6)-(1.6,1.6));
644
645     push_stroke((z4-z5) shifted (alternate_adjust*right*2),
646               (1.6,1.6)-(1.6,1.6));
647     set_boserif(0,1,3);
648     set_boalternate(0);
649 else:
650     (x1+x5)/2=(x2+x4)/2=x3=500;
651     (x3-x2)=(x2-x1);
652
653     y1=y3=y5=latin_wide_high_v;
654     y2=y4=latin_wide_low_v;
655
656     (x5-x1)=(y1-y2)*1.25;
657
658     push_stroke(z1-z2-z3-z4-z5,
659               (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
660     set_botip(0,1,0);
661     set_botip(0,2,0);
662     set_botip(0,3,0);
663     set_boserif(0,0,3);
664     set_boserif(0,4,3);
665 fi;
666 expand_pbox;
667 enddef;

```



```

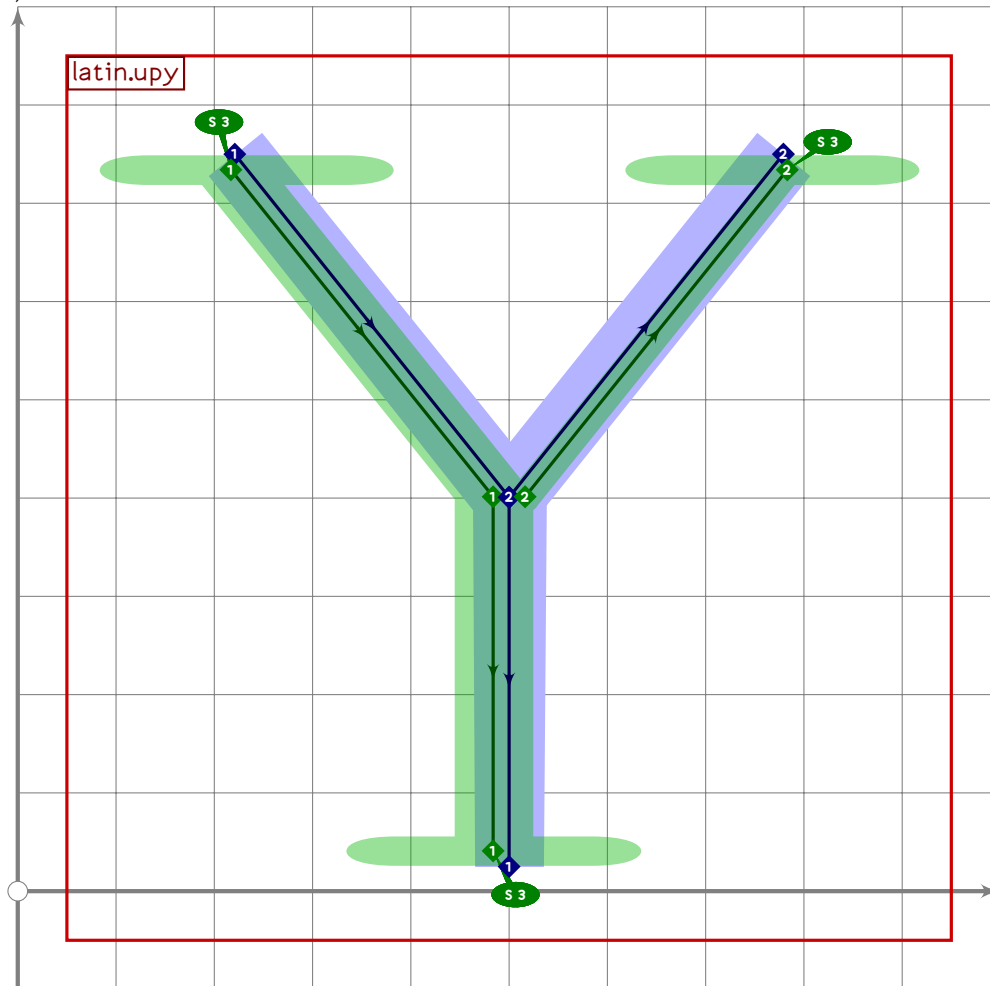
668
669 vardef latin.upx =
670   push_pbox_toexpand("latin.upx");
671   (x1+x3)/2=500;
672   (x2+x4)/2=500;
673   (x2+x3-x1-x4)=((y1-y2)*0.9)*2;
674   (x3-x1)=(x2-x4)*0.93;
675
676   y1=y3=latin_wide_high_v;
677   y2=y4=latin_wide_low_v;
678
679   push_stroke(z1-z2,(1.6,1.6)-(1.6,1.6));
680   set_boserif(0,0,3);
681   set_boserif(0,1,3);
682
683   if do_alteration:
684     push_stroke(z3-(0.5[z3,z4]+alternate_adjust*right/4)
685       -(0.5[z3,z4]+alternate_adjust*left/4)-z4,
686       (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
687     set_boserif(0,0,3);
688     set_boserif(0,3,3);

```

```

689 else:
690     push_stroke(z3-z4,(1.6,1.6)-(1.6,1.6));
691     set_boserif(0,0,3);
692     set_boserif(0,1,3);
693 fi;
694 set_boalternate(0);
695 expand_pbox;
696 enddef;

```



```

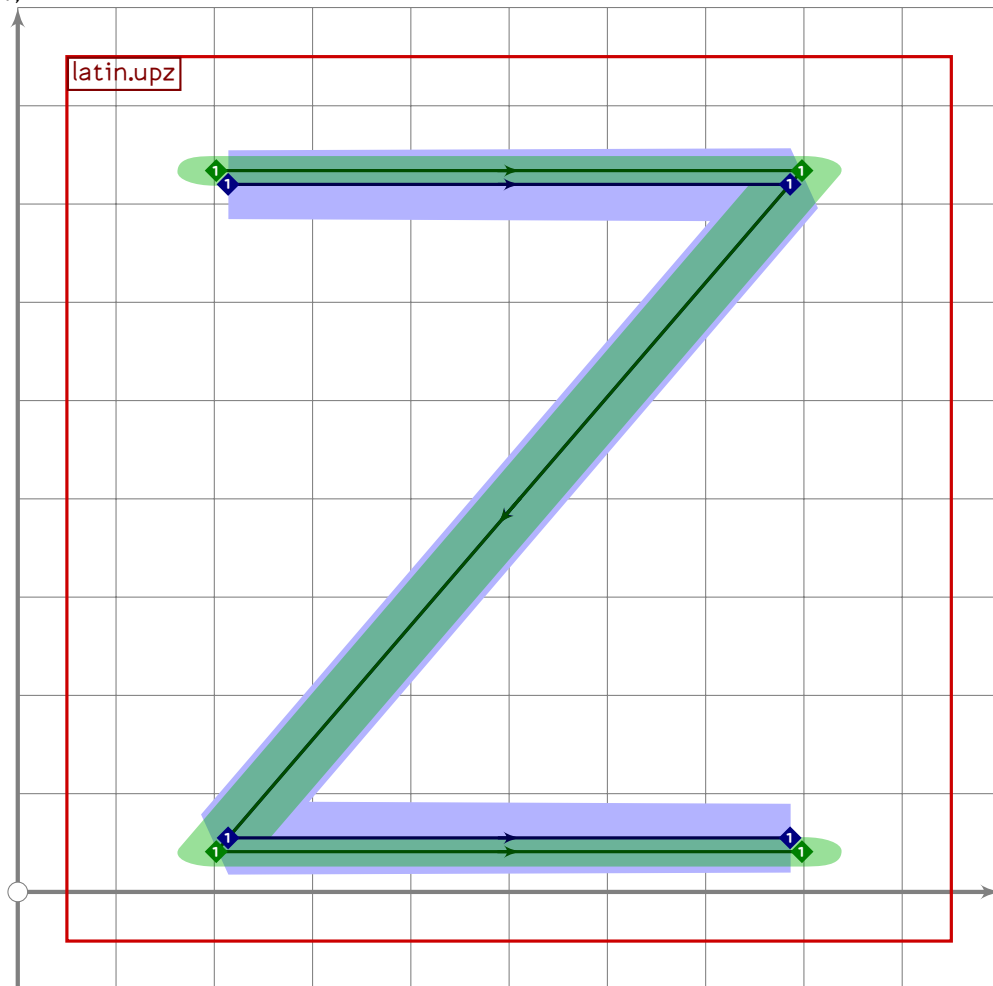
697
698 vardef latin.upy =
699     push_pbox_toexpand("latin.upy");
700     (x3+x1)/2=x2=x4=if do_alteration: 500-alternate_adjust/2 else: 500 fi;
701     (x3-x1)=0.77*(y1-y4);
702
703     y1=y3=latin_wide_high_v;
704     y2=vmetric(0.52);
705     y4=latin_wide_low_v;
706
707     push_stroke(z1-z2-z4,(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
708     set_botip(0,1,0);
709     set_boserif(0,0,3);

```

```

710 set_boserif(0,2,3);
711
712 if do_alteration:
713     push_stroke((z2-z3) shifted (alternate_adjust*right),
714         (1.6,1.6)-(1.6,1.6));
715 else:
716     push_stroke(z2-z3,(1.6,1.6)-(1.6,1.6));
717 fi;
718 set_boserif(0,1,3);
719 set_boalterate(0);
720 expand_pbox;
721 enddef;

```



```

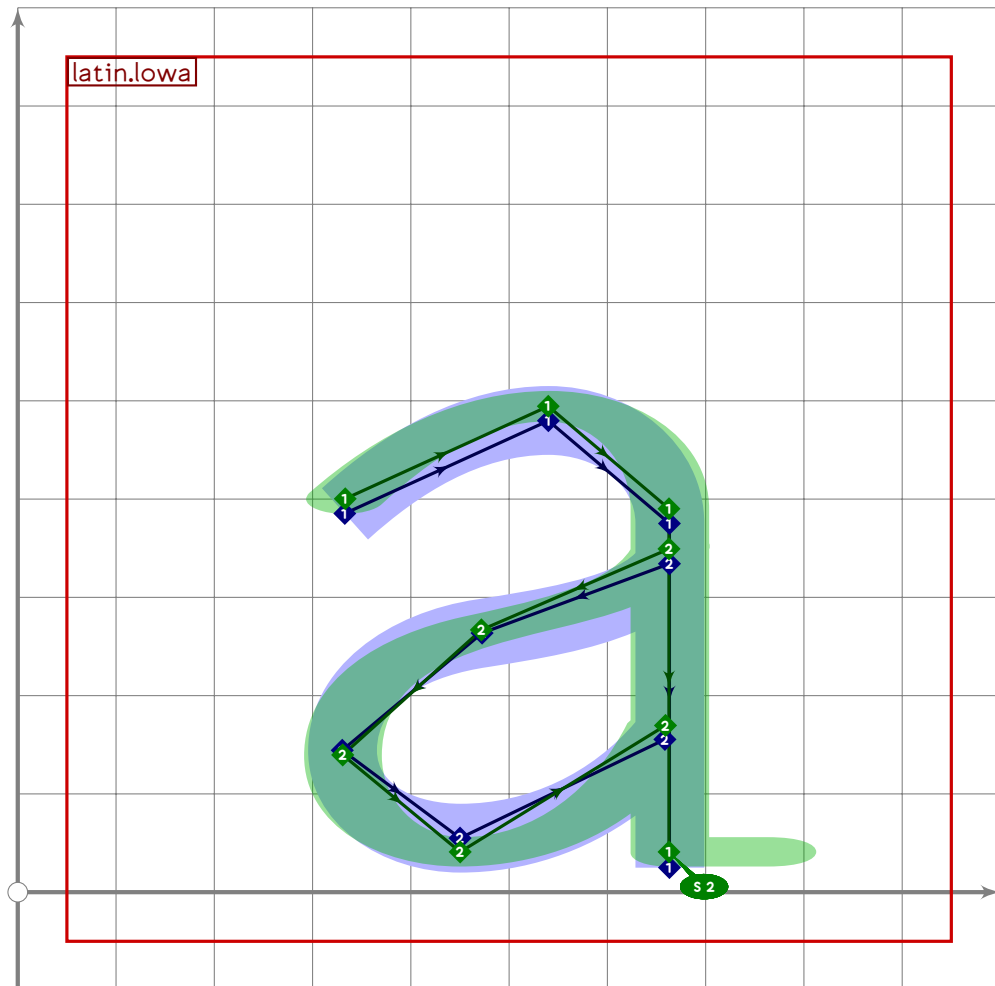
722
723 vardef latin.upz =
724     push_pbox_toexpand("latin.upz");
725     y1=y2=latin_wide_high_h;
726     y3=y4=latin_wide_low_h;
727
728     x1=x3;
729     x2=x4;
730     (x1+x2)/2=500;

```

```

731 (x2-x1)=(y1-y3)*0.86;
732
733 push_stroke(z1-z2-z3-z4,(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
734 set_botip(0,1,0);
735 set_botip(0,2,0);
736 expand_pbox;
737 enddef;
738
739

```



```

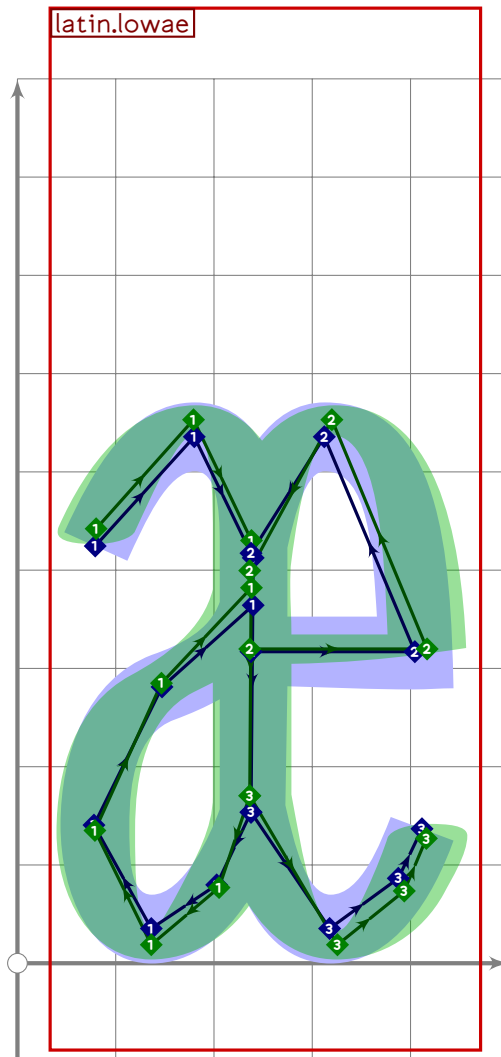
740
741 vardef latin.lowa =
742   push_pbox_toexpand("latin.lowa");
743   x1=(-0.12)[x6,x3];
744   x3=x4=x5=x8;
745   0.51[x6,x3]=500;
746   x3-x1=0.82*(y2-y4);
747   x2=0.63[x6,x3];
748   x7=0.36[x6,x3];
749
750   y1=0.7[y4,y2];
751   y3=0.77[y4,y2];

```

```

752 y2=latin_wide_xheight_r;
753 y4=latin_wide_low_v;
754 y5=0.68[y4,y2];
755 y6=0.32[y7,y5];
756 y7=latin_wide_low_h;
757 y8=0.3[y4,y2];
758
759 push_stroke(z1{curl 0.2}..z2{right}..z3{down}..z4,
760   (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
761 replace_stroke(0)(subpath (0.2,3) of oldp);
762 set_bosserif(0,3,2);
763
764 push_stroke(z5{dir 240}..z6{down}..z7{right}..z8,
765   (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
766 replace_stroke(0)(subpath (0,2.97) of oldp);
767 replace_stroke(0)(insert_nodes(oldp)(0.5));
768 expand_pbox;
769 enddef;

```



770

```

771 vardef latin.lowae =
772   push_pbox_toexpand("latin.lowae");
773   begingroup
774     save saved_sp;
775     save astem,abowl,astroke,estroke,etop,ebot;
776     path astem,abowl,astroke,estroke,etop,ebot;
777     saved_sp:=sp;
778
779     latin.lowa;
780     set_boserif(-1,3,whatever);
781     astem:=get_stroke(-1);
782     abowl:=get_stroke(0);
783
784     numeric x[],y[];
785     latin.lowe;
786     estroke:=get_stroke(0);
787
788     for i=saved_sp upto sp-1:
789       obstacktype[i]:=otnull;
790     endfor;
791
792     astroke:=(subpath (0,2) of astem)-reverse abowl;
793
794     numeric x[],y[];
795     z1=point 3 of astroke;
796     path xbp;
797     xbp=estroke shifted (0,ypart ((llcorner astroke)-(llcorner estroke)));
798     x2=xpart (xbp intersectionpoint ((470,y1)-(0,y1)));
799     astroke:=astroke shifted (470-x1,0);
800
801     estroke:=estroke shifted (470-x2,0);
802     xbp:=xbp shifted (470-x2,0);
803
804     ebot:=subpath (xpart (xbp intersectiontimes ((500,y1)-(0,y1))),
805                   infinity) of xbp;
806     ebot:=insert_nodes(ebot)((length ebot)-0.3);
807
808     etop:=
809       subpath (ypart (((470,1000)-(470,0))
810                     intersectiontimes (subpath (0,1) of estroke)),
811              1+ypart (((470,1000)-(470,0))
812                      intersectiontimes (subpath (1,infinity) of estroke)))
813       of estroke;
814
815     astroke:=insert_nodes(astroke)(3.4);
816
817     push_stroke(astroke,
818               (1.6,1.6) for i=1 upto length astroke: -(1.6,1.6) endfor);

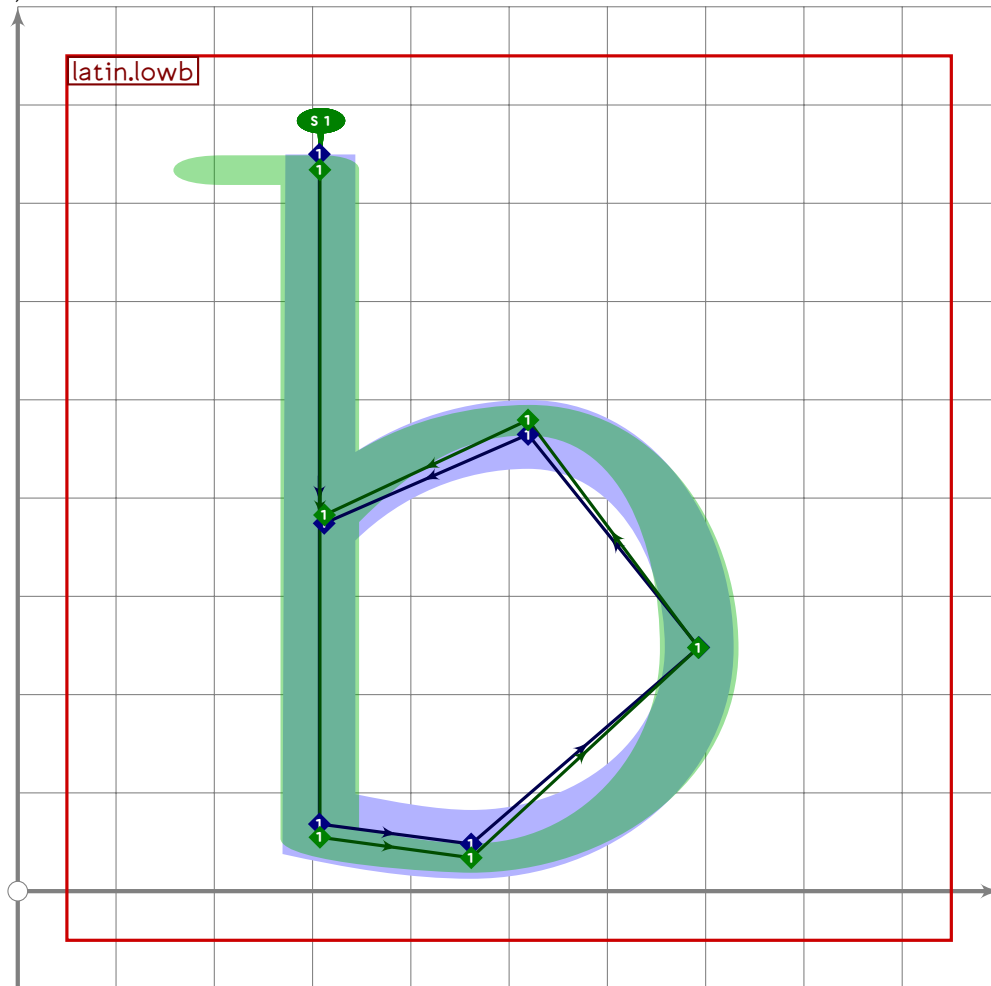
```



```

819   push_stroke(etop,
820     (1,6,1,6) for i=1 upto length etop: -(1,6,1,6) endfor);
821   set_botip(0,1,1);
822   push_stroke(ebot,
823     (1,6,1,6) for i=1 upto length ebot: -(1,6,1,6) endfor);
824   endgroup;
825   expand_pbox;
826   enddef;

```



```

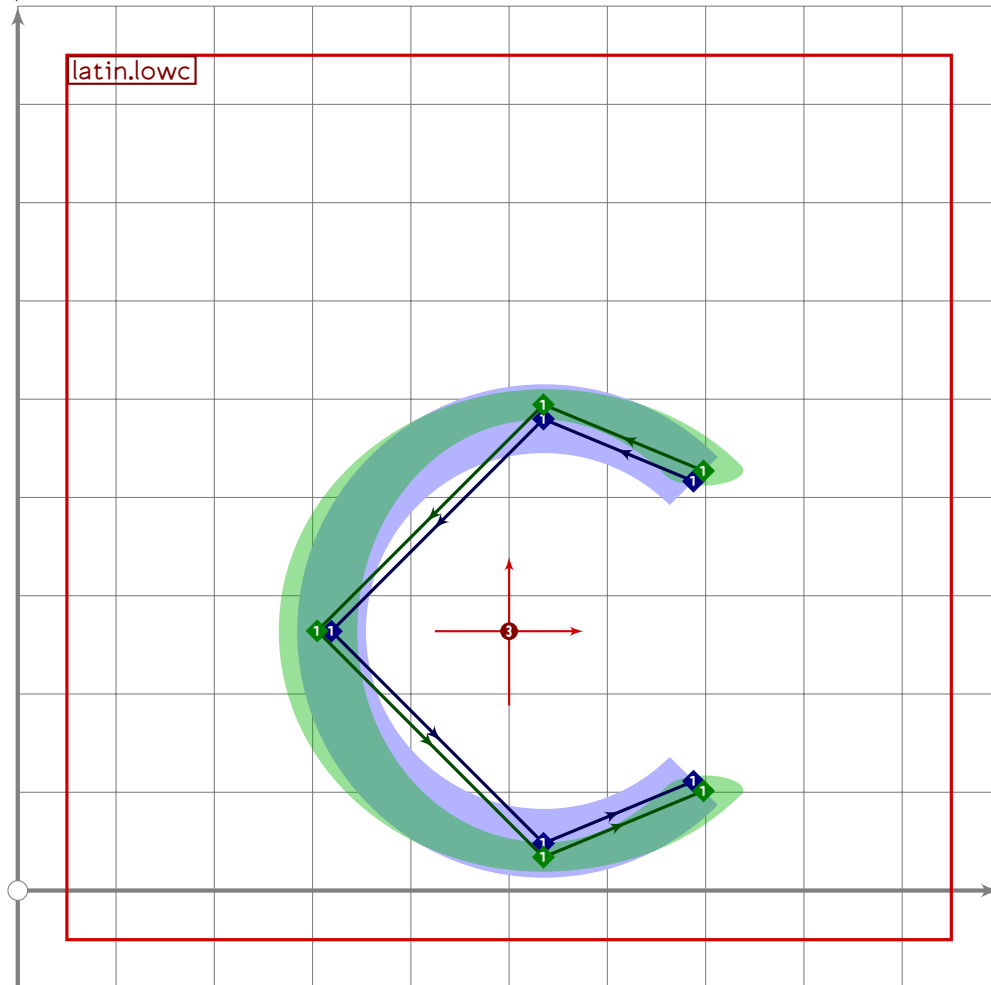
827
828   vardef latin.lowb =
829     push_pbox_toexpand("latin.lowb");
830     (x1+x4)/2=500;
831     (x4-x1)=(y1-y3)*0.55;
832     x2=x1+x6;
833     x3=0.4[x2,x4];
834     x5=0.55[x2,x4];
835
836     y1=latin_wide_high_v;
837     y2=latin_wide_lc_baselif;
838     y3=latin_wide_low_r;
839     y4=0.48[y3,y5];

```

```

840 y5=latin_wide_xheight_h;
841 y6=0.77[y3,y5];
842
843 push_stroke(z1-z2{curl 0.05}..fright}z3..fup}z4..fleft}z5..z6,
844   (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
845 replace_stroke(0)(subpath (0,4.97) of oldp);
846 set_botip(0,1,1);
847 set_boserif(0,0,1);
848 expand_pbox;
849 enddef;

```



```

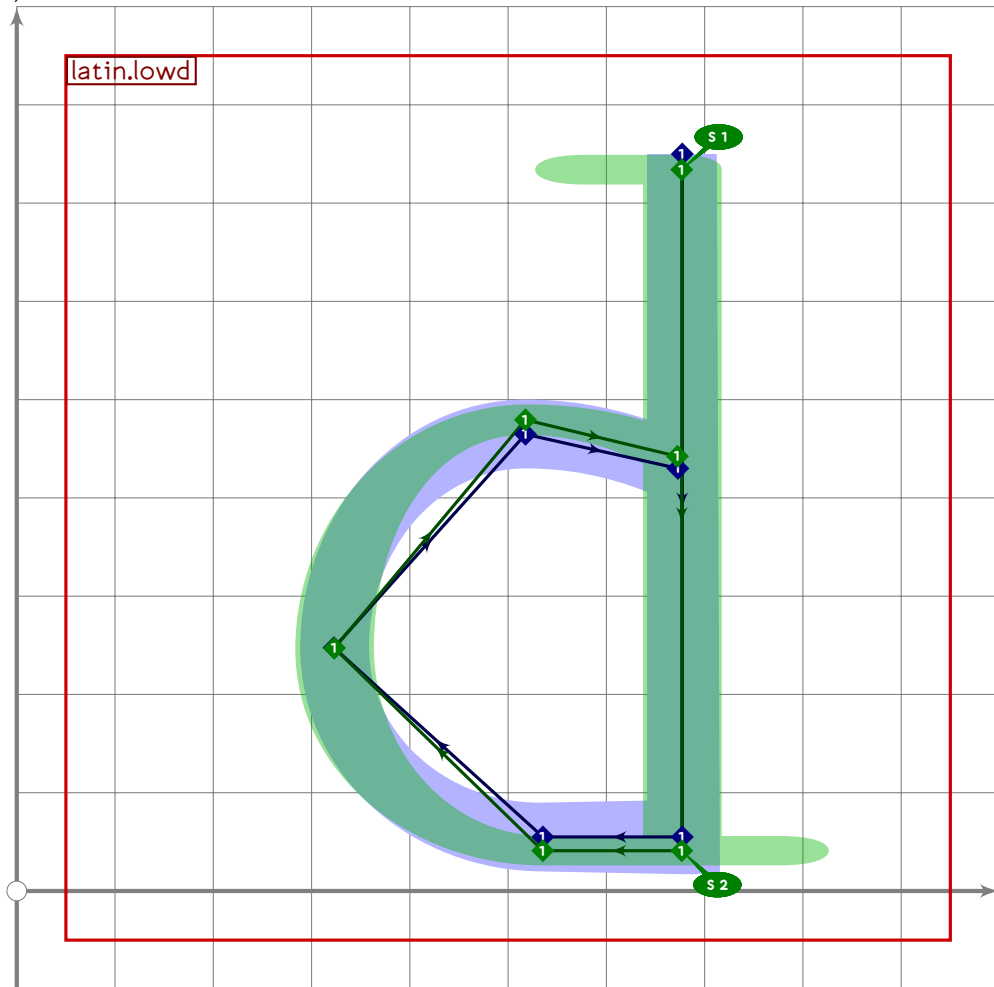
850
851 vardef latin.lowc =
852   push_pbox_toexpand("latin.lowc");
853   push_anchor(anc_centre_accent,identity
854     scaled ((latin_wide_xheight_r-latin_wide_low_r)/200)
855     shifted (xpart centre_pt,(latin_wide_xheight_r+latin_wide_low_r)/2));
856   push_stroke((subpath (0.5,3.5) of ((1,0)..(0,1)..(-1,0)..(0,-1)..cycle))
857     scaled ((latin_wide_xheight_r-latin_wide_low_r)/2)
858     shifted ((xpart centre_pt,(latin_wide_xheight_r+latin_wide_low_r)/2)
859       +(35,0)),
860     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));

```

```

861 expand_pbox;
862 enddef;

```



```

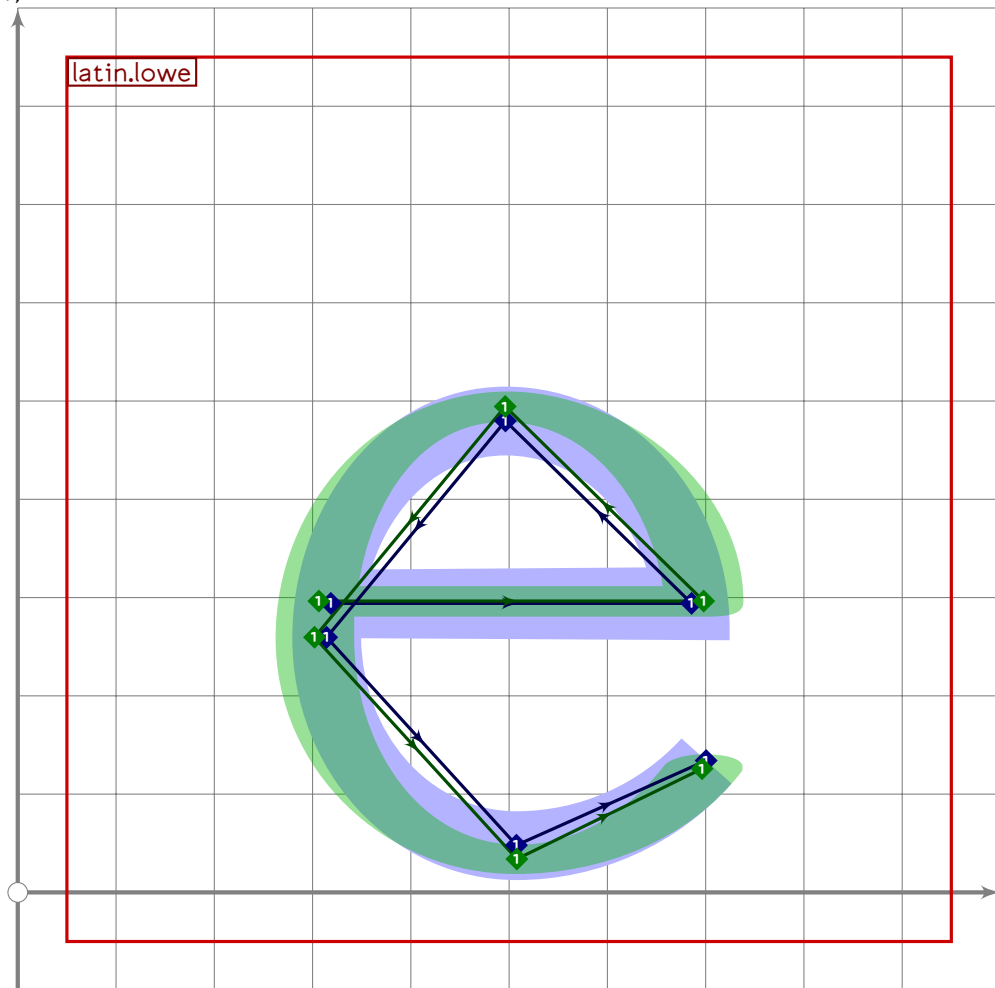
863
864 vardef latin.lowd =
865   push_pbox_toexpand("latin.lowd");
866   (x1+x4)/2=500;
867   (x1-x4)=(y1-y3)*0.51;
868   x2=x1+x6;
869   x3=0.4[x2,x4];
870   x5=0.45[x2,x4];
871
872   y1=latin_wide_high_v;
873   y2=y3=latin_wide_low_h;
874   y4=0.47[y3,y5];
875   y5=latin_wide_xheight_h;
876   y6=0.91[y3,y5];
877
878   push_stroke(z1-z2{left}..{left}z3..{up}z4..{right}z5..z6,
879     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
880   replace_strokep(0)(subpath (0,4.97) of oldp);
881   set_botip(0,1);

```

```

882 set_boserif(0,0,1);
883 set_boserif(0,1,2);
884 expand_pbox;
885 enddef;

```



```

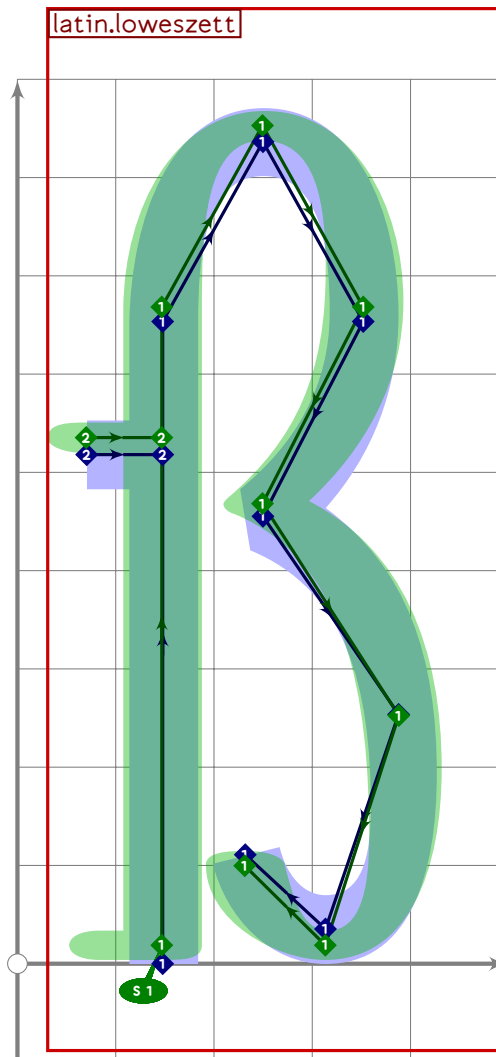
886
887 vardef latin.love =
888   push_pbox_toexpand("latin.love");
889   y2=0.57[y5,y3];
890   y3=latin_wide_xheight_r;
891   y4=0.49[y5,y3];
892   y5=latin_wide_low_r;
893   y6=0.35[y5,y2];
894
895   (x2+x4)/2=500;
896   (x2-x4)=0.86*(y3-y5);
897   x3=0.49[x4,x2];
898   x5=0.52[x4,x2];
899   x6=1.04[x4,x2]-(if sharp_corners: 0 else: (mbrush_width/3) fi);
900
901   push_stroke(z2{curl 0.7}..z3{left}..z4{down}..z5{right}..z6,
902     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));

```

```

903 z1=get_strokep(0) intersectionpoint ((z2+(-1000,0))-z2+(-10,0));
904 replace_strokep(0)((z1+2*right)-oldp);
905 set_botip(0,1,1);
906 expand_pbox;
907 endif;

```



```

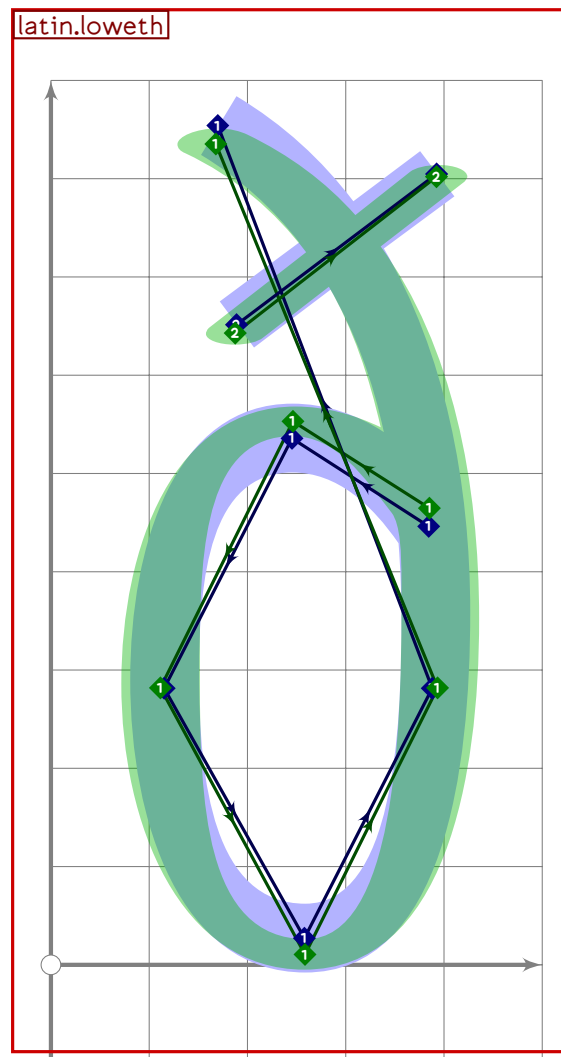
908
909 vardef latin.loweszett =
910   push_pbox_toexpand("latin.loweszett");
911   (x1+x6)/2=510;
912   (x6-x1)=3*(y3-y2);
913   x2=x1;
914   x3=x5=(x1+x4)/2;
915   x4=0.85[x1,x6];
916   x7=0.69[x1,x6];
917   x8=0.35[x1,x6];
918
919   y1=latin_wide_low_v;
920   y2=y4=0.52[y5,y3];
921   y3=latin_wide_high_r;

```

```

922 y5=0.87[y7,latin_wide_xheight_h];
923 y6=0.52[y7,y5];
924 y7=latin_wide_low_h;
925 y8=0.18[y7,y5];
926
927 push_stroke(z1-z2{dir 88}..z3{right}..z4..{dir 200}z5{dir 350}..
928     z6..z7{left}..z8{dir 120},
929     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-
930     (1.6,1.6)-(1.6,1.6)-(1.6,1.6));
931 set_botip(0,4,0);
932 set_boserif(0,0,1);
933
934 push_stroke((x1-150,latin_wide_xheight_h)-(x1,latin_wide_xheight_h),
935     (1.6,1.6)-(1.6,1.6));
936 expand_pbox;
937 enddef;

```



```

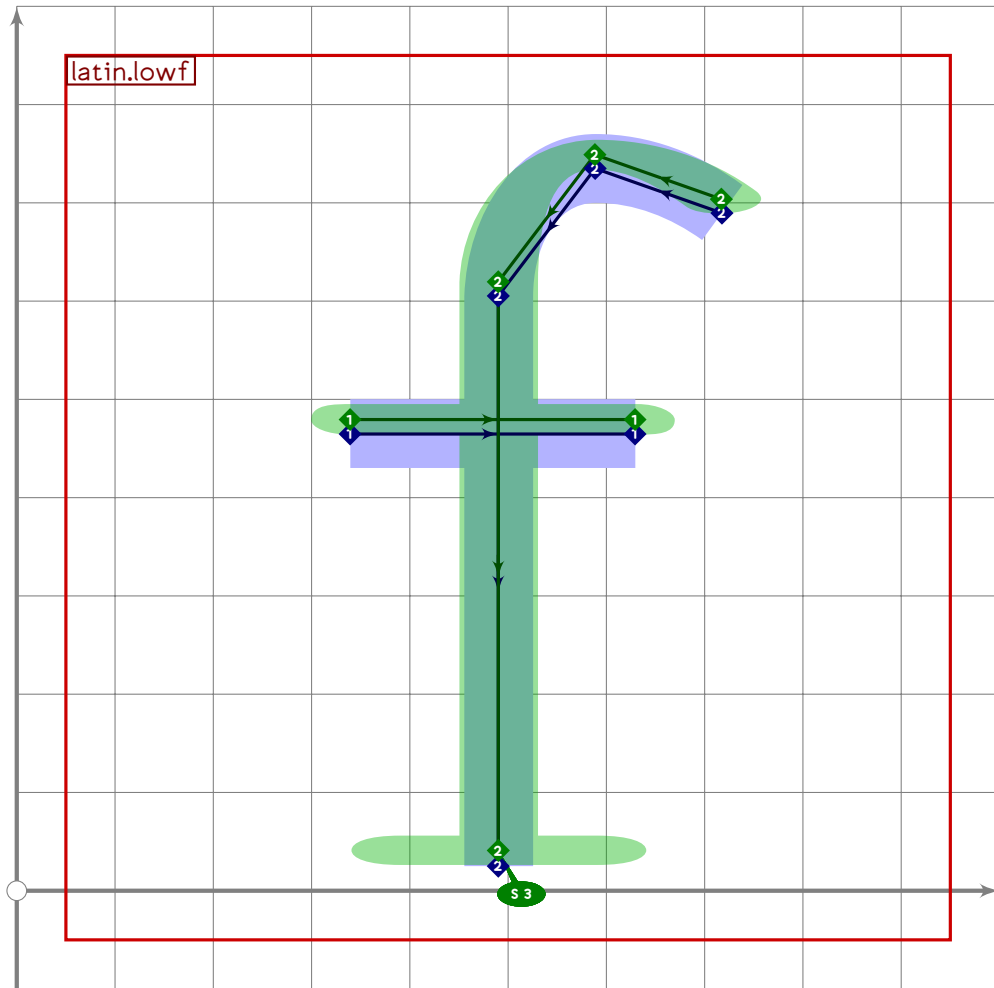
938
939 vardef latin.loweth =
940     push_pbox_toexpand("latin.loweth");

```

```

941 (x3+x5)/2=(x2+x4)/2=510;
942 x4-x2=20;
943 (x5-x3)=(y2-y4);
944 x1=1.3[x3,x5];
945 x6=0.2[x3,x5];
946
947 y1=0.25[y4,y2];
948 y3=y5=0.5[y4,y2];
949 y2=latin_wide_xheight_r;
950 y4=latin_wide_low_r;
951 y6=latin_wide_high_v;
952
953 push_stroke(z1..z2{left}..z3..z4{right}..z5..{curl 0.6}z6,
954 (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
955 replace_strokep(0)(subpath (xpart ((subpath (0,1) of oldp)
956 intersectiontimes
957 (subpath (2,infinity) of oldp)),infinity) of oldp);
958
959 z7=point 4.67 of get_strokep(0);
960 z8=z7+whatever*dir 202;
961 x8=0.27[x3,x5];
962 z9=2[z8,z7];
963
964 push_stroke(z8-z9,(1.5,1.5)-(1.5,1.5));
965 set_bosize(0)(85);
966 expand_pbox;
967 enddef;

```



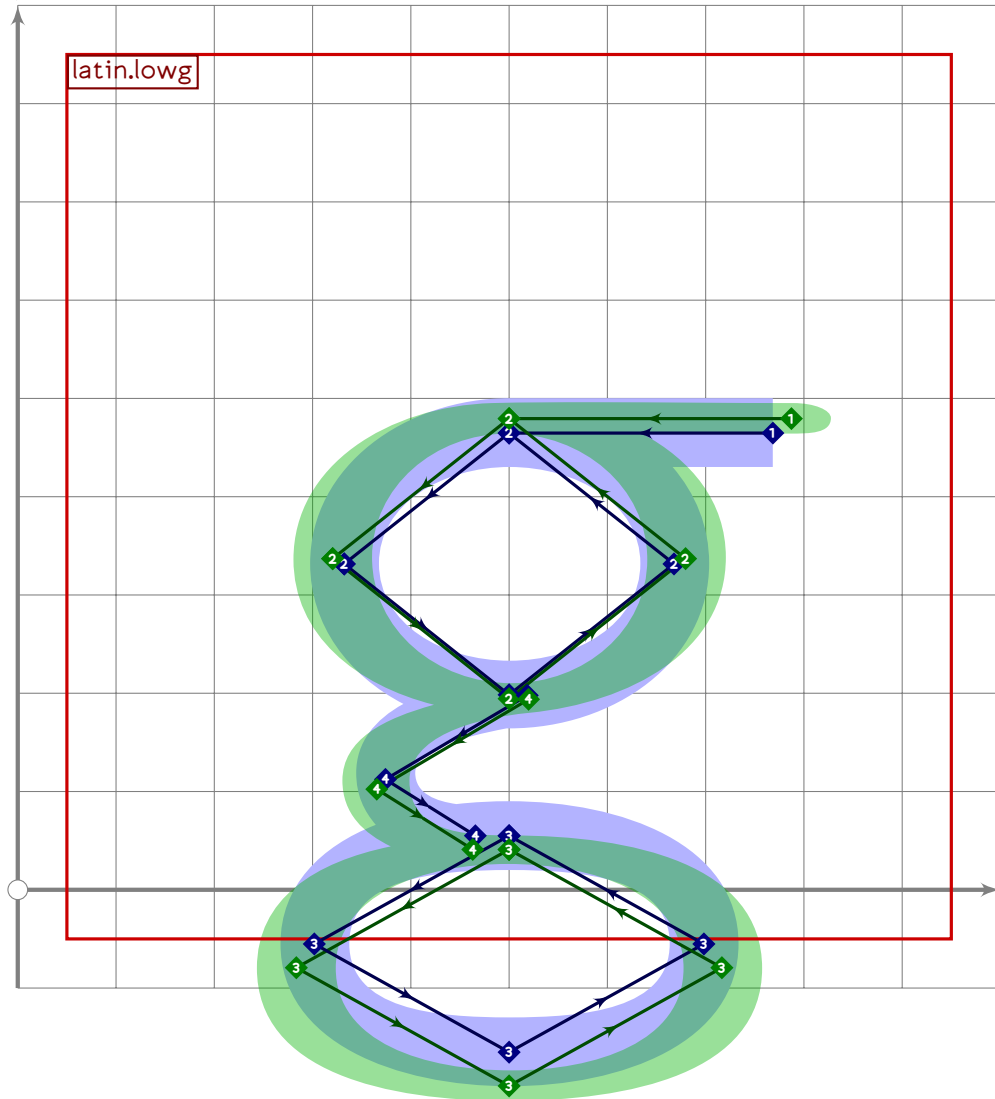
```

968
969 vardef latin.lowf =
970   push_pbox_toexpand("latin.lowf");
971   (x2-x1)=290;
972   x5=x6=490=0.52[x1,x2];
973   x3-x5=2*(y4-y5);
974   x4=0.38[x5,x3];
975
976   y1=y2=latin_wide_xheight_h;
977   y5=0.52[y2,y4];
978   y3=0.73[y2,y4];
979   y4=latin_wide_high_r;
980   y6=latin_wide_low_v;
981
982   push_stroke(z1-z2,(1.6,1.6)-(1.6,1.6));
983
984   push_stroke(z3{curl 0.6}..z4{left}..{dir 268}z5{down}-z6,
985     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
986   replace_stroke(0)(subpath (0.23,3) of oldp);
987   set_boserif(0,3,3);
988   expand_pbox;

```



989 enddef;



990

991 vardef latin.lowg =

992 push\_pbox\_toexpand("latin.lowg");

993 x2=x4=x7=x9=500;

994 x1=1.6[x2,x5];

995 x5-x2=x2-x3;

996 x5-x3=1.26\*(y2-y4);

997 x6=0.25[x3,x2];

998 x10-x7=x7-x8;

999 x10-x8=1.8\*(y7-y9);

1000

1001 y1=y2=latin\_wide\_xheight\_h;

1002 y3=y5=0.5[y4,y2];

1003 y4=0.35[y7,y2];

1004 y6=0.4[y7,y4];

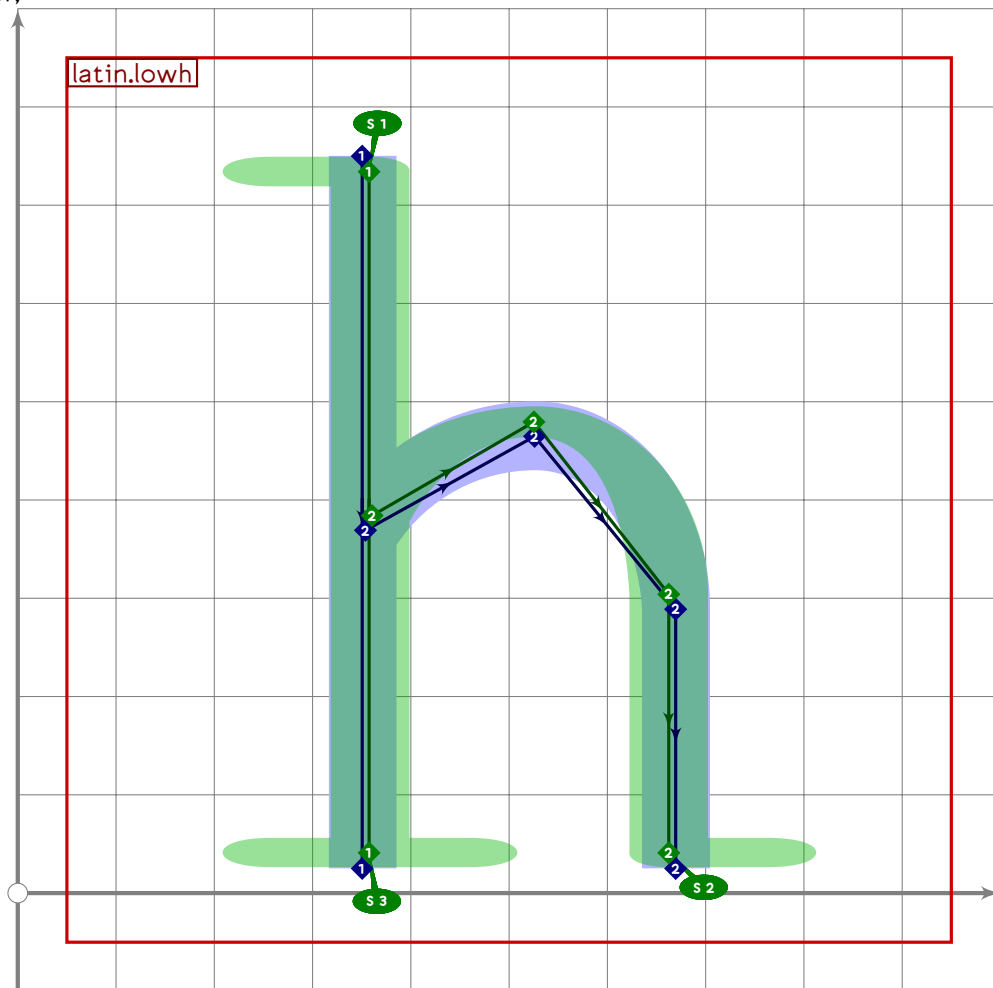
1005 y7=latin\_wide\_low\_h;

1006 y8=y10=0.5[y9,y7];

```

1007 y9=latin_wide_desc_r;
1008
1009 push_stroke(z1-z2,(1.6,1.6)-(1.6,1.6));
1010
1011 push_stroke(z3..z4..z5..z2..cycle,
1012   (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-cycle);
1013
1014 push_stroke(z7..z8..z9..z10..cycle,
1015   (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-cycle);
1016
1017 push_stroke((point 1.2 of get_stroke(-1))
1018   {-direction 1.2 of get_stroke(-1)}..z6..
1019   (point 0.05 of get_stroke(0))){-direction 0.05 of get_stroke(0)},
1020   (1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1021 replace_stroke(0)(subpath (0.13,1.87) of oldp);
1022 set_bsize(0,85);
1023 expand_pbox;
1024 enddef;

```



```

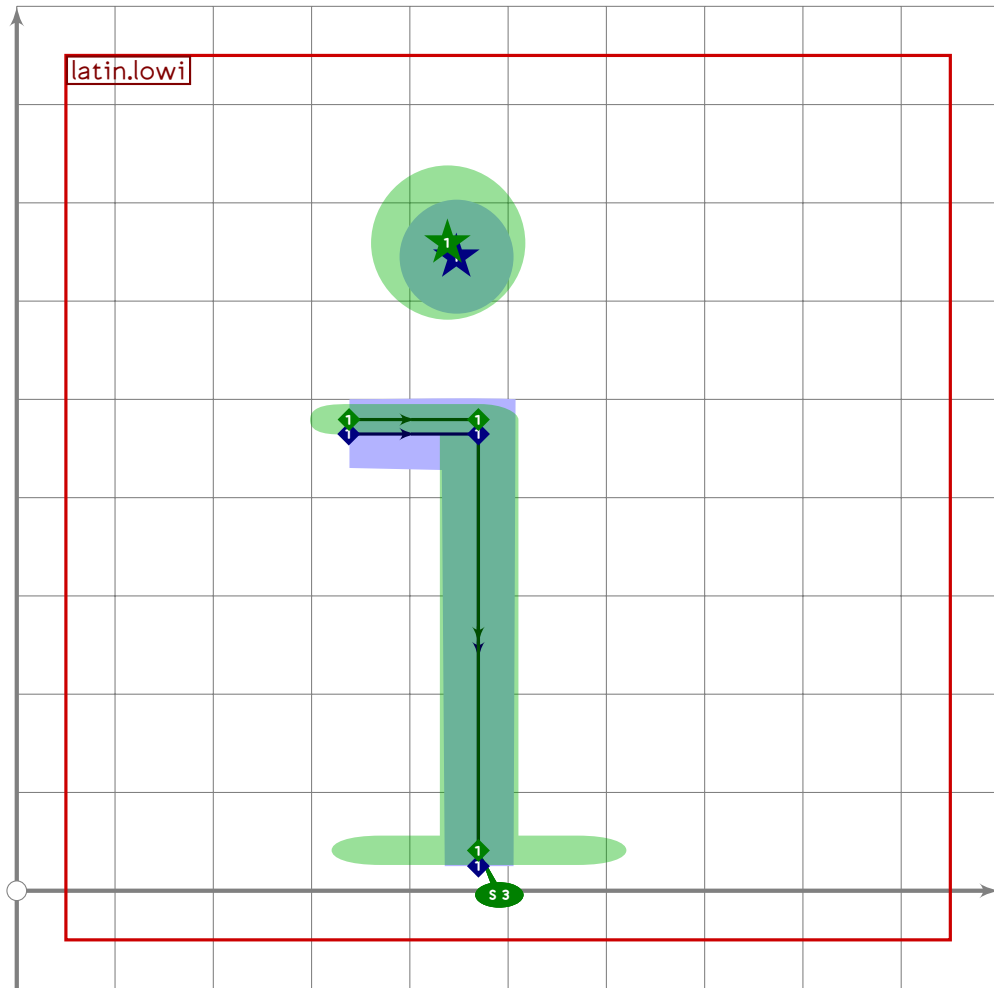
1025
1026 vardef latin.lowh =
1027   push_pbox_toexpand("latin.lowh");

```

```

1028 (x1+x5)/2=510;
1029 (x5-x1)=(y1-y2)*0.44;
1030 x2=x1=x3;
1031 x4=0.55[x3,x5];
1032 x6=x5;
1033
1034 y1=latin_wide_high_v;
1035 y2=y6=latin_wide_low_v;
1036 y3=0.77[y2,y4];
1037 y4=latin_wide_xheight_h;
1038 y5=0.60[y2,y4];
1039
1040 push_stroke(z1-z2,(1.6,1.6)-(1.6,1.6));
1041 set_boserif(0,0,1);
1042 set_boserif(0,1,3);
1043
1044 push_stroke(z3..z4{right}..z5{dir 273}-z6,
1045 (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1046 replace_strokep(0)(subpath (0,0,3) of oldp);
1047 set_boserif(0,3,2);
1048 expand_pbox;
1049 enddef;

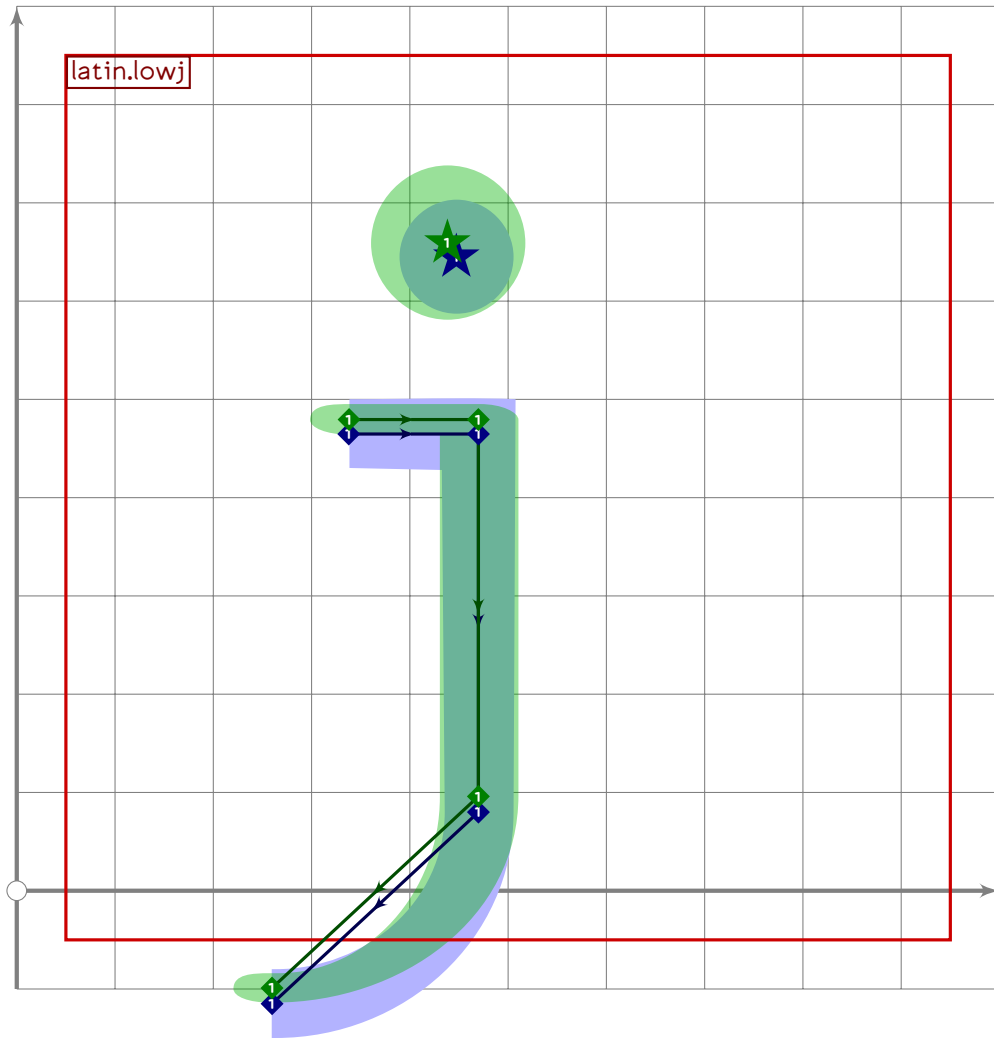
```



```

1050
1051 vardef latin.lowi =
1052   push_pbox_toexpand("latin.lowi");
1053   x2=x3;
1054   0.85[x1,x2]=450;
1055   (x2-x1)=0.3(y2-y3);
1056   x4=x2-mbrush_width*0.6;
1057
1058   y1=y2=latin_wide_xheight_h;
1059   y3=latin_wide_low_v;
1060   y4=0.5[y2,latin_wide_high_v]+mbrush_width;
1061
1062   push_stroke(z1-z2-z3,(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1063   set_botip(0,1,1);
1064   set_boserif(0,2,3);
1065
1066   push_lcblob(fullcircle rotated 45 scaled (mbrush_width*2.7+15)
1067     shifted (z4 transformed tsu_rescale_xform)
1068     transformed inverse tsu_rescale_xform);
1069   expand_pbox;
1070 enddef;

```



```

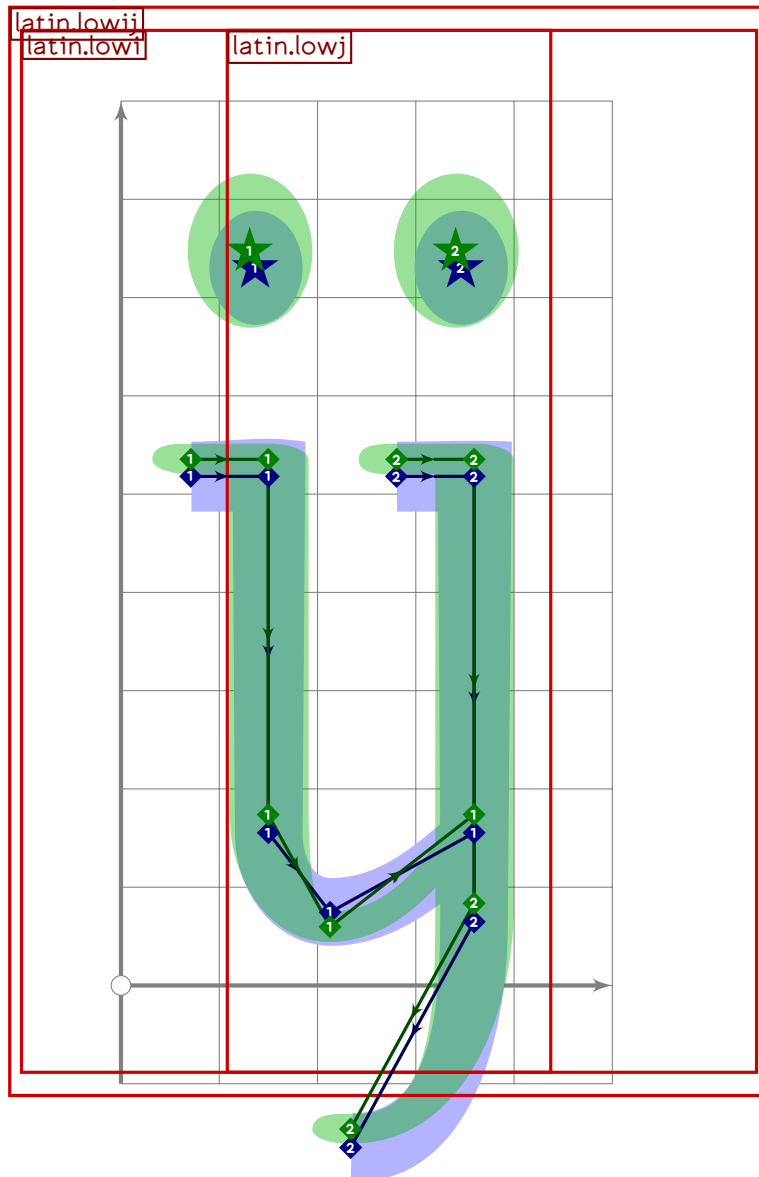
1071
1072 vardef latin.lowj =
1073   push_pbox_toexpand("latin.lowj");
1074   x2=x3;
1075   0.85[x1,x2]=450;
1076   (x2-x1)=0.3(y2-y3);
1077   x5=x2-mbrush_width*0.6;
1078
1079   y1=y2=latin_wide_xheight_h;
1080   y3=latin_wide_low_v;
1081   y5=0.5[y2,latin_wide_high_v]+mbrush_width;
1082
1083   z4=z3+(-210,-140);
1084
1085   push_stroke((z1-z2-(z3+(0,55)))..{curl 0.8}z4,
1086     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1087   set_botip(0,1,1);
1088
1089   push_lcblob(fullcircle scaled (mbrush_width*2.7+15)
1090     shifted (z5 transformed tsu_rescale_xform)

```

```

1091     transformed inverse tsu_rescale_xform);
1092     expand_pbox;
1093 enddef;

```



```

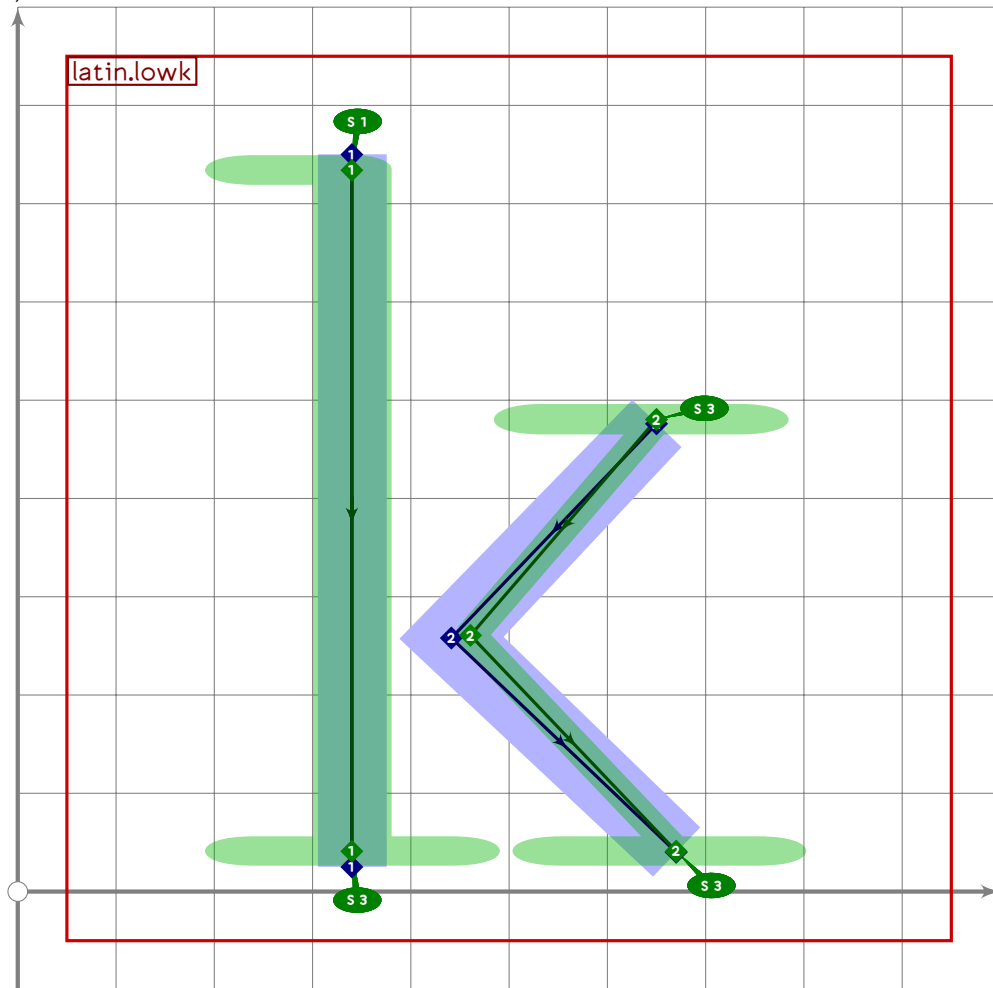
1094
1095 vardef latin.lowij =
1096     push_pbox_toexpand("latin.lowij");
1097     tsu_xform(identity shifted (-200,0))(latin.lowi);
1098     numeric x[],y[];
1099     tsu_xform(identity shifted (150,0))(latin.lowj);
1100     replace_lcblob(-1)(get_lcblob(0) shifted (-350,0));
1101     numeric x[],y[];
1102     z1=point 1.7 of get_strokep(-1);
1103     x2=0.3[x1,x3];
1104     y2=vmetric(0.05);
1105     z3=point 1.8 of get_strokep(0);
1106     replace_strokep(-1)((subpath (0,1) of oldp)-

```

```

1107 z1{dir 273}..z2{right}..f{curl 0.3}z3);
1108 replace_strokeq(-1)((subpath (0,1) of oldq)-(1.6,1.6)-(1.6,1.6)-(1,1));
1109 set_boserif(-1,2,whatever);
1110 expand_pbox;
1111 enddef;

```



```

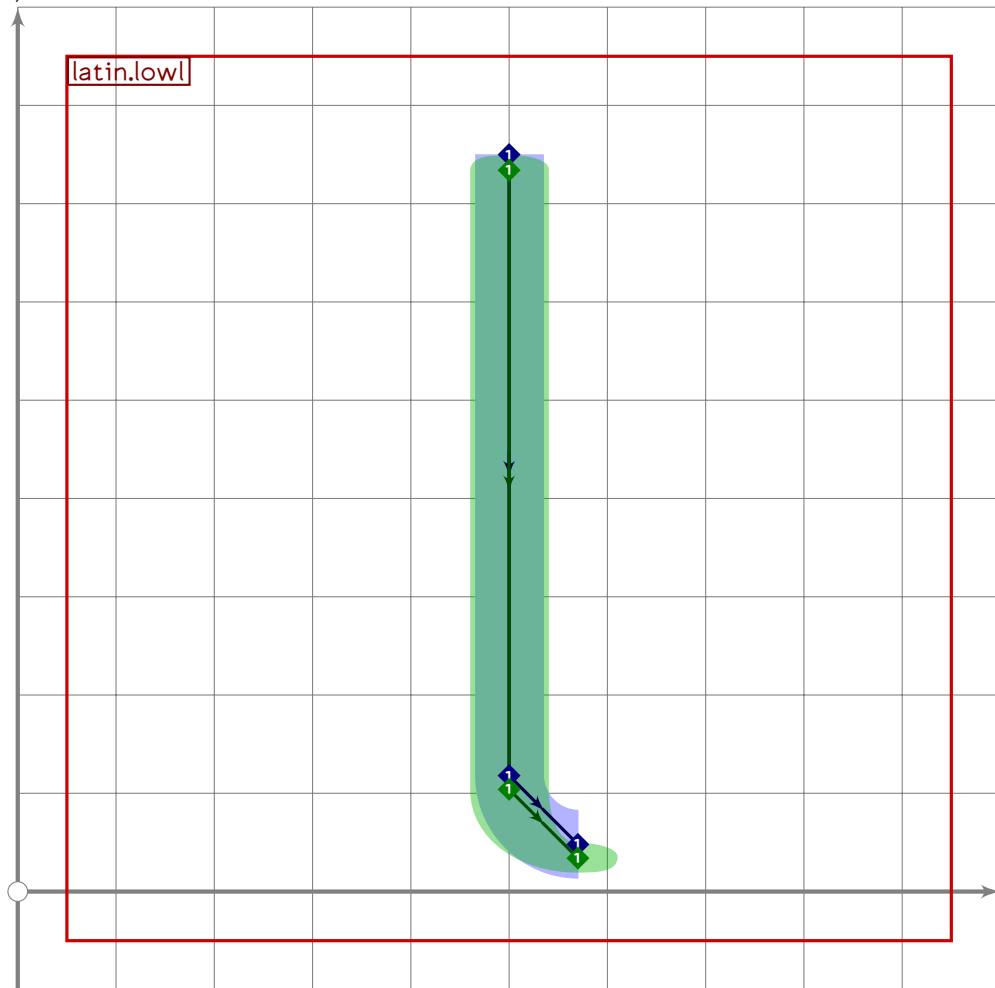
1112
1113 vardef latin.lowk =
1114   push_pbox_toexpand("latin.lowk");
1115   z1=(340,latin_wide_high_v);
1116   z2=(340,latin_wide_low_v);
1117   z3=(650,(latin_wide_xheight_v+latin_wide_xheight_h)/2);
1118   x4=340+mbrush_width*if sharp_corners: 2.7 else: 2.3 fi;
1119   y4=(y3+y5)/2;
1120   z5=(670,0.5[latin_wide_low_h,latin_wide_low_v]);
1121
1122   push_stroke(z1-z2,(1.6,1.6)-(1.6,1.6));
1123   set_boserif(0,0,1);
1124   set_boserif(0,1,3);
1125
1126   push_stroke(z3-z4-z5,(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1127   set_botip(0,1,1);

```

```

1128 set_boserif(0,0,3);
1129 set_boserif(0,2,3);
1130 set_boalternate(0);
1131 expand_pbox;
1132 enddef;

```

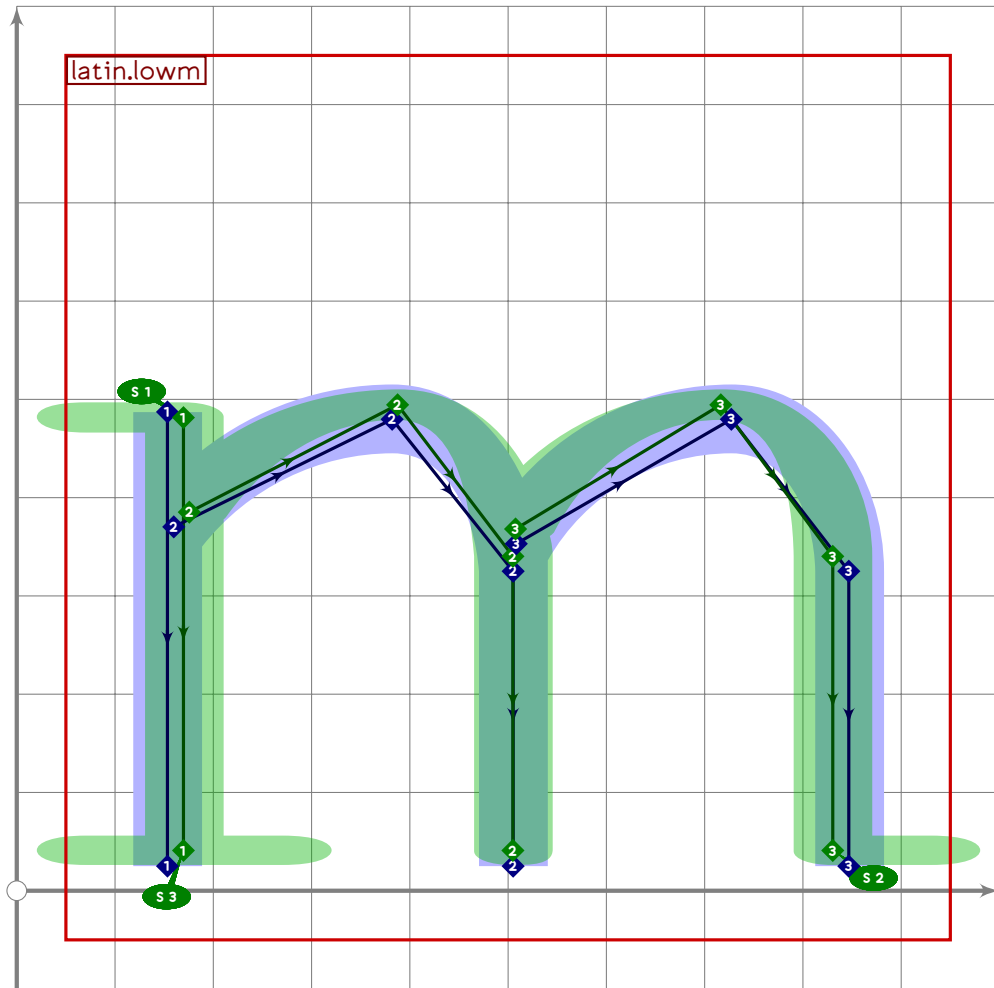


```

1133
1134 vardef latin.lowl =
1135   push_pbox_toexpand("latin.lowl");
1136   x1=x2=500;
1137   x3=570;
1138
1139   y1=latin_wide_high_v;
1140   y2=y3+(x3-x2);
1141   y3=latin_wide_low_r;
1142
1143   push_stroke(z1-z2{down}..fright}z3,(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1144   expand_pbox;
1145 enddef;

```





```

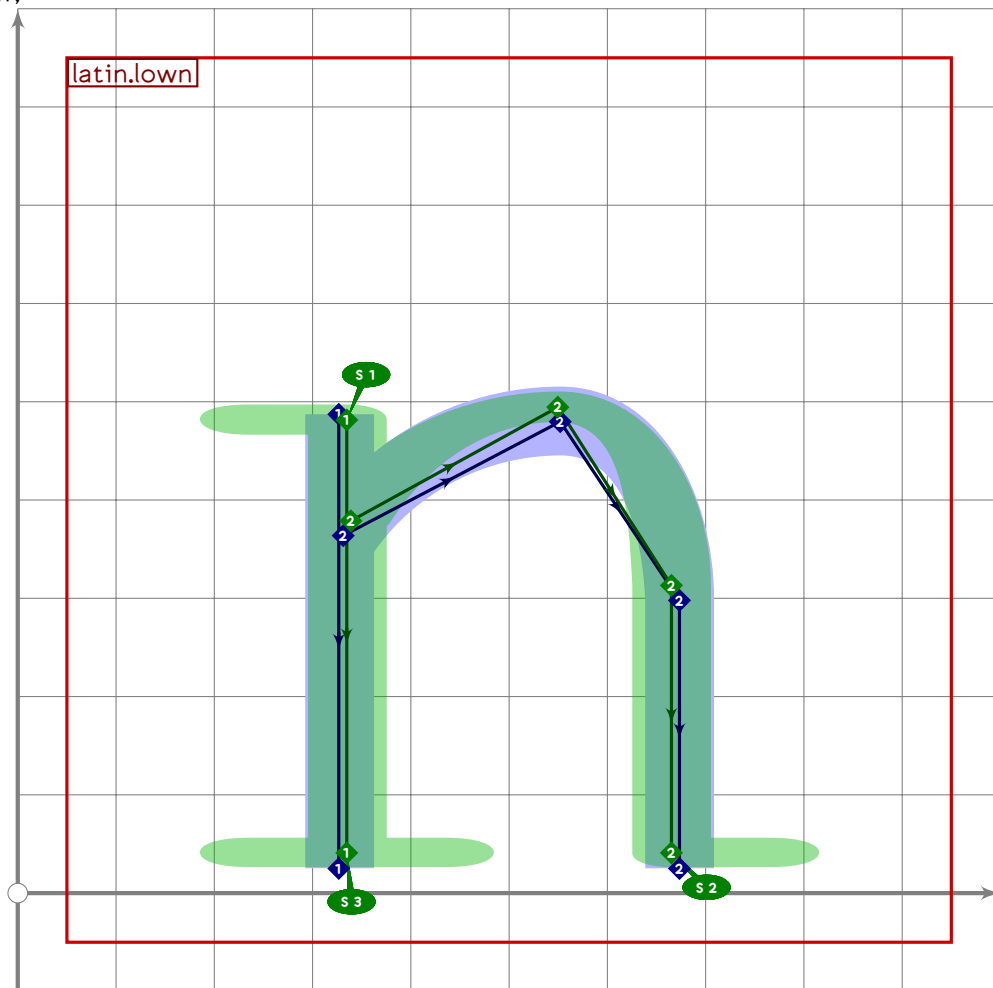
1146
1147 vardef latin.lowm =
1148   push_pbox_toexpand("latin.lowm");
1149   (x1+x9)/2=500;
1150   (x9-x1)*2=(y1-y2)*3;
1151   (x5-x1)=(x9-x5)*1.03;
1152   x2=x1=x3;
1153   x4=0.65[x3,x5];
1154   x6=x5;
1155   x8=0.65[x6,x9];
1156   x9=x10;
1157
1158   y1=latin_wide_xheight_v;
1159   y2=y6=y10=latin_wide_low_v;
1160   y3=0.74[y2,y4];
1161   y4=y8=latin_wide_xheight_r;
1162   y5=y9=0.66[y2,y4];
1163
1164   push_stroke(z1-z2,(1.6,1.6)-(1.6,1.6));
1165   set_boserif(0,0,1);
1166   set_boserif(0,1,3);

```

```

1167
1168 push_stroke(z3..z4{right}..z5{dir 275}-z6,
1169   (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1170 replace_stroke(0)(subpath (0.04,3) of oldp);
1171
1172 z7=get_stroke(0) intersectionpoint (z3-z9);
1173
1174 push_stroke(z7..z8{right}..z9{dir 271}-z10,
1175   (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1176 replace_stroke(0)(subpath (0.04,3) of oldp);
1177 set_boserif(0,3,2);
1178 expand_pbox;
1179 enddef;

```



```

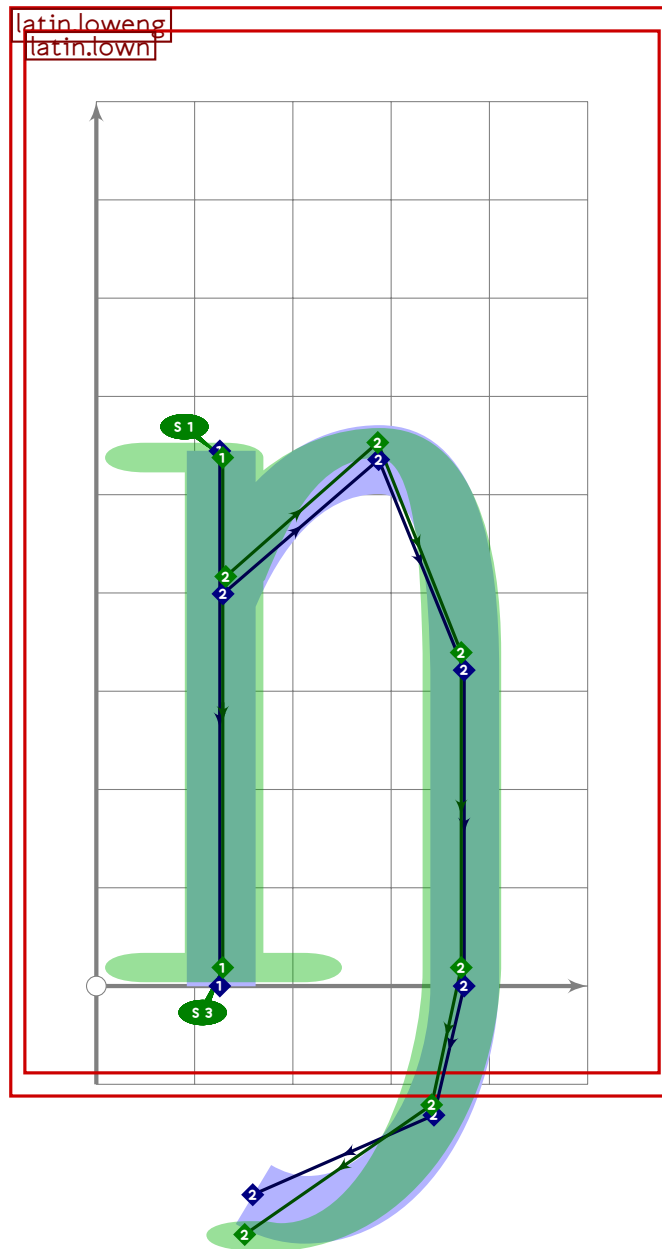
1180
1181 vardef latin.lown =
1182   push_pbox_toexpand("latin.lown");
1183   (x1+x5)/2=500;
1184   (x5-x1)=(y1-y2)*0.75;
1185   x2=x1=x3;
1186   x4=0.65[x3,x5];
1187   x6=x5;

```

```

1188
1189 y1=latin_wide_xheight_v;
1190 y2=y6=latin_wide_low_v;
1191 y3=0.73[y2,y4];
1192 y4=latin_wide_xheight_r;
1193 y5=0.60[y2,y4];
1194
1195 push_stroke(z1-z2,(1.6,1.6)-(1.6,1.6));
1196 set_boserif(0,0,1);
1197 set_boserif(0,1,3);
1198
1199 push_stroke(z3..z4{right}..z5{dir 273}-z6,
1200 (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1201 replace_strokep(0)(subpath (0.03,3) of oldp);
1202 set_boserif(0,3,2);
1203 expand_pbox;
1204 enddef;

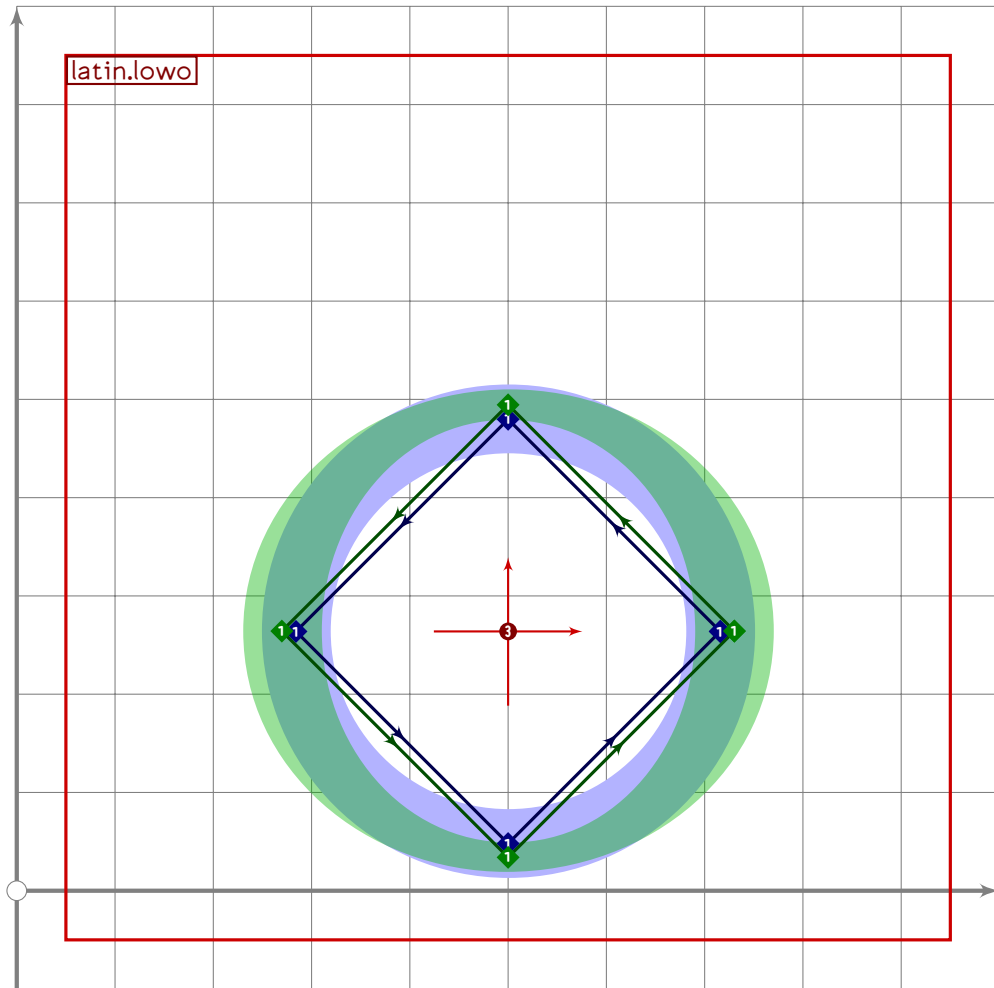
```



```

1205
1206 vardef latin.loweng =
1207   push_pbox_toexpand("latin.loweng");
1208   latin.lown;
1209   x7=x6-300;
1210   y7=latin_wide_desc_h;
1211   replace_strokep(0)(oldp{dir 266}..{curl 0.8}z7);
1212   replace_strokep(0)(insert_nodes(oldp)(3.3));
1213   replace_strokeq(0)(oldq-(1.6,1.6)-(1.6,1.6));
1214   set_boserif(0,3,whatever);
1215   expand_pbox;
1216 enddef;

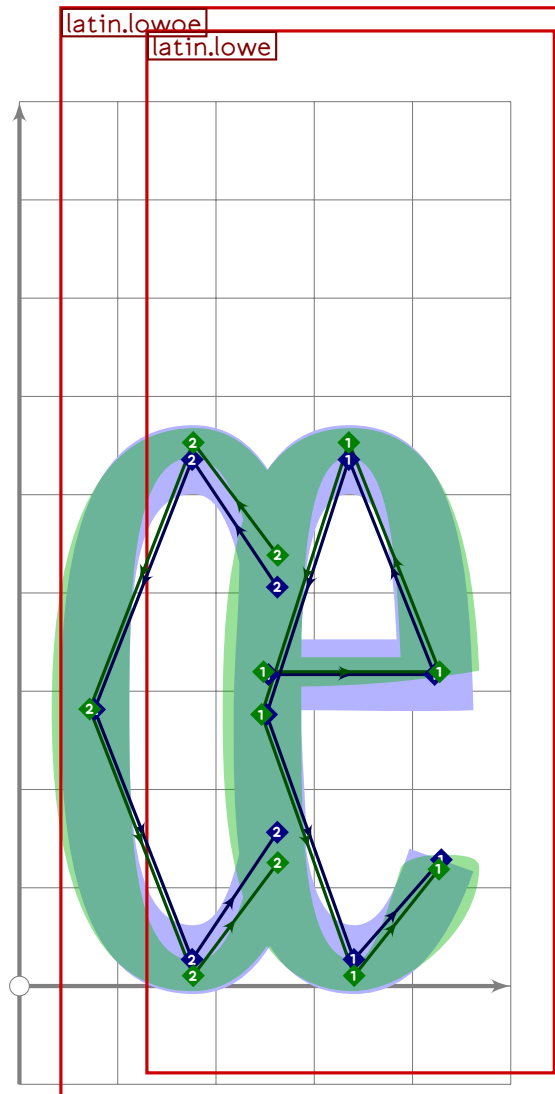
```



```

1217
1218 vardef latin.lowo =
1219   push_pbox_toexpand("latin.lowo");
1220   push_anchor(anc_centre_accent,identity
1221     scaled ((latin_wide_xheight_r-latin_wide_low_r)/200)
1222     shifted (xpart centre_pt,(latin_wide_xheight_r+latin_wide_low_r)/2));
1223   push_stroke(((1,0)..(0,1)..(-1,0)..(0,-1)..cycle)
1224     scaled ((latin_wide_xheight_r-latin_wide_low_r)/2)
1225     shifted (xpart centre_pt,(latin_wide_xheight_r+latin_wide_low_r)/2),
1226     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-cycle);
1227   expand_pbox;
1228 enddef;

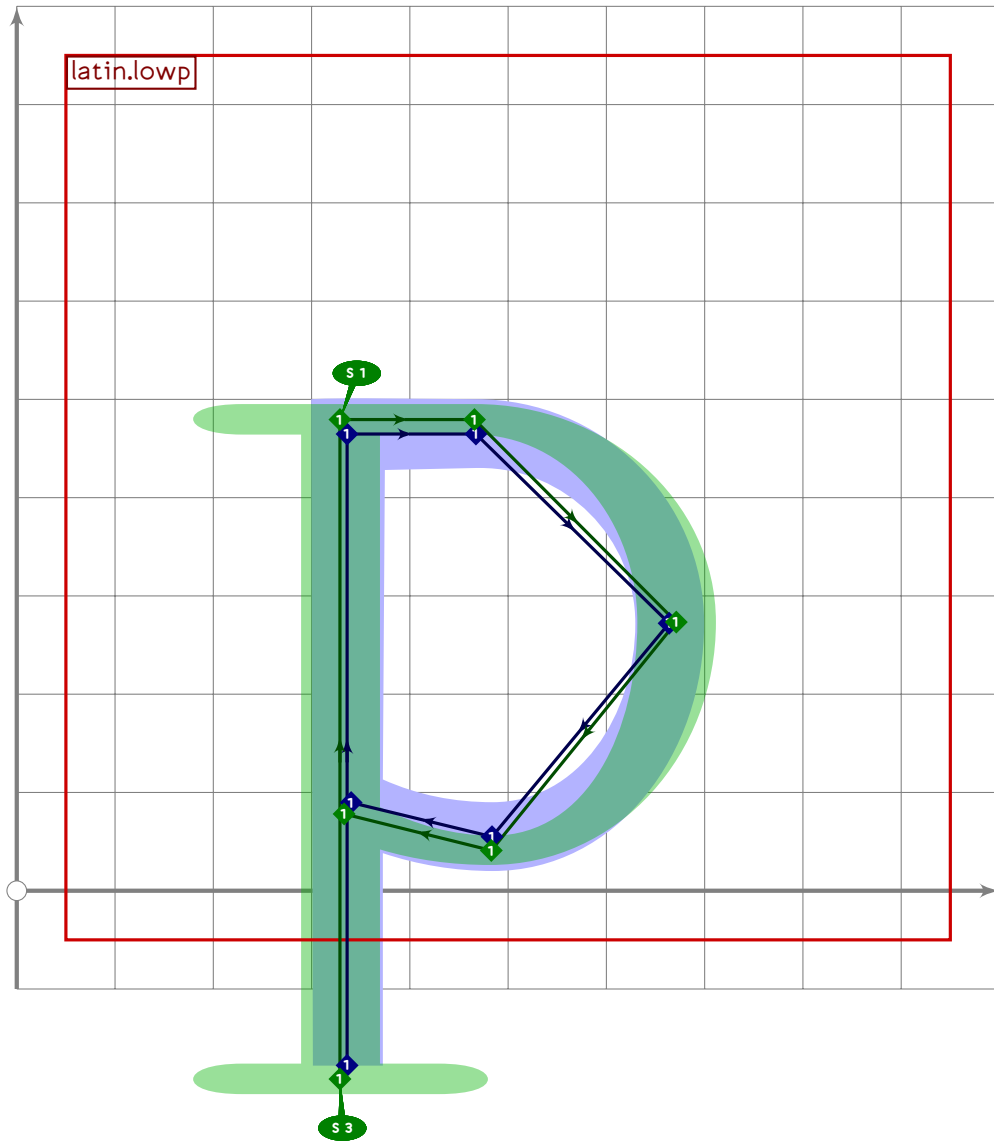
```



```

1229
1230 vardef latin.lowoe =
1231   push_pbox_toexpand("latin.lowoe");
1232   tsu_xform(identity shifted (190,0))(latin.lowe);
1233   push_stroke(((1,0)..(0,1)..(-1,0)..(0,-1)..(1,0)
1234     scaled ((latin_wide_xheight_r-latin_wide_low_r)/2)
1235     shifted (340,0.5[latin_wide_xheight_r,latin_wide_low_r],
1236     (1.2,1.2)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.2,1.2)));
1237   replace_strokep(0)(subpath (xpart (oldp intersectiontimes
1238     (subpath (2,infinity) of get_strokep(-1))),
1239     4-xpart ((reverse oldp) intersectiontimes get_strokep(-1)))
1240     of oldp);
1241   expand_pbox;
1242 enddef;

```



```

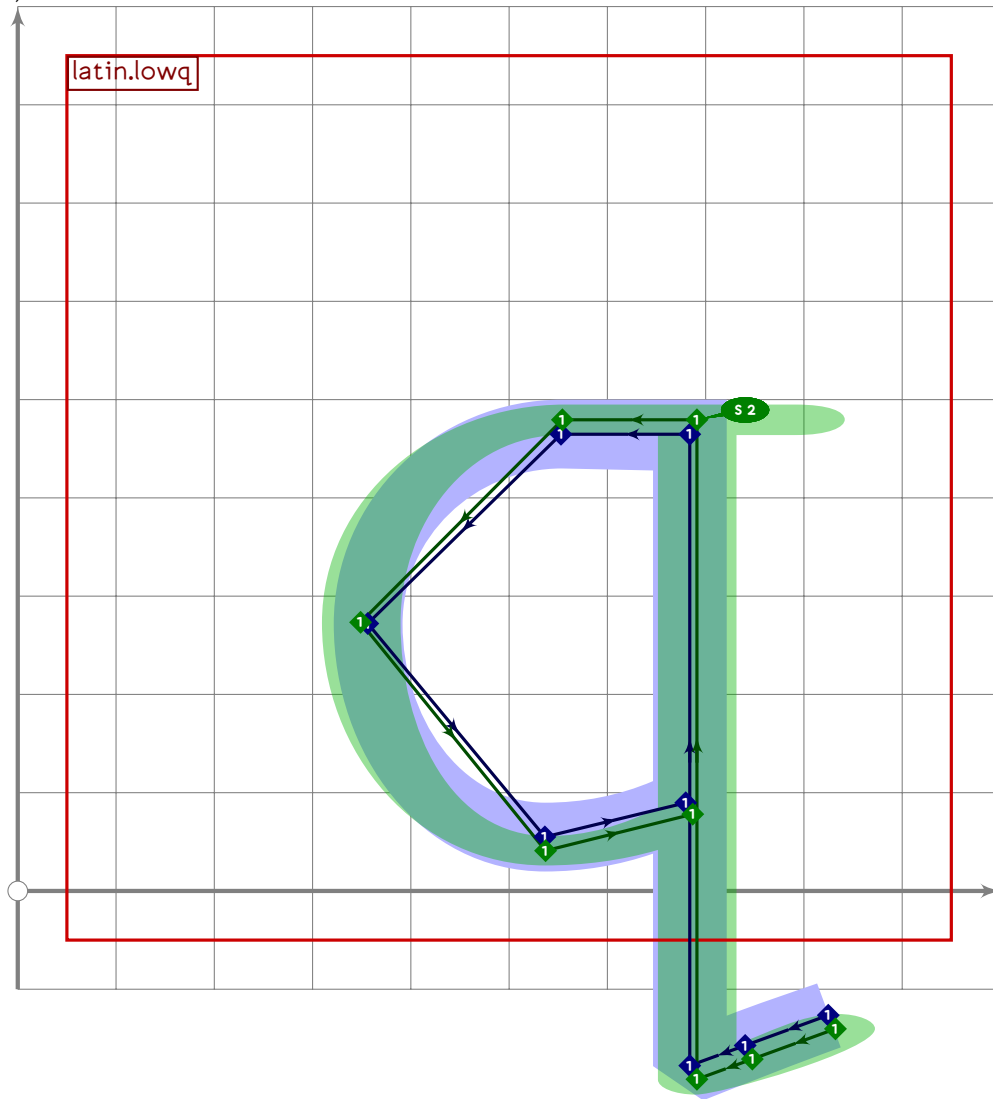
1243
1244 vardef latin.lowp =
1245   push_pbox_toexpand("latin.lowp");
1246   (x1+x4)/2=500;
1247   (x4-x1)=(y2-y1)*0.51;
1248   x2=x1=x6;
1249   x3=0.4[x2,x4];
1250   x5=0.45[x2,x4];
1251
1252   y1=latin_wide_desc_v;
1253   y2=y3=latin_wide_xheight_h;
1254   y4=0.47[y3,y5];
1255   y5=latin_wide_low_h;
1256   y6=0.91[y3,y5];
1257
1258   push_stroke(z1-z2{right}..{right}z3..{down}z4..{left}z5..z6,
1259     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-

```

```

1260     (1,6,1,6)-(1,6,1,6));
1261     replace_strokep(0)(subpath (0,4,97) of oldp);
1262     set_botip(0,1,1);
1263     set_boserif(0,0,3);
1264     set_boserif(0,1,1);
1265     expand_pbox;
1266 enddef;

```



```

1267
1268 vardef latin.lowq =
1269     push_pbox_toexpand("latin.lowq");
1270     (x1+x4)/2=520;
1271     (x1-x4)=(y2-y1)*0.51;
1272     x2=x1=x6;
1273     x3=0.4[x2,x4];
1274     x5=0.45[x2,x4];
1275
1276     y1=latin_wide_desc_v;
1277     y2=y3=latin_wide_xheight_h;

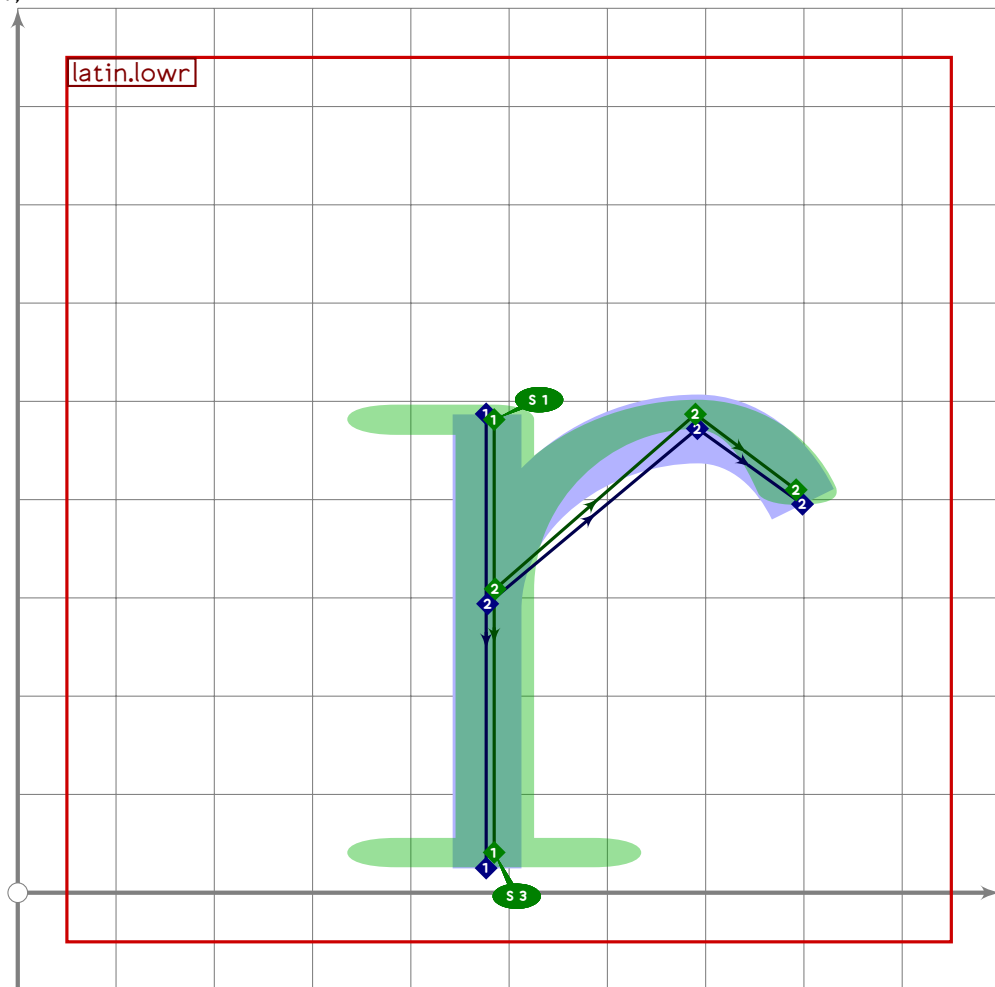
```



```

1278 y4=0.47[y3,y5];
1279 y5=latin_wide_low_h;
1280 y6=0.91[y3,y5];
1281
1282 z0=z1+150*(dir 20);
1283
1284 push_stroke(z0-(0.6[z0,z1])-z1-z2{left}..
1285   {left}z3..{down}z4..{right}z5..z6,
1286   (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-
1287   (1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1288 replace_stroke(0)(subpath (0,6.97) of oldp);
1289 set_botip(0,2,0);
1290 set_botip(0,3,1);
1291 set_boserif(0,3,2);
1292 expand_pbox;
1293 enddef;

```



```

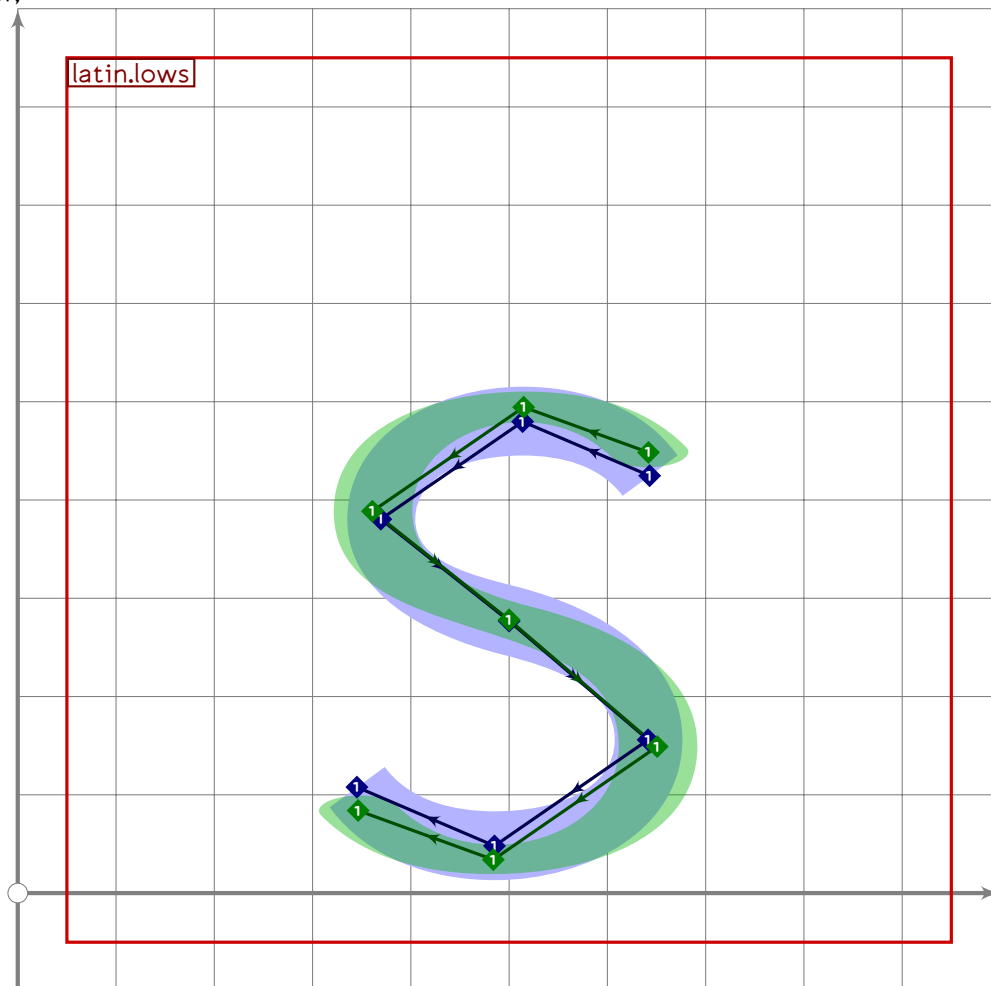
1294
1295 vardef latin.lowr =
1296   push_pbox_toexpand("latin.lowr");
1297   (x1+x5)/2=650;
1298   (x5-x1)=(y1-y2)*0.75;

```

```

1299 x2=x1=x3;
1300 x4=0.62[x3,x5];
1301
1302 y1=latin_wide_xheight_v;
1303 y2=latin_wide_low_v;
1304 y3=0.58[y2,y4];
1305 y4=0.5[latin_wide_xheight_h,latin_wide_xheight_r];
1306 y5=0.60[y2,y4];
1307
1308 push_stroke(z1-z2,(1.6,1.6)-(1.6,1.6));
1309 set_boserif(0,0,1);
1310 set_boserif(0,1,3);
1311
1312 push_stroke(z3..z4{right}..{dir 273}z5,
1313   (1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1314 replace_strokep(0)(subpath (0.03,1.6) of oldp);
1315 expand_pbox;
1316 enddef;

```



```

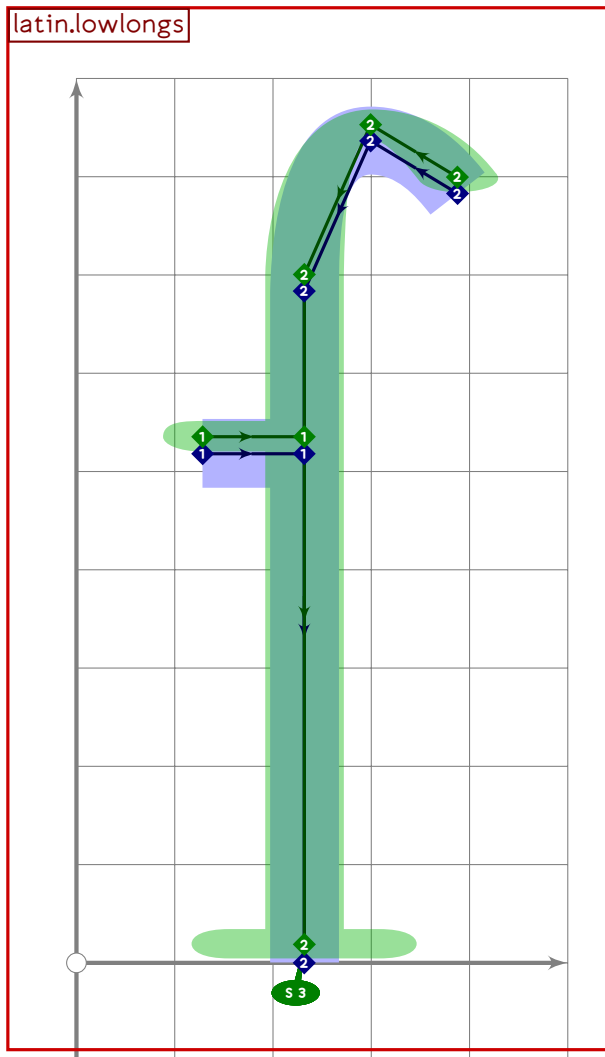
1317
1318 vardef latin.lows =
1319   push_pbox_toexpand("latin.lows");

```

```

1320 transform ta,tb;
1321 path mycurve;
1322
1323 mycurve:=(1,0)..(0,1)..(-1,0);
1324
1325 y2=latin_wide_xheight_r;
1326 y0=y3=0.77[y6,y2];
1327 y4=0.53[y6,y2];
1328 y5=y8=0.25[y6,y2];
1329 y6=latin_wide_low_r;
1330
1331 0.48[x1,x7]=0.48[x2,x6]=0.48[x3,x5]=x4=500;
1332 x5-x1=5;
1333 x5-x7=(y2-y6)*0.67;
1334
1335 (point 0 of mycurve) transformed ta=z0;
1336 (point 0.35 of mycurve) transformed ta=z1;
1337 (point 1 of mycurve) transformed ta=z2;
1338 (point 2 of mycurve) transformed ta=z3;
1339 xypart ta=0;
1340
1341 (point 0 of mycurve) transformed tb=z8;
1342 (point 0.35 of mycurve) transformed tb=z7;
1343 (point 1 of mycurve) transformed tb=z6;
1344 (point 2 of mycurve) transformed tb=z5;
1345
1346 if sharp_corners:
1347   mycurve:=subpath (0.29,2) of mycurve;
1348 else:
1349   mycurve:=subpath (0.38,2) of mycurve;
1350 fi;
1351
1352 push_stroke((mycurve transformed ta)..z4..(reverse mycurve transformed tb),
1353   (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-
1354   (1.6,1.6)-(1.6,1.6));
1355 expand_pbox;
1356 enddef;

```



```

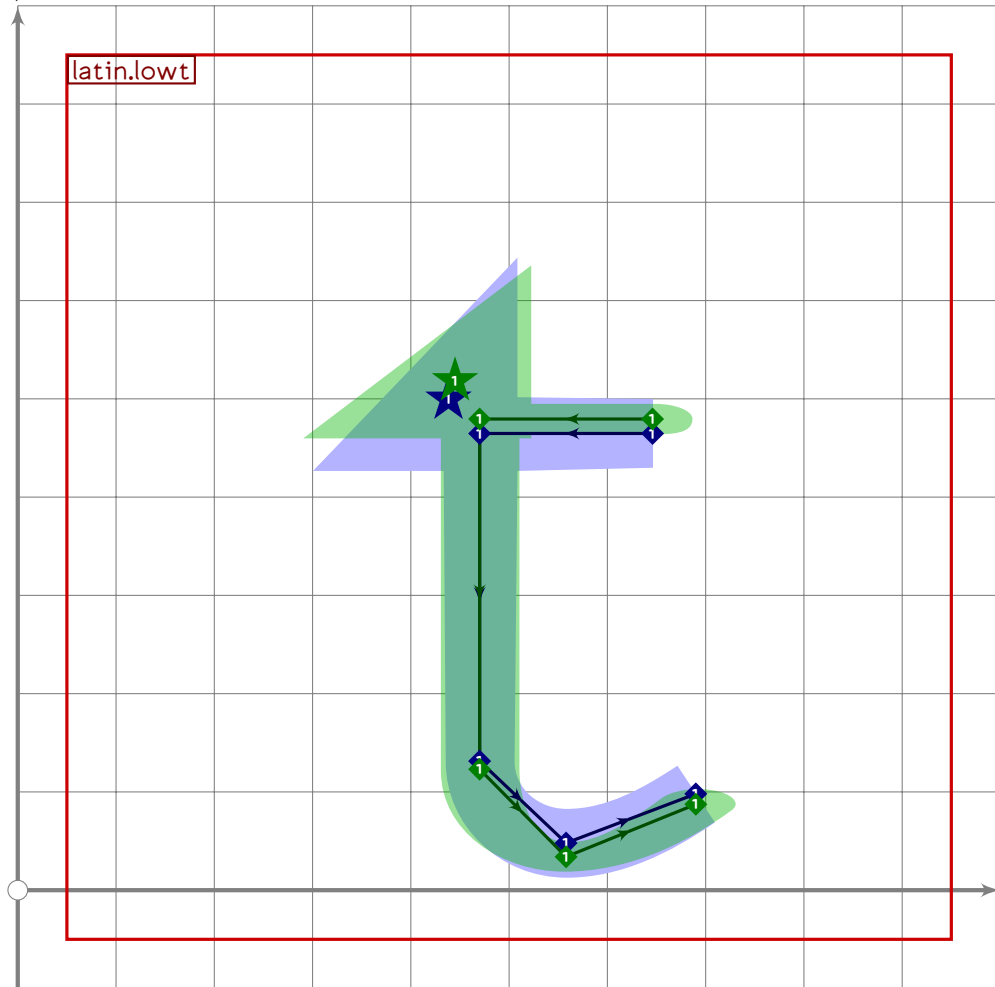
1357
1358 vardef latin.lowlongs =
1359   push_pbox_toexpand("latin.lowlongs");
1360   (x2-x1)=290;
1361   x5=x6=490=0.52[x1,x2];
1362   x3-x5=2*(y4-y5);
1363   x4=0.38[x5,x3];
1364
1365   y1=y2=latin_wide_xheight_h;
1366   y5=0.52[y2,y4];
1367   y3=0.73[y2,y4];
1368   y4=latin_wide_high_r;
1369   y6=latin_wide_low_v;
1370
1371   push_stroke(z1-(x5,y1),(1.6,1.6)-(1.6,1.6));
1372
1373   push_stroke(z3{curl 0.6}..z4{left}..{dir 268}z5{down}-z6,
1374     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1375   replace_strokep(0)(subpath (0.23,3) of oldp);

```

```

1376 set_boserif(0,3,3);
1377 expand_pbox;
1378 enddef;

```



```

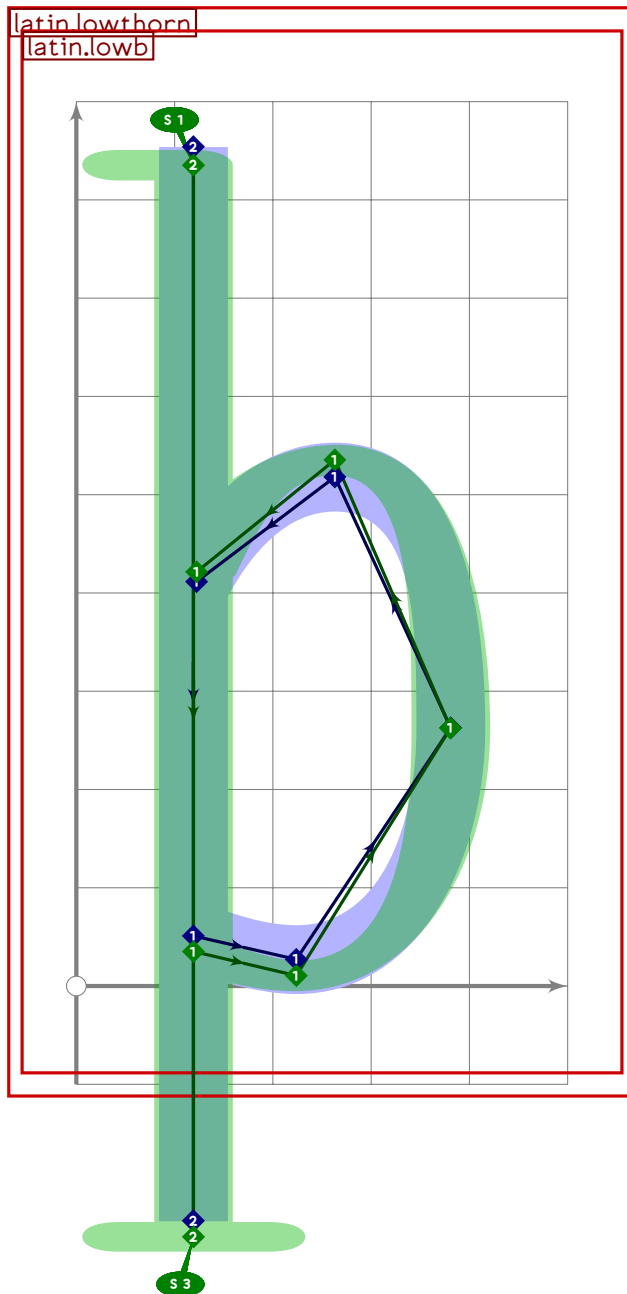
1379
1380 vardef latin.lowt =
1381   push_pbox_toexpand("latin.lowt");
1382   x2=x3=x10=470;
1383   x1=0.2[x5,x2];
1384   x4=0.6[x5,x2];
1385   x5-x2=220;
1386
1387   y1=y2=y6=latin_wide_xheight_h;
1388   y3=0.2[y4,y1];
1389   y4=latin_wide_low_r;
1390   y5=0.12[y4,y1];
1391   y10=vmetric(0.83);
1392
1393   if is_proportional:
1394     z10-z6=whatever*dir 58;
1395   else:
1396     z10-z6=whatever*dir 47;

```

```

1397 fi;
1398
1399 if tsu_pbrush_size<30:
1400     push_stroke(z1-z6-z10-z3{down}..z4{right}..{curl 0.2}z5,
1401         (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1402     set_botip(0,1,1);
1403     set_botip(0,2,1);
1404 else:
1405     push_stroke(z1-z2-z3{down}..z4{right}..{curl 0.2}z5,
1406         (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1407     set_botip(0,1,0);
1408 fi;
1409
1410 push_stroke(z6-z1,(0,0)-(0,0));
1411
1412 x7=x8=x2;
1413 x9=x6;
1414
1415 y7=y9=y2;
1416
1417 if is_proportional:
1418     z8-z9=whatever*dir 58;
1419 else:
1420     z8-z9=whatever*dir 47;
1421 fi;
1422
1423 if tsu_pbrush_size>=30:
1424     begingroup
1425         save t; transform t;
1426         t:=tsu_rescale_xform;
1427         push_lcblob(((z7 transformed t)+(mbrush_width,-mbrush_height))-
1428             ((z8 transformed t)+(mbrush_width,mbrush_height))-
1429             ((z9 transformed t)+(-mbrush_width,-mbrush_height))-cycle);
1430         replace_lcblob(0)(oldblob transformed inverse t);
1431     endgroup;
1432 fi;
1433 expand_pbox;
1434 enddef;

```



```

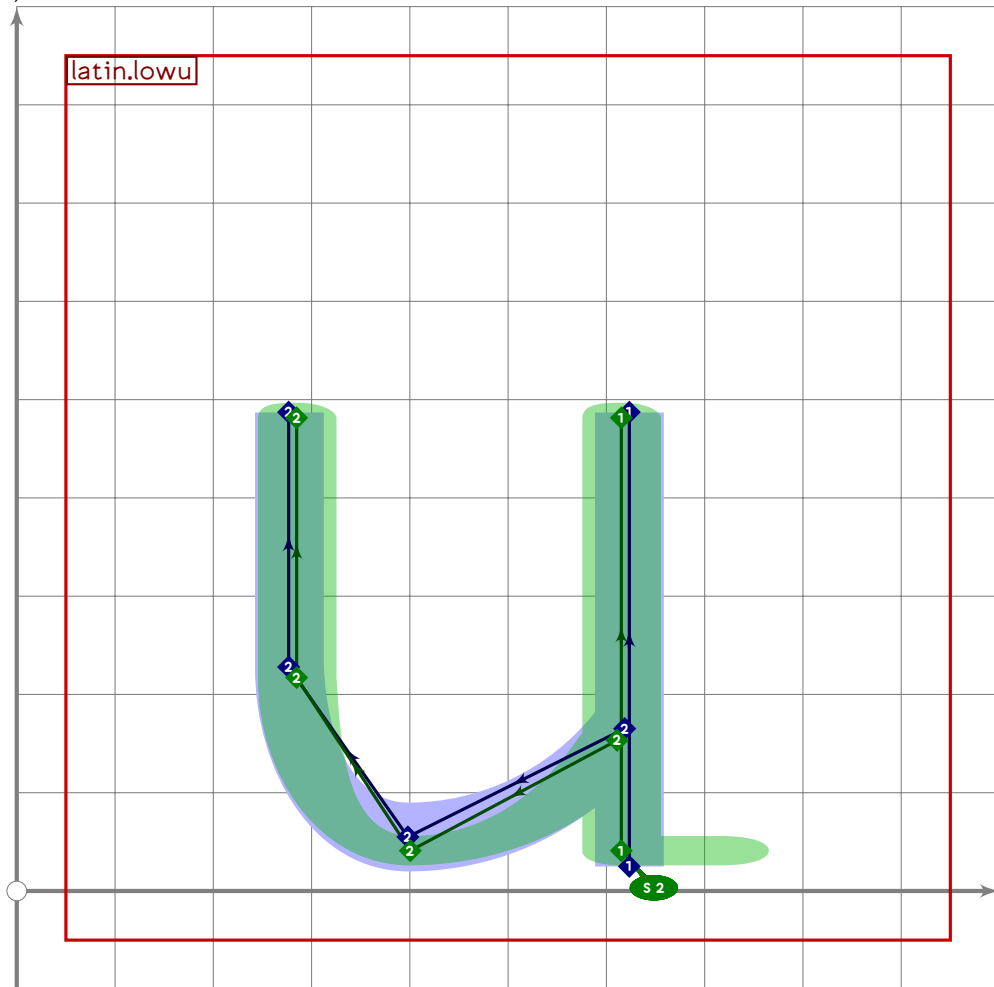
1435
1436 vardef latin.lowthorn =
1437   push_pbox_toexpand("latin.lowthorn");
1438   latin.lowb;
1439   set_botip(0,1,whatever);
1440   set_boserif(0,0,whatever);
1441   push_stroke((point 0 of get_strokep(0))-
1442     (xpart point 0 of get_strokep(0),latin_wide_desc_v,
1443     (1.6,1.6)-(1.6,1.6)));
1444   set_boserif(0,0,1);
1445   set_boserif(0,1,3);
1446   replace_strokep(-1)(subpath (1,infinity) of oldp);
1447   replace_strokeq(-1)(subpath (1,infinity) of oldq);

```

```

1448 expand_pbox;
1449 enddef;

```



```

1450
1451 vardef latin.lowu =
1452   push_pbox_toexpand("latin.lowu");
1453   (x1+x5)/2=450;
1454   (x1-x5)=(y2-y1)*0.75;
1455   x2=x1=x3;
1456   x4=0.65[x3,x5];
1457   x6=x5;
1458
1459   y1=latin_wide_low_v;
1460   y2=y6=latin_wide_xheight_v;
1461   y3=0.73[y2,y4];
1462   y4=latin_wide_low_h;
1463   y5=0.60[y2,y4];
1464
1465   push_stroke(z1-z2,(1.6,1.6)-(1.6,1.6));
1466   set_boserif(0,0,2);
1467
1468   push_stroke(z3..z4{left}..z5{dir 93}-z6,

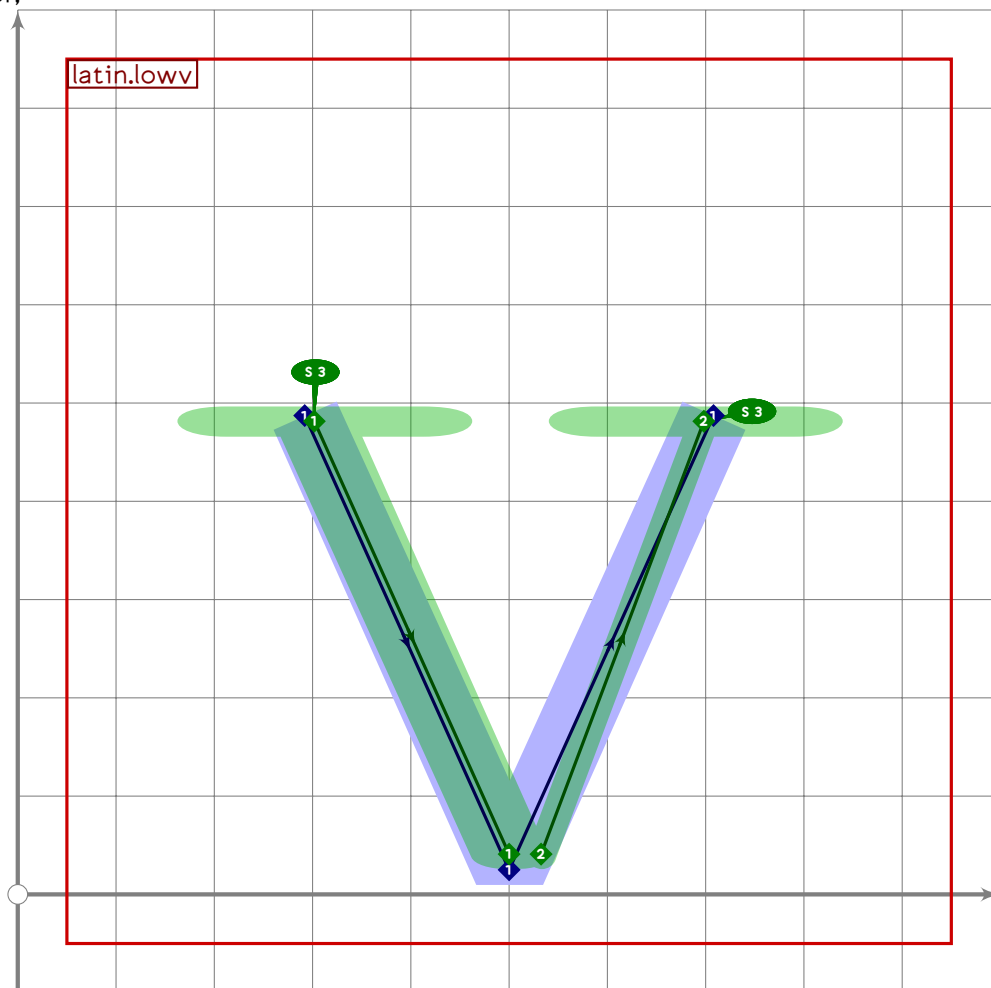
```



```

1469 (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1470 replace_stroke(0)(subpath (0,0,3) of oldp);
1471 expand_pbox;
1472 enddef;

```



```

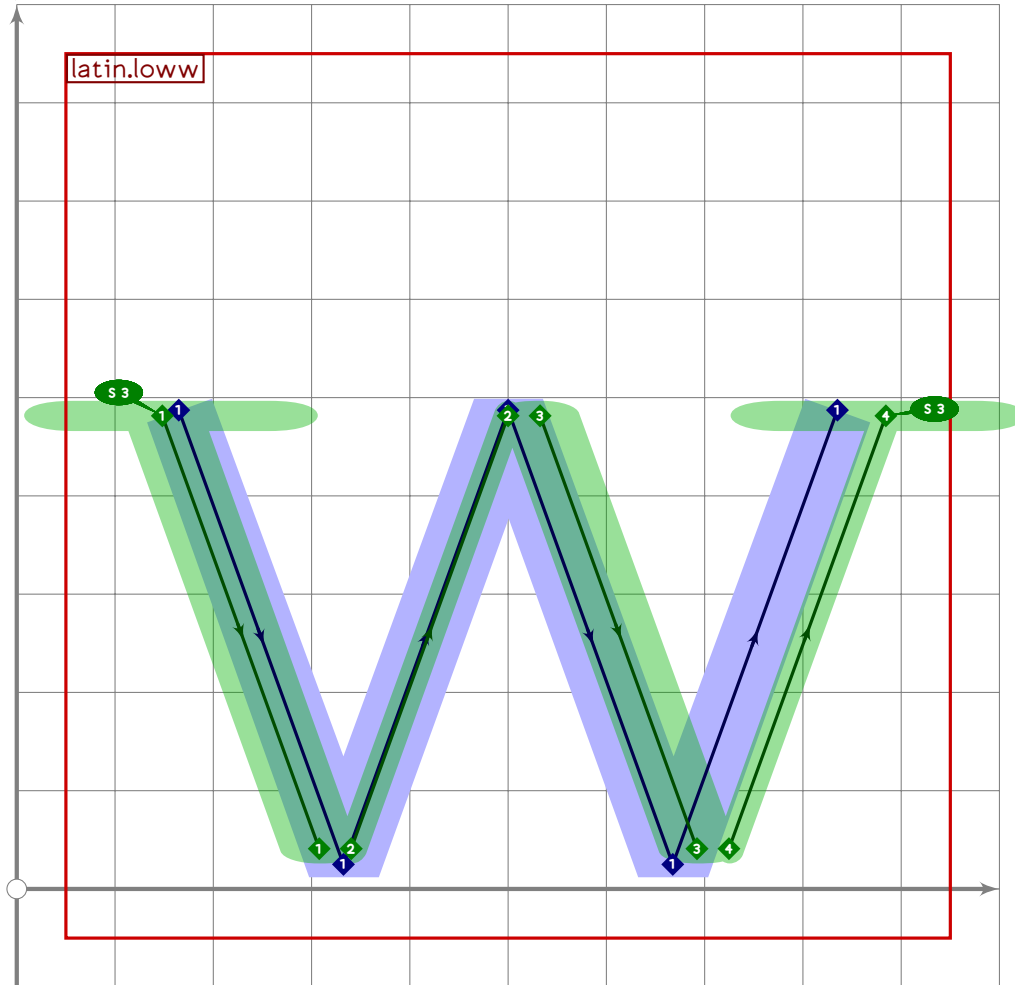
1473
1474 vardef latin.lowv =
1475   push_pbox_toexpand("latin.lowv");
1476   (x1+x3)/2=x2=500;
1477
1478   y1=y3=latin_wide_xheight_v;
1479   y2=latin_wide_low_v;
1480
1481   (x3-x1)=(y1-y2)*0.9;
1482
1483   if do_alteration:
1484     push_stroke(z1-z2,(1.6,1.6)-(1.6,1.6));
1485     set_boserif(0,0,3);
1486
1487     push_stroke((z2+alternate_adjust*right)-z3,(1.6,1.6)-(1.6,1.6));
1488     set_boserif(0,1,3);
1489     set_boalterate(0);

```

```

1490 else:
1491     push_stroke(z1-z2-z3,(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1492     set_botip(0,1,0);
1493     set_boserif(0,0,1);
1494 fi;
1495 expand_pbox;
1496 enddef;

```



```

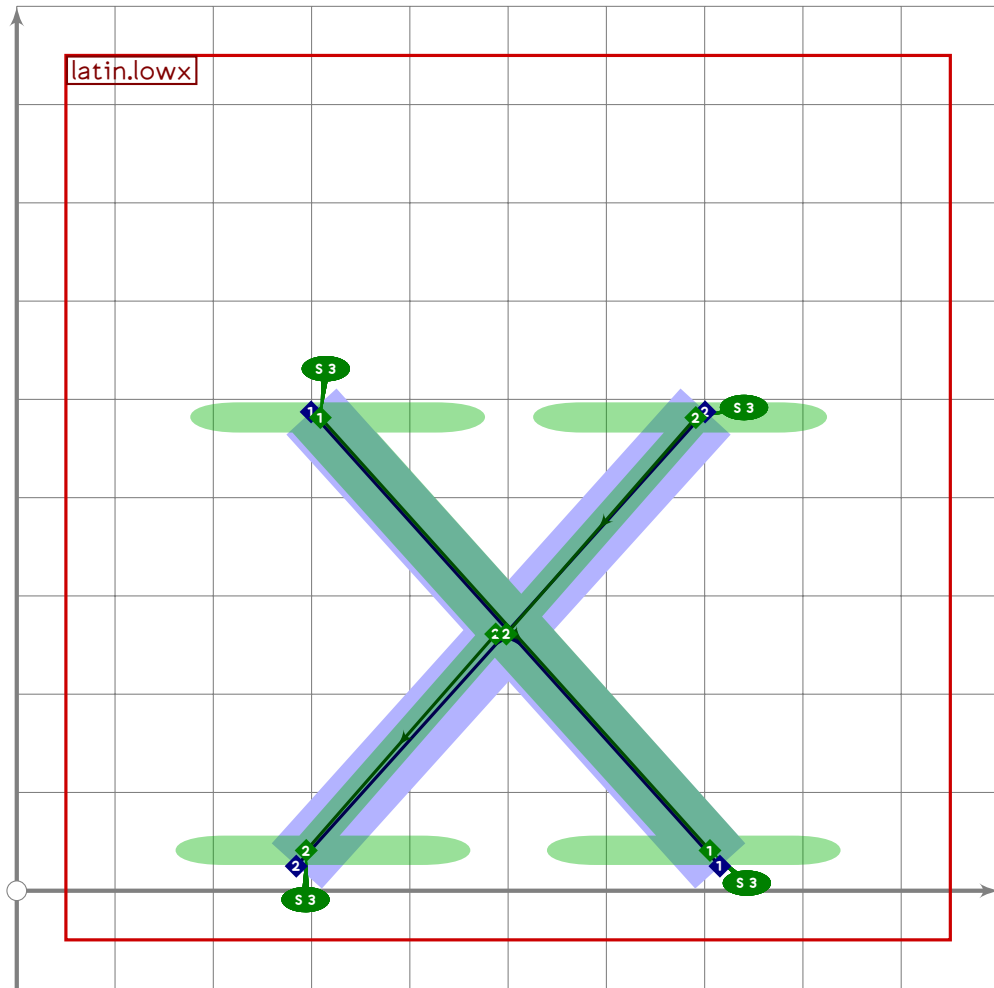
1497
1498 vardef latin.loww =
1499     push_pbox_toexpand("latin.loww");
1500     (x1+x5)/2=(x2+x4)/2=x3=500;
1501     (x3-x2)=(x2-x1);
1502
1503     y1=y3=y5=latin_wide_xheight_v;
1504     y2=y4=latin_wide_low_v;
1505
1506     (x5-x1)=(y1-y2)*1.45;
1507
1508     if do_alteration:
1509         push_stroke((z1-z2) shifted (alternate_adjust*left),
1510             (1.6,1.6)-(1.6,1.6));

```

```

1511     set_boserif(0,0,3);
1512
1513     push_stroke(z2-z3,
1514         (1.6,1.6)-(1.6,1.6));
1515     set_boalternate(0);
1516
1517     push_stroke((z3-z4) shifted (alternate_adjust*right),
1518         (1.6,1.6)-(1.6,1.6));
1519
1520     push_stroke((z4-z5) shifted (alternate_adjust*right*2),
1521         (1.6,1.6)-(1.6,1.6));
1522     set_boserif(0,1,3);
1523     set_boalternate(0);
1524 else:
1525     push_stroke(z1-z2-z3-z4-z5,
1526         (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1527     set_botip(0,1,0);
1528     set_botip(0,2,0);
1529     set_botip(0,3,0);
1530     set_boserif(0,0,1);
1531 fi;
1532 expand_pbox;
1533 endif;

```



```

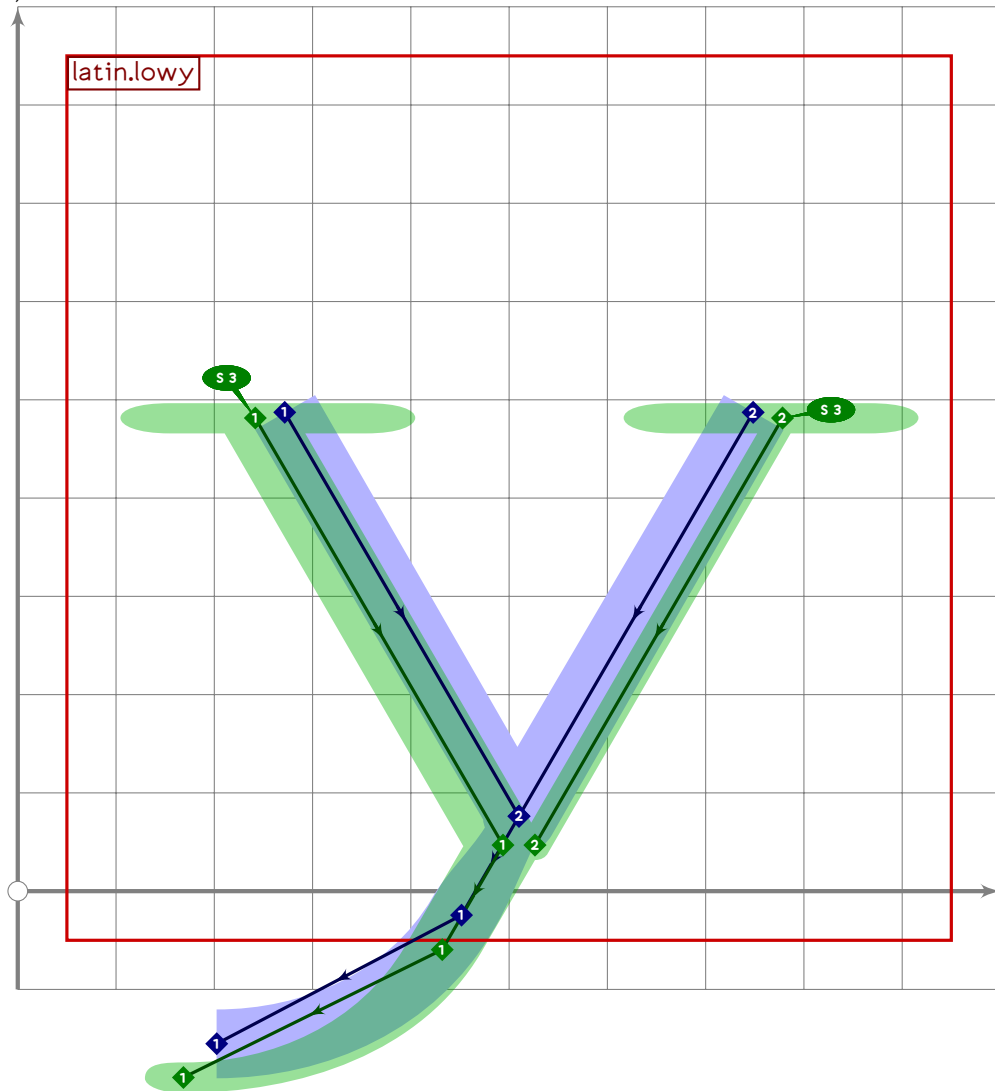
1534
1535 vardef latin.lowx =
1536   push_pbox_toexpand("latin.lowx");
1537   (x1+x3)/2=500;
1538   (x2+x4)/2=500;
1539   (x2+x3-x1-x4)=((y1-y2)*0.9)*2;
1540   (x3-x1)=(x2-x4)*0.93;
1541
1542   y1=y3=latin_wide_xheight_v;
1543   y2=y4=latin_wide_low_v;
1544
1545   push_stroke(z1-z2,(1.6,1.6)-(1.6,1.6));
1546   set_boserif(0,0,3);
1547   set_boserif(0,1,3);
1548
1549   if do_alteration:
1550     push_stroke(z3-(0.5[z3,z4]+alternate_adjust*right/6)
1551       -(0.5[z3,z4]+alternate_adjust*left/6)-z4,
1552       (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1553     set_boserif(0,0,3);
1554     set_boserif(0,3,3);

```

```

1555 else:
1556     push_stroke(z3-z4,(1.6,1.6)-(1.6,1.6));
1557     set_boserif(0,0,3);
1558     set_boserif(0,1,3);
1559     fi;
1560     set_boalternate(0);
1561     expand_pbox;
1562 enddef;

```



```

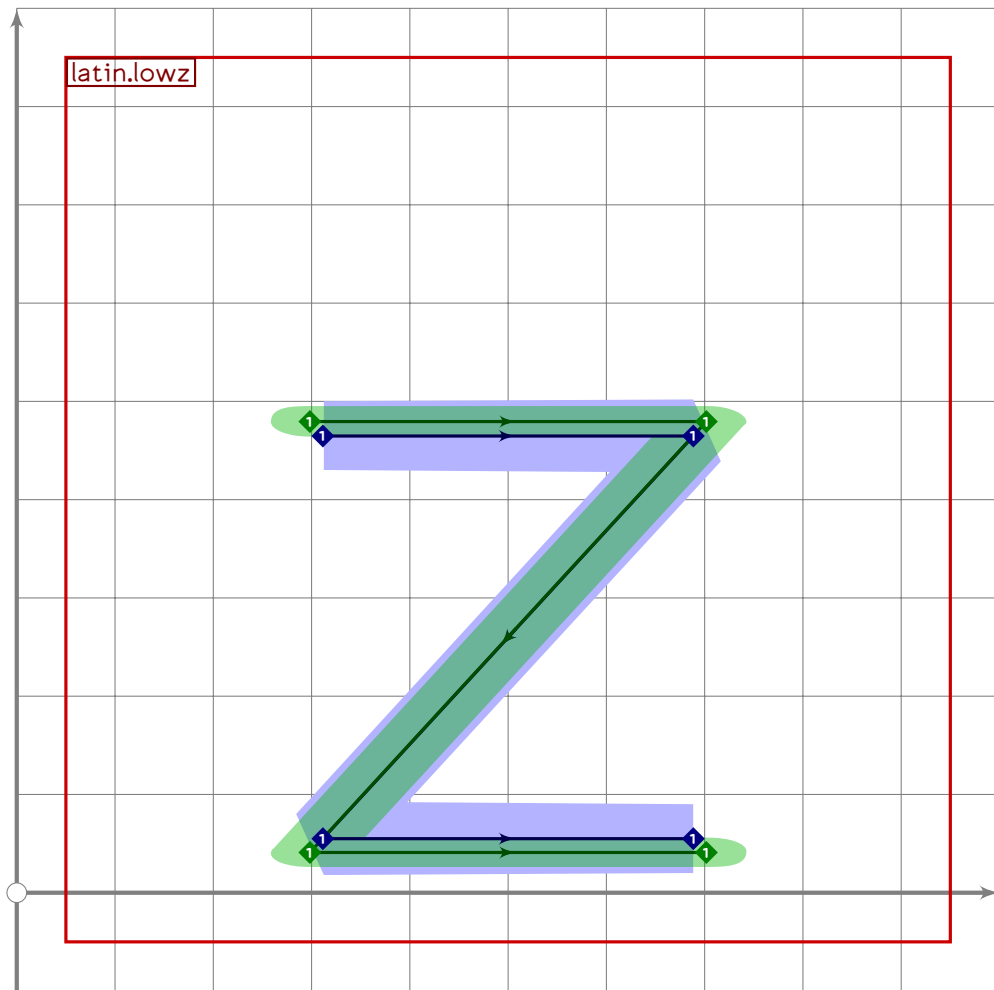
1563
1564 vardef latin.lowy =
1565     push_pbox_toexpand("latin.lowy");
1566     (x1+x3)/2=(x2+x4)/2=510;
1567     (x2+x3-x1-x4)=((y1-y2)*0.58)*2;
1568     (x3-x1)=(x2-x4)*0.93;
1569     x5=x4-0.1*(x2-x4);
1570
1571     y1=y3=latin_wide_xheight_v;
1572     y2=y4;

```

```

1573 y5=0.5[y4,latin_wide_low_h]=latin_wide_desc_h;
1574
1575 push_stroke(z1-z2,(1.6,1.6)-(1.6,1.6));
1576
1577 push_stroke(z3..tension 10..(0.6[z3,z4])..tension 0.8 and 3..{left}z5,
1578 (1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1579
1580 numeric xchgtime;
1581 xchgtime:=ypart (get_strokep(-1) intersectiontimes get_strokep(0));
1582
1583 replace_strokep(-1)(z1-subpath (xchgtime,infinity) of get_strokep(0));
1584 replace_strokeq(-1)
1585 ((1.6,1.6)-subpath (xchgtime,infinity) of get_strokeq(0));
1586
1587 replace_strokep(0)(subpath (0,xchgtime) of oldp);
1588 replace_strokeq(0)(subpath (0,xchgtime) of oldq);
1589
1590 set_boserif(-1,0,3);
1591 set_boserif(0,0,3);
1592 set_botip(0,1,1);
1593 set_boalternate(0);
1594
1595 if do_alteration:
1596   replace_strokep(-1)(oldp shifted (alternate_adjust*left/2));
1597   replace_strokep(0)(oldp shifted (alternate_adjust*right/2));
1598 fi;
1599 expand_pbox;
1600 enddef;

```



```

1601
1602 vardef latin.lowz =
1603   push_pbox_toexpand("latin.lowz");
1604   y1=y2=latin_wide_xheight_h;
1605   y3=y4=latin_wide_low_h;
1606
1607   x1=x3;
1608   x2=x4;
1609   (x1+x2)/2=500;
1610   (x2-x1)=(y1-y3)*0.92;
1611
1612   push_stroke(z1-z2-z3-z4,(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1613   set_botip(0,1,0);
1614   set_botip(0,2,0);
1615   expand_pbox;
1616 enddef;

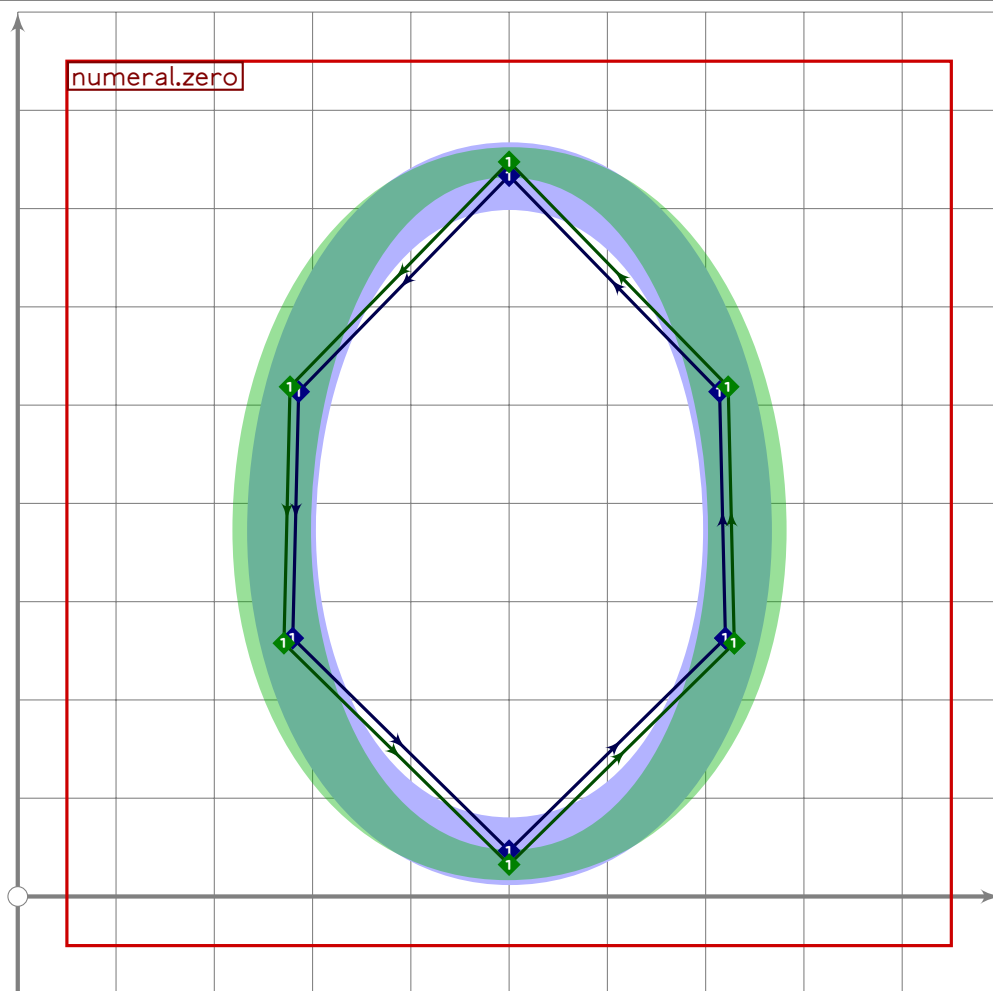
```

# numerals.mp

```

1 %
2 % Hindu/Arabic numerals for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(numerals);
32
33

```

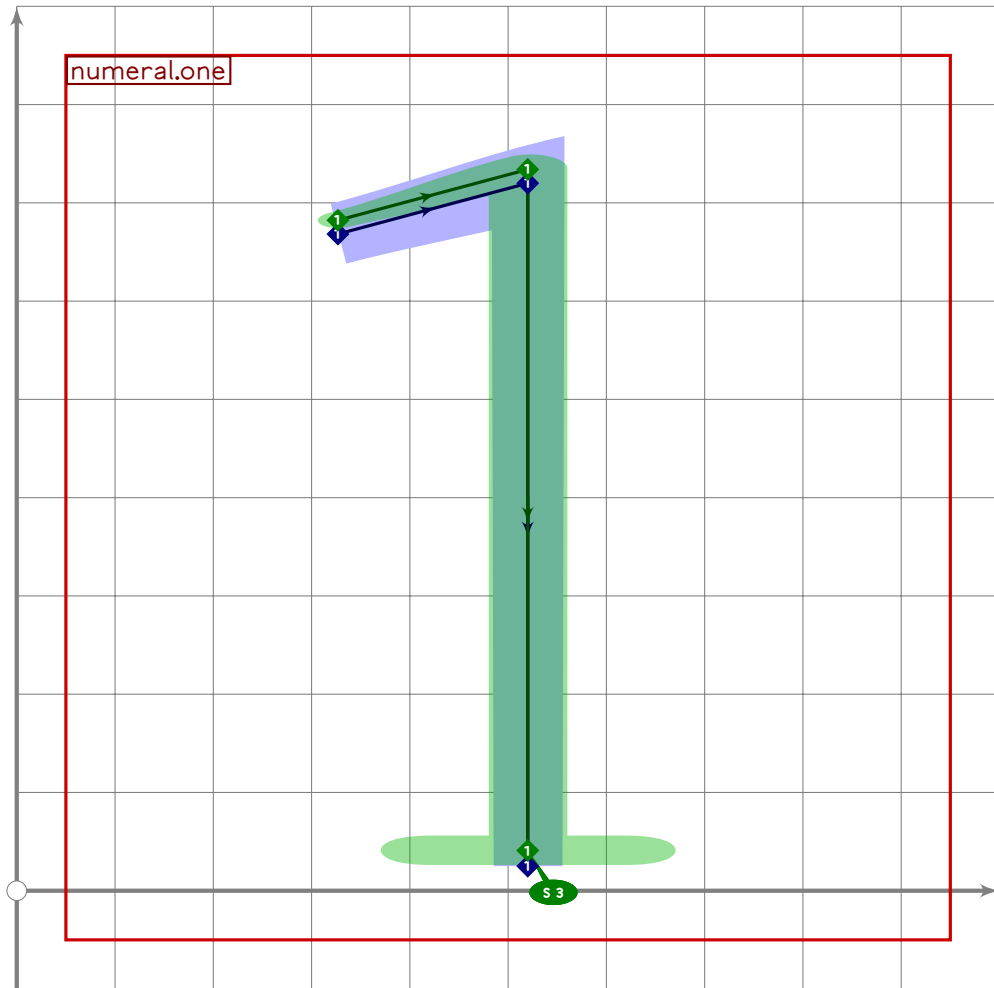


```

34
35 vardef numeral.zero =
36   push_pbox_toexpand("numeral.zero");
37   push_stroke(((0.74*dir 330)..(0.72*dir 30)..(up)..
38     (0.72*dir 150)..(0.74*dir 210)..(down)..cycle)
39     scaled ((latin_wide_high_r-latin_wide_low_r)/2)
40     shifted centre_pt,
41     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-cycle);
42   expand_pbox;
43 enddef;

```

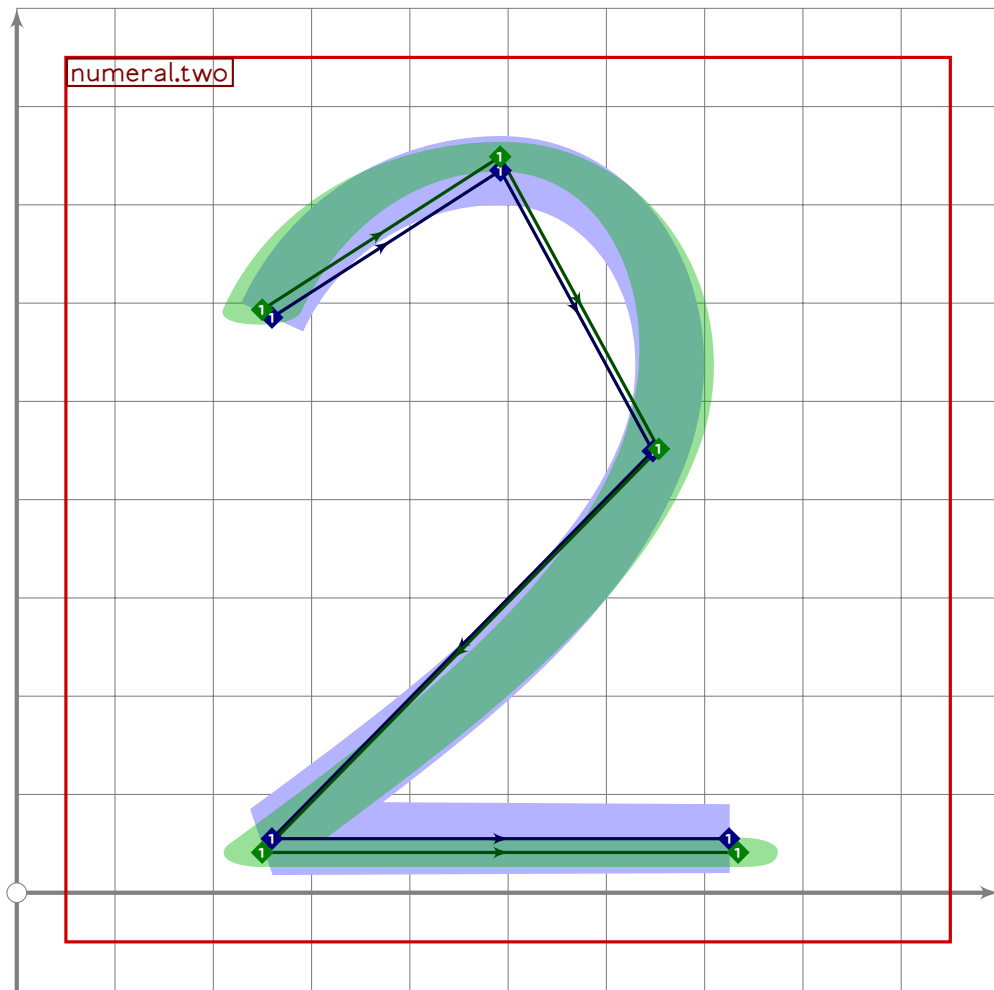




```

44
45 vardef numeral.one =
46   push_pbox_toexpand("numeral.one");
47   x3=x2=520;
48
49   y2=latin_wide_high_h;
50   y3=latin_wide_low_v;
51
52   z1=z2+200*dir 195;
53
54   push_stroke(z1-z2-z3,(1,1,1)-(1.6,1.6)-(1.6,1.6));
55   set_botip(0,1);
56   set_boserif(0,2,3);
57   expand_pbox;
58 enddef;

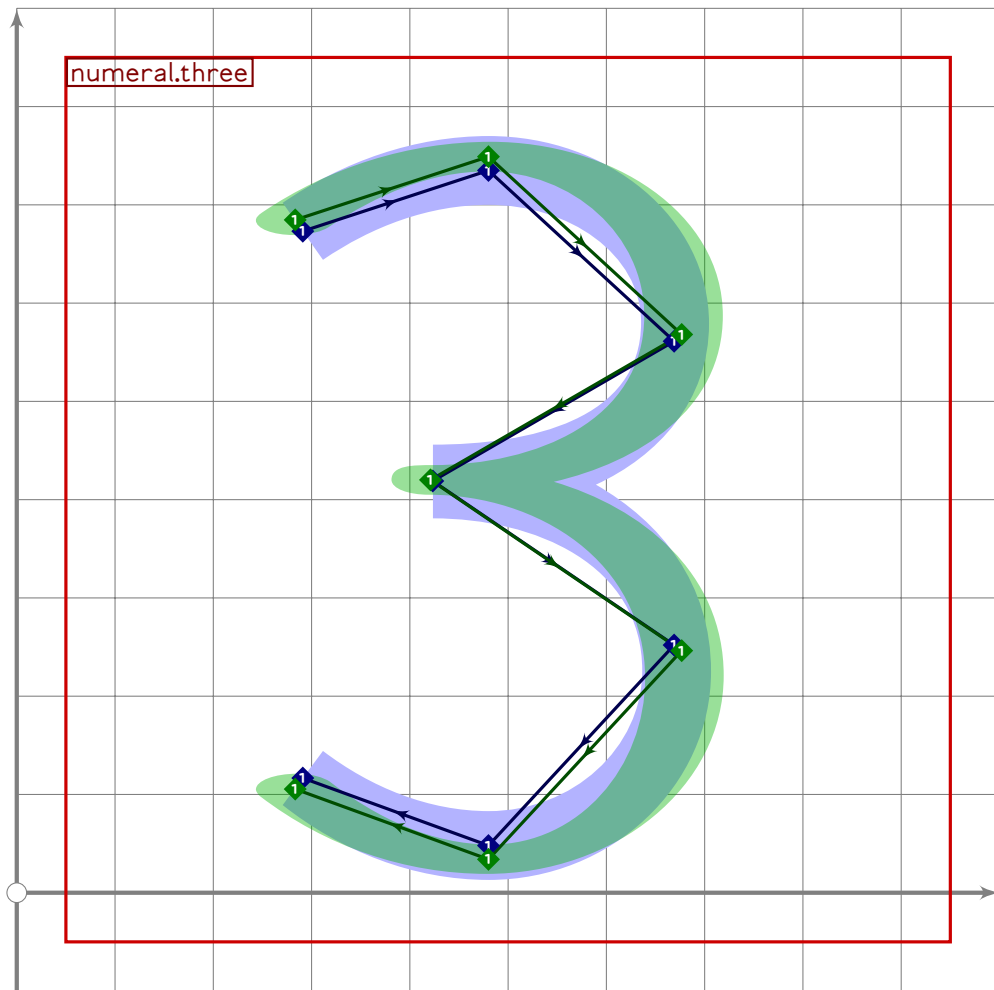
```



```

59
60 vardef numeral.two =
61   push_pbox_toexpand("numeral.two");
62   x1=x4;
63   0.62[x1,x3]=500;
64   x2=0.6[x1,x3];
65   x5=1.2[x1,x3];
66   x3-x1=0.57*(y2-y4);
67
68   y1=0.78[y4,y2];
69   y2=latin_wide_high_r;
70   y3=0.58[y4,y2];
71   y4=y5=latin_wide_low_h;
72
73   push_stroke(z1..z2{right}..z3..tension 1.2..{curl 0}z4-z5,
74     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
75   set_botip(0,3,0);
76   expand_pbox;
77 enddef;

```



```

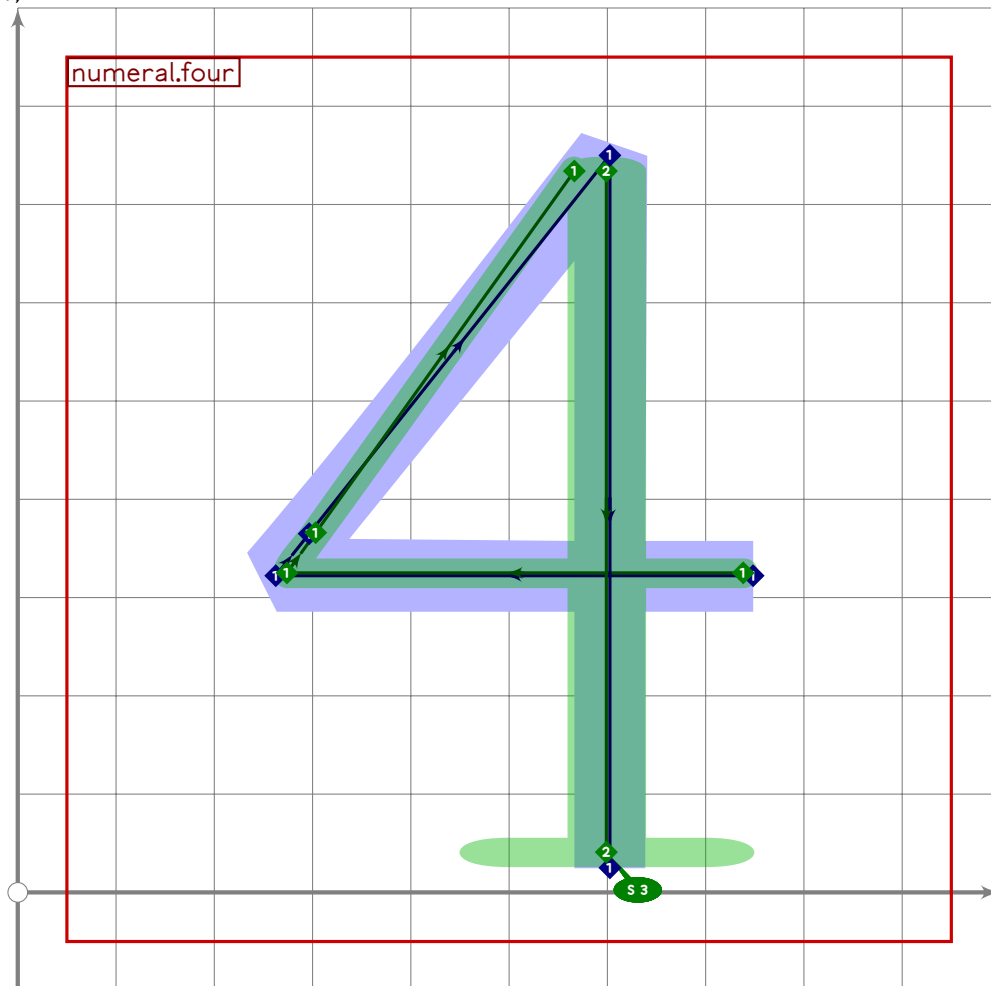
78
79 vardef numeral.three =
80   push_pbox_toexpand("numeral.three");
81   x1=x7;
82   x2=x6=0.5[x1,x3];
83   x3=x5;
84   x4=0.35[x1,x3];
85   (x1+x3)/2=480;
86   (x3-x1)=0.55*(y2-y6);
87
88   y1=0.91[y6,y2];
89   y2=latin_wide_high_r;
90   y3=0.45[y4,y2];
91   y4=0.54[y6,y2];
92   y5=0.45[y4,y6];
93   y6=latin_wide_low_r;
94   y7=0.1[y6,y2];
95
96   push_stroke(z1{curl 0.7}..z2{right}..z3..{left}z4{right}..
97     z5..z6{left}..{curl 0.7}z7,
98     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-

```

```

99     (1.6,1.6)-(1.6,1.6));
100  set_botip(0,3,0);
101  expand_pbox;
102 enddef;

```



```

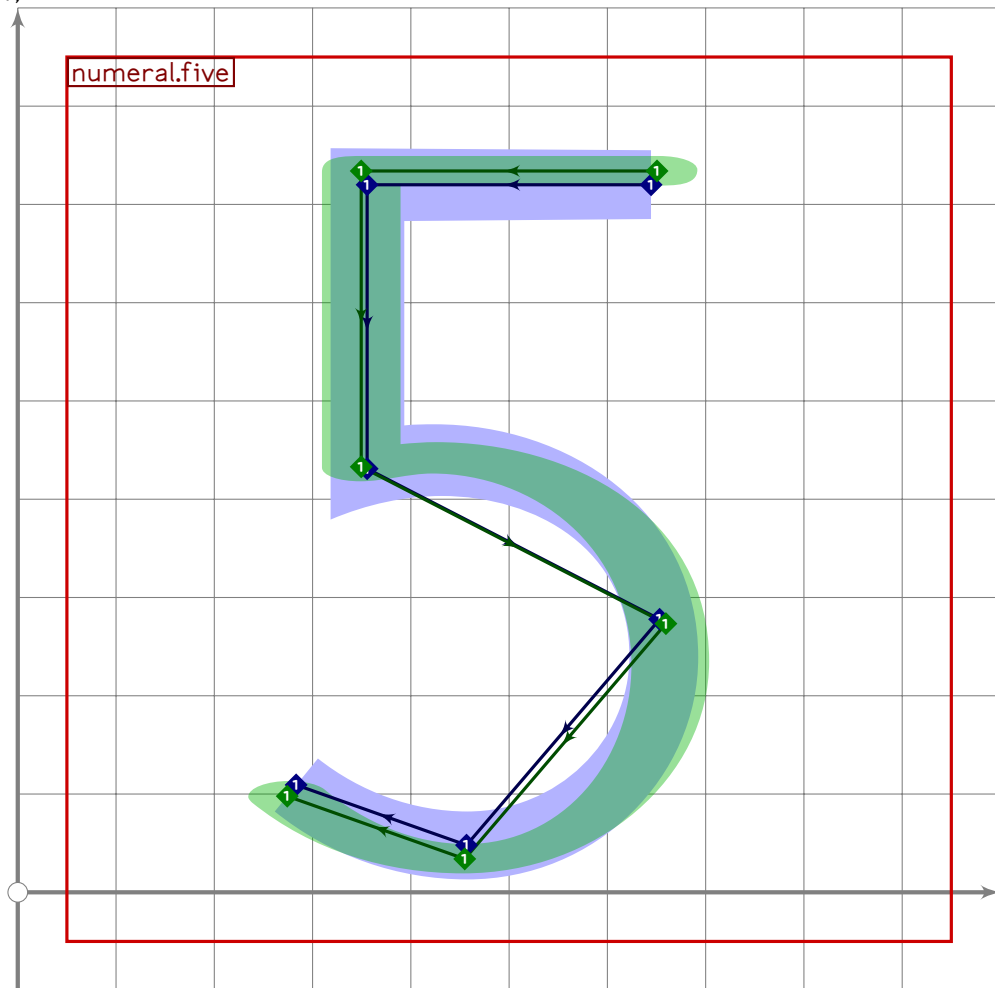
103
104 vardef numeral.four =
105  push_pbox_toexpand("numeral.four");
106  x3=x4=0.7[x2,x1];
107  0.53[x2,x1]=520;
108  (x1-x2)=0.67(y3-y4);
109
110  y1=y2=0.41[y4,y3];
111  y3=latin_wide_high_v;
112  y4=latin_wide_low_v;
113
114  if do_alteration:
115    push_stroke(z1-z2-(0.1[z2,(z3+alternate_adjust*left)])-
116      (z3+alternate_adjust*left),
117      (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
118    set_botip(0,1,0);
119    set_botip(0,2,0);

```

```

120 set_boalternate(0);
121
122 push_stroke(z3-z4,(1.6,1.6)-(1.6,1.6));
123 set_botip(0,0,0);
124 set_boserif(0,1,3);
125 else:
126 push_stroke(z1-z2-(0.1[z2,z3])-z3-z4,
127 (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
128 set_botip(0,1,0);
129 set_botip(0,3,0);
130 set_boserif(0,4,3);
131 fi;
132 expand_pbox;
133 enddef;

```



```

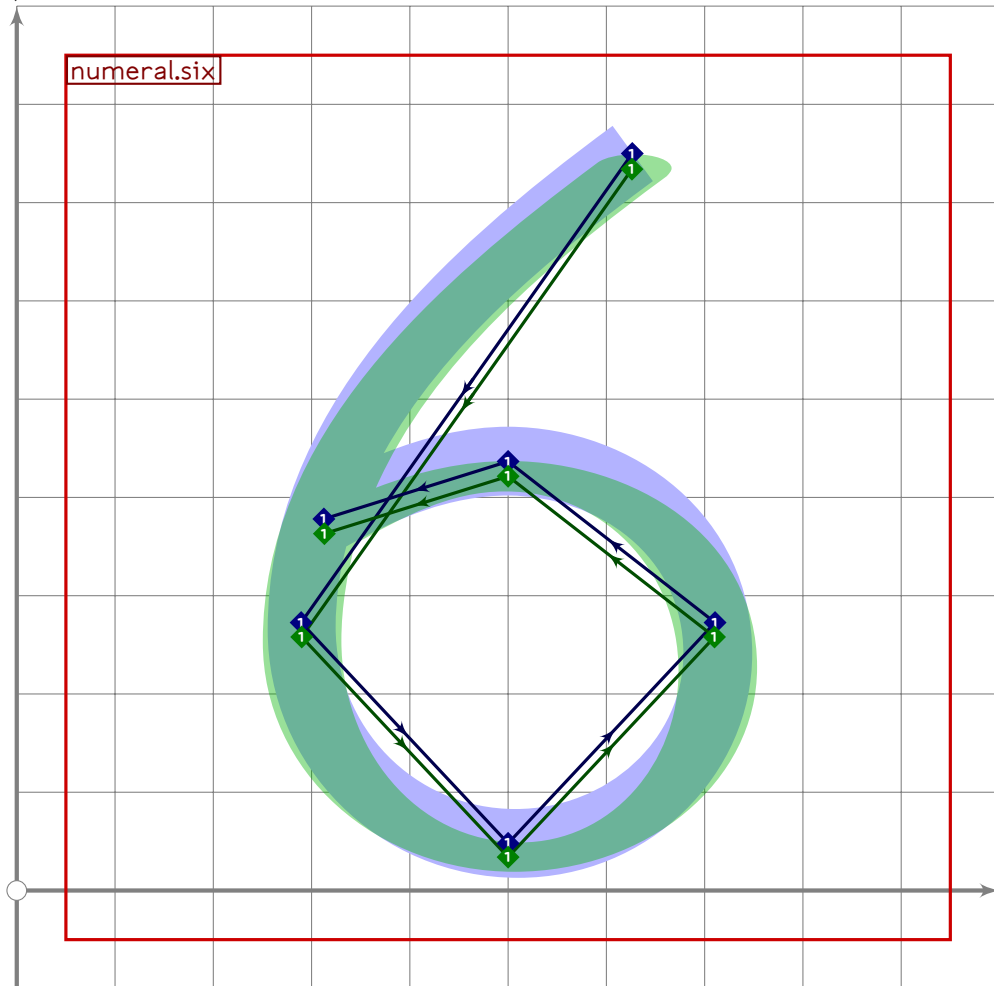
134
135 vardef numeral.five =
136 push_pbox_toexpand("numeral.five");
137 (x1+x2)/2=500;
138 (x1-x2)=(y2-y3);
139 x2=x3;
140 x4=1.03[x2,x1];

```

```

141 x5=0.35[x2,x1];
142 x6=(-0.25)[x2,x1];
143
144 y1=y2=latin_wide_high_h;
145 y3=0.57[y5,y1];
146 y4=0.6[y5,y3];
147 y5=latin_wide_low_r;
148 y6=0.16[y5,y3];
149
150 push_stroke(z1-z2-z3{curl 0.5}..z4..z5{left}..z6,
151   (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
152 set_botip(0,1);
153 set_botip(0,2,1);
154 expand_pbox;
155 enddef;

```



```

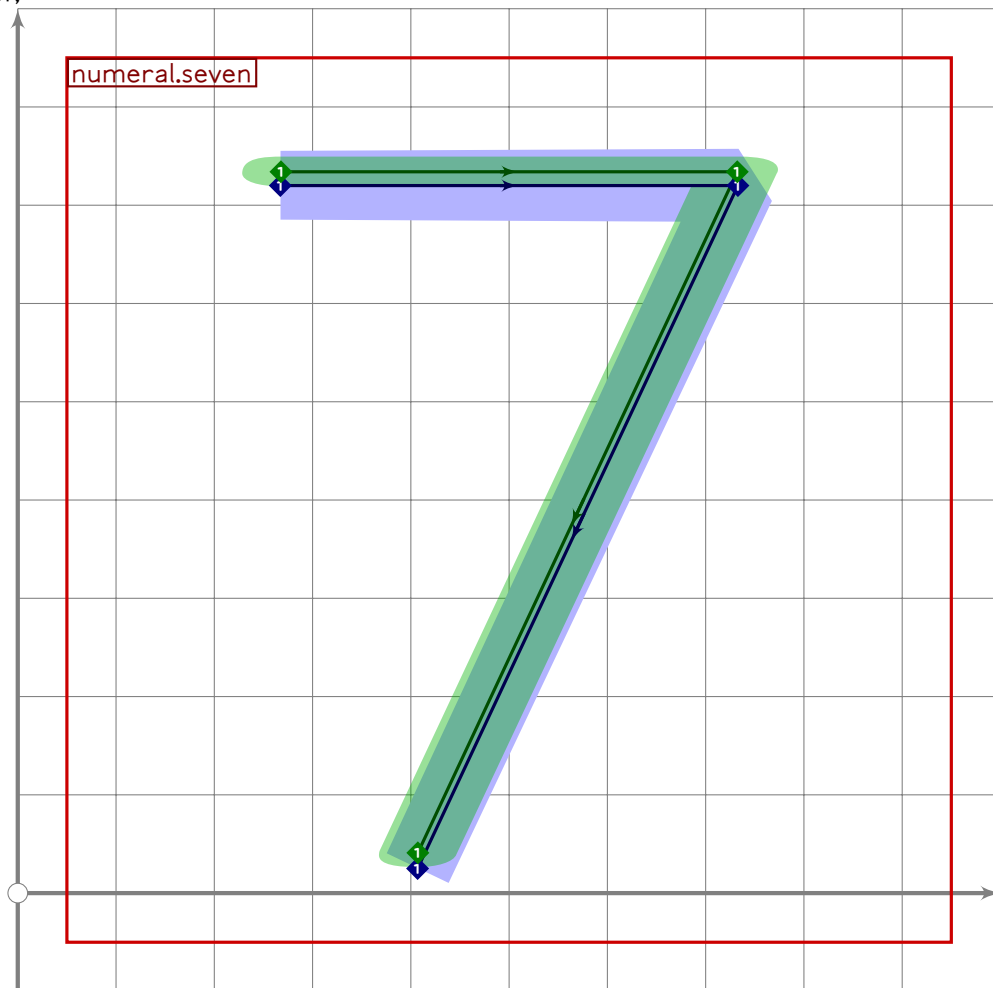
156
157 vardef numeral.six =
158   push_pbox_toexpand("numeral.six");
159   x1=0.8[x2,x4];
160   (x2+x4)/2=x3=500;
161   (x4-x2)=0.6(y1-y3);

```

```

162 x5=x3;
163
164 y1=latin_wide_high_v;
165 y2=y4=0.32[y3,y1];
166 y3=latin_wide_low_r;
167 y5-y4=0.73*(y4-y3);
168
169 push_stroke(z1{curl 0.2}..tension 1.2..z2..z3..z4{dir 100},
170 (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
171 replace_strokep(0)(z1{curl 0.2}..tension 1.2..z2..z3..z4{dir 100}..
172 z5.{curl 0.2}(point 0.8 of oldp));
173 expand_pbox;
174 enddef;

```



```

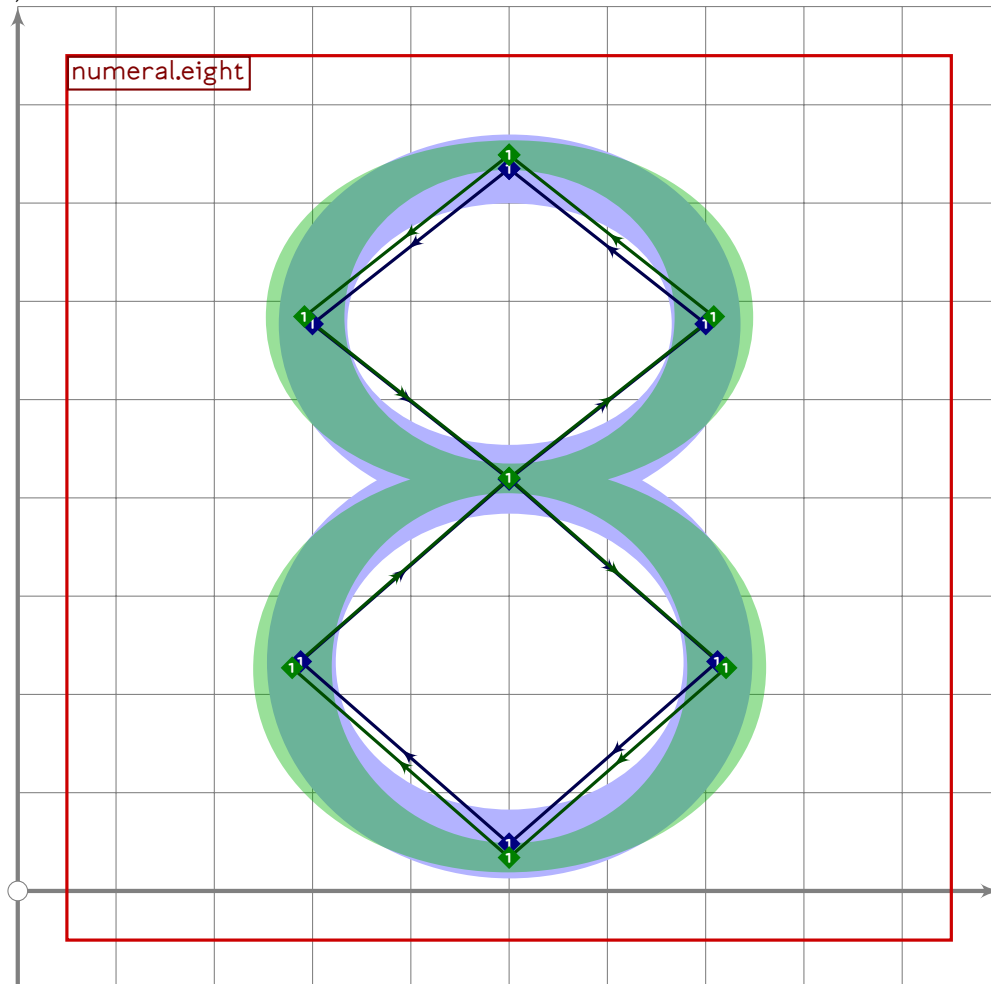
175
176 vardef numeral.seven =
177   push_pbox_toexpand("numeral.seven");
178   (x1+x2)/2=500;
179   x3=0.3[x1,x2];
180   (x2-x1)=0.67*(y1-y3);
181
182   y1=y2=latin_wide_high_h;

```

```

183 y3=latin_wide_low_v;
184
185 push_stroke(z1-z2-z3,
186   (1.6,1.6)-(1.6,1.6)-(1.6,1.6));
187 set_botip(0,1,0);
188 expand_pbox;
189 enddef;

```



```

190
191 vardef numeral.eight =
192   push_pbox_toexpand("numeral.eight");
193   x1=x3=x5=x7=(x2+x8)/2=(x4+x6)/2=500;
194   (x4-x6)=1.06*(x8-x2);
195   (x4+x8-x6-x2)/2=0.6*(y1-y5);
196
197   y1=latin_wide_high_r;
198   y2=y8=0.5[y3,y1];
199   y3=y7=0.54[y5,y1];
200   y4=y6=0.5[y5,y3];
201   y5=latin_wide_low_r;
202
203   push_stroke(z1..z2..z3{right}..z4..z5..z6..z7{right}..z8..cycle,

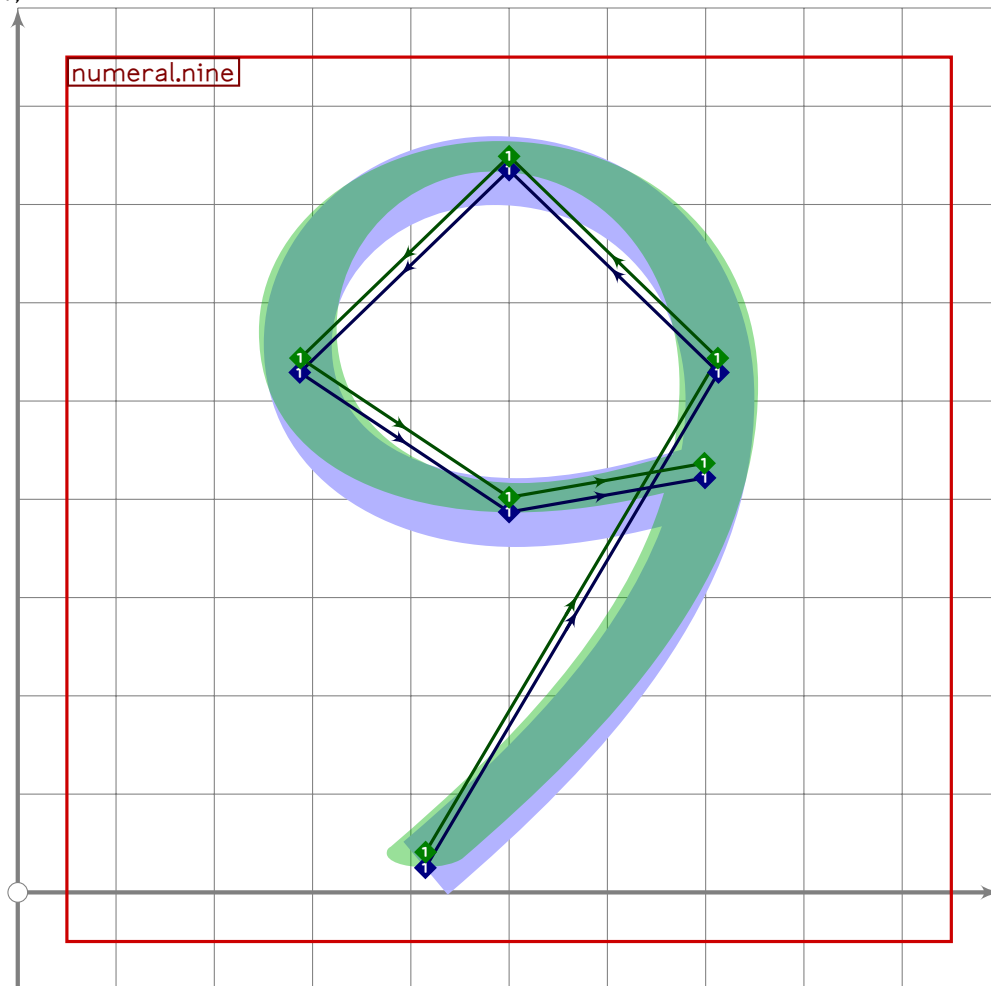
```



```

204 (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-
205 (1.6,1.6)-(1.6,1.6)-cycle);
206 expand_pbox;
207 enddef;

```



```

208
209 vardef numeral.nine =
210   push_pbox_toexpand("numeral.nine");
211   x1=0.3[x4,x2];
212   (x2+x4)/2=x3=500;
213   (x2-x4)=0.6(y3-y1);
214   x5=x3;
215
216   y1=latin_wide_low_v;
217   y2=y4=0.29[y3,y1];
218   y3=latin_wide_high_r;
219   y5-y4=0.69*(y4-y3);
220
221   push_stroke(z1{curl 0.2}..tension 1.2..z2..z3..z4{dir 280},
222     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
223   replace_strokep(0)(z1{curl 0.2}..tension 1.2..z2..z3..z4{dir 280}..
224     z5..{curl 0.2}(point 0.8 of oldp));

```

```
225 expand_pbox;  
226 endif;
```

# obstack.mp

```
1 %
2 % Object stack for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
```

```
30
31 inclusion_lock(obstack);
32
33
34
```

---

## Object Stack Data

```
35 % OBJECT STACK DATA
36
37 % object types:
38 % "anchor" - uses transform, numeric
39 % "lcblob" - uses path p
40 % "null" - uses nothing
41 % "pbox" - uses transform
42 % "stroke" - uses path p, path q, numeric array, bool array
43
44 vardef init_obstack =
45   numeric obstacktype[];
46   numeric obstackn[];
47   numeric obstackna[][];
48   numeric obstacknaa[][][];
49   boolean obstackb[];
50   boolean obstackba[][];
51   path obstackp[];
52   path obstackq[];
53   transform obstackt[];
54   string obstacks[];
55   numeric sp;
56   sp:=1;
57 enddef;
58
59 % numeric values, needed for syntax reasons
60
61 def boalternate = 1924 enddef;
62 def boserif = 1746 enddef;
63 def bosize = 1393 enddef;
64 def botip = 1322 enddef;
65 def botoexpand = 1972 enddef;
66
67 def otanchor = 1882 enddef;
68 def otlcblob = 1722 enddef;
```

```

69 def otnull = 1699 enddef;
70 def otpbox = 1007 enddef;
71 def otstroke = 1069 enddef;
72
73
74

```

---

## Object Stack Methods

```

75 % OBJECT STACK METHODS
76
77 vardef expand_pbox =
78   begingroup
79     save mysp,i;
80     numeric mysp;
81     for i=sp-1 downto 1:
82       if (obstacktype[i]=otpbox) and (known obstackba.botoexpand[i]):
83         if obstackba.botoexpand[i]:
84           mysp:=i;
85           fi;
86         fi;
87       exitif known mysp;
88     endfor;
89     if known mysp:
90       obstackba.botoexpand[mysp]:=false;
91 % message "expanding " & decimal mysp;
92       save x,y,myxf;
93       numeric x[],y[];
94       transform myxf;
95       z1=(70,830);
96       z2=(930,-30);
97       for i=mysp+1 upto sp-1:
98         if obstacktype[i]=otpbox:
99           x3:=xpart ((0,0.5) transformed obstackt[i]);
100          if x3<x1: x1:=x3; fi;
101          y3:=ypart ((0.5,1) transformed obstackt[i]);
102          if y3>y1: y1:=y3; fi;
103          x4:=xpart ((1,0.5) transformed obstackt[i]);
104          if x4>x2: x2:=x4; fi;
105          y4:=ypart ((0.5,0) transformed obstackt[i]);
106          if y4<y2: y2:=y4; fi;
107        fi;
108      endfor;
109      z0=(x1,y2);
110      (0,0) transformed myxf=z0+(-20,-20);
111      (0,1) transformed myxf=z1+(-20,20);
112      (1,0) transformed myxf=z2+(20,-20);
113      obstackt[mysp]:=myxf;

```

```

114     else:
115         errmsg "Can't find PBOX to expand";
116     fi;
117 endgroup;
118 endif;
119
120 vardef find_stroke(expr idx) =
121     (find_whatever(otstroke,idx))
122 endif;
123
124 vardef find_whatever(expr w,idx) =
125     begingroup
126         save i,j;
127         numeric i,j;
128         i:=sp-1;
129         j:=-idx;
130         forever:
131             exitif i<=0;
132             if obstacktype[i]=w:
133                 j:=j-1;
134                 fi;
135                 exitif j<0;
136                 i:=i-1;
137             endfor;
138         i
139     endgroup
140 endif;
141
142 vardef get_bosize(expr idx) =
143     obstackna.bosize[find_whatever(otstroke,idx)]
144 endif;
145
146 vardef get_anchor_with_default(expr atype,default_anchor) =
147     begingroup
148         save i,j;
149         numeric i,j;
150         i:=0;
151         forever:
152             j:=find_whatever(otanchor,i);
153             exitif j<=0;
154             exitif obstackn[j]=atype;
155             j:=j-1;
156         endfor;
157         if j<=0: default_anchor else: obstackt[j] fi
158     endgroup
159 endif;
160
161 vardef get_anchor(expr atype) =

```

```

162  get_anchor_with_default(atype,identity)
163  enddef;
164
165  vardef get_lcblob(expr idx) =
166    obstackp[find_whatever(otlcblob,idx)]
167  enddef;
168
169  vardef get_strokep(expr idx) =
170    obstackp[find_whatever(otstroke,idx)]
171  enddef;
172
173  vardef get_strokeq(expr idx) =
174    obstackq[find_whatever(otstroke,idx)]
175  enddef;
176
177  vardef pop_lcblob =
178    obstacktype[find_whatever(otlcblob,0)]:=otnull;
179  enddef;
180
181  vardef pop_stroke =
182    obstacktype[find_whatever(otstroke,0)]:=otnull;
183  enddef;
184
185  vardef push_anchor(expr atype,anchor) =
186    obstacktype[sp]:=otanchor;
187    obstackn[sp]:=atype;
188    if pair anchor:
189      obstackt[sp]:=identity shifted anchor;
190    else:
191      obstackt[sp]:=anchor;
192    fi;
193    sp:=sp+1;
194  enddef;
195
196  vardef push_lcblob(expr blob) =
197    obstacktype[sp]:=otlcblob;
198    obstackp[sp]:=blob;
199    sp:=sp+1;
200  enddef;
201
202  vardef push_pbox(expr pbox) =
203    obstacktype[sp]:=otpbox;
204    obstackt[sp]:=identity scaled 900 shifted (50,-50);
205    obstacks[sp]:=pbox;
206    sp:=sp+1;
207  enddef;
208
209  vardef push_pbox_explicit(expr pbox,pbox) =

```

```

210  obstacktype[sp]:=otpbox;
211  obstackt[sp]:=pbox;
212  obstacks[sp]:=pbname;
213  sp:=sp+1;
214  enddef;
215
216  vardef push_pbox_toexpand(expr pbname) =
217    obstacktype[sp]:=otpbox;
218    obstackt[sp]:=identity scaled 1000 shifted (0,-100);
219    obstacks[sp]:=pbname;
220    obstackba.botoexpand[sp]:=true;
221    % message "to expand " & decimal sp;
222    sp:=sp+1;
223  enddef;
224
225  vardef push_stroke(expr p,q) =
226    obstacktype[sp]:=otstroke;
227    obstackp[sp]:=p;
228    obstackq[sp]:=q;
229    obstackna.bosize[sp]:=100;
230    sp:=sp+1;
231  enddef;
232
233  vardef replace_lcblob(expr idx)(text blob) =
234    begingroup
235      save oldblob;
236      path oldblob;
237      oldblob:=obstackp[find_whatever(otlcblob,idx)];
238      obstackp[find_whatever(otlcblob,idx)]:=blob;
239    endgroup;
240  enddef;
241
242  vardef replace_strokep(expr idx)(text curves) =
243    begingroup
244      save oldp;
245      path oldp;
246      oldp:=obstackp[find_whatever(otstroke,idx)];
247      obstackp[find_whatever(otstroke,idx)]:=curves;
248    endgroup;
249  enddef;
250
251  vardef replace_strokeq(expr idx)(text curves) =
252    begingroup
253      save oldq;
254      path oldq;
255      oldq:=obstackq[find_whatever(otstroke,idx)];
256      obstackq[find_whatever(otstroke,idx)]:=curves;
257    endgroup;

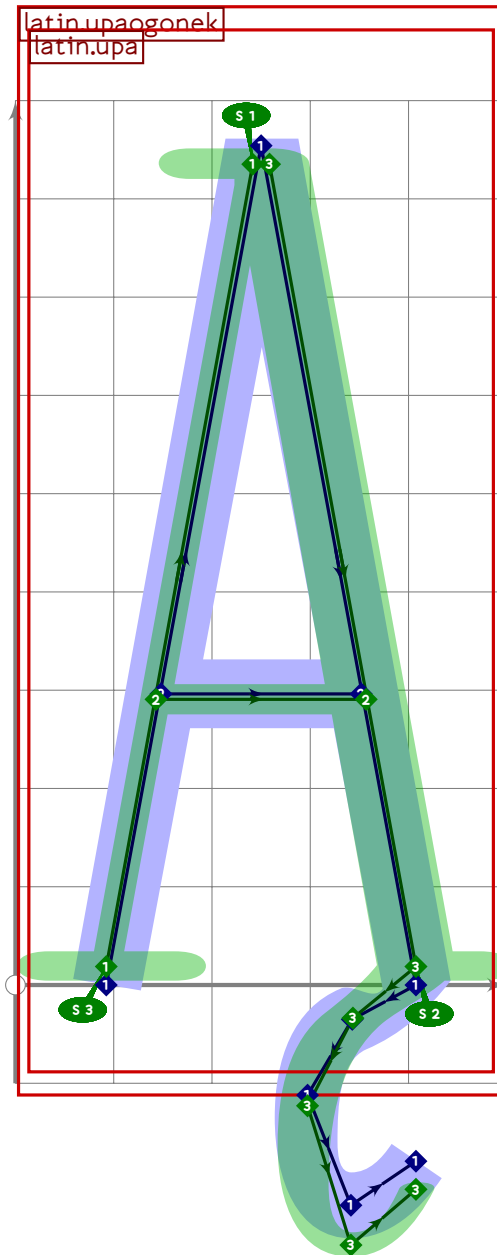
```

```
258 enddef;
259
260 vardef set_boalternate(expr idx) =
261   obstackba.boalternate[find_stroke(idx)]:=true;
262 enddef;
263
264 vardef set_boserif(expr idx,t,srf) =
265   obstacknaa.boserif[find_stroke(idx)][t]:=srf;
266 enddef;
267
268 vardef set_bosize(expr idx,bos) =
269   obstacknaa.bosize[find_stroke(idx)]:=bos;
270 enddef;
271
272 vardef set_botip(expr idx,t,bt) =
273   obstacknaa.botip[find_stroke(idx)][t]:=bt;
274 enddef;
```



# ogonek.mp

```
1 %  
2 % Ogonek letters for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 inclusion_lock(ogonek);  
32  
33
```

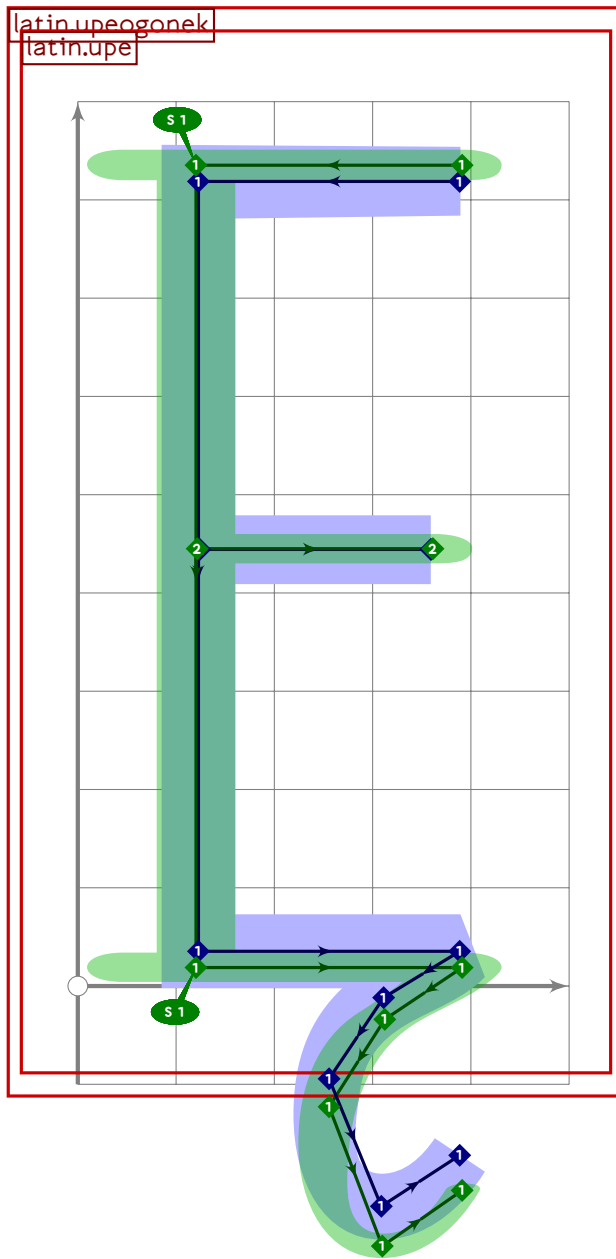


```
34  
35 vardef latin.upaogonek =  
36   push_pbox_toexpand("latin.upaogonek");
```

```

37 latin.upa;
38
39 x6=0.3[x2,x3];
40 x7=0.4[x6,x8];
41 x8=x3;
42
43 y6=0.5[y7,y3];
44 y7=latin_wide_desc_r;
45 y8=0.2[y7,y3];
46
47 if do_alteration:
48   replace_strokep(0)(oldp{dir 210}..z6..z7{right}..z8);
49   replace_strokep(0)(insert_nodes(oldp)(length(oldp)-2.5));
50   replace_strokeq(0)(oldq-(1.4,1.4)-(1.3,1.3)-(1.4,1.4)-(1,1));
51   set_boserif(0,1,2);
52   set_botip(0,length(get_strokep(0))-4,1);
53 else:
54   replace_strokep(-1)(oldp{dir 210}..z6..z7{right}..z8);
55   replace_strokep(-1)(insert_nodes(oldp)(length(oldp)-2.5));
56   replace_strokeq(-1)(oldq-(1.4,1.4)-(1.3,1.3)-(1.4,1.4)-(1,1));
57   set_boserif(-1,1,2);
58   set_botip(-1,length(get_strokep(0))-4,1);
59 fi;
60 expand_pbox;
61 enddef;

```



```

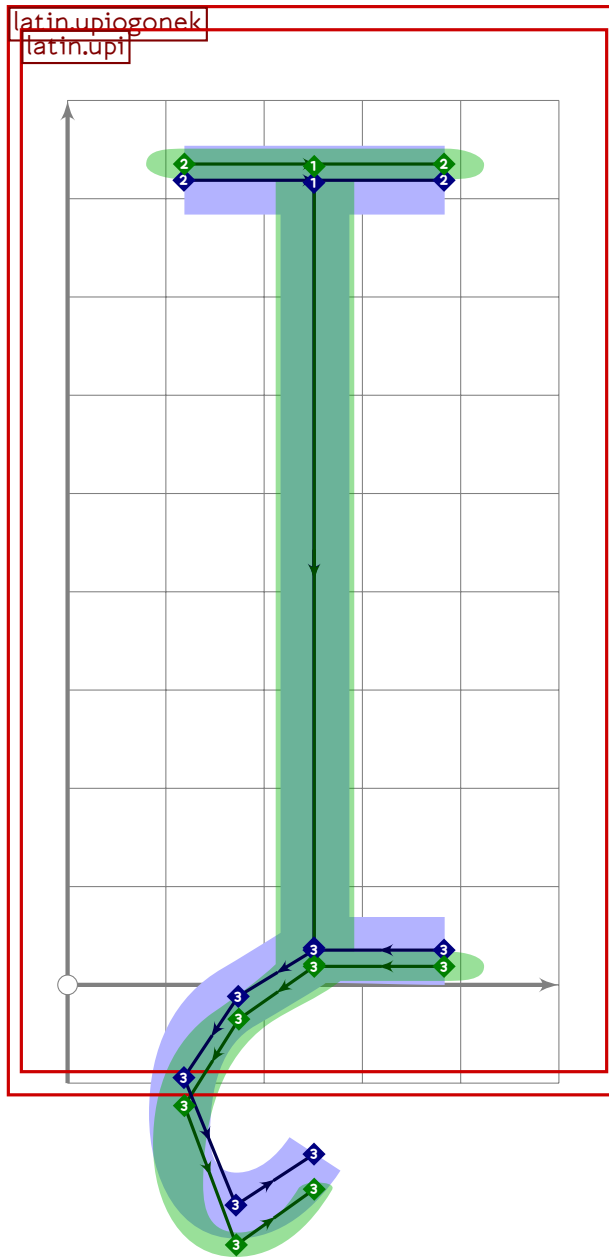
62
63 vardef latin.upeogonek =
64   push_pbox_toexpand("latin.upeogonek");
65   latin.upe;
66
67   x7=0.5[x3,x4];
68   x8=0.4[x7,x9];
69   x9=x4;
70
71   y7=0.5[y8,y4];
72   y8=latin_wide_desc_r;
73   y9=0.2[y8,y4];
74
75   replace_strokep(-1)(oldp{dir 210}..z7..z8{right}..z9);

```

```

76 replace_strokep(-1)(insert_nodes(oldp)(length(oldp)-2.5));
77 replace_strokeq(-1)(oldq-(1.4,1.4)-(1.3,1.3)-(1.4,1.4)-(1,1));
78 set_botip(-1,length(get_strokep(-1))-4,0);
79 expand_pbox;
80 endif;

```



```

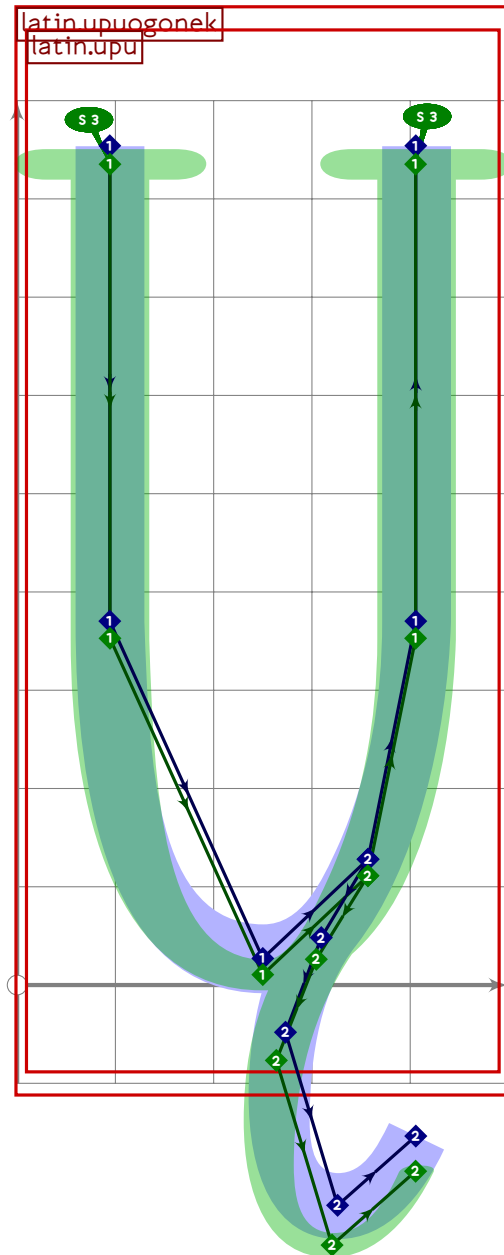
81
82 vardef latin.upiogonek =
83   push_pbox_toexpand("latin.upiogonek");
84   latin.upi;
85
86   x1=x4=500;
87   x2=300;
88   x3=0.4[x2,x4];
89

```

```

90 y1=latin_wide_low_h;
91 y2=0.5[y3,y1];
92 y3=latin_wide_desc_r;
93 y4=0.2[y3,y1];
94
95 replace_strokep(0)((700,latin_wide_low_h)-z1{dir 210}..z2..z3{right}..z4);
96 replace_strokep(0)(insert_nodes(oldp)(1.5));
97 replace_strokeq(0)((1.6,1.6)-(1.6,1.6)-(1.4,1.4)-
98 (1.3,1.3)-(1.4,1.4)-(1,1));
99 expand_pbox;
100 endif;

```



```

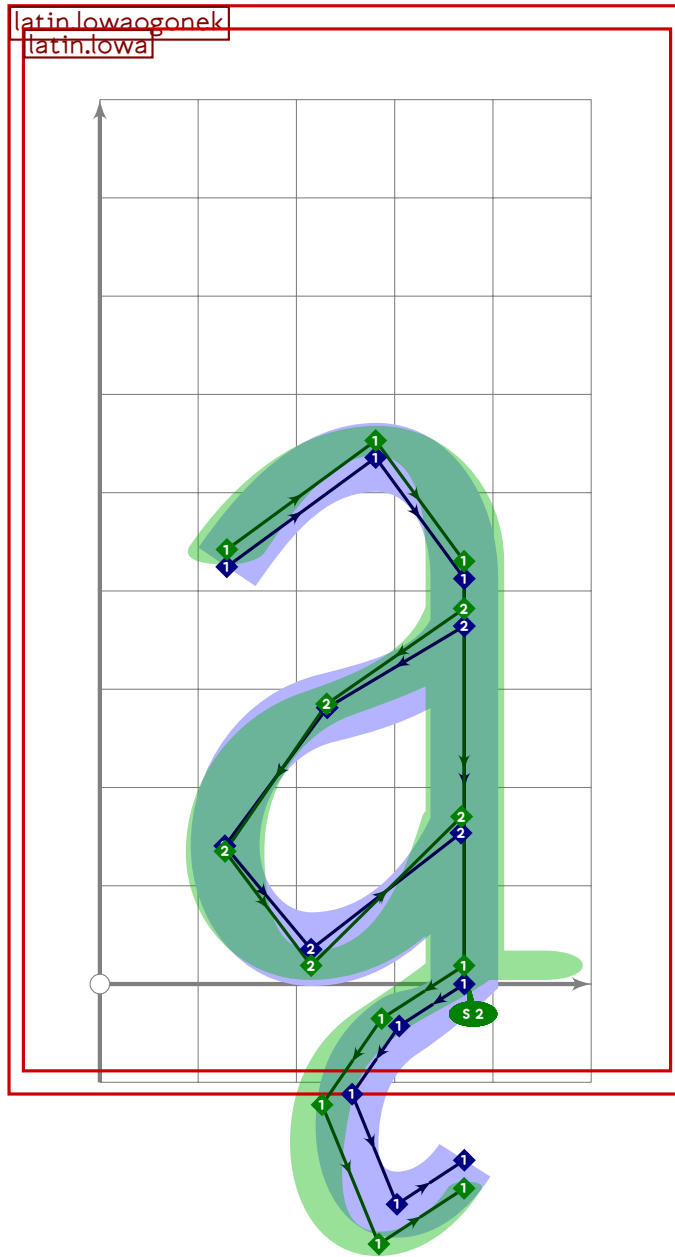
101
102 vardef latin.upuogonek =
103   push_pbox_toexpand("latin.upuogonek");

```

```

104 latin.upu;
105
106 replace_strokep(0)(insert_nodes(oldp)(2.5));
107 replace_strokeq(0)(insert_nodes(oldq)(2.5));
108 set_bosserif(0,5,3);
109 set_bosserif(0,4,whatever);
110
111 z6=point 3 of get_strokep(0);
112
113 y7=0.5[y8,y6];
114 y8=latin_wide_desc_r;
115 y9=0.2[y8,y6];
116
117 x9-x7=(x4-x2)*((y6-y8)/(y1-y3));
118 x8=0.4[x7,x9];
119 x9=x4;
120
121 push_stroke(z6{direction 3 of get_strokep(0)}..z7..z8{right}..z9,
122 (1,1,1)-(1,4,1,4)-(1,3,1,3)-(1,4,1,4)-(1,1));
123 replace_strokep(0,insert_nodes(oldp)(length(oldp)-2.5));
124 expand_pbox;
125 enddef;

```



```

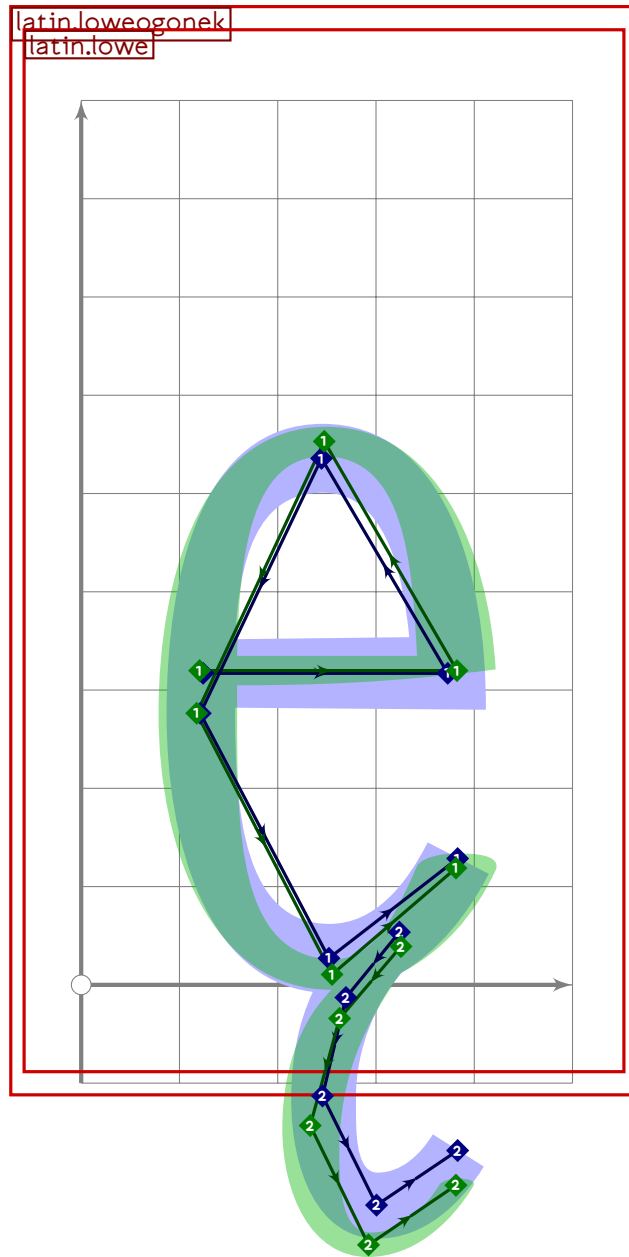
126
127 vardef latin.lowaogonek =
128   push_pbox_toexpand("latin.lowaogonek");
129   latin.lowa;
130
131   y9=0.5[y10,y4];
132   y10=latin_wide_desc_r;
133   y11=0.2[y10,y4];
134
135   x11-x9=(x4-x1)*((y4-y10)/(y2-y4));
136   x10=0.4[x9,x11];
137   x11=x4;
138
139   replace_strokep(-1)(oldp{dir 210}..z9..z10{right}..z11);

```

```

140 replace_strokep(-1)(insert_nodes(oldp)(length(oldp)-2.5));
141 replace_strokeq(-1)(oldq-(1.4,1.4)-(1.3,1.3)-(1.4,1.4)-(1,1));
142 set_botip(0,length(get_strokep(-1))-4,1);
143 expand_pbox;
144 enddef;

```



```

145
146 vardef latin.loeogonek =
147   push_pbox_toexpand("latin.loeogonek");
148   latin.loe;
149
150   z7=point 4.5 of get_strokep(0);
151
152   y8=0.4[y9,y7];
153   y9=latin_wide_desc_r;

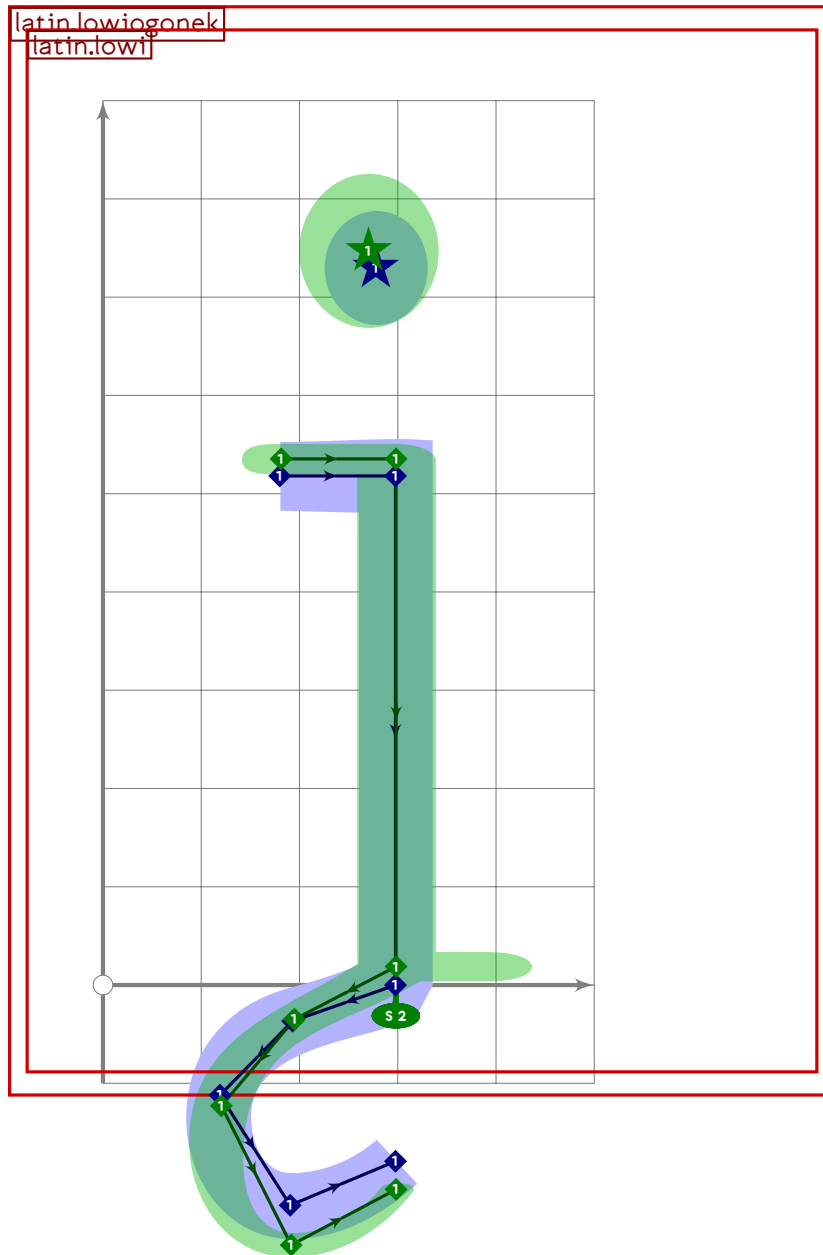
```



```

154 y10=0.2[y9,y7];
155
156 x10-x8=(x2-x4)*((y7-y9)/(y3-y5));
157 x9=0.4[x8,x10];
158 x10=x6;
159
160 push_stroke(z7{direction 4.5 of get_stroke(0)}..z8..z9{right}..z10,
161   (1,1,1)-(1,4,1)-(1,3,1)-(1,4,1)-(1,1));
162 replace_stroke(0,insert_nodes(oldp)(length(oldp)-2.5));
163 expand_pbox;
164 enddef;

```



```

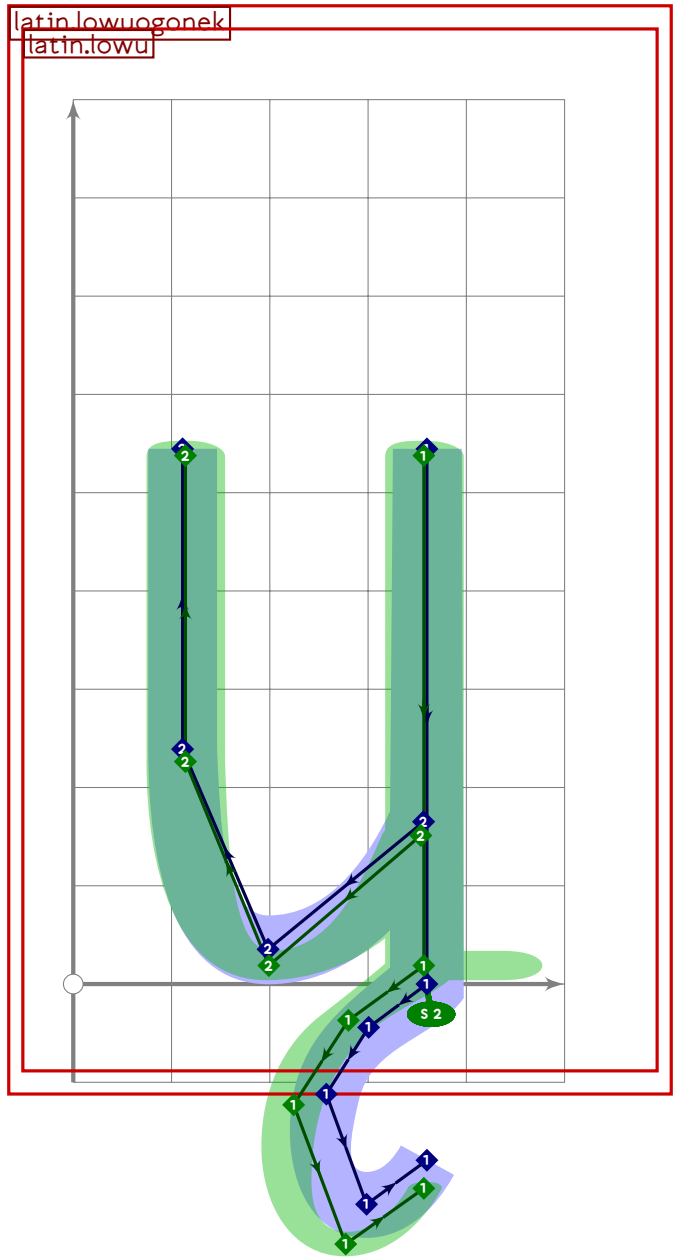
165
166 vardef latin.lowiogonek =
167   push_pbox_toexpand("latin.lowiogonek");

```

```

168 latin.lowi;
169
170 x5=x7-200;
171 x6=0.4[x5,x7];
172 x7=x3;
173
174 y5=0.5[y6,y3];
175 y6=latin_wide_desc_r;
176 y7=0.2[y6,y3];
177
178 replace_strokep(0)(oldp{dir 210}..z5..z6{right}..z7);
179 replace_strokep(0)(insert_nodes(oldp)(2.5));
180 replace_strokeq(0)(oldq-(1.4,1.4)-(1.3,1.3)-(1.4,1.4)-(1,1));
181 set_boserif(0,2,2);
182 set_botip(0,2,1);
183 expand_pbox;
184 endif;

```



```

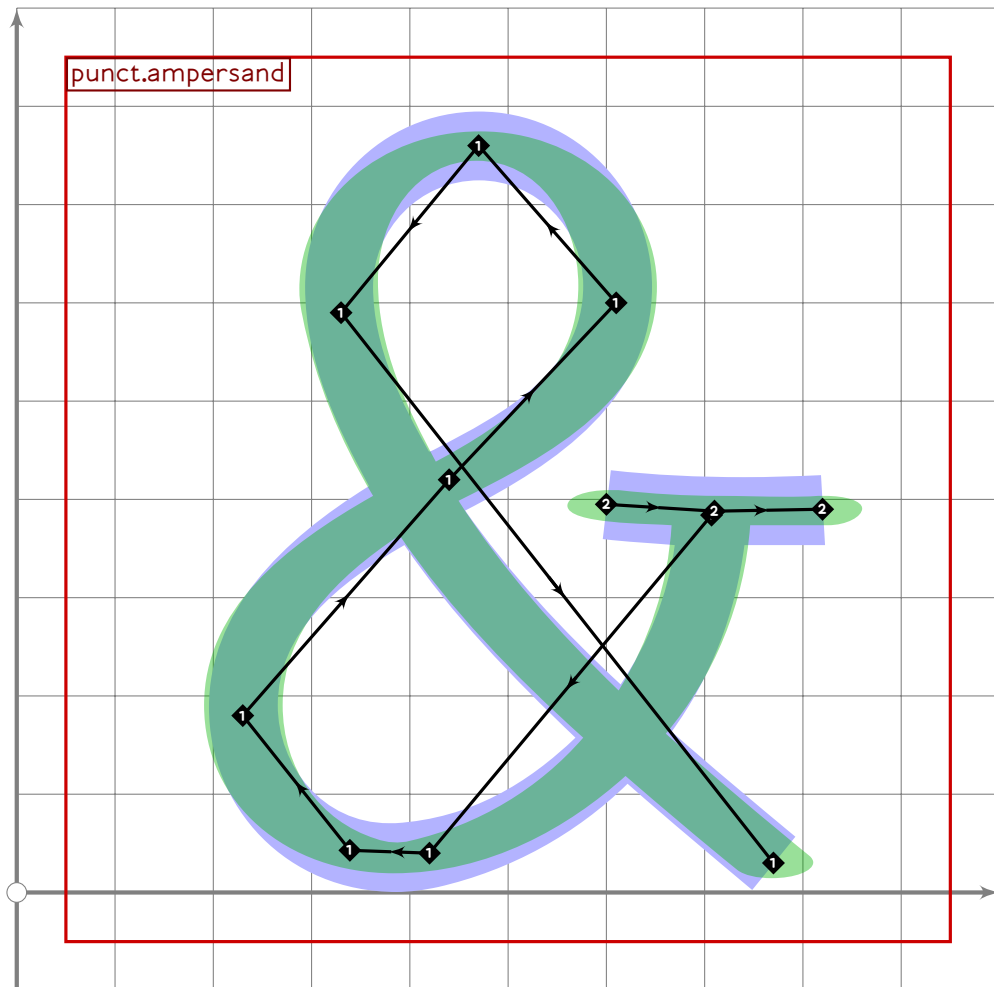
185
186 vardef latin.lowuogonek =
187   push_pbox_toexpand("latin.lowuogonek");
188   latin.lowu;
189
190   y7=0.5[y8,y1];
191   y8=latin_wide_desc_r;
192   y9=0.2[y8,y1];
193
194   x9-x7=(x1-x6)*((y1-y8)/(y2-y1));
195   x8=0.4[x7,x9];
196   x9=x1;
197
198   replace_strokep(-1)(z2-z1{dir 210}..z7..z8{right}..z9);

```

```
199 replace_strokep(-1)(insert_nodes(oldp)(length(oldp)-2.5));
200 replace_strokeq(-1)((1.6,1.6)-(1.6,1.6)-(1.4,1.4)-(1.3,1.3)-
201   (1.4,1.4)-(1,1));
202 set_botip(-1,1,1);
203 set_boserif(-1,0,whatever);
204 set_boserif(-1,1,2);
205 expand_pbox;
206 endif;
```

# punct.mp

```
1 %  
2 % Punctuation for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 inclusion_lock(punct);  
32  
33
```

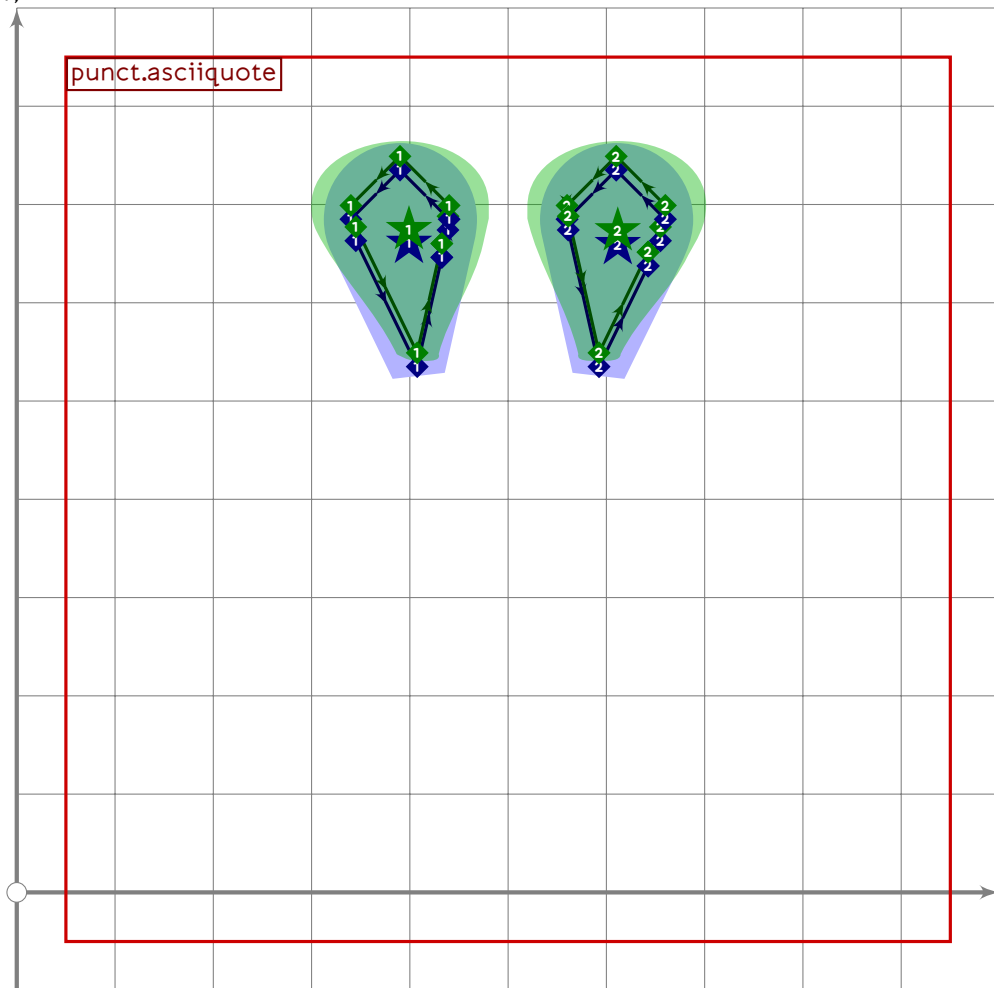


```
34  
35 vardef punct.ampersand =  
36   push_pbox_toexpand("punct.ampersand");  
37  
38   push_stroke((707,384)..tension 1.3..(420,40)..(230,180)..(440,420)..  
39     (610,600)..(470,760)..(330,590)..tension 1.5 and 4..(770,30),  
40     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-  
41     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));  
42   replace_strokep(0)(insert_nodes(oldp)(1.3));  
43
```

```

44 push_stroke((600,395)..(710,388)..(820,390),
45 (1.6,1.6)-(1.6,1.6)-(1.6,1.6));
46 expand_pbox;
47 enddef;

```



```

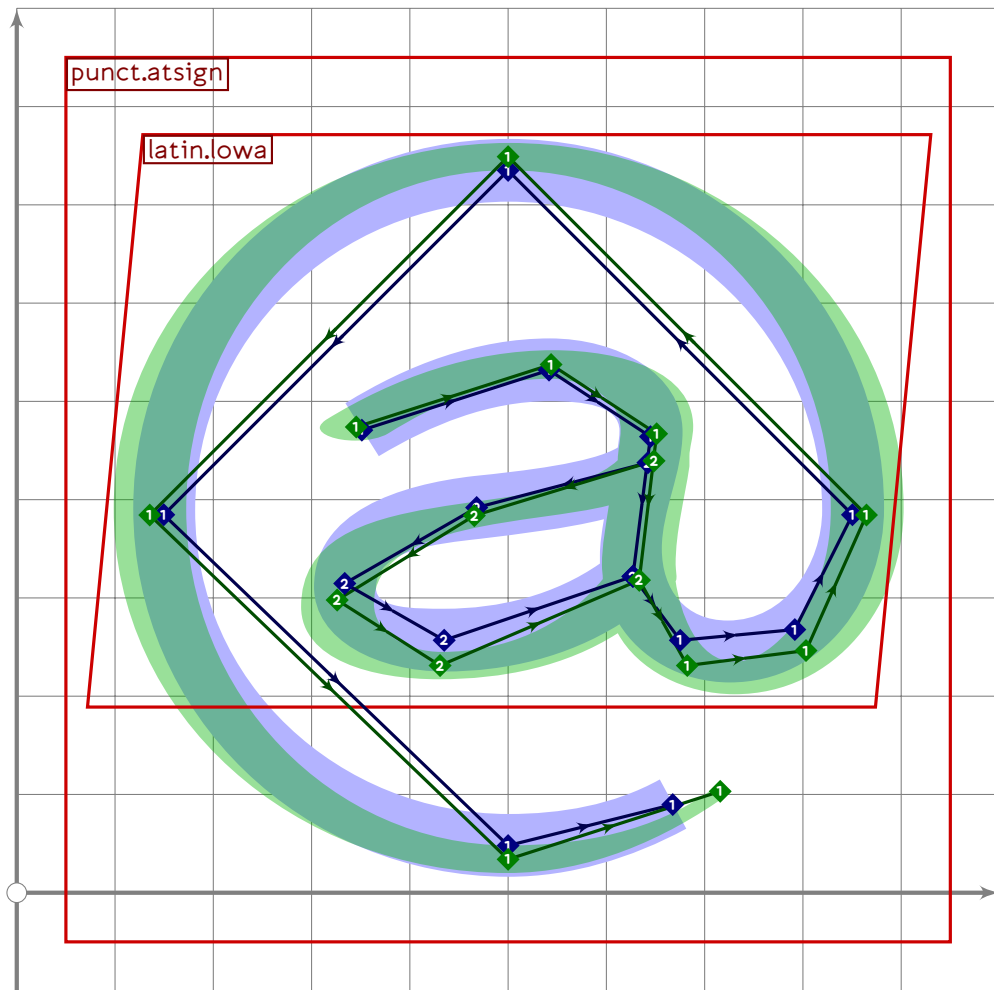
48
49 vardef punct.asciquote =
50 push_pbox_toexpand("punct.asciquote");
51
52 numeric dx;
53 dx=tsu_punct_size;
54
55 (x1+x2)/2=(x3+x4)/2=500;
56 x2-x1=1.2*dx+tsu_punct_size;
57 x4-x3=tsu_punct_size*1.85;
58
59 y1=y2=latin_wide_high_r-dx/2;
60 y3=y4=y1-1.5*dx;
61
62 path ptmp;
63 ptmp=(down..right..up..left..cycle)
64 scaled (abs(z3-z1)++(dx/2));

```

```

65
66 push_stroke((down..right..up..left..cycle) scaled (dx/2) shifted z1,
67   (2,2)-(2,2)-(2,2)-(2,2)-(2,2)-(2,2)-(1.3,1.3)-cycle);
68 replace_strokep(0)(z3-(subpath ((xpart (oldp intersectiontimes
69   (ptmp shifted z3))),4-xpart ((reverse oldp) intersectiontimes
70   (ptmp shifted z3)))) of oldp)-cycle);
71 replace_strokep(0)((subpath (0.8,6) of oldp)-cycle);
72 set_bosize(0,75);
73 set_botip(0,6,0);;
74
75 push_stroke((down..right..up..left..cycle) scaled (dx/2) shifted z2,
76   (2,2)-(2,2)-(2,2)-(2,2)-(2,2)-(2,2)-(1.3,1.3)-cycle);
77 replace_strokep(0)(z4-(subpath ((xpart (oldp intersectiontimes
78   (ptmp shifted z4))),4-xpart ((reverse oldp) intersectiontimes
79   (ptmp shifted z4)))) of oldp)-cycle);
80 replace_strokep(0)((subpath (0.8,6) of oldp)-cycle);
81 set_bosize(0,75);
82 set_botip(0,6,0);;
83
84 if tsu_pbrush_size>=30:
85   push_lcblob(get_strokep(-1));
86   push_lcblob(get_strokep(0));
87 fi;
88 expand_pbox;
89 enddef;

```



```

90
91 vardef punct.atsign =
92   push_pbox_toexpand("punct.atsign");
93   begingroup
94     save xsp,ysp;
95     xsp:=sp;
96     latin.lowa;
97     set_boserif(-1,3,whatever);
98     ysp:=sp;
99
100    numeric x[],y[];
101    x1-x2=x2-x3=y2-y1;
102    x2=x4=500;
103    y1=y3=0.49[y4,y2];
104    y2=latin_wide_high_r;
105    y4=latin_wide_low_r;
106
107    transform shrinka;
108    (0.5[lcorner get_strokep(-1),urcorner get_strokep(-1)])
109     transformed shrinka=0.5[z3,z1];
110    (0.5[lrcorner get_strokep(-1),urcorner get_strokep(-1)])

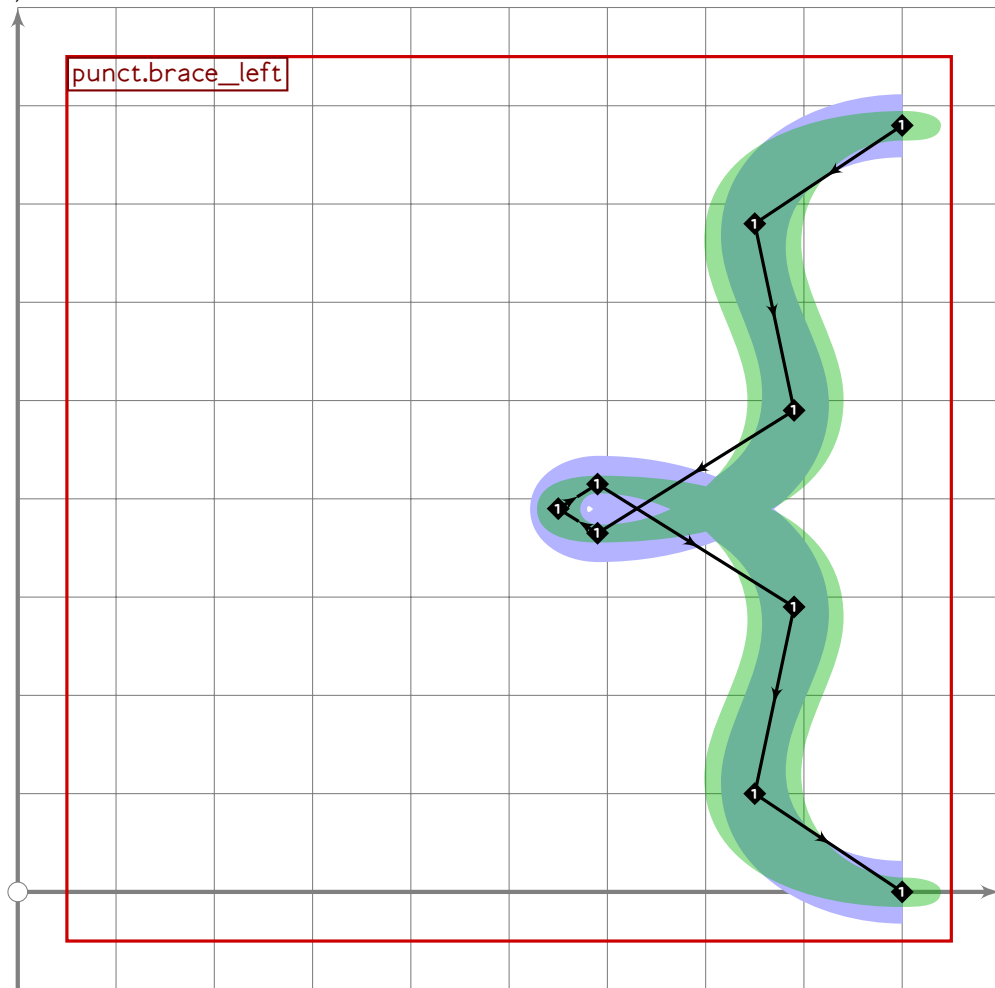
```



```

111     transformed shrinka=0.71[z3,z1];
112     (0.5[ulcorner get_strokep(-1),urcorner get_strokep(-1)])
113     transformed shrinka=z2+(0.07,-1)*0.29*(x1-x3);
114     sp:=xsp;
115     tsu_xform(shrinka shifted (-10,0))(sp:=ysp);
116
117     z5=point infinity of get_strokep(0);
118     y6=ypart lrcorner get_strokep(0);
119     x6=0.5[x2,x1];
120     replace_strokep(-1)((subpath (0,length(oldp)-1) of oldp)..z5..z6..
121       (subpath (0,3.85) of (z1..z2..z3..z4..cycle)));
122     replace_strokep(-1)(insert_nodes(oldp)((length oldp-4.5)));
123     replace_strokeq(-1)(oldq-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-
124       (1.6,1.6)-(1.6,1.6)-(0,0));
125     endgroup;
126     expand_pbox;
127   enddef;

```



```

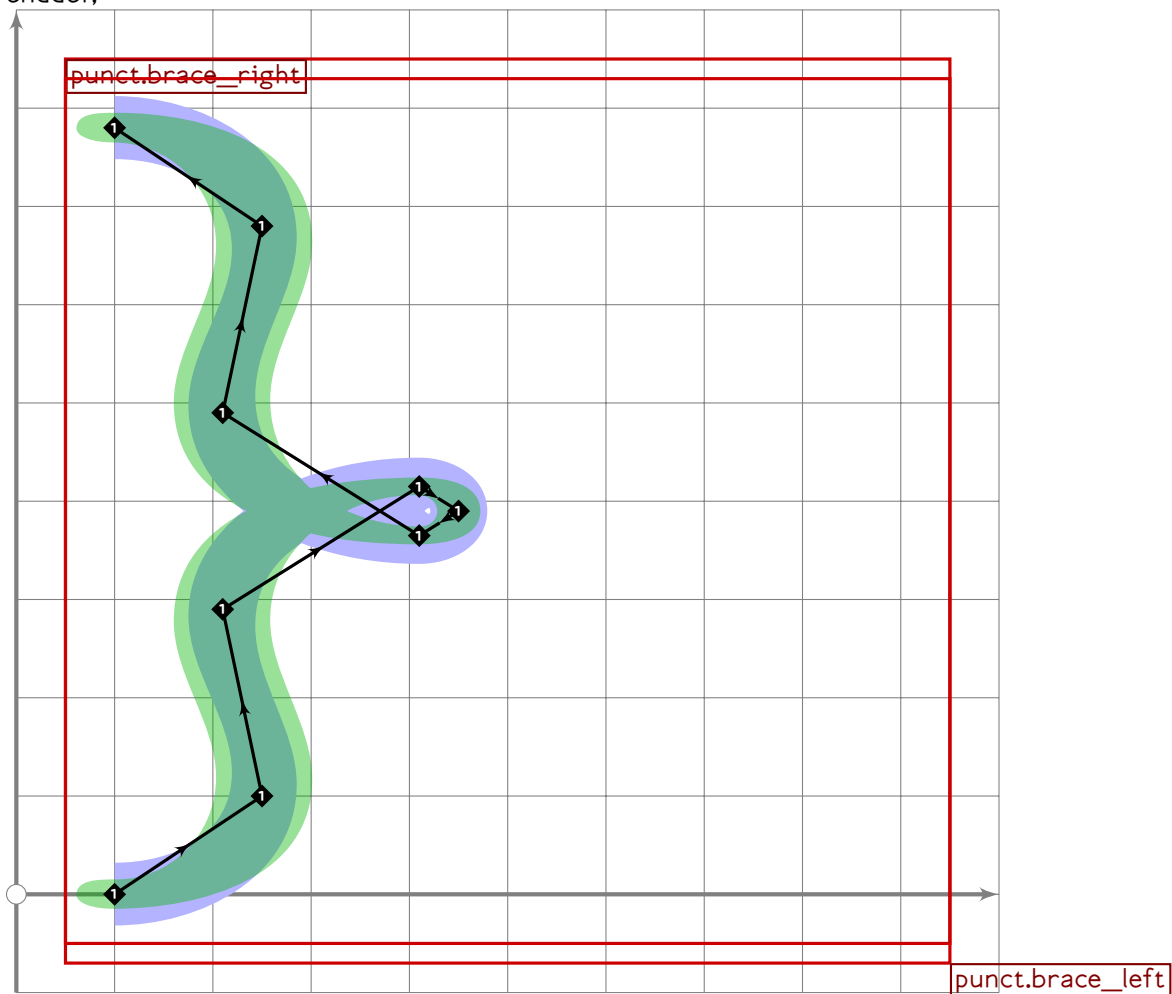
128
129 vardef punct.brace_left =
130   push_pbox_toexpand("punct.brace_left");
131   push_stroke((900,780){left}..

```

```

132 (900-1.5*tsu_punct_size,680)..
133 (900-1.1*tsu_punct_size,490)..
134 (900-3.1*tsu_punct_size,390-0.25*tsu_punct_size){left}..
135 (900-3.5*tsu_punct_size,390)..
136 (900-3.1*tsu_punct_size,390+0.25*tsu_punct_size){right}..
137 (900-1.1*tsu_punct_size,290)..
138 (900-1.5*tsu_punct_size,100)..
139 (900,0){right},
140 (1.7,1.7)-(2,2)-(2,2)-
141 (1.2,1.2)-(1.2,1.2)-(1.2,1.2)-
142 (2,2)-(2,2)-(1.7,1.7));
143 set_bosize(0,90);
144 expand_pbox;
145 enddef;

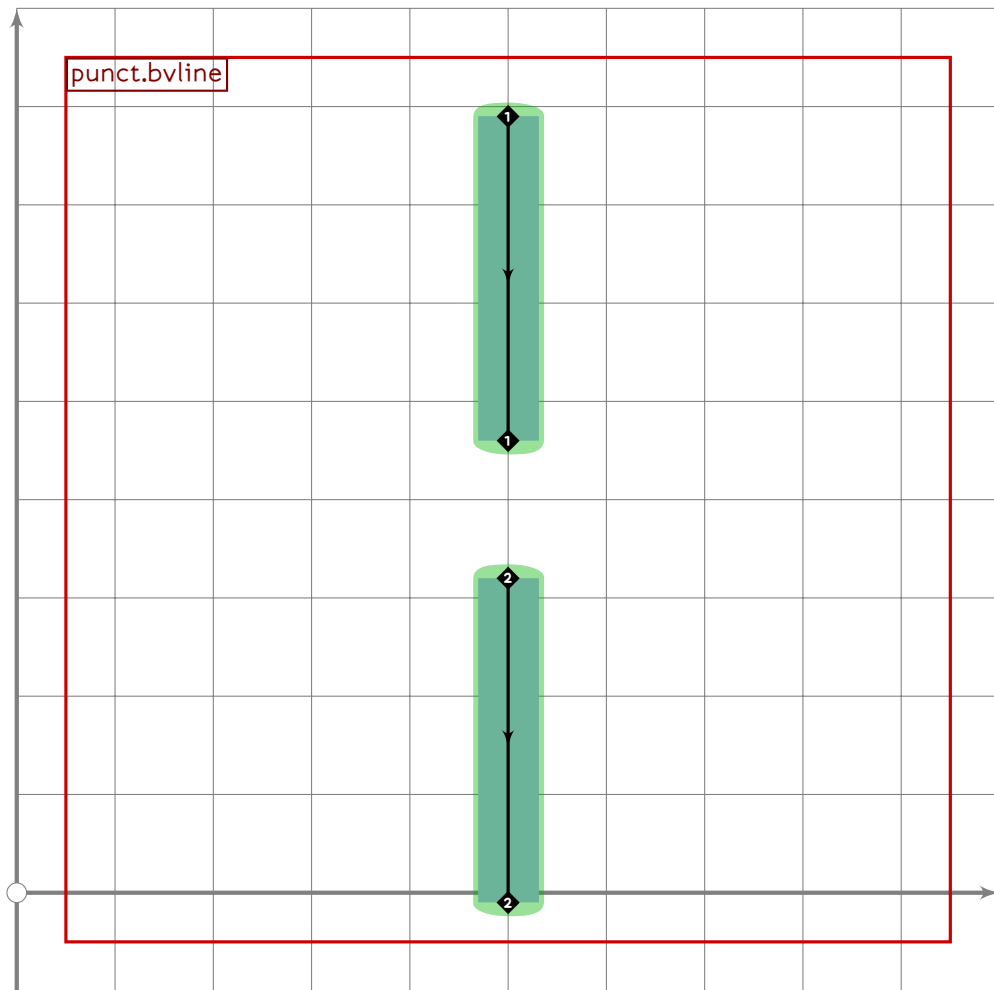
```



```

146 vardef punct.brace_right =
147   push_pbox_toexpand("punct.brace_right");
148   tsu_xform(identity rotatedaround (centre_pt,180))
149   (punct.brace_left);
150   expand_pbox;
151 enddef;

```



```

152
153 vardef punct.bvline =
154   push_pbox_toexpand("punct.bvline");
155
156   push_stroke((500,690+tsu_punct_size)-(500,390+0.7*tsu_punct_size),
157     (1.6,1.6)-(1.6,1.6));
158   set_bosize(0,90);
159
160   push_stroke((500,390-0.7*tsu_punct_size)-(500,90-tsu_punct_size),
161     (1.6,1.6)-(1.6,1.6));
162   set_bosize(0,90);
163   expand_pbox;
164 enddef;
165
166 vardef punct.make_comma(expr cpos,cang) =
167   begingroup
168     save x,y,t,u,xsp;
169     numeric x[],y[];
170     transform t,u;
171     xsp:=sp;
172     sp:=1;

```

```

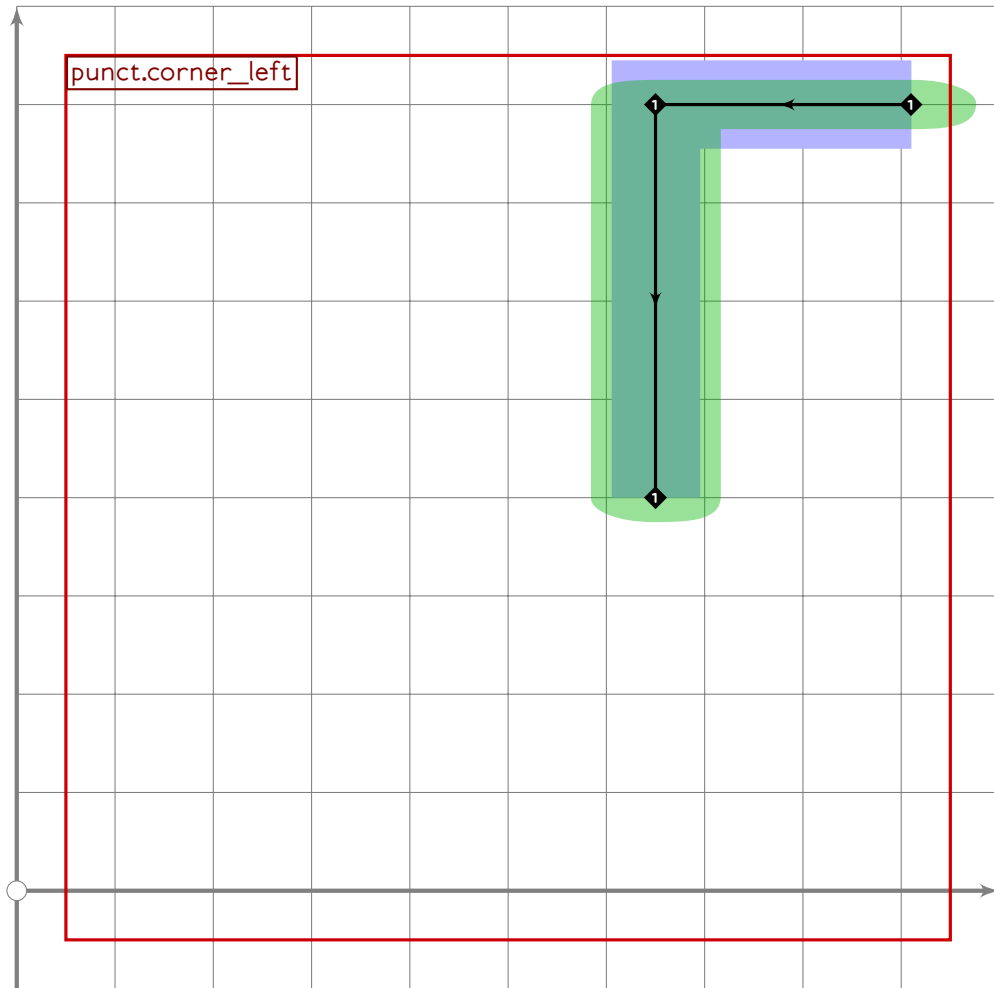
173 t:=tsu_rescale_xform;
174 sp:=xsp;
175
176 x1=0.8[x2,x4];
177 (x2+x4)/2=x3=0;
178 (x2-x4)=0.45*(y3-y1)=tsu_punct_size;
179 x5=x3;
180
181 y2=y4=0.32[y3,y1]=0;
182 y5-y4=0.73*(y4-y3);
183
184 push_stroke(z1{curl 0.2}..tension 1.2..z2..z3..z4{dir 280}..
185 z5..{curl 0.2}(point 0.8 of (z1{curl 0.2}..tension 1.2..
186 z2..z3..z4{dir 280})),
187 (2,2)-(1,1)-(2,2)-(2,2)-(2,2)-(2,2)-(2,2));
188 replace_strokep(0)((point 4.2 of oldp)-oldp);
189 (0,0) transformed u=llcorner get_strokep(0);
190 (1,0) transformed u=lrcorner get_strokep(0);
191 (0,1) transformed u=ulcorner get_strokep(0);
192 replace_strokep(0)(oldp rotated (cang-6) shifted (cpos transformed t)
193 transformed inverse t);
194 u:=u scaled 1.3 rotated (cang-6) shifted (cpo transformed t)
195 transformed inverse t;
196 set_botip(0,1,0);
197
198 if tsu_pbrush_size>=30:
199 replace_strokep(0)(subpath (0,0,3,5.75) of oldp);
200 set_bosize(0,40);
201 push_lcblob((subpath (1,6,4,9) of get_strokep(0))-cycle);
202 else:
203 replace_strokep(0)(subpath (0,5,2) of oldp);
204 set_bosize(0,80);
205 fi;
206 push_pbox_explicit("punct.make_comma",u);
207 endgroup;
208 endif;
209
210 vardef punct.make_revcomma(expr cpos,cang) =
211 begingroup
212 save x,y,t,u,xsp;
213 numeric x[],y[];
214 transform t,u;
215 xsp:=sp;
216 sp:=1;
217 t:=tsu_rescale_xform;
218 sp:=xsp;
219
220 x1=0.8[x2,x4];

```

```

221 (x2+x4)/2=x3=0;
222 (x2-x4)=0.45*(y3-y1)=tsu_punct_size;
223 x5=x3;
224
225 y2=y4=0.32[y3,y1]=0;
226 y5-y4=0.73*(y4-y3);
227
228 push_stroke(z1{curl 0.2}..tension 1.2..z2..z3..z4{dir 280}..
229     z5..{curl 0.2}(point 0.8 of (z1{curl 0.2}..tension 1.2..
230     z2..z3..z4{dir 280})),
231     (2,2)-(1,1)-(2,2)-(2,2)-(2,2)-(2,2)-(2,2));
232 replace_strokep(0)((point 4.2 of oldp)-oldp);
233 (0,0) transformed u=llcorner get_strokep(0);
234 (1,0) transformed u=lrcorner get_strokep(0);
235 (0,1) transformed u=ulcorner get_strokep(0);
236 replace_strokep(0)(reverse (oldp rotated -6 reflectedabout(up,down)));
237 replace_strokep(0)(oldp rotated (cang-6) shifted (cpo transformed t)
238     transformed inverse t);
239 u:=u scaled 1.3 rotated (cang-6) shifted (cpo transformed t)
240     transformed inverse t;
241 set_botip(0,1,0);
242
243 if tsu_pbrush_size>=30:
244     replace_strokep(0)(subpath (0.25,5.97) of oldp);
245     set_bosize(0,40);
246     push_lcblob((subpath (1,1,4,4) of get_strokep(0))-cycle);
247 else:
248     replace_strokep(0)(subpath (0.8,6) of oldp);
249     set_bosize(0,80);
250 fi;
251 push_pbox_explicit("punct.make_revcomma",u);
252 endgroup;
253 enddef;

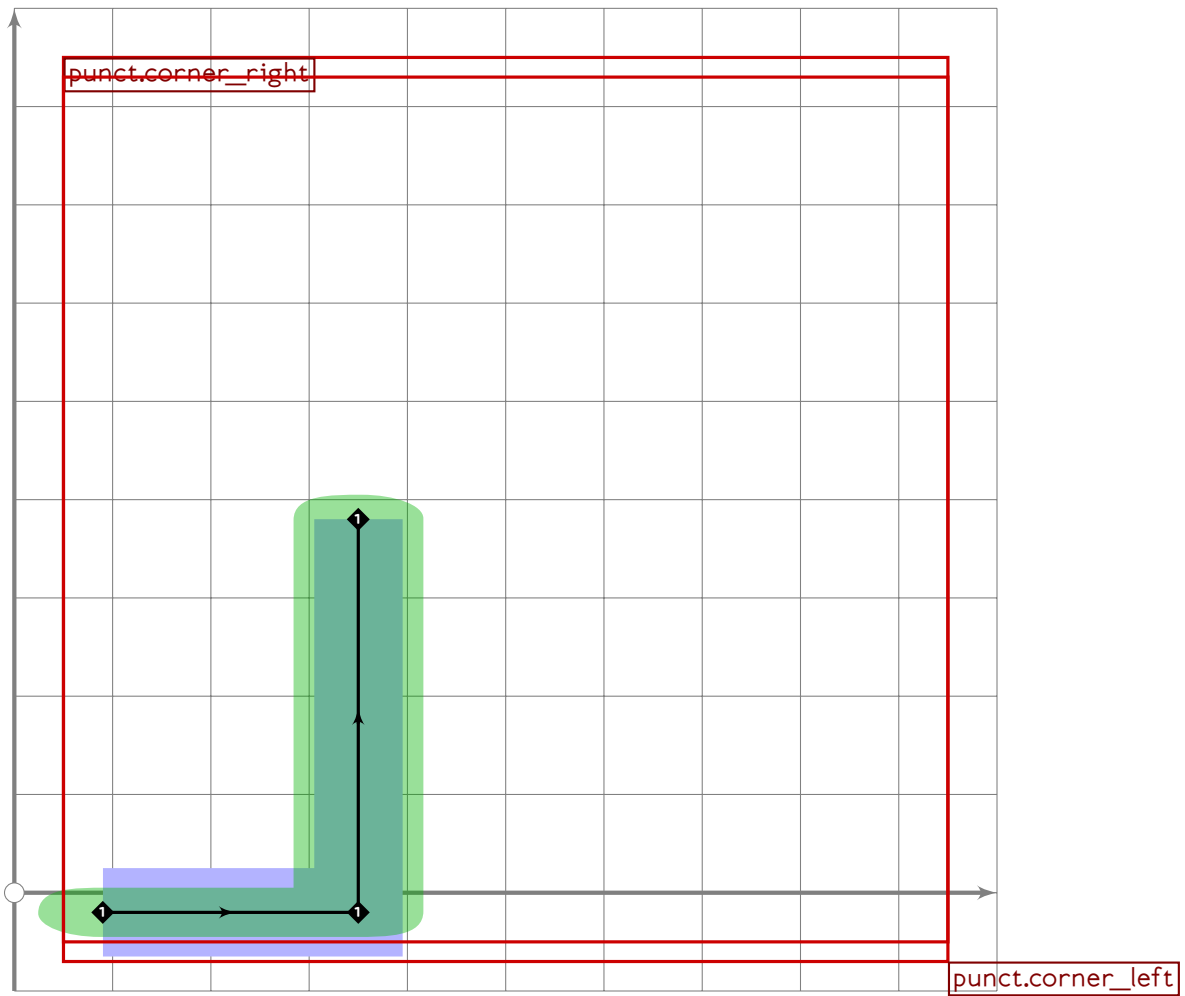
```



```

254
255 vardef punct.corner_left =
256   push_pbox_toexpand("punct.corner_left");
257   push_stroke((910,800)-(650,800)-(650,400),(2,2)-(2,2)-(2,2));
258   set_bosize(0,120);
259   set_botip(0,1);
260   expand_pbox;
261 enddef;

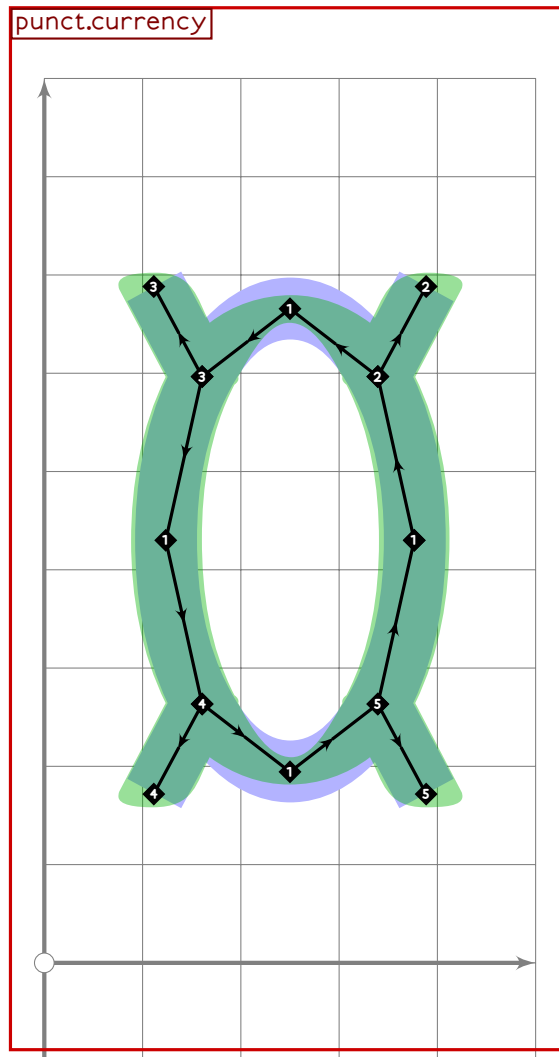
```



```

262 vardef punct.corner_right =
263   push_pbox_toexpand("punct.corner_right");
264   tsu_xform(identity rotatedaround (centre_pt,180))
265     (punct.corner_left);
266   expand_pbox;
267 enddef;

```



```

268
269 vardef punct.currency =
270   push_pbox_toexpand("punct.currency");
271
272   push_stroke(fullcircle scaled (4*tsu_punct_size) shifted centre_pt,
273     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-cycle);
274   set_bosize(0,90);
275
276   push_stroke(((1,0)-(1.55,0)) rotated 45
277     scaled (2*tsu_punct_size) shifted centre_pt,
278     (1.6,1.6)-(1.6,1.6));
279   set_bosize(0,90);
280
281   push_stroke(((1,0)-(1.55,0)) rotated 135
282     scaled (2*tsu_punct_size) shifted centre_pt,
283     (1.6,1.6)-(1.6,1.6));
284   set_bosize(0,90);
285
286   push_stroke(((1,0)-(1.55,0)) rotated 225

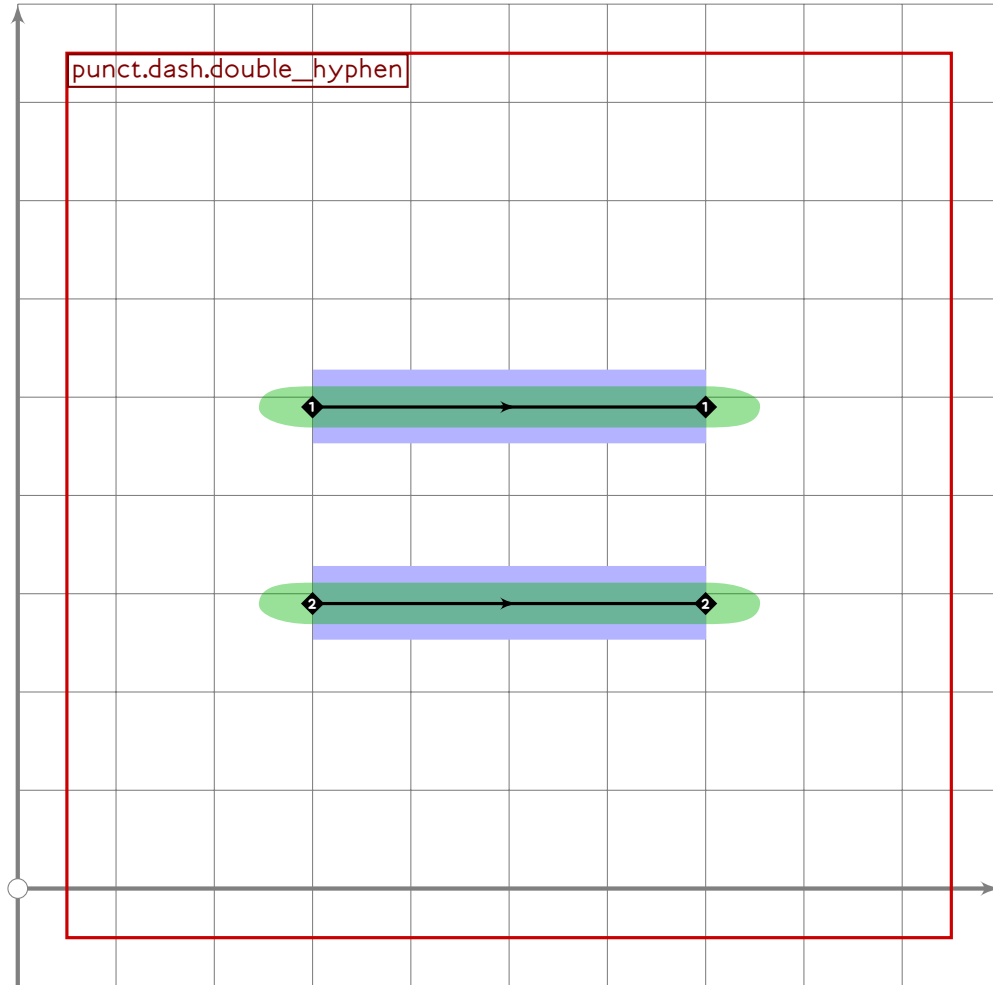
```



```

287     scaled (2*tsu_punct_size) shifted centre_pt,
288     (1.6,1.6)-(1.6,1.6));
289     set_bosize(0,90);
290
291     push_stroke(((1,0)-(1.55,0)) rotated 315
292     scaled (2*tsu_punct_size) shifted centre_pt,
293     (1.6,1.6)-(1.6,1.6));
294     set_bosize(0,90);
295     expand_pbox;
296 endif;

```



```

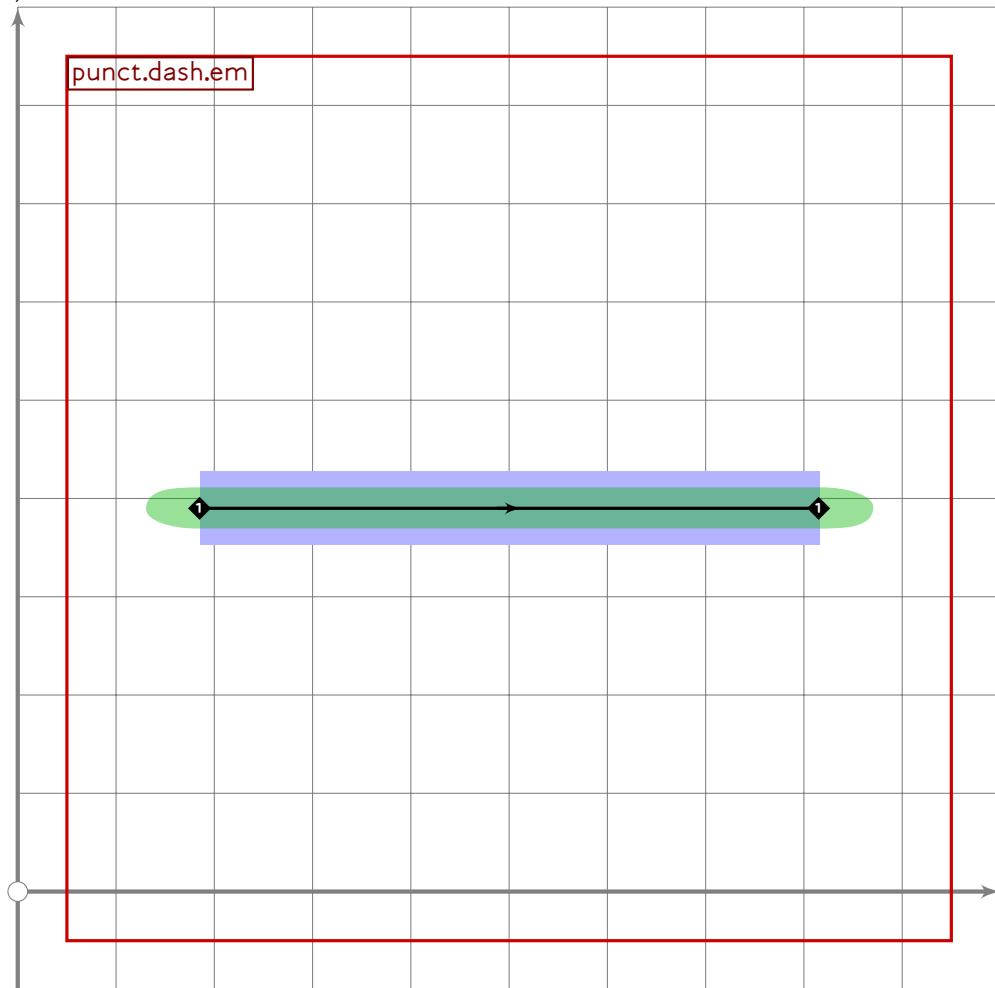
297
298 vardef punct.dash.double_hyphen =
299     push_pbox_toexpand("punct.dash.double_hyphen");
300
301     (z1+z4)/2=centre_pt;
302     x2-x1=400;
303     y1-y3=200;
304     y1=y2;
305     y3=y4;
306     x1=x3;
307     x2=x4;

```

```

308
309 push_stroke(z1-z2,(2,2)-(2,2));
310 push_stroke(z3-z4,(2,2)-(2,2));
311 expand_pbox;
312 enddef;

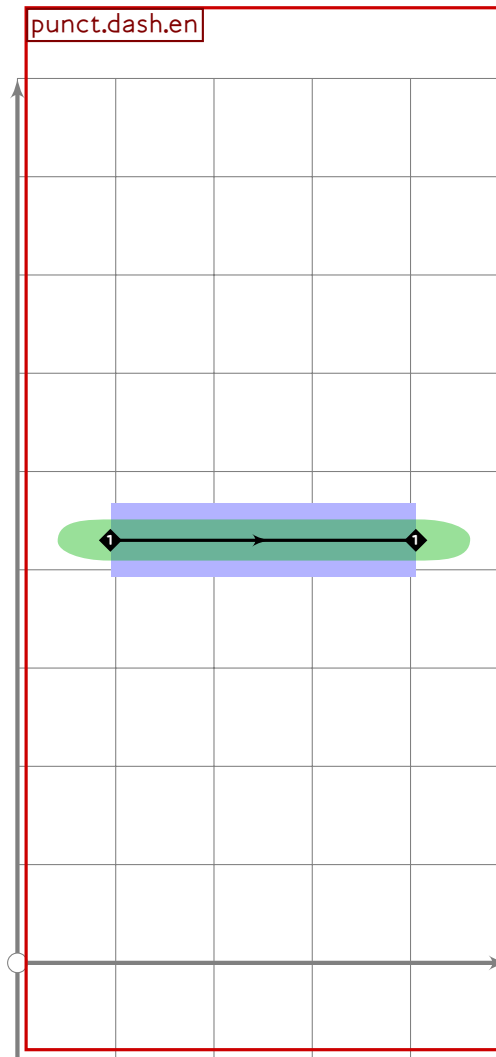
```



```

313
314 vardef punct.dash.em =
315   push_pbox_toexpand("punct.dash.em");
316   (z1+z2)/2=centre_pt;
317   x2-x1=if is_proportional: 750 else: 630 fi;
318   y1=y2;
319   push_stroke(z1-z2,(2,2)-(2,2));
320   expand_pbox;
321 enddef;

```

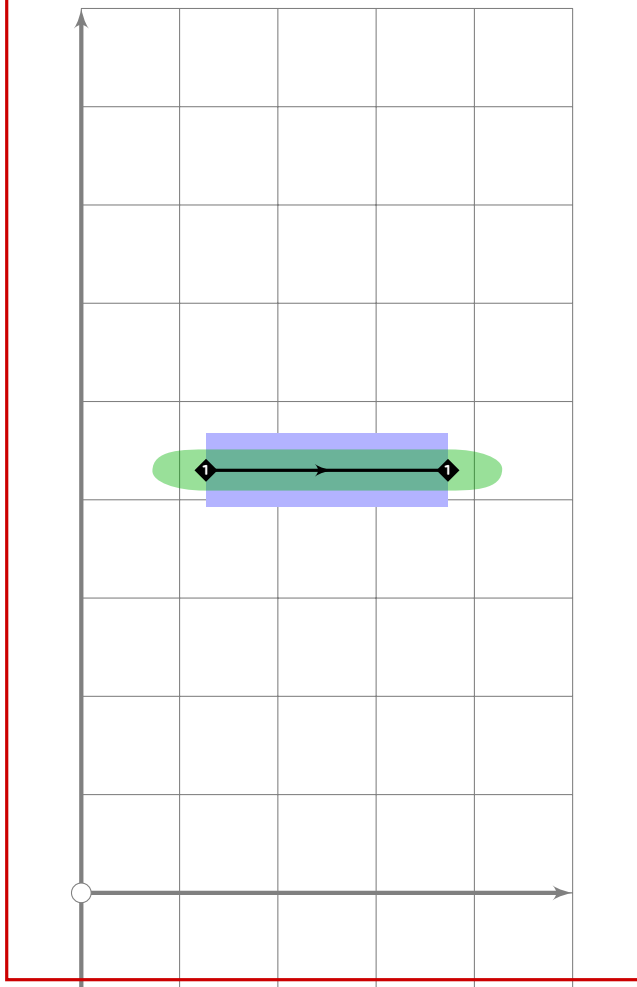


```

322
323 vardef punct.dash.en =
324   push_pbox_toexpand("punct.dash.en");
325   (z1+z2)/2=centre_pt;
326   x2-x1=580;
327   y1=y2;
328   push_stroke(z1-z2,(2,2)-(2,2));
329   expand_pbox;
330 enddef;

```

punct.dash.hyphen

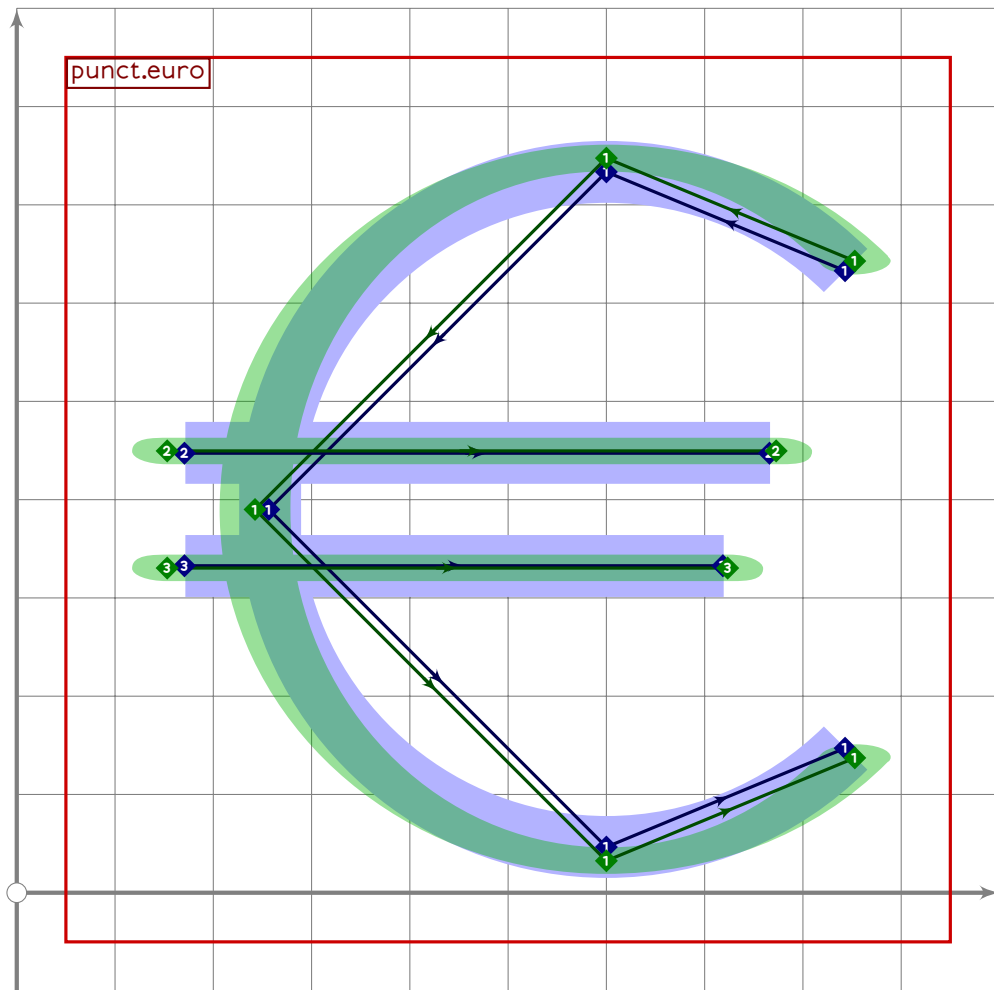


```
331
332 vardef punct.dash.hyphen =
333   push_pbox_toexpand("punct.dash.hyphen");
334   (z1+z2)/2=centre_pt;
335   x2-x1=340;
336   y1=y2;
337   push_stroke(z1-z2,(2,2)-(2,2));
338   expand_pbox;
339 enddef;
340
341 vardef punct.dash.long =
342   push_pbox_toexpand("punct.dash.long");
343   (z1+z2)/2=centre_pt;
344   x2-x1=340;
345   y1=y2;
346   push_stroke(z1-z2,(2,2)-(2,2));
347   expand_pbox;
348 enddef;
349
```

```

350 vardef punct.dividedby(expr t) =
351   push_stroke(((1,0)-(1,0)) transformed t,(2,2)-(2,2));
352   set_bosize(0,90);
353
354   push_lcblob(fullcircle scaled (0.65*tsu_punct_size/xxpart t)
355     shifted (0,0.9) transformed t);
356   push_lcblob(fullcircle scaled (0.65*tsu_punct_size/xxpart t)
357     shifted (0,-0.9) transformed t);
358
359   push_pbox_explicit("punct.dividedby",
360     identity shifted (-0.5,-0.5) scaled 2.4 transformed t);
361 enddef;
362
363 vardef punct.equals(expr t) =
364   push_stroke(((1,0.667)-(1,0.667)) transformed t,(2,2)-(2,2));
365   set_bosize(0,90);
366
367   push_stroke(((1,-0.667)-(1,-0.667)) transformed t,(2,2)-(2,2));
368   set_bosize(0,90);
369
370   push_pbox_explicit("punct.equals",
371     identity shifted (-0.5,-0.5) xyscaled (2.4,1.8) transformed t);
372 enddef;

```



```

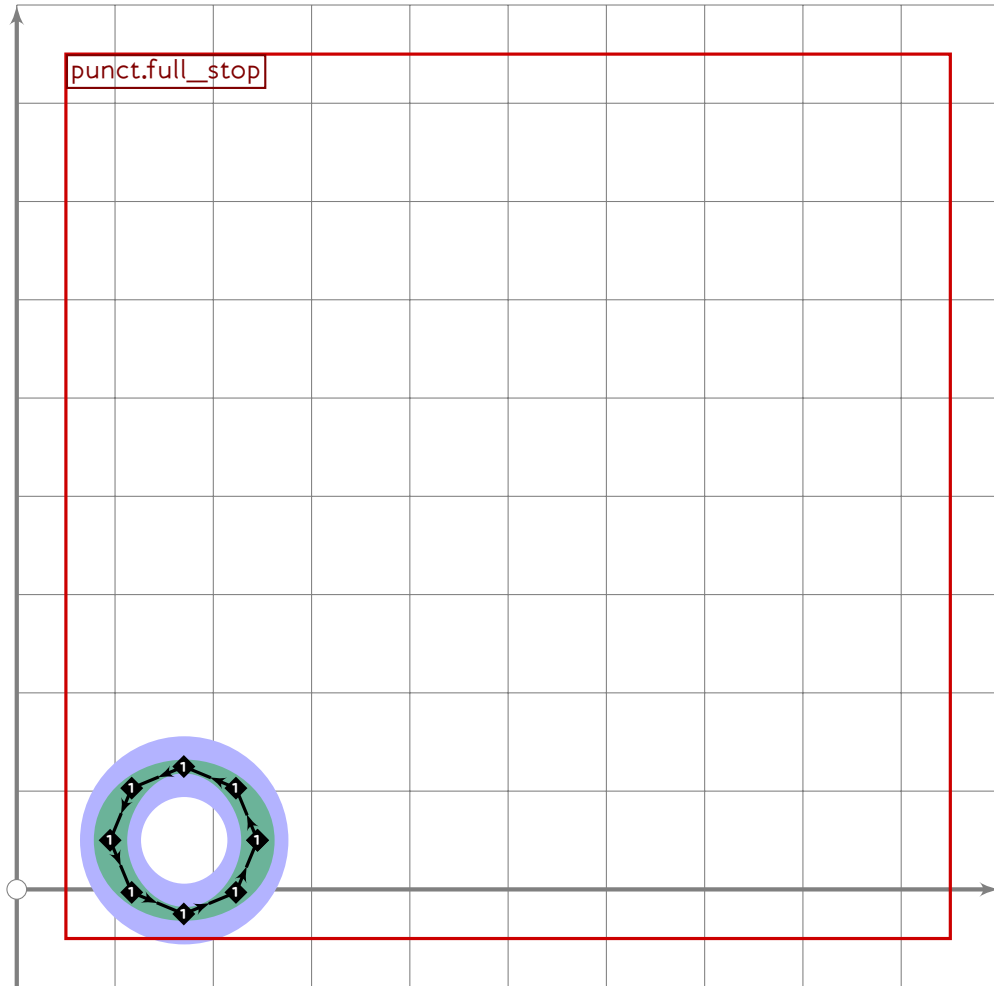
373
374 vardef punct.euro =
375   push_pbox_toexpand("punct.euro");
376
377   push_stroke((subpath (0.5,3.5) of ((1,0)..(0,1)..(-1,0)..(0,-1)..cycle))
378     scaled ((latin_wide_high_r-latin_wide_low_r)/2)
379     shifted (centre_pt+(100,0)),
380     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
381   set_bosize(0,90);
382
383   push_stroke((( -1.25,0.1667)-
384     (((0,0.1667)-(1,0.1667)) intersectionpoint ((0.707,0.707)-(0,-1))))
385     scaled ((latin_wide_high_r-latin_wide_low_r)/2)
386     shifted (centre_pt+(100,0)),
387     (1.6,1.6)-(1.6,1.6));
388   set_bosize(0,90);
389
390   push_stroke((( -1.25,-0.1667)-
391     (((0,-0.1667)-(1,-0.1667)) intersectionpoint ((0.707,0.707)-(0,-1))))
392     scaled ((latin_wide_high_r-latin_wide_low_r)/2)
393     shifted (centre_pt+(100,0)),

```

```

394 (1.6,1.6)-(1.6,1.6));
395 set_bosize(0,90);
396 expand_pbox;
397 enddef;
398

```



```

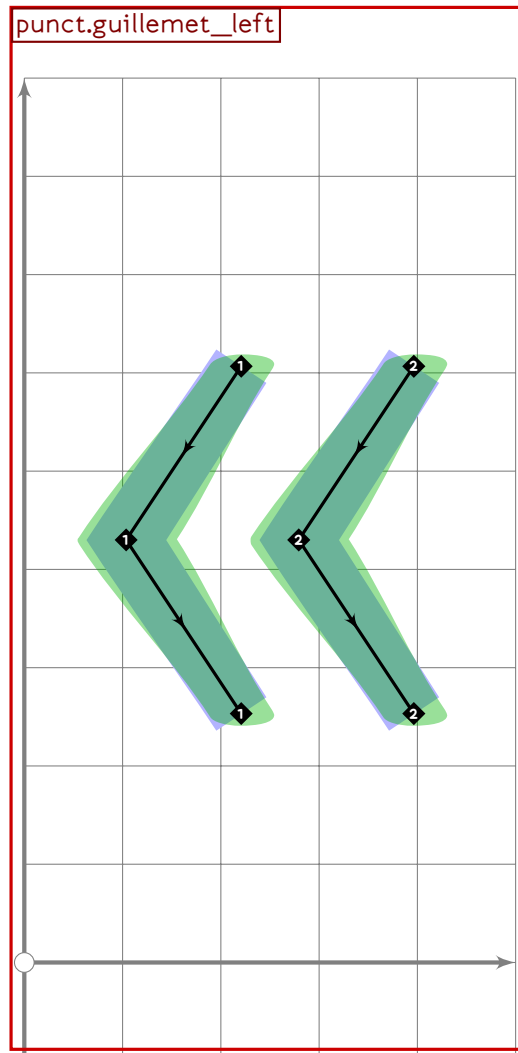
399 % this is *ideographic* full stop, not Latin period
400 vardef punct.full_stop =
401   push_pbox_toexpand("punct.full_stop");
402
403   if tsu_pbrush_size>=tsu_punct_size:
404     push_lcblob(fullcircle
405       xscaled (1.5*tsu_punct_size+tsu_pbrush_size)
406       yscaled (1.5*tsu_punct_size+tsu_pbrush_size*tsu_pbrush_shape)
407       rotated tsu_pbrush_angle
408       shifted (170,50));
409   else:
410     push_stroke(fullcircle scaled (1.5*tsu_punct_size) shifted (170,50),
411       (1,1)-(1,1)-(1,1)-(1,1)-cycle);
412   fi;
413   expand_pbox;
414 enddef;

```

```

415
416 vardef punct.greater_than(expr t) =
417   push_stroke(((−1,1)−(1,0)−(−1,−1)) transformed t,(2,2)−(2,2)−(2,2));
418   set_bosize(0,90);
419   set_botip(0,1);
420
421   push_pbox_explicit("punct.greater_than",
422     identity shifted (−0.5,−0.5) scaled 2.4 transformed t);
423 enddef;

```



```

424
425 vardef punct.guillemet_left =
426   push_pbox_toexpand("punct.guillemet_left");
427
428   push_stroke(((−0.5,1.5)−(−2.5,0)−(−0.5,−1.5))
429     scaled tsu_punct_size shifted centre_pt,
430     (1.5,1.5)−(2,2)−(1.5,1.5));
431   set_bosize(0,90);
432   set_botip(0,1);
433

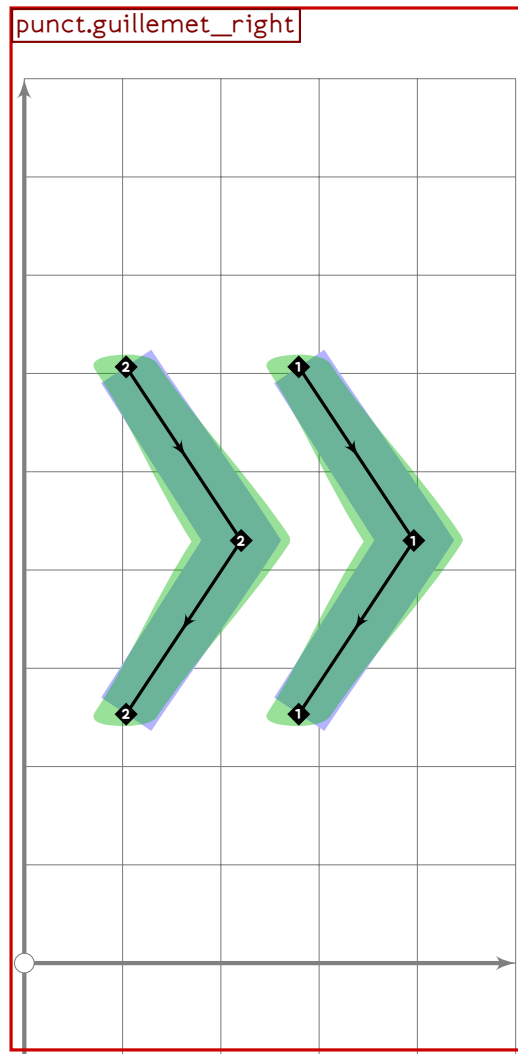
```



```

434 push_stroke(((2.5,1.5)-(0.5,0)-(2.5,-1.5))
435     scaled tsu_punct_size shifted centre_pt,
436     (1.5,1.5)-(2,2)-(1.5,1.5));
437 set_bosize(0,90);
438 set_botip(0,1,1);
439 expand_pbox;
440 enddef;

```



```

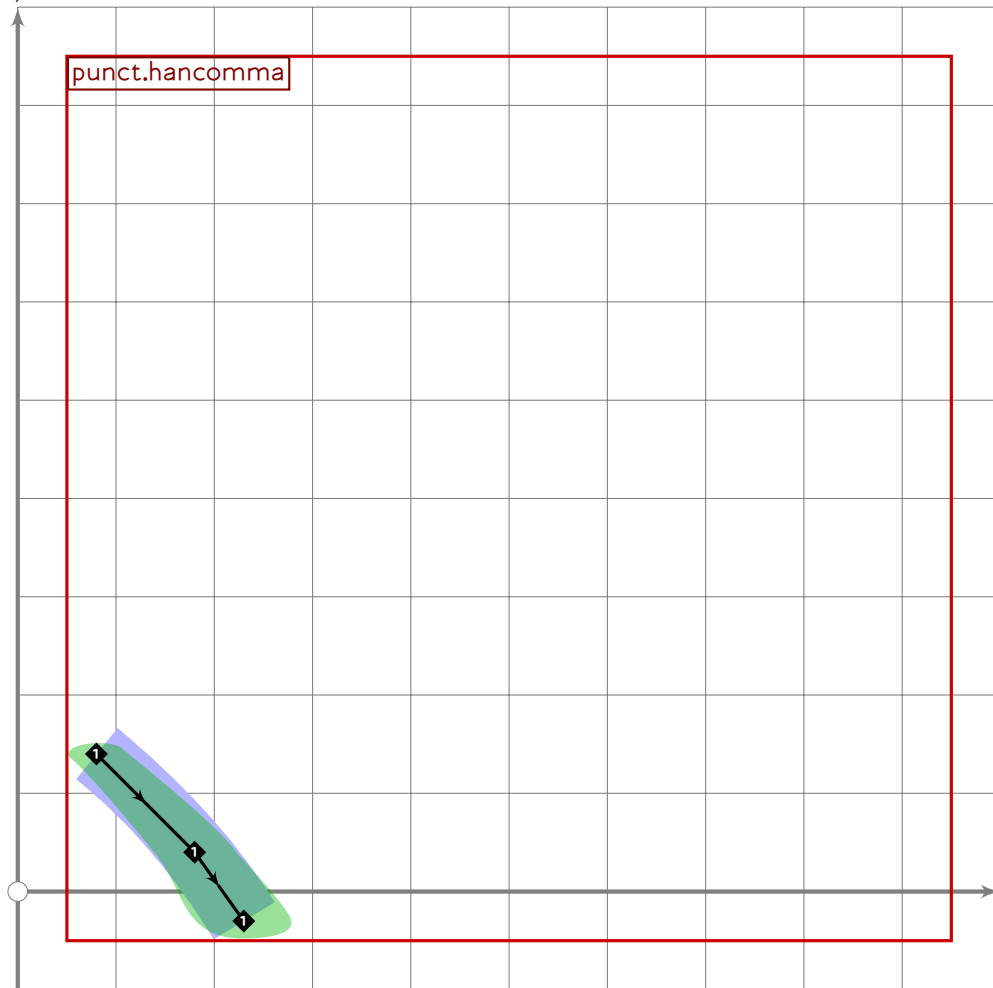
441
442 vardef punct.guillemet_right =
443   push_pbox_toexpand("punct.guillemet_right");
444
445   push_stroke(((0.5,1.5)-(2.5,0)-(0.5,-1.5))
446     scaled tsu_punct_size shifted centre_pt,
447     (1.5,1.5)-(2,2)-(1.5,1.5));
448   set_bosize(0,90);
449   set_botip(0,1,1);
450
451   push_stroke(((2.5,1.5)-(-0.5,0)-(2.5,-1.5))
452     scaled tsu_punct_size shifted centre_pt,

```

```

453 (1.5,1.5)-(2,2)-(1.5,1.5));
454 set_bosize(0,90);
455 set_botip(0,1,1);
456 expand_pbox;
457 enddef;

```



```

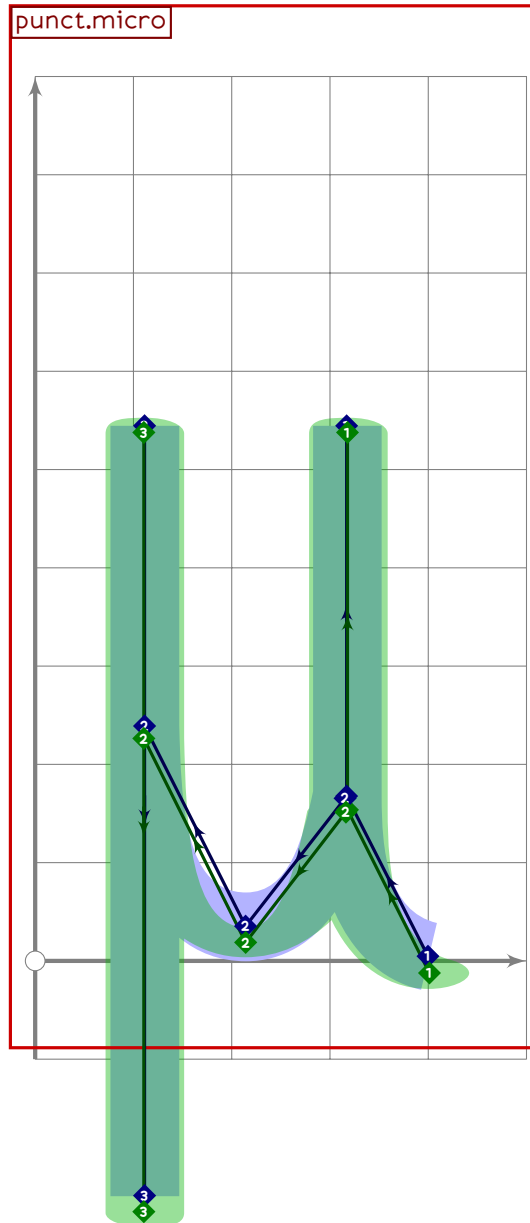
458
459 vardef punct.hancomma =
460   push_pbox_toexpand("punct.hancomma");
461   push_stroke((80,140)..(180,40)..(230,-30),(1,3,1,3)..(1,6,1,6)..(1,8,1,8));
462   expand_pbox;
463 enddef;
464
465 vardef punct.hminus(expr t) =
466   push_stroke(((1,0)-(1,0)) transformed t,(2,2)-(2,2));
467
468   push_pbox_explicit("punct.hminus",
469     identity shifted (-0.5,-0.5) xyscaled (2.4,0.6) transformed t);
470 enddef;
471
472 vardef punct.less_than(expr t) =
473   push_stroke(((1,1)-(1,0)-(1,-1)) transformed t,(2,2)-(2,2)-(2,2));

```

```

474 set_bosize(0,90);
475 set_botip(0,1,1);
476
477 push_pbox_explicit("punct.less_than",
478     identity shifted (-0.5,-0.5) scaled 2.4 transformed t);
479 enddef;
480

```



```

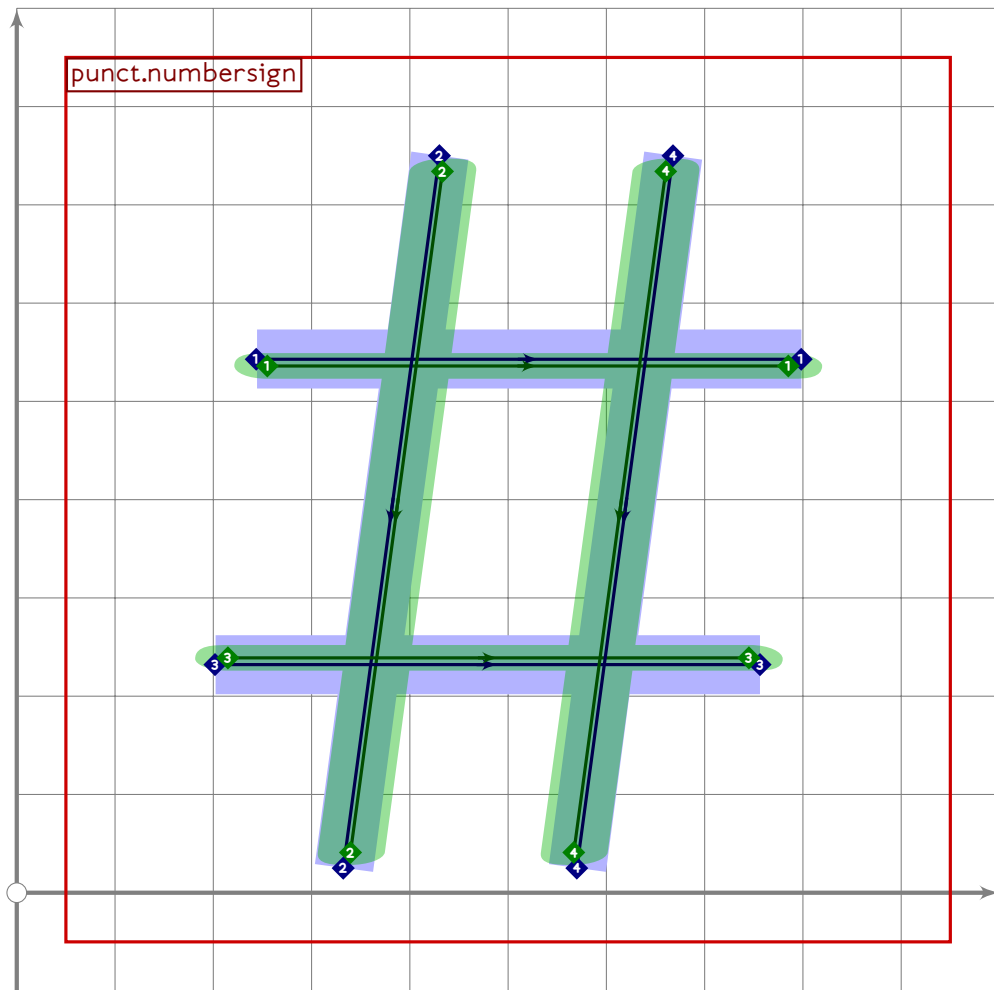
481 % in the future, this will probably become greek.lowmu
482 vardef punct.micro =
483     push_pbox_toexpand("punct.micro");
484
485     x1-x2=y2-y1;
486     (x2+x6)/2=450;
487     (x2-x6)=(y3-y1)*0.75;
488     x3=x2=x4;

```

```

489 x5=0.5[x4,x6];
490 x7=x8=x6;
491
492 y1=(-0.06)[y5,y3];
493 y2=0.26[y5,y3];
494 y3=y7=latin_wide_xheight_v;
495 y4=0.73[y3,y5];
496 y5=latin_wide_low_h;
497 y6=0.60[y3,y5];
498 y8=latin_wide_desc_v;
499
500 push_stroke(z1{dir 173}{up}z2-z3,(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
501 push_stroke(subpath (0.03,2) of (z4..z5{left}..z6{dir 93}),
502   (1.6,1.6)-(1.6,1.6)-(1.6,1.6));
503 push_stroke(z7-z8,(1.6,1.6)-(1.6,1.6));
504 expand_pbox;
505 enddef;
506
507 vardef punct.notsign(expr t) =
508   push_stroke(((1,0)-(1,0)-(1,-1)) transformed t,(2,2)-(2,2)-(2,2));
509   set_bosize(0,90);
510   set_botip(0,1,1);
511
512   push_pbox_explicit("punct.notsign",
513     identity shifted (-0.5,-0.5) scaled 2.4 transformed t);
514 enddef;

```



```

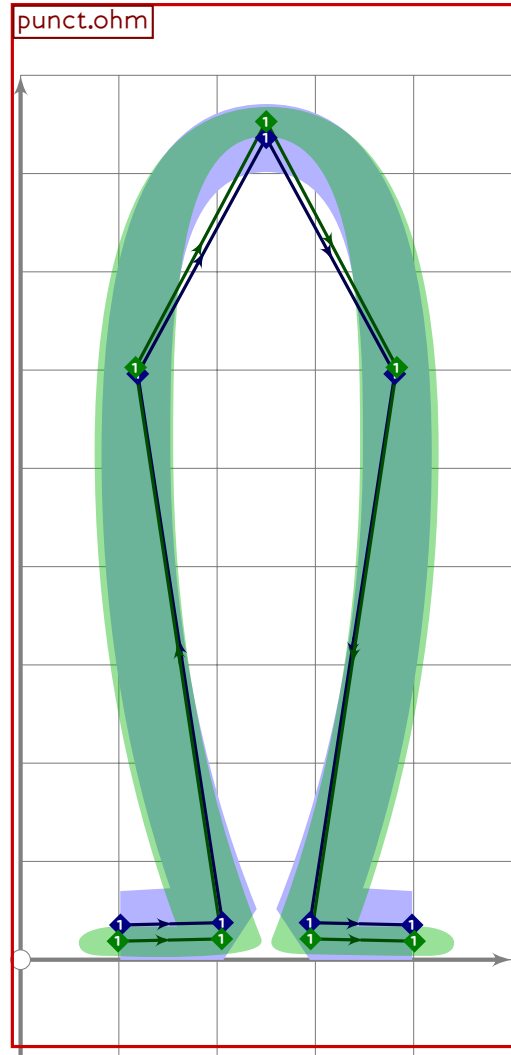
515
516 vardef punct.numbersign =
517   push_pbox_toexpand("punct.numbersign");
518
519   (x1+x2)/2=500;
520   (x2-x1)=0.9*(y2-y1);
521   x3=0.15[x1,x2];
522
523   y1=latin_wide_low_v;
524   y2=y3=latin_wide_high_v;
525
526   transform xf_num;
527   (0,0) transformed xf_num = z1;
528   (3.5,3.5) transformed xf_num = z2;
529   (0,3.5) transformed xf_num = z3;
530
531   push_stroke(((0,2.5)-(3.5,2.5)) transformed xf_num,(1.6,1.6)-(1.6,1.6));
532   set_bosize(0,85);
533   push_stroke(((1,3.5)-(1,0)) transformed xf_num,(1.6,1.6)-(1.6,1.6));
534   set_bosize(0,85);
535   push_stroke(((0,1)-(3.5,1)) transformed xf_num,(1.6,1.6)-(1.6,1.6));

```

```

536 set_bosize(0,85);
537 push_stroke(((2.5,3.5)-(2.5,0)) transformed xf_num,(1.6,1.6)-(1.6,1.6));
538 set_bosize(0,85);
539 expand_pbox;
540 enddef;
541

```



```

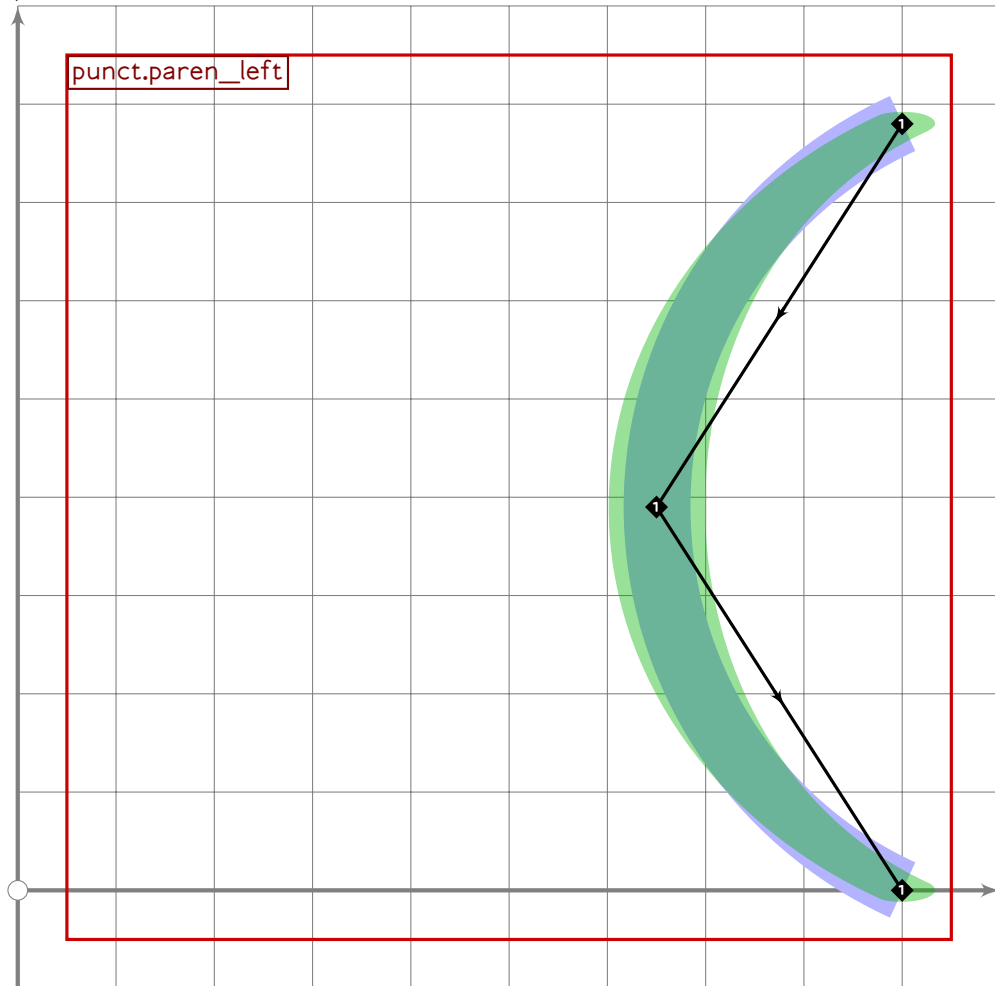
542 % in the future, this will probably become greek.upomega
543 vardef punct.ohm =
544   push_pbox_toexpand("punct.ohm");
545
546   (x5+x3)/2=(x6+x2)/2=(x7+x1)/2=x4=500;
547   x2=0.7[x1,x4];
548   x7-x1=0.76*(y4-y1);
549   x5-x3=0.67*(y4-y1);
550
551   y1=y7=latin_wide_low_h;
552   y2=y6=y1+2;
553   y3=y5=0.7[y1,y4];
554   y4=latin_wide_high_r;

```

```

555
556 push_stroke(z1-z2..tension 1.5 and 1.3..z3..z4..
557     z5..tension 1.3 and 1.5..z6-z7,
558     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-
559     (1.6,1.6)-(1.6,1.6));
560 set_botip(0,1,0);
561 set_botip(0,5,0);
562 expand_pbox;
563 enddef;

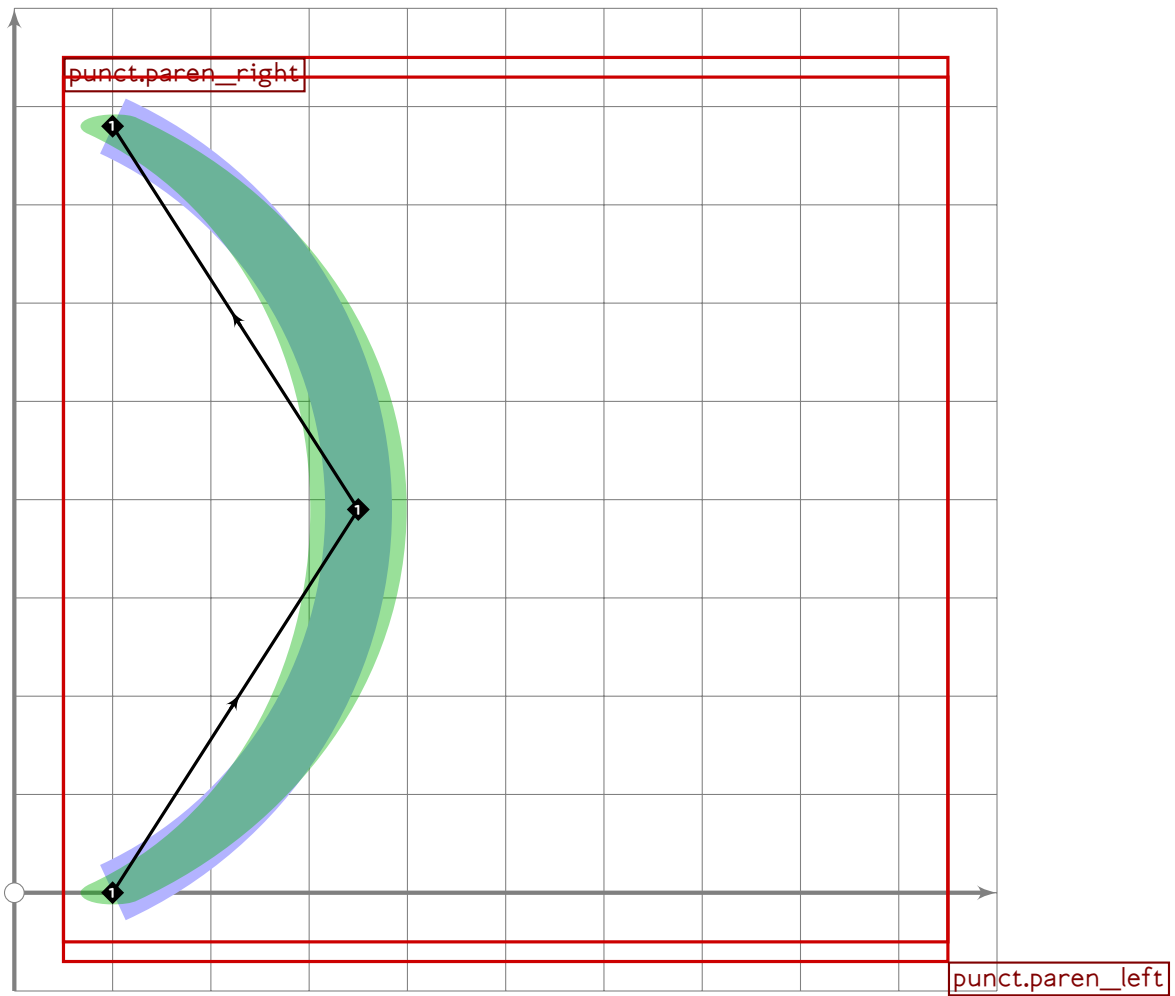
```



```

564
565 vardef punct.paren_left =
566     push_pbox_toexpand("punct.paren_left");
567     push_stroke((900,780)..(900-2.5*tsu_punct_size,390)..(900,0),
568     (1.5,1.5)-(2,2)-(1.5,1.5));
569     set_bosize(0,90);
570     expand_pbox;
571 enddef;

```

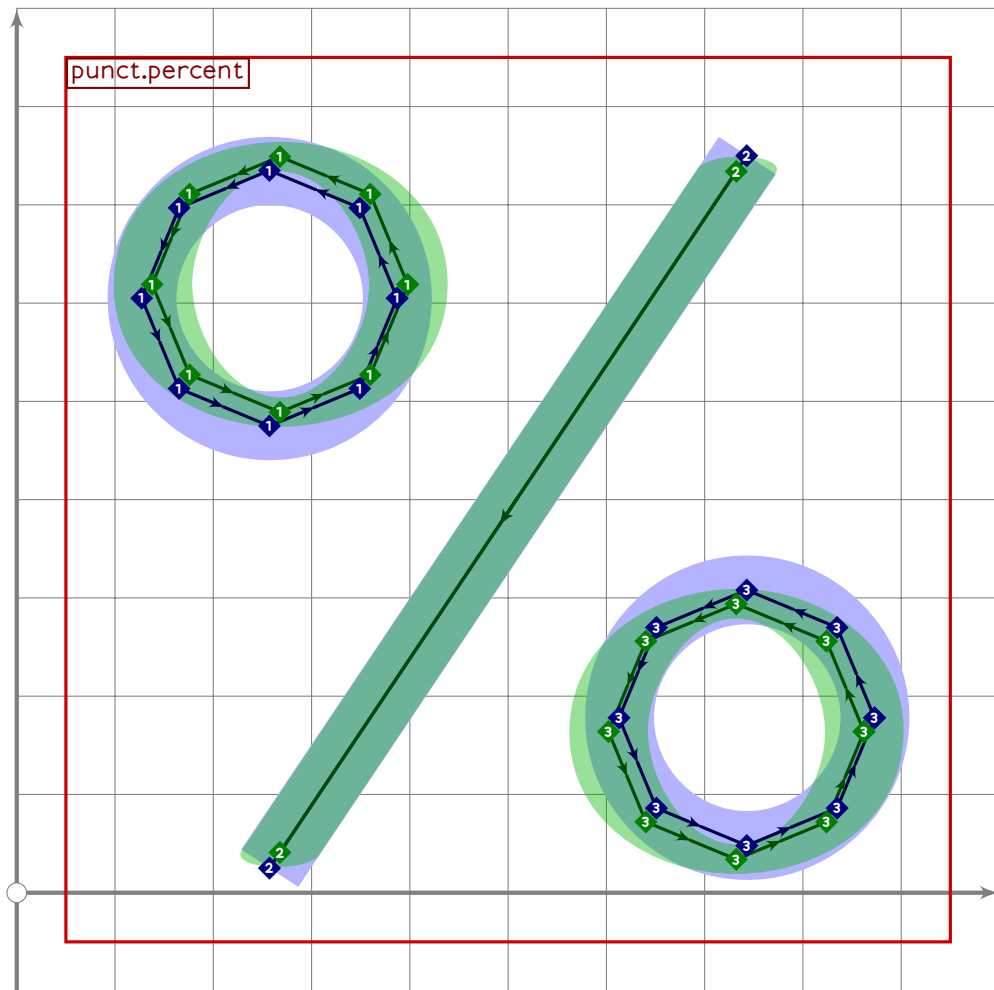


```

572
573 vardef punct.paren_right =
574   push_pbox_toexpand("punct.paren_right");
575   tsu_xform(identity rotatedaround (centre_pt,180))
576   (punct.paren_left);
577   expand_pbox;
578 enddef;

```

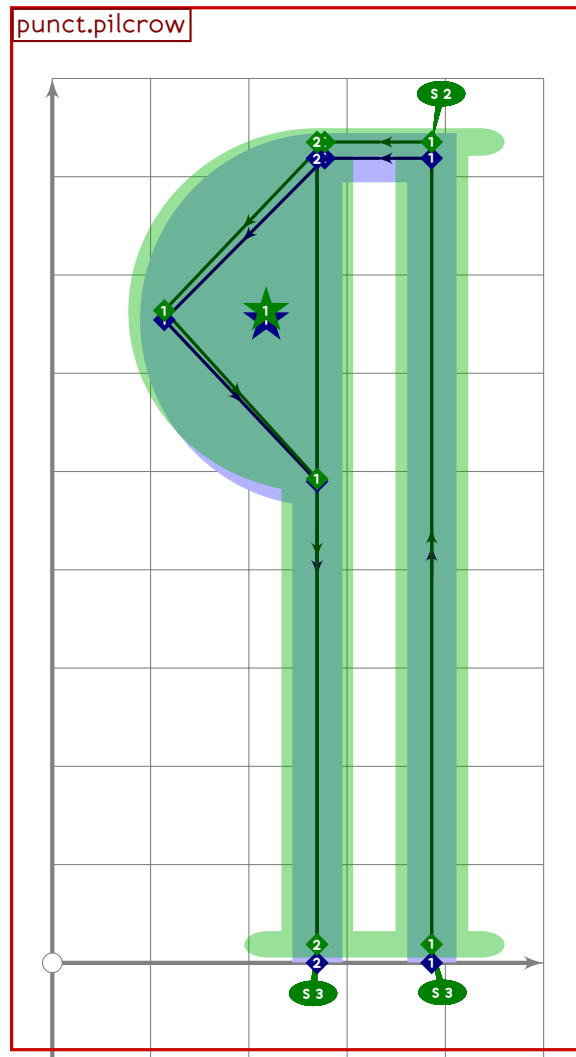




```

579
580 vardef punct.percent =
581   push_pbox_toexpand("punct.percent");
582
583   (x1+x2)/2=500;
584   (x1-x2)=0.67(y1-y2);
585
586   y1=latin_wide_high_v;
587   y2=latin_wide_low_v;
588
589   push_stroke(fullcircle scaled 260 shifted (x2,latin_wide_high_r-130),
590     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-cycle);
591
592   push_stroke((z1-z2)
593     shifted -centre_pt scaled (tsu_punct_size/100) shifted centre_pt,
594     (1.6,1.6)-(1.6,1.6));
595
596   push_stroke(fullcircle scaled 260 shifted (x1,latin_wide_low_r+130),
597     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-cycle);
598   expand_pbox;
599 enddef;

```



```

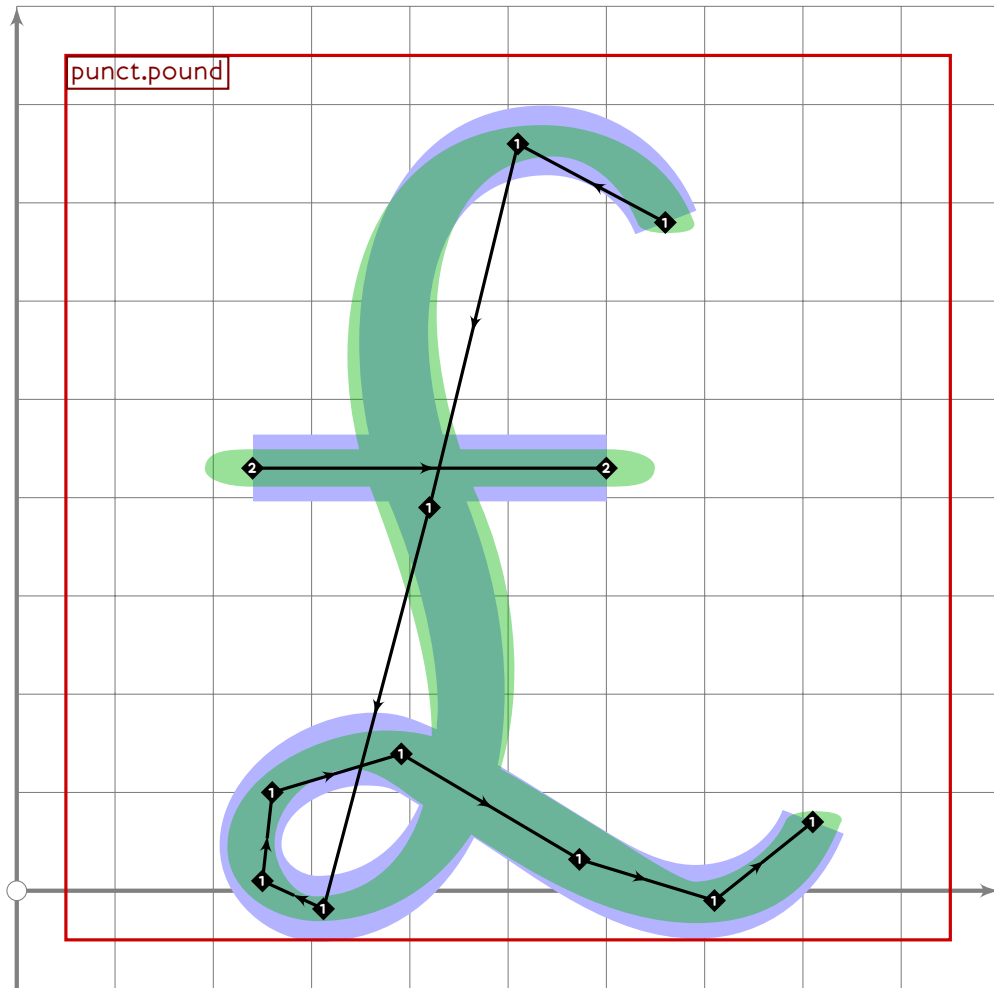
600
601 vardef punct.pilcrow =
602   push_pbox_toexpand("punct.pilcrow");
603
604   x1=x2=x6=710;
605   x3=x5=x1-420*0.4;
606   x4=x1-420;
607
608   y1=latin_wide_low_v;
609   y2=y3=latin_wide_high_h;
610   y4=(y3+y5)/2;
611   y5=y6=vmetric(0.58);
612
613   x7=x8=x9=x1-1.8*tsu_punct_size;
614   y7=y2+50;
615   y8=y4;
616   y9=y1;
617
618   push_stroke(z1-z2-z3{left}..z4..{right}z5-z6,

```

```

619 (2,2)-(2,2)-(2,2)-(2,2)-(2,2)-(2,2));
620 replace_strokeq(0)(subpath (0,xpart (get_strokep(0) intersectiontimes
621 (z8-z9))) of oldq);
622 replace_strokep(0)(subpath (0,xpart (oldp intersectiontimes
623 (z8-z9))) of oldp);
624 set_bosize(0,67);
625 set_botip(0,1,1);
626 set_boserif(0,0,3);
627 set_boserif(0,1,2);
628
629 push_stroke(((z7-z8) intersectionpoint get_strokep(0))-z9,(2,2)-(2,2));
630 set_bosize(0,67);
631 set_boserif(0,1,3);
632
633 if tsu_pbrush_size>=30:
634   push_lcblob((subpath (xpart (get_strokep(-1) intersectiontimes (z7-z8)),
635     infinity) of get_strokep(-1))-cycle);
636   fi;
637   expand_pbox;
638 enddef;
639
640 vardef punct.plus(expr t) =
641   push_stroke(((1,0)-(1,0)) transformed t,(2,2)-(2,2));
642   push_stroke(((0,1)-(0,-1)) transformed t,(2,2)-(2,2));
643   push_pbox_explicit("punct.plus",
644     identity shifted (-0.5,-0.5) scaled 2.4 transformed t);
645 enddef;
646
647 vardef punct.plusminus(expr t) =
648   push_stroke(((1,0.25)-(1,0.25)) transformed t,(2,2)-(2,2));
649   push_stroke(((0,1.25)-(0,-0.75)) transformed t,(2,2)-(2,2));
650   push_stroke(((1,-1.25)-(1,-1.25)) transformed t,(2,2)-(2,2));
651
652   push_pbox_explicit("punct.plusminus",
653     identity shifted (-0.5,-0.5) xyscaled (2.4,3.2) transformed t);
654 enddef;

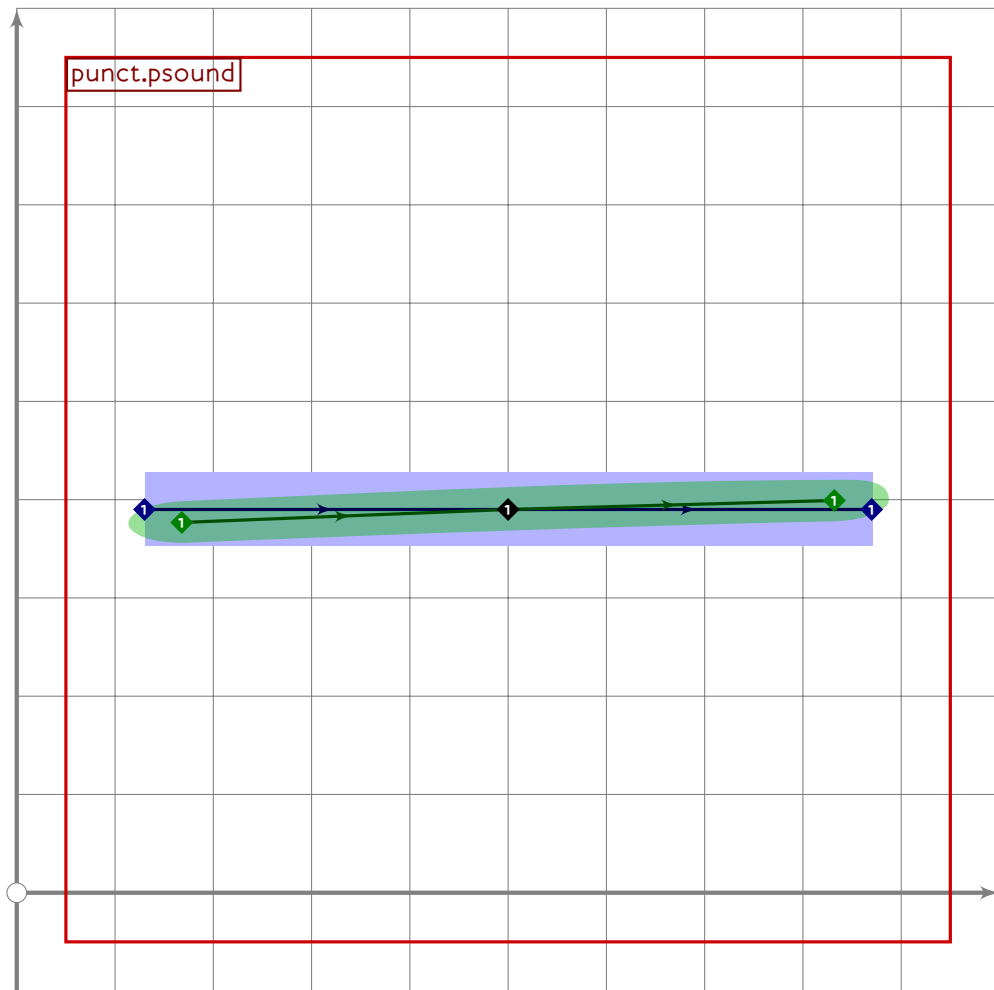
```



```

655
656 vardef punct.pound =
657   push_pbox_toexpand("punct.pound");
658
659   push_stroke((660,680)..(510,760)..(420,390)..tension 11..(250,10)..
660     (260,100)..(710,-10)..(810,70),
661     (1.3,1.3)-(1.7,1.7)-(1.9,1.9)-(1.4,1.4)-(1.2,1.2)-
662     (1.1,1.2)-(2,2)-(2.1,2.1)-(2,2)-(1.3,1.3));
663   replace_strokep(0)(insert_nodes(oldp)(2.8,4.3,4.7));
664
665   push_stroke((240,430)-(600,430),(2,2)-(2,2));
666   set_bosize(0,90);
667   expand_pbox;
668 enddef;

```

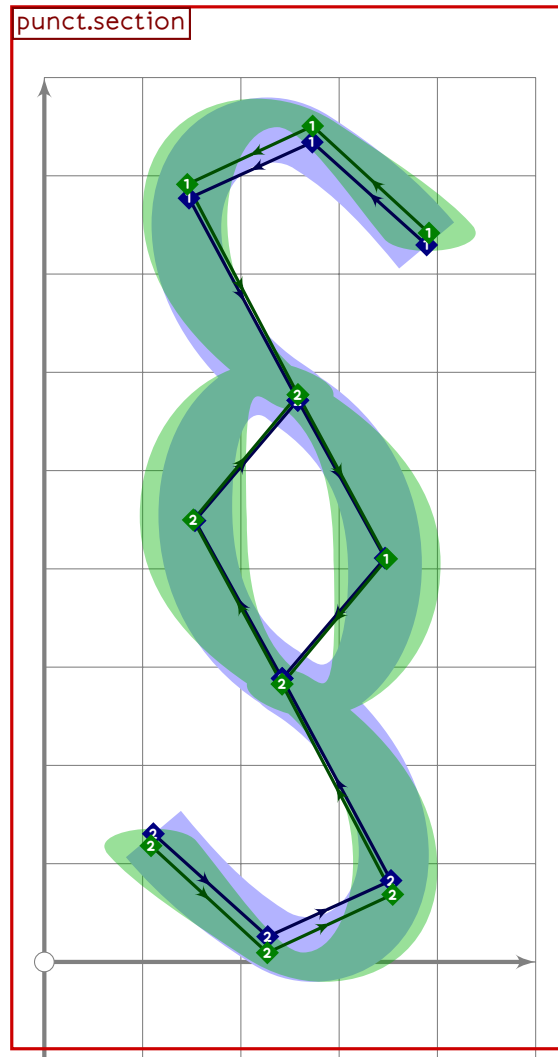


```

669
670 vardef punct.psound =
671   push_pbox_toexpand("punct.psound");
672   push_stroke((130,390-15*mincho)..(500,390)..(870,390+10*mincho),
673     (0.7,3.3)-(2,2)-(0.7,3.3));
674   expand_pbox;
675 enddef;
676
677 vardef punct.make_period(expr cpos) =
678   push_stroke(fullcircle scaled (tsu_punct_size*1.5) shifted cpos,
679     (2,2)-(2,2)-(2,2)-(2,2)-cycle);
680
681   if tsu_pbrush_size>=30:
682     set_bsize(0,40);
683     push_lcblob(get_stroke(0));
684   else:
685     set_bsize(0,80);
686   fi;
687
688   push_pbox_explicit("punct.make_period",
689     identity shifted (-0.5,-0.5) scaled (tsu_punct_size*1.5) shifted cpos);

```

690 endif;

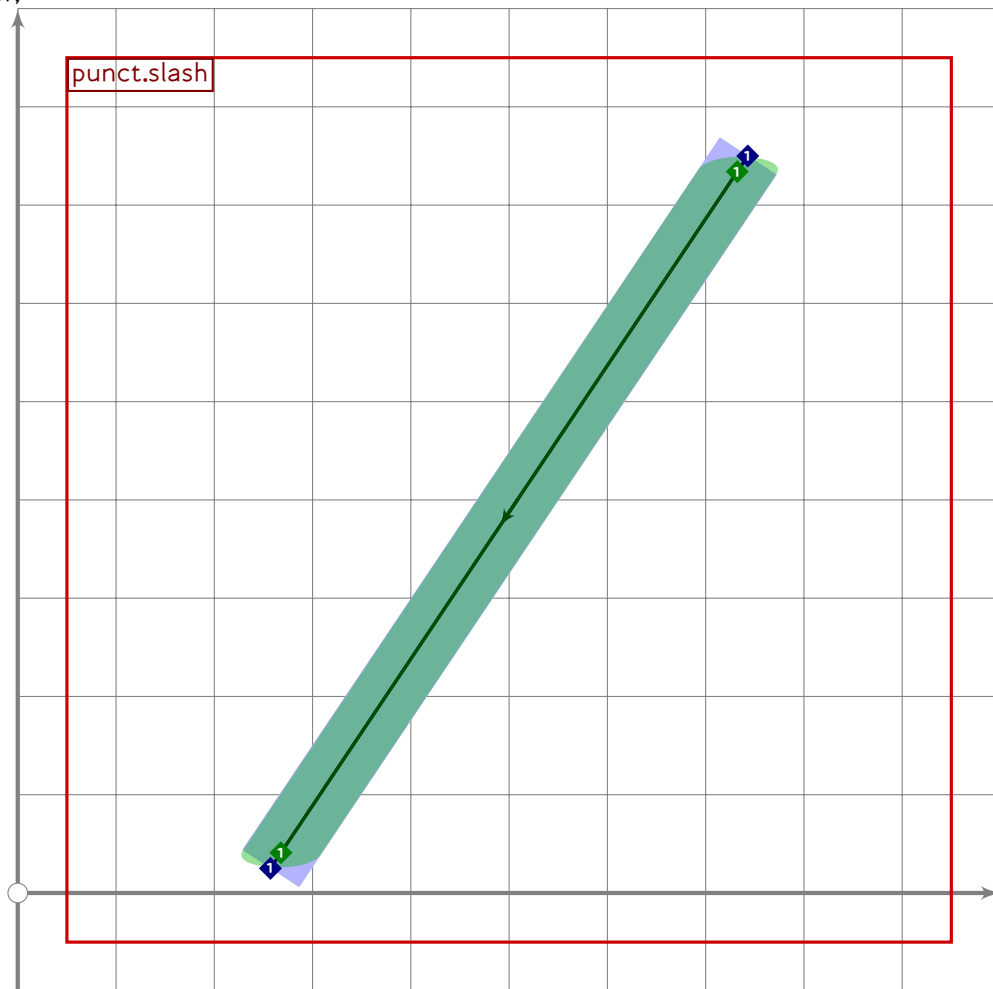


```
691
692 vardef punct.section =
693   push_pbox_toexpand("punct.section");
694
695   (x1+x3)/2=x2=x4=x6=500;
696   x5=0.8[x2,x1];
697   2*(x5-x2)=0.45*(latin_wide_high_r-latin_wide_low_r);
698
699   y1=y3=0.8[ypart centre_pt,latin_wide_high_r];
700   y2=latin_wide_high_r;
701   y4=0.35[ypart centre_pt,latin_wide_high_r];
702   y5=ypart centre_pt;
703   y4-y5=y5-y6;
704
705   push_stroke((z1..z2..z3..z4..z5..z6) rotatedaround (centre_pt,-6),
706     (1.8,1.8)-(1.2,1.2)-(1.7,1.7)-(1.3,1.3)-(2,2)-(1.5,1.5));
707
708   push_stroke(get_strokep(0) rotatedaround (centre_pt,180),get_strokeq(0));
```

```

709 expand_pbox;
710 enddef;

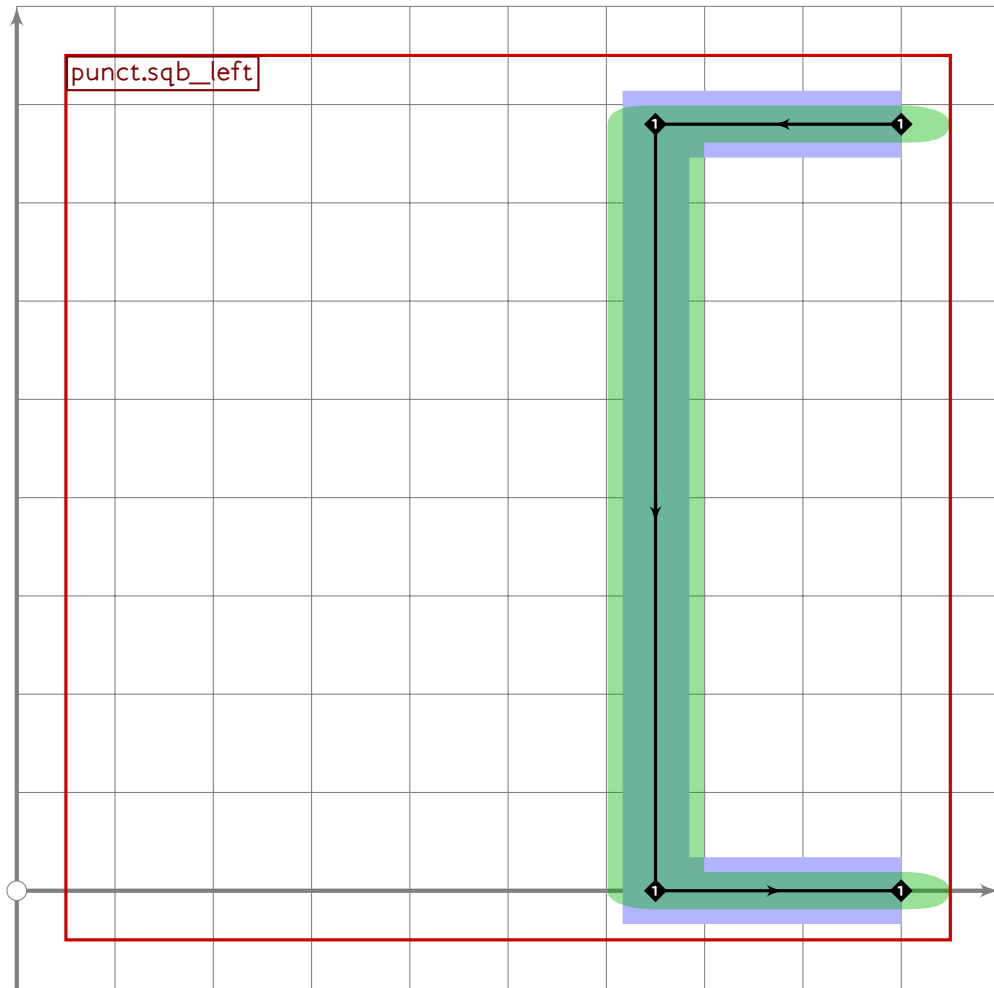
```



```

711
712 vardef punct.slash =
713   push_pbox_toexpand("punct.slash");
714   (x1+x2)/2=500;
715   (x1-x2)=0.67(y1-y2);
716
717   y1=latin_wide_high_v;
718   y2=latin_wide_low_v;
719
720   push_stroke((z1-z2)
721     shifted -centre_pt scaled (tsu_punct_size/100) shifted centre_pt,
722     (1.6,1.6)-(1.6,1.6));
723   expand_pbox;
724 enddef;

```

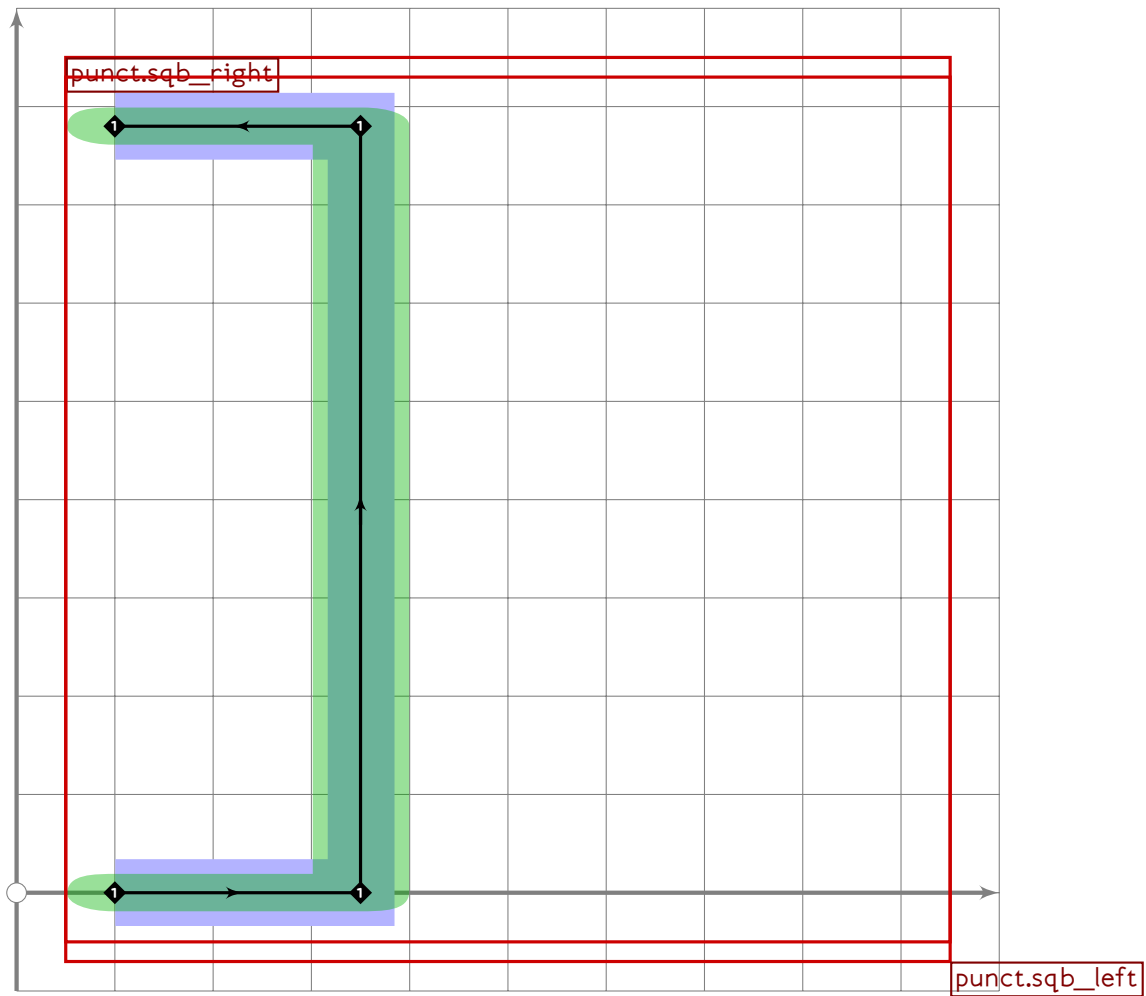


```

725
726 vardef punct.sqb_left =
727   push_pbox_toexpand("punct.sqb_left");
728   push_stroke((900,780)-
729     (900-2.5*tsu_punct_size,780)-
730     (900-2.5*tsu_punct_size,0)-
731     (900,0),
732     (2,2)-(2,2)-(2,2)-(2,2));
733   set_bosize(0,90);
734   set_botip(0,1,1);
735   set_botip(0,2,1);
736   expand_pbox;
737 enddef;

```

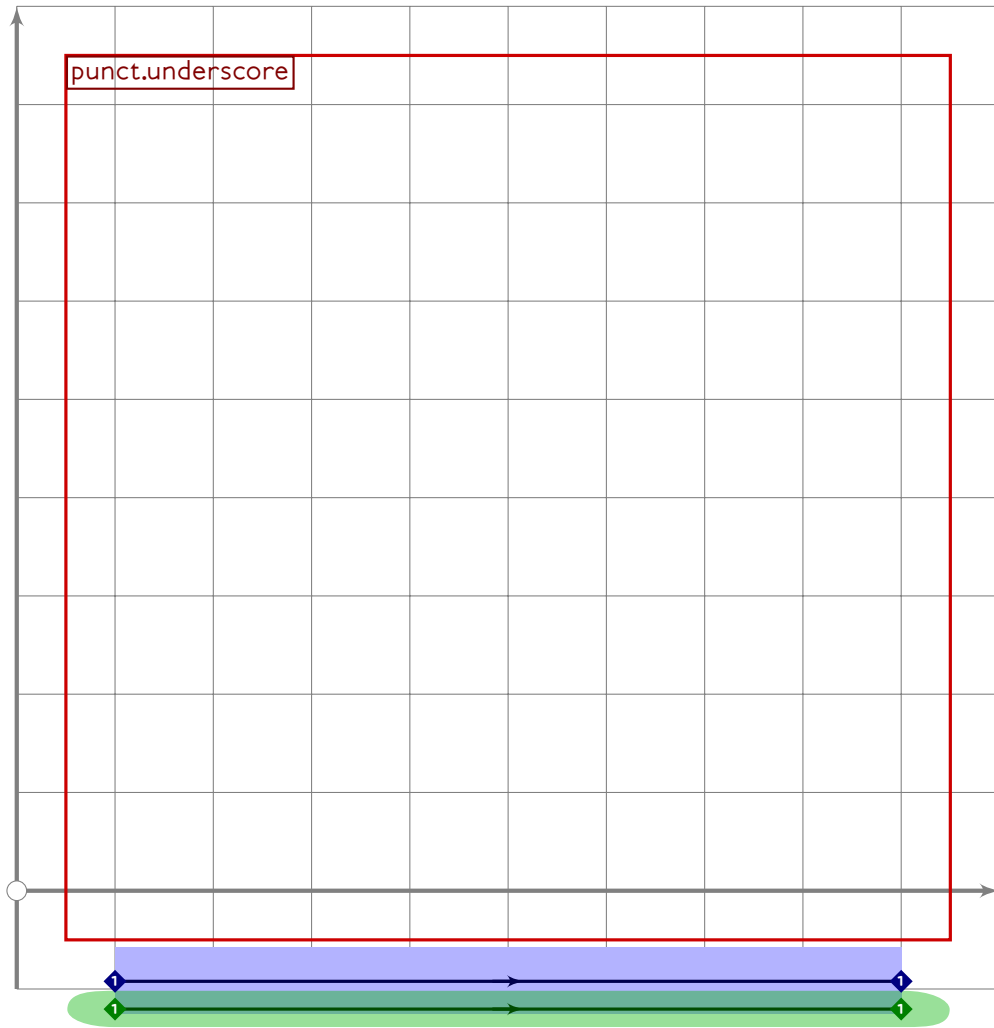




```

738
739 vardef punct.sqb_right =
740   push_pbox_toexpand("punct.sqb_right");
741   tsu_xform(identity rotatedaround (centre_pt,180))
742     (punct.sqb_left);
743   expand_pbox;
744 enddef;
745
746 vardef punct.times(expr t) =
747   push_stroke((( -1,-1)-(1,1)) transformed t,(2,2)-(2,2));
748   set_bosize(0,90);
749   push_stroke((( -1,1)-(1,-1)) transformed t,(2,2)-(2,2));
750   set_bosize(0,90);
751
752   push_pbox_explicit("punct.times",
753     identity shifted (-0.5,-0.5) scaled 2.4 transformed t);
754 enddef;

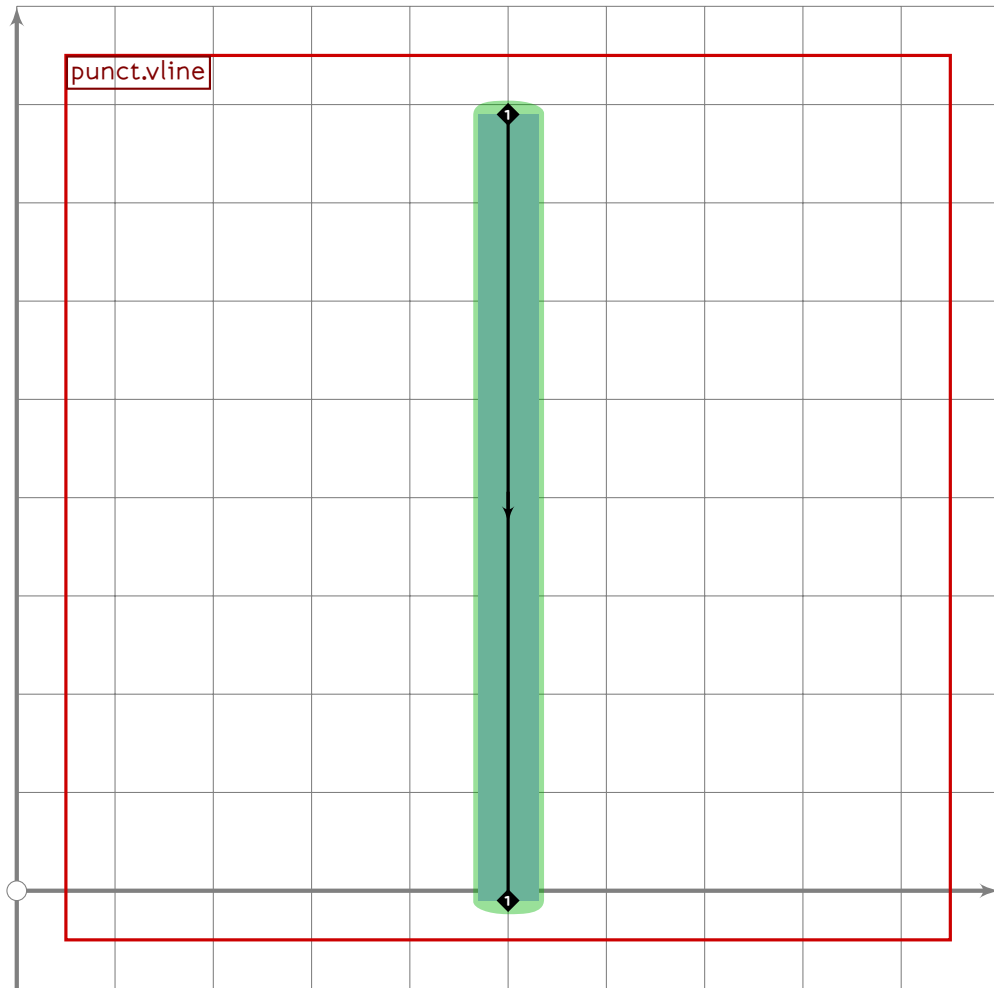
```



```

755
756 vardef punct.underscore =
757   push_pbox_toexpand("punct.underscore");
758   push_stroke((100,0.3[latin_wide_desc_h,latin_wide_low_h])-
759     (900,0.3[latin_wide_desc_h,latin_wide_low_h]),
760     (2,2)-(2,2));
761   set_bosize(0,90);
762   expand_pbox;
763 enddef;

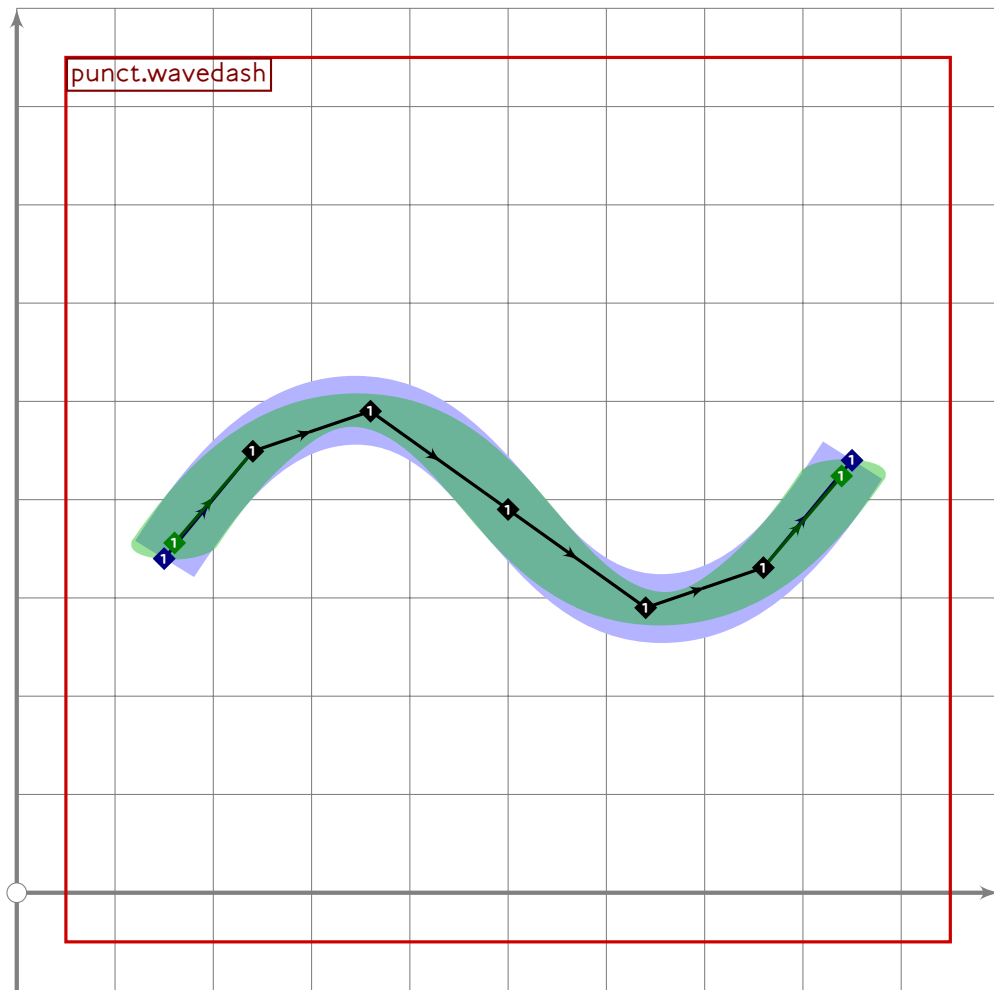
```



```

764
765 vardef punct.vline =
766   push_pbox_toexpand("punct.vline");
767   push_stroke((500,690+tsu_punct_size)-(500,90-tsu_punct_size),
768     (1.6,1.6)-(1.6,1.6));
769   set_bosize(0,90);
770   expand_pbox;
771 enddef;

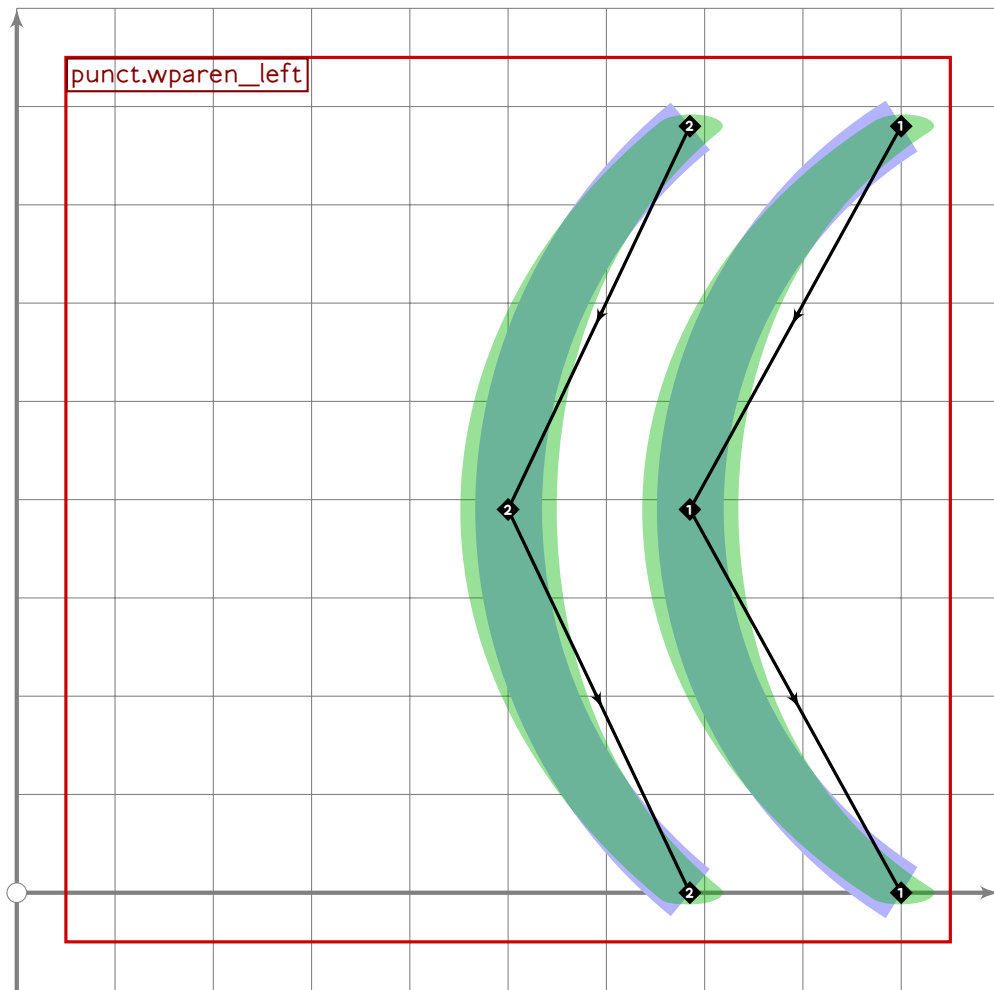
```



```

772
773 vardef punct.wavedash =
774   push_pbox_toexpand("punct.wavedash");
775   push_stroke(((3.5,-0.5){curl 0}..(-1.4,1)..(0,0)..(1.4,-1)..
776     {curl 0}(3.5,0.5)) scaled tsu_punct_size shifted centre_pt,
777     (0.7,2.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-
778     (1.7,1.7)-(0.7,2.7));
779   replace_strokep(0)(insert_nodes(oldp)(0.5,3.5));
780   expand_pbox;
781 enddef;

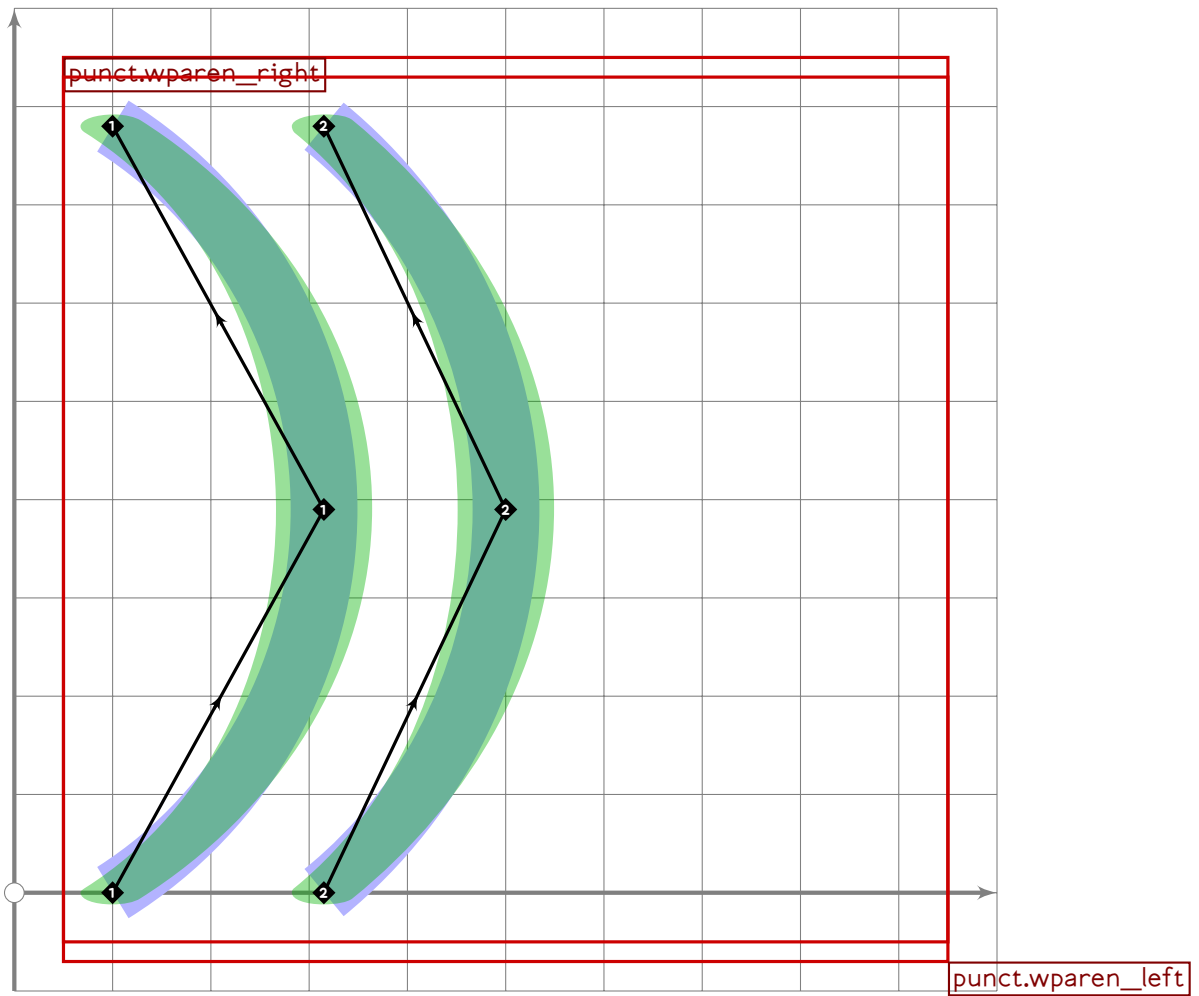
```



```

782
783 vardef punct.wparen_left =
784   push_pbox_toexpand("punct.wparen_left");
785
786   push_stroke((900,780)..(900-2.15*tsu_punct_size,390)..(900,0),
787     (1.5,1.5)-(2,2)-(1.5,1.5));
788   set_bosize(0,90);
789
790   push_stroke((900-2.15*tsu_punct_size,780)..
791     (900-4*tsu_punct_size,390)..
792     (900-2.15*tsu_punct_size,0),
793     (1.5,1.5)-(2,2)-(1.5,1.5));
794   set_bosize(0,90);
795   expand_pbox;
796 enddef;

```



```

797
798 vardef punct.wparen_right =
799   push_pbox_toexpand("punct.wparen_right");
800   tsu_xform(identity rotatedaround (centre_pt,180))
801     (punct.wparen_left);
802   expand_pbox;
803 enddef;

```

# serif.mp

```
1 %
2 % Serifs for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(serif);
32
33 _____
34
35 % figure out size of brush
36 (sbrush_width,sbrush_height)=urcorner (
37   fullcircle yscaled tsu_brush_shape
38   rotated tsu_brush_angle
39 );
40 if sbrush_width>sbrush_height:
41   sbrush_long:=sbrush_width;
42   sbrush_short:=sbrush_height;
43 else:
44   sbrush_short:=sbrush_width;
45   sbrush_long:=sbrush_height;
46 fi;
47
48 _____
49
50 vardef tsu_serif.latin.lrcore(expr bst,plp,dlp,l,bts,bos) =
51   serif:=serif xscaled sbrush_long yscaled sbrush_short;
52   serif:=serif xscaled ((1+3*xxpart tsu_rescaling_xf)/4)
53     yscaled bos scaled bts;
54   glstk[ngls]:=regenerate(serif shifted plp);
55   ngls:=ngls+1;
56 enddef;
57
58 vardef tsu_serif.latin.left(expr bst,plp,dlp,l,bts,bos) =
59   begingroup
60     save serif;
61     path serif;
62     if sharp_corners:
63       serif:=(-serif_size,1)-(-serif_size,-1)-
64         (0,-1)-(0,1)-cycle;
65     else:
66       serif:=(-serif_size,1){left}..{right}{(-serif_size,-1)-
67         (0,-1)-(0,1)-cycle;
68     fi;
69     tsu_serif.latin.lrcore(bst,plp,dlp,l,bts,bos);
70   endgroup;
```

```

71 enddef;
72
73 vardef tsu_serif.latin.right(expr bst,plp,dlp,l,bts,bos) =
74   begingroup
75     save serif;
76     path serif;
77     if sharp_corners:
78       serif:=(0,1)-(0,-1)-
79         (serif_size,-1)-(serif_size,1)-cycle;
80     else:
81       serif:=(0,1)-(0,-1)-
82         (serif_size,-1){right}..{left}(serif_size,1)-cycle;
83     fi;
84     tsu_serif.latin.lrcore(bst,plp,dlp,l,bts,bos);
85   endgroup;
86 enddef;
87
88 vardef tsu_serif.latin.leftright(expr bst,plp,dlp,l,bts,bos) =
89   begingroup
90     save serif,xoffs;
91     path serif;
92     if sharp_corners:
93       serif:=(-serif_size,1)-(-serif_size,-1)-
94         (serif_size,-1)-(serif_size,1)-cycle;
95     else:
96       serif:=(-serif_size,1){left}..{right}(-serif_size,-1)-
97         (serif_size,-1){right}..{left}(serif_size,1)-cycle; fi;
98     numeric xoffs;
99     xoffs=xpart (dlp/abs(dlp));
100    tsu_serif.latin.lrcore(bst,
101      plp+if l=0: right else: left fi*50*sbrush_long*xoffs,
102      dlp,l,bts,bos);
103  endgroup;
104 enddef;
105
106 

---


107
108 vardef tsu_serif.mincho.corner(expr bst,plp,dlp,l,bts,bos) =
109   begingroup
110     save serif;
111     path serif;
112     serif:=(-1,-0.3)..(0.25,-1.3)..(1,-1.2)..tension 1.2..
113       (1,0.6)..(-0.25,1.3)..(-1,1.2)..tension 1.2..cycle;
114     serif:=serif yscaled sqrt(tsu_brush_shape) rotated tsu_brush_angle
115       scaled (bts*0.43);
116     glstk[ngls]:=regenerate(serif shifted plp);
117     ngls:=ngls+1;
118   endgroup;

```



```

119 enddef;
120
121 vardef tsu_serif.mincho.ulpoint(expr bst,plp,dlp,l,bts,bos) =
122   begingroup
123     save serif;
124     path serif;
125     serif=(-1.5,2.7)..tension 2..(-1,0)..(-0.4,-0.3)..tension 1.5..
126       (0.707,0)..(0.2,0.6)..(-0.1,1.1)..tension 2..(-1.2,2.9)..cycle;
127     serif:=serif yscaled sqrt(tsu_brush_shape) rotated tsu_brush_angle
128       scaled (bts*0.5);
129     glstk[ngls]:=regenerate(serif shifted
130       (plp+(-1,0)*0.25*bts*(xpart dlp/abs(dlp))));
131     ngls:=ngls+1;
132   endgroup;
133 enddef;
134
135 vardef tsu_serif.mincho.triangle(expr bst,plp,dlp,l,bts,bos) =
136   begingroup
137     save serif;
138     path serif;
139     serif=(-1.2,0)..(0,-0.8)..(1.2,0.4)..tension 2..(0.2,1.3)..
140       (-0.2,1.3)..tension 2..cycle;
141     serif:=serif yscaled sqrt(tsu_brush_shape) rotated tsu_brush_angle
142       scaled (bts*0.5);
143     glstk[ngls]:=regenerate(serif shifted (plp+0.25*bts*dlp/abs(dlp)));
144     ngls:=ngls+1;
145   endgroup;
146 enddef;
147
148 vardef tsu_serif.mincho.llpoint(expr bst,plp,dlp,l,bts,bos) =
149   begingroup
150     save serif;
151     path serif;
152     serif=(-2.1,-1.9)..(-1.8,-2.1)..tension 2..(-0.1,-1.2)..(0.2,-1.1)..
153       (0.707,0.707)..(-1,-0.3)..tension 2..cycle;
154     serif:=serif yscaled sqrt(tsu_brush_shape) rotated tsu_brush_angle
155       scaled (bts*0.5);
156     glstk[ngls]:=regenerate(serif shifted plp);
157     ngls:=ngls+1;
158   endgroup;
159 enddef;
160
161 vardef tsu_serif.mincho.lpoint(expr bst,plp,dlp,l,bts,bos) =
162   begingroup
163     save serif;
164     path serif;
165     serif=(-1.5,1.7)..tension 2..(-1,0)..(-0.4,-0.3)..tension 1.8..
166       (0.707,0.2)..(0.2,0.8)..(-0.4,1.1)..tension 2..(-1.2,2.0)..cycle;

```

```

167 serif:=reverse serif reflectedabout ((-1,1),(1,-1))
168 xyscaled (0.7,0.9) shifted (0.3,-0.3);
169 serif:=serif yscaled sqrt(tsu_brush_shape) rotated tsu_brush_angle
170 scaled bts;
171 glstk[ngls]:=regenerate(serif shifted plp);
172 ngl:=ngls+1;
173 endgroup;
174 enddef;
175
176 vardef tsu_serif.mincho.ktriangle(expr bst,plp,dlp,l,bts,bos) =
177 begingroup;
178 save serif,x,y,t,q;
179 path serif;
180 transform t;
181 (0,0) transformed t=(0,0);
182 right transformed t=(dlp/abs(dlp));
183 z1=(dlp/abs(dlp)) rotated 90;
184 if y1<-x1: x1:=-x1; y1:=-y1; fi;
185 up transformed t=z1;
186 q1:=2;
187 q2:=q1+-.5;
188 q3:=0.5*q2/q1;
189 q5:=0.5+q3;
190 z2=(0,q1);
191 z3=(-q3,q5);
192 z4=(q3,q5);
193 serif:=((0.1[z2,z4]){z2-z4}..{z3-z2}{0.1[z2,z3]}
194 -z3-z4-cycle)
195 transformed t yscaled tsu_brush_shape
196 rotated tsu_brush_angle
197 scaled (bts*bos*0.98) shifted plp;
198 if (xxpart t)*(yyvspart t)<0: serif:=reverse serif; fi;
199 glstk[ngls]:=regenerate(serif);
200 ngl:=ngls+1;
201 endgroup;
202 enddef;
203
204 vardef tsu_serif.mincho.khellipse(expr bst,plp,dlp,l,bts,bos) =
205 begingroup;
206 save serif,x,y,t,q;
207 path serif;
208 transform t;
209 (0,0) transformed t=(0,0);
210 right transformed t=(dlp/abs(dlp));
211 z1=(dlp/abs(dlp)) rotated 90;
212 up transformed t=z1;
213 t:=t rotated -tsu_brush_angle yscaled tsu_brush_shape
214 rotated tsu_brush_angle scaled (bts*bos*0.99) shifted plp;

```

```

215     z2=(0.5[x3,x4],1);
216     if l=0:
217         z3=(-0.5,0);
218         z4=(1.3,0);
219     else:
220         z3=(-1.3,0);
221         z4=(0.5,0);
222     fi;
223     serif:=((subpath (0.2,2) of (z4{up}..z2..{down}z3))-cycle) transformed t;
224     glstk[ngls]:=regenerate(serif);
225     ngls:=ngls+1;
226 endgroup;
227 enddef;
228
229 % standard serif codes:
230 % 1 - Latin left
231 % 2 - Latin right
232 % 3 - Latin left and right
233 % 4 - Mincho corner blob
234 % 5 - Mincho blob, pointy to ul
235 % 6 - Mincho blob, triangular
236 % 7 - Mincho blob, point to ll
237 % 8 - Mincho blob, point to l
238 % 9 - Mincho kanji triangle
239 % 10 - Mincho kanji half-ellipse
240
241 boolean tsu_do_serif[];
242
243 vardef tsu_serif.standard(expr bst,plp,dlp,l,bts,bos) =
244   if known tsu_do_serif[1]:
245     if tsu_do_serif[1] and (bst=1):
246       tsu_serif.latin.left(bst,plp,dlp,l,bts,bos);
247     fi;
248   fi;
249   if known tsu_do_serif[2]:
250     if tsu_do_serif[2] and (bst=2):
251       tsu_serif.latin.right(bst,plp,dlp,l,bts,bos);
252     fi;
253   fi;
254   if known tsu_do_serif[3]:
255     if tsu_do_serif[3] and (bst=3):
256       tsu_serif.latin.leftright(bst,plp,dlp,l,bts,bos);
257     fi;
258   fi;
259   if known tsu_do_serif[4]:
260     if tsu_do_serif[4] and (bst=4):
261       tsu_serif.mincho.corner(bst,plp,dlp,l,bts,bos);
262     fi;

```

```

263 fi;
264 if known tsu_do_serif[5]:
265   if tsu_do_serif[5] and (bst=5):
266     tsu_serif.mincho.ulpoint(bst,plp,dlp,l,bts,bos);
267   fi;
268 fi;
269 if known tsu_do_serif[6]:
270   if tsu_do_serif[6] and (bst=6):
271     tsu_serif.mincho.triangle(bst,plp,dlp,l,bts,bos);
272   fi;
273 fi;
274 if known tsu_do_serif[7]:
275   if tsu_do_serif[7] and (bst=7):
276     tsu_serif.mincho.llpoint(bst,plp,dlp,l,bts,bos);
277   fi;
278 fi;
279 if known tsu_do_serif[8]:
280   if tsu_do_serif[8] and (bst=8):
281     tsu_serif.mincho.lpoint(bst,plp,dlp,l,bts,bos);
282   fi;
283 fi;
284 if known tsu_do_serif[9]:
285   if tsu_do_serif[9] and (bst=9):
286     tsu_serif.mincho.ktriangle(bst,plp,dlp,l,bts,bos);
287   fi;
288 fi;
289 if known tsu_do_serif[10]:
290   if tsu_do_serif[10] and (bst=10):
291     tsu_serif.mincho.khellipse(bst,plp,dlp,l,bts,bos);
292   fi;
293 fi;
294 enddef;
295
296 vardef tsu_serif.choose(expr bst,plp,dlp,l,bts,bos) =
297   tsu_serif.standard(bst,plp,dlp,l,bts,bos);
298 enddef;

```

# buildkanji.mp

```
1 %
2 % Build a kanji character by assembling parts
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(buildkanji);
32
33 _____
34
35 % a beret is a tilted hat
36 vardef build_kanji.add_beret(text curves) =
37   begingroup
38     save osp;
39     numeric osp;
40     osp:=sp;
41     curves;
42     save i,lox,hix,toppt,myxf;
43     lox:=infinity;
44     hix:=-infinity;
45     pair toppt;
46     toppt:=(500,-infinity);
47     i:=0;
48     forever:
49       exitif find_stroke(i)<osp;
50       if xpart llcorner get_strokep(i)<lox:
51         lox:=xpart llcorner get_strokep(i);
52       fi;
53       if xpart urcorner get_strokep(i)>hix:
54         hix:=xpart urcorner get_strokep(i);
55       fi;
56       if ypart point 0 of get_strokep(i)>ypart toppt:
57         toppt:=point 0 of get_strokep(i);
58       fi;
59       if ypart point infinity of get_strokep(i)>ypart toppt:
60         toppt:=point infinity of get_strokep(i);
61       fi;
62       i:=i-1;
63     endfor;
64     i:=0;
65     forever:
66       exitif find_stroke(i)<osp;
67       if point 0 of get_strokep(i)=toppt:
68         set_boserif(i,0,whatever);
69       fi;
70       if point infinity of get_strokep(i)=toppt:
```

```

71     set_boserif(i,length get_strokep(i,whatever);
72     fi;
73     i:=i-1;
74     endfor;
75     transform myxf;
76     (-500,810) transformed myxf=(lox,(ypart toppt)+30);
77     (500,900) transformed myxf=(hix,900);
78     (0,780) transformed myxf=toppt;
79     push_stroke(
80     ((-400,750)..(0,780)..tension 1..(360,840)) transformed myxf,
81     (1,1,1)-(1.6,1.6)-(2.0,2.0));
82 endgroup;
83 enddef;
84
85 vardef build_kanji.add_jtail(expr idx) =
86 replace_strokep(idx)(oldp-(xpart point infinity of oldp,30){down}..
87 {curl 0.2}((xpart point infinity of oldp)-150,0));
88 replace_strokep(idx)(insert_nodes(oldp)((length oldp)-0.5));
89 replace_strokeq(idx)(oldq-(1.5,1.5)-(1.4,1.4)-(1.2,1.2));
90 enddef;
91
92 vardef build_kanji.add_ltail(expr idx) =
93 begingroup
94     save x,y;
95     numeric x[],y[];
96     z1=point infinity of get_strokep(idx);
97     x2=x1;
98     y2=80-40*mincho;
99     x3=0.4[x2,800];
100    y3=mincho[0,-20];
101    z4=point 0.5 of (z2{down}..{right}z3..(750+100*mincho,0));
102    replace_strokep(idx)(interpath(mincho,
103    oldp-z2{down}..z4..{right}z3..(750,0)..(810,30)..
104    tension 2..(850,230),
105    oldp-z2{down}..z4..{right}z3..(850,0){curl 0.2}..(810,60)..
106    tension 2..(810,170)));
107    replace_strokeq(idx)(oldq-(1.6,1.6)-(1.85,1.85)-(1.9,1.9)-(1.9,1.9)
108    -(1.3,1.3)-(0.8,0.8));
109 endgroup;
110 enddef;
111
112 vardef build_kanji.attach_fishhook(expr scaleamt)(text curves) =
113 begingroup
114     save osp;
115     numeric osp;
116     osp:=sp;
117     tsu_xform(identity shifted (0,50) yscaled scaleamt shifted (0,-50))
118     (curves);

```

```

119 save i,j,x,y,pp,myxf;
120 path pp;
121 transform myxf;
122 z1=z2=(-infinity,-infinity);
123 i:=0;
124 forever:
125   exitif find_stroke(i)<osp;
126   pp:=get_strokep(i) rotated -45;
127   for j=0 upto length pp:
128     x3:=xpart point j of pp;
129     y3:=ypart point j of pp;
130     if x3>x1:
131       x1:=x3;
132       y1:=y3;
133     fi;
134     if y3>y2:
135       x2:=x3;
136       y2:=y3;
137     fi;
138   endfor;
139   i:=i-1;
140 endfor;
141 (0,0) transformed myxf=(z2 rotated 45);
142 (1,8,0) transformed myxf=(z1 rotated 45);
143 xypart myxf=0;
144 ypart ((0,1) transformed myxf)=830;
145 push_stroke(
146   ((0.5,0.9)..tension 1.2..(0,0)..(-0.5,-0.5)) transformed myxf,
147   (1.7,1.7)-(1.3,1.3)-(1,1));
148 set_boserif(0,0,10);
149 push_stroke(
150   ((0.4,0.65)-(1.3,0.65)..tension 1.2..(1.14,0.3)..(0.88,0))
151   transformed myxf,
152   (1.6,1.6)-(1.6,1.6)-(1.4,1.4)-(1,1));
153 set_boserif(0,1,4);
154 set_botip(0,1,0);
155 endgroup;
156 enddef;
157
158 vardef build_kanji.box(expr ul,lr) =
159   begingroup
160     save boxext;
161     if (ypart (ul-lr))>500:
162       boxext:=-100/(ypart (ul-lr));
163     else:
164       boxext:=-0.2;
165     fi;
166     if (boxext)[ypart lr,ypart ul]<-60:

```

```

167     boxext:=(-60+ypart lr)/(ypart ul-ypart lr);
168     fi;
169     push_stroke((xpart ul,(boxext)[ypart lr,ypart ul])–ul–
170       (xpart lr,ypart ul)–(xpart lr,(boxext)[ypart lr,ypart ul]),
171       (1.5,1.5)–(1.7,1.7)–(1.7,1.7)–(1.5,1.5));
172   endgroup;
173   set_botip(0,1,1);
174   set_botip(0,2,1);
175   set_boserif(0,1,4);
176   set_boserif(0,2,4);
177   push_stroke((xpart ul,ypart lr)–lr,
178     (1.5,1.5)–(1.5,1.5));
179   enddef;
180
181   vardef build_kanji.cliff_enclose(text contents) =
182     push_pbox_toexpand("build_kanji.cliff_enclose");
183     push_stroke((50,-50)..(120,100)..(160,300)..tension 1.2..(180,760)
184       –(850,760),
185     (1,1)–(1.3,1.3)–(1.5,1.5)–(1.6,1.6)–(1.6,1.6));
186     set_botip(0,3,1);
187     begingroup
188       save t;
189       transform t;
190       (50,-50) transformed t=(230,-50);
191       (500,-50) transformed t=(560,-50);
192       (500,850) transformed t=(560,730);
193       tsu_xform(t)(contents);
194     endgroup;
195     expand_pbox;
196   enddef;
197
198   vardef build_kanji.cup(expr ul,lr) =
199     push_stroke(ul–(xpart ul,(-0.2)[ypart lr,ypart ul]),
200     (1.6,1.6)–(1.4,1.4));
201     set_boserif(0,0,10);
202     push_stroke((xpart lr,ypart ul)–(xpart lr,(-0.2)[ypart lr,ypart ul]),
203     (1.6,1.6)–(1.4,1.4));
204     set_boserif(0,0,10);
205     push_stroke((xpart ul,ypart lr)–lr,
206     (1.5,1.5)–(1.5,1.5));
207   enddef;
208
209   vardef build_kanji.dotcliff_enclose(text contents) =
210     push_pbox_toexpand("build_kanji.dotcliff_enclose");
211     push_stroke((550,810)–(550,660),
212     (1.6,1.6)–(1.5,1.5));
213     set_boserif(0,0,10);
214     push_stroke(

```



```

215 (50,-50)..(120,100)..(160,300)..tension 1.2..(180,660)-(850,660),
216 (1,1)-(1.3,1.3)-(1.5,1.5)-(1.6,1.6)-(1.6,1.6));
217 set_botip(0,3,1);
218 begingroup
219 save t;
220 transform t;
221 (50,-50) transformed t=(230,-50);
222 (500,-50) transformed t=(560,-50);
223 (500,850) transformed t=(560,630);
224 tsu_xform(t)(contents);
225 endgroup;
226 expand_pbox;
227 enddef;
228
229 vardef build_kanji.gate_enclose(text contents) =
230 kanji.grtwo.gate;
231 begingroup
232 transform xf;
233 (50,-50) transformed xf=(220,40);
234 (950,850) transformed xf=(780,420);
235 xypart xf=yxpart xf=0;
236 tsu_xform(xf)(contents);
237 endgroup;
238 enddef;
239
240 vardef build_kanji.harmonic(expr gap,sval,lsread)(text curves) =
241 begingroup
242 save myxf;
243 transform myxf;
244 (50,-50) transformed myxf=(50,-50);
245 (950,-50) transformed myxf=(950,-50);
246 (50,850) transformed myxf=(50,850-gap);
247 tsu_xform(myxf)(curves);
248 save hsp;
249 hsp:=sp;
250 tsu_xform(myxf)(build_kanji.spread_legs(lsread)(curves));
251 save i,tp;
252 numeric i;
253 path tp;
254 i:=0;
255 forever:
256 tp:=get_strokep(i);
257 if (ypart ulcorner tp<450
258 or (abs(ypart (direction 0 of tp)/abs(direction 0 of tp))>0.95)
259 or (abs(ypart (direction infinity of tp)/
260 abs(direction infinity of tp))>0.95):
261 set_bosize(i,0);
262 else:

```

```

263     replace_strokep(i)
264     (tp shifted -(0.5[ulcorner tp,lrcorner tp])
265     scaled sval
266     shifted ((0,gap)+0.5[ulcorner tp,lrcorner tp]));
267     set_bosize(i)(get_bosize(i)*sqrt(sval));
268     fi;
269     i:=i-1;
270     exitif find_stroke(i)<hsp;
271     endfor;
272 endgroup;
273 enddef;
274
275 vardef build_kanji.level(text curves) =
276   begingroup
277     save xsp;
278     xsp:=sp;
279     curves;
280     save lsum,denom,i;
281     lsum:=0;
282     denom:=0;
283     i:=0;
284     forever:
285       exitif find_stroke(i)<xsp;
286       if unknown get_bosize(i):
287         set_bosize(i,100);
288       fi;
289       if (get_bosize(i)>0):
290         lsum:=lsum+mlog(get_bosize(i));
291         denom:=denom+1;
292       fi;
293       i:=i-1;
294     endfor;
295     i:=0;
296     forever:
297       exitif find_stroke(i)<xsp;
298       if get_bosize(i)>0:
299         set_bosize(i,mexp(lsum/denom));
300       fi;
301       i:=i-1;
302     endfor;
303   endgroup;
304 enddef;
305
306 vardef build_kanji.lstransform(expr thresh,dist,mypt) =
307   if ypart mypt>thresh:
308     mypt
309   else:
310     (xpart mypt,

```

```

311     (ypart mypt)*((thresh-dist)/thresh)
312     +(xpart mypt/1000)[(dist/thresh)*ypart mypt,dist])
313 fi
314 enddef;
315
316 vardef build_kanji.lift_skirt(expr thresh,dist)(text curves) =
317   begingroup
318     save osp;
319     numeric osp;
320     osp:=sp;
321     curves;
322     save i,boti,x,y;
323     numeric x[],y[];
324     i:=0;
325     boti:=whatever;
326     y0:=1000;
327     forever:
328       exitif find_stroke(i)<osp;
329       if (ypart llcorner get_strokep(i))=(ypart urcorner get_strokep(i)):
330         if (unknown boti) or (ypart llcorner get_strokep(i)<y0):
331           y0:=ypart llcorner get_strokep(i);
332           boti:=i;
333         fi;
334       fi;
335       replace_strokep(i)(
336         for j=0 upto length oldp-1:
337           build_kanji.lstransform(thresh,dist)(point j of oldp)
338           ..controls build_kanji.lstransform(thresh,dist)(postcontrol j of oldp)
339           and build_kanji.lstransform(thresh,dist)(precontrol j+1 of oldp)..
340         endfor
341         if cycle oldp:
342           cycle
343         else:
344           build_kanji.lstransform(thresh,dist)(point infinity of oldp)
345         fi);
346       i:=i-1;
347     endfor;
348     if (known boti) and (y0<=thresh):
349       replace_strokep(boti)
350         (((0,7)+point 0 of oldp)..tension 1.2..((0,-5)+point 0.5 of oldp)..
351         ((0,10)+point 1 of oldp));
352       replace_strokeq(boti)((1.7,1.7)-(1.5,1.5)-(1,1));
353       set_boserif(boti,1,whatever);
354     fi;
355   endgroup;
356 enddef;
357
358 vardef build_kanji.lr(expr splitpoint,overlap)

```

```

359 (text leftstuff)(text rightstuff) =
360 begingroup
361   save t;
362   transform t[];
363   yypart t1=yypart t2=1;
364   ypart t1=yxpart t1=xy part t1=y part t2=yx part t2=xy part t2=0;
365   (50,0) transformed t1=(50,0);
366   (950,0) transformed t1=(splitpoint+overlap/2,0);
367   (50,0) transformed t2=(splitpoint-overlap/2,0);
368   (950,0) transformed t2=(950,0);
369   tsu_xform(t1)(leftstuff);
370   tsu_xform(t2)(rightstuff);
371 endgroup;
372 enddef;
373
374 vardef build_kanji.road_enclose(text contents) =
375   push_pbox_toexpand("build_kanji.road_enclose");
376   begingroup
377     save myxf;
378     transform myxf;
379     (50,850) transformed myxf=(315,850);
380     (50,-50) transformed myxf=(315,50);
381     (950,-50) transformed myxf=(950,50);
382     tsu_xform(myxf)(contents);
383     push_stroke((100,770)..tension 1.2..(180,690)..(220,630),
384       (1,1)-(1.3,1.3)-(1.9,1.9));
385     set_bosize(0,92);
386     push_stroke((80,453)-(240,450)..(mincho[230,210],250)
387       ..tension 1.2..(mincho[180,140],50)..{curl 0.4}(60,-40),
388       (1,4,1,4)-(1.6,1.6)-(1,4,1,4)-(1.2,1.2)-(1,1));
389     set_botip(0,1,1);
390     set_botip(0,2,1);
391     set_boserif(0,1,4);
392     set_bosize(0,92);
393     push_stroke((point (2.3+mincho) of get_strokep(0))
394       {(1-2*mincho)*direction (2.3+mincho) of get_strokep(0)}..
395       (240,100)..(270,45+15*mincho)..(400,-10)..tension 3..(950,-20),
396       (1,1)-(1.1,1.1)-(1.1,1.1)-(1.7,1.7)-(1.9,1.9));
397     set_bosize(0,92);
398   endgroup;
399   expand_pbox;
400 enddef;
401
402 vardef build_kanji.sscale(text tran)(text curves) =
403   tsu_xform(identity shifted (-centre_pt) tran shifted centre_pt)(curves);
404 enddef;
405
406 vardef build_kanji.spread_legs(expr dist)(text curves) =

```

```

407 begingroup
408   save osp;
409   numeric osp;
410   osp:=sp;
411   curves;
412   save mytr;
413   transform mytr[];
414   (50,-50) transformed mytr1=(50,-50);
415   (500,-50) transformed mytr1=(500-dist/2,-50);
416   (500,850) transformed mytr1=(500-dist/2,850);
417   (950,-50) transformed mytr2=(950,-50);
418   (500,-50) transformed mytr2=(500+dist/2,-50);
419   (500,850) transformed mytr2=(500+dist/2,850);
420   save i;
421   i:=0;
422   forever:
423     exitif find_stroke(i)<osp;
424     if xpart 0.75[llcorner get_stroke(i),urcorner get_stroke(i)]<475:
425       replace_stroke(i,oldp transformed mytr1);
426     elseif xpart 0.25[llcorner get_stroke(i),urcorner get_stroke(i)]>525:
427       replace_stroke(i,oldp transformed mytr2);
428     fi;
429     i:=i-1;
430   endfor;
431 endgroup;
432 enddef;
433
434 vardef build_kanji.tb(expr splitpoint,overlap)
435 (text topstuff)(text bottomstuff) =
436 begingroup
437   save t;
438   transform t[];
439   xxpart t1=xxpart t2=1;
440   xpart t1=xy part t1=yx part t1=x part t2=xy part t2=yx part t2=0;
441   (0,850) transformed t1=(0,850);
442   (0,-50) transformed t1=(0,splitpoint-overlap/2);
443   (0,850) transformed t2=(0,splitpoint+overlap/2);
444   (0,-50) transformed t2=(0,-50);
445   tsu_xform(t1)(topstuff);
446   tsu_xform(t2)(bottomstuff);
447 endgroup;
448 enddef;
449
450 vardef build_kanji.thickness(expr amount)(text curves) =
451 begingroup
452   save xsp;
453   xsp:=sp;
454   curves;

```

```

455     i:=0;
456     forever:
457         exitif find_stroke(i)<xsp;
458         if unknown get_bosize(i):
459             set_bosize(i,100);
460         fi;
461         if get_bosize(i)>0:
462             set_bosize(i,get_bosize(i)*amount);
463         fi;
464         i:=i-1;
465     endfor;
466 endgroup;
467 enddef;
468
469 vardef build_kanji.triclusterc(expr topxscale)
470 (text topstuff)(text leftstuff)(text rightstuff) =
471 build_kanji.tb(500,0)
472 (build_kanji.sscale(xscaled topxscale)(topstuff))
473 (build_kanji.lr(480,0)
474 (leftstuff)
475 (rightstuff));
476 enddef;

```

# leftrad.mp

```
1 %
2 % Radicals for left side (often special forms of other radicals)
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(leftrad);
32
33 _____
34
35 vardef kanji.leftrad.day =
36   push_pbox_toexpand("kanji.leftrad.day");
37   tsu_xform(identity shifted (0,-600) yscaled 0.62 shifted (0,600))
38     (kanji.grone.day);
39   expand_pbox;
40 enddef;
41
42 vardef kanji.leftrad.earth =
43   push_pbox_toexpand("kanji.leftrad.earth");
44   build_kanji.sscale(yscaled 0.9)
45     (build_kanji.lift_skirt(370,150+30*mincho)(kanji.grone.earth));
46   expand_pbox;
47 enddef;
48
49 vardef kanji.leftrad.hand =
50   push_pbox_toexpand("kanji.leftrad.hand");
51   build_kanji.sscale(xscaled 1.5)
52     (push_stroke((500,810),(1.6,1.6));
53       build_kanji.add_jtail(0);
54       set_boserif(0,0,10));
55   push_stroke((100,580)-(900,580),(1.6,1.6)-(1.6,1.6));
56   set_boserif(0,1,9);
57   push_stroke((120,280)..tension 1.2..(500,330)..(910,420),
58     (1.8,1.8)-(1.5,1.5)-(1.1,1.1));
59   expand_pbox;
60 enddef;
61
62 vardef kanji.leftrad.heart =
63   push_pbox_toexpand("kanji.leftrad.heart");
64   kanji.radical.vline;
65   push_stroke((320,630)..tension 1.2..(210,470)..(60,380),
66     (1,1)-(1.4,1.4)-(1.7,1.7));
67   push_stroke((660,660)..tension 1.2..(840,530)..(890,470),
68     (1,1)-(1.5,1.5)-(1.8,1.8));
69   expand_pbox;
70 enddef;
```

```

71
72 vardef kanji.leftrad.ice =
73   push_pbox_toexpand("kanji.leftrad.ice");
74   push_stroke((450,790)..tension 1.2..(600,730)..(750,650),
75     (1,1)-(1.3,1.3)-(1.9,1.9));
76   push_stroke(
77     interpath(mincho,
78       (880,350)..(810,270)..(750,210)..(600,90)..(450,0),
79       (880,480)..tension 1.2..(630,300)..{dir 180}{360,240}{dir 350}..
80       (500,130)..{curl 0}{550,-20}),
81     interpath(mincho,
82       (1.4,1.4)-(1.45,1.45)-(1.5,1.5)-(1.6,1.6)-(1.7,1.7),
83       (0.8,0.8)-(1.2,1.2)-(2.1,2.1)-(1.2,1.2)-(1.9,1.9)));
84   expand_pbox;
85 enddef;
86
87 vardef kanji.leftrad.king =
88   push_pbox_toexpand("kanji.leftrad.king");
89   build_kanji.sscale(yscaled 0.9)
90     (build_kanji.lift_skirt(370,150+30*mincho)(kanji.grone.king));
91   expand_pbox;
92 enddef;
93
94 vardef kanji.leftrad.mouth =
95   push_pbox_toexpand("kanji.leftrad.mouth");
96   build_kanji.box((200,700),(800,230));
97   replace_strokep(-1)((subpath (0,2) of oldp)-((0,40)+point 3 of oldp));
98   expand_pbox;
99 enddef;
100
101 vardef kanji.leftrad.person =
102   push_pbox_toexpand("kanji.leftrad.person");
103   push_stroke((900,800)..(500,520)..(0,330),
104     (1.6,1.6)-(1.4,1.4)-(0.8,0.8));
105   set_bosize(0,115);
106   set_boserif(0,0,10);
107   push_stroke(
108     (point 0.7 of get_strokep(0))..(xpart point 0.7 of get_strokep(0),-40),
109     (1.6,1.6)-(1.4,1.4));
110   set_bosize(0,115);
111   expand_pbox;
112 enddef;
113
114 vardef kanji.leftrad.seven =
115   push_pbox_toexpand("kanji.leftrad.seven");
116   build_kanji.sscale(shifted (0,-300) yscaled 0.7 shifted (0,300))
117     (kanji.grone.seven);
118   set_boserif(-1,3,whatever);

```



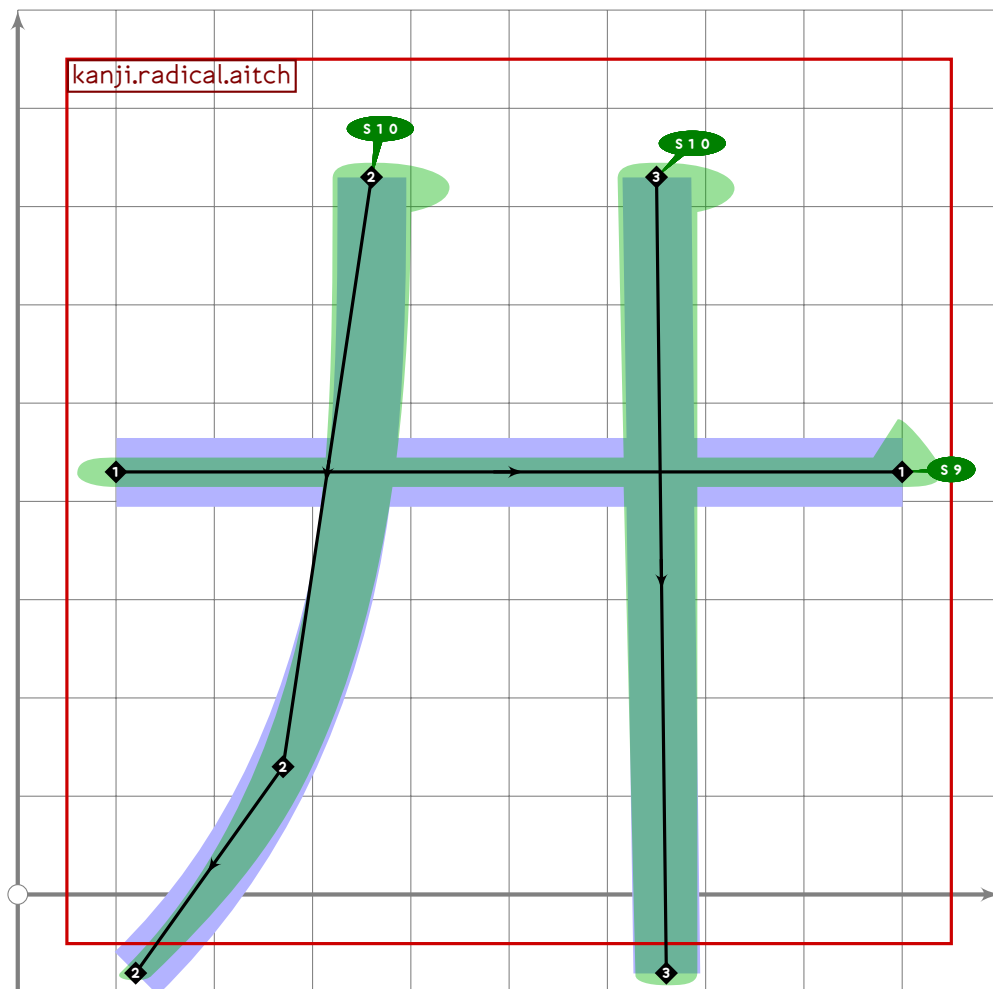
```

119 expand_pbox;
120 enddef;
121
122 vardef kanji.leftrad.two_branch_tree =
123   push_pbox_toexpand("kanji.leftrad.two_branch_tree");
124   tsu_xform(identity shifted (0,-50))
125     (build_kanji.add_beret(kanji.leftrad.wood));
126   expand_pbox;
127 enddef;
128
129 vardef kanji.leftrad.water =
130   push_pbox_toexpand("kanji.leftrad.water");
131   kanji.leftrad.ice;
132   push_stroke((230,590)..tension 1.2..(390,530)..(540,450),
133     (1,1)-(1.3,1.3)-(1.9,1.9));
134   expand_pbox;
135 enddef;
136
137 vardef kanji.leftrad.woman =
138   push_pbox_toexpand("kanji.leftrad.woman");
139   push_stroke((100,580)-(800,580){curl 0}..(550,170)..{curl 0.3}(80,-40),
140     (1.6,1.6)-(1.6,1.6)-(1.4,1.4)-(0.94,0.94));
141   set_botip(0,1,0);
142   set_boserif(0,1,4);
143   push_stroke((450,830)..(310,510)..(140,220),
144     (1.6,1.6)-(1.6,1.6)-(1.6,1.6));
145   set_boserif(0,0,10);
146   push_stroke((point 1.75 of get_strokep(0))..(530,200)..(840,60),
147     (0.85,0.85)-(1.5,1.5)-(1.8,1.8)-(1.6,1.6));
148   replace_strokep(0)(insert_nodes(oldp)(1.5));
149   expand_pbox;
150 enddef;
151
152 vardef kanji.leftrad.wood =
153   push_pbox_toexpand("kanji.leftrad.wood");
154   push_stroke((500,780)-(500,0),
155     (1.6,1.6)-(1.6,1.6));
156   set_boserif(0,0,10);
157   push_stroke((100,580)-(830,580),
158     (1.6,1.6)-(1.6,1.6));
159   set_boserif(0,1,9);
160   push_stroke((500,580)..(250,200)..(80,70),
161     (1.6,1.6)..(1.3,1.3)..(0.9,0.9));
162   push_stroke((500,470)..(680,320)..(800,210),
163     (1.1,1.1)..(1.5,1.5)..(1.7,1.7));
164   expand_pbox;
165 enddef;

```

# radical.mp

```
1 %  
2 % Radicals that are not common kanji in themselves  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 inclusion_lock(radical);  
32  
33
```

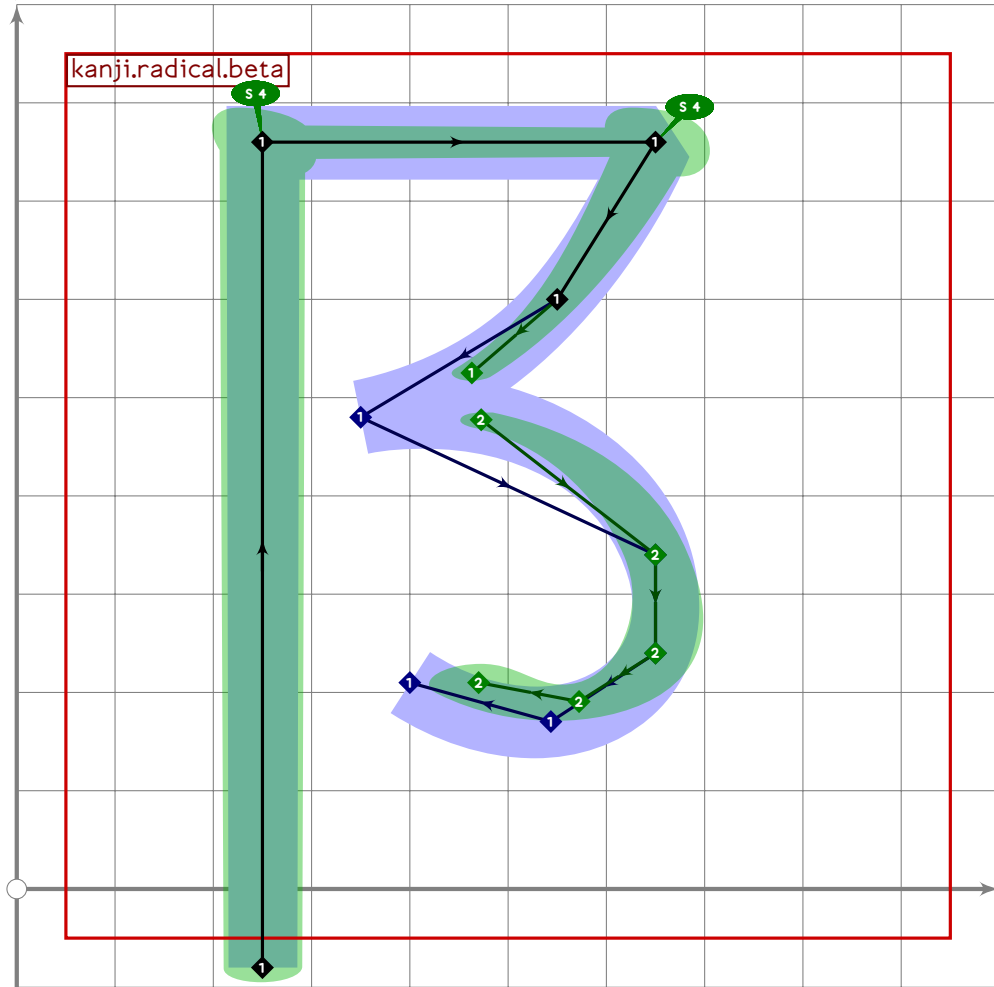


```
34  
35 vardef kanji.radical.aitch =  
36   push_pbox_toexpand("kanji.radical.aitch");  
37   push_stroke((100,430)-(900,430),(1.6,1.6)-(1.6,1.6));  
38   set_boserif(0,1,9);  
39   push_stroke((360,730){down}..(270,130)..(120,-80),  
40     (1.6,1.6)-(1.3,1.3)-(1,1));  
41   set_boserif(0,0,10);  
42   push_stroke((650,730)-(660,-80),(1.6,1.6)-(1.4,1.4));  
43   set_boserif(0,0,10);
```

```

44 expand_pbox;
45 enddef;

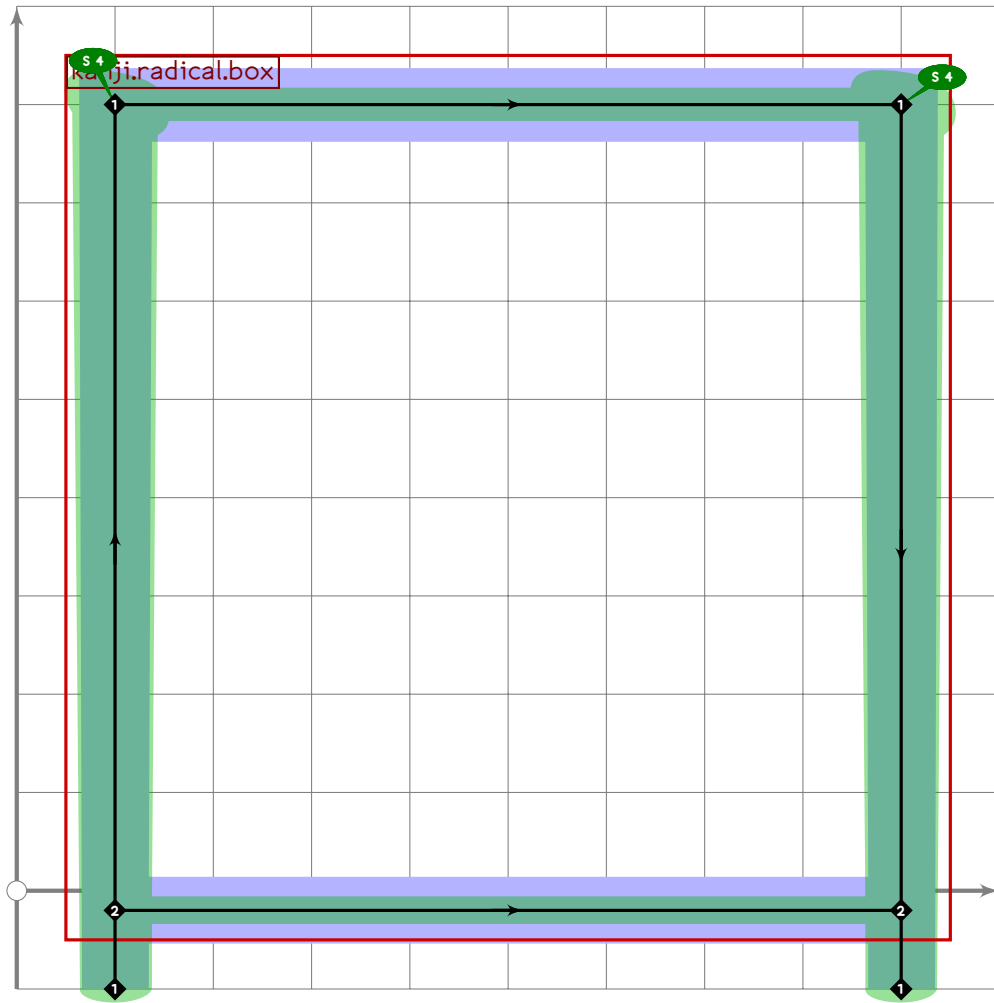
```



```

46
47 vardef kanji.radical.beta =
48   push_pbox_toexpand("kanji.radical.beta");
49   push_stroke((250,-80)-(250,760)-(650,760)..tension 1.2..
50     (550,600)..{curl 1}(350,480){curl 0.5}..
51     (650,340)..(650,240)..{curl 0.3}(400+70*mincho,210),
52     (1.6,1.6)-(1.7,1.7)-(1.6,1.6)-
53     (1.1,1.3)-(0.55,1.4)-
54     (1.4,1.4)-(1.6,1.6)-(1.8,1.8)-(1.9,1.9));
55   set_botip(0,1);
56   set_botip(0,2,0);
57   set_botip(0,4,1);
58   set_boserif(0,1,4);
59   set_boserif(0,2,4);
60   replace_strokep(0)(insert_nodes(oldp)(6.5));
61   expand_pbox;
62 enddef;

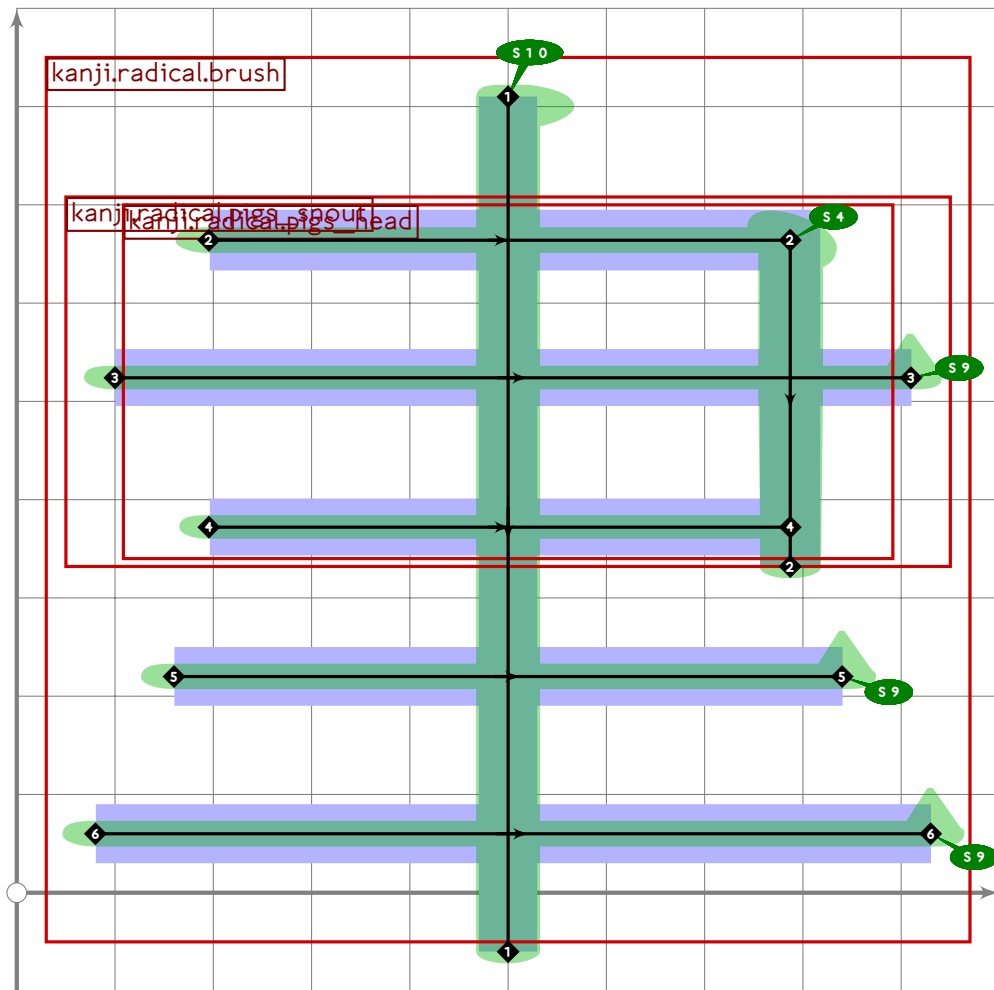
```



```

63
64 vardef kanji.radical.box =
65   push_pbox_toexpand("kanji.radical.box");
66   build_kanji.box((100,800),(900,-20));
67   expand_pbox;
68 enddef;

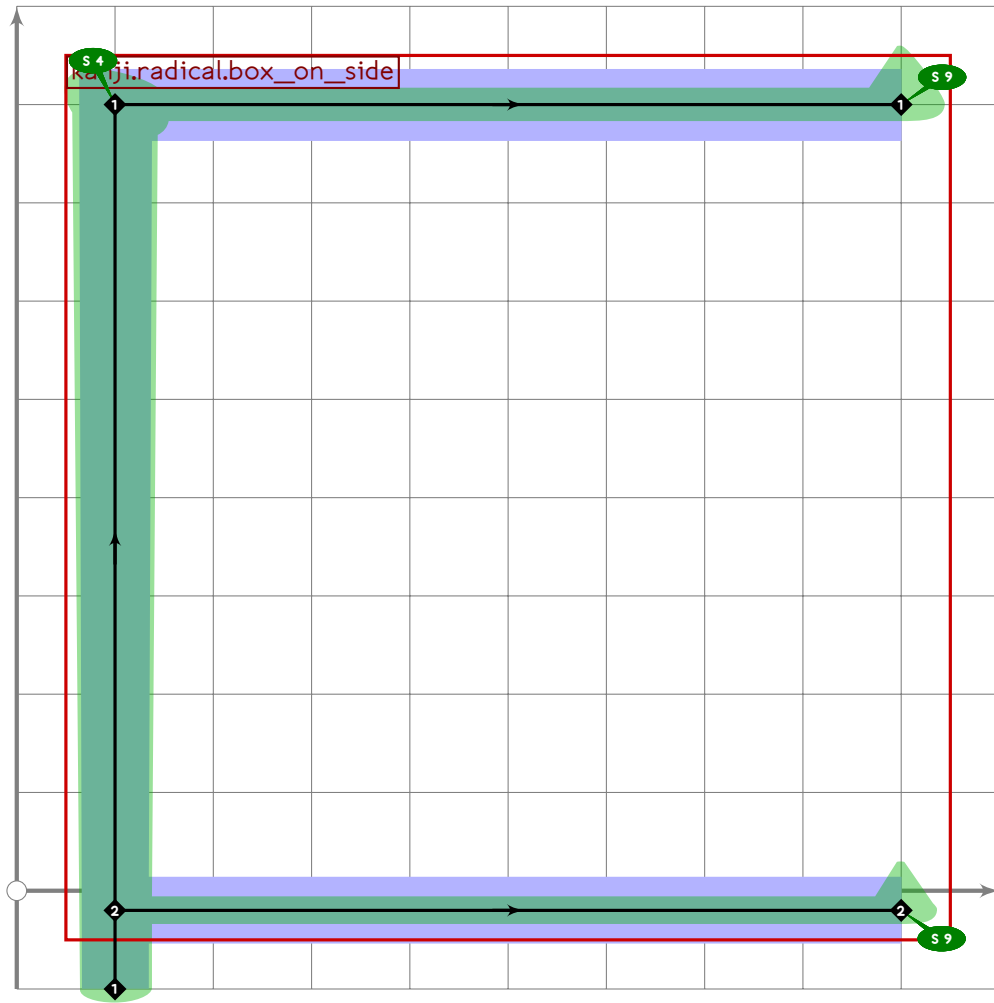
```



```

69
70 vardef kanji.radical.brush =
71   push_pbox_toexpand("kanji.radical.brush");
72   push_stroke((500,810)-(500,-60),(1.6,1.6)-(1.5,1.5));
73   set_boserif(0,0,10);
74   tsu_xform(identity yscaled 0.4 shifted (0,360))
75     (kanji.radical.pigs_snout);
76   push_stroke((160,220)-(840,220),
77     (1.6,1.6)-(1.6,1.6));
78   set_boserif(0,1,9);
79   push_stroke((80,60)-(930,60),
80     (1.6,1.6)-(1.6,1.6));
81   set_boserif(0,1,9);
82   for i=-5 upto 0: set_bosize(i,85); endfor;
83   expand_pbox;
84 enddef;

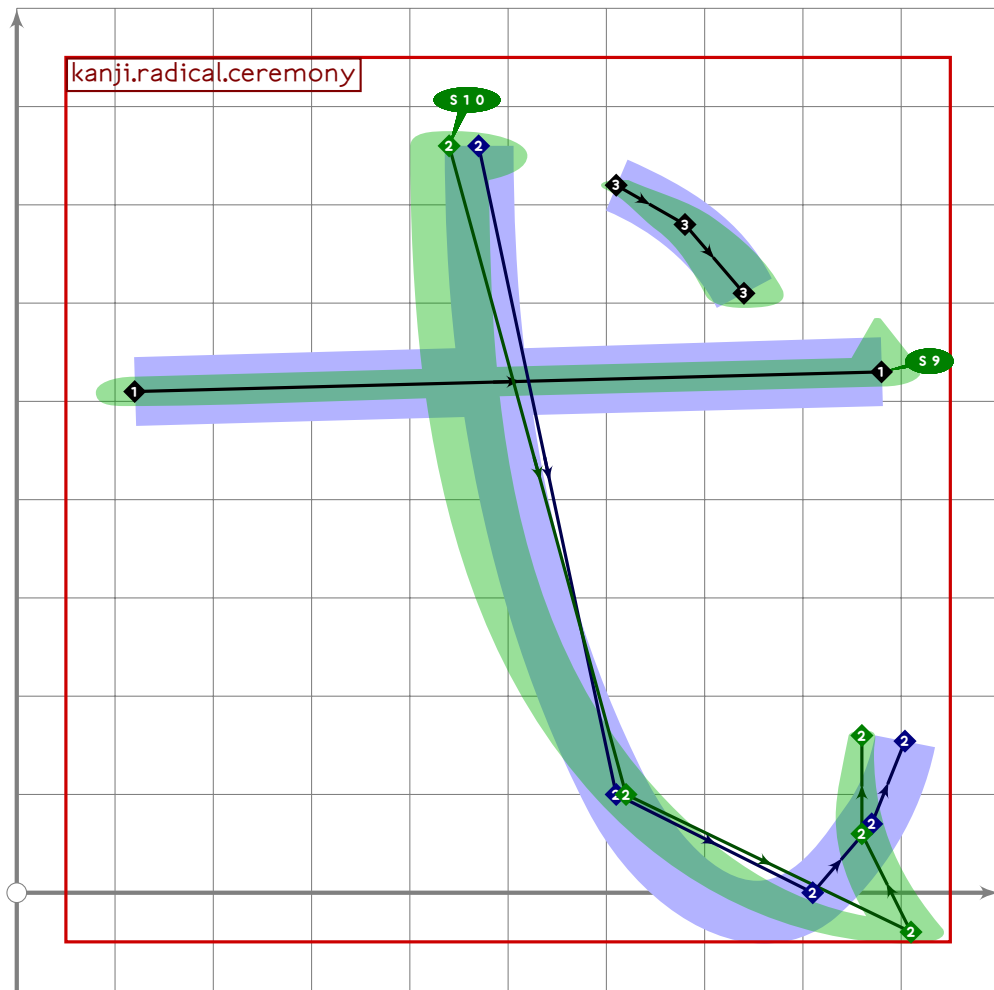
```



```

85
86 vardef kanji.radical.box_on_side =
87   push_pbox_toexpand("kanji.radical.box_on_side");
88   build_kanji.box((100,800),(900,-20));
89   replace_strokep(-1)(subpath (0,2) of oldp);
90   replace_strokeq(-1)(subpath (0,2) of oldq);
91   set_boserif(-1,2,9);
92   set_botip(-1,2,whatever);
93   set_boserif(0,1,9);
94   expand_pbox;
95 enddef;

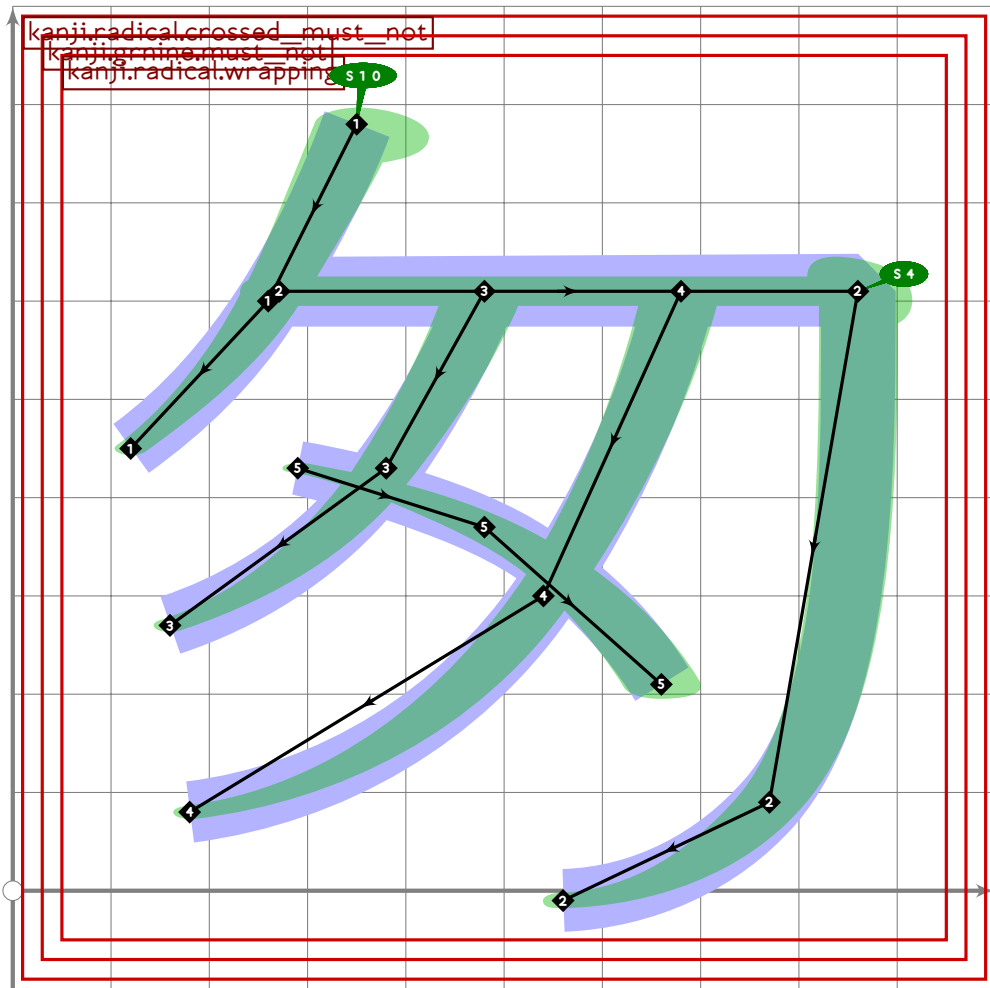
```



```

96
97 vardef kanji.radical.ceremony =
98   push_pbox_toexpand("kanji.radical.ceremony");
99   push_stroke((120,510)-(880,530),(1.6,1.6)-(1.6,1.6));
100  set_boserif(0,1,9);
101  push_stroke(interpath(mincho,
102    (470,760){down}..(610,100)..(810,0)..tension 1.5..
103    (870,70)..{curl 0.3}(910,200),
104    (440,760){down}..(620,100)..{right}(910,-40){curl 1}..
105    (860,60)..(860,160)),
106    (1.6,1.6)-(1.4,1.4)-(1.4,1.4)-(1.2,1.2)-(0.9,0.9));
107  set_boserif(0,0,10);
108  push_stroke((610,720)..tension 1.2..(680,680)..(740,610),
109    (1,1)..(1.5,1.5)-(1.7,1.7));
110  set_bosize(0,90);
111  expand_pbox;
112 enddef;

```



```

113
114 vardef kanji.radical.crossed_must_not =
115   push_pbox_toexpand("kanji.radical.crossed_must_not");
116   kanji.grnine.must_not;
117   push_stroke((290,430)..tension 1.2..(480,370)..(660,210),
118     (1,1)-(14,14)-(17,17));
119   set_bosize(0,90);
120   expand_pbox;
121 enddef;
122
123 vardef kanji.radical.cut_the_grass =
124   push_pbox_toexpand("kanji.radical.cut_the_grass");
125   push_stroke((150,750)..(500,500)..(850,50),
126     (1.3,1.3)-(1.5,1.5)-(1.7,1.7));
127   push_stroke((700,800)..(500,330)..(70,-30),
128     (1.6,1.6)-(1.5,1.5)-(1,1));
129   set_bosierif(0,0,10);
130   expand_pbox;
131 enddef;
132
133 vardef kanji.radical.eight =

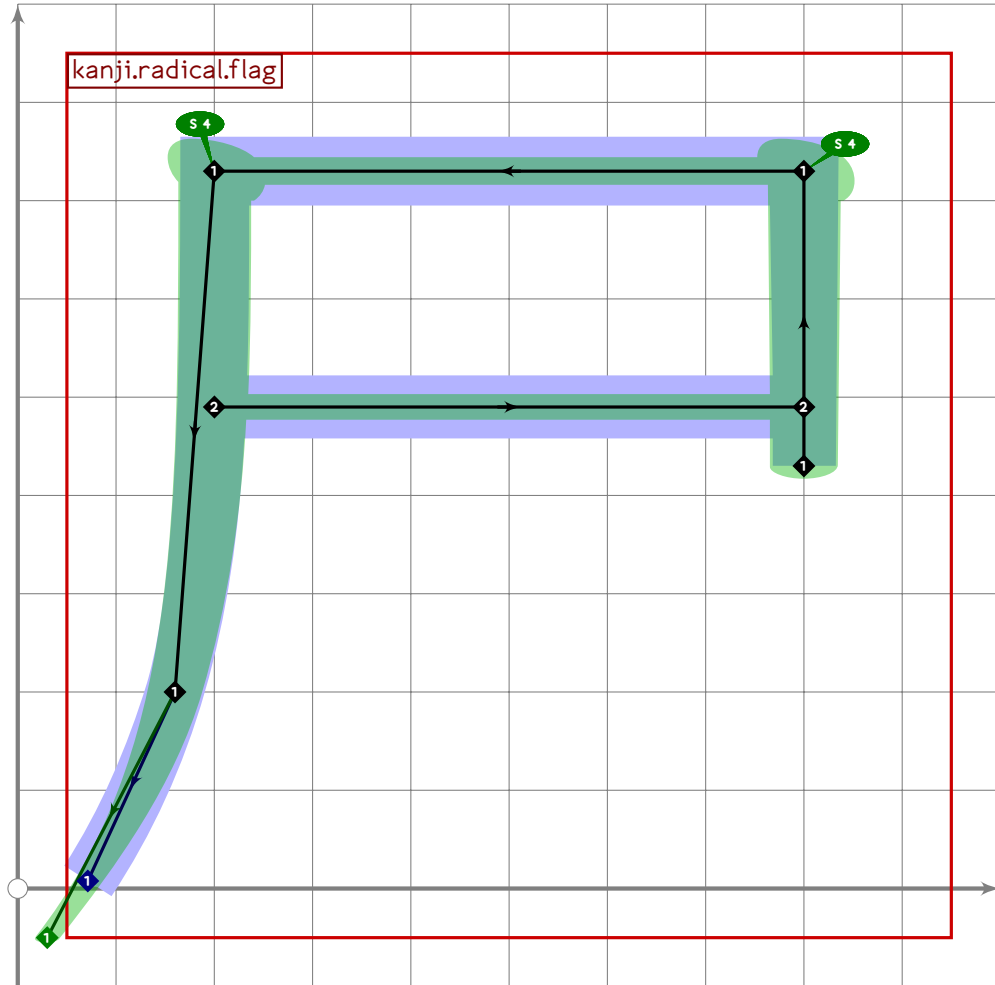
```



```

134 push_pbox_toexpand("kanji.radical.eight");
135 push_stroke(((610,760)..tension 1.3..(760,240)..(880,-10),
136   (1,1)-(1.4,1.4)-(1.8,1.8));
137 set_bosize(0,110);
138 push_stroke(((350,740)..(280,360)..(160,80)..(40,-30),
139   (1.6,1.6)-(1.4,1.4)-(1.3,1.3)-(0.88,0.88));
140 set_bosize(0,110);
141 set_boserif(0,0,10);
142 expand_pbox;
143 enddef;

```



```

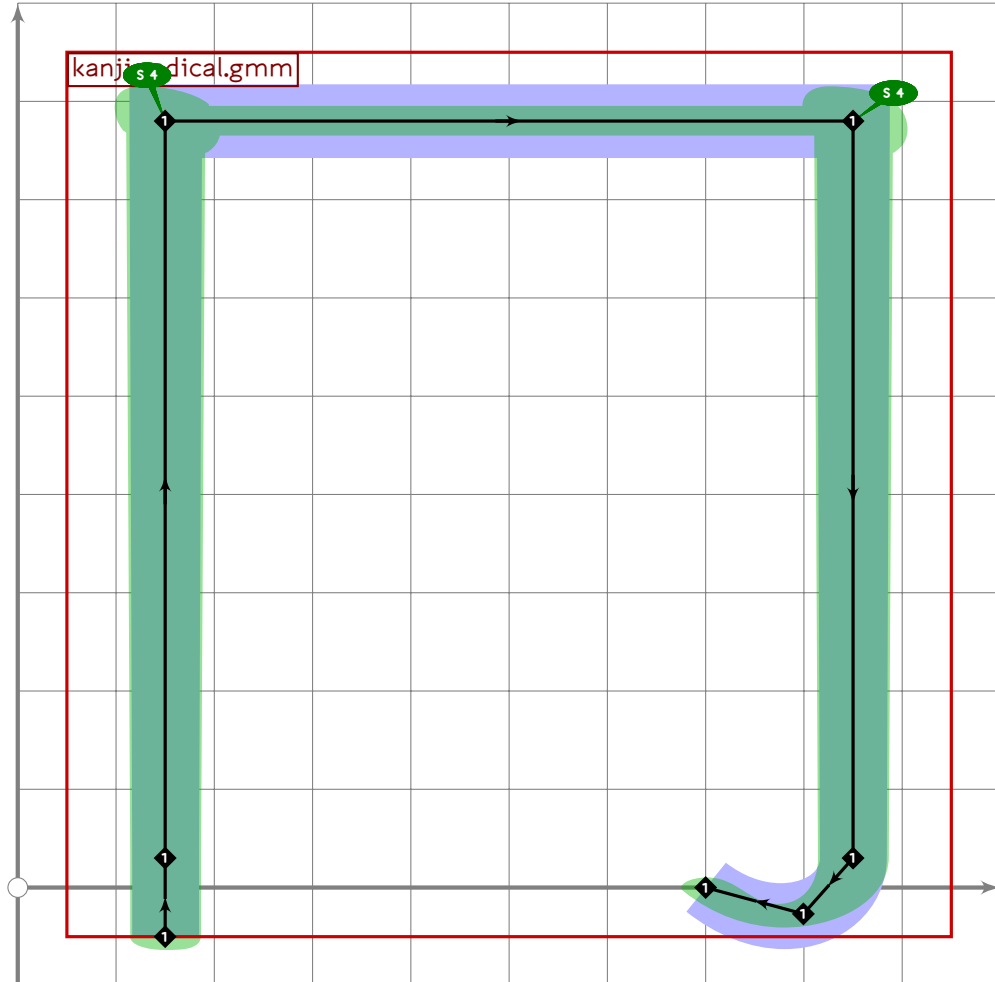
144
145 vardef kanji.radical.flag =
146   push_pbox_toexpand("kanji.radical.flag");
147   push_stroke(((800,430)-(800,730)-(200,730){down}..(160,200)..(30,-50),
148     (1.5,1.5)-(1.6,1.6)-(1.6,1.6)-(1.3,1.3)-(0.9,0.9));
149   set_botip(0,1,1);
150   set_botip(0,2,1);
151   set_boserif(0,1,4);
152   set_boserif(0,2,4);
153   set_bosize(0,93);
154   push_stroke(((0,490)-(1000,490))

```

```

155     intersectionpoint reverse get_strokep(0)--(800,490),
156     (1.5,1.5)--(1.5,1.5));
157     set_bosize(0,93);
158     expand_pbox;
159 enddef;
160

```



```

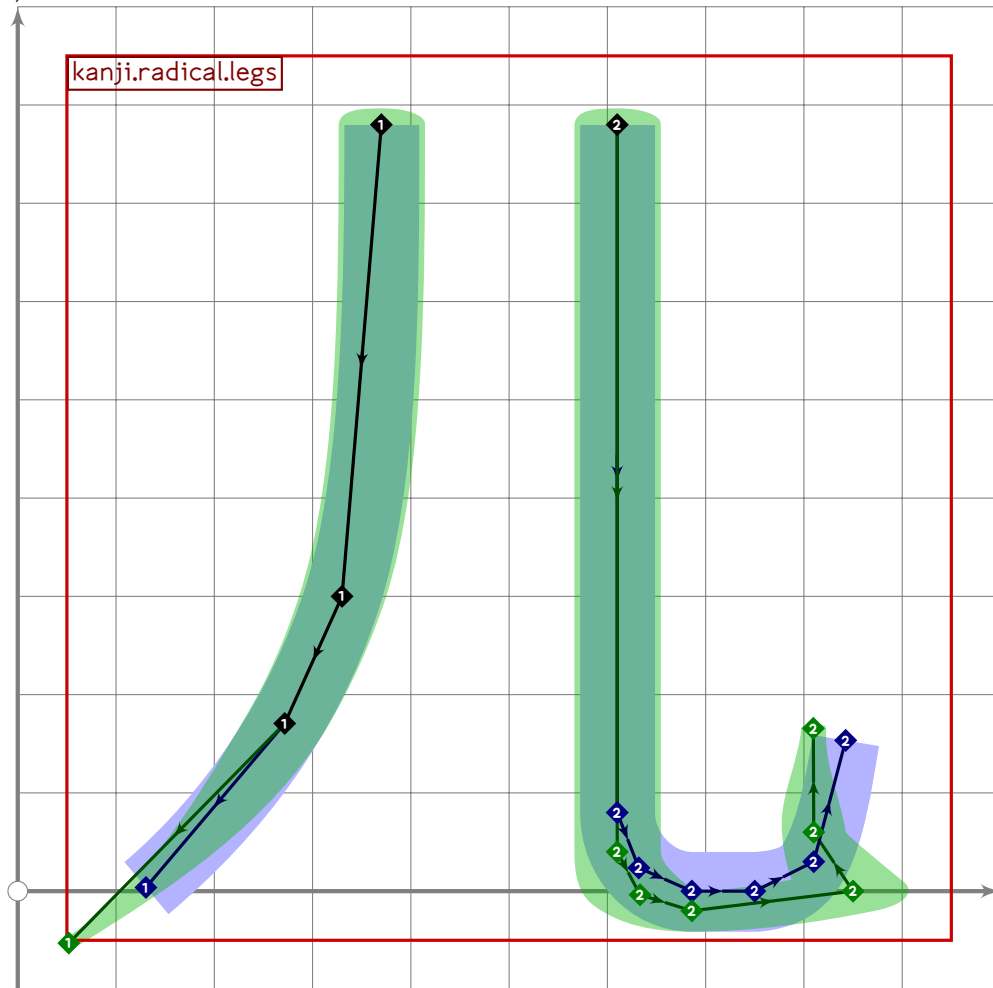
161 % "George Michael's Moustache" radical, according to Schultzz
162 vardef kanji.radical.gmm =
163     push_pbox_toexpand("kanji.radical.gmm");
164     push_stroke((150,-50)--(150,30)--(150,780)--(850,780),
165         (1.5,1.5)--(1.5,1.5)--(1.6,1.6)--(1.6,1.6));
166     build_kanji.add_jtail(0);
167     set_botip(0,2,1);
168     set_botip(0,3,1);
169     set_boserif(0,2,4);
170     set_boserif(0,3,4);
171     expand_pbox;
172 enddef;
173
174 vardef kanji.radical.kettle_lid =
175     push_pbox_toexpand("kanji.radical.kettle_lid");

```

```

176 push_stroke((500,700)..(500,160),(1.6,1.6)-(1.5,1.5));
177 set_bosize(0,125);
178 set_boserif(0,0,10);
179 push_stroke((100,160)-(900,160),(1.7,1.7)-(1.7,1.7));
180 set_bosize(0,125);
181 set_boserif(0,1,9);
182 expand_pbox;
183 enddef;

```



```

184
185 vardef kanji.radical.legs =
186   push_pbox_toexpand("kanji.radical.legs");
187   push_stroke((370,780){down}..(330,300)..(40,-60),
188     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(0.8,0.7));
189   replace_strokep(0)(insert_nodes(oldp)(1.3));
190   set_bosize(0,110);
191   push_stroke((610,780),
192     (1.6,1.6));
193   build_kanji.add_ltail(0);
194   set_bosize(0,110);
195   expand_pbox;
196 enddef;

```

```

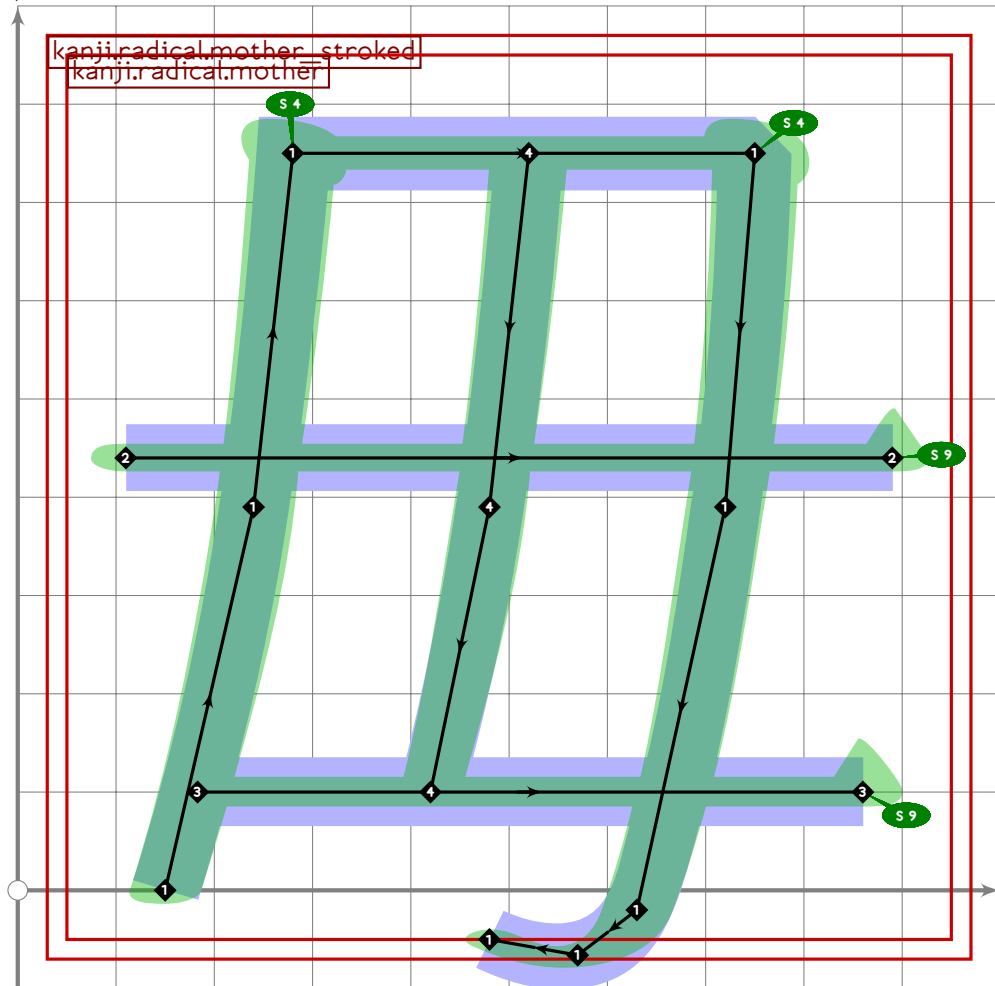
197
198 vardef kanji.radical.life_minus =
199   push_pbox_toexpand("kanji.radical.life_minus");
200   push_stroke((500,780)-(500,0),(1.6,1.6)-(1.6,1.6));
201   set_boserif(0,0,10);
202   push_stroke((280,700)..(220,360)..(140,120),
203     (1.6,1.6)-(1.2,1.2)-(0.8,0.8));
204   set_boserif(0,0,10);
205   push_stroke((point 0.9 of get_strokep(0))-
206     (820,ypart point 0.9 of get_strokep(0)),
207     (1.6,1.6)-(1.6,1.6));
208   set_boserif(0,1,9);
209   push_stroke((120,0)-(880,0),(1.6,1.6)-(1.6,1.6));
210   set_boserif(0,1,9);
211   expand_pbox;
212 enddef;
213
214 vardef kanji.bottomrad.long_kimono =
215   push_pbox_toexpand("kanji.bottomrad.long_kimono");
216   build_kanji.box((210,760),(790,540));
217   push_stroke((440,540)..tension 1.2..(330,300)..(110,80),
218     (1.6,1.6)-(1.4,1.4)-(1,1));
219   push_stroke((500,540)-(500,-20),(1.6,1.6)-(1.5,1.5));
220   push_stroke((500,380)..tension 1.2..(710,220)..(800,100),
221     (0.9,0.9)-(1.5,1.5)-(1.9,1.9));
222   push_stroke(
223     (810,410)..tension 1.2..(750,340)..(point 0.8 of get_strokep(0)),
224     (1.7,1.7)-(1.2,1.2)-(0.9,0.9));
225   expand_pbox;
226 enddef;
227
228 vardef kanji.radical.long_kimono =
229   push_pbox_toexpand("kanji.radical.long_kimono");
230   build_kanji.level(build_kanji.tb(600,-50)
231     (kanji.grone.earth)
232     (kanji.bottomrad.long_kimono));
233   expand_pbox;
234 enddef;
235
236 vardef kanji.radical.mother =
237   push_pbox_toexpand("kanji.radical.mother");
238   push_stroke(
239     (150,0)..(240,390)..tension 1.2..(280,750)-
240     (750,750)..(720,390)..tension 1.2..(630,-20){dir 250}{curl 0.2}(480,-50),
241     (1.5,1.5)-(1.6,1.6)-(1.7,1.7)-(1.7,1.7)-(1.6,1.6)-(1.5,1.5));
242   replace_strokep(0)(insert_nodes(oldp)((length oldp)-0.5));
243   replace_strokeq(0)(oldq-(1.4,1.4)-(1.2,1.2));
244   set_botip(0,2,1);

```

```

245 set_botip(0,3,0);
246 set_boserif(0,2,4);
247 set_boserif(0,3,4);
248 push_stroke((110,440)-(890,440),(1.5,1.5)-(1.5,1.5));
249 set_boserif(0,1,9);
250 push_stroke((183,100)-(860,100),(1.6,1.6)-(1.6,1.6));
251 set_boserif(0,1,9);
252 expand_pbox;
253 enddef;

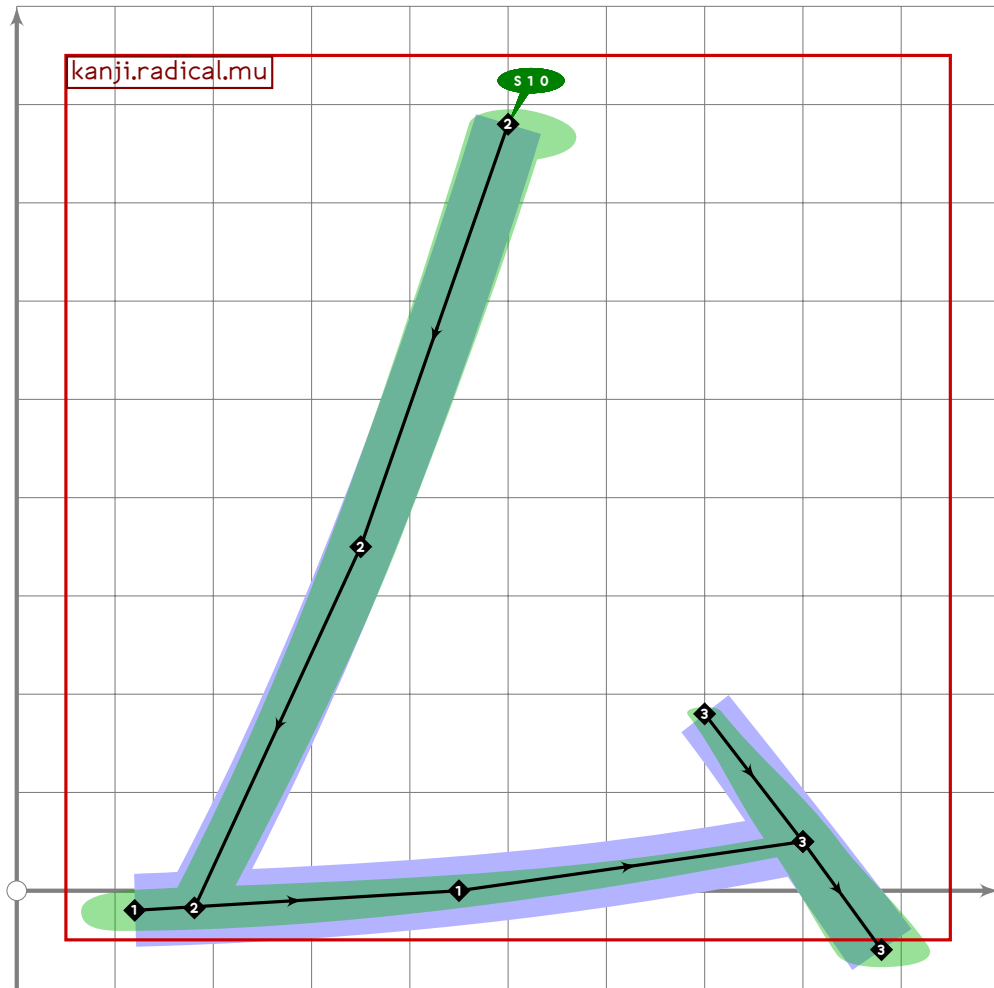
```



```

254
255 vardef kanji.radical.mother_stroked =
256   push_pbox_toexpand("kanji.radical.mother_stroked");
257   kanji.radical.mother;
258   push_stroke((520,750)..tension 1.2..(480,390)..(420,100),
259     (1.6,1.6)-(1.5,1.5)-(1.4,1.4));
260   expand_pbox;
261 enddef;

```



```

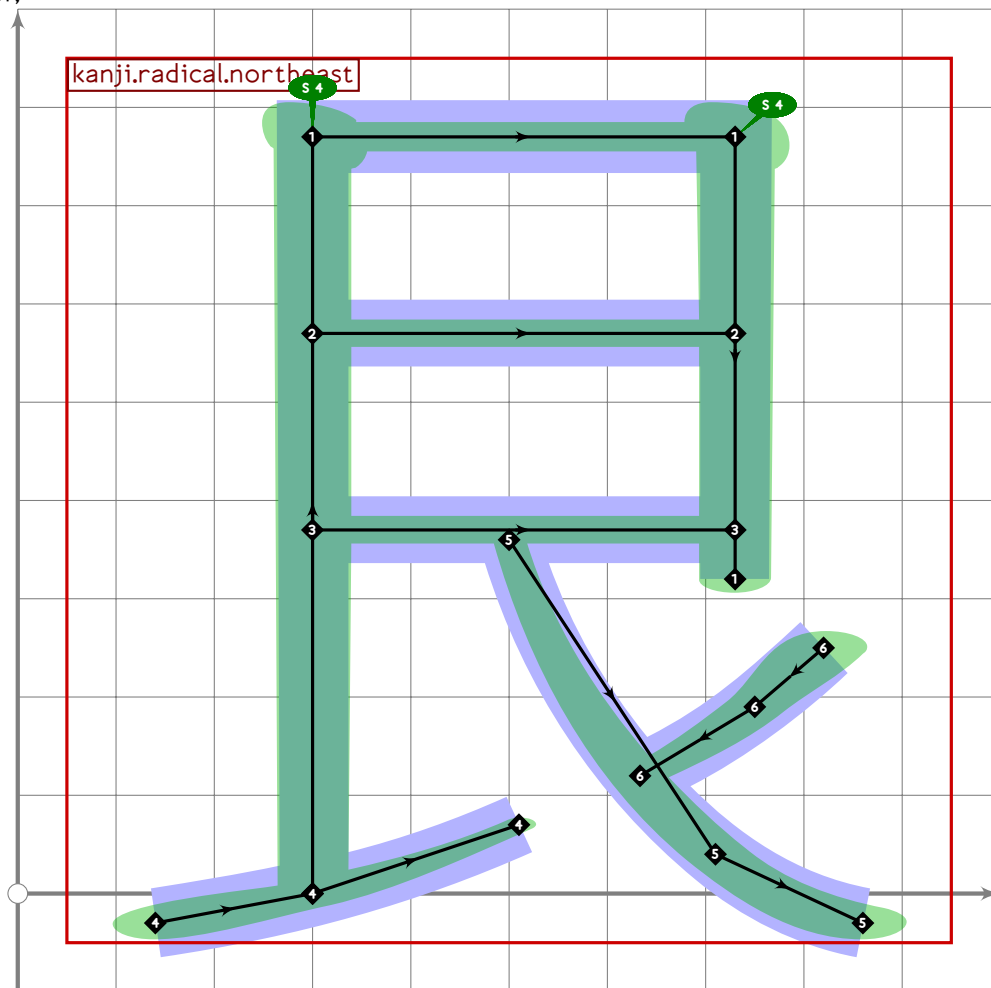
262
263 vardef kanji.radical.mu =
264   push_pbox_toexpand("kanji.radical.mu");
265   push_stroke((120,-20)..tension 1.2..(450,0)..(800,50),
266     (2,2)-(1.7,1.7)-(1.2,1.2));
267   push_stroke(
268     (500,780)..tension 1.2..(350,350)..(point 0.2 of get_strokep(0)),
269     (1.6,1.6)-(1.5,1.5)-(1.3,1.3));
270   set_boserif(0,0,10);
271   push_stroke((700,180)..tension 1.3..(800,50)..(880,-60),
272     (1,1)-(1.5,1.5)-(1.8,1.8));
273   expand_pbox;
274 enddef;
275
276 vardef kanji.radical.mu_bar =
277   push_pbox_toexpand("kanji.radical.mu_bar");
278   push_stroke((140,780)-(860,780),(1.6,1.6)-(1.6,1.6));
279   set_boserif(0,1,9);
280   build_kanji.sscale(xyscaled (0.92,1.5) shifted (0,250))
281     (kanji.radical.mu);
282   replace_strokep(-1)(subpath

```

```

283 (xpart (oldp intersectiontimes get_stroke(-3),infinity) of oldp);
284 set_boserif(-1,0,whatever);
285 replace_stroke(0)(oldp rotatedaround (point 1 of oldp,-15));
286 expand_pbox;
287 enddef;

```



```

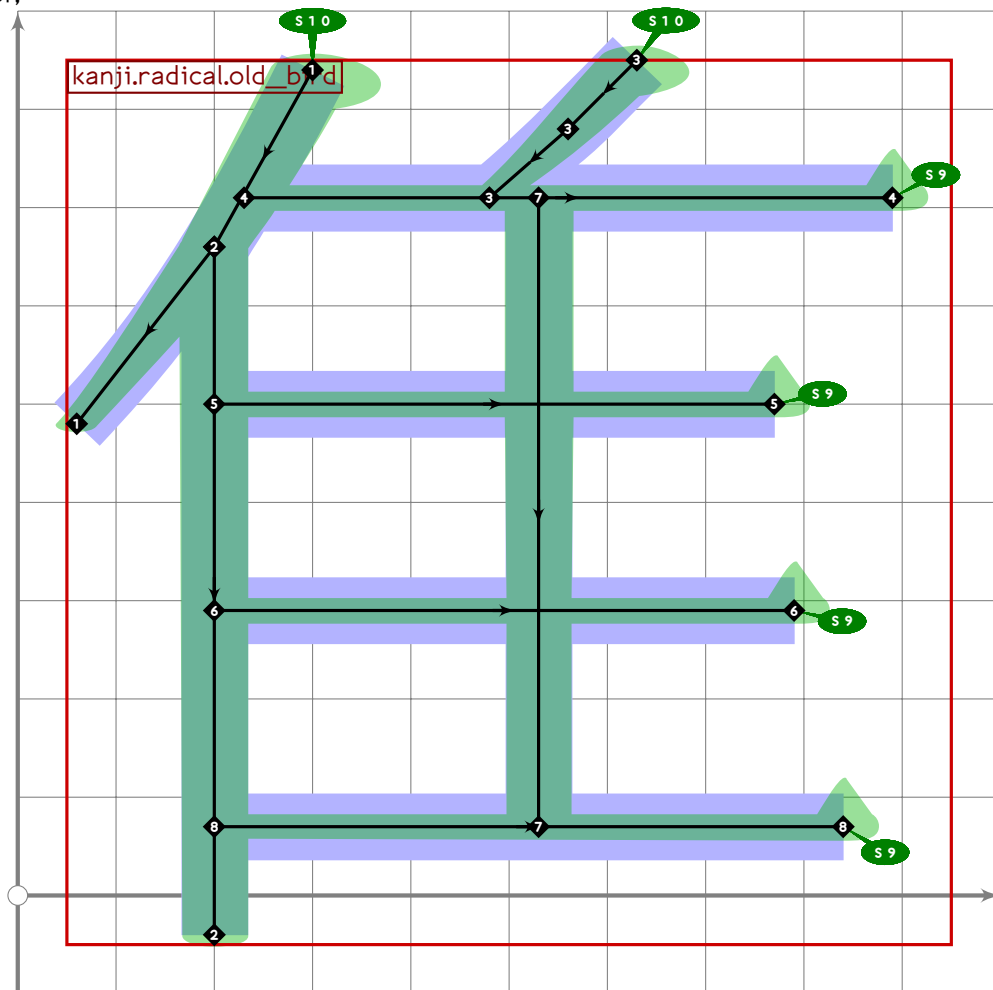
288
289 vardef kanji.radical.northeast =
290   push_pbox_toexpand("kanji.radical.northeast");
291   push_stroke((300,0)-(300,770)-(730,770)-(730,320),
292     (1.5,1.5)-(1.6,1.6)-(1.6,1.6)-(1.5,1.5));
293   set_boserif(0,1,4);
294   set_boserif(0,2,4);
295   set_botip(0,1,1);
296   set_botip(0,2,1);
297   push_stroke((300,570)-(730,570),(1.5,1.5)-(1.5,1.5));
298   push_stroke((300,370)-(730,370),(1.5,1.5)-(1.5,1.5));
299   push_stroke((140,-30)..tension 1.2..(300,0)..(510,70),
300     (1.7,1.7)-(1.5,1.5)-(1,1));
301   push_stroke((500,360)..tension 1.2..(710,40)..(860,-30),
302     (1,1)-(1.4,1.4)-(1.7,1.7));
303   push_stroke((820,250)..tension 1.2..(750,190)..

```

```

304     (point 0.7 of get_strokep(0)),
305     (1.7,1.7)–(1.4,1.4)–(1.2,1.2));
306     expand_pbox;
307 enddef;

```



```

308
309 vardef kanji.radical.old_bird =
310   push_pbox_toexpand("kanji.radical.old_bird");
311   push_stroke((300,840){curl 0.1}..(200,660)..(60,480),
312     (1.7,1.7)–(1.5,1.5)–(1.1,1.1));
313   set_boserif(0,0,10);
314   push_stroke((200,660)–(200,-40),
315     (1.49,1.49)–(1.4,1.4));
316   push_stroke((630,850){curl 0.1}..(560,780)..(480,710),
317     (1.6,1.6)–(1.4,1.4)–(1.1,1.1));
318   set_boserif(0,0,10);
319   push_stroke(
320     (((0,710)–(1000,710)) intersectionpoint get_strokep(-2))–(890,710),
321     (1.4,1.4)–(1.5,1.5));
322   set_boserif(0,19);
323   push_stroke((200,500)–(770,500),
324     (1.4,1.4)–(1.5,1.5));

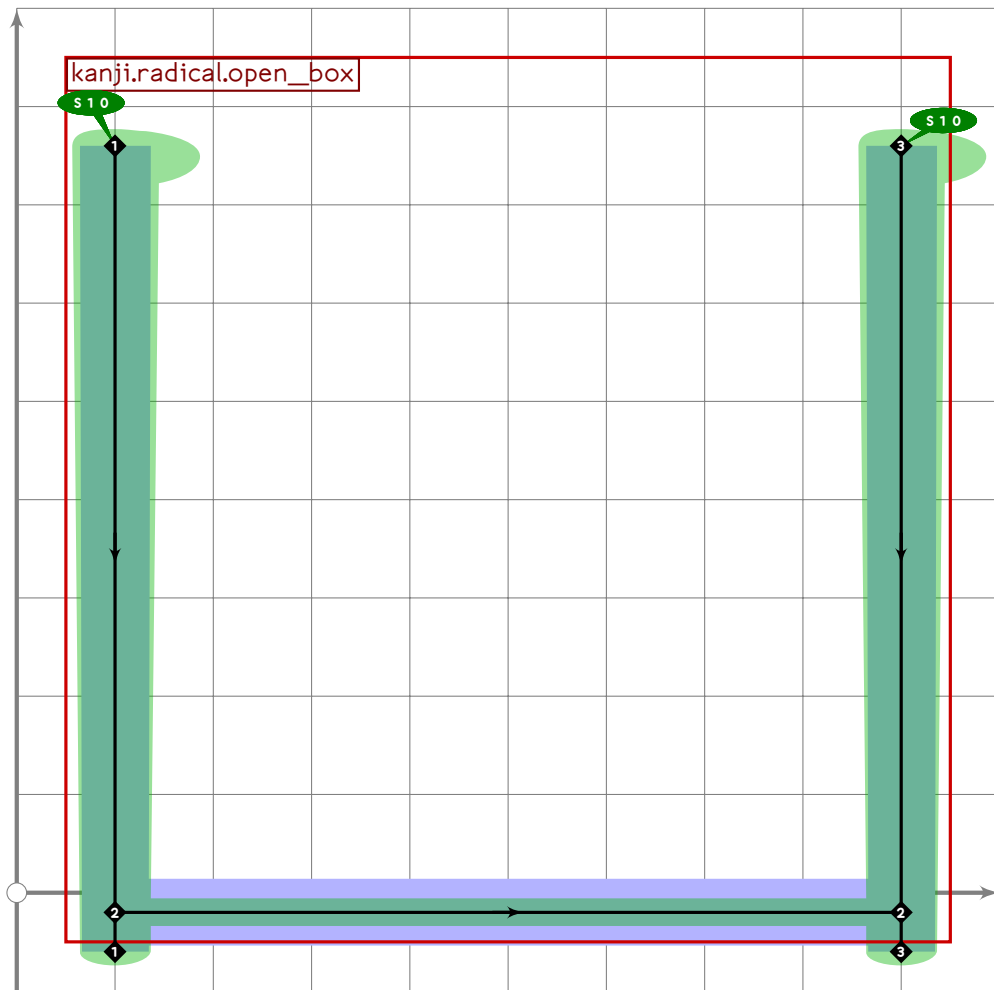
```



```

325 set_bosserif(0,1,9);
326 push_stroke((200,290)-(790,290),
327   (1.4,1.4)-(1.5,1.5));
328 set_bosserif(0,1,9);
329 push_stroke((530,710)-(530,70),(1.5,1.5)-(1.4,1.4));
330 push_stroke((200,70)-(840,70),
331   (1.4,1.4)-(1.5,1.5));
332 set_bosserif(0,1,9);
333 expand_pbox;
334 enddef;
335
336 % pass in some code that goes in the bottom
337 vardef kanji.radical.old_man(text curves) =
338   push_pbox_toexpand("kanji.radical.old_man");
339   build_kanji.level(
340     build_kanji.tb(480,-110)
341     (kanji.grone.earth;
342       replace_stroke(-1)(oldp shifted (-500,0) xscaled 0.75 shifted (480,0))
343     (curves);
344     push_stroke((880,780)..tension 1.2..(600,530)..(50,260),
345       (1.6,1.6)-(1.5,1.5)-(1,1));
346   expand_pbox;
347 enddef;

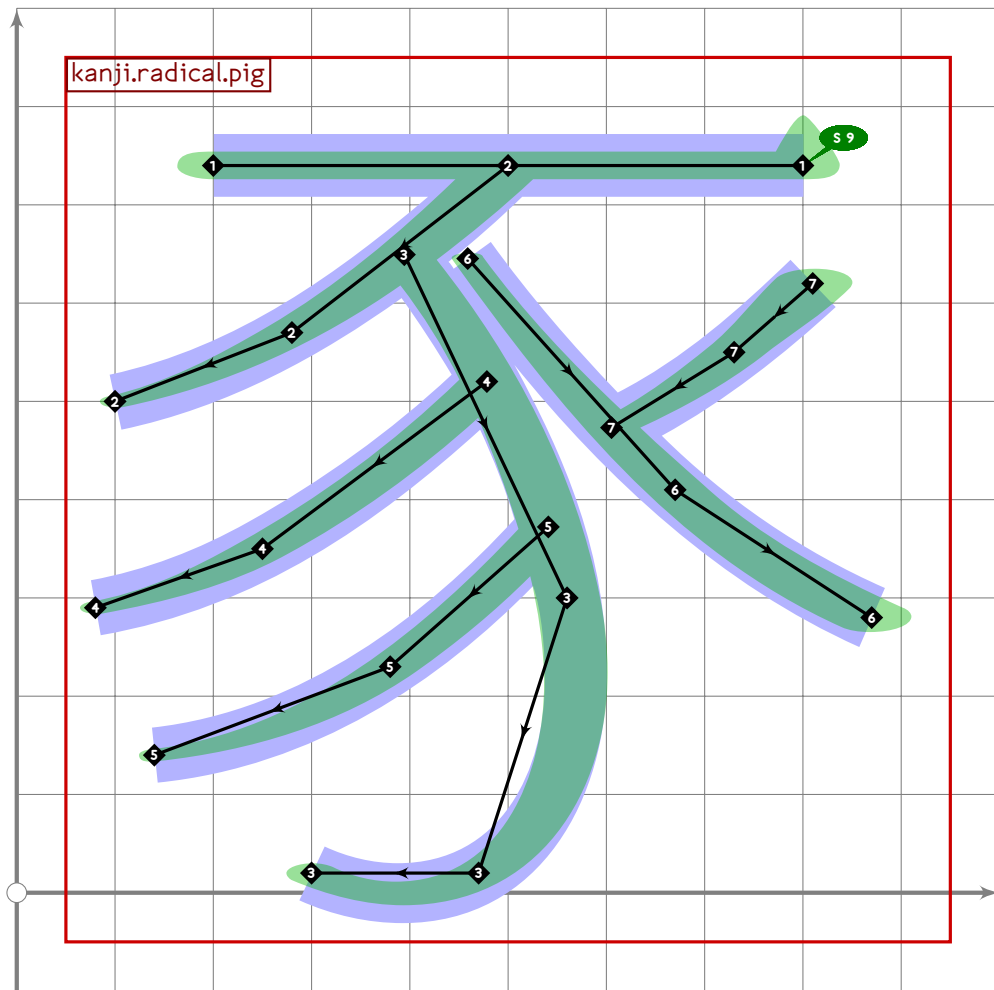
```



```

348
349 vardef kanji.radical.open_box =
350   push_pbox_toexpand("kanji.radical.open_box");
351   push_stroke((100,760)-(100,-60),(1.7,1.7)-(1.5,1.5));
352   set_boserif(0,0,10);
353   push_stroke((100,-20)-(900,-20),(1.5,1.5)-(1.5,1.5));
354   push_stroke((900,760)-(900,-60),(1.7,1.7)-(1.5,1.5));
355   set_boserif(0,0,10);
356   expand_pbox;
357 enddef;

```



```

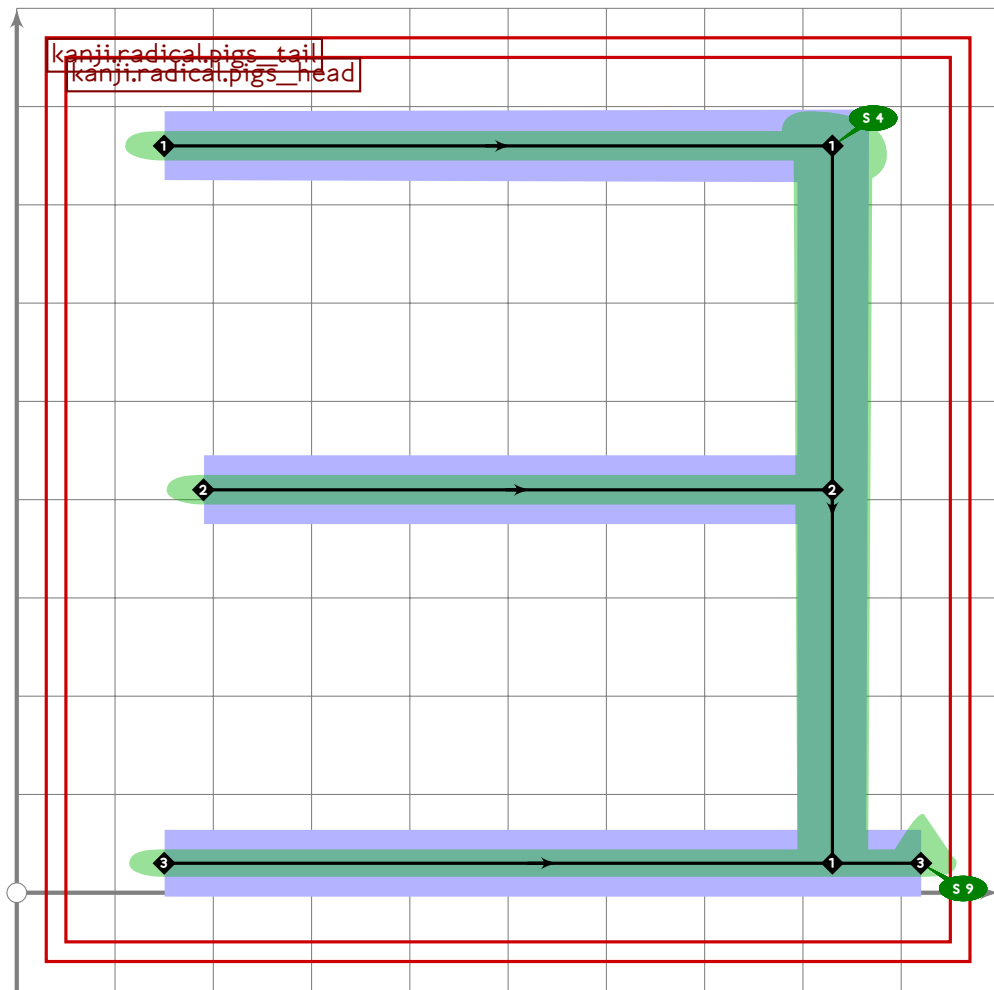
358
359 vardef kanji.radical.pig =
360   push_pbox_toexpand("kanji.radical.pig");
361   push_stroke((200,740)-(800,740),(1.6,1.6)-(1.6,1.6));
362   set_boserif(0,1,9);
363   push_stroke((500,740)..tension 1.2..(280,570)..(100,500),
364     (1.6,1.6)-(14,14)-(10,10));
365   push_stroke(
366     (point 0.5 of get_stroke(0))..tension 1.1..(560,300)..
367     (470,20)..{curl 0.6}(300,20),
368     (1.3,1.3)-(1.5,1.5)-(14,14)-(1.3,1.3));
369   push_stroke(
370     (point 0.4 of get_stroke(0))..tension 1.2..(250,350)..(80,290),
371     (1.35,1.35)-(14,14)-(10,10));
372   push_stroke(
373     (point 0.8 of get_stroke(-1))..tension 1.2..(380,230)..(140,140),
374     (1.35,1.35)-(14,14)-(10,10));
375   push_stroke(
376     ((0,90)+point 0.3 of get_stroke(-2))..tension 1.2..(670,410)..(870,280),
377     (1,1)-(14,14)-(1.7,1.7));
378   push_stroke(

```

```

379     (810,620)..tension 1.2..(730,550)..(point 0.7 of get_strokep(0)),
380     (1.7,1.7)-(1.4,1.4)-(1.2,1.2));
381   for i=-6 upto 0: set_bosize(i,92); endfor;
382   expand_pbox;
383 enddef;
384
385 vardef kanji.radical.pigs_head =
386   push_pbox_toexpand("kanji.radical.pigs_head");
387   push_stroke((150,760)-(830,760)-(830,-70),
388     (1.6,1.6)-(1.6,1.6)-(1.5,1.5));
389   set_botip(0,1);
390   set_boserif(0,1,4);
391   push_stroke((190,410)-(830,410),(1.55,1.55)-(1.55,1.55));
392   push_stroke((150,30)-(830,30),(1.5,1.5)-(1.5,1.5));
393   expand_pbox;
394 enddef;
395
396 % name is mine - it has central horizontal line lengthened
397 vardef kanji.radical.pigs_snout =
398   push_pbox_toexpand("kanji.radical.pigs_snout");
399   build_kanji.level(
400     build_kanji.sscale(xscaled 0.87)(kanji.radical.pigs_head);
401     replace_strokep(-1)((100,410)-(910,410));
402     set_boserif(-1,1,9);
403   );
404   expand_pbox;
405 enddef;
406

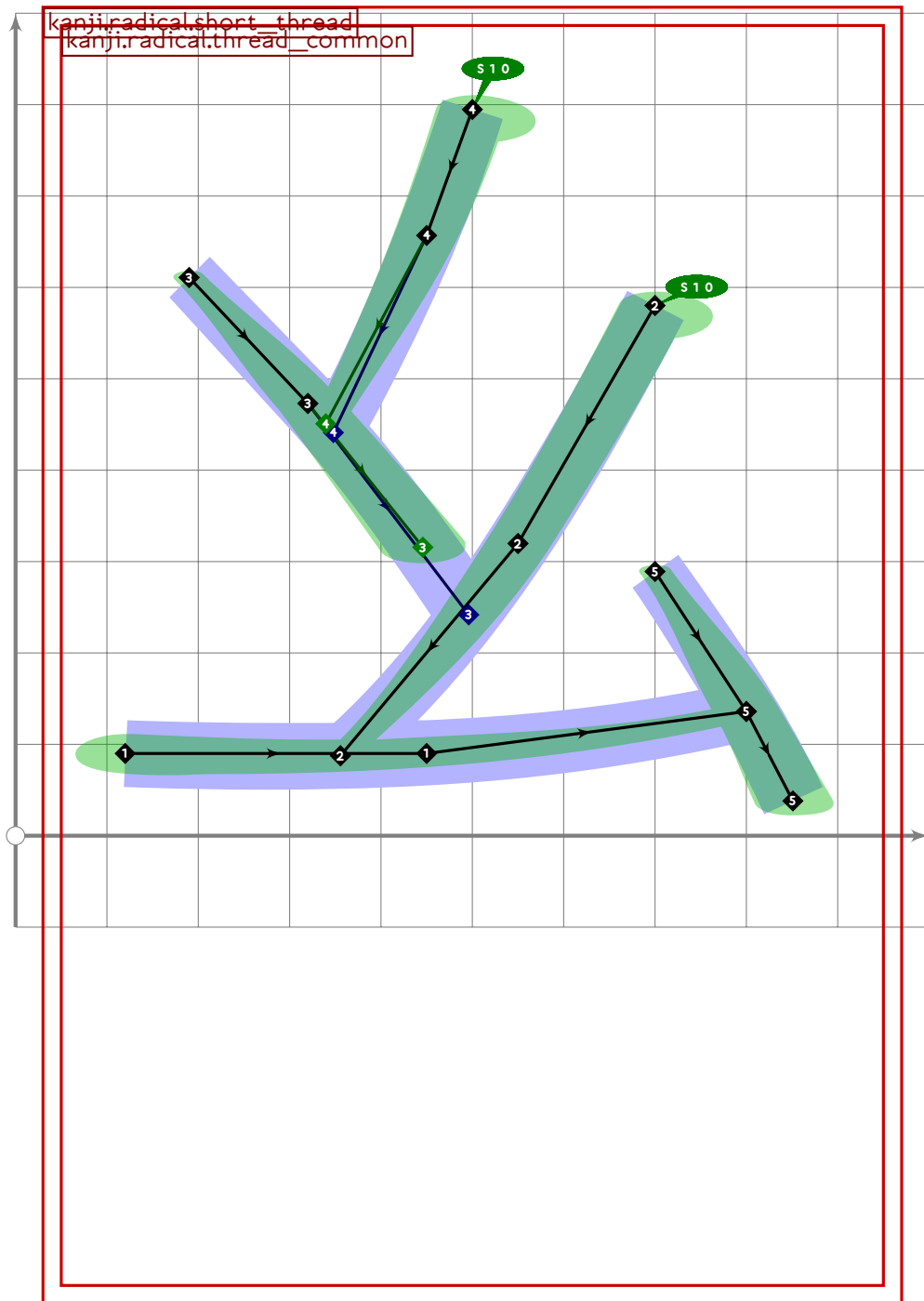
```



```

407 % name is mine - it has bottom horizontal line lengthened, vertical clipped
408 vardef kanji.radical.pigs_tail =
409   push_pbox_toexpand("kanji.radical.pigs_tail");
410   kanji.radical.pigs_head;
411   replace_strokep(-2)((150,760)-(830,760)-(830,30));
412   replace_strokep(0)((150,30)-(920,30));
413   set_boserif(0,1,9);
414   expand_pbox;
415 enddef;

```



```

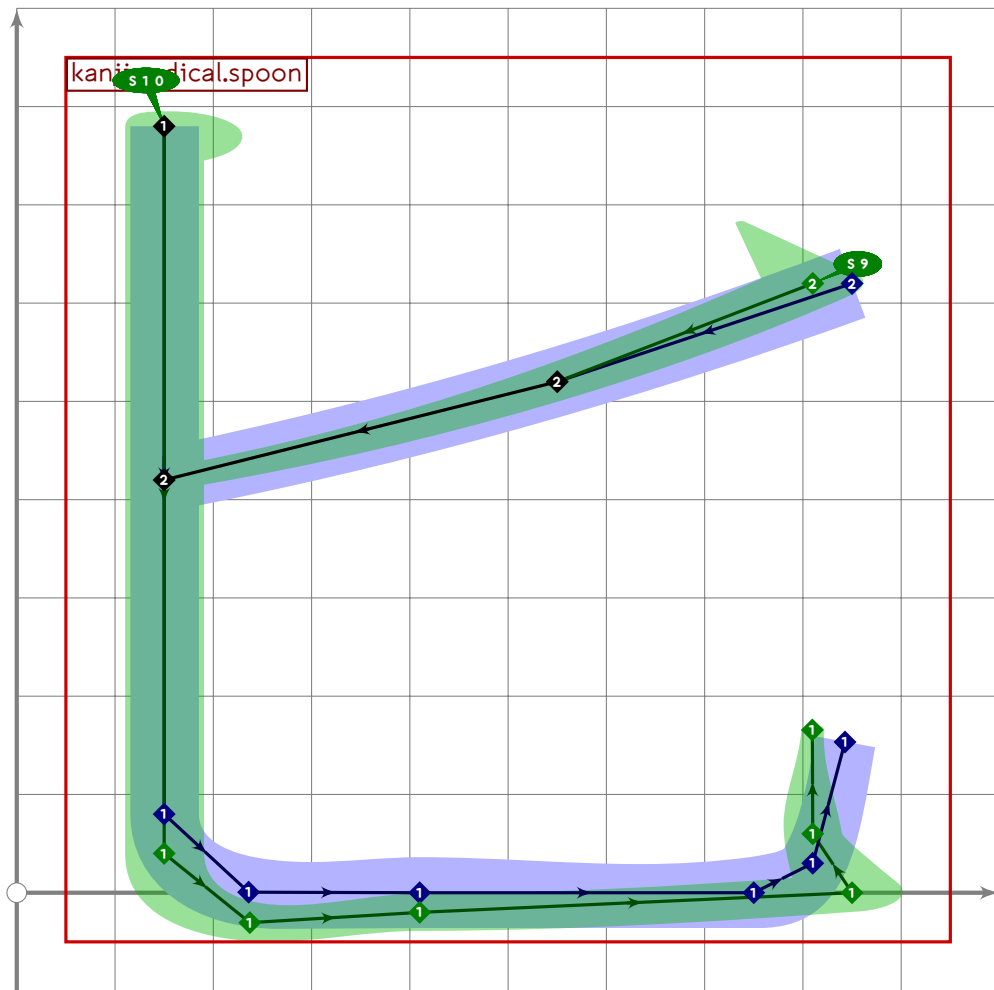
416
417 vardef kanji.radical.short_thread =
418   push_pbox_toexpand("kanji.radical.short_thread");
419   tsu_xform(begingroup
420     save myxf;
421     transform myxf;
422     xpart myxf=yxpart myxf=0;
423     xxpart myxf=1;
424     (500,330) transformed myxf=(500,90);
425     (500,800) transformed myxf=(500,810);

```

```

426 myxf
427 endgroup)(kanji.radical.thread_common);
428 replace_strokep(0)(subpath (0,1.6) of oldp);
429 replace_strokeq(0)(subpath (0,1.6) of oldq);
430 for i=-4 upto 0: set_bosize(i,100); endfor;
431 expand_pbox;
432 enddef;
433
434 vardef kanji.radical.silly_hat =
435 push_pbox_toexpand("kanji.radical.silly_hat");
436 push_stroke((500,800)..(500,500),(1.6,1.6)-(1.5,1.5));
437 set_bosize(0,95);
438 set_boserif(0,0,10);
439 push_stroke((100,100)..(100+50*mincho,300)..(100+70*mincho,500)-
440 (900,500)..(900-40*mincho,200)..(900-70*mincho,100),
441 (1.7,1.7)-(1.6,1.6)-(1.4,1.4)-(1.7,1.7)-(1.6,1.6)-(1.4,1.4));
442 set_bosize(0,95);
443 set_botip(0,2,1);
444 set_botip(0,3,1);
445 set_boserif(0,3,4);
446 expand_pbox;
447 enddef;

```



```

448
449 vardef kanji.radical.spoon =
450   push_pbox_toexpand("kanji.radical.spoon");
451   push_stroke((150,780),(1.6,1.6));
452   build_kanji.add_tail(0);
453   set_boserif(0,0,10);
454   push_stroke(
455     (xpart point infinity of get_strokep(0),620)..(550,520)..(150,420),
456     (1.9,1.9)..(1.6,1.6)..(1.3,1.3));
457   set_boserif(0,0,9);
458   expand_pbox;
459 enddef;
460
461 vardef kanji.radical.tent =
462   push_pbox_toexpand("kanji.radical.tent");
463   push_stroke((510,800)..(450,700)..(300,540)..(60,360),
464     (1.6,1.6)-(1.5,1.5)-(1.3,1.3)-(0.85,0.9));
465   set_boserif(0,0,10);
466   push_stroke(
467     (point 0.2 of get_strokep(0))..tension 1.2..(640,620)..(920,400),
468     (1,1)-(1.3,1.3)-(2.25,0.95));

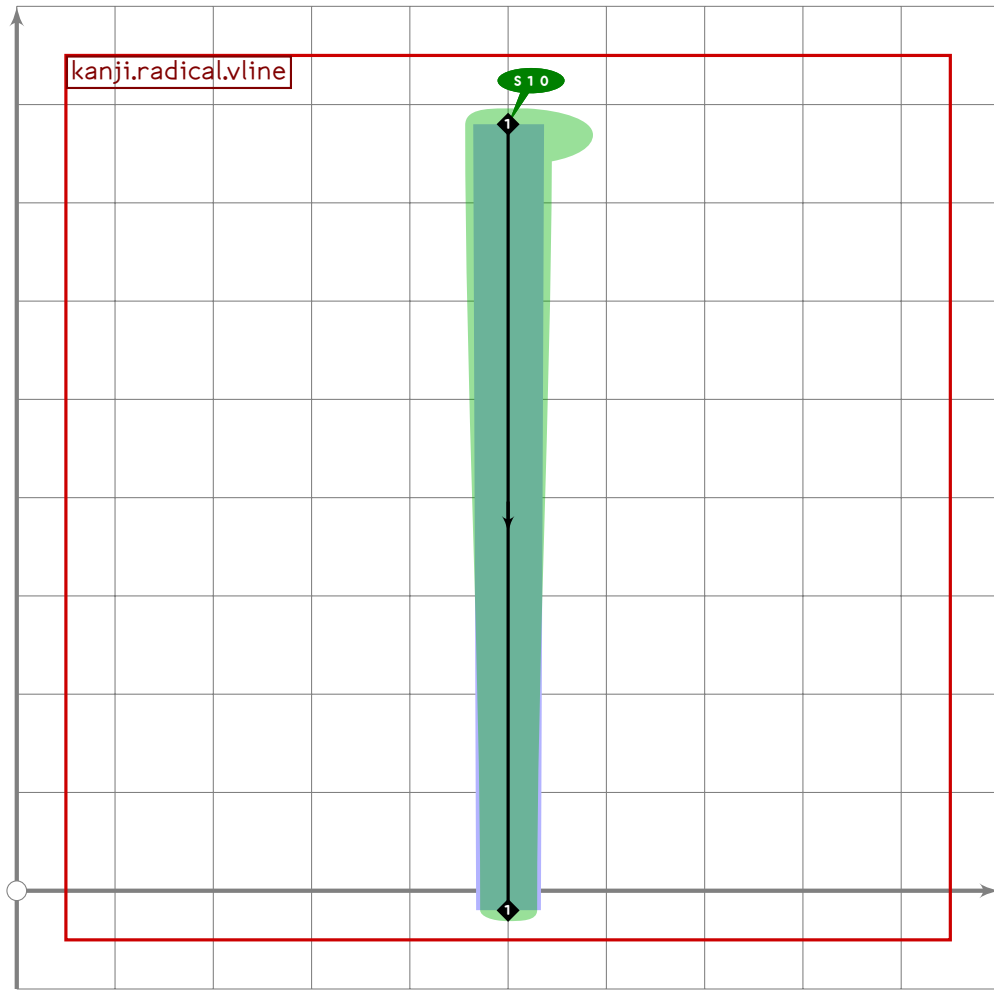
```



```

469 push_stroke((330,470)-(660,470),(1.6,1.6)-(1.6,1.6));
470 set_boserif(0,1,9);
471 expand_pbox;
472 enddef;
473
474 vardef kanji.radical.thread_common =
475   push_pbox_toexpand("kanji.radical.thread_common");
476   push_stroke((120,330)..tension 1.2..(450,330)..(800,360),
477     (2,2)-(1.7,1.7)-(1.2,1.2));
478   push_stroke((700,650)..tension 1.3..(550,480)..(point 0.7 of get_strokep(0)),
479     (1.6,1.6)-(1.5,1.5)-(1,1));
480   set_boserif(0,0,10);
481   push_stroke(subpath (0,2-0.3*mincho) of
482     ((190,670)..tension 1.3..(320,580)..(point 1.3 of get_strokep(0))),
483     (1,1)-(1.5,1.5)-(1.8,1.8));
484   push_stroke((500,790)..(450,700)..(point 1.15 of get_strokep(0)),
485     (1.6,1.6)-(1.5,1.5)-(1,1));
486   set_boserif(0,0,10);
487   push_stroke((700,460)..tension 1.3..(800,360)..(880,250),
488     (1,1)-(1.5,1.5)-(1.8,1.8));
489   expand_pbox;
490 enddef;
491
492 vardef kanji.radical.topped_aitch =
493   push_pbox_toexpand("kanji.radical.topped_aitch");
494   push_stroke((160,730)-(840,730),(1.6,1.6)-(1.6,1.6));
495   set_boserif(0,1,9);
496   kanji.radical.aitch;
497   set_boserif(-1,0,whatever);
498   set_boserif(0,0,whatever);
499   expand_pbox;
500 enddef;

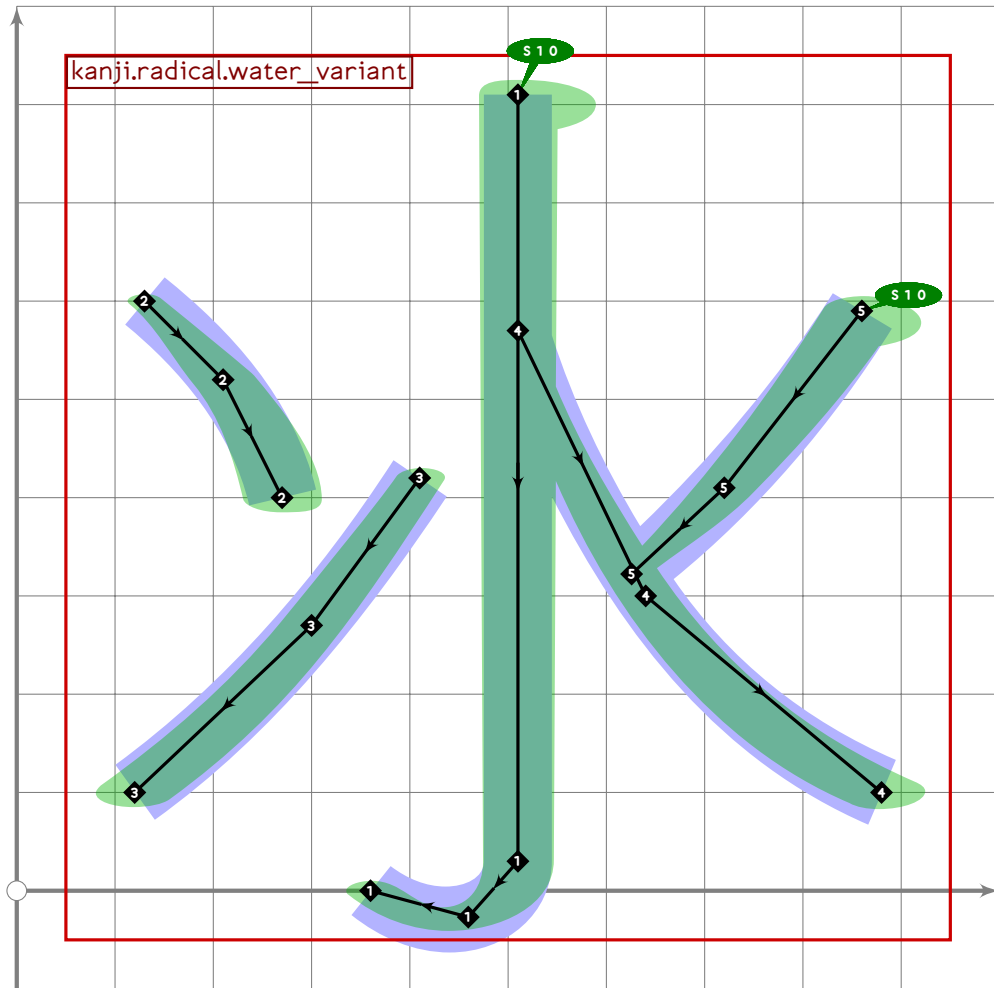
```



```

501
502 vardef kanji.radical.vline =
503   push_pbox_toexpand("kanji.radical.vline");
504   push_stroke((500,780)-(500,-20),(1.7,1.7)-(1.3,1.3));
505   set_boserif(0,0,10);
506   expand_pbox;
507 enddef;

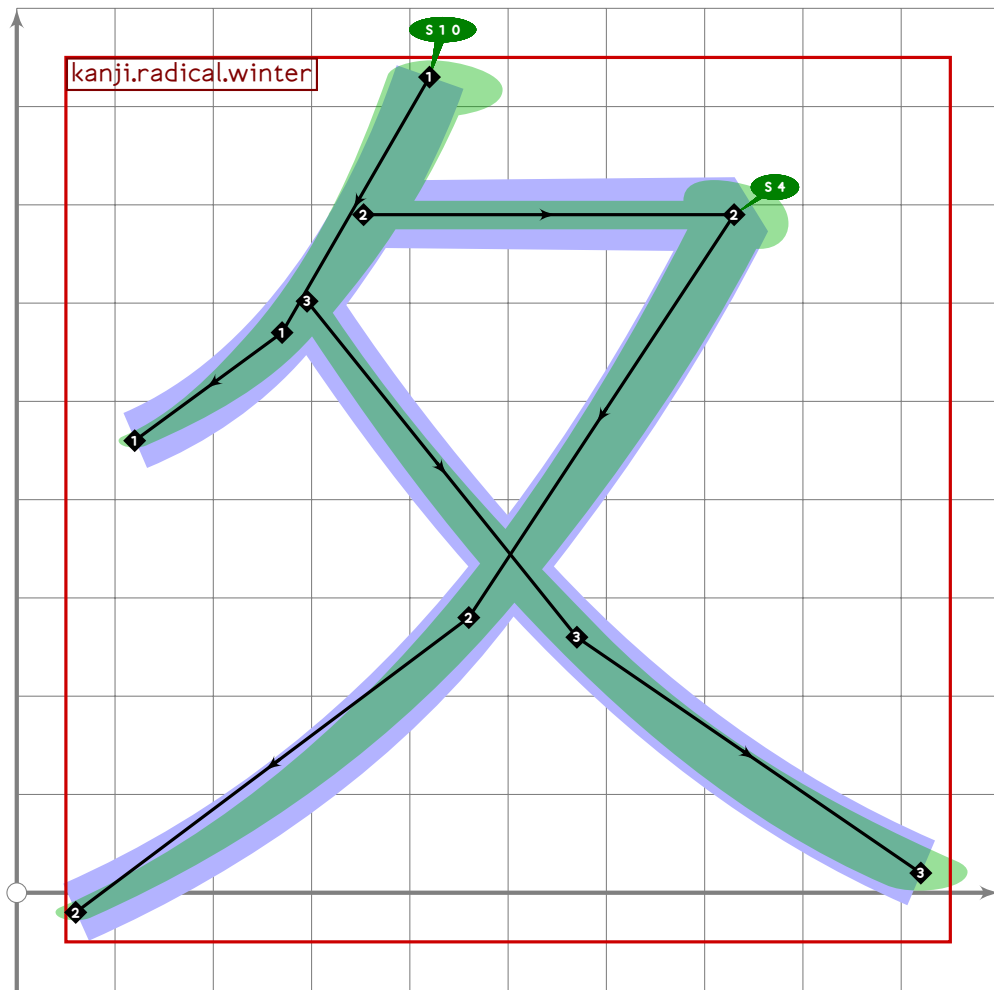
```



```

508
509 vardef kanji.radical.water_variant =
510   push_pbox_toexpand("kanji.radical.water_variant");
511   push_stroke((510,810),(1.6,1.6));
512   build_kanji.add_jtail(0);
513   set_boserif(0,0,10);
514   push_stroke((130,600)..tension 1.2..(210,520)..(270,400),
515     (1,1)-(1.4,1.4)-(1.6,1.6));
516   push_stroke((410,420)..tension 1.2..(300,270)..(120,100),
517     (1.2,1.2)-(1.4,1.4)-(1.6,1.6));
518   push_stroke((510,570)..tension 1.2..(640,300)..(880,100),
519     (1,1)-(1.3,1.3)-(1.7,1.7));
520   push_stroke((860,590)..(720,410)..(point 0.9 of get_strokep(0)),
521     (1.6,1.6)-(1.4,1.4)-(1,1));
522   set_boserif(0,0,10);
523   expand_pbox;
524 enddef;

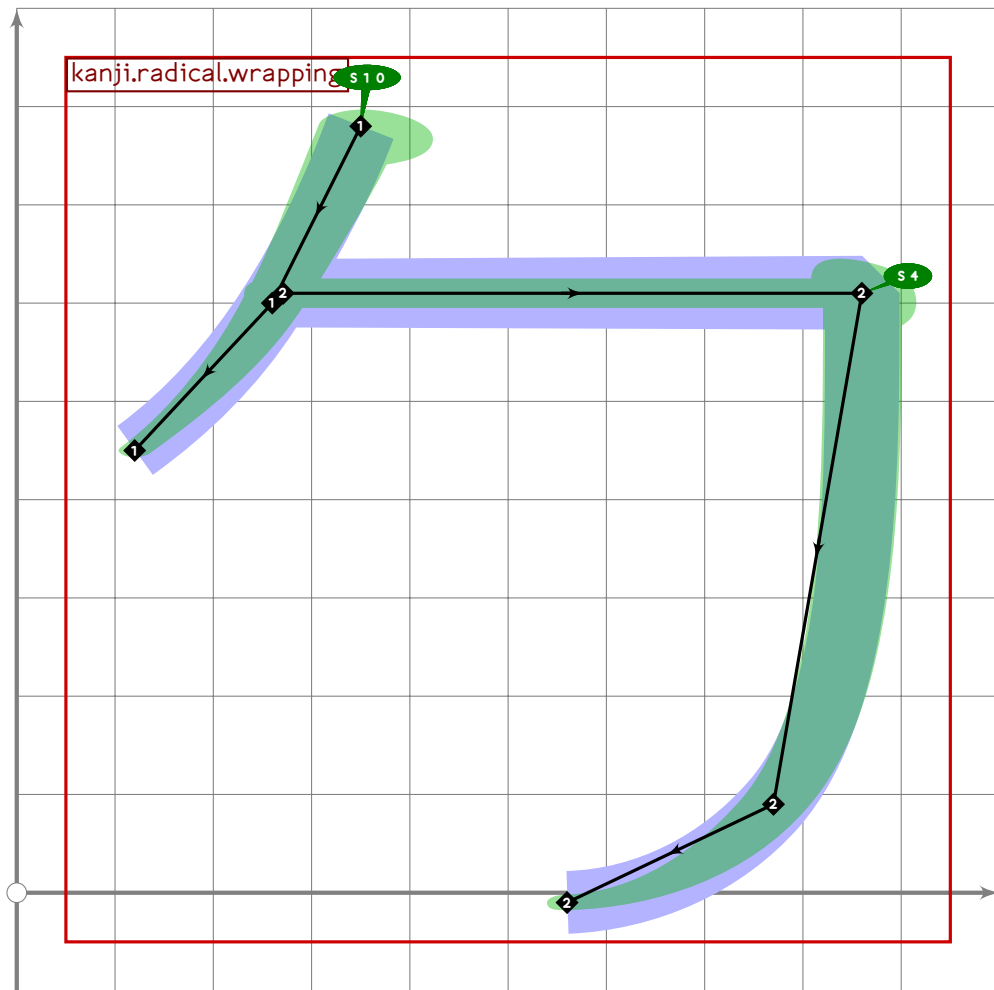
```



```

525
526 vardef kanji.radical.winter =
527   push_pbox_toexpand("kanji.radical.winter");
528   push_stroke((420,830)..tension 1.2..(270,570)..(120,460),
529     (1.7,1.7)-(1.4,1.4)-(1,1));
530   set_boserif(0,0,10);
531   push_stroke((get_stroke(0) intersectionpoint ((0,690)-(1000,690)))-
532     (730,690)..tension 1.2..(460,280)..(60,-20),
533     (1.5,1.5)-(1.6,1.6)-(1.4,1.4)-(1.1,1.1));
534   set_boserif(0,1,4);
535   set_botip(0,1,0);
536   push_stroke((point 0.85 of get_stroke(-1))..tension 1.2..
537     (570,260)..(920,20),
538     (1,1)-(1.3,1.3)-(1.8,1.8));
539   expand_pbox;
540 enddef;

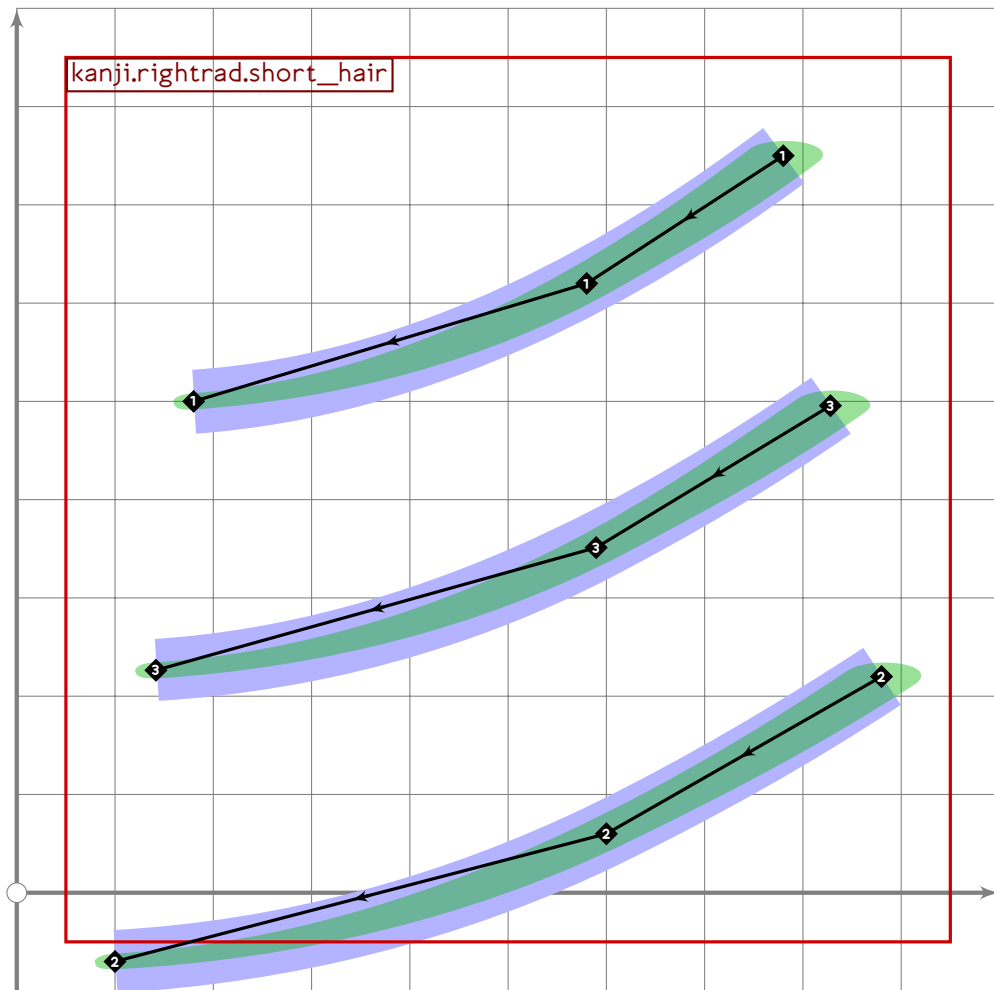
```



```

541
542 vardef kanji.radical.wrapping =
543   push_pbox_toexpand("kanji.radical.wrapping");
544   push_stroke((350,780)..tension 1.2..(260,600)..(120,450),
545     (1.7,1.7)-(1.4,1.4)-(1,1));
546   set_boserif(0,0,10);
547   push_stroke(
548     ((5,0)+((get_stroke(0) intersectionpoint ((0,610)-(1000,610)))))-
549     (860,610){down}..(770,90)..(560,-10),
550     (1.6,1.6)-(1.6,1.6)-(1.5,1.5)-(1.1,1.1));
551   set_boserif(0,1,4);
552   set_botip(0,1,0);
553   expand_pbox;
554 enddef;
555
556

```



```

557
558 vardef kanji.rightrad.short_hair =
559   push_pbox_toexpand("kanji.rightrad.short_hair");
560   push_stroke((780,750)..tension 1.2..(580,620)..(180,500),
561     (1.6,1.6)-(1.4,1.4)-(1.1,1.1));
562   push_stroke((880,220)..tension 1.2..(600,60)..(100,-70),
563     (1.6,1.6)-(1.4,1.4)-(1.1,1.1));
564   push_stroke(interpath(0.52,get_stroke(0),get_stroke(-1)),
565     (1.6,1.6)-(1.4,1.4)-(1.1,1.1));
566   expand_pbox;
567 enddef;

```

# toprad.mp

```
1 %
2 % Radicals for top (often special forms of other radicals)
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(toprad);
32
33 

---


34
35 vardef kanji.toprad.blue =
36   push_pbox_toexpand("kanji.toprad.blue");
37   push_stroke((120,560)-(880,560),
38     (1.6,1.6)-(1.6,1.6));
39   set_boserif(0,1,9);
40   push_stroke((500,780)-(500,40),
41     (1.6,1.6)-(1.5,1.5));
42   set_boserif(0,0,10);
43   push_stroke((160,310)-(840,310),
44     (1.6,1.6)-(1.6,1.6));
45   set_boserif(0,1,9);
46   push_stroke((80,40)-(920,40),
47     (1.6,1.6)-(1.6,1.6));
48   set_boserif(0,1,9);
49   expand_pbox;
50 enddef;
51
52 vardef kanji.toprad.cave =
53   push_pbox_toexpand("kanji.toprad.cave");
54   build_kanji.level(build_kanji.tb(400,340)
55     (kanji.radical.silly_hat)
56     (kanji.radical.legs));
57   expand_pbox;
58 enddef;
59
60 vardef kanji.toprad.grass =
61   push_pbox_toexpand("kanji.toprad.grass");
62   push_stroke((350,800)-(350,-30),
63     (1.6,1.6)-(1.4,1.4));
64   set_boserif(0,0,10);
65   push_stroke((650,800)-(650,-30),
66     (1.6,1.6)-(1.4,1.4));
67   set_boserif(0,0,10);
68   push_stroke((100,400)-(900,400),
69     (1.6,1.6)-(1.6,1.6));
70   set_boserif(0,1,9);
```

```

71  expand_pbox;
72  enddef;
73
74  vardef kanji.toprad.rain =
75  push_pbox_toexpand("kanji.toprad.rain");
76  push_stroke((120,720)-(880,720),(1.6,1.6)-(1.6,1.6));
77  set_boserif(0,1,9);
78  push_stroke((500,720)-(500,30),(1.6,1.6)-(1.5,1.5));
79  push_stroke((100,150)..(100+50*mincho,400)..(100+70*mincho,540)-
80    (900,540)..(900-40*mincho,275)..(900-70*mincho,150),
81    (1.7,1.7)-(1.6,1.6)-(1.4,1.4)-
82    (1.7,1.7)-(1.6,1.6)-(1.4,1.4));
83  set_botip(0,2,1);
84  set_botip(0,3,1);
85  set_boserif(0,3,4);
86  push_stroke((230,380)..(400,380),(1.6,1.6)-(1.6,1.6));
87  set_boserif(0,1,9);
88  set_bosize(0,80);
89  push_stroke(get_strokep(0) shifted (350,0),get_strokeq(0));
90  set_boserif(0,1,9);
91  set_bosize(0,80);
92  push_stroke(get_strokep(-1) shifted (0,-220),get_strokeq(-1));
93  set_boserif(0,1,9);
94  set_bosize(0,80);
95  push_stroke(get_strokep(-2) shifted (350,-220),get_strokeq(-2));
96  set_boserif(0,1,9);
97  set_bosize(0,80);
98  expand_pbox;
99  enddef;
100
101  vardef kanji.toprad.sparkle_four =
102  push_pbox_toexpand("kanji.toprad.sparkle_four");
103  push_stroke((150,600)..tension 1.2..(200,440)..(270,160),
104    (1,1)-(1.3,1.3)-(1.9,1.9));
105  push_stroke((390,780)-(390,-20),
106    (1.6,1.6)-(1.5,1.5));
107  set_boserif(0,0,10);
108  push_stroke((610,780)-(610,-20),
109    (1.6,1.6)-(1.5,1.5));
110  set_boserif(0,0,10);
111  push_stroke((840,620)..tension 1.2..(780,370)..(720,170),
112    (1.6,1.6)-(1.5,1.5)-(1.3,1.3));
113  set_boserif(0,0,10);
114  expand_pbox;
115  enddef;
116
117  vardef kanji.toprad.sparkle_three =
118  push_pbox_toexpand("kanji.toprad.sparkle_three");

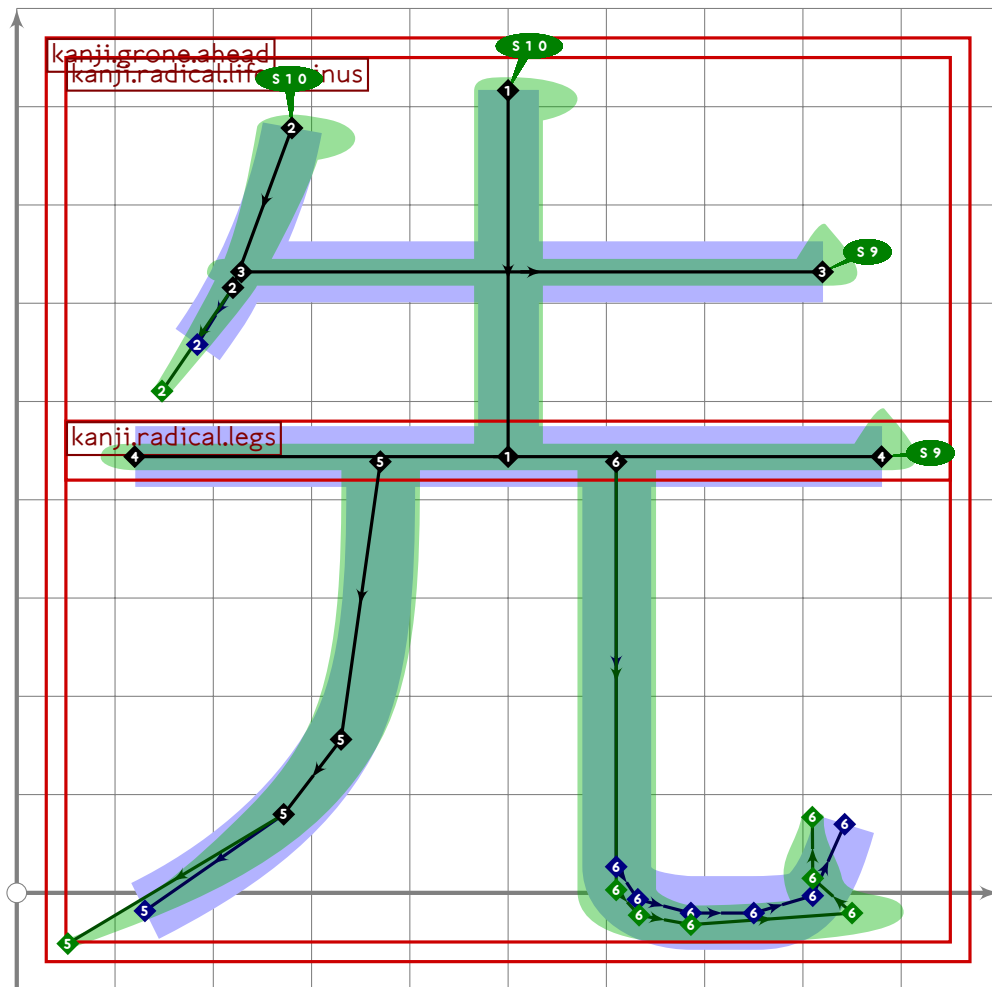
```



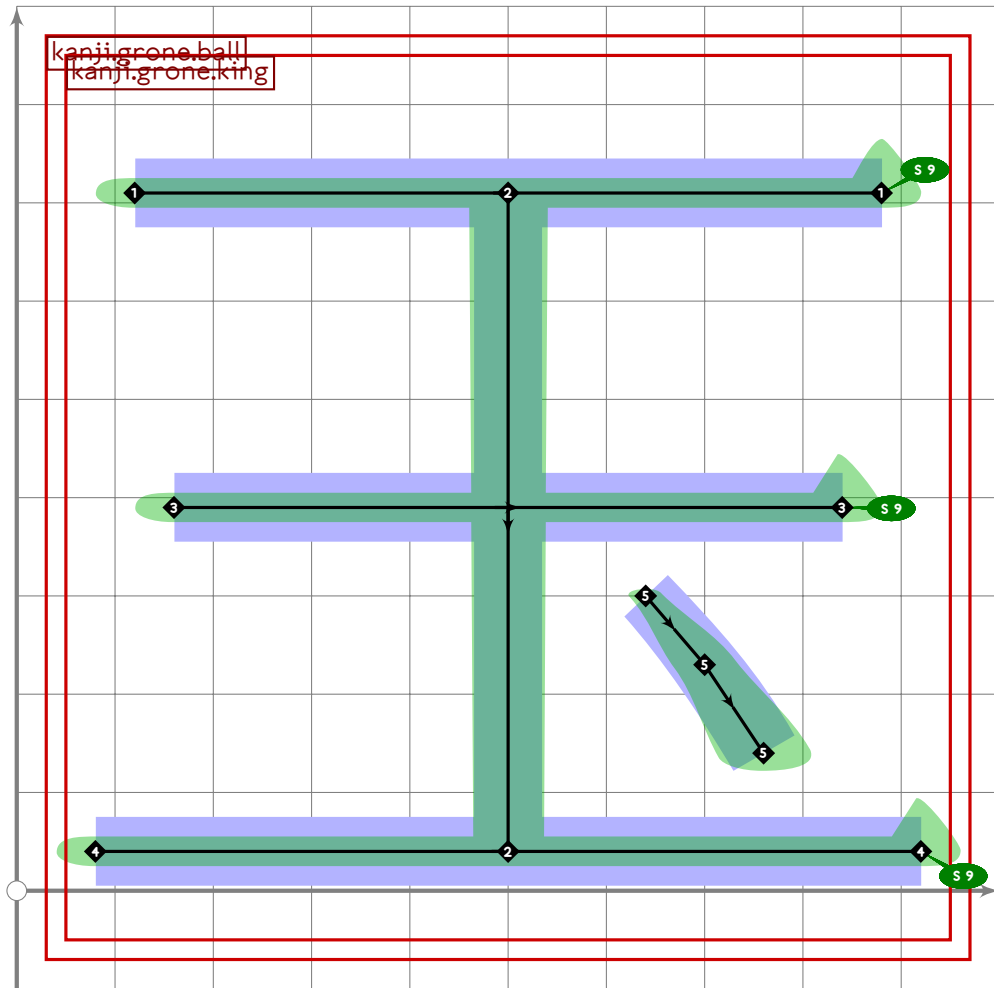
```
119 kanji.toprad.sparkle_two;  
120 push_stroke((500,780)-(500,-20),  
121   (1.6,1.6)-(1.5,1.5));  
122 set_boserif(0,0,10);  
123 expand_pbox;  
124 enddef;  
125  
126 vardef kanji.toprad.sparkle_two =  
127   push_pbox_toexpand("kanji.toprad.sparkle_two");  
128   push_stroke((200,600)..tension 1.2..(250,440)..(320,160),  
129     (1,1)-(1.3,1.3)-(1.9,1.9));  
130   push_stroke((790,620)..tension 1.2..(730,370)..(670,170),  
131     (1.6,1.6)-(1.5,1.5)-(1.3,1.3));  
132   set_boserif(0,0,10);  
133   expand_pbox;  
134 enddef;
```

# gradeone.mp

```
1 %  
2 % Grade One kanji used on more than one page  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 inclusion_lock(gradeone);  
32  
33
```



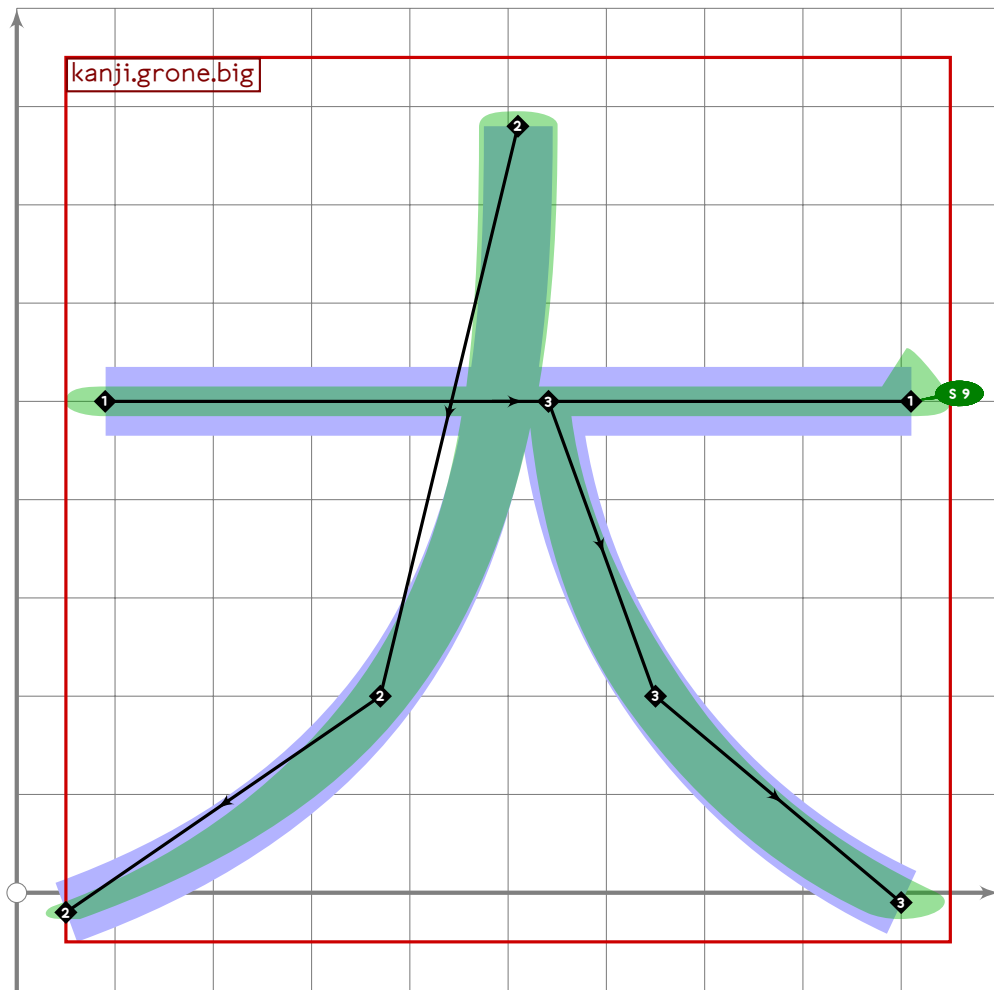
```
34  
35 vardef kanji.grone.ahead =  
36   push_pbox_toexpand("kanji.grone.ahead");  
37   build_kanji.tb(450,60)  
38     (kanji.radical.life_minus)  
39     (kanji.radical.legs);  
40   expand_pbox;  
41 enddef;
```



```

42
43 vardef kanji.grone.ball =
44   push_pbox_toexpand("kanji.grone.ball");
45   kanji.grone.king;
46   push_stroke((640,300)..(700,230)..(760,140),
47     (1,1)-(1.4,1.4)-(1.8,1.8));
48   expand_pbox;
49 enddef;

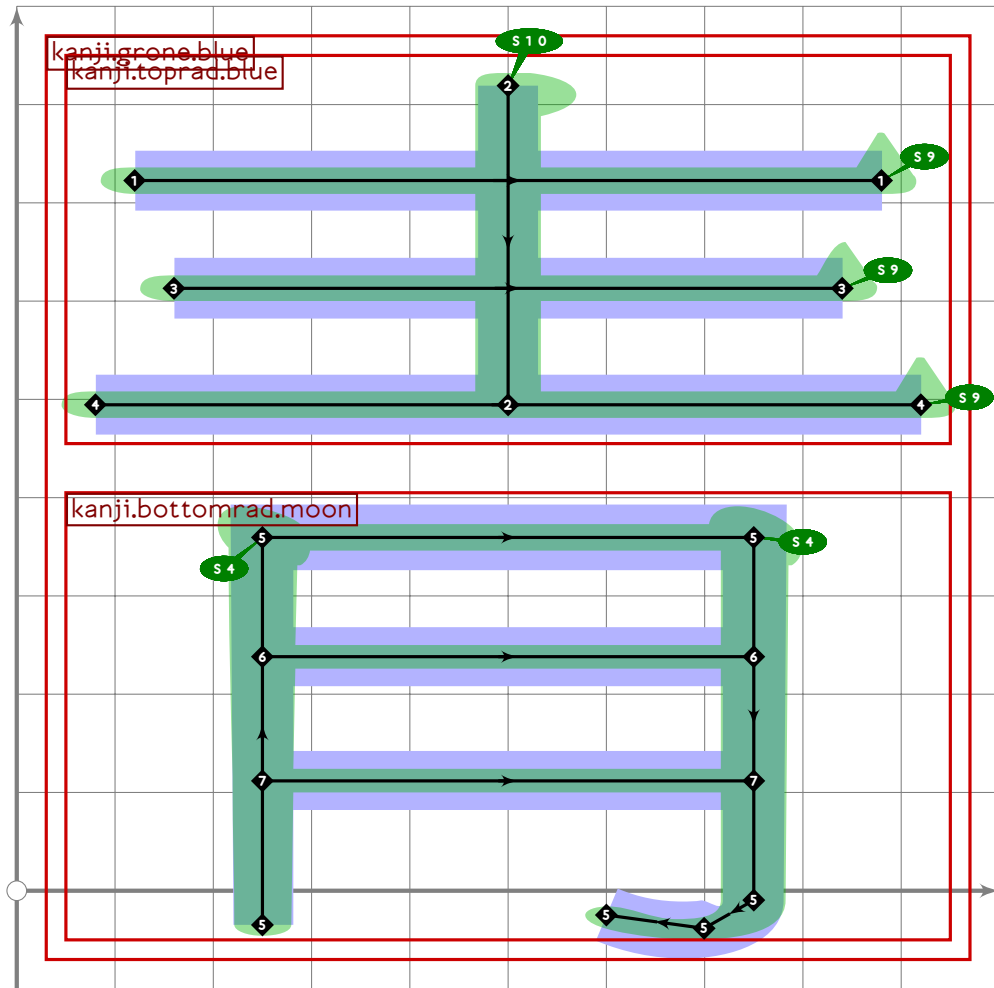
```



```

50
51 vardef kanji.grone.big =
52   push_pbox_toexpand("kanji.grone.big");
53   push_stroke((90,500)-(910,500),
54     (1.6,1.6)-(1.6,1.6));
55   set_boserif(0,1,9);
56   push_stroke((510,780){down}..(370,200)..{curl 0.5}(50,-20),
57     (1.6,1.6)-(1.4,1.4)-(1.1,1.1));
58   push_stroke(((get_strokep(-1) intersectionpoint get_strokep(0))+50,0)..
59     (650,200)..(900,-10),
60     (1.1,1.1)-(1.5,1.5)-(1.7,1.7));
61   expand_pbox;
62 enddef;

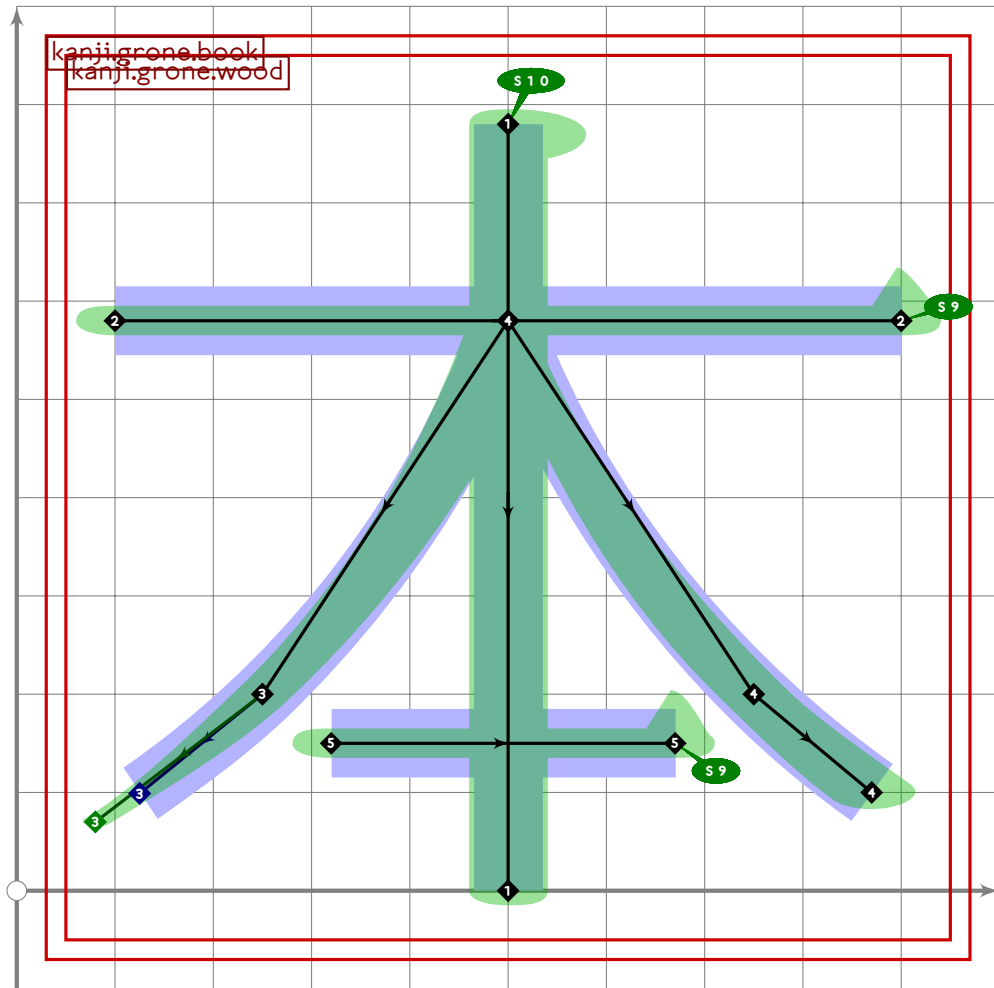
```



```

63
64 vardef kanji.grone.blue =
65   push_pbox_toexpand("KANJI.GRONE.BLUE");
66   build_kanji.level(build_kanji.tb(430,-50)
67     (KANJI.TOPRAD.BLUE)
68     (KANJI.BOTTOMRAD.MOON));
69   expand_pbox;
70 enddef;

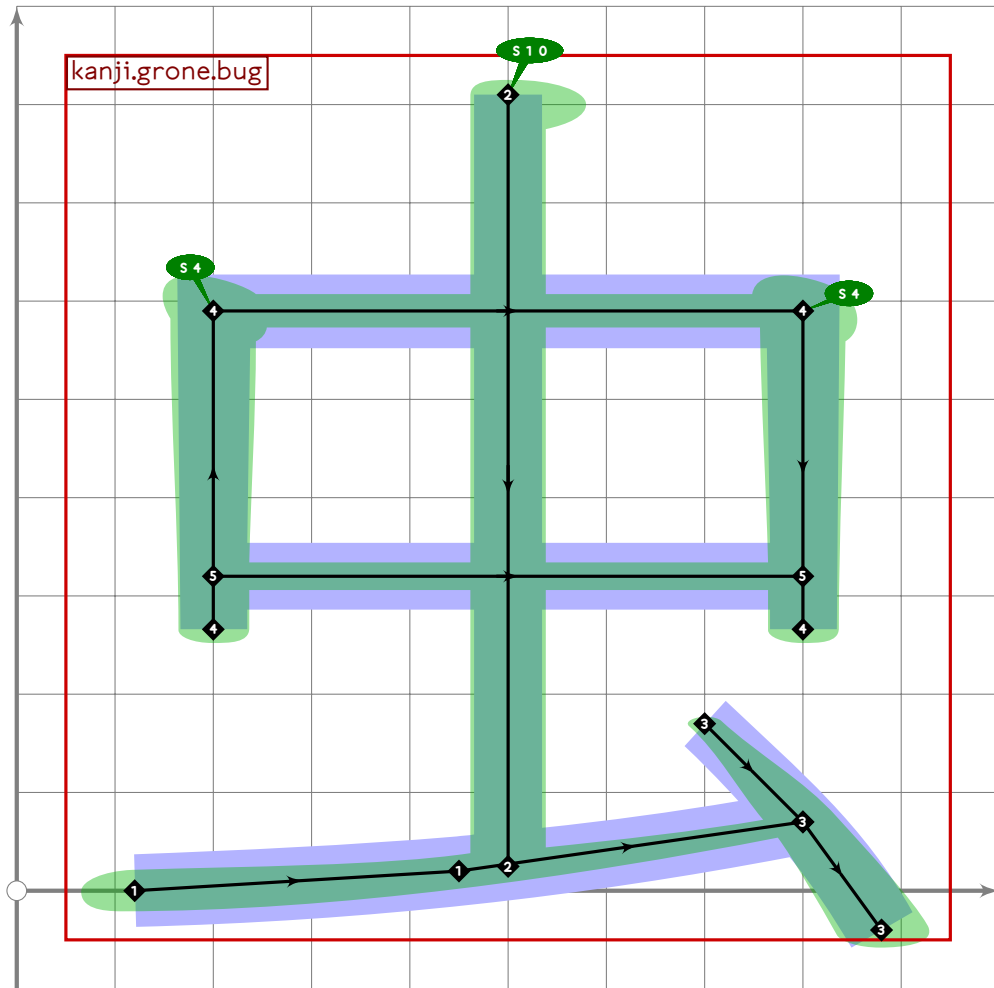
```



```

71
72 vardef kanji.grone.book =
73   push_pbox_toexpand("kanji.grone.book");
74   kanji.grone.wood;
75   push_stroke((320,150)-(670,150),
76     (1.6,1.6)-(1.6,1.6));
77   set_boserif(0,1,9);
78   expand_pbox;
79 enddef;

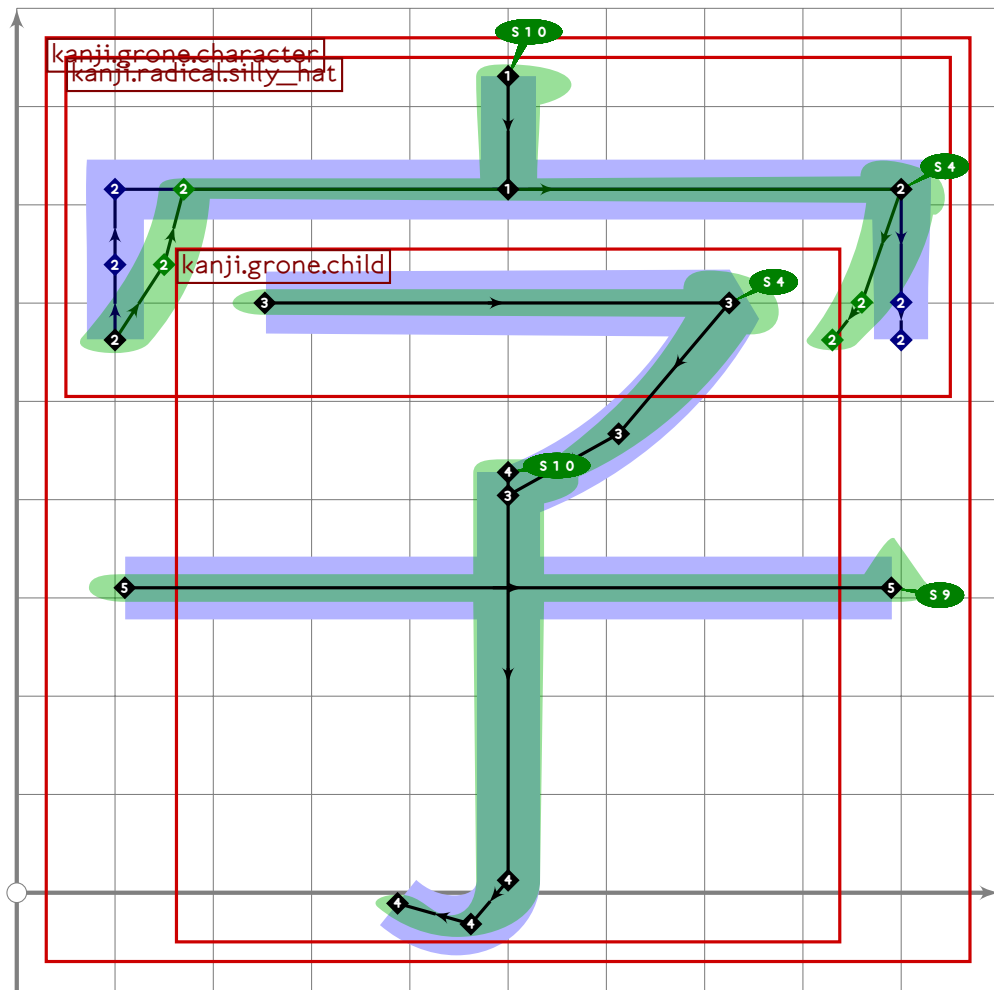
```



```

80
81 vardef kanji.grone.bug =
82   push_pbox_toexpand("kanji.grone.bug");
83   push_stroke((120,0)..tension 1.2..(450,20)..(800,70),
84     (2,2)-(1.7,1.7)-(1.2,1.2));
85   push_stroke(
86     (500,810)-(get_strokep(0) intersectionpoint ((500,1000)-(500,0))),
87     (1.6,1.6)-(1.5,1.5));
88   set_boserif(0,0,10);
89   push_stroke((700,170)..tension 1.3..(800,70)..(880,-40),
90     (1,1)-(1.5,1.5)-(1.8,1.8));
91   build_kanji.box((200,590),(800,320));
92   expand_pbox;
93 enddef;

```

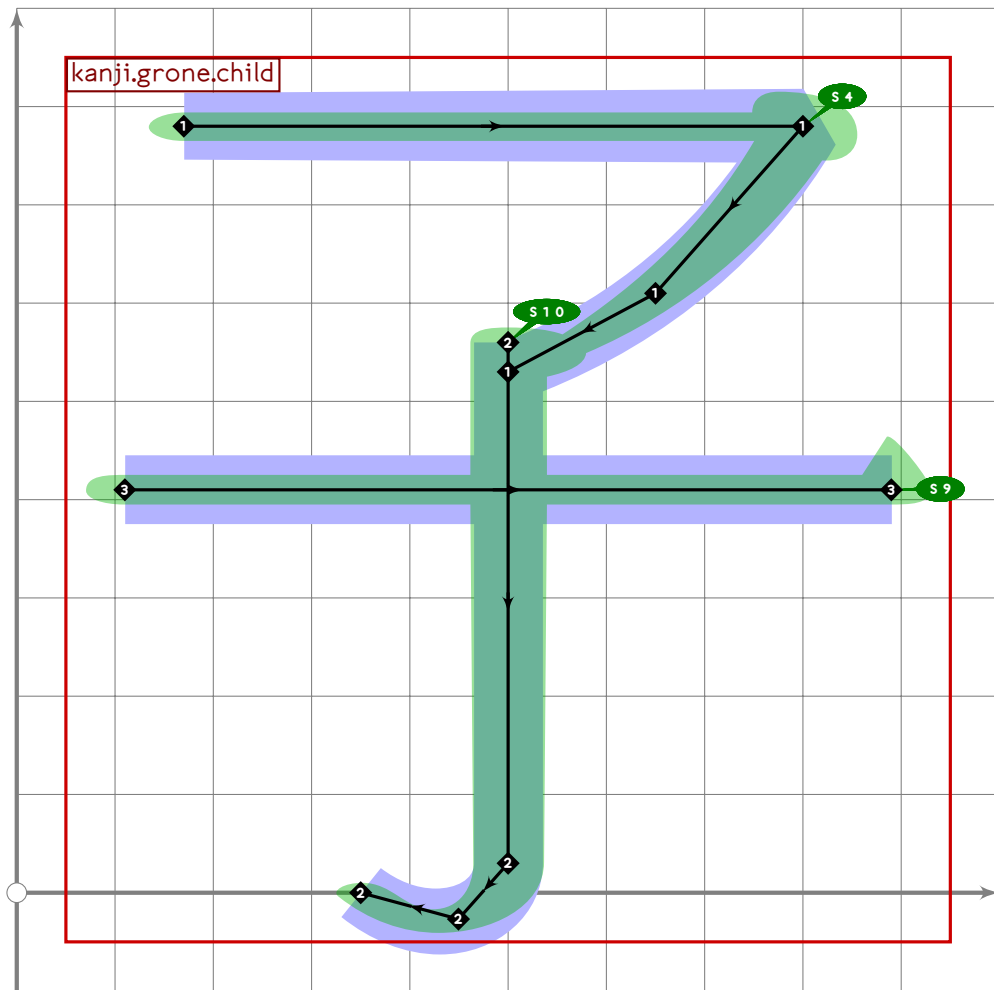


```

94
95 vardef kanji.grone.character =
96   push_pbox_toexpand("kanji.grone.character");
97   begingroup
98     save charsvp;
99     path charsvp;
100    build_kanji.tb(580,150)
101      (kanji.radical.silly_hat)
102      (build_kanji.sscale(xscaled 0.75)
103        (kanji.grone.child;
104          charsvp:=get_strokep(0);
105          replace_strokep(0)(charsvp));
106    endgroup;
107    expand_pbox;
108  enddef;

```

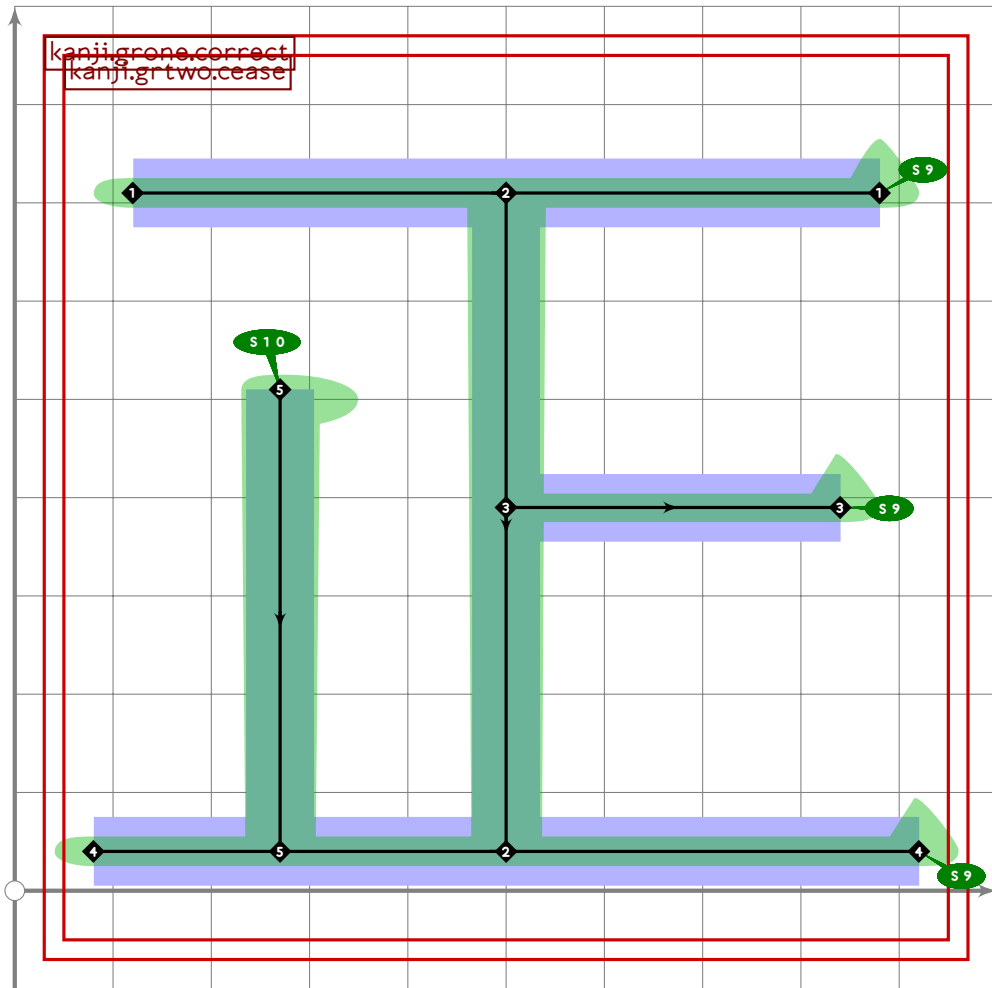




```

109
110 vardef kanji.grone.child =
111   push_pbox_toexpand("kanji.grone.child");
112   push_stroke((170,780)-(800,780)..(650,610)..(500,530),
113     (1.5,1.5)-(1.6,1.6)-(1.4,1.4)-(1,1));
114   set_boserif(0,1,4);
115   set_botip(0,1,0);
116   push_stroke((500,560),
117     (1.6,1.6));
118   build_kanji.add_jtail(0);
119   set_boserif(0,0,10);
120   push_stroke((110,410)-(890,410),
121     (1.6,1.6)-(1.6,1.6));
122   set_boserif(0,1,9);
123   expand_pbox;
124 enddef;

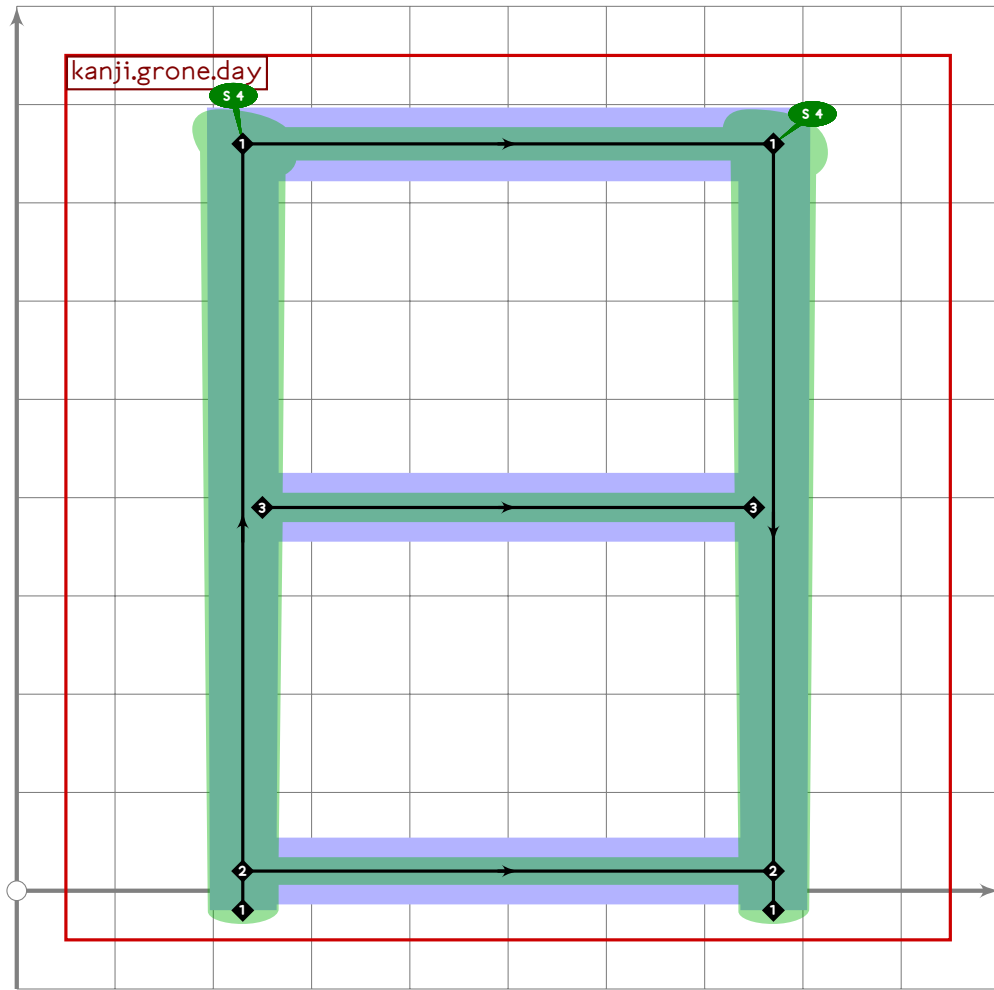
```



```

125
126 vardef kanji.grone.correct =
127   push_pbox_toexpand("KANJI.GRONE.CORRECT");
128   push_stroke((120,710)-(880,710),
129     (1.6,1.6)-(1.6,1.6));
130   set_boserif(0,1,9);
131   kanji.grtwo.cease;
132   expand_pbox;
133 enddef;

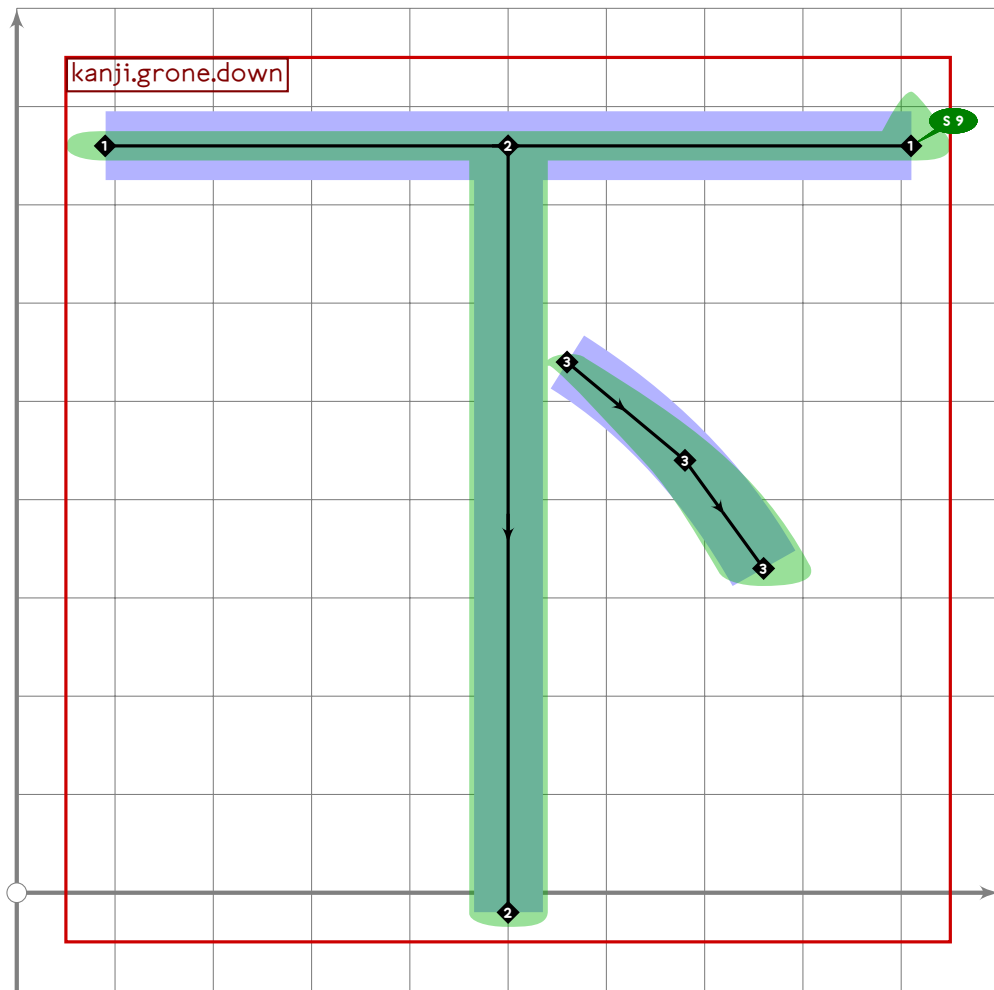
```



```

134
135 vardef kanji.grone.day =
136   push_pbox_toexpand("kanji.grone.day");
137   build_kanji.box((230,760),(770,20));
138   push_stroke((250,390)-(750,390),
139     (1.6,1.6)-(1.6,1.6));
140   expand_pbox;
141 enddef;

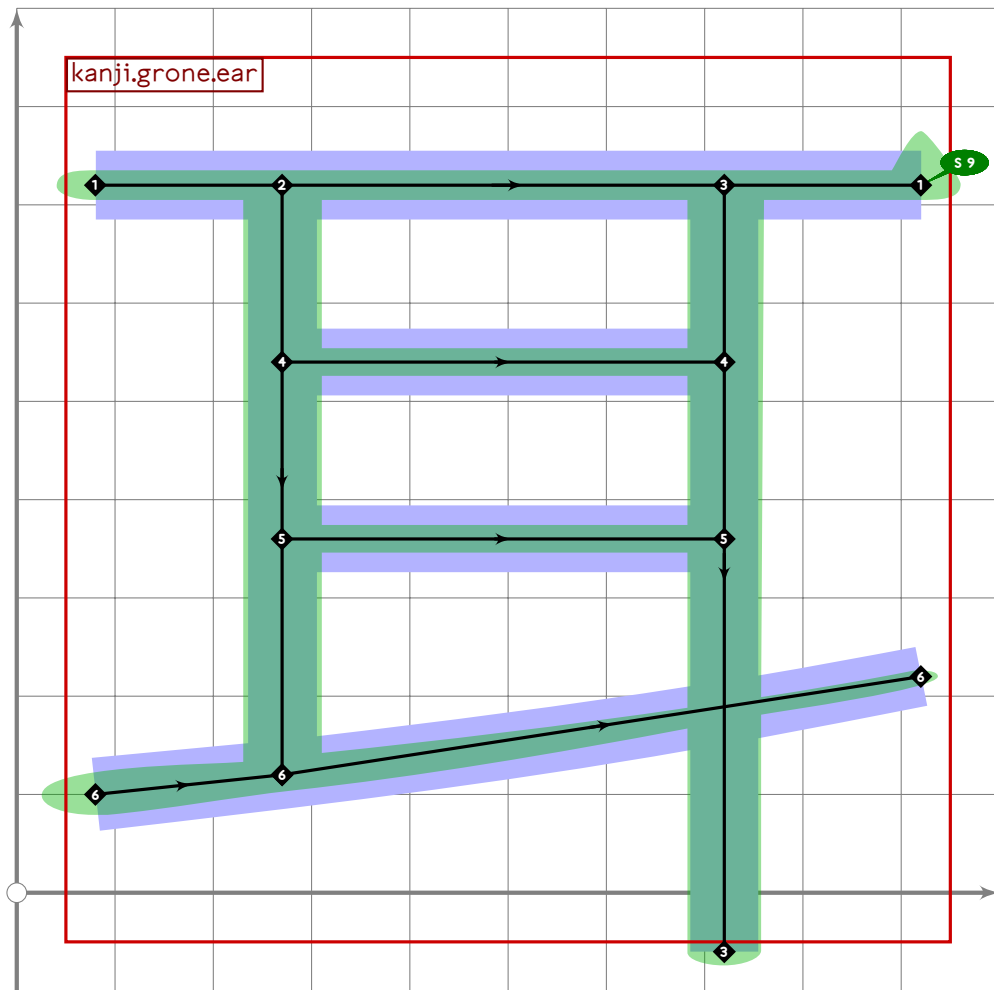
```



```

142
143 vardef kanji.grone.down =
144   push_pbox_toexpand("kanji.grone.down");
145   push_stroke((90,760)-(910,760),
146     (1.6,1.6)-(1.6,1.6));
147   set_boserif(0,1,9);
148   push_stroke((500,760)-(500,-20),
149     (1.6,1.6)-(1.6,1.6));
150   push_stroke((560,540)..(680,440)..(760,330),
151     (1.1,1.1)-(1.6,1.6)-(1.8,1.8));
152   expand_pbox;
153 enddef;

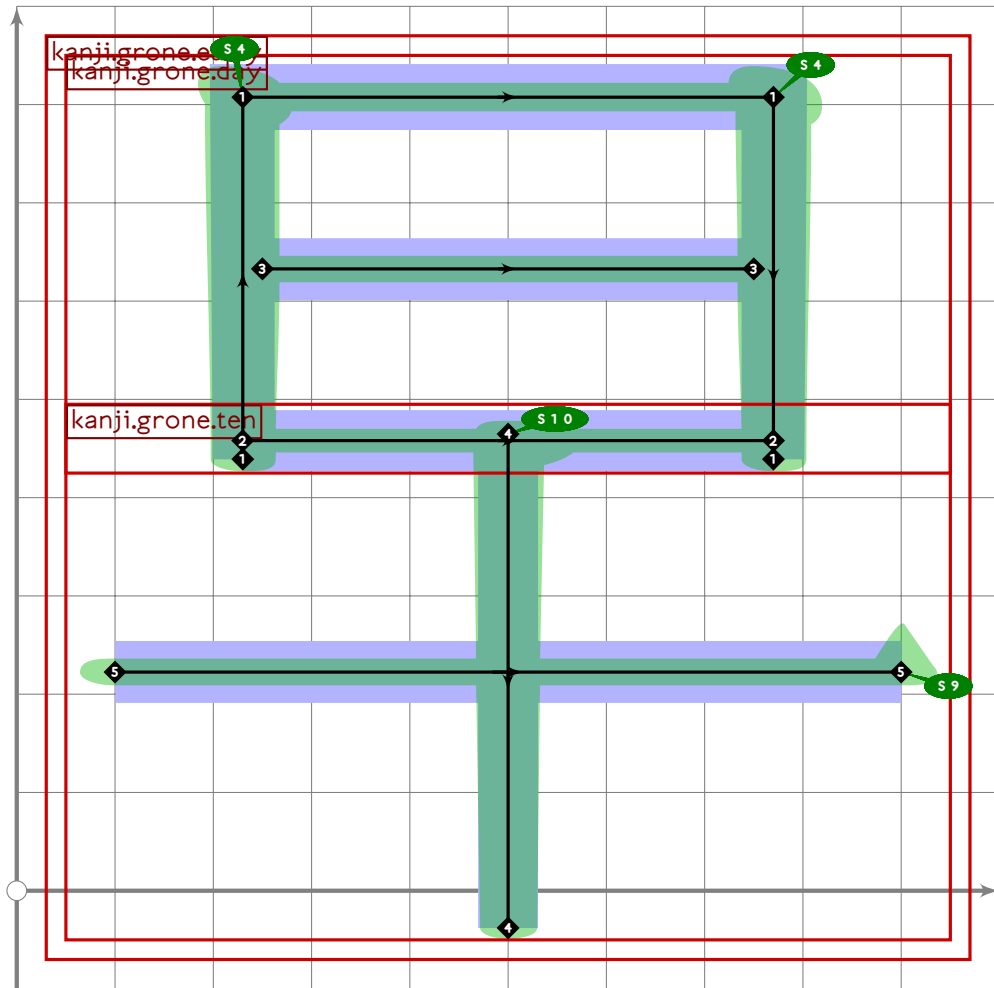
```



```

154
155 vardef kanji.grone.ear =
156   push_pbox_toexpand("kanji.grone.ear");
157   push_stroke((80,720)-(920,720),
158     (1.6,1.6)-(1.6,1.6));
159   set_boserif(0,1,9);
160   push_stroke((270,720)-(270,120),
161     (1.6,1.6)-(1.6,1.6));
162   push_stroke((720,720)-(720,-60),
163     (1.6,1.6)-(1.5,1.5));
164   push_stroke((270,540)-(720,540),
165     (1.5,1.5)-(1.5,1.5));
166   push_stroke((270,360)-(720,360),
167     (1.5,1.5)-(1.5,1.5));
168   push_stroke((80,100)..tension 1.3..(270,120)..(920,220),
169     (2,2)-(1.7,1.7)-(1,1));
170   expand_pbox;
171 enddef;

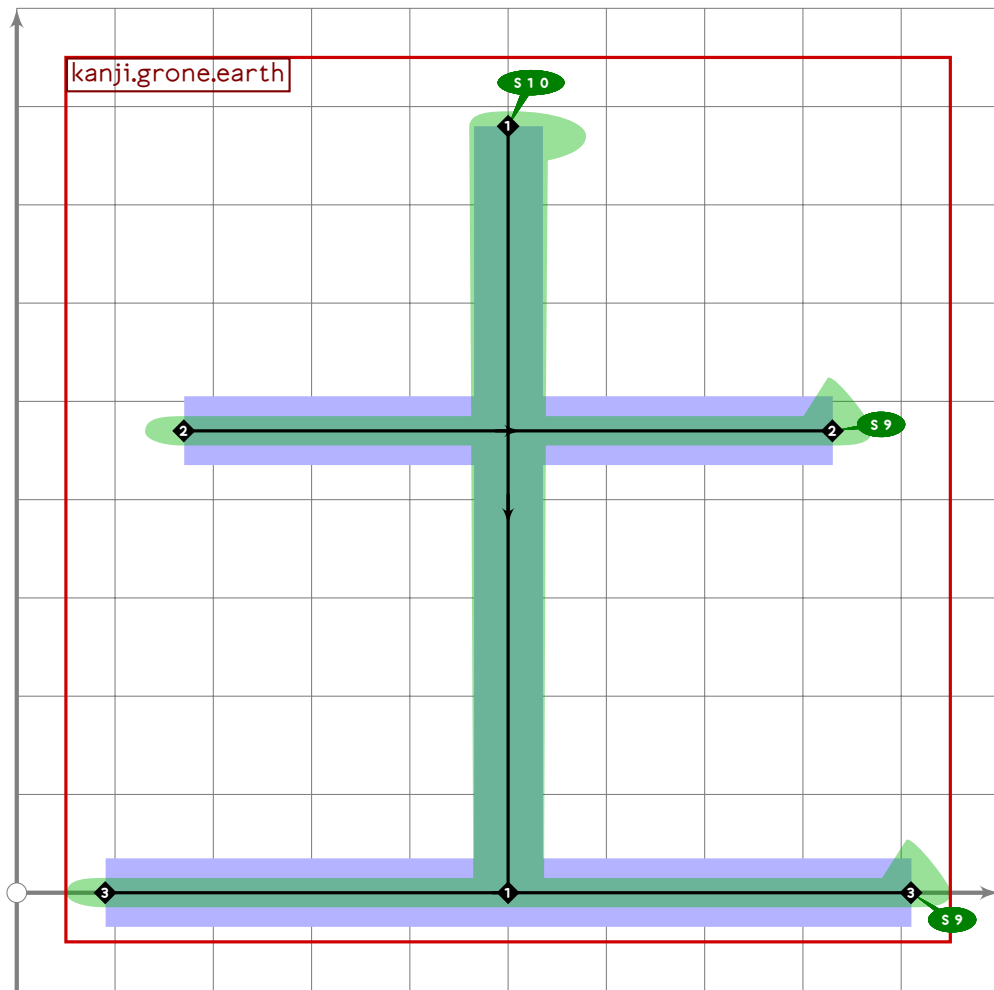
```



```

172
173 vardef kanji.grone.early =
174   push_pbox_toexpand("kanji.grone.early");
175   build_kanji.level(build_kanji.tb(460,70)
176     (kanji.grone.day)
177     (kanji.grone.ten));
178   set_boserif(0,0,whatever);
179   expand_pbox;
180 enddef;

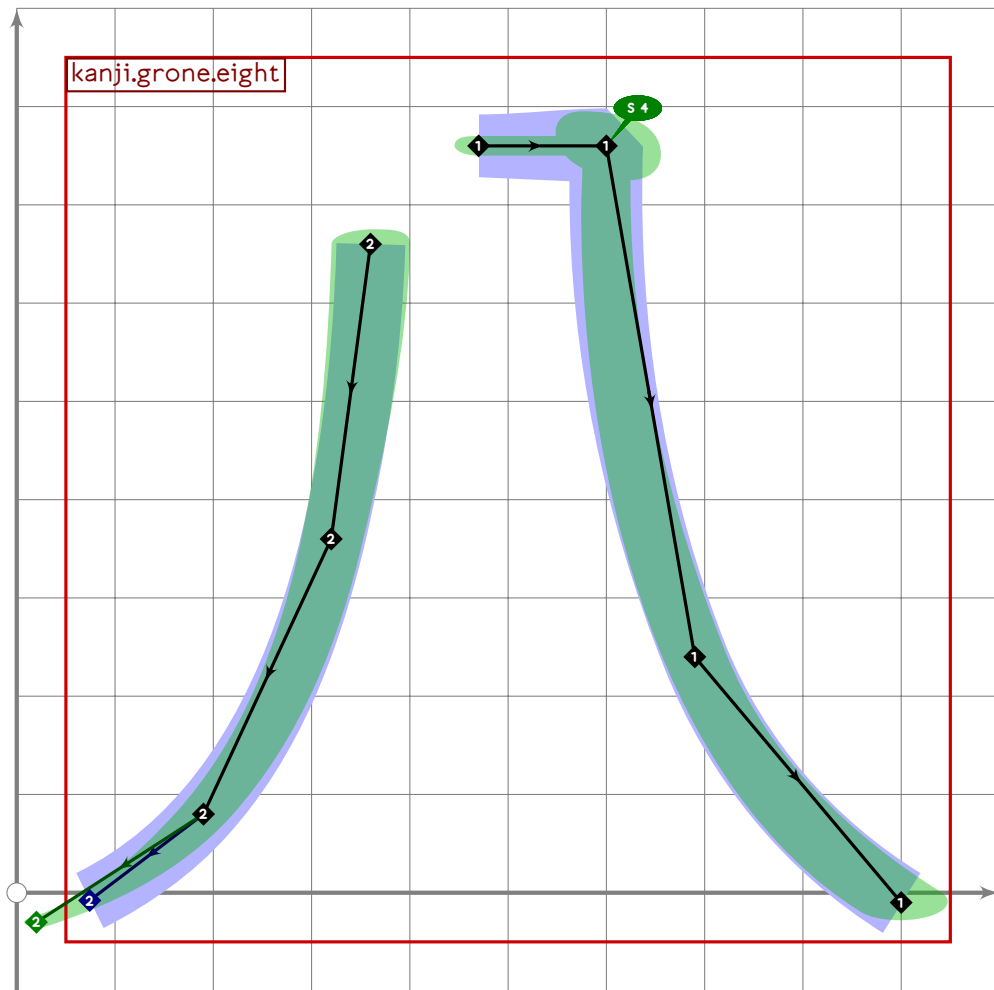
```



```

181
182 vardef kanji.grone.earth =
183   push_pbox_toexpand("kanji.grone.earth");
184   push_stroke((500,780)-(500,0),
185     (1.6,1.6)-(1.5,1.5));
186   set_boserif(0,0,10);
187   push_stroke((170,470)-(830,470),
188     (1.6,1.6)-(1.6,1.6));
189   set_boserif(0,1,9);
190   push_stroke((90,0)-(910,0),
191     (1.6,1.6)-(1.6,1.6));
192   set_boserif(0,1,9);
193   expand_pbox;
194 enddef;

```

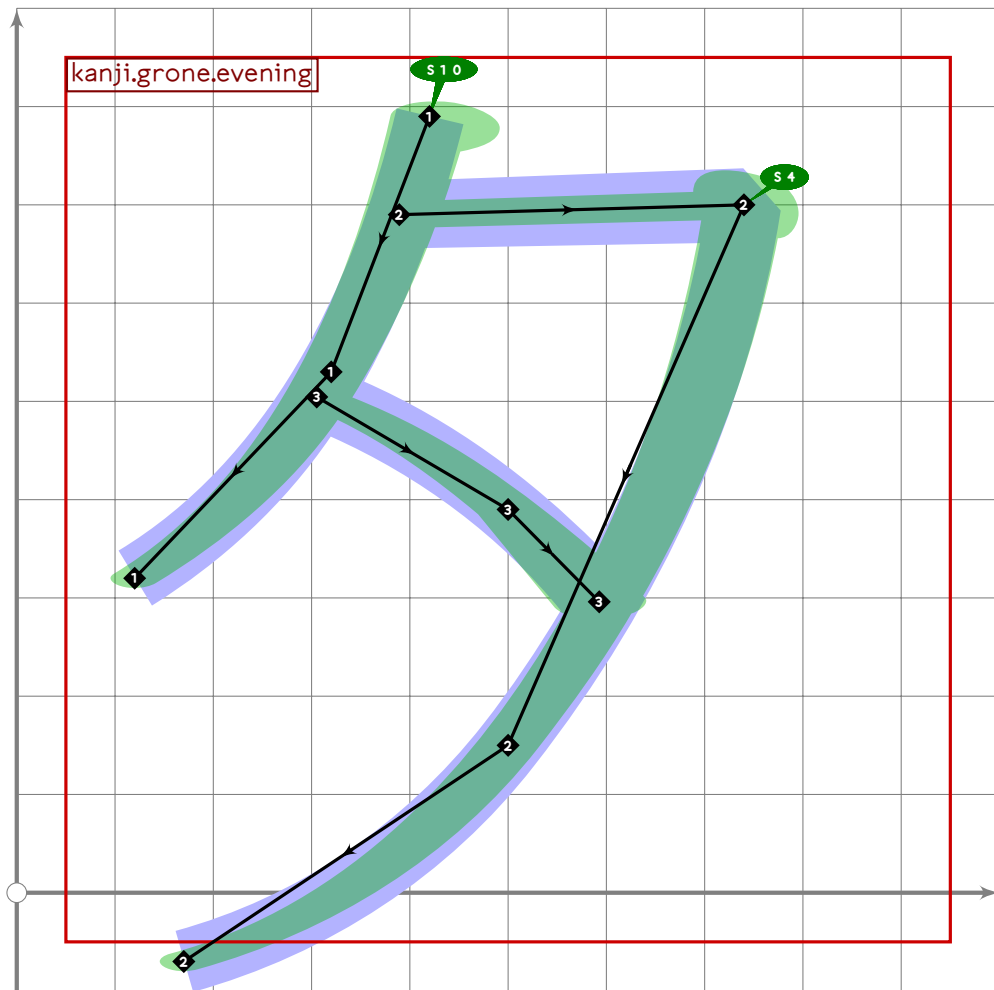


```

195
196 vardef kanji.grone.eight =
197   push_pbox_toexpand("kanji.grone.eight");
198   push_stroke((470,760)-(600,760)..tension 1.3..(690,240)..(900,-10),
199     (1.2,1.2)-(1.2,1.2)-(1.4,1.4)-(1.8,1.8));
200   set_botip(0,1,0);
201   set_boserif(0,1,4);
202   push_stroke((360,660)..(320,360)..(190,80)..(20,-30),
203     (1.6,1.6)-(1.4,1.4)-(1.3,1.3)-(0.88,0.88));
204   expand_pbox;
205 enddef;

```

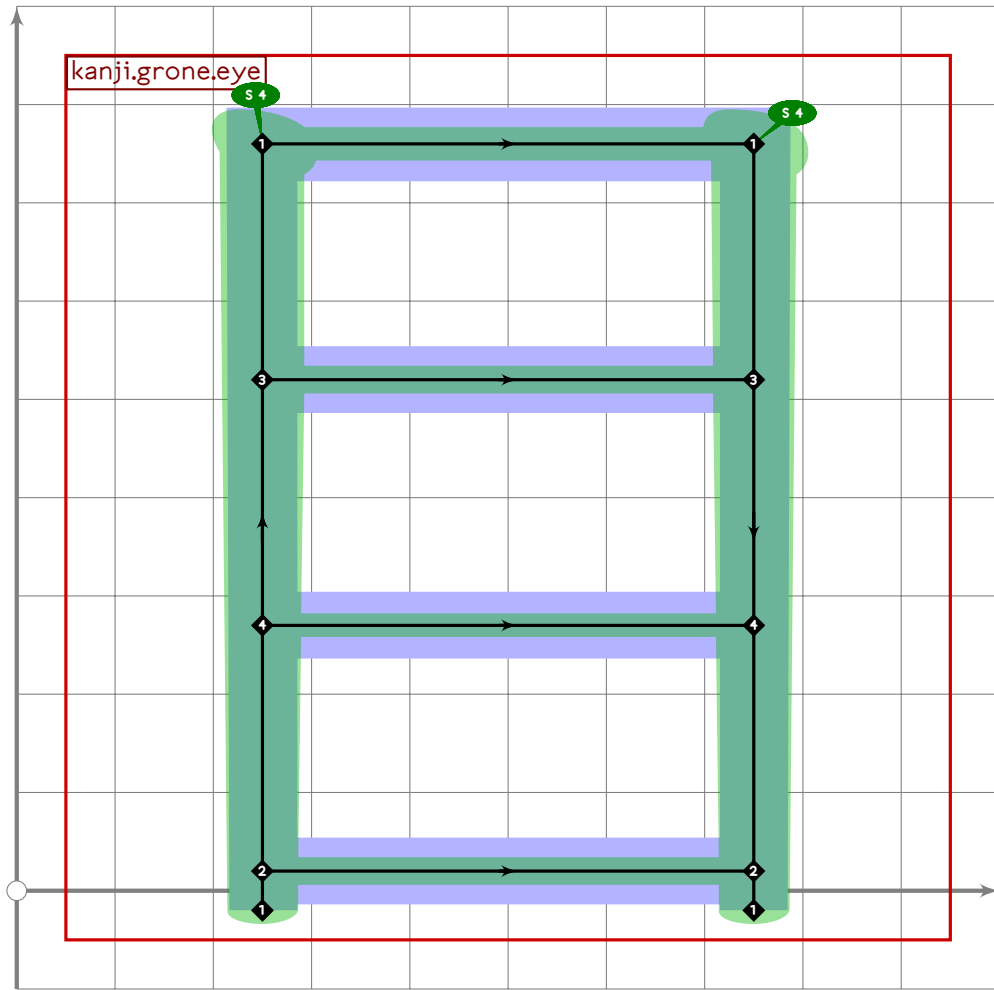




```

206
207 vardef kanji.grone.evening =
208   push_pbox_toexpand("kanji.grone.evening");
209   push_stroke((420,790)..tension 1.2..(320,530)..(120,320),
210     (1.6,1.6)-(1.5,1.5)-(1.2,1.2));
211   set_boserif(0,0,10);
212   push_stroke(
213     (get_stroke(0) intersectionpoint ((-infinity,690)-(infinity,690)))-
214     (740,700)..tension 1.2..(500,150)..(170,-70),
215     (1.5,1.5)-(1.6,1.6)-(1.4,1.4)-(1.2,1.2));
216   set_botip(0,1,0);
217   set_boserif(0,1,4);
218   push_stroke(
219     (point 1.1 of get_stroke(-1))..(500,390)..(point 1.7 of get_stroke(0)),
220     (1.2,1.2)-(1.4,1.4)-(1.8,1.8));
221   expand_pbox;
222 enddef;

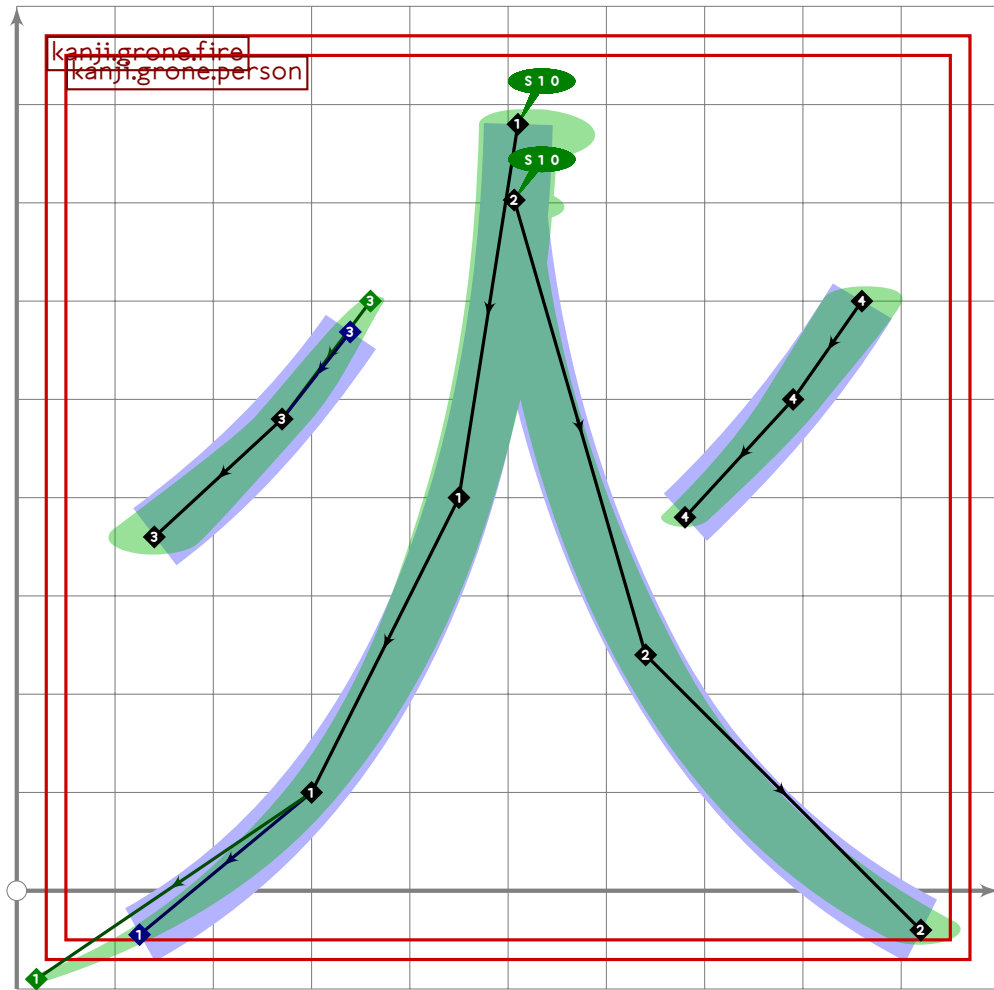
```



```

223
224 vardef kanji.grone.eye =
225   push_pbox_toexpand("kanji.grone.eye");
226   build_kanji.box((250,760),(750,20));
227   push_stroke((250,520)-(750,520),
228     (1.5,1.5)-(1.5,1.5));
229   push_stroke((250,270)-(750,270),
230     (1.4,1.4)-(1.4,1.4));
231   expand_pbox;
232 enddef;

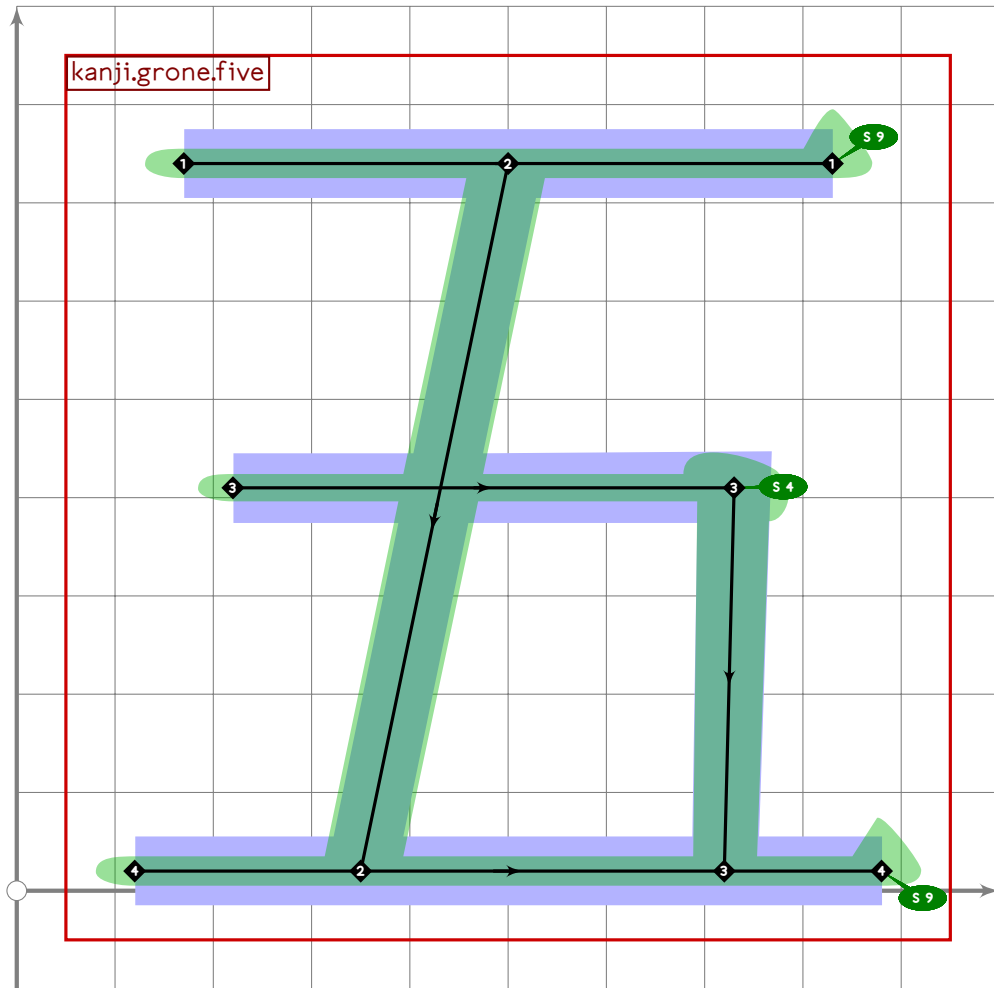
```



```

233
234 vardef kanji.grone.fire =
235   push_pbox_toexpand("kanji.grone.fire");
236   kanji.grone.person;
237   set_boserif(0,0,10);
238   push_stroke((360,600)..(270,480)..(140,360),
239     (0.9,0.9)-(1.3,1.3)-(1.8,1.8));
240   push_stroke((860,600)..(790,500)..(680,380),
241     (1.6,1.6)-(1.4,1.4)-(1.2,1.2));
242   expand_pbox;
243 enddef;

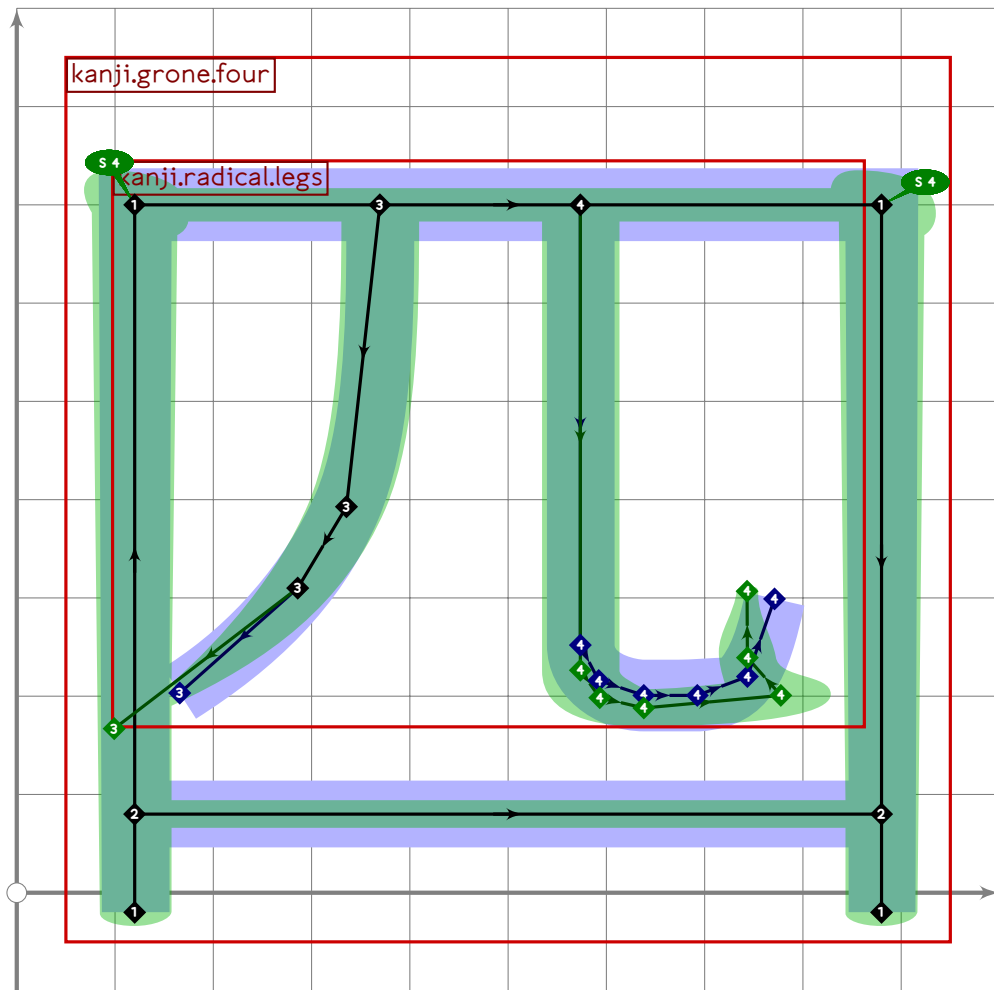
```



```

244
245 vardef kanji.grone.five =
246   push_pbox_toexpand("kanji.grone.five");
247   push_stroke((170,740)-(830,740),
248     (1.6,1.6)-(1.6,1.6));
249   set_boserif(0,1,9);
250   push_stroke((500,740)-(350,20),
251     (1.6,1.6)-(1.6,1.6));
252   push_stroke((220,410)-(730,410)-(720,20),
253     (1.5,1.5)-(1.5,1.5)-(1.4,1.4));
254   set_boserif(0,1,4);
255   set_botip(0,1,1);
256   push_stroke((120,20)-(880,20),
257     (1.6,1.6)-(1.6,1.6));
258   set_boserif(0,1,9);
259   expand_pbox;
260 enddef;

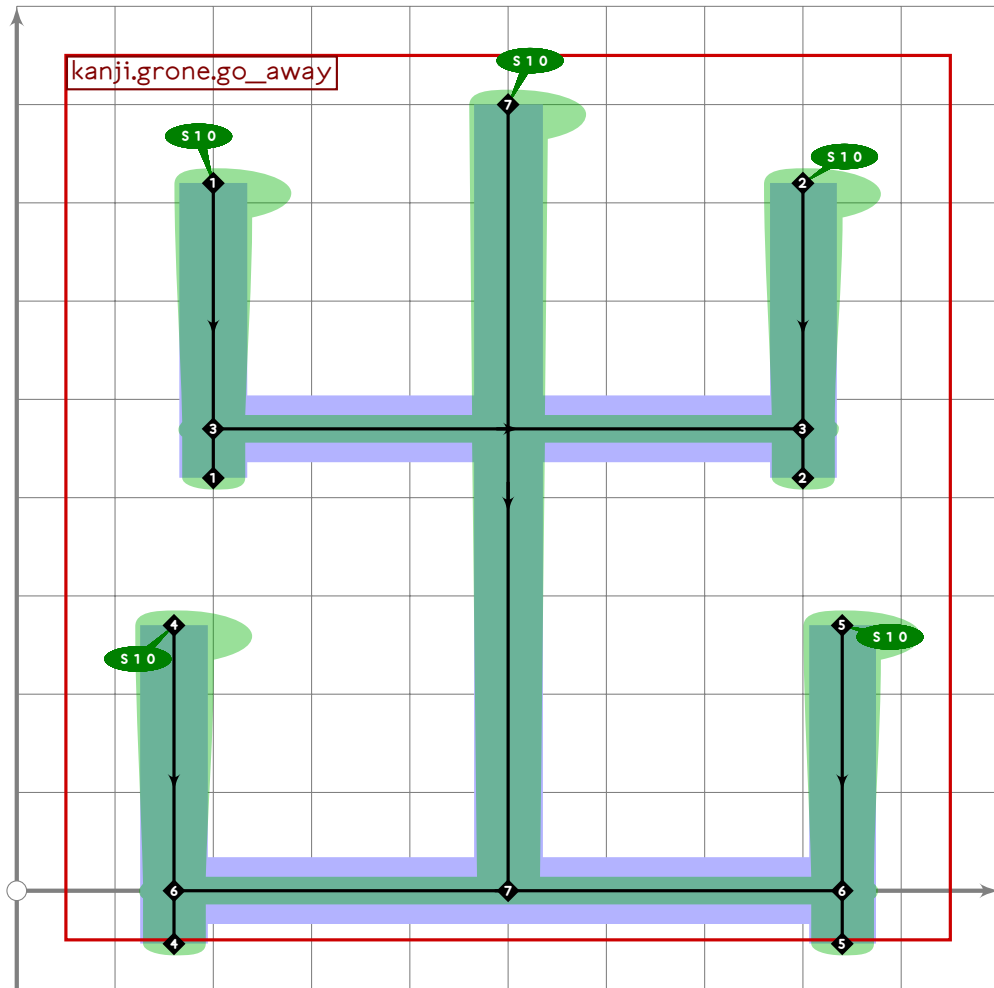
```



```

261
262 vardef kanji.grone.four =
263   push_pbox_toexpand("kanji.grone.four");
264   build_kanji.box((120,700),(880,80));
265   tsu_xform
266     (identity shifted (-500,-780) xyscaled (0.85,0.64) shifted (480,700))
267     (kanji.radical.legs);
268   expand_pbox;
269 enddef;

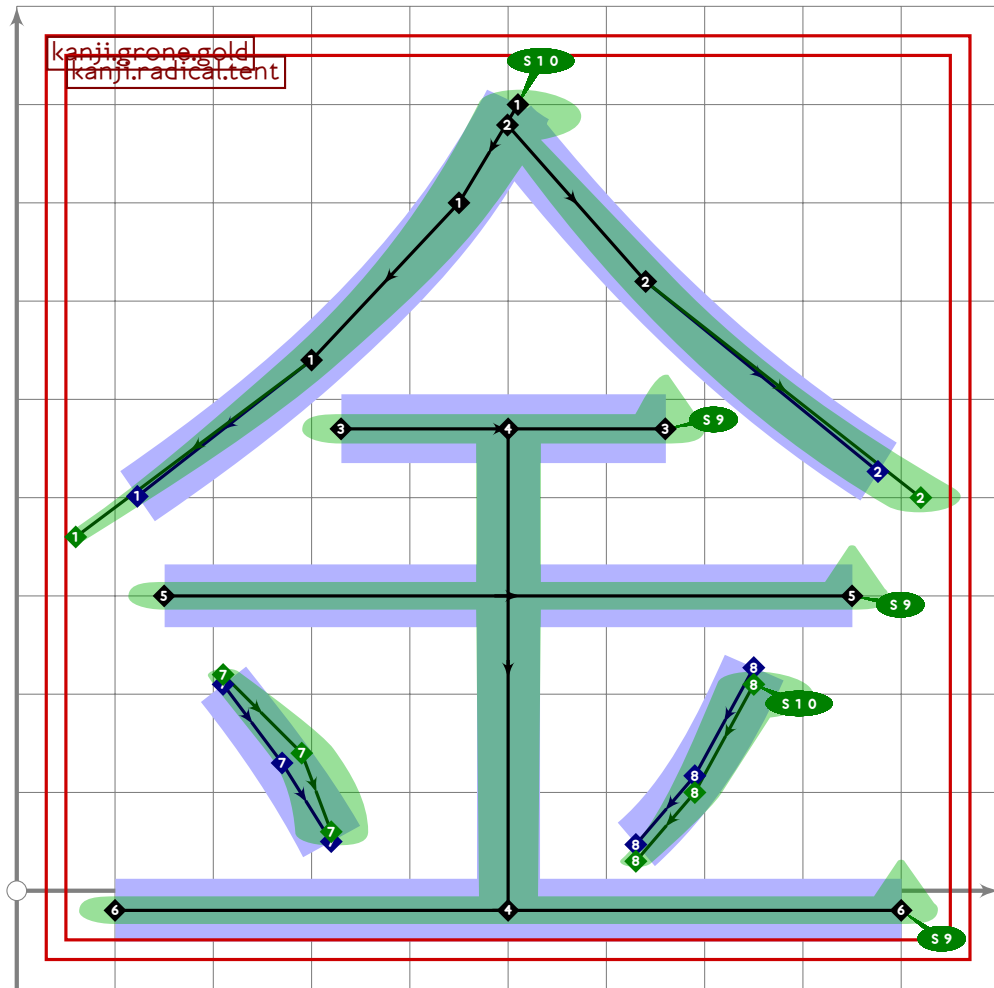
```



```

270
271 vardef kanji.grone.go_away =
272   push_pbox_toexpand("kanji.grone.go_away");
273   build_kanji.cup((200,720),(800,470));
274   build_kanji.cup((160,270),(840,0));
275   push_stroke((500,800)-(500,0),
276     (1.6,1.6)-(1.4,1.4));
277   set_boserif(0,0,10);
278   expand_pbox;
279 enddef;

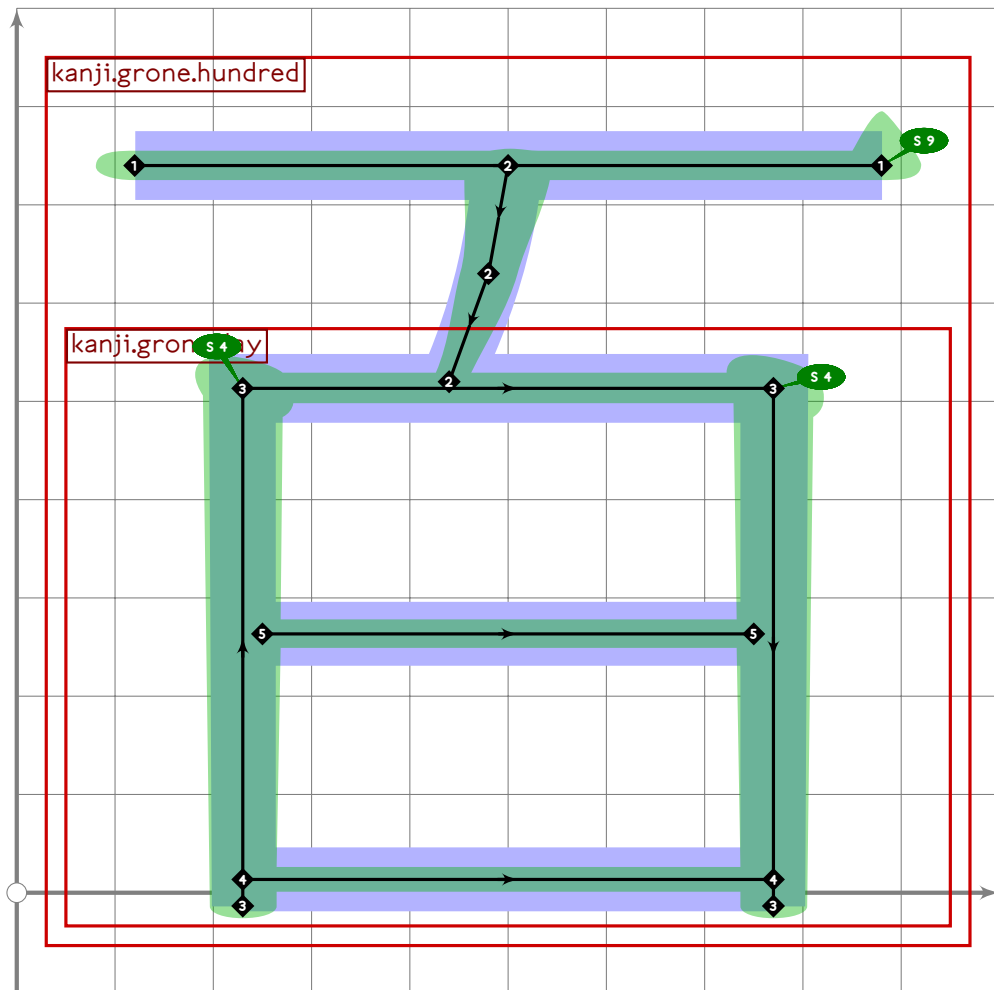
```



```

280
281 vardef kanji.grone.gold =
282   push_pbox_toexpand("kanji.grone.gold");
283   kanji.radical.tent;
284   push_stroke((500,470)-(500,-20),(1.5,1.5)-(1.4,1.4));
285   push_stroke((150,300)-(850,300),(1.6,1.6)-(1.6,1.6));
286   set_boserif(0,1,9);
287   push_stroke((100,-20)-(900,-20),(1.6,1.6)-(1.6,1.6));
288   set_boserif(0,1,9);
289   push_stroke(((210,220)..tension 1.3..(270+20*mincho,140)..(320,60))
290     shifted ((1-mincho)*10*down),
291     (1,1)-(1.5,1.5)-(1.6,1.6));
292   push_stroke(((750,210)..tension 1.3..(690,100)..(630,30))
293     shifted ((1-mincho)*17*up),
294     (1.6,1.6)-(1.3,1.3)-(1,1));
295   set_boserif(0,0,10);
296   for i=-4 upto 0: set_bosize(i,93); endfor;
297   expand_pbox;
298 enddef;

```

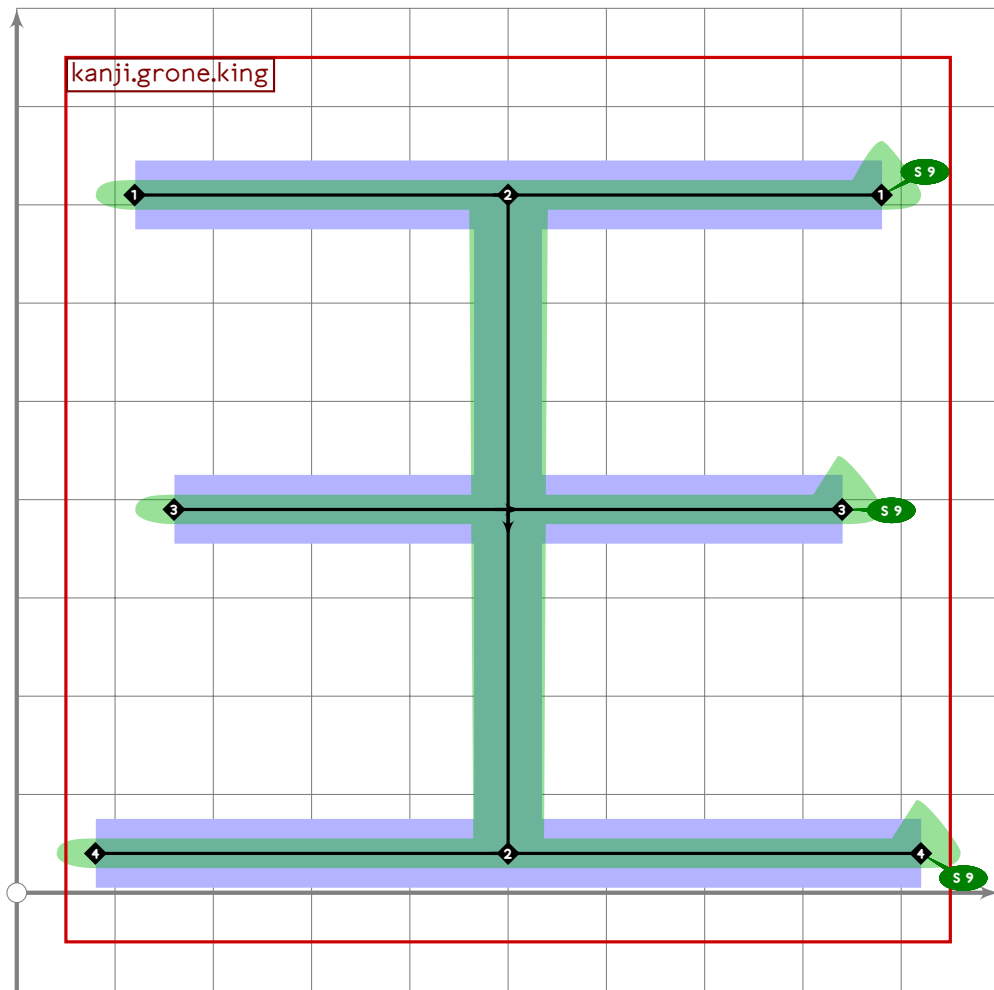


```

299
300 vardef kanji.grone.hundred =
301   push_pbox_toexpand("kanji.grone.hundred");
302   push_stroke((120,740)-(880,740),
303     (1.6,1.6)-(1.6,1.6));
304   set_boserif(0,1,9);
305   push_stroke((500,740)..(480,630)..(440,520),
306     (1.7,1.7)-(1.3,1.3)-(1,1));
307   tsu_xform(identity yscaled (520/770))(kanji.grone.day);
308   expand_pbox;
309 enddef;

```

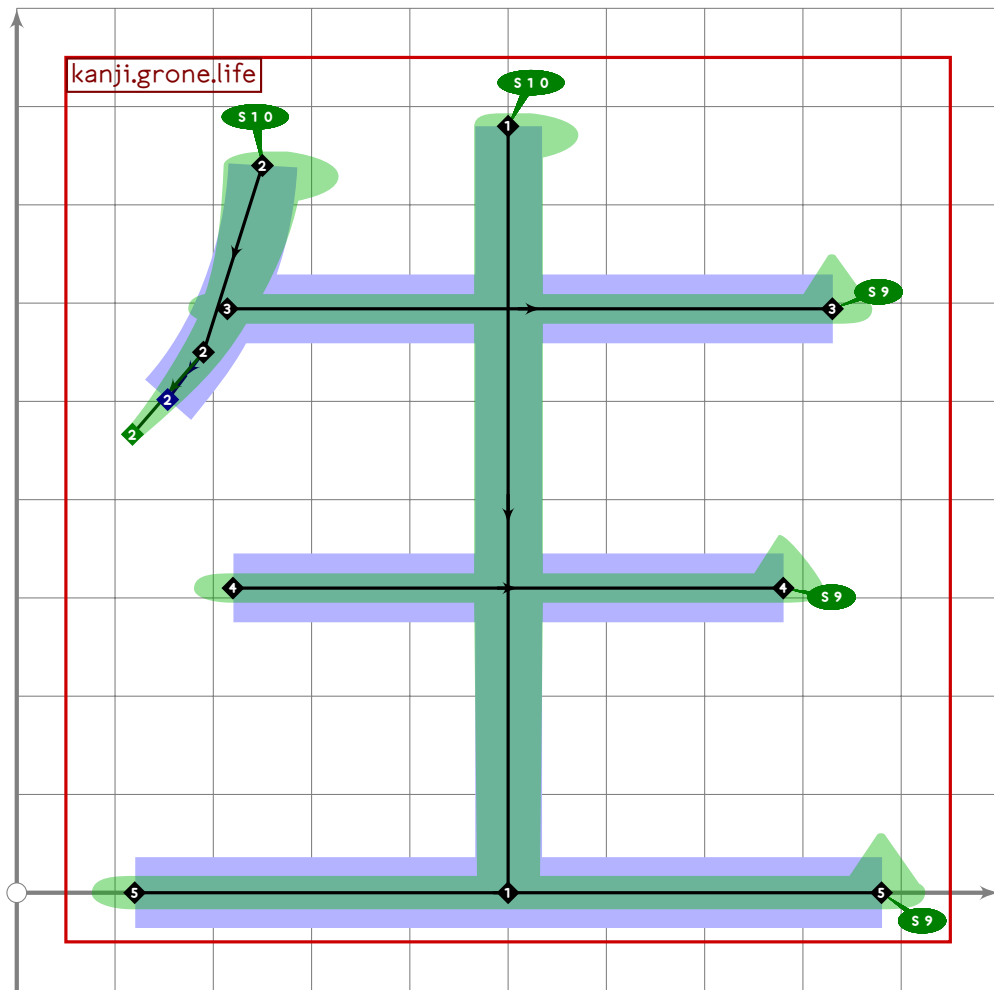




```

310
311 vardef kanji.grone.king =
312   push_pbox_toexpand("kanji.grone.king");
313   push_stroke((120,710)-(880,710),
314     (1.6,1.6)-(1.6,1.6));
315   set_boserif(0,1,9);
316   push_stroke((500,710)-(500,40),
317     (1.6,1.6)-(1.5,1.5));
318   push_stroke((160,390)-(840,390),
319     (1.6,1.6)-(1.6,1.6));
320   set_boserif(0,1,9);
321   push_stroke((80,40)-(920,40),
322     (1.6,1.6)-(1.6,1.6));
323   set_boserif(0,1,9);
324   expand_pbox;
325 enddef;

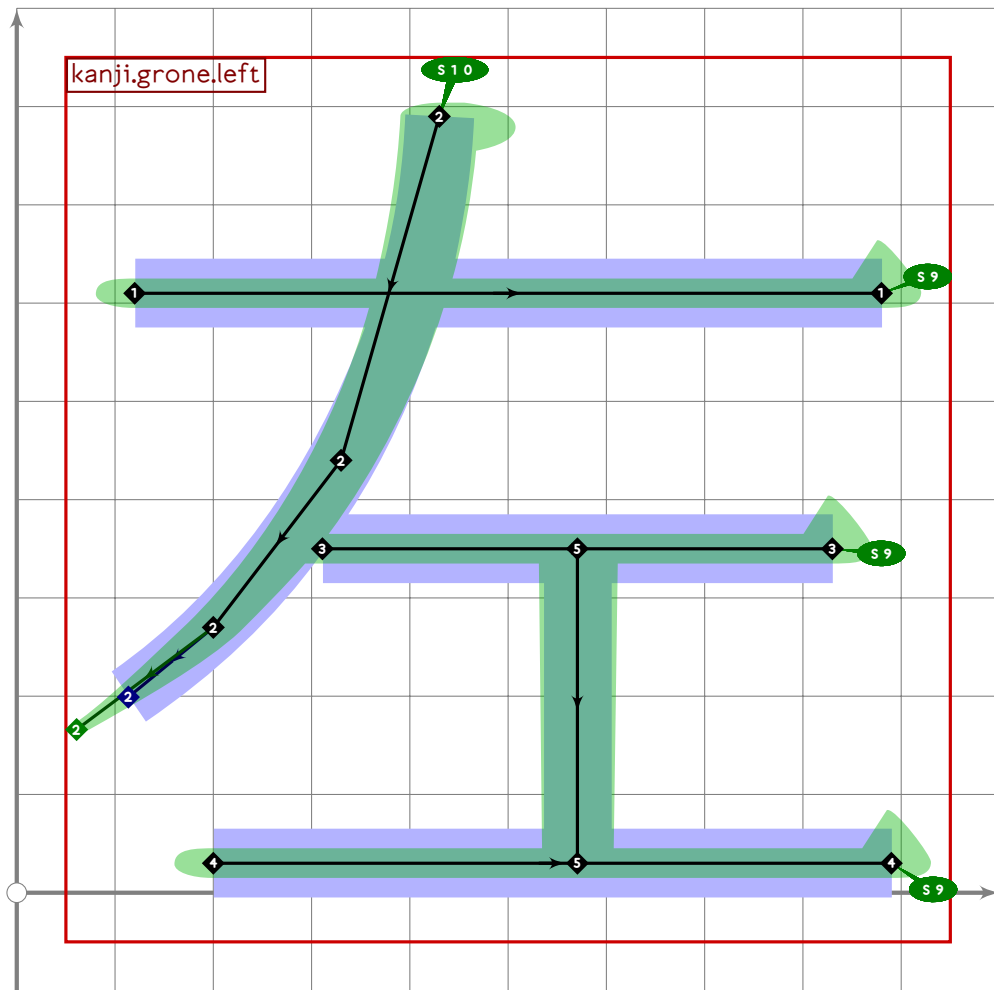
```



```

326
327 vardef kanji.grone.life =
328   push_pbox_toexpand("kanji.grone.life");
329   push_stroke((500,780)-(500,0),
330     (1.5,1.5)-(1.4,1.4));
331   set_boserif(0,0,10);
332   push_stroke((250,740)..(190,550)..(110,460),
333     (1.6,1.6)-(1.2,1.2)-(0.8,0.8));
334   set_boserif(0,0,10);
335   push_stroke((point 0.75 of get_stroke(0))-
336     (830,ypart point 0.75 of get_stroke(0)),
337     (1.6,1.6)-(1.6,1.6));
338   set_boserif(0,1,9);
339   push_stroke((220,310)-(780,310),
340     (1.6,1.6)-(1.6,1.6));
341   set_boserif(0,1,9);
342   push_stroke((120,0)-(880,0),
343     (1.7,1.7)-(1.7,1.7));
344   set_boserif(0,1,9);
345   expand_pbox;
346 enddef;

```

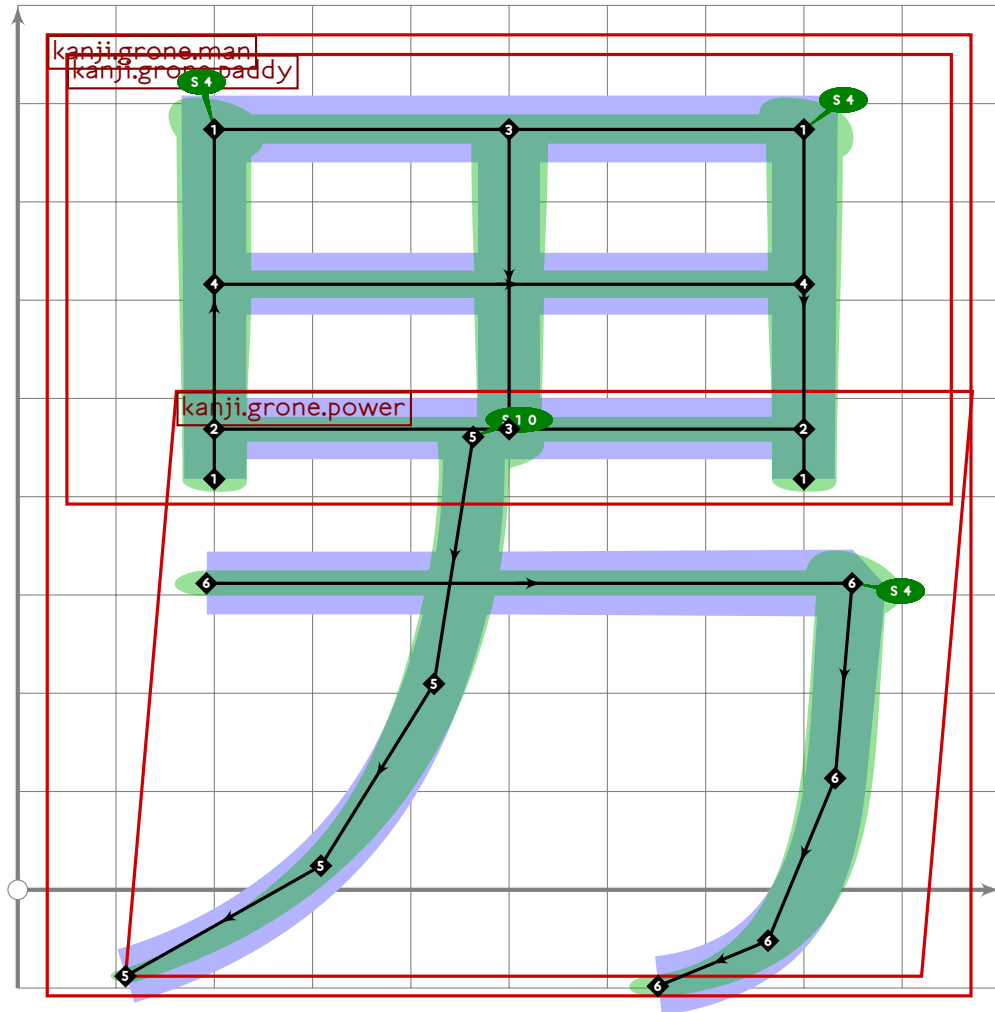


```

347
348 vardef kanji.grone.left =
349   push_pbox_toexpand("kanji.grone.left");
350   push_stroke((120,610)..(880,610),
351     (1.6,1.6)-(1.6,1.6));
352   set_boserif(0,1,9);
353   push_stroke((430,790)..(330,440)..(200,270)..(50,160),
354     (1.6,1.6)-(1.5,1.5)-(1.3,1.3)-(0.8,0.8));
355   set_boserif(0,0,10);
356   push_stroke(
357     (((0,350)-(1000,350)) intersectionpoint get_strokep(0))+(40,0)..
358     (830,350),
359     (1.6,1.6)-(1.6,1.6));
360   set_boserif(0,1,9);
361   push_stroke((200,30)..(890,30),
362     (1.6,1.6)-(1.6,1.6));
363   set_boserif(0,1,9);
364   push_stroke(
365     (point 0.5 of get_strokep(-1))-(xpart point 0.5 of get_strokep(-1),30),
366     (1.6,1.6)-(1.5,1.5));
367   expand_pbox;

```

368 enddef;



369

```
370 vardef kanji.grone.man =
```

```
371   push_pbox_toexpand("kanji.grone.man");
```

```
372   build_kanji.level(build_kanji.tb(430,75)
```

```
373     (kanji.grone.paddy)
```

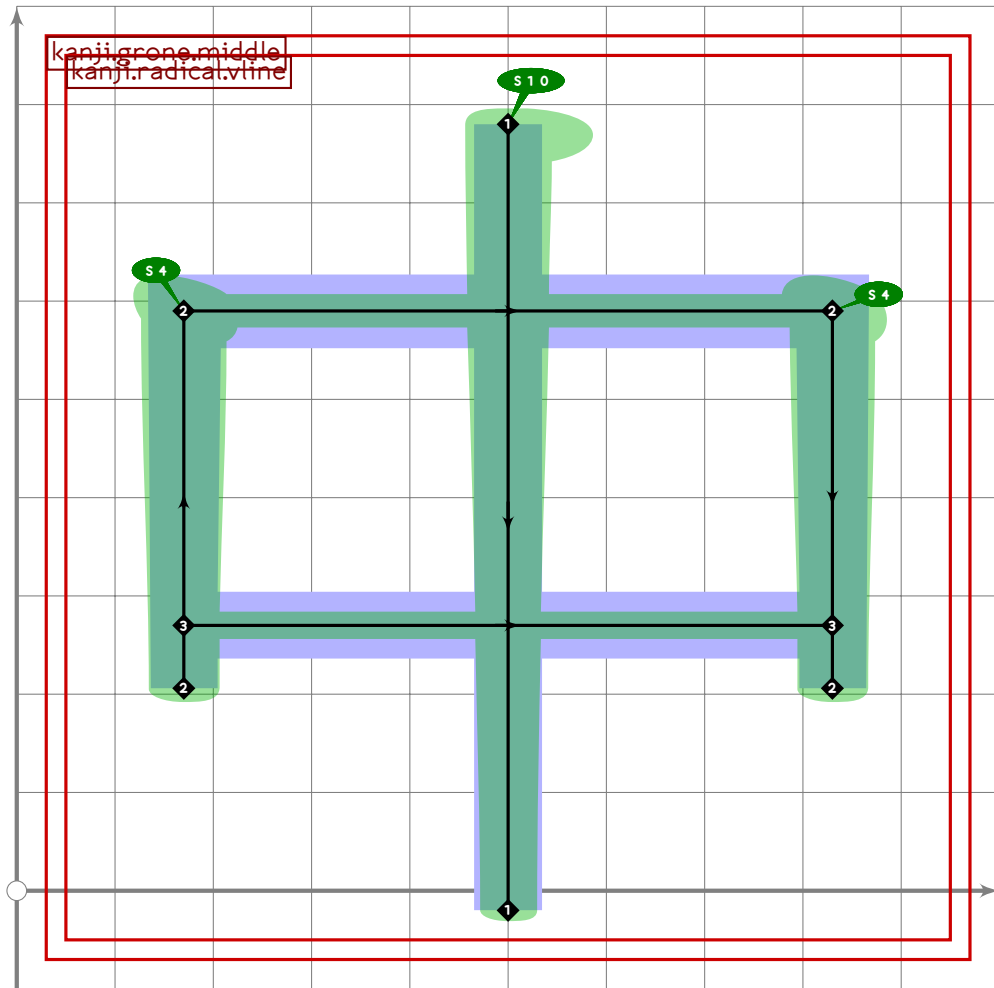
```
374     (build_kanji.sscale(xyscaled (0.9,1.15) slanted 0.05 shifted (40,0))
```

```
375       (kanji.grone.power)));
```

```
376   replace_strokep(0)(oldp shifted (0,-30));
```

```
377   expand_pbox;
```

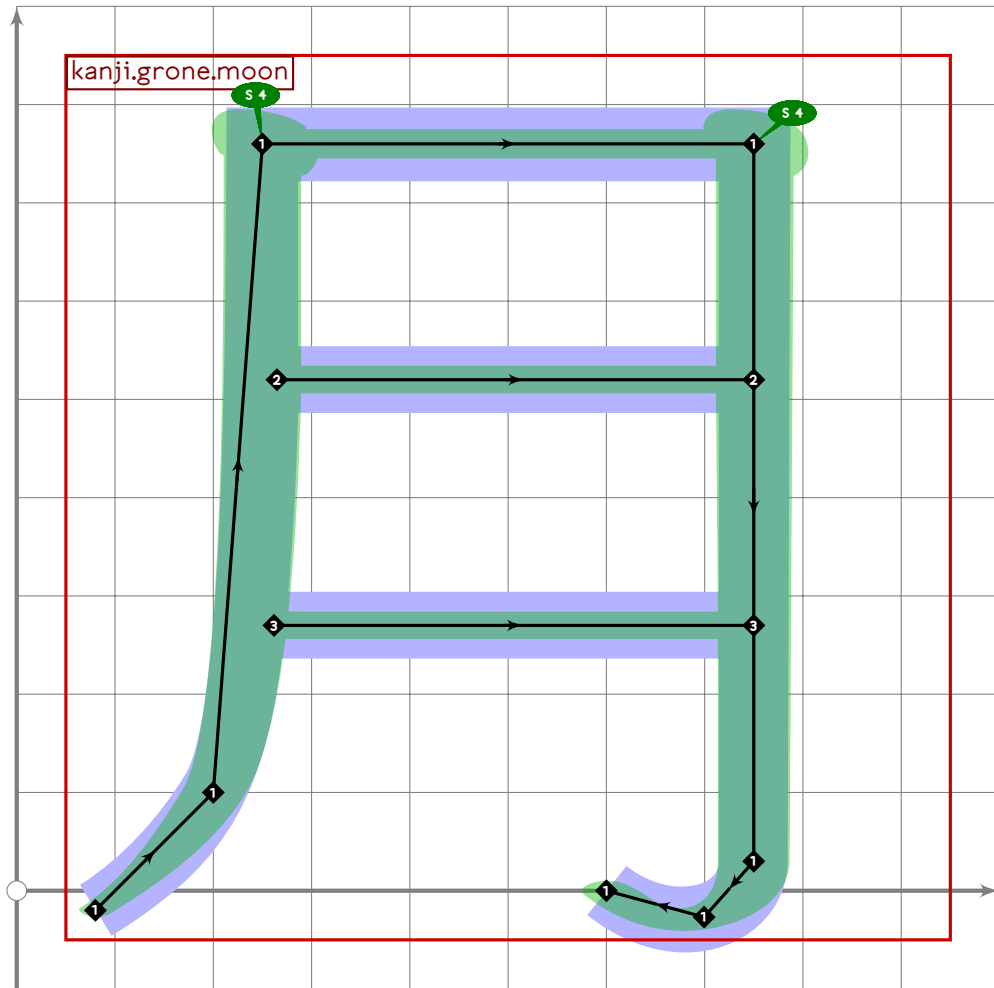
```
378 enddef;
```



```

379
380 vardef kanji.grone.middle =
381   push_pbox_toexpand("kanji.grone.middle");
382   kanji.radical.vline;
383   build_kanji.box((170,590),(830,270));
384   expand_pbox;
385 enddef;

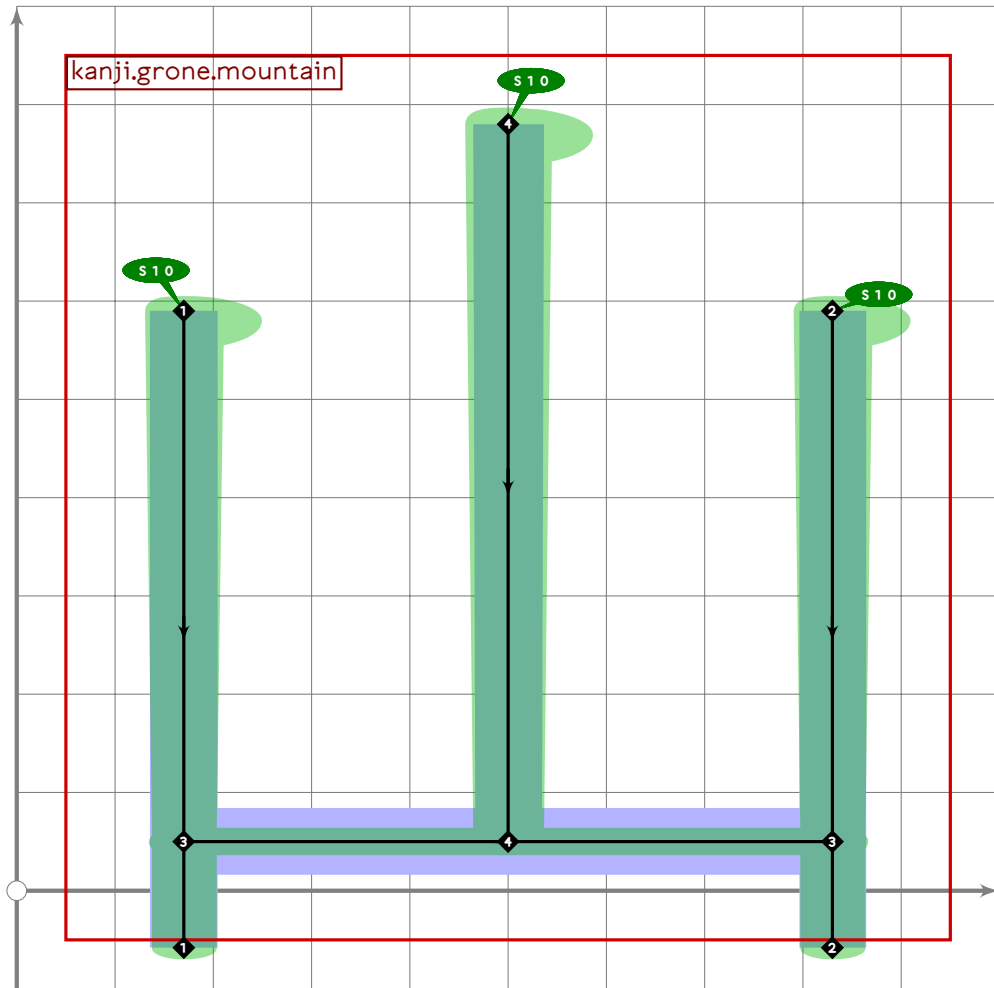
```



```

386
387 vardef kanji.grone.moon =
388   push_pbox_toexpand("kanji.grone.moon");
389   push_stroke((80,-20)..(200,100)..{up}(250,760)-(750,760),
390     (1,1)-(1.4,1.4)-(1.6,1.6)-(1.6,1.6));
391   build_kanji.add_jtail(0);
392   set_botip(0,2,1);
393   set_botip(0,3,1);
394   set_boserif(0,2,4);
395   set_boserif(0,3,4);
396   push_stroke(
397     (get_stroke(0) intersectionpoint ((0,520)-(1000,520)))-(750,520),
398     (1.5,1.5)-(1.5,1.5));
399   push_stroke(
400     (get_stroke(-1) intersectionpoint ((0,270)-(1000,270)))-(750,270),
401     (1.5,1.5)-(1.5,1.5));
402   expand_pbox;
403 enddef;

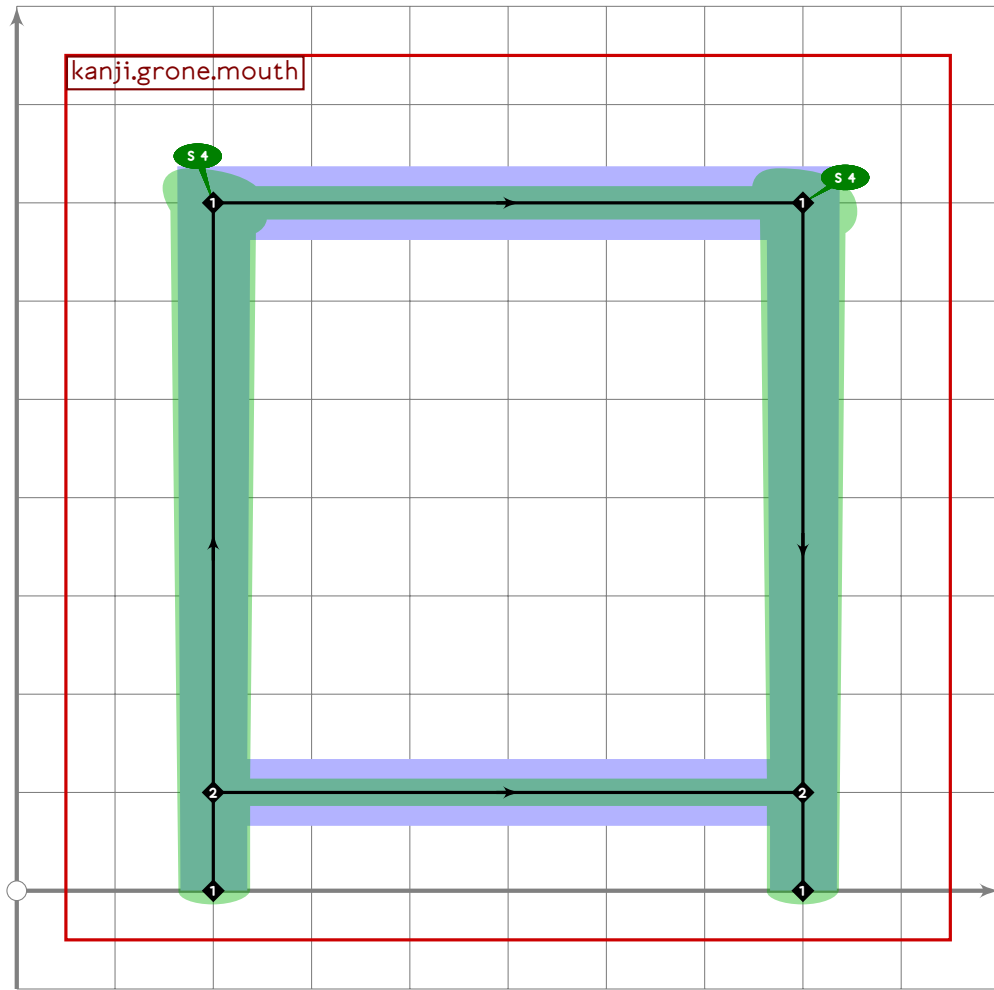
```



```

404
405 vardef kanji.grone.mountain =
406   push_pbox_toexpand("kanji.grone.mountain");
407   build_kanji.cup((170,590),(830,50));
408   push_stroke((500,780)-(500,50),
409     (1.7,1.7)-(1.5,1.5));
410   set_boserif(0,0,10);
411   expand_pbox;
412 enddef;

```

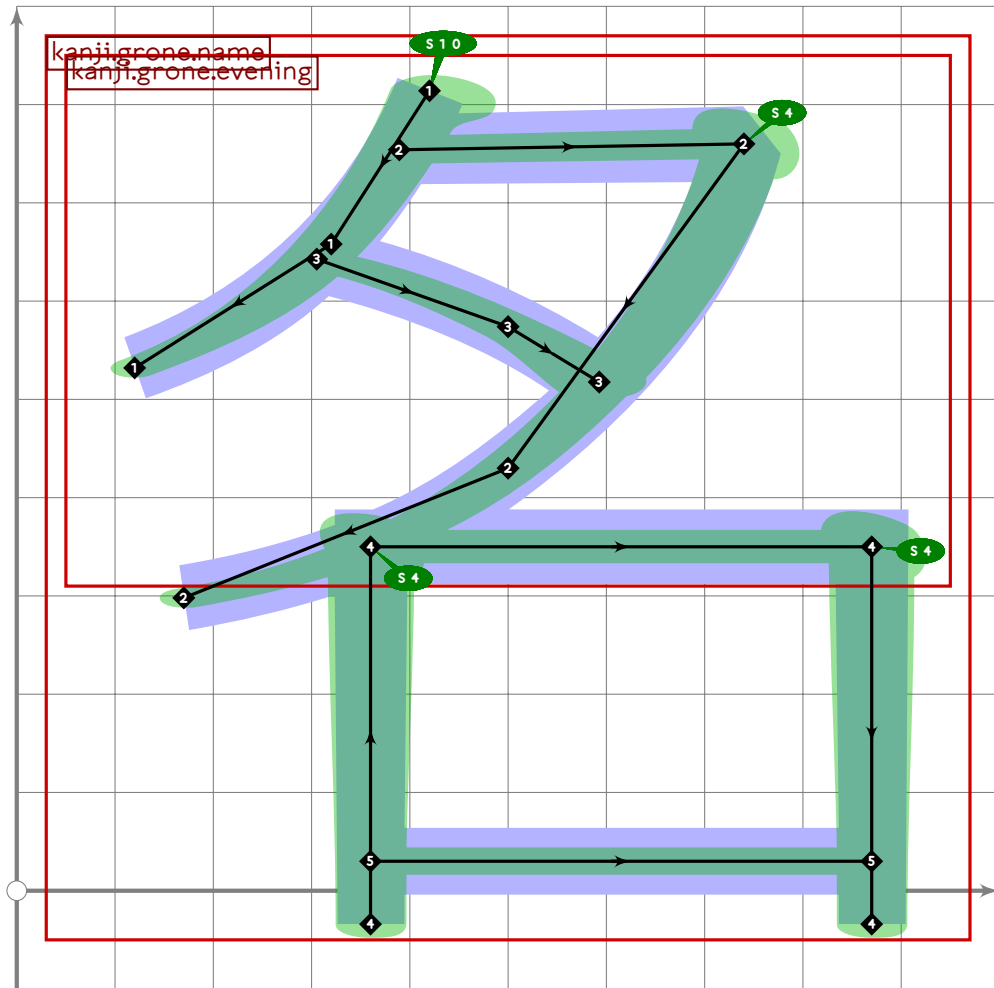


```

413
414 vardef kanji.grone.mouth =
415   push_pbox_toexpand("kanji.grone.mouth");
416   build_kanji.box((200,700),(800,100));
417   expand_pbox;
418 enddef;

```

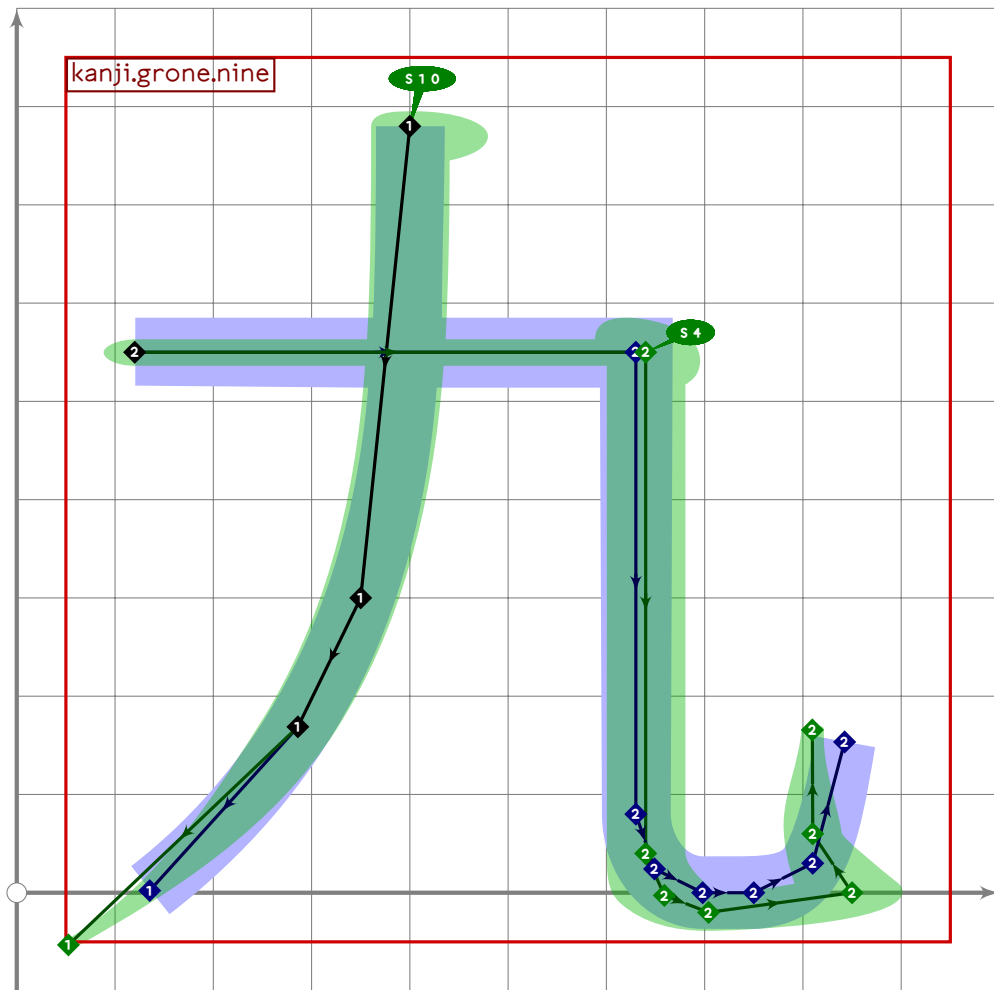




```

419
420 vardef kanji.grone.name =
421   push_pbox_toexpand("kanji.grone.name");
422   tsu_xform(identity shifted (-50,-850) yscaled 0.6 shifted (50,850))
423     (kanji.grone.evening);
424   set_bosize(-2,102);
425   set_bosize(-1,102);
426   set_bosize(0,102);
427   build_kanji.box((360,350),(870,30));
428   expand_pbox;
429 enddef;

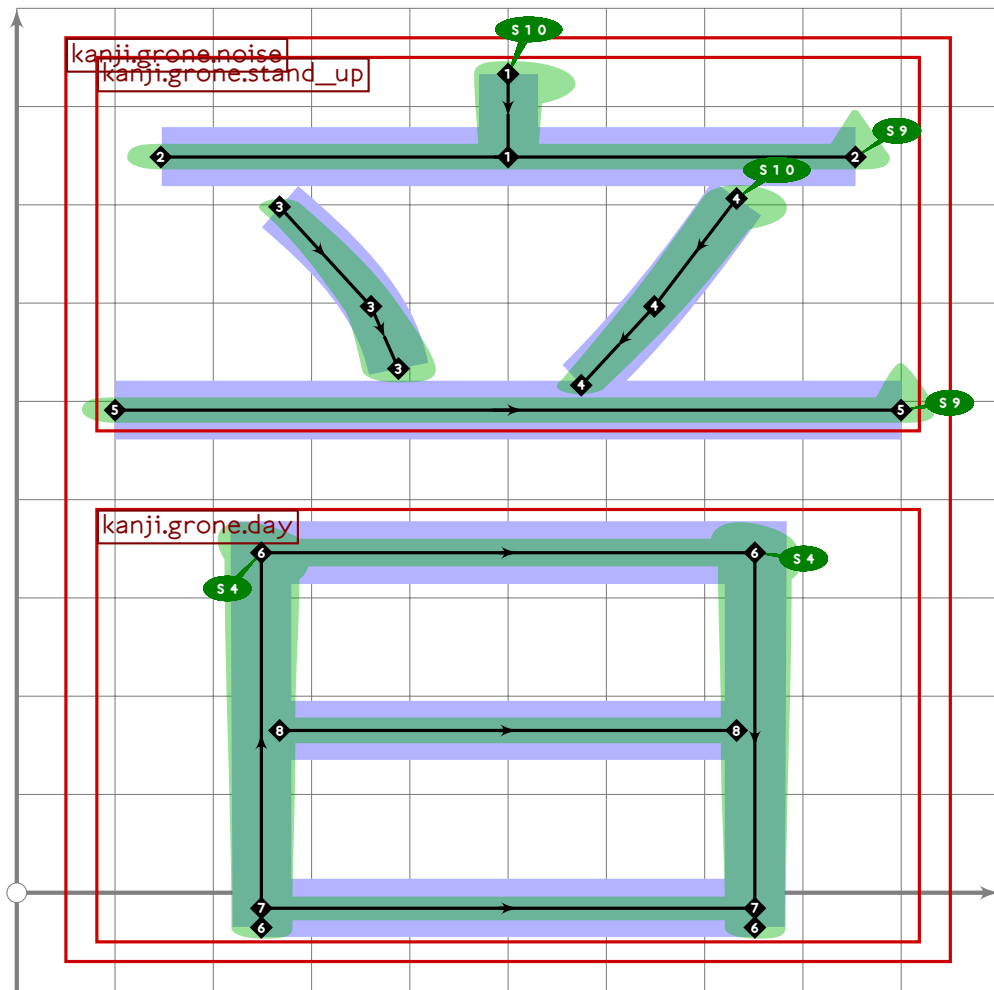
```



```

430
431 vardef kanji.grone.nine =
432   push_pbox_toexpand("kanji.grone.nine");
433   push_stroke((400,780){down}..(350,300)..(40,-60),
434     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(0.8,0.7));
435   replace_strokep(0)(insert_nodes(oldp)(1.3));
436   set_boserif(0,0,10);
437   push_stroke((120,550)-(630+10*mincho,550),
438     (1.4,1.4)-(1.6,1.6));
439   build_kanji.add_ltail(0);
440   set_botip(0,1,1);
441   set_boserif(0,1,4);
442   expand_pbox;
443 enddef;

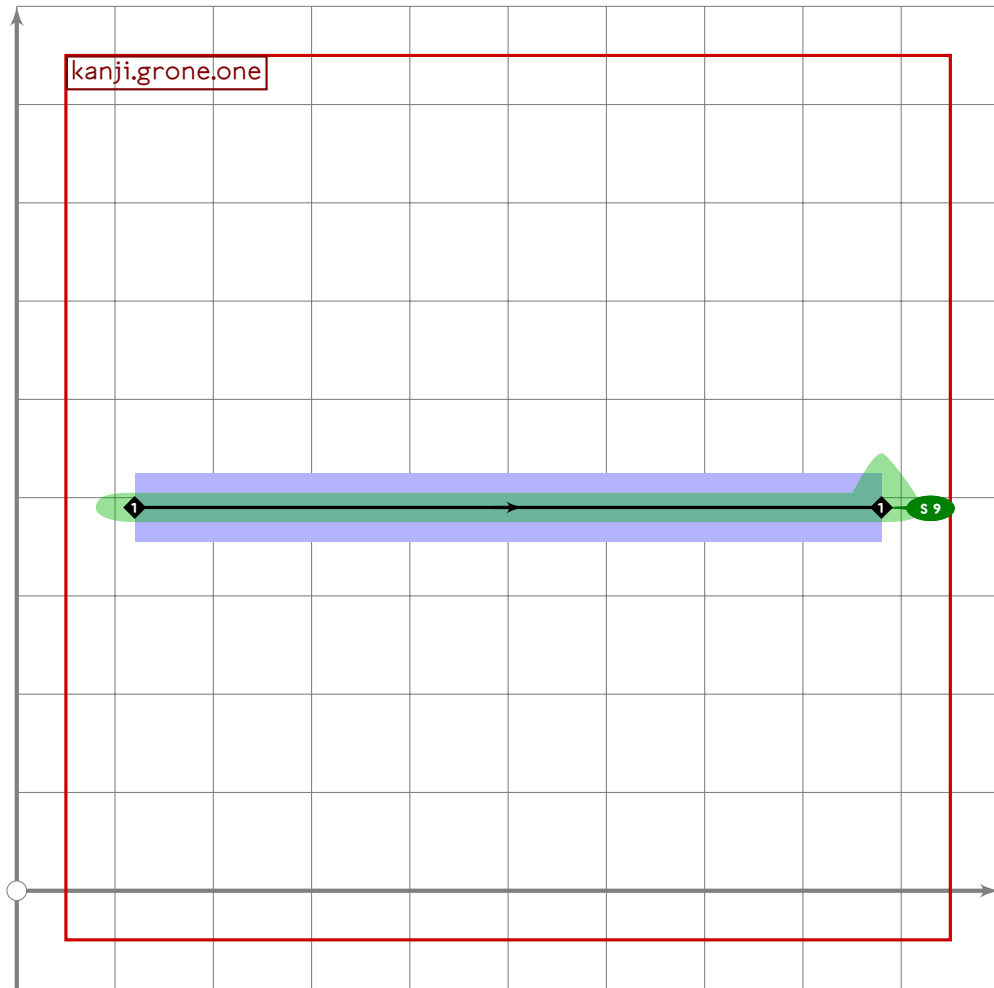
```



```

444
445 vardef kanji.grone.noise =
446   push_pbox_toexpand("kanji.grone.noise");
447   build_kanji.level(build_kanji.sscale(xscaled 0.93)(
448     build_kanji.tb(430,-80)
449     (kanji.grone.stand_up)
450     (kanji.grone.day)));
451   expand_pbox;
452 enddef;

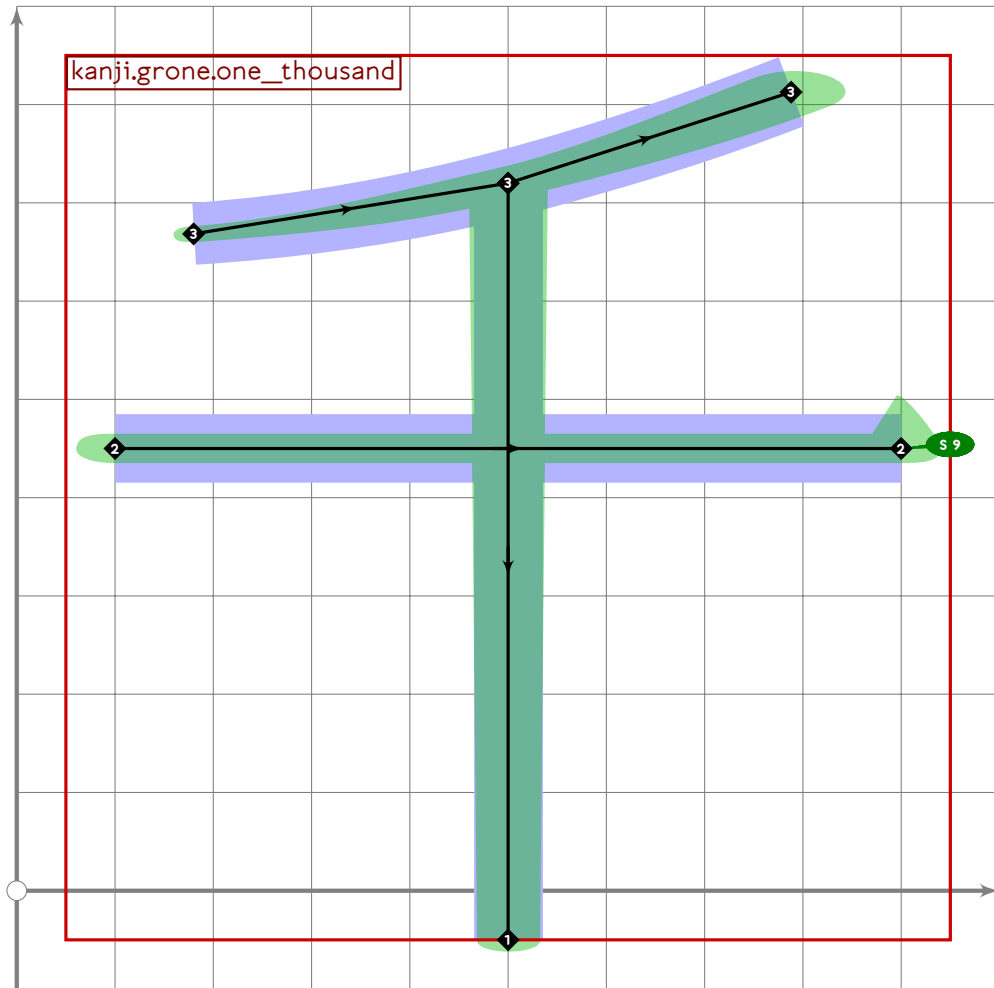
```



```

453
454 vardef kanji.grone.one =
455   push_pbox_toexpand("kanji.grone.one");
456   push_stroke((120,390)-(880,390),
457     (1.6,1.6)-(1.6,1.6));
458   set_boserif(0,1,9);
459   expand_pbox;
460 enddef;

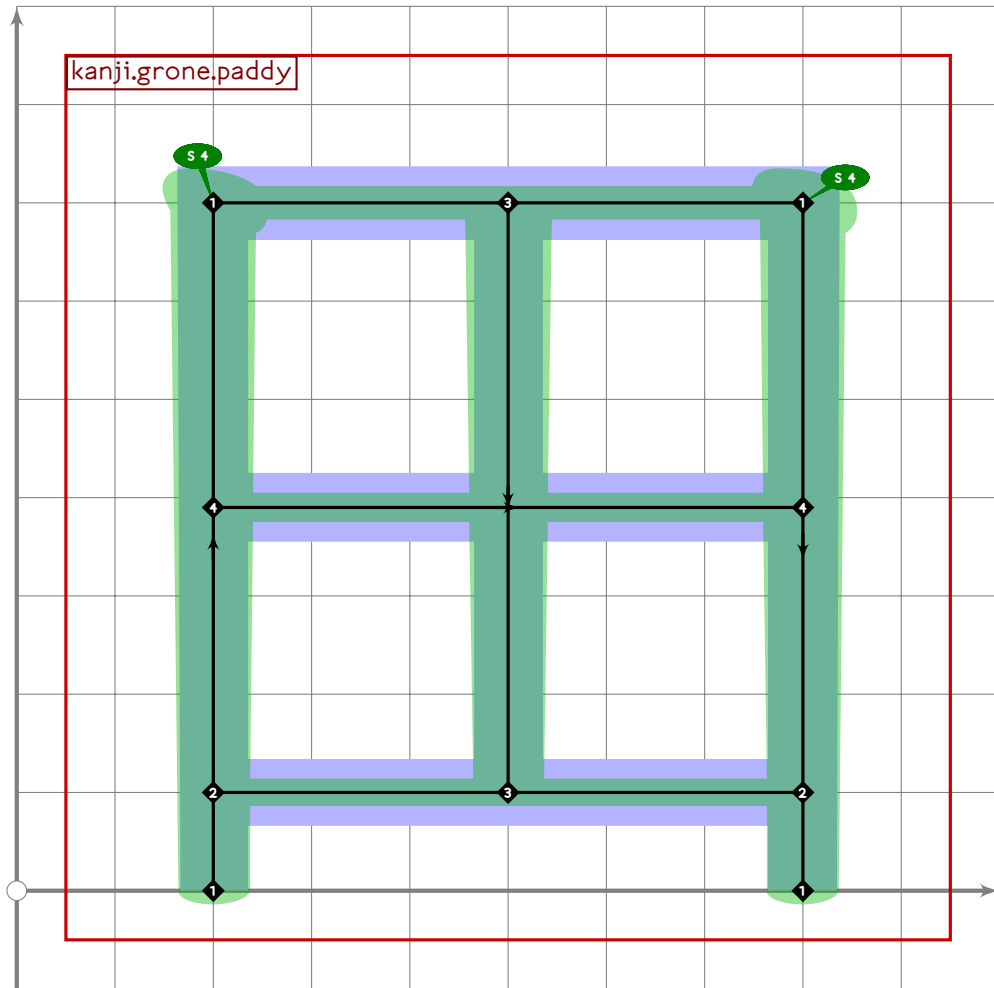
```



```

461
462 vardef kanji.grone.one_thousand =
463   push_pbox_toexpand("kanji.grone.one_thousand");
464   build_kanji.add_beret(
465     push_stroke((500,720)-(500,-50),(1.6,1.6)-(1.4,1.4));
466     push_stroke((100,450)-(900,450),(1.6,1.6)-(1.6,1.6));
467     set_boserif(0,1,9);
468   );
469   expand_pbox;
470 enddef;

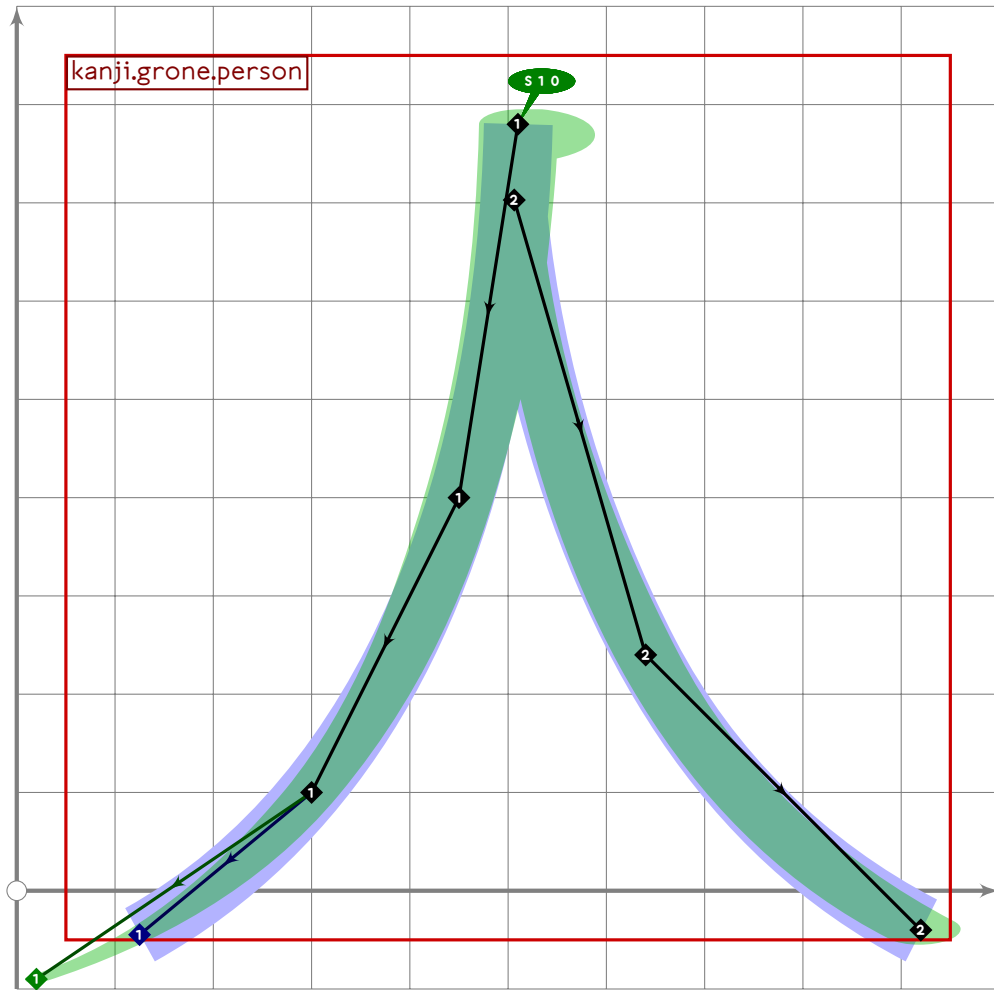
```



```

471
472 vardef kanji.grone.paddy =
473   push_pbox_toexpand("kanji.grone.paddy");
474   build_kanji.box((200,700),(800,100));
475   push_stroke((500,700)-(500,100),
476     (1.7,1.7)-(1.5,1.5));
477   push_stroke((200,390)-(800,390),
478     (1.6,1.6)-(1.6,1.6));
479   expand_pbox;
480 enddef;

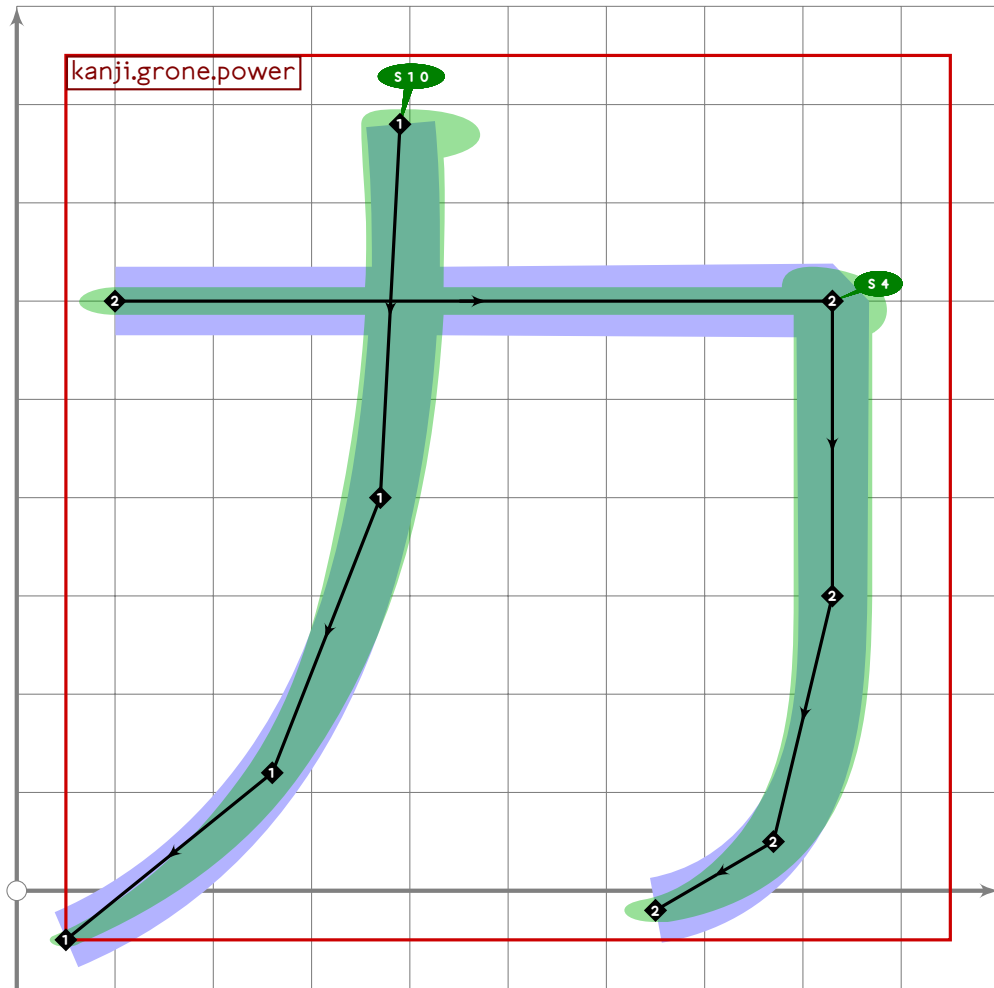
```



```

481
482 vardef kanji.grone.person =
483   push_pbox_toexpand("kanji.grone.person");
484   push_stroke((510,780)..(450,400)..(300,100)..(20,-90),
485     (1.6,1.6)-(1.5,1.5)-(1.3,1.3)-(0.85,0.85));
486   set_boserif(0,0,10);
487   push_stroke(
488     (point 0.2 of get_stroke(0))..tension 1.2..(640,240)..(920,-40),
489     (1.2,1.2)-(1.4,1.4)-(1.6,1.6));
490   expand_pbox;
491 enddef;

```

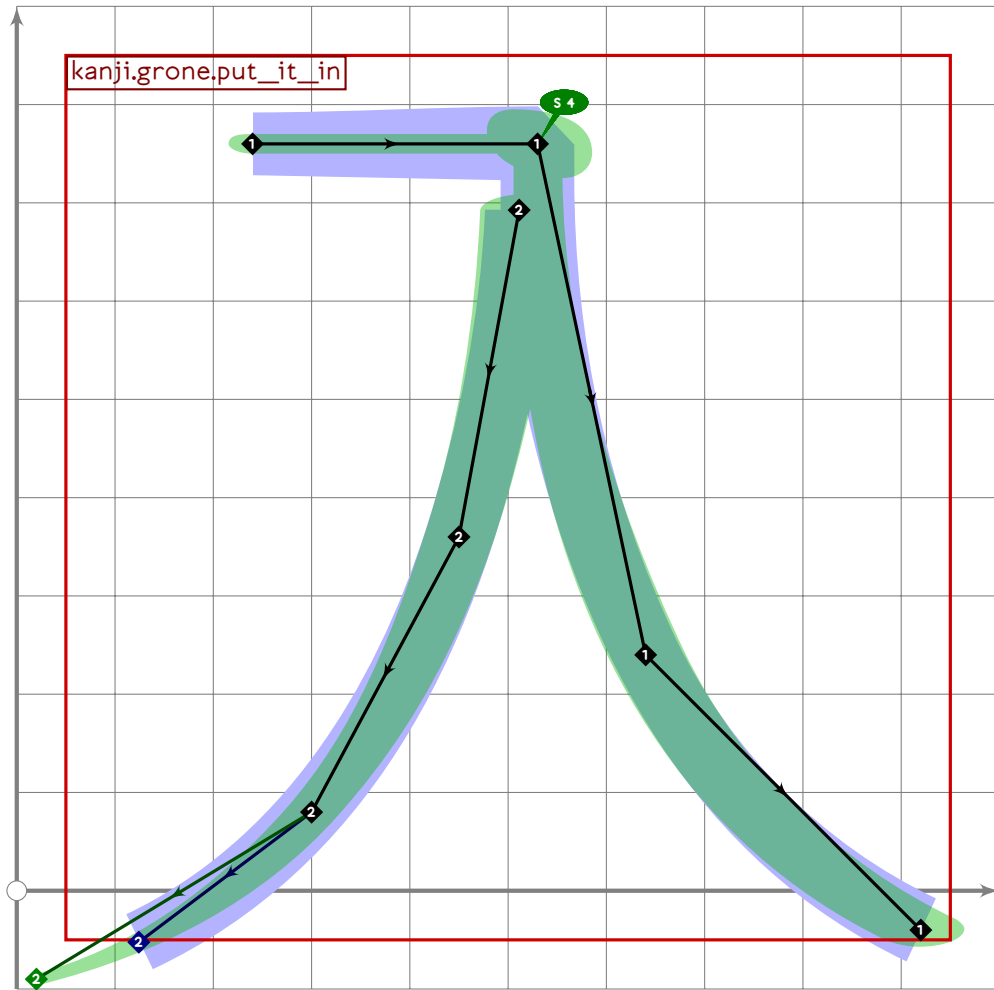


```

492
493 vardef kanji.grone.power =
494   push_pbox_toexpand("kanji.grone.power");
495   push_stroke((390,780)..(370,400)..(260,120)..(50,-50),
496     (1.6,1.6)-(1.6,1.6)-(1.3,1.3)-(1,1));
497   set_boserif(0,0,10);
498   push_stroke(
499     (100,600)-(830,600)..tension 11..(830,300)..(770,50)..(650,-20),
500     (1.5,1.5)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.4,1.4));
501   set_botip(0,1,0);
502   set_boserif(0,1,4);
503   expand_pbox;
504 enddef;

```

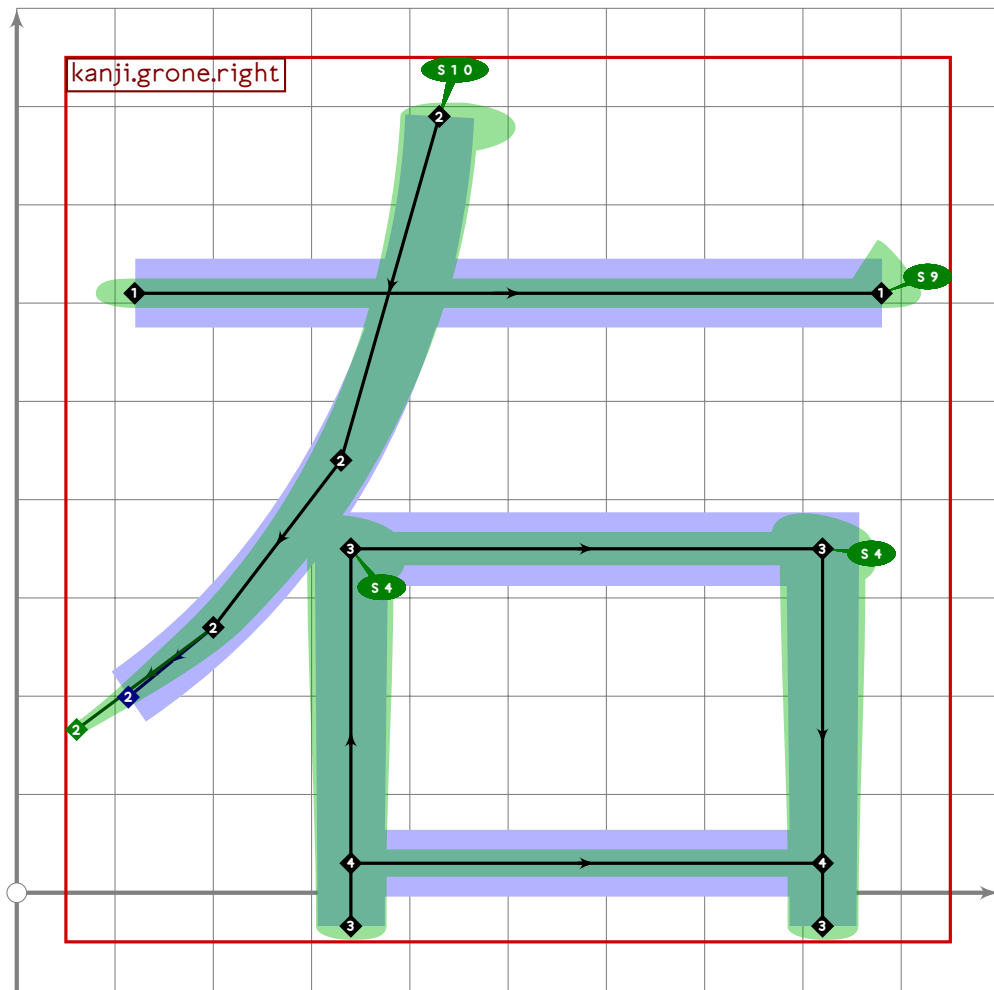




```

505
506 vardef kanji.grone.put_it_in =
507   push_pbox_toexpand("kanji.grone.put_it_in");
508   push_stroke((240,760)-(530,760)..tension 1.2..(640,240)..(920,-40),
509     (1.2,1.2)-(1.2,1.2)-(1.6,1.6)-(1.7,1.7));
510   set_botip(0,1,0);
511   set_boserif(0,1,4);
512   push_stroke(
513     ((-20,0)+point 1.14 of get_strokep(0))..(450,360)..(300,80)..(20,-90),
514     (1.6,1.6)-(1.5,1.5)-(1.3,1.3)-(0.85,0.85));
515   expand_pbox;
516 enddef;

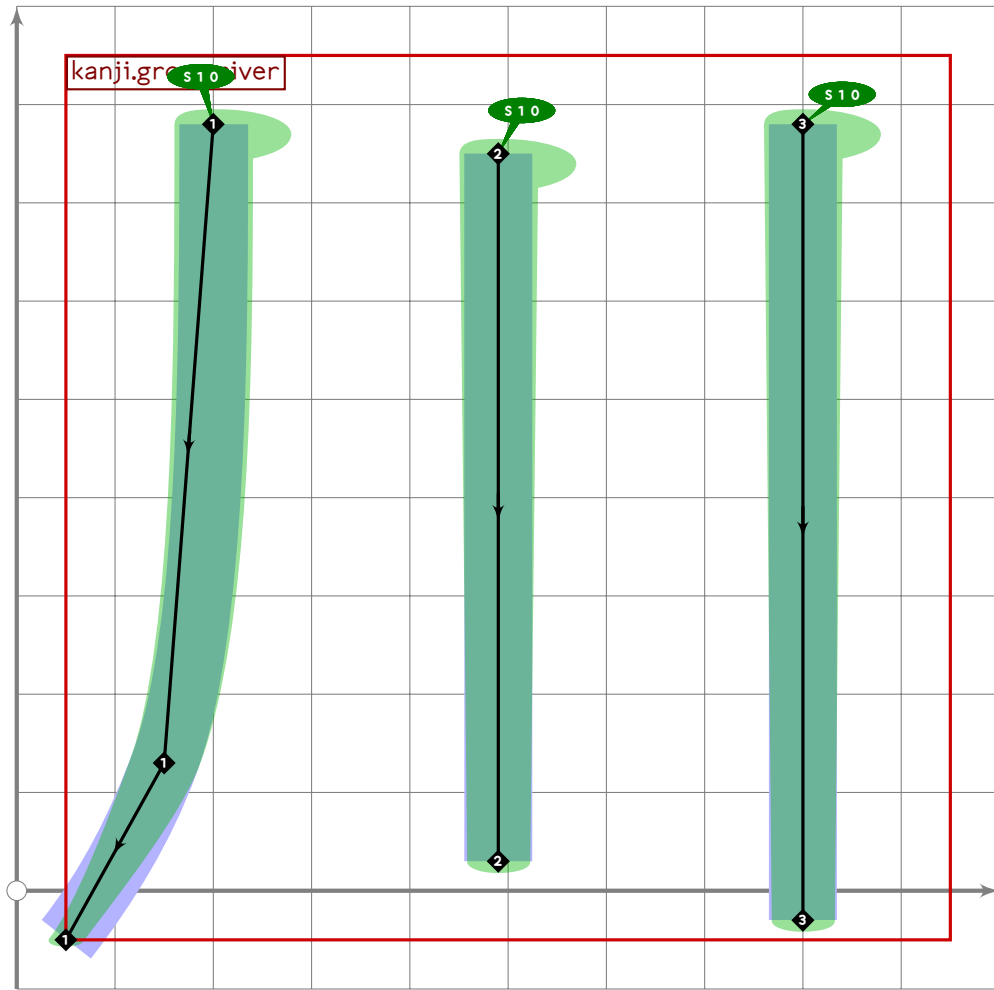
```



```

517
518 vardef kanji.grone.right =
519   push_pbox_toexpand("kanji.grone.right");
520   push_stroke((120,610)..(880,610),
521     (1.6,1.6)-(1.6,1.6));
522   set_boserif(0,1,9);
523   push_stroke((430,790)..(330,440)..(200,270)..(50,160),
524     (1.6,1.6)-(1.5,1.5)-(1.3,1.3)-(0.8,0.8));
525   set_boserif(0,0,10);
526   build_kanji.box((340,350),(820,30));
527   expand_pbox;
528 enddef;

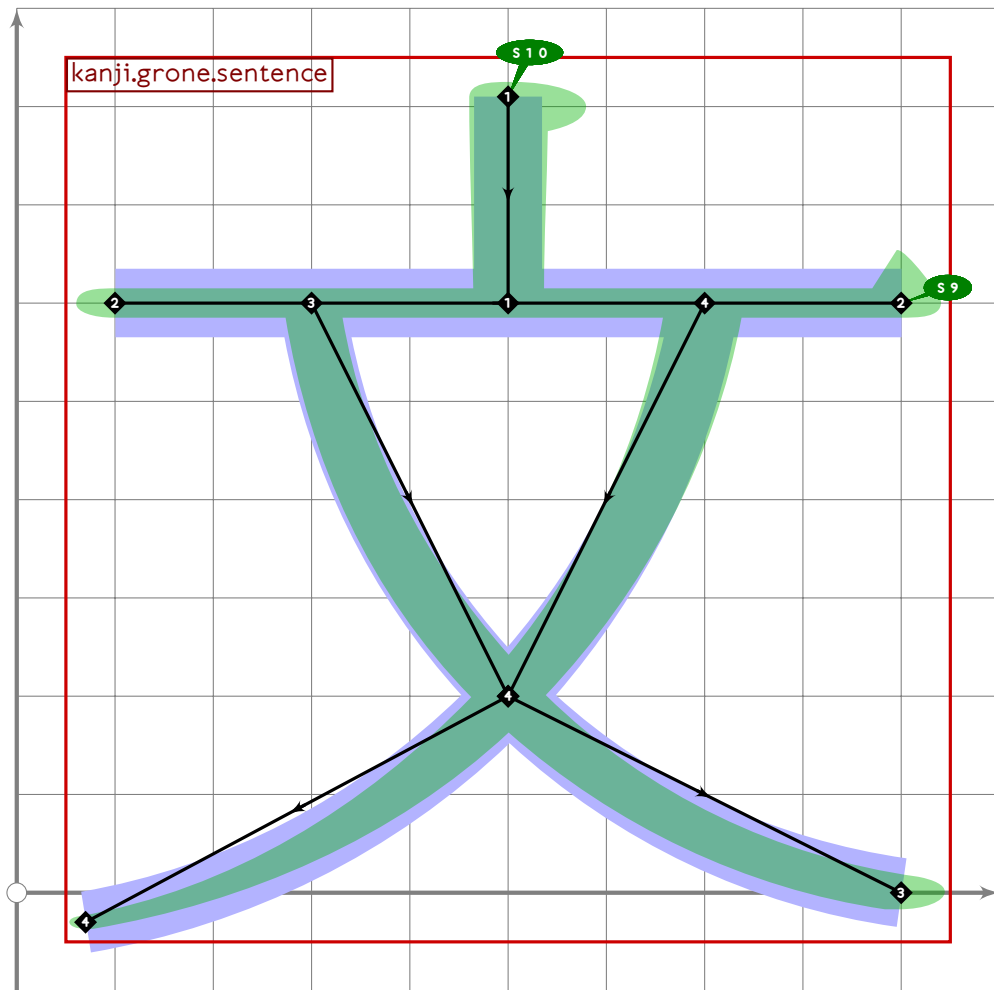
```



```

529
530 vardef kanji.grone.river =
531   push_pbox_toexpand("kanji.grone.river");
532   push_stroke((200,780){down}..(150,130)..(50,-50),
533     (1.6,1.6)-(1.5,1.5)-(1,1));
534   set_boserif(0,0,10);
535   push_stroke((490,750)-(490,30),
536     (1.6,1.6)-(1.4,1.4));
537   set_boserif(0,0,10);
538   push_stroke((800,780)-(800,-30),
539     (1.6,1.6)-(1.4,1.4));
540   set_boserif(0,0,10);
541   expand_pbox;
542 enddef;

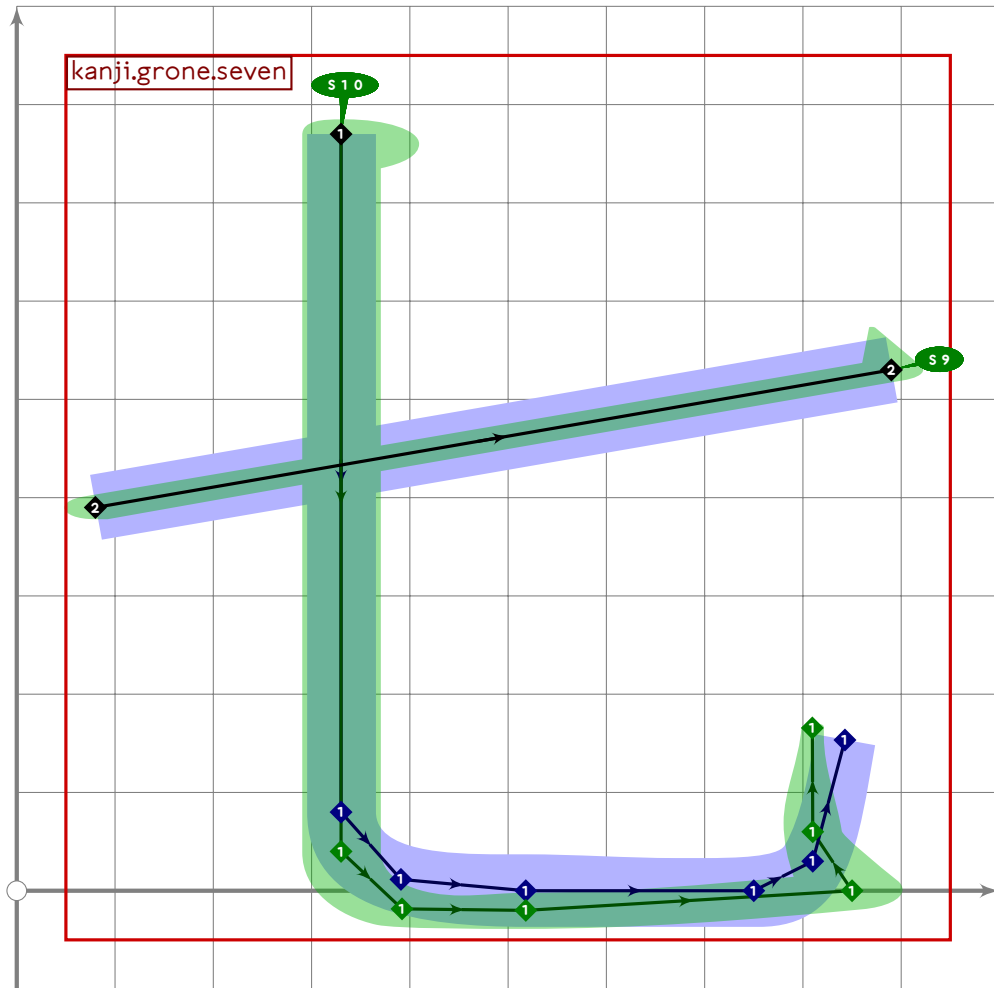
```



```

543
544 vardef kanji.grone.sentence =
545   push_pbox_toexpand("kanji.grone.sentence");
546   push_stroke((500,810)-(500,600),
547     (1.6,1.6)-(1.5,1.5));
548   set_boserif(0,0,10);
549   push_stroke((100,600)-(900,600),
550     (1.6,1.6)-(1.6,1.6));
551   set_boserif(0,1,9);
552   push_stroke((300,600)..(500,200)..(900,0),
553     (1.3,1.3)-(1.5,1.5)-(1.7,1.7));
554   push_stroke((700,600)..(500,200)..(70,-30),
555     (1.6,1.6)-(1.5,1.5)-(1,1));
556   expand_pbox;
557 enddef;

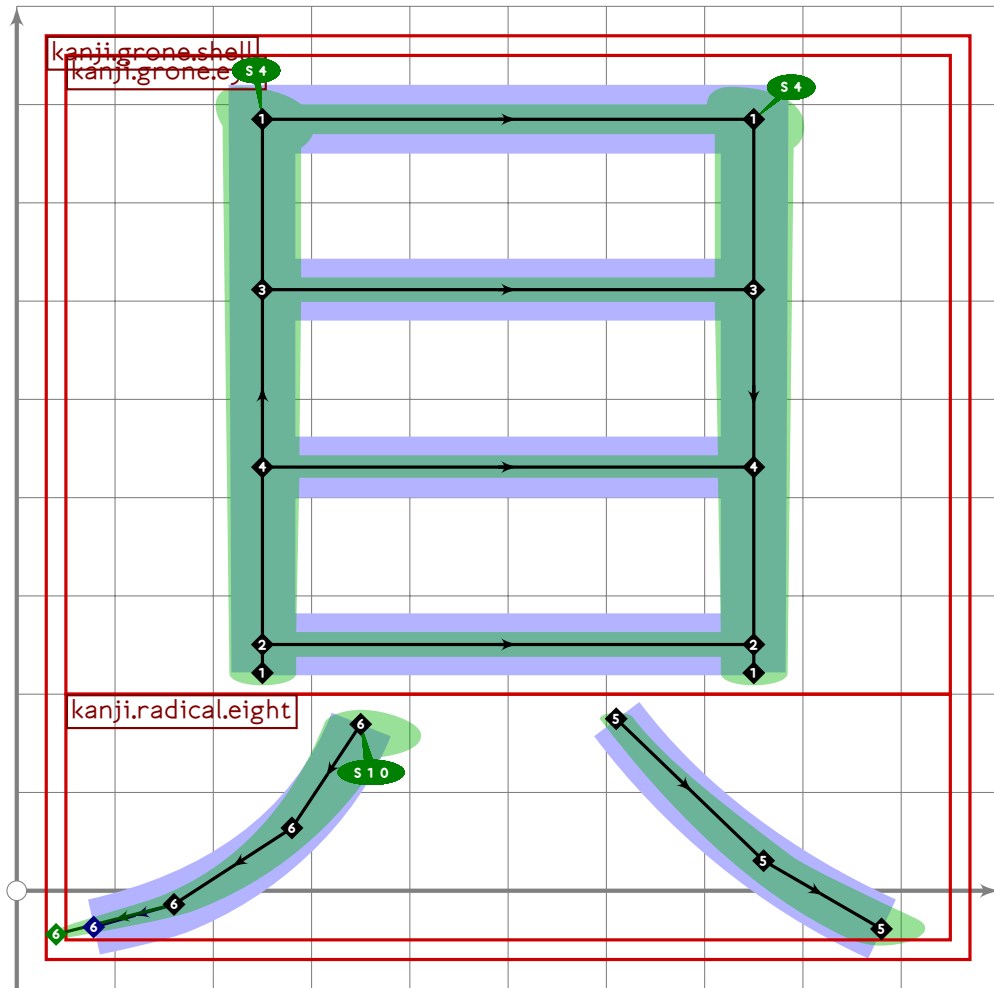
```



```

558
559 vardef kanji.grone.seven =
560   push_pbox_toexpand("kanji.grone.seven");
561   push_stroke((330,770),
562     (1.6,1.6));
563   build_kanji.add_ltail(0);
564   set_boserif(0,0,10);
565   push_stroke((80,390)-(890,530),
566     (1.4,1.4)-(1.4,1.4));
567   set_boserif(0,1,9);
568   expand_pbox;
569 enddef;

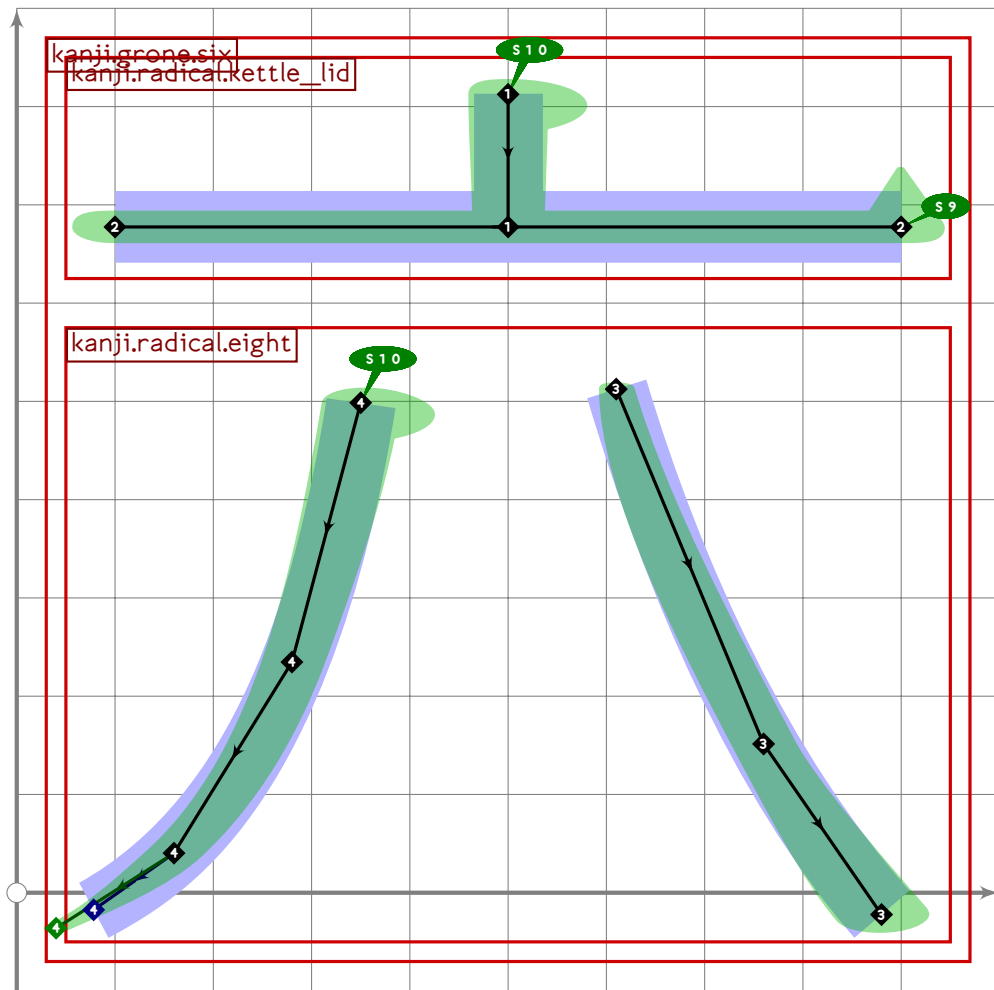
```



```

570
571 vardef kanji.grone.shell =
572   push_pbox_toexpand("kanji.grone.shell");
573   build_kanji.level(build_kanji.tb(200,0)
574     (kanji.grone.ey)
575     (kanji.radical.eight));
576   expand_pbox;
577 enddef;

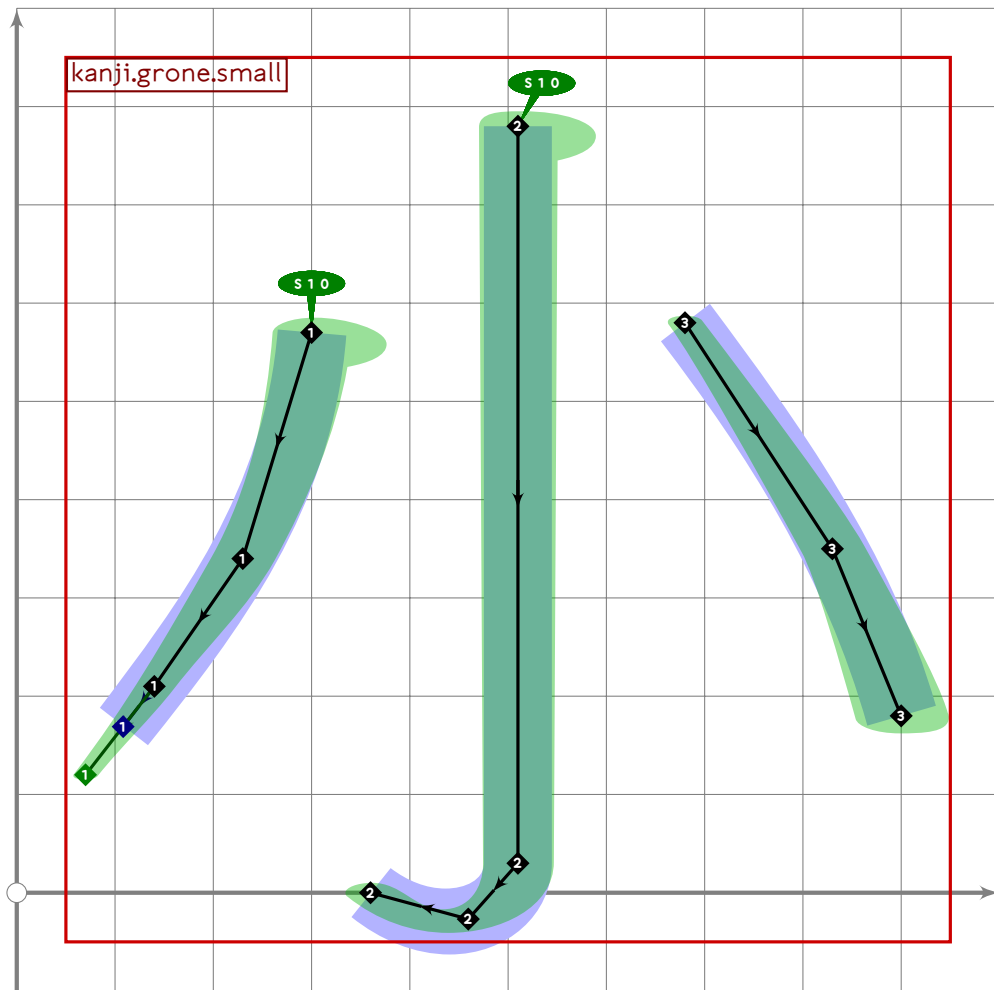
```



```

578
579 vardef kanji.grone.six =
580   push_pbox_toexpand("kanji.grone.six");
581   build_kanji.level(build_kanji.tb(600,-50)
582     (kanji.radical.kettle_lid)
583     (kanji.radical.eight));
584   expand_pbox;
585 enddef;

```

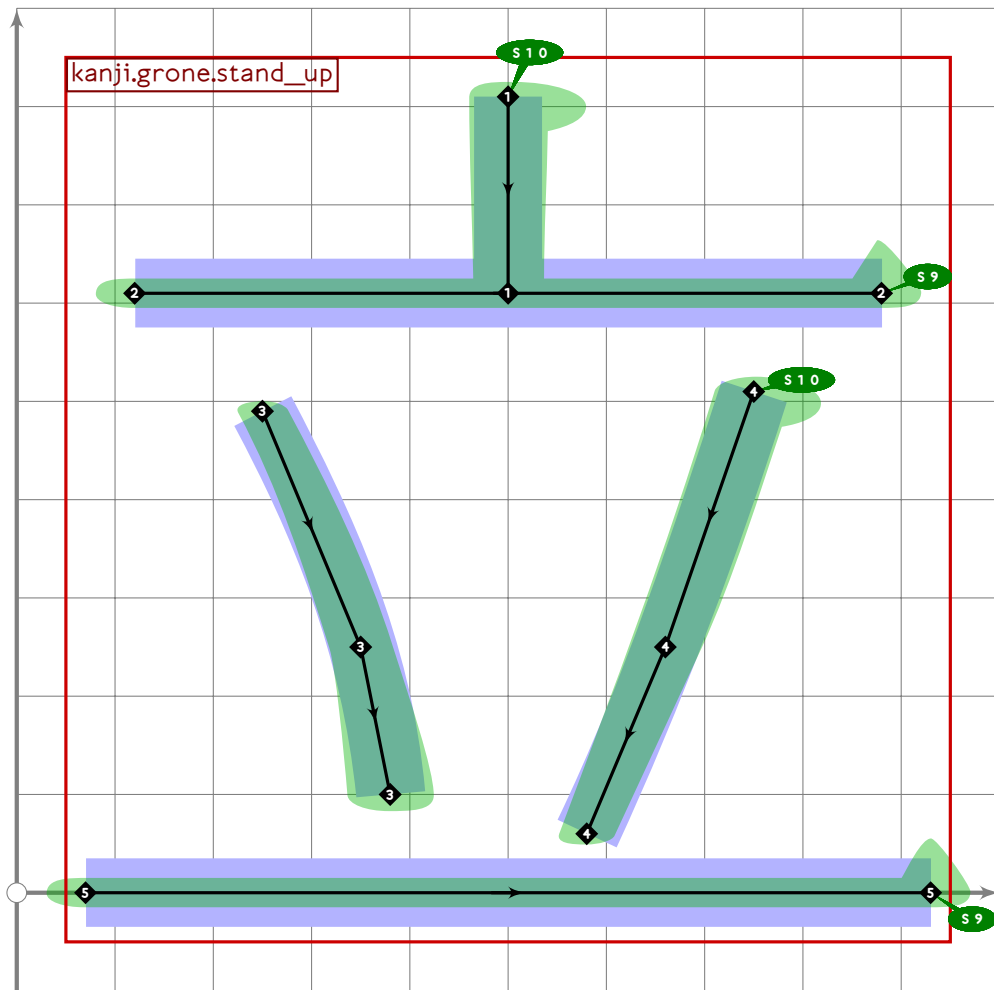


```

586
587 vardef kanji.grone.small =
588   push_pbox_toexpand("kanji.grone.small");
589   push_stroke((300,570)..(230,340)..(140,210)..(70,120),
590     (1.6,1.6)-(1.4,1.4)-(1.1,1.1)-(0.88,0.88));
591   set_boserif(0,0,10);
592   push_stroke((510,780),
593     (1.6,1.6));
594   set_boserif(0,0,10);
595   build_kanji.add_jtail(0);
596   push_stroke((680,580)..tension 1.3..(830,350)..(900,180),
597     (1,1)-(1.4,1.4)-(1.8,1.8));
598   expand_pbox;
599 enddef;

```

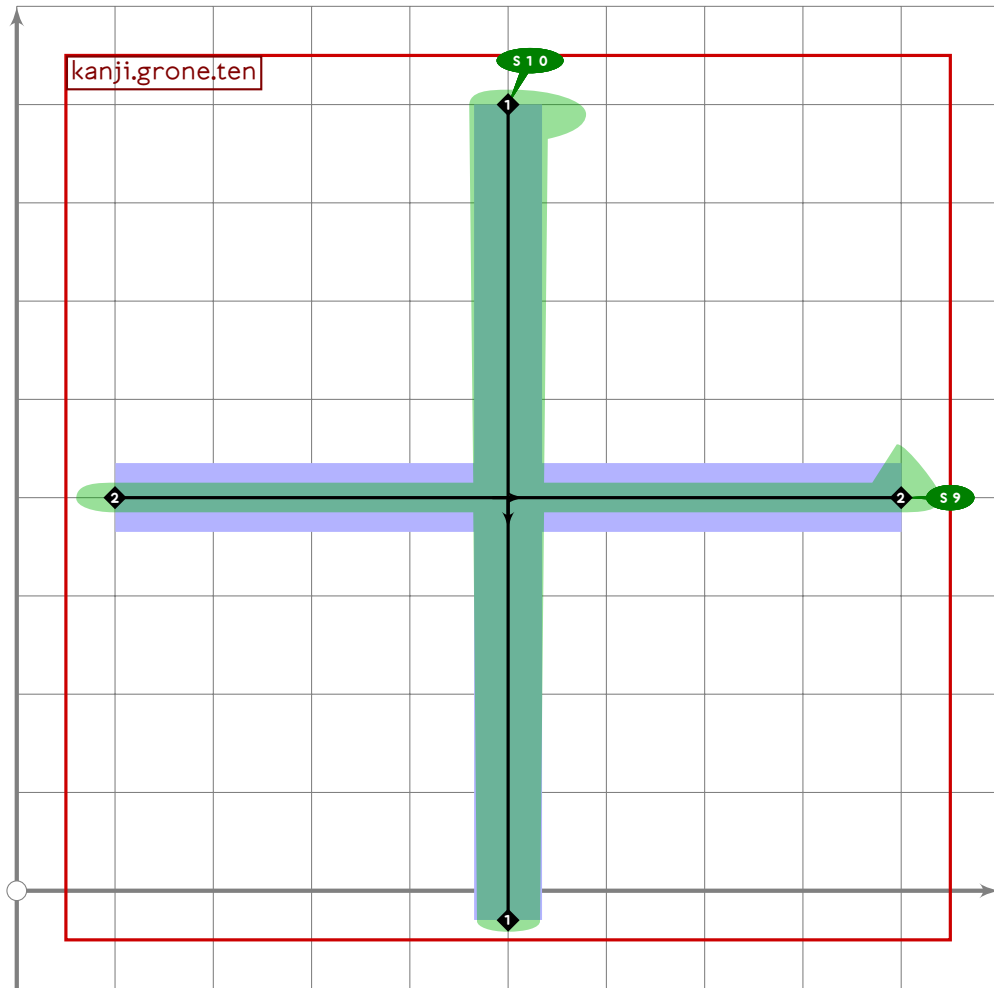




```

600
601 vardef kanji.grone.stand_up =
602   push_pbox_toexpand("kanji.grone.stand_up");
603   push_stroke((500,810)-(500,610),
604     (1.6,1.6)-(1.5,1.5));
605   set_boserif(0,0,10);
606   push_stroke((120,610)-(880,610),
607     (1.6,1.6)-(1.6,1.6));
608   set_boserif(0,1,9);
609   push_stroke((250,490)..tension 1.2..(350,250)..(380,100),
610     (1.2,1.2)-(1.4,1.4)-(1.7,1.7));
611   push_stroke((750,510)..tension 1.2..(660,250)..(580,60),
612     (1.6,1.6)-(1.5,1.5)-(1.3,1.3));
613   set_boserif(0,0,10);
614   push_stroke((70,0)-(930,0),
615     (1.6,1.6)-(1.6,1.6));
616   set_boserif(0,1,9);
617   expand_pbox;
618 enddef;

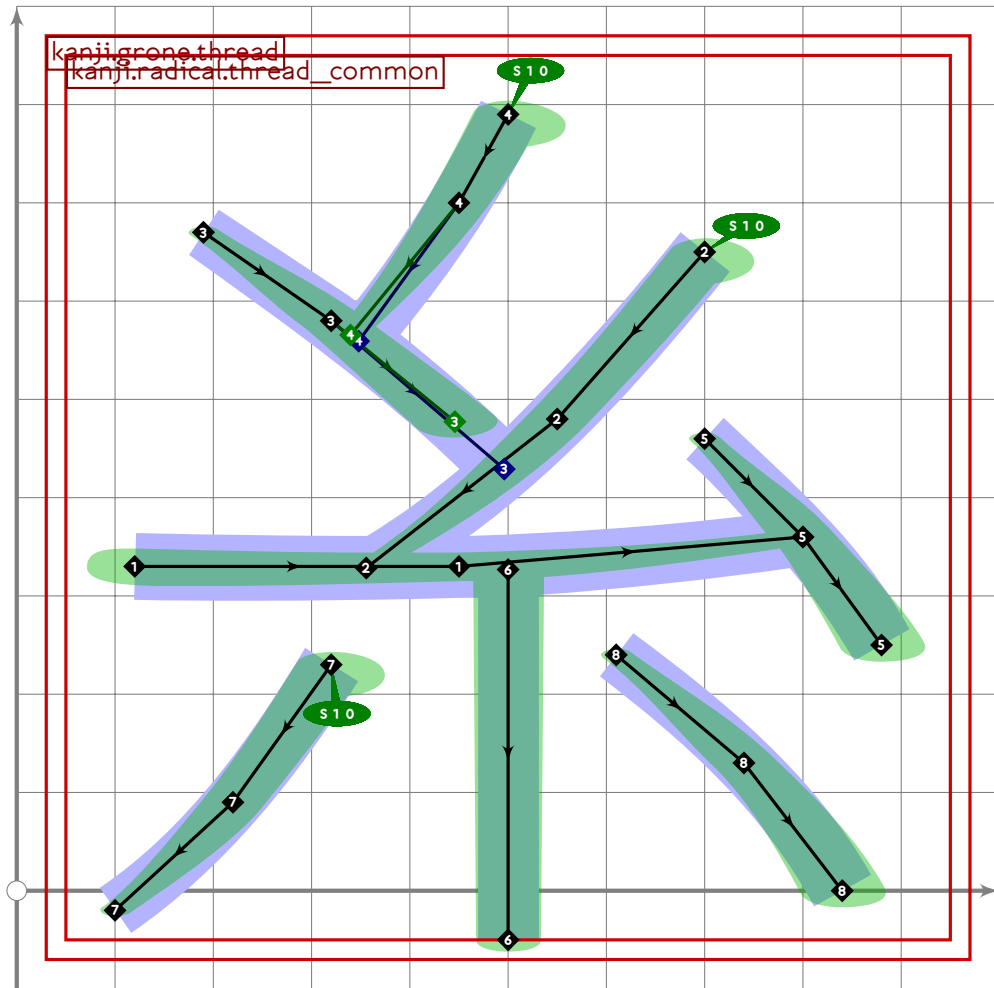
```



```

619
620 vardef kanji.grone.ten =
621   push_pbox_toexpand("kanji.grone.ten");
622   push_stroke((500,800)-(500,-30),(1.6,1.6)-(1.4,1.4));
623   set_boserif(0,0,10);
624   push_stroke((100,400)-(900,400),(1.6,1.6)-(1.6,1.6));
625   set_boserif(0,1,9);
626   expand_pbox;
627 enddef;

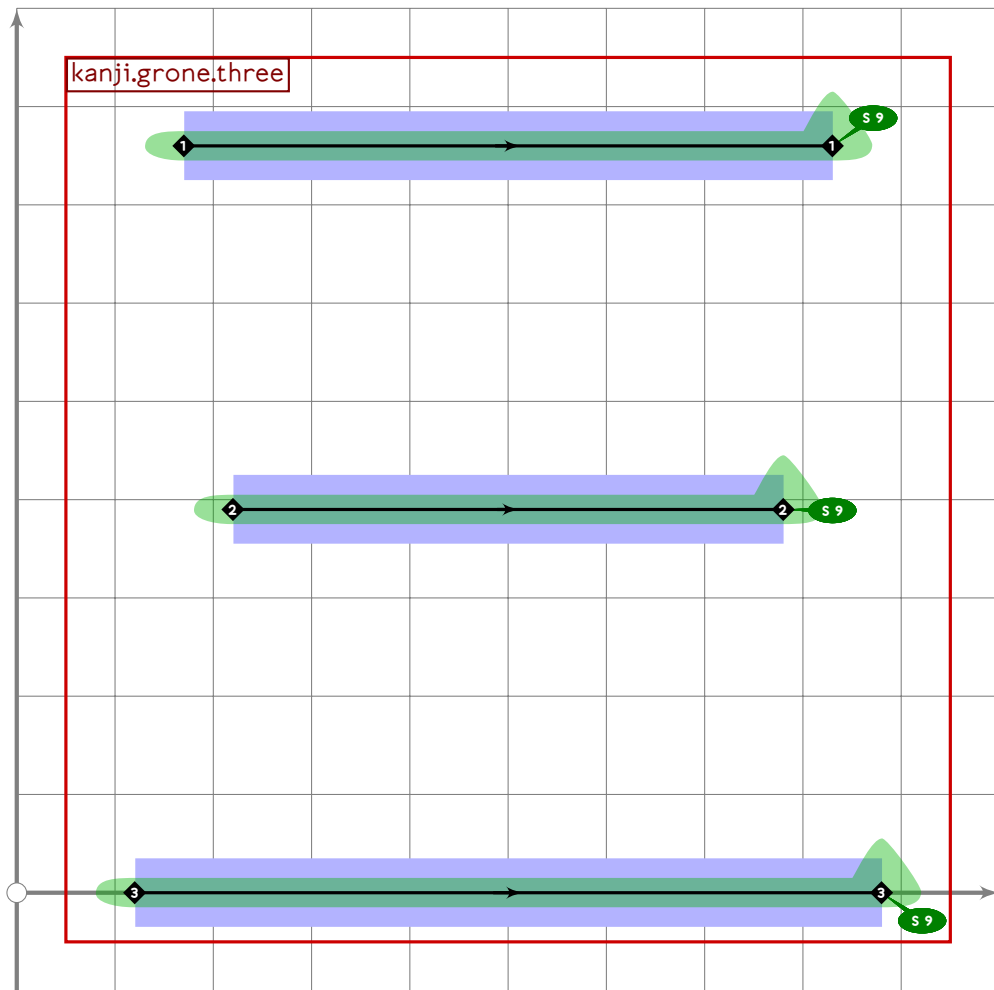
```



```

628
629 vardef kanji.grone.thread =
630   push_pbox_toexpand("kanji.grone.thread");
631   kanji.radical.thread_common;
632   push_stroke(
633     ((get_stroke(-4) intersectionpoint ((500,1000)-(500,0)))+(0,-5))
634     -(500,-50),
635     (1.6,1.6)-(1.5,1.5));
636   push_stroke((320,230)..tension 1.3..(220,90)..(100,-20),
637     (1.6,1.6)-(1.5,1.5)-(1,1));
638   set_bosertif(0,0,10);
639   push_stroke((610,240)..tension 1.3..(740,130)..(840,0),
640     (1,1)-(1.5,1.5)-(1.8,1.8));
641   for i=-7 upto 0: set_bosize(i,90); endfor;
642   expand_pbox;
643 enddef;

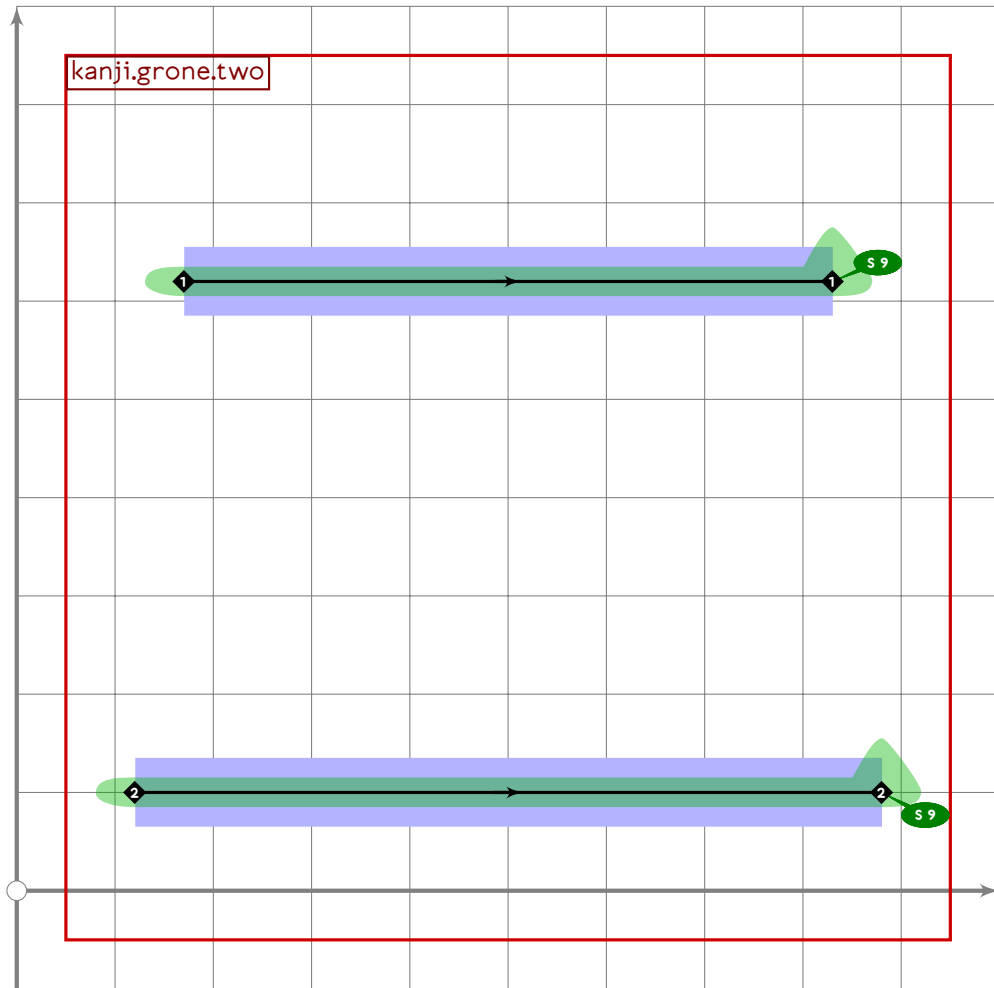
```



```

644
645 vardef kanji.grone.three =
646   push_pbox_toexpand("kanji.grone.three");
647   push_stroke((170,760)-(830,760),
648     (1.6,1.6)-(1.6,1.6));
649   set_boserif(0,1,9);
650   push_stroke((220,390)-(780,390),
651     (1.6,1.6)-(1.6,1.6));
652   set_boserif(0,1,9);
653   push_stroke((120,0)-(880,0),
654     (1.6,1.6)-(1.6,1.6));
655   set_boserif(0,1,9);
656   expand_pbox;
657 enddef;

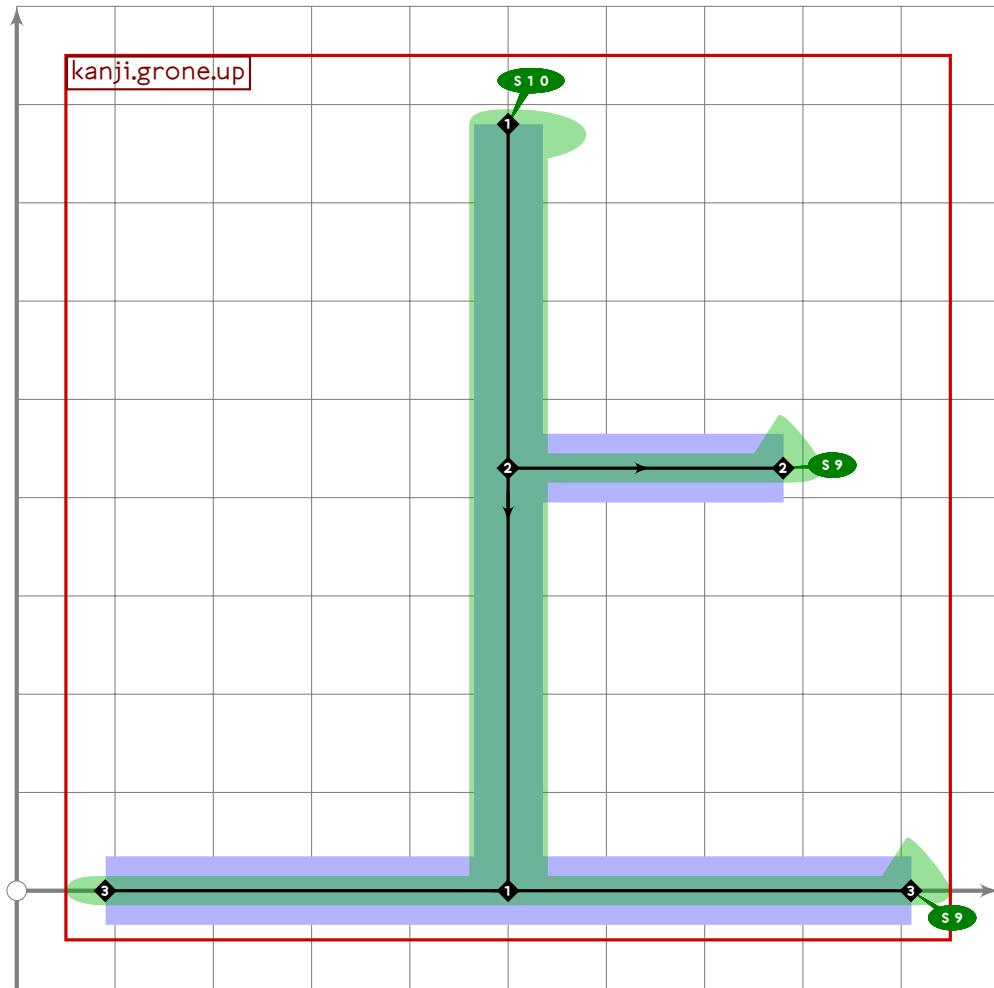
```



```

658
659 vardef kanji.grone.two =
660   push_pbox_toexpand("kanji.grone.two");
661   push_stroke((170,620)-(830,620),(1.6,1.6)-(1.6,1.6));
662   set_boserif(0,1,9);
663   push_stroke((120,100)-(880,100),(1.6,1.6)-(1.6,1.6));
664   set_boserif(0,1,9);
665   expand_pbox;
666 enddef;

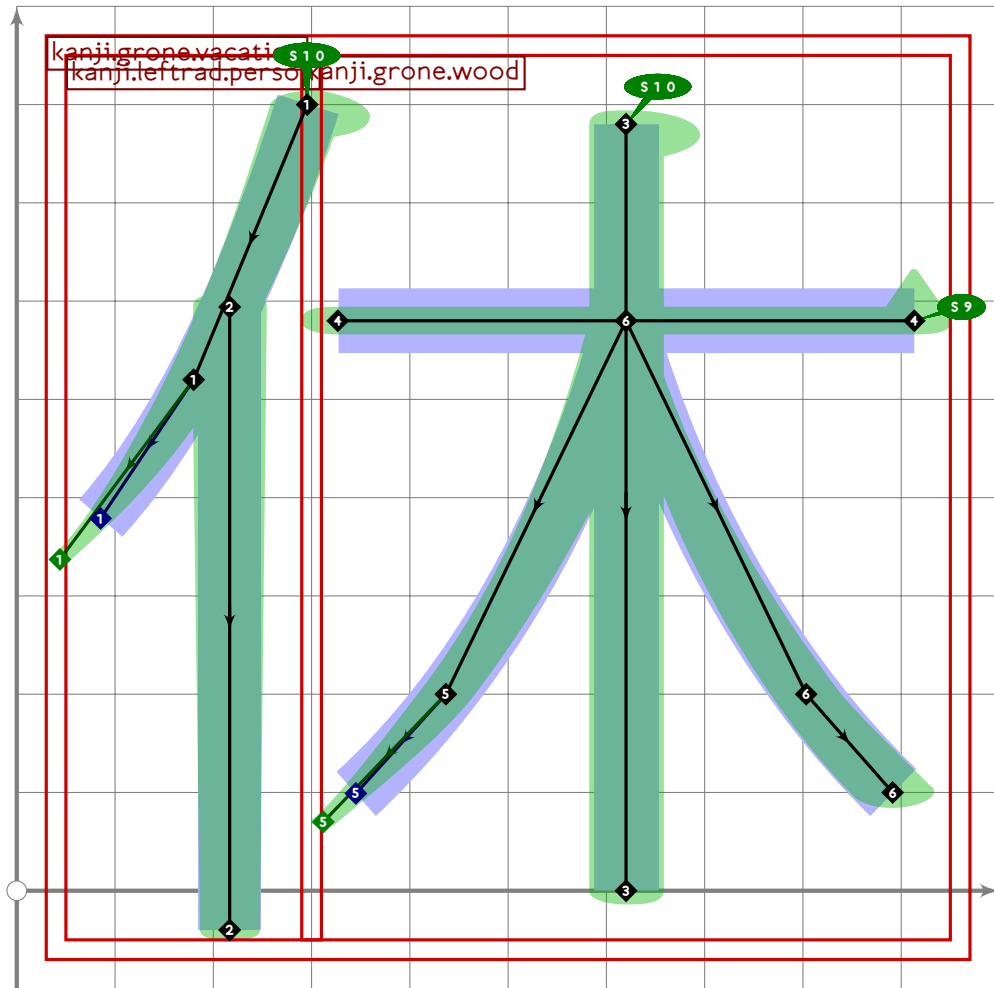
```



```

667
668 vardef kanji.grone.up =
669   push_pbox_toexpand("kanji.grone.up");
670   push_stroke((500,780)-(500,0),
671     (1.6,1.6)-(1.6,1.6));
672   set_boserif(0,0,10);
673   push_stroke((500,430)-(780,430),
674     (1.6,1.6)-(1.6,1.6));
675   set_boserif(0,1,9);
676   push_stroke((90,0)-(910,0),
677     (1.6,1.6)-(1.6,1.6));
678   set_boserif(0,1,9);
679   expand_pbox;
680 enddef;

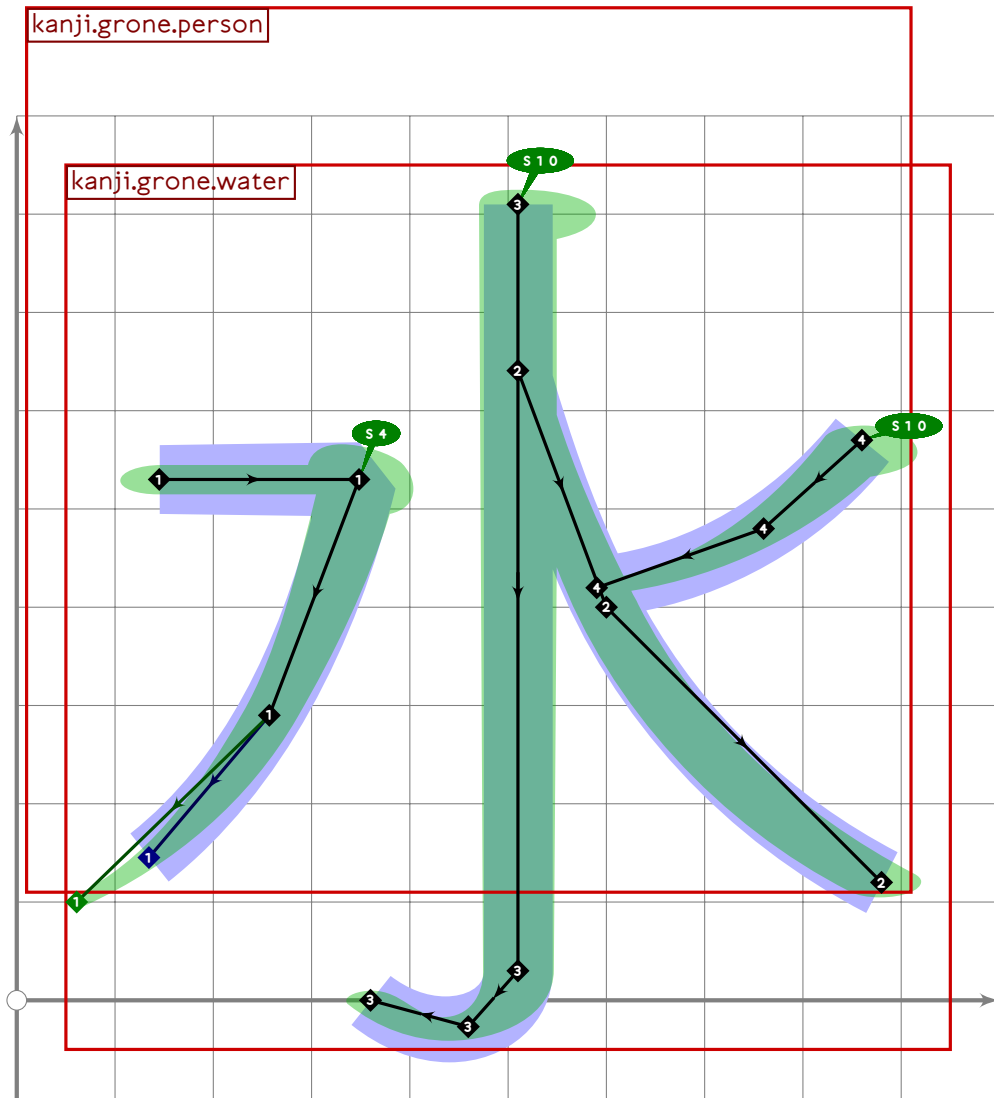
```



```

681
682 vardef kanji.grone.vacation =
683   push_pbox_toexpand("KANJI.GRONE.VACATION");
684   build_kanji.lr(300,20)
685     (KANJI.LEFTRAD.PERSON)
686     (KANJI.GRONE.WOOD);
687   expand_pbox;
688 enddef;

```



```

689
690 vardef kanji.grone.water =
691   tsu_xform(identity shifted (-40,160))(kanji.grone.person);
692   push_pbox_toexpand("kanji.grone.water");
693   replace_strokep(-1)((100,500)-
694     (subpath (xpart (oldp intersectiontimes
695       ((0,500)-(1000,500))),infinity) of oldp))
696     shifted (-250,0) xscaled 0.7 shifted (250,30));
697   replace_strokeq(-1)((1.6,1.6)-(1.6,1.6)-(1.3,1.3)-(0.85,0.85));
698   set_boserif(-1,0,whatever);
699   set_boserif(-1,1,4);
700   set_botip(-1,1,0);
701   push_stroke((510,810),(1.6,1.6));
702   build_kanji.add_jtail(0);
703   set_boserif(0,0,10);
704   replace_strokep(-1)(
705     subpath (xpart (oldp intersectiontimes get_strokep(0)),infinity)
706     of oldp);

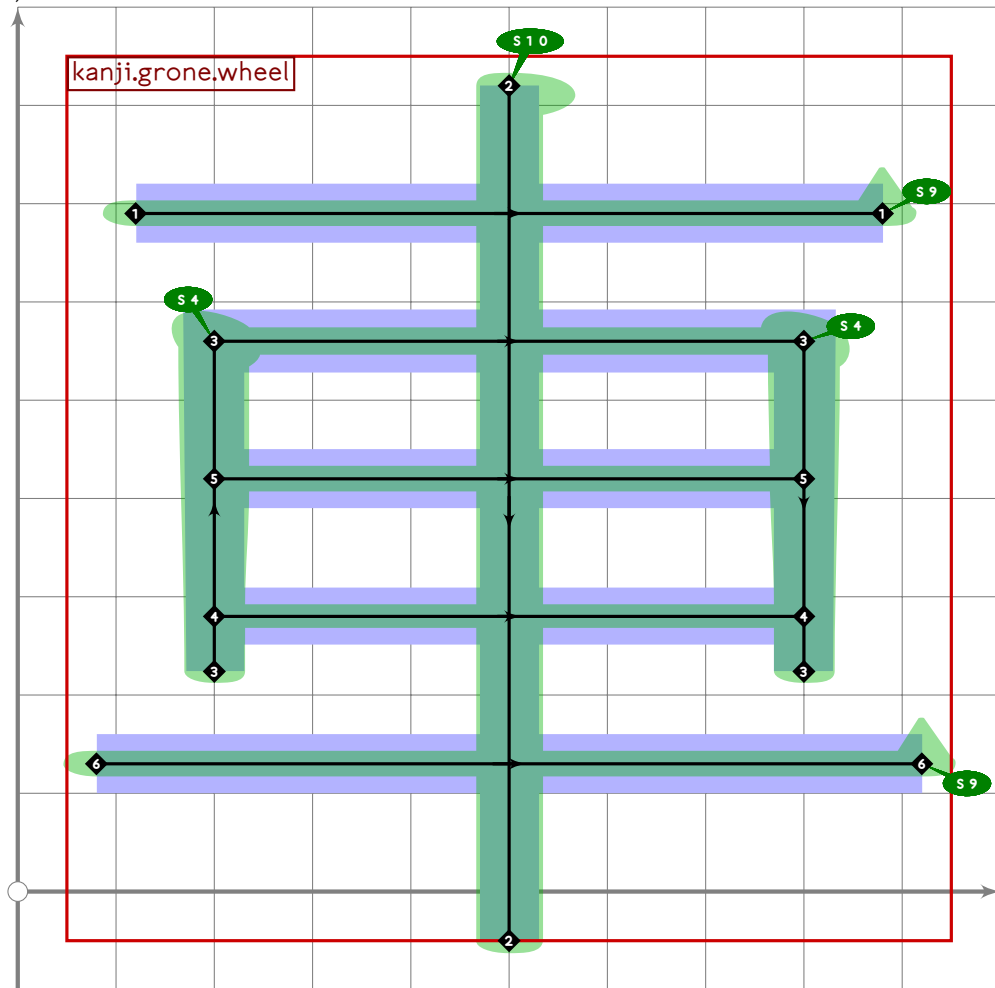
```



```

707 push_stroke((860,570)..(760,480)..(point 0.9 of get_stroke(-1)),
708   (1.6,1.6)-(1.4,1.4)-(1,1));
709 set_boserif(0,0,10);
710 expand_pbox;
711 enddef;

```



```

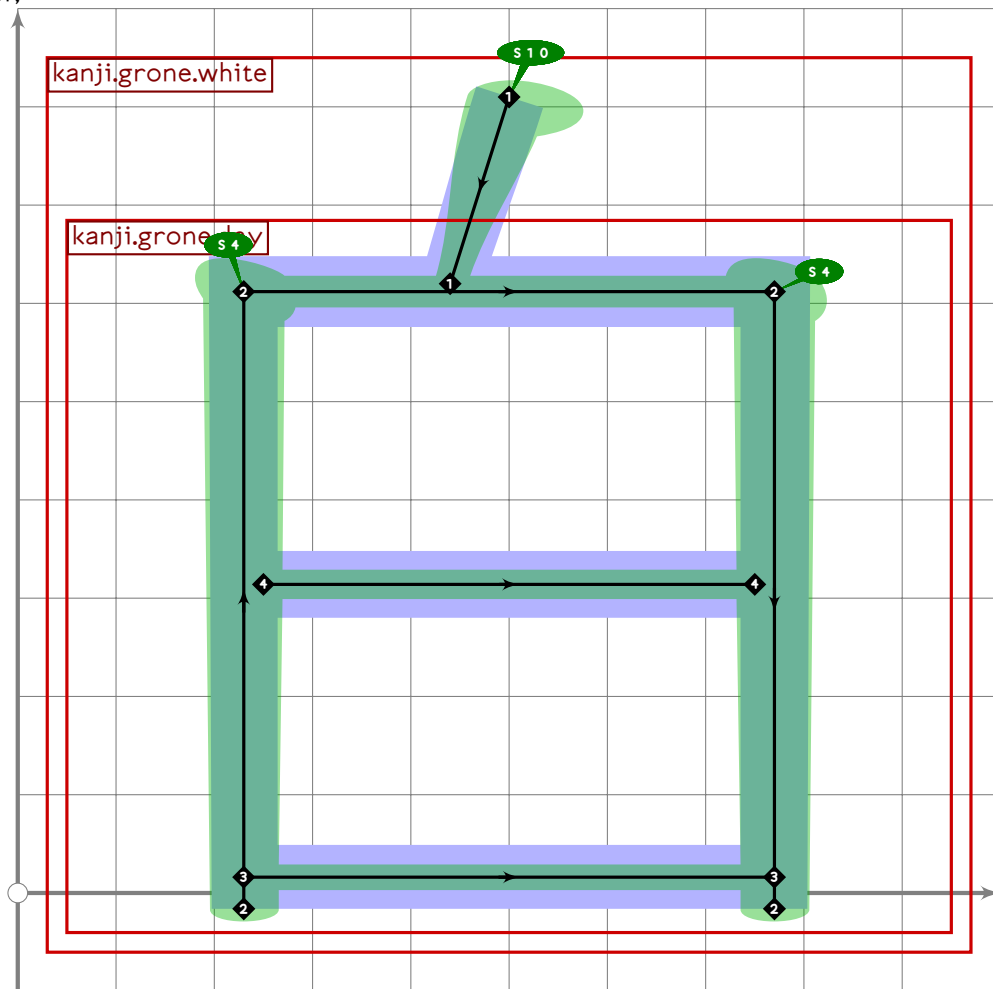
712
713 vardef kanji.grone.wheel =
714   push_pbox_toexpand("kanji.grone.wheel");
715   push_stroke((120,690)-(880,690),
716     (1.6,1.6)-(1.6,1.6));
717   set_boserif(0,1,9);
718   push_stroke((500,820)-(500,-50),
719     (1.6,1.6)-(1.6,1.6));
720   set_boserif(0,0,10);
721   build_kanji.box((200,560),(800,280));
722   push_stroke((200,420)-(800,420),
723     (1.6,1.6)-(1.6,1.6));
724   push_stroke((80,130)-(920,130),
725     (1.6,1.6)-(1.6,1.6));
726   set_boserif(0,1,9);
727   for i=-5 upto 0: set_bosize(i,85); endfor;

```

```

728 expand_pbox;
729 enddef;

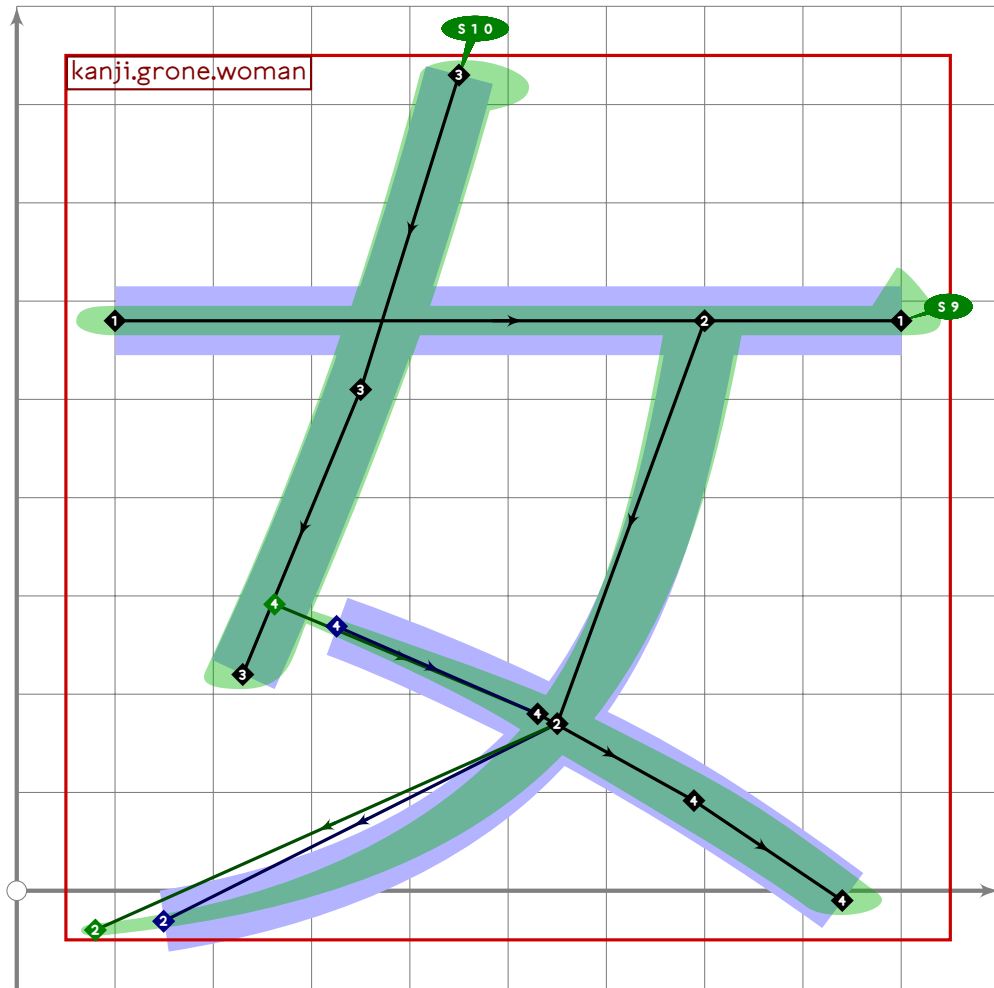
```



```

730
731 vardef kanji.grone.white =
732   push_pbox_toexpand("kanji.grone.white");
733   push_stroke((500,810)-(440,620),
734     (1.7,1.7)-(1,1));
735   set_boserif(0,0,10);
736   tsu_xform(identity yscaled (620/770))(kanji.grone.day);
737   expand_pbox;
738 enddef;

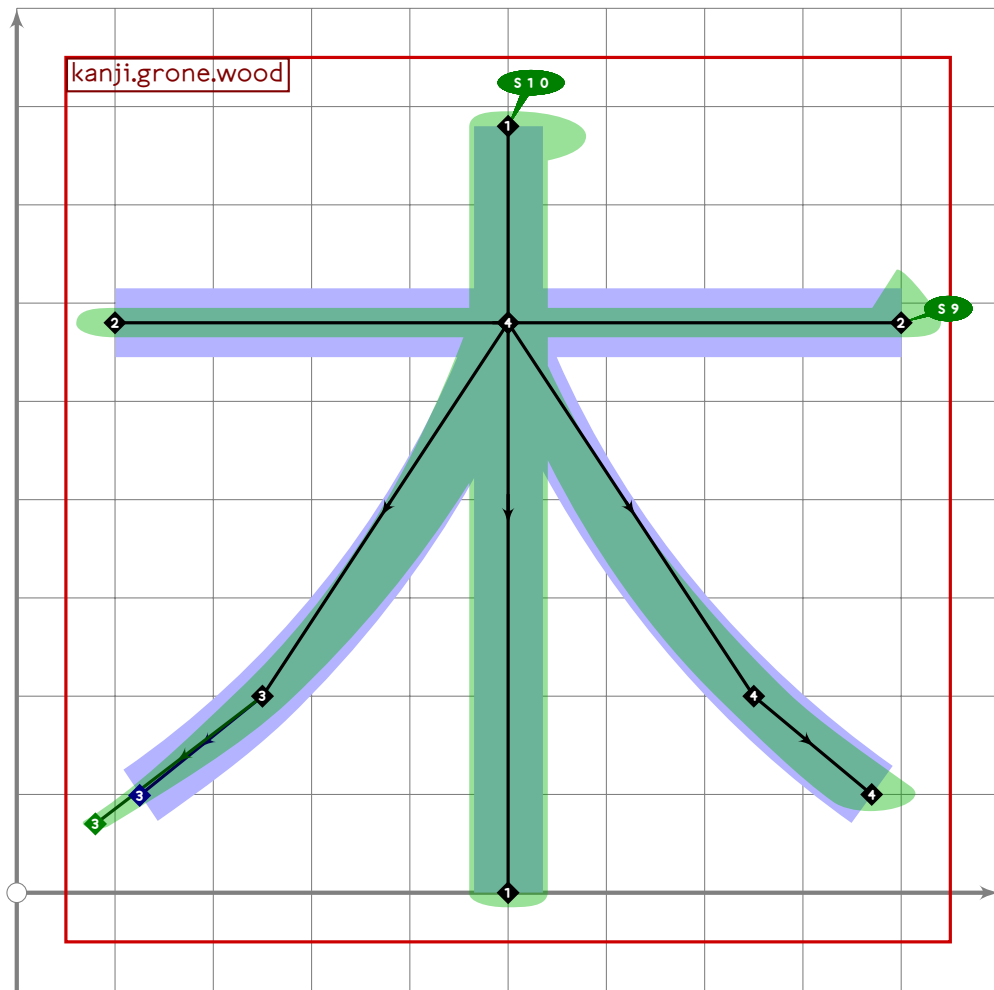
```



```

739
740 vardef kanji.grone.woman =
741   push_pbox_toexpand("kanji.grone.woman");
742   push_stroke((100,580)-(900,580),
743     (1.6,1.6)-(1.6,1.6));
744   set_boserif(0,1,9);
745   push_stroke((700,580){curl 0}..(550,170)..{curl 0.3}(80,-40),
746     (1.6,1.6)-(1.4,1.4)-(0.94,0.94));
747   push_stroke((450,830)..(350,510)..(230,220),
748     (1.6,1.6)-(1.6,1.6)-(1.6,1.6));
749   set_boserif(0,0,10);
750   push_stroke((point 1.75 of get_strokep(0))..(530,180)..(840,-10),
751     (0.85,0.85)-(1.5,1.5)-(1.8,1.8)-(1.6,1.6));
752   replace_strokep(0)(insert_nodes(oldp)(1.5));
753   expand_pbox;
754 enddef;

```



```

755
756 vardef kanji.grone.wood =
757   push_pbox_toexpand("kanji.grone.wood");
758   push_stroke((500,780)-(500,0),
759     (1.6,1.6)-(1.6,1.6));
760   set_boserif(0,0,10);
761   push_stroke((100,580)-(900,580),
762     (1.6,1.6)-(1.6,1.6));
763   set_boserif(0,1,9);
764   push_stroke((500,580)..(250,200)..(80,70),
765     (1.6,1.6)..(1.3,1.3)..(0.9,0.9));
766   push_stroke((500,580)..(750,200)..(870,100),
767     (1.1,1.1)..(1.5,1.5)..(1.7,1.7));
768   expand_pbox;
769 enddef;

```

# gradetwo.mp

1 %  
2 % Grade Two kanji used on more than one page  
3 % Copyright (C) 2011 Matthew Skala  
4 %

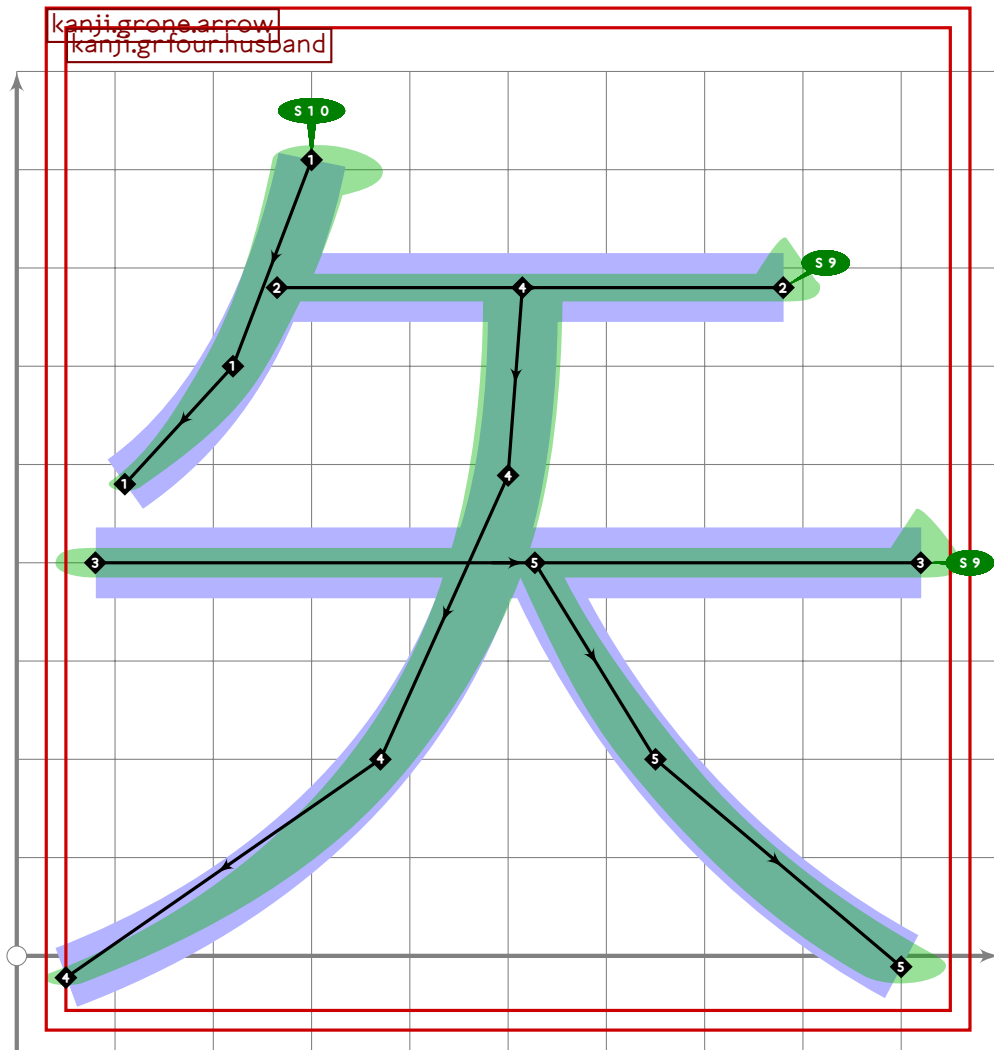
5-29 [Standard copyright notice]

30

31 `inclusion_lock(gradetwo);`

32

33



34

35 `vardef kanji.grtwo.arrow =`

36 `push_pbox_toexpand("kanji.grone.arrow");`

37 `push_stroke((300,810)..tension 1.2..(220,600)..(110,480),`

38 `(1.6,1.6)-(1.4,1.4)-(1,1));`

39 `set_boserif(0,0,10);`

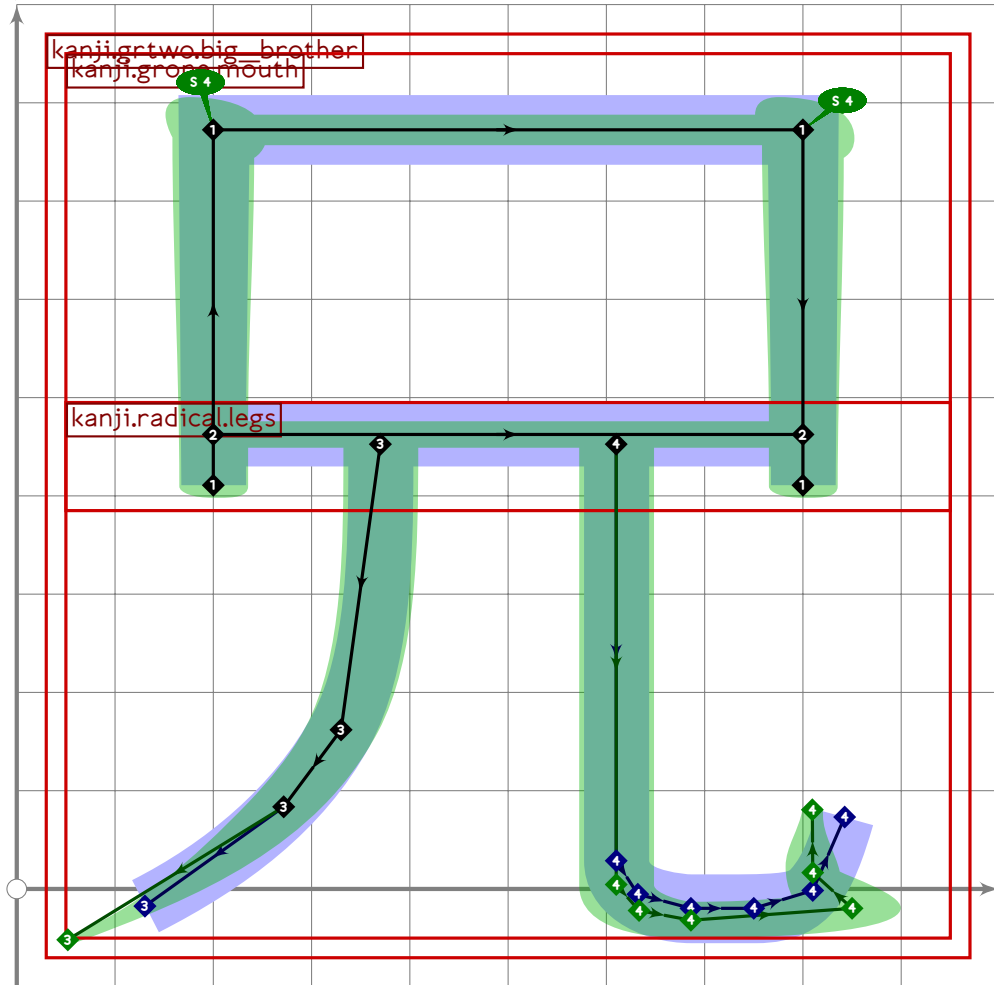
40 `tsu_xform(identity yscaled (400/360))(kanji.grfour.husband);`

41 `replace_strokep(-3)((100,680)-(780,680));`

```

42 replace_strokep(-3)(subpath
43   (0.01*xpart (oldp intersectiontimes get_strokep(-4)),1) of oldp);
44 replace_strokep(-1)(subpath
45   (xpart (oldp intersectiontimes get_strokep(-3)),infinity) of oldp);
46 set_boserif(-1,0,whatever);
47 expand_pbox;
48 enddef;

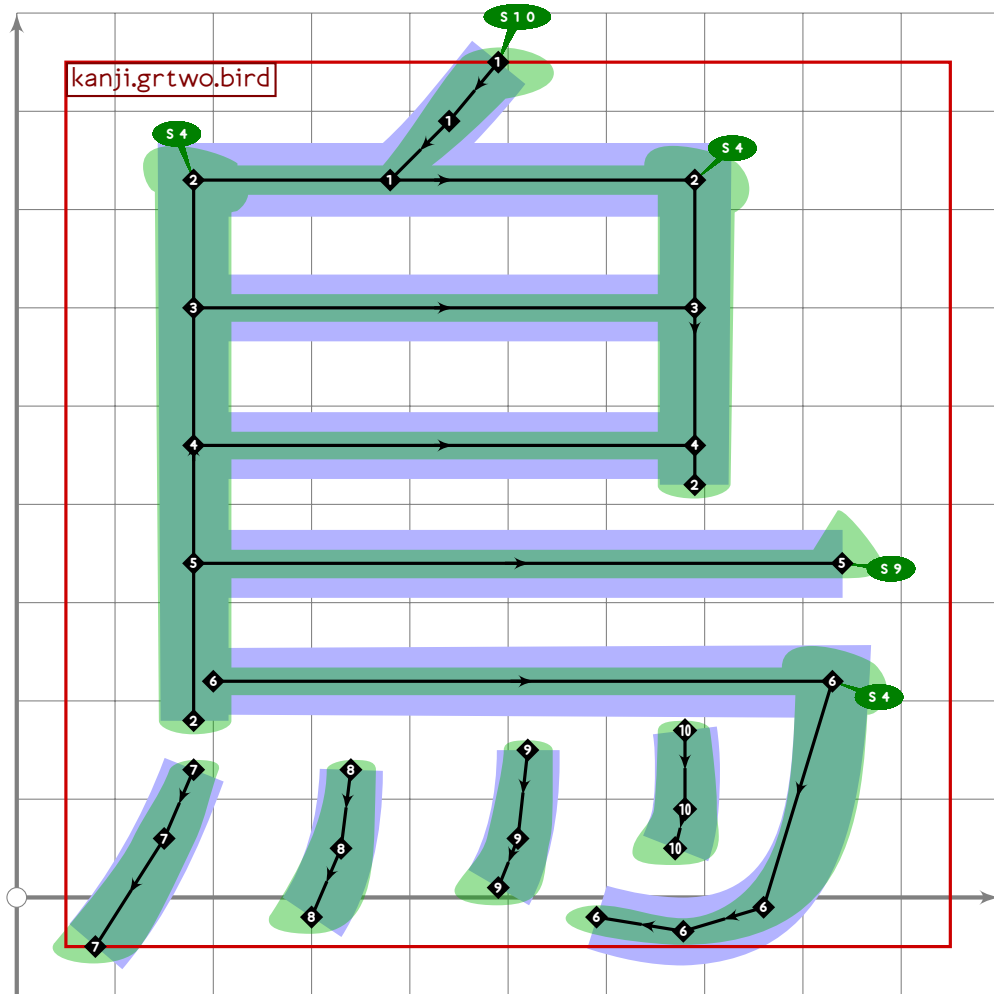
```



```

49
50 vardef kanji.grtwo.big_brother =
51   push_pbox_toexpand("kanji.grtwo.big_brother");
52   build_kanji.level(build_kanji.tb(440,110)
53     (kanji.grone.mouth)
54     (kanji.radical.legs));
55   expand_pbox;
56 enddef;

```



```

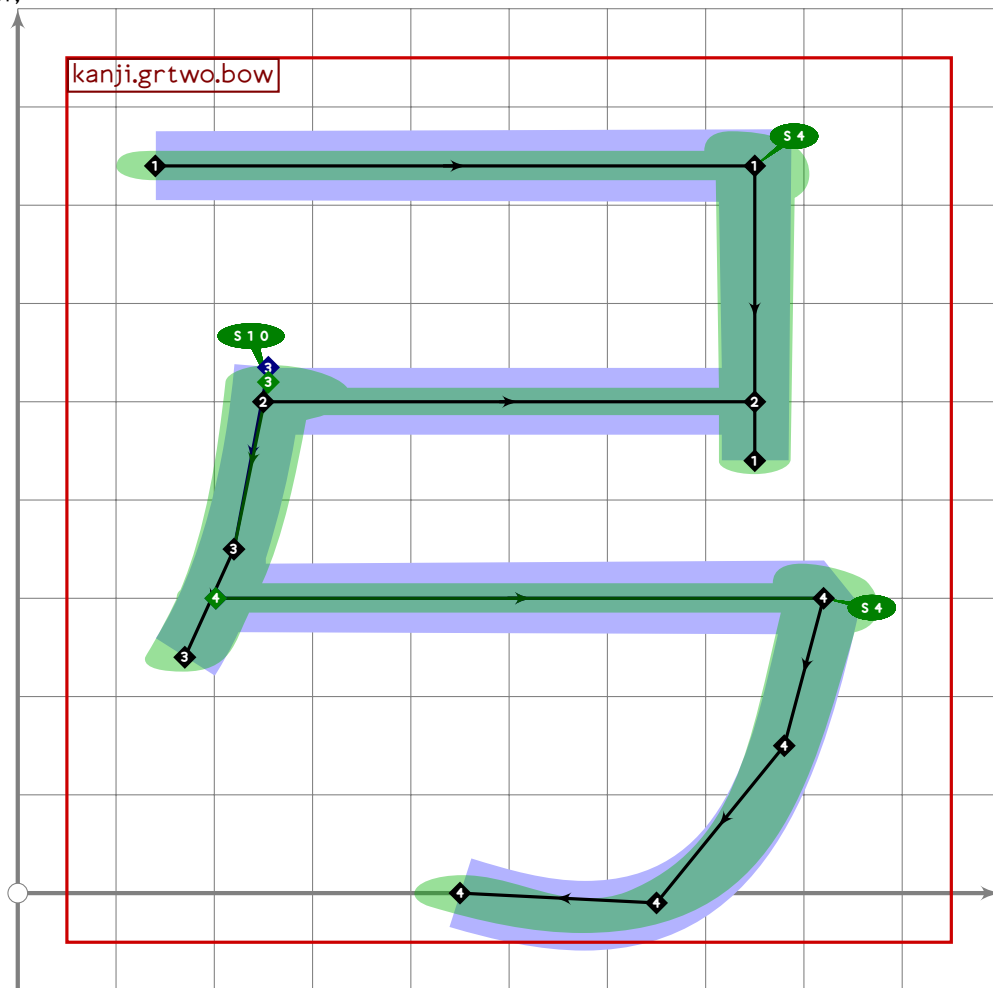
57
58 vardef kanji.grtwo.bird =
59   push_pbox_toexpand("kanji.grtwo.bird");
60   push_stroke((490,850){curl 0.1}..(440,790)..(380,730),
61     (1.6,1.6)-(1.4,1.4)-(1.1,1.1));
62   set_boserif(0,0,10);
63   push_stroke((180,180)-(180,730)-(690,730)-(690,420),
64     (1.5,1.5)-(1.6,1.6)-(1.6,1.6)-(1.5,1.5));
65   set_boserif(0,1,4);
66   set_boserif(0,2,4);
67   set_botip(0,1);
68   set_botip(0,2,1);
69   push_stroke((180,600)-(690,600),
70     (1.5,1.5)-(1.5,1.5));
71   push_stroke((180,460)-(690,460),
72     (1.5,1.5)-(1.5,1.5));
73   push_stroke((180,340)-(840,340),
74     (1.5,1.5)-(1.6,1.6));
75   set_boserif(0,1,9);
76   push_stroke((200,220)-(830,220){dir 268}..(760,-10)..{curl 0.2}(590,-20),
77     (1.5,1.5)-(1.5,1.5)-(1.5,1.5)-(1.5,1.5)-(1.4,1.4)-(1.2,1.2));

```

```

78 replace_stroke(0)(insert_nodes(oldp)((length oldp)-0.5));
79 set_boserif(0,1,4);
80 set_botip(0,1,1);
81 push_stroke((180,130)..tension 1.2..(150,60)..(80,-50),
82   (1.2,1.2)-(1.4,1.4)-(1.7,1.7));
83 push_stroke((340,130)..tension 1.2..(330,50)..(300,-20),
84   (1.2,1.2)-(1.4,1.4)-(1.7,1.7));
85 push_stroke((520,150)..tension 1.2..(510,60)..(490,10),
86   (1.2,1.2)-(1.4,1.4)-(1.7,1.7));
87 push_stroke((680,170)..tension 1.2..(680,90)..(670,50),
88   (1.2,1.2)-(1.4,1.4)-(1.7,1.7));
89 expand_pbox;
90 enddef;

```



```

91
92 vardef kanji.grtwo.bow =
93   push_pbox_toexpand("kanji.grtwo.bow");
94   push_stroke((140,740)-(750,740)-(750,440),
95     (1.6,1.6)-(1.6,1.6)-(1.5,1.5));
96   set_botip(0,1,1);
97   set_boserif(0,1,4);
98   push_stroke((250,500)-(750,500),

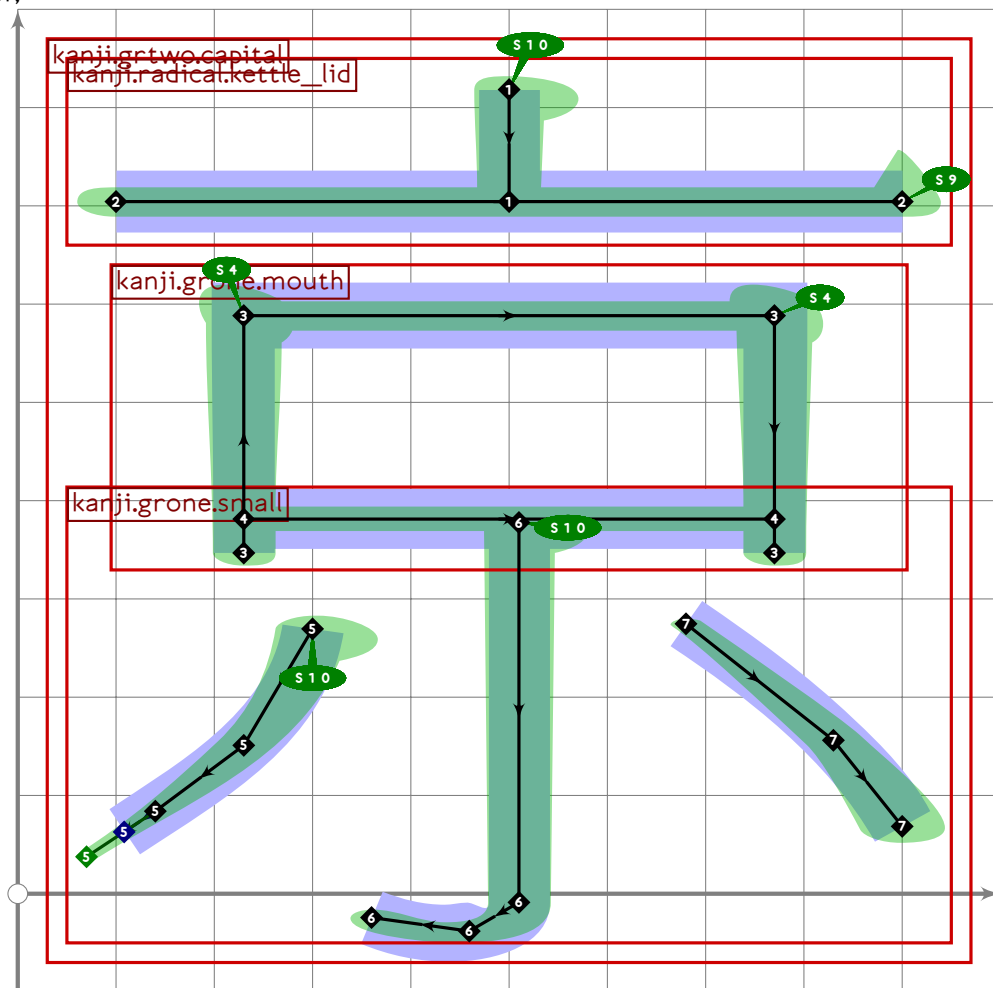
```



```

99 (1.5,1.5)-(1.5,1.5);
100 push_stroke((255,535-15*mincho)..tension 1.2..(220,350)..(170,240),
101 (1.7,1.7)-(1.6,1.6)-(1.6,1.6));
102 set_boserif(0,0,10);
103 push_stroke((get_stroke(0) intersectionpoint ((0,300)-(1000,300)))-
104 (820,300)..tension 1.7..(780,150)..(650,-10)..{curl 0.1}(450,0),
105 (1.6,1.6)-(1.6,1.6)-(1.5,1.5)-(1.7,1.7)-(1.8,1.8));
106 set_botip(0,1,1);
107 set_boserif(0,1,4);
108 expand_pbox;
109 enddef;

```



```

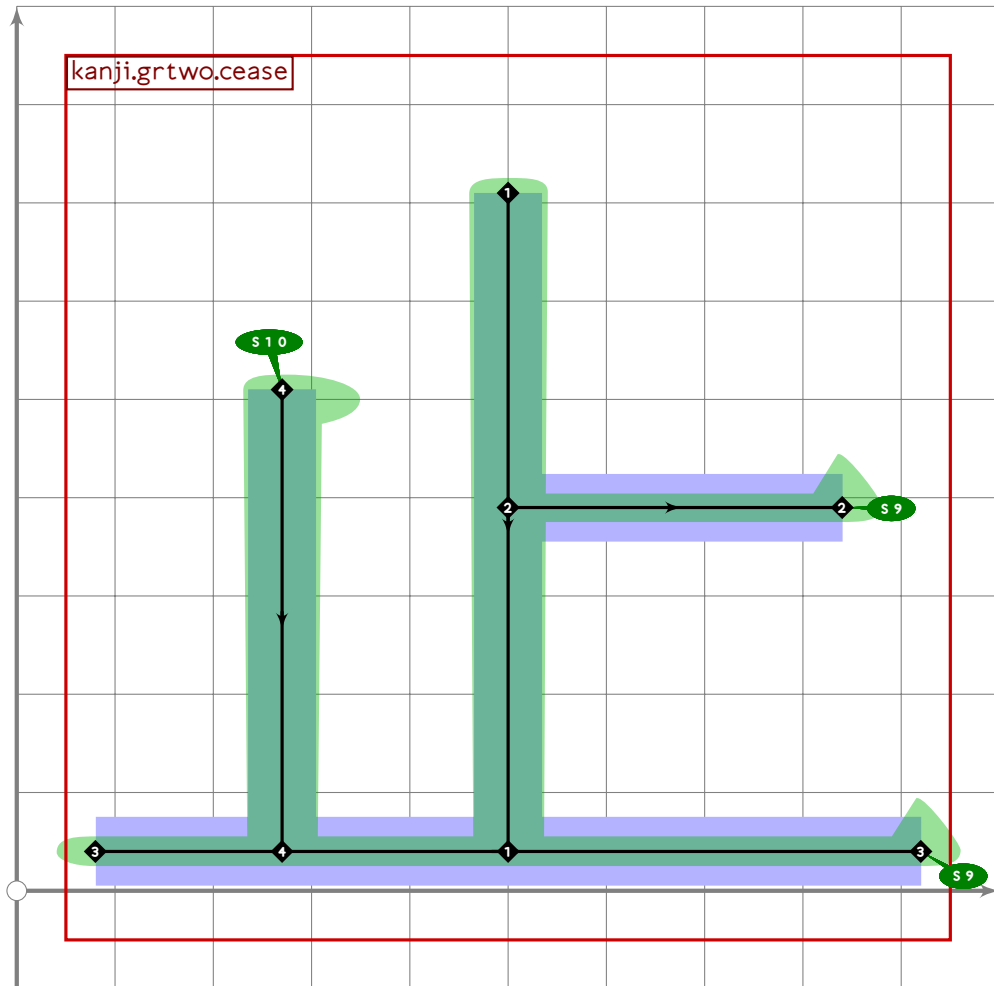
110
111 vardef kanji.grtwo.capital =
112   push_pbox_toexpand("kanji.grtwo.capital");
113   build_kanji.level(build_kanji.tb(650,-20)
114     (kanji.radical.kettle_lid)
115     (build_kanji.tb(500,110)
116       (build_kanji.sscale(xscaled 0.9)(kanji.grone.mouth))
117       (kanji.grone.small)));
118   set_boserif(0,0,whatever);
119   expand_pbox;

```

```

120 enddef;
121

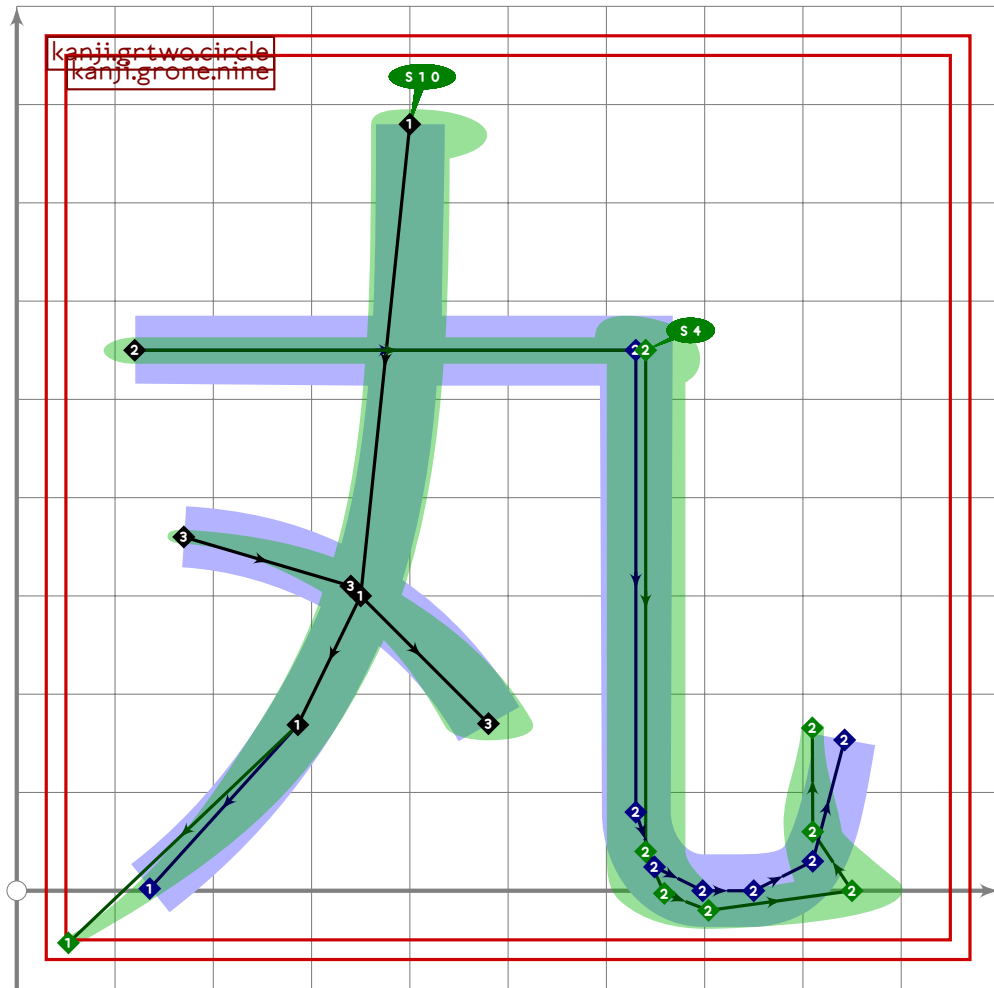
```



```

122 % can't use "stop," it is reserved by Metafont
123 vardef kanji.grtwo.cease =
124   push_pbox_toexpand("kanji.grtwo.cease");
125   push_stroke((500,710)-(500,40),(1.6,1.6)-(1.5,1.5));
126   push_stroke((500,390)-(840,390),(1.5,1.5)-(1.6,1.6));
127   set_boserif(0,1,9);
128   push_stroke((80,40)-(920,40),(1.6,1.6)-(1.6,1.6));
129   set_boserif(0,1,9);
130   push_stroke((270,510)-(270,40),(1.6,1.6)-(1.5,1.5));
131   set_boserif(0,0,10);
132   expand_pbox;
133 enddef;

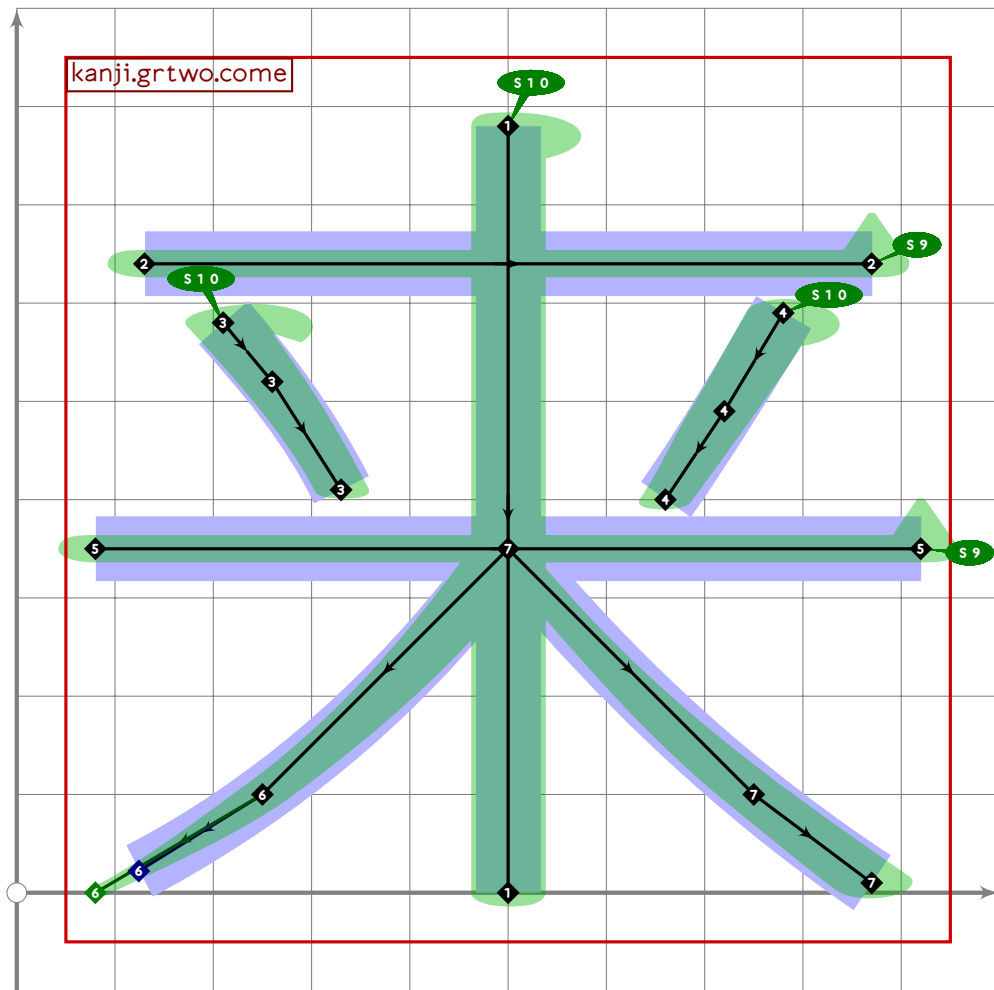
```



```

134
135 vardef kanji.grtwo.circle =
136   push_pbox_toexpand("kanji.grtwo.circle");
137   kanji.grone.nine;
138   push_stroke((170,360)..(340,310)..(480,170),
139     (1,1)-(14,14)-(17,17));
140   expand_pbox;
141 enddef;

```

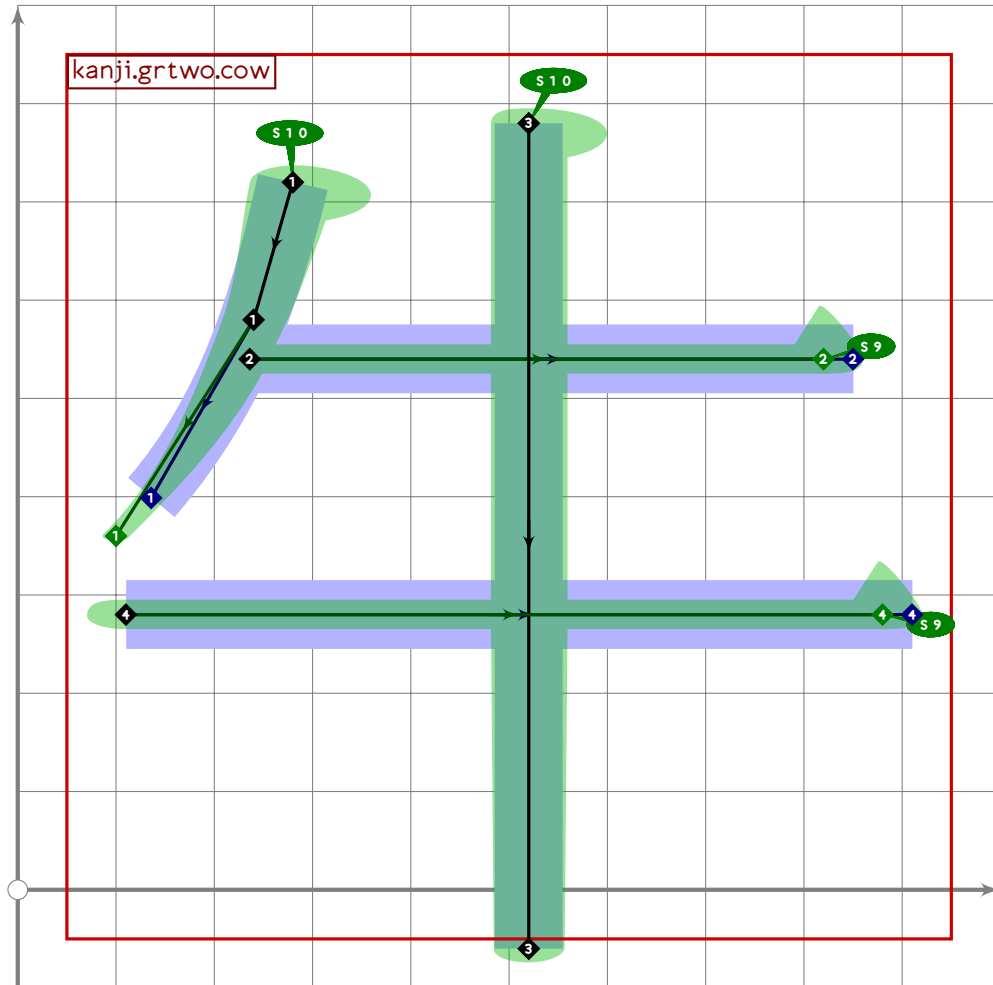


```

142
143 vardef kanji.grtwo.come =
144   push_pbox_toexpand("kanji.grtwo.come");
145   push_stroke((500,780)-(500,0),(1.6,1.6)-(1.6,1.6));
146   set_boserif(0,0,10);
147   push_stroke((130,640)-(870,640),(1.6,1.6)-(1.6,1.6));
148   set_boserif(0,1,9);
149   push_stroke((210,580)..tension 1.2..(260,520)..(330,410),
150     (1.6,1.6)-(1.5,1.5)-(1.3,1.3));
151   set_boserif(0,0,10);
152   push_stroke((780,590)..tension 1.2..(720,490)..(660,400),
153     (1.6,1.6)-(1.5,1.5)-(1.3,1.3));
154   set_boserif(0,0,10);
155   push_stroke((80,350)-(920,350),(1.6,1.6)-(1.6,1.6));
156   set_boserif(0,1,9);
157   push_stroke((500,350)..(250,100)..(80,0),
158     (1.6,1.6)..(1.3,1.3)..(0.9,0.9));
159   push_stroke((500,350)..(750,100)..(870,10),
160     (1.1,1.1)..(1.5,1.5)..(1.7,1.7));
161   for i=-6 upto 0: set_bosize(i,94); endfor;
162   expand_pbox;

```

163 endif;



164

165 vardef kanji.grtwo.cow =

166 push\_pbox\_toexpand("kanji.grtwo.cow");

167 push\_stroke((280,720)..tension 1.2..(240,580)..(100,360),  
168 (1.7,1.7)-(1.4,1.4)-(0.9,0.9));

169 set\_boserif(0,0,10);

170 push\_stroke((((0,540)-(1000,540)) intersectionpoint

171 get\_strokep(0)+(12,0))-(850-30\*mincho,540),  
172 (1.6,1.6)-(1.6,1.6));

173 set\_boserif(0,1,9);

174 push\_stroke((520,780)-(520,-60),(1.6,1.6)-(1.5,1.5));

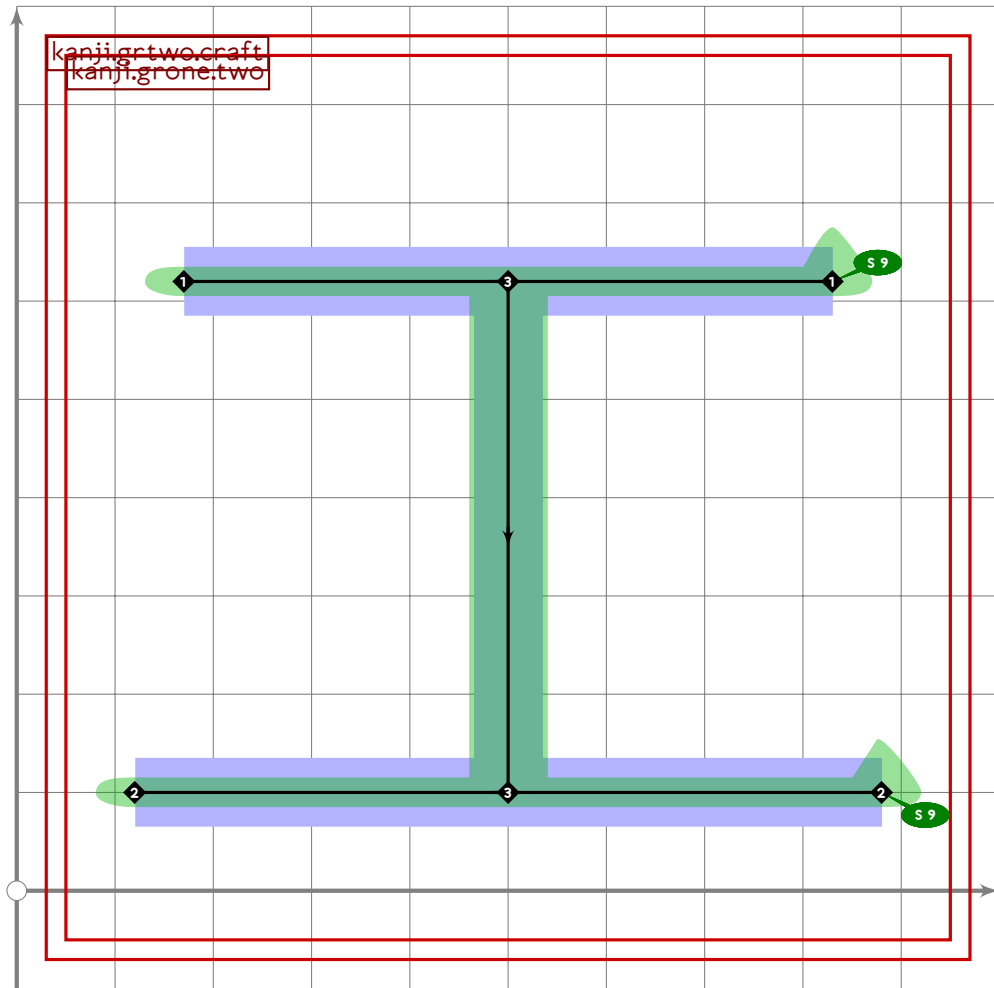
175 set\_boserif(0,0,10);

176 push\_stroke((110,280)-(910-30\*mincho,280),(1.6,1.6)-(1.6,1.6));

177 set\_boserif(0,1,9);

178 expand\_pbox;

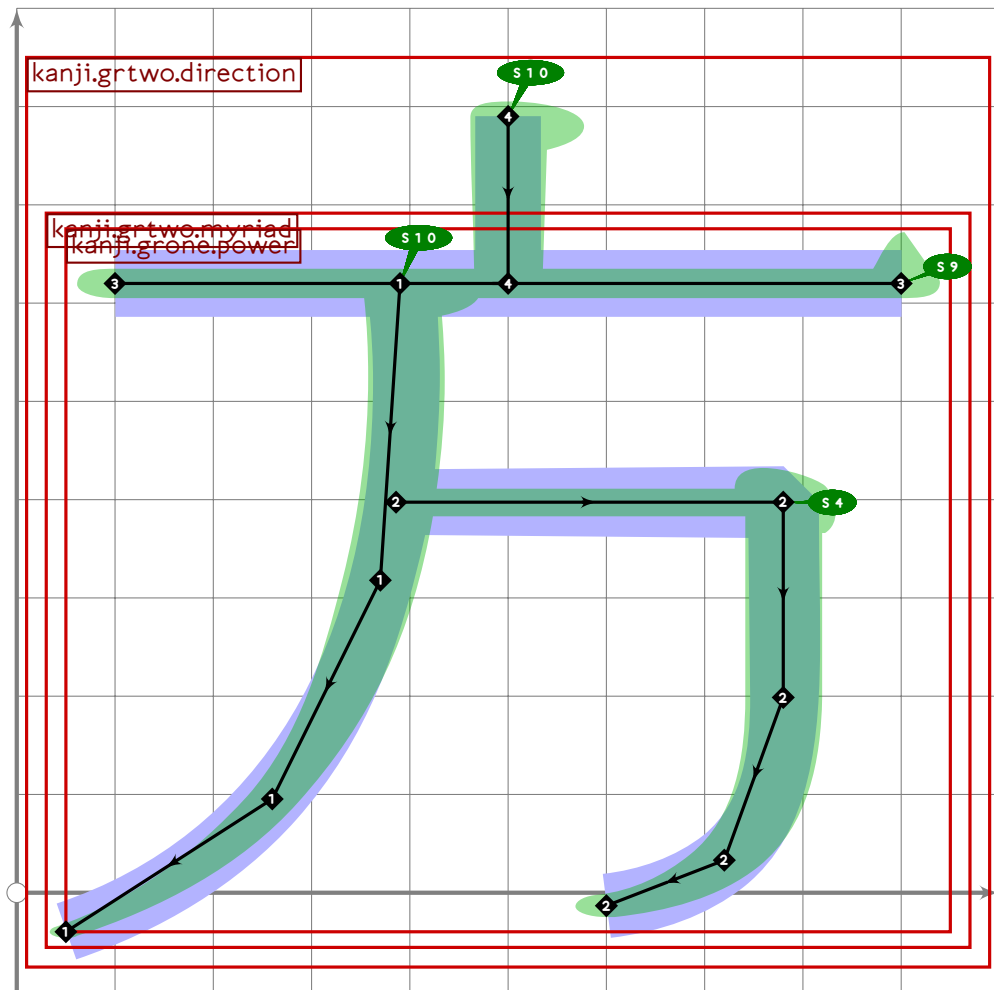
179 endif;



```

180
181 vardef kanji.grtwo.craft =
182   push_pbox_toexpand("kanji.grtwo.craft");
183   kanji.grone.two;
184   push_stroke((point 0.5 of get_stroke(-1))-(point 0.5 of get_stroke(0)),
185     (1.6,1.6)-(1.6,1.6));
186   expand_pbox;
187 enddef;

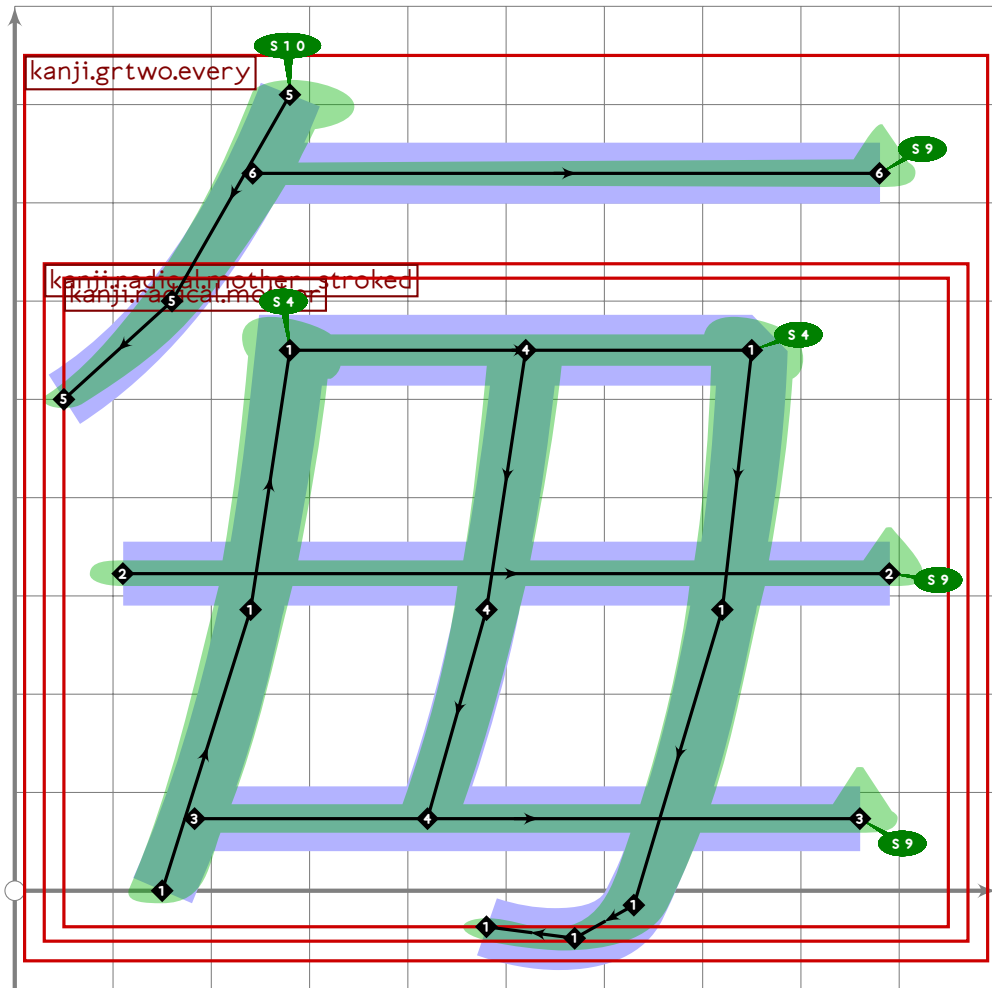
```



```

188
189 vardef kanji.grtwo.direction =
190   push_pbox_toexpand("KANJI.GRTWO.DIRECTION");
191   build_kanji.level(
192     tsu_xform(identity yscaled (620/780))
193     (KANJI.GRTWO.MYRIAD);
194     push_stroke((500,790)..(500,620),(1.6,1.6)-(1.5,1.5));
195     set_boserif(0,0,10);
196   );
197   expand_pbox;
198 enddef;

```

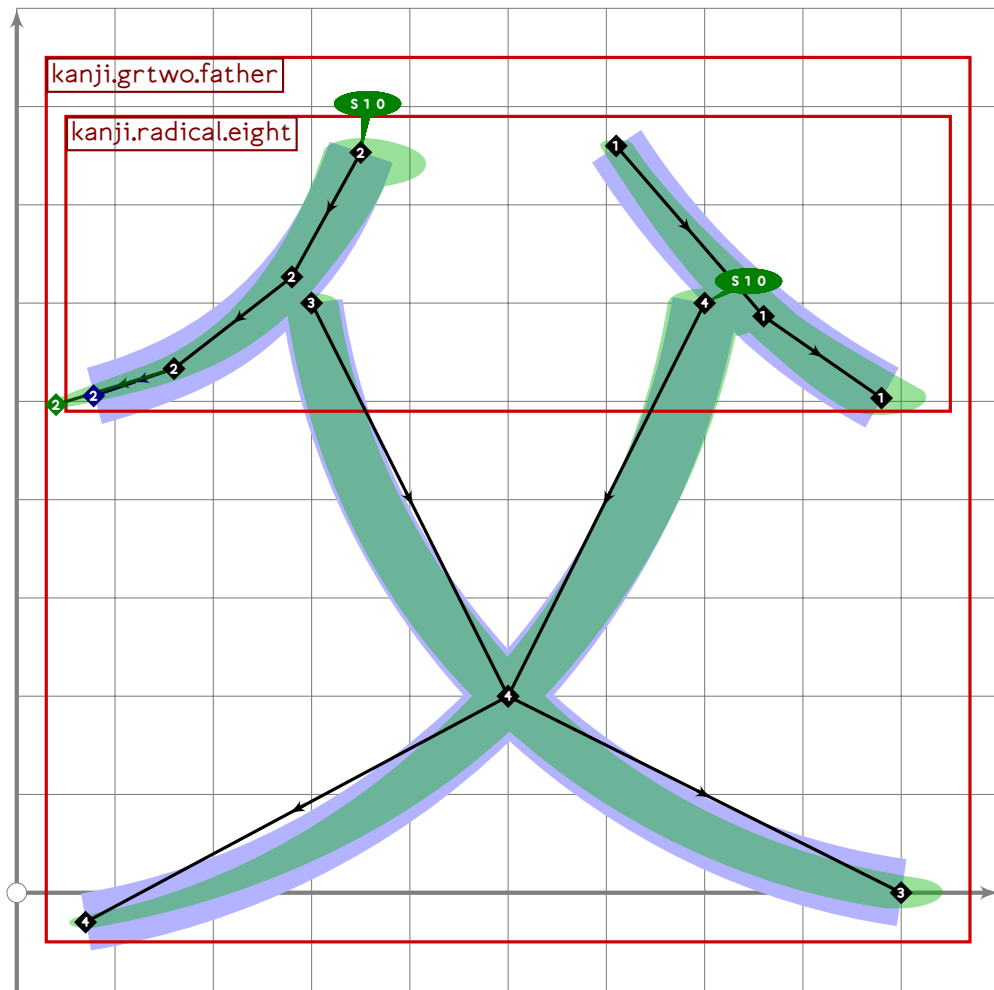


```

199
200 vardef kanji.grtwo.every =
201   push_pbox_toexpand("kanji.grtwo.every");
202   tsu_xform(identity yscaled (550/750))
203     (kanji.radical.mother_stroked);
204   push_stroke((280,810)..tension 1.2..(160,600)..(50,500),
205     (1.7,1.7)-(1.5,1.5)-(1.2,1.2));
206   set_boserif(0,0,10);
207   set_bosize(0,90);
208   push_stroke((get_strokep(0) intersectionpoint ((0,730)-(1000,730)))-
209     (880,730),
210     (1.5,1.5)-(1.6,1.6));
211   set_boserif(0,1,9);
212   set_bosize(0,90);
213   expand_pbox;
214 enddef;

```

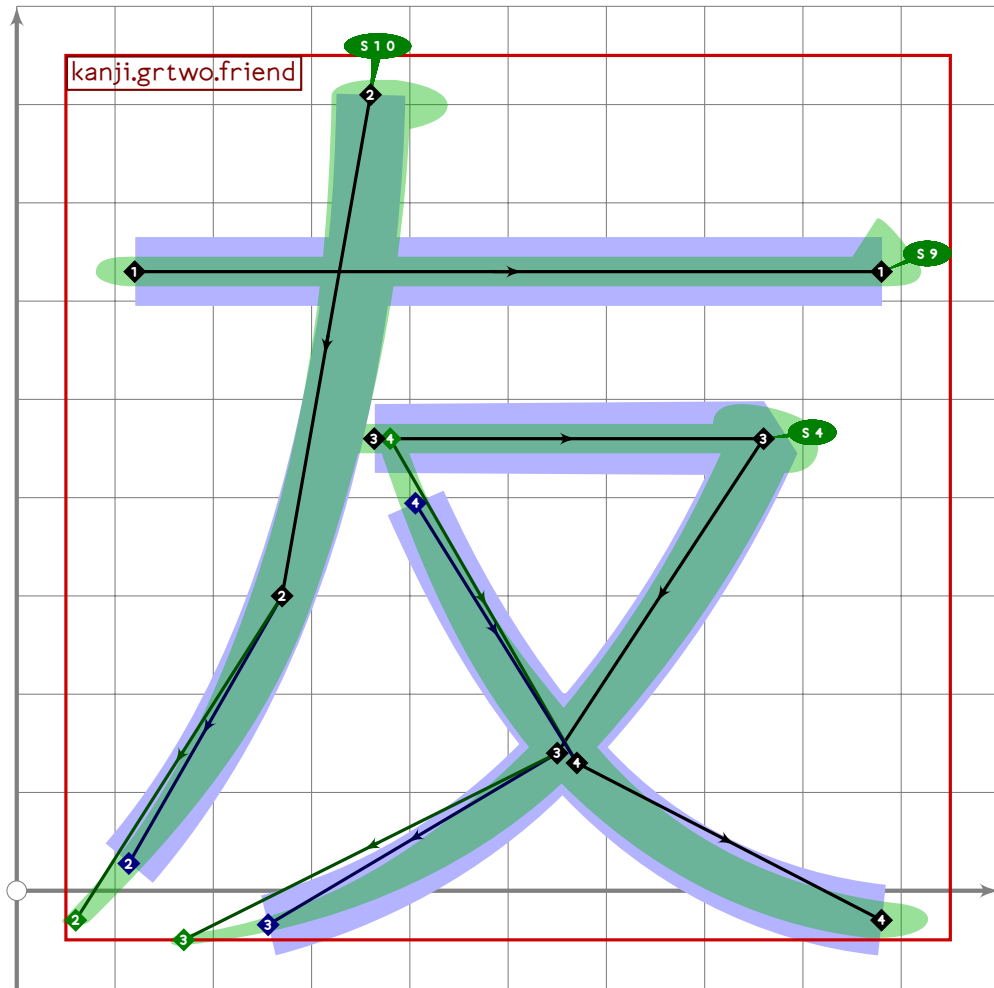




```

215
216 vardef kanji.grtwo.father =
217   push_pbox_toexpand("kanji.grtwo.father");
218   build_kanji.level(build_kanji.tb(700,300)
219     (tsu_xform(identity shifted (0,-180))(kanji.radical.eight))
220     (push_stroke((300,600)..(500,200)..(900,0),
221       (1.3,1.3)-(1.5,1.5)-(1.7,1.7));
222     push_stroke((700,600)..(500,200)..(70,-30),
223       (1.6,1.6)-(1.5,1.5)-(1,1));
224     set_boserif(0,0,10);
225   ));
226   expand_pbox;
227 enddef;

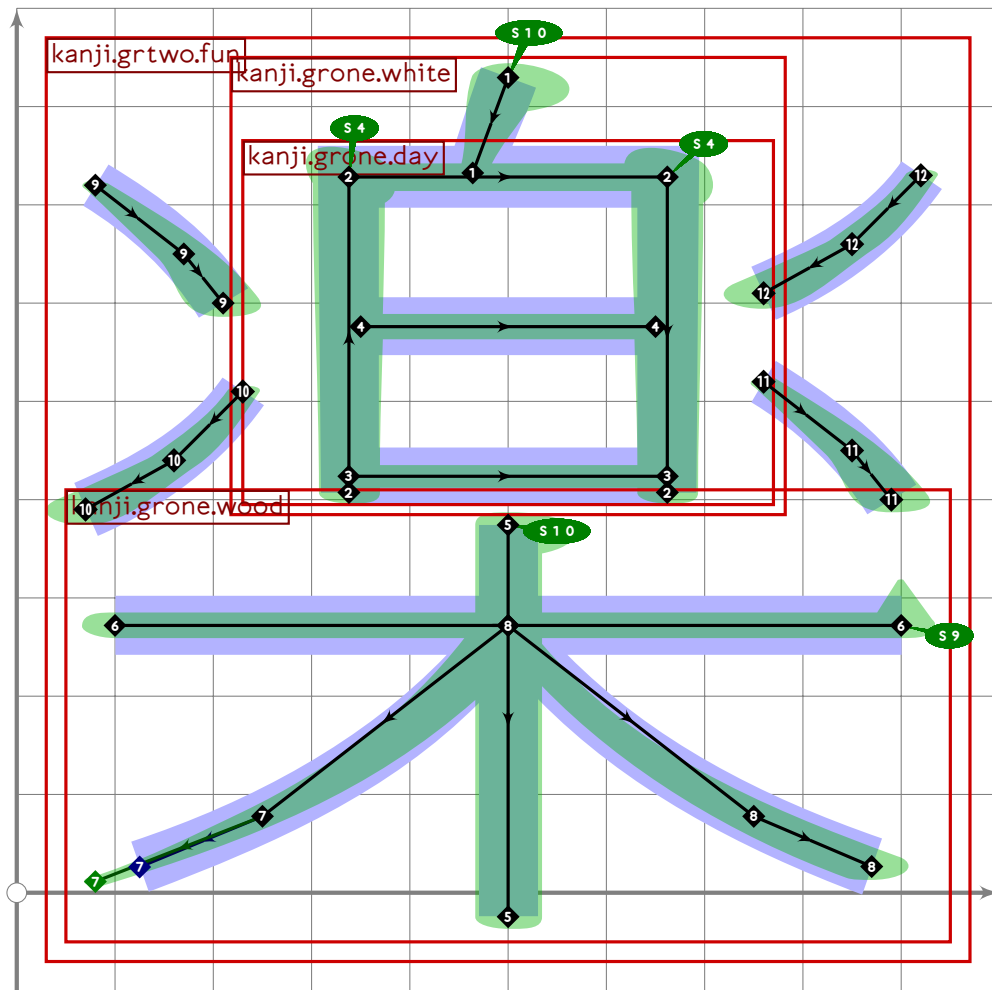
```



```

228
229 vardef kanji.grtwo.friend =
230   push_pbox_toexpand("kanji.grtwo.friend");
231   push_stroke((120,630)-(880,630),(1.6,1.6)-(1.6,1.6));
232   set_boserif(0,1,9);
233   push_stroke((360,810)..tension 1.2..(270,300)..(60,-30),
234     (1.6,1.6)-(14,14)-(0.9,0.9));
235   set_boserif(0,0,10);
236   push_stroke(
237     ((50,0)+(get_stroke(0) intersectionpoint ((0,460)-(1000,460))))-
238     (760,460)..tension 1.2..(550,140)..(170,-50),
239     (1.6,1.6)-(1.5,1.5)-(14,14)-(0.9,0.9));
240   set_botip(0,1,0);
241   set_boserif(0,1,4);
242   push_stroke((380,460)..tension 1.2..(570,130)..(880,-30),
243     (0.9,0.9)-(14,14)-(1.8,1.8));
244   expand_pbox;
245 enddef;

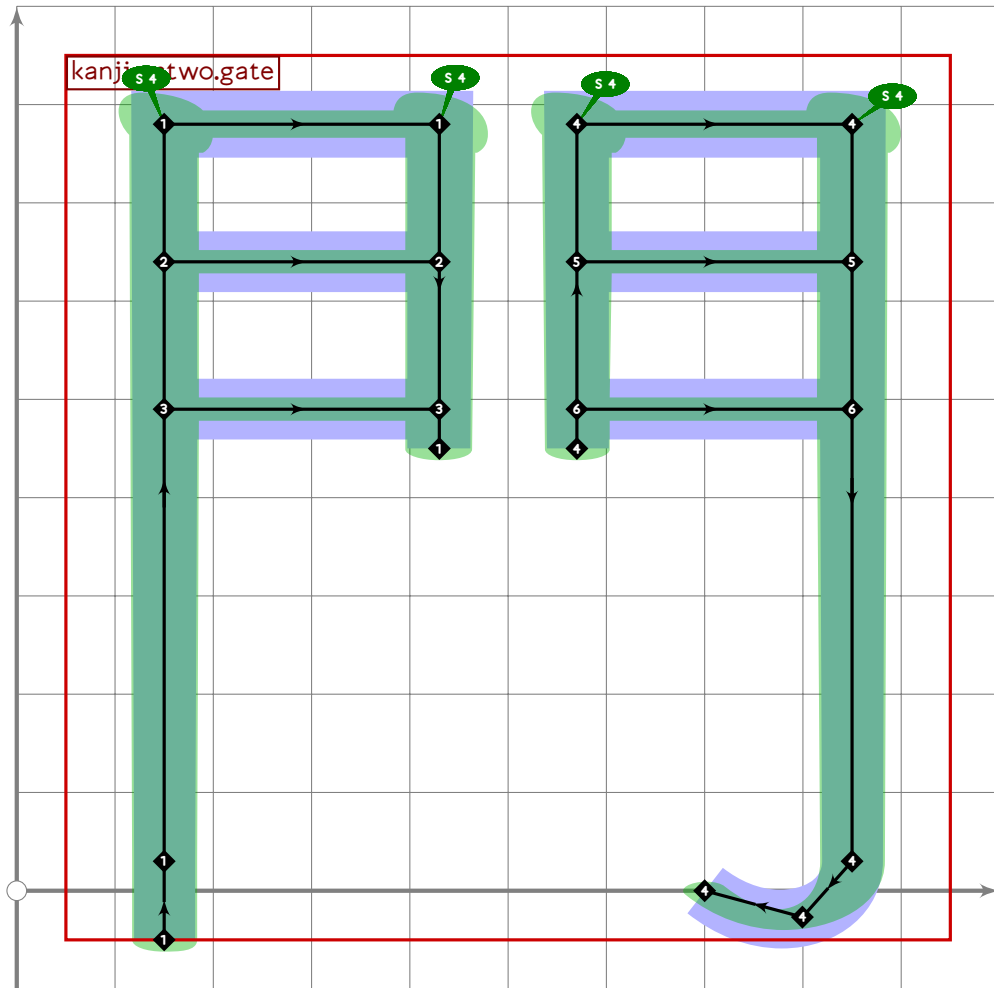
```



```

246
247 vardef kanji.grtwo.fun =
248   push_pbox_toexpand("kanji.grtwo.fun");
249   build_kanji.level(
250     build_kanji.tb(400,20)
251     (build_kanji.sscale(xscaled 0.6)(kanji.grone.white))
252     (kanji.grone.wood));
253   push_stroke((80,720)..tension 1.2..(170,650)..(210,600),
254     (1,1)-(1.5,1.5)-(1.8,1.8));
255   set_bosize(0,80);
256   push_stroke((230,510)..(160,440)..tension 1.2..(70,390),
257     (1,1,1)-(1,4,1,4)-(1,9,1,9));
258   set_bosize(0,80);
259   push_stroke(get_strokep(-1) shifted ((760,520)-point 0 of get_strokep(-1)),
260     get_strokeq(-1));
261   set_bosize(0,80);
262   push_stroke(get_strokep(-1) shifted ((760,610)-point 2 of get_strokep(-1)),
263     get_strokeq(-1));
264   set_bosize(0,80);
265   expand_pbox;
266 enddef;

```



```

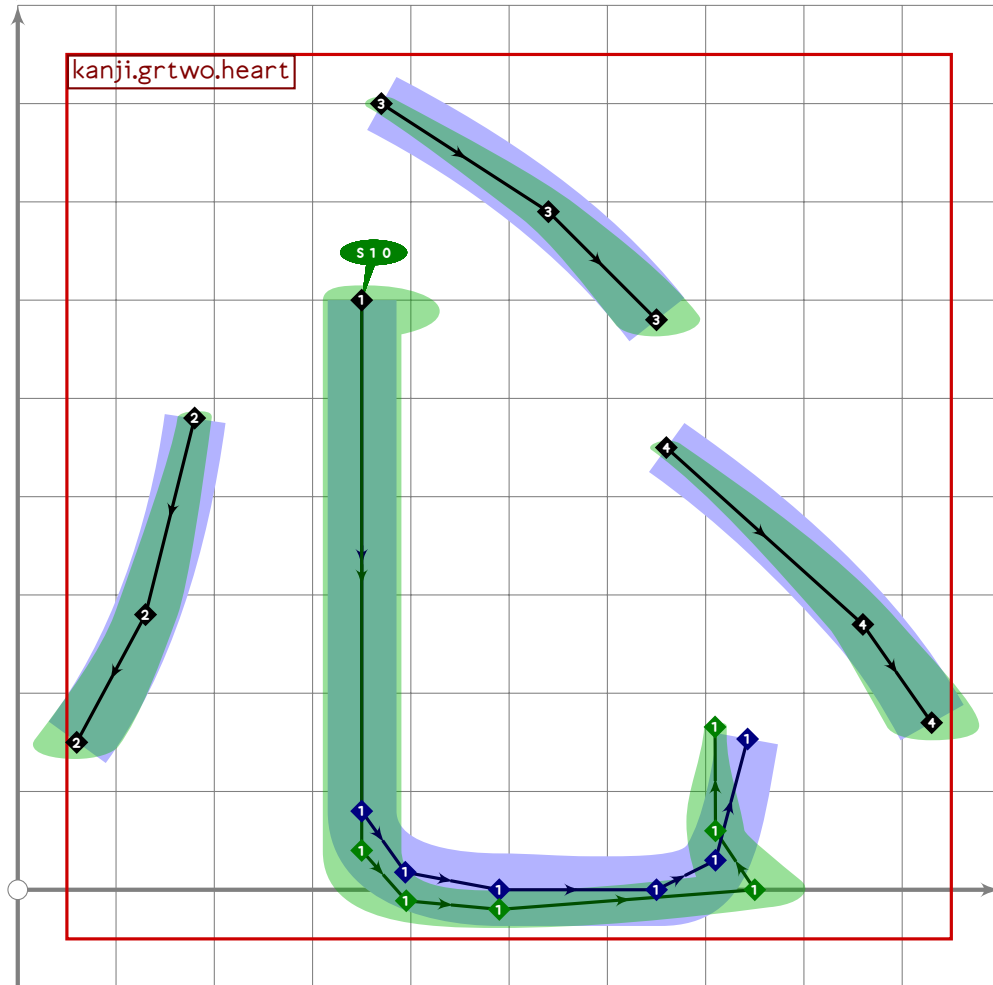
267
268 vardef kanji.grtwo.gate =
269   push_pbox_toexpand("kanji.grtwo.gate");
270   push_stroke((150,-50)-(150,30)-(150,780)-(430,780)-(430,450),
271     (1.5,1.5)-(1.5,1.5)-(1.6,1.6)-(1.6,1.6)-(1.5,1.5));
272   set_botip(0,2,1);
273   set_botip(0,3,1);
274   set_boserif(0,2,4);
275   set_boserif(0,3,4);
276   push_stroke((150,640)-(430,640),
277     (1.5,1.5)-(1.5,1.5));
278   push_stroke((150,490)-(430,490),
279     (1.5,1.5)-(1.5,1.5));
280   push_stroke((570,450)-(570,780)-(850,780),
281     (1.5,1.5)-(1.6,1.6)-(1.6,1.6));
282   build_kanji.add_jtail(0);
283   set_botip(0,1,1);
284   set_botip(0,2,1);
285   set_boserif(0,1,4);
286   set_boserif(0,2,4);
287   push_stroke((570,640)-(850,640),

```

```

288 (1.5,1.5)-(1.5,1.5));
289 push_stroke((570,490)-(850,490),
290 (1.5,1.5)-(1.5,1.5));
291 for i=-5 upto 0: set_bosize(i,90); endfor;
292 expand_pbox;
293 enddef;

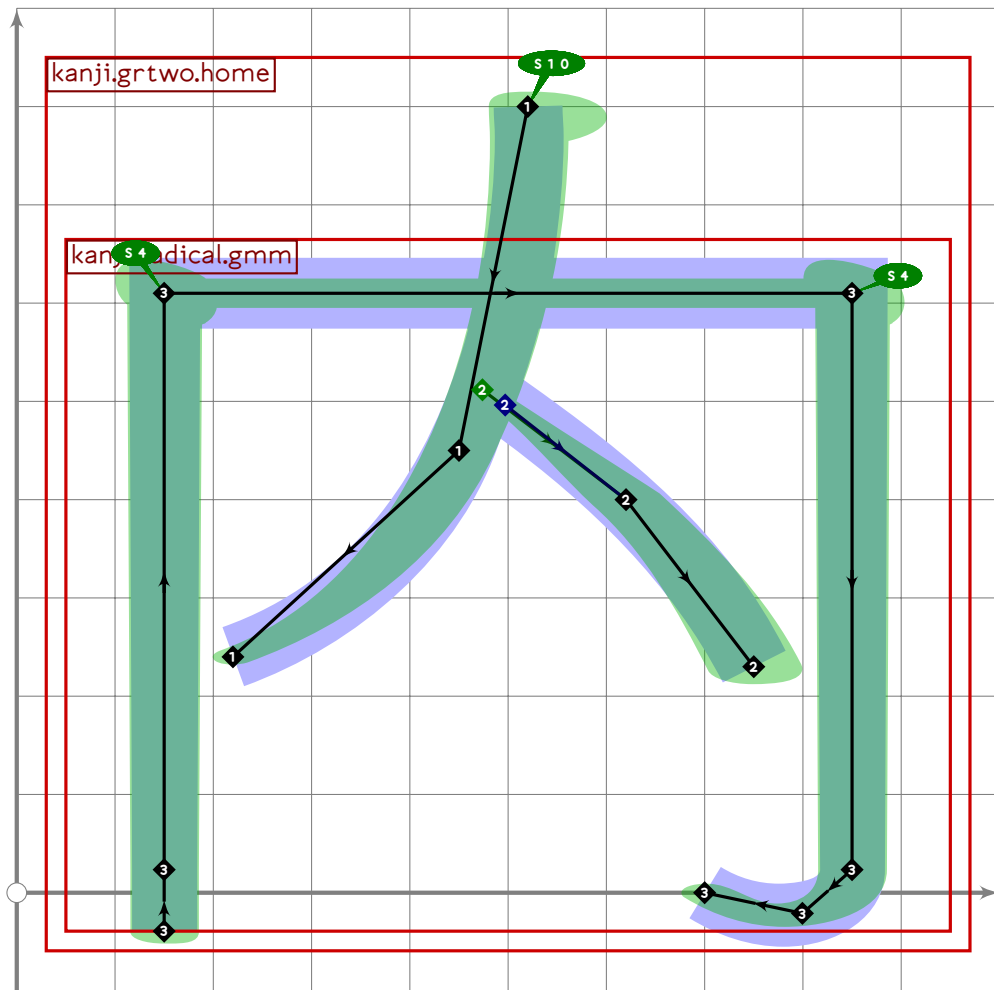
```



```

294
295 vardef kanji.grtwo.heart =
296   push_pbox_toexpand("kanji.grtwo.heart");
297   tsu_xform(identity shifted (-100,0))
298     (push_stroke((450,600),(1.6,1.6));
299     build_kanji.add_tail(0));
300   set_bosize(0,0,10);
301   push_stroke((180,480)..tension 1.2..(130,280)..(60,150),
302     (1,1)-(1.4,1.4)-(1.7,1.7));
303   push_stroke((370,800)..tension 1.2..(540,690)..(650,580),
304     (1,1)-(1.4,1.4)-(1.7,1.7));
305   push_stroke((660,450)..tension 1.2..(860,270)..(930,170),
306     (1,1)-(1.5,1.5)-(1.8,1.8));
307   expand_pbox;
308 enddef;

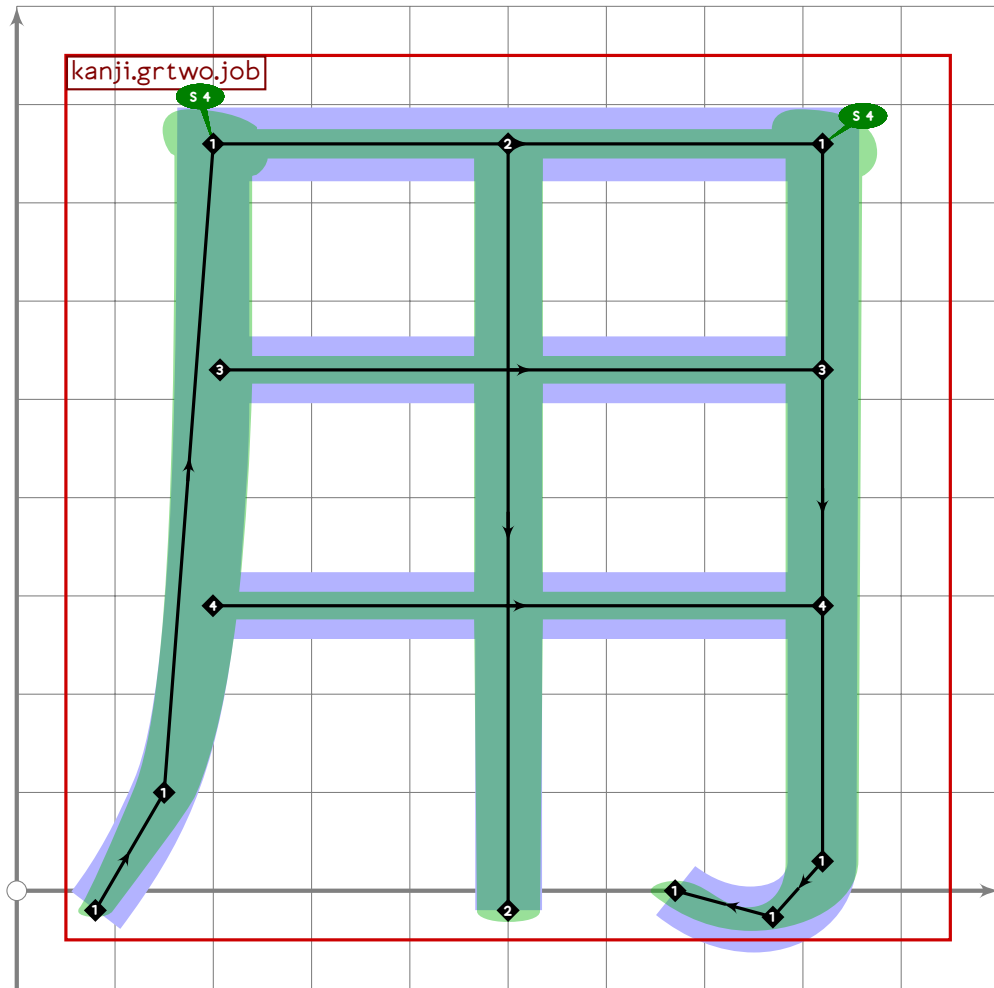
```



```

309
310 vardef kanji.grtwo.home =
311   push_pbox_toexpand("kanji.grtwo.home");
312   push_stroke((520,800)..tension 1.2..(450,450)..(220,240),
313     (1.6,1.6)-(1.5,1.5)-(1.1,1.1));
314   set_boserif(0,0,10);
315   push_stroke(
316     (point 0.8 of get_strokep(0))..tension 1.2..(620,400)..(750,230),
317     (0.9,0.9)-(1.5,1.5)-(1.8,1.8));
318   tsu_xform(identity yscaled (610/780))(kanji.radical.gmm);
319   expand_pbox;
320 enddef;

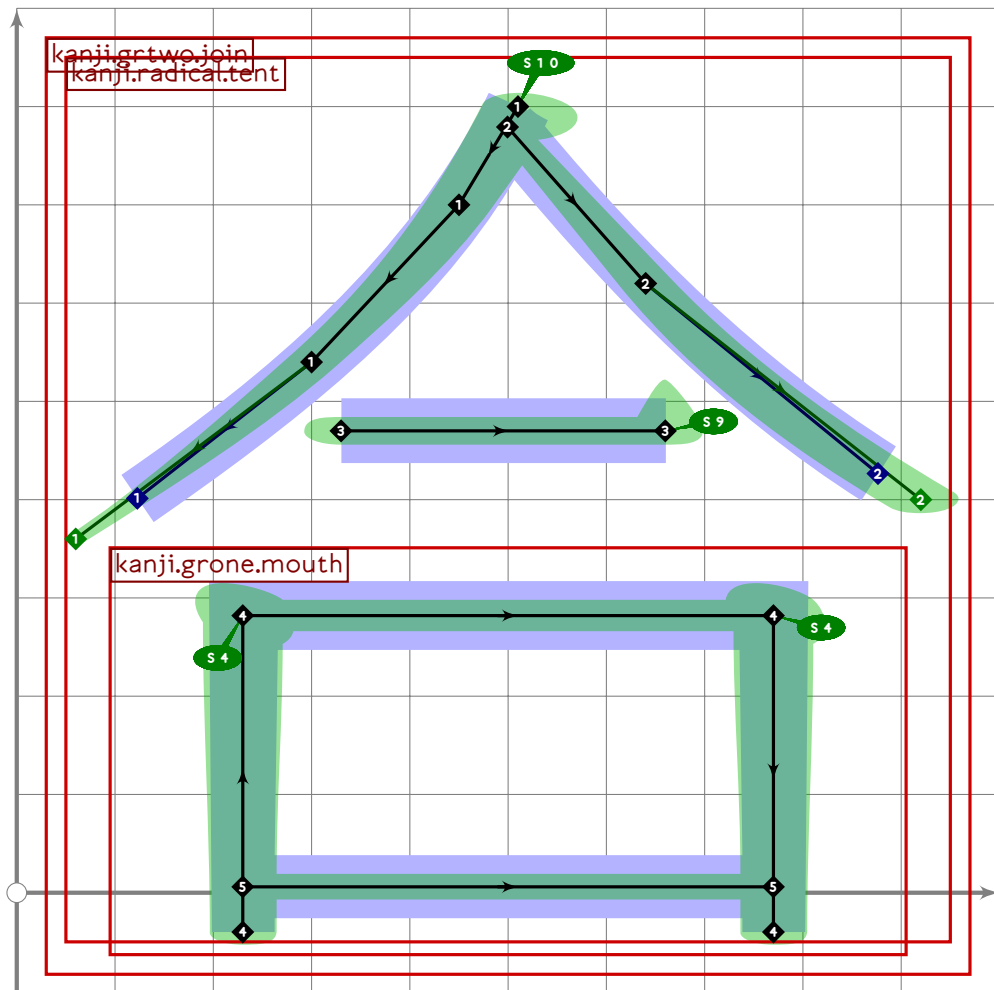
```



```

321
322 vardef kanji.grtwo.job =
323   push_pbox_toexpand("kanji.grtwo.job");
324   push_stroke((80,-20)..(150,100)..{up}{(200,760){right}{-(820,760),
325     (1,1)-(1.4,1.4)-(1.6,1.6)-(1.6,1.6));
326   build_kanji.add_jtail(0);
327   set_botip(0,2,0.8);
328   set_botip(0,3,1);
329   set_boserif(0,2,4);
330   set_boserif(0,3,4);
331   push_stroke((500,760)-(500,-20),(1.5,1.5)-(1.4,1.4));
332   push_stroke(
333     (get_strokep(-1) intersectionpoint ((0,530)-(1000,530)))-(820,530),
334     (1.5,1.5)-(1.5,1.5));
335   push_stroke(
336     (get_strokep(-2) intersectionpoint ((0,290)-(1000,290)))-(820,290),
337     (1.5,1.5)-(1.5,1.5));
338   expand_pbox;
339 enddef;

```

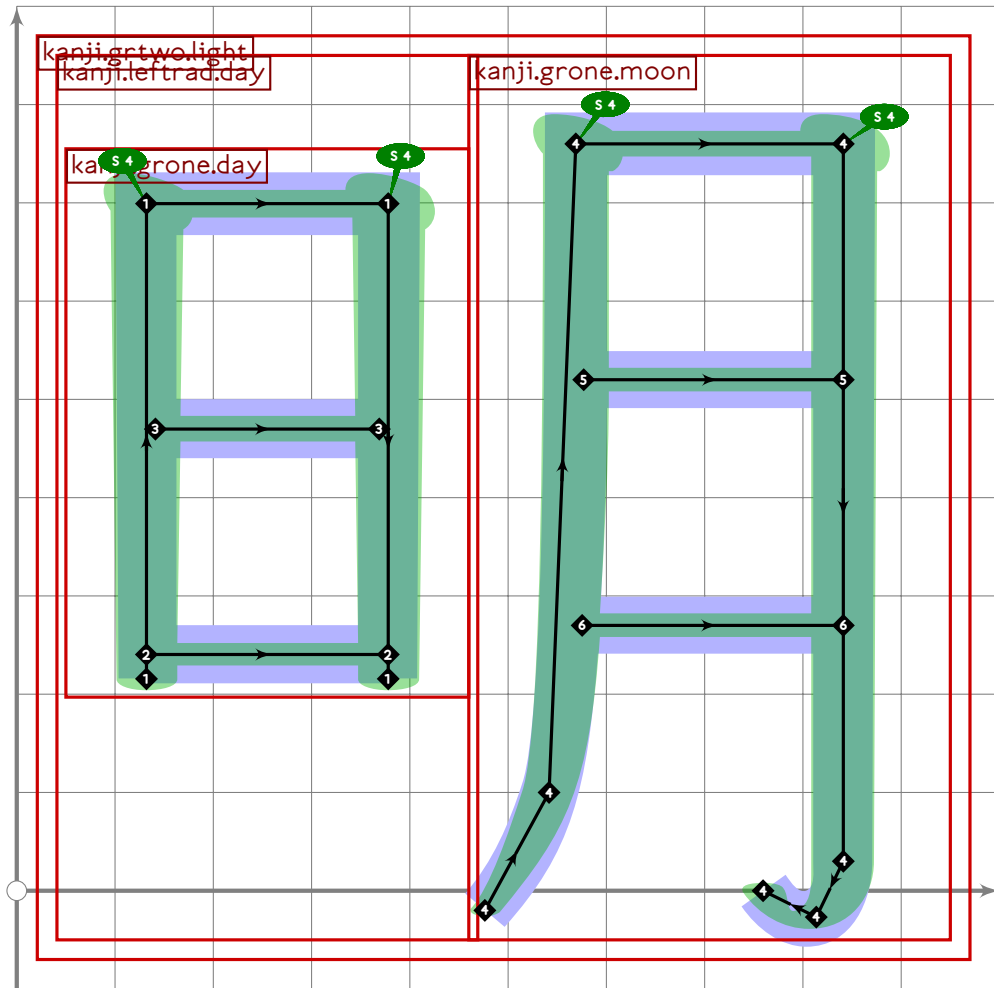


```

340
341 vardef kanji.grtwo.join =
342   push_pbox_toexpand("kanji.grtwo.join");
343   build_kanji.level(
344     kanji.radical.tent;
345     tsu_xform(identity shifted (-500,0) xyscaled (0.9,0.46) shifted (500,-40))
346     (kanji.grone.mouth);
347   );
348   expand_pbox;
349 enddef;

```

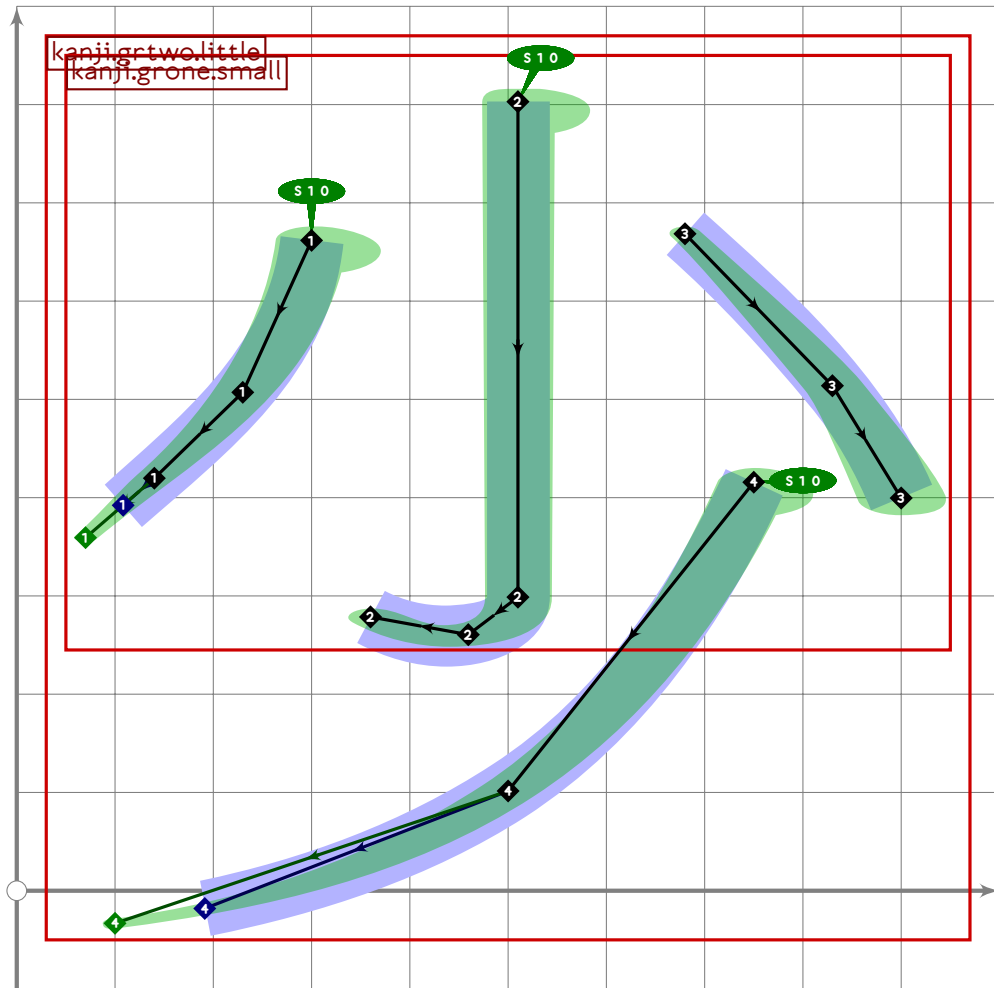




```

350
351 vardef kanji.grtwo.light =
352   push_pbox_toexpand("kanji.grtwo.light");
353   build_kanji.level(build_kanji.lr(460,0)
354     (kanji.leftrad.day)
355     (kanji.grone.moon));
356   expand_pbox;
357 enddef;

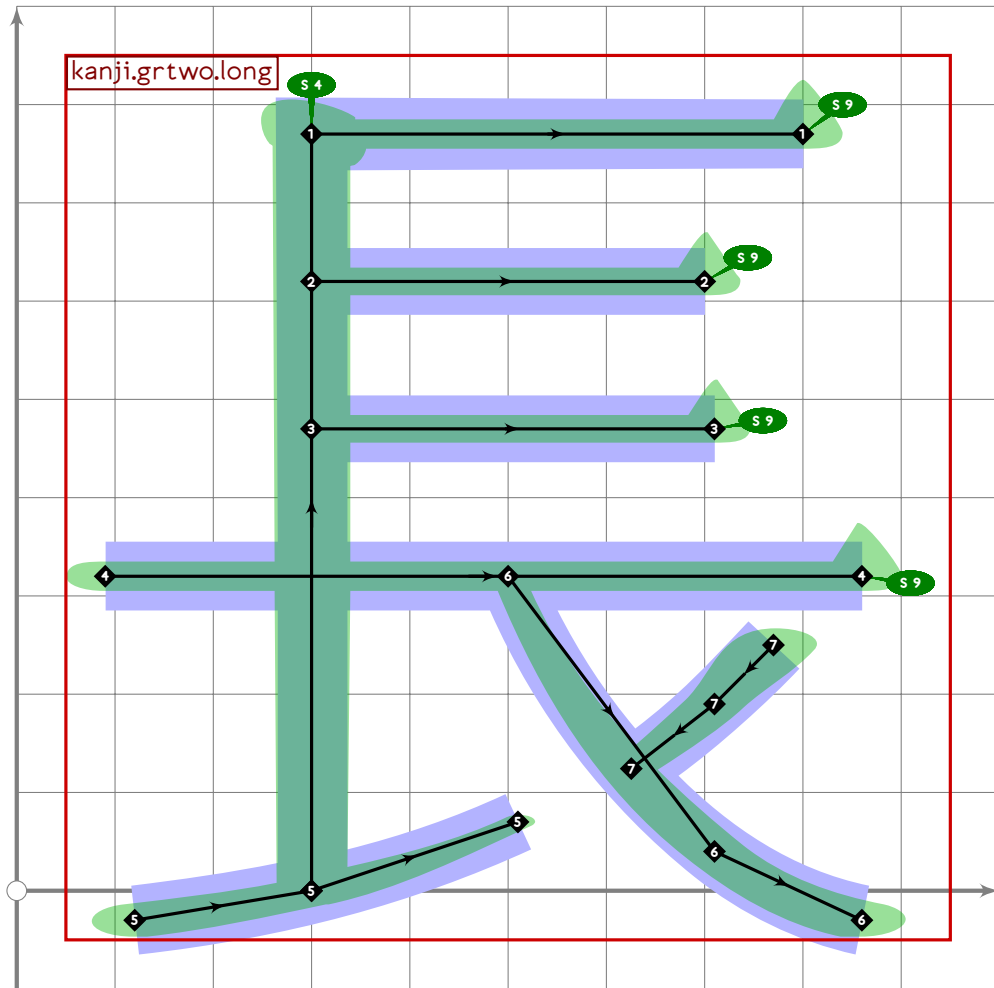
```



```

358
359 vardef kanji.grtwo.little =
360   push_pbox_toexpand("kanji.grtwo.little");
361   build_kanji.level(build_kanji.tb(350,210)
362     (kanji.grone.small)
363     (
364       push_stroke((750,780){curl 0.1}..(500,220)..(100,-20),
365         (1.6,1.6)-(1.4,1.4)-(0.9,0.9));
366       set_boserif(0,0,10);
367     ));
368   expand_pbox;
369 enddef;

```



```

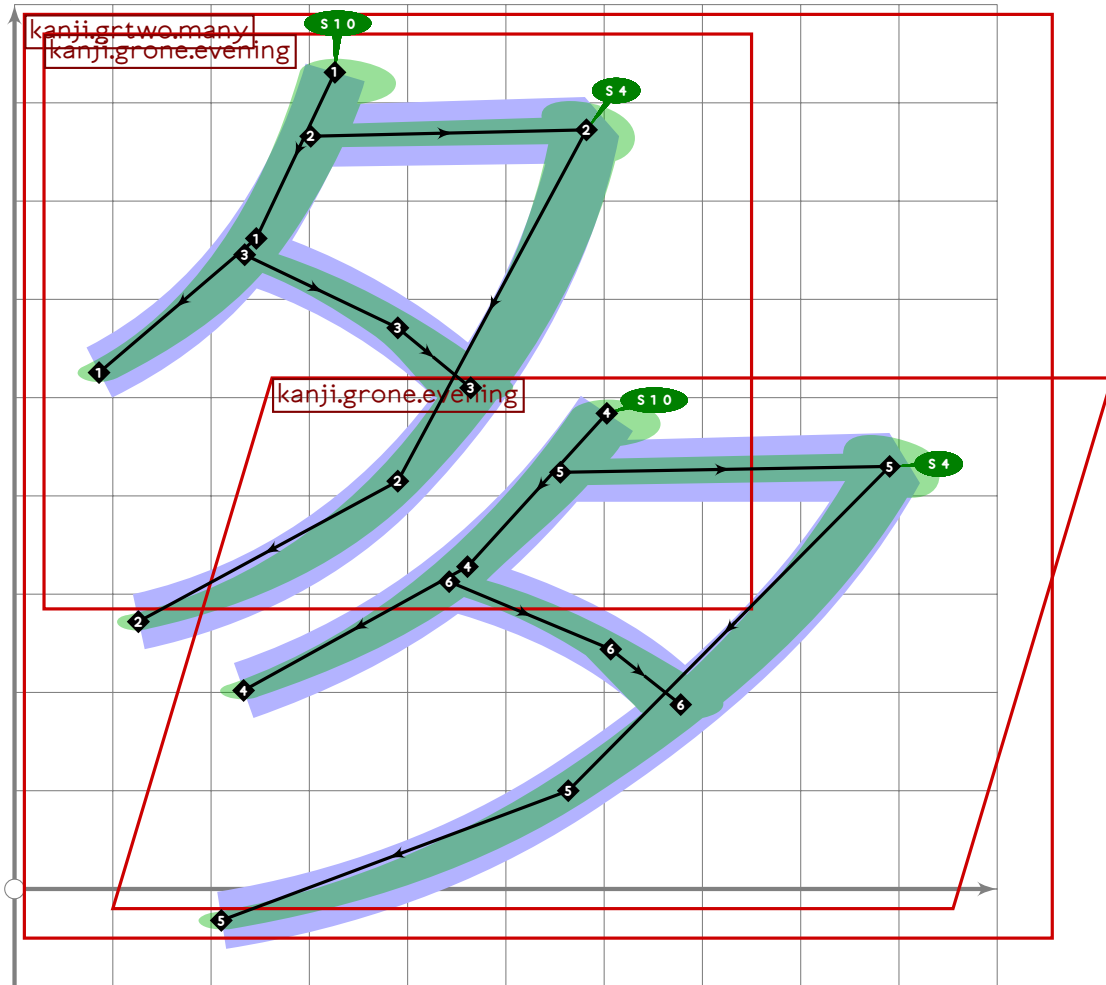
370
371 vardef kanji.grtwo.long =
372   push_pbox_toexpand("kanji.grtwo.long");
373   push_stroke((300,0)–(300,770)–(800,770),
374     (1.5,1.5)–(1.6,1.6)–(1.6,1.6));
375   set_boserif(0,1,4);
376   set_boserif(0,2,9);
377   set_botip(0,1,1);
378   push_stroke((300,620)–(700,620),(1.5,1.5)–(1.5,1.5));
379   set_boserif(0,1,9);
380   push_stroke((300,470)–(710,470),(1.5,1.5)–(1.5,1.5));
381   set_boserif(0,1,9);
382   push_stroke((90,320)–(860,320),(1.6,1.6)–(1.6,1.6));
383   set_boserif(0,1,9);
384   push_stroke((120,-30)..tension 1.2..(300,0)..(510,70),
385     (1.7,1.7)–(1.5,1.5)–(1,1));
386   push_stroke((500,320)..tension 1.2..(710,40)..(860,-30),
387     (1,1)–(1.4,1.4)–(1.7,1.7));
388   push_stroke((770,250)..tension 1.2..(710,190)..
389     (point 0.65 of get_stroke(0)),
390     (1.7,1.7)–(1.4,1.4)–(1.2,1.2));

```

```

391 expand_pbox;
392 enddef;

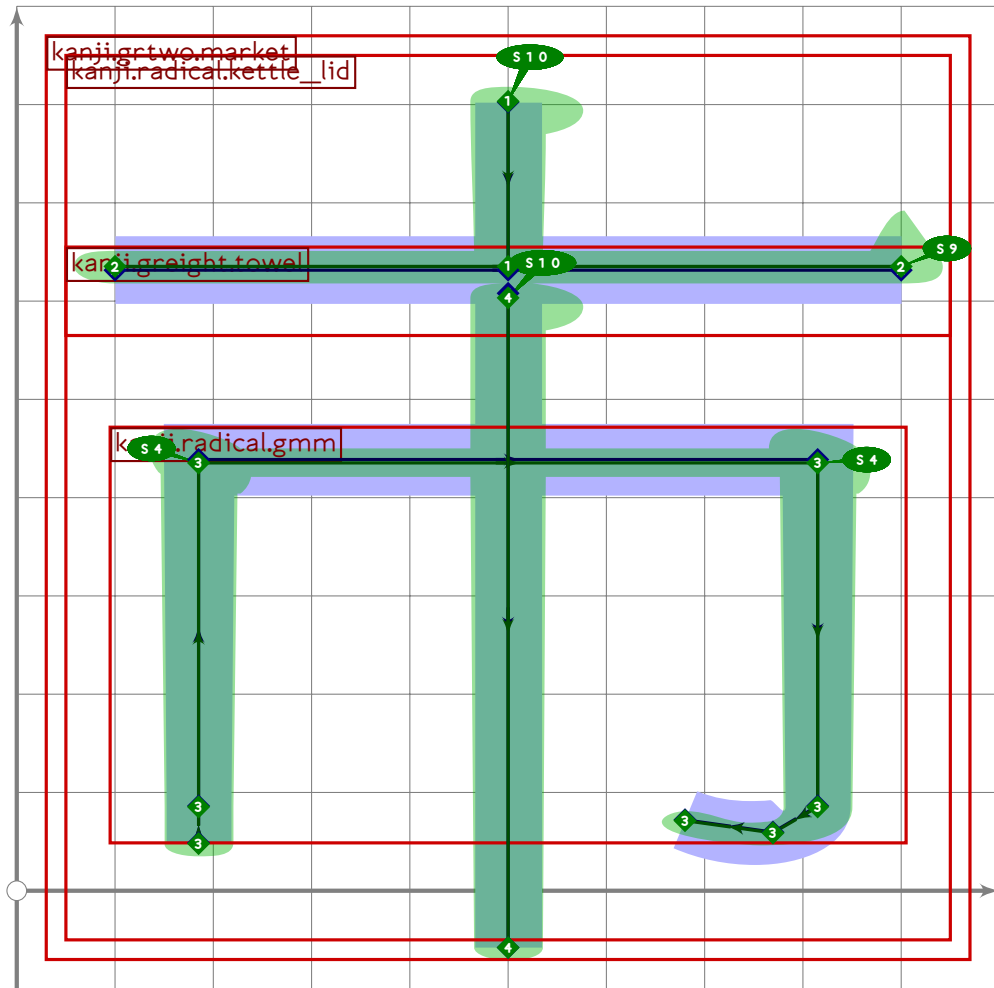
```



```

393
394 vardef kanji.grtwo.many =
395   push_pbox_toexpand("kanji.grtwo.many");
396   tsu_xform(identity shifted (-50,-850) xyscaled (0.8,0.65) shifted (30,870))
397     (kanji.grone.eveing);
398   tsu_xform(identity shifted (-50,50)
399     xyscaled (0.95,0.6) slanted 0.3 shifted (100,-20))
400     (kanji.grone.eveing);
401   expand_pbox;
402 enddef;

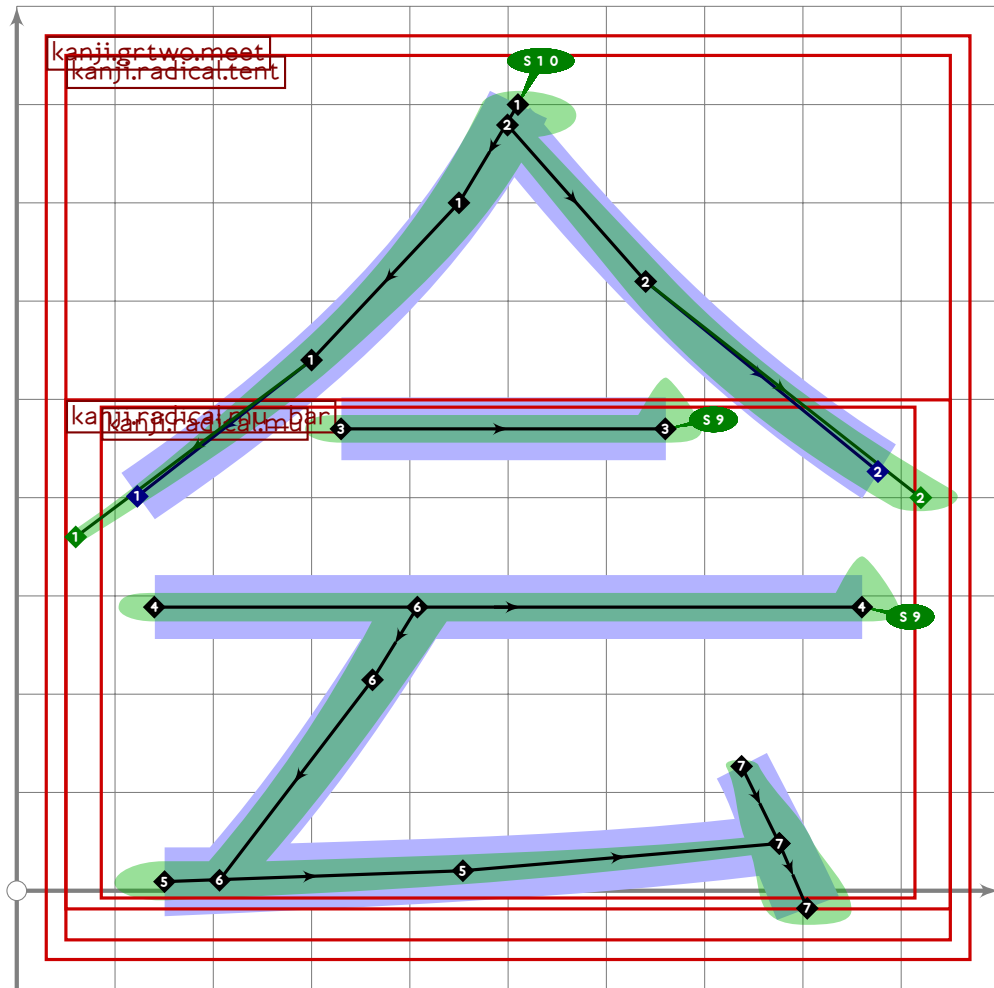
```



```

403
404 vardef kanji.grtwo.market =
405   push_pbox_toexpand("kanji.grtwo.market");
406   build_kanji.level(build_kanji.tb(610,90-10*mincho)
407     (kanji.radical.kettle_lid)
408     (kanji.greight.towel));
409   expand_pbox;
410 enddef;

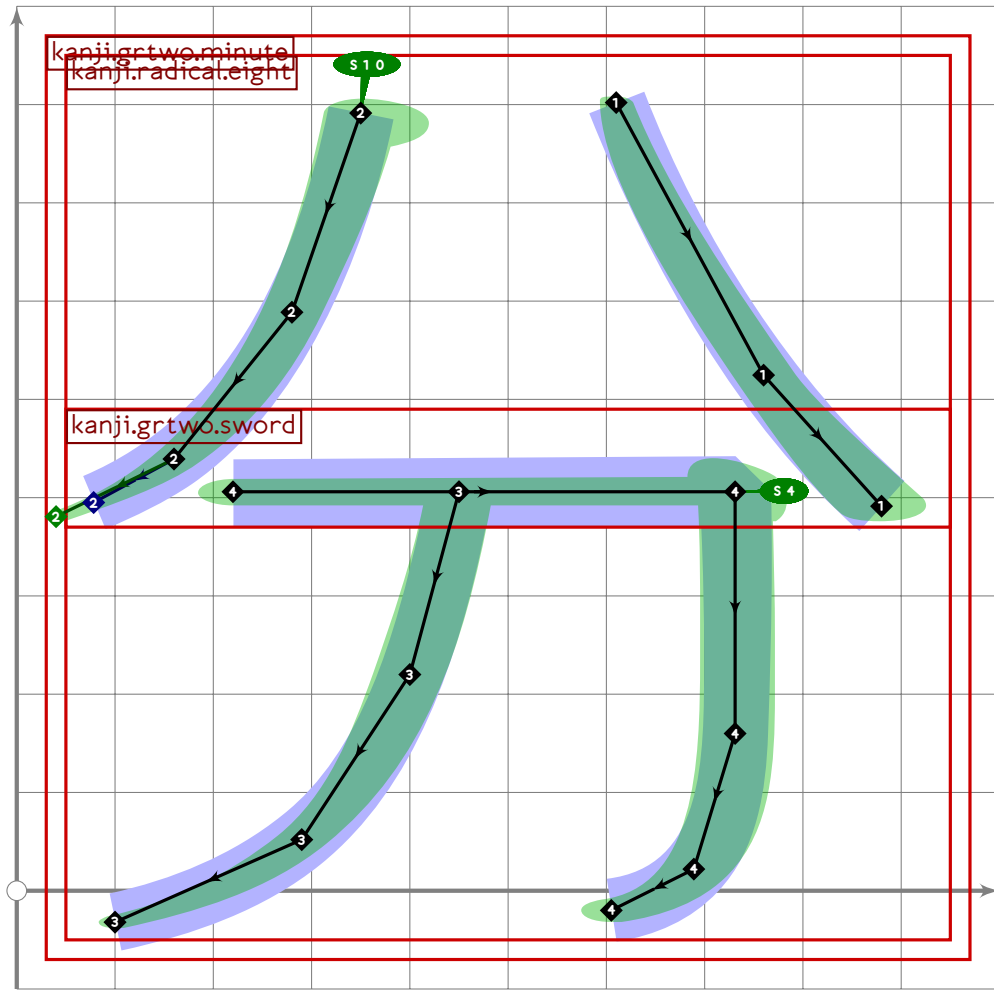
```



```

411
412 vardef kanji.grtwo.meet =
413   push_pbox_toexpand("kanji.grtwo.meet");
414   build_kanji.level(
415     kanji.radical.tent;
416     tsu_xform(identity yscaled 0.37)(kanji.radical.mu_bar);
417   );
418   expand_pbox;
419 enddef;

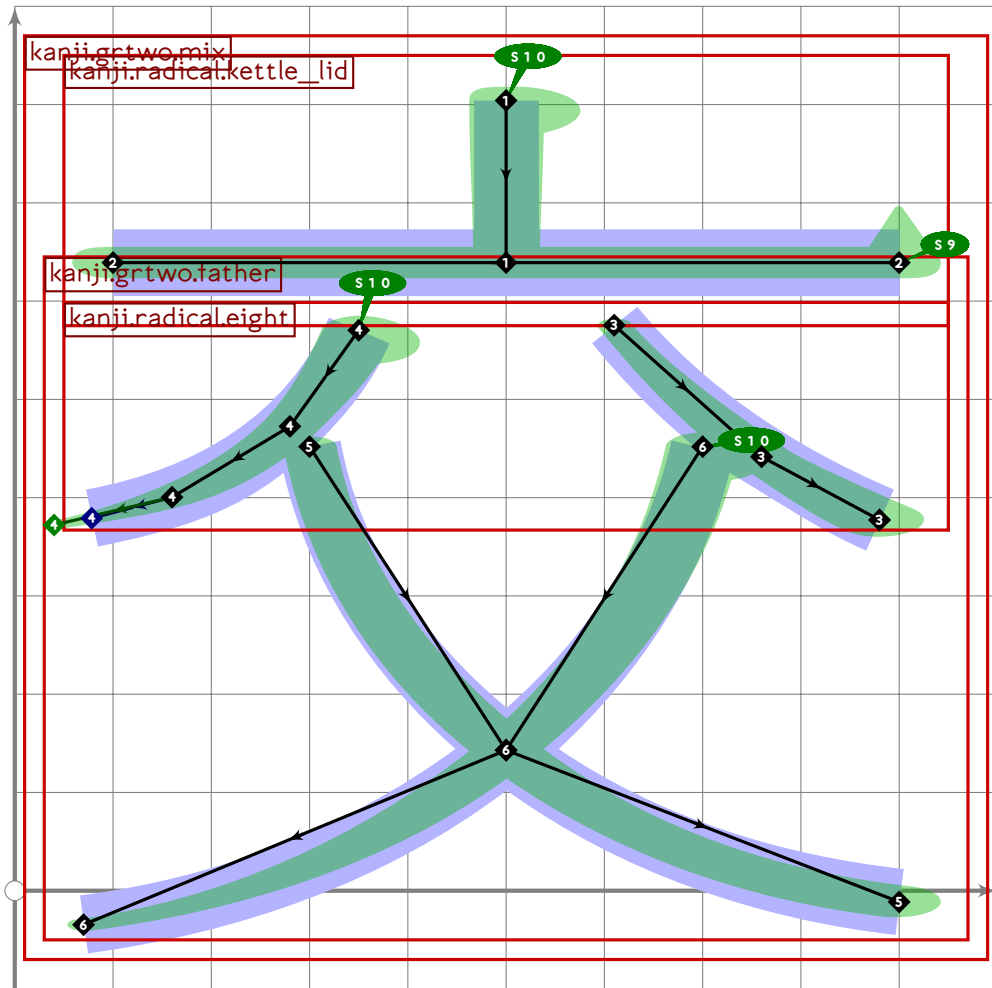
```



```

420
421 vardef kanji.grtwo.minute =
422   push_pbox_toexpand("kanji.grtwo.minute");
423   build_kanji.level(build_kanji.tb(430,120)
424     (kanji.radical.eight)
425     (kanji.grtwo.sword;
426       replace_stroke(0)(oldp shifted (-500,0) xscaled 0.7 shifted (500,0))));
427   expand_pbox;
428 enddef;

```

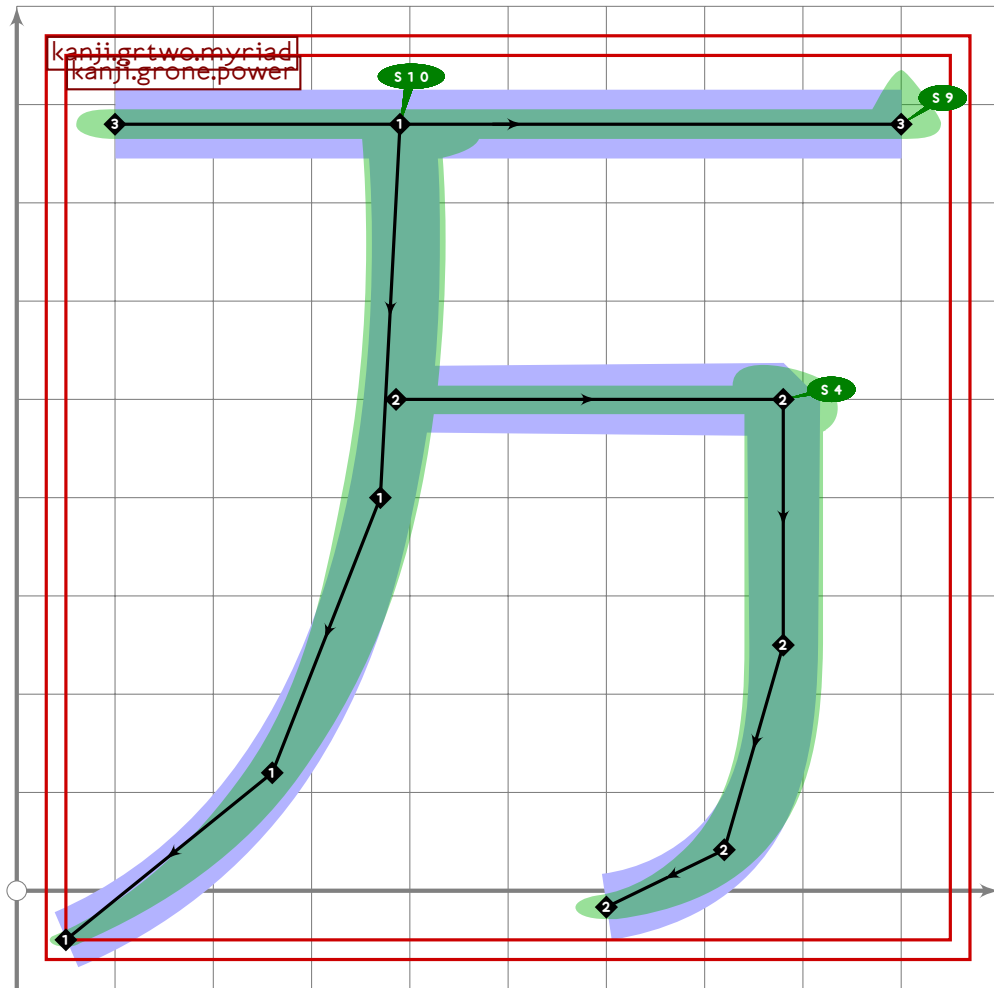


```

429
430 vardef kanji.grtwo.mix =
431   push_pbox_toexpand("kanji.grtwo.mix");
432   build_kanji.level(build_kanji.tb(610,70)
433     (kanji.radical.kettle_lid)
434     (kanji.grtwo.father));
435   expand_pbox;
436 enddef;

```

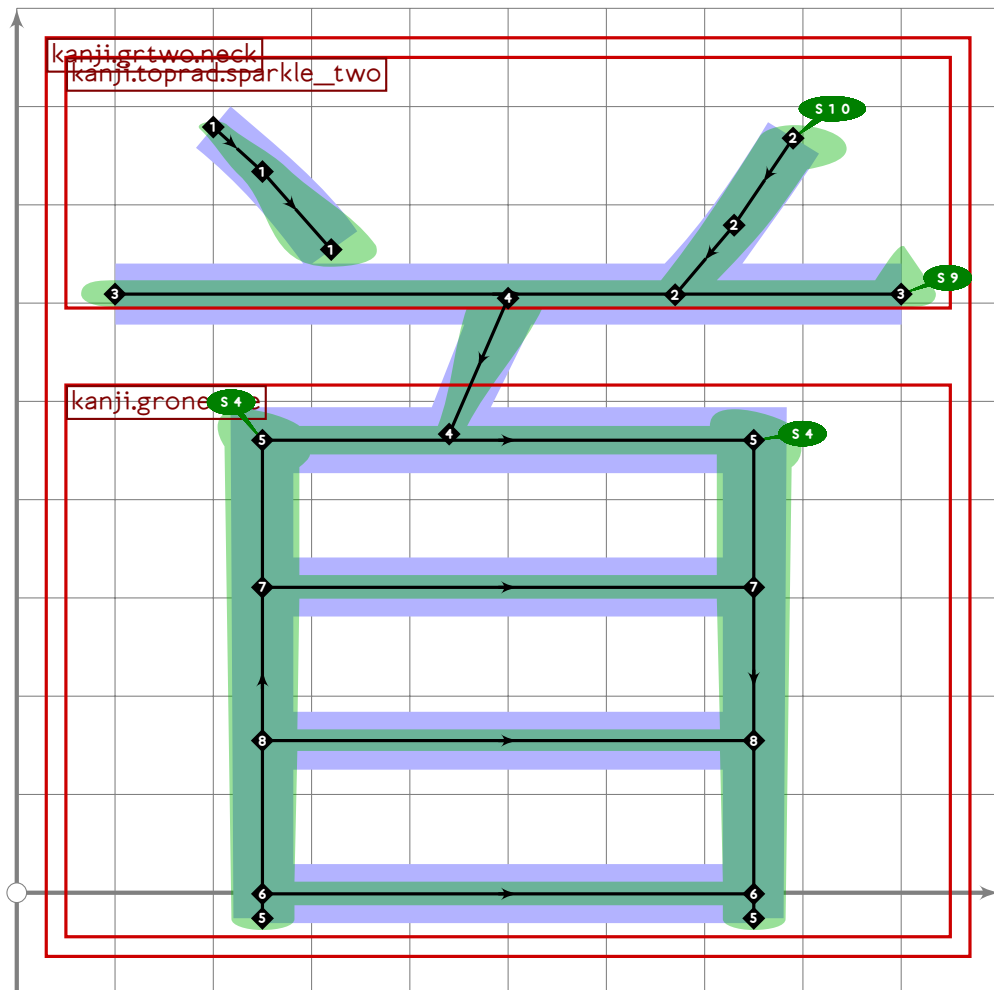




```

437
438 vardef kanji.grtwo.myriad =
439   push_pbox_toexpand("kanji.grtwo.myriad");
440   kanji.grone.power;
441   set_boserif(0,0,whatever);
442   replace_strokep(0)(oldp yscaled (500/600) shifted (-50,0));
443   replace_strokep(0)(
444     subpath (xpart (oldp intersectiontimes get_strokep(-1)),infinity) of oldp);
445   push_stroke((100,780)-(900,780),(1.6,1.6)-(1.6,1.6));
446   set_boserif(0,1,9);
447   expand_pbox;
448 enddef;

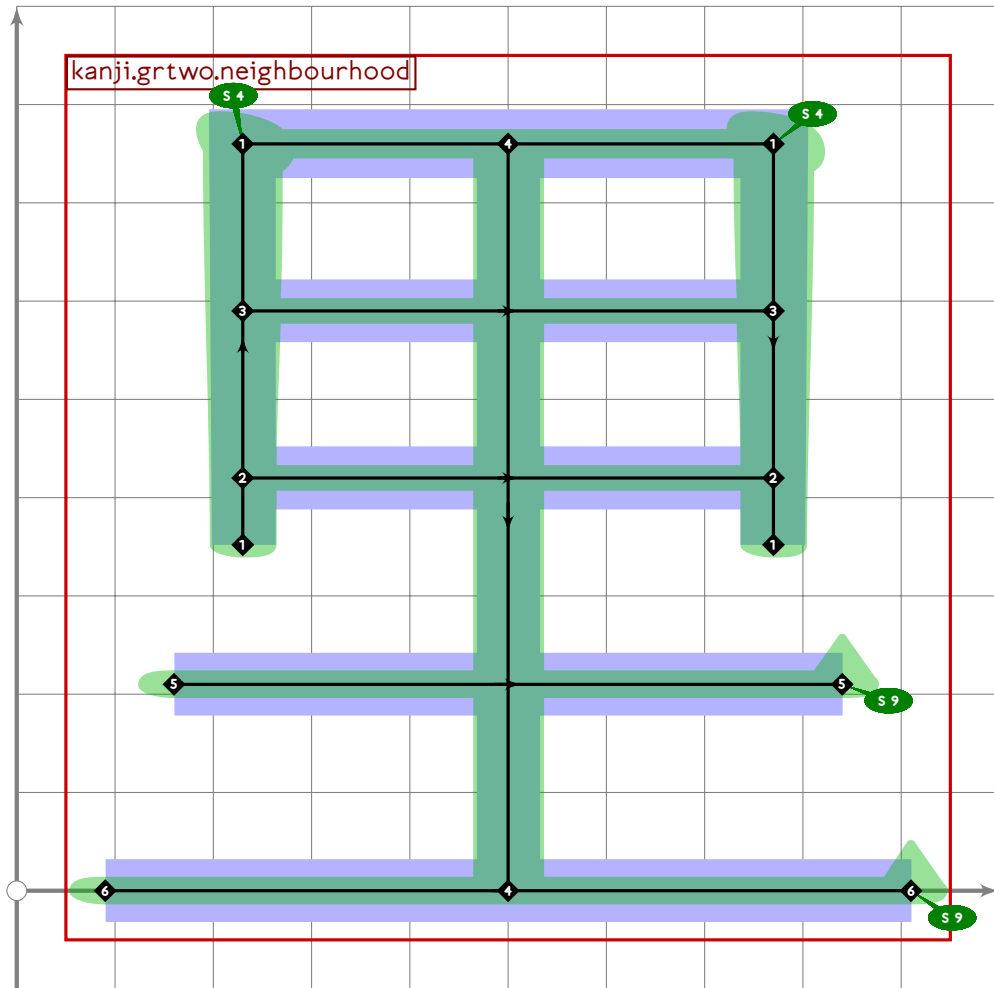
```



```

449
450 vardef kanji.grtwo.neck =
451   push_pbox_toexpand("kanji.grtwo.neck");
452   build_kanji.level(build_kanji.tb(600,10)
453     (kanji.toprad.sparkle_two;
454       replace_strokep(0)(oldp shifted (-point 0 of oldp)
455         yscaled 1.25 shifted (point 0 of oldp) shifted (0,-60));
456       push_stroke((100,0)-(900,0),(1.6,1.6)-(1.6,1.6));
457       set_boserif(0,1,9))
458     (push_stroke((500,850)-(440,660),(1.7,1.7)-(1,1));
459       tsu_xform(identity yscaled (660/770))(kanji.grone.eyee)));
460   expand_pbox;
461 enddef;

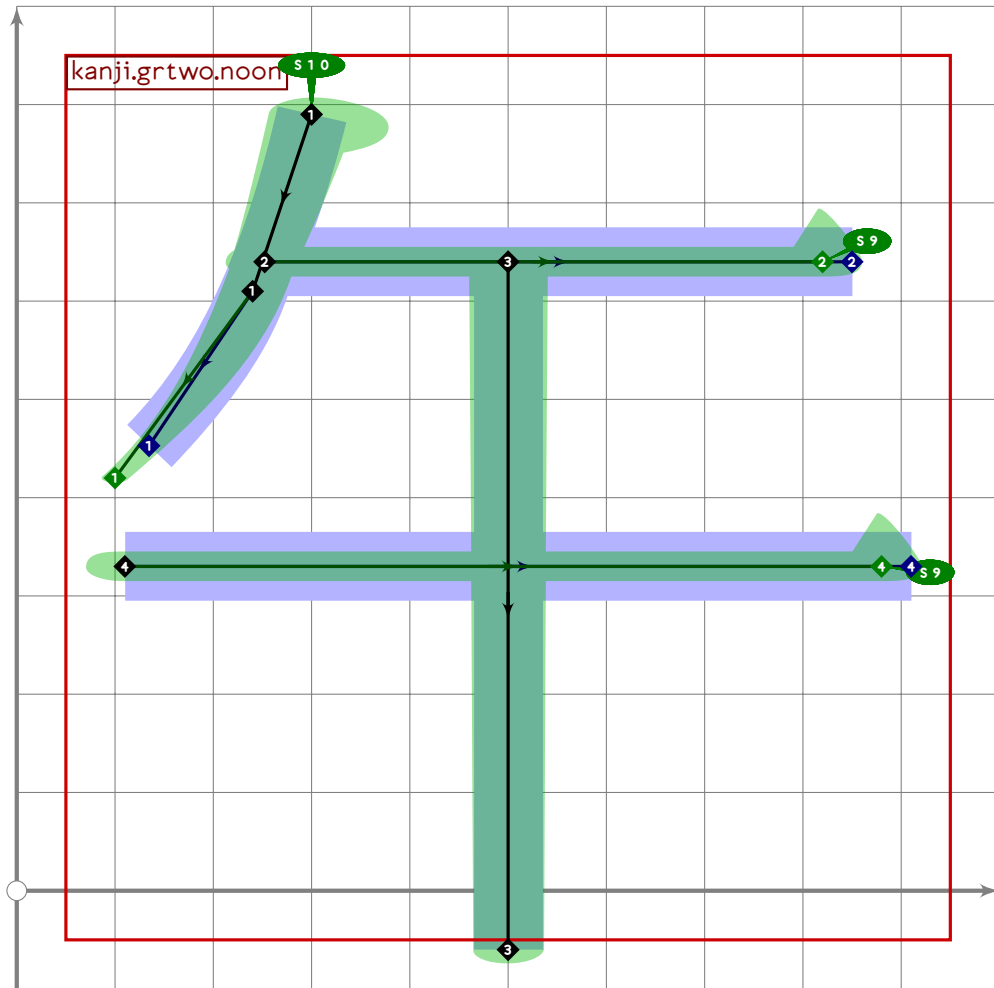
```



```

462
463 vardef kanji.grtwo.neighbourhood =
464   push_pbox_toexpand("kanji.grtwo.neighbourhood");
465   build_kanji.box((230,760),(770,420));
466   push_stroke((230,590)-(770,590),(1.5,1.5)-(1.5,1.5));
467   push_stroke((500,760)-(500,0),(1.6,1.6)-(1.5,1.5));
468   push_stroke((160,210)-(840,210),(1.6,1.6)-(1.6,1.6));
469   set_boserif(0,1,9);
470   push_stroke((90,0)-(910,0),(1.6,1.6)-(1.6,1.6));
471   set_boserif(0,1,9);
472   for i=-6 upto 0: set_bosize(i,93); endfor;
473   expand_pbox;
474 enddef;

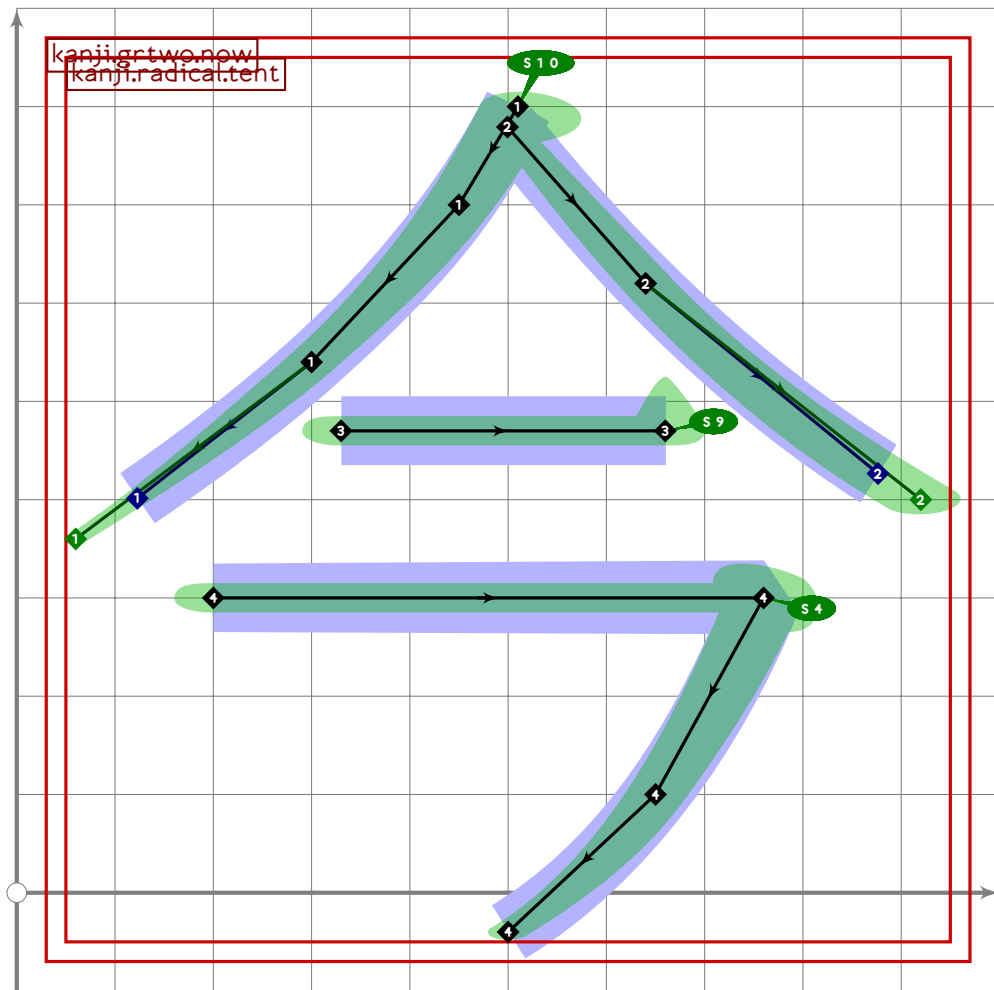
```



```

475
476 vardef kanji.grtwo.noon =
477   push_pbox_toexpand("kanji.grtwo.noon");
478   push_stroke((300,790)..tension 1.2..(240,610)..(100,420),
479     (1.7,1.7)-(1.4,1.4)-(0.9,0.9));
480   set_boserif(0,0,10);
481   push_stroke(((0,640)-(1000,640)) intersectionpoint get_strokep(0))-
482     (850-30*mincho,640),
483     (1.6,1.6)-(1.6,1.6));
484   set_boserif(0,1,9);
485   push_stroke((500,640)-(500,-60),(1.6,1.6)-(1.5,1.5));
486   push_stroke((110,330)-(910-30*mincho,330),
487     (1.6,1.6)-(1.6,1.6));
488   set_boserif(0,1,9);
489   expand_pbox;
490 enddef;

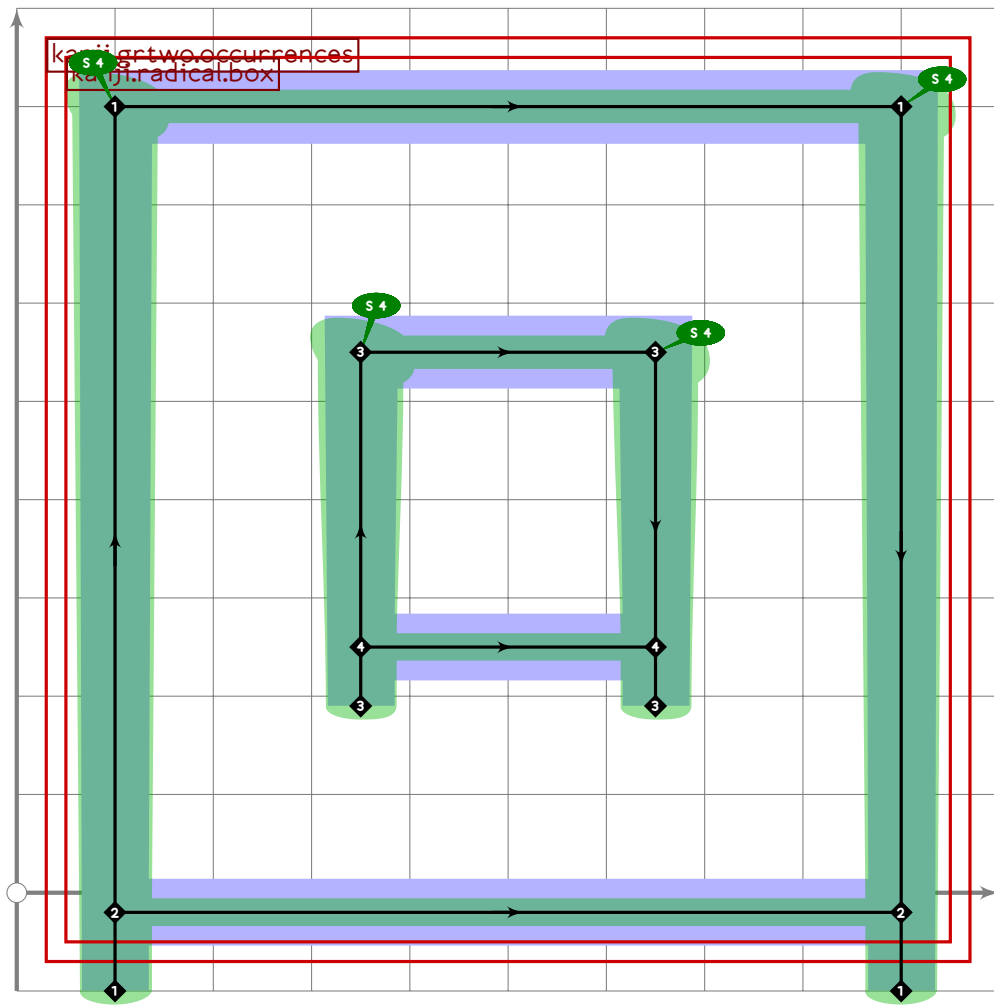
```



```

491
492 vardef kanji.grtwo.now =
493   push_pbox_toexpand("kanji.grtwo.now");
494   kanji.radical.tent;
495   push_stroke((200,300)-(760,300)..tension 1.2..(650,100)..(500,-40),
496     (1.6,1.6)-(1.6,1.6)-(1.4,1.4)-(1.1,1.1));
497   set_boserif(0,1,4);
498   set_botip(0,1,0);
499   expand_pbox;
500 enddef;

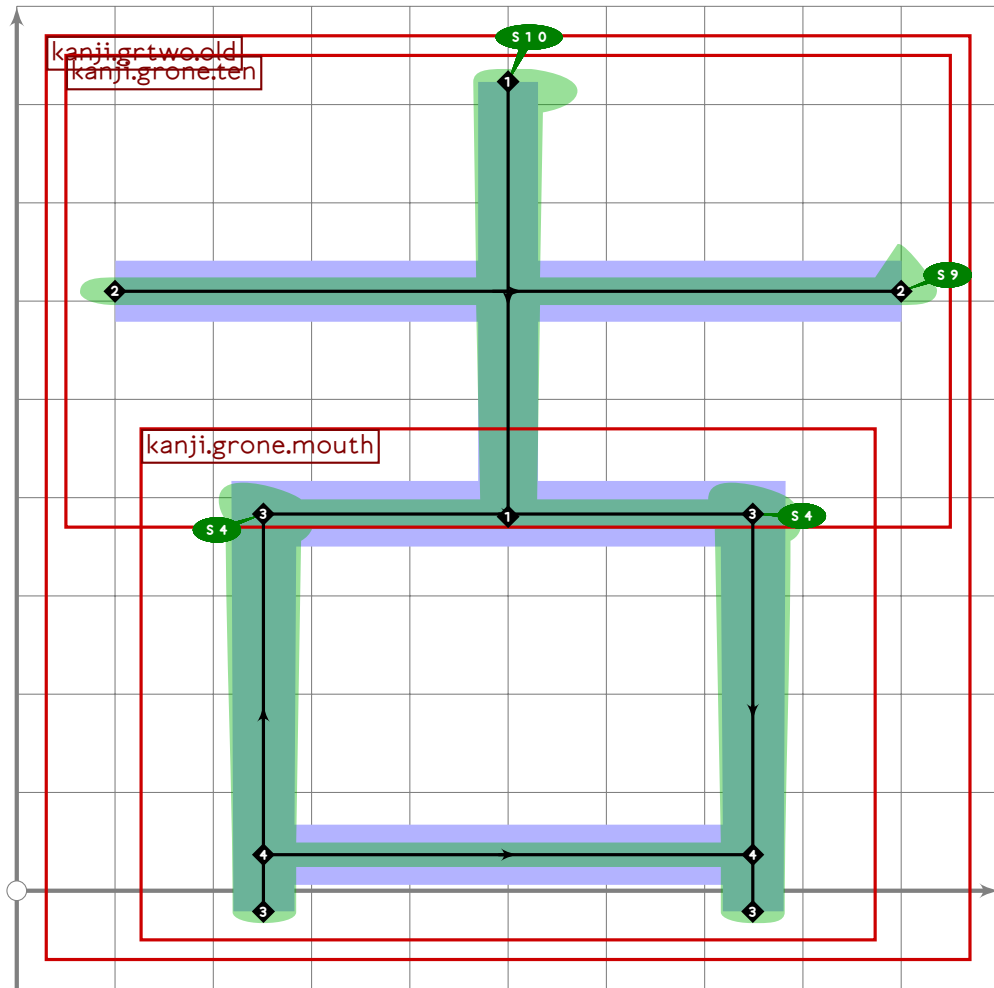
```



```

501
502 vardef kanji.grtwo.occurrences =
503   push_pbox_toexpand("kanji.grtwo.occurrences");
504   kanji.radical.box;
505   build_kanji.box((350,550),(650,250));
506   expand_pbox;
507 enddef;

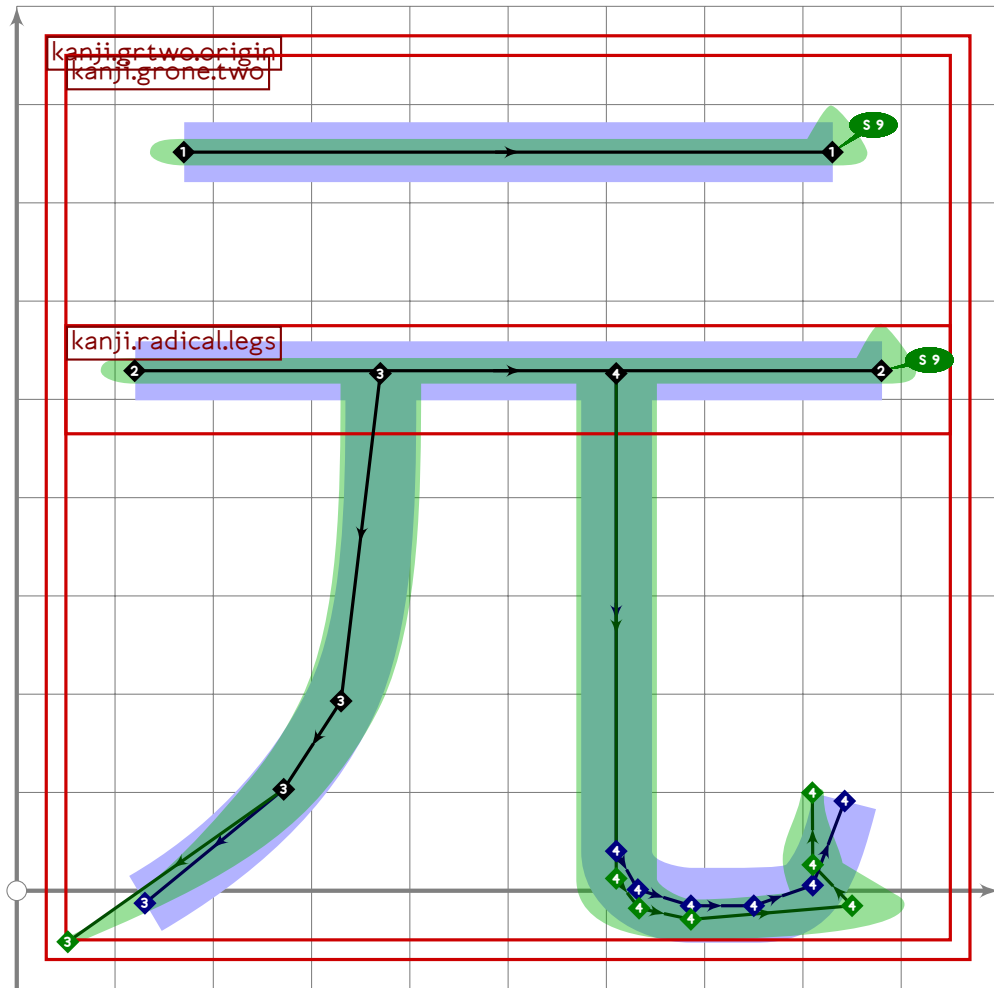
```



```

508
509 vardef kanji.grtwo.old =
510   push_pbox_toexpand("kanji.grtwo.old");
511   build_kanji.level(build_kanji.tb(420,100)
512     (kanji.grone.ten)
513     (build_kanji.sscale(xscaled 0.83)(kanji.grone.mouth)));
514   expand_pbox;
515 enddef;

```

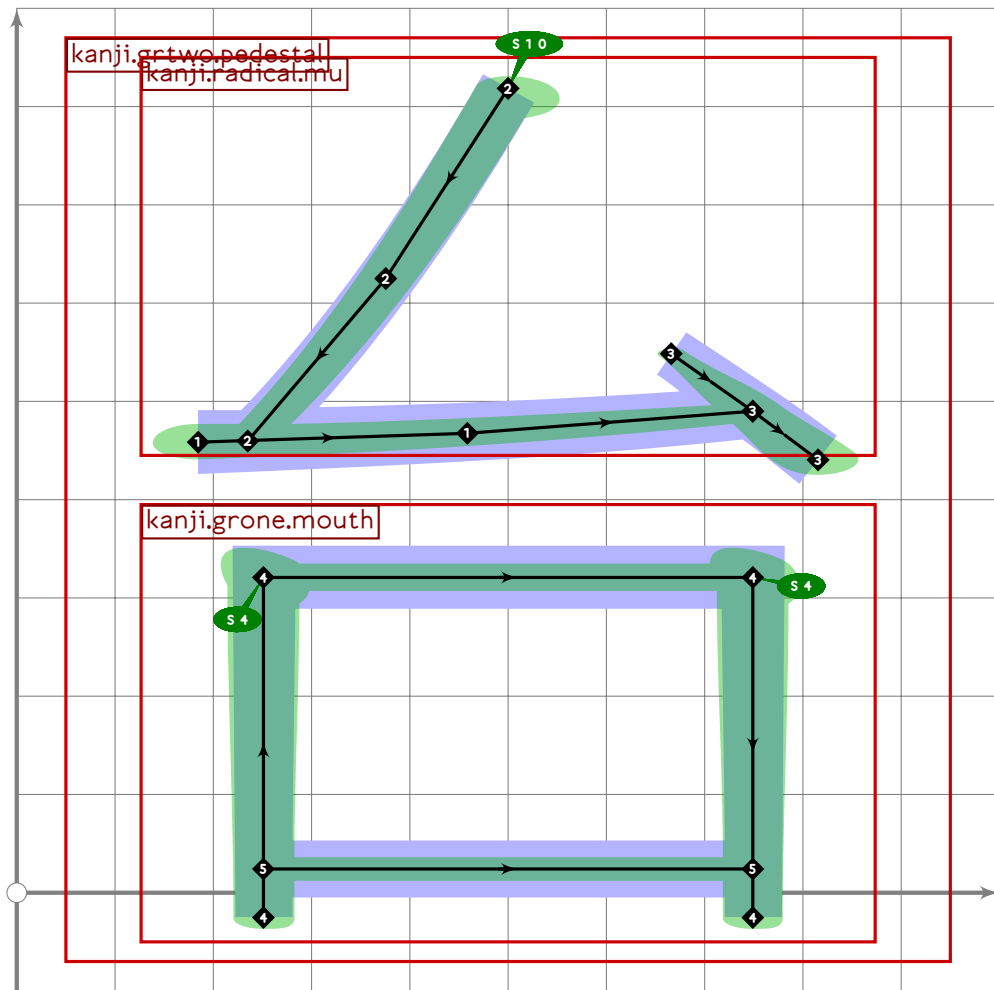


```

516
517 vardef kanji.grtwo.origin =
518   push_pbox_toexpand("kanji.grtwo.origin");
519   build_kanji.tb(520,110)
520     (kanji.grone.two)
521     (kanji.radical.legs);
522   expand_pbox;
523 enddef;

```

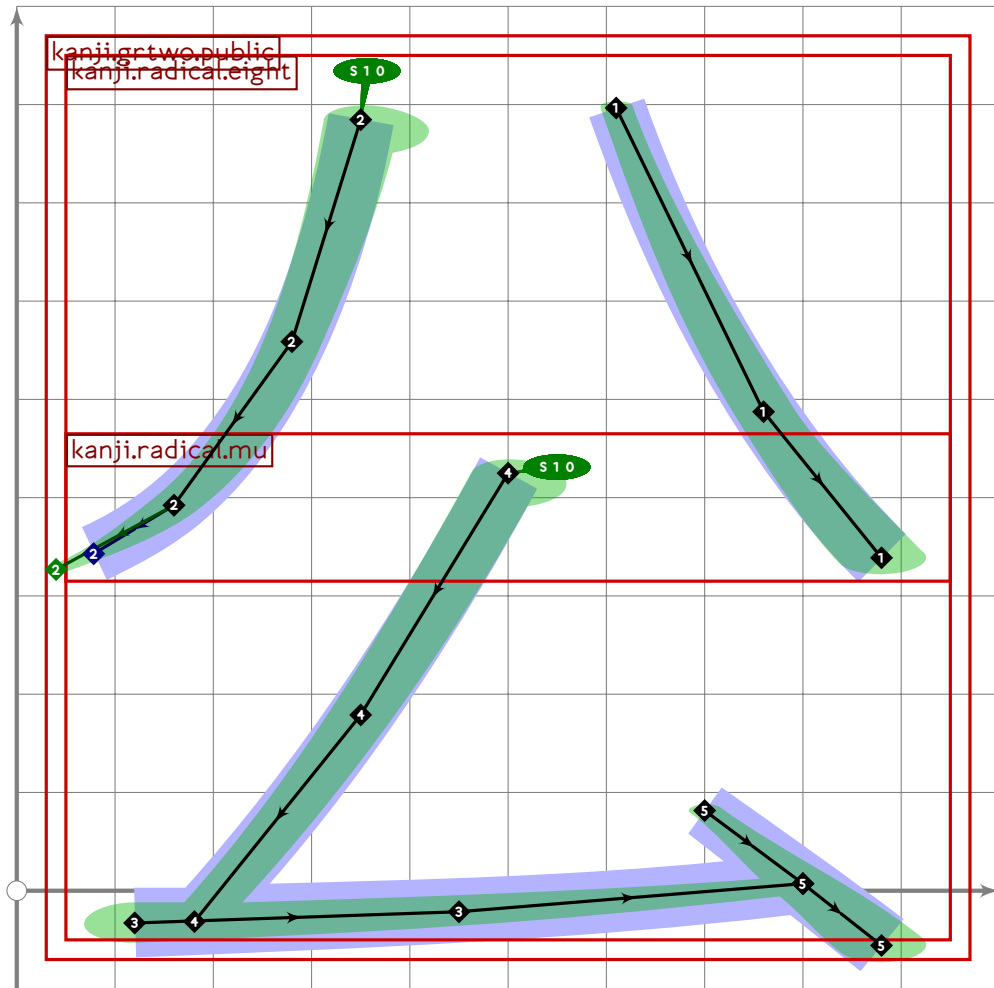




```

524
525 vardef kanji.grtwo.pedestal =
526   push_pbox_toexpand("kanji.grtwo.pedestal");
527   build_kanji.sscale(xscaled 0.83)(
528     build_kanji.level(build_kanji.tb(420,-50)
529       (kanji.radical.mu)
530       (kanji.grone.mouth)));
531   expand_pbox;
532 enddef;

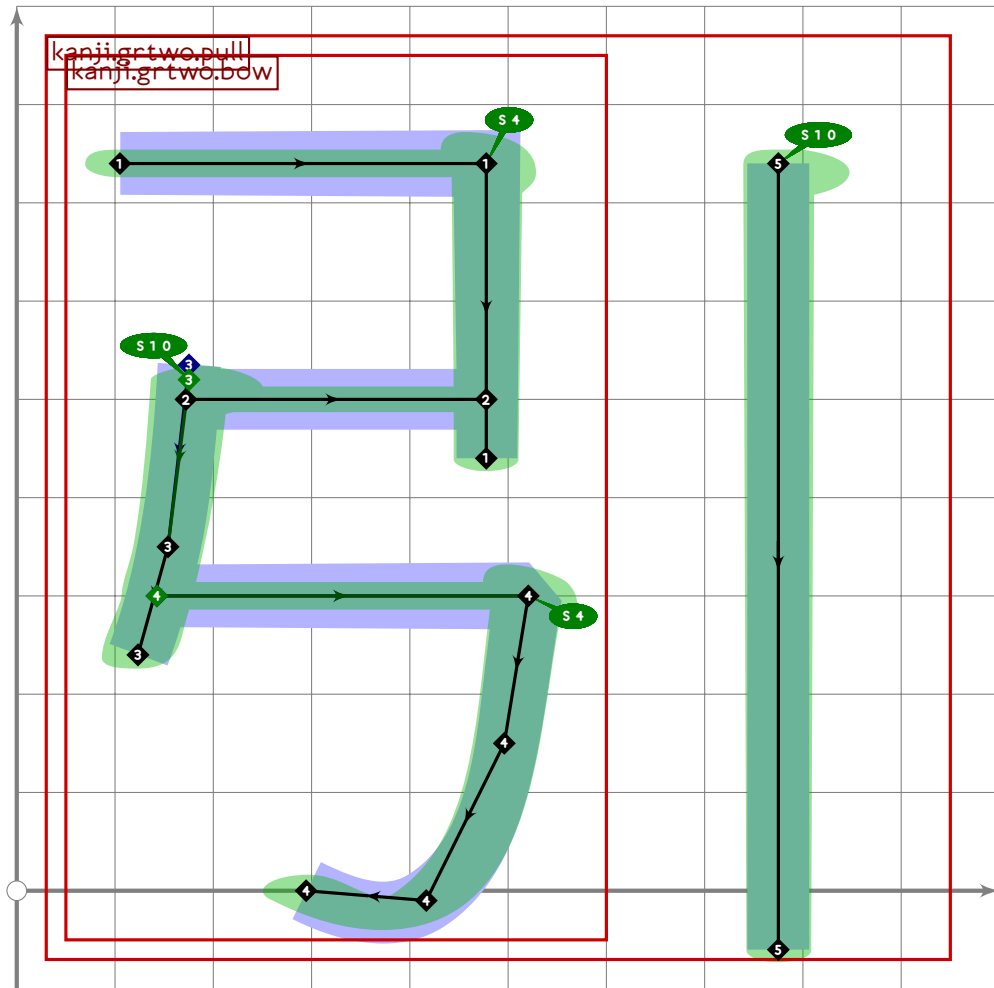
```



```

533
534 vardef kanji.grtwo.public =
535   push_pbox_toexpand("kanji.grtwo.public");
536   build_kanji.level(build_kanji.tb(390,150)
537     (kanji.radical.eight)
538     (kanji.radical.mu));
539   expand_pbox;
540 enddef;

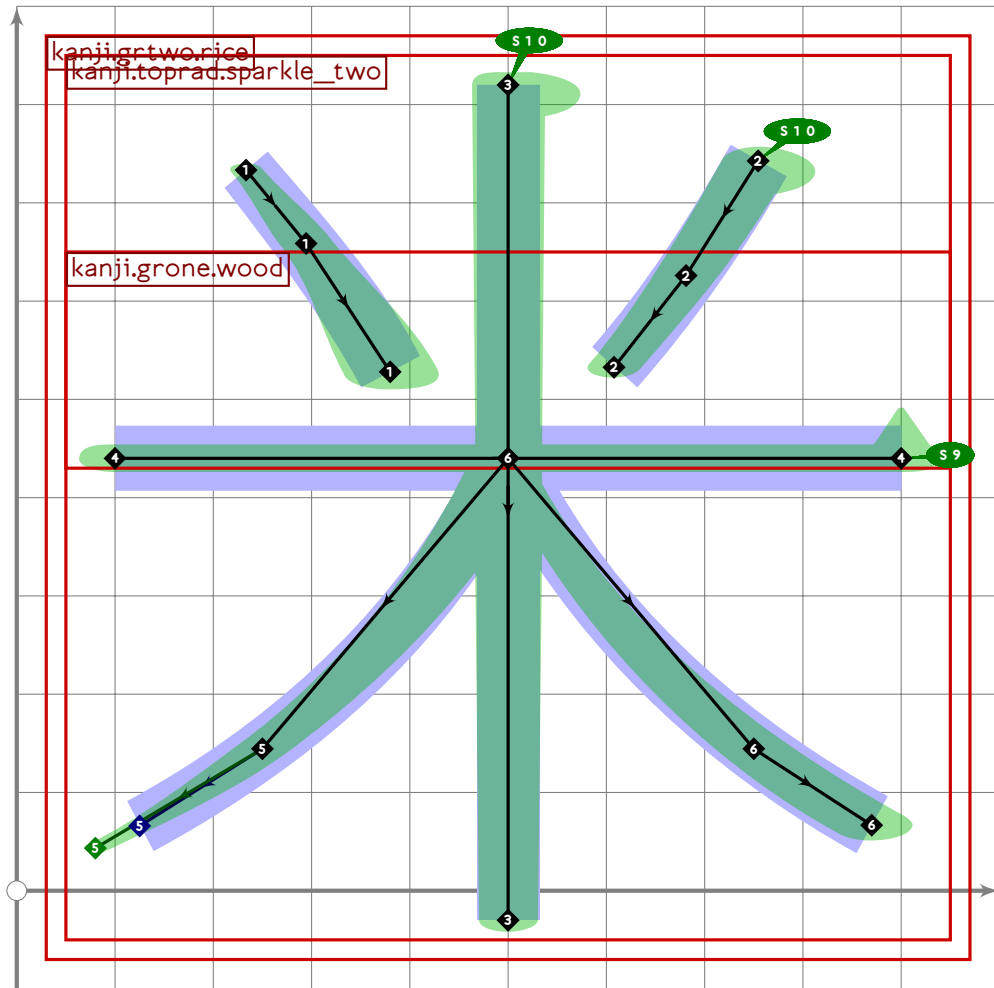
```



```

541
542 vardef kanji.grtwo.pull =
543   push_pbox_toexpand("kanji.grtwo.pull");
544   build_kanji.level(build_kanji.lr(600,0)
545     (kanji.grtwo.bow)
546     (push_stroke((500,740)-(500,-60),(1.6,1.6)-(1.5,1.5));
547       set_boserif(0,0,10);
548     ));
549   expand_pbox;
550 enddef;

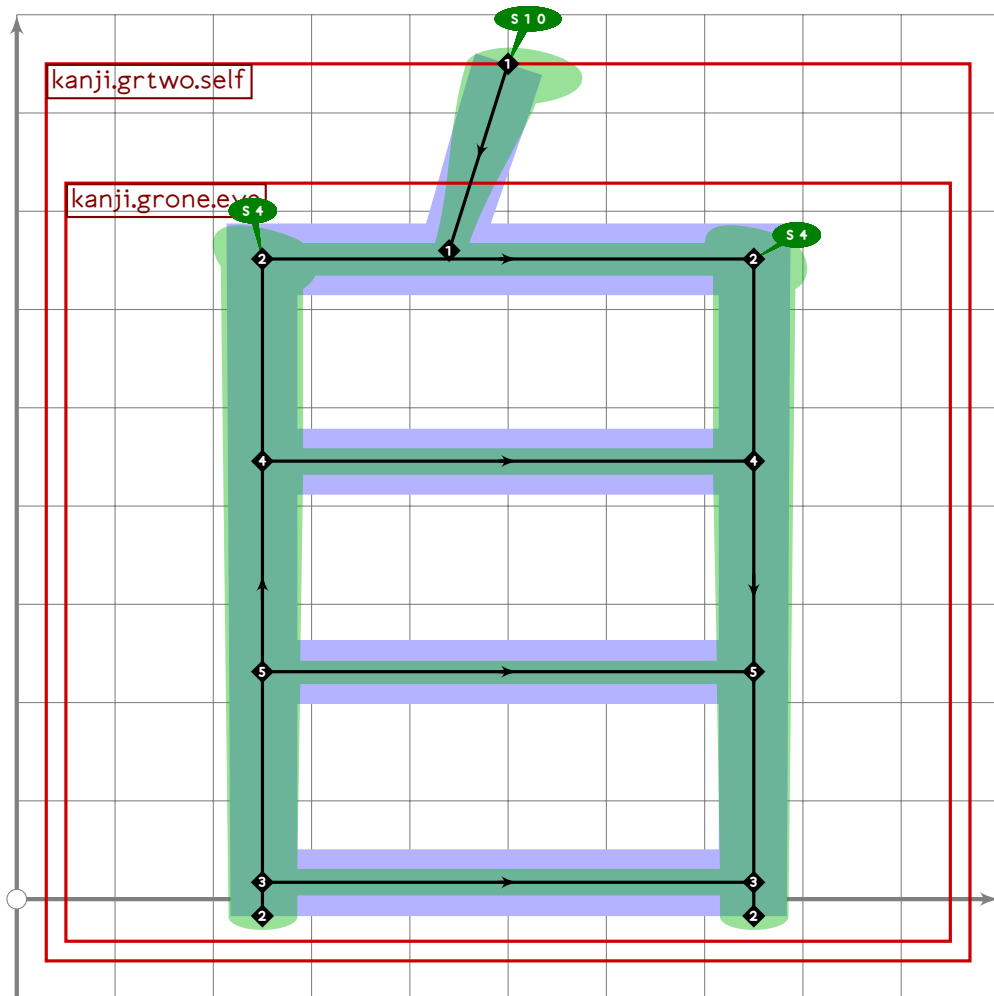
```



```

551
552 vardef kanji.grtwo.rice =
553   push_pbox_toexpand("kanji.grtwo.rice");
554   build_kanji.level(build_kanji.tb(540,220)
555     (build_kanji.spread_legs(-200)(kanji.toprad.sparkle_two))
556     (kanji.grone.wood));
557   replace_stroke(-3)((500,820)-(500,-30));
558   replace_stroke(-3)((1,6,1,6)-(1,4,1,4));
559   expand_pbox;
560 enddef;

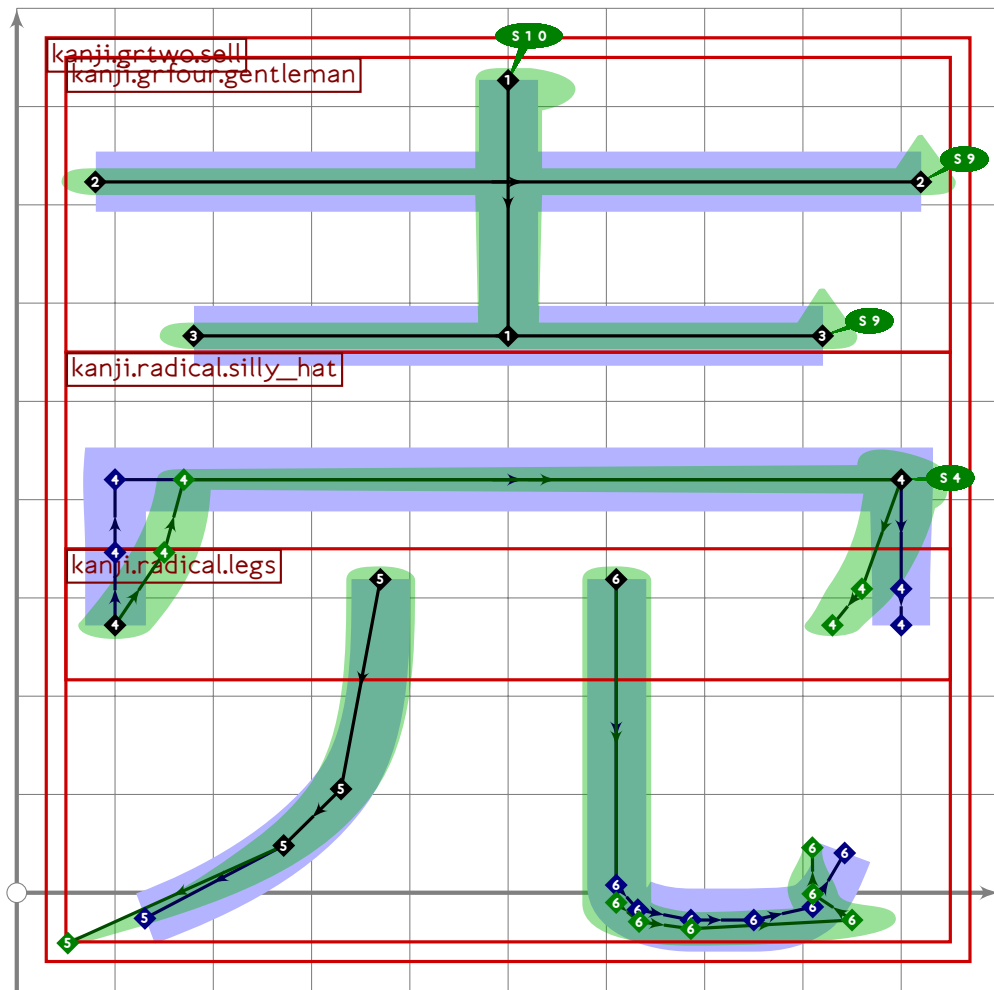
```



```

561
562 vardef kanji.grtwo.self =
563   push_pbox_toexpand("kanji.grtwo.self");
564   push_stroke((500,850)-(440,660),(1,7,1,7)-(1,1));
565   set_boserif(0,0,10);
566   tsu_xform(identity yscaled (660/770))(kanji.grone.ey);
567   expand_pbox;
568 enddef;

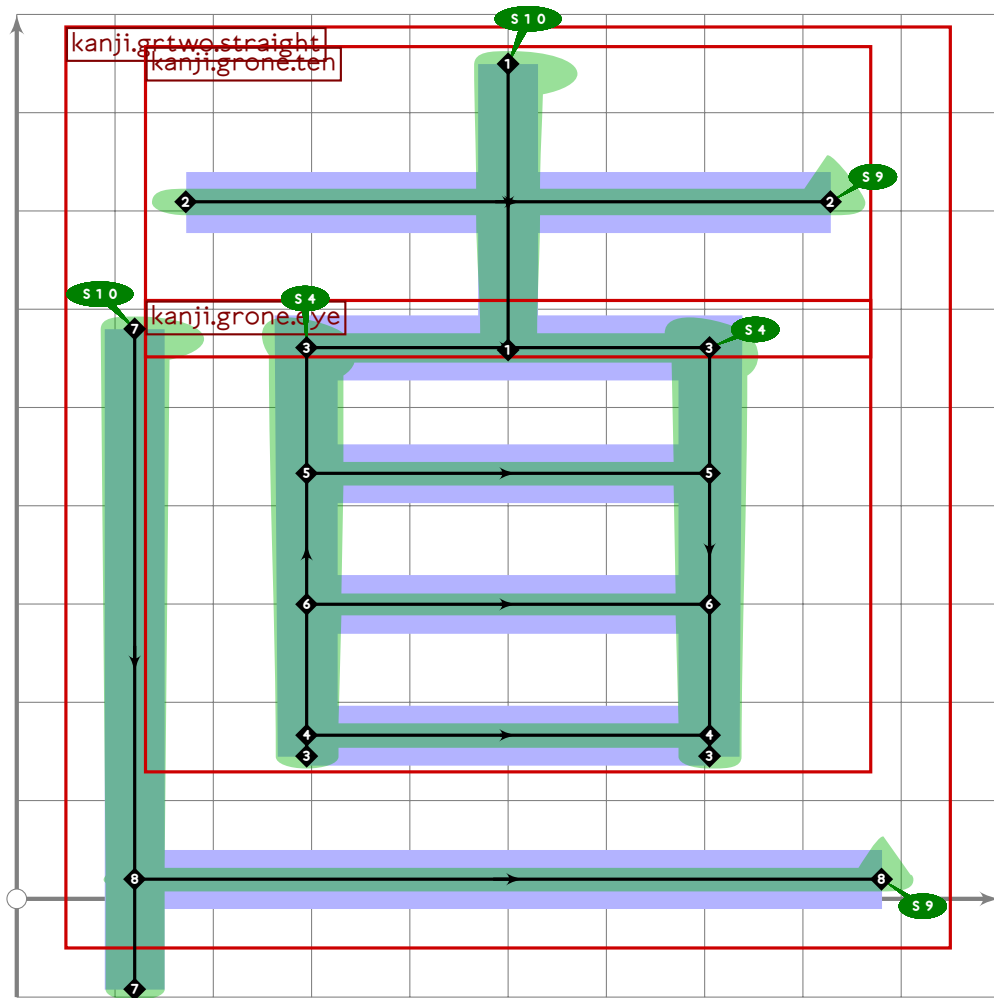
```



```

569
570 vardef kanji.grtwo.sell =
571   push_pbox_toexpand("kanji.grtwo.sell");
572   build_kanji.level(build_kanji.tb(550,0)
573     (kanji.grfour.gentleman)
574     (build_kanji.tb(450,200)
575       (kanji.radical.silly_hat;
576         set_bosize(-1,0))
577       (kanji.radical.legs)));
578   expand_pbox;
579 enddef;

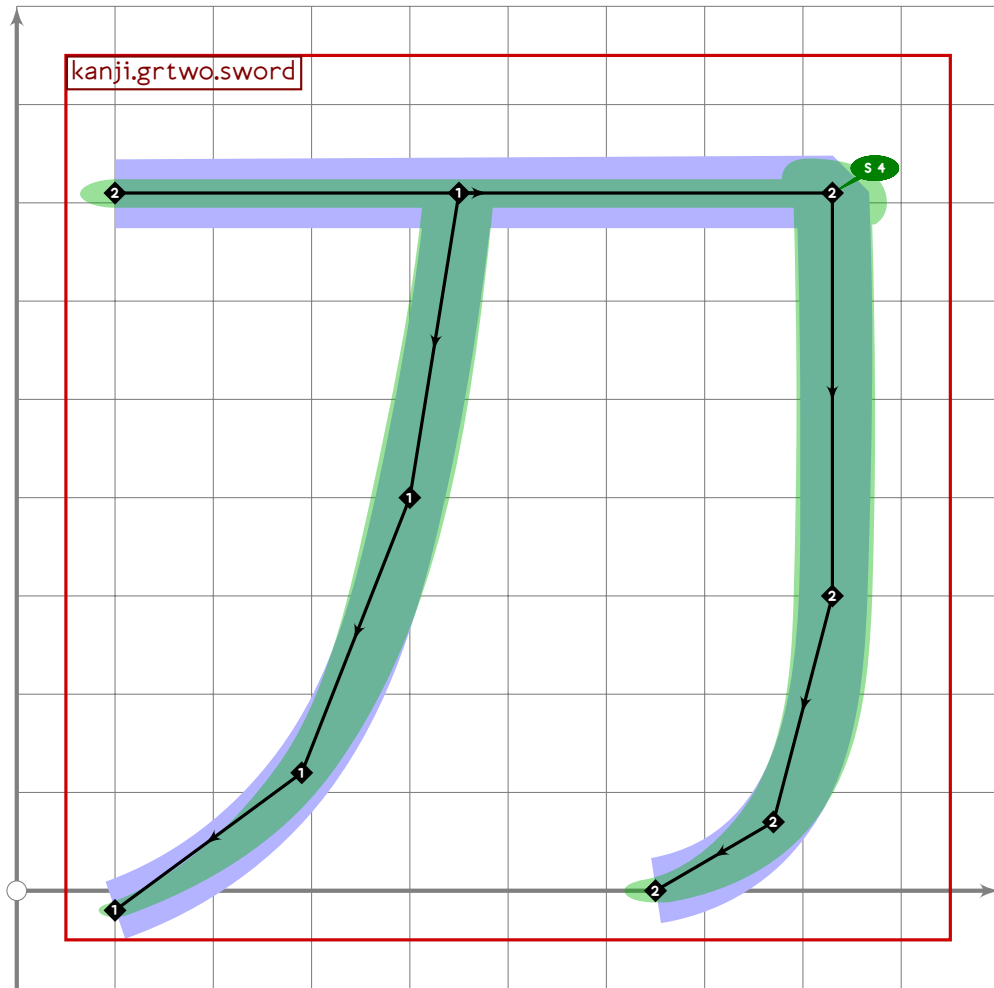
```



```

580
581 vardef kanji.grtwo.straight =
582   push_pbox_toexpand("kanji.grtwo.straight");
583   build_kanji.level(
584     build_kanji.sscale(scaled 0.82 shifted (0,100))
585     (build_kanji.tb(500,70)
586      (kanji.grone.ten)
587      (kanji.grone.eye));
588     build_kanji.cup((120,580),(880,20));
589     set_bosize(-1,0);
590     set_boserif(0,1,9);
591   );
592   expand_pbox;
593 enddef;

```

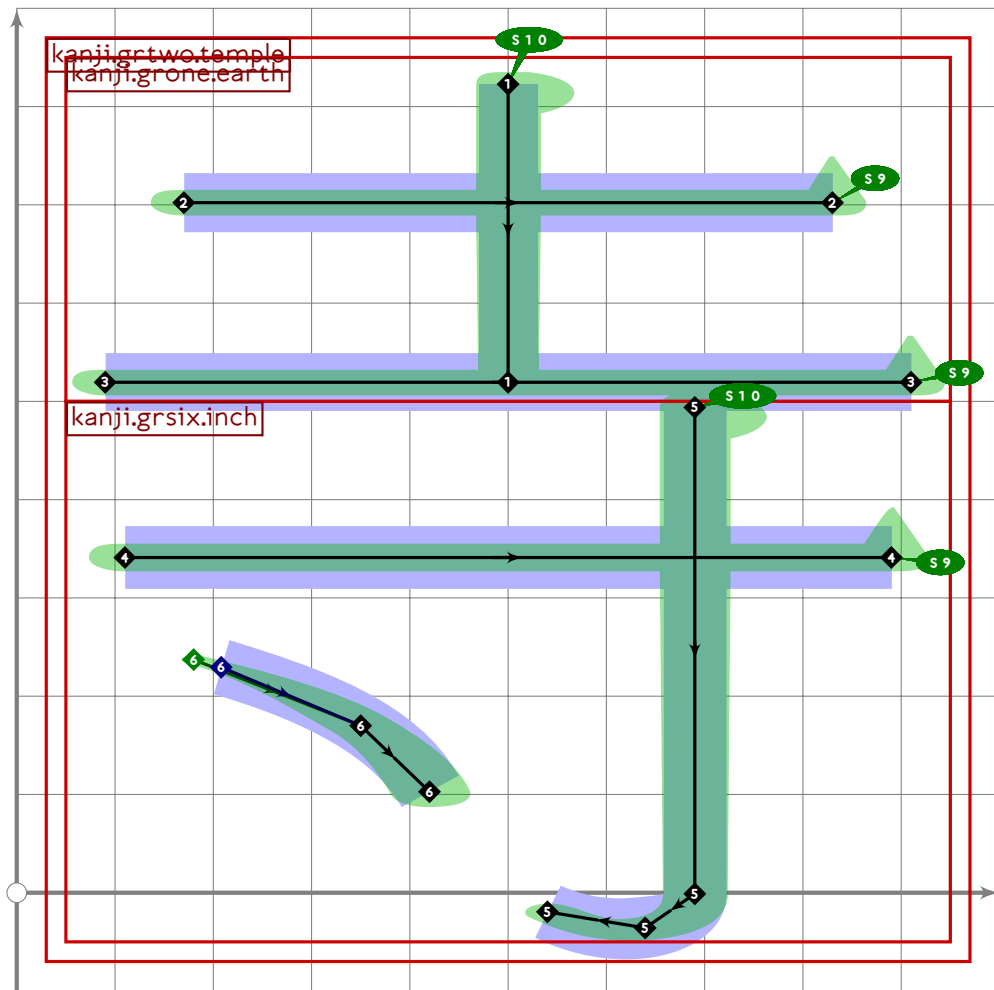


```

594
595 vardef kanji.grtwo.sword =
596   push_pbox_toexpand("kanji.grtwo.sword");
597   push_stroke((450,710)..(400,400)..(290,120)..(100,-20),
598     (1.5,1.5)-(1.6,1.6)-(1.3,1.3)-(1,1));
599   push_stroke((100,710)-(830,710)..tension 11..(830,300)..(770,70)..(650,0),
600     (1.5,1.5)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.4,1.4));
601   set_botip(0,1,0);
602   set_boserif(0,1,4);
603   expand_pbox;
604 enddef;

```

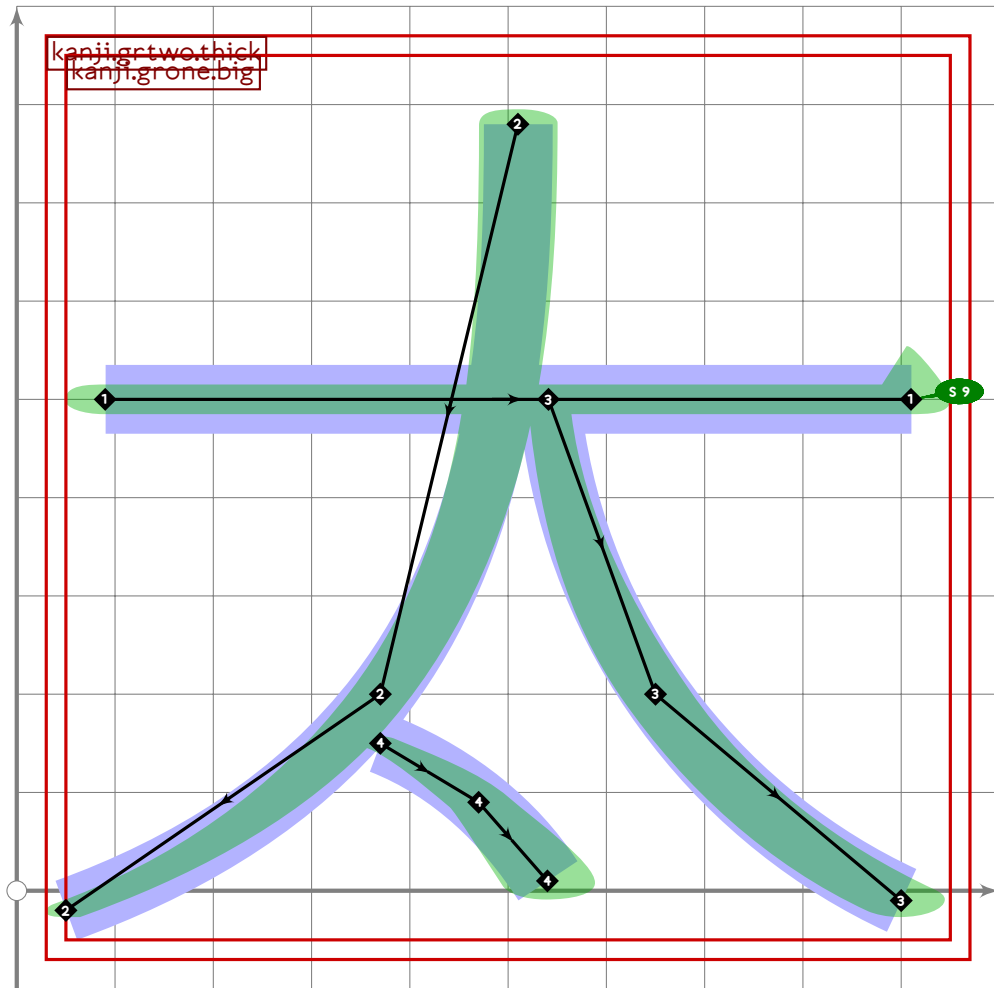




```

605
606 vardef kanji.grtwo.temple =
607   push_pbox_toexpand("kanji.grtwo.temple");
608   build_kanji.tb(500,0)
609     (kanji.grone.earth)
610     (kanji.grsix.inch;
611       replace_stroke(-1)((point 0 of oldp)+(0,60))
612         -(subpath (1,infinity) of oldp)));
613   expand_pbox;
614 enddef;

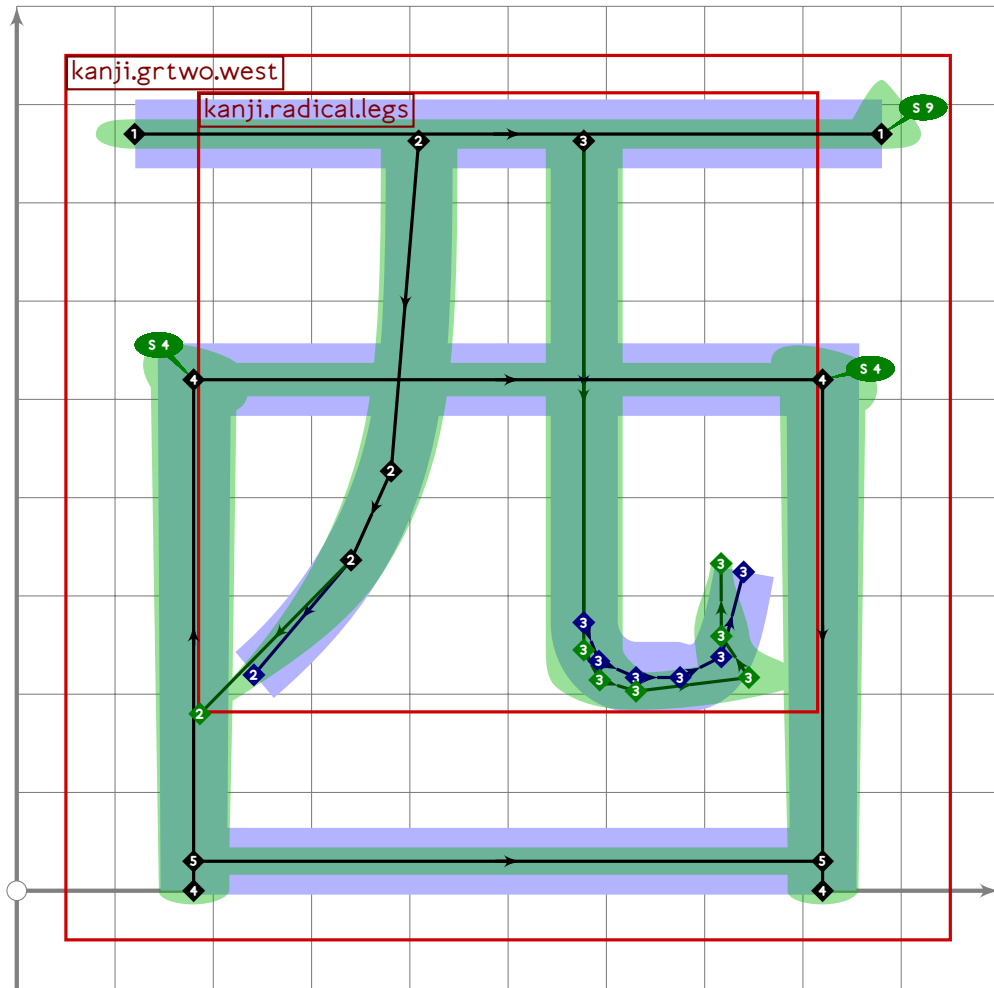
```



```

615
616 vardef kanji.grtwo.thick =
617   push_pbox_toexpand("kanji.grtwo.thick");
618   kanji.grone.big;
619   push_stroke((370,150)..(470,90)..(540,10),
620     (1,1)-(14,14)-(18,18));
621   expand_pbox;
622 enddef;

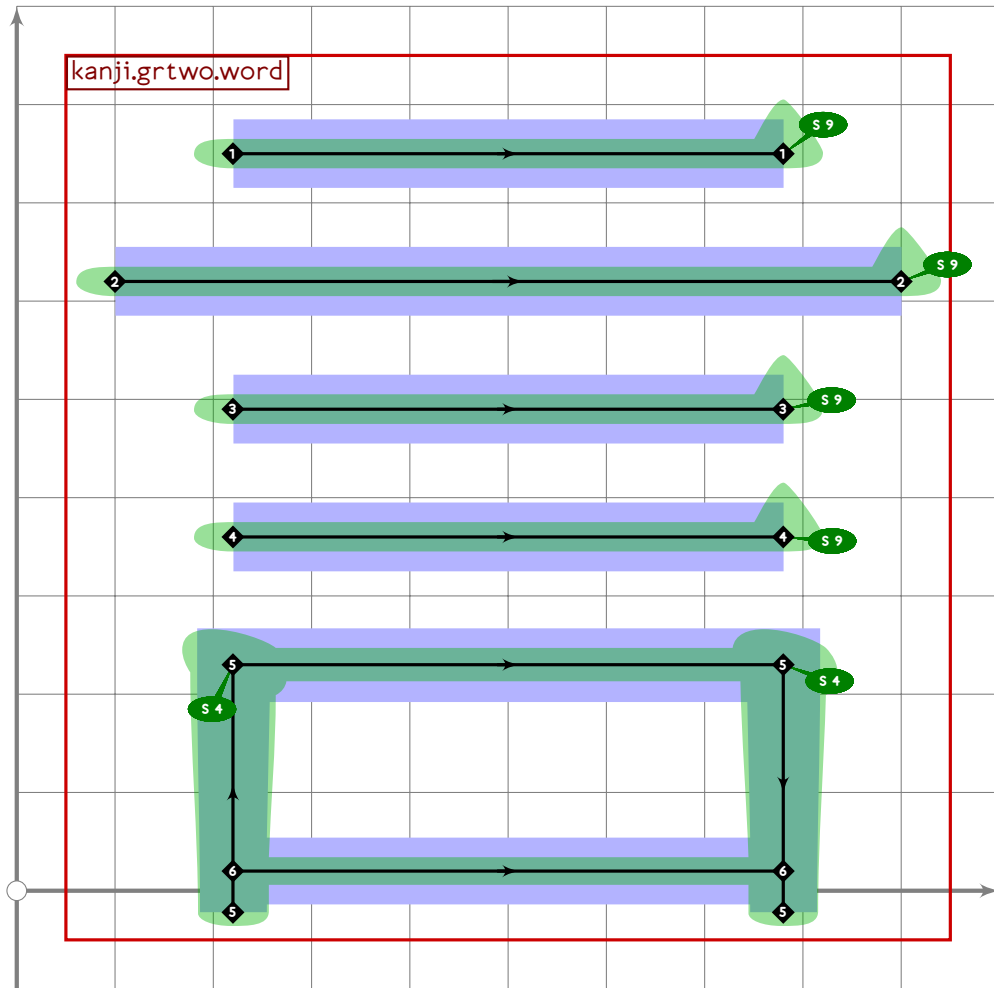
```



```

623
624 vardef kanji.grtwo.west =
625   push_pbox_toexpand("kanji.grtwo.west");
626   push_stroke((120,770)-(880,770),(1.6,1.6)-(1.6,1.6));
627   set_boserif(0,1,9);
628   build_kanji.sscale(scaled 0.7 shifted (0,100))
629     (kanji.radical.legs);
630   build_kanji.box((180,520),(820,30));
631   expand_pbox;
632 enddef;

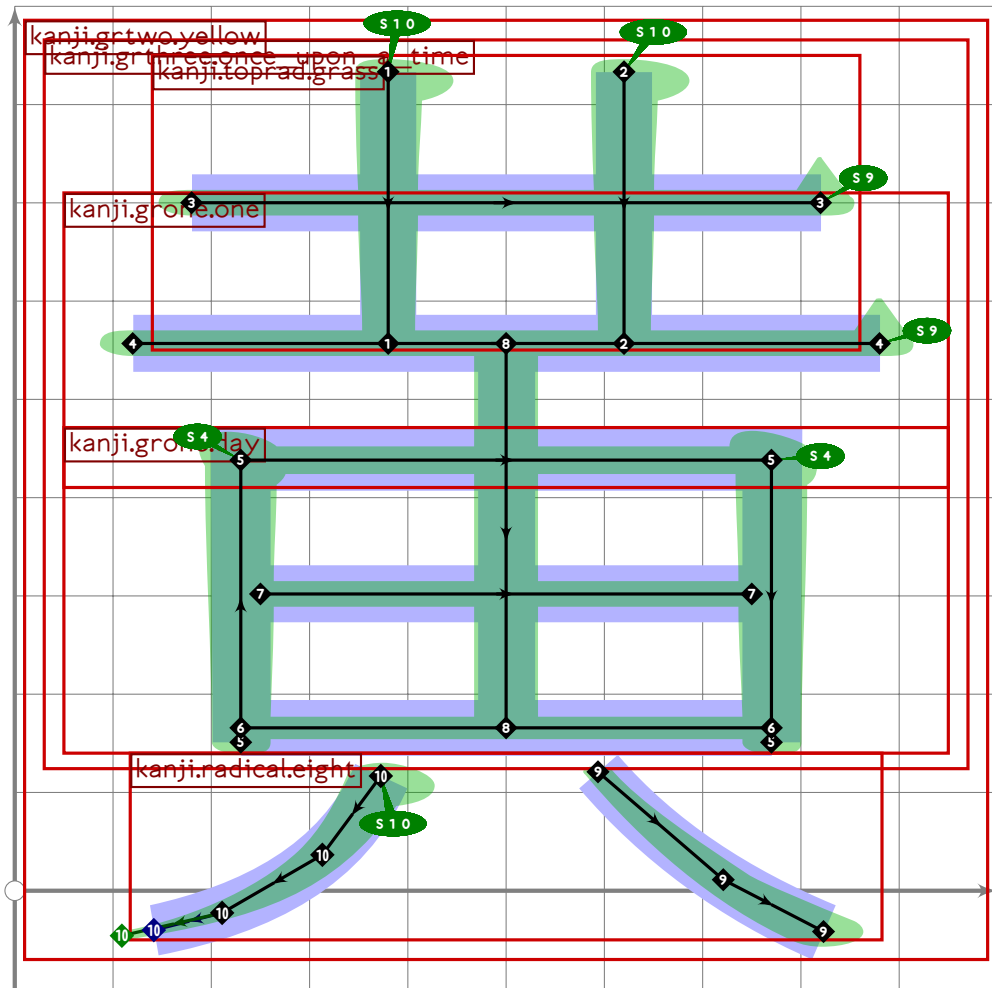
```



```

633
634 vardef kanji.grtwo.word =
635   push_pbox_toexpand("kanji.grtwo.word");
636   push_stroke((220,750)-(780,750),(1.6,1.6)-(1.6,1.6));
637   set_boserif(0,1,9);
638   push_stroke((100,620)-(900,620),(1.6,1.6)-(1.6,1.6));
639   set_boserif(0,1,9);
640   push_stroke((220,490)-(780,490),(1.6,1.6)-(1.6,1.6));
641   set_boserif(0,1,9);
642   push_stroke((220,360)-(780,360),(1.6,1.6)-(1.6,1.6));
643   set_boserif(0,1,9);
644   build_kanji.box((220,230),(780,20));
645   expand_pbox;
646 enddef;

```



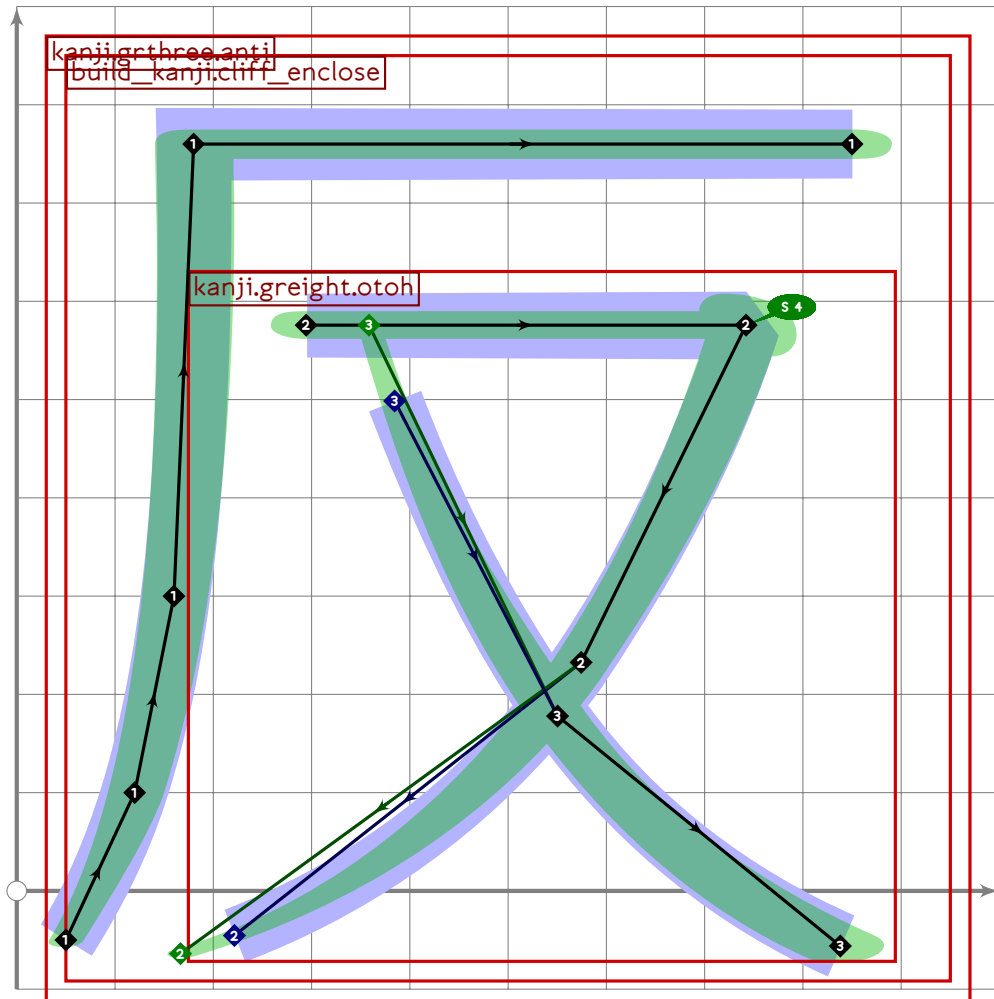
```

647
648 vardef kanji.grtwo.yellow =
649   push_pbox_toexpand("kanji.grtwo.yellow");
650   build_kanji.level(build_kanji.tb(140,0)
651     (kanji.grthree.once_upon_a_time;
652       push_stroke((point 0.5 of get_strokep(-3))-
653         (point 0.5 of get_strokep(-1)),
654         (1.6,1.6)-(1.5,1.5)))
655     (build_kanji.sscale(xscaled 0.85)(kanji.radical.eight)));
656   expand_pbox;
657 enddef;

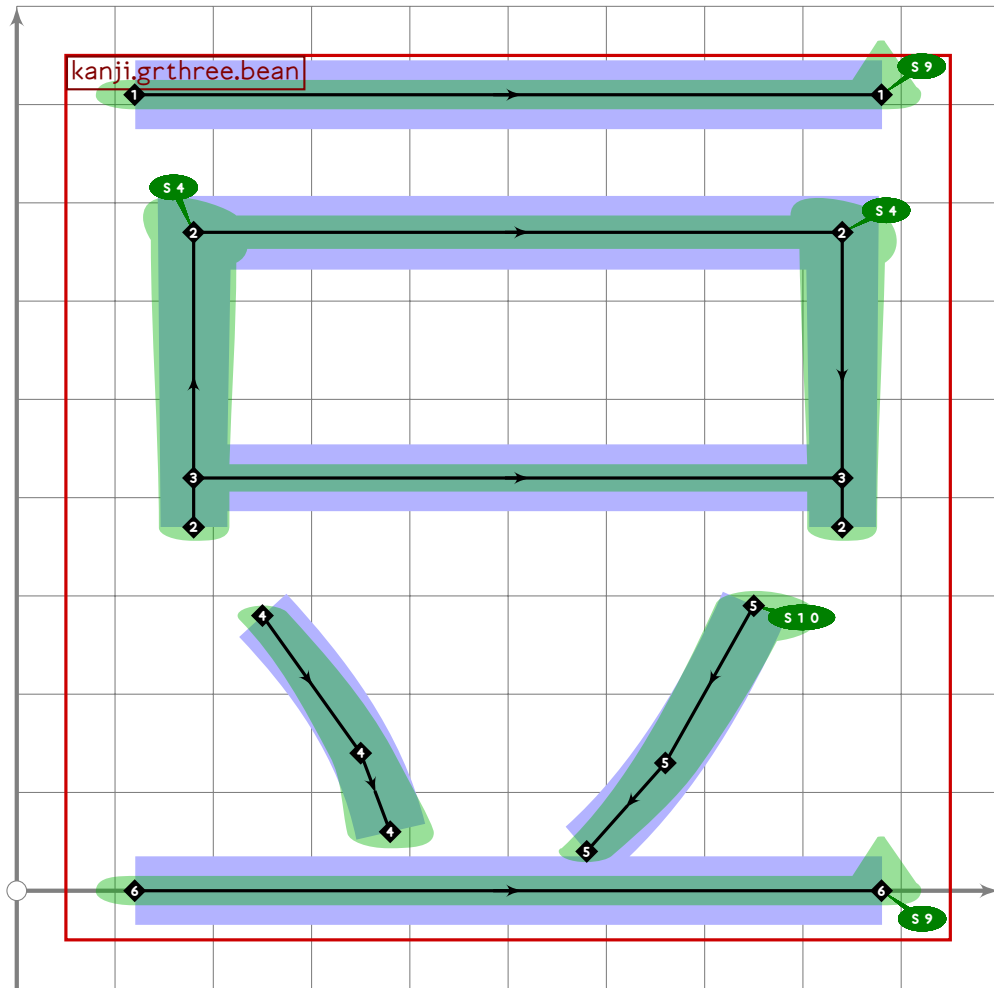
```

# gradethree.mp

```
1 %  
2 % Grade Three kanji used on more than one page  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 inclusion_lock(gradethree);  
32  
33
```



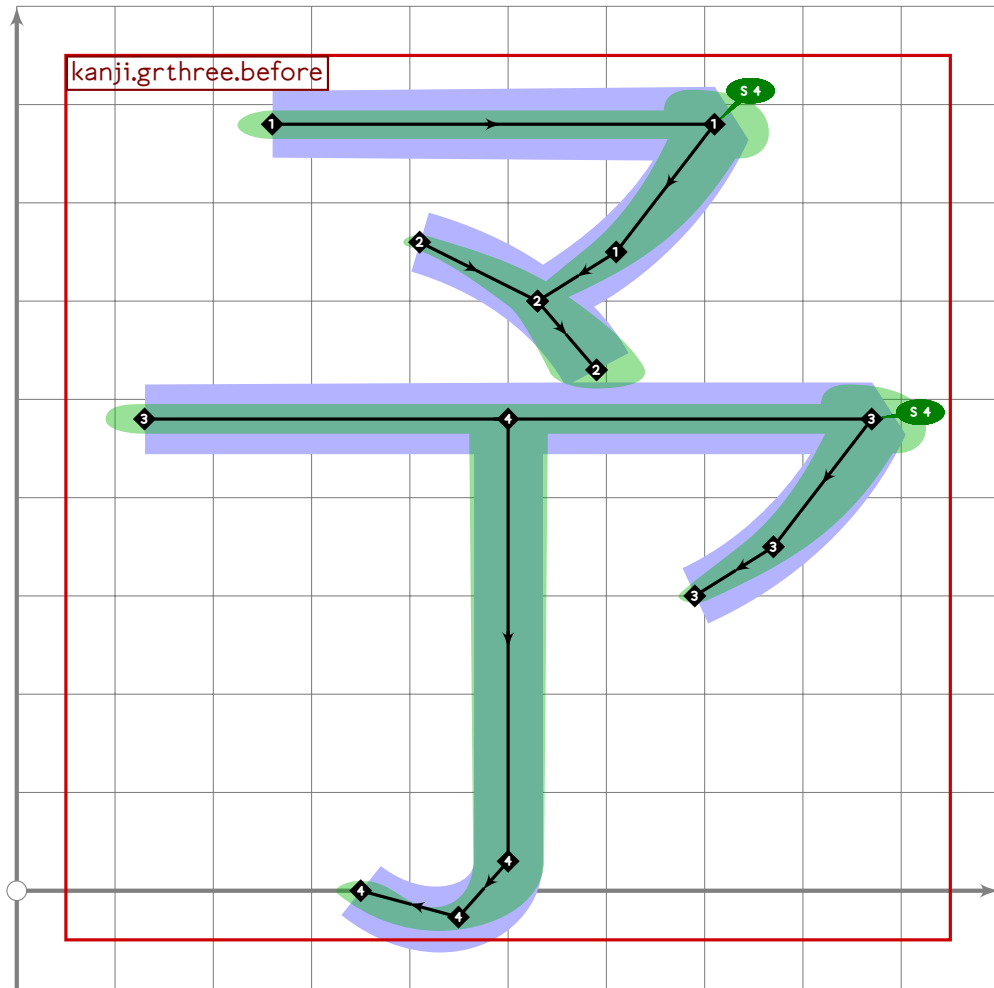
```
34  
35 vardef kanji.grthree.anti =  
36   push_pbox_toexpand("kanji.grthree.anti");  
37   build_kanji.cliff_enclose  
38     (tsu_xform(identity xyscaled (1.09,0.9) shifted (-80,-30))  
39     (kanji.greight.otoh));  
40   expand_pbox;  
41 enddef;
```



```

42
43 vardef kanji.grthree.bean =
44   push_pbox_toexpand("kanji.grthree.bean");
45   push_stroke((120,810)-(880,810),
46     (1.6,1.6)-(1.6,1.6));
47   set_boserif(0,1,9);
48   build_kanji.box((180,670),(840,420));
49   push_stroke((250,280)..tension 1.2..(350,140)..(380,60),
50     (1.2,1.2)-(1.4,1.4)-(1.7,1.7));
51   push_stroke((750,290)..tension 1.2..(660,130)..(580,40),
52     (1.6,1.6)-(1.5,1.5)-(1.3,1.3));
53   set_boserif(0,0,10);
54   push_stroke((120,0)-(880,0),
55     (1.6,1.6)-(1.6,1.6));
56   set_boserif(0,1,9);
57   expand_pbox;
58 enddef;

```

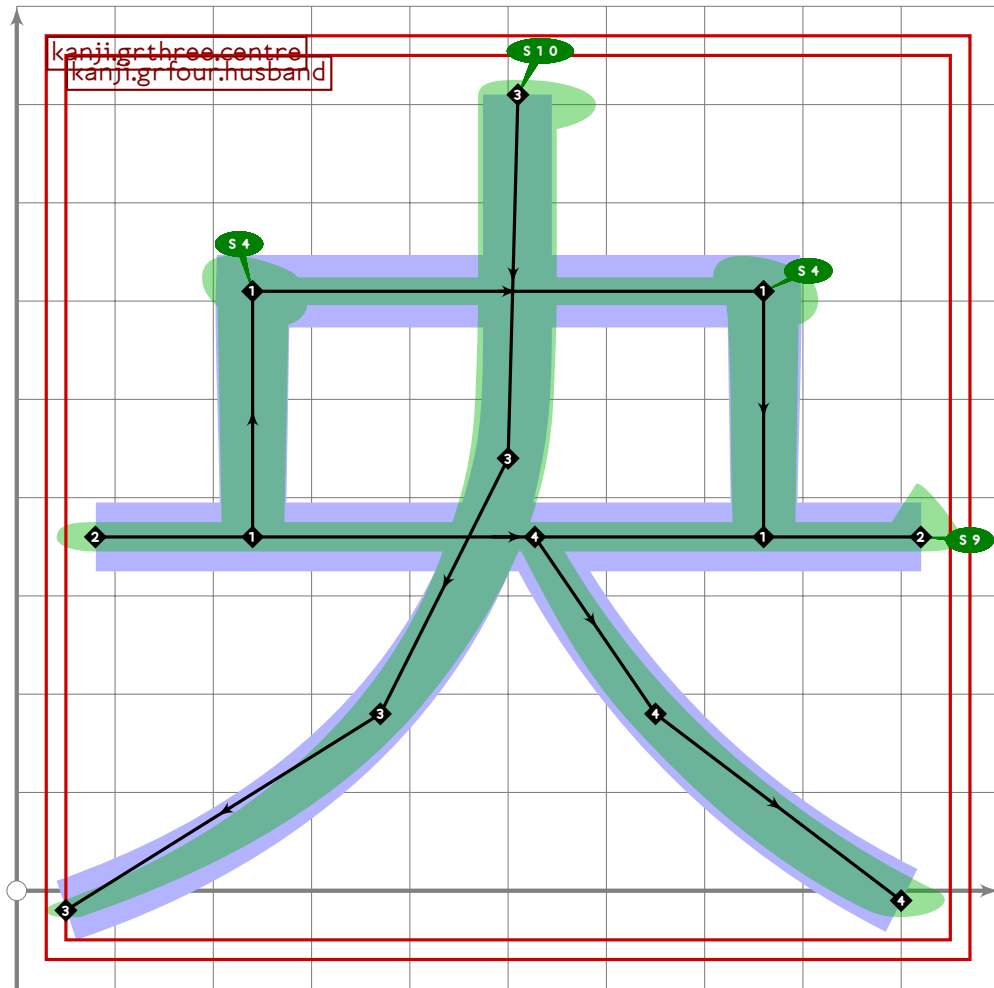


```

59
60 vardef kanji.grthree.before =
61   push_pbox_toexpand("kanji.grthree.before");
62   push_stroke((260,780)-(710,780)..(610,650)..(530,600),
63     (1.5,1.5)-(1.6,1.6)-(1.4,1.4)-(1,1));
64   set_boserif(0,1,4);
65   set_botip(0,1,0);
66   push_stroke((410,660)..tension 1.2..(530,600)..(590,530),
67     (1,1)-(1.4,1.4)-(1.8,1.8));
68   push_stroke((130,480)-(870,480)..(770,350)..(690,300),
69     (1.6,1.6)-(1.6,1.6)-(1.4,1.4)-(1,1));
70   set_boserif(0,1,4);
71   set_botip(0,1,0);
72   push_stroke((500,480),
73     (1.6,1.6));
74   build_kanji.add_jtail(0);
75   expand_pbox;
76 enddef;

```

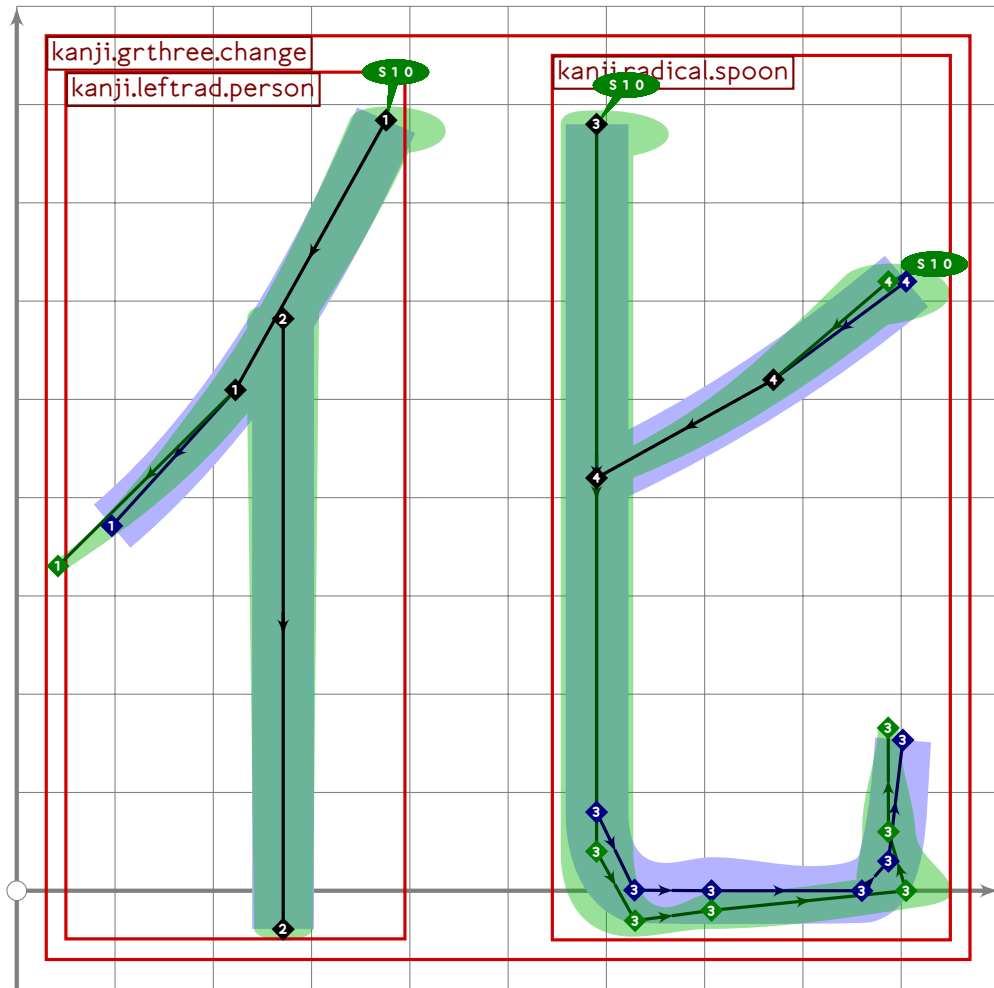




```

77
78 vardef kanji.grthree.centre =
79   push_pbox_toexpand("kanji.grthree.centre");
80   kanji.grfour.husband;
81   replace_strokep(-3)((240,360)-(240,610)-(760,610)-(760,360));
82   replace_strokeq(-3)((14,14)-(15,15)-(15,15)-(14,14));
83   set_boserif(-3,1,4);
84   set_boserif(-3,2,4);
85   set_botip(-3,1,1);
86   set_botip(-3,2,1);
87   expand_pbox;
88 enddef;

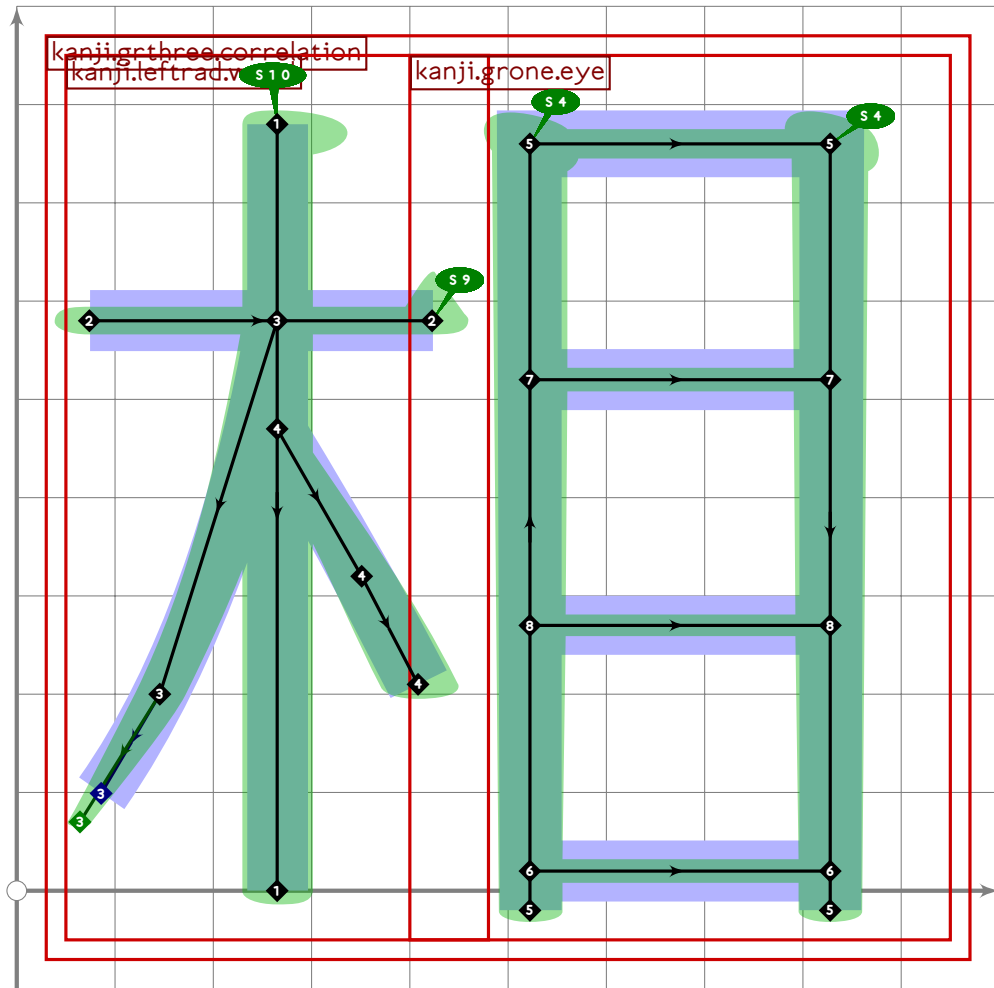
```



```

89
90 vardef kanji.grthree.change =
91   push_pbox_toexpand("kanji.grthree.change");
92   build_kanji.level(build_kanji.lr(470,-150)
93     (tsu_xform(identity yscaled 0.98)(kanji.leftrad.person))
94     (kanji.radical.spoon));
95   set_boserif(0,0,10);
96   expand_pbox;
97 enddef;

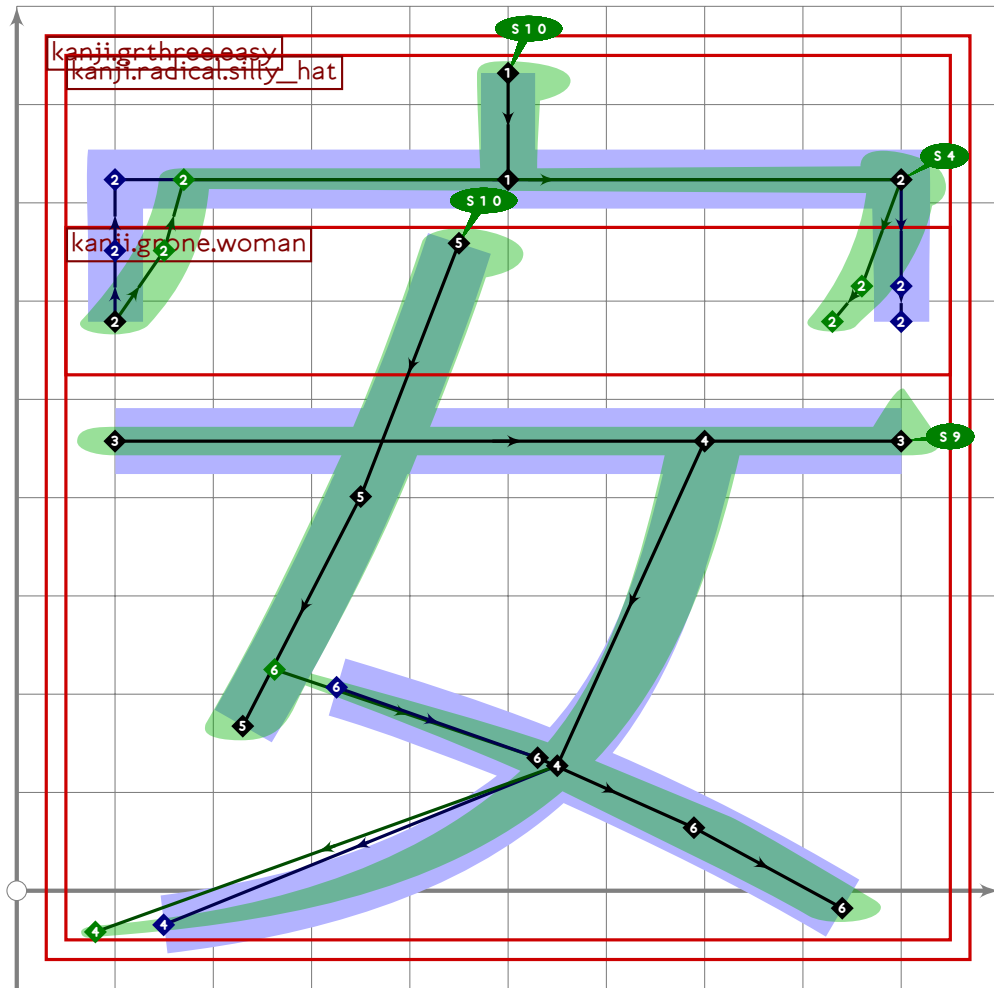
```



```

98
99 vardef kanji.grthree.correlation =
100   push_pbox_toexpand("kanji.grthree.correlation");
101   build_kanji.level(build_kanji.lr(440,80)
102     (kanji.leftrad.wood)
103     (kanji.grnone.eye));
104   expand_pbox;
105 enddef;

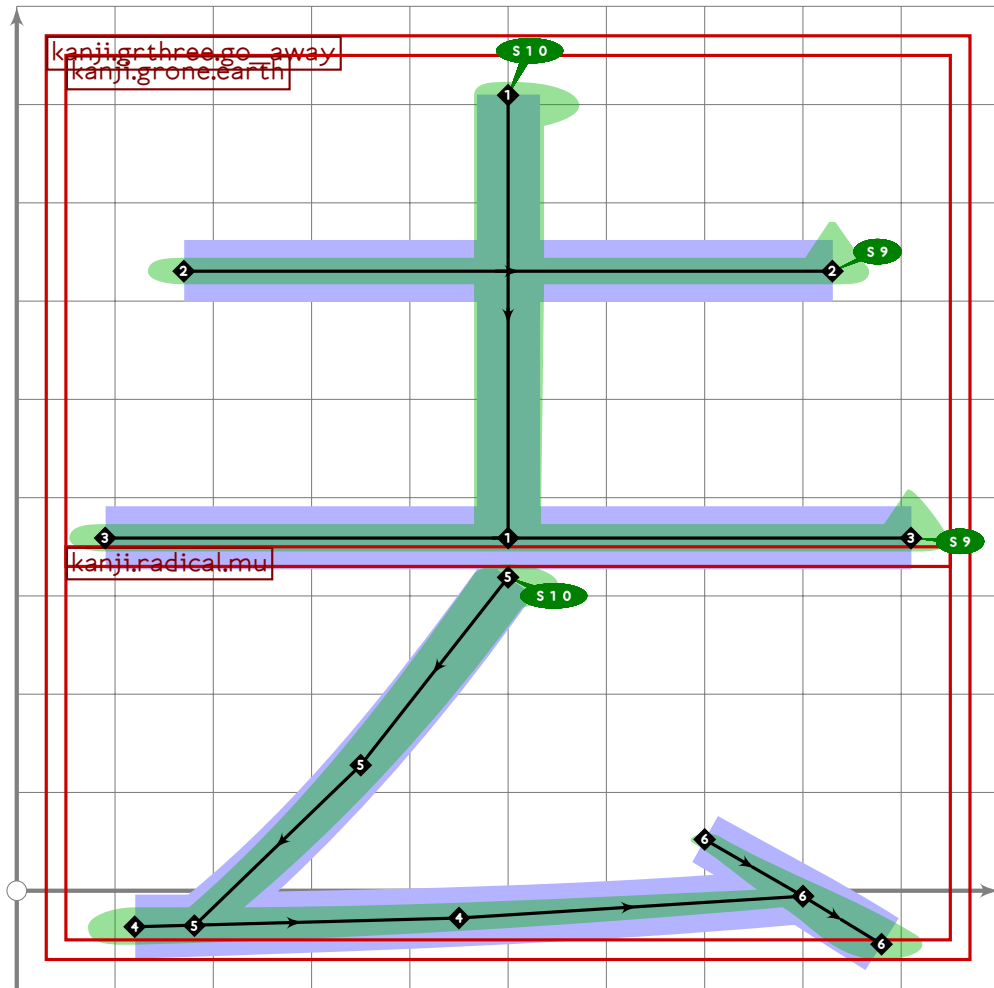
```



```

106
107 vardef kanji.grthree.easy =
108   push_pbox_toexpand("kanji.grthree.easy");
109   build_kanji.tb(600,150)
110     (kanji.radical.silly_hat)
111     (kanji.grone.woman);
112   expand_pbox;
113 enddef;

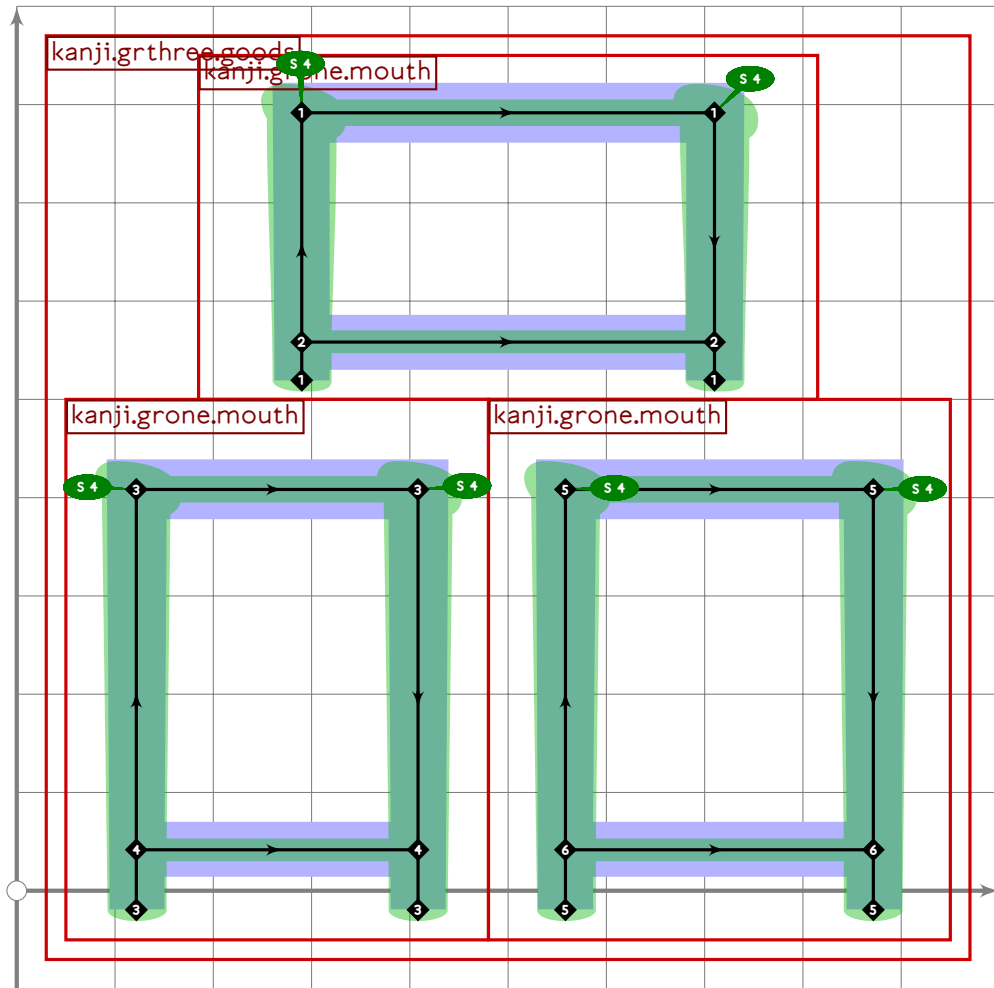
```



```

114
115 vardef kanji.grthree.go_away =
116   push_pbox_toexpand("kanji.grthree.go_away");
117   build_kanji.tb(340,20)
118     (kanji.grone.earth)
119     (kanji.radical.mu);
120   expand_pbox;
121 enddef;

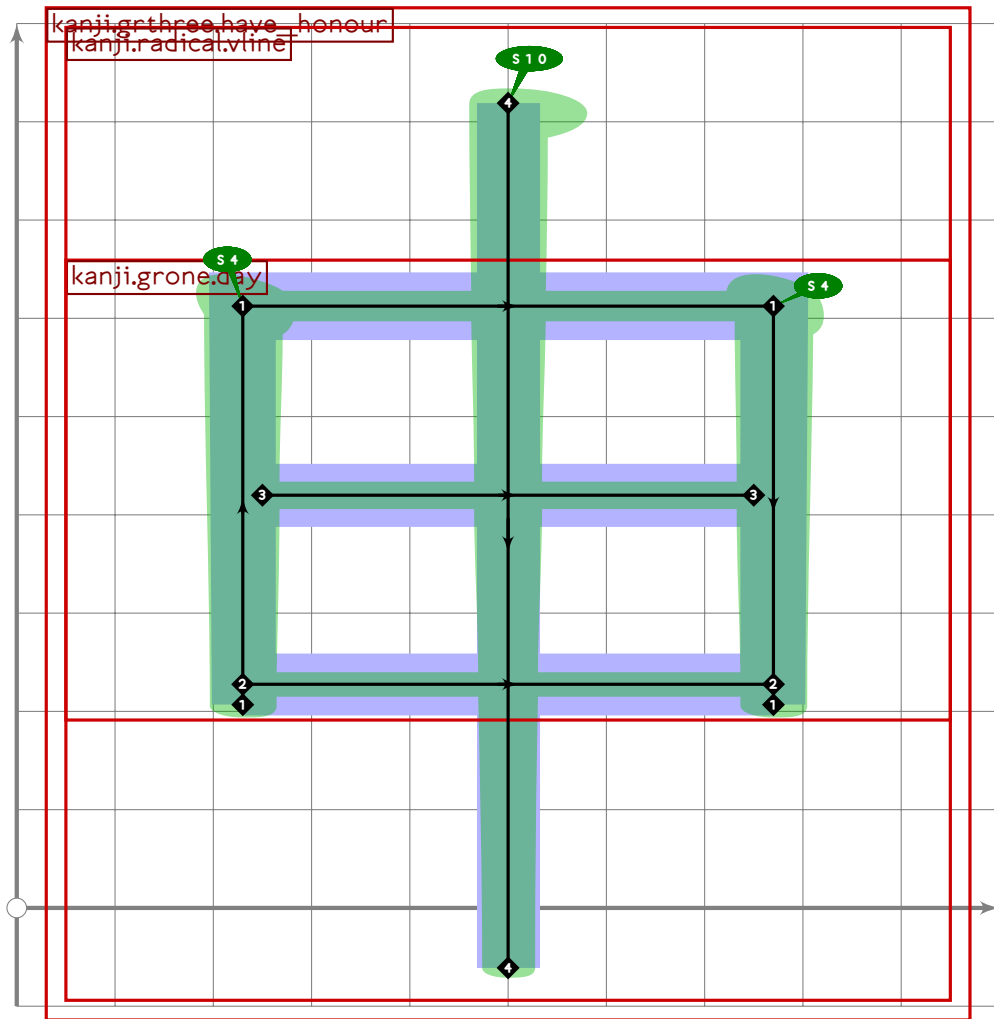
```



```

122
123 vardef kanji.grthree.goods =
124   push_pbox_toexpand("kanji.grthree.goods");
125   build_kanji.level(build_kanji.tricluster(0.7)
126     (kanji.grone.mouth)
127     (kanji.grone.mouth)
128     (kanji.grone.mouth));
129   expand_pbox;
130 enddef;

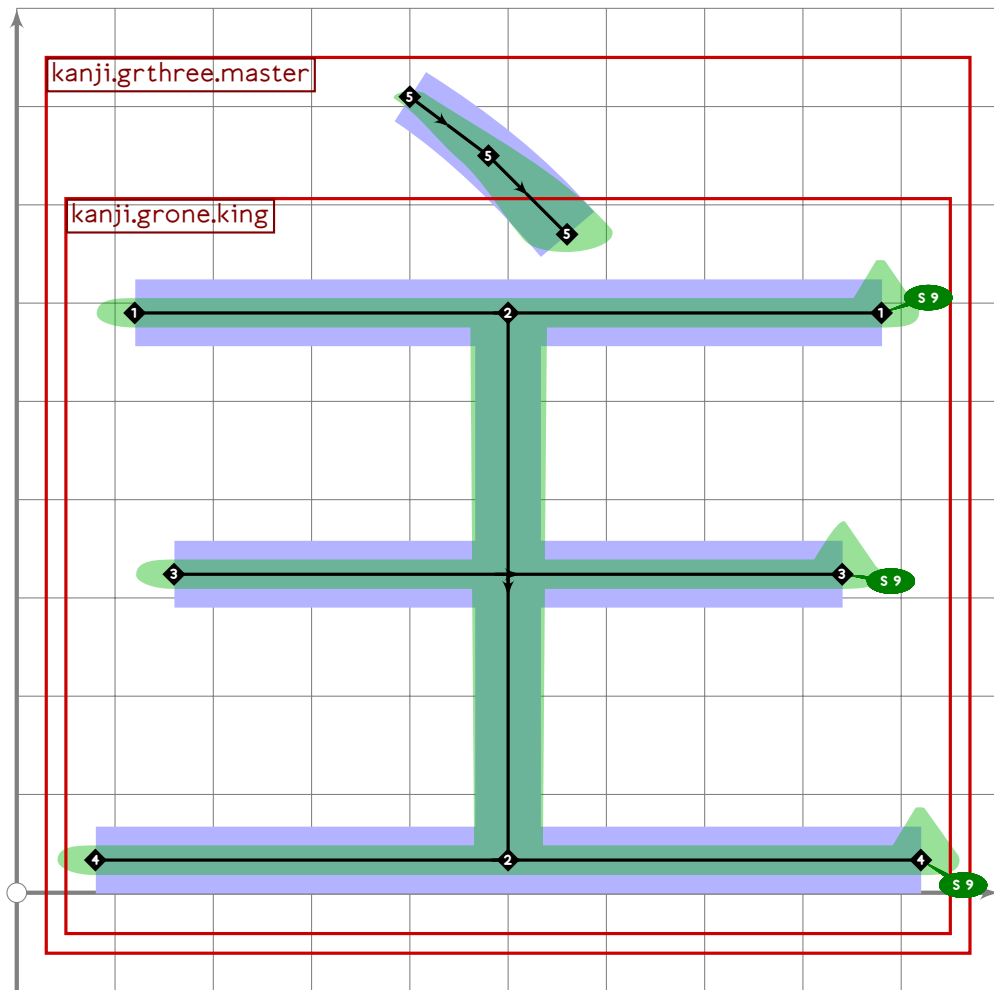
```



```

131
132 vardef kanji.grthree.have_honour =
133   push_pbox_toexpand("kanji.grthree.have_honour");
134   build_kanji.level(
135     build_kanji.sscale(yscaled 0.52 shifted (0,30))(kanji.grone.day);
136     build_kanji.sscale(yscaled 1.1)(kanji.radical.vline));
137   expand_pbox;
138 enddef;

```

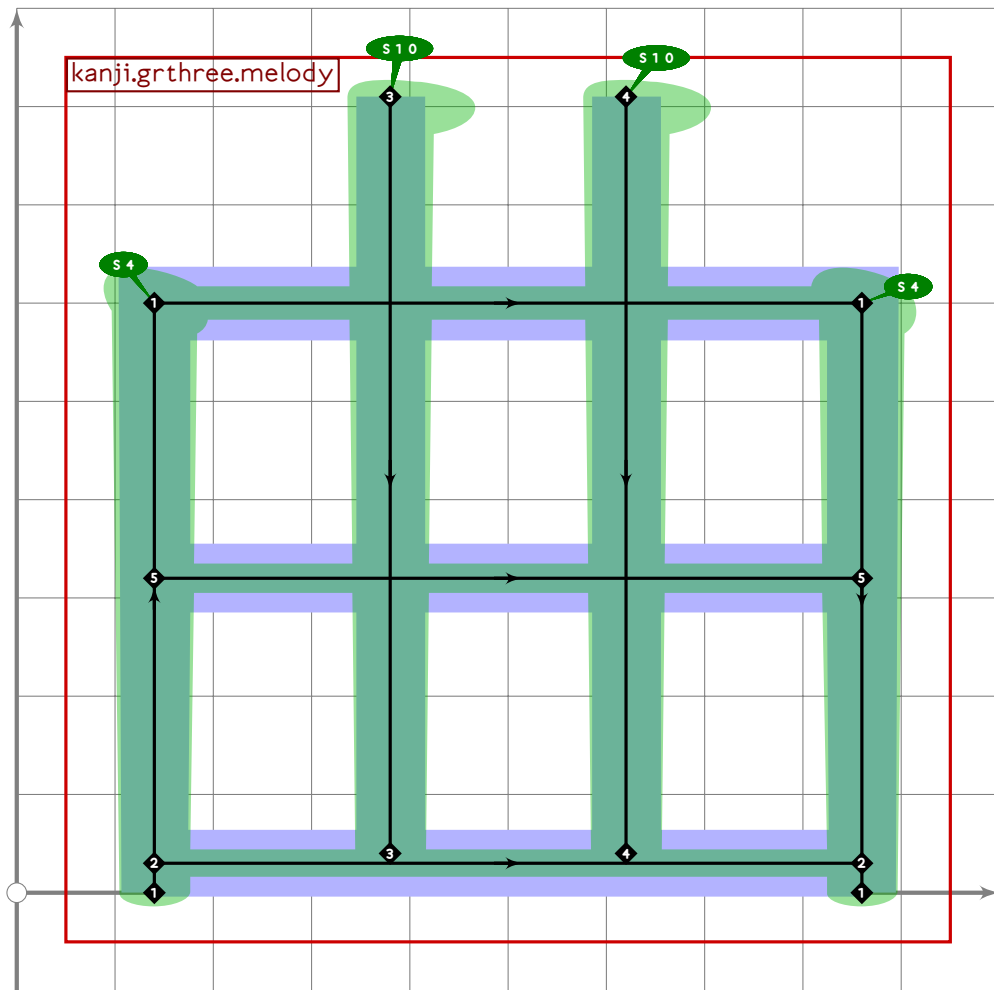


```

139
140 vardef kanji.grthree.master =
141   push_pbox_toexpand("kanji.grthree.master");
142   build_kanji.level(
143     tsu_xform(identity yscaled (590/710))(kanji.grone.king);
144     push_stroke((400,810)..(480,750)..(560,670),
145       (1,1)-(1.4,1.4)-(1.8,1.8));
146   expand_pbox;
147 enddef;

```

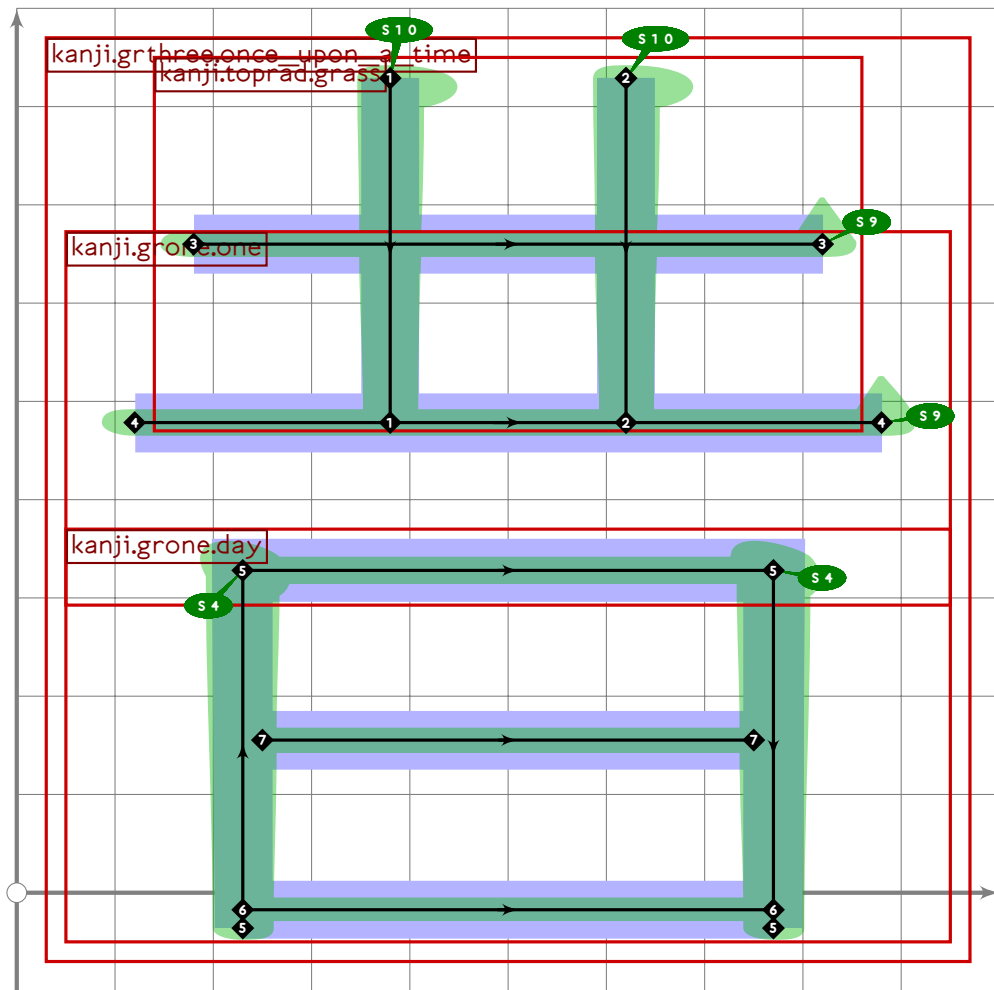




```

148
149 vardef kanji.grthree.melody =
150   push_pbox_toexpand("kanji.grthree.melody");
151   build_kanji.box((140,600),(860,30));
152   push_stroke((380,810)-(380,40),
153     (1.7,1.7)-(1.5,1.5));
154   set_boserif(0,0,10);
155   push_stroke((620,810)-(620,40),
156     (1.7,1.7)-(1.5,1.5));
157   set_boserif(0,0,10);
158   push_stroke((140,320)-(860,320),
159     (1.6,1.6)-(1.6,1.6));
160   expand_pbox;
161 enddef;

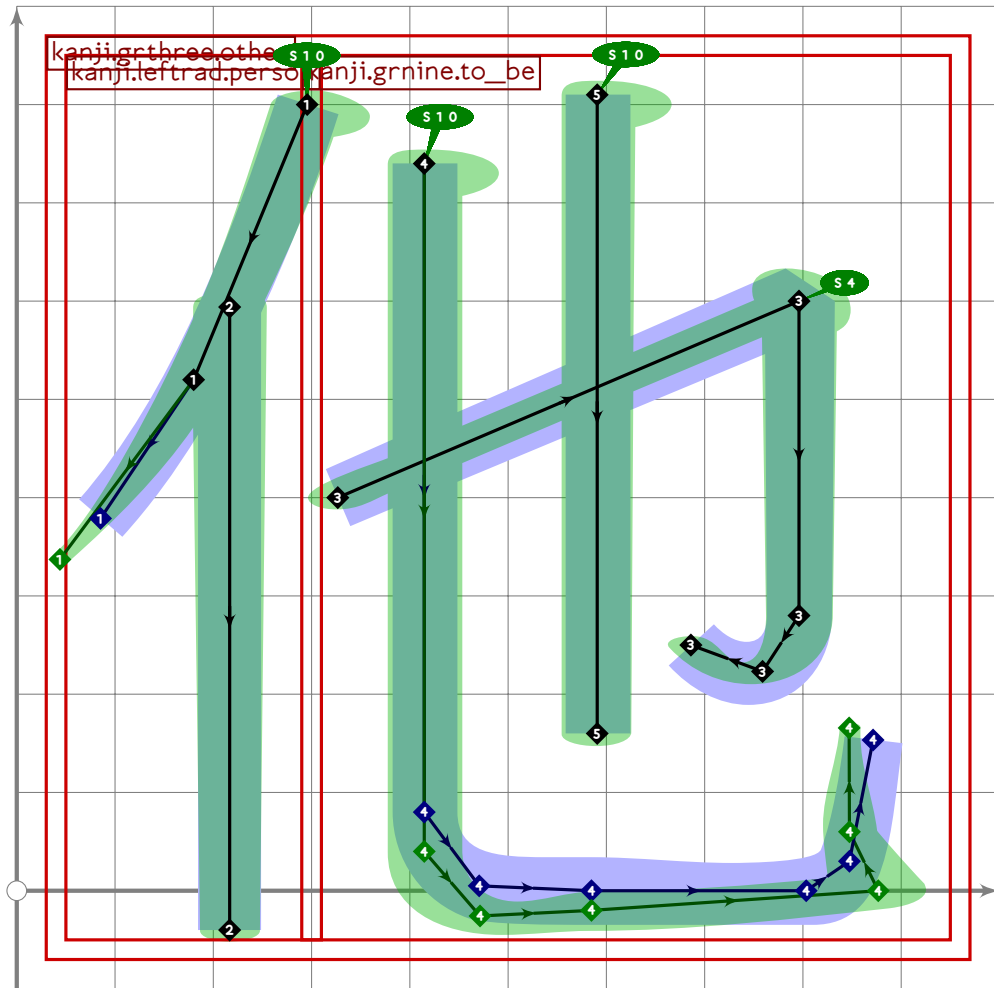
```



```

162
163 vardef kanji.grthree.once_upon_a_time =
164   push_pbox_toexpand("kanji.grthree.once_upon_a_time");
165   build_kanji.level(build_kanji.tb(420,-100)
166     (build_kanji.sscale(xscaled 0.8)(kanji.toprad.grass);
167     tsu_xform(identity shifted (0,-420))(kanji.grone.one))
168     (kanji.grone.day));
169   expand_pbox;
170 enddef;

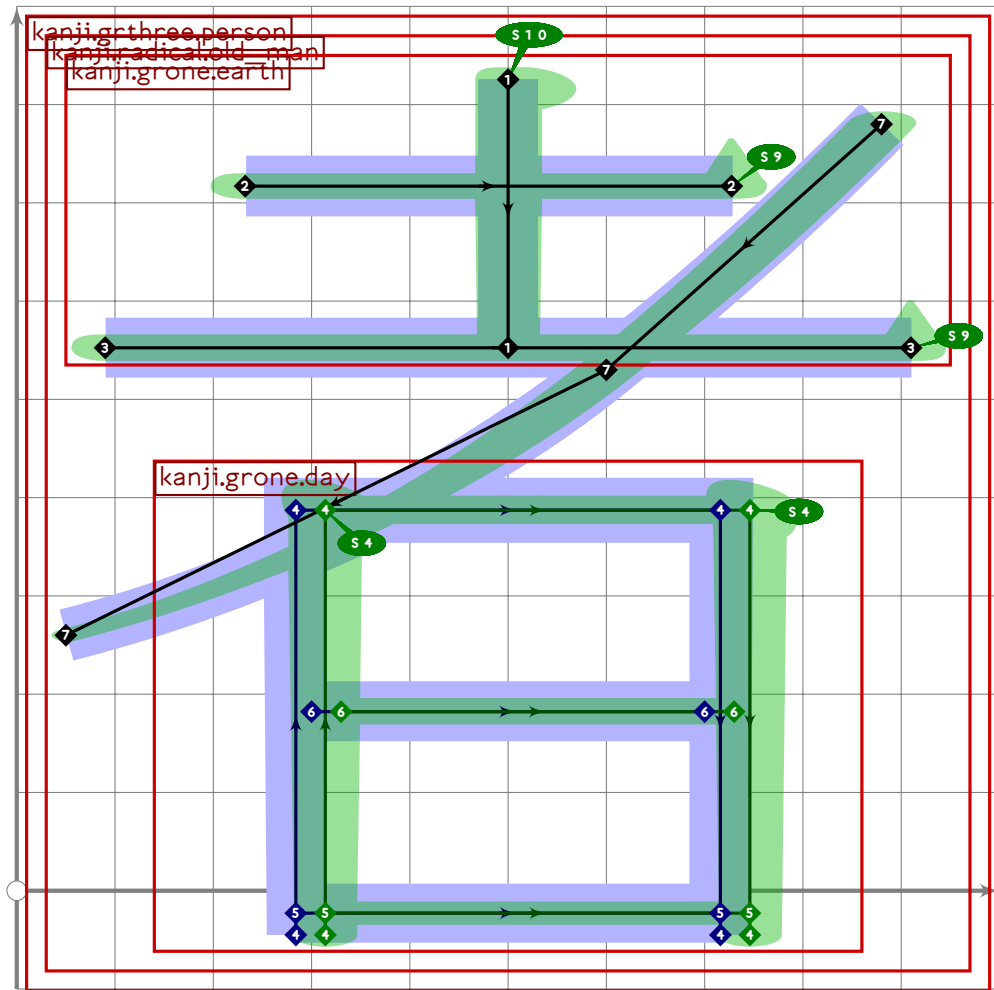
```



```

171
172 vardef kanji.grthree.other =
173   push_pbox_toexpand("kanji.grthree.other");
174   build_kanji.lr(300,20)
175     (kanji.leftrad.person)
176     (kanji.grnine.to_be);
177   expand_pbox;
178 enddef;

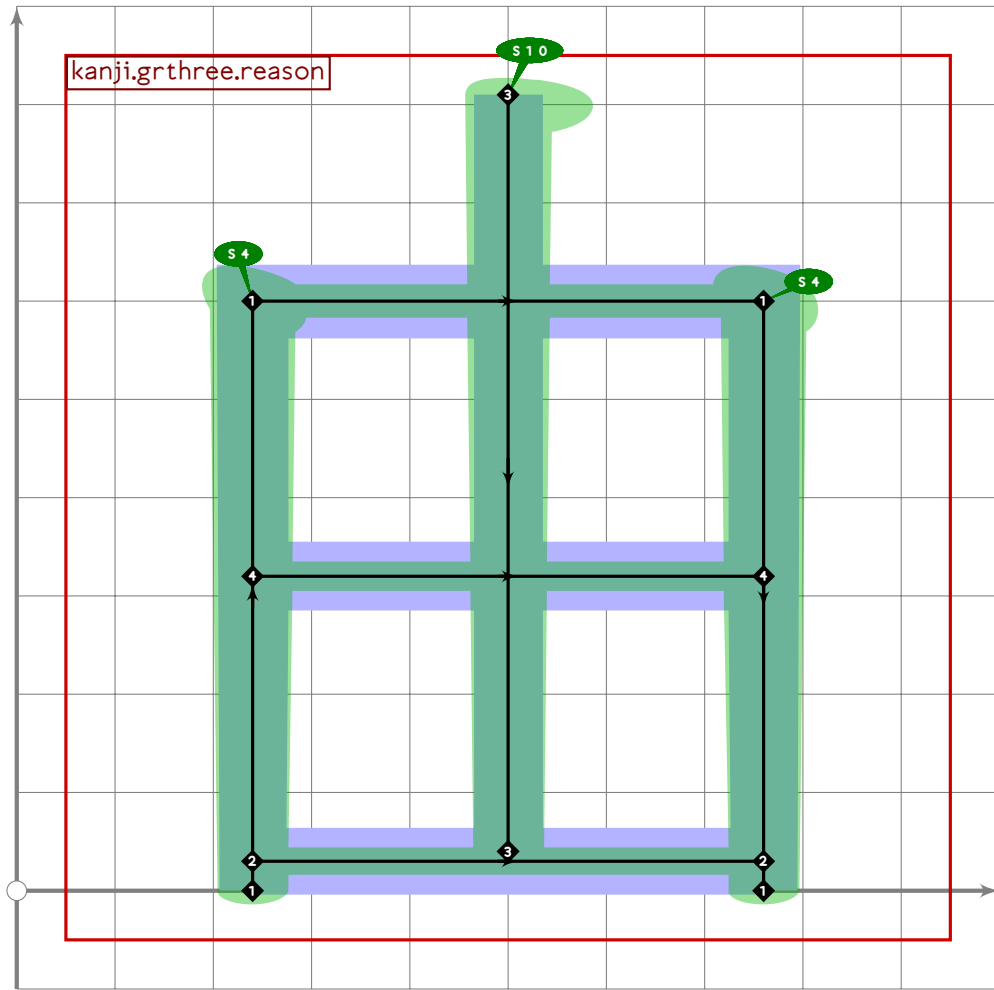
```



```

179
180 vardef kanji.grthree.person =
181   push_pbox_toexpand("kanji.grthree.person");
182   kanji.radical.old_man(
183     build_kanji.sscale(xyscaled (0.8,1.05) shifted (30*mincho,0))
184     (kanji.grone.day));
185   expand_pbox;
186 enddef;

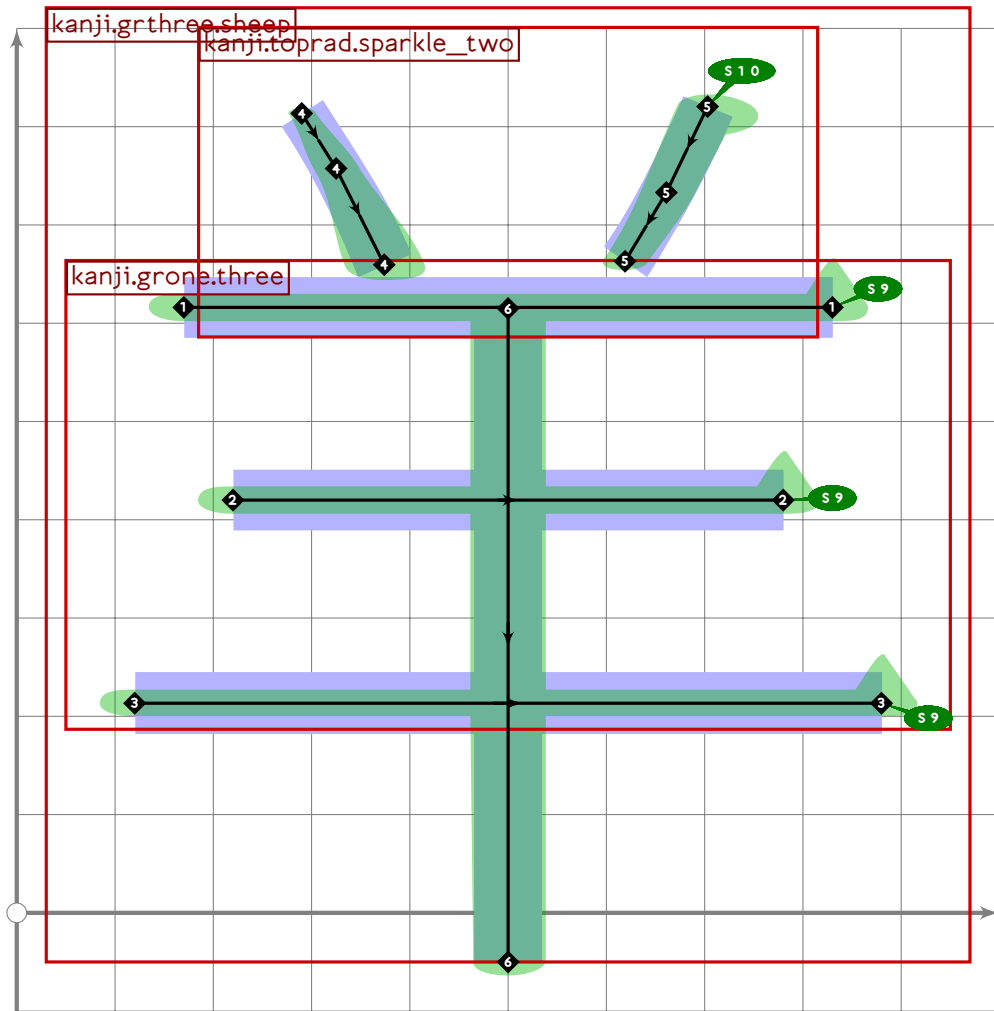
```



```

187
188 vardef kanji.grthree.reason =
189   push_pbox_toexpand("kanji.grthree.reason");
190   build_kanji.box((240,600),(760,30));
191   push_stroke((500,810)-(500,40),
192     (1.7,1.7)-(1.5,1.5));
193   set_boserif(0,0,10);
194   push_stroke((240,320)-(760,320),
195     (1.6,1.6)-(1.6,1.6));
196   expand_pbox;
197 enddef;

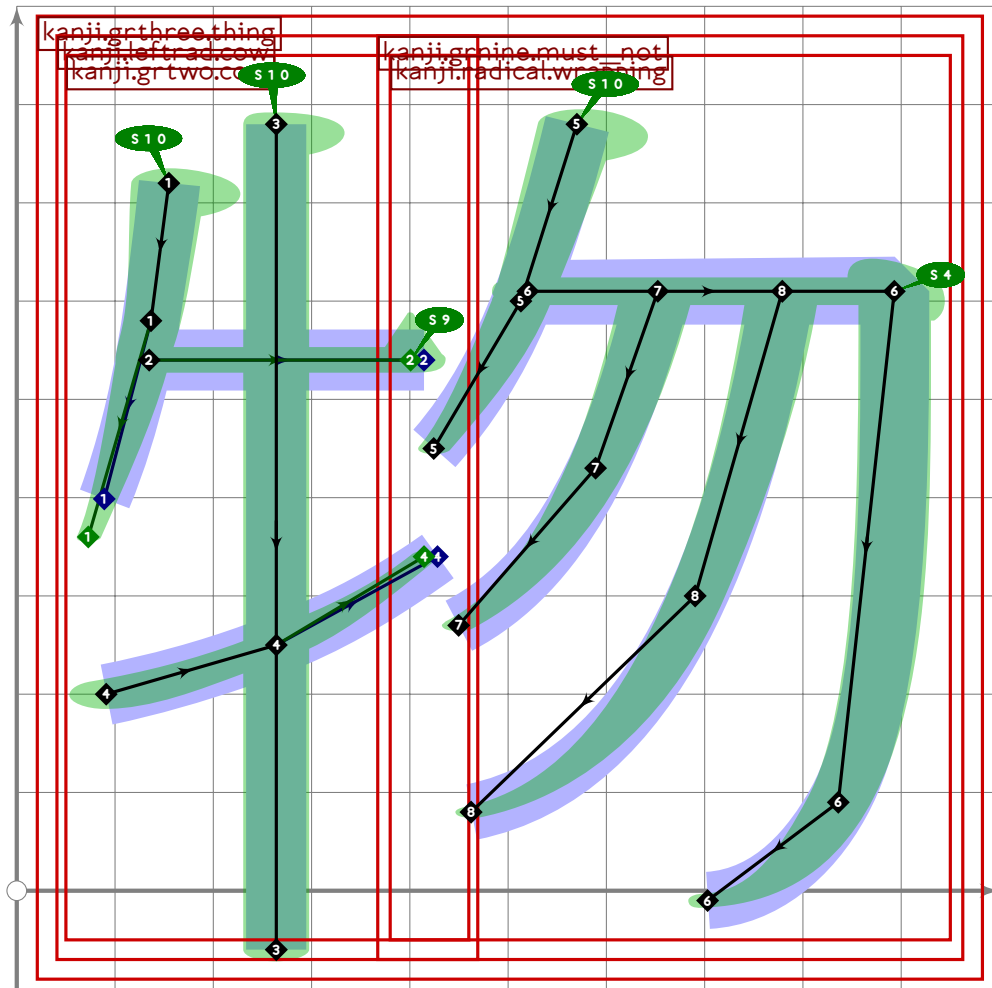
```



```

198
199 vardef kanji.grthree.sheep =
200   push_pbox_toexpand("kanji.grthree.sheep");
201   build_kanji.sscale(yscaled 0.53 shifted (0,30))
202     (kanji.grone.three);
203   build_kanji.sscale(xyscaled (0.7,0.35) shifted (0,350))
204     (kanji.toprad.sparkle_two);
205   push_stroke((500,615)-(500,-50),(1,6,1,6)-(1,5,1,5));
206   expand_pbox;
207 enddef;

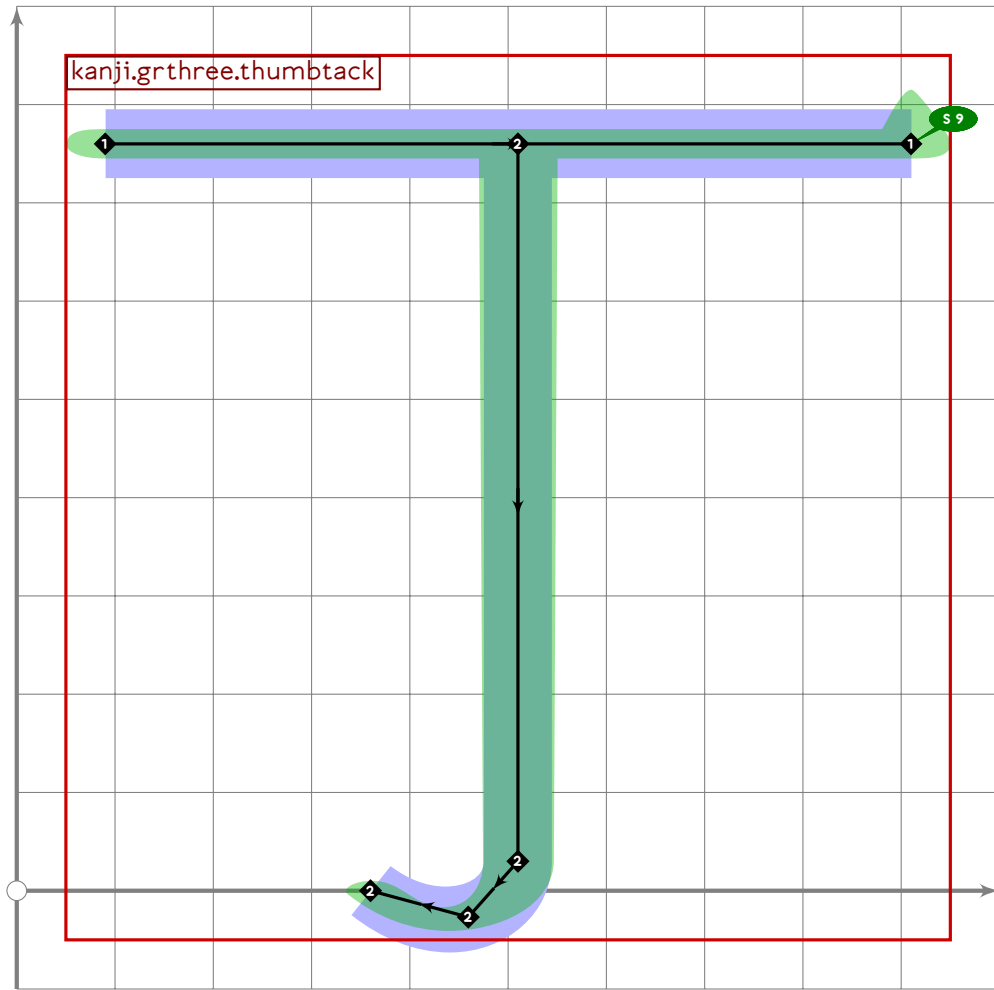
```



```

208
209 vardef kanji.grthree.thing =
210   push_pbox_toexpand("kanji.grthree.thing");
211   push_stroke((500,840),(1,6,1,6));
212   set_boserif(0,0,10);
213   build_kanji.add_jtail(0);
214   push_stroke((80,740)-(920,740),(1,6,1,6)-(1,6,1,6));
215   set_boserif(0,1,9);
216   build_kanji.box((230,620),(770,500));
217   tsu_xform(identity yscaled 0.37 shifted (0,100))
218     (kanji.radical.pigs_snout);
219   for i=-7 upto 0: set_bosize(i,85); endfor;
220   expand_pbox;
221 enddef;

```

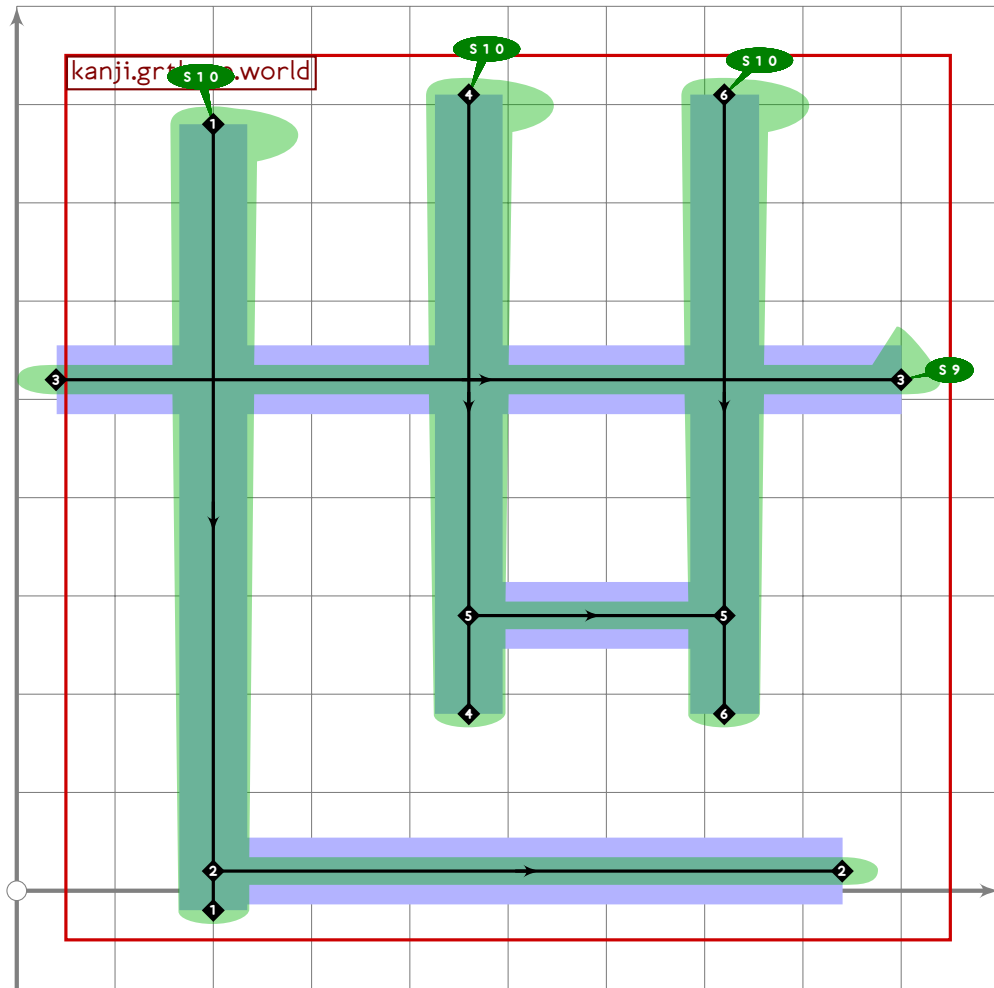


```

222
223 vardef kanji.grthree.thumbtack =
224   push_pbox_toexpand("kanji.grthree.thumbtack");
225   push_stroke((90,760)-(910,760),(1.6,1.6)-(1.6,1.6));
226   set_boserif(0,1,9);
227   push_stroke((510,760),(1.6,1.6));
228   build_kanji.add_jtail(0);
229   expand_pbox;
230 enddef;

```





```

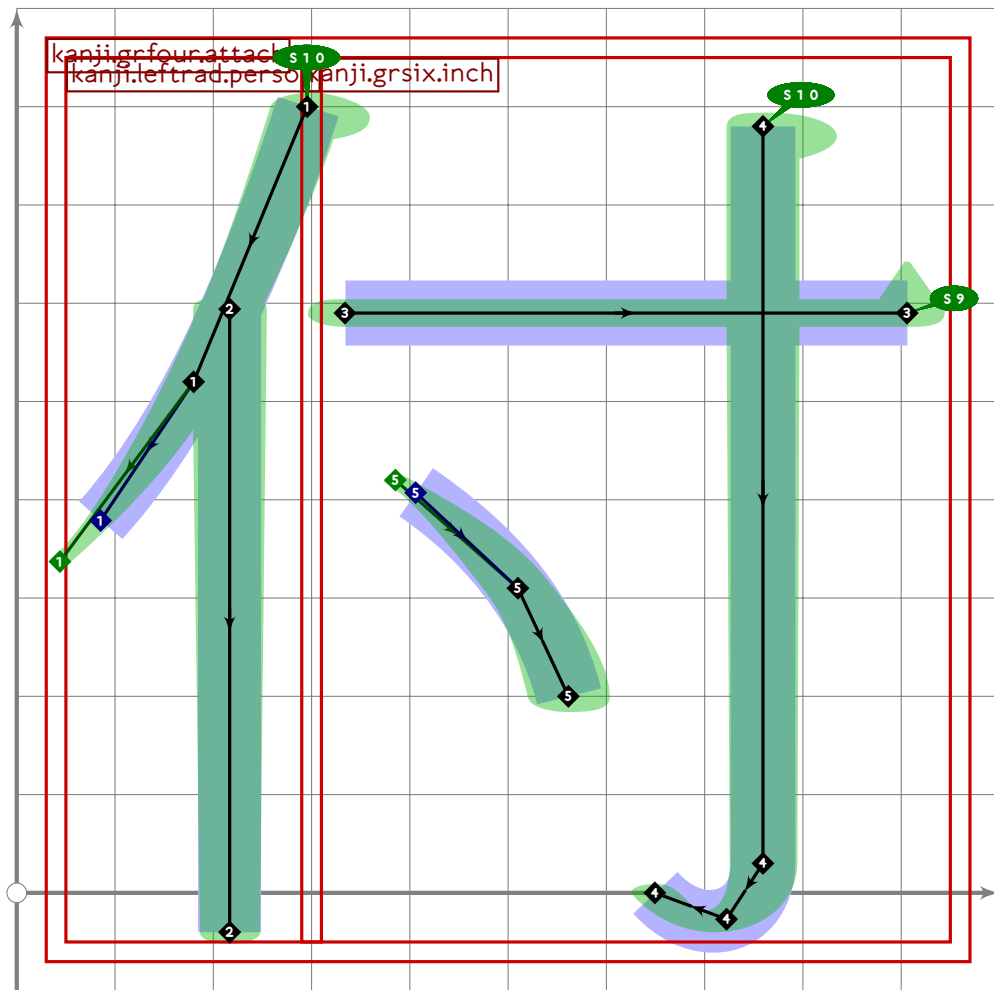
231
232 vardef kanji.grthree.world =
233   push_pbox_toexpand("kanji.grthree.world");
234   build_kanji.box((200,780),(840,20));
235   replace_stroke(-1)(reverse subpath (0,1) of oldp);
236   replace_strokeq(-1)(reverse subpath (0,1) of oldq);
237   set_boserif(-1,0,10);
238   set_boserif(-1,1,whatever);
239   set_botip(-1,1,whatever);
240   push_stroke((40,520)-(900,520),
241     (1.6,1.6)-(1.6,1.6));
242   set_boserif(0,1,9);
243   build_kanji.box((460,810),(720,280));
244   set_boserif(-1,0,10);
245   set_boserif(-1,1,whatever);
246   set_botip(-1,1,whatever);
247   push_stroke(subpath (2,3) of get_stroke(-1),
248     subpath (2,3) of get_strokeq(-1));
249   replace_stroke(-2)(reverse subpath (0,1) of oldp);
250   replace_strokeq(-2)(reverse subpath (0,1) of oldq);
251   set_boserif(0,0,10);

```

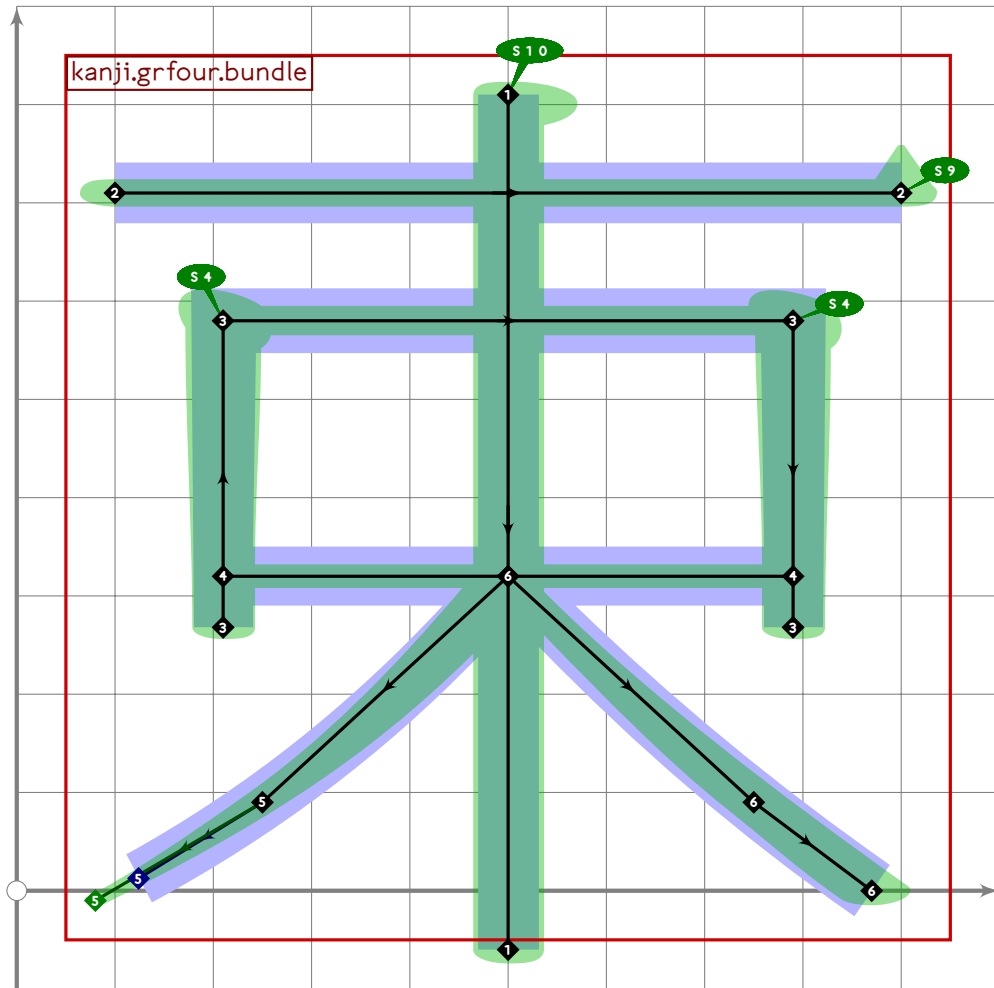
```
252 expand_pbox;  
253 endif;
```

# gradefour.mp

```
1 %  
2 % Grade Four kanji used on more than one page  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 inclusion_lock(gradefour);  
32  
33
```



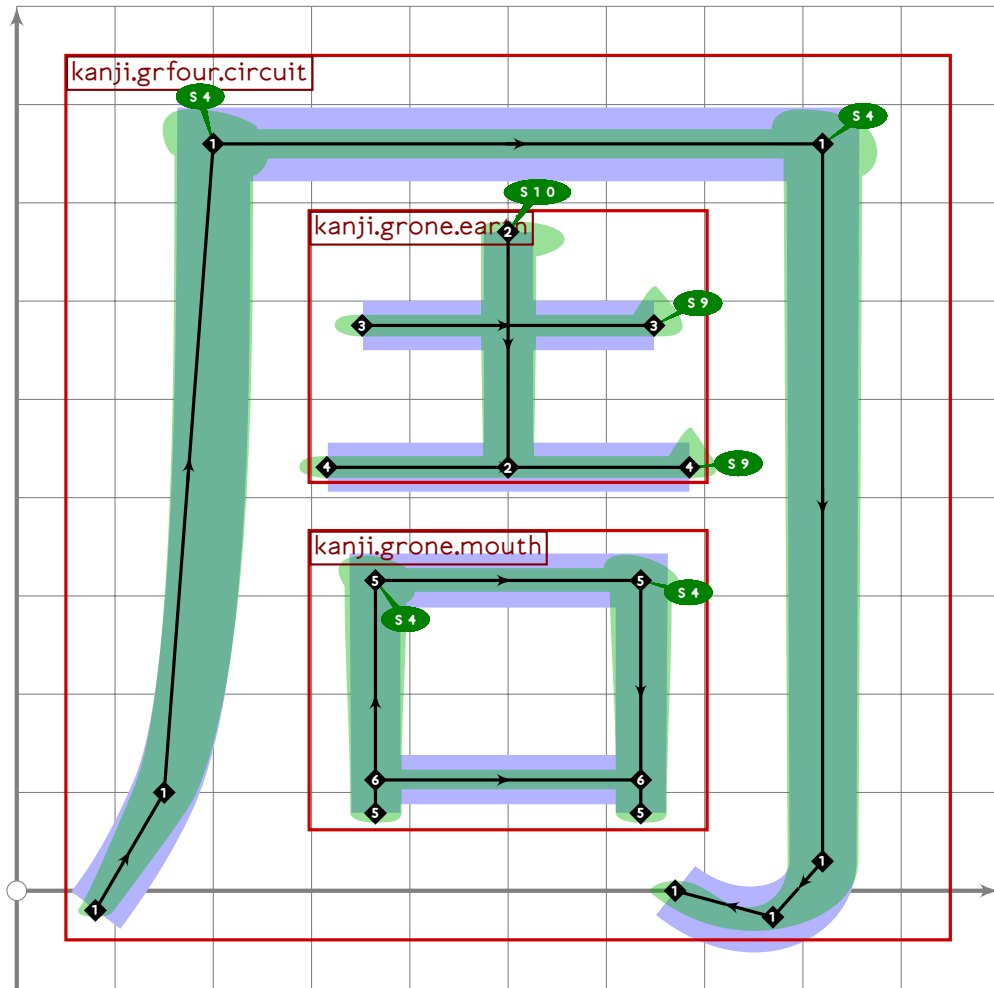
```
34  
35 vardef kanji.grfour.attach =  
36   push_pbox_toexpand("kanji.grfour.attach");  
37   build_kanji.lr(300,20)  
38     (kanji.leftrad.person)  
39     (kanji.grsix.inch);  
40   expand_pbox;  
41 enddef;
```



```

42
43 vardef kanji.grfour.bundle =
44   push_pbox_toexpand("kanji.grfour.bundle");
45   push_stroke((500,810)-(500,-60),
46     (1.6,1.6)-(1.6,1.6));
47   set_bosierif(0,0,10);
48   push_stroke((100,710)-(900,710),
49     (1.6,1.6)-(1.6,1.6));
50   set_bosierif(0,1,9);
51   build_kanji.box((210,580),(790,320));
52   push_stroke((500,320)..(250,90)..(80,-10),
53     (1.6,1.6)..(1.3,1.3)..(0.9,0.9));
54   push_stroke((500,320)..(750,90)..(870,0),
55     (1.1,1.1)..(1.5,1.5)..(1.7,1.7));
56   for i=-6 upto 0: set_bosize(i,89); endfor;
57   expand_pbox;
58 enddef;

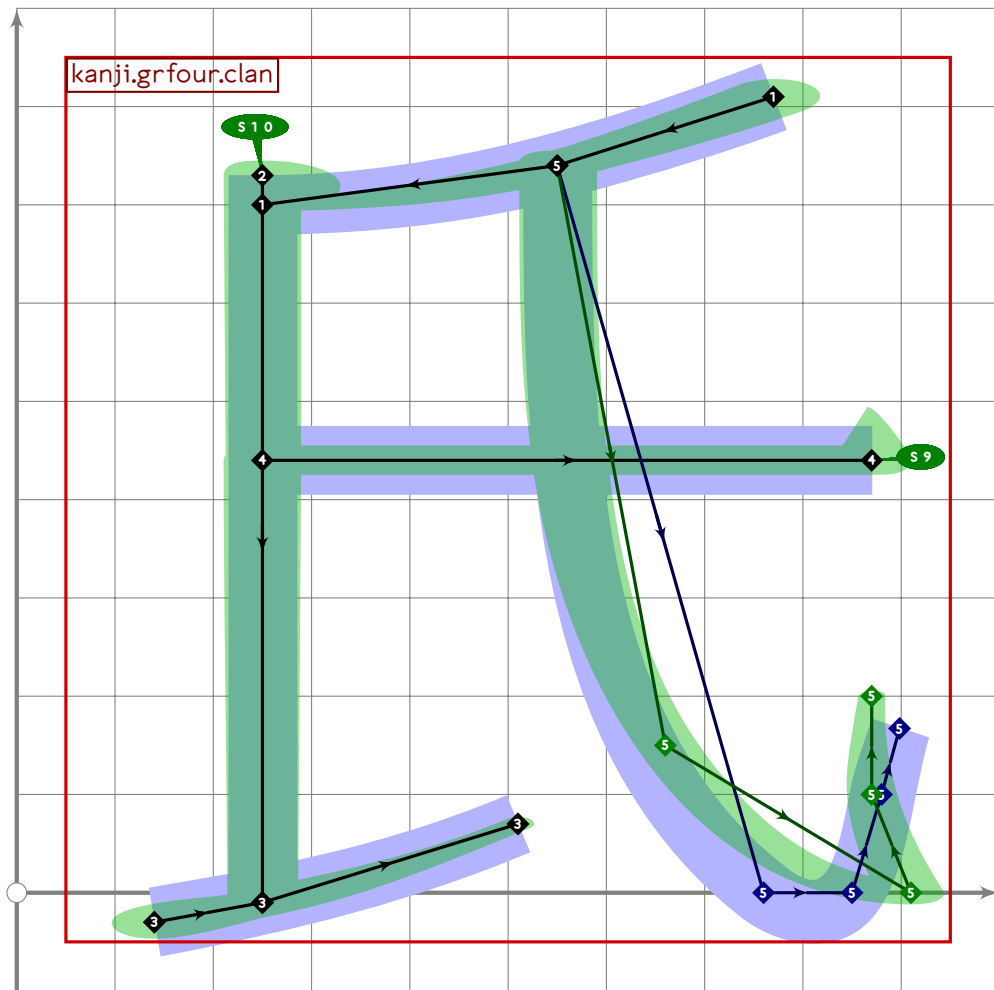
```



```

59
60 vardef kanji.grfour.circuit =
61   push_pbox_toexpand("kanji.grfour.circuit");
62   push_stroke((80,-20)..(150,100)..{up}{(200,760){right}{-(820,760),
63     (1,1)-(1.4,1.4)-(1.6,1.6)-(1.6,1.6)});
64   build_kanji.add_jtail(0);
65   set_botip(0,2,0.8);
66   set_botip(0,3,1);
67   set_boserif(0,2,4);
68   set_boserif(0,3,4);
69   build_kanji.sscale(xyscaled (0.45,0.7) shifted (0,-20))
70     (build_kanji.tb(420,-70)
71       (kanji.grone.earth)
72       (kanji.grone.mouth));
73   expand_pbox;
74 enddef;

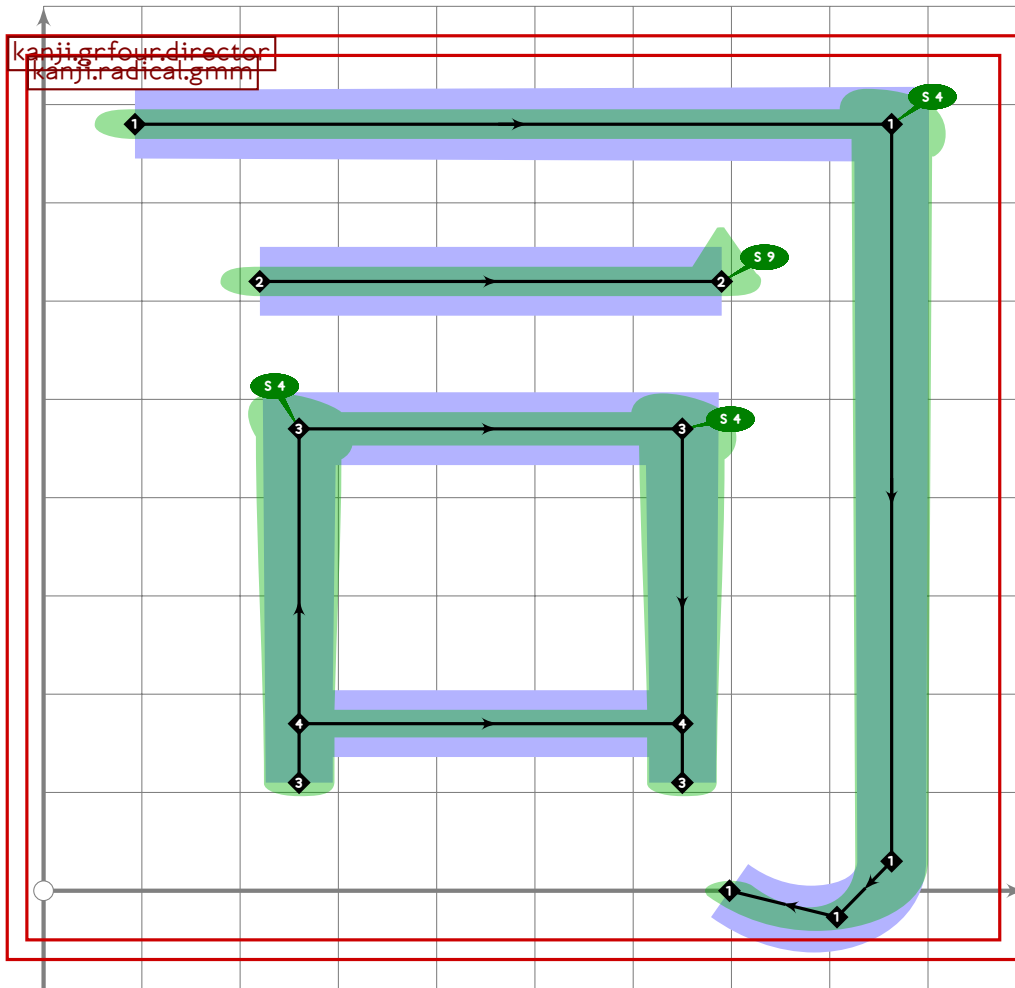
```



```

75
76 vardef kanji.grfour.clan =
77   push_pbox_toexpand("kanji.grfour.clan");
78   push_stroke((770,810)..tension 1.2..(550,740)..(250,700),
79     (1.8,1.8)-(1.5,1.5)-(1,1));
80   push_stroke((250,730)-(250,-10),
81     (1.6,1.6)-(1.5,1.5));
82   set_boserif(0,0,10);
83   push_stroke((140,-30)..tension 1.2..(250,-10)..(510,70),
84     (1.7,1.7)-(1.5,1.5)-(1,1));
85   push_stroke((250,440)-(870,440),(1.6,1.6)-(1.6,1.6));
86   set_boserif(0,1,9);
87   push_stroke(interpath(mincho,
88     (550,740){down}..tension 1.2 and 1.6..(760,0)..(850,0)..tension 1.5..
89     (880,100)..(910,200),
90     (550,740){down}..(660,150)..{right}(910,0){curl 1}..
91     (870,100)..(870,200)),
92     (1.6,1.6)-(1.4,1.4)-(1.4,1.4)-(1.2,1.2)-(0.9,0.9));
93   expand_pbox;
94 enddef;

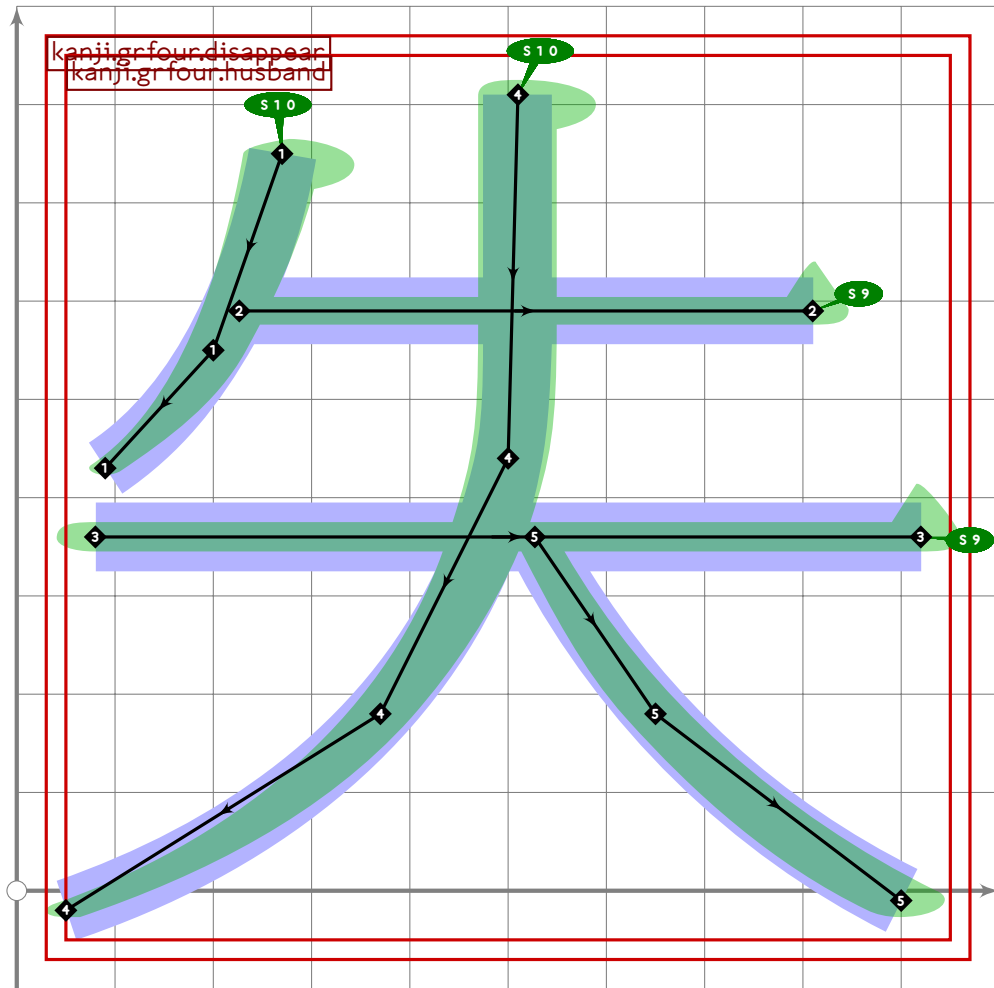
```



```

95
96 vardef kanji.grfour.director =
97   push_pbox_toexpand("kanji.grfour.director");
98   build_kanji.sscale(shifted (-20,0) xscaled 1.1)
99     (kanji.radical.gmm);
100  replace_stroke(0)(subpath (2,infinity) of oldp);
101  replace_strokeq(0)(subpath (2,infinity) of oldq);
102  set_botip(0,1,4);
103  set_boserif(0,1,4);
104  set_botip(0,2,whatever);
105  set_boserif(0,2,whatever);
106  set_botip(0,3,whatever);
107  set_boserif(0,3,whatever);
108  push_stroke((220,620)-(690,620),
109    (1.6,1.6)-(1.6,1.6));
110  set_boserif(0,1,9);
111  build_kanji.box((260,470),(650,170));
112  expand_pbox;
113 enddef;

```

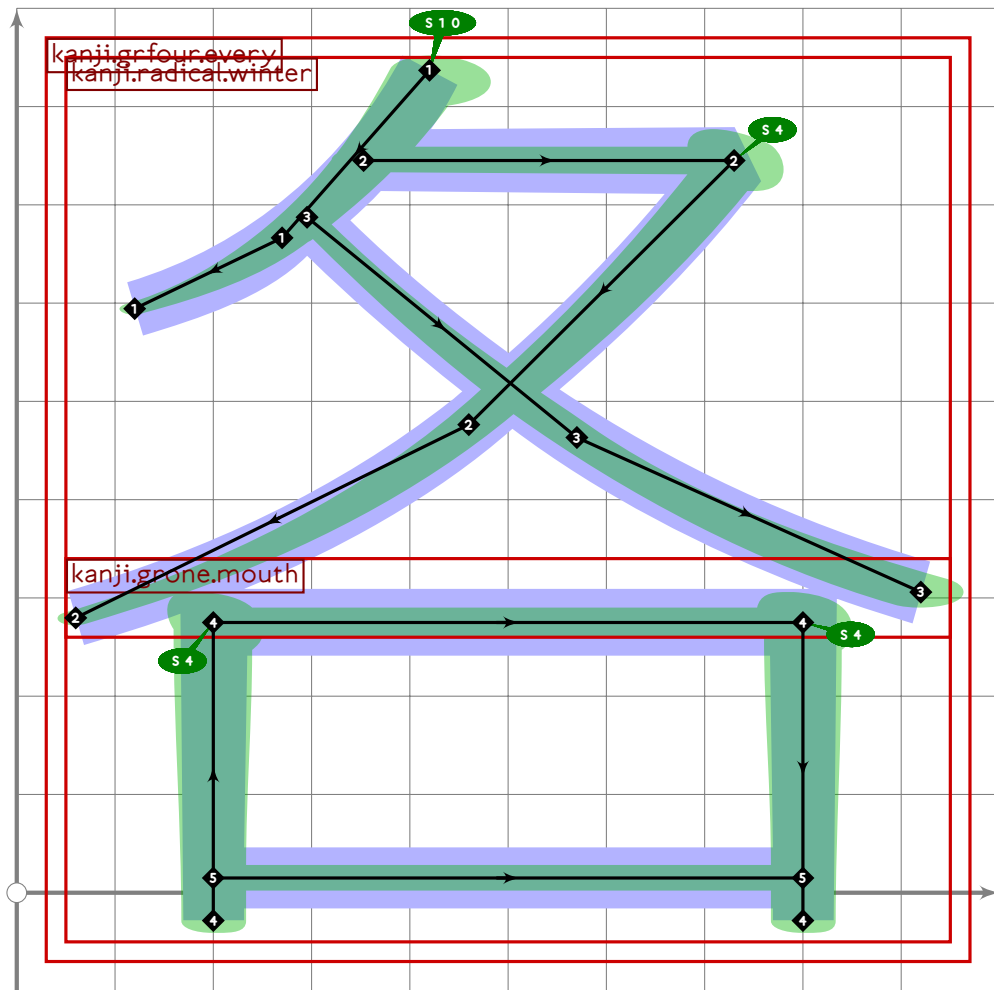


```

114
115 vardef kanji.grfour.disappear =
116   push_pbox_toexpand("kanji.grfour.disappear");
117   push_stroke((270,750)..tension 1.2..(200,550)..(90,430),
118     (1.6,1.6)-(1.4,1.4)-(1,1));
119   set_boserif(0,0,10);
120   kanji.grfour.husband;
121   replace_strokep(-3)((100,590)-(810,590));
122   replace_strokep(-3)(subpath
123     (0.01*xpart (oldp intersectiontimes get_strokep(-4)),1) of oldp);
124   expand_pbox;
125 enddef;

```

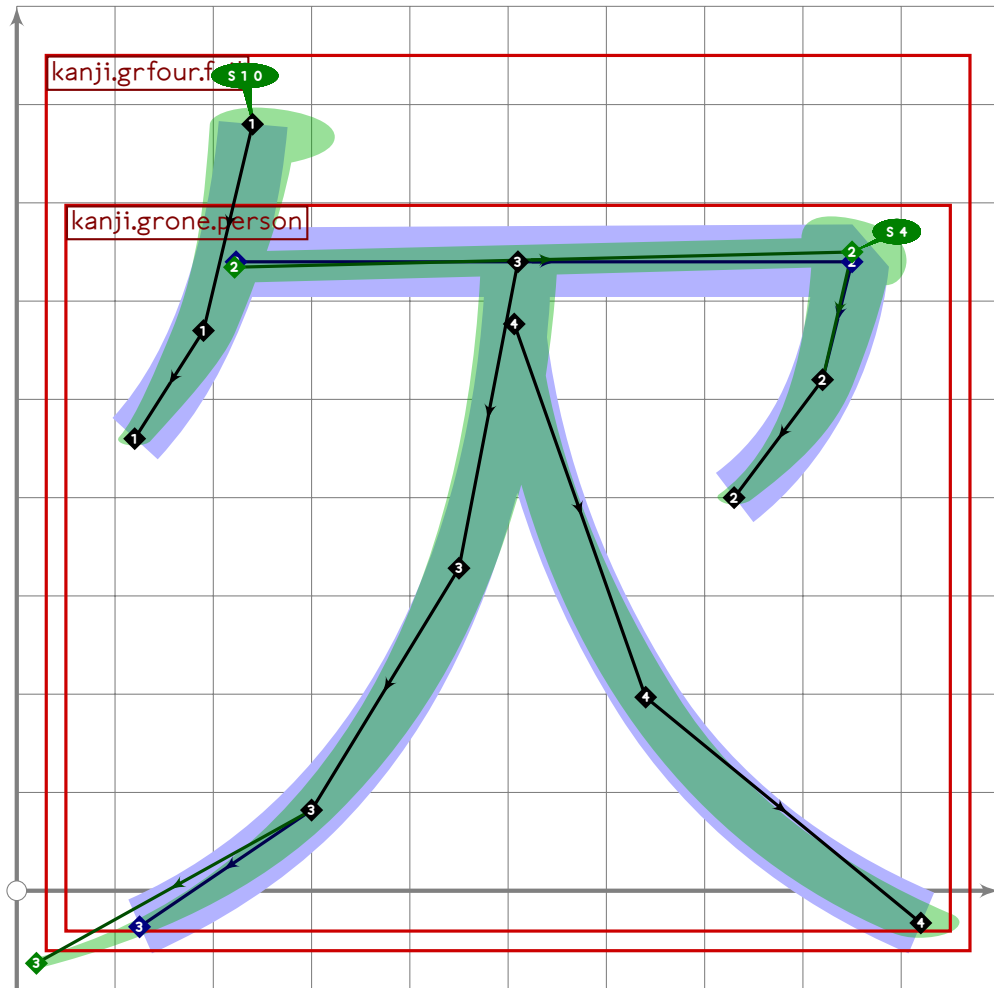




```

126
127 vardef kanji.grfour.every =
128   push_pbox_toexpand("kanji.grfour.every");
129   build_kanji.level(build_kanji.tb(300,80)
130     (kanji.radical.winter)
131     (kanji.grone.mouth));
132   expand_pbox;
133 enddef;

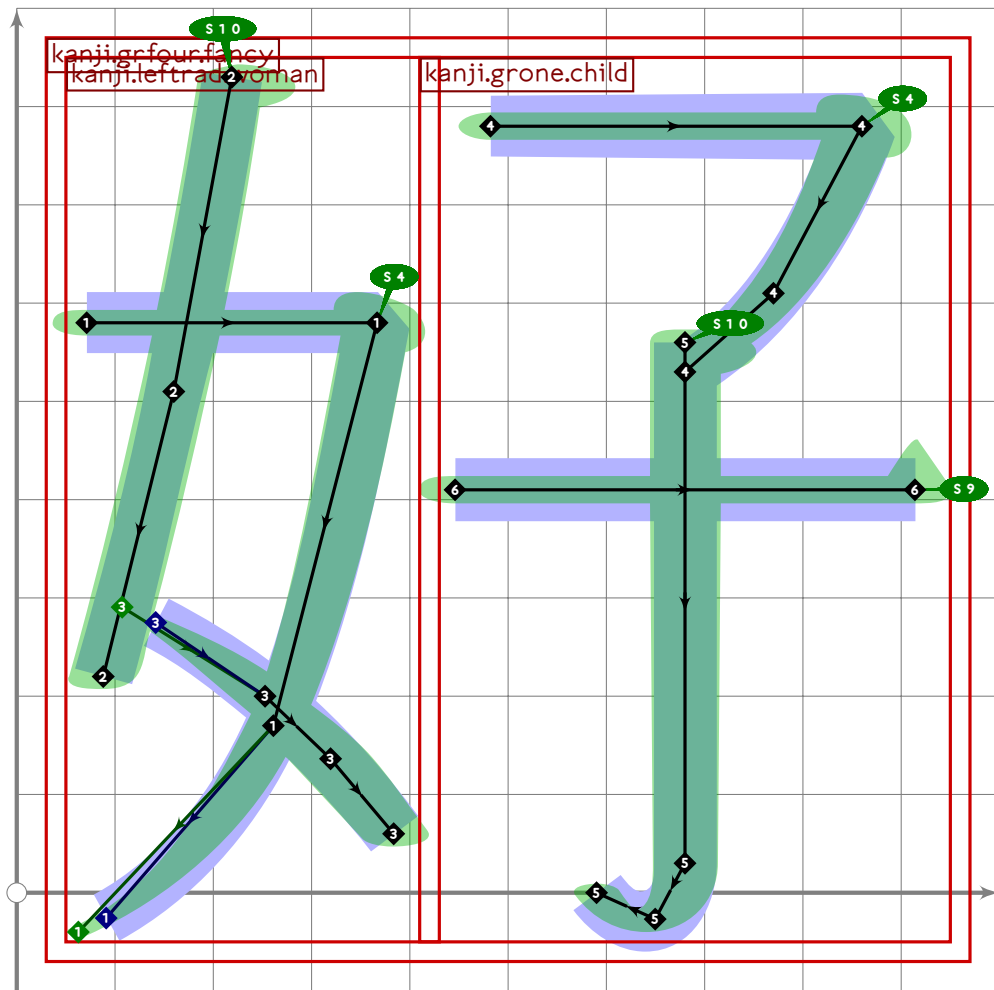
```



```

134
135 vardef kanji.grfour.fail =
136   push_pbox_toexpand("kanji.grfour.fail");
137   push_stroke((240,780)..tension 1.2..(190,570)..(120,460),
138     (1.7,1.7)-(1.4,1.4)-(1,1));
139   set_boserif(0,0,10);
140   push_stroke(
141     ((get_strokep(0) intersectionpoint
142       ((0,640-7*mincho)-(1000,640))+10,0))-
143     ((850,640)+mincho*(0,10)..tension 1.2..(820,520)..(730,400),
144     (1.6,1.6)-(1.6,1.6)-(1.4,1.4)-(1,1));
145   set_boserif(0,1,4);
146   set_botip(0,1,0);
147   tsu_xform(identity yscaled (640/780))(kanji.grone.person);
148   set_boserif(-1,0,whatever);
149   expand_pbox;
150 enddef;

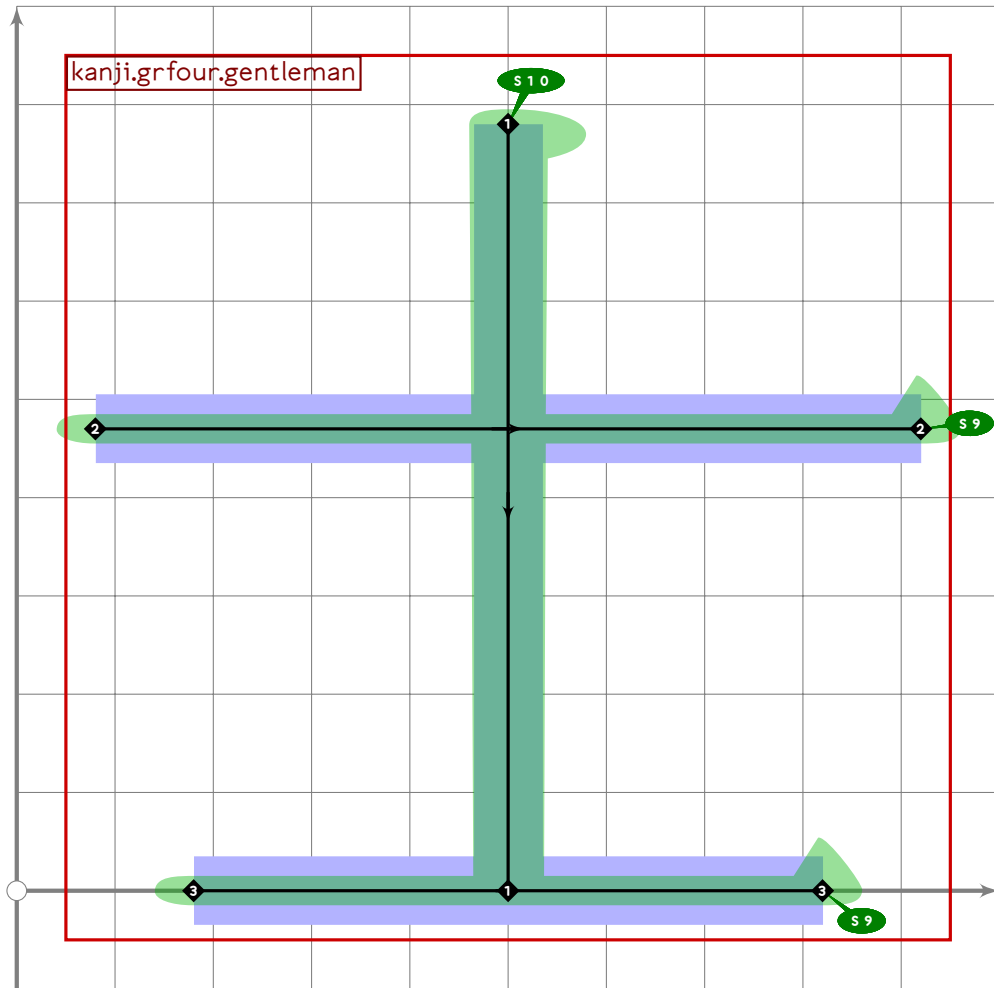
```



```

151
152 vardef kanji.grfour.fancy =
153   push_pbox_toexpand("kanji.grfour.fancy");
154   build_kanji.lr(420,20)
155     (kanji.leftrad.woman)
156     (kanji.grone.child);
157   expand_pbox;
158 enddef;

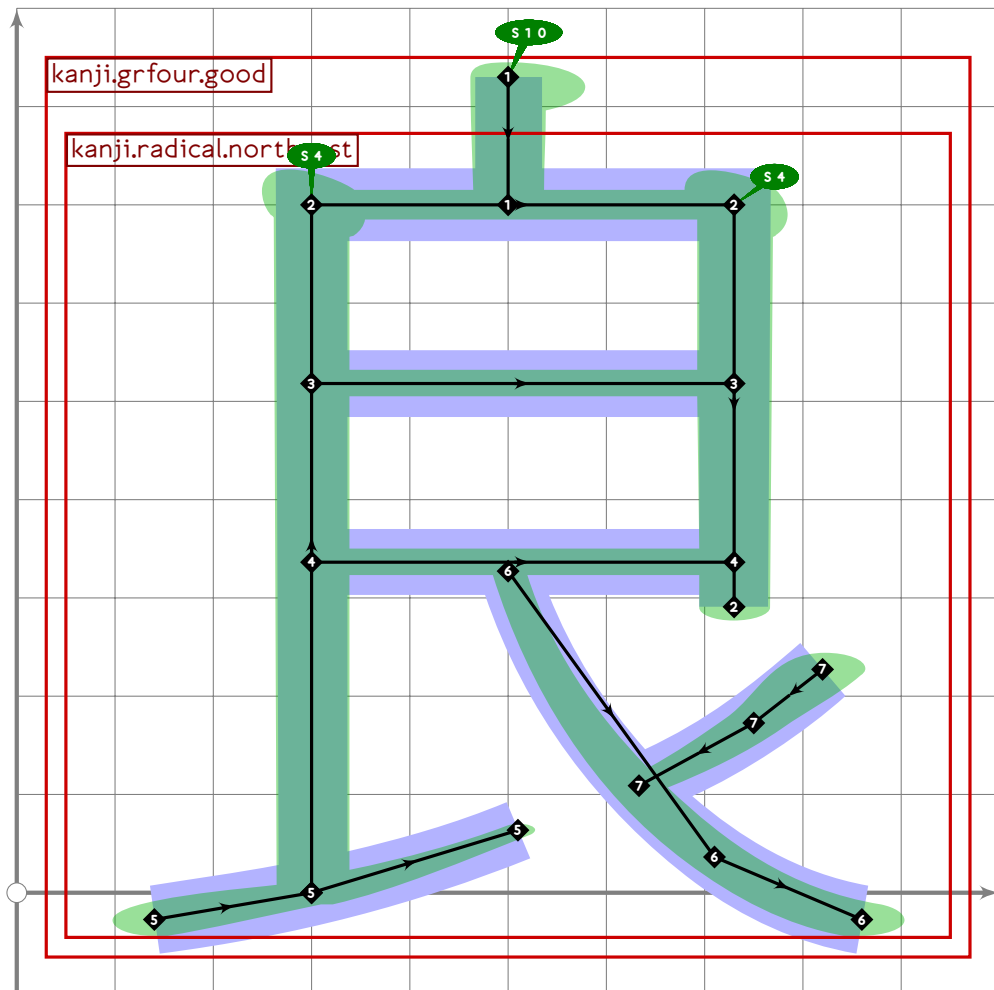
```



```

159
160 vardef kanji.grfour.gentleman =
161   push_pbox_toexpand("kanji.grfour.gentleman");
162   push_stroke((500,780)-(500,0),
163     (1.6,1.6)-(1.5,1.5));
164   set_boserif(0,0,10);
165   push_stroke((80,470)-(920,470),
166     (1.6,1.6)-(1.6,1.6));
167   set_boserif(0,1,9);
168   push_stroke((180,0)-(820,0),
169     (1.6,1.6)-(1.6,1.6));
170   set_boserif(0,1,9);
171   expand_pbox;
172 enddef;

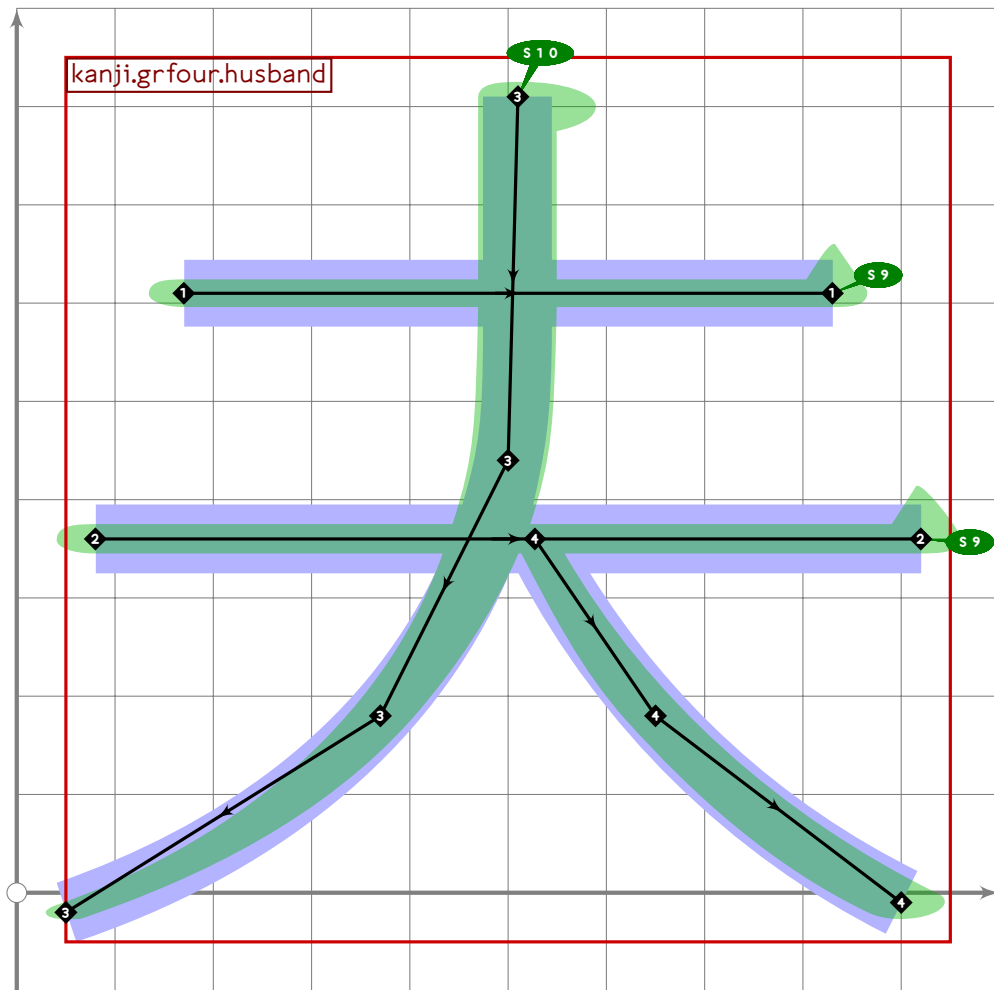
```



```

173
174 vardef kanji.grfour.good =
175   push_pbox_toexpand("kanji.grfour.good");
176   build_kanji.level(
177     push_stroke((500,830)-(500,700),(1.6,1.6)-(1.5,1.5));
178     set_boserif(0,0,10);
179     tsu_xform(identity yscaled (700/770))(kanji.radical.northeast));
180   expand_pbox;
181 enddef;

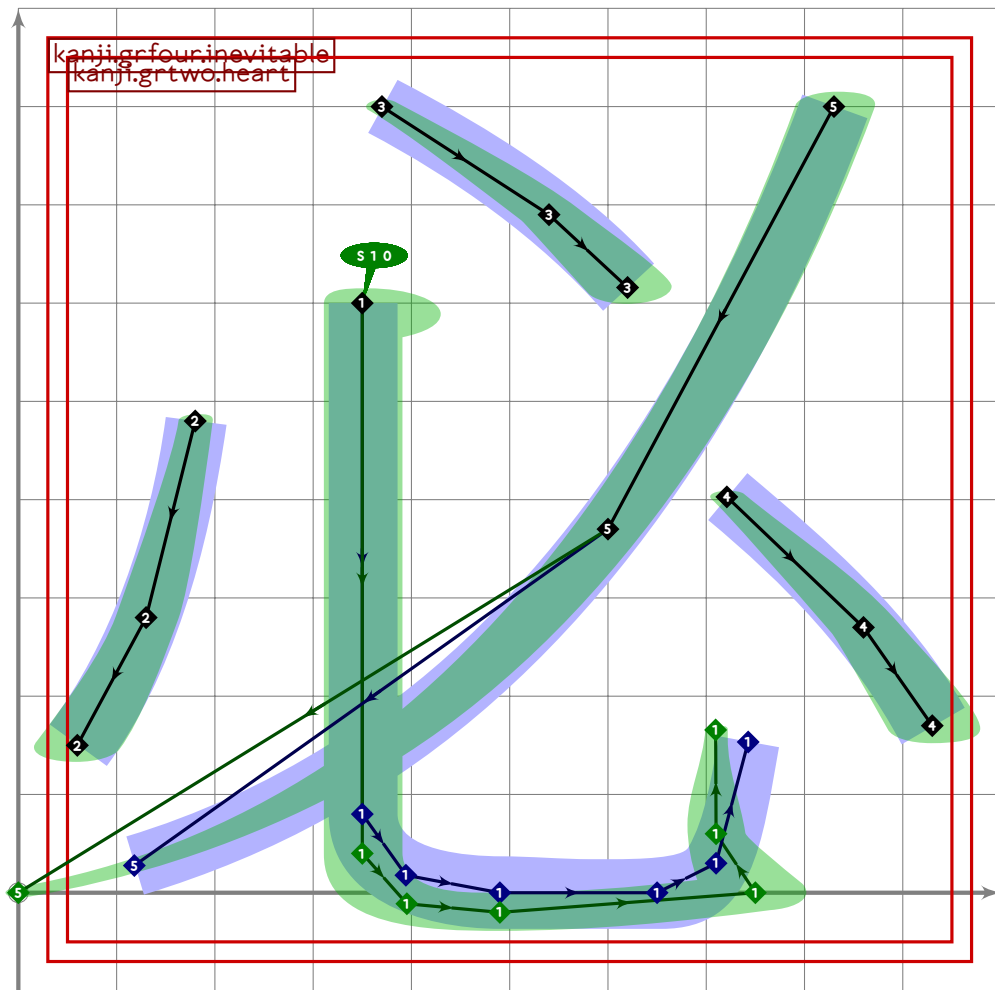
```



```

182
183 vardef kanji.grfour.husband =
184   push_pbox_toexpand("kanji.grfour.husband");
185   push_stroke((170,610)-(830,610),
186     (1.5,1.5)-(1.5,1.5));
187   set_boserif(0,1,9);
188   push_stroke((80,360)-(920,360),
189     (1.6,1.6)-(1.6,1.6));
190   set_boserif(0,1,9);
191   push_stroke((510,810){down}..(500,440)..(370,180)..{curl 0.5}(50,-20),
192     (1.6,1.6)-(1.6,1.6)-(1.4,1.4)-(1.1,1.1));
193   set_boserif(0,0,10);
194   push_stroke(((get_stroke(-1) intersectionpoint get_stroke(0))+50,0)..
195     (650,180)..(900,-10),
196     (1.1,1.1)-(1.4,1.4)-(1.7,1.7));
197   expand_pbox;
198 enddef;

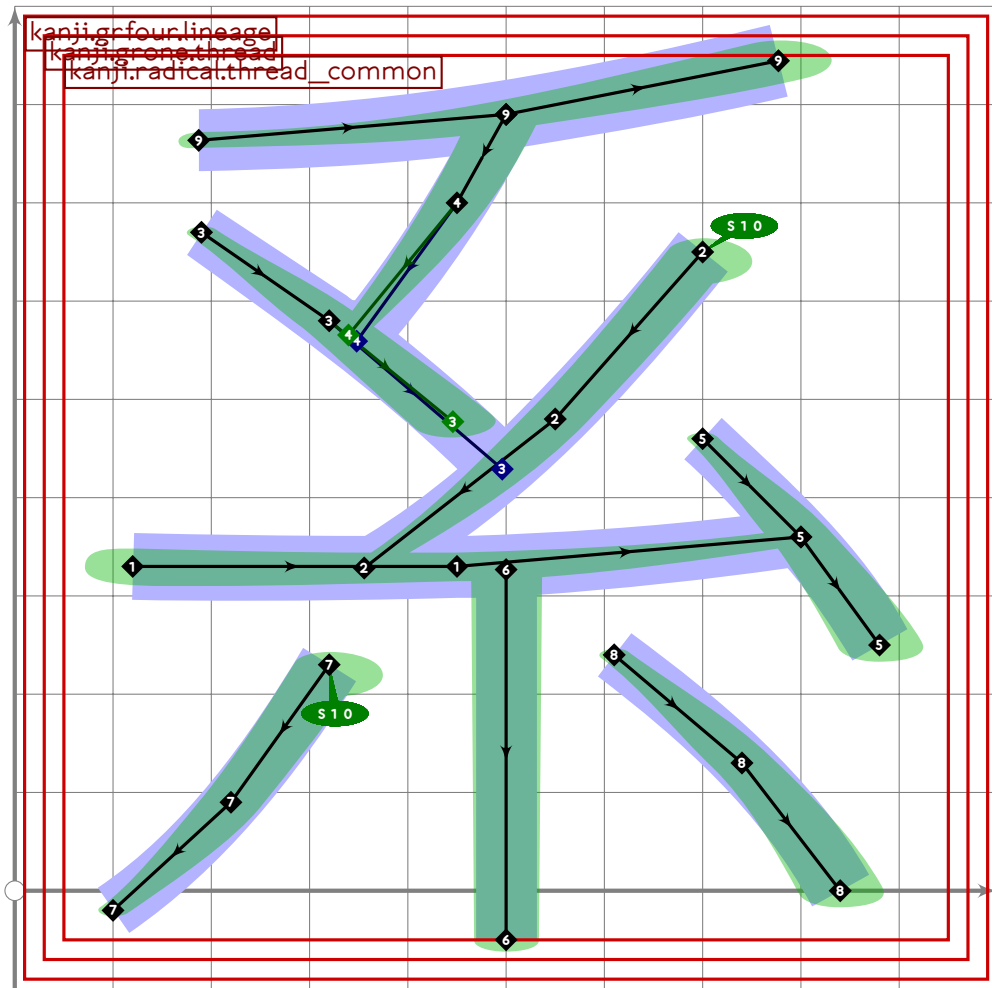
```



```

199
200 vardef kanji.grfour.inevitable =
201   push_pbox_toexpand("kanji.grfour.inevitable");
202   kanji.grtwo.heart;
203   replace_strokep(-1)(subpath (0,1,7) of oldp);
204   replace_strokep(0)(subpath (0,3,2) of oldp);
205   push_stroke((830,800)..tension 1.2..(600,370)..(0,0),
206     (1.6,1.6)-(1.5,1.5)-(0.9,0.9));
207   expand_pbox;
208 enddef;

```

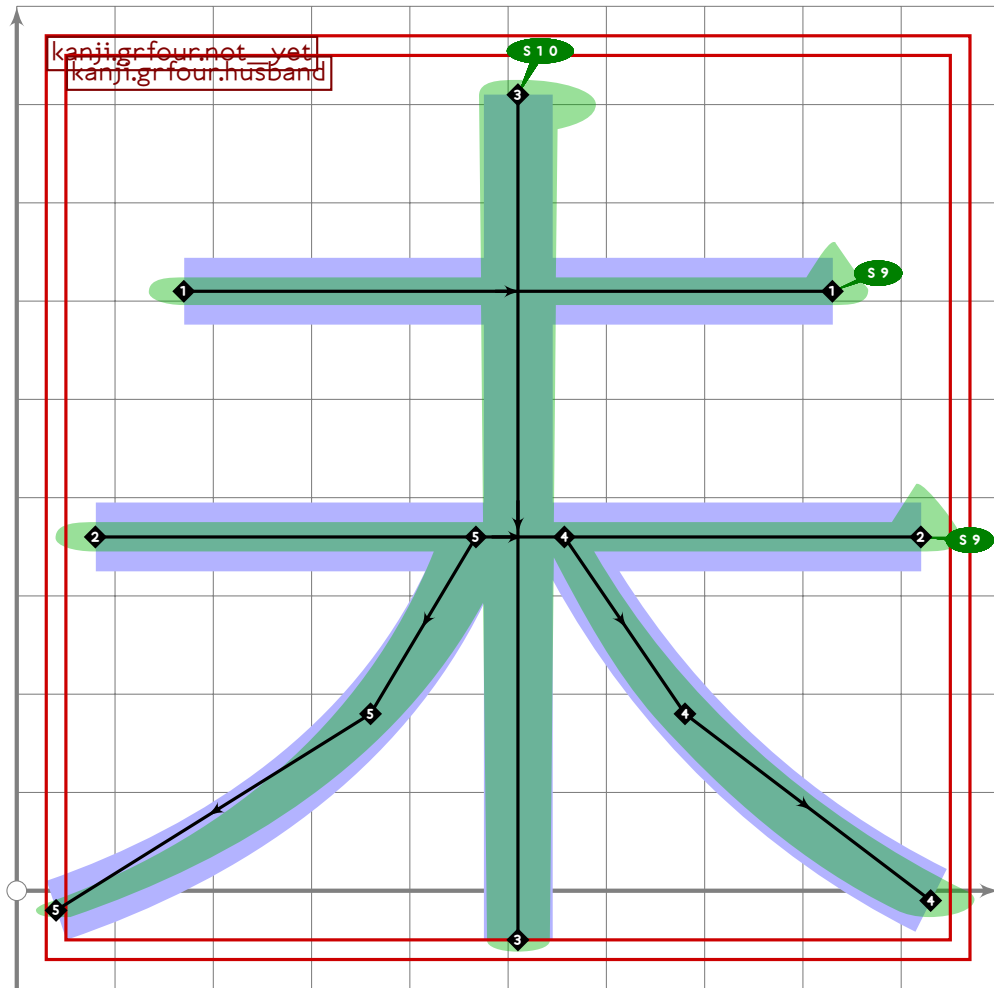


```

209
210 vardef kanji.grfour.lineage =
211   push_pbox_toexpand("kanji.grfour.lineage");
212   build_kanji.add_beret(kanji.grone.thread);
213   expand_pbox;
214 enddef;

```

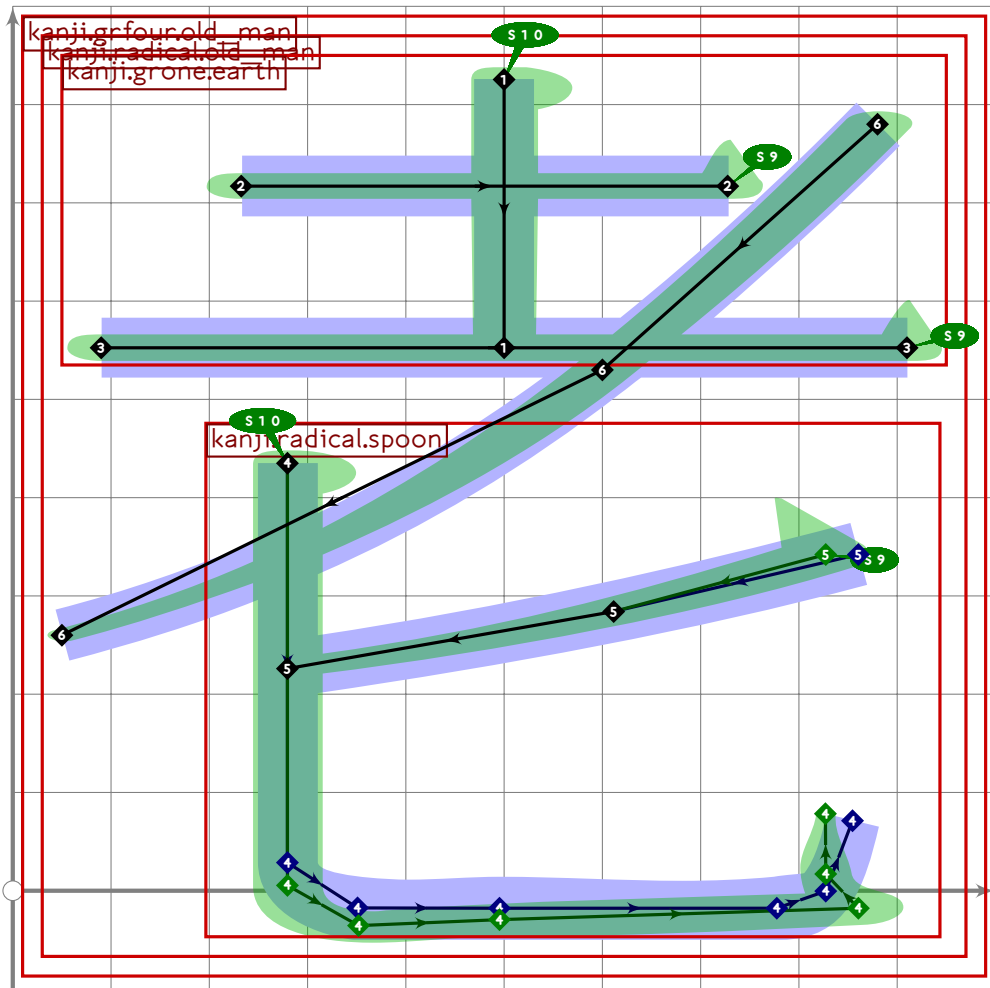




```

215
216 vardef kanji.grfour.not_yet =
217   push_pbox_toexpand("kanji.grfour.not_yet");
218   kanji.grfour.husband;
219   begingroup
220     save it;
221     numeric it;
222     it:=xpart (get_strokep(-1) intersectiontimes get_strokep(-2));
223     push_stroke(subpath (it,infinity) of get_strokep(-1) shifted (-10,0),
224       subpath(it,infinity) of get_strokeq(-1));
225   endgroup;
226   replace_strokep(-2)((510,810)-(510,-50));
227   replace_strokeq(-2)((1,6,1,6)-(1,4,1,4));
228   replace_strokep(-1)(oldp shifted (30,0));
229   expand_pbox;
230 enddef;

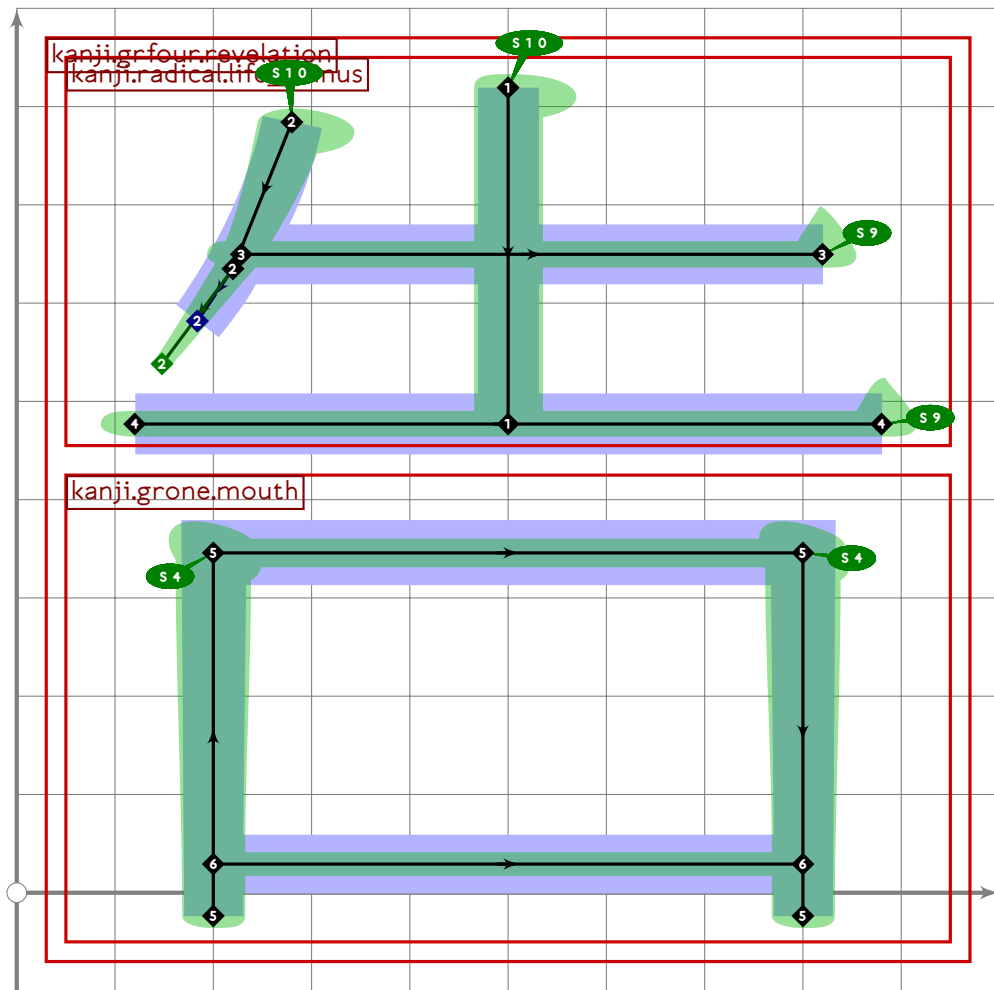
```



```

231
232 vardef kanji.grfour.old_man =
233   push_pbox_toexpand("kanji.grfour.old_man");
234   kanji.radical.old_man(
235     build_kanji.sscale(xyscaled (0.83,1,1) shifted (70,50))
236     (kanji.radical.spoon));
237   expand_pbox;
238 enddef;

```



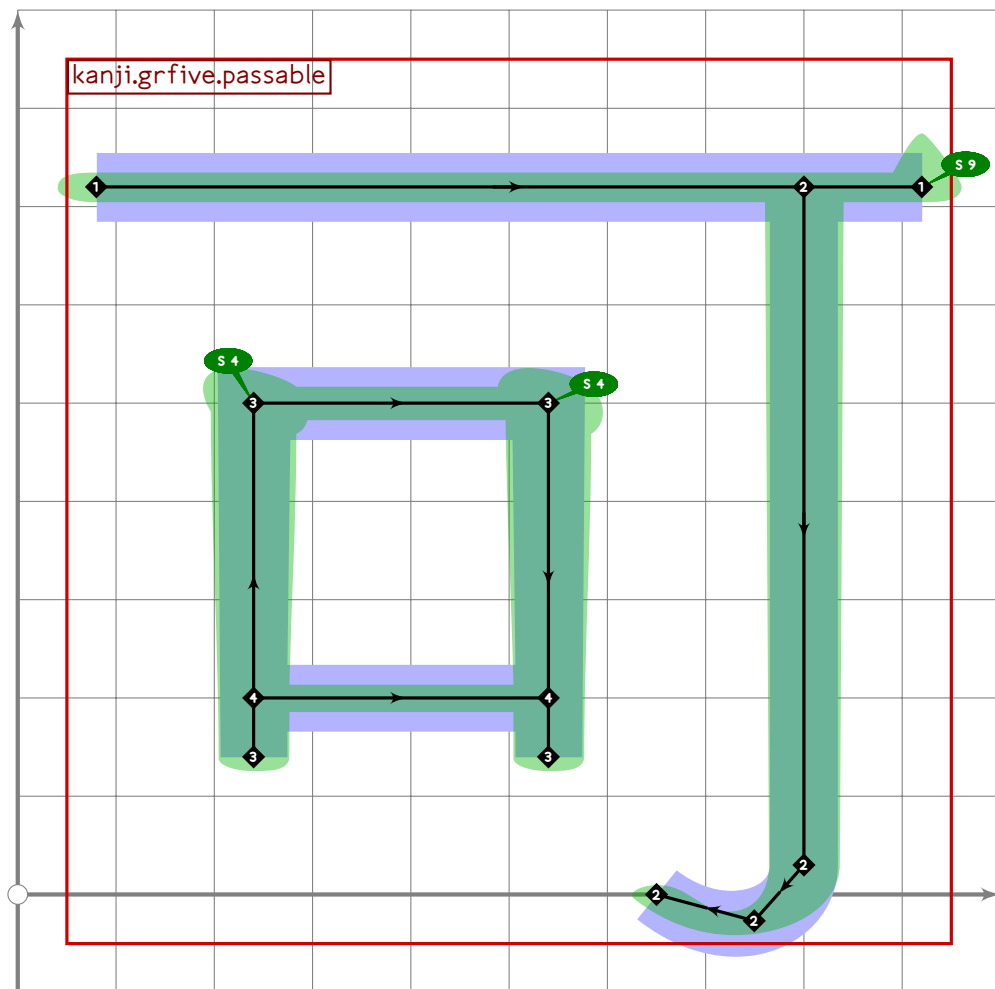
```

239
240 vardef kanji.grfour.revelation =
241   push_pbox_toexpand("kanji.grfour.revelation");
242   build_kanji.level(build_kanji.tb(440,-30)
243     (kanji.radical.life_minus)
244     (kanji.grone.mouth));
245   expand_pbox;
246 enddef;

```

# gradefive.mp

```
1 %  
2 % Grade Five kanji used on more than one page  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 inclusion_lock(gradefive);  
32  
33
```

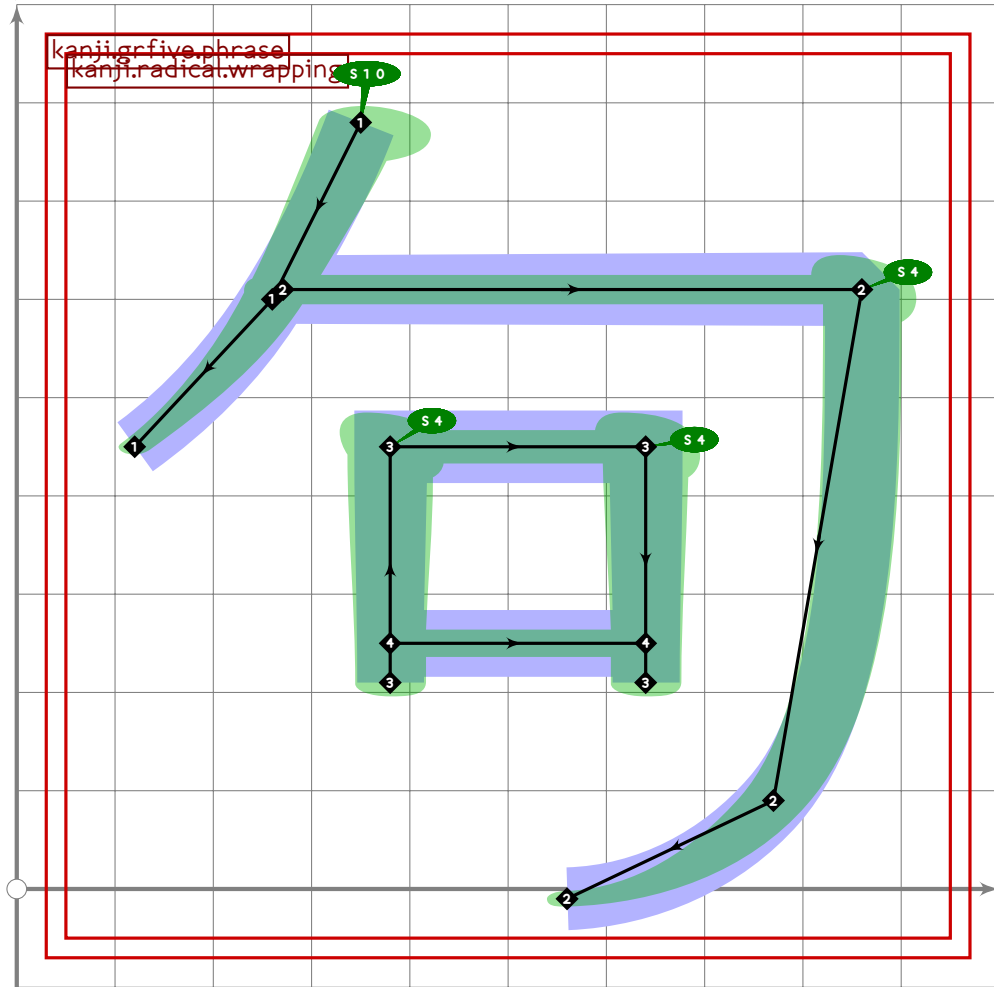


```
34  
35 vardef kanji.grfive.passable =  
36   push_pbox_toexpand("kanji.grfive.passable");  
37   push_stroke((80,720)-(920,720),  
38     (1.6,1.6)-(1.6,1.6));  
39   set_boserif(0,19);  
40   push_stroke((800,720),  
41     (1.6,1.6));  
42   build_kanji.add_jtail(0);  
43   build_kanji.box((240,500),(540,200));
```

```

44 expand_pbox;
45 enddef;

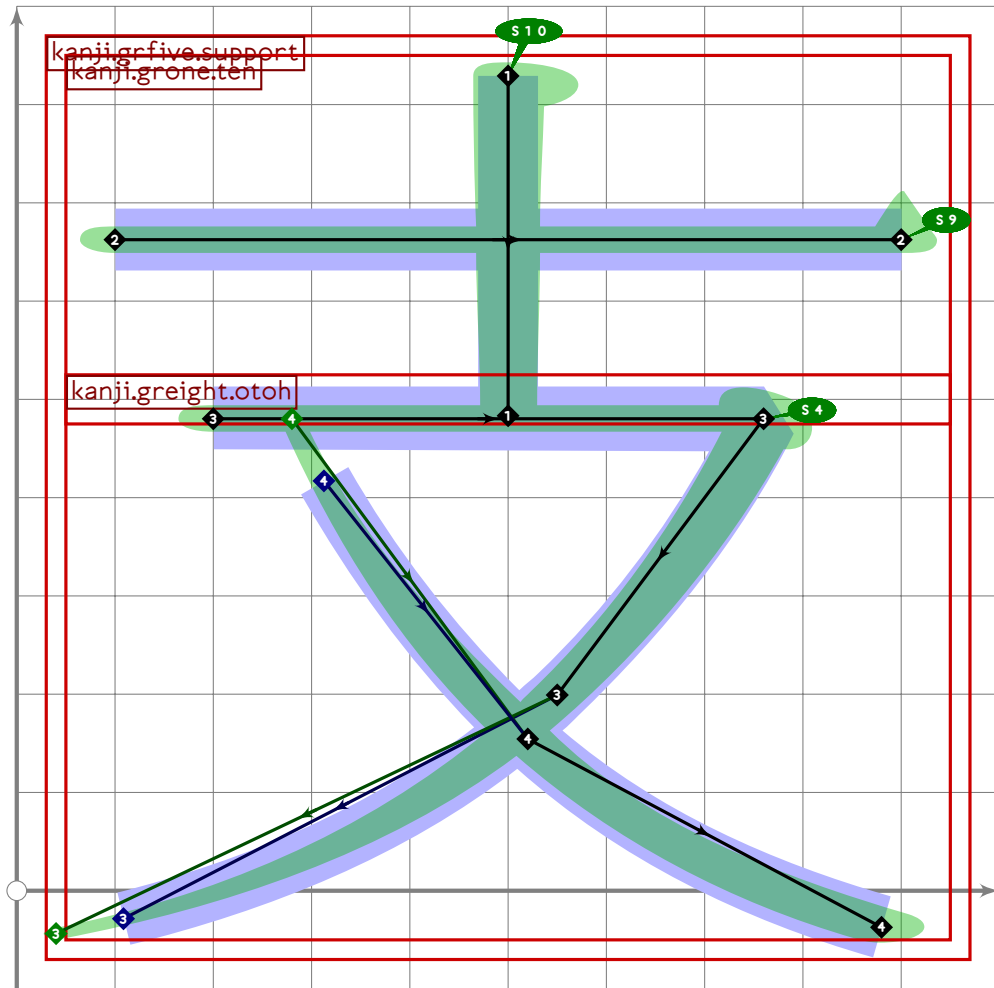
```



```

46
47 vardef kanji.grfive.phrase =
48   push_pbox_toexpand("kanji.grfive.phrase");
49   kanji.radical.wrapping;
50   build_kanji.box((380,450),(640,250));
51   expand_pbox;
52 enddef;

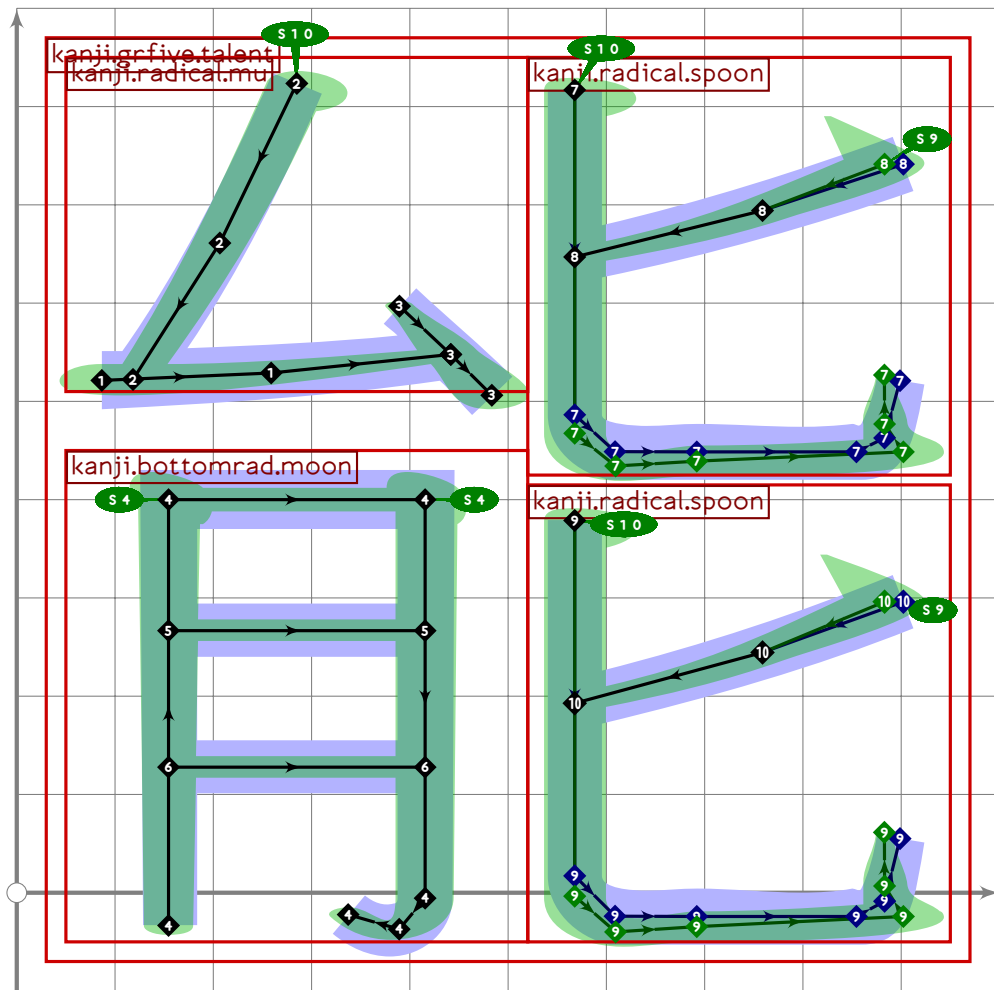
```



```

53
54 vardef kanji.grfive.support =
55   push_pbox_toexpand("kanji.grfive.support");
56   build_kanji.level(build_kanji.tb(500,50)
57     (kanji.grone.ten)
58     (kanji.greight.otoh));
59   expand_pbox;
60 enddef;

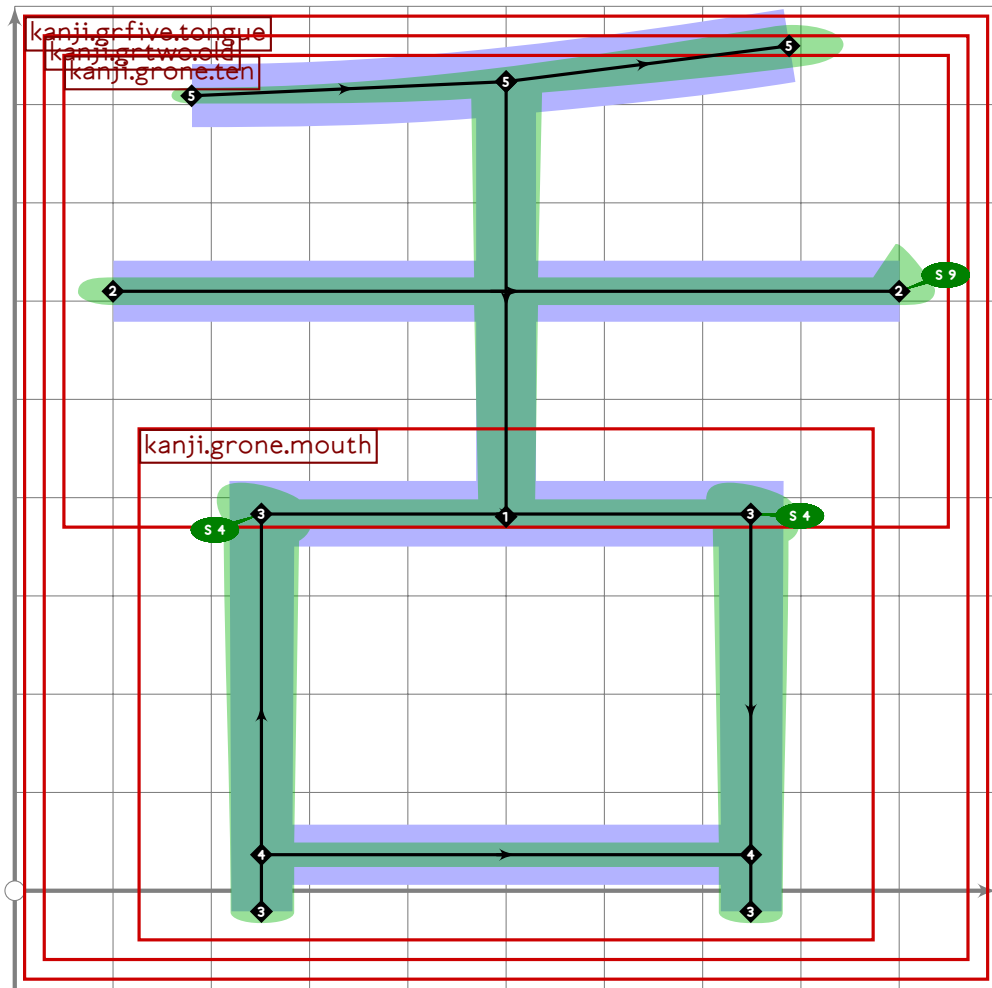
```



```

61
62 vardef kanji.grfive.talent =
63   push_pbox_toexpand("kanji.grfive.talent");
64   build_kanji.level(build_kanji.lr(520,0)
65     (build_kanji.tb(480,-60)
66       (kanji.radical.mu)
67       (kanji.bottomrad.moon))
68     (build_kanji.tb(420,-10)
69       (kanji.radical.spoon)
70       (kanji.radical.spoon)));
71   expand_pbox;
72 enddef;

```



```

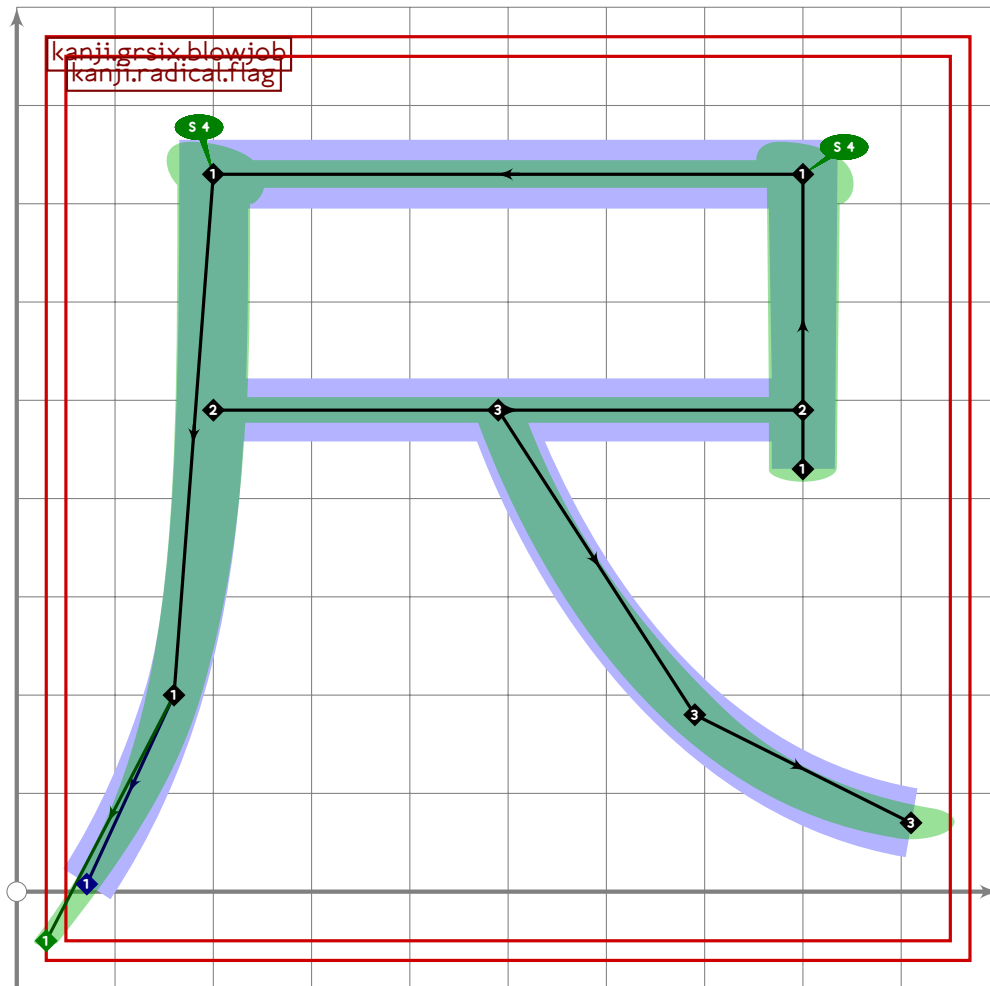
73
74 vardef kanji.grfive.tongue =
75   push_pbox_toexpand("kanji.grfive.tongue");
76   build_kanji.add_beret(kanji.grtwo.old);
77   expand_pbox;
78 enddef;

```

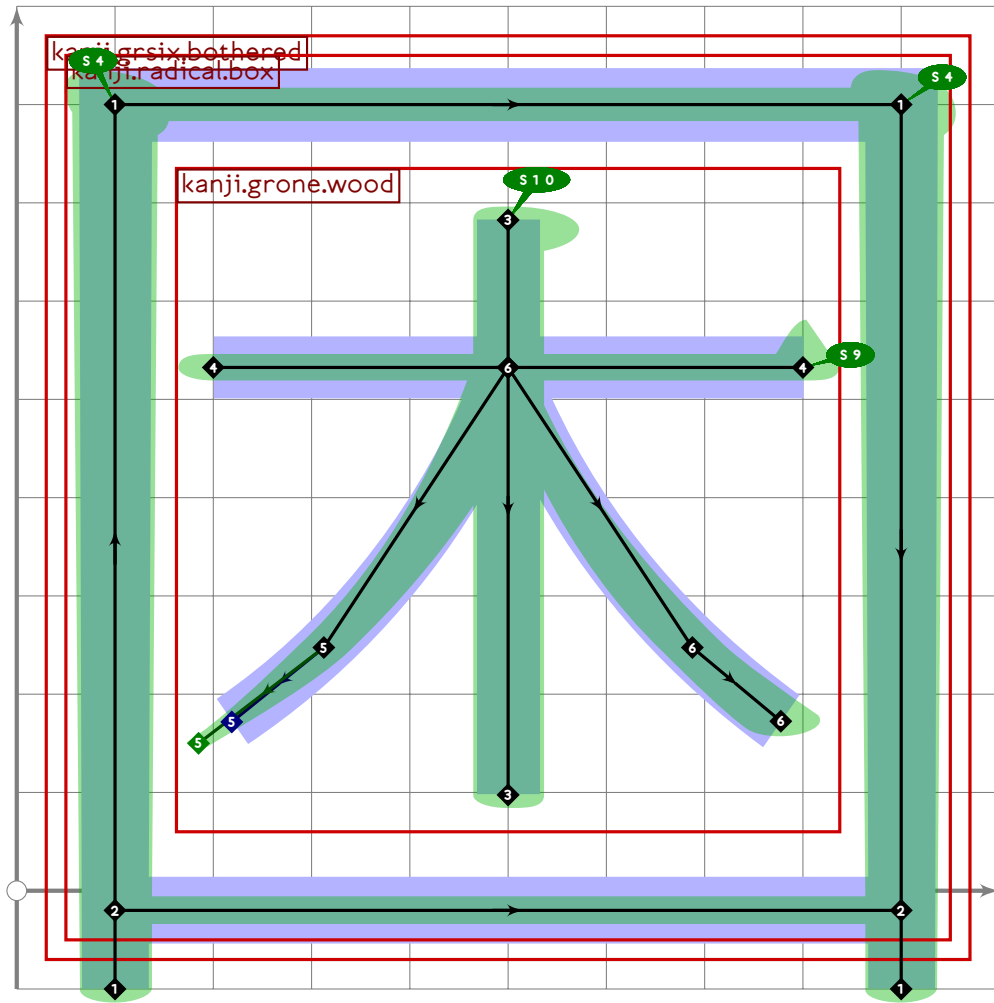


# gradesix.mp

```
1 %  
2 % Grade Six kanji used on more than one page  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 inclusion_lock(gradesix);  
32  
33  
34
```



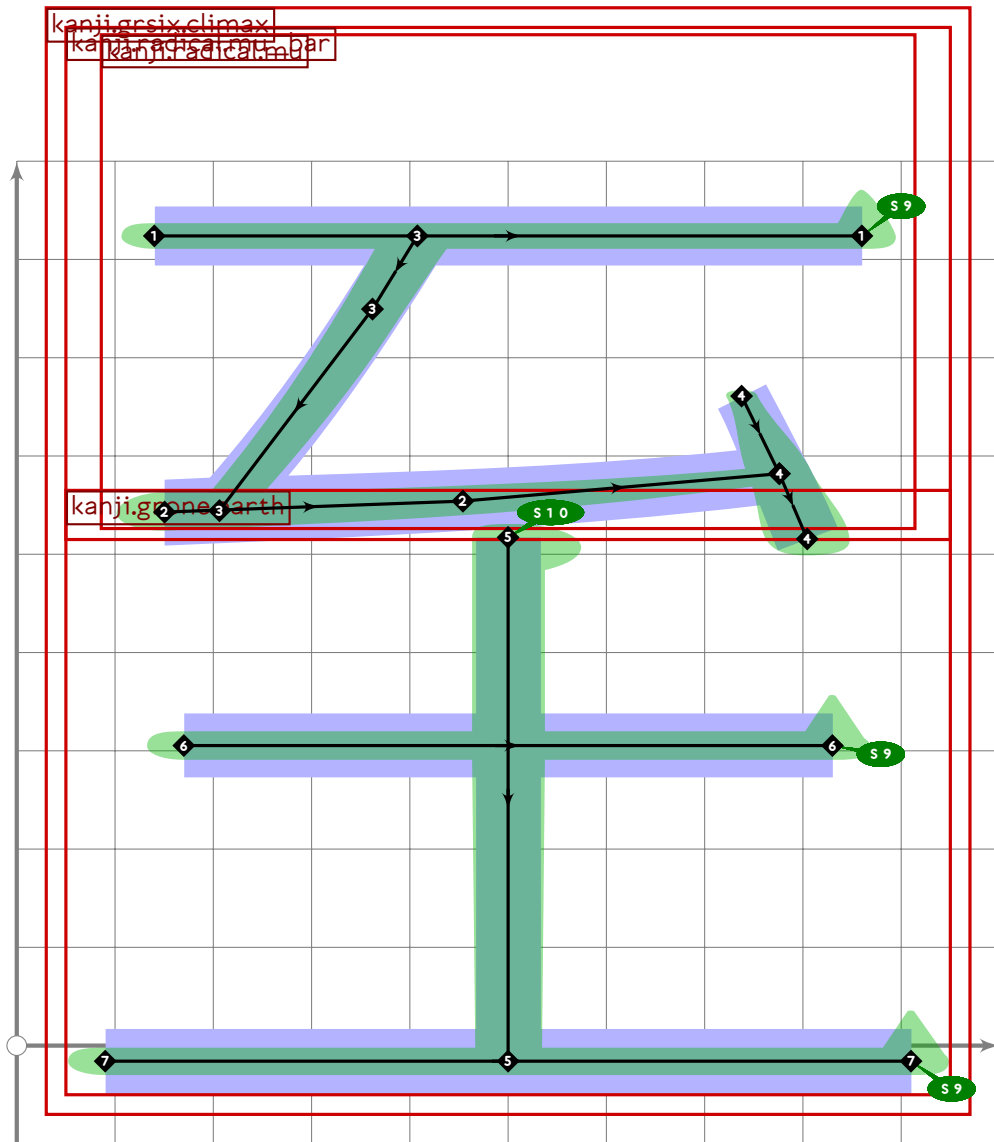
```
35 % the other common word using this kanji is "foot (unit of measure)" but  
36 % that is a poor mnemonic because it's ambiguous with "foot (body part)"  
37 vardef kanji.grsix.blowjob =  
38   push_pbox_toexpand("kanji.grsix.blowjob");  
39   kanji.radical.flag;  
40   push_stroke((490,490)..tension 1.2..(690,180)..(910,70),  
41     (1.2,1.2)-(1.4,1.4)-(1.7,1.7));  
42   expand_pbox;  
43 enddef;
```



```

44
45 vardef kanji.grsix.bothered =
46   push_pbox_toexpand("kanji.grsix.bothered");
47   kanji.radical.box;
48   build_kanji.sscale(scaled 0.75)(kanji.grone.wood);
49   expand_pbox;
50 enddef;

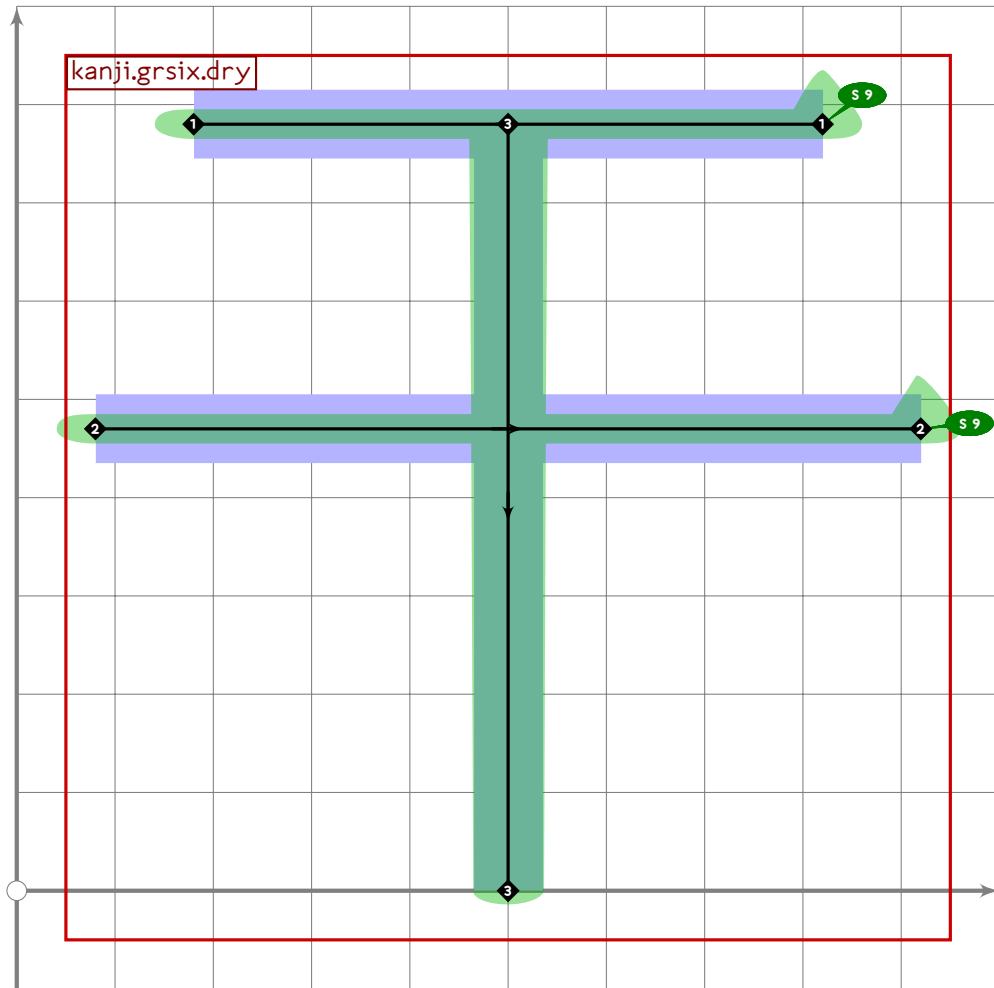
```



```

51
52 vardef kanji.grsix.climax =
53   push_pbox_toexpand("kanji.grsix.climax");
54   build_kanji.tb(540,50)
55     (kanji.radical.mu_bar)
56     (kanji.grone.earth);
57   expand_pbox;
58 enddef;

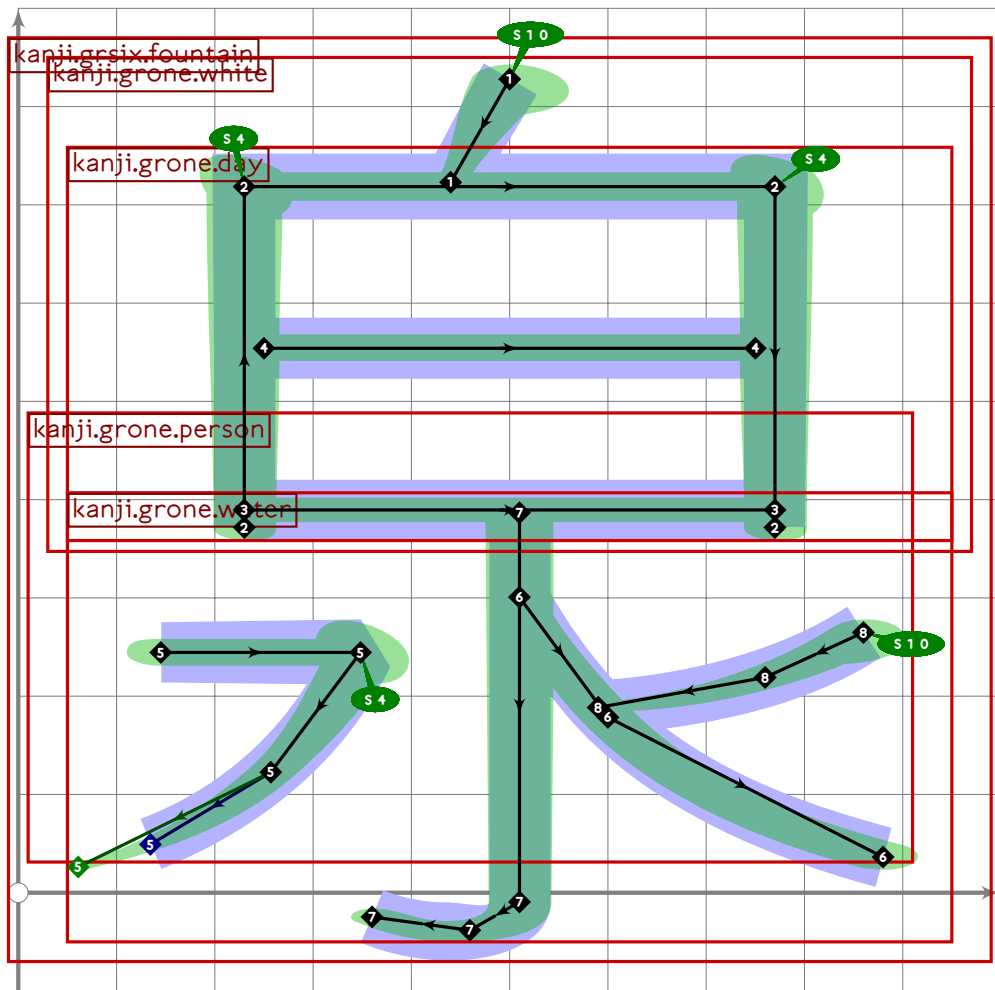
```



```

59
60 vardef kanji.grsix.dry =
61   push_pbox_toexpand("kanji.grsix.dry");
62   push_stroke((180,780)-(820,780),
63     (1.6,1.6)-(1.6,1.6));
64   set_boserif(0,1,9);
65   push_stroke((80,470)-(920,470),
66     (1.6,1.6)-(1.6,1.6));
67   set_boserif(0,1,9);
68   push_stroke((500,780)-(500,0),
69     (1.6,1.6)-(1.5,1.5));
70   expand_pbox;
71 enddef;

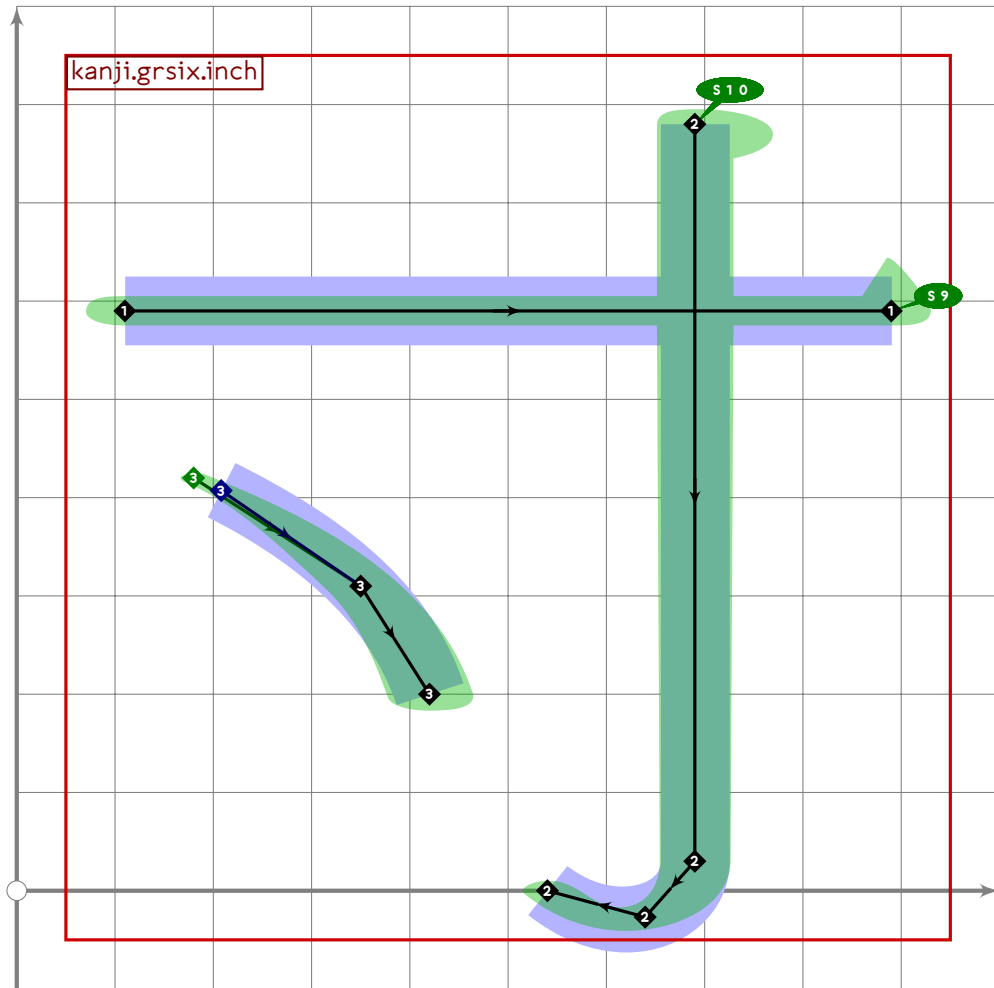
```



```

72
73 vardef kanji.grsix.fountain =
74   push_pbox_toexpand("kanji.grsix.fountain");
75   build_kanji.level(build_kanji.tb(380,54)
76     (kanji.grone.white)
77     (kanji.grone.water;
78       set_boserif(-1,0,whatever)));
79   expand_pbox;
80 enddef;

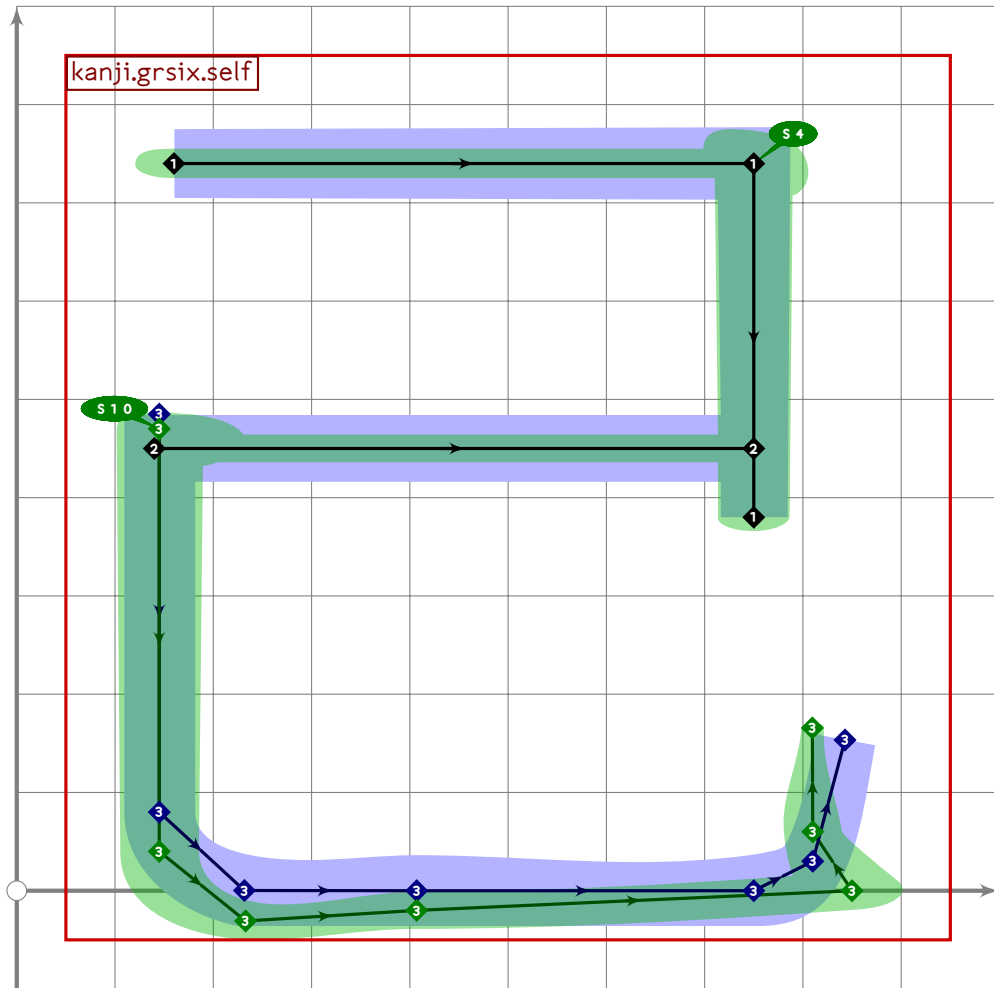
```



```

81
82 vardef kanji.grsix.inch =
83   push_pbox_toexpand("kanji.grsix.inch");
84   push_stroke((110,590)-(890,590),(1.6,1.6)-(1.6,1.6));
85   set_boserif(0,1,9);
86   push_stroke((690,780),(1.6,1.6));
87   build_kanji.add_jtail(0);
88   set_boserif(0,0,10);
89   push_stroke((180,420)..tension 1.2..(350,310)..(420,200),
90     (0,9,0,9)-(1.5,1.5)-(1.7,1.7));
91   expand_pbox;
92 enddef;

```



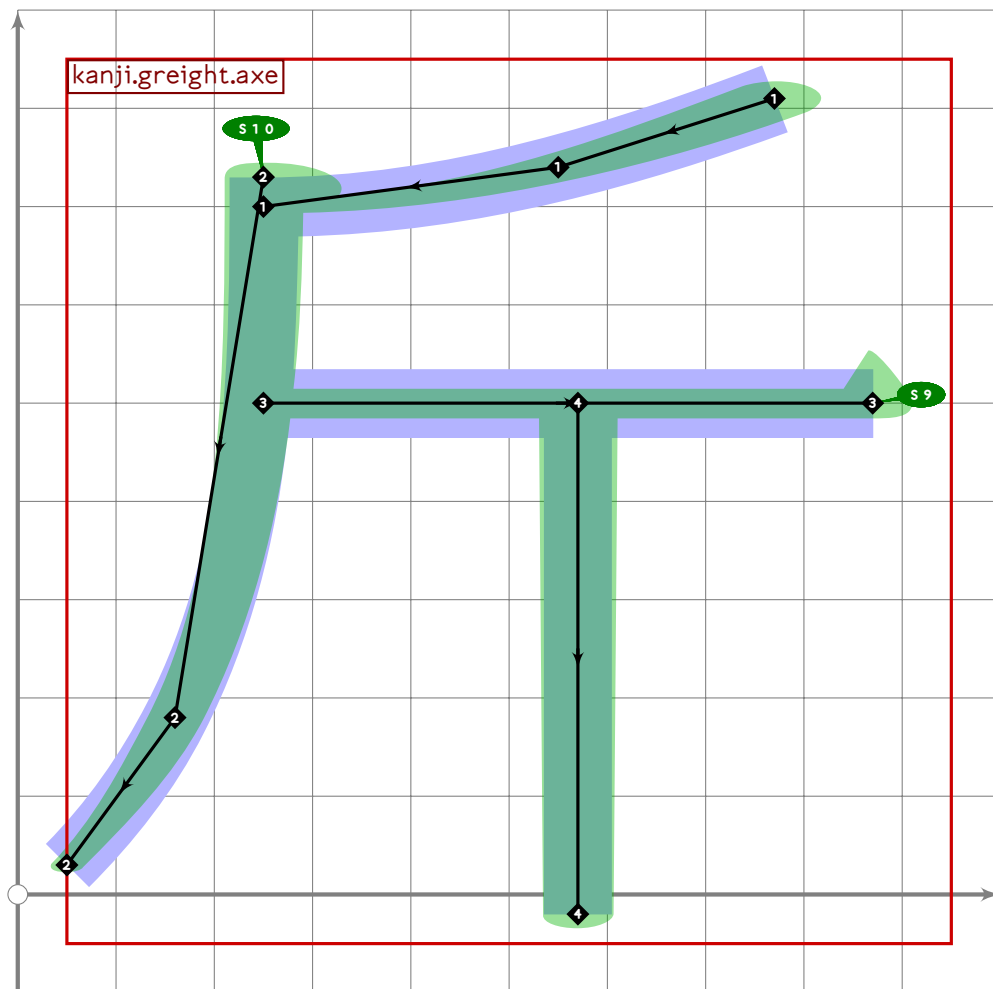
```

93
94 vardef kanji.grsix.self =
95   push_pbox_toexpand("kanji.grsix.self");
96   push_stroke((160,740)-(750,740)-(750,380),
97     (1.6,1.6)-(1.6,1.6)-(1.5,1.5));
98   set_botip(0,1);
99   set_boserif(0,1,4);
100  push_stroke((140,450)-(750,450),
101    (1.5,1.5)-(1.5,1.5));
102  push_stroke((145,485-15*mincho),(1.7,1.7));
103  set_boserif(0,0,10);
104  build_kanji.add_ltail(0);
105  expand_pbox;
106 enddef;

```

# gradeeight.mp

```
1 %  
2 % Grade Eight kanji used on more than one page  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 inclusion_lock(gradeeight);  
32  
33
```



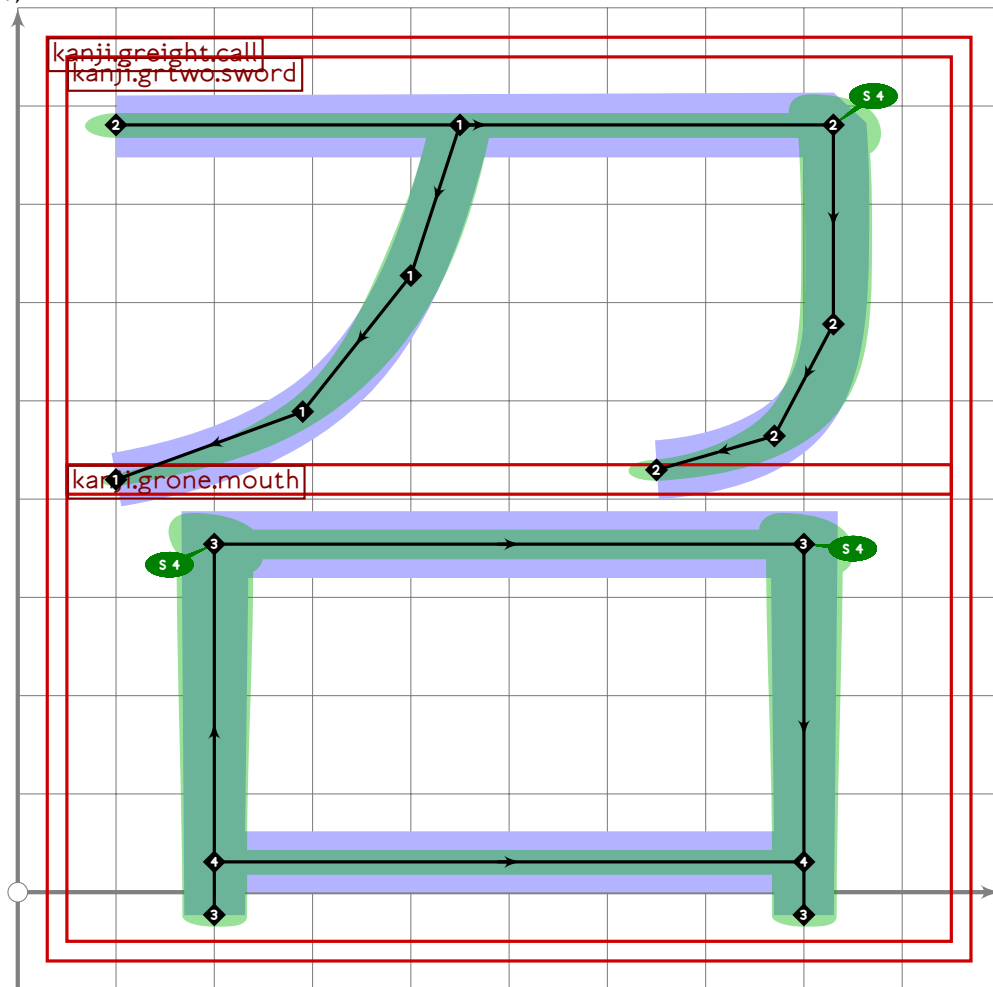
```
34  
35 vardef kanji.greight.axe =  
36   push_pbox_toexpand("kanji.greight.axe");  
37   push_stroke((770,810)..tension 1.2..(550,740)..(250,700),  
38     (1.8,1.8)-(1.5,1.5)-(1,1));  
39   push_stroke((250,730){down}..(160,180)..(50,30),  
40     (1.6,1.6)-(1.3,1.3)-(1,1));  
41   set_boserif(0,0,10);  
42   push_stroke((250,500)-(870,500),(1.6,1.6)-(1.6,1.6));  
43   set_boserif(0,1,9);
```



```

44 push_stroke((570,500)-(570,-20),(1.6,1.6)-(1.5,1.5));
45 expand_pbox;
46 enddef;

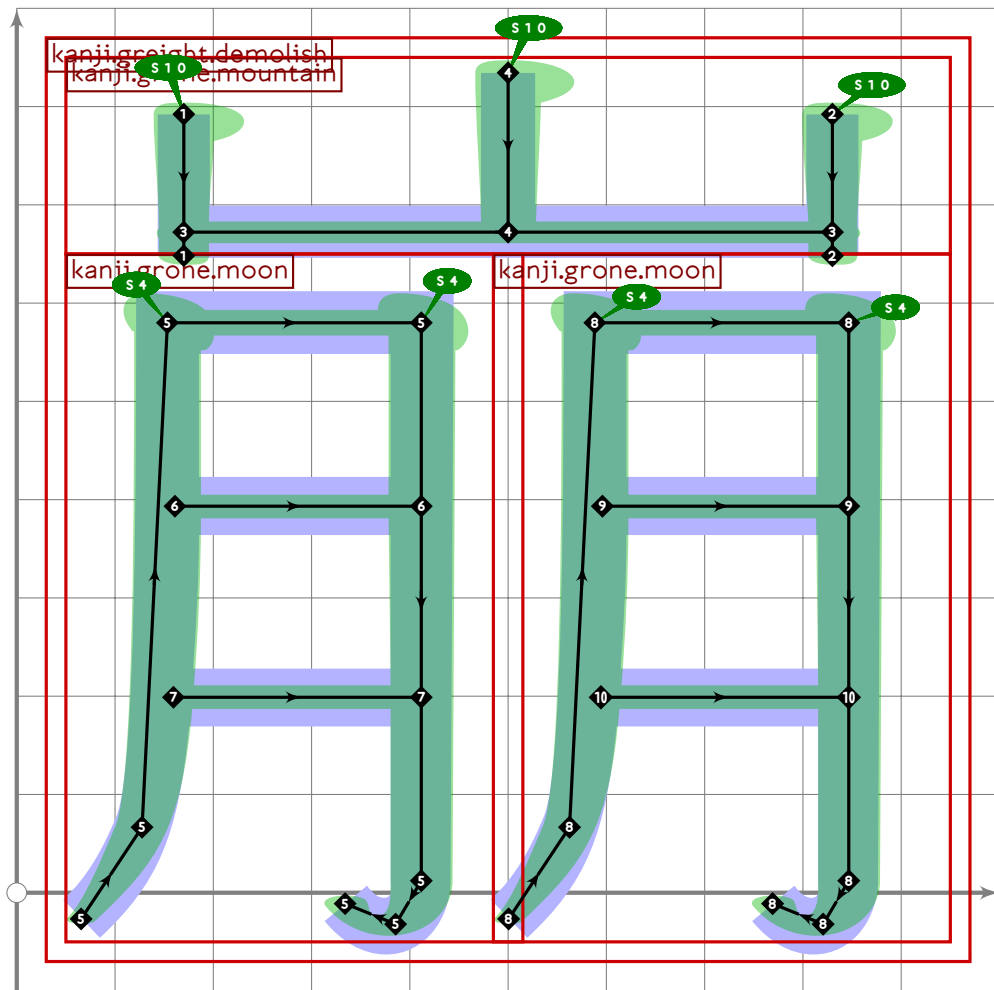
```



```

47
48 vardef kanji.greight.call =
49   push_pbox_toexpand("kanji.greight.call");
50   build_kanji.tb(420,30)
51     (kanji.grtwo.sword)
52     (kanji.grone.mouth);
53   expand_pbox;
54 enddef;

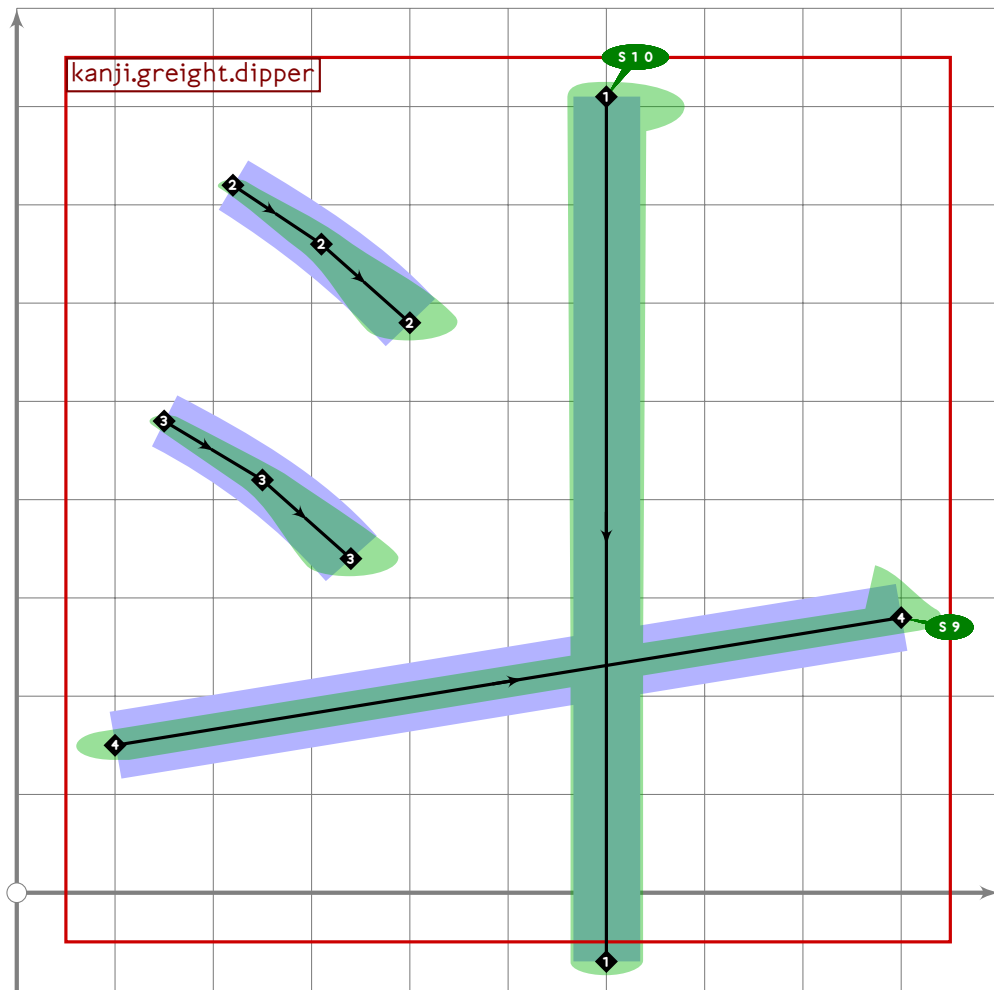
```



```

55
56 vardef kanji.greight.demolish =
57   push_pbox_toexpand("kanji.greight.demolish");
58   build_kanji.tb(650,0)
59     (kanji.greight.mountain)
60     (build_kanji.lr(500,30)
61     (kanji.greight.moon)
62     (kanji.greight.moon));
63   expand_pbox;
64 enddef;

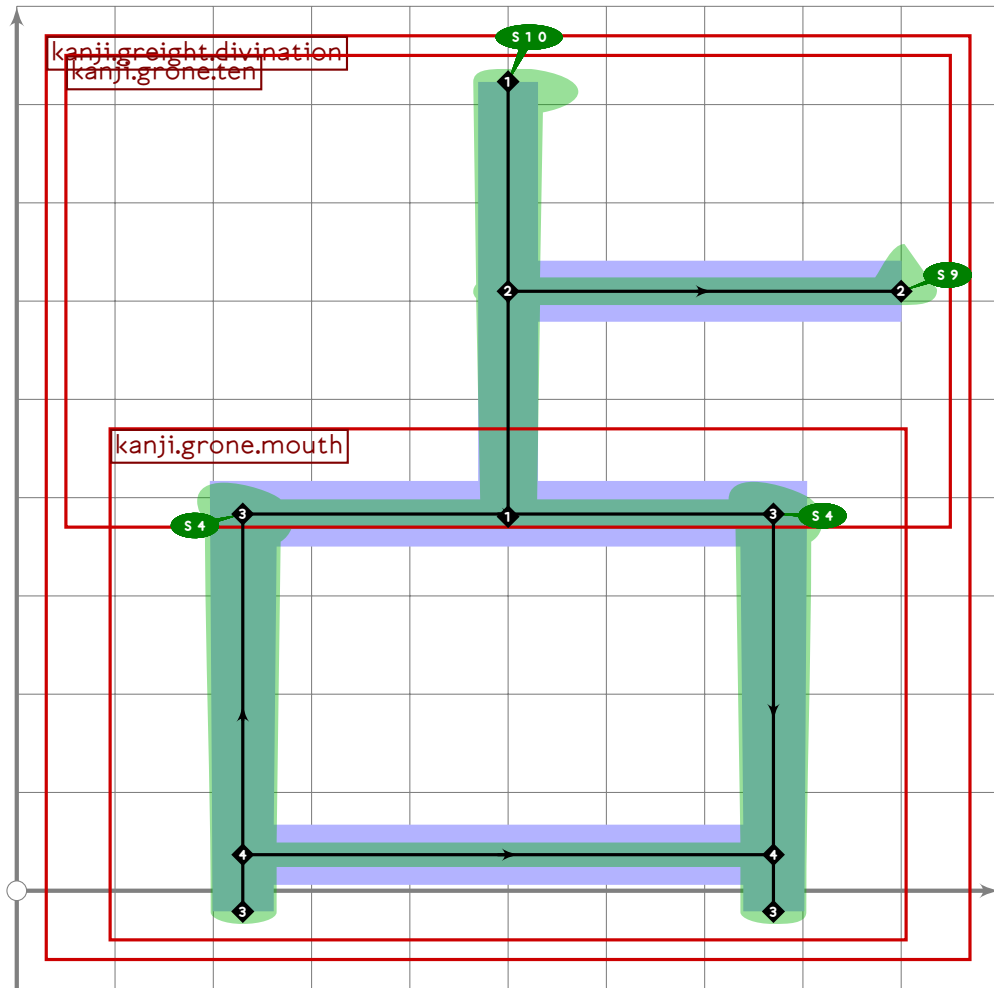
```



```

65
66 vardef kanji.greight.dipper =
67   push_pbox_toexpand("kanji.greight.dipper");
68   push_stroke((600,810)-(600,-70),(1.6,1.6)-(1.5,1.5));
69   set_boserif(0,0,10);
70   push_stroke((220,720)..tension 1.2..(310,660)..(400,580),
71     (1,1)-(1.3,1.3)-(1.9,1.9));
72   set_bosize(0,94);
73   push_stroke((150,480)..tension 1.2..(250,420)..(340,340),
74     (1,1)-(1.3,1.3)-(1.9,1.9));
75   set_bosize(0,94);
76   push_stroke((100,150)-(900,280),(1.6,1.6)-(1.6,1.6));
77   set_boserif(0,1,9);
78   expand_pbox;
79 enddef;

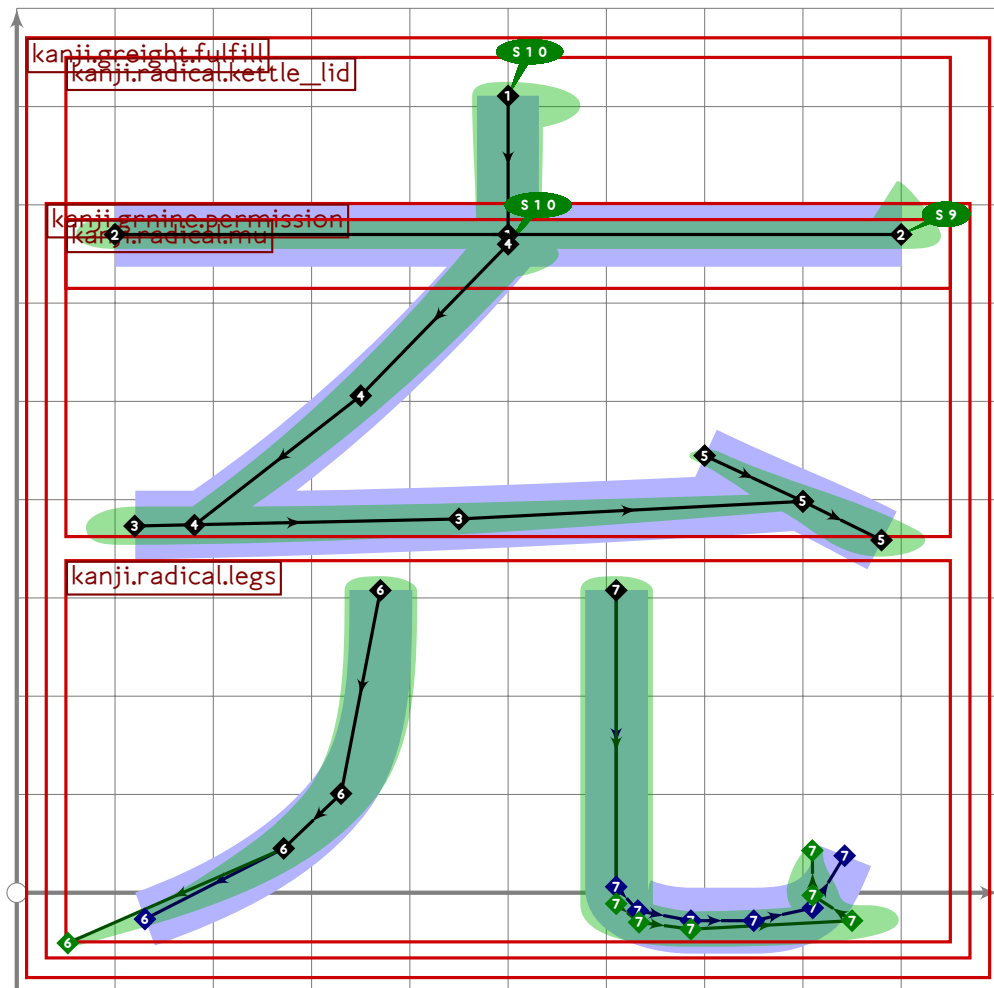
```



```

80
81 vardef kanji.greight.divination =
82   push_pbox_toexpand("kanji.greight.divination");
83   build_kanji.level(build_kanji.tb(420,100)
84     (kanji.greone.ten;
85       replace_stroke(0)(subpath (0.5,1) of oldp))
86     (build_kanji.sscale(xscaled 0.9)(kanji.greone.mouth)));
87   expand_pbox;
88 enddef;

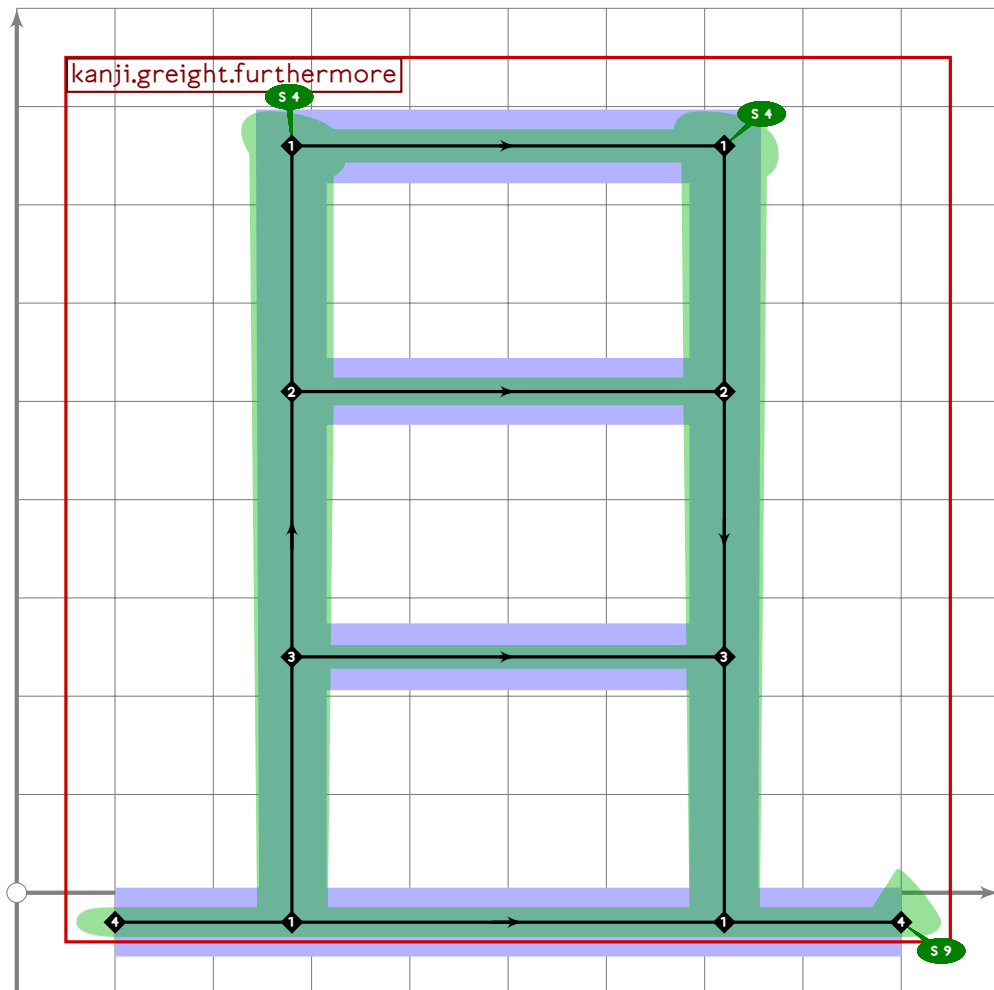
```



```

89
90 vardef kanji.greight.fulfill =
91   push_pbox_toexpand("kanji.greight.fulfill");
92   build_kanji.level(build_kanji.tb(650,70)
93     (kanji.radical.kettle_lid)
94     (kanji.grnine.permission));
95   expand_pbox;
96 enddef;

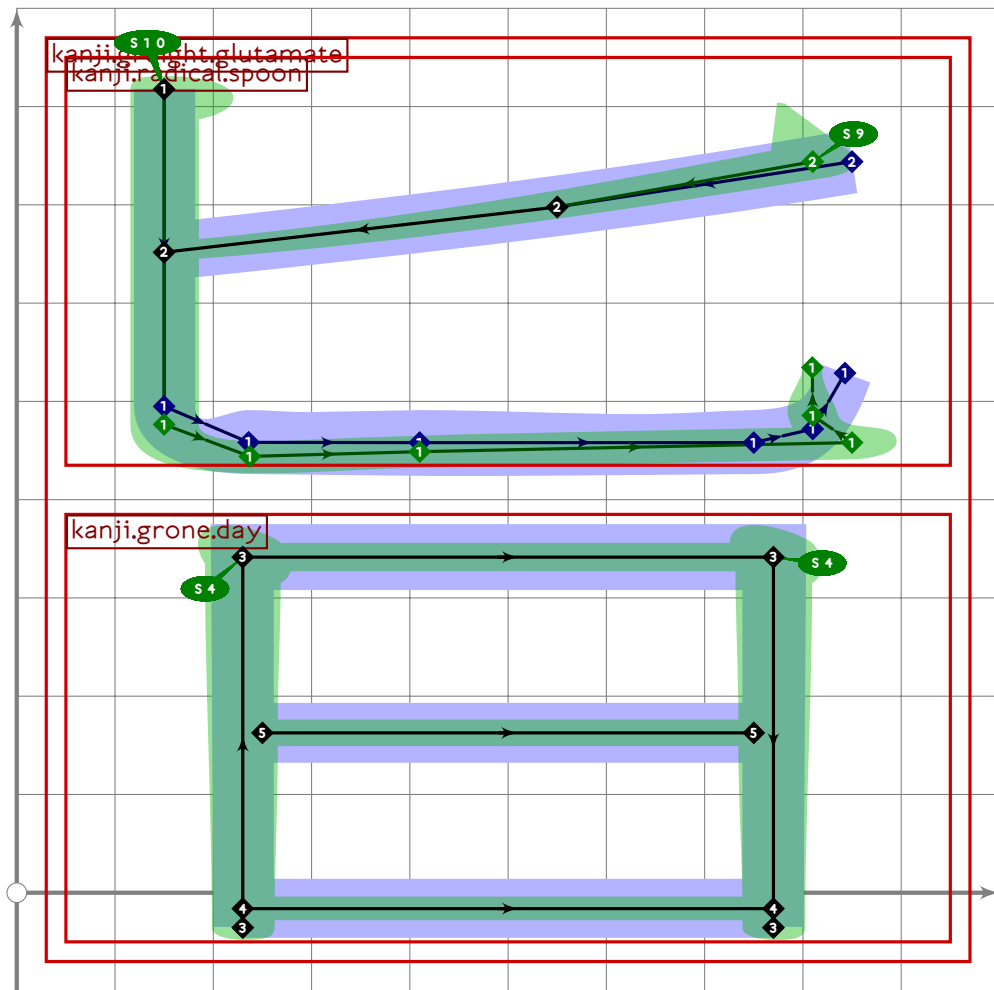
```



```

97
98 vardef kanji.greight.furthermore =
99   push_pbox_toexpand("kanji.greight.furthermore");
100   push_stroke((280,-30)-(280,760)-(720,760)-(720,-30),
101     (1.5,1.5)-(1.7,1.7)-(1.7,1.7)-(1.5,1.5));
102   set_botip(0,1);
103   set_botip(0,2,1);
104   set_boserif(0,1,4);
105   set_boserif(0,2,4);
106   push_stroke((280,510)-(720,510),
107     (1.5,1.5)-(1.5,1.5));
108   push_stroke((280,240)-(720,240),
109     (1.4,1.4)-(1.4,1.4));
110   push_stroke((100,-30)-(900,-30),
111     (1.6,1.6)-(1.6,1.6));
112   set_boserif(0,1,9);
113   expand_pbox;
114 enddef;
115

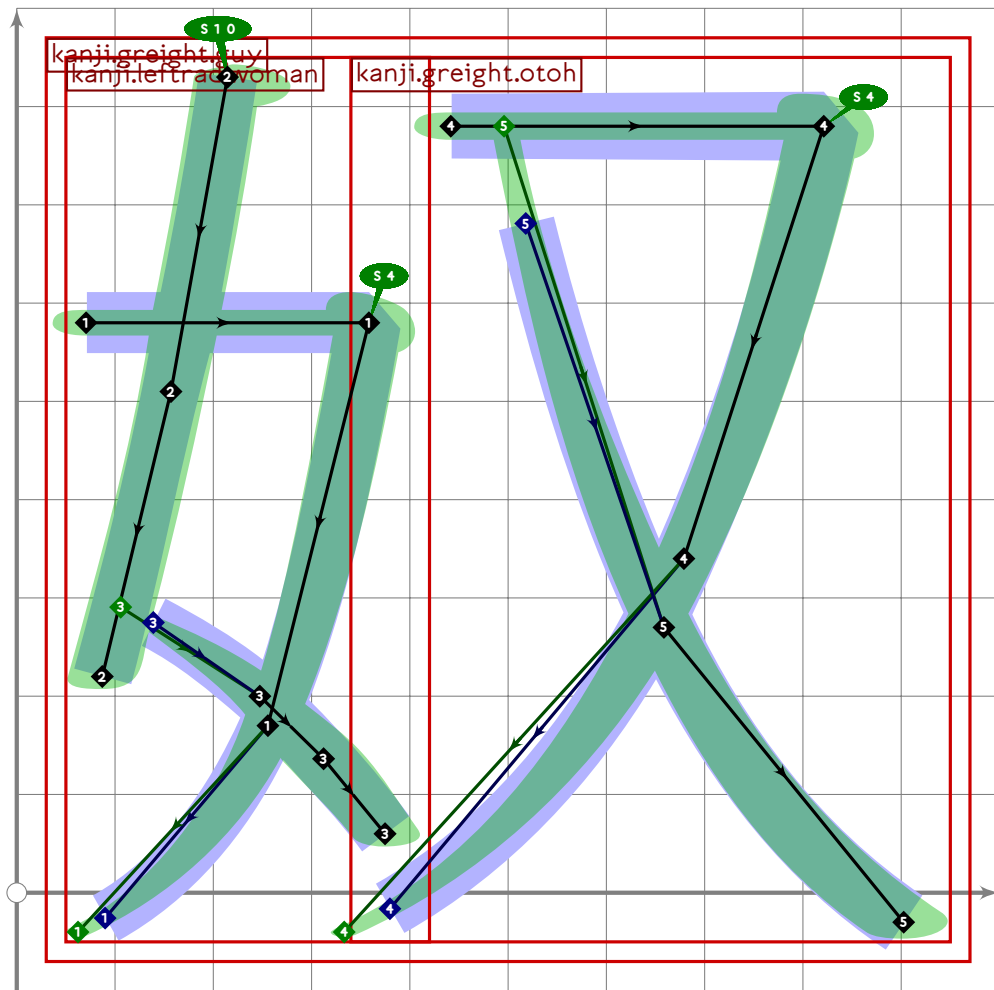
```



```

116 % this actually means sort of generically "good", but it's "uma" in
117 % "umami" and needs to be distinguished from other vague kanji
118 vardef kanji.greight.glutamate =
119   push_pbox_toexpand("kanji.greight.glutamate");
120   build_kanji.level(build_kanji.tb(410,-50)
121     (kanji.radical.spoon)
122     (kanji.grone.day));
123   expand_pbox;
124 enddef;

```

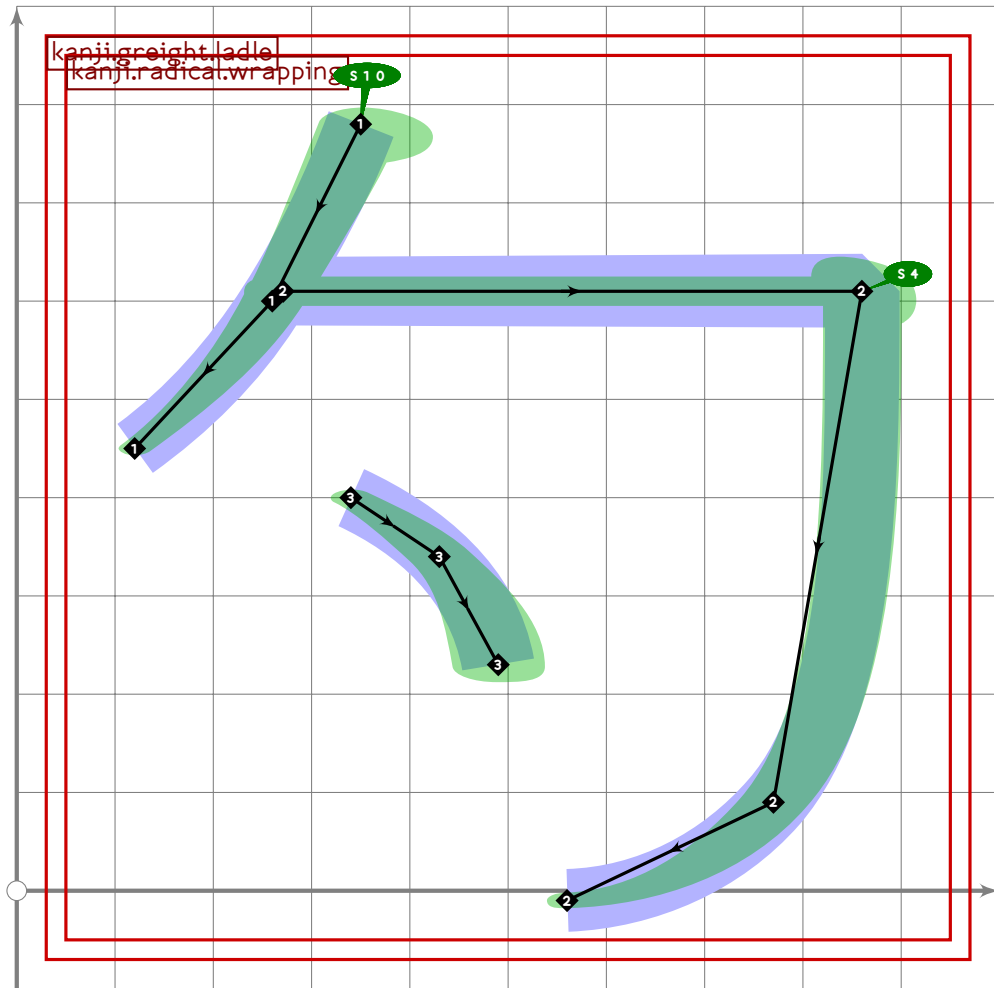


```

125
126 vardef kanji.greight.guy =
127   push_pbox_toexpand("kanji.greight.guy");
128   build_kanji.lr(380,80)
129     (kanji.leftrad.woman)
130     (kanji.greight.otoh);
131   expand_pbox;
132 enddef;

```

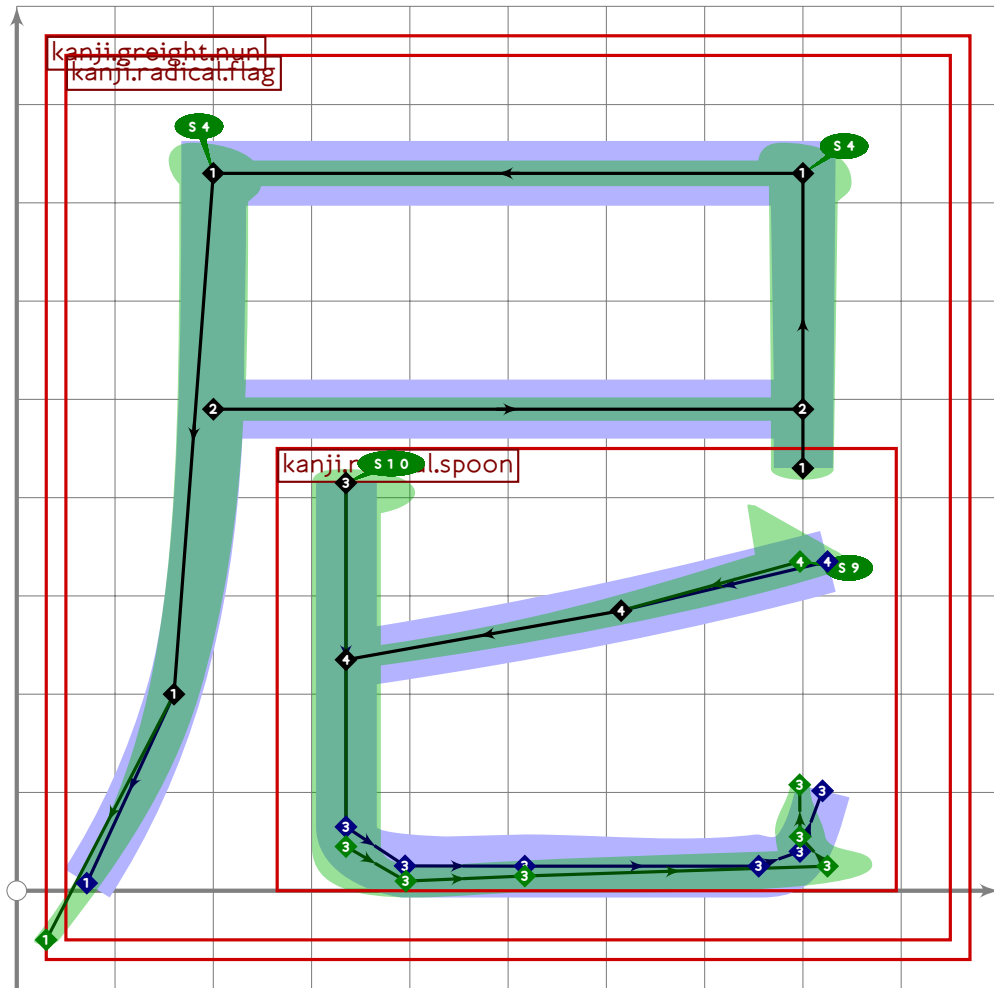




```

133
134 vardef kanji.greight.ladle =
135   push_pbox_toexpand("kanji.greight.ladle");
136   kanji.radical.wrapping;
137   push_stroke((340,400)..tension 1.2..(430,340)..(490,230),
138     (1,1,1)-(14,14)-(18,18));
139   expand_pbox;
140 enddef;

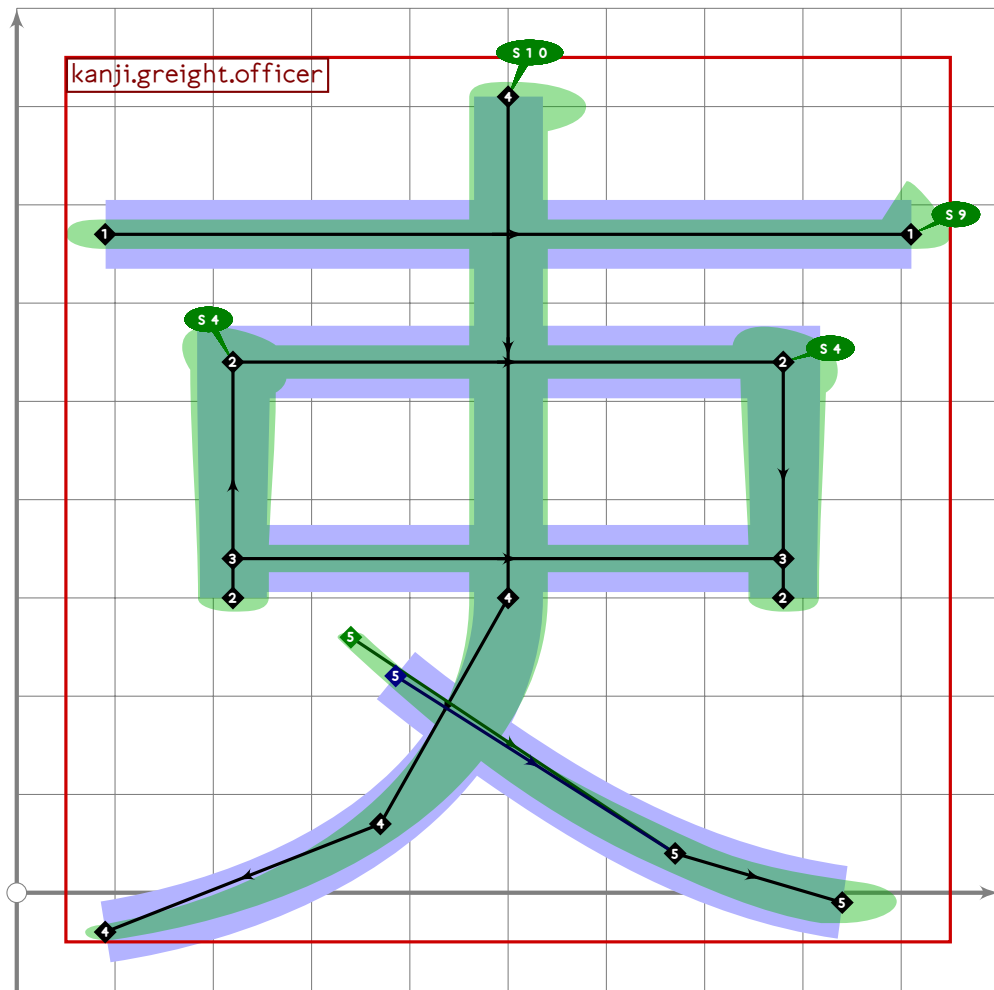
```



```

141
142 vardef kanji.greight.nun =
143   push_pbox_toexpand("kanji.greight.nun");
144   build_kanji.level(
145     kanji.radical.flag;
146     build_kanji.sscale(xyscaled (0.7,0.5) shifted (80,-170))
147       (kanji.radical.spoon));
148   expand_pbox;
149 enddef;

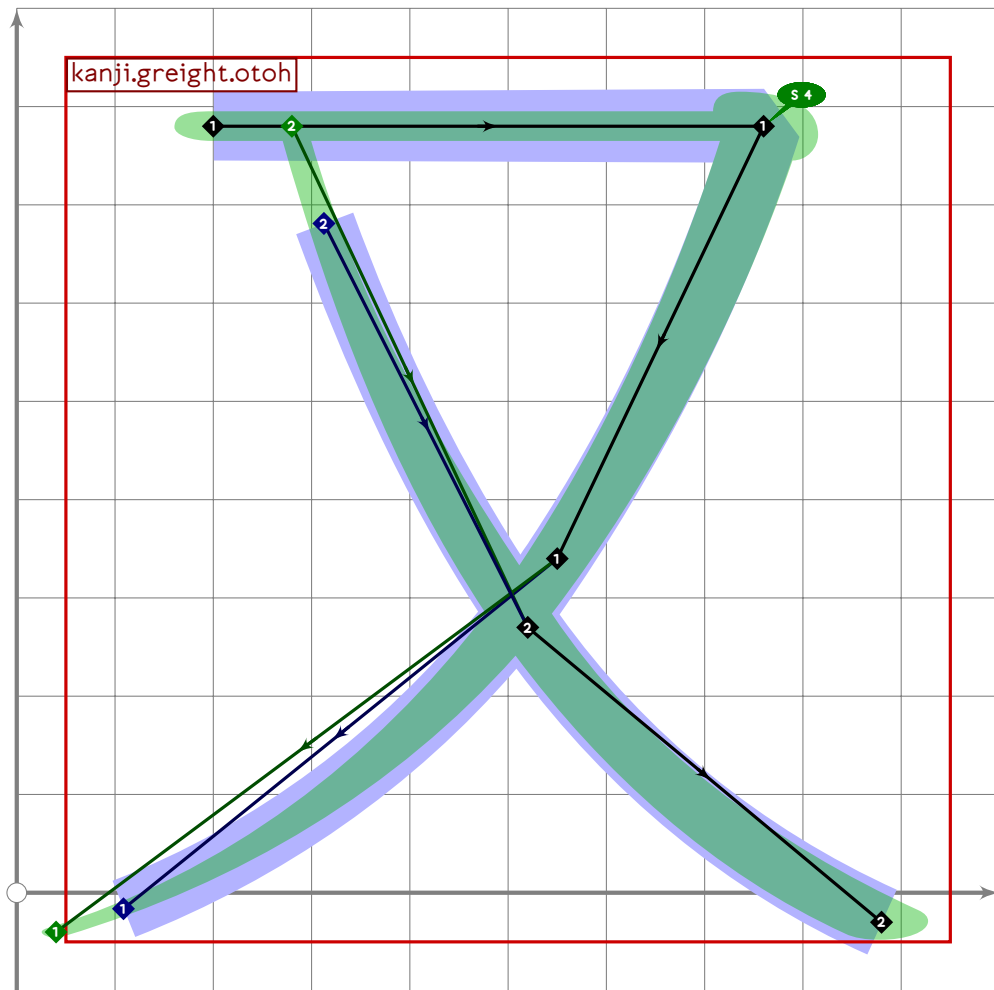
```



```

150
151 vardef kanji.greight.officer =
152   push_pbox_toexpand("kanji.greight.officer");
153   push_stroke((90,670)-(910,670),(1.6,1.6)-(1.6,1.6));
154   set_boserif(0,1,9);
155   build_kanji.box((220,540),(780,340));
156   push_stroke((500,810)-(500,300){down}..(370,70)..{curl 0.5}(90,-40),
157     (1.6,1.6)-(1.6,1.6)-(1.4,1.4)-(1.1,1.1));
158   set_boserif(0,0,10);
159   push_stroke((340,260)..tension 1.2..(670,40)..(840,-10),
160     (0.9,0.9)-(1.5,1.5)-(2,2));
161   expand_pbox;
162 enddef;

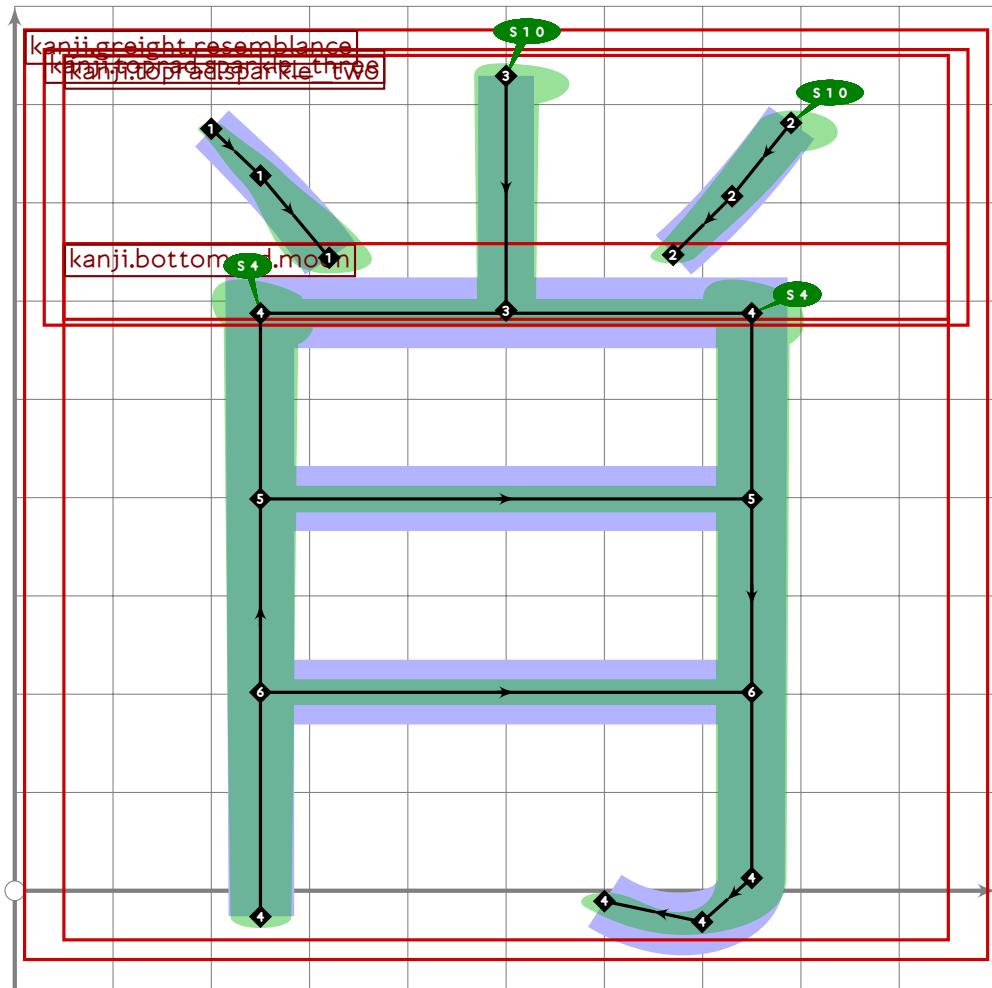
```



```

163
164 vardef kanji.greight.otoh =
165   push_pbox_toexpand("kanji.greight.otoh");
166   push_stroke(
167     (200,780)-(760,780)..tension 1.2..(550,340)..(40,-40),
168     (1.6,1.6)-(1.6,1.6)-(1.4,1.4)-(0.9,0.95));
169   set_botip(0,1,0);
170   set_boserif(0,1,4);
171   push_stroke((280,780)..tension 1.2..(520,270)..(880,-30),
172     (0.9,0.9)-(1.4,1.4)-(1.8,1.8));
173   expand_pbox;
174 enddef;

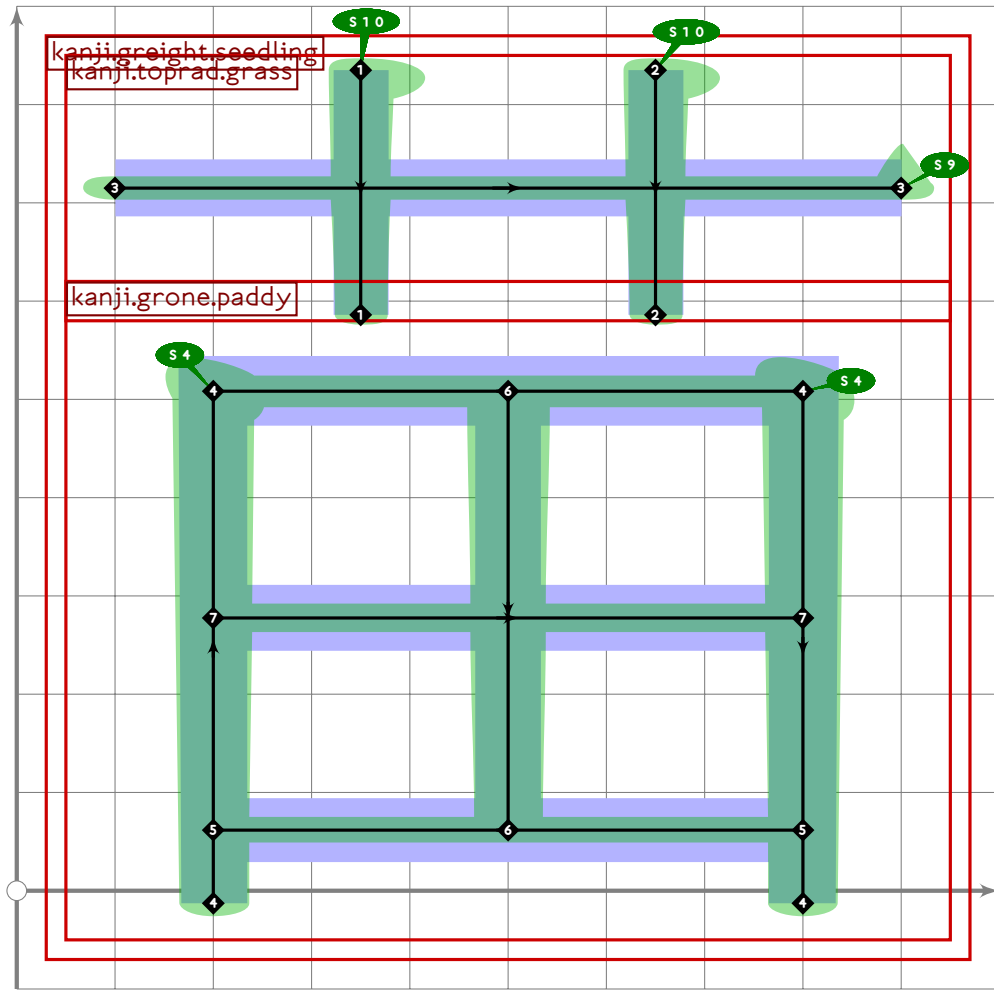
```



```

175
176 vardef kanji.greight.resemblance =
177   push_pbox_toexpand("kanji.greight.resemblance");
178   build_kanji.tb(620,77)
179     (kanji.toprad.sparkle_three)
180     (kanji.bottomrad.moon);
181   expand_pbox;
182 enddef;

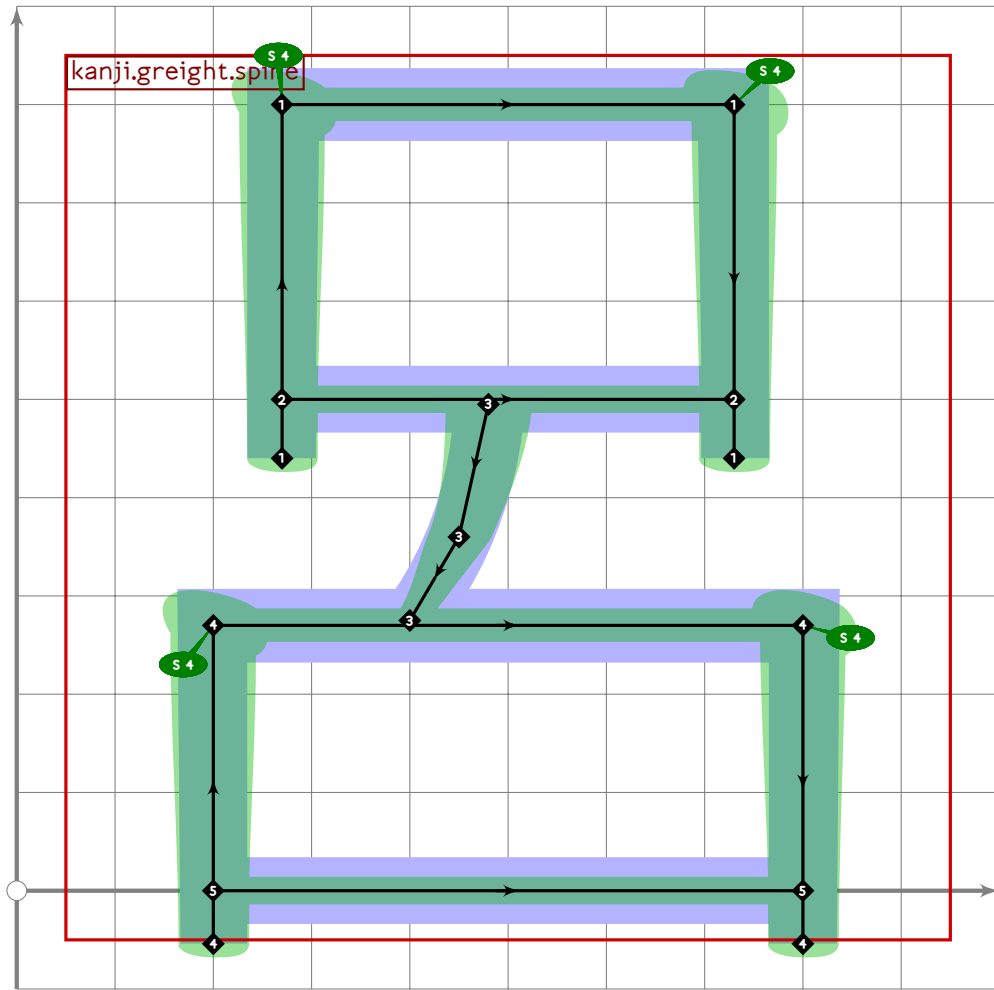
```



```

183
184 vardef kanji.greight.seedling =
185   push_pbox_toexpand("kanji.greight.seedling");
186   build_kanji.tb(600,40)
187     (kanji.toprad.grass)
188     (kanji.grone.paddy);
189   expand_pbox;
190 enddef;

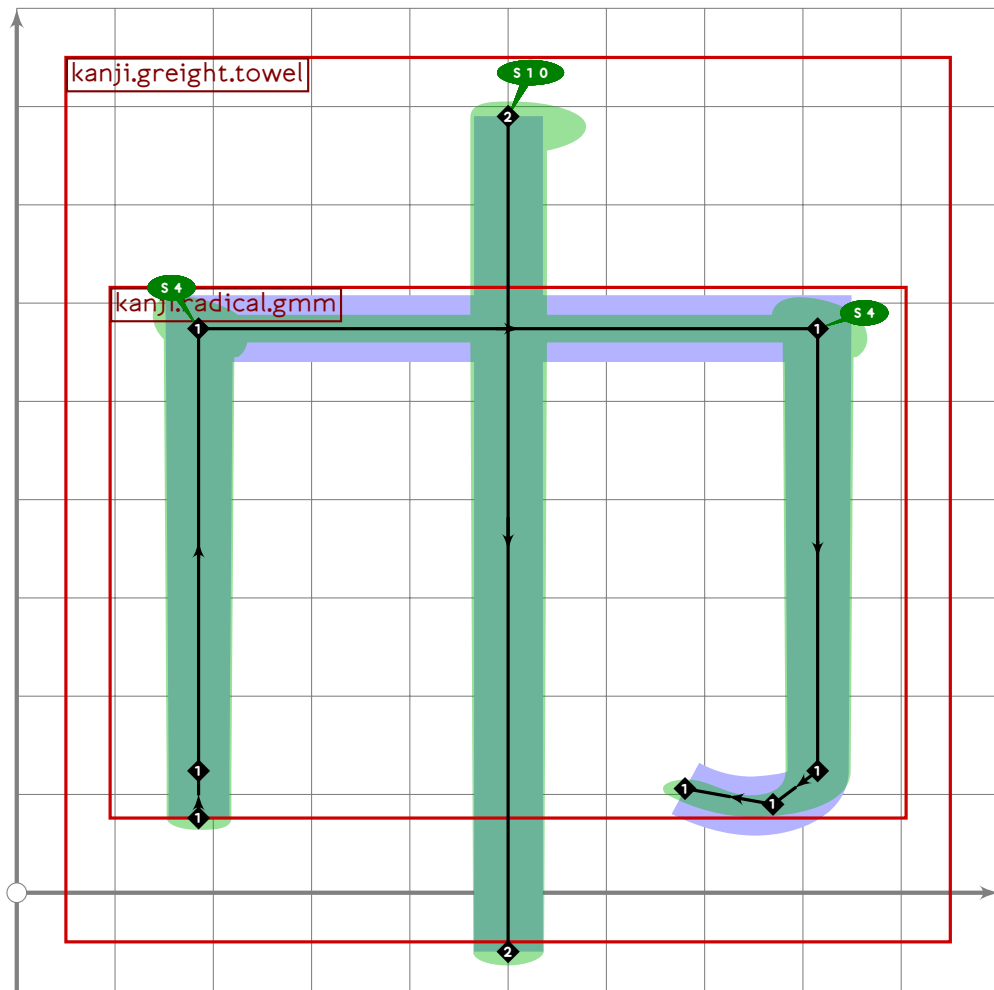
```



```

191
192 vardef kanji.greight.spine =
193   push_pbox_toexpand("kanji.greight.spine");
194   build_kanji.box((270,800),(730,500));
195   push_stroke((480,495)..(450,360)..(400,275),
196     (1,1,7)-(1,4,14)-(1,1));
197   build_kanji.box((200,270),(800,0));
198   expand_pbox;
199 enddef;

```

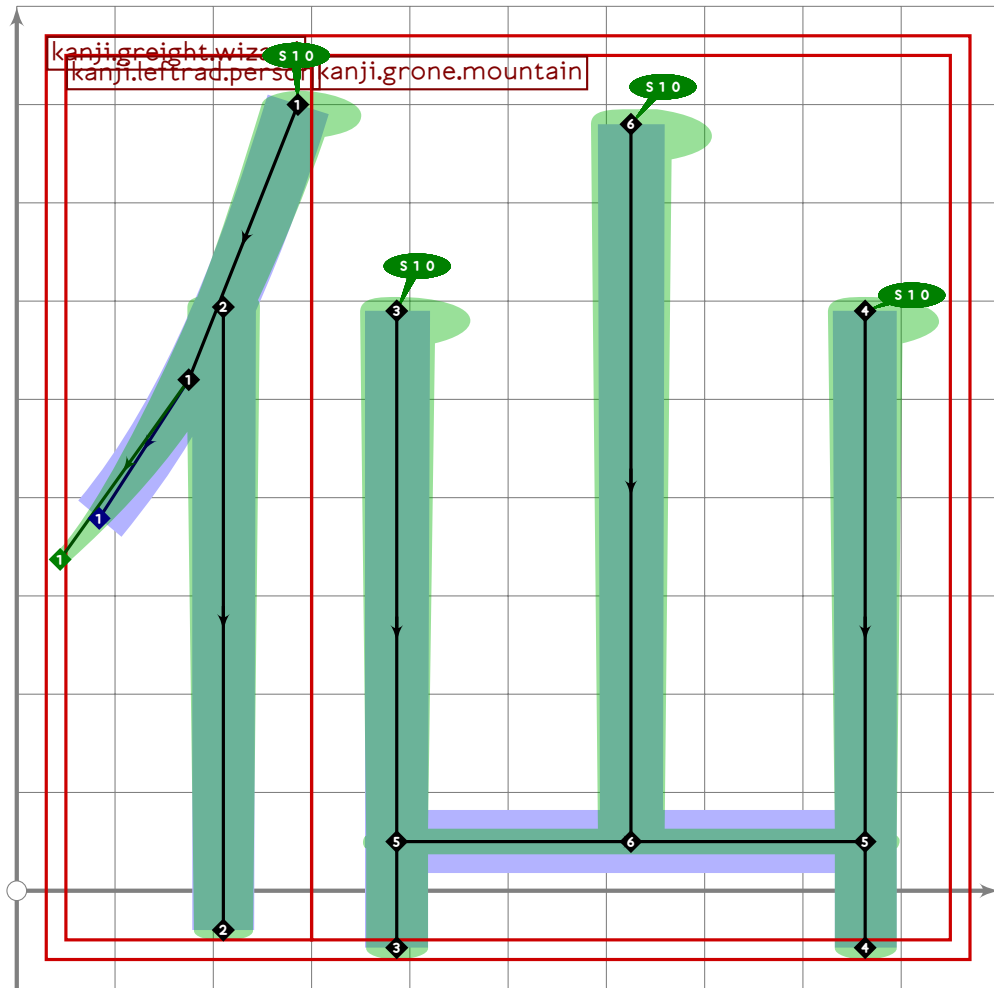


```

200
201 vardef kanji.greight.towel =
202   push_pbox_toexpand("kanji.greight.towel");
203   build_kanji.sscale(xyscaled (0.9,0.6) shifted (0,-50))
204     (kanji.radical.gmm);
205   push_stroke((500,790)-(500,-60),
206     (1.6,1.6)-(1.5,1.5));
207   set_boserif(0,0,10);
208   expand_pbox;
209 enddef;

```





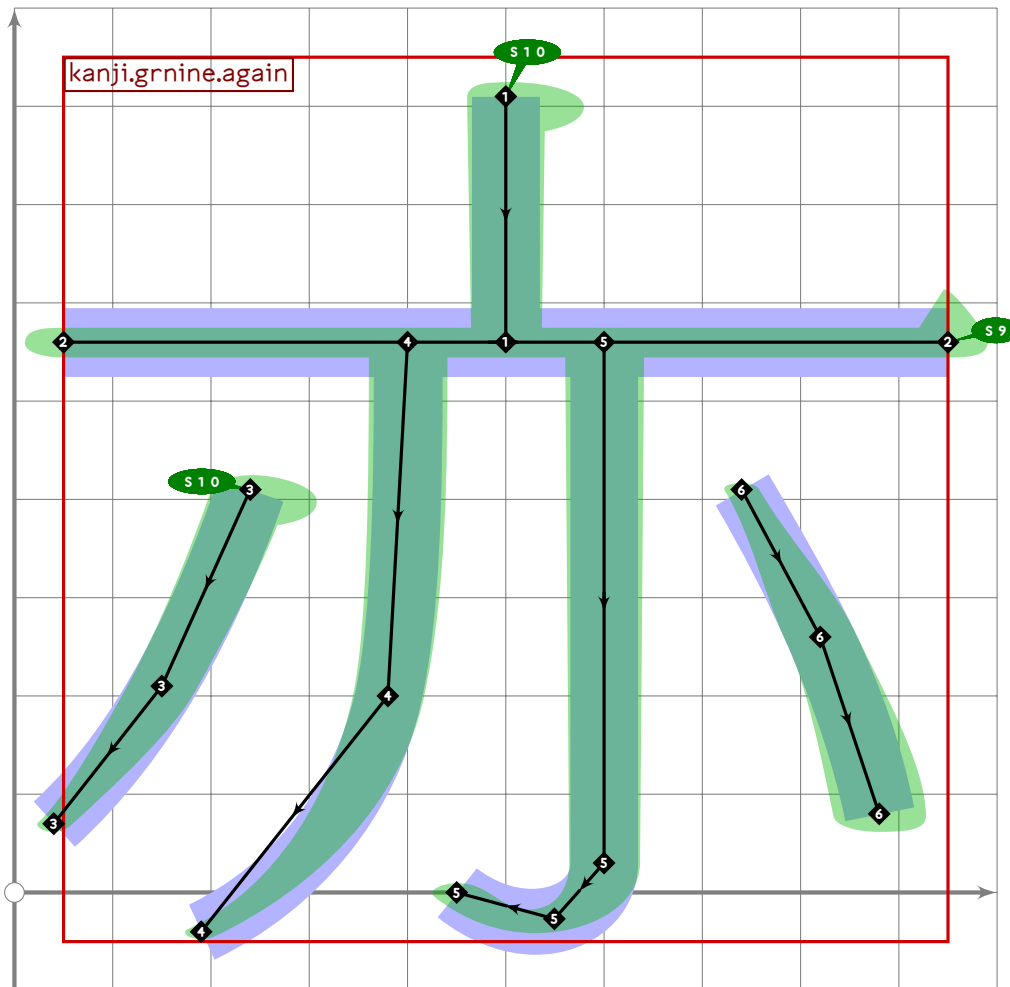
```

210
211 vardef kanji.greight.wizard =
212   push_pbox_toexpand("kanji.greight.wizard");
213   build_kanji.lr(300,0)
214     (kanji.leftrad.person)
215     (kanji.grone.mountain);
216   expand_pbox;
217 enddef;

```

# gradenine.mp

```
1 %  
2 % Grade Nine kanji used on more than one page  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 inclusion_lock(gradenine);  
32  
33
```

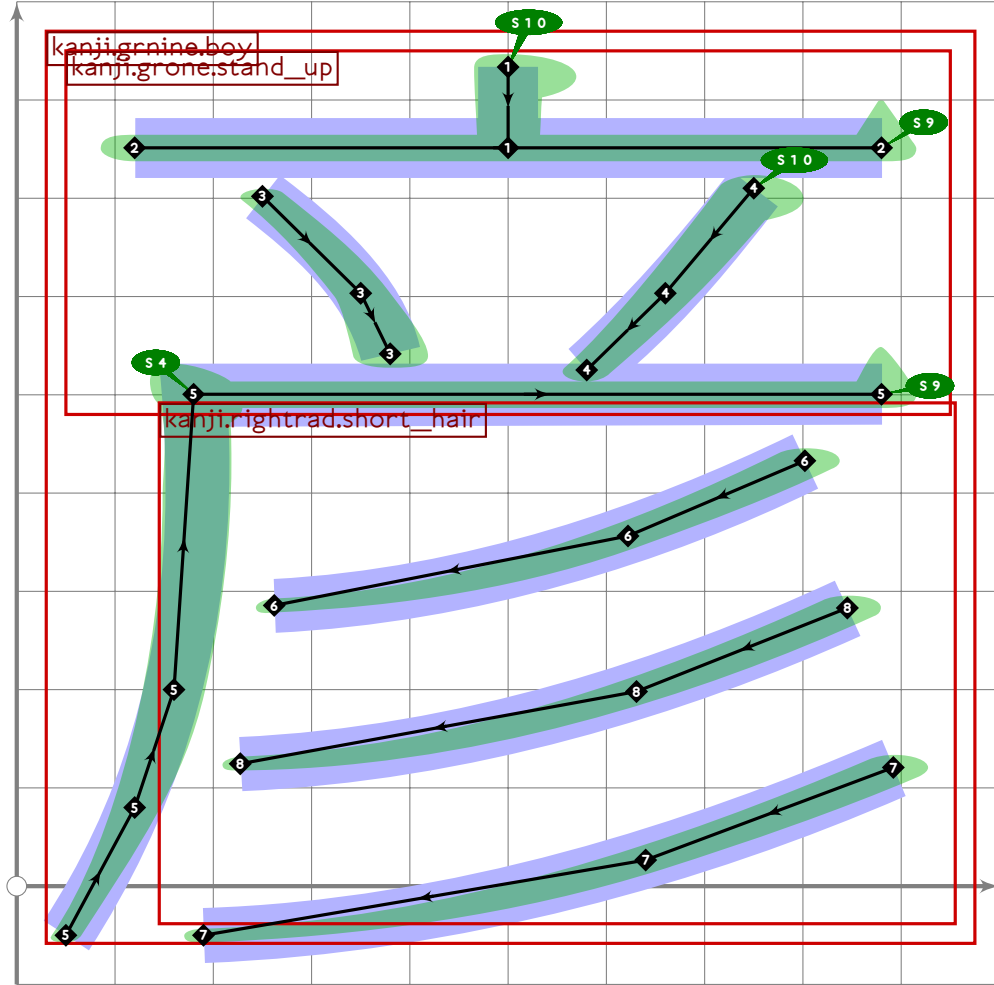


```
34  
35 vardef kanji.grnine.again =  
36   push_pbox_toexpand("kanji.grnine.again");  
37   push_stroke((500,810)-(500,560),(1.6,1.6)-(1.5,1.5));  
38   set_boserif(0,0,10);  
39   push_stroke((50,560)-(950,560),(1.6,1.6)-(1.6,1.6));  
40   set_boserif(0,1,9);  
41   push_stroke((240,410)..tension 1.3..(150,210)..(40,70),  
42     (1.6,1.6)-(1.5,1.5)-(1,1));  
43   set_boserif(0,0,10);
```

```

44 push_stroke((400,560){down}..tension 1.3..(380,200)..(190,-40),
45   (1.6,1.6)-(1.5,1.5)-(1,1));
46 push_stroke((600,560),(1.6,1.6));
47 build_kanji.add_jtail(0);
48 push_stroke((740,410)..tension 1.3..(820,260)..(880,80),
49   (1,1)-(1.5,1.5)-(1.8,1.8));
50 expand_pbox;
51 enddef;

```



```

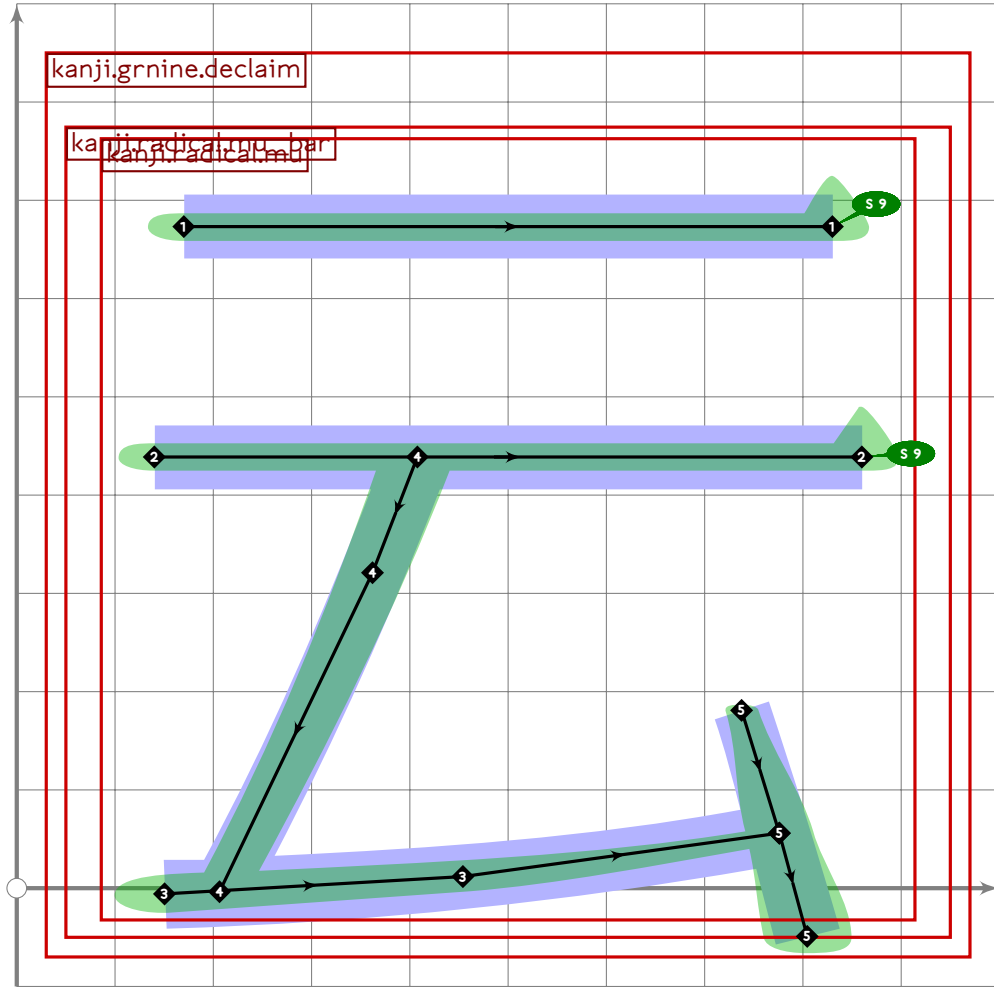
52
53 vardef kanji.grnine.boy =
54   push_pbox_toexpand("kanji.grnine.boy");
55   build_kanji.level(build_kanji.tb(480,0)
56     (kanji.grnone.stand_up)
57     (build_kanji.sscale(xscaled 0.9 shifted (50,20))
58       (kanji.rightrad.short_hair)));
59   replace_strokep(-3)((50,-50)..(120,80)..(160,200)..tension 1.2..
60     (180,y part point 0 of oldp)-(880,y part point 1 of oldp));
61   replace_strokeq(-3)((1,1)-(1.3,1.3)-(1.5,1.5)-(1.6,1.6)-(1.6,1.6));
62   set_botip(-3,3,1);
63   set_boserif(-3,1,whatever);
64   set_boserif(-3,3,4);

```

```

65 set_boserif(-3,4,9);
66 expand_pbox;
67 enddef;

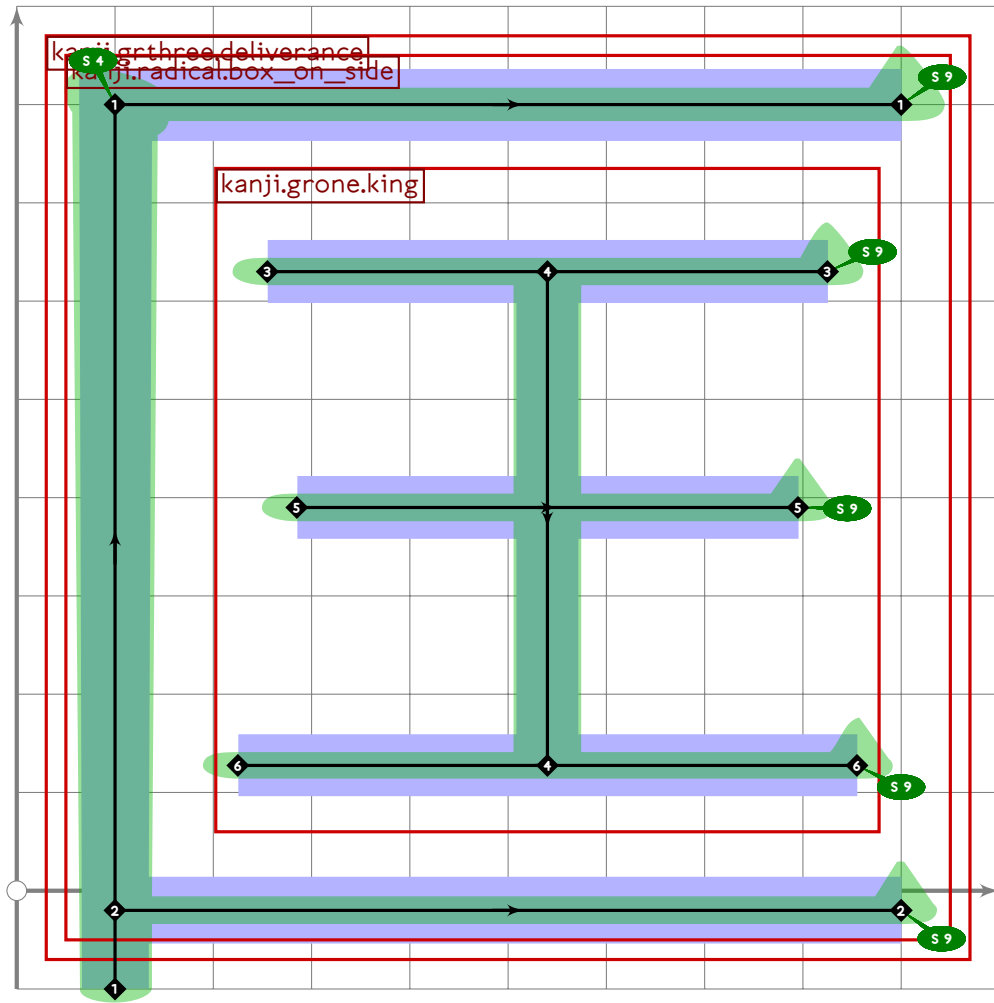
```



```

68
69 vardef kanji.grnine.declaim =
70   push_pbox_toexpand("kanji.grnine.declaim");
71   build_kanji.level(build_kanji.tb(480,0)
72     (push_stroke((170,420)-(830,420),
73       (1.6,1.6)-(1.6,1.6));
74     set_boserif(0,1,9);
75   )
76   (kanji.radical.mu_bar));
77   expand_pbox;
78 enddef;

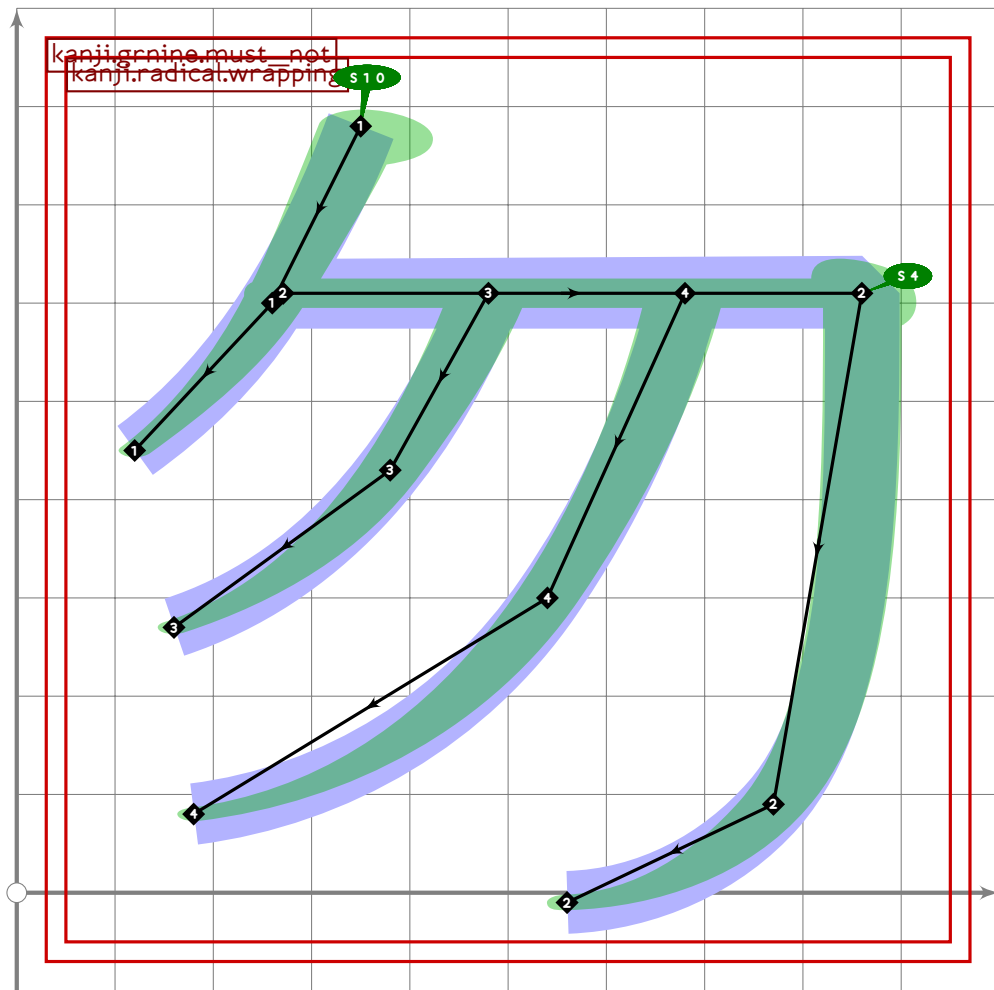
```



```

79
80 vardef kanji.grnine.deliverance =
81   push_pbox_toexpand("kanji.grthree.deliverance");
82   kanji.radical.box_on_side;
83   build_kanji.sscale(scaled 0.75 shifted (40,0))(kanji.grone.king);
84   expand_pbox;
85 enddef;

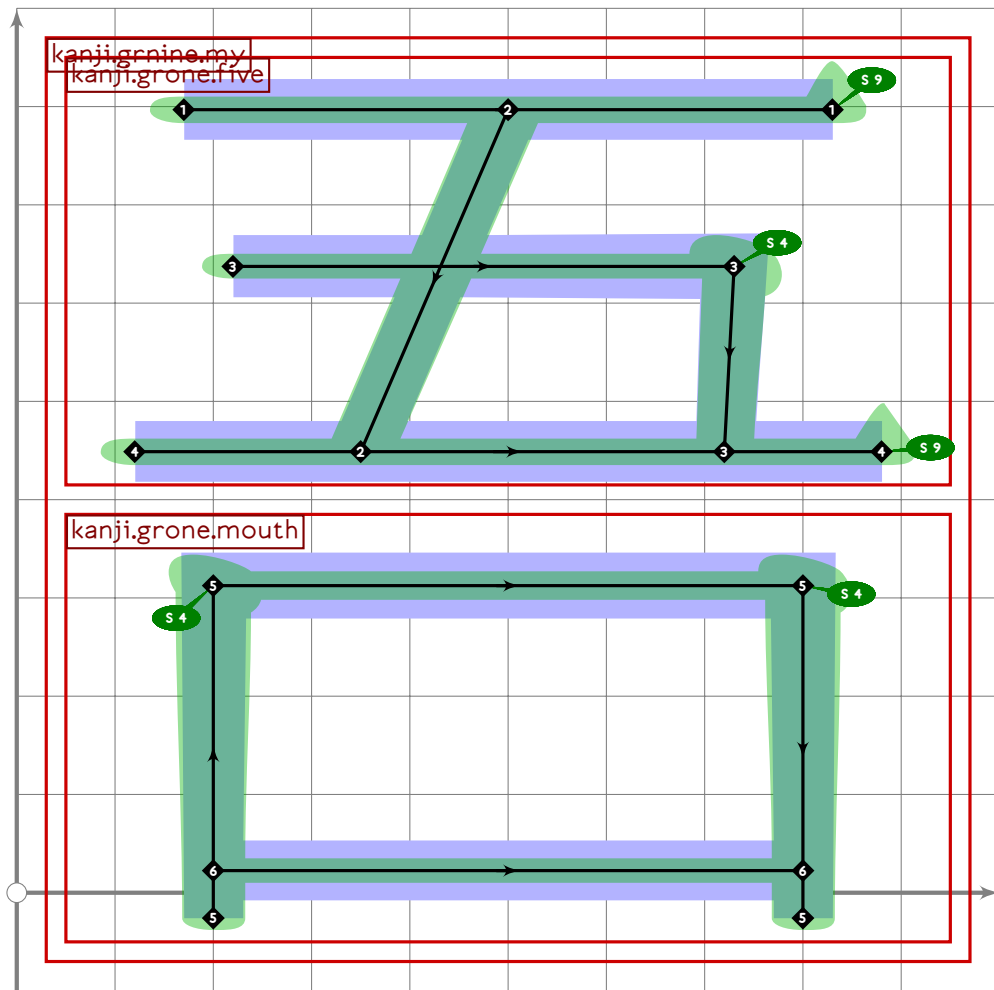
```



```

86
87 vardef kanji.grnine.must_not =
88   push_pbox_toexpand("kanji.grnine.must_not");
89   kanji.radical.wrapping;
90   push_stroke(
91     (480,610)..tension 1.2..(380,430)..(160,270),
92     (1.6,1.6)-(1.4,1.4)-(1.0,1.0));
93   push_stroke(
94     (680,610)..tension 1.2..(540,300)..(180,80),
95     (1.6,1.6)-(1.4,1.4)-(1.0,1.0));
96   expand_pbox;
97 enddef;

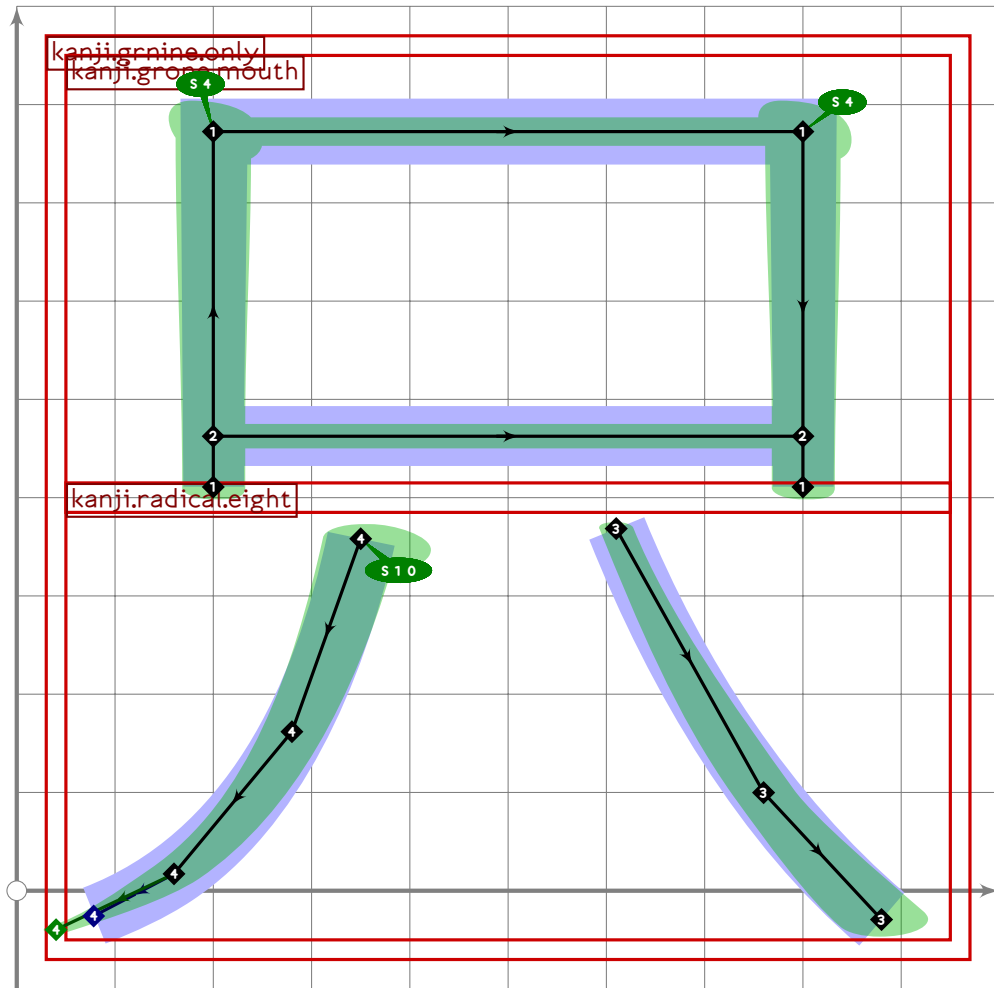
```



```

98
99 vardef kanji.grnine.my =
100   push_pbox_toexpand("kanji.grnine.my");
101   build_kanji.level(build_kanji.tb(400,-30)
102     (kanji.grone.five)
103     (kanji.grone.mouth));
104   expand_pbox;
105 enddef;

```

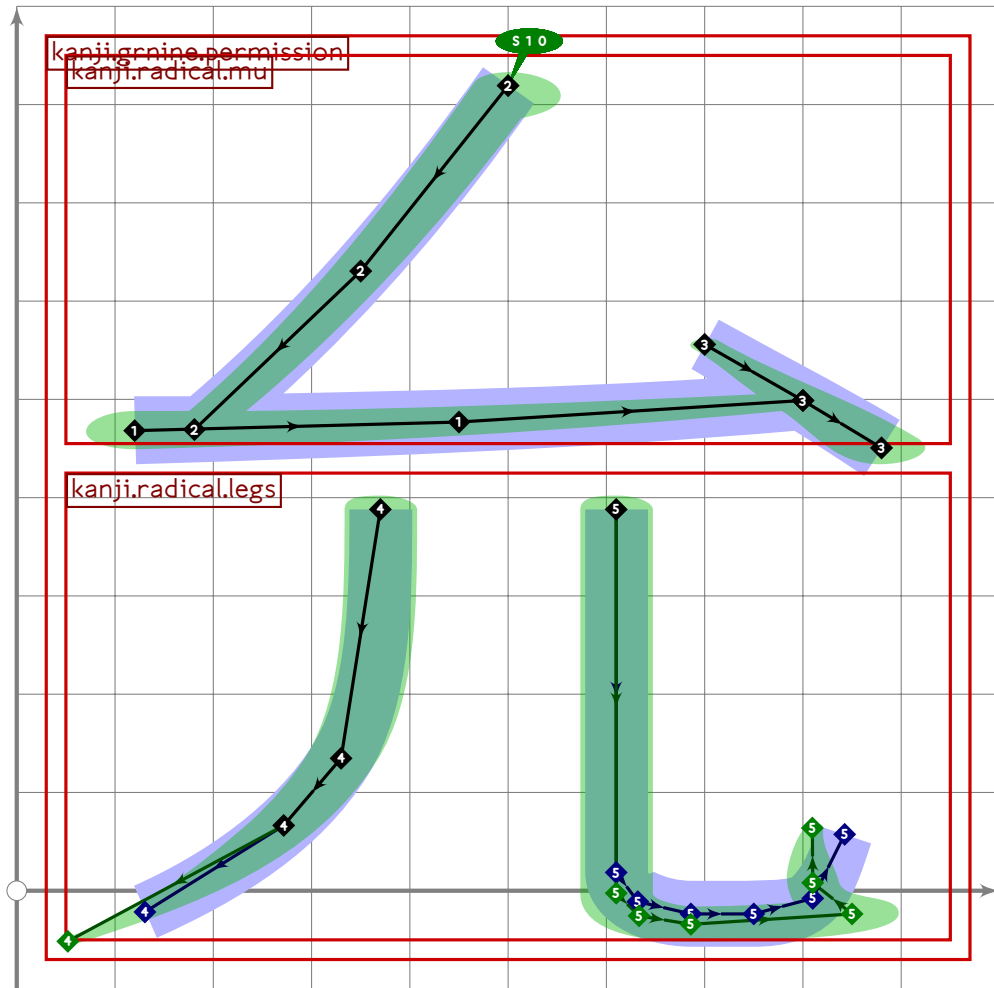


```

106
107 vardef kanji.grnine.only =
108   push_pbox_toexpand("kanji.grnine.only");
109   build_kanji.tb(400,30)
110     (kanji.grnine.mouth)
111     (kanji.radical.eight);
112   expand_pbox;
113 enddef;

```

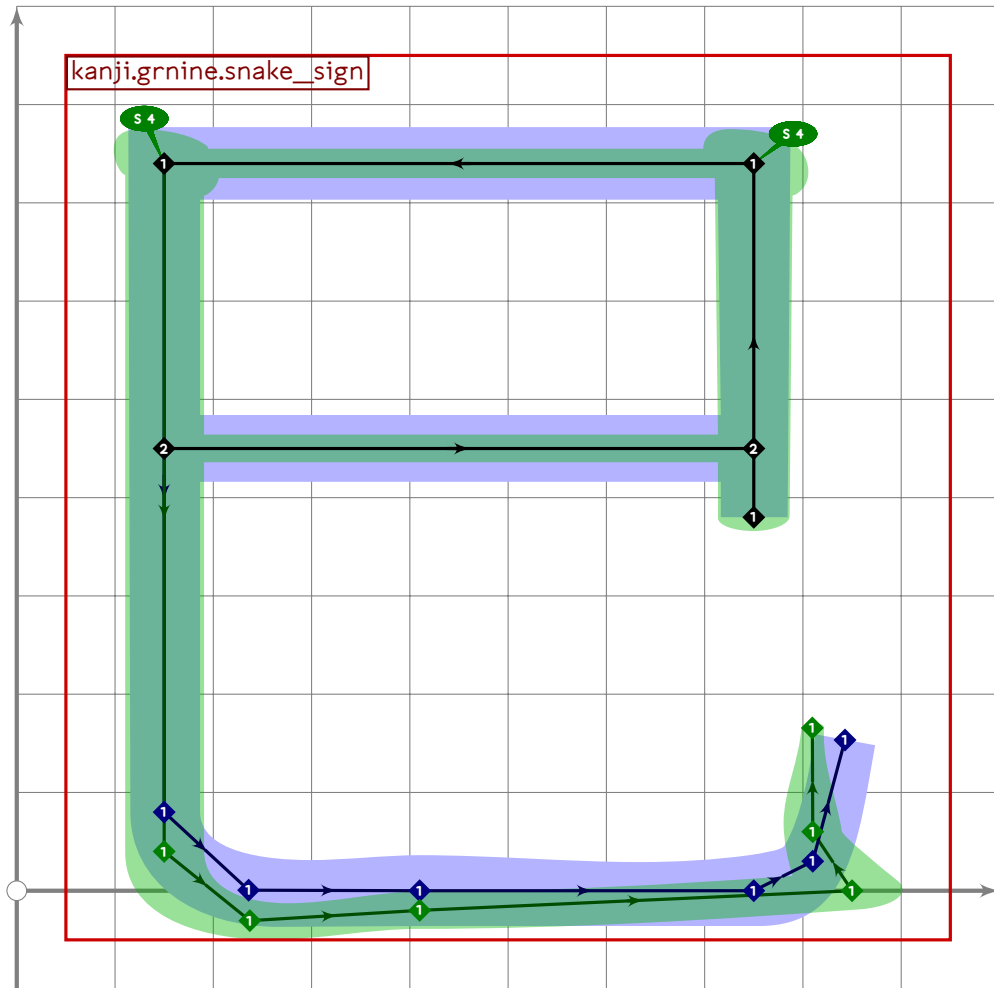




```

114
115 vardef kanji.gnine.permission =
116   push_pbox_toexpand("kanji.gnine.permission");
117   build_kanji.level(build_kanji.tb(440,-30)
118     (kanji.radical.mu)
119     (kanji.radical.legs));
120   expand_pbox;
121 enddef;

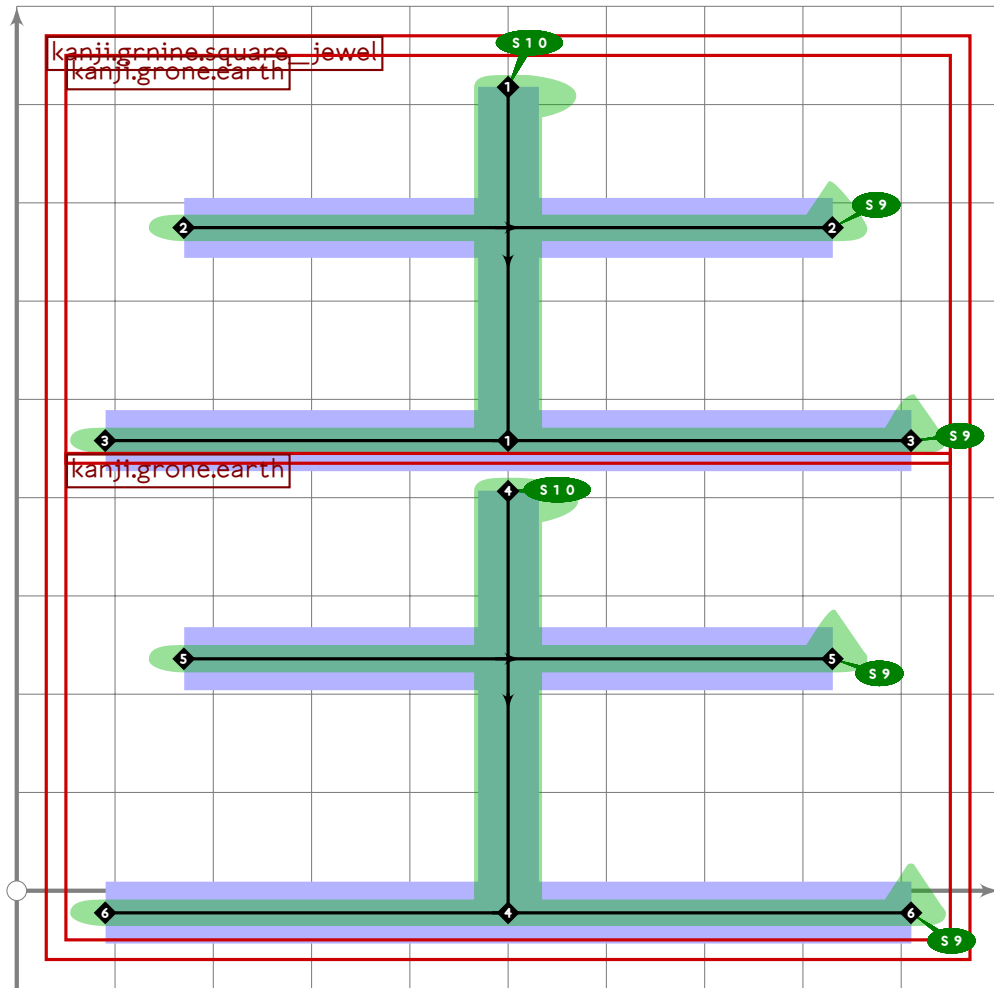
```



```

122
123 vardef kanji.grnine.snake_sign =
124   push_pbox_toexpand("kanji.grnine.snake_sign");
125   push_stroke((750,380)-(750,740)-(150,740),
126     (1.5,1.5)-(1.6,1.6)-(1.6,1.6));
127   set_botip(0,1);
128   set_botip(0,2,1);
129   set_boserif(0,1,4);
130   set_boserif(0,2,4);
131   build_kanji.add_ltail(0);
132   push_stroke((150,450)-(750,450),
133     (1.5,1.5)-(1.5,1.5));
134   expand_pbox;
135 enddef;

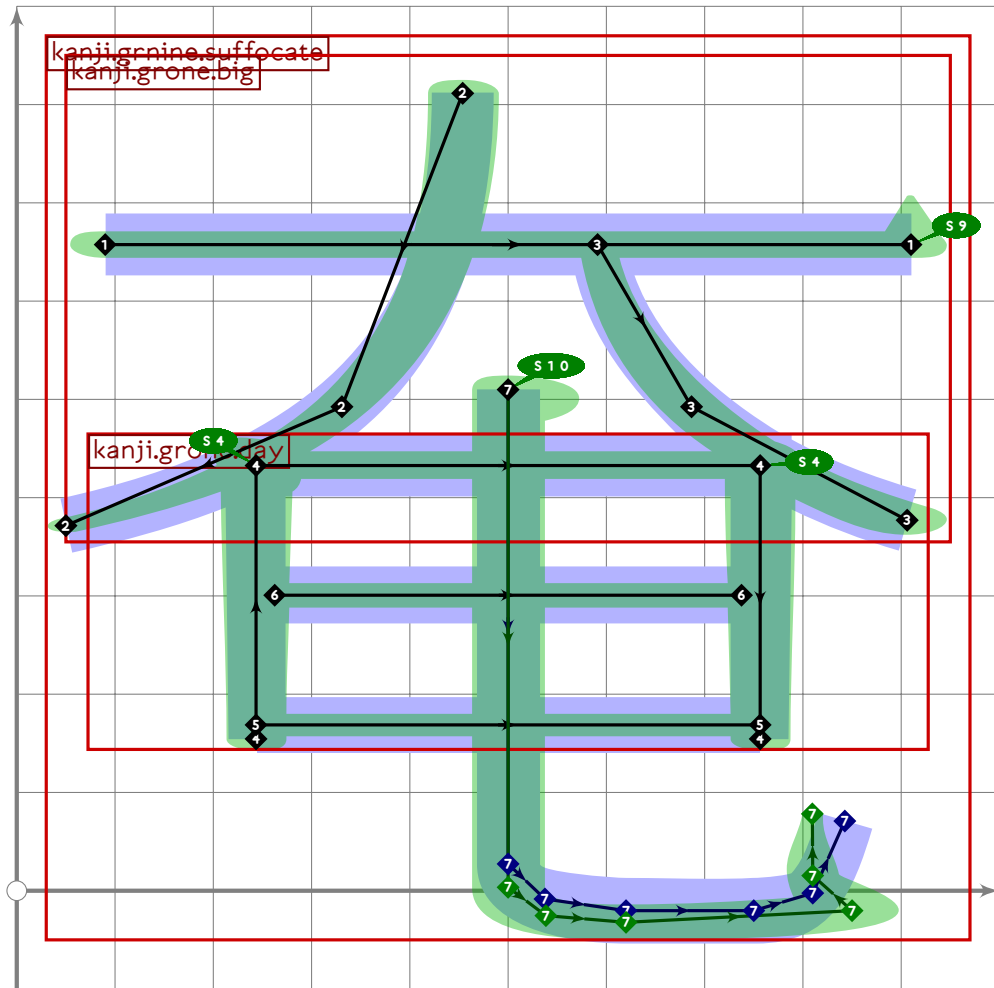
```



```

136
137 vardef kanji.grnine.square_jewel =
138   push_pbox_toexpand("kanji.grnine.square_jewel");
139   build_kanji.tb(440,10)
140     (kanji.grone.earth)
141     (kanji.grone.earth);
142   expand_pbox;
143 enddef;

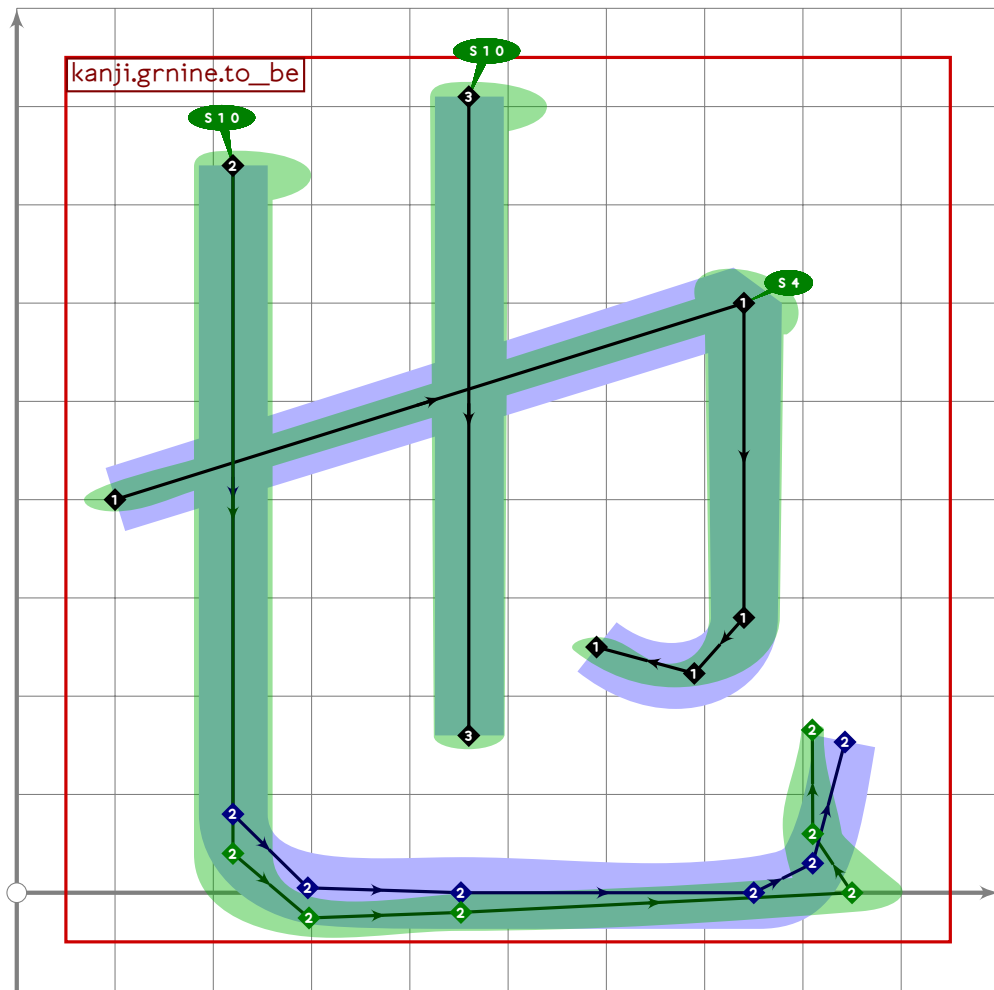
```



```

144
145 vardef kanji.grnine.suffocate =
146   push_pbox_toexpand("KANJI.GRONE.SUFFOCATE");
147   build_kanji.tb(420,130)
148     (build_kanji.spread_legs(110)
149       (KANJI.GRONE.BIG))
150     (build_kanji.sscale(xyscaled (0.95,0.6) shifted (0,150))
151       (KANJI.GRONE.DAY);
152     push_stroke(((0,130)+point 1.5 of get_strokep(-2)),(1.6,1.6));
153     build_kanji.add_ltail(0);
154     set_boserif(0,0,10));
155   expand_pbox;
156 enddef;

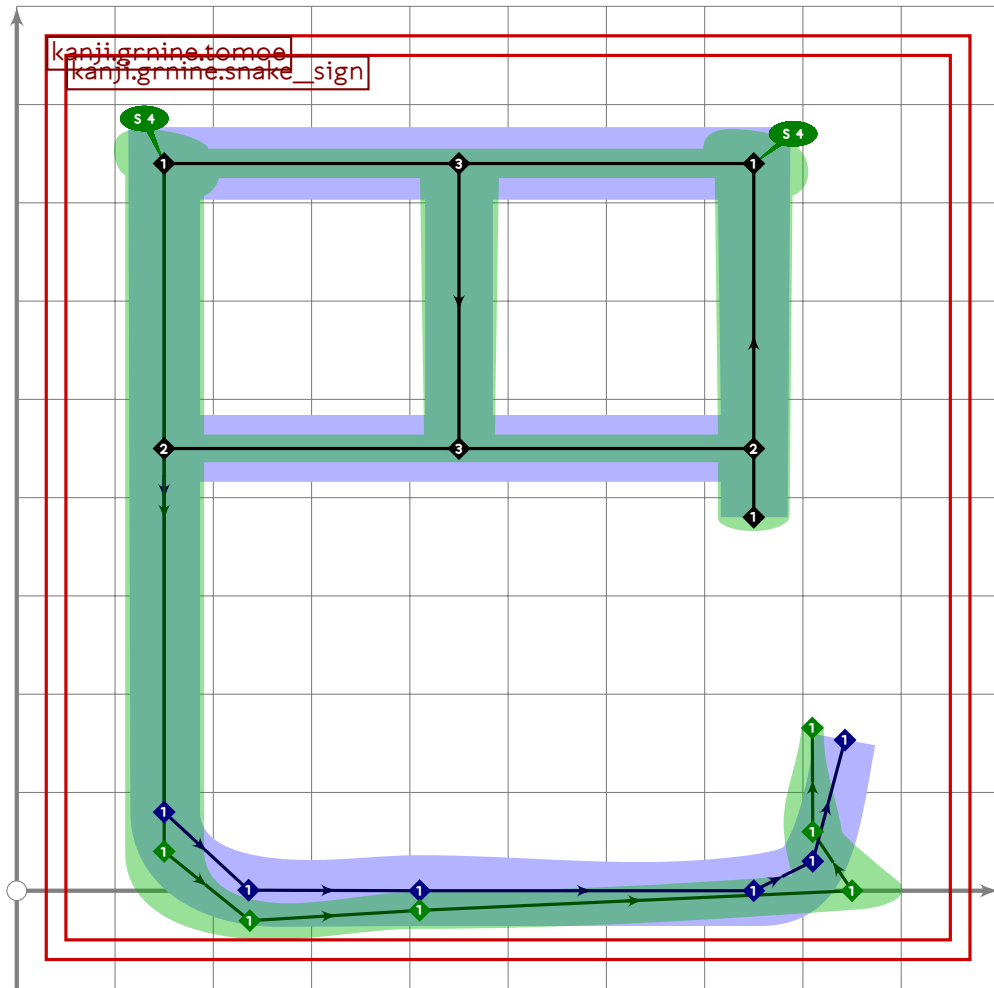
```



```

157
158 vardef kanji.grnine.to_be =
159   push_pbox_toexpand("kanji.grnine.to_be");
160   tsu_xform(identity shifted (0,250))(
161     push_stroke((100,150)-(740,350),
162       (1,4,1,4)-(1,6,1,6));
163     set_botip(0,1,0);
164     set_boserif(0,1,4);
165     build_kanji.add_jtail(0);
166   );
167   push_stroke((220,740),(1,6,1,6));
168   build_kanji.add_ltail(0);
169   set_boserif(0,0,10);
170   push_stroke((460,810)-(460,160),
171     (1,6,1,6)-(1,5,1,5));
172   set_boserif(0,0,10);
173   expand_pbox;
174 enddef;

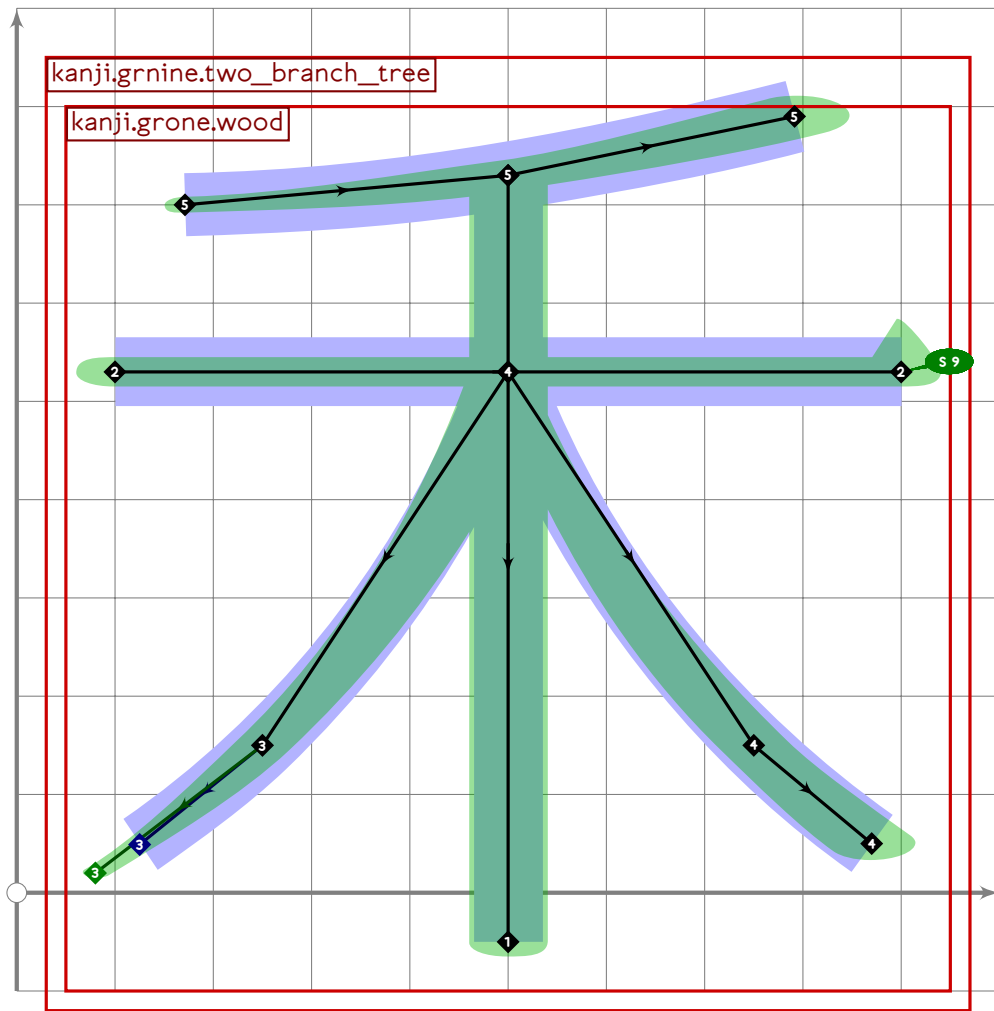
```



```

175
176 vardef kanji.grnine.tomoe =
177   push_pbox_toexpand("kanji.grnine.tomoe");
178   kanji.grnine.snake_sign;
179   push_stroke((450,740)-(450,450),(1.6,1.6)-(1.5,1.5));
180   expand_pbox;
181 enddef;

```



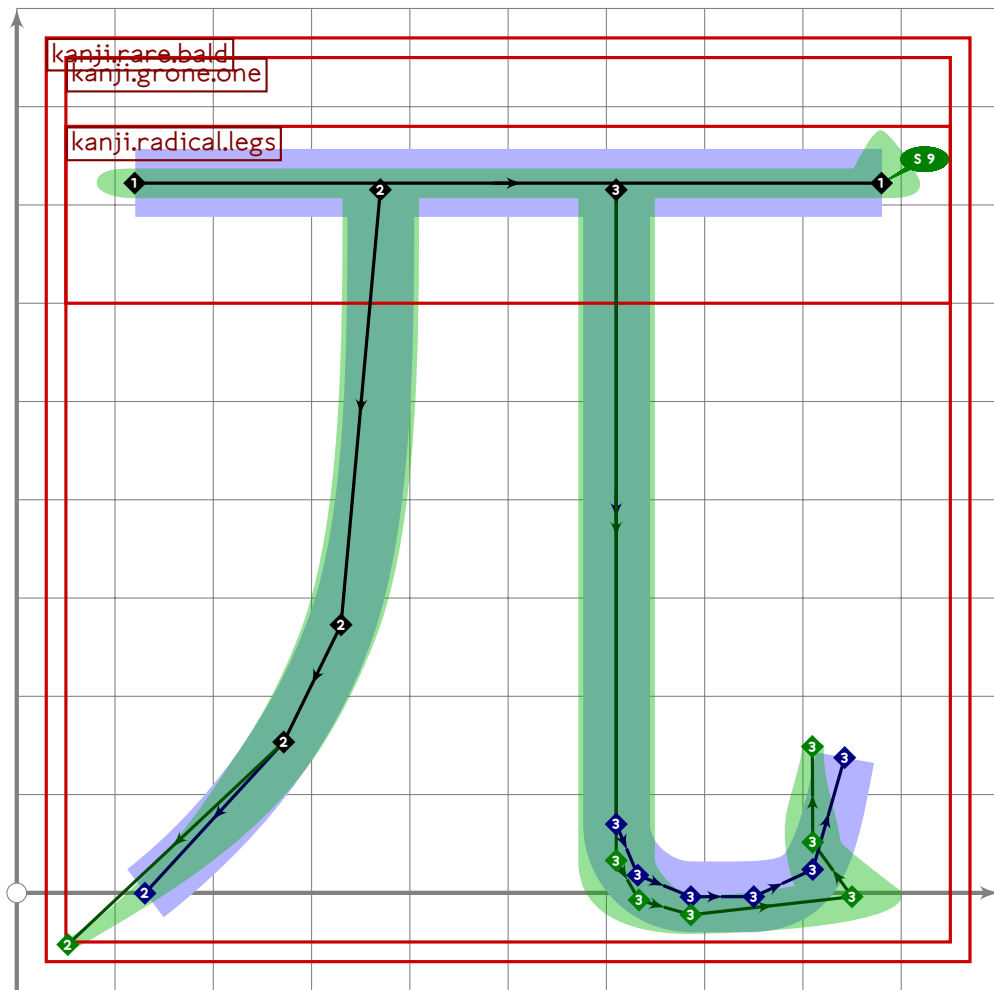
```

182
183 vardef kanji.grnine.two_branch_tree =
184   push_pbox_toexpand("kanji.grnine.two_branch_tree");
185   tsu_xform(identity shifted (0,-50))
186     (build_kanji.add_beret(kanji.grone.wood));
187   expand_pbox;
188 enddef;

```

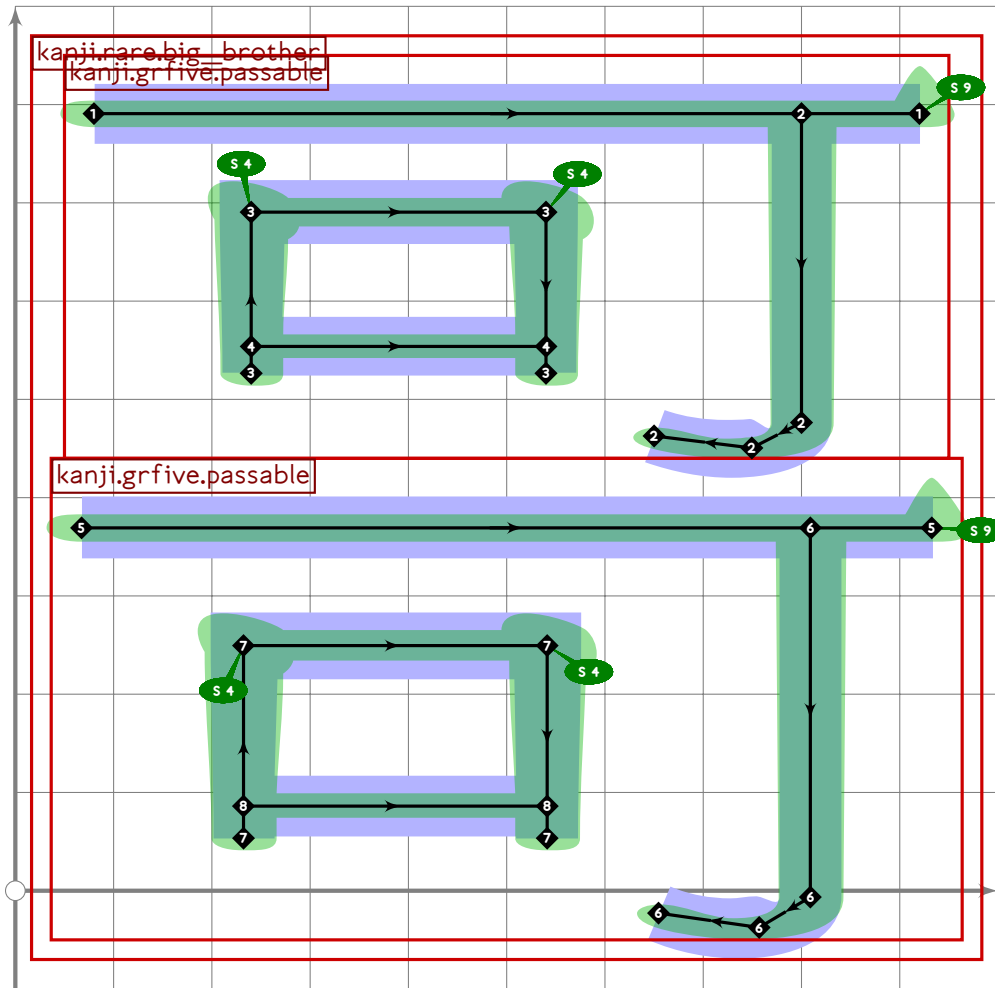
# rare.mp

```
1 %  
2 % Rare kanji needed to build others  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 inclusion_lock(rare);  
32  
33
```



```
34  
35 vardef kanji.rare.bald =  
36   push_pbox_toexpand("kanji.rare.bald");  
37   build_kanji.level(build_kanji.tb(690,180)  
38     (kanji.grone.one)  
39     (kanji.radical.legs));  
40   expand_pbox;  
41 enddef;
```

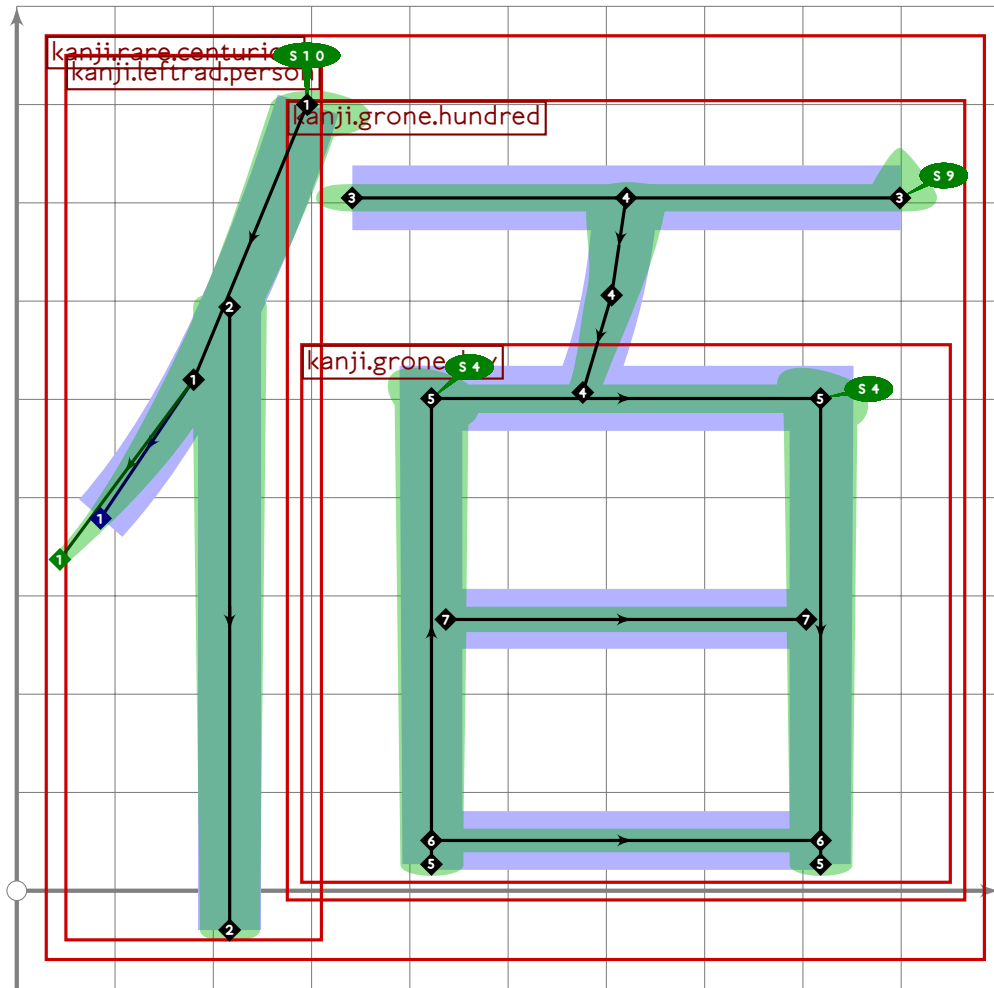




```

42
43 vardef kanji.rare.big_brother =
44   push_pbox_toexpand("kanji.rare.big_brother");
45   build_kanji.tb(440,0)
46     (kanji.grfive.passable)
47     (build_kanji.sscale(xscaled 1.03)(kanji.grfive.passable));
48   expand_pbox;
49 enddef;

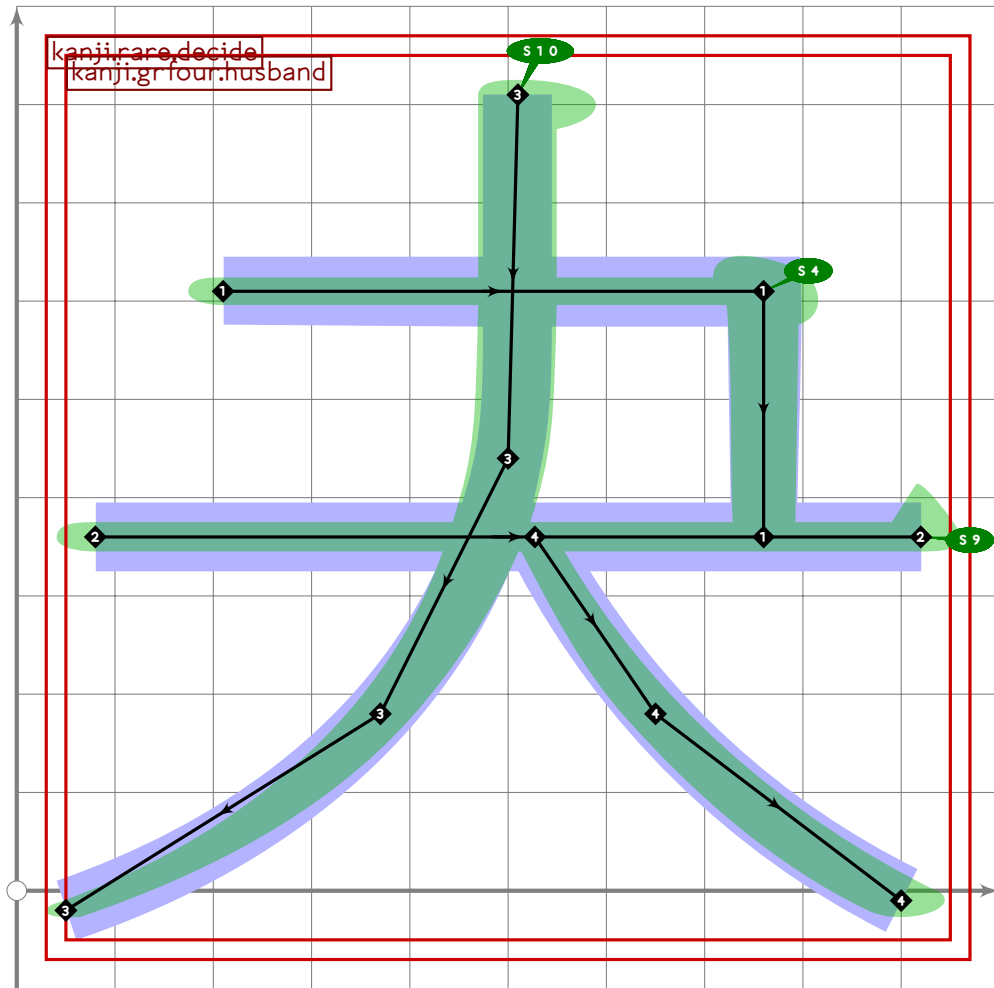
```



```

50
51 vardef kanji.rare.centurion =
52   push_pbox_toexpand("kanji.rare.centurion");
53   build_kanji.lr(300,20)
54     (kanji.leftrad.person)
55     (build_kanji.sscale(yscaled 0.9)(kanji.grone.hundred));
56   expand_pbox;
57 enddef;

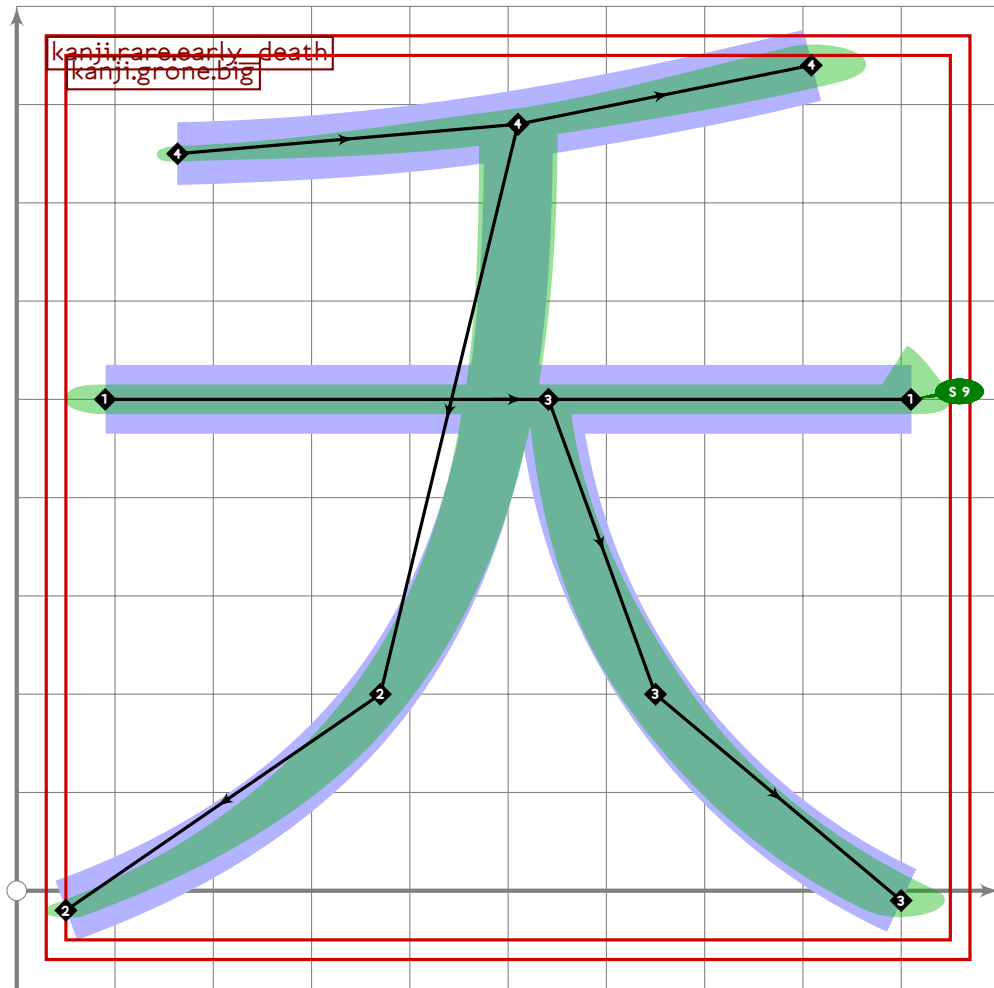
```



```

58
59 vardef kanji.rare.decide =
60   push_pbox_toexpand("kanji.rare.decide");
61   kanji.grfour.husband;
62   replace_strokep(-3)((210,610)-(760,610)-(760,360));
63   replace_strokeq(-3)((1,5,1,5)-(1,5,1,5)-(1,4,1,4));
64   set_boserif(-3,1,4);
65   set_botip(-3,1,1);
66   expand_pbox;
67 enddef;

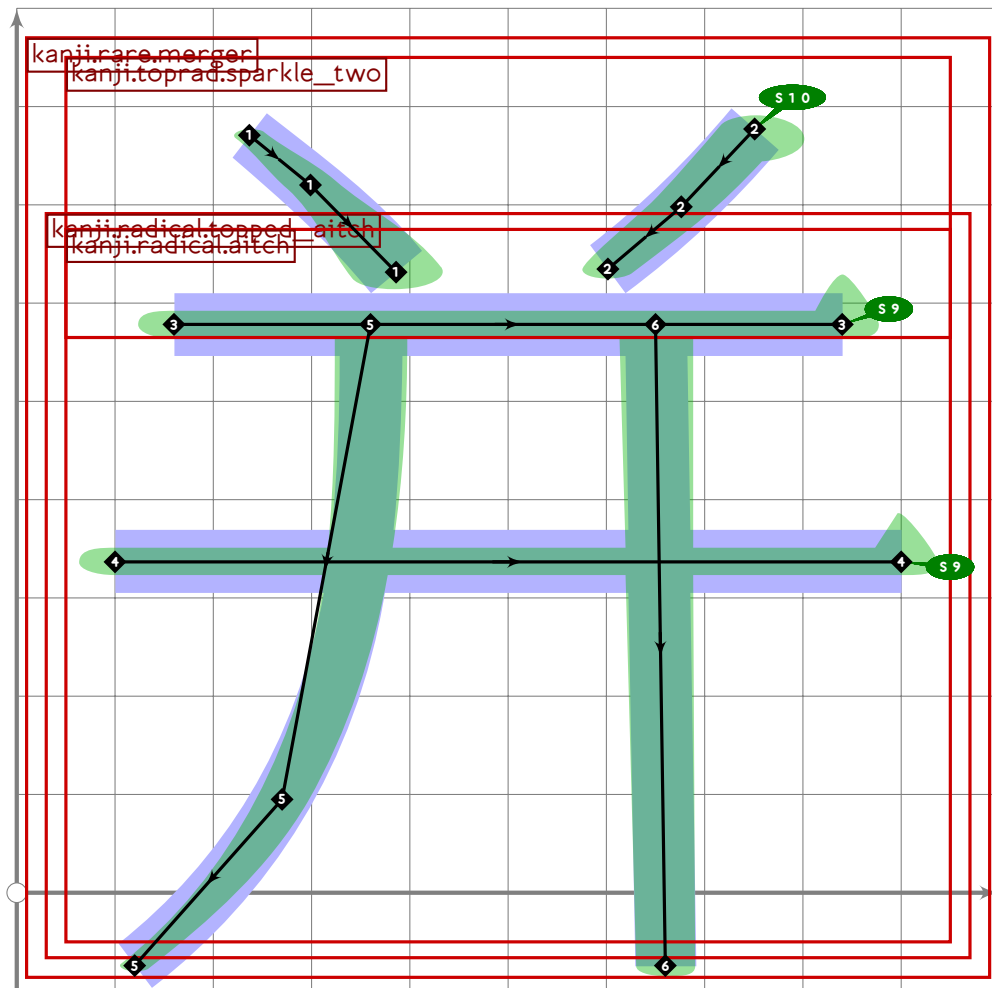
```



```

68
69 vardef kanji.rare.early_death =
70   push_pbox_toexpand("kanji.rare.early_death");
71   build_kanji.add_beret(kanji.grone.big);
72   expand_pbox;
73 enddef;

```



```

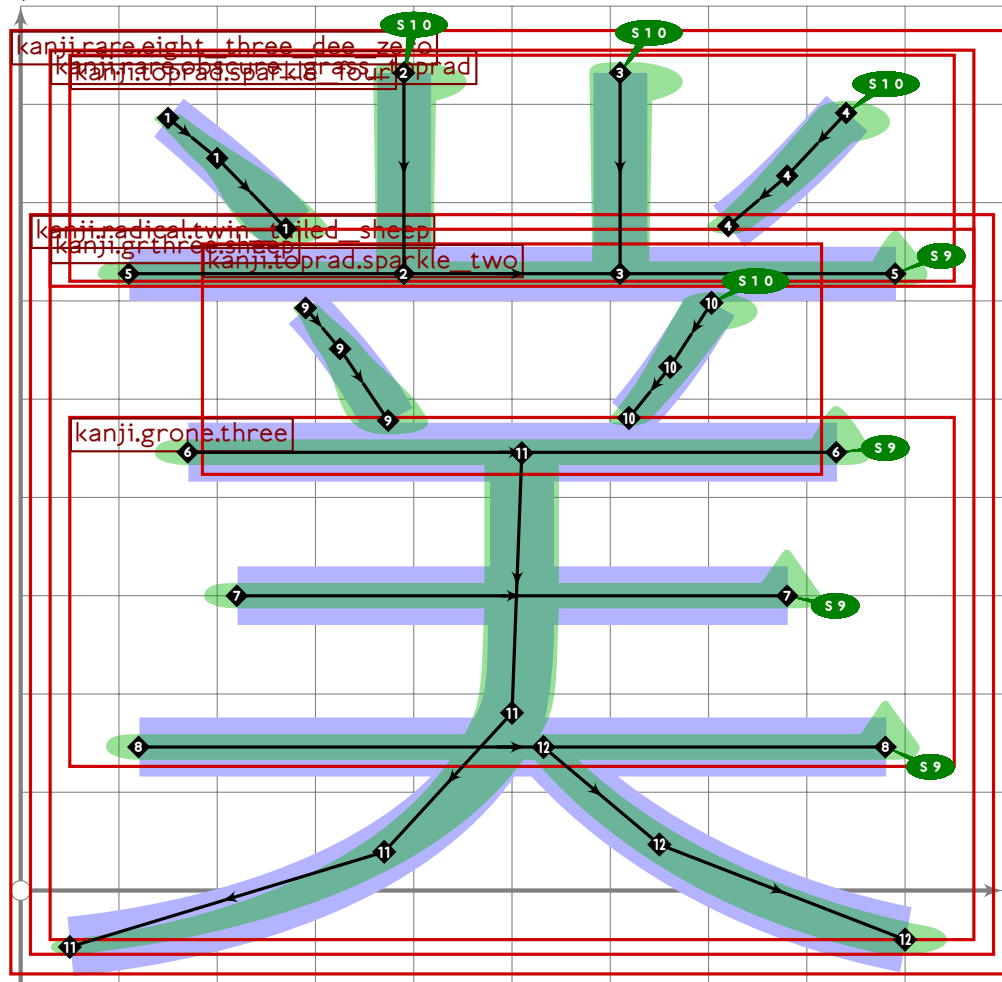
74
75 vardef kanji.rare.merger =
76   push_pbox_toexpand("kanji.rare.merger");
77   build_kanji.level(build_kanji.tb(620,110)
78     (build_kanji.spread_legs(-220)(kanji.toprad.sparkle_two))
79     (kanji.radical.topped_aitch));
80   expand_pbox;
81 enddef;
82
83 % This obscure form of the "grass" radical seems to be used only in U+83D0,
84 % an obscure kanji that doesn't seem to have a meaning of its own but forms
85 % the right-hand side of the fairly common kanji for the masculine
86 % first-person pronoun "boku," which we need in order to spell the type
87 % style name "Bokukko." It's not even clear that it really is a form of the
88 % "grass" radical at all, but that's how Unicode seems to classify it.
89
90 vardef kanji.rare.obscure_grass_toprad =
91   push_pbox_toexpand("kanji.rare.obscure_grass_toprad");
92   kanji.toprad.sparkle_four;
93   push_stroke((110,-20)-(890,-20),(1.6,1.6)-(1.6,1.6));
94   set_boserif(0,1,9);

```

```

95  expand_pbox;
96  endif;
97
98  % insert "Scottish tsundere" joke here
99  vardef kanji.radical.twin_tailed_sheep =
100  push_pbox_toexpand("kanji.radical.twin_tailed_sheep");
101  kanji.grthree.sheep;
102  replace_stroke(0)
103  ((510,615){down}..(500,260)..(370,70)..{curl 0.5}(50,-60));
104  replace_strokeq(0)((1.6,1.6)-(1.6,1.6)-(1.4,1.4)-(1.1,1.1));
105  push_stroke(((get_stroke(0) intersectionpoint get_stroke(-3))+50,0)..
106  (650,80)..(900,-50),
107  (1.1,1.1)-(1.4,1.4)-(1.7,1.7));
108  expand_pbox;
109  endif;

```



```

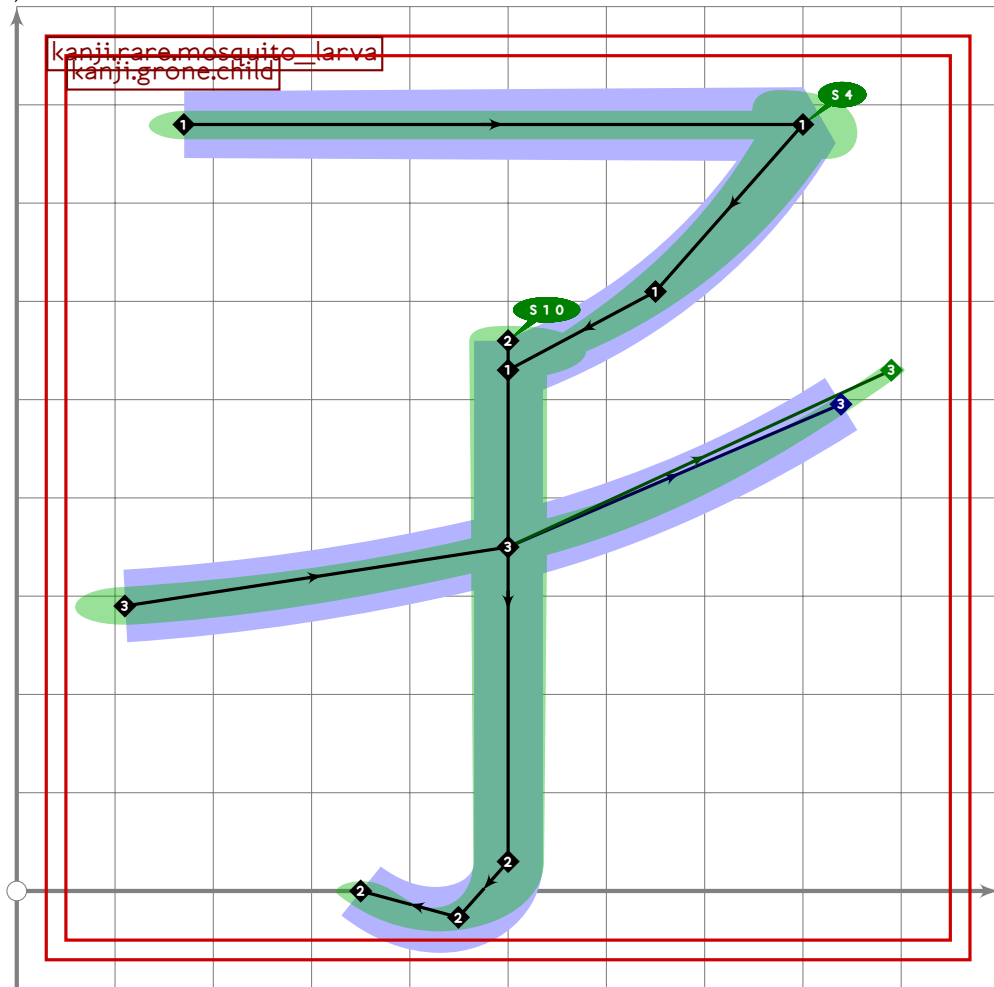
110
111  vardef kanji.rare.eight_three_dee_zero =
112  push_pbox_toexpand("kanji.rare.eight_three_dee_zero");
113  build_kanji.tb(620,0)
114  (kanji.rare.obscure_grass_toprad)
115  (kanji.radical.twin_tailed_sheep);

```

```

116 expand_pbox;
117 enddef;

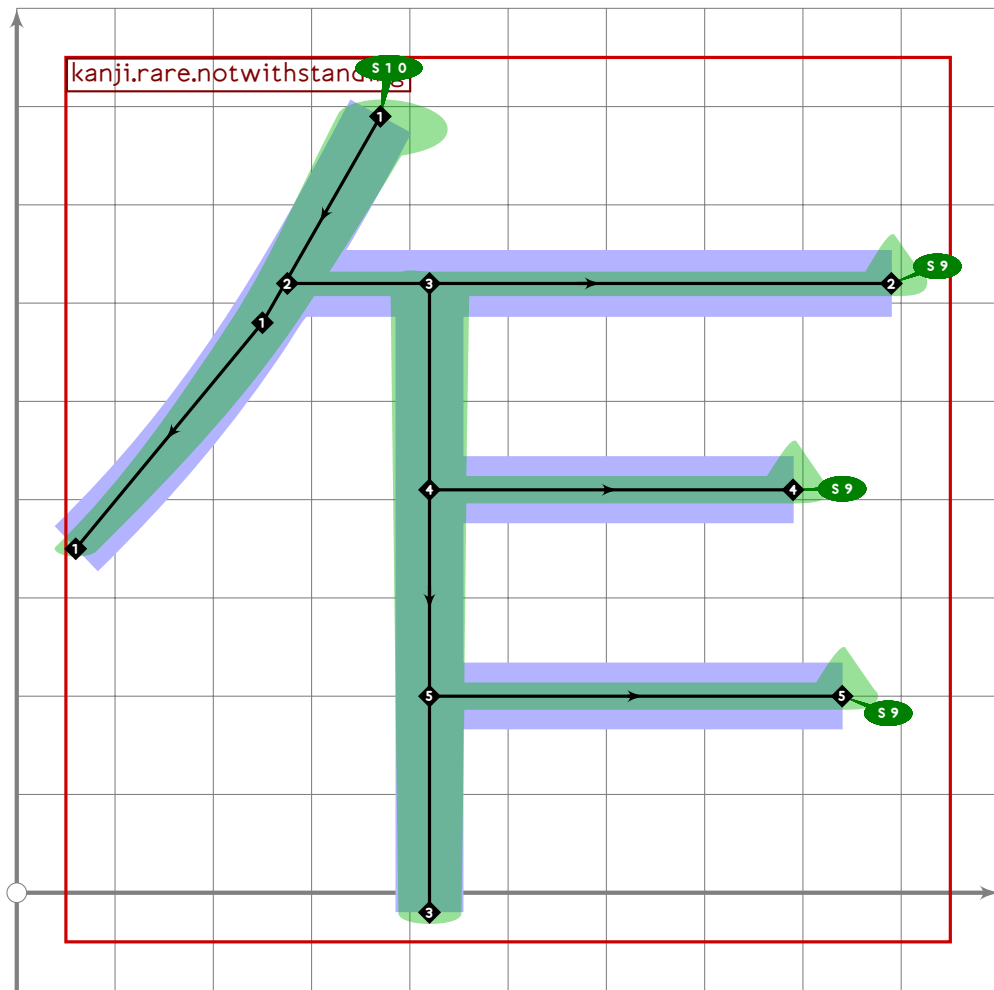
```



```

118
119 vardef kanji.rare.mosquito_larva =
120   push_pbox_toexpand("kanji.rare.mosquito_larva");
121   kanji.grone.child;
122   replace_strokep(0)((110,290)..tension 1.2..(500,350)..(890,530));
123   replace_strokeq(0)((1.9,1.9)-(1.6,1.6)-(0.9,0.9));
124   set_boserif(0,1,whatever);
125   expand_pbox;
126 enddef;

```

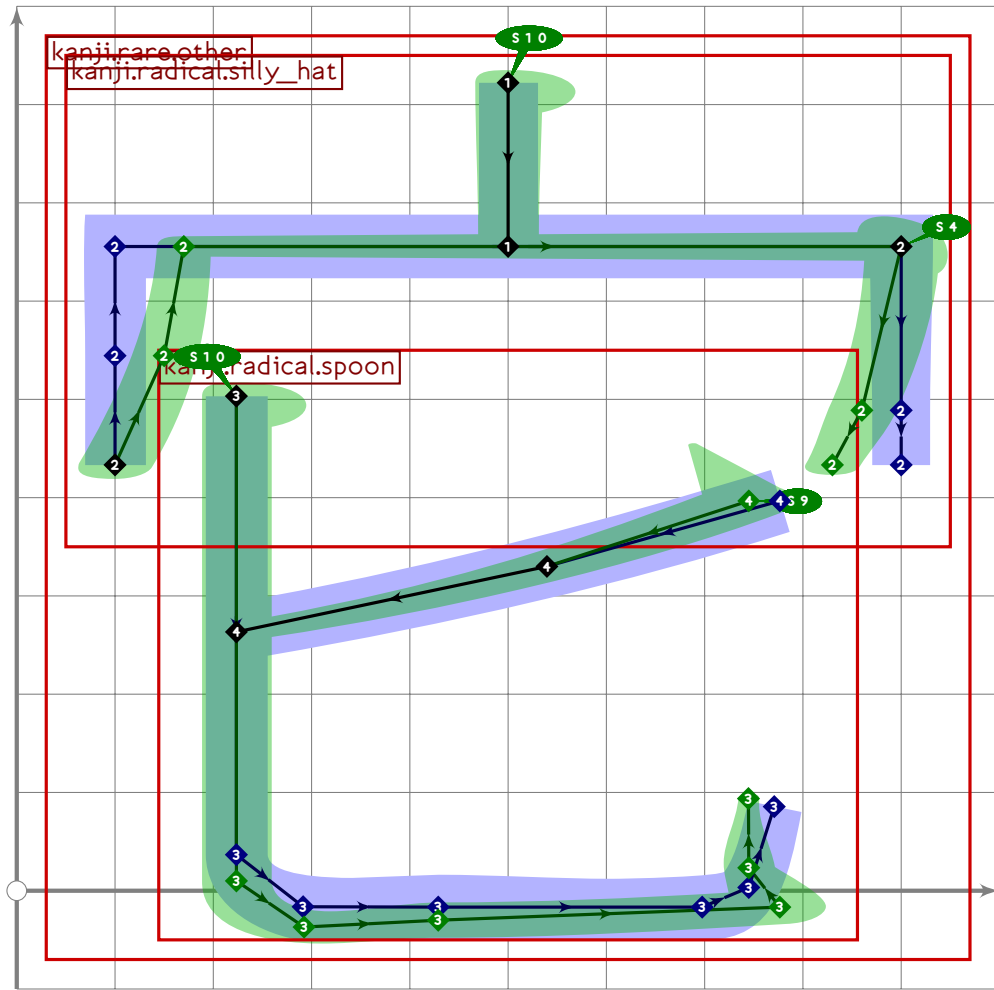


```

127
128 vardef kanji.rare.notwithstanding =
129   push_pbox_toexpand("kanji.rare.notwithstanding");
130   push_stroke((370,790){curl 0.1}..(250,580)..(60,350),
131     (1.7,1.7)-(1.4,1.4)-(1.1,1.1));
132   set_boserif(0,0,10);
133   push_stroke(
134     (((0,620)-(1000,620)) intersectionpoint get_strokep(0))-(890,620),
135     (1.4,1.4)-(1.5,1.5));
136   set_boserif(0,1,9);
137   push_stroke((420,620)-(420,-20),
138     (1.6,1.6)-(1.4,1.4));
139   push_stroke((420,410)-(790,410),
140     (1.5,1.5)-(1.5,1.5));
141   set_boserif(0,1,9);
142   push_stroke((420,200)-(840,200),
143     (1.5,1.5)-(1.5,1.5));
144   set_boserif(0,1,9);
145   expand_pbox;
146 enddef;

```

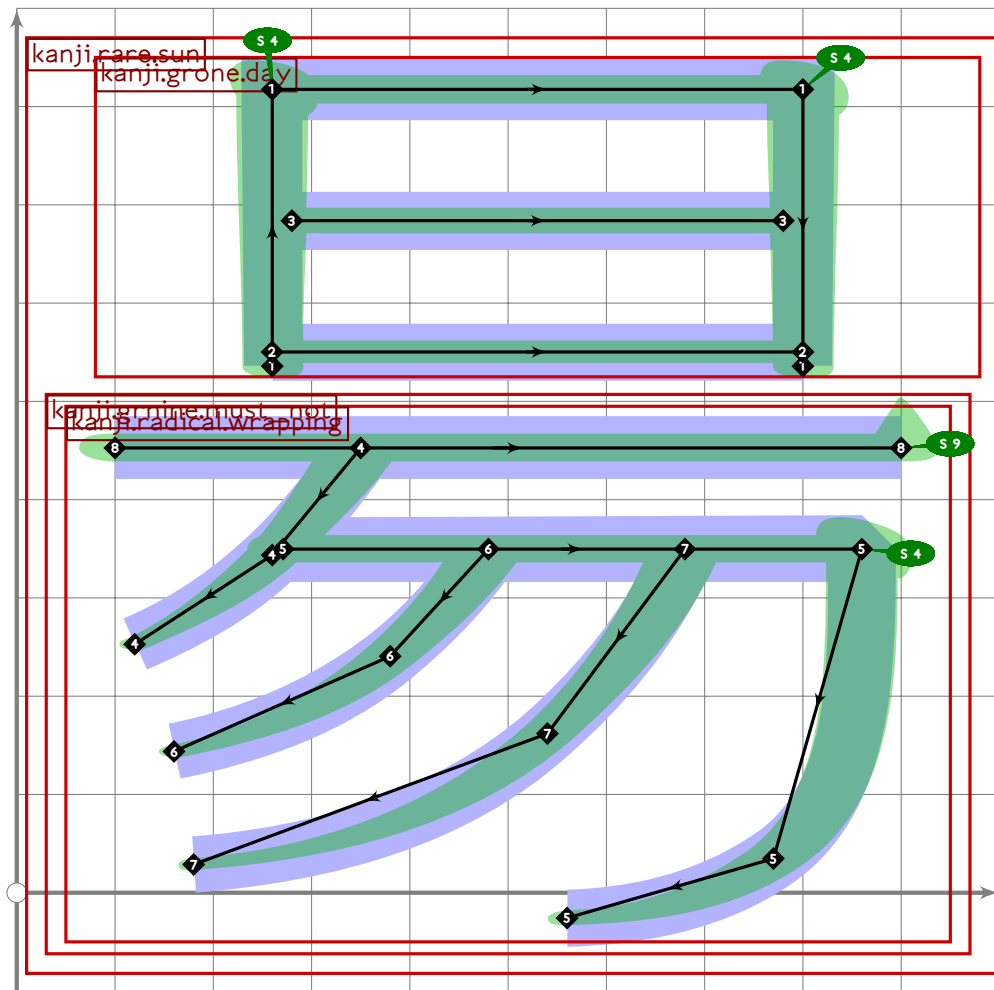




```

147
148 vardef kanji.rare.other =
149   push_pbox_toexpand("kanji.rare.other");
150   build_kanji.tb(450,200)
151     (kanji.radical.silly_hat)
152     (build_kanji.sscale(xscaled 0.79)
153       (kanji.radical.spoon));
154   expand_pbox;
155 enddef;

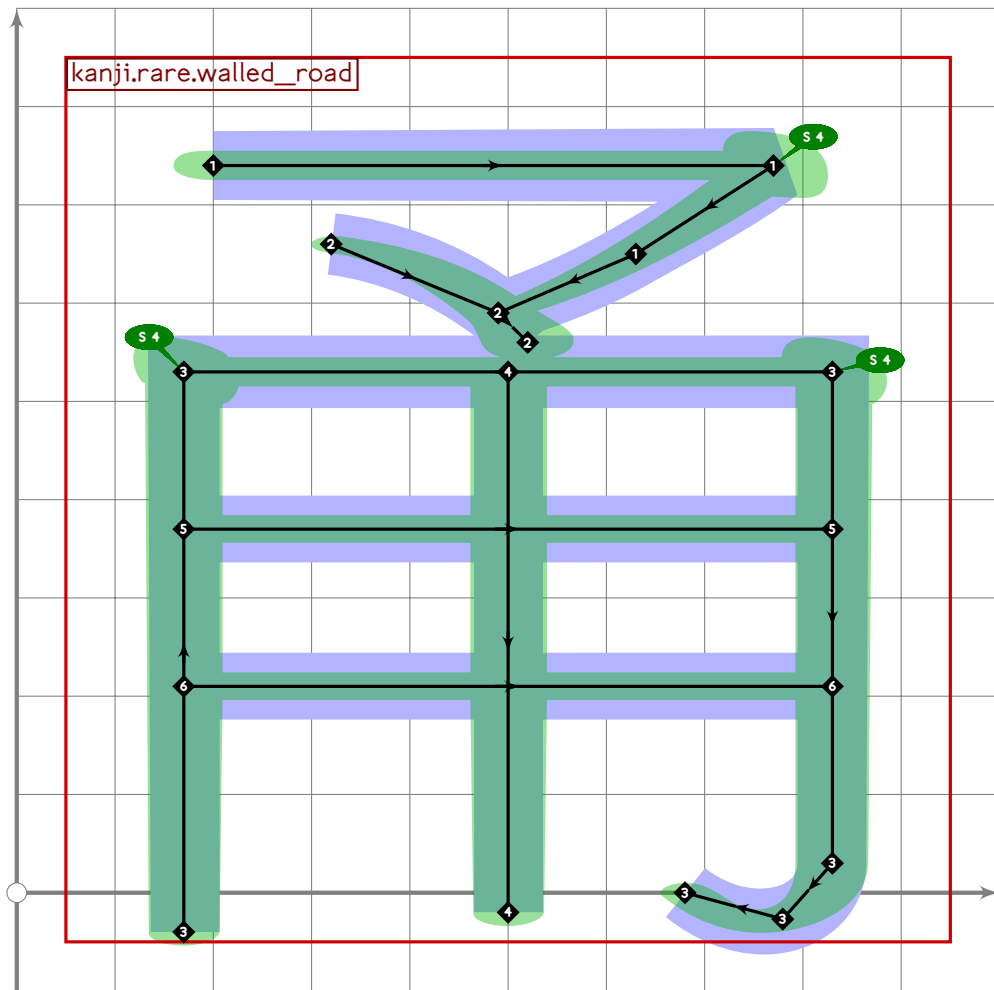
```



```

156
157 vardef kanji.rare.sun =
158   push_pbox_toexpand("kanji.rare.sun");
159   build_kanji.tb(510,-30)
160     (tsu_xform(identity shifted (30,0))(kanji.grone.day))
161     (kanji.grnine.must_not;
162       set_boserif(-3,0,whatever);
163       push_stroke((100,780)-(900,780),(1.6,1.6)-(1.6,1.6));
164       set_boserif(0,1,9));
165   expand_pbox;
166 enddef;

```



```

167
168 vardef kanji.rare.walled_road =
169   push_pbox_toexpand("kanji.rare.walled_road");
170   push_stroke((200,740)-(770,740)..tension 1.2..(630,650)..(490,590),
171     (1.6,1.6)-(1.6,1.6)-(1.4,1.4)-(1.1,1.1));
172   set_botip(0,1,0);
173   set_boserif(0,1,4);
174   push_stroke((320,660)..tension 1.2..(490,590)..(520,560),
175     (1.1,1.1)-(1.5,1.5)-(1.8,1.8));
176   push_stroke((170,-40)-(170,530)-(830,530),
177     (1.5,1.5)-(1.6,1.6)-(1.6,1.6));
178   build_kanji.add_jtail(0);
179   set_botip(0,1,1);
180   set_botip(0,2,1);
181   set_boserif(0,1,4);
182   set_boserif(0,2,4);
183   push_stroke((500,530)-(500,-20),(1.6,1.6)-(1.5,1.5));
184   push_stroke((170,370)-(830,370),(1.5,1.5)-(1.5,1.5));
185   push_stroke((170,210)-(830,210),(1.5,1.5)-(1.5,1.5));
186   expand_pbox;
187 enddef;

```



Part II

U+0000 to U+2FFF



# tsuku-00.mp

```
1 %
2 % Unicode page 00 (ASCII/ISO Latin-1) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 input latin-intro.mp;
36
37 % AUTODEPS
38 input accent.mp;
39 input latin.mp;
40 input numerals.mp;
41 input punct.mp;
42
43 

---

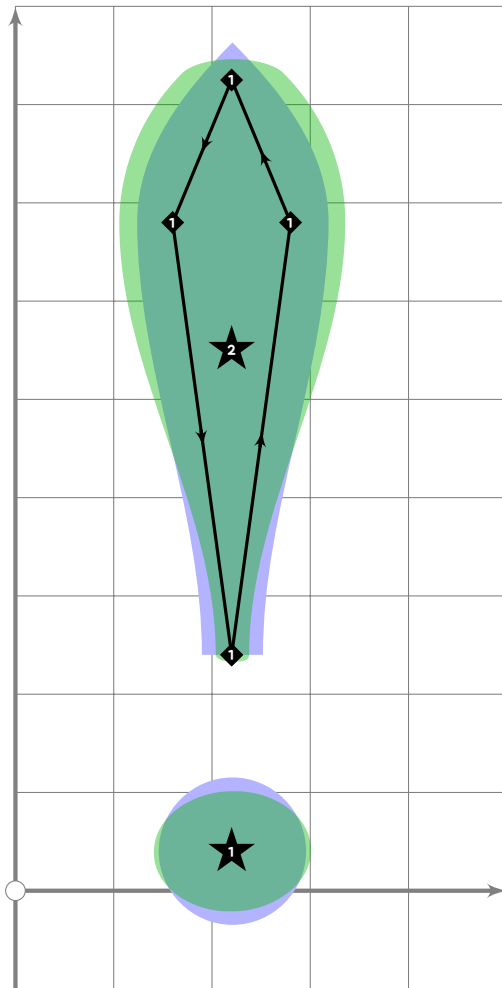

44
45 transform ascii_punct_xf;
46 if is_proportional:
47   ascii_punct_xf:=identity scaled (1.7*tsu_punct_size) shifted centre_pt;
48 else:
49   ascii_punct_xf:=
50     identity scaled (1.1*tsu_punct_size) shifted (250,latin_vcentre);
51 fi;
52
53 

---


54
```

## Ascii

```
55 % ASCII
56
57 % WARNING this code is substantially duplicated in tsuku-ff; just
58 % enough differences to make sharing impractical
59
60 % exclamation point
61 tsu_rescale_native_narrow;
```



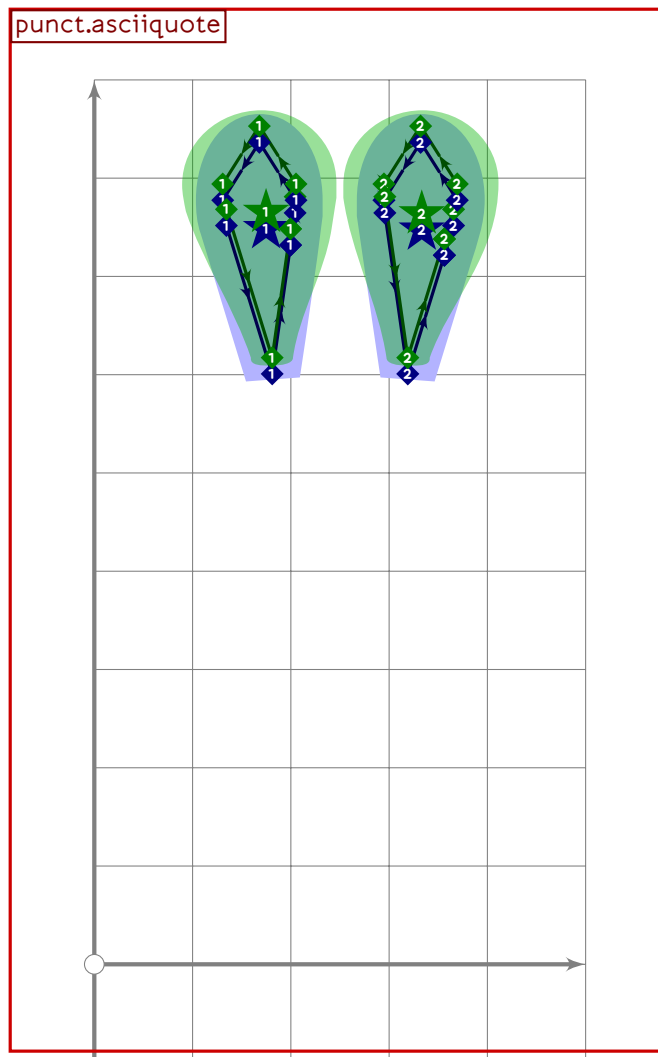
```

62 begint Suglyph("exclam",33);
63   if tsu_pbrush_size>=(tsu_punct_size*0.5):
64     push_lcblob(fullcircle
65       xscaled (tsu_punct_size+tsu_pbrush_size)
66       yscaled (tsu_punct_size+tsu_pbrush_size*tsu_pbrush_shape)
67       rotated tsu_pbrush_angle
68       shifted (220,40));
69   else:
70     push_stroke(fullcircle scaled tsu_punct_size shifted (220,40),
71       (2,2)-(2,2)-(2,2)-(2,2)-cycle);
72     push_lcblob(get_strokep(0));
73   fi;
74
75   push_stroke((220,240){up}..(280,680){up}..{curl 1}(220,825){curl 1}..
76     (160,680){down}..{down}(220,240),
77     (1,1)-(2,2)-(2,2)-(2,2)-(1,1));
78
79   if tsu_pbrush_size>=30:
80     push_lcblob((subpath (0,1,3,9) of get_strokep(0))-cycle);
81   fi;
82

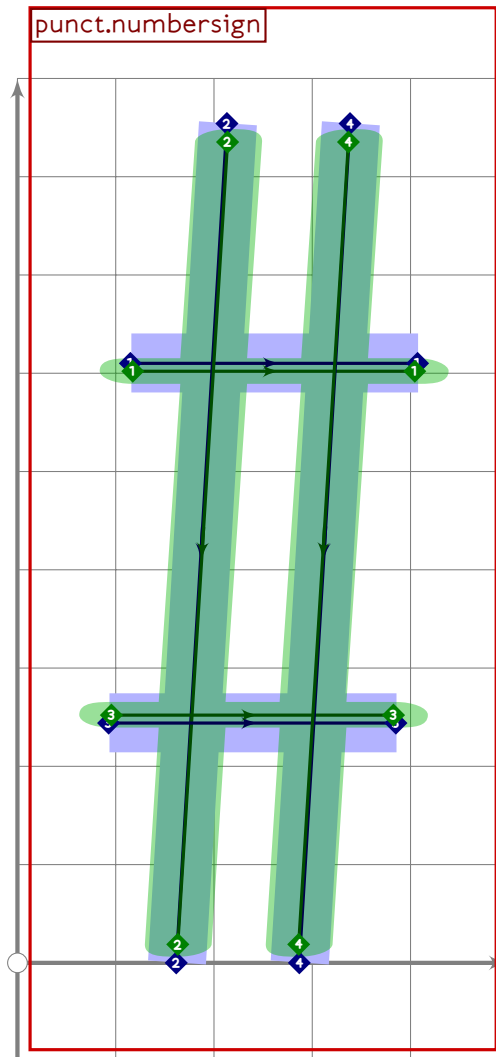
```



```
83 tsu_render;  
84 endtsuglyph;  
85 tsu_rescale_half;  
86
```



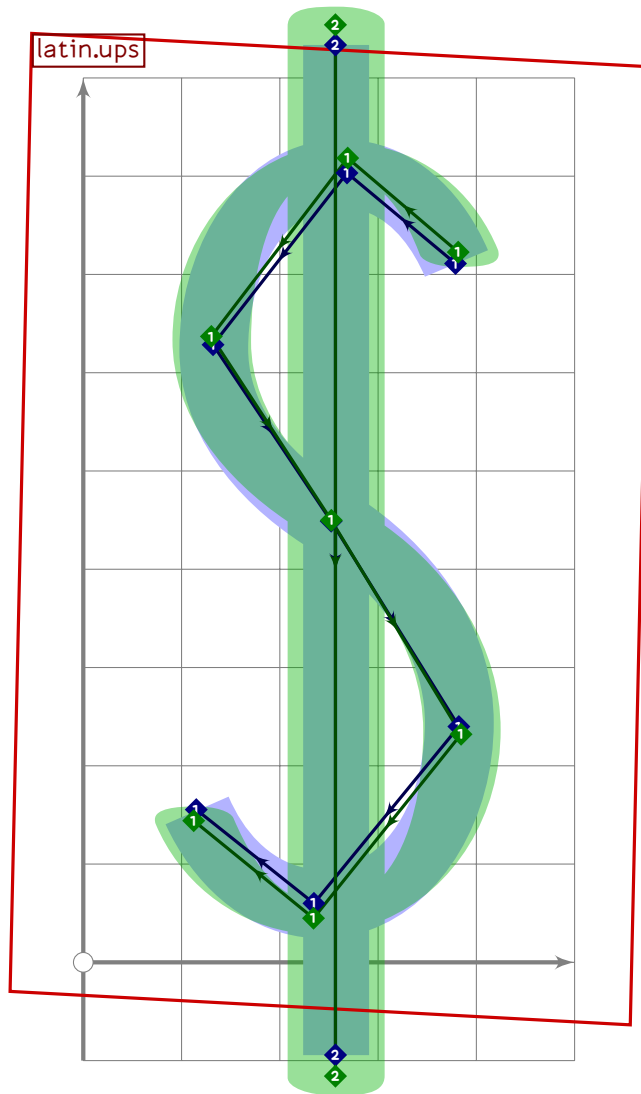
```
87 % ASCII (neither left nor right) quotation mark  
88 begint Suglyph("quotedbl",34);  
89 punct.asciquote;  
90 tsu_render;  
91 endtsuglyph;  
92
```



```

93 % number sign
94 beginsuglyph("numbersign",35);
95   punct.numbersign;
96   tsu_render;
97 endsuglyph;
98

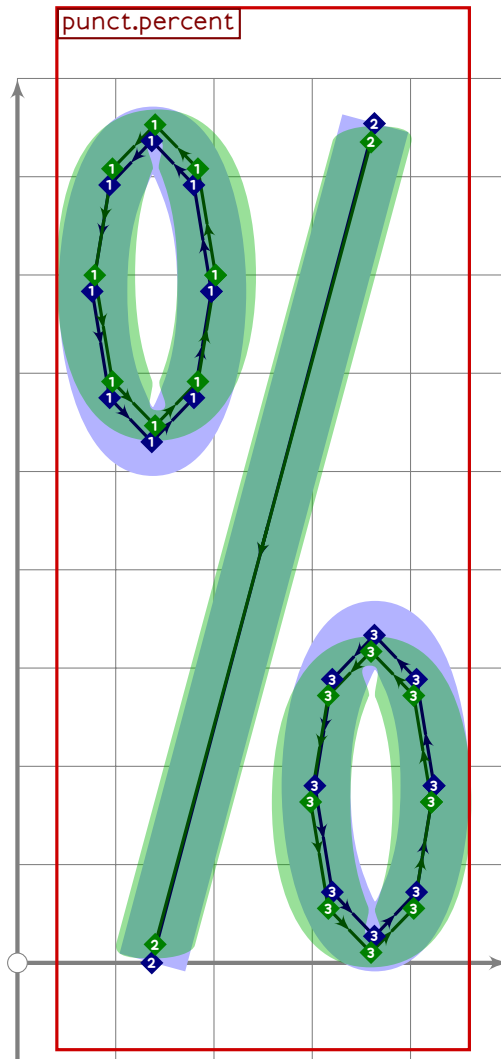
```



```

99 % dollar sign
100 beginsuglyph("dollar",36);
101   tsu_xform(identity shifted -centre_pt
102     rotated -2 xyscaled (1.06,0.92) shifted centre_pt)(latin.ups);
103
104   numeric x[],y[];
105   x1=x2=0.53[xpart llcorner get_strokep(0),xpart lrcorner get_strokep(0)];
106   y1=1.12[latin_wide_low_r,latin_wide_high_r];
107   y2=(-0.15)[latin_wide_low_r,latin_wide_high_r];
108
109   push_stroke(z1-z2,(2,2)-(2,2));
110   set_bosize(0,90);
111
112   tsu_render;
113   endsuglyph;
114

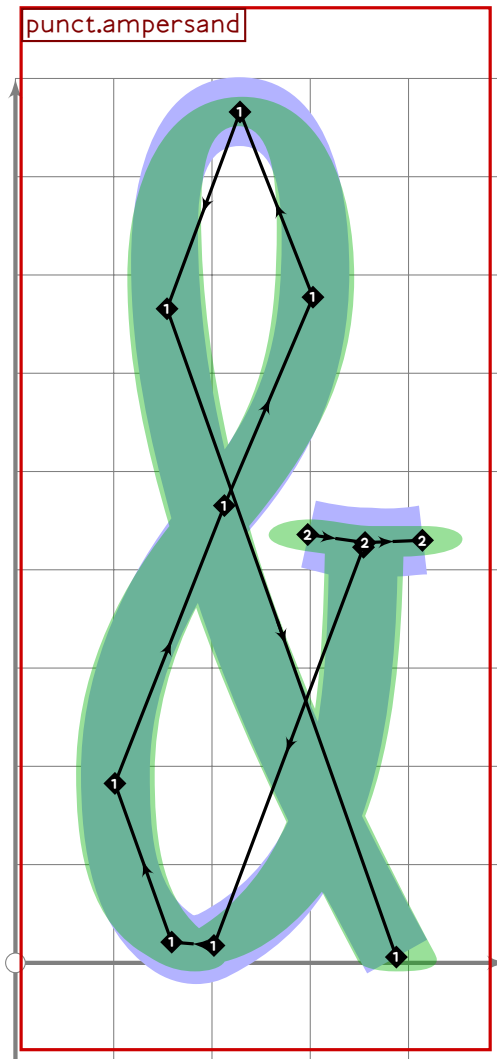
```



```

115 % percent
116 begintsuglyph("percent";37);
117   punct.percent;
118   tsu_render;
119 endsuglyph;
120

```



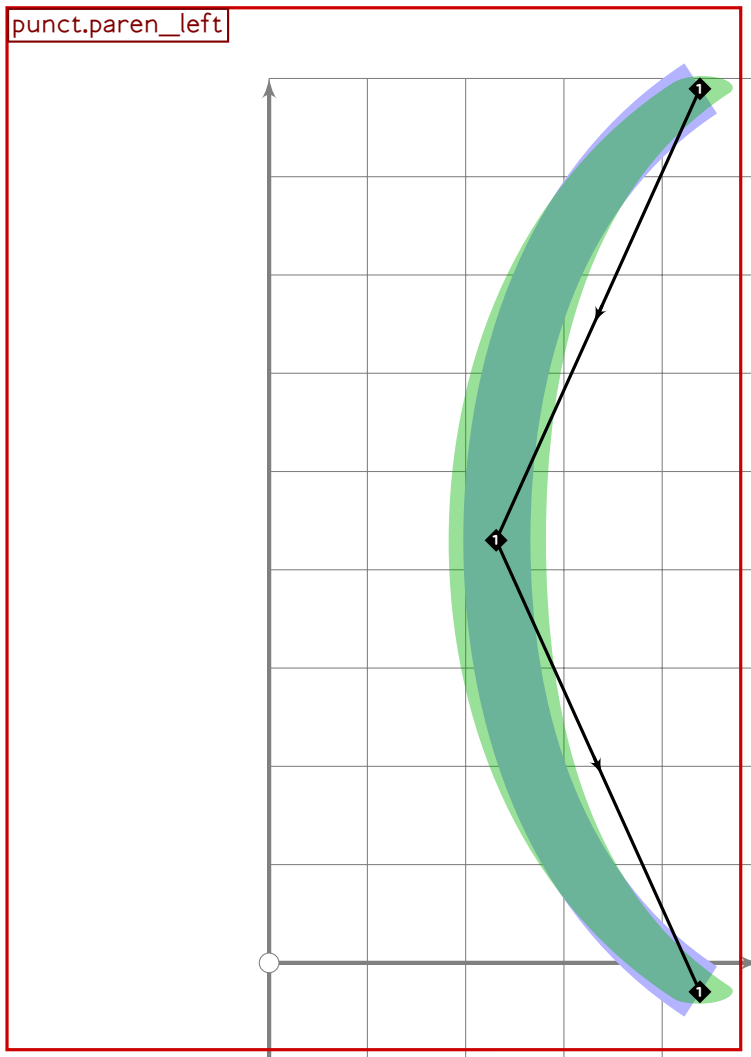
```
121 % ampersand
122 beginsuglyph("ampersand",38);
123 punct.ampersand;
124 tsu_render;
125 endsuglyph;
126
```



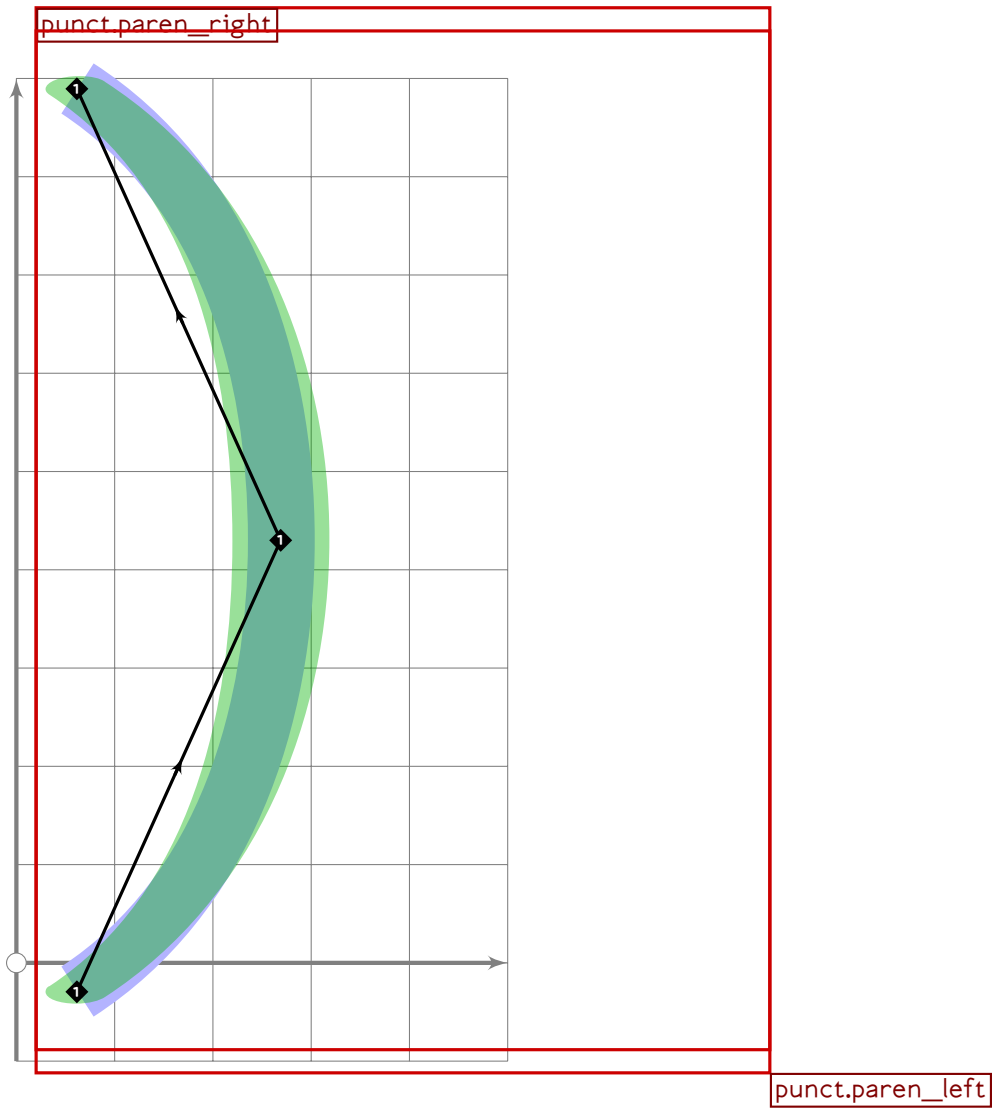
```

127 % apostrophe
128 begintsuglyph("quotesingle",39);
129 punct.make_comma((480,vmetric(0.94)),0);
130 tsu_render;
131 endsuglyph;
132

```



```
133 % left and right parentheses  
134 beginsuglyph("parenleft",40);  
135 punct.paren_left;  
136 tsu_render;  
137 endsuglyph;
```

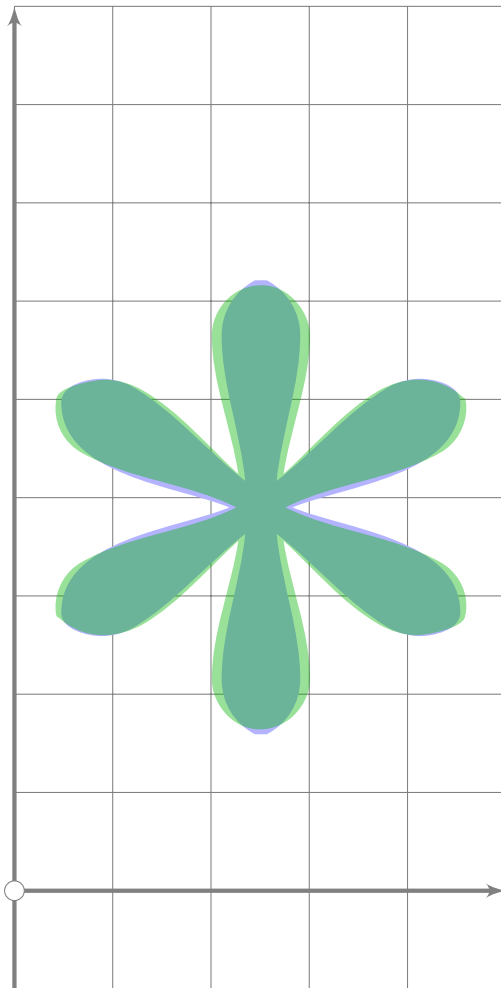


```

138 begintsuglyph("parenright",41);
139 punct.paren_right;
140 tsu_render;
141 endtsuglyph;
142
143 % WARNING changing rescale setting
144 tsu_rescale_native_conditional;
145

```





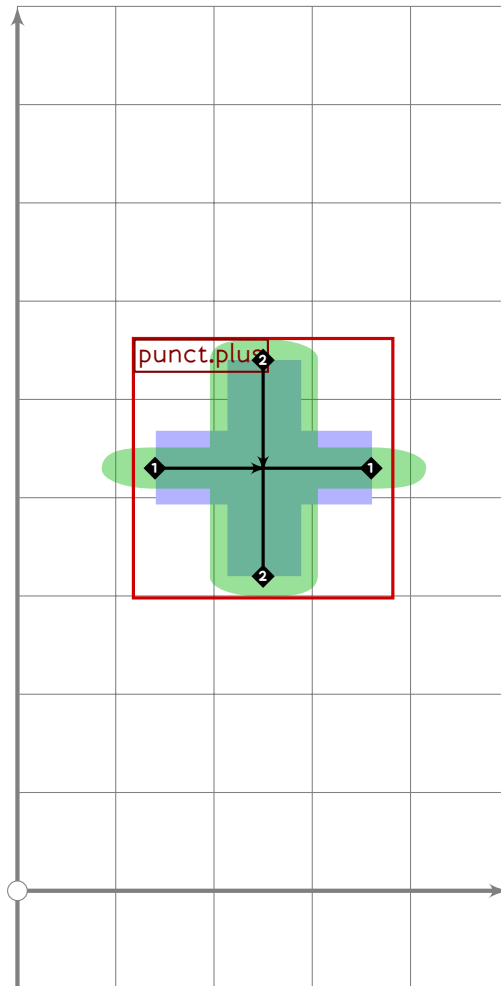
```

146 % asterisk
147 begint Suglyph("asterisk";42);
148   begingroup
149     path lobe, glyph[];
150
151     lobe:=(1,0){up}..((1+tsu_brush_max)*tsu_punct_size/8,140){up}
152       ..{curl 1}(0,175){curl 1}
153       ..(-(1+tsu_brush_max)*tsu_punct_size/8,140){down};
154     lobe:=(lobe..(lobe rotated 180)..cycle) scaled (tsu_punct_size/80);
155
156     default_nib:=fix_nib(35*tsu_brush_max,
157       35*tsu_brush_max*tsu_brush_shape,
158       tsu_brush_angle);
159     pen_stroke()(lobe shifted centre_pt shifted (-250,0))(glyph1);
160     pen_stroke()(lobe rotated 60 shifted centre_pt shifted (-250,0))(glyph2);
161     pen_stroke()(lobe rotated 120 shifted centre_pt shifted (-250,0))(glyph3);
162
163     dangerousFill glyph1.r;
164     dangerousFill glyph2.r;
165     dangerousFill glyph3.r;
166   endgroup;

```

```
167 endtsuglyph;
```

```
168
```



```
169 % plus
```

```
170 begint Suglyph("plus";43);
```

```
171 punct.plus(ascii_punct_xf);
```

```
172 tsu_render;
```

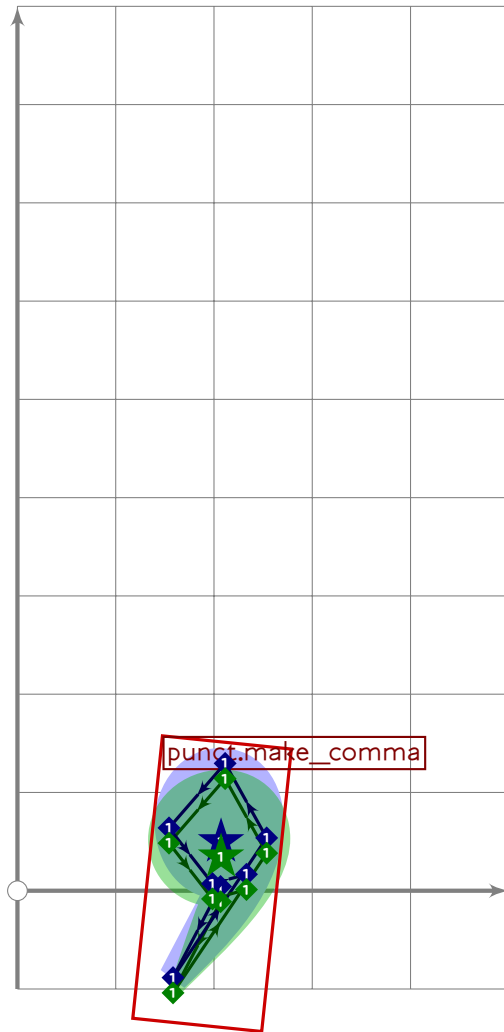
```
173 endtsuglyph;
```

```
174
```

```
175 % WARNING changing rescale setting
```

```
176 tsu_rescale_half;
```

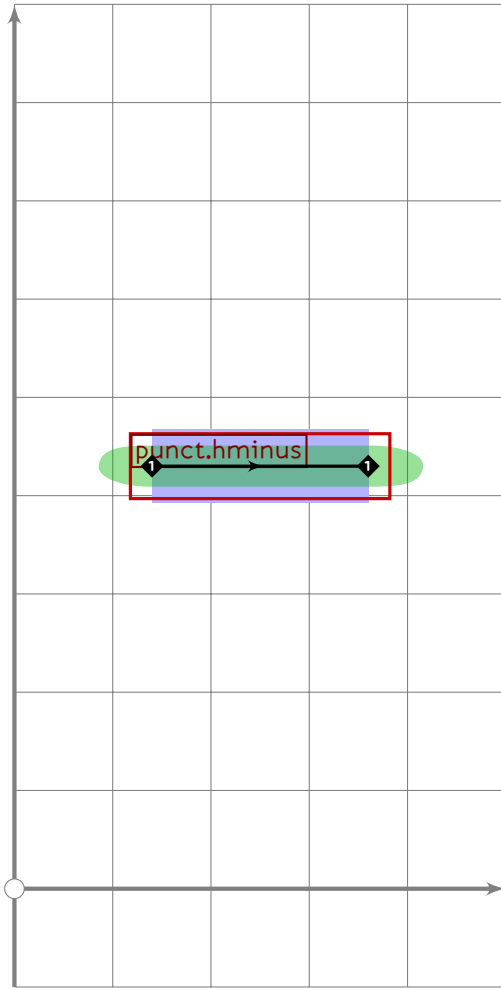
```
177
```



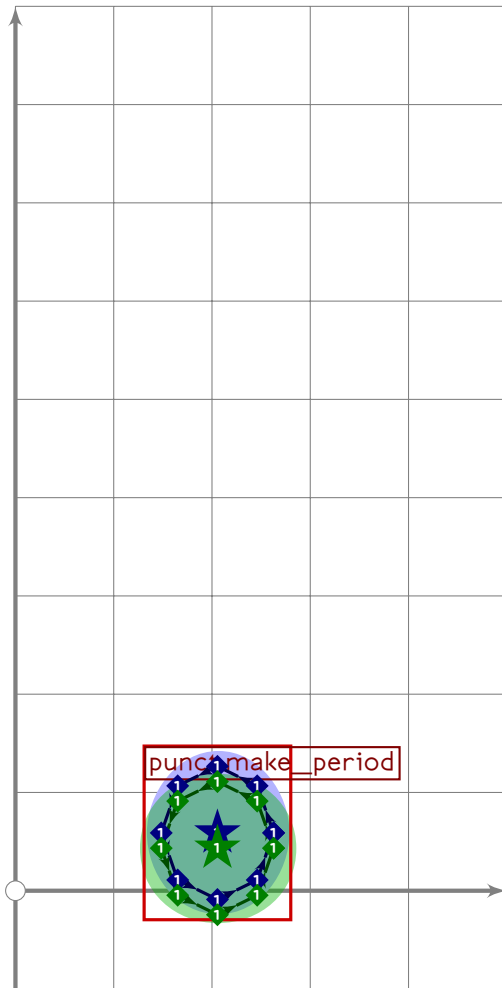
```

178 % comma
179 beginsuglyph("comma",44);
180 punct.make_comma((380,vmetric(0.03)),0);
181 tsu_render;
182 endsuglyph;
183
184 % hyphen-minus
185 tsu_rescale_native_conditional;

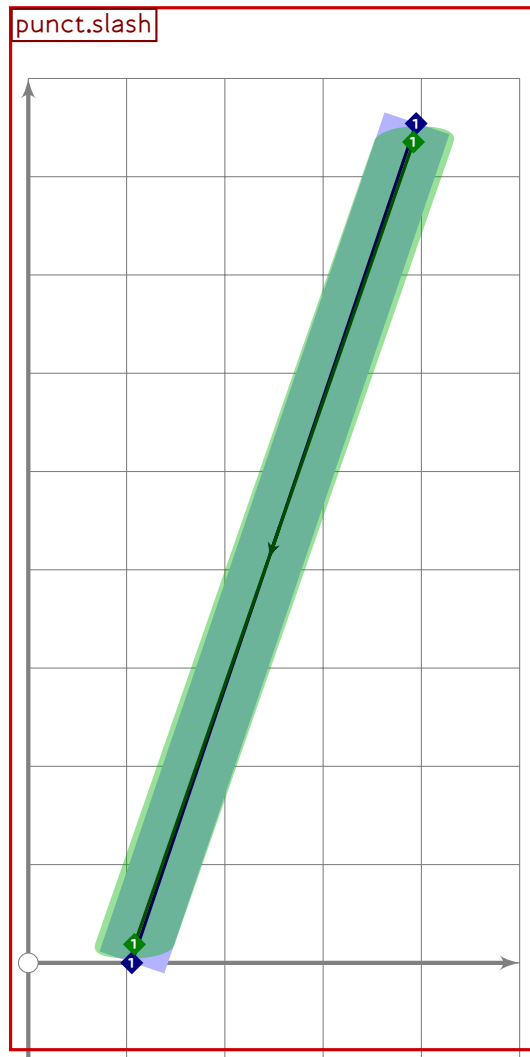
```



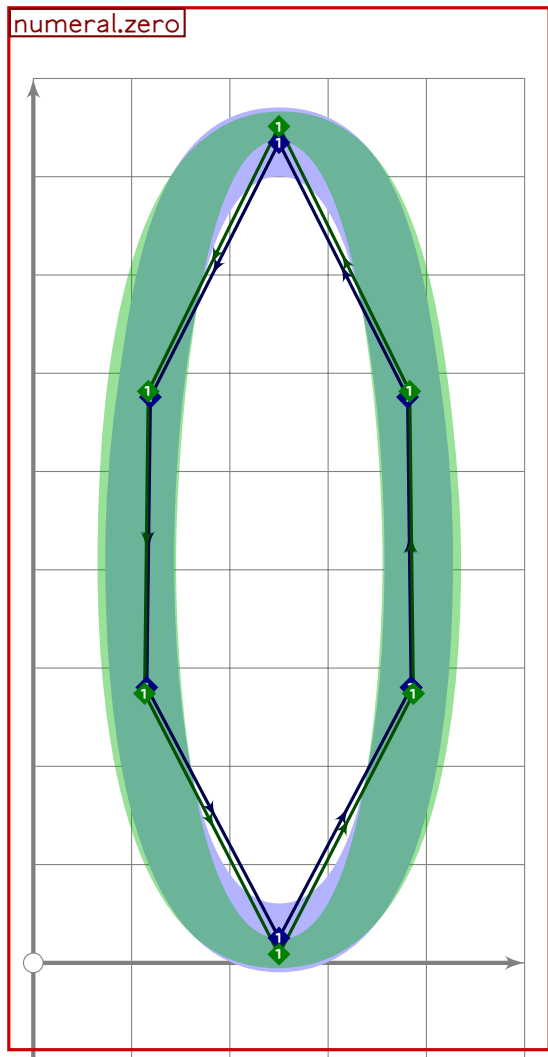
```
186 begint Suglyph("hyphen";45);  
187 punct.hminus(ascii_punct_xf);  
188 tsu_render;  
189 endtsuglyph;  
190 tsu_rescale_half;  
191
```



```
192 % period
193 beginsuglyph("period";46);
194 punct.make_period((380,vmetric(0.03)));
195 tsu_render;
196 endsuglyph;
197
```



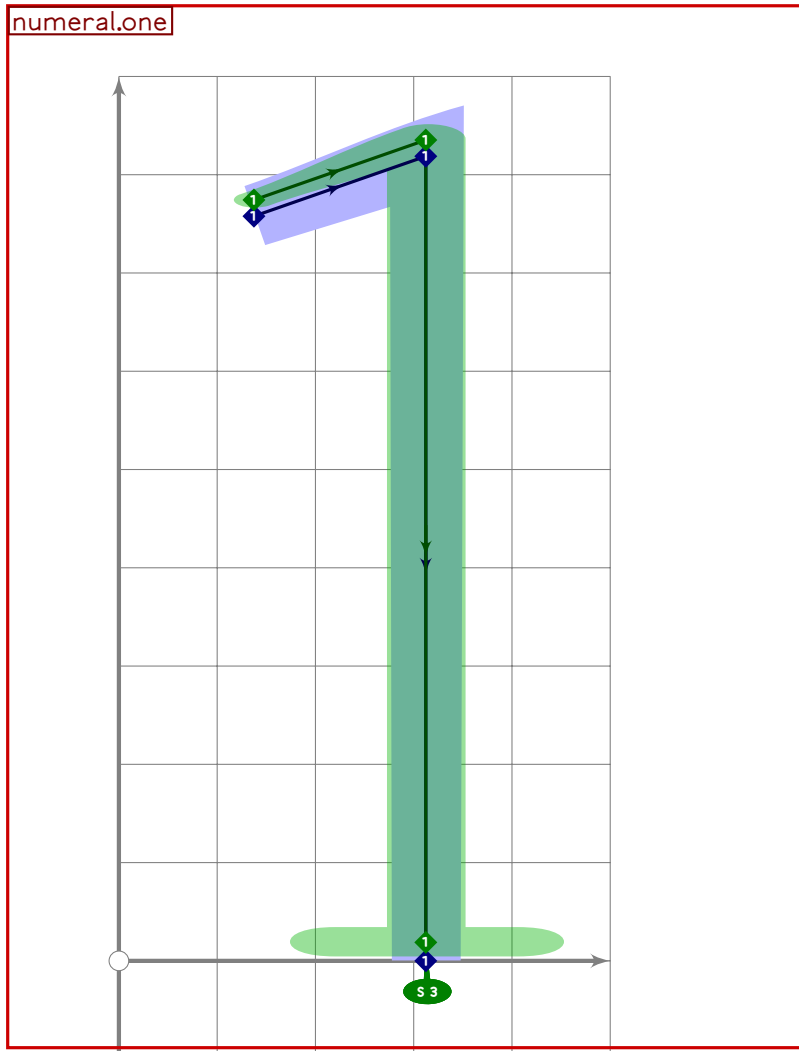
```
198 % slash  
199 begintsuglyph("slash",47);  
200 punct.slash;  
201 tsu_render;  
202 endsuglyph;  
203
```



```

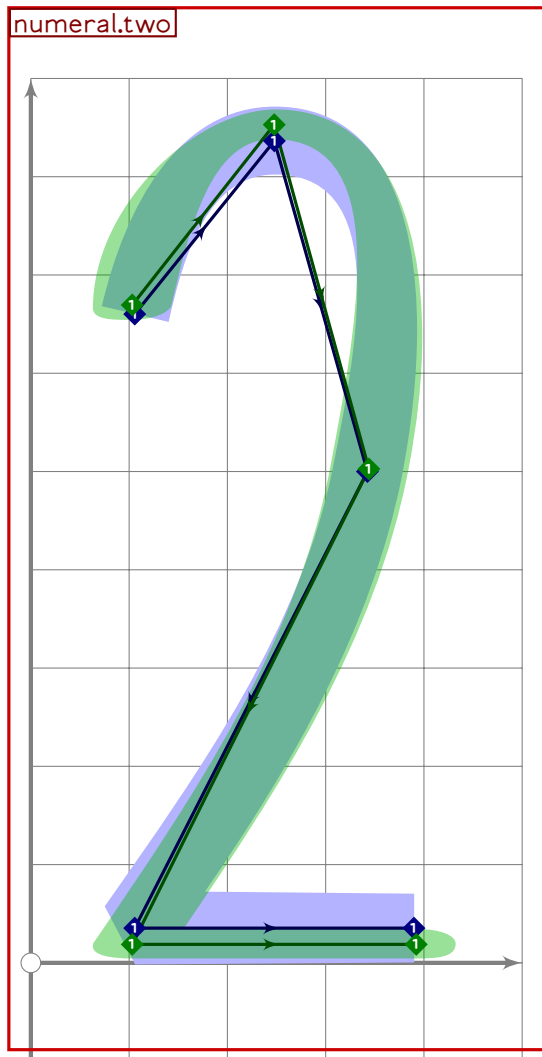
204 % 0
205 beginsuglyph("zero",48);
206 numeral.zero;
207 tsu_render;
208 endsuglyph;
209

```

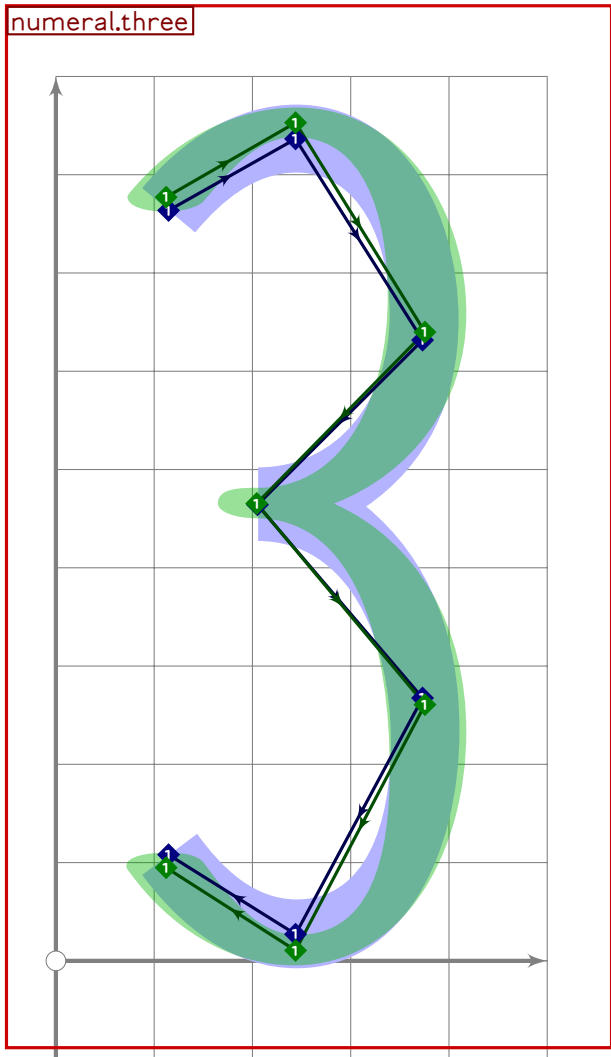


```
210 % 1
211 begintsuglyph("one",49);
212 numeral.one;
213 tsu_render;
214 endsuglyph;
215
```

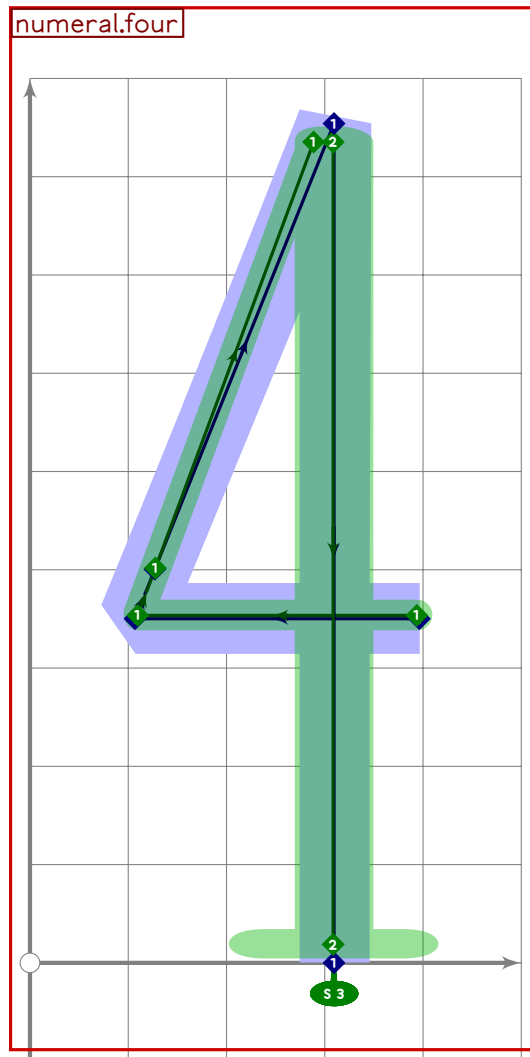




```
216 % 2  
217 beginsuglyph("two";50);  
218 numeral.two;  
219 tsu_render;  
220 endsuglyph;  
221
```



```
222 % 3  
223 begintsuglyph("three";51);  
224 numeral.three;  
225 tsu_render;  
226 endsuglyph;  
227
```

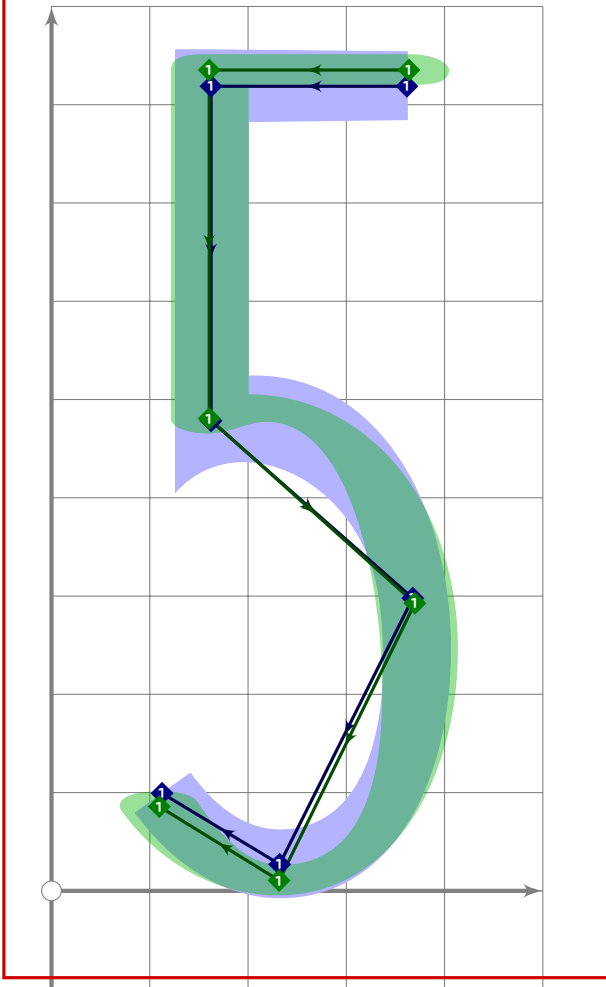


```

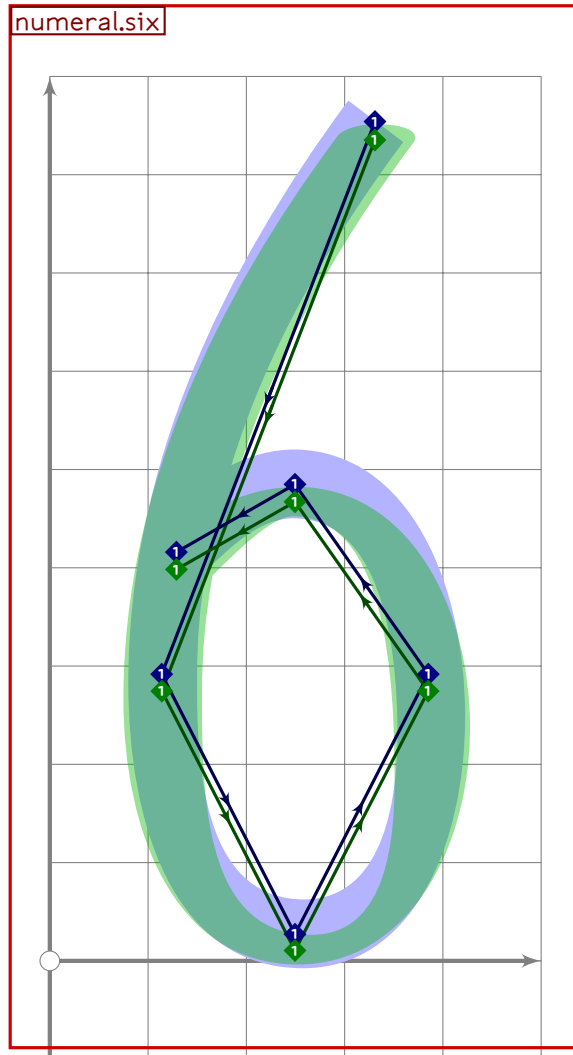
228 % 4
229 begint Suglyph("four",52);
230 numeral.four;
231 tsu_render;
232 endsuglyph;
233

```

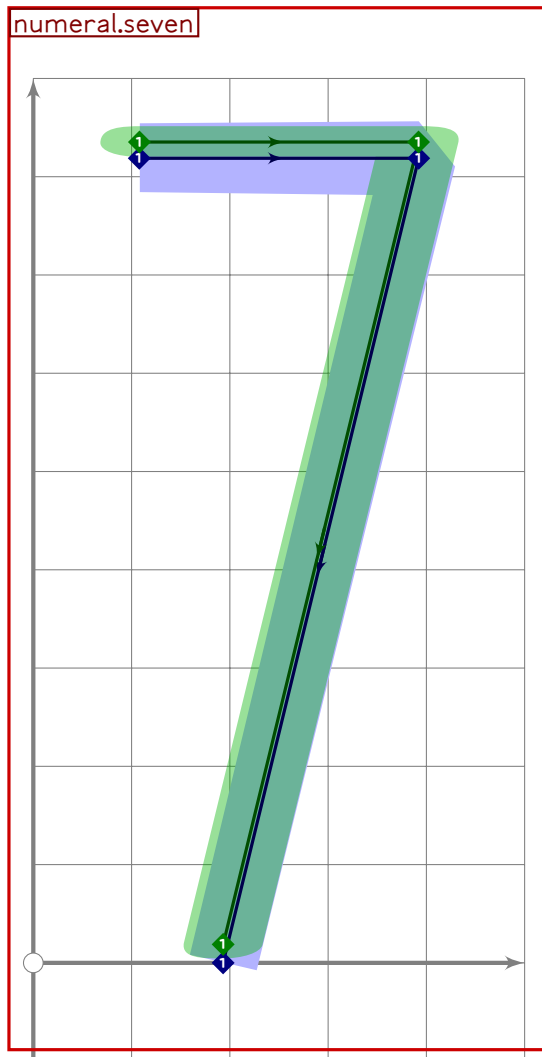
numeral.five



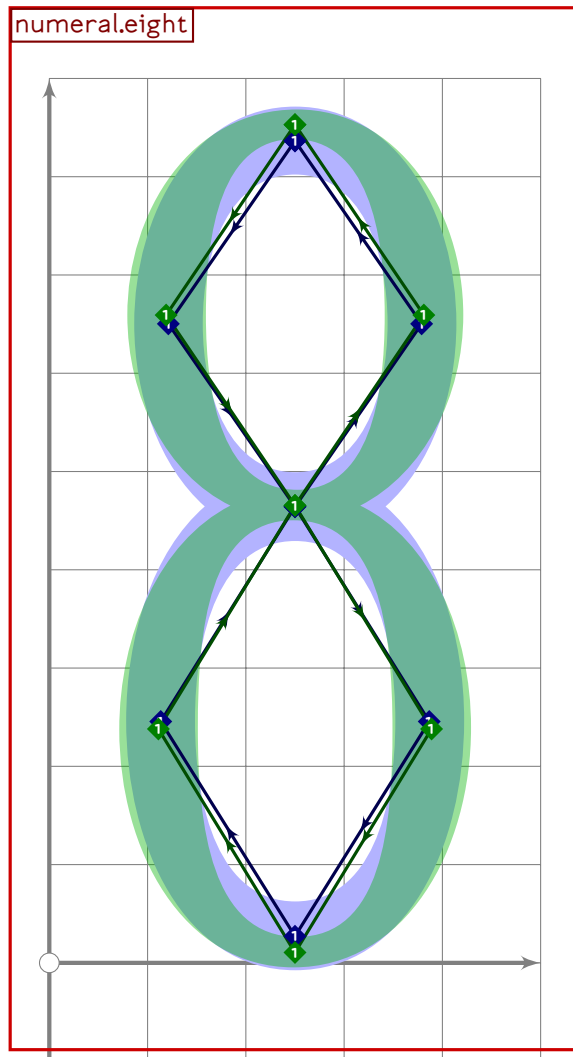
```
234 % 5
235 beginsuglyph("five";53);
236 numeral.five;
237 tsu_render;
238 endsuglyph;
239
```



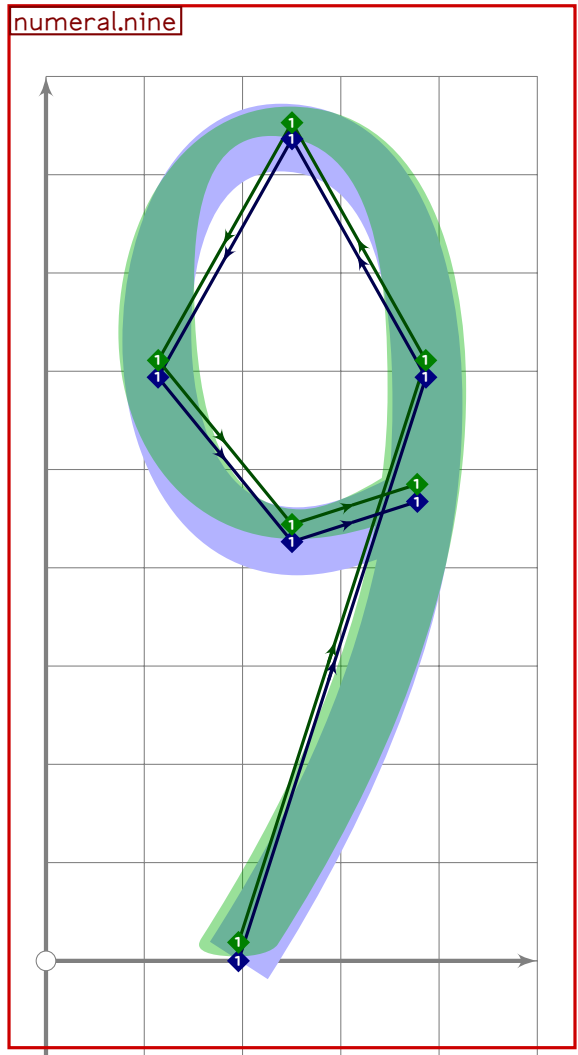
```
240 % 6  
241 begintsuglyph("six",54);  
242 numeral.six;  
243 tsu_render;  
244 endsuglyph;  
245
```



```
246 % 7  
247 begintsuglyph("seven";55);  
248 numeral.seven;  
249 tsu_render;  
250 endsuglyph;  
251
```

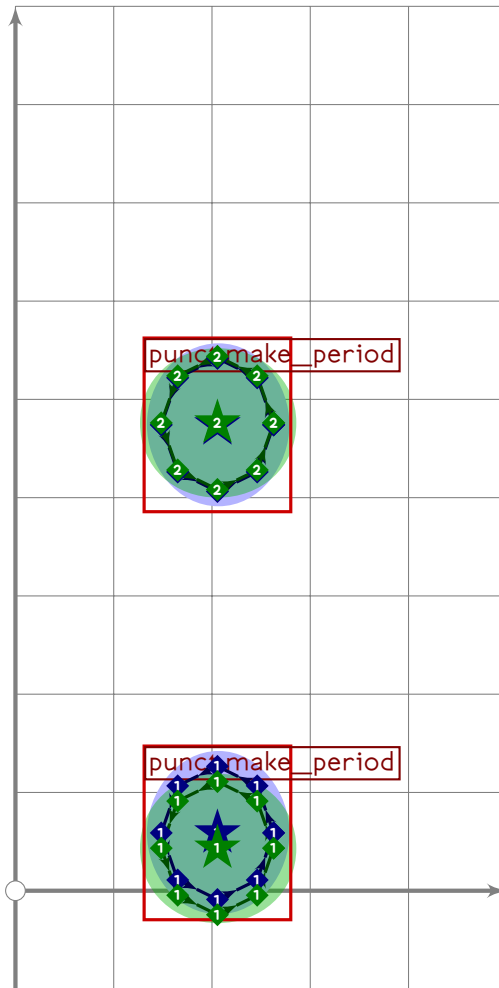


```
252 % 8  
253 begintsuglyph("eight";56);  
254 numeral.eight;  
255 tsu_render;  
256 endsuglyph;  
257
```



```
258 % 9  
259 begintsuglyph("nine";57);  
260 numeral.nine;  
261 tsu_render;  
262 endsuglyph;  
263
```

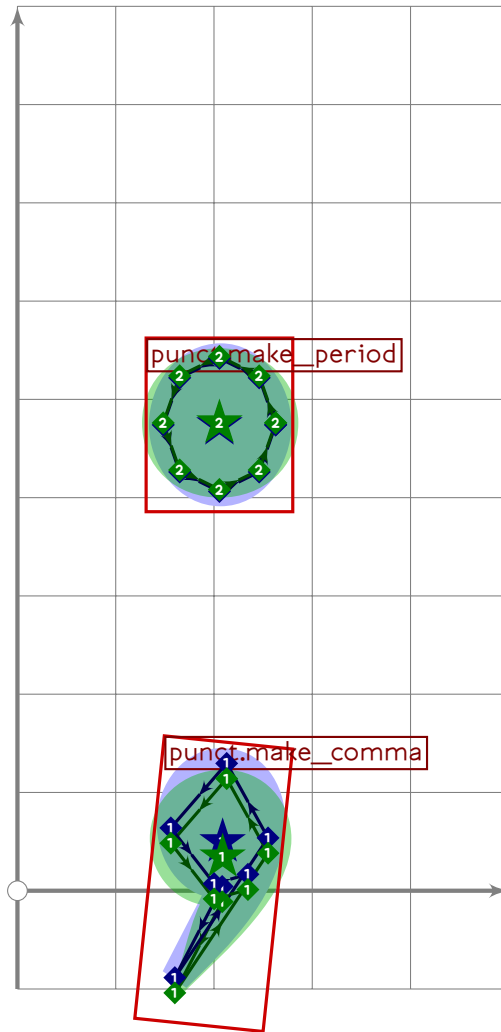




```

264 % colon
265 beginsuglyph("colon",58);
266 punct.make__period((380,vmetric(0.03)));
267 punct.make__period((380,vmetric(0.56)));
268 tsu_render;
269 endsuglyph;
270

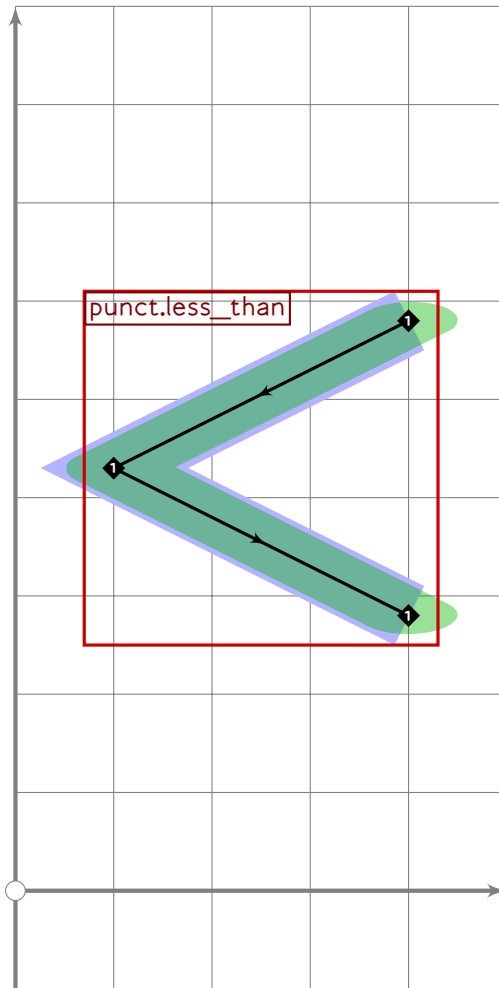
```



```

271 % semicolon
272 beginsuglyph("semicolon",59);
273 punct.make_comma((380,vmetric(0.03)),0);
274 punct.make_period((380,vmetric(0.56)));
275 tsu_render;
276 endsuglyph;
277
278 % WARNING, changing rescale setting
279 tsu_rescale_native_conditional;
280

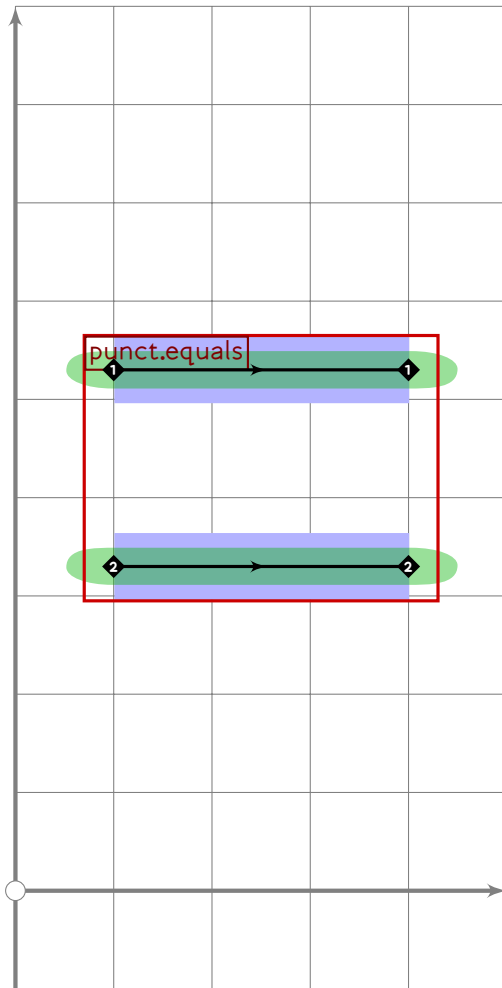
```



```

281 % less than
282 begintsuglyph("less",60);
283 punct.less_than
284     (identity scaled (if is_proportional: 2.1 else: 1.5 fi*tsu_punct_size)
285       shifted (250,latin_vcentre));
286 tsu_render;
287 endtsuglyph;
288

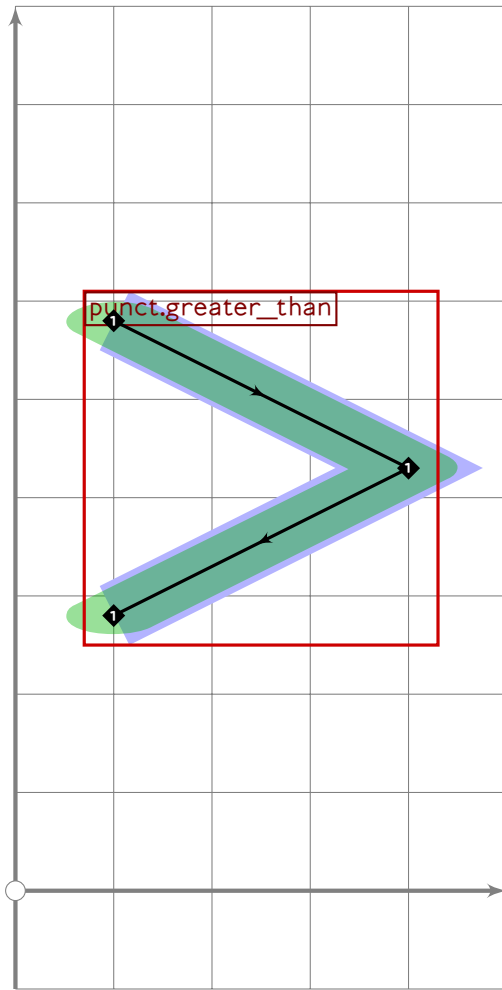
```



```

289 % equals
290 begintsuglyph("equals",61);
291 punct.equals
292     (identity scaled (if is_proportional: 2.1 else: 1.5 fi*tsu_punct_size)
293     shifted (250,latin_vcentre));
294 tsu_render;
295 endtsuglyph;
296

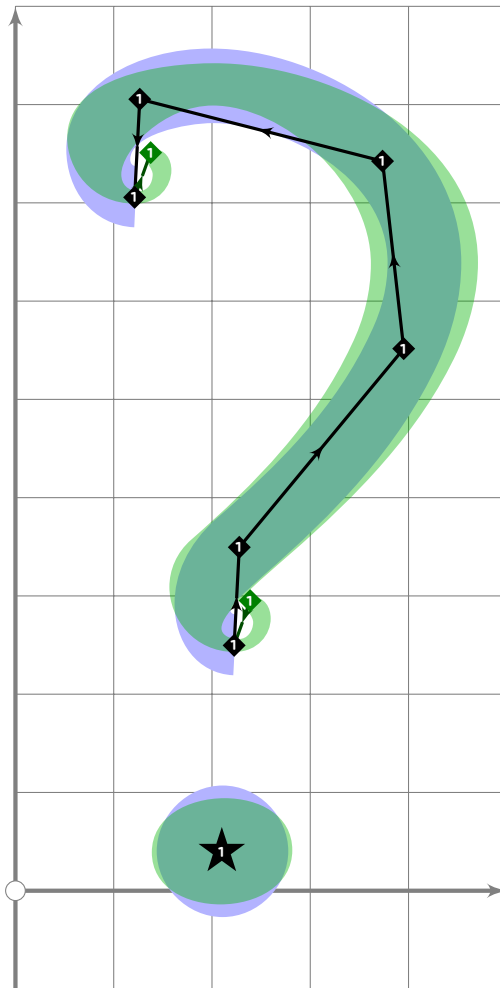
```



```

297 % greater than
298 begintsuglyph("greater",62);
299 punct.greater_than
300   (identity scaled (if is_proportional: 2.1 else: 1.5 fi*tsu_punct_size)
301     shifted (250,latin_vcentre));
302 tsu_render;
303 endtsuglyph;
304

```



```

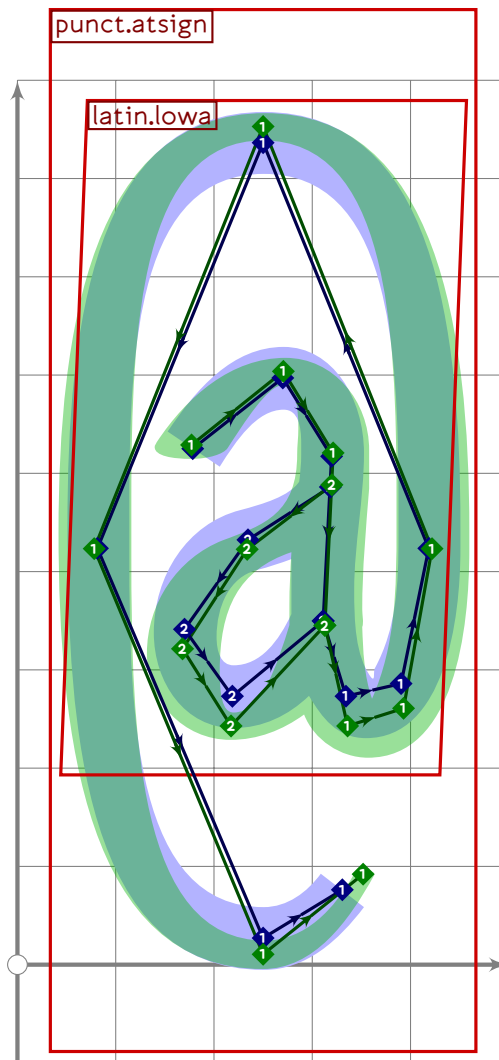
305 % question mark
306 begint Suglyph("question",63);
307 numeric r;
308 if tsu_pbrush_size>=(tsu_punct_size*0.5);
309     push_lcblob(fullcircle
310         xscaled ((tsu_punct_size+tsu_pbrush_size)*0.89)
311         yscaled ((tsu_punct_size+tsu_pbrush_size*tsu_pbrush_shape)*0.89)
312         rotated tsu_pbrush_angle
313         shifted (210,40));
314 else:
315     push_stroke(fullcircle scaled tsu_punct_size shifted (210,40),
316         (2,2)-(2,2)-(2,2)-(2,2));
317     if tsu_pbrush_size>=30:
318         push_lcblob(get_strokep(0));
319     fi;
320 fi;
321 r:=tsu_punct_size/2;
322
323 push_stroke((210,300){right}..(210,300-r){left}..
324     (210,300+r)..(210+2.5*r,750)..
325     tension 1.3..(210-2.5*r,750+r)..

```

```

326     (210-2.5*r,750-r){right}..
327     (210-2.5*r,750){left},
328     (0.8,0.8)-(1,1)-(2,2)-(2,2)-(2,2)-(2,2)-(1,1)-(0.8,0.8));
329     replace_stroke(0)(insert_nodes(oldp)(2.5) rotatedaround ((210,10),-3));
330
331     tsu_render;
332 endtsuglyph;
333
334 % WARNING, changing rescale setting
335 tsu_rescale_half;
336

```



```

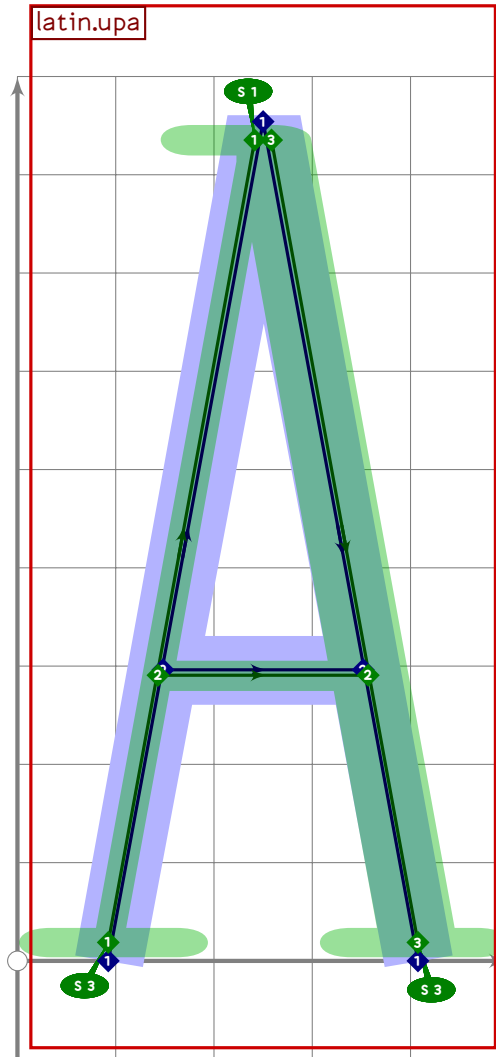
337 % commercial at
338     begintstuglyph("at",64);
339     punct.at sign;
340     tsu_render;
341     endstuglyph;
342
343     tsu_default_anchor(anc_upper_accent,tsu_xf.cap_upper_accent);
344     tsu_default_anchor(anc_lower_accent,accent_default[anc_lower_accent]);

```

```

345 tsu_default_anchor(anc_centre_accent,tsu_xf.low_centre_accent);
346 tsu_default_anchor(anc_upper_left,tsu_xf.cap_upper_accent);
347 tsu_default_anchor(anc_upper_right,tsu_xf.cap_upper_accent);
348 tsu_default_anchor(anc_upper_ring,tsu_xf.cap_upper_accent);
349 tsu_default_anchor(anc_caron_comma,
350   accent_default[anc_caron_comma] shifted (200,0));
351

```

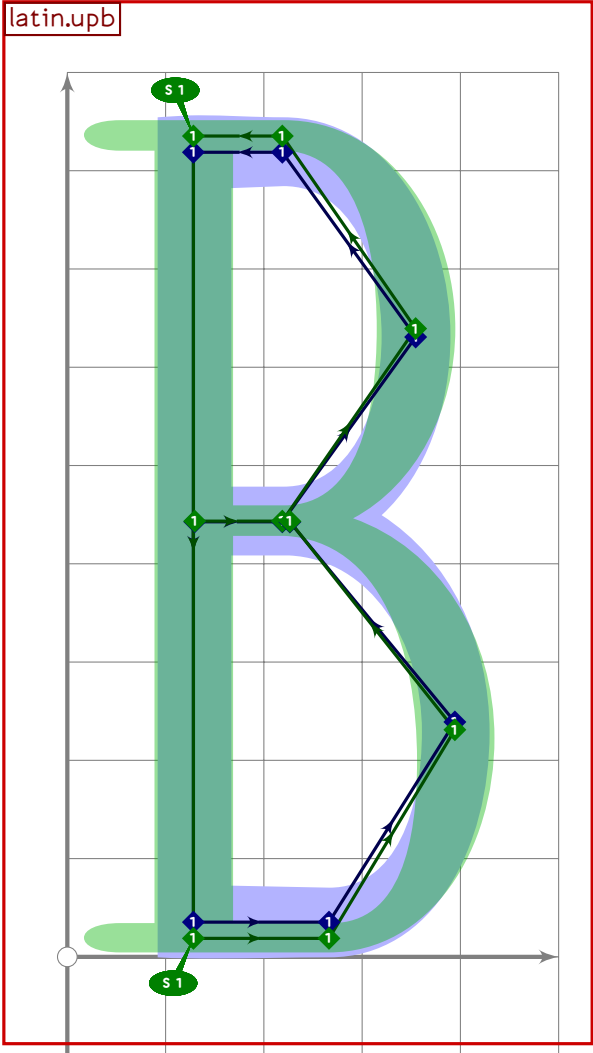


```

352 % A
353 beginsuglyph("A",65);
354   latin.upa;
355   tsu_render;
356 endsuglyph;
357

```

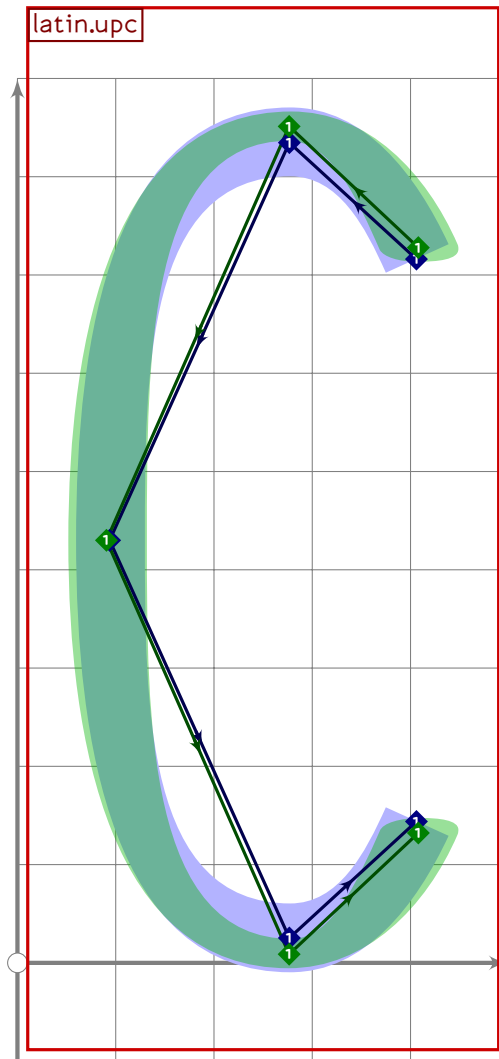




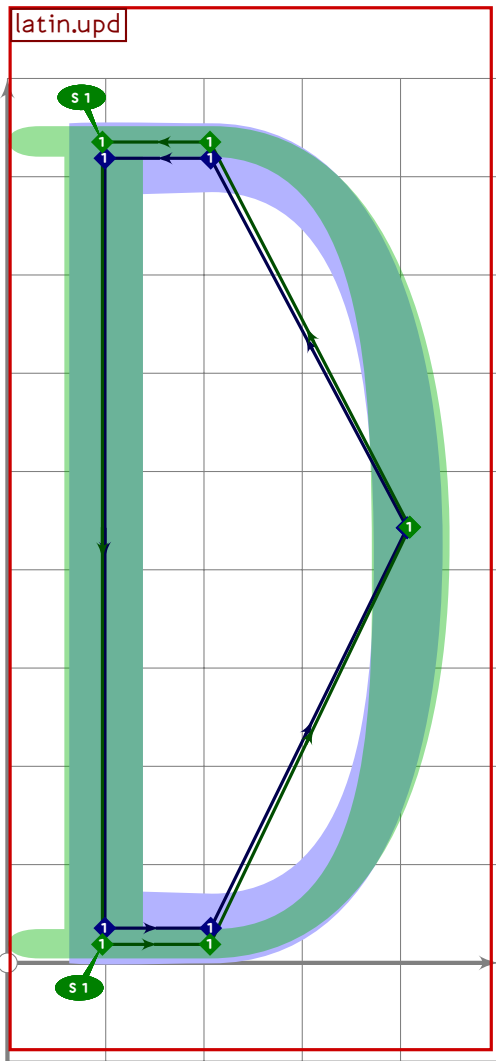
```

358 % B
359 begint Suglyph("B",66);
360 latin.upb;
361 tsu_render;
362 endsuglyph;
363

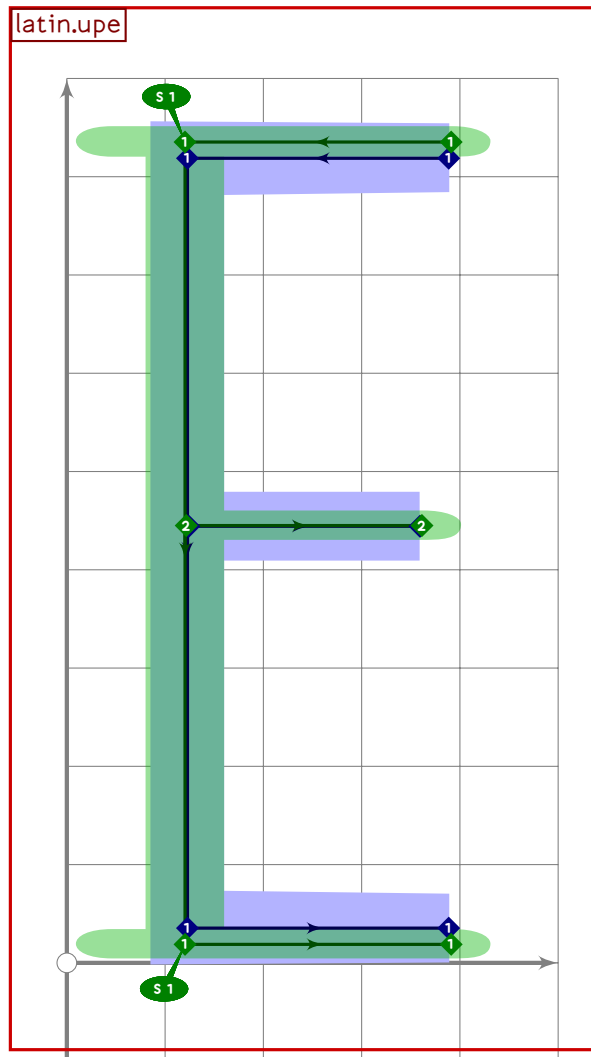
```



```
364 % C  
365 begintsuglyph("C",67);  
366 latin.upc;  
367 tsu_render;  
368 endsuglyph;  
369
```



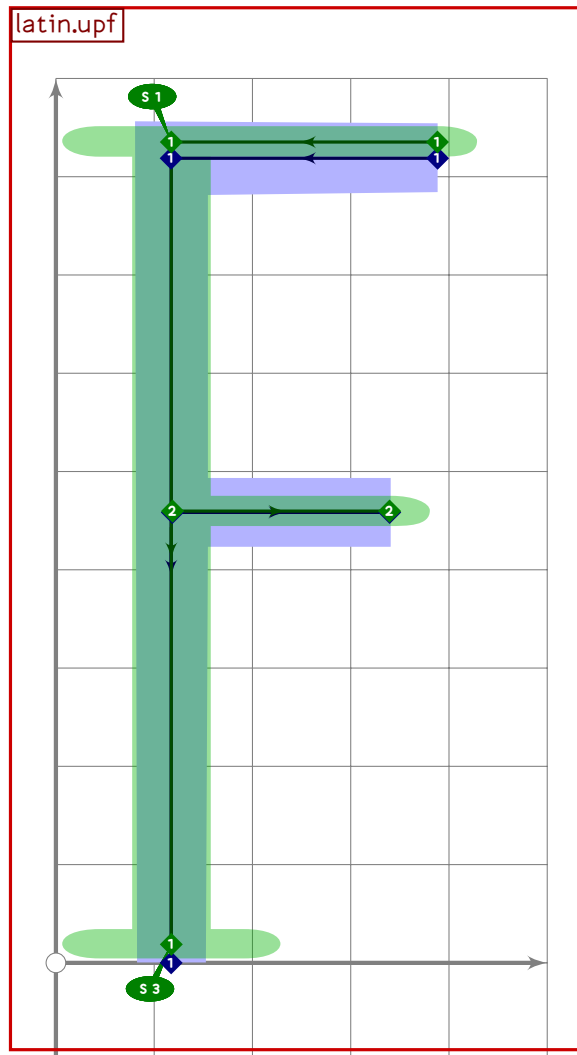
```
370 % D
371 begintsuglyph("D",68);
372 latin.upd;
373 tsu_render;
374 endsuglyph;
375
```



```

376 % E
377 begintsuglyph("E",69);
378 latin.ufe;
379 tsu_render;
380 endsuglyph;
381

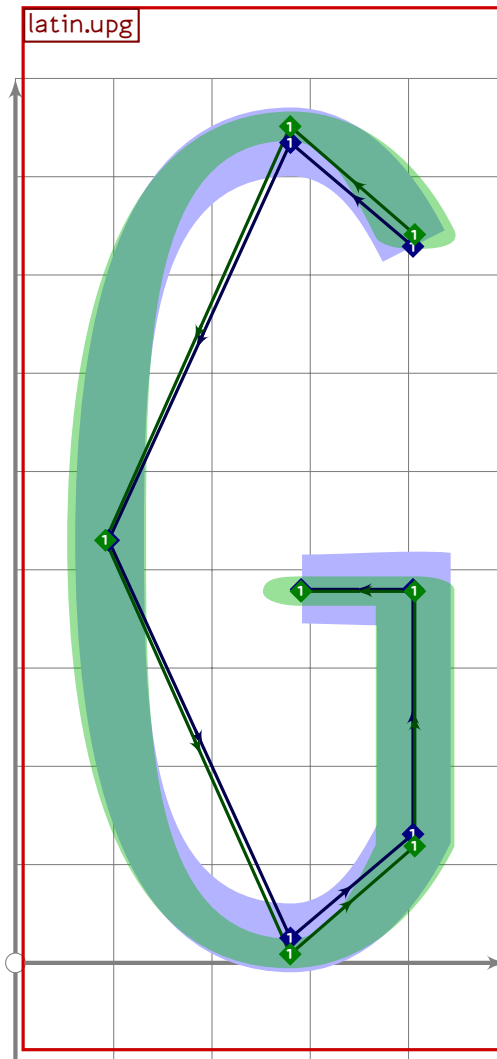
```



```

382 % F
383 begintsuglyph("F";70);
384 latin.upf;
385 tsu_render;
386 endsuglyph;
387

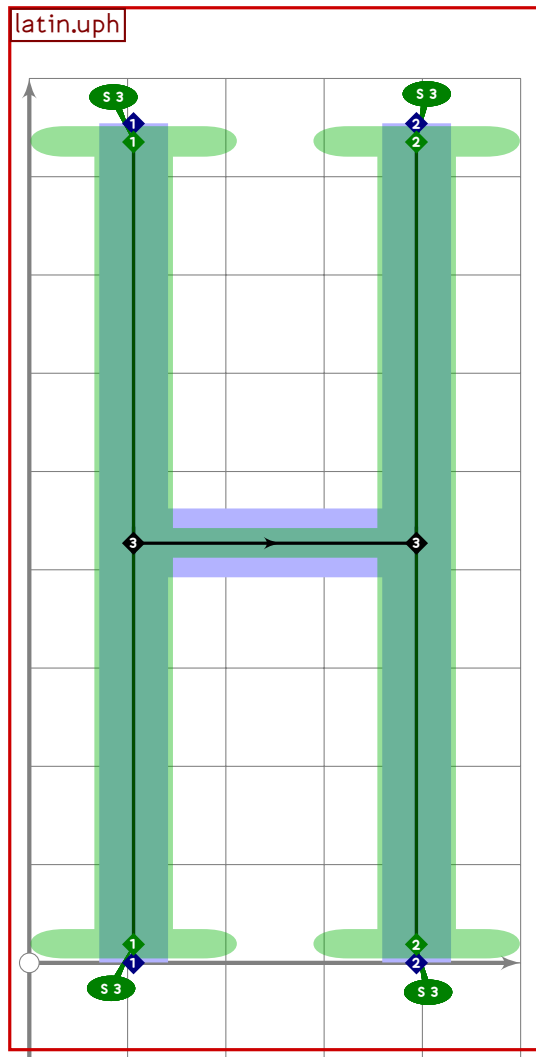
```



```

388 % G
389 begintsuglyph("G";71);
390 latin.upg;
391 tsu_render;
392 endsuglyph;
393

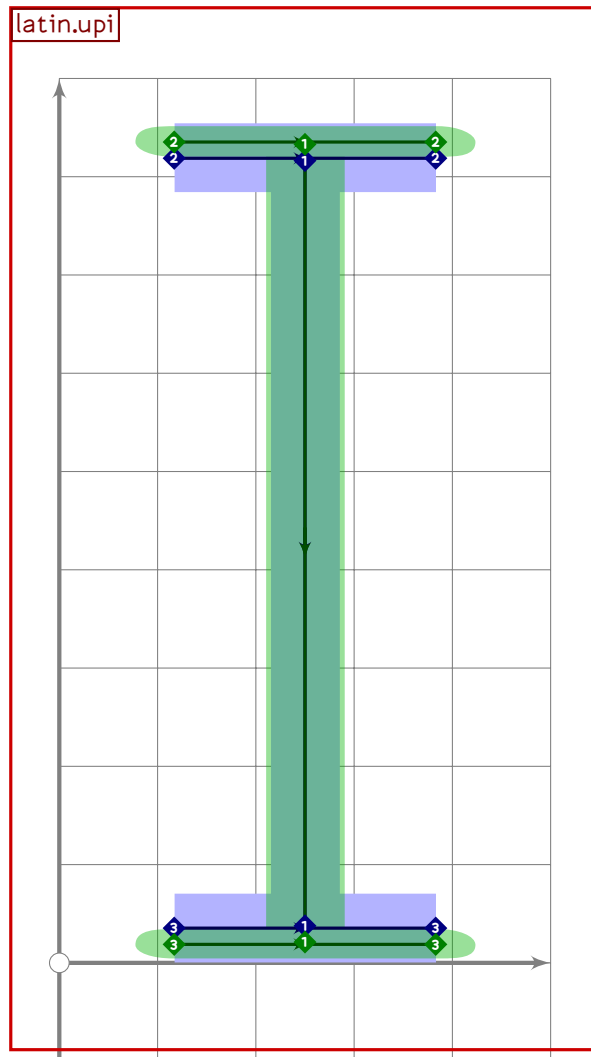
```



```

394 % H
395 begintsuglyph("H",72);
396 latin.uph;
397 tsu_render;
398 endsuglyph;
399

```

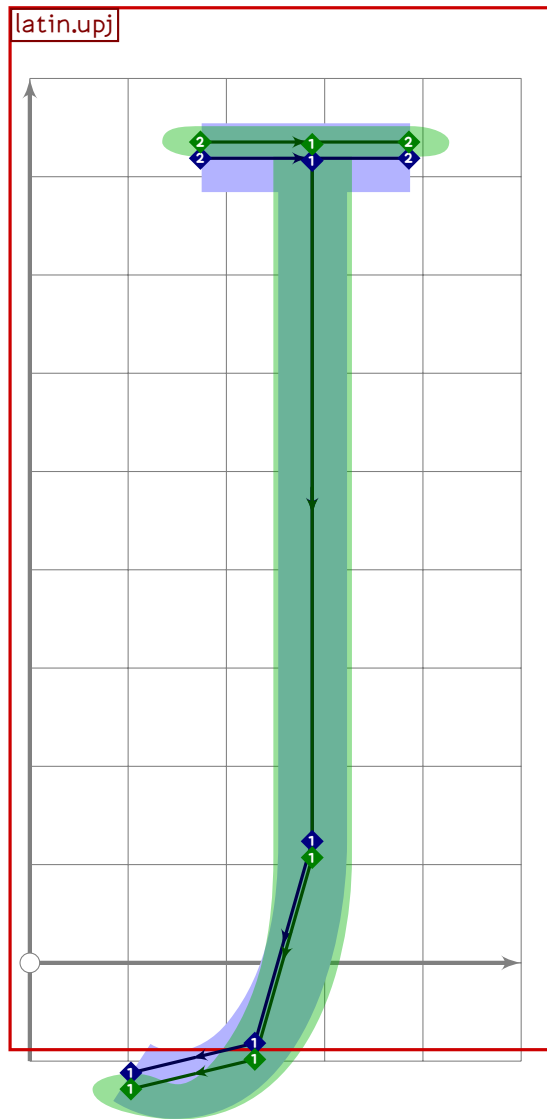


```

400 % I
401 begint Suglyph("I";73);
402 latin.upi;
403 tsu_render;
404 endsuglyph;
405

```

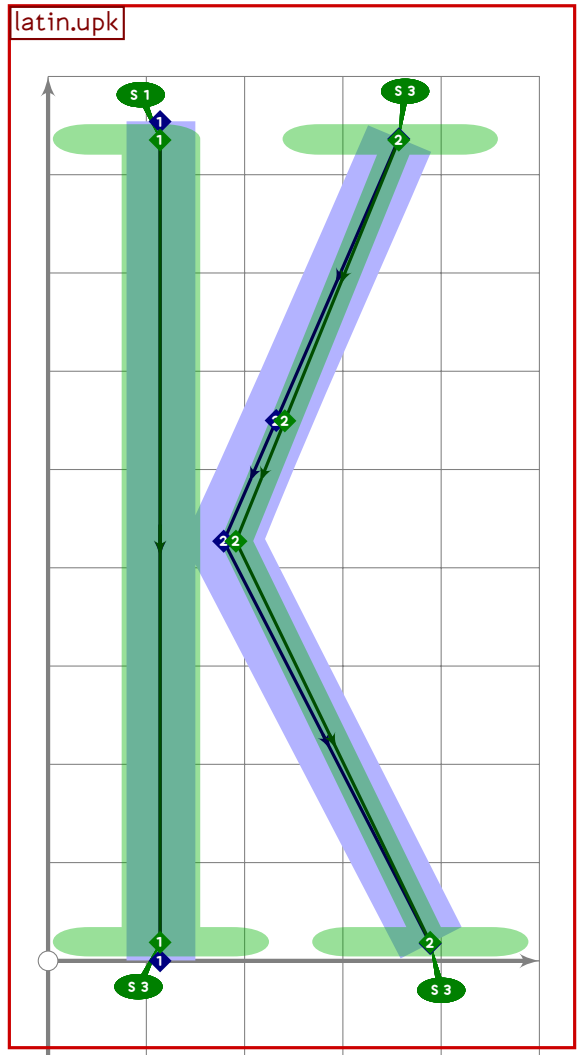




```

406 % J
407 beginsuglyph("J";74);
408 latin.upj;
409 tsu_render;
410 endsuglyph;
411

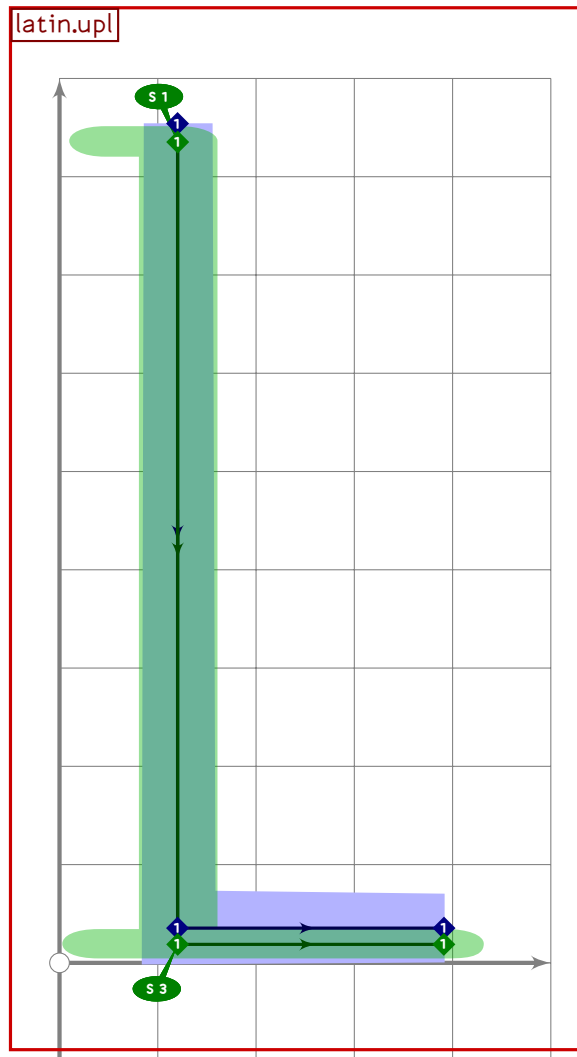
```



```

412 % K
413 begintsuglyph("K",75);
414 latin.upk;
415 tsu_render;
416 endsuglyph;
417

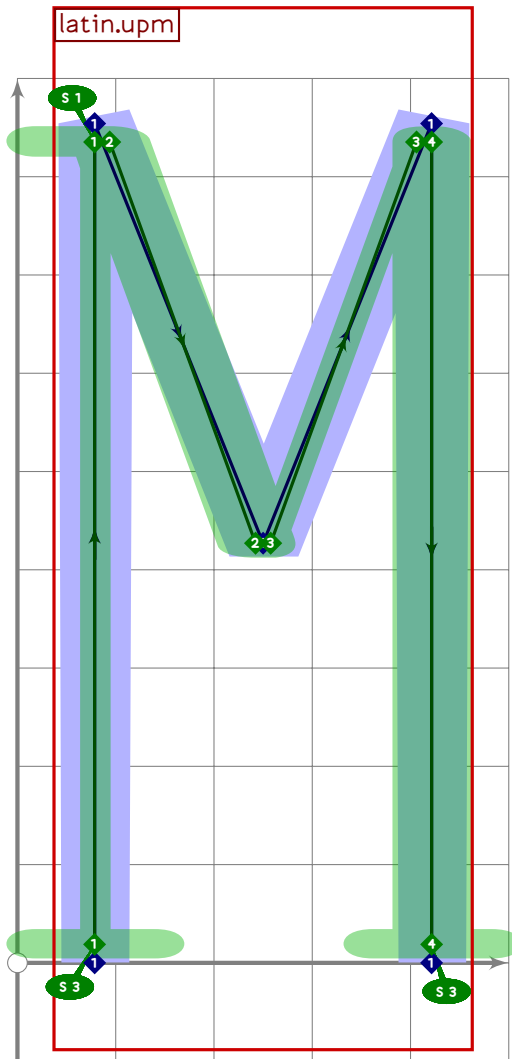
```



```

418 % L
419 begintsuglyph("L",76);
420 latin.upl;
421 tsu_render;
422 endsuglyph;
423

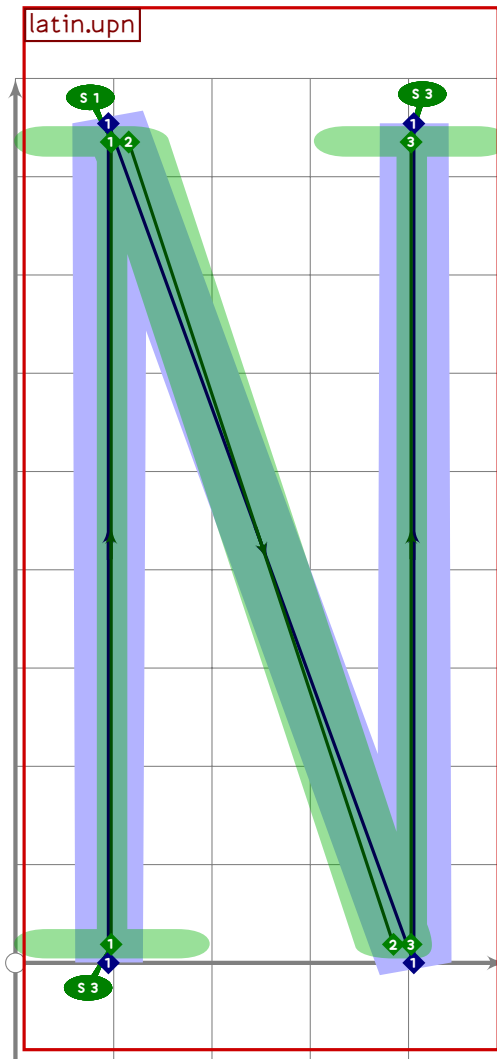
```



```

424 % M
425 beginsuglyph("M";77);
426 latin.upm;
427 tsu_render;
428 endsuglyph;
429

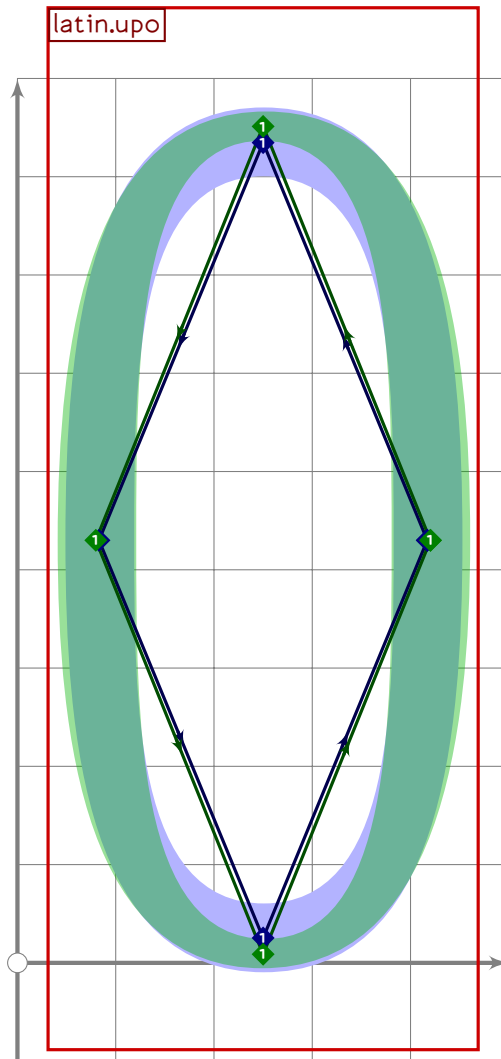
```



```

430 % N
431 begintsuglyph("N";78);
432 latin.upn;
433 tsu_render;
434 endsuglyph;
435

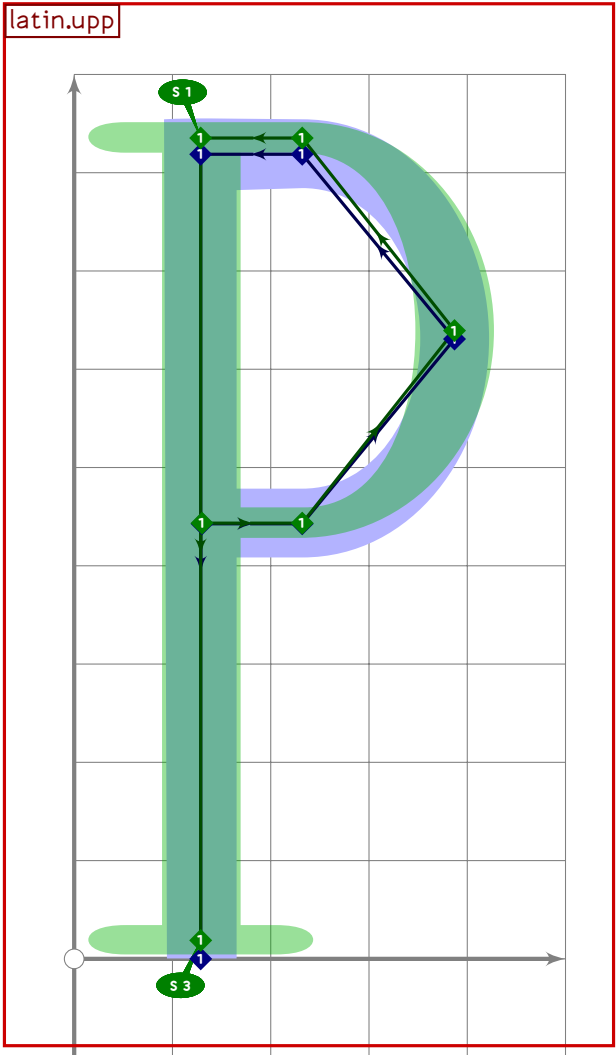
```



```

436 % O
437 begintsuglyph("O",79);
438 latin.upo;
439 tsu_render;
440 endsuglyph;
441

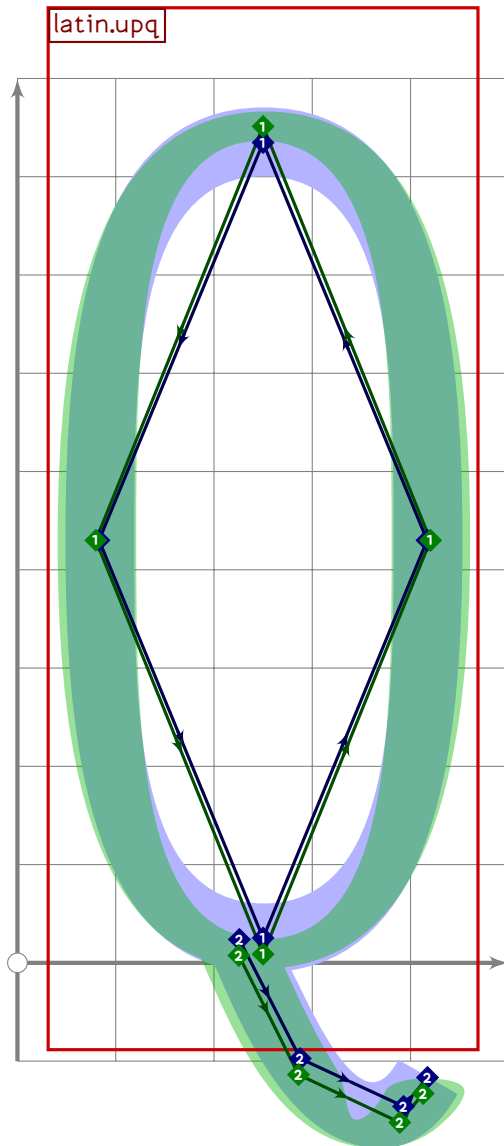
```



```

442 % P
443 beginsuglyph("P",80);
444 latin.upp;
445 tsu_render;
446 endsuglyph;
447

```

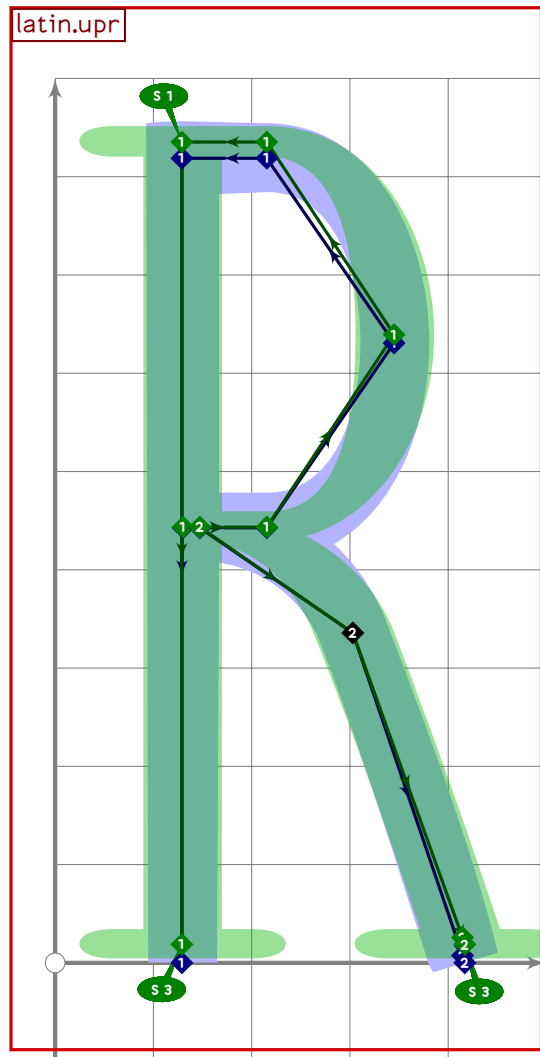


```

448 % Q
449 begintsuglyph("Q";81);
450 latin.upq;
451 tsu_render;
452 endsuglyph;
453

```

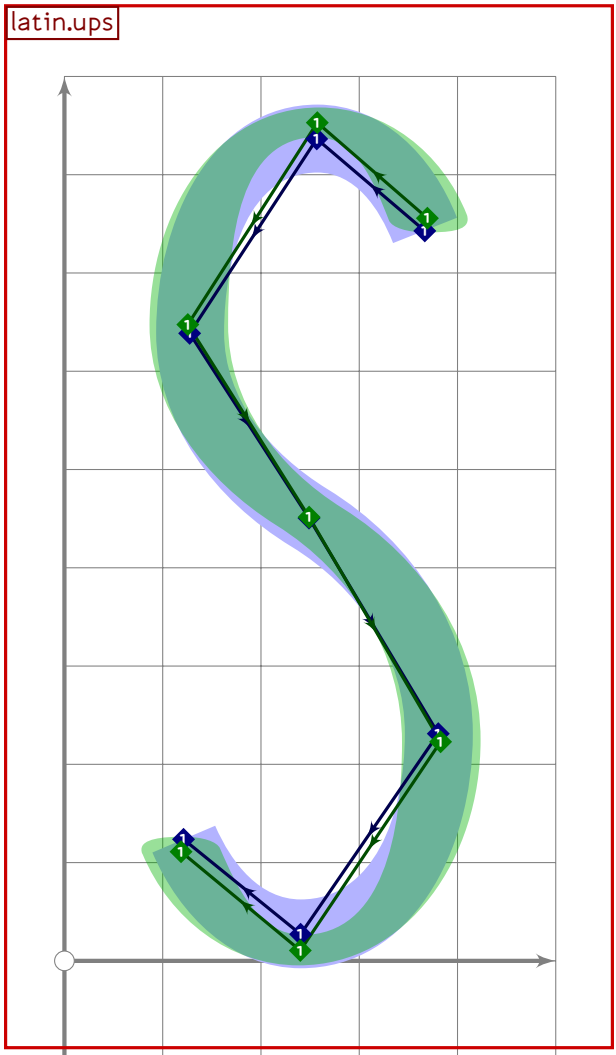




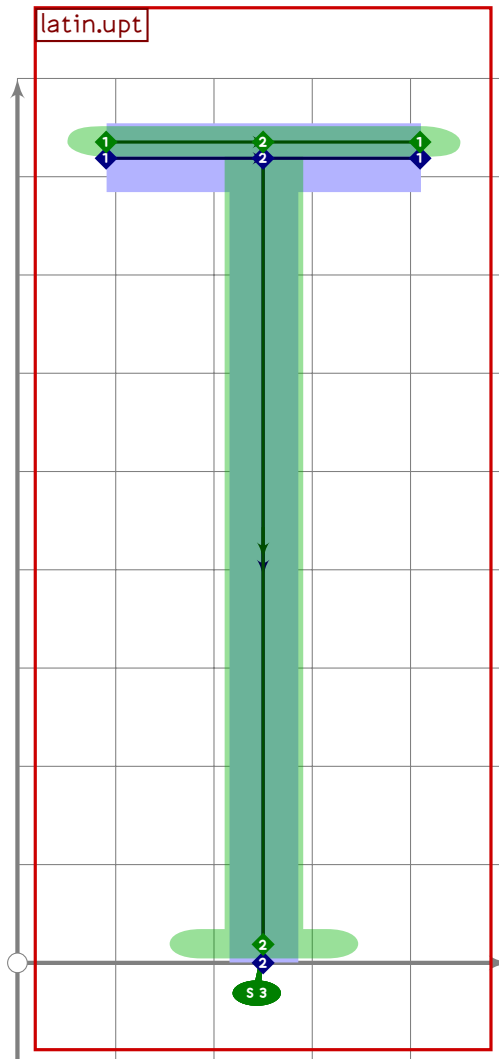
```

454 % R
455 begint Suglyph("R",82);
456 latin.upr;
457 tsu_render;
458 endsuglyph;
459

```



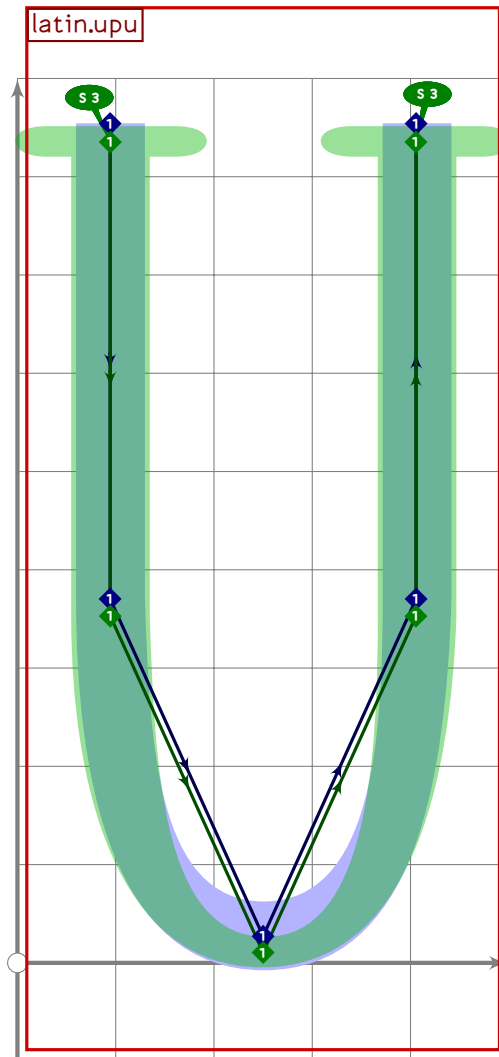
```
460 % S
461 begintsuglyph("S";83);
462 latin.ups;
463 tsu_render;
464 endsuglyph;
465
```



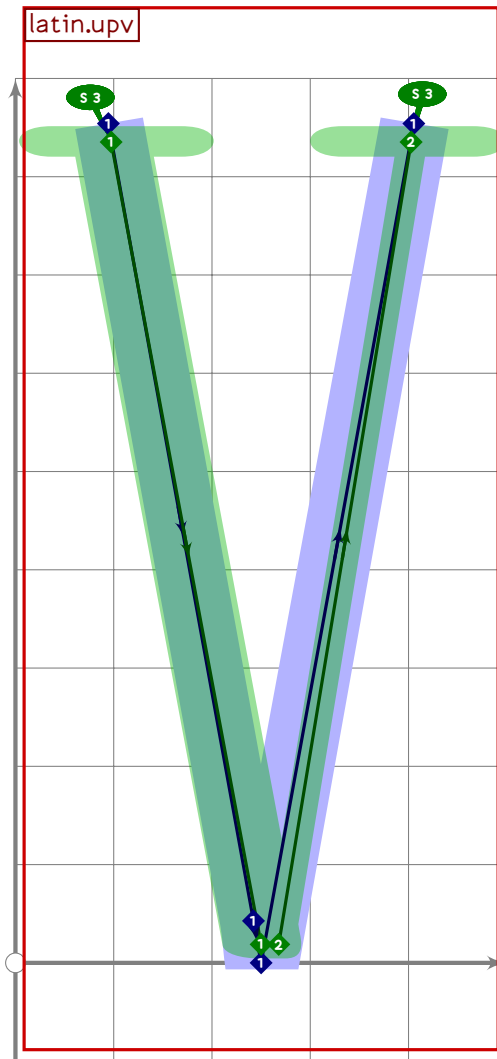
```

466 % T
467 beginsuglyph("T",84);
468   latin.upt;
469   tsu_render;
470 endsuglyph;
471

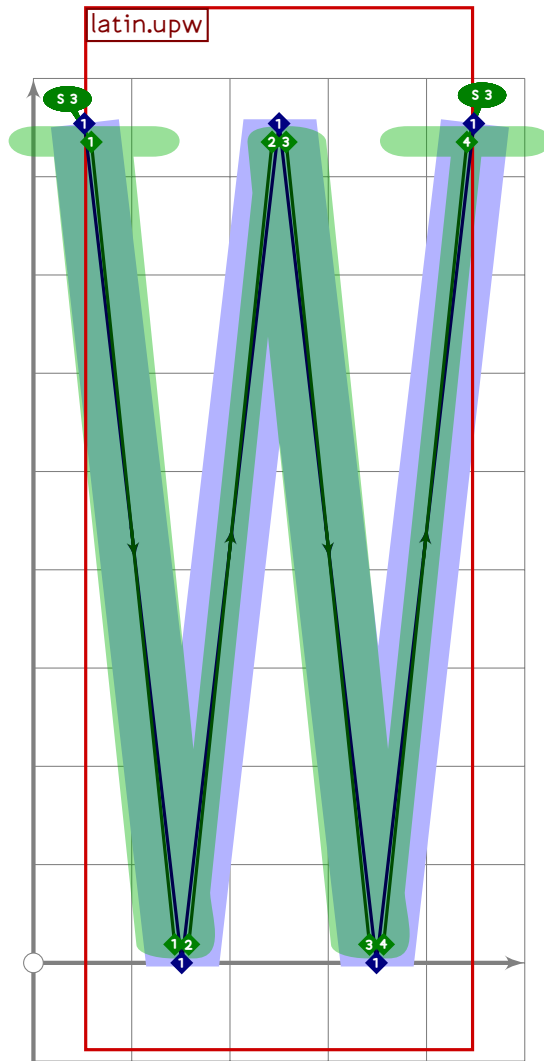
```



```
472 % U  
473 \begintsuglyph{"U";85);  
474 \latin.upu;  
475 \tsu_render;  
476 \endtsuglyph;  
477
```



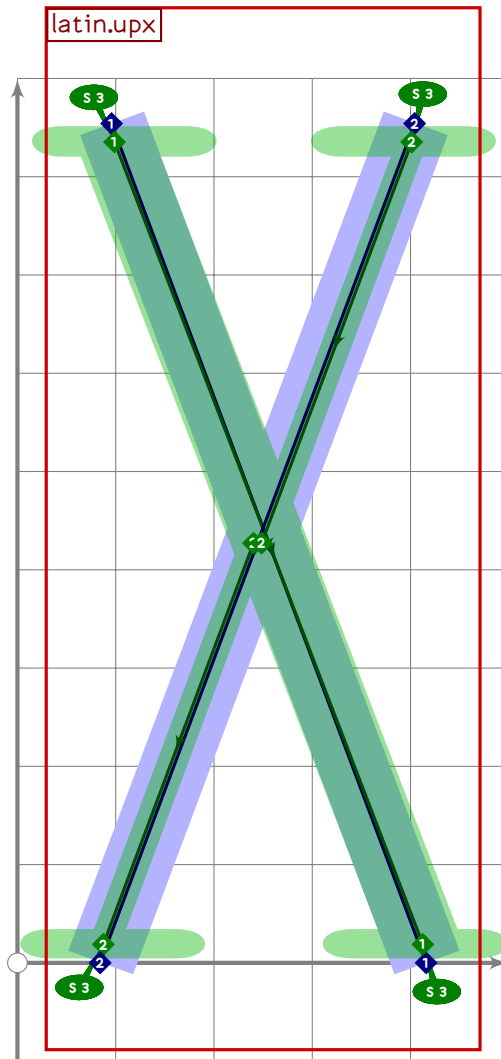
```
478 % V
479 begint Suglyph("V",86);
480 latin.upv;
481 tsu_render;
482 endsuglyph;
483
```



```

484 % W
485 beginsuglyph("W";87);
486 latin.upw;
487 tsu_render;
488 endsuglyph;
489

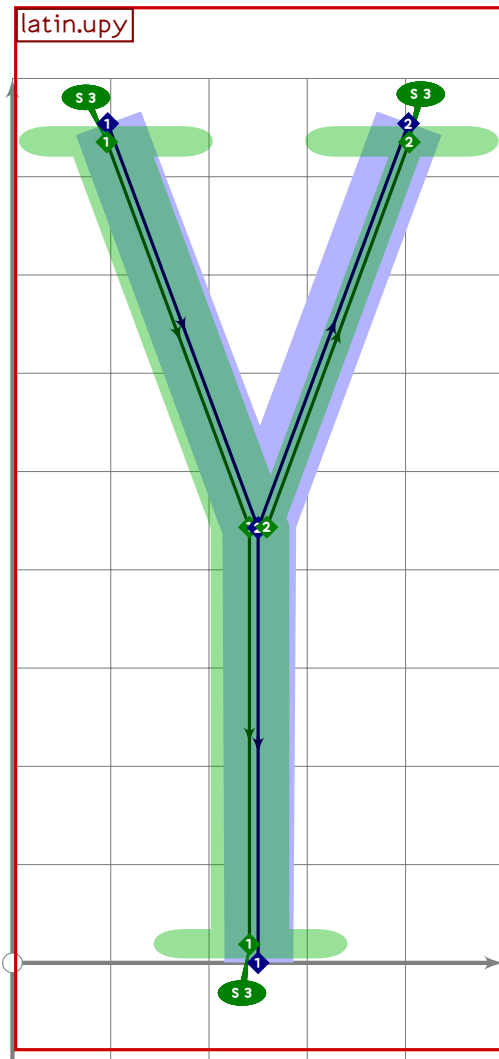
```



```

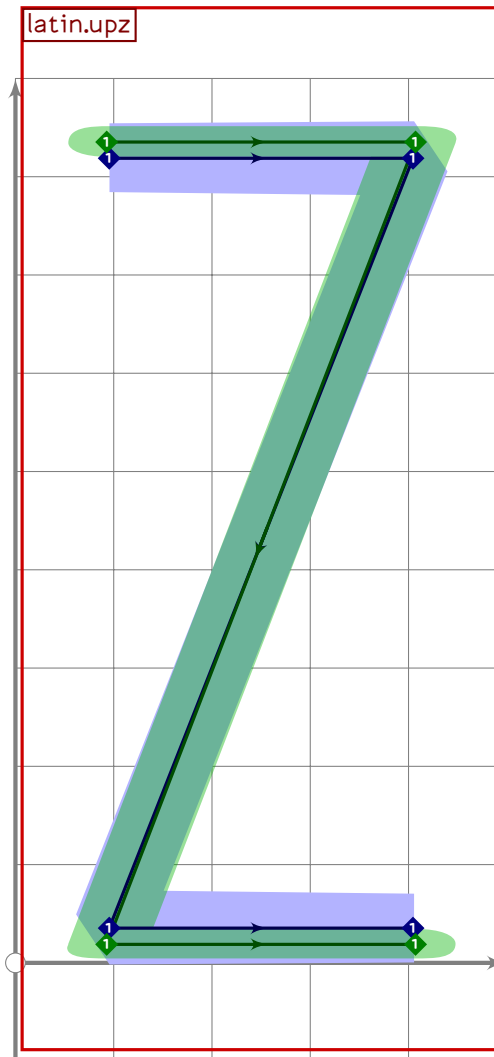
490 % X
491 begint Suglyph("X",88);
492 latin.upx;
493 tsu_render;
494 endsuglyph;
495

```



```
496 % Y
497 begintsuglyph("Y",89);
498 latin.upy;
499 tsu_render;
500 endsuglyph;
501
```

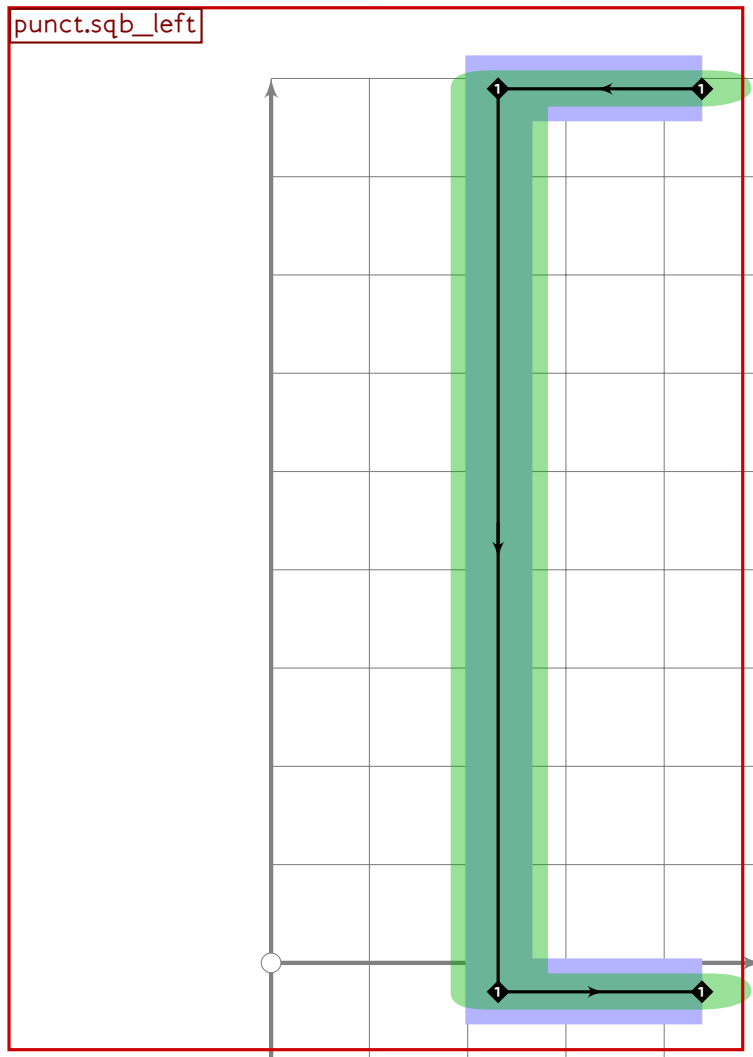




```

502 % Z
503 begint Suglyph("Z";90);
504 latin.upz;
505 tsu_render;
506 endsuglyph;
507
508 tsu_default_anchor(anc_upper_accent,0);
509 tsu_default_anchor(anc_lower_accent,0);
510 tsu_default_anchor(anc_centre_accent,0);
511 tsu_default_anchor(anc_upper_left,0);
512 tsu_default_anchor(anc_upper_right,0);
513 tsu_default_anchor(anc_upper_ring,0);
514 tsu_default_anchor(anc_caron_comma,0);
515

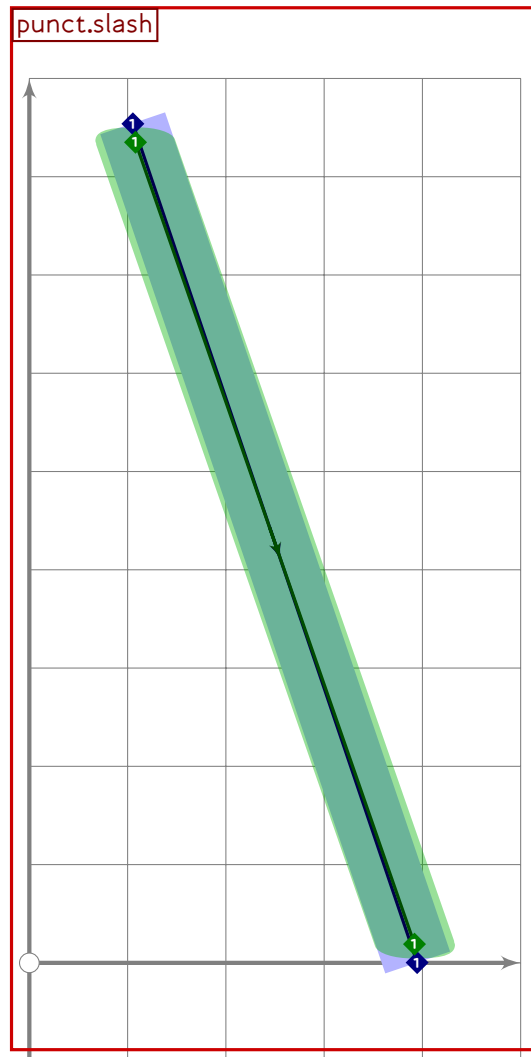
```



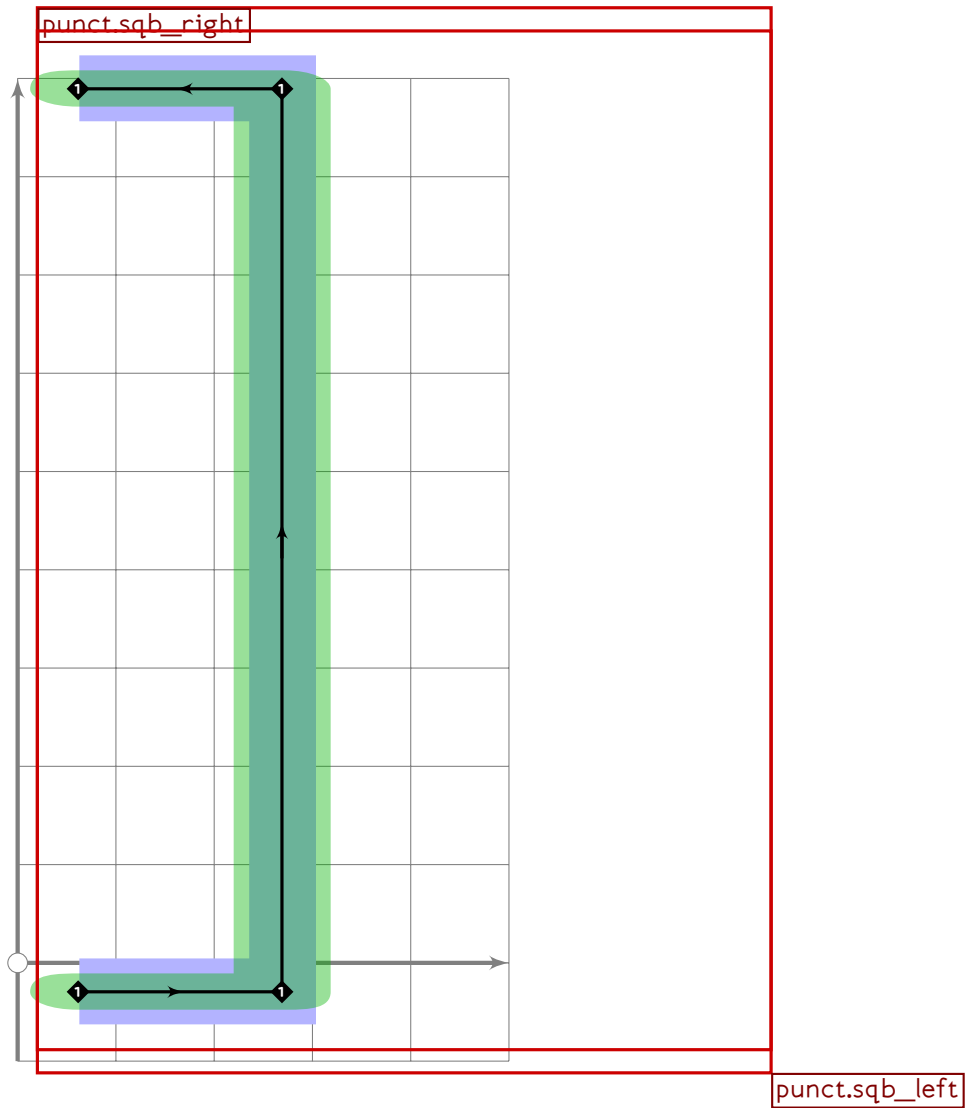
```

516 % left and right square brackets, backslash between
517 beginsuglyph("bracketleft";91);
518   punct.sqb_left;
519   tsu_render;
520 endsuglyph;

```



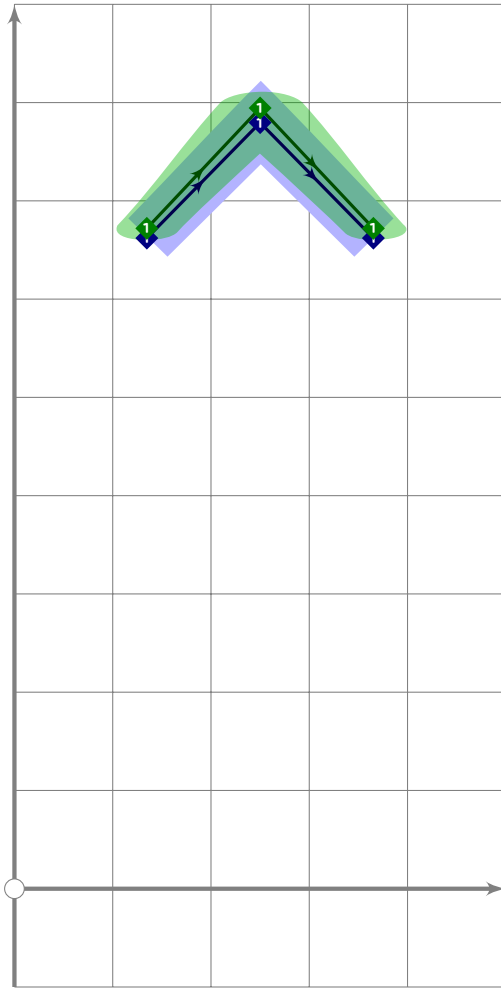
```
521 % backslash
522 begint Suglyph("backslash";92);
523 punct.slash;
524 replace_strokep(0)(oldp reflectedabout (centre_pt,(centre_pt+down)));
525 tsu_render;
526 endtsuglyph;
```



```

527 beginsuglyph("bracketright";93);
528   punct.sqb_right;
529   tsu_render;
530 endsuglyph;
531

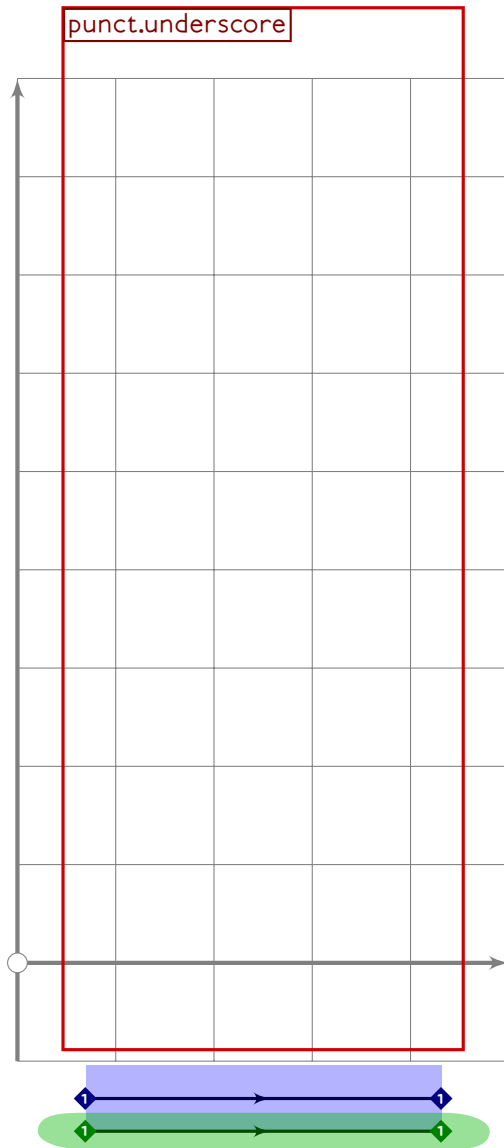
```



```

532 % circumflex accent/caret
533 begintsuglyph("asciicircum";94);
534 tsu_accent.circumflex;
535 tsu_render;
536 endsuglyph;
537

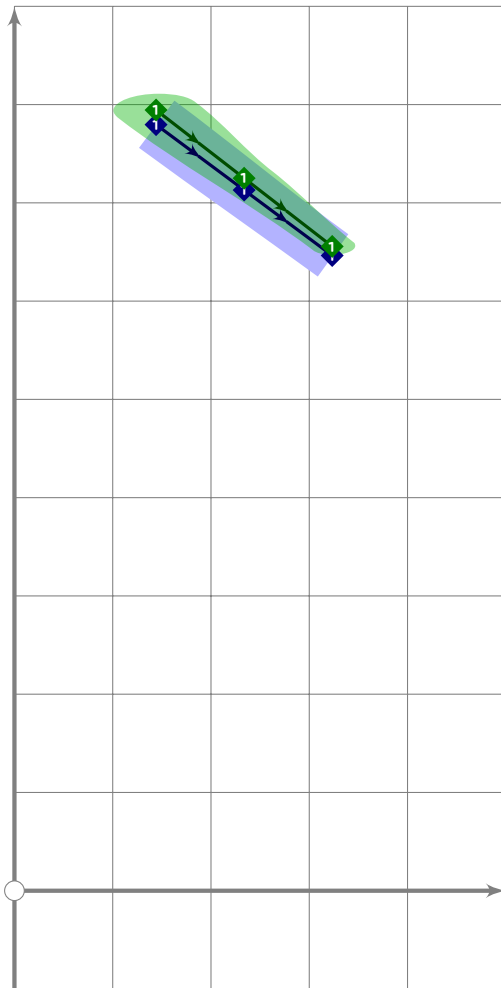
```



```

538 % underscore
539 begintsuglyph("underscore",95);
540 punct.underscore;
541 tsu_render;
542 endtsuglyph;
543

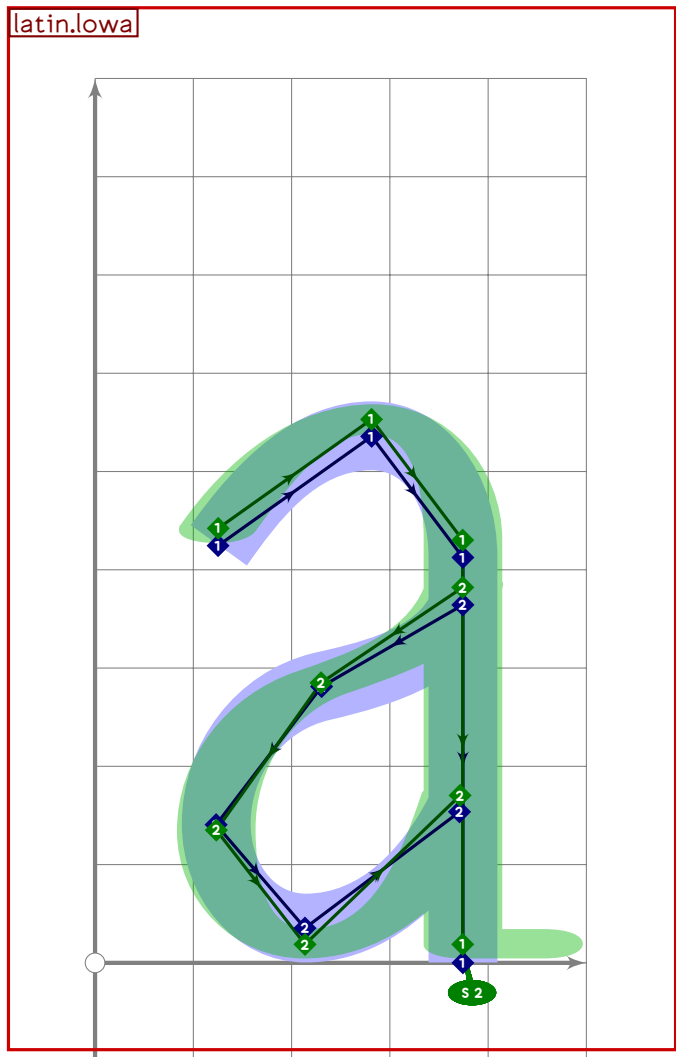
```



```

544 % grave accent
545 begint Suglyph("grave",96);
546     tsu_accent.grave;
547     tsu_render;
548 endsuglyph;
549
550 % WARNING changing rescale setting
551 tsu_rescale_half_lc;
552
553 tsu_default_anchor(anc_upper_accent,accent_default[anc_upper_accent]);
554 tsu_default_anchor(anc_lower_accent,accent_default[anc_lower_accent]);
555 tsu_default_anchor(anc_centre_accent,tsu_xf.low_centre_accent);
556 tsu_default_anchor(anc_upper_left,accent_default[anc_upper_accent]);
557 tsu_default_anchor(anc_upper_right,accent_default[anc_upper_accent]);
558 tsu_default_anchor(anc_upper_ring,accent_default[anc_upper_accent]);
559 tsu_default_anchor(anc_caron_comma,accent_default[anc_caron_comma]);
560

```

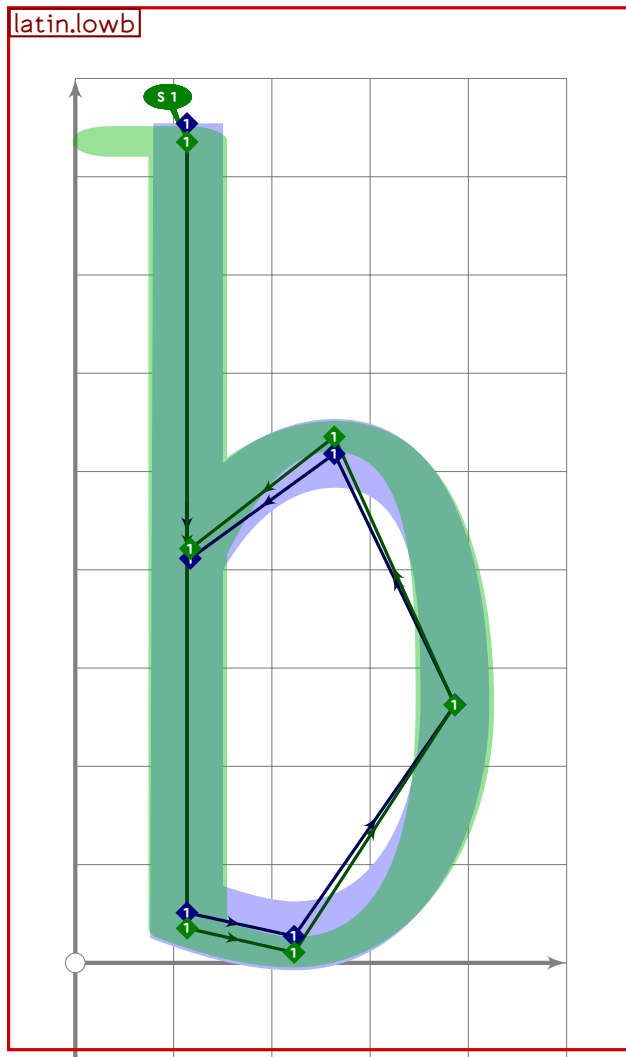


```

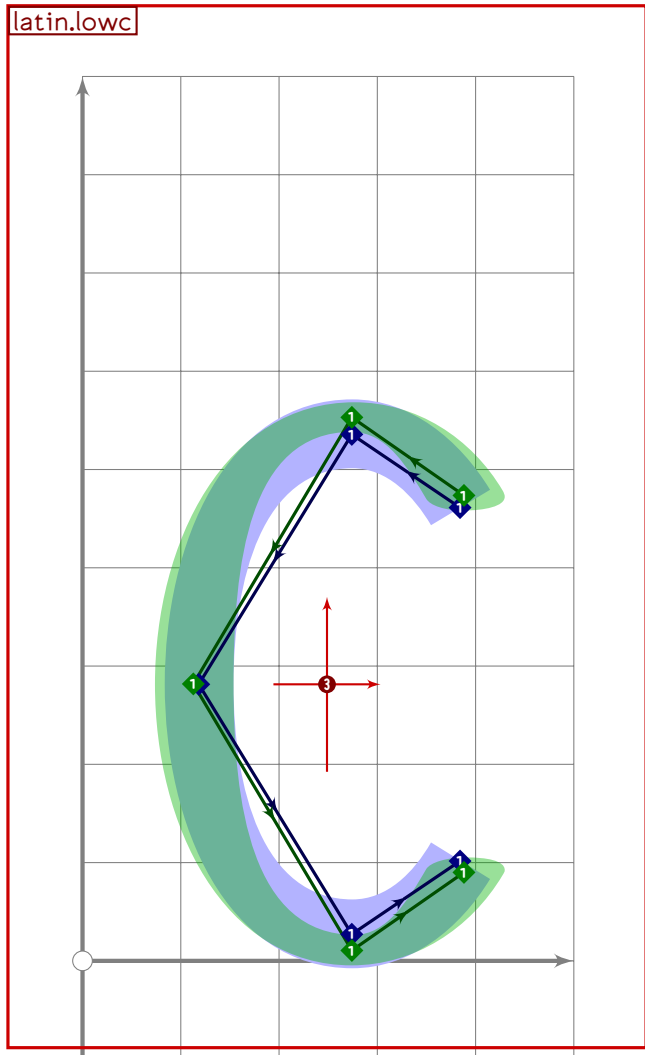
561 % a
562 begint Suglyph("a";97);
563   latin.lowa;
564   tsu_render;
565 endsuglyph;
566

```

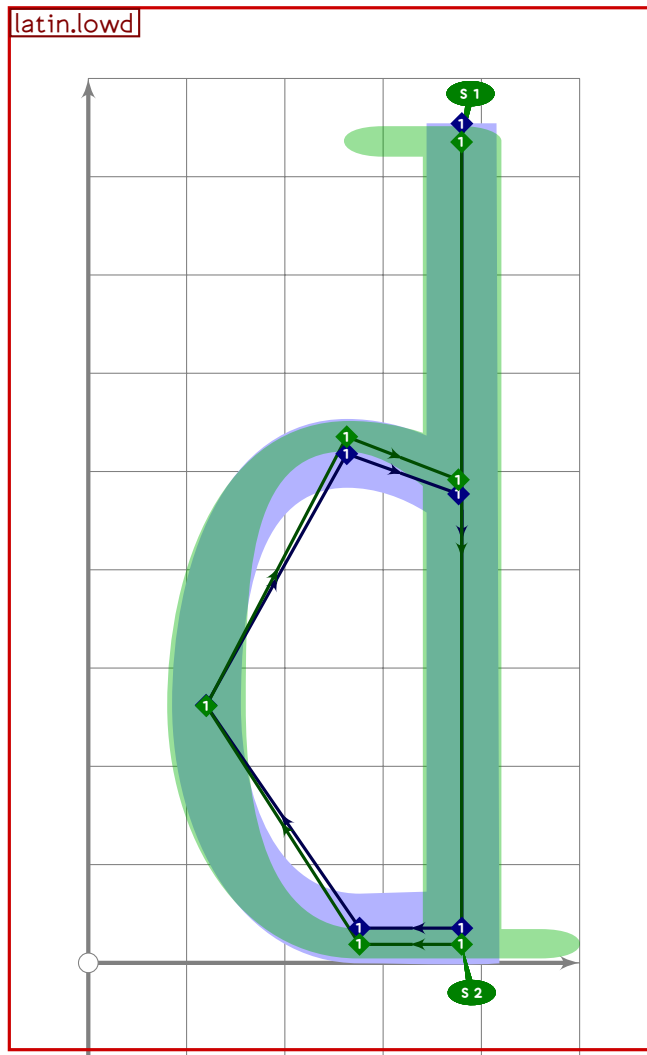




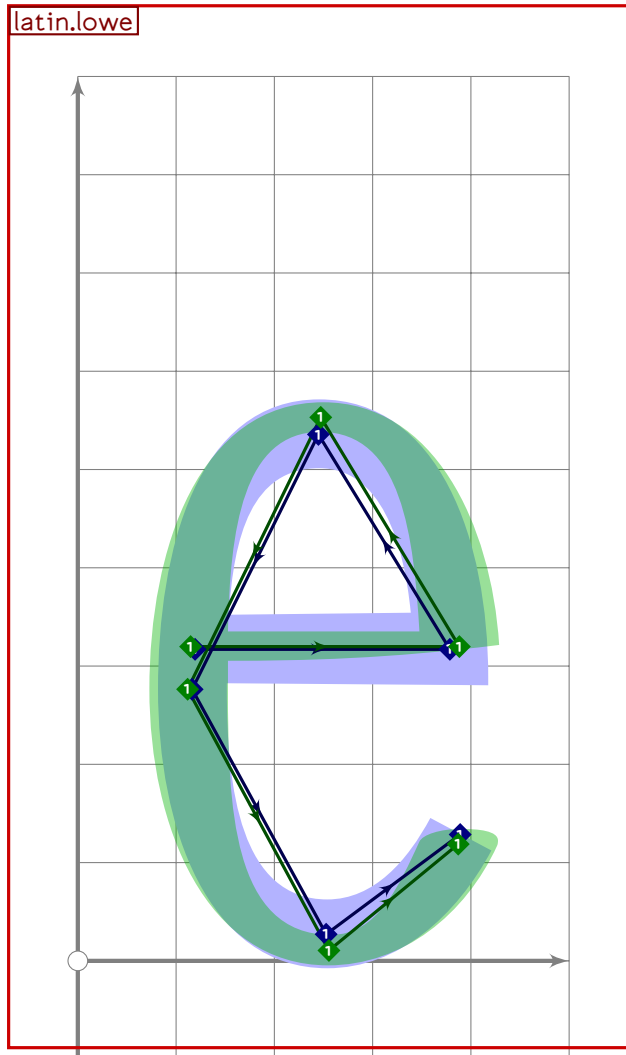
```
567 % b  
568 beginsuglyph("b";98);  
569 latin.lowb;  
570 tsu_render;  
571 endsuglyph;  
572
```



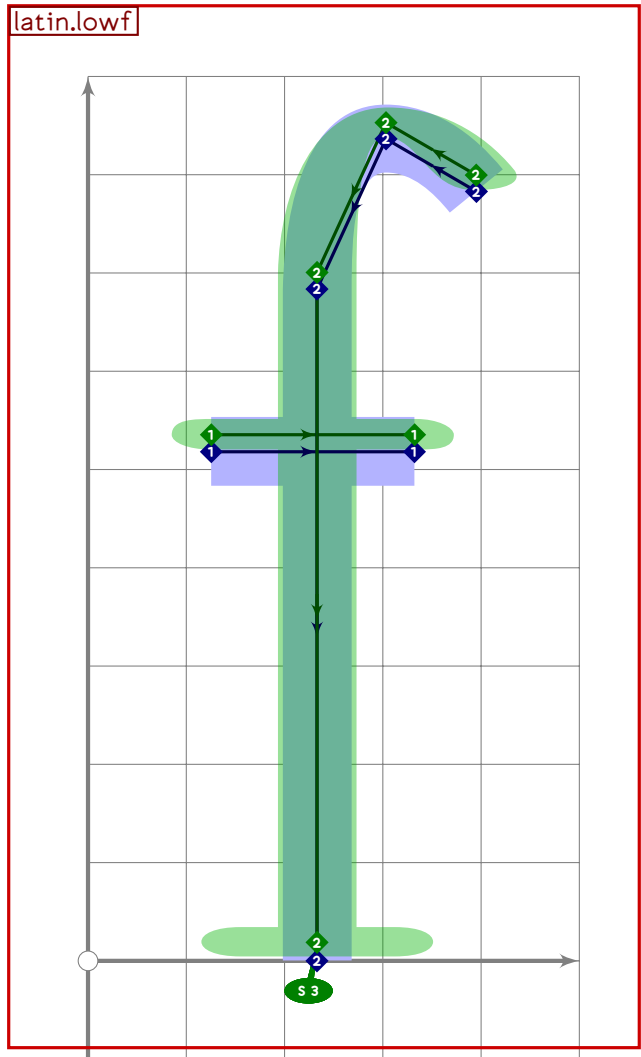
```
573 % c
574 beginsuglyph("c";99);
575 latin.lowc;
576 tsu_render;
577 endsuglyph;
578
```



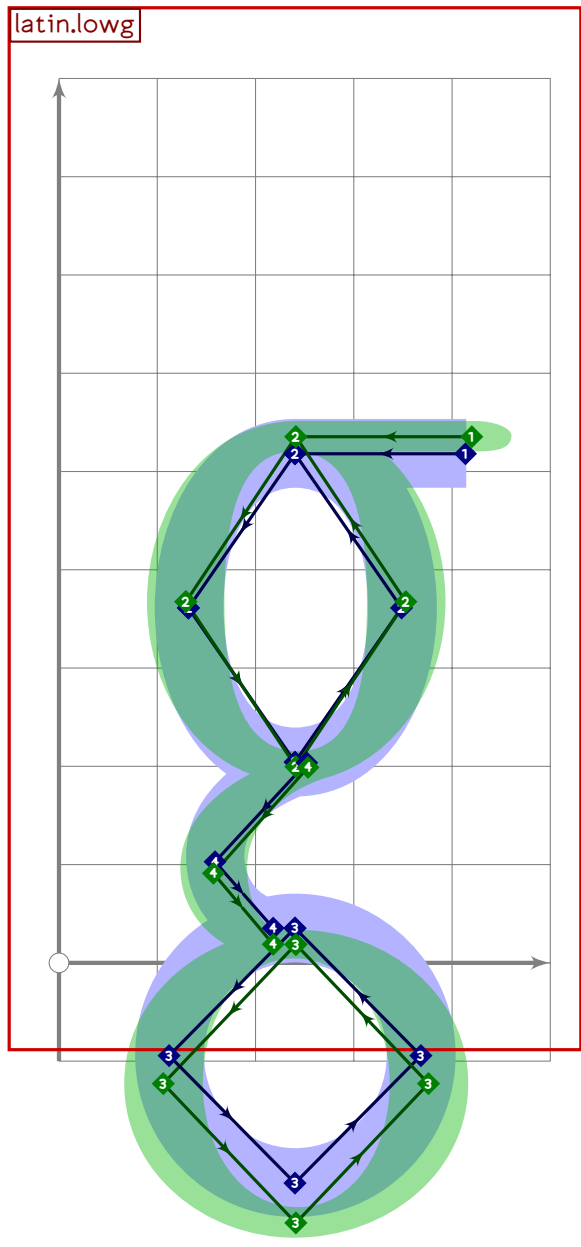
```
579 % d
580 beginsuglyph("d";100);
581 latin.lowd;
582 tsu_render;
583 endsuglyph;
584
```



```
585 % e
586 beginsuglyph("e";101);
587   latin.lowe;
588   tsu_render;
589 endsuglyph;
590
```



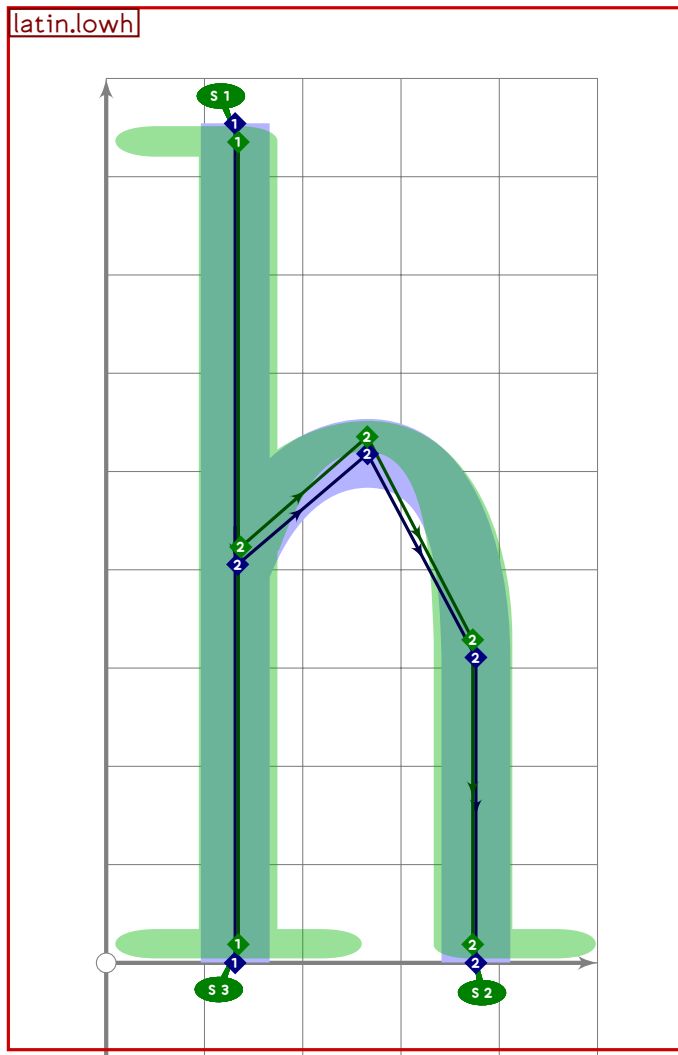
```
591 % f
592 beginsuglyph("f";102);
593 latin.lowf;
594 tsu_render;
595 endsuglyph;
596
```



```

597 % g
598 begint Suglyph("g";103);
599 latin.low;
600 tsu_render;
601 endtsuglyph;
602

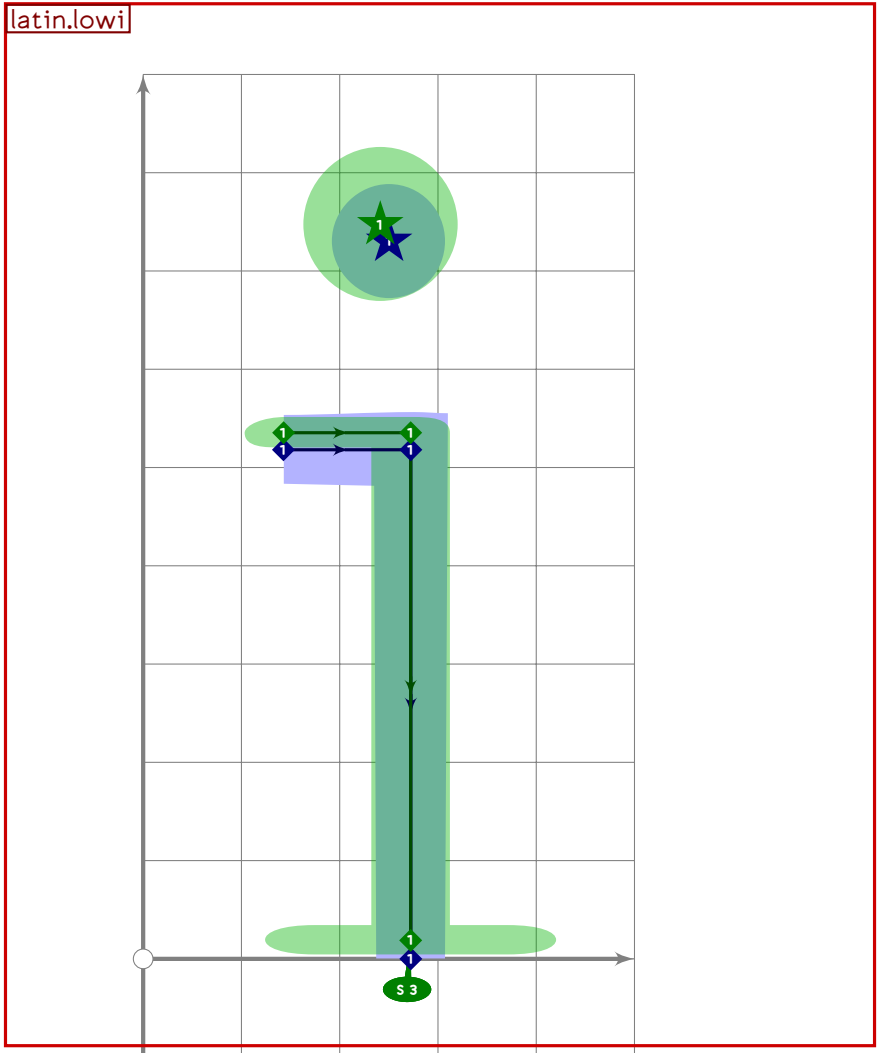
```



```

603 % h
604 begint Suglyph("h";104);
605 latin.lowh;
606 tsu_render;
607 endsuglyph;
608

```

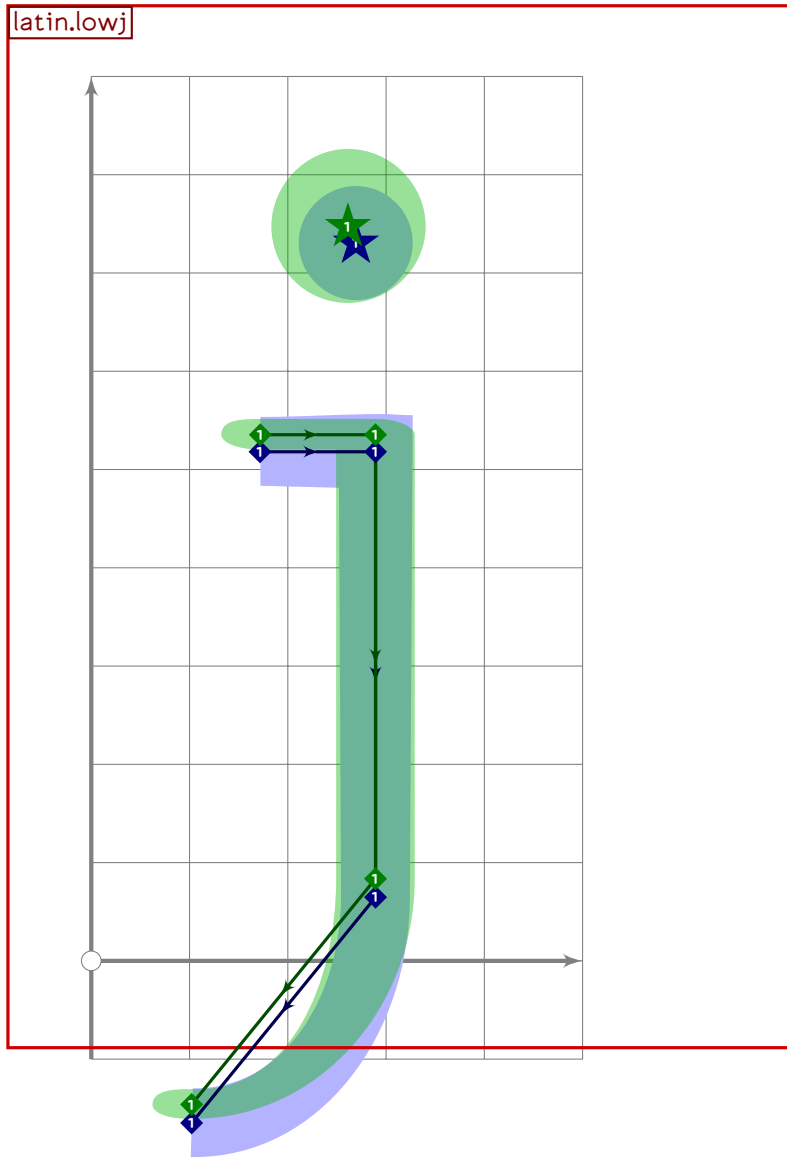


```

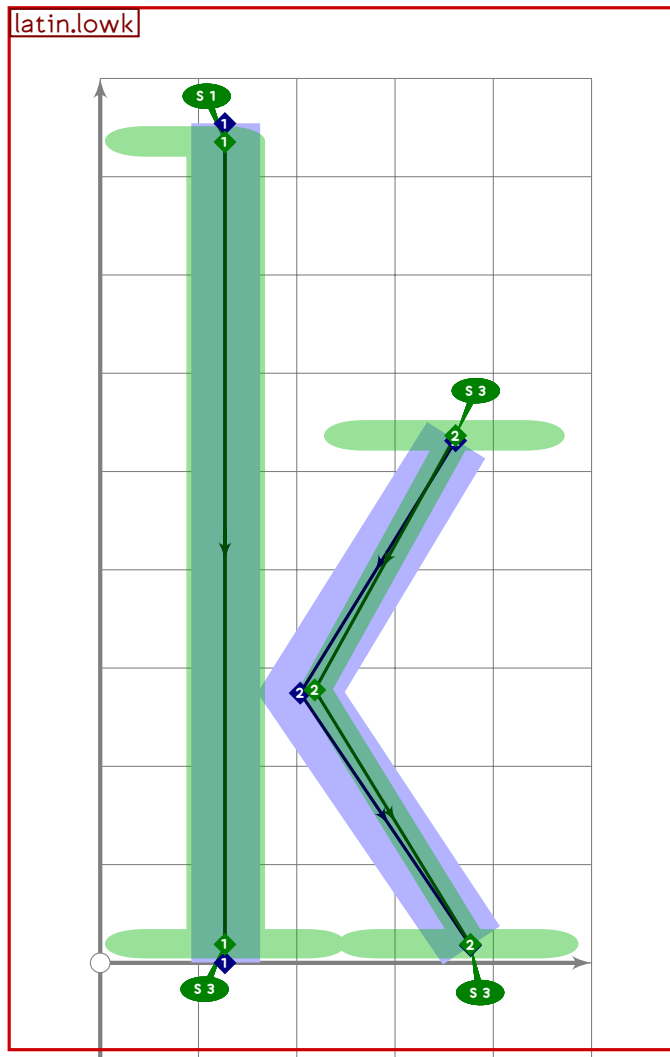
609 % i
610 begintsuglyph("i";105);
611 latin.lowi;
612 tsu_render;
613 endsuglyph;
614

```





```
615 % j  
616 begintsuglyph("j";106);  
617 latin.lowj;  
618 tsu_render;  
619 endsuglyph;  
620
```

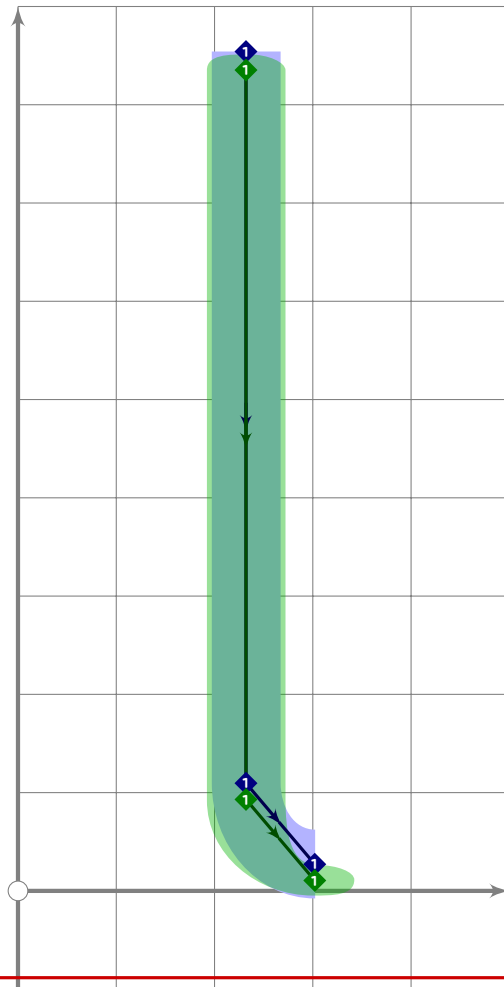


```

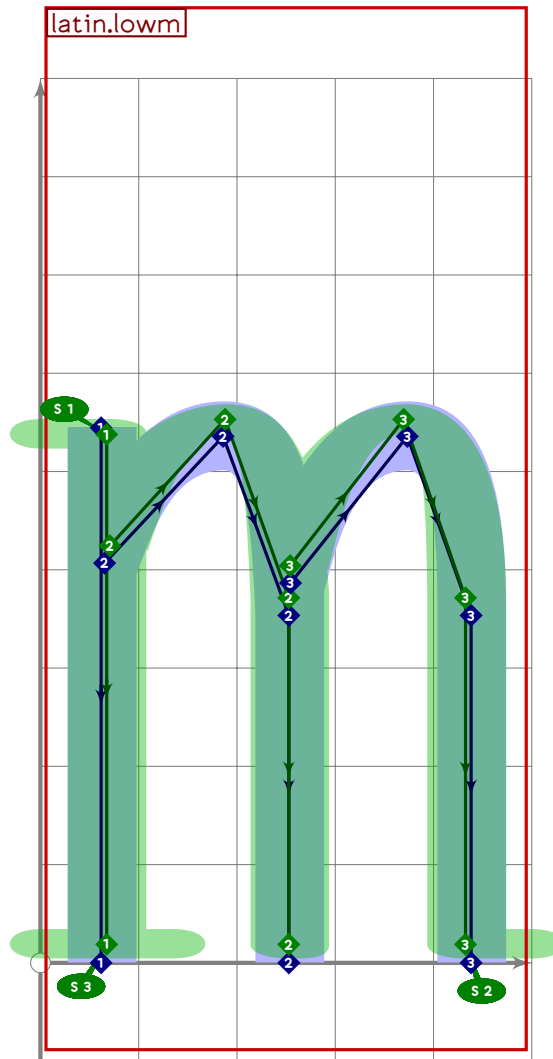
621 % k
622 begintsuglyph("k";107);
623 latin.lowk;
624 tsu_render;
625 endsuglyph;
626

```

latin.lowl



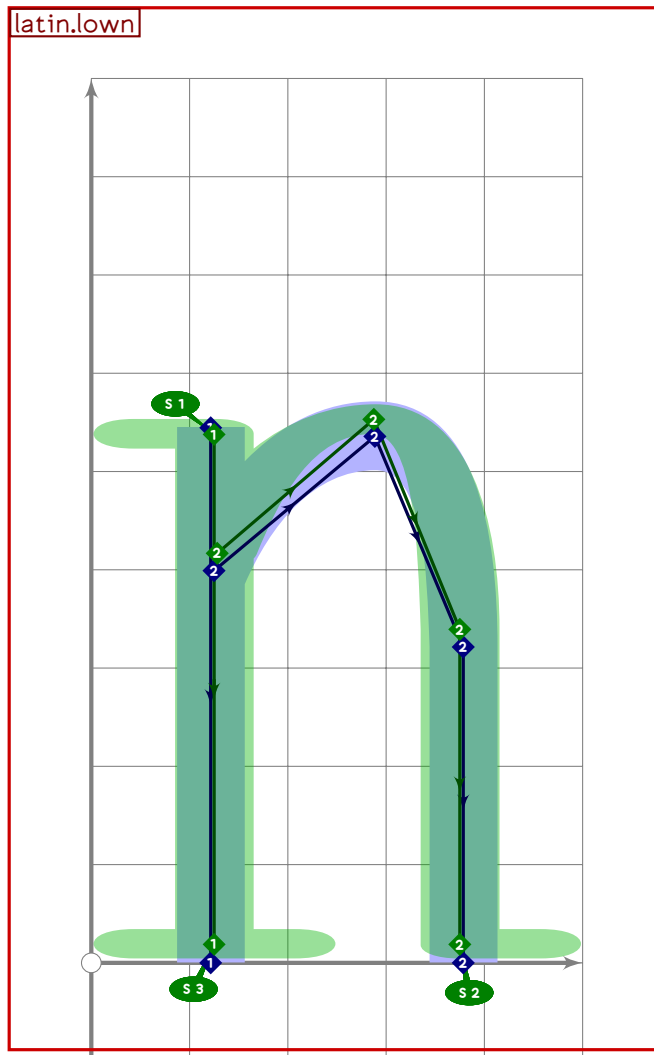
```
627 % l  
628 begintsuglyph("l";108);  
629 latin.lowl;  
630 tsu_render;  
631 endsuglyph;  
632
```



```

633 % m
634 begint Suglyph("m";109);
635 latin.lowm;
636 tsu_render;
637 endsuglyph;
638

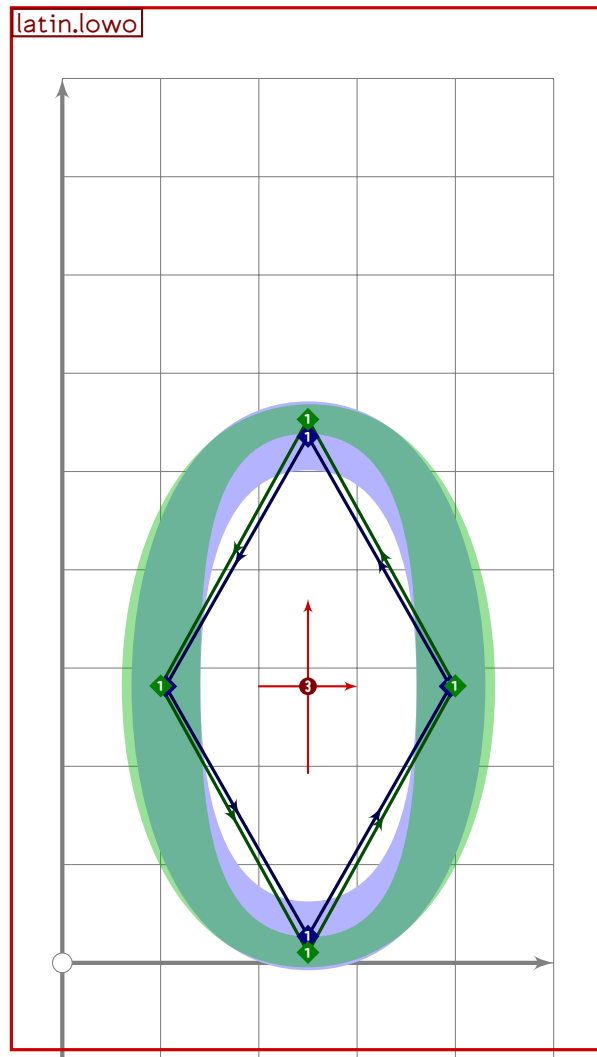
```



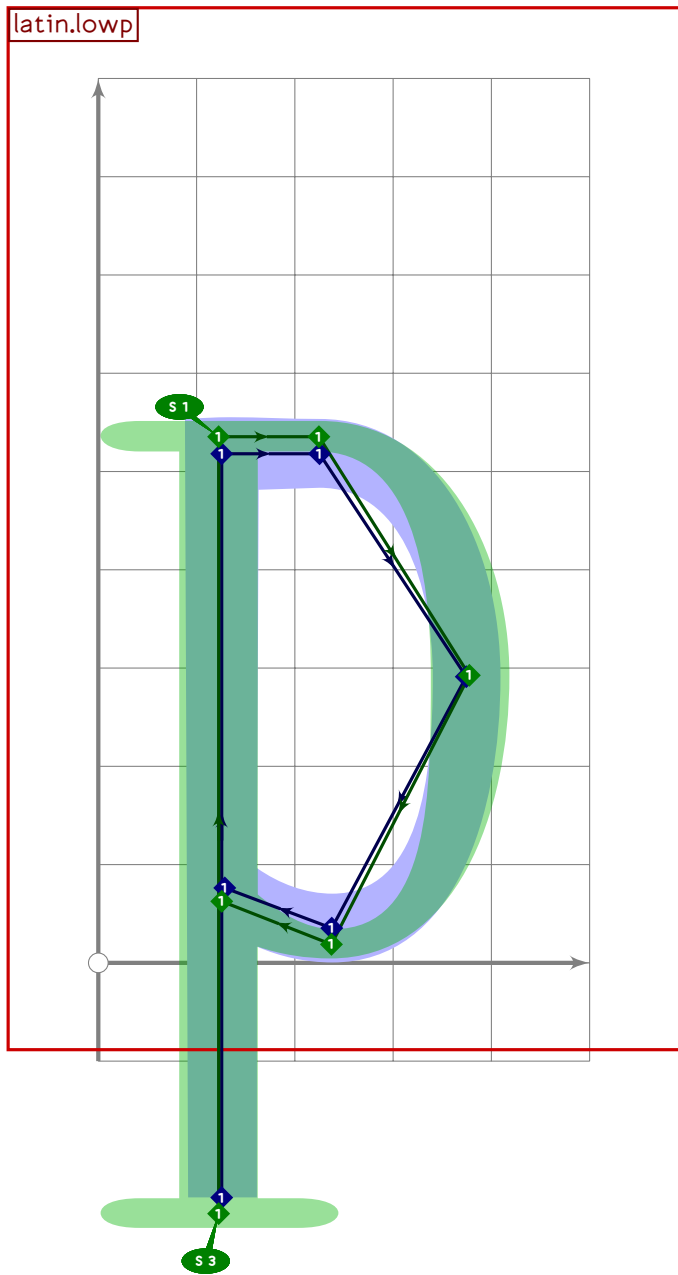
```

639 % n
640 begint Suglyph("n";110);
641   latin.lown;
642   tsu_render;
643 endsuglyph;
644

```



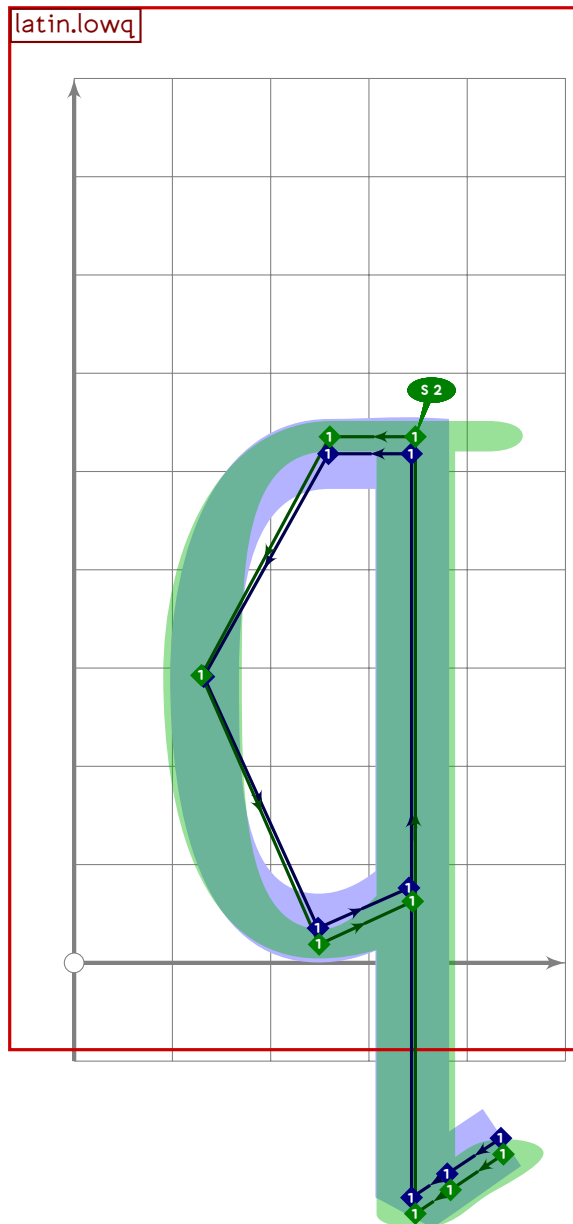
```
645 % o
646 beginsuglyph("o";111);
647 latin.lowo;
648 tsu_render;
649 endsuglyph;
650
```



```

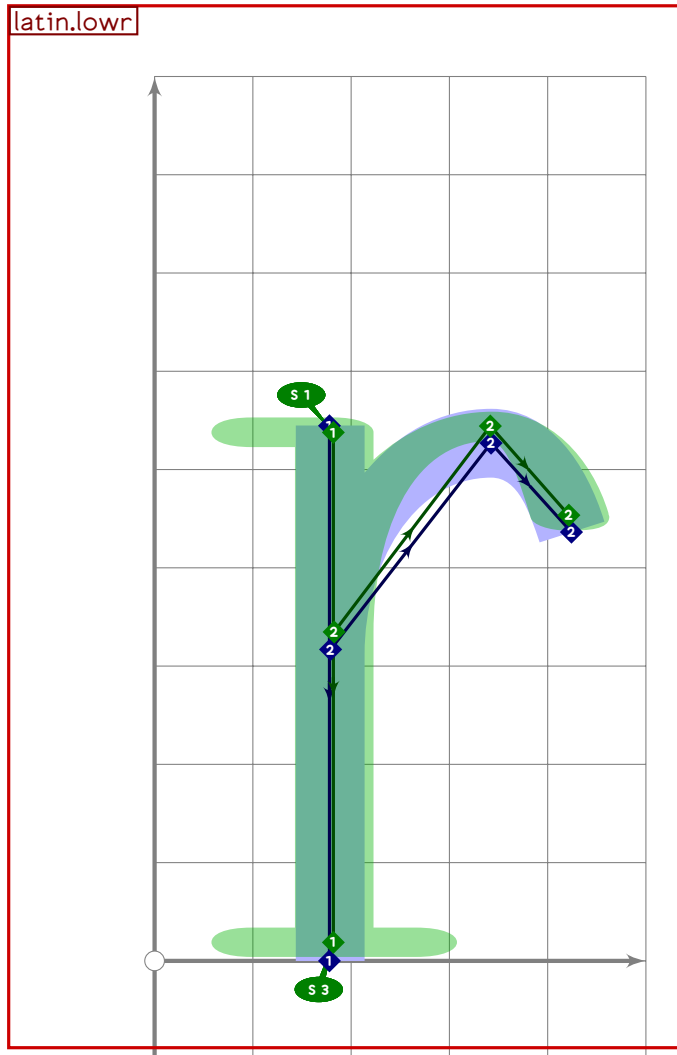
651 % p
652 begintsuglyph("p";112);
653   latin.lowp;
654   tsu_render;
655 endsuglyph;
656

```



```
657 % q  
658 beginsuglyph("q",113);  
659 latin.lowq;  
660 tsu_render;  
661 endsuglyph;  
662
```

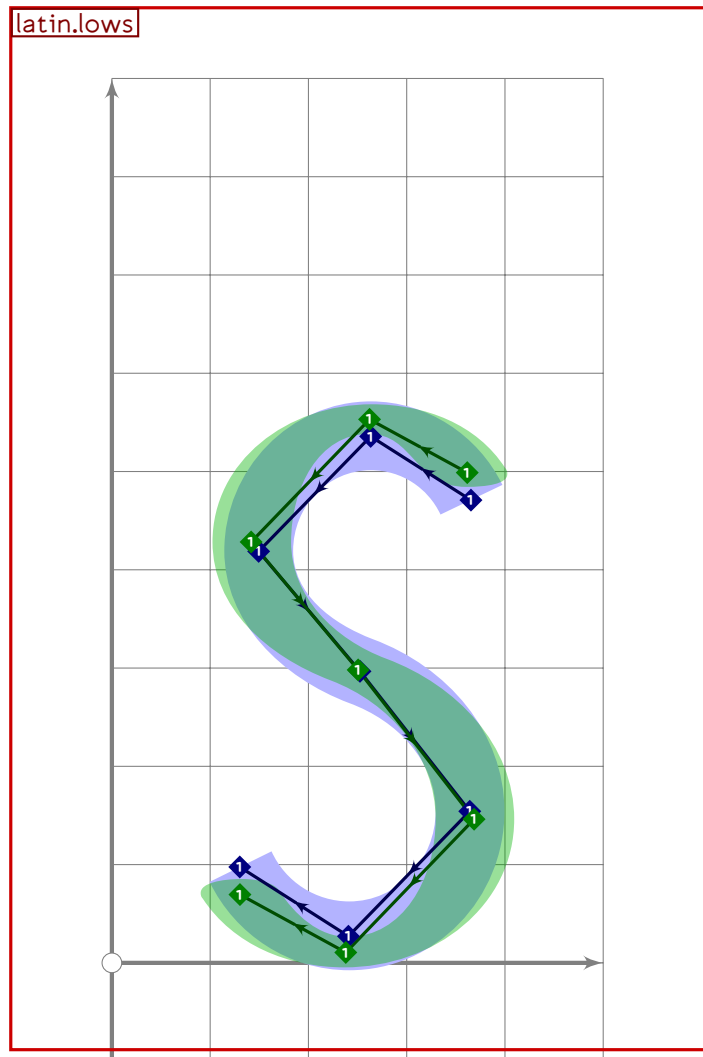




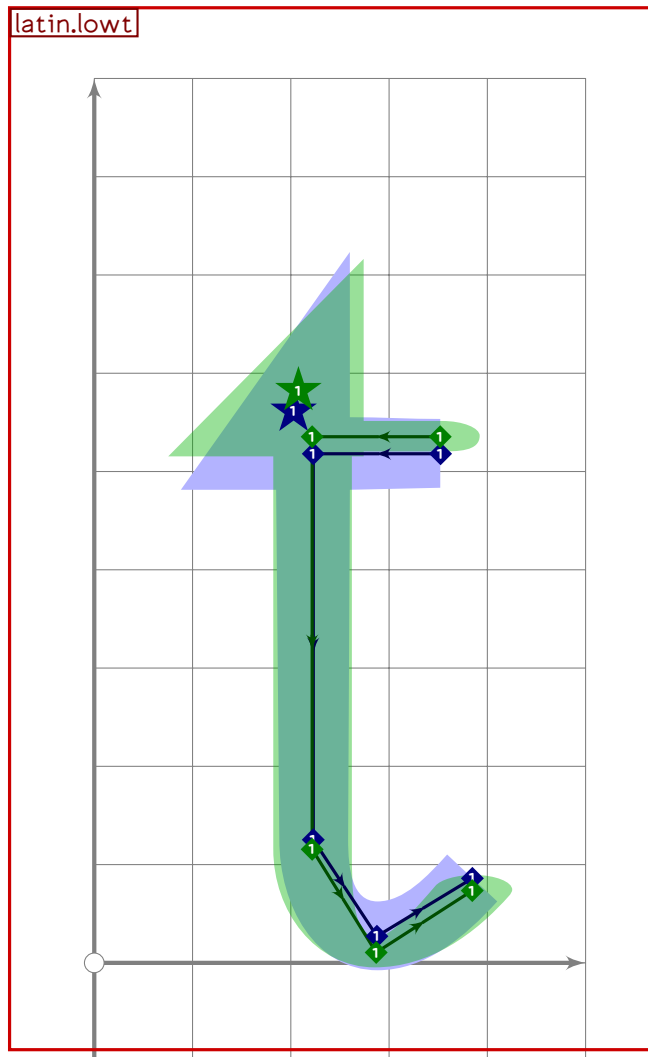
```

663 % r
664 beginsuglyph("r";114);
665 latin.lowr;
666 tsu_render;
667 endsuglyph;
668

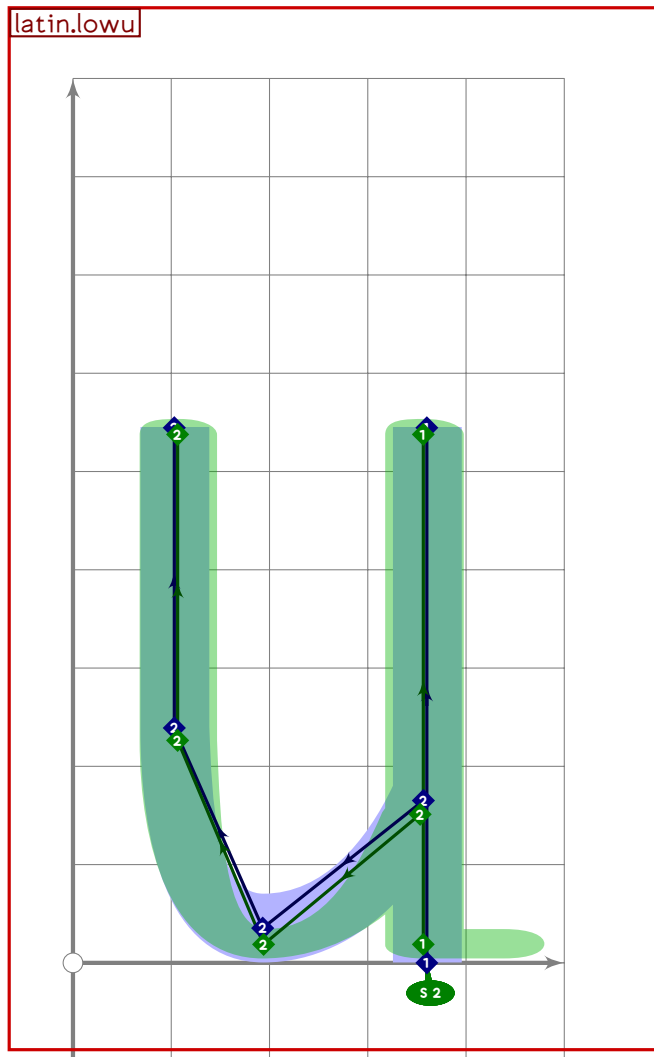
```



```
669 % s
670 beginsuglyph("s";115);
671 latin.lows;
672 tsu_render;
673 endsuglyph;
674
```



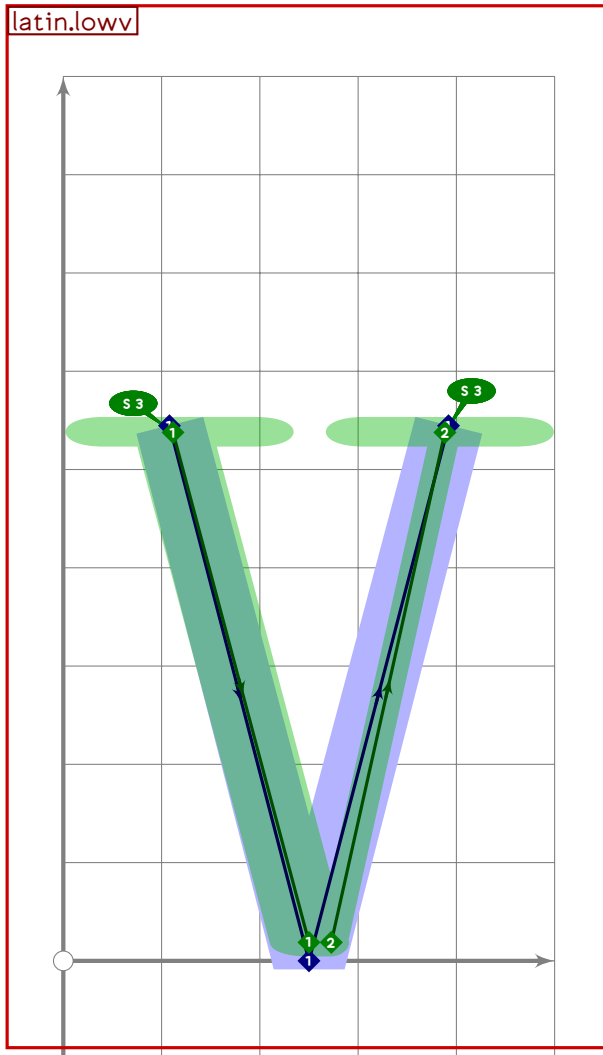
```
675 % t  
676 beginsuglyph("t";116);  
677 latin.lowt;  
678 tsu_render;  
679 endsuglyph;  
680
```



```

681 % u
682 begintsuglyph("u";117);
683 latin.lowu;
684 tsu_render;
685 endsuglyph;
686

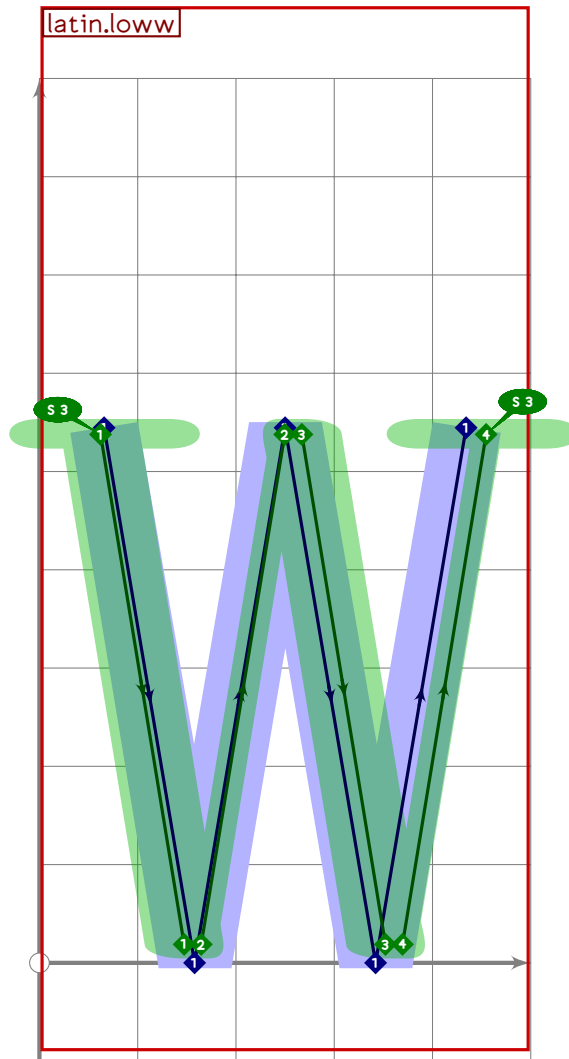
```



```

687 % v
688 begintsuglyph("v";118);
689 latin.lowv;
690 tsu_render;
691 endsuglyph;
692

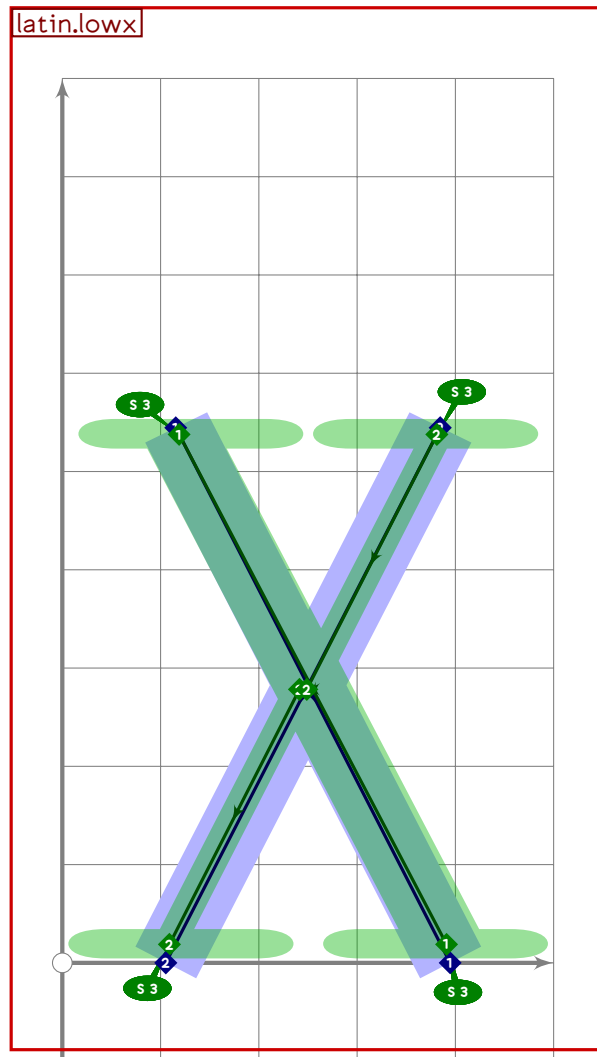
```



```

693 % w
694 begintsuglyph("w",119);
695 latin.loww;
696 tsu_render;
697 endsuglyph;
698

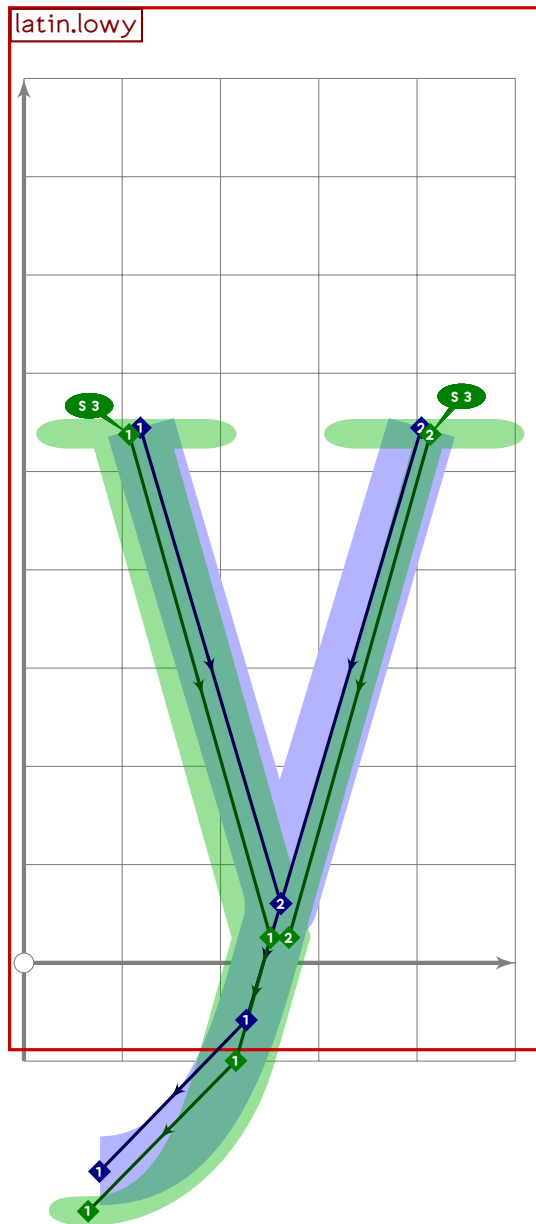
```



```

699 % x
700 begintsuglyph("x";120);
701 latin.lowx;
702 tsu_render;
703 endsuglyph;
704

```

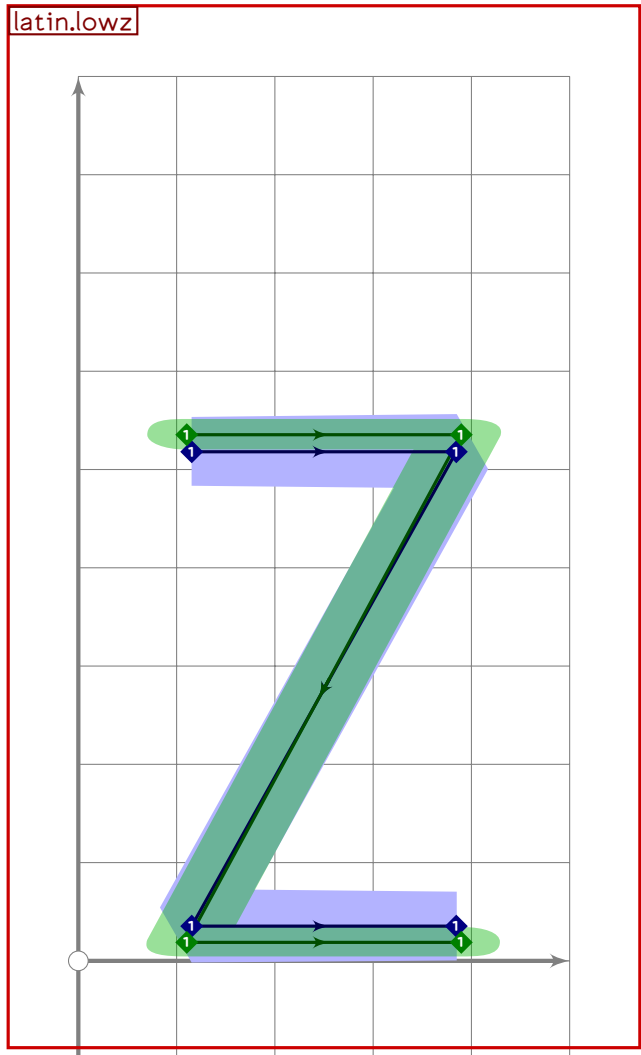


```

705 % y
706 beginsuglyph("y";121);
707   latin.lowy;
708   tsu_render;
709 endsuglyph;
710

```

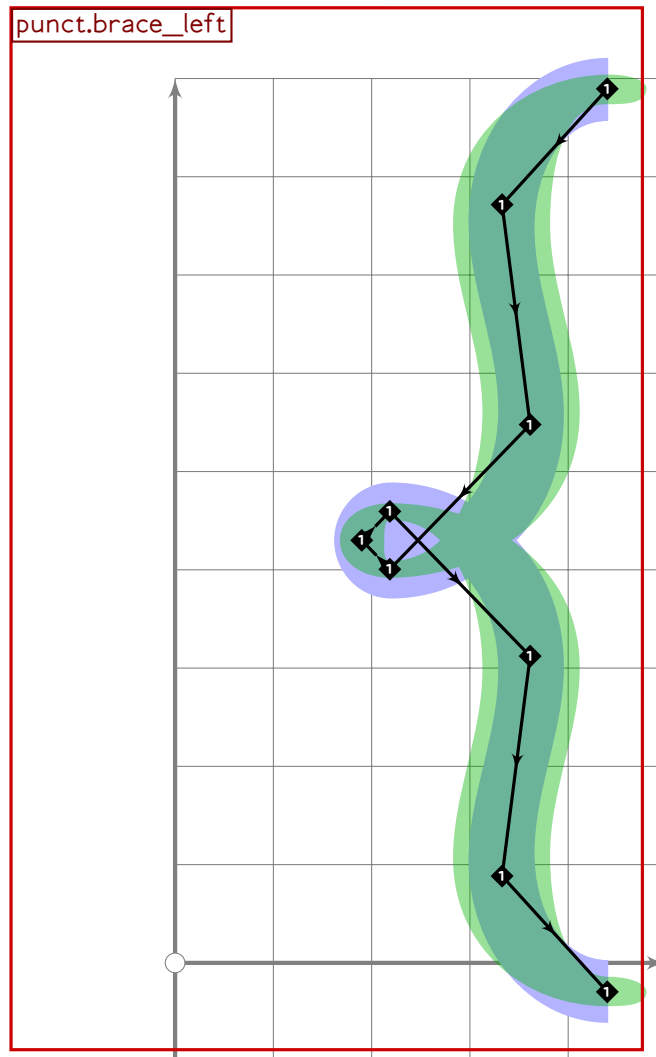




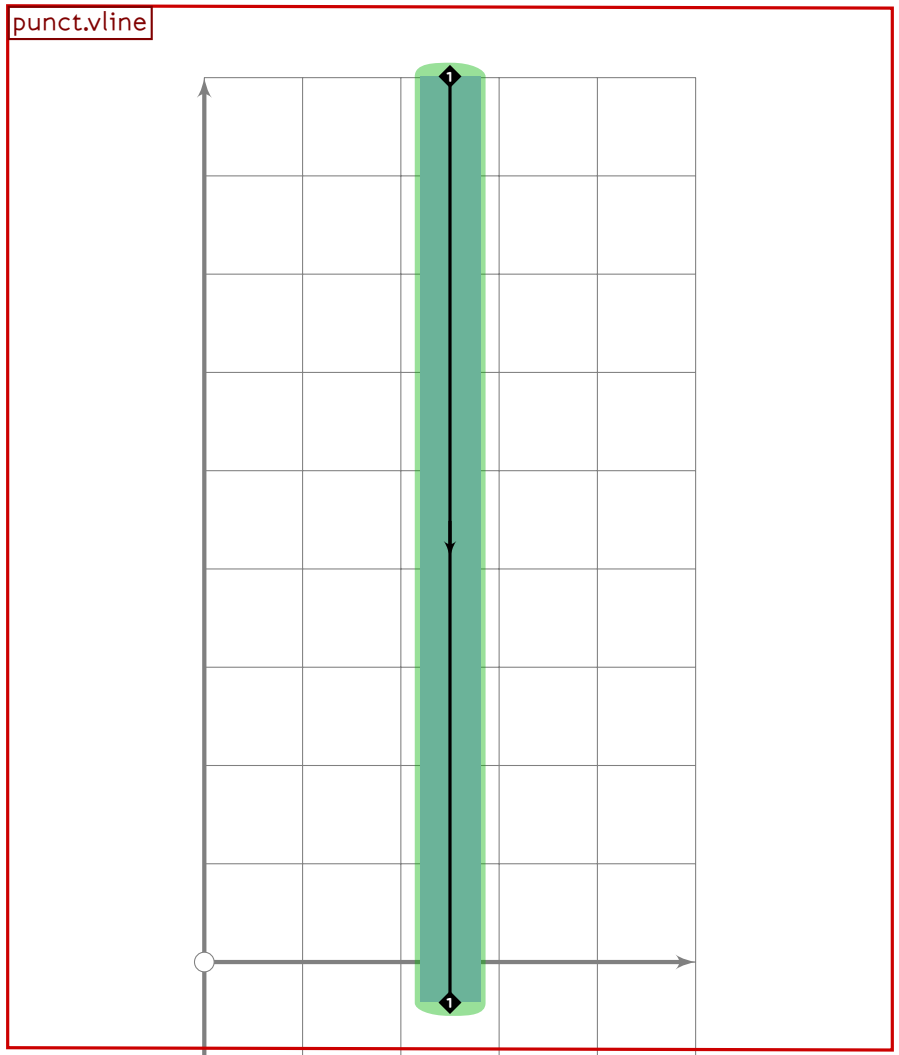
```

711 % z
712 begintsuglyph("z";122);
713   latin.lowz;
714   tsu_render;
715 endsuglyph;
716
717 tsu_default_anchor(anc_upper_accent,0);
718 tsu_default_anchor(anc_lower_accent,0);
719 tsu_default_anchor(anc_centre_accent,0);
720 tsu_default_anchor(anc_upper_left,0);
721 tsu_default_anchor(anc_upper_right,0);
722 tsu_default_anchor(anc_upper_ring,0);
723 tsu_default_anchor(anc_caron_comma,0);
724
725 % WARNING changing rescale setting
726 tsu_rescale_half;
727

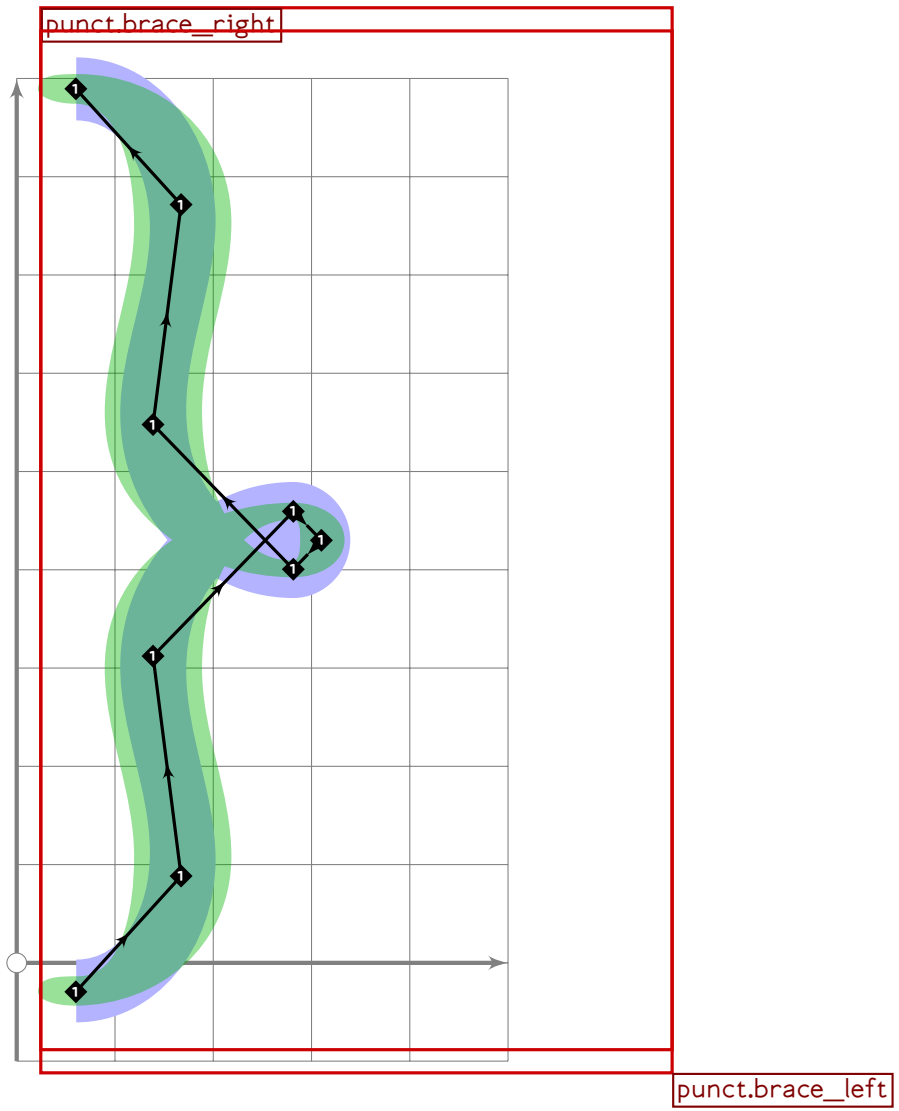
```



```
728 % left and right square brackets
729 beginsuglyph("braceleft",123);
730 punct.brace_left;
731 tsu_render;
732 endsuglyph;
```



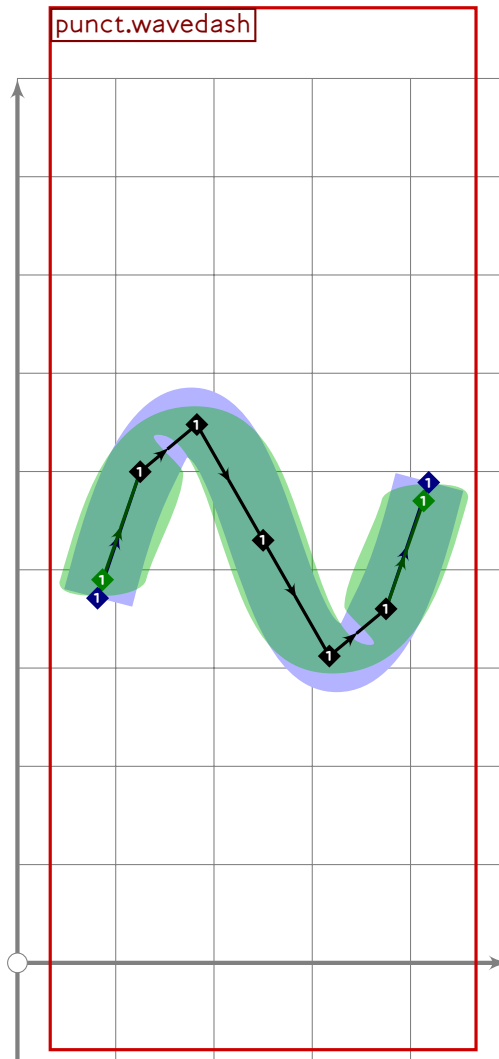
```
733 beginsuglyph("bar";124);  
734 punct.vline;  
735 tsu_render;  
736 endsuglyph;
```



```

737 begint Suglyph("braceright",125);
738   punct.brace_right;
739   tsu_render;
740 endtsuglyph;
741

```



```

742 % "tilde" - rescaled "wave dash"
743 begint Suglyph("asciitilde";126);
744 punct.wavedash;
745 tsu_render;
746 endsuglyph;

```

747

748

749

```

750 % 007F through 009F are nonprinting control characters.
751 % 00A0 is a space, supplied by the make-font script later

```

752

753

754

## Latin-1 Extra Characters

```

755 % LATIN-1 EXTRA CHARACTERS

```

756

```

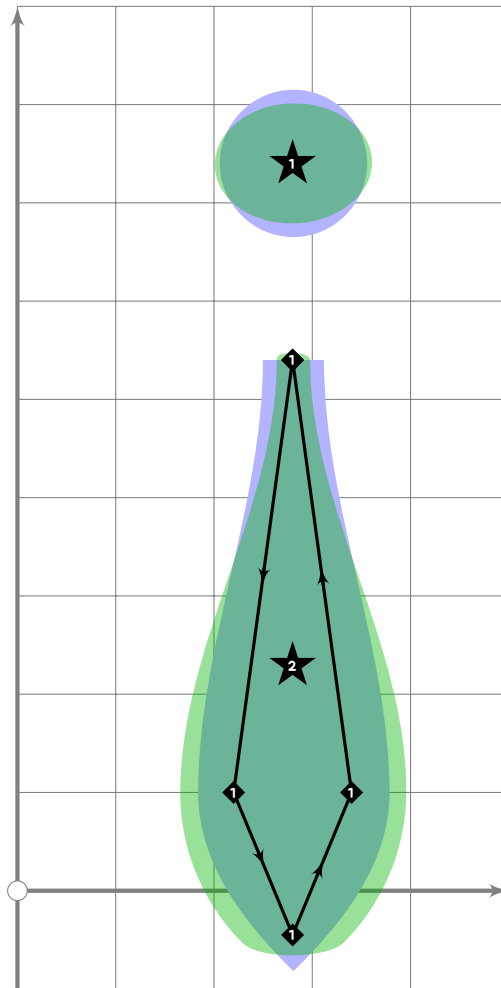
757 transform tsu_xf.latin_one_super,tsu_xf.latin_one_circled,
758 tsu_xf.latin_one_cbound;

```

```

759
760 if is_proportional:
761     xypart tsu_xf.latin_one_super=yxpart tsu_xf.latin_one_super=0;
762     xxpart tsu_xf.latin_one_super=yypart tsu_xf.latin_one_super=0.65;
763     (500,latin_wide_xheight_r) transformed tsu_xf.latin_one_super=
764     (500,2*latin_vcentre);
765
766     xypart tsu_xf.latin_one_circled=yxpart tsu_xf.latin_one_circled=0;
767     xxpart tsu_xf.latin_one_circled=yypart tsu_xf.latin_one_circled=0.5;
768     centre_pt transformed tsu_xf.latin_one_circled=centre_pt;
769
770     tsu_xf.latin_one_cbound=identity scaled 225 shifted centre_pt;
771
772 else:
773     xypart tsu_xf.latin_one_super=yxpart tsu_xf.latin_one_super=0;
774     xxpart tsu_xf.latin_one_super=yypart tsu_xf.latin_one_super=0.55;
775     (500,latin_wide_xheight_r) transformed tsu_xf.latin_one_super=
776     (250,2*latin_vcentre);
777
778     xypart tsu_xf.latin_one_circled=yxpart tsu_xf.latin_one_circled=0;
779     xxpart tsu_xf.latin_one_circled=yypart tsu_xf.latin_one_circled=0.333;
780     centre_pt transformed tsu_xf.latin_one_circled=(250,latin_vcentre);
781
782     tsu_xf.latin_one_cbound=identity scaled 150 shifted (250,latin_vcentre);
783 fi;
784
785 % inverted exclamation point
786 tsu_rescale_native_narrow;

```



```

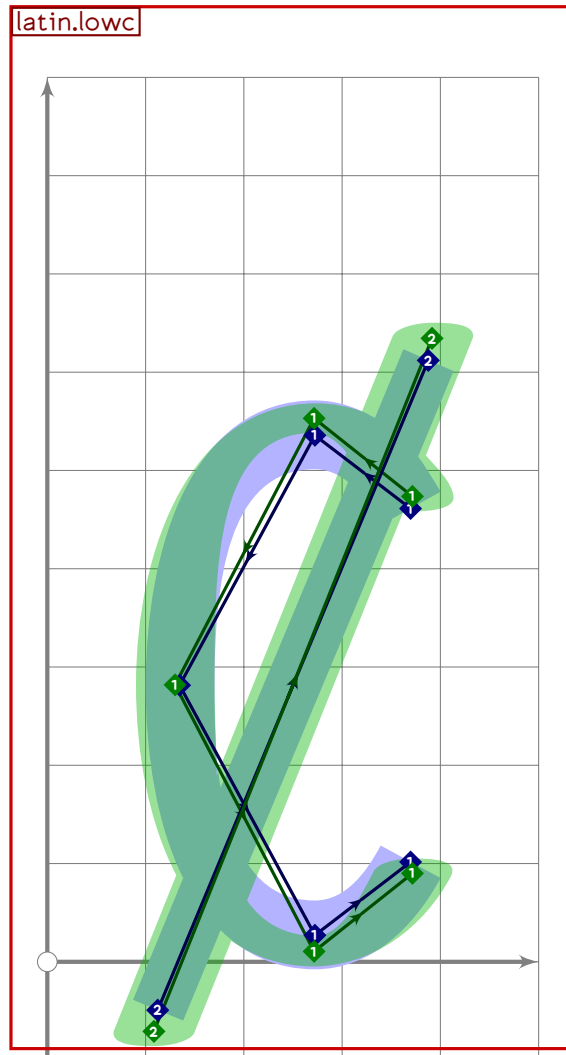
787 begint Suglyph("exclamdown",161);
788   if tsu_pbrush_size>=(tsu_punct_size*0.5):
789     push_lcblob(fullcircle
790       xscaled (tsu_punct_size+tsu_pbrush_size)
791       yscaled (tsu_punct_size+tsu_pbrush_size*tsu_pbrush_shape)
792       rotated tsu_pbrush_angle
793       shifted (220,40)
794       rotatedaround ((250,390),180));
795   else:
796     push_stroke(fullcircle
797       scaled tsu_punct_size
798       shifted (220,40)
799       rotatedaround ((250,390),180),
800       (2,2)-(2,2)-(2,2)-(2,2));
801     if tsu_pbrush_size>=30:
802       push_lcblob(get_strokep(0));
803     fi;
804   fi;
805
806   push_stroke(((220,240){up}..(280,680){up}..{curl 1}(220,825){curl 1}..
807     (160,680){down}..{down}(220,240))

```

```

808     rotatedaround ((250,390),180),
809     (1,1)-(2,2)-(2,2)-(2,2)-(1,1));
810
811     if tsu_pbrush_size>=30:
812         push_lcblob((subpath (0,1,3,9) of get_strokep(0))-cycle);
813     fi;
814
815     tsu_render;
816 endtsuglyph;
817 tsu_rescale_half;

```

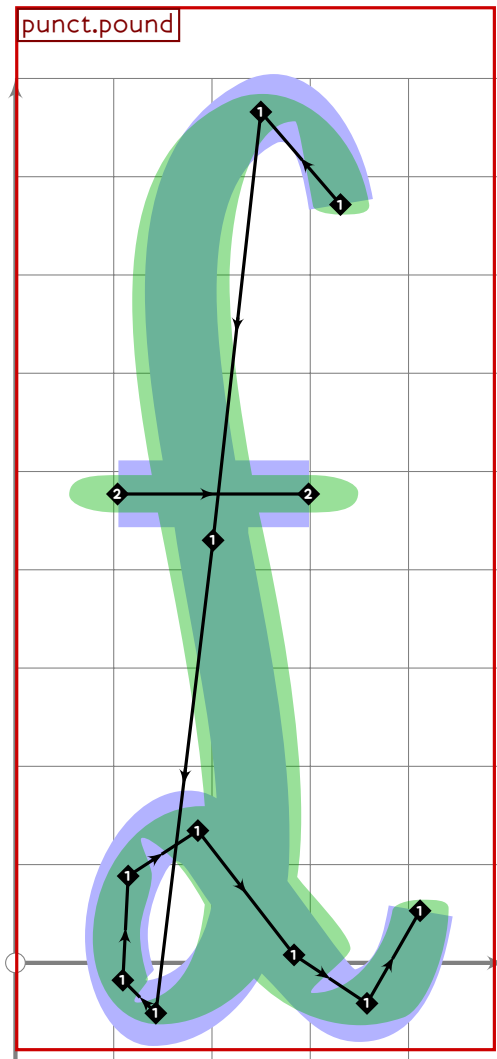


```

818
819     begint Suglyph("cent",162);
820     tsu_accent.apply(latin.lowc)(tsu_accent.slash);
821     tsu_render;
822 endtsuglyph;

```



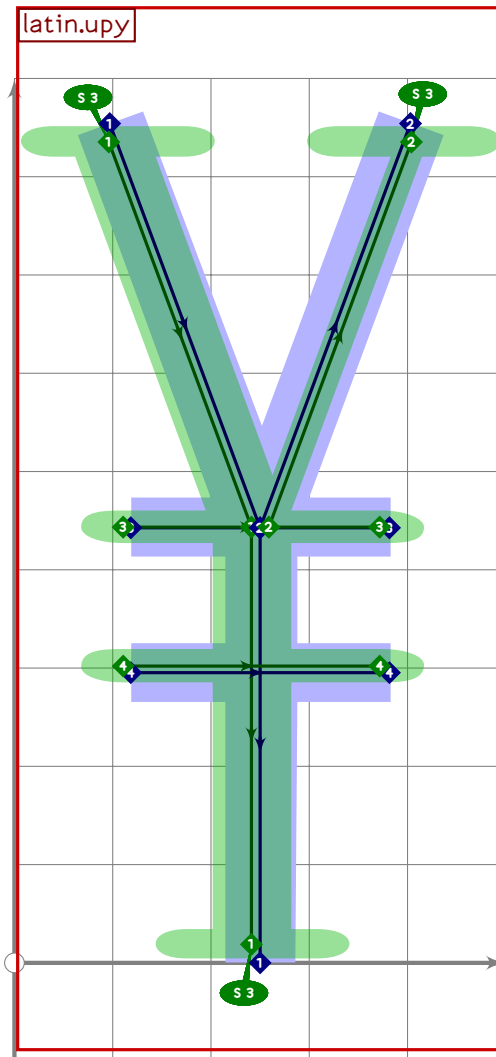


```

823
824 begintsuglyph("sterling";163);
825 punct.pound;
826 tsu_render;
827 endsuglyph;
828
829 begintsuglyph("currency";164);
830 punct.currency;
831 tsu_render;
832 endsuglyph;
833

```

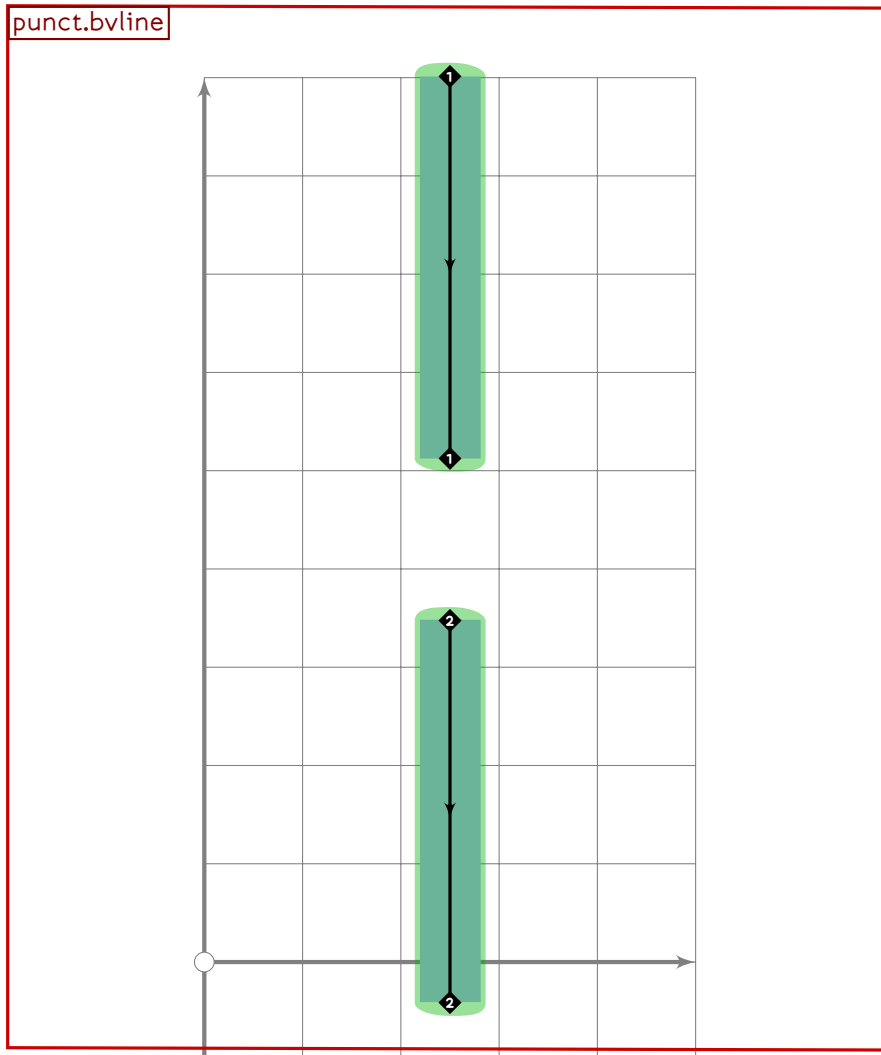
[see page 284]



```

834 % yen sign
835 beginsuglyph("yen";165);
836 latin.upy;
837 push_stroke(((240,0)-(240,0)) shifted point 1 of get_stroke(-1),
838   (2,2)-(2,2));
839 set_bosize(0,80);
840 push_stroke(((240,0)-(240,0)) shifted point 1.333 of get_stroke(-2),
841   (2,2)-(2,2));
842 set_bosize(0,80);
843 tsu_render;
844 endsuglyph;

```



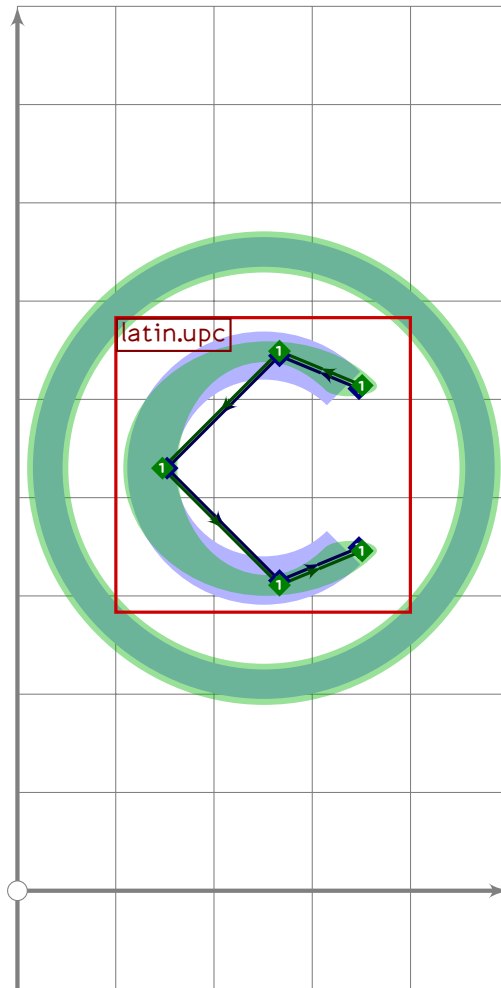
```

845
846 begintsuglyph("brokenbar",166);
847 punct.bvline;
848 tsu_render;
849 endtsuglyph;
850
851 begintsuglyph("section",167);
852 punct.section;
853 tsu_render;
854 endtsuglyph;
855
856 % naked umlaut
857 begintsuglyph("dieresis",168);
858 tsu_accent.umlaut;
859 tsu_render;
860 endtsuglyph;
861
862 % WARNING, setting rescale
863 tsu_rescale_native_conditional;

```

[see page 306]

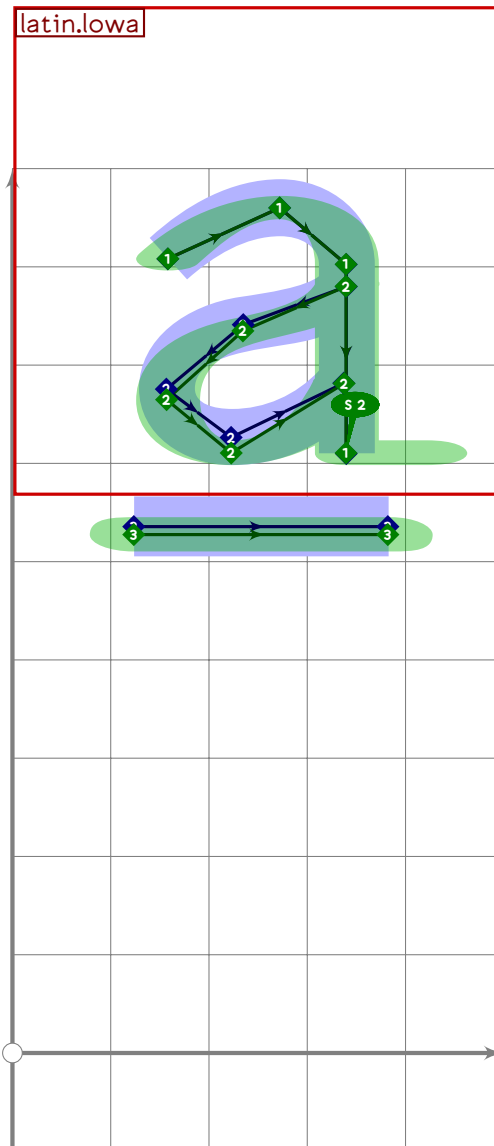
[see page 54]



```

864
865 begintsuglyph("copyright",169);
866 Fill fullcircle scaled (1320+120*tsu_brush_max) shifted centre_pt
867   transformed tsu_xf.latin_one_circled;
868 unFill reverse fullcircle scaled (1320-120*tsu_brush_max)
869   shifted centre_pt transformed tsu_xf.latin_one_circled;
870 tsu_xform(tsu_xf.latin_one_circled)(latin.upc);
871 tsu_render_in_circle(tsu_xf.latin_one_cbound);
872 endsuglyph;

```



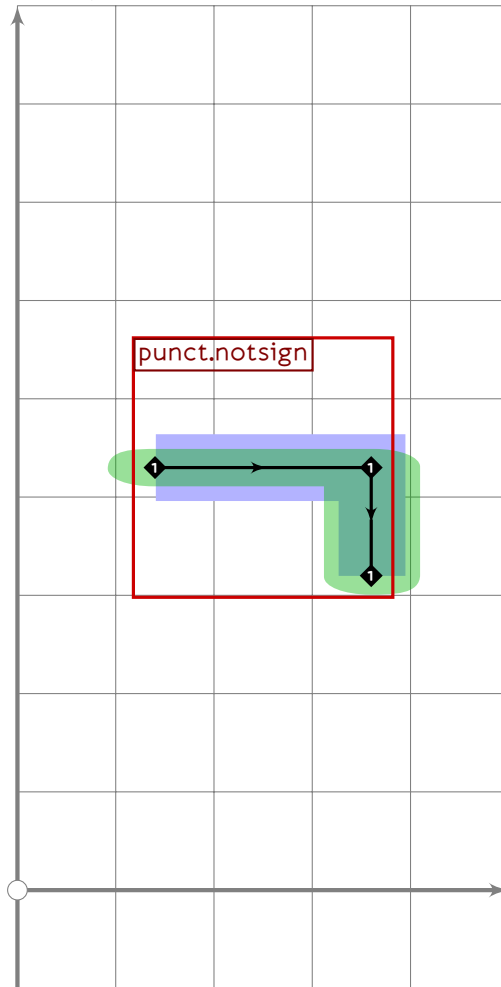
```

873
874 begintsuglyph("ordfeminine";170);
875 tsu_xform(tsu_xf.latin_one_super)(
876 latin.low;
877 push_stroke((270,-110)-(740,-110),(2,2)-(2,2));
878 set_bosize(0,get_bosize(-1));
879 tsu_render;
880 endsuglyph;
881
882 % WARNING, changing rescale setting
883 tsu_rescale_half;
884
885 begintsuglyph("guillemotleft";171);
886 punct.guillemet_left;
887 tsu_render;
888 endsuglyph;
889

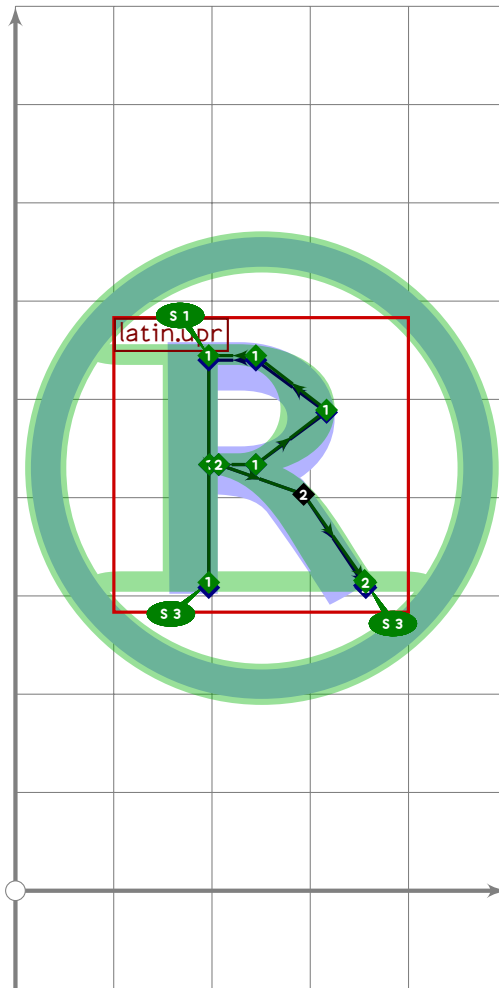
```

[see page 292]

```
890 % WARNING, setting rescale
891 tsu_rescale_native_conditional;
```



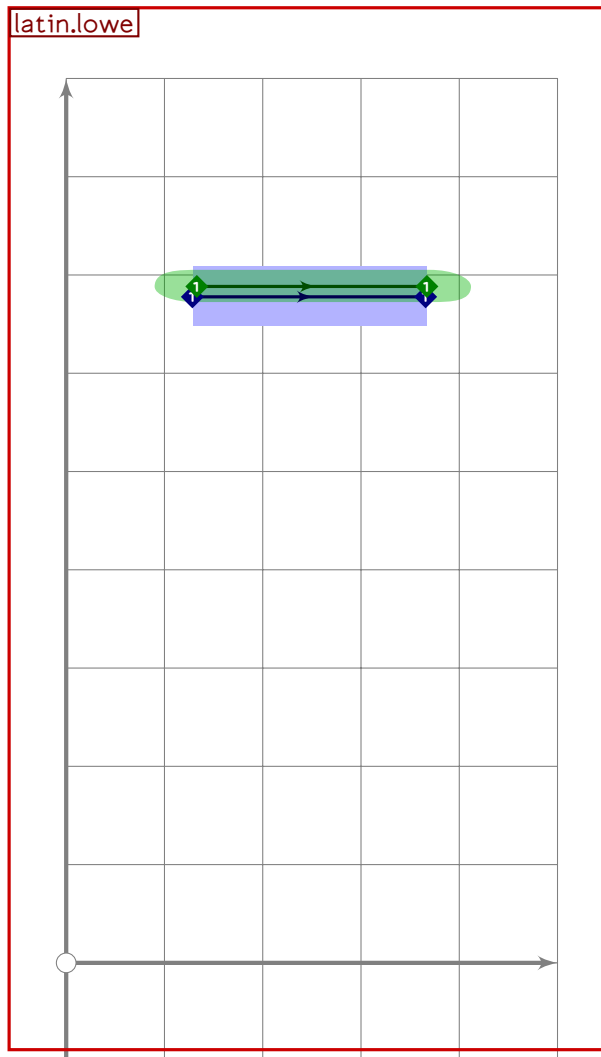
```
892
893 begint Suglyph("logicalnot",172);
894 punct.notsign(ascii_punct_xf);
895 tsu_render;
896 endtsuglyph;
897
898 % soft hyphen is a zero-width space and added by make-font script
```



```

899
900 begintsuglyph("registered";174);
901 Fill fullcircle scaled (1320+120*tsu_brush_max) shifted centre_pt
902   transformed tsu_xf.latin_one_circled;
903 unFill reverse fullcircle scaled (1320-120*tsu_brush_max)
904   shifted centre_pt transformed tsu_xf.latin_one_circled;
905 tsu_xform(tsu_xf.latin_one_circled)(latin.upr);
906 tsu_render_in_circle(tsu_xf.latin_one_cbound);
907 endsuglyph;
908
909 % WARNING, setting rescale
910 tsu_rescale_half;
911

```

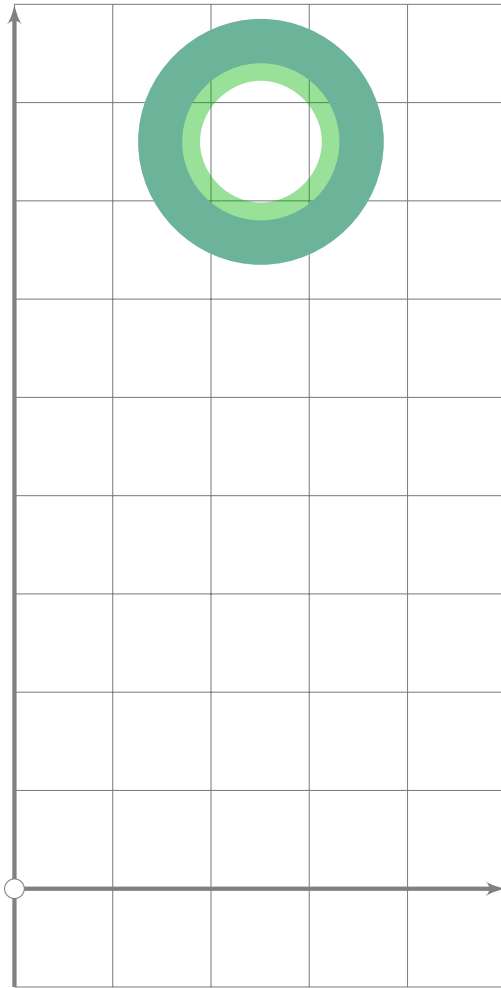


```

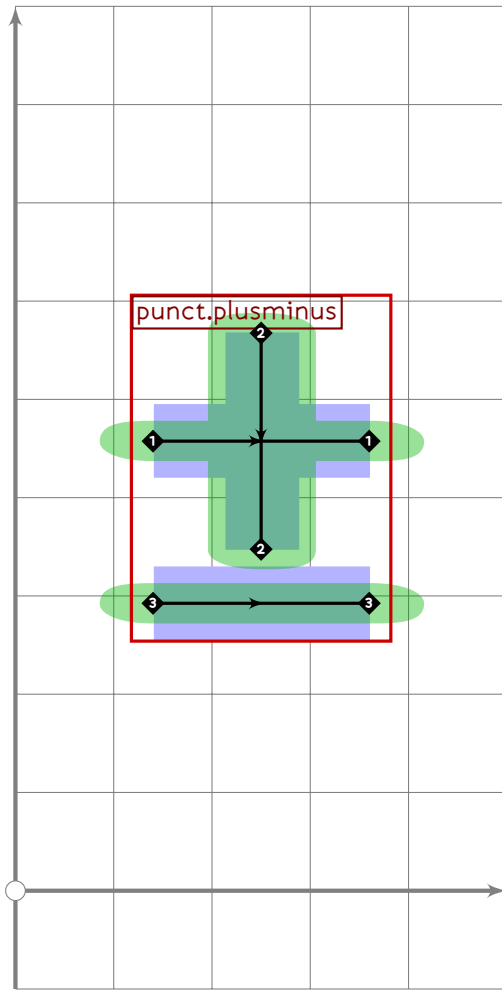
912 % naked macron
913 begintsuglyph("macron";175);
914 tsu_accent.apply(latin.lower;set_bosize(0,0))(tsu_accent.macron);
915 tsu_render;
916 endsuglyph;
917
918 % WARNING, setting rescale
919 tsu_rescale_native_conditional;

```

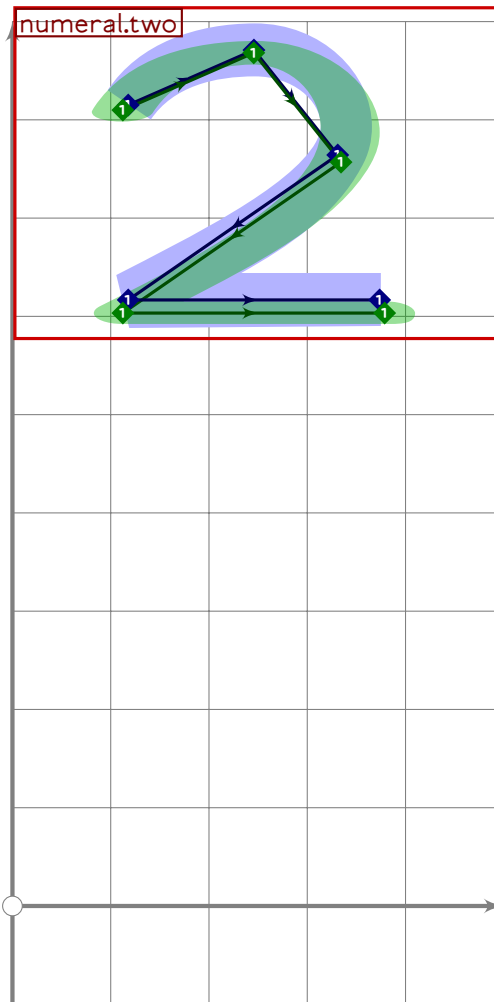




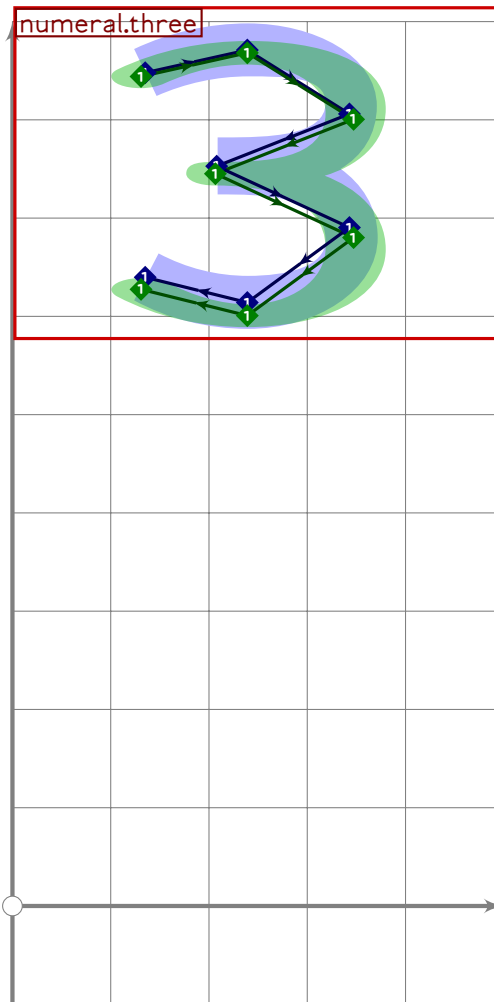
```
920  
921 begintsuglyph("degree",176);  
922   Fill fullcircle scaled (2.5*tsu_punct_size) shifted (250,760);  
923   unFill reverse fullcircle  
924     scaled (2.5*tsu_punct_size-120*tsu_brush_max) shifted (250,760);  
925 endsuglyph;
```



```
926  
927 begintsuglyph("plusminus",177);  
928 punct.plusminus(ascii_punct_xf);  
929 tsu_render;  
930 endsuglyph;
```



```
931  
932 begintsuglyph("uni00B2",178);  
933 tsu_xform(identity yscaled 0.68 transformed tsu_xf.latin_one_super)(  
934     numeral.two);  
935 tsu_render;  
936 endtsuglyph;
```



```

937
938 begintsuglyph("uni00B3",179);
939 tsu_xform(identity yscaled 0.68 transformed tsu_xf.latin_one_super)(
940 numeral.three);
941 tsu_render;
942 endtsuglyph;
943
944 % WARNING, changing rescale setting
945 tsu_rescale_half;
946
947 % naked acute
948 begintsuglyph("acute",180);
949 tsu_accent.acute;
950 tsu_render;
951 endtsuglyph;
952
953 % micro
954 begintsuglyph("mu",181);
955 punct.micro;
956 tsu_render;
957 endtsuglyph;

```

[see page 43]

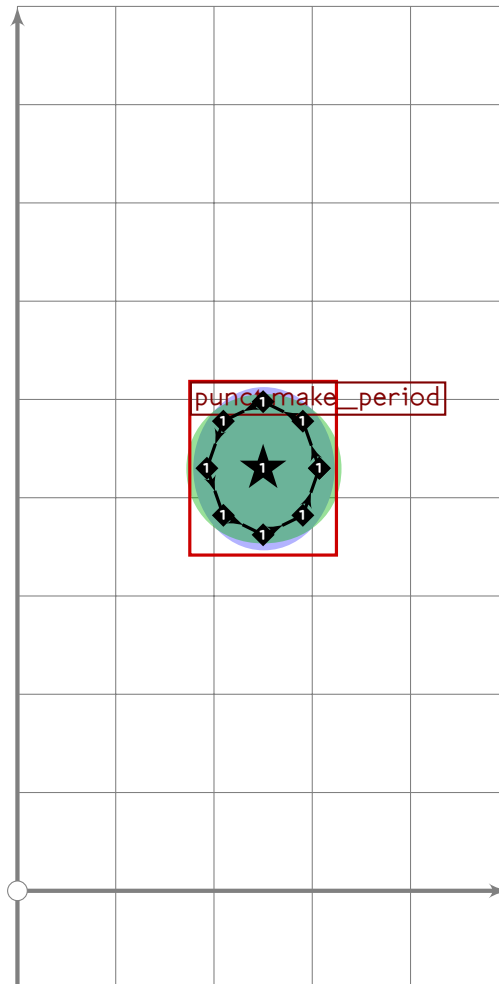
[see page 295]

```

958
959 % pilcrow
960 begintsuglyph("paragraph",182);
961 punct.pilcrow;
962 tsu_render;
963 endtsuglyph;
964

```

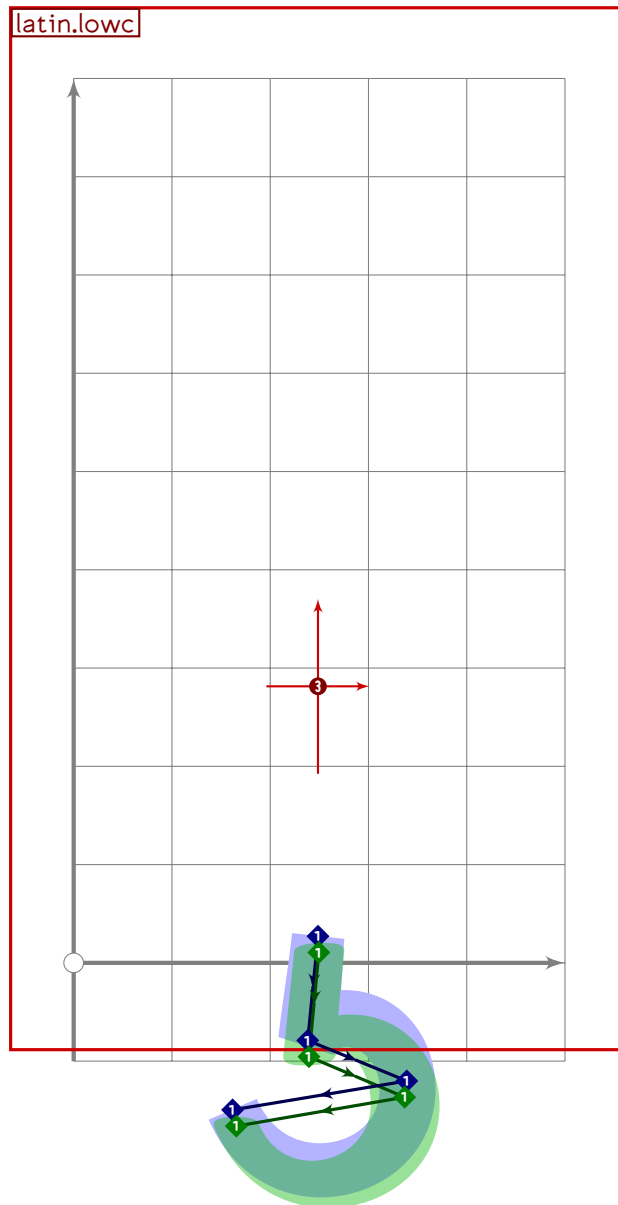
[see page 302]



```

965 % period at centre
966 begintsuglyph("periodcentered",183);
967 punct.make_period(centre_pt);
968 tsu_render;
969 endtsuglyph;
970

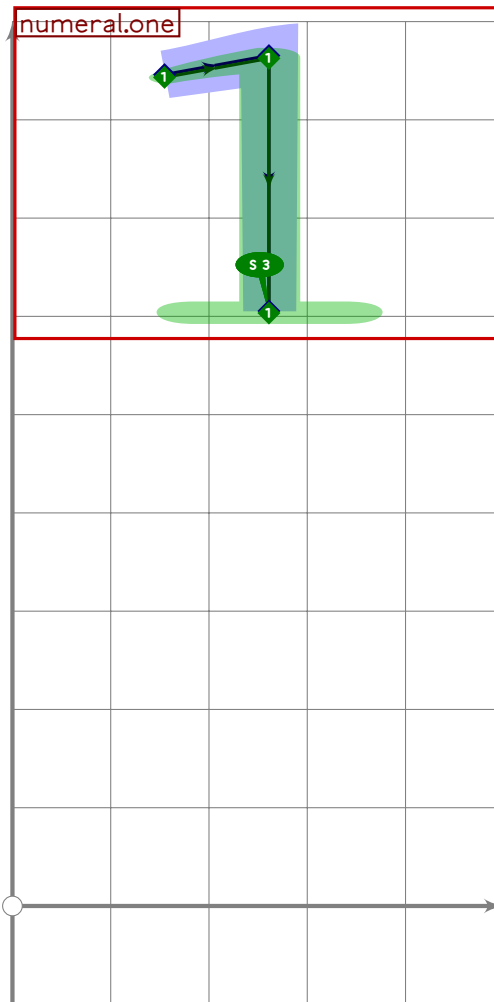
```



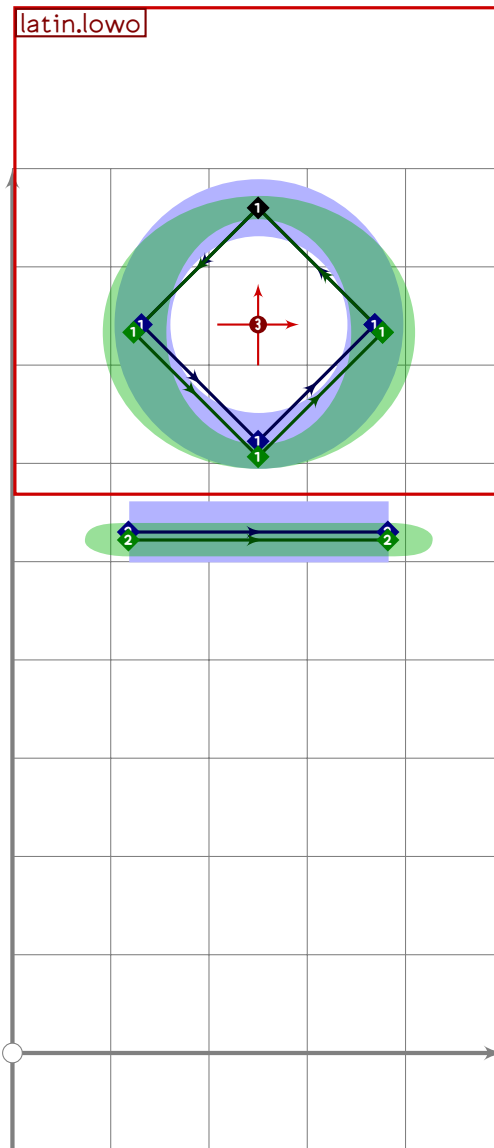
```

971 % naked cedilla
972 begint Suglyph("cedilla";184);
973   tsu_accent.apply(latin.lowc;set_bosize(0,0))(tsu_accent.cedilla);
974   tsu_render;
975 endtsuglyph;
976
977 % WARNING, changing rescale setting
978 tsu_rescale_native_conditional;

```



```
979  
980 begintsuglyph("uni00B9",185);  
981 tsu_xform(identity yscaled 0.68 transformed tsu_xf.latin_one_super)(  
982     numeral.one);  
983 tsu_render;  
984 endtsuglyph;
```



```

985
986 begintsuglyph("ordmasculine",186);
987 tsu_xform(tsu_xf.latin_one_super)(
988     latin.low0;
989     push_stroke((260,-120)-(740,-120),(2,2)-(2,2)));
990 tsu_render;
991 endtsuglyph;
992
993 % WARNING, changing rescale setting
994 tsu_rescale_half;
995
996 begintsuglyph("guillemotright",187);
997 punct.guillemet_right;
998 tsu_render;
999 endtsuglyph;
1000
1001 % WARNING, changing rescale setting

```

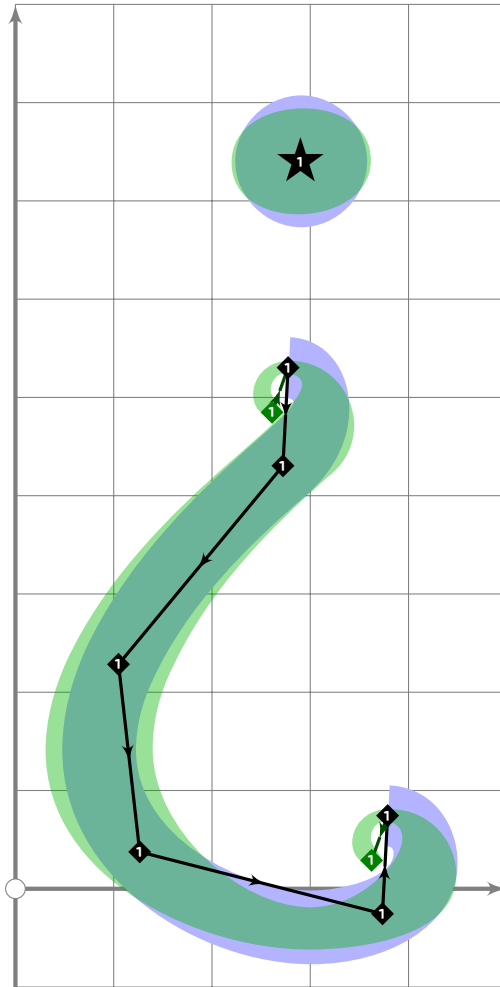
[see page 293]



```

1002 tsu_rescale_native_conditional;
1003

```



```

1004 % question mark
1005 begint Suglyph("questiondown",191);
1006 if tsu_pbrush_size>=(tsu_punct_size*0.5);
1007     push_lcblob(fullcircle
1008         xscaled ((tsu_punct_size+tsu_pbrush_size)*0.89)
1009         yscaled ((tsu_punct_size+tsu_pbrush_size*tsu_pbrush_shape)*0.89)
1010         rotated tsu_pbrush_angle
1011         shifted (210,40)
1012         rotatedaround ((250,390),180));
1013 else:
1014     push_stroke(fullcircle scaled tsu_punct_size shifted (210,40)
1015         rotatedaround ((250,390),180),
1016         (1,1)..(2,2)..(2,2)..(1,1));
1017     if tsu_pbrush_size>=30:
1018         push_lcblob(get_strokep(0));
1019     fi;
1020 fi;
1021 r:=tsu_punct_size/2;
1022

```

```

1023  push_stroke((210,300){right}..(210,300-r){left}..
1024      (210,300+r)..(210+2.5*r,750)..
1025      tension 1.3..(210-2.5*r,750+r)..
1026      (210-2.5*r,750-r){right}..
1027      (210-2.5*r,750){left},
1028      (0.8,0.8)-(1,1)-(2,2)-(2,2)-(2,2)-(2,2)-(1,1)-(0.8,0.8));
1029  replace_stroke(0)(insert_nodes(oldp)(2.5)
1030      rotatedaround ((210,10),-3) rotatedaround ((250,390),180));
1031
1032  tsu_render;
1033  endtsuglyph;
1034
1035  _____
1036

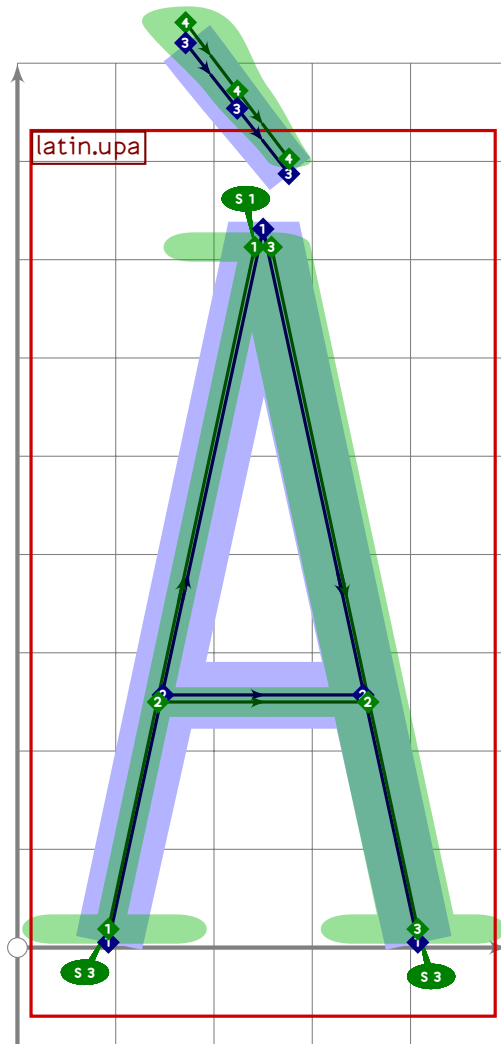
```

## Accented Latin

```

1037 % ACCENTED LATIN
1038
1039 % WARNING, setting rescale
1040 tsu_rescale_half;
1041

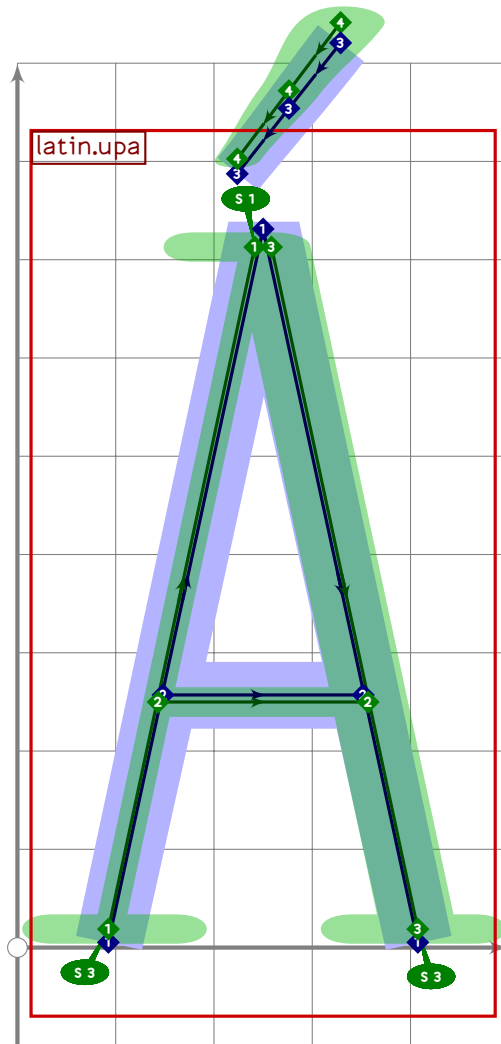
```



```

1042 % A with grave
1043 begintsuglyph("Agrave",192);
1044   tsu_accent.apply(tsu_accent.capital(latin.upa))(tsu_accent.grave);
1045   tsu_render;
1046 endtsuglyph;
1047

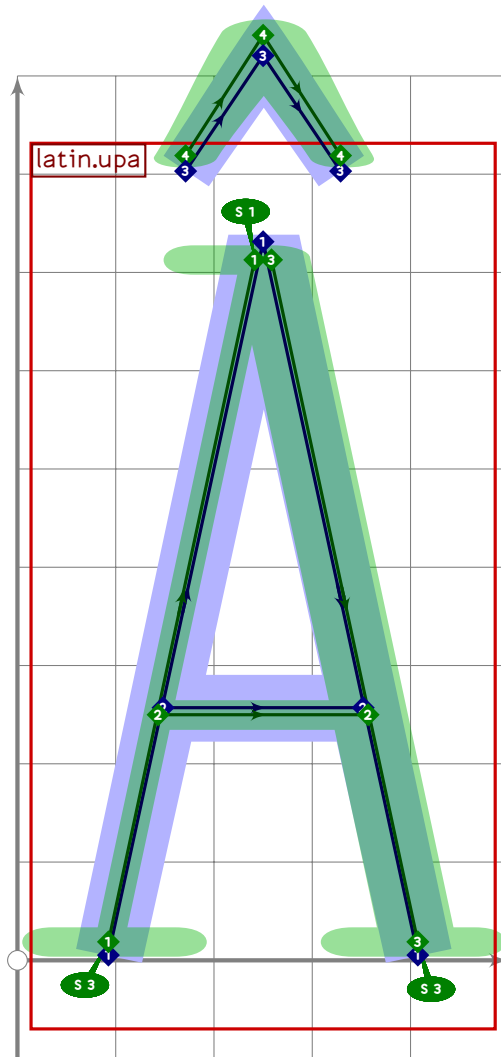
```



```

1048 % A with acute
1049 begintsuglyph("Aacute",193);
1050 tsu_accent.apply(tsu_accent.capital(latin.upa))(tsu_accent.acute);
1051 tsu_render;
1052 endtsuglyph;
1053

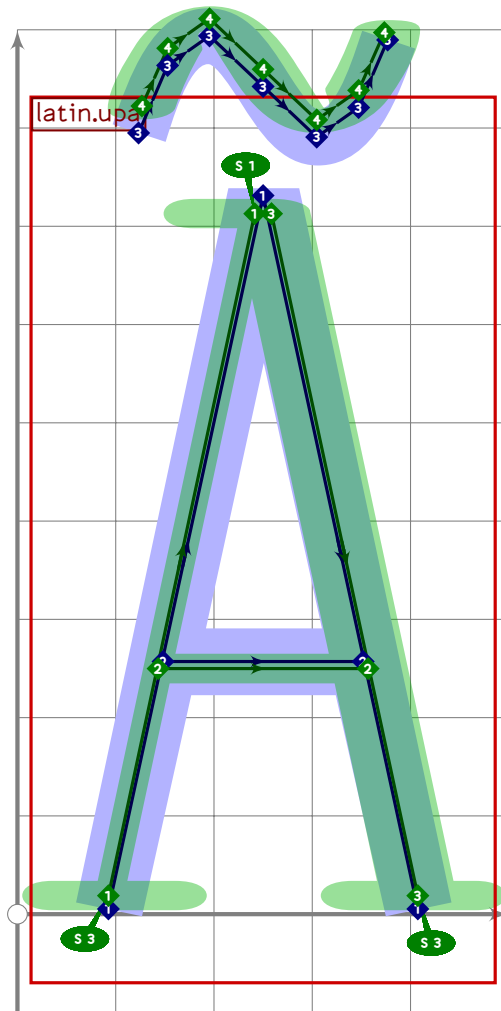
```



```

1054 % A with circumflex
1055 begintsuglyph("Acircumflex";194);
1056 tsu_accent.apply(tsu_accent.capital(latin.upa))(tsu_accent.circumflex);
1057 tsu_render;
1058 endsuglyph;
1059

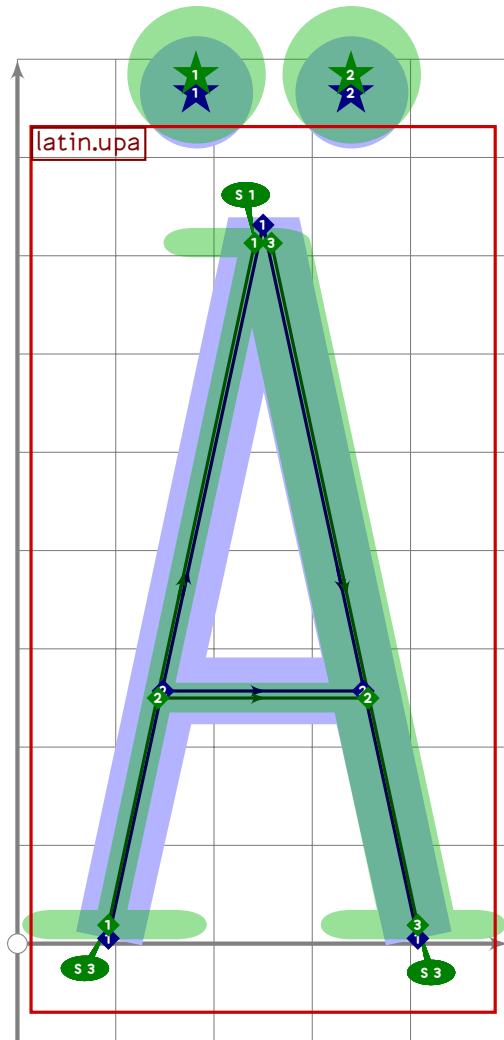
```



```

1060 % A with tilde
1061 begint Suglyph("Atilde",195);
1062 tsu_accent.apply(tsu_accent.capital(latin.upa))(tsu_accent.tilde);
1063 tsu_render;
1064 endtsuglyph;
1065

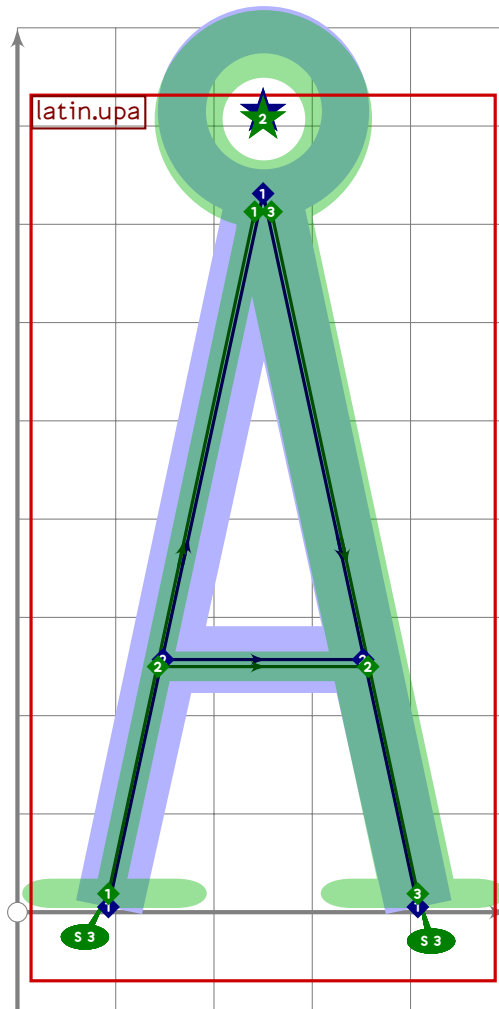
```



```

1066 % A with dieresis/umlaut
1067 beginsuglyph("Adieresis";196);
1068   tsu_accent.apply(tsu_accent.capital(latin.upa))(tsu_accent.umlaut);
1069   tsu_render;
1070 endsuglyph;
1071

```



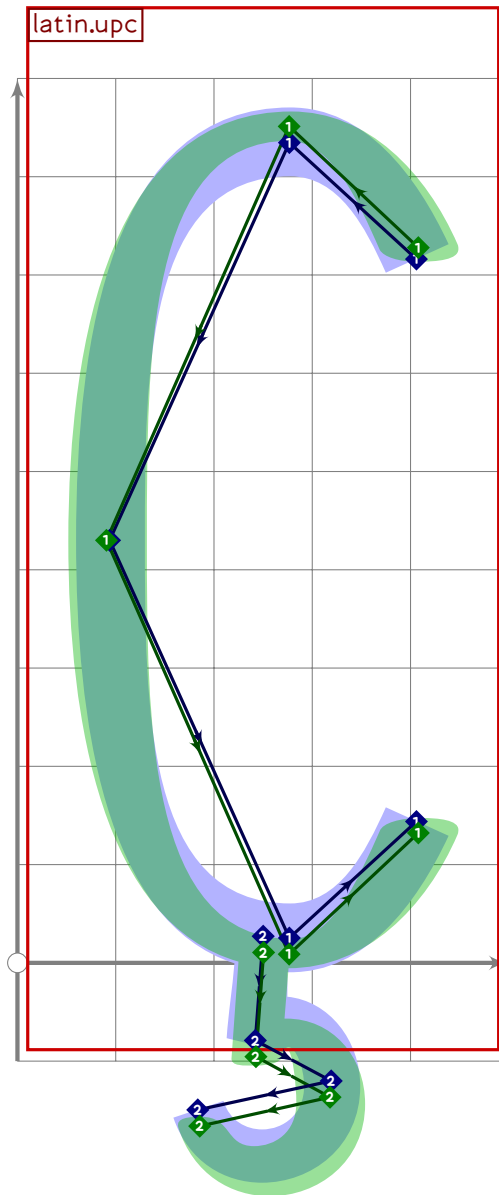
```

1072 % A with ring above
1073 begintsuglyph("Aring",197);
1074 tsu_accent.apply(tsu_accent.capital(latin.upa))(tsu_accent.ringabove);
1075 if do_alteration:
1076     set_boserif(-2,1,whatever);
1077 else:
1078     set_boserif(-1,1,whatever);
1079 fi;
1080 tsu_render;
1081 endtsuglyph;
1082
1083 % AE ligature
1084 begintsuglyph("AE",198);
1085 latin.upae;
1086 tsu_render;
1087 endtsuglyph;
1088

```

[see page 169]

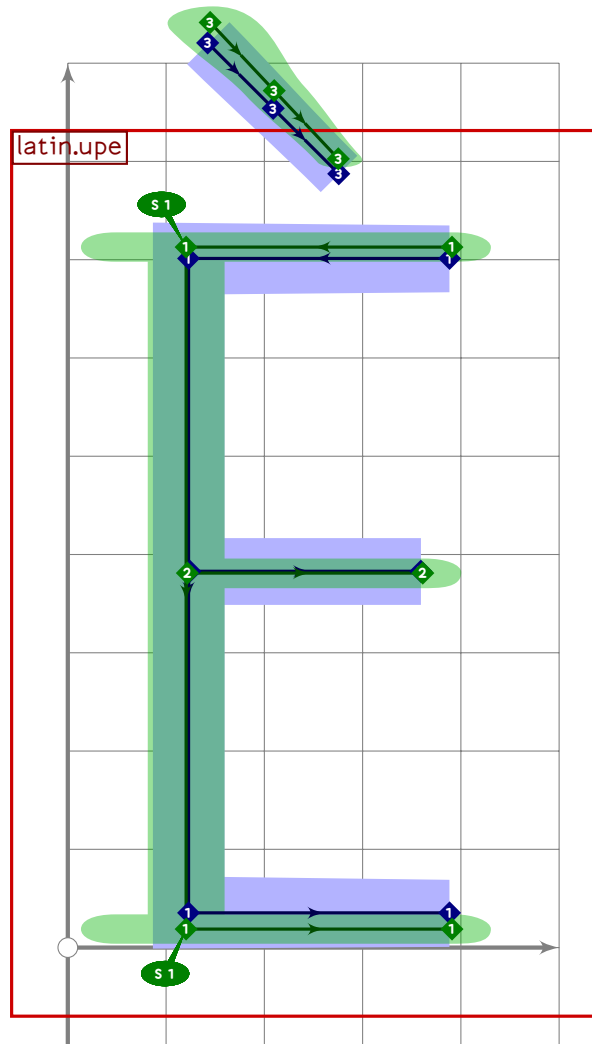




```

1089 % C with cedilla
1090 begintsuglyph("Ccedilla";199);
1091 tsu_accent.apply(latin.upc)(tsu_accent.cedilla);
1092 tsu_render;
1093 endsuglyph;
1094

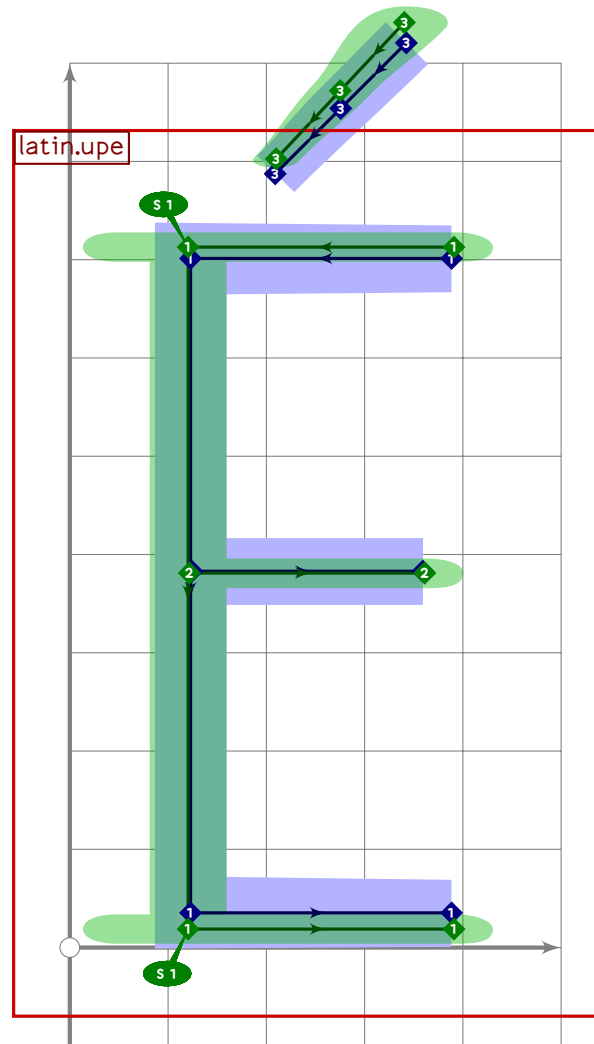
```



```

1095 % E with grave
1096 begintsuglyph("Egrave",200);
1097   tsu_accent.apply(tsu_accent.capital(latin.upe))(tsu_accent.grave);
1098   tsu_render;
1099 endsuglyph;
1100

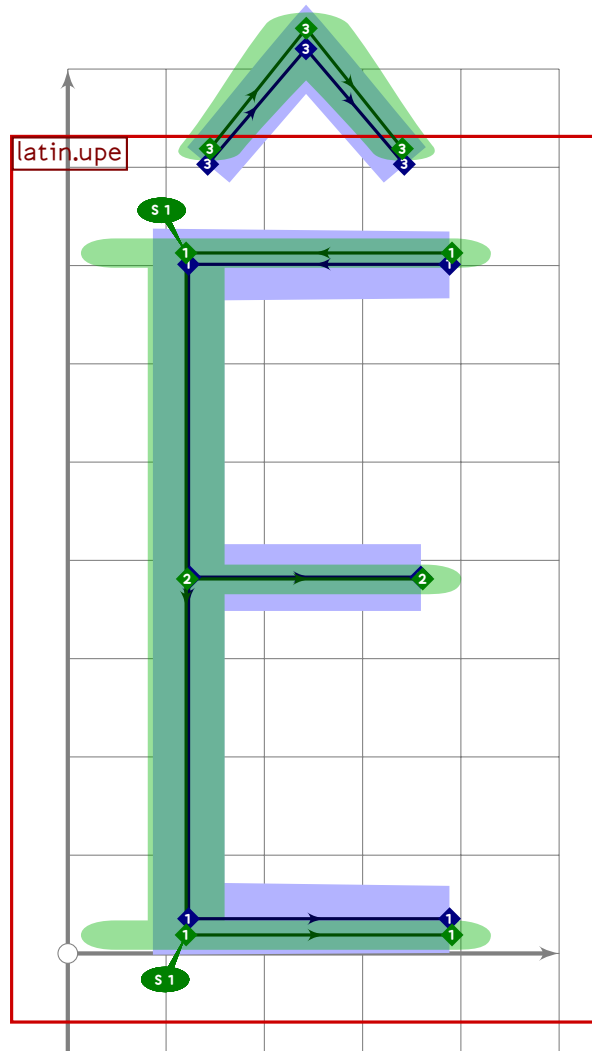
```



```

1101 % E with acute
1102 begintsuglyph("Eacute",201);
1103   tsu_accent.apply(tsu_accent.capital(latin.upe))(tsu_accent.acute);
1104   tsu_render;
1105 endsuglyph;
1106

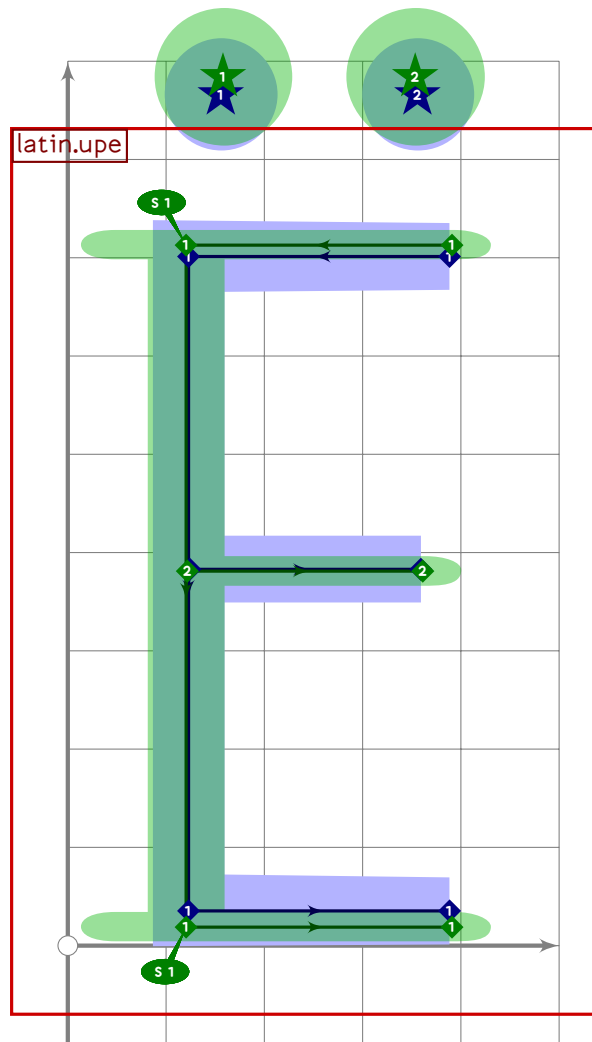
```



```

1107 % E with circumflex
1108 begintsuglyph("Ecircumflex",202);
1109 tsu_accent.apply(tsu_accent.capital(latin.upe))(tsu_accent.circumflex);
1110 tsu_render;
1111 endtsuglyph;
1112

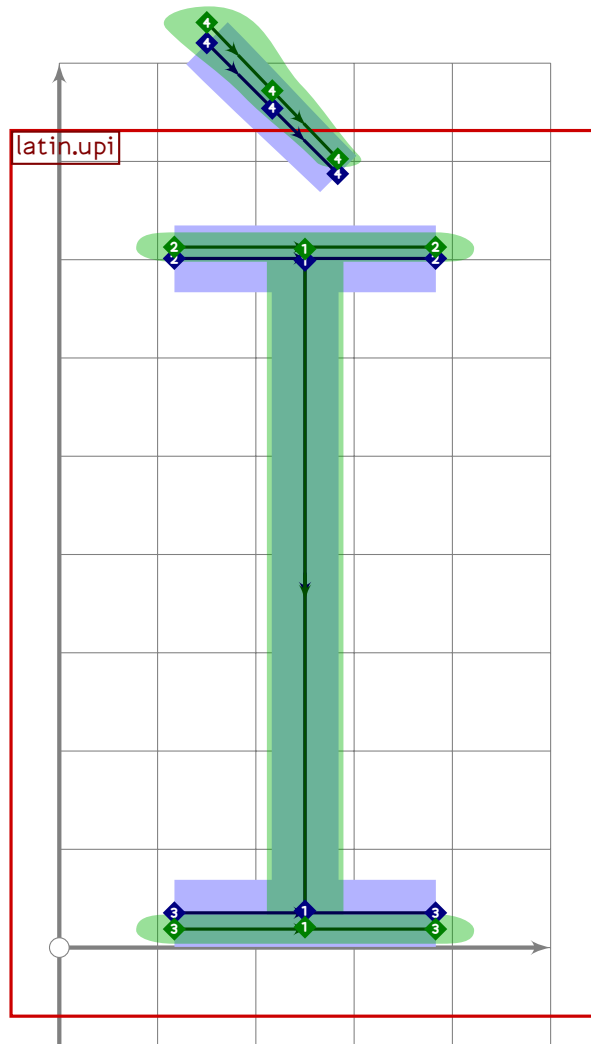
```



```

1113 % E with dieresis/umlaut
1114 begintsuglyph("Edieresis";203);
1115 tsu_accent.apply(tsu_accent.capital(latin.ue))(tsu_accent.umlaut);
1116 tsu_render;
1117 endsuglyph;
1118

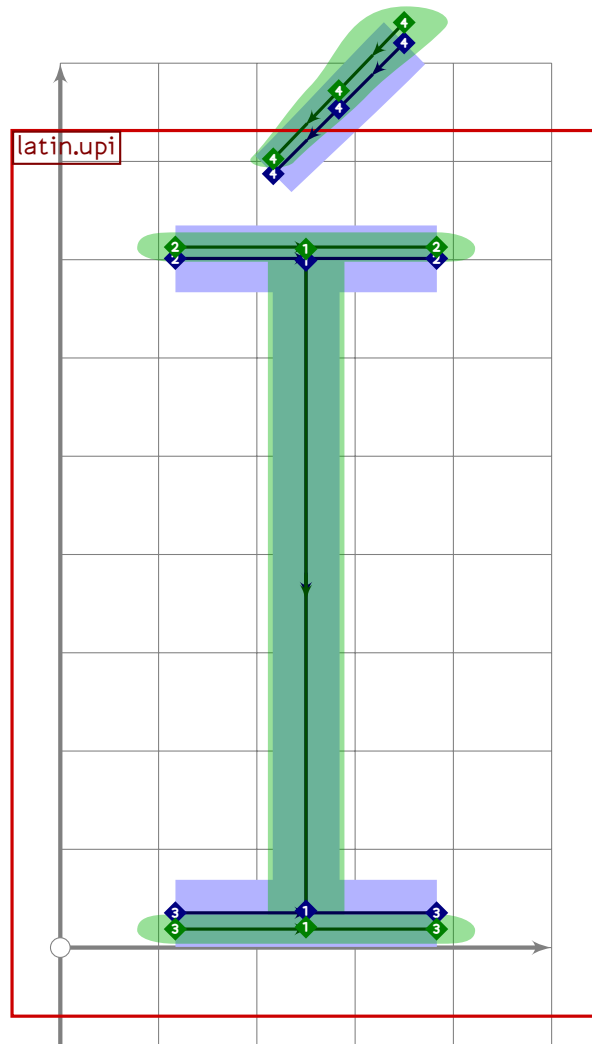
```



```

1119 % I with grave
1120 begintsuglyph("Igrave",204);
1121   tsu_accent.apply(tsu_accent.capital(latin.upi))(tsu_accent.grave);
1122   tsu_render;
1123 endsuglyph;
1124

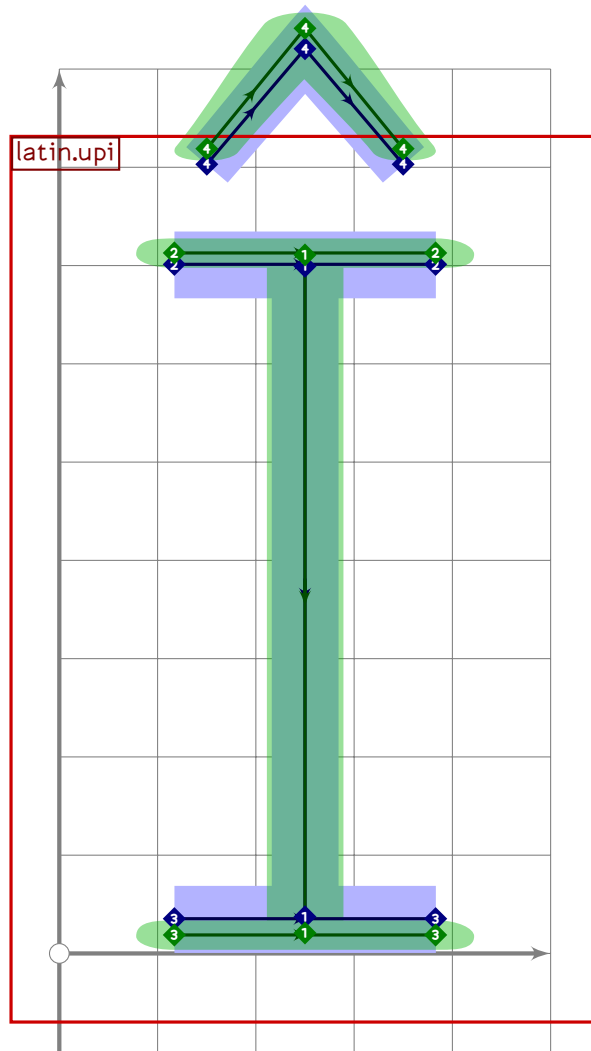
```



```

1125 % I with acute
1126 begint Suglyph("Iacute";205);
1127   tsu_accent.apply(tsu_accent.capital(latin.upi))(tsu_accent.acute);
1128   tsu_render;
1129   endtsuglyph;
1130

```

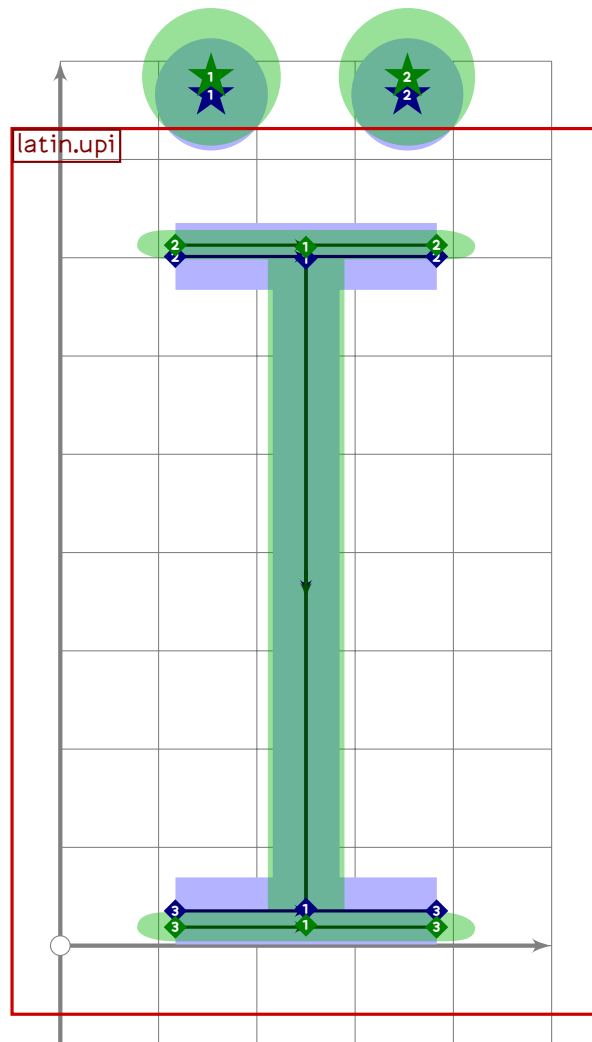


```

1131 % I with circumflex
1132 beginsuglyph("Icircumflex",206);
1133   tsu_accent.apply(tsu_accent.capital(latin.upi))(tsu_accent.circumflex);
1134   tsu_render;
1135 endsuglyph;
1136

```



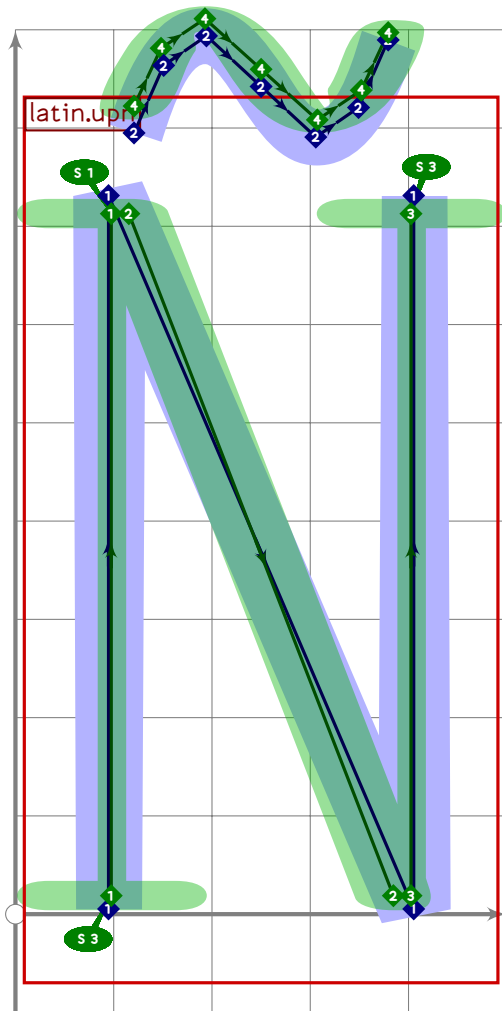


```

1137 % I with dieresis/umlaut
1138 begintsuglyph("Idieresis";207);
1139 tsu_accent.apply(tsu_accent.capital(latin.upi))(tsu_accent.umlaut);
1140 replace_lcblob(-1)(oldblob shifted (15*left));
1141 replace_lcblob(0)(oldblob shifted (15*left));
1142 tsu_render;
1143 endtsuglyph;
1144
1145 % uppercase Icelandic Eth
1146 begintsuglyph("Eth";208);
1147 latin.upeth;
1148 tsu_render;
1149 endtsuglyph;
1150

```

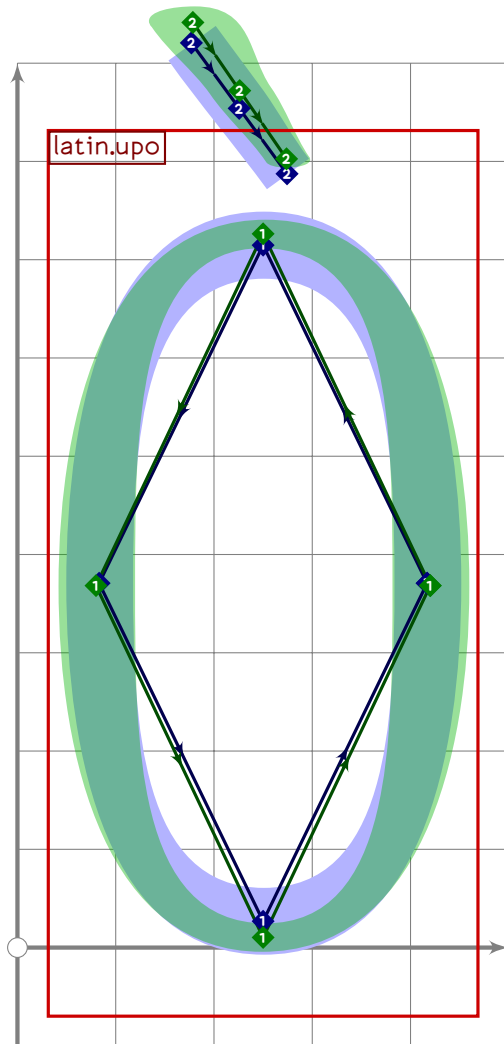
[see page 173]



```

1151 % N with tilde
1152 begint Suglyph("Ntilde";209);
1153   tsu_accent.apply(tsu_accent.capital(latin.upn))(tsu_accent.tilde);
1154   tsu_render;
1155 endtsuglyph;
1156

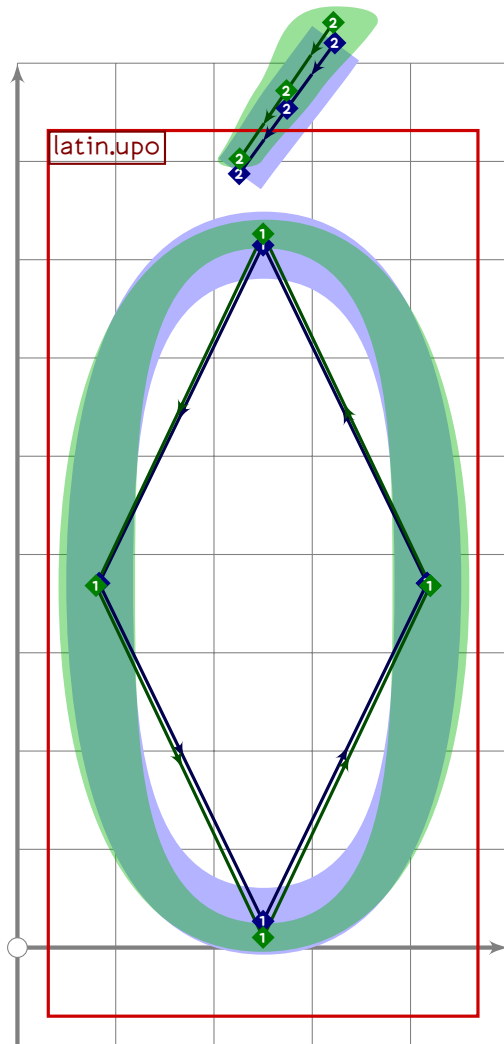
```



```

1157 % Ō with grave
1158 begintsuglyph("Ograve";210);
1159 tsu_accent.apply(tsu_accent.capital(latin.upo))(tsu_accent.grave);
1160 tsu_render;
1161 endtsuglyph;
1162

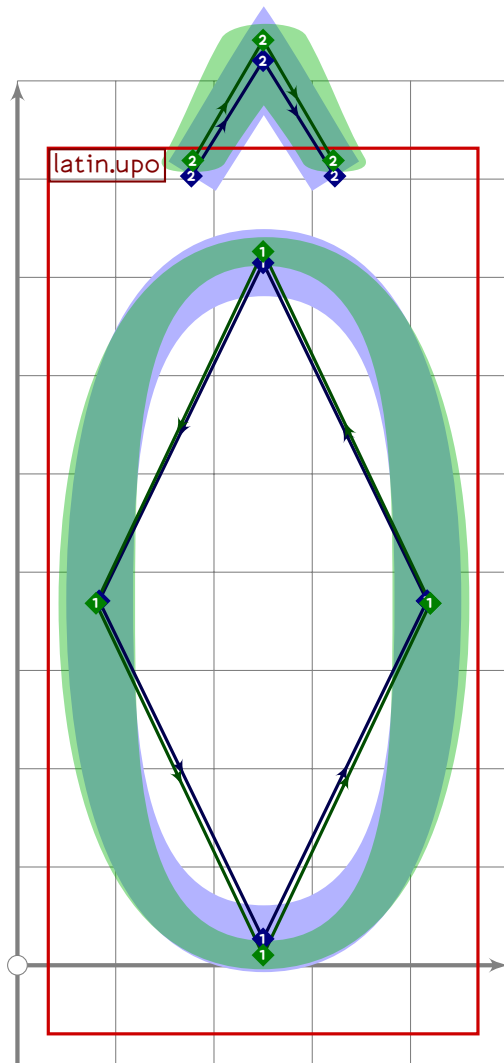
```



```

1163 % O with acute
1164 begintsuglyph("Oacute";211);
1165 tsu_accent.apply(tsu_accent.capital(latin.upo))(tsu_accent.acute);
1166 tsu_render;
1167 endtsuglyph;
1168

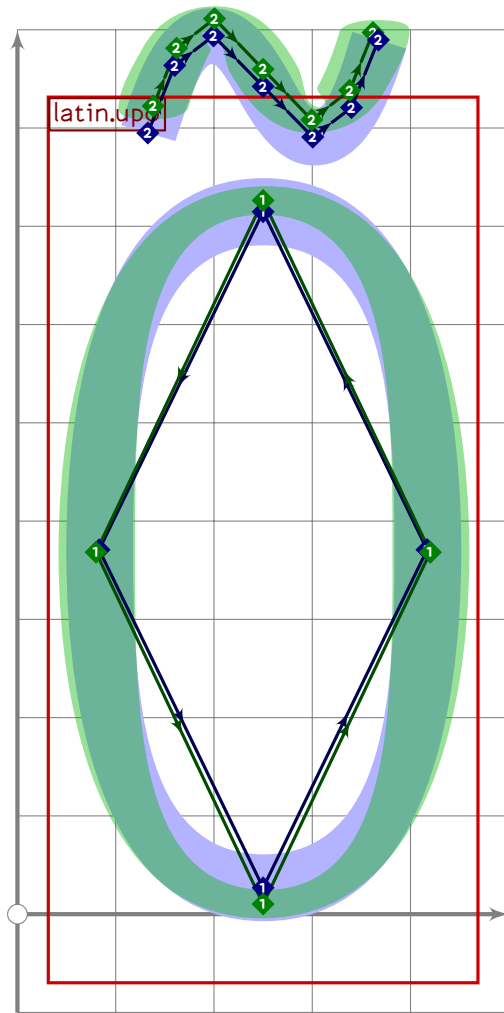
```



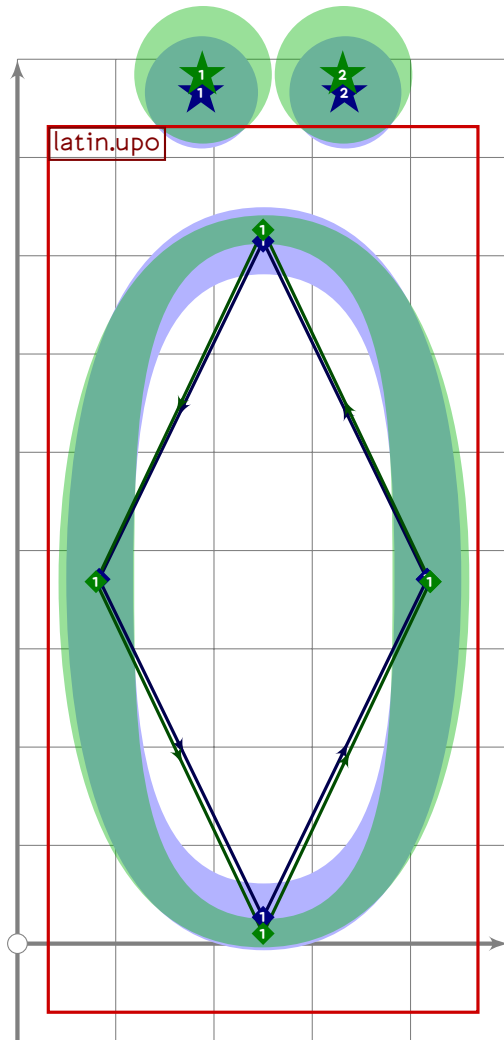
```

1169 % O with circumflex
1170 beginsuglyph("Ocircumflex",212);
1171   tsu_accent.apply(tsu_accent.capital(latin.upo))(tsu_accent.circumflex);
1172   tsu_render;
1173 endsuglyph;
1174

```



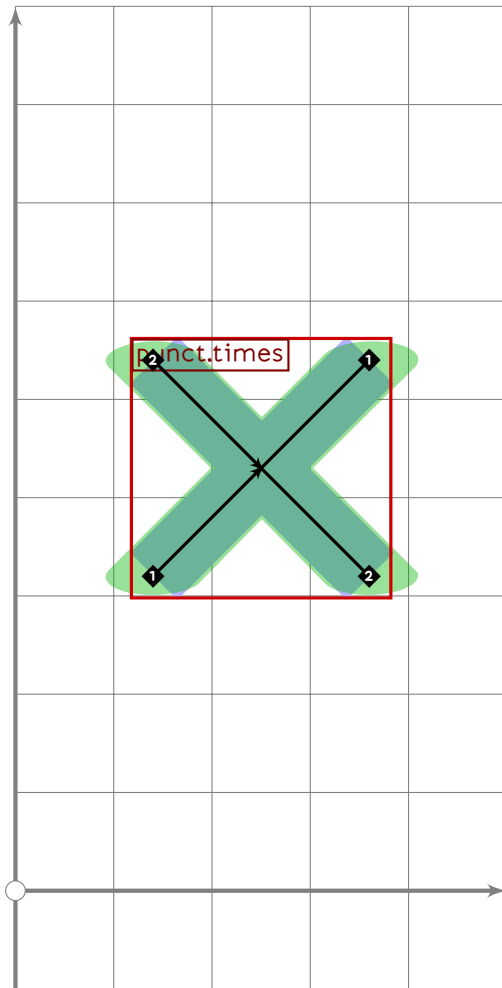
```
1175 % Ō with tilde
1176 beginsuglyph("Otilde";213);
1177 tsu_accent.apply(tsu_accent.capital(latin.upo))(tsu_accent.tilde);
1178 tsu_render;
1179 endsuglyph;
1180
```



```

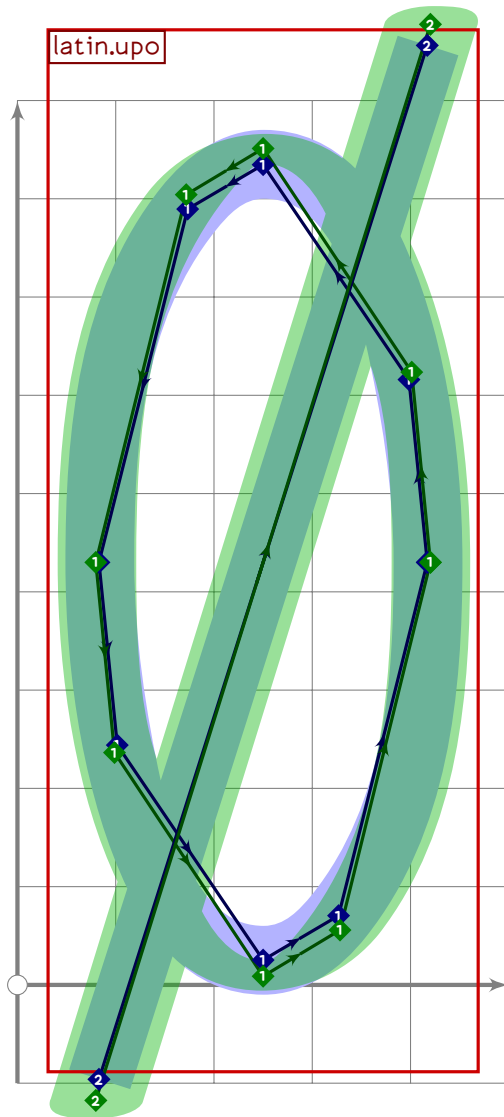
1181 % O with dieresis/umlaut
1182 begintsuglyph("Odiereis",214);
1183 tsu_accent.apply(tsu_accent.capital(latin.upo))(tsu_accent.umlaut);
1184 tsu_render;
1185 endtsuglyph;
1186
1187 % times
1188 tsu_rescale_native_conditional;

```



```
1189 begintsuglyph("multiply",215);  
1190 punct.times(ascii_punct_xf);  
1191 tsu_render;  
1192 endsuglyph;  
1193 tsu_rescale_half;  
1194
```

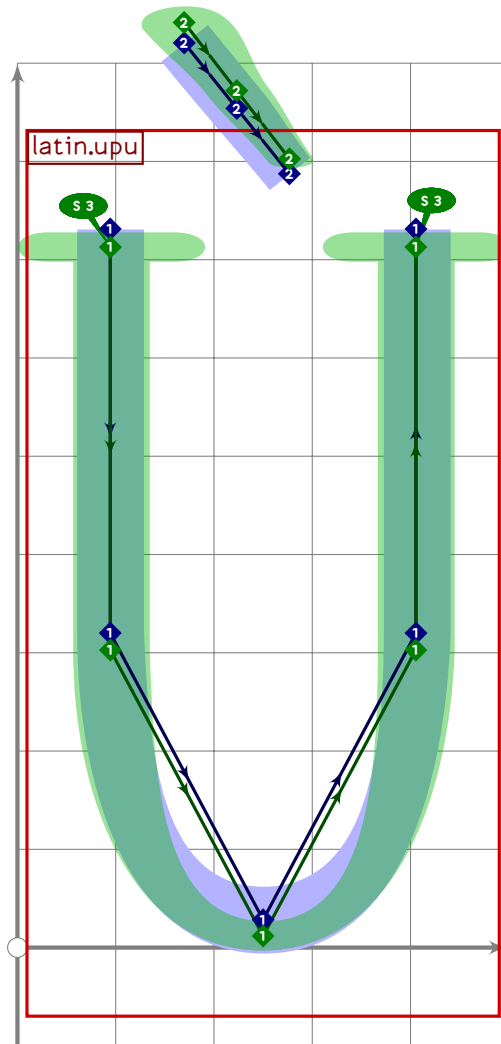




```

1195 % O with stroke
1196 beginsuglyph("Oslash",216);
1197 tsu_accent.apply(latin.upo)(tsu_accent.slash);
1198 replace_strokep(-1)(insert_nodes(oldp)(0.3,1.3,2.3,3.3));
1199 replace_strokeq(-1)(insert_nodes(oldq)(0.3,1.3,2.3,3.3));
1200 tsu_render;
1201 endsuglyph;
1202

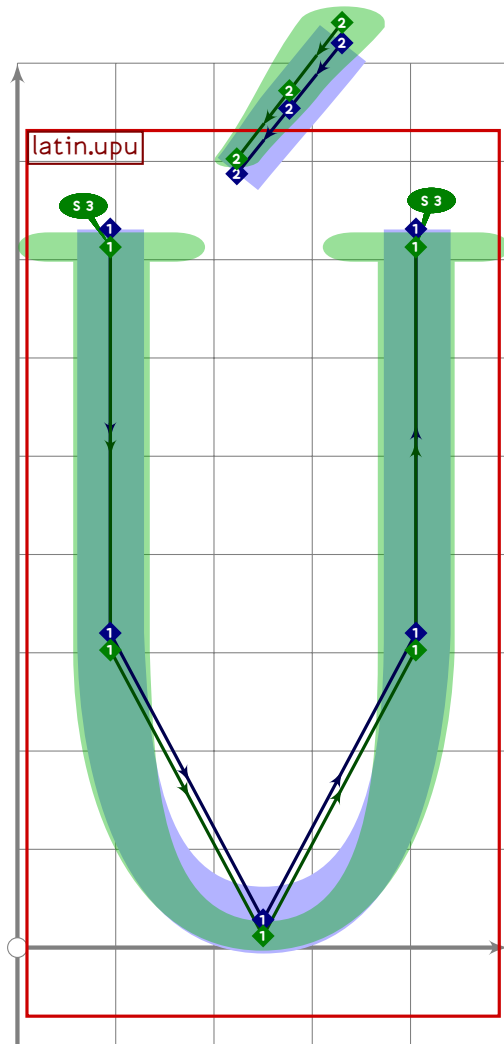
```



```

1203 % U with grave
1204 begintsuglyph("Ugrave";217);
1205   tsu_accent.apply(tsu_accent.capital(latin.upu))(tsu_accent.grave);
1206   tsu_render;
1207 endsuglyph;
1208

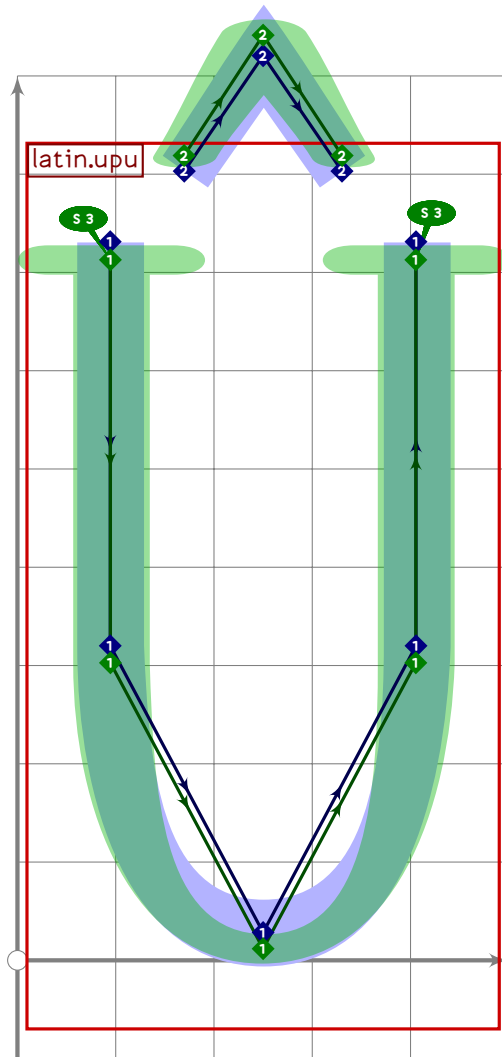
```



```

1209 % U with acute
1210 beginsuglyph("Uacute";218);
1211   tsu_accent.apply(tsu_accent.capital(latin.upu))(tsu_accent.acute);
1212   tsu_render;
1213 endsuglyph;
1214

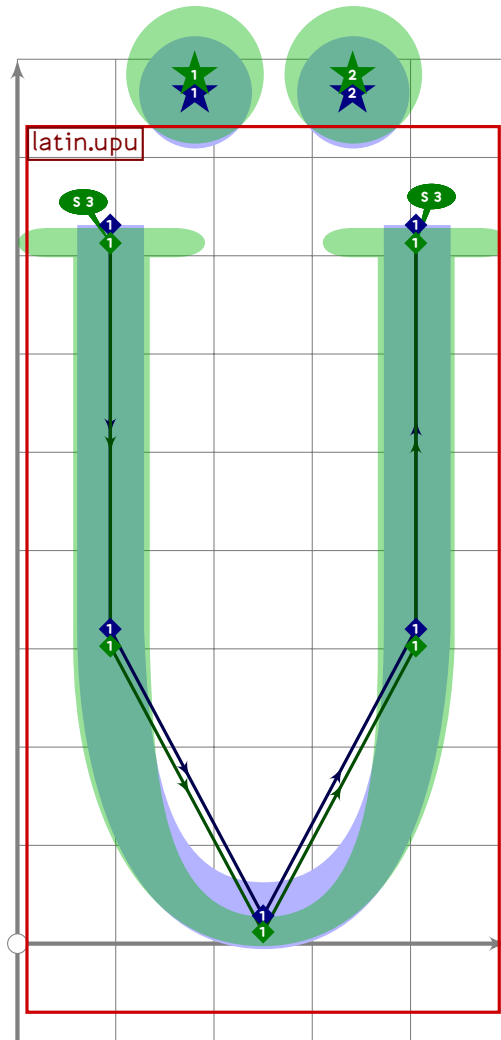
```



```

1215 % U with circumflex
1216 begintsuglyph("Ucircumflex",219);
1217   tsu_accent.apply(tsu_accent.capital(latin.upu))(tsu_accent.circumflex);
1218   tsu_render;
1219 endsuglyph;
1220

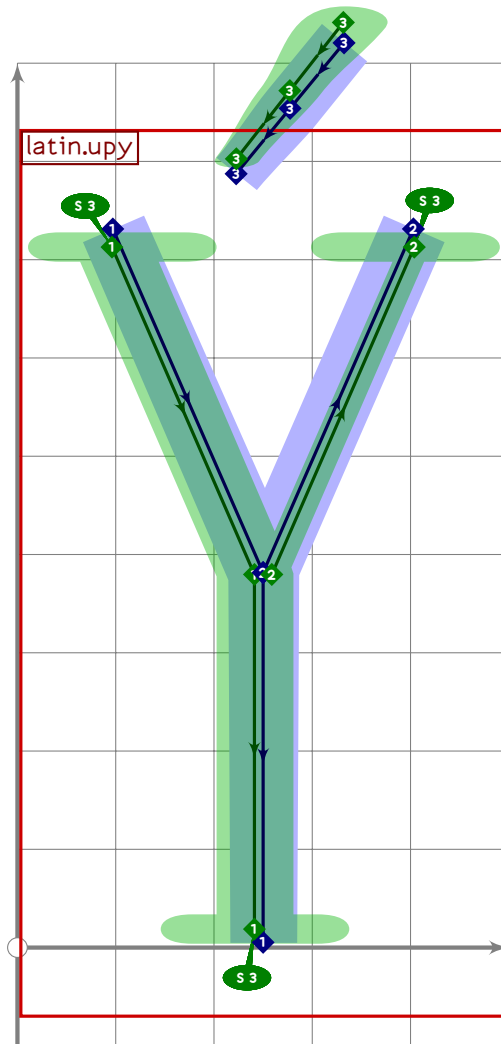
```



```

1221 % U with dieresis/umlaut
1222 beginsuglyph("Udiereis",220);
1223   tsu_accent.apply(tsu_accent.capital(latin.upu))(tsu_accent.umlaut);
1224   tsu_render;
1225 endsuglyph;
1226

```



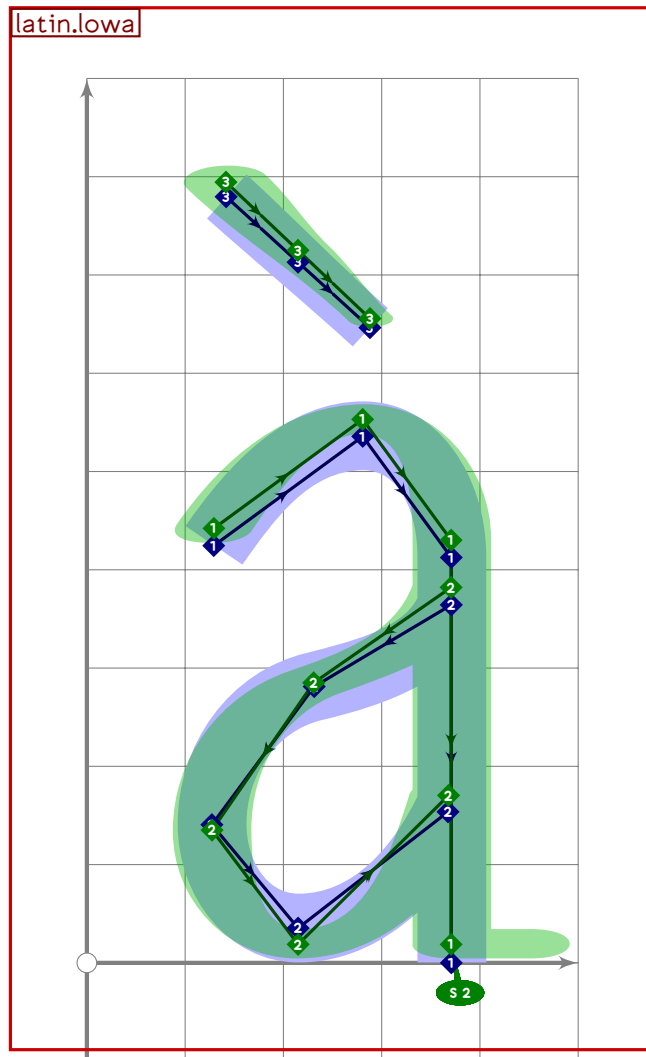
```

1227 % Y with acute
1228 begintsuglyph("Yacute",221);
1229 tsu_accent.apply(tsu_accent.capital(latin.upy))(tsu_accent.acute);
1230 tsu_render;
1231 endsuglyph;
1232
1233 % uppercase Thorn
1234 begintsuglyph("Thorn",222);
1235 latin.upthorn;
1236 tsu_render;
1237 endsuglyph;
1238
1239 % eszett
1240 begintsuglyph("germandbls",223);
1241 latin.loweszett;
1242 tsu_render;
1243 endsuglyph;
1244

```

[see page 194]

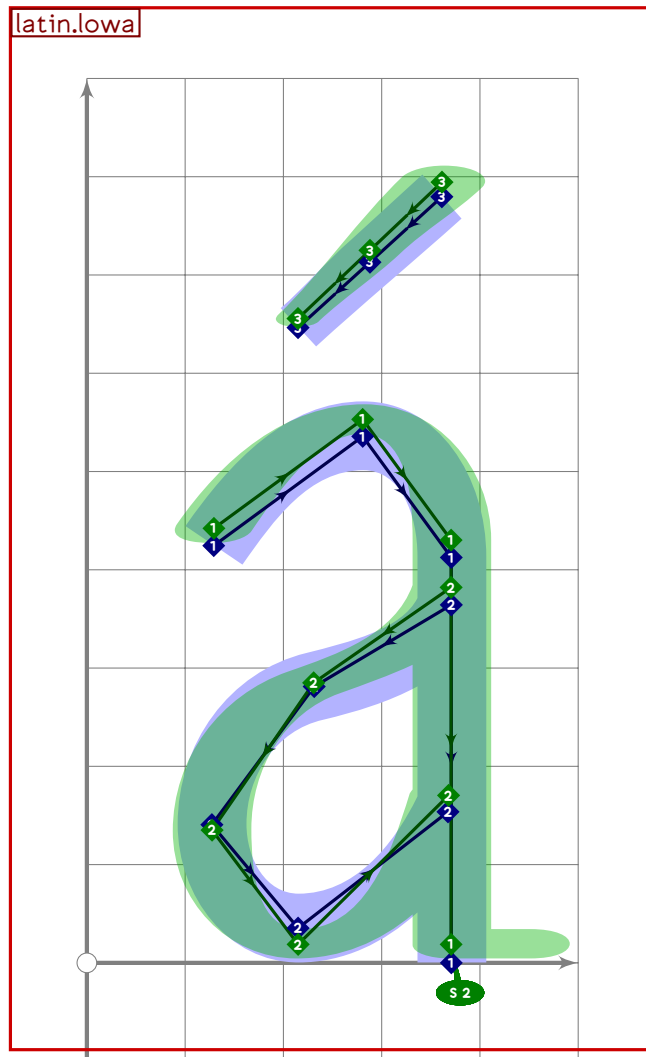
[see page 209]



```

1245 % a with grave
1246 begintsuglyph("agrave";224);
1247   tsu_accent.apply(latin.low a)(tsu_accent.grave);
1248   tsu_render;
1249 endsuglyph;
1250

```

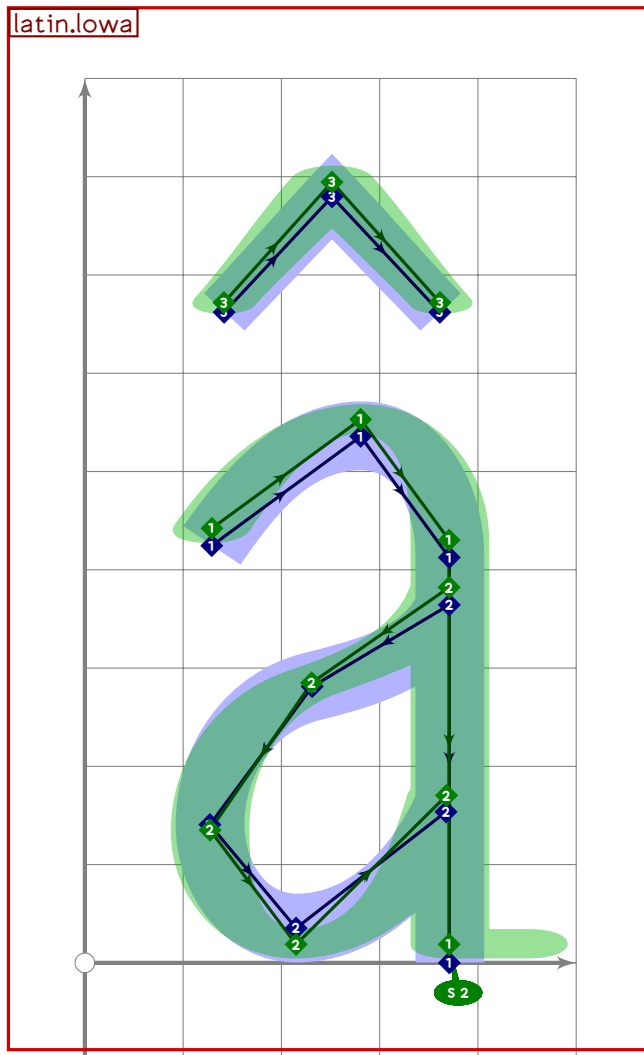


```

1251 % a with acute
1252 beginsuglyph("aacute";225);
1253   tsu_accent.apply(latin.low a)(tsu_accent.acute);
1254   tsu_render;
1255 endsuglyph;
1256

```

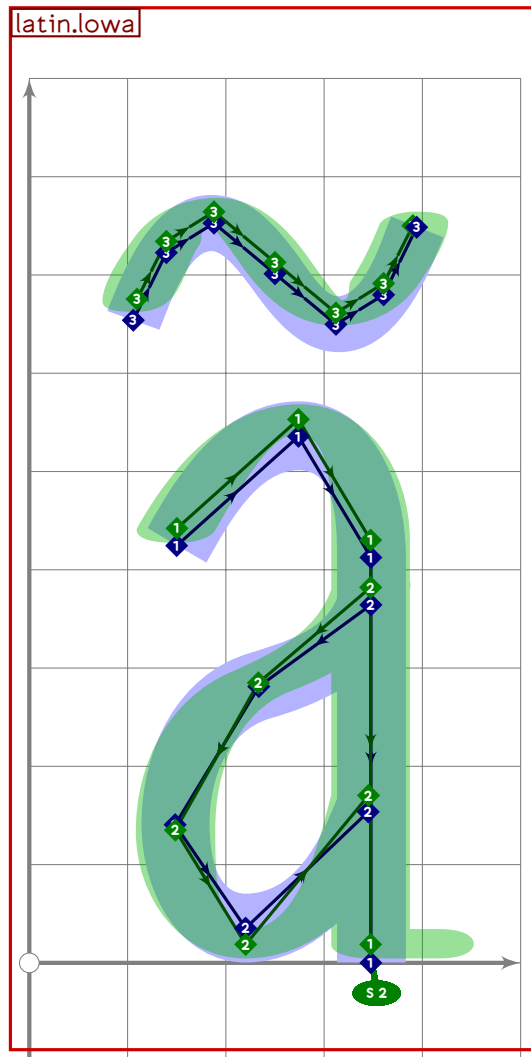




```

1257 % a with circumflex
1258 begintsuglyph("acircumflex";226);
1259 tsu_accent.apply(latin.low)(tsu_accent.circumflex);
1260 tsu_render;
1261 endsuglyph;
1262

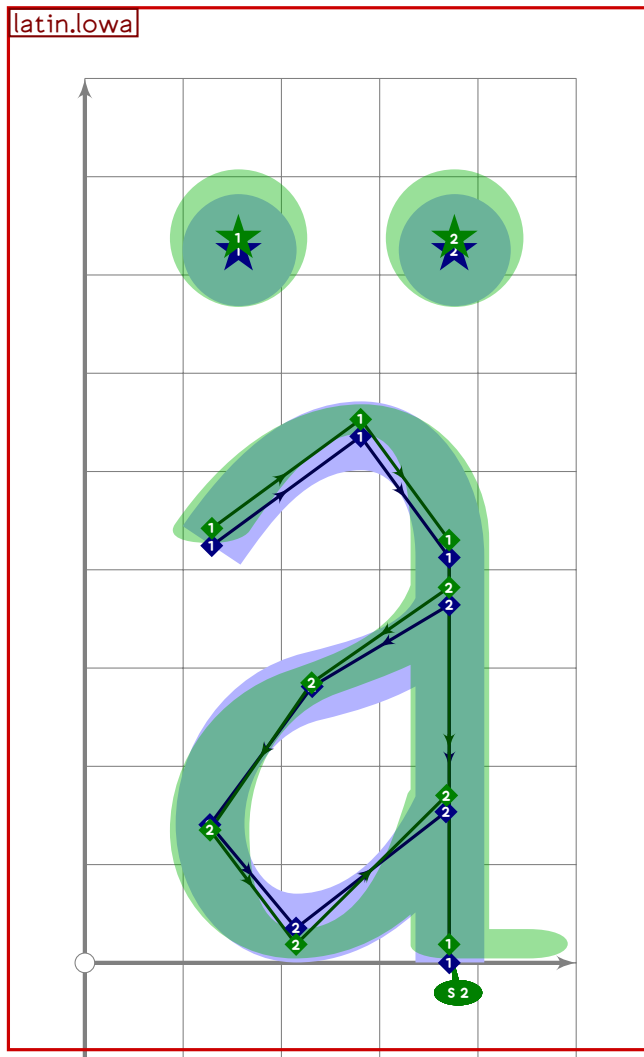
```



```

1263 % a with tilde
1264 beginsuglyph("atilde",227);
1265   tsu_accent.apply(latin.lowa)(tsu_accent.tilde);
1266   tsu_render;
1267 endsuglyph;
1268

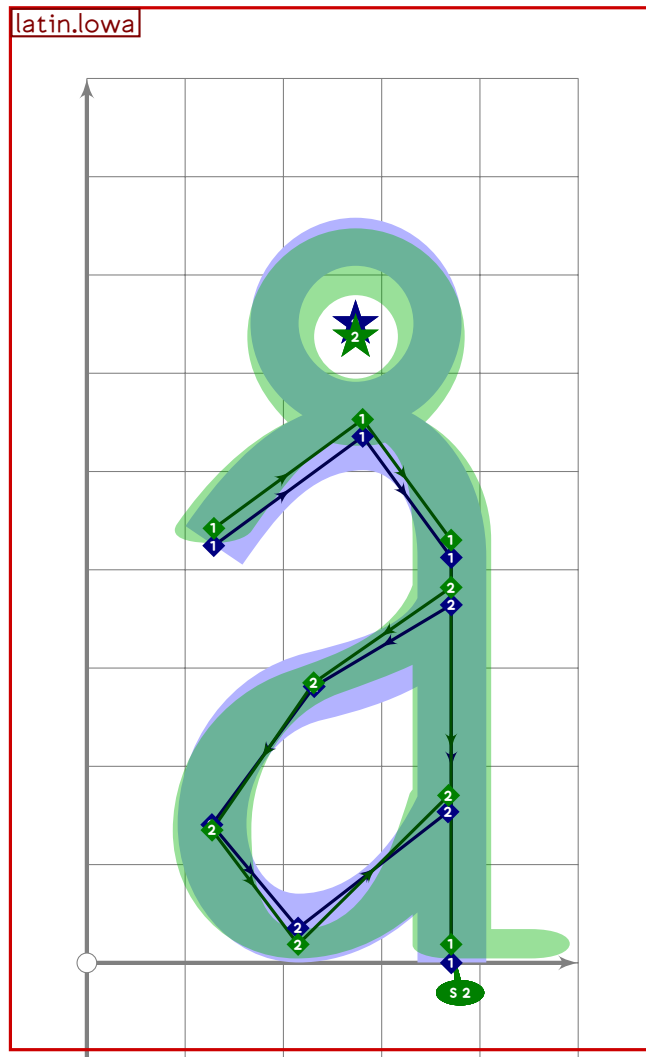
```



```

1269 % a with dieresis/umlaut
1270 begintsuglyph("adieresis";228);
1271   tsu_accent.apply(latin.lowa)(tsu_accent.umlaut);
1272   tsu_render;
1273 endsuglyph;
1274

```

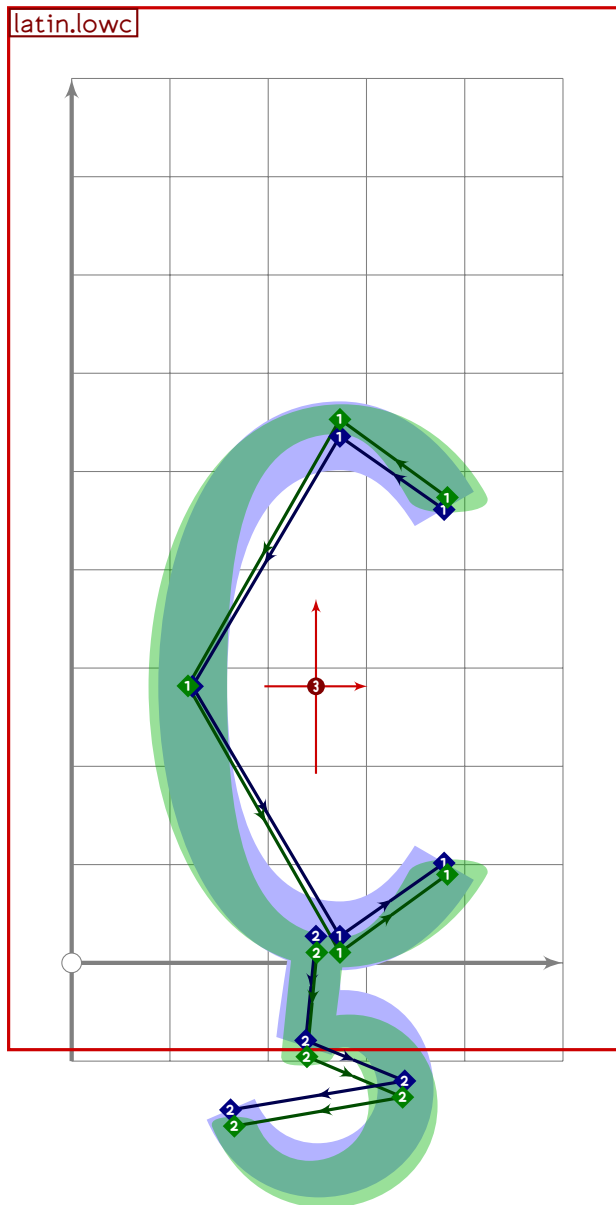


```

1275 % a with ring above
1276 begintsuglyph("aring",229);
1277 tsu_accent.apply(latin.lowae)(tsu_accent.ringabove);
1278 replace_lcblob(-1)(oldblob shifted (30,-20));
1279 replace_lcblob(0)(oldblob shifted (30,-20));
1280 tsu_render;
1281 endtsuglyph;
1282
1283 % ae ligature
1284 begintsuglyph("æ",230);
1285 latin.lowae;
1286 tsu_render;
1287 endtsuglyph;
1288

```

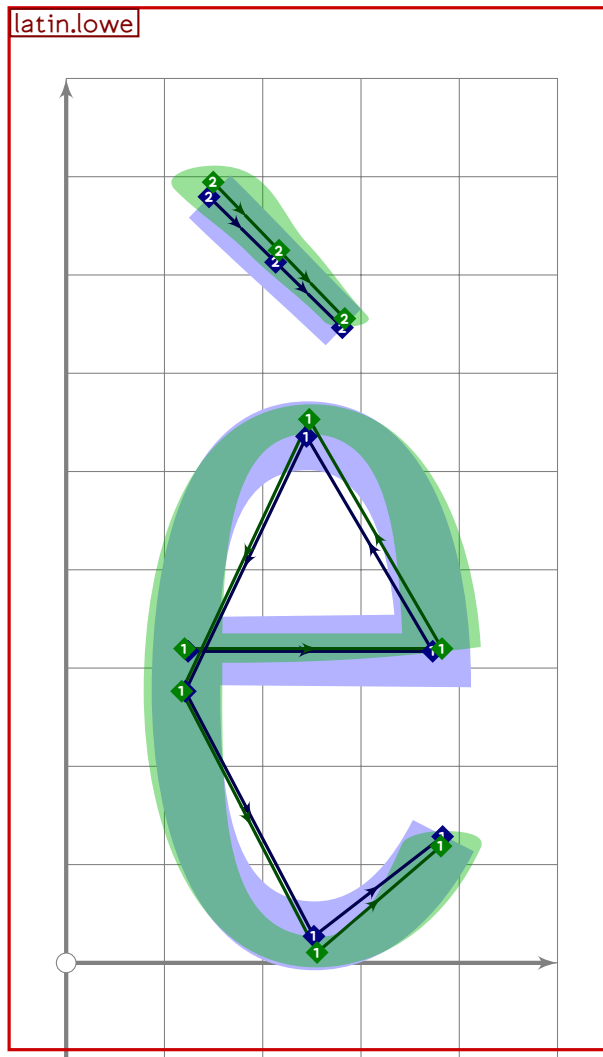
[see page 204]



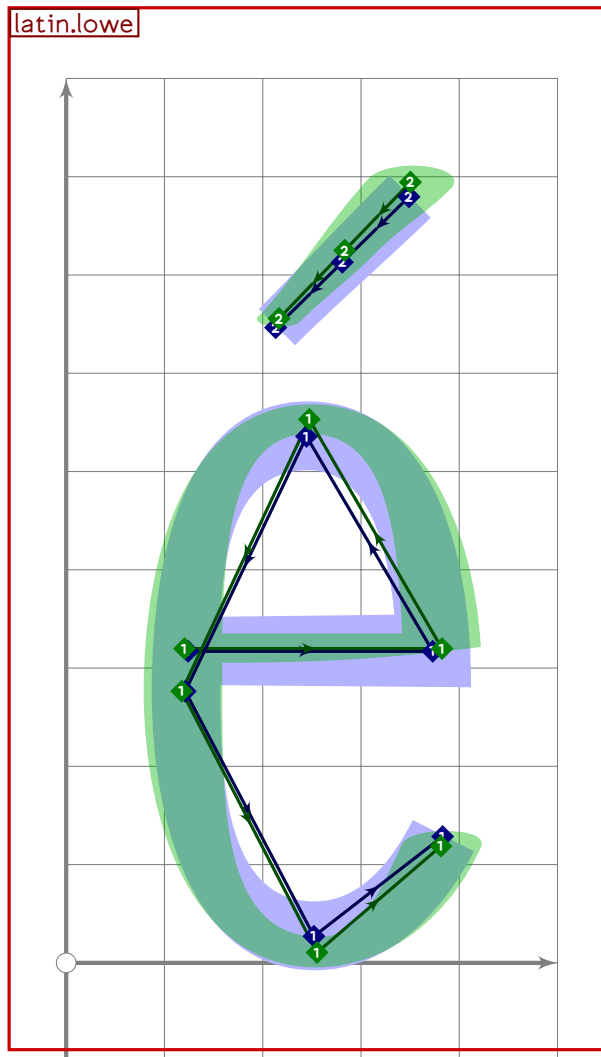
```

1289 % c with cedilla
1290 begintsuglyph("ccedilla";231);
1291 tsu_accent.apply(latin.lowc)(tsu_accent.cedilla);
1292 tsu_render;
1293 endtsuglyph;
1294

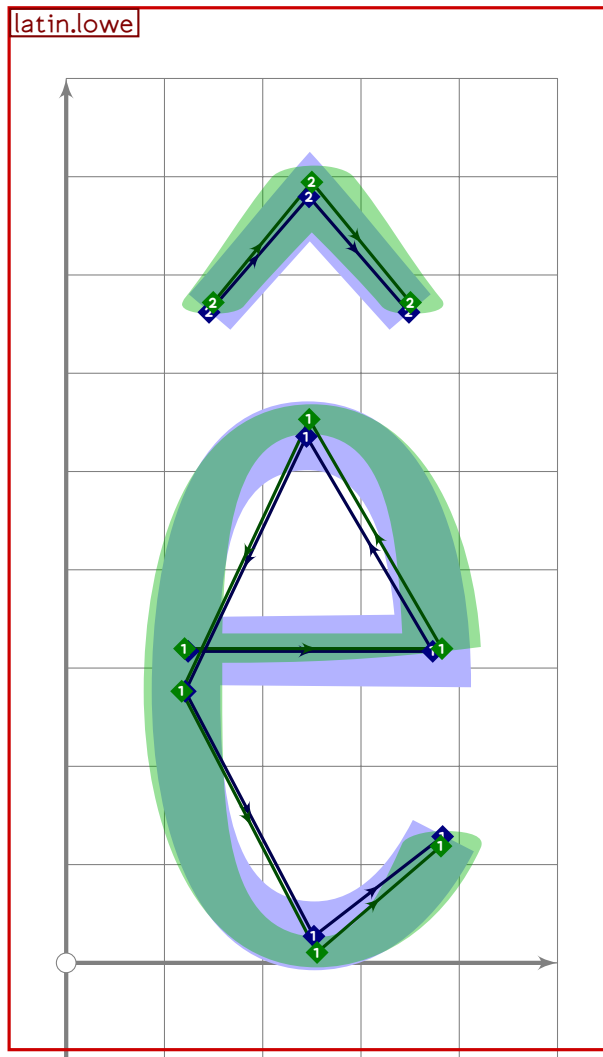
```



```
1295 % e with grave
1296 begintsuglyph("egrave";232);
1297   tsu_accent.apply(latin.lower)(tsu_accent.grave);
1298   tsu_render;
1299 endsuglyph;
1300
```

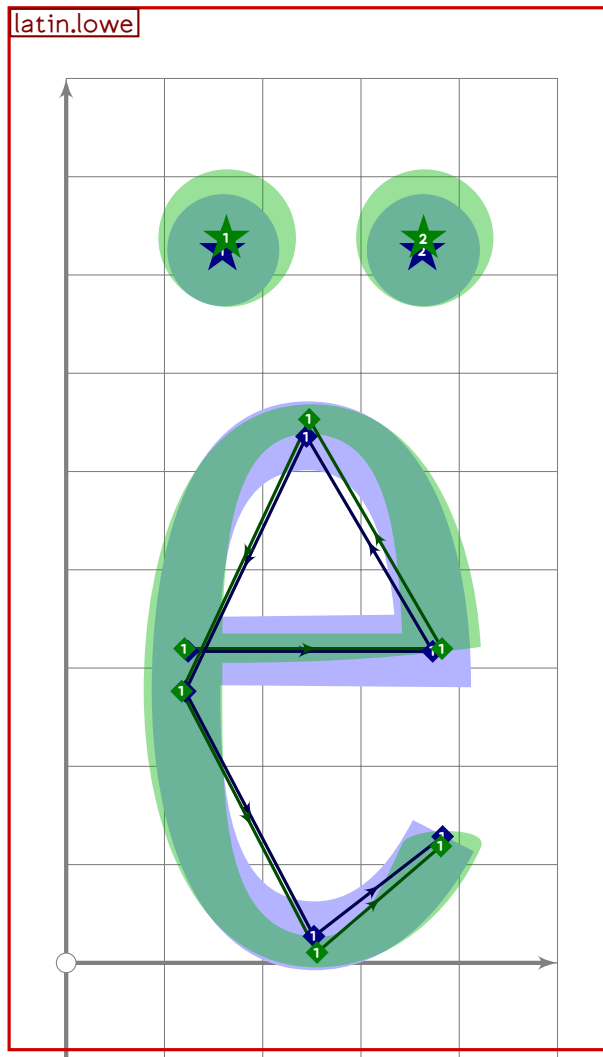


```
1301 % e with acute
1302 beginsuglyph("eacute";233);
1303   tsu_accent.apply(latin.lower)(tsu_accent.acute);
1304   tsu_render;
1305 endsuglyph;
1306
```

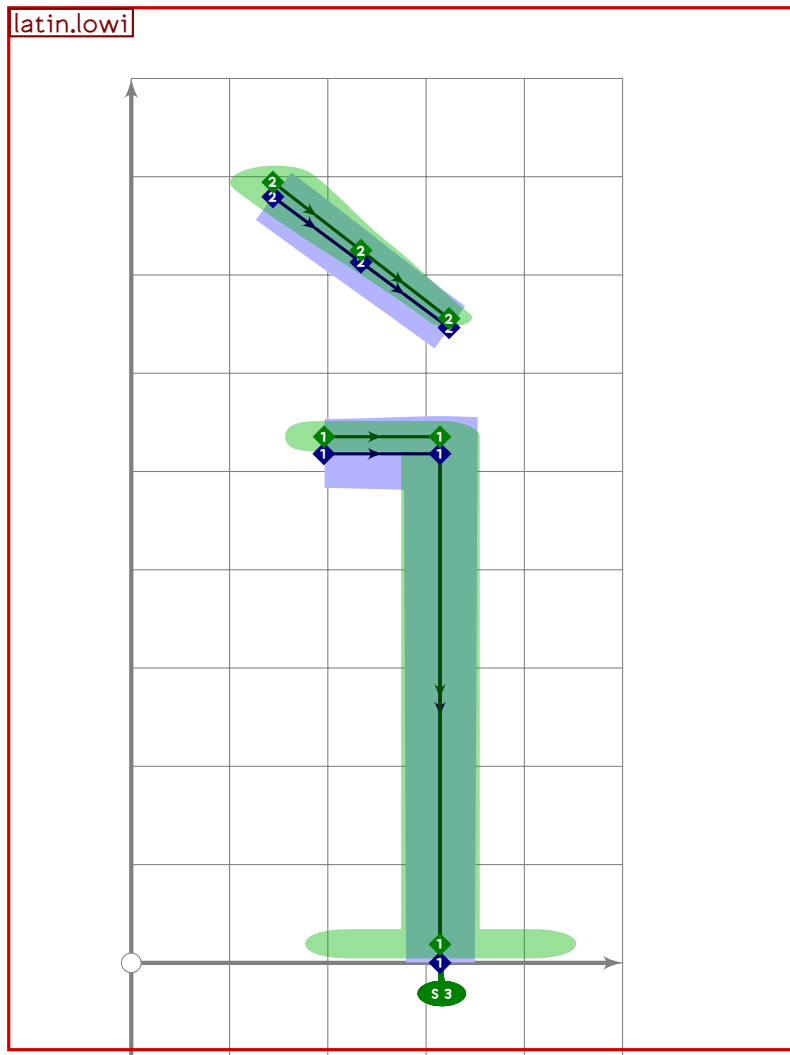


```
1307 % e with circumflex
1308 begintsuglyph("ecircumflex";234);
1309 tsu_accent.apply(latin.lower)(tsu_accent.circumflex);
1310 tsu_render;
1311 endsuglyph;
1312
```





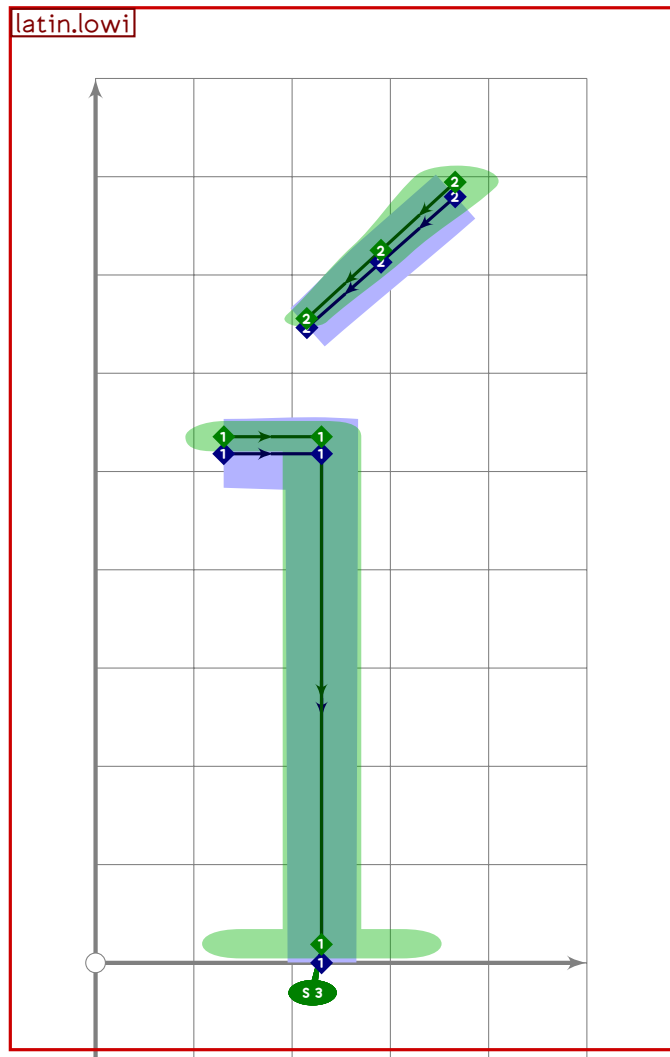
```
1313 % e with dieresis/umlaut  
1314 begintsuglyph("edieresis";235);  
1315 tsu_accent.apply(latin.lowe)(tsu_accent.umlaut);  
1316 tsu_render;  
1317 endsuglyph;  
1318
```



```

1319 % i with grave
1320 begintsuglyph("igrave";236);
1321 tsu_accent.apply(
1322     latin.lowi;
1323     replace_strokep(0)(oldp shifted (70*right));
1324     pop_lcblob;
1325 )(tsu_accent.grave);
1326 tsu_render;
1327 endtsuglyph;
1328

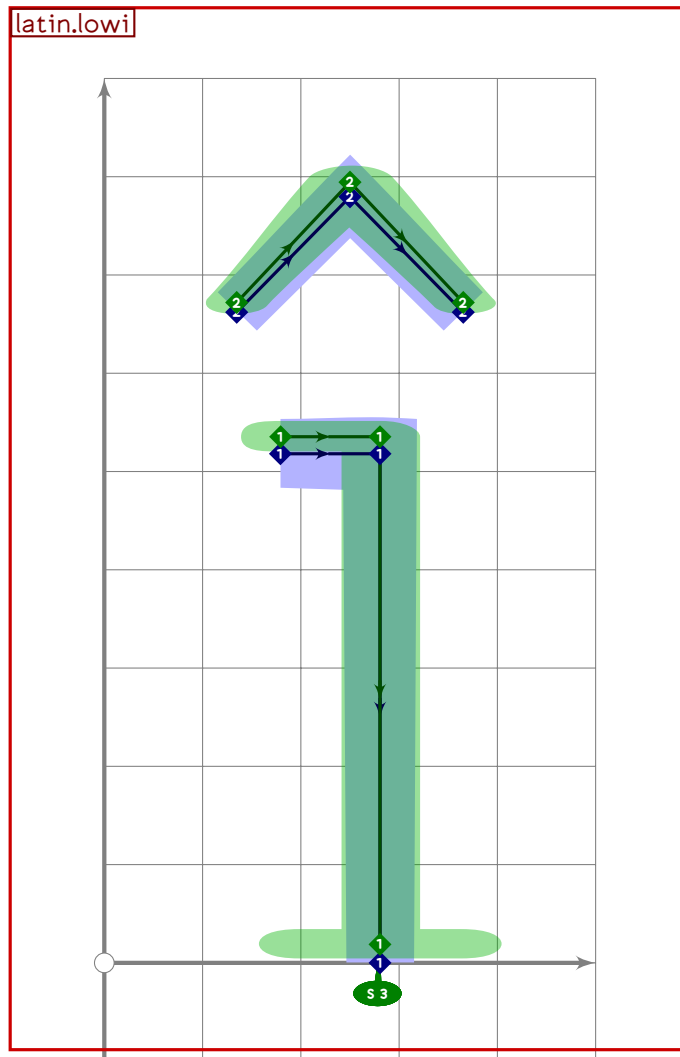
```



```

1329 % i with acute
1330 beginsuglyph("iacute";237);
1331   tsu_accent.apply(latin.lowi;pop_lcblob)(tsu_accent.acute);
1332   tsu_render;
1333 endsuglyph;
1334

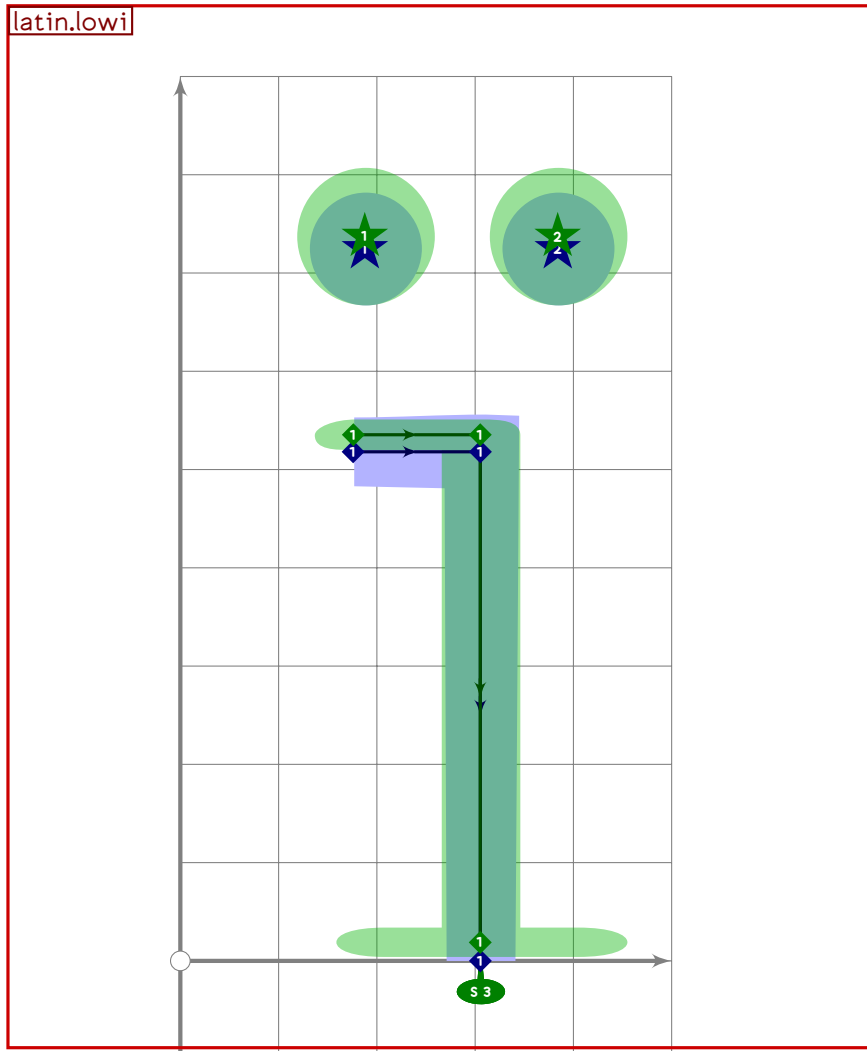
```



```

1335 % i with circumflex
1336 begintsuglyph("icircumflex",238);
1337 tsu_accent.apply(
1338     latin.lowi;
1339     replace_strokep(0)(oldp shifted (70*right));
1340     pop_lcblob;
1341 )(tsu_accent.circumflex);
1342 tsu_render;
1343 endsuglyph;
1344

```

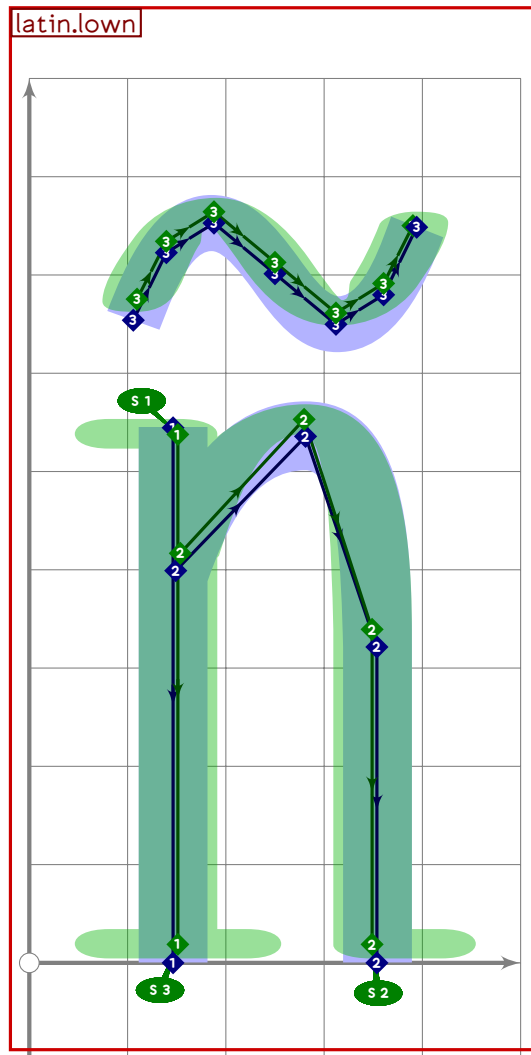


```

1345 % i with dieresis/umlaut
1346 begintsuglyph("idieresis",239);
1347   tsu_accent.apply(
1348     latin.lowi;
1349     replace_strokep(0)(oldp shifted (70*right));
1350     pop_lcblob;
1351   )(tsu_accent.umlaut);
1352   replace_lcblob(-1)(oldblob shifted (50*right));
1353   replace_lcblob(0)(oldblob shifted (50*left));
1354   tsu_render;
1355 endsuglyph;
1356
1357 % lowercase Icelandic eth
1358 begintsuglyph("eth",240);
1359   latin.loweth;
1360   tsu_render;
1361 endsuglyph;
1362

```

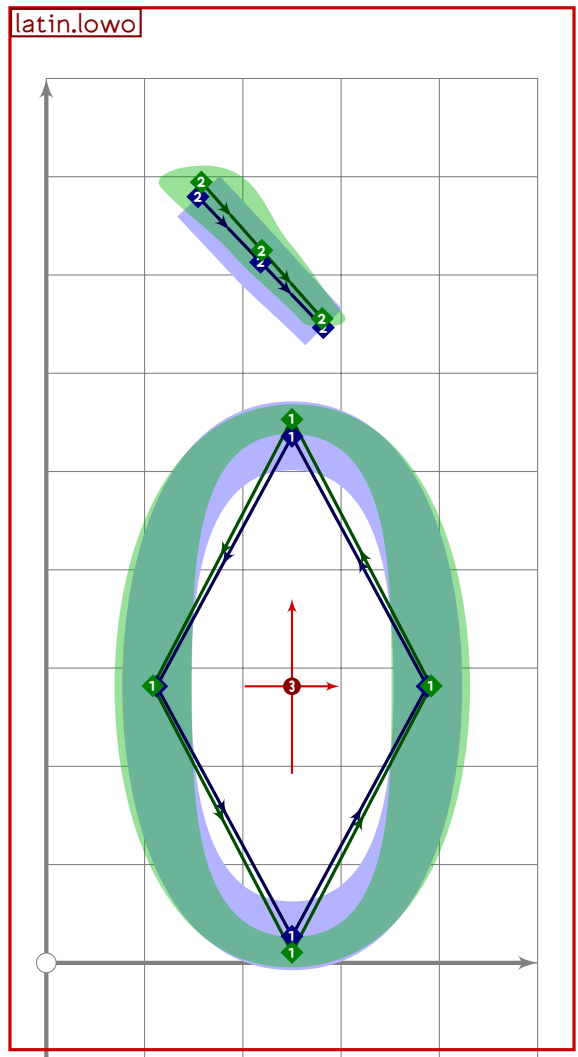
[see page 210]



```

1363 % n with tilde
1364 begintsuglyph("ntilde";241);
1365   tsu_accent.apply(latin.lown)(tsu_accent.tilde);
1366   tsu_render;
1367 endsuglyph;
1368

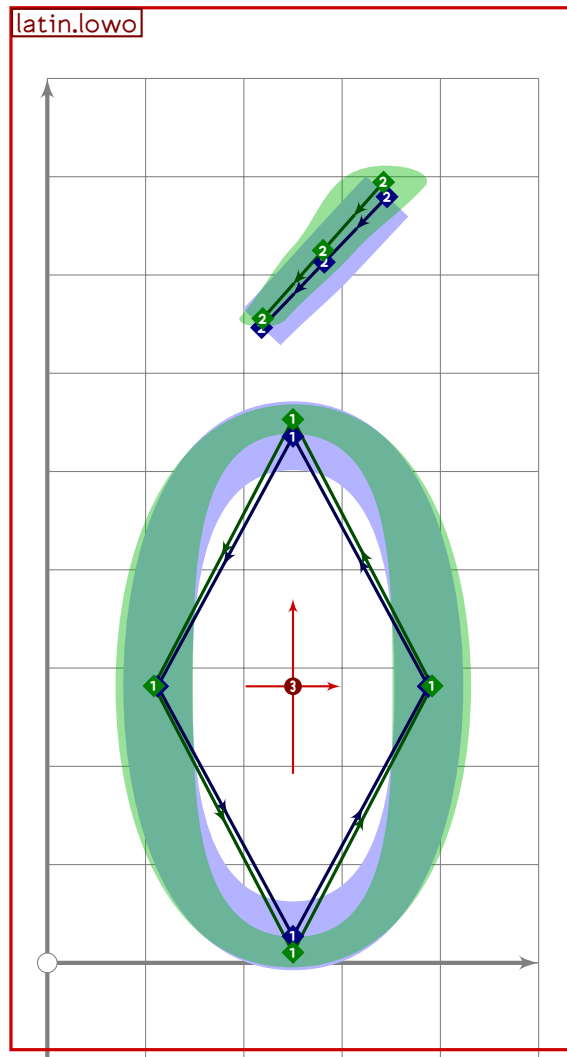
```



```

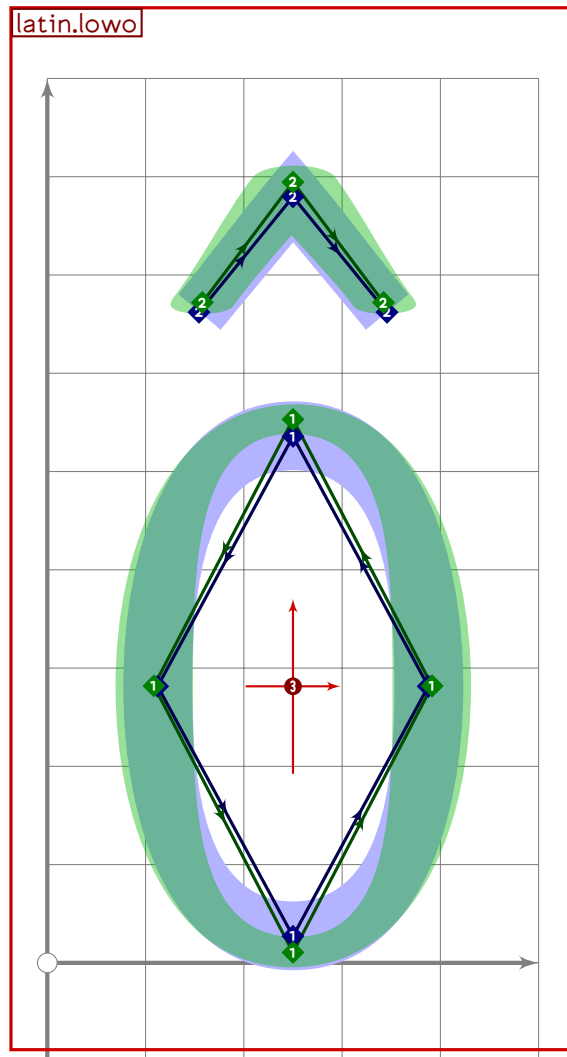
1369 % o with grave
1370 beginsuglyph("ograve";242);
1371   tsu_accent.apply(latin.low)(tsu_accent.grave);
1372   tsu_render;
1373 endsuglyph;
1374

```



```
1375 % o with acute  
1376 begintsuglyph("oacute";243);  
1377 tsu_accent.apply(latin.low)(tsu_accent.acute);  
1378 tsu_render;  
1379 endsuglyph;  
1380
```

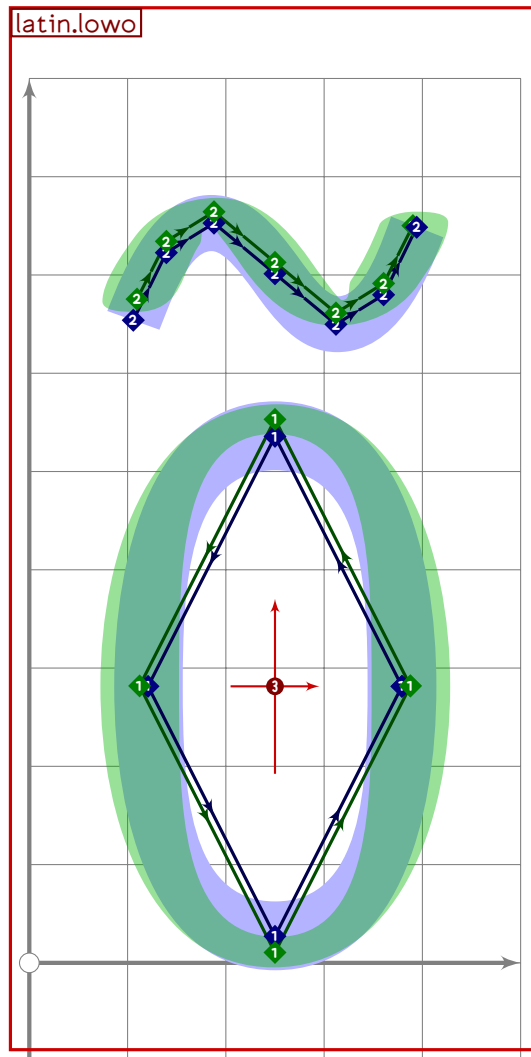




```

1381 % o with circumflex
1382 beginsuglyph("ocircumflex",244);
1383   tsu_accent.apply(latin.lowo)(tsu_accent.circumflex);
1384   tsu_render;
1385 endsuglyph;
1386

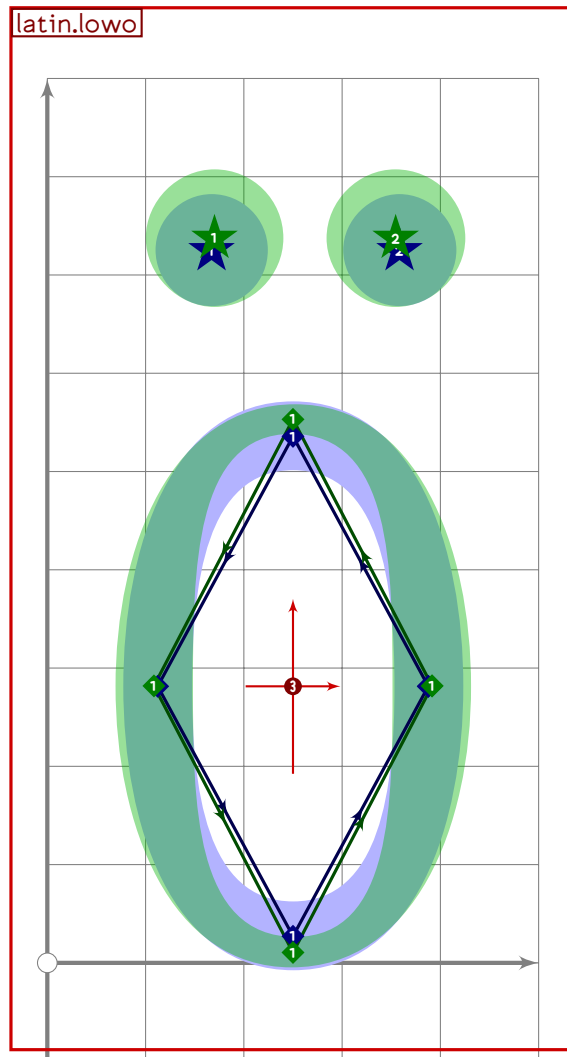
```



```

1387 % o with tilde
1388 begintsuglyph("otilde";245);
1389   tsu_accent.apply(latin.low o)(tsu_accent.tilde);
1390   tsu_render;
1391 endsuglyph;
1392

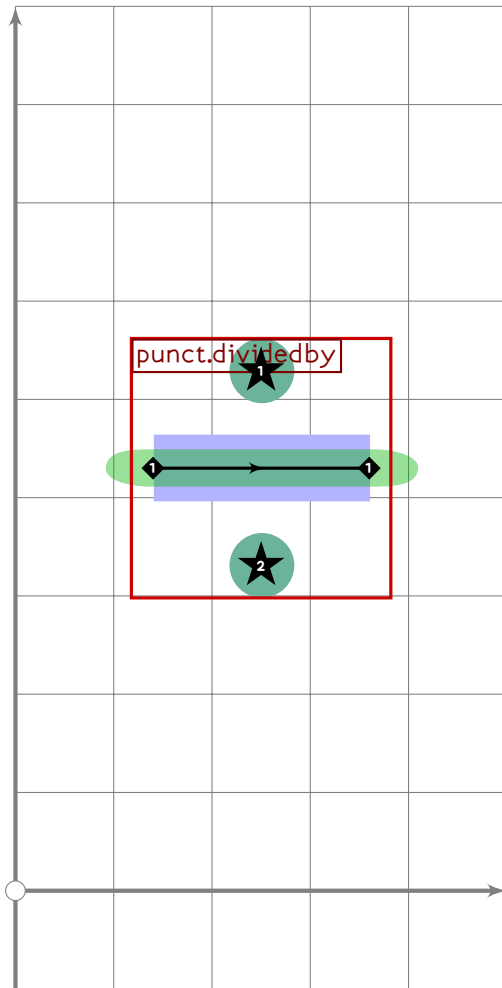
```



```

1393 % o with dieresis/umlaut
1394 beginsuglyph("odieresis";246);
1395   tsu_accent.apply(latin.lowo)(tsu_accent.umlaut);
1396   tsu_render;
1397 endsuglyph;
1398
1399 % division sign
1400 tsu_rescale_native_conditional;

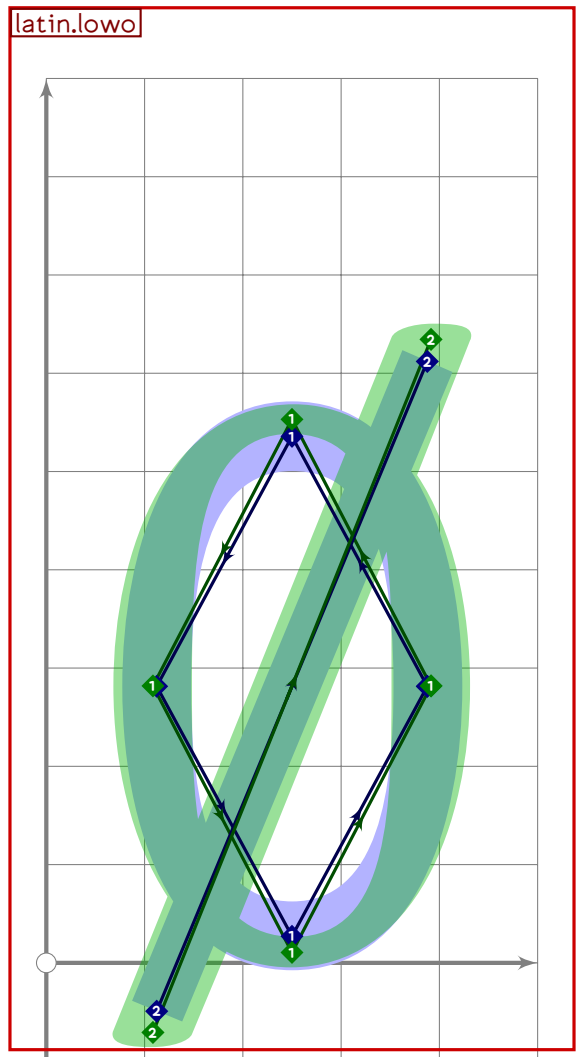
```



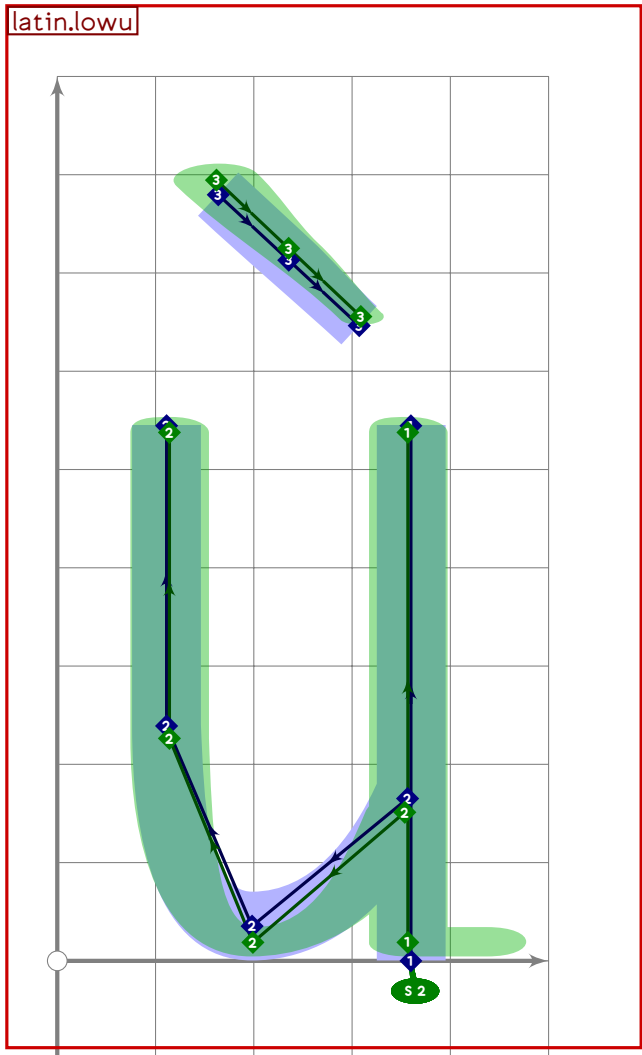
```

1401 begintsuglyph("divide",247);
1402 punct.dividedby(ascii_punct_xf);
1403 tsu_render;
1404 endsuglyph;
1405 tsu_rescale_half;
1406

```



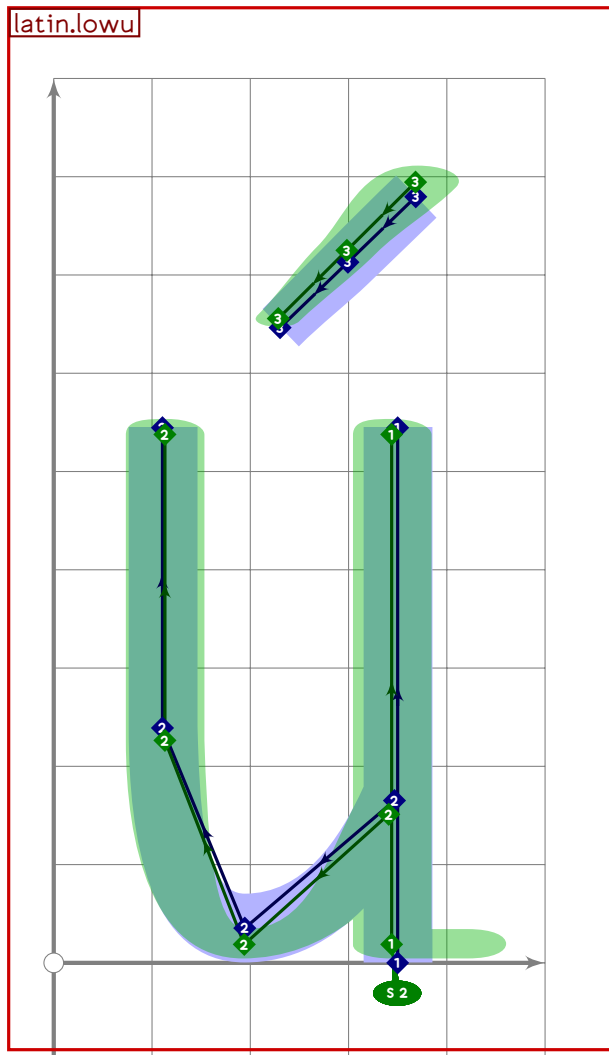
```
1407 % o with stroke  
1408 begintsuglyph("oslash";248);  
1409 tsu_accent.apply(latin.low)(tsu_accent.slash);  
1410 tsu_render;  
1411 endsuglyph;  
1412
```



```

1413 % u with grave
1414 begintsuglyph("ugrave",249);
1415   tsu_accent.apply(latin.lowu)(tsu_accent.grave);
1416   tsu_render;
1417 endsuglyph;
1418

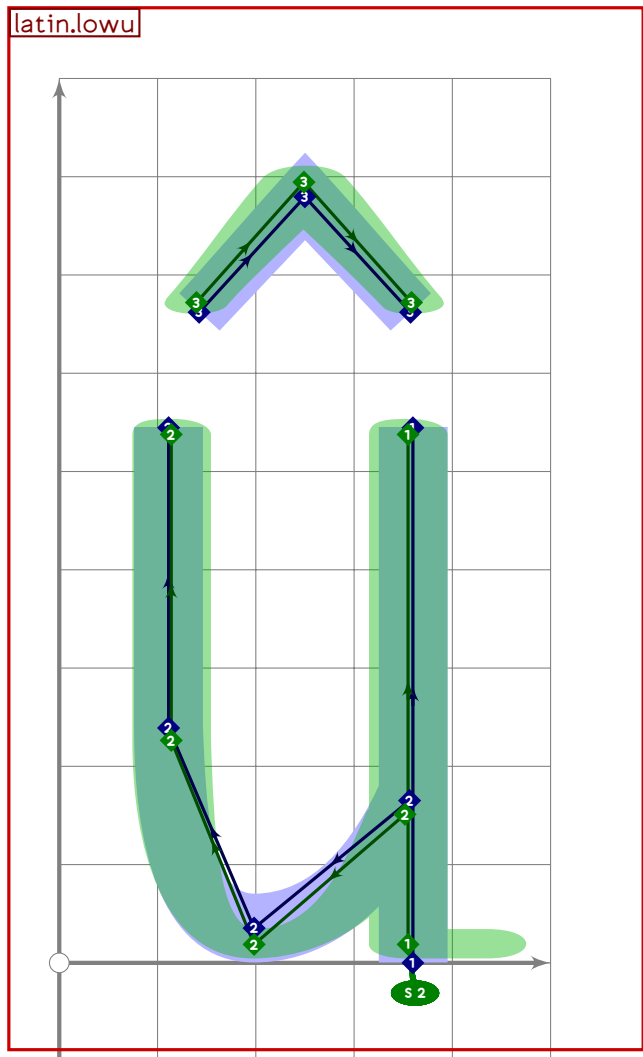
```



```

1419 % u with acute
1420 beginsuglyph("uacute";250);
1421 tsu_accent.apply(latin.lowu)(tsu_accent.acute);
1422 tsu_render;
1423 endsuglyph;
1424

```

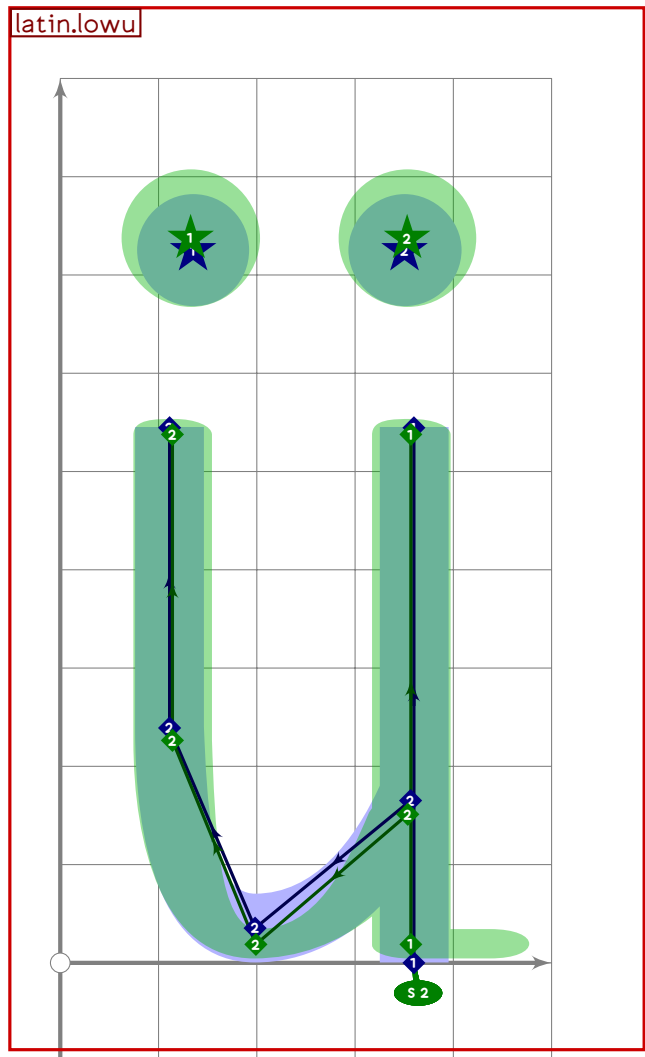


```

1425 % u with circumflex
1426 begint Suglyph("ucircumflex";251);
1427 tsu_accent.apply(latin.lowu)(tsu_accent.circumflex);
1428 replace_strokep(0)(oldp shifted (-30,0));
1429 tsu_render;
1430 endtsuglyph;
1431

```

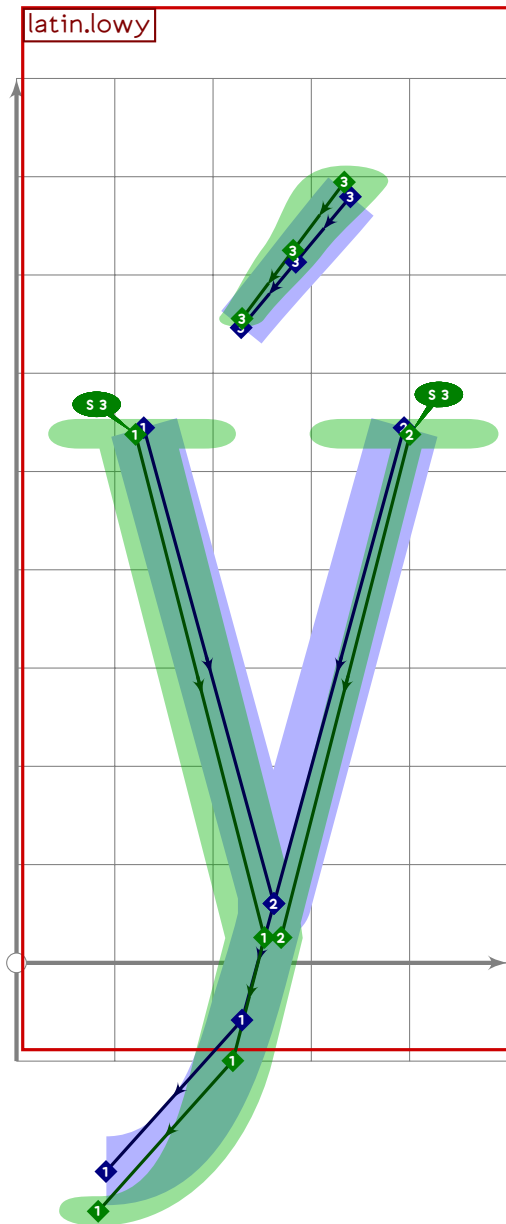




```

1432 % u with dieresis/umlaut
1433 begintsuglyph("udieresis",252);
1434 tsu_accent.apply(latin.lowu)(tsu_accent.umlaut);
1435 replace_lcblob(-1)(oldblob shifted (-60,0));
1436 replace_lcblob(0)(oldblob shifted (-60,0));
1437 tsu_render;
1438 endtsuglyph;
1439

```

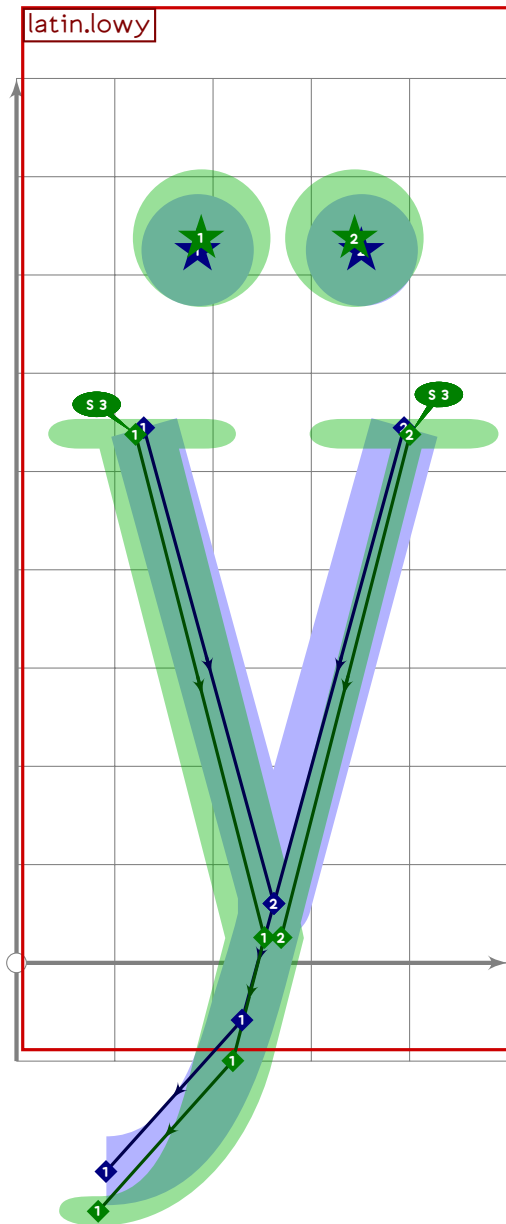


```

1440 % y with acute
1441 begintsuglyph("yacute";253);
1442   tsu_accent.apply(latin.lowy)(tsu_accent.acute);
1443   tsu_render;
1444 endsuglyph;
1445
1446 % thorn
1447 begintsuglyph("thorn";254);
1448   latin.lowthorn;
1449   tsu_render;
1450 endsuglyph;
1451

```

[see page 235]



```

1452 % y with dieresis/umlaut
1453 beginsuglyph("ydieresis",255);
1454   tsu_accent.apply(latin.lowy)(tsu_accent.umlaut);
1455   tsu_render;
1456 endsuglyph;
1457
1458 _____
1459
1460 endfont;
1461
1462 _____

```

# tsuku-01.mp

```
1 %
2 % Unicode page 01 (Latin Extended A) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---

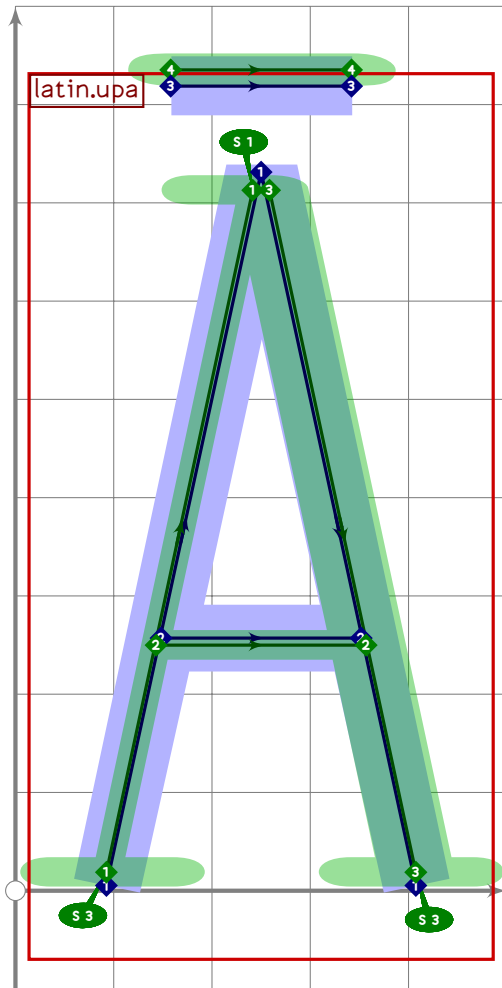

32
33 beginfont
34
35 input latin-intro.mp;
36
37 % AUTODEPS
38 input accent.mp;
39 input latin.mp;
40 input ogonek.mp;
41 input punct.mp;
42
43 

---


44
```

## Latin Extended A

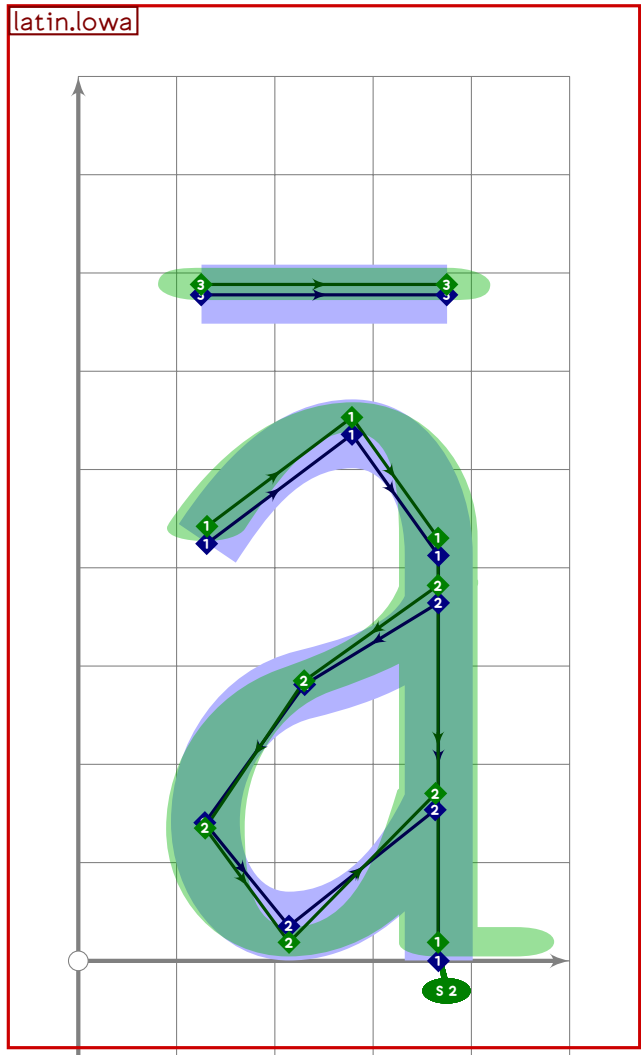
```
45 % LATIN EXTENDED A
46
47 tsu_rescale_half;
48
```



```

49 % A with macron
50 begint Suglyph("A macron",0);
51   tsu_accent.apply(tsu_accent.capital(latin.upa))(tsu_accent.macron);
52   tsu_render;
53 endtsuglyph;
54

```

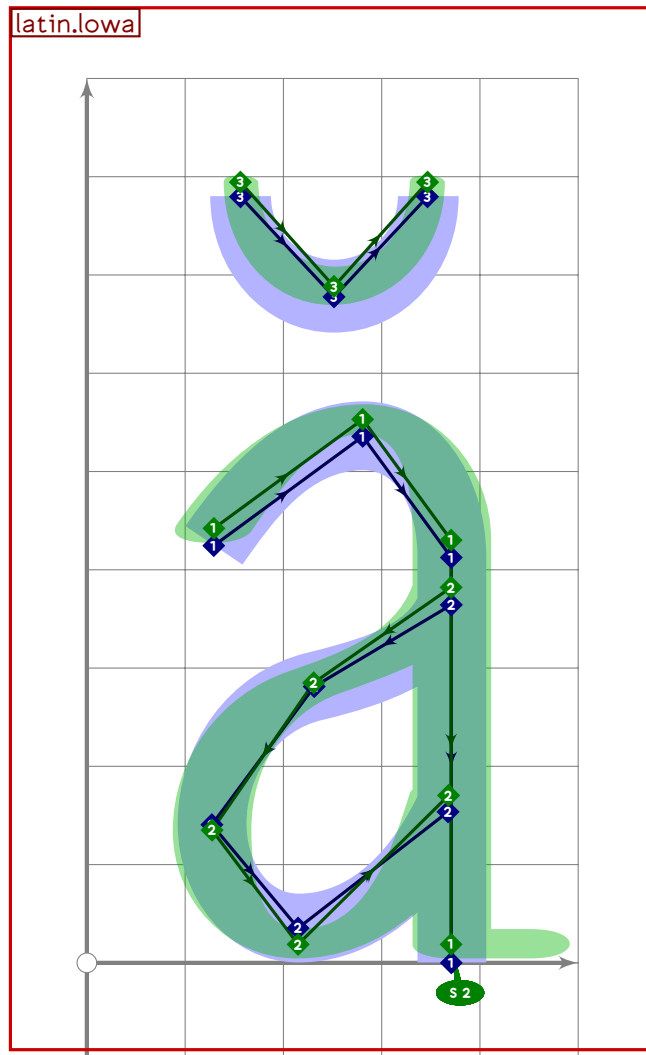


```

55 % a with macron
56 beginsuglyph("amacron";1);
57   tsu_accent.apply(latin.lowa)(tsu_accent.macron);
58   tsu_render;
59 endsuglyph;
60

```





```

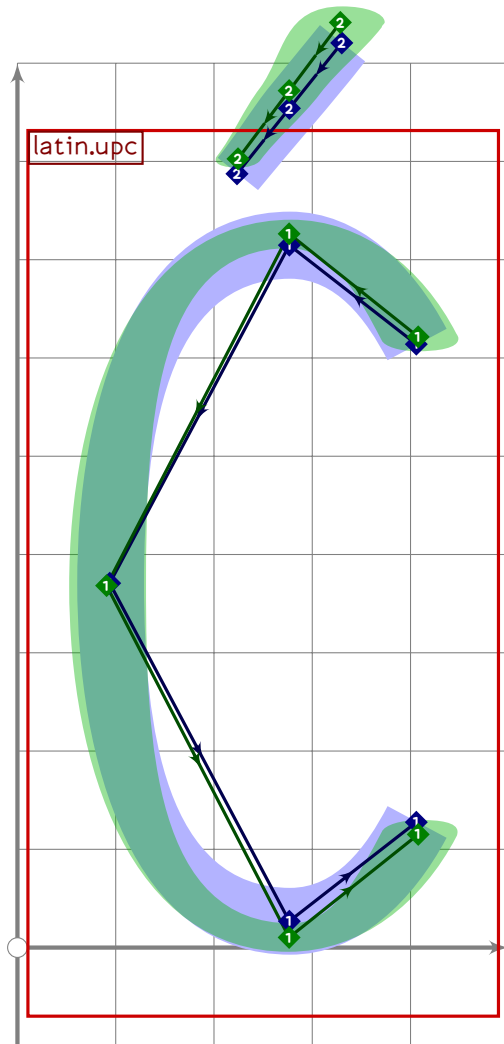
67 % a with breve
68 begintsuglyph("abreve",3);
69 tsu_accent.apply(latin.lowa)(tsu_accent.breve);
70 tsu_render;
71 endsuglyph;
72
73 % A with ogonek
74 begintsuglyph("Aogonek",4);
75 latin.upaogonek;
76 tsu_render;
77 endsuglyph;
78
79 % a with ogonek
80 begintsuglyph("aogonek",5);
81 latin.lowaogonek;
82 tsu_render;
83 endsuglyph;
84

```

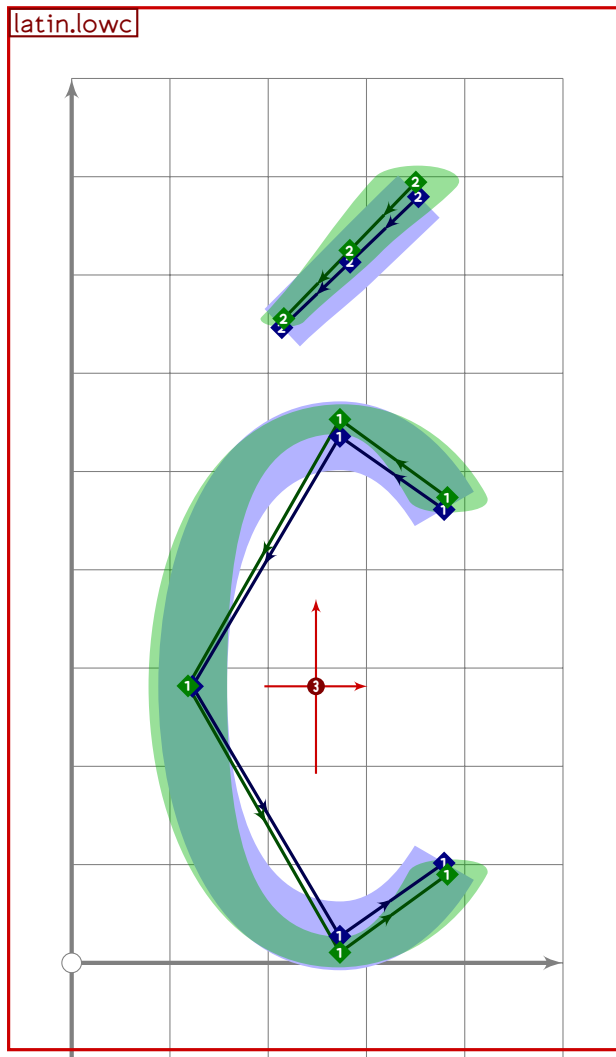
[see page 261]

[see page 267]





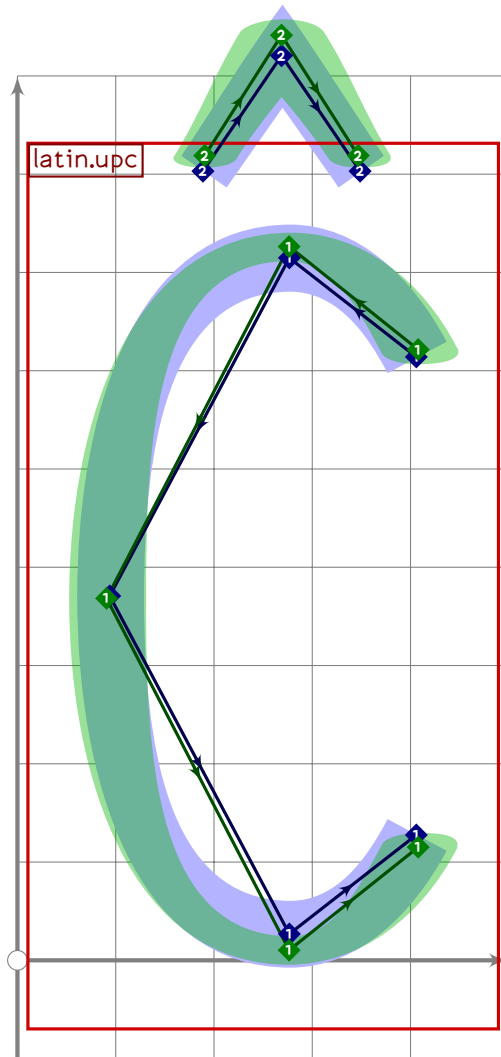
```
85 % C with acute
86 beginsuglyph("Cacute",6);
87 tsu_accent.apply(tsu_accent.capital(latin.upc))(tsu_accent.acute);
88 tsu_render;
89 endsuglyph;
90
```



```

91 % c with acute
92 beginsuglyph("cacute";7);
93   tsu_accent.apply(latin.lowc)(tsu_accent.acute);
94   tsu_render;
95 endsuglyph;
96

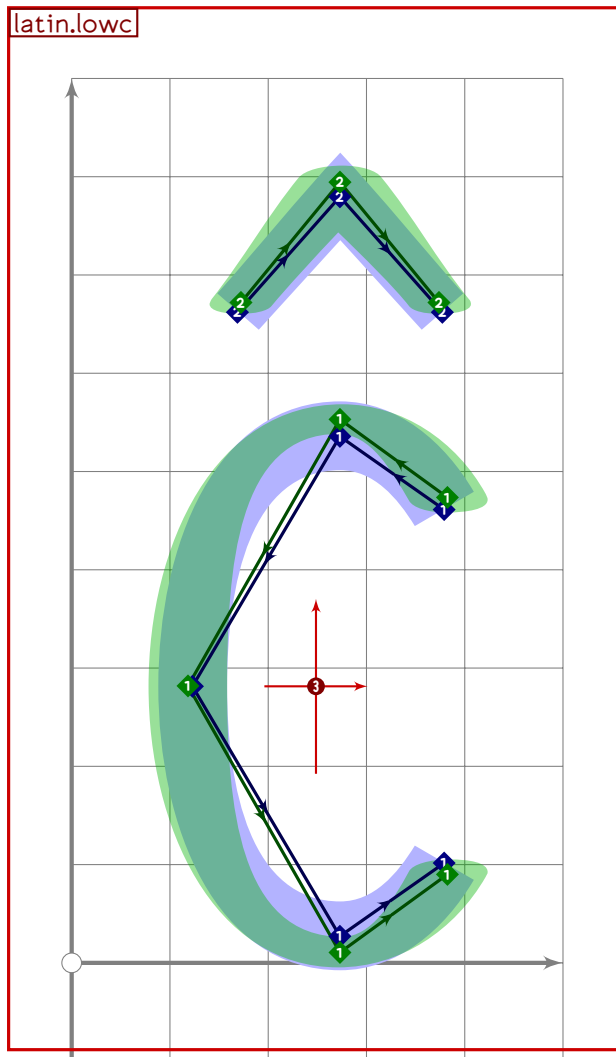
```



```

97 % C with circumflex
98 begintsuglyph("Ccircumflex";8);
99 tsu_accent.apply(tsu_accent.capital(latin.upc))(tsu_accent.circumflex);
100 replace_strokep(0)(oldp shifted (35,0));
101 tsu_render;
102 endsuglyph;
103

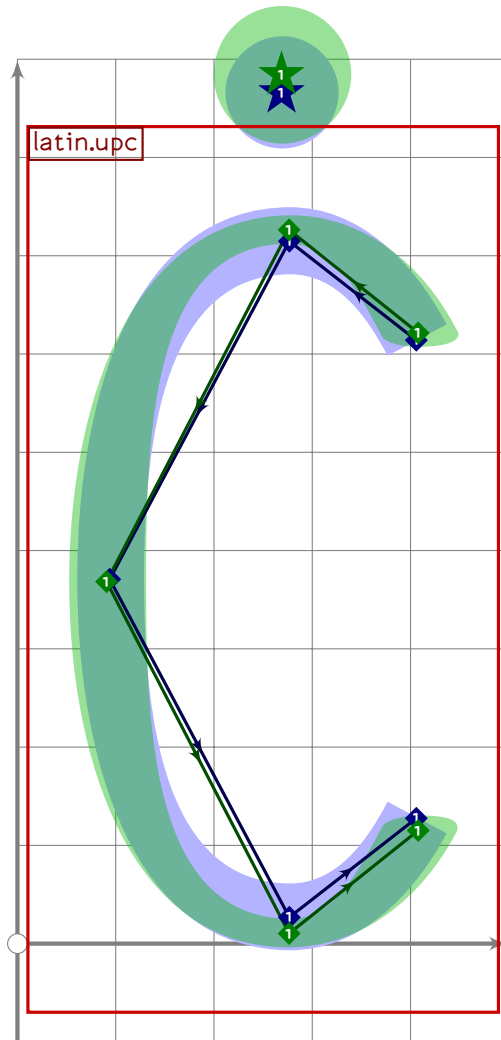
```



```

104 % c with circumflex
105 begintsuglyph("ccircumflex";9);
106 tsu_accent.apply(latin.lowc)(tsu_accent.circumflex);
107 replace_strokep(0)(oldp shifted (35,0));
108 tsu_render;
109 endtsuglyph;
110

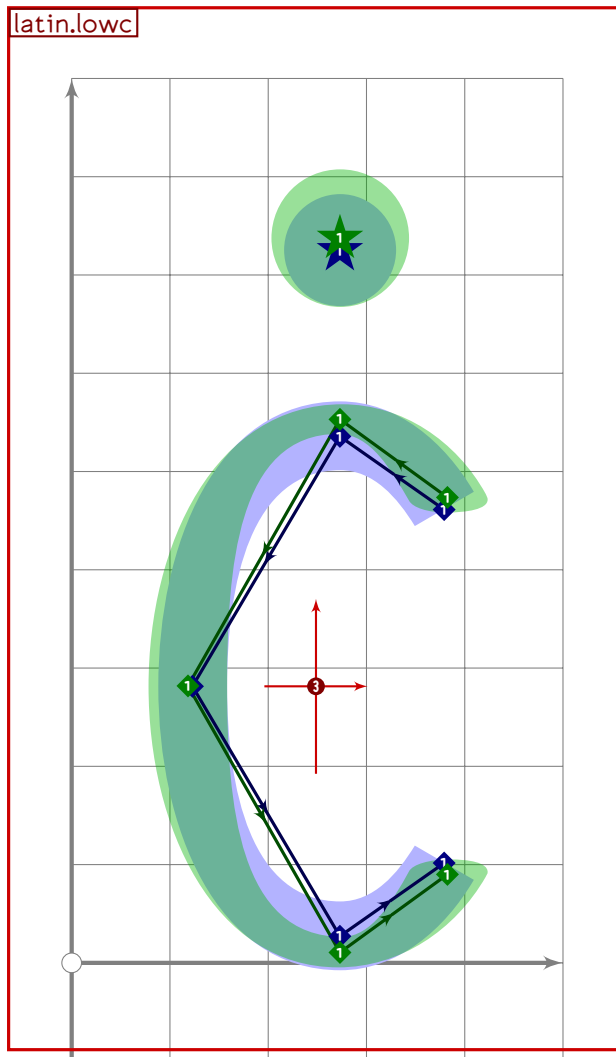
```



```

111 % C with dot above
112 begintsuglyph("Cdotaccent";10);
113 tsu_accent.apply(tsu_accent.capital(latin.upc))(tsu_accent.dotabove);
114 replace_lcblob(0)(oldblob shifted (35,0));
115 tsu_render;
116 endsuglyph;
117

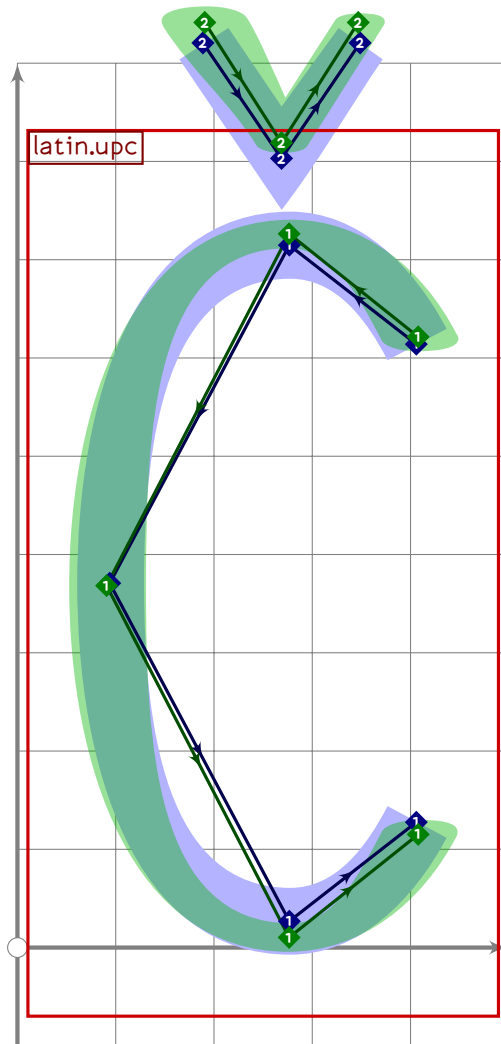
```



```

118 % c with dot above
119 begint Suglyph("c dot accent",11);
120 tsu_accent.apply(latin.lowc)(tsu_accent.dotabove);
121 replace_lcblob(0)(oldblob shifted (35,0));
122 tsu_render;
123 endtsuglyph;
124

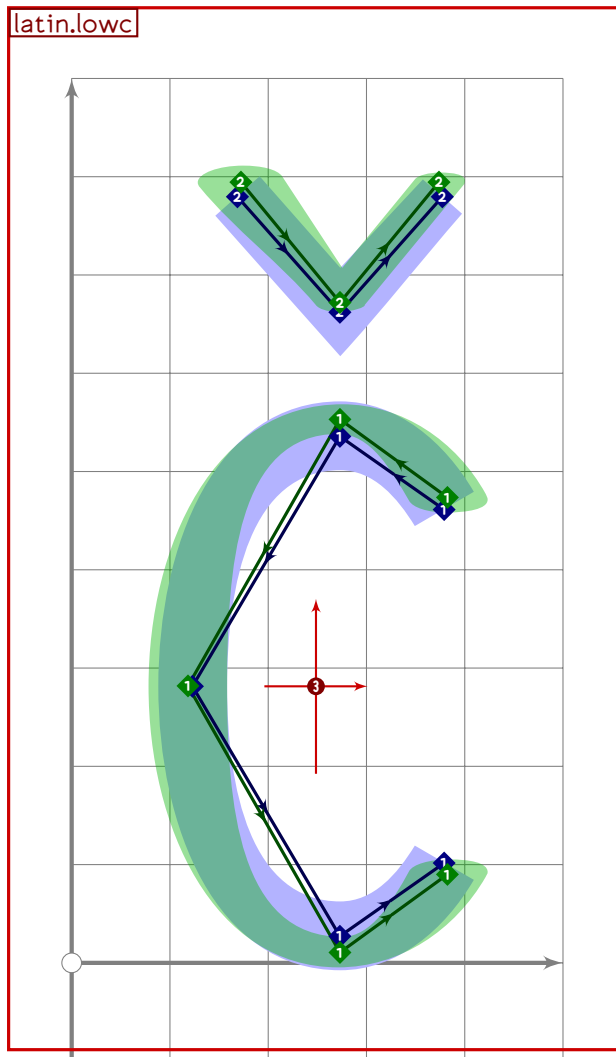
```



```

125 % C with caron
126 begint Suglyph("Ccaron";12);
127 tsu_accent.apply(tsu_accent.capital(latin.upc))(tsu_accent.caron);
128 replace_strokep(0)(oldp shifted (35,0));
129 tsu_render;
130 endtsuglyph;
131

```

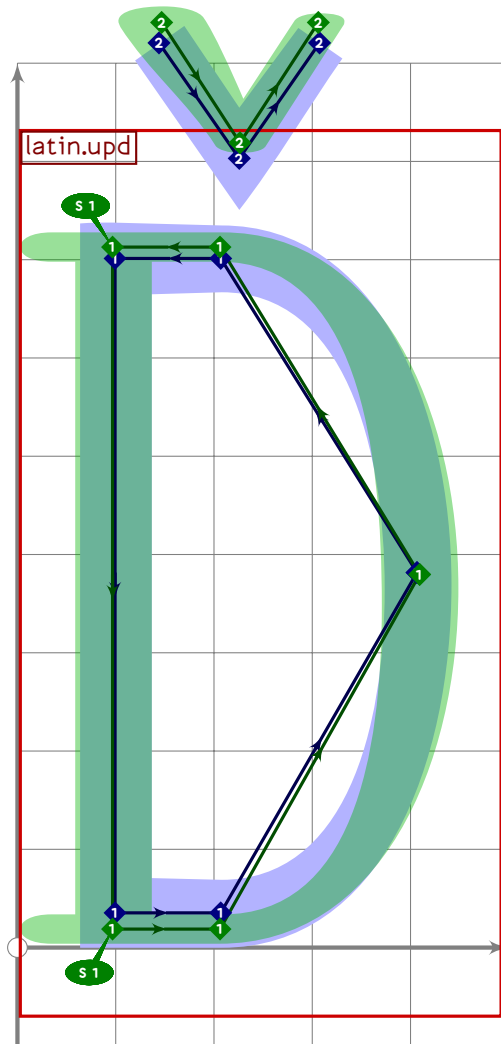


```

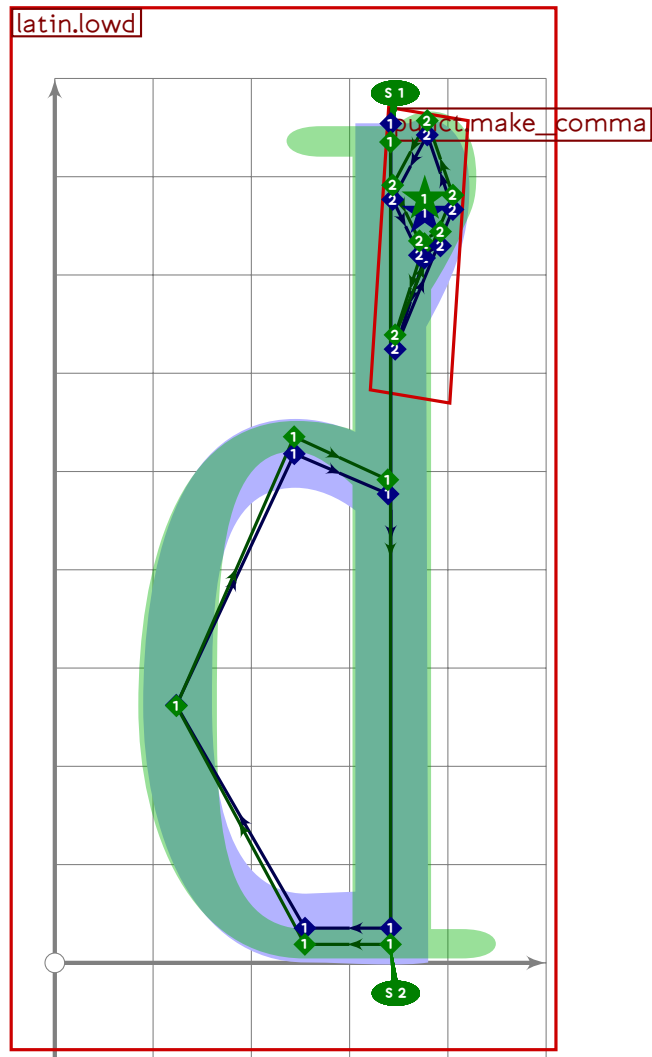
132 % c with caron
133 begintsuglyph("ccaron",13);
134 tsu_accent.apply(latin.lowc)(tsu_accent.caron);
135 replace_strokep(0)(oldp shifted (35,0));
136 tsu_render;
137 endtsuglyph;
138

```





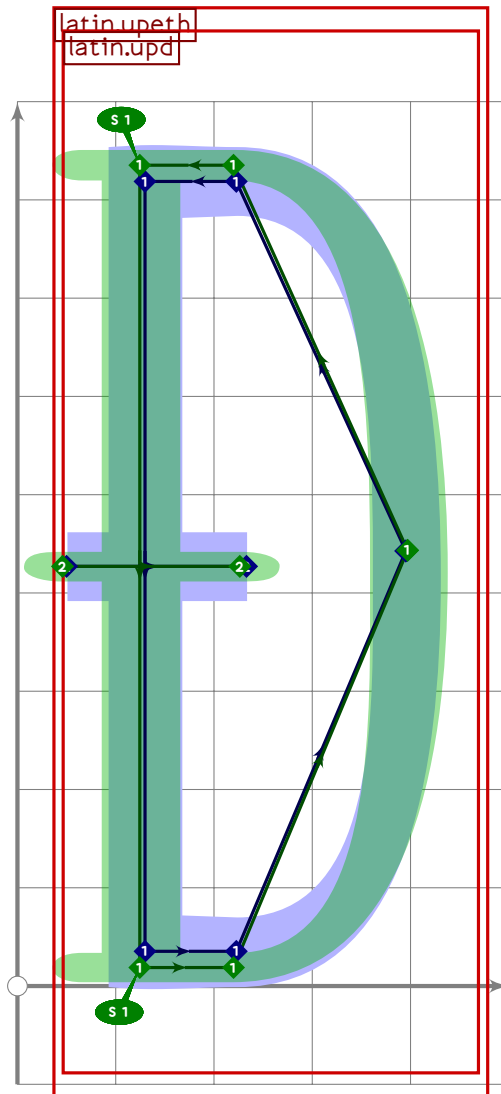
```
139 % D with caron
140 beginsuglyph("Dcaron";14);
141 tsu_accent.apply(tsu_accent.capital(latin.upd))(tsu_accent.caron);
142 replace_strokep(0)(oldp shifted (-40,0));
143 tsu_render;
144 endsuglyph;
145
```



```

146 % d with caron apostrophe
147 beginsuglyph("dcaron";15);
148 tsu_accent.apply(latin.lowd)(tsu_accent.caron_comma);
149 tsu_render;
150 endsuglyph;
151

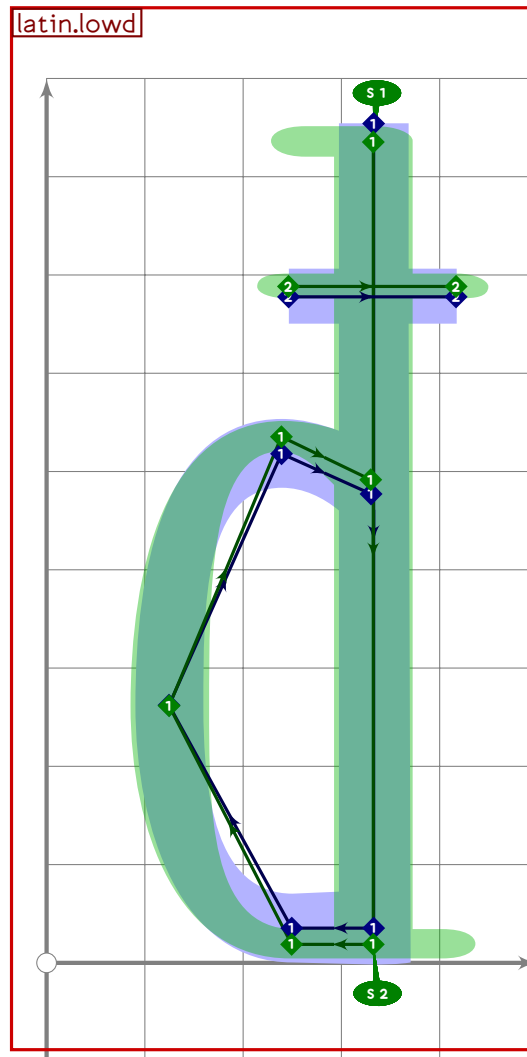
```



```

152 % D with stroke - same as capital Eth
153 beginsuglyph("Dcroat",16);
154 latin.upeth;
155 tsu_render;
156 endsuglyph;
157

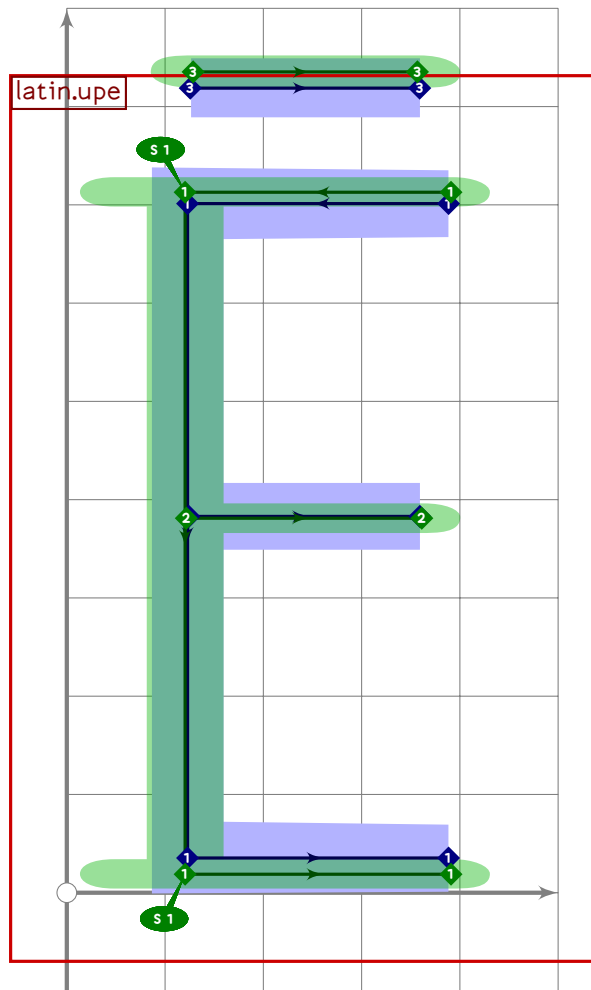
```



```

158 % d with bar
159 begintsuglyph("dcroat";17);
160 latin.lowd;
161 push_stroke((530,vmetric(0.82))-(820,vmetric(0.82)),
162   (1.6,1.6)-(1.6,1.6));
163 set_bosize(0,80);
164 tsu_render;
165 endsuglyph;
166

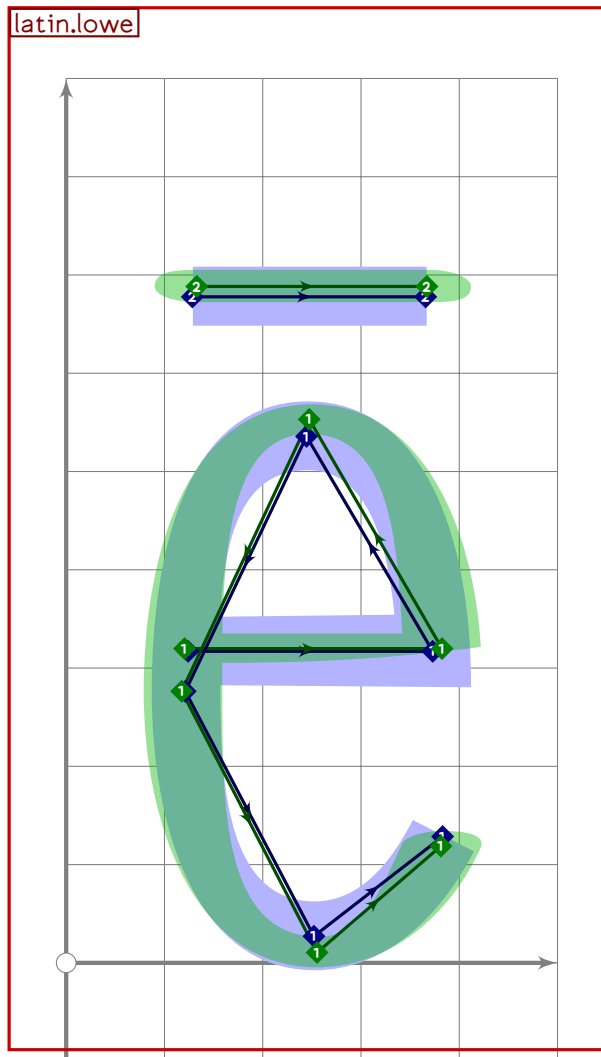
```



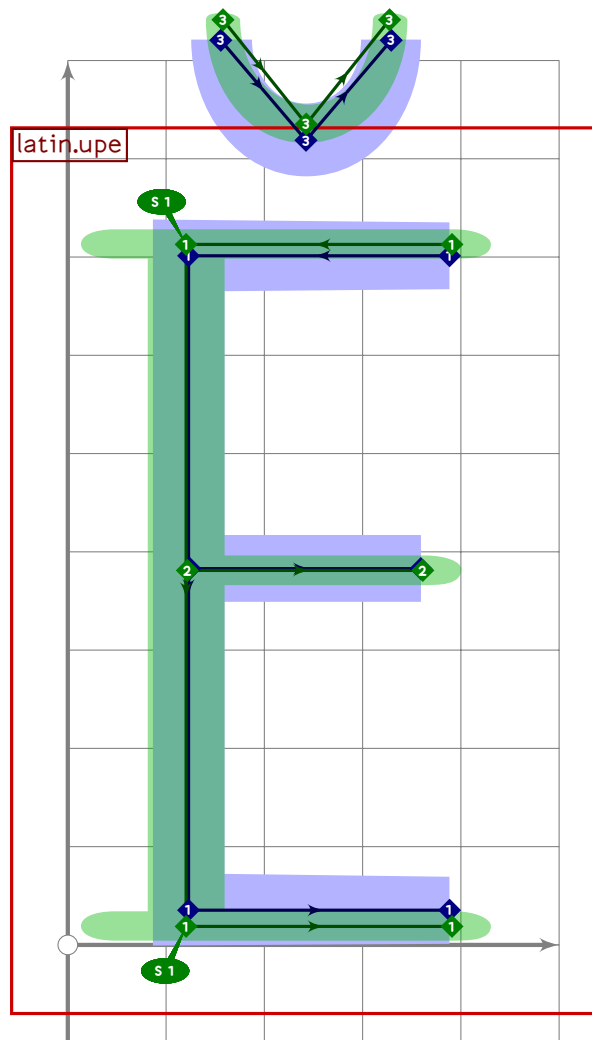
```

167 % E with macron
168 begintsuglyph("Emacron";18);
169 tsu_accent.apply(tsu_accent.capital(latin.upe))(tsu_accent.macron);
170 tsu_render;
171 endsuglyph;
172

```



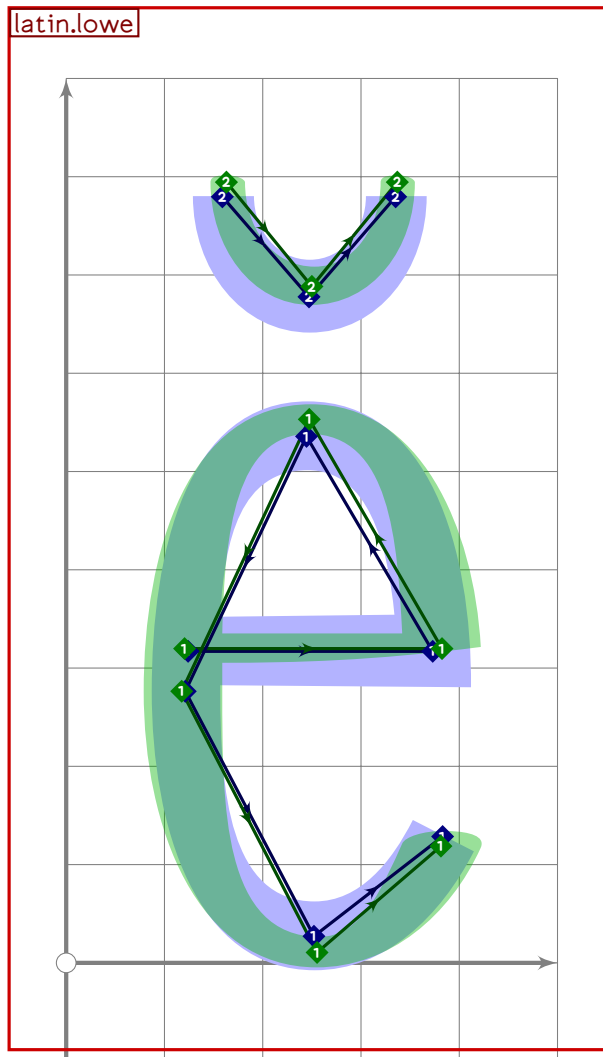
```
173 % e with macron
174 begintsuglyph("emacron";19);
175   tsu_accent.apply(latin.lower)(tsu_accent.macron);
176   tsu_render;
177 endsuglyph;
178
```



```

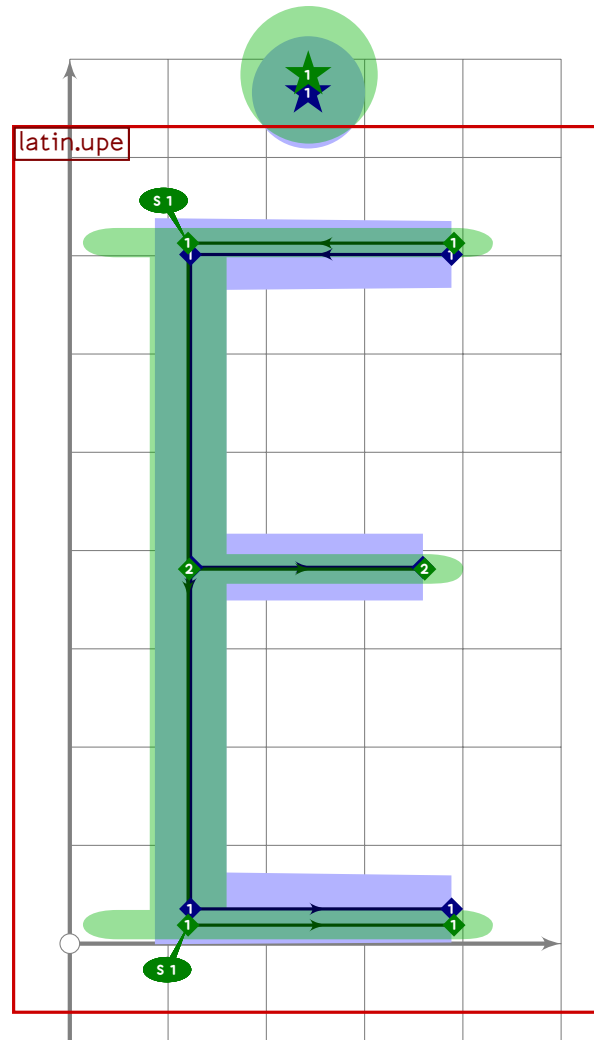
179 % E with breve
180 begintsuglyph("Ebreve",20);
181 tsu_accent.apply(tsu_accent.capital(latin.upe))(tsu_accent.breve);
182 tsu_render;
183 endsuglyph;
184

```



```
185 % e with breve  
186 begintsuglyph("ebreve";21);  
187 tsu_accent.apply(latin.lower)(tsu_accent.breve);  
188 tsu_render;  
189 endsuglyph;  
190
```

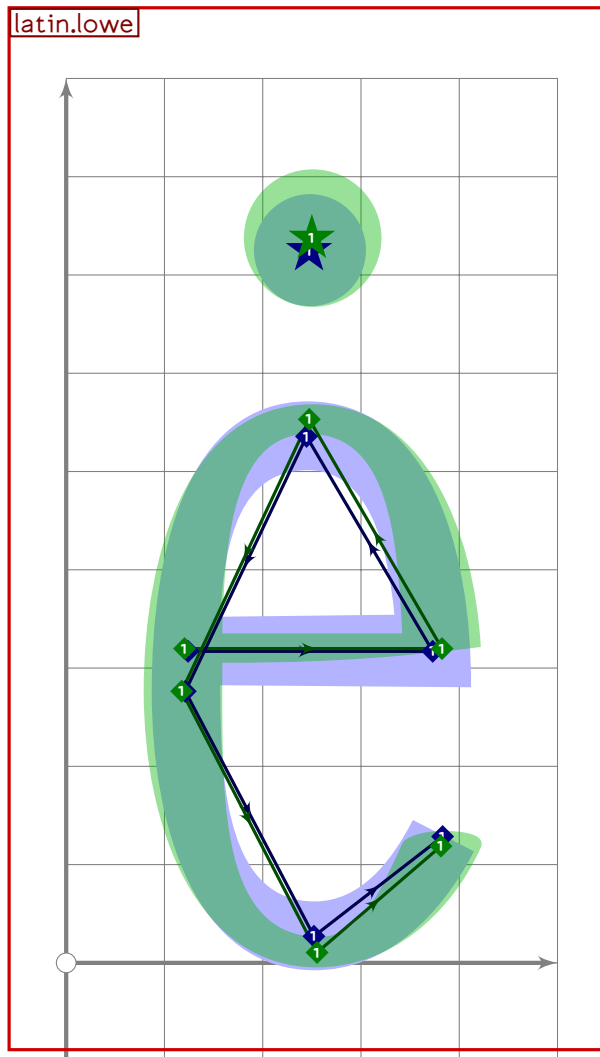




```

191 % E with dot
192 begint Suglyph("Edotaccent",22);
193   tsu_accent.apply(tsu_accent.capital(latin.ufe))(tsu_accent.dotabove);
194   tsu_render;
195 endtsuglyph;
196

```



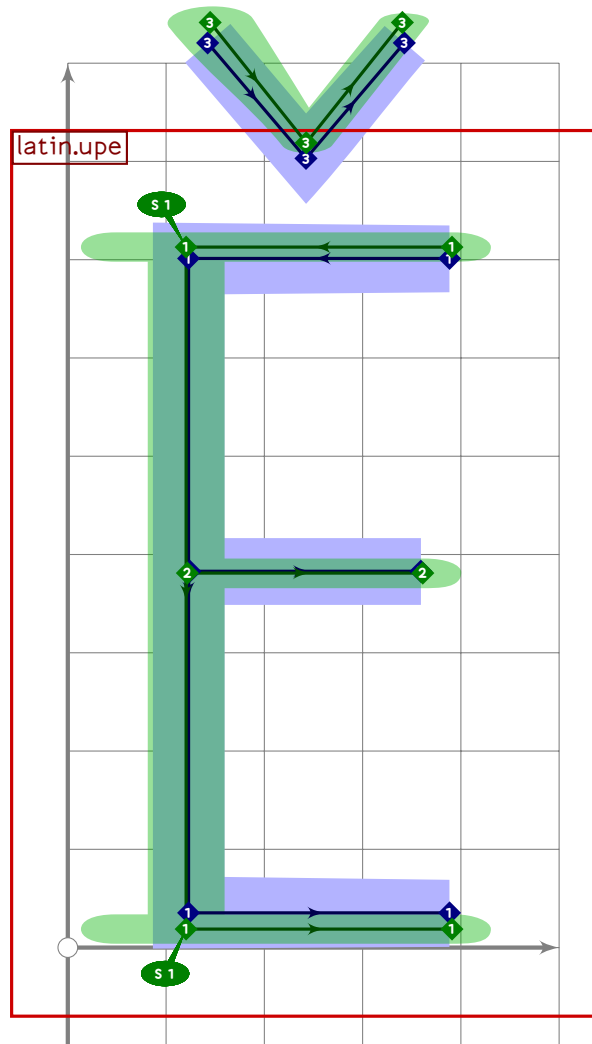
```

197 % e with dot
198 begintsuglyph("edotaccent",23);
199 tsu_accent.apply(latin.lowe)(tsu_accent.dotabove);
200 tsu_render;
201 endtsuglyph;
202
203 % E with ogonek
204 begintsuglyph("Eogonek",24);
205 latin.upeogonek;
206 tsu_render;
207 endtsuglyph;
208
209 % e with ogonek
210 begintsuglyph("eogonek",25);
211 latin.loweogonek;
212 tsu_render;
213 endtsuglyph;
214

```

[see page 263]

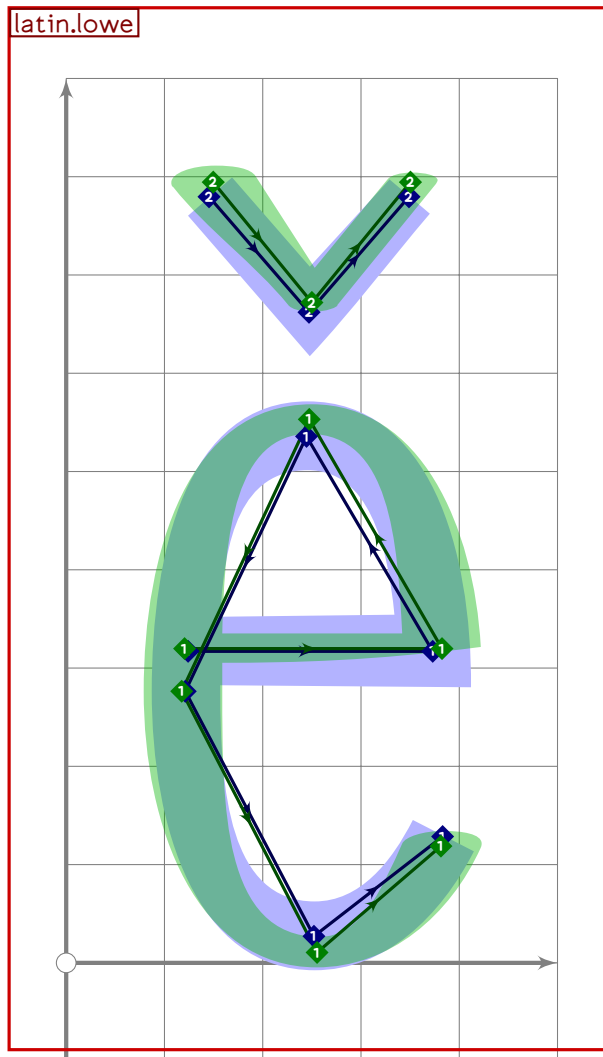
[see page 268]



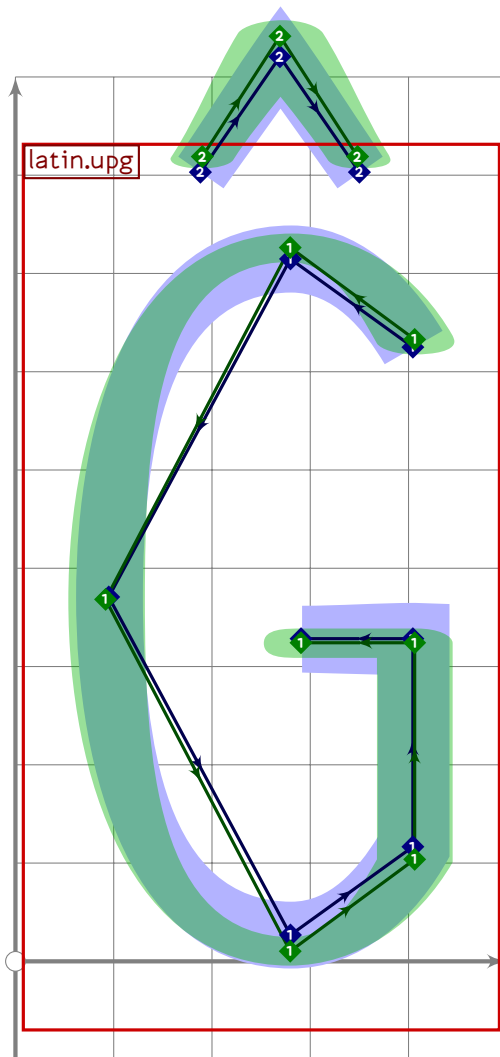
```

215 % E with caron
216 begint Suglyph("Ecaron";26);
217   tsu_accent.apply(tsu_accent.capital(latin.upe))(tsu_accent.caron);
218   tsu_render;
219 endtsuglyph;
220

```



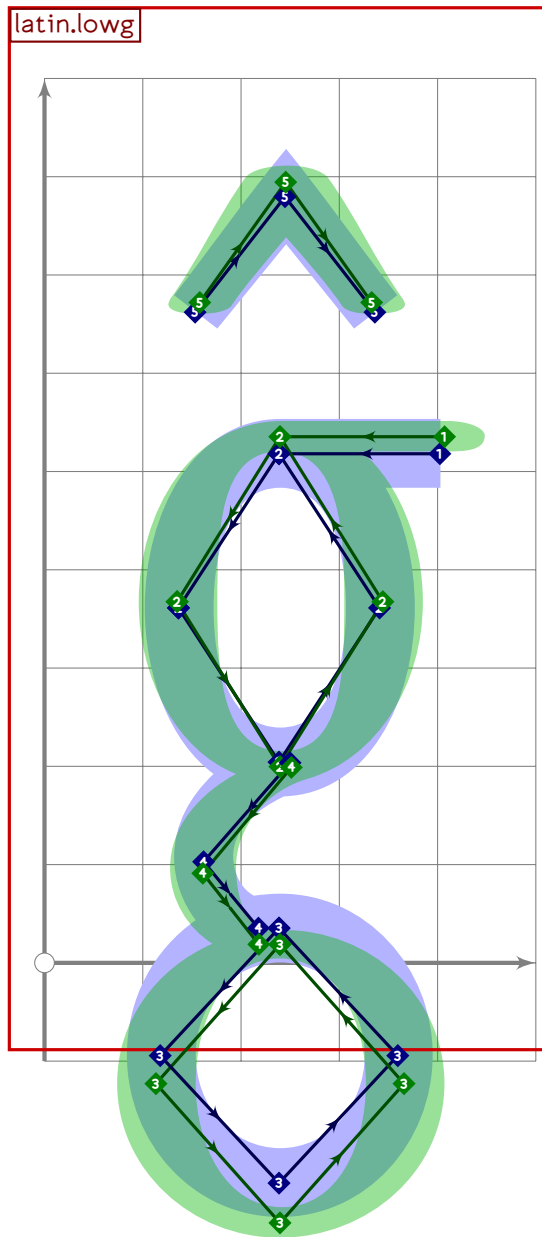
```
221 % e with caron
222 begintsuglyph("ecaron";27);
223   tsu_accent.apply(latin.lowe)(tsu_accent.caron);
224   tsu_render;
225 endsuglyph;
226
```



```

227 % G with circumflex
228 begintsuglyph("Gcircumflex";28);
229 tsu_accent.apply(tsu_accent.capital(latin.upg))(tsu_accent.circumflex);
230 replace_strokep(0)(oldp shifted (35,0));
231 tsu_render;
232 endsuglyph;
233

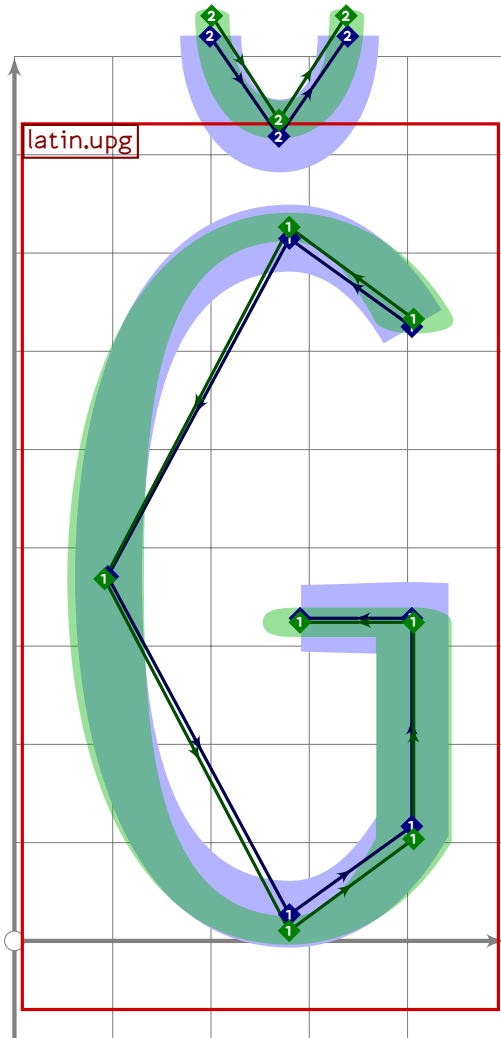
```



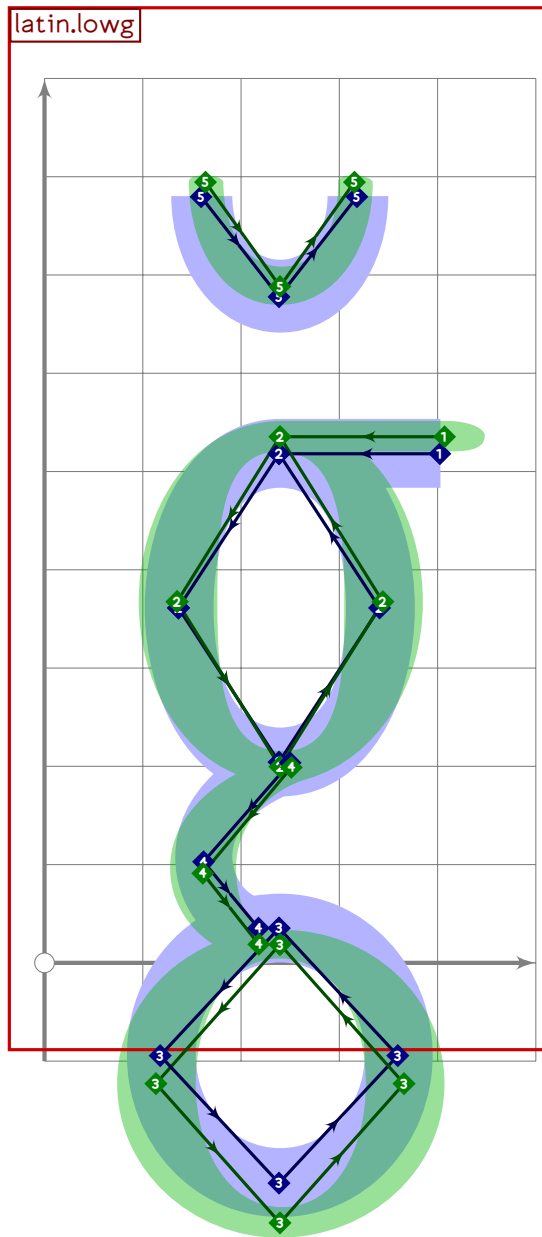
```

234 % g with circumflex
235 begint Suglyph("gcircumflex",29);
236 tsu_accent.apply(latin.lowg)(tsu_accent.circumflex);
237 replace_strokep(0)(oldp shifted (10,0));
238 tsu_render;
239 endtsuglyph;
240

```



```
241 % G with breve
242 beginsuglyph("Gbreve";30);
243 tsu_accent.apply(tsu_accent.capital(latin.upg))(tsu_accent.breve);
244 replace_strokep(0)(oldp shifted (35,0));
245 tsu_render;
246 endsuglyph;
247
```

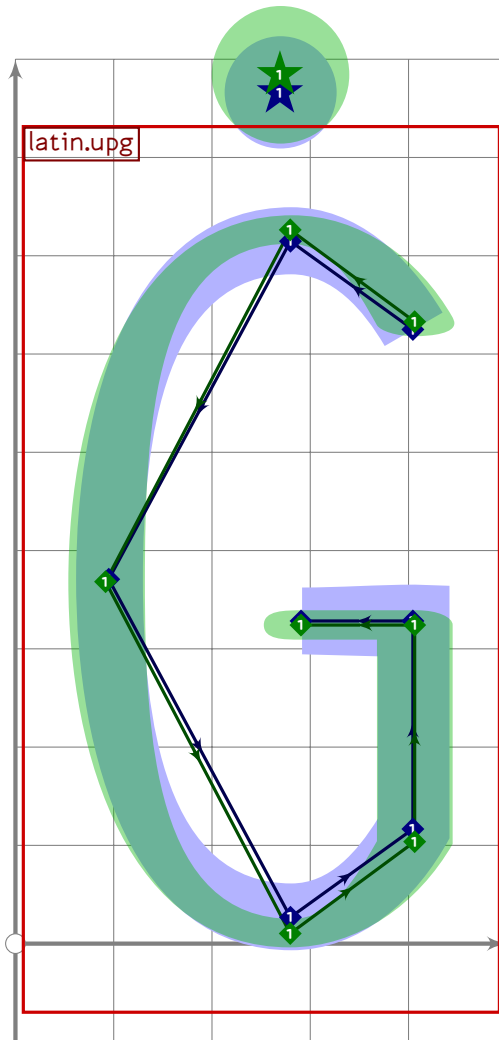


```

248 % g with breve
249 begint Suglyph("gbreve",31);
250 tsu_accent.apply(latin.lowg)(tsu_accent.breve);
251 tsu_render;
252 endtsuglyph;
253

```

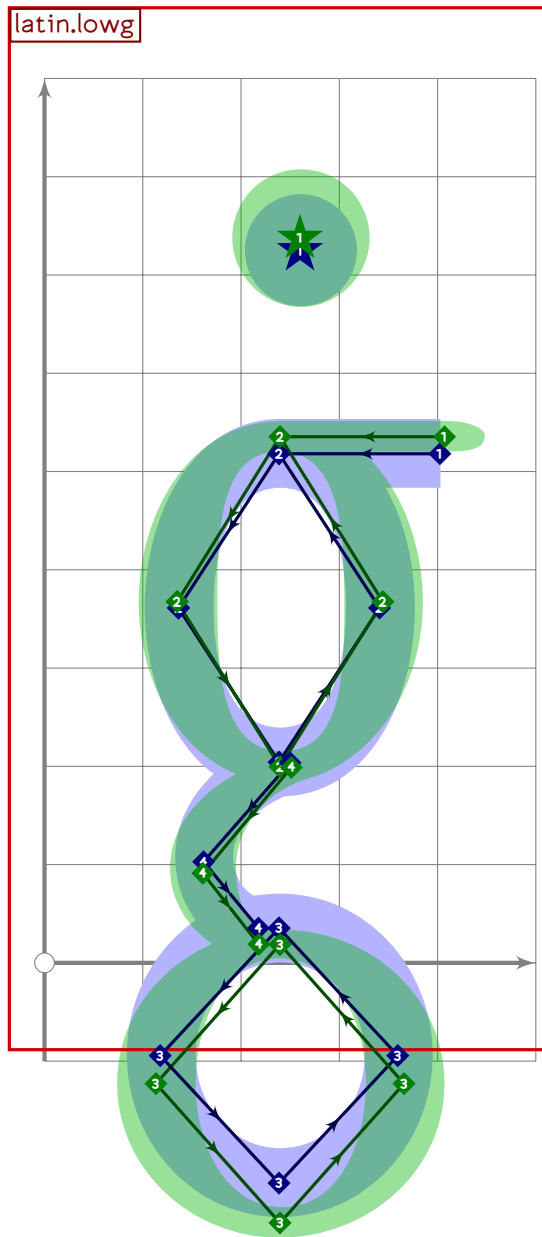




```

254 % G with dot
255 begintsuglyph("Gdotaccent";32);
256 tsu_accent.apply(tsu_accent.capital(latin.upg))(tsu_accent.dotabove);
257 replace_lcblob(0)(oldblob shifted (35,0));
258 tsu_render;
259 endsuglyph;
260

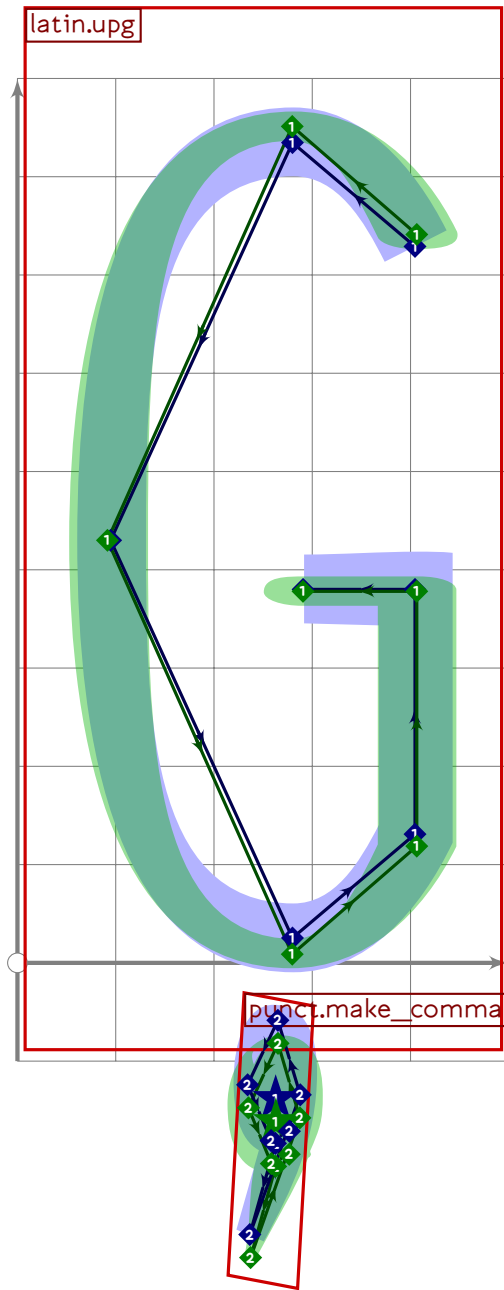
```



```

261 % g with dot
262 begint Suglyph("gdotaccent",33);
263 tsu_accent.apply(latin.lowg)(tsu_accent.dotabove);
264 replace_lcblob(0)(oldblob shifted (35,0));
265 tsu_render;
266 endsuglyph;
267

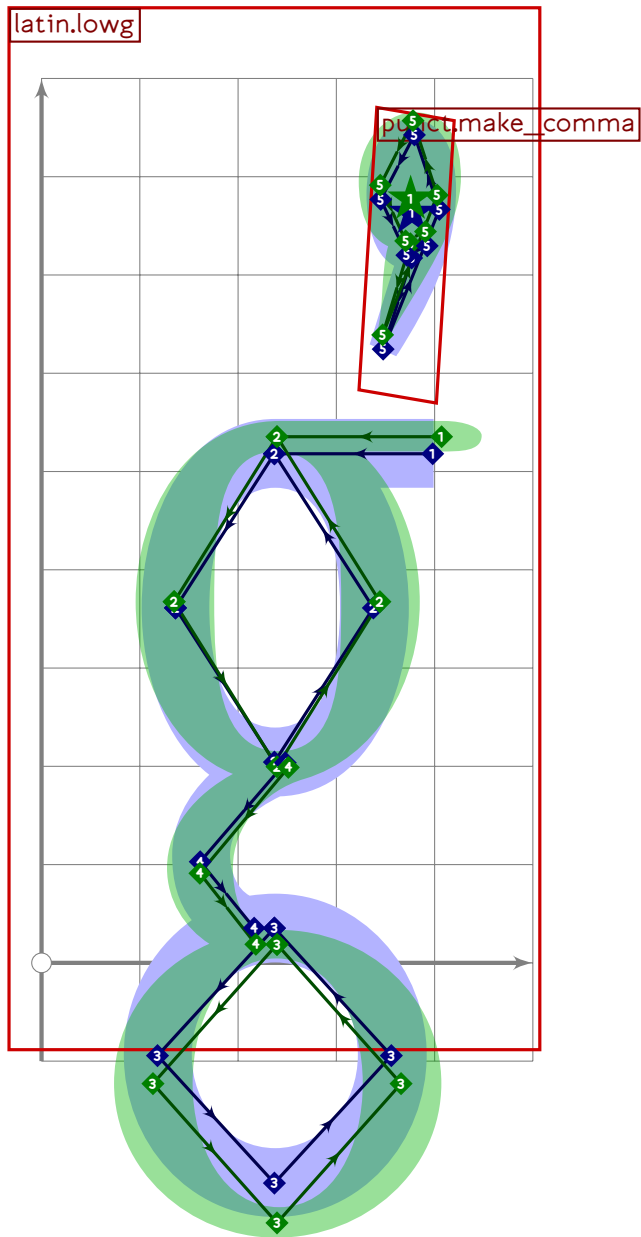
```



```

268 % G with comma below
269 beginsuglyph("uni0122",34);
270 tsu_accent.apply(latin.upg)(tsu_accent.commabelow);
271 tsu_render;
272 endsuglyph;
273

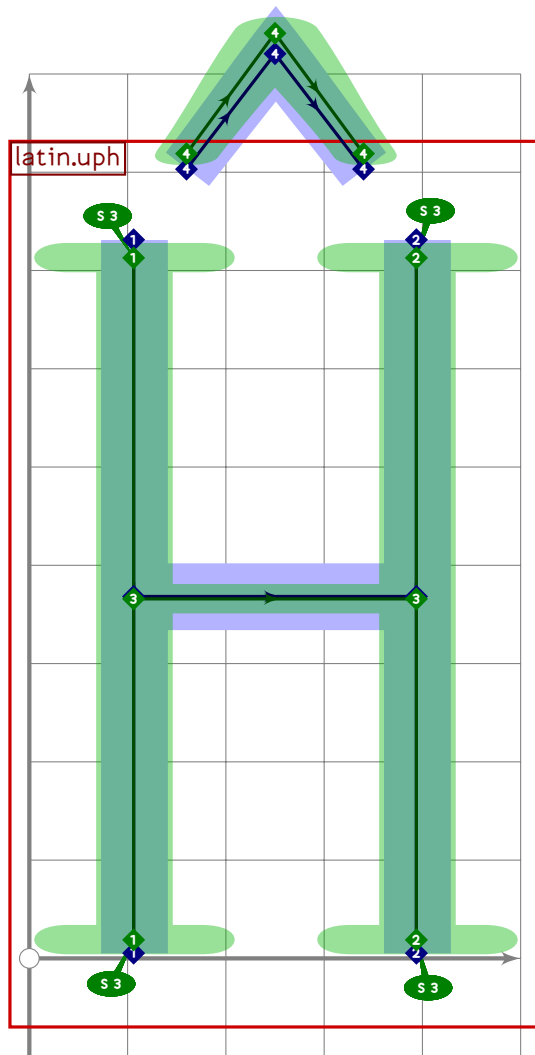
```



```

274 % g with comma upside-down above
275 begint Suglyph("uni0123";35);
276 tsu_accent.apply(latin.lowg)(tsu_accent.caron_comma);
277 tsu_render;
278 endtsuglyph;
279

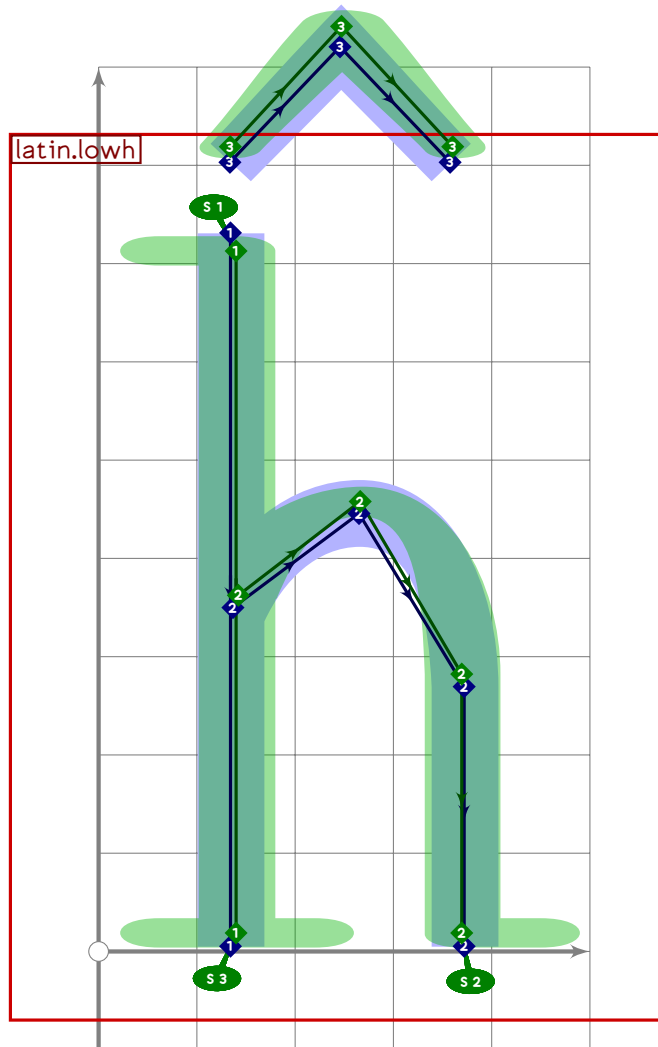
```



```

280 % H with circumflex
281 begint Suglyph("Hcircumflex",36);
282 tsu_accent.apply(tsu_accent.capital(latin.uph))(tsu_accent.circumflex);
283 tsu_render;
284 endsuglyph;
285

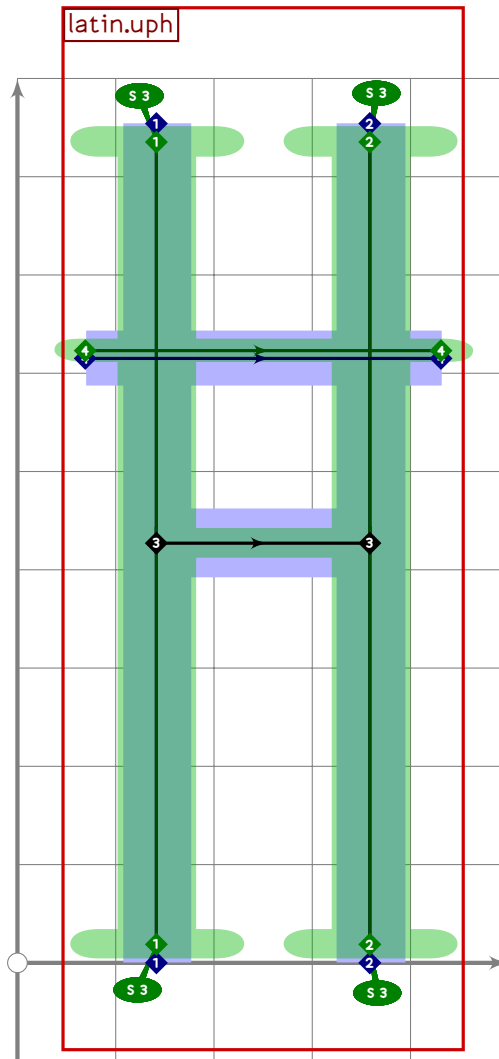
```



```

286 % h with circumflex
287 begint Suglyph("hcircumflex",37);
288   tsu_accent.apply(tsu_accent.capital(latin.lowh))(tsu_accent.circumflex);
289   tsu_render;
290 endsuglyph;
291

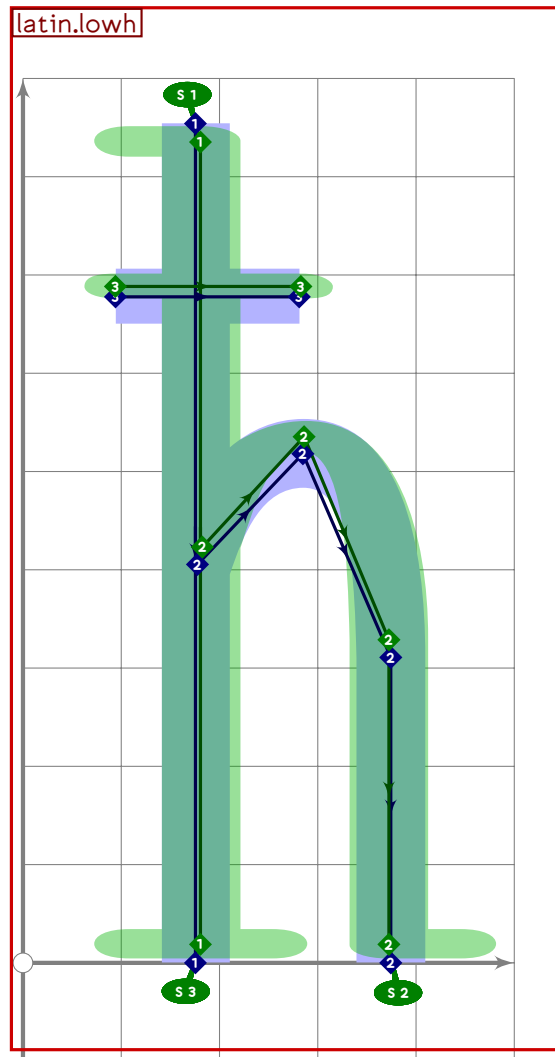
```



```

292 % H with bar
293 begintsuglyph("Hbar",38);
294 latin.uph;
295 push_stroke((100,vmetric(0.74))-(900,vmetric(0.74)),
296   (1.6,1.6)-(1.6,1.6));
297 set_bosize(0,80);
298 tsu_render;
299 endsuglyph;
300

```

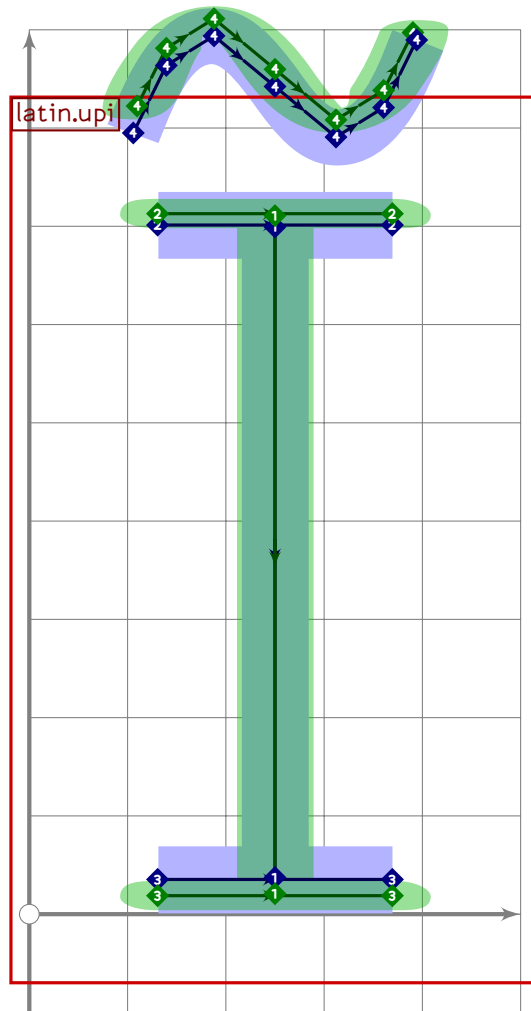


```

301 % h with bar
302 beginsuglyph("hbar";39);
303 latin.lowh;
304 push_stroke((220,vmetric(0.82))-(520,vmetric(0.82)),
305   (1.6,1.6)-(1.6,1.6));
306 set_bosize(0,80);
307 tsu_render;
308 endsuglyph;
309

```

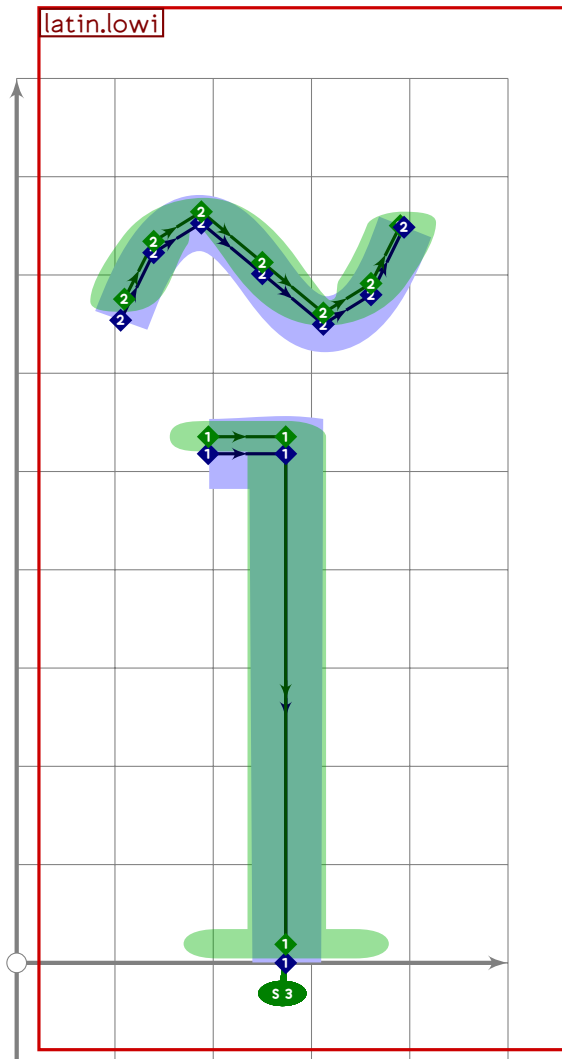




```

310 % I with tilde
311 begint Suglyph("Itilde",40);
312   tsu_accent.apply(tsu_accent.capital(latin.upi))(tsu_accent.tilde);
313   tsu_render;
314 endtsuglyph;
315

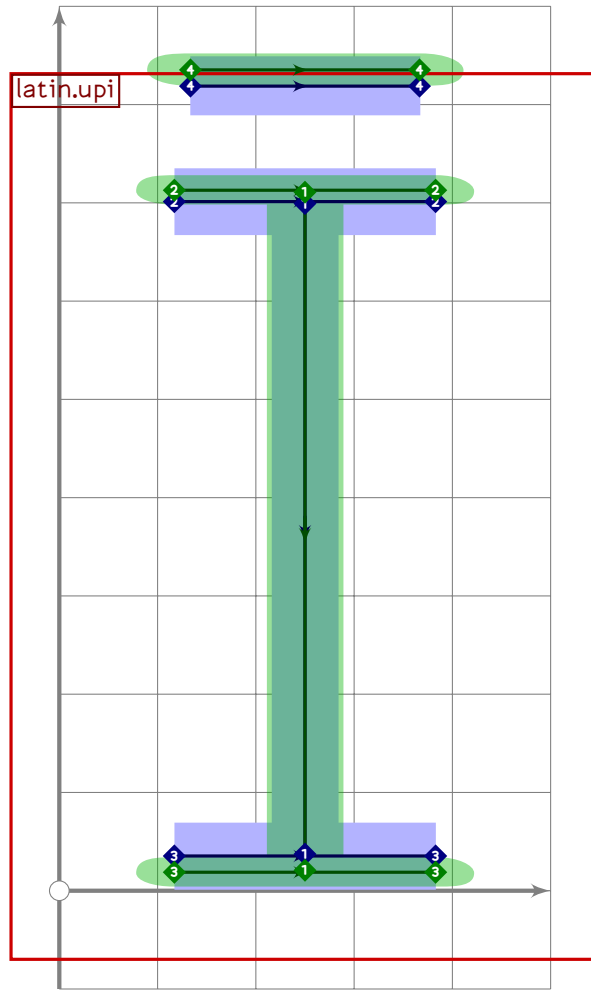
```



```

316 % i with tilde
317 begintsuglyph("itilde";41);
318   tsu_accent.apply(
319     tsu_xform(identity shifted (70,0))(latin.lowi);
320     pop_lcblob;
321   )(tsu_accent.tilde);
322   tsu_render;
323 endsuglyph;
324

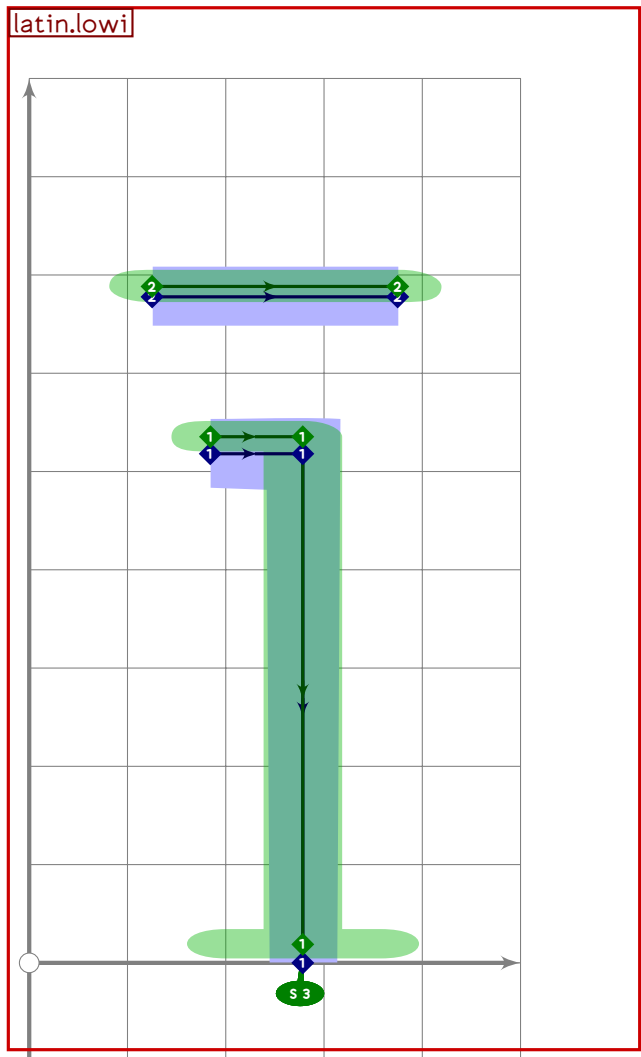
```



```

325 % I with macron
326 begintsuglyph("Imacron";42);
327 tsu_accent.apply(tsu_accent.capital(latin.upi))(tsu_accent.macron);
328 tsu_render;
329 endsuglyph;
330

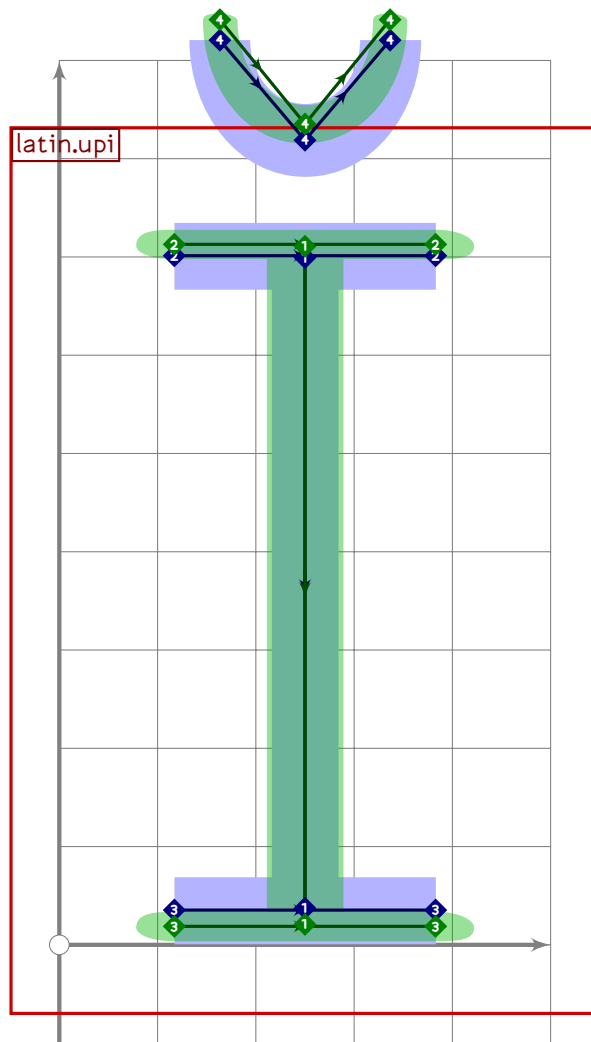
```



```

331 % i with macron
332 beginsuglyph("imacron",43);
333 tsu_accent.apply(
334   tsu_xform(identity shifted (70,0))(latin.lowi);
335   pop_lcblob;
336 )(tsu_accent.macron);
337 tsu_render;
338 endsuglyph;
339

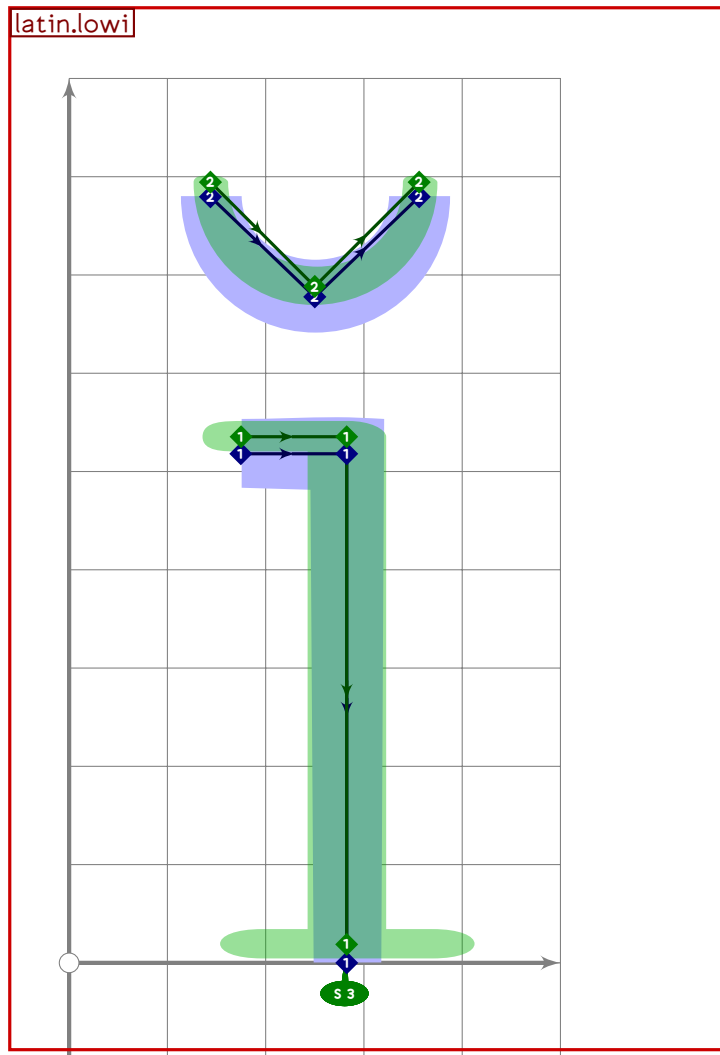
```



```

340 % I with breve
341 \begin{suglyph}{"Ibreve";44);
342   \tsu_accent.apply(\tsu_accent.capital(latin.upi))(\tsu_accent.breve);
343   \tsu_render;
344 \end{suglyph};
345

```



```

346 % i with breve
347 begintsuglyph("ibreve",45);
348   tsu_accent.apply(
349     tsu_xform(identity shifted (70,0))(latin.lowi);
350     pop_lcblob;
351   )(tsu_accent.breve);
352   tsu_render;
353 endsuglyph;
354
355 % I with ogonek
356 begintsuglyph("Iogonek",46);
357   latin.upiogonek;
358   tsu_render;
359 endsuglyph;
360
361 % i with ogonek
362 begintsuglyph("iogonek",47);
363   latin.lowiogonek;
364   tsu_render;

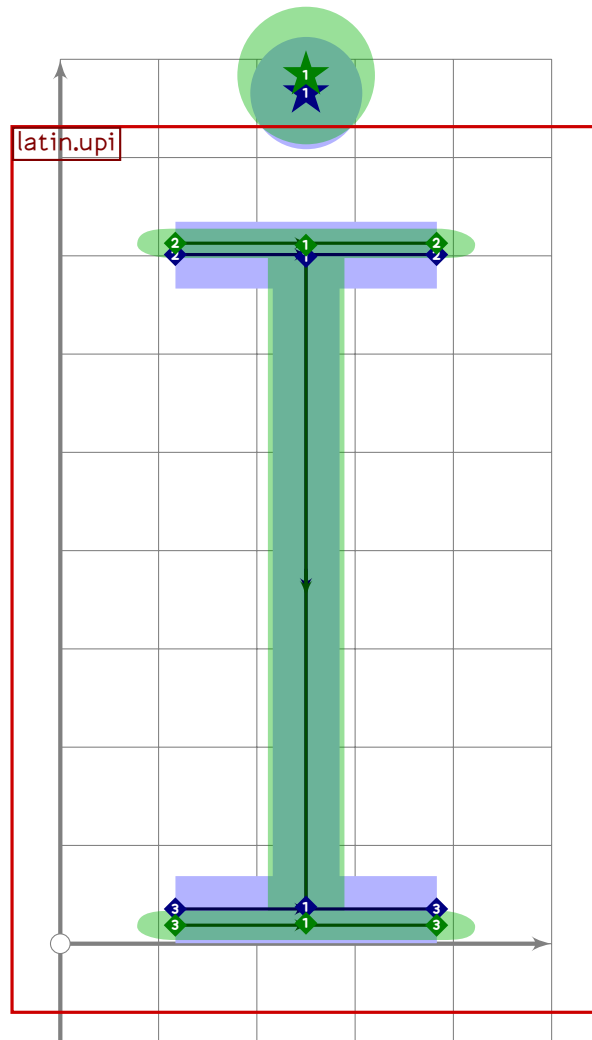
```

[see page 264]

[see page 269]

```
365 endtsuglyph;
```

```
366
```



```
367 % I with dot
```

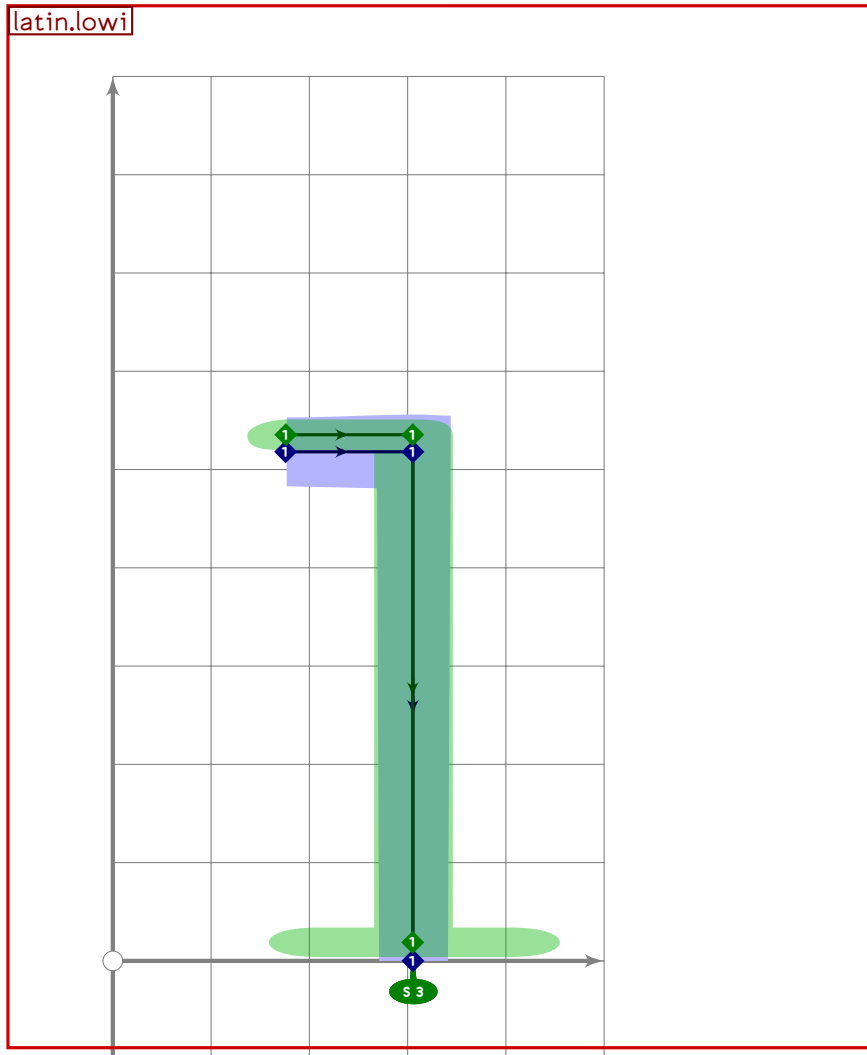
```
368 begint Suglyph("Idotaccent",48);
```

```
369 tsu_accent.apply(tsu_accent.capital(latin.upi))(tsu_accent.dotabove);
```

```
370 tsu_render;
```

```
371 endtsuglyph;
```

```
372
```



```

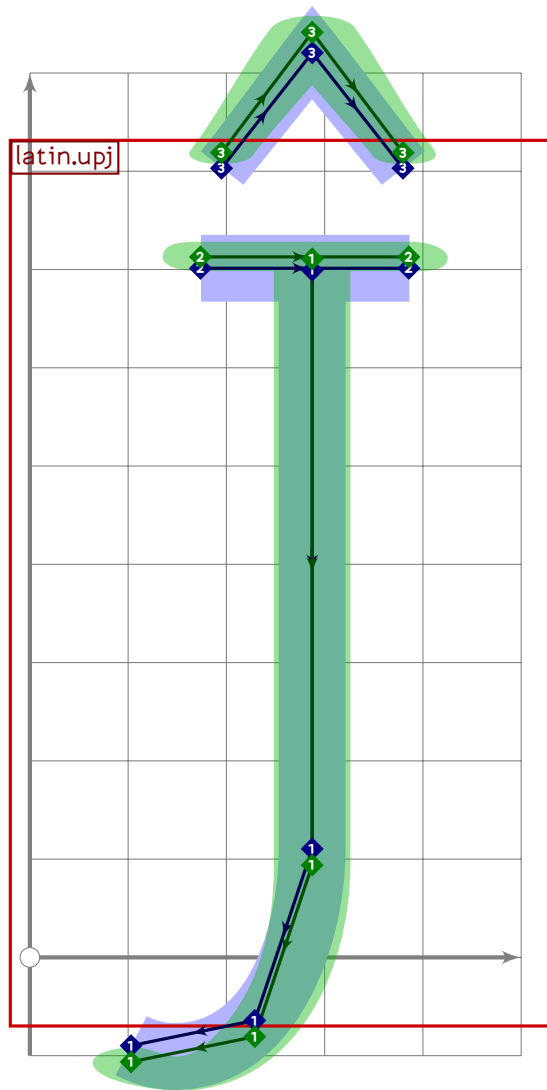
373 % i without dot
374 begintsuglyph("dotlessi";49);
375 tsu_xform(identity shifted (70,0))(latin.lowi);
376 pop_lcblob;
377 tsu_render;
378 endtsuglyph;
379
380 % Dutch IJ ligature
381 begintsuglyph("IJ";50);
382 latin.upij;
383 tsu_render;
384 endtsuglyph;
385
386 % Dutch ij ligature
387 begintsuglyph("ij";51);
388 latin.lowij;
389 tsu_render;
390 endtsuglyph;
391

```

[see page 180]

[see page 218]

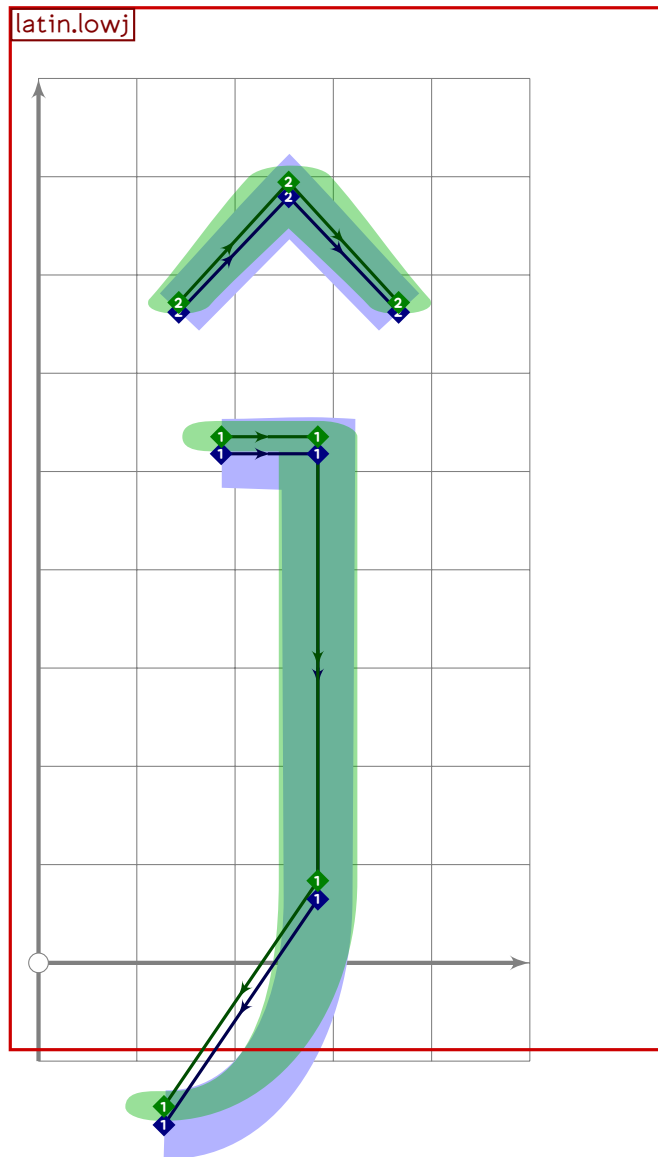




```

392 % J with circumflex
393 begintsuglyph("Jcircumflex",52);
394 tsu_accent.apply(tsu_accent.capital(latin.upj))(tsu_accent.circumflex);
395 replace_strokep(0)(oldp shifted (50,0));
396 tsu_render;
397 endsuglyph;
398

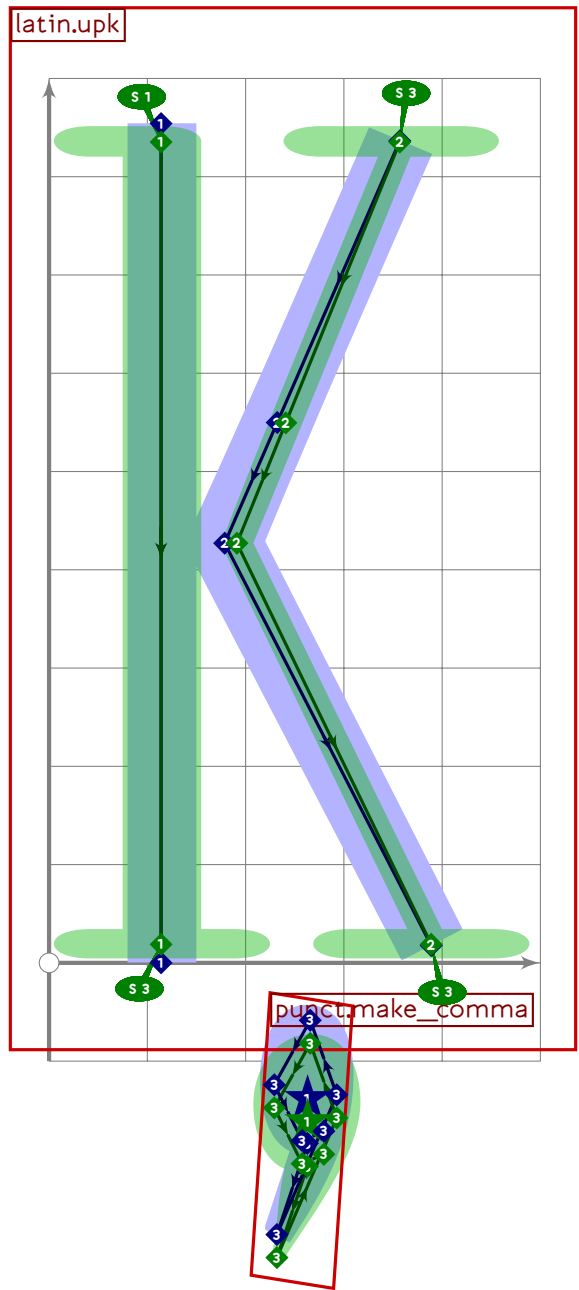
```



```

399 % j with circumflex
400 beginsuglyph("jcircumflex",53);
401 tsu_accent.apply(
402   tsu_xform(identity shifted (70,0))(latin.lowj);
403   pop_lcblob;
404 )(tsu_accent.circumflex);
405 tsu_render;
406 endsuglyph;
407

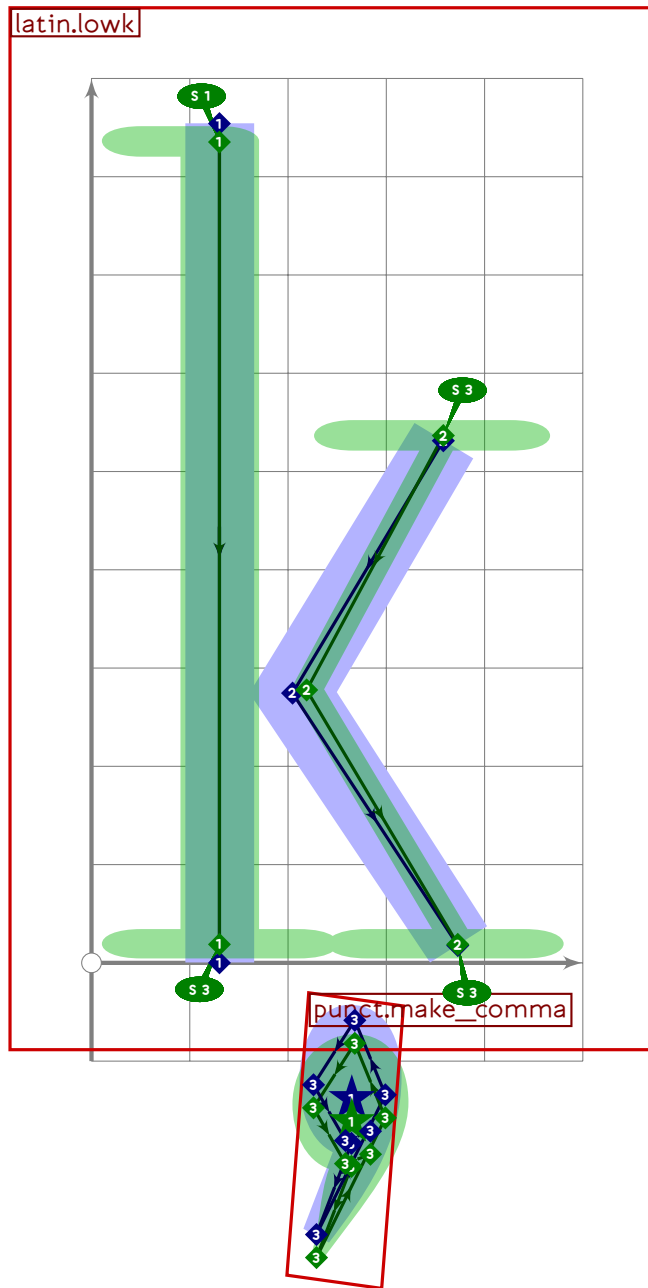
```



```

408 % K with comma below
409 beginsuglyph("uni0136",54);
410 tsu_accent.apply(latin.upk)(tsu_accent.commbelow);
411 tsu_render;
412 endsuglyph;
413

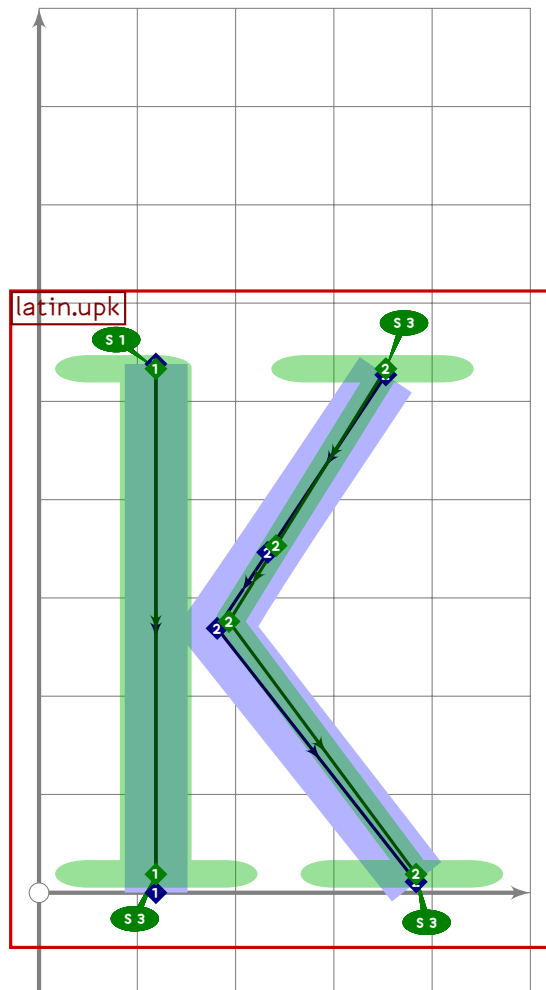
```



```

414 % k with comma below
415 beginsuglyph("uni0137",55);
416   tsu_accent.apply(latin.lowk)(tsu_accent.commabelow);
417   tsu_render;
418 endsuglyph;
419

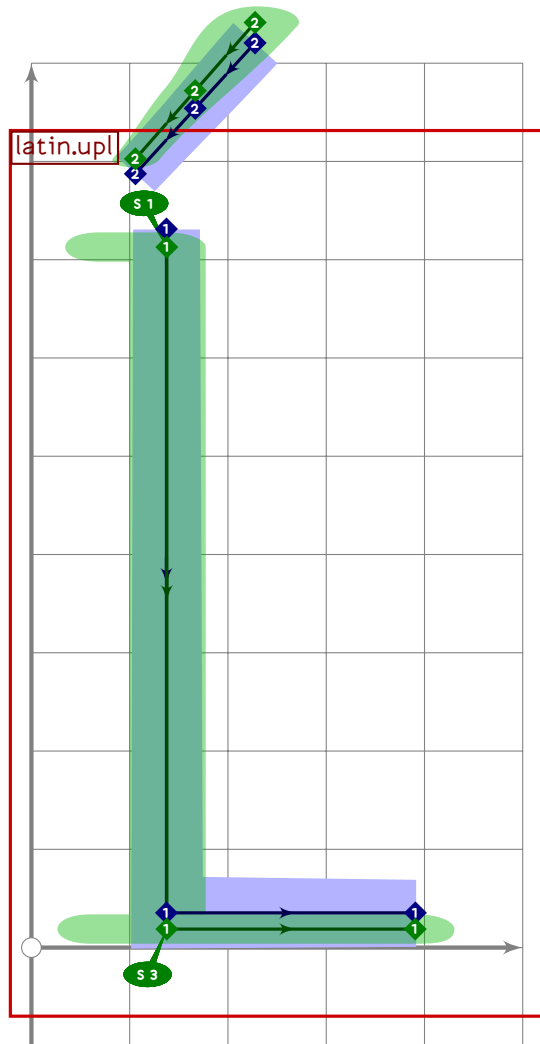
```



```

420 % Greenlandic k, which I'm interpreting as a squashed K
421 begintsuglyph("kgreenlandic";56);
422 tsu_xform(identity shifted (-500,latin_wide_low_v) xyscaled (0.92,0.63)
423   shifted (500,latin_wide_low_v))(latin.upk);
424 tsu_render;
425 endsuglyph;
426

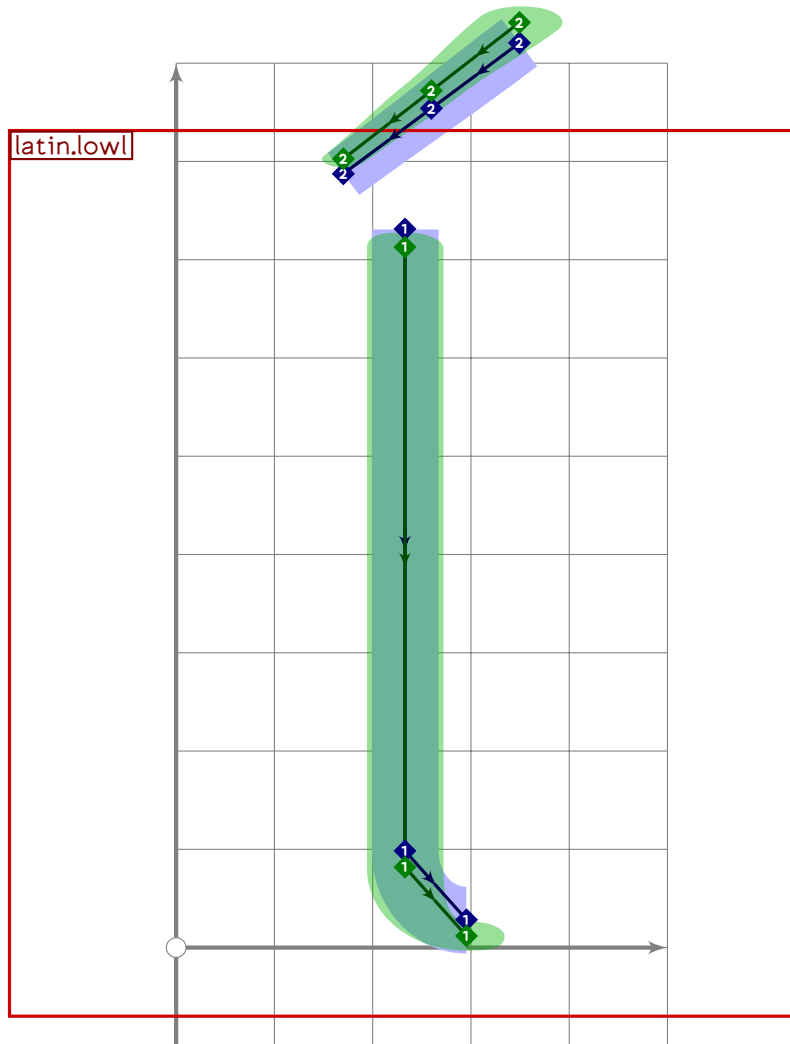
```



```

427 % L with acute
428 begint Suglyph("Lacute",57);
429 tsu_accent.apply(tsu_accent.capital(latin.upl))(tsu_accent.acute);
430 replace_strokep(0)(oldp shifted (-190,0));
431 tsu_render;
432 endtsuglyph;
433

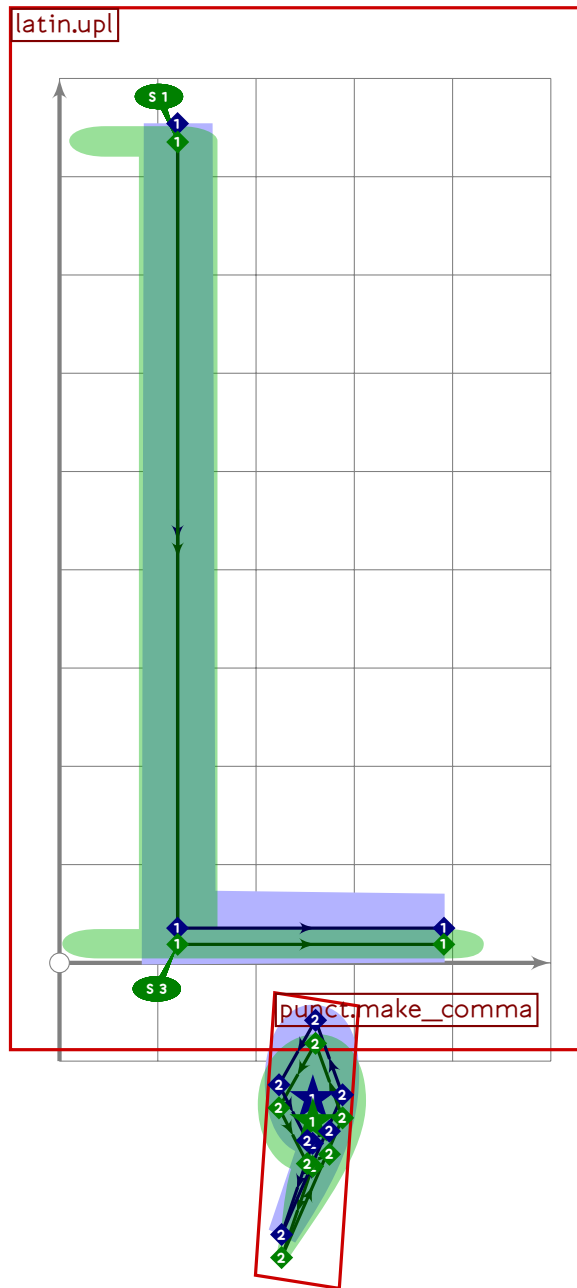
```



```

434 % l with acute
435 begint Suglyph("lacute";58);
436 tsu_accent.apply(tsu_accent.capital(latin.lowl))(tsu_accent.acute);
437 replace_strokep(0)(oldp shifted (-20,0));
438 tsu_render;
439 endtsuglyph;
440

```

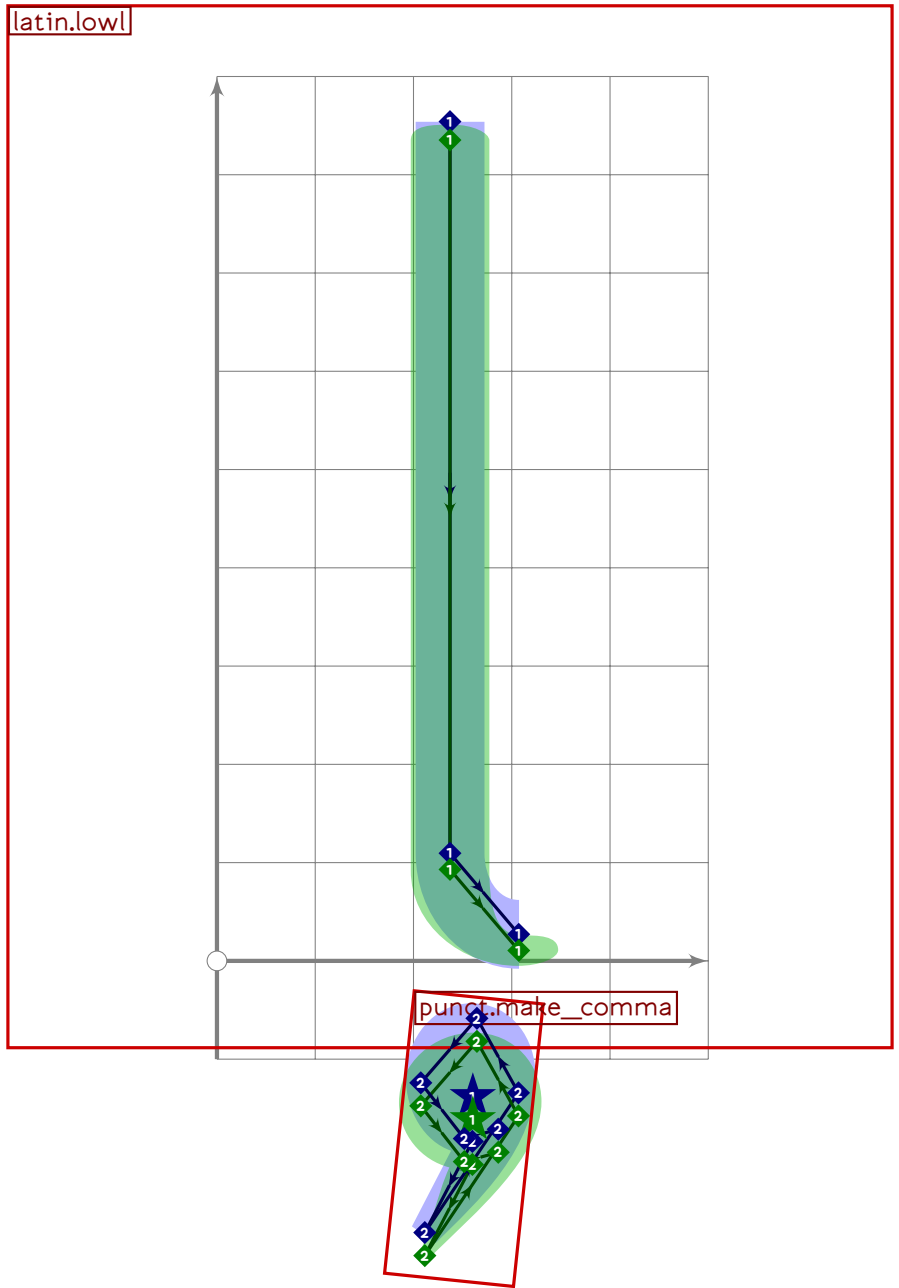


```

441 % L with comma below
442 beginsuglyph("uni013B",59);
443   tsu_accent.apply(latin.upl)(tsu_accent.commabelow);
444   tsu_render;
445 endsuglyph;
446

```

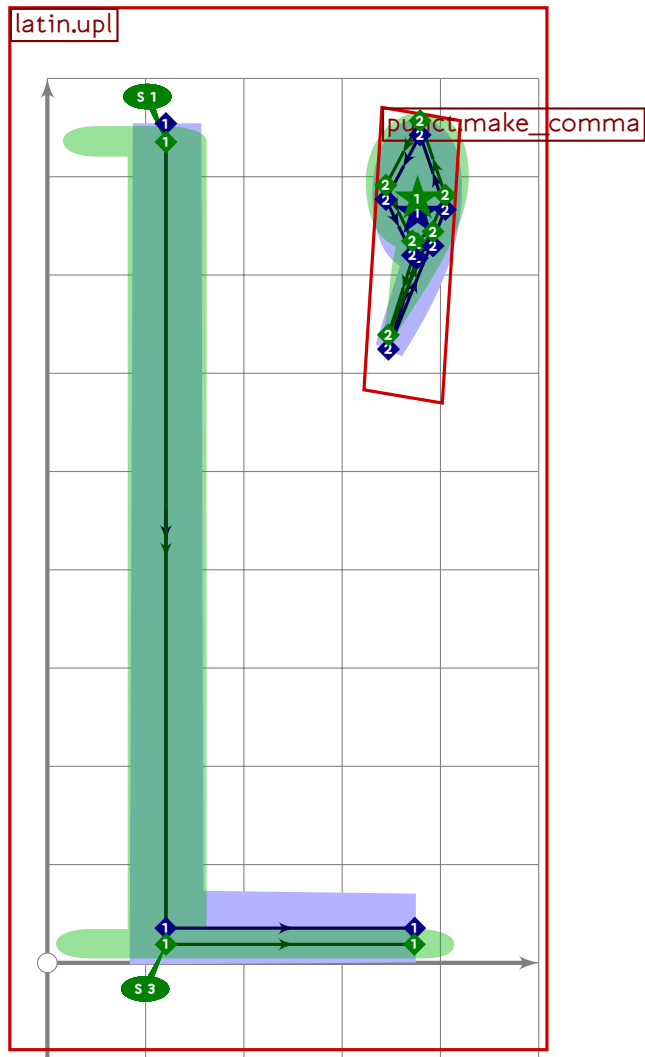




```

447 % l with comma below
448 begintsuglyph("uni013C",60);
449 tsu_accent.apply(latin.lowl)(tsu_accent.commabelow);
450 tsu_render;
451 endsuglyph;
452

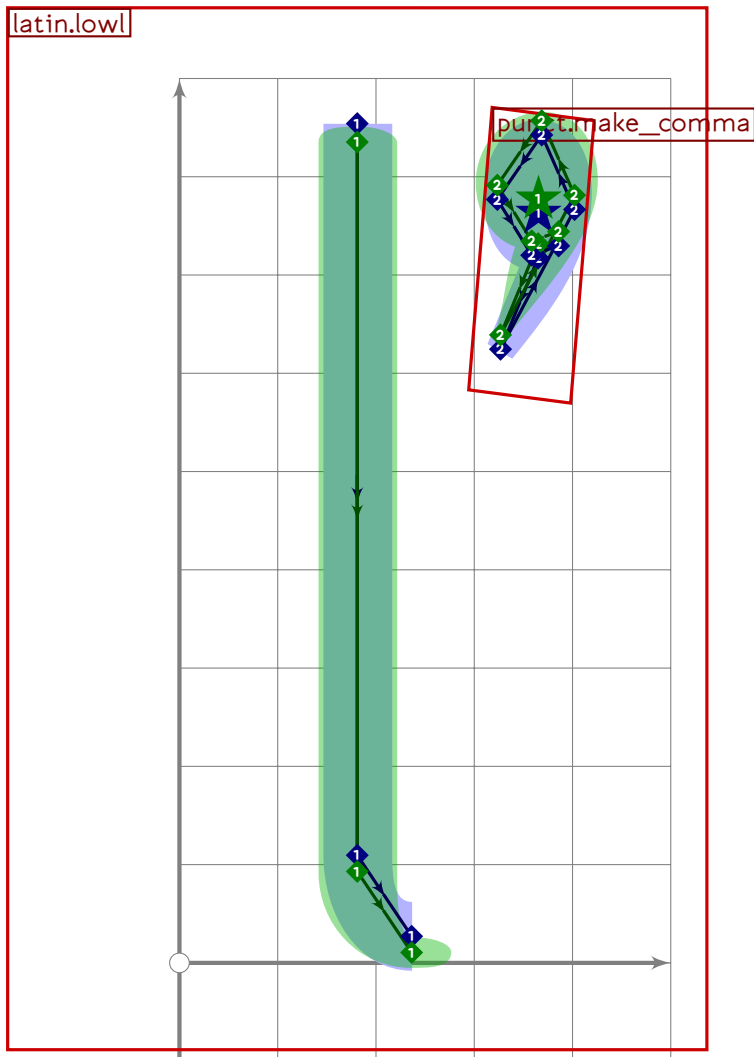
```



```

453 % L with apostrophe caron
454 begintsuglyph("Lcaron",61);
455 tsu_accent.apply(latin.upl)(tsu_accent.caron_comma);
456 tsu_render;
457 endsuglyph;
458

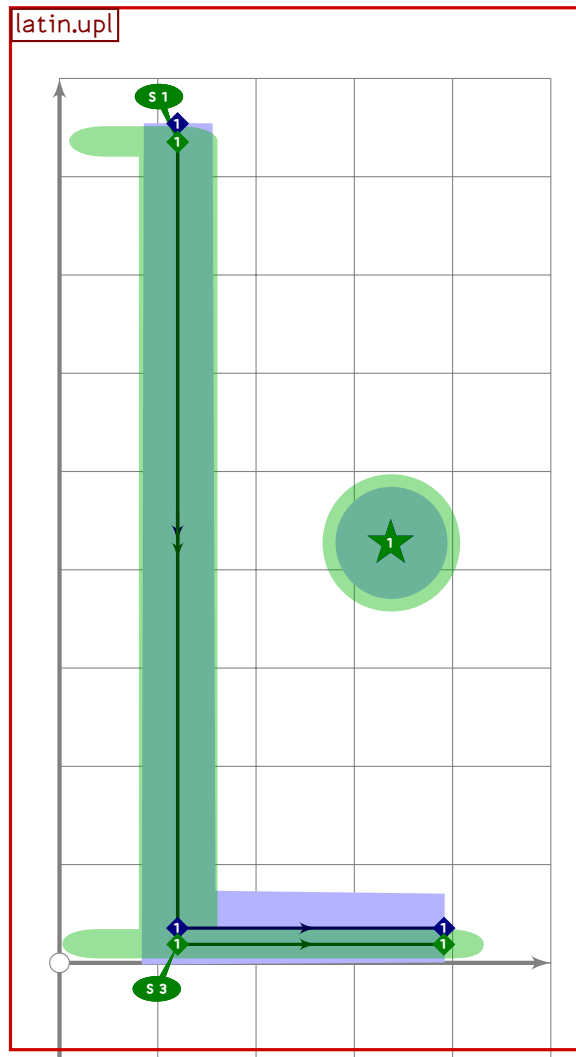
```



```

459 % l with apostrophe caron
460 begintsuglyph("lcaron",62);
461 tsu_accent.apply(latin.lowl)(tsu_accent.caron_comma);
462 tsu_render;
463 endsuglyph;
464

```

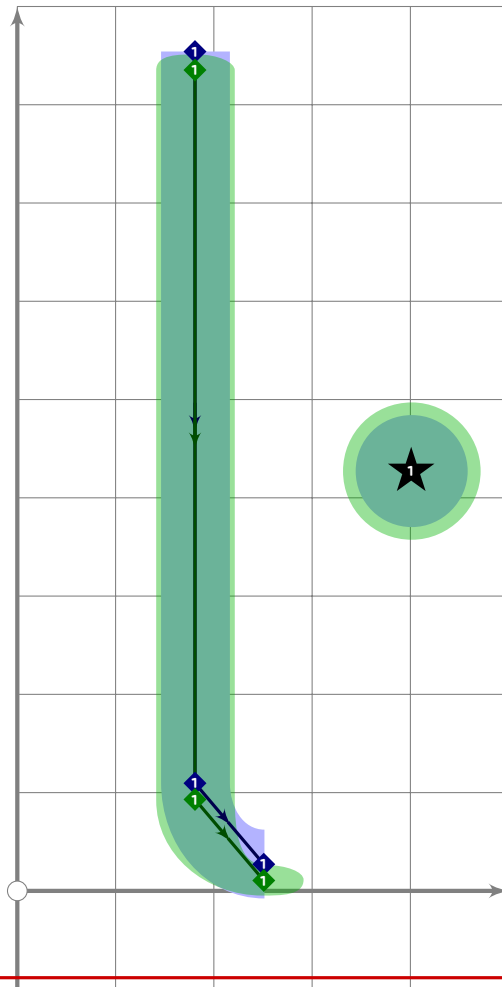


```

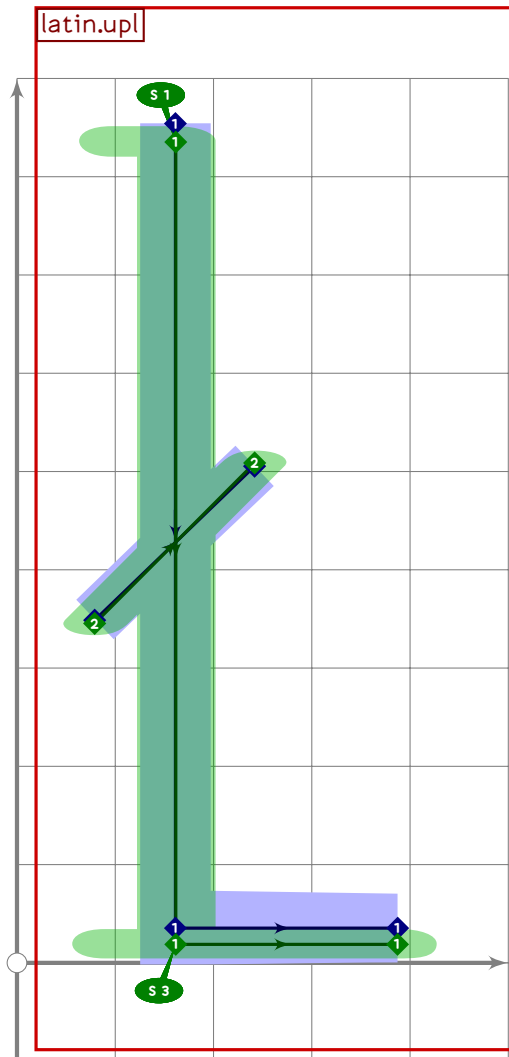
465 % L with dot
466 beginsuglyph("Ldot",63);
467 tsu_accent.apply(latin.upl)(tsu_accent.dotabove);
468 replace_lcblob(0)(oldblob
469   shifted ((xpart 0.8[lcorner get_strokep(0),lrcorner get_strokep(0)],vmetric(0.5))-
470     0.5[lcorner oldblob,urcorner oldblob]));
471 tsu_render;
472 endsuglyph;
473

```

latin.lowl



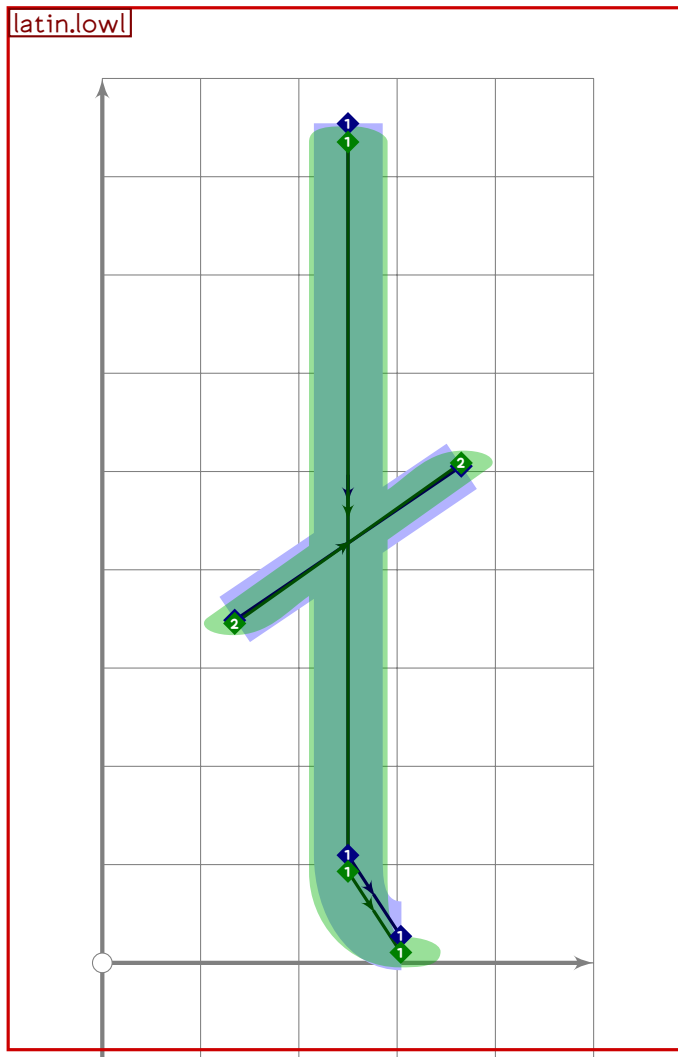
```
474 % l with dot
475 begint Suglyph("ldot",64);
476 tsu_accent.apply(tsu_xform(identity shifted (-120,0))
477   (latin.lowl))(tsu_accent.dotabove);
478 replace_lcblob(0)(oldblob
479   shifted ((220+upart llcorner get_strokep(0),vmetric(0.5))-
480     0.5[llcorner oldblob,urcorner oldblob]));
481 tsu_render;
482 endtsuglyph;
483
```



```

484 % L with slash
485 begintsuglyph("Lslash",65);
486 latin.upl;
487 push_stroke((160,vmetric(0.40))-(460,vmetric(0.60)),
488   (1.6,1.6)-(1.6,1.6));
489 set_bosize(0,80);
490 tsu_render;
491 endsuglyph;
492

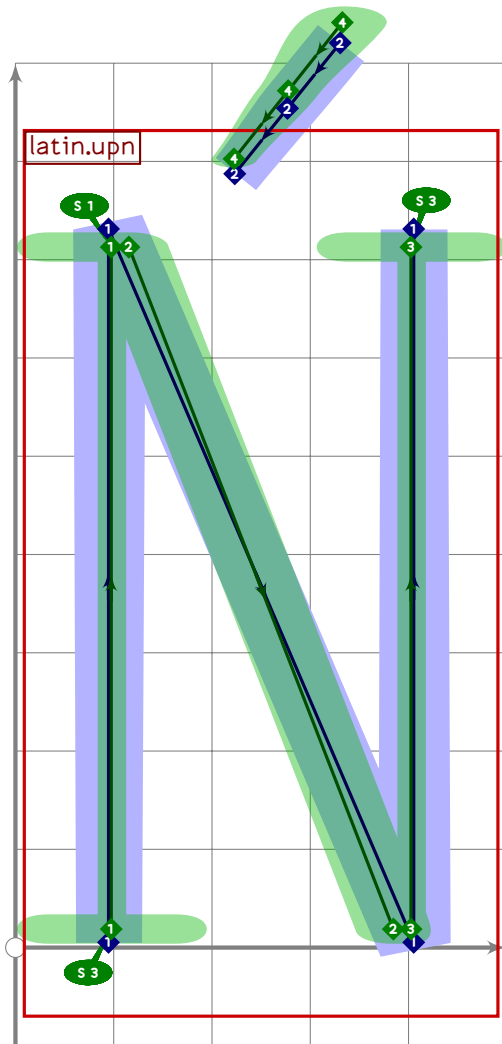
```



```

493 % l with slash
494 beginsuglyph("lslash",66);
495 latin.lower;
496 push_stroke((350,vmetric(0.40))-(650,vmetric(0.60)),
497   (1.6,1.6)-(1.6,1.6));
498 set_bosize(0,80);
499 tsu_render;
500 endsuglyph;
501

```

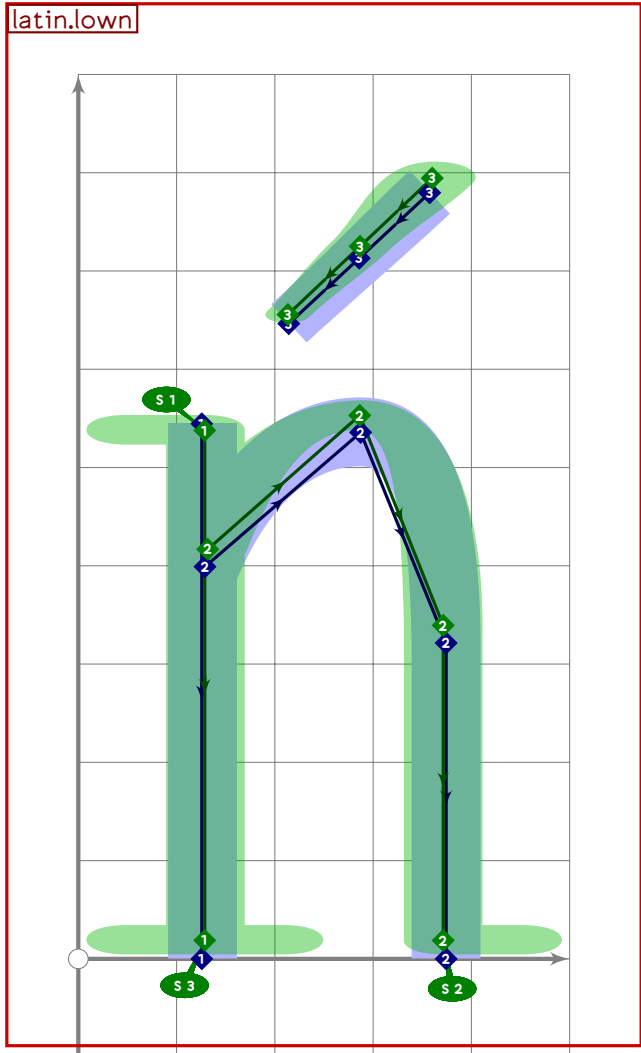


```

502 % N with acute
503 begintsuglyph("Nacute",67);
504   tsu_accent.apply(tsu_accent.capital(latin.upn))(tsu_accent.acute);
505   tsu_render;
506 endsuglyph;
507

```

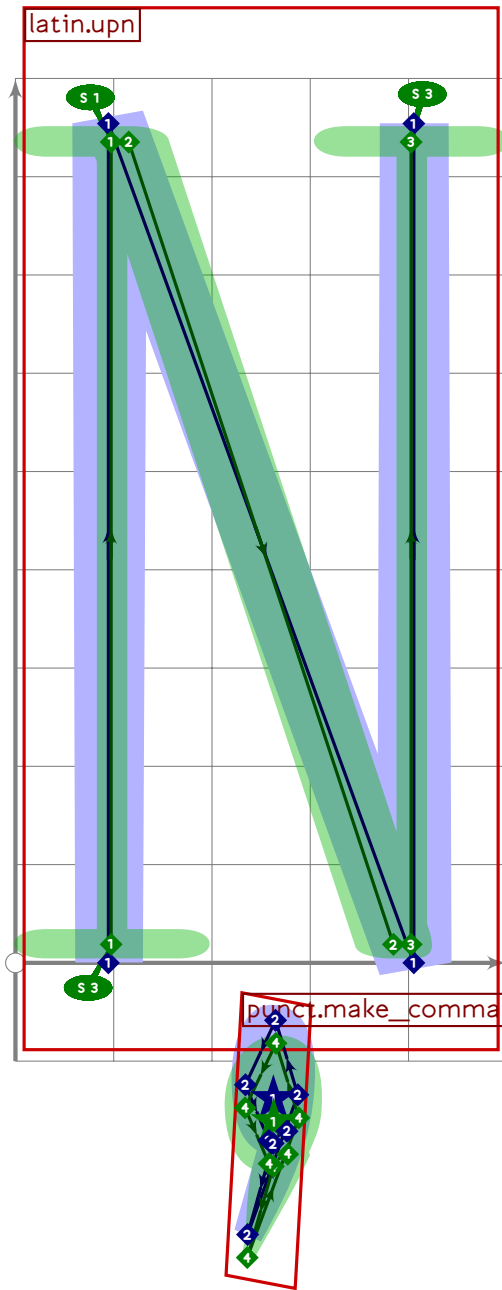




```

508 % n with acute
509 begintsuglyph("nacute";68);
510   tsu_accent.apply(latin.lown)(tsu_accent.acute);
511   tsu_render;
512 endsuglyph;
513

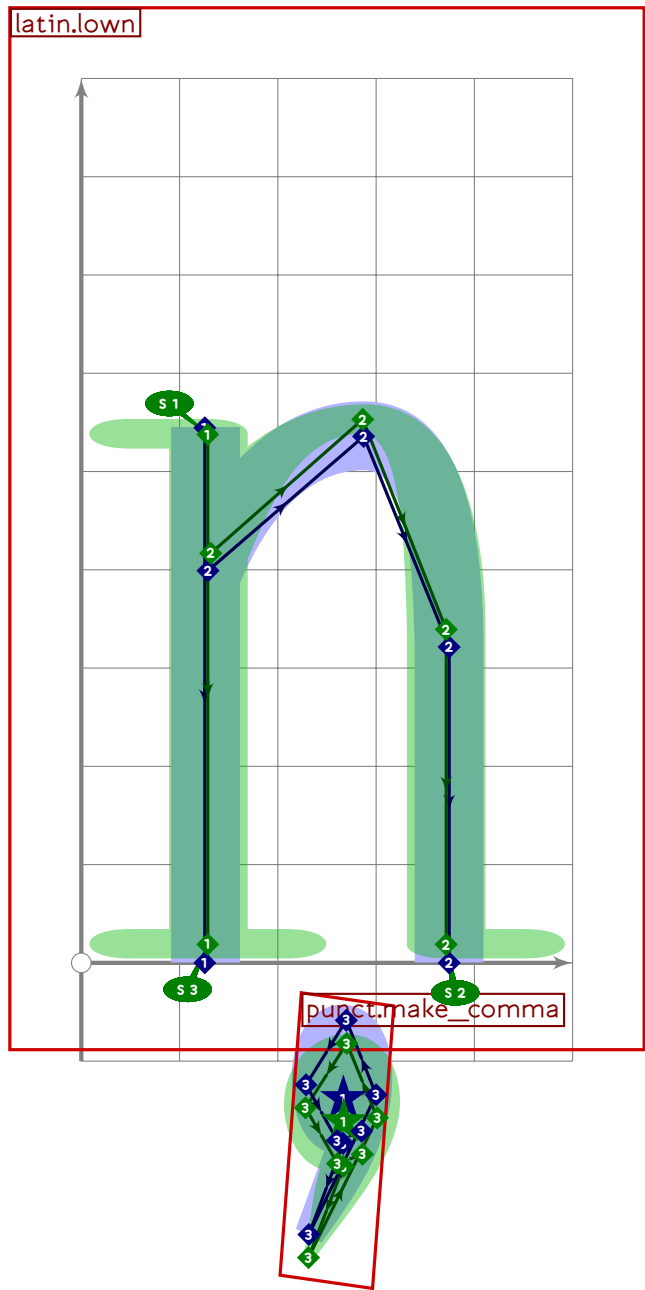
```



```

514 % N with comma below
515 beginsuglyph("uni0145",69);
516   tsu_accent.apply(latin.upn)(tsu_accent.commbelow);
517   tsu_render;
518 endsuglyph;
519

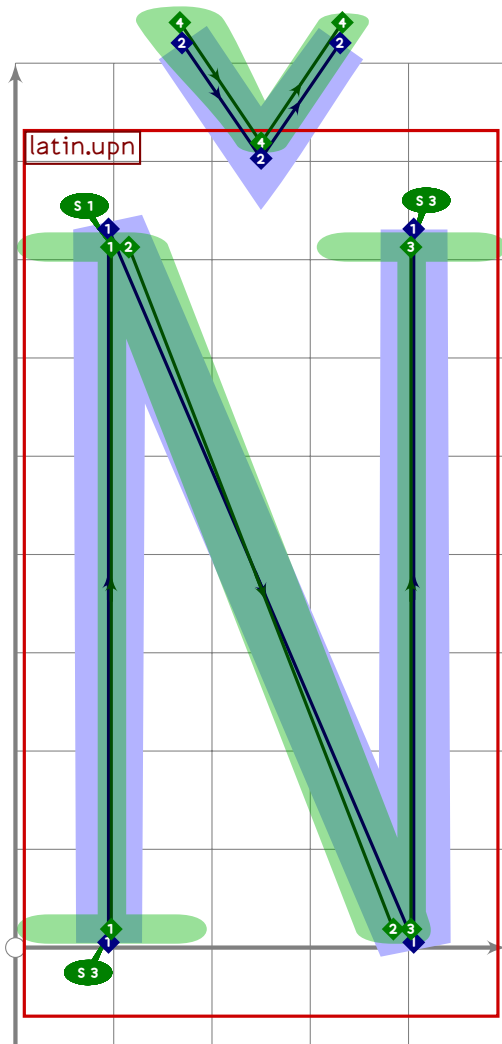
```



```

520 % n with comma below
521 beginsuglyph("uni0146",70);
522   tsu_accent.apply(latin.lown)(tsu_accent.commabelow);
523   tsu_render;
524 endsuglyph;
525

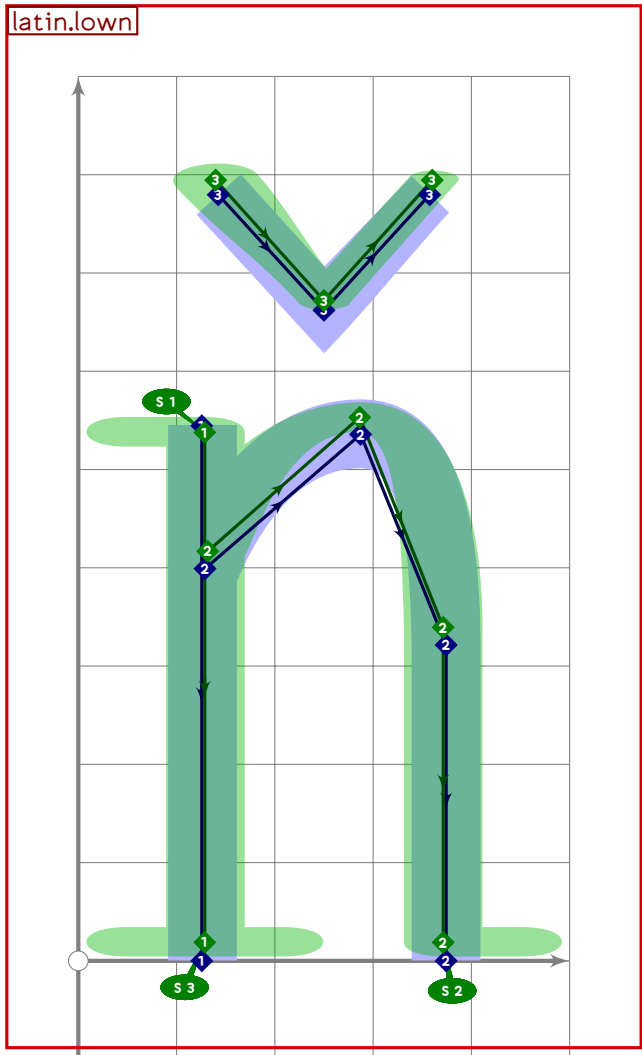
```



```

526 % N with caron
527 begintsuglyph("Ncaron";71);
528   tsu_accent.apply(tsu_accent.capital(latin.upn))(tsu_accent.caron);
529   tsu_render;
530 endsuglyph;
531

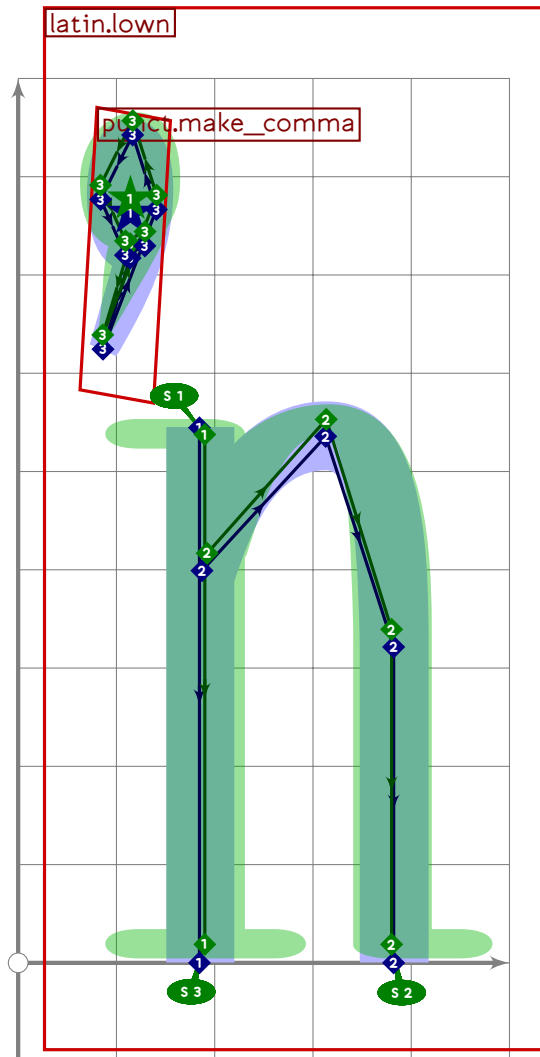
```



```

532 % n with caron
533 begintsuglyph("ncaron";72);
534 tsu_accent.apply(latin.lown)(tsu_accent.caron);
535 tsu_render;
536 endsuglyph;
537

```



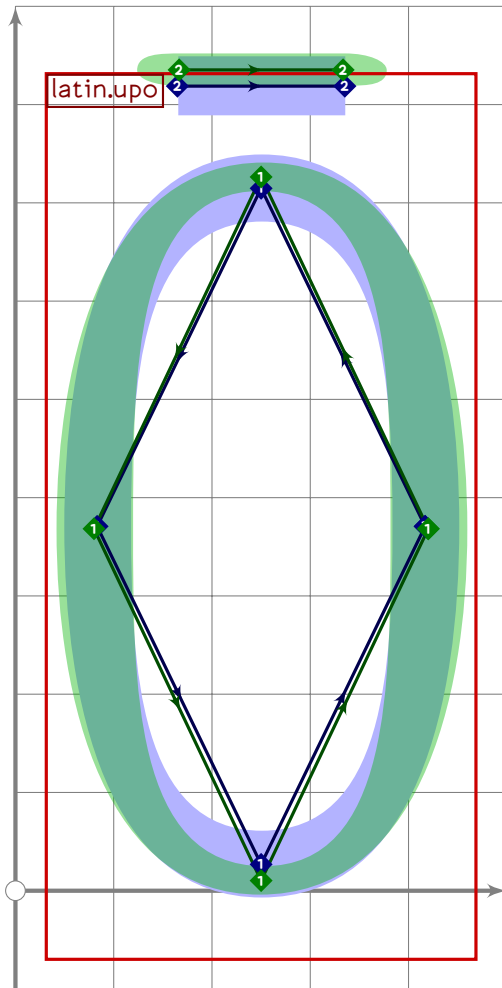
```

538 % n with apostrophe before
539 begintsuglyph("napostrophe";73);
540 tsu_xform(identity shifted (30,0))(latin.lown);
541 punct.make_comma((230,vmetric(0.94)),0);
542 tsu_render;
543 endsuglyph;
544
545 % uppercase Eng
546 begintsuglyph("Eng";74);
547 latin.upeng;
548 tsu_render;
549 endsuglyph;
550
551 % lowercase eng
552 begintsuglyph("eng";75);
553 latin.loweng;
554 tsu_render;
555 endsuglyph;
556

```

[see page 186]

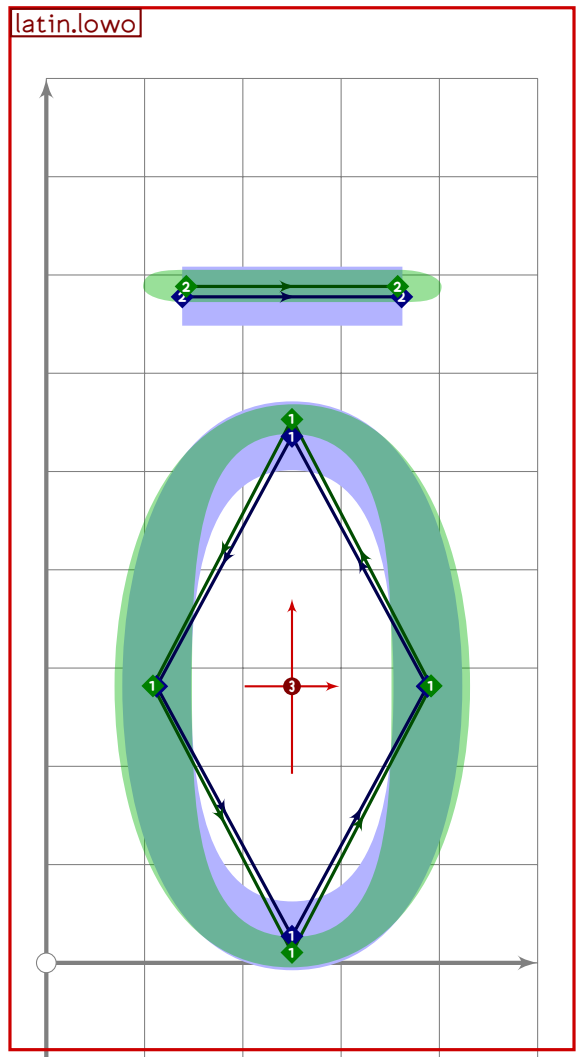
[see page 224]



```

557 % O with macron
558 begintsuglyph("Omacron",76);
559 tsu_accent.apply(tsu_accent.capital(latin.upo))(tsu_accent.macron);
560 tsu_render;
561 endsuglyph;
562

```

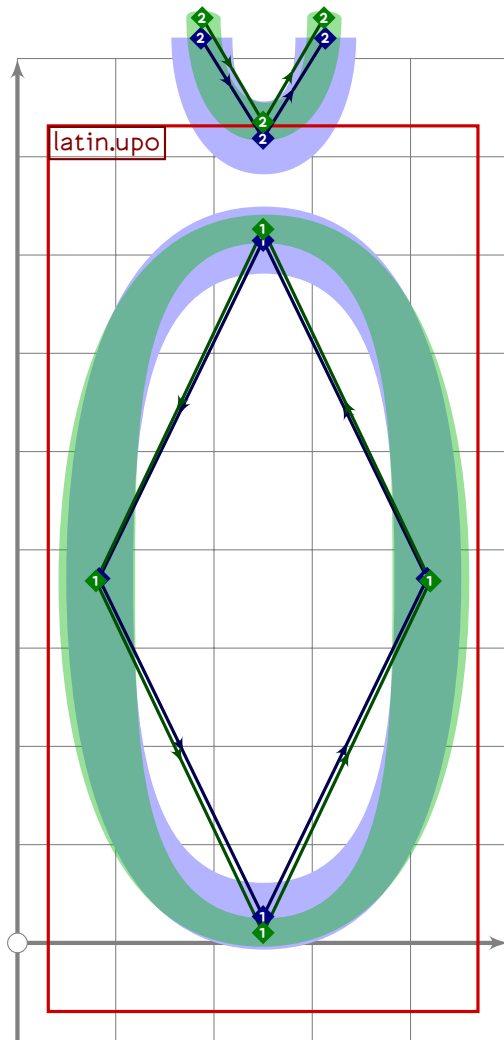


```

563 % o with macron
564 begintsuglyph("omacron";77);
565   tsu_accent.apply(latin.low o)(tsu_accent.macron);
566   tsu_render;
567 endsuglyph;
568

```

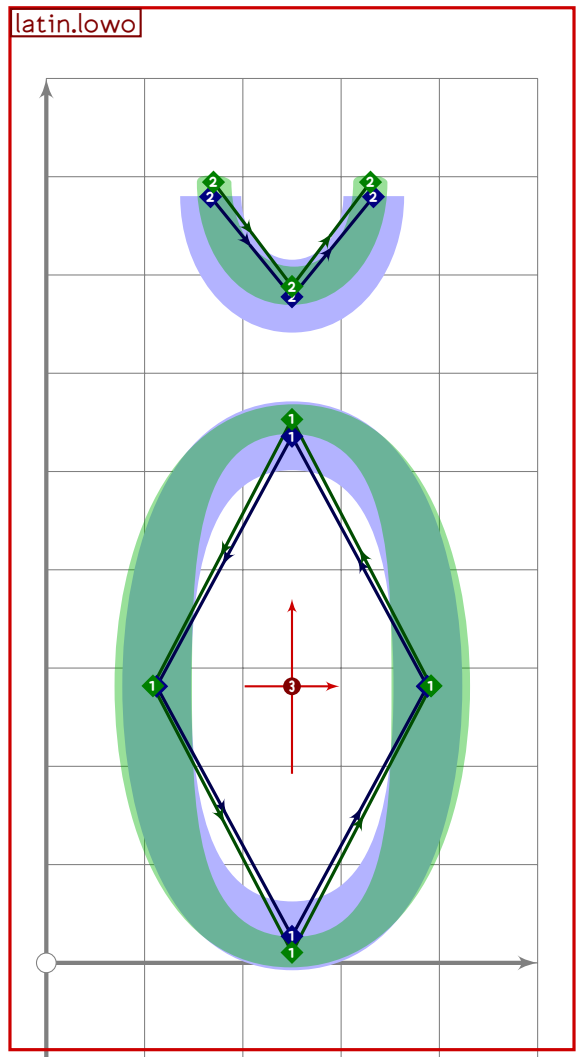




```

569 % O with breve
570 begintsuglyph("Obreve",78);
571 tsu_accent.apply(tsu_accent.capital(latin.upo))(tsu_accent.breve);
572 tsu_render;
573 endtsuglyph;
574

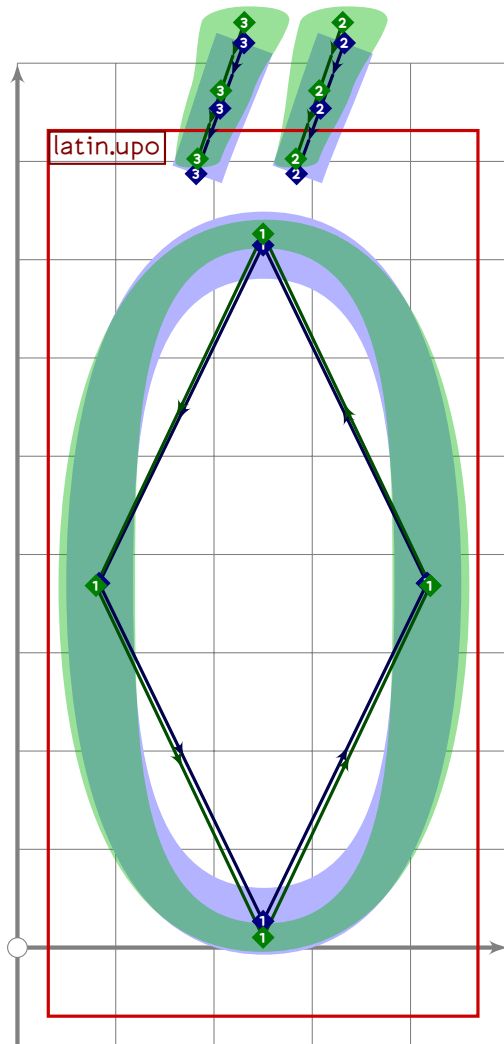
```



```

575 % o with breve
576 begintsuglyph("obreve",79);
577   tsu_accent.apply(latin.lowo)(tsu_accent.breve);
578   tsu_render;
579 endsuglyph;
580

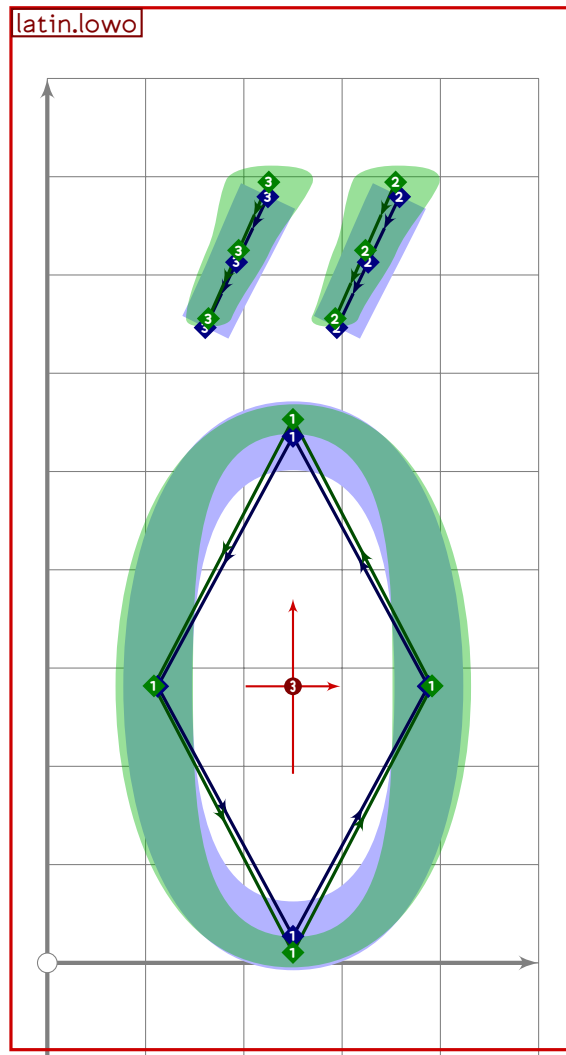
```



```

581 % O with Hunarian umlaut
582 begintsuglyph("Ohungarumlaut",80);
583 tsu_accent.apply(tsu_accent.capital(latin.upo))(tsu_accent.hungarian_umlaut);
584 tsu_render;
585 endsuglyph;
586

```



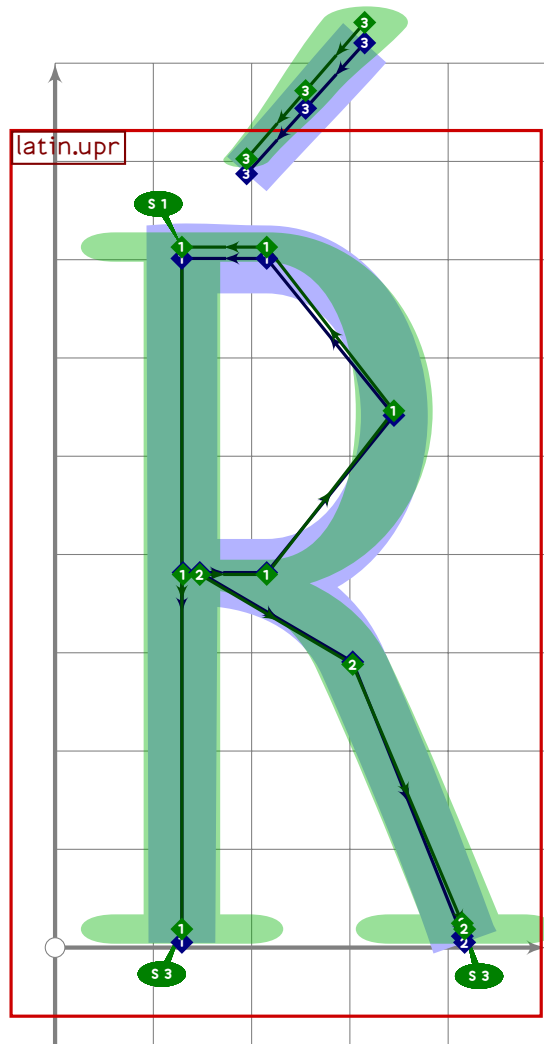
```

587 % o with hungarian umlaut
588 begintsuglyph("ohungarumlaut";81);
589 tsu_accent.apply(latin.lowo)(tsu_accent.hungarian_umlaut);
590 tsu_render;
591 endsuglyph;
592
593 % OE ligature
594 begintsuglyph("OE";82);
595 latin.upoe;
596 tsu_render;
597 endsuglyph;
598
599 % oe ligature
600 begintsuglyph("oe";83);
601 latin.lowoe;
602 tsu_render;
603 endsuglyph;
604

```

[see page 188]

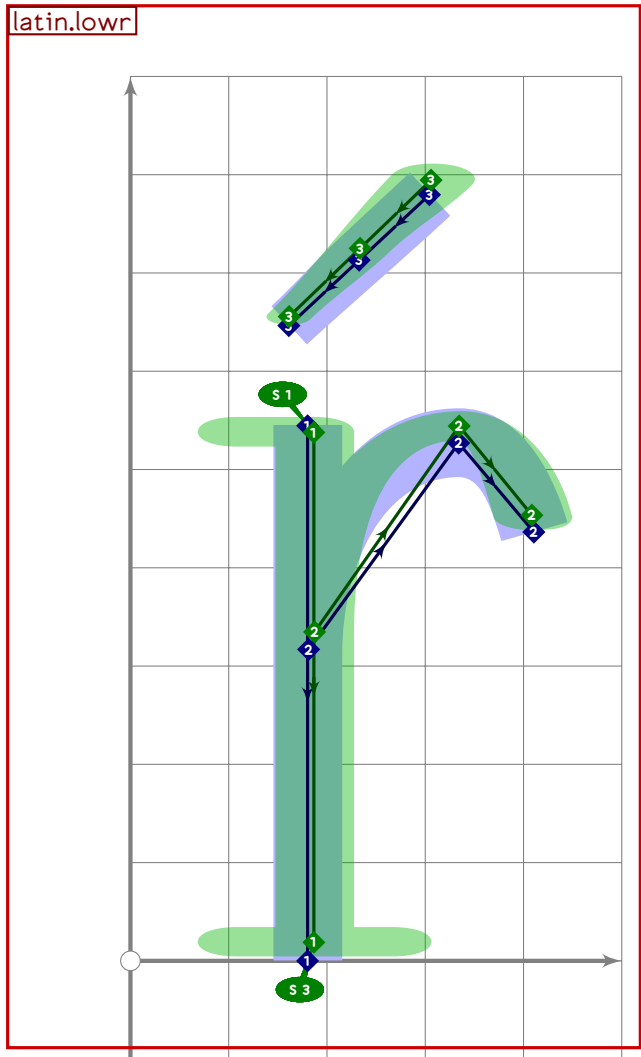
[see page 226]



```

605 % R with acute
606 begint Suglyph("Racute",84);
607   tsu_accent.apply(tsu_accent.capital(latin.upr))(tsu_accent.acute);
608   tsu_render;
609 endsuglyph;
610

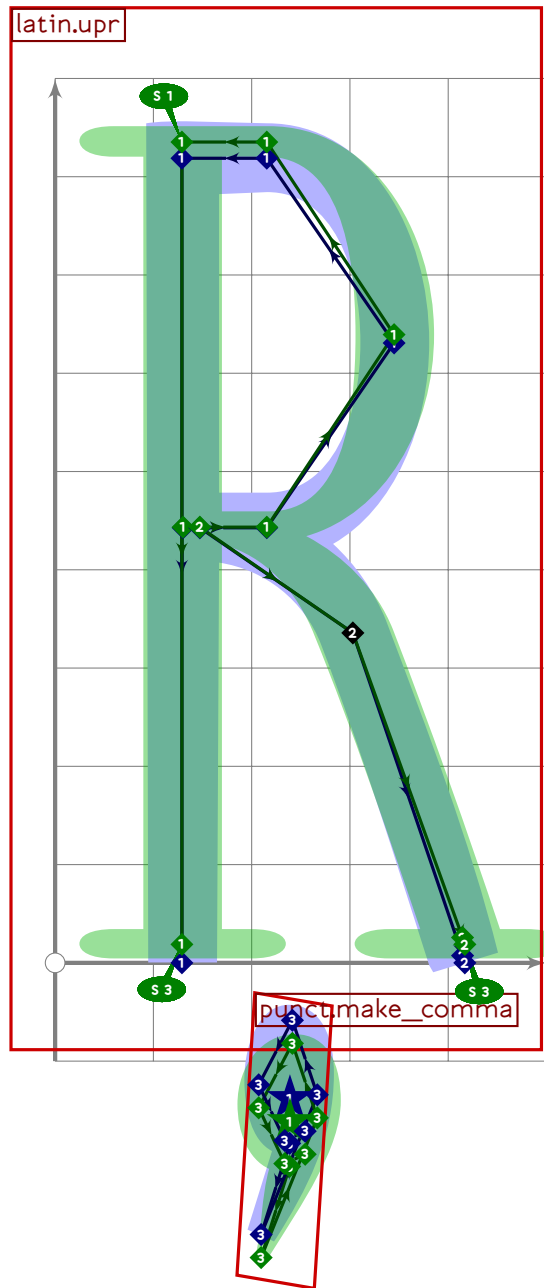
```



```

611 % r with acute
612 begint Suglyph("racute";85);
613   tsu_accent.apply(latin.lowr)(tsu_accent.acute);
614   tsu_render;
615 endsuglyph;
616

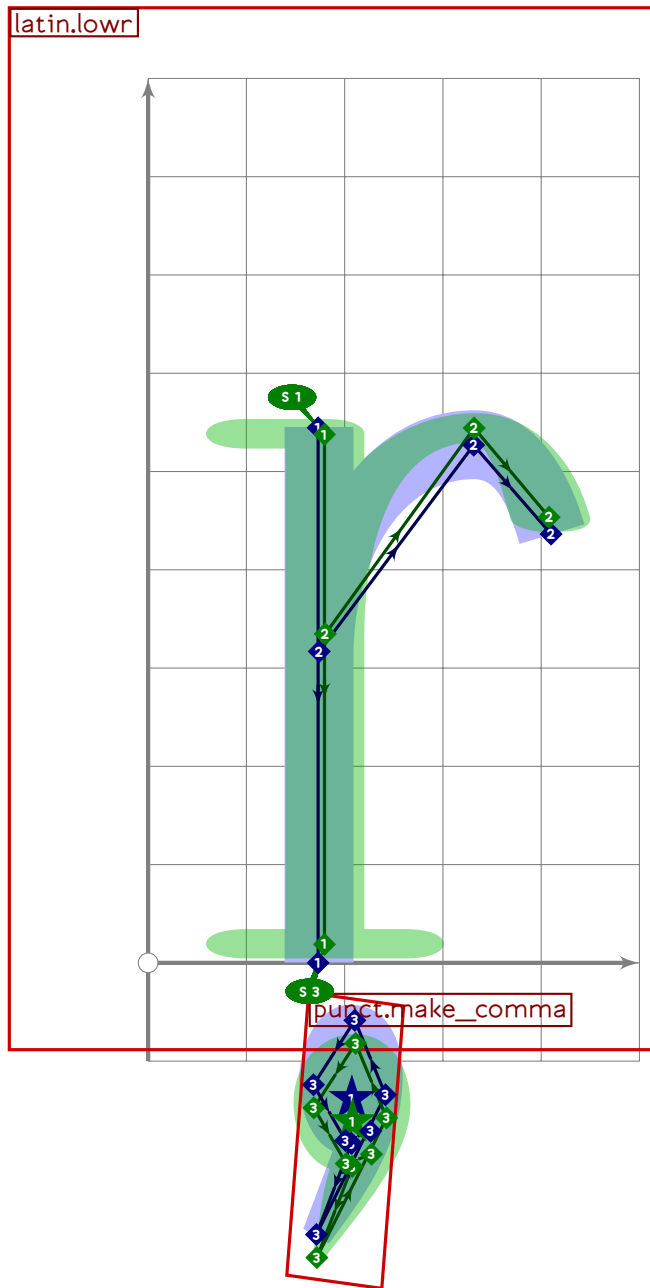
```



```

617 % R with comma below
618 begint Suglyph("uni0156",86);
619   tsu_accent.apply(latin.upr)(tsu_accent.commabelow);
620   tsu_render;
621 endsuglyph;
622

```

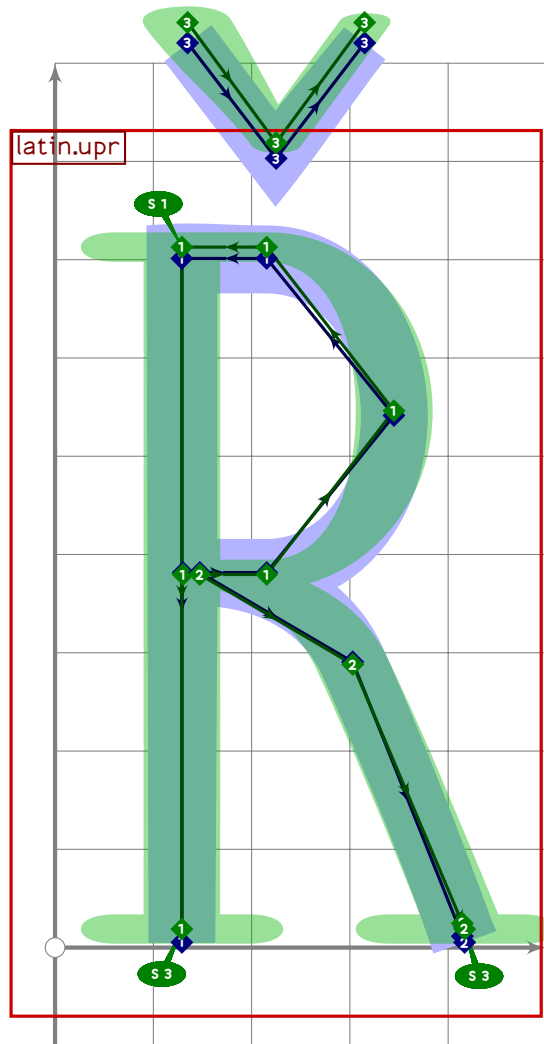


```

623 % r with comma below
624 beginsuglyph("uni0157";87);
625   tsu_accent.apply(latin.lowr)(tsu_accent.commabelow);
626   tsu_render;
627 endsuglyph;
628

```

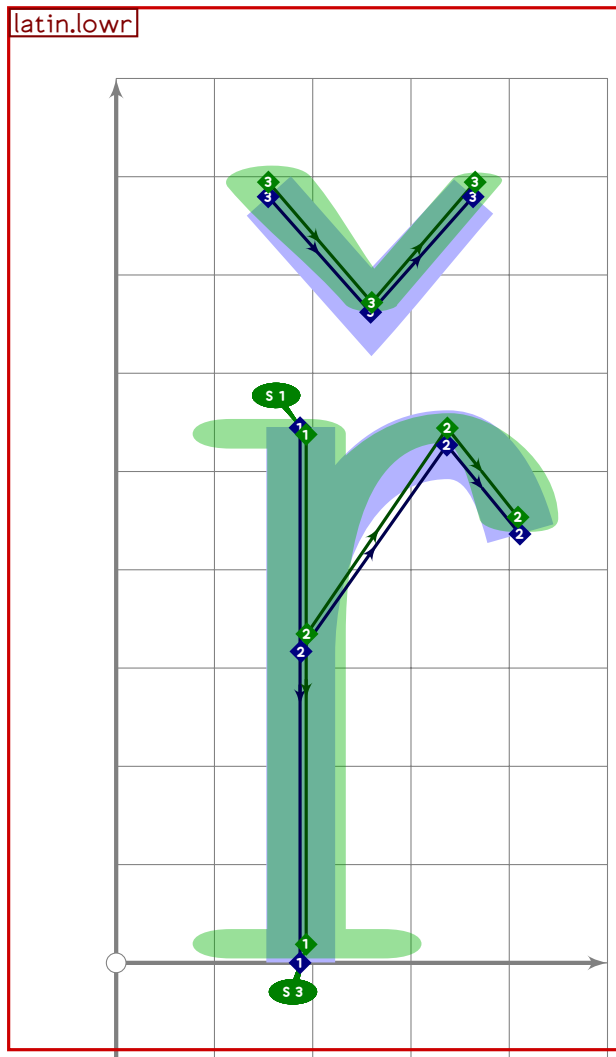




```

629 % R with caron
630 begint Suglyph("Rcaron";88);
631   tsu_accent.apply(tsu_accent.capital(latin.upr))(tsu_accent.caron);
632   tsu_render;
633 endsuglyph;
634

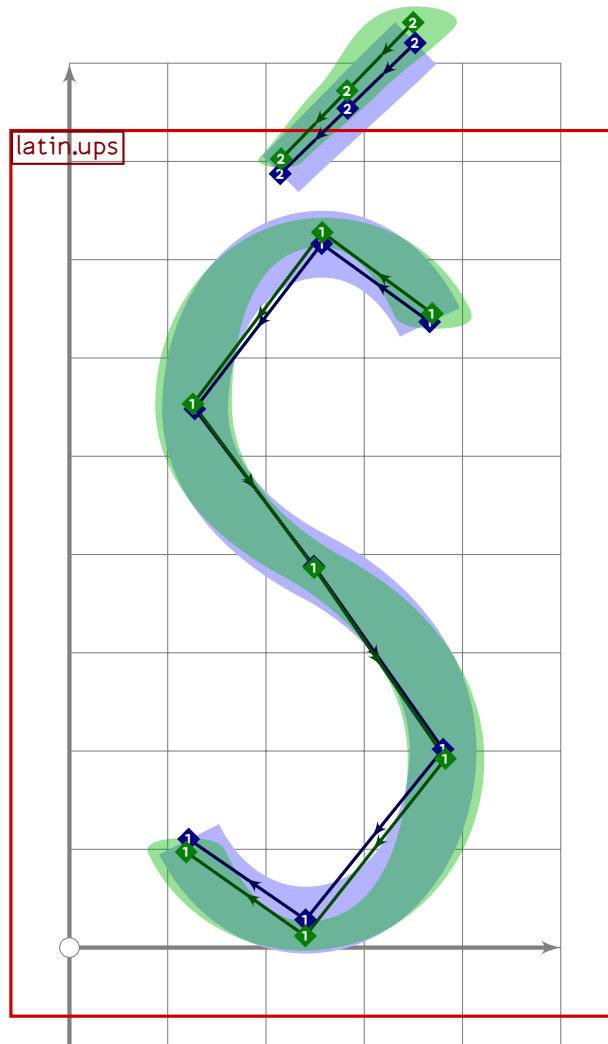
```



```

635 % r with caron
636 begintsuglyph("rcaron",89);
637 tsu_accent.apply(latin.lowr)(tsu_accent.caron);
638 replace_strokep(0)(oldp shifted (80,0));
639 tsu_render;
640 endsuglyph;
641

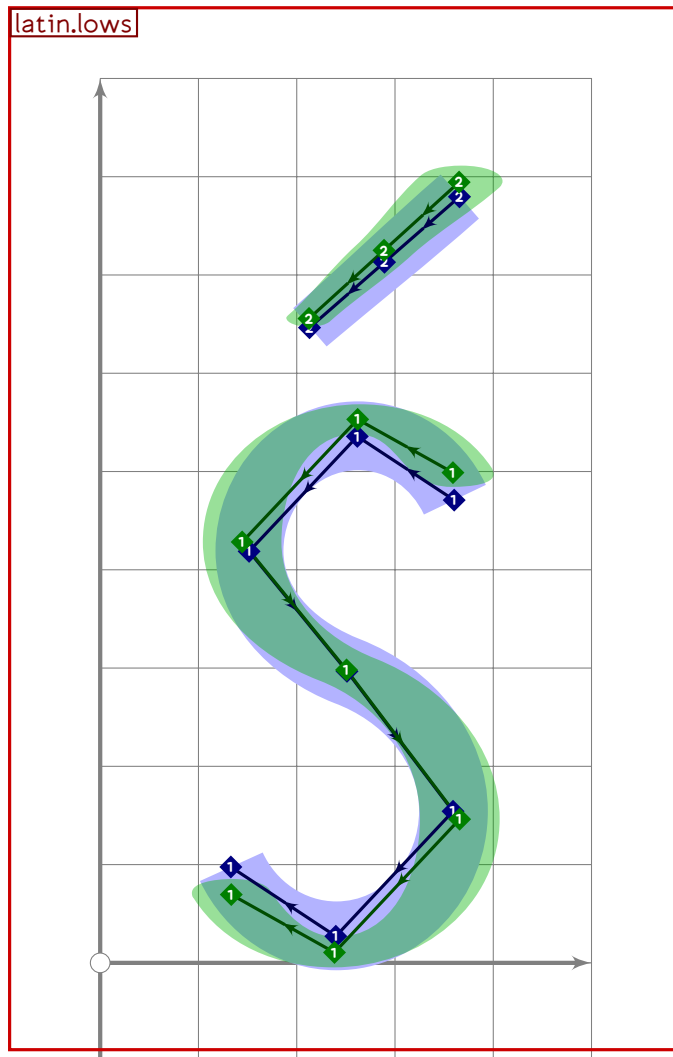
```



```

642 % S with acute
643 begint Suglyph("Sacute";90);
644   tsu_accent.apply(tsu_accent.capital(latin.ups))(tsu_accent.acute);
645   tsu_render;
646 endtsuglyph;
647

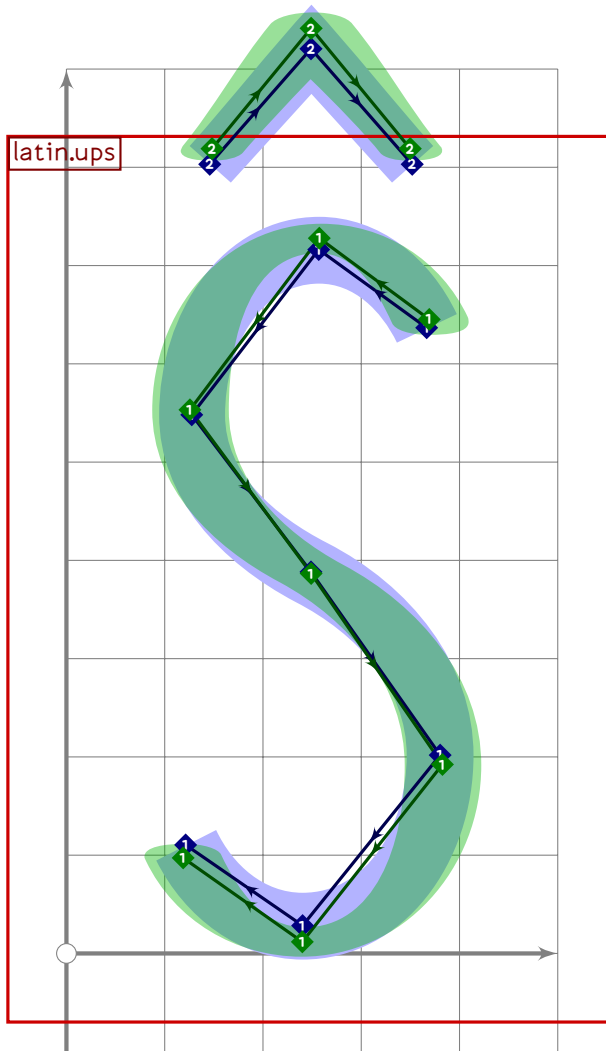
```



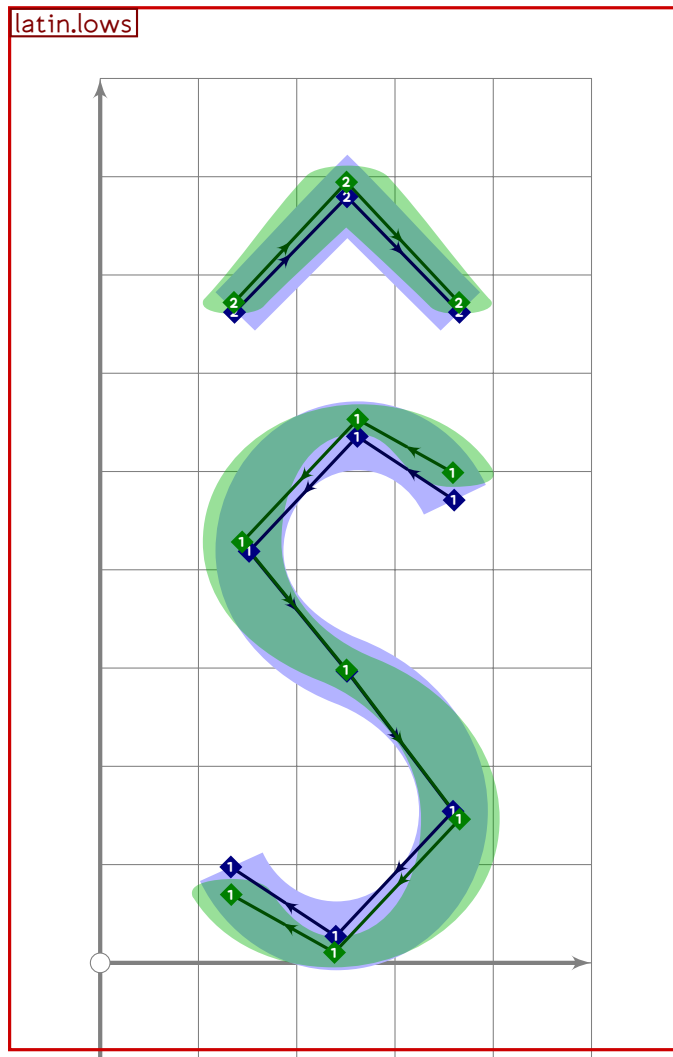
```

648 % s with acute
649 begintsuglyph("sacute";91);
650 tsu_accent.apply(latin.lows)(tsu_accent.acute);
651 tsu_render;
652 endsuglyph;
653

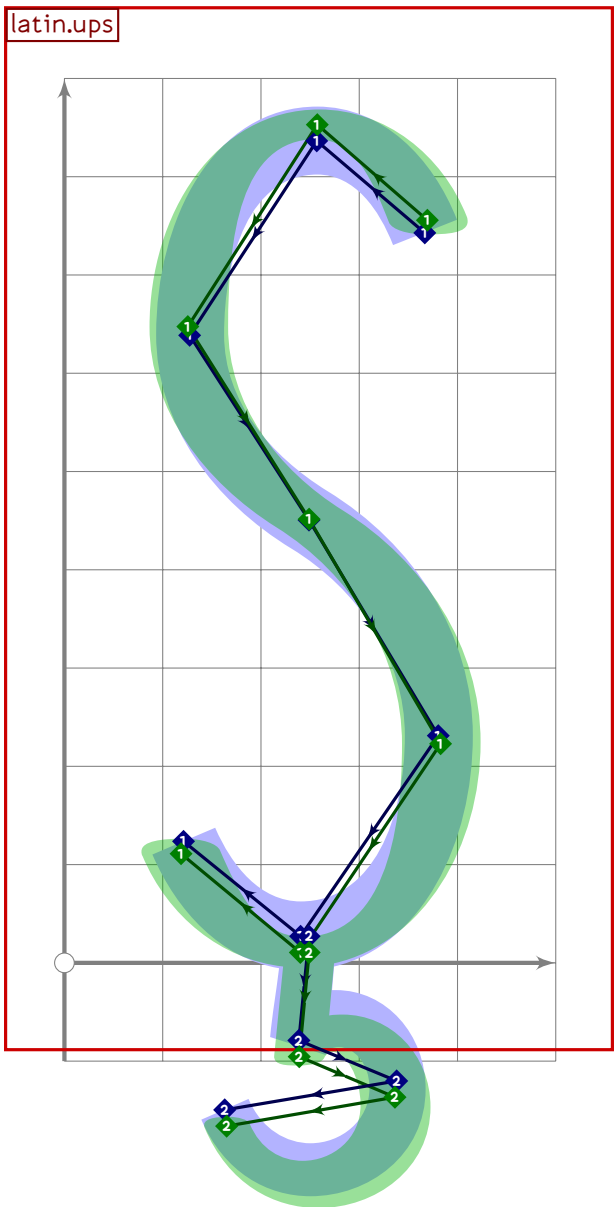
```



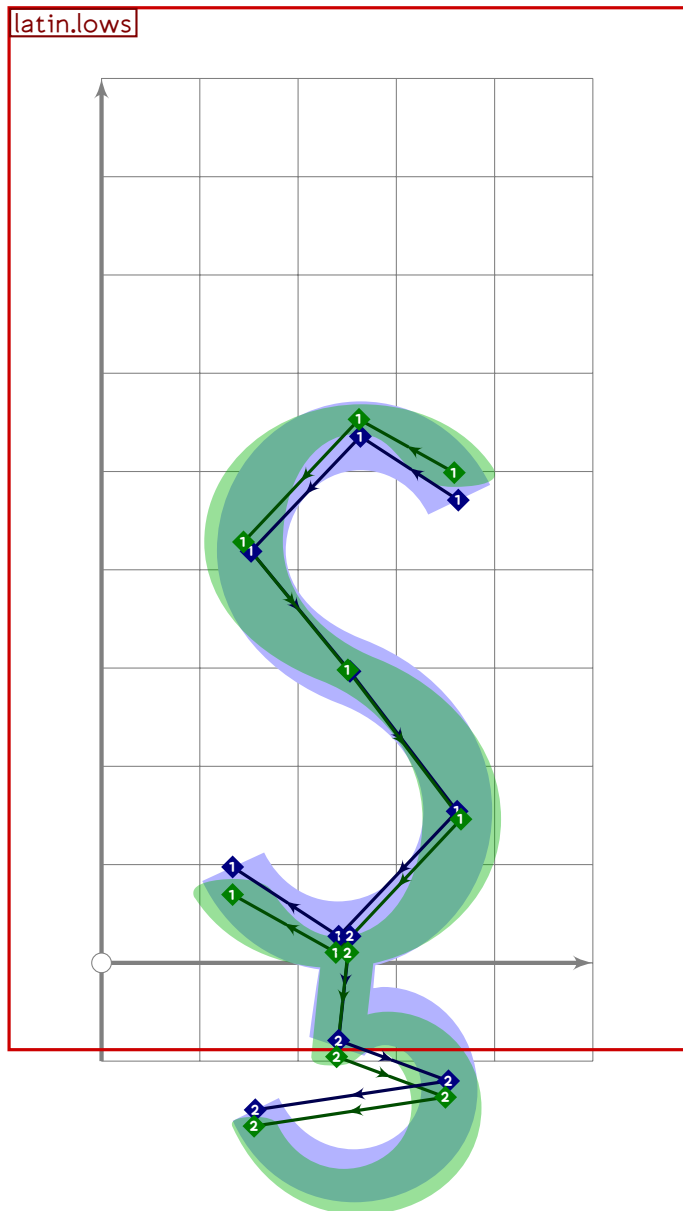
```
654 % S with circumflex
655 begintsuglyph("Scircumflex";92);
656 tsu_accent.apply(tsu_accent.capital(latin.ups))(tsu_accent.circumflex);
657 tsu_render;
658 endsuglyph;
659
```



```
660 % s with circumflex
661 begintsuglyph("scircumflex";93);
662 tsu_accent.apply(latin.lows)(tsu_accent.circumflex);
663 tsu_render;
664 endsuglyph;
665
```



```
666 % S with cedilla
667 begint Suglyph("Scedilla";94);
668   tsu_accent.apply(latin.ups)(tsu_accent.cedilla);
669   tsu_render;
670 endsuglyph;
671
```

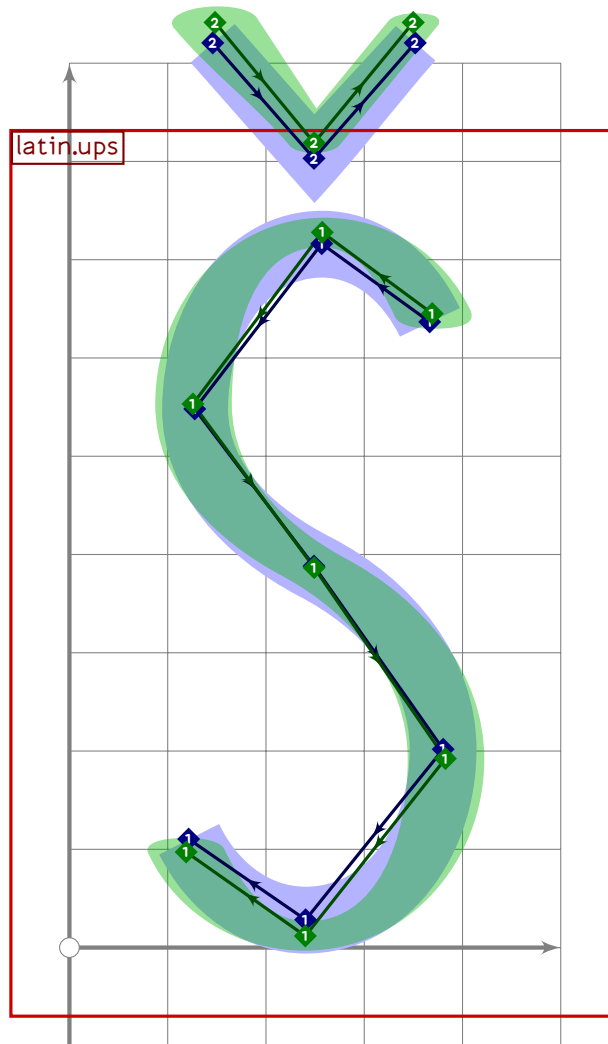


```

672 % s with cedilla
673 begint Suglyph("scedilla",95);
674   tsu_accent.apply(latin.lows)(tsu_accent.cedilla);
675   tsu_render;
676 endtsuglyph;
677

```

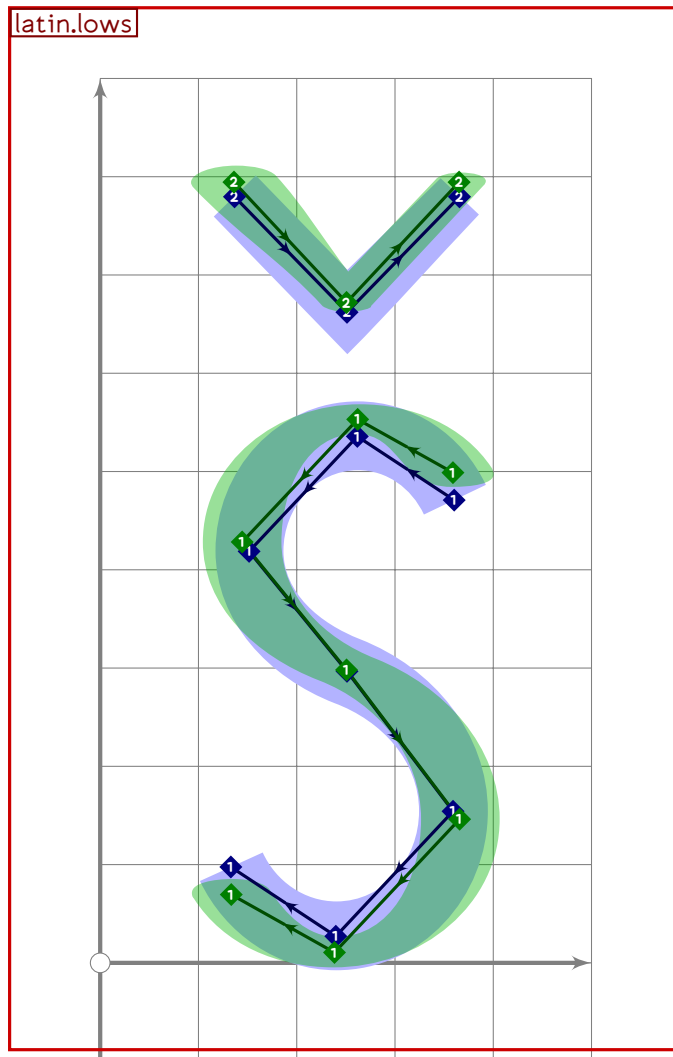




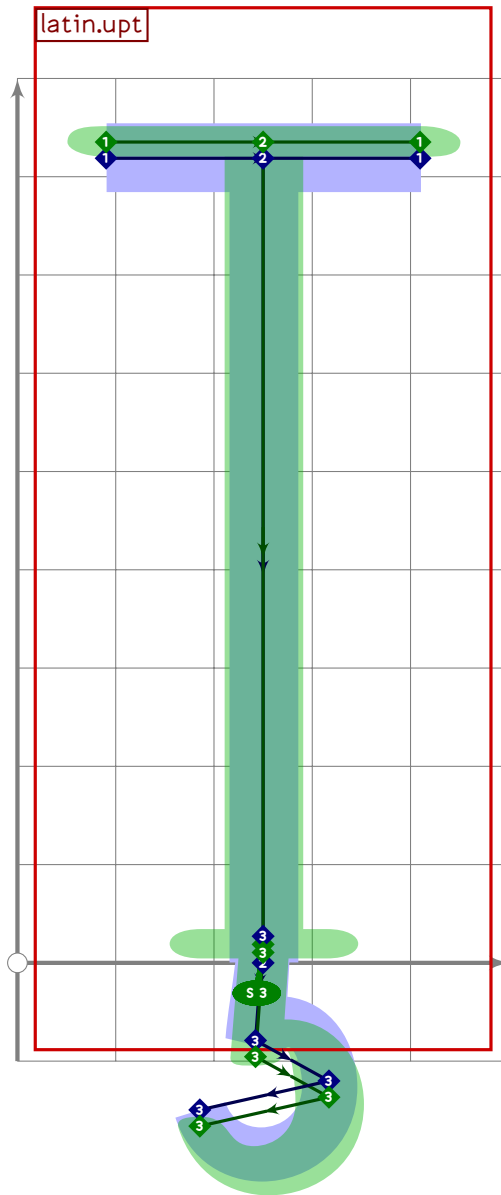
```

678 % S with caron
679 begint Suglyph("Scaron";96);
680 tsu_accent.apply(tsu_accent.capital(latin.ups))(tsu_accent.caron);
681 tsu_render;
682 endtsuglyph;
683

```



```
684 % s with caron
685 begintsuglyph("scaron";97);
686 tsu_accent.apply(latin.lows)(tsu_accent.caron);
687 tsu_render;
688 endsuglyph;
689
```

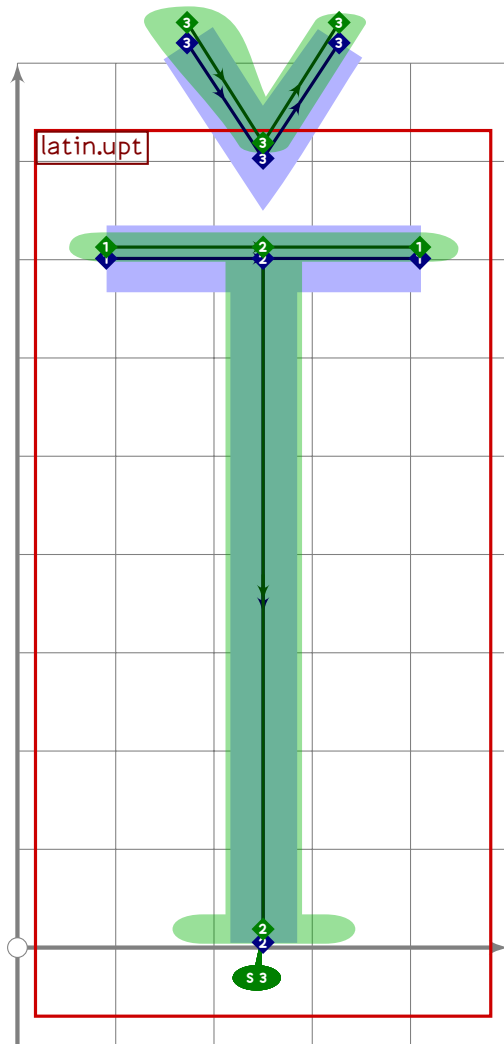


```

690 % T with cedilla [sic]
691 begintsuglyph("uni0162";98);
692 tsu_accent.apply(latin.upt)(tsu_accent.cedilla);
693 tsu_render;
694 endtsuglyph;
695

```

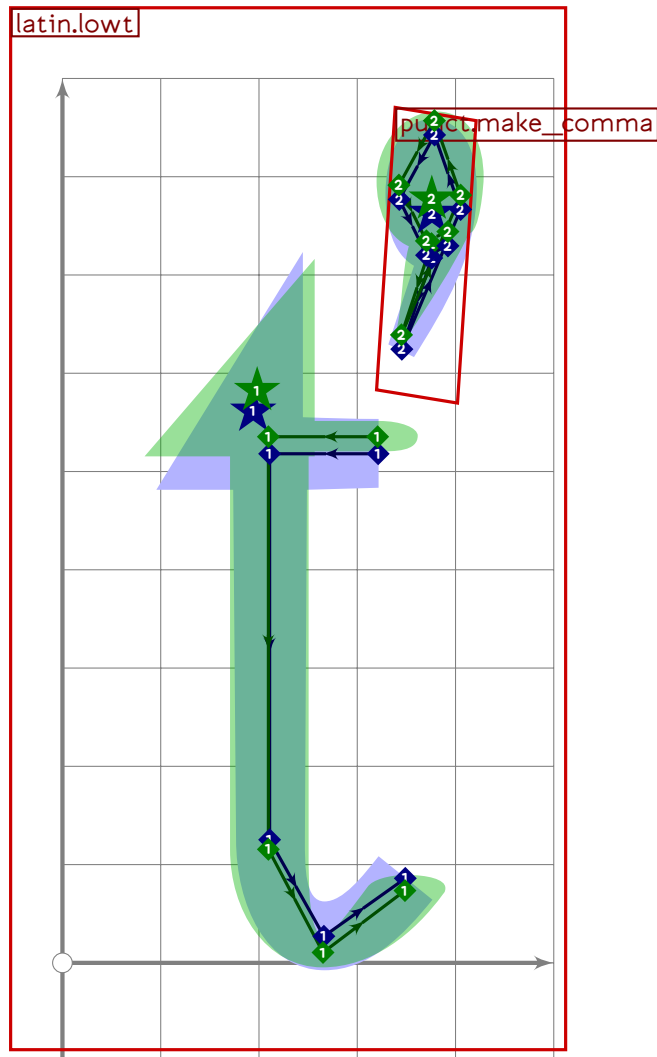




```

703 % T with caron
704 begintsuglyph("Tcaron",100);
705   tsu_accent.apply(tsu_accent.capital(latin.upt))(tsu_accent.caron);
706   tsu_render;
707 endsuglyph;
708

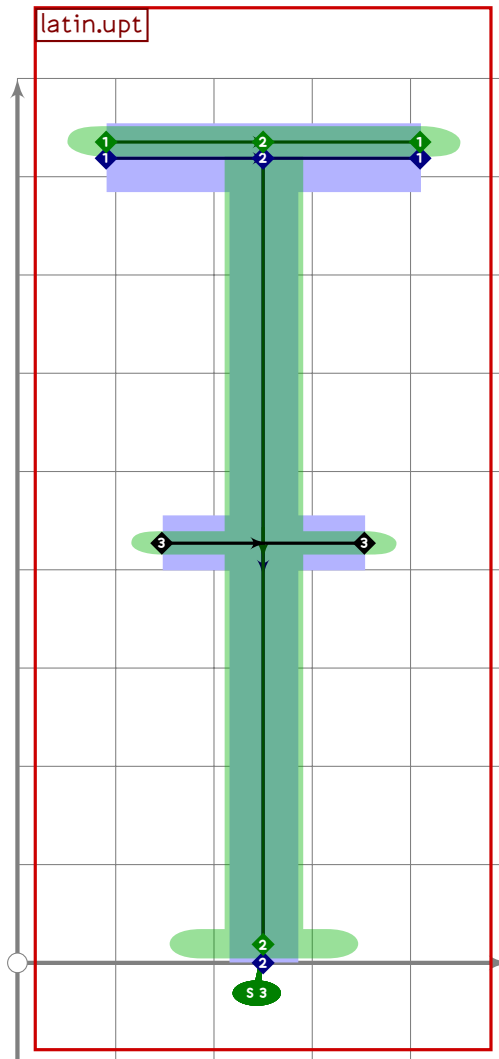
```



```

709 % t with apostrophe caron
710 begintsuglyph("tcaron";101);
711   tsu_accent.apply(latin.lowt)(tsu_accent.caron_comma);
712   tsu_render;
713 endsuglyph;
714

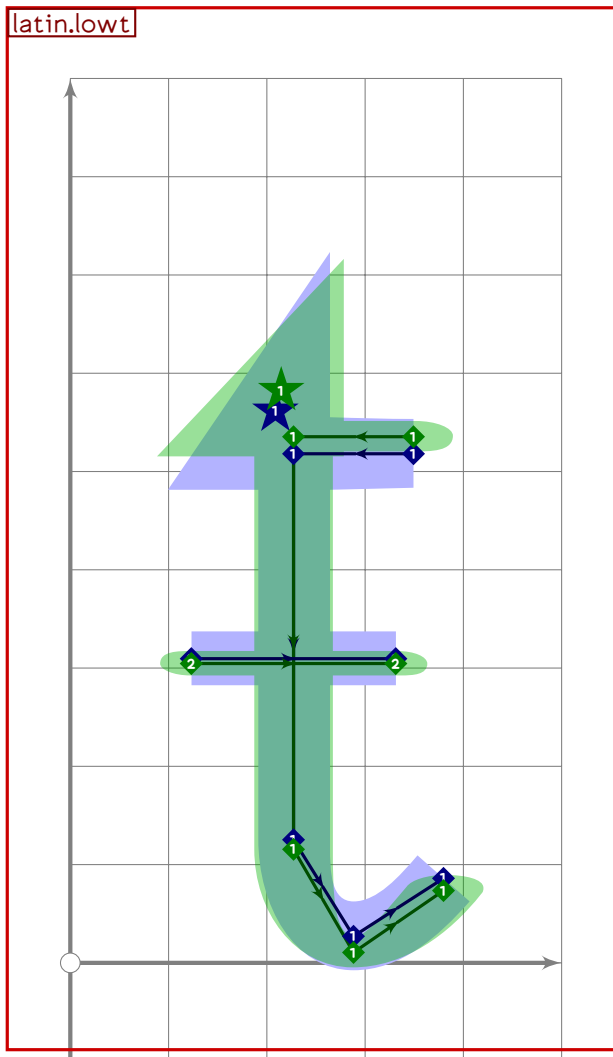
```



```

715 % T with bar
716 beginsuglyph("Tbar";102);
717 latin.upt;
718 push_stroke((300,vmetric(0.5))-(700,vmetric(0.5)),
719   (1.6,1.6)-(1.6,1.6));
720 set_bosize(0,80);
721 tsu_render;
722 endsuglyph;
723

```

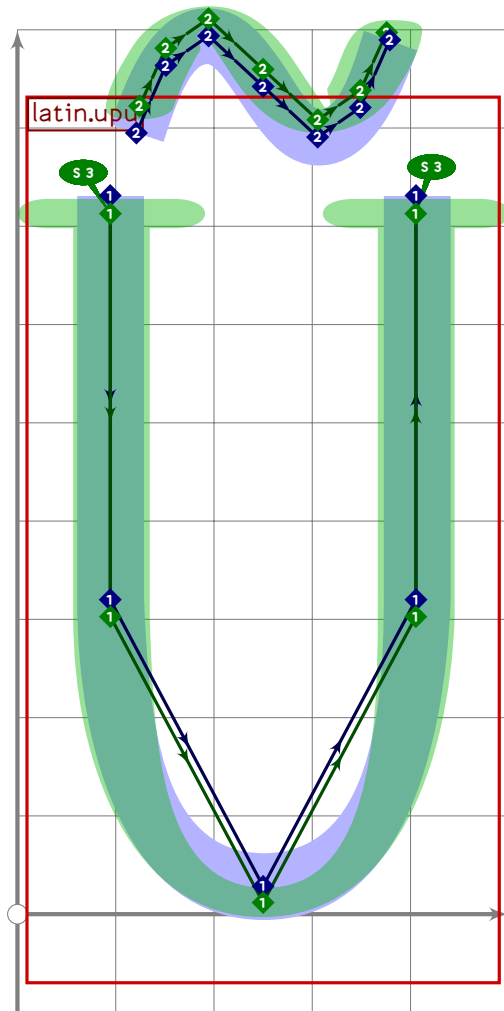


```

724 % t with bar
725 beginsuglyph("tbar";103);
726 latin.lowt;
727 push_stroke((320,vmetric(0.35))-(620,vmetric(0.35)),
728   (1.6,1.6)-(1.6,1.6));
729 set_bosize(0,80);
730 tsu_render;
731 endsuglyph;
732

```

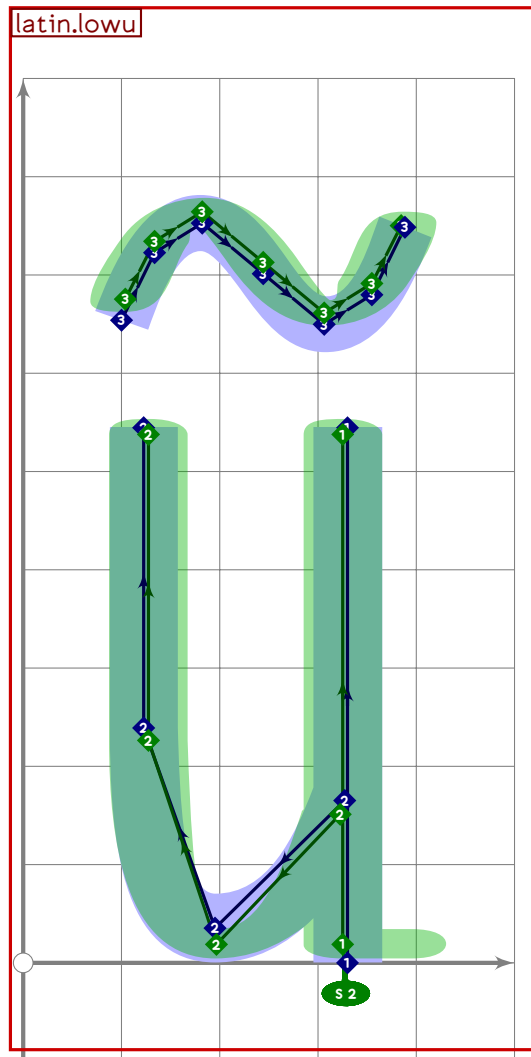




```

733 % U with tilde
734 begintsuglyph("Utilde";104);
735   tsu_accent.apply(tsu_accent.capital(latin.upu))(tsu_accent.tilde);
736   tsu_render;
737 endsuglyph;
738

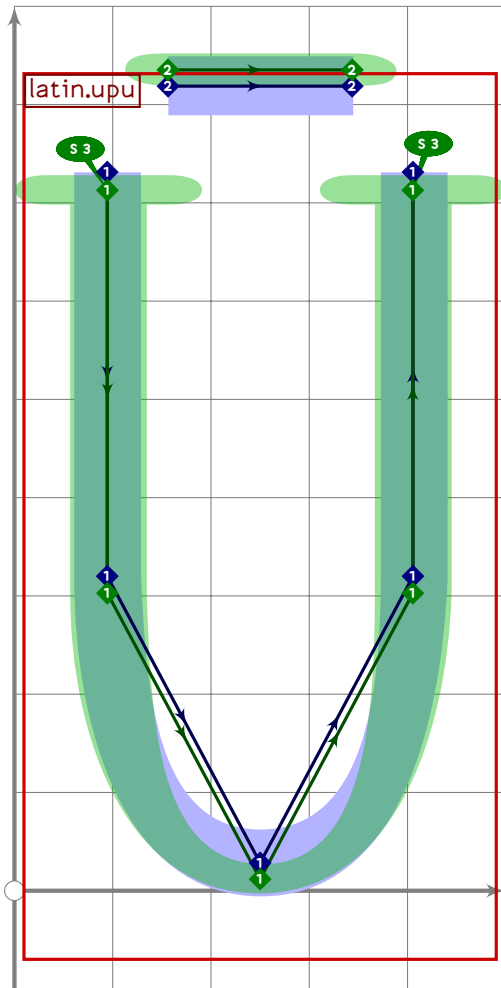
```



```

739 % u with tilde
740 beginsuglyph("utilde";105);
741   tsu_accent.apply(latin.lowu)(tsu_accent.tilde);
742   replace_strokep(0)(oldp shifted (-20,0));
743   tsu_render;
744 endsuglyph;
745

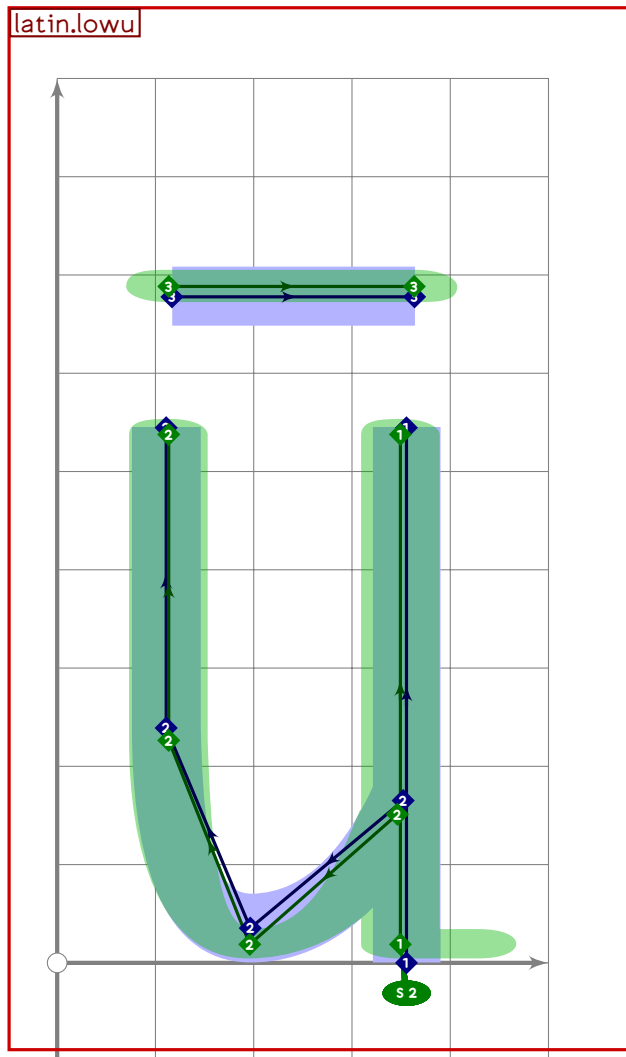
```



```

746 % U with macron
747 begint Suglyph("Umacron",106);
748   tsu_accent.apply(tsu_accent.capital(latin.upu))(tsu_accent.macron);
749   tsu_render;
750 endsuglyph;
751

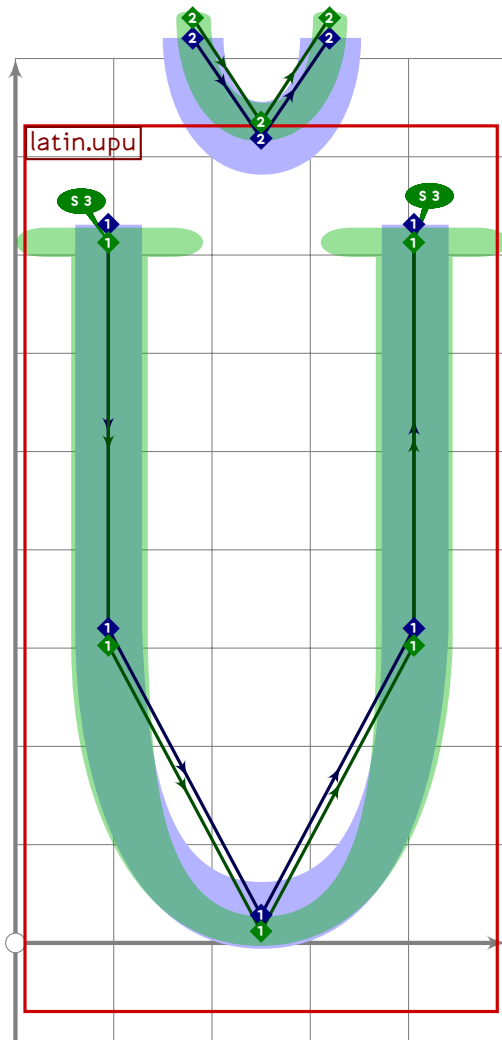
```



```

752 % u with macron
753 begintsuglyph("umacron";107);
754 tsu_accent.apply(latin.lowu)(tsu_accent.macron);
755 replace_strokep(0)(oldp shifted (-40,0));
756 tsu_render;
757 endtsuglyph;
758

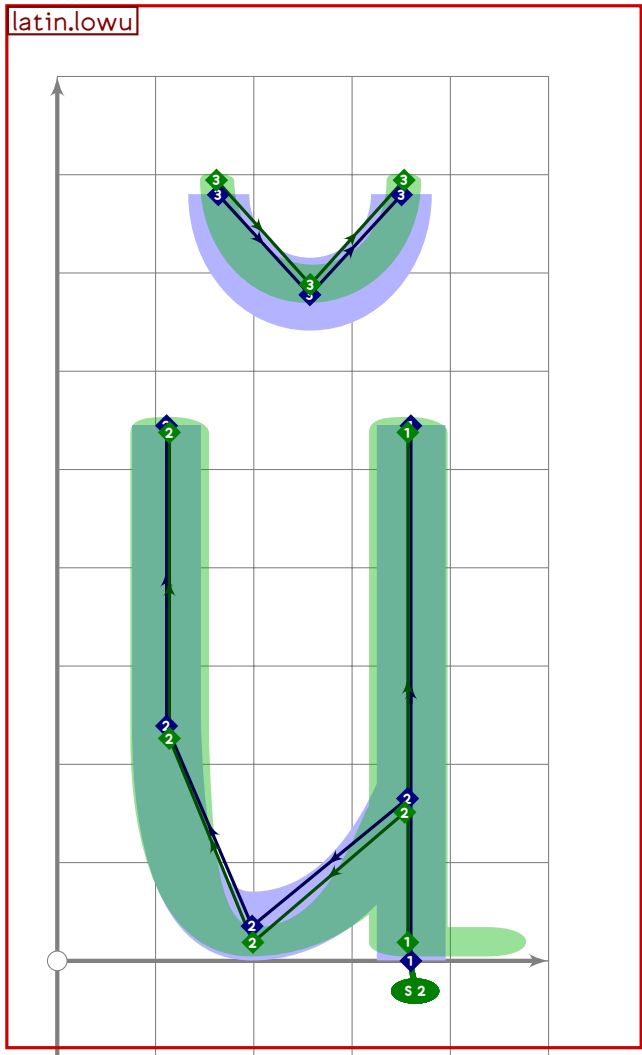
```



```

759 % U with breve
760 begintsuglyph("Ubreve";108);
761 tsu_accent.apply(tsu_accent.capital(latin.upu))(tsu_accent.breve);
762 tsu_render;
763 endsuglyph;
764

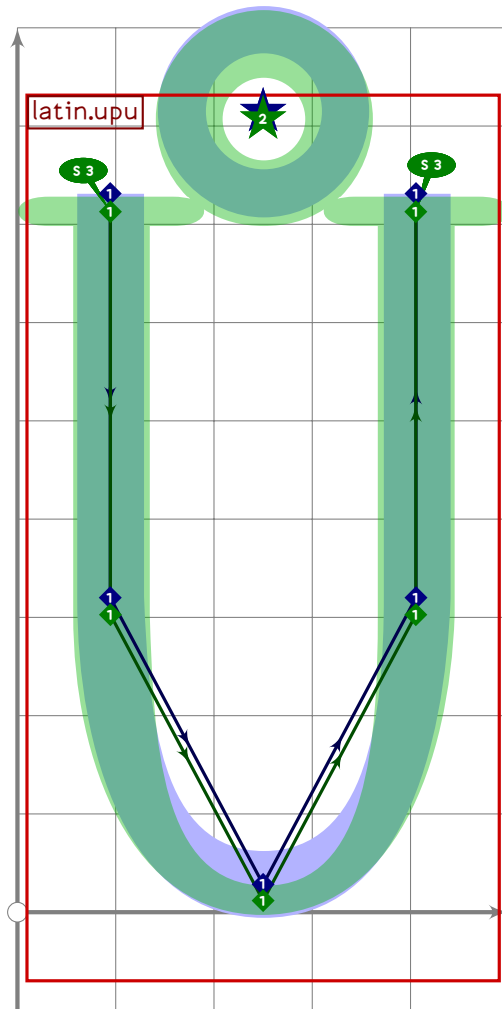
```



```

765 % u with breve
766 begint Suglyph("ubreve";109);
767   tsu_accent.apply(latin.lowu)(tsu_accent.breve);
768   replace_strokep(0)(oldp shifted (-20,0));
769   tsu_render;
770 endsuglyph;
771

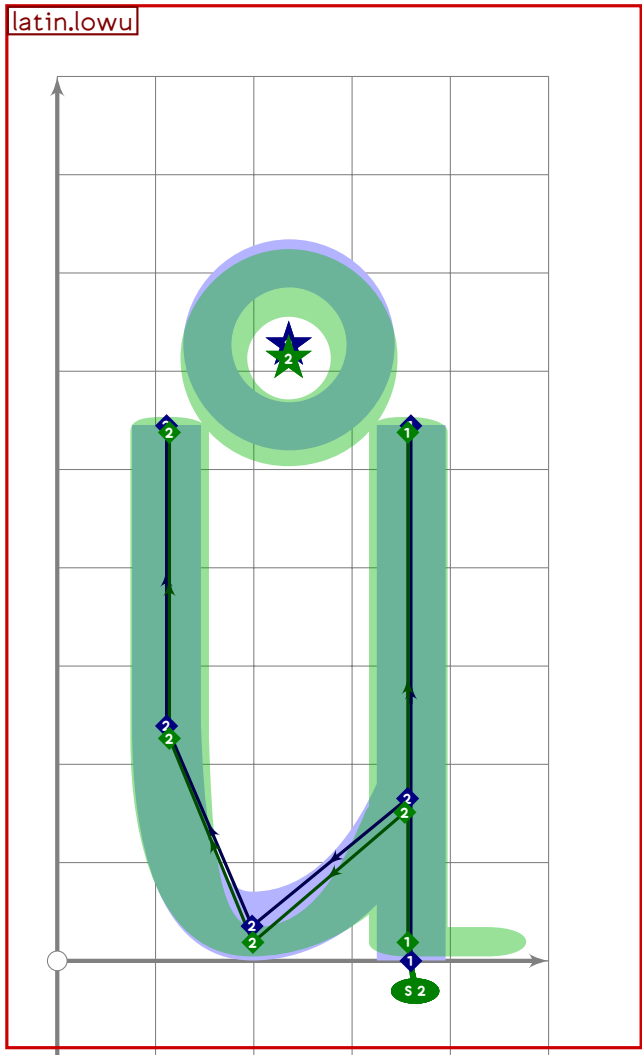
```



```

772 % U with ring above
773 beginsuglyph("Uring";110);
774   tsu_accent.apply(tsu_accent.capital(latin.upu))(tsu_accent.ringabove);
775   tsu_render;
776 endsuglyph;
777

```

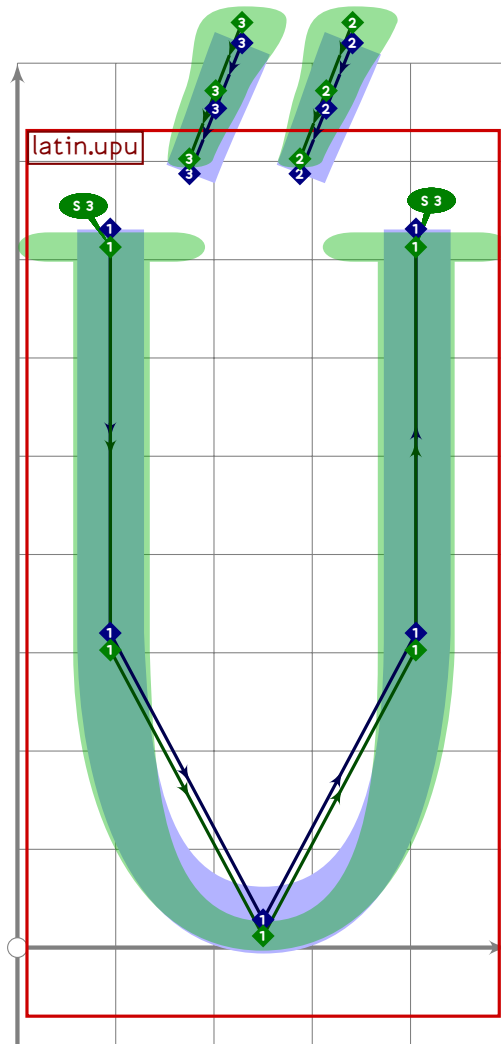


```

778 % u with ring above
779 beginsuglyph("uring",111);
780 tsu_accent.apply(latin.lowu)(tsu_accent.ringabove);
781 replace_lcblob(-1)(oldblob shifted (-50,-40));
782 replace_lcblob(0)(oldblob shifted (-50,-40));
783 tsu_render;
784 endsuglyph;
785

```

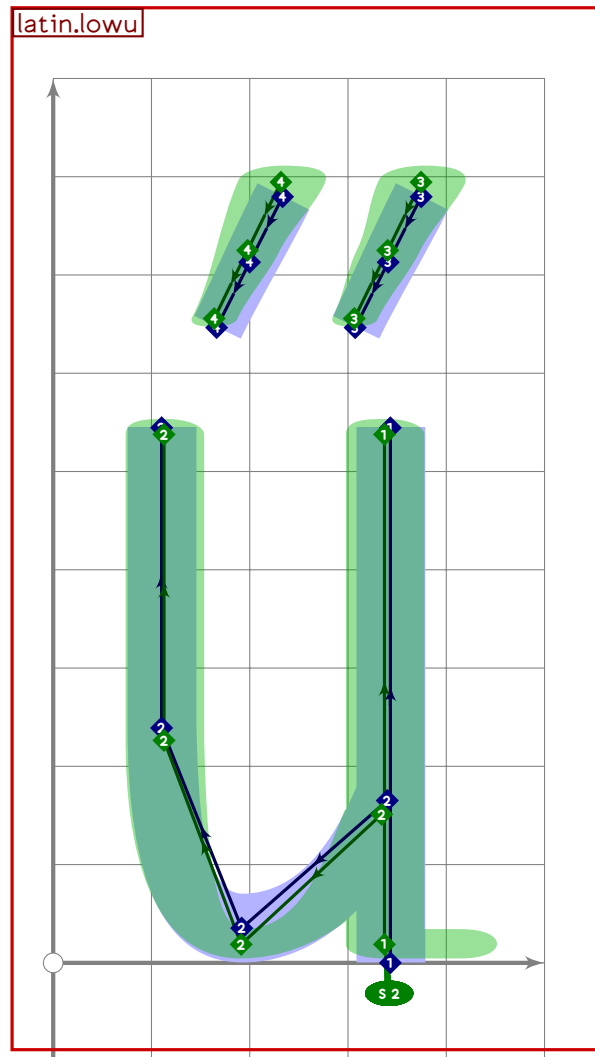




```

786 % U with Hungarian umlaut
787 \begintsuglyph("Uhungarumlaut",112);
788   \tsu_accent.apply(\tsu_accent.capital(latin.upu))(\tsu_accent.hungarian_umlaut);
789   \tsu_render;
790 \endtsuglyph;
791

```



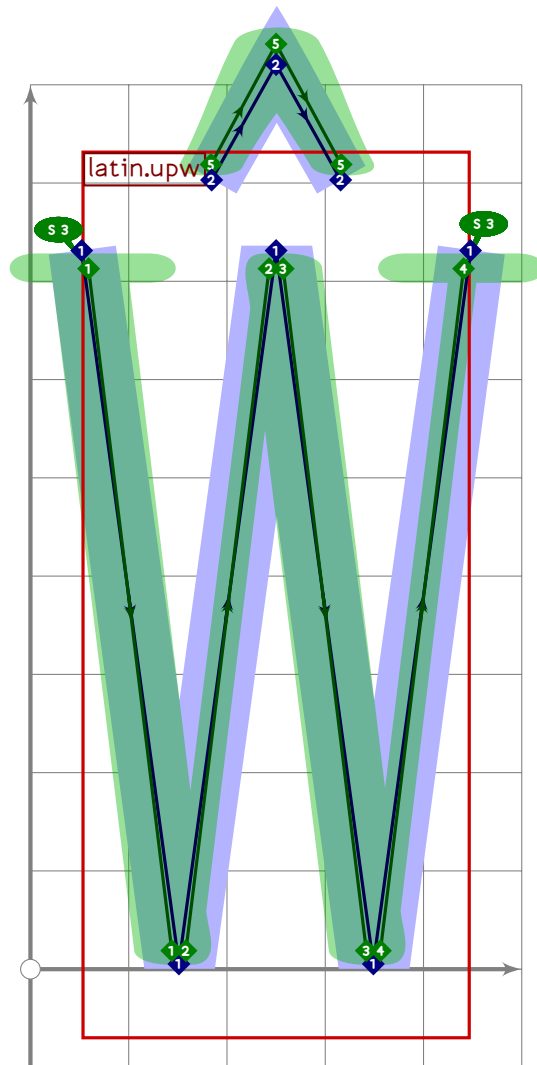
```

792 % u with Hungarian umlaut
793 begintsuglyph("uhungarumlaut";113);
794 tsu_accent.apply(latin.lowu)(tsu_accent.hungarian_umlaut);
795 tsu_render;
796 endsuglyph;
797
798 % U with ogonek
799 begintsuglyph("Uogonek";114);
800 latin.upuogonek;
801 tsu_render;
802 endsuglyph;
803
804 % u with ogonek
805 begintsuglyph("uogonek";115);
806 latin.lowuogonek;
807 tsu_render;
808 endsuglyph;
809

```

[see page 265]

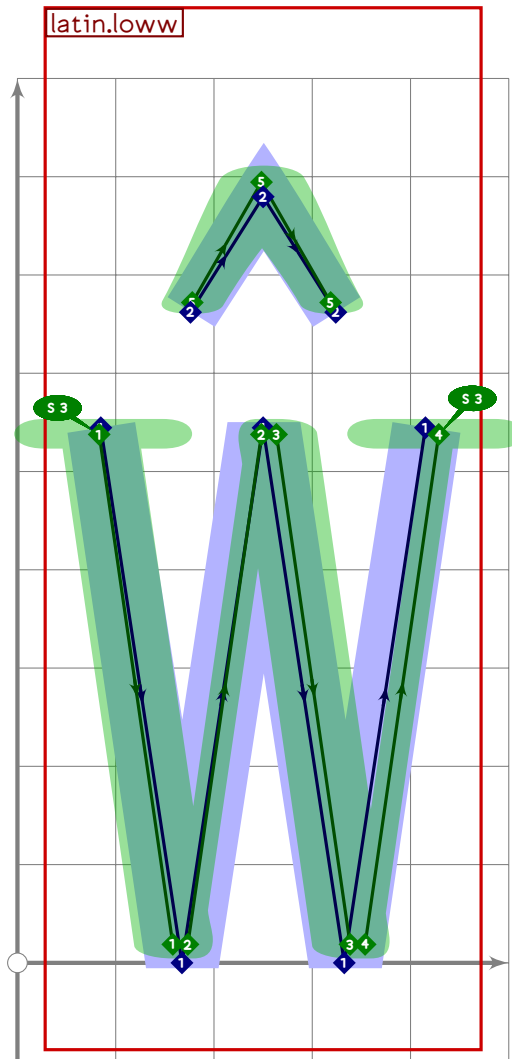
[see page 271]



```

810 % W with circumflex
811 begint Suglyph("Wcircumflex",116);
812   tsu_accent.apply(tsu_accent.capital(latin.upw))(tsu_accent.circumflex);
813   tsu_render;
814 endtsuglyph;
815

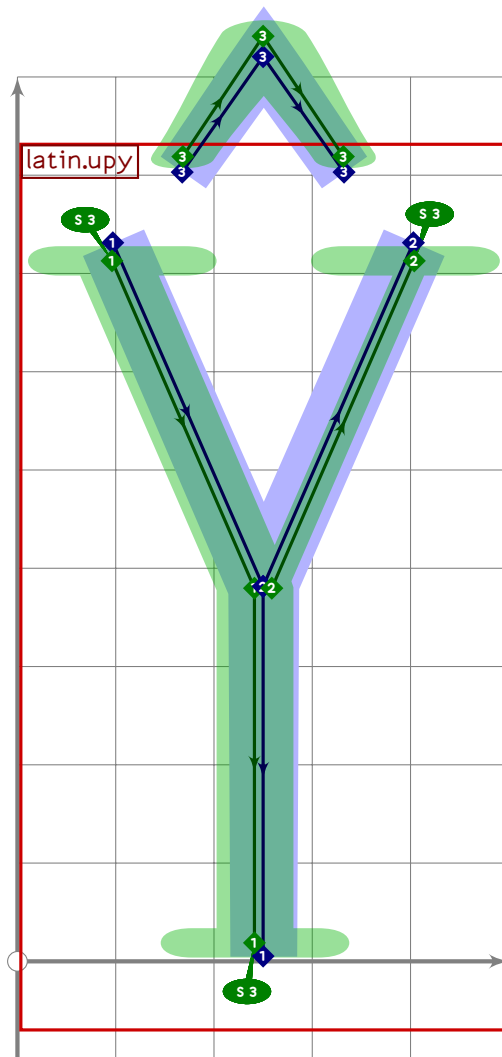
```



```

816 % w with circumflex
817 beginsuglyph("wcircumflex";117);
818   tsu_accent.apply(latin.loww)(tsu_accent.circumflex);
819   tsu_render;
820 endsuglyph;
821

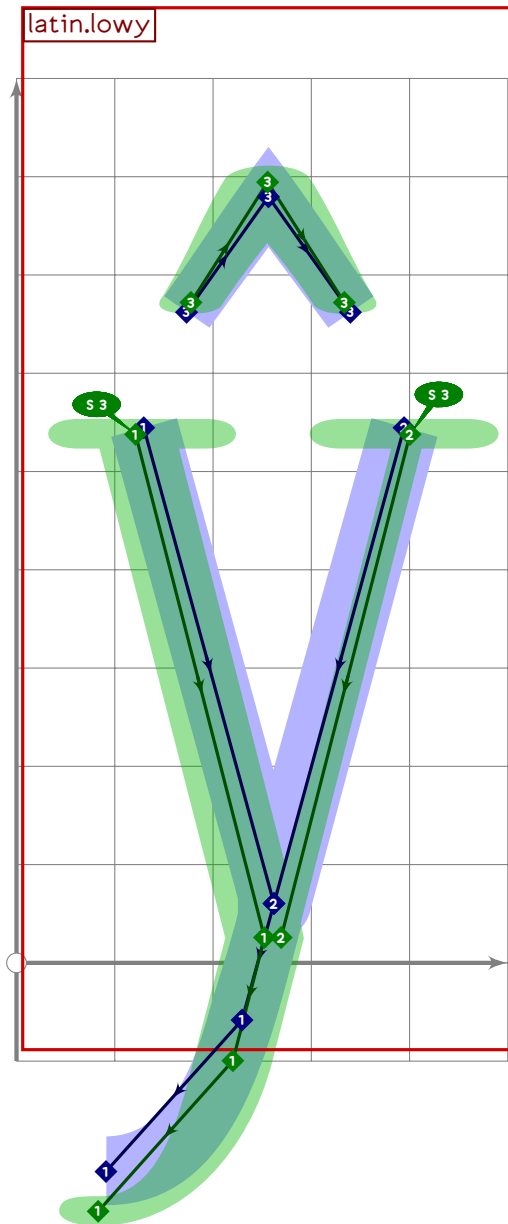
```



```

822 % Y with circumflex
823 begintsuglyph("Ycircumflex",118);
824 tsu_accent.apply(tsu_accent.capital(latin.upy))(tsu_accent.circumflex);
825 tsu_render;
826 endsuglyph;
827

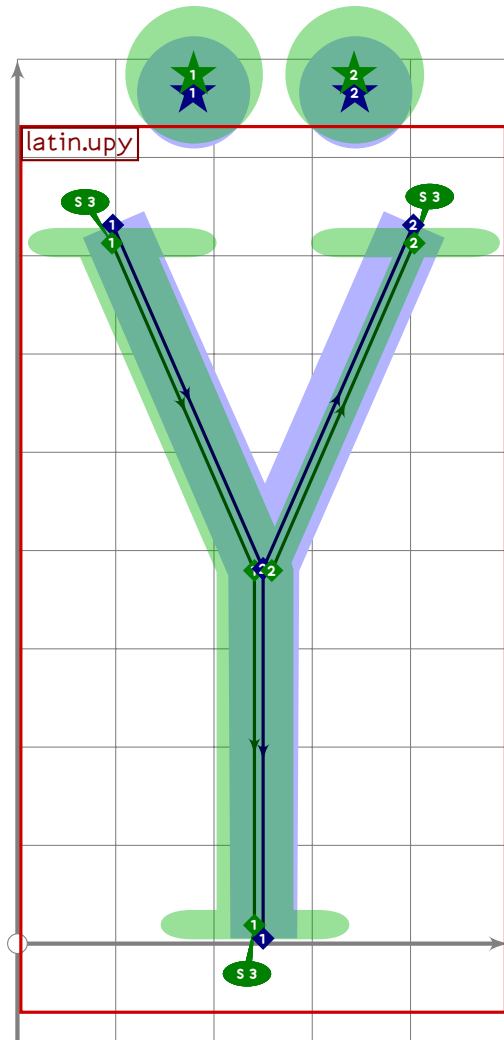
```



```

828 % y with circumflex
829 beginsuglyph("ycircumflex";119);
830 tsu_accent.apply(latin.lowy)(tsu_accent.circumflex);
831 tsu_render;
832 endsuglyph;
833

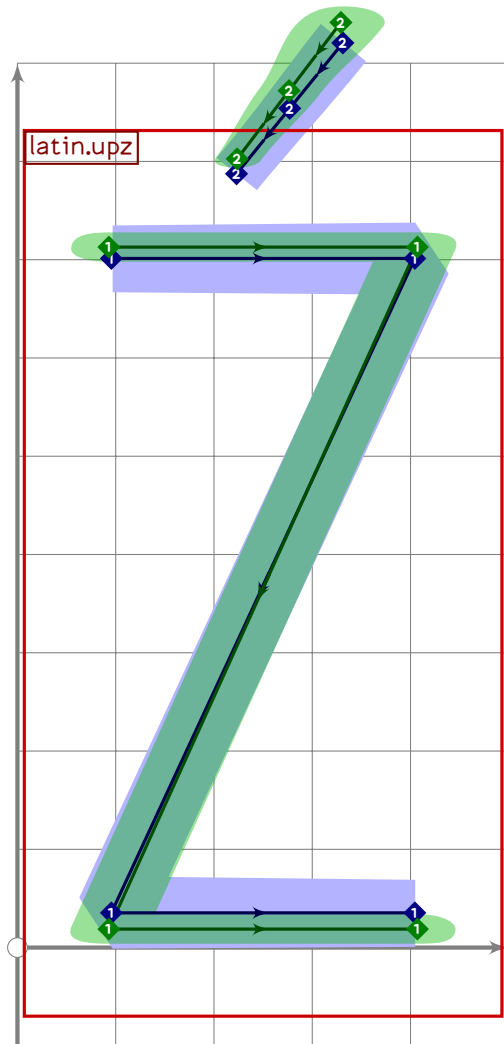
```



```

834 % Y with umlaut/dieresis
835 \begin{tsuglyph}{"Ydieresis";120};
836   \tsu_accent.apply(\tsu_accent.capital(latin.upy))(\tsu_accent.umlaut);
837   \tsu_render;
838 \end{tsuglyph};
839

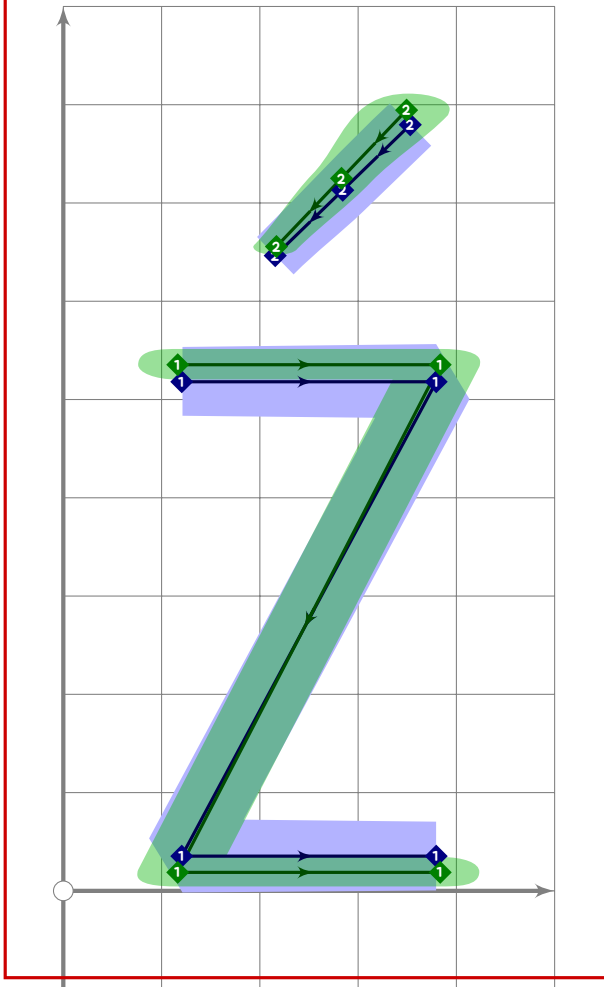
```



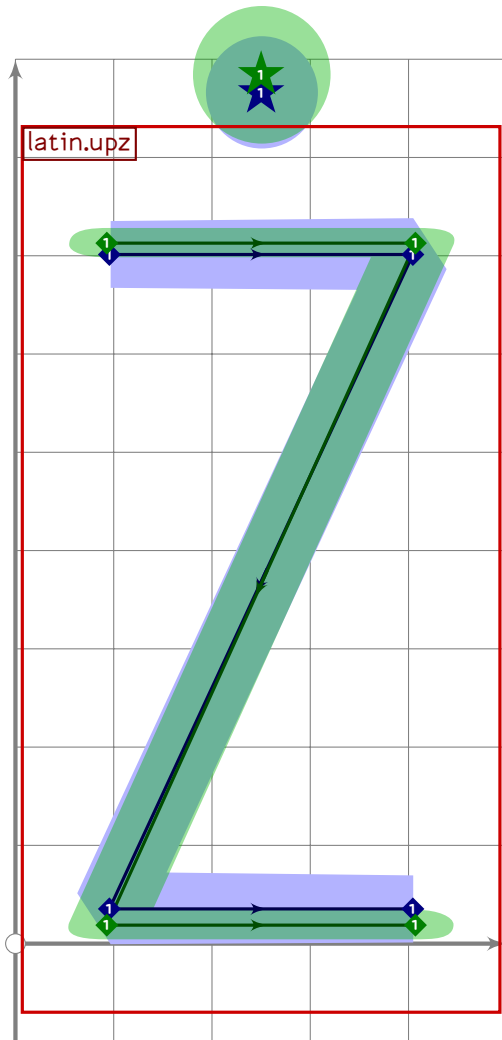
```
840 % Z with acute
841 beginsuglyph("Zacute",121);
842 tsu_accent.apply(tsu_accent.capital(latin.upz))(tsu_accent.acute);
843 tsu_render;
844 endsuglyph;
845
```



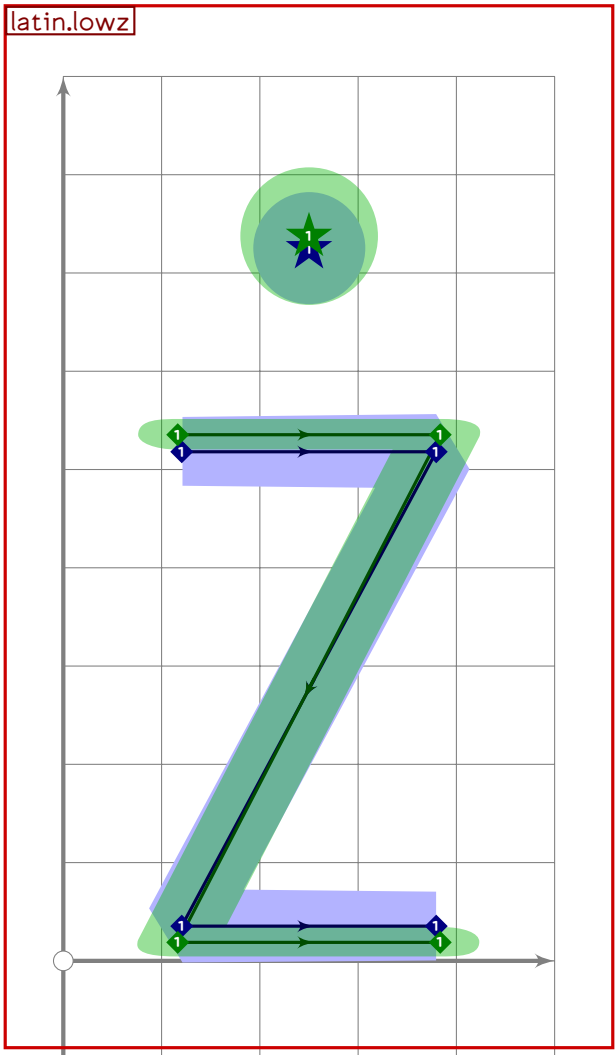
latin.lowz



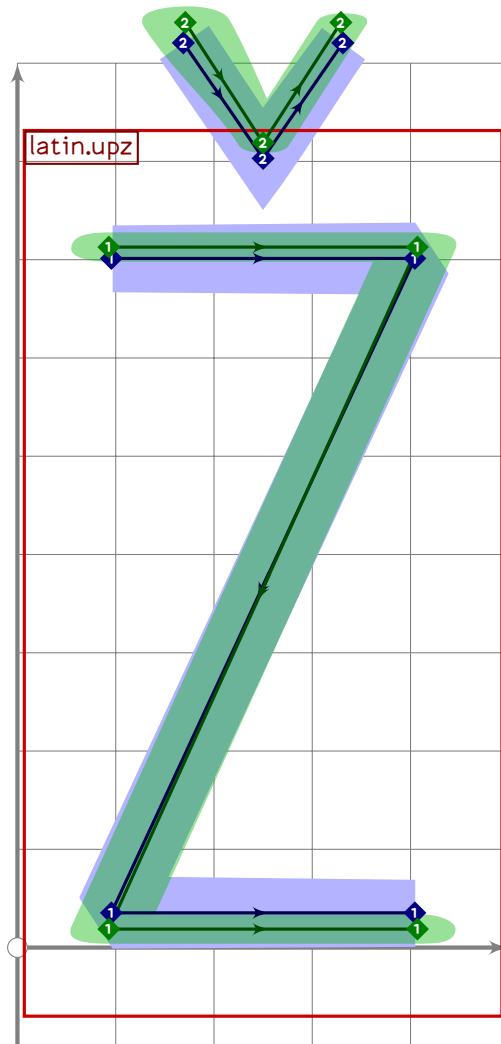
```
846 % z with acute
847 begintsuglyph("zacute";122);
848   tsu_accent.apply(latin.lowz)(tsu_accent.acute);
849   tsu_render;
850 endsuglyph;
851
```



```
852 % Z with dot
853 begintsuglyph("Zdotaccent";123);
854 tsu_accent.apply(tsu_accent.capital(latin.upz))(tsu_accent.dotabove);
855 tsu_render;
856 endtsuglyph;
857
```



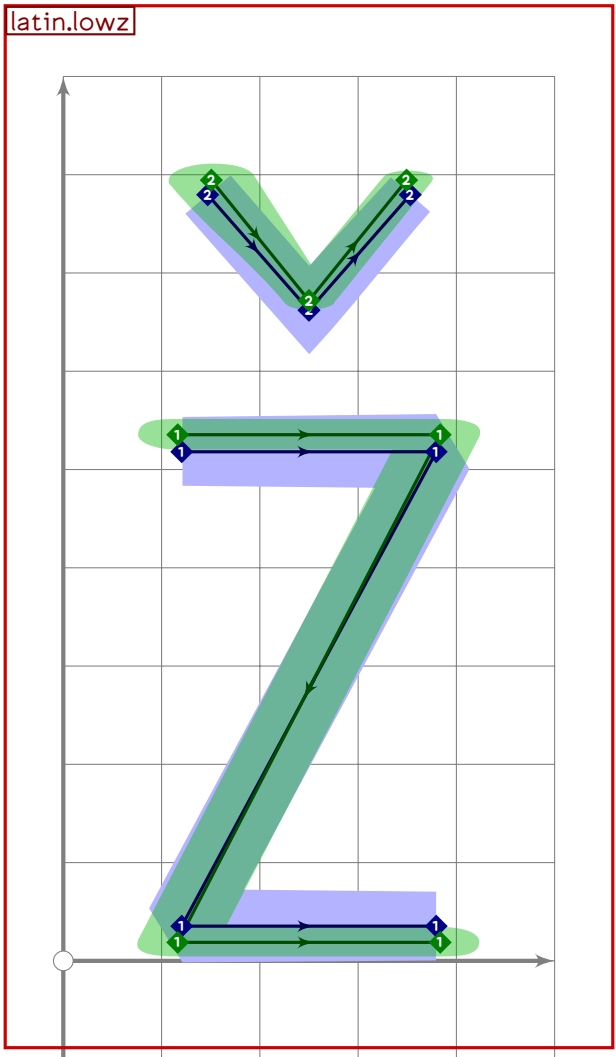
```
858 % z with dot
859 beginsuglyph("zdotaccent",124);
860 tsu_accent.apply(latin.lowz)(tsu_accent.dotabove);
861 tsu_render;
862 endsuglyph;
863
```



```

864 % Z with caron
865 begint Suglyph("Zcaron";125);
866   tsu_accent.apply(tsu_accent.capital(latin.upz))(tsu_accent.caron);
867   tsu_render;
868   endtsuglyph;
869

```



```

870 % z with caron
871 begintsuglyph("zcaron";126);
872   tsu_accent.apply(latin.lowz)(tsu_accent.caron);
873   tsu_render;
874 endsuglyph;
875
876 % long s
877 begintsuglyph("longs";127);
878   latin.lowlongs;
879   tsu_render;
880 endsuglyph;
881
882 _____
883
884 endfont;
885
886 _____

```

[see page 232]

# tsuku-02.mp

```
1 %
2 % Unicode page 02 (Spacing Modifier Letters) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---

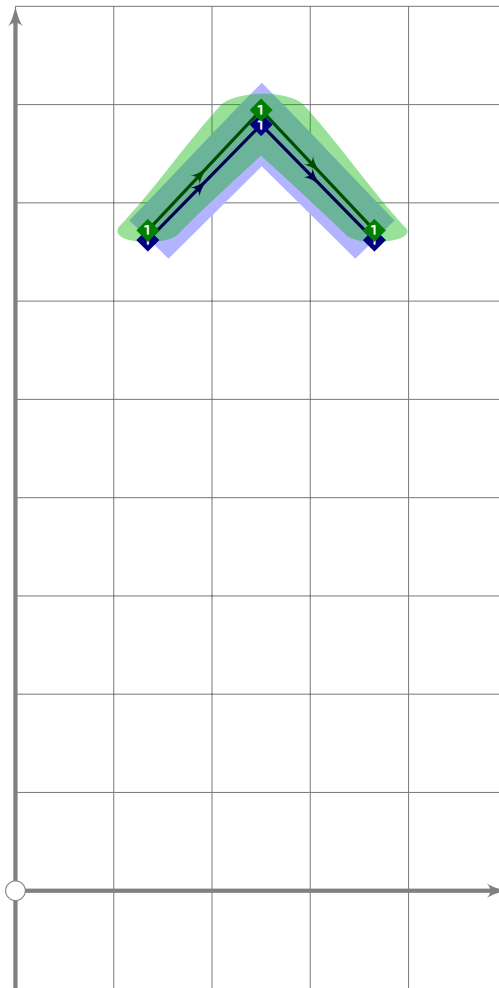

32
33 beginfont
34
35 input latin-intro.mp;
36
37 % AUTODEPS
38 input accent.mp;
39 input latin.mp;
40 input ogonek.mp;
41
42 

---


43
```

## Spacing Modifier Letters

```
44 % SPACING MODIFIER LETTERS
45
46 tsu_rescale_half;
47
```



```

48 % circumflex accent
49 begintsuglyph("circumflex",198);
50 tsu_accent.circumflex;
51 tsu_render;
52 endtsuglyph;
53
54 % caron
55 begintsuglyph("caron",199);
56 tsu_accent.caron;
57 tsu_render;
58 endtsuglyph;
59
60 % breve
61 begintsuglyph("breve",216);
62 tsu_accent.breve;
63 tsu_render;
64 endtsuglyph;
65
66 % dot above
67 begintsuglyph("dotaccent",217);
68 tsu_accent.dotabove;

```

[see page 45]

[see page 44]

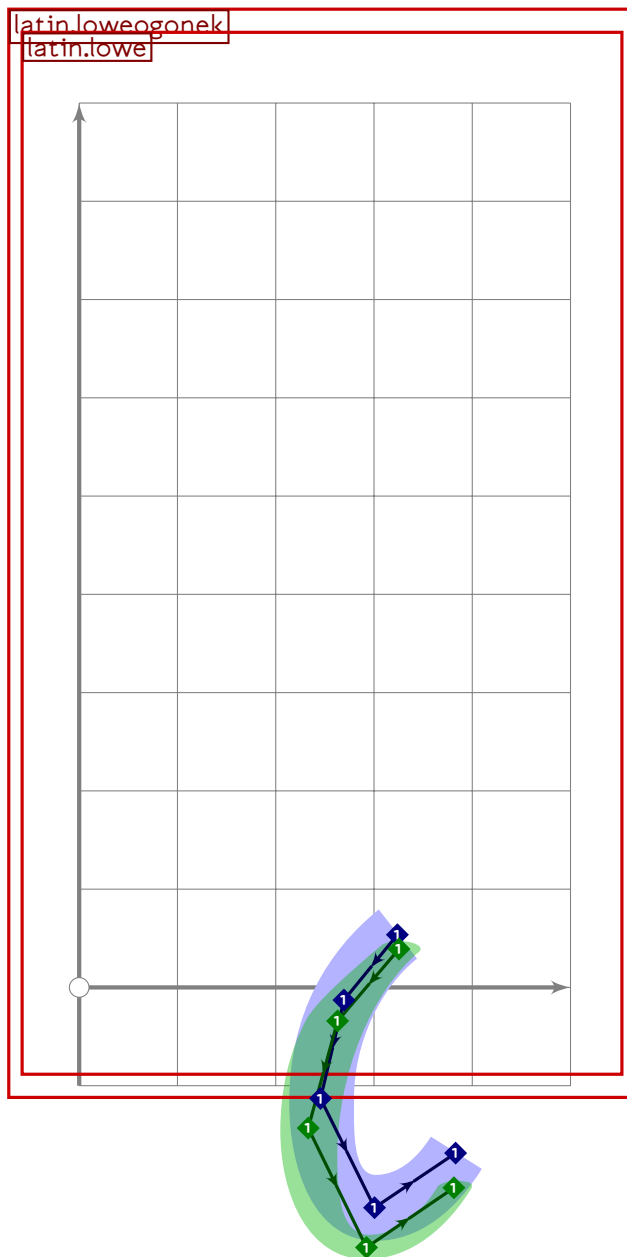
[see page 47]

```

69 tsu_render;
70 endsuglyph;
71
72 % ring above
73 beginsuglyph("ring",218);
74 tsu_accent.ringabove;
75 tsu_render;
76 endsuglyph;
77

```

[see page 52]



```

78 % ogonek
79 beginsuglyph("ogonek",219);
80 latin.loweogonek;
81 set_bosize(-1,0);
82 tsu_render;

```



```
83 endtsuglyph;
84
85 % small tilde
86 begintsuglyph("tilde",220); [see page 53]
87   tsu_accent.tilde;
88   tsu_render;
89 endtsuglyph;
90
91 % double acute accent
92 begintsuglyph("hungarumlaut",221); [see page 50]
93   tsu_accent.hungarian_umlaut;
94   tsu_render;
95 endtsuglyph;
96
97 

---


98
99 endfont;
100
101 

---


```

# tsuku-03.mp

```
1 %
2 % Unicode page 03 (Combining Diacritical Marks) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---

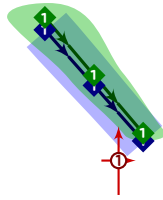

32
33 beginfont
34
35 input latin-intro.mp;
36
37 % AUTODEPS
38 input accent.mp;
39 input punct.mp;
40
41 

---

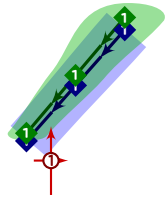

42
```

## Combining Diacritical Marks

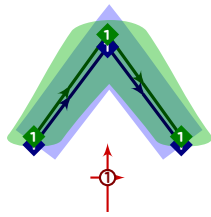
```
43 % COMBINING DIACRITICAL MARKS
44
45 tsu_rescale_native_zero;
46
47 transform tsu_xf.backspace;
48 if is_proportional:
49   tsu_xf.backspace:=identity shifted (-1000,0);
50 else:
51   tsu_xf.backspace:=identity xscaled 0.5 shifted (-500,0);
52 fi;
53
```



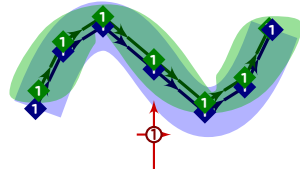
```
54 % grave accent
55 begint Suglyph("gravecomb",0);
56 tsu_xform(tsu_xf.backspace)(tsu_accent.grave);
57 tsu_render;
58 endtsuglyph;
59
```



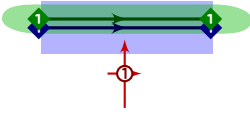
```
60 % acute accent
61 begint Suglyph("acutecomb",1);
62 tsu_xform(tsu_xf.backspace)(tsu_accent.acute);
63 tsu_render;
64 endtsuglyph;
65
```



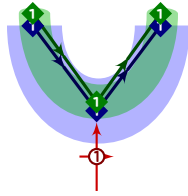
```
66 % circumflex accent
67 begint Suglyph("uni0302",2);
68   tsu_xform(tsu_xf.backspace)(tsu_accent.circumflex);
69   tsu_render;
70 endsuglyph;
71
```



```
72 % tilde accent
73 beginsuglyph("tildecomb",3);
74 tsu_xform(tsu_xf.backspace)(tsu_accent.tilde);
75 tsu_render;
76 endsuglyph;
77
```



```
78 % macron
79 begintsuglyph("uni0304",4);
80 tsu_xform(tsu_xf.backspace)(tsu_accent.macron);
81 tsu_render;
82 endtsuglyph;
83
```

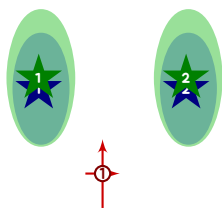


```
84 % breve
85 begint Suglyph("uni0306",6);
86 tsu_xform(tsu_xf.backspace)(tsu_accent.breve);
87 tsu_render;
88 endtsuglyph;
89
```





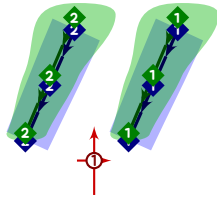
```
90 % dot above
91 begintsuglyph("uni0307";7);
92 tsu_xform(tsu_xf.backspace)(tsu_accent.dotabove);
93 tsu_render;
94 endtsuglyph;
95
```



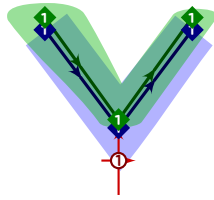
```
96 % umlaut/diaeresis
97 begint Suglyph("uni0308",8);
98   tsu_xform(tsu_xf.backspace)(tsu_accent.umlaut);
99   tsu_render;
100 endtsuglyph;
101
102 % 0309;hookabovecomb;COMBINING HOOK ABOVE
103
```



```
104 % ring above
105 begintsuglyph("uni030A",10);
106 tsu_xform(tsu_xf.backspace)(tsu_accent.ringabove);
107 tsu_render;
108 endtsuglyph;
109
```



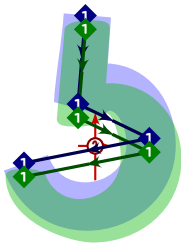
```
110 % double acute/hungarian umlaut
111 begintsuglyph("uni030B",11);
112 tsu_xform(tsu_xf.backspace)(tsu_accent.hungarian_umlaut);
113 tsu_render;
114 endtsuglyph;
115
```



```
116 % caron/hacek
117 begintsuglyph("uni030C";12);
118 tsu_xform(tsu_xf.backspace)(tsu_accent.caron);
119 tsu_render;
120 endtsuglyph;
121
122 % 0323;dotbelowcomb;COMBINING DOT BELOW
123
```



```
124 % comma below
125 begint Suglyph("uni0326",38);
126   tsu_xform(tsu_xf.backspace)(tsu_accent.commbelow);
127   tsu_render;
128   endtsuglyph;
129
```



```
130 % cedilla
131 begintsuglyph("uni0327",39);
132 tsu_xform(tsu_xf.backspace)(tsu_accent.cedilla);
133 tsu_render;
134 endtsuglyph;
```

135-136

---

137

138

139 **endfont**;

140

---

141

# tsuku-20.mp

```
1 %
2 % Unicode page 20 (Punctuation) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 input latin-intro.mp;
36
37 % AUTODEPS
38 input punct.mp;
39
40 

---

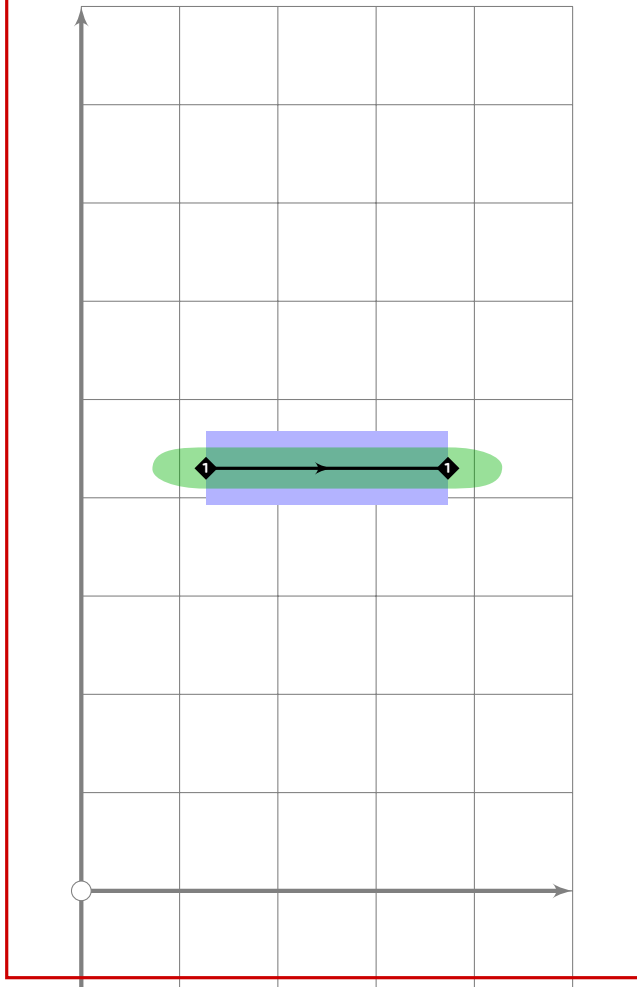

41
```

## General Punctuation

```
42 % GENERAL PUNCTUATION
43
44 % WARNING changing rescale setting
45 tsu_rescale_half;
46
47 % hyphen
48 begintsuglyph("uni2010";16); [see page 288]
49 punct.dash.hyphen;
50 tsu_render;
51 endtsuglyph;
52
```

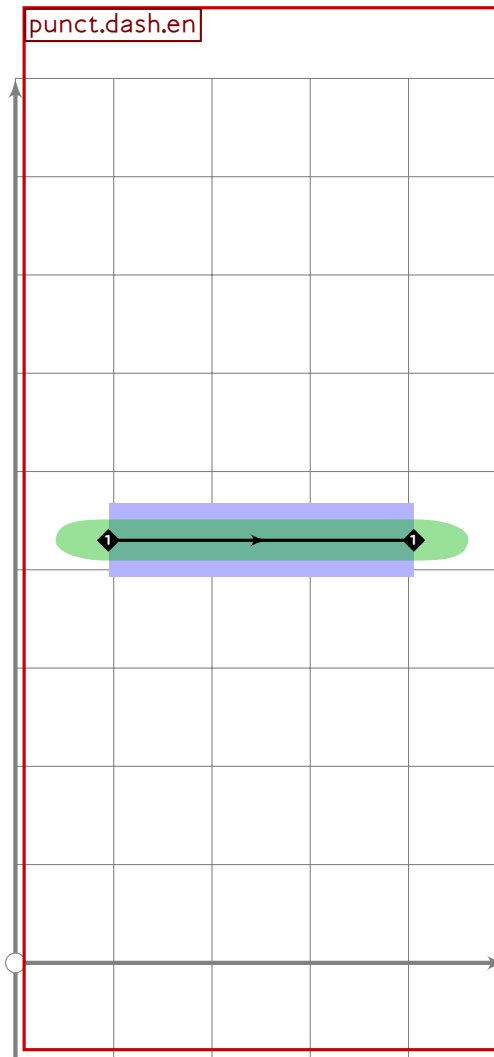


punct.dash.hyphen



```
53 % non-breaking hyphen
54 \begintsuglyph{"uni2011";17);
55 \punct.dash.hyphen;
56 \tsu_render;
57 \endtsuglyph;
58
59 % figure dash
60 \begintsuglyph{"figuredash";18);
61 \punct.dash.en;
62 \tsu_render;
63 \endtsuglyph;
64
```

[see page 287]

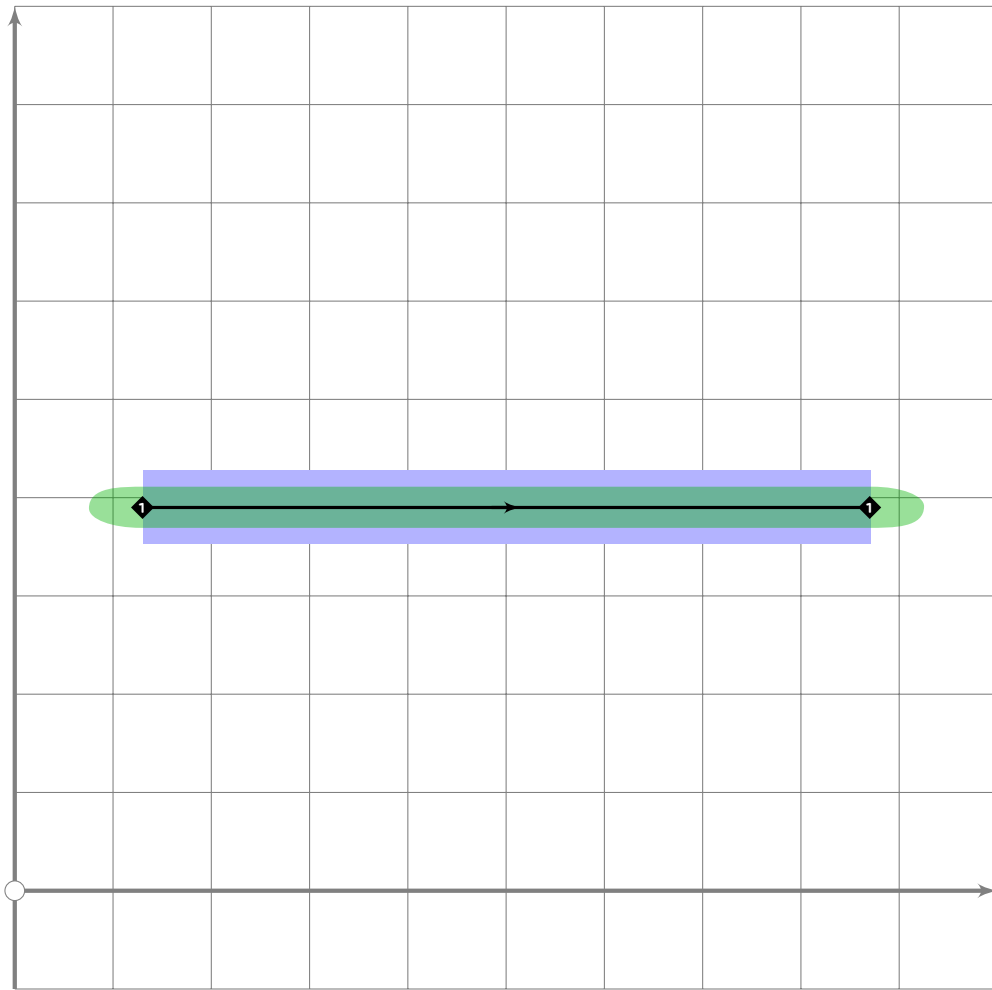


```

65 % en dash
66 begintsuglyph("endash";19);
67 punct.dash.en;
68 tsu_render;
69 endtsuglyph;
70
71 % WARNING changing rescale setting
72 tsu_rescale_full;
73
74 % em dash
75 begintsuglyph("emdash";20);
76 punct.dash.em;
77 tsu_render;
78 endtsuglyph;
79

```

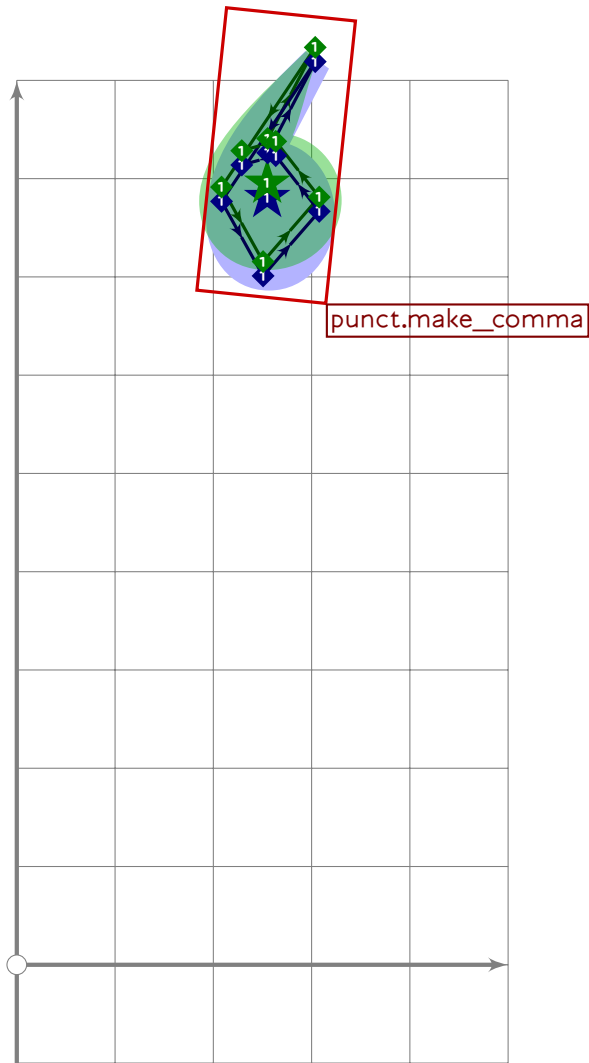
[see page 286]



```

80 % horizontal bar
81 beginsuglyph("uni2015",21);
82 push_stroke((130,390)-(870,390),(2,2)-(2,2));
83 tsu_render;
84 endsuglyph;
85
86 % WARNING changing rescale setting
87 tsu_rescale_half;
88

```



```

89 % high-6
90 begintsuglyph("quoteleft",24);
91 punct.make_comma((520,vmetric(0.94)),180);
92 tsu_render;
93 endsuglyph;
94

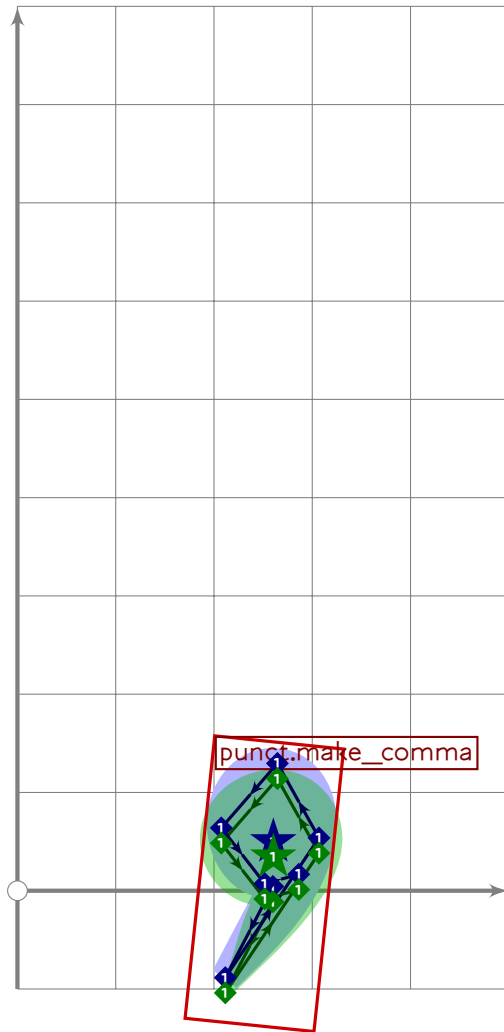
```



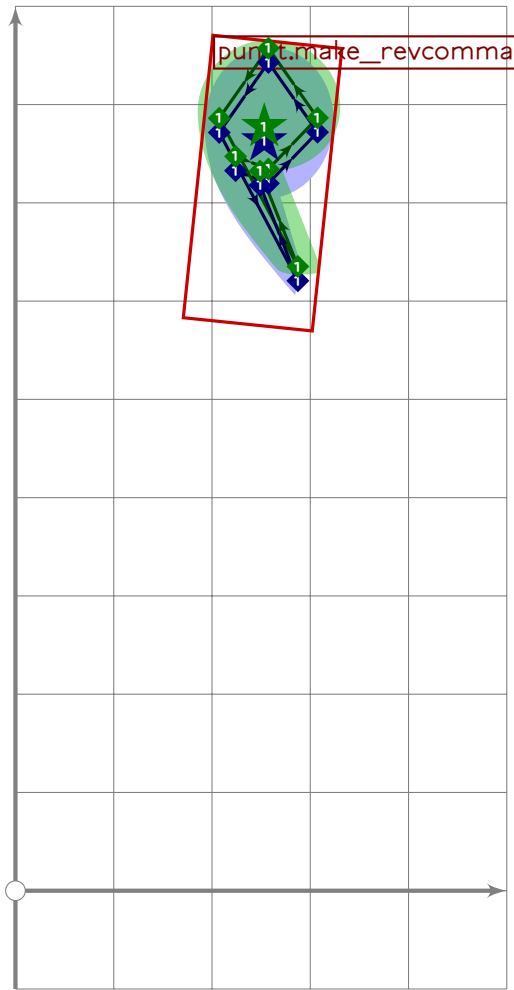
```

95 % high-9
96 begint Suglyph("quoteright",25);
97 punct.make_comma((480,vmetric(0.94)),0);
98 tsu_render;
99 endsuglyph;
100

```



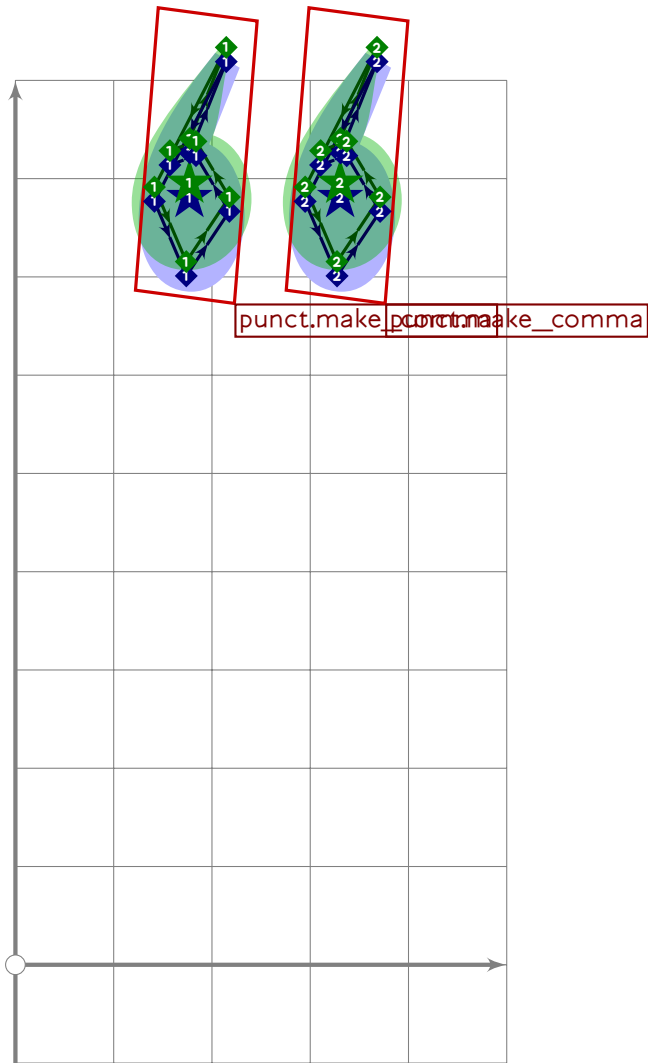
```
101 % low-9
102 beginsuglyph("quotesinglbase",26);
103 punct.make_comma((520,vmetric(0.03)),0);
104 tsu_render;
105 endsuglyph;
106
```



```

107 % high-rev-9
108 begintsuglyph("quotereversed",27);
109 punct.make_revcomma((520,vmetric(0.94)),0);
110 tsu_render;
111 endsuglyph;
112

```

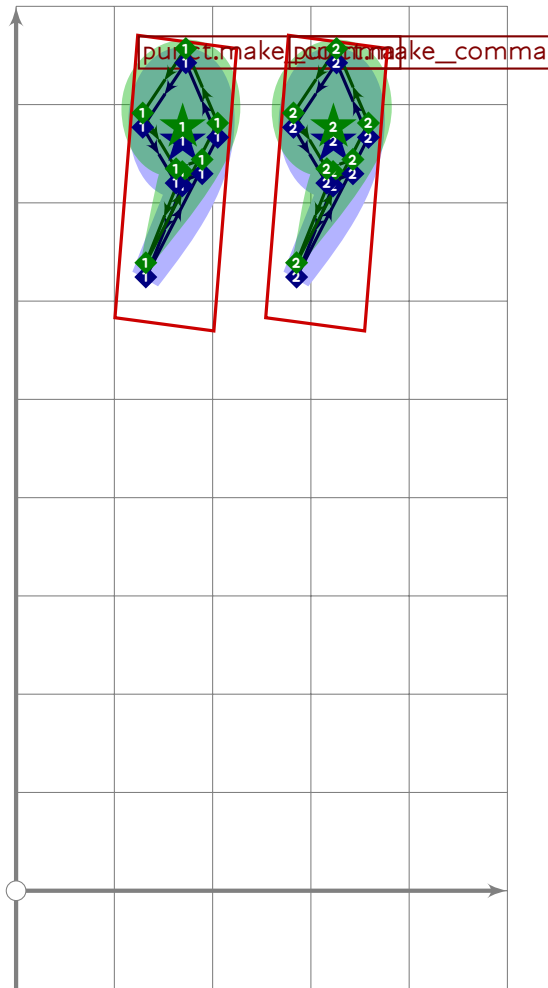


```

113 % high-66
114 begintsuglyph("quotedblleft";28);
115 punct.make_comma((520-tsu_punct_size,vmetric(0.94)),180);
116 punct.make_comma((520+tsu_punct_size,vmetric(0.94)),180);
117 tsu_render;
118 endsuglyph;
119

```

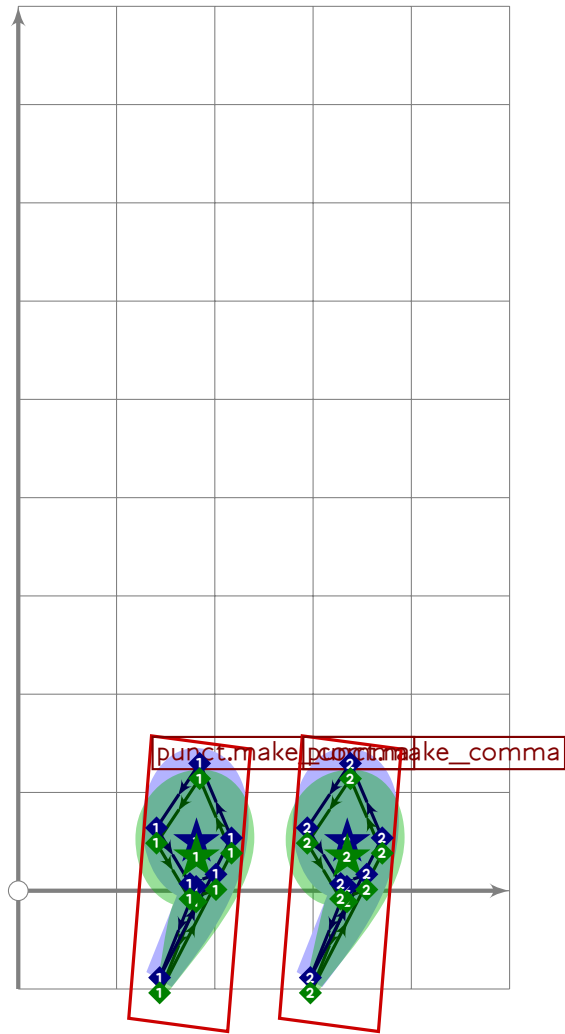




```

120 % high-99
121 begint Suglyph("quotedblright",29);
122 punct.make_comma((480-tsu_punct_size,vmetric(0.94)),0);
123 punct.make_comma((480+tsu_punct_size,vmetric(0.94)),0);
124 tsu_render;
125 endsuglyph;
126

```



```

127 % low-99
128 begintuglyph("quotedblbase",30);
129   punct.make_comma((520-tsu_punct_size,vmetric(0.03)),0);
130   punct.make_comma((520+tsu_punct_size,vmetric(0.03)),0);
131   tsu_render;
132 endtuglyph;
133

```



```

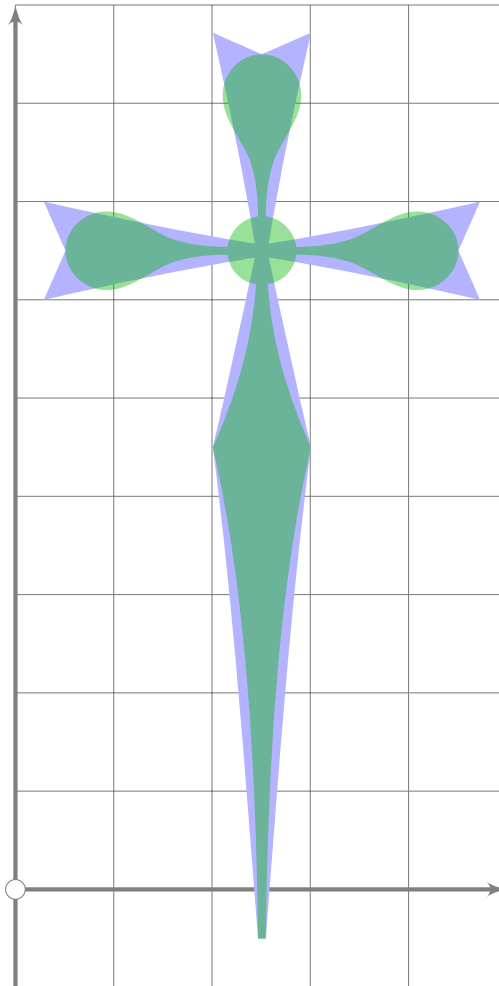
134 % high-rev-99
135 begint Suglyph("quotedblreversed",31);
136 punct.make_revcomma((520-tsu_punct_size,vmetric(0.94)),0);
137 punct.make_revcomma((520+tsu_punct_size,vmetric(0.94)),0);
138 tsu_render;
139 endtsuglyph;
140
141 % WARNING changing rescale setting
142 tsu_rescale_native_narrow;
143
144 vardef dagger_spur =
145   if sharp_corners:
146     (4,mincho*30){curl 0}..
147     (0.5[(0,mincho*20),(50,222-mincho*72)]+mincho*(-7,4))..
148     {curl 1}(50,222-mincho*72)-(0,200)-(-50,222-mincho*72){curl 1}..
149     (0.5[(0,mincho*20),(-50,222-mincho*72)]+mincho*(7,4))..
150     {curl 0}(-4,mincho*30)-cycle
151   else:
152     (4,mincho*30){curl 0}..
153     (0.5[(0,mincho*20),(40,160)]+mincho*(-7,4))..
154     (40,160)..(0,200)..(-40,160)..

```

```

155     (0.5[(0,mincho*20),(-40,160)]+mincho*(7,4))..
156     {curl 0}{(-4,mincho*30)-cycle
157     fi
158 enddef;
159

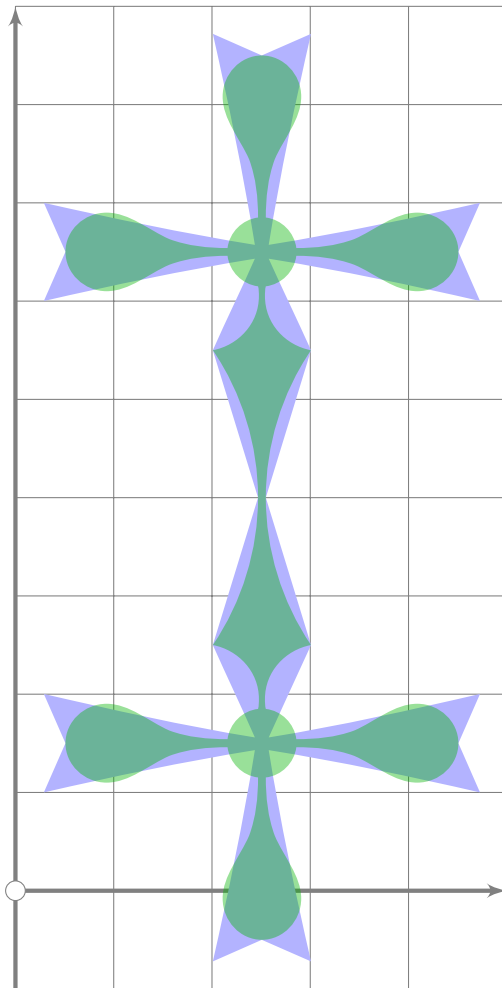
```



```

160 % dagger
161 begintsuglyph("dagger",32);
162 dangerousFill dagger_spur rotated 90 shifted (250,650);
163 dangerousFill dagger_spur shifted (250,650);
164 dangerousFill dagger_spur rotated -90 shifted (250,650);
165 dangerousFill fullcircle scaled (20+mincho*50) shifted (250,650);
166 dangerousFill
167   (246,650){curl 1}..(mincho[(223,550),(230,535)])..
168   {curl 1}(200,450){curl 1}..(mincho[(223,250),(230,280)])..
169   {curl 0}(246,-50)-
170   (254,-50){curl 0}..(mincho[(277,250),(270,280)])..
171   {curl 1}(300,450){curl 1}..(mincho[(277,550),(270,535)])..
172   {curl 1}(254,650)-cycle;
173 endtsuglyph;
174

```



```

175 % double dagger
176 beginsuglyph("daggerdbl",33);
177 dangerousFill dagger_spur rotated 90 shifted (250,650);
178 dangerousFill dagger_spur shifted (250,650);
179 dangerousFill dagger_spur rotated -90 shifted (250,650);
180 dangerousFill fullcircle scaled (20+mincho*50) shifted (250,650);
181 dangerousFill dagger_spur rotated -90 shifted (250,150);
182 dangerousFill dagger_spur rotated 180 shifted (250,150);
183 dangerousFill dagger_spur rotated 90 shifted (250,150);
184 dangerousFill fullcircle scaled (20+mincho*50) shifted (250,150);
185 begingroup
186   save x,y;
187   numeric x[],y[];
188
189   x1=x4=x7=246;
190   x3=x5=200;
191   x2=x6=0.5[x1,x3];
192   x8=x11=x14=500-x1;
193   x9=x13=500-x2;
194   x10=x12=500-x3;
195

```

```

196     y1=y14=650-mincho*30;
197     y3=y12=550;
198     y2=y13=0.5[y1,y3];
199     y4=y11=400;
200     y5=y10=800-y3;
201     y6=y9=800-y2;
202     y7=y8=800-y1;
203
204     x15=x16=x2+7*mincho;
205     x17=x18=500-x15;
206
207     y15=y18=y2-20*mincho;
208     y16=y17=800-y15;
209
210     dangerousFill interpath(mincho,
211         z1-z2-z3-z4-z5-z6-z7-z8-z9-z10-z11-z12-z13-z14-cycle,
212         z1{curl 1}..z15.{curl 1}z3{curl 1}..z4..
213         {curl 1}z5{curl 1}..z16..{curl 1}z7-
214         z8{curl 1}..z17.{curl 1}z10{curl 1}..z11..
215         {curl 1}z12{curl 1}..z18..{curl 1}z14-cycle);
216     endgroup;
217     endtsuglyph;
218
219 % WARNING changing rescale setting
220     tsu_rescale_full;
221
222 % euro symbol
223     beginttsuglyph("Euro",172);
224     punct.euro;
225     tsu_render;
226     endtsuglyph;
227
228 _____
229
230 endfont;
231
232 _____

```

[see page 290]

# tsuku-21.mp

```
1 %
2 % Unicode page 21 (Symbols) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---

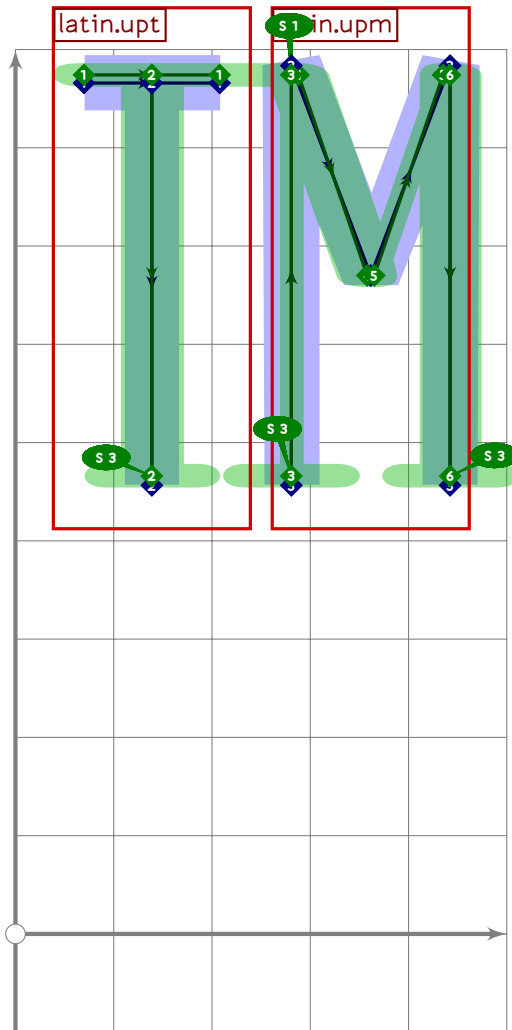

32
33 beginfont
34
35 input latin-intro.mp;
36
37 % AUTODEPS
38 input latin.mp;
39 input punct.mp;
40
41 

---


42
```

## Symbols Required By Mes-1

```
43 % SYMBOLS REQUIRED BY MES-1
44
45 % WARNING changing rescale setting
46 tsu\_rescale\_half;
47
```



```

48 % trademark symbol
49 begintsuglyph("trademark",34);
50 tsu_xform(identity scaled 0.5 shifted (0,400))(latin.upt);
51 numeric x[],y[];
52 tsu_xform(identity scaled 0.5 shifted (500,400))(latin.upm);
53 tsu_render;
54 endtsuglyph;
55
56 % ohm (resistance unit) symbol
57 begintsuglyph("uni2126",38);
58 punct.ohm;
59 tsu_render;
60 endtsuglyph;
61
62 % Note: 0x5B through 0x5E, which are x/8 fractions, are assembled by the
63 % assemble-font script
64
65 % WARNING changing rescale setting
66 tsu_rescale_full;
67

```

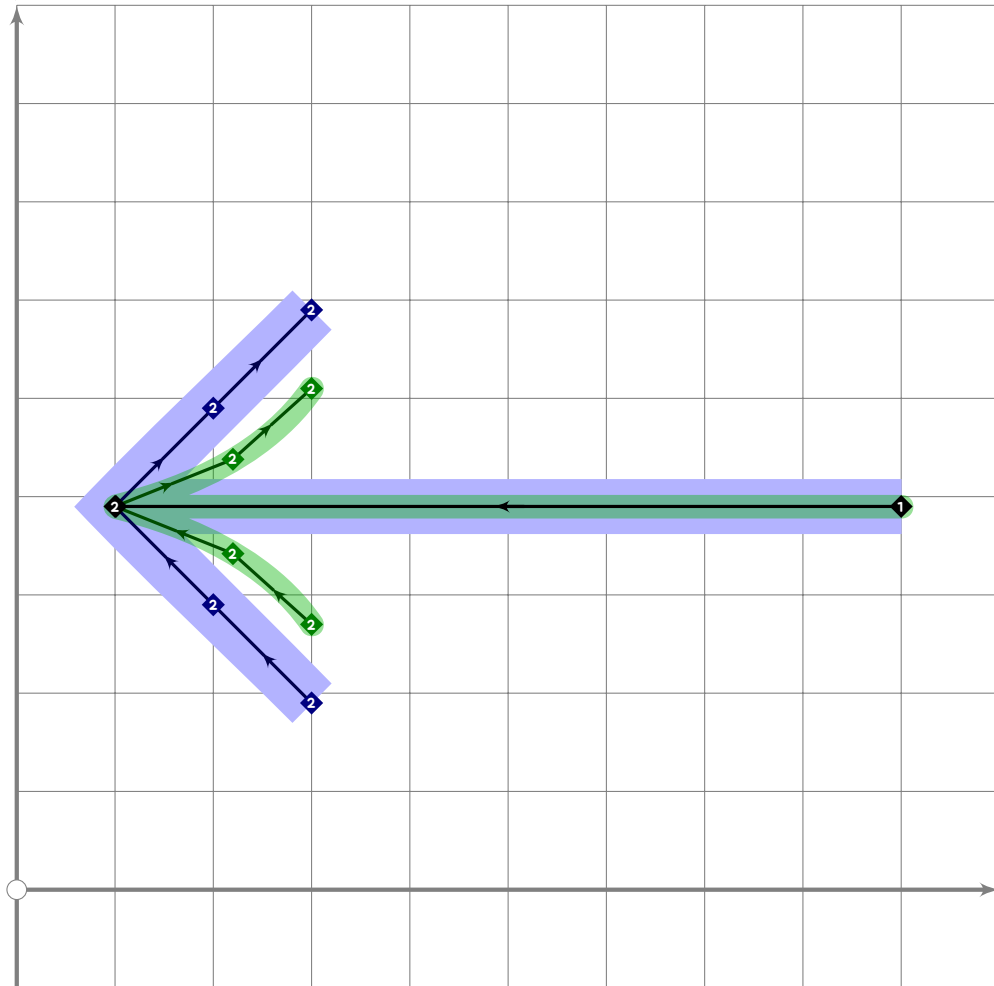
[see page 298]



```

68 vardef arrow(expr rot) =
69   push_stroke(((4,0)-(3.99,0))
70     scaled tsu_punct_size rotated rot shifted centre_pt,
71     (1.6,1.6)-(1.6,1.6));
72   set_boalternate(0);
73   set_bosize(0,80);
74   push_stroke(((2,2)..((3,1)+(0.2*mincho*(-1,1)))..
75     {curl 1}(4,0){curl 1}..
76     ((3,-1)+(0.2*mincho*(-1,1))..(2,-2))
77     xyscaled (1,1-0.4*mincho)
78     scaled tsu_punct_size rotated rot shifted centre_pt,
79     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
80   set_botip(0,2,1);
81   set_boalternate(0);
82   set_bosize(0,80);
83 enddef;

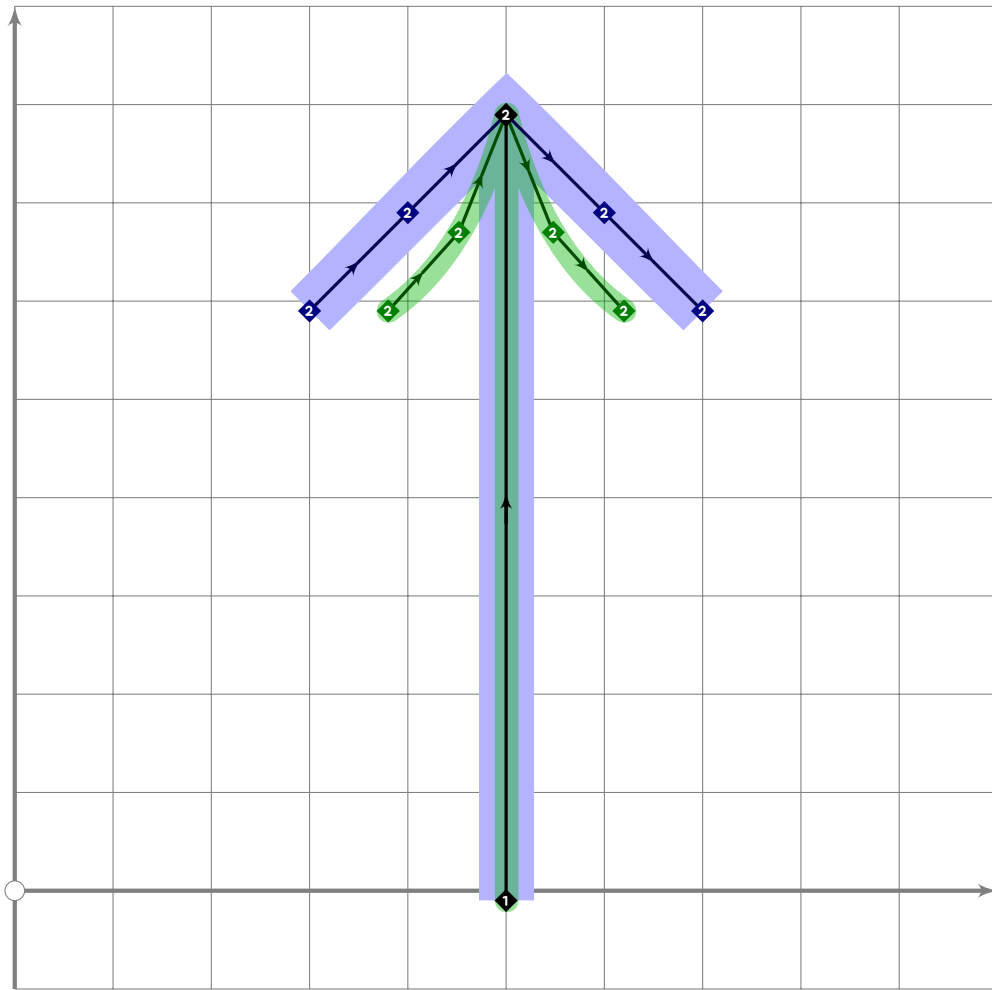
```



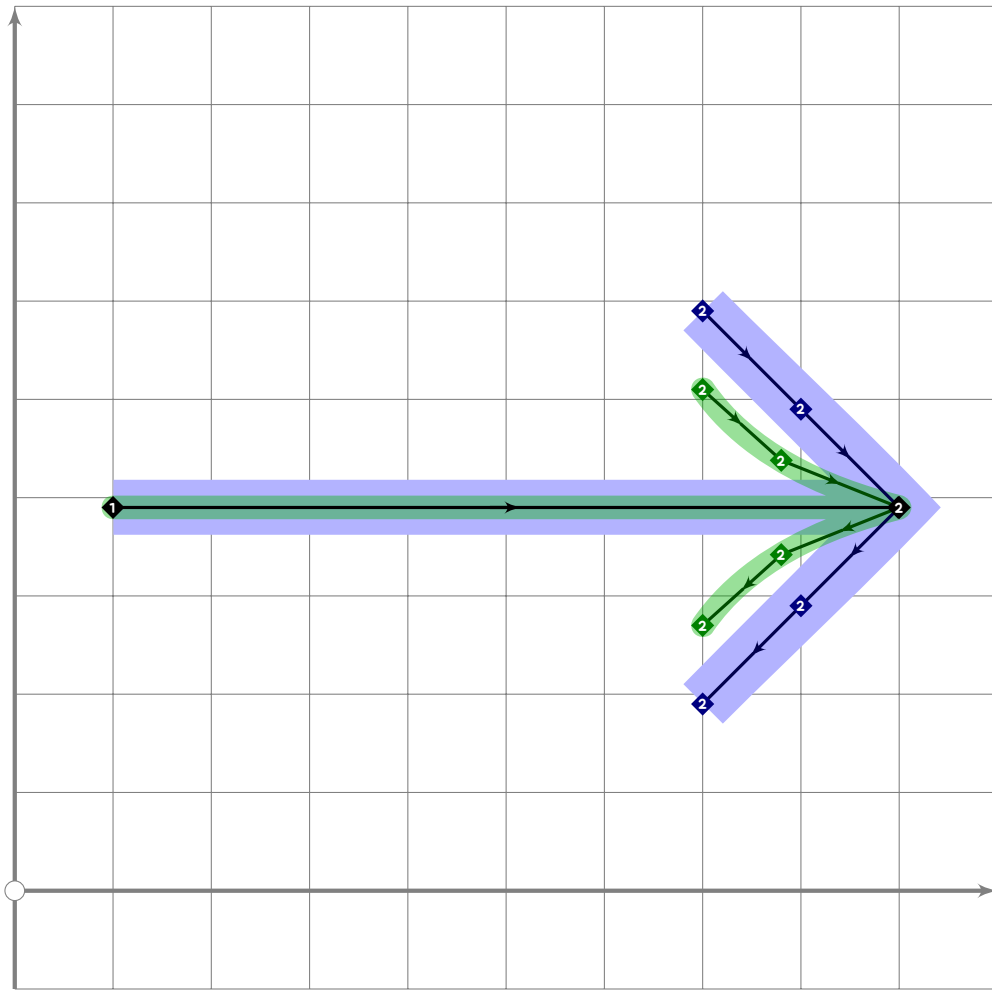
```

84
85 beginsuglyph("arrowleft",144);
86   arrow(180);
87   tsu_render;
88 endsuglyph;

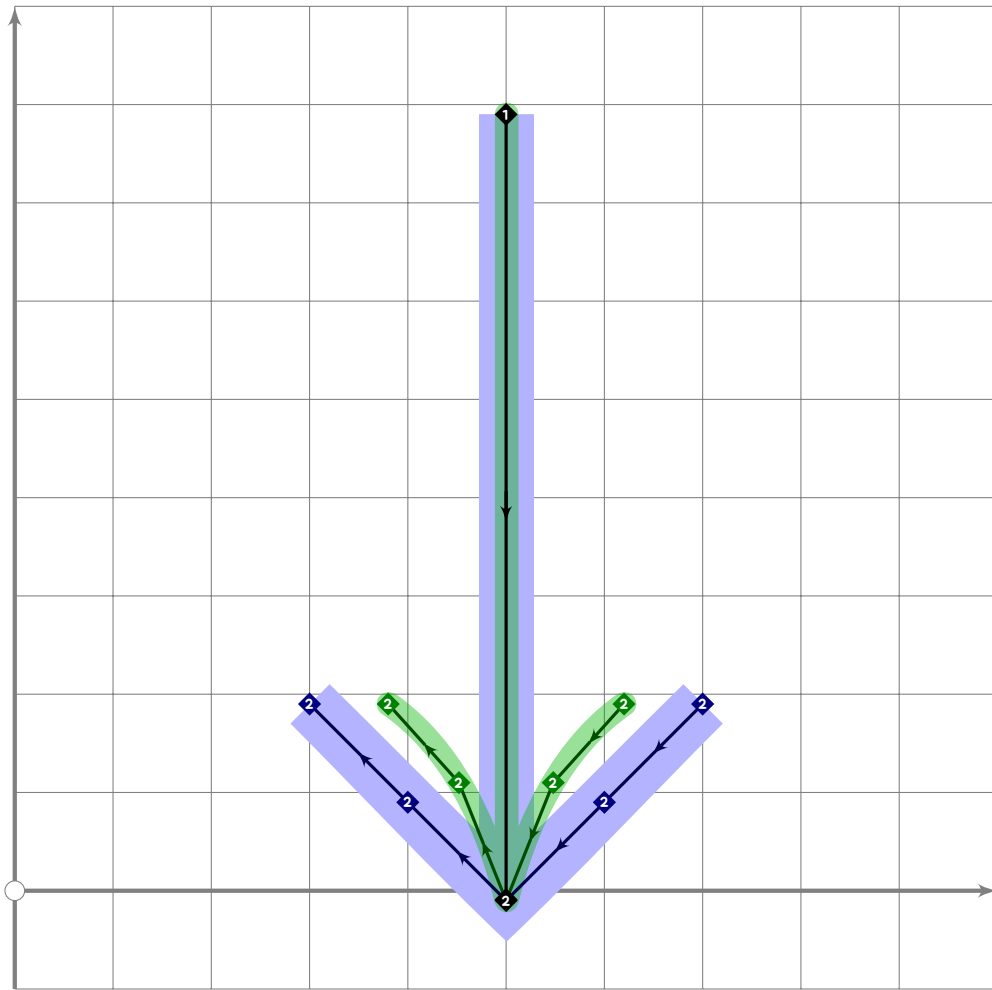
```



```
89  
90 begintsuglyph("arrowup",145);  
91 arrow(90);  
92 tsu_render;  
93 endsuglyph;
```



```
94  
95 begintsuglyph("arrowright",146);  
96 arrow(0);  
97 tsu_render;  
98 endsuglyph;
```



```
99  
100 begintsuglyph("arrowdown",147);  
101 arrow(270);  
102 tsu_render;  
103 endsuglyph;  
104  
105 _____  
106  
107 endfont;  
108  
109 _____
```

# tsuku-24.mp

```
1 %
2 % Unicode page 24 (Enclosed Numerics) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---

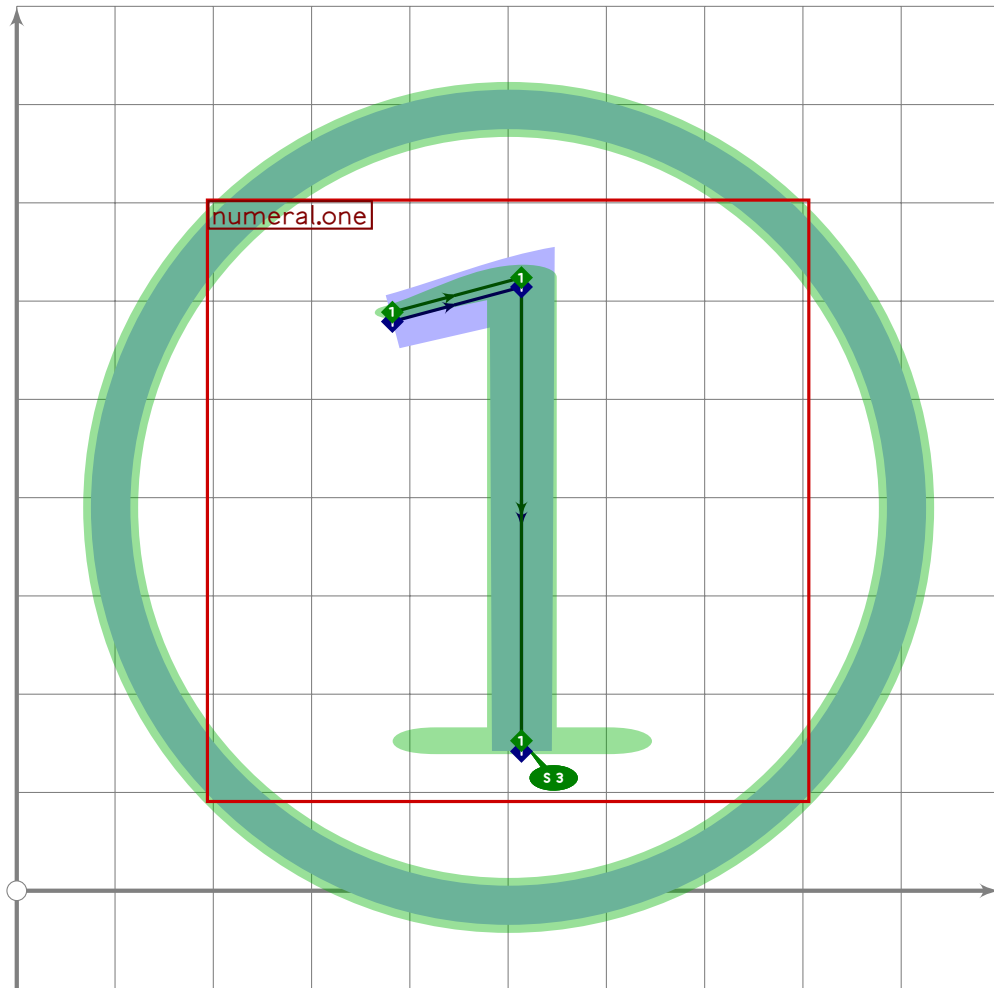

32
33 beginfont
34
35 input latin-intro.mp;
36
37 % AUTODEPS
38 input enclosed.mp;
39 input latin.mp;
40 input numerals.mp;
41
42 

---

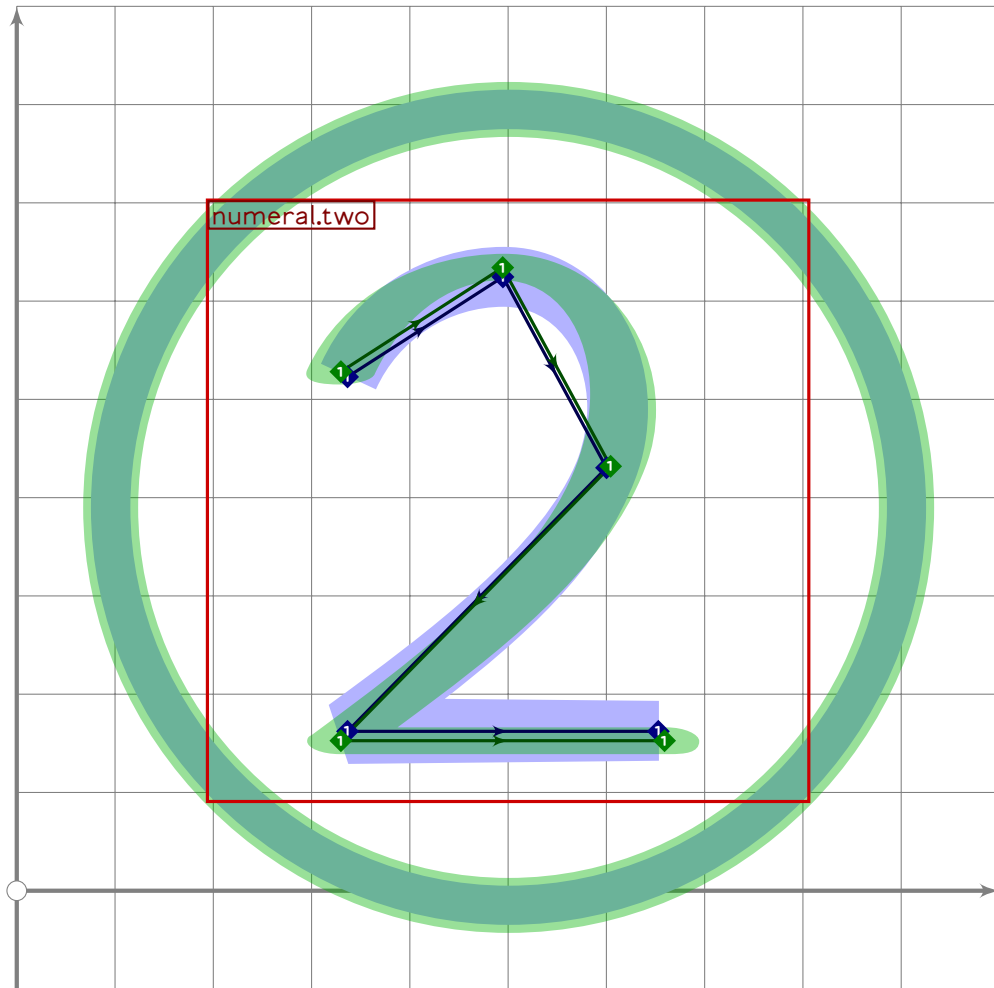

43
```

## Circled Numerals

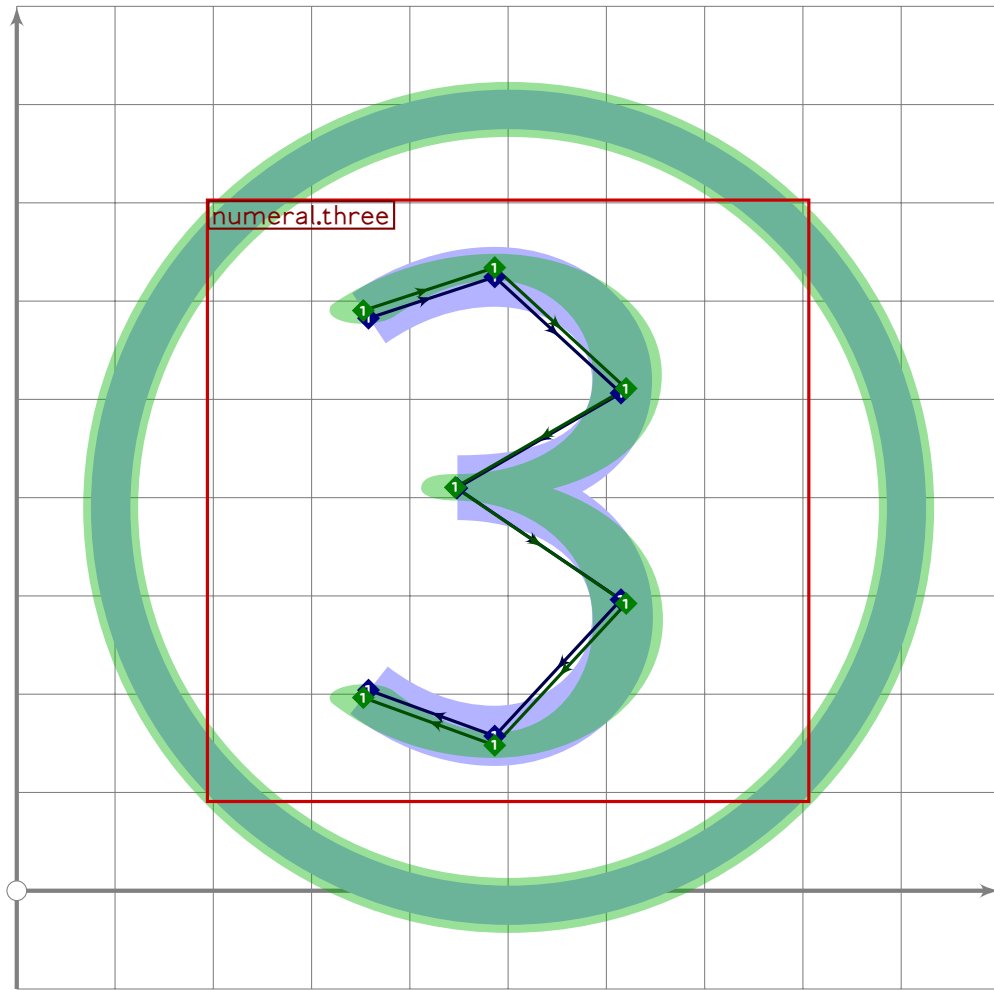
```
44 % CIRCLED NUMERALS
45
```



```
46 % 1
47 beginsuglyph("uni2460";96);
48 circle.single;
49 tsu_xform(tsu_xf.circled)(numeral.one);
50 tsu_render;
51 endsuglyph;
52
```

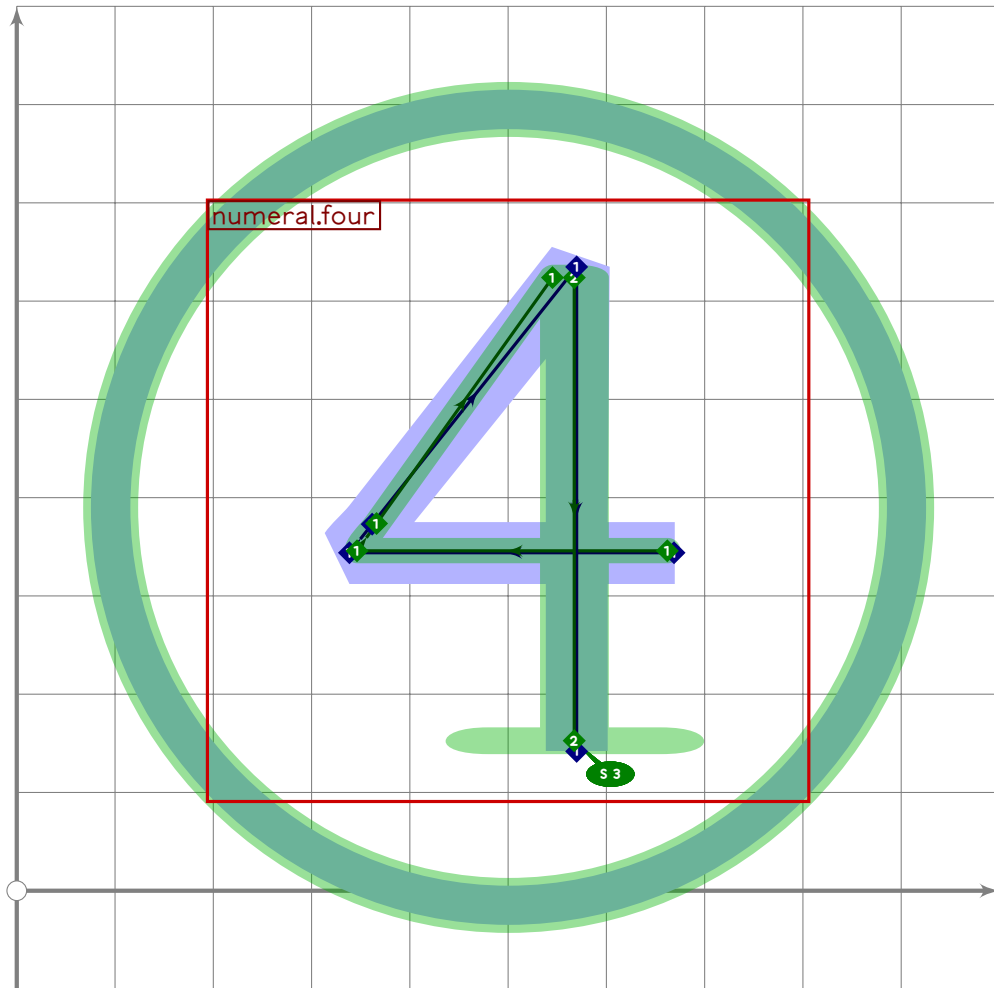


```
53 % 2
54 beginsuglyph("uni2461";97);
55   circle.single;
56   tsu_xform(tsu_xf.circled)(numeral.two);
57   tsu_render;
58 endsuglyph;
59
```

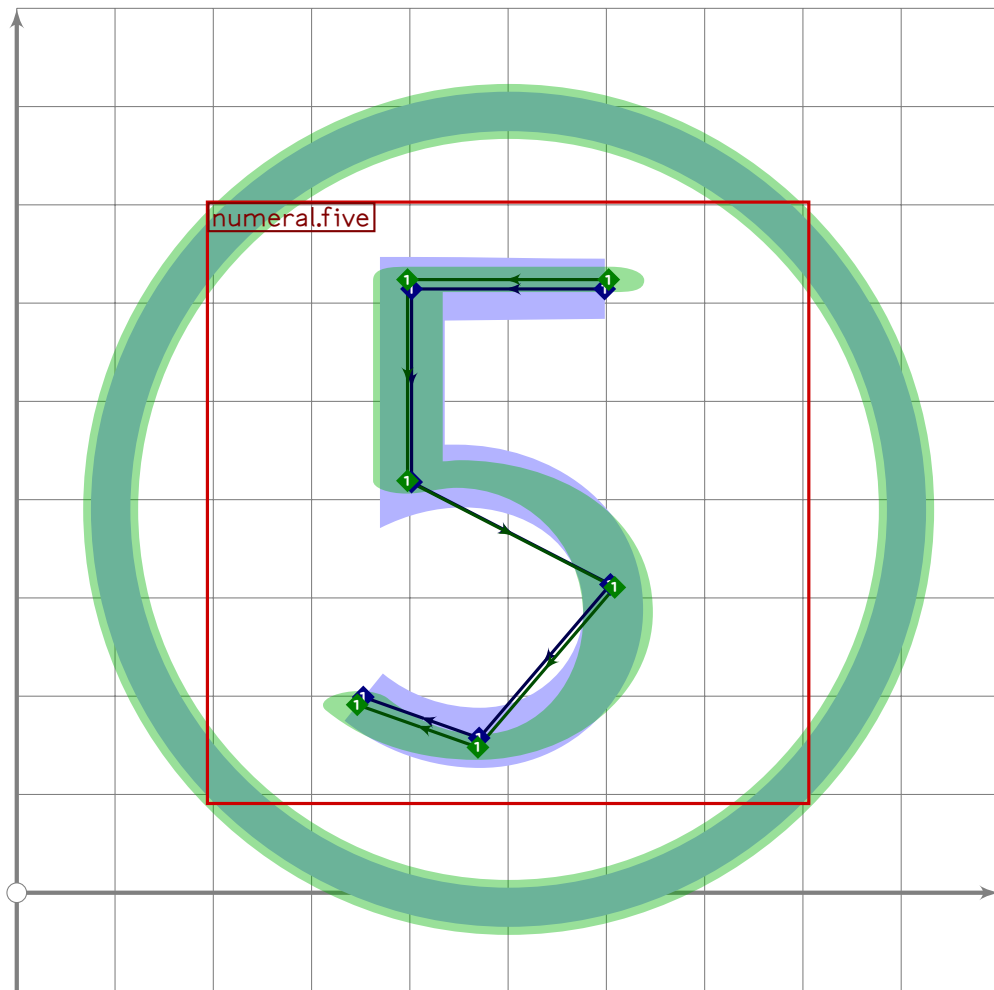


```
60 % 3
61 beginsuglyph("uni2462";98);
62 circle.single;
63 tsu_xform(tsu_xf.circled)(numeral.three);
64 tsu_render;
65 endsuglyph;
66
```

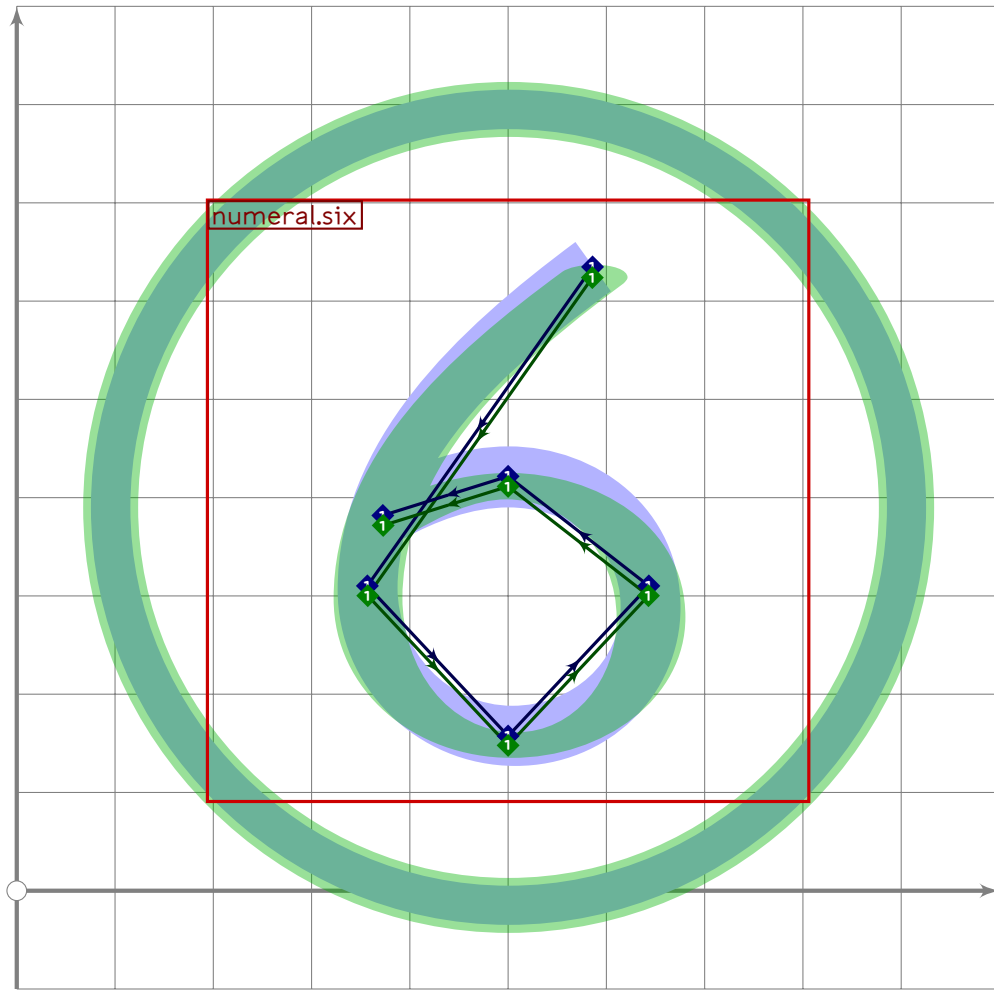




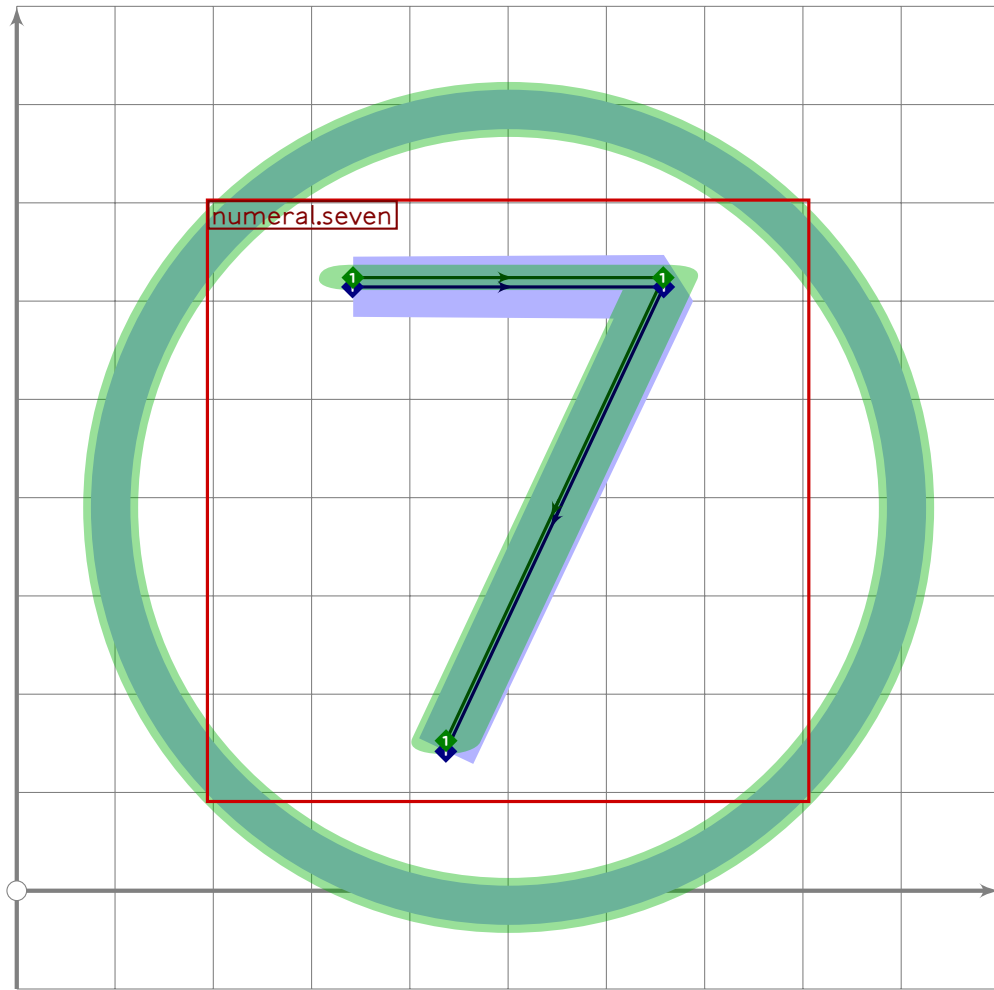
```
67 % 4
68 beginsuglyph("uni2463";99);
69 circle.single;
70 tsu_xform(tsu_xf.circled)(numeral.four);
71 tsu_render;
72 endsuglyph;
73
```



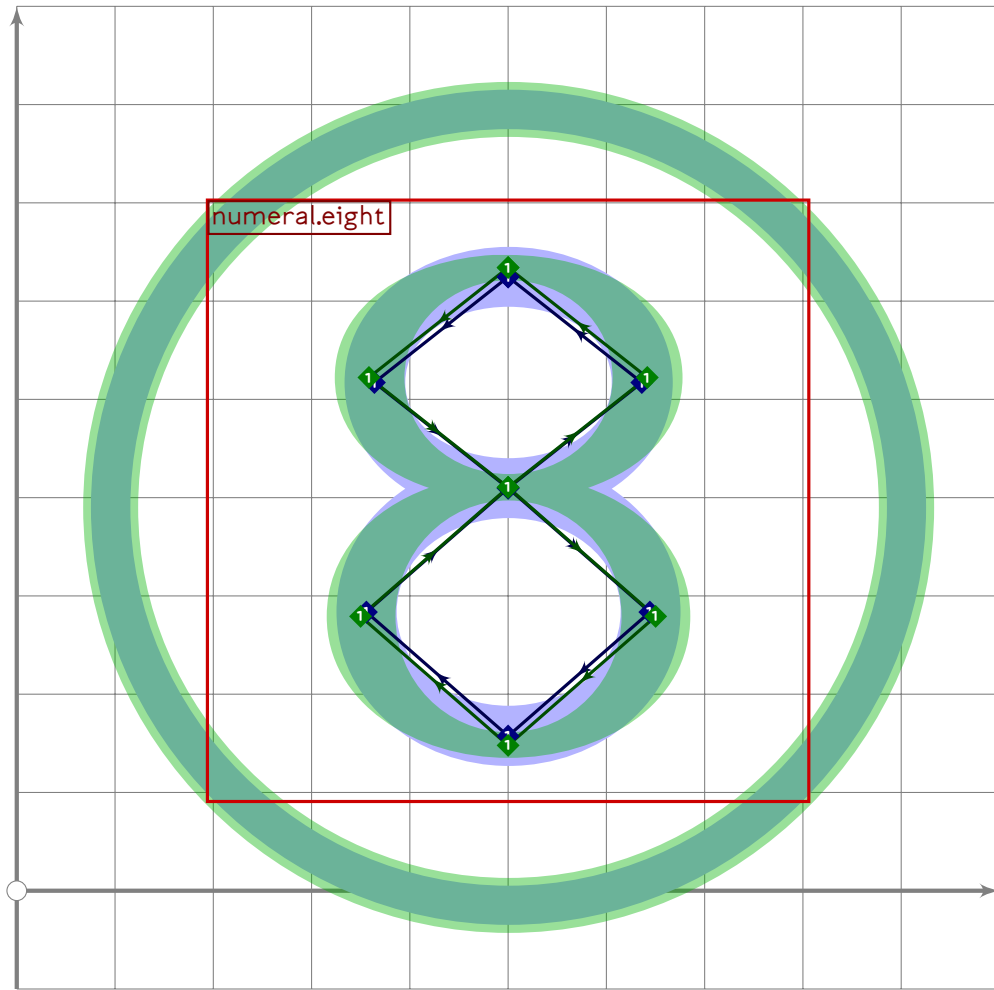
```
74 % 5
75 beginsuglyph("uni2464",100);
76 circle.single;
77 tsu_xform(tsu_xf.circled)(numeral.five);
78 tsu_render;
79 endsuglyph;
80
```



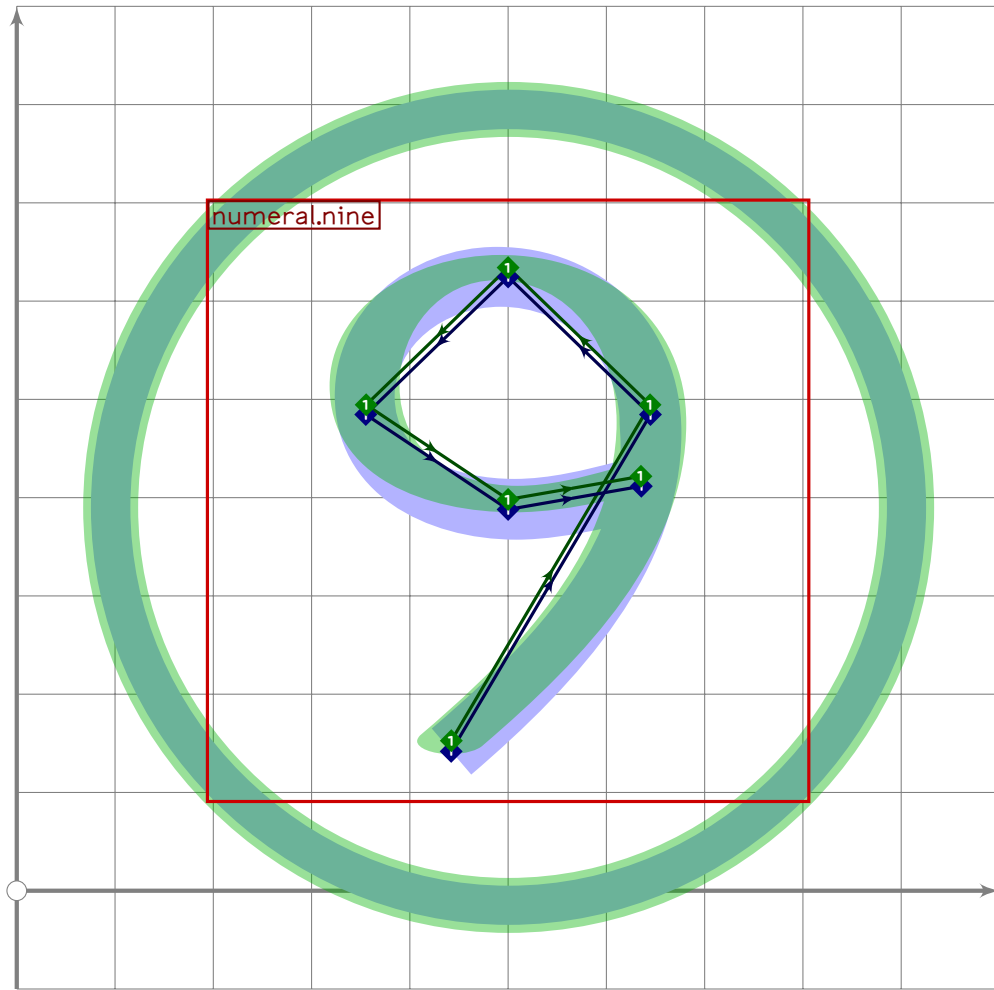
```
81 % 6
82 beginsuglyph("uni2465";101);
83   circle.single;
84   tsu_xform(tsu_xf.circled)(numeral.six);
85   tsu_render;
86 endsuglyph;
87
```



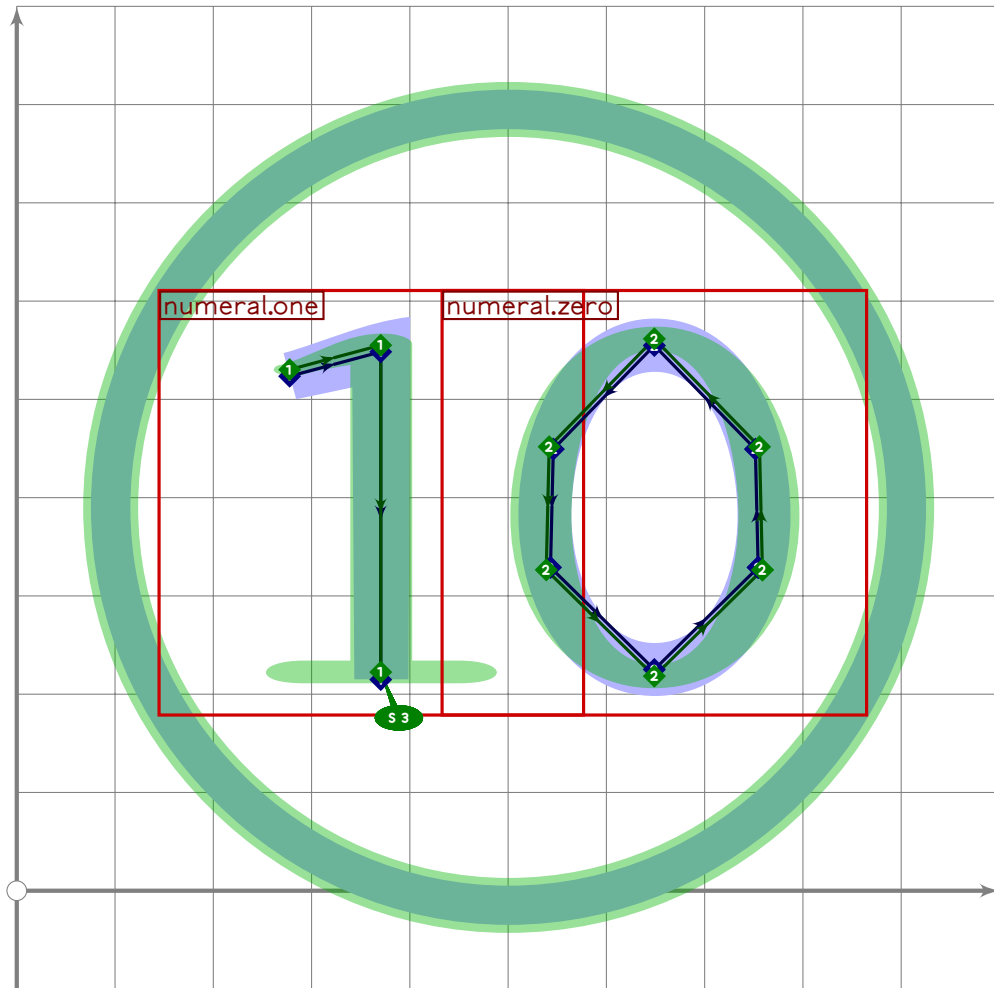
```
88 % 7
89 begint Suglyph("uni2466",102);
90 circle.single;
91 tsu_xform(tsu_xf.circled)(numeral.seven);
92 tsu_render;
93 endsuglyph;
94
```



```
95 % 8
96 beginsuglyph("uni2467",103);
97 circle.single;
98 tsu_xform(tsu_xf.circled)(numeral.eight);
99 tsu_render;
100 endsuglyph;
101
```



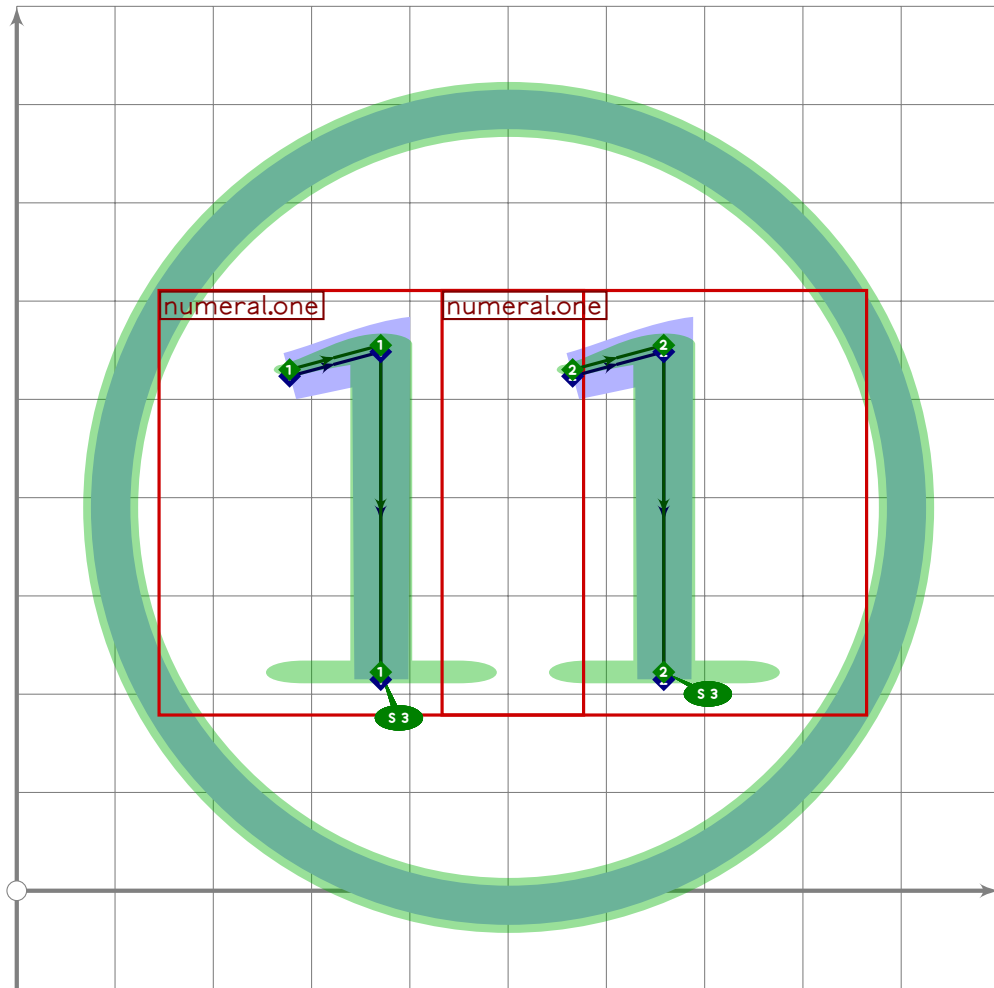
```
102 % 9
103 begint Suglyph("uni2468",104);
104 circle.single;
105 tsu_xform(tsu_xf.circled)(numeral.nine);
106 tsu_render;
107 endtsuglyph;
108
```



```

109 % 10
110 begint Suglyph("uni2469";105);
111   circle.single;
112   tsu_xform(tsu_xf.ctwo.left)(numeral.one);
113   numeric x[],y[];
114   tsu_xform(tsu_xf.ctwo.right)(numeral.zero);
115   tsu_render;
116 endtsuglyph;
117

```

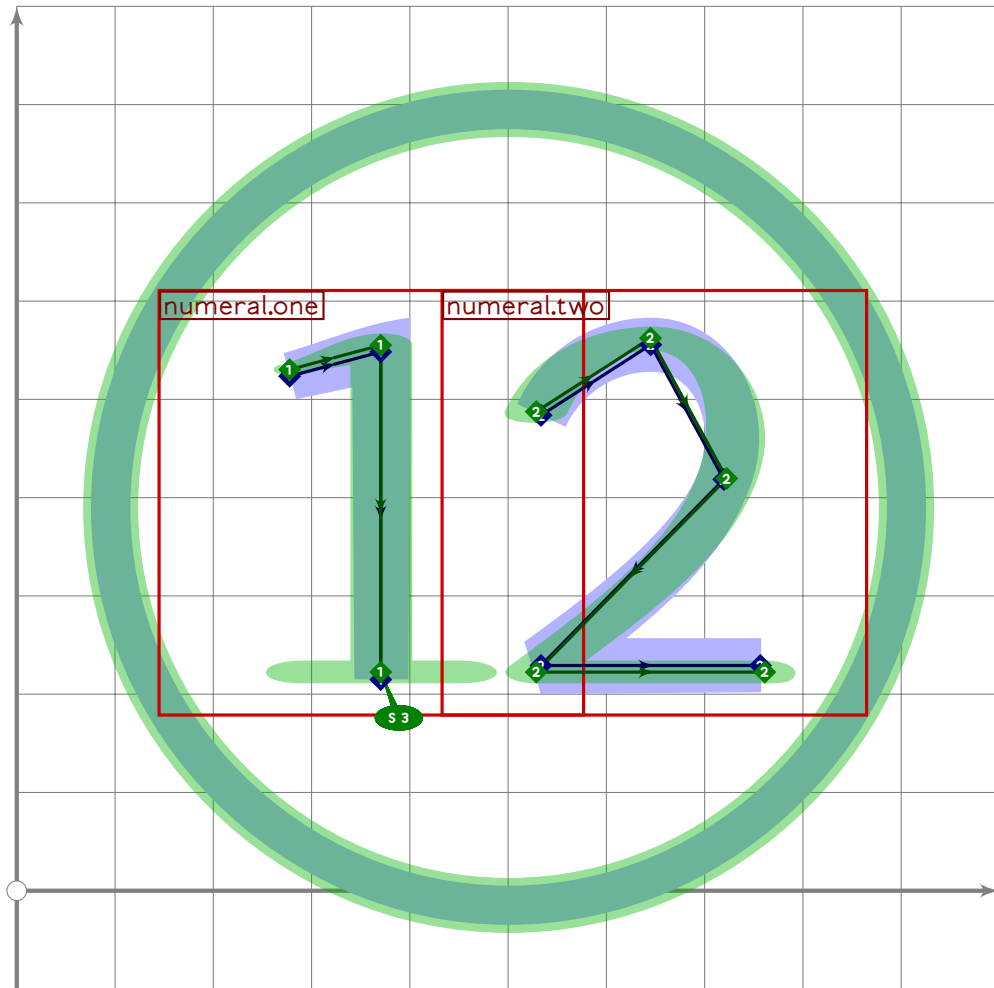


```

118 % 11
119 begintuglyph("uni246A",106);
120   circle.single;
121   tsu_xform(tsu_xf.ctwo.left)(numeral.one);
122   numeric x[],y[];
123   tsu_xform(tsu_xf.ctwo.right)(numeral.one);
124   tsu_render;
125 endtuglyph;
126

```

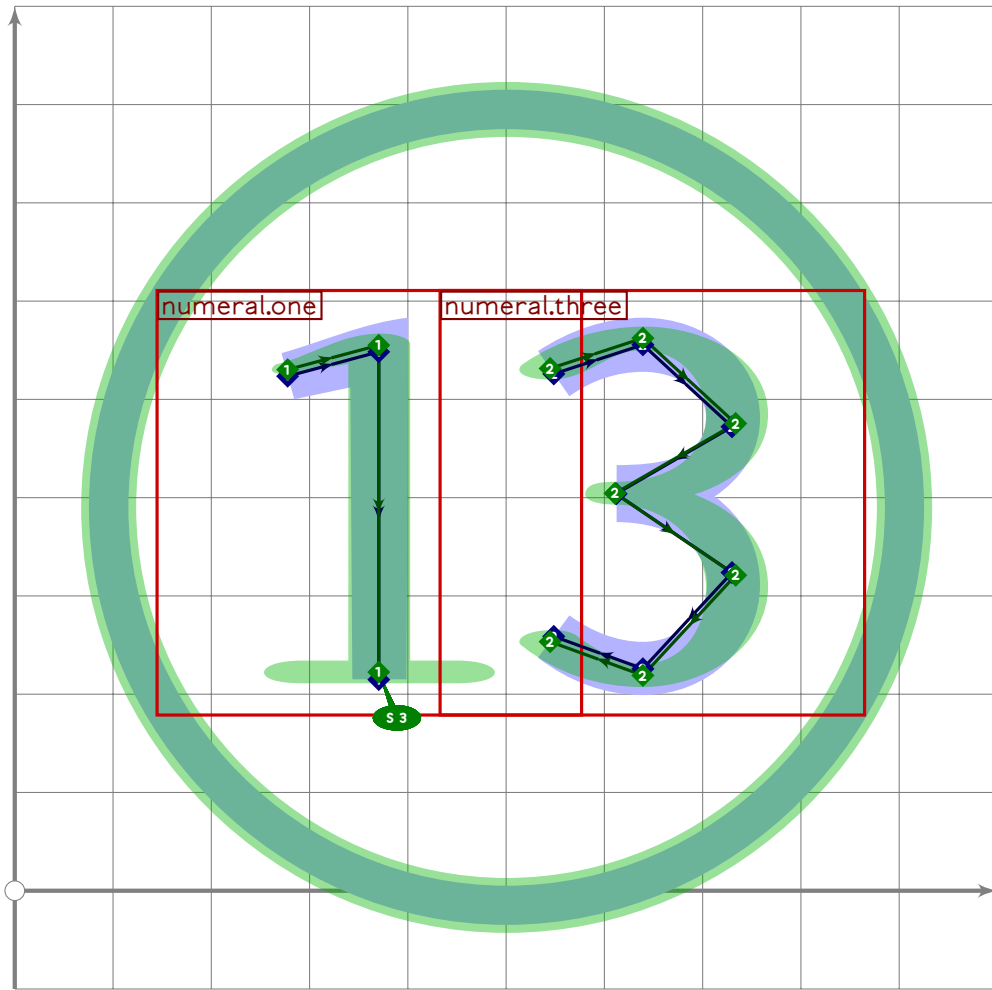




```

127 % 12
128 begint Suglyph("uni246B",107);
129   circle.single;
130   tsu_xform(tsu_xf.ctwo.left)(numeral.one);
131   numeric x[],y[];
132   tsu_xform(tsu_xf.ctwo.right)(numeral.two);
133   tsu_render;
134 endtsuglyph;
135

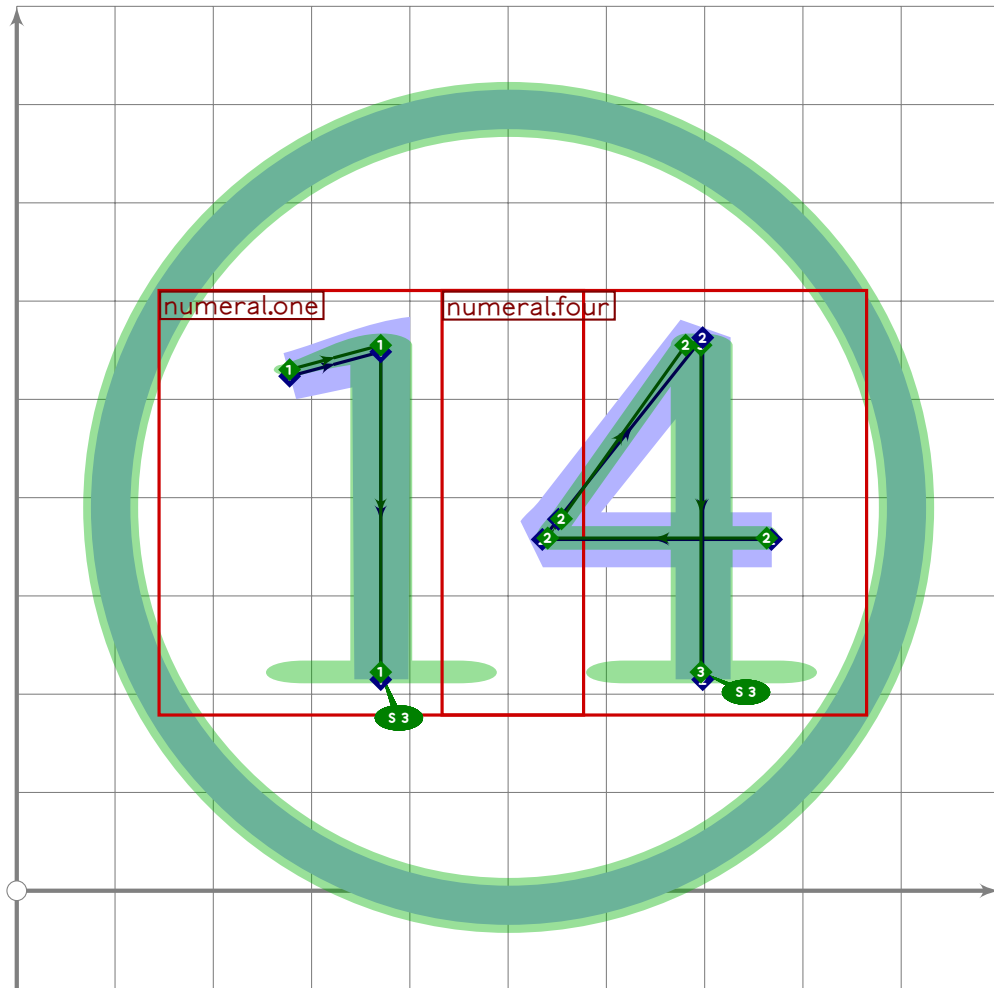
```



```

136 % 13
137 begint Suglyph("uni246C",108);
138   circle.single;
139   tsu_xform(tsu_xf.ctwo.left)(numeral.one);
140   numeric x[],y[];
141   tsu_xform(tsu_xf.ctwo.right)(numeral.three);
142   tsu_render;
143 endtsuglyph;
144

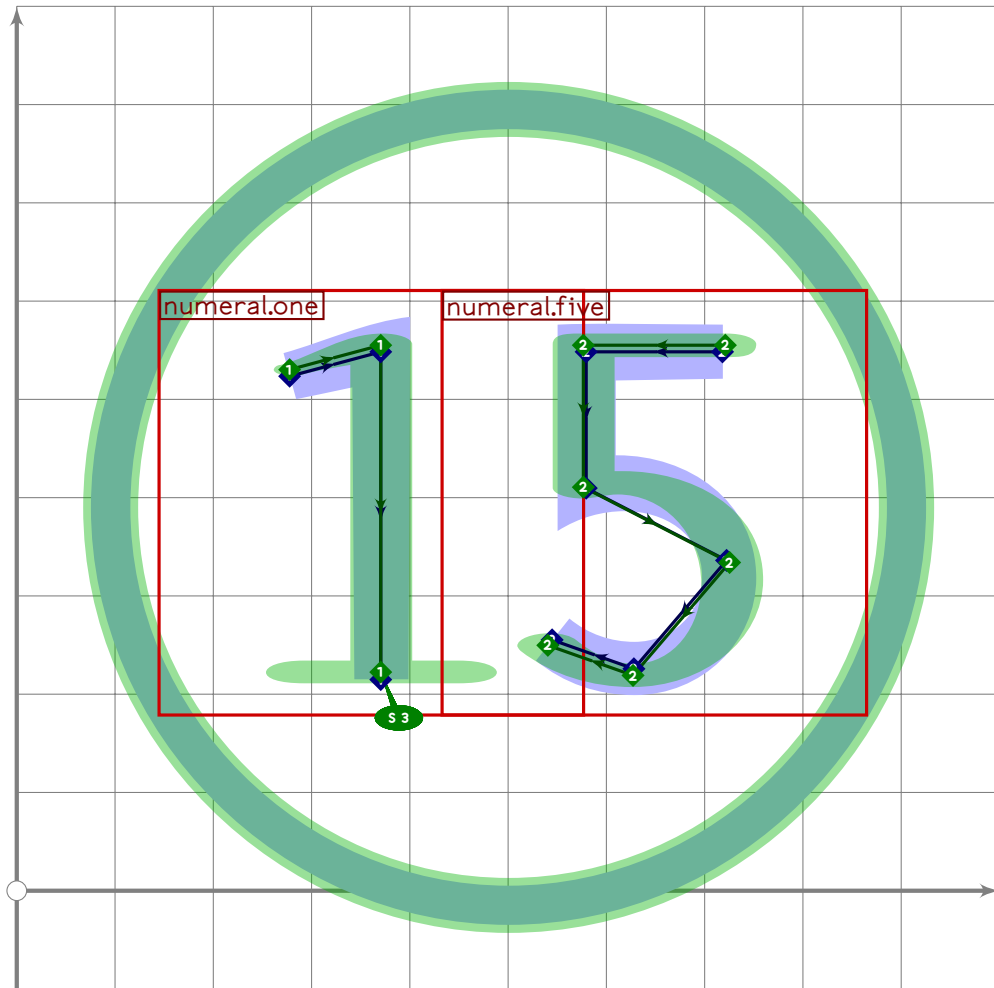
```



```

145 % 14
146 begint Suglyph("uni246D",109);
147   circle.single;
148   tsu_xform(tsu_xf.ctwo.left)(numeral.one);
149   numeric x[],y[];
150   tsu_xform(tsu_xf.ctwo.right)(numeral.four);
151   tsu_render;
152 endtsuglyph;
153

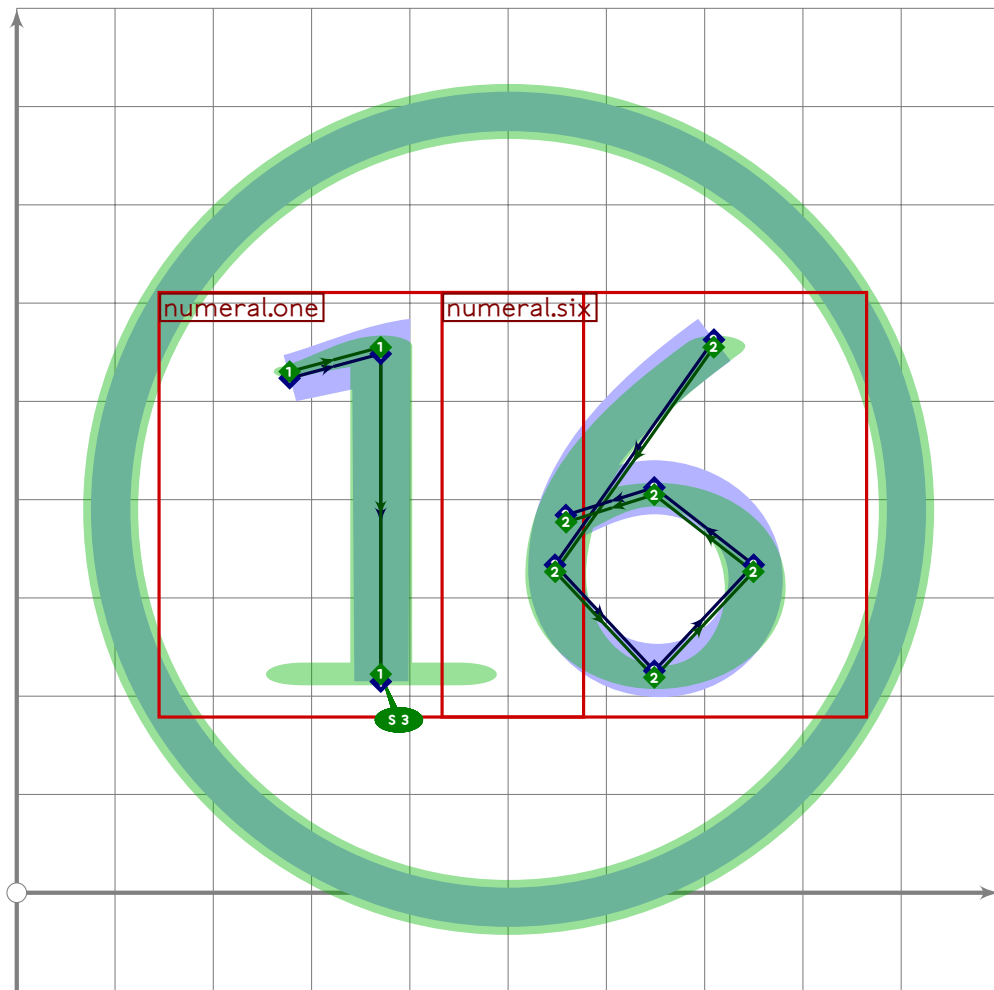
```



```

154 % 15
155 begint Suglyph("uni246E",110);
156   circle.single;
157   tsu_xform(tsu_xf.ctwo.left)(numeral.one);
158   numeric x[],y[];
159   tsu_xform(tsu_xf.ctwo.right)(numeral.five);
160   tsu_render;
161   endtsuglyph;
162

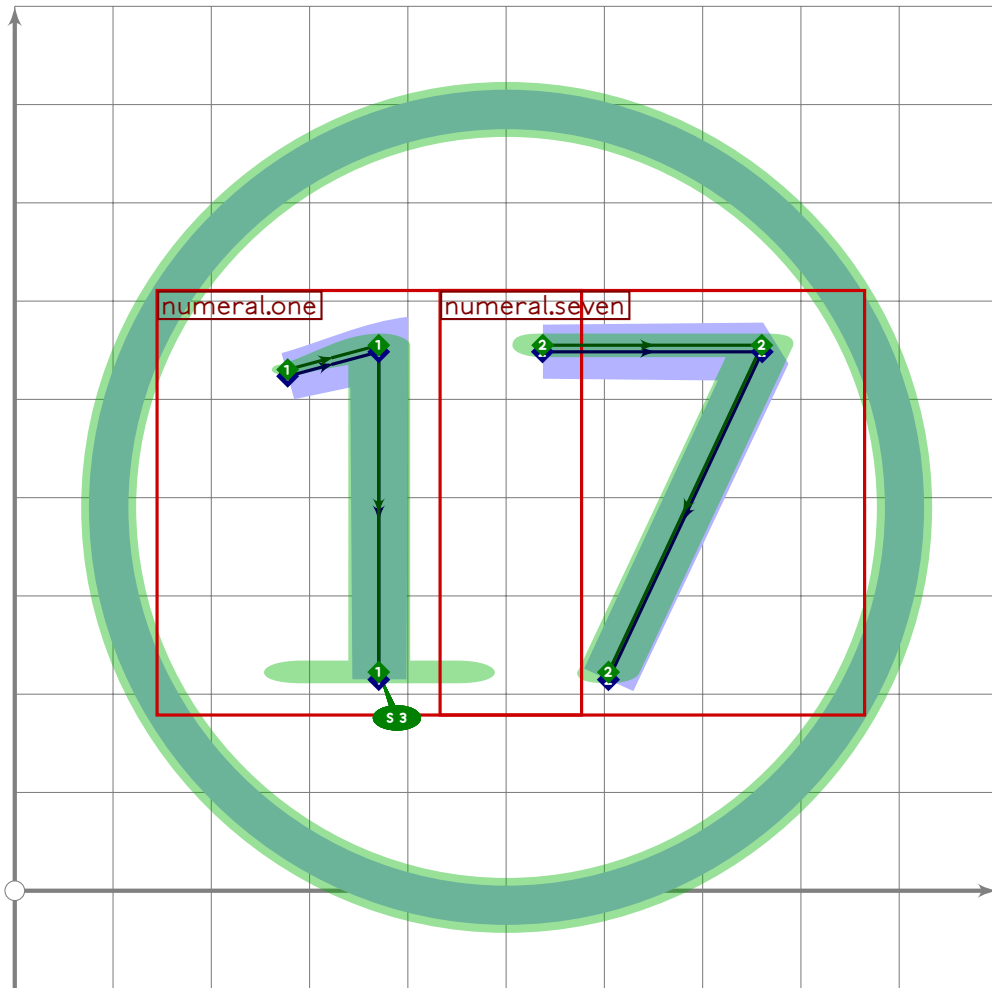
```



```

163 % 16
164 begint Suglyph("uni246F",111);
165   circle.single;
166   tsu_xform(tsu_xf.ctwo.left)(numeral.one);
167   numeric x[],y[];
168   tsu_xform(tsu_xf.ctwo.right)(numeral.six);
169   tsu_render;
170 endtsuglyph;
171

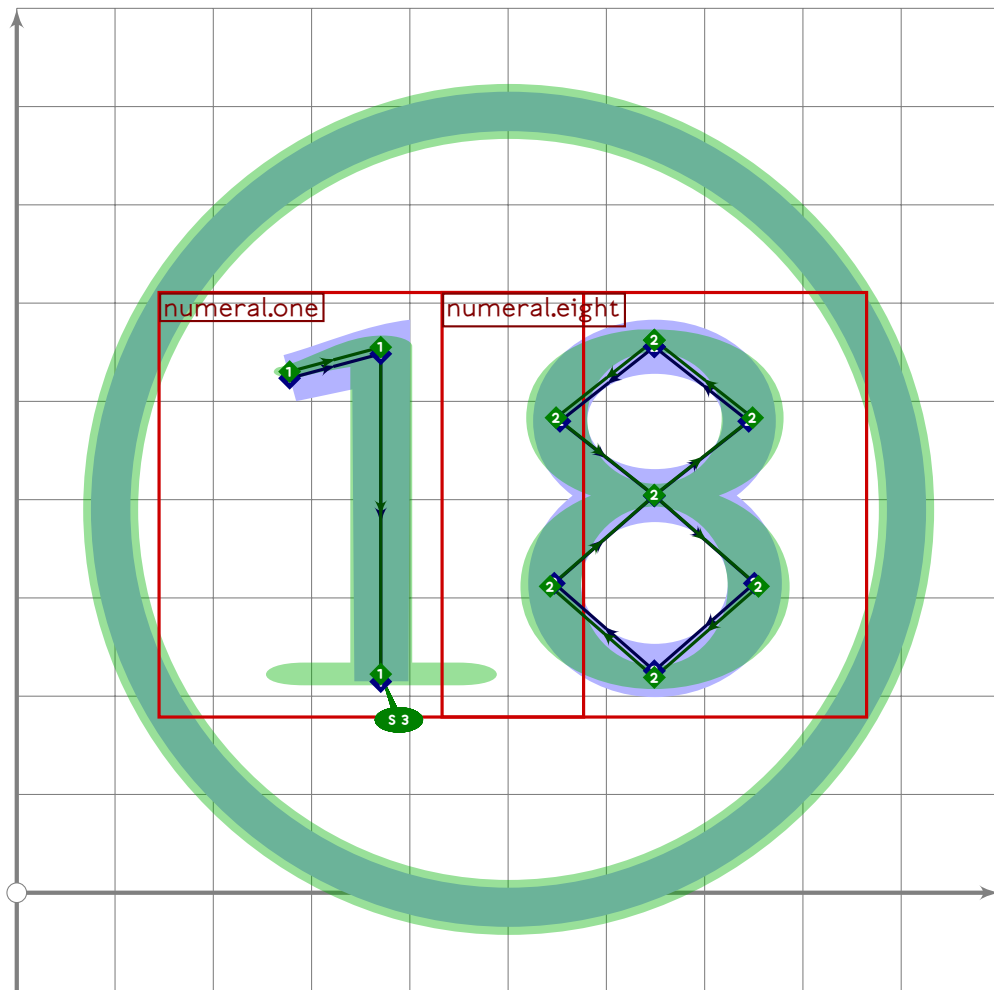
```



```

172 % 17
173 begint Suglyph("uni2470",112);
174 circle.single;
175 tsu_xform(tsu_xf.ctwo.left)(numeral.one);
176 numeric x[],y[];
177 tsu_xform(tsu_xf.ctwo.right)(numeral.seven);
178 tsu_render;
179 endsuglyph;
180

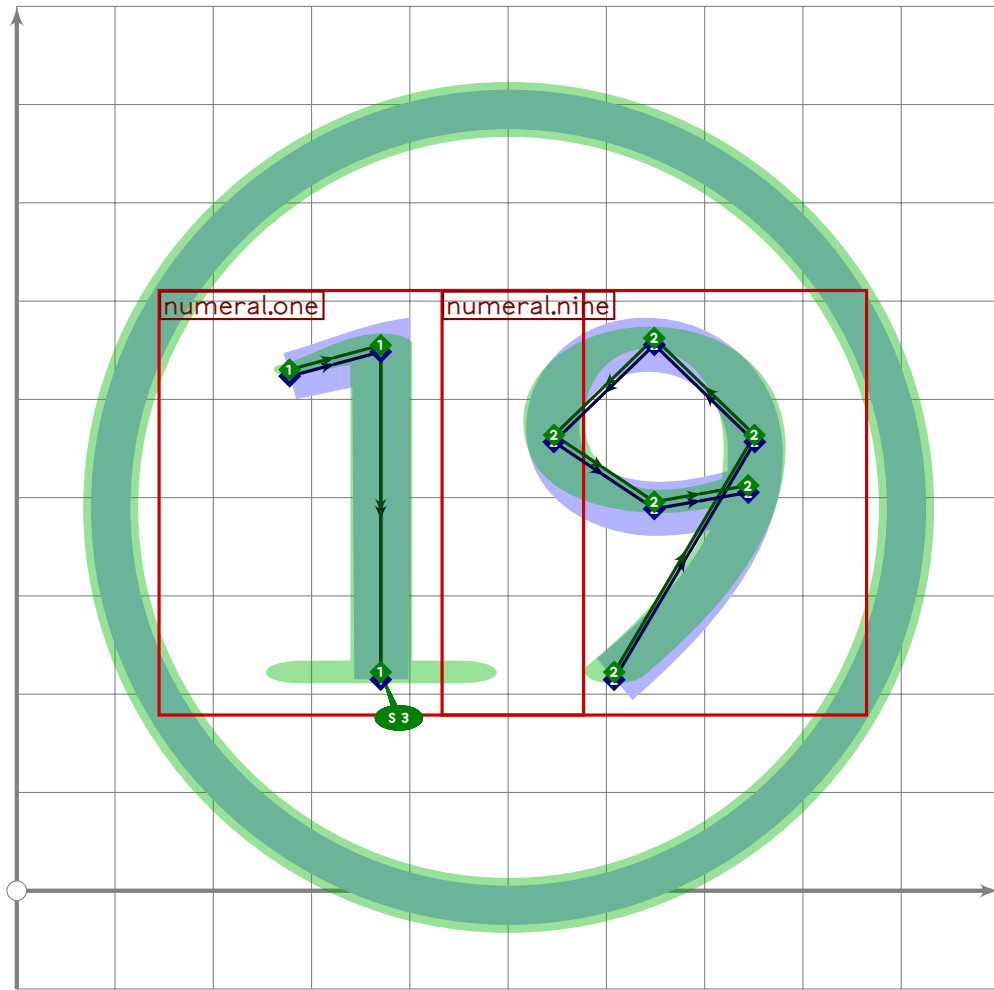
```



```

181 % 18
182 beginsuglyph("uni2471",113);
183   circle.single;
184   tsu_xform(tsu_xf.ctwo.left)(numeral.one);
185   numeric x[],y[];
186   tsu_xform(tsu_xf.ctwo.right)(numeral.eight);
187   tsu_render;
188 endsuglyph;
189

```

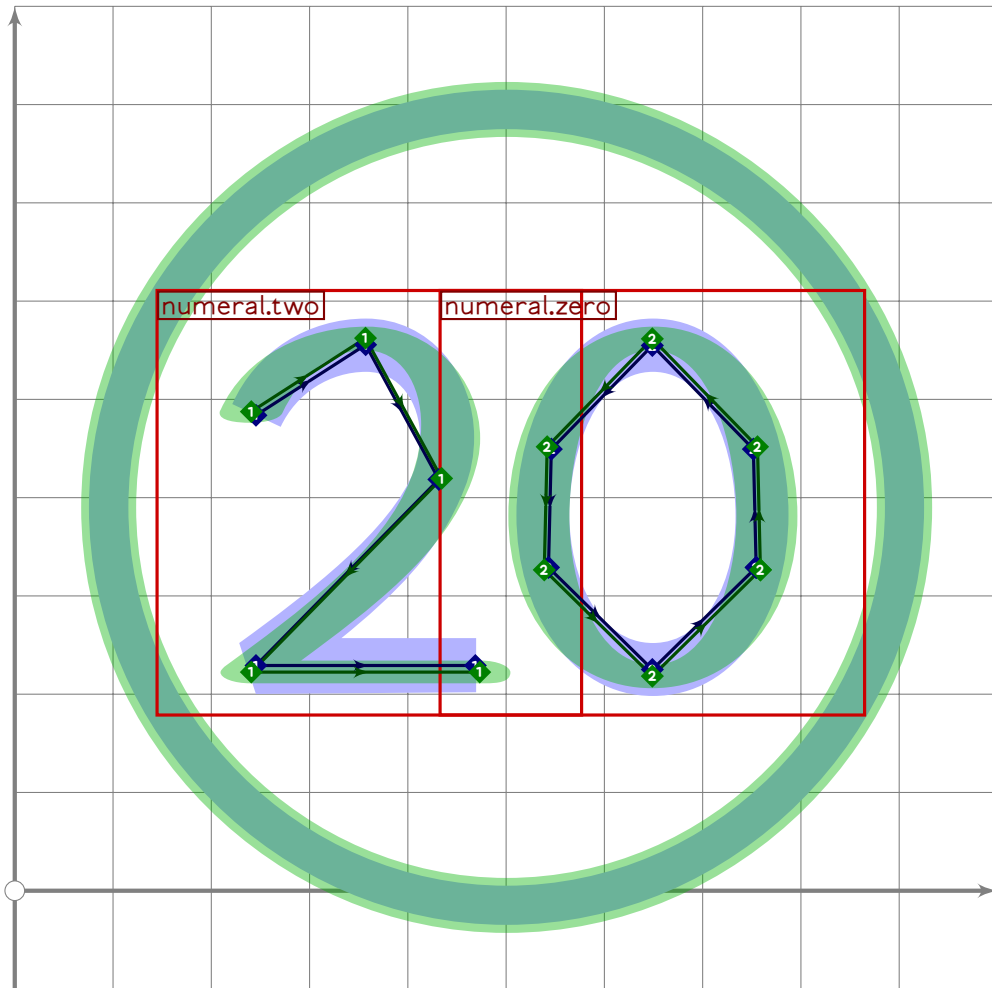


```

190 % 19
191 begint Suglyph("uni2472";114);
192   circle.single;
193   tsu_xform(tsu_xf.ctwo.left)(numeral.one);
194   numeric x[],y[];
195   tsu_xform(tsu_xf.ctwo.right)(numeral.nine);
196   tsu_render;
197 endtsuglyph;
198

```





```

199 % 20
200 begint Suglyph("uni2473";115);
201   circle.single;
202   tsu_xform(tsu_xf.ctwo.left)(numeral.two);
203   numeric x[],y[];
204   tsu_xform(tsu_xf.ctwo.right)(numeral.zero);
205   tsu_render;
206 endtsuglyph;
207
208
209

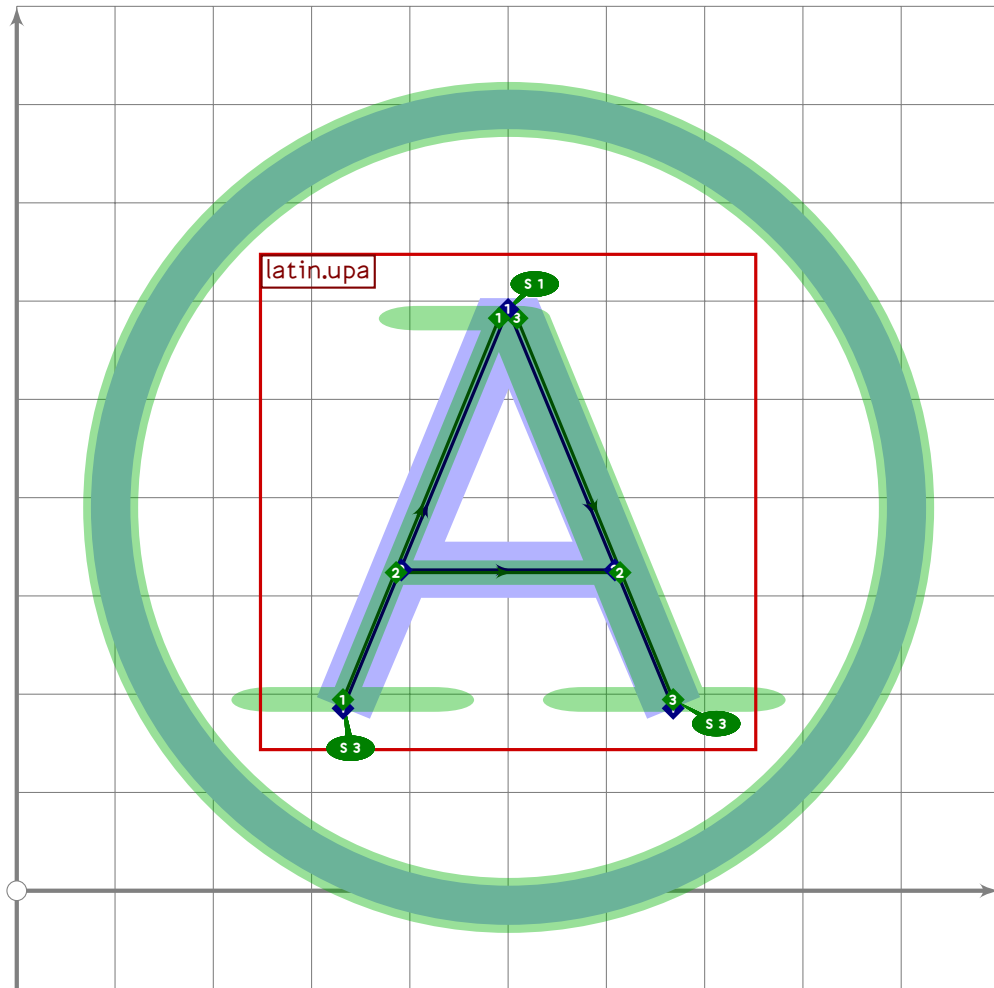
```

## Circled Latin And Zero

```

210 % CIRCLED LATIN AND ZERO
211

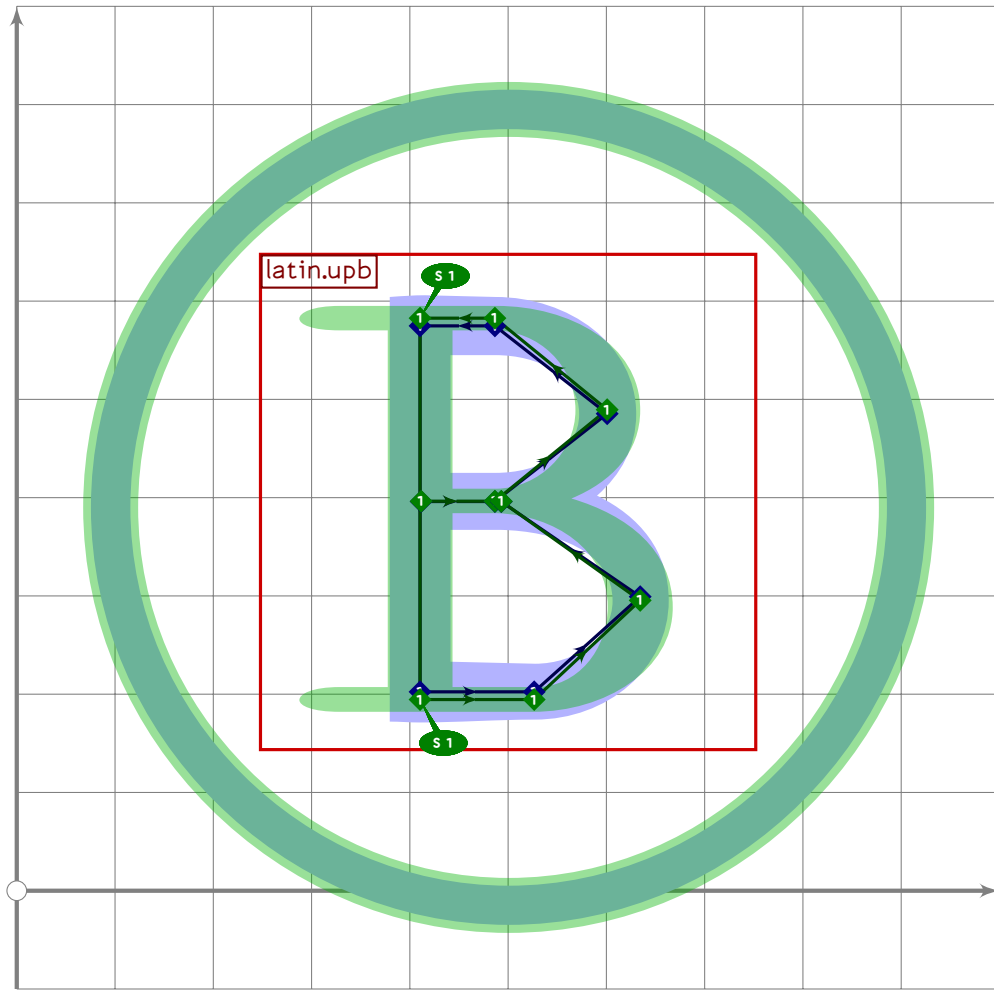
```



```

212 % A
213 beginsuglyph("uni24B6",182);
214   circle.single;
215   tsu_xform(tsu_xf.cletter)(latin.upa);
216   tsu_render;
217 endsuglyph;
218

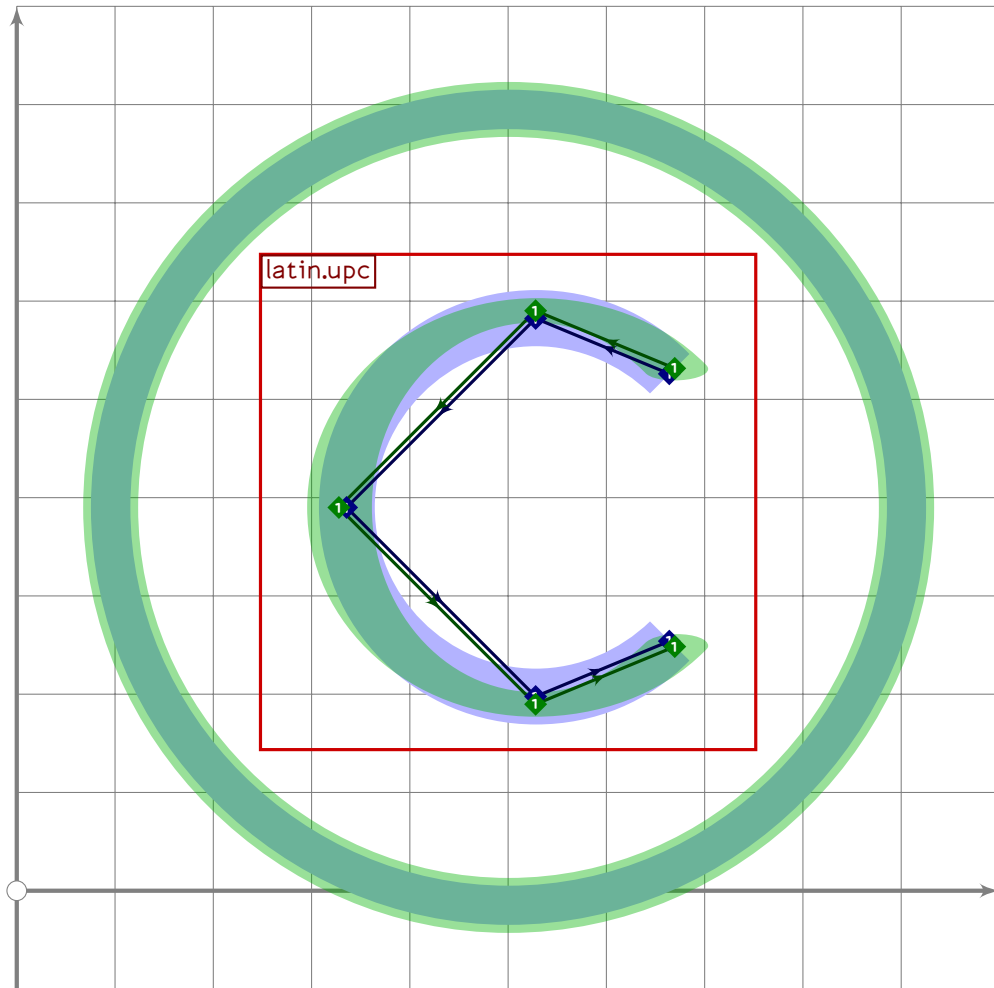
```



```

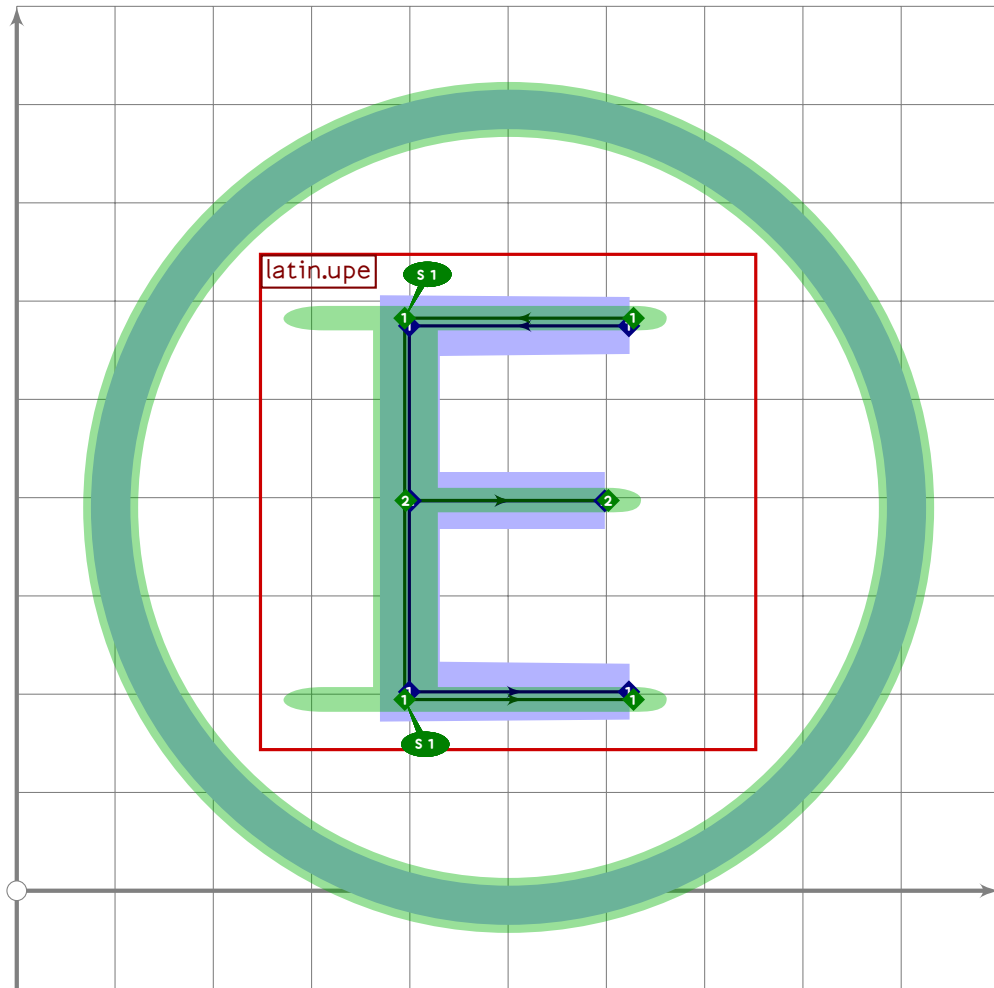
219 % B
220 beginsuglyph("uni24B7",183);
221 circle.single;
222 tsu_xform(tsu_xf.cletter)(latin.upb);
223 tsu_render;
224 endsuglyph;
225

```



```
226 % C
227 begint Suglyph("uni24B8",184);
228   circle.single;
229   tsu_xform(tsu_xf.cletter)(latin.upc);
230   tsu_render;
231 endsuglyph;
232
```

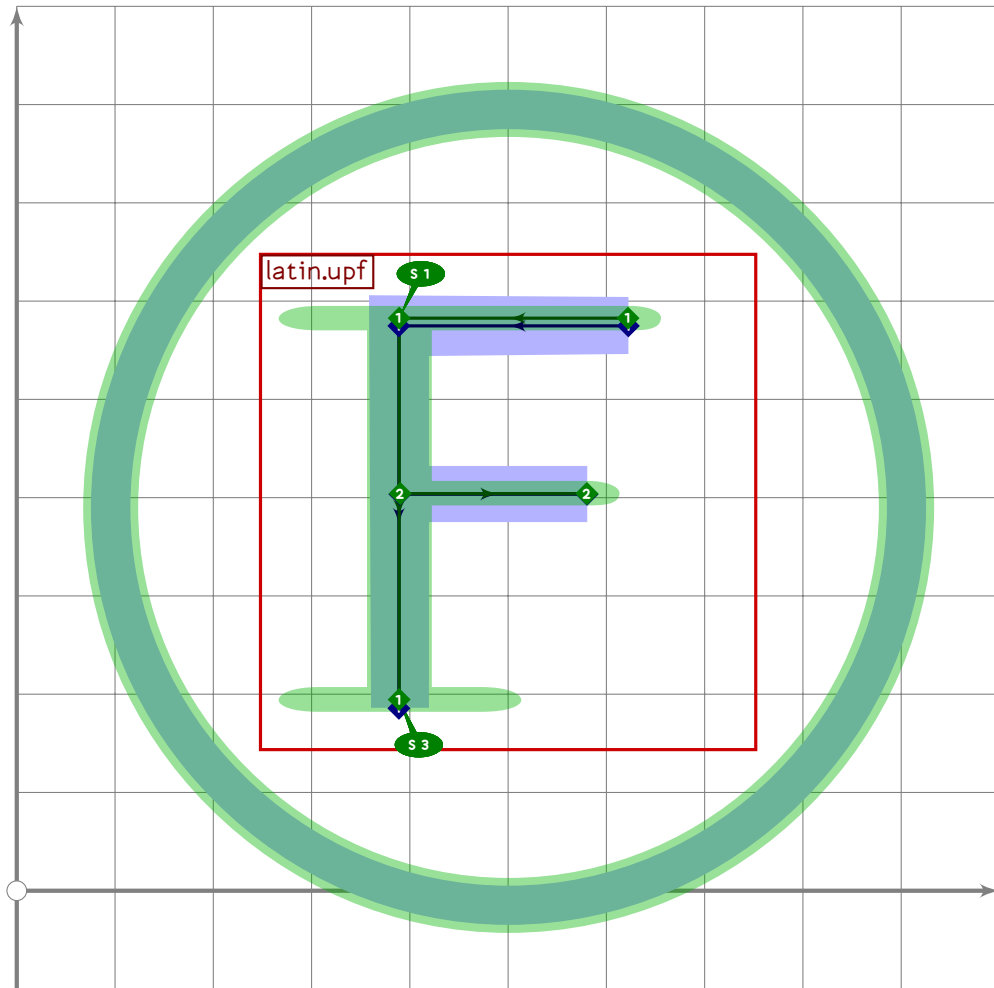




```

240 % E
241 begint Suglyph("uni24BA",186);
242 circle.single;
243 tsu_xform(tsu_xf.cletter)(latin.upe);
244 tsu_render;
245 endsuglyph;
246

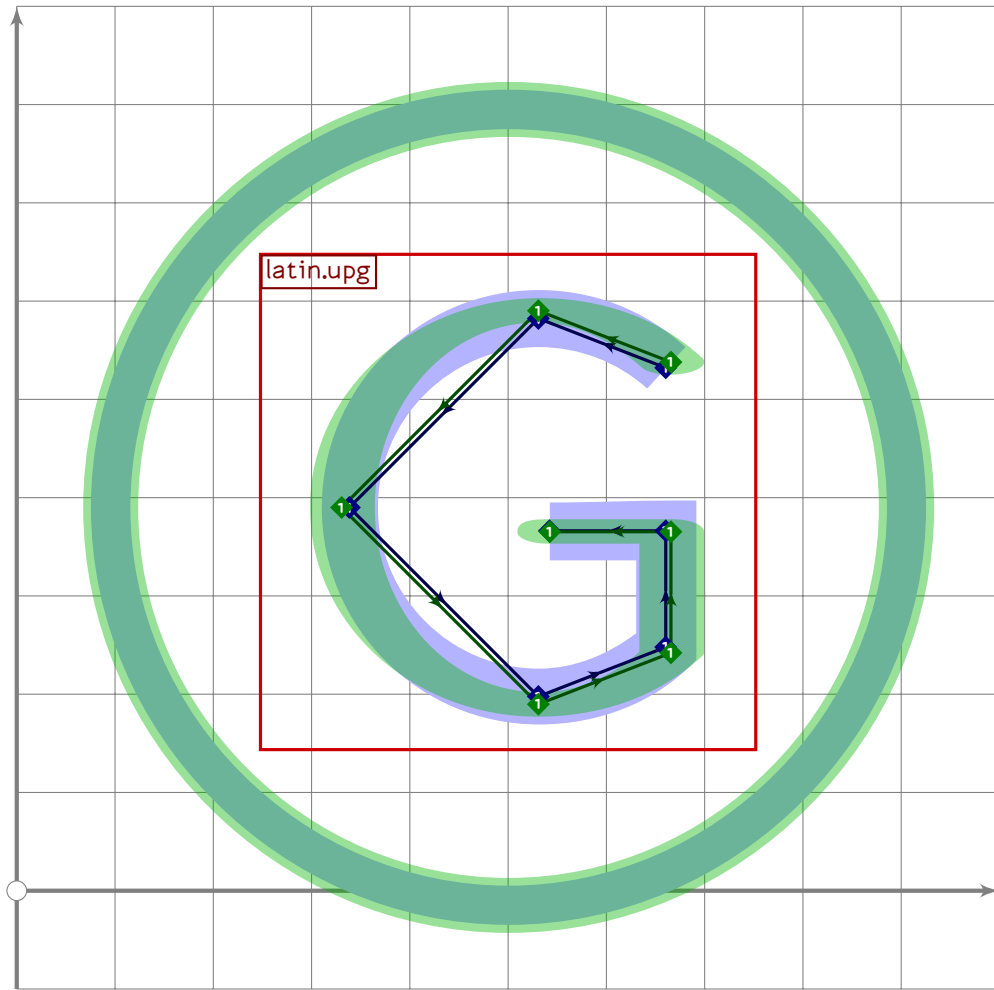
```



```

247 % F
248 beginsuglyph("uni24BB",187);
249 circle.single;
250 tsu_xform(tsu_xf.cletter)(latin.upf);
251 tsu_render;
252 endsuglyph;
253

```

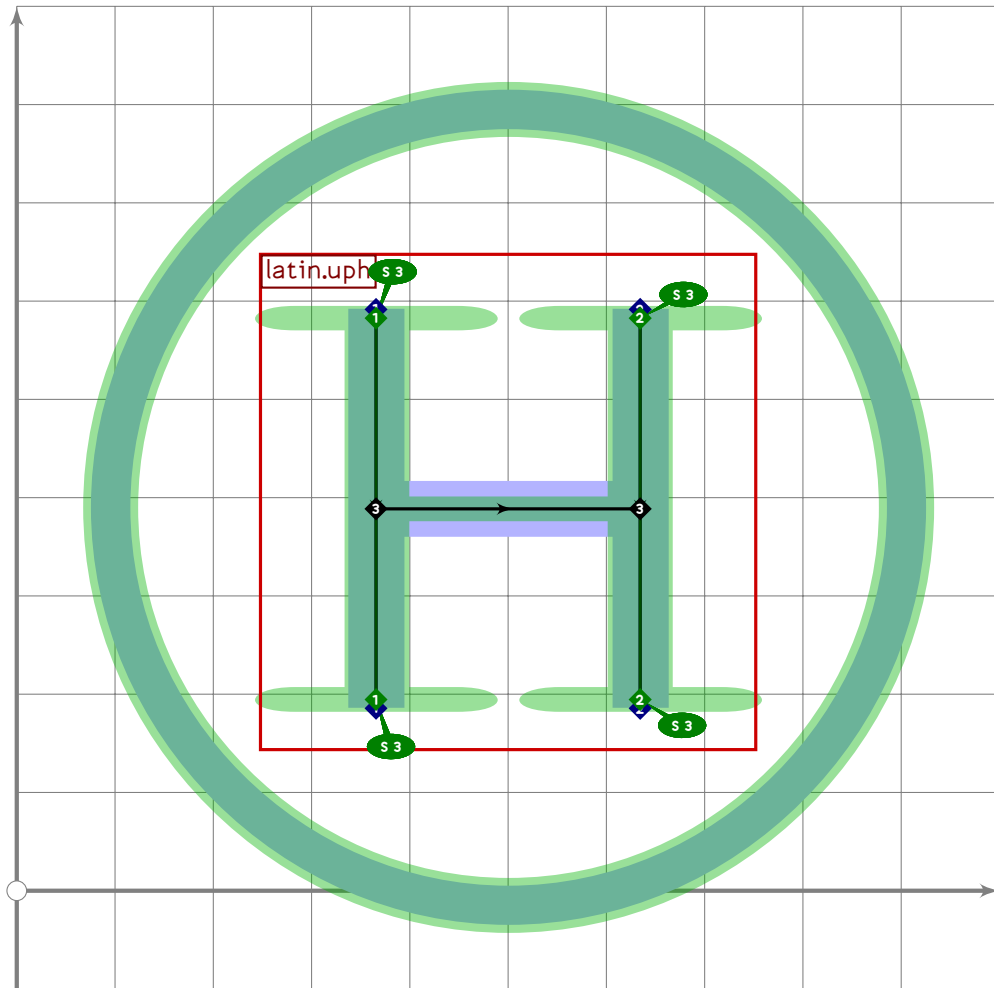


```

254 % G
255 begint Suglyph("uni24BC",188);
256 circle.single;
257 tsu_xform(tsu_xf.cletter)(latin.upg);
258 tsu_render;
259 endsuglyph;
260

```

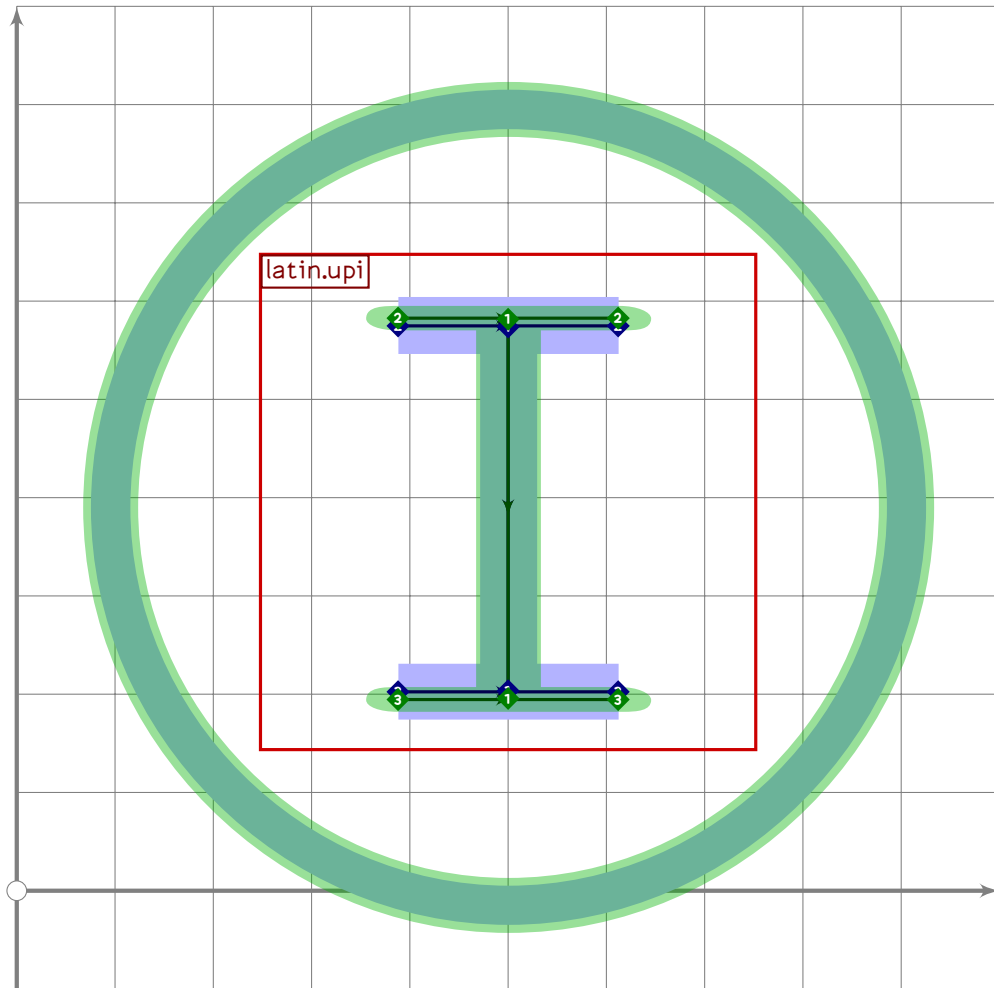




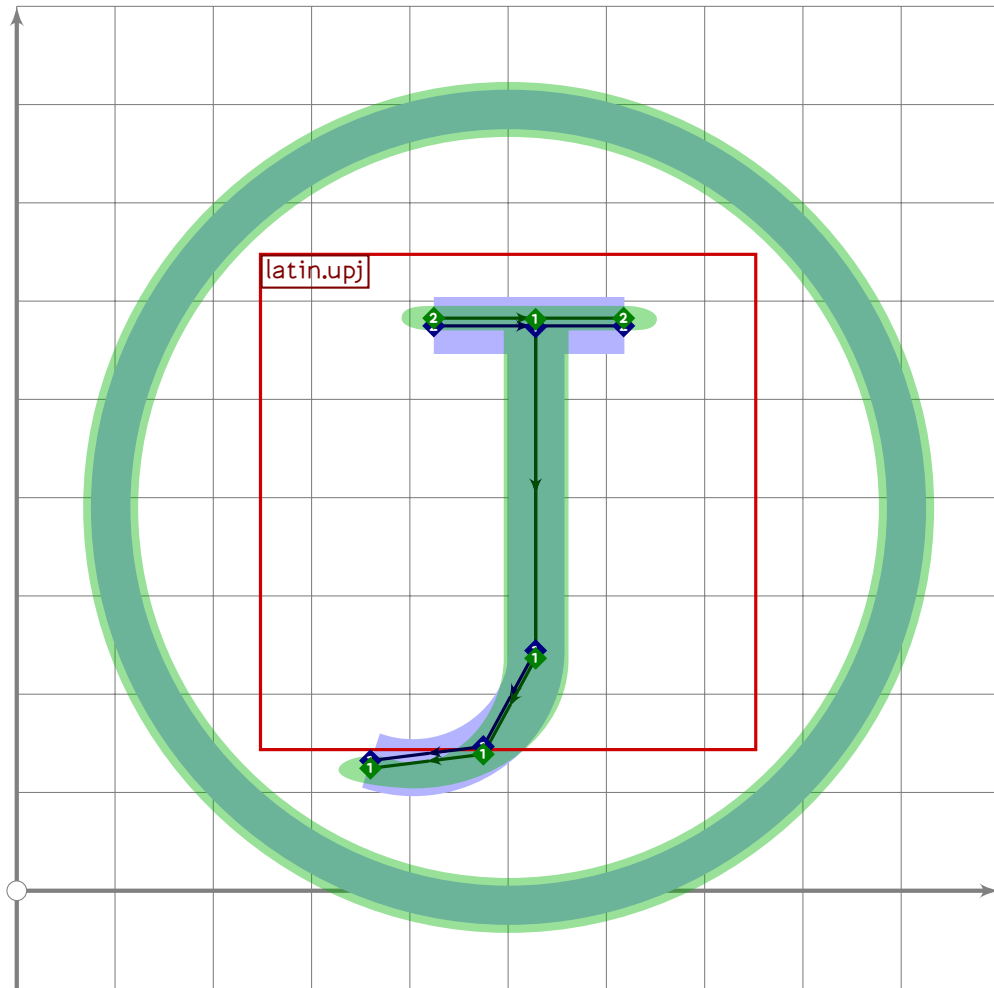
```

261 % H
262 begint Suglyph("uni24BD",189);
263   circle.single;
264   tsu_xform(tsu_xf.cletter)(latin.uph);
265   tsu_render;
266 endsuglyph;
267

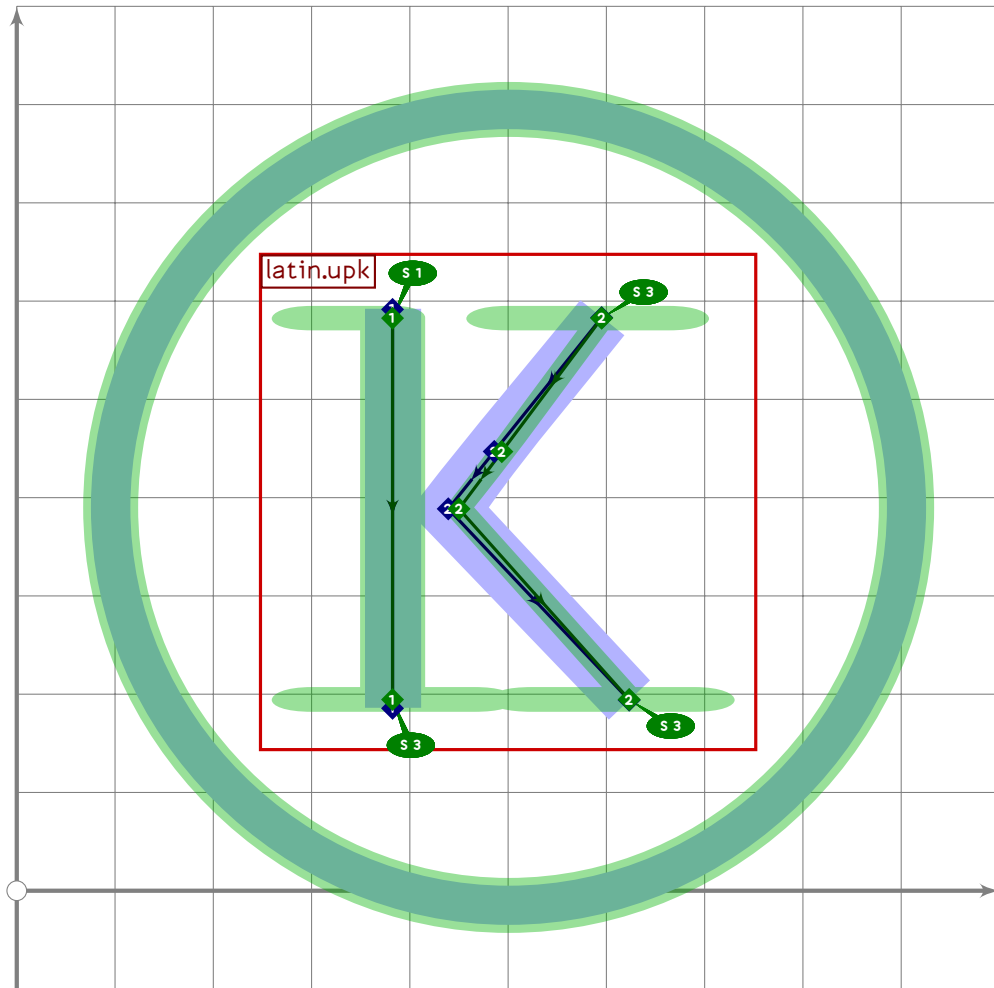
```



```
268 % I
269 beginsuglyph("uni24BE",190);
270 circle.single;
271 tsu_xform(tsu_xf.cletter)(latin.upi);
272 tsu_render;
273 endsuglyph;
274
```



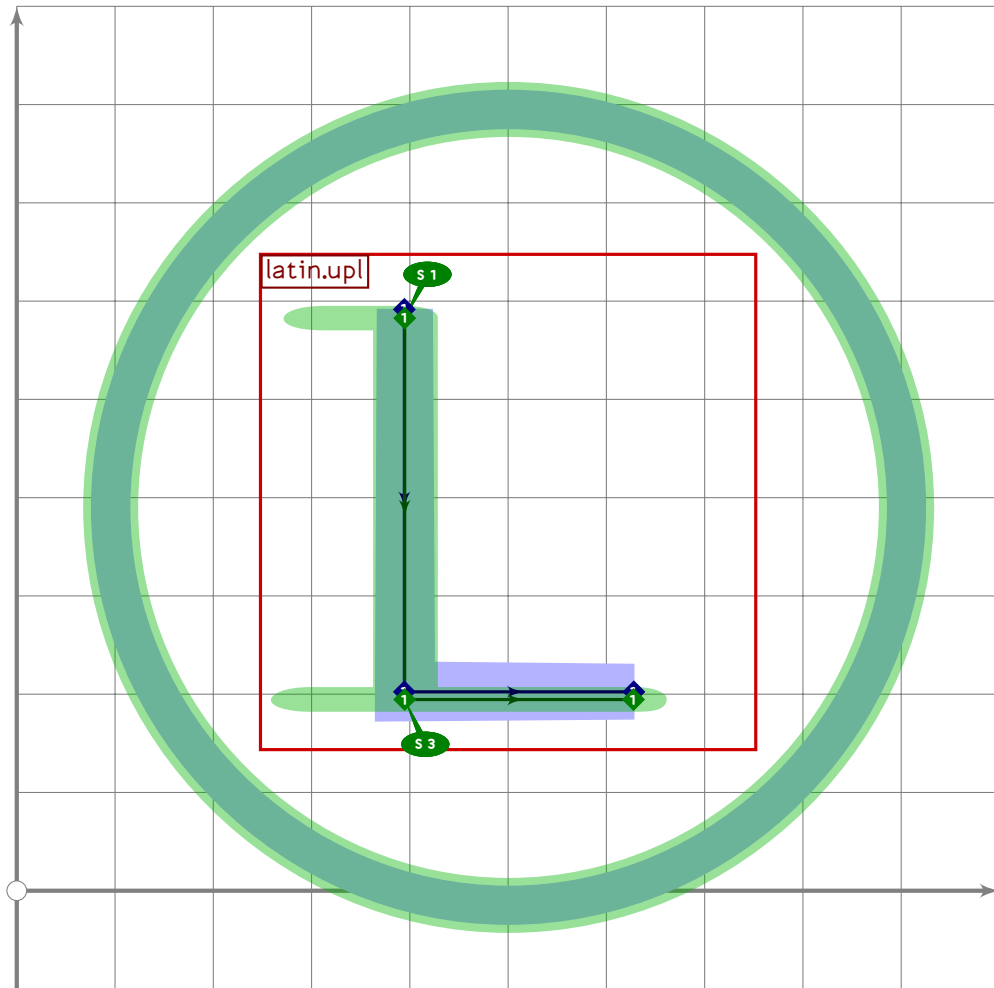
```
275 % J
276 beginsuglyph("uni24BF",191);
277 circle.single;
278 tsu_xform(tsu_xf.cletter)(latin.upj);
279 tsu_render;
280 endsuglyph;
281
```



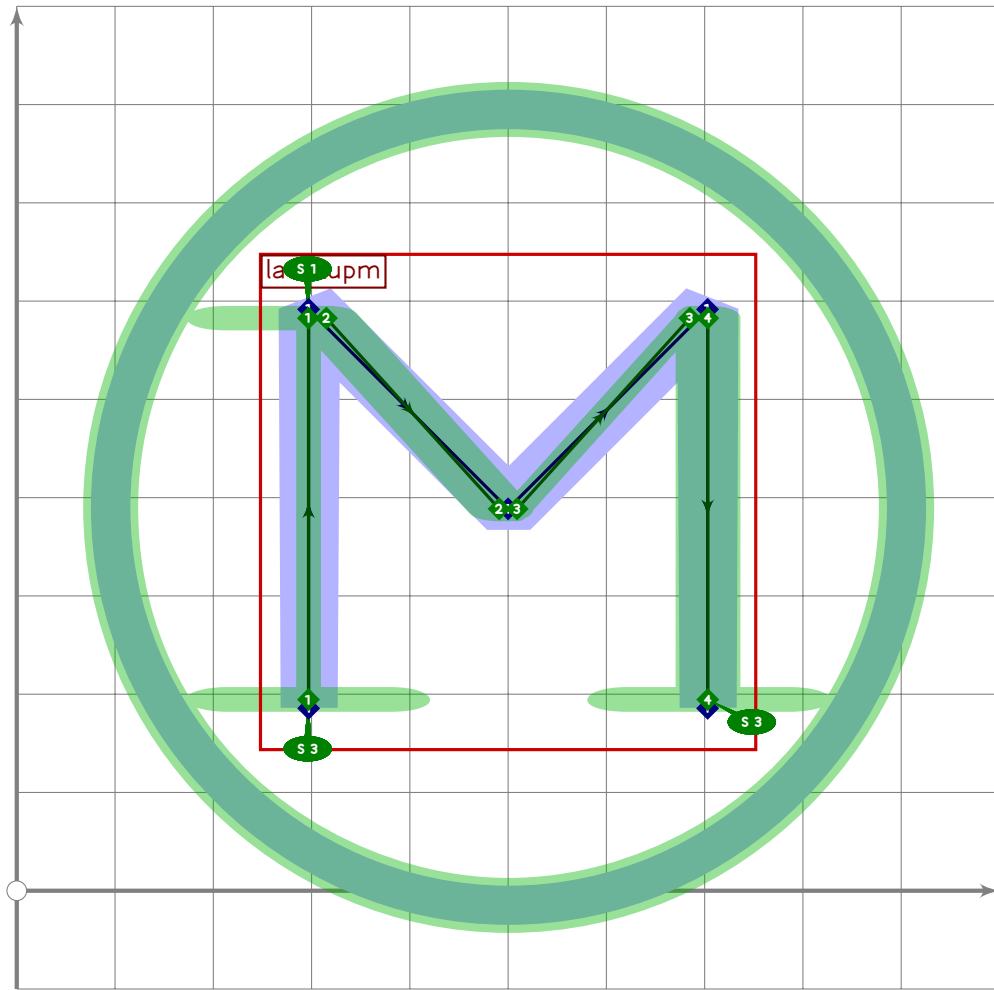
```

282 % K
283 beginsuglyph("uni24C0",192);
284 circle.single;
285 tsu_xform(tsu_xf.cletter)(latin.upk);
286 tsu_render;
287 endsuglyph;
288

```



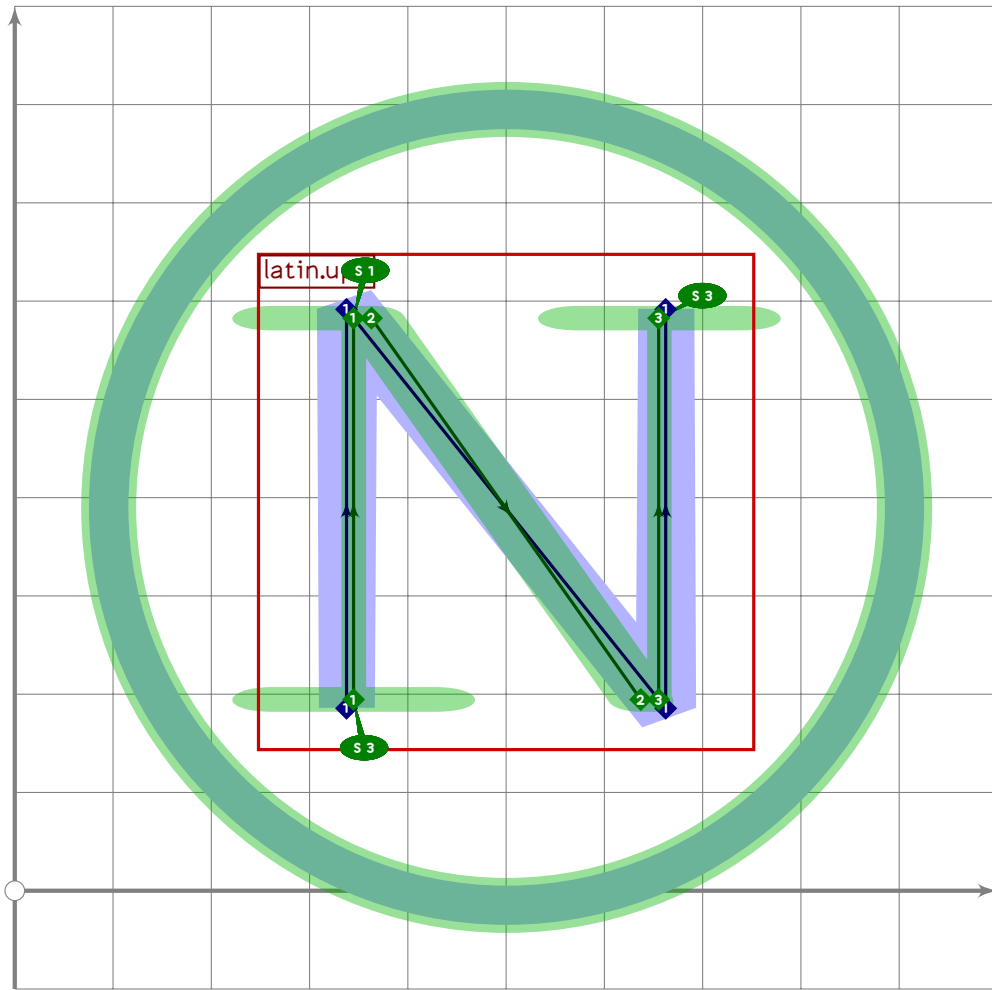
```
289 % L
290 beginsuglyph("uni24C1";193);
291 circle.single;
292 tsu_xform(tsu_xf.cletter)(latin.upl);
293 tsu_render;
294 endsuglyph;
295
```



```

296 % M
297 beginsuglyph("uni24C2",194);
298   circle.single;
299   tsu_xform(tsu_xf.cletter)(latin.upm);
300   tsu_render;
301 endsuglyph;
302

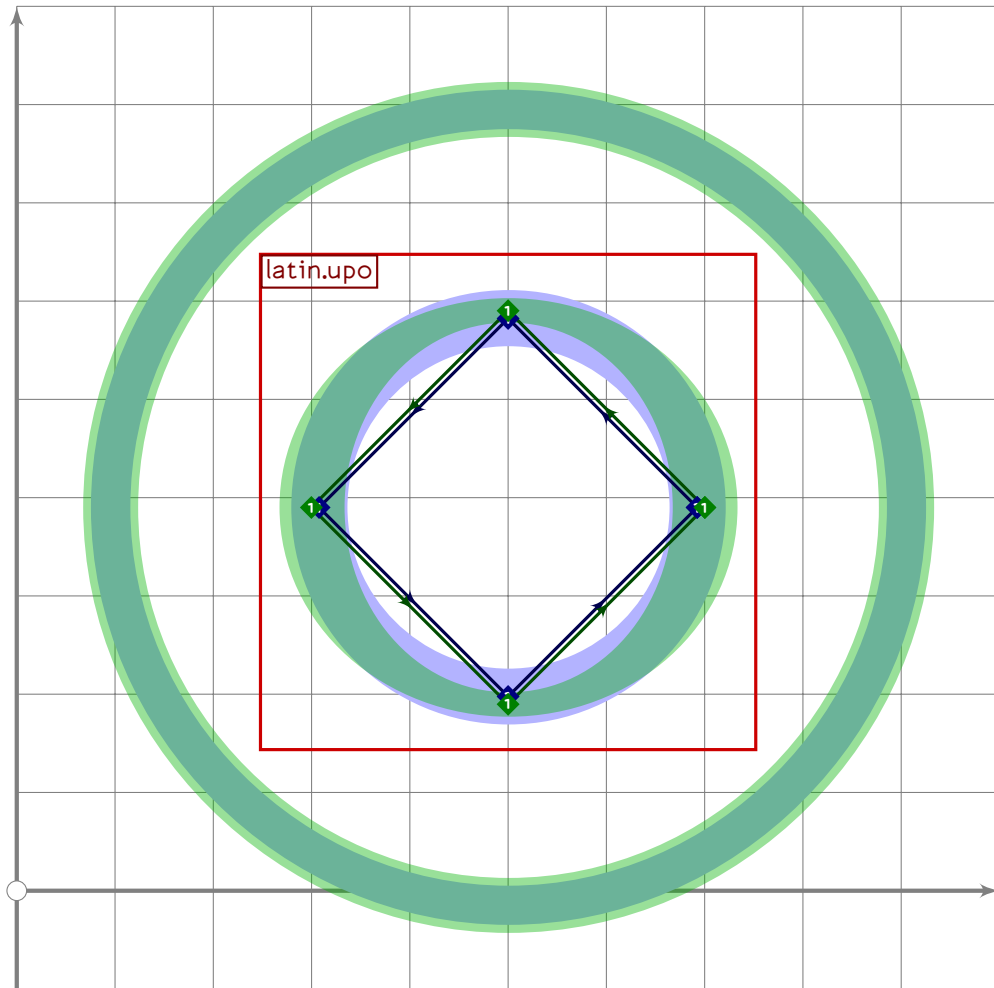
```



```

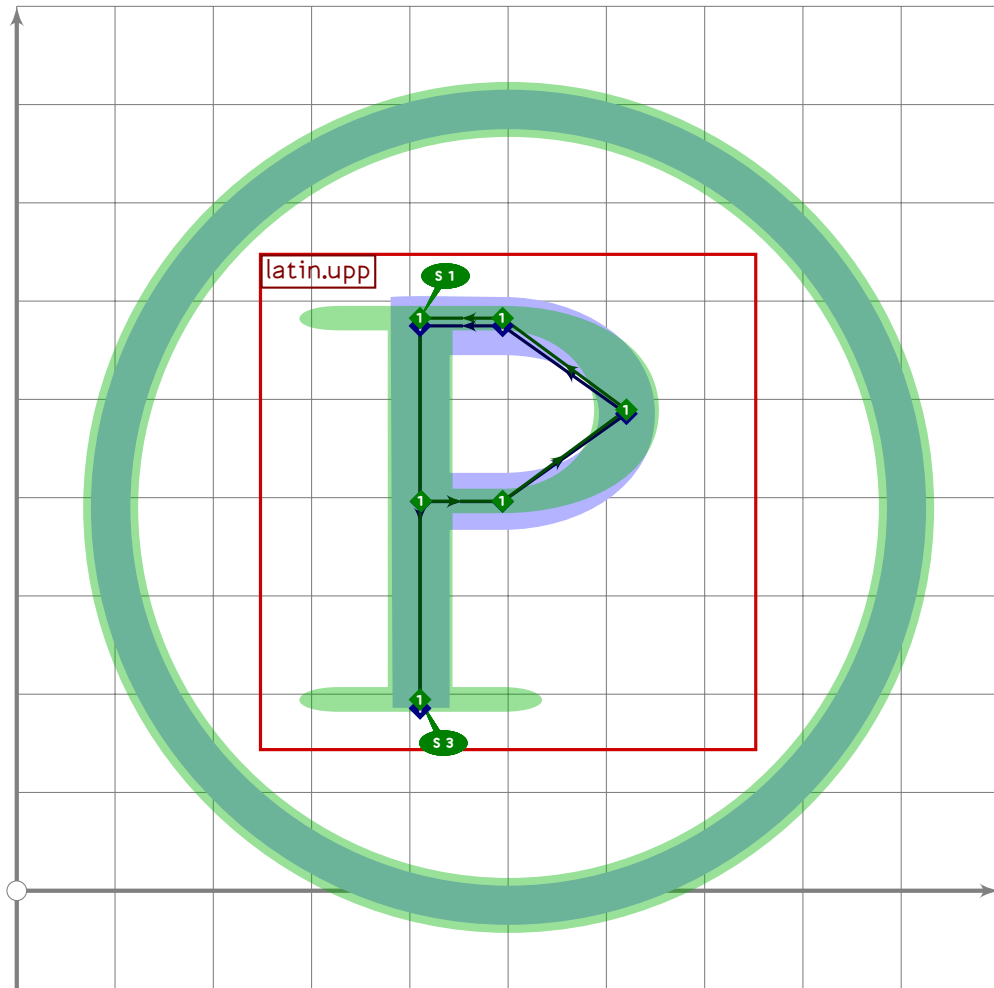
303 % N
304 beginsuglyph("uni24C3",195);
305 circle.single;
306 tsu_xform(tsu_xf.cletter)(latin.upn);
307 tsu_render;
308 endsuglyph;
309

```

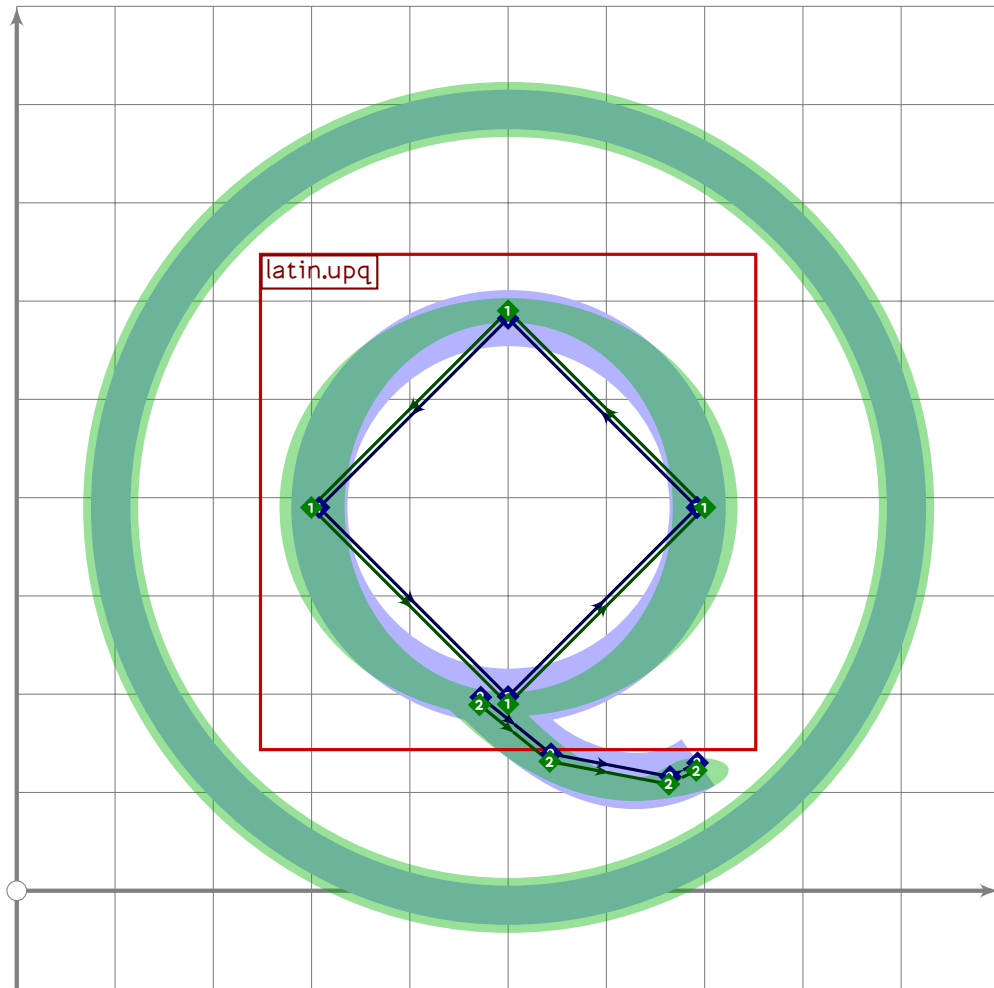


```
310 % O
311 beginsuglyph("uni24C4",196);
312   circle.single;
313   tsu_xform(tsu_xf.cletter)(latin.upo);
314   tsu_render;
315 endsuglyph;
316
```

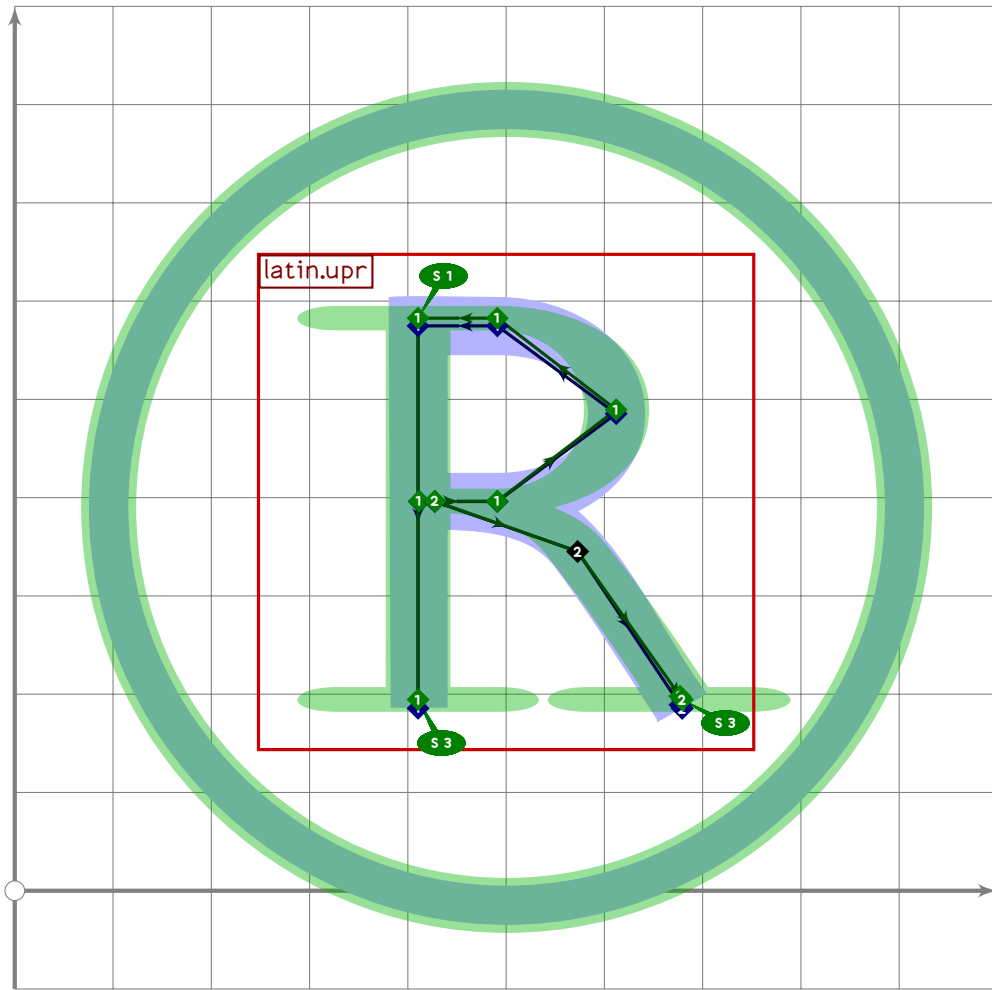




```
317 % P
318 beginsuglyph("uni24C5",197);
319   circle.single;
320   tsu_xform(tsu_xf.cletter)(latin.upp);
321   tsu_render;
322 endsuglyph;
323
```



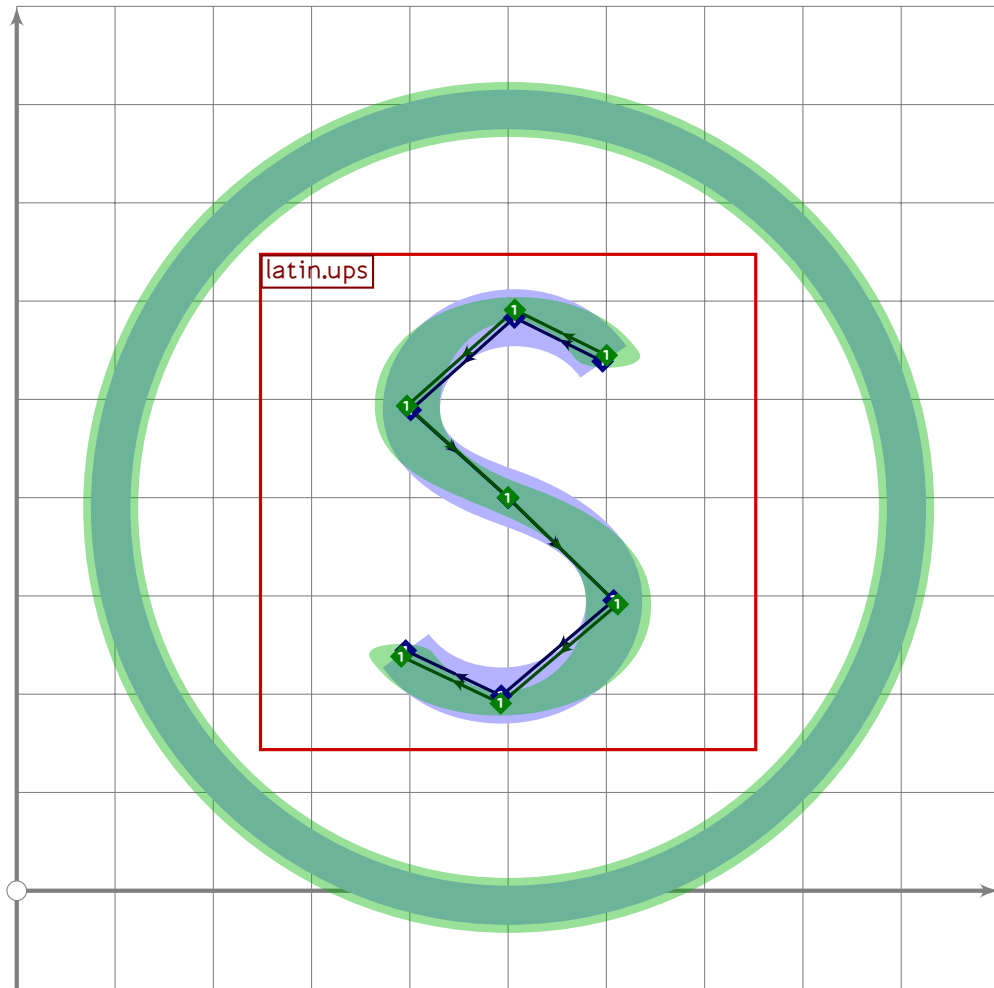
```
324 % Q
325 begint Suglyph("uni24C6",198);
326 circle.single;
327 tsu_xform(tsu_xf.cletter)(latin.upq);
328 tsu_render;
329 endsuglyph;
330
```



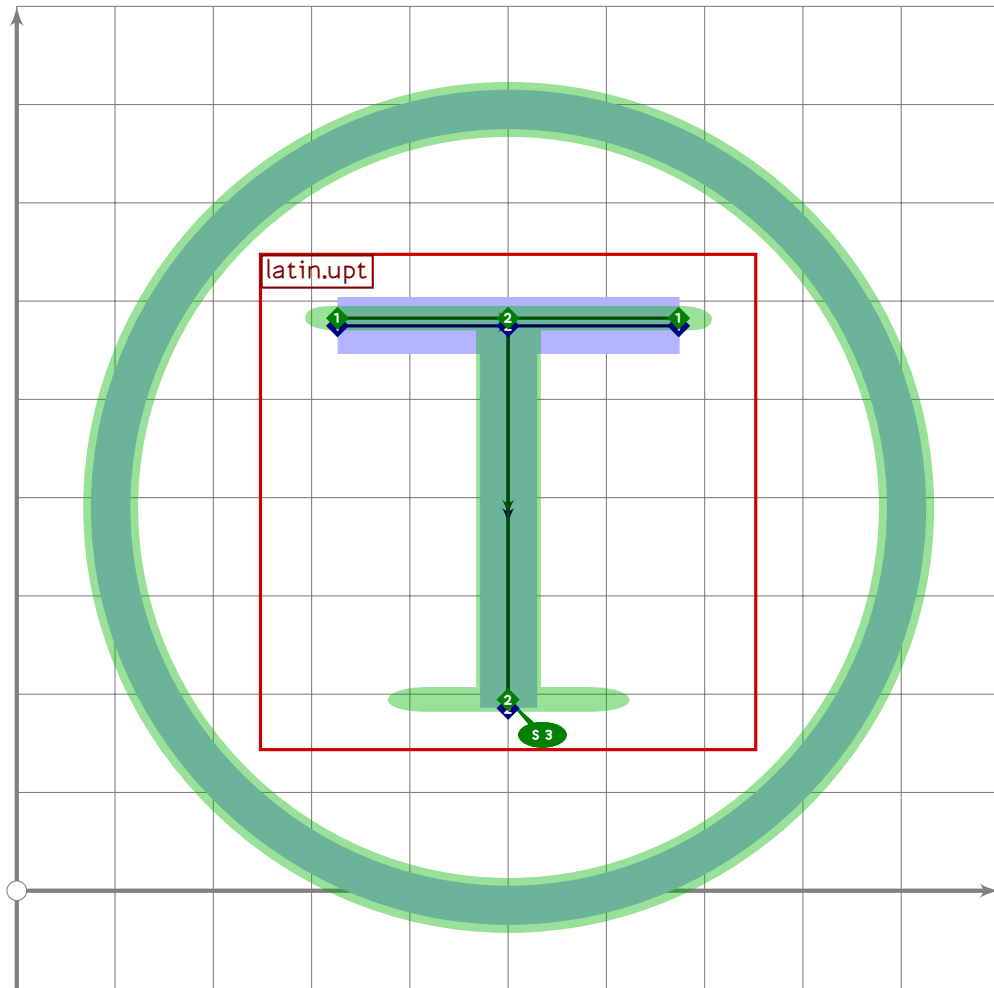
```

331 % R
332 begint Suglyph("uni24C7";199);
333   circle.single;
334   tsu_xform(tsu_xf.cletter)(latin.upr);
335   tsu_render;
336 endsuglyph;
337

```



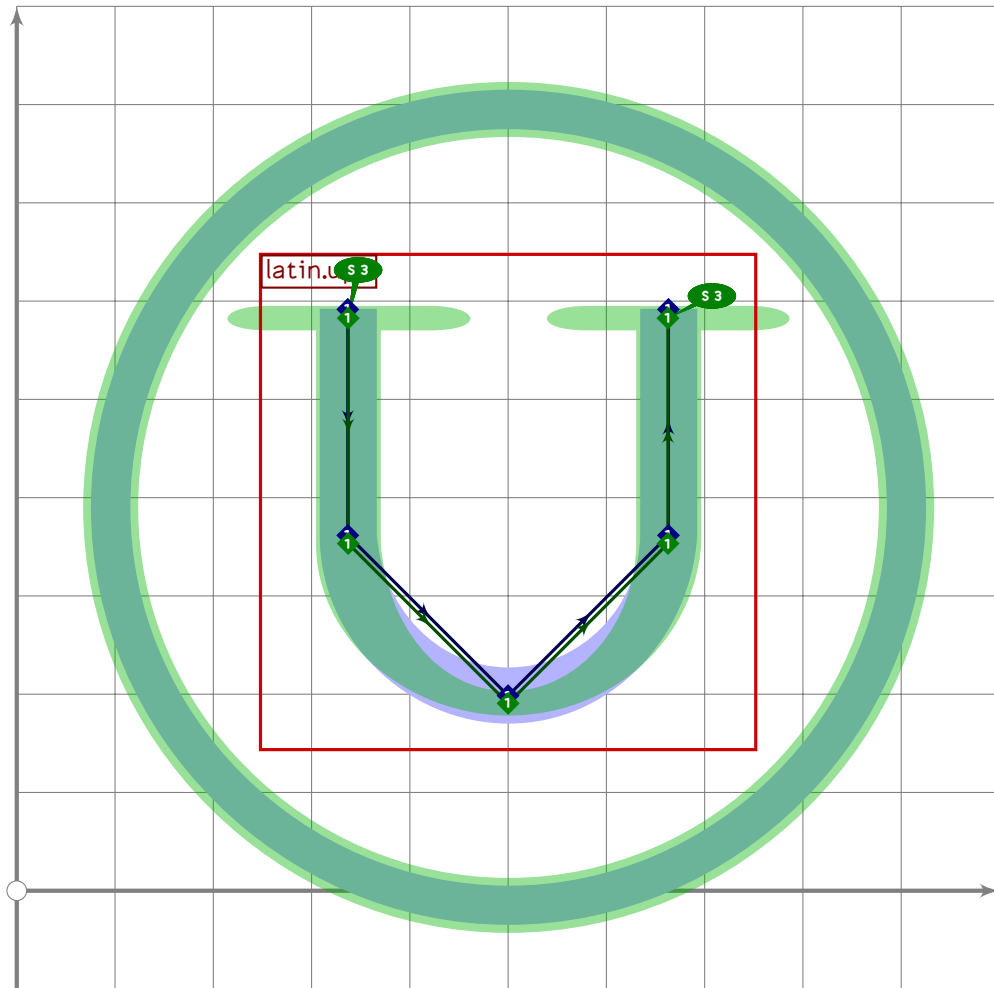
```
338 % S
339 begintsuglyph("uni24C8";200);
340 circle.single;
341 tsu_xform(tsu_xf.cletter)(latin.ups);
342 tsu_render;
343 endsuglyph;
344
```



```

345 % T
346 beginsuglyph("uni24C9",201);
347 circle.single;
348 tsu_xform(tsu_xf.cletter)(latin.upt);
349 tsu_render;
350 endsuglyph;
351

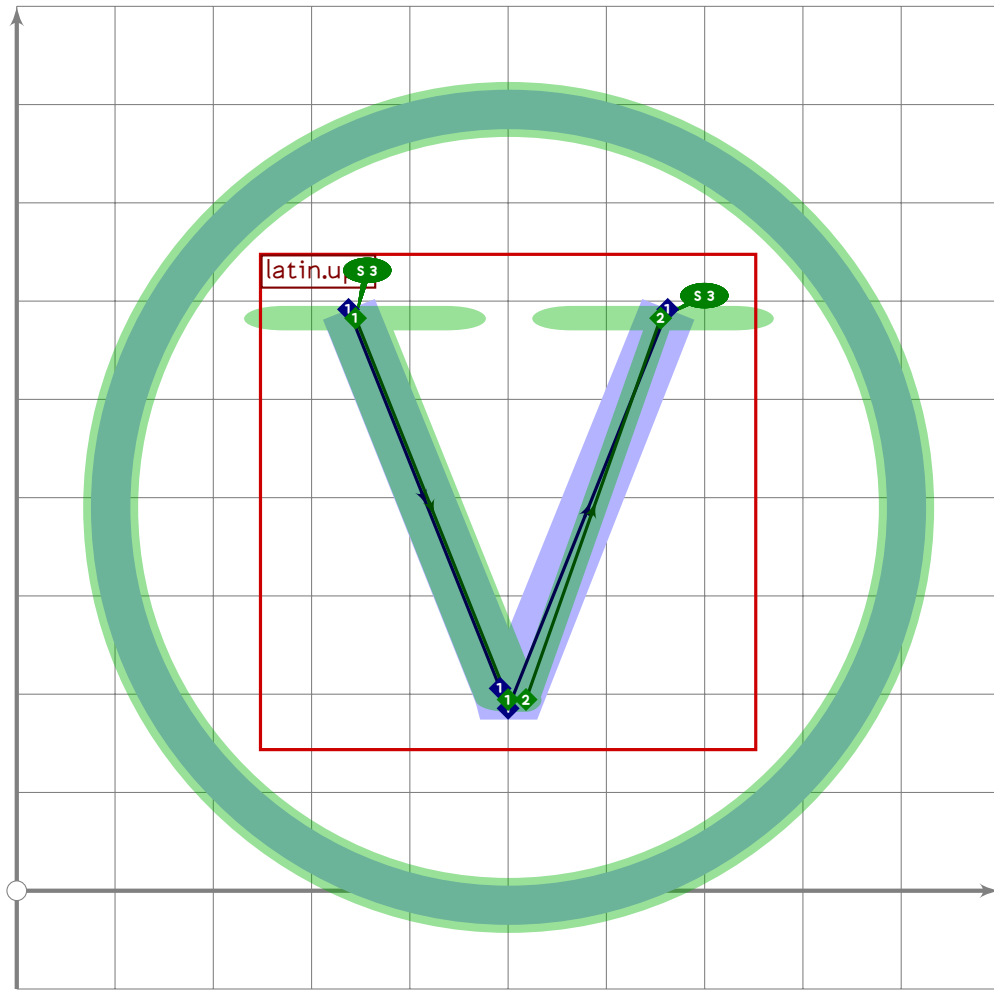
```



```

352 % U
353 begint Suglyph("uni24CA",202);
354   circle.single;
355   tsu_xform(tsu_xf.cletter)(latin.upu);
356   tsu_render;
357 endsuglyph;
358

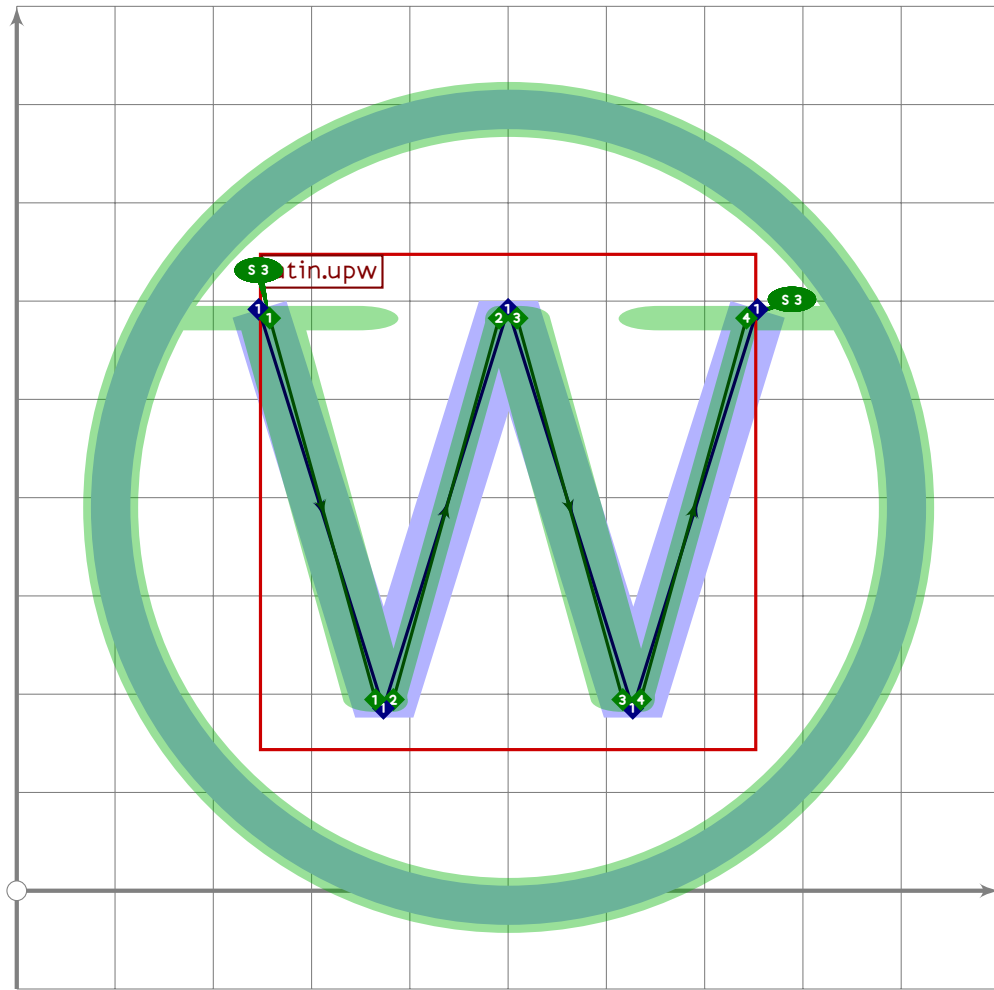
```



```

359 % V
360 beginsuglyph("uni24CB";203);
361 circle.single;
362 tsu_xform(tsu_xf.cletter)(latin.upv);
363 tsu_render;
364 endsuglyph;
365

```

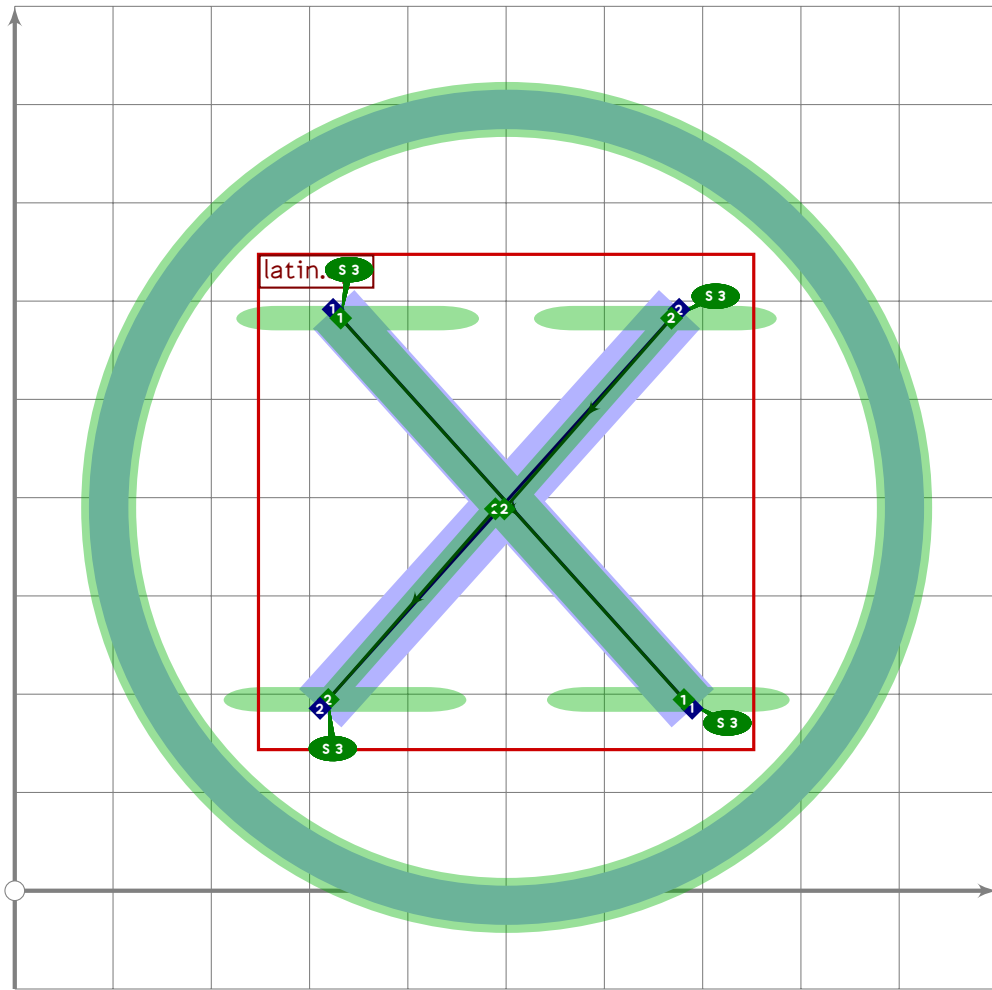


```

366 % W
367 begint Suglyph("uni24CC";204);
368   circle.single;
369   tsu_xform(tsu_xf.cletter)(latin.upw);
370   tsu_render;
371 endsuglyph;
372

```

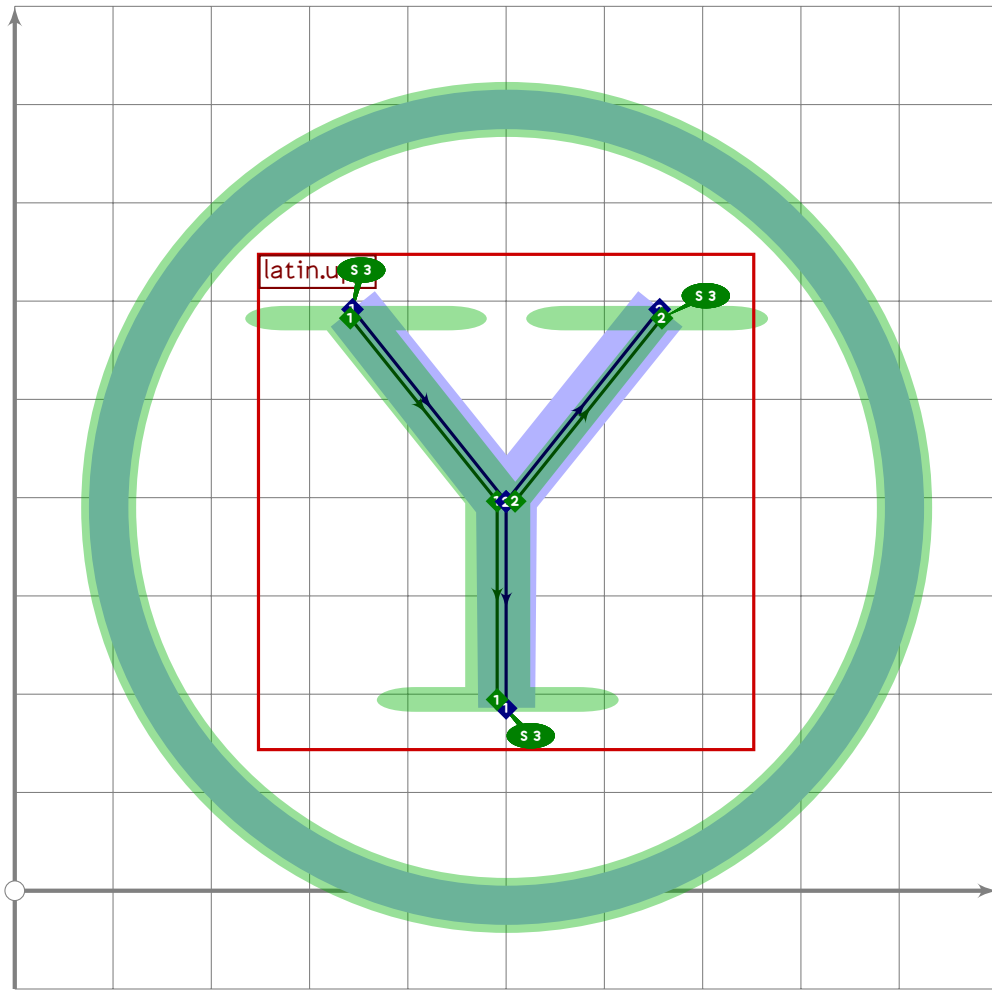




```

373 % X
374 beginsuglyph("uni24CD",205);
375 circle.single;
376 tsu_xform(tsu_xf.cletter)(latin.upx);
377 tsu_render;
378 endsuglyph;
379

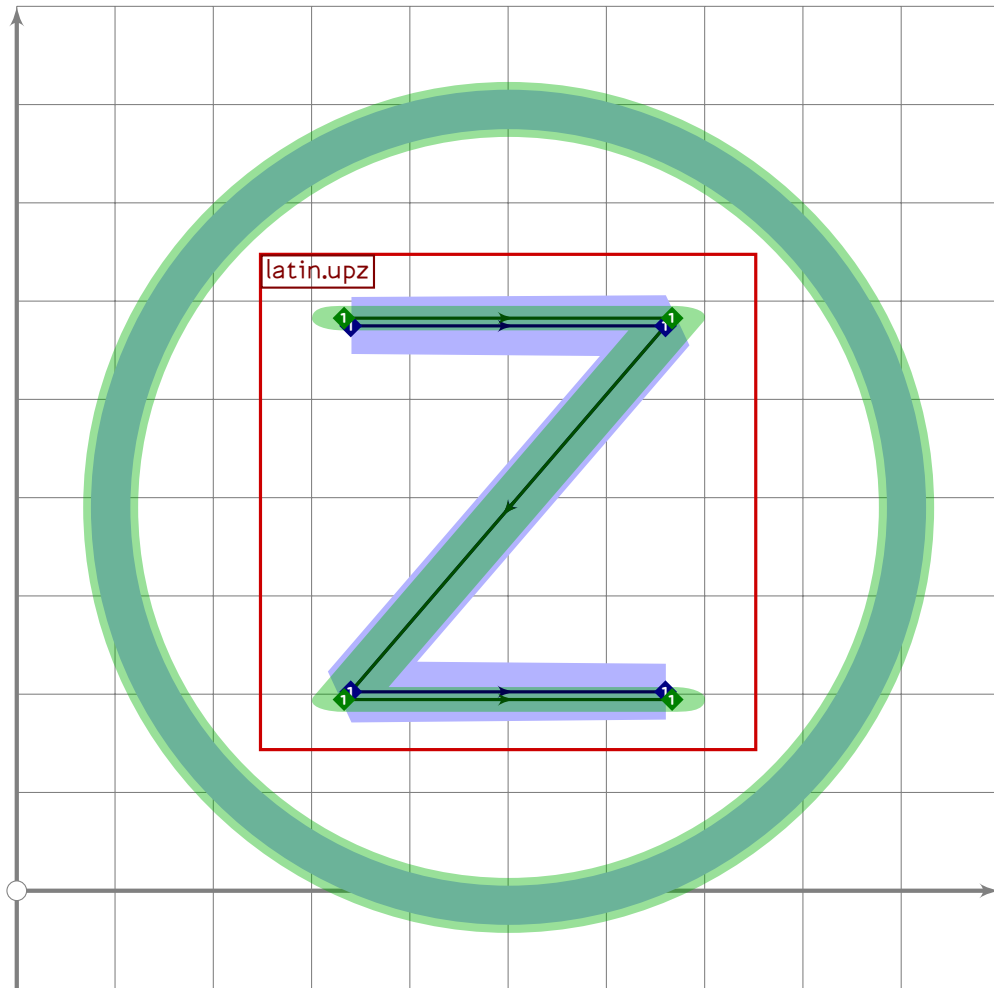
```



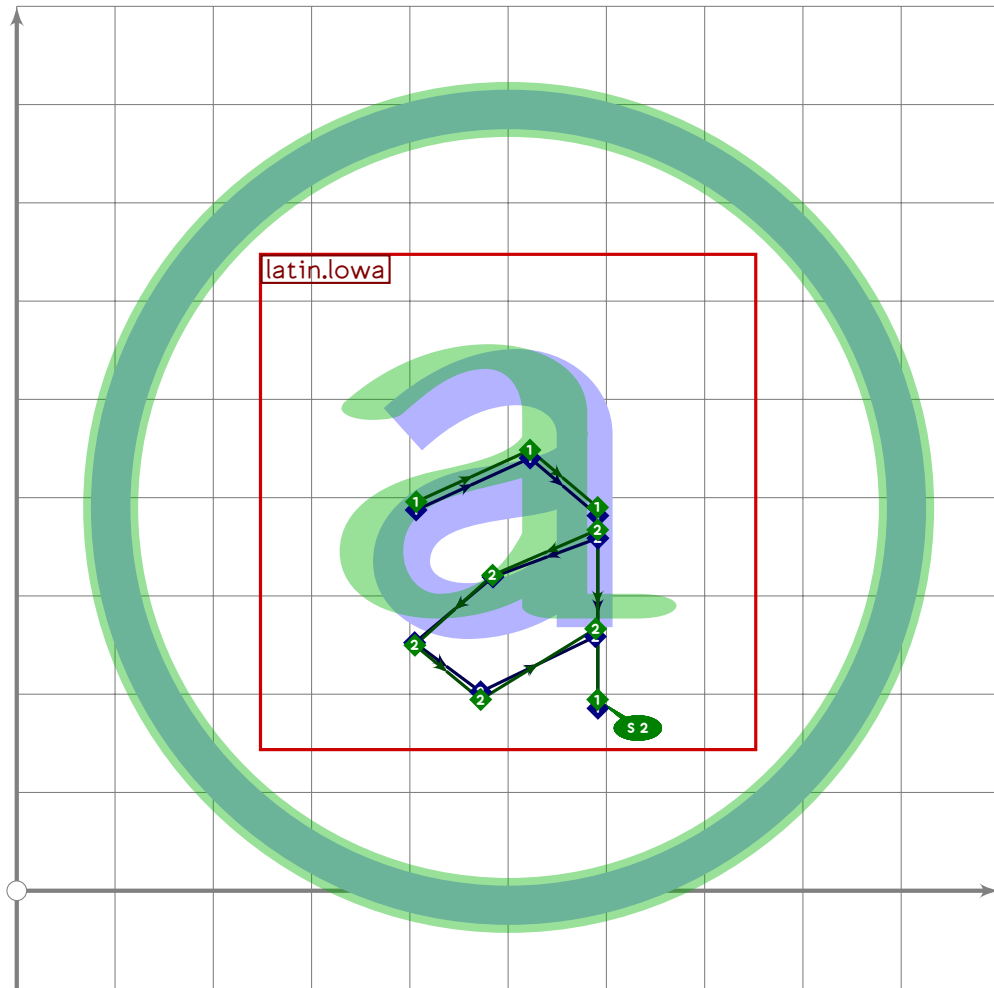
```

380 % Y
381 begint Suglyph("uni24CE",206);
382 circle.single;
383 tsu_xform(tsu_xf.letter)(latin.upy);
384 tsu_render;
385 endsuglyph;
386

```



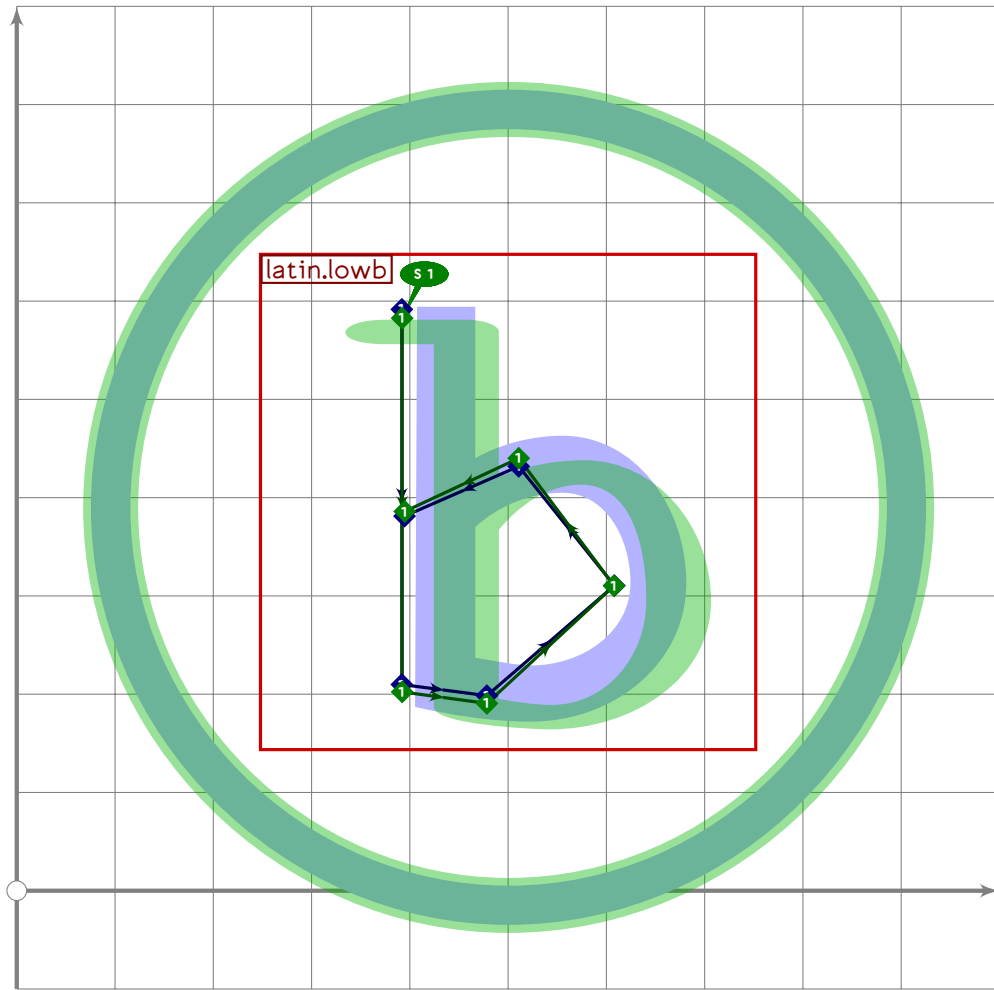
```
387 % Z
388 beginsuglyph("uni24CF";207);
389 circle.single;
390 tsu_xform(tsu_xf.cletter)(latin.upz);
391 tsu_render;
392 endsuglyph;
393
```



```

394 % a
395 begint Suglyph("uni24D0",208);
396 circle.single;
397 tsu_xform(tsu_xf.cletter)(latin.owa);
398 tsu_render_in_circle(tsu_xf.cbound);
399 endsuglyph;
400

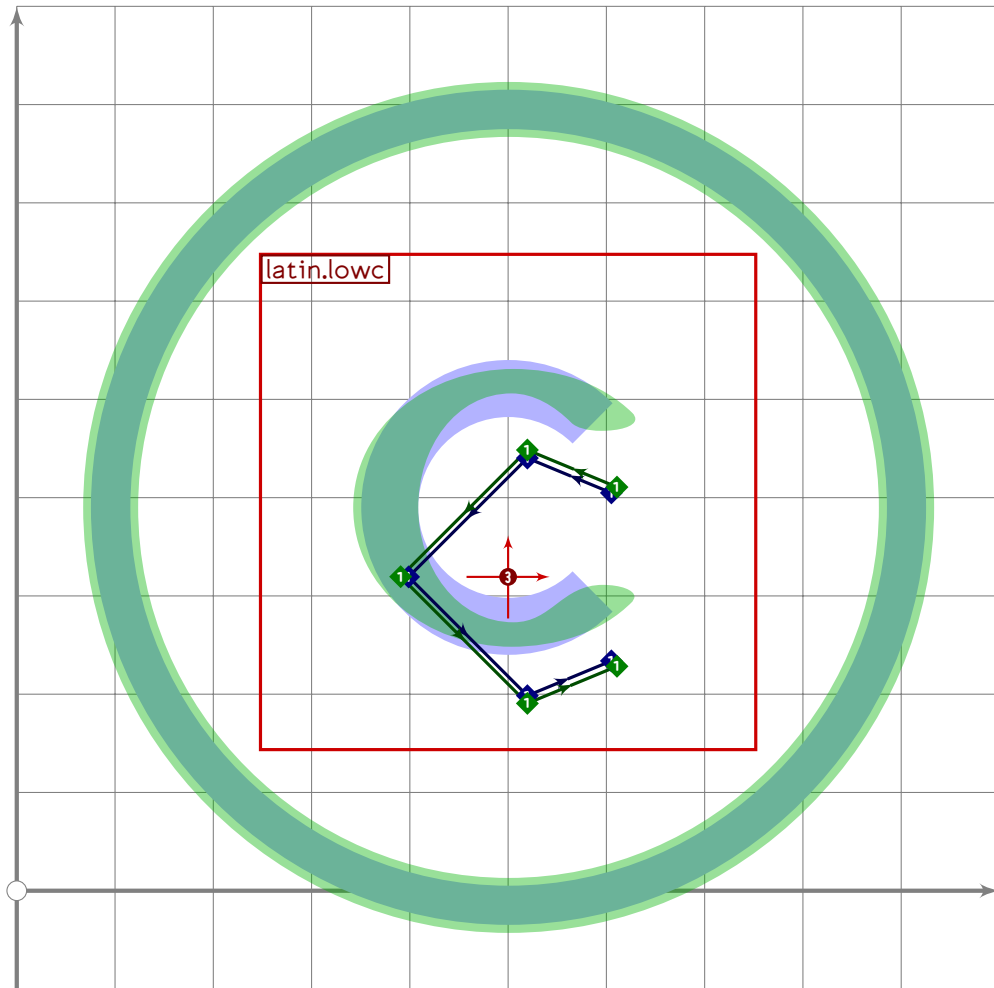
```



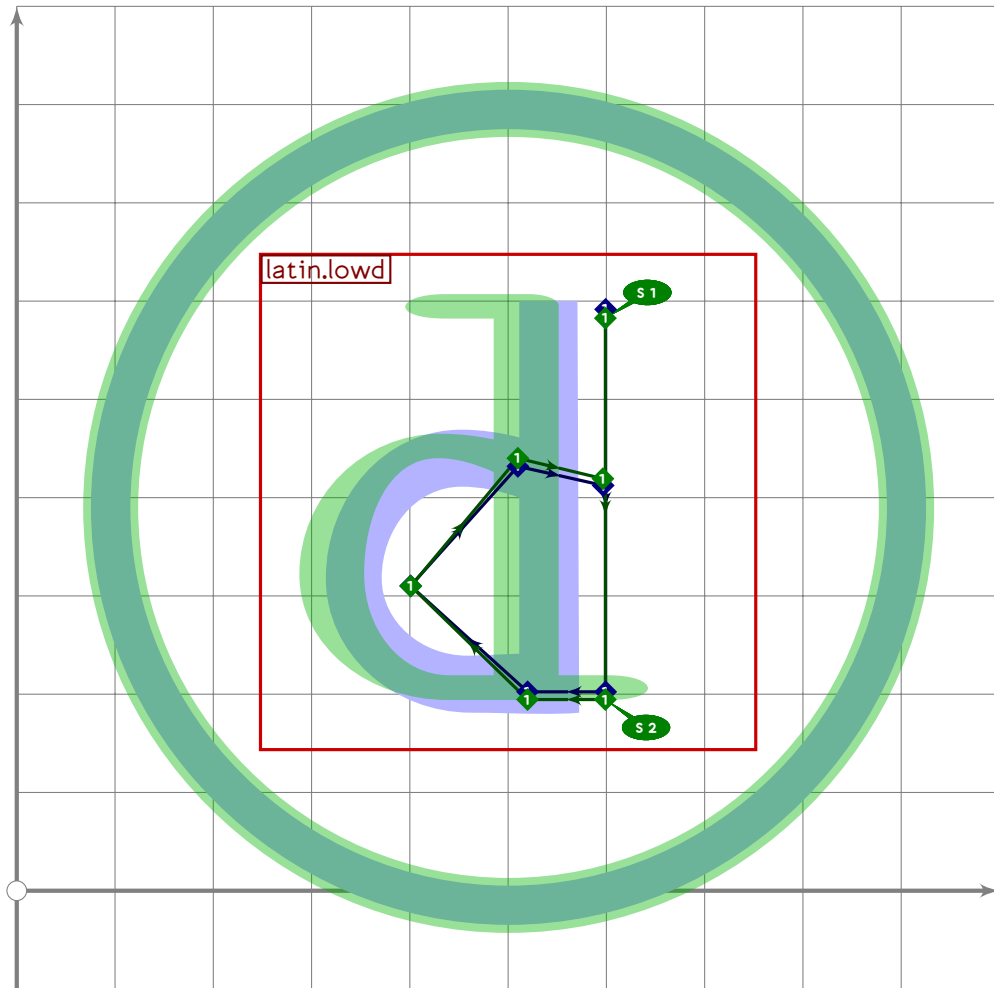
```

401 % b
402 begint Suglyph("uni24D1";209);
403   circle.single;
404   tsu_xform(tsu_xf.cletter)(latin.lowb);
405   tsu_render_in_circle(tsu_xf.cbound);
406 endsuglyph;
407

```



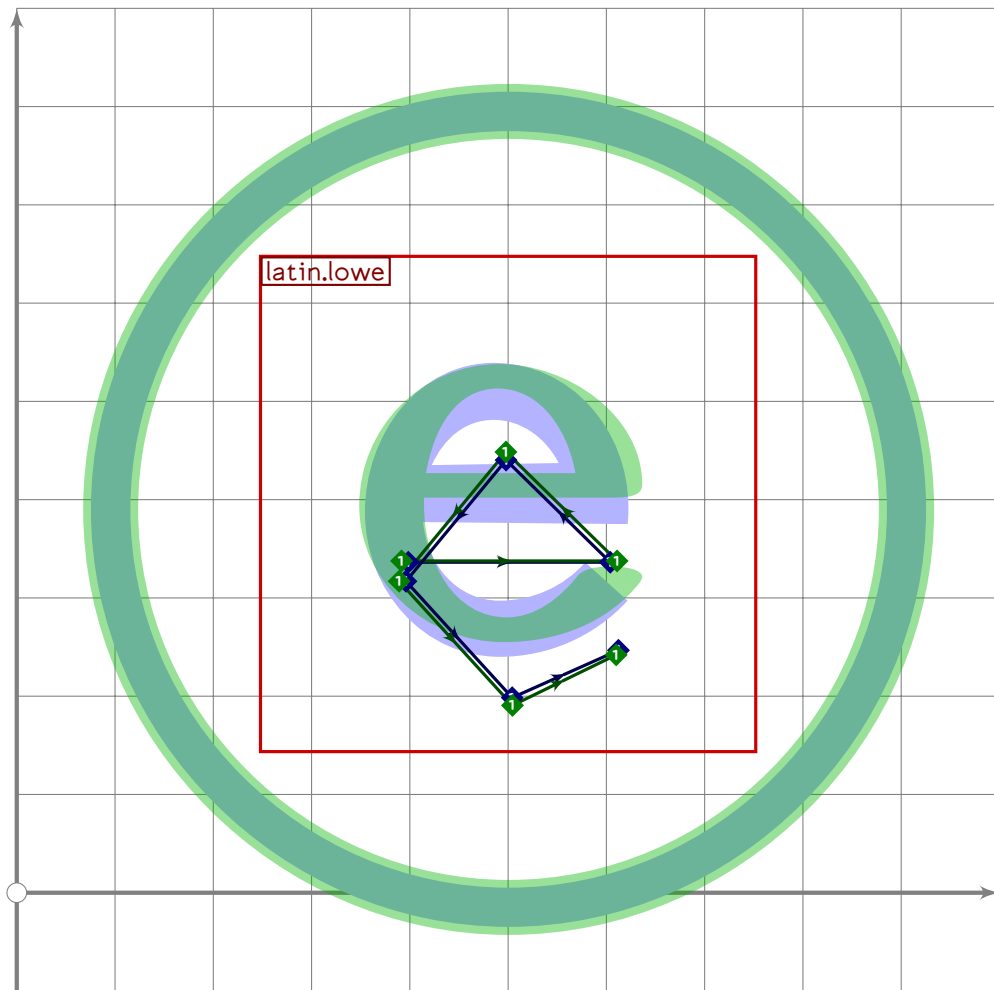
```
408 % c
409 beginsuglyph("uni24D2",210);
410 circle.single;
411 tsu_xform(tsu_xf.cletter)(latin.lowc);
412 tsu_render_in_circle(tsu_xf.cbound);
413 endsuglyph;
414
```



```

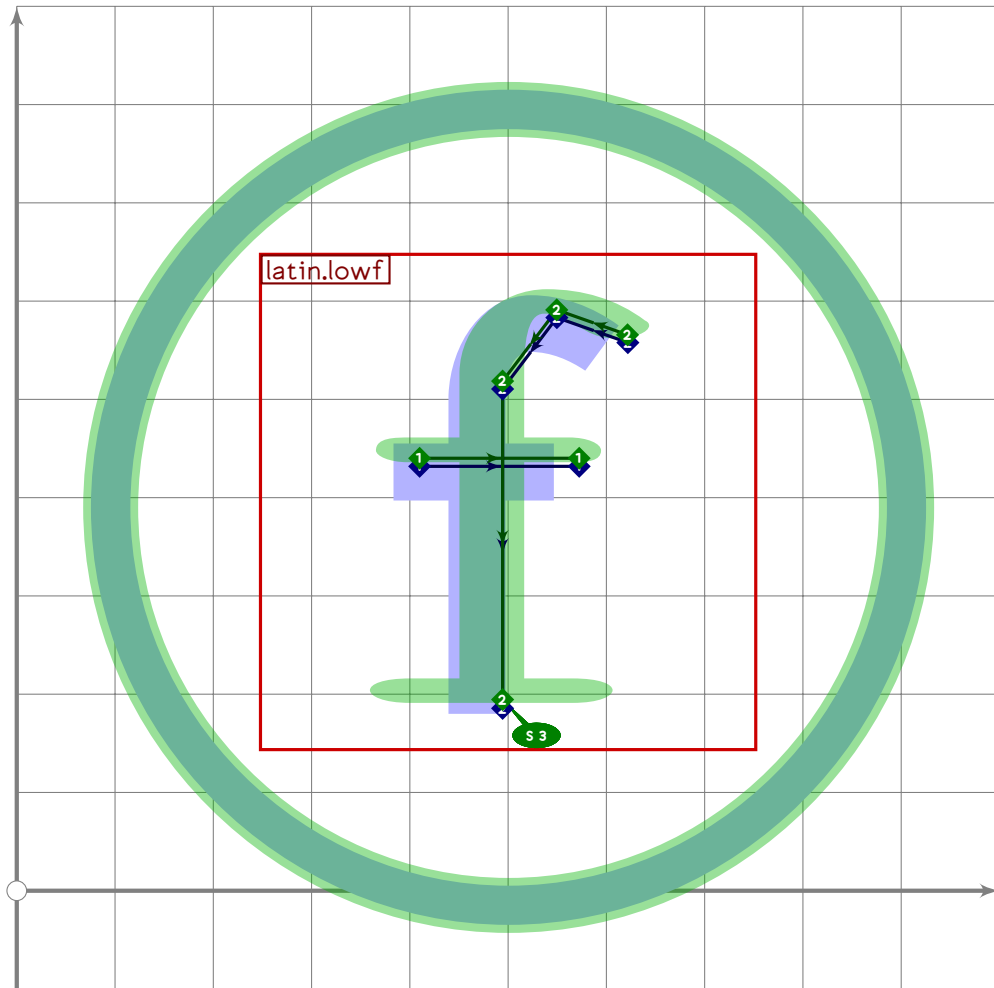
415 % d
416 begint Suglyph("uni24D3",211);
417   circle.single;
418   tsu_xform(tsu_xf.cletter)(latin.lowd);
419   tsu_render_in_circle(tsu_xf.cbound);
420 endsuglyph;
421

```



```
422 % e
423 begint Suglyph("uni24D4",212);
424 circle.single;
425 tsu_xform(tsu_xf.cletter)(latin.love);
426 tsu_render_in_circle(tsu_xf.cbound);
427 endsuglyph;
428
```

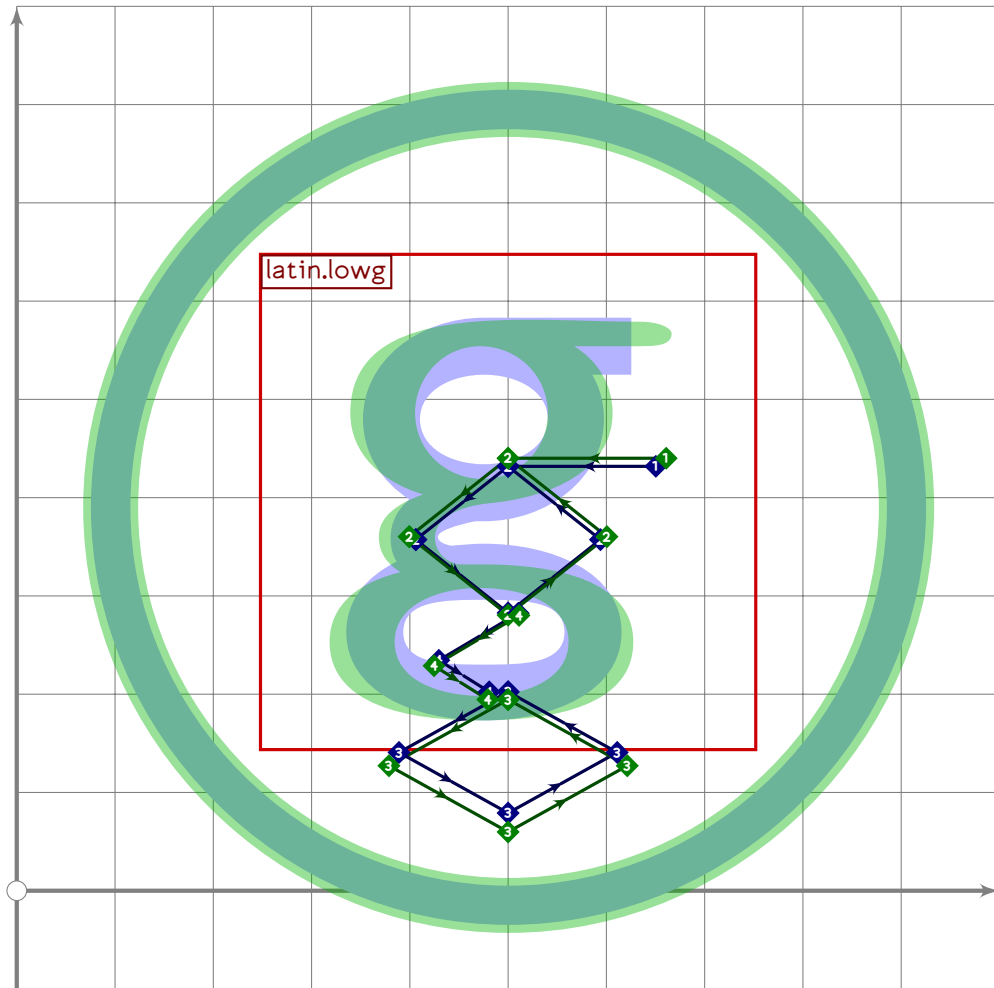




```

429 % f
430 begint Suglyph("uni24D5",213);
431   circle.single;
432   tsu_xform(tsu_xf.cletter)(latin.lowf);
433   tsu_render_in_circle(tsu_xf.cbound);
434 endsuglyph;
435

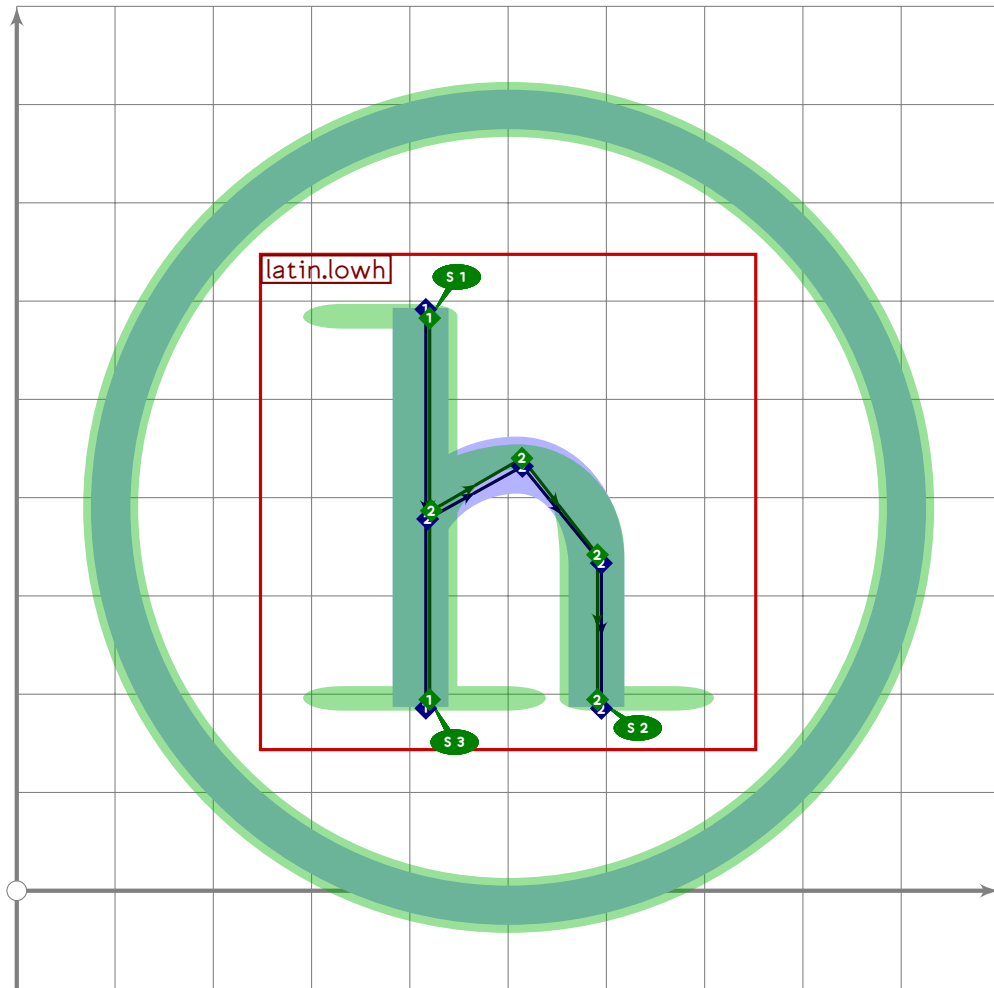
```



```

436 % g
437 begint Suglyph("uni24D6",214);
438   circle.single;
439   tsu_xform(tsu_xf.cletter)(latin.lowg);
440   tsu_render_in_circle(tsu_xf.cbound);
441 endsuglyph;
442

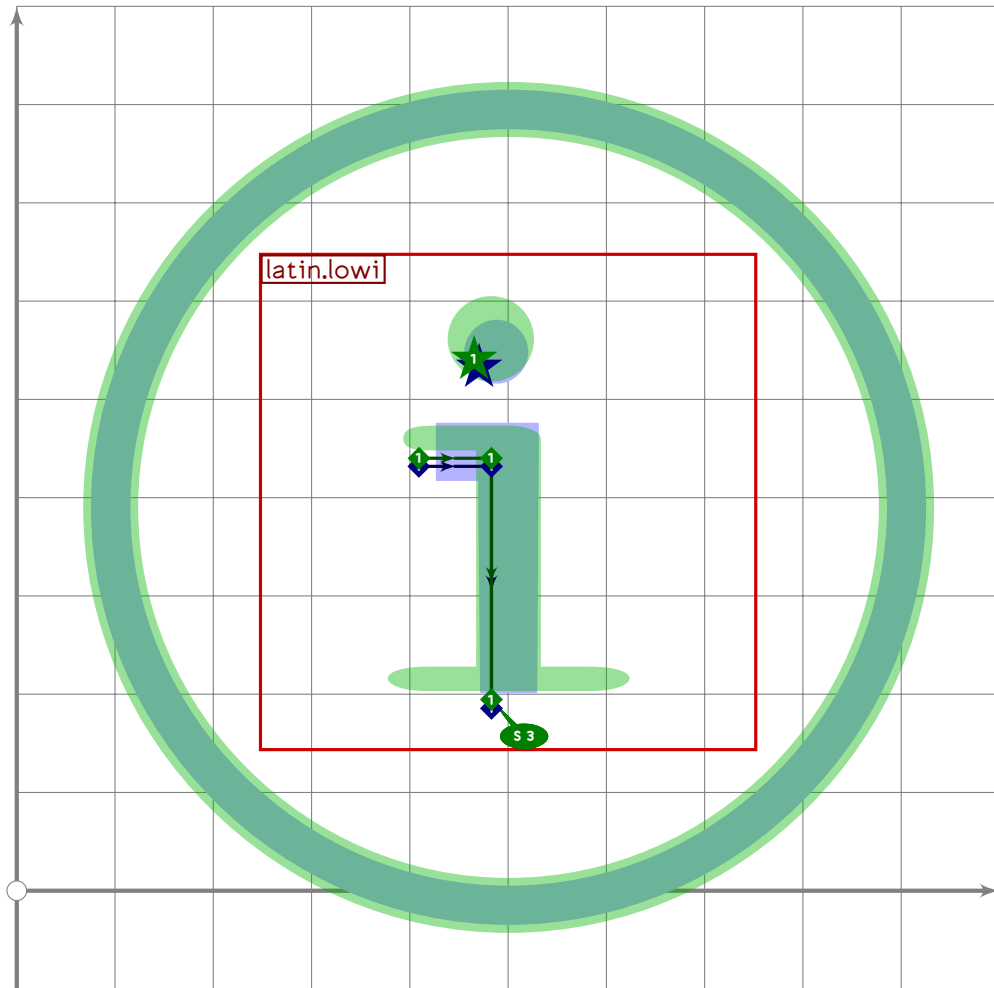
```



```

443 % h
444 begint Suglyph("uni24D7",215);
445   circle.single;
446   tsu_xform(tsu_xf.cletter)(latin.lowh);
447   tsu_render_in_circle(tsu_xf.cbound);
448 endsuglyph;
449

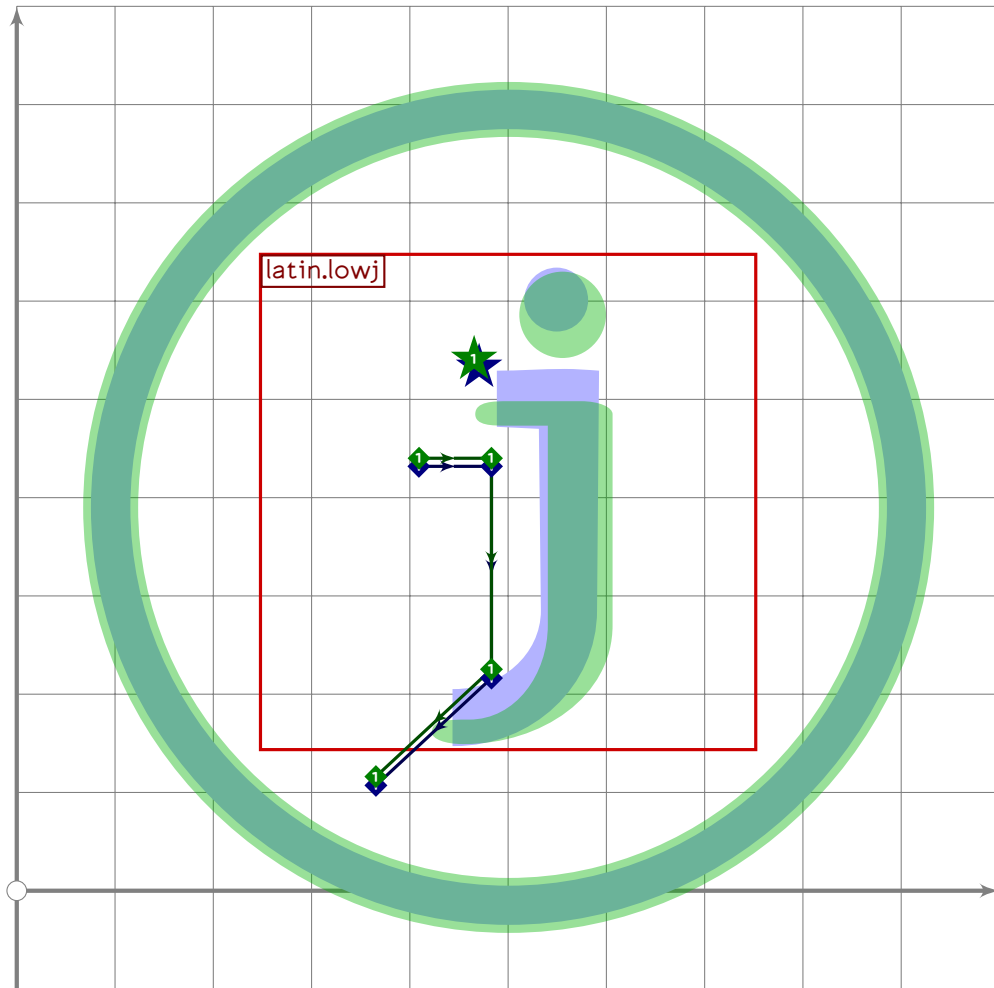
```



```

450 % i
451 beginsuglyph("uni24D8",216);
452   circle.single;
453   tsu_xform(tsu_xf.cletter)(latin.owi);
454   tsu_render_in_circle(tsu_xf.cbound);
455 endsuglyph;
456

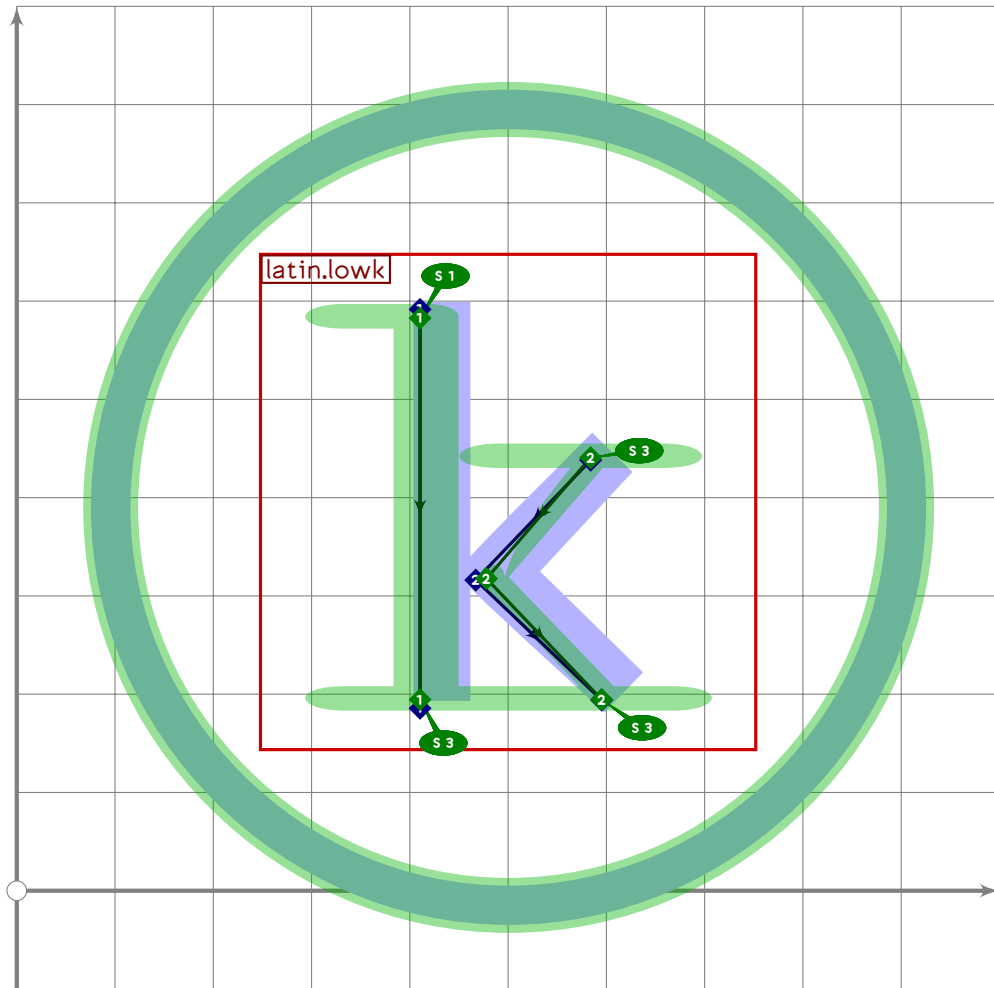
```



```

457 % j
458 begint Suglyph("uni24D9",217);
459 circle.single;
460 tsu_xform(tsu_xf.cletter)(latin.lowj);
461 tsu_render_in_circle(tsu_xf.cbound);
462 endsuglyph;
463

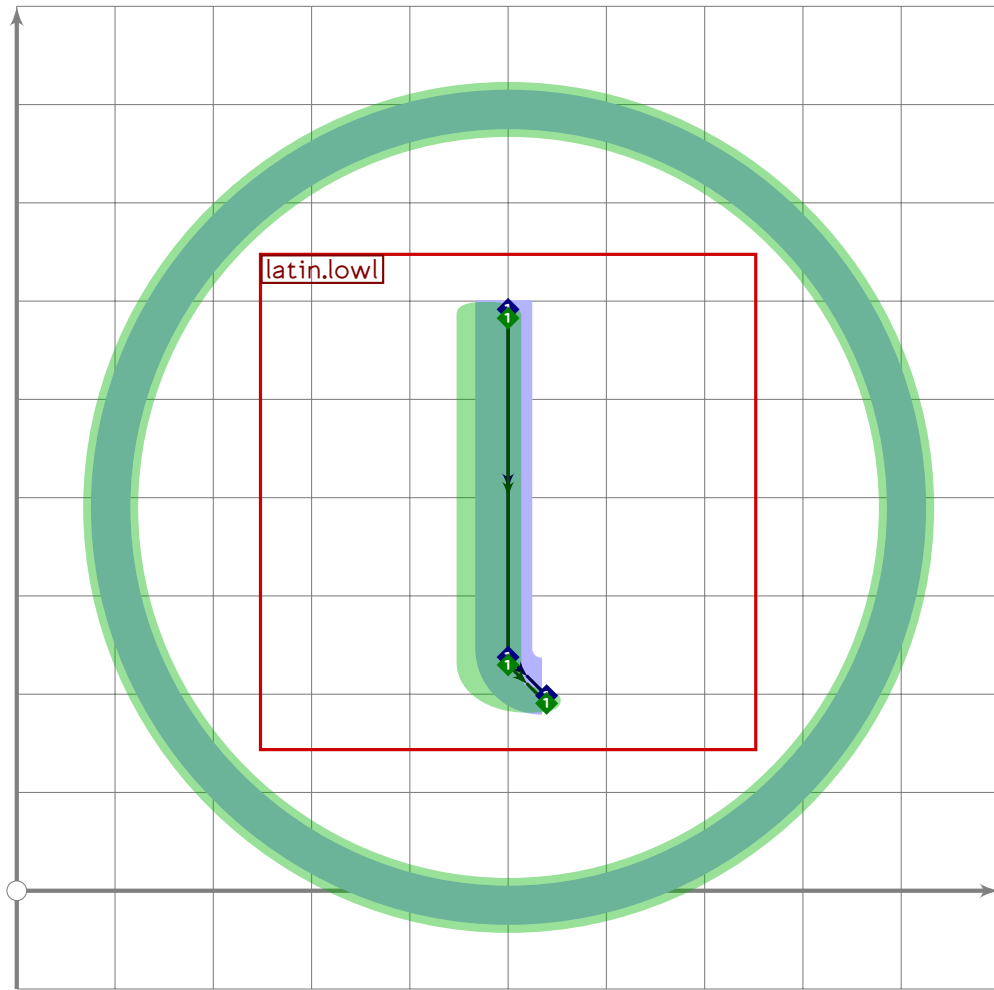
```



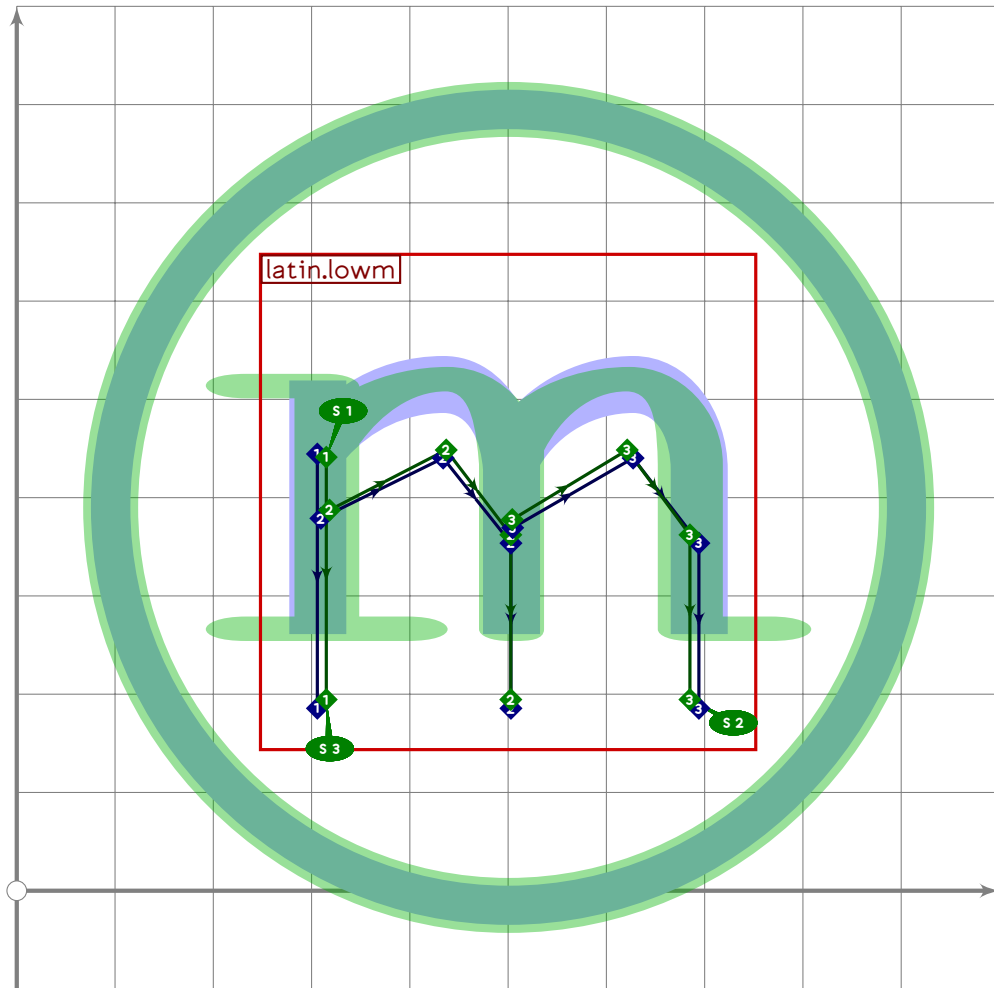
```

464 % k
465 begint Suglyph("uni24DA",218);
466   circle.single;
467   tsu_xform(tsu_xf.cletter)(latin.lowk);
468   tsu_render_in_circle(tsu_xf.cbound);
469 endsuglyph;
470

```



```
471 % l
472 beginsuglyph("uni24DB",219);
473 circle.single;
474 tsu_xform(tsu_xf.cletter)(latin.lowl);
475 tsu_render_in_circle(tsu_xf.cbound);
476 endsuglyph;
477
```

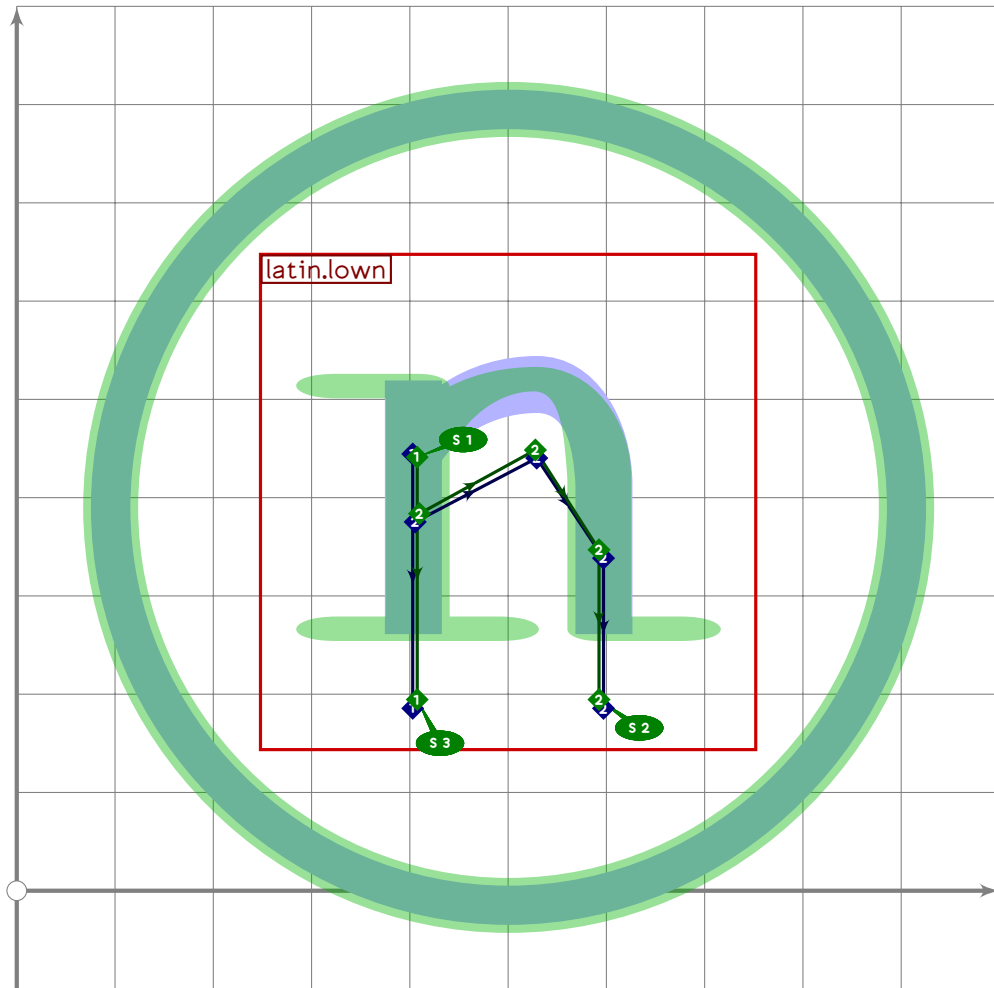


```

478 % m
479 begint Suglyph("uni24DC",220);
480   circle.single;
481   tsu_xform(tsu_xf.cletter)(latin.lowm);
482   tsu_render_in_circle(tsu_xf.cbound);
483 endsuglyph;
484

```

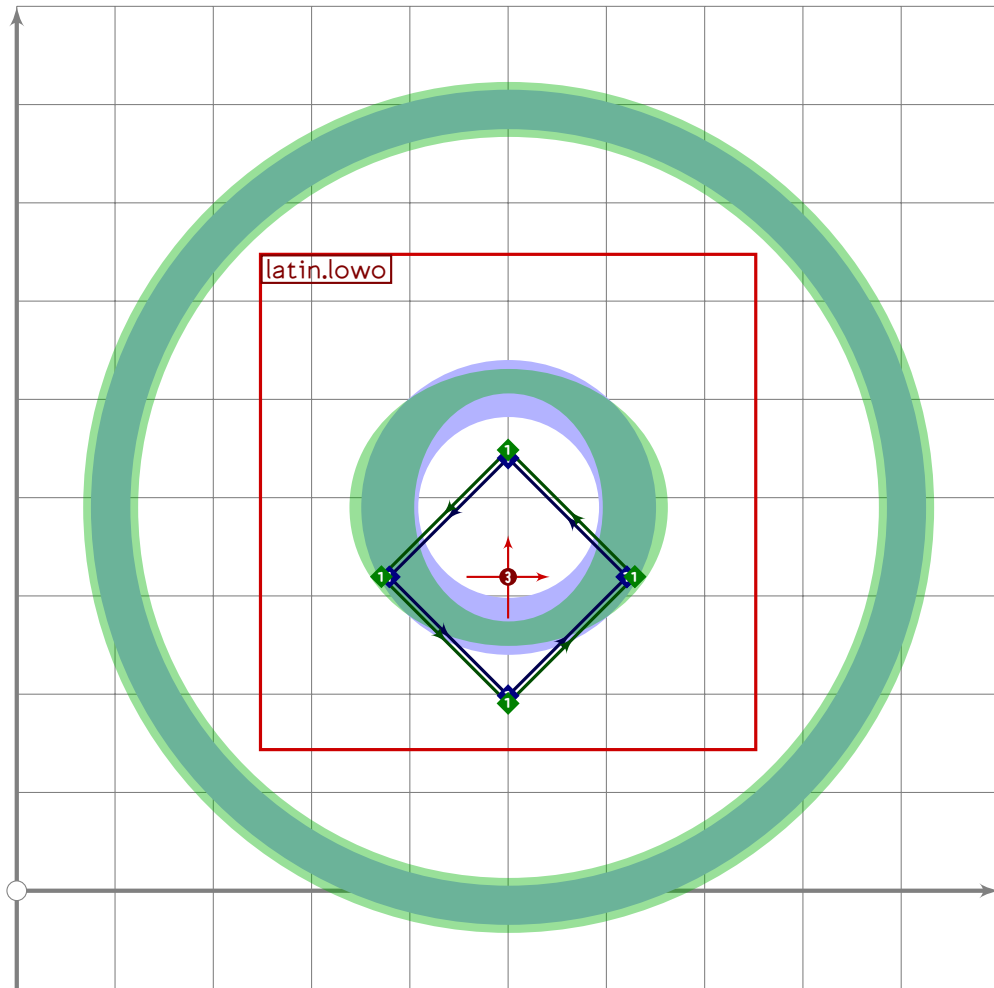




```

485 % n
486 begint Suglyph("uni24DD",221);
487 circle.single;
488 tsu_xform(tsu_xf.cletter)(latin.lown);
489 tsu_render_in_circle(tsu_xf.cbound);
490 endsuglyph;
491

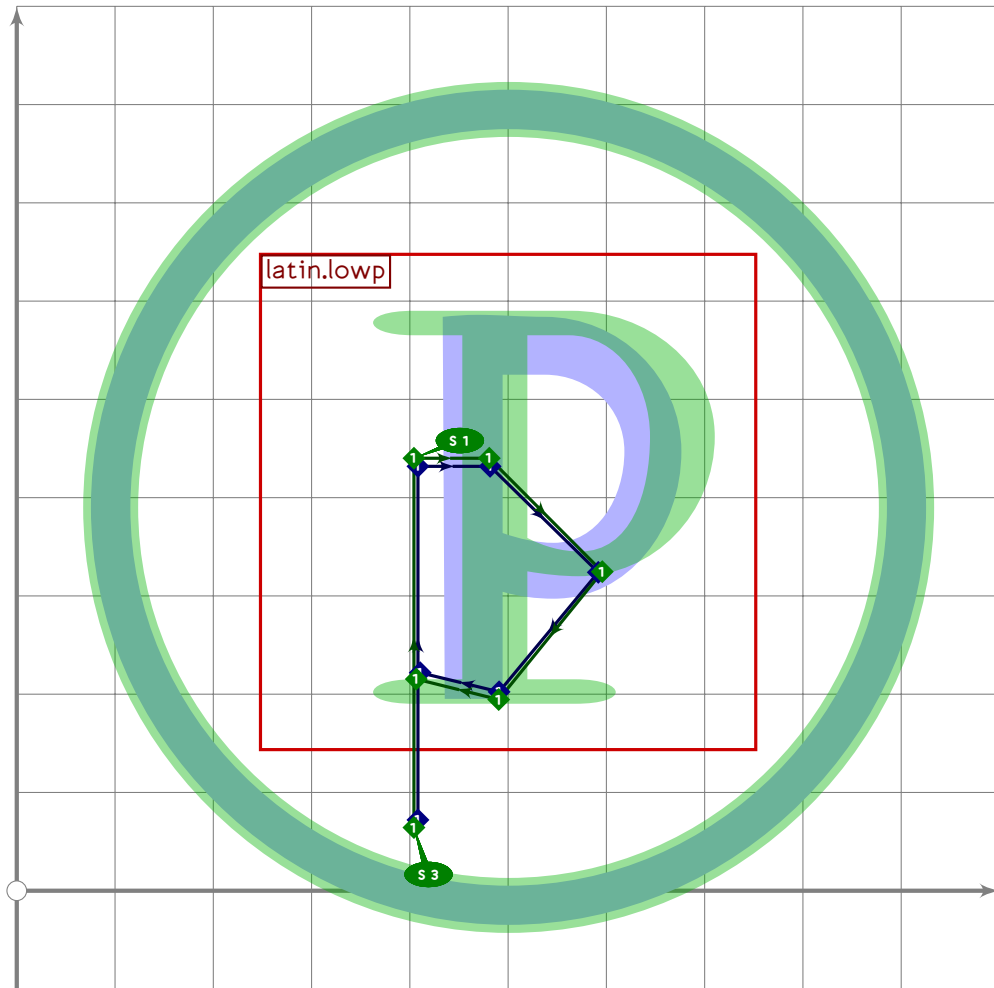
```



```

492 % o
493 beginsuglyph("uni24DE",222);
494   circle.single;
495   tsu_xform(tsu_xf.cletter)(latin.lowo);
496   tsu_render_in_circle(tsu_xf.cbound);
497 endsuglyph;
498

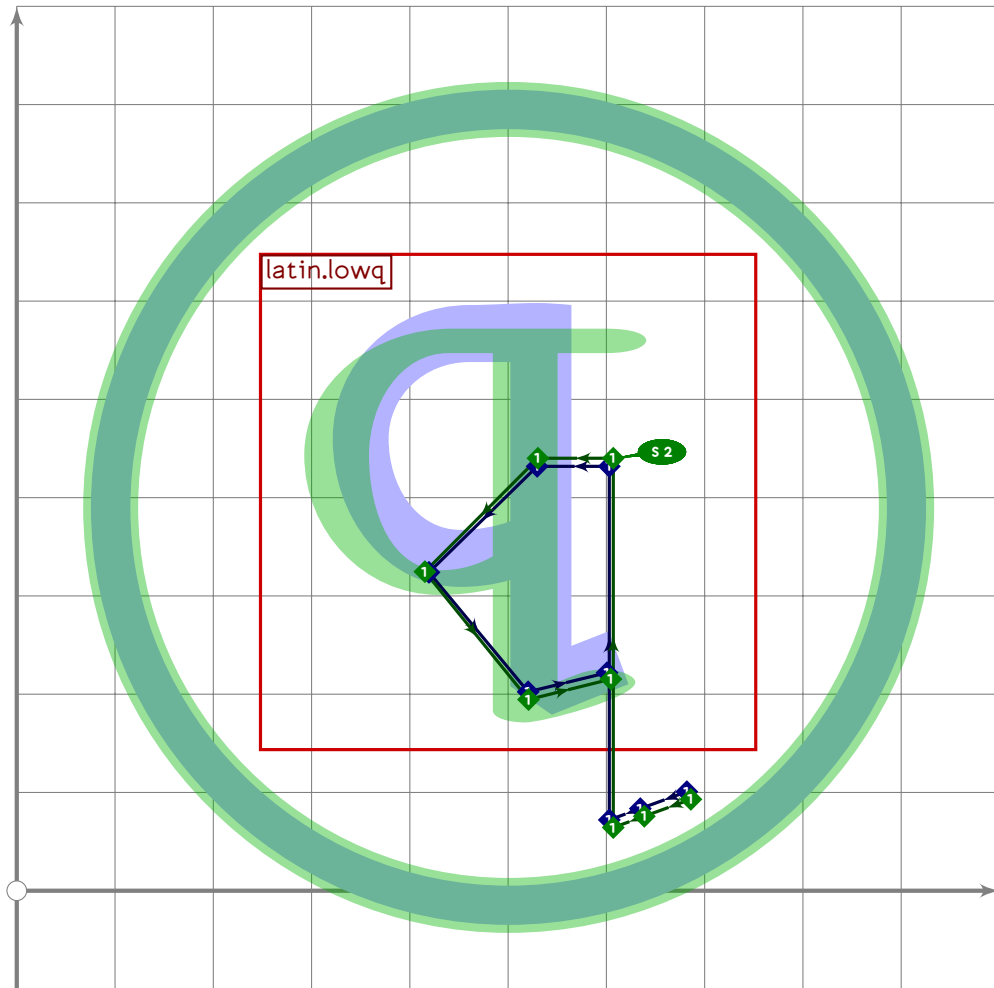
```



```

499 % p
500 begintsuglyph("uni24DF",223);
501 circle.single;
502 tsu_xform(tsu_xf.cletter)(latin.lowp);
503 tsu_render_in_circle(tsu_xf.cbound);
504 endsuglyph;
505

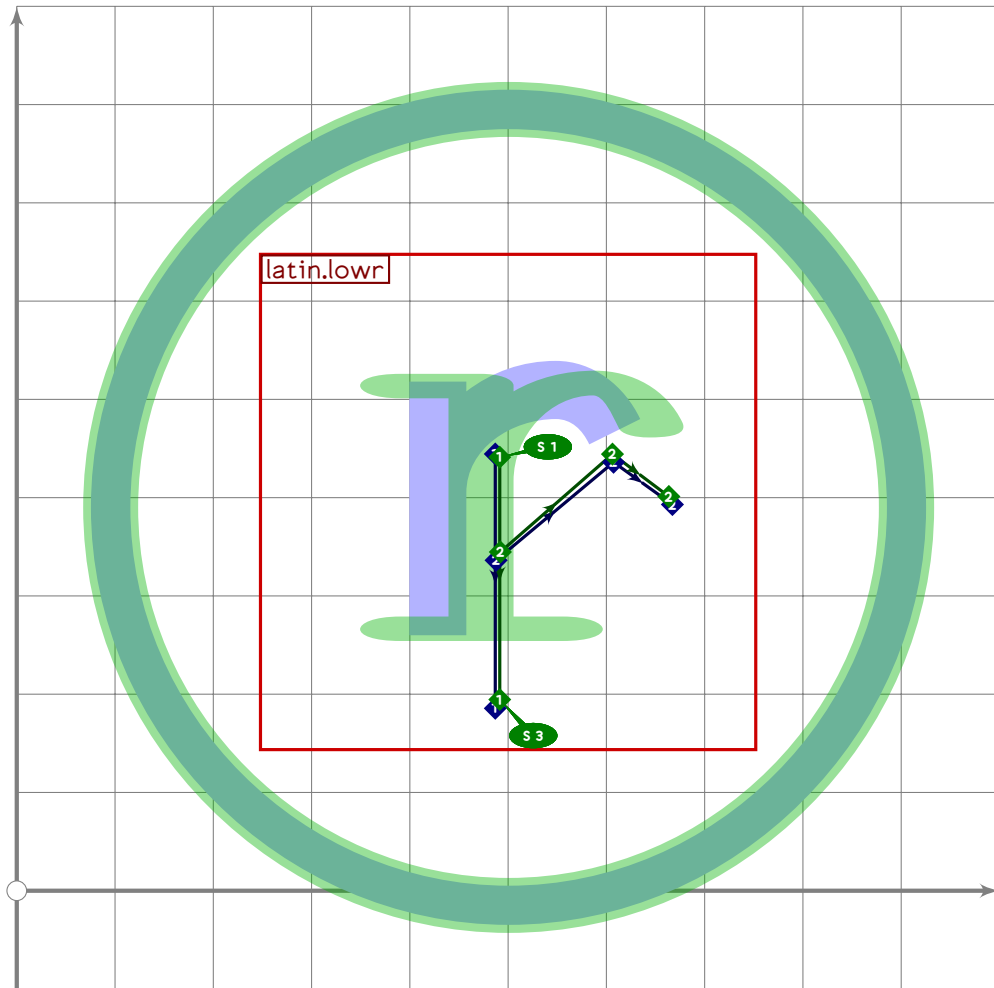
```



```

506 % q
507 begint Suglyph("uni24E0",224);
508   circle.single;
509   tsu_xform(tsu_xf.cletter)(latin.lowq);
510   tsu_render_in_circle(tsu_xf.cbound);
511 endsuglyph;
512

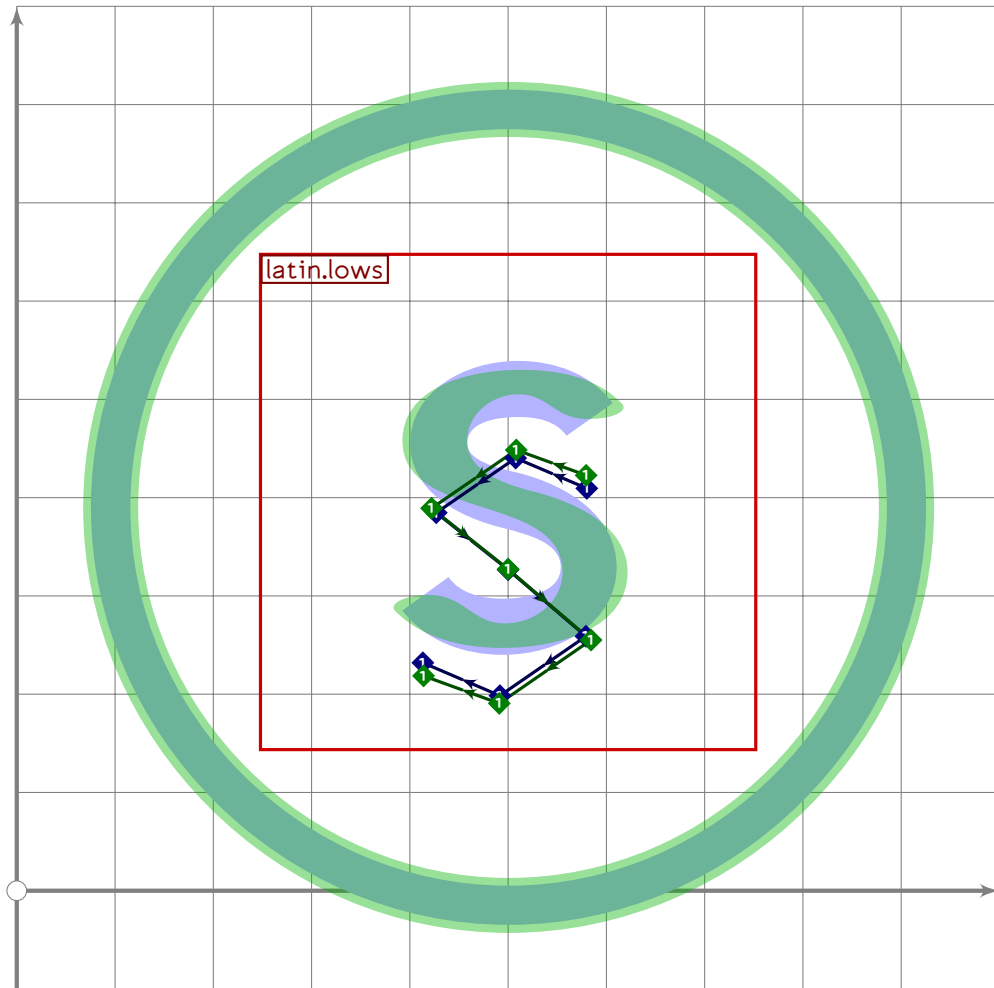
```



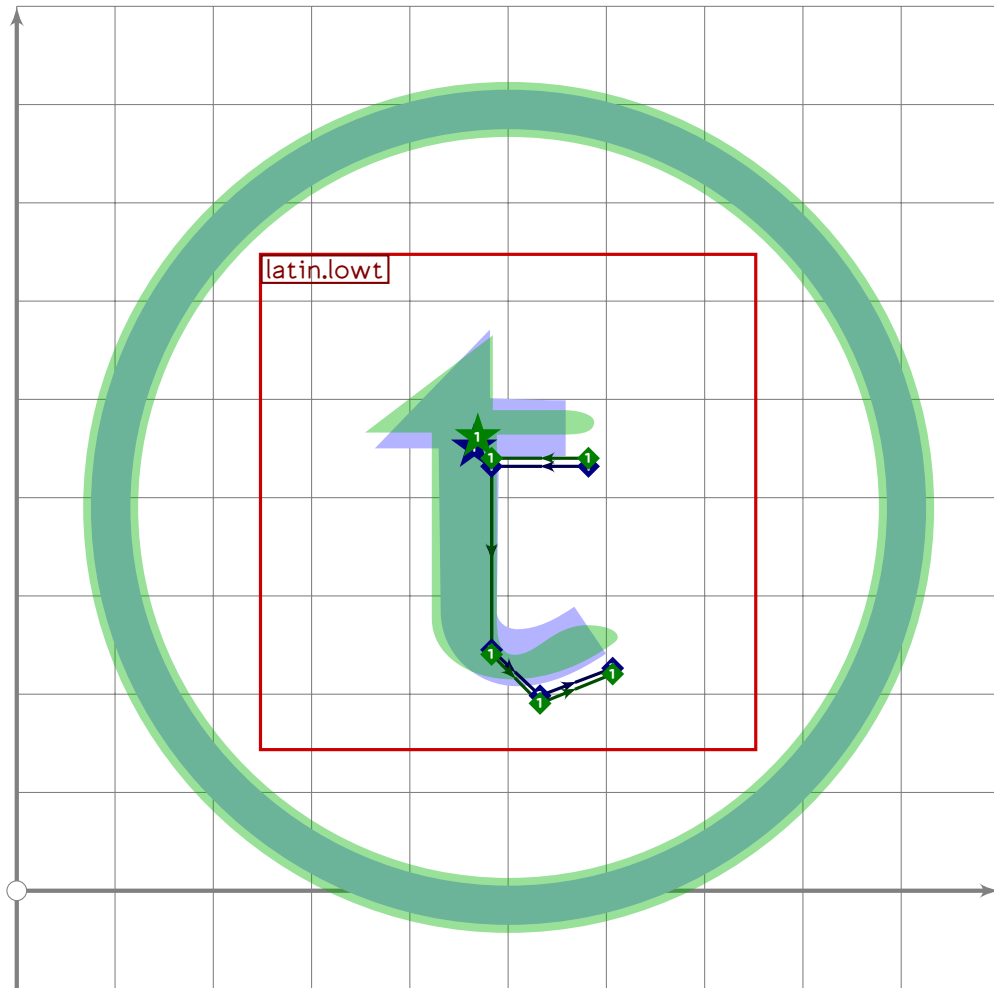
```

513 % r
514 begint Suglyph("uni24E1";225);
515   circle.single;
516   tsu_xform(tsu_xf.cletter)(latin.lowr);
517   tsu_render_in_circle(tsu_xf.cbound);
518 endsuglyph;
519

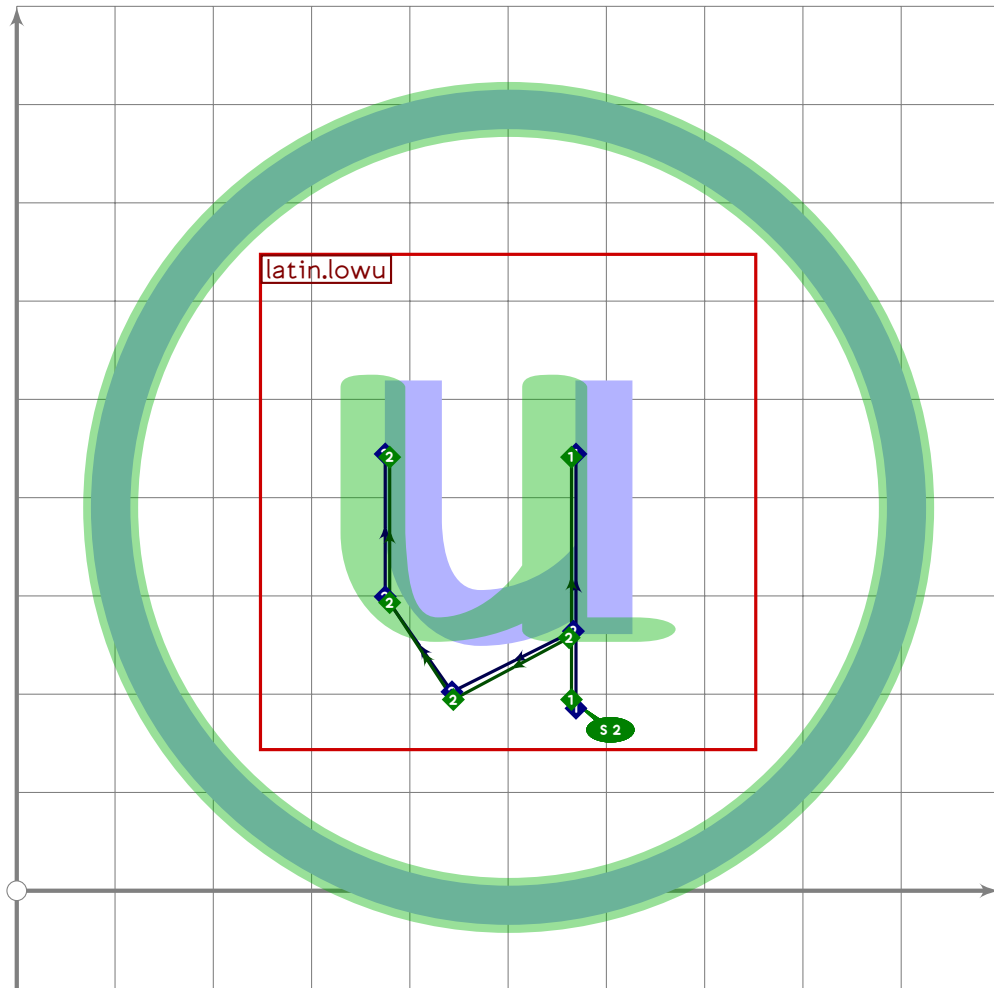
```



```
520 % s
521 begint Suglyph("uni24E2";226);
522 circle.single;
523 tsu_xform(tsu_xf.cletter)(latin.lows);
524 tsu_render_in_circle(tsu_xf.cbound);
525 endsuglyph;
526
```



```
527 % t
528 beginsuglyph("uni24E3",227);
529 circle.single;
530 tsu_xform(tsu_xf.cletter)(latin.lowt);
531 tsu_render_in_circle(tsu_xf.cbound);
532 endsuglyph;
533
```

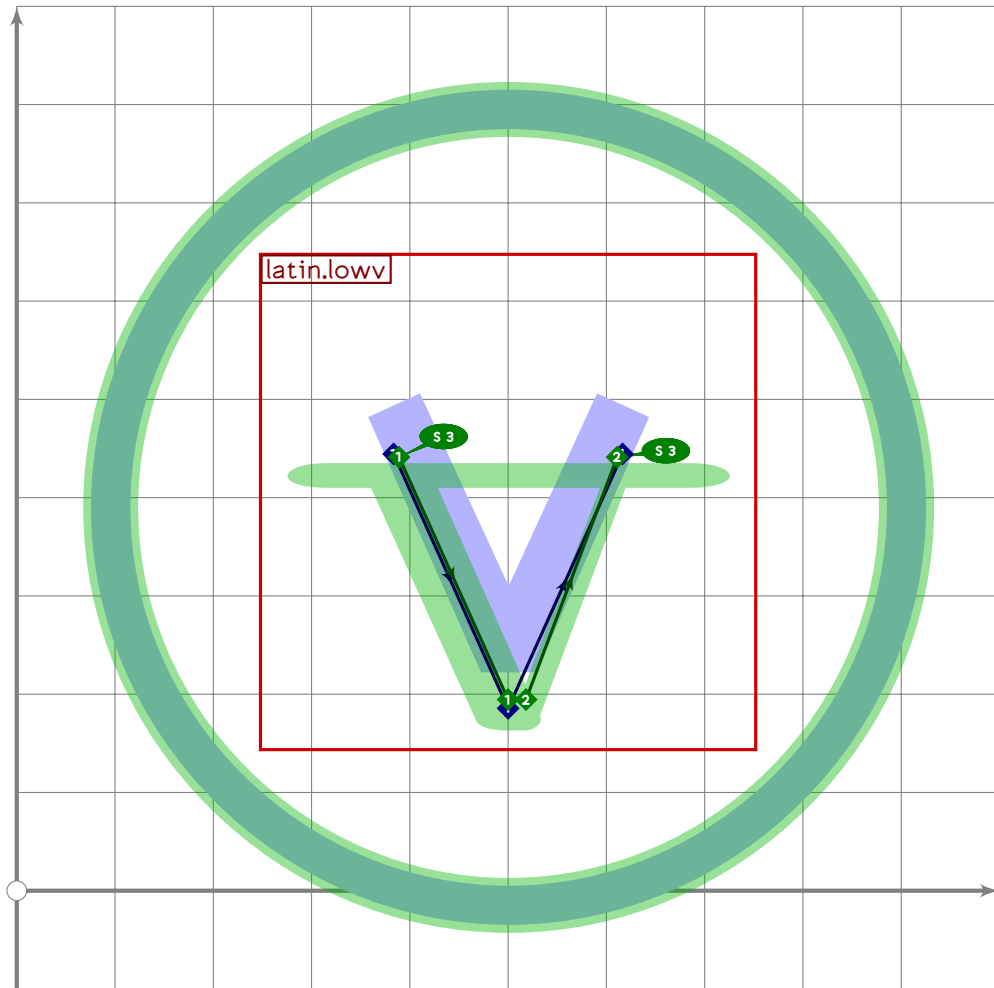


```

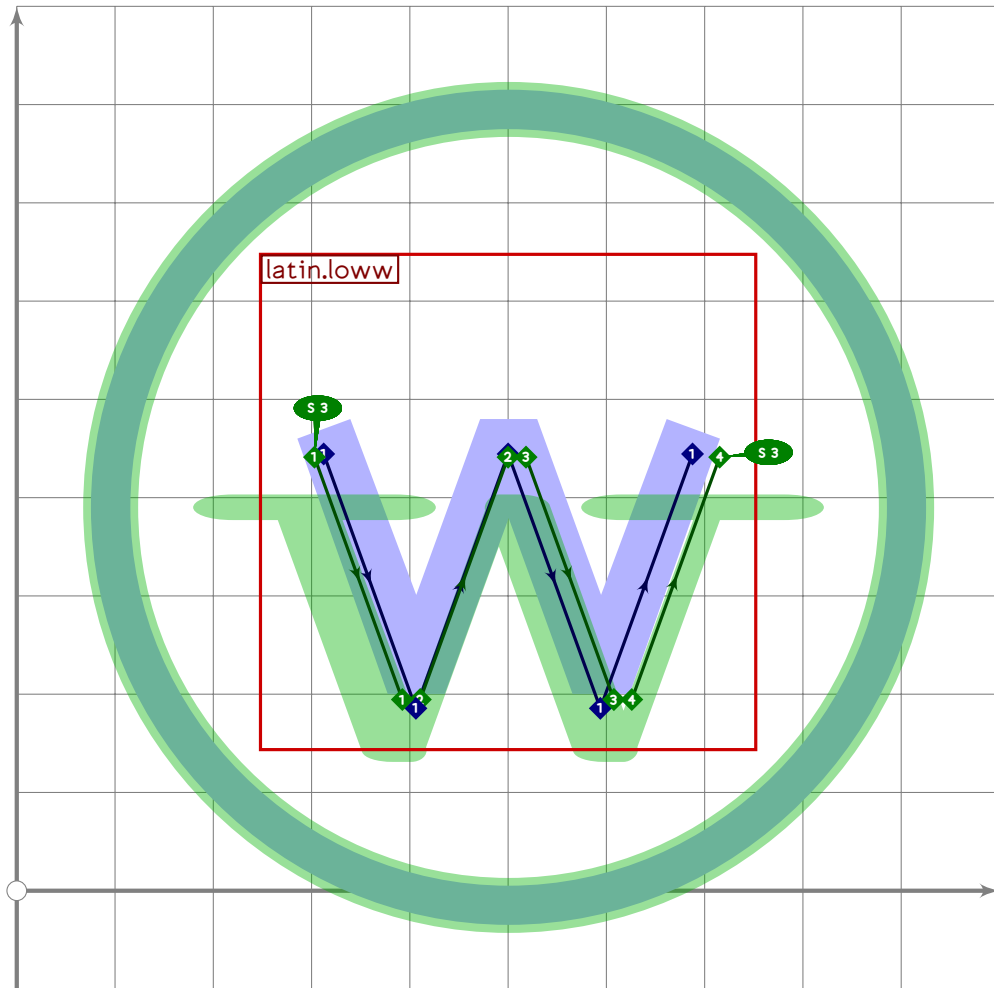
534 % u
535 begint Suglyph("uni24E4",228);
536 circle.single;
537 tsu_xform(tsu_xf.cletter)(latin.lowu);
538 tsu_render_in_circle(tsu_xf.cbound);
539 endsuglyph;
540

```





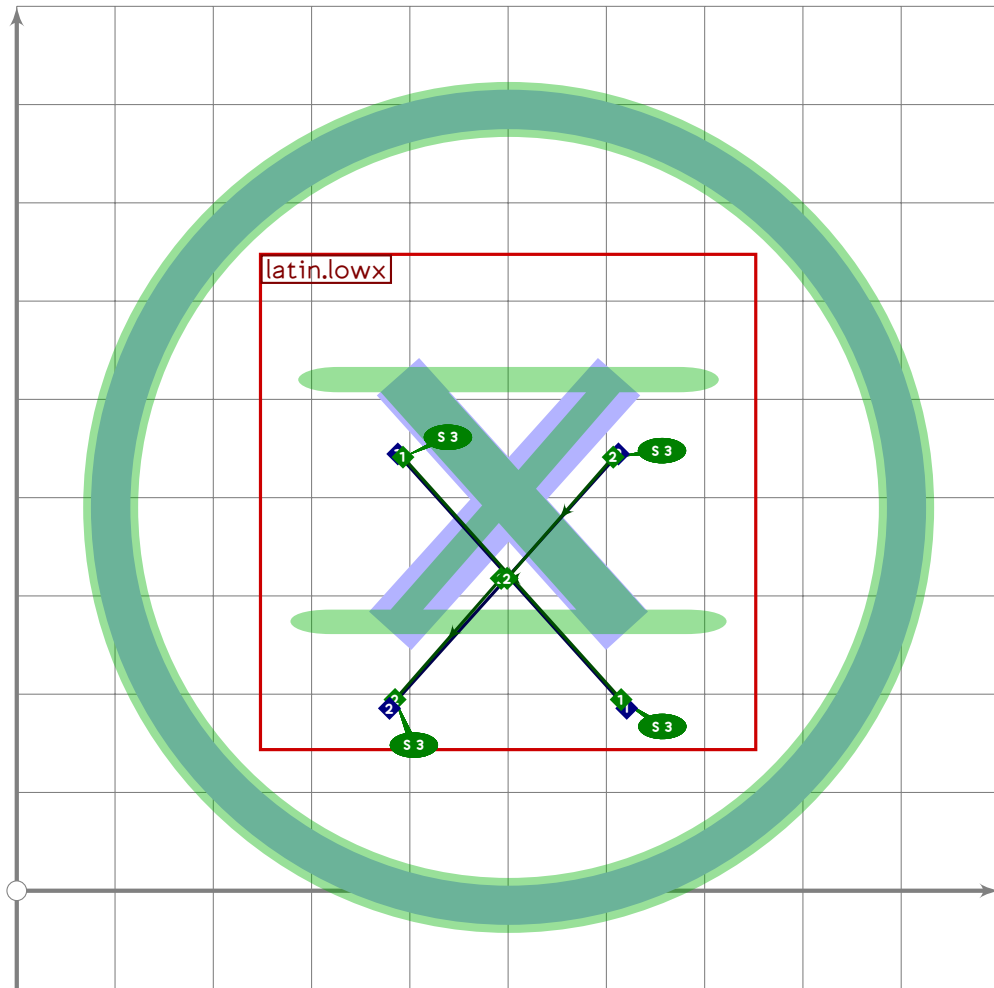
```
541 % v
542 begintuglyph("uni24E5";229);
543   circle.single;
544   tsu_xform(tsu_xf.cletter)(latin.lowv);
545   tsu_render_in_circle(tsu_xf.cbound);
546 endtuglyph;
547
```



```

548 % w
549 begintsuglyph("uni24E6";230);
550 circle.single;
551 tsu_xform(tsu_xf.cletter)(latin.loww);
552 tsu_render_in_circle(tsu_xf.cbound);
553 endsuglyph;
554

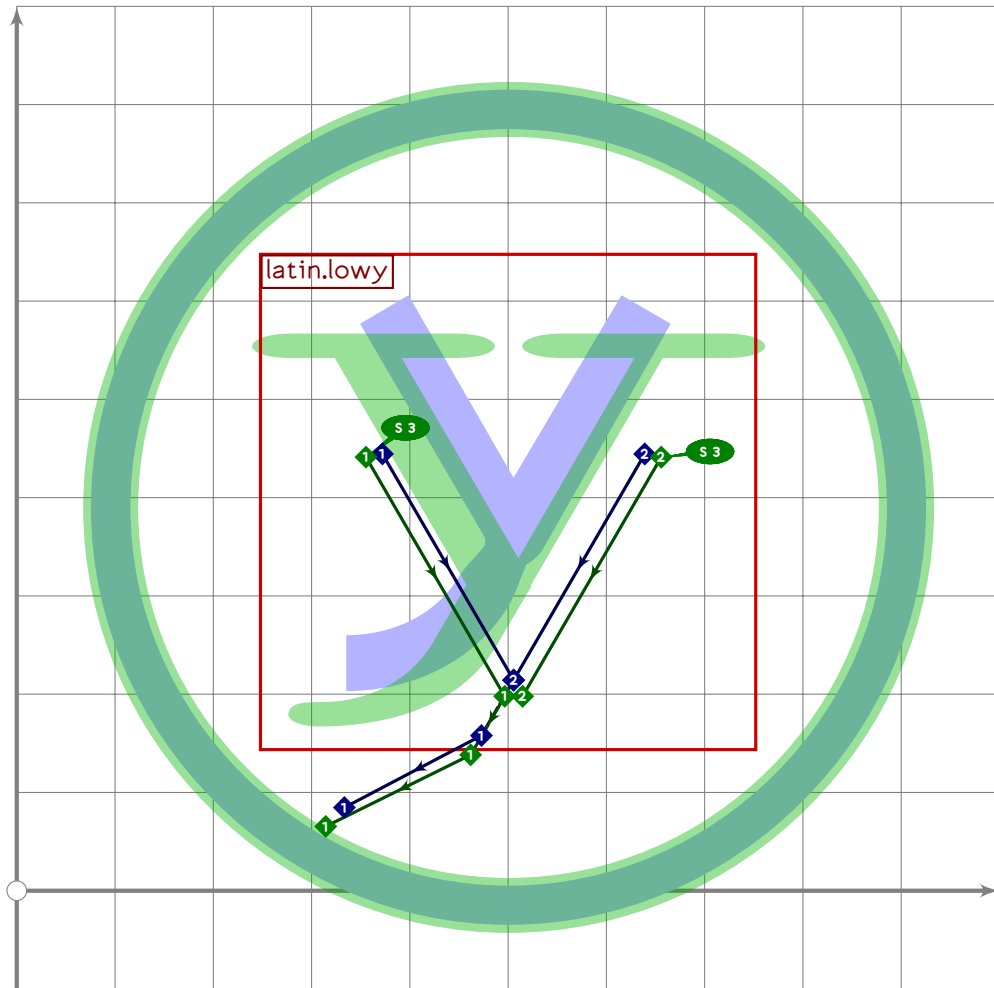
```



```

555 % x
556 begint Suglyph("uni24E7";231);
557   circle.single;
558   tsu_xform(tsu_xf.cletter)(latin.lowx);
559   tsu_render_in_circle(tsu_xf.cbound);
560 endsuglyph;
561

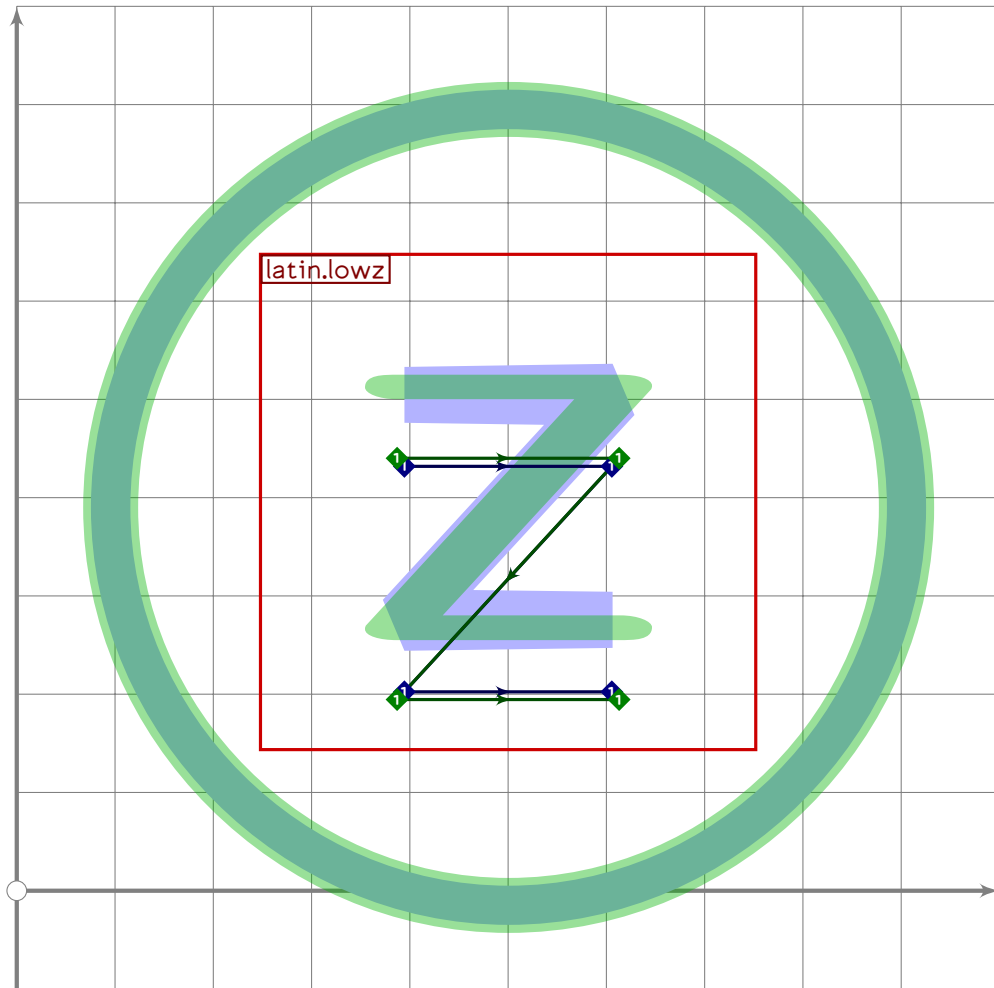
```



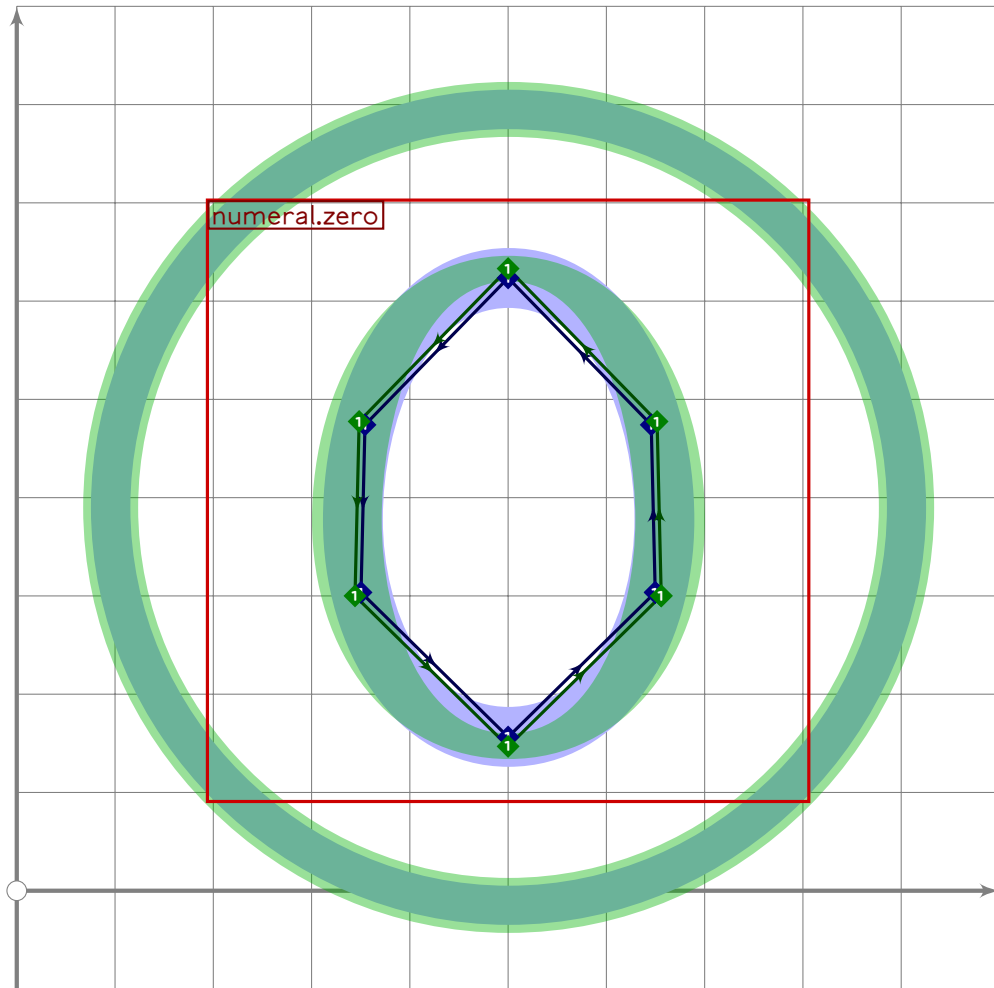
```

562 % y
563 begint Suglyph("uni24E8";232);
564   circle.single;
565   tsu_xform(tsu_xf.cletter)(latin.lowy);
566   tsu_render_in_circle(tsu_xf.cbound);
567 endsuglyph;
568

```



```
569 % z
570 beginsuglyph("uni24E9",233);
571 circle.single;
572 tsu_xform(tsu_xf.cletter)(latin.lowz);
573 tsu_render_in_circle(tsu_xf.cbound);
574 endsuglyph;
575
```



```

576 % 0
577 begint Suglyph("uni24EA";234);
578   circle.single;
579   tsu_xform(tsu_xf.circled)(numeral.zero);
580   tsu_render;
581 endtsuglyph;
582
583
584

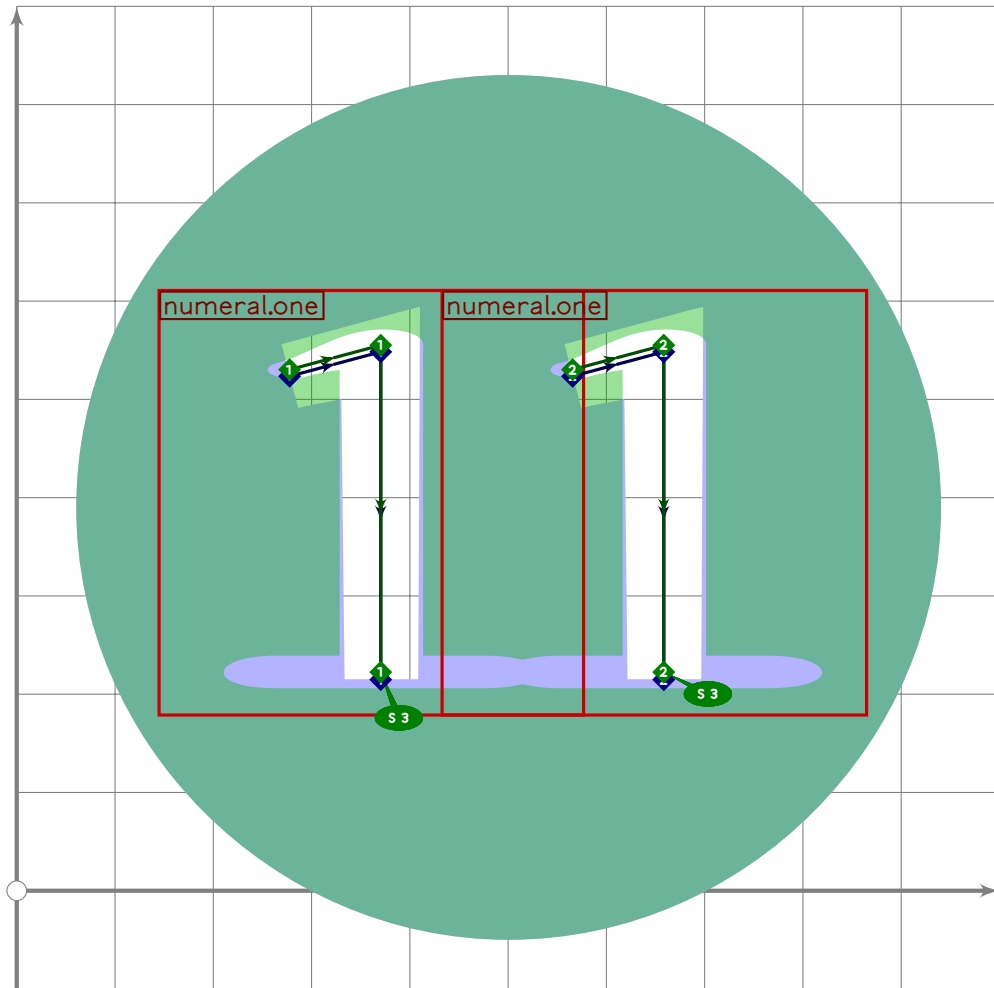
```

## Inverted Circled Numerals

```

585 % INVERTED CIRCLED NUMERALS
586

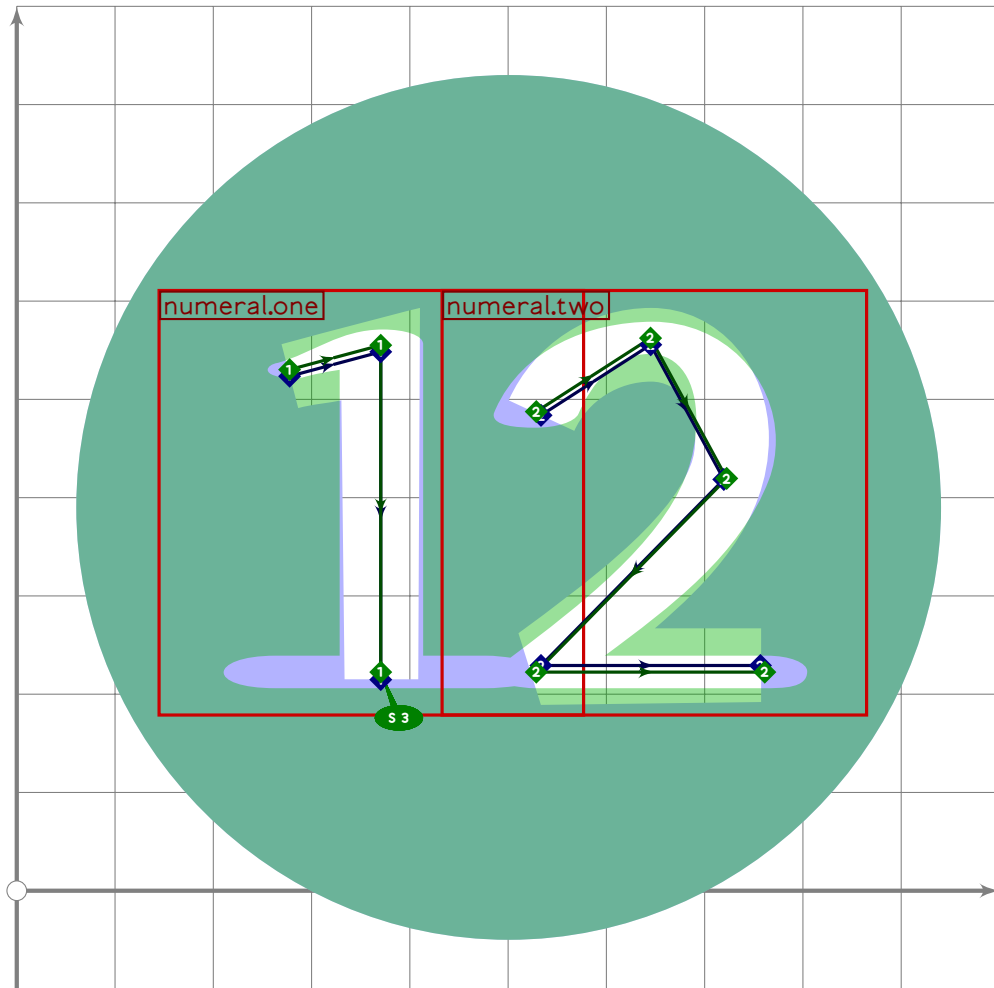
```



```

587 % 11
588 % BACKGROUND 25CF
589 begint Suglyph("uni24EB",235);
590 tsu_xform(tsu_xf.ctwo.left)(numeral.one);
591 numeric x[],y[];
592 tsu_xform(tsu_xf.ctwo.right)(numeral.one);
593 i:=0; forever: exitif find_stroke(i)<1;
594     set_bosize(i,107); i:=i-1; endfor;
595 tsu_render;
596 endtsuglyph;
597

```

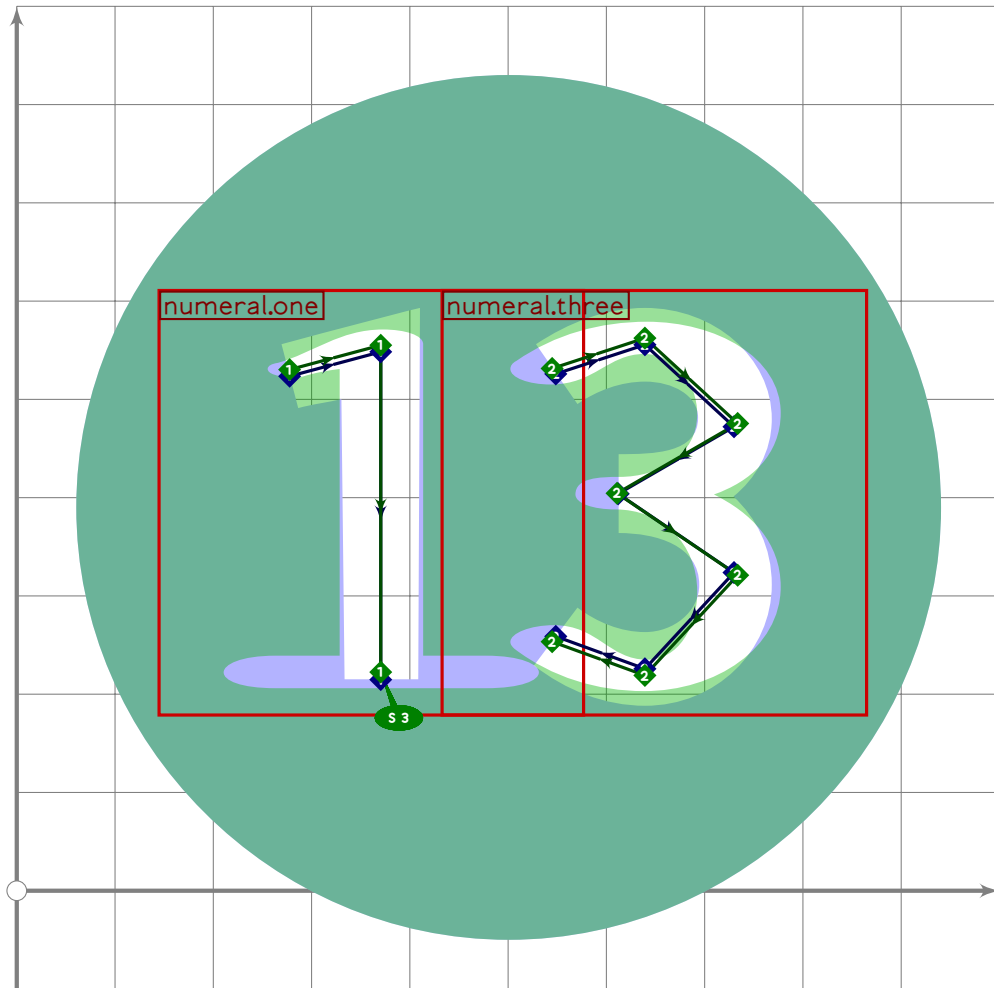


```

598 % 12
599 % BACKGROUND 25CF
600 begint Suglyph("uni24EC";236);
601 tsu_xform(tsu_xf.ctwo.left)(numeral.one);
602 numeric x[],y[];
603 tsu_xform(tsu_xf.ctwo.right)(numeral.two);
604 i:=0; forever: exitif find_stroke(i)<1;
605     set_bosize(i,107); i:=i-1; endfor;
606 tsu_render;
607 endtsuglyph;
608

```

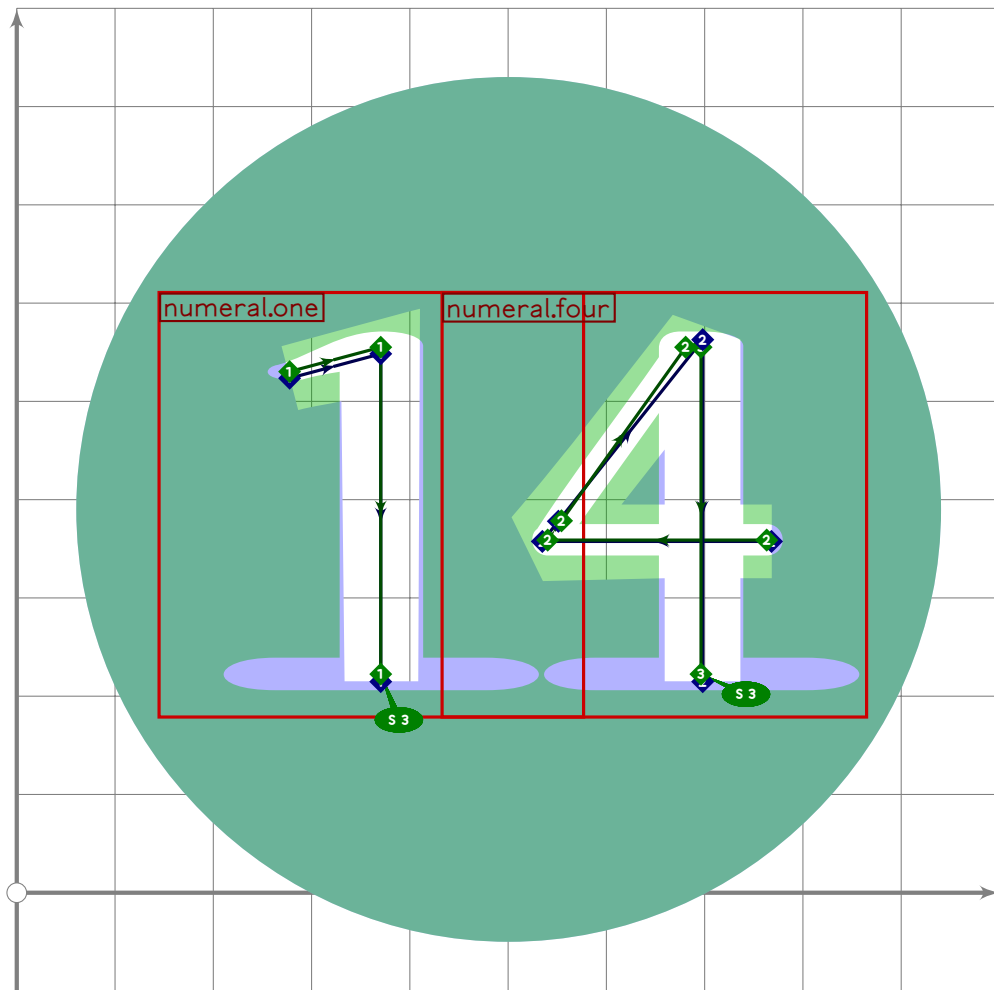




```

609 % 13
610 % BACKGROUND 25CF
611 begint Suglyph("uni24ED",237);
612 tsu_xform(tsu_xf.ctwo.left)(numeral.one);
613 numeric x[],y[];
614 tsu_xform(tsu_xf.ctwo.right)(numeral.three);
615 i:=0; forever: exitif find_stroke(i)<1;
616     set_bosize(i,107); i:=i-1; endfor;
617 tsu_render;
618 endtsuglyph;
619

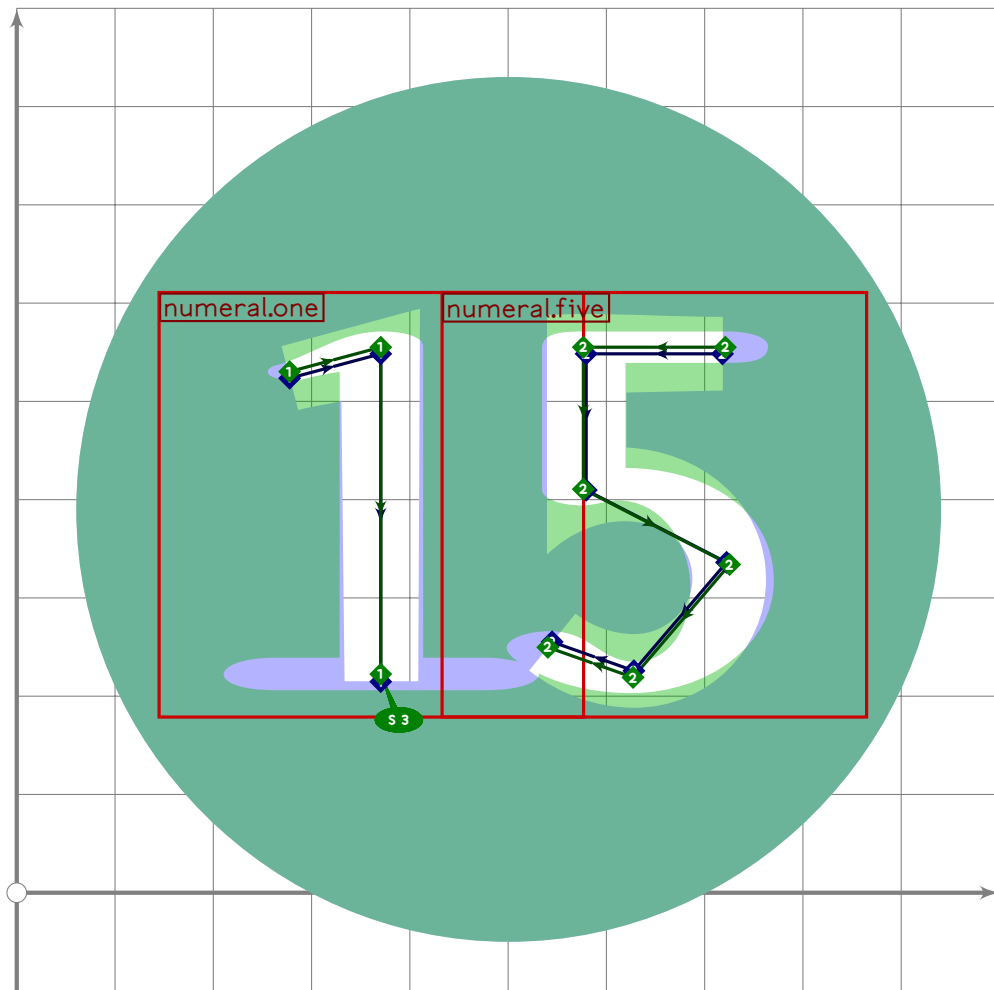
```



```

620 % 14
621 % BACKGROUND 25CF
622 begint Suglyph("uni24EE",238);
623 tsu_xform(tsu_xf.ctwo.left)(numeral.one);
624 numeric x[],y[];
625 tsu_xform(tsu_xf.ctwo.right)(numeral.four);
626 i:=0; forever: exitif find_stroke(i)<1;
627     set_bosize(i,107); i:=i-1; endfor;
628 tsu_render;
629 endtsuglyph;
630

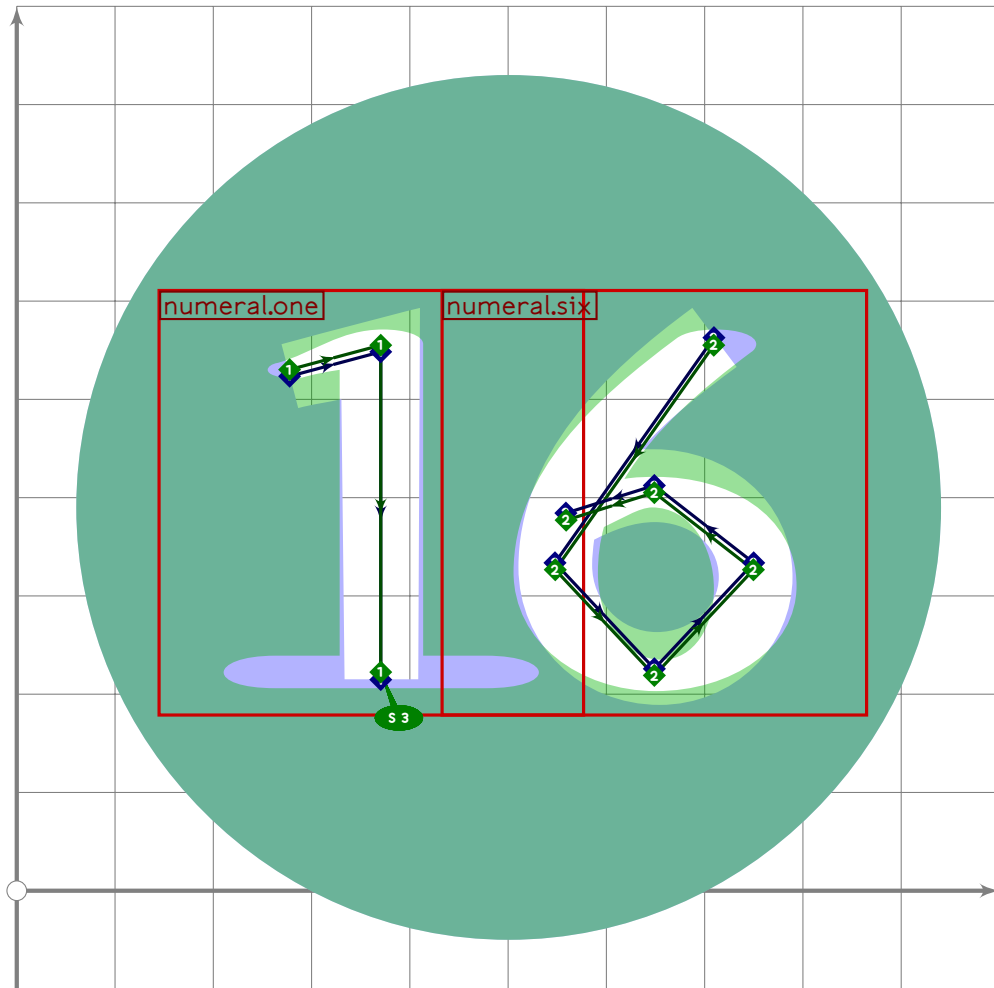
```



```

631 % 15
632 % BACKGROUND 25CF
633 begint Suglyph("uni24EF",239);
634 tsu_xform(tsu_xf.ctwo.left)(numeral.one);
635 numeric x[],y[];
636 tsu_xform(tsu_xf.ctwo.right)(numeral.five);
637 i:=0; forever: exitif find_stroke(i)<1;
638     set_bosize(i,107); i:=i-1; endfor;
639 tsu_render;
640 endtsuglyph;
641

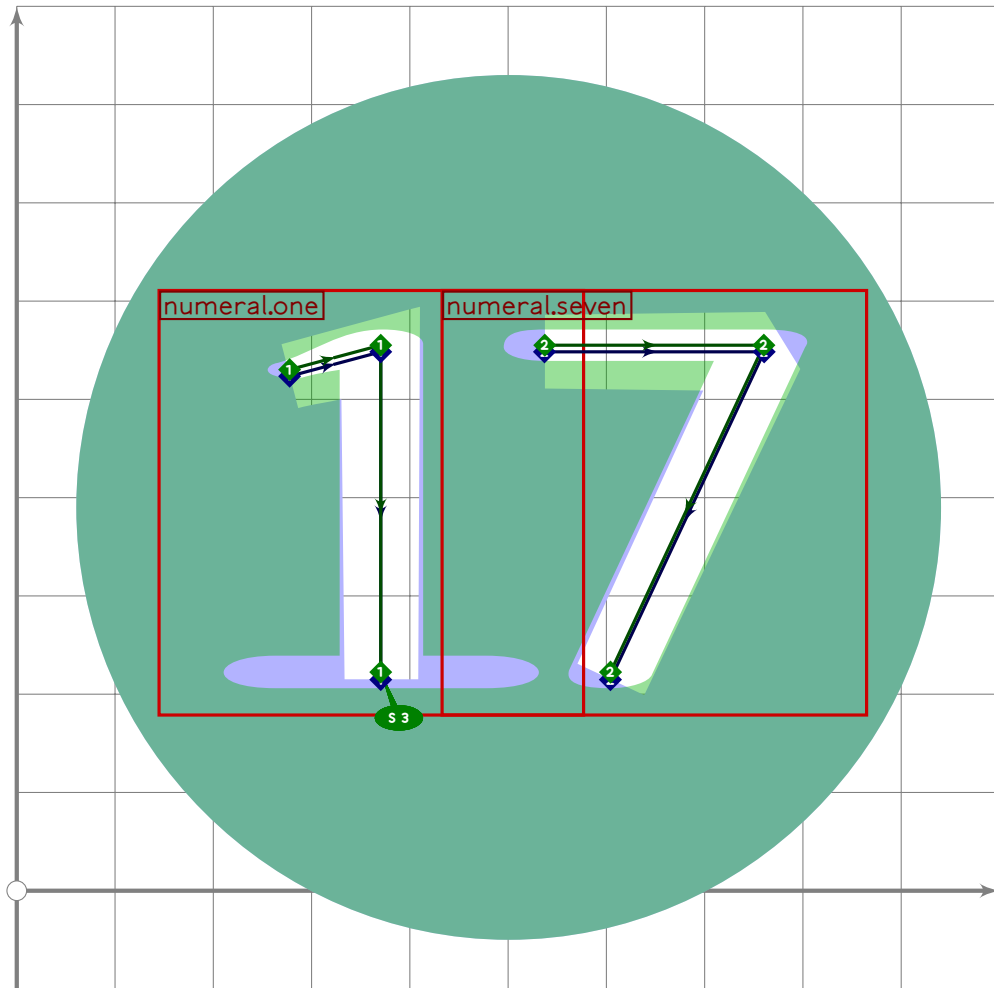
```



```

642 % 16
643 % BACKGROUND 25CF
644 begint Suglyph("uni24F0",240);
645 tsu_xform(tsu_xf.ctwo.left)(numeral.one);
646 numeric x[],y[];
647 tsu_xform(tsu_xf.ctwo.right)(numeral.six);
648 i:=0; forever: exitif find_stroke(i)<1;
649     set_bosize(i,107); i:=i-1; endfor;
650 tsu_render;
651 endtsuglyph;
652

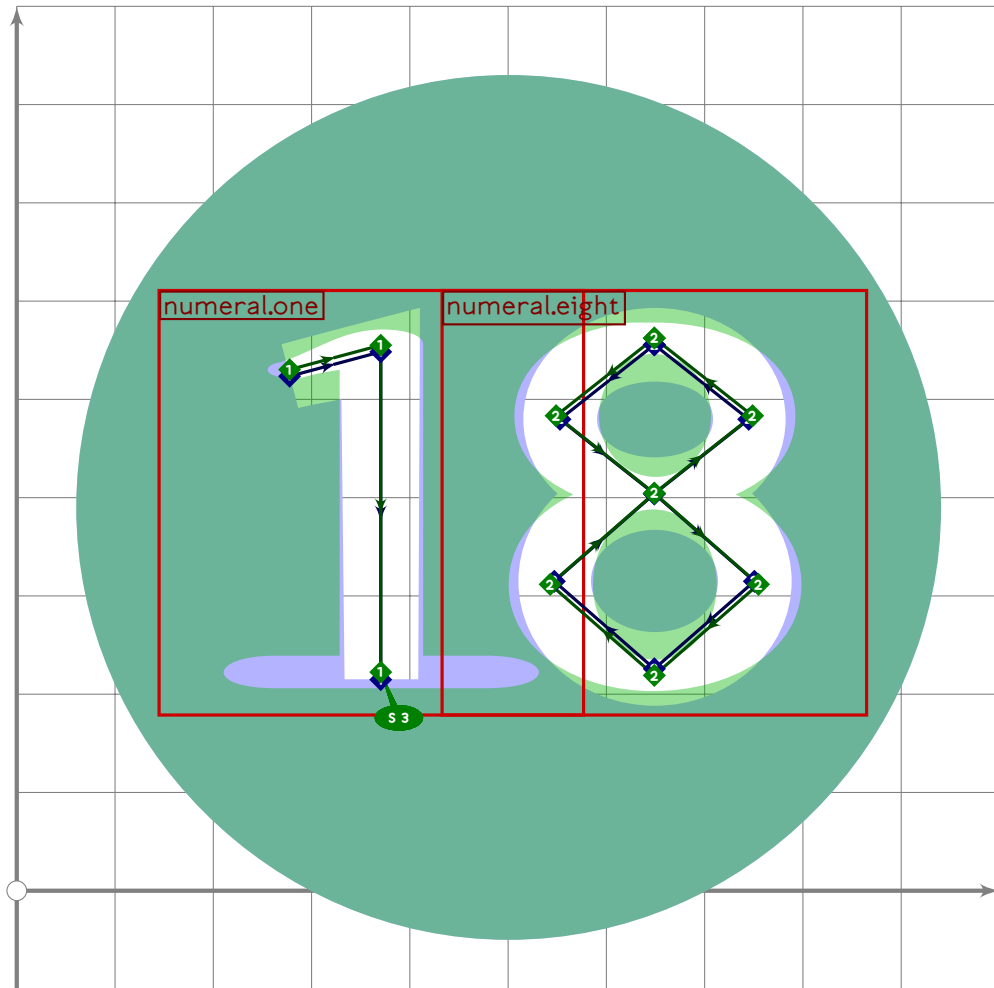
```



```

653 % 17
654 % BACKGROUND 25CF
655 begint Suglyph("uni24F1";241);
656 tsu_xform(tsu_xf.ctwo.left)(numeral.one);
657 numeric x[],y[];
658 tsu_xform(tsu_xf.ctwo.right)(numeral.seven);
659 i:=0; forever: exitif find_stroke(i)<1;
660     set_bosize(i,107); i:=i-1; endfor;
661 tsu_render;
662 endtsuglyph;
663

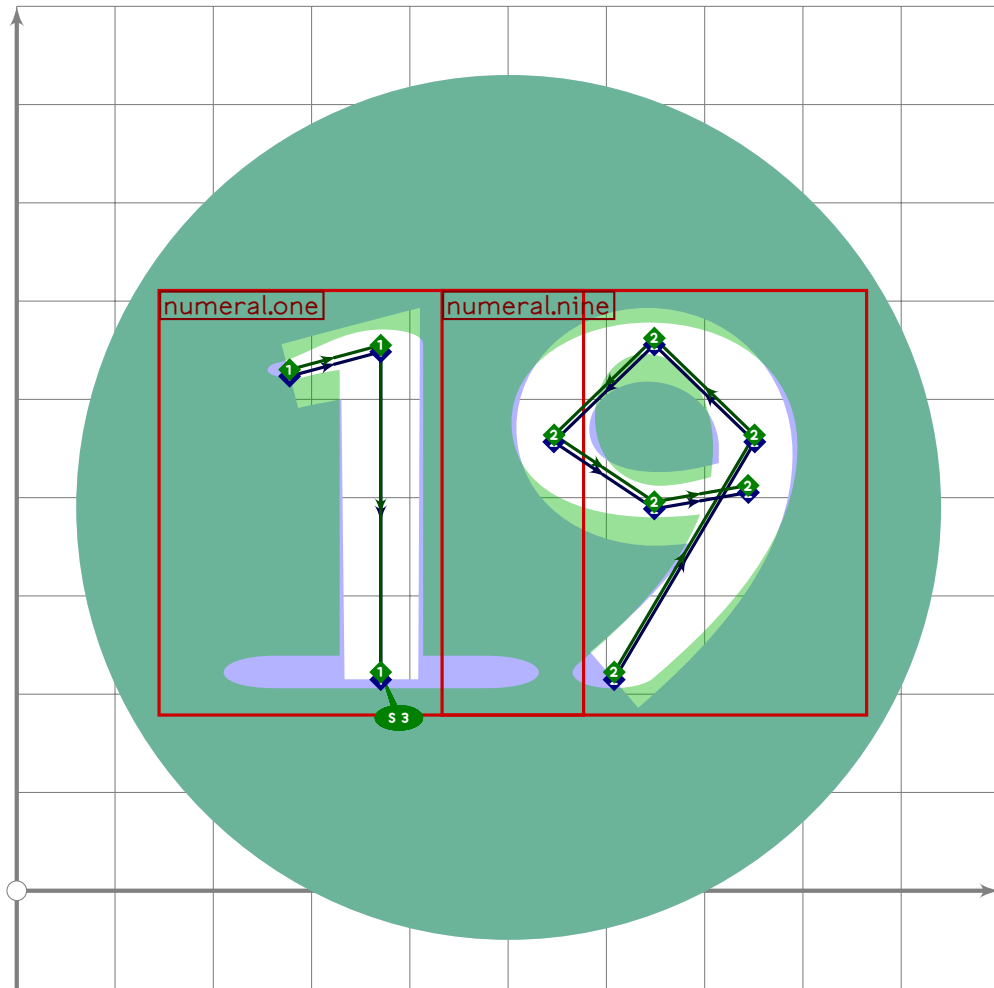
```



```

664 % 18
665 % BACKGROUND 25CF
666 begint Suglyph("uni24F2",242);
667 tsu_xform(tsu_xf.ctwo.left)(numeral.one);
668 numeric x[],y[];
669 tsu_xform(tsu_xf.ctwo.right)(numeral.eight);
670 i:=0; forever: exitif find_stroke(i)<1;
671     set_bosize(i,107); i:=i-1; endfor;
672 tsu_render;
673 endtsuglyph;
674

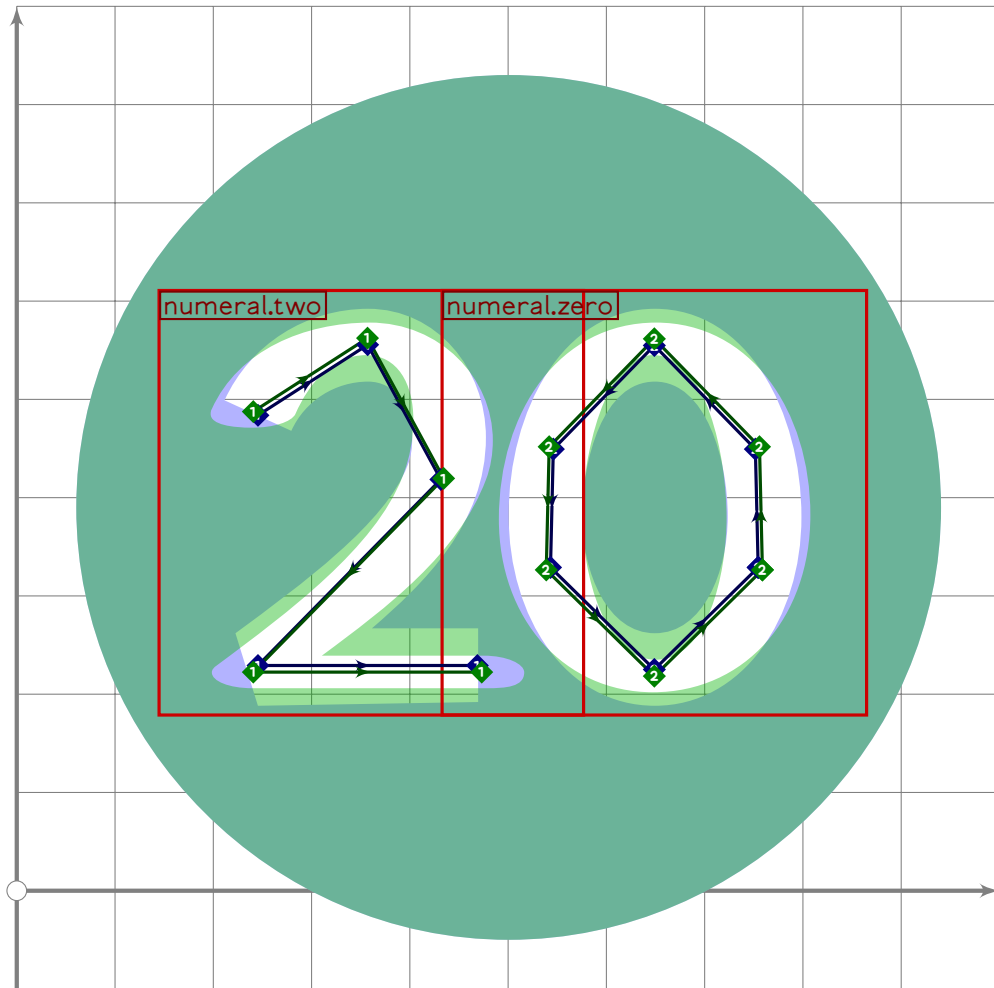
```



```

675 % 19
676 % BACKGROUND 25CF
677 begint Suglyph("uni24F3",243);
678 tsu_xform(tsu_xf.ctwo.left)(numeral.one);
679 numeric x[],y[];
680 tsu_xform(tsu_xf.ctwo.right)(numeral.nine);
681 i:=0; forever: exitif find_stroke(i)<1;
682     set_bosize(i,107); i:=i-1; endfor;
683 tsu_render;
684 endtsuglyph;
685

```



```

686 % 20
687 % BACKGROUND 25CF
688 begint Suglyph("uni24F4";244);
689 tsu_xform(tsu_xf.ctwo.left)(numeral.two);
690 numeric x[],y[];
691 tsu_xform(tsu_xf.ctwo.right)(numeral.zero);
692 i:=0; forever: exitif find_stroke(i)<1;
693     set_bosize(i,107); i:=i-1; endfor;
694 tsu_render;
695 endtsuglyph;
696
697
698

```

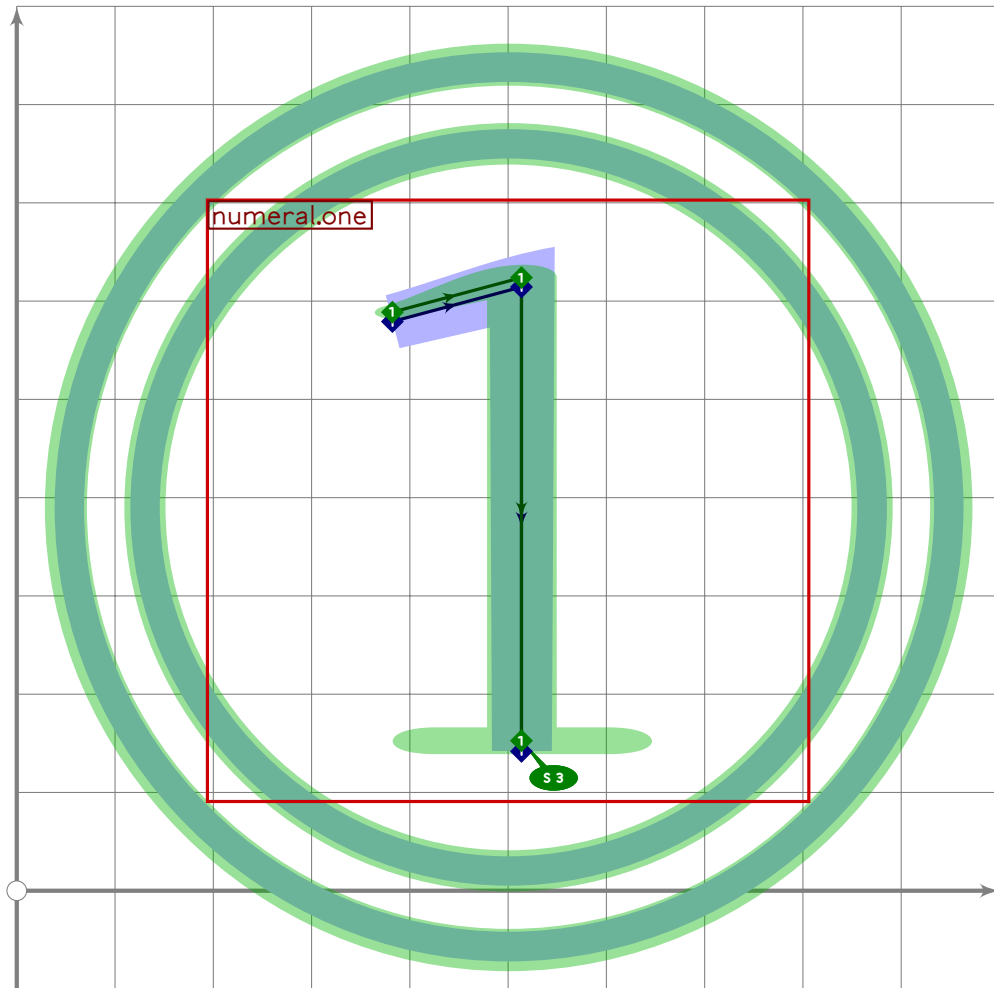
## Doubly Circled Numerals

```

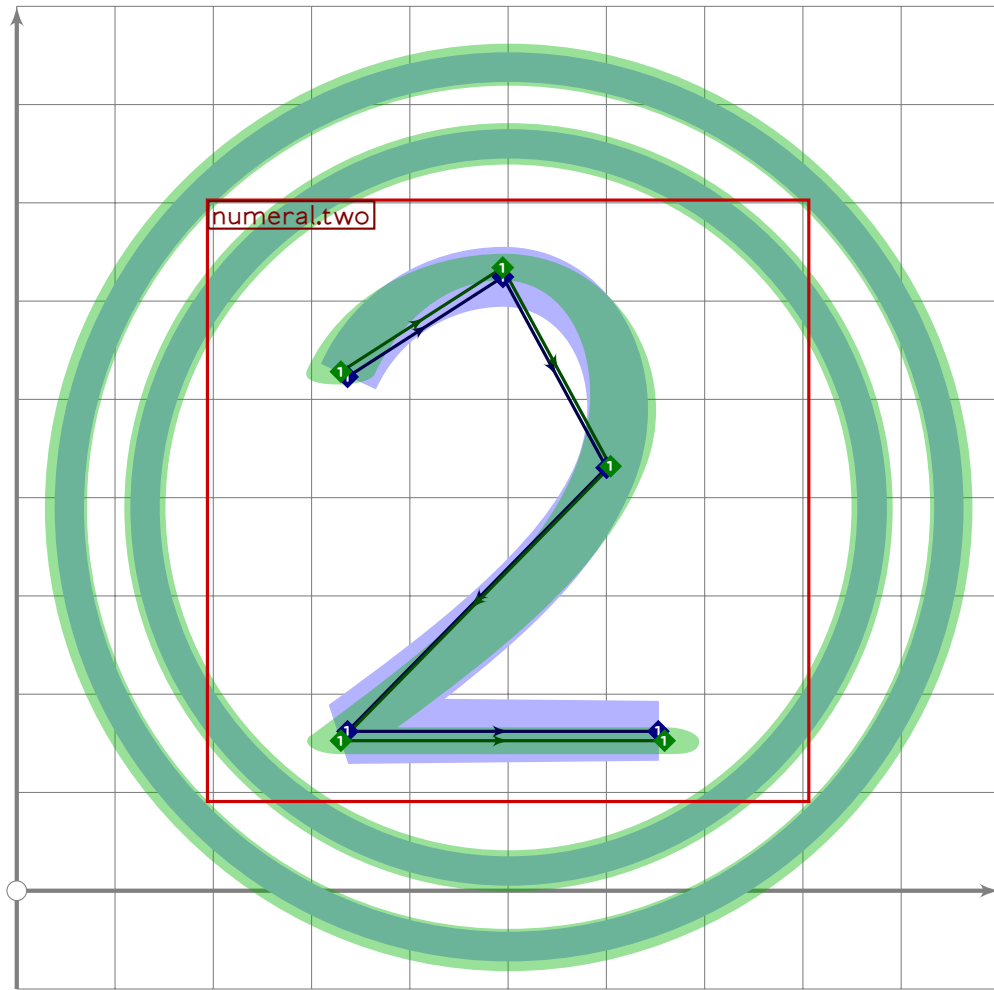
699 % DOUBLY CIRCLED NUMERALS
700

```

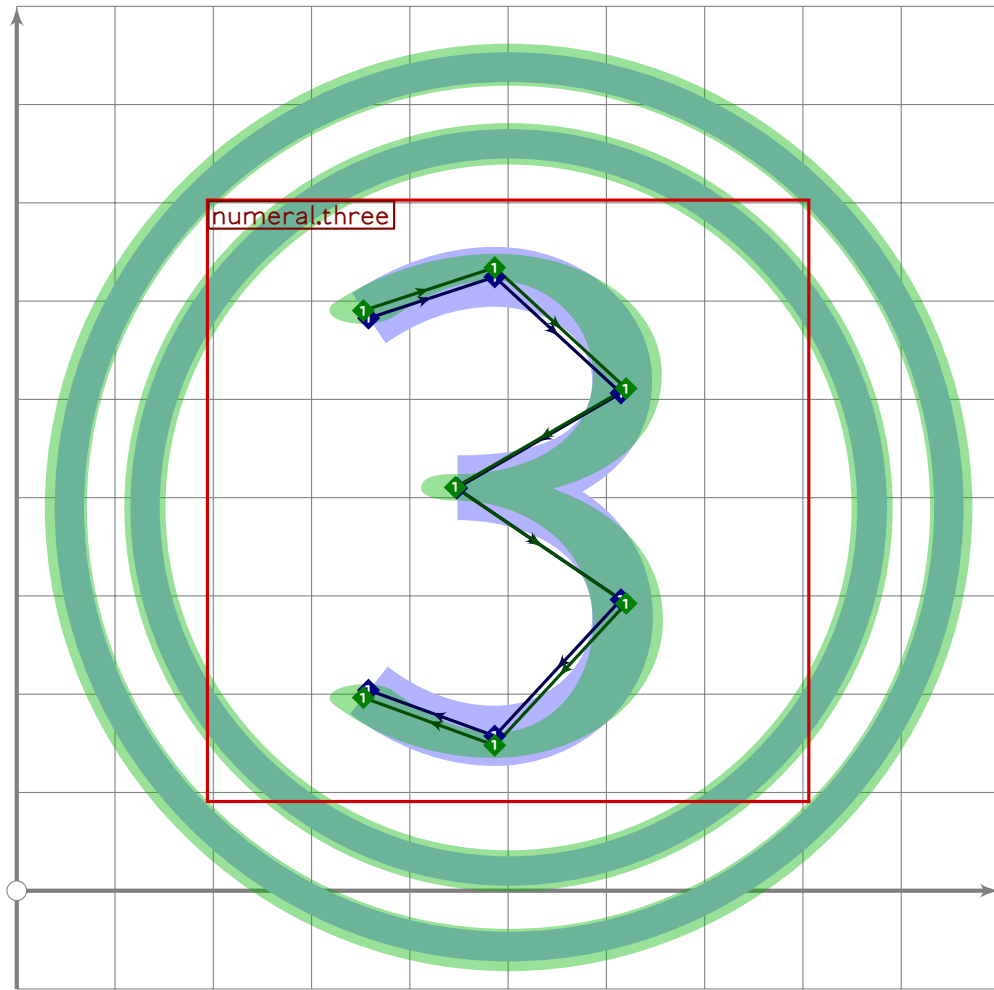




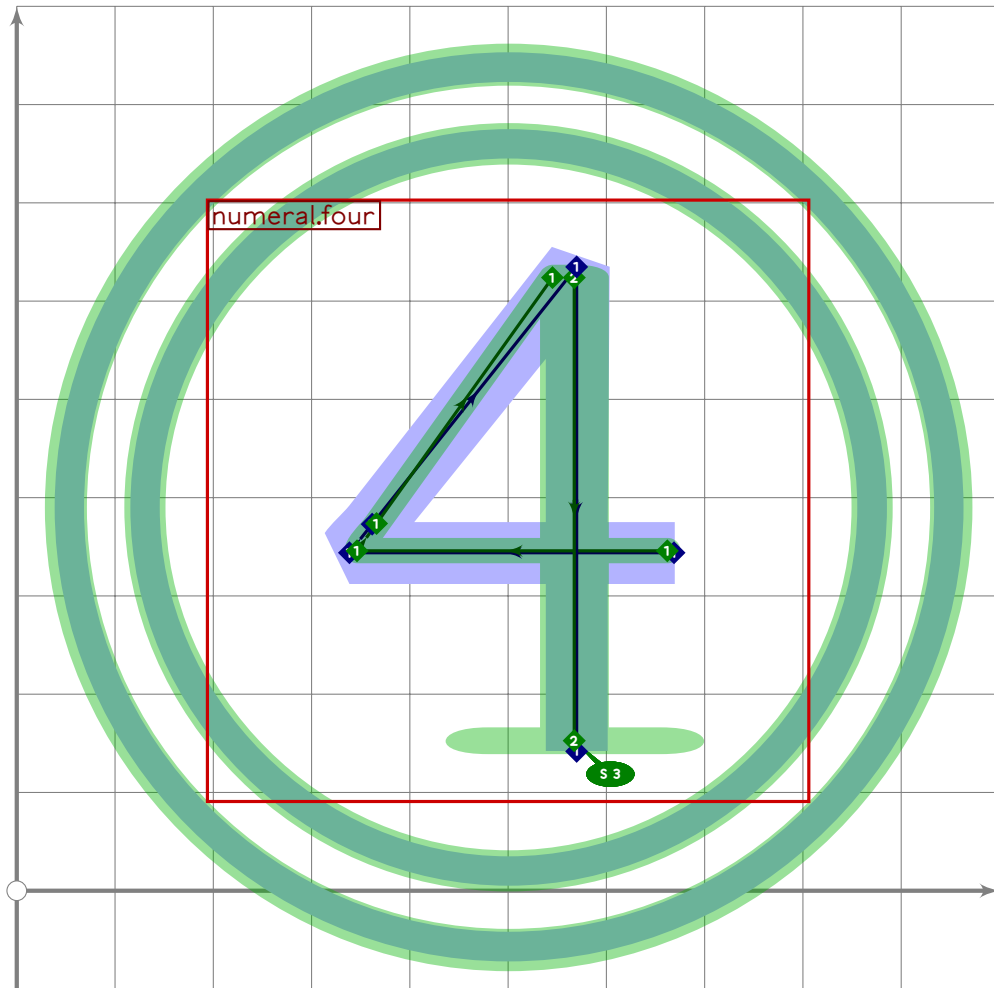
```
701 % 1
702 beginsuglyph("uni24F5";245);
703 circle.double;
704 tsu_xform(tsu_xf.circled)(numeral.one);
705 tsu_render;
706 endsuglyph;
707
```



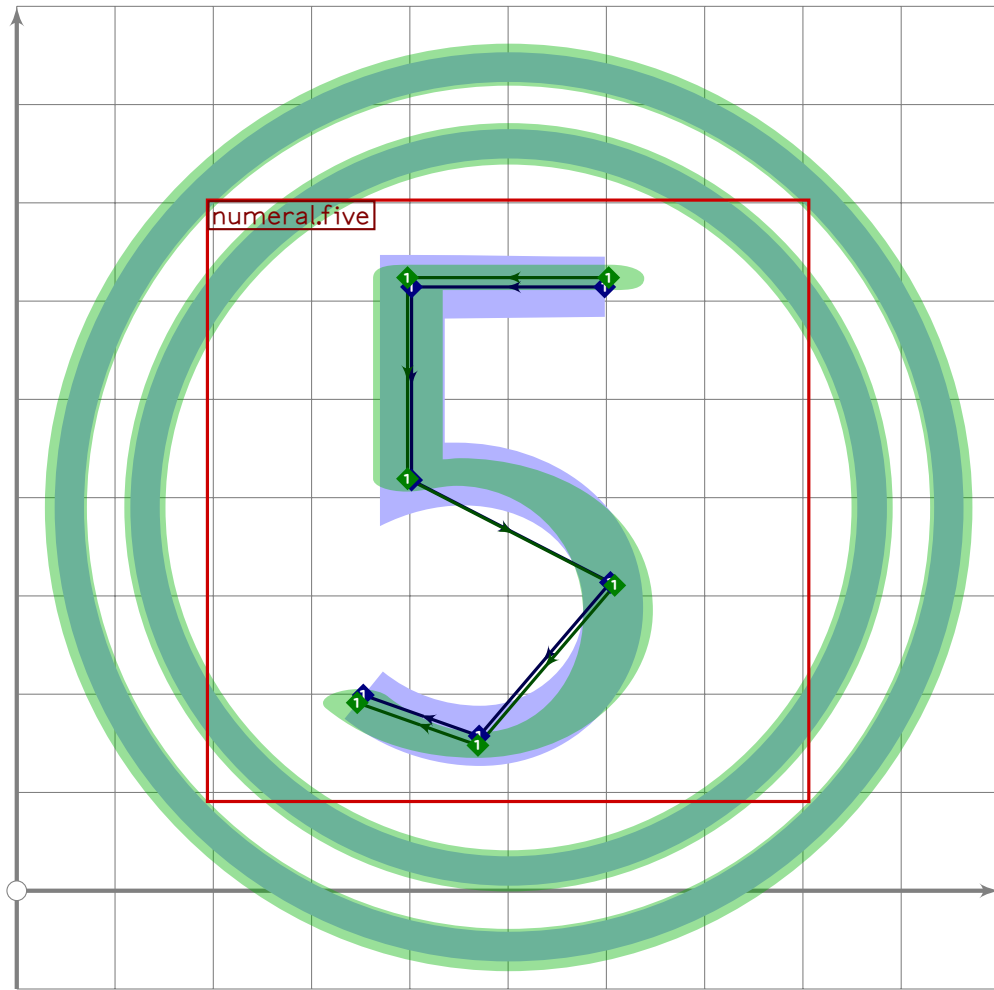
```
708 % 2
709 beginsuglyph("uni24F6";246);
710 circle.double;
711 tsu_xform(tsu_xf.circled)(numeral.two);
712 tsu_render;
713 endsuglyph;
714
```



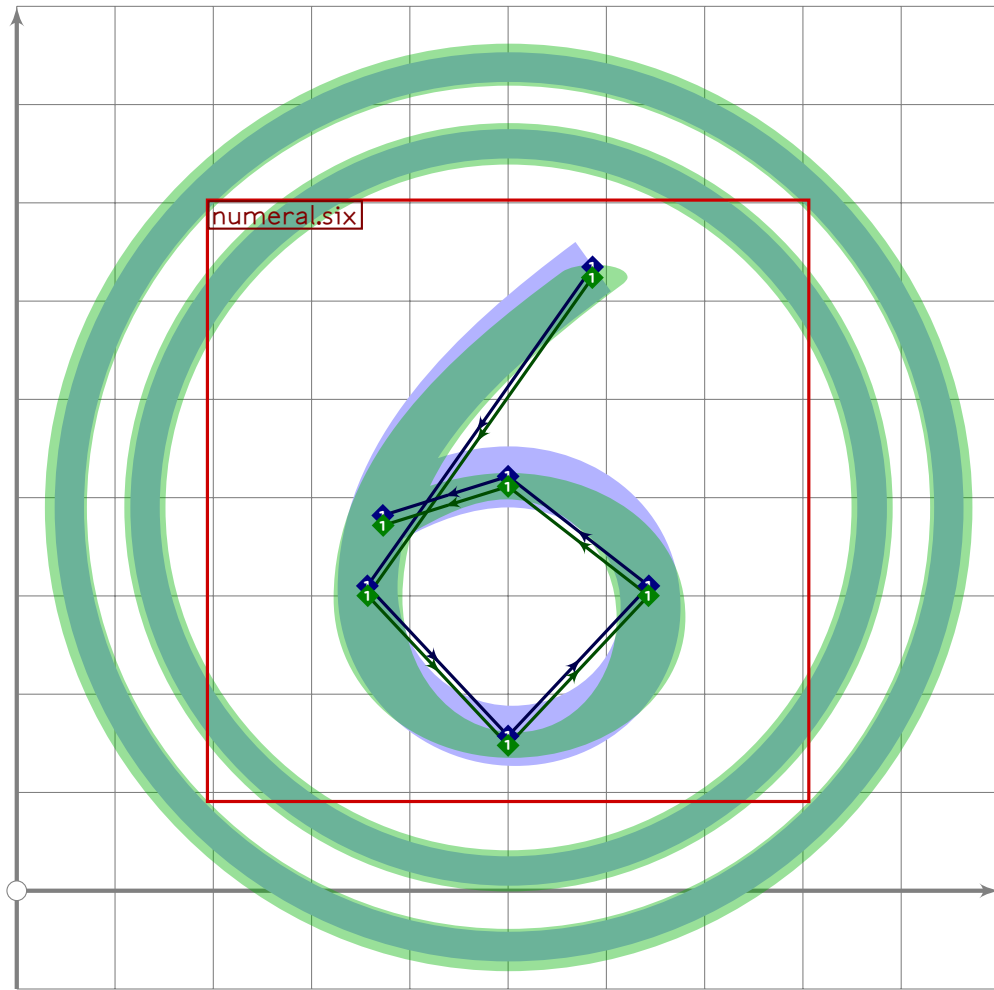
```
715 % 3
716 beginsuglyph("uni24F7";247);
717 circle.double;
718 tsu_xform(tsu_xf.circled)(numeral.three);
719 tsu_render;
720 endsuglyph;
721
```



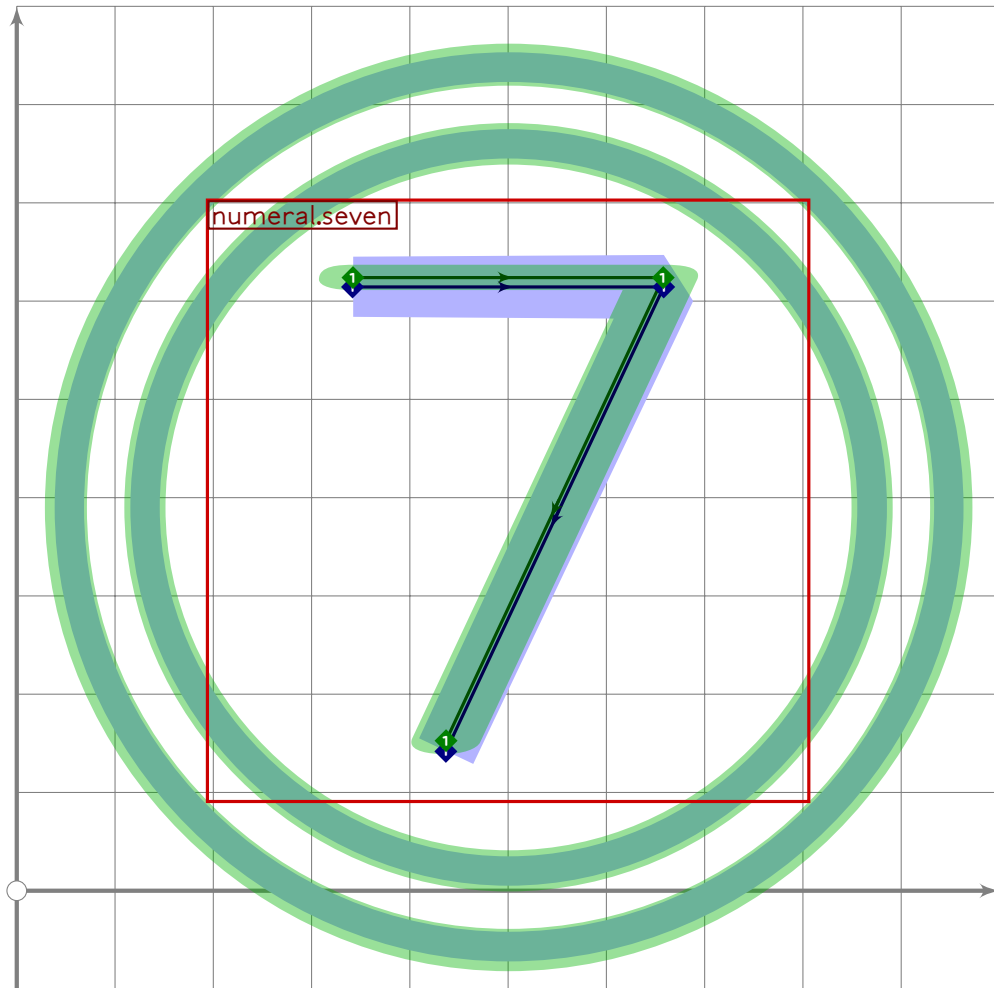
```
722 % 4
723 begintsuglyph("uni24F8",248);
724 circle.double;
725 tsu_xform(tsu_xf.circled)(numeral.four);
726 tsu_render;
727 endsuglyph;
728
```



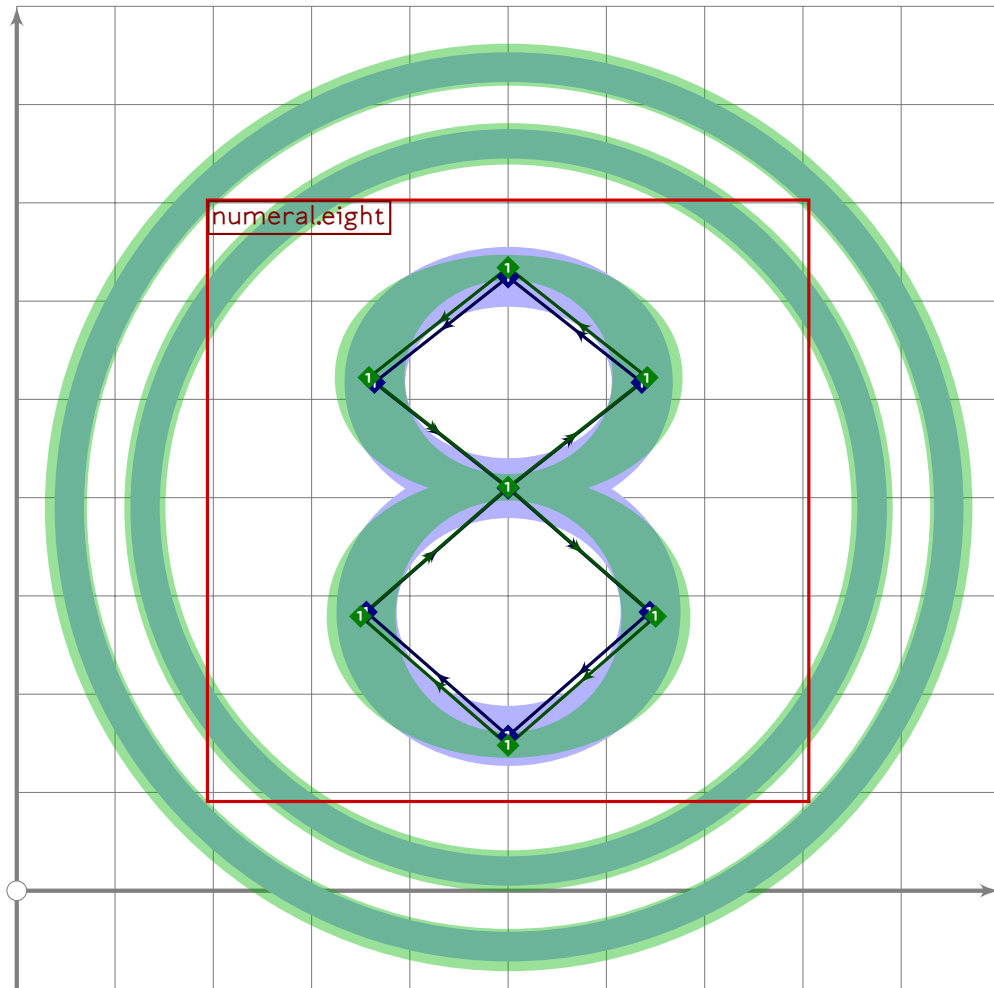
```
729 % 5
730 \begin{suglyph}("uni24F9";249);
731   \circle{double};
732   \tsu_xform(\tsu_xf{circled})(numeral.five);
733   \tsu_render;
734 \end{suglyph};
735
```



```
736 % 6
737 begint Suglyph("uni24FA";250);
738 circle.double;
739 tsu_xform(tsu_xf.circled)(numeral.six);
740 tsu_render;
741 endsuglyph;
742
```



```
743 % 7
744 begint Suglyph("uni24FB";251);
745 circle.double;
746 tsu_xform(tsu_xf.circled)(numeral.seven);
747 tsu_render;
748 endsuglyph;
749
```

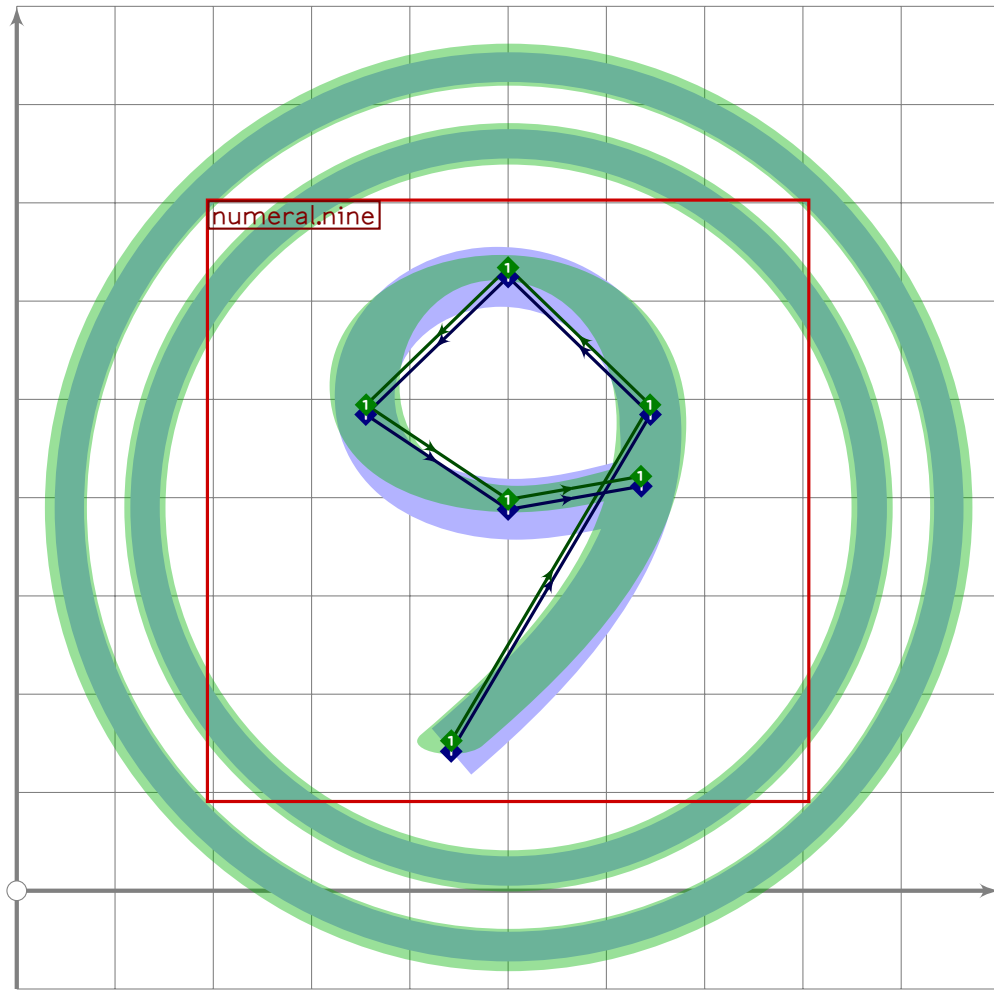


```

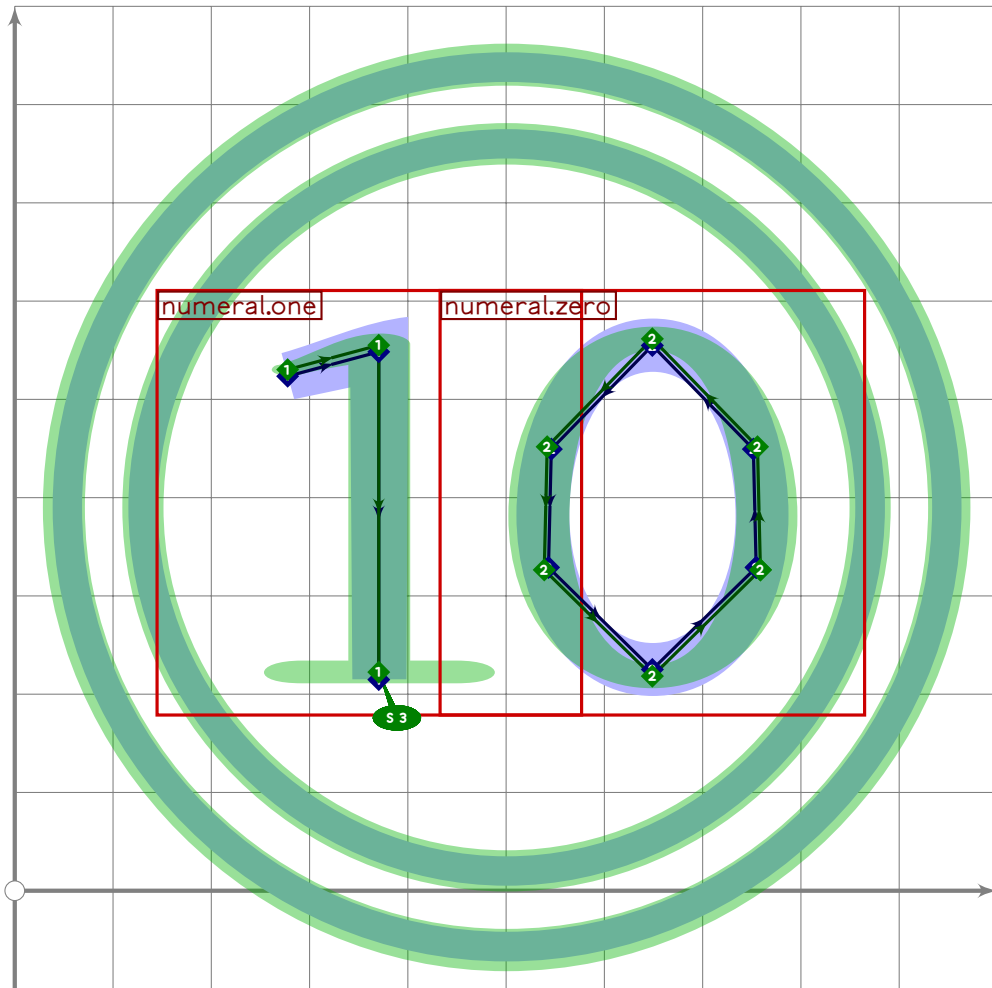
750 % 8
751 beginsuglyph("uni24FC",252);
752   circle.double;
753   tsu_xform(tsu_xf.circled)(numeral.eight);
754   tsu_render;
755 endsuglyph;
756

```





```
757 % 9
758 begintsuglyph("uni24FD",253);
759 circle.double;
760 tsu_xform(tsu_xf.circled)(numeral.nine);
761 tsu_render;
762 endsuglyph;
763
```



```

764 % 10
765 begintsuglyph("uni24FE";254);
766 circle.double;
767 tsu_xform(tsu_xf.ctwo.left)(numeral.one);
768 numeric x[],y[];
769 tsu_xform(tsu_xf.ctwo.right)(numeral.zero);
770 tsu_render;
771 endtsuglyph;
772
773
774

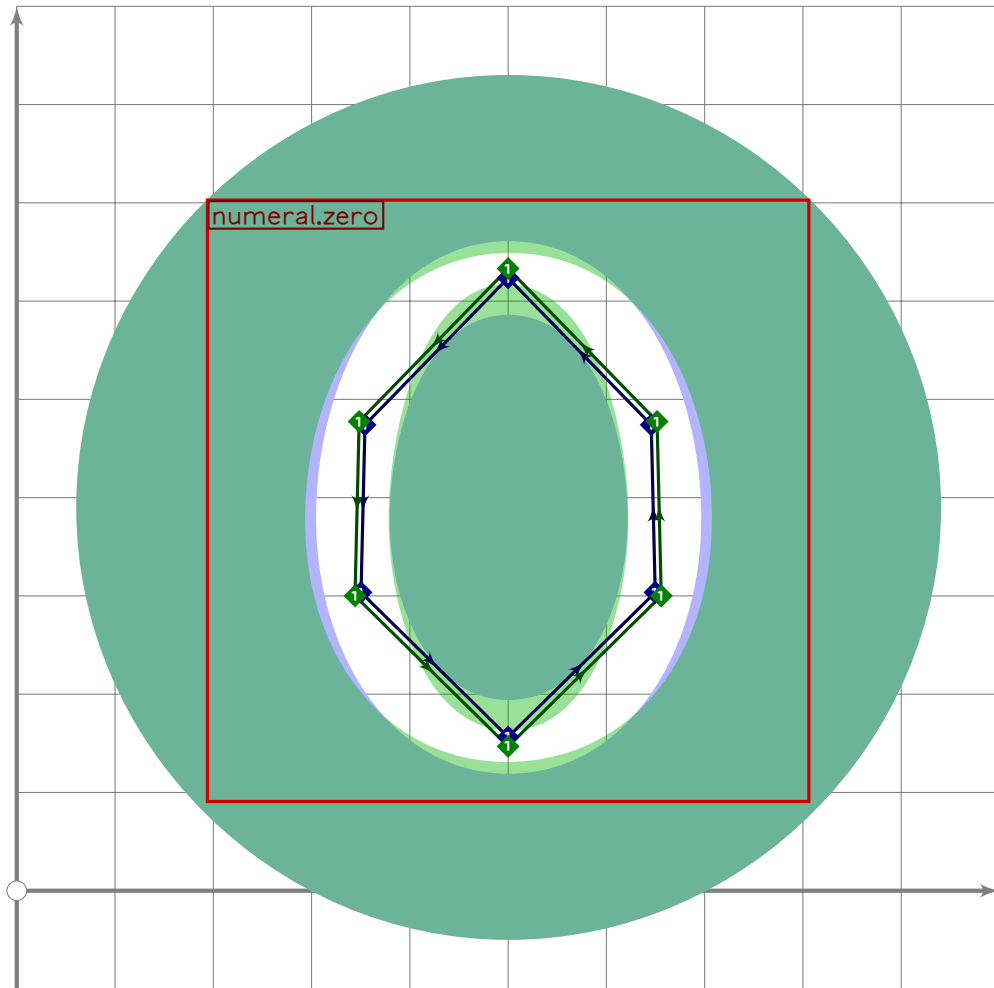
```

## One More Inverted Circled Numeral

```

775 % ONE MORE INVERTED CIRCLED NUMERAL
776

```



```

777 % 9
778 % BACKGROUND 25CF
779 begint Suglyph("uni24FF",255);
780 tsu_xform(tsu_xf.circled)(numeral.zero);
781 i:=0; forever: exitif find_stroke(i)<1;
782   set_bosize(i,107); i:=i-1; endfor;
783 tsu_render;
784 endtsuglyph;
785
786 _____
787
788 endfont;
789
790 _____

```

# tsuku-25.mp

1 %

2 % Unicode page 24 (Geometric Shapes) for Tsukurimashou

3 % Copyright (C) 2011 Matthew Skala

4 %

5-29 [Standard copyright notice]

30

31

32

33 beginfont

34

35 % AUTODEPS

36

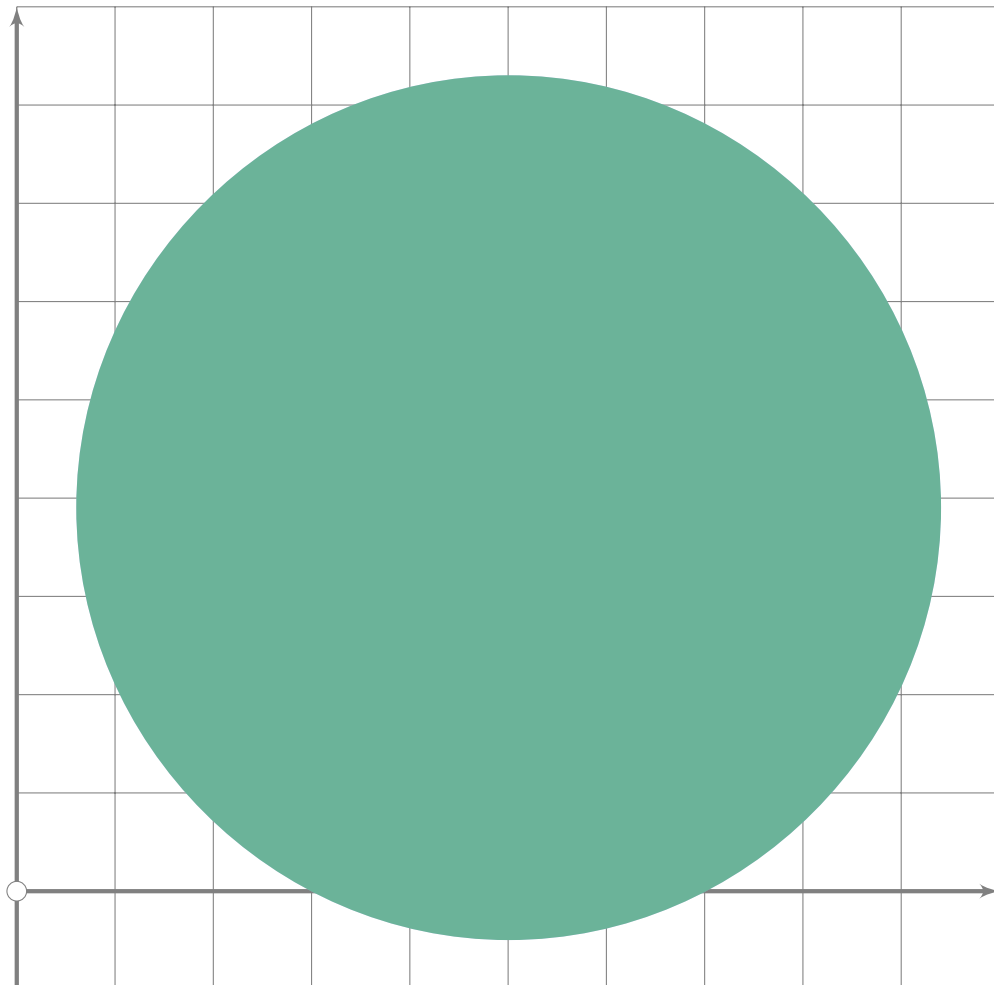
37

38

## Geometric Shapes

39 % GEOMETRIC SHAPES

40



41 % black circle - used as background for inverted dingbats

```
42 begintsuglyph("uni25CF",207);  
43   Fill fullcircle scaled 880 shifted centre_pt;  
44 endsuglyph;  
45  
46 

---

  
47  
48 endfont;  
49  
50 

---


```

# tsuku-26.mp

```
1 %
2 % Unicode page 26 (Misc. Symbols) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---

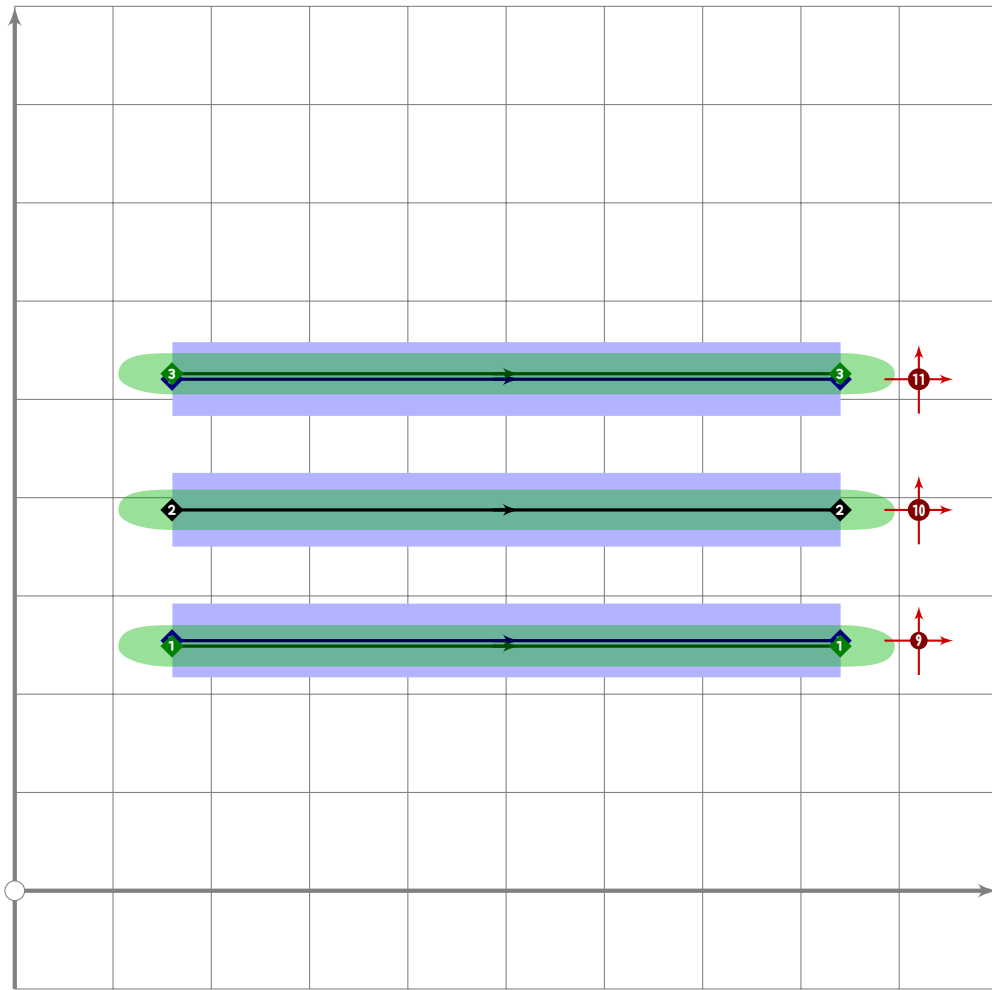

32
33 beginfont
34
35 input latin-intro.mp;
36
37 % AUTODEPS
38 input iching.mp;
39
40 

---


41
```

I Ching

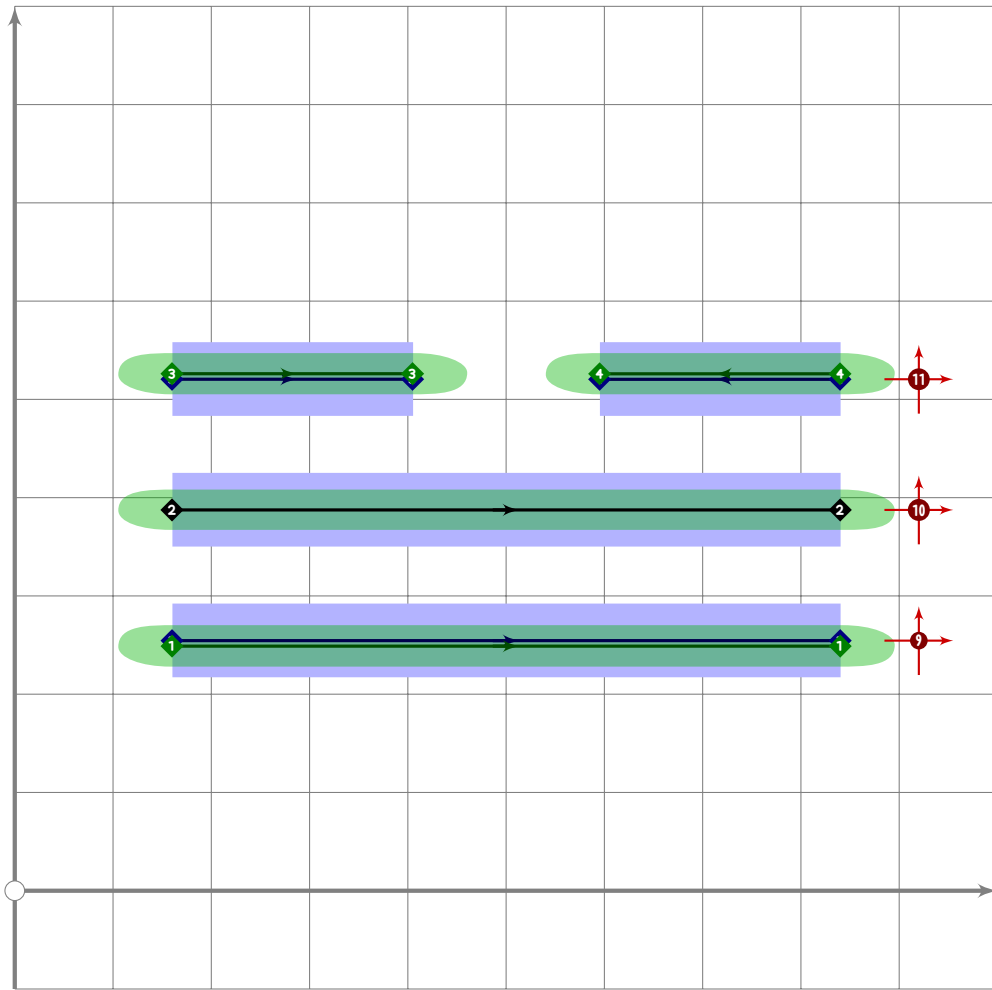
42 % I CHING



```

43
44 begintsuglyph("ichingtri1",48);
45 iching.line(1,3,1);
46 iching.line(2,3,1);
47 iching.line(3,3,1);
48 tsu_render;
49 endtsuglyph;

```

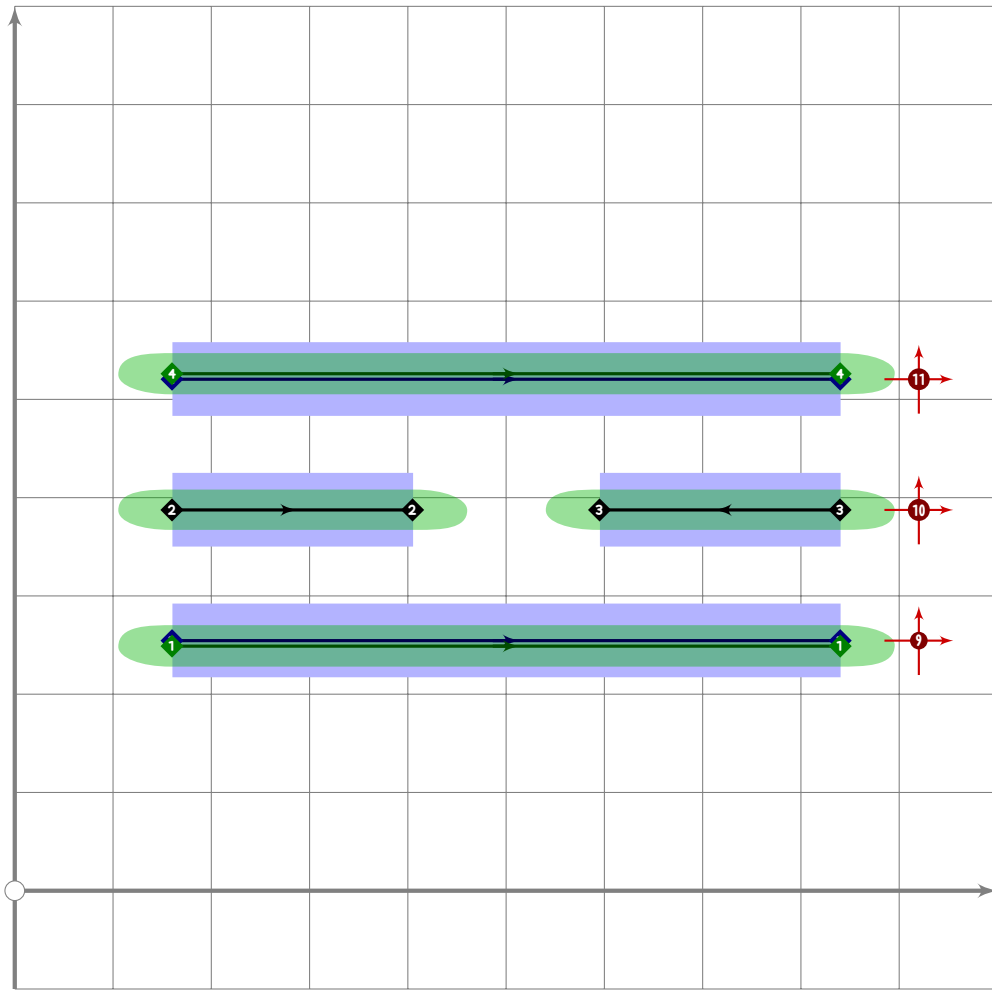


```

50
51 begintsuglyph("ichingtri2",49);
52 iching.line(1,3,1);
53 iching.line(2,3,1);
54 iching.line(3,3,0);
55 tsu_render;
56 endtsuglyph;

```

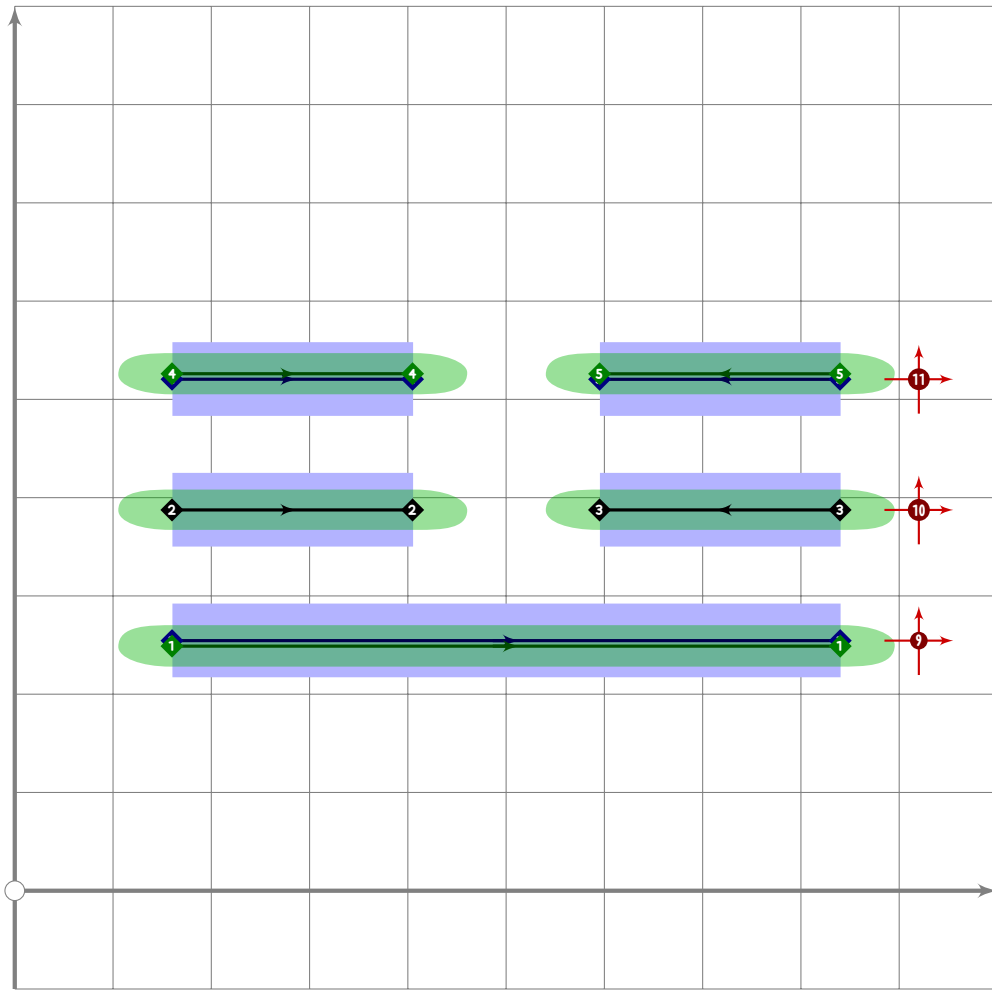




```

57
58 begintsuglyph("ichingtri3",50);
59 iching.line(1,3,1);
60 iching.line(2,3,0);
61 iching.line(3,3,1);
62 tsu_render;
63 endtsuglyph;

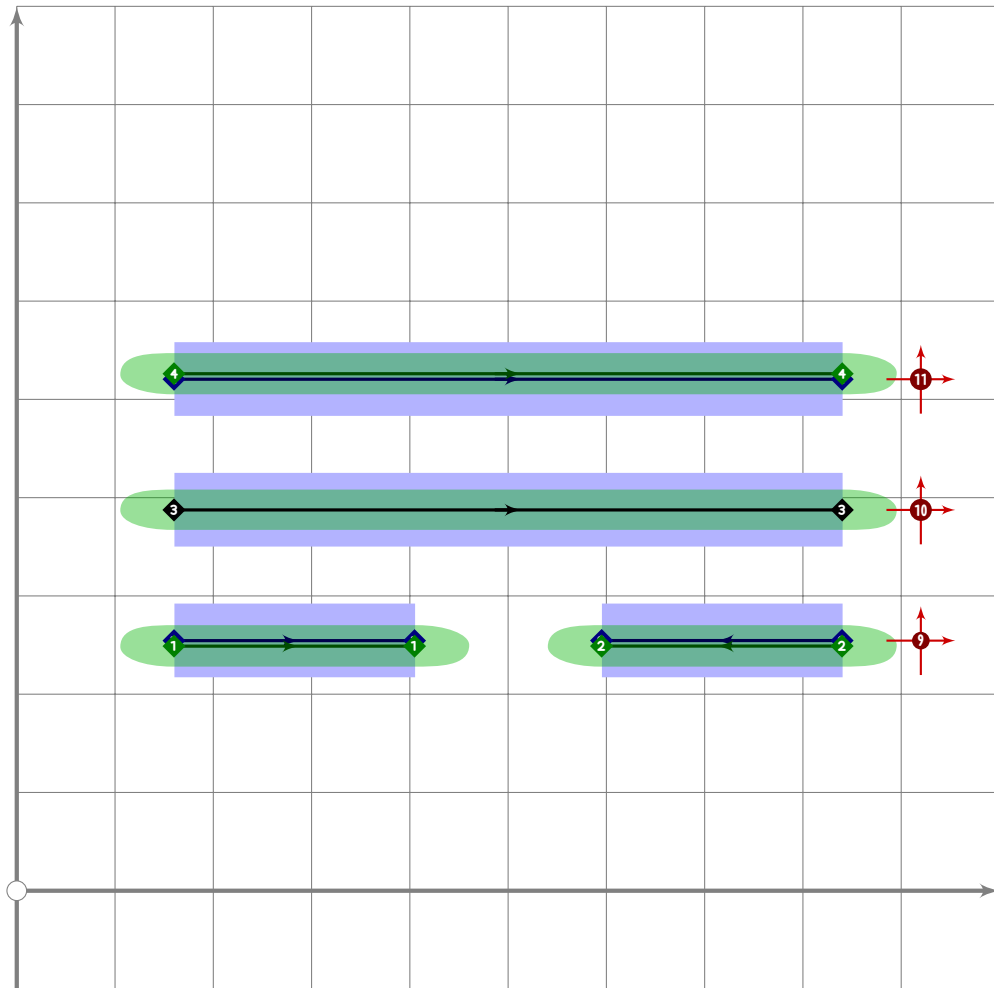
```



```

64
65 begintsuglyph("ichingtri4",51);
66 iching.line(1,3,1);
67 iching.line(2,3,0);
68 iching.line(3,3,0);
69 tsu_render;
70 endsuglyph;

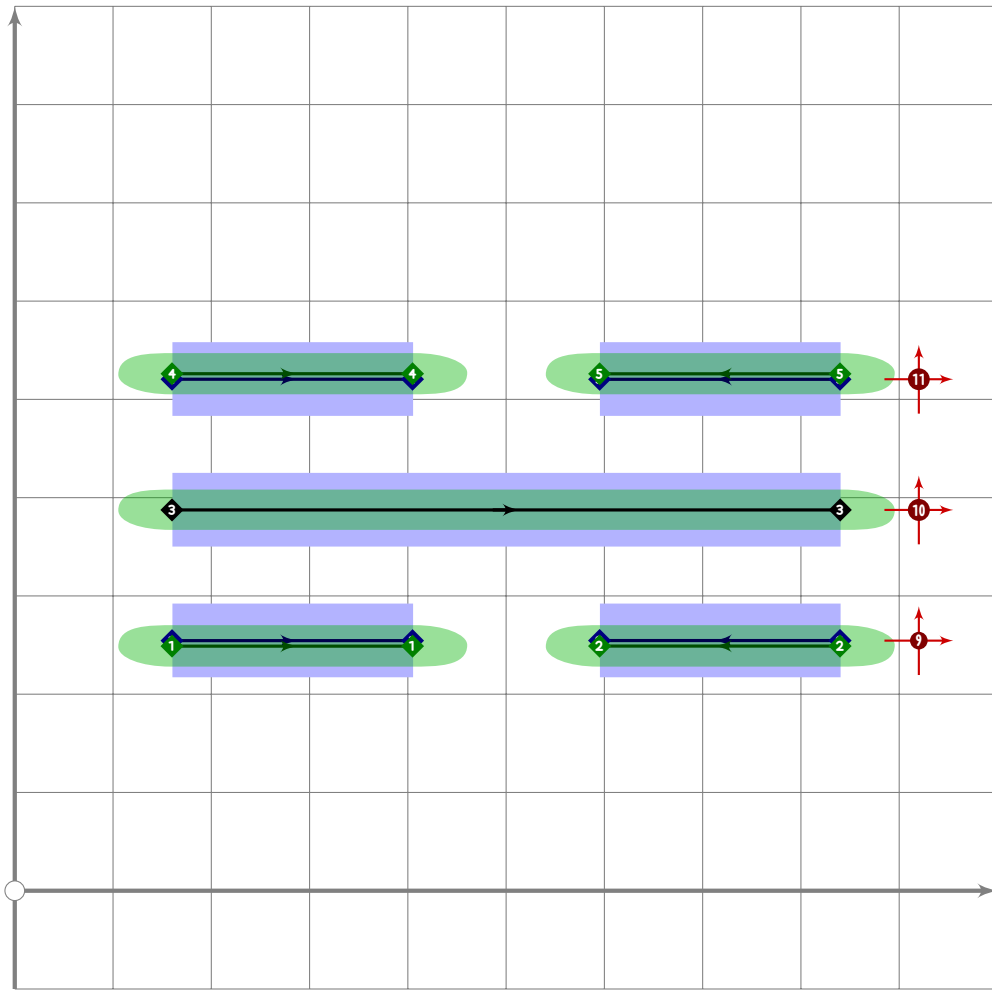
```



```

71
72 begintsuglyph("ichingtri5",52);
73 iching.line(1,3,0);
74 iching.line(2,3,1);
75 iching.line(3,3,1);
76 tsu_render;
77 endtsuglyph;

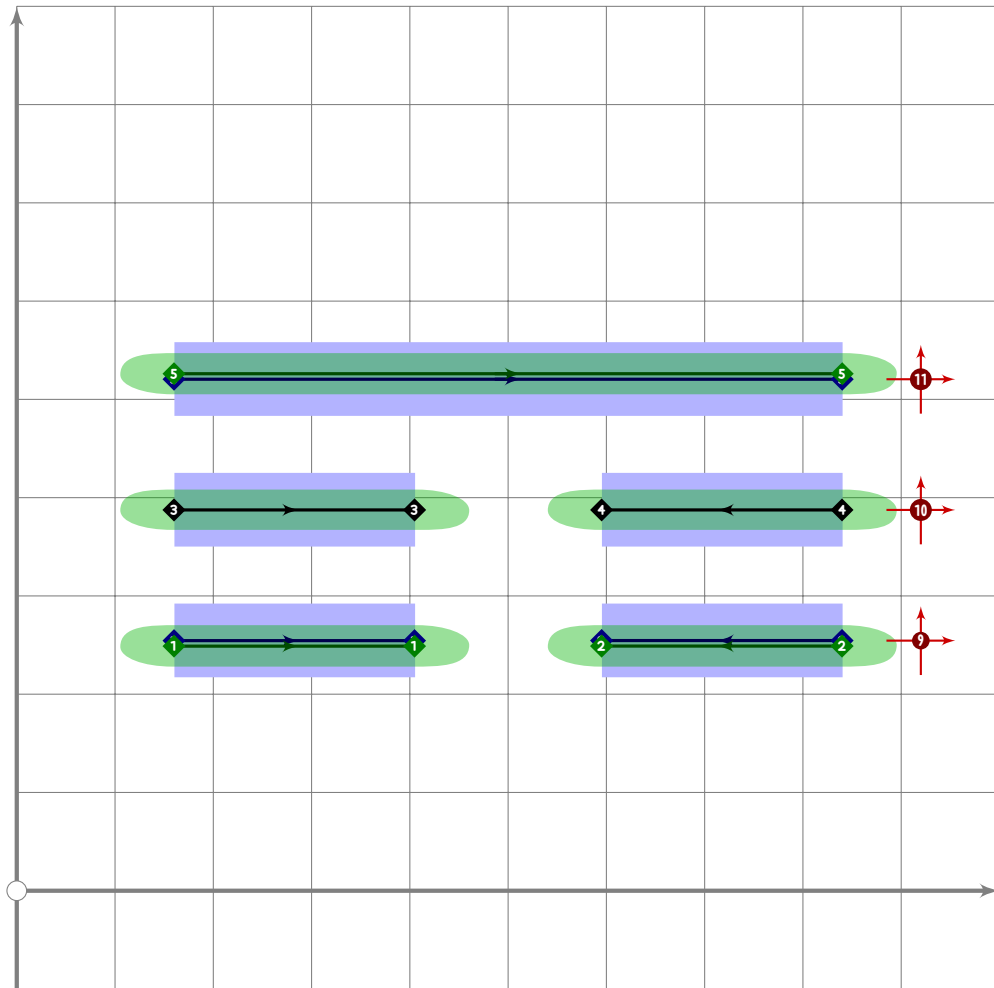
```



```

78
79 begintsuglyph("ichingtri6",53);
80 iching.line(1,3,0);
81 iching.line(2,3,1);
82 iching.line(3,3,0);
83 tsu_render;
84 endsuglyph;

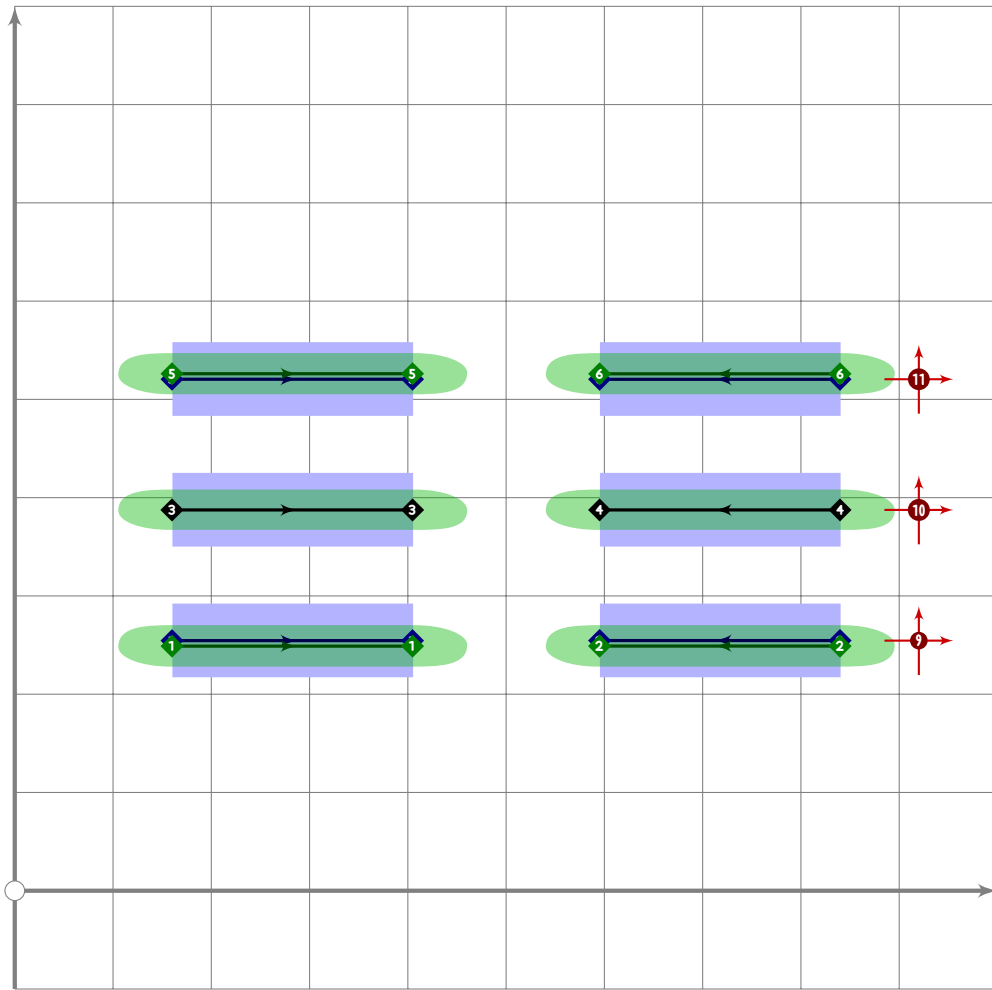
```



```

85
86 begintsuglyph("ichingtri7",54);
87 iching.line(1,3,0);
88 iching.line(2,3,0);
89 iching.line(3,3,1);
90 tsu_render;
91 endsuglyph;

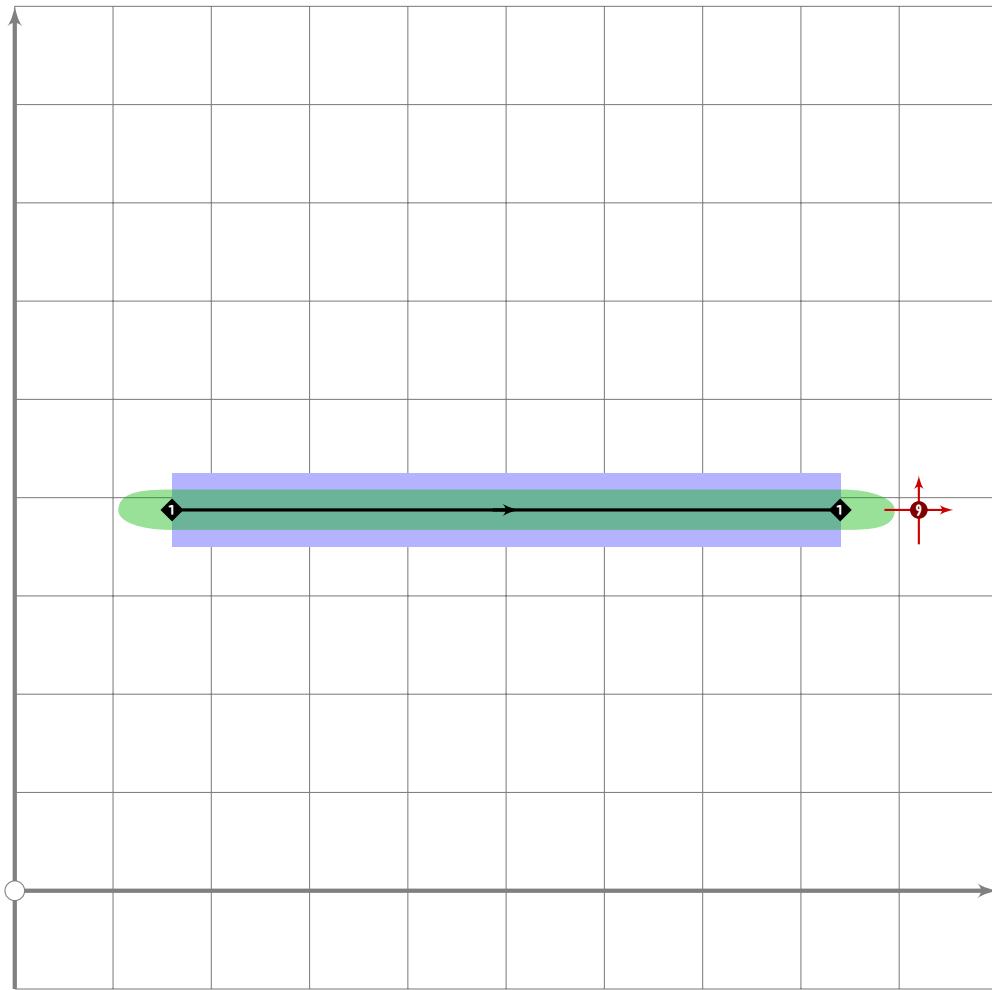
```



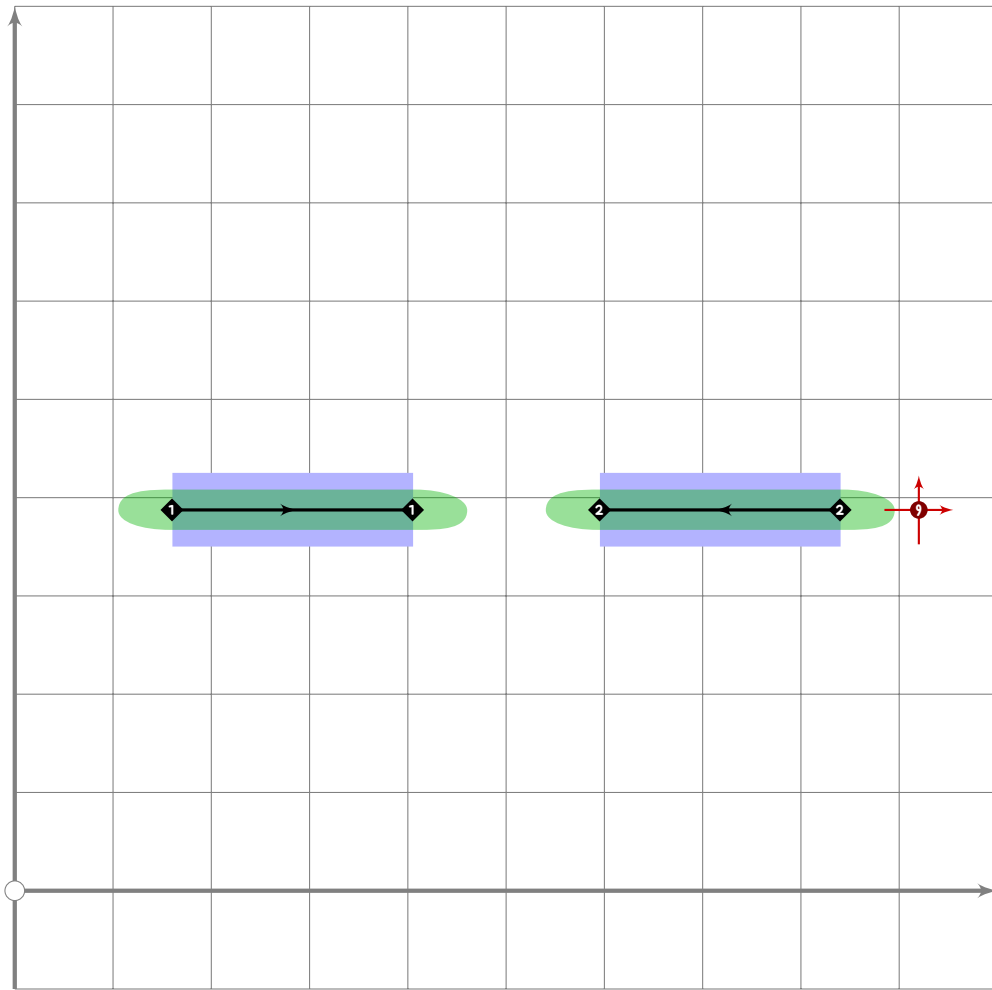
```

92
93 begintsuglyph("ichingtri8",55);
94 iching.line(1,3,0);
95 iching.line(2,3,0);
96 iching.line(3,3,0);
97 tsu_render;
98 endsuglyph;

```

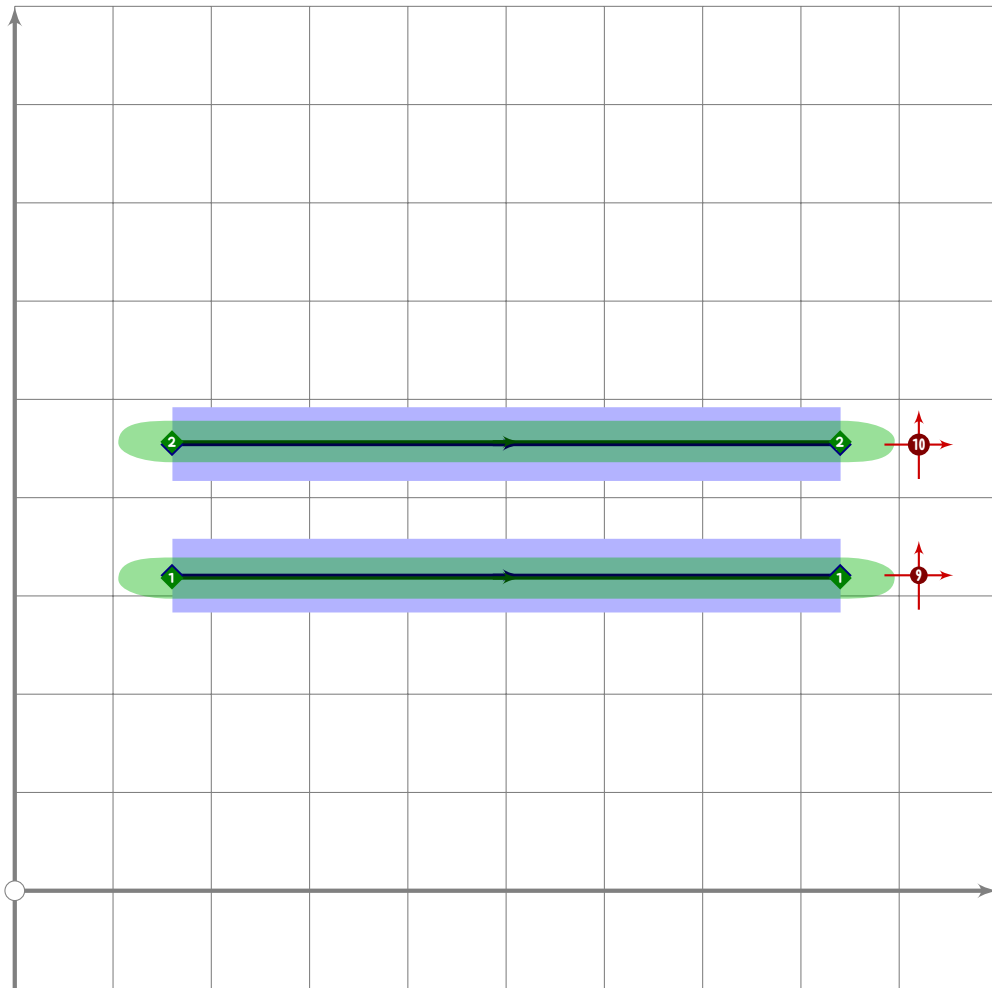


```
99  
100 begintsuglyph("ichingmono1",138);  
101 iching.line(1,1);  
102 tsu_render;  
103 endtsuglyph;
```



```
104  
105 begintsuglyph("ichingmono2",139);  
106 iching.line(1,1,0);  
107 tsu_render;  
108 endsuglyph;
```

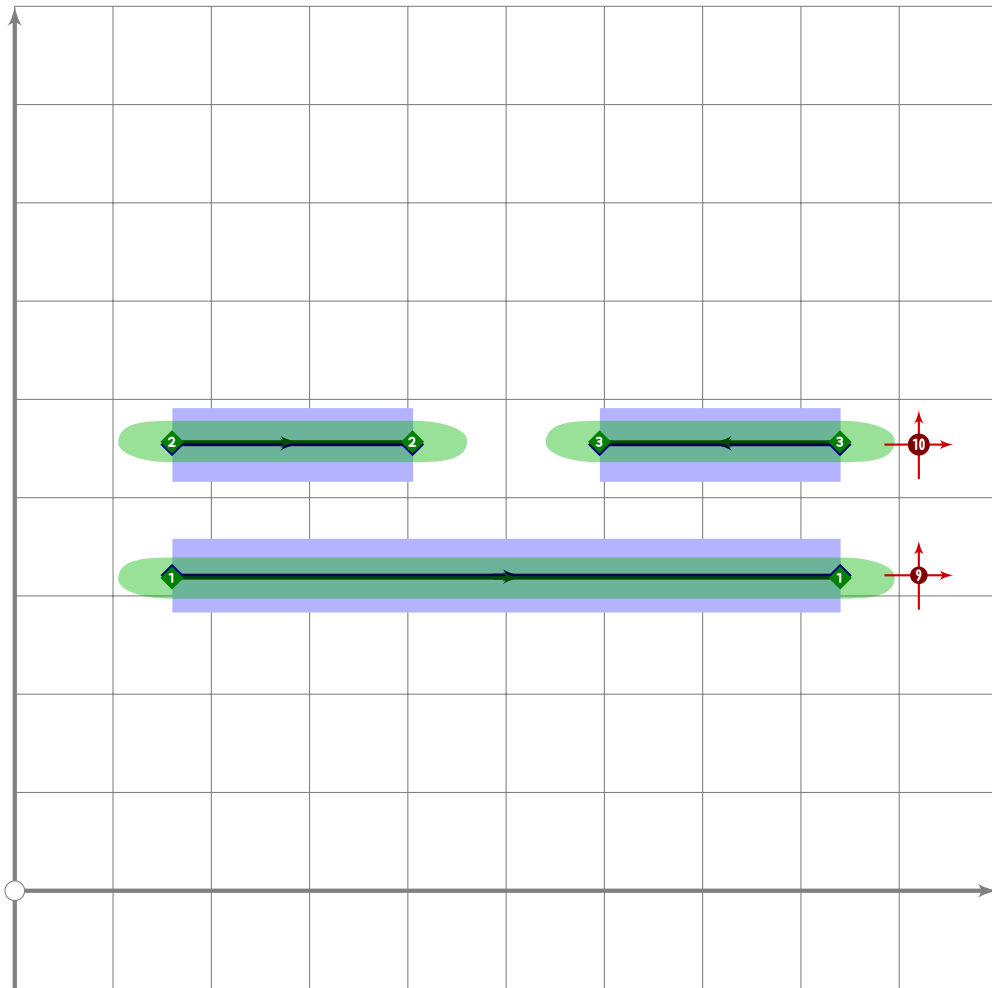




```

109
110 begintsuglyph("ichingdi1",140);
111 iching.line(1,2,1);
112 iching.line(2,2,1);
113 tsu_render;
114 endtsuglyph;

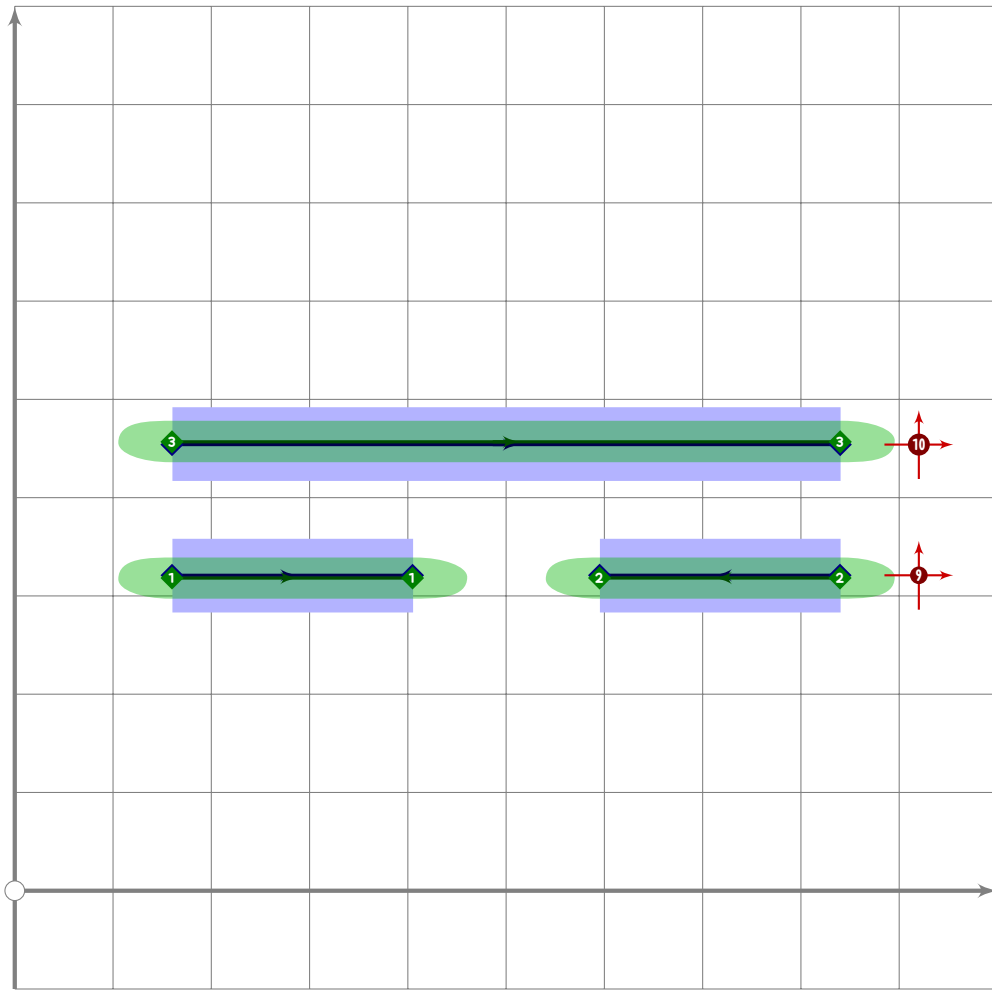
```



```

115
116 begint Suglyph("ichingdi2",141);
117   iching.line(1,2,1);
118   iching.line(2,2,0);
119   tsu_render;
120 endsuglyph;

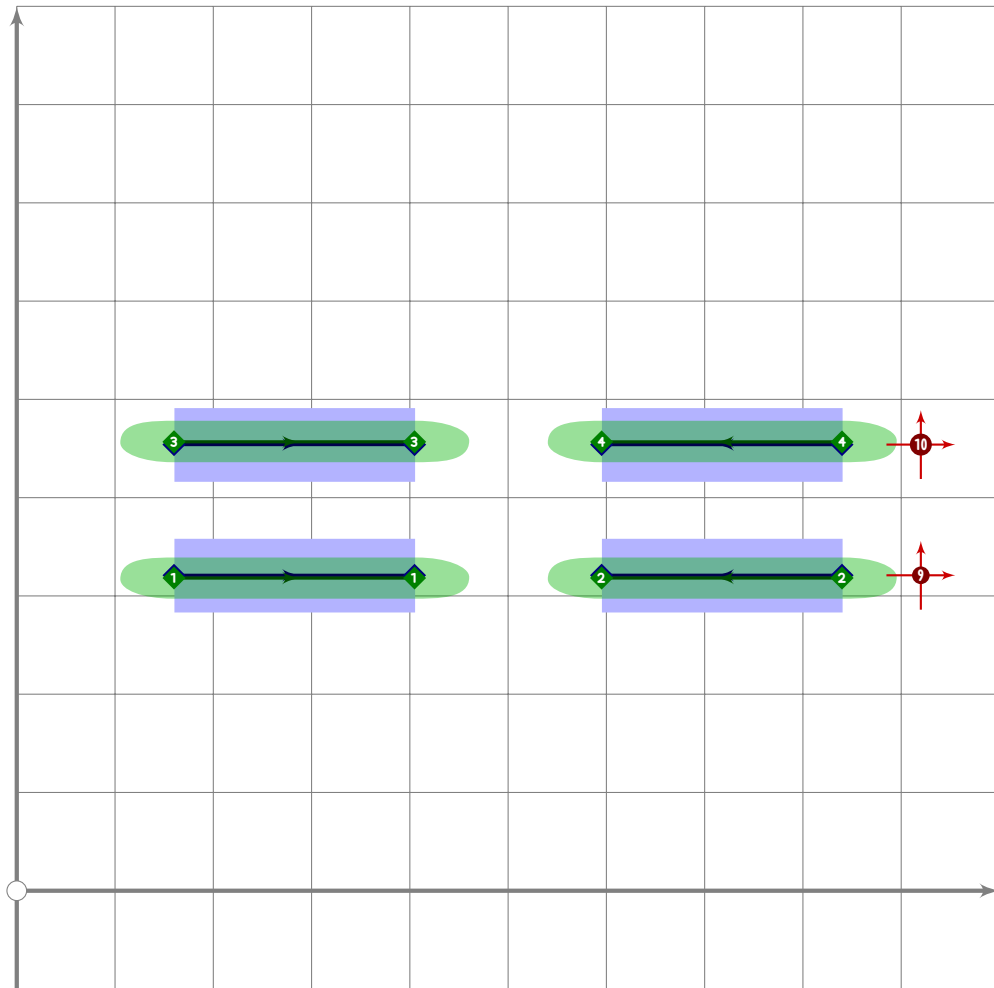
```



```

121
122 begintsuglyph("ichingdi3",142);
123 iching.line(1,2,0);
124 iching.line(2,2,1);
125 tsu_render;
126 endtsuglyph;

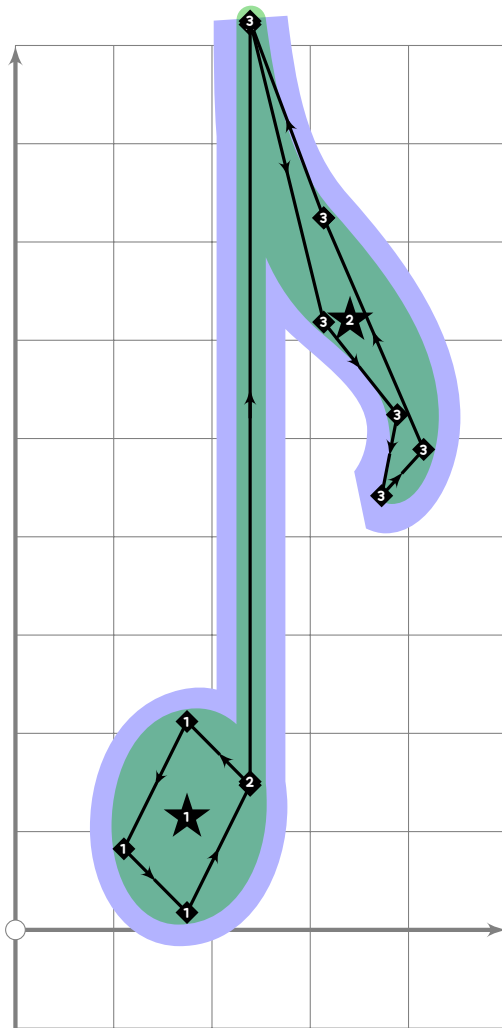
```



```

127
128 begintsuglyph("ichingdi4",143);
129 iching.line(1,2,0);
130 iching.line(2,2,0);
131 tsu_render;
132 endsuglyph;
133
134 _____
135
136 % musical eighth note, required for MES-1
137 tsu_rescale_half;

```



```

138 begintsuglyph("musicalnote";106);
139 push_stroke((500,150)..(380,205)..(260,95)..(380,40)..cycle,
140   (1.6,1.6)-(1.4,1.4)-(1.4,1.4)-(1.4,1.4)-cycle);
141 set_boalternate(0);
142 push_stroke((500,153)-(500,807),(1.6,1.6)-(1.6,1.6));
143 set_boalternate(0);
144 push_stroke((640,640)..{curl 1}(500,810){down}..(640,550)..(780,470)..
145   {curl 1}(750,400){curl 1}..(830,440)..cycle,
146   (1.3,1.3)-(1.6,1.6)-(1.3,1.3)-(1.3,1.3)-(1,1)-(1.3,1.3));
147 set_botip(0,1,0);
148 set_botip(0,4,0);
149 set_boalternate(0);
150 if tsu_pbrush_size>=30:
151   push_lcblob(get_stroke(-2));
152   push_lcblob(get_stroke(0));
153 fi;
154 tsu_render;
155 endtsuglyph;
156
157

```

158

159 **endfont;**

160

161

---

# tsuku-27.mp

```
1 %
2 % Unicode page 27 (Zapfian Dingbats) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---

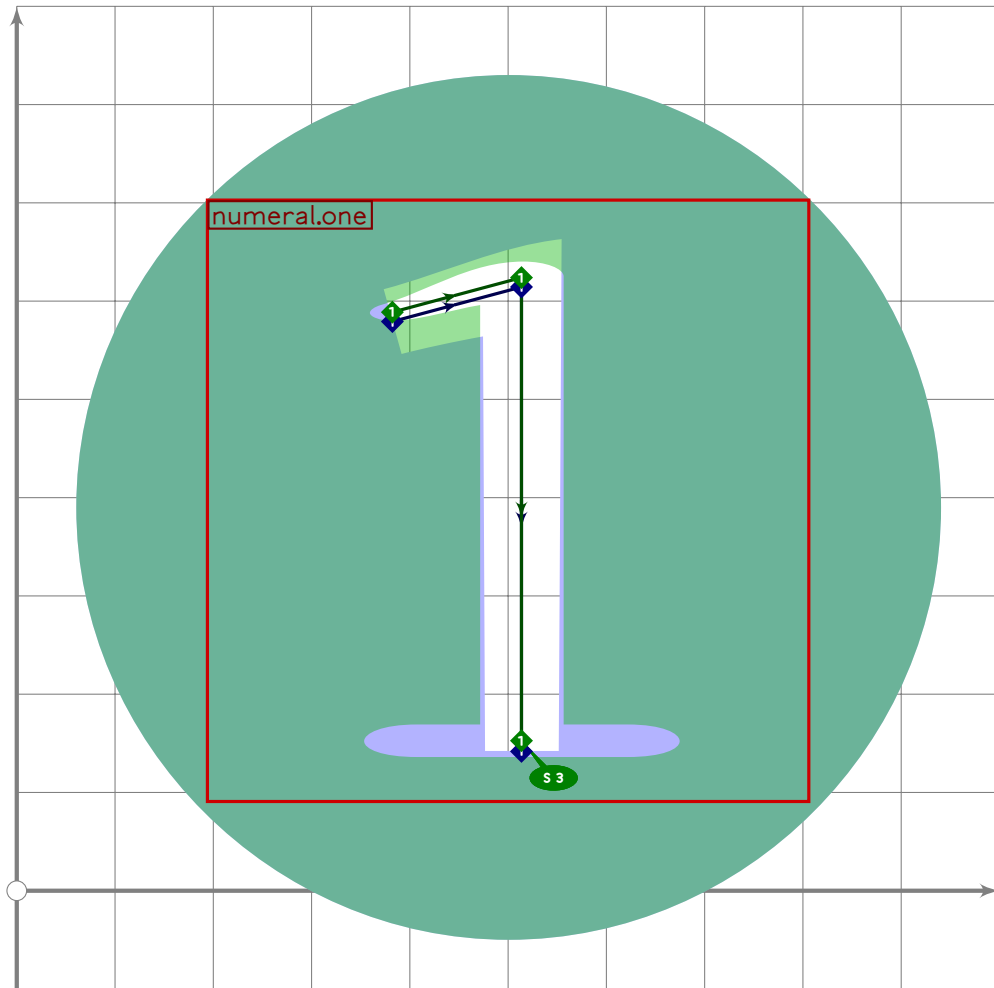

32
33 beginfont
34
35 input latin-intro.mp;
36 input enclosed.mp;
37
38 % AUTODEPS
39 input numerals.mp;
40
41 

---


42
```

## Inverted Circled Numerals

```
43 % INVERTED CIRCLED NUMERALS
44
```

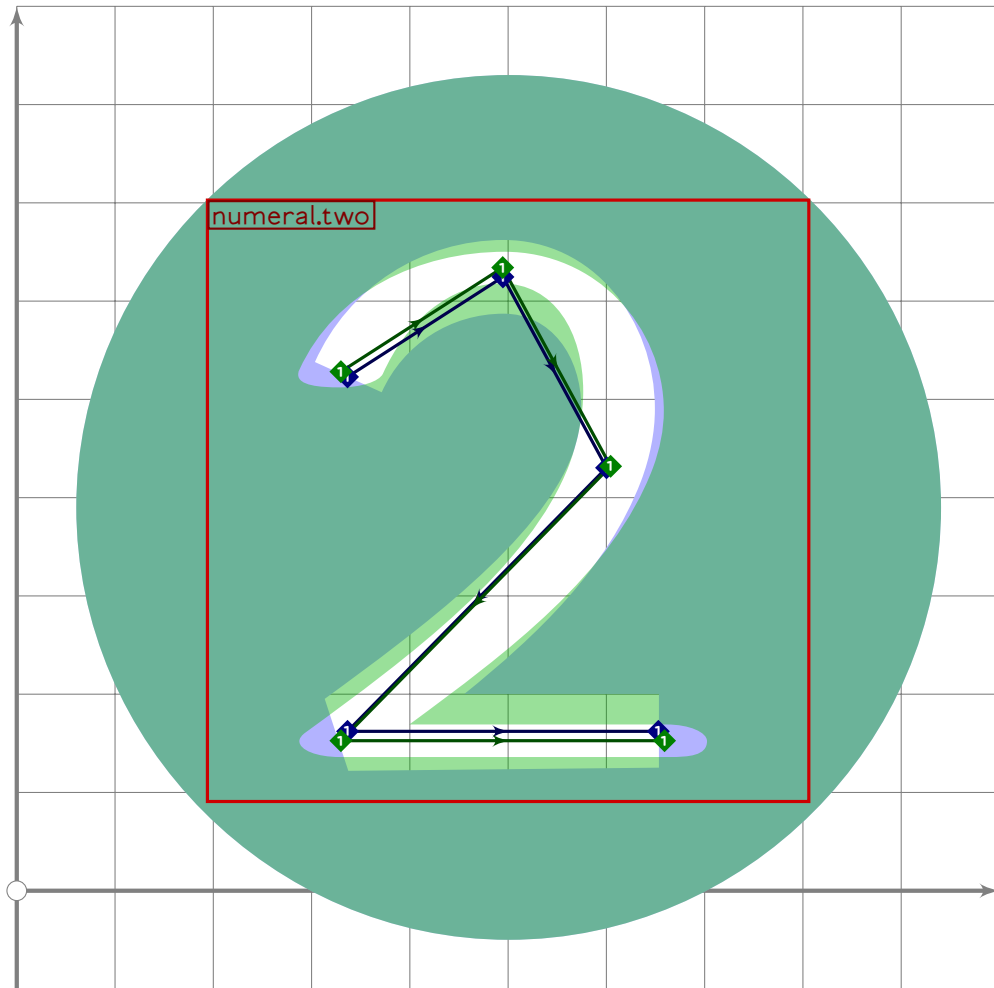


```

45 % 1
46 % BACKGROUND 25CF
47 begint Suglyph("uni2776",118);
48 tsu_xform(tsu_xf.circled)(numeral.one);
49 i:=0; forever: exitif find_stroke(i)<1;
50   set_bosize(i,107); i:=i-1; endfor;
51 tsu_render;
52 endtsuglyph;
53

```

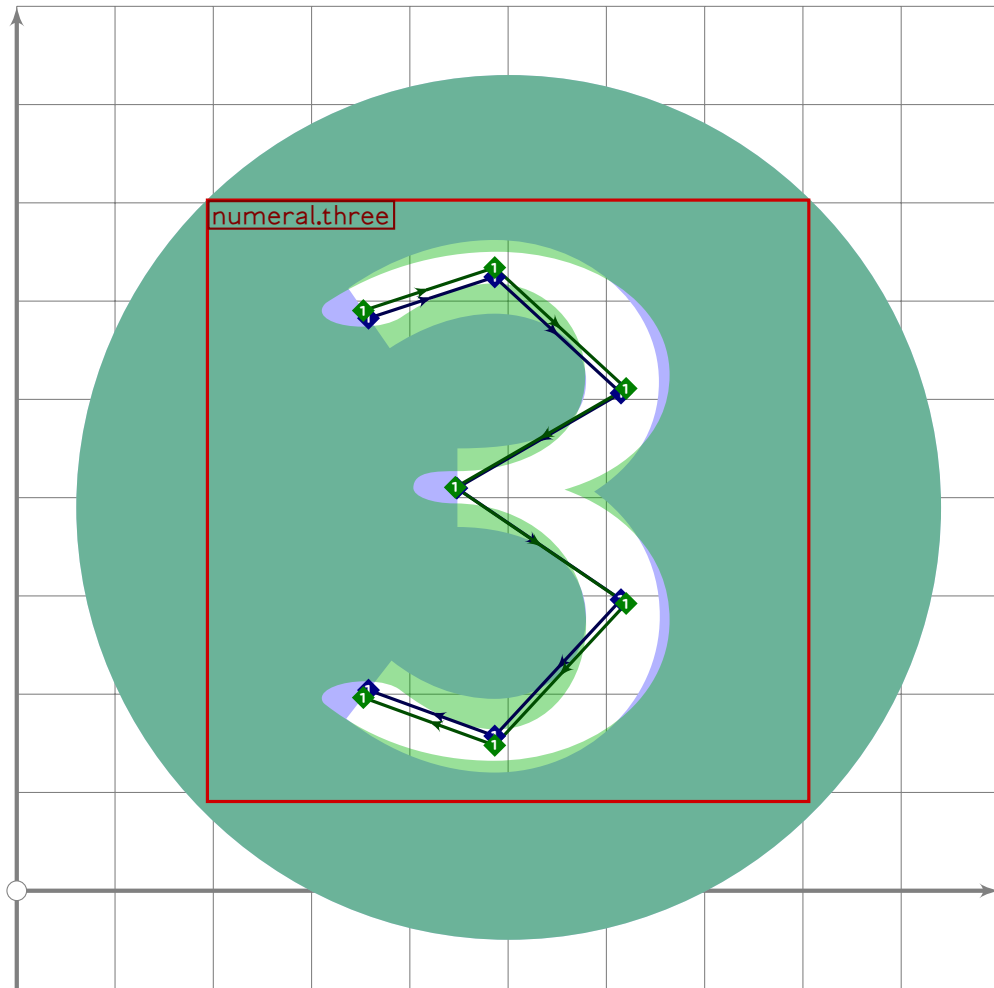




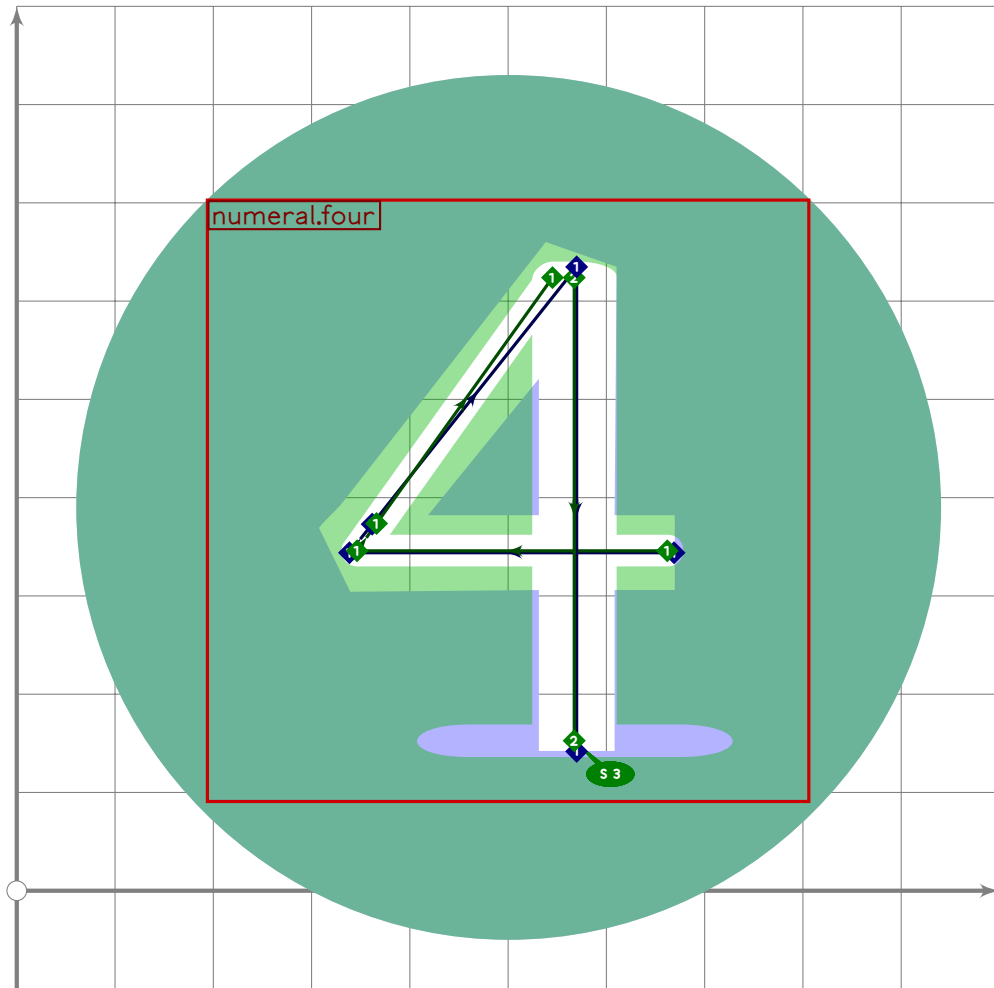
```

54 % 2
55 % BACKGROUND 25CF
56 begint Suglyph("uni2777",119);
57 tsu_xform(tsu_xf.circled)(numeral.two);
58 i:=0; forever: exitif find_stroke(i)<1;
59   set_bosize(i,107); i:=i-1; endfor;
60 tsu_render;
61 endtsuglyph;
62

```



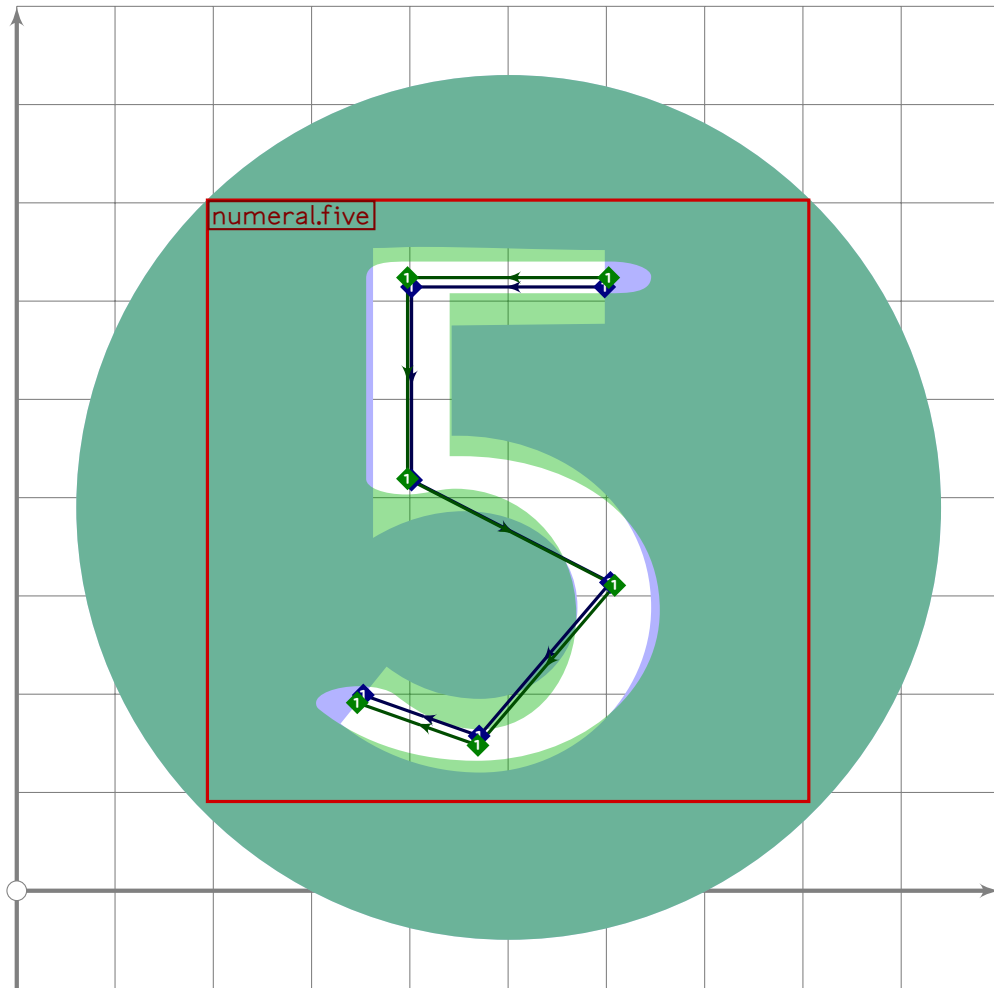
```
63 % 3
64 % BACKGROUND 25CF
65 beginsuglyph("uni2778",120);
66 tsu_xform(tsu_xf.circled)(numeral.three);
67 i:=0; forever: exitif find_stroke(i)<1;
68   set_bosize(i,107); i:=i-1; endfor;
69 tsu_render;
70 endsuglyph;
71
```



```

72 % 4
73 % BACKGROUND 25CF
74 beginsuglyph("uni2779",121);
75 tsu_xform(tsu_xf.circled)(numeral.four);
76 i:=0; forever: exitif find_stroke(i)<1;
77   set_bosize(i,107); i:=i-1; endfor;
78 tsu_render;
79 endsuglyph;
80

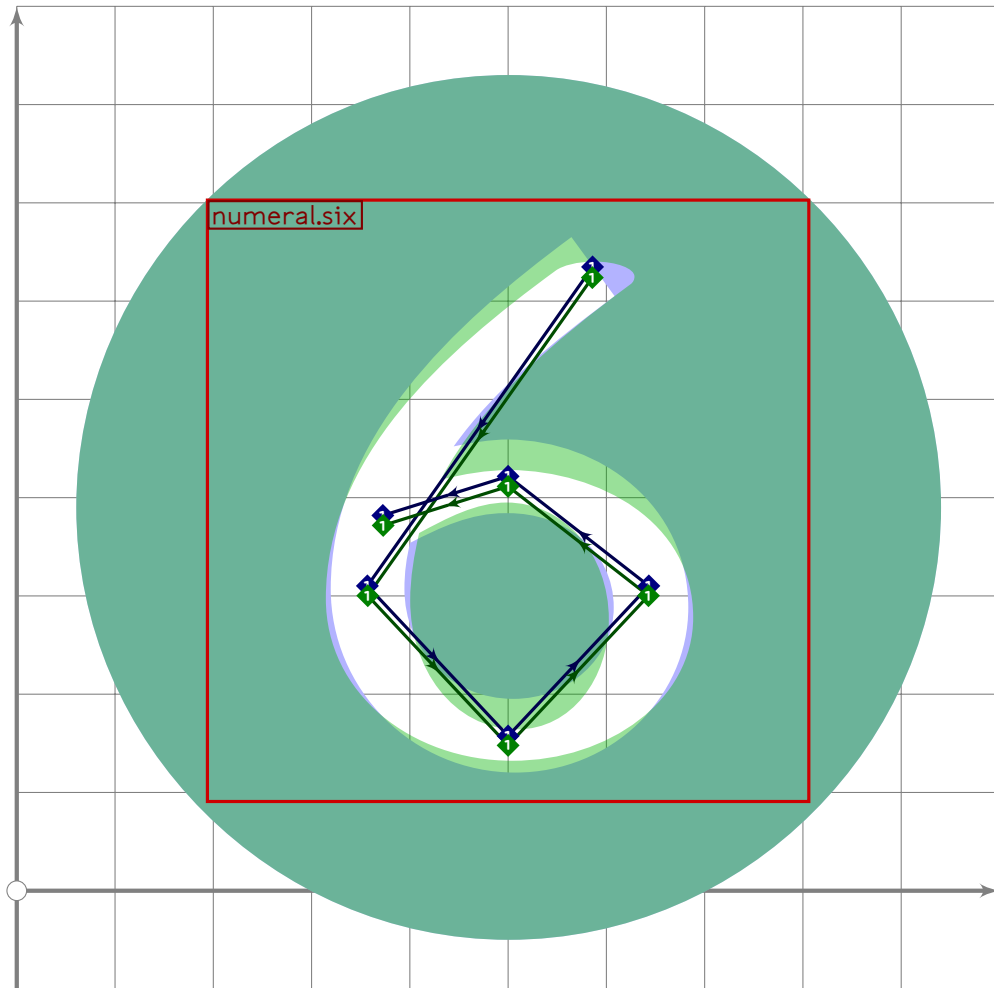
```



```

81 % 5
82 % BACKGROUND 25CF
83 begint Suglyph("uni277A",122);
84 tsu_xform(tsu_xf.circled)(numeral.five);
85 i:=0; forever: exitif find_stroke(i)<1;
86   set_bosize(i,107); i:=i-1; endfor;
87 tsu_render;
88 endtsuglyph;
89

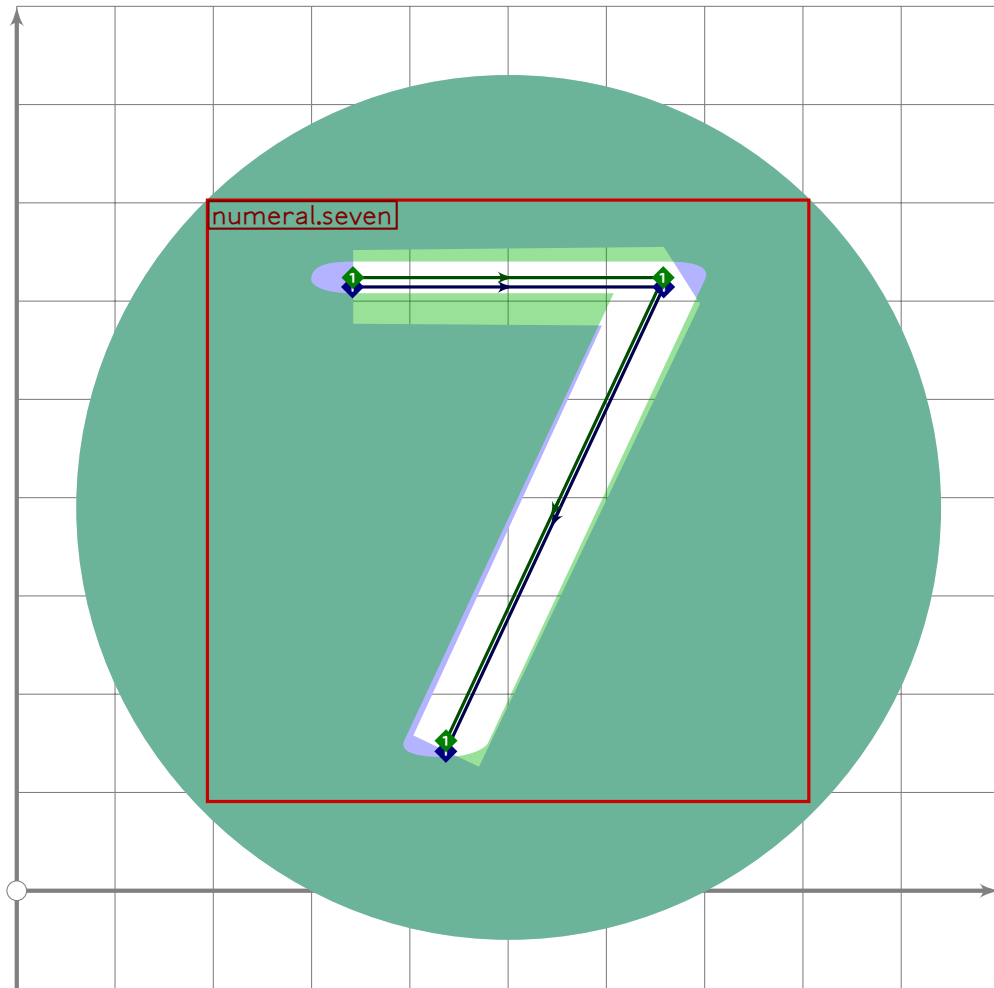
```



```

90 % 6
91 % BACKGROUND 25CF
92 beginsuglyph("uni277B",123);
93 tsu_xform(tsu_xf.circled)(numeral.six);
94 i:=0; forever: exitif find_stroke(i)<1;
95     set_bosize(i,107); i:=i-1; endfor;
96 tsu_render;
97 endsuglyph;
98

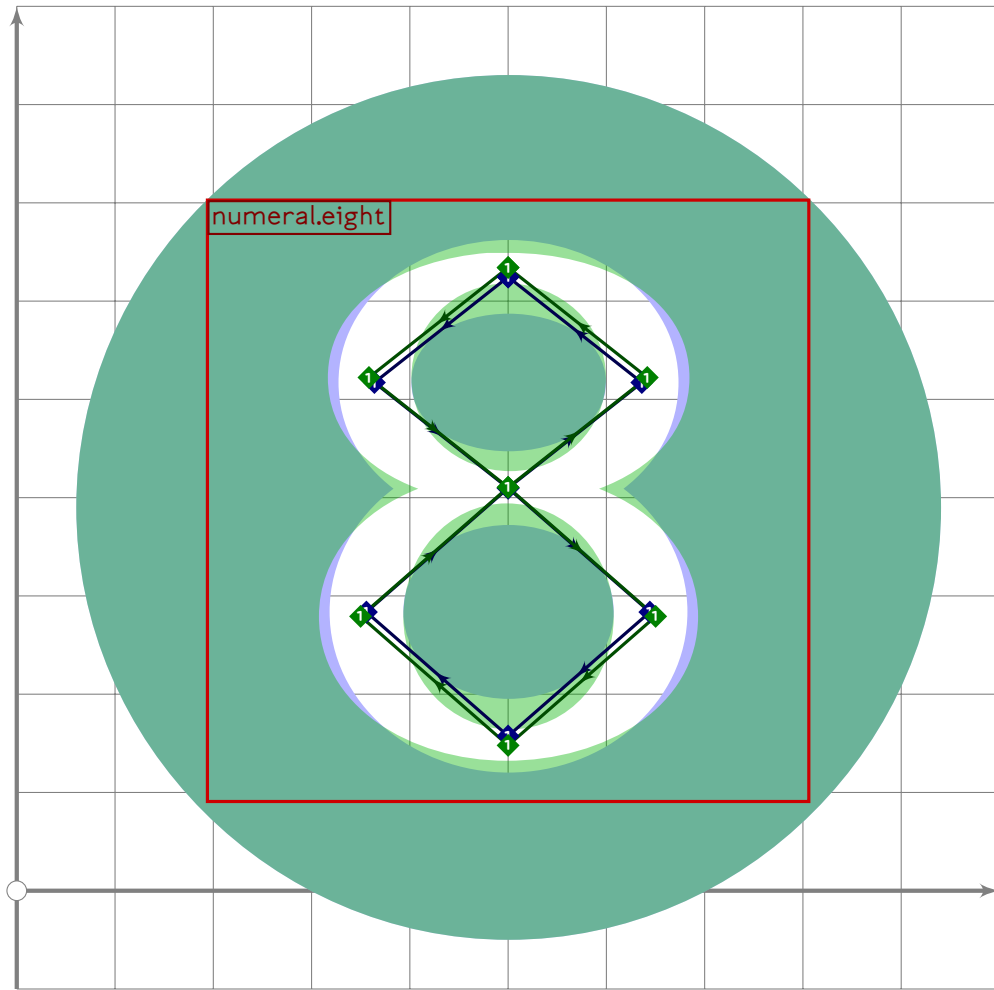
```



```

99 % 7
100 % BACKGROUND 25CF
101 begint Suglyph("uni277C";124);
102 tsu_xform(tsu_xf.circled)(numeral.seven);
103 i:=0; forever: exitif find_stroke(i)<1;
104   set_bosize(i,107); i:=i-1; endfor;
105 tsu_render;
106 endtsuglyph;
107

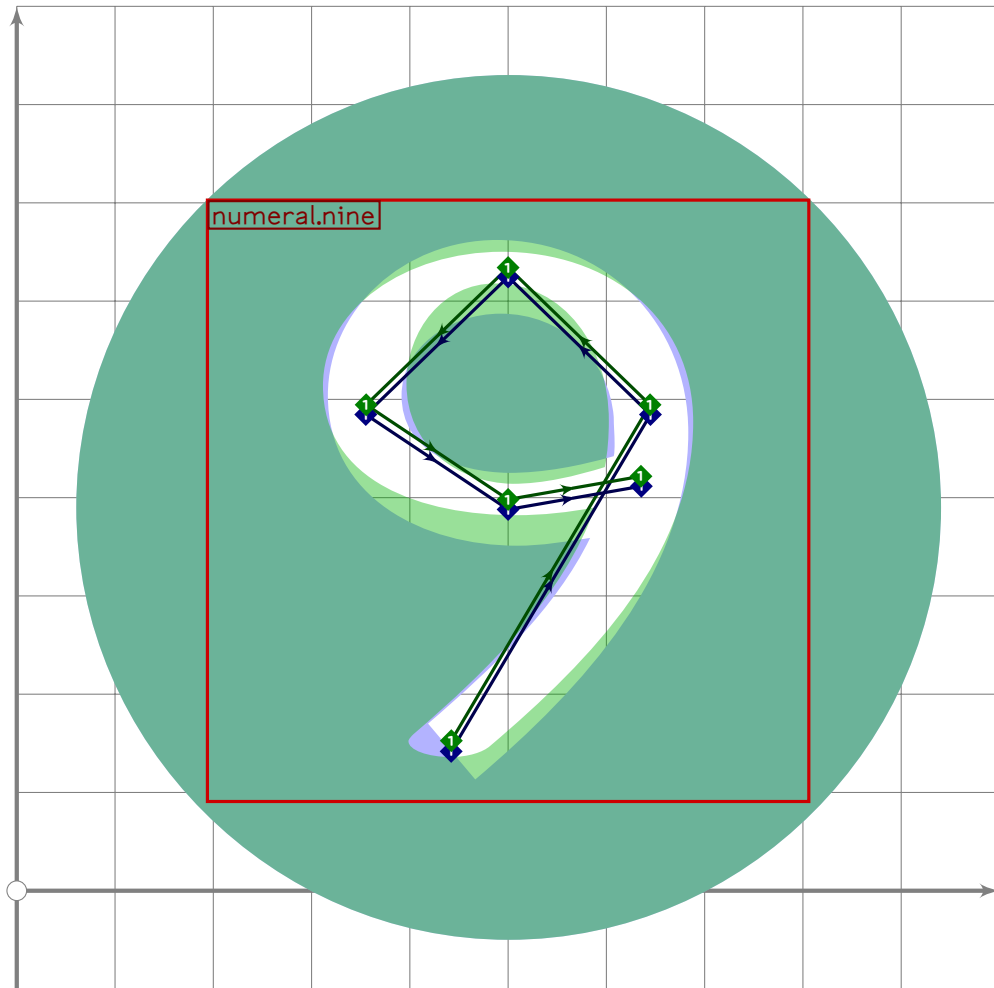
```



```

108 % 8
109 % BACKGROUND 25CF
110 beginsuglyph("uni277D";125);
111 tsu_xform(tsu_xf.circled)(numeral.eight);
112 i:=0; forever: exitif find_stroke(i)<1;
113     set_bosize(i,107); i:=i-1; endfor;
114 tsu_render;
115 endsuglyph;
116

```

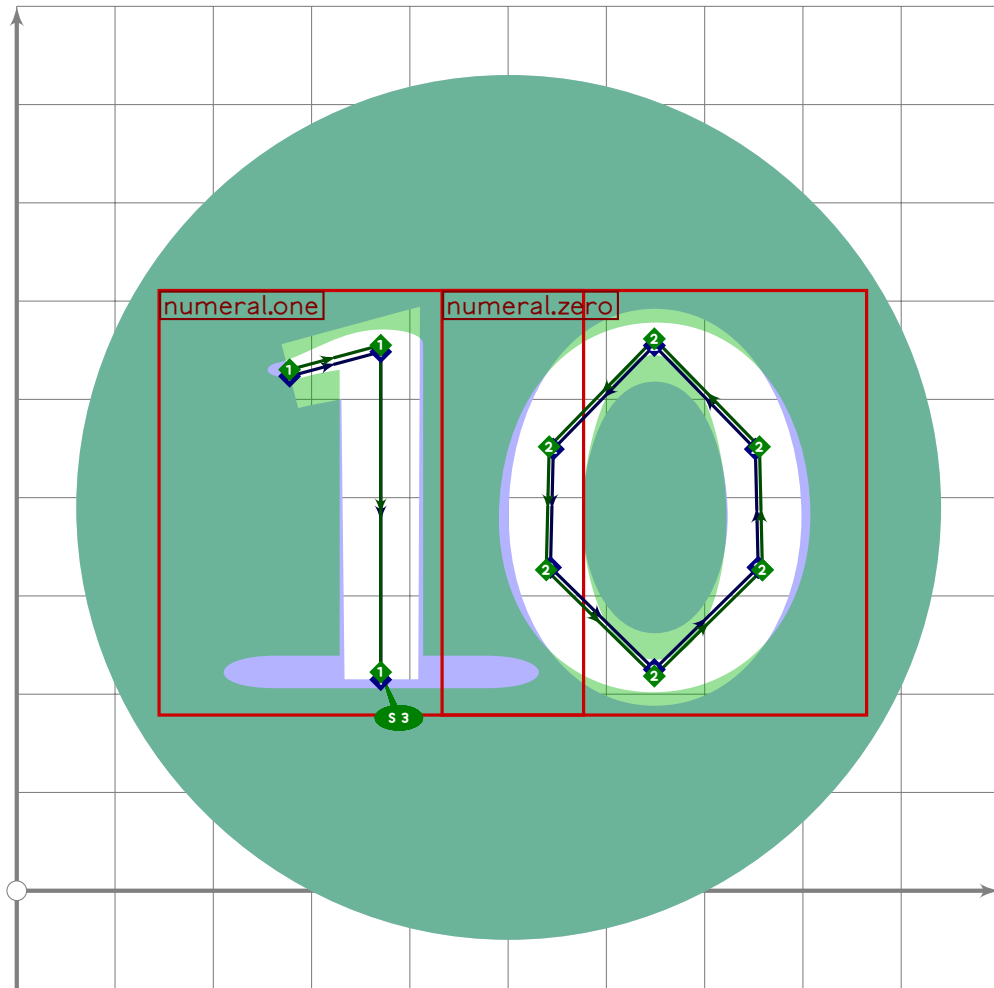


```

117 % 9
118 % BACKGROUND 25CF
119 beginsuglyph("uni277E",126);
120 tsu_xform(tsu_xf.circled)(numeral.nine);
121 i:=0; forever: exitif find_stroke(i)<1;
122   set_bosize(i,107); i:=i-1; endfor;
123 tsu_render;
124 endsuglyph;
125

```





```

126 % 10
127 % BACKGROUND 25CF
128 begint Suglyph("uni277F",127);
129 tsu_xform(tsu_xf.ctwo.left)(numeral.one);
130 numeric x[],y[];
131 tsu_xform(tsu_xf.ctwo.right)(numeral.zero);
132 i:=0; forever: exitif find_stroke(i)<1;
133     set_bosize(i,107); i:=i-1; endfor;
134 tsu_render;
135 endtsuglyph;
136
137 _____
138
139 endfont;
140
141 _____

```

# tsuku-2f.mp

```
1 %
2 % Unicode page 27 (Ideographic Description Characters) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36
37 

---


38
```

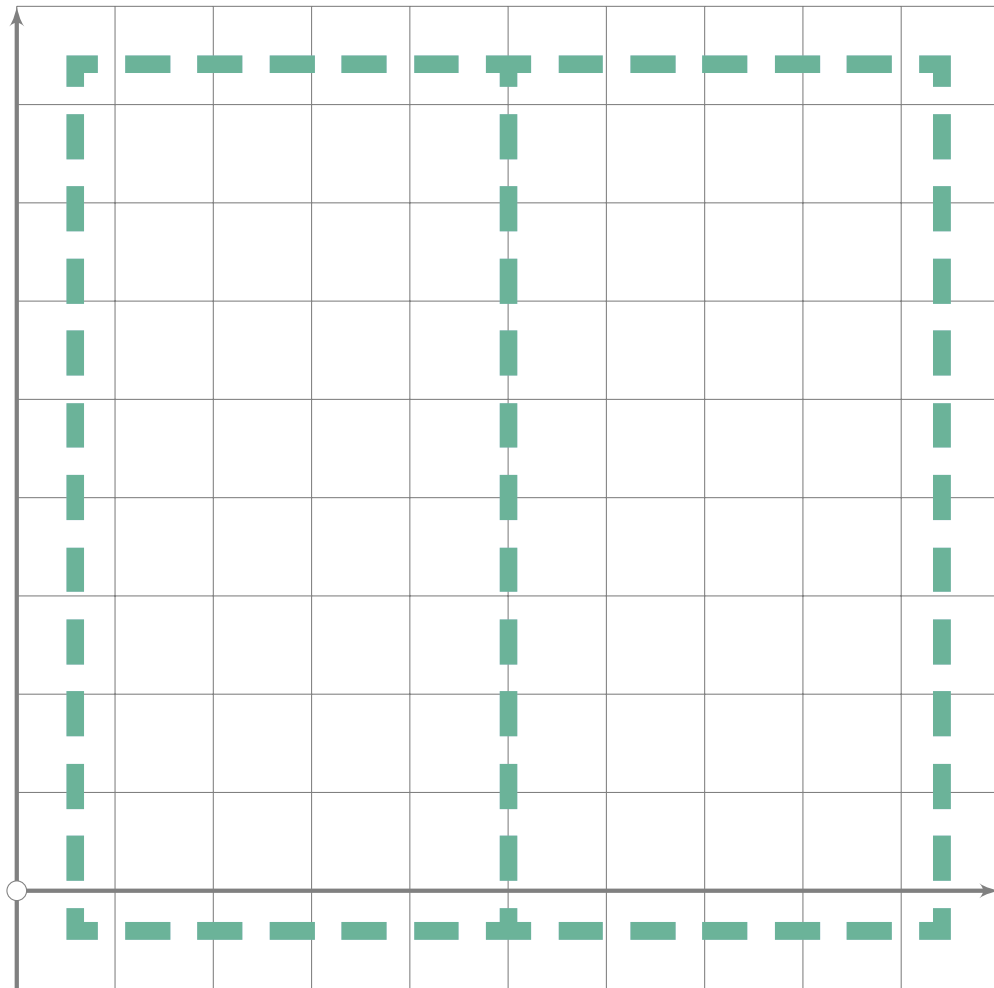
## Ideographic Description Characters

```
39 % IDEOGRAPHIC DESCRIPTION CHARACTERS
40
41 numeric idc_corners;
42
43 vardef idc_horiz(expr v,ha,hb) =
44   for h:=ha upto hb:
45     if h<hb: idc_corners[h][v].r:=1; fi;
46     if h>ha: idc_corners[h][v].l:=1; fi;
47   endfor;
48 enddef;
49
50 vardef idc_vert(expr h,va,vb) =
51   for v:=va upto vb:
52     if v<vb: idc_corners[h][v].d:=1; fi;
53     if v>va: idc_corners[h][v].u:=1; fi;
54   endfor;
55 enddef;
56
57 vardef idc_rect(expr ur,ll) =
58   idc_horiz(ypart ur,xpart ur,xpart ll);
59   idc_vert(xpart ur,ypart ll,ypart ur);
60   idc_vert(xpart ll,ypart ll,ypart ur);
61   idc_horiz(ypart ll,xpart ur,xpart ll);
62 enddef;
63
64 transform idc_drawxf;
65 (-1,-1) transformed idc_drawxf=(50,-50);
66 (97,-1) transformed idc_drawxf=(950,-50);
67 (97,97) transformed idc_drawxf=(950,850);
68
```

```

69 vardef idc_render =
70   begingroup
71     save glyph;
72     path glyph;
73     for h:=0 upto 6:
74       for v:=0 upto 6:
75         if (known idc_corners[h][v].l) or (known idc_corners[h][v].r)
76           or (known idc_corners[h][v].u) or (known idc_corners[h][v].d):
77           glyph:=(
78             (-1,1)-if known idc_corners[h][v].d: (-1,2.5)-(1,2.5)- fi
79             (1,1)-if known idc_corners[h][v].r: (2.5,1)-(2.5,-1)- fi
80             (1,-1)-if known idc_corners[h][v].u: (1,-2.5)-(-1,-2.5)- fi
81             (-1,-1)-if known idc_corners[h][v].l: (-2.5,-1)-(-2.5,1)- fi
82             cycle) shifted ((h,v) scaled 16);
83           dangerousFill glyph transformed idc_drawxf;
84           if known idc_corners[h][v].d:
85             glyph:=((-1,5.5)-(-1,10.5)-(1,10.5)-(1,5.5)-cycle)
86               shifted ((h,v) scaled 16);
87             dangerousFill glyph transformed idc_drawxf;
88           fi;
89           if known idc_corners[h][v].r:
90             glyph:=((5.5,-1)-(5.5,1)-(10.5,1)-(10.5,-1)-cycle)
91               shifted ((h,v) scaled 16);
92             dangerousFill glyph transformed idc_drawxf;
93           fi;
94           fi;
95           idc_corners[h][v].l:=whatever;
96           idc_corners[h][v].r:=whatever;
97           idc_corners[h][v].u:=whatever;
98           idc_corners[h][v].d:=whatever;
99         endfor;
100       endfor;
101     endgroup;
102 enddef;
103

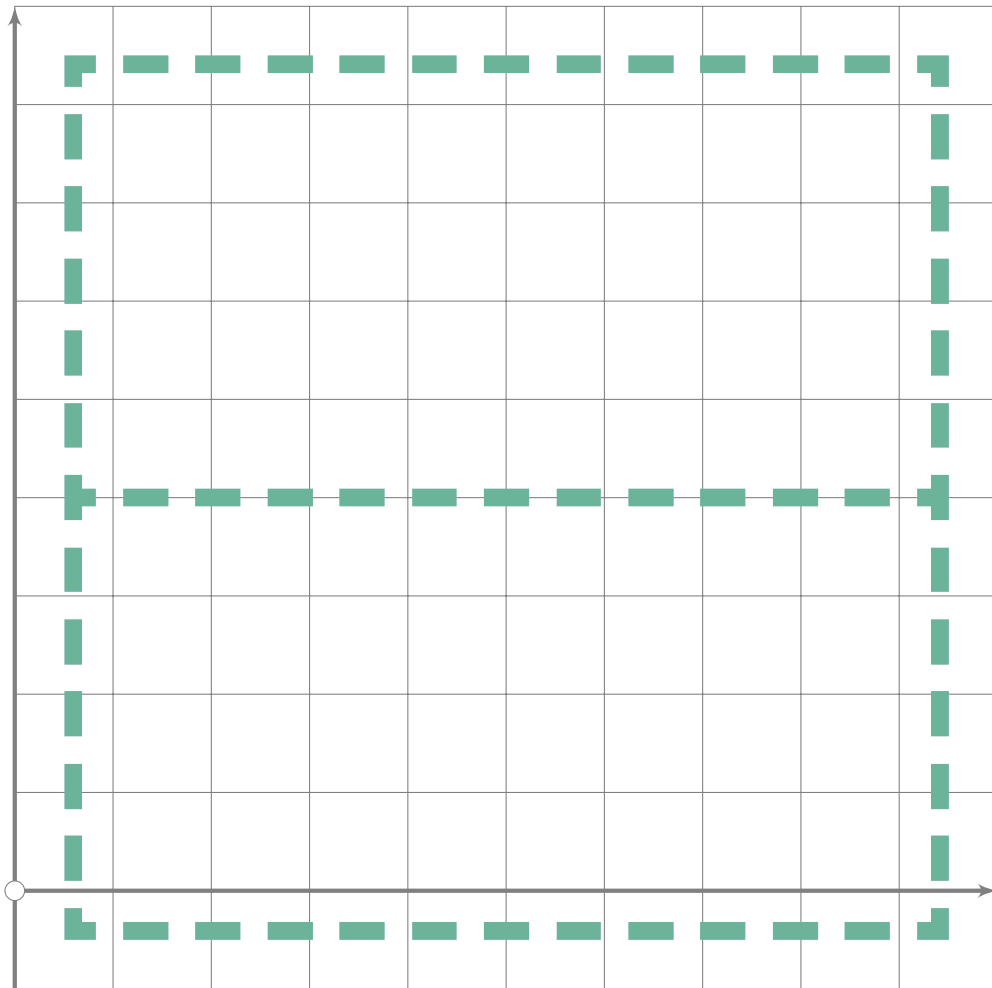
```



```

104 % left to right
105 begint Suglyph("uni2FF0",240);
106   idc_rect((0,6),(6,0));
107   idc_vert(3,0,6);
108   idc_render;
109 endsuglyph;
110

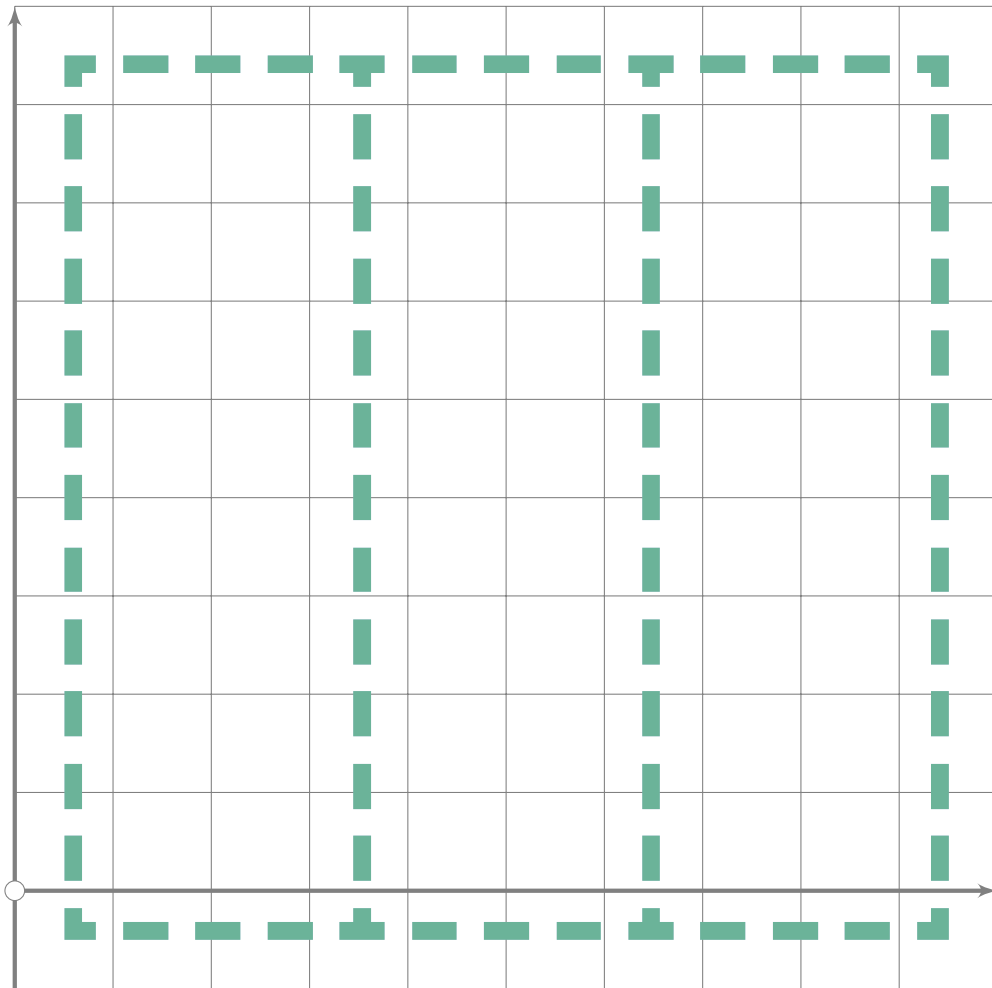
```



```

111 % above to below
112 begintsuglyph("uni2FF1",241);
113 idc_rect((0,6),(6,0));
114 idc_horiz(3,0,6);
115 idc_render;
116 endsuglyph;
117

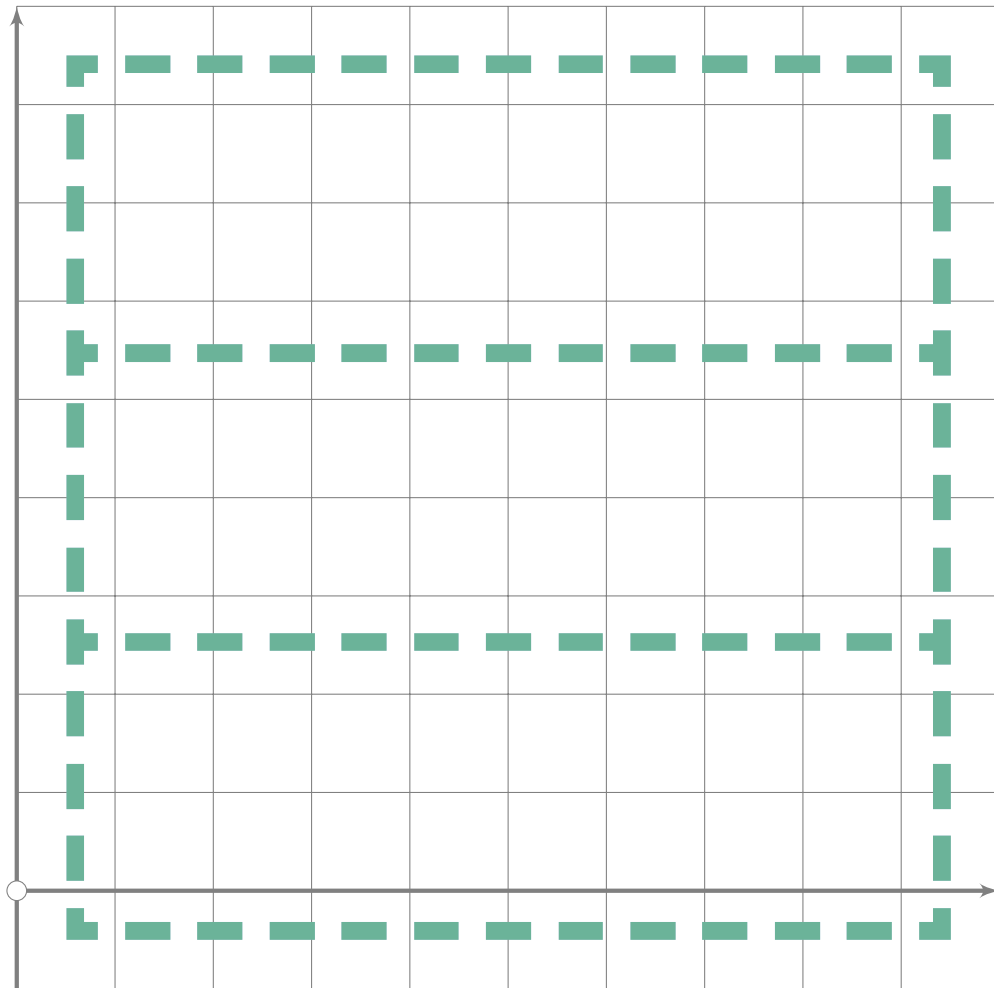
```



```

118 % left to middle to right
119 beginsuglyph("uni2FF2",242);
120   idc_rect((0,6),(6,0));
121   idc_vert(2,0,6);
122   idc_vert(4,0,6);
123   idc_render;
124 endsuglyph;
125

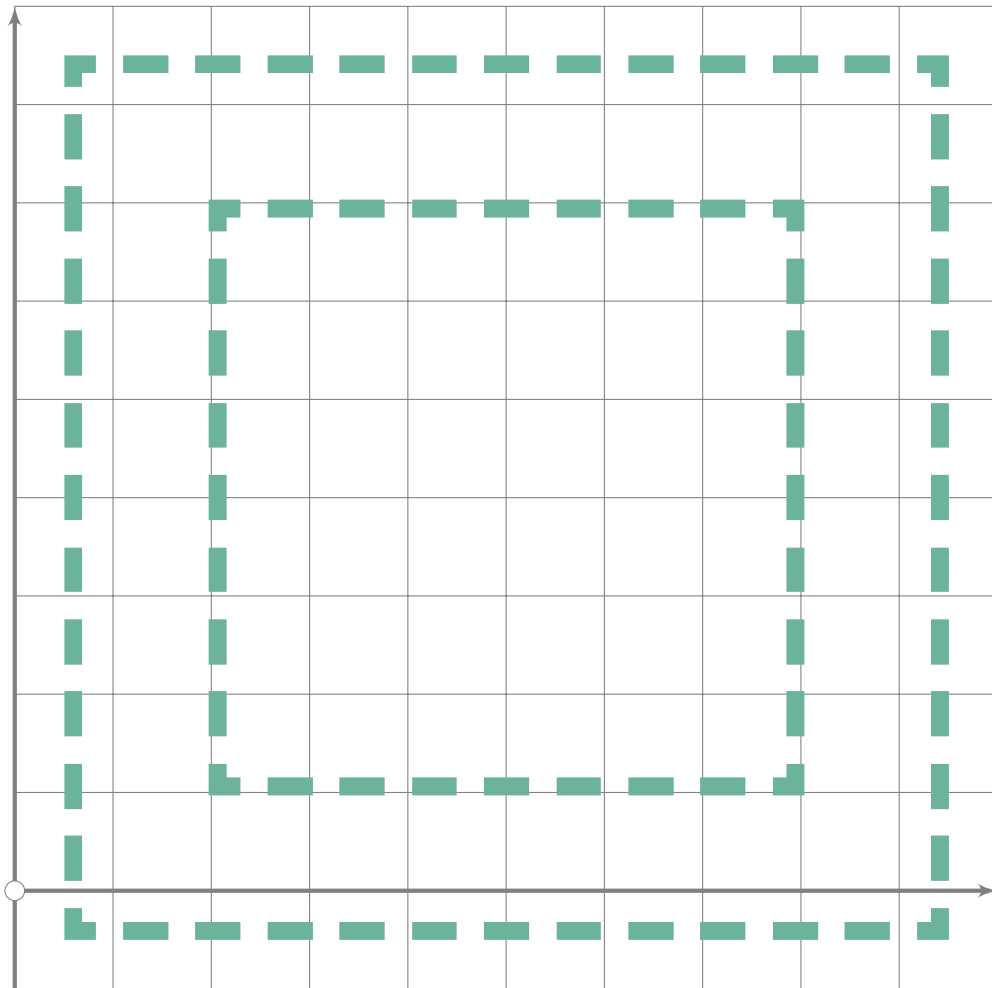
```



```

126 % above to middle to below
127 begintsuglyph("uni2FF3",243);
128 idc_rect((0,6),(6,0));
129 idc_horiz(2,0,6);
130 idc_horiz(4,0,6);
131 idc_render;
132 endsuglyph;
133

```

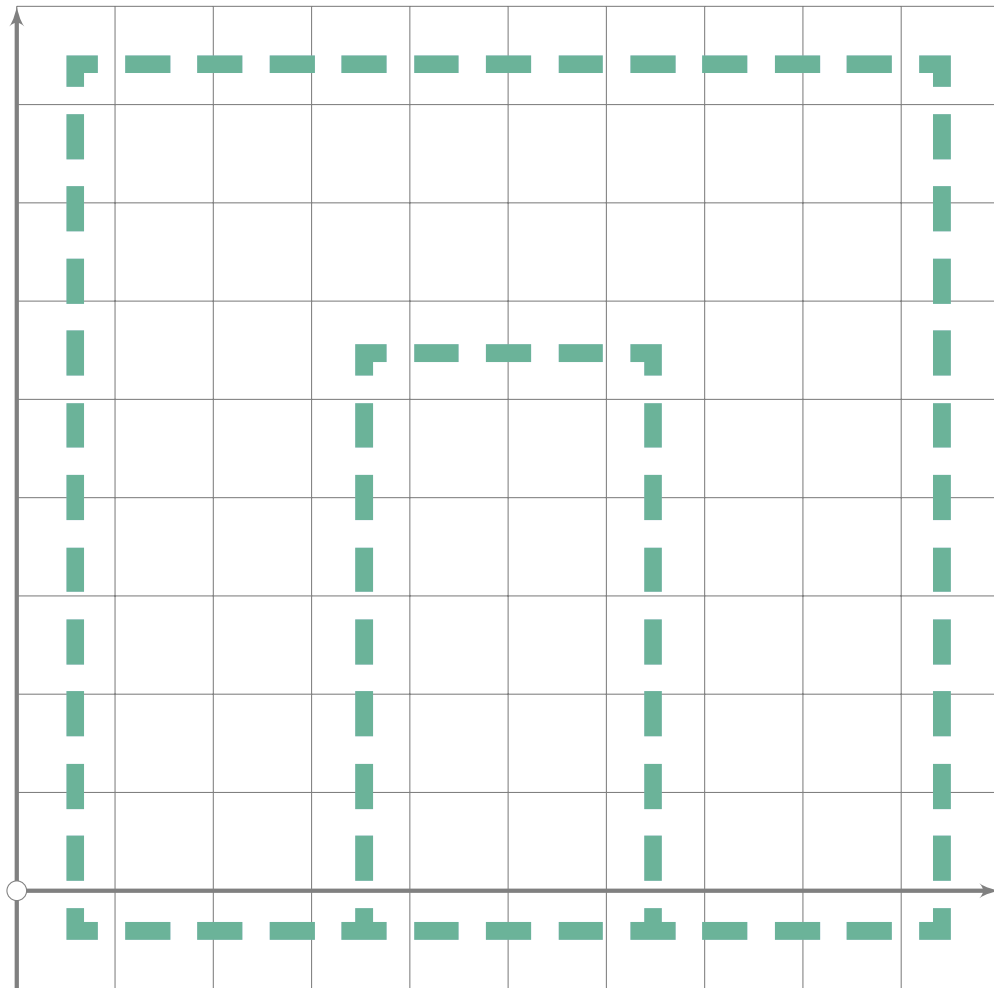


```

134 % full surround
135 beginsuglyph("uni2FF4",244);
136   idc_rect((0,6),(6,0));
137   idc_rect((1,5),(5,1));
138   idc_render;
139 endsuglyph;
140

```

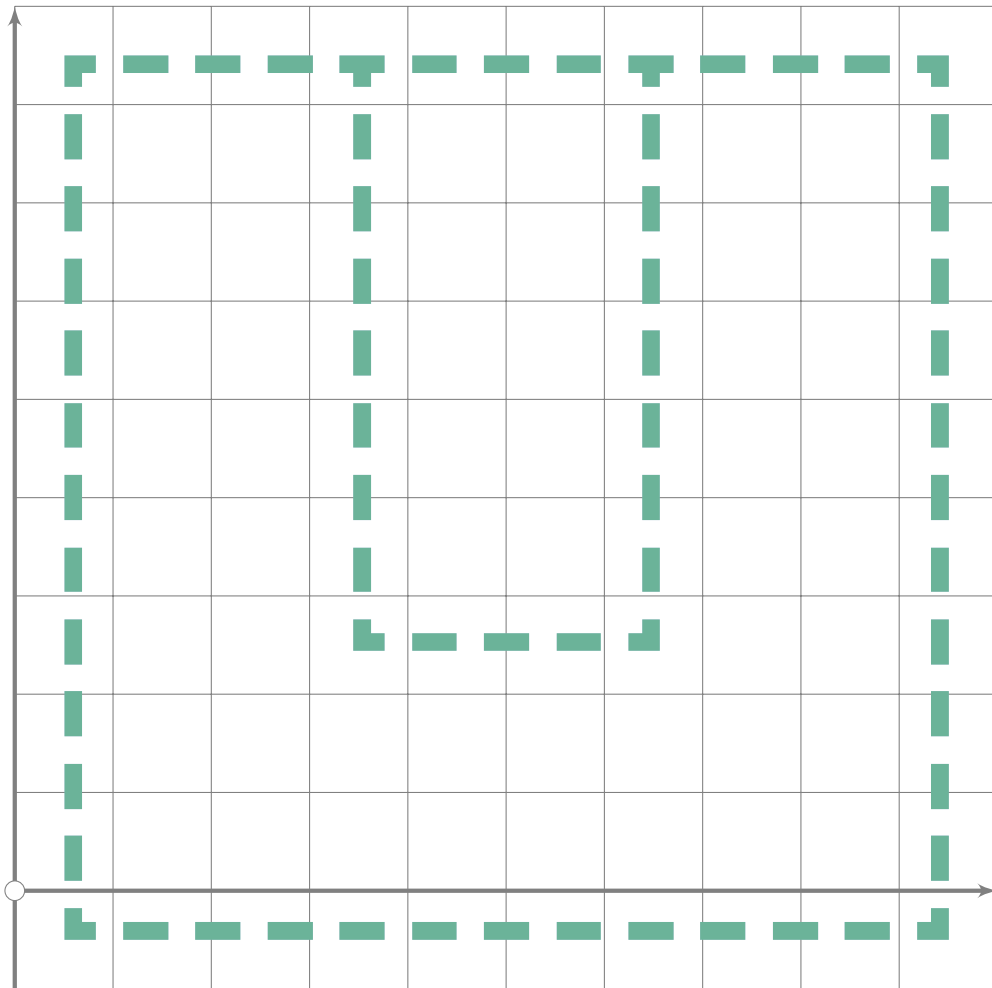




```

141 % surround from above
142 begint Suglyph("uni2FF5";245);
143   idc_rect((0,6),(6,0));
144   idc_rect((2,4),(4,0));
145   idc_render;
146 ends Suglyph;
147

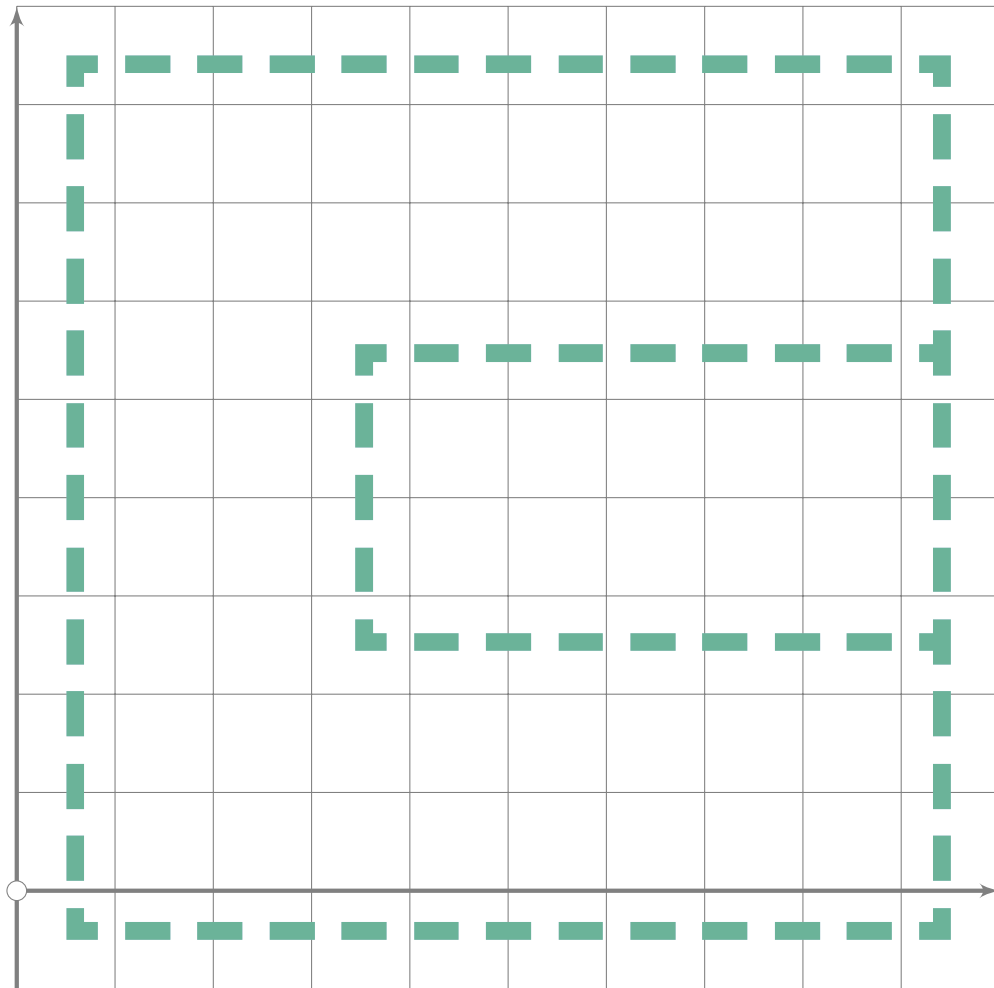
```



```

148 % surround from below
149 begint Suglyph("uni2FF6",246);
150   idc_rect((0,6),(6,0));
151   idc_rect((2,6),(4,2));
152   idc_render;
153 endsuglyph;
154

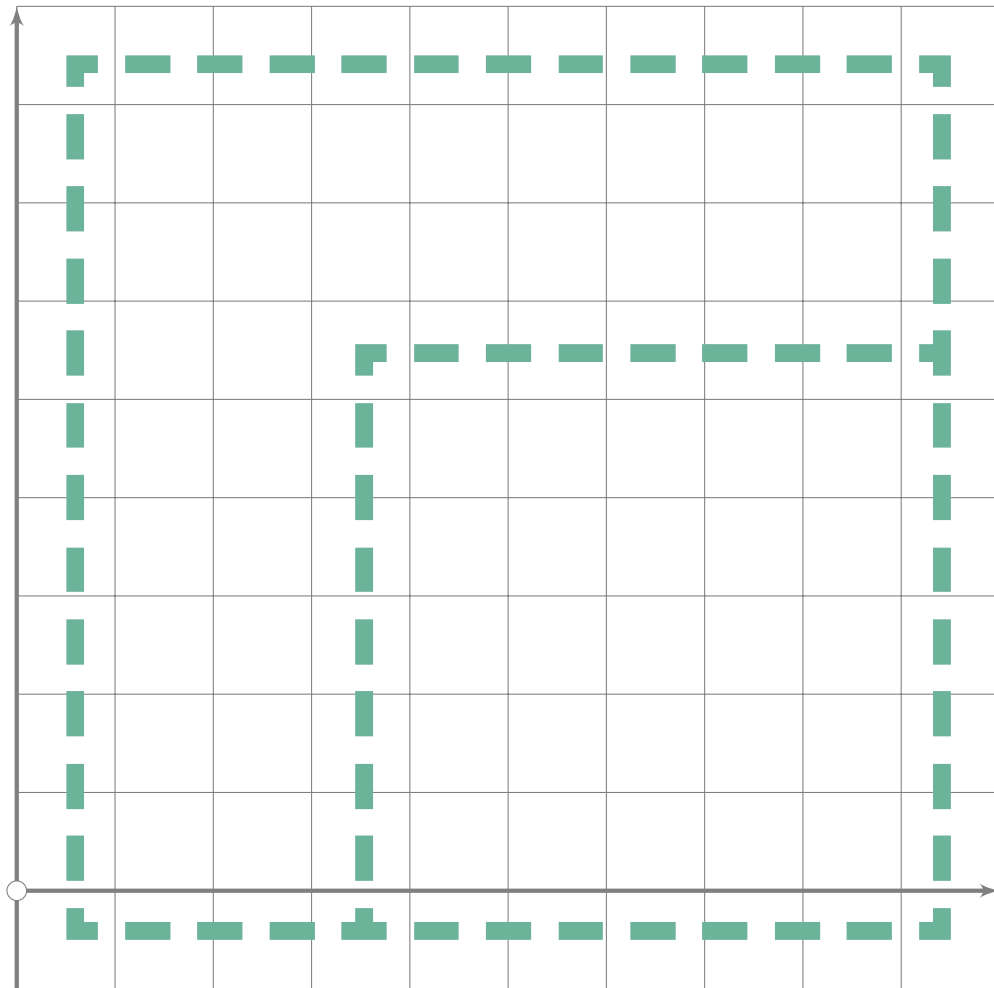
```



```

155 % surround from left
156 beginsuglyph("uni2FF7",247);
157   idc_rect((0,6),(6,0));
158   idc_rect((2,4),(6,2));
159   idc_render;
160 endsuglyph;
161

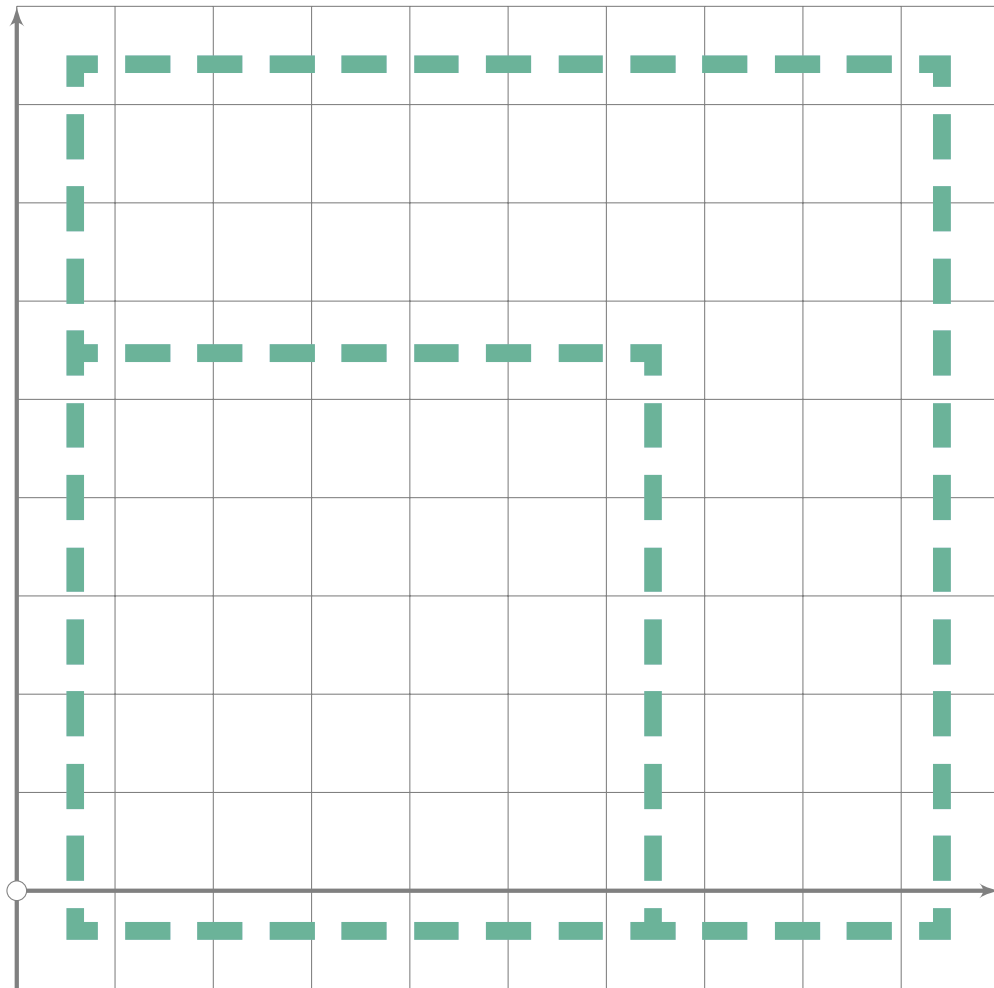
```



```

162 % surround from upper left
163 beginsuglyph("uni2FF8",248);
164   idc_rect((0,6),(6,0));
165   idc_rect((2,4),(6,0));
166   idc_render;
167 endsuglyph;
168

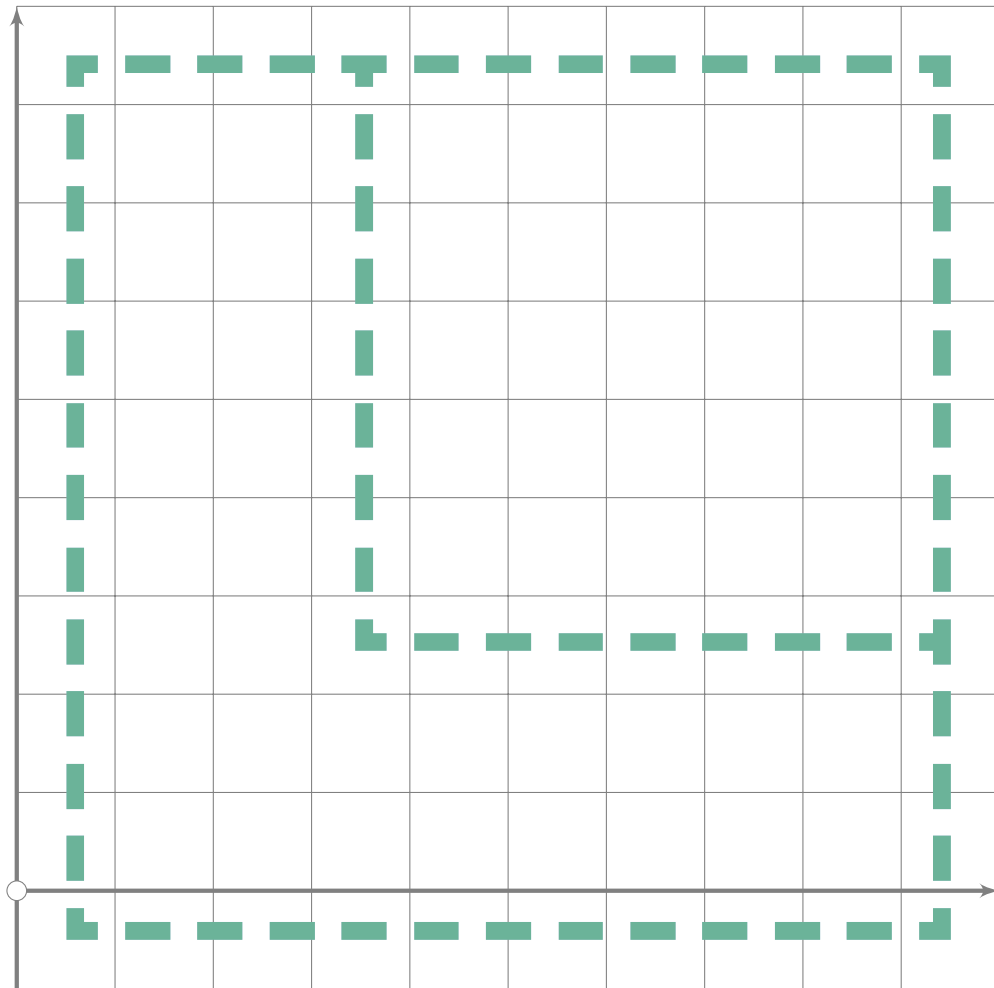
```



```

169 % surround from upper right
170 beginsuglyph("uni2FF9",249);
171   idc_rect((0,6),(6,0));
172   idc_rect((0,4),(4,0));
173   idc_render;
174 endsuglyph;
175

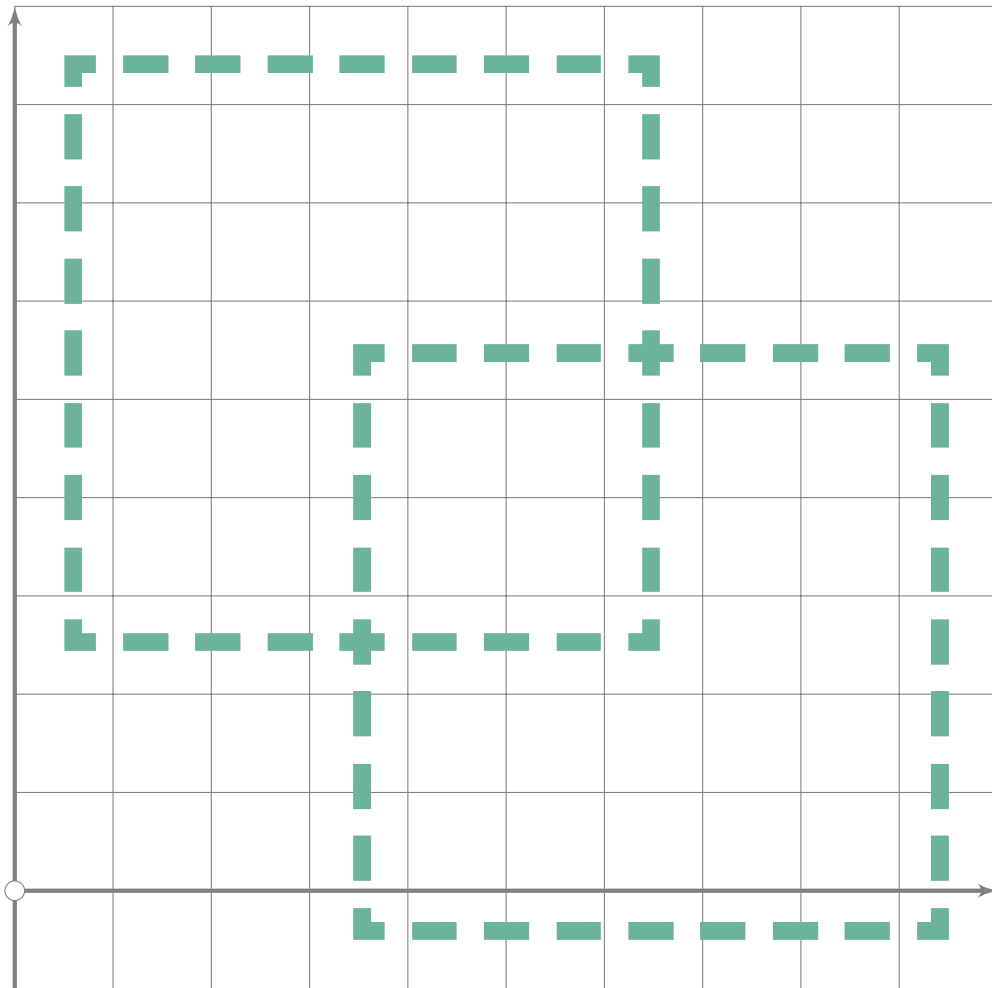
```



```

176 % surround from lower left
177 beginsuglyph("uni2FFA",250);
178   idc_rect((0,6),(6,0));
179   idc_rect((2,6),(6,2));
180   idc_render;
181 endsuglyph;
182

```



```

183 % overlaid
184 beginsuglyph("uni2FFB";251);
185   idc_rect((0,6),(4,2));
186   idc_rect((2,4),(6,0));
187   idc_render;
188 endsuglyph;
189
190 _____
191
192 endfont;
193
194 _____

```





Part III

U+3000 to U+4DFF



# tsuku-30.mp

```
1 %
2 % Unicode page 30 (Kana) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---

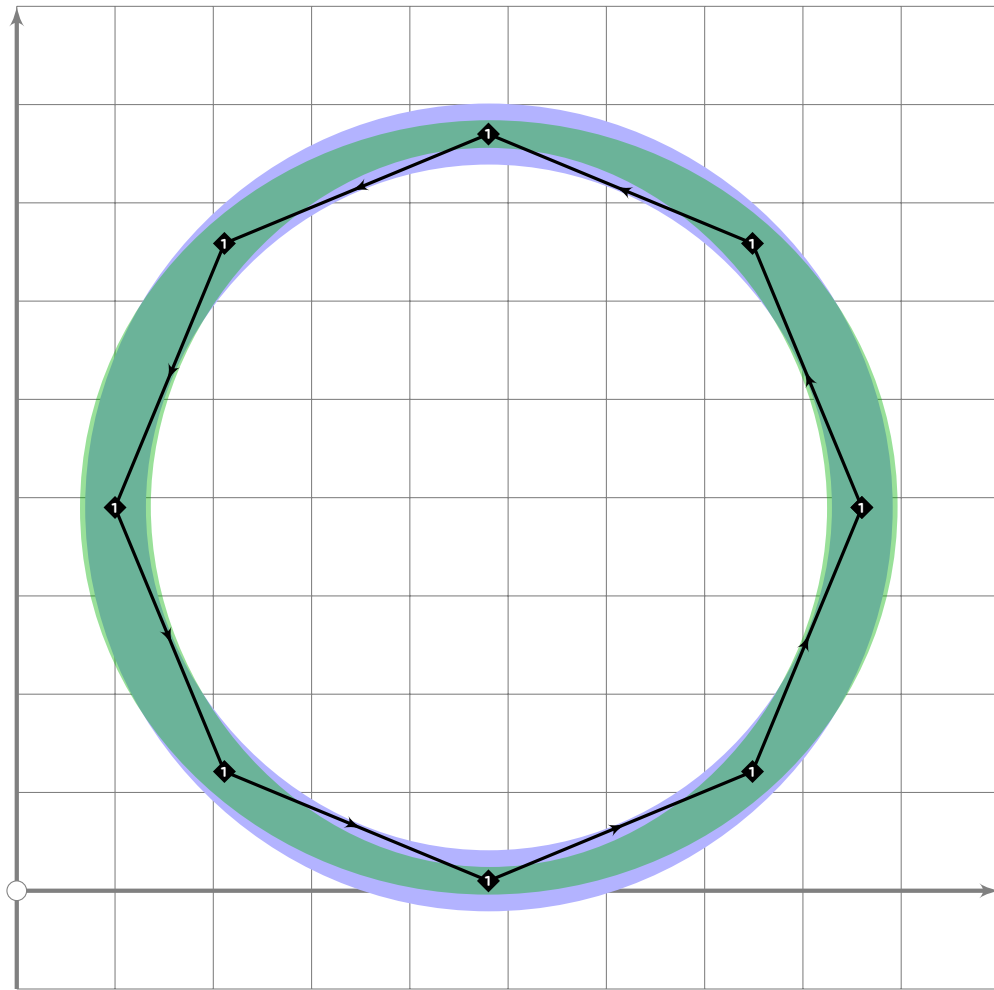

32
33 beginfont
34
35 % AUTODEPS
36 input dakuten.mp;
37 input hiragana.mp;
38 input katakana.mp;
39 input punct.mp;
40
41 

---


42
```

## Ideographic Symbols And Punctuation

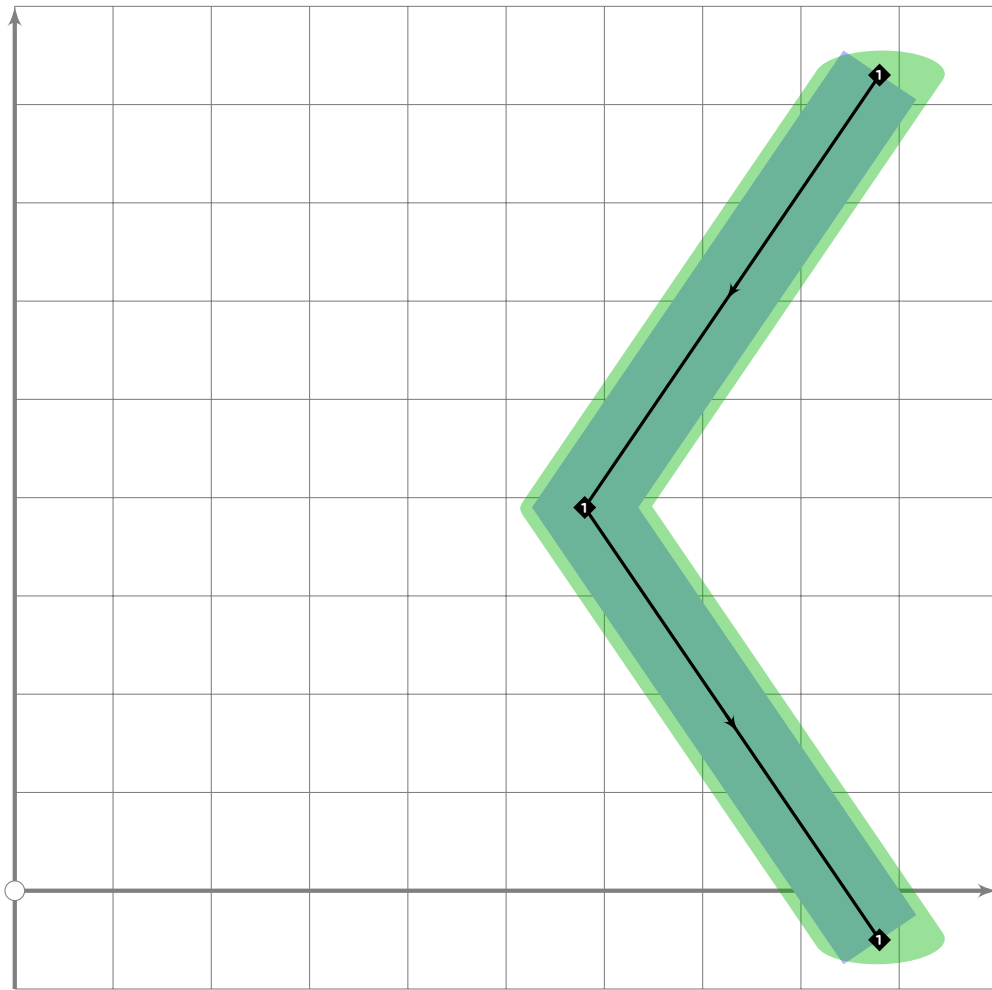
```
43 % IDEOGRAPHIC SYMBOLS AND PUNCTUATION
44
45 % ideographic comma
46 begintsuglyph\("uni3001";1\); [see page 294]
47 punct.hancomma;
48 tsu\_render;
49 endtsuglyph;
50
51 % ideographic full stop
52 begintsuglyph\("uni3002";2\); [see page 291]
53 punct.full\_stop;
54 tsu\_render;
55 endtsuglyph;
56
```



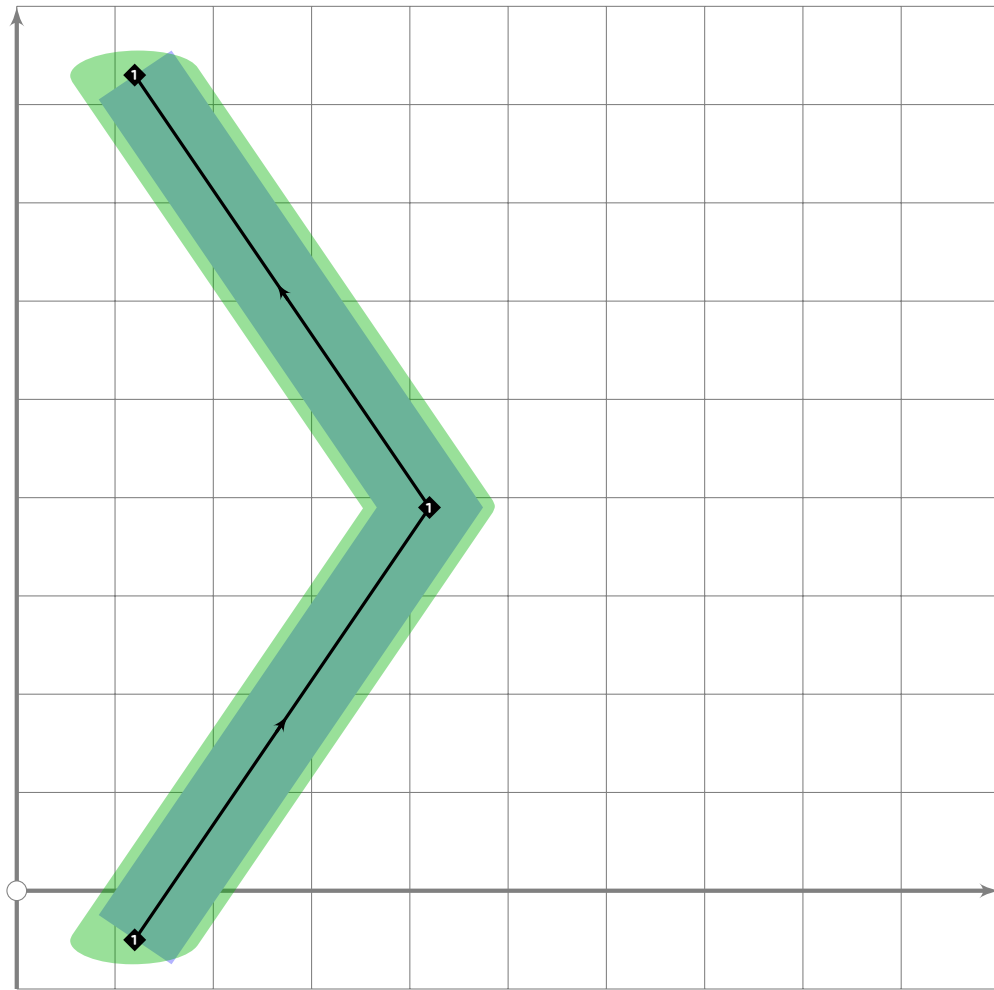
```

57 % kanji zero
58 begintsuglyph("uni3007";7);
59 % letter brush for this so it blends better with other kanji digits;
60 % let's drag the Japanese kicking and screaming into the Sixth Century!
61 push_stroke(fullcircle scaled 760 shifted (480,390),
62   (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-cycle);
63 set_bosize(0,90);
64 tsu_render;
65 endtsuglyph;
66
67 path bracket[];
68
69 % left and right single angle brackets
70 bracket1:=(880,830)-(580,390)-(880,50);

```



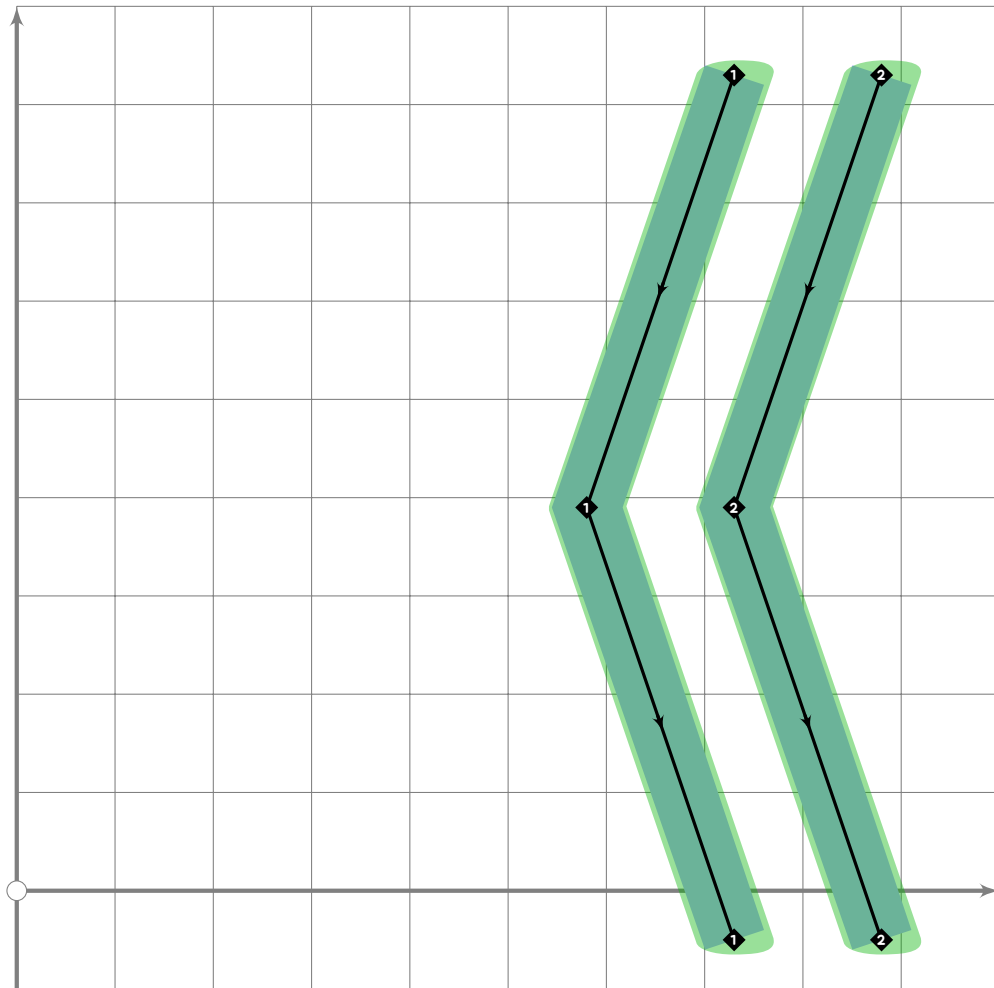
```
71 begintsuglyph("uni3008",8);  
72 push_stroke((880,830)-(580,390)-(880,-50),  
73   (2,2)-(2,2)-(2,2));  
74 set_bosize(0,120);  
75 set_botip(0,1,1);  
76 tsu_render;  
77 endtsuglyph;
```



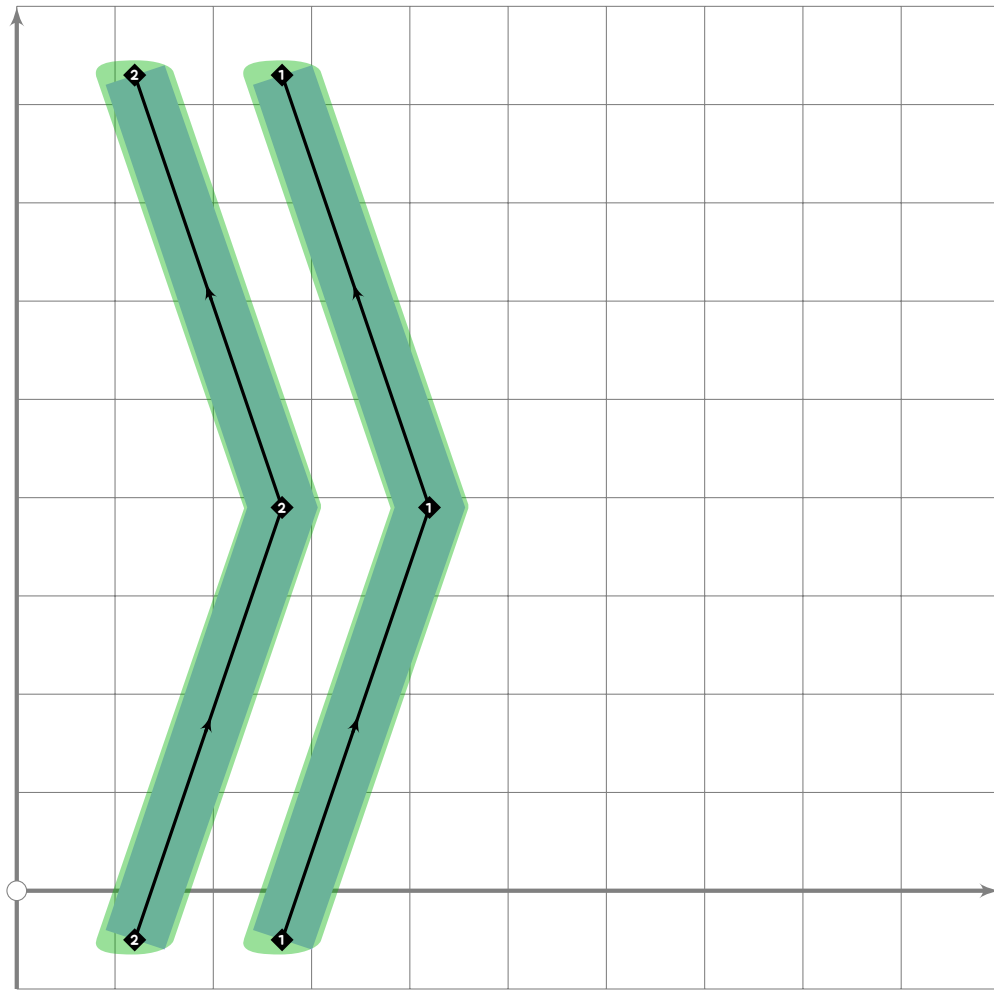
```

78 begint Suglyph("uni3009";9);
79 push_stroke(((880,830)-(580,390)-(880,-50)) rotatedaround (centre_pt,180),
80 (2,2)-(2,2)-(2,2));
81 set_bosize(0,120);
82 set_botip(0,1,1);
83 tsu_render;
84 endtsuglyph;
85
86 % left and right double angle brackets
87 bracket1:=(880-tsu_punct_size*3/2,830)-(580,390)
88 -(880-tsu_punct_size*3/2,-50);
89 bracket2:=(880,830)-(580+tsu_punct_size*3/2,390)-(880,-50);

```



```
90 begintsuglyph("uni300A",10);  
91 push_stroke(bracket1,  
92   (1.7,1.7)-(1.7,1.7)-(1.7,1.7));  
93 set_bosize(0,90);  
94 set_botip(0,1,1);  
95  
96 push_stroke(bracket2,  
97   (1.7,1.7)-(1.7,1.7)-(1.7,1.7));  
98 set_bosize(0,90);  
99 set_botip(0,1,1);  
100  
101 tsu_render;  
102 endtsuglyph;
```



```

103 begintsuglyph("uni300B",11);
104 push_stroke(bracket1 rotatedaround (centre_pt,180),
105   (1.7,1.7)-(1.7,1.7)-(1.7,1.7));
106 set_bosize(0,90);
107 set_botip(0,1,1);
108
109 push_stroke(bracket2 rotatedaround (centre_pt,180),
110   (1.7,1.7)-(1.7,1.7)-(1.7,1.7));
111 set_bosize(0,90);
112 set_botip(0,1,1);
113
114 tsu_render;
115 endtsuglyph;
116
117 % left and right corner brackets
118 begintsuglyph("uni300C",12);
119 punct.corner_left;
120 tsu_render;
121 endtsuglyph;
122 begintsuglyph("uni300D",13);
123 punct.corner_right;

```

[see page 282]

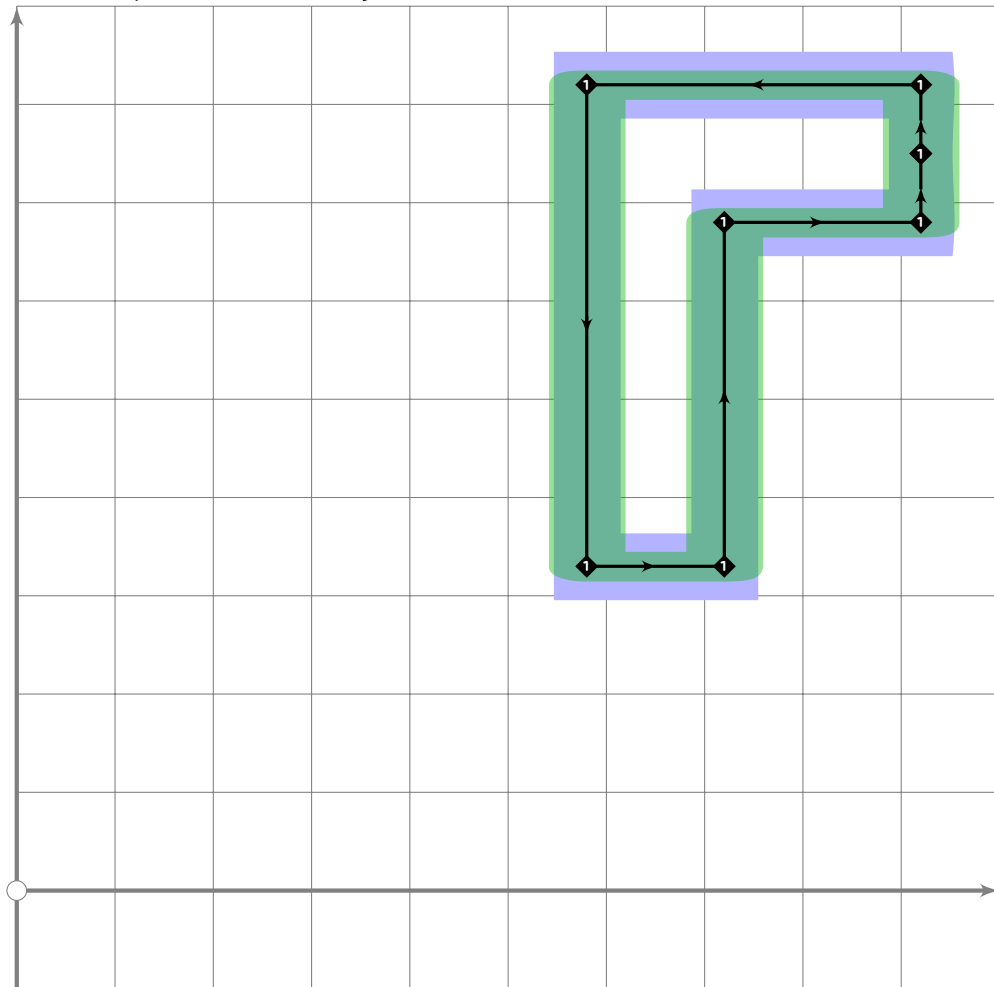
[see page 283]



```

124 tsu_render;
125 endtsuglyph;
126
127 % left and right white corner brackets
128 bracket1:=(920,750)-
129 (920,750+tsu_punct_size*0.7)-
130 (650-tsu_punct_size*0.7,750+tsu_punct_size*0.7)-
131 (650-tsu_punct_size*0.7,400-tsu_punct_size*0.7)-
132 (650+tsu_punct_size*0.7,400-tsu_punct_size*0.7)-
133 (650+tsu_punct_size*0.7,750-tsu_punct_size*0.7)-
134 (920,750-tsu_punct_size*0.7)-cycle;

```



```

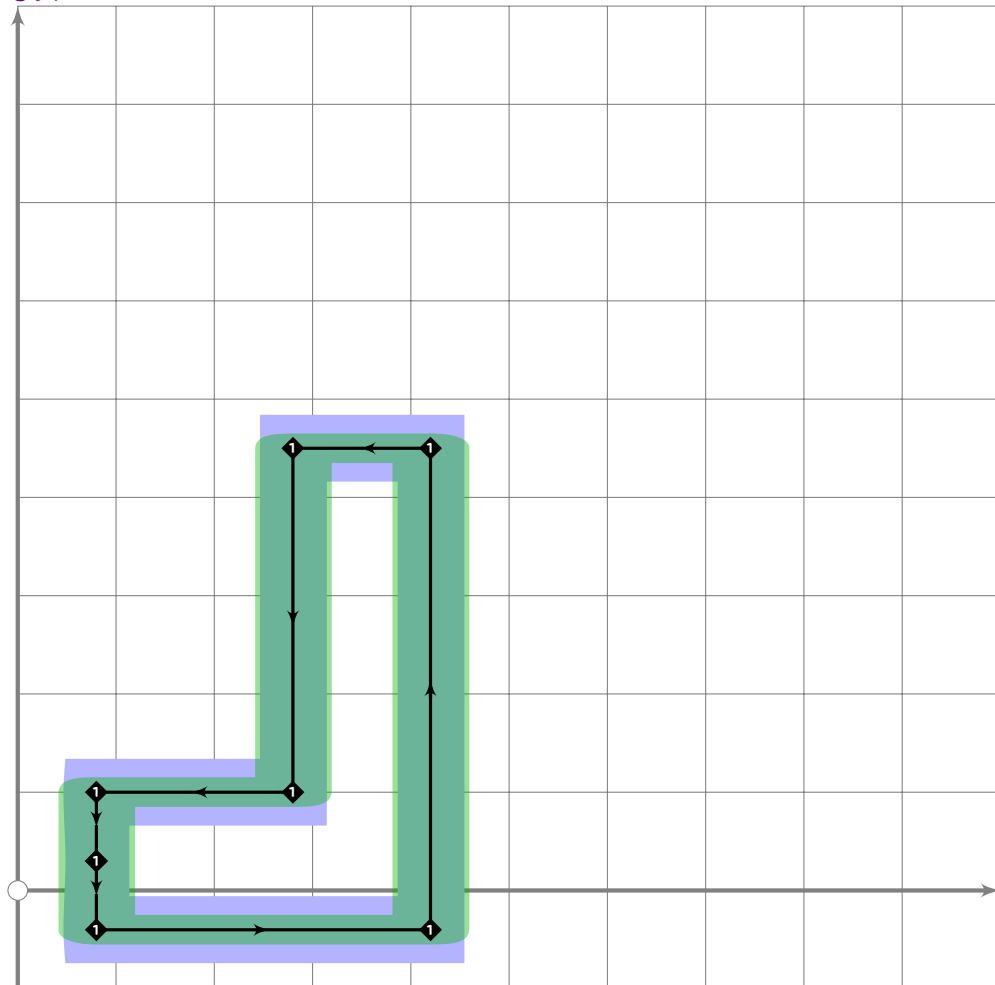
135 begint Suglyph("uni300E",14);
136 push_stroke(bracket1,
137 (1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-
138 (1.7,1.7)-(1.7,1.7)-cycle);
139 set_bosize(0,90);
140 set_botip(0,1);
141 set_botip(0,2,1);
142 set_botip(0,3,1);
143 set_botip(0,4,1);
144 set_botip(0,5,1);

```

```

145 set_botip(0,6,1);
146
147 tsu_render;
148 endtsuglyph;

```



```

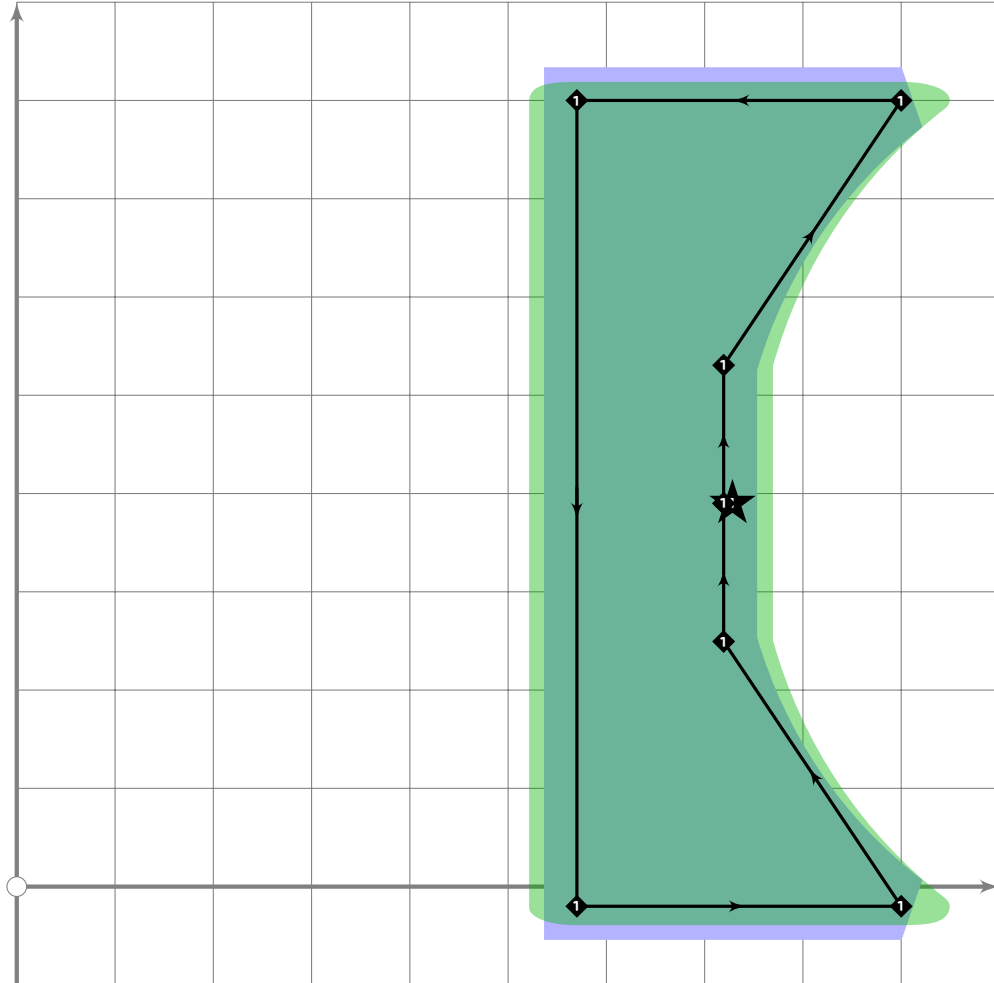
149 begint Suglyph("uni300F";15);
150 push_stroke(bracket1 rotatedaround (centre_pt,180),
151   (1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-
152   (1.7,1.7)-(1.7,1.7)-cycle);
153 set_bosize(0,90);
154 set_botip(0,1,1);
155 set_botip(0,2,1);
156 set_botip(0,3,1);
157 set_botip(0,4,1);
158 set_botip(0,5,1);
159 set_botip(0,6,1);
160
161 tsu_render;
162 endtsuglyph;
163
164 % left and right white and black lenticular brackets
165 % grouped here, out of Unicode sequence, to share the outline

```

```

166 bracket1:=(900-2*tsu_punct_size,390){up}..
167 (900,800)-(900-3.3*tsu_punct_size,800)-
168 (900-3.3*tsu_punct_size,-20)-(900,-20)..
169 {up}cycle;
170 bracket1:=(0.5[point 0.3 of bracket1,point 4.7 of bracket1])-
171 subpath (0.3,4.7) of bracket1-cycle;

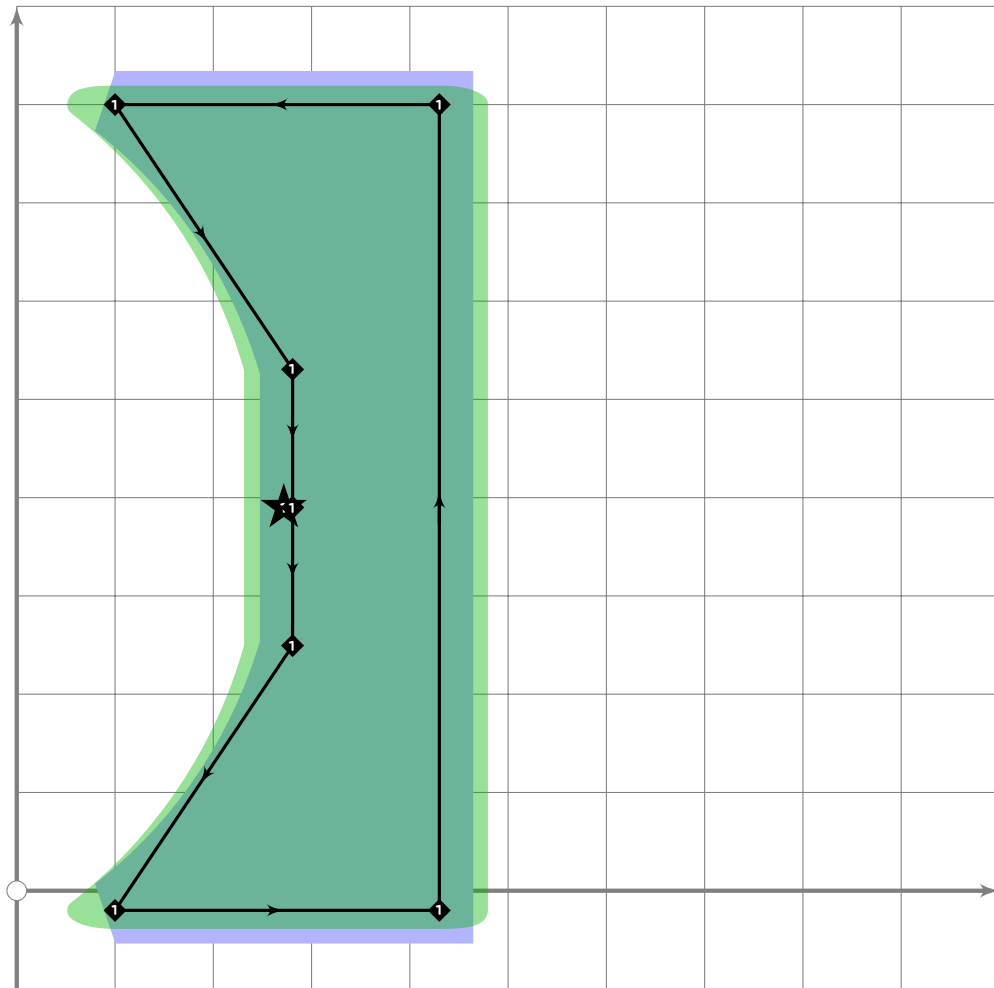
```



```

172 beginsuglyph("uni3010";16);
173 push_stroke(bracket1,
174 (2,2)-(2,2)-(2,2)-(2,2)-(2,2)-(2,2)-(2,2)-cycle);
175 set_bosize(0,90);
176 set_botip(0,1);
177 set_botip(0,2,0);
178 set_botip(0,3,1);
179 set_botip(0,4,1);
180 set_botip(0,5,0);
181 set_botip(0,6,1);
182 push_lcblob(get_strokep(0));
183
184 tsu_render;
185 endsuglyph;

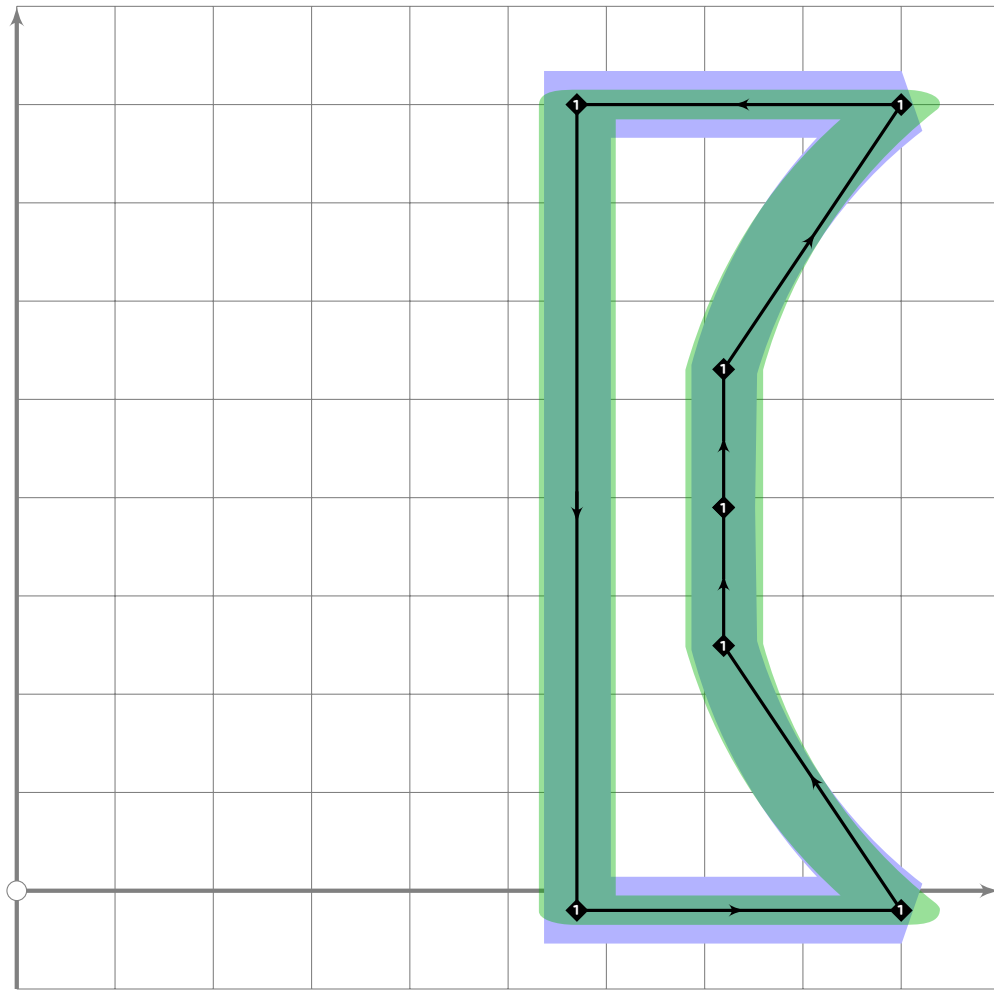
```



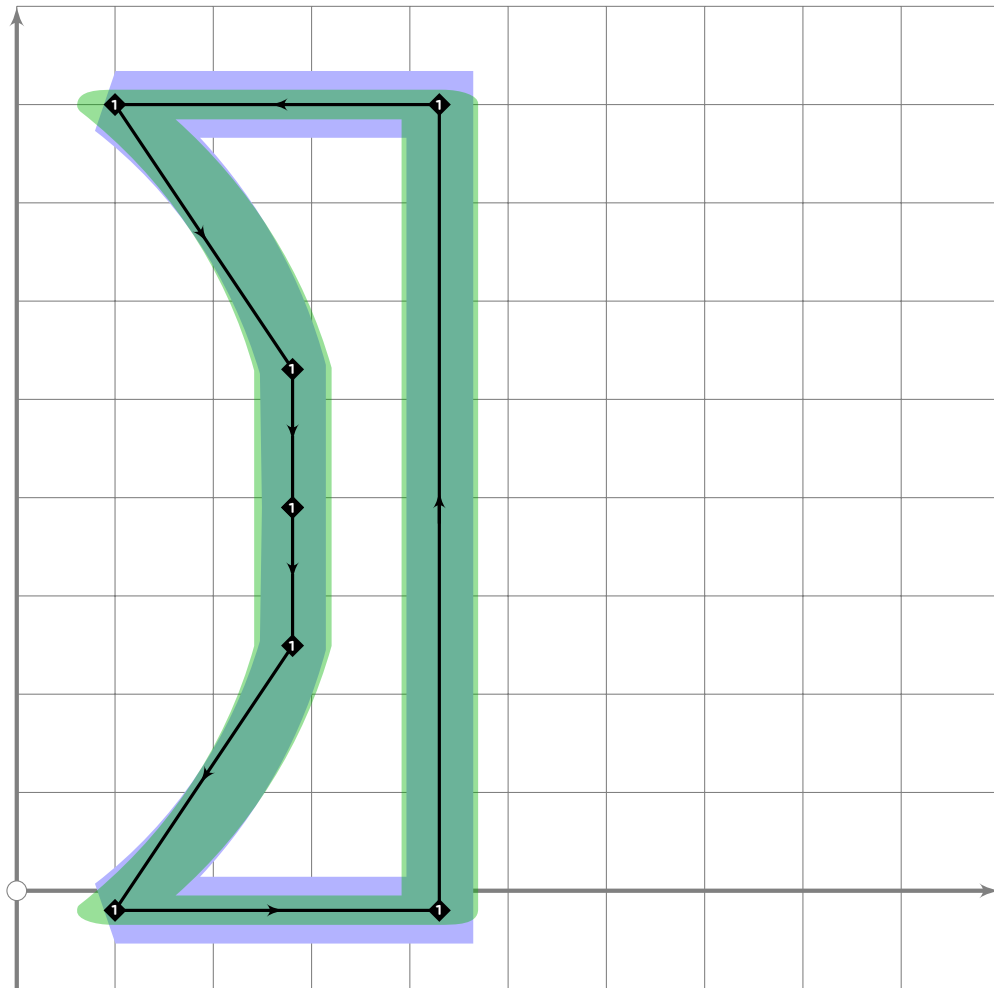
```

186 begintuglyph("uni3011",17);
187 push_stroke(bracket1 rotatedaround (centre_pt,180),
188   (2,2)-(2,2)-(2,2)-(2,2)-(2,2)-(2,2)-(2,2)-cycle);
189 set_bosize(0,90);
190 set_botip(0,1,1);
191 set_botip(0,2,0);
192 set_botip(0,3,1);
193 set_botip(0,4,1);
194 set_botip(0,5,0);
195 set_botip(0,6,1);
196 push_lcblob(get_strokep(0));
197
198 tsu_render;
199 endtsuglyph;

```



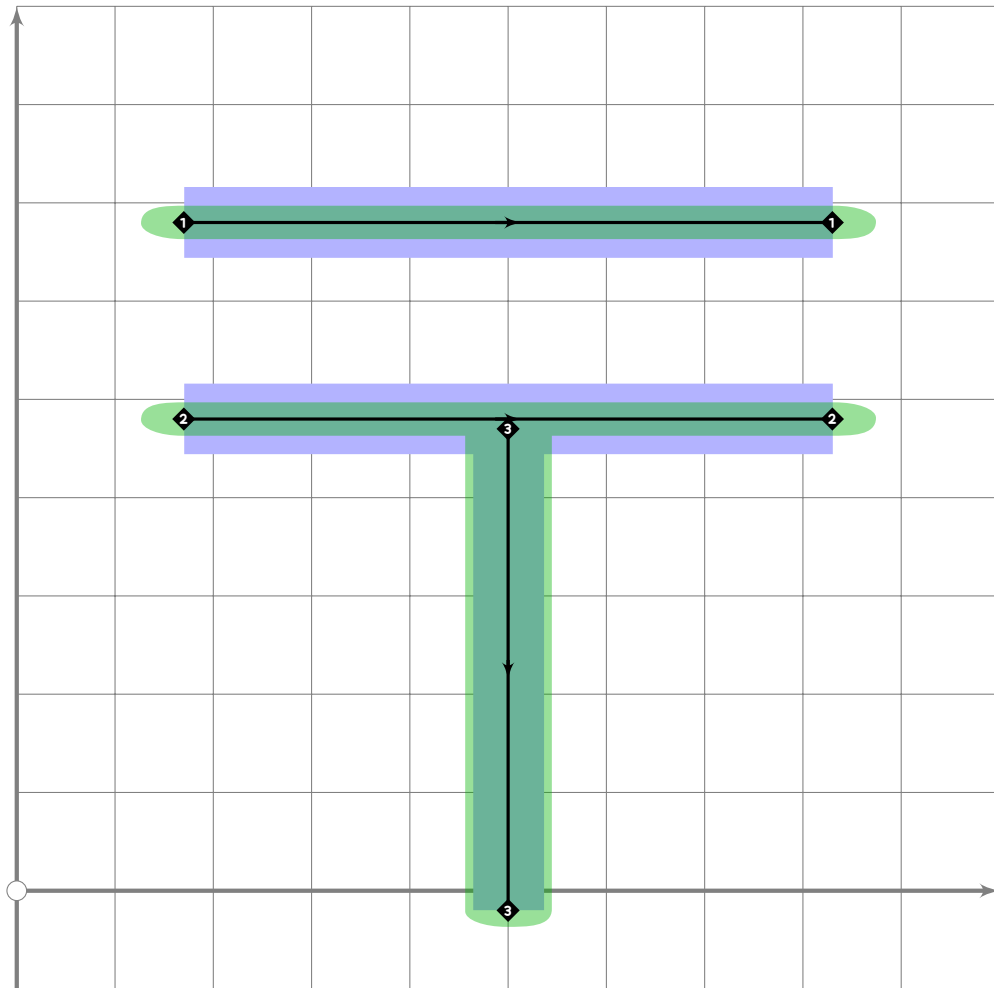
```
200 begintsuglyph("uni3016",22);  
201 push_stroke(bracket1,  
202   (1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-  
203   (1.7,1.7)-(1.7,1.7)-cycle);  
204 set_bosize(0,90);  
205 set_botip(0,1);  
206 set_botip(0,2,0);  
207 set_botip(0,3,1);  
208 set_botip(0,4,1);  
209 set_botip(0,5,0);  
210 set_botip(0,6,1);  
211  
212 tsu_render;  
213 endtsuglyph;
```



```

214 begintsuglyph("uni3017",23);
215 push_stroke(bracket1 rotatedaround (centre_pt,180),
216   (1,7,1,7)-(1,7,1,7)-(1,7,1,7)-(1,7,1,7)-(1,7,1,7)-
217   (1,7,1,7)-(1,7,1,7)-cycle);
218 set_bosize(0,90);
219 set_botip(0,1);
220 set_botip(0,2,0);
221 set_botip(0,3,1);
222 set_botip(0,4,1);
223 set_botip(0,5,0);
224 set_botip(0,6,1);
225
226 tsu_render;
227 endtsuglyph;
228

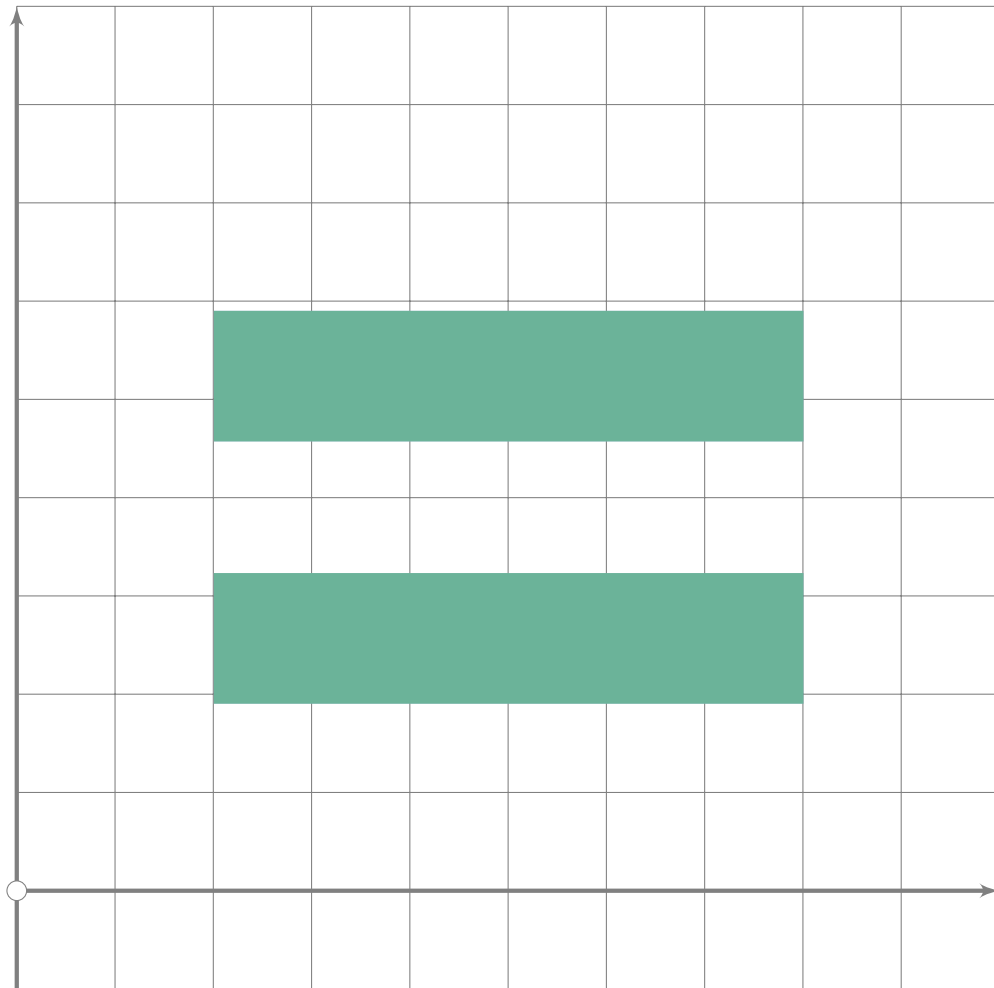
```



```

229 % Japanese postal mark
230 begintsuglyph("uni3012";18);
231 push_stroke((170,680)-(830,680),(1.7,1.7)-(1.7,1.7));
232
233 push_stroke((170,680-2*tsu_punct_size)-(830,680-2*tsu_punct_size),
234   (1.7,1.7)-(1.7,1.7));
235
236 push_stroke((500,720-2.5*tsu_punct_size)-(500,-20),
237   (1.7,1.7)-(1.7,1.7));
238
239 tsu_render;
240 endtsuglyph;
241

```

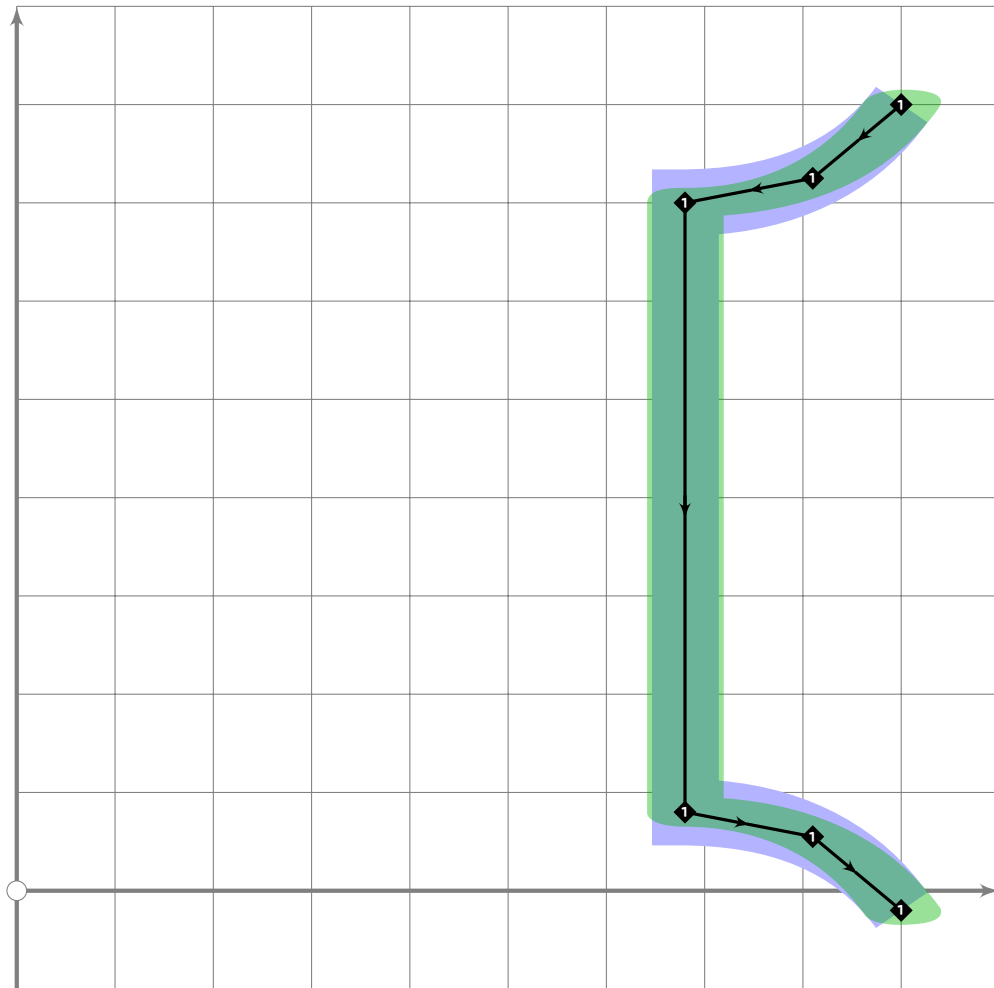


```

242 % "geta" or substitute mark
243 begintsuglyph("uni3013";19);
244   x2-x1=6*tsu_punct_size;
245   0.5[x1,x2]=500;
246   y4-y1=4*tsu_punct_size;
247   y2-y1=y3-y2=y4-y3;
248   0.5[y1,y4]=390;
249   dangerousFill
250     (x1,y4)-(x1,y3)-(x2,y3)-(x2,y4)-cycle,
251     (x1,y2)-(x1,y1)-(x2,y1)-(x2,y2)-cycle;
252 endtsuglyph;
253
254 % left and right plain and white tortoise shell brackets
255 % grouped here, out of Unicode sequence, to share the outline
256 bracket1:=(900,800)..
257   (900-tsu_punct_size*0.9,800-tsu_punct_size*3/4)..
258   {left}(900-2.2*tsu_punct_size,800-tsu_punct_size)-
259   (900-2.2*tsu_punct_size,-20+tsu_punct_size){right}..
260   (900-tsu_punct_size*0.9,-20+tsu_punct_size*3/4)..
261   (900,-20);
262 bracket2:=(point 1 of bracket1)-(point 4 of bracket1);

```

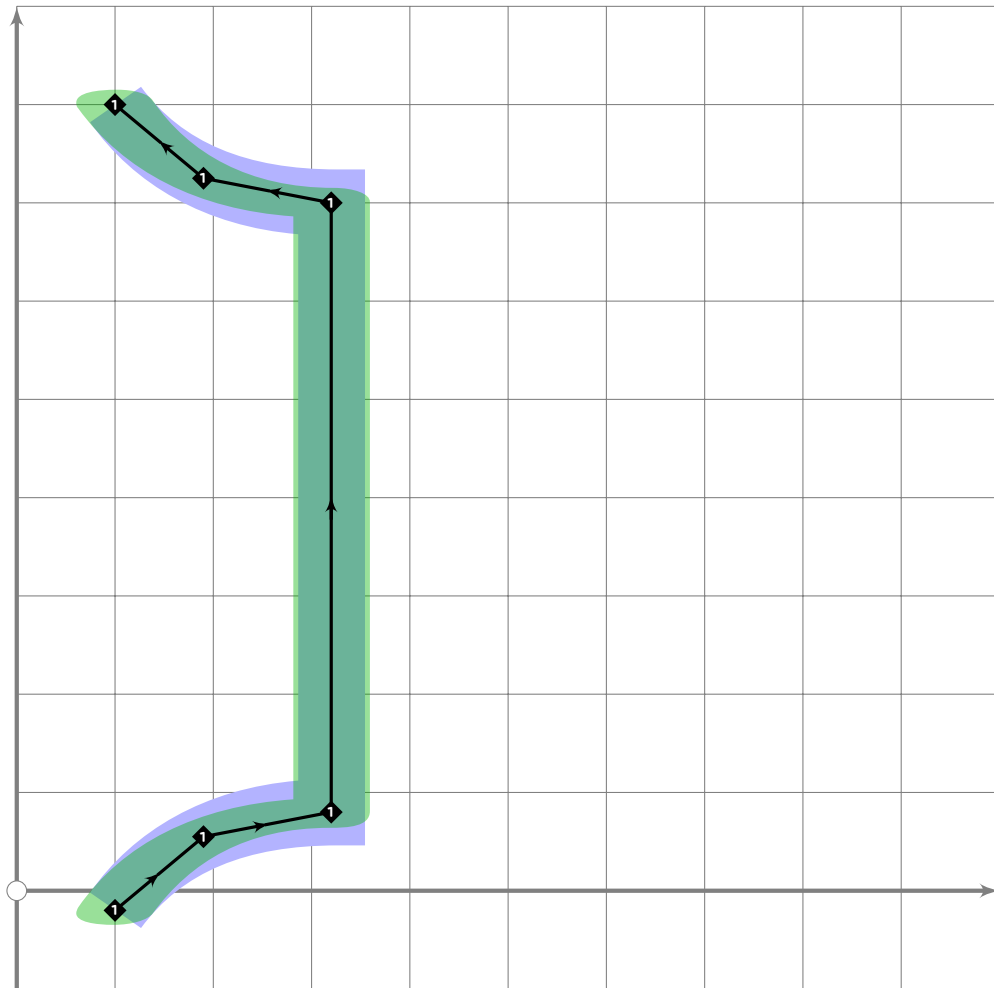




```

263 begintsuglyph("uni3014",20);
264 push_stroke(bracket1,
265   (1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7));
266 set_bosize(0,90);
267 set_botip(0,2,1);
268 set_botip(0,3,1);
269
270 tsu_render;
271 endtsuglyph;

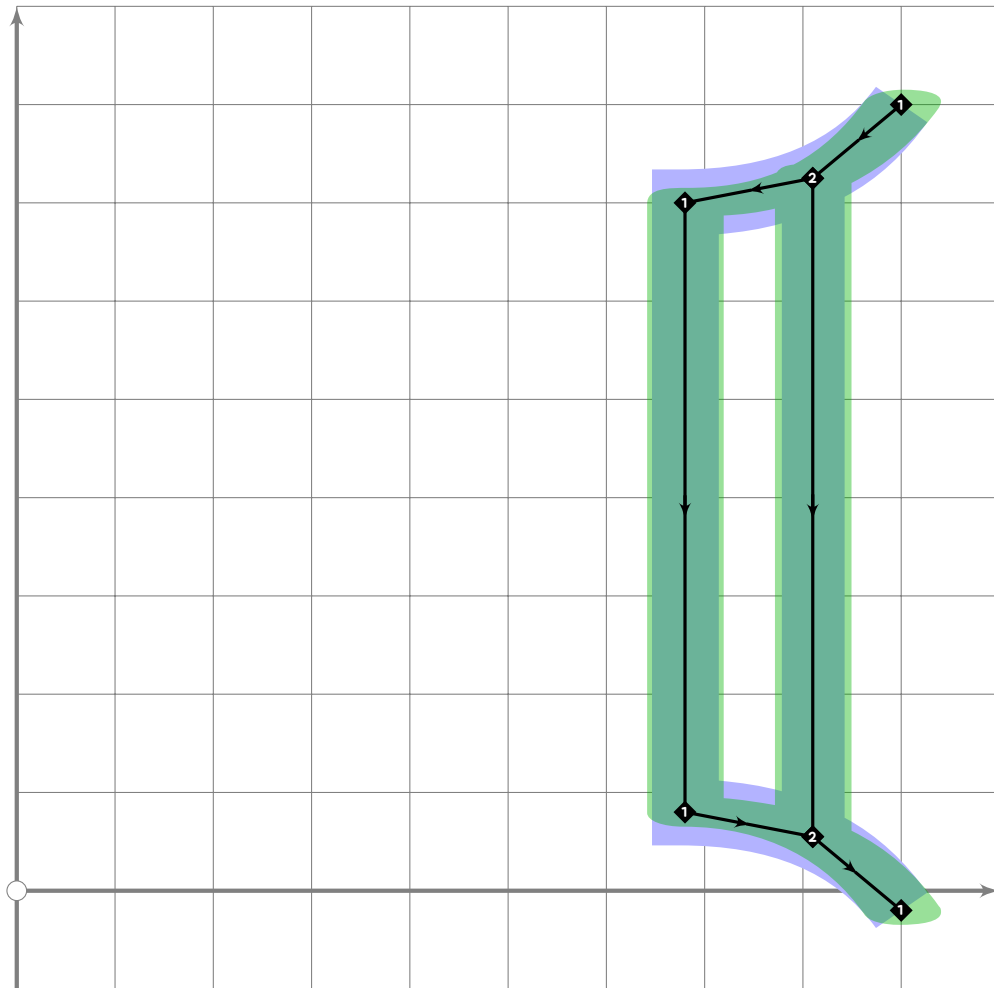
```



```

272 begintsuglyph("uni3015",21);
273 push_stroke(bracket1 rotatedaround (centre_pt,180),
274   (1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7));
275 set_bosize(0,90);
276 set_botip(0,2,1);
277 set_botip(0,3,1);
278
279 tsu_render;
280 endtsuglyph;

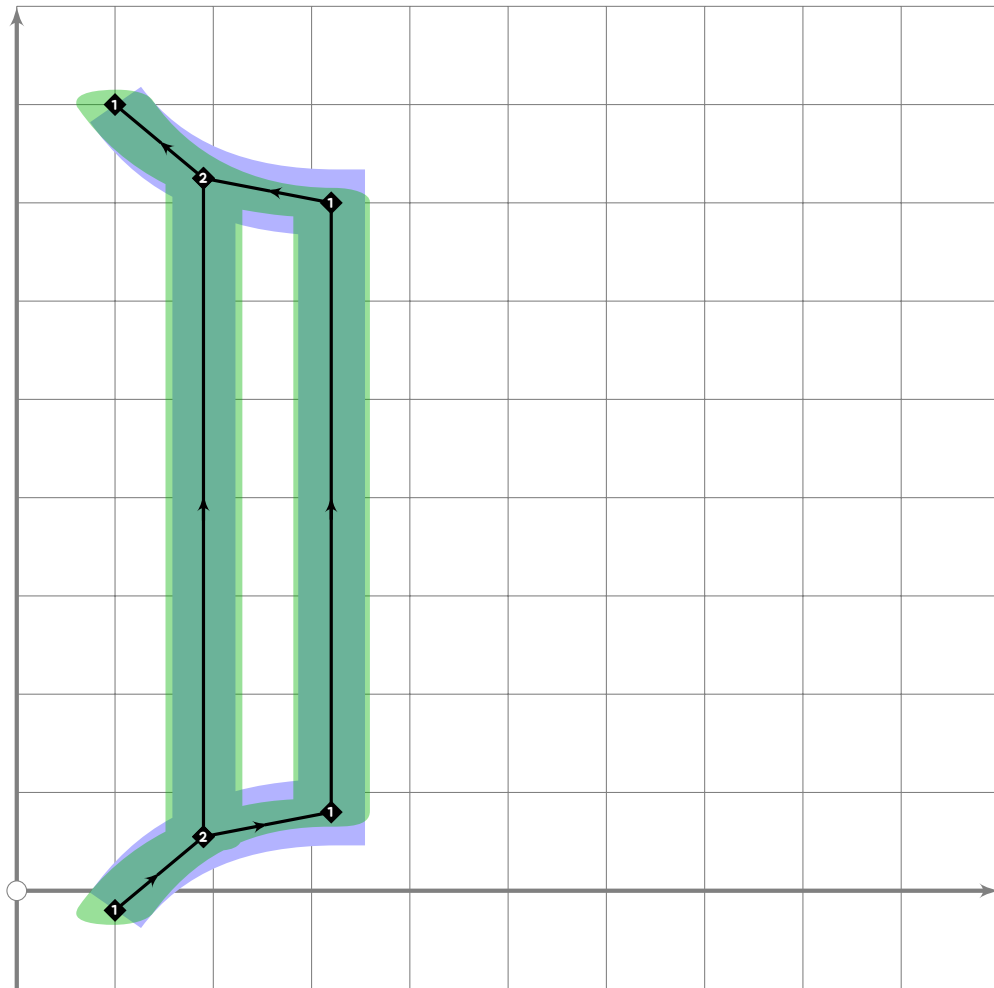
```



```

281 begintuglyph("uni3018",24);
282 push_stroke(bracket1,
283   (1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7));
284 set_bosize(0,90);
285 set_botip(0,2,1);
286 set_botip(0,3,1);
287
288 push_stroke(bracket2,
289   (1.7,1.7)-(1.7,1.7));
290 set_bosize(0,90);
291
292 tsu_render;
293 endtsuglyph;

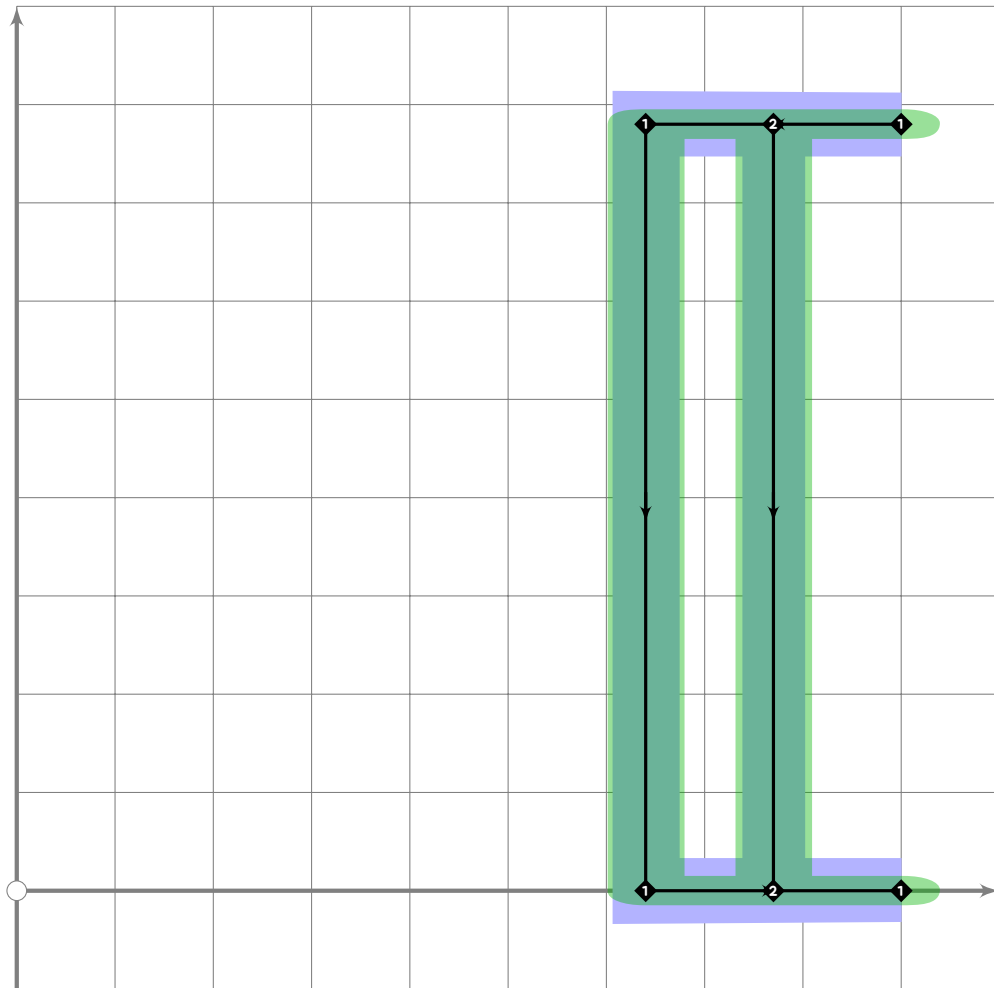
```



```

294 begint Suglyph("uni3019",25);
295 push_stroke(bracket1 rotatedaround (centre_pt,180),
296   (1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7));
297 set_bosize(0,90);
298 set_botip(0,2,1);
299 set_botip(0,3,1);
300
301 push_stroke(bracket2 rotatedaround (centre_pt,180),
302   (1.7,1.7)-(1.7,1.7));
303 set_bosize(0,90);
304
305 tsu_render;
306 endtsuglyph;
307
308 % left and right white square brackets
309 bracket1:=(900,780)-
310   (900-2.6*tsu_punct_size,780)-
311   (900-2.6*tsu_punct_size,0)-
312   (900,0);
313 bracket2:=(point 0.5 of bracket1)-(point 2.5 of bracket1);

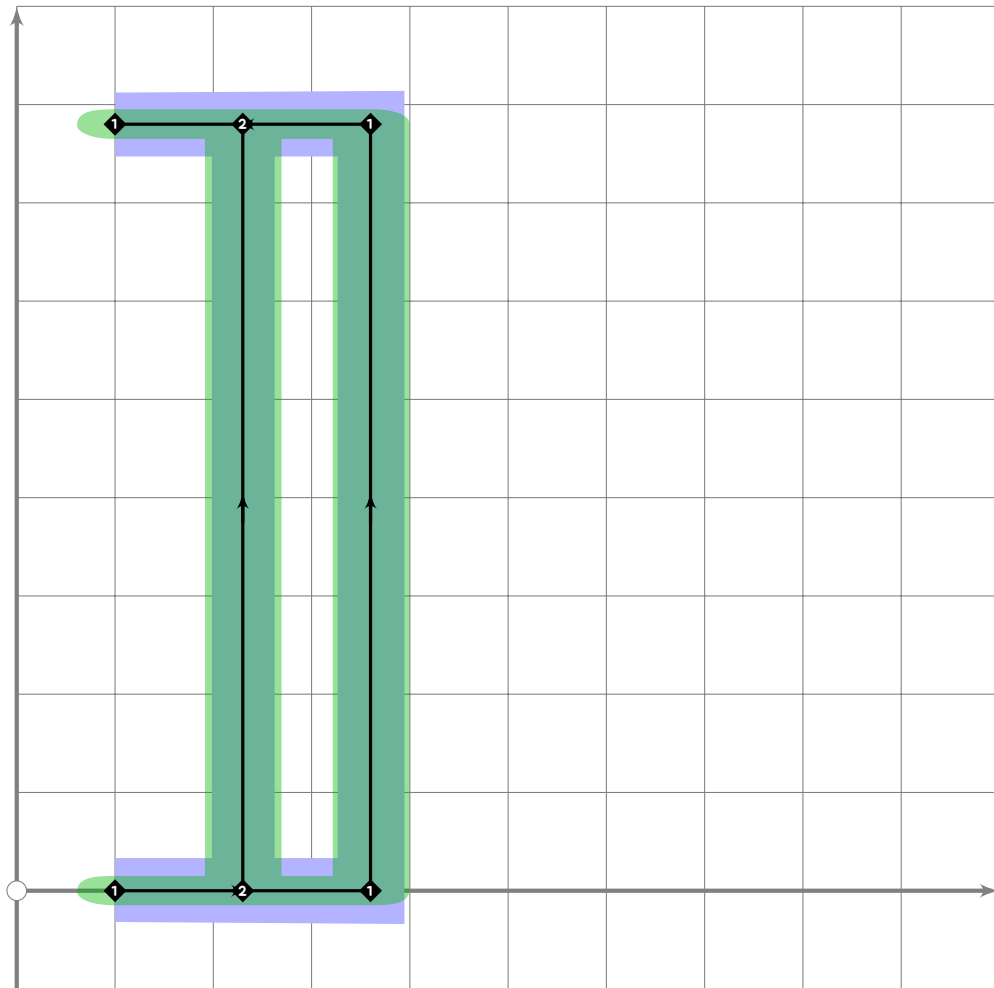
```



```

314 begint Suglyph("uni301A",26);
315 push_stroke(bracket1,
316   (1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7));
317 set_bosize(0,90);
318 set_botip(0,1,1);
319 set_botip(0,2,1);
320
321 push_stroke(bracket2,
322   (1.7,1.7)-(1.7,1.7));
323 set_bosize(0,90);
324
325 tsu_render;
326 endtsuglyph;

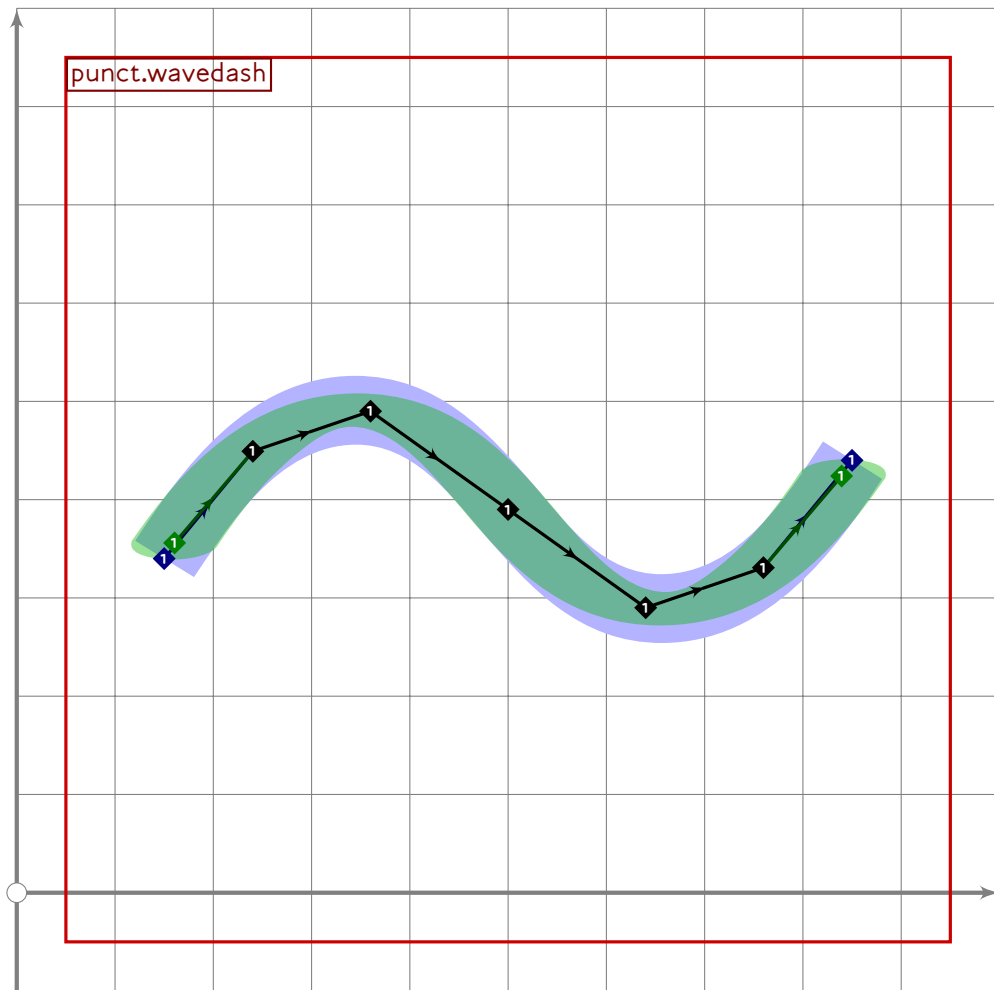
```



```

327 begint Suglyph("uni301B",27);
328 push_stroke(bracket1 rotatedaround (centre_pt,180),
329   (1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7));
330 set_bosize(0,90);
331 set_botip(0,1,1);
332 set_botip(0,2,1);
333
334 push_stroke(bracket2 rotatedaround (centre_pt,180),
335   (1.7,1.7)-(1.7,1.7));
336 set_bosize(0,90);
337
338 tsu_render;
339 endtsuglyph;
340

```



```

341 % "wave dash"
342 begint Suglyph("uni301C";28);
343 punct.wavedash;
344 bo_serif.a0:=5;
345 bo_serif.a6:=8;
346 tsu_render;
347 endtsuglyph;
348
349
350

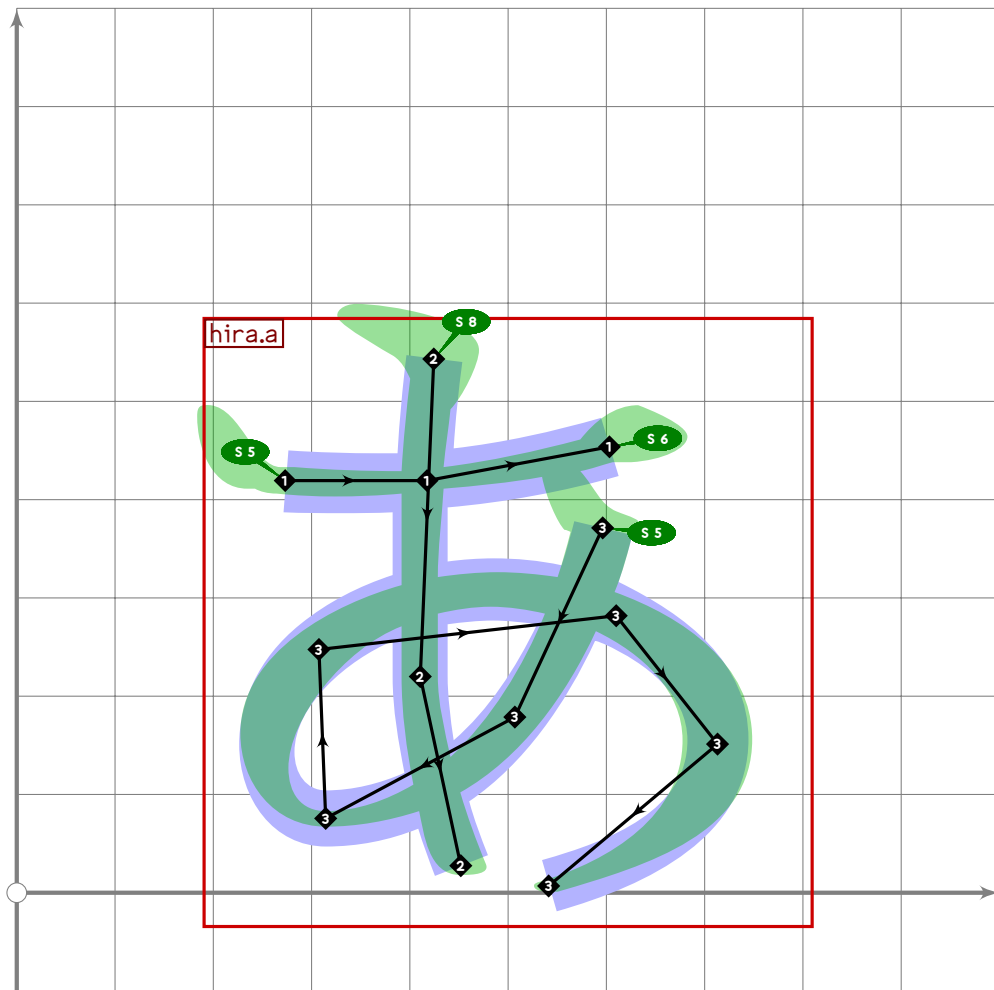
```

## Hiragana

```

351 % HIRAGANA
352

```



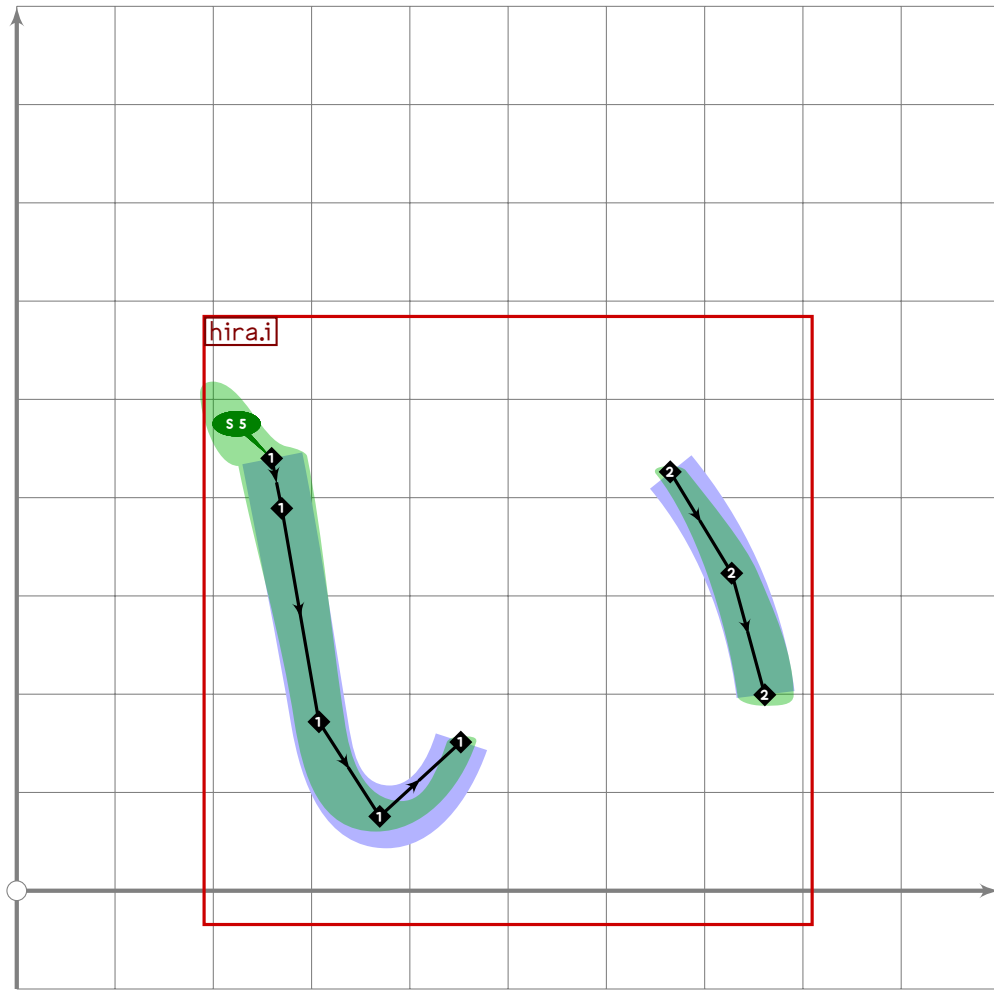
```

353 % hiragana "small a"
354 begint Suglyph("uni3041",65);
355 tsu_xform(tsu_xf.smallkana)(hira.a);
356 tsu_render;
357 endtsuglyph;
358
359 % hiragana "a"
360 begint Suglyph("uni3042",66);
361 hira.a;
362 tsu_render;
363 endtsuglyph;
364

```

[see page 64]



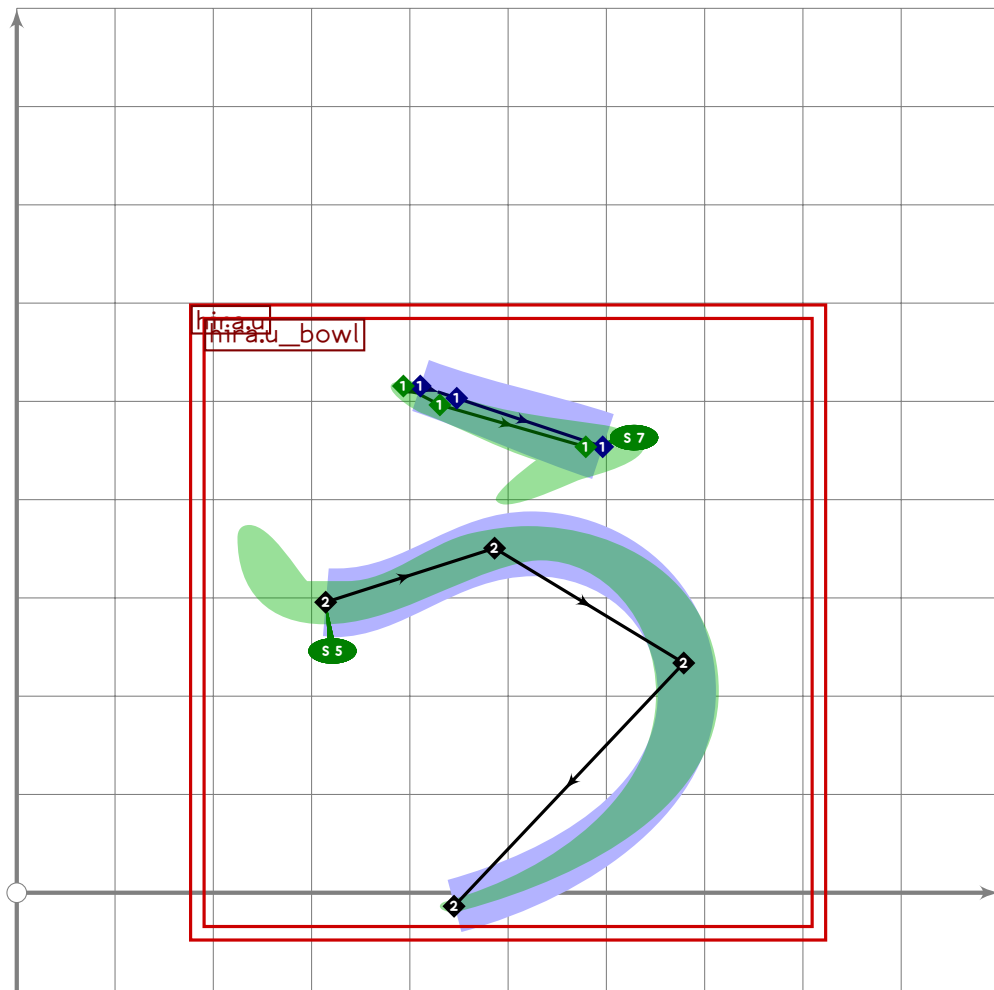


```

365 % hiragana "small i"
366 begintsuglyph("uni3043",67);
367 tsu_xform(tsu_xf.smallkana)(hira.i);
368 tsu_render;
369 endtsuglyph;
370
371 % hiragana "i"
372 begintsuglyph("uni3044",68);
373 hira.i;
374 tsu_render;
375 endtsuglyph;
376

```

[see page 65]

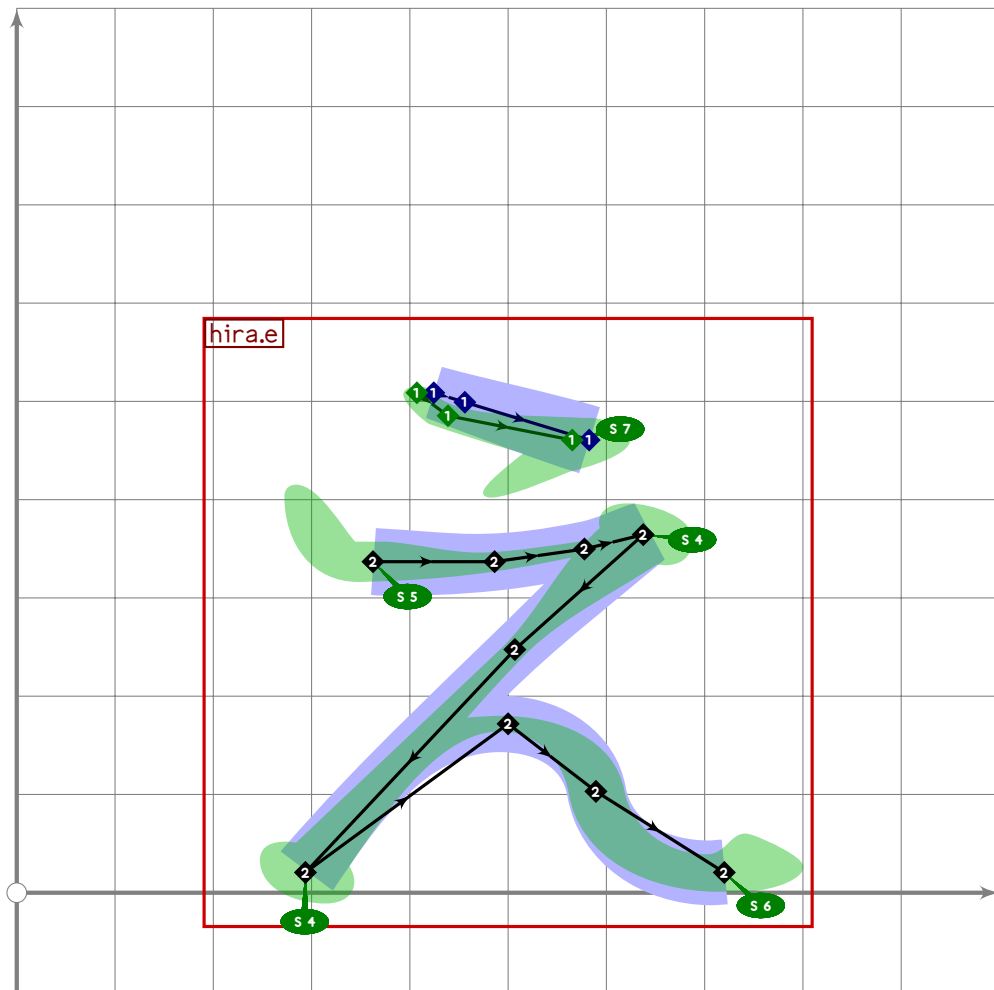


```

377 % hiragana "small u"
378 begint Suglyph("uni3045",69);
379 tsu_xform(tsu_xf.smallkana)(hira.u);
380 tsu_render;
381 endtsuglyph;
382
383 % hiragana "u"
384 begint Suglyph("uni3046",70);
385 hira.u;
386 tsu_render;
387 endtsuglyph;
388

```

[see page 66]

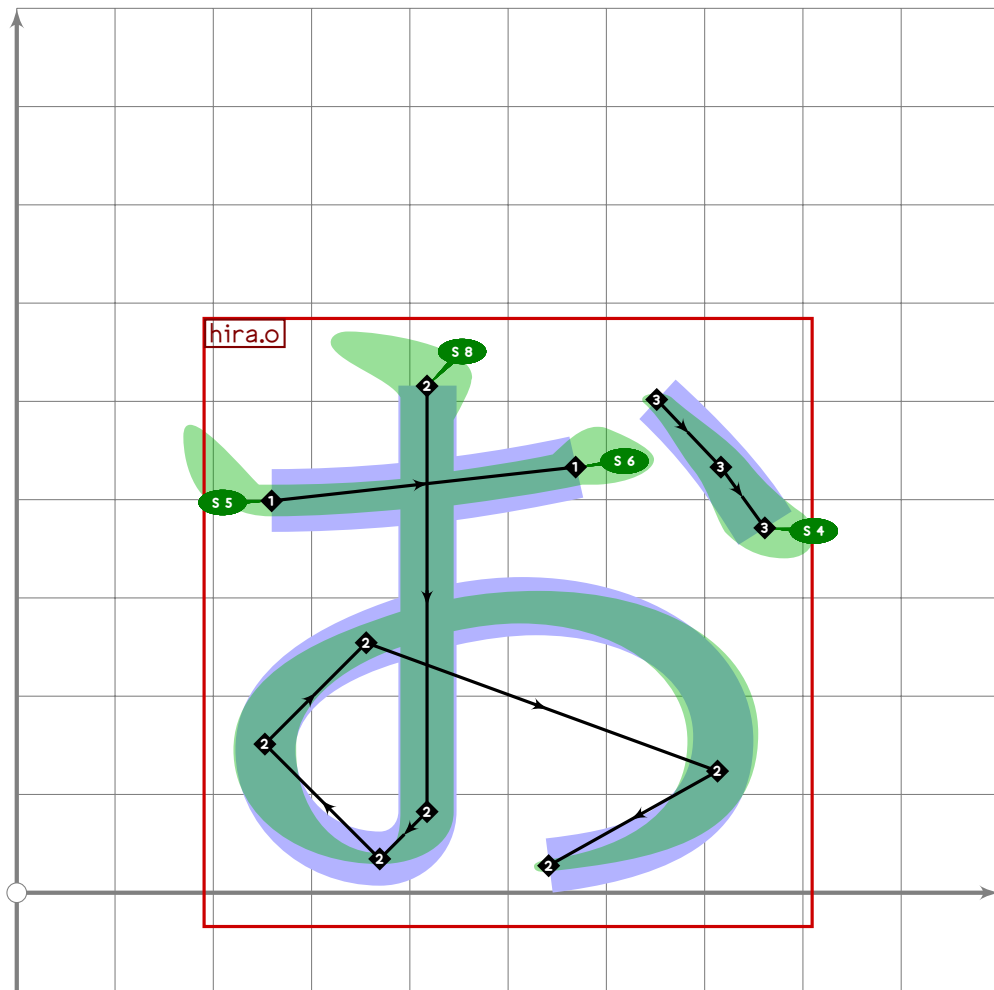


```

389 % hiragana "small e"
390 begint Suglyph("uni3047";71);
391 tsu_xform(tsu_xf.smallkana)(hira.e);
392 tsu_render;
393 endtsuglyph;
394
395 % hiragana "e"
396 begint Suglyph("uni3048";72);
397 hira.e;
398 tsu_render;
399 endtsuglyph;
400

```

[see page 67]



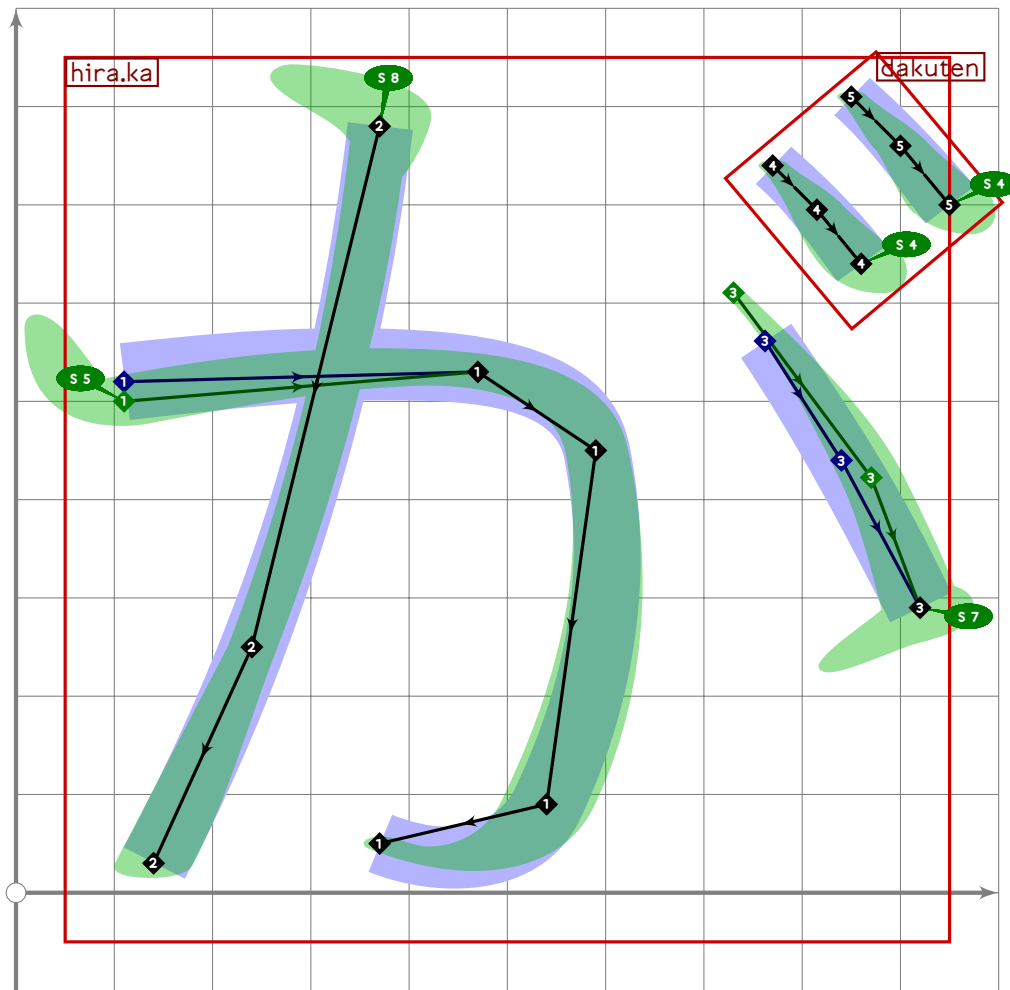
```

401 % hiragana "small o"
402 begintsuglyph("uni3049";73);
403 tsu_xform(tsu_xf.smallkana)(hira.o);
404 tsu_render;
405 endtsuglyph;
406
407 % hiragana "o"
408 begintsuglyph("uni304A";74);
409 hira.o;
410 tsu_render;
411 endtsuglyph;
412
413 % hiragana "ka"
414 begintsuglyph("uni304B";75);
415 hira.ka;
416 tsu_render;
417 endtsuglyph;
418

```

[see page 68]

[see page 69]

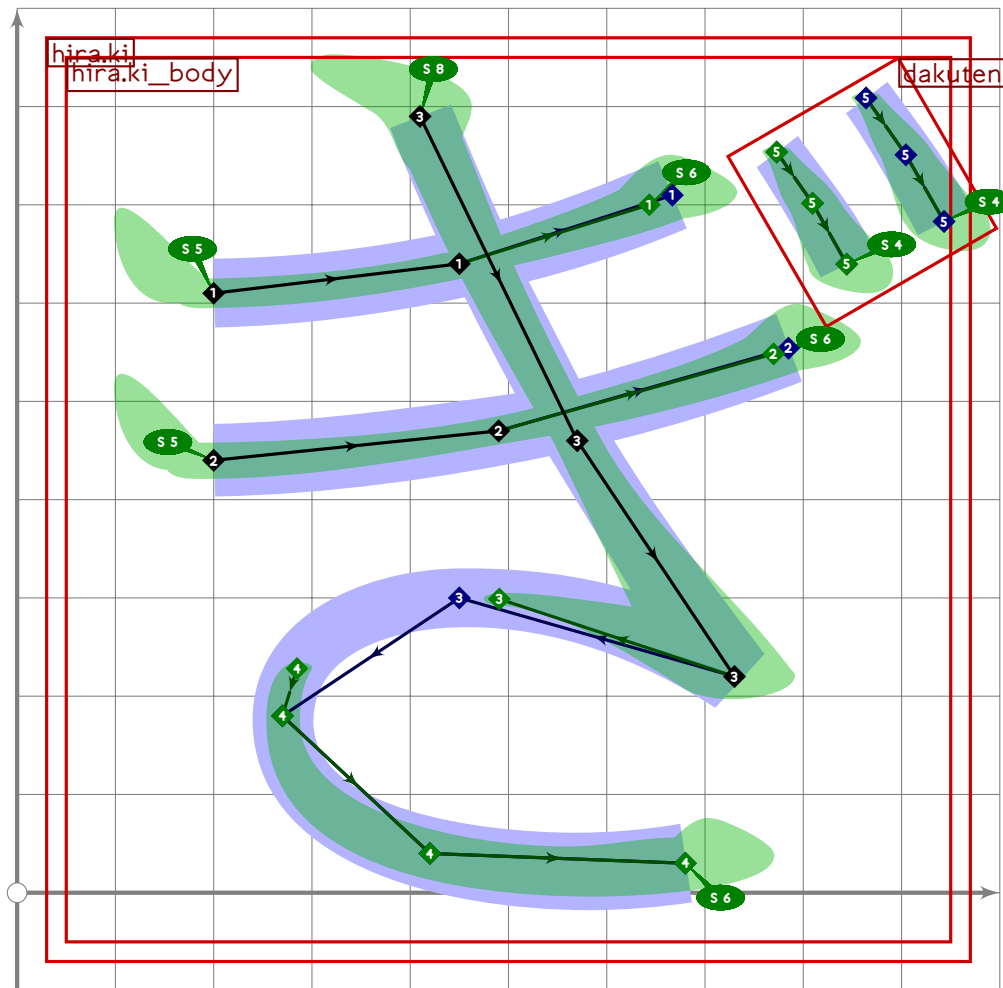


```

419 % hiragana "ga"
420 begintsuglyph("uni304C";76);
421 hira.ga;
422 dakuten(identity shifted (850,730));
423 tsu_render;
424 endsuglyph;
425
426 % hiragana "ki"
427 begintsuglyph("uni304D";77);
428 hira.ki;
429 tsu_render;
430 endsuglyph;
431

```

[see page 71]

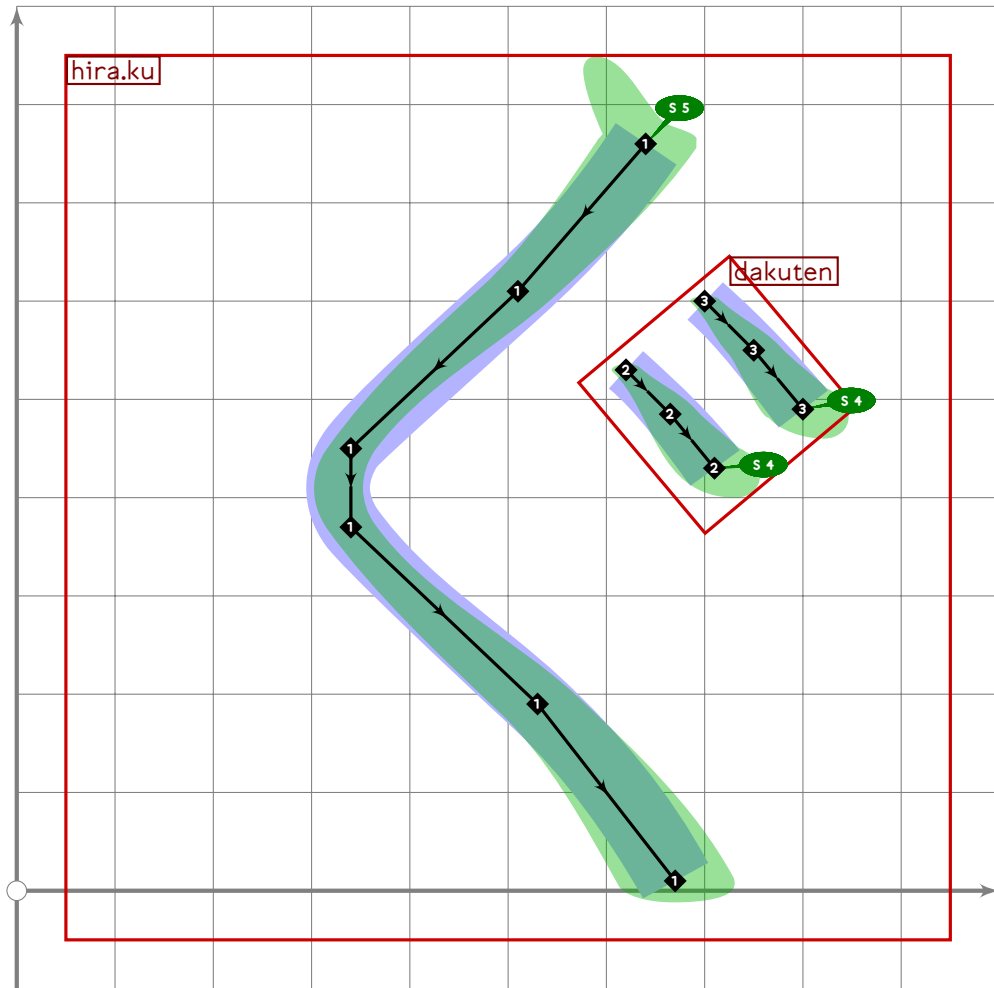


```

432 % hiragana "gi"
433 beginsuglyph("uni304E",78);
434 hira.ki;
435 replace_stroke(-2,subpath (0,1,9-0.1*mincho) of oldp);
436 replace_stroke(-1,subpath (0,1,95-0.05*mincho) of oldp);
437 dakuten(identity rotated -10 shifted (850,730));
438 tsu_render;
439 endsuglyph;
440
441 % hiragana "ku"
442 beginsuglyph("uni304F",79);
443 hira.ku;
444 tsu_render;
445 endsuglyph;
446

```

[see page 71]

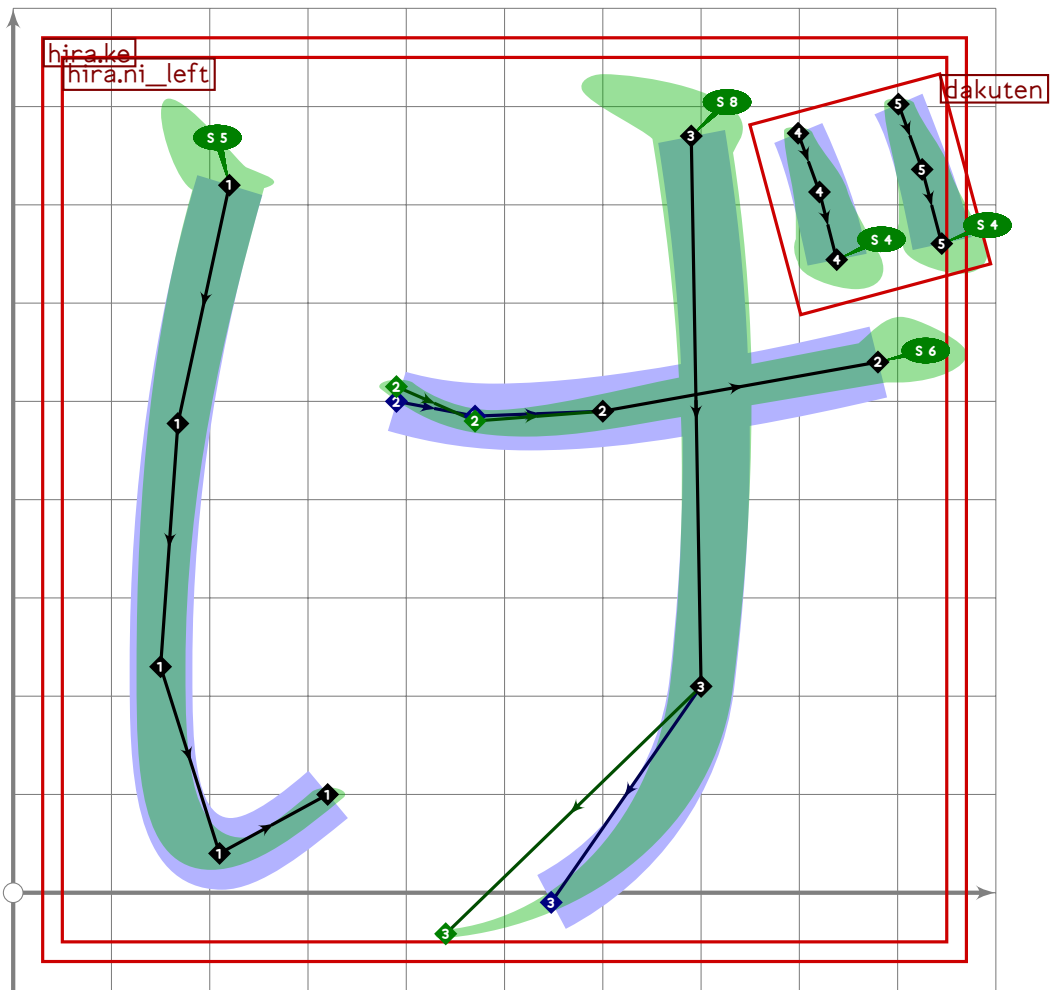


```

447 % hiragana "gu"
448 begintsuglyph("uni3050",80);
449 hira.ku;
450 dakuten(identity shifted (700,520));
451 tsu_render;
452 endsuglyph;
453
454 % hiragana "ke"
455 begintsuglyph("uni3051",81);
456 hira.ke;
457 tsu_render;
458 endsuglyph;
459

```

[see page 72]



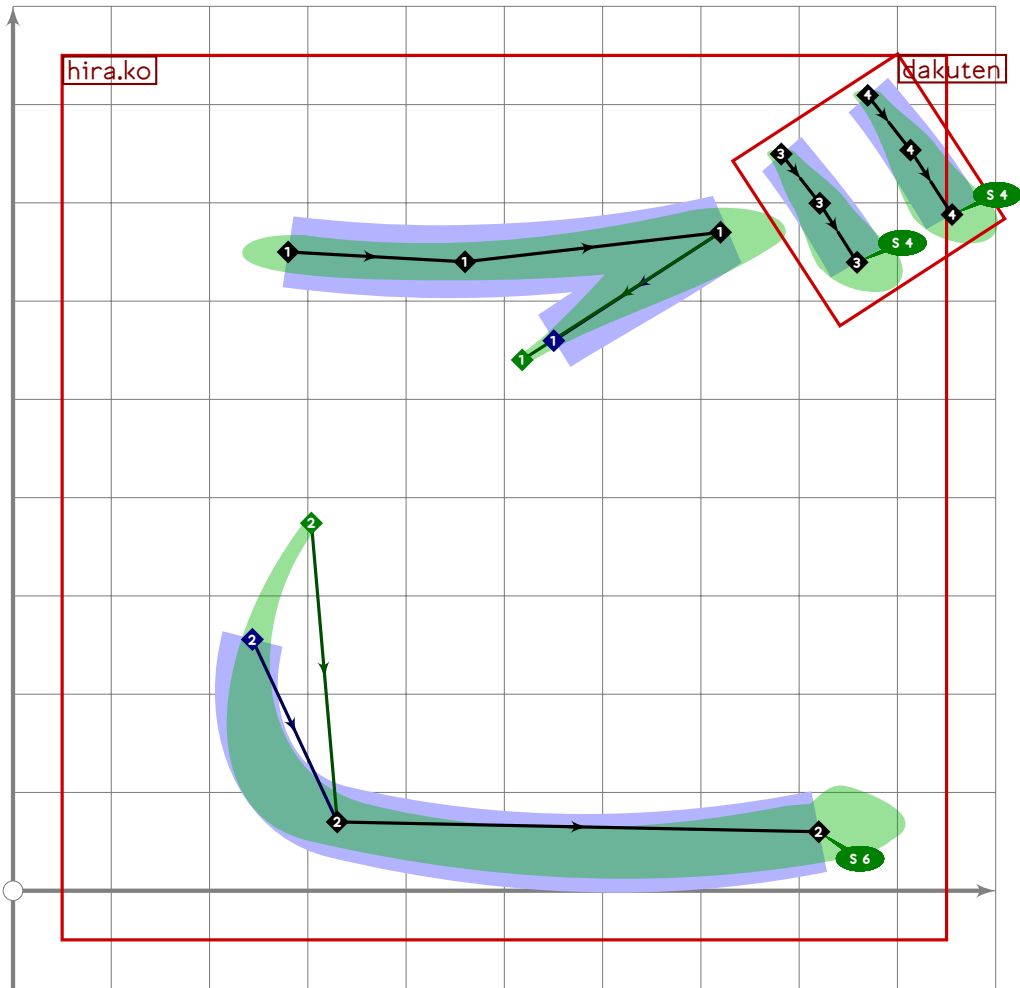
```

460 % hiragana "ge"
461 begint Suglyph("uni3052",82);
462 hira.ke;
463 dakuten(identity rotated -25 shifted (867,730));
464 tsu_render;
465 endsuglyph;
466
467 % hiragana "ko"
468 begint Suglyph("uni3053",83);
469 hira.ko;
470 tsu_render;
471 endsuglyph;
472

```

[see page 73]



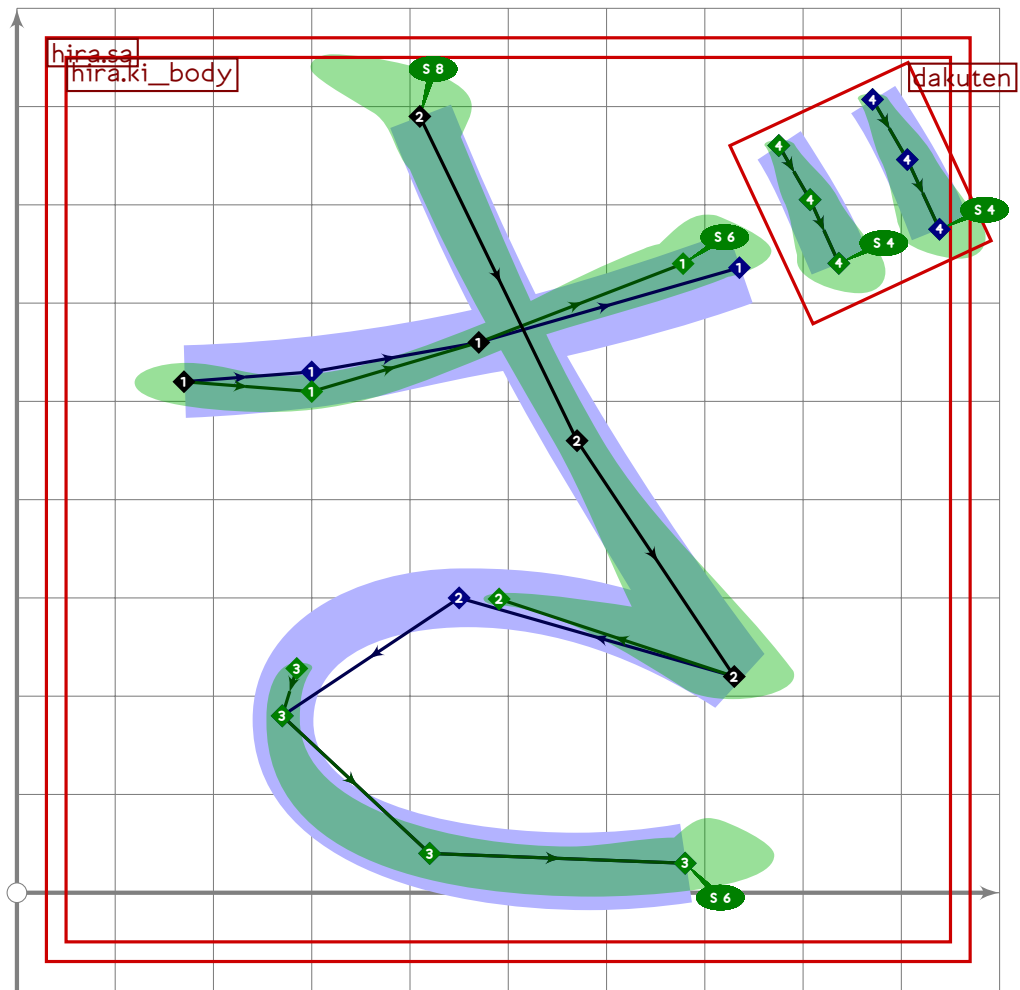


```

473 % hiragana "go"
474 begintsuglyph("uni3054",84);
475 hira.ko;
476 dakuten(identity rotated -7 shifted (860,730));
477 tsu_render;
478 endsuglyph;
479
480 % hiragana "sa"
481 begintsuglyph("uni3055",85);
482 hira.sa;
483 tsu_render;
484 endsuglyph;
485

```

[see page 74]

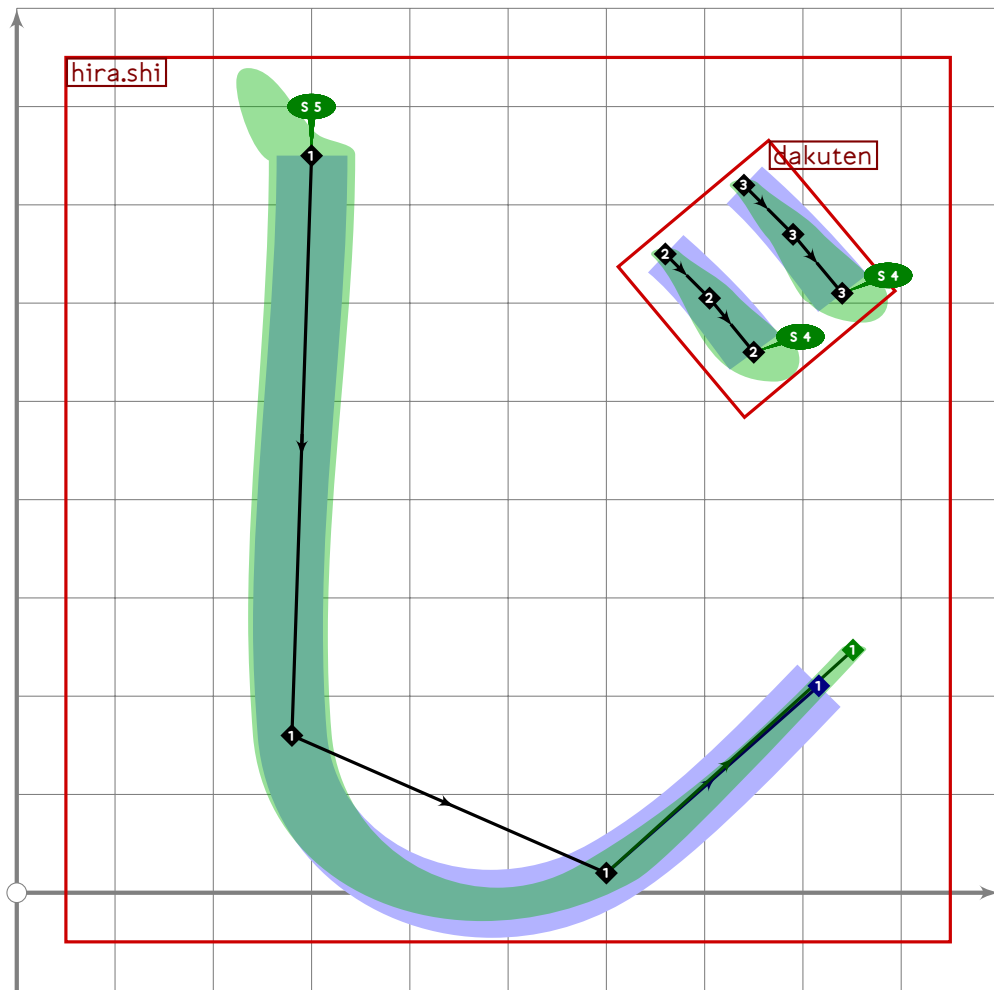


```

486 % hiragana "za"
487 begintsuglyph("uni3056",86);
488 hira.za;
489 replace_stroke(-1,subpath (0,2.8) of oldp);
490 dakuten(identity rotated -15 shifted (850,730));
491 tsu_render;
492 endtsuglyph;
493
494 % hiragana "shi"
495 begintsuglyph("uni3057",87);
496 hira.shi;
497 tsu_render;
498 endtsuglyph;
499

```

[see page 75]

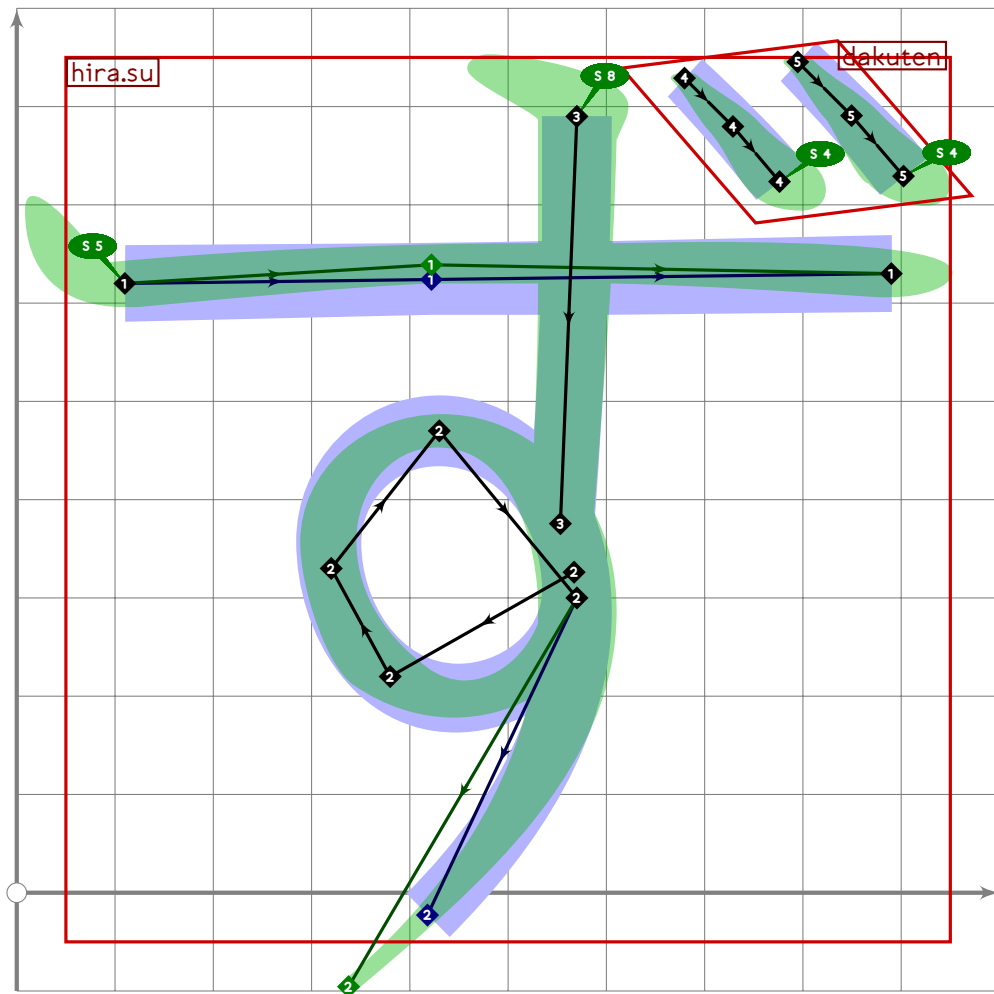


```

500 % hiragana "ji"
501 begint Suglyph("uni3058",88);
502 hira.shi;
503 dakuten(identity shifted (740,640));
504 tsu_render;
505 endsuglyph;
506
507 % hiragana "su"
508 begint Suglyph("uni3059",89);
509 hira.su;
510 tsu_render;
511 endsuglyph;
512

```

[see page 76]

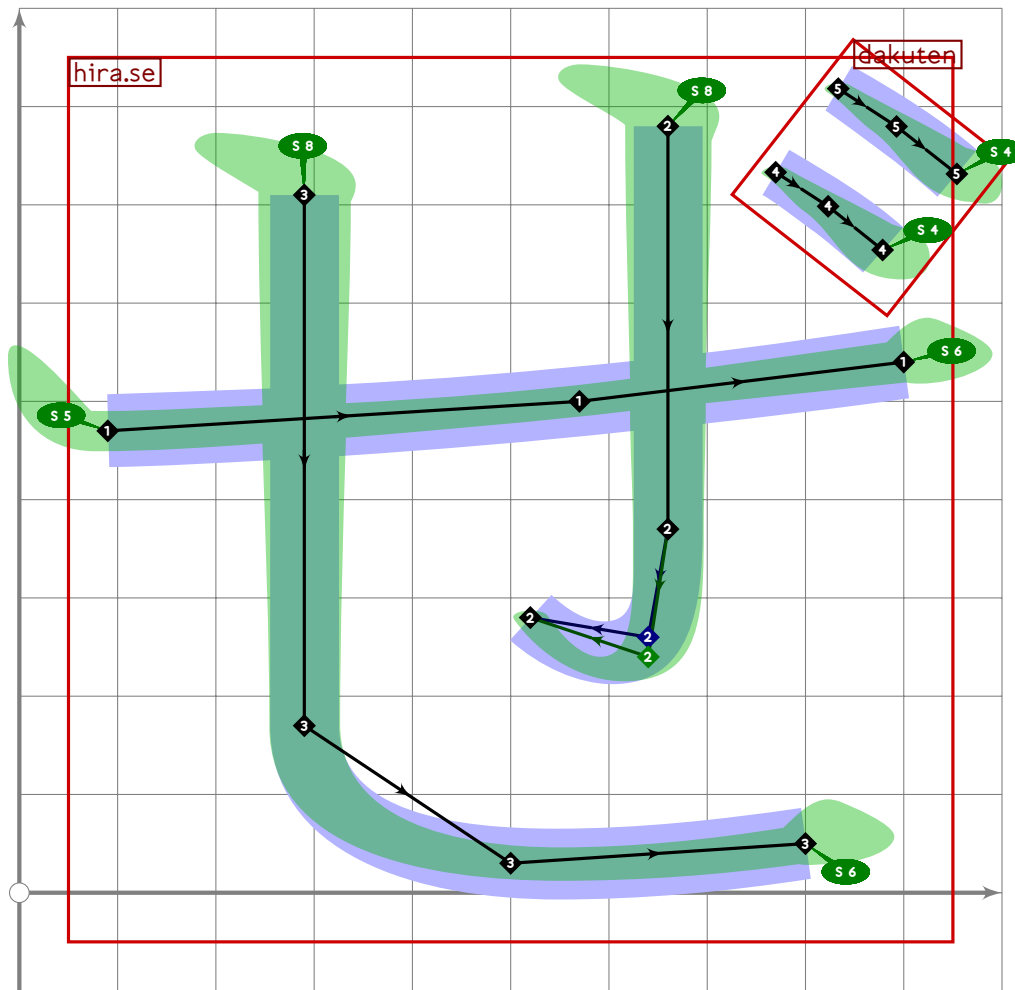


```

513 % hiragana "zu"
514 begintsuglyph("uni305A";90);
515 hira.su;
516 dakuten(identity rotated -30 slanted -0.4 xyscaled (1.2,0.8)
517   shifted (780,790));
518 tsu_render;
519 endtsuglyph;
520
521 % hiragana "se"
522 begintsuglyph("uni305B";91);
523 hira.se;
524 tsu_render;
525 endtsuglyph;
526

```

[see page 77]

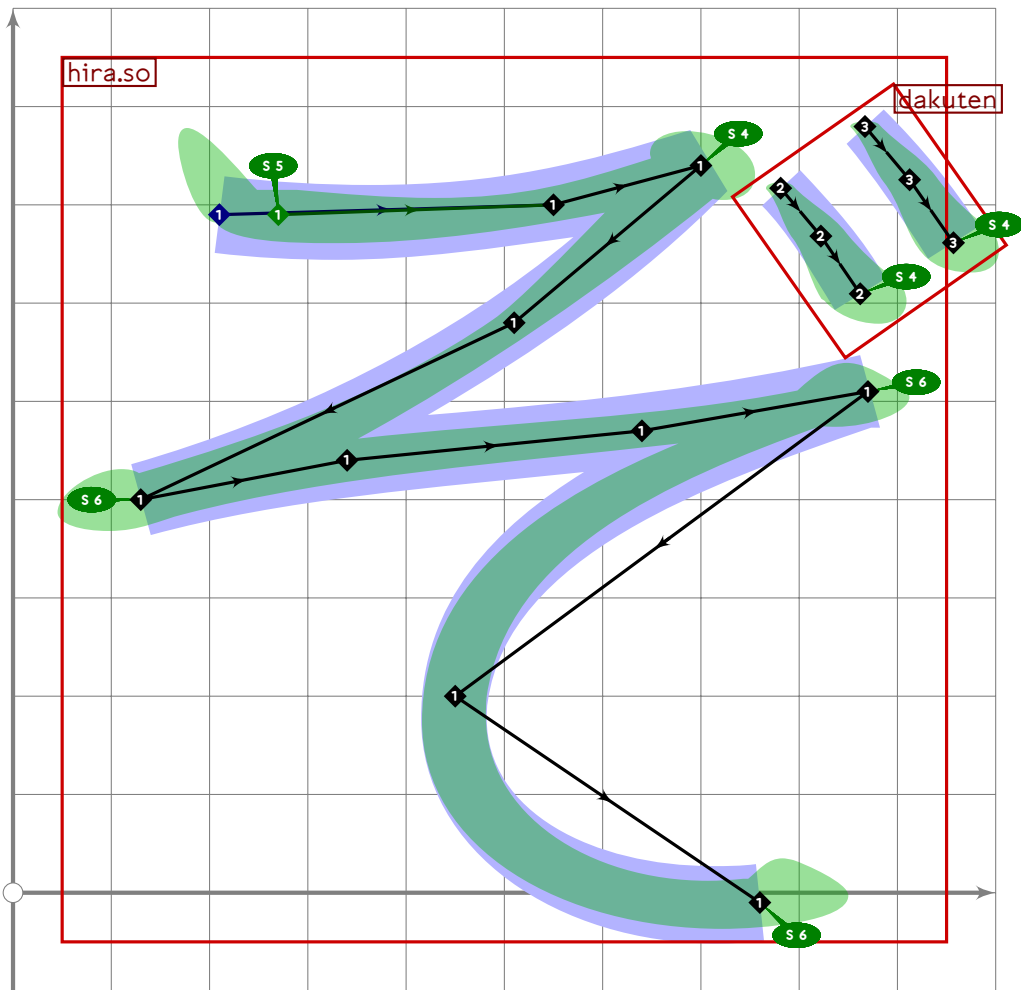


```

527 % hiragana "ze"
528 begintsuglyph("uni305C";92);
529 hira.se;
530 dakuten(identity rotated 12 shifted (850,740));
531 tsu_render;
532 endsuglyph;
533
534 % hiragana "so"
535 begintsuglyph("uni305D";93);
536 hira.so;
537 tsu_render;
538 endsuglyph;
539

```

[see page 78]

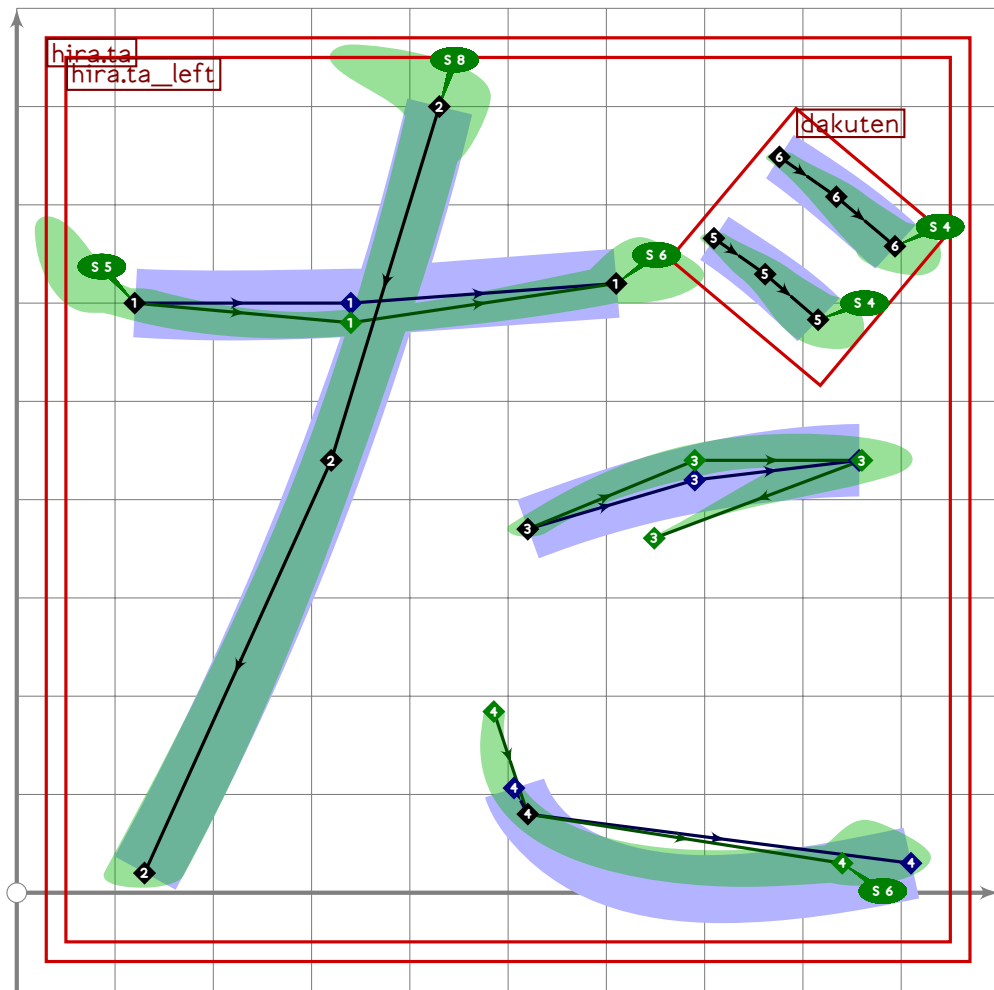


```

540 % hiragana "so"
541 begint Suglyph("uni305E";94);
542 hira.so;
543 dakuten(identity rotated -5 shifted (860,700));
544 tsu_render;
545 endsuglyph;
546
547 % hiragana "ta"
548 begint Suglyph("uni305F";95);
549 hira.ta;
550 tsu_render;
551 endsuglyph;
552

```

[see page 80]

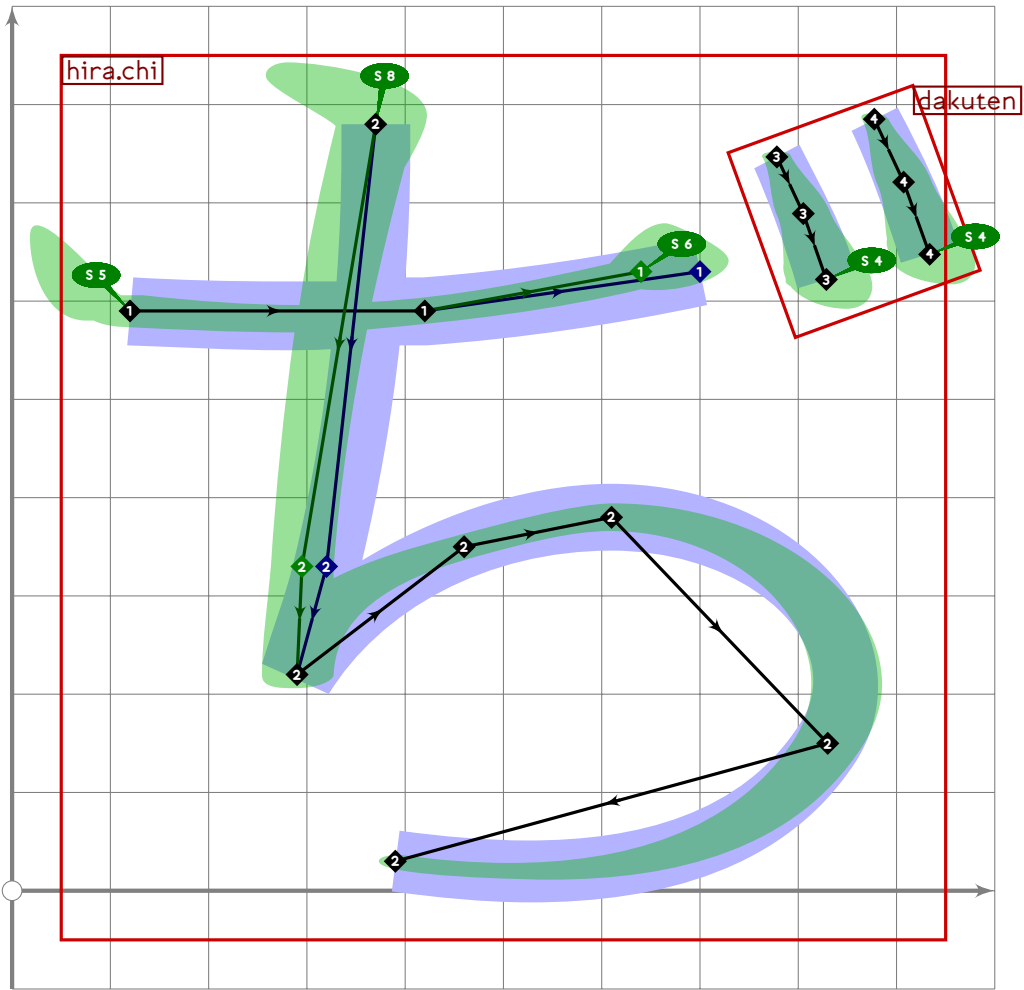


```

553 % hiragana "da"
554 begintsuglyph("uni3060";96);
555 hira.ta;
556 dakuten(identity rotated 10 shifted (790,670));
557 tsu_render;
558 endsuglyph;
559
560 % hiragana "chi"
561 begintsuglyph("uni3061";97);
562 hira.chi;
563 tsu_render;
564 endsuglyph;
565

```

[see page 81]

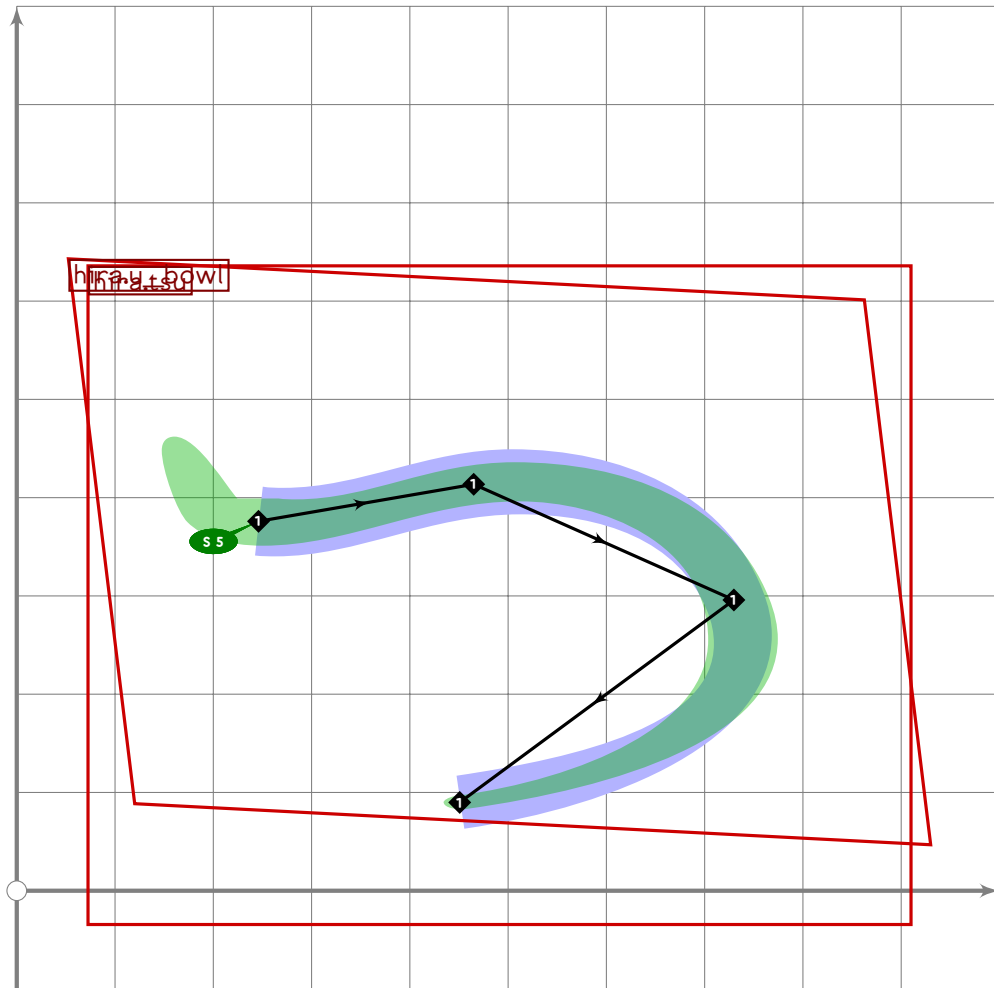


```

566 % hiragana "dji"
567 begint Suglyph("uni3062";98);
568 hira.chi;
569 dakuten(identity rotated -20 shifted (850,710));
570 tsu_render;
571 endsuglyph;
572

```



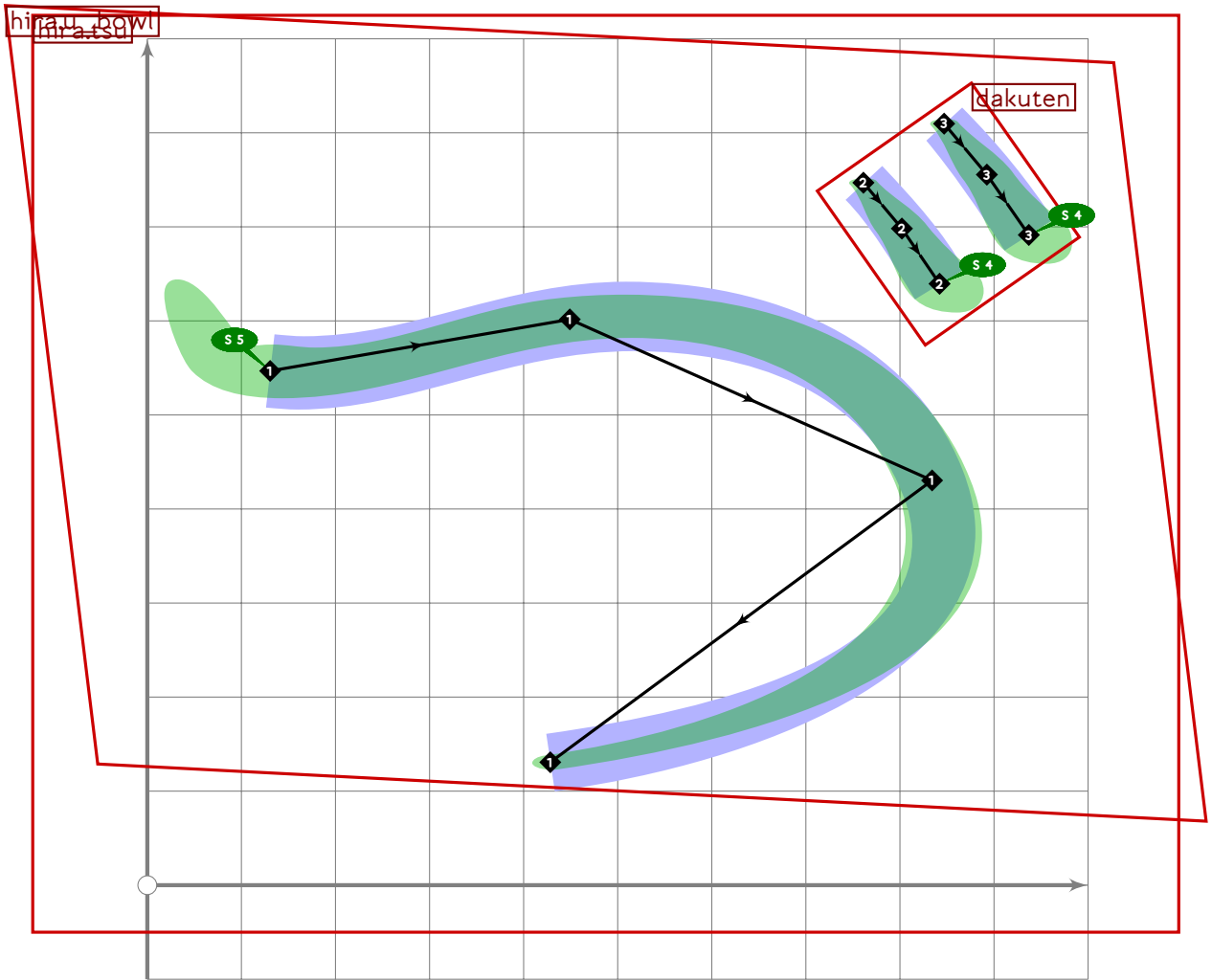


```

573 % hiragana "small tsu"
574 begint Suglyph("uni3063";99);
575 tsu_xform(tsu_xf.smallkana)(hira.tsu);
576 tsu_render;
577 endtsuglyph;
578
579 % hiragana "tsu"
580 begint Suglyph("uni3064";100);
581 hira.tsu;
582 tsu_render;
583 endtsuglyph;
584

```

[see page 81]

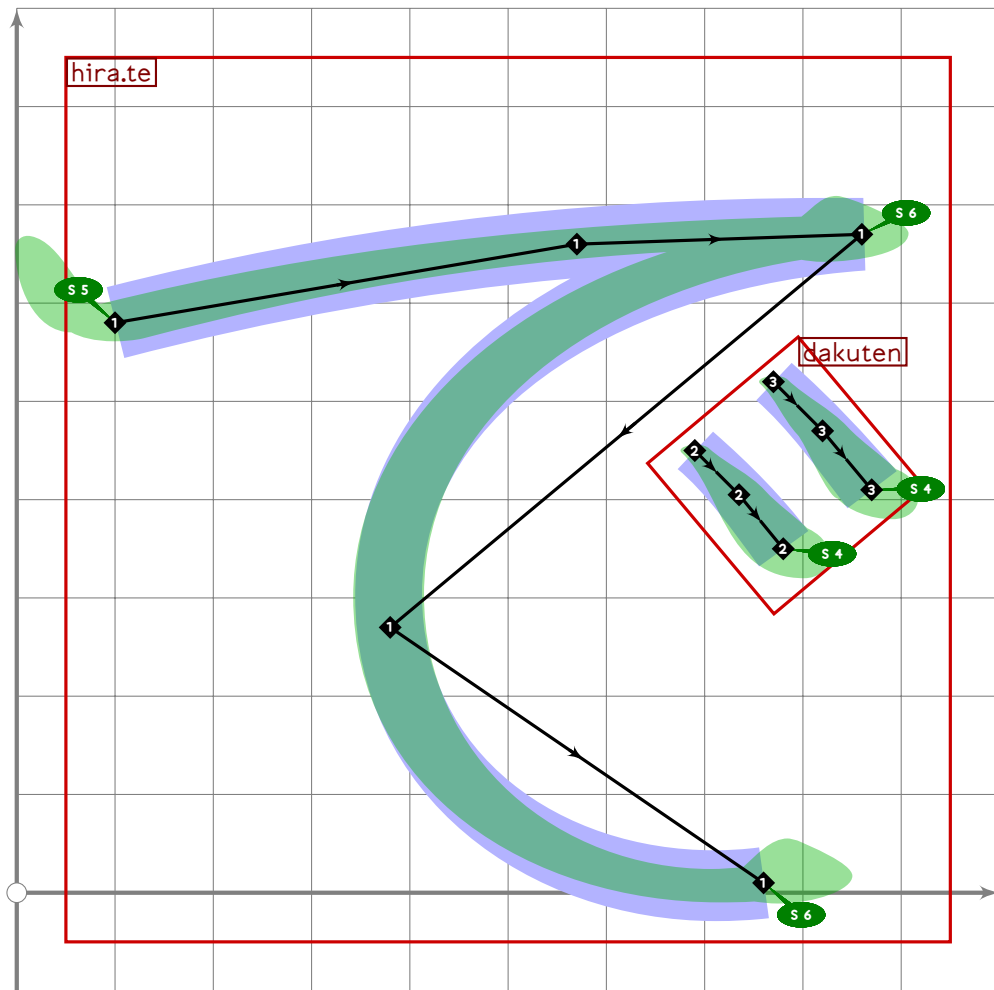


```

585 % hiragana "dzu"
586 begint Suglyph("uni3065";101);
587 hira.tsu;
588 dakuten(identity rotated -5 shifted (840,730));
589 tsu_render;
590 endtsuglyph;
591
592 % hiragana "te"
593 begint Suglyph("uni3066";102);
594 hira.te;
595 tsu_render;
596 endtsuglyph;
597

```

[see page 82]

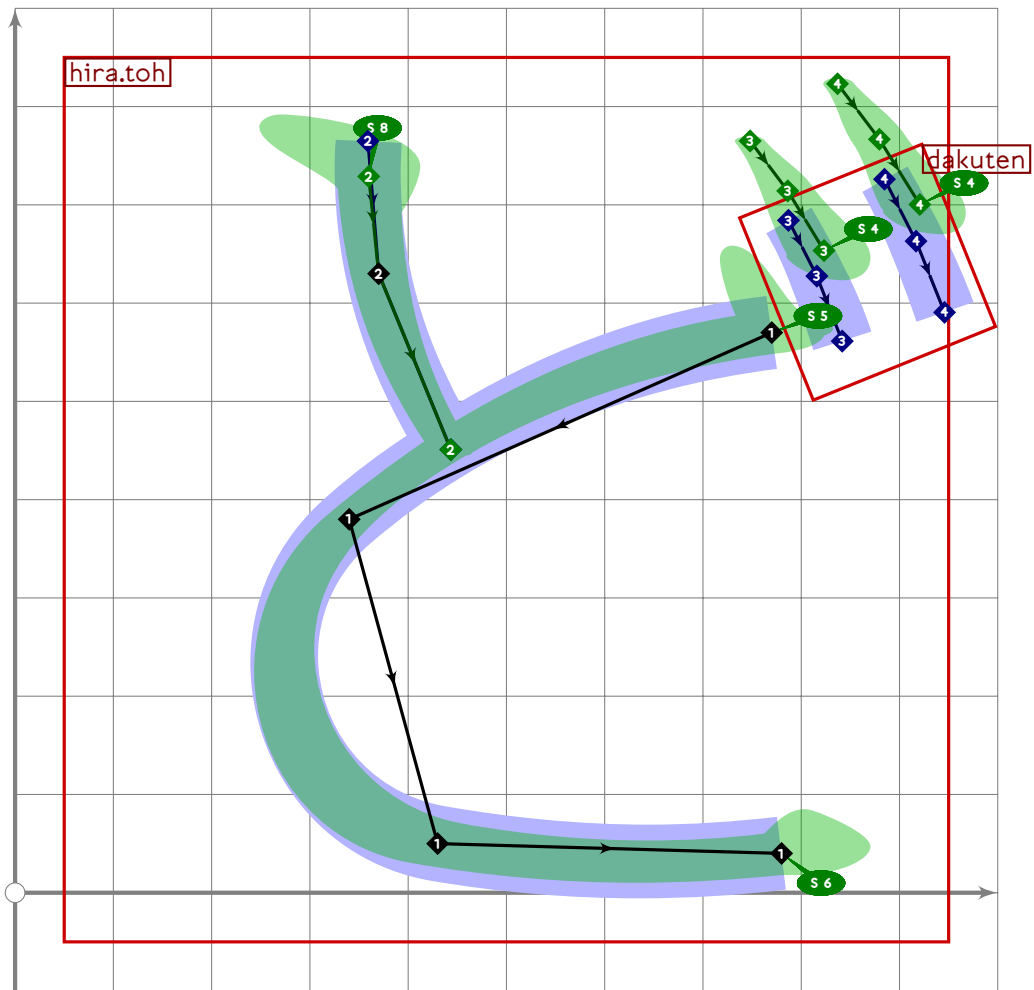


```

598 % hiragana "de"
599 begintsuglyph("uni3067";103);
600 hira.te;
601 dakuten(identity shifted (770,440));
602 tsu_render;
603 endsuglyph;
604
605 % hiragana "to"
606 begintsuglyph("uni3068";104);
607 hira.toh;
608 tsu_render;
609 endsuglyph;
610

```

[see page 83]



```

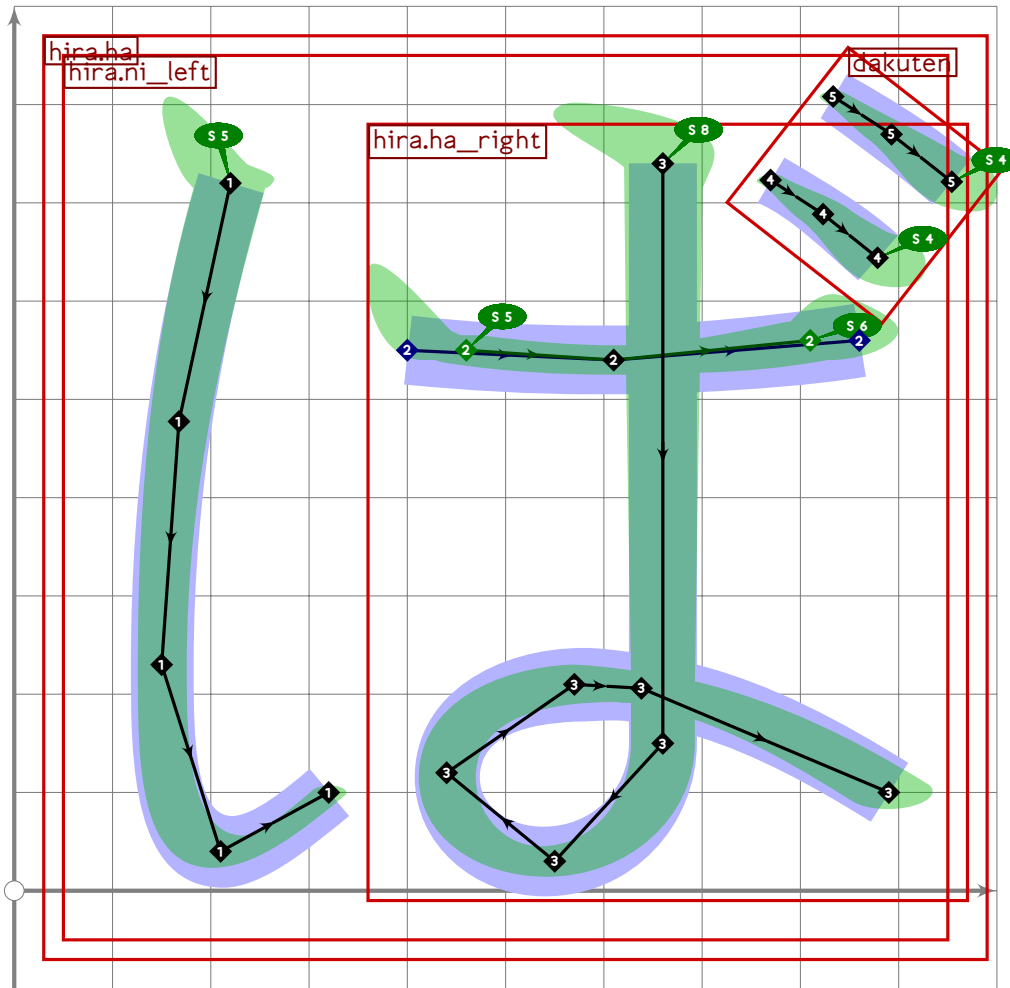
611 % hiragana "do"
612 begintsuglyph("uni3069",105);
613 hira.toh;
614 replace_strokep(0,subpath (0,1,infinity) of oldp);
615 dakuten(identity rotated (-18+10*mincho
616     shifted ((860,650) shifted (100*mincho*(dir 110))));
617 tsu_render;
618 endtsuglyph;
619
620 % hiragana "na"
621 begintsuglyph("uni306A",106);
622 hira.na;
623 tsu_render;
624 endtsuglyph;
625
626 % hiragana "ni"
627 begintsuglyph("uni306B",107);
628 hira.ni;
629 tsu_render;
630 endtsuglyph;
631

```

[see page 84]

[see page 85]

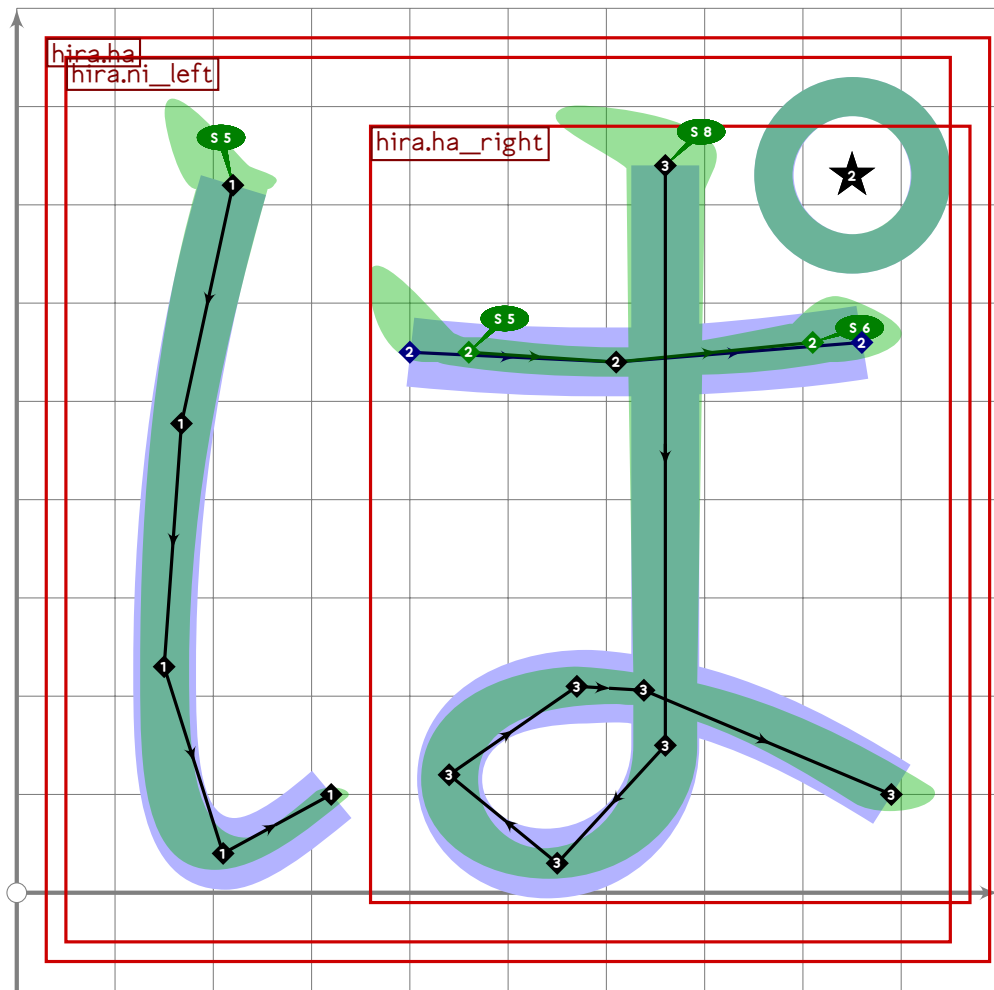
```
632 % hiragana "nu"
633 begintsuglyph("uni306C",108); [see page 86]
634 hira.nu;
635 tsu_render;
636 endsuglyph;
637
638 % hiragana "ne"
639 begintsuglyph("uni306D",109); [see page 87]
640 hira.ne;
641 tsu_render;
642 endsuglyph;
643
644 % hiragana "no"
645 begintsuglyph("uni306E",110); [see page 88]
646 hira.no;
647 tsu_render;
648 endsuglyph;
649
650 % hiragana "na"
651 begintsuglyph("uni306F",111); [see page 89]
652 hira.na;
653 tsu_render;
654 endsuglyph;
655
```



```

656 % hiragana "ba"
657 begint Suglyph("uni3070",112);
658 hira.ha;
659 dakuten(identity rotated 12 shifted (850,730));
660 tsu_render;
661 endsuglyph;
662

```

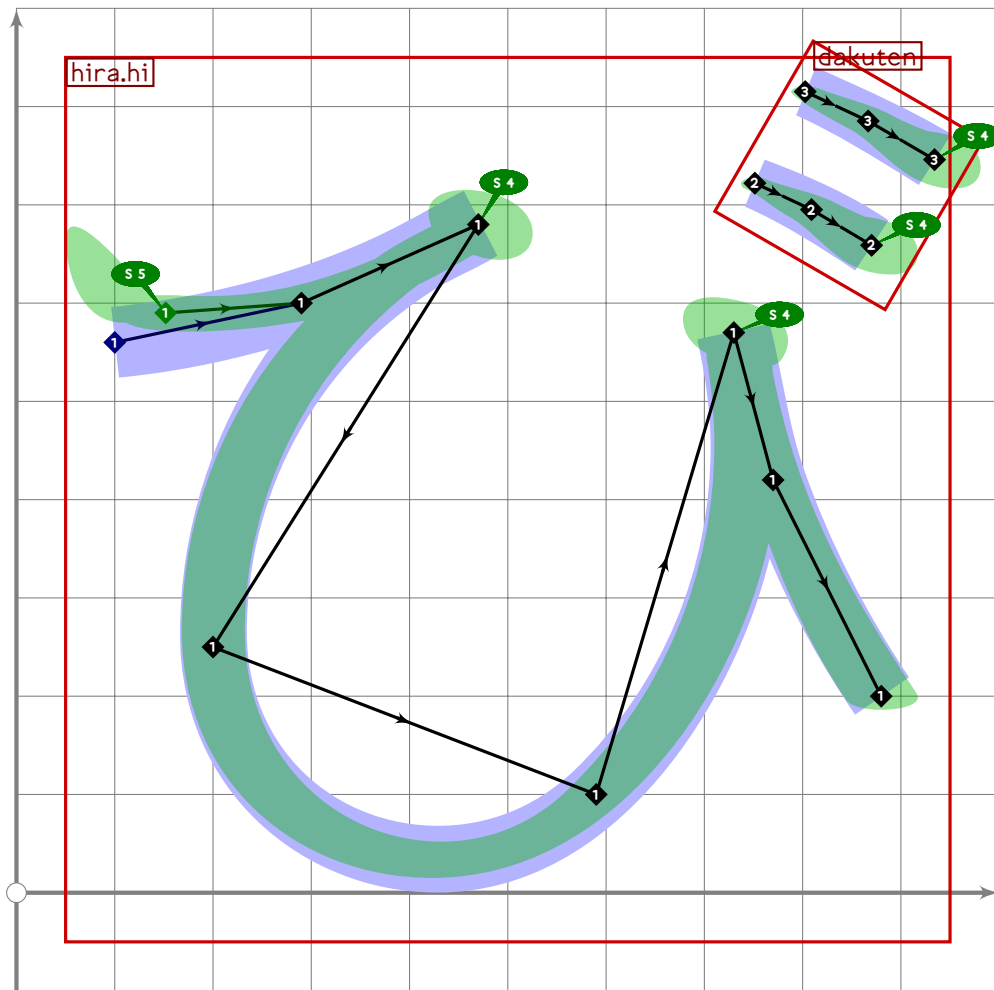


```

663 % hiragana "pa"
664 begintsuglyph("uni3071";113);
665 hira.ha;
666 handakuten((850,730));
667 tsu_render;
668 endsuglyph;
669
670 % hiragana "hi"
671 begintsuglyph("uni3072";114);
672 hira.hi;
673 tsu_render;
674 endsuglyph;
675

```

[see page 90]

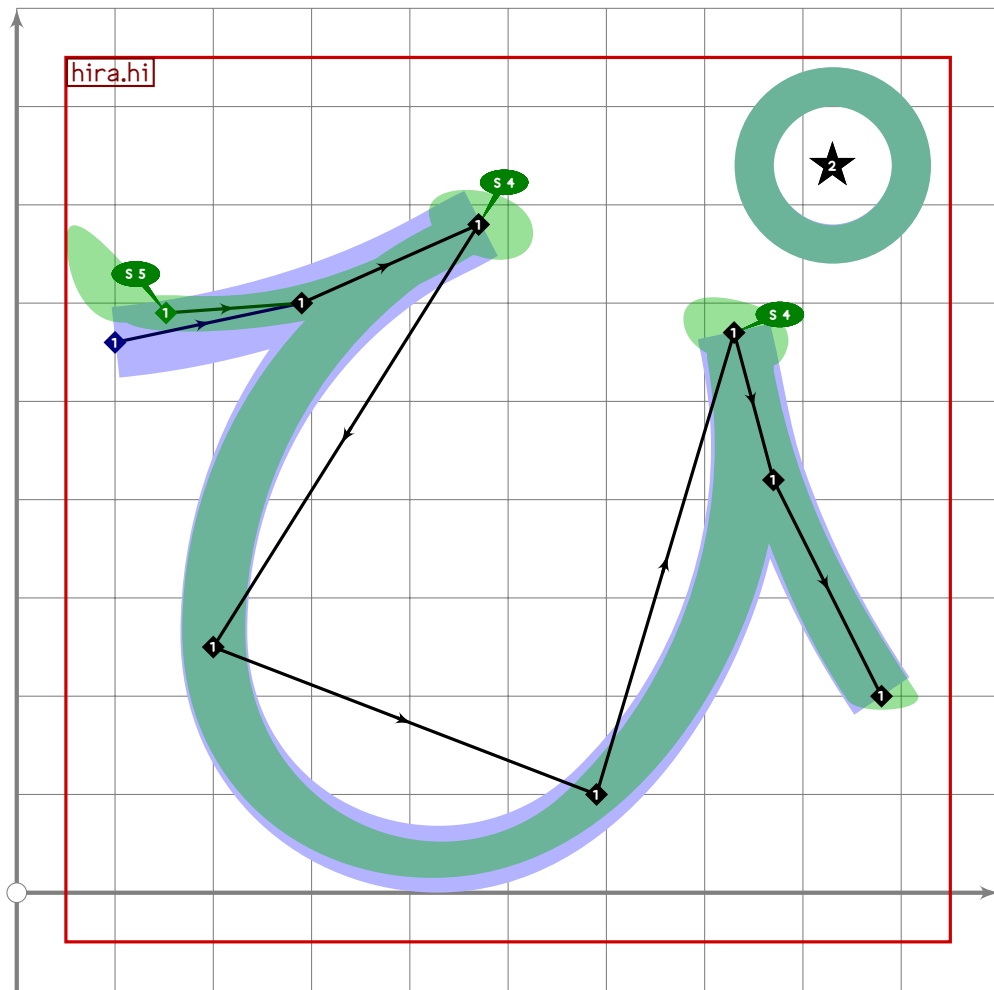


```

676 % hiragana "bi"
677 begint Suglyph("uni3073",115);
678 hira.hi;
679 dakuten(identity rotated 20 shifted (830,740));
680 tsu_render;
681 endsuglyph;
682

```



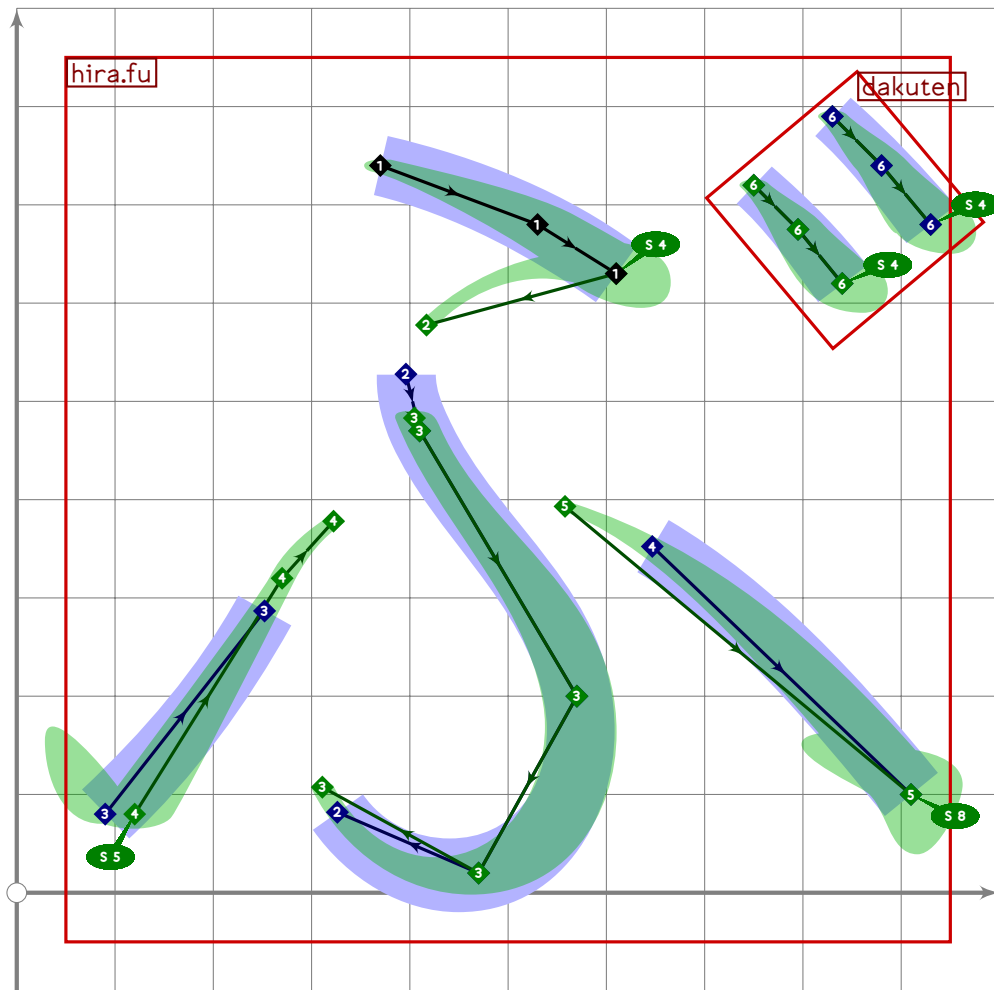


```

683 % hiragana "pi"
684 begintsuglyph("uni3074";116);
685 hira.hi;
686 handakuten((830,740));
687 tsu_render;
688 endsuglyph;
689
690 % hiragana "fu"
691 begintsuglyph("uni3075";117);
692 hira.fu;
693 tsu_render;
694 endsuglyph;
695

```

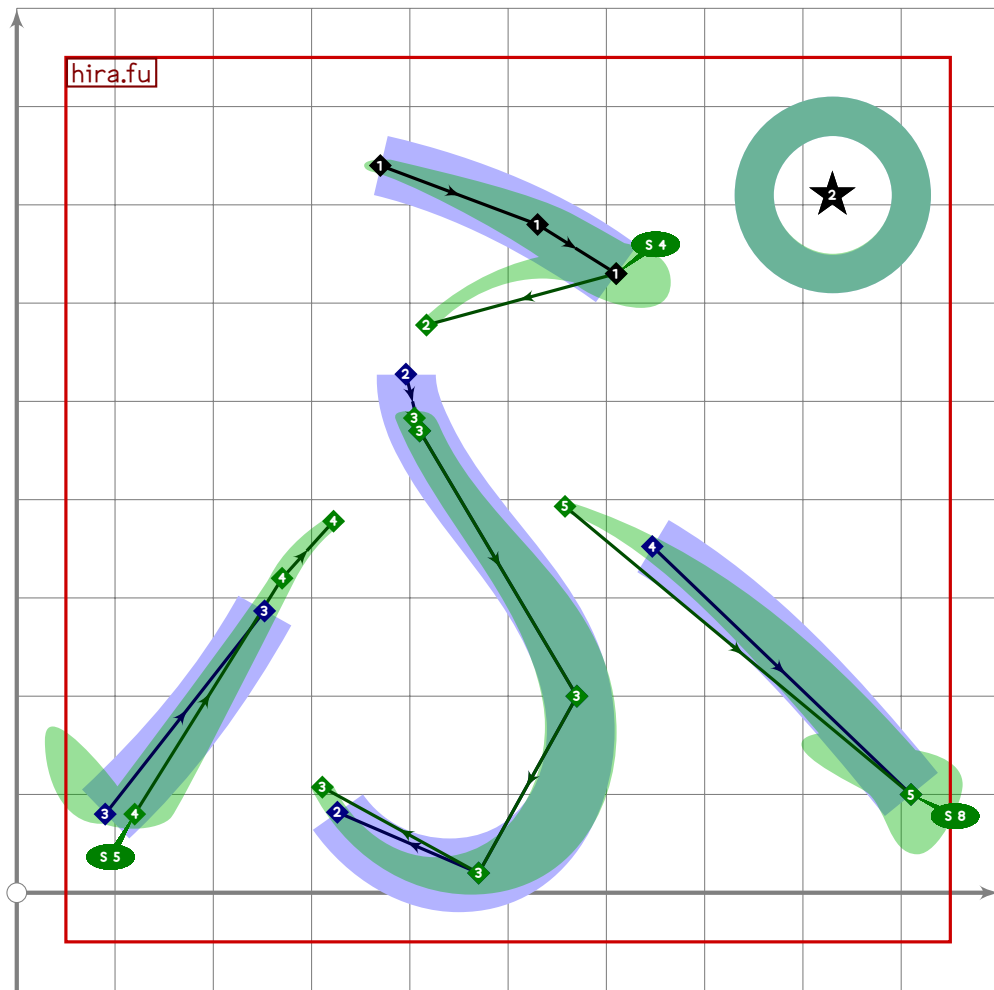
[see page 91]



```

696 % hiragana "bu"
697 begint Suglyph("uni3076",118);
698 hira.fu;
699 dakuten(identity shifted (830,710));
700 tsu_render;
701 endsuglyph;
702

```

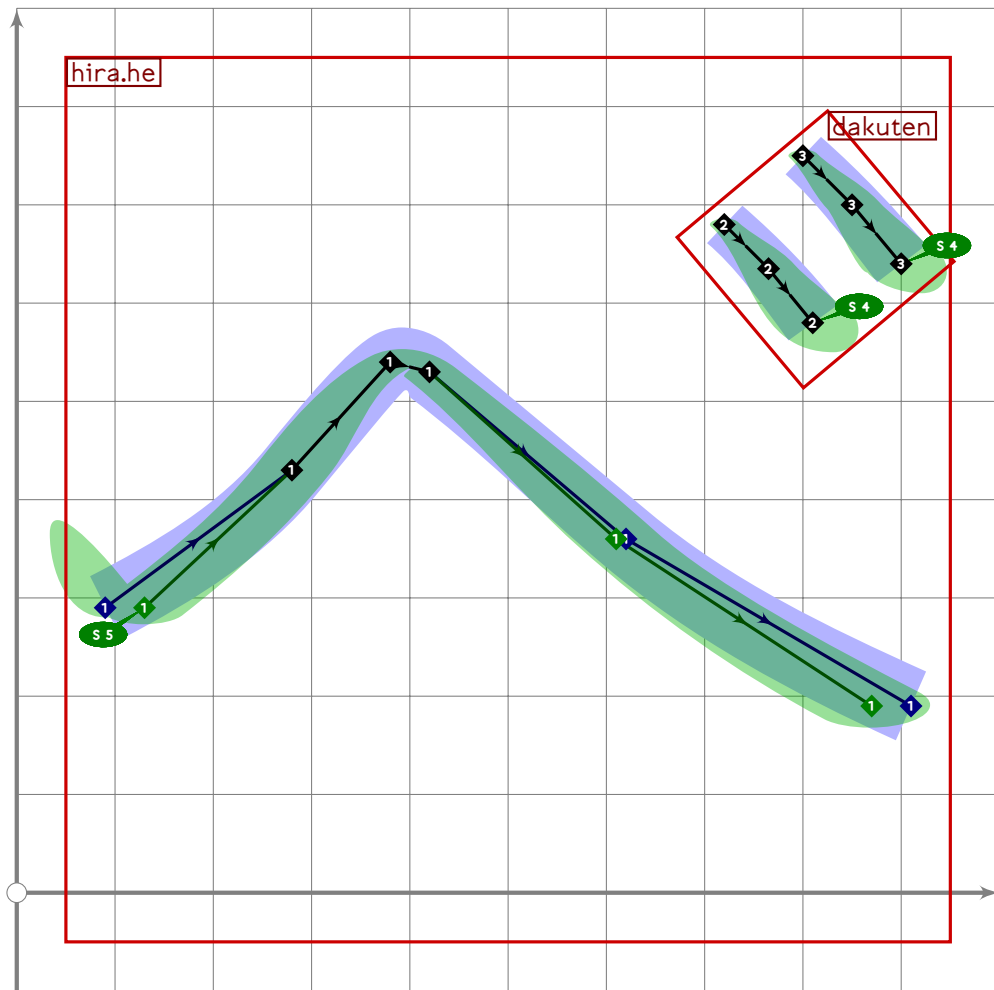


```

703 % hiragana "pu"
704 begintsuglyph("uni3077",119);
705 hira.fu;
706 handakuten((830,710));
707 tsu_render;
708 endsuglyph;
709
710 % hiragana "he"
711 begintsuglyph("uni3078",120);
712 hira.he;
713 tsu_render;
714 endsuglyph;
715

```

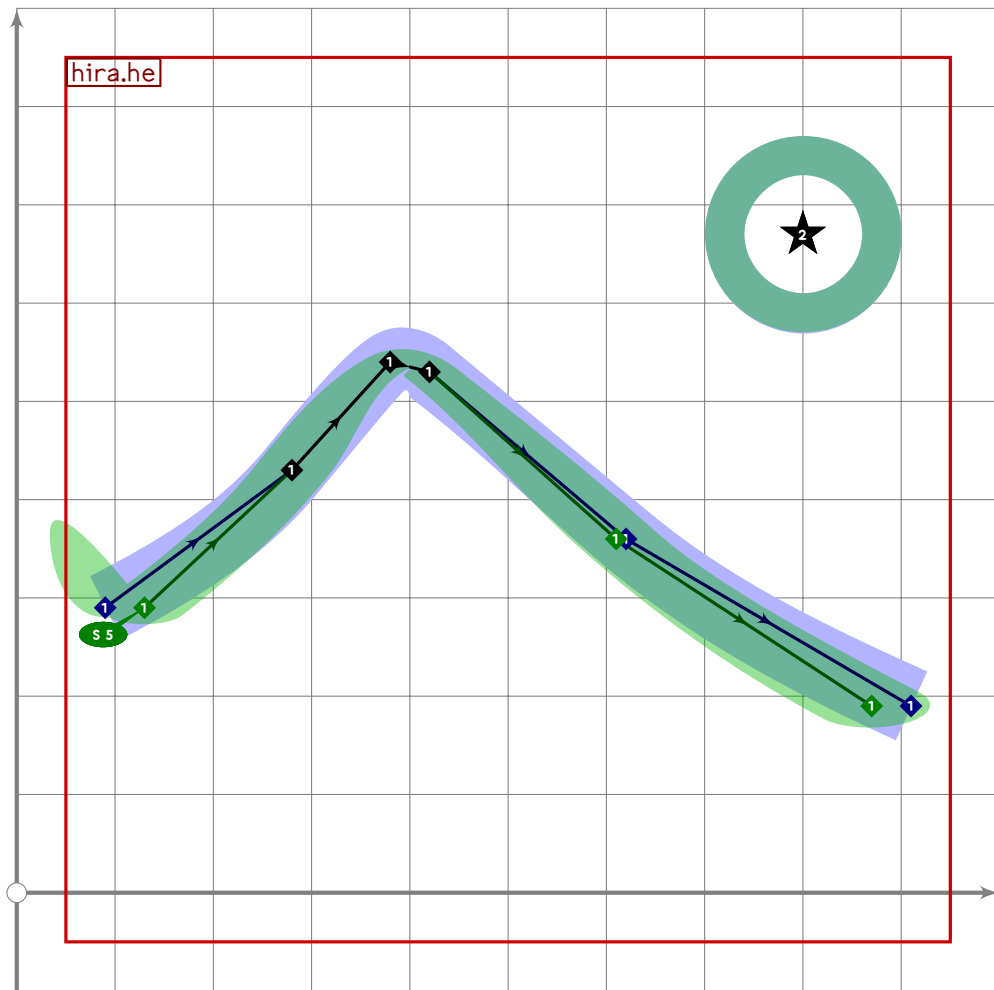
[see page 92]



```

716 % hiragana "be"
717 begint Suglyph("uni3079",121);
718 hira.he;
719 dakuten(identity shifted (800,670));
720 tsu_render;
721 endsuglyph;
722

```

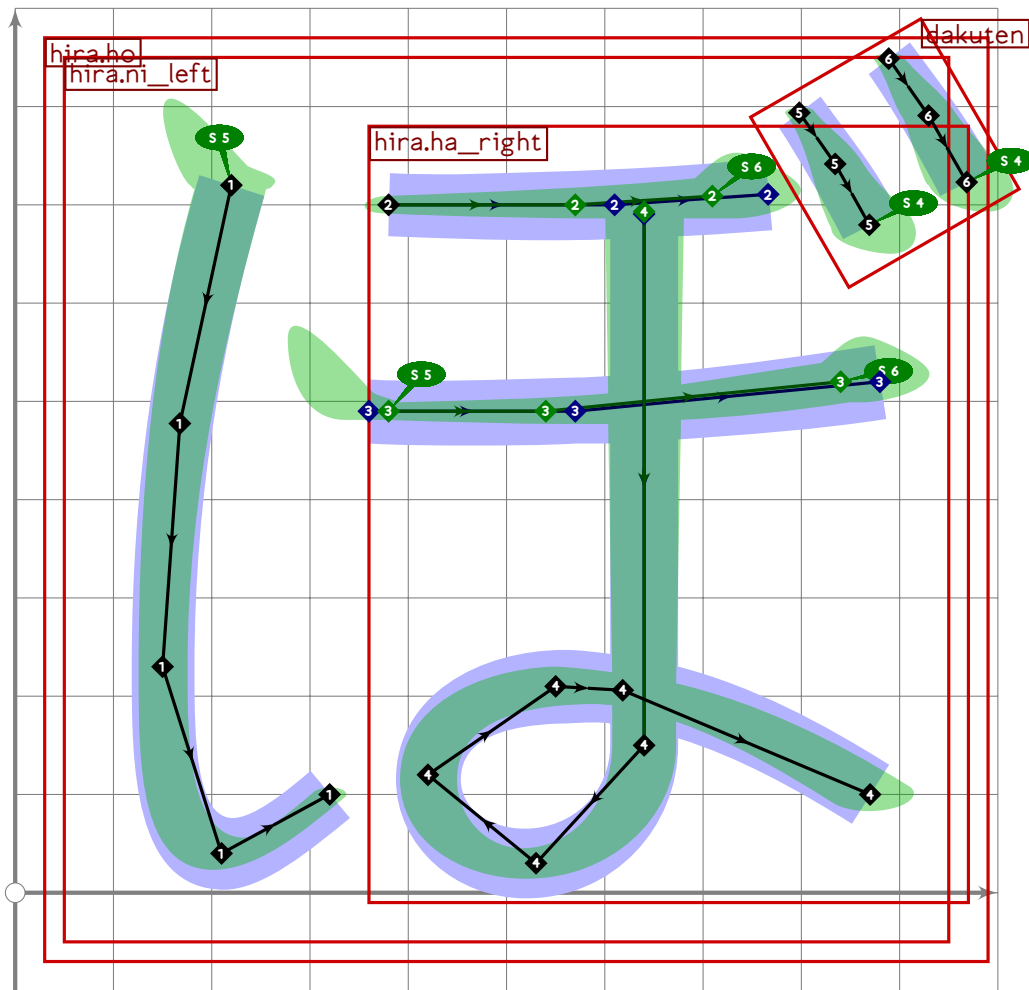


```

723 % hiragana "pe"
724 begintsuglyph("uni307A",122);
725 hira.he;
726 handakuten((800,670));
727 tsu_render;
728 endsuglyph;
729
730 % hiragana "ho"
731 begintsuglyph("uni307B",123);
732 hira.ho;
733 tsu_render;
734 endsuglyph;
735

```

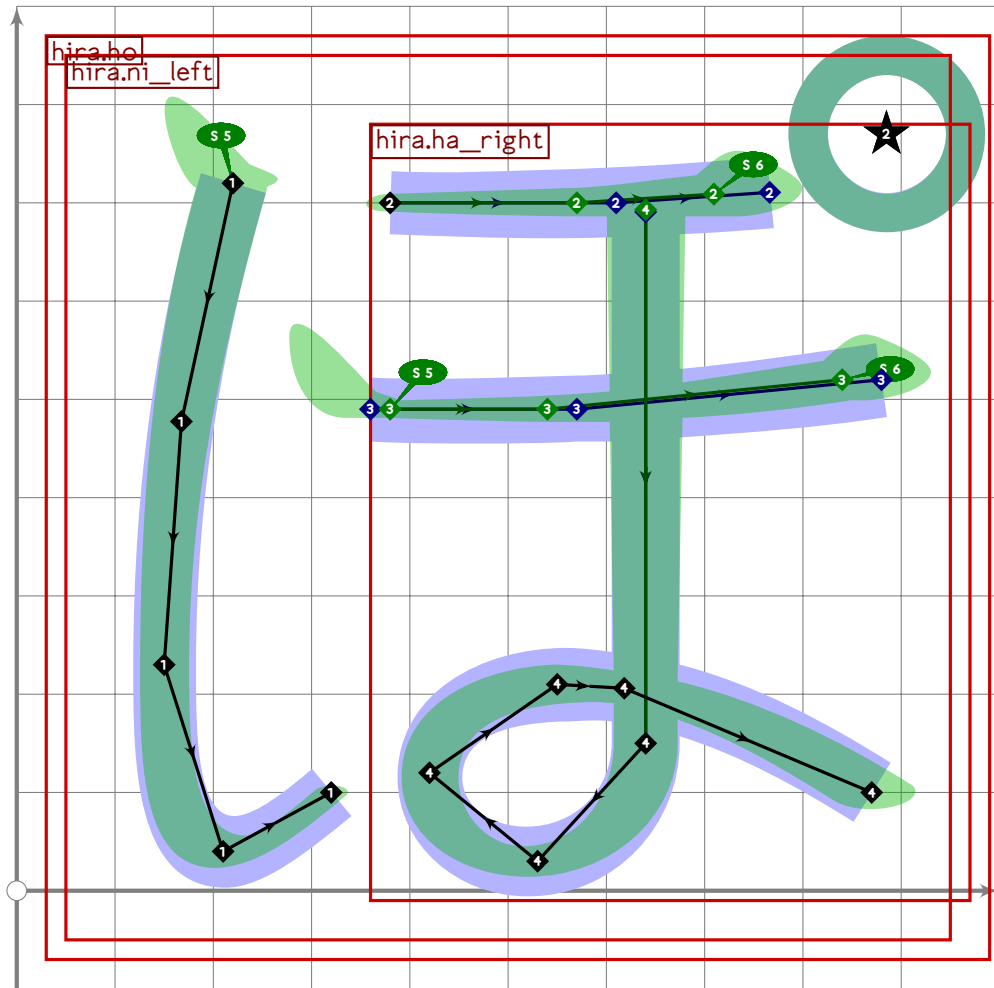
[see page 93]



```

736 % hiragana "bo"
737 beginstuglyph("uni307C";124);
738 hira.ho;
739 replace_strokep(-2,subpath (0,1.65-0.07*mincho) of oldp);
740 replace_strokep(0,oldp shifted (-20,0));
741 dakuten(identity rotated -10 shifted (875,770));
742 tsu_render;
743 endstuglyph;
744

```



```

745 % hiragana "po"
746 begintsuglyph("uni307D",125);
747 hira.ho;
748 replace_strokep(-2,subpath (0,1.65-0.07*mincho) of oldp);
749 replace_strokep(0,oldp shifted (-20,0));
750 handakuten((885,770));
751 tsu_render;
752 endtsuglyph;
753
754 % hiragana "ma"
755 begintsuglyph("uni307E",126);
756 hira.ma;
757 tsu_render;
758 endtsuglyph;
759
760 % hiragana "mi"
761 begintsuglyph("uni307F",127);
762 hira.mi;
763 tsu_render;
764 endtsuglyph;
765

```

[see page 94]

[see page 96]

```

766 % hiragana "mu"
767 begintsuglyph("uni3080";128);
768 hira.mu;
769 tsu_render;
770 endtsuglyph;

```

[see page 97]

```

771
772 % hiragana "me"
773 begintsuglyph("uni3081";129);
774 hira.me;
775 tsu_render;
776 endtsuglyph;

```

[see page 98]

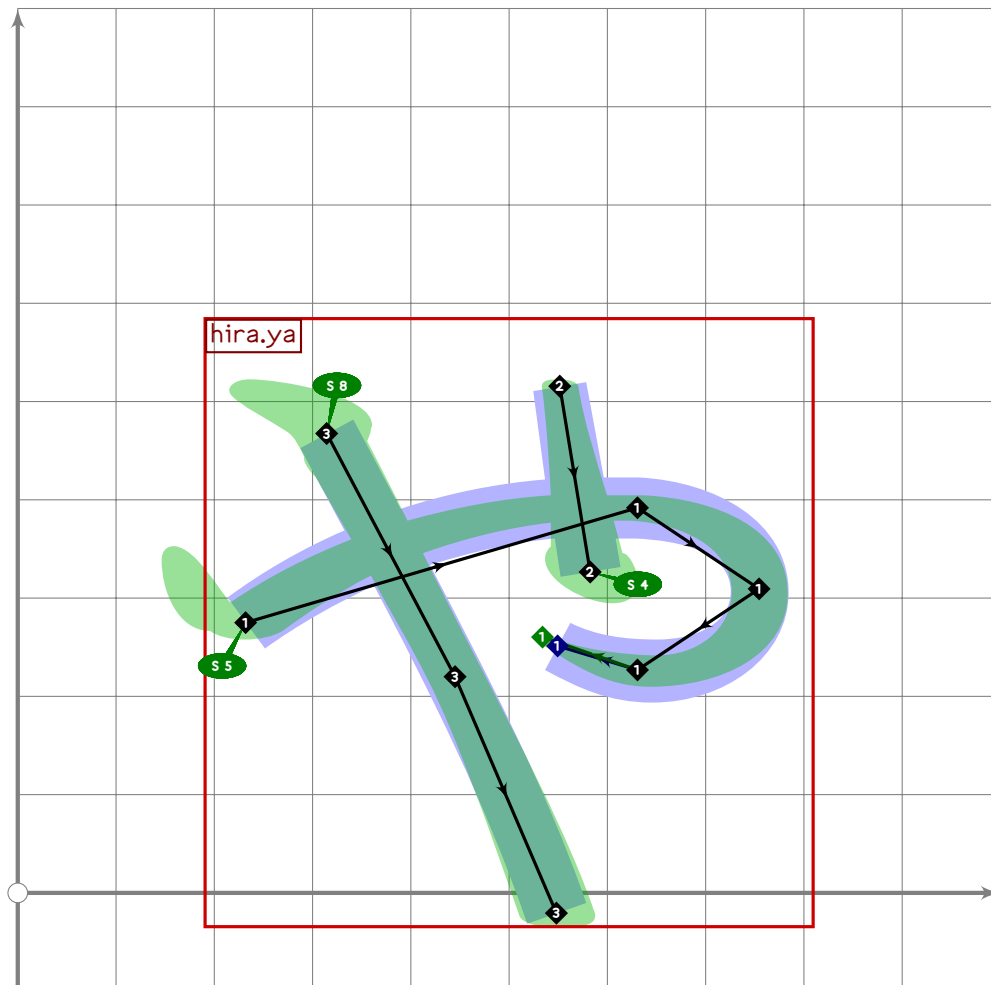
```

777
778 % hiragana "mo"
779 begintsuglyph("uni3082";130);
780 hira.mo;
781 tsu_render;
782 endtsuglyph;

```

[see page 99]

783



```

784 % hiragana "small ya"
785 begintsuglyph("uni3083";131);
786 tsu_xform(tsu_xf.smallkana)(hira.ya);

```

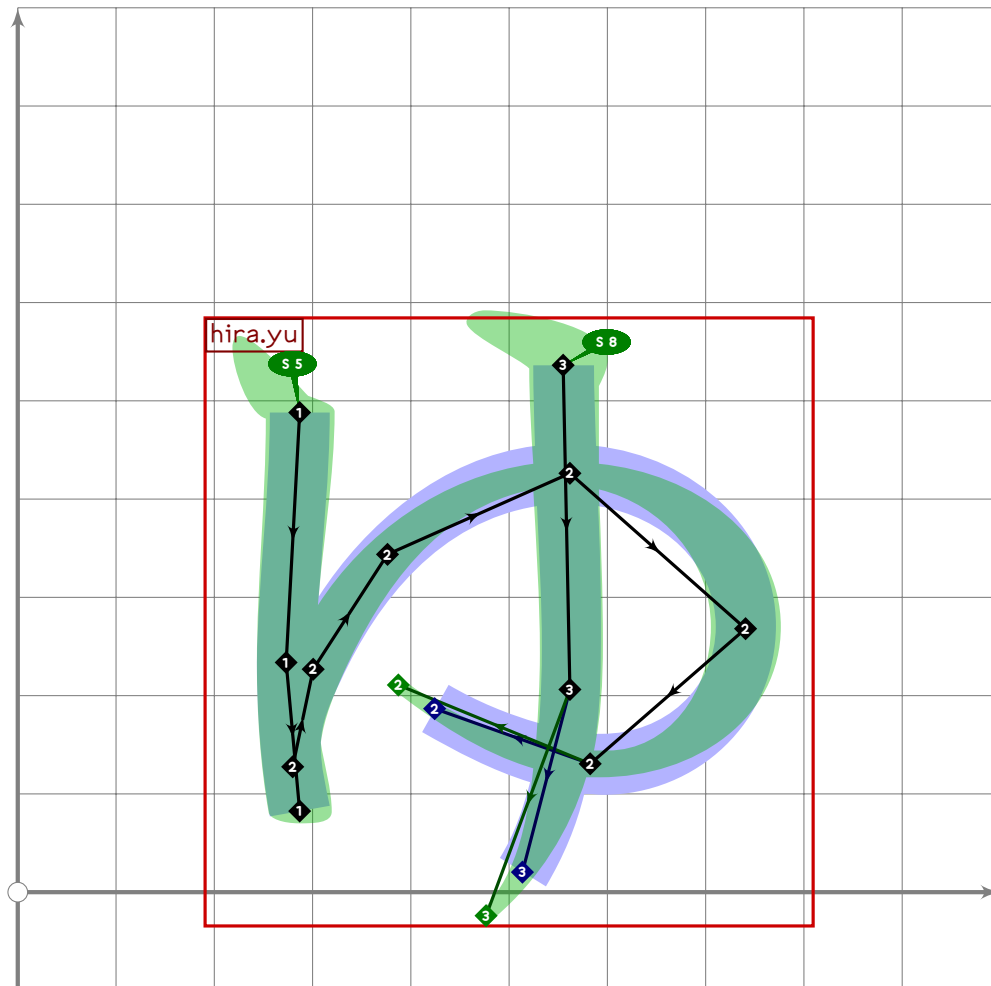


```

787 tsu_render;
788 endtsuglyph;
789
790 % hiragana "ya"
791 begintsuglyph("uni3084",132);
792 hira.ya;
793 tsu_render;
794 endtsuglyph;
795

```

[see page 100]

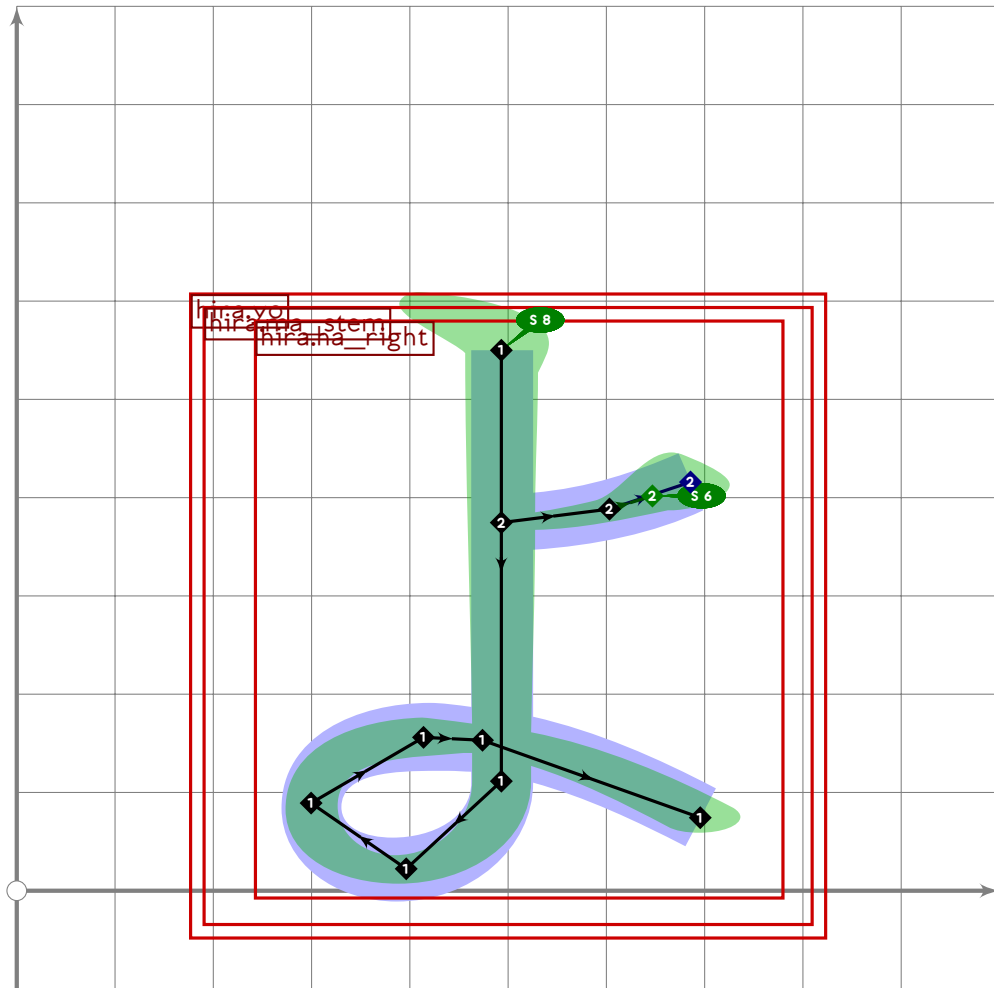


```

796 % hiragana "small yu"
797 begintsuglyph("uni3085",133);
798 tsu_xform(tsu_xf.smallkana)(hira.yu);
799 tsu_render;
800 endtsuglyph;
801
802 % hiragana "yu"
803 begintsuglyph("uni3086",134);
804 hira.yu;
805 tsu_render;
806 endtsuglyph;
807

```

[see page 101]



```

808 % hiragana "small yo"
809 begintsuglyph("uni3087",135);
810 tsu_xform(tsu_xf.smallkana)(hira.yo);
811 tsu_render;
812 endsuglyph;

```

813

```

814 begintsuglyph("uni3088",136);
815 hira.yo;
816 tsu_render;
817 endsuglyph;

```

[see page 102]

818

```

819 % hiragana "ra"
820 begintsuglyph("uni3089",137);
821 hira.ra;
822 tsu_render;
823 endsuglyph;

```

[see page 103]

824

```

825 % hiragana "ri"
826 begintsuglyph("uni308A",138);
827 hira.ri;
828 tsu_render;

```

[see page 104]

```

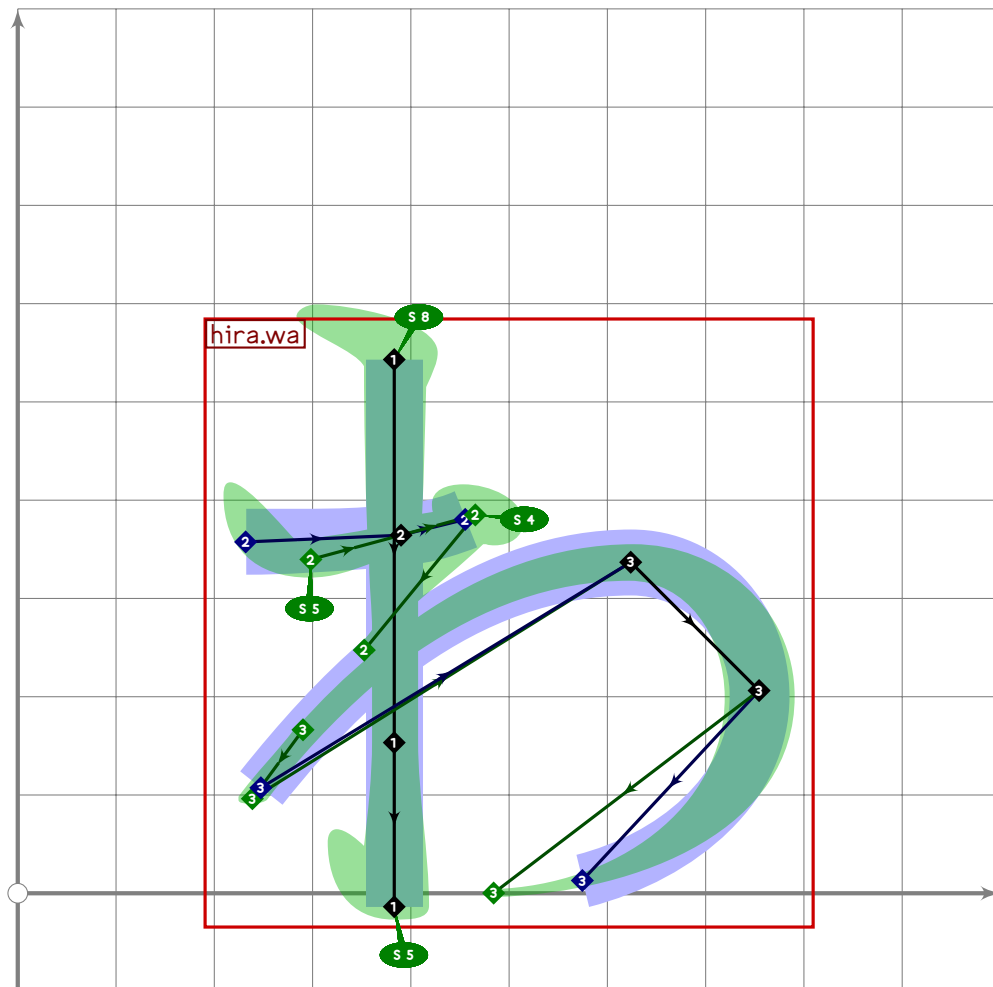
829 endtsuglyph;
830
831 % hiragana "ru"
832 begintsuglyph("uni308B",139);
833 hira.ru;
834 tsu_render;
835 endtsuglyph;
836
837 % hiragana "re"
838 begintsuglyph("uni308C",140);
839 hira.re;
840 tsu_render;
841 endtsuglyph;
842
843 % hiragana "ro"
844 begintsuglyph("uni308D",141);
845 hira.ro;
846 tsu_render;
847 endtsuglyph;
848

```

[see page 105]

[see page 106]

[see page 107]

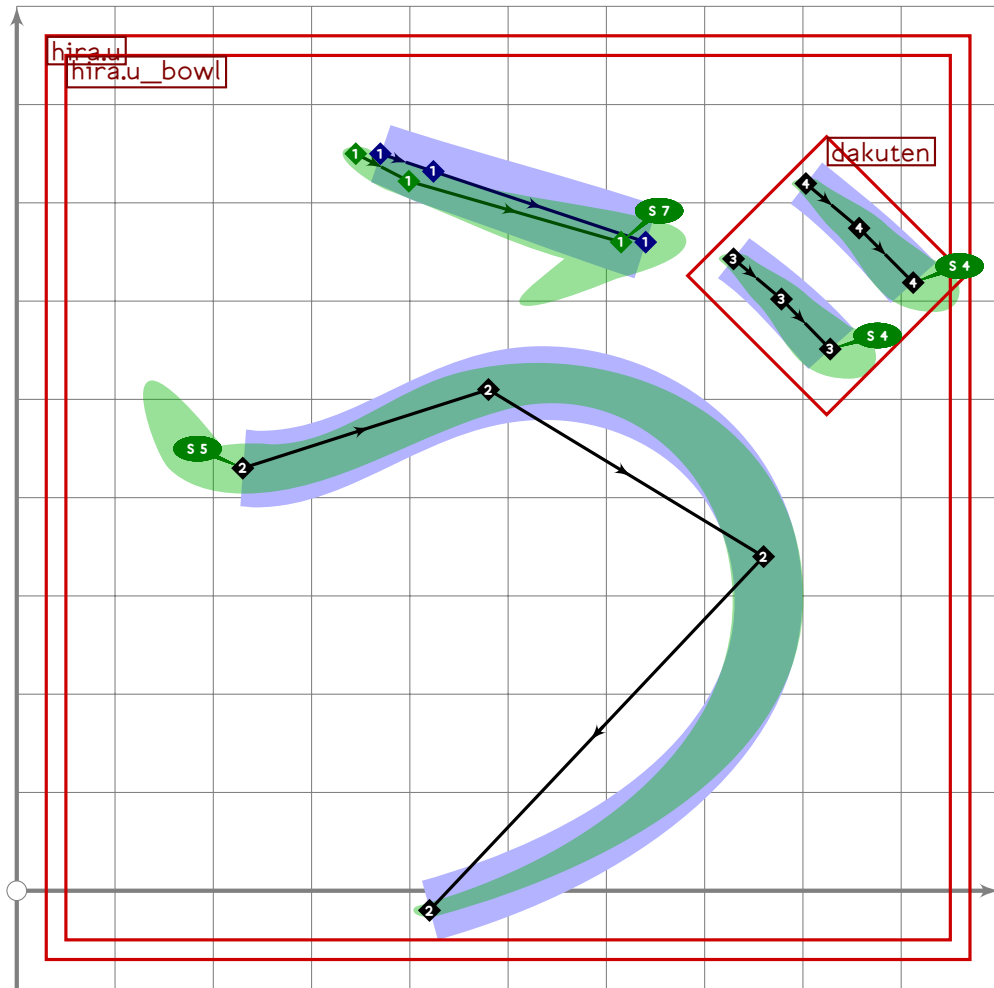


```

849 % hiragana "small wa"

```

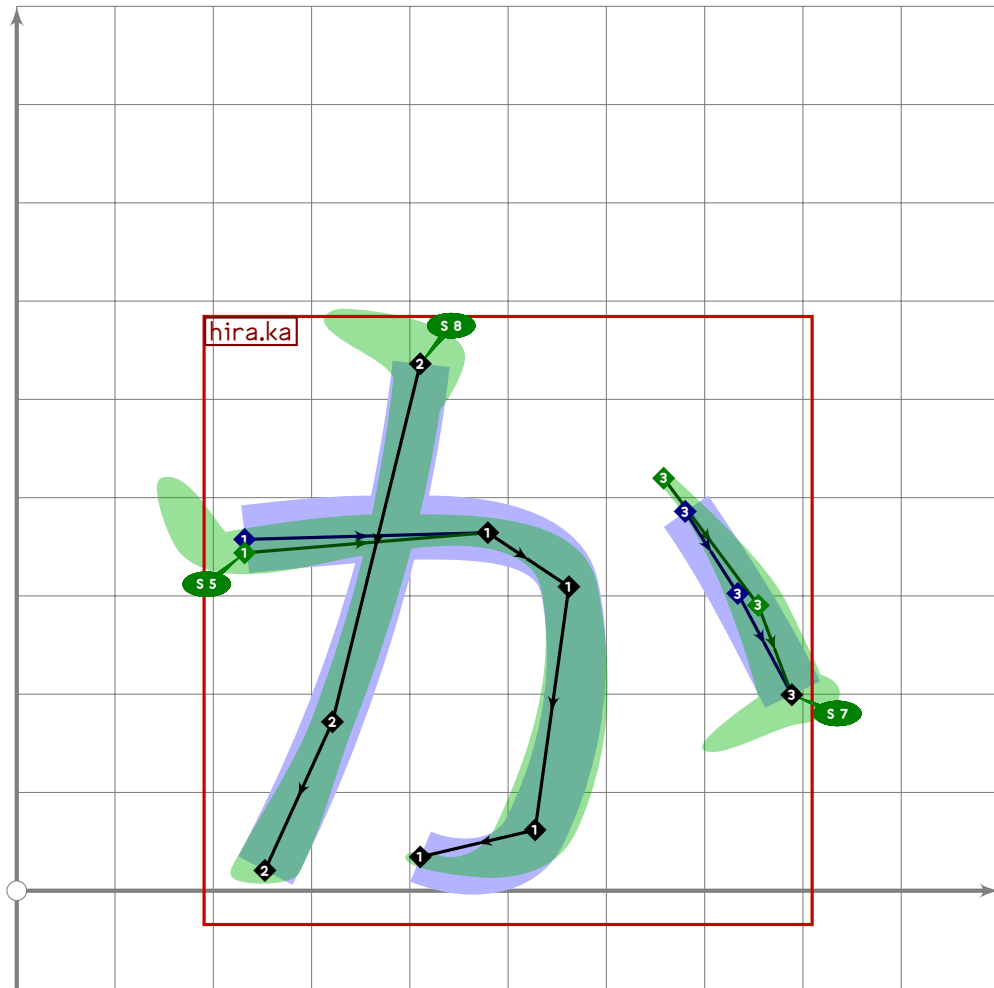
```
850 begintsuglyph("uni308E",142);
851 tsu_xform(tsu_xf.smallkana)(hira.wa);
852 tsu_render;
853 endtsuglyph;
854
855 % hiragana "wa"
856 begintsuglyph("uni308F",143); [see page 108]
857 hira.wa;
858 tsu_render;
859 endtsuglyph;
860
861 % obsolete hiragana "wi"
862 begintsuglyph("uni3090",144); [see page 109]
863 hira.wi;
864 tsu_render;
865 endtsuglyph;
866
867 % obsolete hiragana "we"
868 begintsuglyph("uni3091",145); [see page 110]
869 hira.we;
870 tsu_render;
871 endtsuglyph;
872
873 % hiragana "wo"
874 begintsuglyph("uni3092",146); [see page 111]
875 hira.wo;
876 tsu_render;
877 endtsuglyph;
878
879 % hiragana "n"
880 begintsuglyph("uni3093",147); [see page 112]
881 hira.n;
882 tsu_render;
883 endtsuglyph;
884
```



```

885 % hiragana "vu"
886 begint Suglyph("uni3094",148);
887 hira.u;
888 dakuten(identity rotated 5 shifted (810,640));
889 tsu_render;
890 endsuglyph;
891

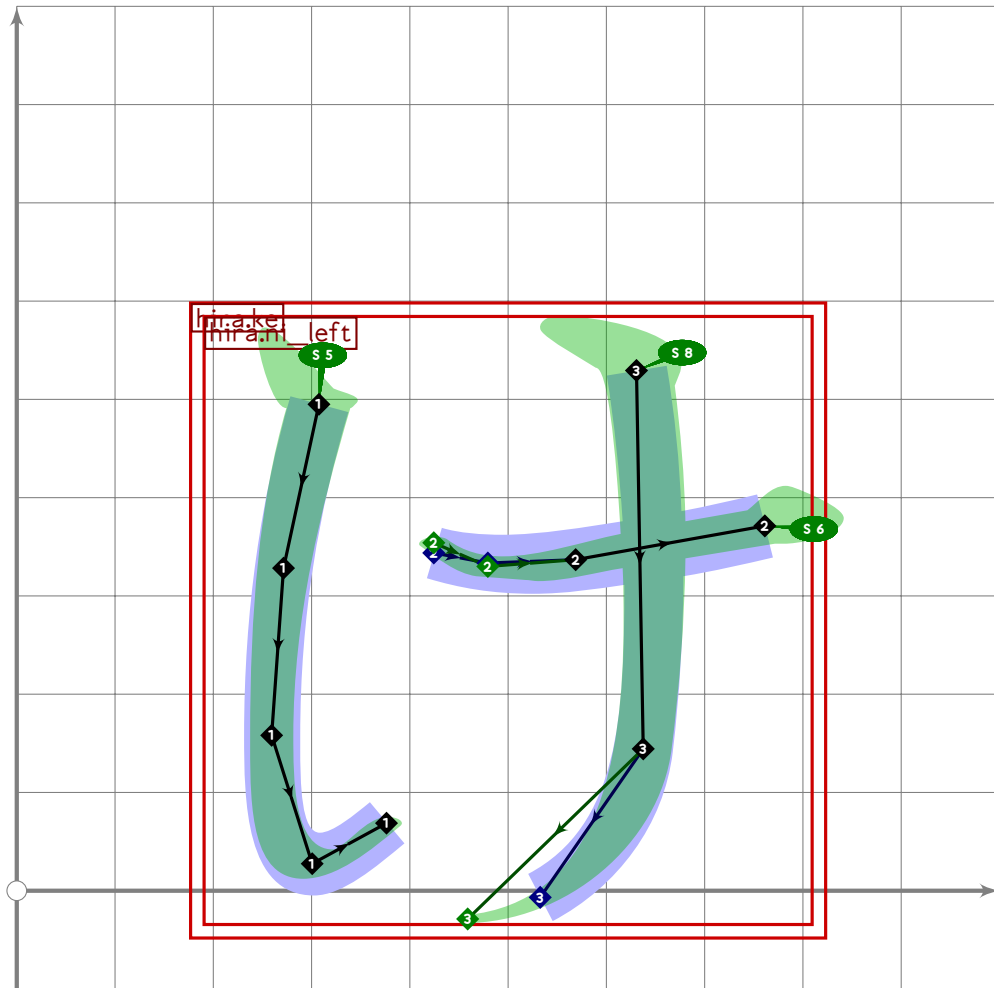
```



```

892 % hiragana "small ka"
893 begintsuglyph("uni3095";149);
894 tsu_xform(tsu_xf.smallkana)(hira.ka);
895 tsu_render;
896 endsuglyph;
897

```



```

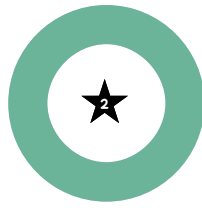
898 % hiragana "small ke"
899 begint Suglyph("uni3096",150);
900 tsu_xform(tsu_xf.smallkana)(hira.ke);
901 tsu_render;
902 endsuglyph;
903
904 % WARNING changing rescale setting
905 tsu_rescale_native_zero;
906

```

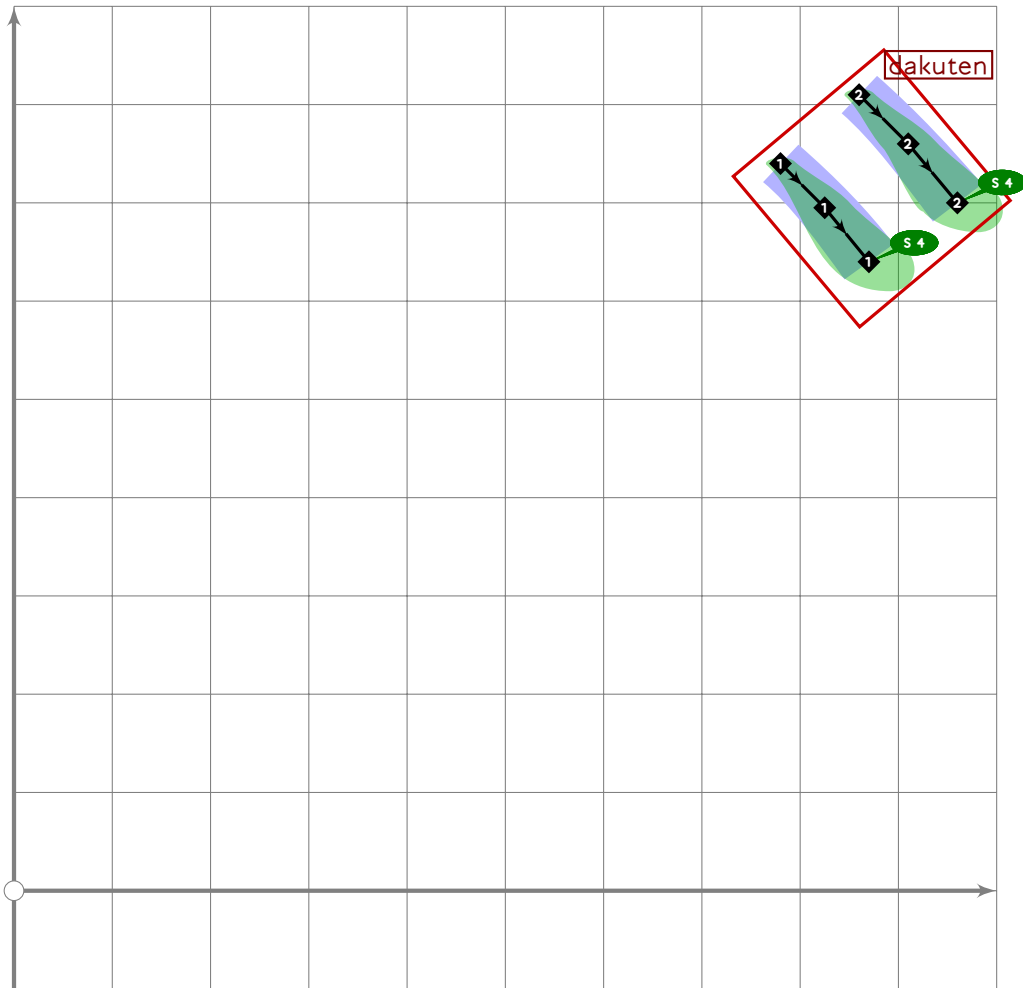


```
907 % combining dakuten
908 begintsuglyph("uni3099",153);
909 dakuten(identity shifted (-140,730));
910 tsu_render;
911 endsuglyph;
912
```





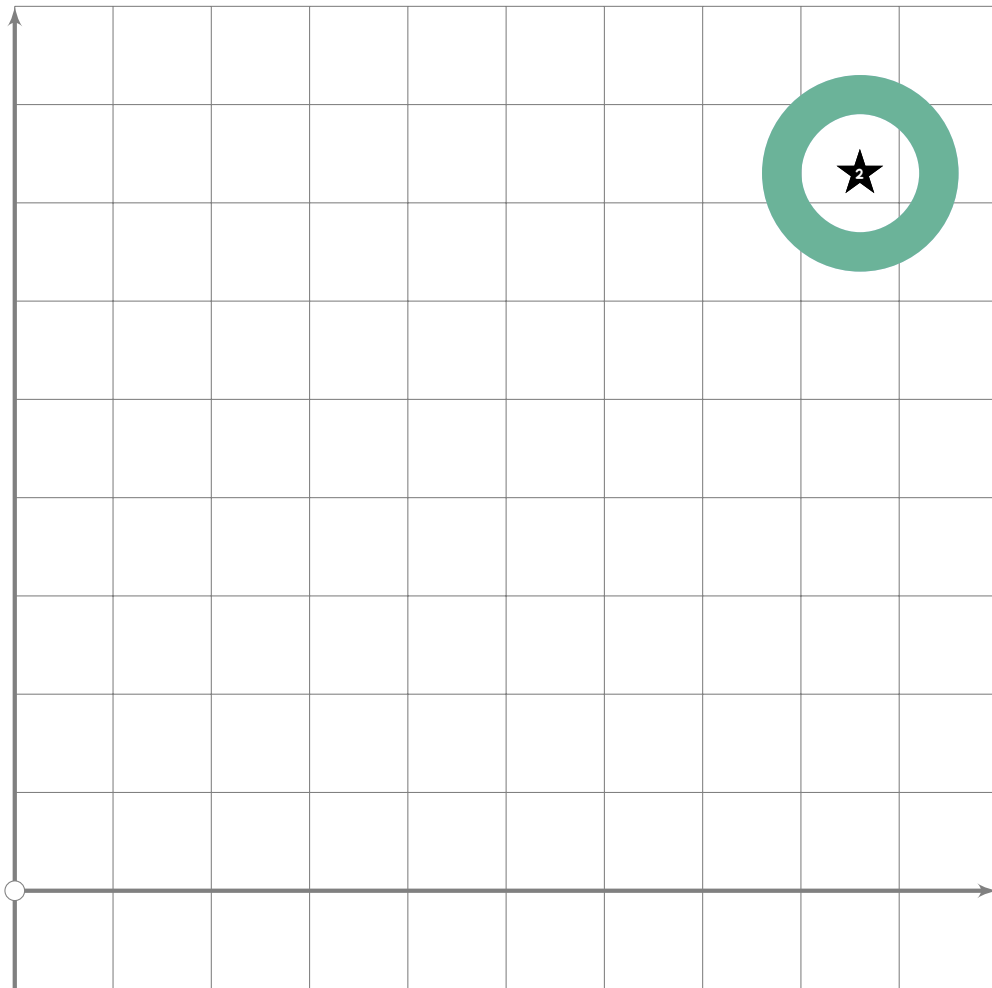
```
913 % combining handakuten
914 begintsuglyph("uni309A",154);
915 handakuten((-140,730));
916 tsu_render;
917 endtsuglyph;
918
919 % WARNING changing rescale setting
920 tsu_rescale_full;
921
```



```

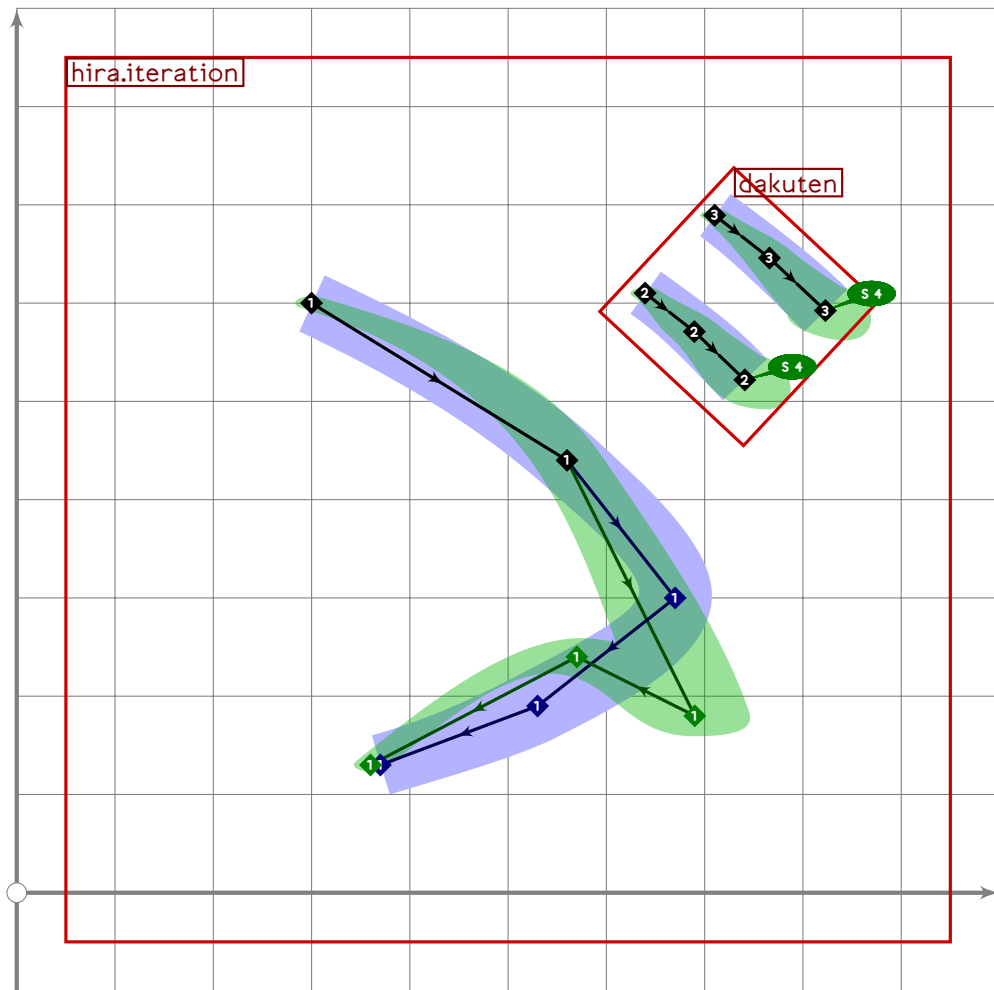
922 % dakuten alone
923 begintsuglyph("uni309B",155);
924 dakuten(identity shifted (860,730));
925 tsu_render;
926 endsuglyph;
927

```



```
928 % handakuten alone
929 begintsuglyph("uni309C",156);
930 handakuten((860,730));
931 tsu_render;
932 endsuglyph;
933
934 % hiragana "iteration mark"
935 begintsuglyph("uni309D",157);
936 hira.iteration;
937 tsu_render;
938 endsuglyph;
939
```

[see page 113]



```

940 % hiragana "voiced iteration mark"
941 begintsuglyph("uni309E";158);
942 hira.iteration;
943 dakuten(identity rotated 7 shifted (720,610));
944 tsu_render;
945 endsuglyph;

```

```

946
947 % hiragana "yori ligature"
948 begintsuglyph("uni309F";159);
949 hira.yori;
950 tsu_render;
951 endsuglyph;

```

[see page 114]

952  
953  
954

## Katakana

```

955 % KATAKANA
956
957 % katakana double hyphen
958 begintsuglyph("uni30A0";160);

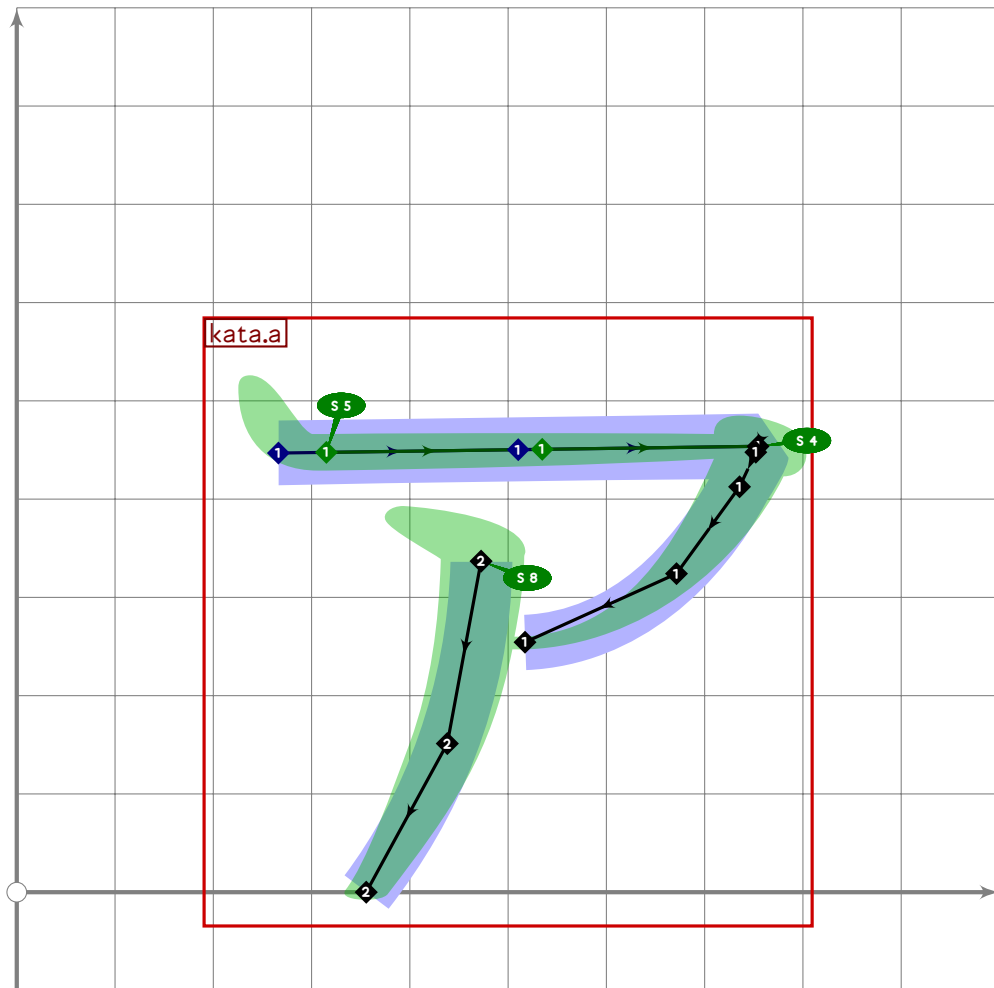
```

[see page 285]

```

959 punct.dash.double_hyphen;
960 tsu_render;
961 endtsuglyph;
962

```

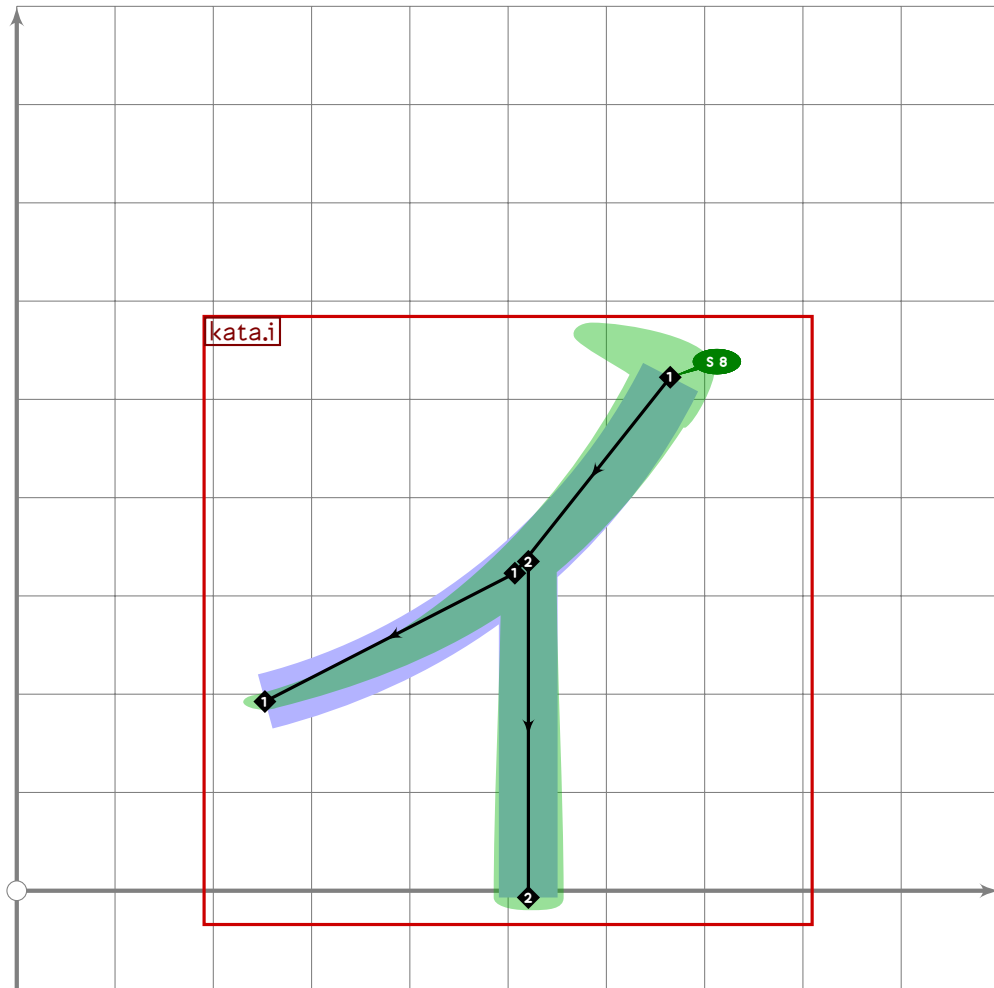


```

963 % katakana "small a"
964 begintsuglyph("uni30A1";161);
965 tsu_xform(tsu_xf.smallkana)(kata.a);
966 tsu_render;
967 endtsuglyph;
968
969 % katakana "a"
970 begintsuglyph("uni30A2";162);
971 kata.a;
972 tsu_render;
973 endtsuglyph;
974

```

[see page 118]

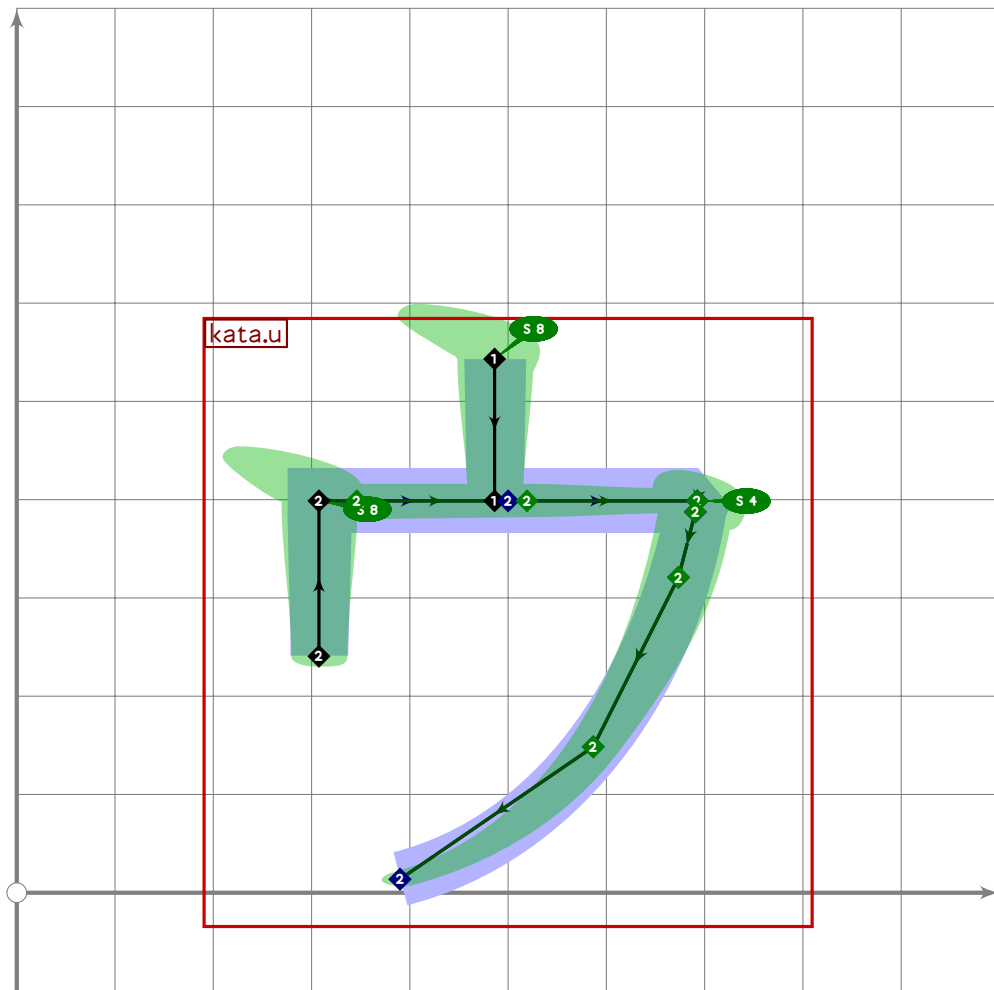


```

975 % katakana "small i"
976 begintsuglyph("uni30A3",163);
977 tsu_xform(tsu_xf.smallkana)(kata.i);
978 tsu_render;
979 endtsuglyph;
980
981 % katakana "i"
982 begintsuglyph("uni30A4",164);
983 kata.i;
984 tsu_render;
985 endtsuglyph;
986

```

[see page 119]

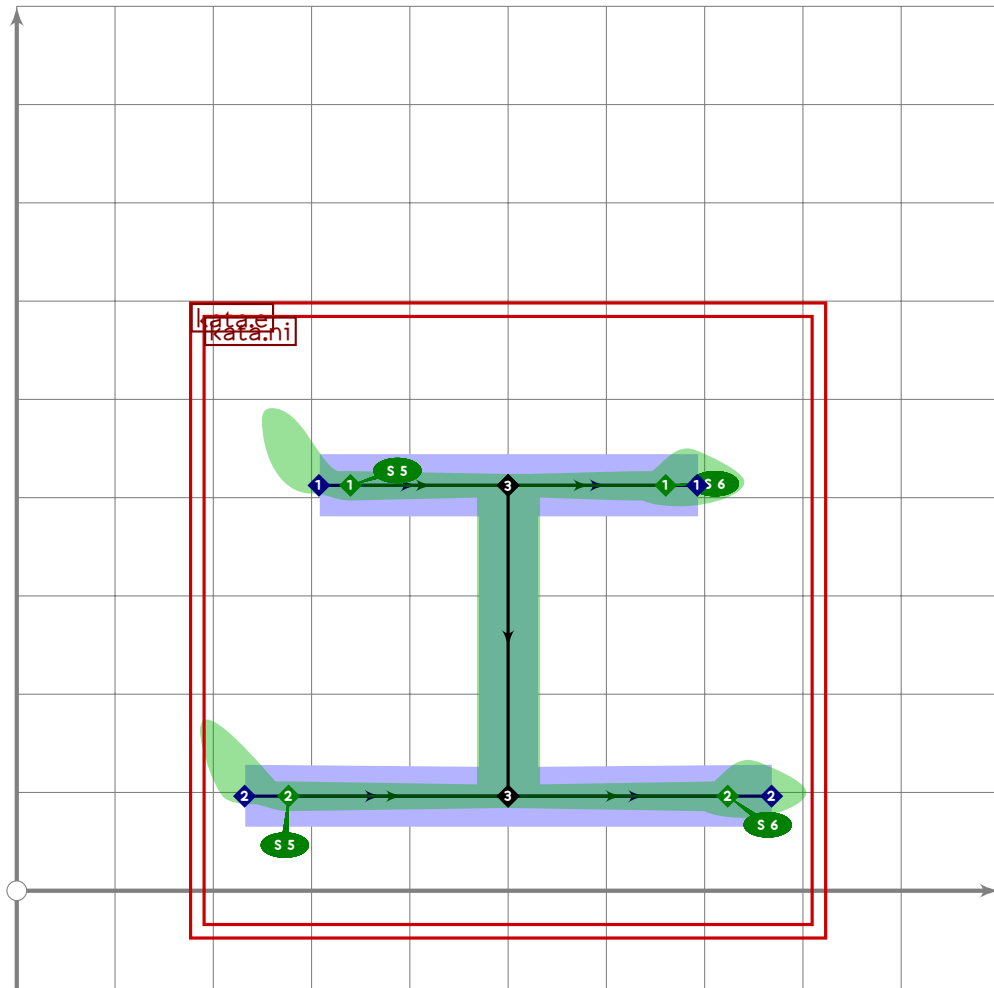


```

987 % katakana "small u"
988 begintsuglyph("uni30A5",165);
989 tsu_xform(tsu_xf.smallkana)(kata.u);
990 tsu_render;
991 endsuglyph;
992
993 % katakana "u"
994 begintsuglyph("uni30A6",166);
995 kata.u;
996 tsu_render;
997 endsuglyph;
998

```

[see page 120]



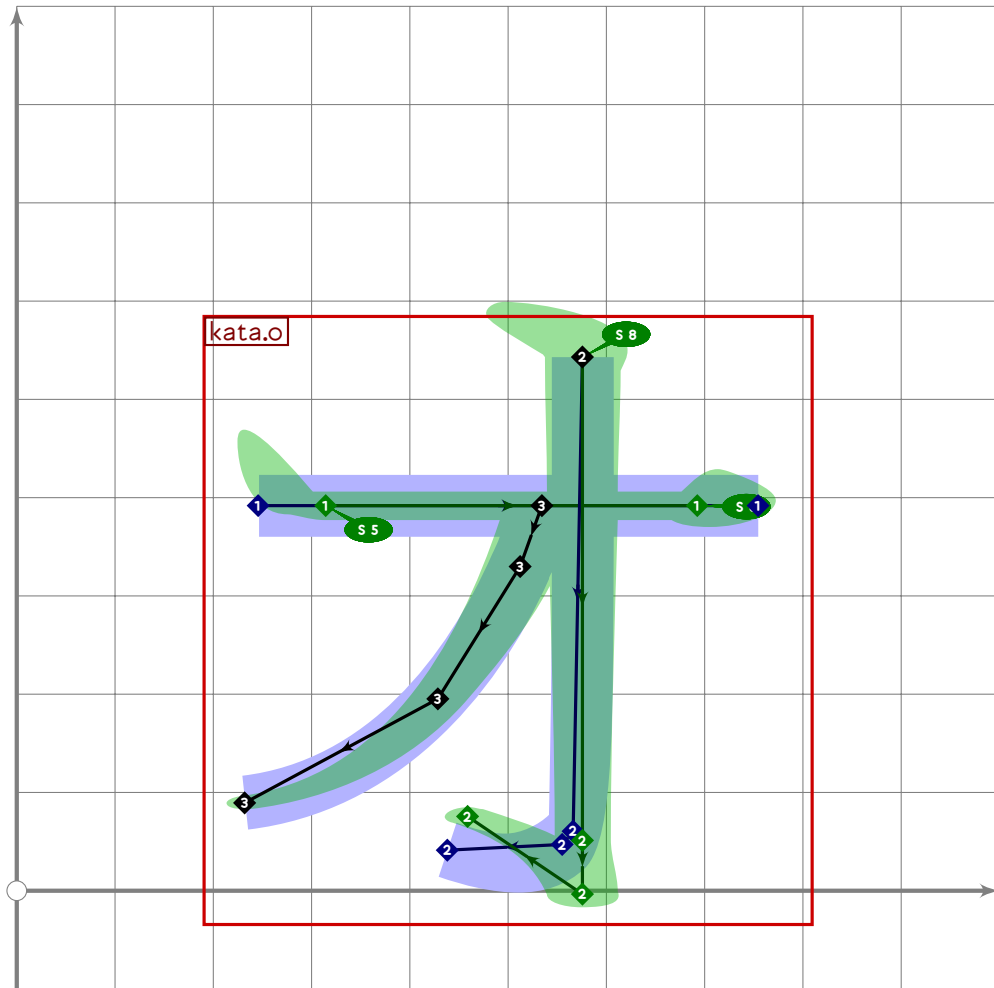
```

999 % katakana "small e"
1000 beginsuglyph("uni30A7",167);
1001 tsu_xform(tsu_xf.smallkana)(kata.e);
1002 tsu_render;
1003 endsuglyph;
1004
1005 % katakana "e"
1006 beginsuglyph("uni30A8",168);
1007 kata.e;
1008 tsu_render;
1009 endsuglyph;
1010

```

[see page 121]





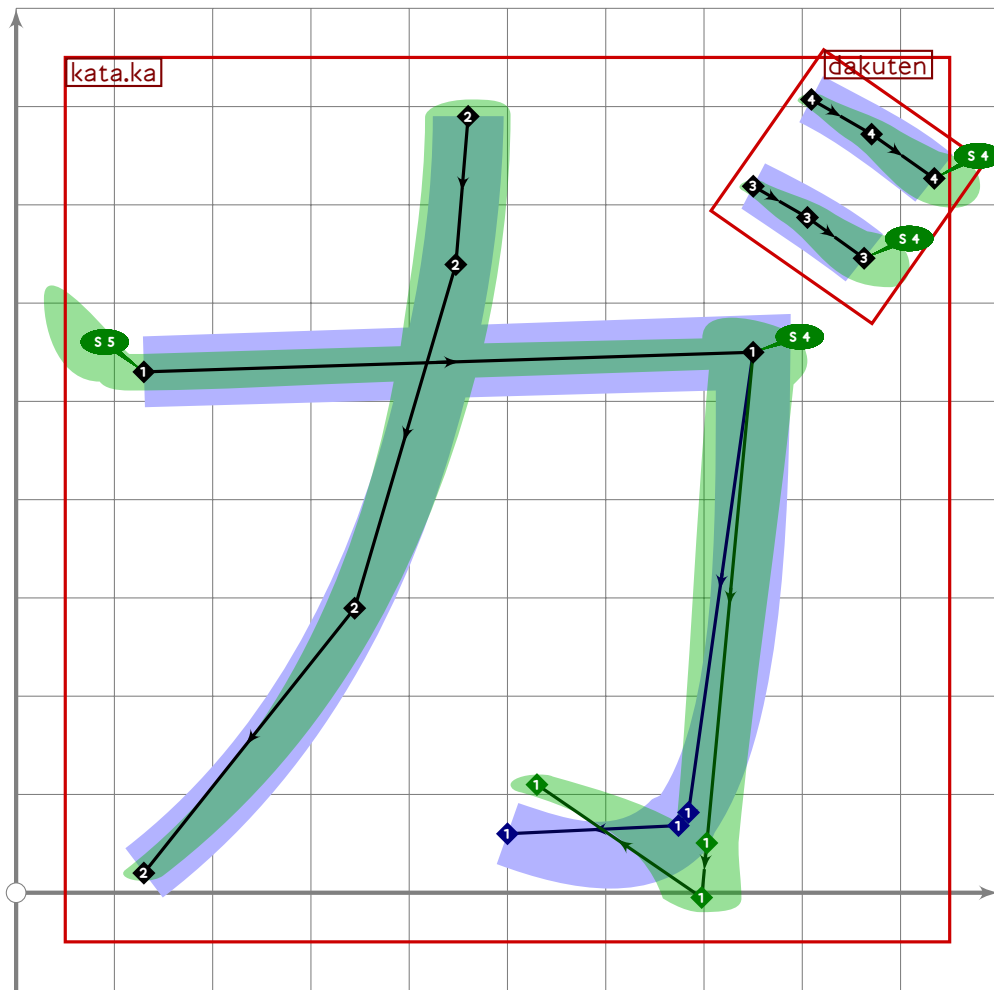
```

1011 % katakana "small o"
1012 begintsuglyph("uni30A9",169);
1013 tsu_xform(tsu_xf.smallkana)(kata.o);
1014 tsu_render;
1015 endtsuglyph;
1016
1017 % katakana "o"
1018 begintsuglyph("uni30AA",170);
1019 kata.o;
1020 tsu_render;
1021 endtsuglyph;
1022
1023 % katakana "ka"
1024 begintsuglyph("uni30AB",171);
1025 kata.ka;
1026 tsu_render;
1027 endtsuglyph;
1028

```

[see page 122]

[see page 123]

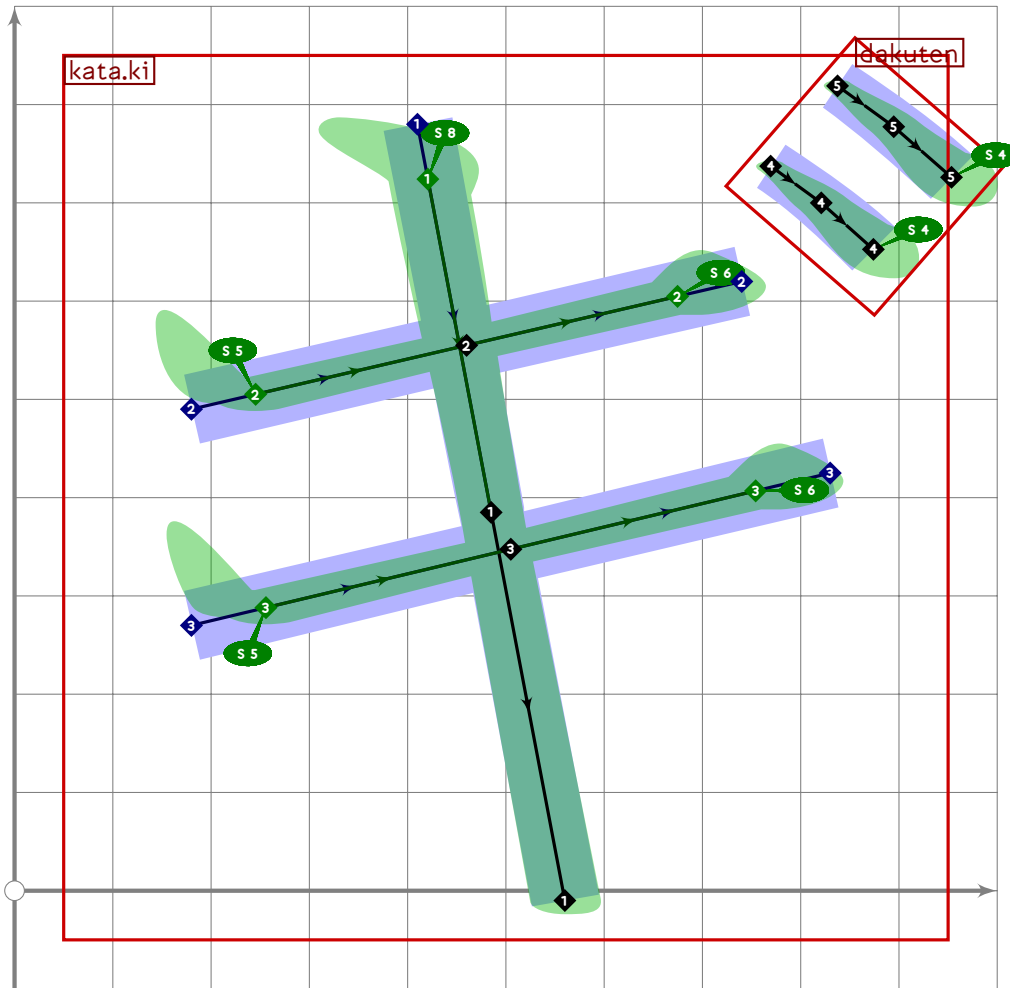


```

1029 % katakana "ga"
1030 beginsuglyph("uni30AC";172);
1031 kata.ka;
1032 dakuten(identity rotated 15 shifted (830,730));
1033 tsu_render;
1034 endsuglyph;
1035
1036 % katakana "ki"
1037 beginsuglyph("uni30AD";173);
1038 kata.ki;
1039 tsu_render;
1040 endsuglyph;
1041

```

[see page 124]

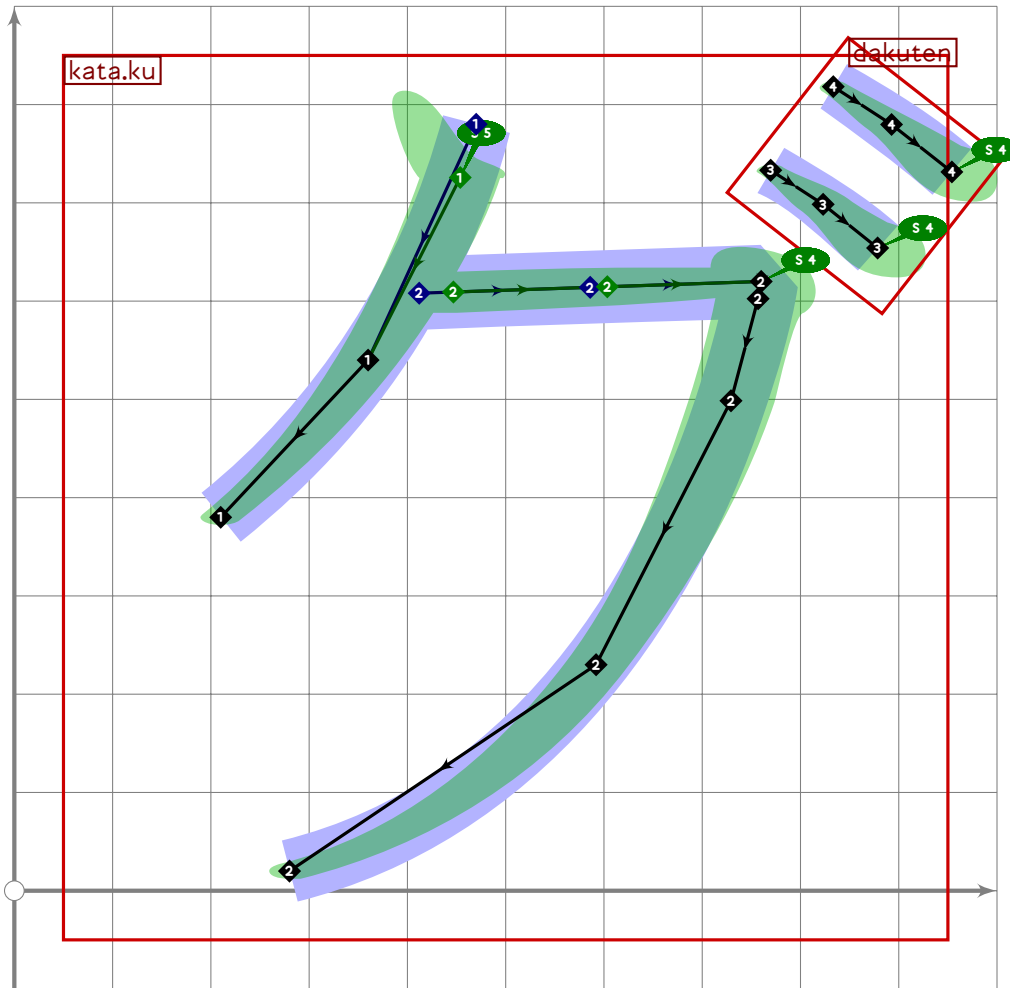


```

1042 % katakana "gi"
1043 begintsuglyph("uni30AE";174);
1044 kata.ki;
1045 dakuten(identity rotated 9 shifted (850,740));
1046 tsu_render;
1047 endsuglyph;
1048
1049 % katakana "ku"
1050 begintsuglyph("uni30AF";175);
1051 kata.ku;
1052 tsu_render;
1053 endsuglyph;
1054

```

[see page 125]



```

1055 % katakana "gu"
1056 begintsuglyph("uni30B0";176);
1057 kata.ku;
1058 dakuten(identity rotated 12 shifted (850,740));
1059 tsu_render;
1060 endsuglyph;

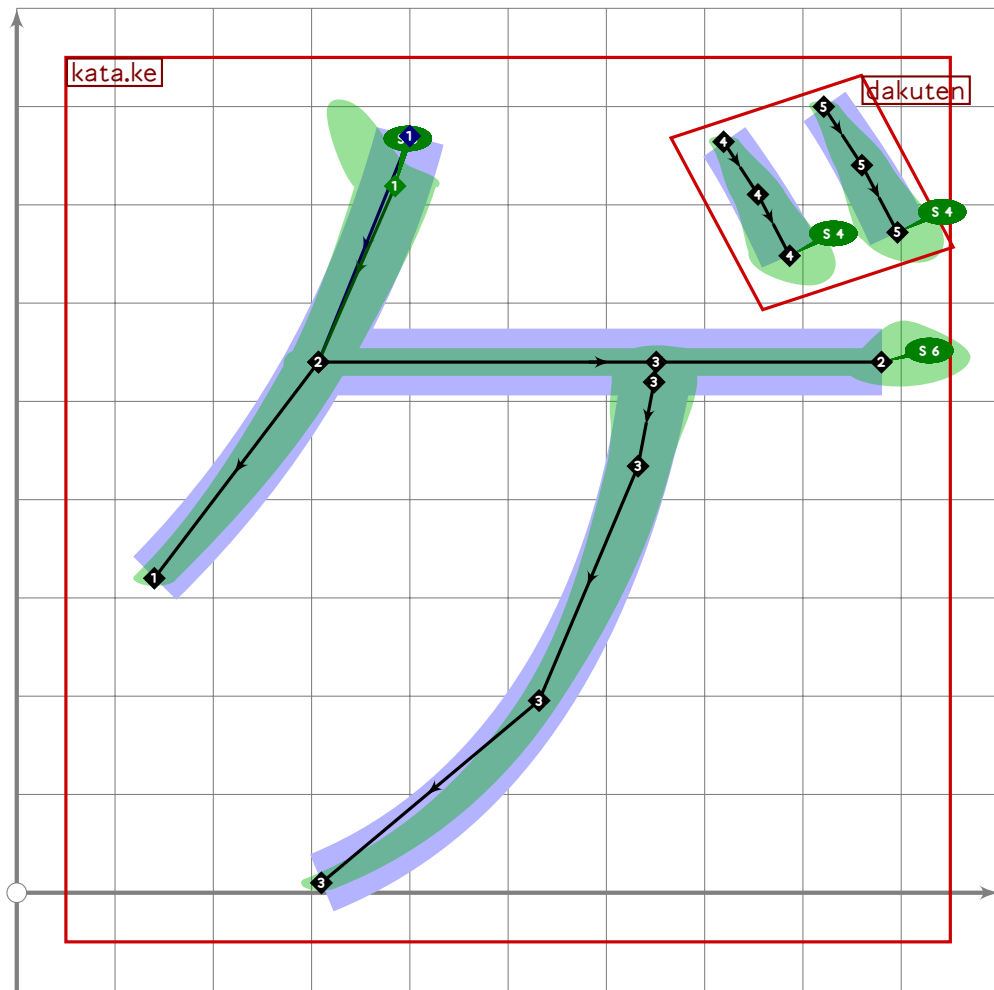
```

```

1061
1062 % katakana "ke"
1063 begintsuglyph("uni30B1";177);
1064 kata.ke;
1065 tsu_render;
1066 endsuglyph;
1067

```

[see page 126]

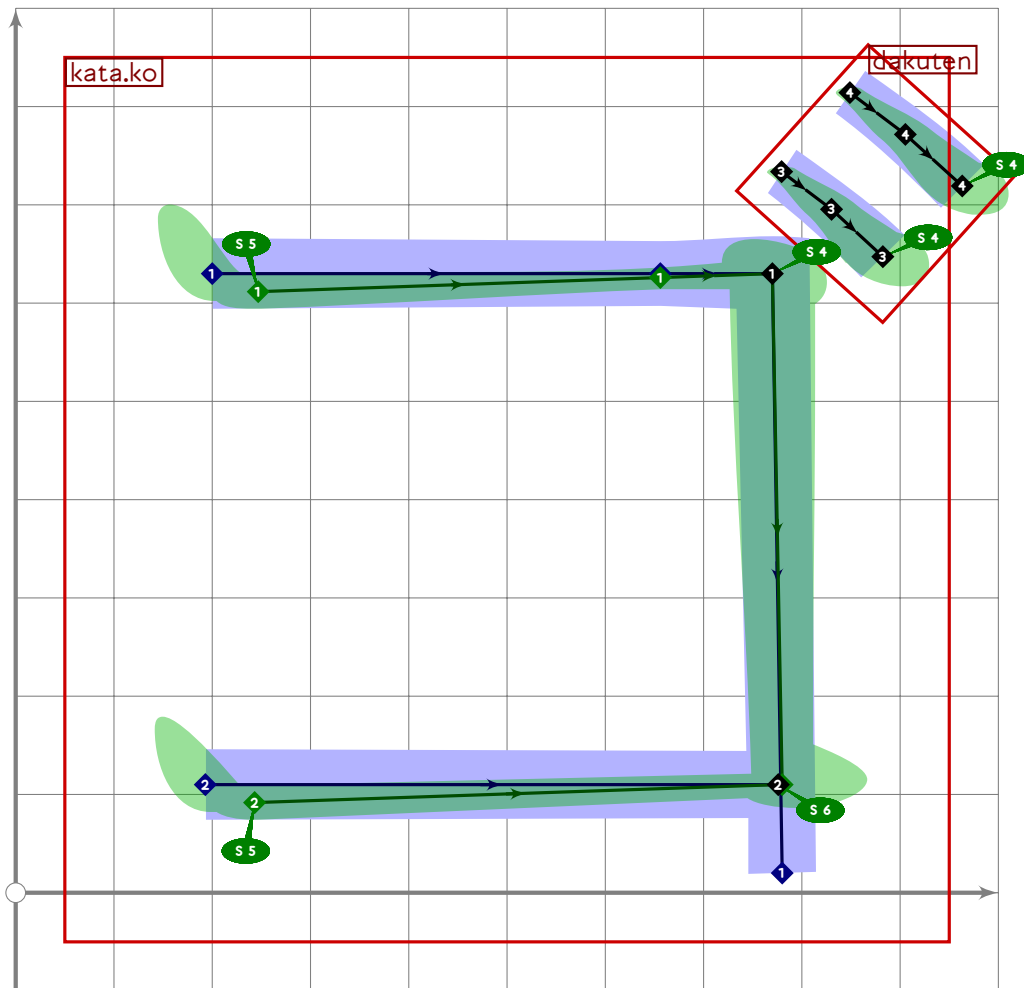


```

1068 % katakana "ge"
1069 begint Suglyph("uni30B2",178);
1070 kata.ke;
1071 dakuten(identity
1072   rotated -20 slanted -0.1 xyscaled (1.07,0.93) shifted (800,730));
1073 tsu_render;
1074 endsuglyph;
1075
1076 % katakana "ko"
1077 begint Suglyph("uni30B3",179);
1078 kata.ko;
1079 tsu_render;
1080 endsuglyph;
1081

```

[see page 127]

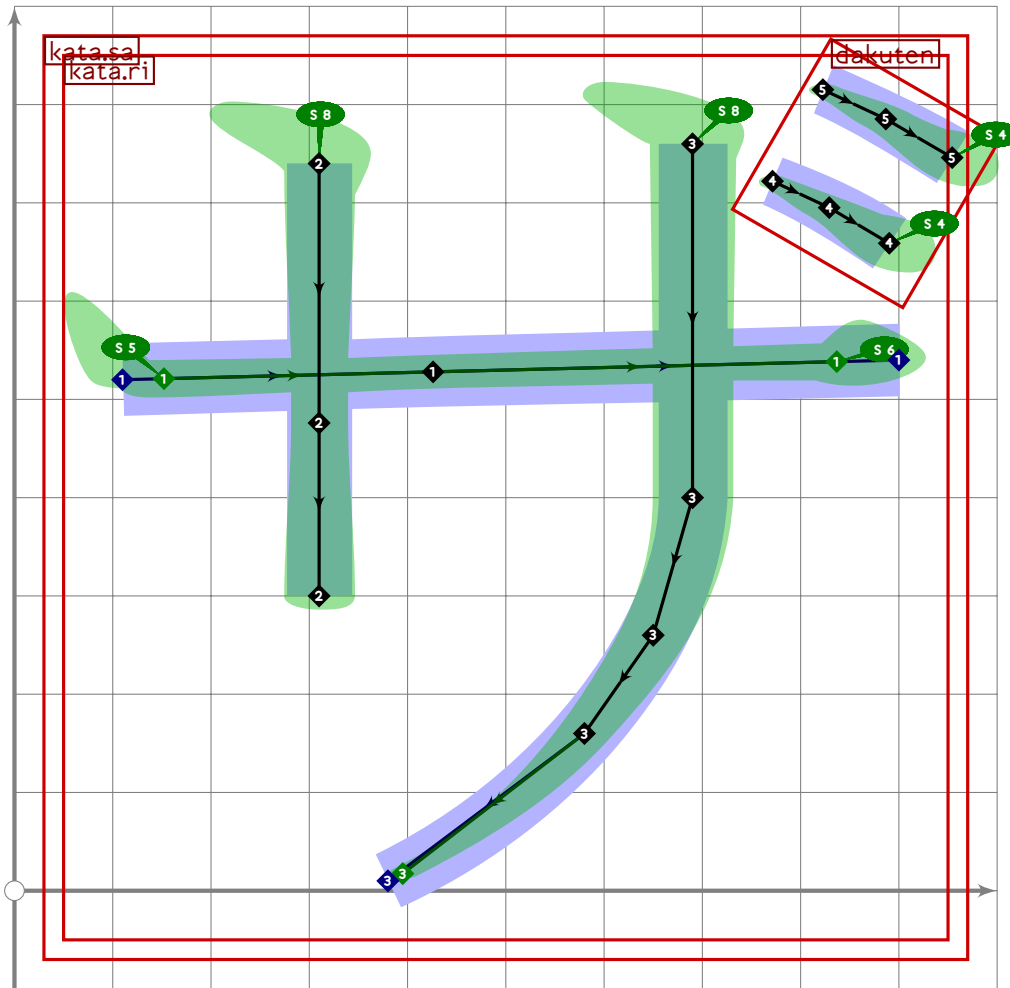


```

1082 % katakana "go"
1083 begint Suglyph("uni30B4",180);
1084 kata.ko;
1085 bo_tip1[1]=0;
1086 dakuten(identity rotated 8 shifted (860,735));
1087 tsu_render;
1088 endtsuglyph;
1089
1090 % katakana "sa"
1091 begint Suglyph("uni30B5",181);
1092 kata.sa;
1093 tsu_render;
1094 endtsuglyph;
1095

```

[see page 128]

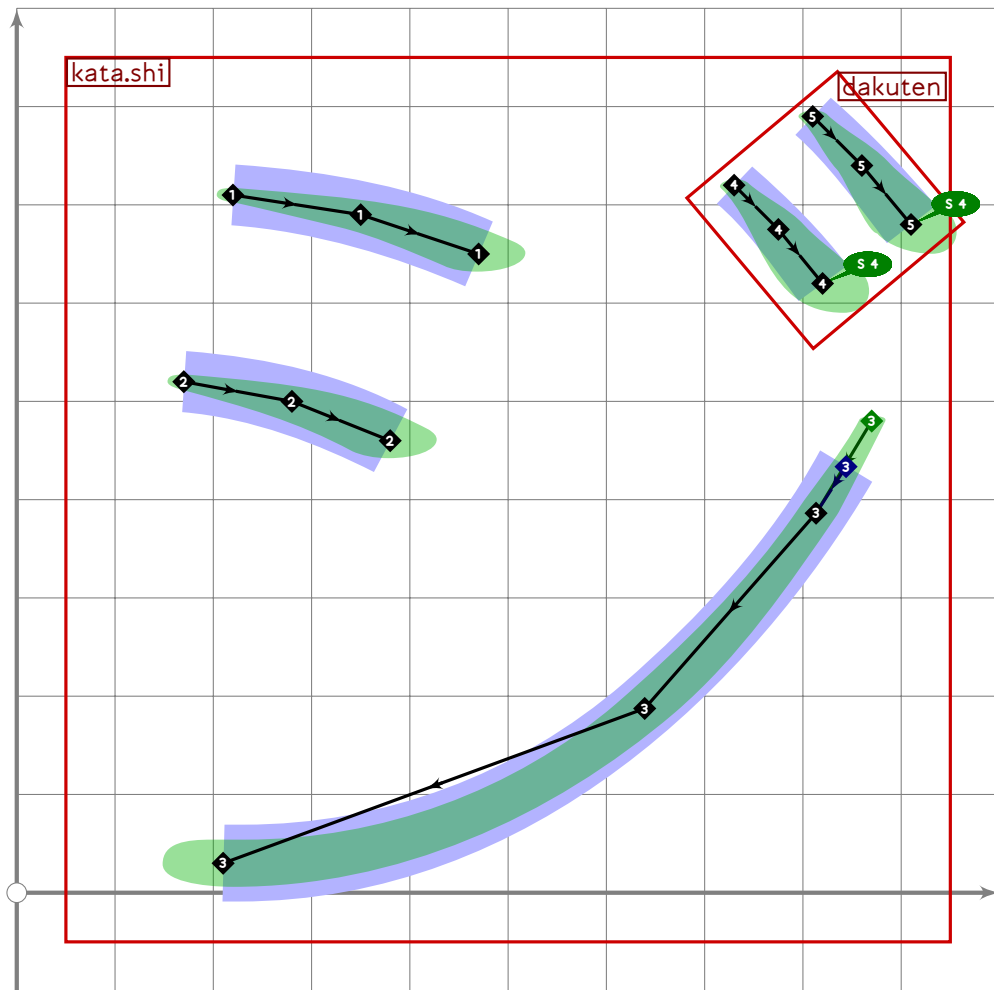


```

1096 % katakana "za"
1097 begint Suglyph("uni30B6",182);
1098 kata.sa;
1099 dakuten(identity rotated 20 shifted (850,740));
1100 tsu_render;
1101 endsuglyph;
1102
1103 % katakana "shi"
1104 begint Suglyph("uni30B7",183);
1105 kata.shi;
1106 tsu_render;
1107 endsuglyph;
1108

```

[see page 129]



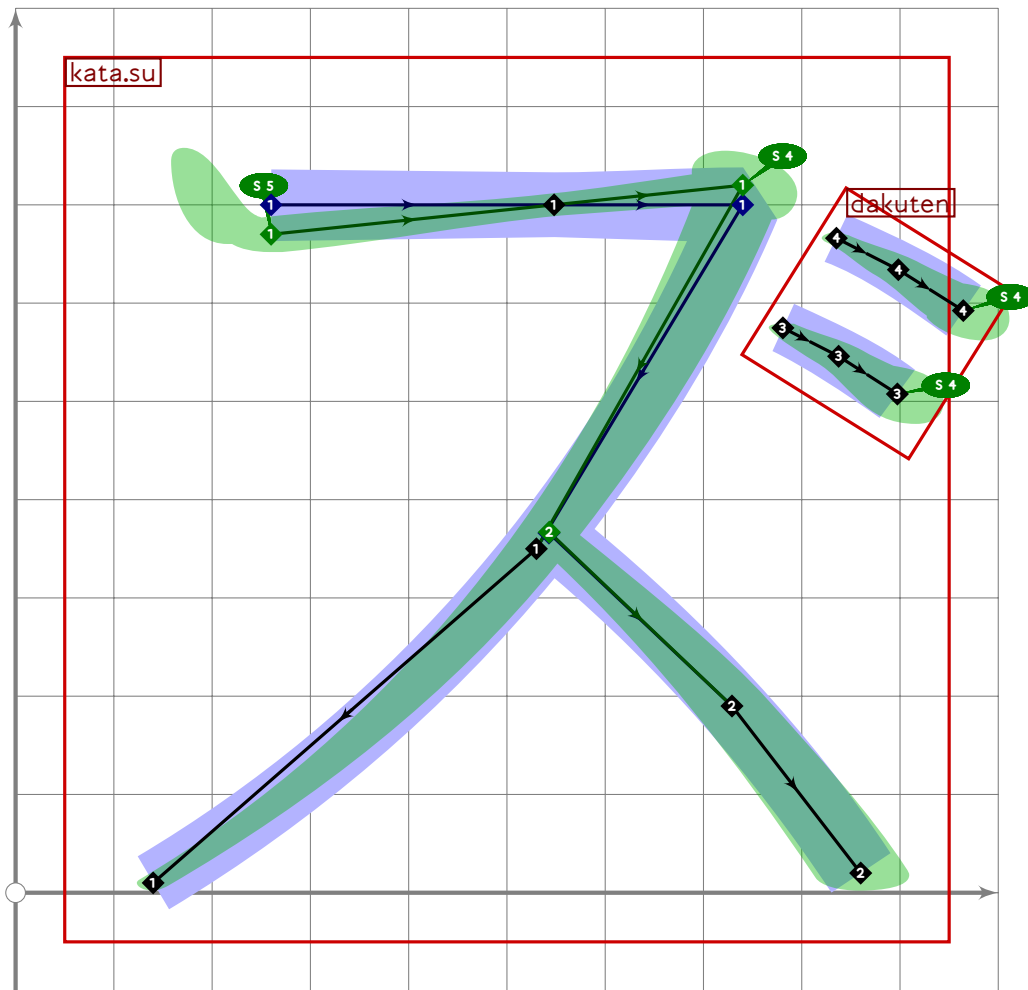
```

1109 % katakana "ji"
1110 begintsuglyph("\uni30B8",184);
1111 kata.shi;
1112 dakuten(identity shifted (810,710));
1113 tsu_render;
1114 endsuglyph;
1115
1116 % katakana "su"
1117 begintsuglyph("\uni30B9",185);
1118 kata.su;
1119 tsu_render;
1120 endsuglyph;
1121

```

[see page 130]



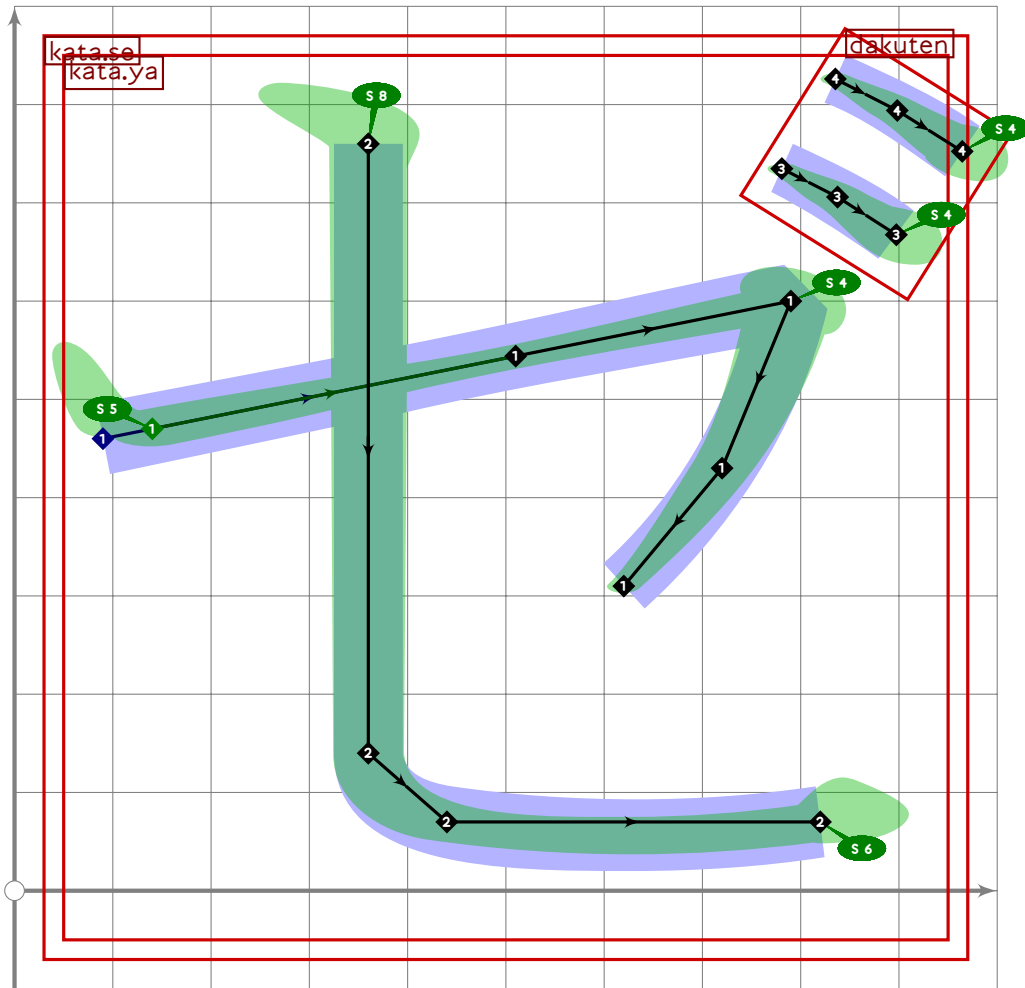


```

1122 % katakana "zu"
1123 beginsuglyph("uni30BA",186);
1124 kata.su;
1125 dakuten(identity rotated 18 shifted (860,590));
1126 tsu_render;
1127 endsuglyph;
1128
1129 % katakana "se"
1130 beginsuglyph("uni30BB",187);
1131 kata.se;
1132 tsu_render;
1133 endsuglyph;
1134

```

[see page 131]

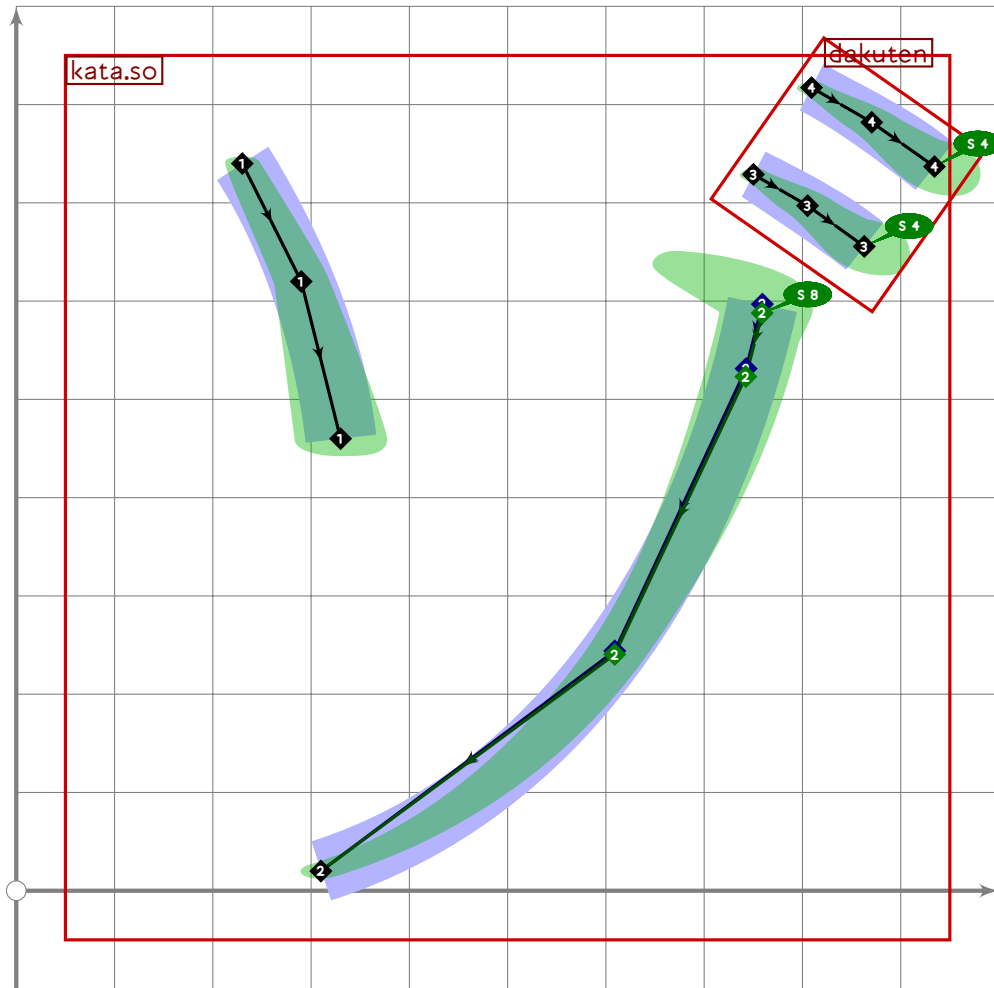


```

1135 % katakana "ze"
1136 begint Suglyph("uni30BC",188);
1137 kata.se;
1138 dakuten(identity rotated 18 shifted (860,750));
1139 tsu_render;
1140 endsuglyph;
1141
1142 % katakana "so"
1143 begint Suglyph("uni30BD",189);
1144 kata.so;
1145 tsu_render;
1146 endsuglyph;
1147

```

[see page 132]

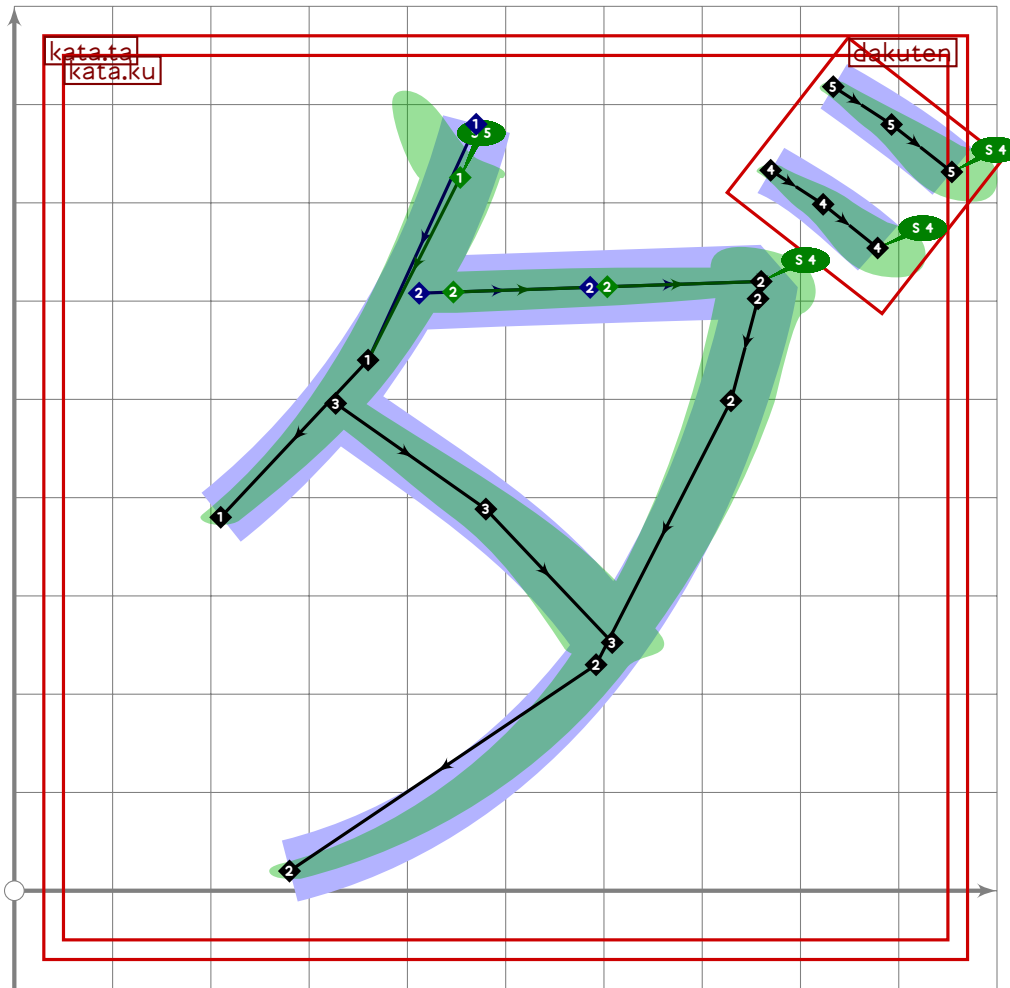


```

1148 % katakana "zo"
1149 beginsuglyph("uni30BE",190);
1150 kata.so;
1151 replace_strokep(0,subpath (0.5,infinity) of oldp);
1152 dakuten(identity rotated 15 shifted (830,740));
1153 tsu_render;
1154 endsuglyph;
1155
1156 % katakana "ta"
1157 beginsuglyph("uni30BF",191);
1158 kata.ta;
1159 tsu_render;
1160 endsuglyph;
1161

```

[see page 133]

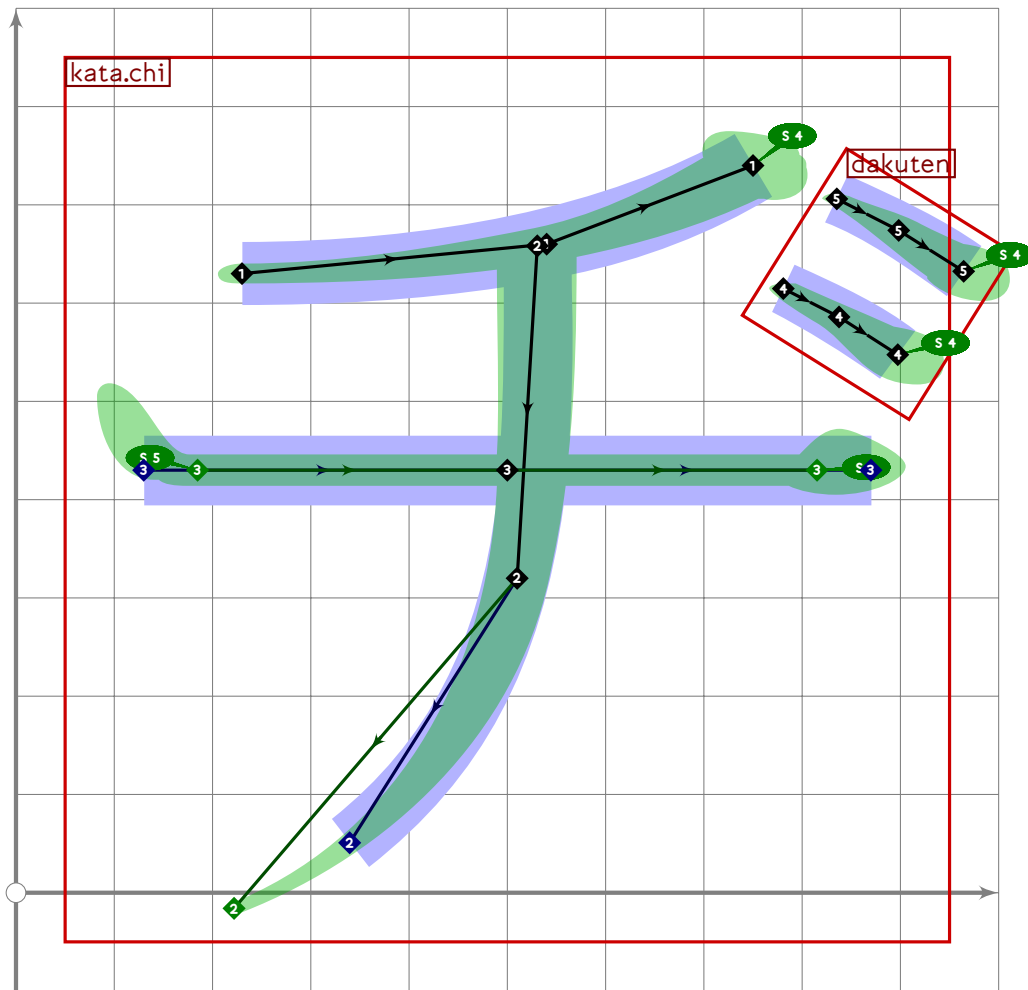


```

1162 % katakana "da"
1163 beginsuglyph("uni30C0",192);
1164 kata.ta;
1165 dakuten(identity rotated 12 shifted (850,740));
1166 tsu_render;
1167 endsuglyph;
1168
1169 % katakana "chi"
1170 beginsuglyph("uni30C1",193);
1171 kata.chi;
1172 tsu_render;
1173 endsuglyph;
1174

```

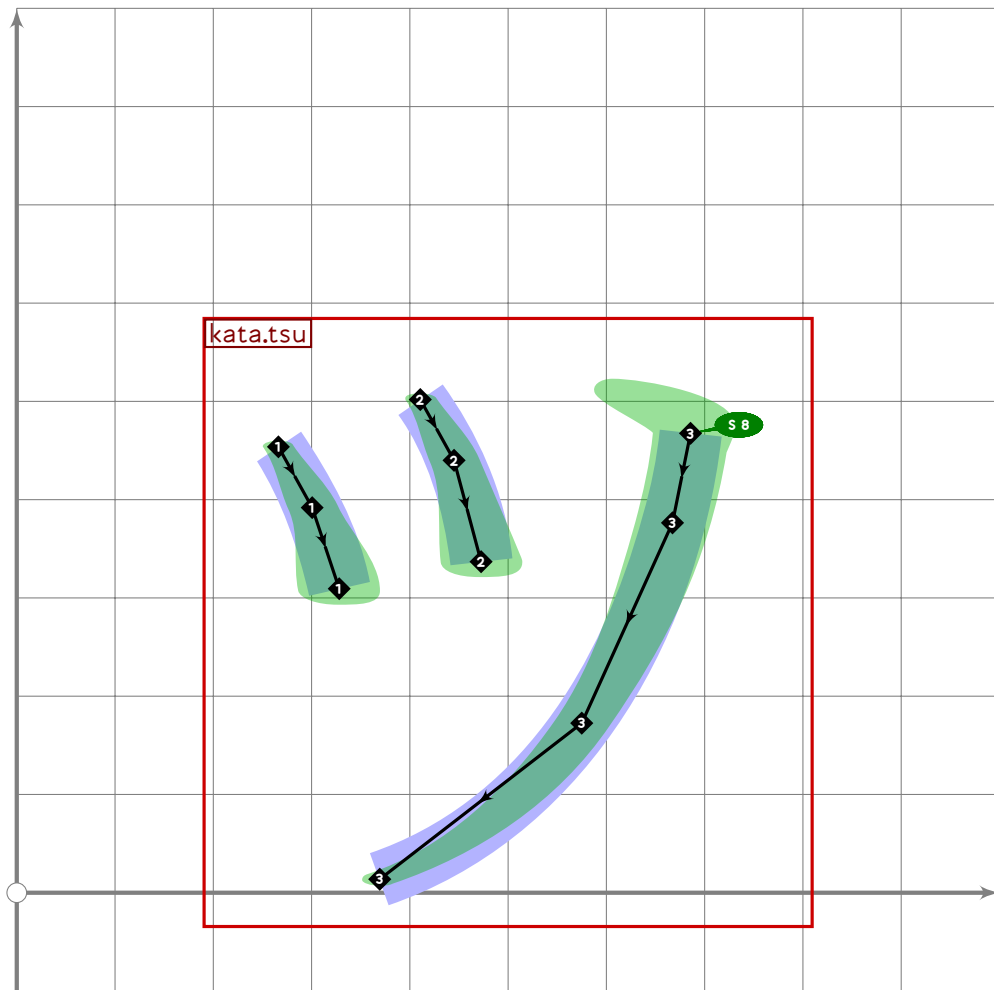
[see page 134]



```

1175 % katakana "dji"
1176 beginsuglyph("uni30C2",194);
1177 kata.chi;
1178 dakuten(identity rotated 18 shifted (860,630));
1179 tsu_render;
1180 endsuglyph;
1181

```

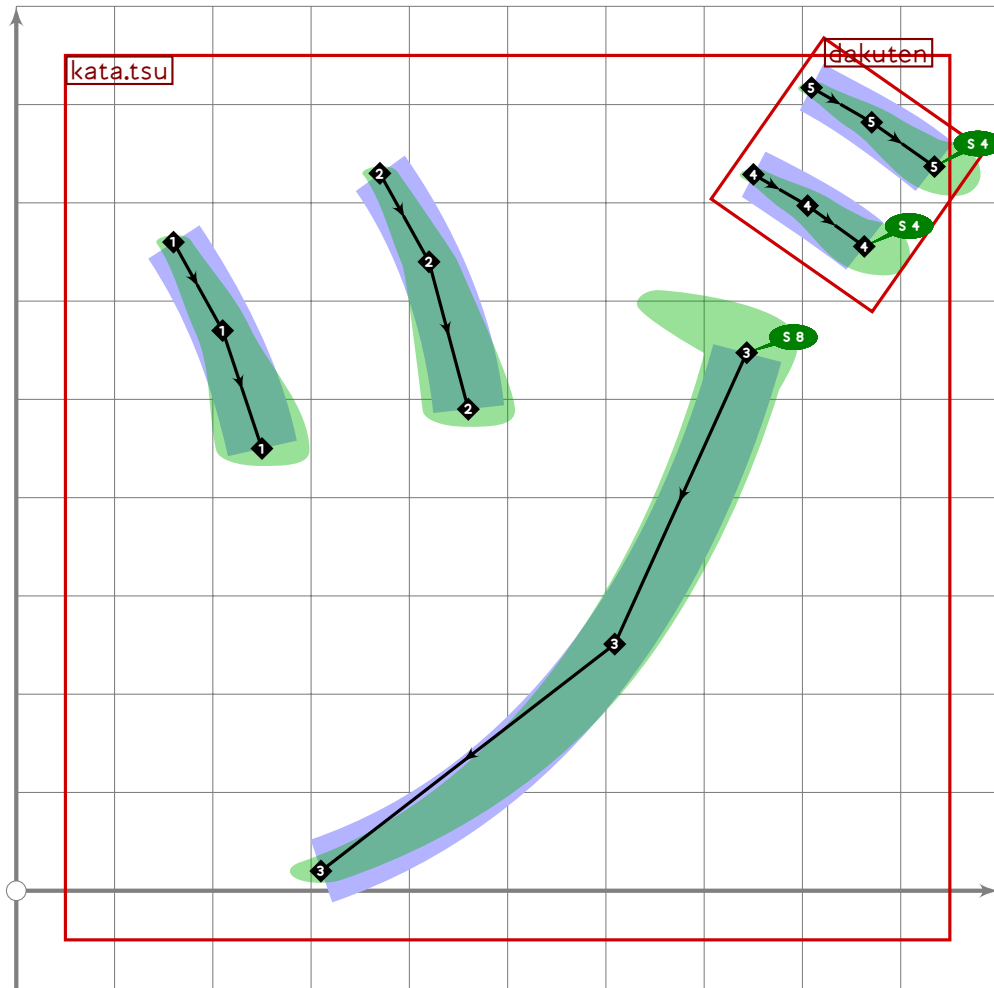


```

1182 % katakana "small tsu"
1183 beginsuglyph("uni30C3",195);
1184 tsu_xform(tsu_xf.smallkana)(kata.tsu);
1185 tsu_render;
1186 endsuglyph;
1187
1188 % katakana "tsu"
1189 beginsuglyph("uni30C4",196);
1190 kata.tsu;
1191 tsu_render;
1192 endsuglyph;
1193

```

[see page 135]

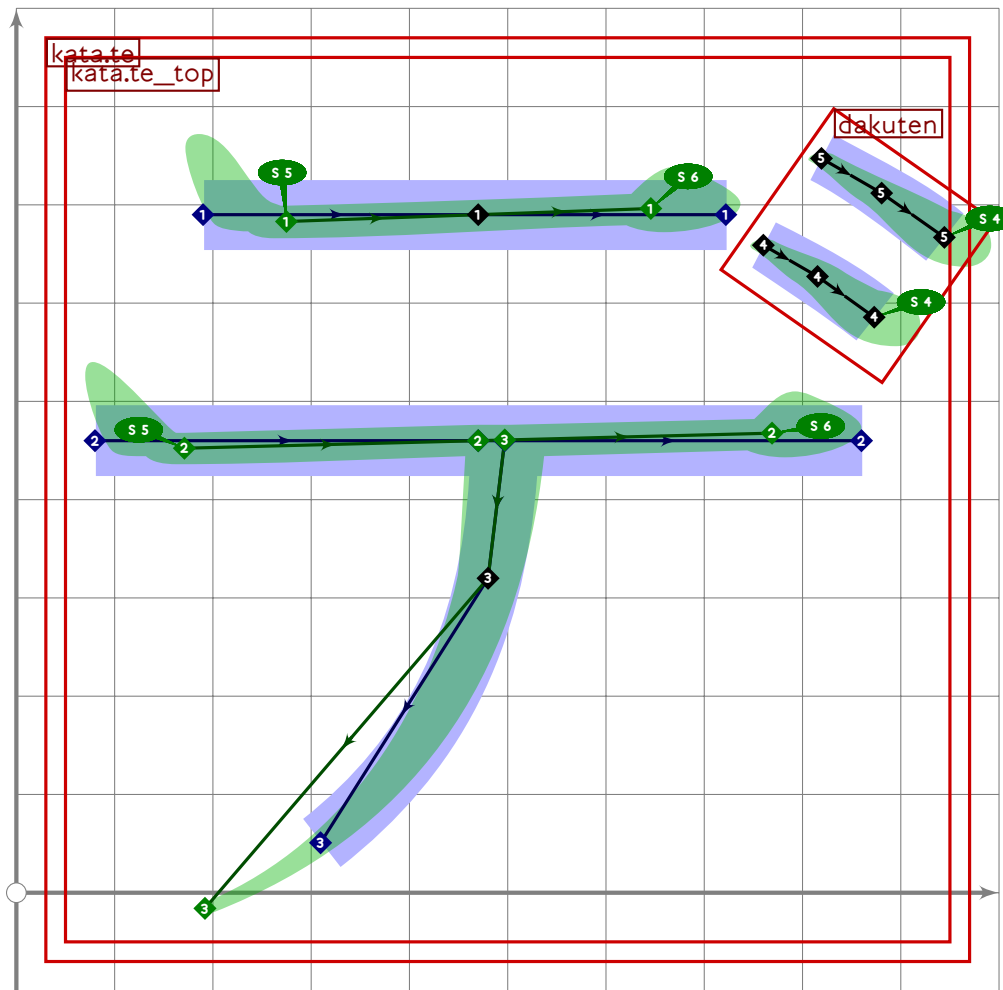


```

1194 % katakana "dzu"
1195 beginsuglyph("uni30C5";197);
1196 kata.tsu;
1197 replace_stroke(0,subpath (1,infinity) of oldp);
1198 dakuten(identity rotated 15 shifted (830,740));
1199 tsu_render;
1200 endsuglyph;
1201
1202 % katakana "te"
1203 beginsuglyph("uni30C6";198);
1204 kata.te;
1205 tsu_render;
1206 endsuglyph;
1207

```

[see page 136]



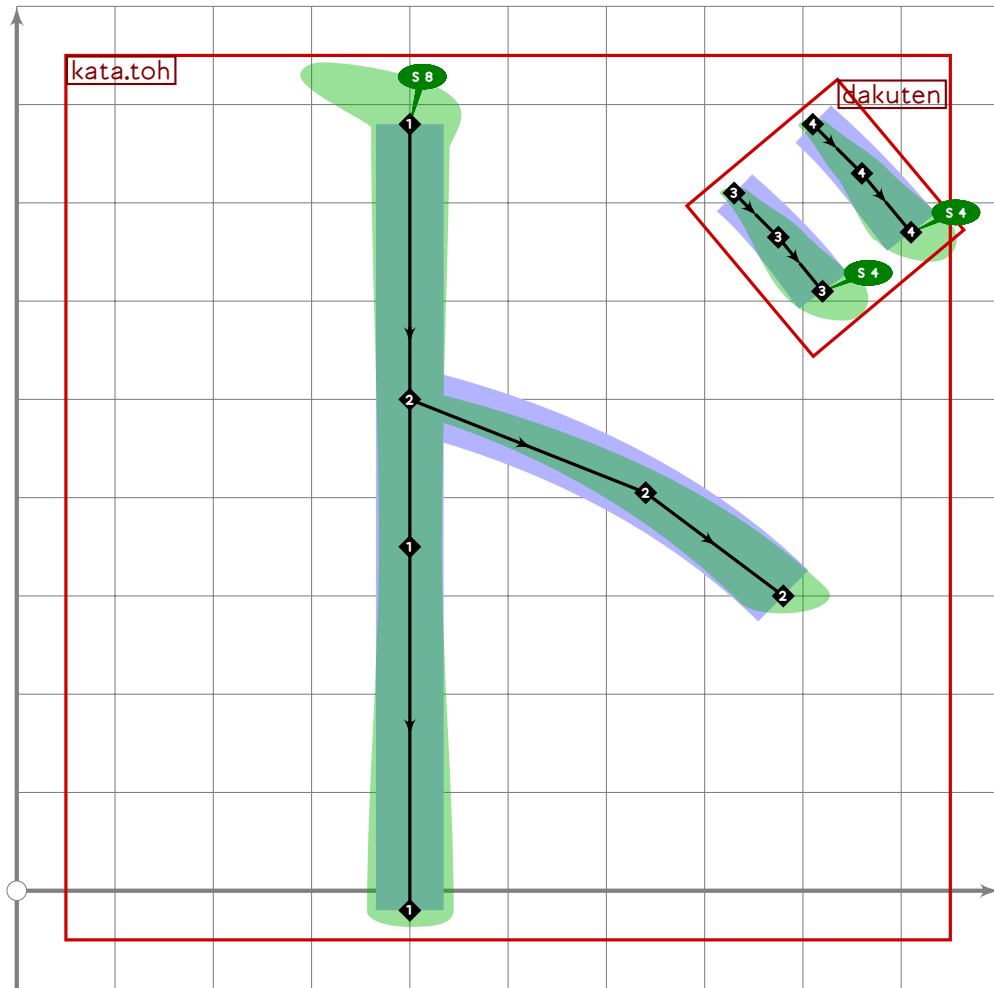
```

1208 % katakana "de"
1209 begintsuglyph("uni30C7";199);
1210 kata.te;
1211 replace_strokep(-2,(subpath (0,1,9) of oldp) shifted (-30,0));
1212 replace_strokep(-1,oldp shifted (-30,0));
1213 replace_strokep(0,oldp shifted (-30,0));
1214 dakuten(identity rotated 15 shifted (840,670));
1215 tsu_render;
1216 endsuglyph;
1217
1218 % katakana "to"
1219 begintsuglyph("uni30C8";200);
1220 kata.toh;
1221 tsu_render;
1222 endsuglyph;
1223

```

[see page 137]





```

1224 % katakana "do"
1225 begintsuglyph("uni30C9",201);
1226 kata.toh;
1227 dakuten(identity shifted (810,700));
1228 tsu_render;
1229 endsuglyph;

```

1230

```

1231 % katakana "na"
1232 begintsuglyph("uni30CA",202);
1233 kata.na;
1234 tsu_render;
1235 endsuglyph;

```

[see page 138]

1236

```

1237 % katakana "ni"
1238 begintsuglyph("uni30CB",203);
1239 kata.ni;
1240 tsu_render;
1241 endsuglyph;

```

[see page 139]

1242

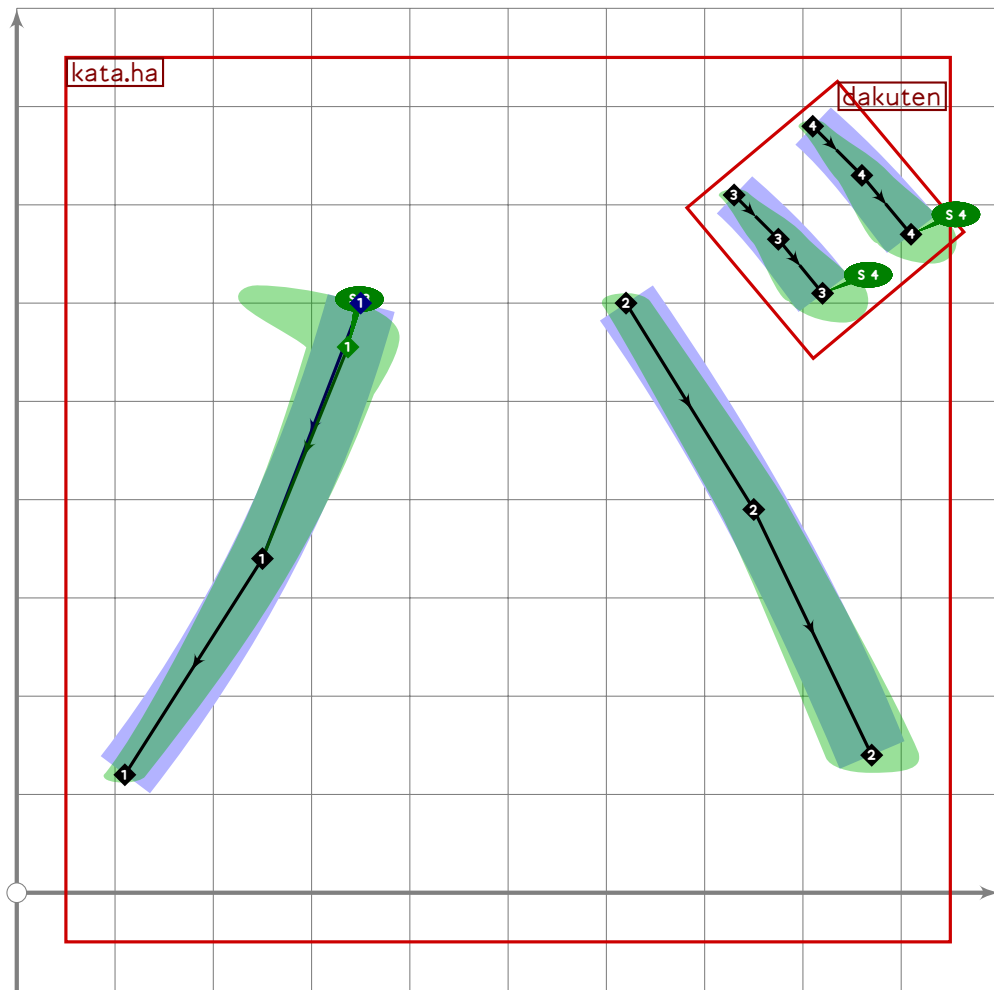
```

1243 % katakana "nu"
1244 begintsuglyph("uni30CC",204);

```

[see page 140]

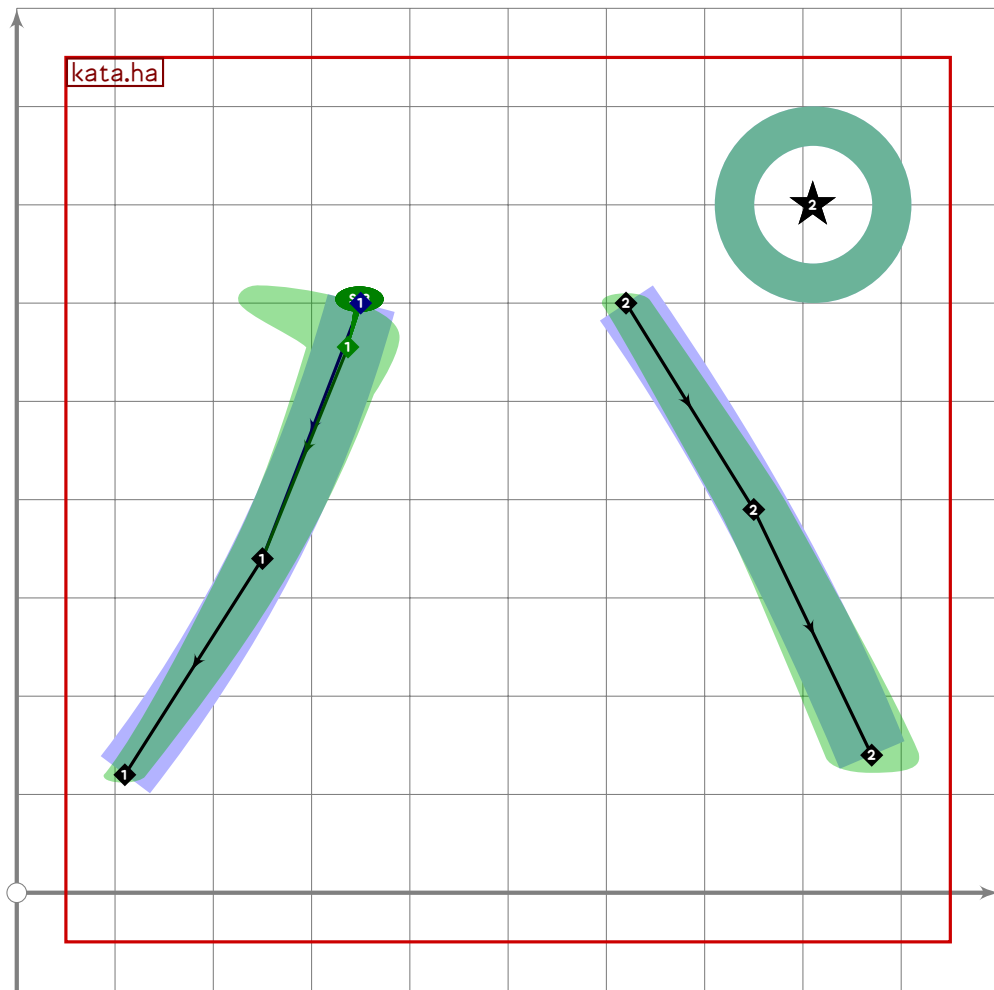
1245 kata.nu;  
1246 tsu\_render;  
1247 endtsuglyph;  
1248  
1249 % katakana "ne"  
1250 begintsuglyph("uni30CD",205); [see page 141]  
1251 kata.ne;  
1252 tsu\_render;  
1253 endtsuglyph;  
1254  
1255 % katakana "no"  
1256 begintsuglyph("uni30CE",206); [see page 142]  
1257 kata.no;  
1258 tsu\_render;  
1259 endtsuglyph;  
1260  
1261 % katakan "ha"  
1262 begintsuglyph("uni30CF",207); [see page 143]  
1263 kata.ha;  
1264 tsu\_render;  
1265 endtsuglyph;  
1266



```

1267 % katakan "ba"
1268 begintsuglyph("uni30D0",208);
1269 kata.ha;
1270 dakuten(identity shifted (810,700));
1271 tsu_render;
1272 endsuglyph;
1273

```

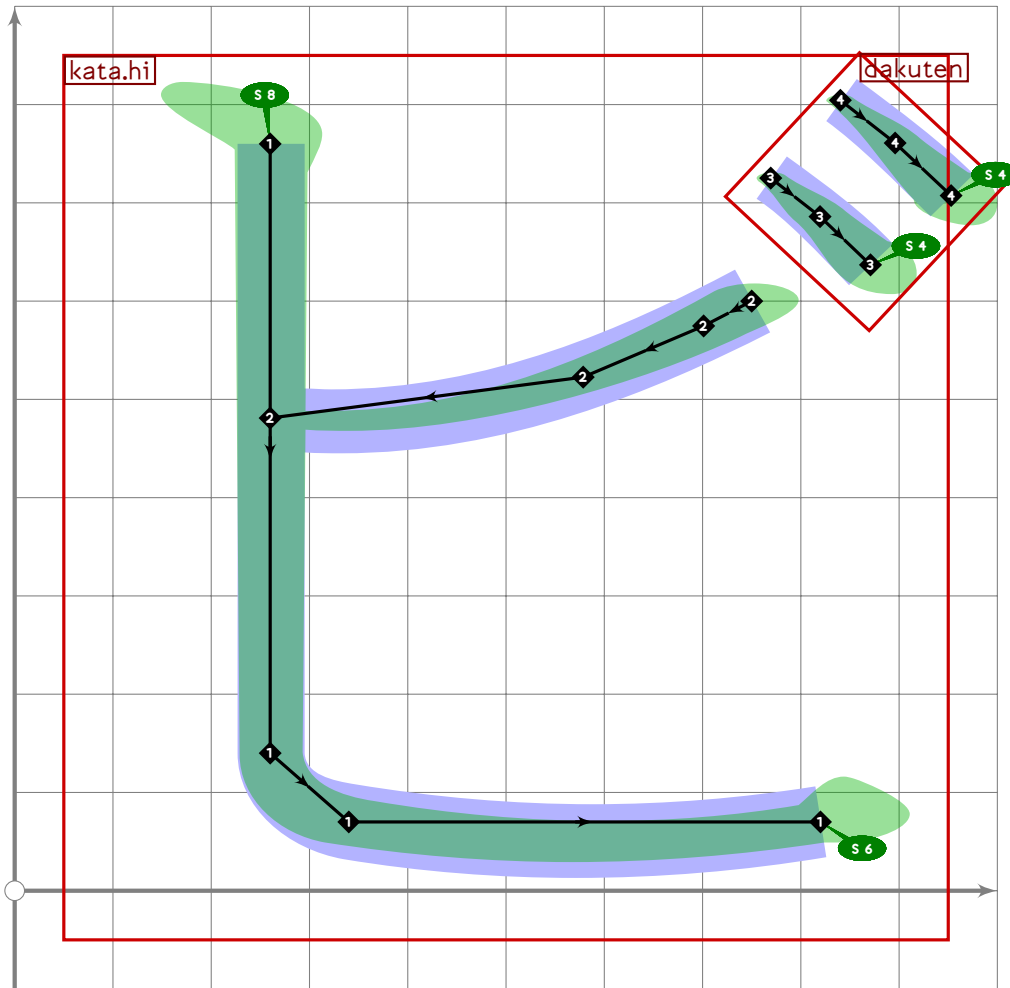


```

1274 % katakan "pa"
1275 begintsuglyph("uni30D1",209);
1276 kata.ha;
1277 handakuten((810,700));
1278 tsu_render;
1279 endsuglyph;
1280
1281 % katakana "hi"
1282 begintsuglyph("uni30D2",210);
1283 kata.hi;
1284 tsu_render;
1285 endsuglyph;
1286

```

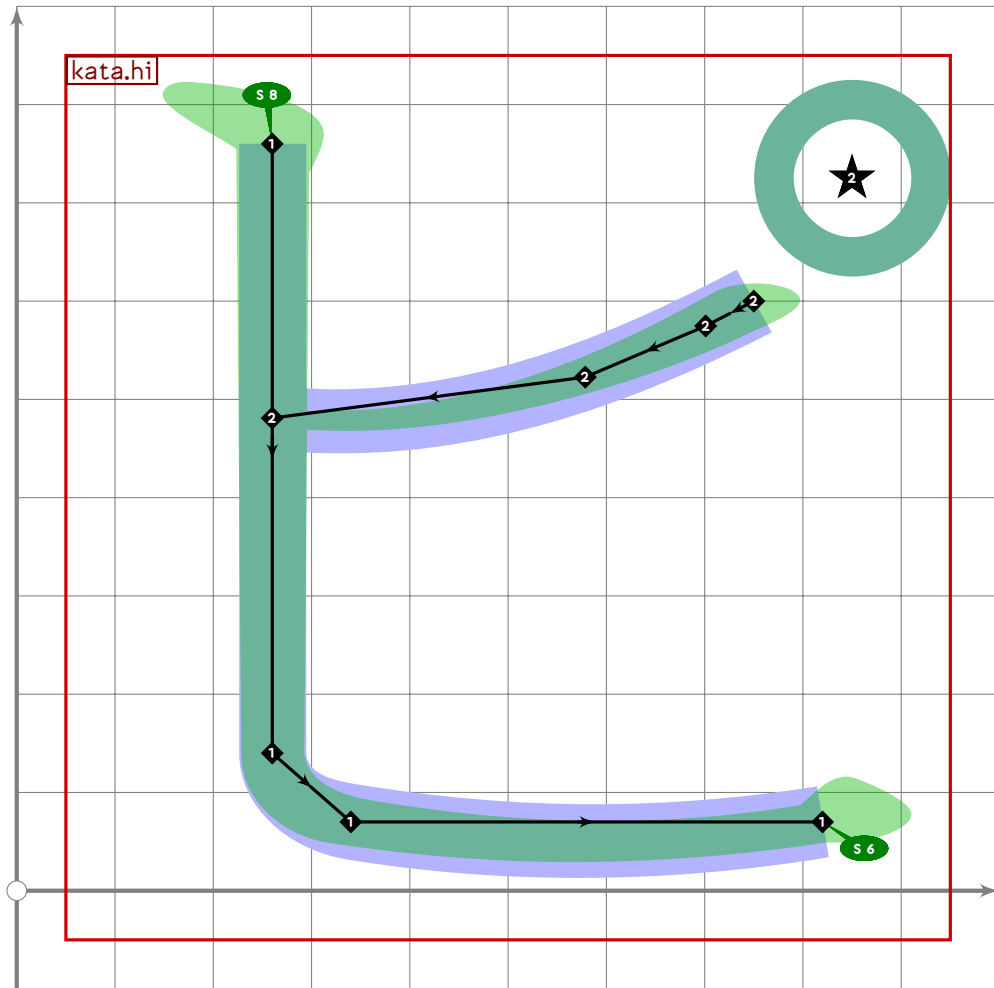
[see page 144]



```

1287 % katakana "bi"
1288 begintsuglyph("uni30D3",211);
1289 kata.hi;
1290 dakuten(identity rotated 7 shifted (850,725));
1291 tsu_render;
1292 endsuglyph;
1293

```

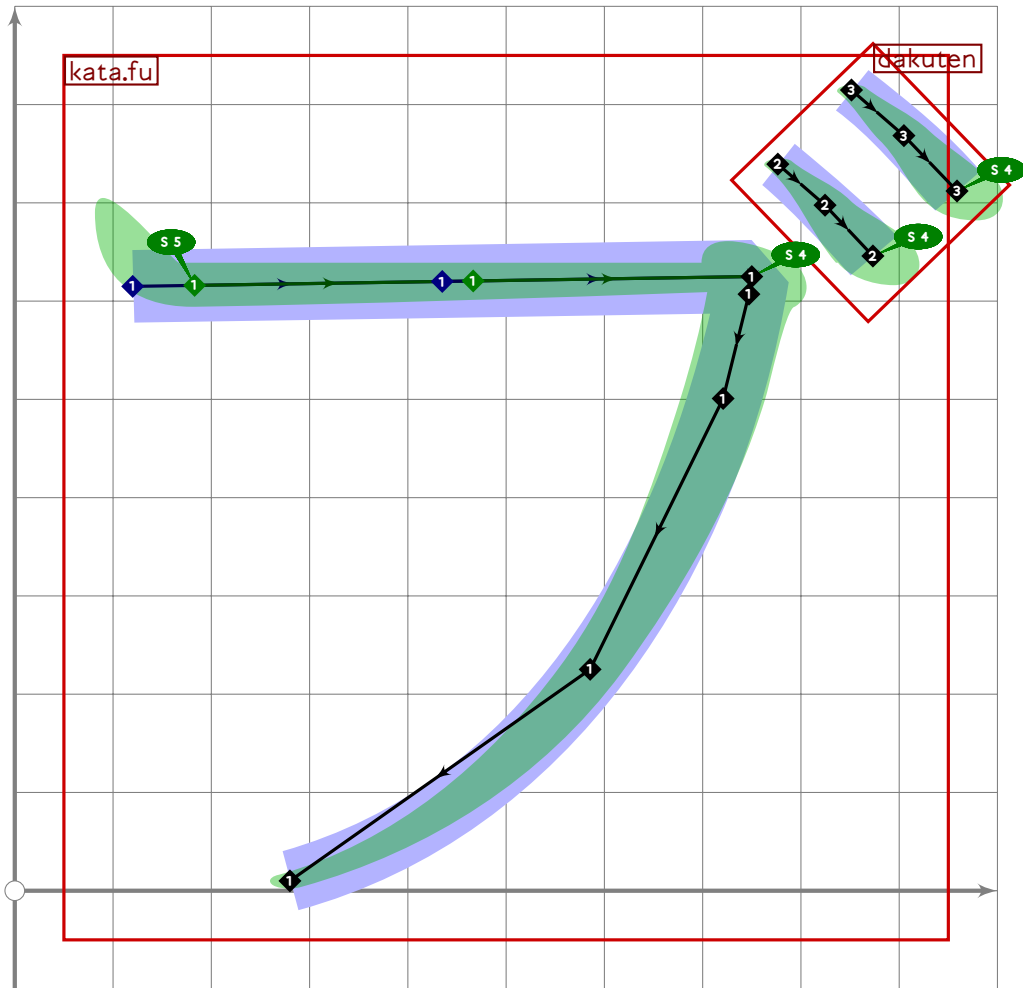


```

1294 % katakana "pi"
1295 begintsuglyph("uni30D4",212);
1296 kata.hi;
1297 handakuten((850,725));
1298 tsu_render;
1299 endsuglyph;
1300
1301 % katakana "fu"
1302 begintsuglyph("uni30D5",213);
1303 kata.fu;
1304 tsu_render;
1305 endsuglyph;
1306

```

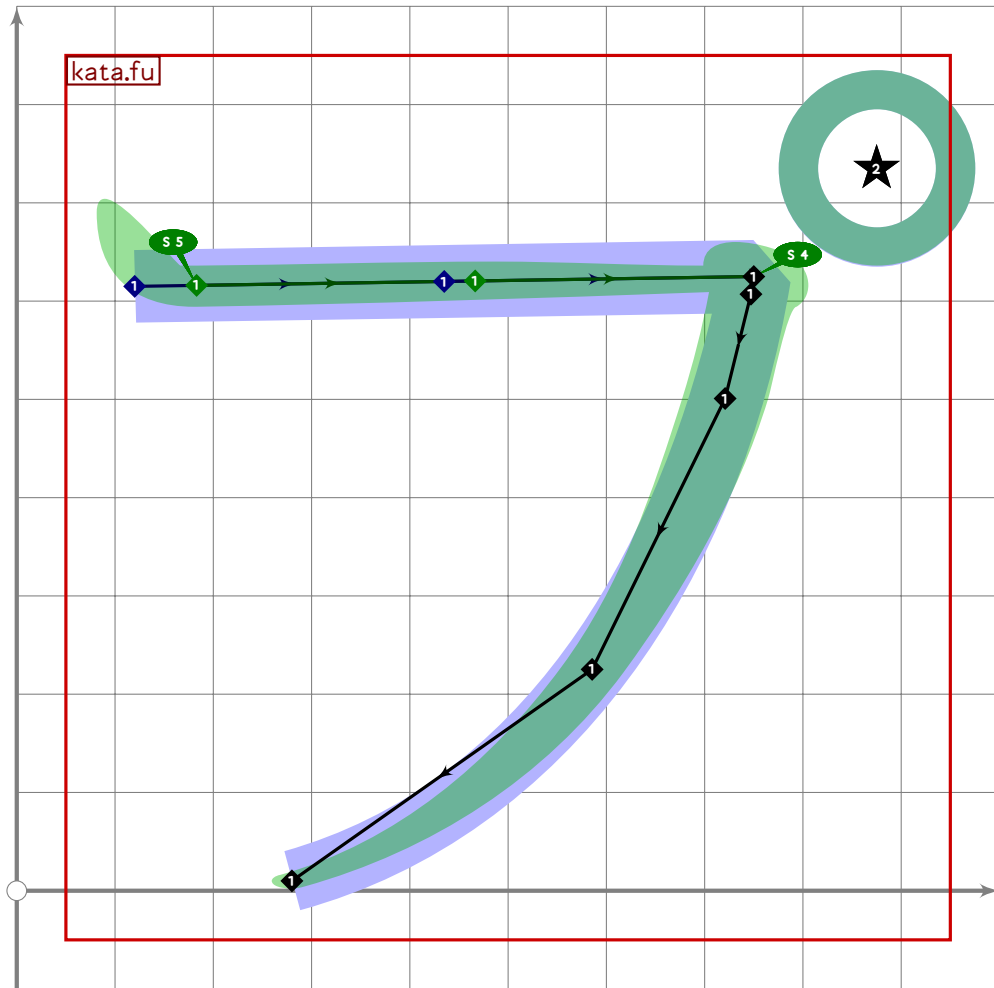
[see page 145]



```

1307 % katakana "bu"
1308 begintsuglyph("uni30D6",214);
1309 kata.fu;
1310 replace_strokep(0,oldp shifted (-40,-10));
1311 dakuten(identity rotated 4 shifted (857,735));
1312 tsu_render;
1313 endtsuglyph;
1314

```



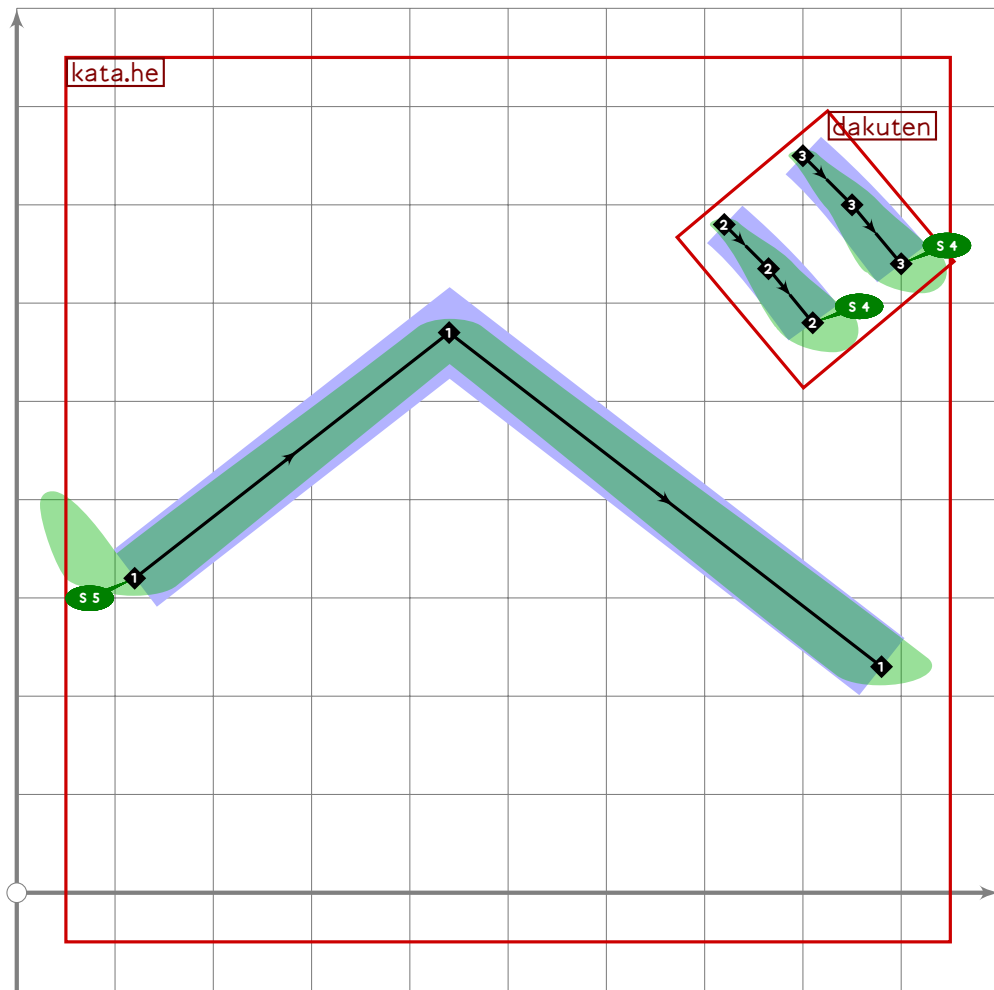
```

1315 % katakana "pu"
1316 begint Suglyph("uni30D7",215);
1317 kata.fu;
1318 replace_strokep(0,oldp shifted (-40,-10));
1319 handakuten((875,735));
1320 tsu_render;
1321 endtsuglyph;
1322
1323 % katakana "he"
1324 begint Suglyph("uni30D8",216);
1325 kata.he;
1326 tsu_render;
1327 endtsuglyph;
1328

```

[see page 146]

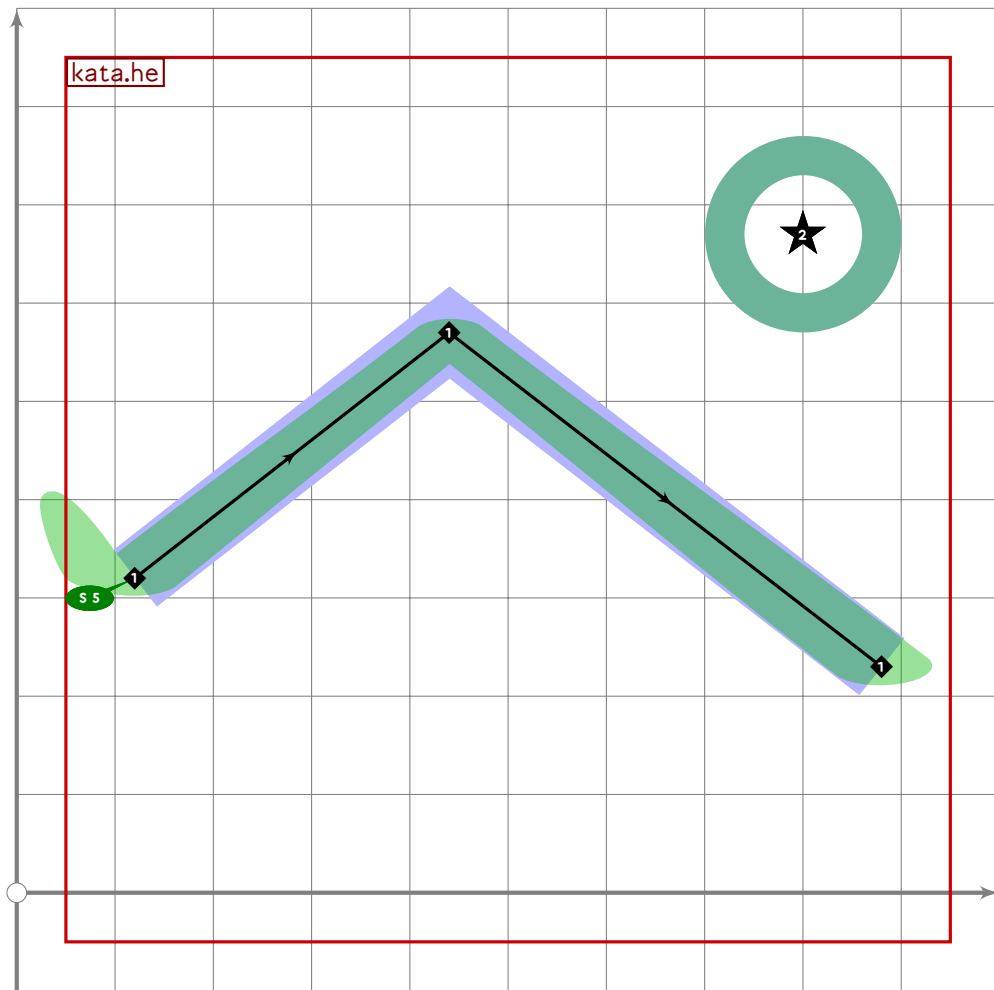




```

1329 % katakana "be"
1330 begintsuglyph("uni30D9",217);
1331 kata.he;
1332 dakuten(identity shifted (800,670));
1333 tsu_render;
1334 endsuglyph;
1335

```

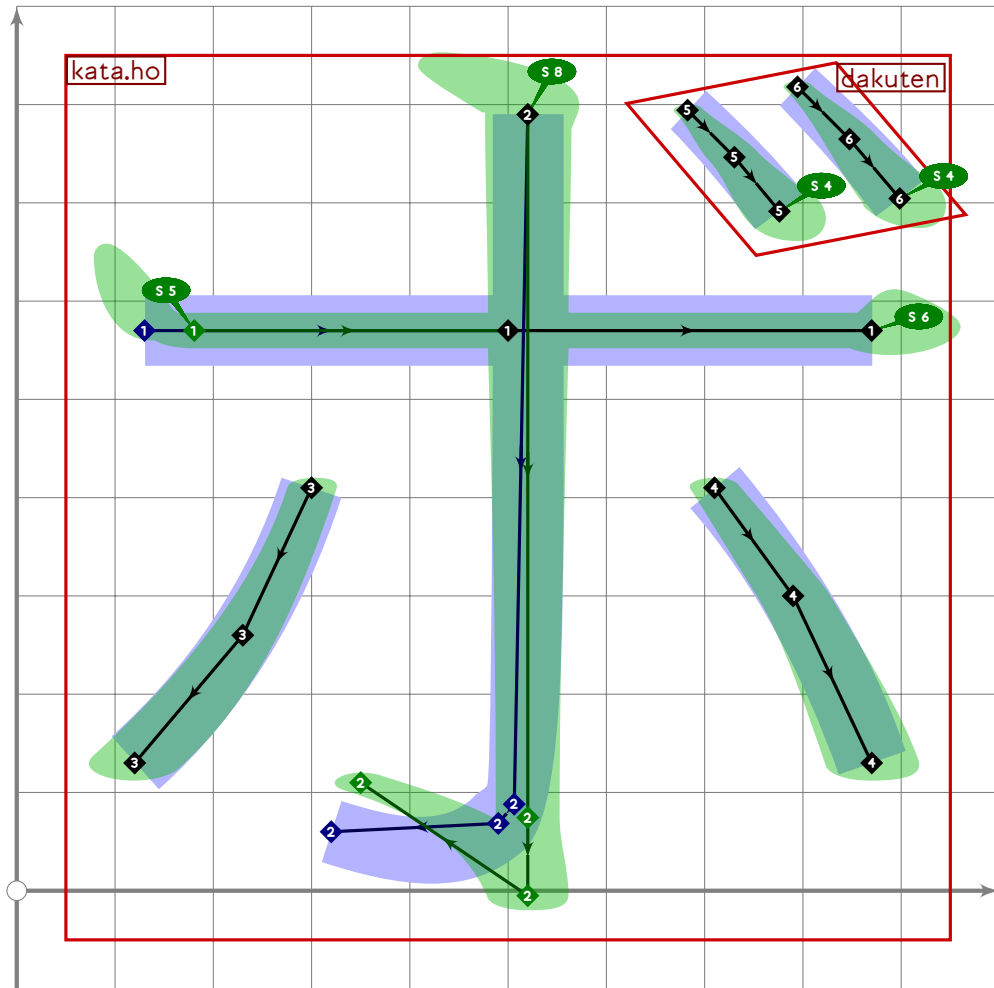


```

1336 % katakana "pe"
1337 begintsuglyph("uni30DA",218);
1338 kata.he;
1339 handakuten((800,670));
1340 tsu_render;
1341 endsuglyph;
1342
1343 % katakana "ho"
1344 begintsuglyph("uni30DB",219);
1345 kata.ho;
1346 tsu_render;
1347 endsuglyph;
1348

```

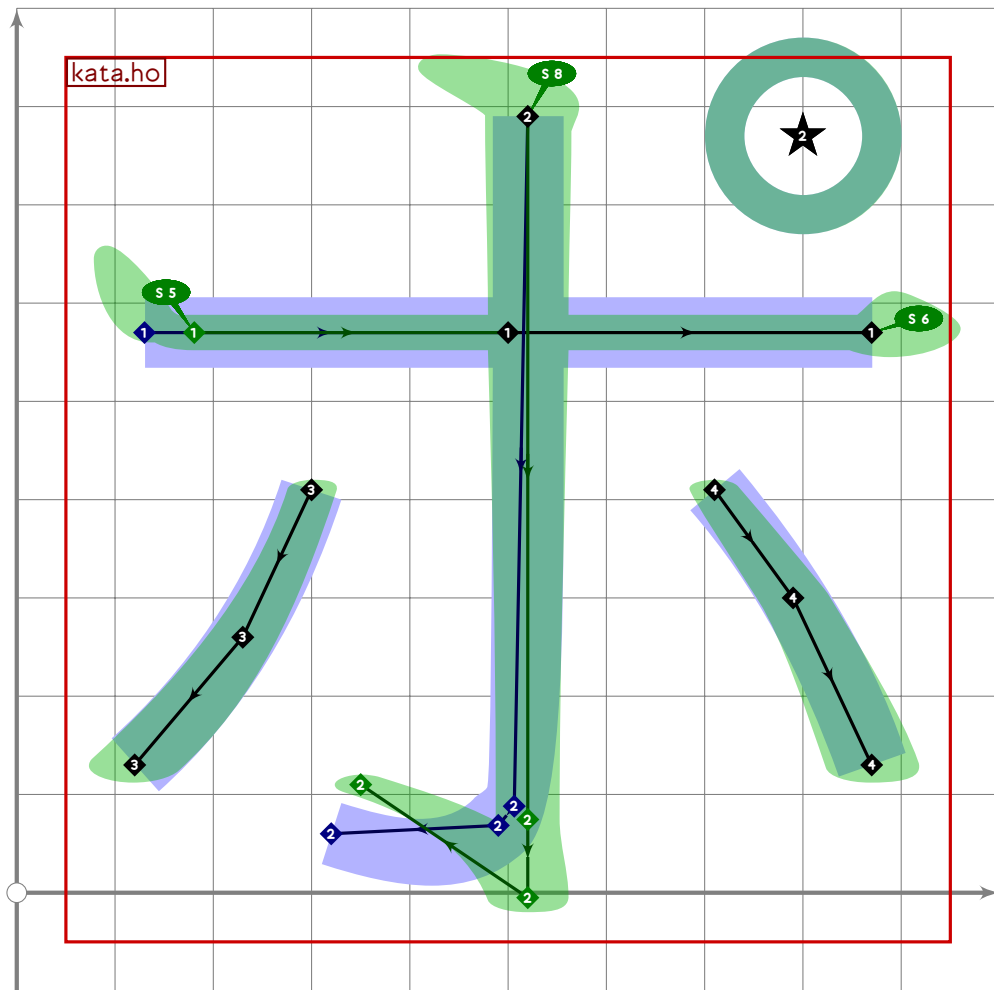
[see page 147]



```

1349 % katakana "bo"
1350 beginsuglyph("uni30DC";220);
1351 kata.ho;
1352 dakuten(identity
1353     rotated -25 slanted -0.3 xyscaled (1.2,0.8) shifted (780,760));
1354 tsu_render;
1355 endsuglyph;
1356

```



```

1357 % katakana "po"
1358 begint Suglyph("uni30DD",221);
1359 kata.ho;
1360 handakuten((800,770));
1361 tsu_render;
1362 endtsuglyph;
1363
1364 % katakana "ma"
1365 begint Suglyph("uni30DE",222);
1366 kata.ma;
1367 tsu_render;
1368 endtsuglyph;
1369
1370 % katakana "mi"
1371 begint Suglyph("uni30DF",223);
1372 kata.mi;
1373 tsu_render;
1374 endtsuglyph;
1375
1376 % katakana "mu"
1377 begint Suglyph("uni30E0",224);

```

[see page 148]

[see page 149]

[see page 150]

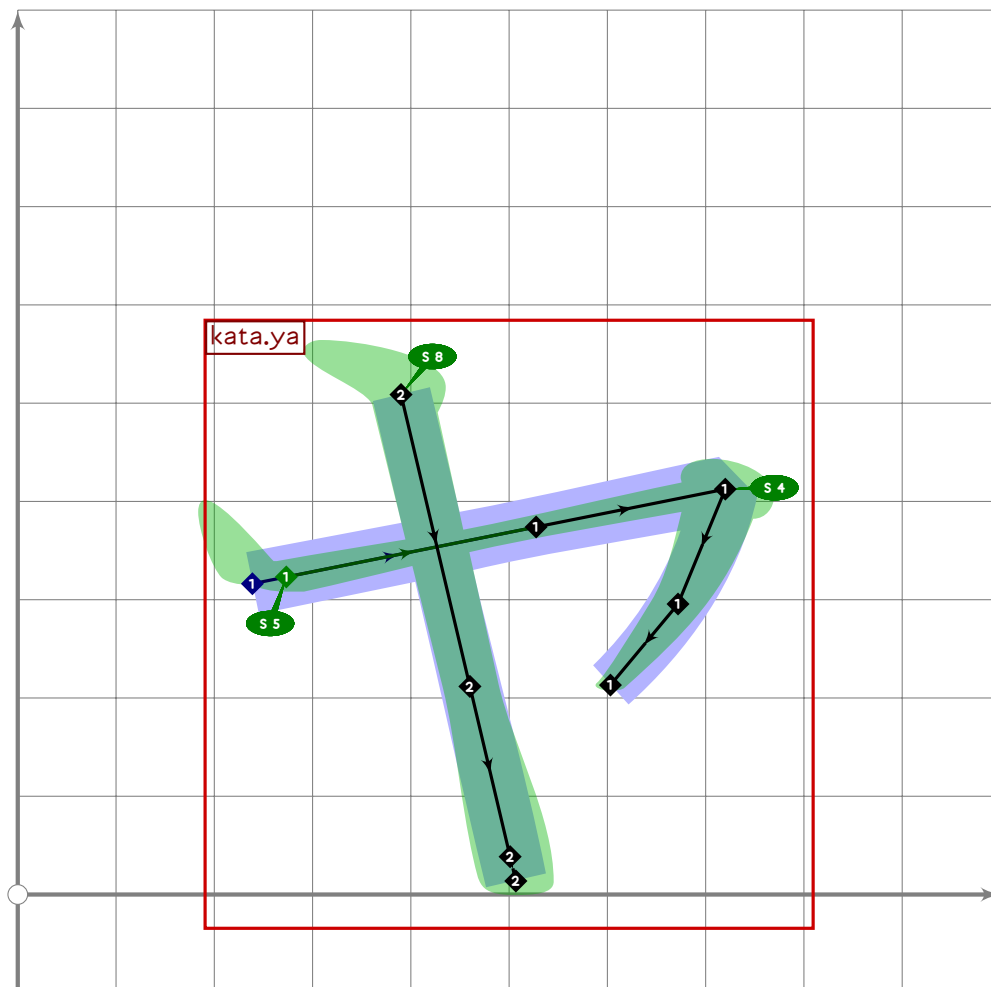
```

1378 kata.mu;
1379 tsu_render;
1380 endtsuglyph;
1381
1382 % katakana "me"
1383 begintsuglyph("uni30E1",225);
1384 kata.me;
1385 tsu_render;
1386 endtsuglyph;
1387
1388 % katakana "mo"
1389 begintsuglyph("uni30E2",226);
1390 kata.mo;
1391 tsu_render;
1392 endtsuglyph;
1393

```

[see page 151]

[see page 152]



```

1394 % katakana "small ya"
1395 begintsuglyph("uni30E3",227);
1396 tsu_xform(tsu_xf.smallkana)(kata.ya);
1397 tsu_render;
1398 endtsuglyph;

```

1399

1400 % katakana "ya"

1401 `begintsuglyph("uni30E4";228);`

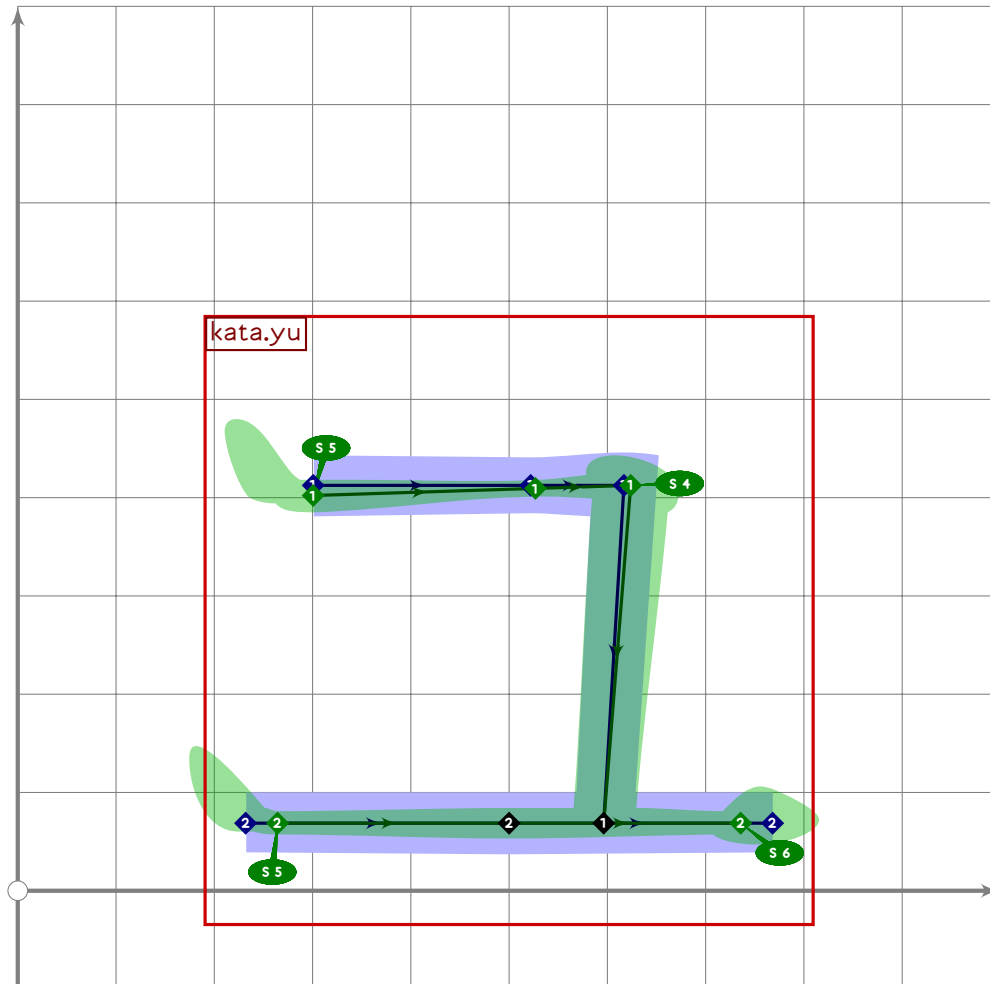
[see page 153]

1402 `kata.ya;`

1403 `tsu_render;`

1404 `endtsuglyph;`

1405



1406 % katakana "small yu"

1407 `begintsuglyph("uni30E5";229);`

1408 `tsu_xform(tsu_xf.smallkana)(kata.yu);`

1409 `tsu_render;`

1410 `endtsuglyph;`

1411

1412 % katakana "yu"

1413 `begintsuglyph("uni30E6";230);`

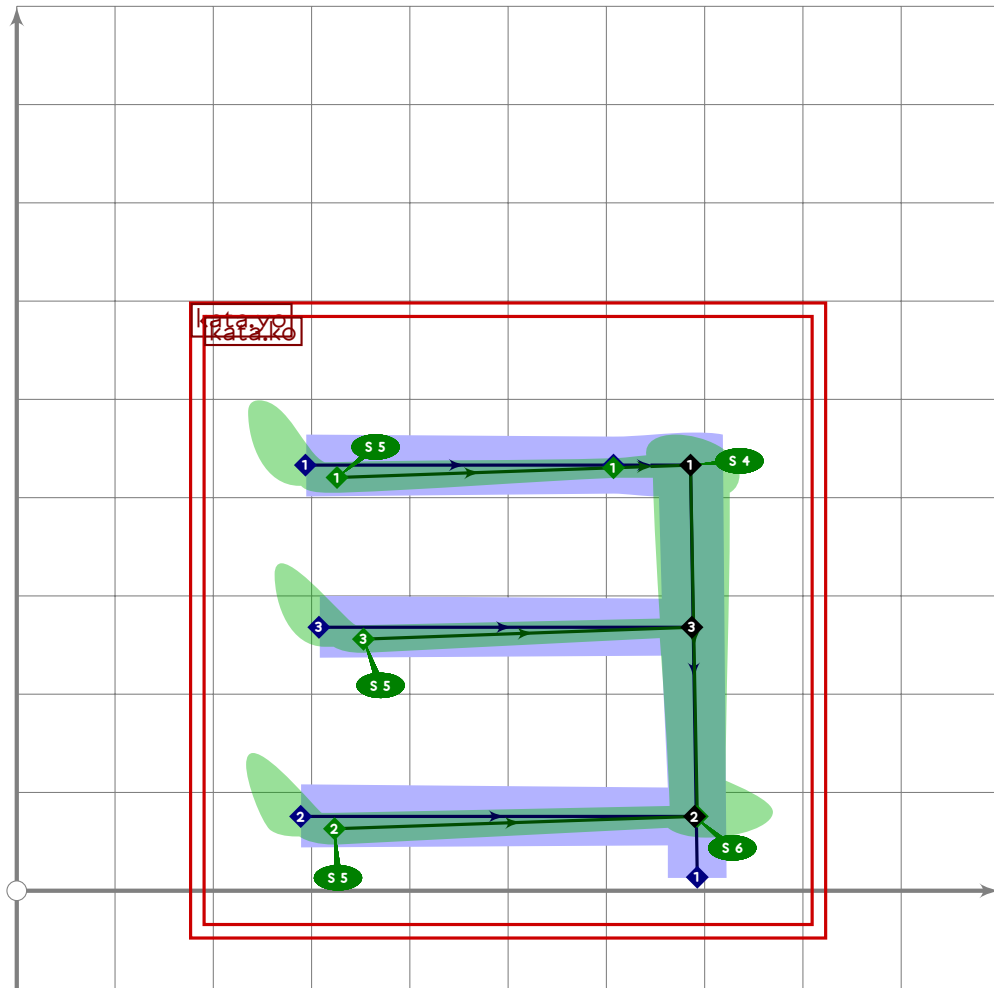
[see page 154]

1414 `kata.yu;`

1415 `tsu_render;`

1416 `endtsuglyph;`

1417



```

1418 % katakana "small yo"
1419 begintsuglyph("uni30E7",231);
1420 tsu_xform(tsu_xf.smallkana)(kata.yo);
1421 tsu_render;
1422 endsuglyph;
1423
1424 % katakana "yo"
1425 begintsuglyph("uni30E8",232);
1426 kata.yo;
1427 tsu_render;
1428 endsuglyph;
1429
1430 % katakana "ra"
1431 begintsuglyph("uni30E9",233);
1432 kata.ra;
1433 tsu_render;
1434 endsuglyph;
1435
1436 % katakana "ri"
1437 begintsuglyph("uni30EA",234);
1438 kata.ri;

```

[see page 155]

[see page 156]

[see page 157]

```

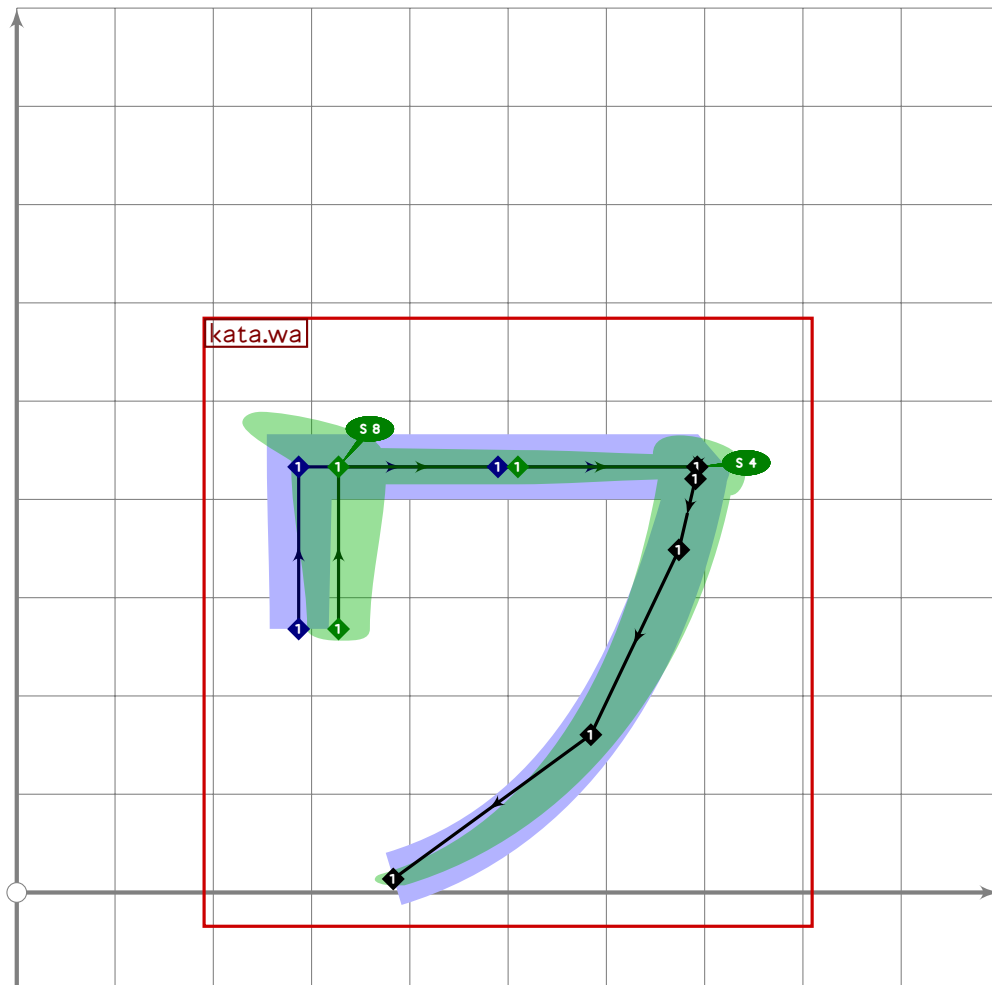
1439 tsu_render;
1440 endtsuglyph;
1441
1442 % katakana "ru"
1443 begintsuglyph("uni30EB",235);
1444 kata.ru;
1445 tsu_render;
1446 endtsuglyph;
1447
1448 % katakana "re"
1449 begintsuglyph("uni30EC",236);
1450 kata.re;
1451 tsu_render;
1452 endtsuglyph;
1453
1454 % katakana "ro"
1455 begintsuglyph("uni30ED",237);
1456 kata.ro;
1457 tsu_render;
1458 endtsuglyph;
1459

```

[see page 158]

[see page 159]

[see page 160]

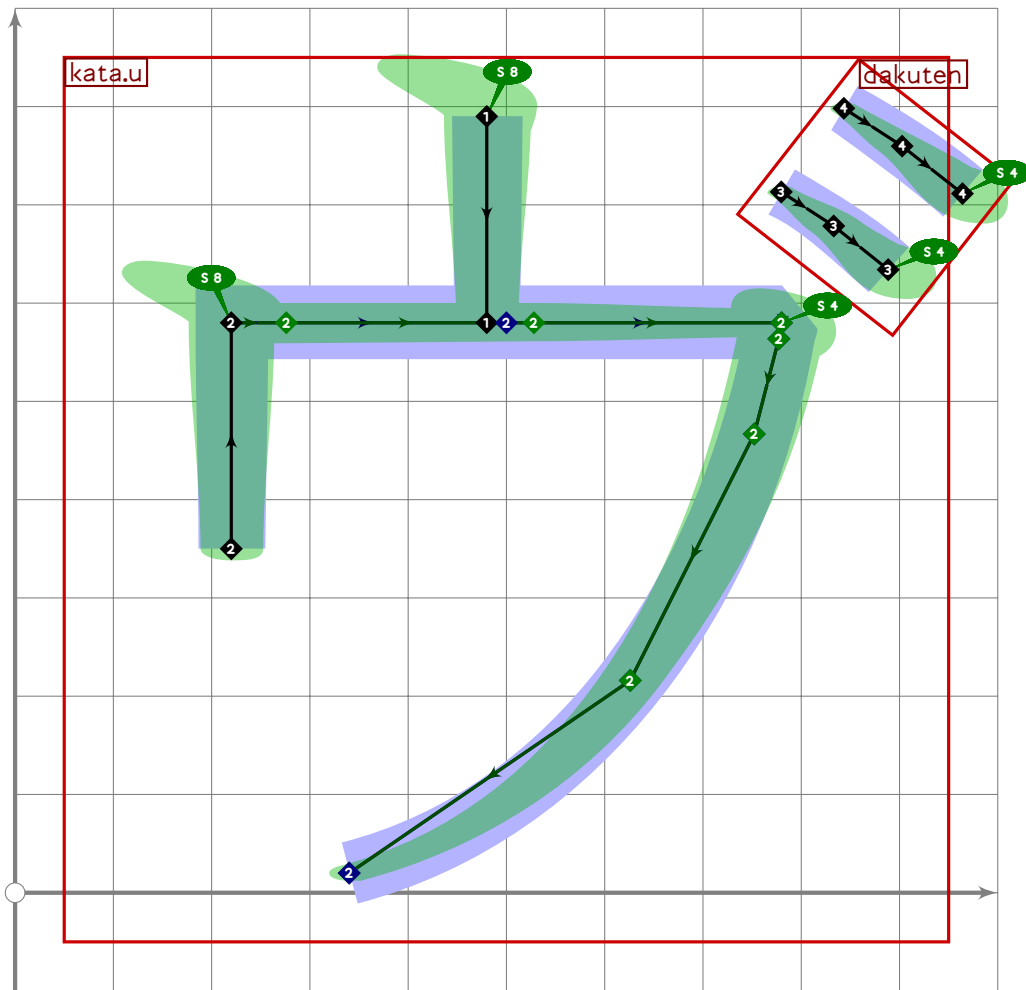




```

1460 % katakana "small wa"
1461 begintsuglyph("uni30EE",238);
1462 tsu_xform(tsu_xf.smallkana)(kata.wa);
1463 tsu_render;
1464 endtsuglyph;
1465
1466 % katakana "wa"
1467 begintsuglyph("uni30EF",239); [see page 161]
1468 kata.wa;
1469 tsu_render;
1470 endtsuglyph;
1471
1472 % katakana "wi"
1473 begintsuglyph("uni30F0",240); [see page 162]
1474 kata.wi;
1475 tsu_render;
1476 endtsuglyph;
1477
1478 % katakana "we"
1479 begintsuglyph("uni30F1",241); [see page 163]
1480 kata.we;
1481 tsu_render;
1482 endtsuglyph;
1483
1484 % katakana "wo"
1485 begintsuglyph("uni30F2",242); [see page 164]
1486 kata.wo;
1487 tsu_render;
1488 endtsuglyph;
1489
1490 % katakana "n"
1491 begintsuglyph("uni30F3",243); [see page 165]
1492 kata.n;
1493 tsu_render;
1494 endtsuglyph;
1495

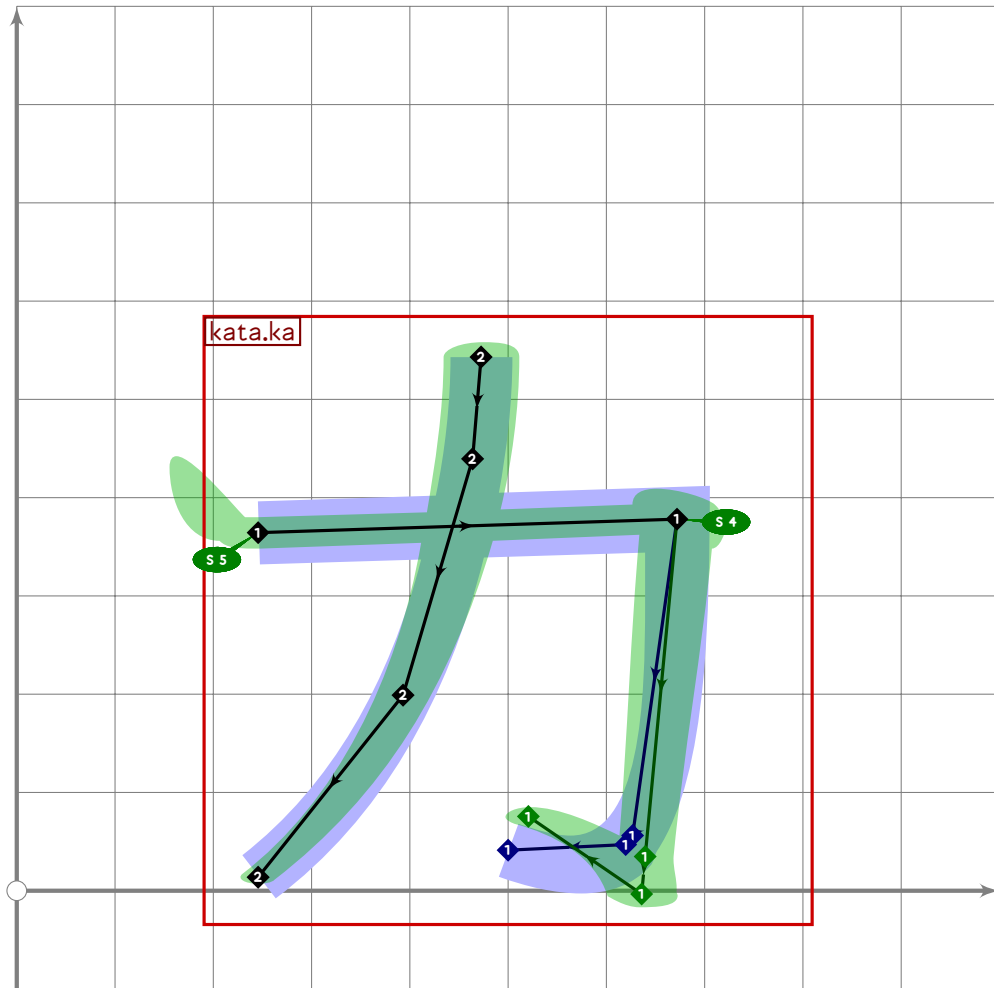
```



```

1496 % katakana "vu"
1497 beginsuglyph("uni30F4";244);
1498 kata.u;
1499 dakuten(identity rotated 12 shifted (860,720));
1500 tsu_render;
1501 endsuglyph;
1502

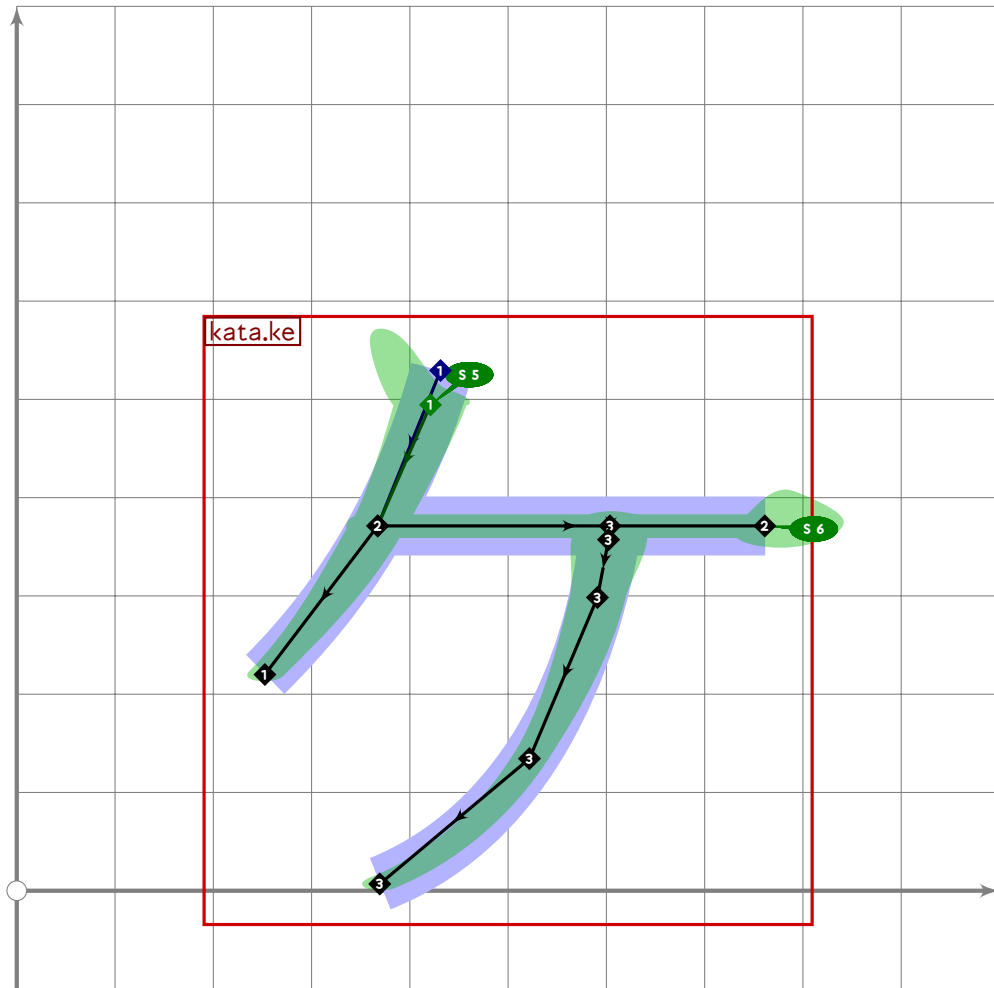
```



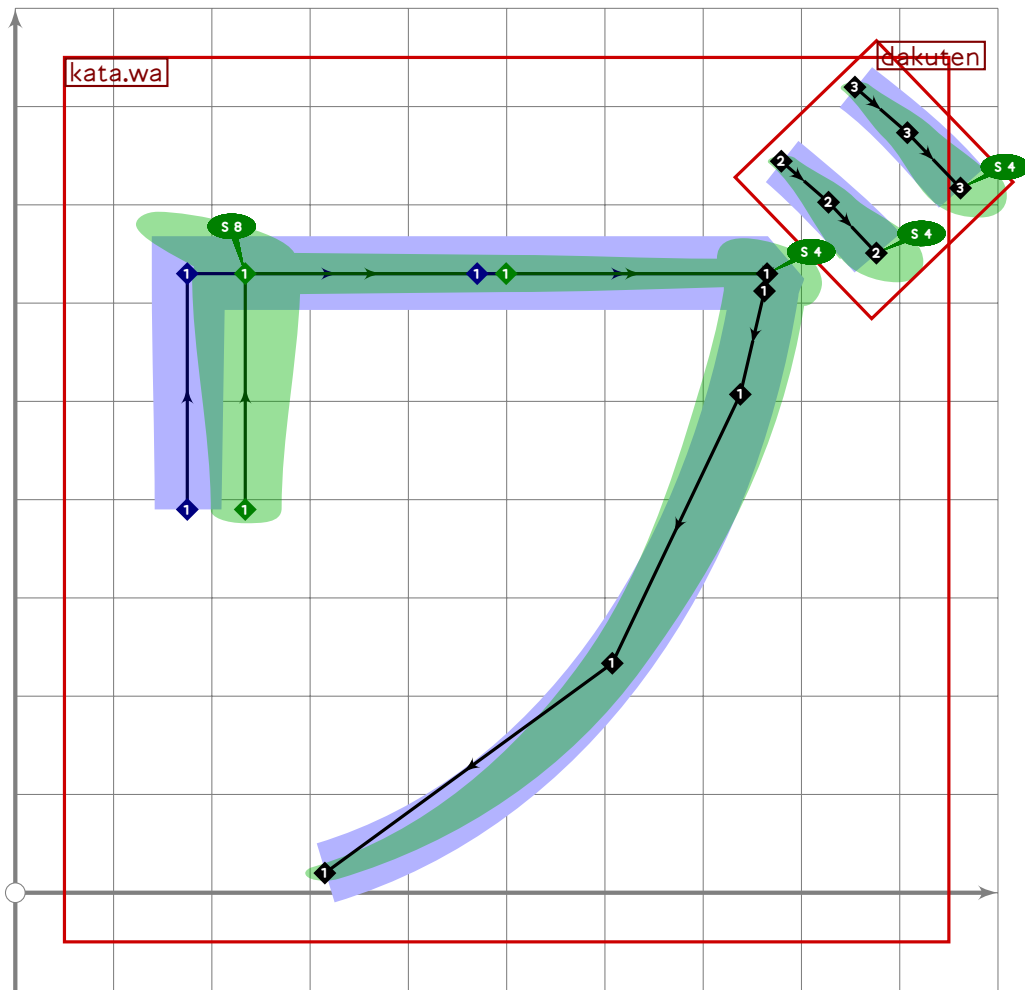
```

1503 % katakana "small ka"
1504 begintsuglyph("uni30F5";245);
1505 tsu_xform(tsu_xf.smallkana)(kata.ka);
1506 tsu_render;
1507 endsuglyph;
1508

```



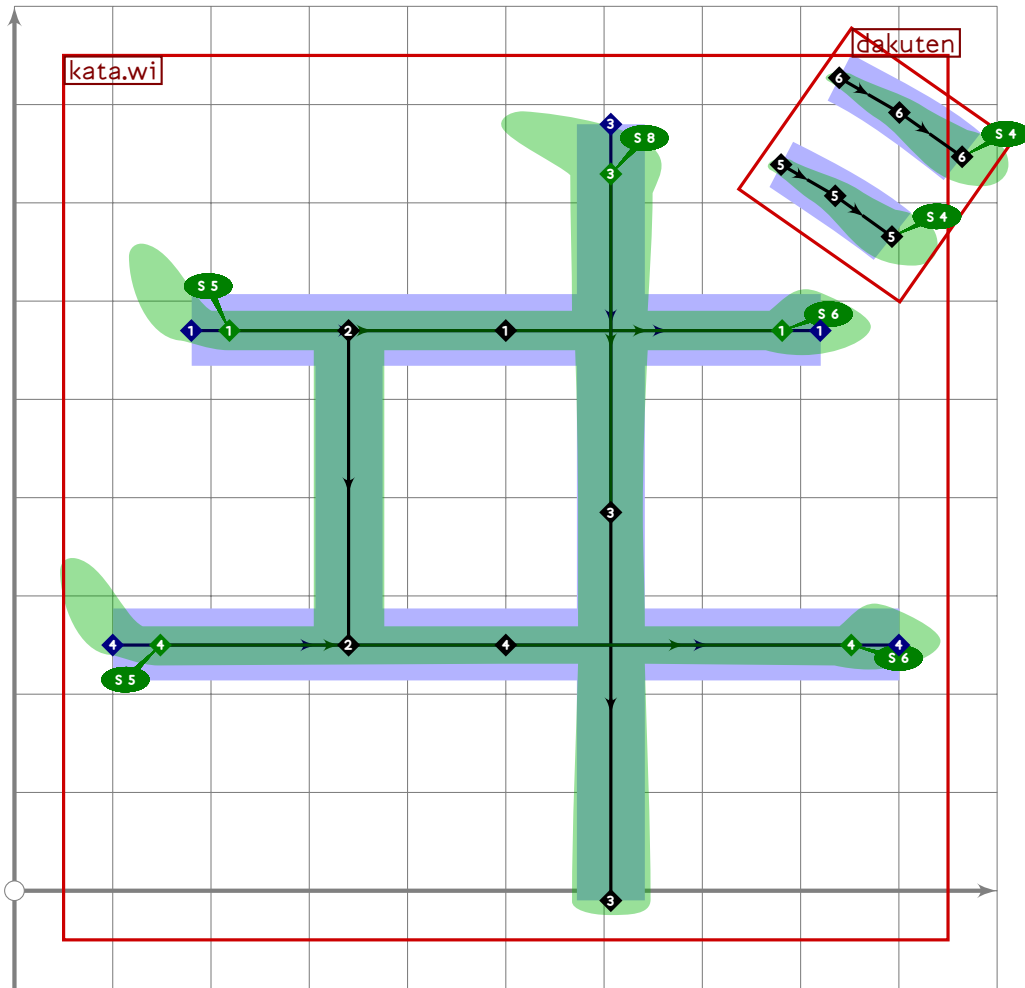
```
1509 % katakana "small ke"  
1510 begintsuglyph("uni30F6";246);  
1511 tsu_xform(tsu_xf.smallkana)(kata.ke);  
1512 tsu_render;  
1513 endsuglyph;  
1514
```



```

1515 % katakana "va"
1516 beginsuglyph("uni30F7",247);
1517 kata.wa;
1518 replace_strokep(0,oldp shifted (-15,0));
1519 dakuten(identity rotated 4 shifted (860,740));
1520 tsu_render;
1521 endsuglyph;
1522

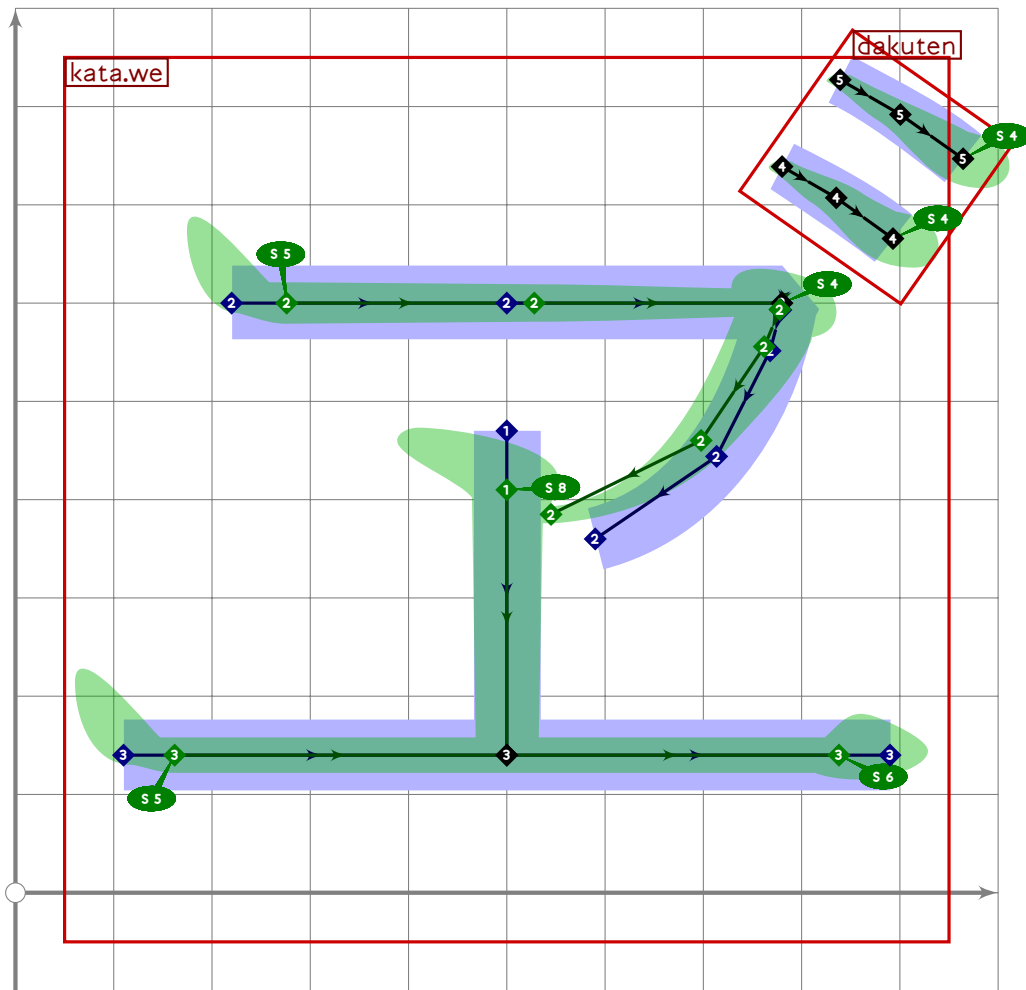
```



```

1523 % katakana "vi"
1524 begintsuglyph("uni30F8",248);
1525 kata.wi;
1526 dakuten(identity rotated 15 shifted (860,750));
1527 tsu_render;
1528 endsuglyph;
1529

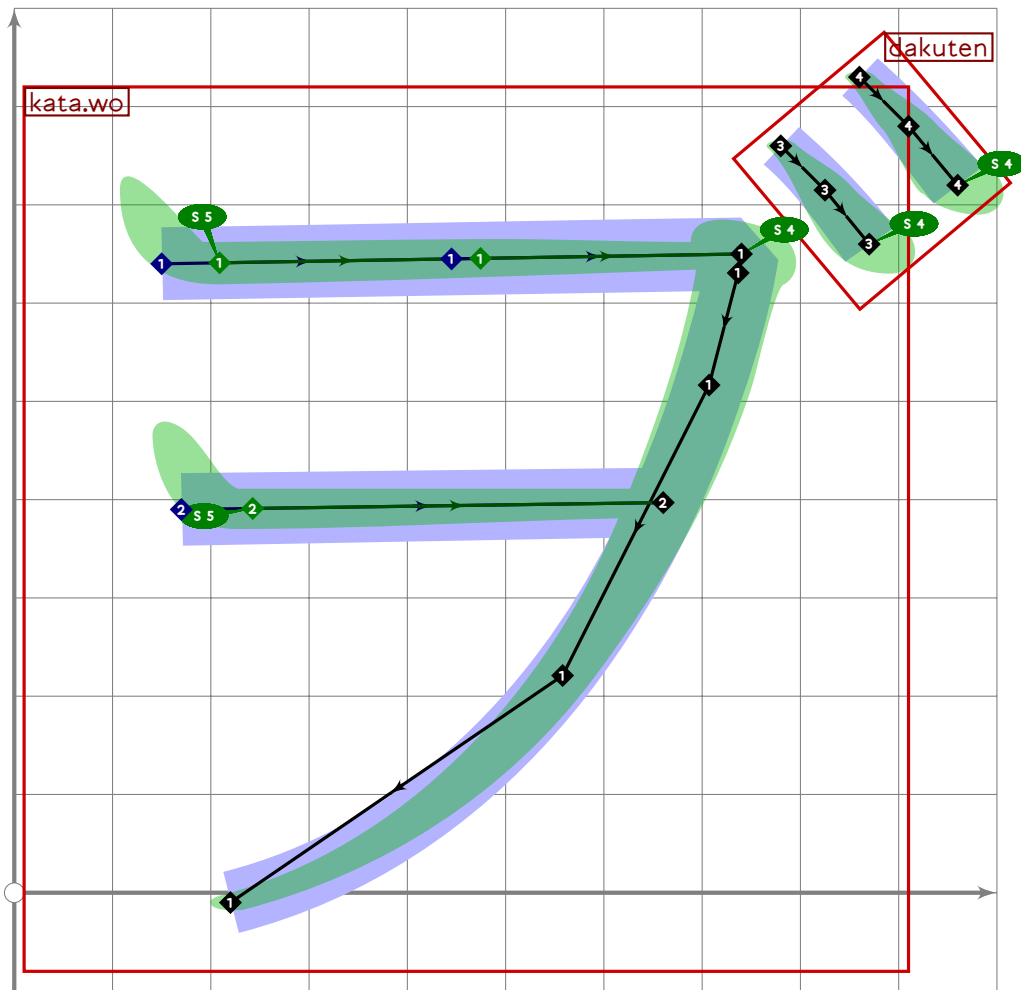
```



```

1530 % katakana "ve"
1531 beginsuglyph("uni30F9",249);
1532 kata.we;
1533 dakuten(identity rotated 15 shifted (860,750));
1534 tsu_render;
1535 endsuglyph;
1536

```

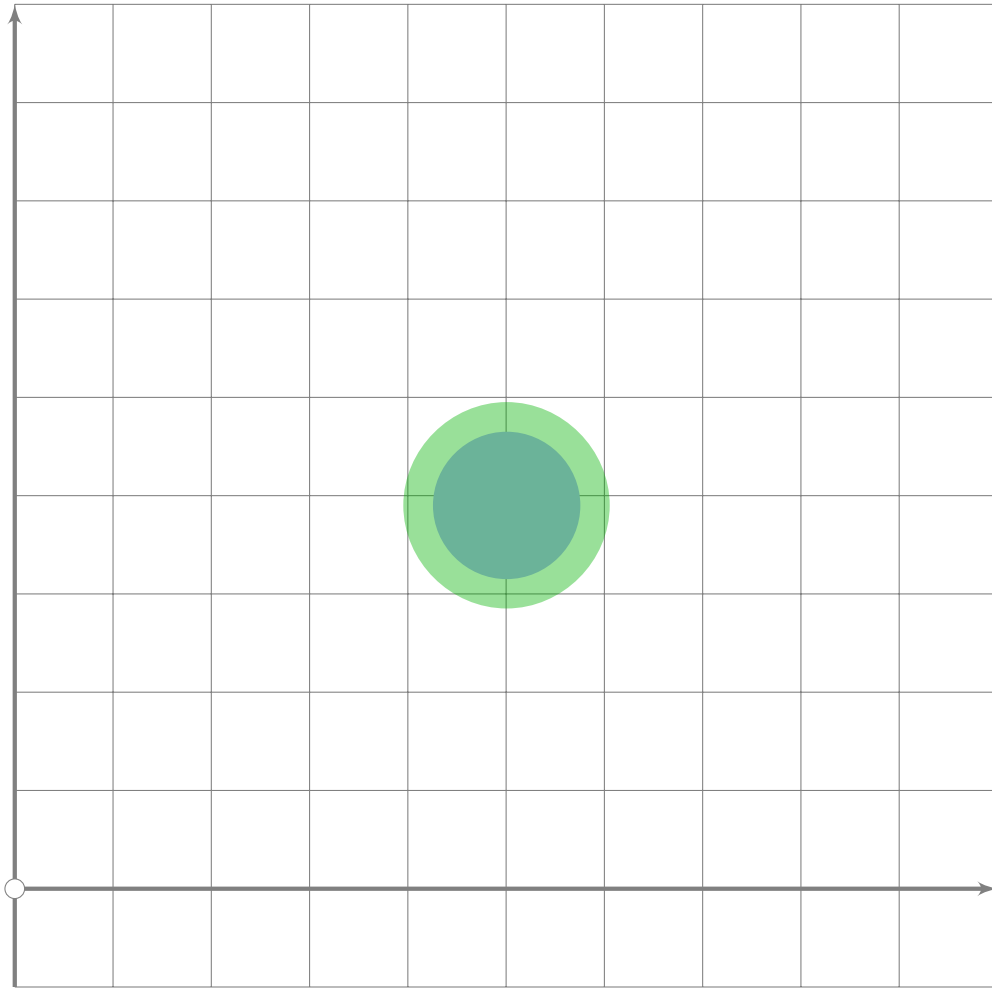


```

1537 % katakana "vo"
1538 begintsuglyph("uni30FA",250);
1539 tsu_xform(identity shifted (-40,-30))(kata.wo);
1540 dakuten(identity shifted (860,750));
1541 tsu_render;
1542 endsuglyph;
1543

```





```
1544 % katakana middle dot
1545 begintsuglyph("uni30FB",251);
1546 Fill fullcircle scaled (200*tsu_brush_max) shifted centre_pt;
1547 endsuglyph;
```

```
1548
```

```
1549 % hira/kata "prolonged sound mark"
```

```
1550 begintsuglyph("uni30FC",252);
```

[see page 305]

```
1551 punct.psound;
```

```
1552 tsu_render;
```

```
1553 endsuglyph;
```

```
1554
```

```
1555 % katakana "iteration mark"
```

```
1556 begintsuglyph("uni30FD",253);
```

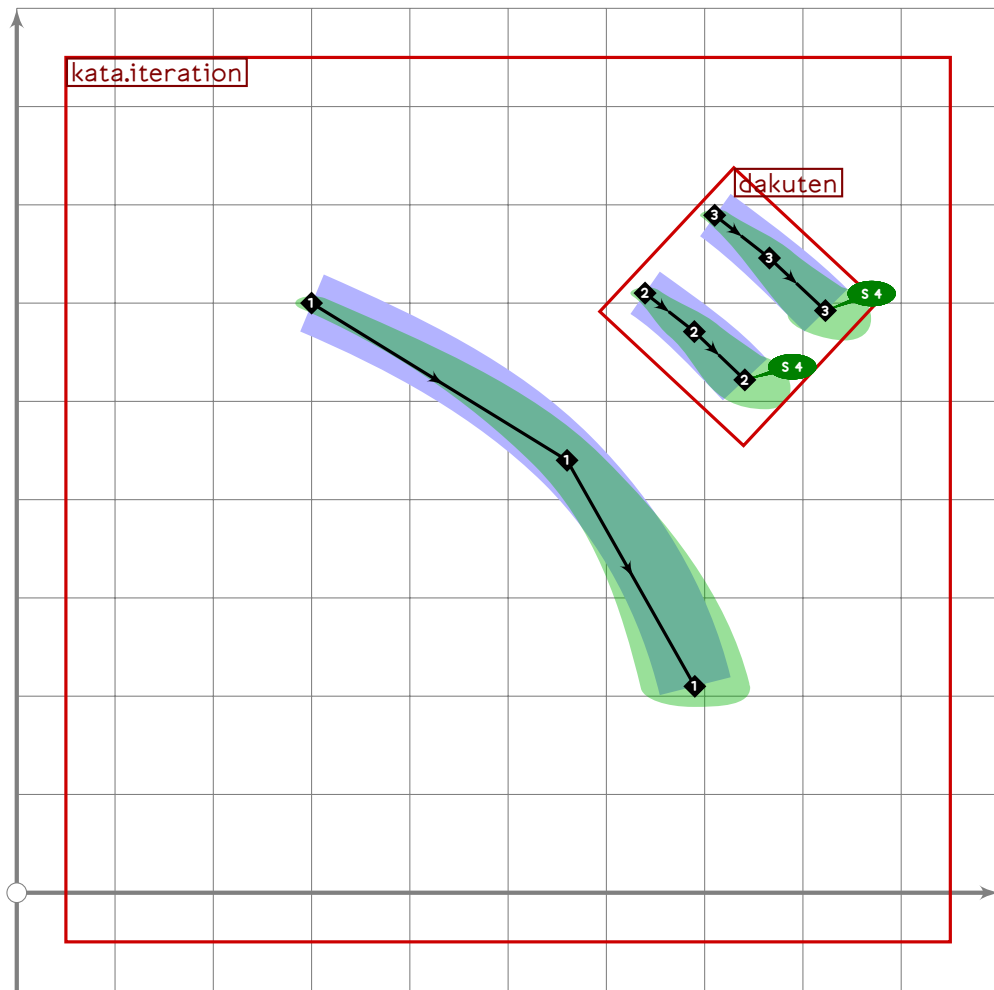
[see page 166]

```
1557 kata.iteration;
```

```
1558 tsu_render;
```

```
1559 endsuglyph;
```

```
1560
```



```

1561 % katakana "voiced iteration mark"
1562 begintsuglyph("uni30FE",254);
1563 kata.iteration;
1564 dakuten(identity rotated 7 shifted (720,610));
1565 tsu_render;
1566 endsuglyph;
1567
1568 _____
1569
1570 endfont;
1571
1572 _____

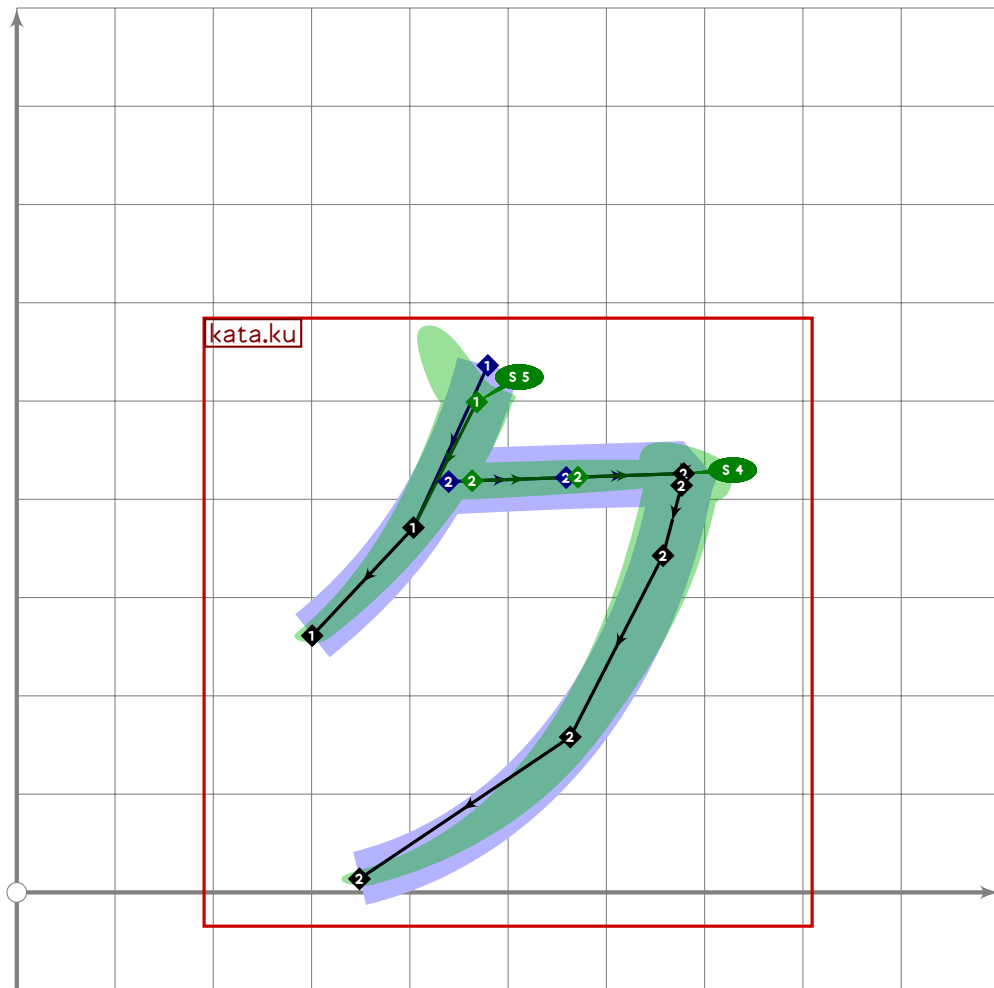
```

# tsuku-31.mp

```
1 %  
2 % Unicode page 31 (Katakana Phonetic Extensions) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input katakana.mp;  
37  
38 _____  
39
```

## Phonetic Extensions For Ainu

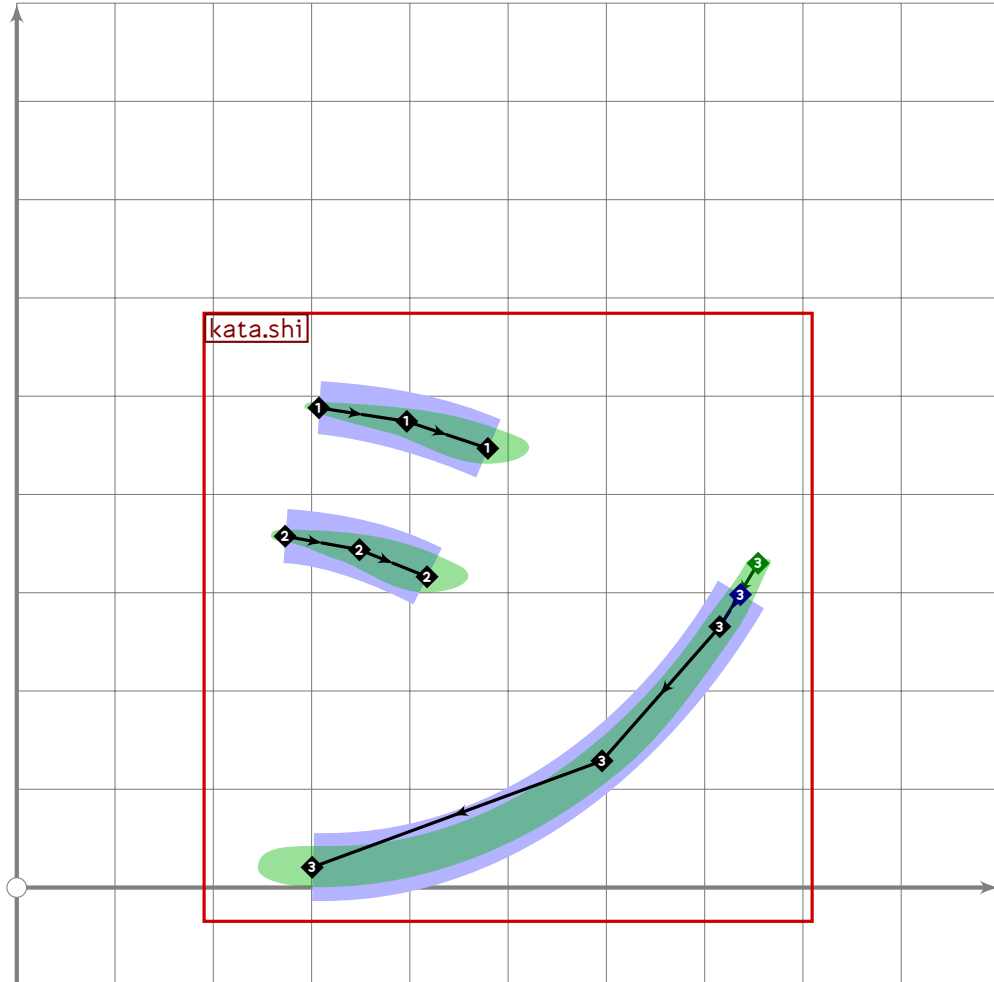
```
40 % PHONETIC EXTENSIONS FOR AINU  
41
```



```

42 % katakana "ku"
43 beginsuglyph("uni31F0";240);
44 tsu_xform(tsu_xf.smallkana)(kata.ku);
45 tsu_render;
46 endsuglyph;
47

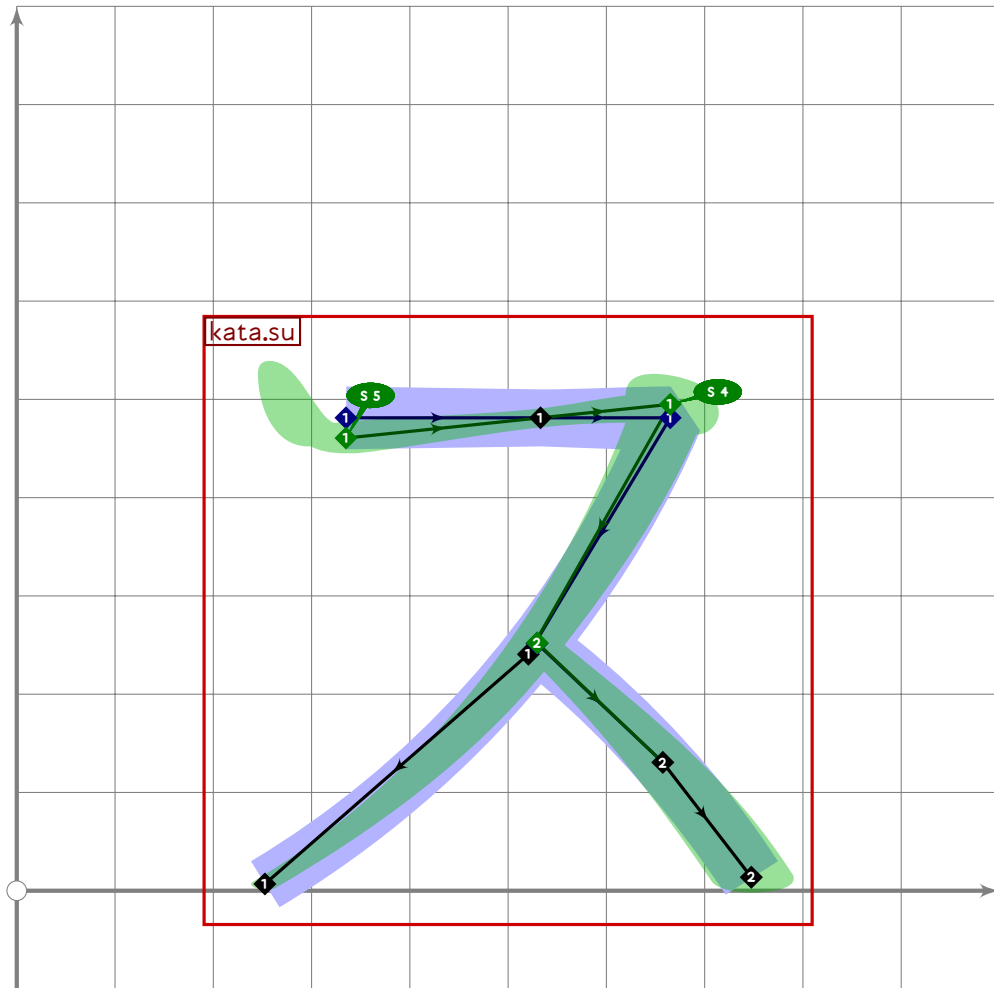
```



```

48 % katakana "shi"
49 beginsuglyph("uni31F1";241);
50 tsu_xform(tsu_xf.smallkana)(kata.shi);
51 tsu_render;
52 endsuglyph;
53

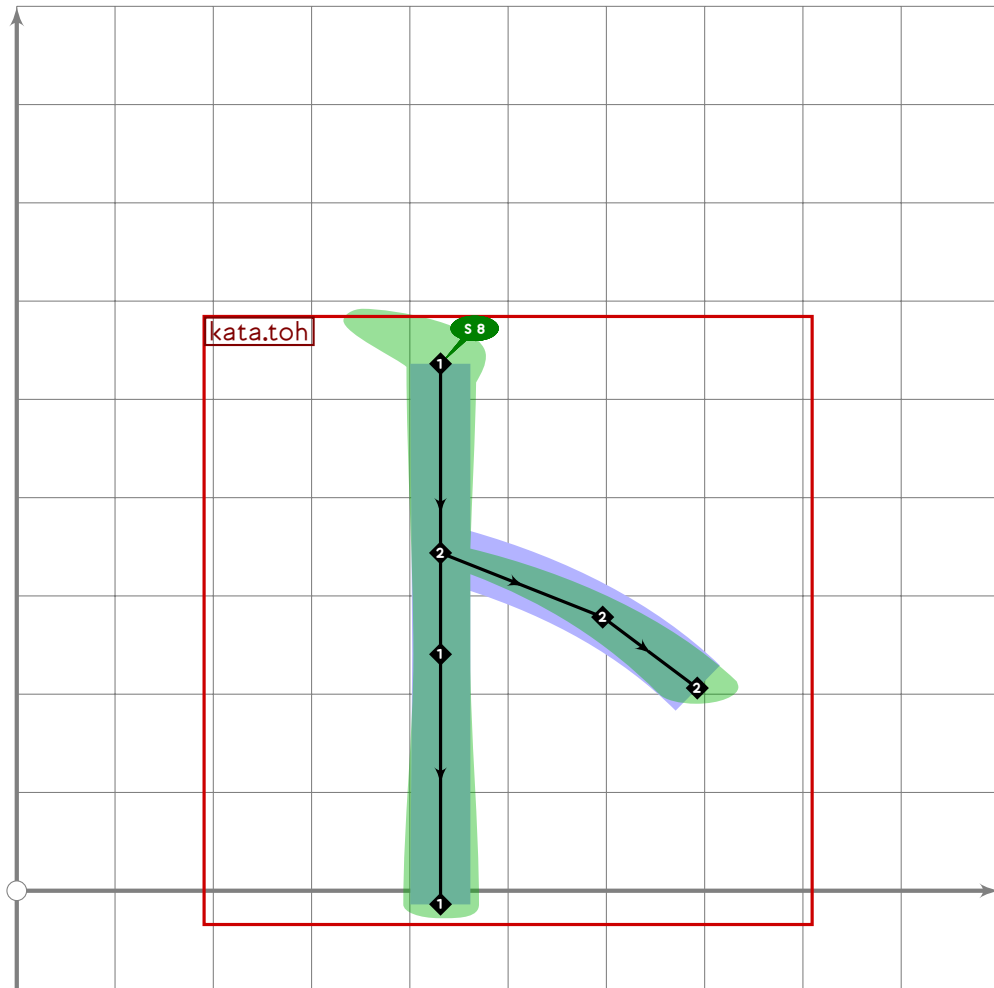
```



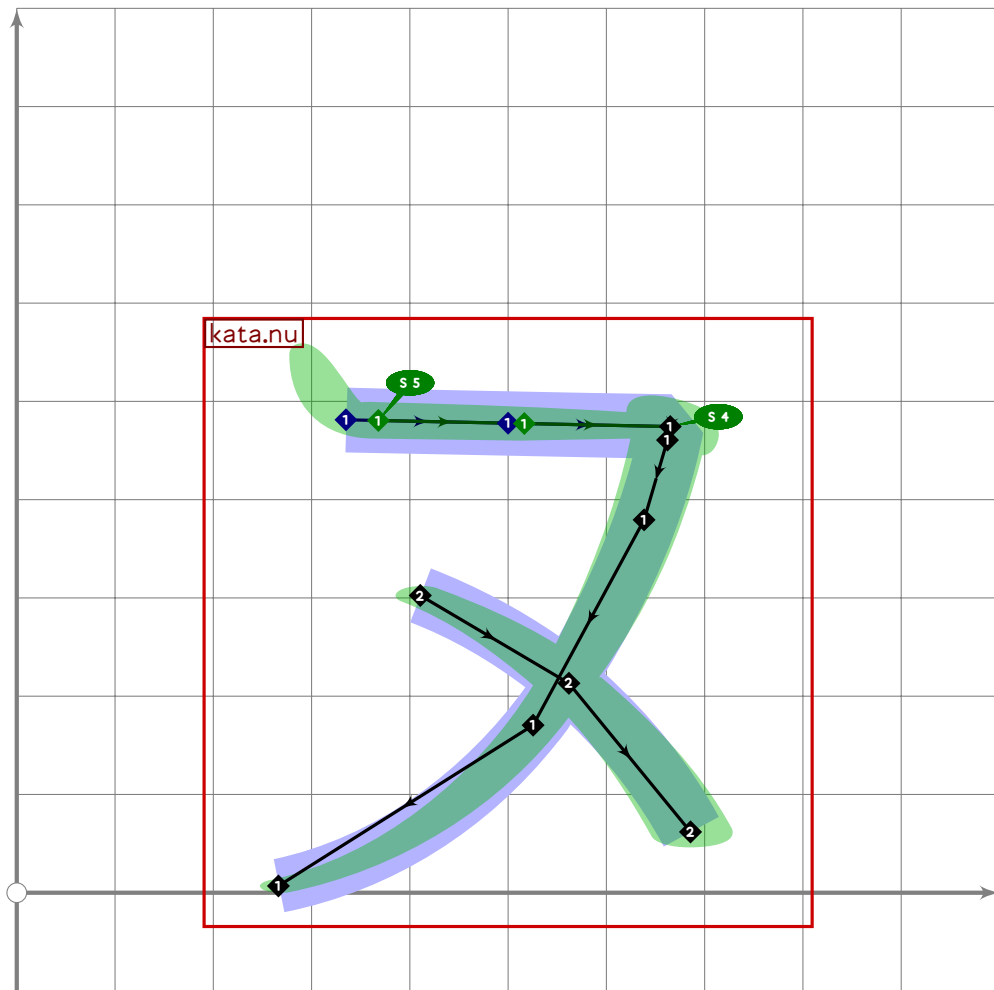
```

54 % katakana "su"
55 beginsuglyph("uni31F2";242);
56 tsu_xform(tsu_xf.smallkana)(kata.su);
57 tsu_render;
58 endsuglyph;
59

```



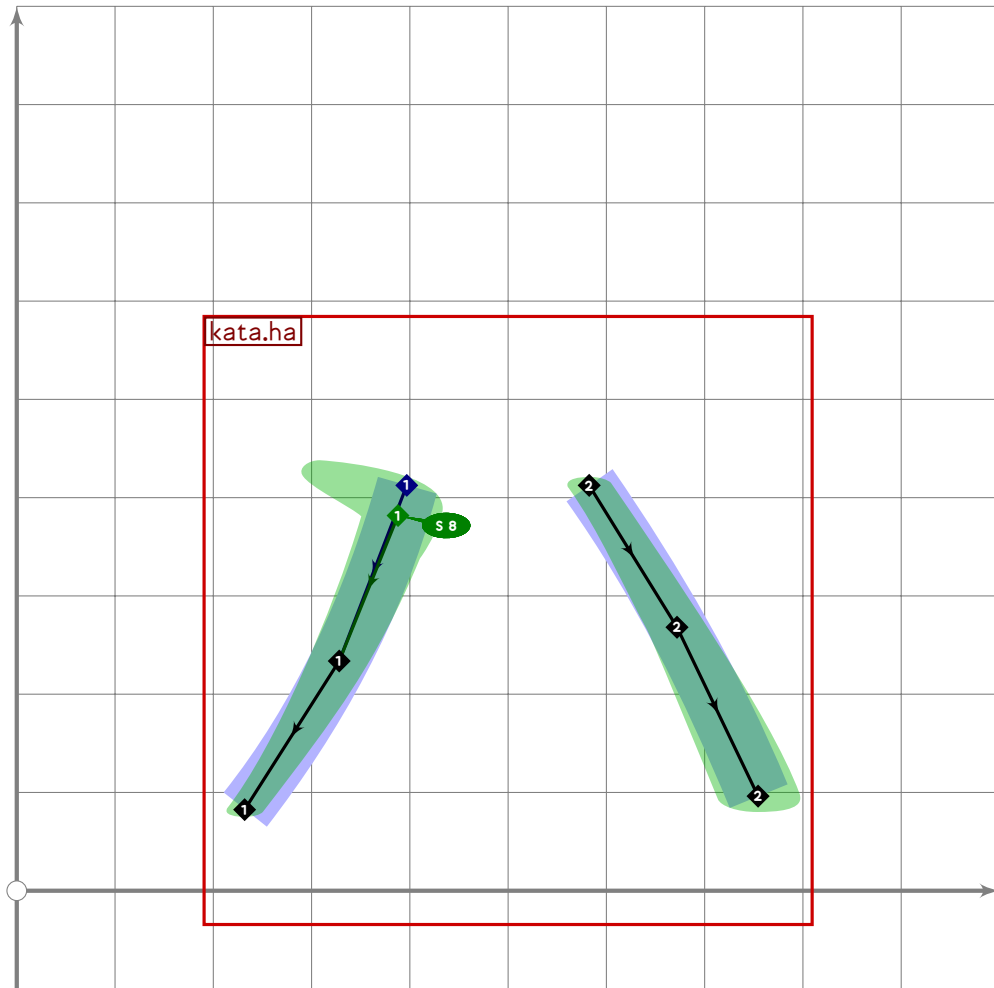
```
60 % katakana "to"  
61 beginsuglyph("uni31F3";243);  
62 tsu_xform(tsu_xf.smallkana)(kata.toh);  
63 tsu_render;  
64 endsuglyph;  
65
```



```

66 % katakana "nu"
67 beginsuglyph("uni31F4";244);
68 tsu_xform(tsu_xf.smallkana)(kata.nu);
69 tsu_render;
70 endsuglyph;
71

```

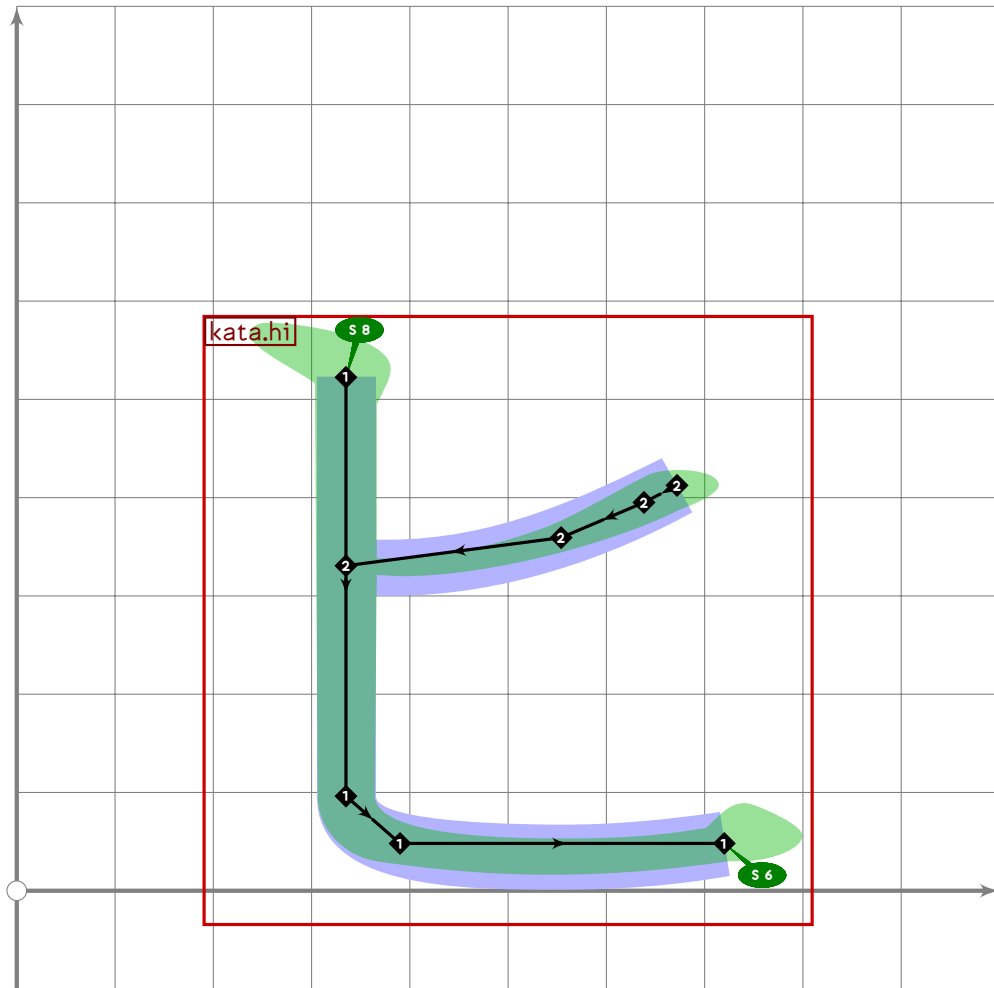


```

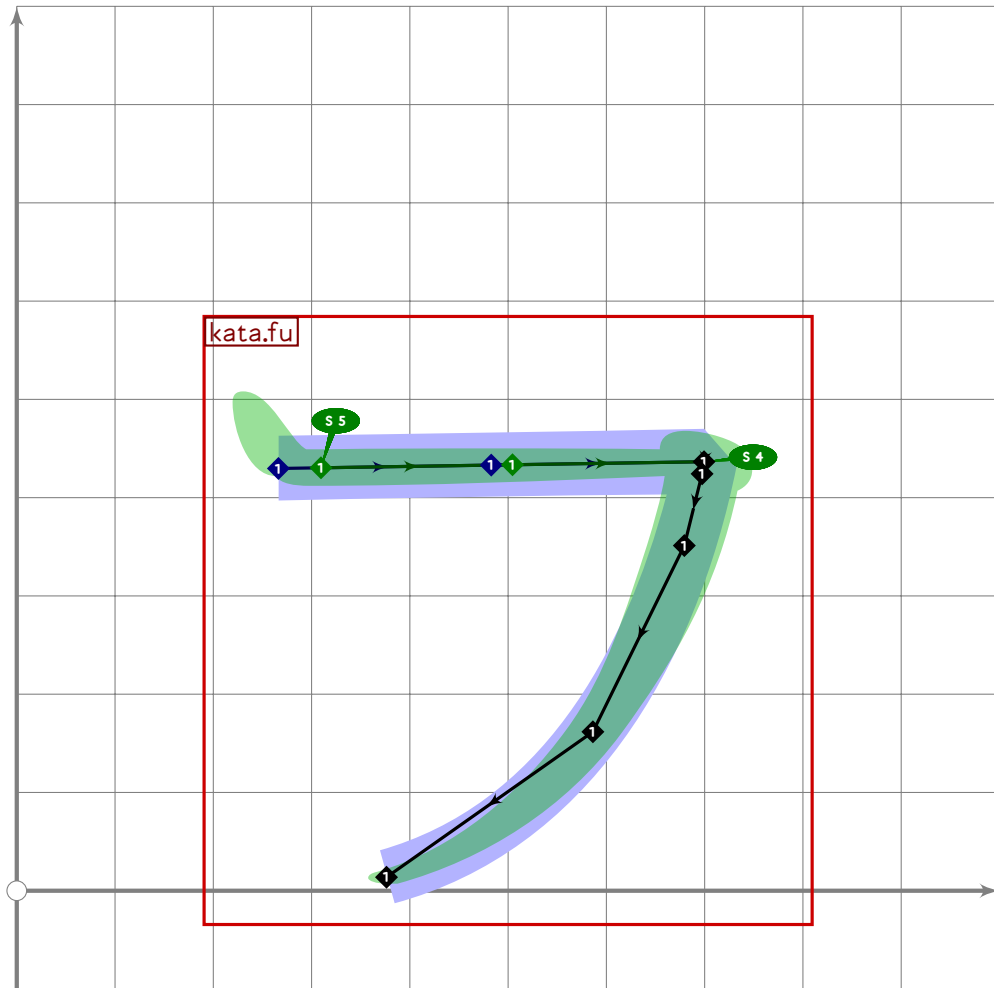
72 % katakan "ha"
73 beginsuglyph("uni31F5",245);
74 tsu_xform(tsu_xf.smallkana)(kata.ha);
75 tsu_render;
76 endsuglyph;
77

```





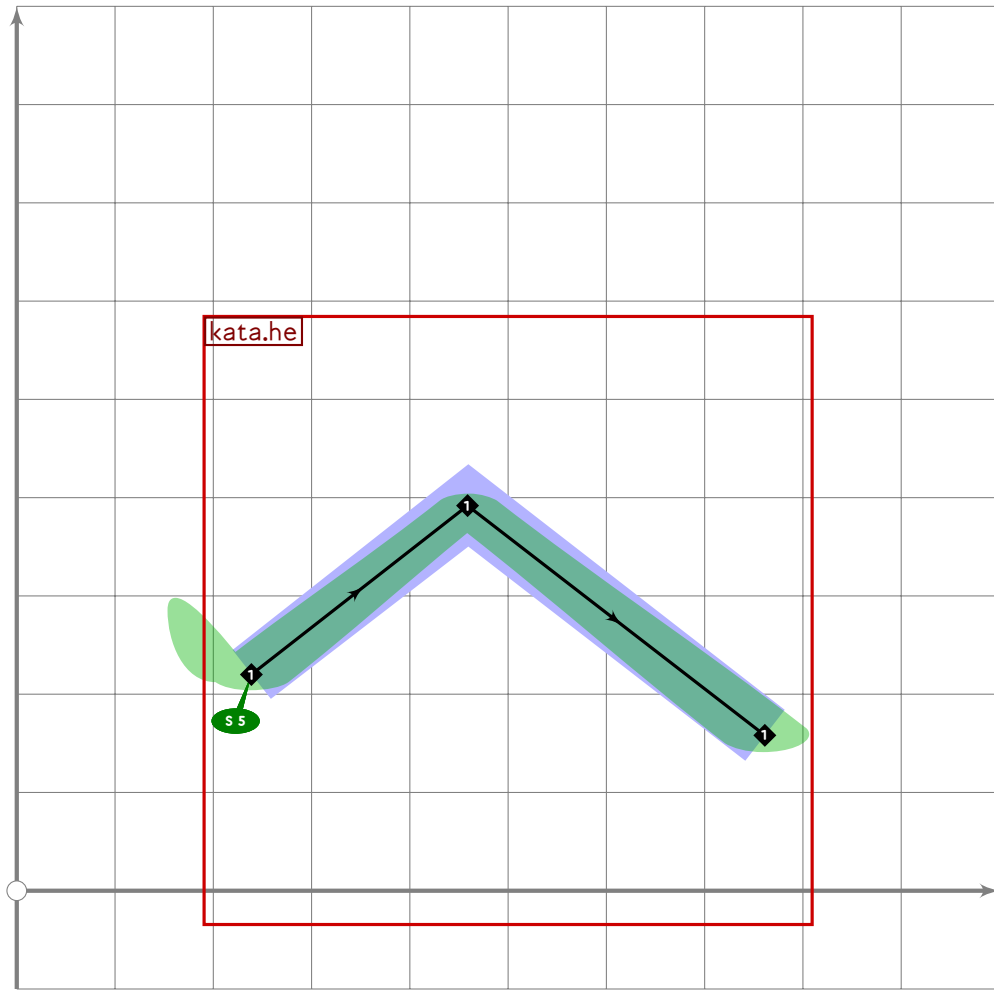
```
78 % hiragana "hi"  
79 begintsuglyph("uni31F6",246);  
80 tsu_xform(tsu_xf.smallkana)(kata.hi);  
81 tsu_render;  
82 endtsuglyph;  
83
```



```

84 % katakana "fu"
85 beginsuglyph("uni31F7";247);
86 tsu_xform(tsu_xf.smallkana)(kata.fu);
87 tsu_render;
88 endsuglyph;
89

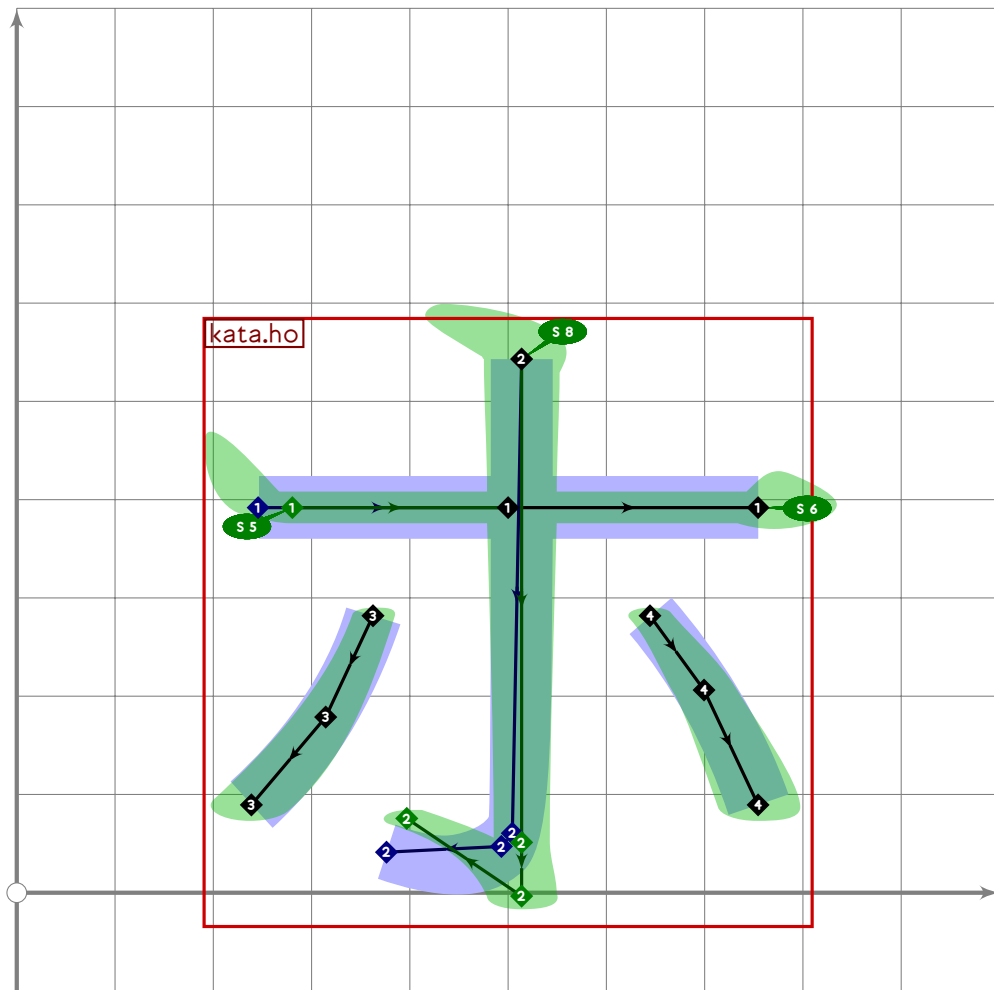
```



```

90 % katakana "he"
91 begint Suglyph("uni31F8";248);
92 tsu_xform(tsu_xf.smallkana)(kata.he);
93 tsu_render;
94 endtsuglyph;
95

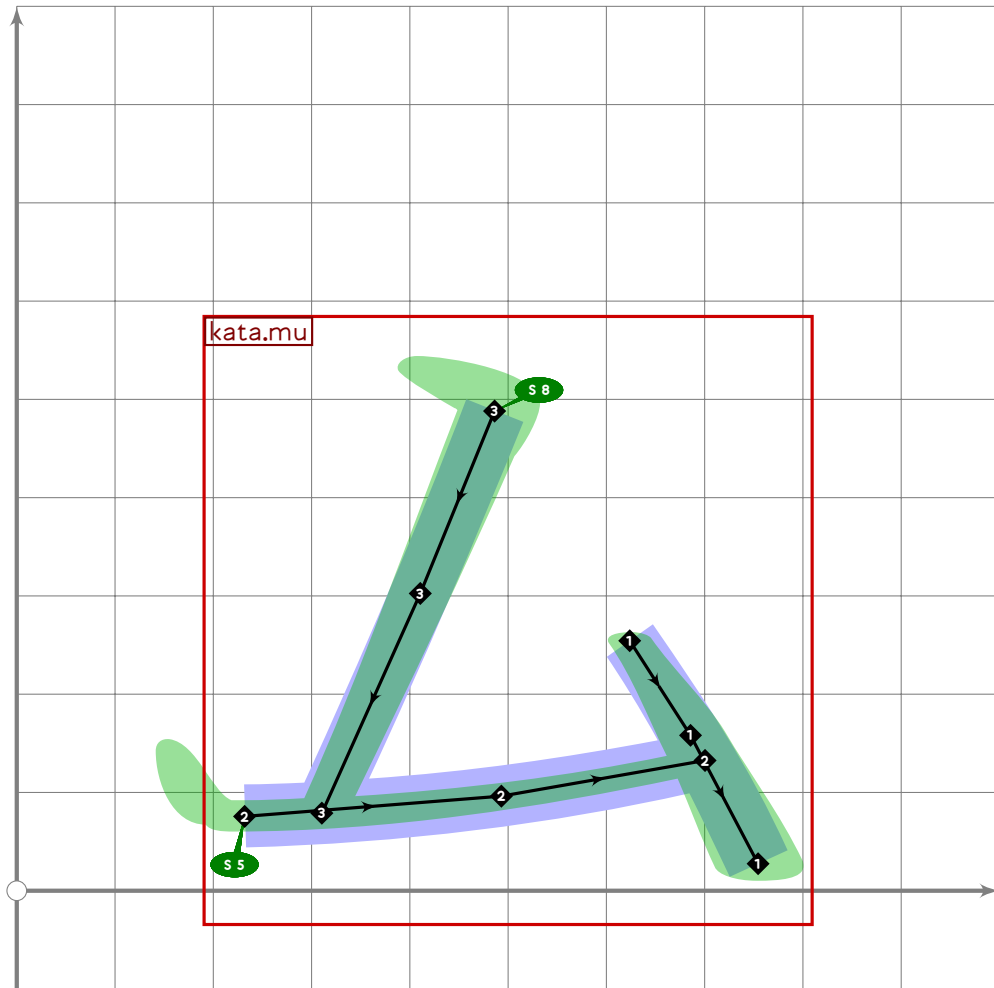
```



```

96 % katakana "ho"
97 beginsuglyph("uni31F9";249);
98 tsu_xform(tsu_xf.smallkana)(kata.ho);
99 tsu_render;
100 endsuglyph;
101

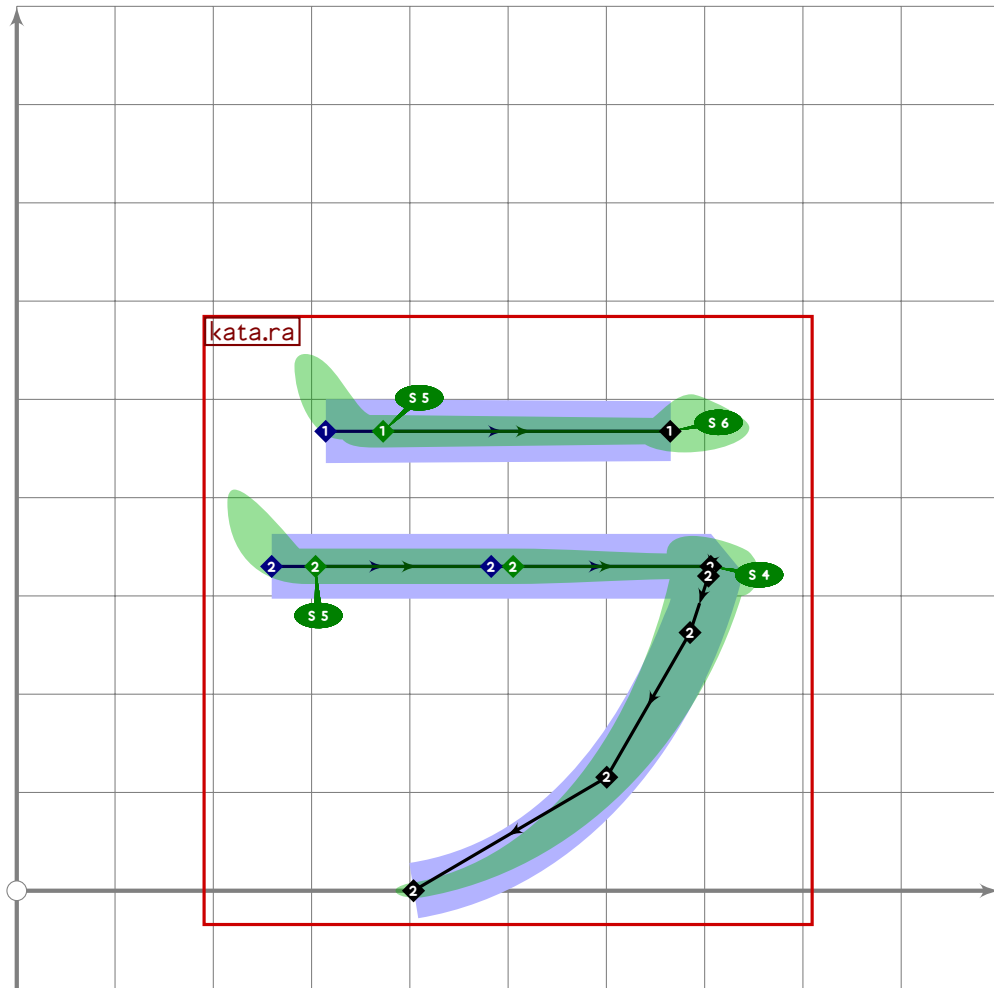
```



```

102 % katakana "mu"
103 beginsuglyph("uni31FA";250);
104 tsu_xform(tsu_xf.smallkana)(kata.mu);
105 tsu_render;
106 endsuglyph;
107

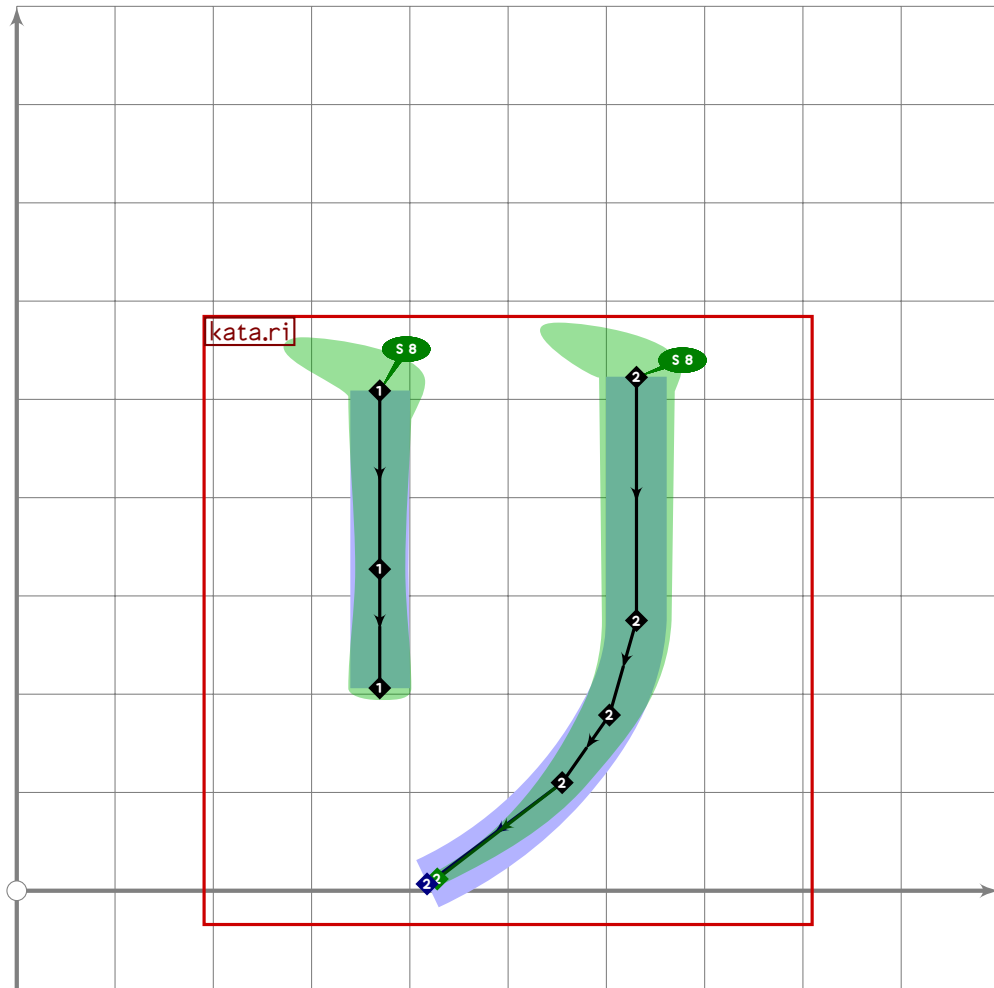
```



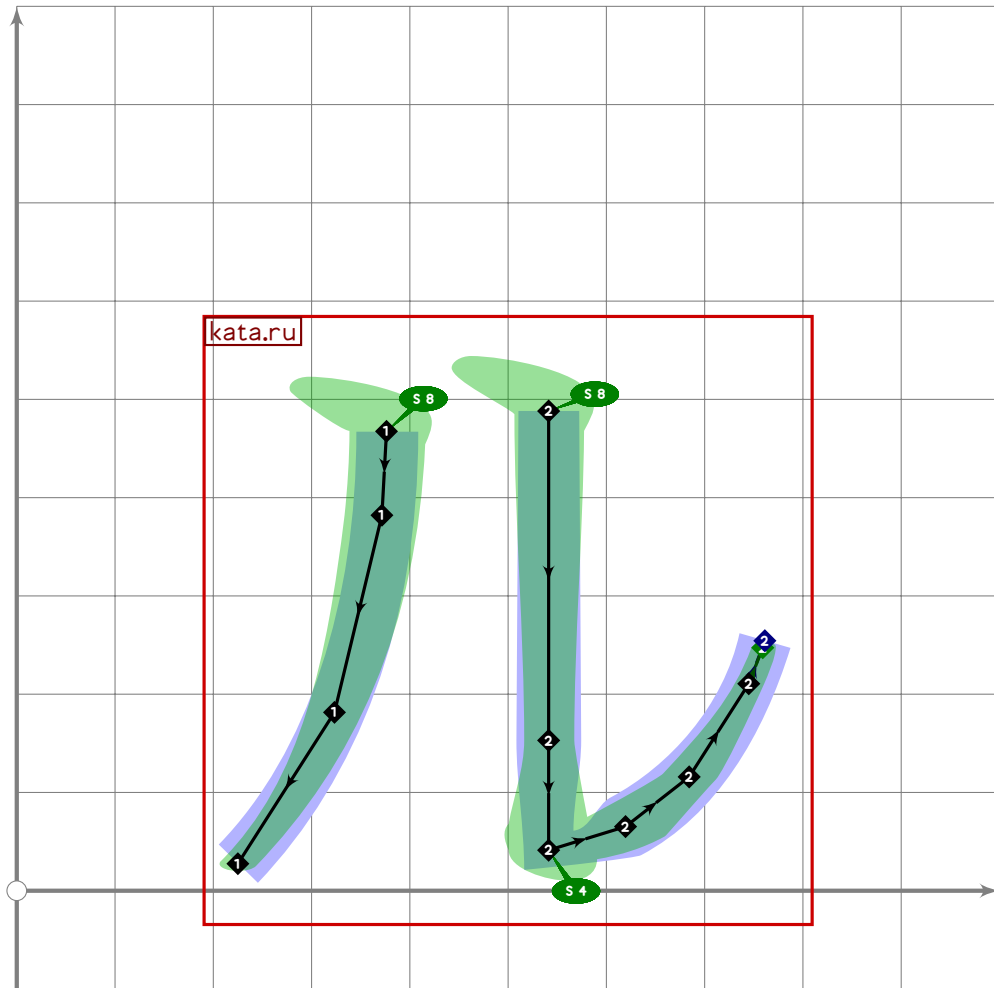
```

108 % katakana "ra"
109 beginsuglyph("uni31FB";251);
110 tsu_xform(tsu_xf.smallkana)(kata.ra);
111 tsu_render;
112 endsuglyph;
113

```



```
114 % katakana "ri"  
115 begintsuglyph("uni31FC";252);  
116 tsu_xform(tsu_xf.smallkana)(kata.ri);  
117 tsu_render;  
118 endsuglyph;  
119
```

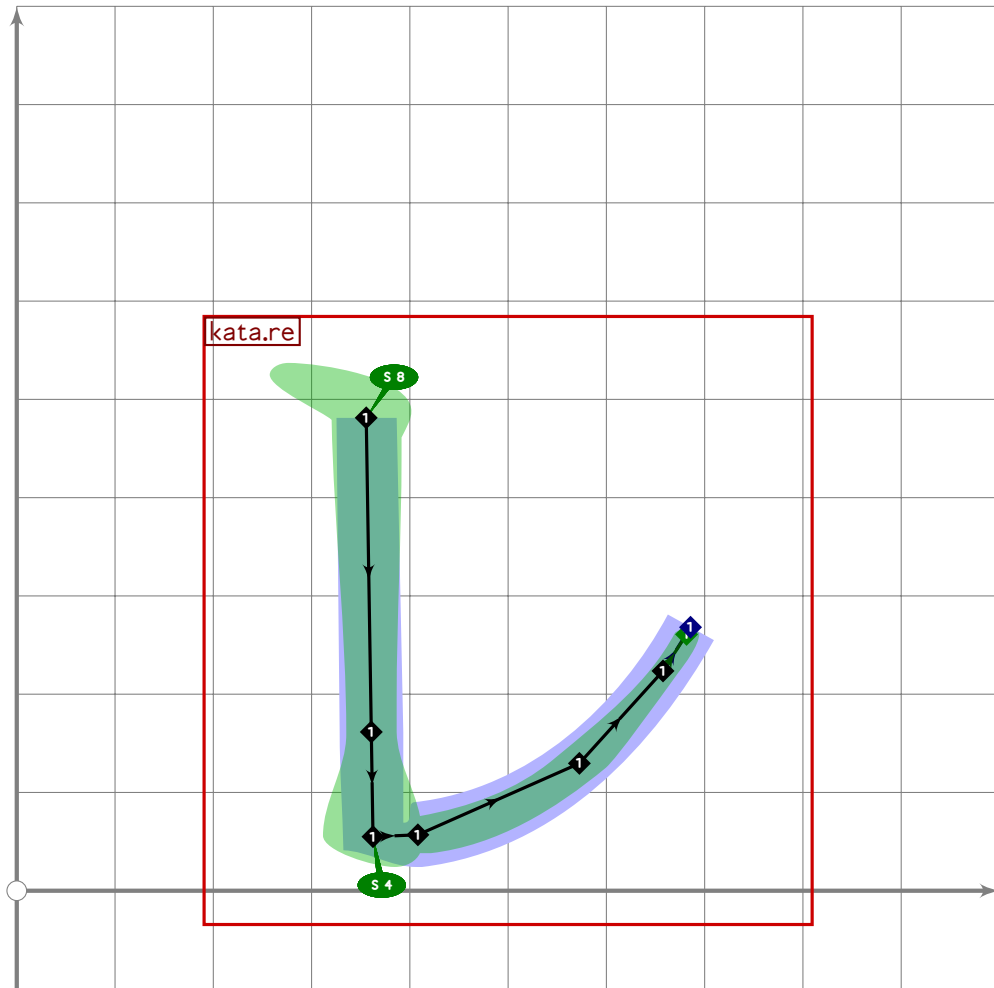


```

120 % katakana "ru"
121 begint Suglyph("uni31FD";253);
122 tsu_xform(tsu_xf.smallkana)(kata.ru);
123 tsu_render;
124 endtsuglyph;
125

```

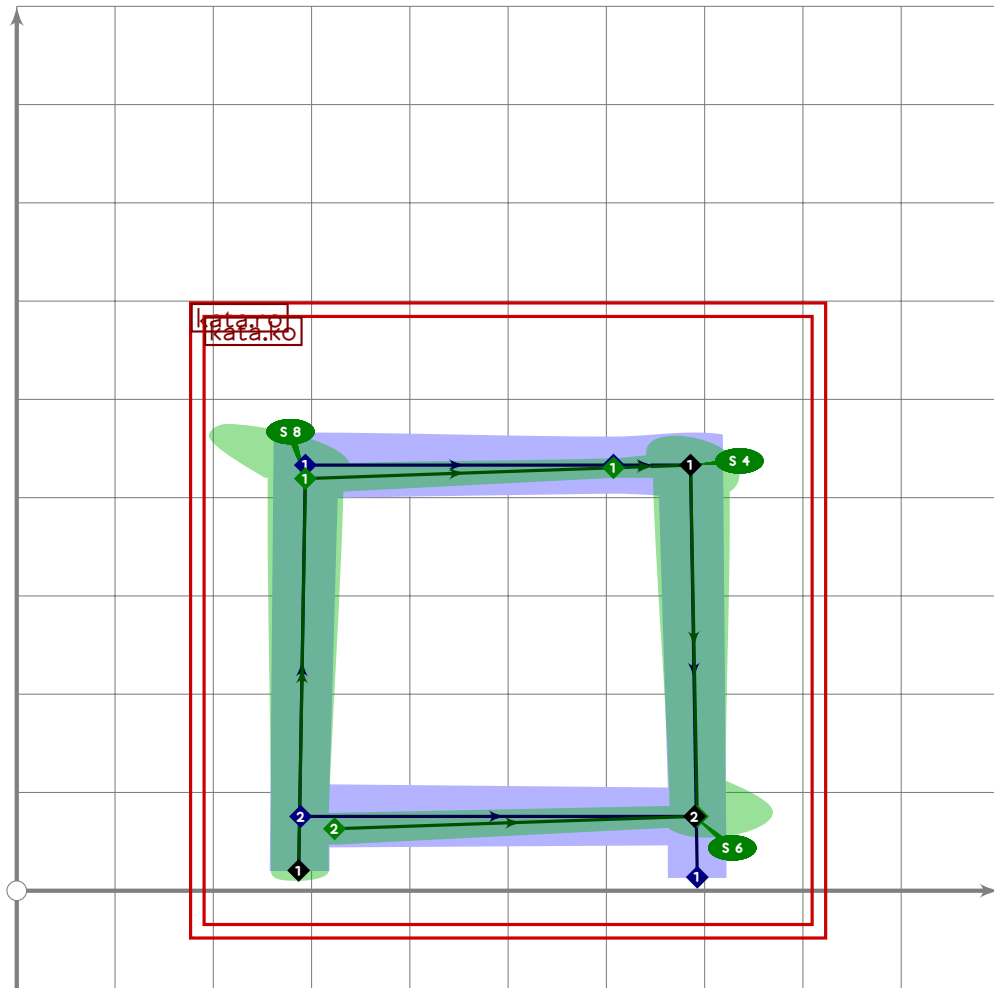




```

126 % katakana "re"
127 begint Suglyph("uni31FE";254);
128 tsu_xform(tsu_xf.smallkana)(kata.re);
129 tsu_render;
130 endtsuglyph;
131

```



```

132 % katakana "ro"
133 beginsuglyph("uni31FF";255);
134 tsu_xform(tsu_xf.smallkana)(kata.ro);
135 tsu_render;
136 endsuglyph;
137
138 _____
139
140 endfont;
141
142 _____

```

# tsuku-32.mp

```
1 %
2 % Unicode page 32 (Enclosed Alpha and Katakana) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---

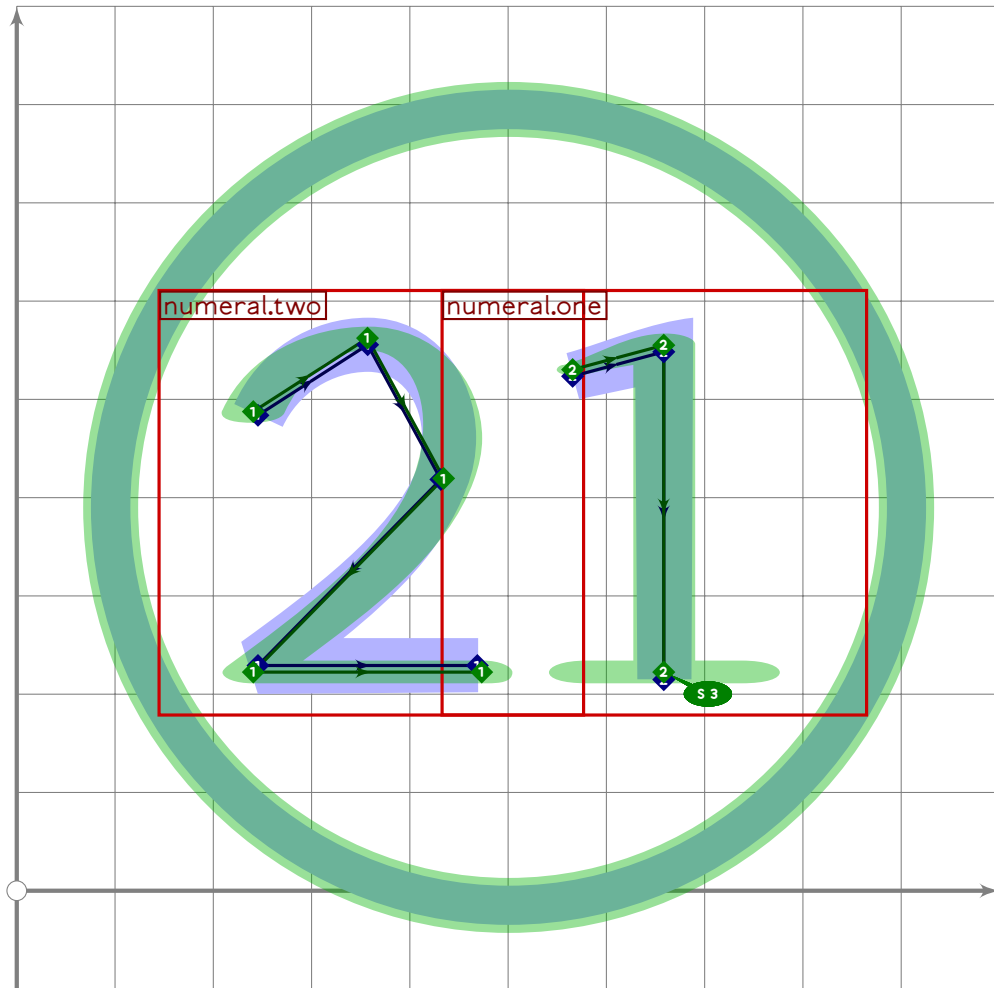

32
33 beginfont
34
35 input latin-intro.mp;
36
37 % AUTODEPS
38 input enclosed.mp;
39 input katakana.mp;
40 input numerals.mp;
41
42 

---


43
```

## Circled Numerals

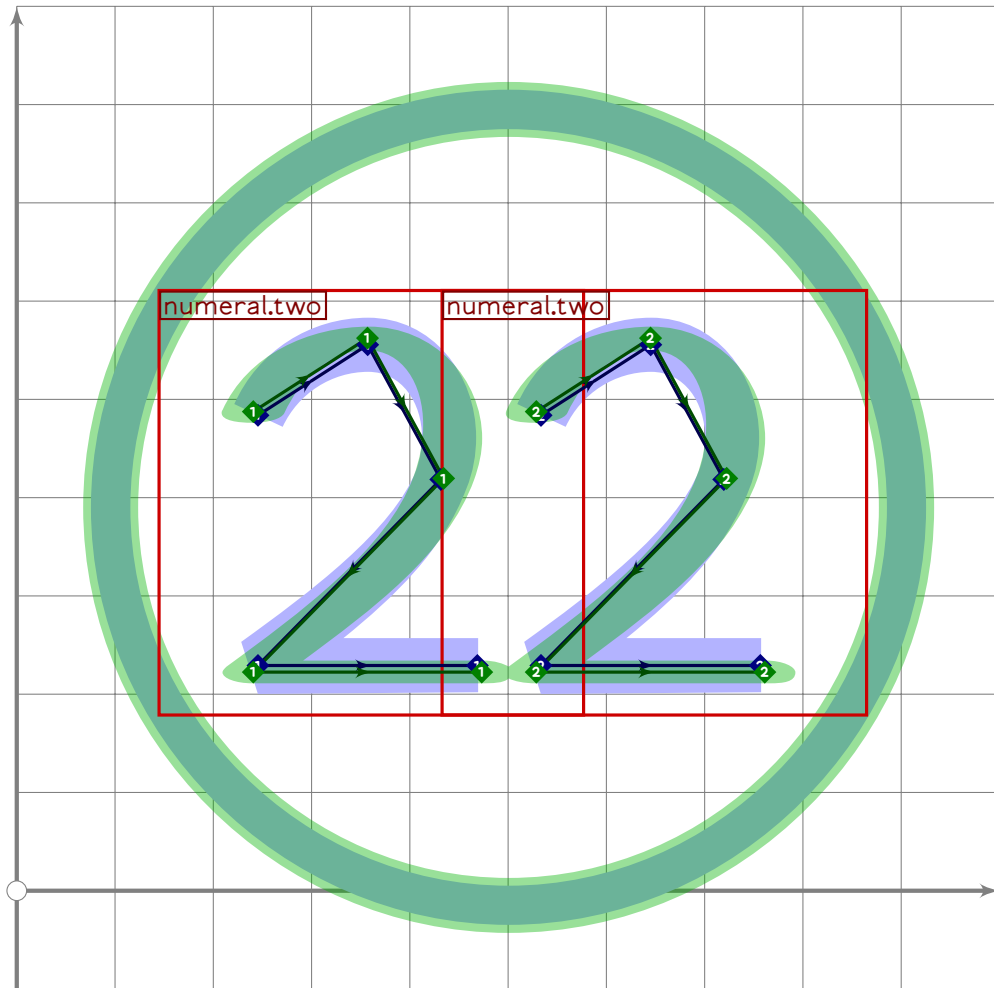
```
44 % CIRCLED NUMERALS
45
```



```

46 % 21
47 begint Suglyph("uni3251",81);
48 circle.single;
49 tsu_xform(tsu_xf.ctwo.left)(numeral.two);
50 numeric x[],y[];
51 tsu_xform(tsu_xf.ctwo.right)(numeral.one);
52 tsu_render;
53 endsuglyph;
54

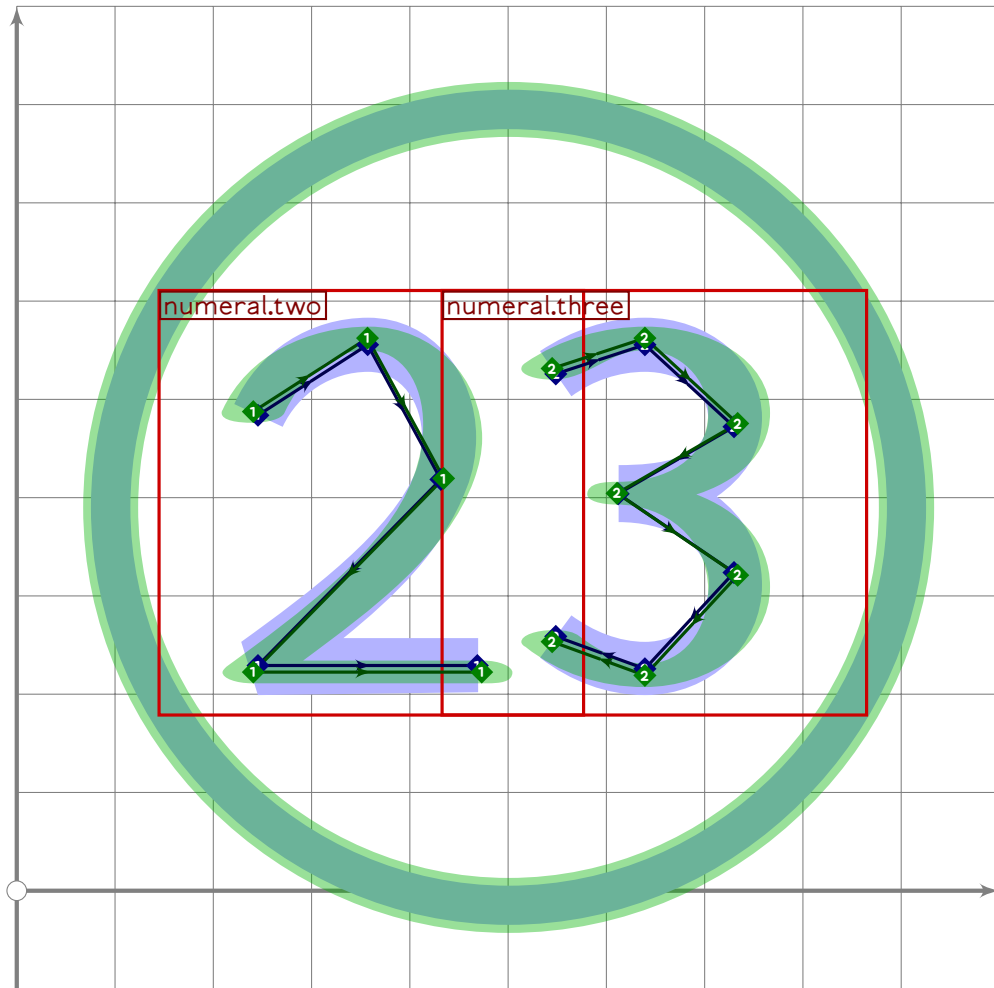
```



```

55 % 22
56 begint Suglyph("uni3252";82);
57   circle.single;
58   tsu_xform(tsu_xf.ctwo.left)(numeral.two);
59   numeric x[],y[];
60   tsu_xform(tsu_xf.ctwo.right)(numeral.two);
61   tsu_render;
62 endsuglyph;
63

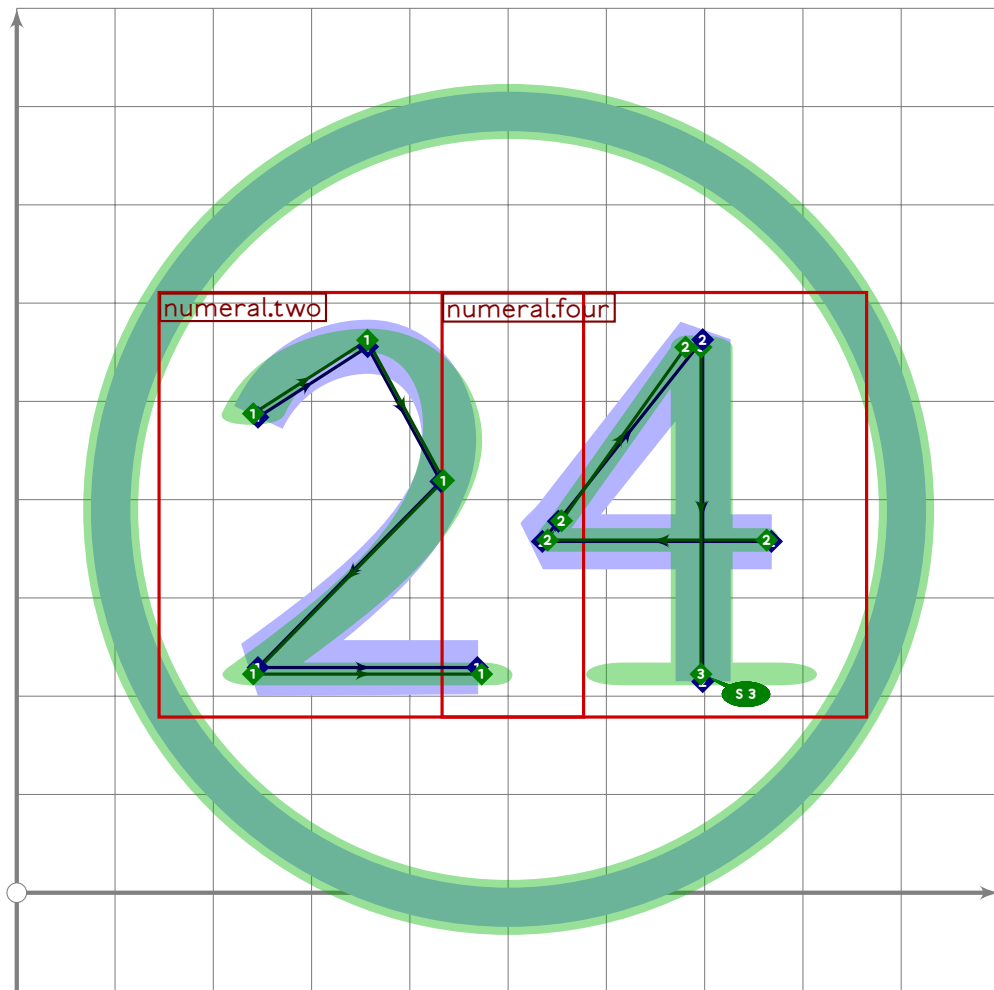
```



```

64 % 23
65 begint Suglyph("uni3253";83);
66 circle.single;
67 tsu_xform(tsu_xf.ctwo.left)(numeral.two);
68 numeric x[],y[];
69 tsu_xform(tsu_xf.ctwo.right)(numeral.three);
70 tsu_render;
71 endtsuglyph;
72

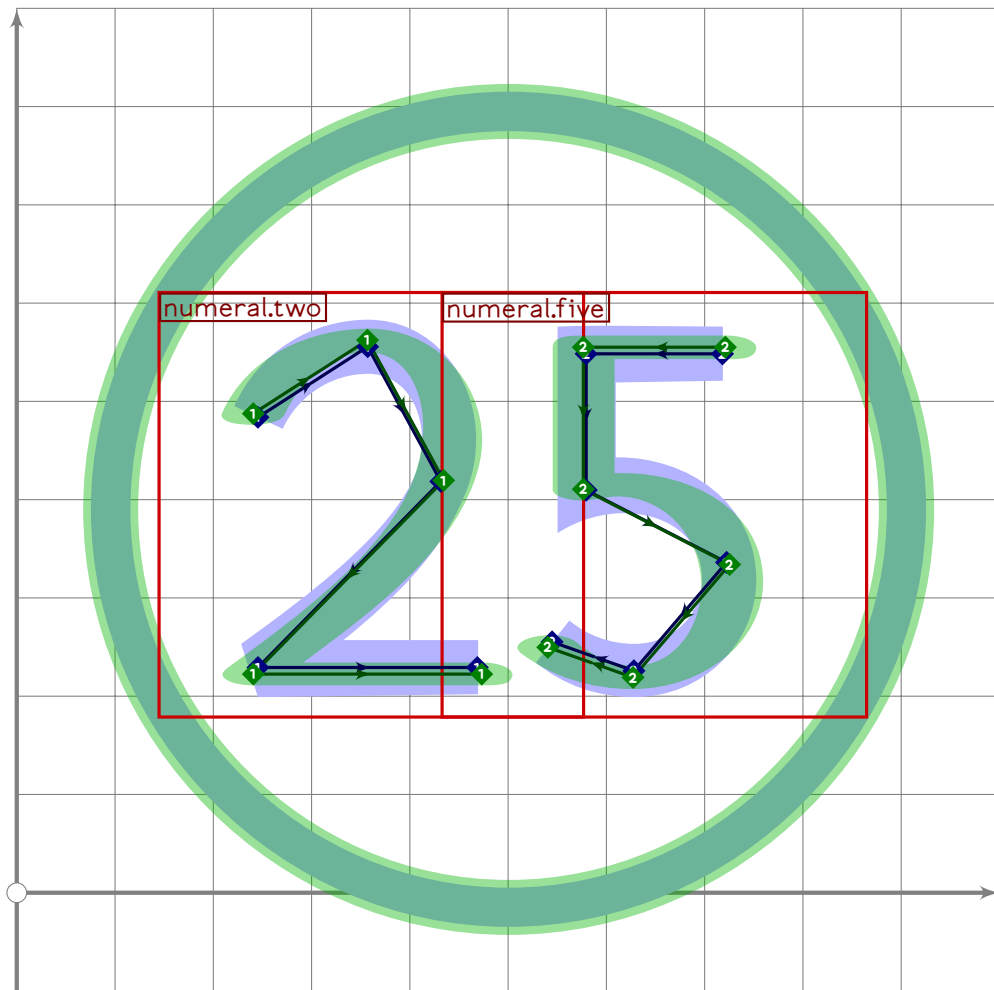
```



```

73 % 24
74 beginsuglyph("uni3254";84);
75 circle.single;
76 tsu_xform(tsu_xf.ctwo.left)(numeral.two);
77 numeric x[],y[];
78 tsu_xform(tsu_xf.ctwo.right)(numeral.four);
79 tsu_render;
80 endsuglyph;
81

```

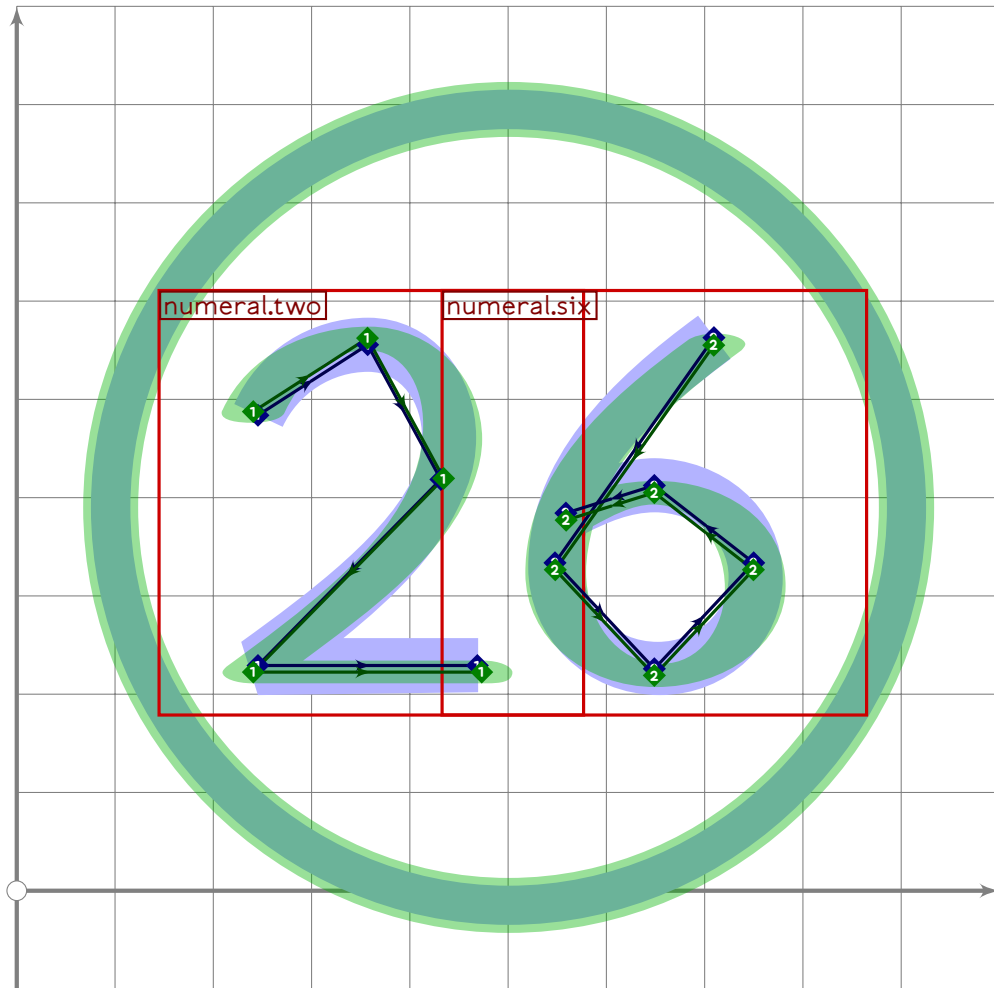


```

82 % 25
83 begint Suglyph("uni3255";85);
84 circle.single;
85 tsu_xform(tsu_xf.ctwo.left)(numeral.two);
86 numeric x[],y[];
87 tsu_xform(tsu_xf.ctwo.right)(numeral.five);
88 tsu_render;
89 endsuglyph;
90

```

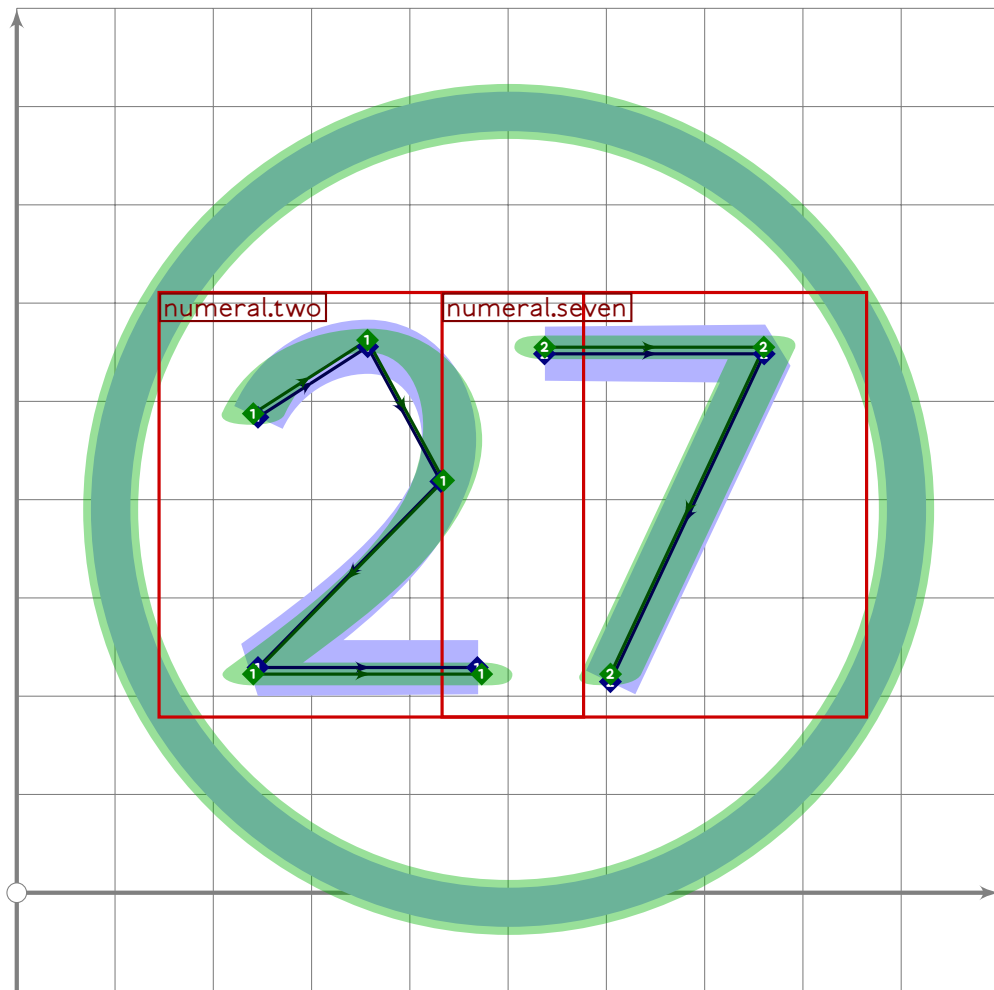




```

91 % 26
92 begint Suglyph("uni3256",86);
93   circle.single;
94   tsu_xform(tsu_xf.ctwo.left)(numeral.two);
95   numeric x[],y[];
96   tsu_xform(tsu_xf.ctwo.right)(numeral.six);
97   tsu_render;
98 endtsuglyph;
99

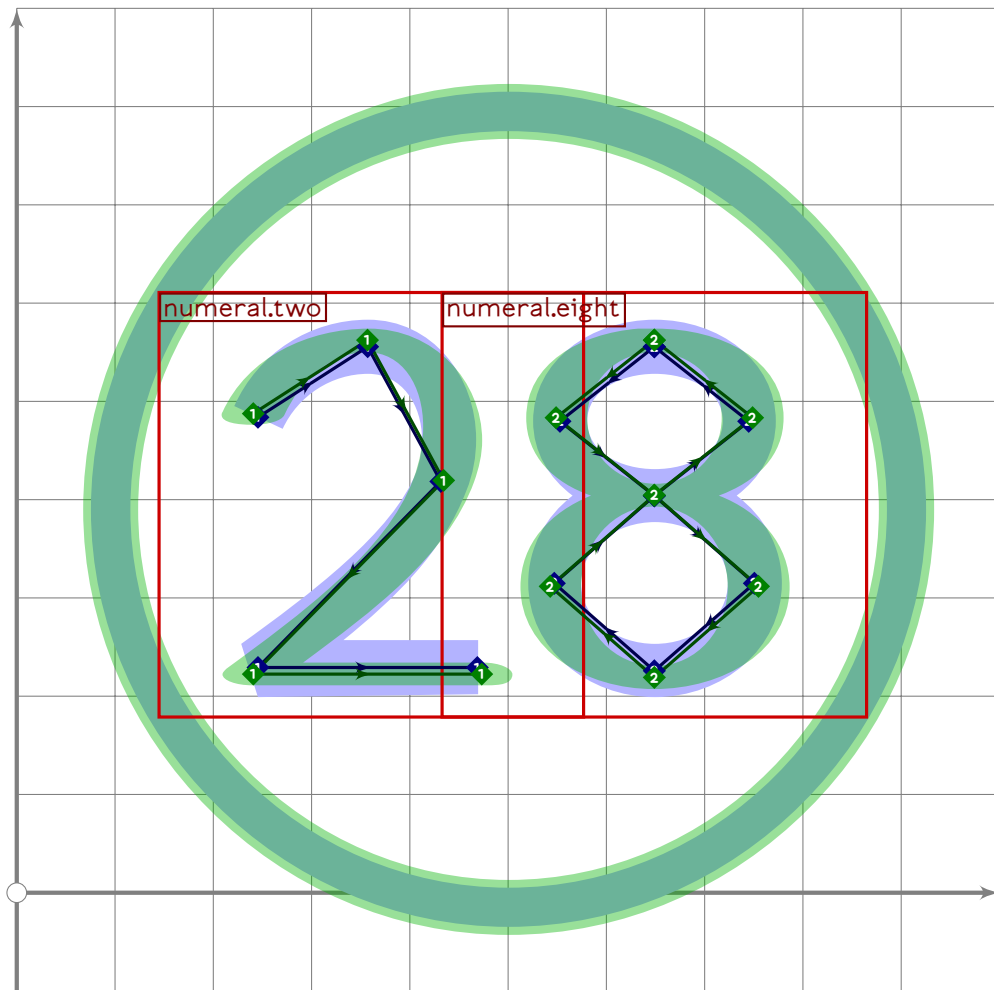
```



```

100 % 27
101 begint Suglyph("uni3257";87);
102   circle.single;
103   tsu_xform(tsu_xf.ctwo.left)(numeral.two);
104   numeric x[],y[];
105   tsu_xform(tsu_xf.ctwo.right)(numeral.seven);
106   tsu_render;
107 endtsuglyph;
108

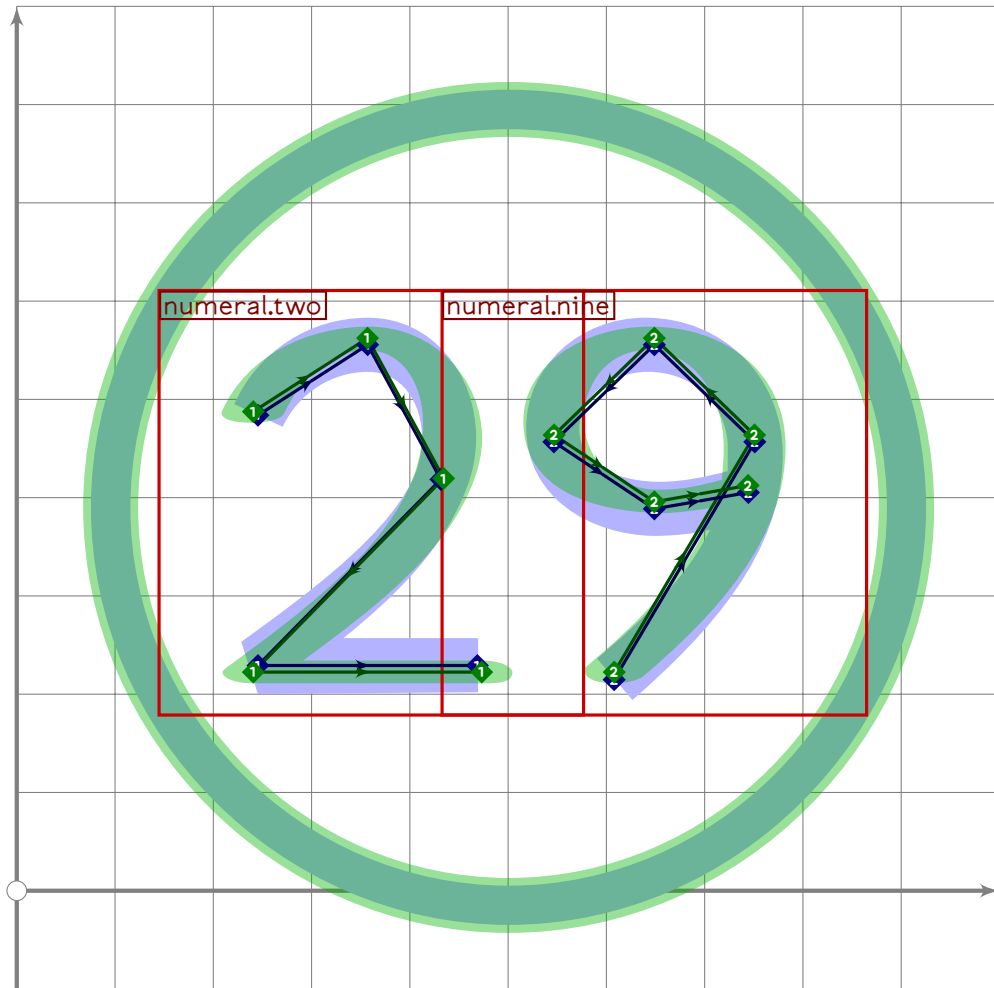
```



```

109 % 28
110 begint Suglyph("uni3258",88);
111   circle.single;
112   tsu_xform(tsu_xf.ctwo.left)(numeral.two);
113   numeric x[],y[];
114   tsu_xform(tsu_xf.ctwo.right)(numeral.eight);
115   tsu_render;
116 endtsuglyph;
117

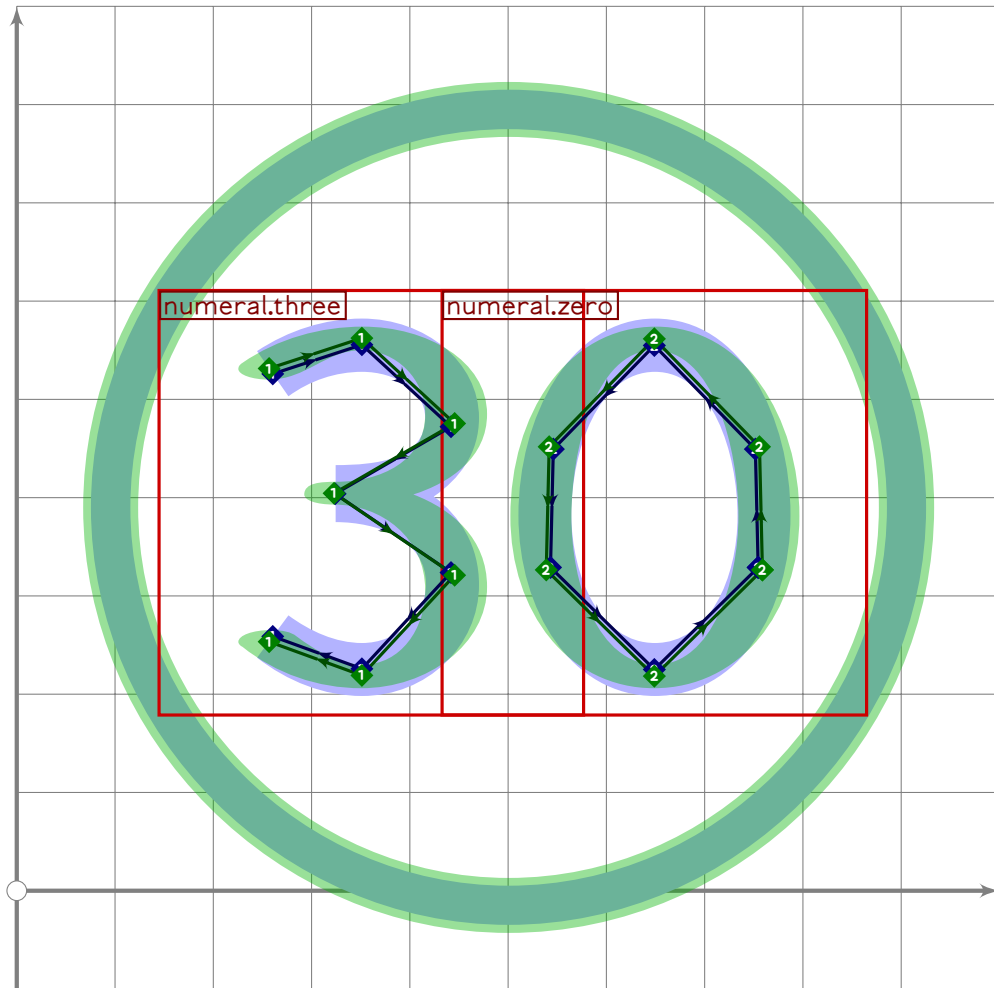
```



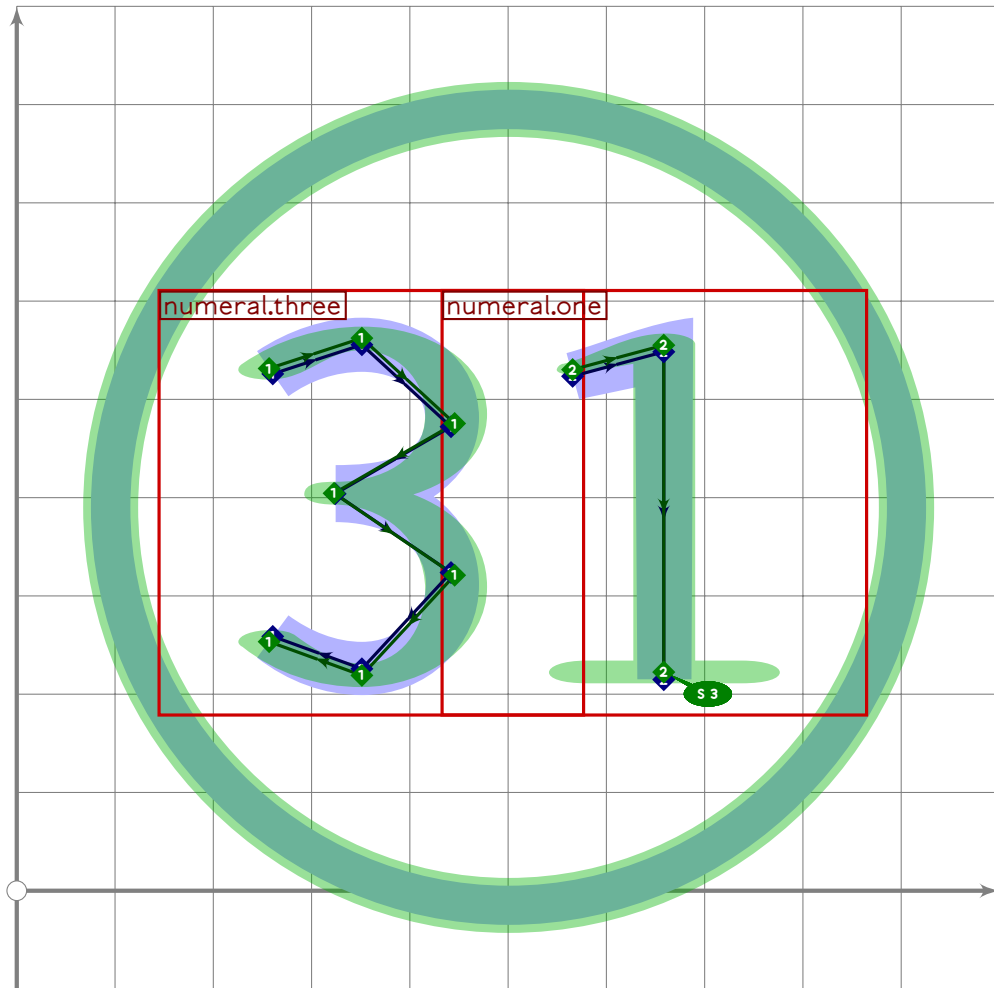
```

118 % 29
119 begint Suglyph("uni3259";89);
120 circle.single;
121 tsu_xform(tsu_xf.ctwo.left)(numeral.two);
122 numeric x[],y[];
123 tsu_xform(tsu_xf.ctwo.right)(numeral.nine);
124 tsu_render;
125 endsuglyph;
126

```



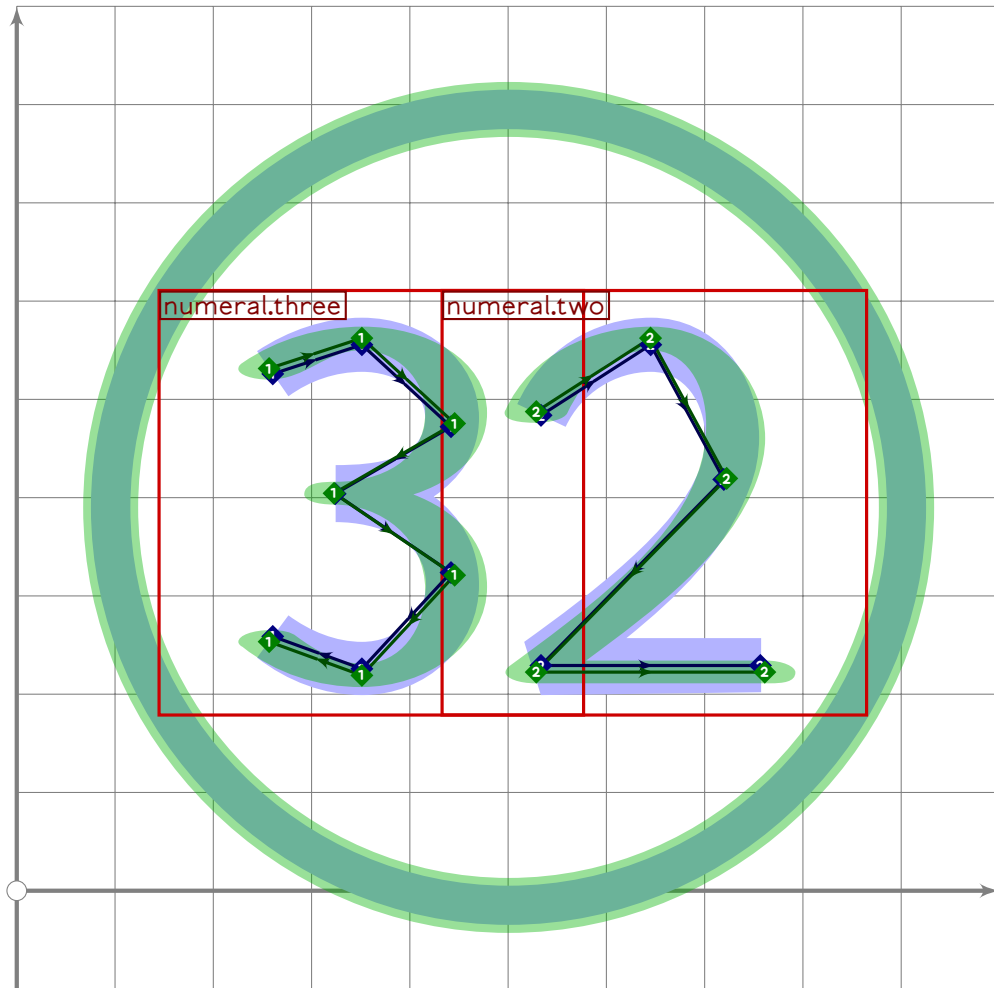
```
127 % 30
128 begintsuglyph("uni325A";90);
129 circle.single;
130 tsu_xform(tsu_xf.ctwo.left)(numeral.three);
131 numeric x[],y[];
132 tsu_xform(tsu_xf.ctwo.right)(numeral.zero);
133 tsu_render;
134 endtsuglyph;
135
```



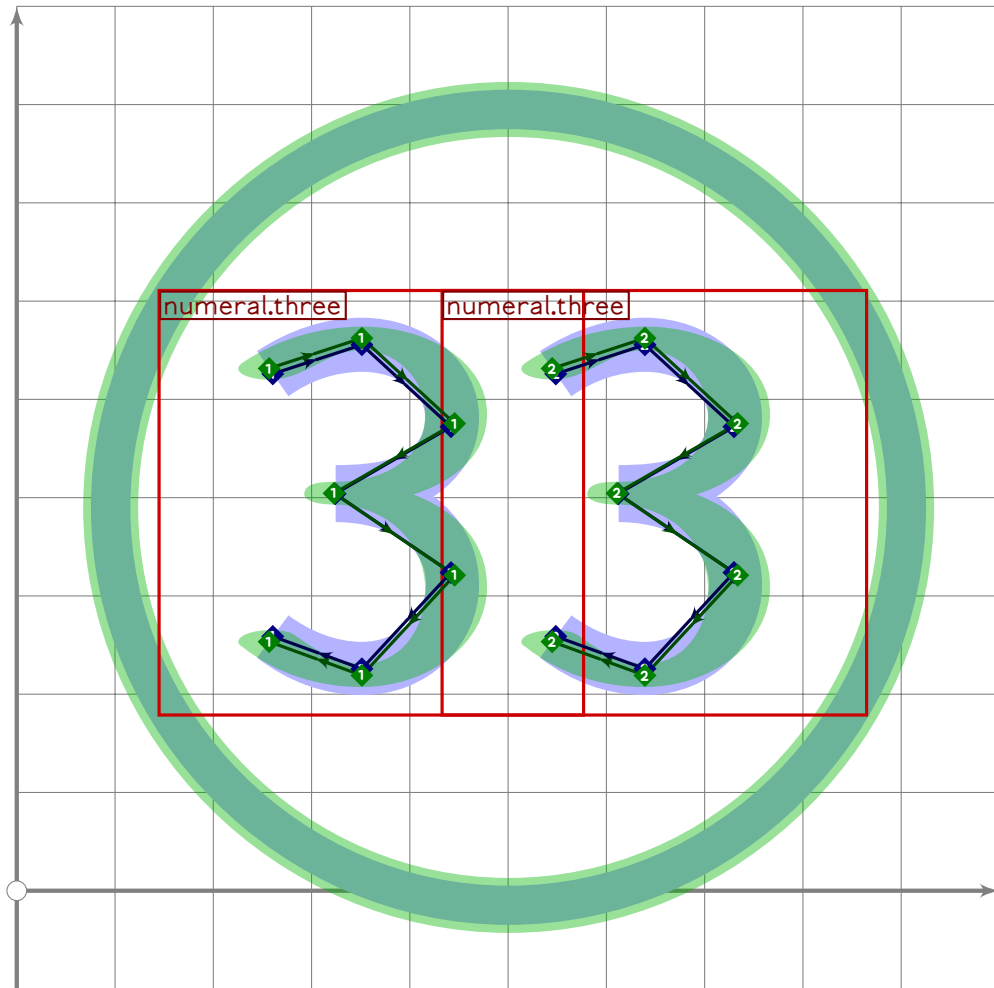
```

136 % 31
137 beginsuglyph("uni325B";91);
138   circle.single;
139   tsu_xform(tsu_xf.ctwo.left)(numeral.three);
140   numeric x[],y[];
141   tsu_xform(tsu_xf.ctwo.right)(numeral.one);
142   tsu_render;
143 endsuglyph;
144

```

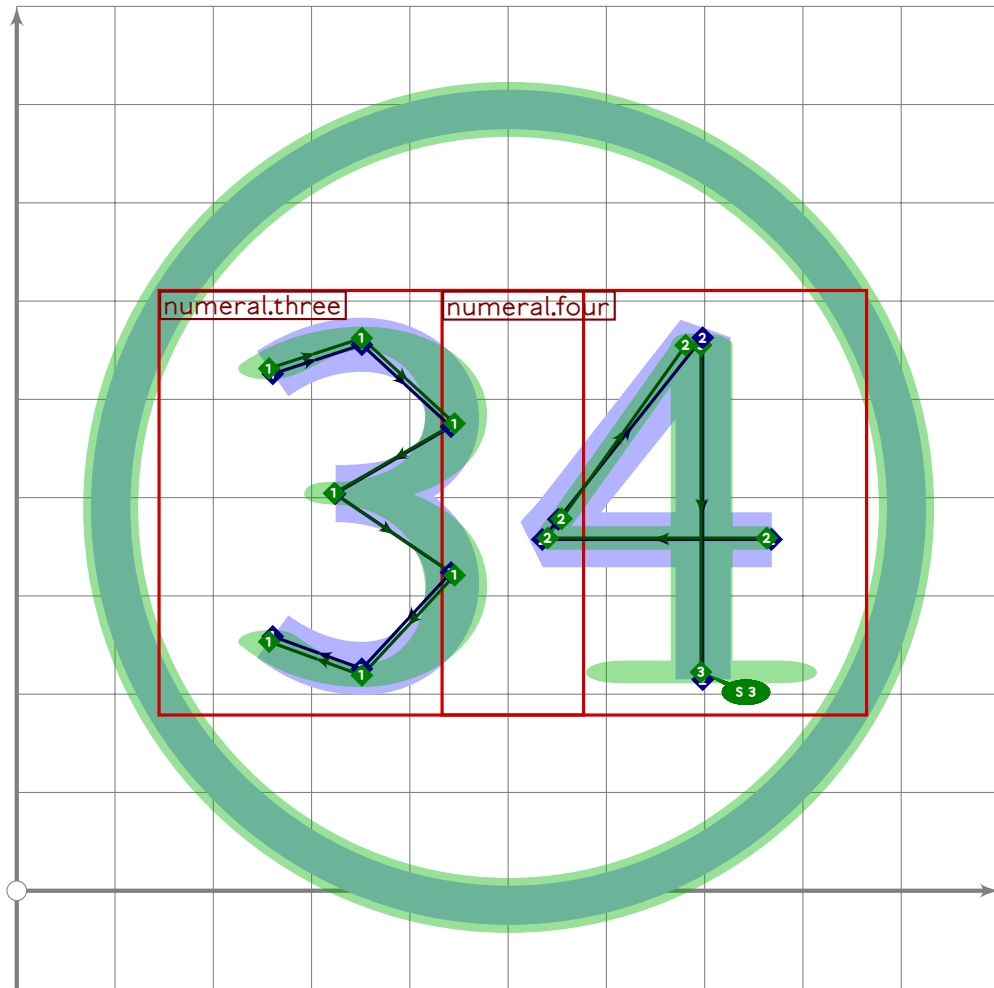


```
145 % 32
146 begint Suglyph("uni325C";92);
147   circle.single;
148   tsu_xform(tsu_xf.ctwo.left)(numeral.three);
149   numeric x[],y[];
150   tsu_xform(tsu_xf.ctwo.right)(numeral.two);
151   tsu_render;
152 endsuglyph;
153
```



```
154 % 33
155 begint Suglyph("uni325D";93);
156 circle.single;
157 tsu_xform(tsu_xf.ctwo.left)(numeral.three);
158 numeric x[],y[];
159 tsu_xform(tsu_xf.ctwo.right)(numeral.three);
160 tsu_render;
161 endsuglyph;
162
```

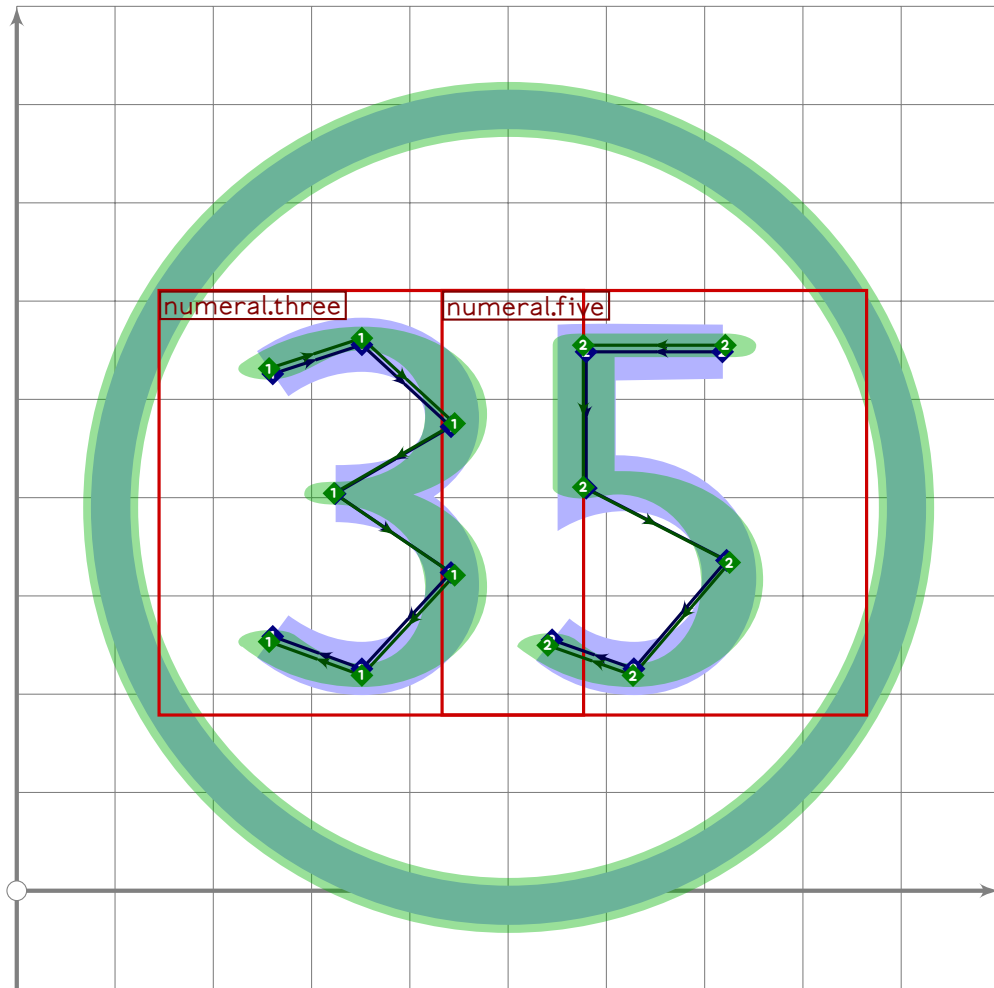




```

163 % 34
164 begint Suglyph("uni325E";94);
165   circle.single;
166   tsu_xform(tsu_xf.ctwo.left)(numeral.three);
167   numeric x[],y[];
168   tsu_xform(tsu_xf.ctwo.right)(numeral.four);
169   tsu_render;
170 endtsuglyph;
171

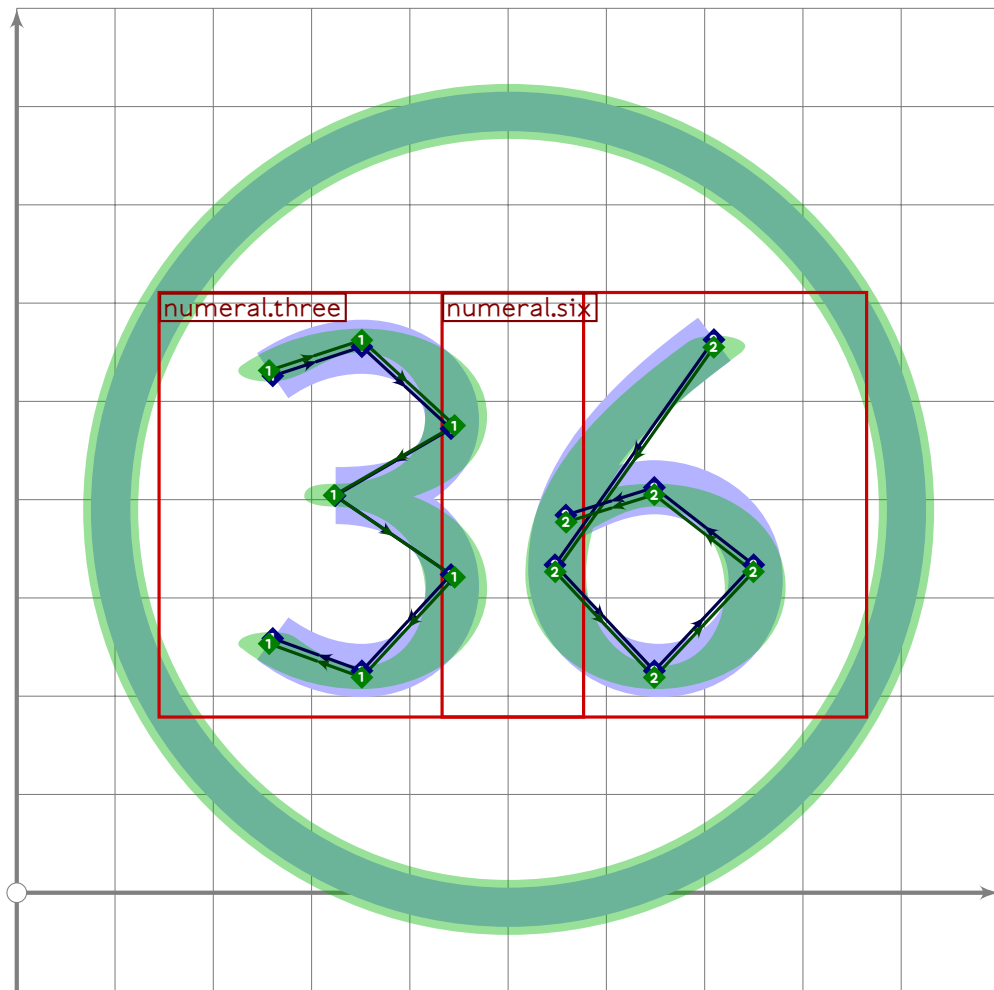
```



```

172 % 35
173 beginsuglyph("uni325F";95);
174 circle.single;
175 tsu_xform(tsu_xf.ctwo.left)(numeral.three);
176 numeric x[],y[];
177 tsu_xform(tsu_xf.ctwo.right)(numeral.five);
178 tsu_render;
179 endsuglyph;
180
181 % WARNING discontinuous
182

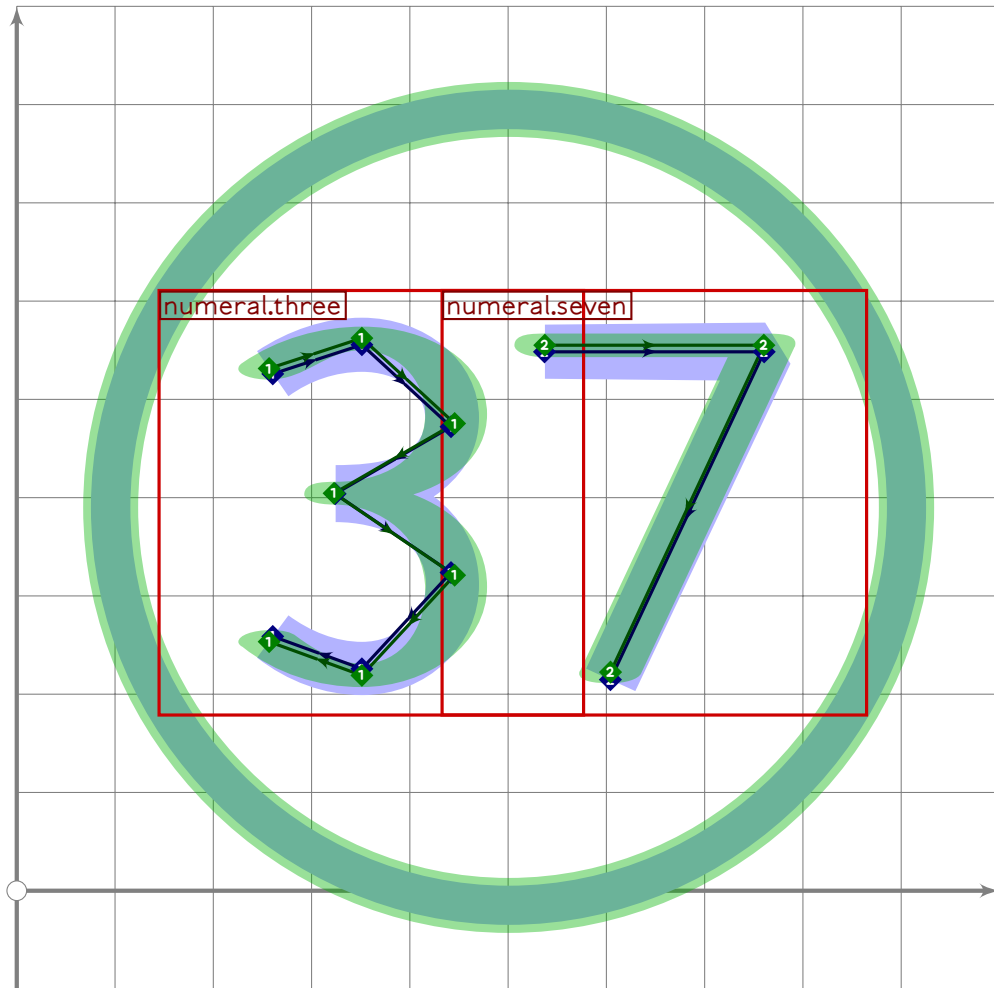
```



```

183 % 36
184 beginsuglyph("uni32B1";177);
185   circle.single;
186   tsu_xform(tsu_xf.ctwo.left)(numeral.three);
187   numeric x[],y[];
188   tsu_xform(tsu_xf.ctwo.right)(numeral.six);
189   tsu_render;
190 endsuglyph;
191

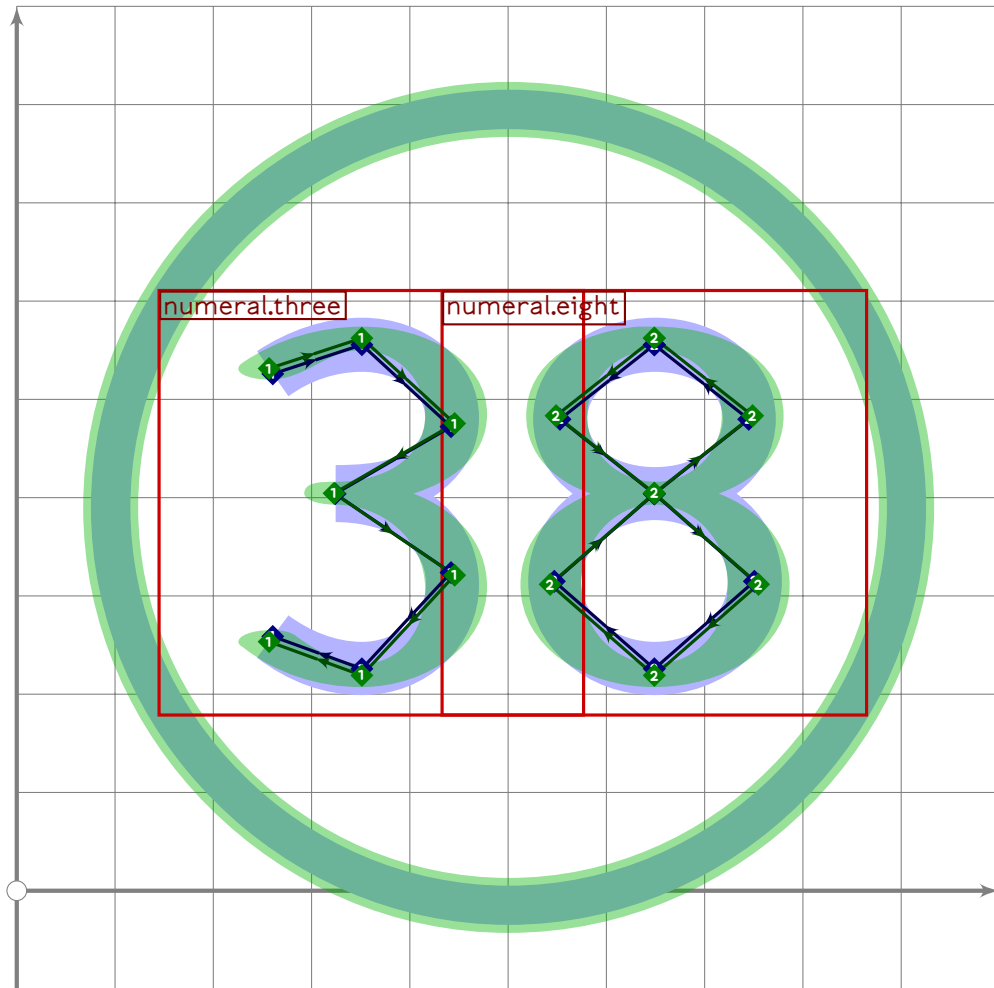
```



```

192 % 37
193 beginsuglyph("uni32B2",178);
194 circle.single;
195 tsu_xform(tsu_xf.ctwo.left)(numeral.three);
196 numeric x[],y[];
197 tsu_xform(tsu_xf.ctwo.right)(numeral.seven);
198 tsu_render;
199 endsuglyph;
200

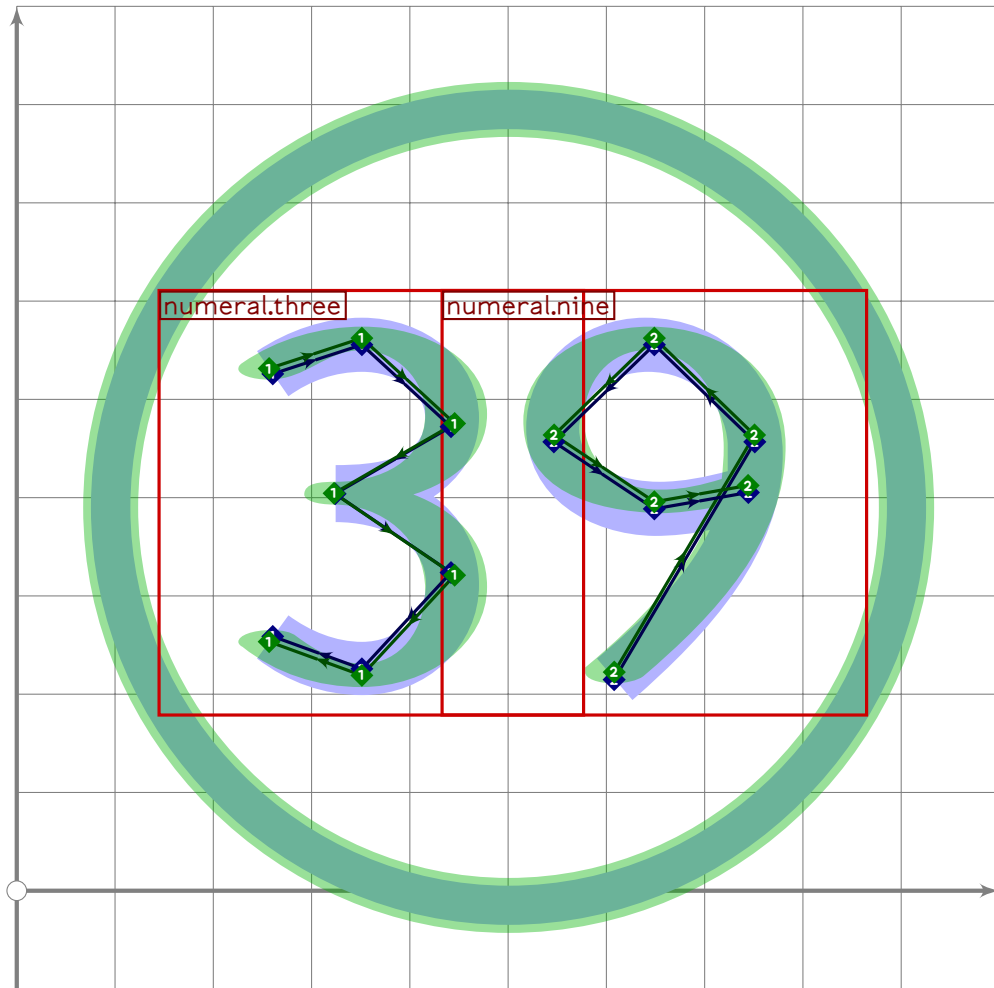
```



```

201 % 38
202 beginsuglyph("uni32B3",179);
203   circle.single;
204   tsu_xform(tsu_xf.ctwo.left)(numeral.three);
205   numeric x[],y[];
206   tsu_xform(tsu_xf.ctwo.right)(numeral.eight);
207   tsu_render;
208 endsuglyph;
209

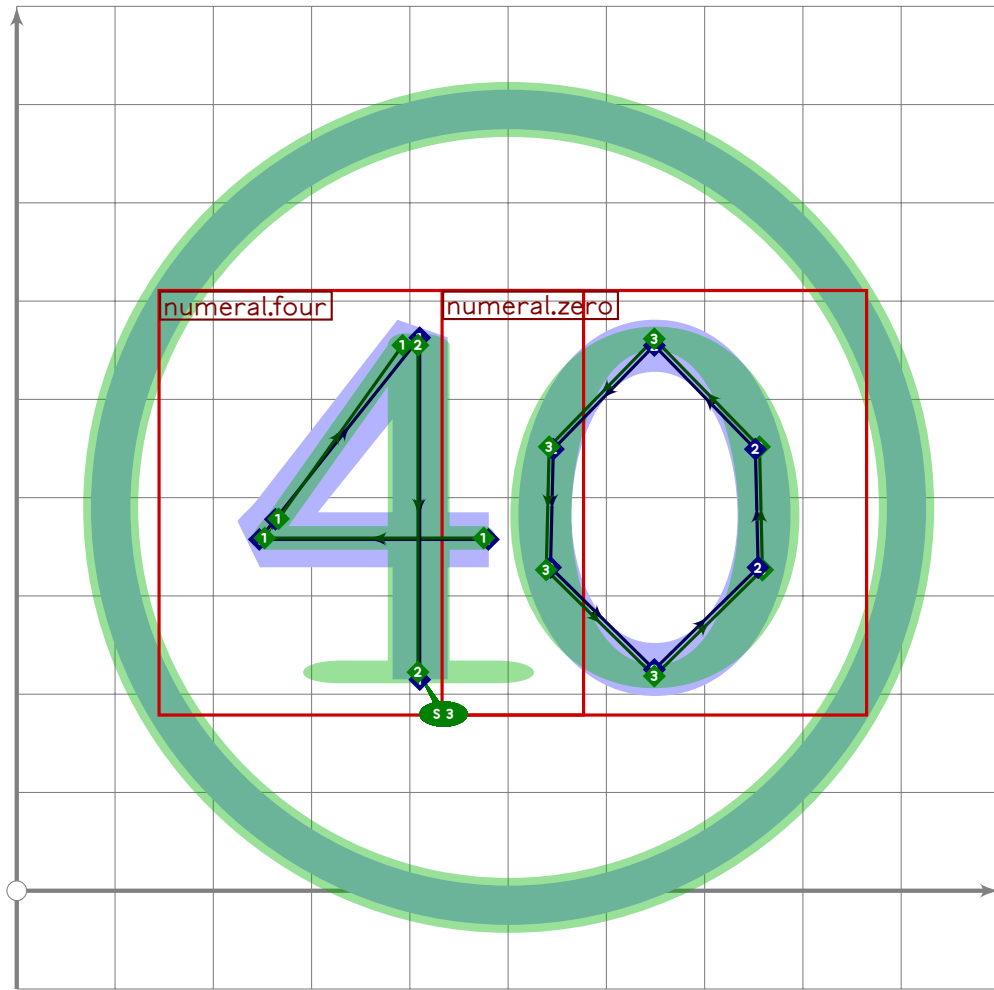
```



```

210 % 39
211 beginsuglyph("uni32B4",180);
212   circle.single;
213   tsu_xform(tsu_xf.ctwo.left)(numeral.three);
214   numeric x[],y[];
215   tsu_xform(tsu_xf.ctwo.right)(numeral.nine);
216   tsu_render;
217 endsuglyph;
218

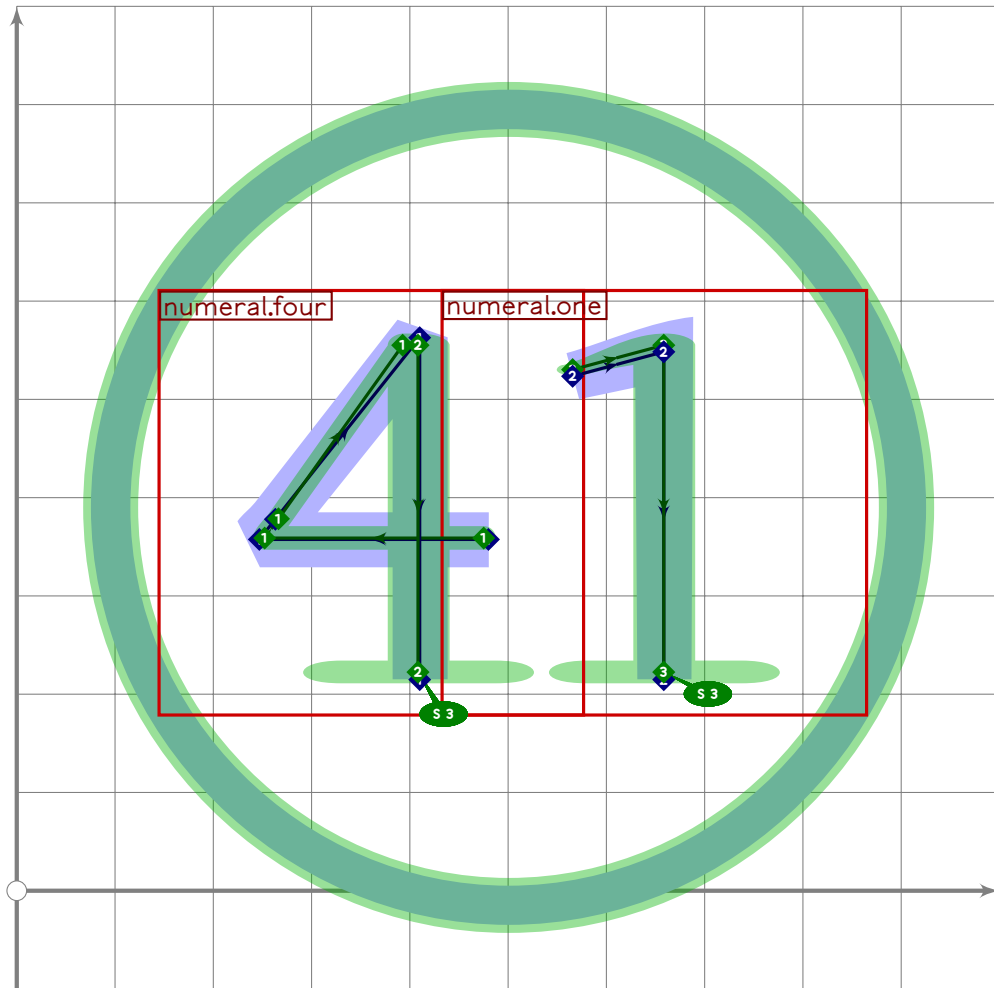
```



```

219 % 40
220 begint Suglyph("uni32B5";181);
221   circle.single;
222   tsu_xform(tsu_xf.ctwo.left)(numeral.four);
223   numeric x[],y[];
224   tsu_xform(tsu_xf.ctwo.right)(numeral.zero);
225   tsu_render;
226 endtsuglyph;
227

```

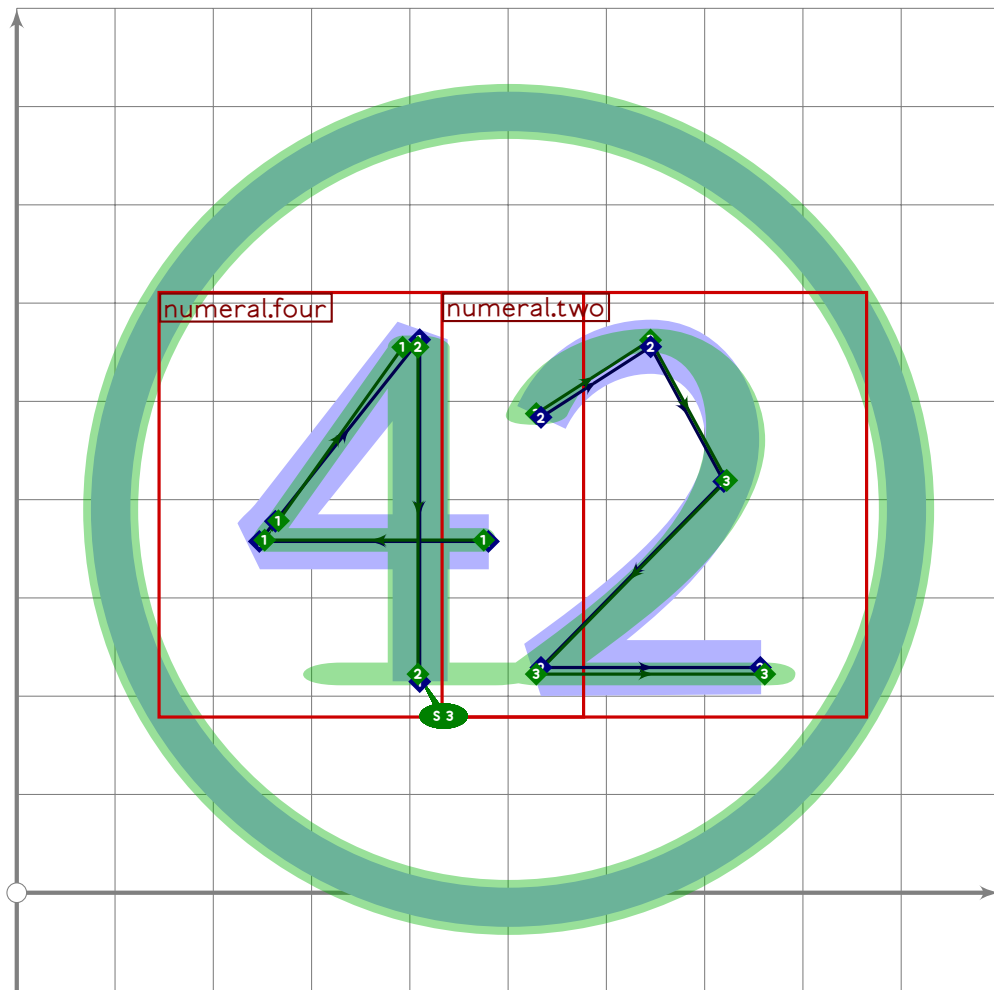


```

228 % 41
229 begintuglyph("uni32B6",182);
230 circle.single;
231 tsu_xform(tsu_xf.ctwo.left)(numeral.four);
232 numeric x[],y[];
233 tsu_xform(tsu_xf.ctwo.right)(numeral.one);
234 tsu_render;
235 endtuglyph;
236

```

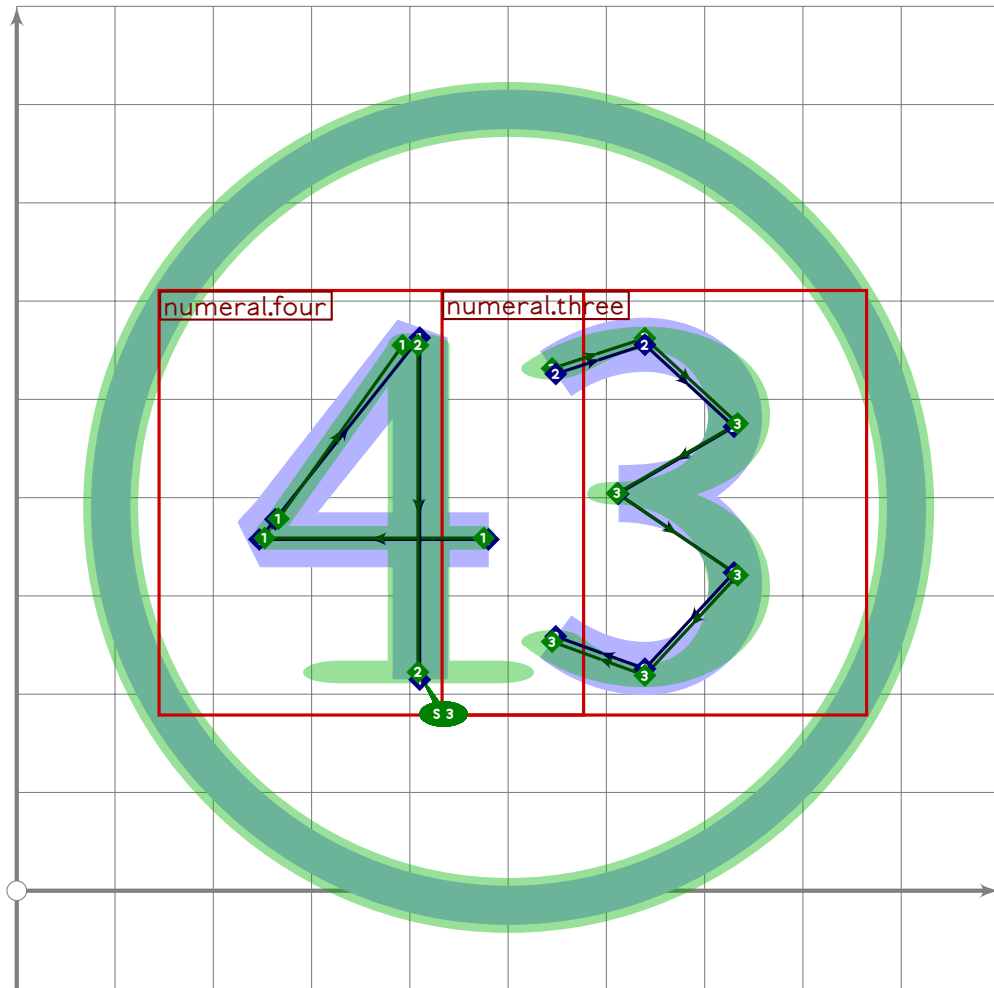




```

237 % 42
238 begintuglyph("uni32B7",183);
239   circle.single;
240   tsu_xform(tsu_xf.ctwo.left)(numeral.four);
241   numeric x[],y[];
242   tsu_xform(tsu_xf.ctwo.right)(numeral.two);
243   tsu_render;
244 endtuglyph;
245

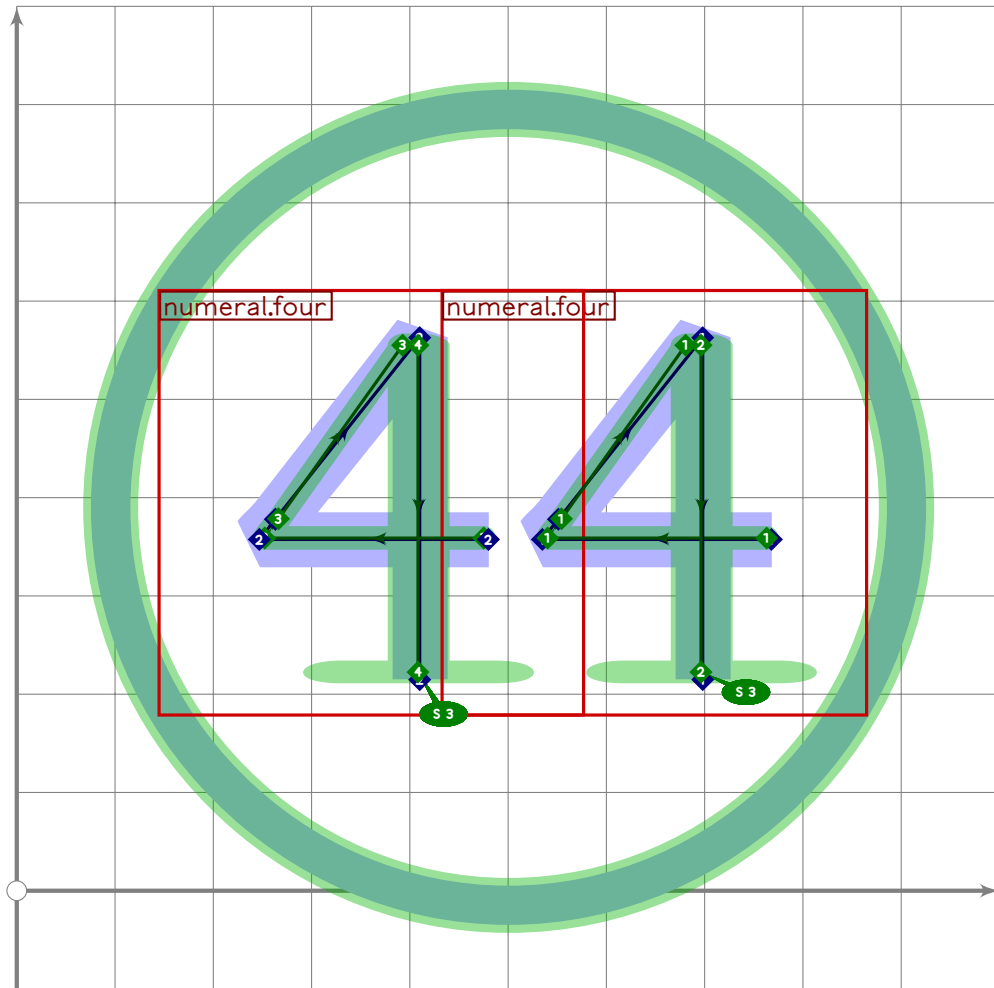
```



```

246 % 43
247 begint Suglyph("uni32B8",184);
248   circle.single;
249   tsu_xform(tsu_xf.ctwo.left)(numeral.four);
250   numeric x[],y[];
251   tsu_xform(tsu_xf.ctwo.right)(numeral.three);
252   tsu_render;
253 endtsuglyph;
254

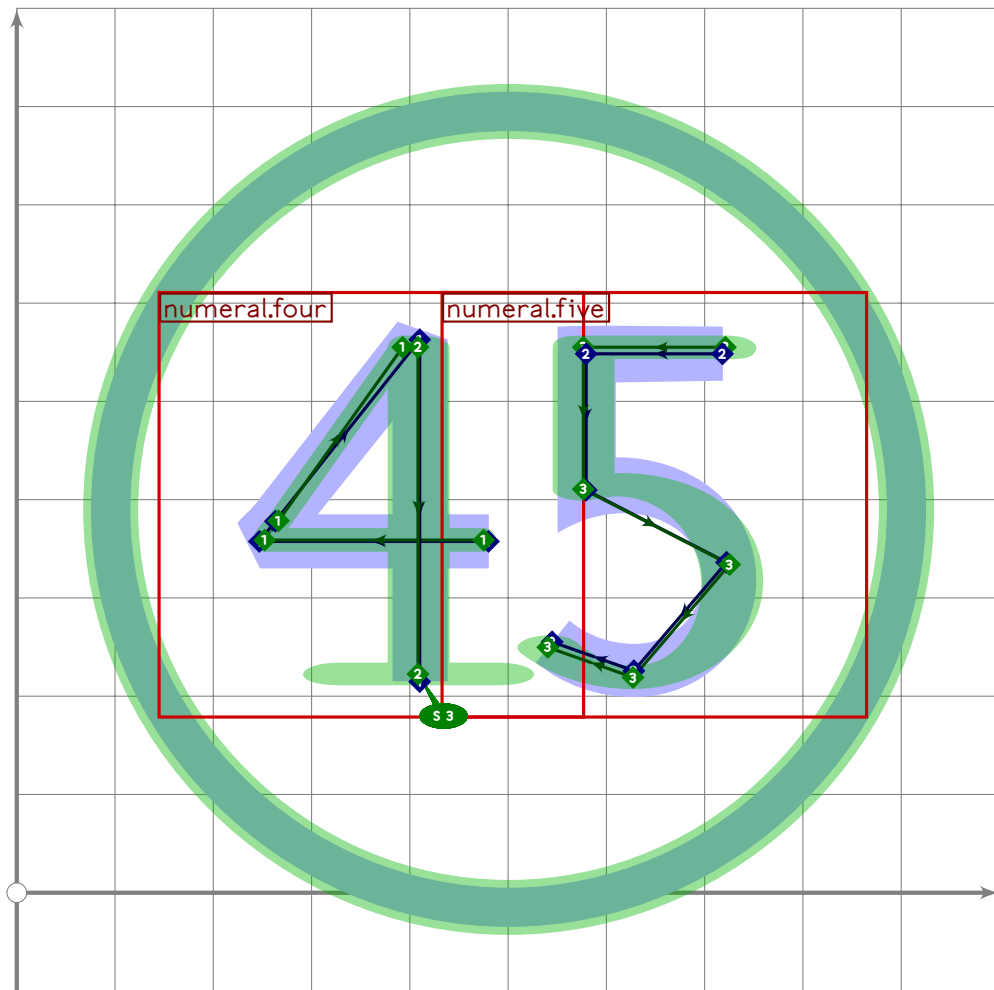
```



```

255 % 44
256 begint Suglyph("uni32B9",185);
257   circle.single;
258   tsu_xform(tsu_xf.ctwo.right)(numeral.four);
259   numeric x[],y[];
260   tsu_xform(tsu_xf.ctwo.left)(numeral.four);
261   tsu_render;
262 endtsuglyph;
263

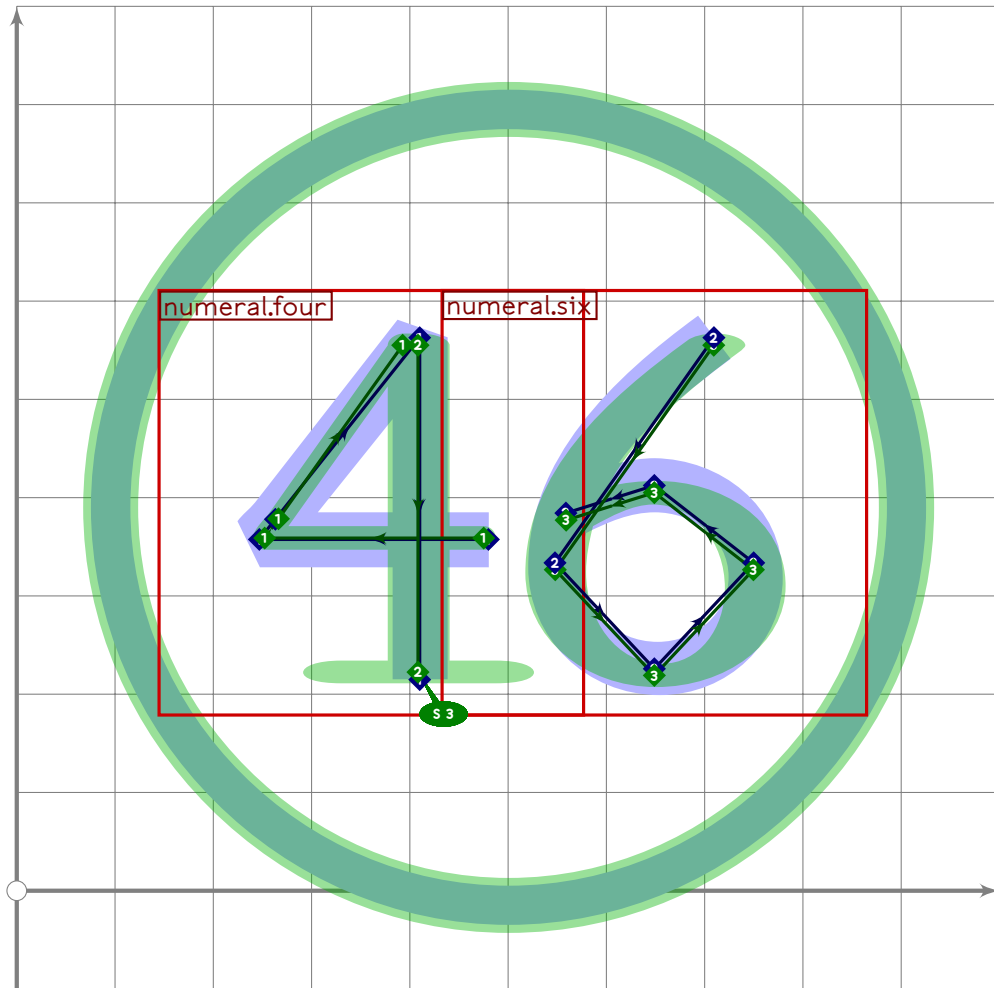
```



```

264 % 45
265 begint Suglyph("uni32BA",186);
266   circle.single;
267   tsu_xform(tsu_xf.ctwo.left)(numeral.four);
268   numeric x[],y[];
269   tsu_xform(tsu_xf.ctwo.right)(numeral.five);
270   tsu_render;
271 endtsuglyph;
272

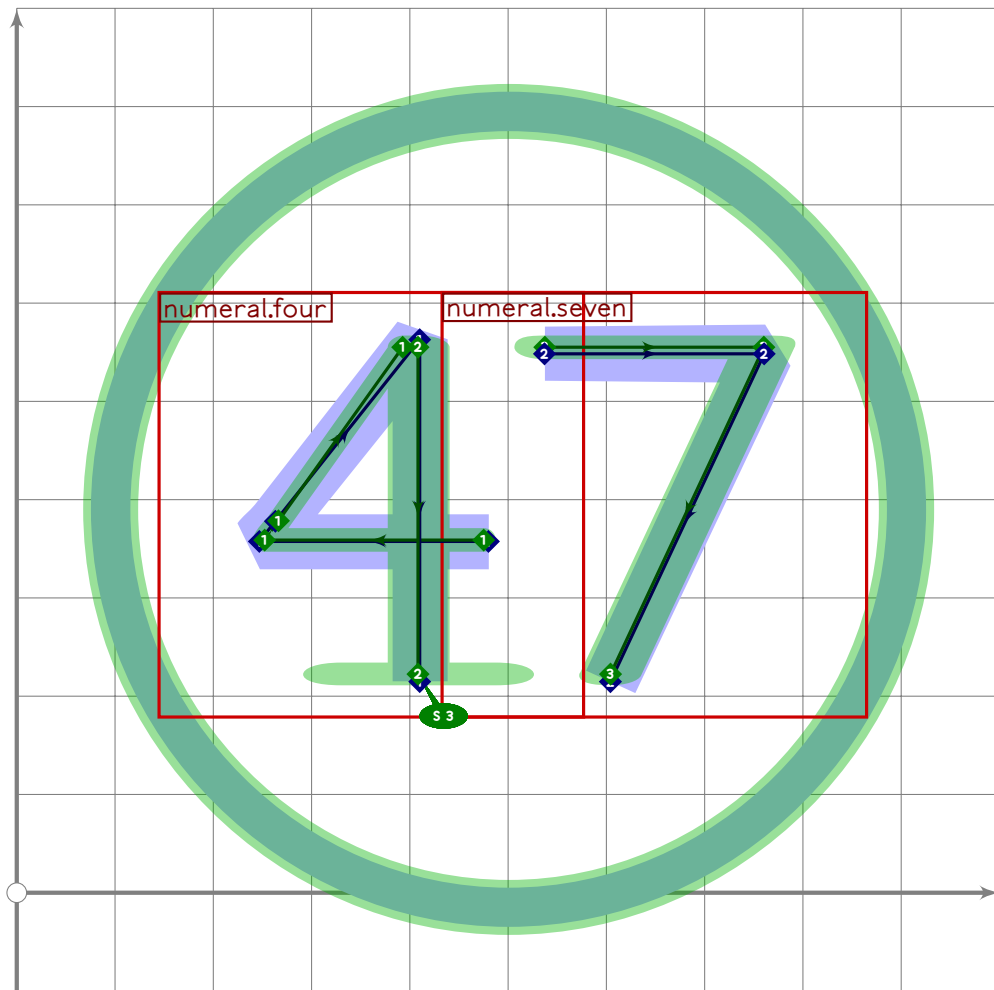
```



```

273 % 46
274 begint Suglyph("uni32BB",187);
275   circle.single;
276   tsu_xform(tsu_xf.ctwo.left)(numeral.four);
277   numeric x[],y[];
278   tsu_xform(tsu_xf.ctwo.right)(numeral.six);
279   tsu_render;
280 endtsuglyph;
281

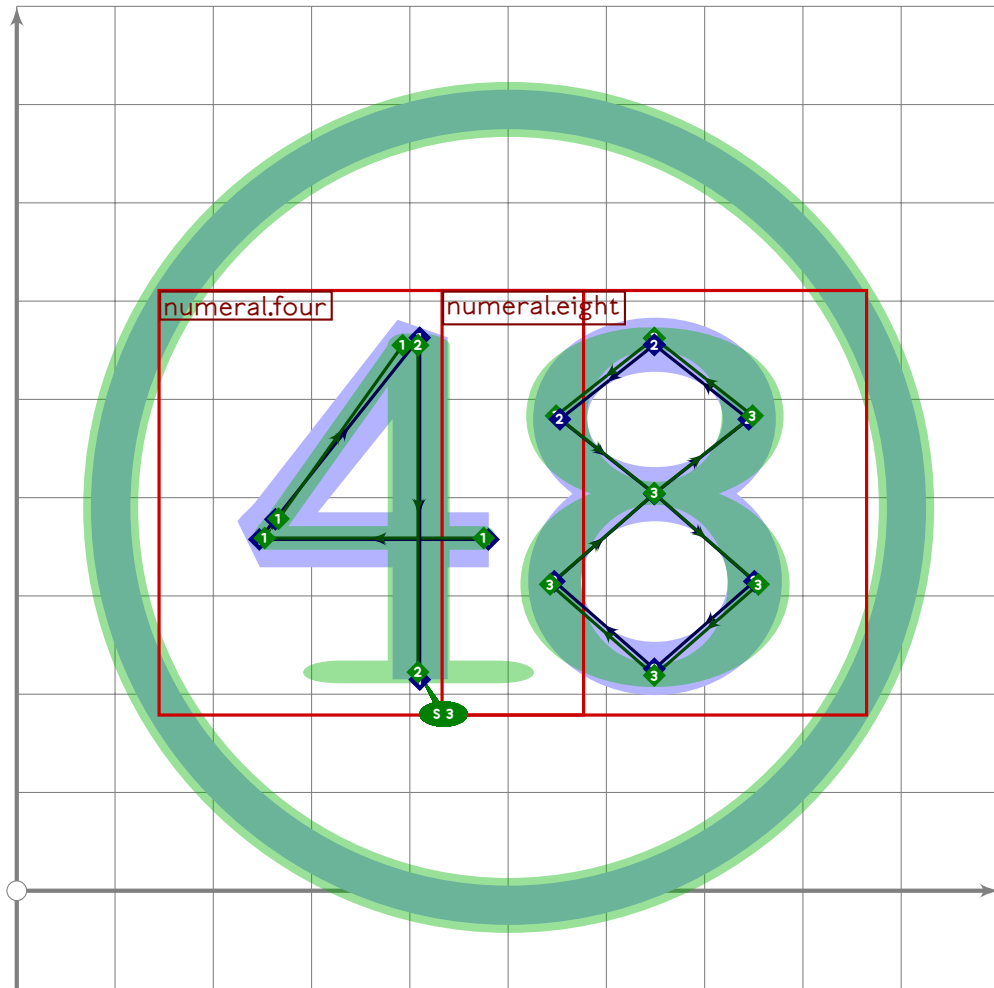
```



```

282 % 47
283 beginsuglyph("uni32BC",188);
284   circle.single;
285   tsu_xform(tsu_xf.ctwo.left)(numeral.four);
286   numeric x[],y[];
287   tsu_xform(tsu_xf.ctwo.right)(numeral.seven);
288   tsu_render;
289 endsuglyph;
290

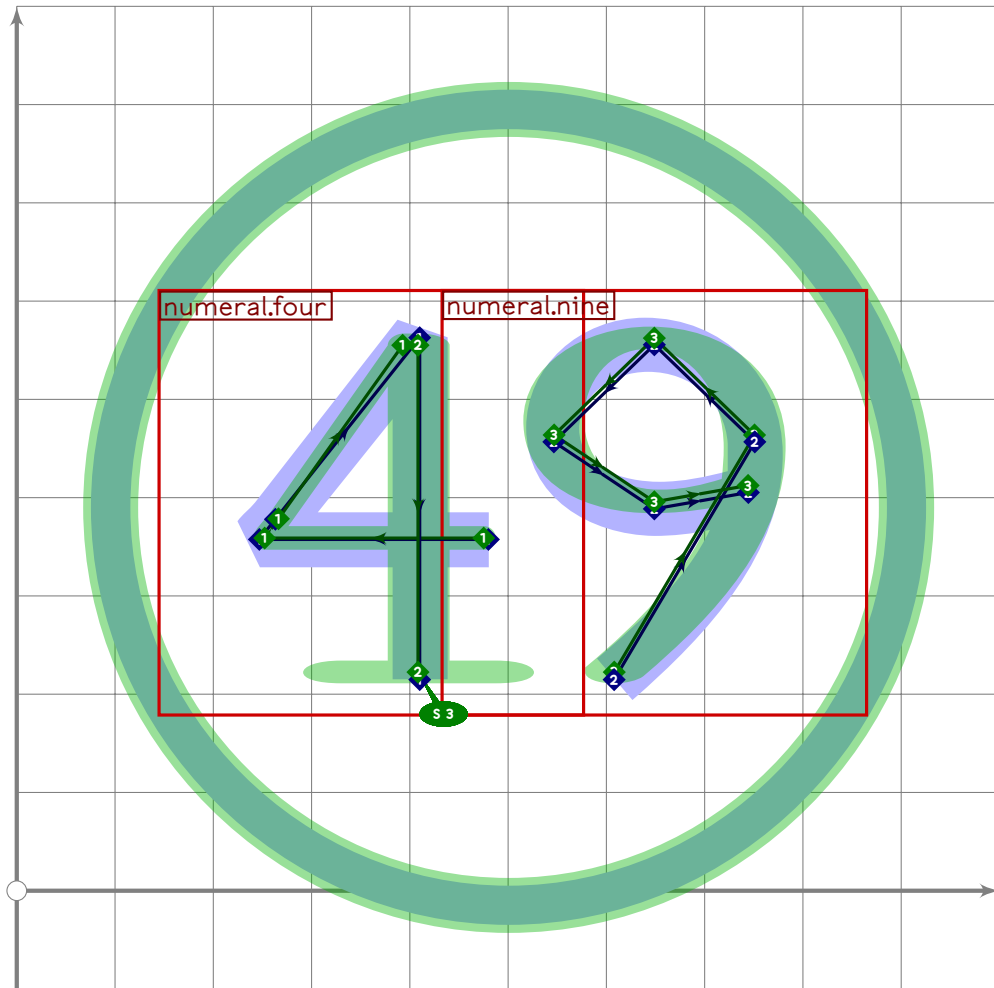
```



```

291 % 48
292 beginsuglyph("uni32BD",189);
293   circle.single;
294   tsu_xform(tsu_xf.ctwo.left)(numeral.four);
295   numeric x[],y[];
296   tsu_xform(tsu_xf.ctwo.right)(numeral.eight);
297   tsu_render;
298 endsuglyph;
299

```

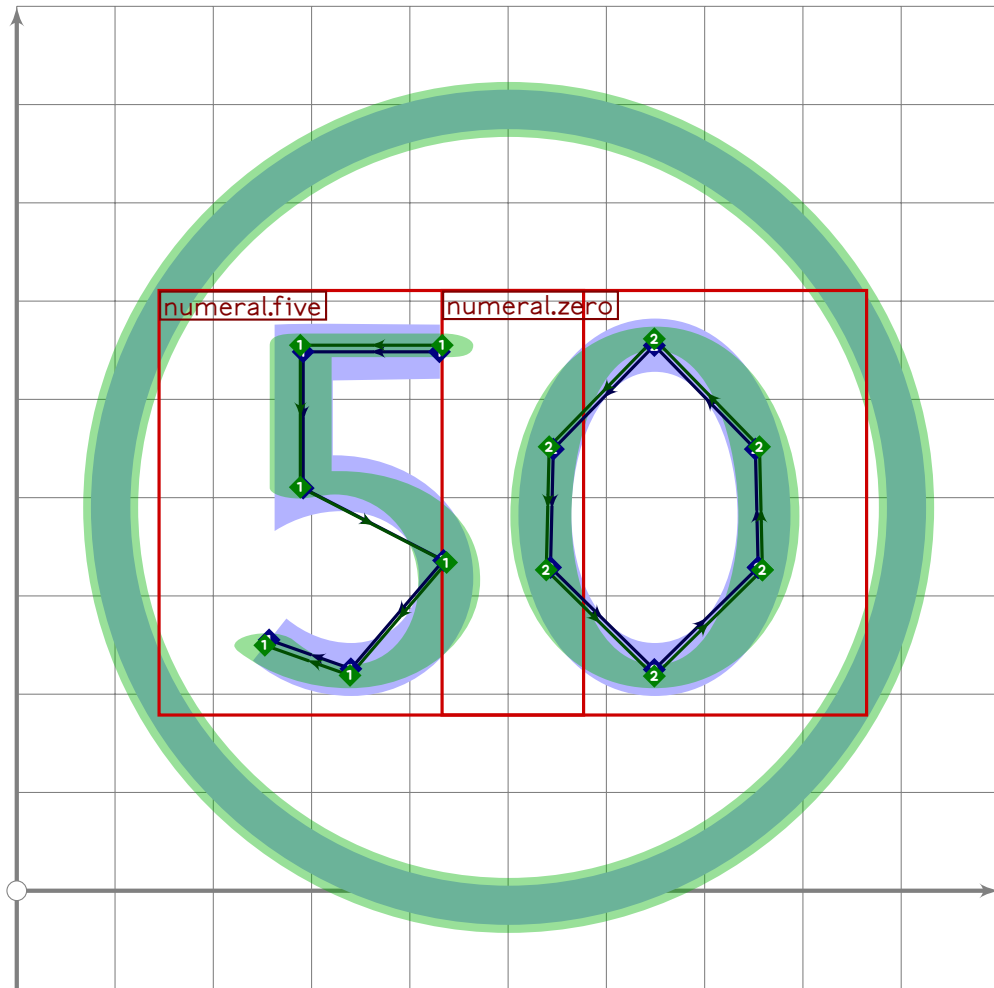


```

300 % 49
301 begintuglyph("uni32BE",190);
302   circle.single;
303   tsu_xform(tsu_xf.ctwo.left)(numeral.four);
304   numeric x[],y[];
305   tsu_xform(tsu_xf.ctwo.right)(numeral.nine);
306   tsu_render;
307 endtuglyph;
308

```





```

309 % 50
310 begintsuglyph("uni32BF",191);
311 circle.single;
312 tsu_xform(tsu_xf.ctwo.left)(numeral.five);
313 numeric x[],y[];
314 tsu_xform(tsu_xf.ctwo.right)(numeral.zero);
315 tsu_render;
316 endtsuglyph;
317
318
319

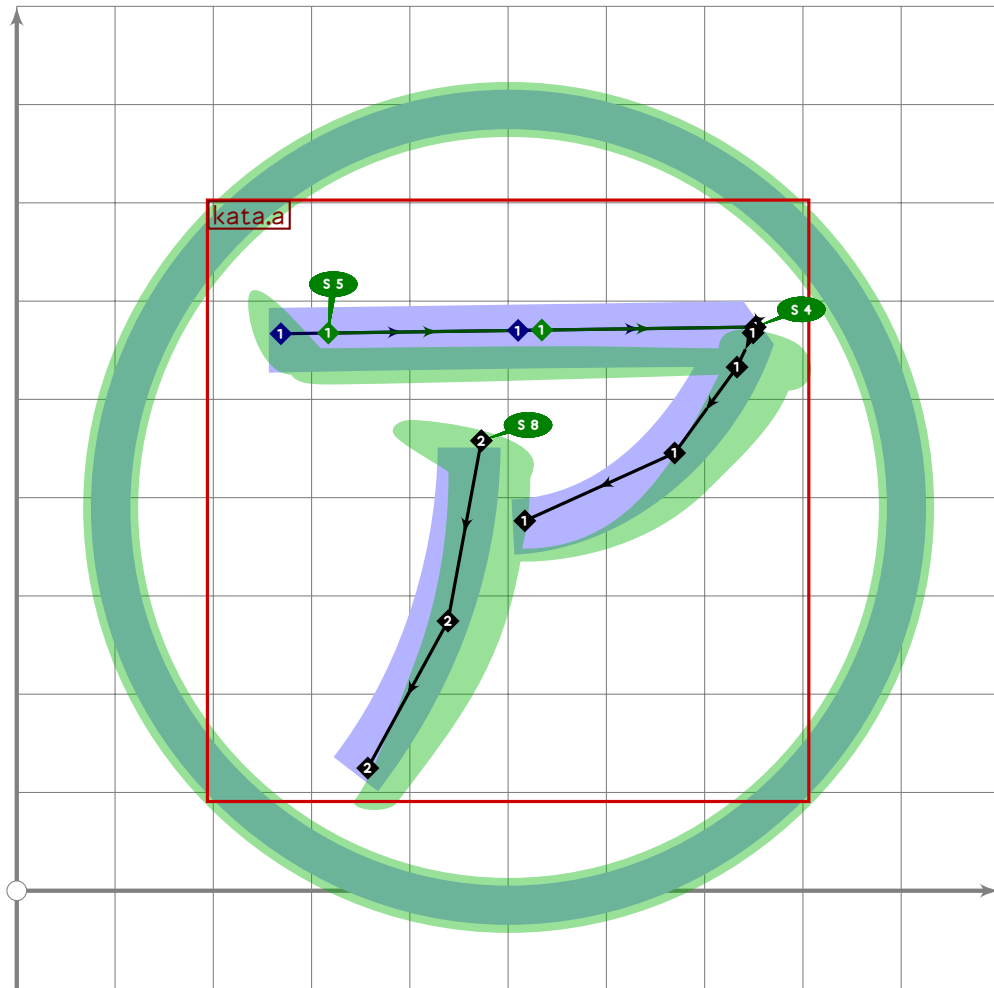
```

## Circled Katakana

```

320 % CIRCLED KATAKANA
321

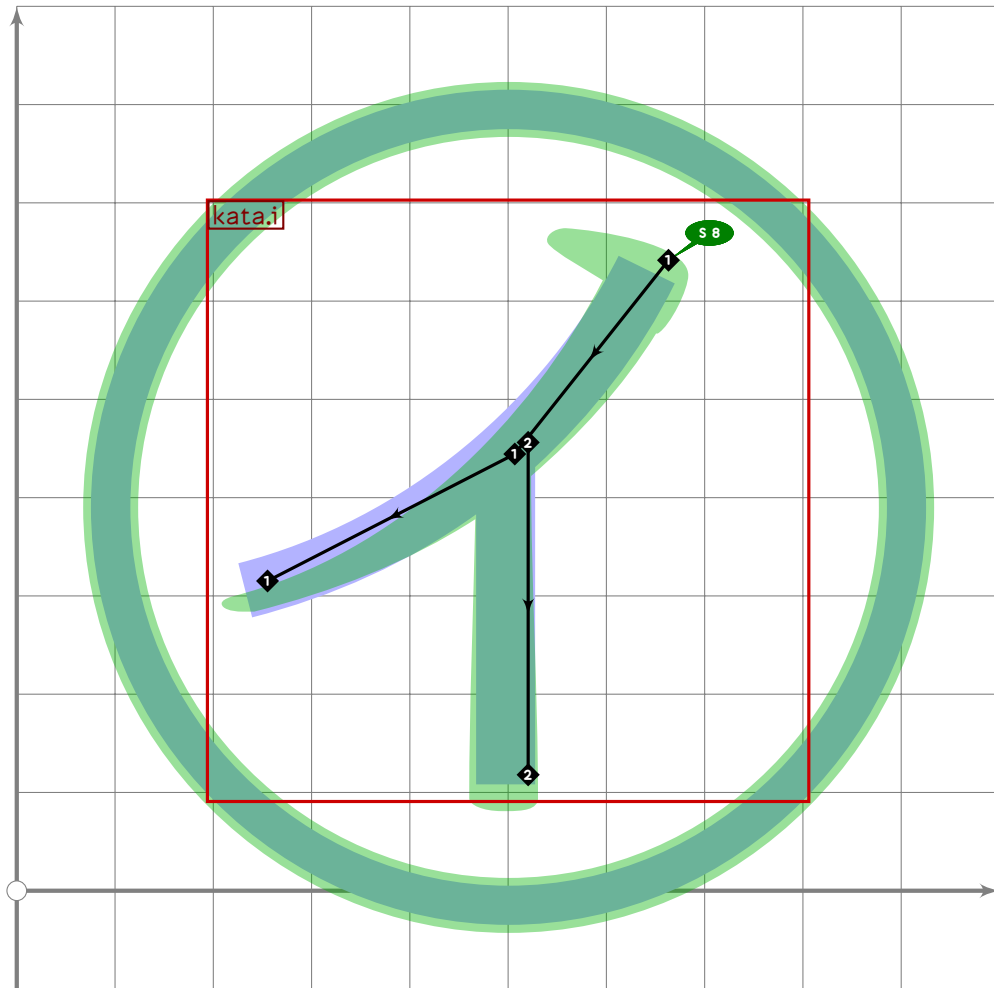
```



```

322 % circled "ā"
323 beginsuglyph("uni32D0",208);
324 circle.single;
325 tsu_xform(tsu_xf.circled)(kata.a);
326 tsu_render_in_circle(tsu_xf.cbound);
327 endsuglyph;
328

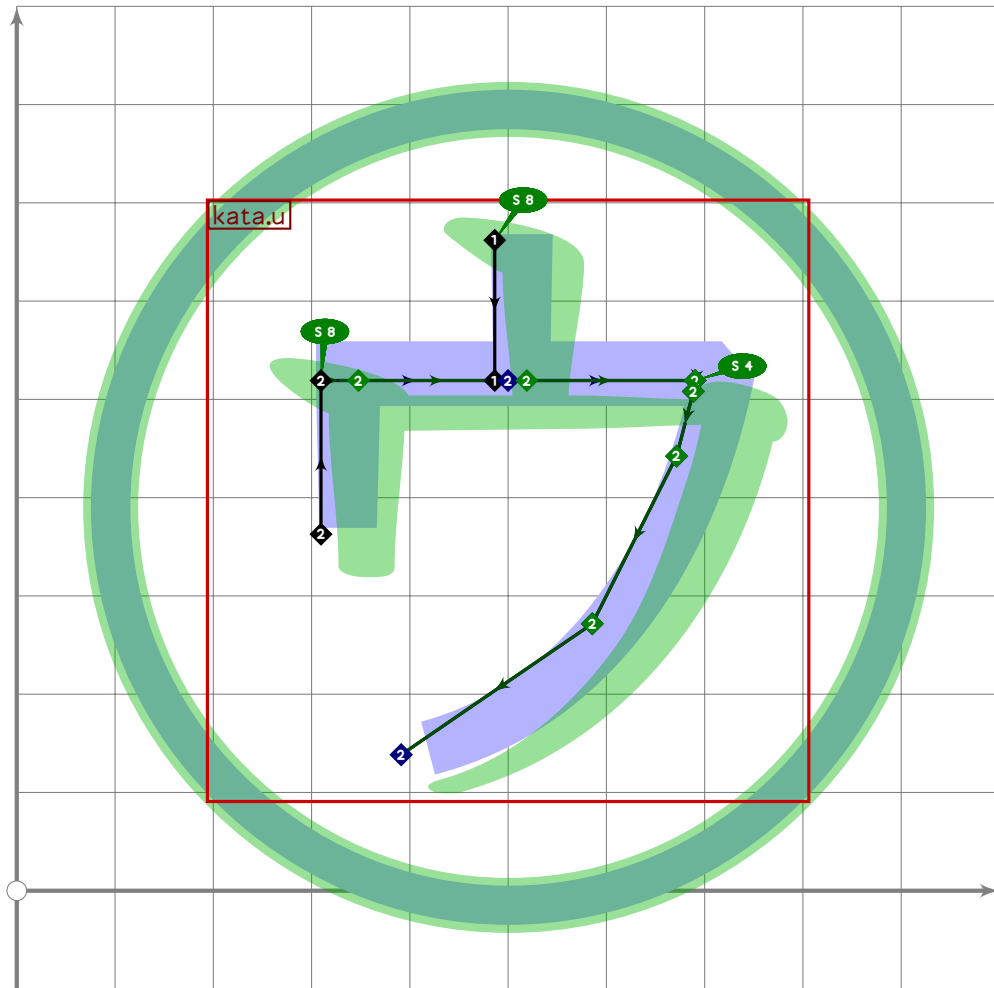
```



```

329 % circled "i"
330 beginsuglyph("uni32D1";209);
331 circle.single;
332 tsu_xform(tsu_xf.circled)(kata.i);
333 tsu_render_in_circle(tsu_xf.cbound);
334 endsuglyph;
335

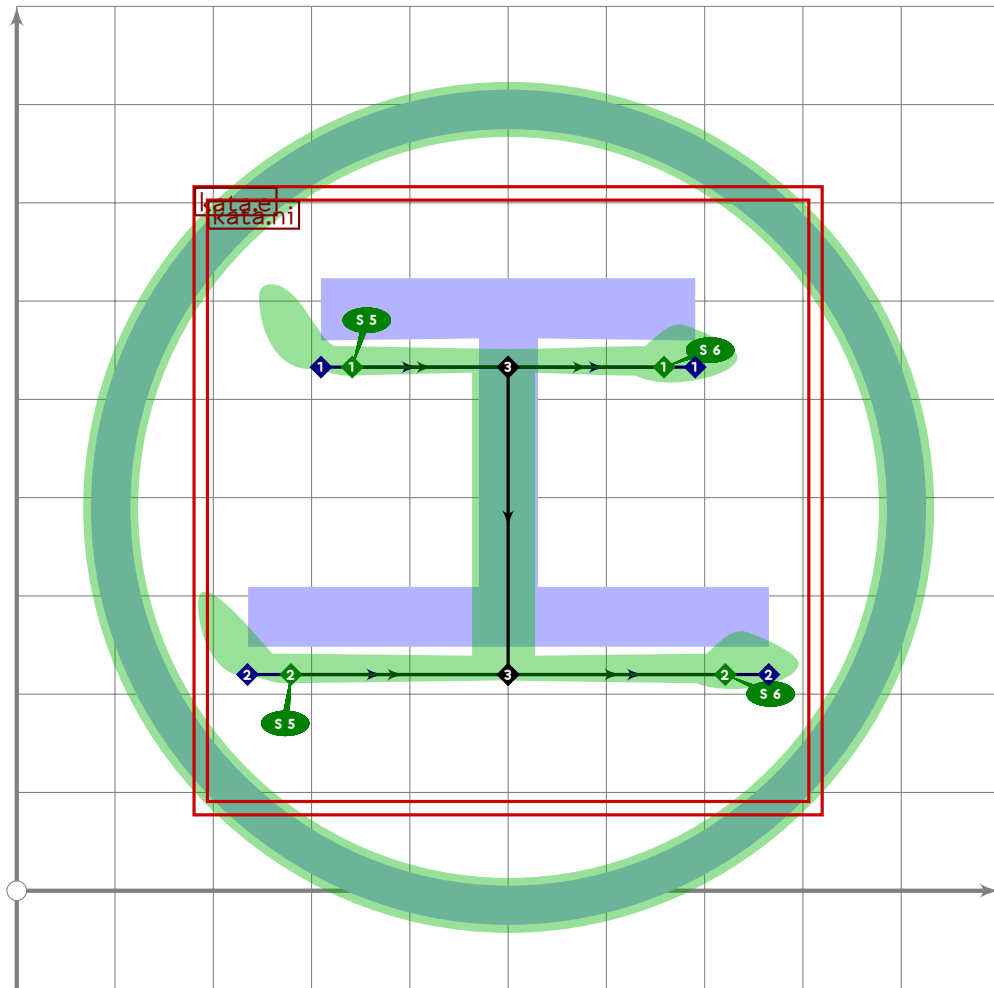
```



```

336 % circled "u"
337 begint Suglyph("uni32D2",210);
338   circle.single;
339   tsu_xform(tsu_xf.circled)(kata.u);
340   tsu_render_in_circle(tsu_xf.cbound);
341 endsuglyph;
342

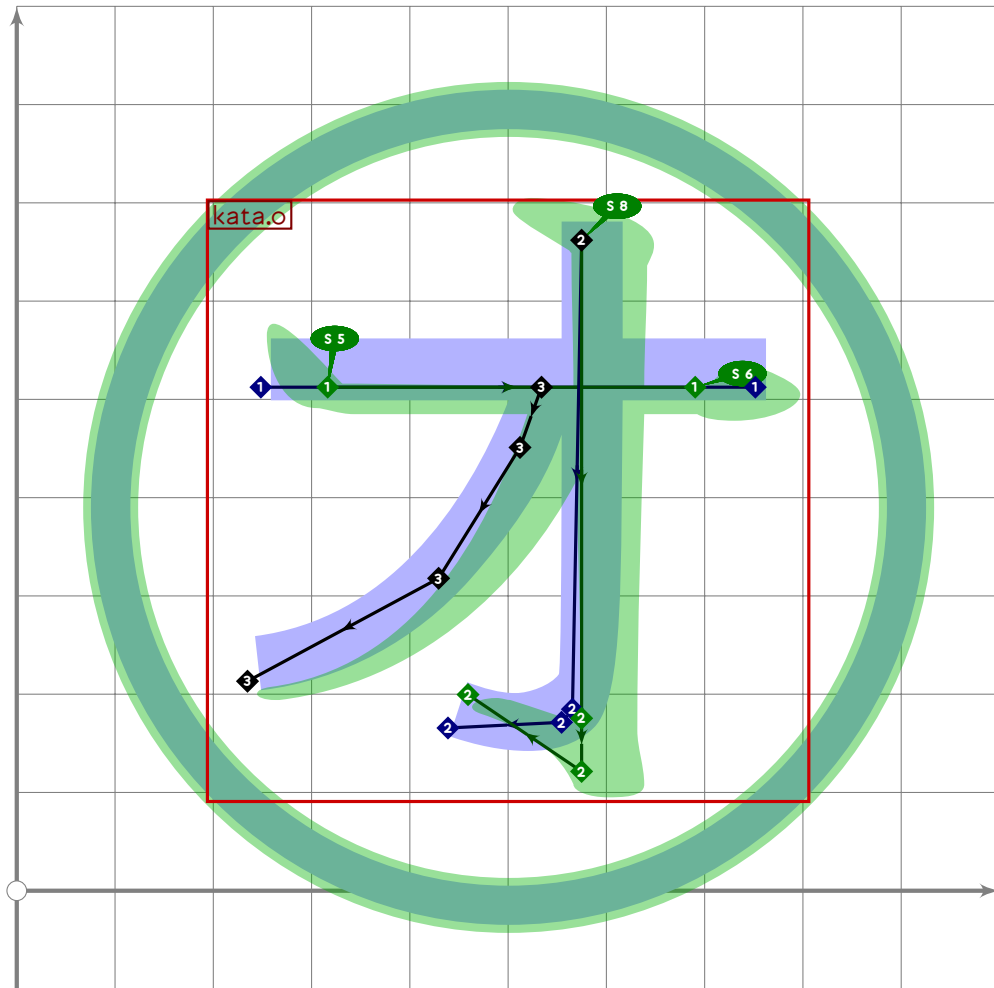
```



```

343 % circled "e"
344 begint Suglyph("uni32D3",211);
345   circle.single;
346   tsu_xform(tsu_xf.circled)(kata.e);
347   tsu_render_in_circle(tsu_xf.cbound);
348 endsuglyph;
349

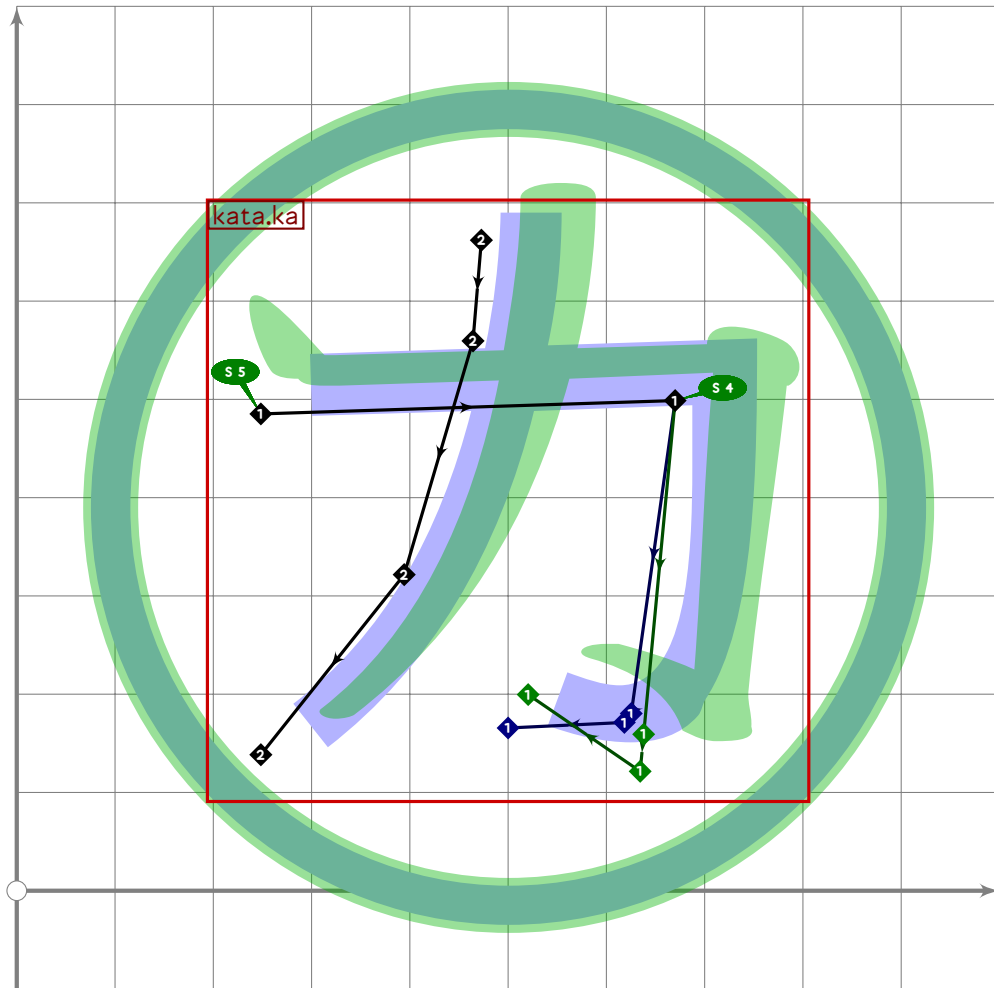
```



```

350 % circled "o"
351 begint Suglyph("uni32D4",212);
352 circle.single;
353 tsu_xform(tsu_xf.circled)(kata.o);
354 tsu_render_in_circle(tsu_xf.cbound);
355 endsuglyph;
356

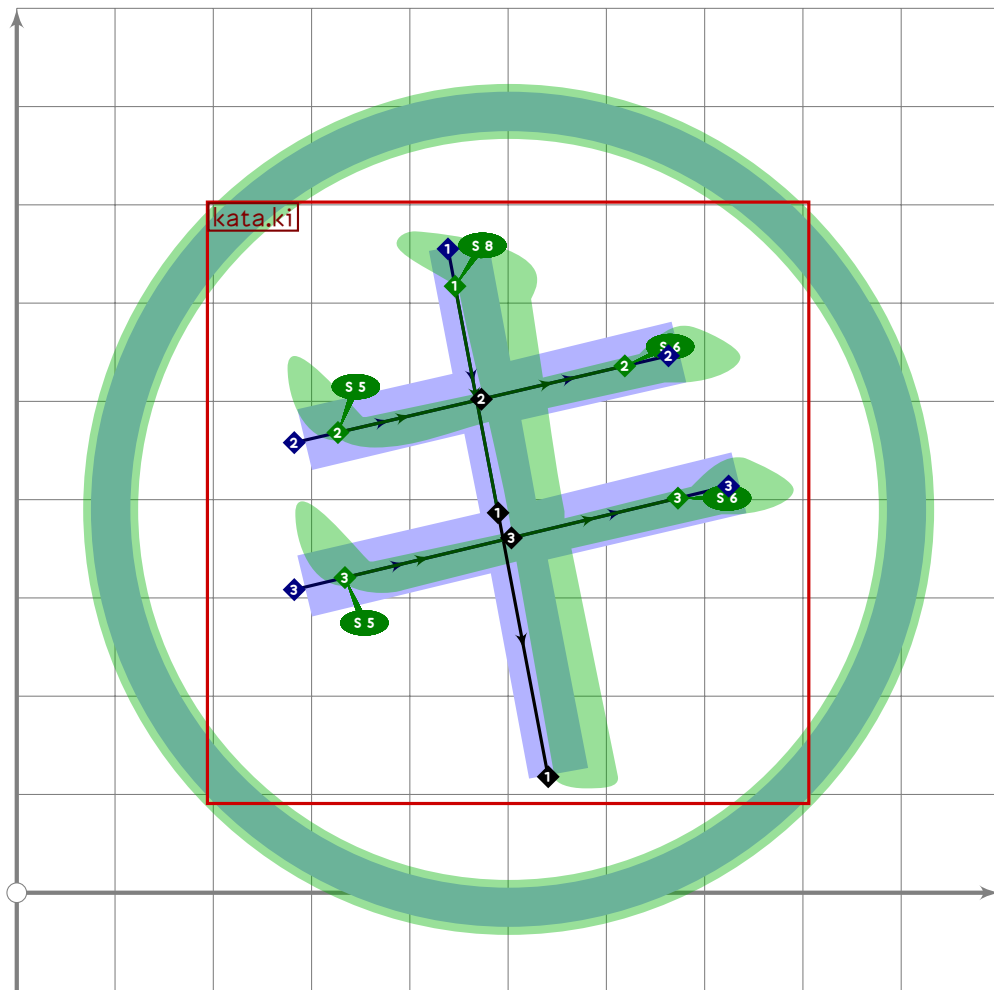
```



```

357 % circled "ka"
358 begint Suglyph("uni32D5",213);
359   circle.single;
360   tsu_xform(tsu_xf.circled)(kata.ka);
361   tsu_render_in_circle(tsu_xf.cbound);
362 endsuglyph;
363

```

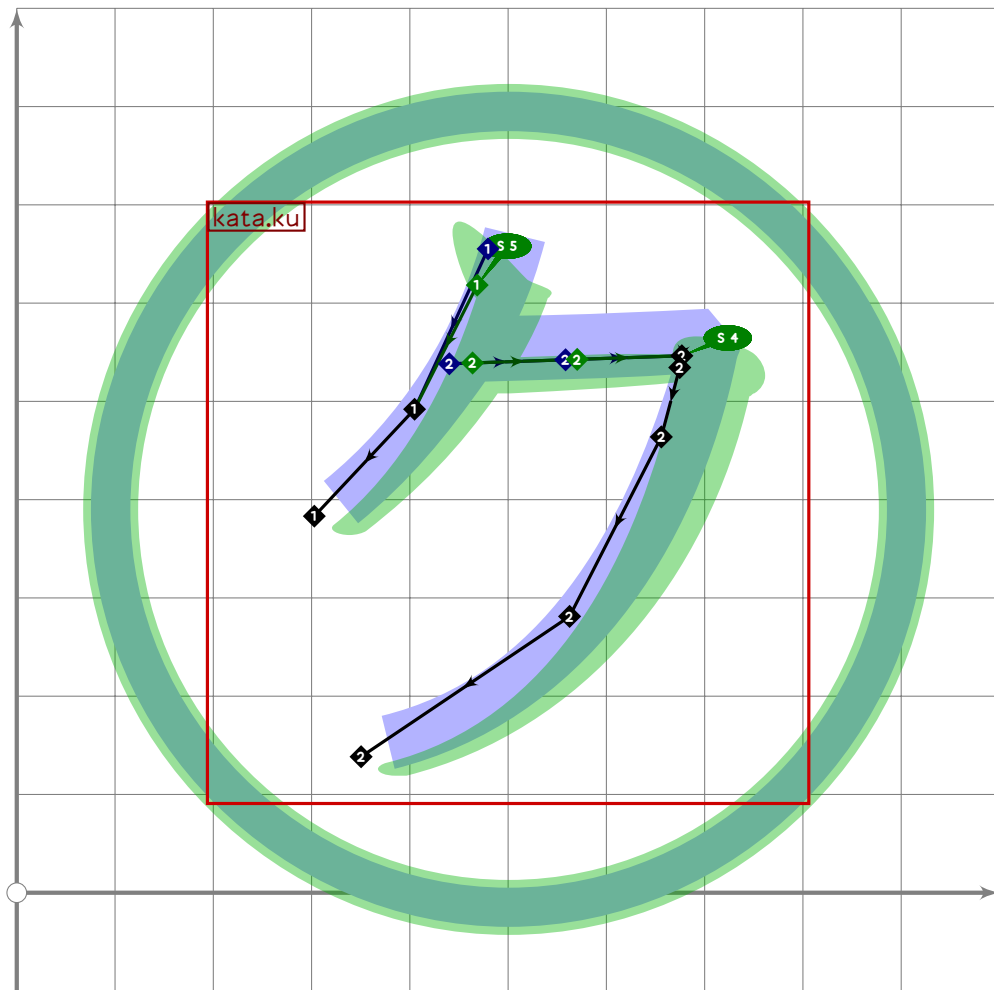


```

364 % circled "ki"
365 begint Suglyph("uni32D6";214);
366 circle.single;
367 tsu_xform(tsu_xf.circled)(kata.ki);
368 tsu_render_in_circle(tsu_xf.cbound);
369 endsuglyph;
370

```

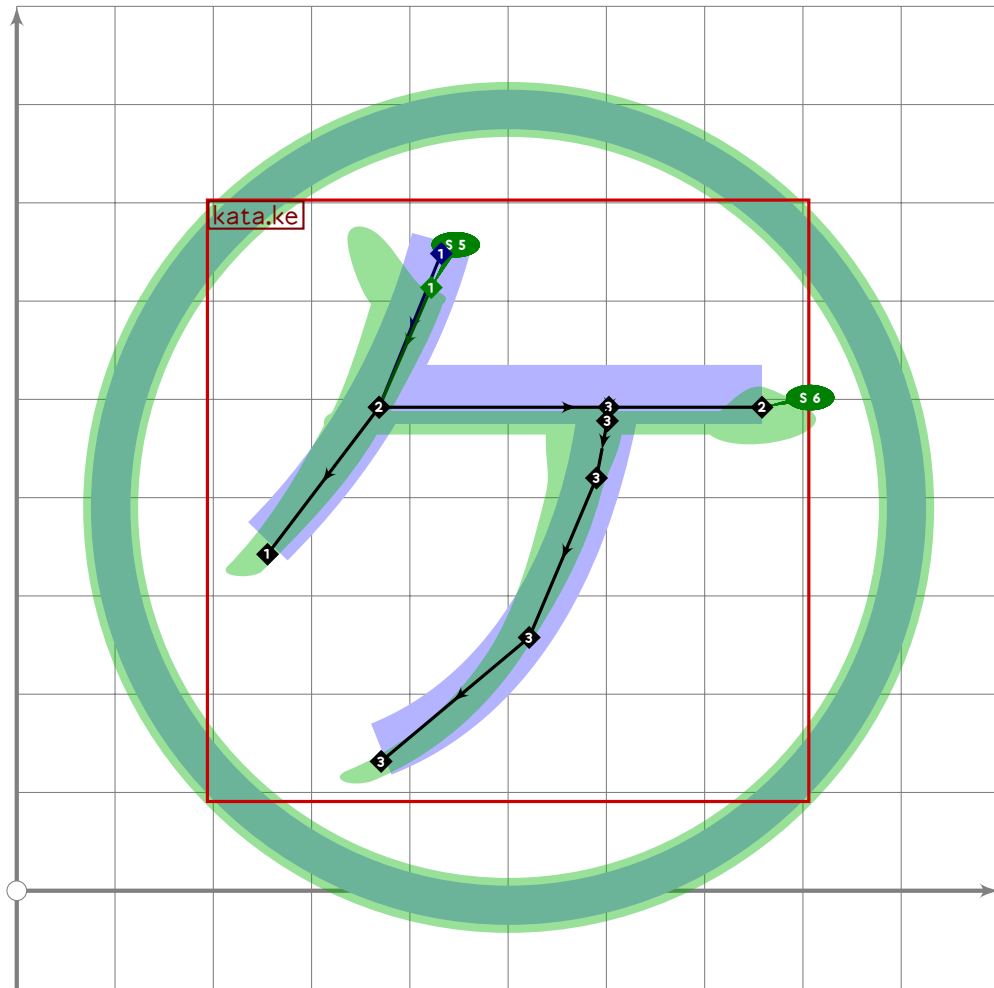




```

371 % circled "ku"
372 begint Suglyph("uni32D7";215);
373 circle.single;
374 tsu_xform(tsu_xf.circled)(kata.ku);
375 tsu_render_in_circle(tsu_xf.cbound);
376 endsuglyph;
377

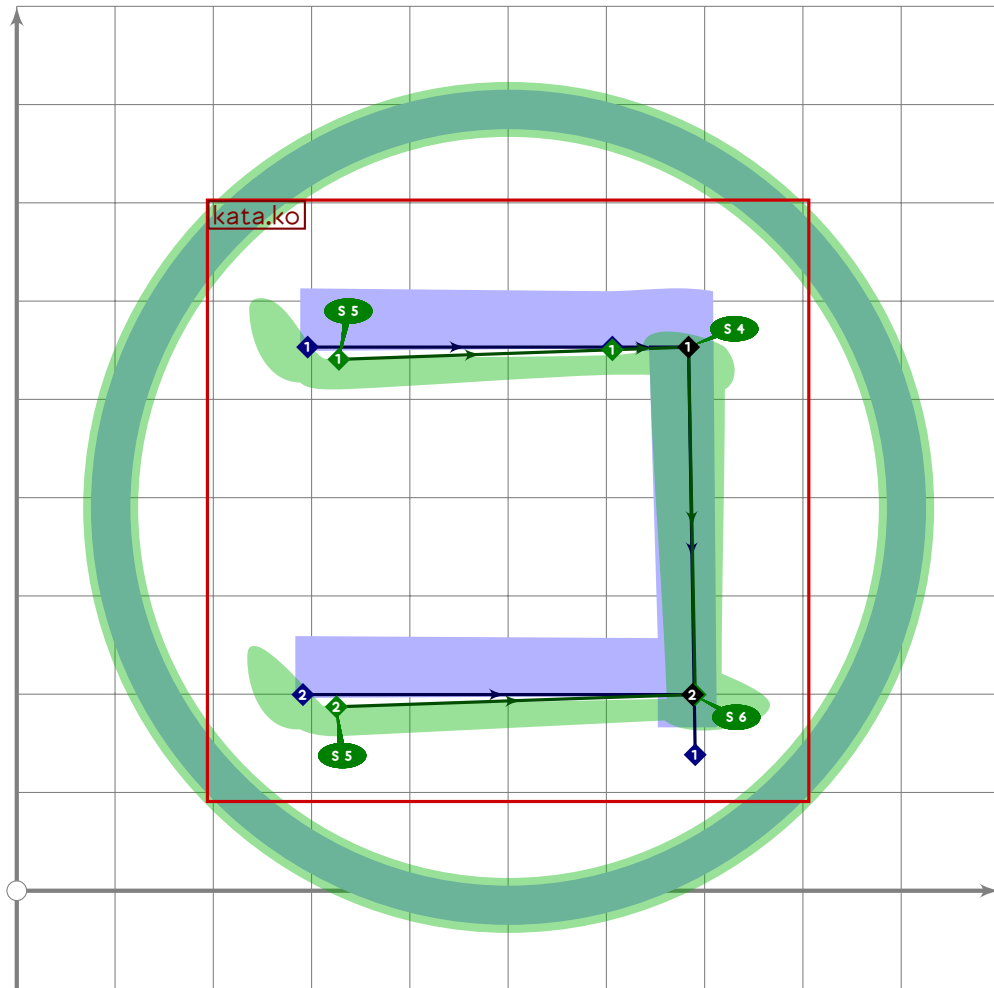
```



```

378 % circled "ke"
379 begint Suglyph("uni32D8",216);
380 circle.single;
381 tsu_xform(tsu_xf.circled)(kata.ke);
382 tsu_render_in_circle(tsu_xf.cbound);
383 endsuglyph;
384

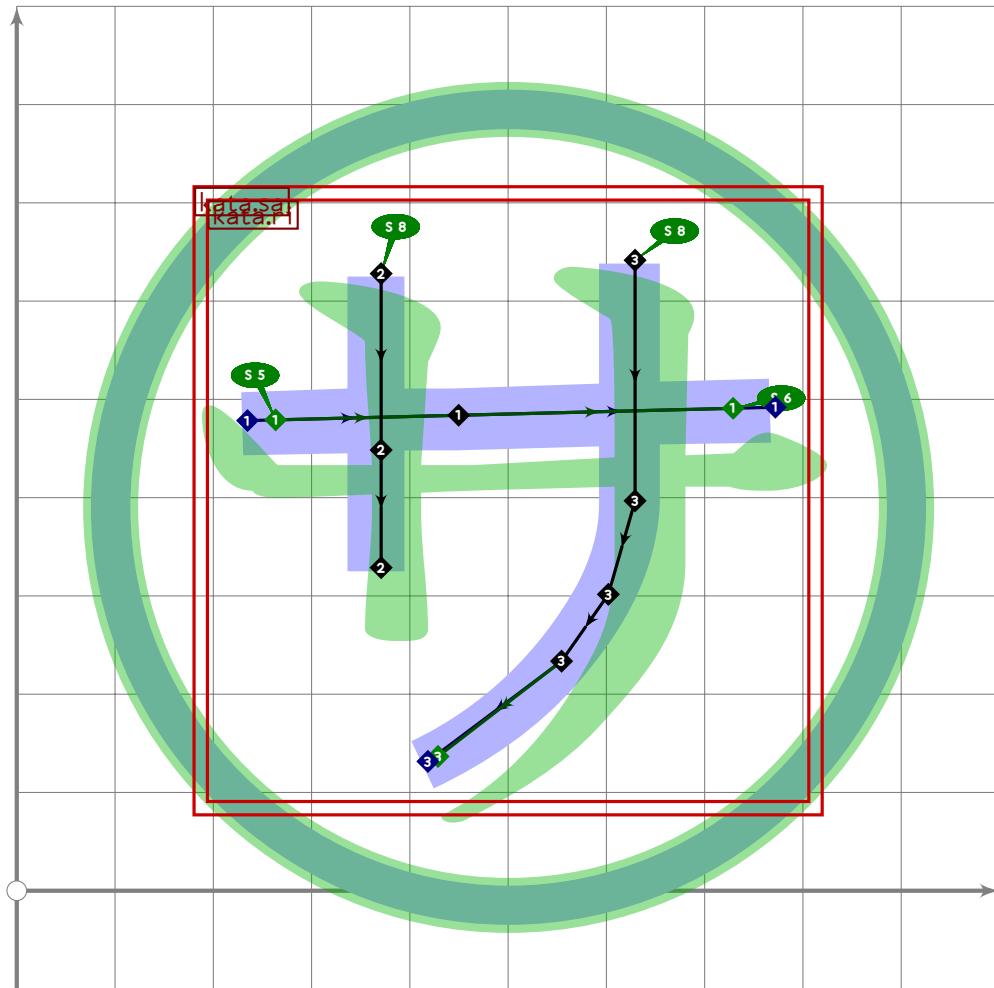
```



```

385 % circled "ko"
386 begint Suglyph("uni32D9";217);
387   circle.single;
388   tsu_xform(tsu_xf.circled)(kata.ko);
389   tsu_render_in_circle(tsu_xf.cbound);
390 endsuglyph;
391

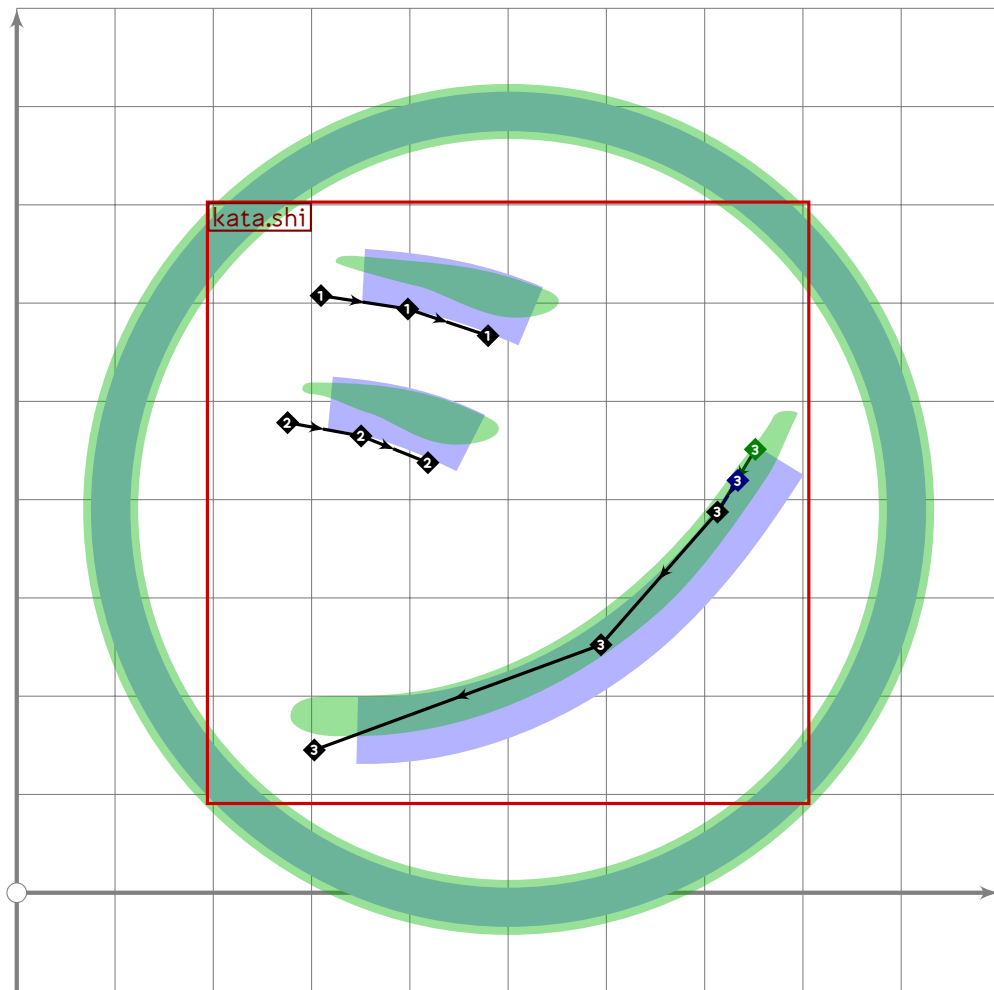
```



```

392 % circled "sa"
393 begint Suglyph("uni32DA",218);
394 circle.single;
395 tsu_xform(tsu_xf.circled)(kata.sa);
396 tsu_render_in_circle(tsu_xf.cbound);
397 endsuglyph;
398

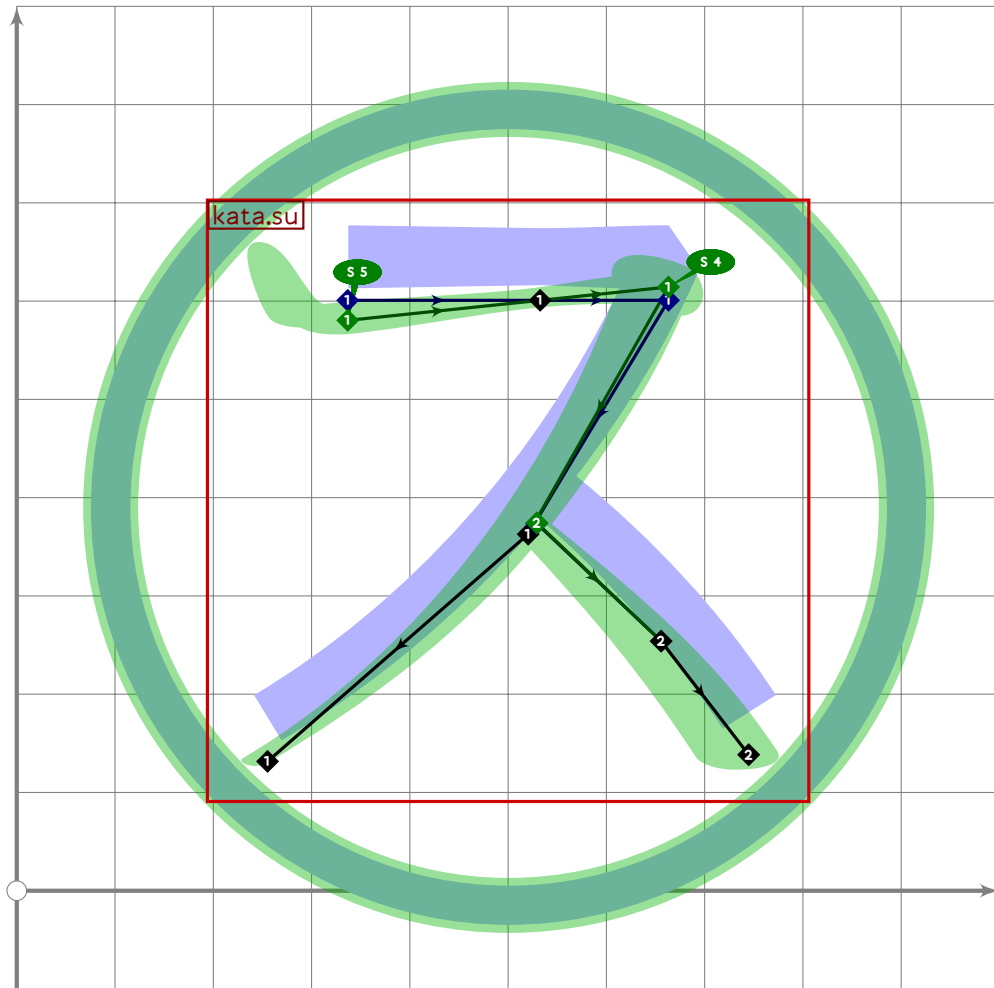
```



```

399 % circled "shi"
400 begint Suglyph("uni32DB",219);
401   circle.single;
402   tsu_xform(tsu_xf.circled)(kata.shi);
403   tsu_render_in_circle(tsu_xf.cbound);
404 endsuglyph;
405

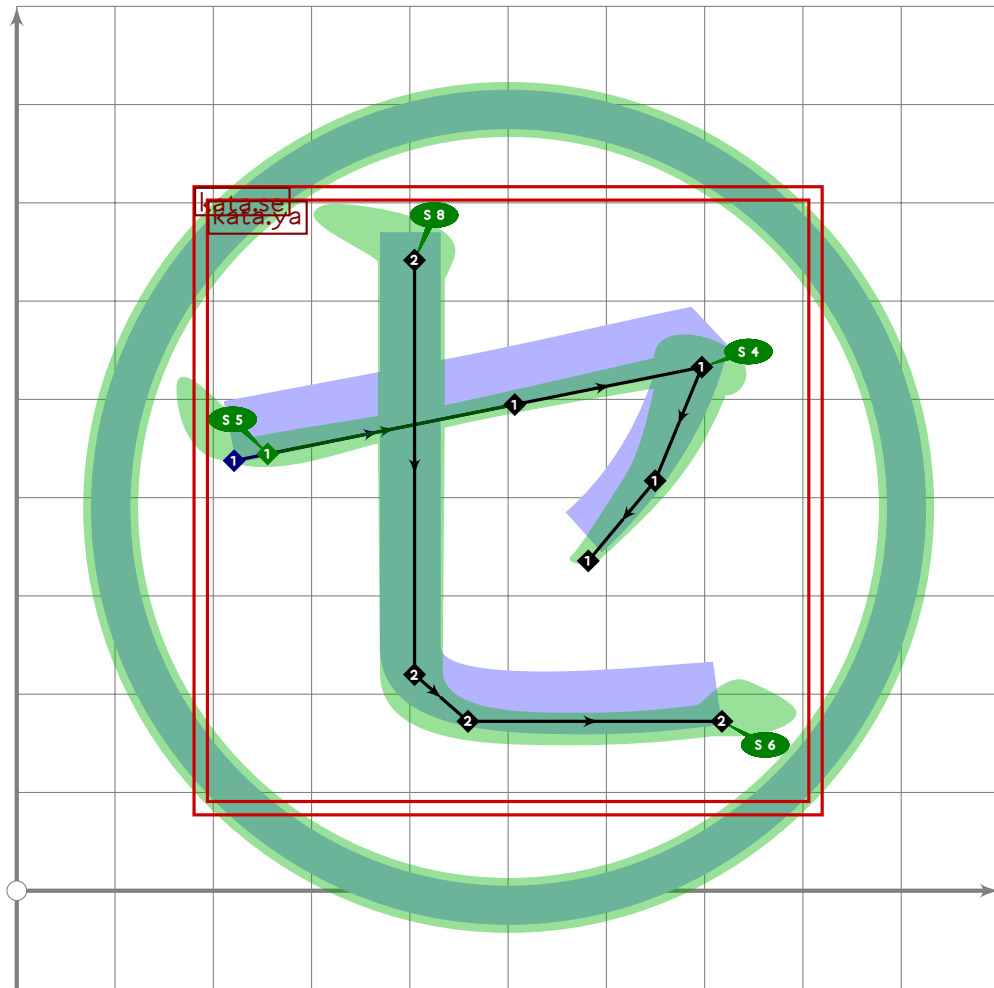
```



```

406 % circled "su"
407 begint Suglyph("uni32DC",220);
408   circle.single;
409   tsu_xform(tsu_xf.circled)(kata.su);
410   tsu_render_in_circle(tsu_xf.cbound);
411 endsuglyph;
412

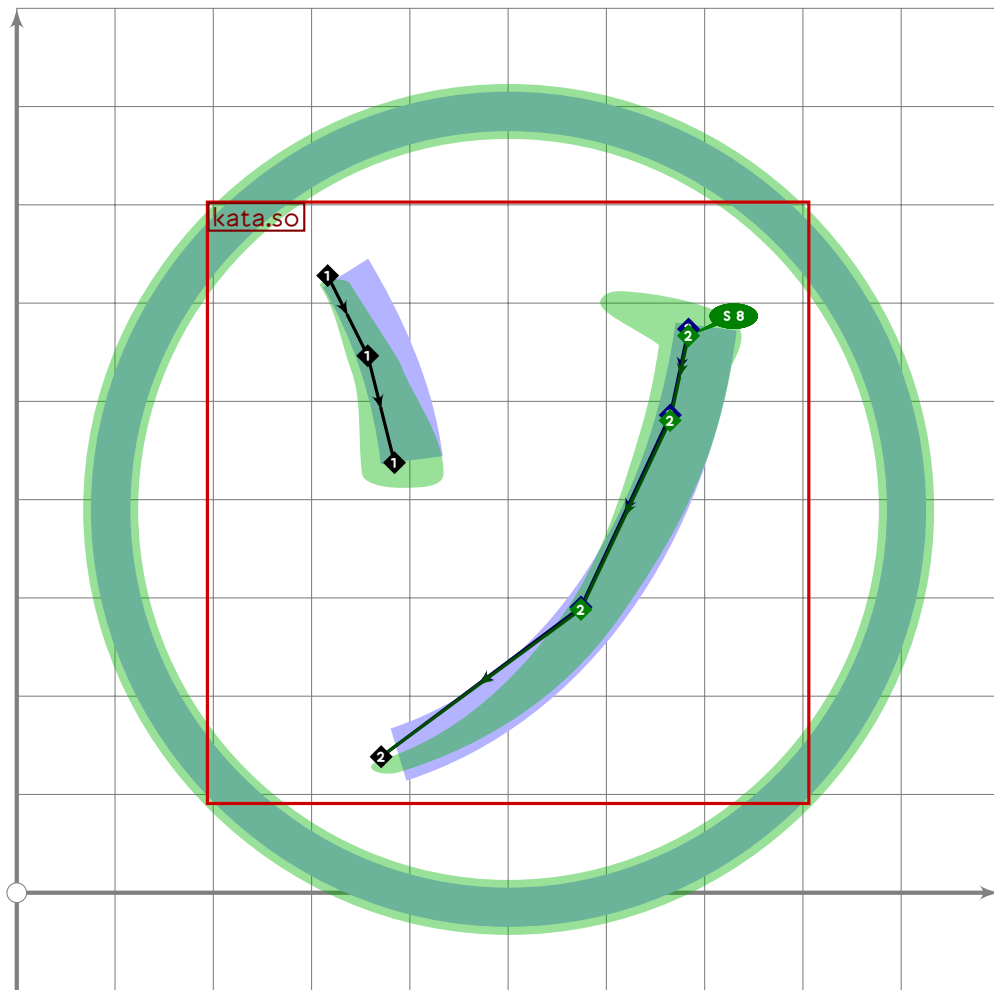
```



```

413 % circled "se"
414 begint Suglyph("uni32DD",221);
415 circle.single;
416 tsu_xform(tsu_xf.circled)(kata.se);
417 tsu_render_in_circle(tsu_xf.cbound);
418 endsuglyph;
419

```

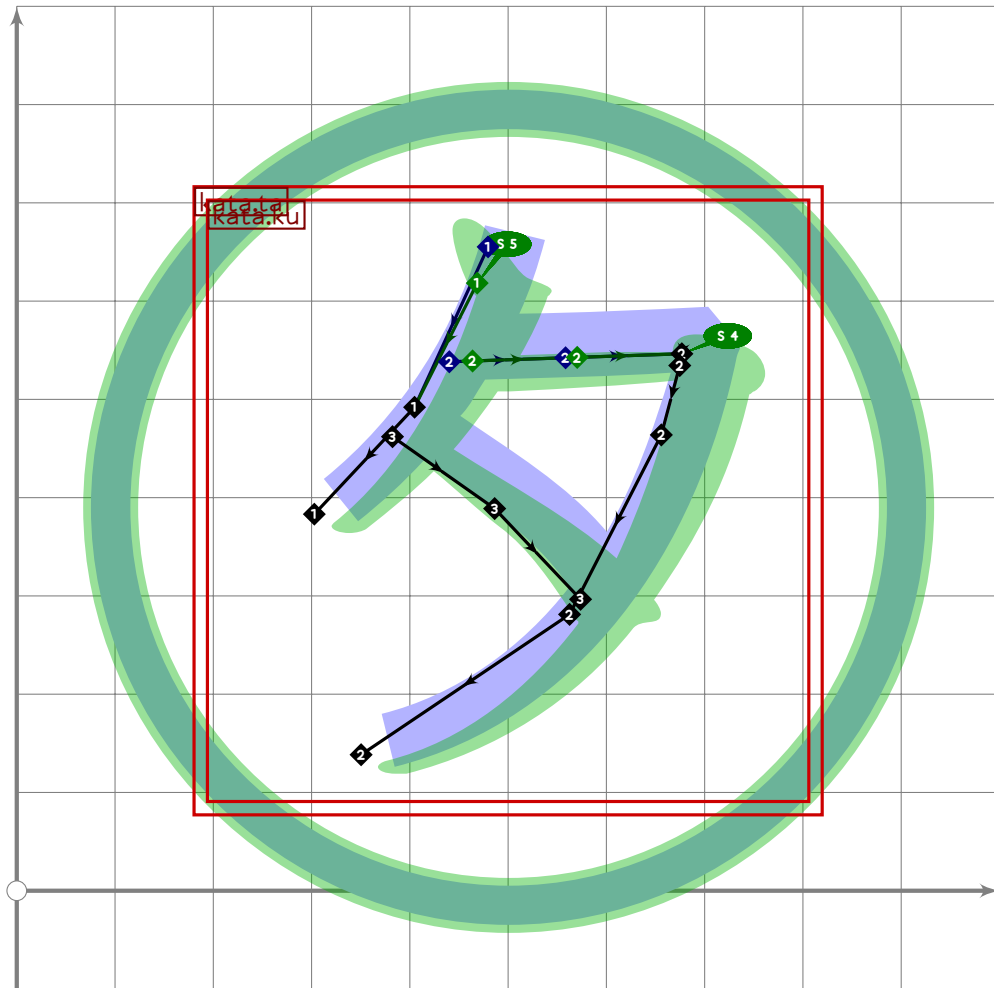


```

420 % circled "so"
421 begint Suglyph("uni32DE",222);
422   circle.single;
423   tsu_xform(tsu_xf.circled)(kata.so);
424   tsu_render_in_circle(tsu_xf.cbound);
425 endsuglyph;
426

```

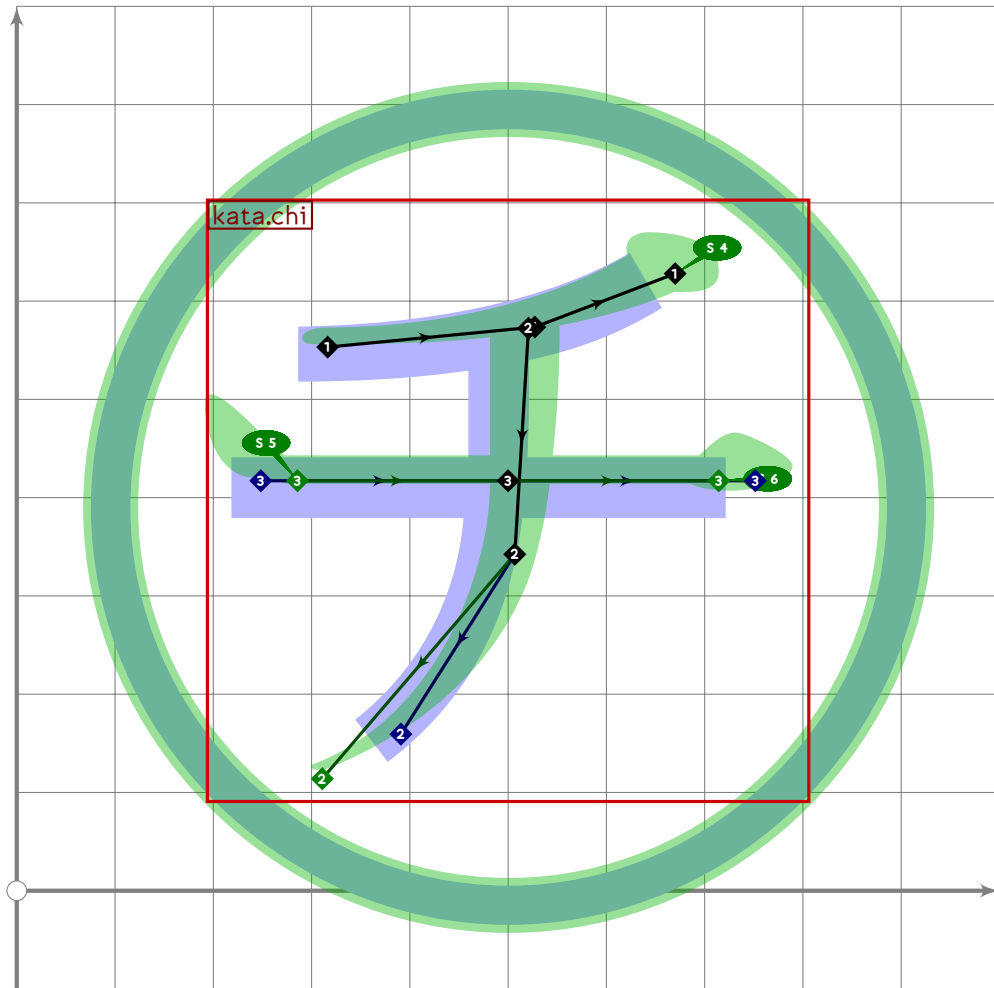




```

427 % circled "ta"
428 begint Suglyph("uni32DF",223);
429 circle.single;
430 tsu_xform(tsu_xf.circled)(kata.ta);
431 tsu_render_in_circle(tsu_xf.cbound);
432 endsuglyph;
433

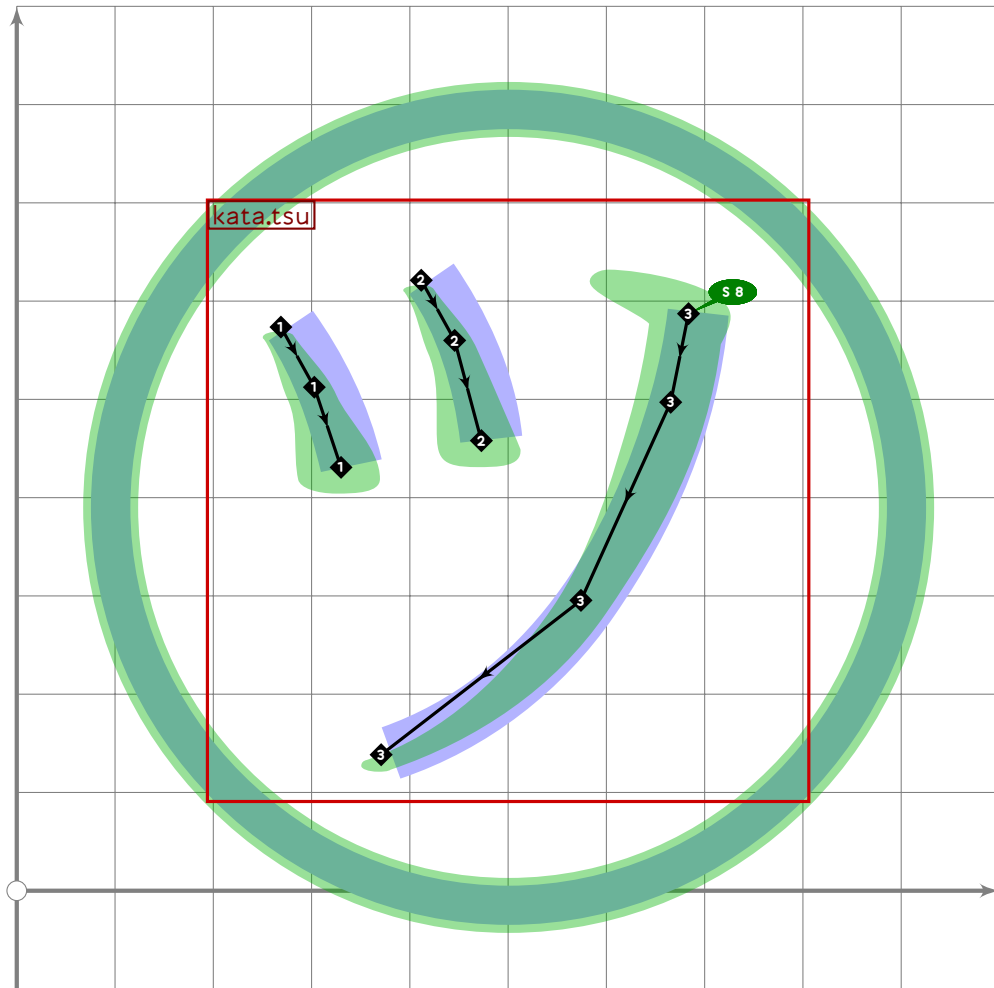
```



```

434 % circled "chi"
435 begint Suglyph("uni32E0",224);
436 circle.single;
437 tsu_xform(tsu_xf.circled)(kata.chi);
438 tsu_render_in_circle(tsu_xf.cbound);
439 endsuglyph;
440

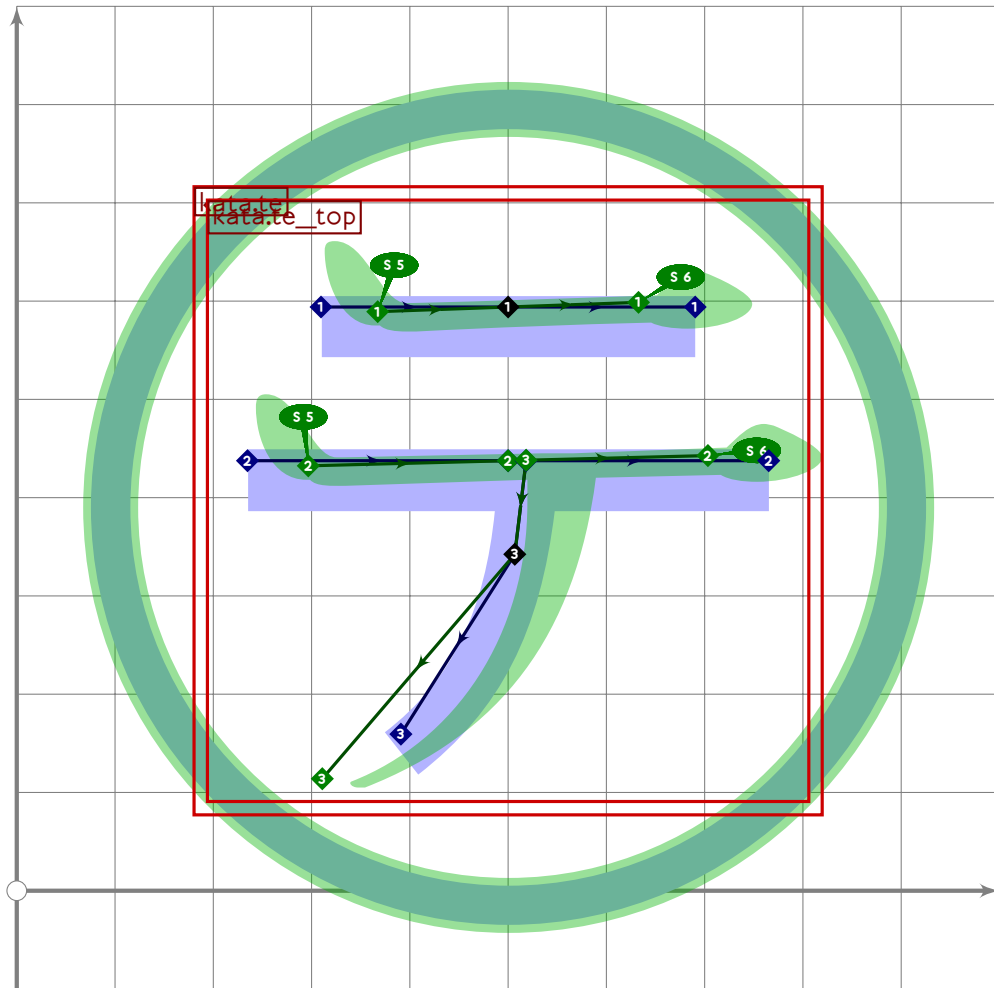
```



```

441 % circled "tsu"
442 begint Suglyph("uni32E1";225);
443   circle.single;
444   tsu_xform(tsu_xf.circled)(kata.tsu);
445   tsu_render_in_circle(tsu_xf.cbound);
446 endsuglyph;
447

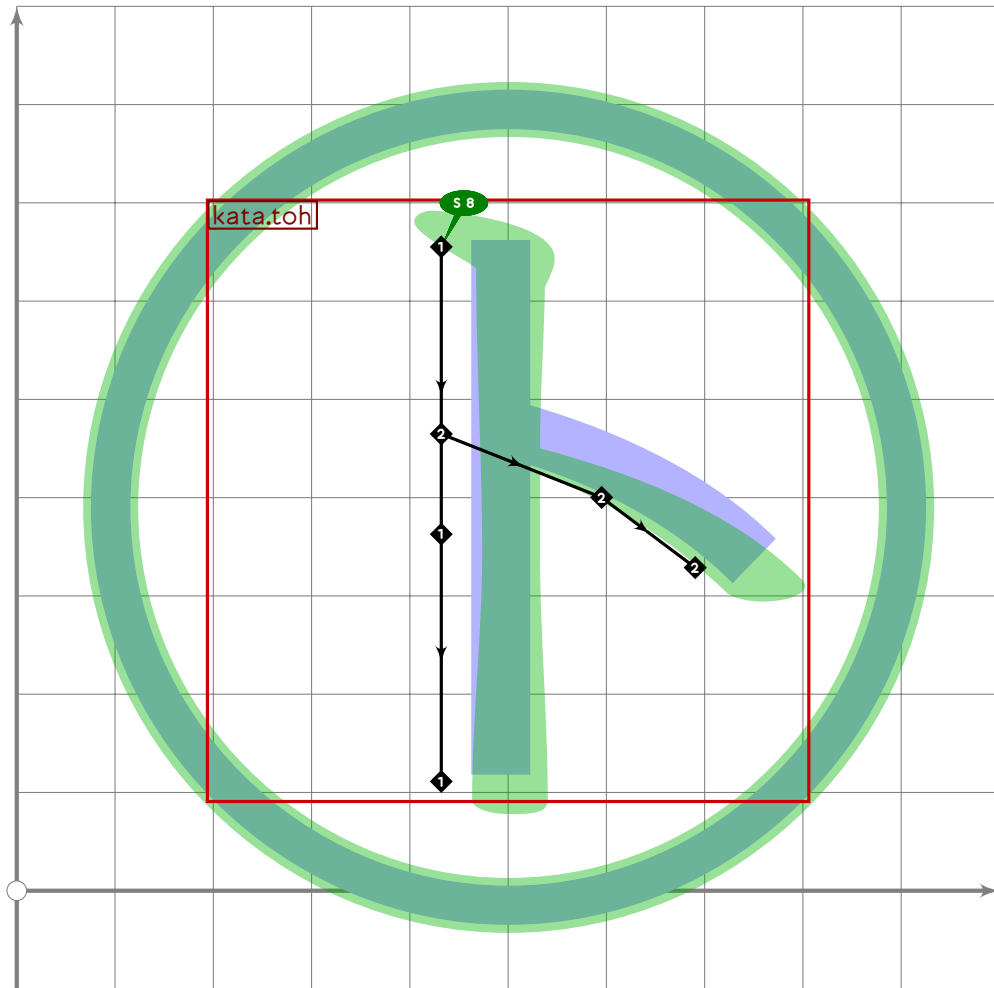
```



```

448 % circled "te"
449 begint Suglyph("uni32E2",226);
450 circle.single;
451 tsu_xform(tsu_xf.circled)(kata.te);
452 tsu_render_in_circle(tsu_xf.cbound);
453 endsuglyph;
454

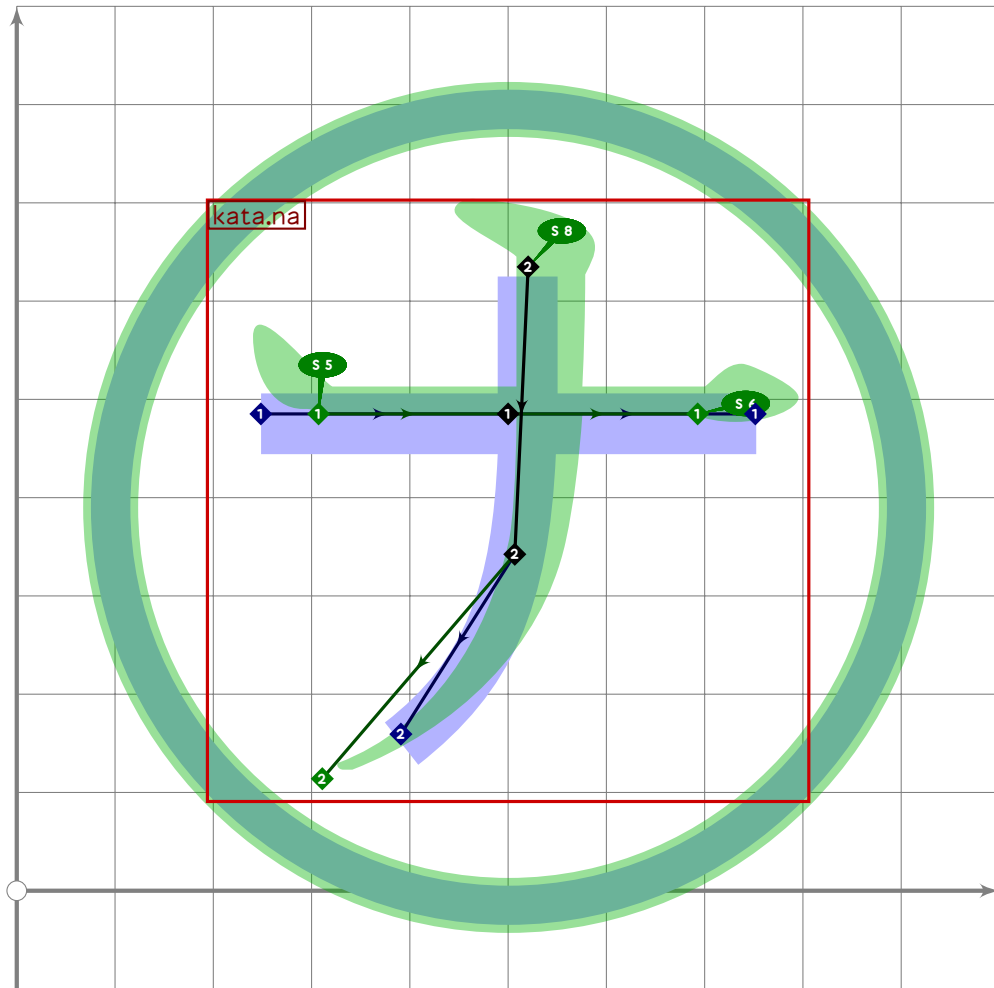
```



```

455 % circled "to"
456 begint Suglyph("uni32E3";227);
457 circle.single;
458 tsu_xform(tsu_xf.circled)(kata.toh);
459 tsu_render_in_circle(tsu_xf.cbound);
460 endsuglyph;
461

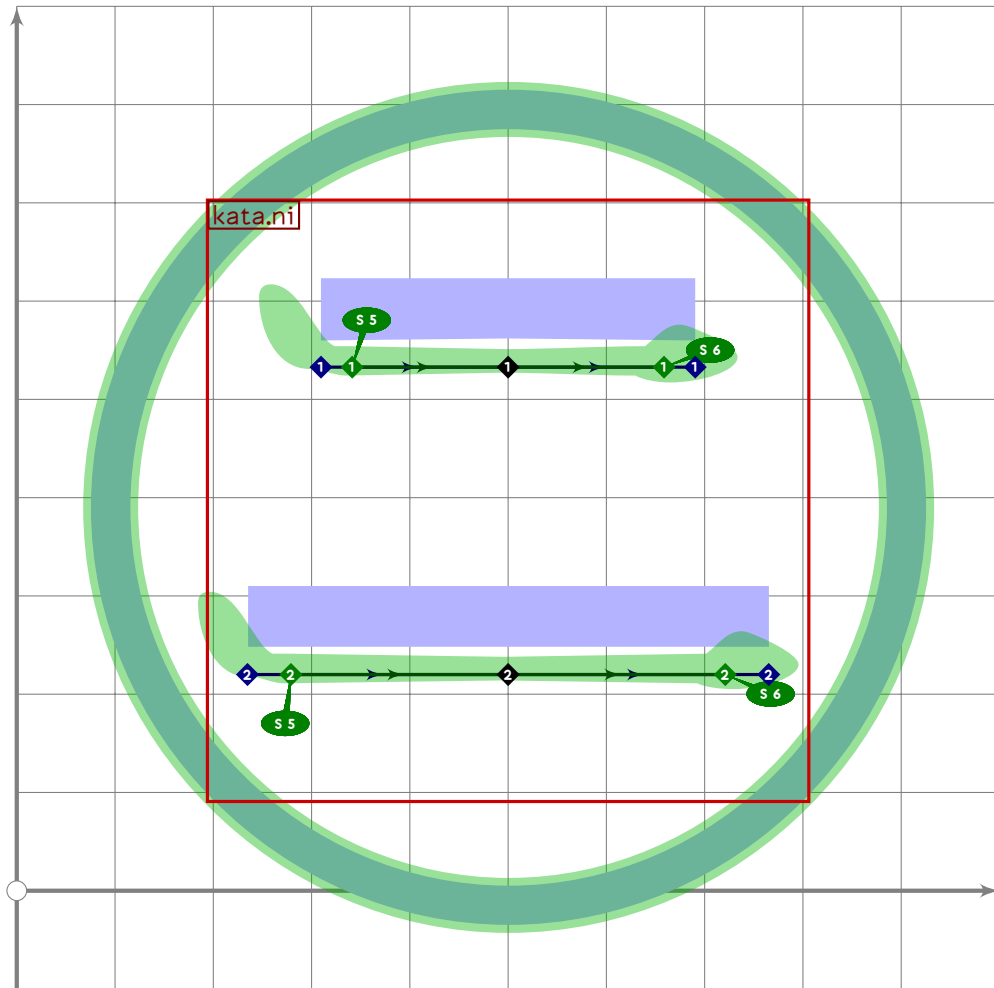
```



```

462 % circled "na"
463 begint Suglyph("uni32E4";228);
464   circle.single;
465   tsu_xform(tsu_xf.circled)(kata.na);
466   tsu_render_in_circle(tsu_xf.cbound);
467 endsuglyph;
468

```



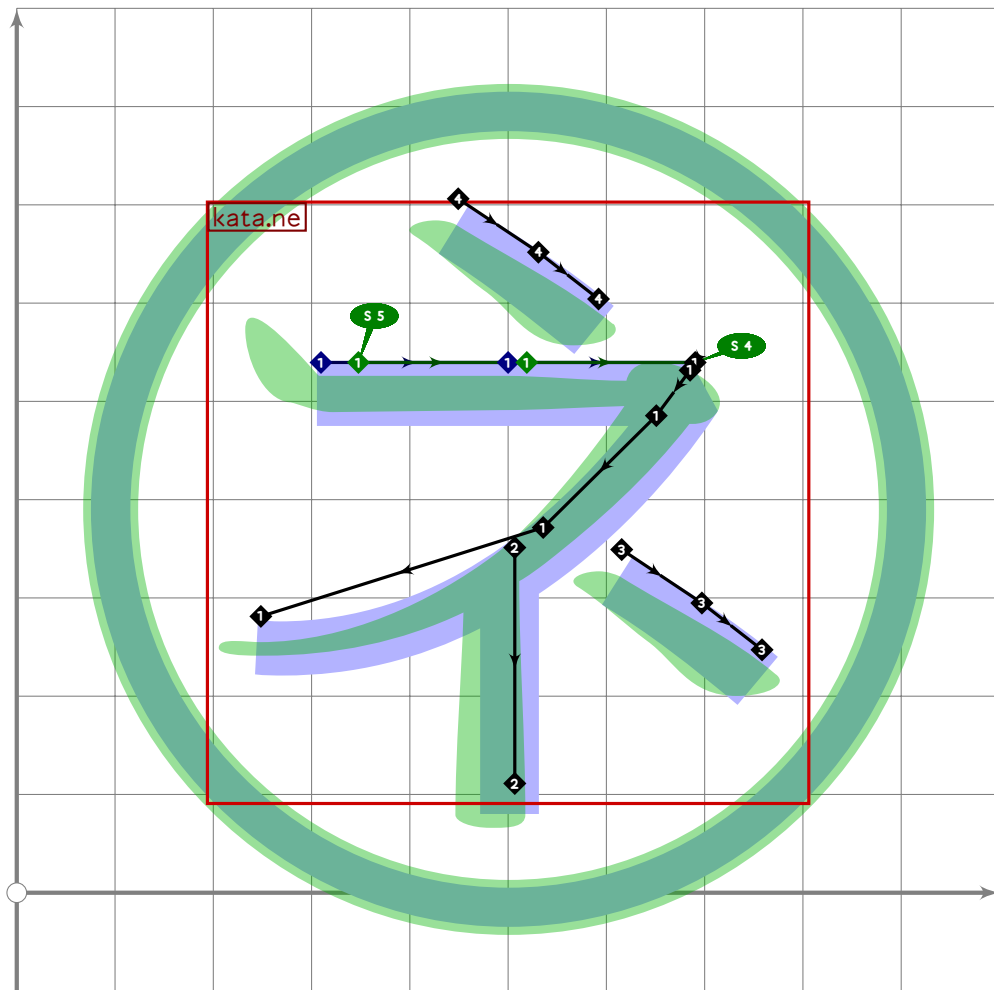
```

469 % circled "ni"
470 begint Suglyph("uni32E5";229);
471 circle.single;
472 tsu_xform(tsu_xf.circled)(kata.ni);
473 tsu_render_in_circle(tsu_xf.cbound);
474 endsuglyph;
475

```



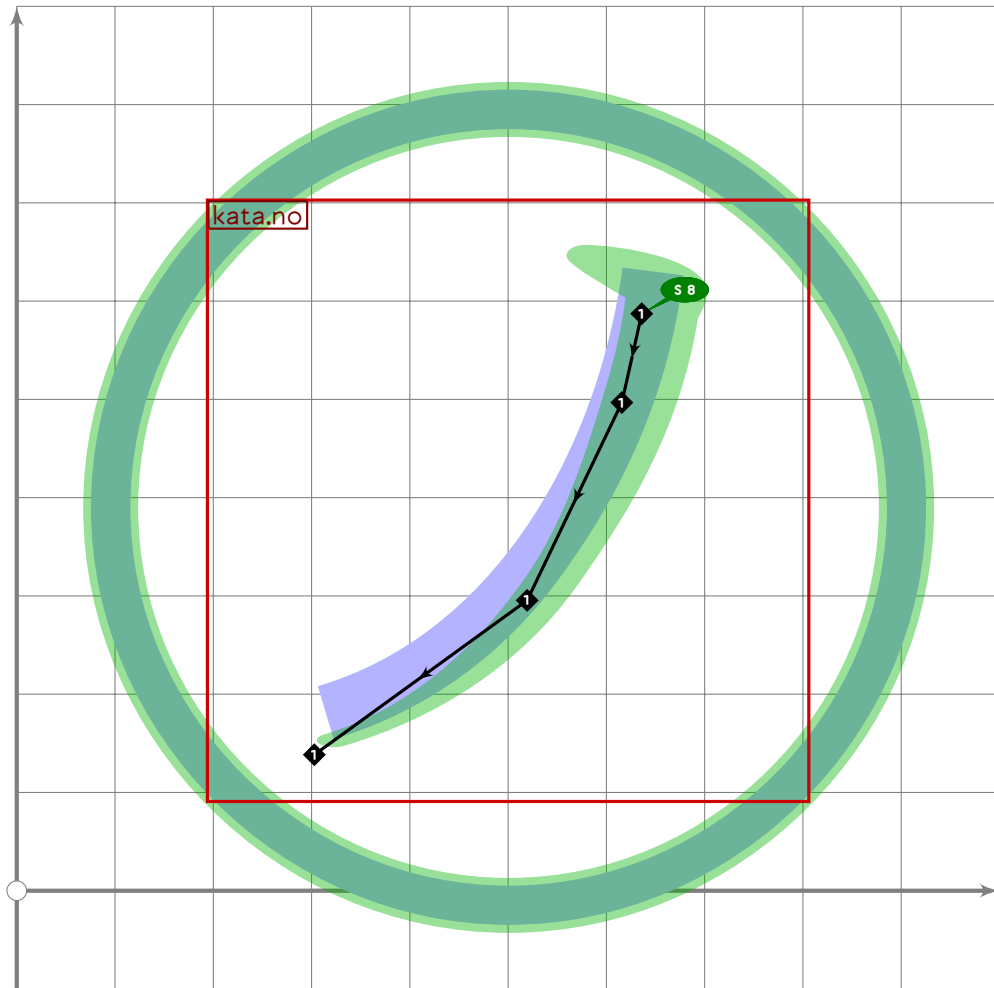




```

483 % circled "ne"
484 begint Suglyph("uni32E7";231);
485 circle.single;
486 tsu_xform(tsu_xf.circled)(kata.ne);
487 tsu_render_in_circle(tsu_xf.cbound);
488 endsuglyph;
489

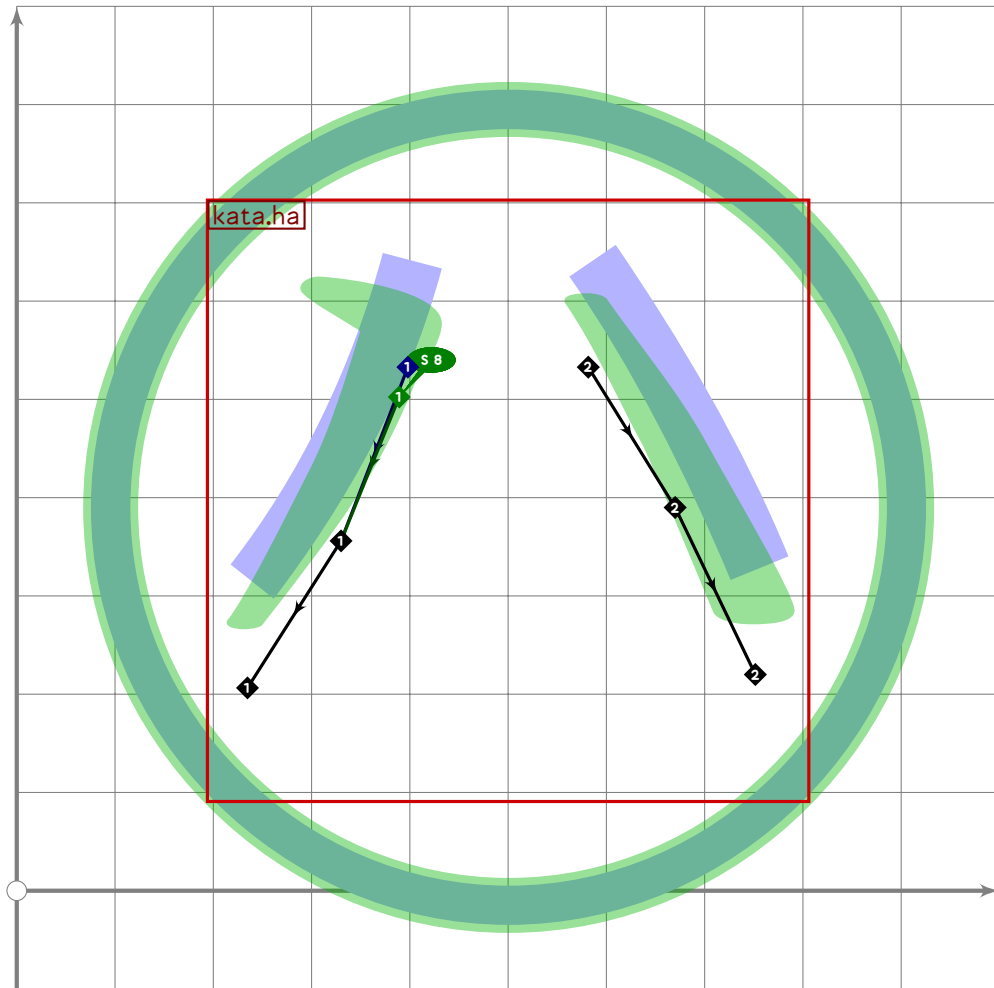
```



```

490 % circled "no"
491 begint Suglyph("uni32E8",232);
492   circle.single;
493   tsu_xform(tsu_xf.circled)(kata.no);
494   tsu_render_in_circle(tsu_xf.cbound);
495 endsuglyph;
496

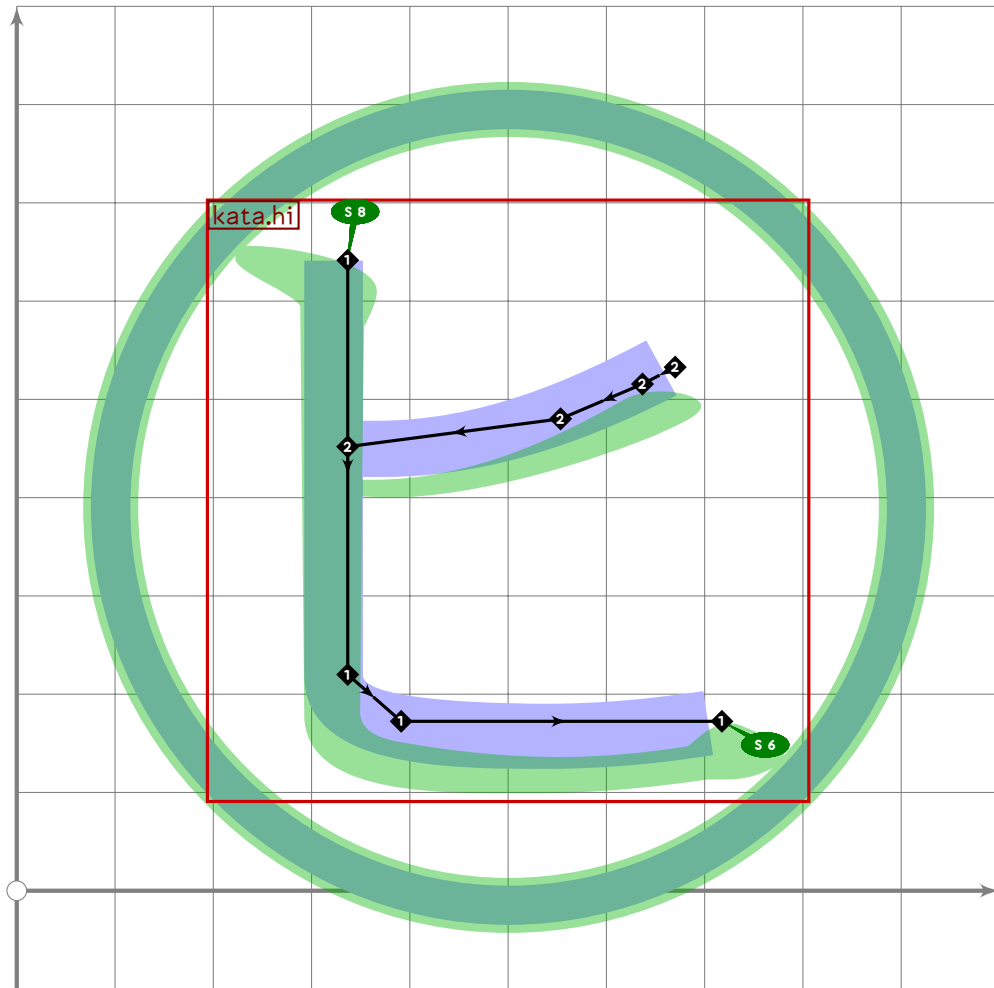
```



```

497 % circled "ha"
498 begint Suglyph("uni32E9",233);
499 circle.single;
500 tsu_xform(tsu_xf.circled)(kata.ha);
501 tsu_render_in_circle(tsu_xf.cbound);
502 endsuglyph;
503

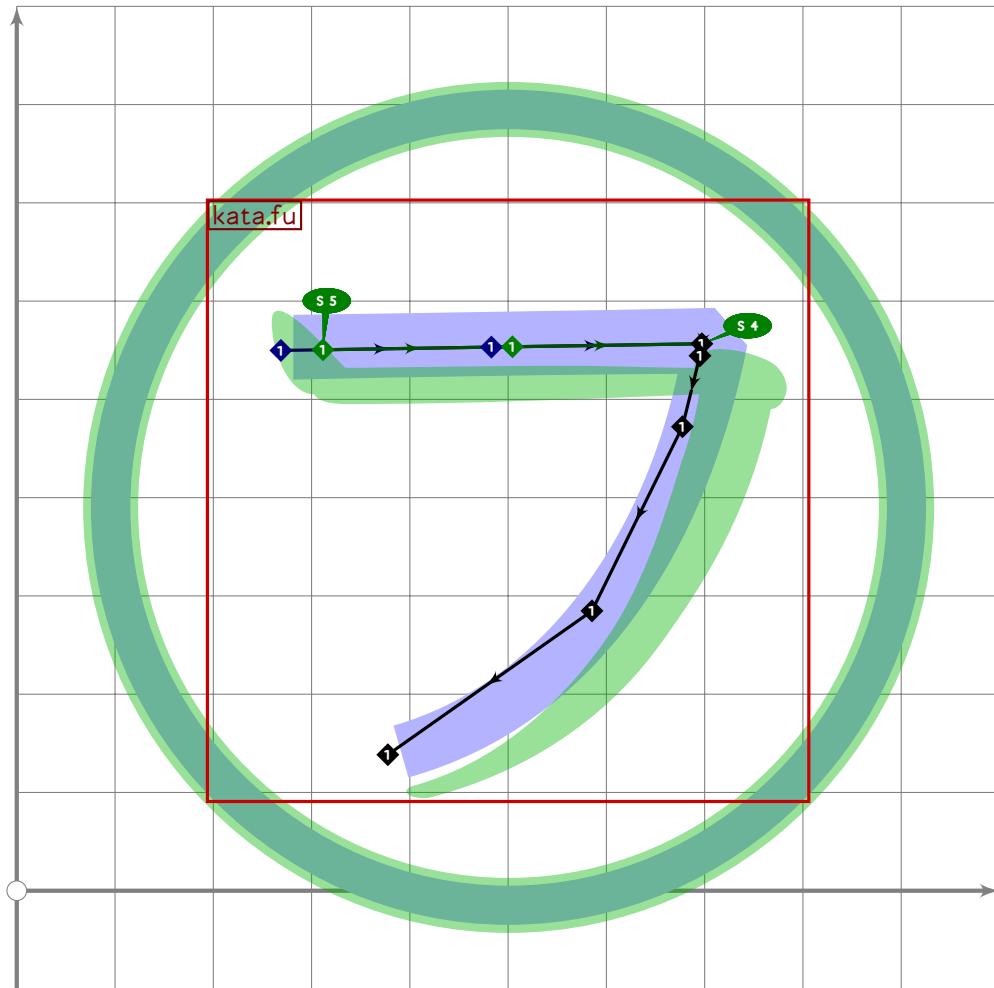
```



```

504 % circled "hi"
505 begint Suglyph("uni32EA",234);
506   circle.single;
507   tsu_xform(tsu_xf.circled)(kata.hi);
508   tsu_render_in_circle(tsu_xf.cbound);
509 endsuglyph;
510

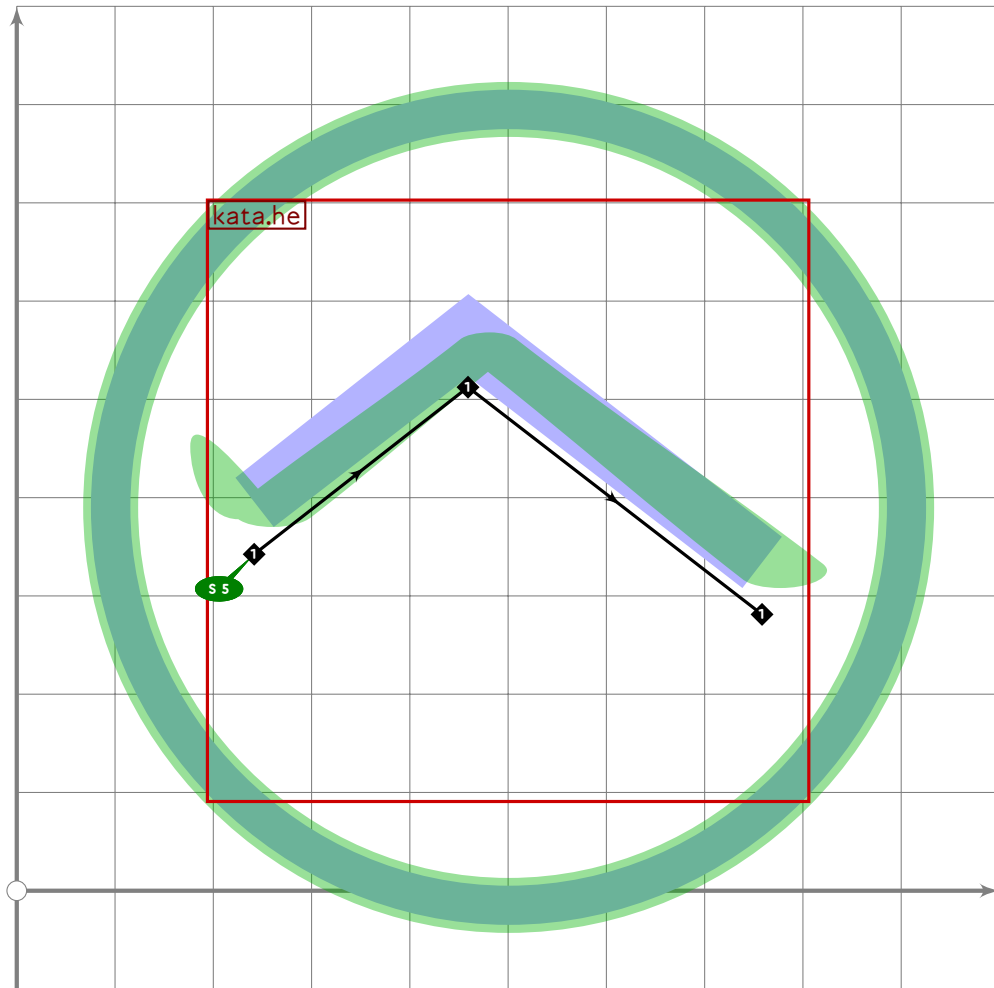
```



```

511 % circled "fu"
512 begint Suglyph("uni32EB";235);
513   circle.single;
514   tsu_xform(tsu_xf.circled)(kata.fu);
515   tsu_render_in_circle(tsu_xf.cbound);
516 endsuglyph;
517

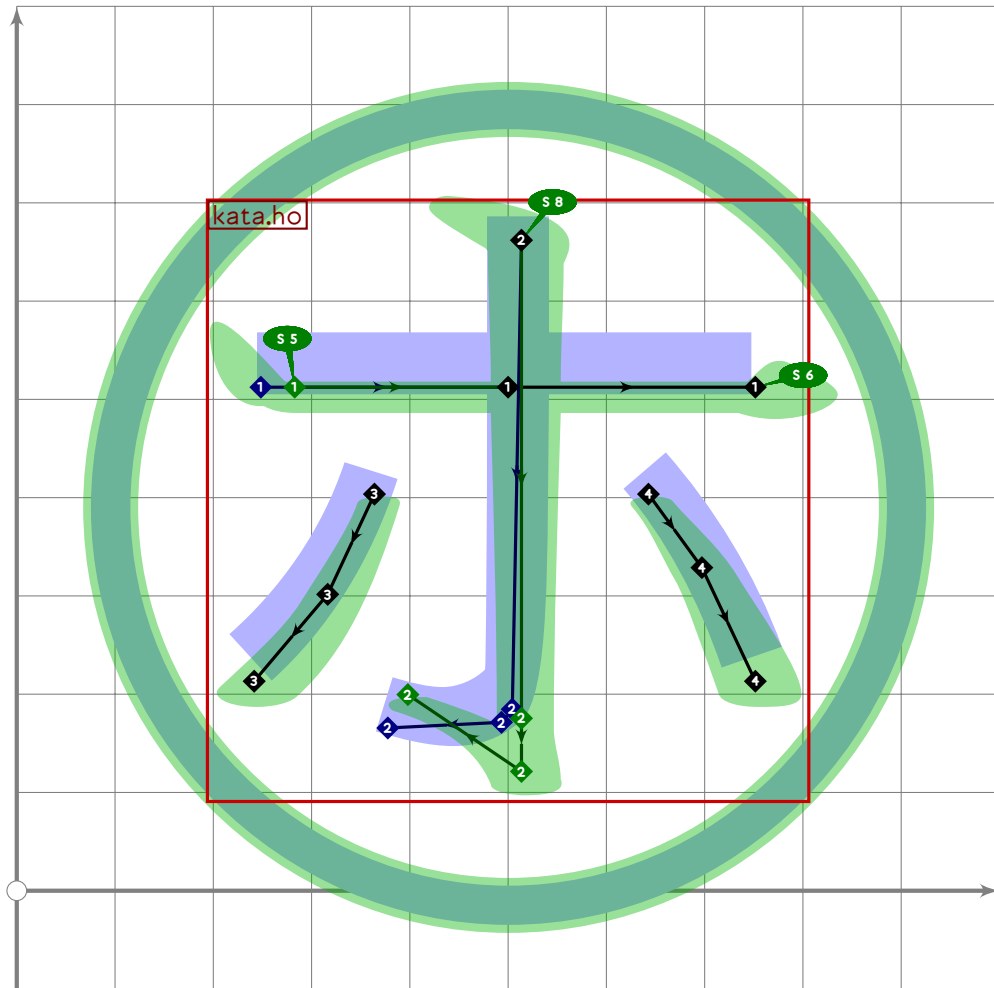
```



```

518 % circled "he"
519 begint Suglyph("uni32EC",236);
520 circle.single;
521 tsu_xform(tsu_xf.circled)(kata.he);
522 tsu_render_in_circle(tsu_xf.cbound);
523 endsuglyph;
524

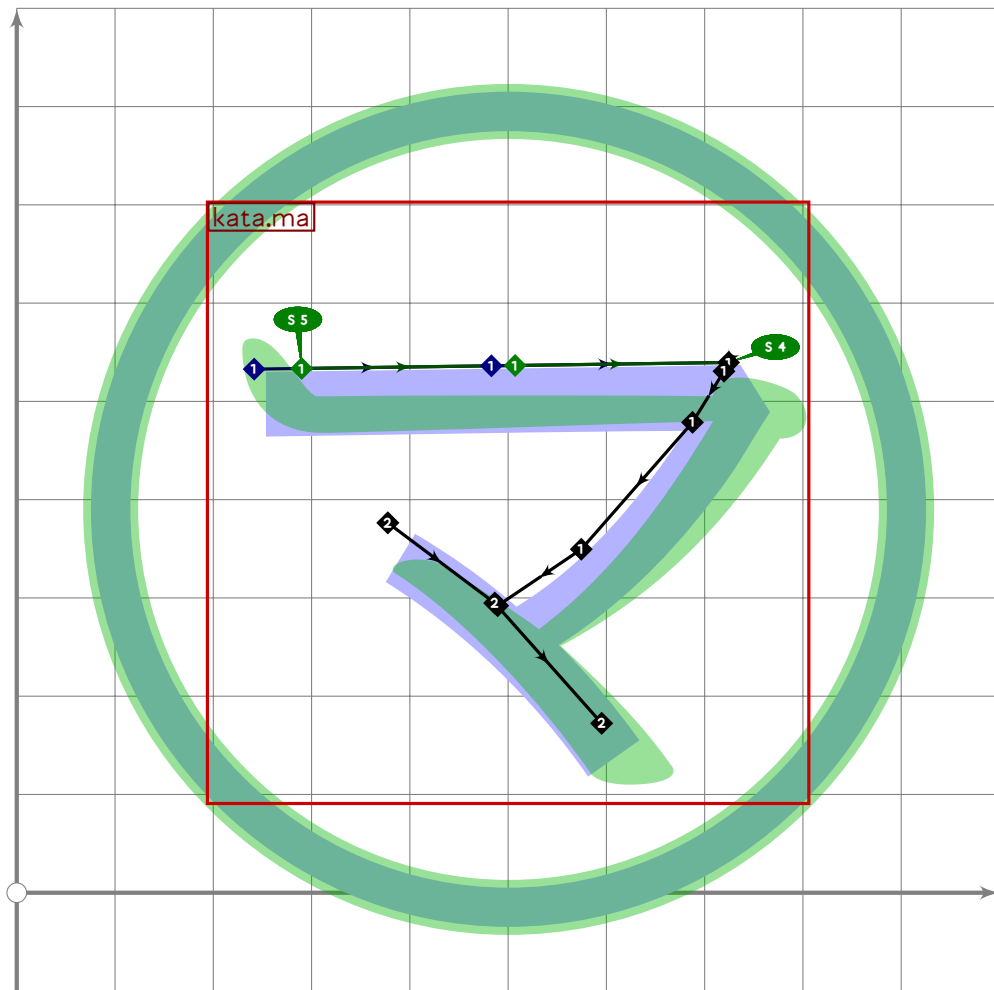
```



```

525 % circled "ho"
526 begint Suglyph("uni32ED";237);
527 circle.single;
528 tsu_xform(tsu_xf.circled)(kata.ho);
529 tsu_render_in_circle(tsu_xf.cbound);
530 endsuglyph;
531

```

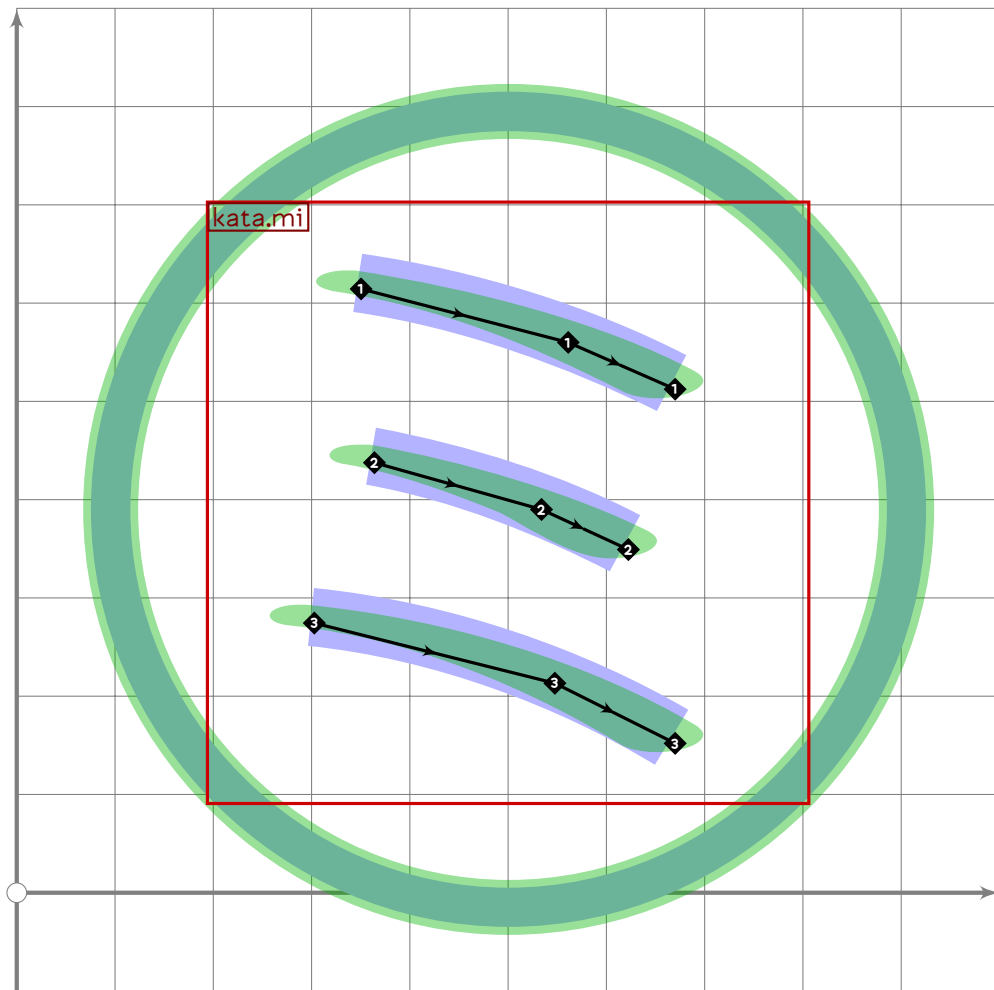


```

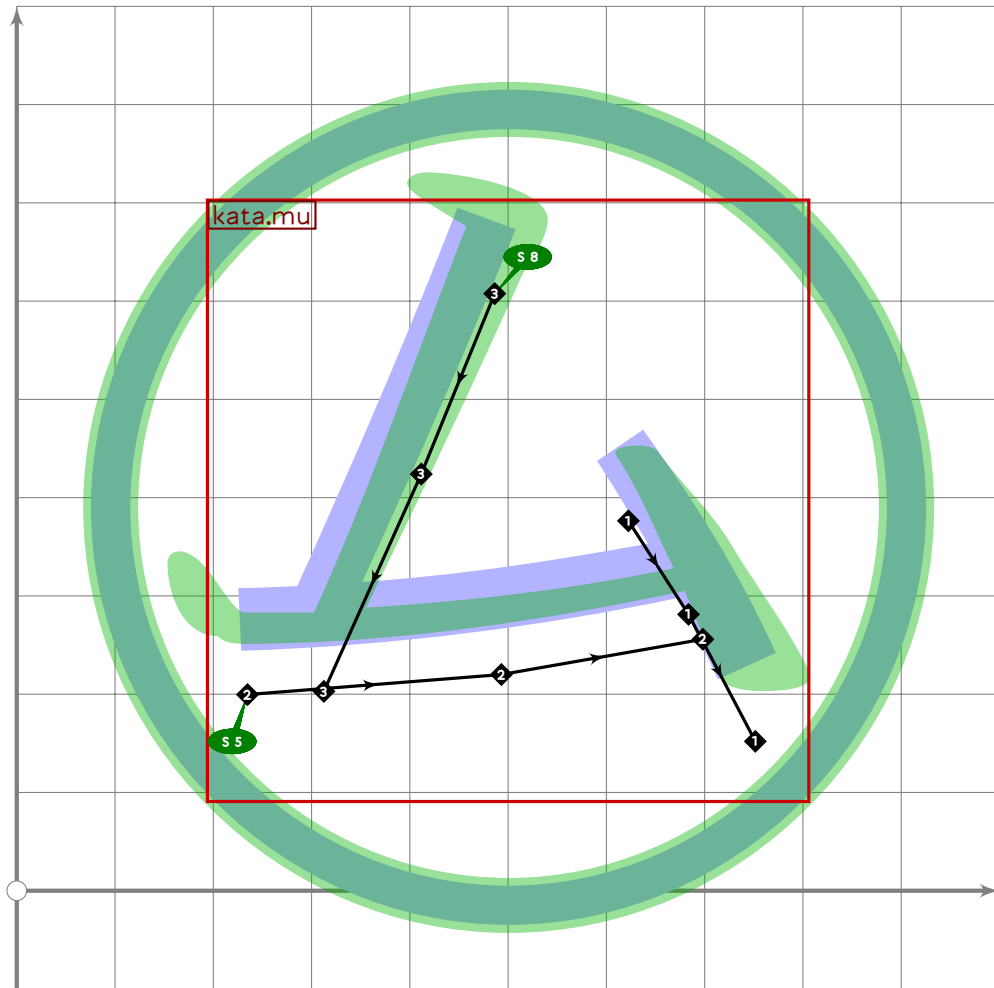
532 % circled "ma"
533 begint Suglyph("uni32EE";238);
534   circle.single;
535   tsu_xform(tsu_xf.circled)(kata.ma);
536   tsu_render_in_circle(tsu_xf.cbound);
537 endsuglyph;
538

```





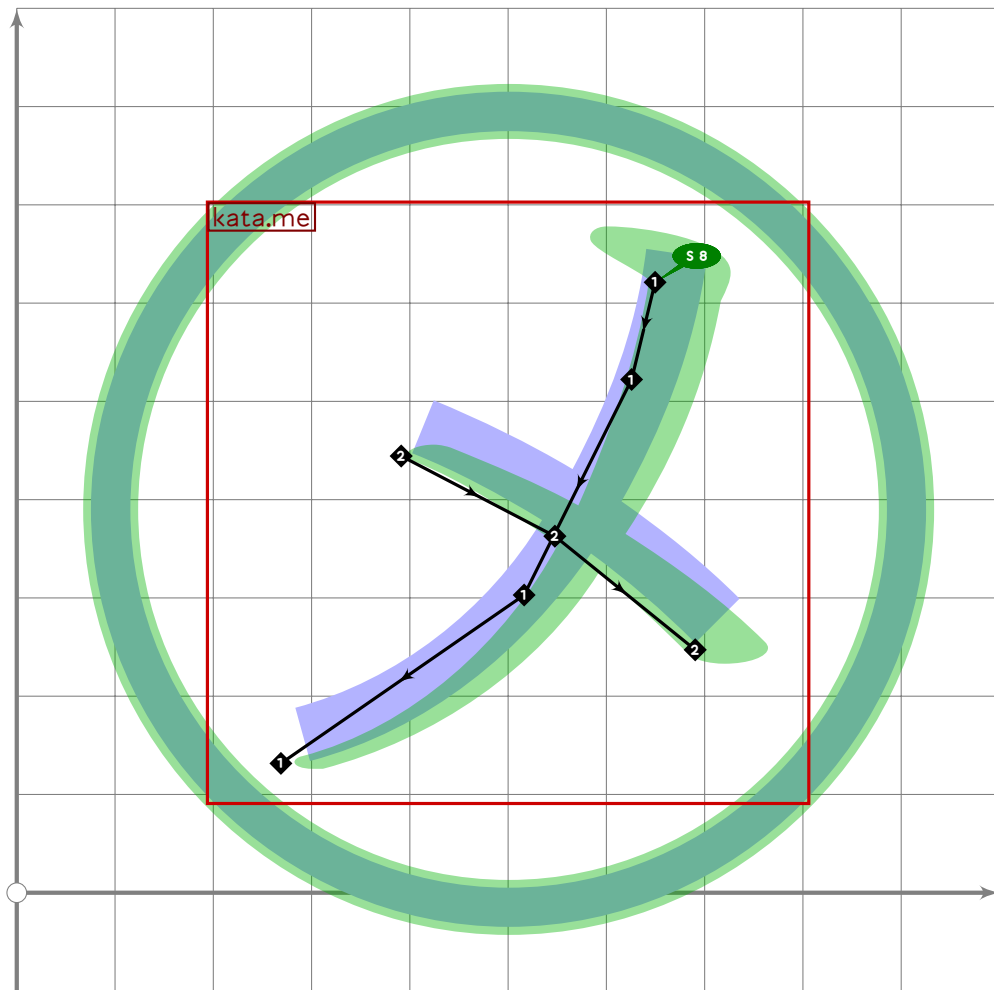
```
539 % circled "mi"  
540 begint Suglyph("uni32EF",239);  
541 circle.single;  
542 tsu_xform(tsu_xf.circled)(kata.mi);  
543 tsu_render_in_circle(tsu_xf.cbound);  
544 endsuglyph;  
545
```



```

546 % circled "mu"
547 begint Suglyph("uni32F0";240);
548   circle.single;
549   tsu_xform(tsu_xf.circled)(kata.mu);
550   tsu_render_in_circle(tsu_xf.cbound);
551 endsuglyph;
552

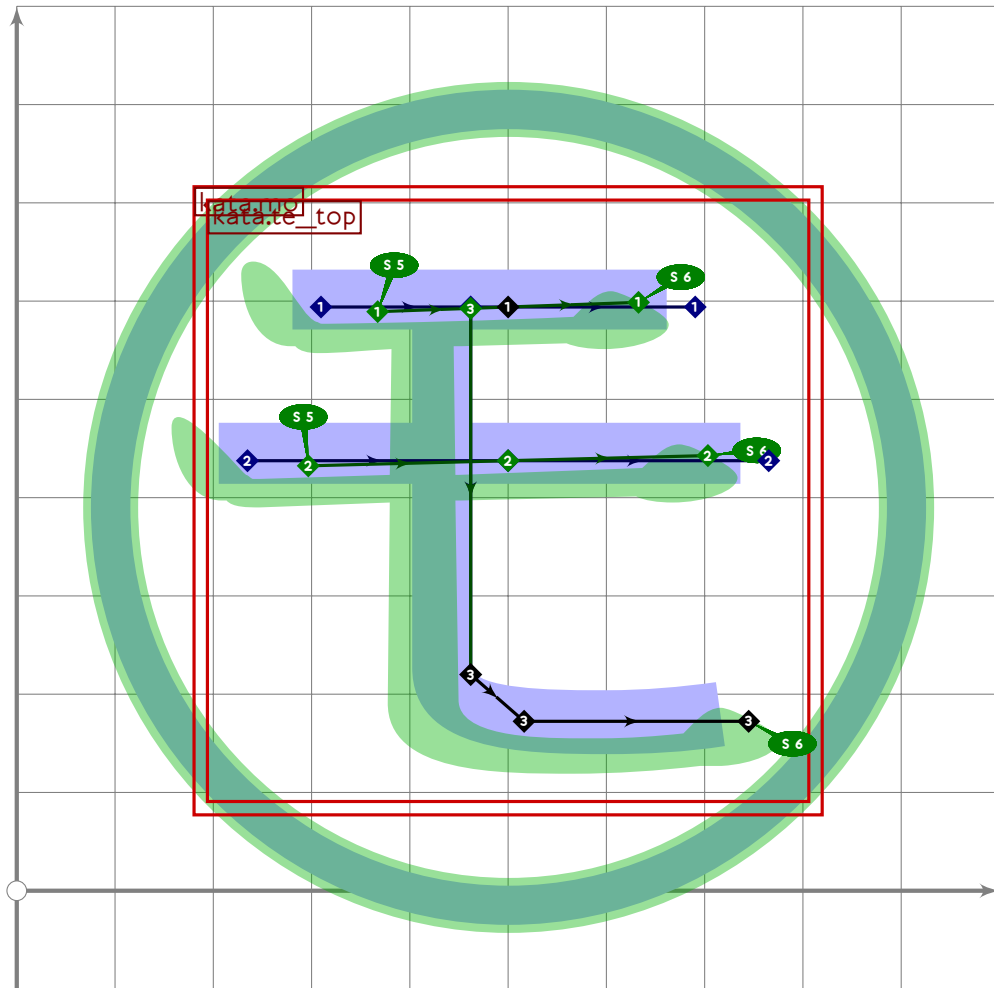
```



```

553 % circled "me"
554 begint Suglyph("uni32F1",241);
555   circle.single;
556   tsu_xform(tsu_xf.circled)(kata.me);
557   tsu_render_in_circle(tsu_xf.cbound);
558 endsuglyph;
559

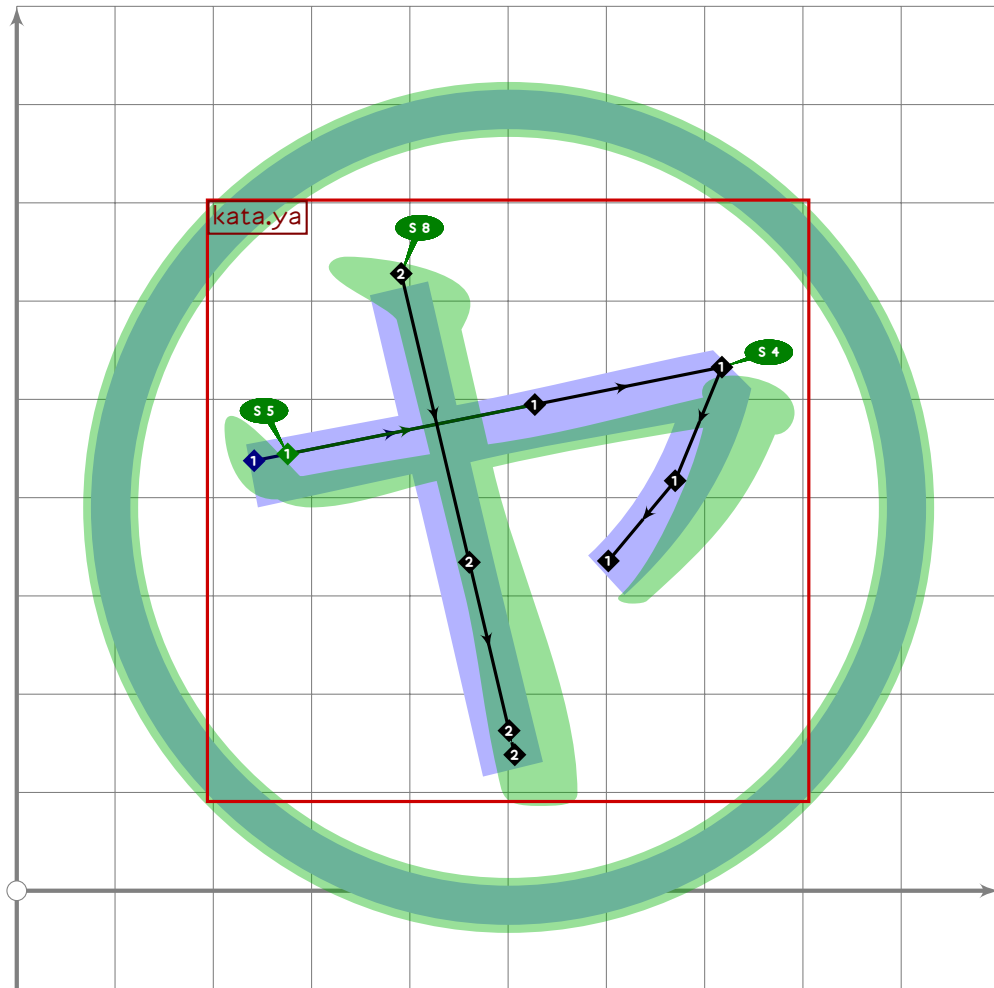
```



```

560 % circled "mo"
561 beginsuglyph("uni32F2";242);
562 circle.single;
563 tsu_xform(tsu_xf.circled)(kata.mo);
564 tsu_render_in_circle(tsu_xf.cbound);
565 endsuglyph;
566

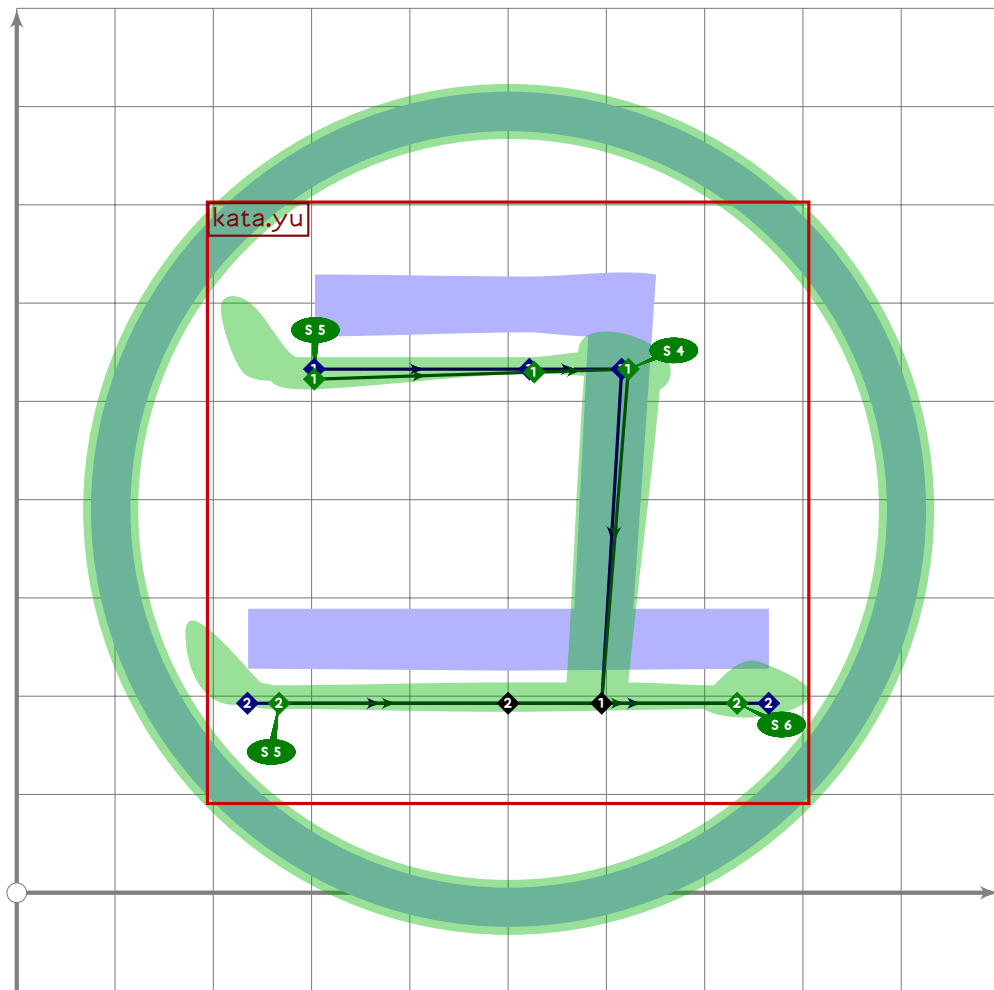
```



```

567 % circled "ya"
568 begint Suglyph("uni32F3",243);
569   circle.single;
570   tsu_xform(tsu_xf.circled)(kata.ya);
571   tsu_render_in_circle(tsu_xf.cbound);
572 endsuglyph;
573

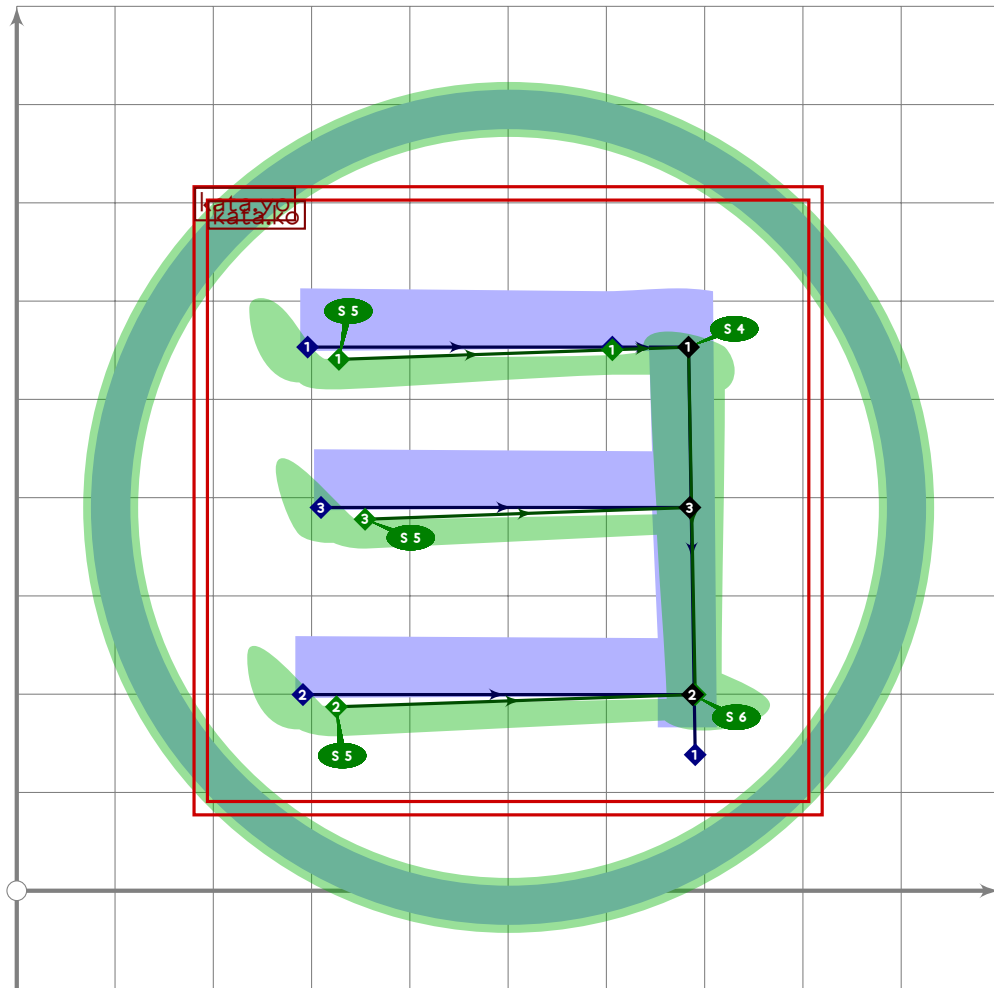
```



```

574 % circled "yu"
575 begint Suglyph("uni32F4",244);
576   circle.single;
577   tsu_xform(tsu_xf.circled)(kata.yu);
578   tsu_render_in_circle(tsu_xf.cbound);
579 endsuglyph;
580

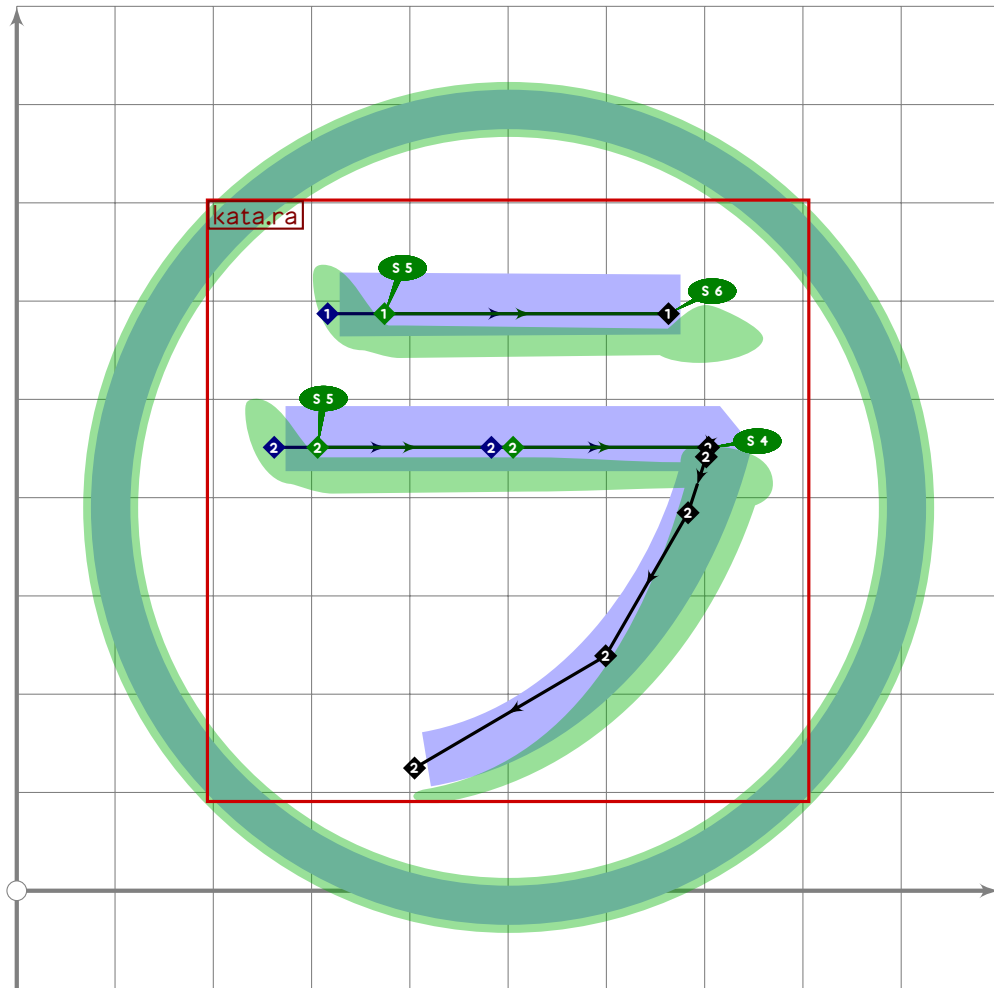
```



```

581 % circled "yo"
582 begint Suglyph("uni32F5";245);
583   circle.single;
584   tsu_xform(tsu_xf.circled)(kata.yo);
585   tsu_render_in_circle(tsu_xf.cbound);
586 endsuglyph;
587

```

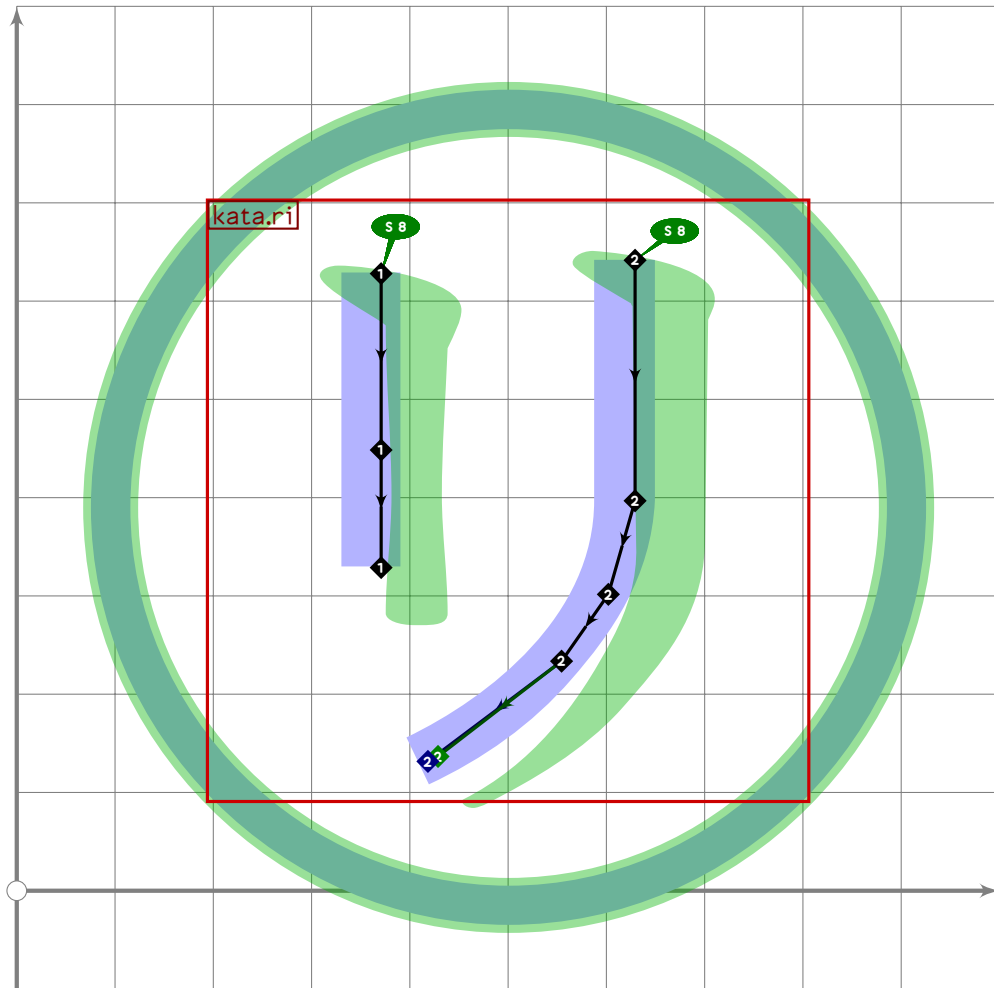


```

588 % circled "ra"
589 begint Suglyph("uni32F6";246);
590 circle.single;
591 tsu_xform(tsu_xf.circled)(kata.ra);
592 tsu_render_in_circle(tsu_xf.cbound);
593 endsuglyph;
594

```

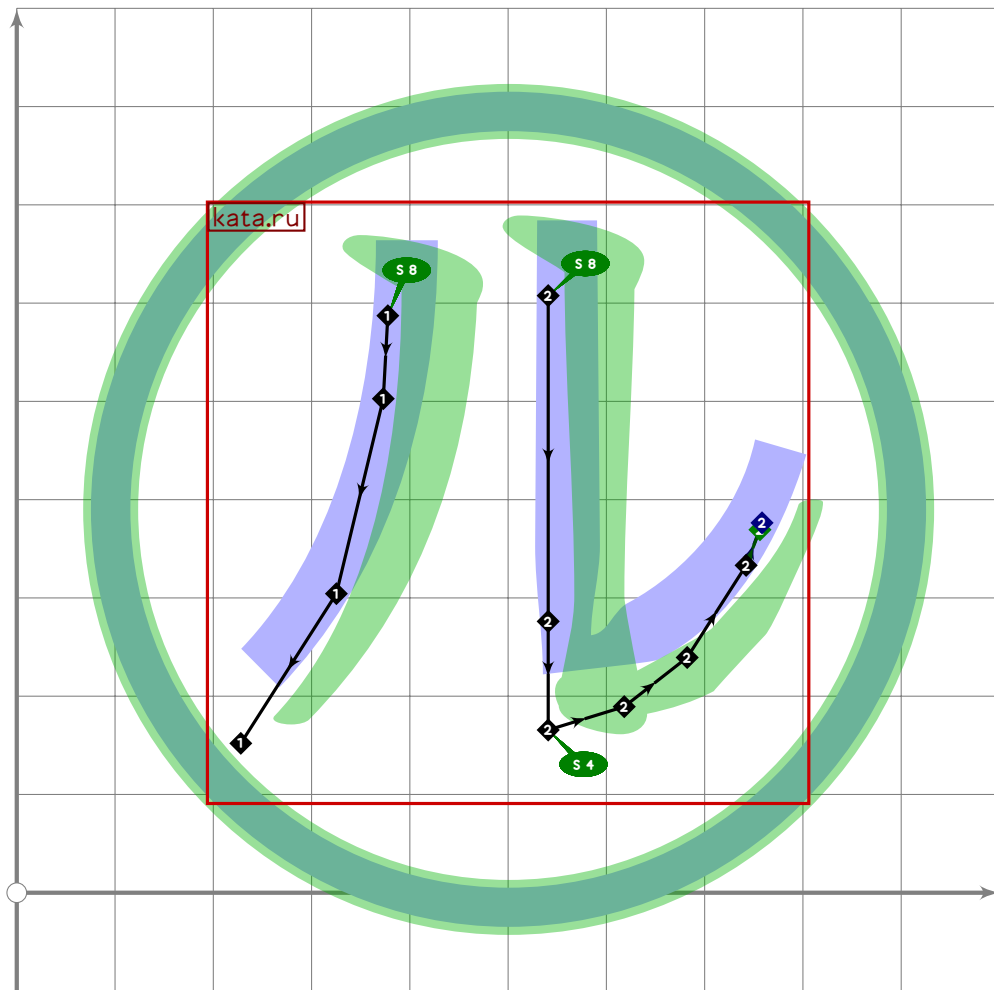




```

595 % circled "ri"
596 begint Suglyph("uni32F7",247);
597   circle.single;
598   tsu_xform(tsu_xf.circled)(kata.ri);
599   tsu_render_in_circle(tsu_xf.cbound);
600 endsuglyph;
601

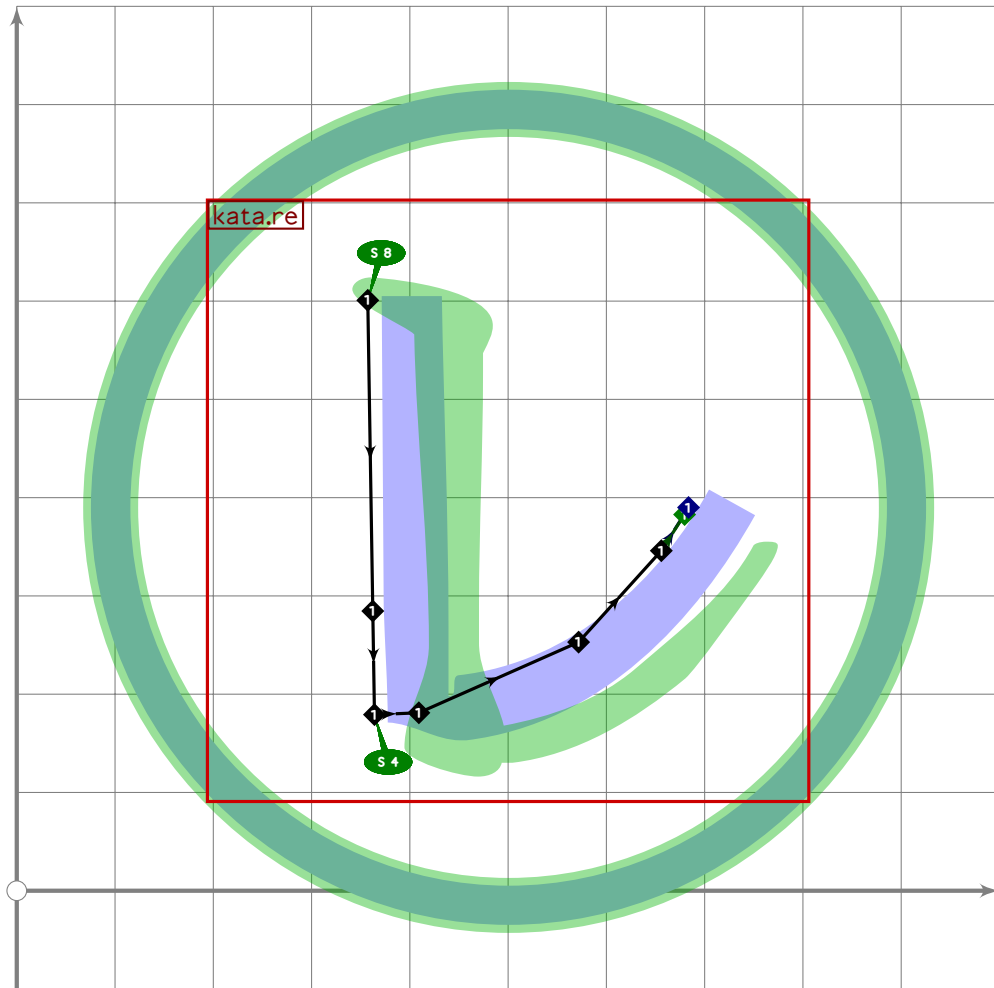
```



```

602 % circled "ru"
603 begint Suglyph("uni32F8";248);
604   circle.single;
605   tsu_xform(tsu_xf.circled)(kata.ru);
606   tsu_render_in_circle(tsu_xf.cbound);
607 endsuglyph;
608

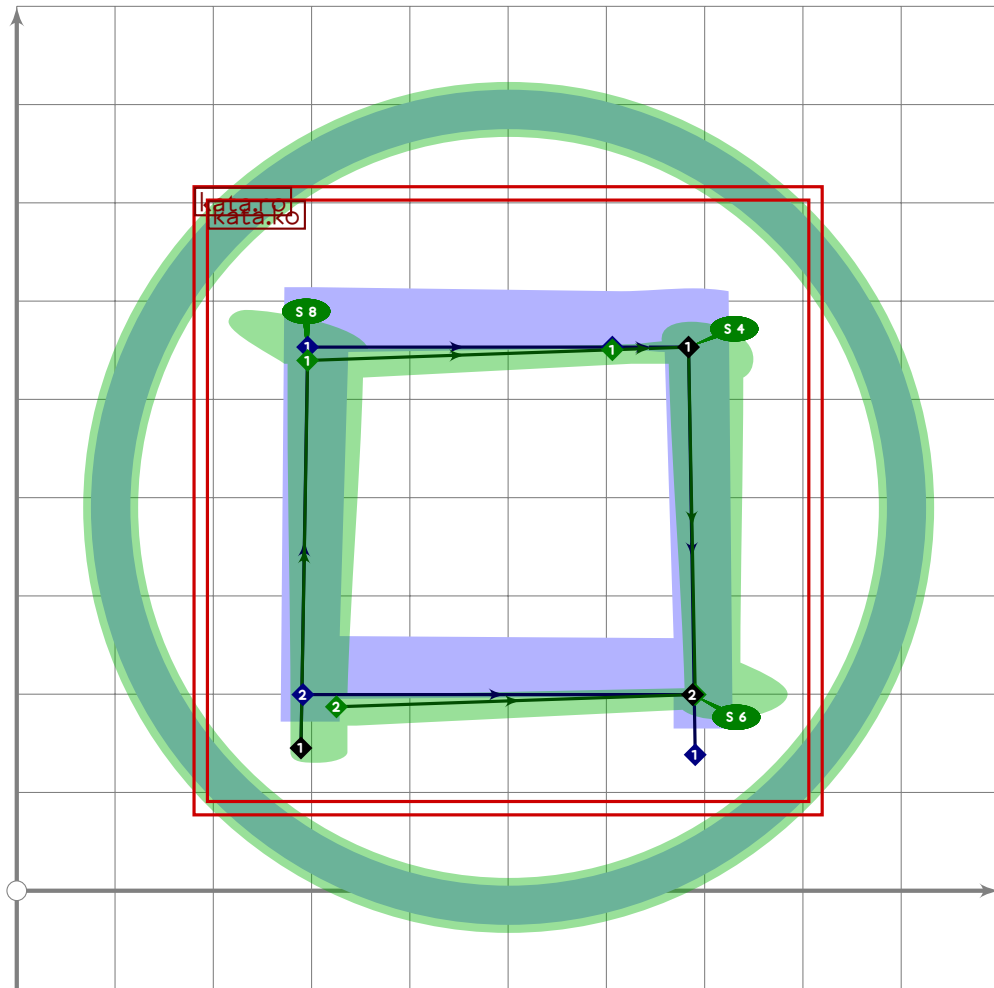
```



```

609 % circled "re"
610 begint Suglyph("uni32F9";249);
611   circle.single;
612   tsu_xform(tsu_xf.circled)(kata.re);
613   tsu_render_in_circle(tsu_xf.cbound);
614 endsuglyph;
615

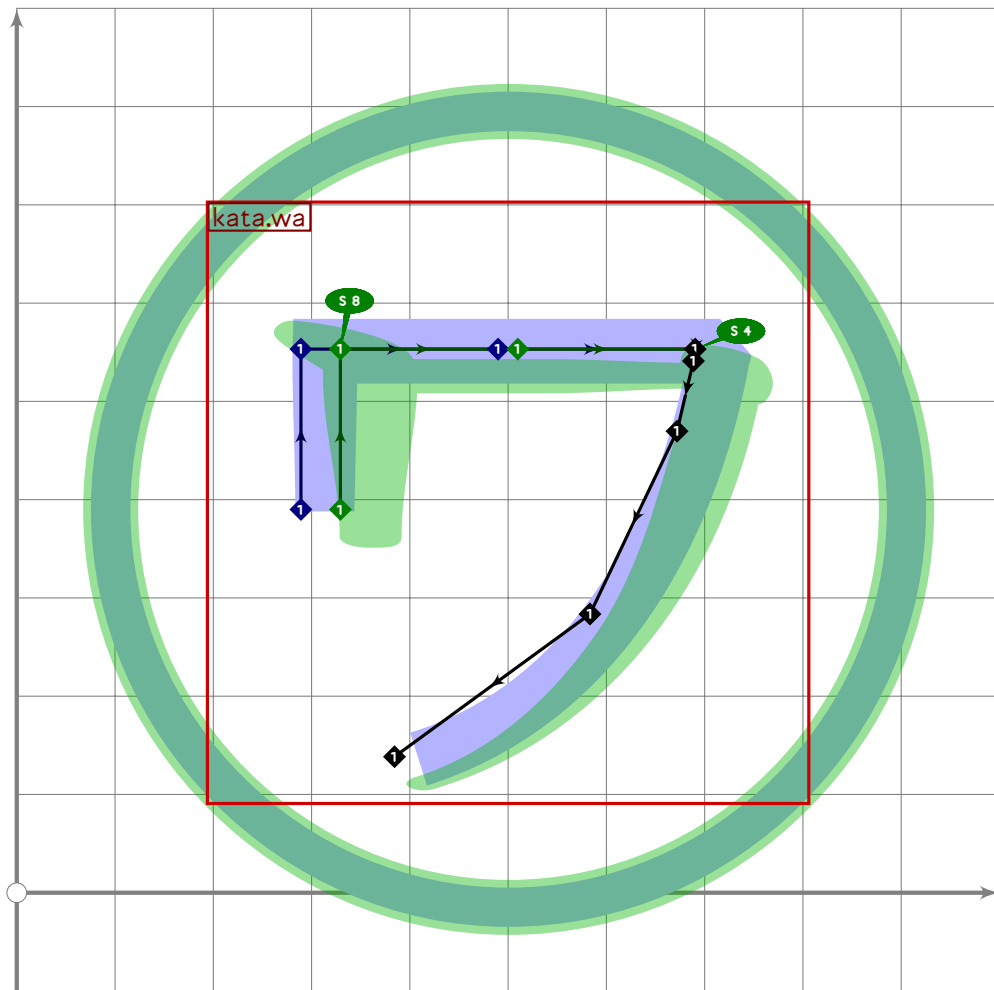
```



```

616 % circled "ro"
617 begint Suglyph("uni32FA",250);
618   circle.single;
619   tsu_xform(tsu_xf.circled)(kata.ro);
620   tsu_render_in_circle(tsu_xf.cbound);
621 endsuglyph;
622

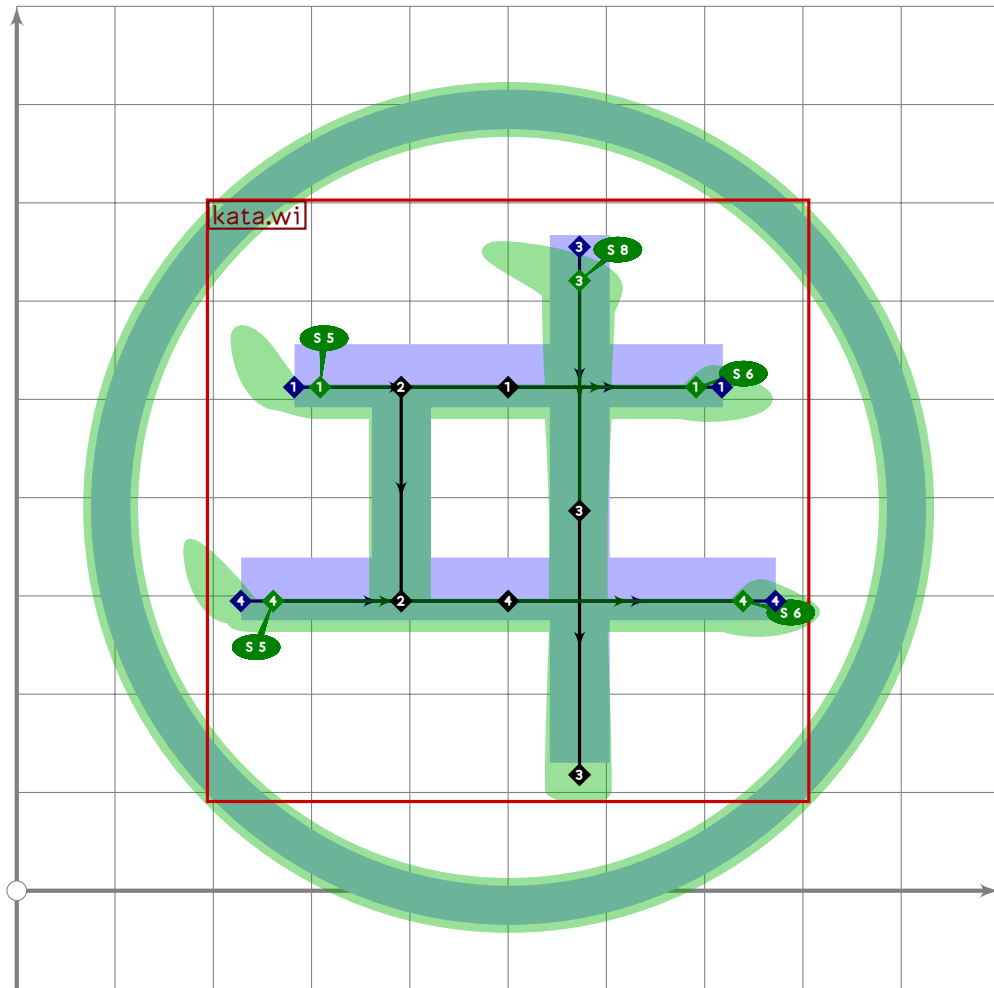
```



```

623 % circled "wa"
624 begint Suglyph("uni32FB",251);
625   circle.single;
626   tsu_xform(tsu_xf.circled)(kata.wa);
627   tsu_render_in_circle(tsu_xf.cbound);
628 endsuglyph;
629

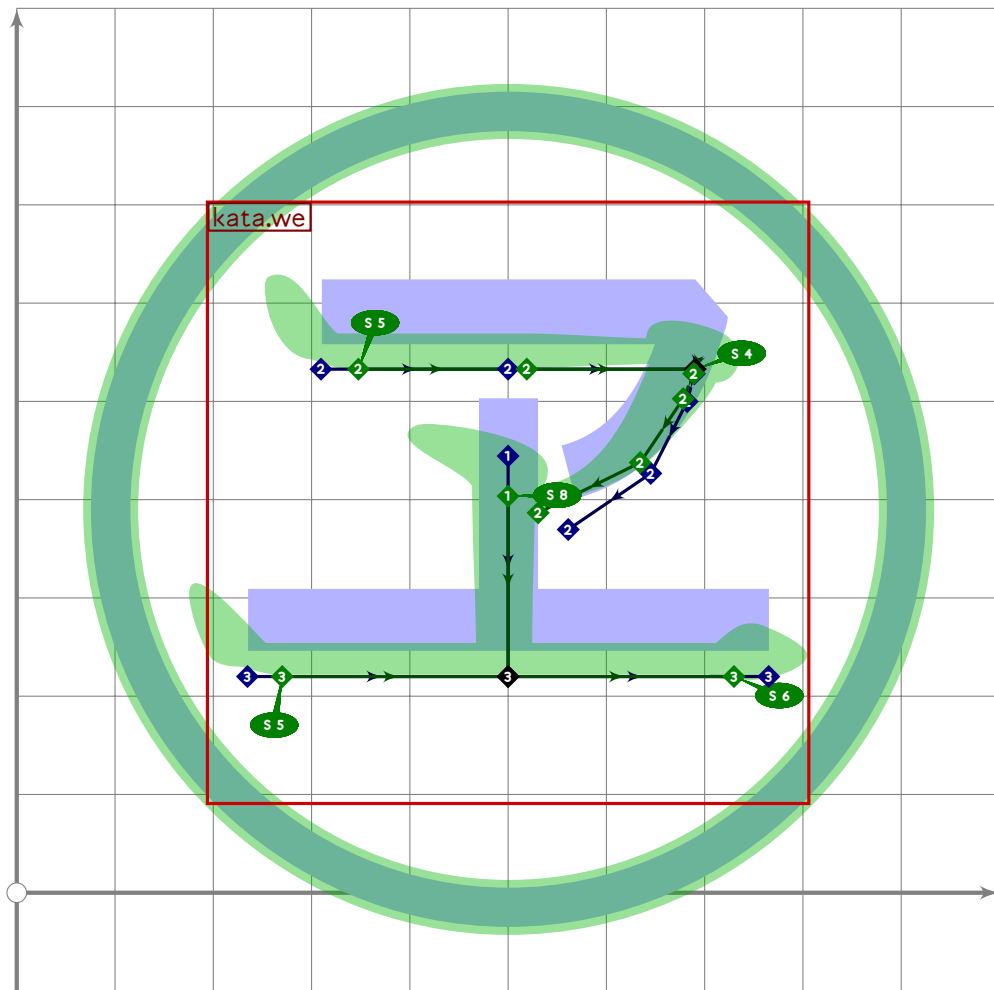
```



```

630 % circled "wi"
631 begint Suglyph("uni32FC",252);
632 circle.single;
633 tsu_xform(tsu_xf.circled)(kata.wi);
634 tsu_render_in_circle(tsu_xf.cbound);
635 endsuglyph;
636

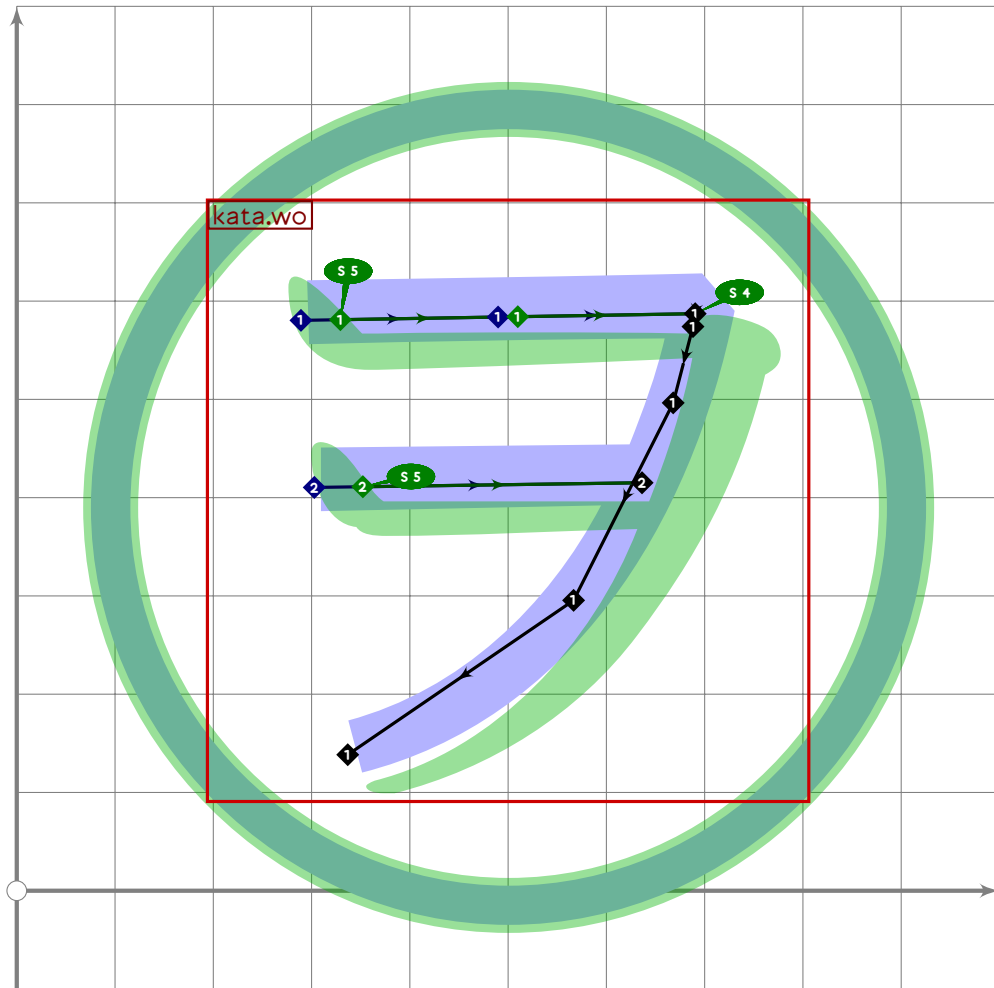
```



```

637 % circled "we"
638 begint Suglyph("uni32FD",253);
639 circle.single;
640 tsu_xform(tsu_xf.circled)(kata.we);
641 tsu_render_in_circle(tsu_xf.cbound);
642 endsuglyph;
643

```



```

644 % circled "wo"
645 begint Suglyph("uni32FE";254);
646   circle.single;
647   tsu_xform(tsu_xf.circled)(kata.wo);
648   tsu_render_in_circle(tsu_xf.cbound);
649 endsuglyph;
650
651 _____
652
653 endfont;
654
655 _____

```



# tsuku-4d.mp

```
1 %
2 % Unicode page 4D (I Ching/Yijing) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---

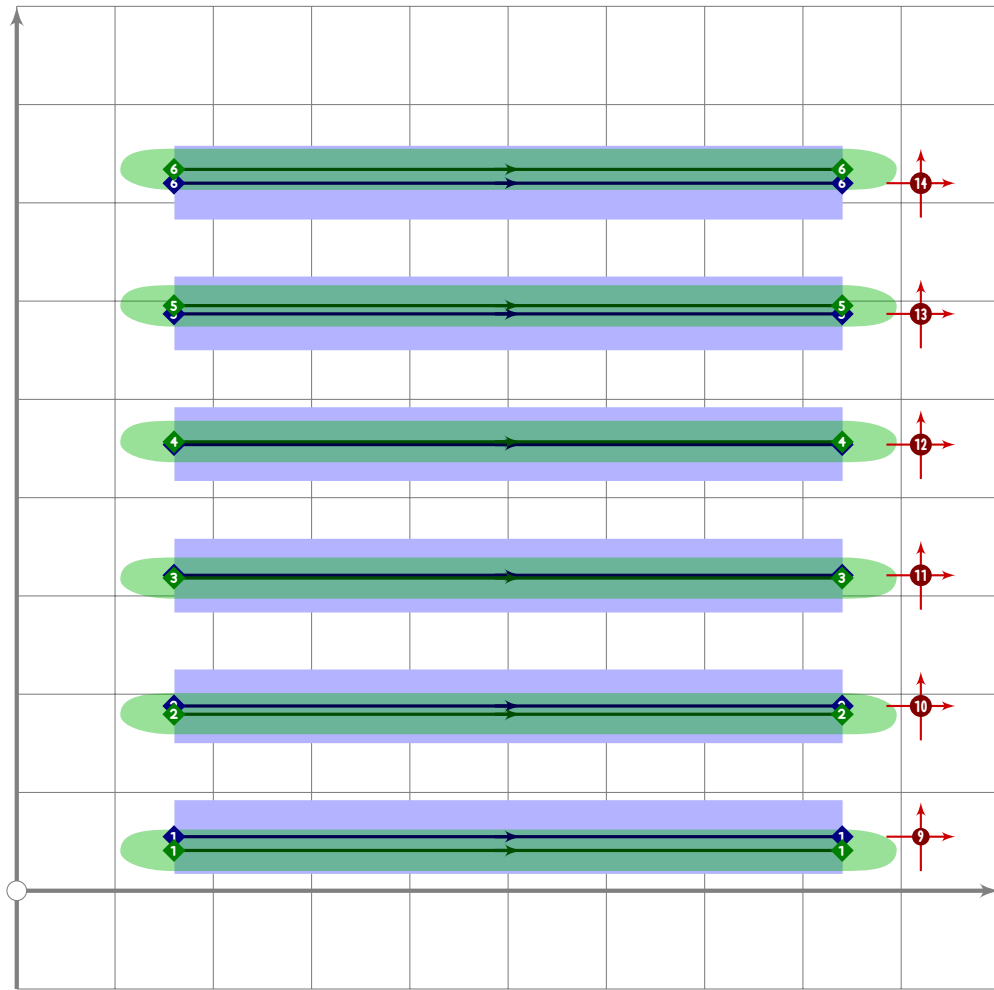

32
33 beginfont
34
35 input latin-intro.mp;
36
37 % AUTODEPS
38 input iching.mp;
39
40 

---


41
```

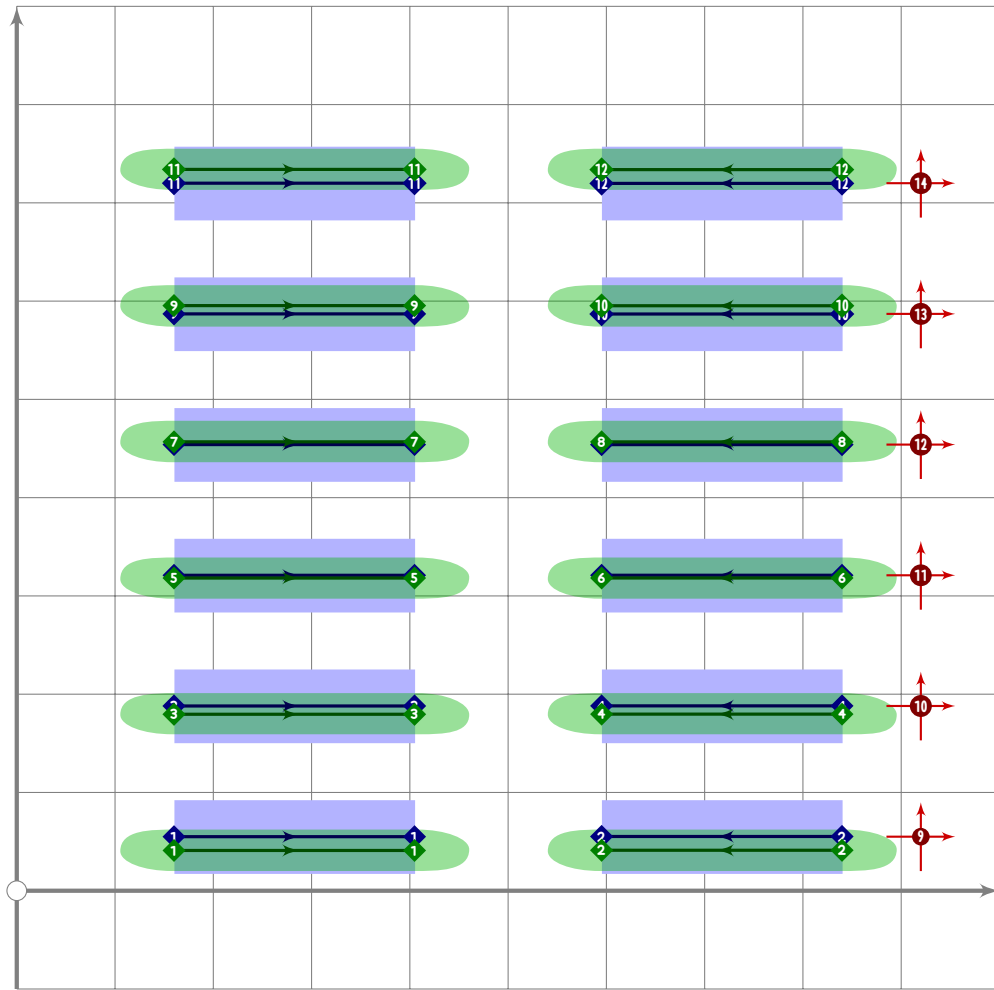
## I Ching

```
42 % I CHING
43
44 vardef make_hexagram(expr i,la,lb,lc,ld,le,lf) =
45   string hexname;
46   hexname:=if i<10: "iching0" else: "iching" fi & decimal i;
47   begint Suglyph(hexname,i+191);
48   iching.line(1,6,la);
49   iching.line(2,6,lb);
50   iching.line(3,6,lc);
51   iching.line(4,6,ld);
52   iching.line(5,6,le);
53   iching.line(6,6,lf);
54   tsu_render;
55   endtsuglyph;
56 enddef;
```

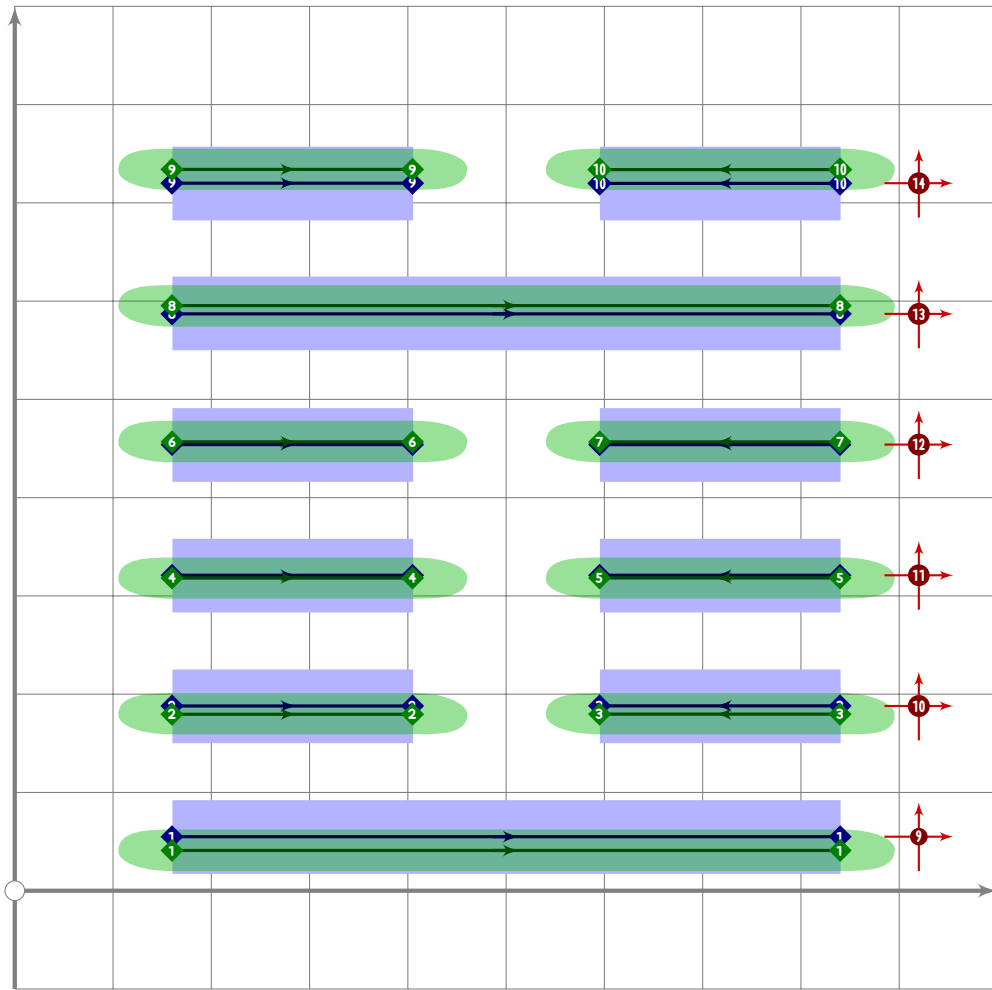


57

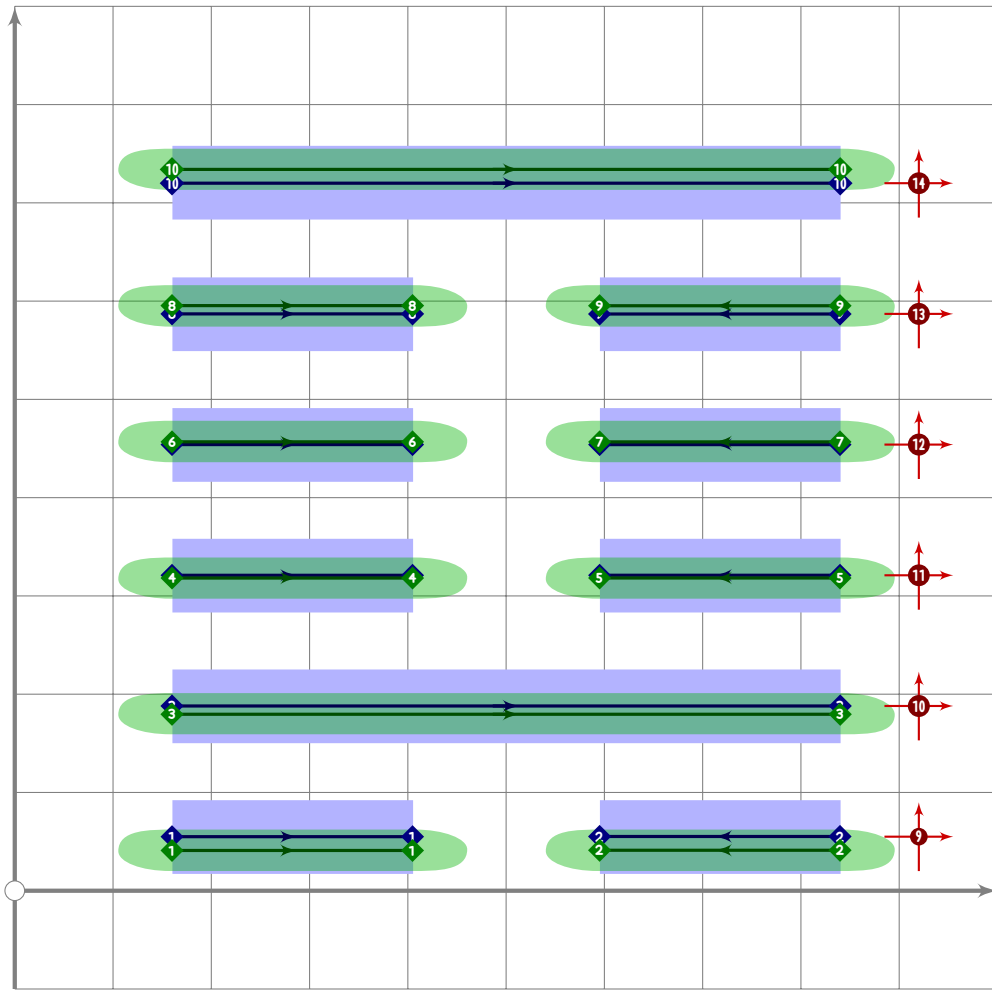
58 `make_hexagram(1, 1,1,1,1,1);`



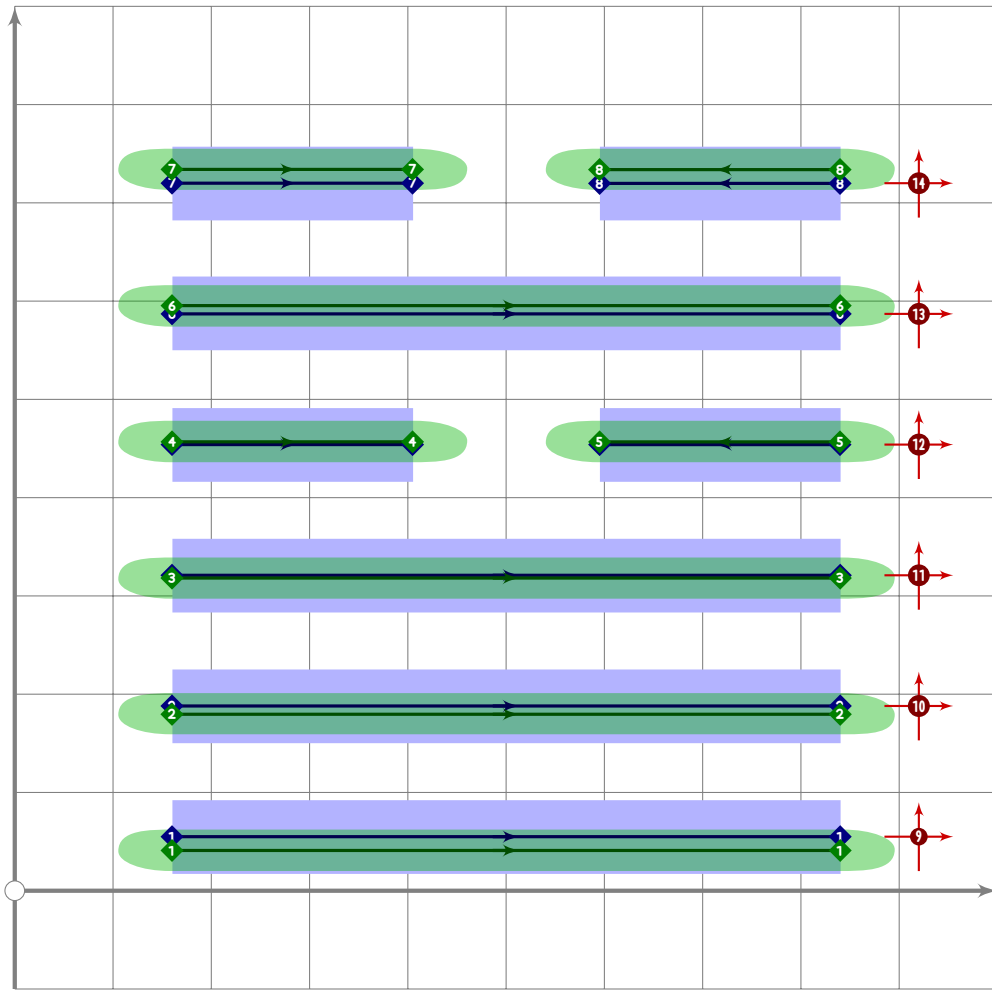
59 `make_hexagram(2, 0,0,0,0,0,0);`



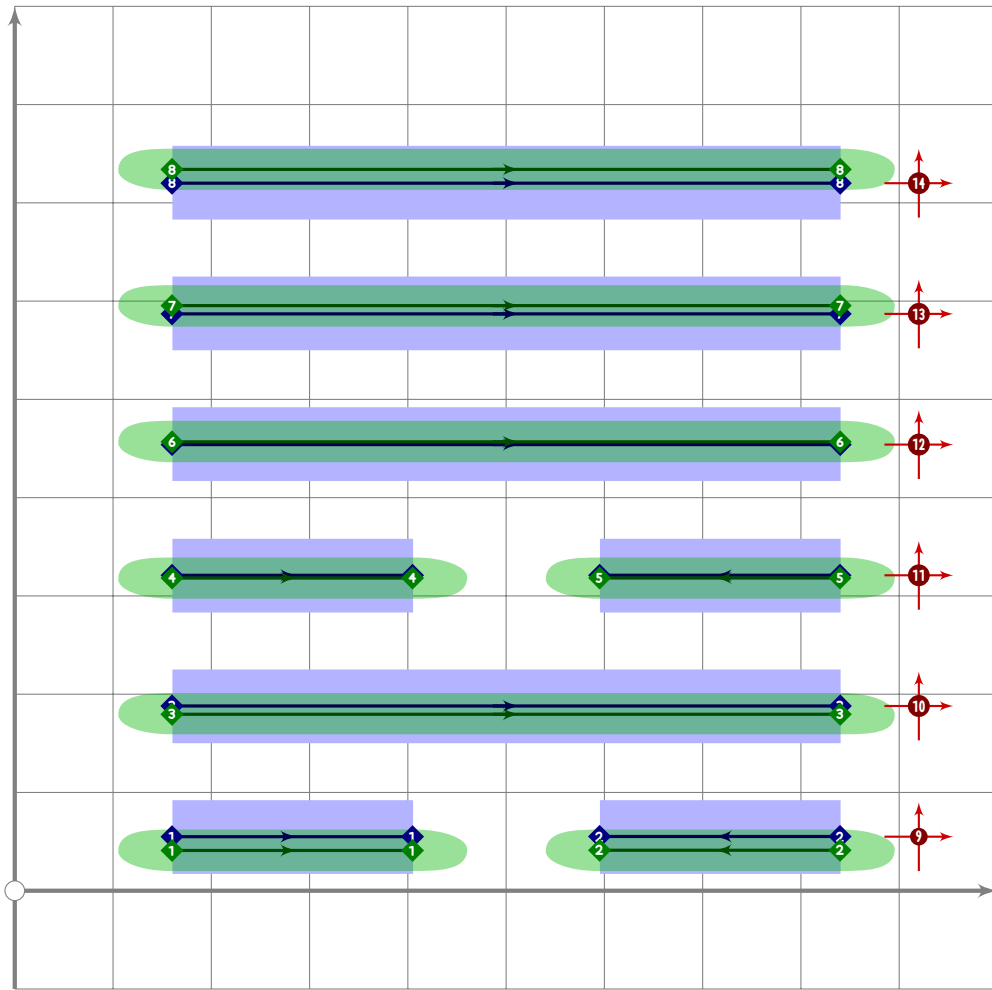
60 `make_hexagram(3, 1,0,0,0,1,0);`



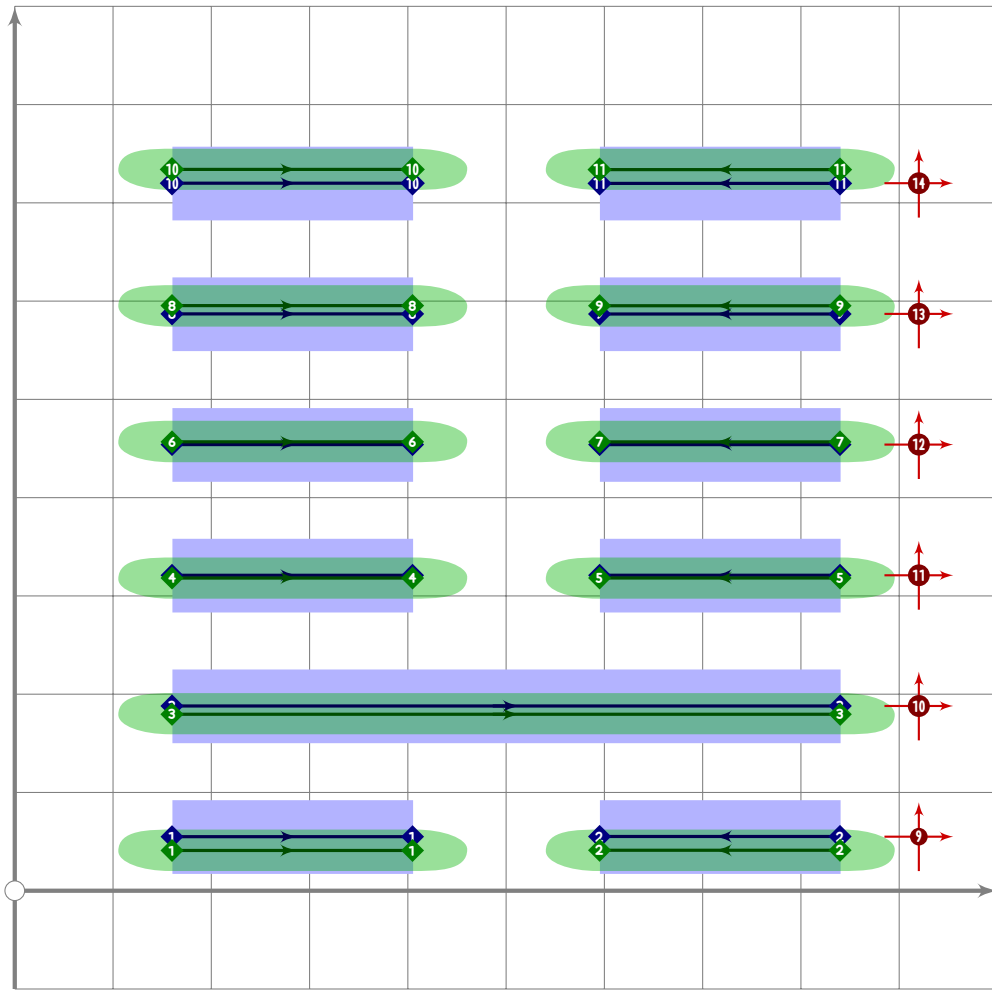
61 `make_hexagram(4, 0,1,0,0,0,1);`



62 `make_hexagram(5, 1,1,1,0,1,0);`

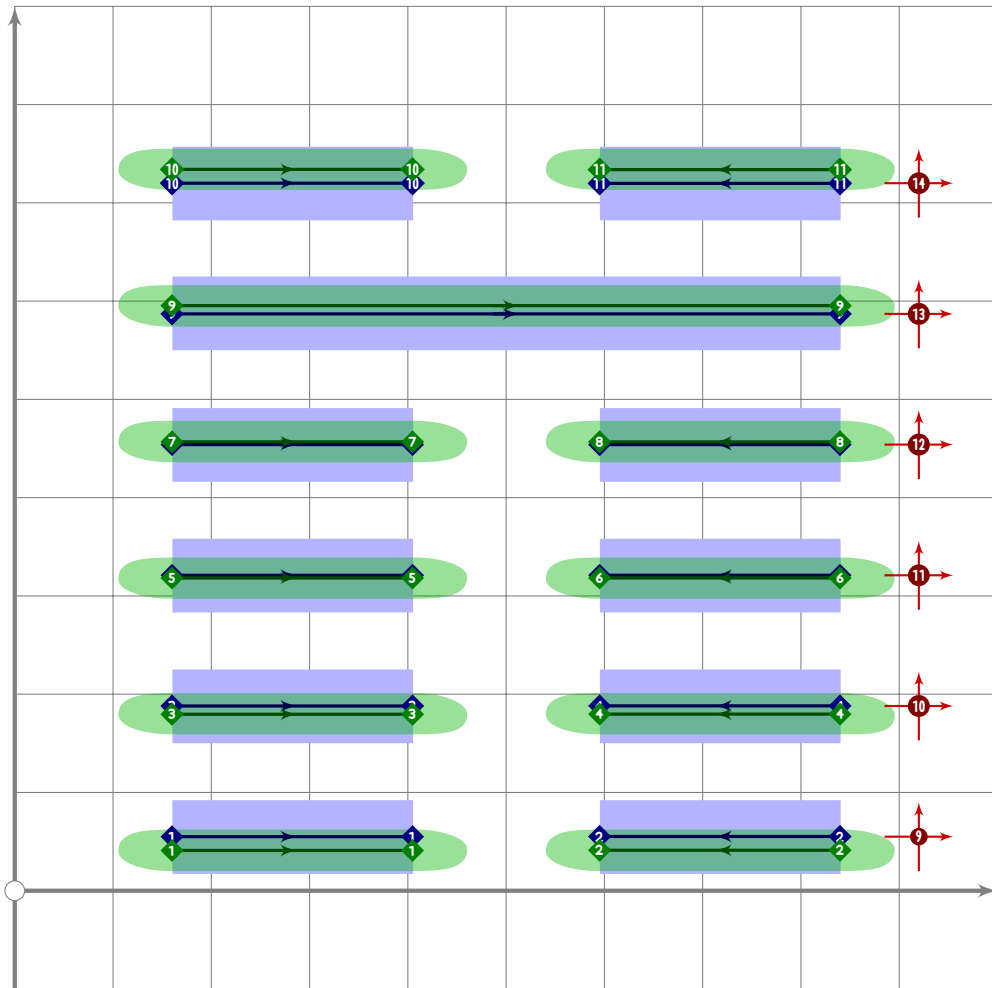


63 `make_hexagram(6, 0,1,0,1,1,1);`

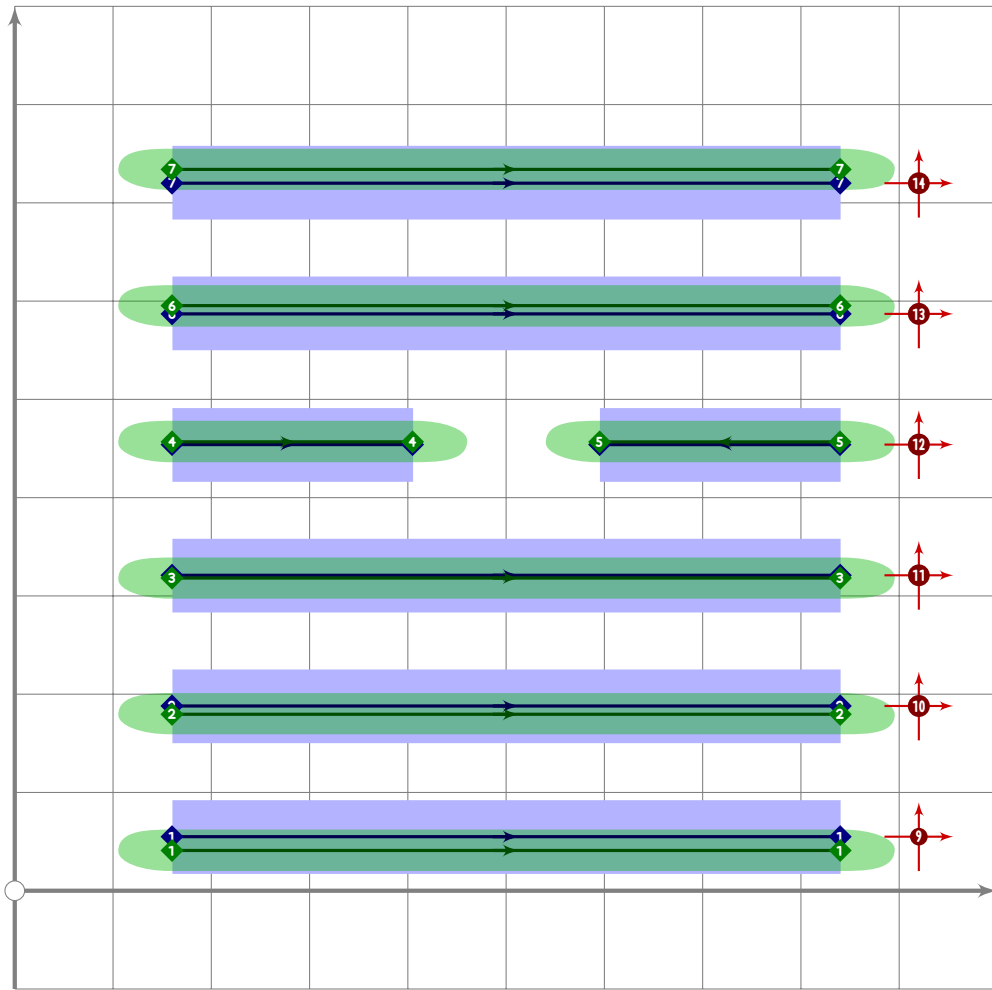


64 `make_hexagram(7, 0,1,0,0,0,0);`

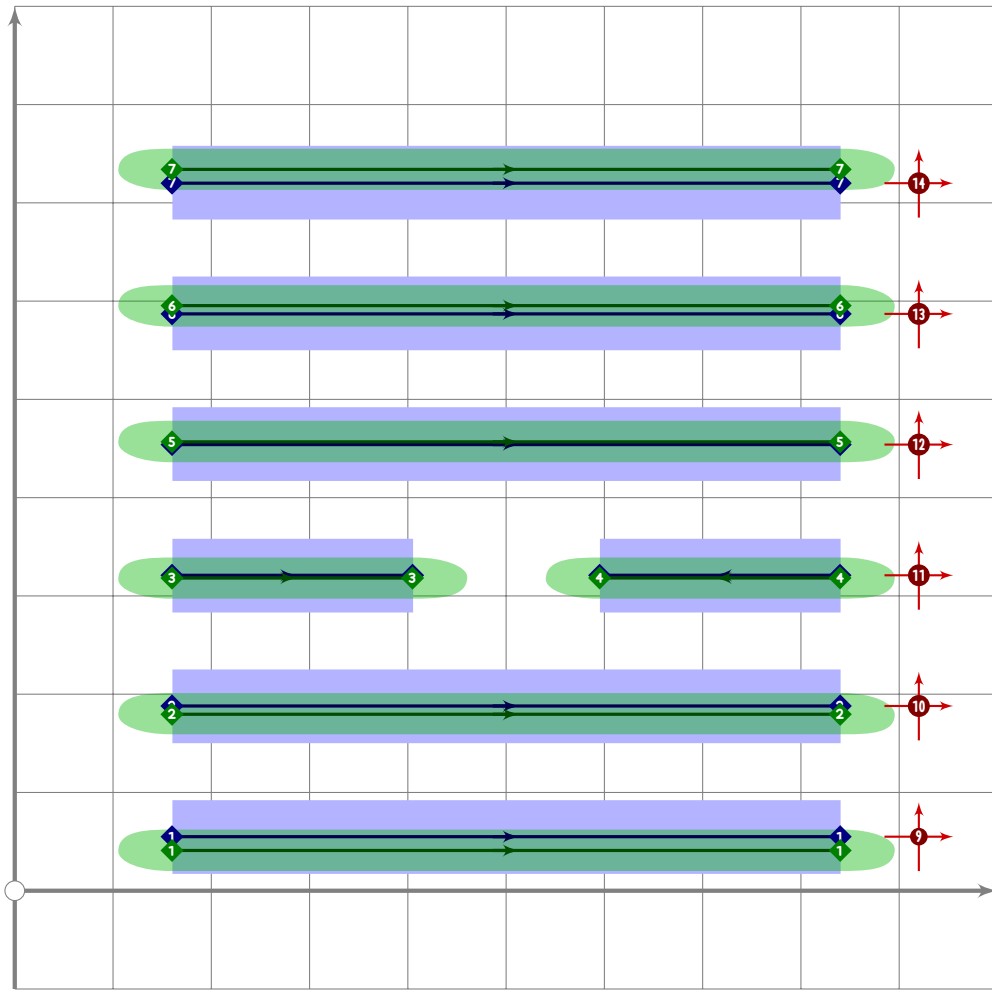




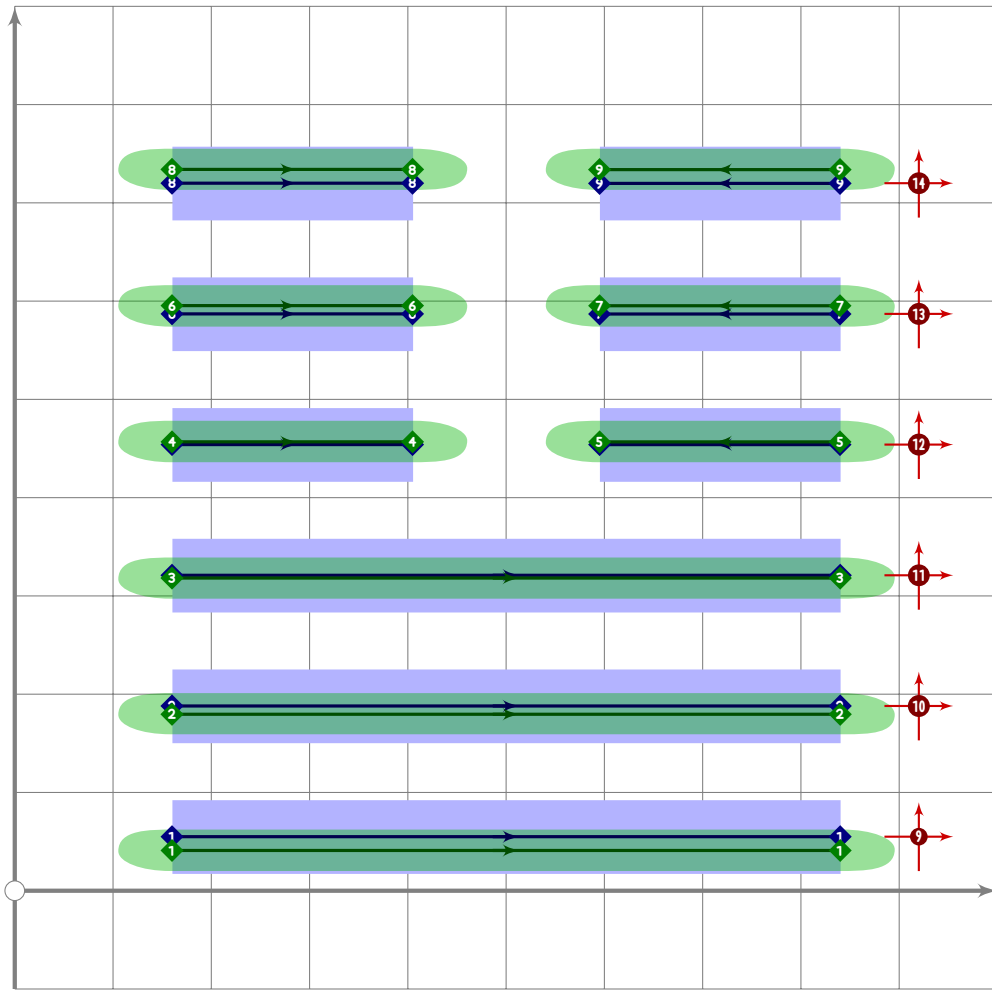
65 `make_hexagram(8, 0,0,0,0,1,0);`



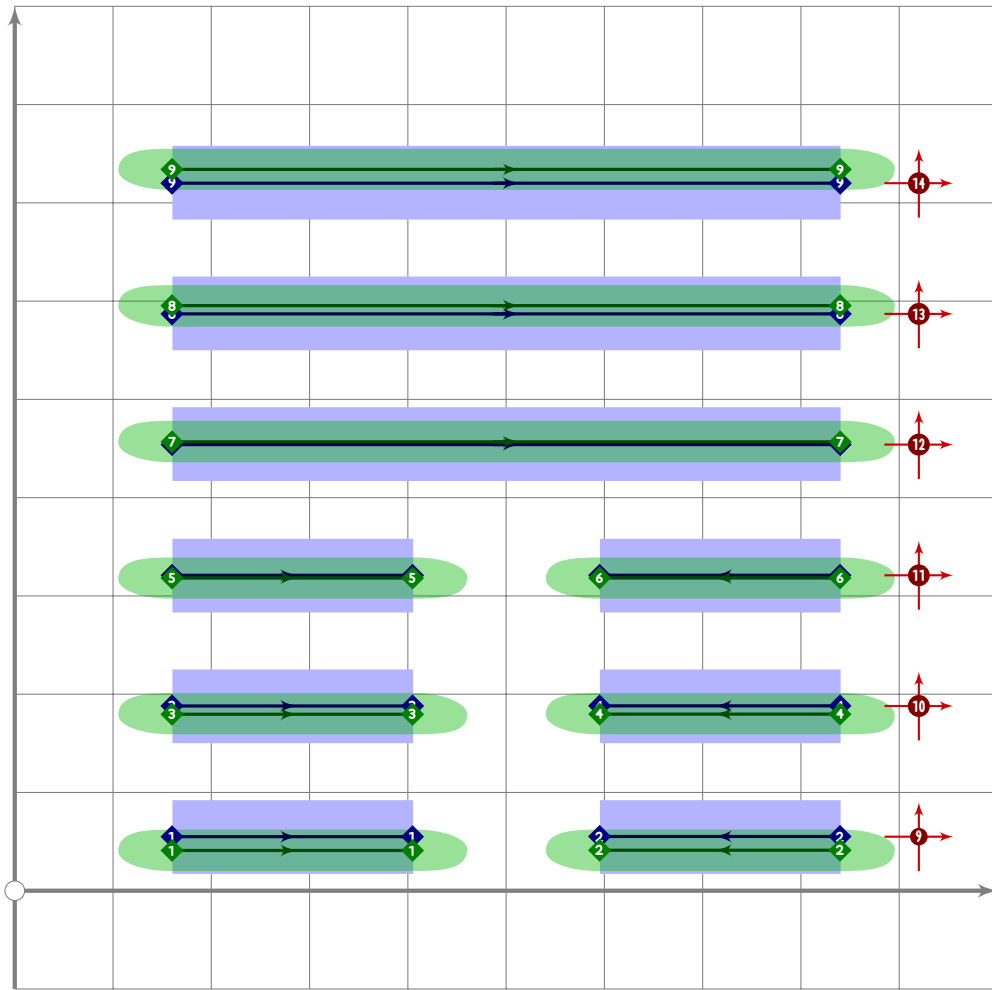
66 `make_hexagram(9, 1,1,1,0,1,1);`



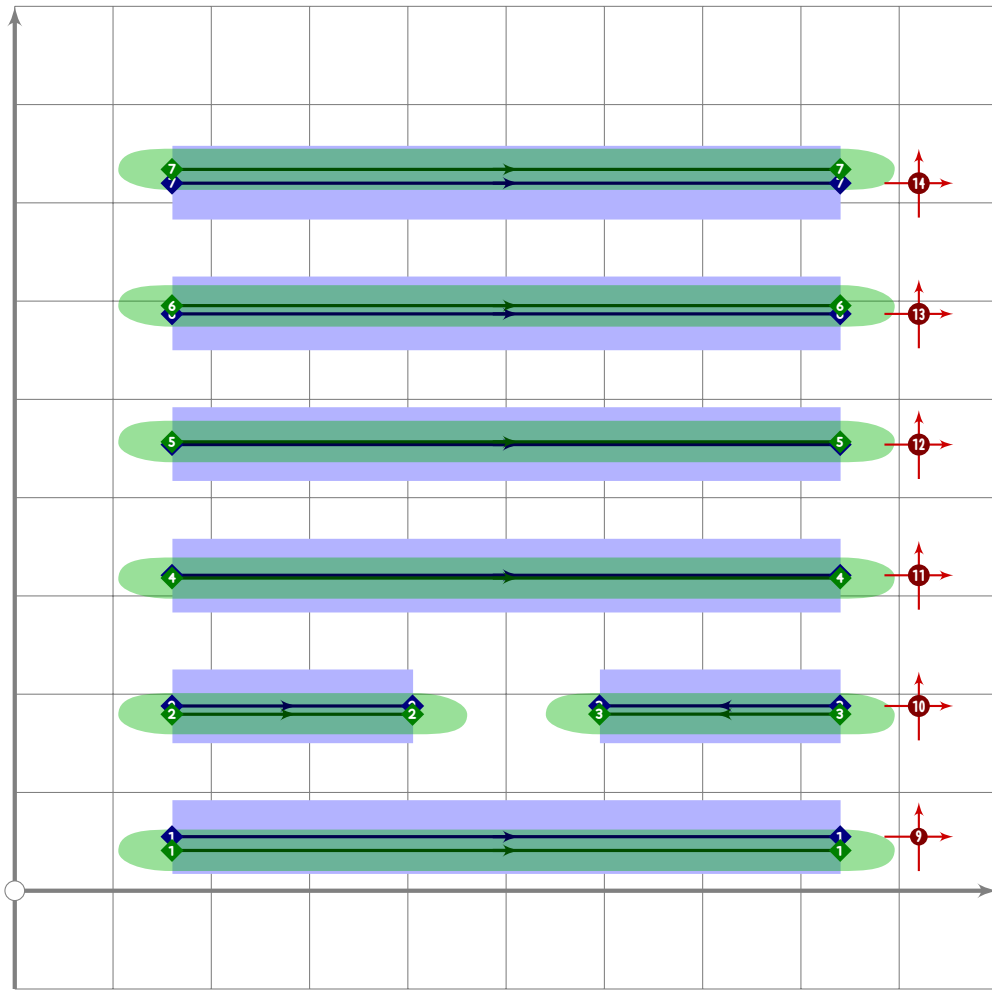
67 `make_hexagram(10,1,1,0,1,1);`



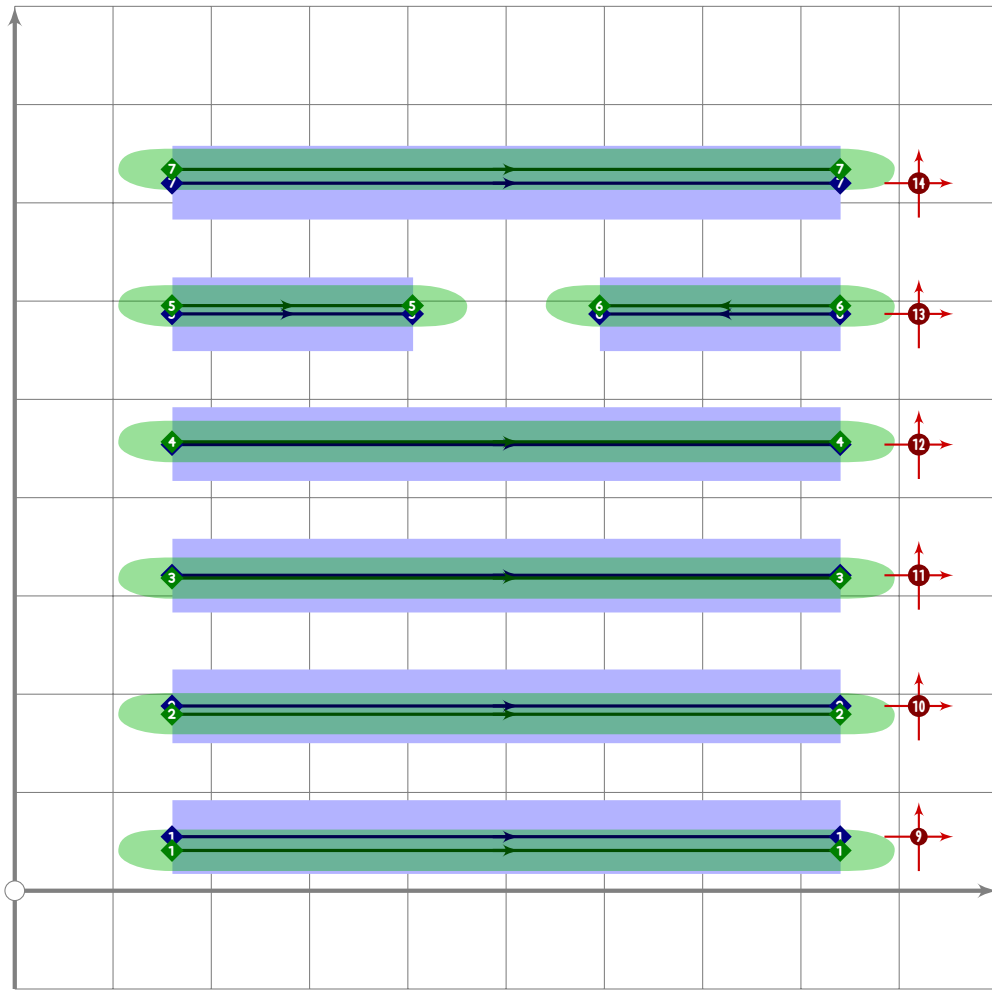
68 `make_hexagram(11,1,1,1,0,0,0);`



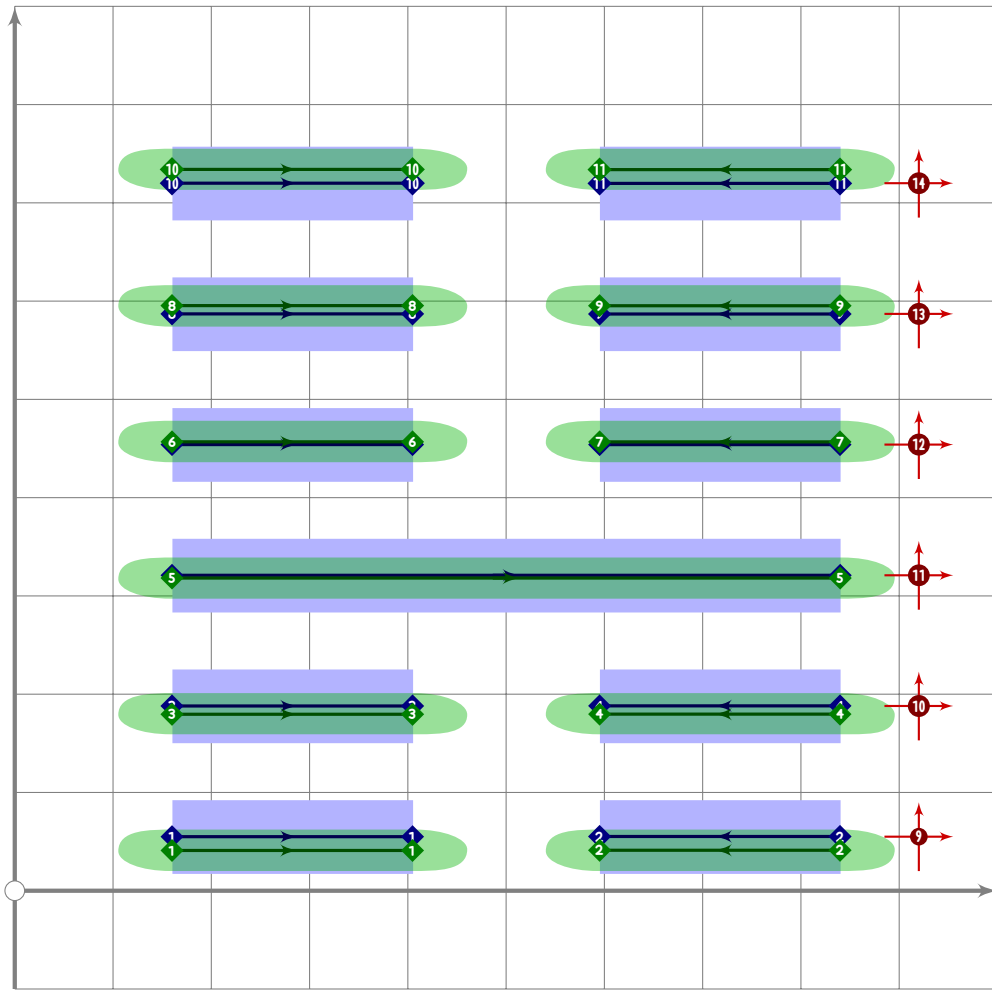
69 `make_hexagram(12,0,0,0,1,1);`



70 `make_hexagram(13,1,0,1,1,1);`

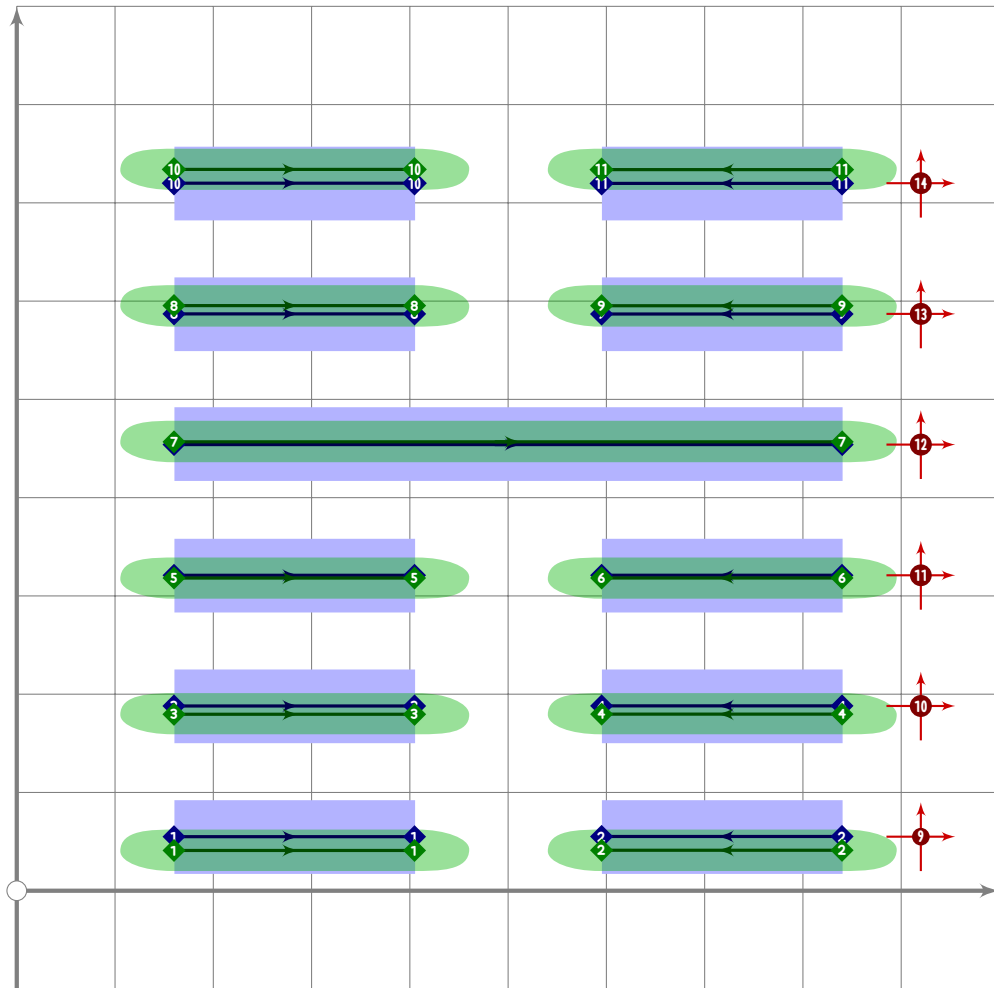


71 `make_hexagram(14,1,1,1,1,0,1);`

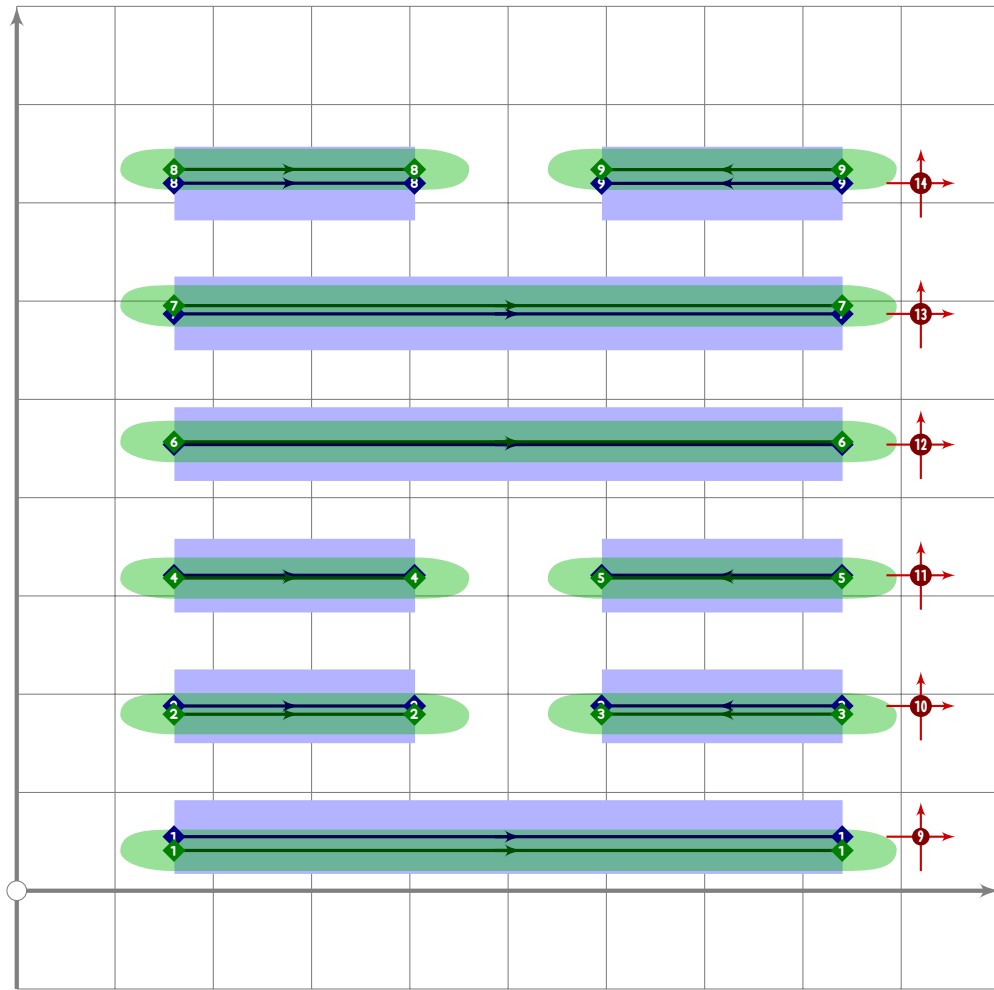


72 `make_hexagram(15,0,0,1,0,0,0);`



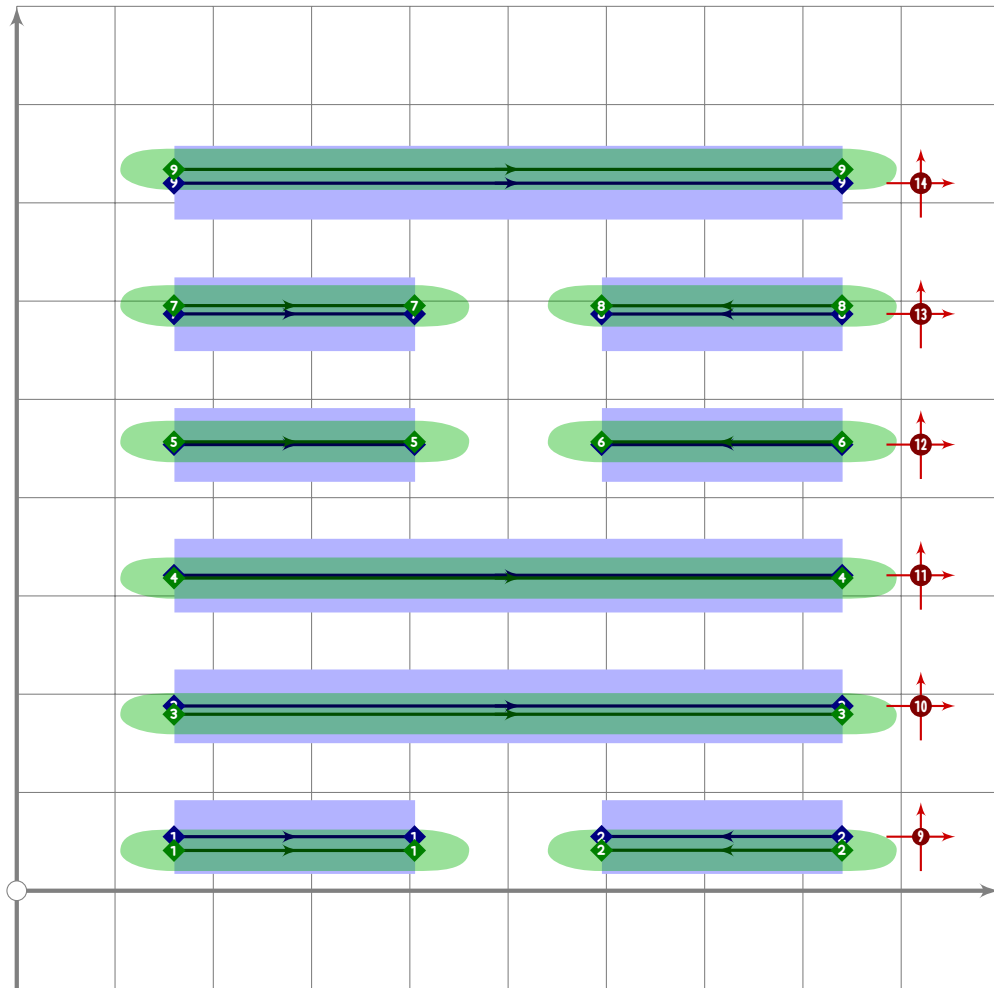


73 `make_hexagram(16,0,0,0,1,0,0);`

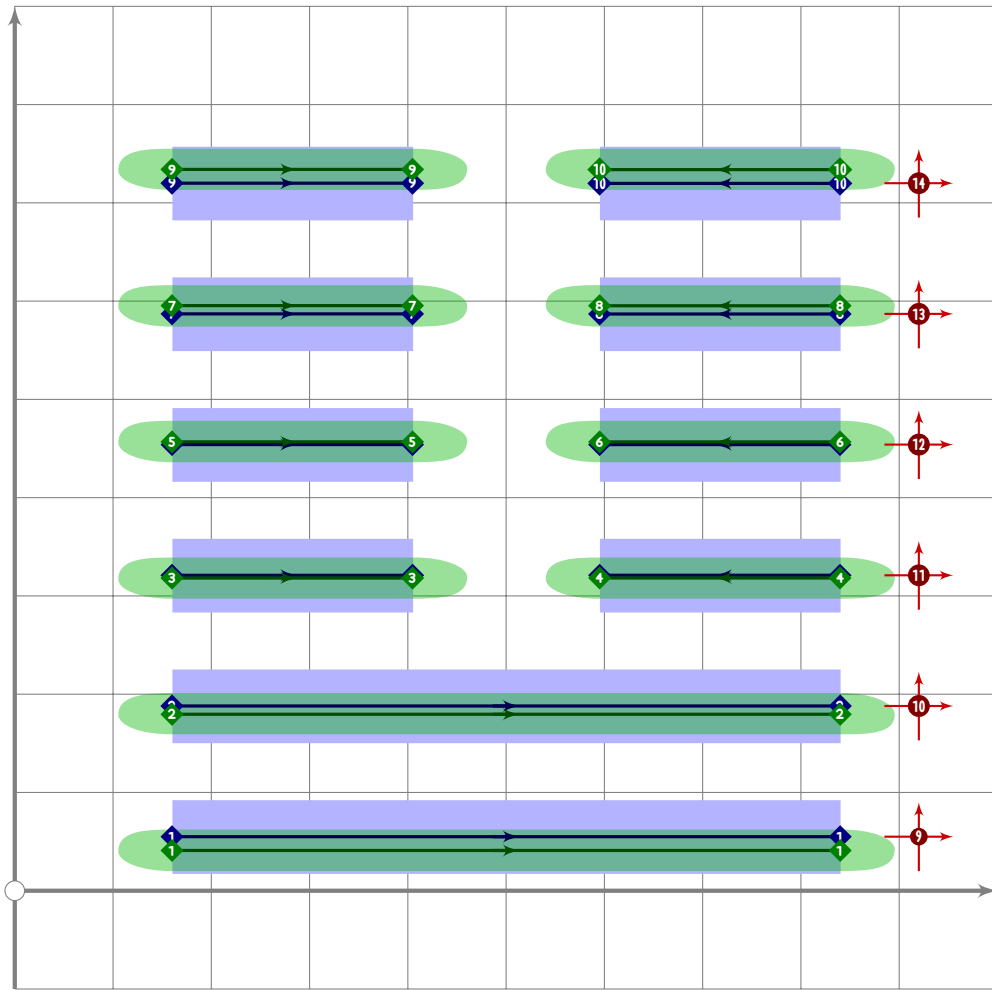


74

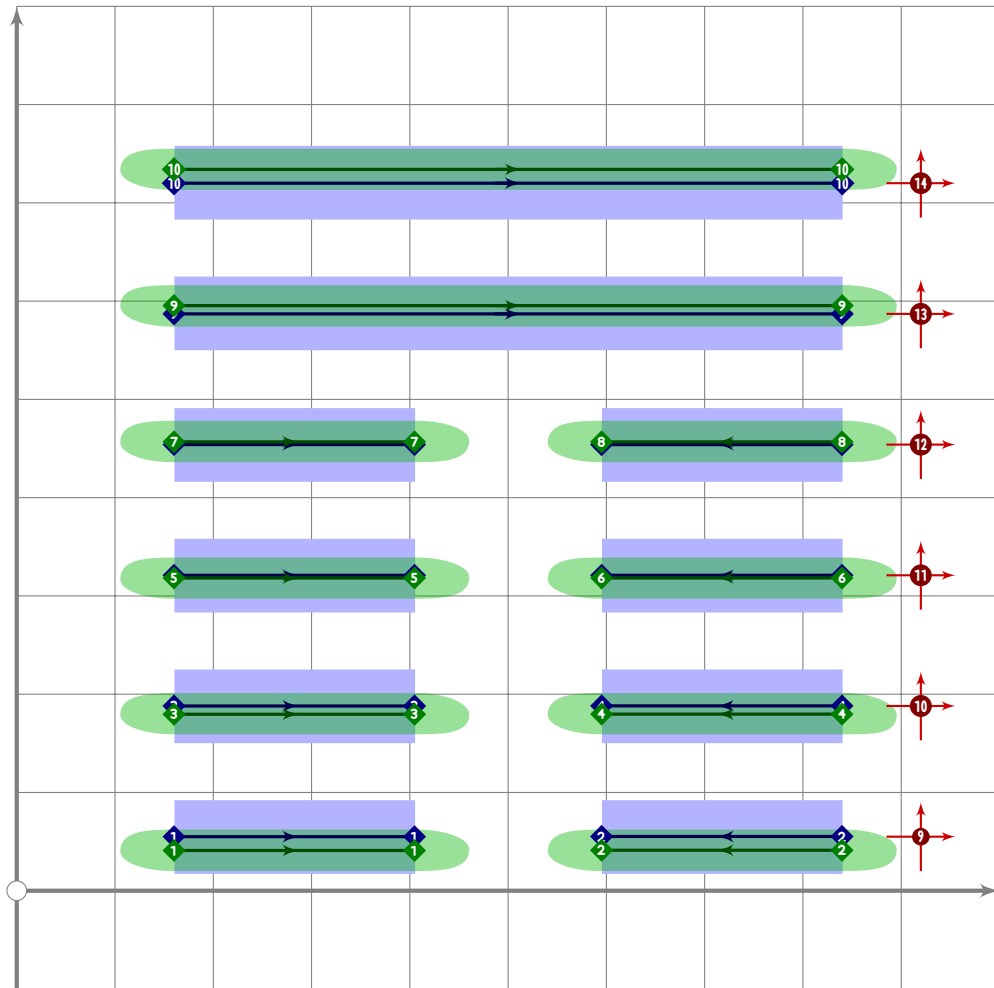
75 `make_hexagram(171,0,0,1,1,0);`



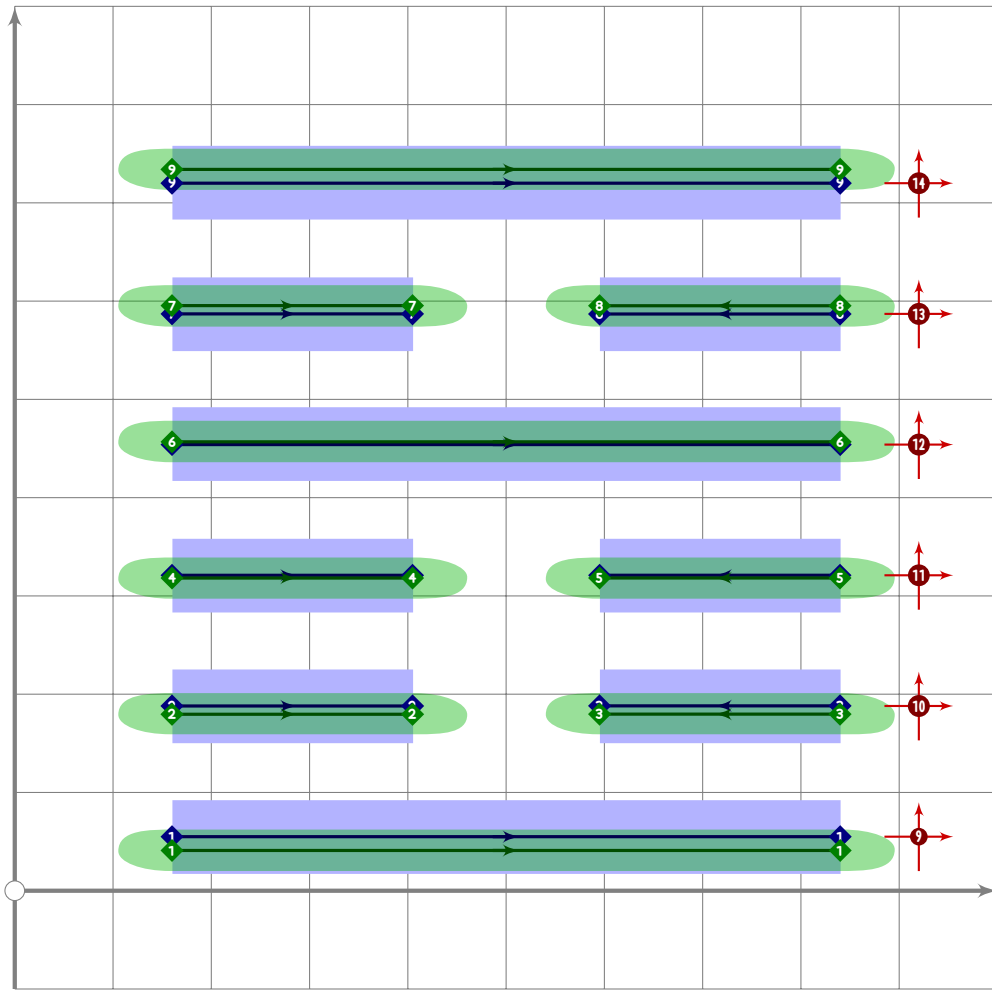
76 `make_hexagram(18,0,1,1,0,0,1);`



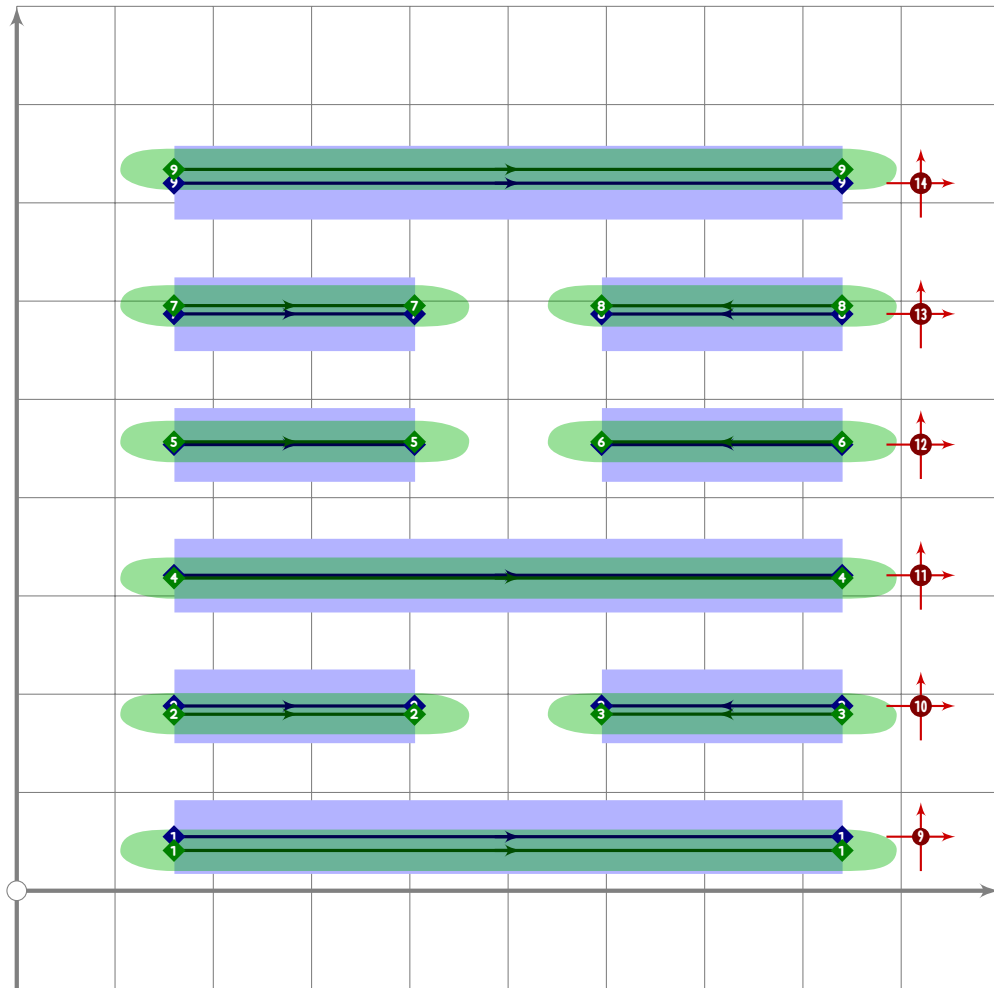
77 `make_hexagram(19,1,1,0,0,0,0);`



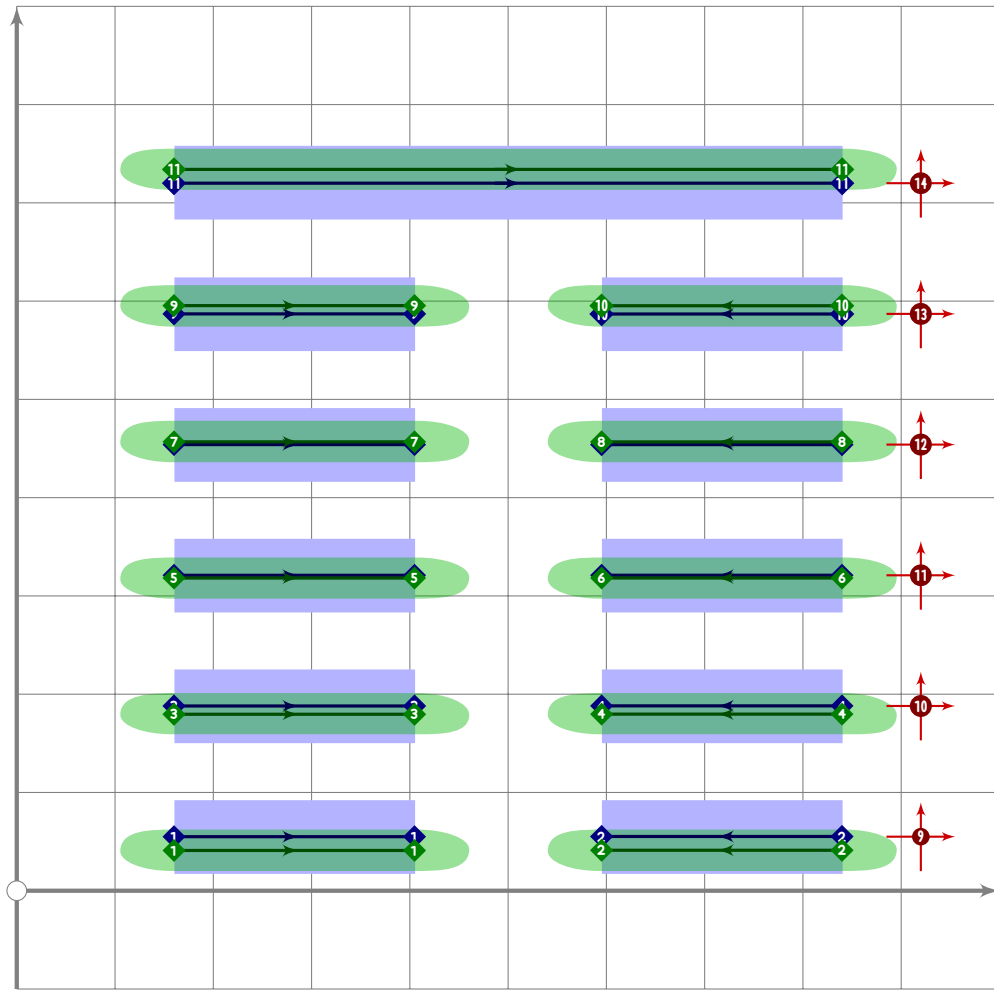
78 `make_hexagram(20,0,0,0,0,1,1);`



79 `make_hexagram(21,1,0,0,1,0,1);`

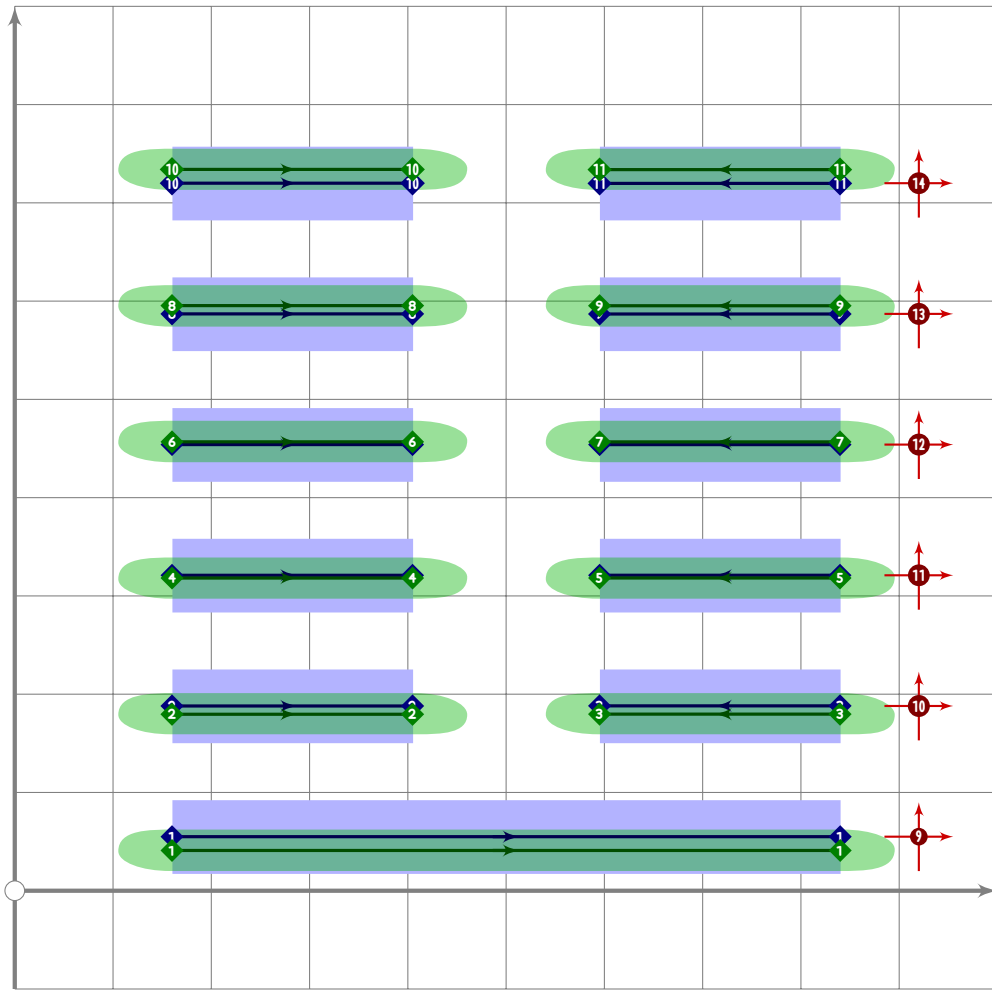


80 `make_hexagram(22,1,0,1,0,0,1);`

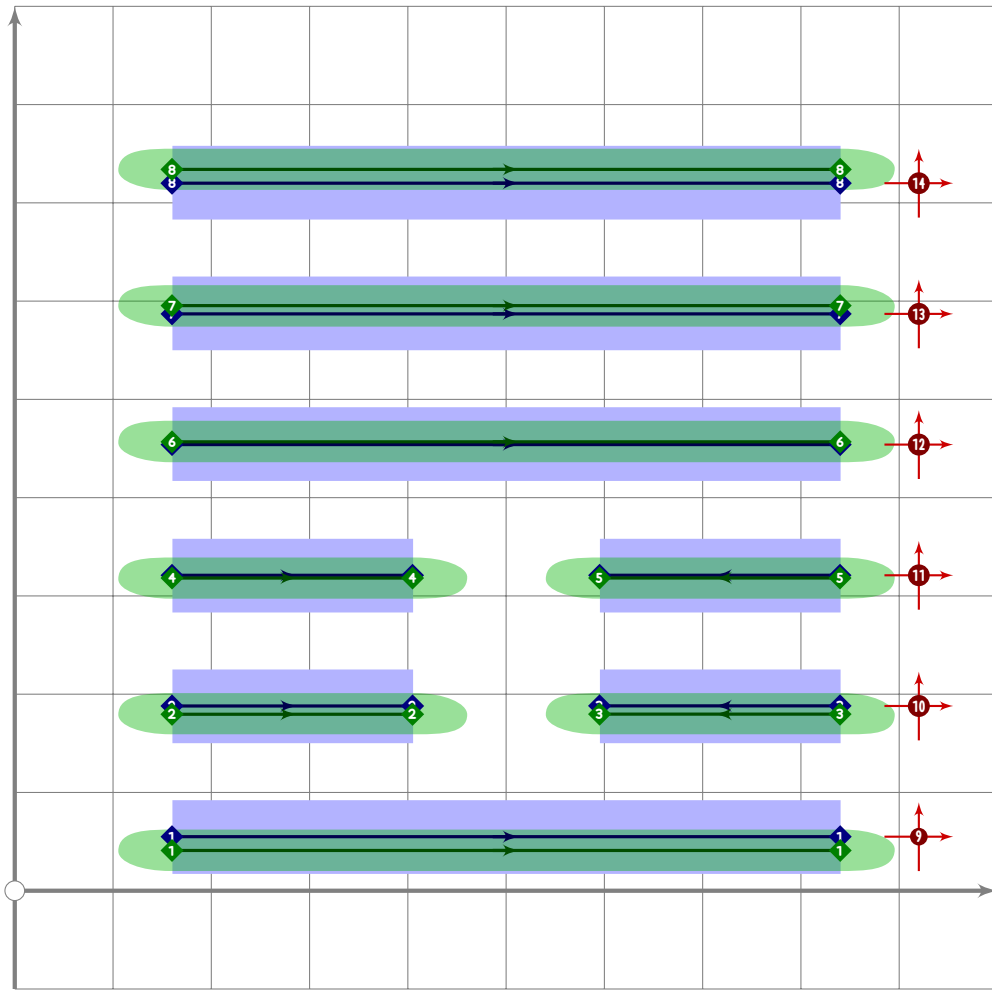


81 `make_hexagram(23,0,0,0,0,0,1);`

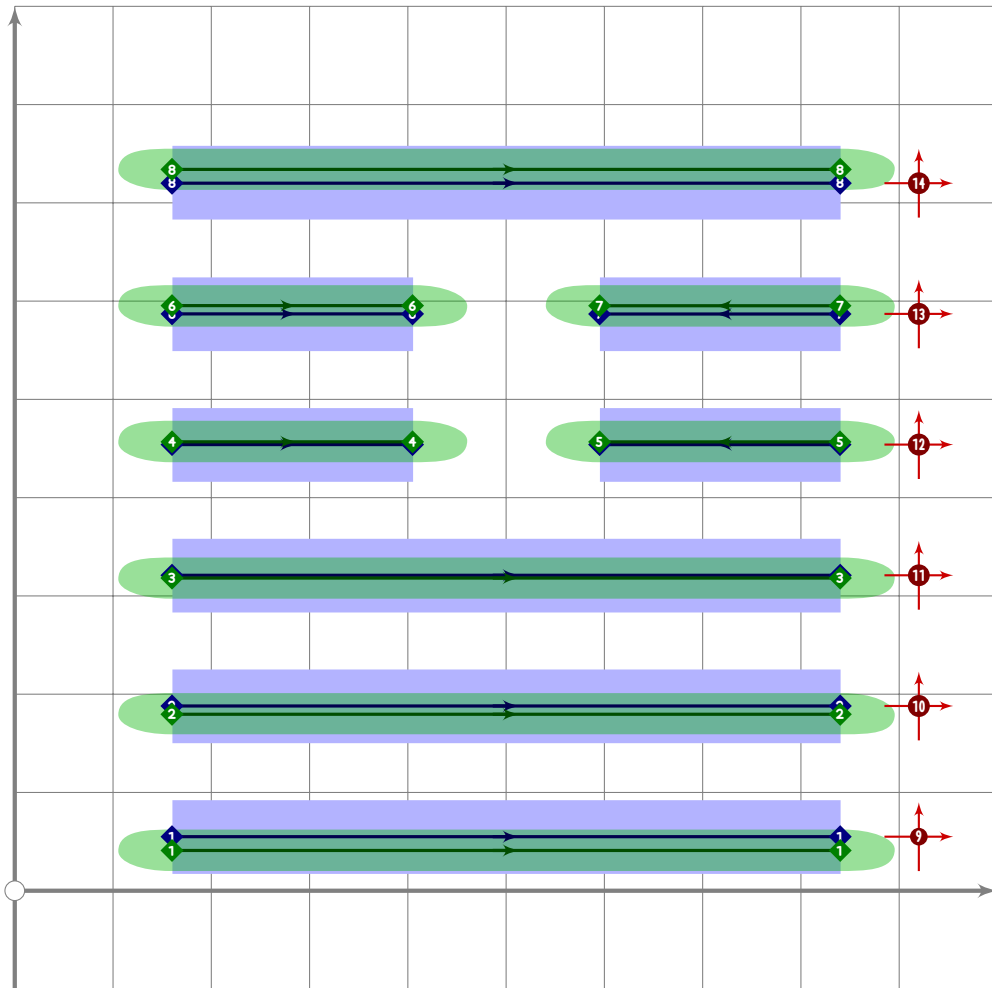




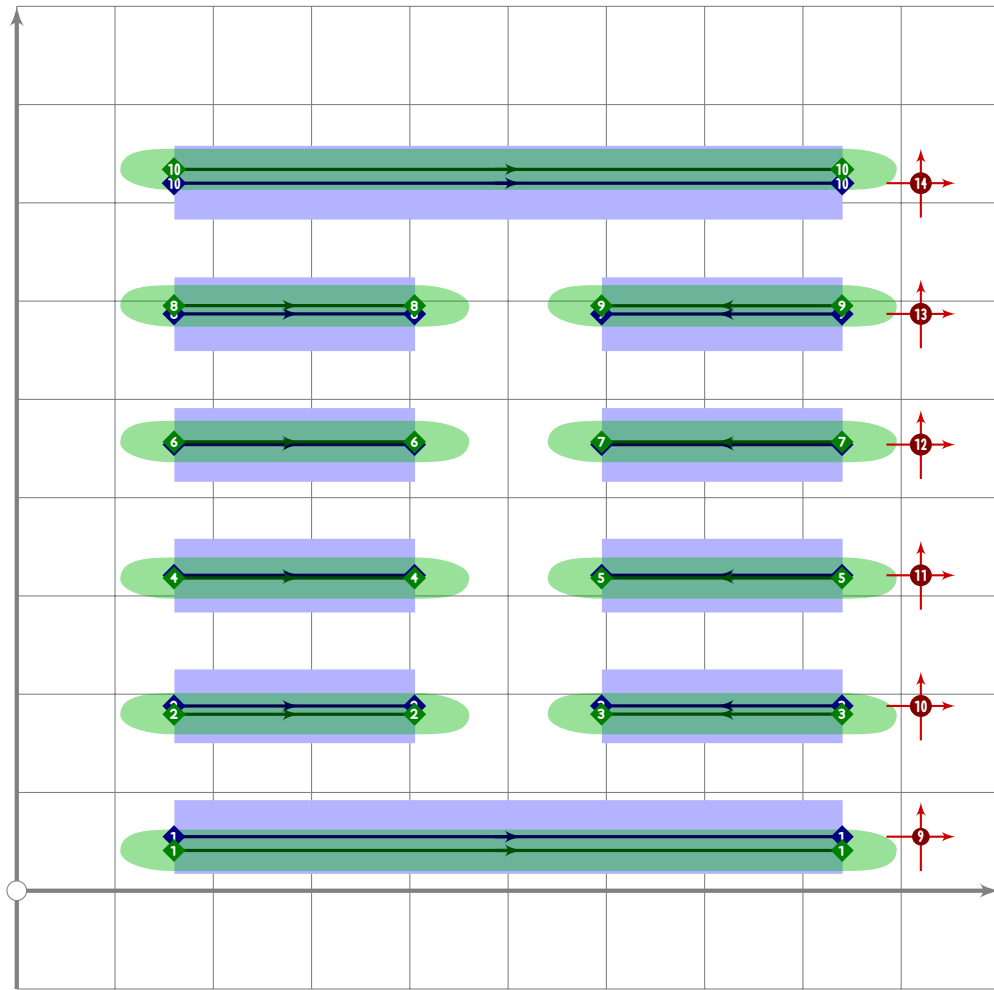
82 `make_hexagram(24,1,0,0,0,0,0);`



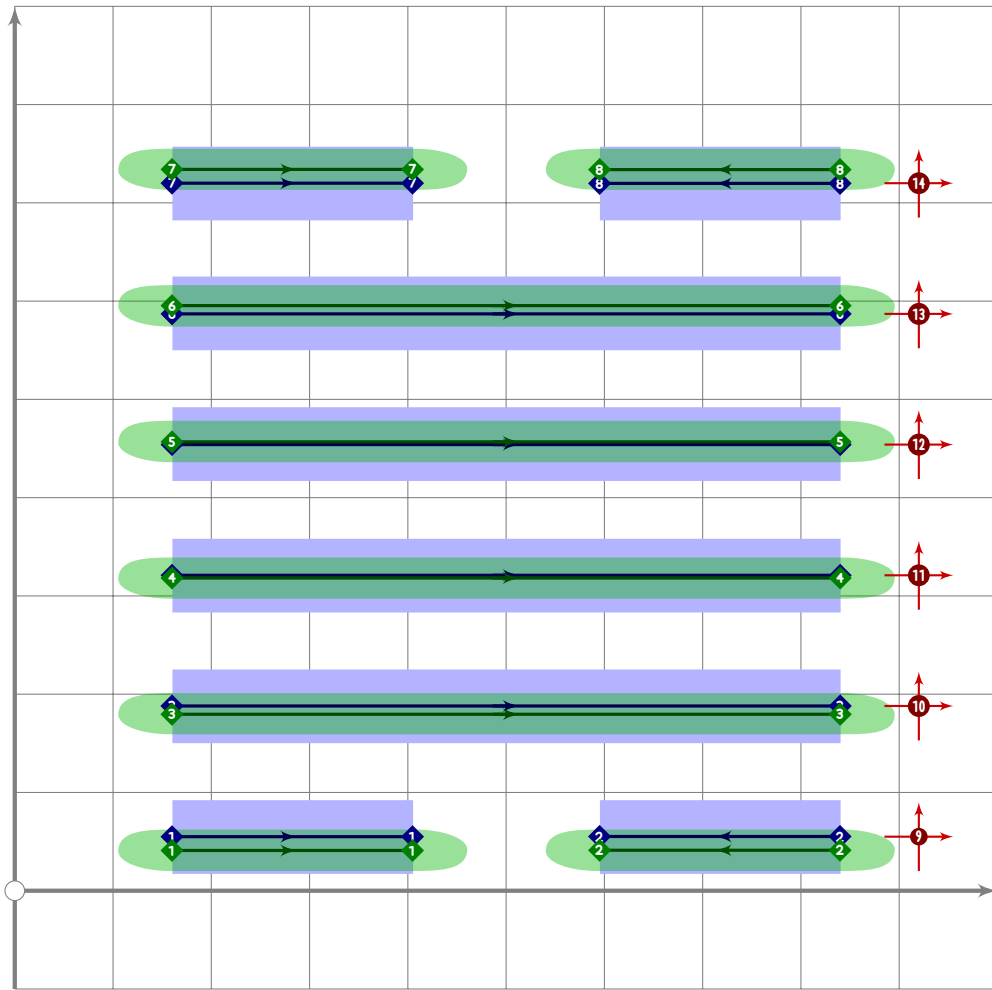
83 `make_hexagram(25,1,0,0,1,1);`



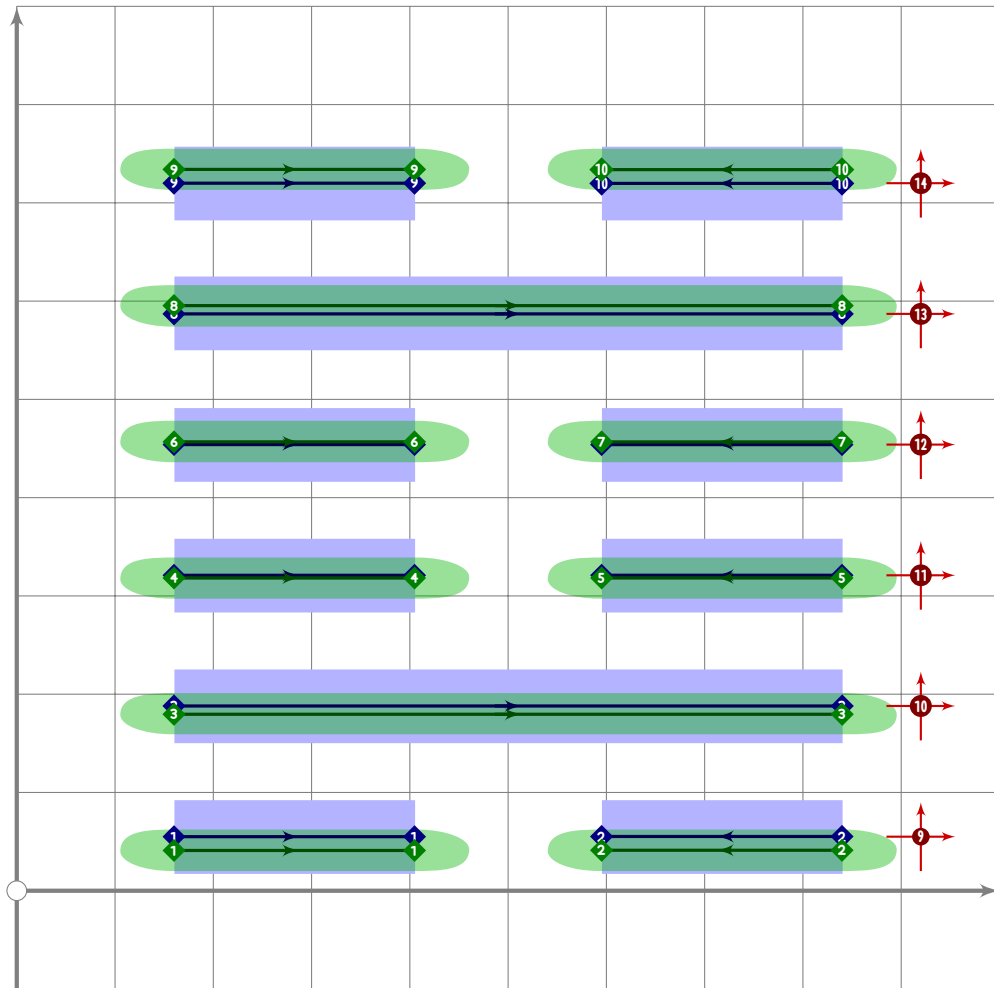
84 `make_hexagram(26,1,1,1,0,0,1);`



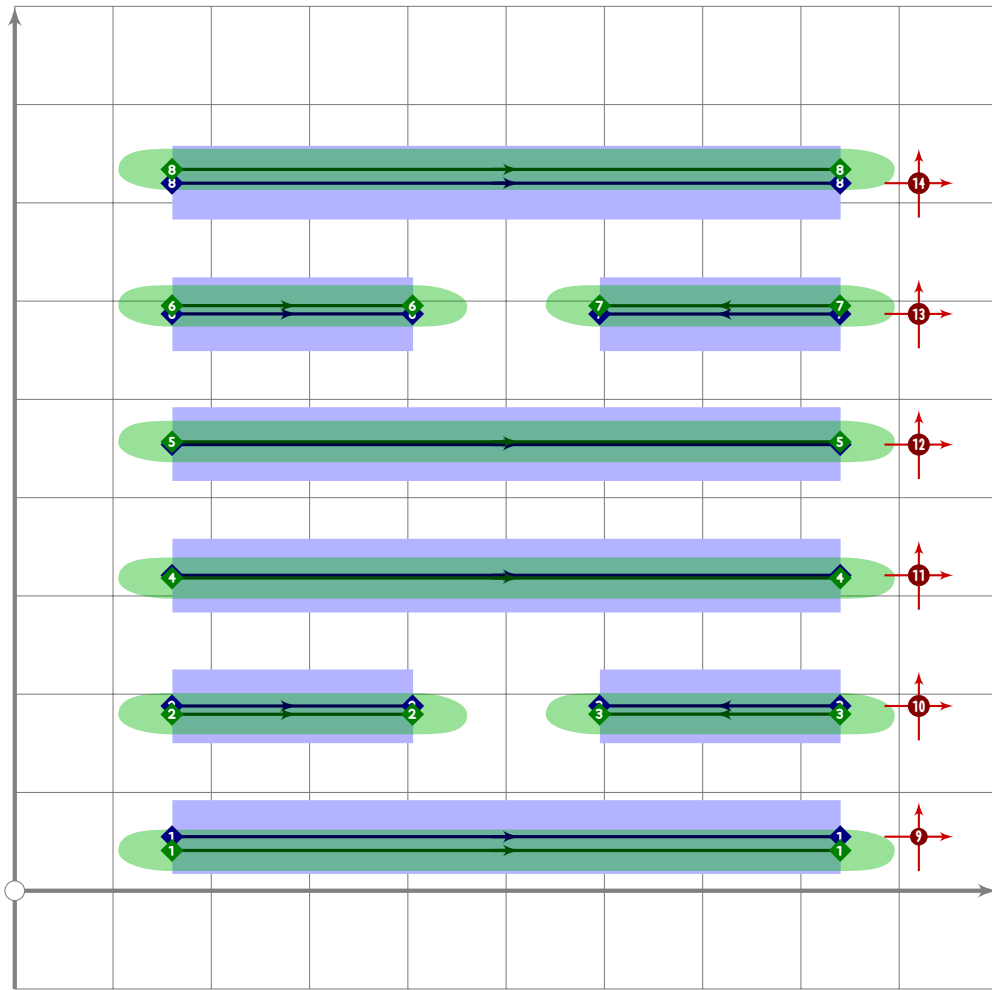
85 `make_hexagram(27,1,0,0,0,0,1);`



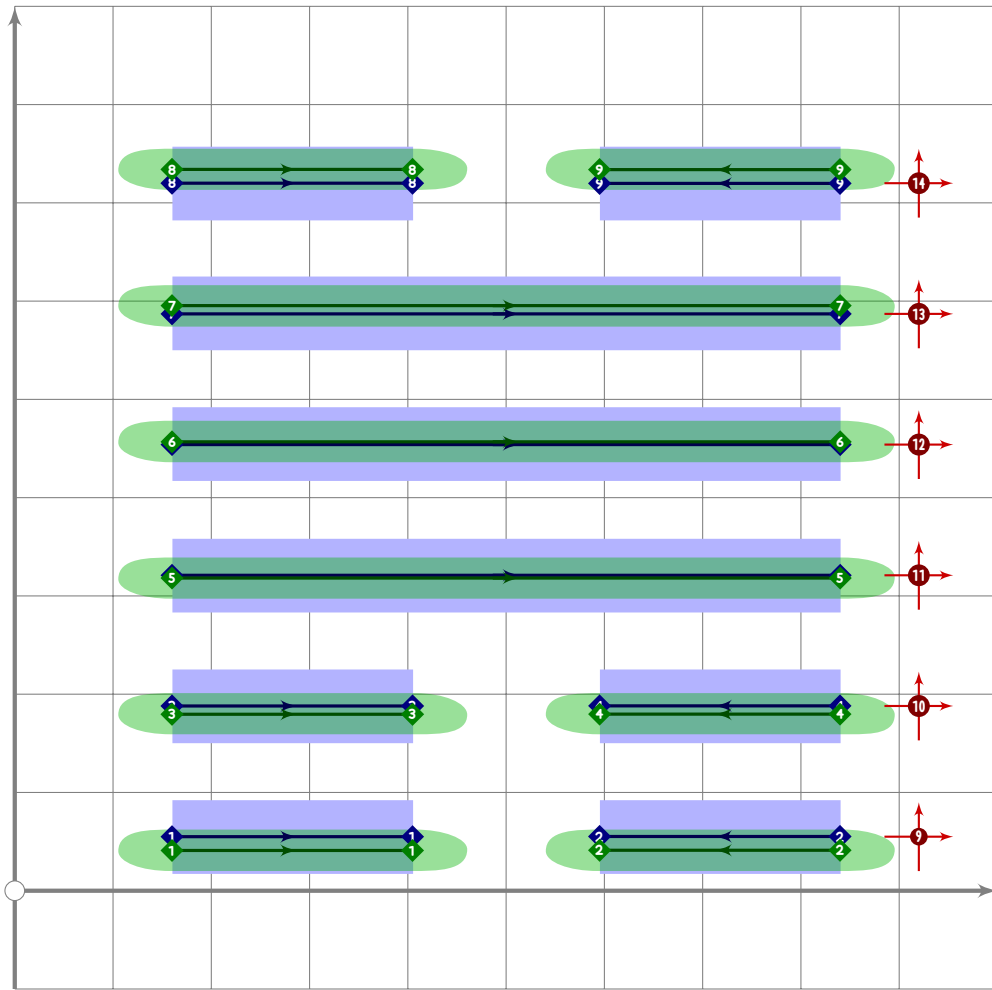
86 `make_hexagram(28,0,1,1,1,0);`



87 `make_hexagram(29,0,1,0,0,1,0);`

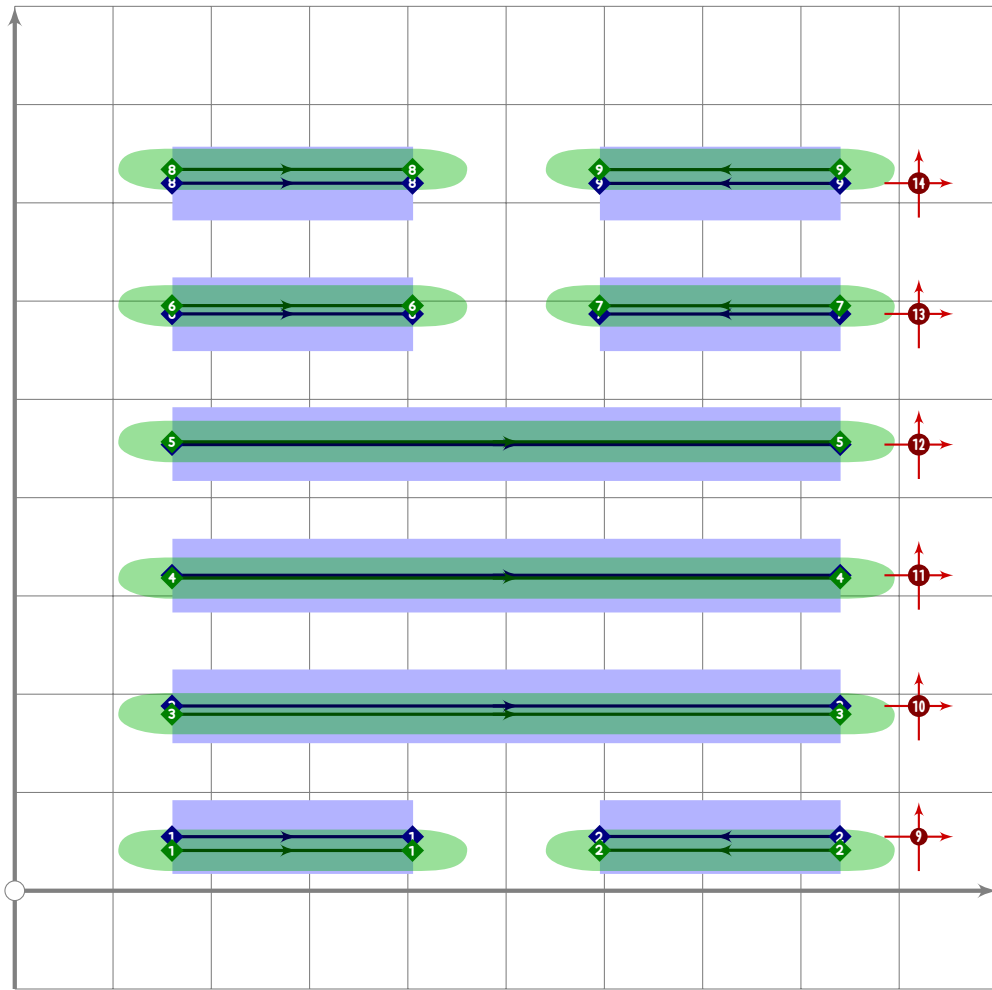


88 `make_hexagram(30,1,0,1,1,0,1);`

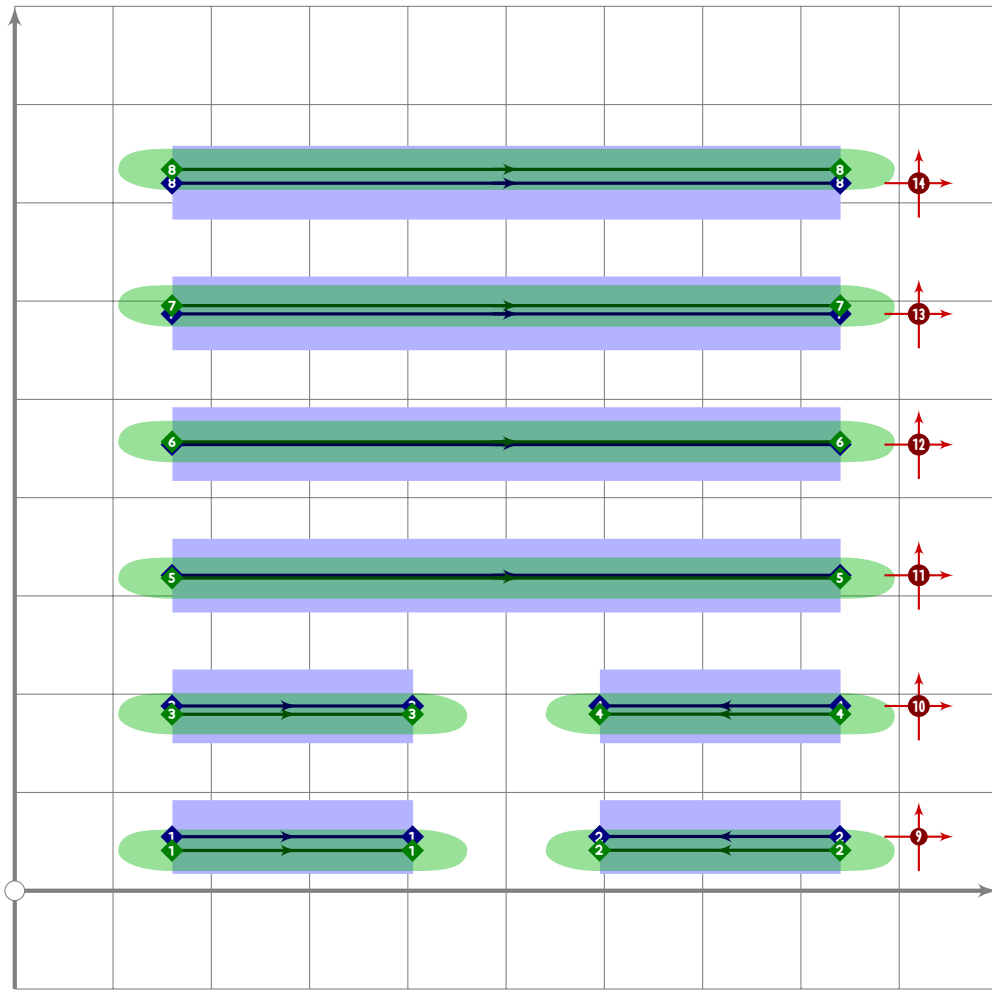


89 `make_hexagram(31,0,0,1,1,0);`



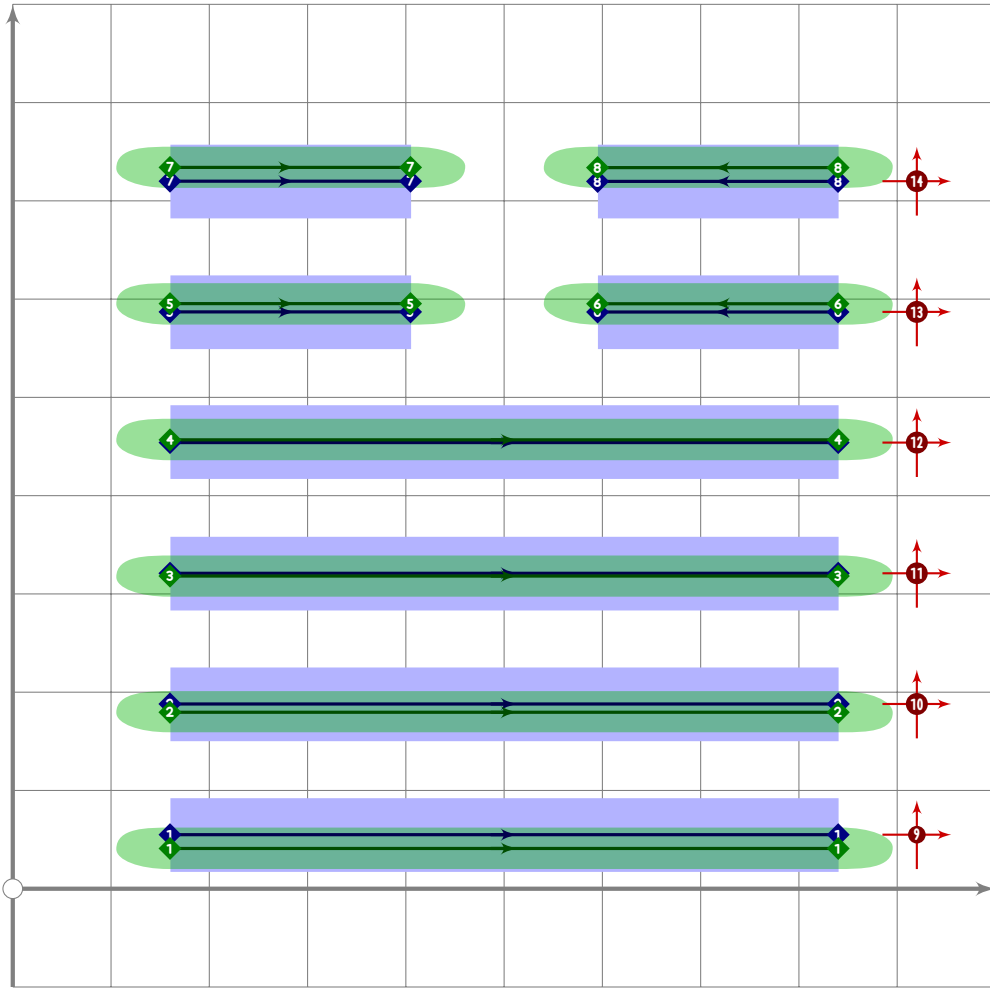


90 `make_hexagram(32,0,1,1,1,0,0);`

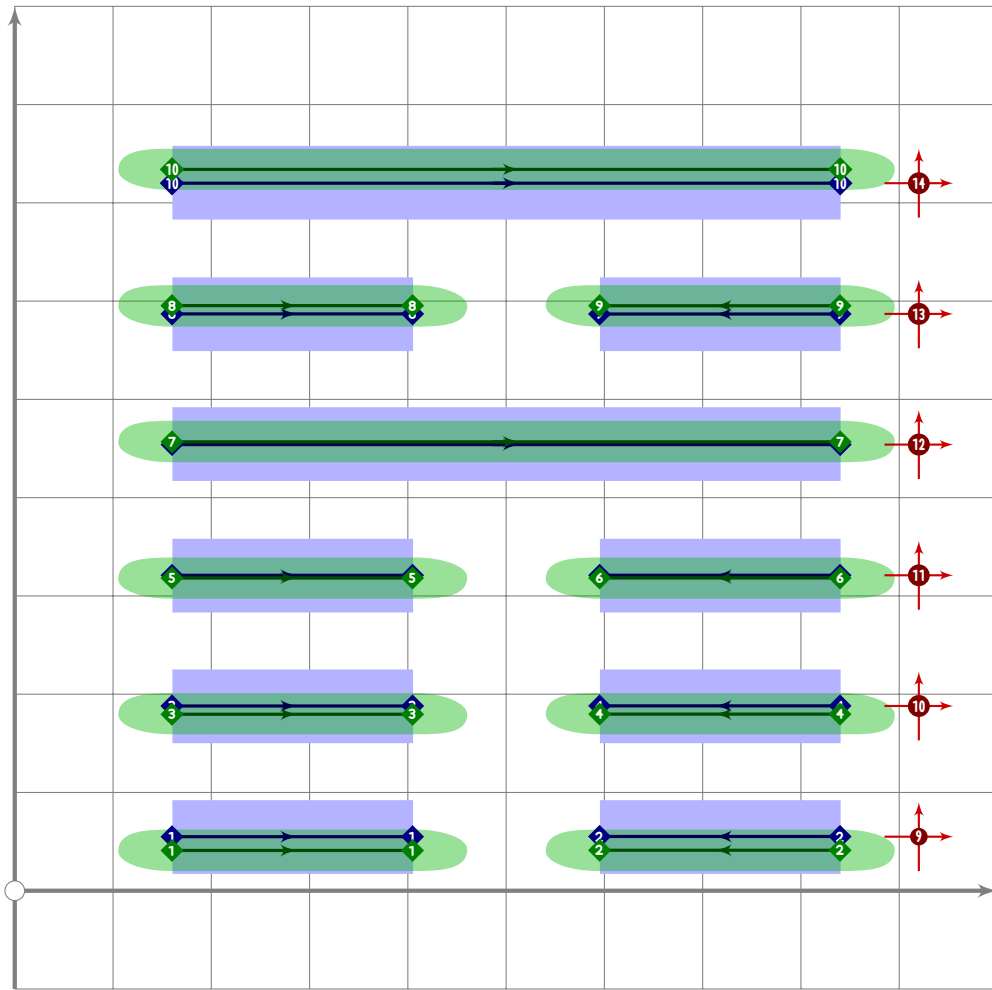


91

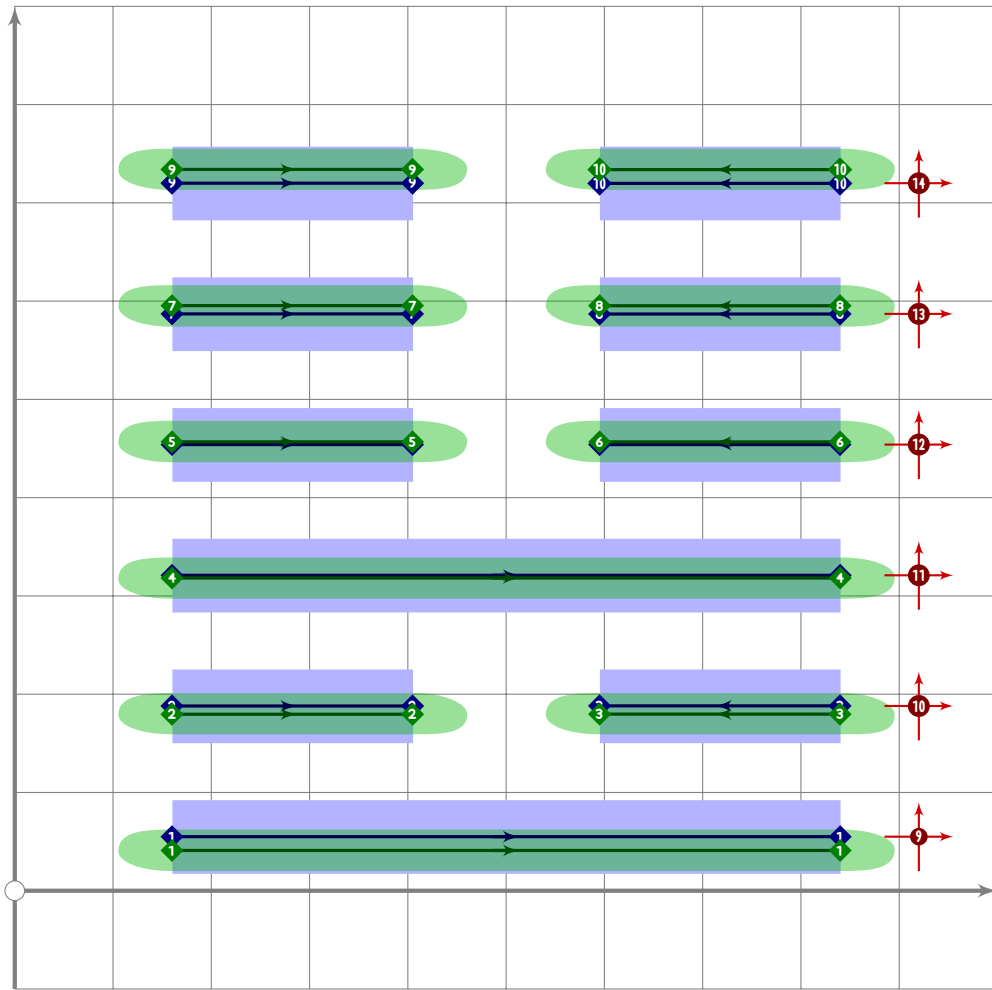
92 `make_hexagram(33,0,0,1,1,1);`



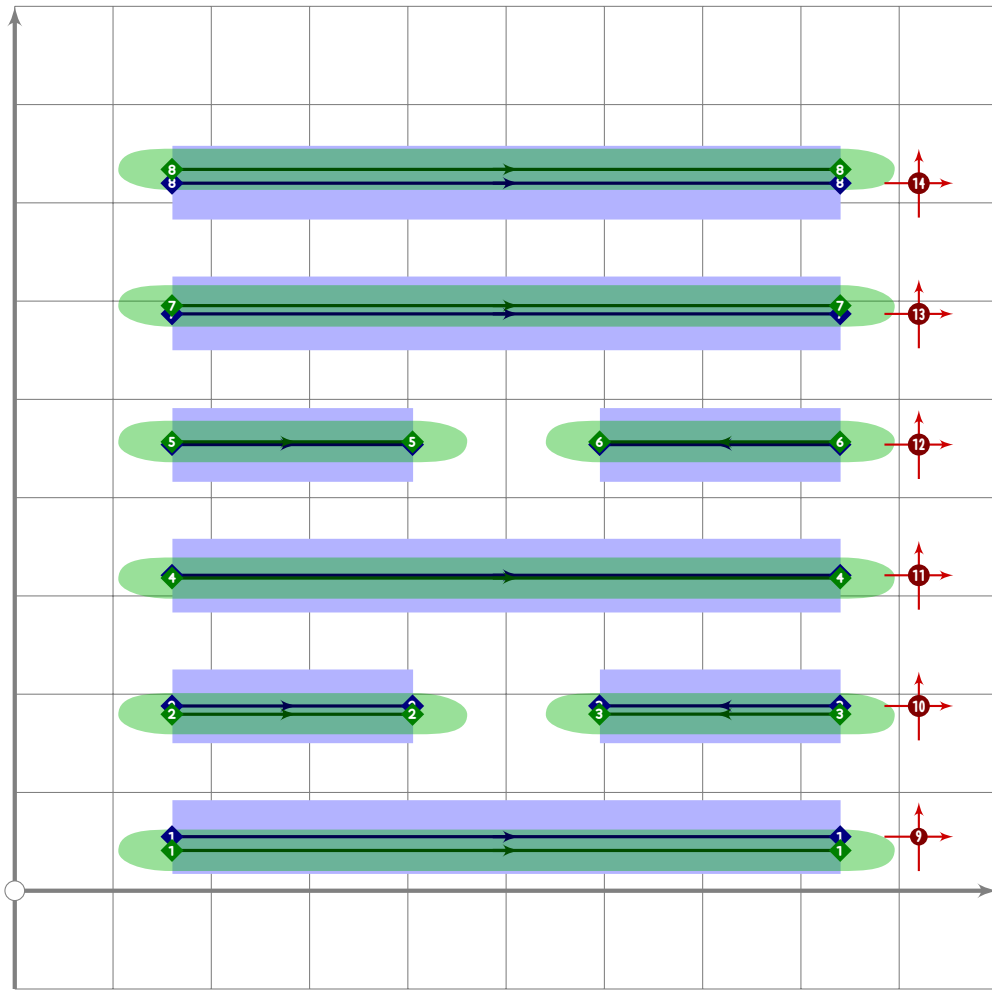
93 `make_hexagram(34,1,1,1,1,0,0);`



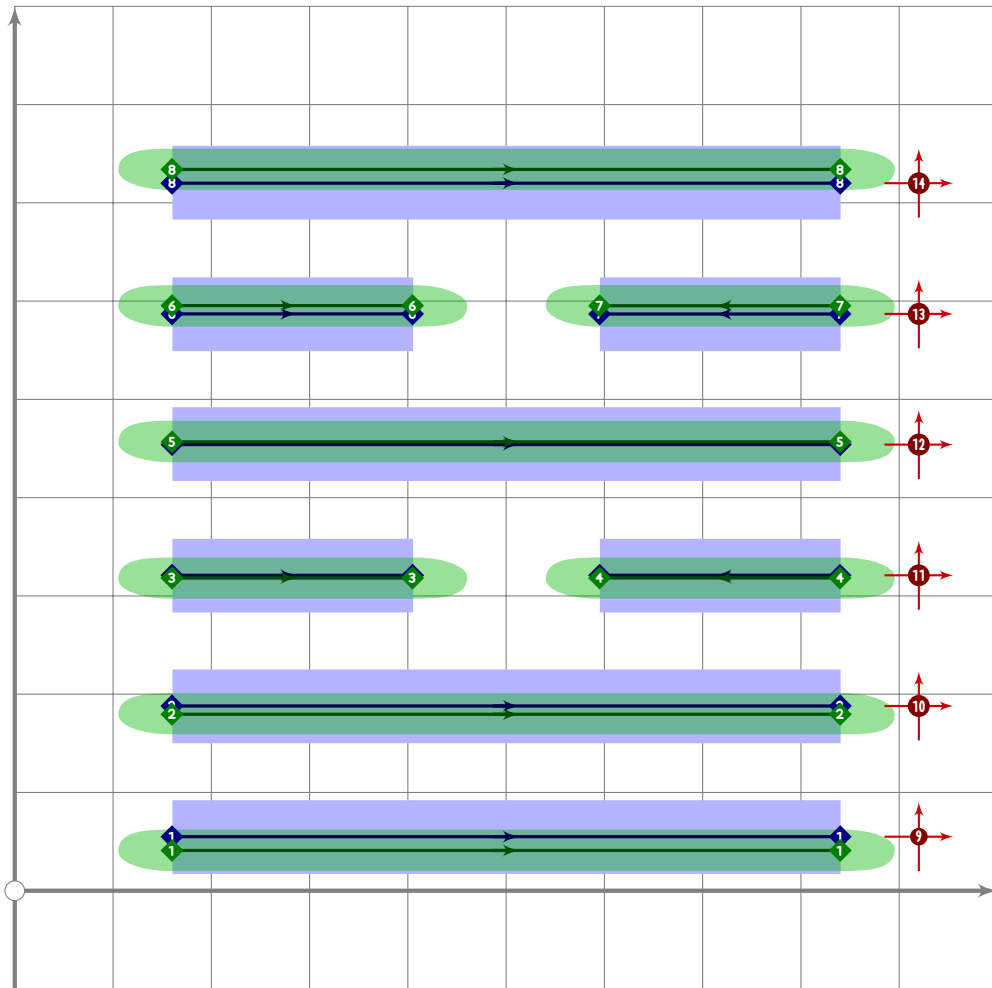
94 `make_hexagram(35,0,0,0,1,0,1);`



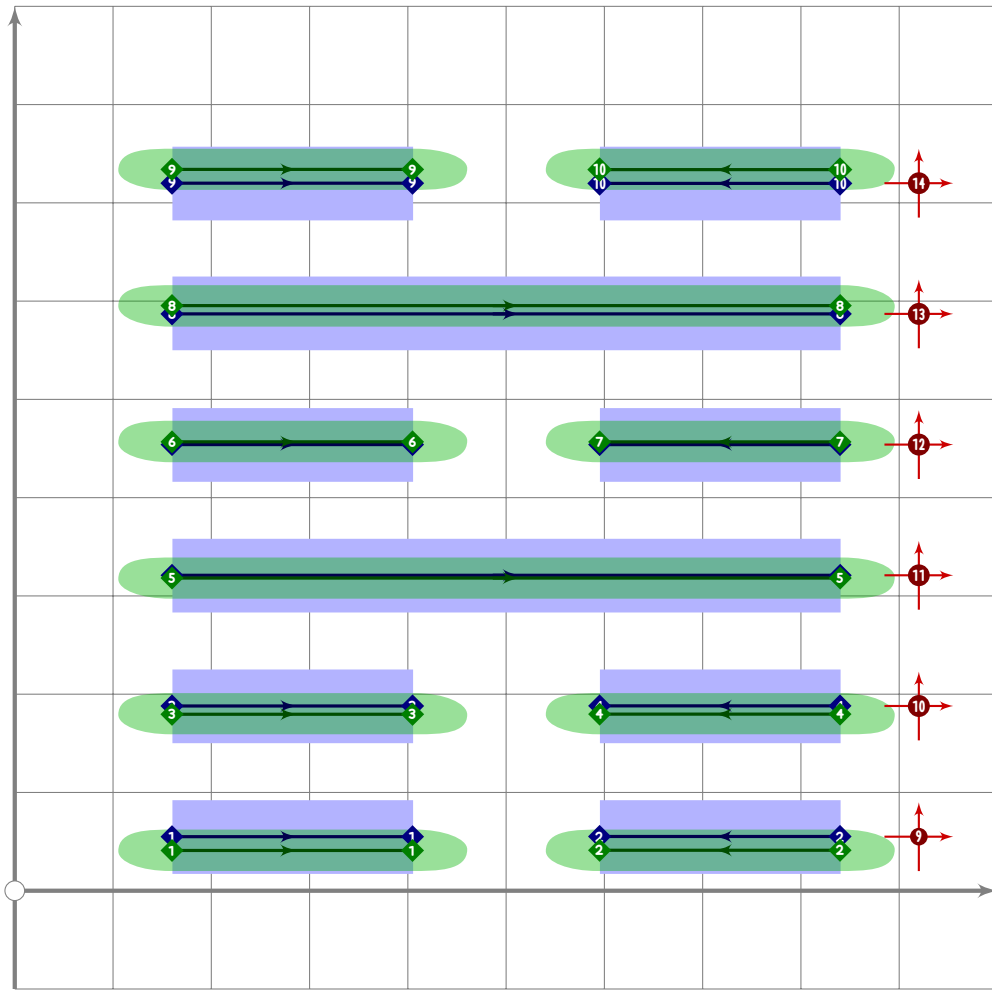
95 `make_hexagram(36,1,0,1,0,0,0);`



96 `make_hexagram(37,1,0,1,0,1,1);`

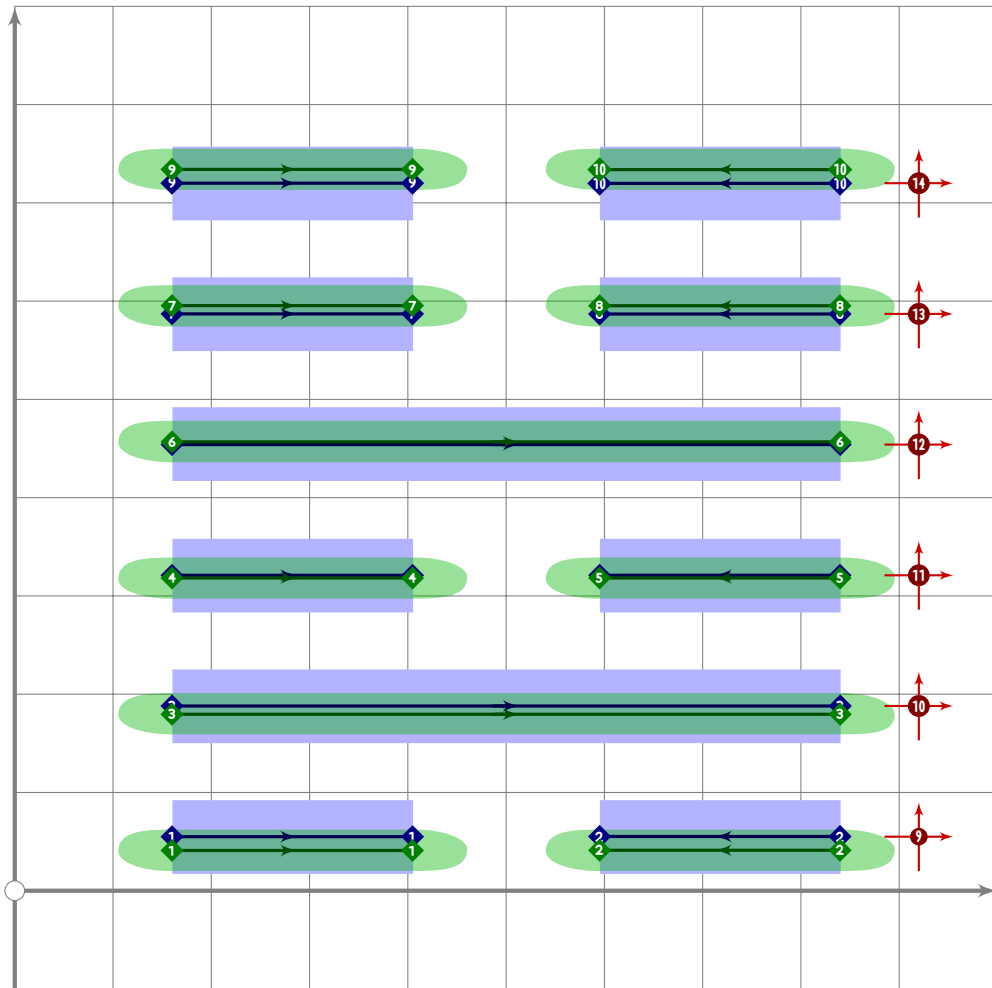


97 `make_hexagram(38,1,1,0,1,0,1);`

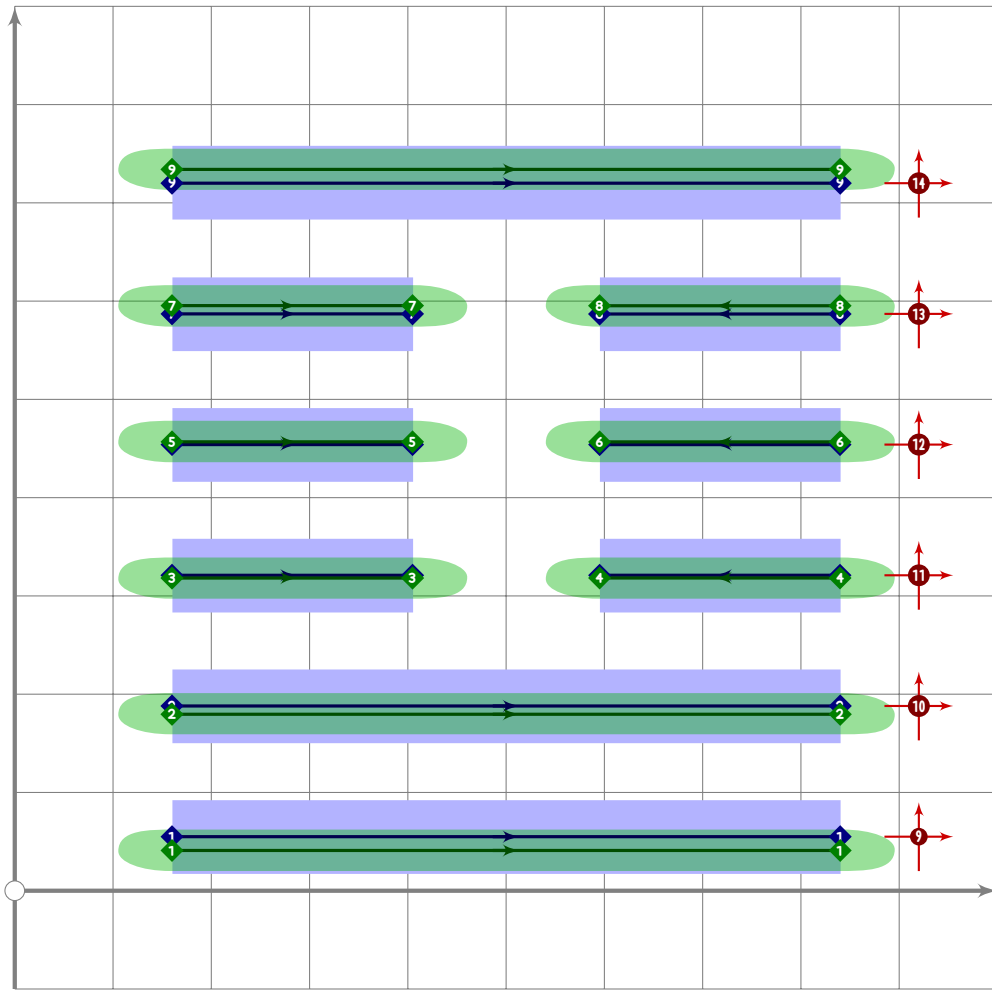


98 `make_hexagram(39,0,0,1,0,1,0);`

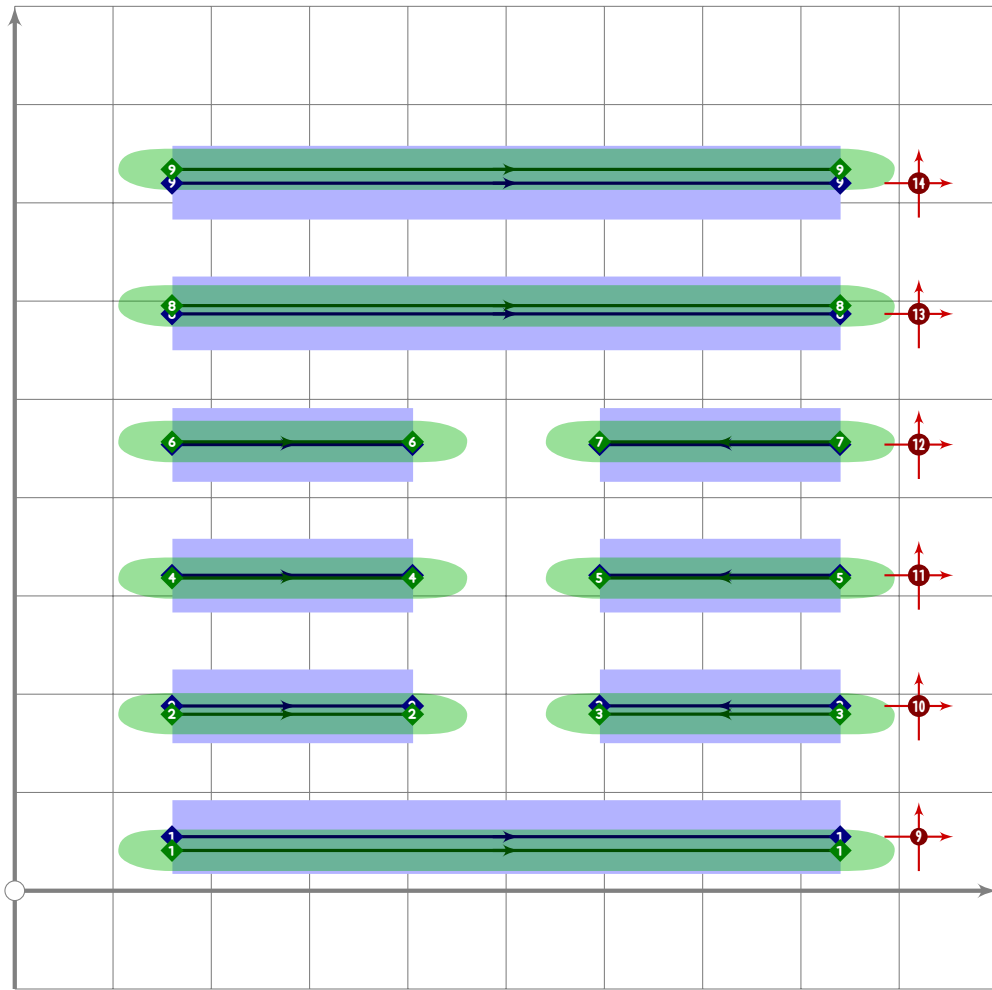




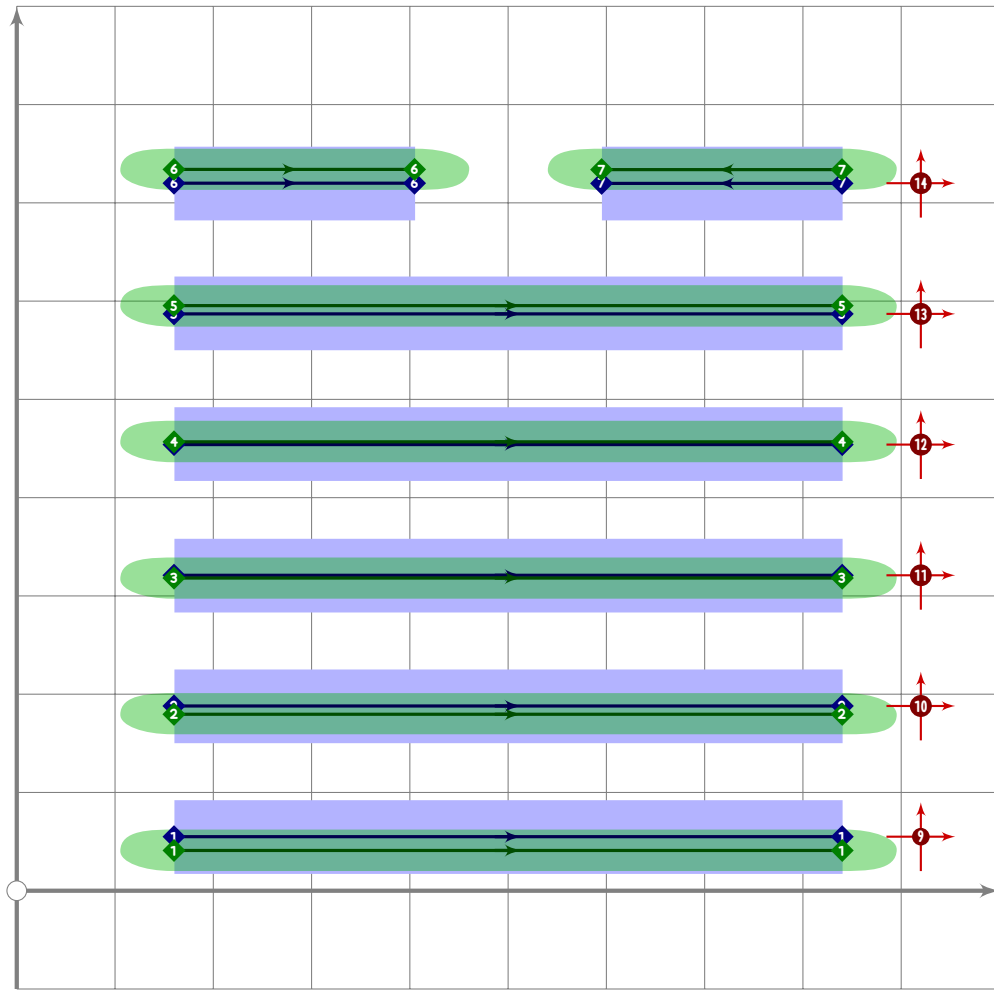
99 `make_hexagram(40,0,1,0,1,0,0);`



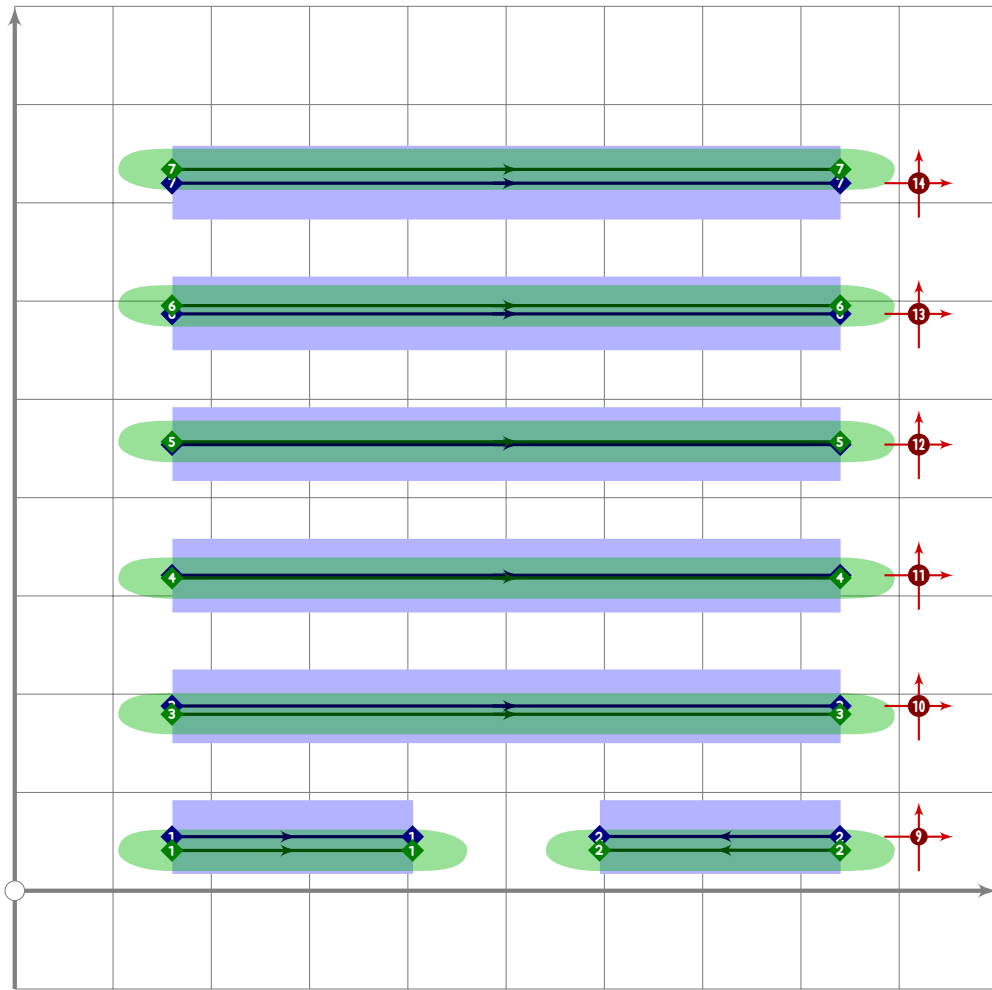
100 `make_hexagram(4,1,1,0,0,0,1);`



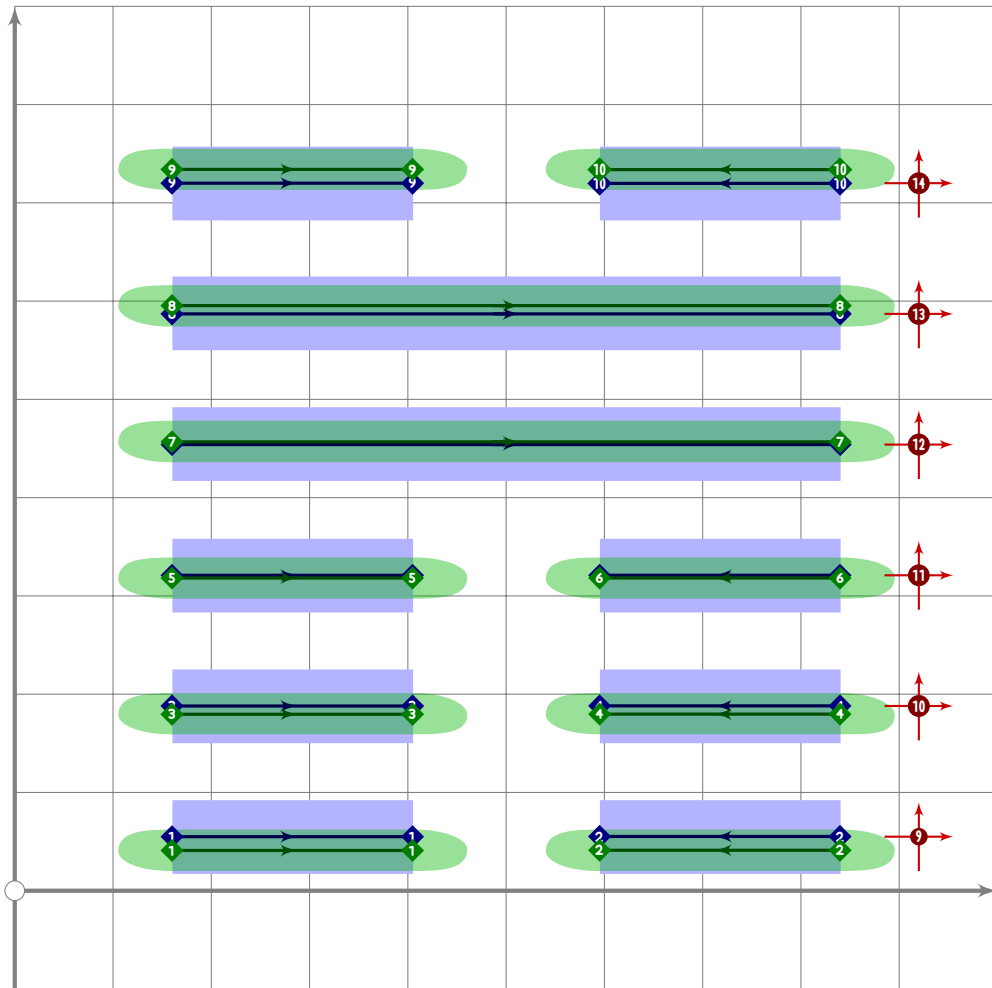
101 `make_hexagram(4,2,1,0,0,0,1,1);`



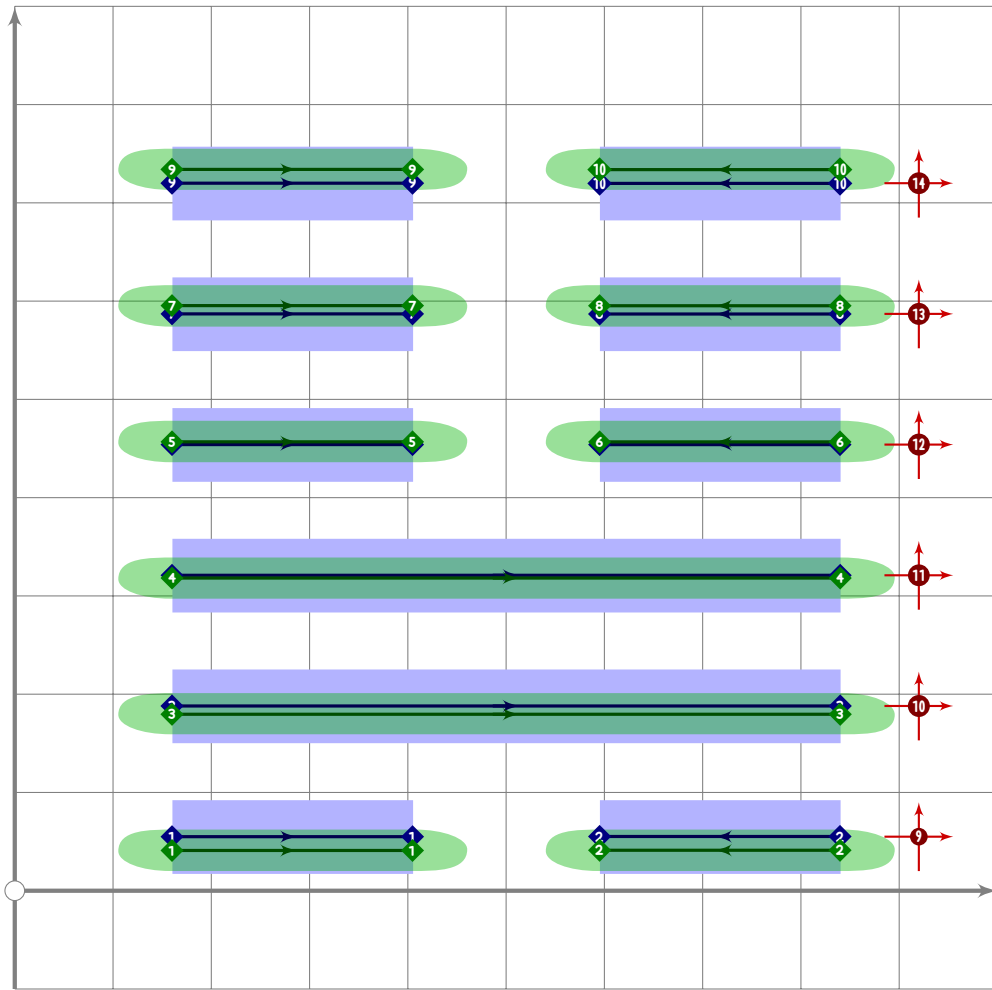
102 `make_hexagram(43,1,1,1,1,0);`



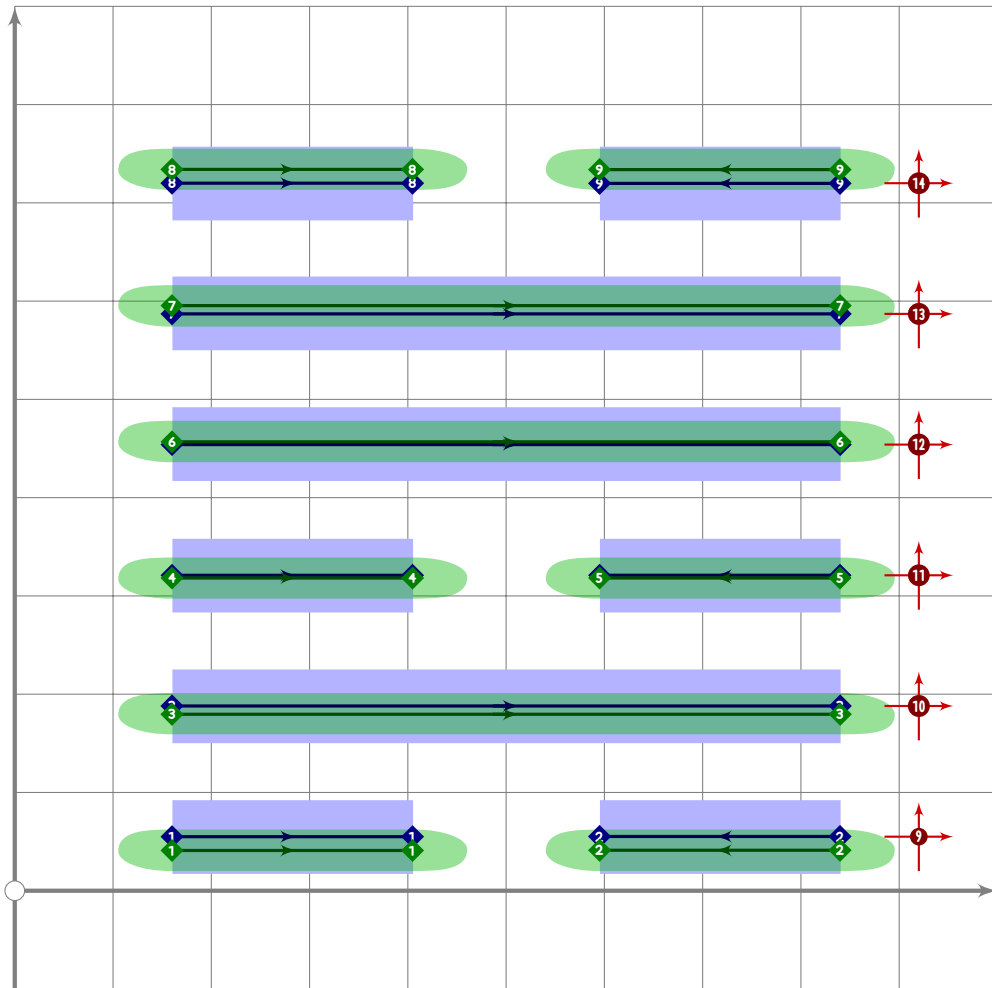
103 `make_hexagram(44,0,1,1,1,1);`



104 `make_hexagram(45,0,0,0,1,1,0);`

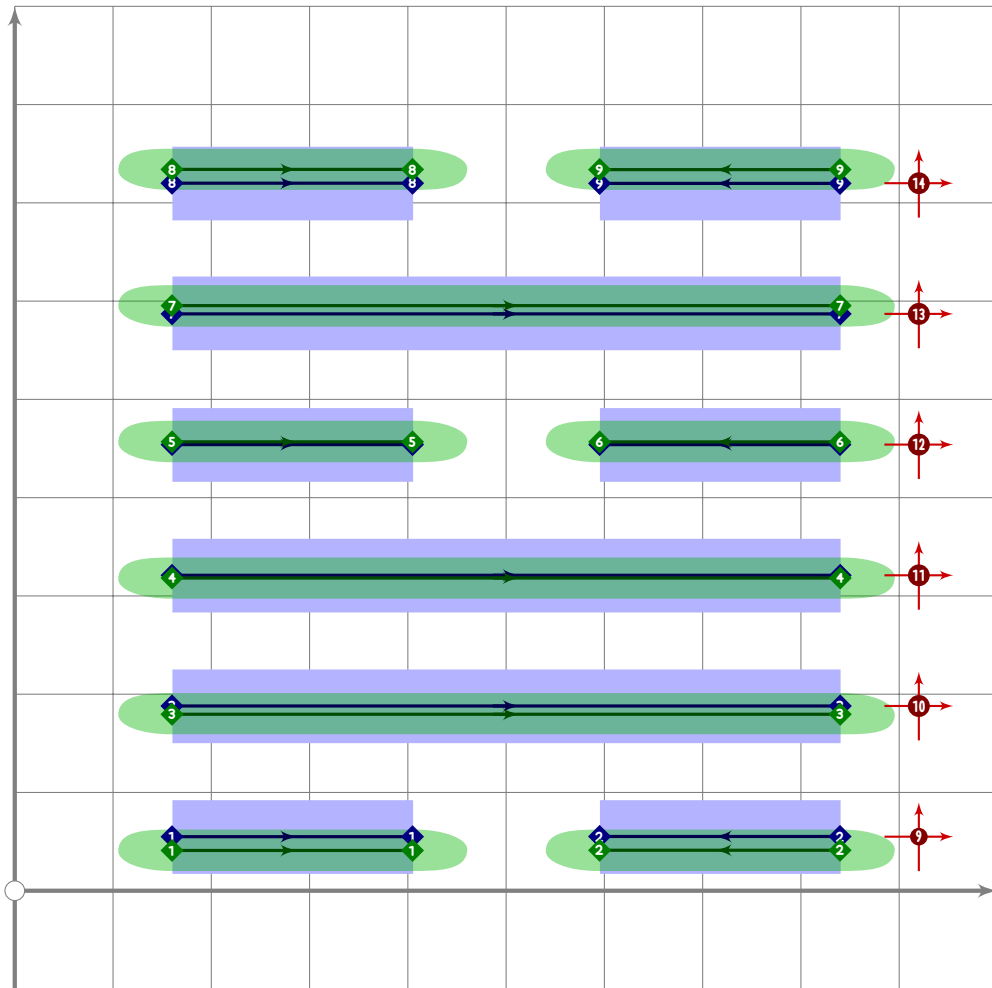


105 `make_hexagram(46,0,1,1,0,0,0);`

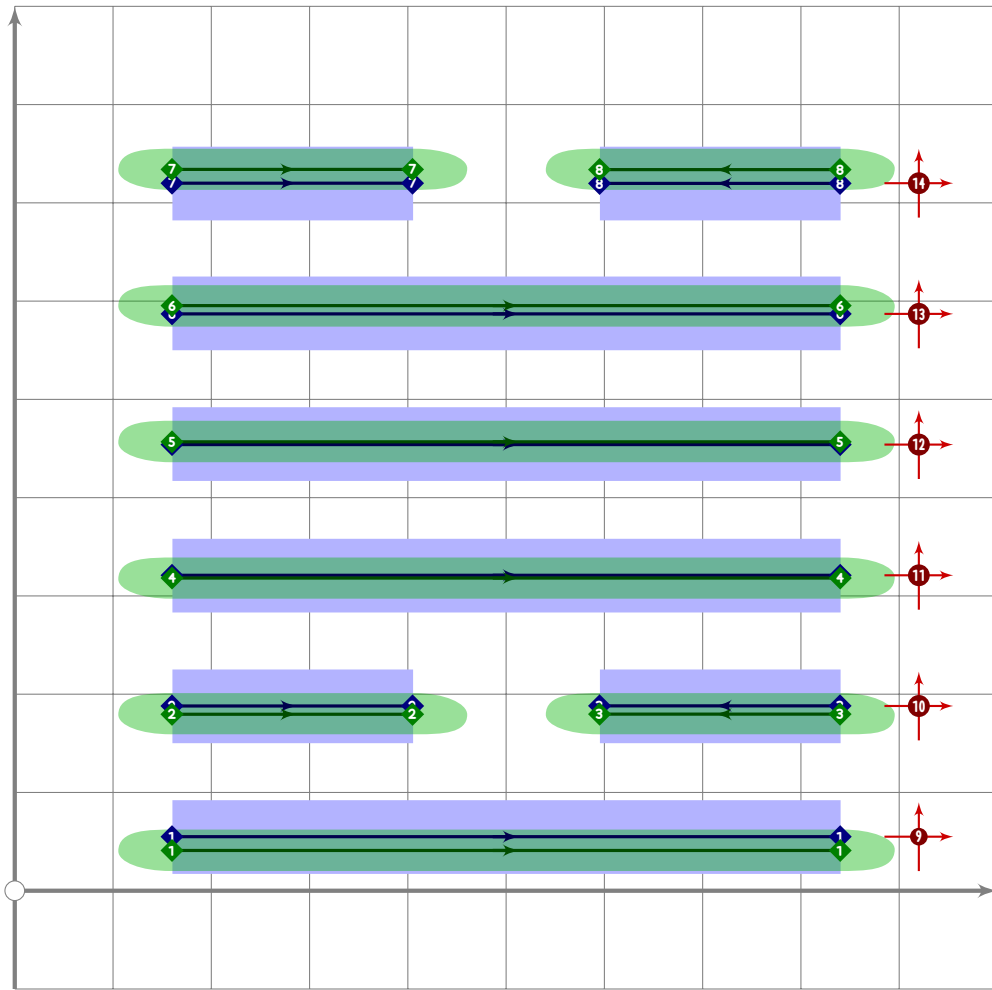


106 `make_hexagram(47,0,1,0,1,1,0);`



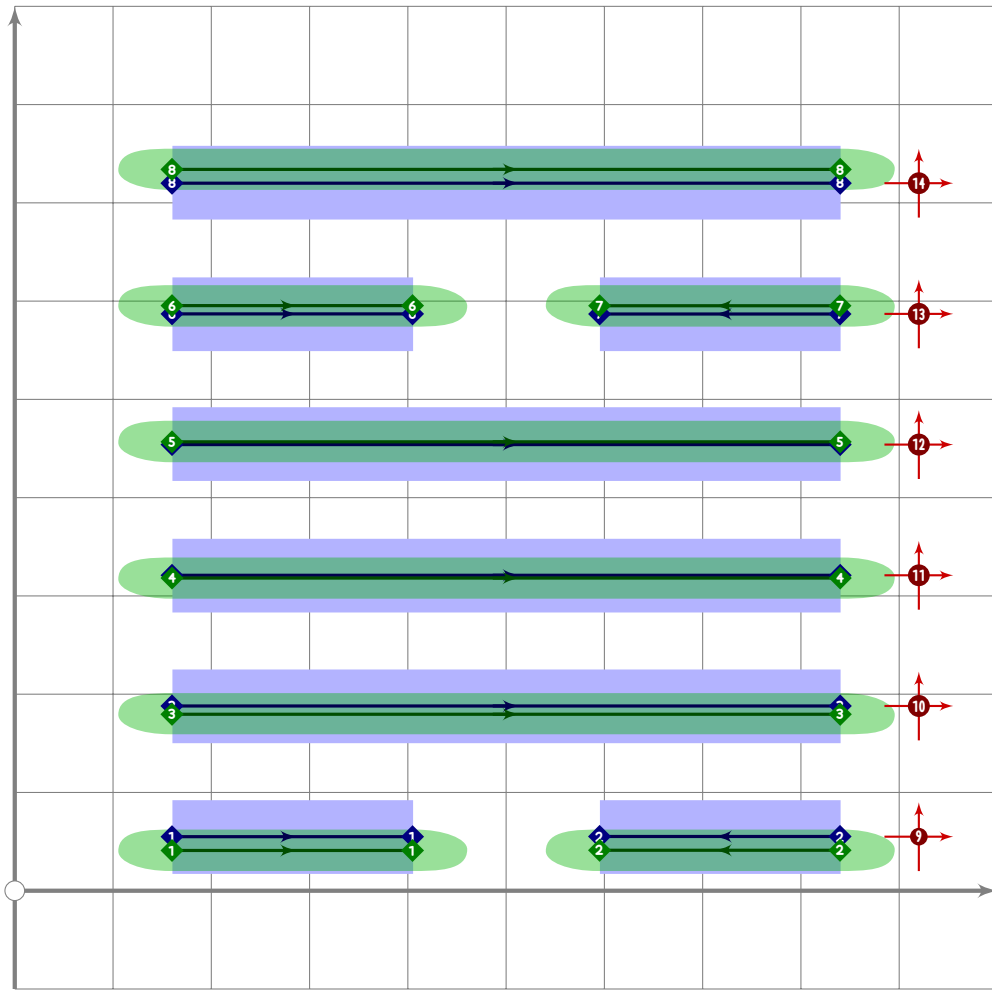


107 `make_hexagram(48,0,1,1,0,1,0);`

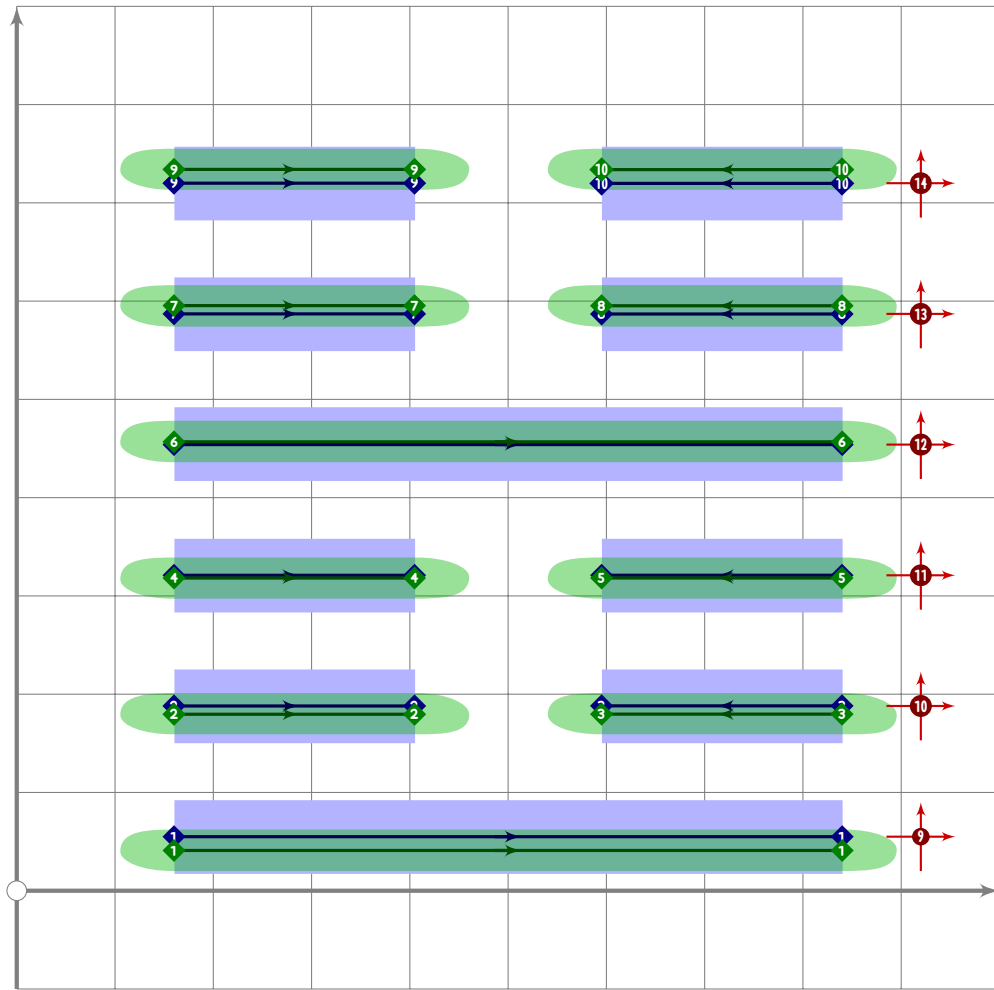


108

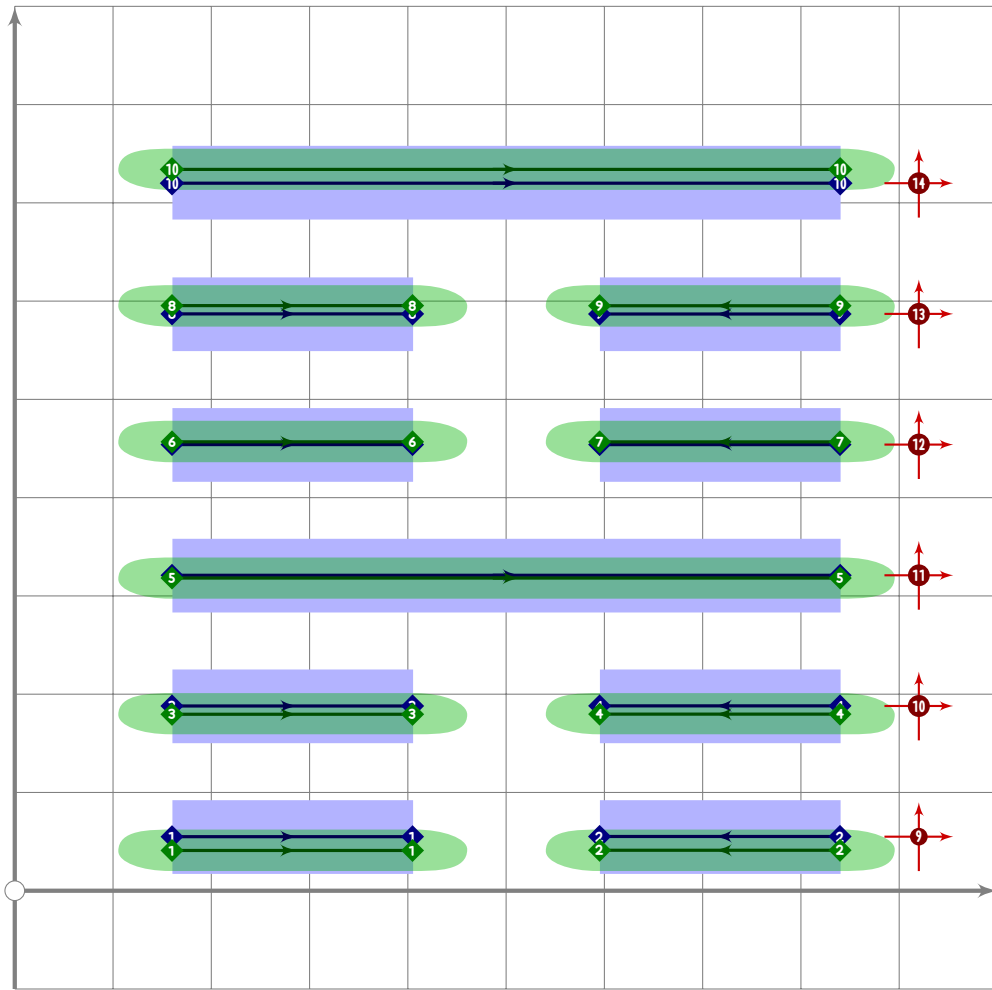
109 `make_hexagram(49,1,0,1,1,0);`



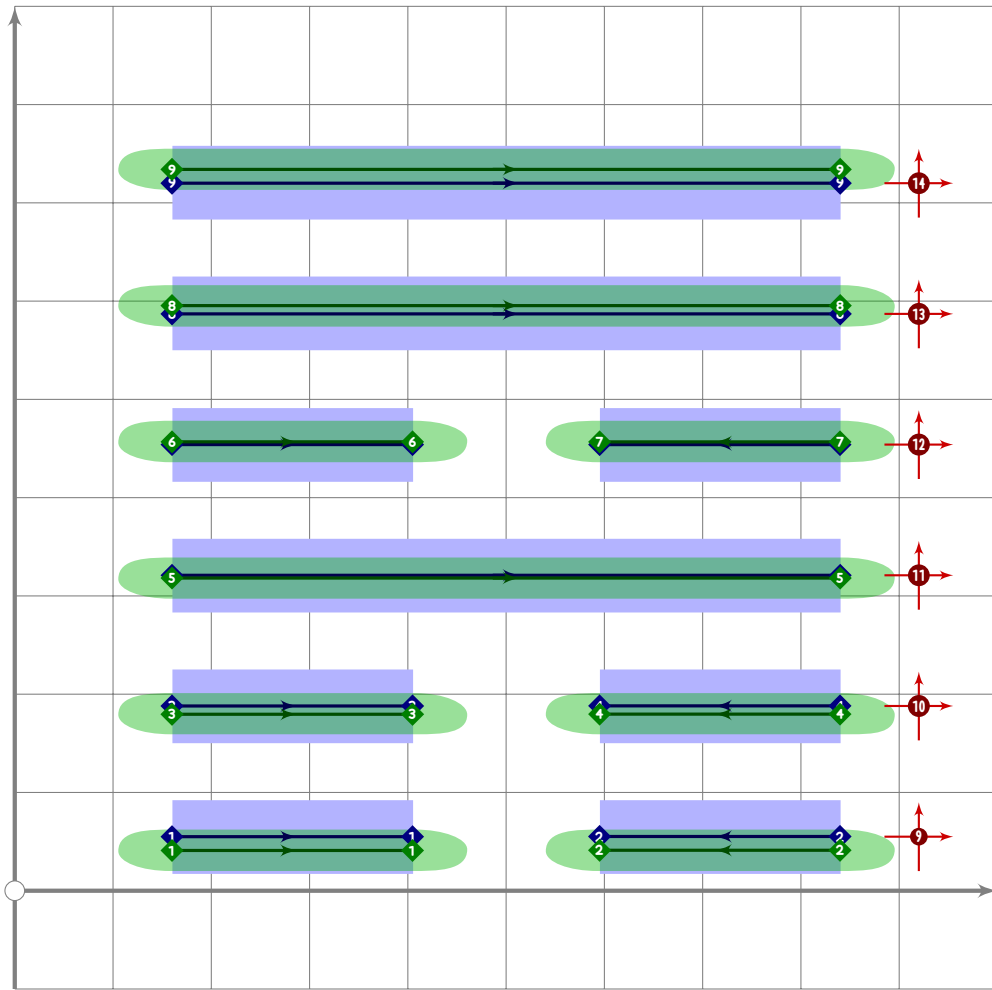
110 `make_hexagram(50,0,1,1,1,0,1);`



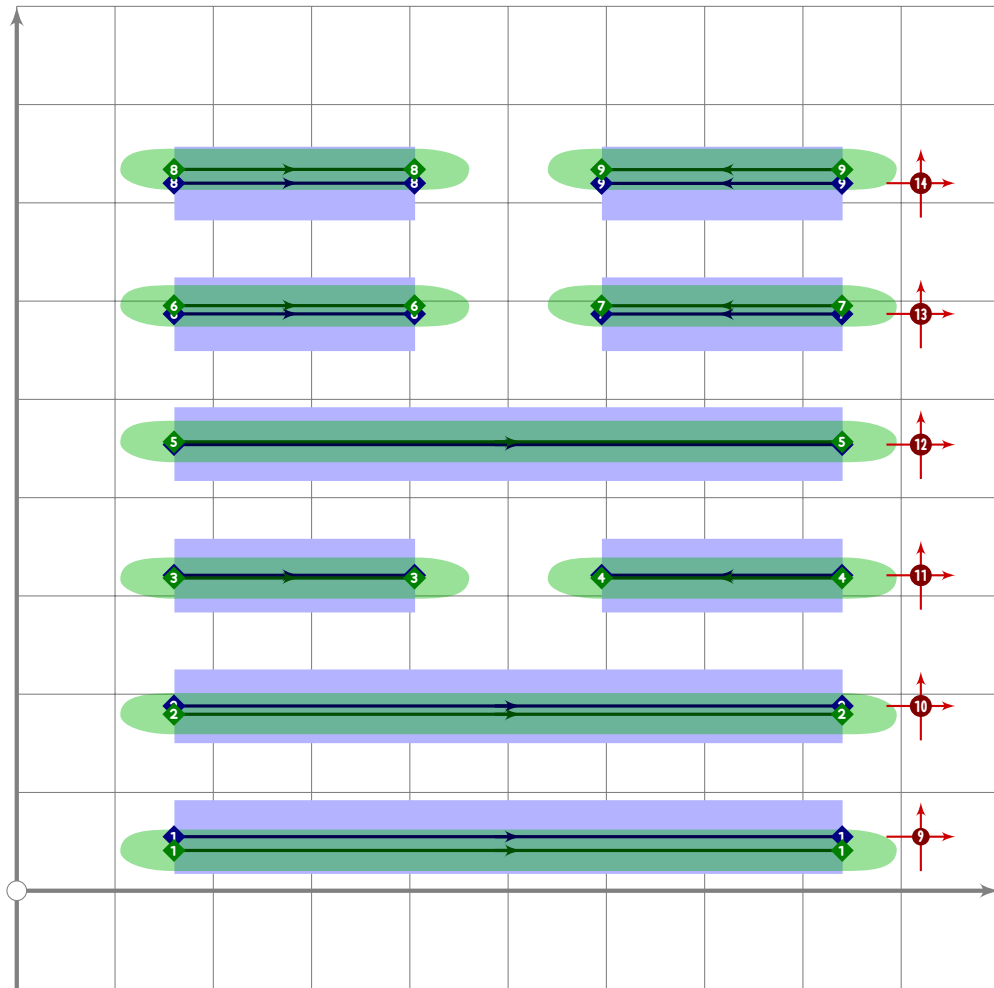
111 `make_hexagram(51,1,0,0,1,0,0);`



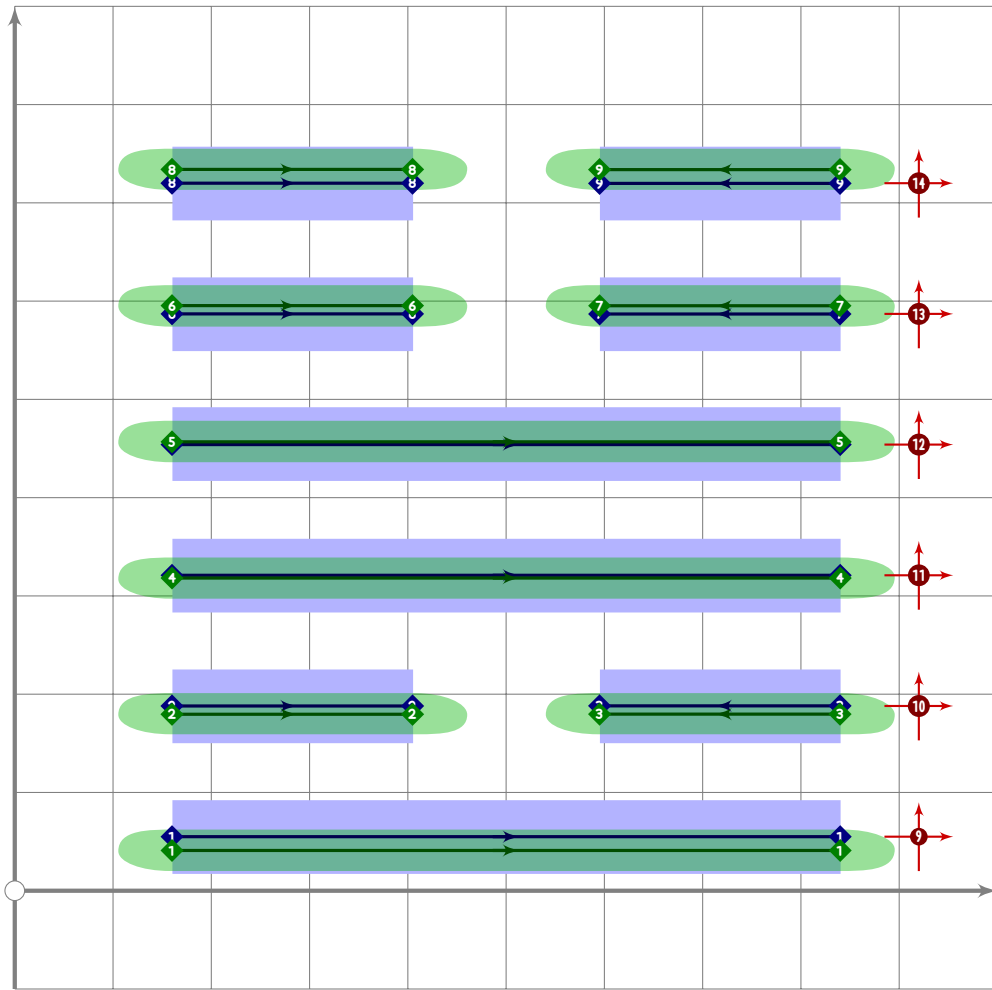
112 `make_hexagram(52,0,0,1,0,0,1);`



113 `make_hexagram(53,0,0,1,0,1,1);`

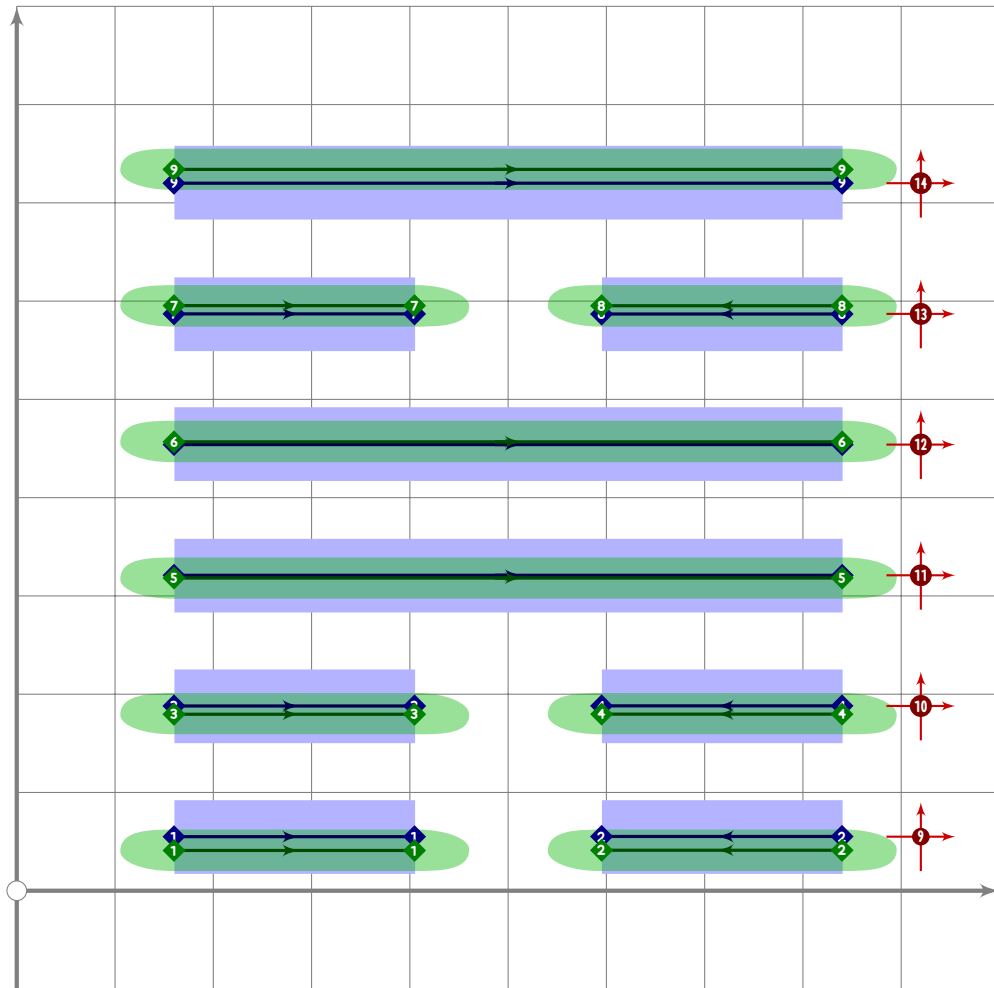


114 `make_hexagram(54,1,1,0,1,0,0);`

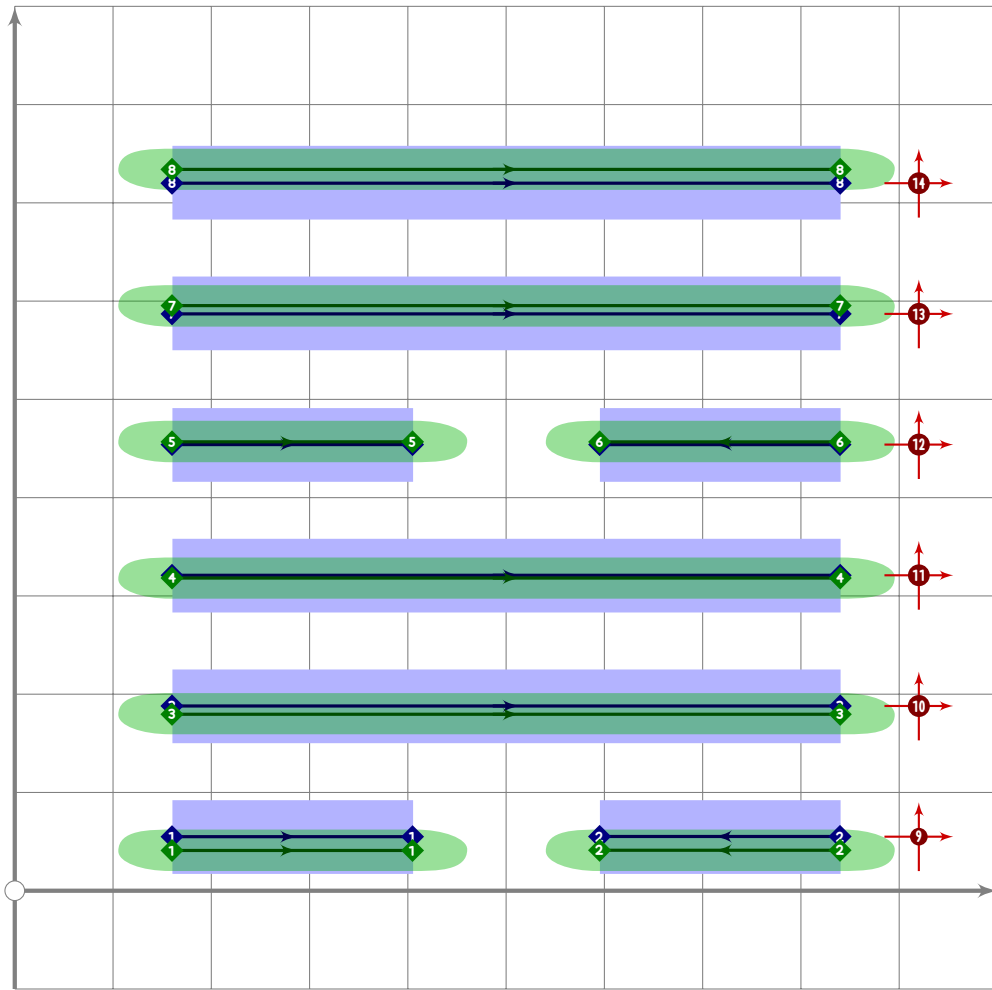


115 `make_hexagram(55,1,0,1,1,0,0);`

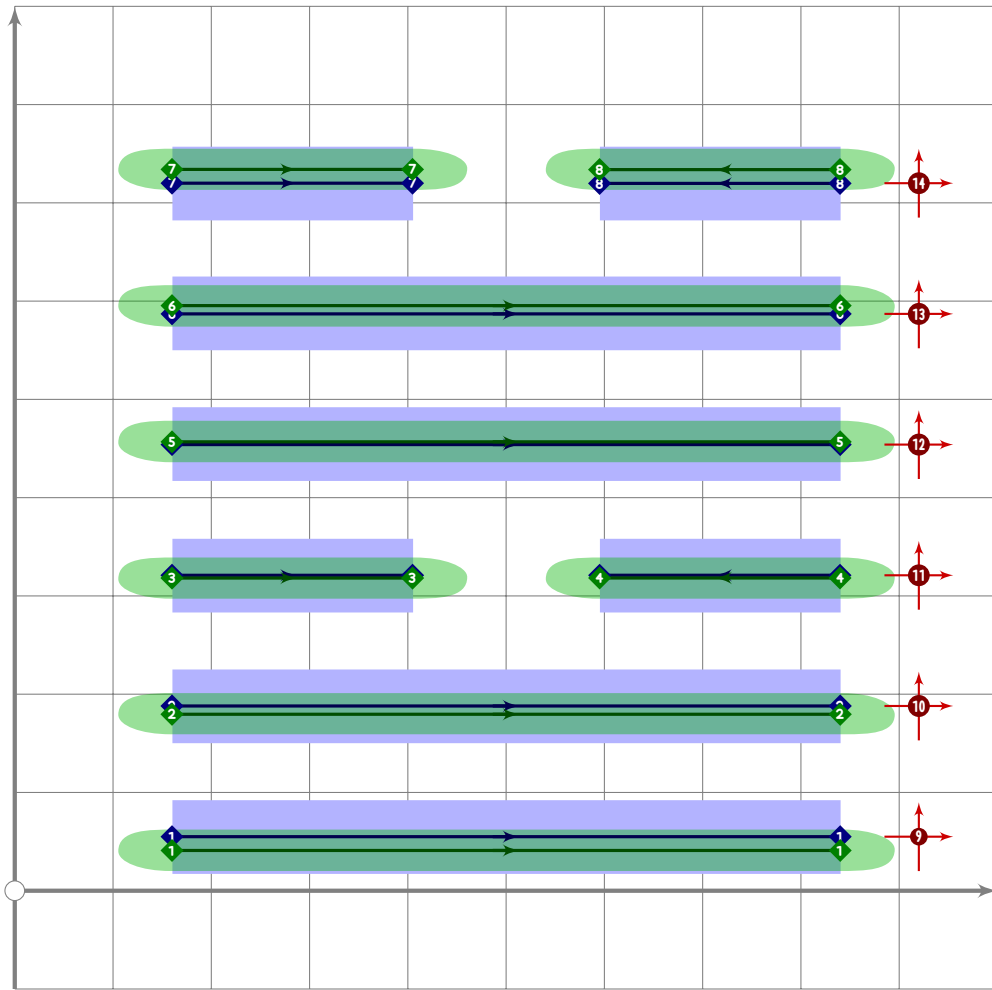




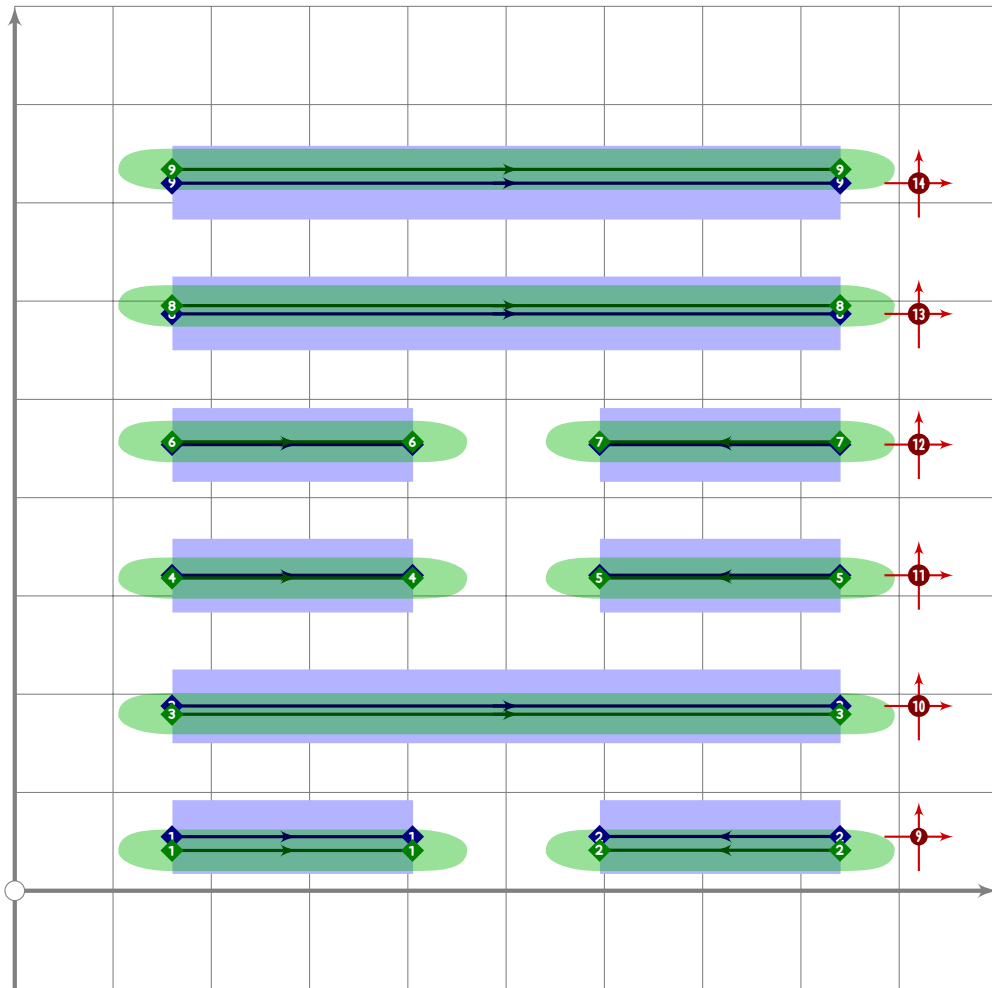
116 `make_hexagram(56,0,0,1,1,0,1);`



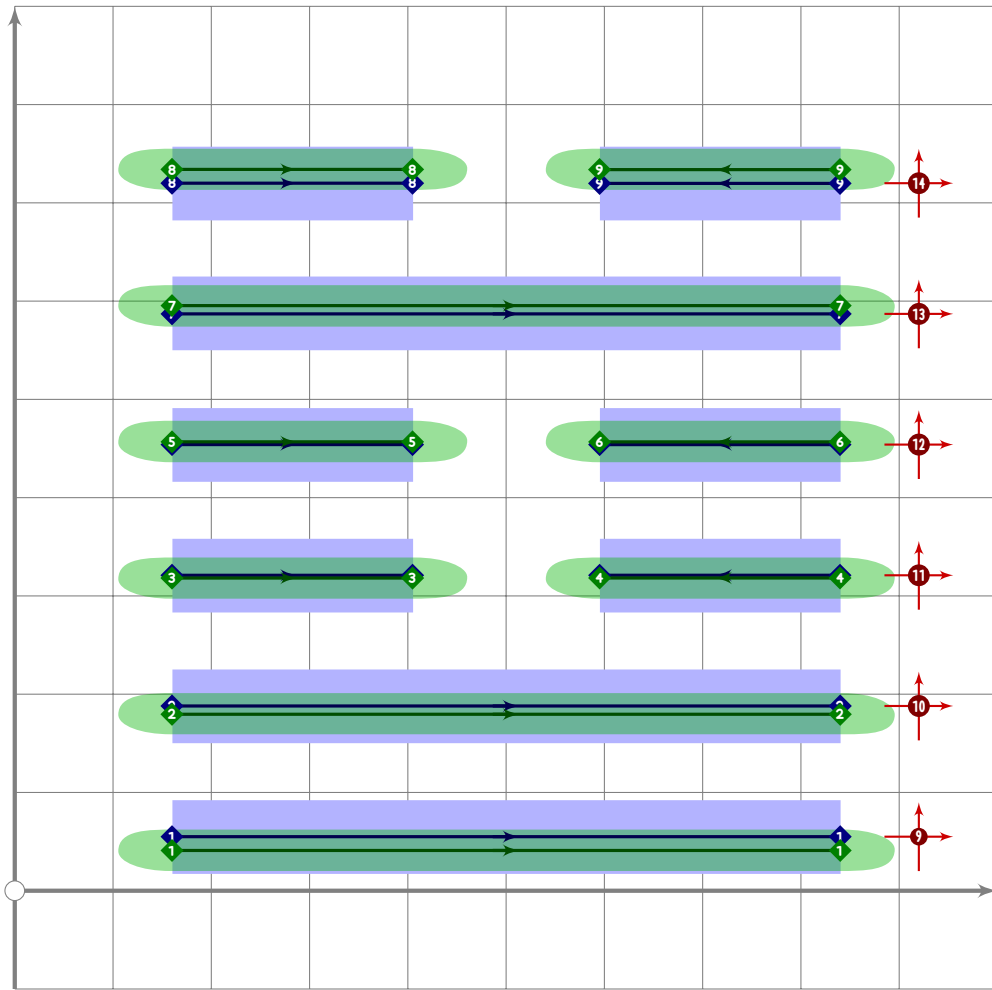
117 `make_hexagram(57,0,1,1,0,1,1);`



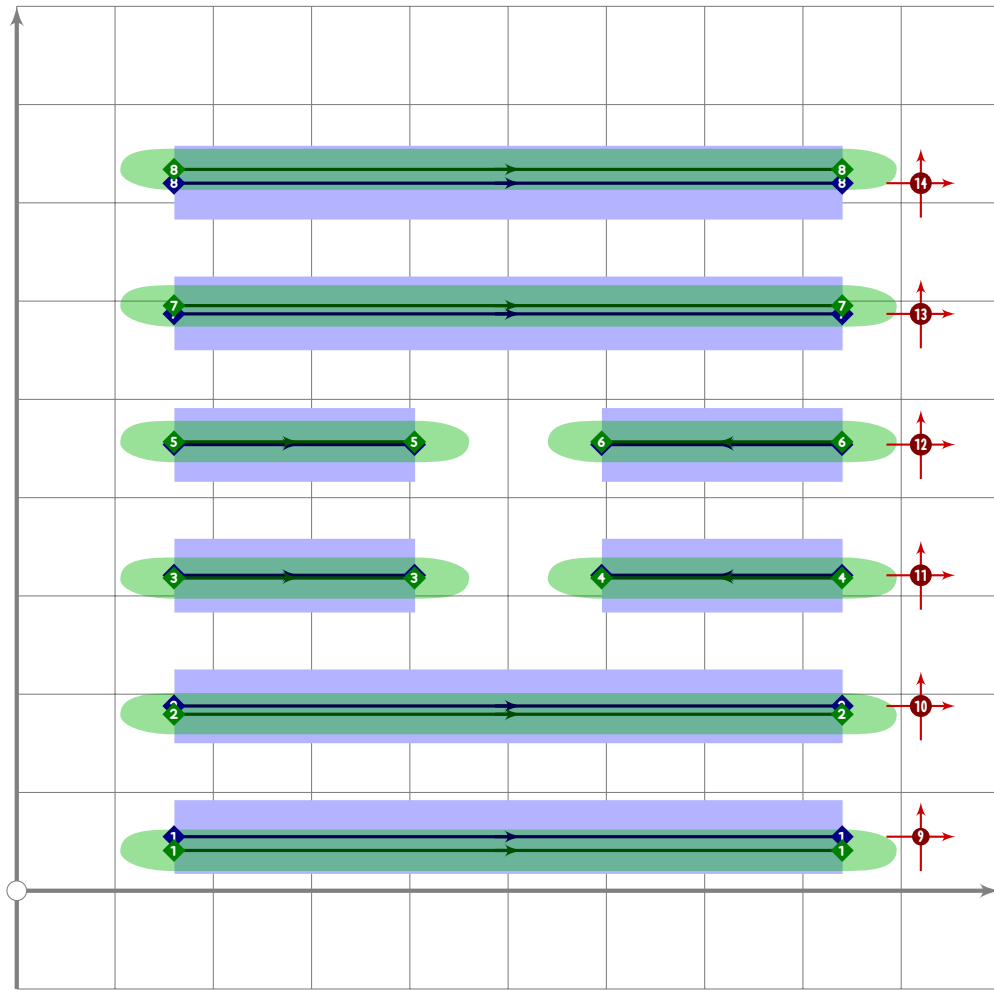
118 `make_hexagram(58,1,1,0,1,1,0);`



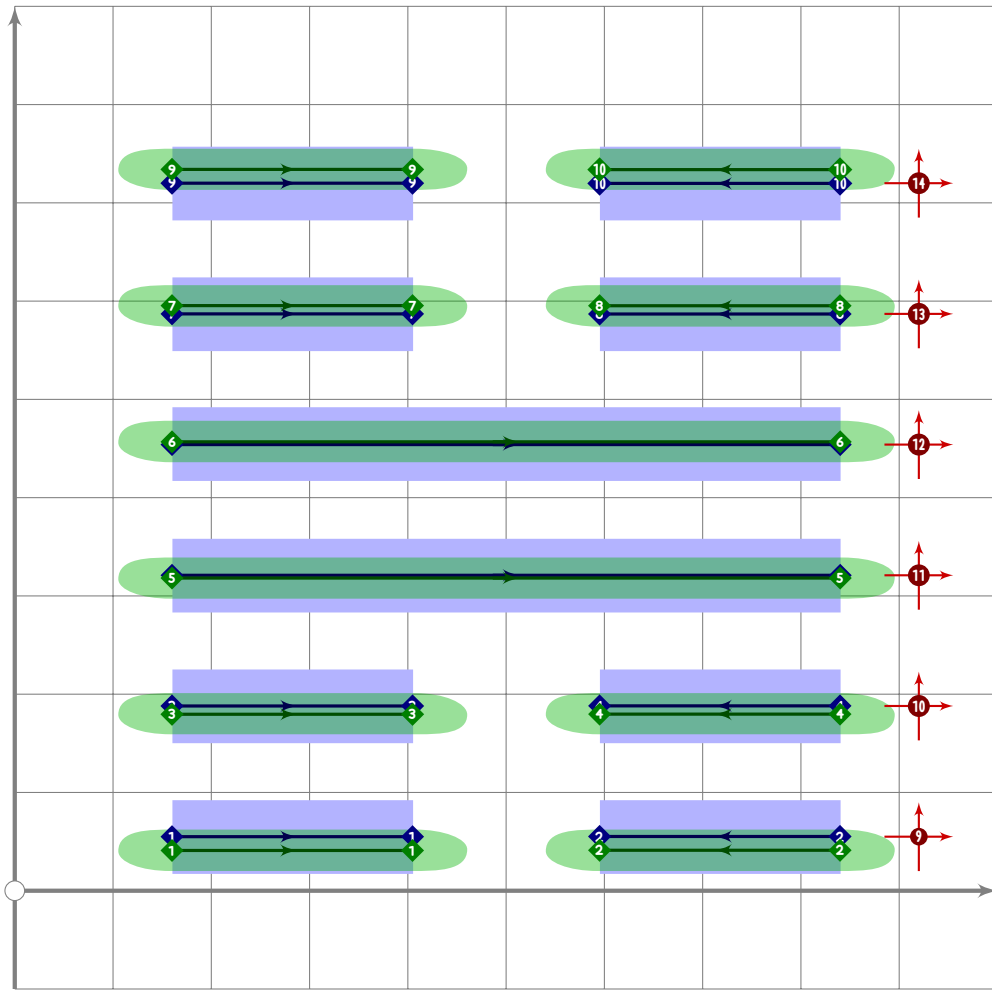
119 `make_hexagram(59,0,1,0,0,1,1);`



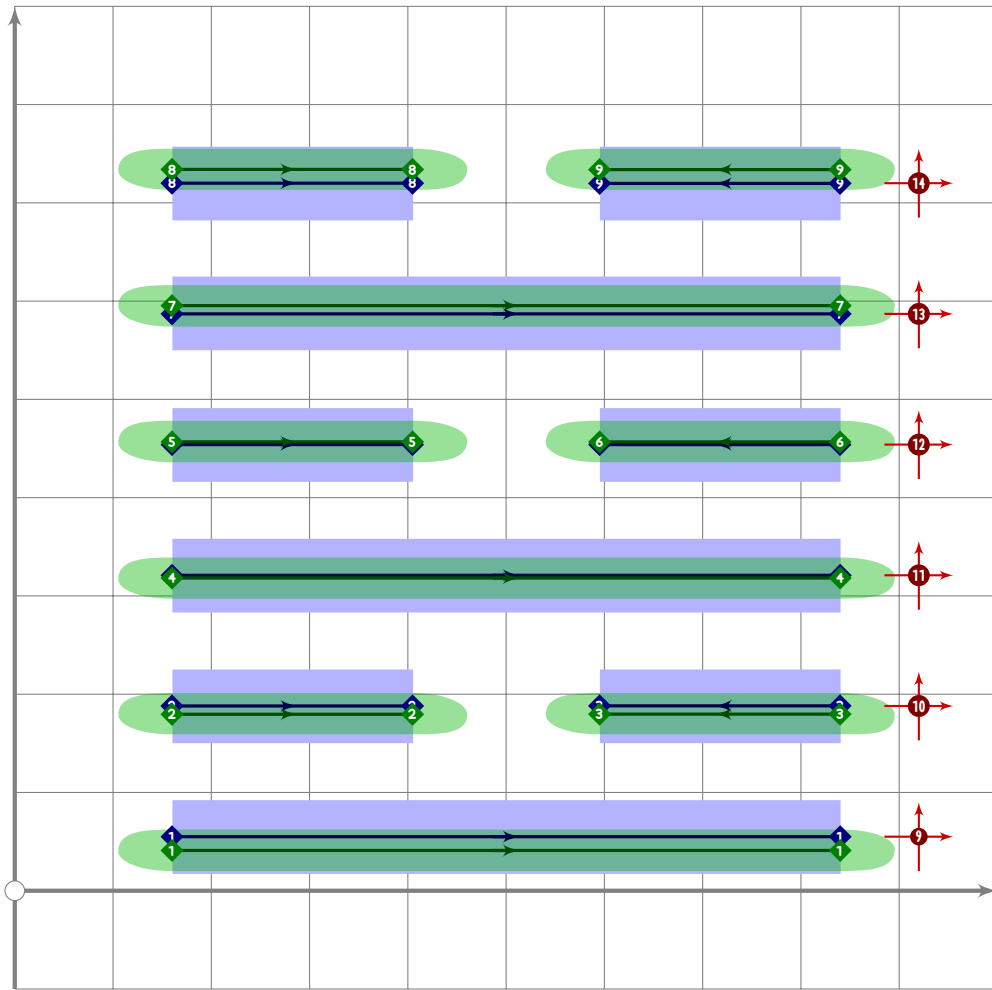
120 `make_hexagram(60,1,1,0,0,1,0);`



121 `make_hexagram(61,1,1,0,0,1,1);`

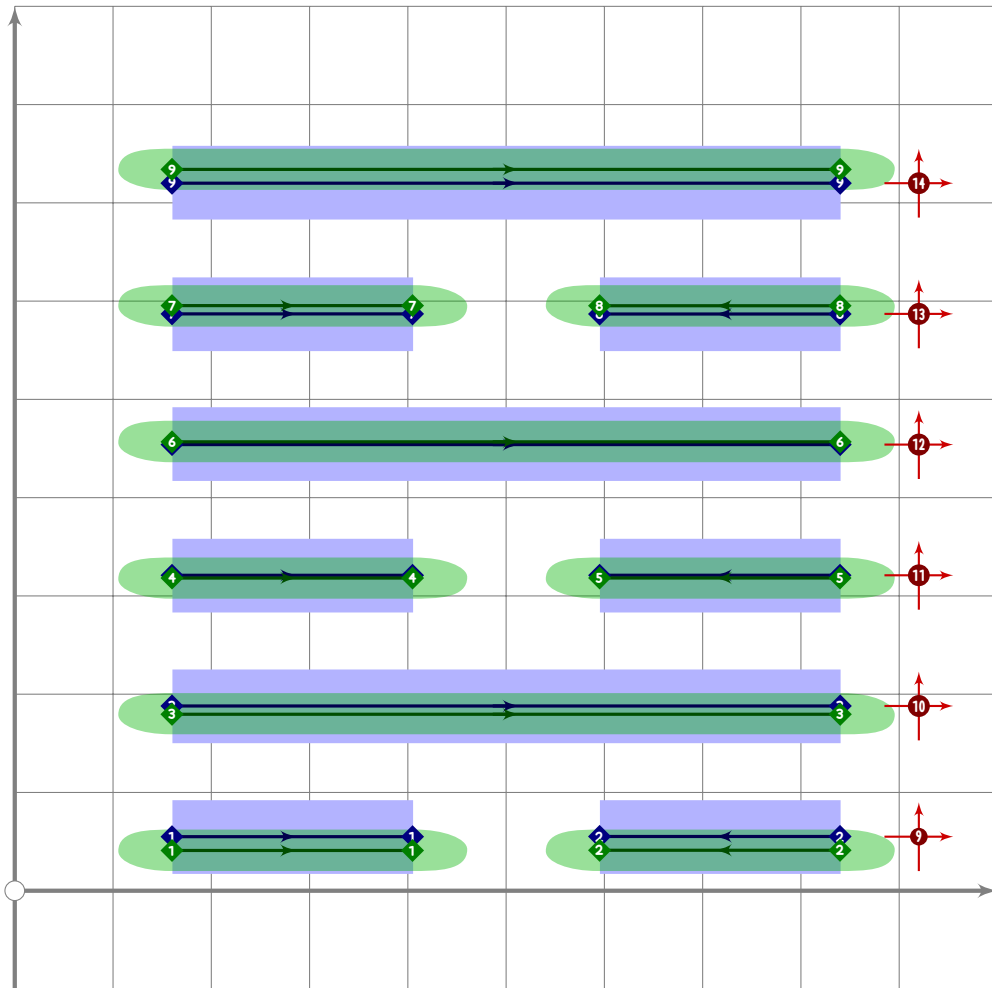


122 `make_hexagram(62,0,0,1,1,0,0);`



123 `make_hexagram(63,1,0,1,0,1,0);`





```
124 make_hexagram(64,0,1,0,1,0,1);
```

```
125
```

```
126
```

```
127
```

```
128 endfont;
```

```
129
```

```
130
```



Part IV

U+4E00 to U+61FF



# tsuku-4e.mp

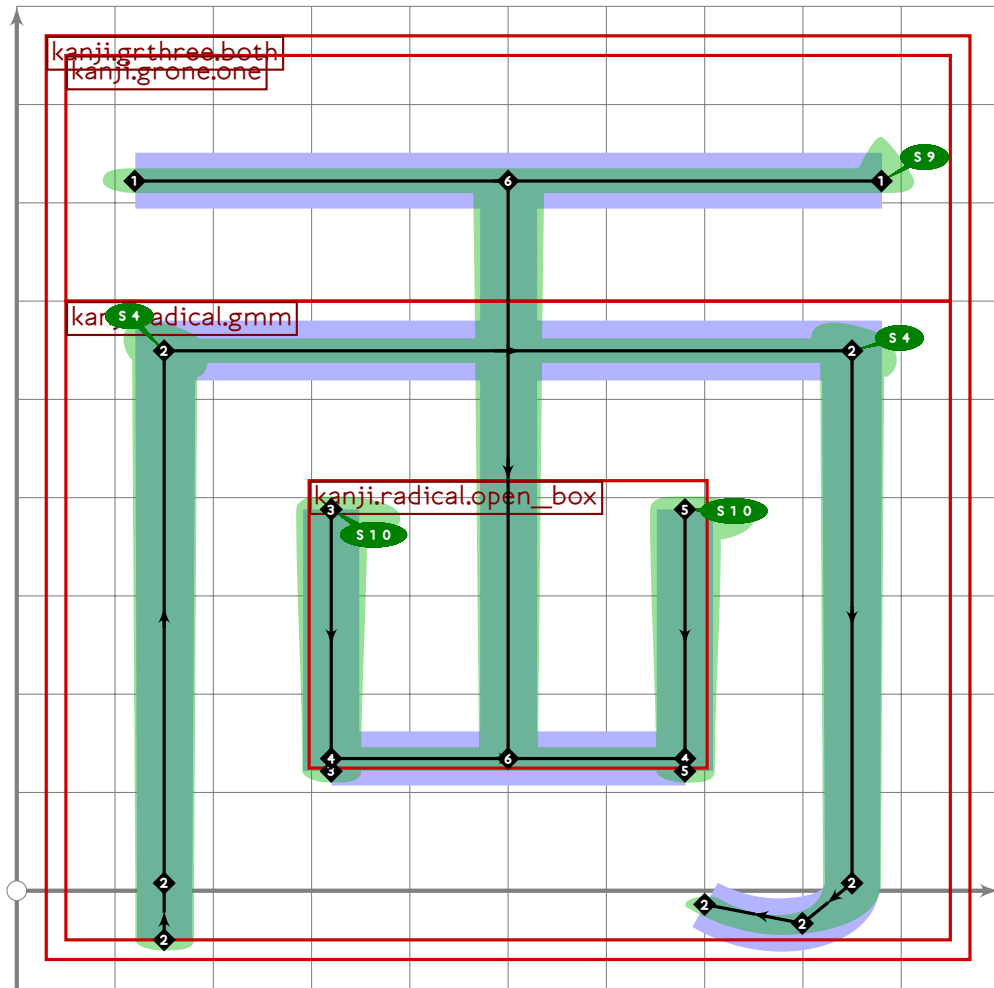
```
1 %
2 % Unicode page 4e (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradefour.mp;
39 input gradenine.mp;
40 input gradeone.mp;
41 input gradesix.mp;
42 input gradethree.mp;
43 input gradetwo.mp;
44 input leftrad.mp;
45 input radical.mp;
46 input rare.mp;
47
48 

---

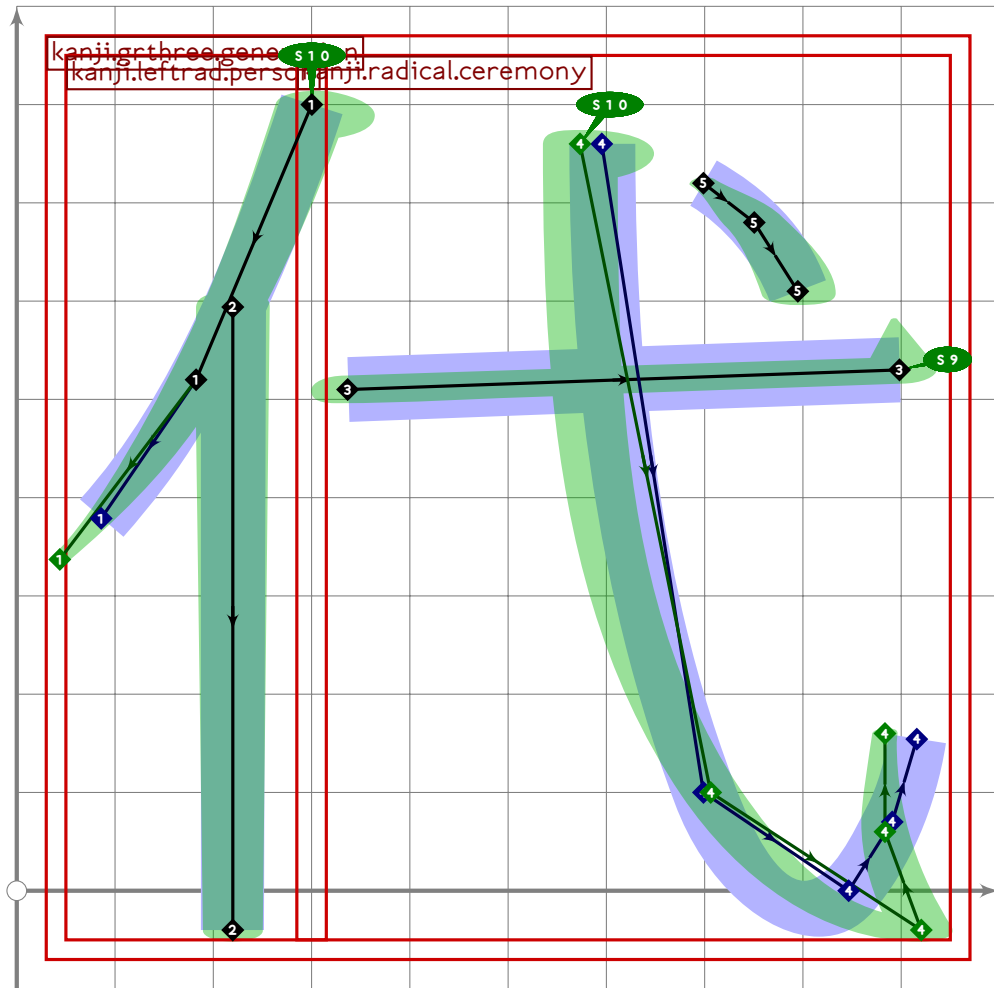

```



```

49
50 vardef kanji.grthree.both =
51   push_pbox_toexpand("kanji.grthree.both");
52   build_kanji.level(
53     build_kanji.tb(600,0)
54     (kanji.grone.one)
55     (kanji.radical.gmm;
56       build_kanji.sscale(scaled 0.45)(kanji.radical.open_box));
57   push_stroke(
58     (point 0.5 of get_strokep(-4))-(point 0.5 of get_strokep(-1)),
59     (1.7,1.7)-(1.5,1.5));
60   expand_pbox;
61 enddef;

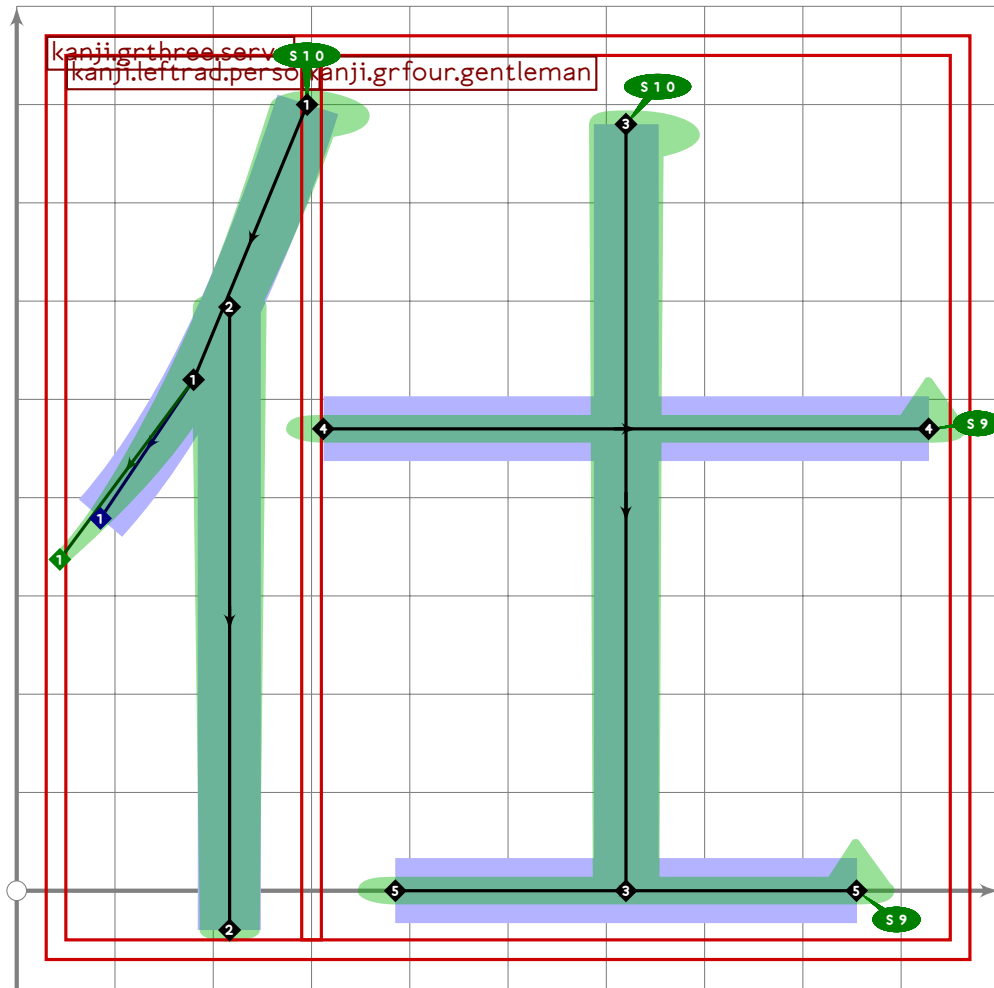
```



```

62
63 vardef kanji.grthree.generation =
64   push_pbox_toexpand("kanji.grthree.generation");
65   build_kanji.lr(300,30)
66     (kanji.leftrad.person)
67     (kanji.radical.ceremony);
68   expand_pbox;
69 enddef;

```

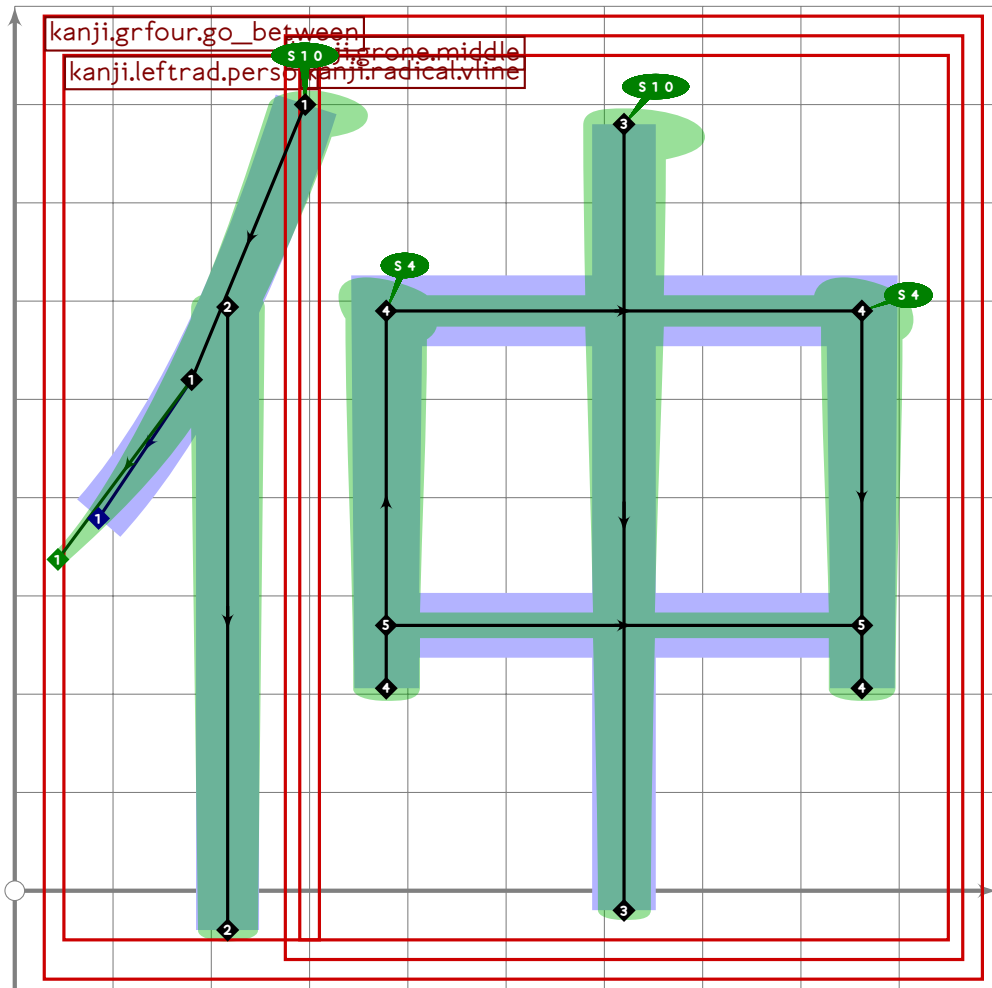


```

70
71 vardef kanji.grthree.serve =
72   push_pbox_toexpand("kanji.grthree.serve");
73   build_kanji.lr(300,20)
74     (kanji.leftrad.person)
75     (kanji.grfour.gentleman);
76   expand_pbox;
77 enddef;
78
79

```

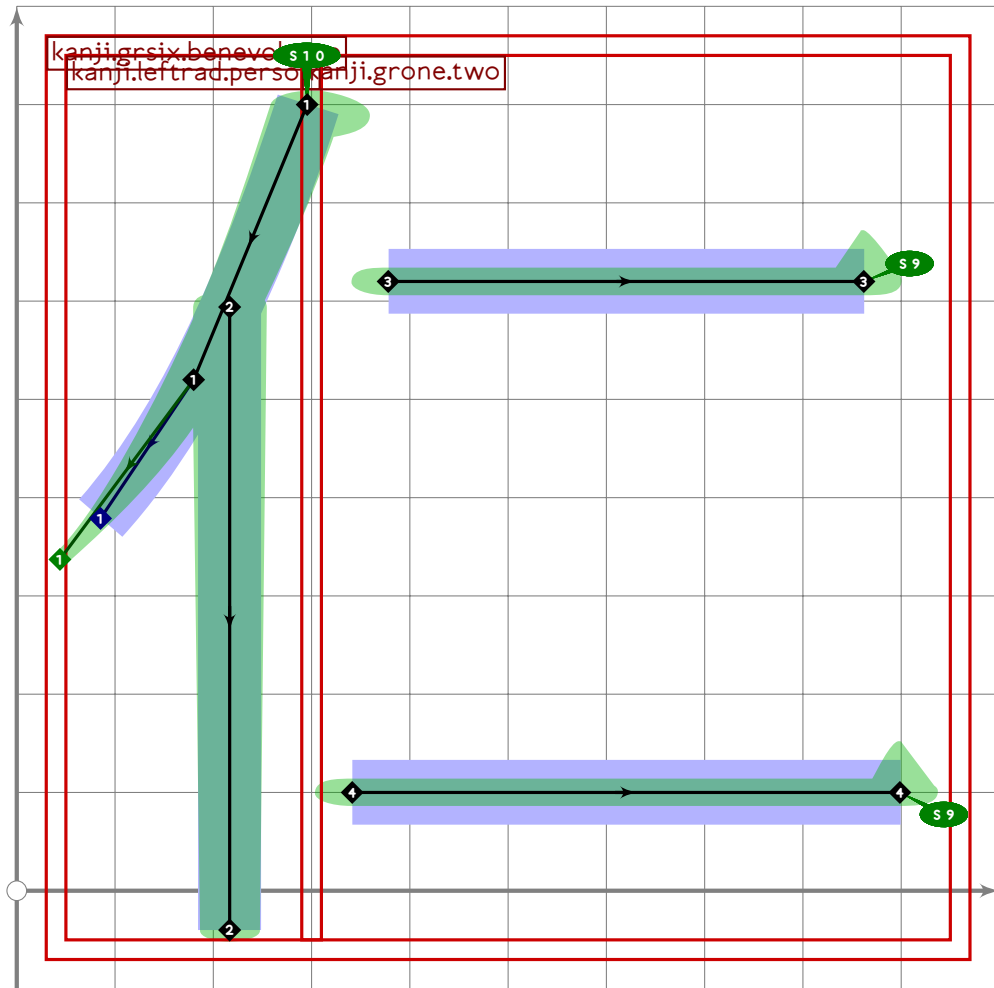




```

80
81 vardef kanji.grfour.go_between =
82   push_pbox_toexpand("kanji.grfour.go_between");
83   build_kanji.lr(300,20)
84     (kanji.leftrad.person)
85     (kanji.grone.middle);
86   expand_pbox;
87 enddef;
88
89

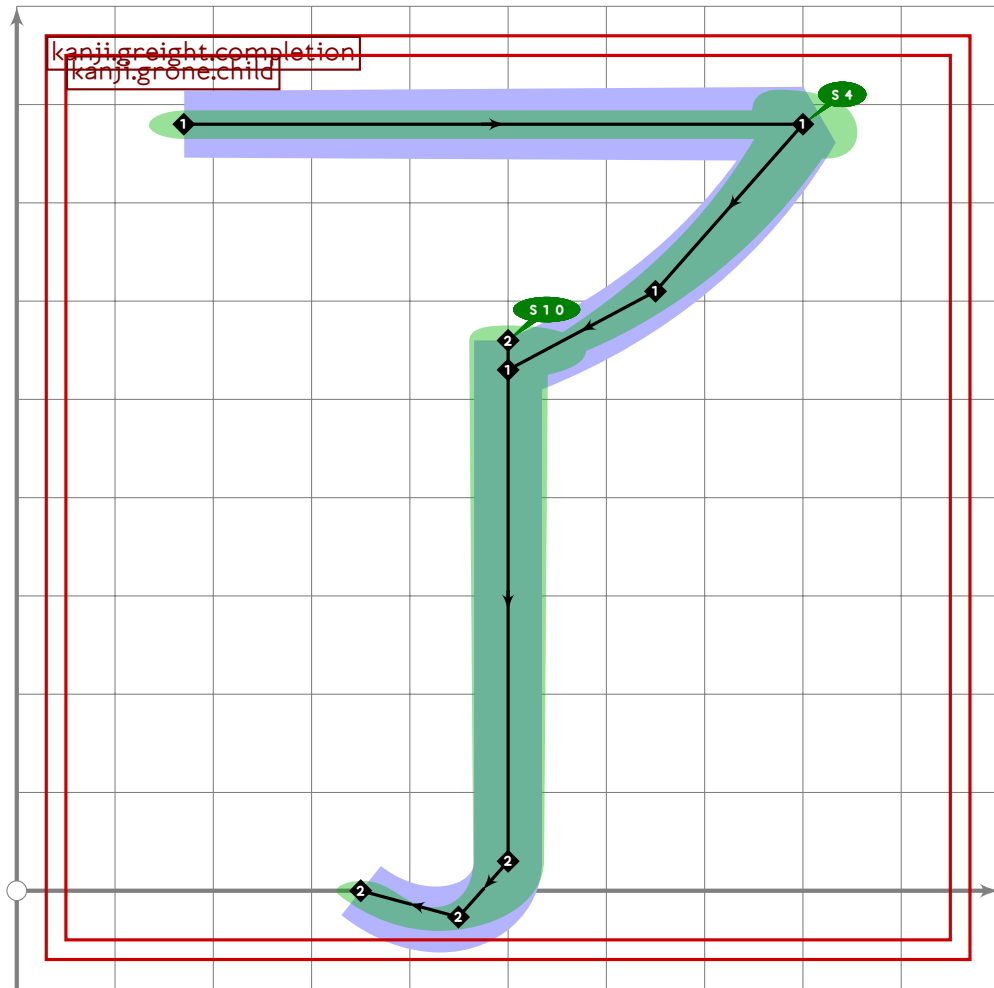
```



```

90
91 vardef kanji.grsix.benevolence =
92   push_pbox_toexpand("kanji.grsix.benevolence");
93   build_kanji.lr(300,20)
94     (kanji.leftrad.person)
95     (kanji.grone.two);
96   expand_pbox;
97 enddef;
98
99

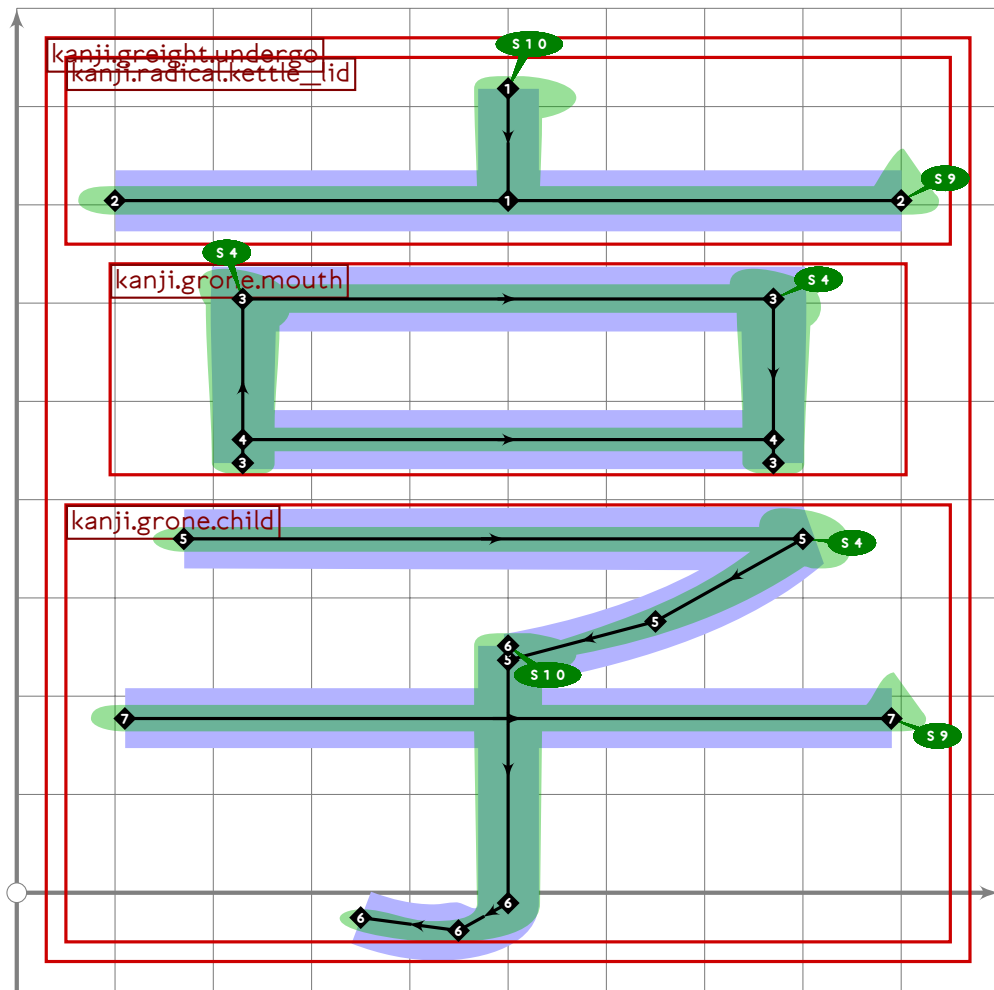
```



```

100
101 vardef kanji.greight.completion =
102   push_pbox_toexpand("kanji.greight.completion");
103   kanji.grone.child;
104   pop_stroke;
105   expand_pbox;
106 enddef;

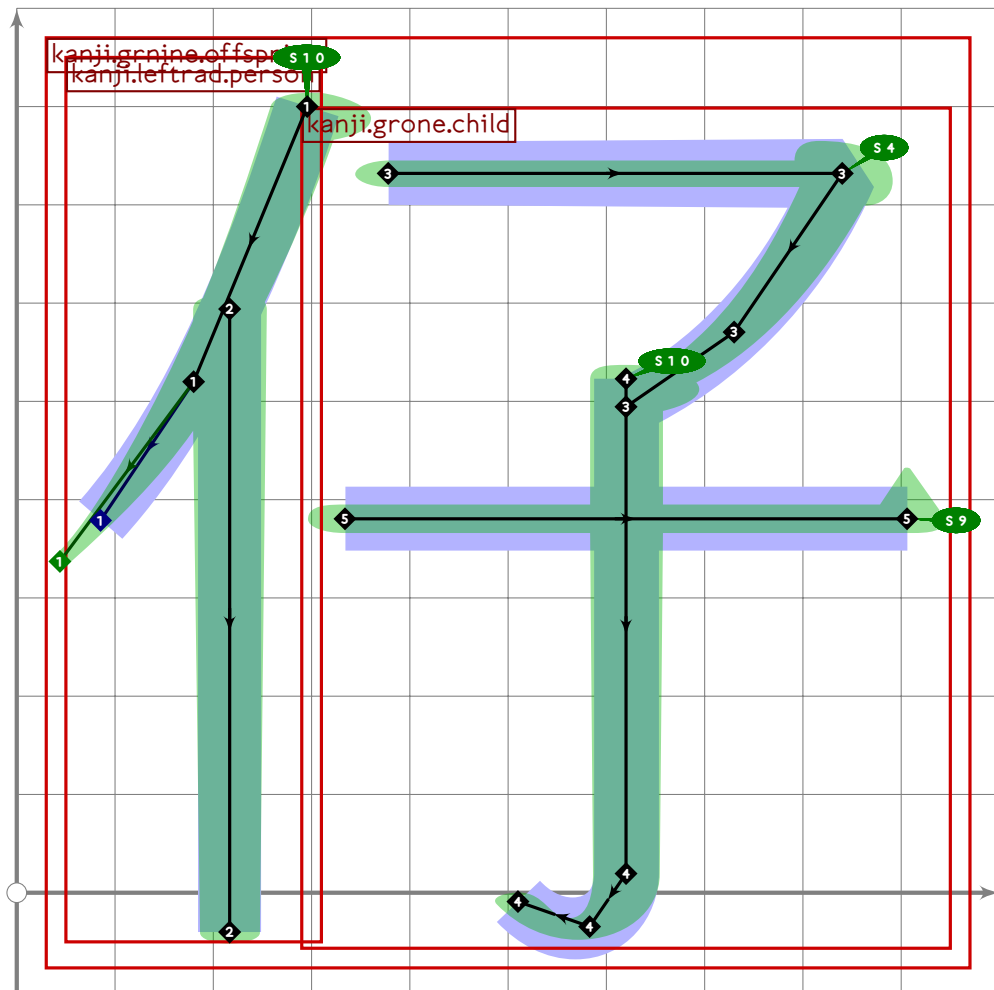
```



```

107
108 vardef kanji.greight.undergo =
109   push_pbox_toexpand("kanji.greight.undergo");
110   build_kanji.level(build_kanji.tb(650,-20)
111     (kanji.radical.kettle_lid)
112     (build_kanji.tb(550,-40)
113       (build_kanji.sscale(xscaled 0.9)(kanji.grone.mouth))
114       (kanji.grone.child)));
115   expand_pbox;
116 enddef;
117
118

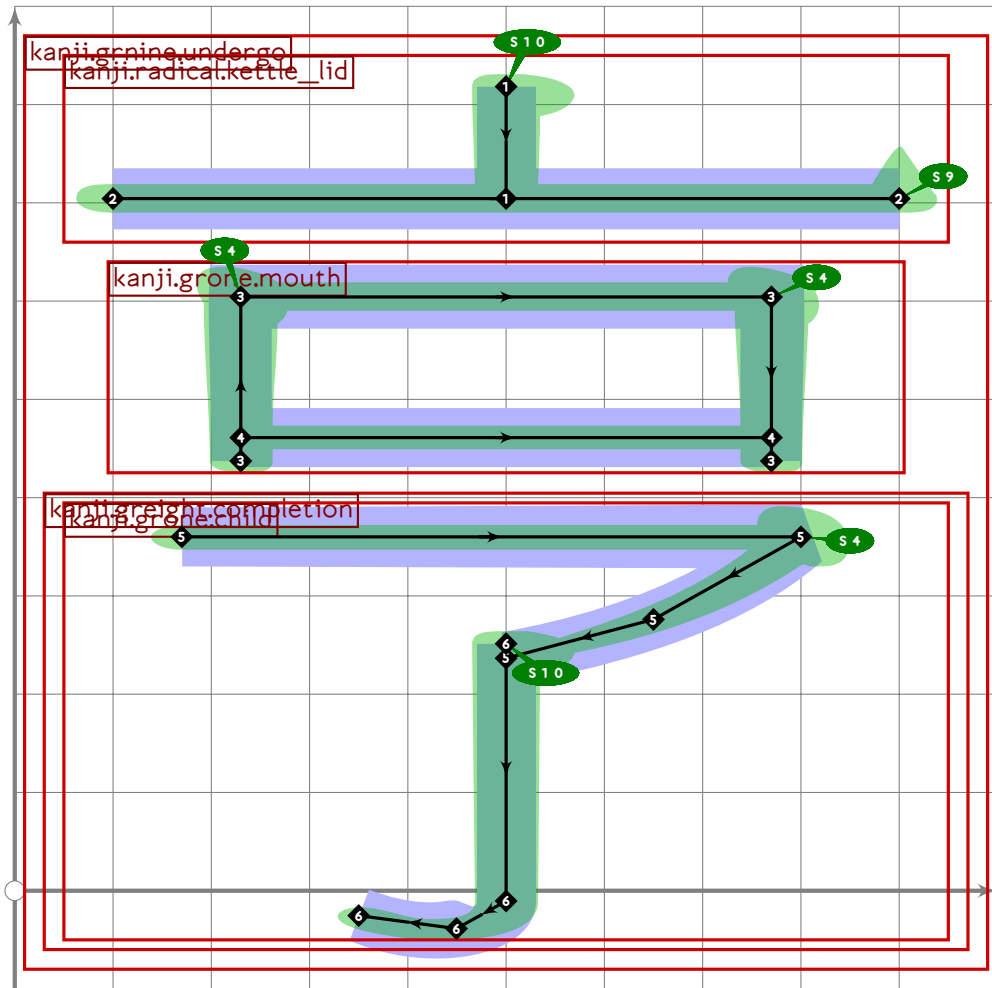
```



```

119
120 vardef kanji.grnine.offspring =
121   push_pbox_toexpand("kanji.grnine.offspring");
122   build_kanji.level(build_kanji.lr(300,20)
123     (kanji.leftrad.person)
124     (build_kanji.sscale(shifted (0,-30) yscaled 0.95)
125       (kanji.grone.child)));
126   expand_pbox;
127 enddef;

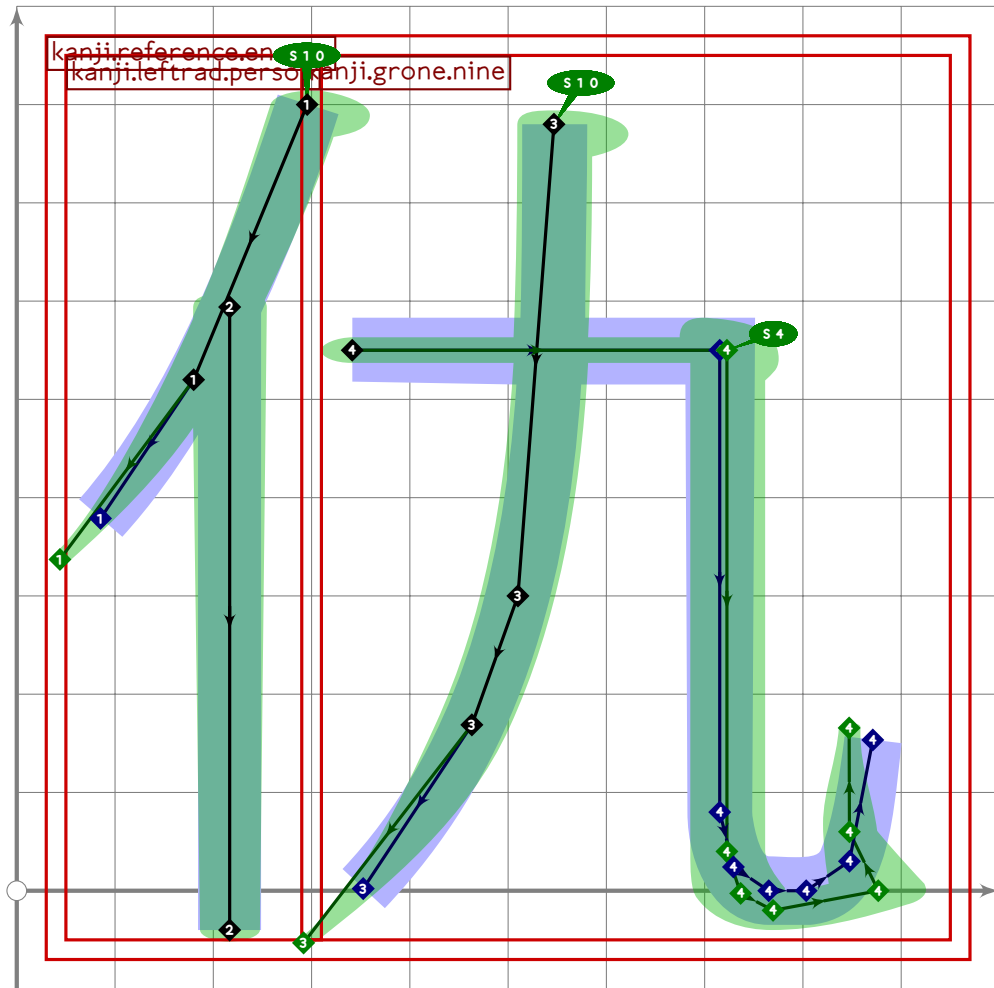
```



```

128
129 vardef kanji.grnine.undergo =
130   push_pbox_toexpand("kanji.grnine.undergo");
131   build_kanji.level(build_kanji.tb(650,-20)
132     (kanji.radical.kettle_lid)
133     (build_kanji.tb(550,-40)
134       (build_kanji.sscale(xscaled 0.9)(kanji.grone.mouth))
135       (kanji.greight.completion)));
136   expand_pbox;
137 enddef;
138
139

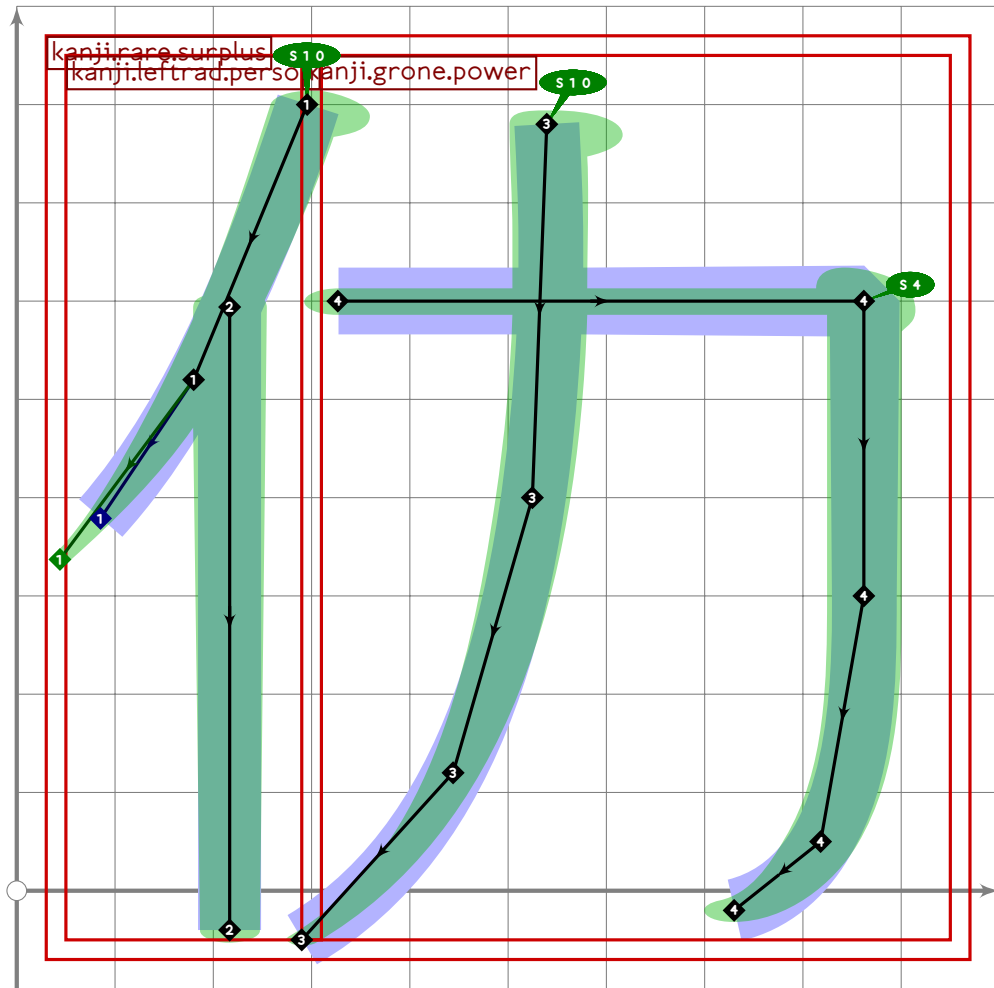
```



```

140
141 vardef kanji.reference.enemy =
142   push_pbox_toexpand("kanji.reference.enemy");
143   build_kanji.lr(300,20)
144     (kanji.leftrad.person)
145     (kanji.grone.nine);
146   expand_pbox;
147 enddef;
148
149

```

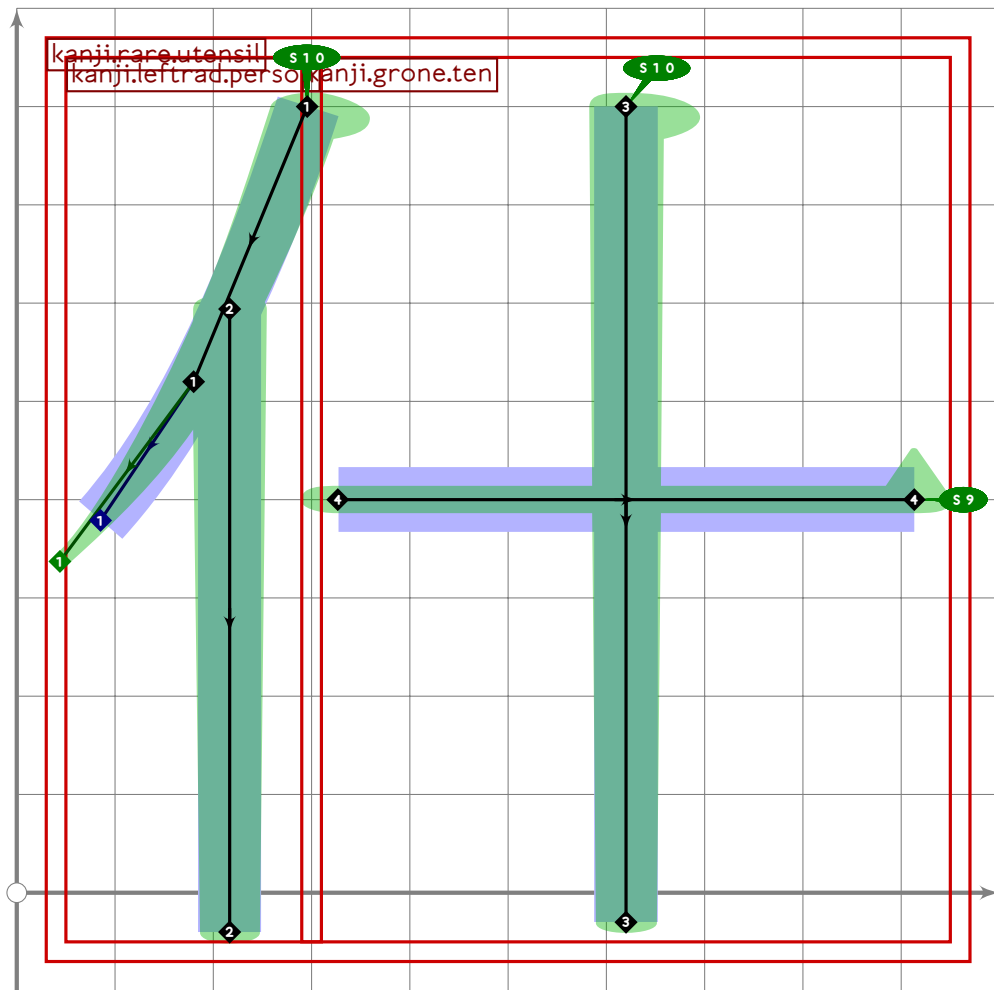


```

150
151 vardef kanji.rare.surplus =
152   push_pbox_toexpand("kanji.rare.surplus");
153   build_kanji.lr(300,20)
154     (kanji.leftrad.person)
155     (kanji.grone.power);
156   expand_pbox;
157 enddef;

```





```

158
159 vardef kanji.rare.utensil =
160   push_pbox_toexpand("kanji.rare.utensil");
161   build_kanji.lr(300,20)
162     (kanji.leftrad.person)
163     (kanji.grone.ten);
164   expand_pbox;
165 enddef;
166
167
168
169 % ichi/hito "one"
170 begintsuglyph("uni4E00";0); [see page 400]
171   kanji.grone.one;
172   tsu_render;
173 endtsuglyph;
174
175 % chuu/hinoto: "street"; "counter for leaves or guns"; "fourth zodiac sign"
176 % Uwaa ! Skala-sensei, I don't *want* to stick a thumbtack in my wrist!
177 begintsuglyph("uni4E01";1); [see page 492]
178   kanji.grthree.thumbtack;

```

179 `tsu_render;`  
180 `endsuglyph;`  
181  
182 `% nana/shichi "seven"`  
183 `begintsuglyph("uni4E03",3);` [see page 409]  
184 `kanji.grone.seven;`  
185 `tsu_render;`  
186 `endsuglyph;`  
187  
188 `% man/yorozu "myriad"`  
189 `begintsuglyph("uni4E07",7);` [see page 453]  
190 `kanji.grtwo.myriad;`  
191 `tsu_render;`  
192 `endsuglyph;`  
193  
194 `% san/mi "three"`  
195 `begintsuglyph("uni4E09",9);` [see page 416]  
196 `kanji.grone.three;`  
197 `tsu_render;`  
198 `endsuglyph;`  
199  
200 `% ue/jyou "up"`  
201 `begintsuglyph("uni4E0A",10);` [see page 418]  
202 `kanji.grone.up;`  
203 `tsu_render;`  
204 `endsuglyph;`  
205  
206 `% shita/ka "down"`  
207 `begintsuglyph("uni4E0B",11);` [see page 376]  
208 `kanji.grone.down;`  
209 `tsu_render;`  
210 `endsuglyph;`  
211  
212 `% sho/ka "furthermore"`  
213 `begintsuglyph("uni4E14",20);` [see page 530]  
214 `kanji.greight.furthermore;`  
215 `tsu_render;`  
216 `endsuglyph;`  
217  
218 `% sei/sou "world"`  
219 `begintsuglyph("uni4E16",22);` [see page 493]  
220 `kanji.grthree.world;`  
221 `tsu_render;`  
222 `endsuglyph;`  
223  
224 `% ryo/teru "both," also a couple of different units of measure`  
225 `begintsuglyph("uni4E21",33);` [see page 1314]  
226 `kanji.grthree.both;`

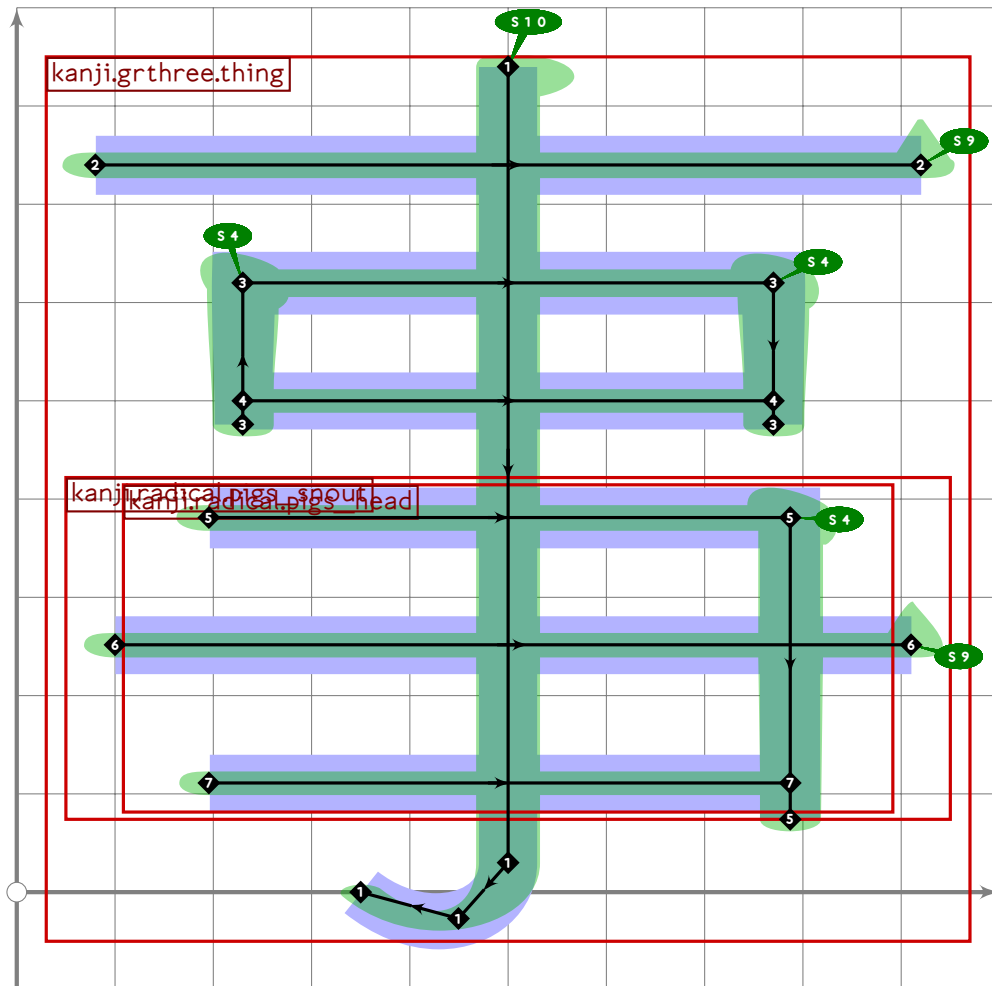
227 `tsu_render;`  
228 `endtsuglyph;`  
229  
230 `% extra "vertical line"`  
231 `begintsuglyph("uni4E28",40);` [see page 358]  
232 `kanji.radical.vline;`  
233 `tsu_render;`  
234 `endtsuglyph;`  
235  
236 `% naka/chuu "middle"`  
237 `begintsuglyph("uni4E2D",45);` [see page 393]  
238 `kanji.grone.middle;`  
239 `tsu_render;`  
240 `endtsuglyph;`  
241  
242 `% maru "circle"`  
243 `begintsuglyph("uni4E38",56);` [see page 431]  
244 `kanji.grtwo.circle;`  
245 `tsu_render;`  
246 `endtsuglyph;`  
247  
248 `% shu/nushi "master"`  
249 `begintsuglyph("uni4E3B",59);` [see page 484]  
250 `kanji.grthree.master;`  
251 `tsu_render;`  
252 `endtsuglyph;`  
253  
254 `% sa/naga "notwithstanding" (needed for tsuku "make")`  
255 `begintsuglyph("uni4E4D",77);` [see page 564]  
256 `kanji.rare.notwithstanding;`  
257 `tsu_render;`  
258 `endtsuglyph;`  
259  
260 `% kyuu/kokono "nine"`  
261 `begintsuglyph("uni4E5D",93);` [see page 398]  
262 `kanji.grone.nine;`  
263 `tsu_render;`  
264 `endtsuglyph;`  
265  
266 `% ya/nari "to be" (archaic)`  
267 `begintsuglyph("uni4E5F",95);` [see page 553]  
268 `kanji.grnine.to_be;`  
269 `tsu_render;`  
270 `endtsuglyph;`  
271  
272 `% ryou "completion"`  
273 `begintsuglyph("uni4E86",134);` [see page 1319]  
274 `kanji.greight.completion;`

```

275 tsu_render;
276 endtsuglyph;
277
278 % yo/arakaji "before"
279 begintsuglyph("uni4E88",136);
280 kanji.grthree.before;
281 tsu_render;
282 endtsuglyph;
283

```

[see page 476]



```

284 % ji/koto "thing"
285 begintsuglyph("uni4E8B",139);
286 kanji.grthree.thing;
287 tsu_render;
288 endtsuglyph;
289
290 % ni/futa "two"
291 begintsuglyph("uni4E8C",140);
292 kanji.grone.two;
293 tsu_render;
294 endtsuglyph;
295

```

[see page 417]

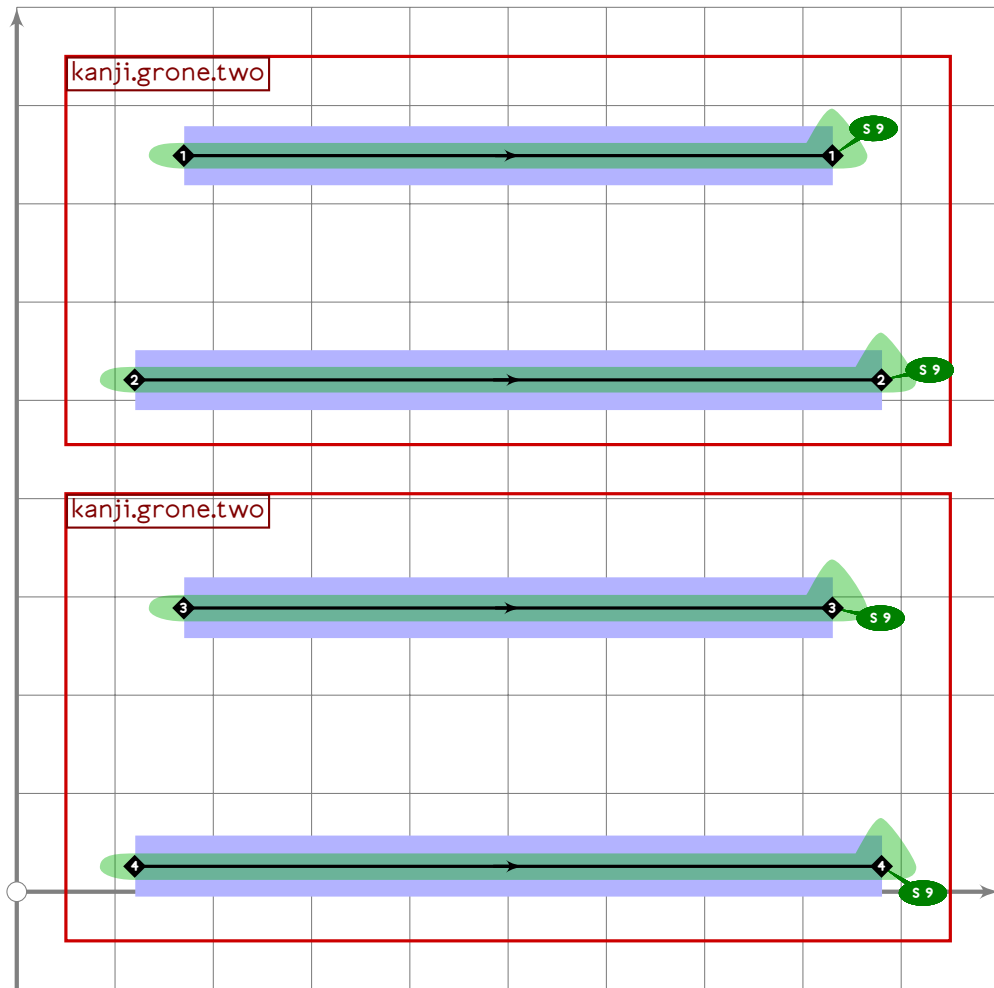
```

296 % un/i "say"
297 begint Suglyph("uni4E91";145);
298 kanji.grnine.declaim;
299 tsu_render;
300 endtsuglyph;
301
302 % go/itsu "five"
303 begint Suglyph("uni4E94";148);
304 kanji.grone.five;
305 tsu_render;
306 endtsuglyph;
307

```

[see page 544]

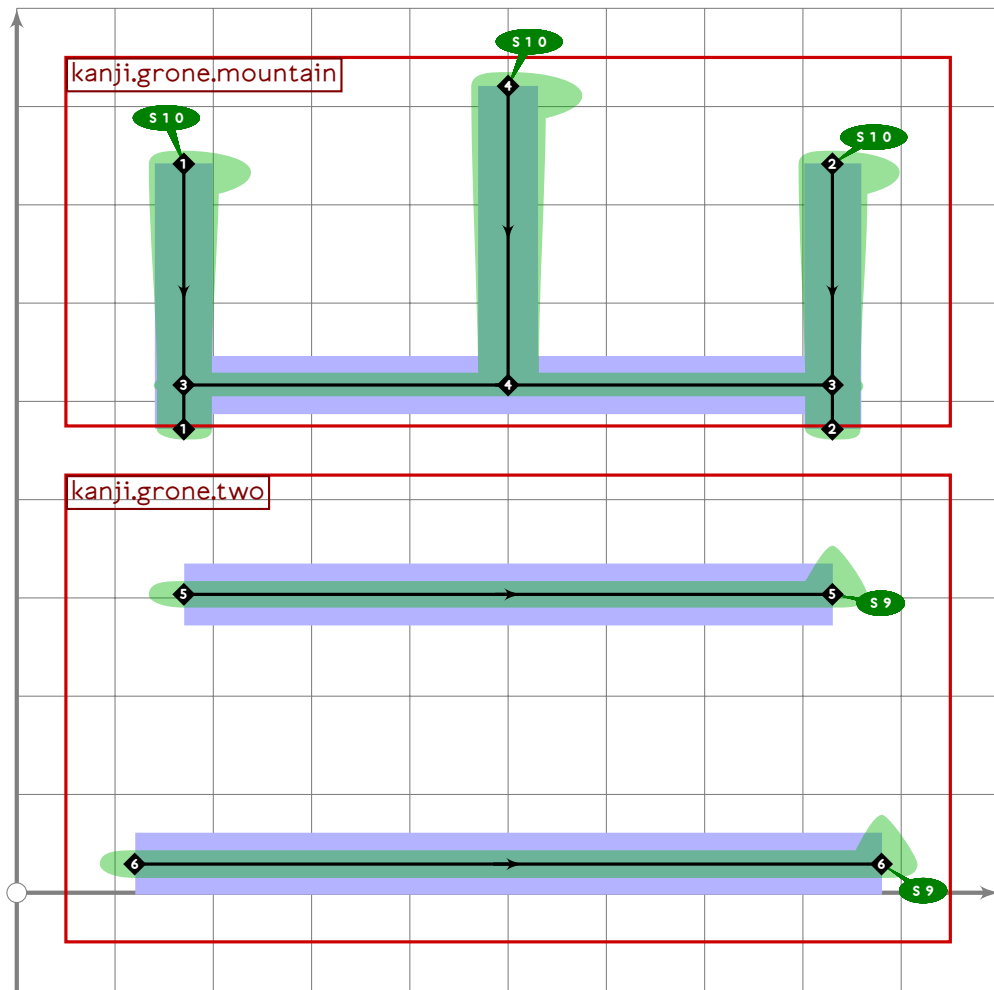
[see page 384]



```

308 % extra
309 begint Suglyph("uni4E96";150);
310 build_kanji.tb(430,-50)
311 (kanji.grone.two)
312 (kanji.grone.two);
313 tsu_render;
314 endtsuglyph;
315

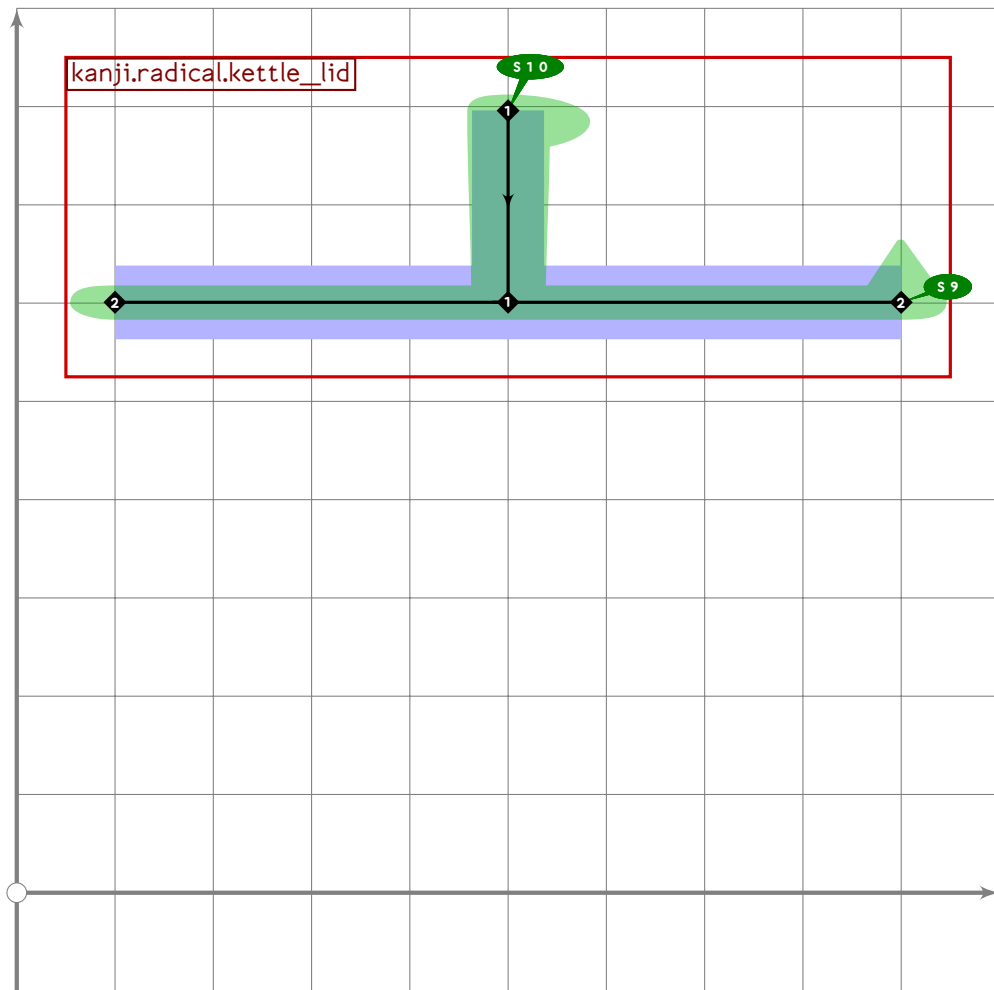
```



```

316 % extra
317 begint Suglyph("uni4E97";151);
318   build_kanji.tb(450,-50)
319     (kanji.grone.mountain)
320     (kanji.grone.two);
321   tsu_render;
322 endtsuglyph;
323

```



```

324 % "kettle lid radical"
325 begintsuglyph("uni4EA0",160);
326 build_kanji.tb(500,-50)
327   (kanji.radical.kettle_lid)
328   ();
329 tsu_render;
330 endtsuglyph;
331
332 % kou/maji "mix"
333 begintsuglyph("uni4EA4",164);
334 kanji.grtwo.mix;
335 tsu_render;
336 endtsuglyph;
337
338 % eki/mata "again"
339 begintsuglyph("uni4EA6",166);
340 kanji.grnine.again;
341 tsu_render;
342 endtsuglyph;
343
344 % kou "undergo" (rarer form)

```

[see page 452]

[see page 542]

```

345 begintsuglyph("uni4EA8",168);
346 kanji.grnine.undergo;
347 tsu_render;
348 endtsuglyph;

```

[see page 1322]

```

349
350 % kyou "undergo" (more common form)

```

```

351 begintsuglyph("uni4EAB",171);
352 kanji.greight.undergo;
353 tsu_render;
354 endtsuglyph;

```

[see page 1320]

```

355
356 % kyou "capital"

```

```

357 begintsuglyph("uni4EAC",172);
358 kanji.grtwo.capital;
359 tsu_render;
360 endtsuglyph;

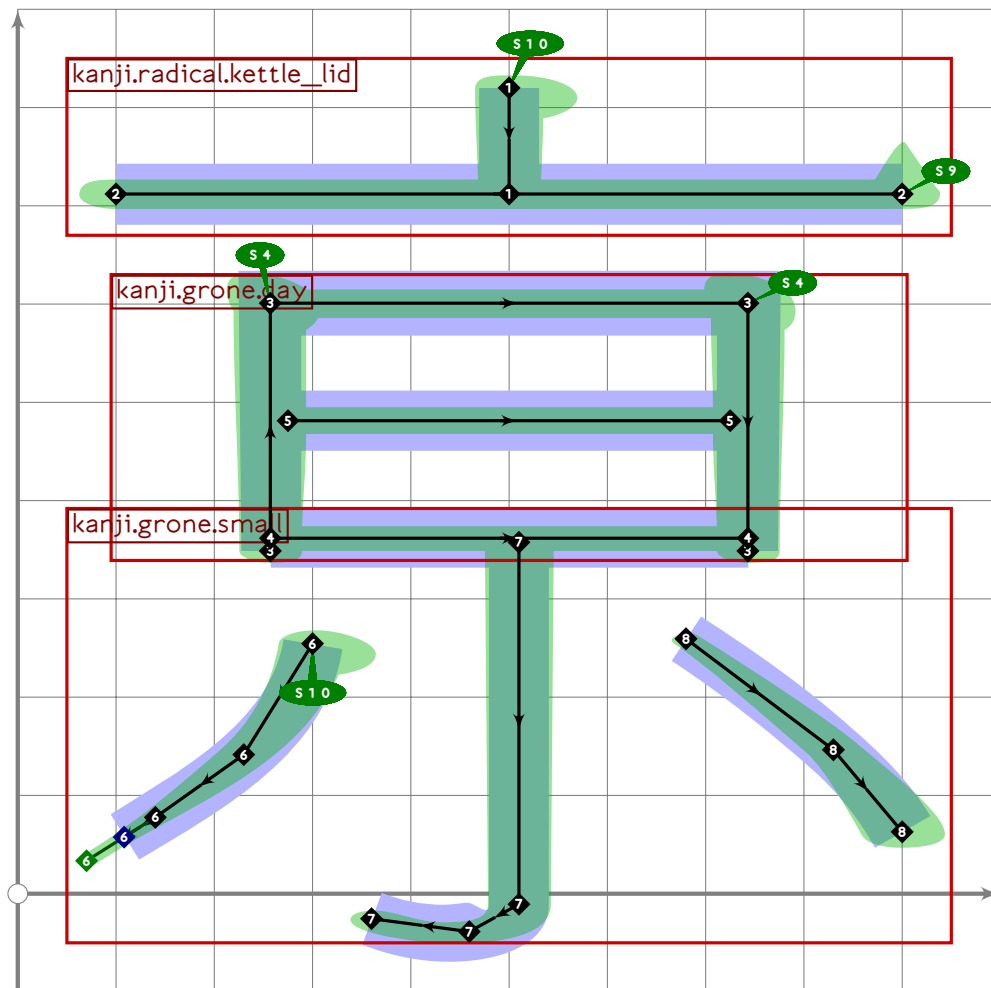
```

[see page 429]

```

361

```



```

362 % extra "capital"
363 begintsuglyph("uni4EB0",176);
364 build_kanji.level(build_kanji.tb(650,-40)
365   (kanji.radical.kettle_lid)

```

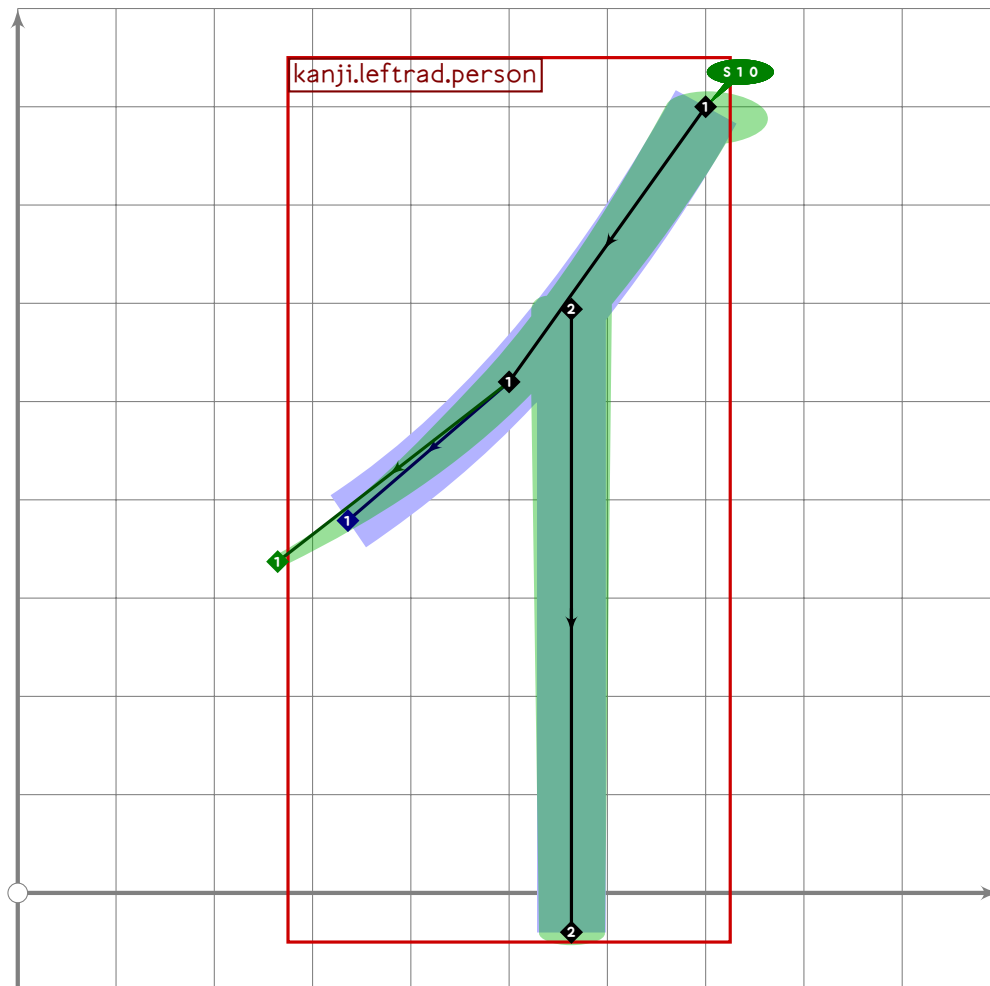


```

366 (build_kanji.tb(500,70)
367 (build_kanji.sscale(xscaled 0.9)(kanji.grone.day))
368 (kanji.grone.small));
369 set_boserif(-1,0,whatever);
370 tsu_render;
371 endtsuglyph;
372
373 % hito/jin "person"
374 begintsuglyph("uni4EBA";186);
375 kanji.grone.person;
376 tsu_render;
377 endtsuglyph;
378

```

[see page 403]



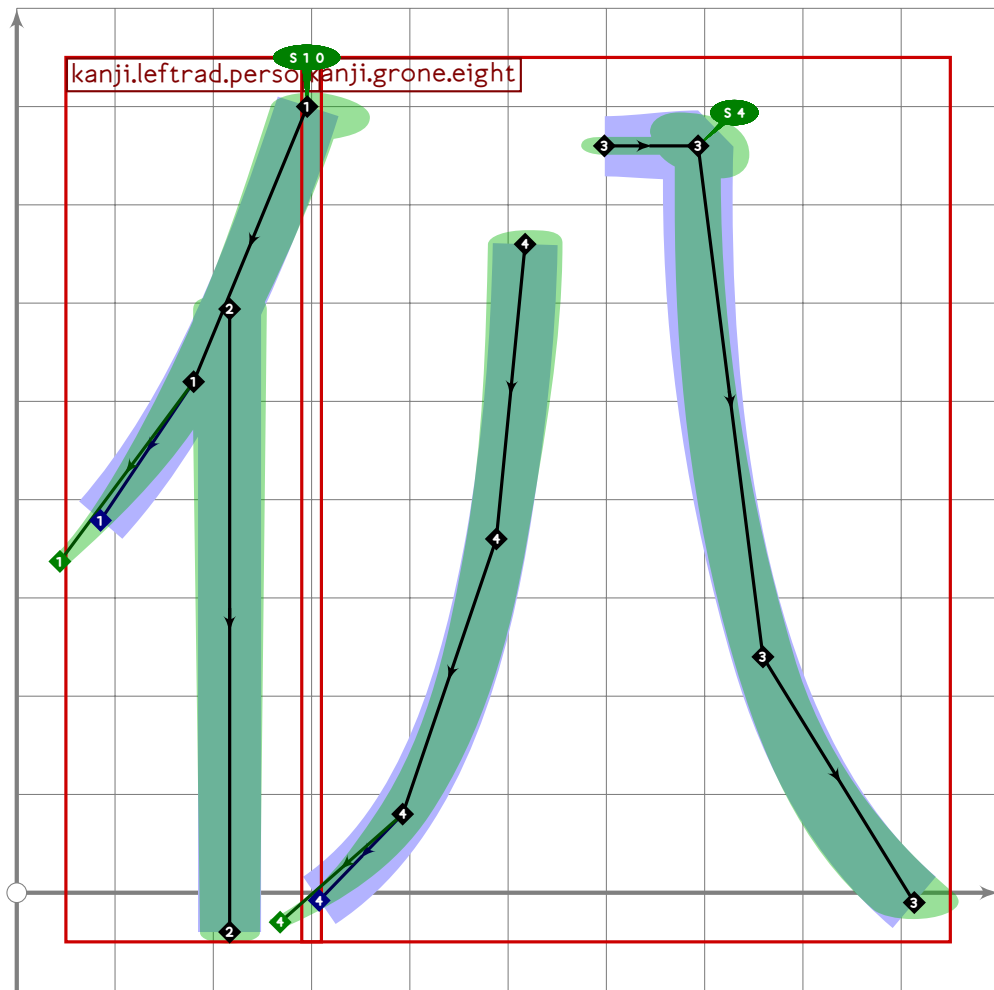
```

379 % hito/jin "person" as radical
380 begintsuglyph("uni4EBB";187);
381 build_kanji.sscale(xscaled 0.5)(kanji.leftrad.person);
382 tsu_render;
383 endtsuglyph;
384
385 % juu "utensil"
386 begintsuglyph("uni4EC0";192);

```

[see page 1325]

```
387 kanji.rare.utensil;
388 tsu_render;
389 endtsuglyph;
390
391 % jin "benevolence"
392 begintsuglyph("uni4EC1",193); [see page 1318]
393 kanji.grsix.benevolence;
394 tsu_render;
395 endtsuglyph;
396
397 % "surplus or excess"
398 begintsuglyph("uni4EC2",194); [see page 1324]
399 kanji.rare.surplus;
400 tsu_render;
401 endtsuglyph;
402
403 % ada "enemy"
404 begintsuglyph("uni4EC7",199); [see page 1323]
405 kanji.reference.enemy;
406 tsu_render;
407 endtsuglyph;
408
```



```

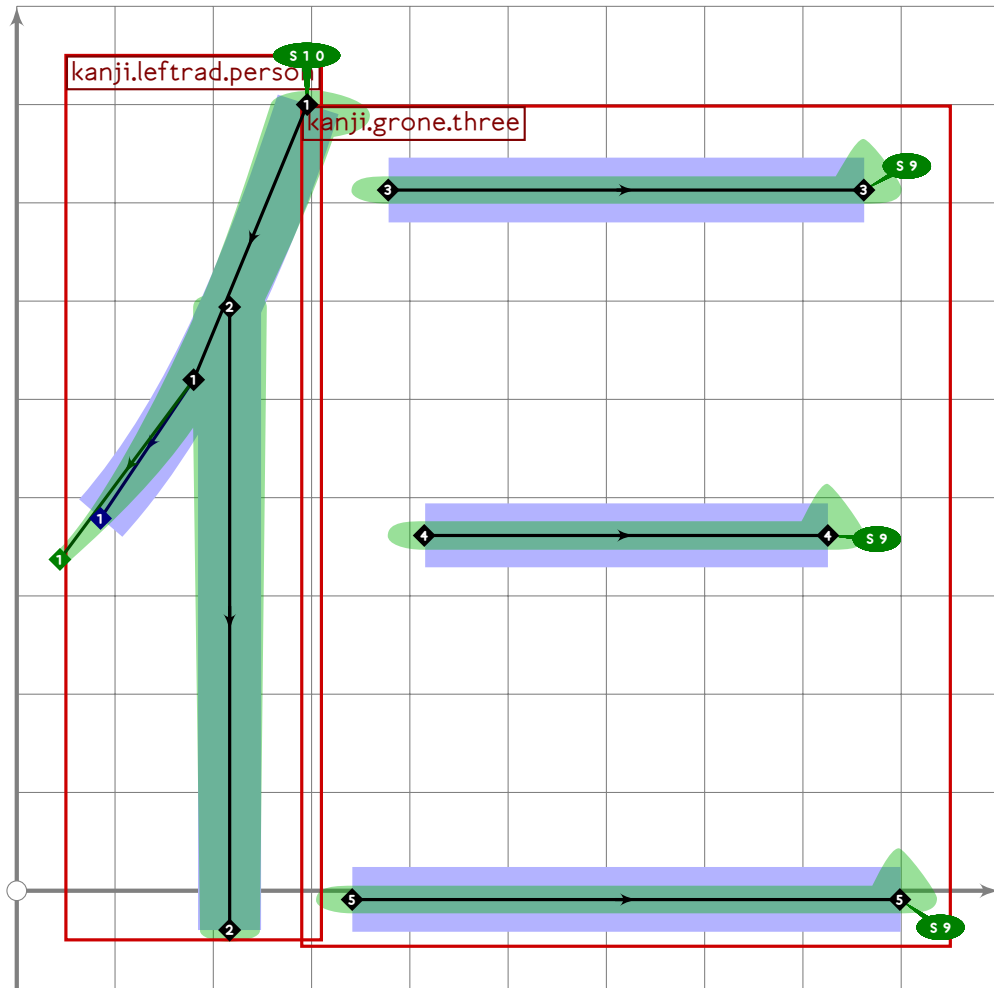
409 % extra
410 begintsuglyph("uni4EC8";200);
411 build_kanji.lr(300,20)
412 (kanji.leftrad.person)
413 (kanji.grone.eight);
414 tsu_render;
415 endtsuglyph;
416
417 % kon/ima "now"
418 begintsuglyph("uni4ECA";202);
419 kanji.grtwo.now;
420 tsu_render;
421 endtsuglyph;
422
423 % ko "offspring"
424 begintsuglyph("uni4ED4";212);
425 kanji.grnine.offspring;
426 tsu_render;
427 endtsuglyph;
428
429 % shi/tsuka "serve"

```

[see page 457]

[see page 1321]

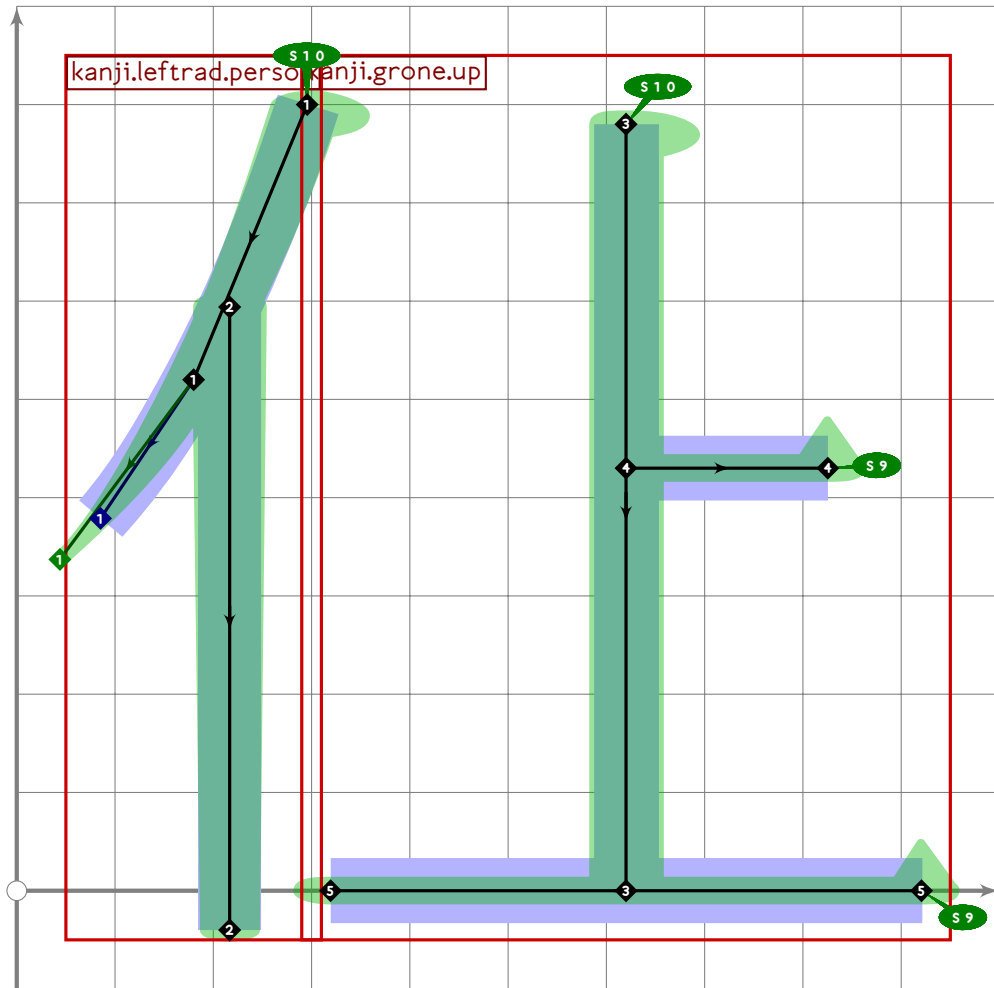
430 `begintsuglyph("uni4ED5",213);` [see page 1316]  
431 `kanji.grthree.serve;`  
432 `tsu_render;`  
433 `endtsuglyph;`  
434  
435 `% ta/hoka "other"`  
436 `begintsuglyph("uni4ED6",214);` [see page 487]  
437 `kanji.grthree.other;`  
438 `tsu_render;`  
439 `endtsuglyph;`  
440  
441 `% fu/tsu "attach"`  
442 `begintsuglyph("uni4ED8",216);` [see page 495]  
443 `kanji.grfour.attach;`  
444 `tsu_render;`  
445 `endtsuglyph;`  
446  
447 `% sen "wizard"`  
448 `begintsuglyph("uni4ED9",217);` [see page 541]  
449 `kanji.greight.wizard;`  
450 `tsu_render;`  
451 `endtsuglyph;`  
452  
453 `% dai/kawa "generation"`  
454 `begintsuglyph("uni4EE3",227);` [see page 1315]  
455 `kanji.grthree.generation;`  
456 `tsu_render;`  
457 `endtsuglyph;`  
458



```

459 % extra
460 begint Suglyph("uni4EE8",232);
461 build_kanji.lr(300,20)
462 (kanji.leftrad.perso)
463 (build_kanji.sscale(shifted (0,-30) yscaled 0.95)
464 (kanji.grone.three));
465 tsu_render;
466 endtsuglyph;
467

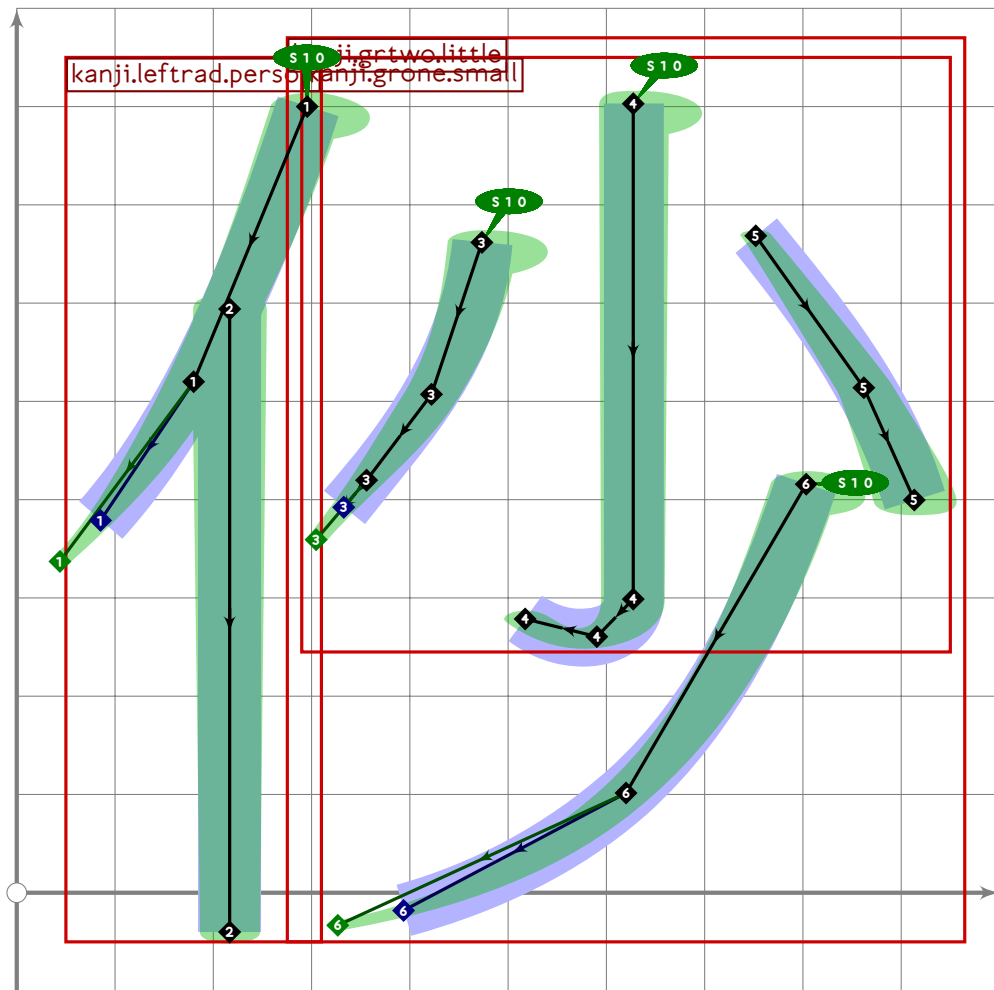
```



```

468 % extra
469 begint Suglyph("uni4EE9";233);
470 build_kanji.lr(300,20)
471 (kanji.leftrad.person)
472 (kanji.grone.up);
473 tsu_render;
474 endsuglyph;
475

```

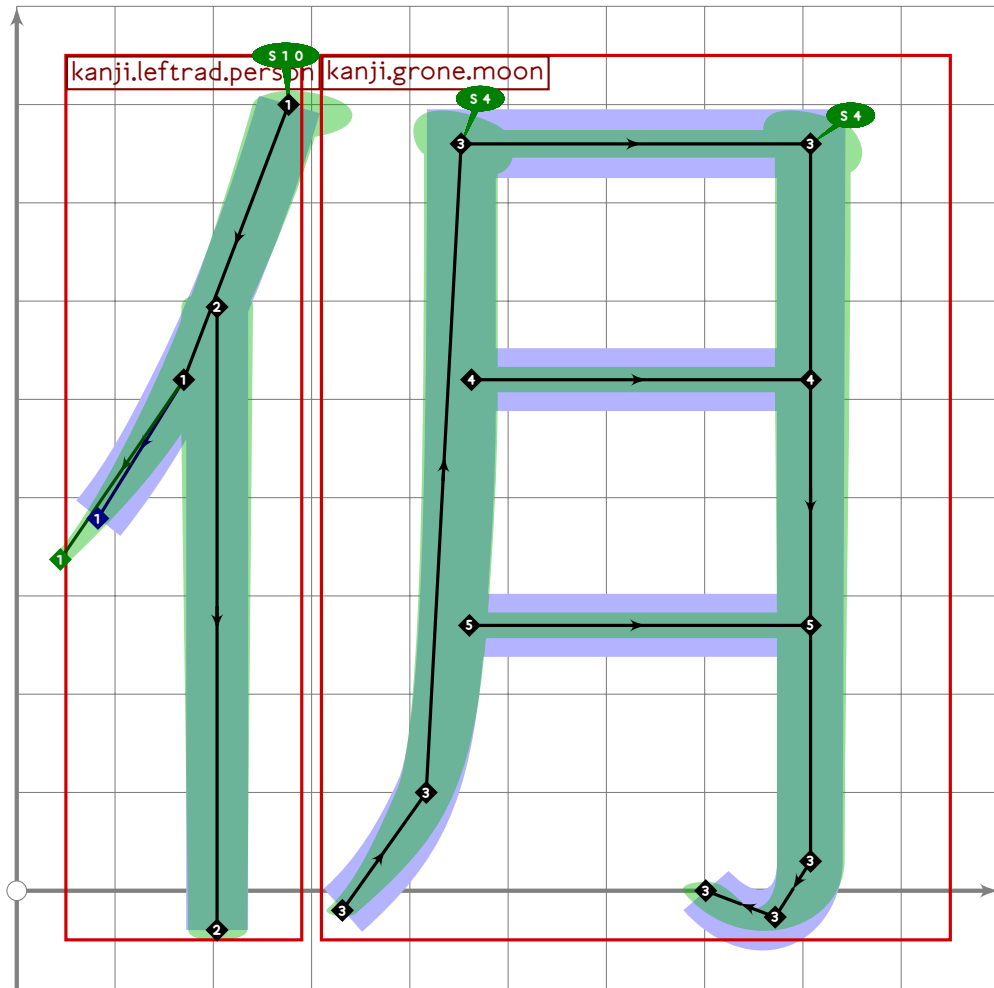


```

476 % extra
477 begintsuglyph("uni4EEF",239);
478 build_kanji.lr(300,20)
479 (kanji.leftrad.person)
480 (kanji.grtwo.little);
481 tsu_render;
482 endsuglyph;
483
484 % naka/chuu "go-between"
485 begintsuglyph("uni4EF2",242);
486 kanji.grfour.go_between;
487 tsu_render;
488 endsuglyph;
489

```

[see page 1317]



```

490 % extra
491 begint Suglyph("uni4EF4",244);
492 build_kanji.lr(300,-20)
493 (kanji.leftrad.person)
494 (kanji.grone.moon);
495 tsu_render;
496 endtsuglyph;
497
498 _____
499
500 endfont;
501
502 _____

```



# tsuku-4f.mp

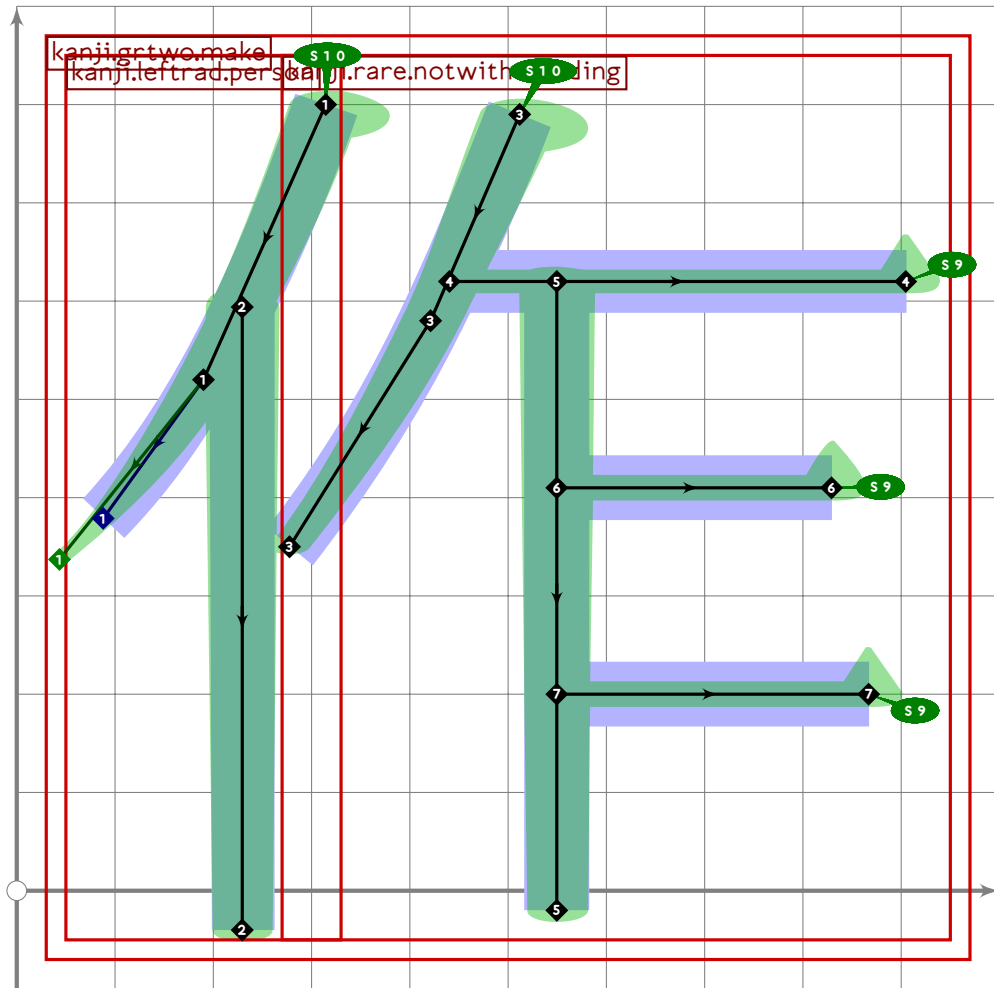
```
1 %
2 % Unicode page 4f (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradefive.mp;
39 input gradefour.mp;
40 input gradenine.mp;
41 input gradeone.mp;
42 input gradethree.mp;
43 input gradetwo.mp;
44 input leftrad.mp;
45 input radical.mp;
46 input rare.mp;
47 input toprad.mp;
48
49 

---

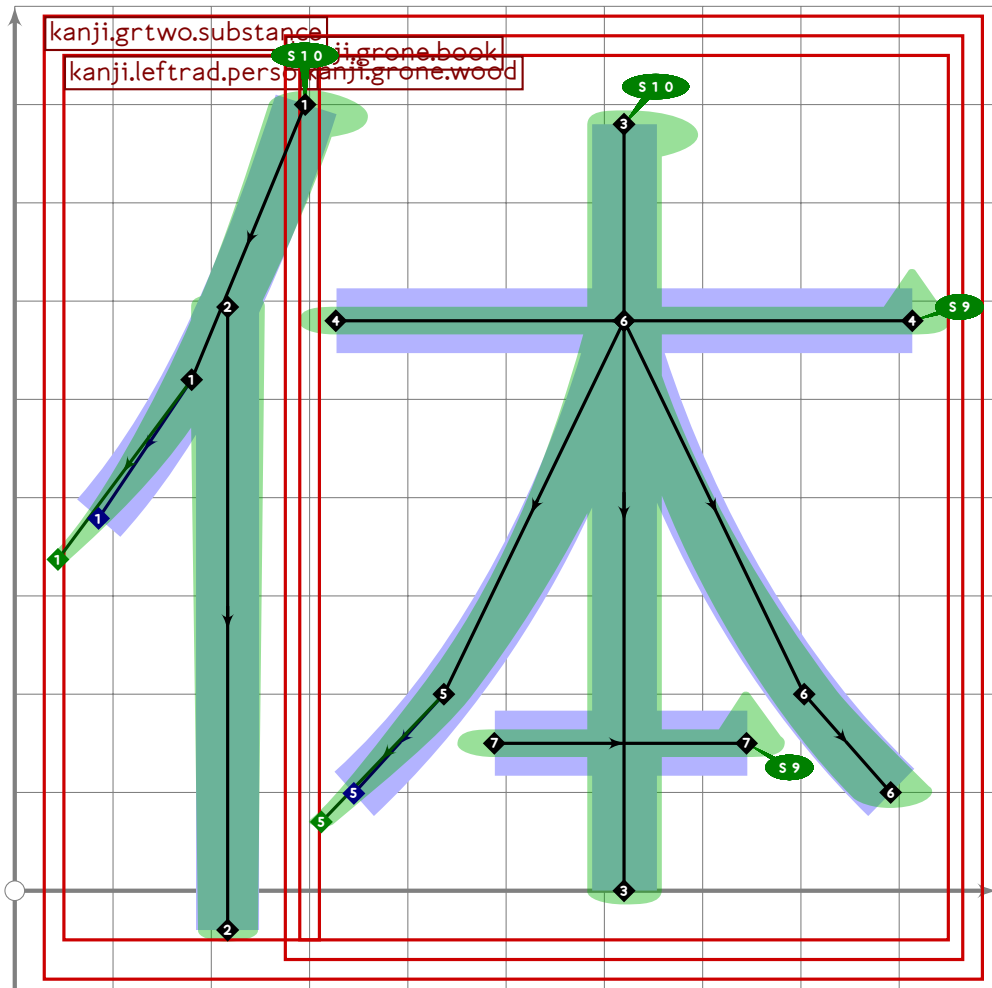

```



```

50
51 vardef kanji.grtwo.make =
52   push_pbox_toexpand("kanji.grtwo.make");
53   build_kanji.lr(300,60)
54     (kanji.leftrad.person)
55     (kanji.rare.notwithstanding);
56   expand_pbox;
57 enddef;

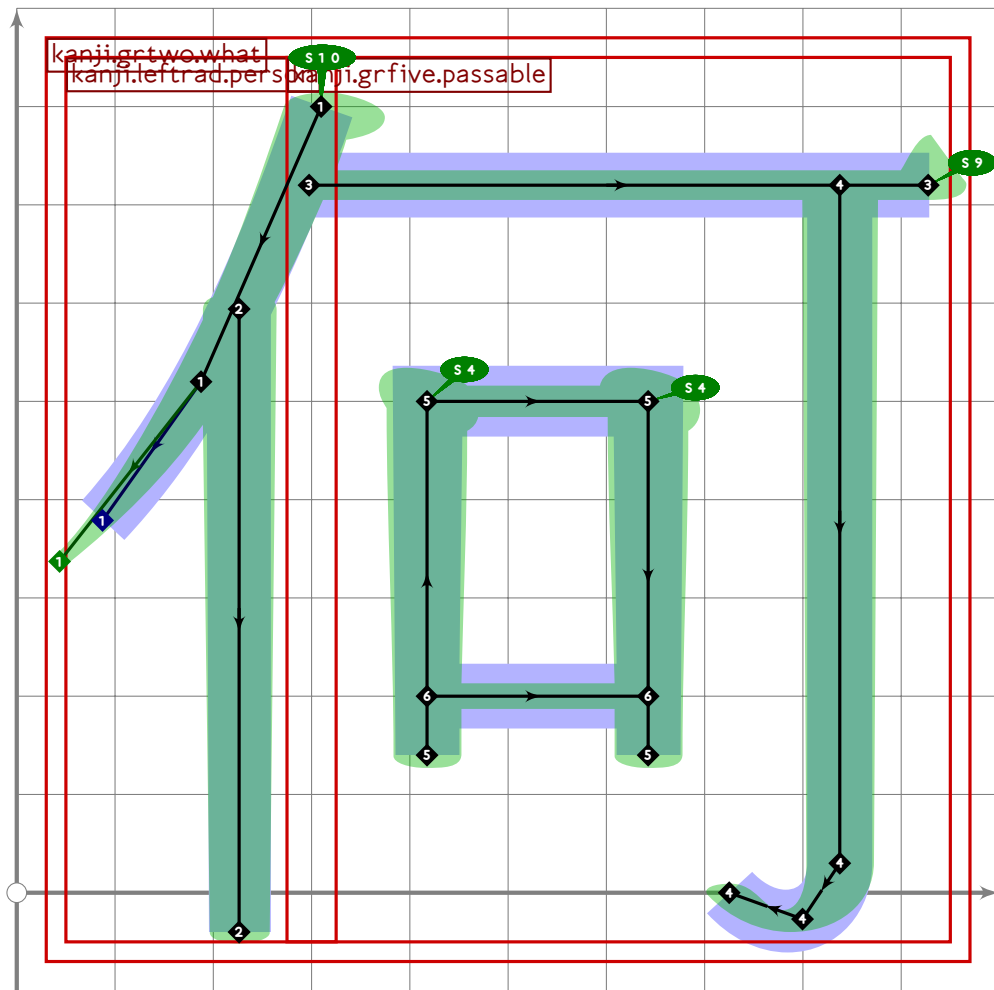
```



```

58
59 vardef kanji.grtwo.substance =
60   push_pbox_toexpand("kanji.grtwo.substance");
61   build_kanji.lr(300,20)
62     (kanji.leftrad.person)
63     (kanji.grone.book);
64   expand_pbox;
65 enddef;

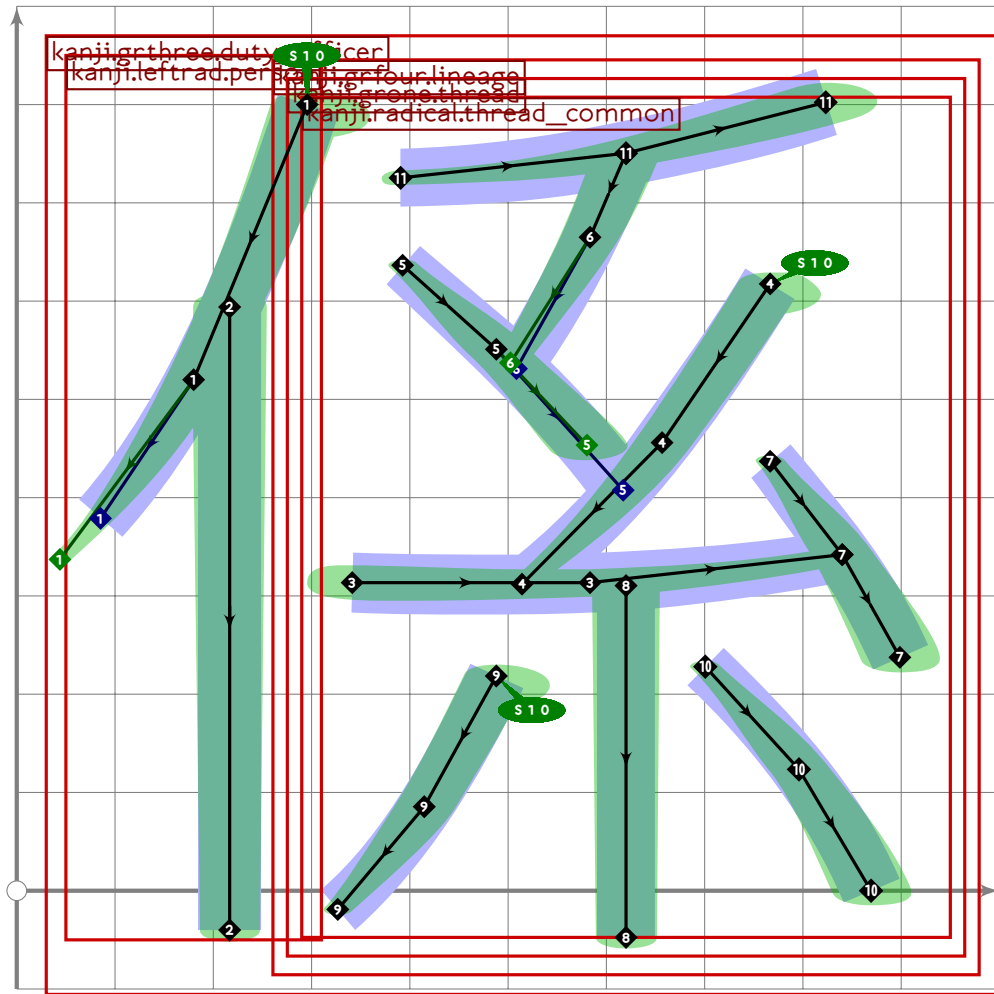
```



```

66
67 vardef kanji.grtwo.what =
68   push_pbox_toexpand("kanji.grtwo.what");
69   build_kanji.lr(300,50)
70     (kanji.leftrad.person)
71     (kanji.grfive.passable);
72   expand_pbox;
73 enddef;
74
75

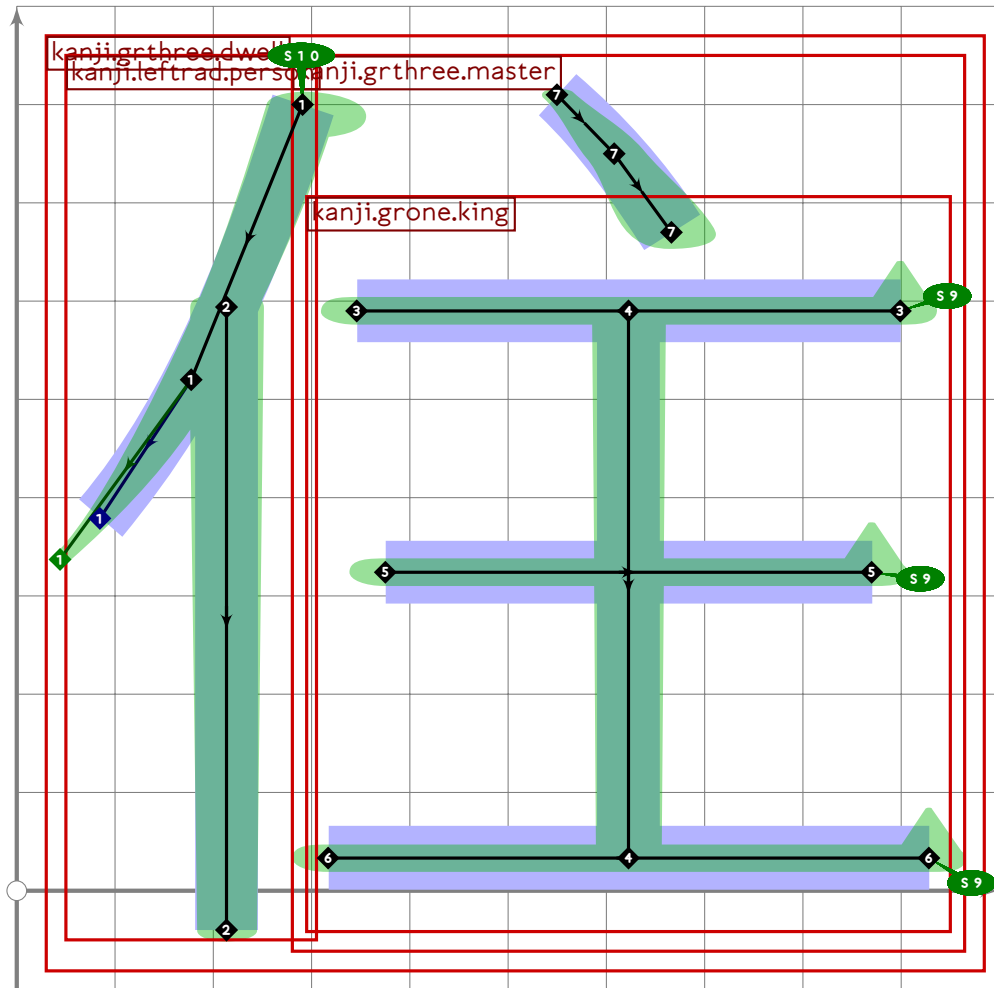
```



```

76
77 vardef kanji.grthree.duty_officer =
78   push_pbox_toexpand("kanji.grthree.duty_officer");
79   build_kanji.lr(300,20)
80     (kanji.leftrad.person)
81     (tsu_xform(identity yscaled 0.95)(kanji.grfour.lineage));
82   expand_pbox;
83 enddef;

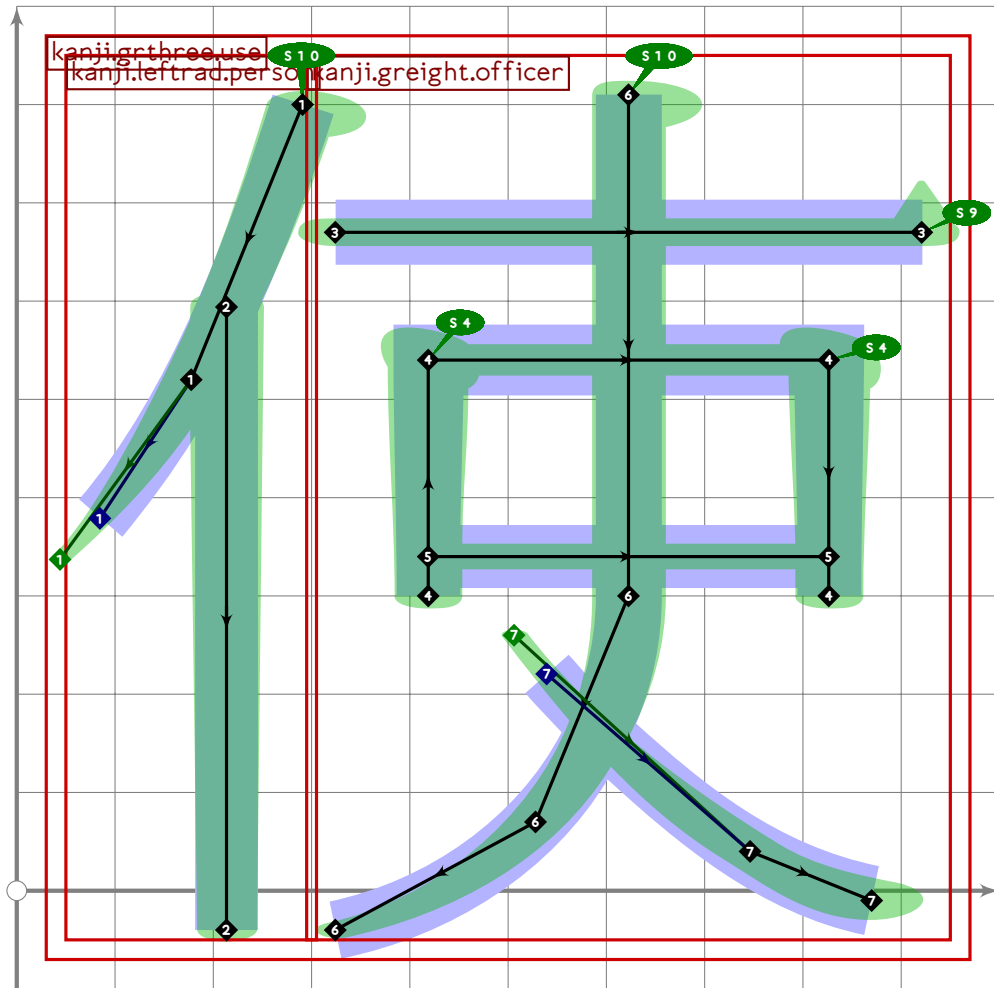
```



```

84
85 vardef kanji.grthree.dwell =
86   push_pbox_toexpand("kanji.grthree.dwell");
87   build_kanji.lr(300,10)
88     (kanji.leftrad.person)
89     (kanji.grthree.master);
90   expand_pbox;
91 enddef;

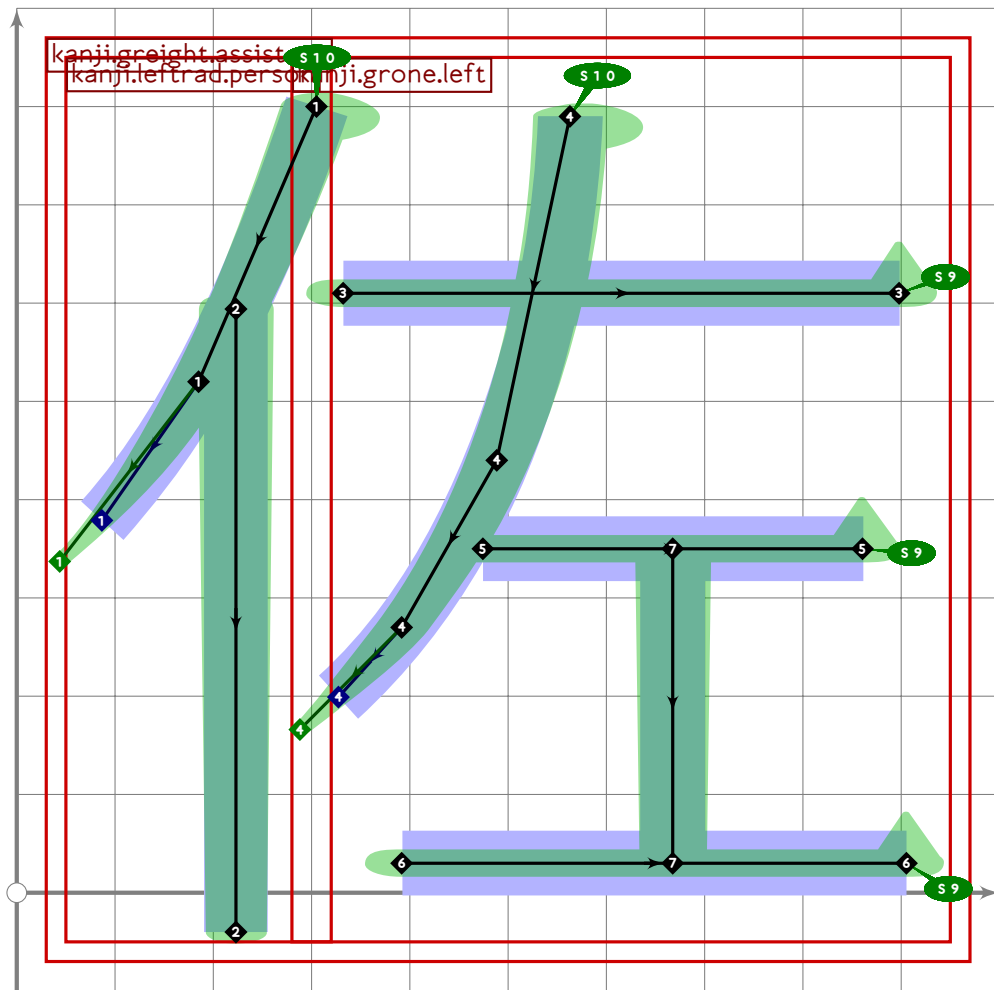
```



```

92
93 vardef kanji.grthree.use =
94   push_pbox_toexpand("kanji.grthree.use");
95   build_kanji.lr(300,10)
96     (kanji.leftrad.person)
97     (kanji.greight.officer);
98   expand_pbox;
99 enddef;
100
101

```

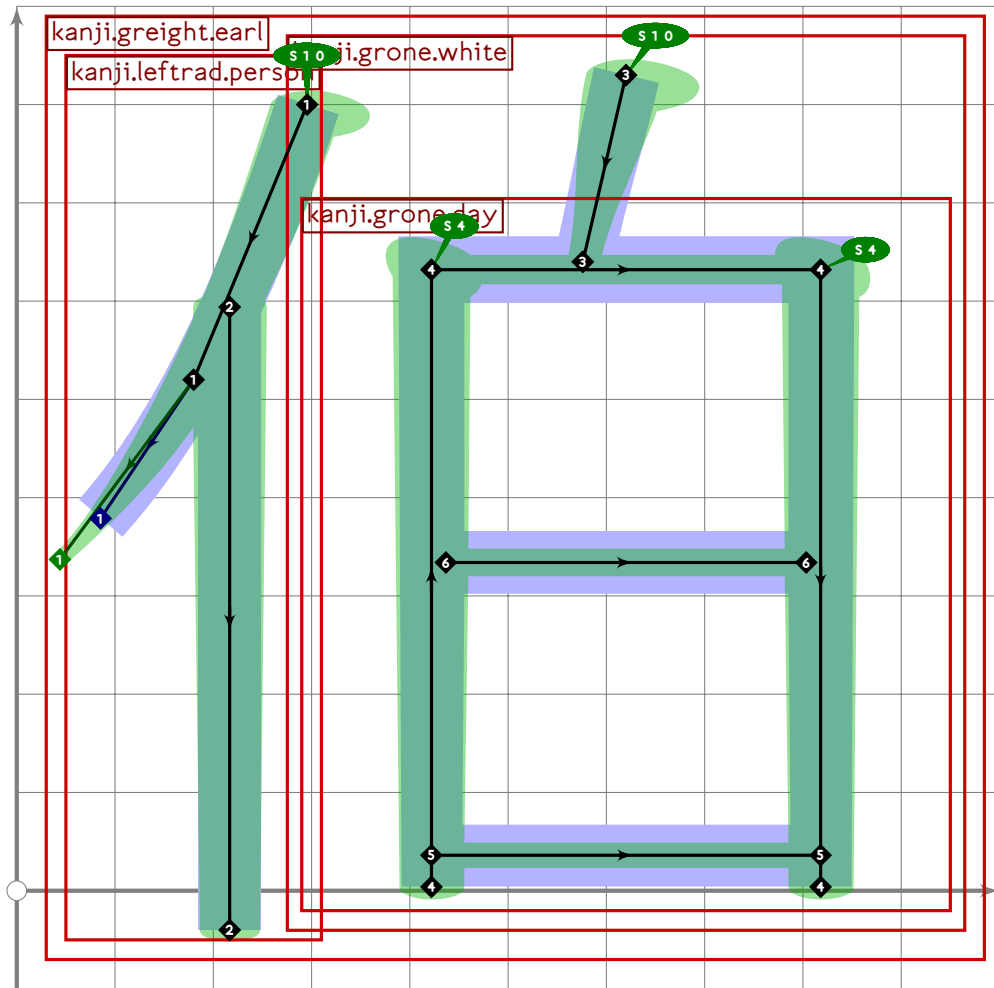


```

102
103 vardef kanji.greight.assist =
104   push_pbox_toexpand("kanji.greight.assist");
105   build_kanji.lr(300,40)
106     (kanji.leftrad.person)
107     (kanji.grone.left);
108   expand_pbox;
109 enddef;

```

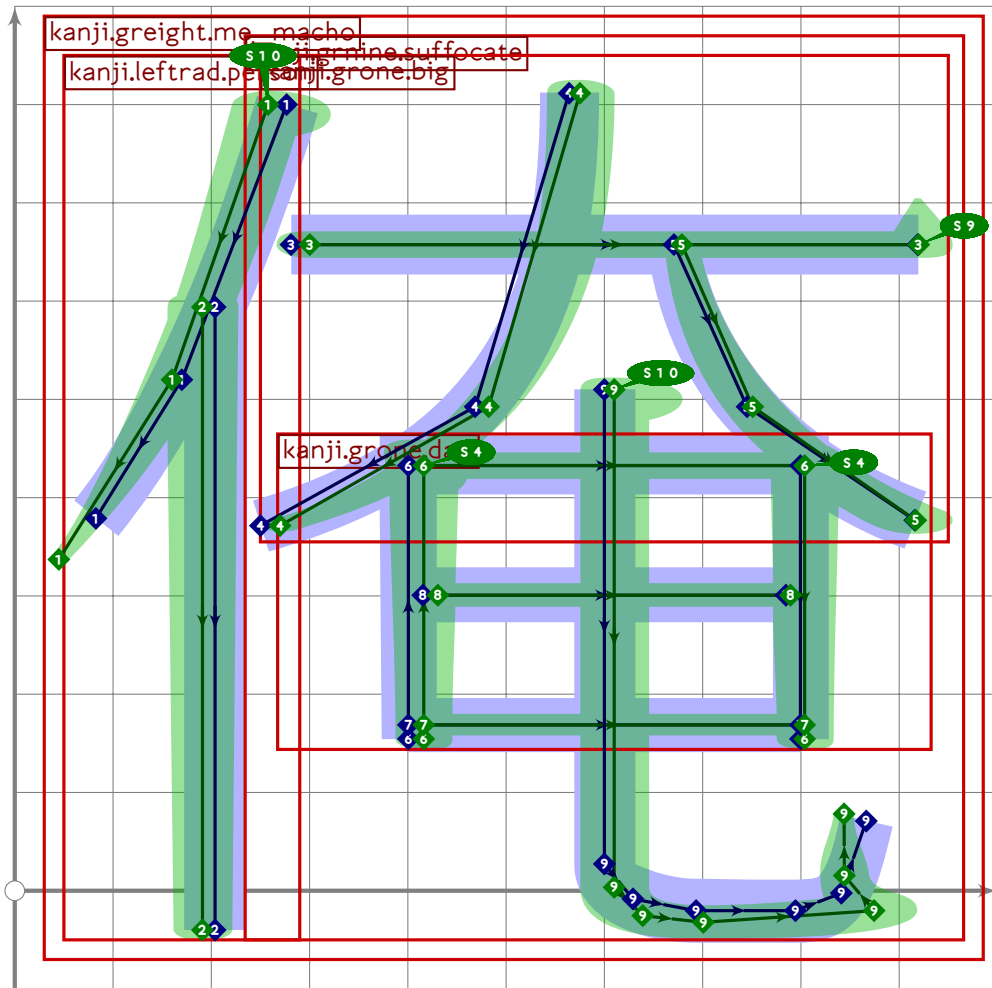




```

110
111 vardef kanji.greight.earl =
112   push_pbox_toexpand("kanji.greight.earl");
113   build_kanji.lr(300,20)
114     (kanji.leftrad.person)
115     (build_kanji.sscale(shifted (0,20))(kanji.grone.white));
116   expand_pbox;
117 enddef;

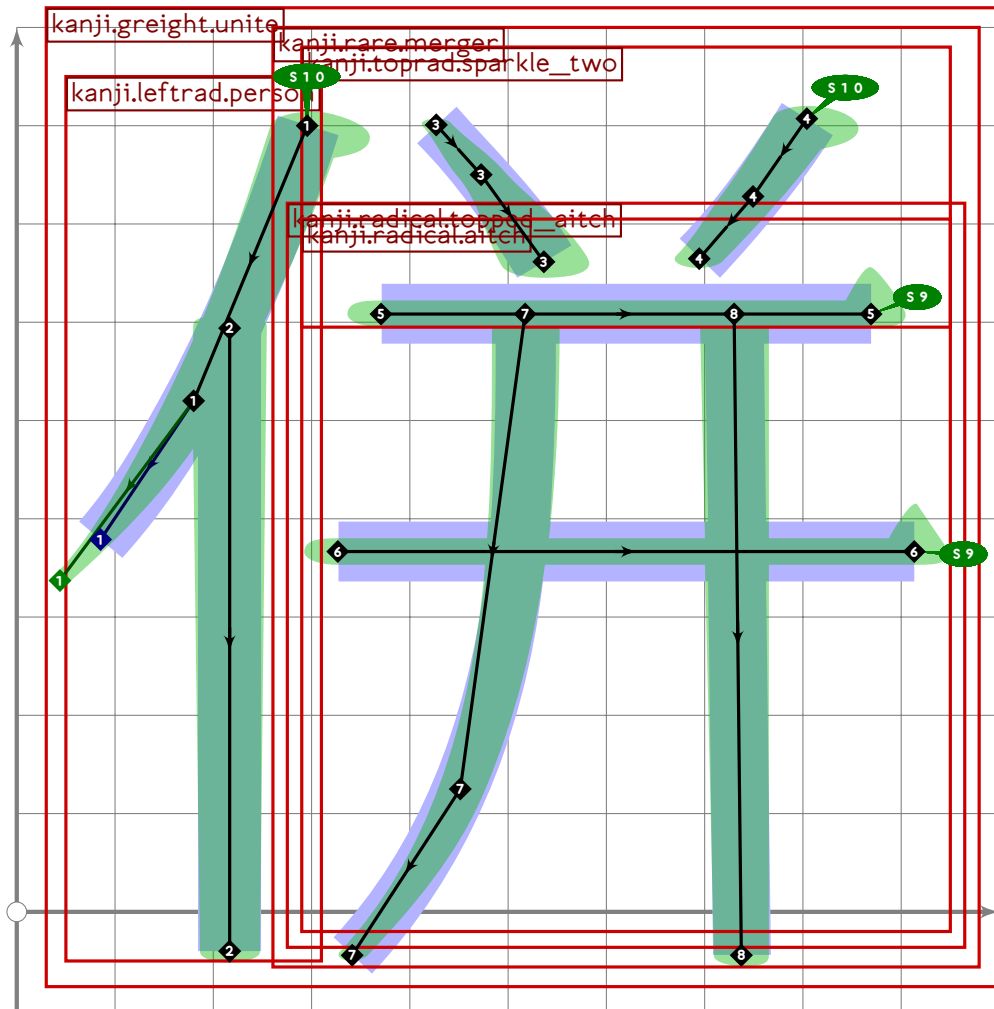
```



```

118
119 vardef kanji.greight.me_macho =
120   push_pbox_toexpand("kanji.greight.me_macho");
121   build_kanji.lr(270,40*(1-mincho))
122     (kanji.leftrad.person)
123     (kanji.grnine.suffocate);
124   expand_pbox;
125 enddef;

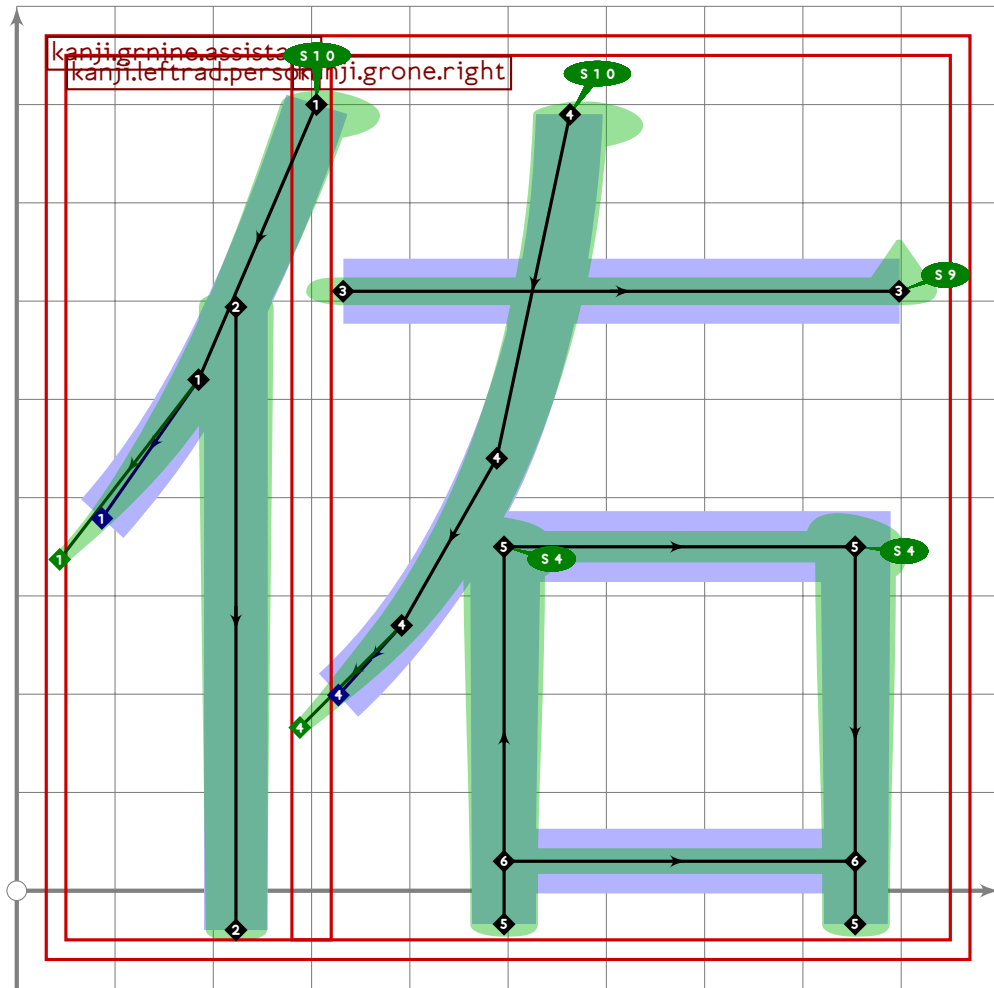
```



```

126
127 vardef kanji.greight.unite =
128   push_pbox_toexpand("kanji.greight.unite");
129   build_kanji.lr(300,20)
130     (kanji.leftrad.perso)
131     (build_kanji.sscale(shifted (0,30))(kanji.rare.merger));
132   expand_pbox;
133 enddef;
134
135

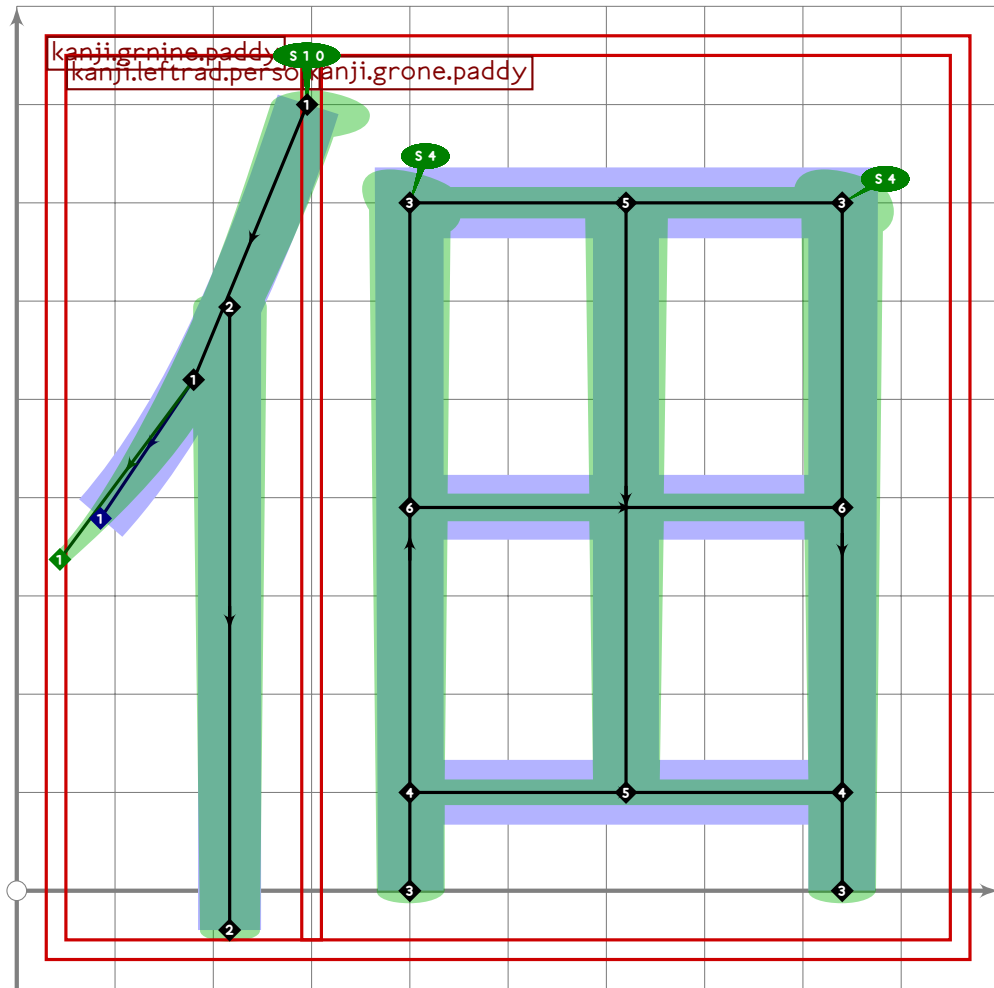
```



```

136
137 vardef kanji.grnine.assistant =
138   push_pbox_toexpand("kanji.grnine.assistant");
139   build_kanji.lr(300,40)
140     (kanji.leftrad.person)
141     (kanji.grone.right);
142   expand_pbox;
143 enddef;

```



```

144
145 vardef kanji.grnine.paddy =
146   push_pbox_toexpand("kanji.grnine.paddy");
147   build_kanji.lr(300,20)
148     (kanji.leftrad.perso)
149     (kanji.grone.paddy);
150   expand_pbox;
151 enddef;

```

152

153

154

155 % yasu "vacation"

156 begintsuglyph("uni4F11",17);

[see page 419]

157 kanji.grone.vacation;

158 tsu\_render;

159 endtsuglyph;

160

161 % kai/a "meet"

162 begintsuglyph("uni4F1A",26);

[see page 450]

163 kanji.grtwo.meet;

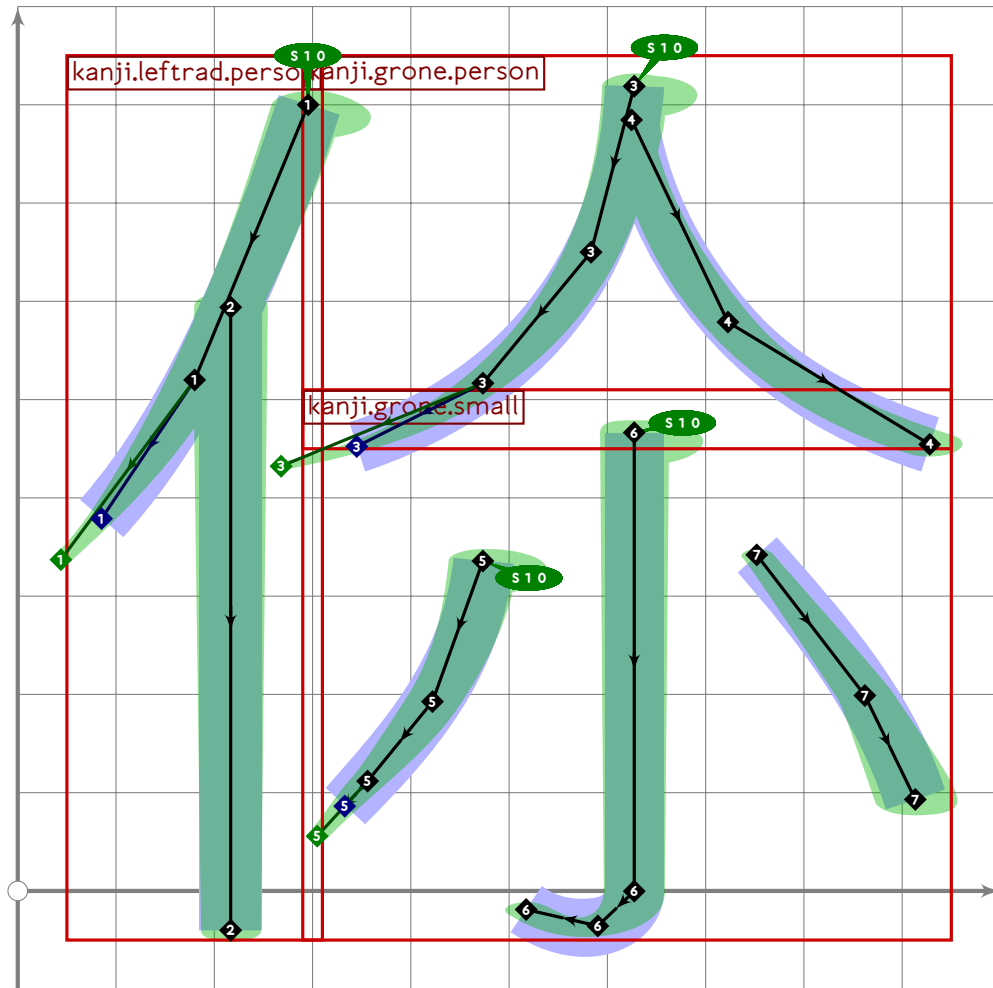
164 tsu\_render;

```

165 endtsuglyph;
166
167 % haku "earl"
168 begintsuglyph("uni4F2F",47);
169   kanji.greight.earl;
170   tsu_render;
171 endtsuglyph;
172

```

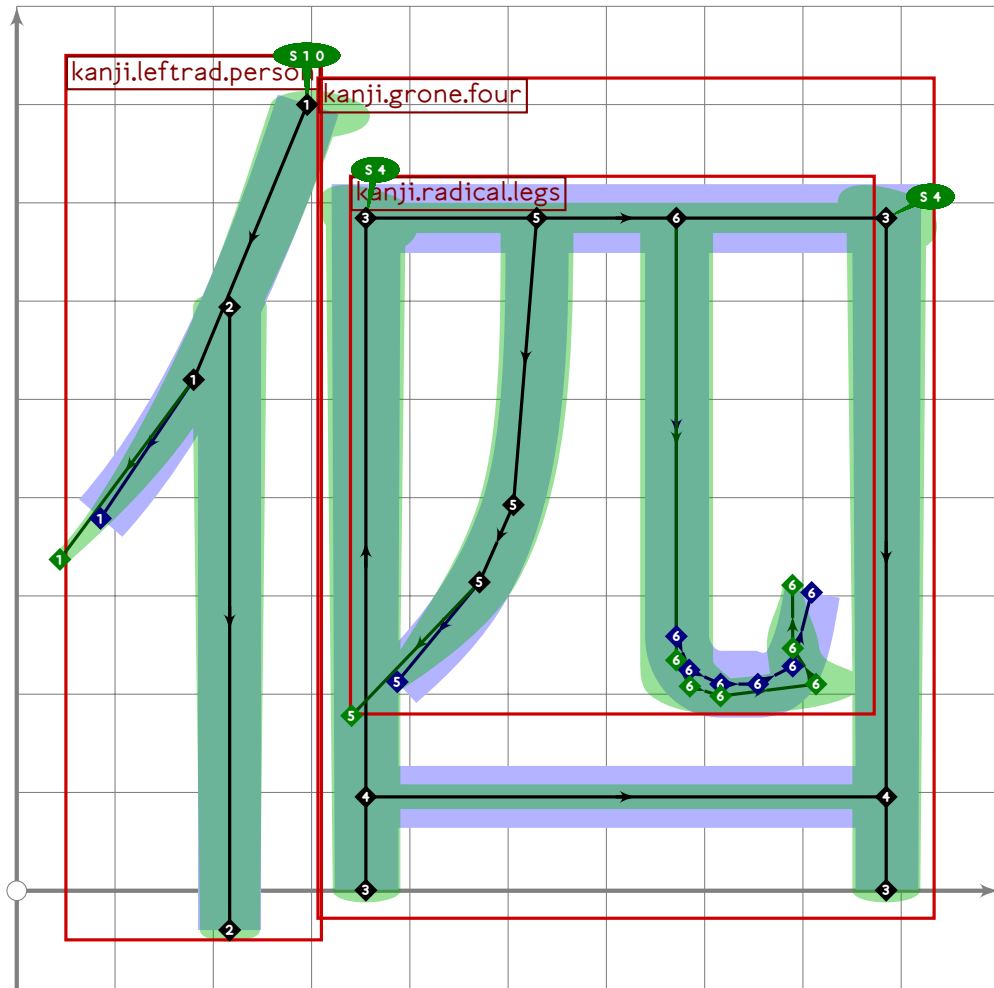
[see page 1349]



```

173 % extra
174 begintsuglyph("uni4F31",49);
175   build_kanji.lr(300,20)
176     (kanji.leftrad.person)
177     (build_kanji.tb(480,60)
178       (kanji.grone.person)
179       (kanji.grone.small));
180   tsu_render;
181 endtsuglyph;
182

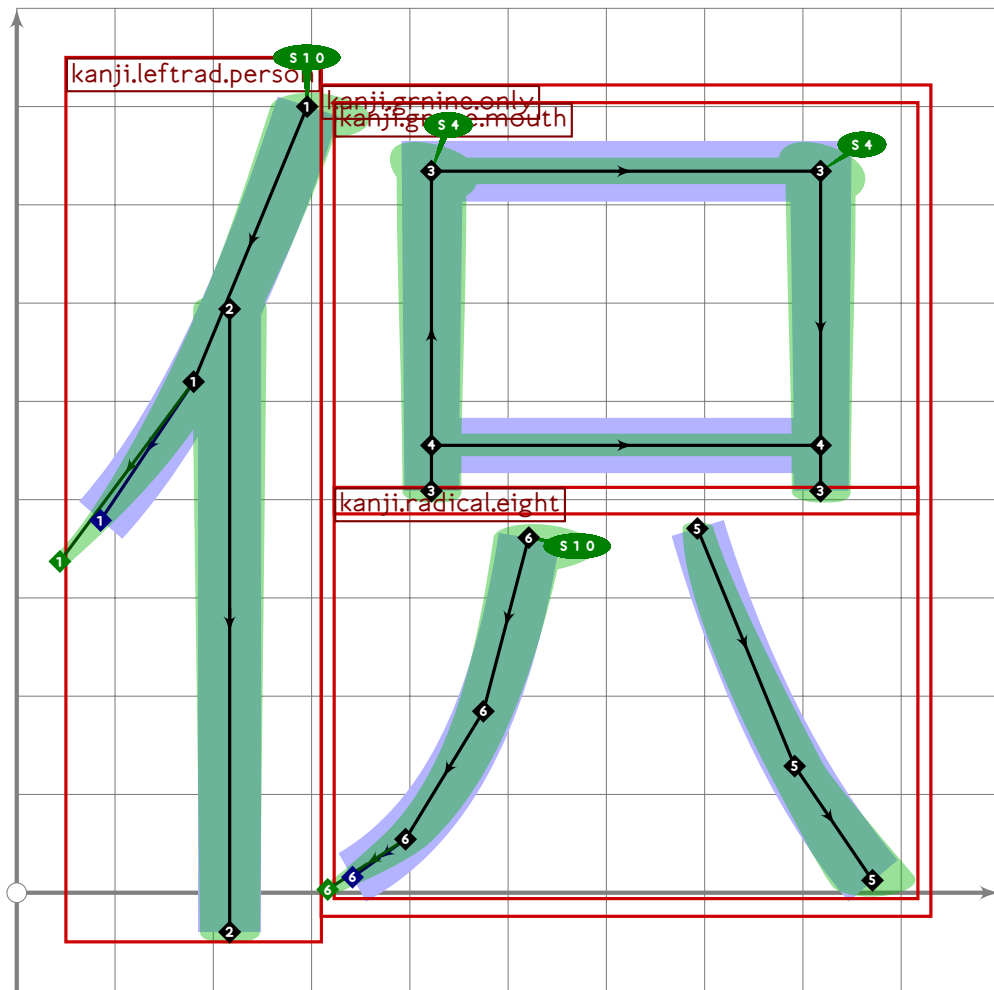
```



```

183 % extra
184 begint Suglyph("uni4F35";53);
185 build_kanji.lr(300,20)
186 (kanji.leftrad.person)
187 (build_kanji.sscale(scaled 0.95)(kanji.grone.four));
188 tsu_render;
189 endsuglyph;
190

```



```

191 % extra
192 begintsuglyph("uni4F3F",63);
193 build_kanji.lr(300,20)
194 (kanji.leftrad.person)
195 (build_kanji.sscale(scaled 0.9)(kanji.grnine.only));
196 tsu_render;
197 endsuglyph;
198
199 % ten/tsukuda "cultivated paddy"
200 begintsuglyph("uni4F43",67);
201 kanji.grnine.paddy;
202 tsu_render;
203 endsuglyph;
204
205 % juu/su "dwell"
206 begintsuglyph("uni4F4F",79);
207 kanji.grthree.dwell;
208 tsu_render;
209 endsuglyph;
210
211 % suke "assistant"

```

[see page 1353]

[see page 1346]



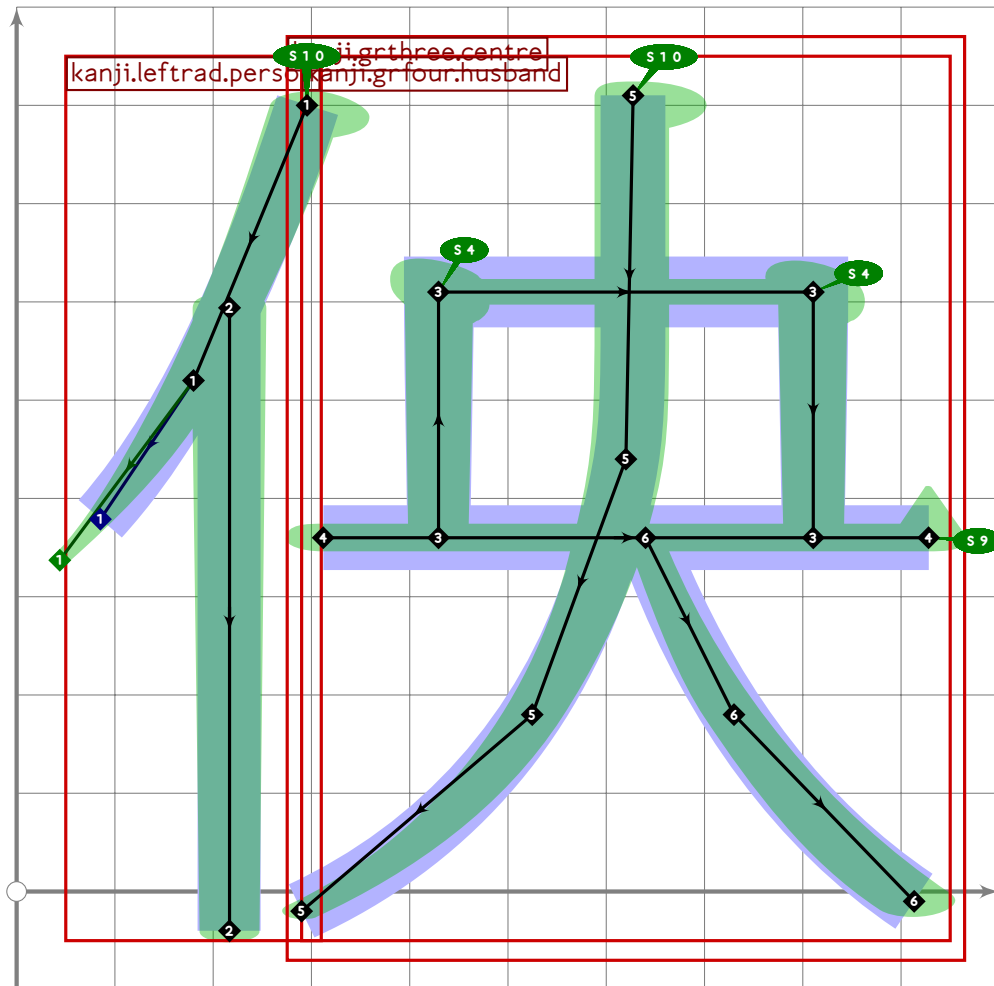
```

212 begintsuglyph("uni4F50",80);
213   kanji.greight.assistant;
214   tsu_render;
215 endsuglyph;
216
217 % suke "assistant"
218 begintsuglyph("uni4F51",81);
219   kanji.grnine.assistant;
220   tsu_render;
221 endsuglyph;
222

```

[see page 1348]

[see page 1352]



```

223 % extra
224 begintsuglyph("uni4F52",82);
225   build_kanji.lr(300,20)
226     (kanji.leftrad.person)
227     (kanji.grthree centre);
228   tsu_render;
229 endsuglyph;
230
231 % tai/karada "substance"
232 begintsuglyph("uni4F53",83);

```

[see page 1343]

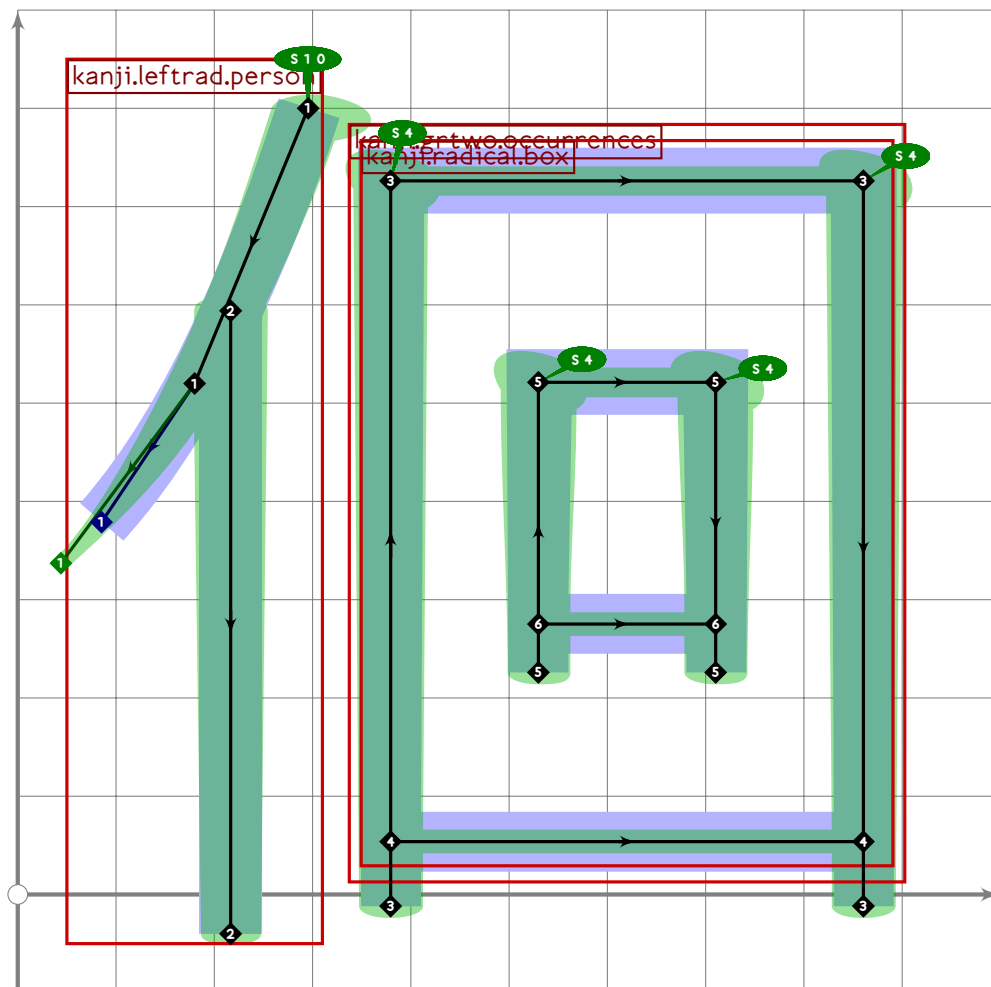
```

233 kanji.grtwo.substance;
234 tsu_render;
235 endtsuglyph;
236
237 % ka/nani "what"
238 begint Suglyph("uni4F55";85);
239 kanji.grtwo.what;
240 tsu_render;
241 endtsuglyph;
242
243 % tsuku "make"
244 begint Suglyph("uni4F5C";92);
245 kanji.grtwo.make;
246 tsu_render;
247 endtsuglyph;
248

```

[see page 1344]

[see page 1342]



```

249 % extra "hesitate"
250 begint Suglyph("uni4F6A";106);
251 build_kanji.lr(300,20)
252 (kanji.leftrad.person)
253 (build_kanji.sscale(scaled 0.82)(kanji.grtwo.occurrences));

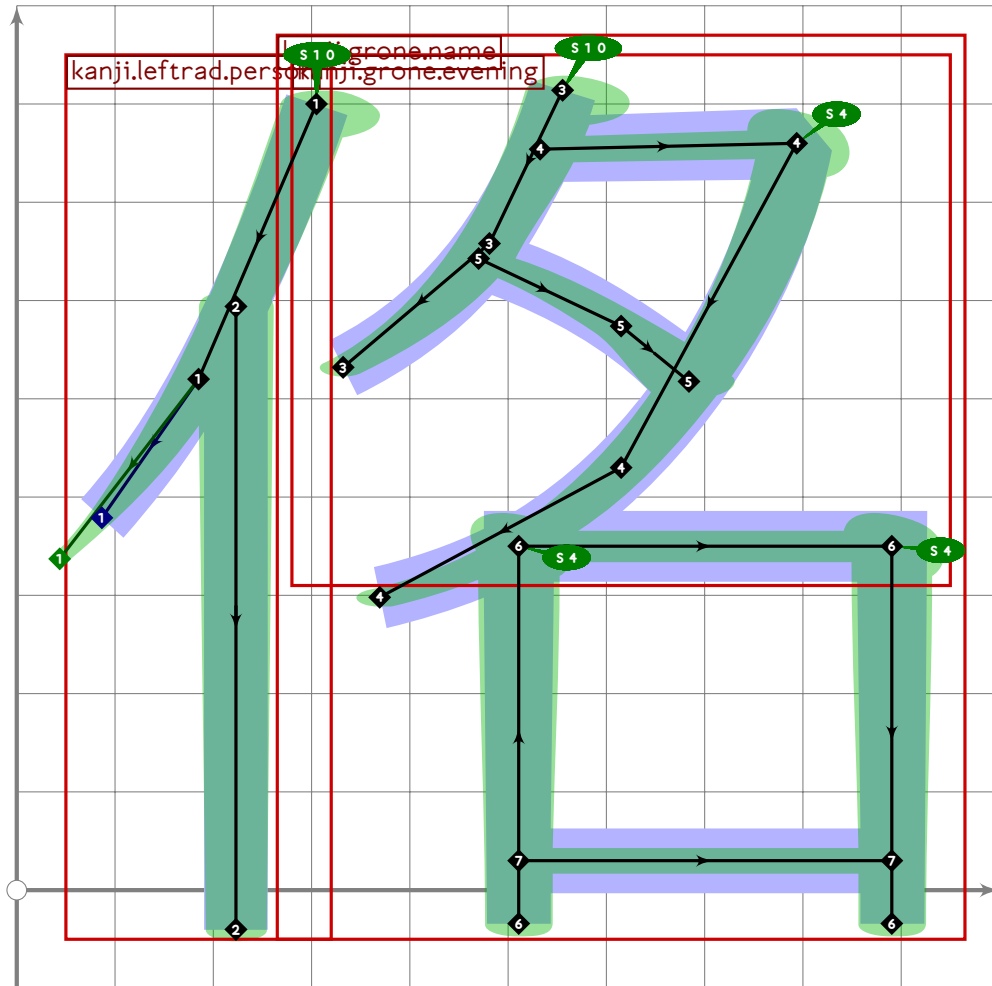
```

```

254 tsu_render;
255 endtsuglyph;
256
257 % extra "centurion"
258 begintsuglyph("uni4F70";112);
259 kanji.rare.centurion;
260 tsu_render;
261 endtsuglyph;
262

```

[see page 558]



```

263 % extra
264 begintsuglyph("uni4F72";114);
265 build_kanji.lr(300,40)
266   (kanji.leftrad.person)
267   (kanji.grone.name);
268 tsu_render;
269 endtsuglyph;
270
271 % hei/awa "unite"
272 begintsuglyph("uni4F75";117);
273 kanji.greight.unite;
274 tsu_render;

```

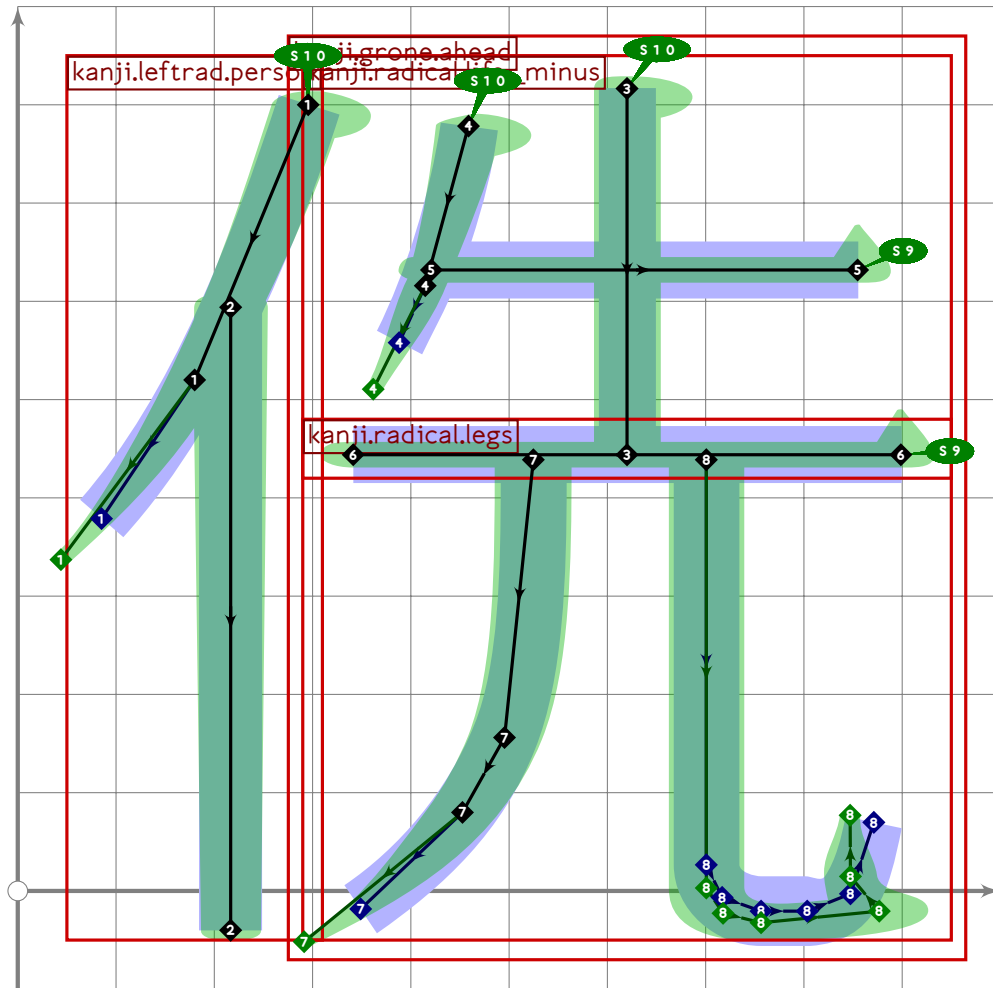
[see page 1351]

```

275 endtsuglyph;
276
277 % shi/tsuka "use"
278 begintsuglyph("uni4F7F",127);
279   kanji.grthree.use;
280   tsu_render;
281 endtsuglyph;
282

```

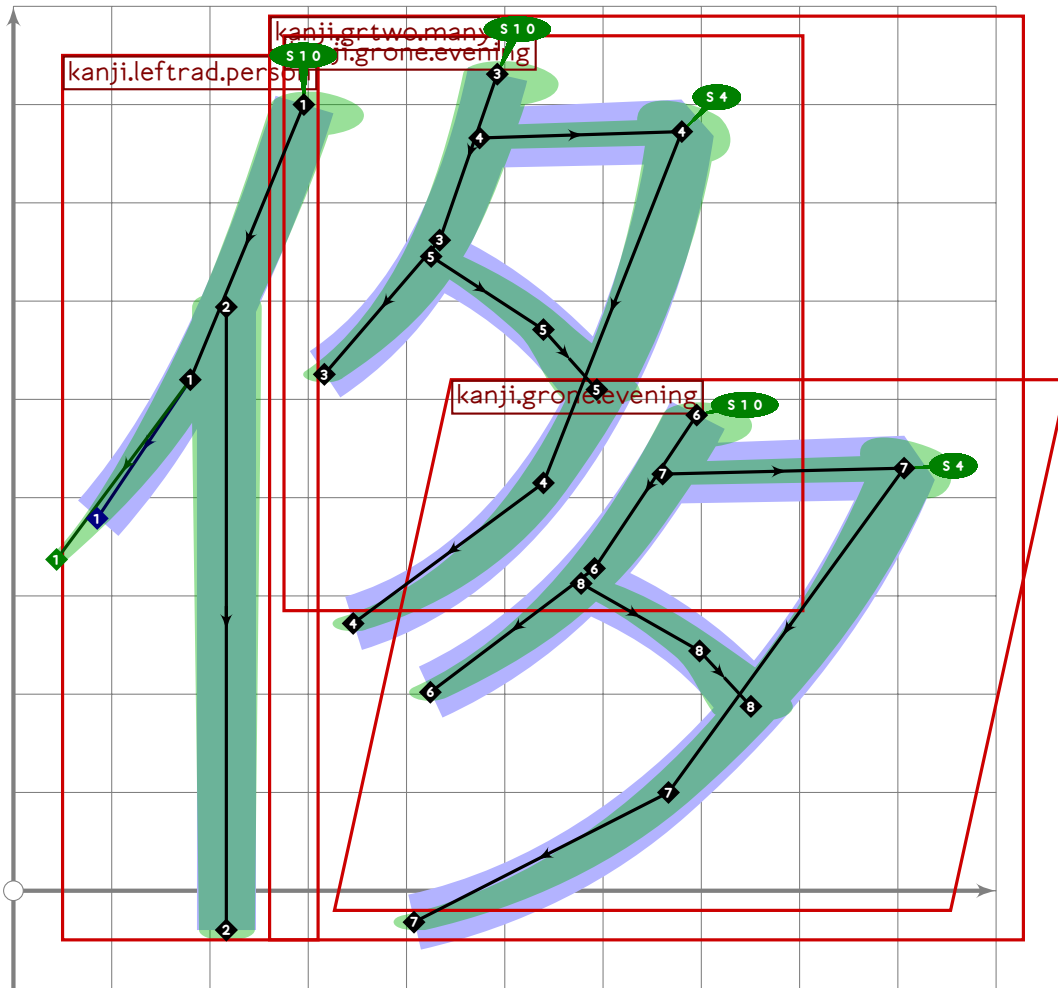
[see page 1347]



```

283 % extra
284 begintsuglyph("uni4F81",129);
285   build_kanji.lr(300,20)
286     (kanji.leftrad.person)
287     (kanji.grthree.use);
288   tsu_render;
289 endtsuglyph;
290

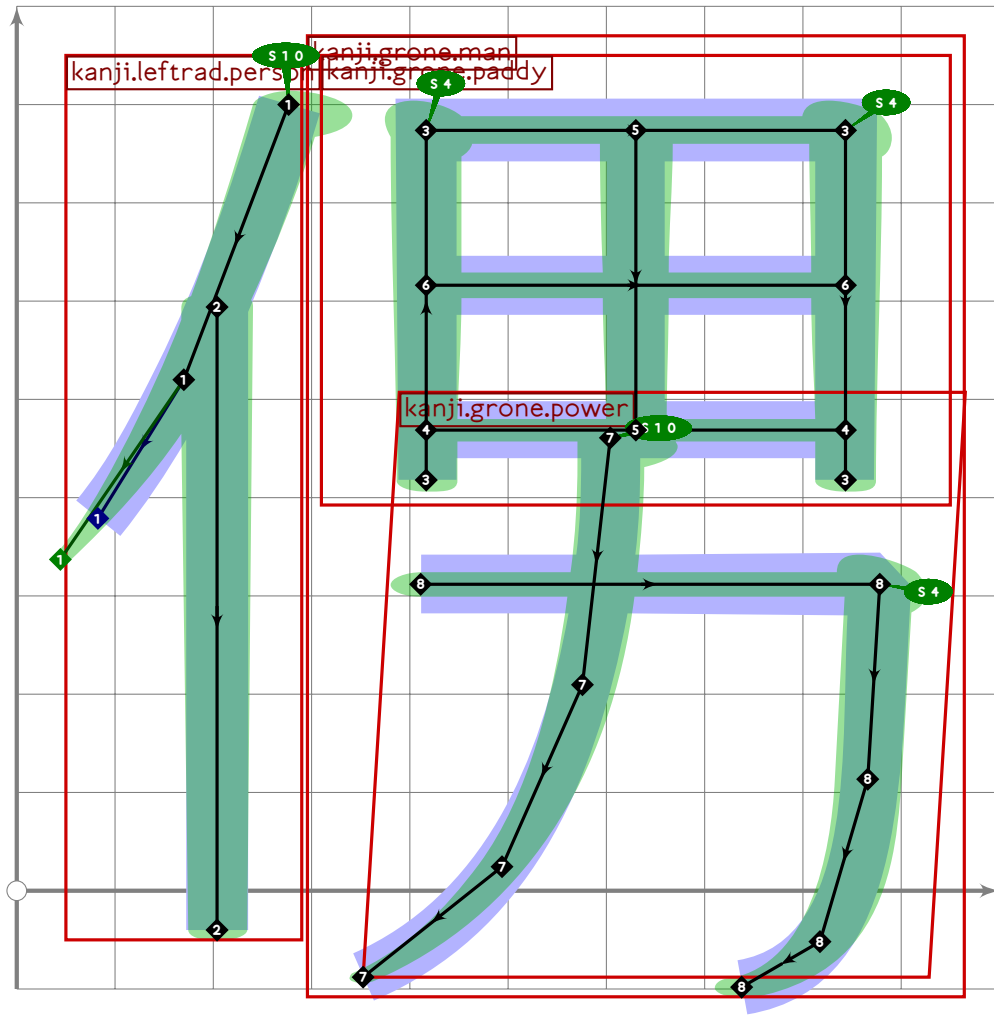
```



```

291 % extra "luxury"
292 begintsuglyph("uni4F88",136);
293 build_kanji.level(build_kanji.lr(300,20)
294   (kanji.leftrad.person)
295   (kanji.grtwo.many));
296 tsu_render;
297 endtsuglyph;
298

```

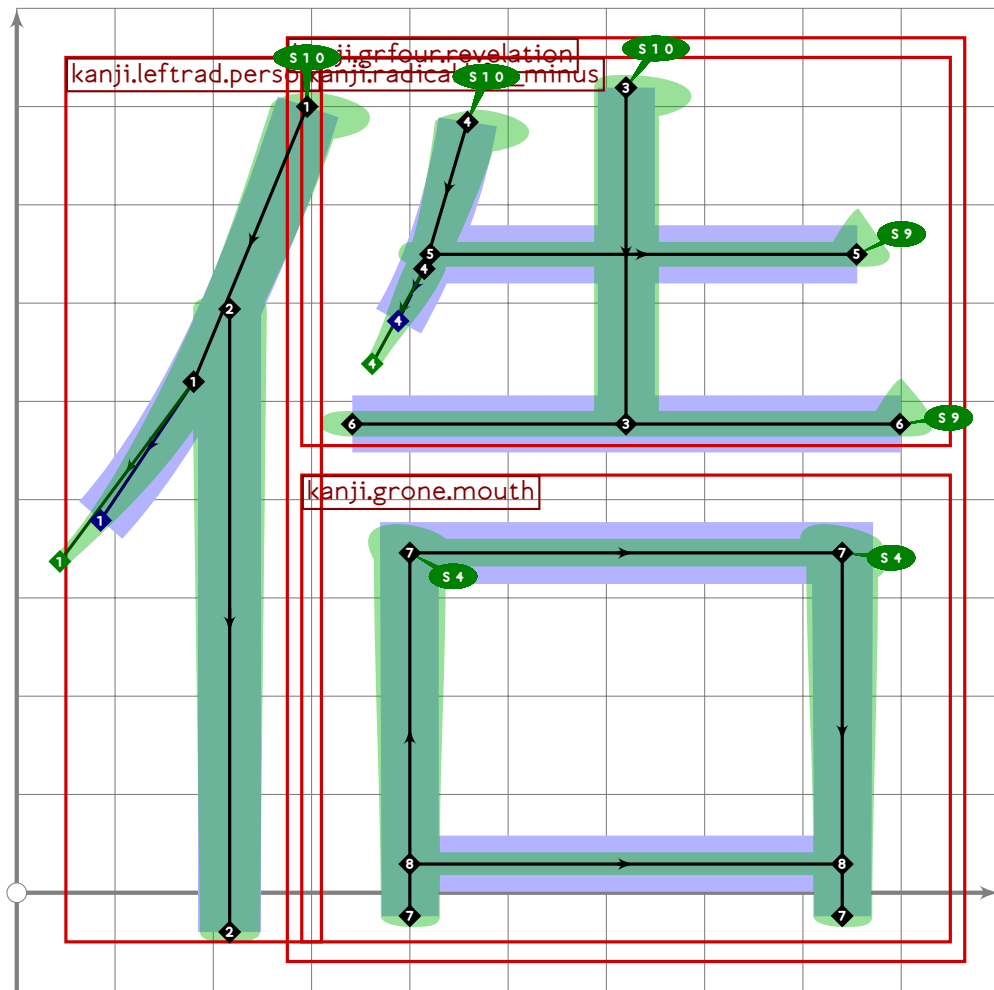


```

299 % extra
300 begintsuglyph("uni4FBD";189);
301 build_kanji.lr(300,-20)
302   (kanji.leftrad.person)
303   (kanji.grone.man);
304   tsu_render;
305 endsuglyph;
306
307 % kei/kaka "person in charge"
308 begintsuglyph("uni4FC2";194);
309   kanji.grthree.duty_officer;
310   tsu_render;
311 endsuglyph;
312

```

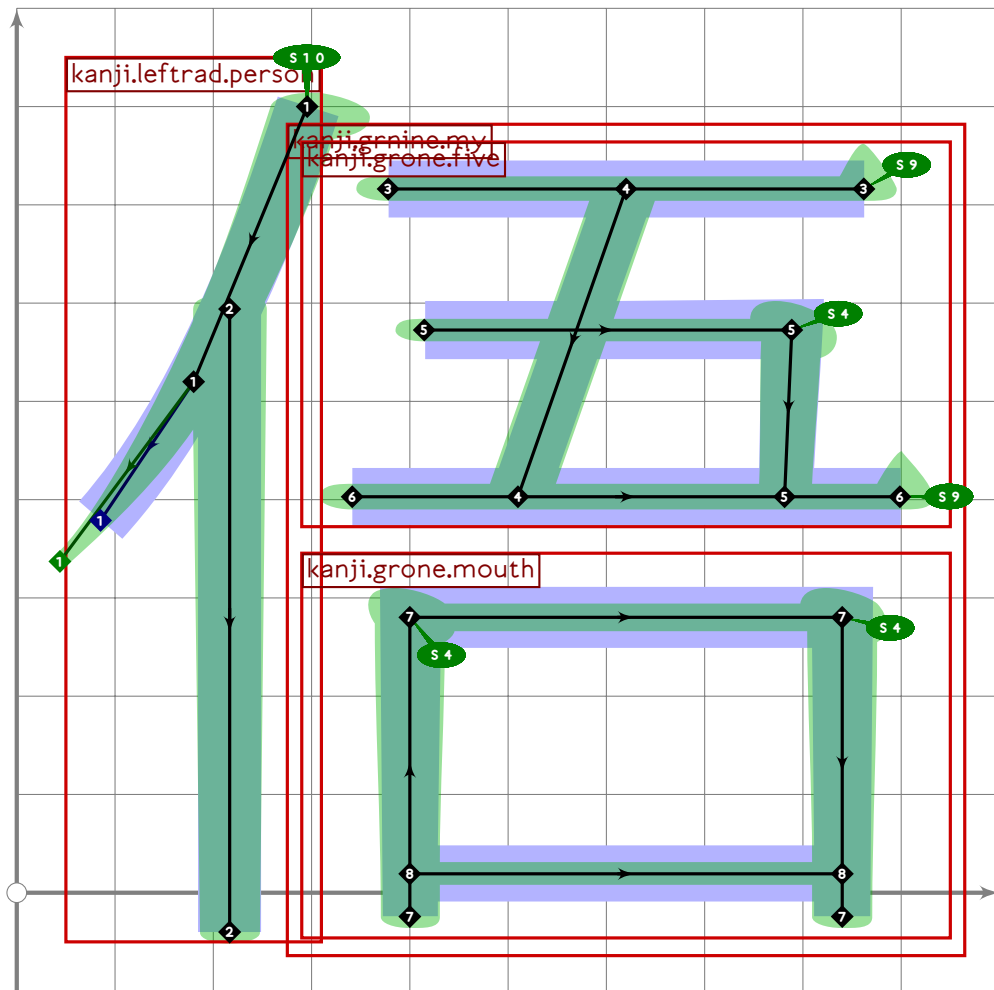
[see page 1345]



```

313 % extra
314 \begin{suglyph}{uni4FC8};
315 \build_kanji{lr}{300,20}
316   (kanji.leftrad.person)
317   (kanji.grfour.revelation);
318   tsu_render;
319 \end{suglyph};
320

```



```

321 % extra
322 begintsuglyph("uni4FC9",201);
323 build_kanji.lr(300,20)
324   (kanji.leftrad.person)
325   (build_kanji.sscale(yscaled 0.9 shifted (0,-40))
326     (kanji.grnine.my));
327 tsu_render;
328 endsuglyph;
329
330 % en/ore "me" (masculine, aggressive, more so than "boku")
331 begintsuglyph("uni4FFA",250);
332 kanji.greight.me_macho;
333 tsu_render;
334 endsuglyph;
335
336
337
338 endfont;
339
340

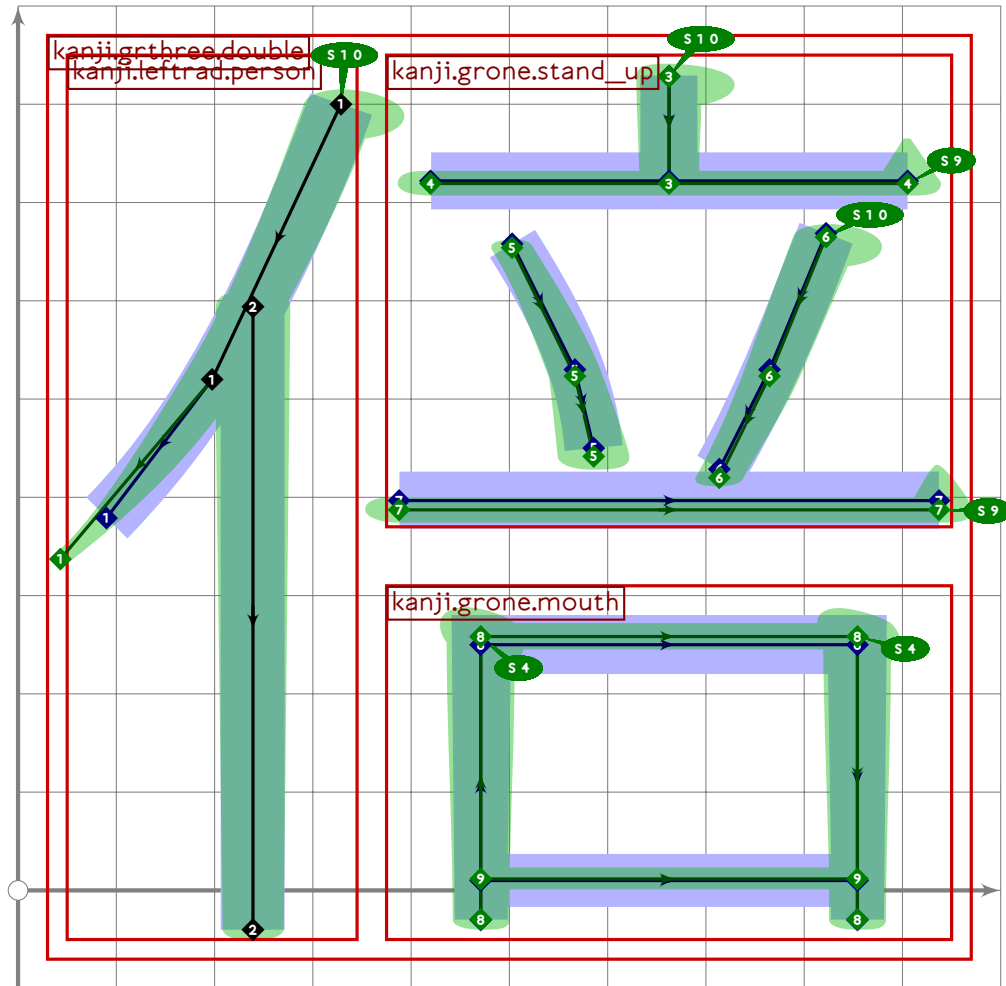
```

[see page 1350]



# tsuku-50.mp

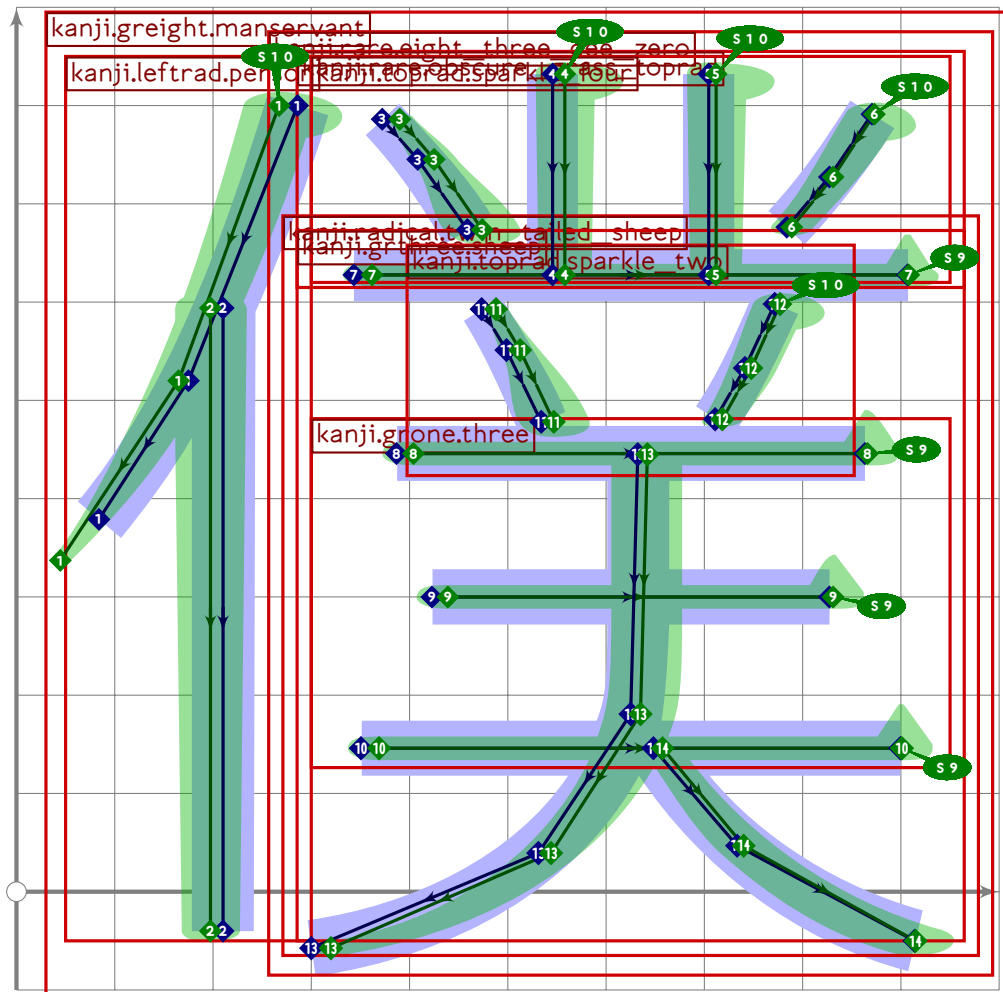
```
1 %  
2 % Unicode page 50 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradeone.mp;  
38 input gradethree.mp;  
39 input leftrad.mp;  
40 input rare.mp;  
41 input toprad.mp;  
42  
43 _____
```



```

44
45 vardef kanji.grthree.double =
46   push_pbox_toexpand("kanji.grthree.double");
47   build_kanji.lr(360,-30)
48     (kanji.leftrad.person)
49     (build_kanji.tb(340,-60+20*mincho)
50       (kanji.grone.stand_up)
51       (kanji.grone.mouth));
52   expand_pbox;
53 enddef;
54
55

```



```

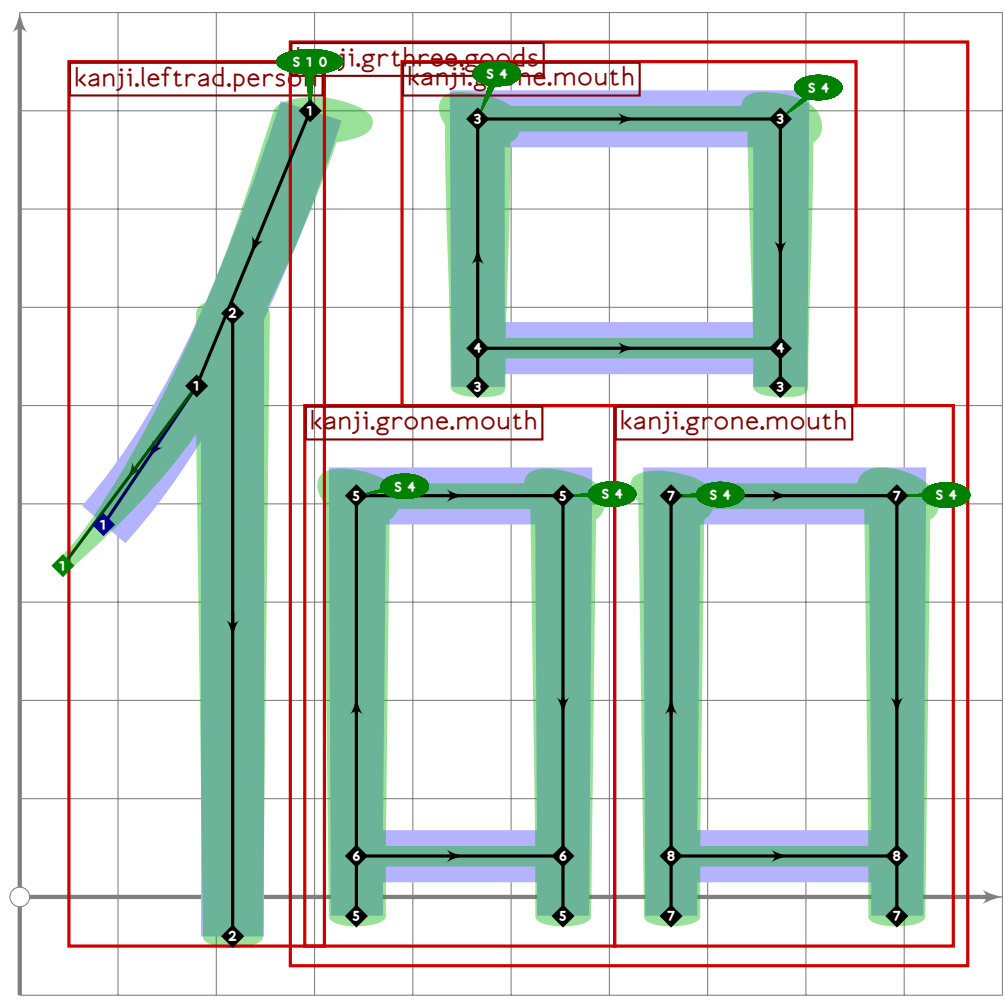
56
57 vardef kanji.greight.manservant =
58   push_pbox_toexpand("kanji.greight.manservant");
59   build_kanji.lr(300,-40*mincho)
60     (kanji.leftrad.person)
61     (kanji.rare.eight_three_dee_zero);
62   expand_pbox;
63 enddef;
64

```

65  
66  
67  
68  
69  
70  
71  
72

```
% bai/be "double"  
begintsuglyph("uni500D";13);  
kanji.grthree.double;  
tsu_render;  
endsuglyph;
```

[see page 1366]



```
% extra  
begintsuglyph("uni5058";88);  
build_kanji.lr(300,20)  
  (kanji.leftrad.person)  
  (kanji.grthree.goods);  
tsu_render;  
endsuglyph;  
  
% boku/shimobe "masculine first-person pronoun" (or "servant")  
begintsuglyph("uni50D5";213);  
kanji.greight.manservant;  
tsu_render;  
endsuglyph;
```

[see page 1366]

86

87

---

88

89 **endfont;**

90

91

---

# tsuku-51.mp

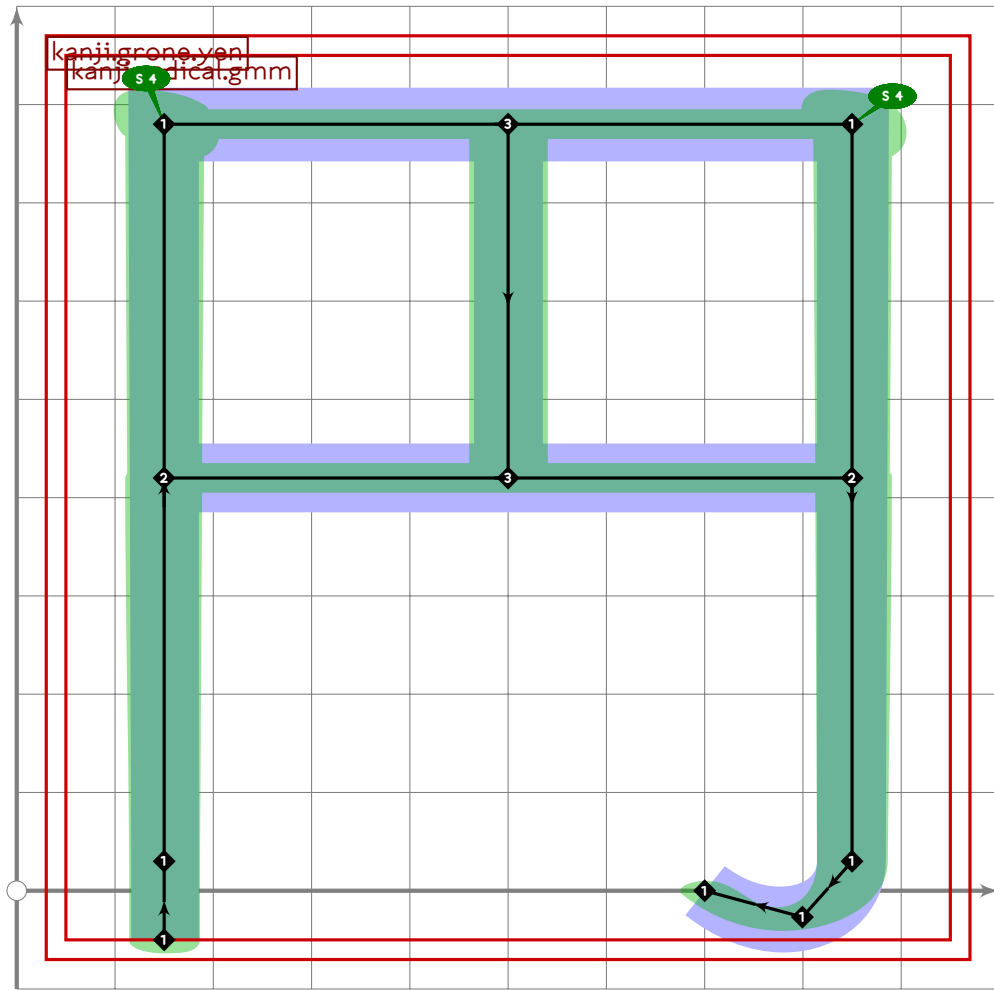
```
1 %
2 % Unicode page 51 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradenine.mp;
39 input gradeone.mp;
40 input gradetwo.mp;
41 input radical.mp;
42 input rare.mp;
43 input toprad.mp;
44
45 

---

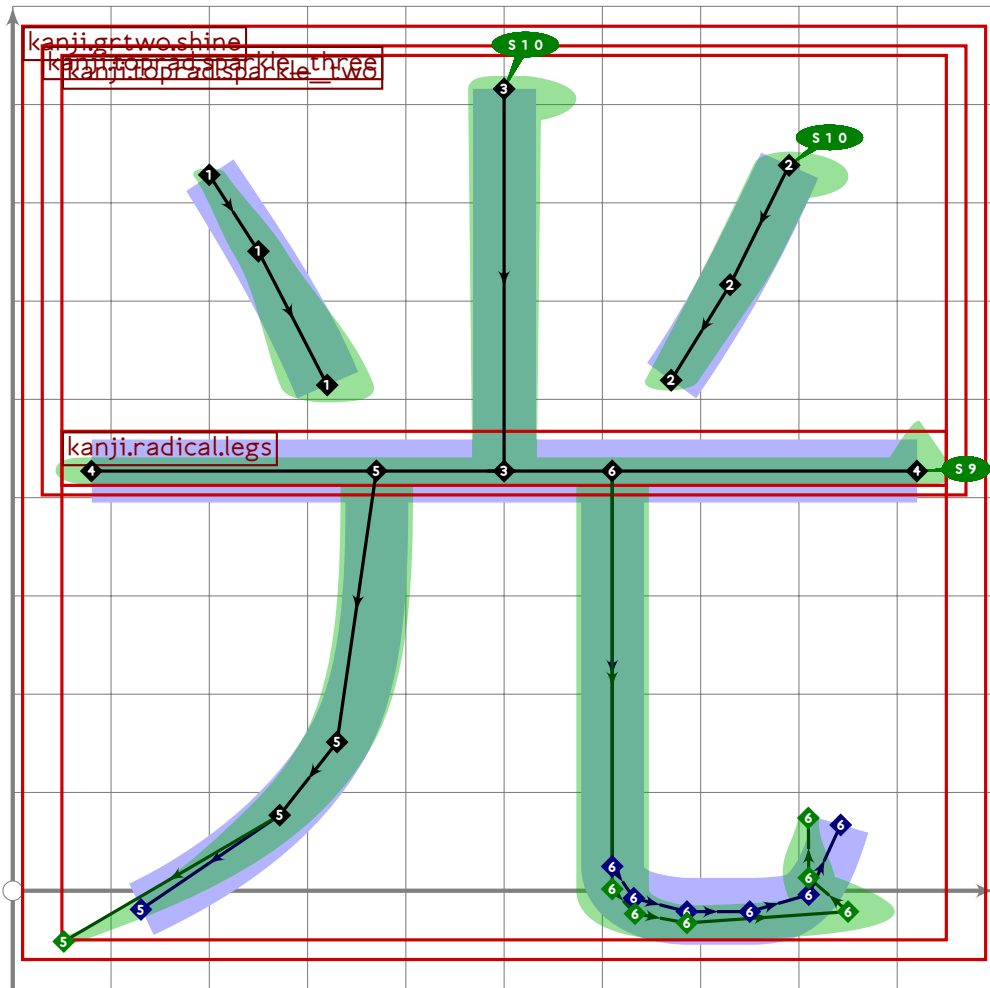

```



```

46
47 vardef kanji.grone.yen =
48   push_pbox_toexpand("kanji.grone.yen");
49   kanji.radical.gmm;
50   push_stroke((point 1.52 of get_strokep(0))-(point 3.48 of get_strokep(0)),
51     (1.6,1.6)-(1.6,1.6));
52   push_stroke((point 2.5 of get_strokep(-1))-(point 0.5 of get_strokep(0)),
53     (1.6,1.6)-(1.6,1.6));
54   expand_pbox;
55 enddef;
56
57

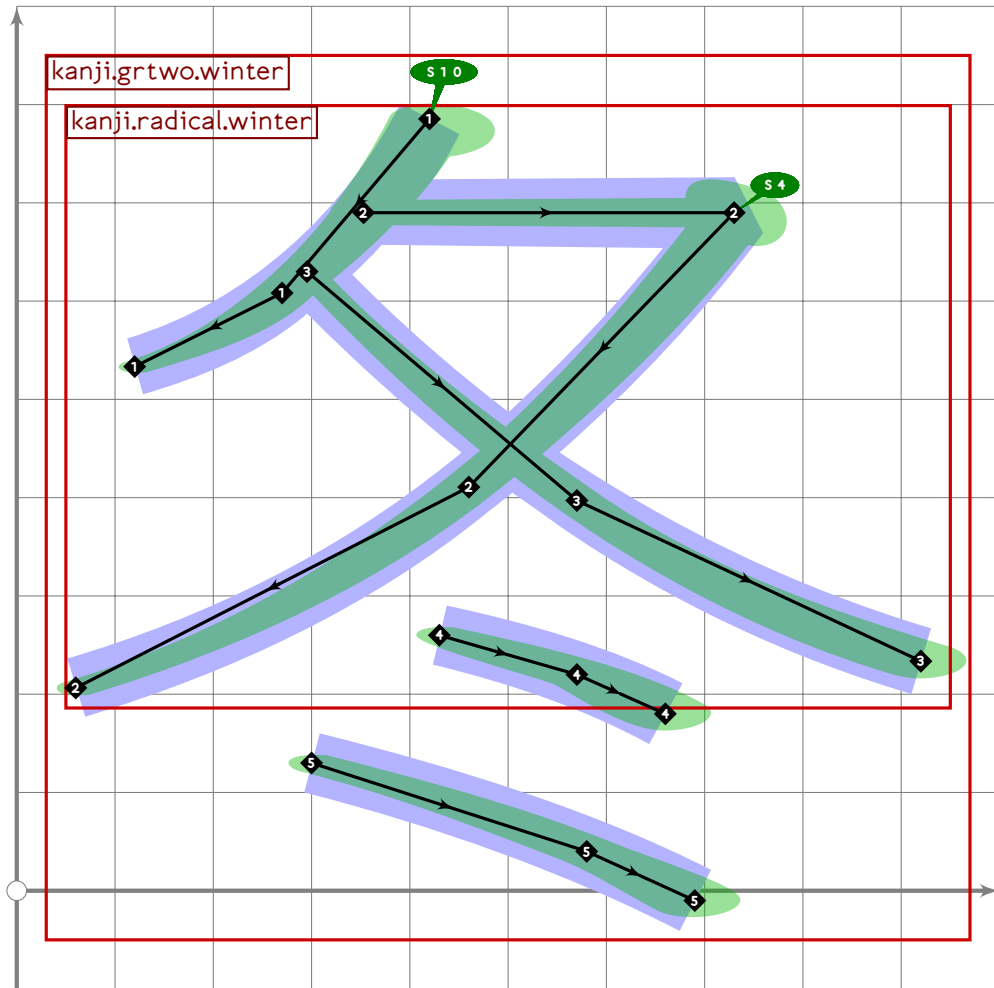
```



```

58
59 vardef kanji.grtwo.shine =
60   push_pbox_toexpand("kanji.grtwo.shine");
61   build_kanji.level(build_kanji.tb(440,55)
62     (kanji.toprad.sparkle_three;
63       push_stroke((80,-20)-(920,-20),(1.6,1.6)-(1.6,1.6));
64       set_boserif(0,1,9);
65     )
66     (kanji.radical.legs));
67   expand_pbox;
68 enddef;

```

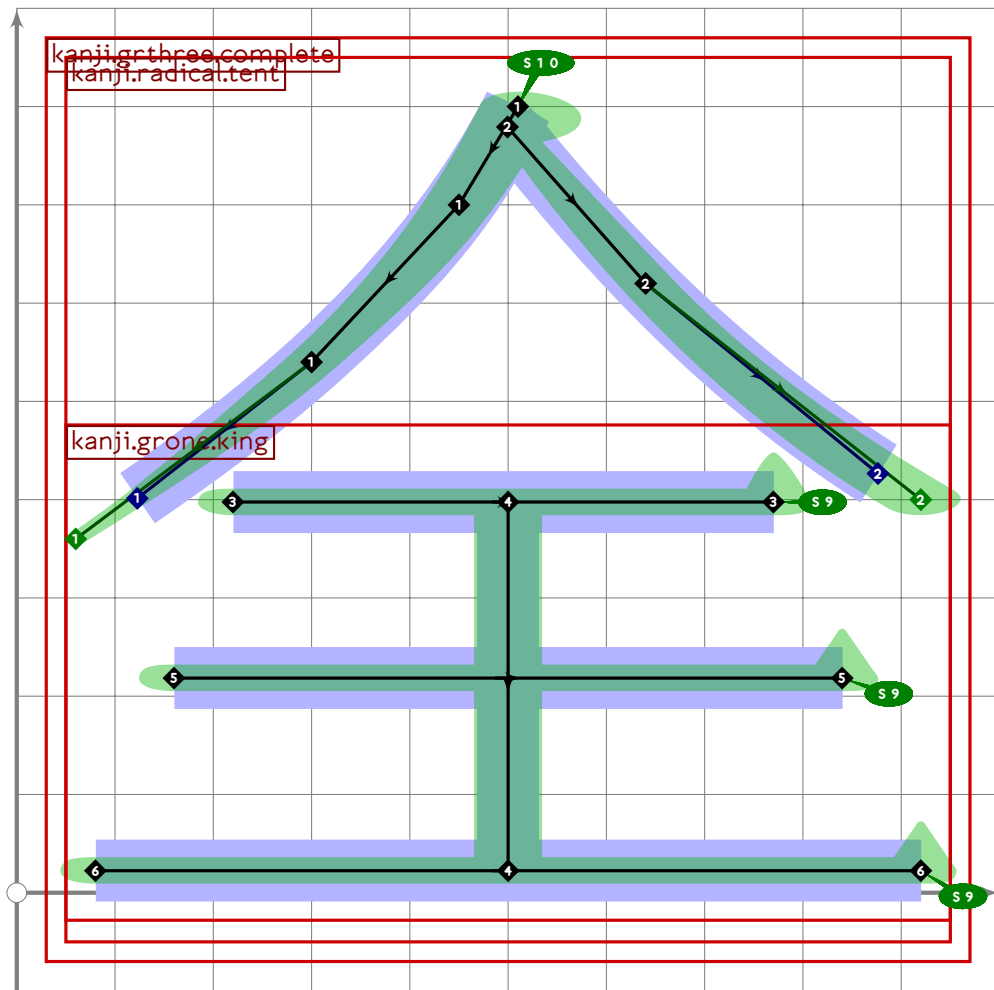


```

69
70 vardef kanji.grtwo.winter =
71   push_pbox_toexpand("kanji.grtwo.winter");
72   build_kanji.level(
73     tsu_xform(begingroup
74       save myxf;
75       transform myxf;
76       (0,690) transformed myxf=(0,690);
77       (1000,690) transformed myxf=(1000,690);
78       (500,0) transformed myxf=(500,220);
79       myxf
80     endgroup)(kanji.radical.winter);
81   push_stroke((430,260)..tension 1.2..(570,220)..(660,180),
82     (1.2,1.2)-(1.5,1.5)-(1.8,1.8));
83   push_stroke((300,130)..tension 1.2..(580,40)..(690,-10),
84     (1.2,1.2)-(1.5,1.5)-(1.8,1.8));
85 );
86   expand_pbox;
87   enddef;
88
89

```

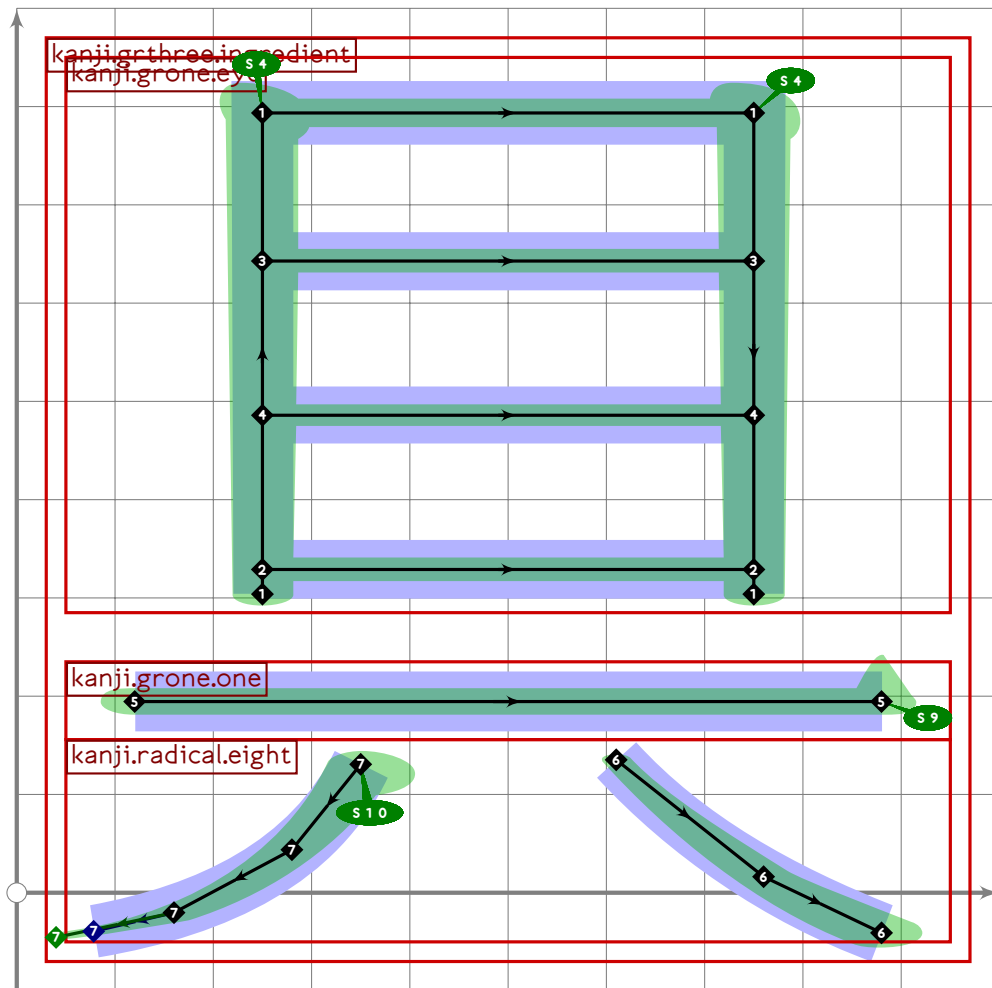




```

90
91 vardef kanji.grthree.complete =
92   push_pbox_toexpand("kanji.grthree.complete");
93   kanji.radical.tent;
94   pop_stroke;
95   tsu_xform(identity yscaled 0.56)(kanji.grone.king);
96   replace_stroke(-3)((220,y part point 0 of oldp)-
97     (770,y part point 1 of oldp));
98   expand_pbox;
99 enddef;

```



```

100
101 vardef kanji.grthree.ingredient =
102   push_pbox_toexpand("kanji.grthree.ingredient");
103   build_kanji.level(build_kanji.tb(260,-50)
104     (kanji.grthree.ingredient)
105     (build_kanji.tb(600,0)
106       (kanji.grthree.one)
107       (kanji.radical.eight)));
108   expand_pbox;
109 enddef;

```

110

111

112

113 % legs radical

114 `begintsuglyph("uni513F",63);`

[see page 343]

115 `kanji.radical.legs;`

116 `tsu_render;`

117 `endtsuglyph;`

118

119 % kotsu "bald"

120 `begintsuglyph("uni5140",64);`

[see page 556]

121 `kanji.rare.bald;`  
122 `tsu_render;`  
123 `endtsuglyph;`  
124  
125 `% in/shou "permission"`  
126 `begintsuglyph("uni5141",65);` [see page 549]  
127 `kanji.grnine.permission;`  
128 `tsu_render;`  
129 `endtsuglyph;`  
130  
131 `% moto/gen "origin"`  
132 `begintsuglyph("uni5143",67);` [see page 460]  
133 `kanji.grtwo.origin;`  
134 `tsu_render;`  
135 `endtsuglyph;`  
136  
137 `% nii (as in oniisan) "big brother"`  
138 `begintsuglyph("uni5144",68);` [see page 426]  
139 `kanji.grtwo.big_brother;`  
140 `tsu_render;`  
141 `endtsuglyph;`  
142  
143 `% shuu/a "fulfill"`  
144 `begintsuglyph("uni5145",69);` [see page 529]  
145 `kanji.greight.fulfill;`  
146 `tsu_render;`  
147 `endtsuglyph;`  
148  
149 `% sen "ahead"`  
150 `begintsuglyph("uni5148",72);` [see page 366]  
151 `kanji.grone.ahead;`  
152 `tsu_render;`  
153 `endtsuglyph;`  
154  
155 `% kou/hikari "shine"`  
156 `begintsuglyph("uni5149",73);` [see page 1371]  
157 `kanji.grtwo.shine;`  
158 `tsu_render;`  
159 `endtsuglyph;`  
160  
161 `% hai/i "put it in"`  
162 `begintsuglyph("uni5165",101);` [see page 405]  
163 `kanji.grone.put_it_in;`  
164 `tsu_render;`  
165 `endtsuglyph;`  
166  
167 `% zen/matta "complete"`  
168 `begintsuglyph("uni5168",104);` [see page 1373]

169 `kanji.grthree.complete;`  
170 `tsu_render;`  
171 `endtsuglyph;`  
172  
173 `% hachi/ya "eight"`  
174 `begintsuglyph("uni516B";107);` [see page 380]  
175 `kanji.grone.eight;`  
176 `tsu_render;`  
177 `endtsuglyph;`  
178  
179 `% kou/kimi "public" but also the pronoun kimi`  
180 `begintsuglyph("uni516C";108);` [see page 462]  
181 `kanji.grtwo.public;`  
182 `tsu_render;`  
183 `endtsuglyph;`  
184  
185 `% roku/mui "six"`  
186 `begintsuglyph("uni516D";109);` [see page 411]  
187 `kanji.grone.six;`  
188 `tsu_render;`  
189 `endtsuglyph;`  
190  
191 `% gu/sona "ingredient"`  
192 `begintsuglyph("uni5177";119);` [see page 1374]  
193 `kanji.grthree.ingredient;`  
194 `tsu_render;`  
195 `endtsuglyph;`  
196  
197 `% George Michael's Moustache`  
198 `begintsuglyph("uni5182";130);` [see page 342]  
199 `kanji.radical.gmm;`  
200 `tsu_render;`  
201 `endtsuglyph;`  
202  
203 `% nai/uchi "home, me"`  
204 `begintsuglyph("uni5185";133);` [see page 442]  
205 `kanji.grtwo.home;`  
206 `tsu_render;`  
207 `endtsuglyph;`  
208  
209 `% en "yen" (currency unit)`  
210 `begintsuglyph("uni5186";134);` [see page 1370]  
211 `kanji.grone.yen;`  
212 `tsu_render;`  
213 `endtsuglyph;`  
214  
215 `% tou/fuyu "winter"`  
216 `begintsuglyph("uni51AC";172);` [see page 1372]

```
217  kanji.grtwo.winter;
218  tsu_render;
219  endtsuglyph;
220
221  % kan "open box radical"
222  begintsuglyph("uni51F5",245); [see page 350]
223  kanji.radical.open_box;
224  tsu_render;
225  endtsuglyph;
226
227  % de "go away"
228  begintsuglyph("uni51FA",250); [see page 386]
229  kanji.grone.go_away;
230  tsu_render;
231  endtsuglyph;
232
233  _____
234
235  endfont;
236
237  _____
```

# tsuku-52.mp

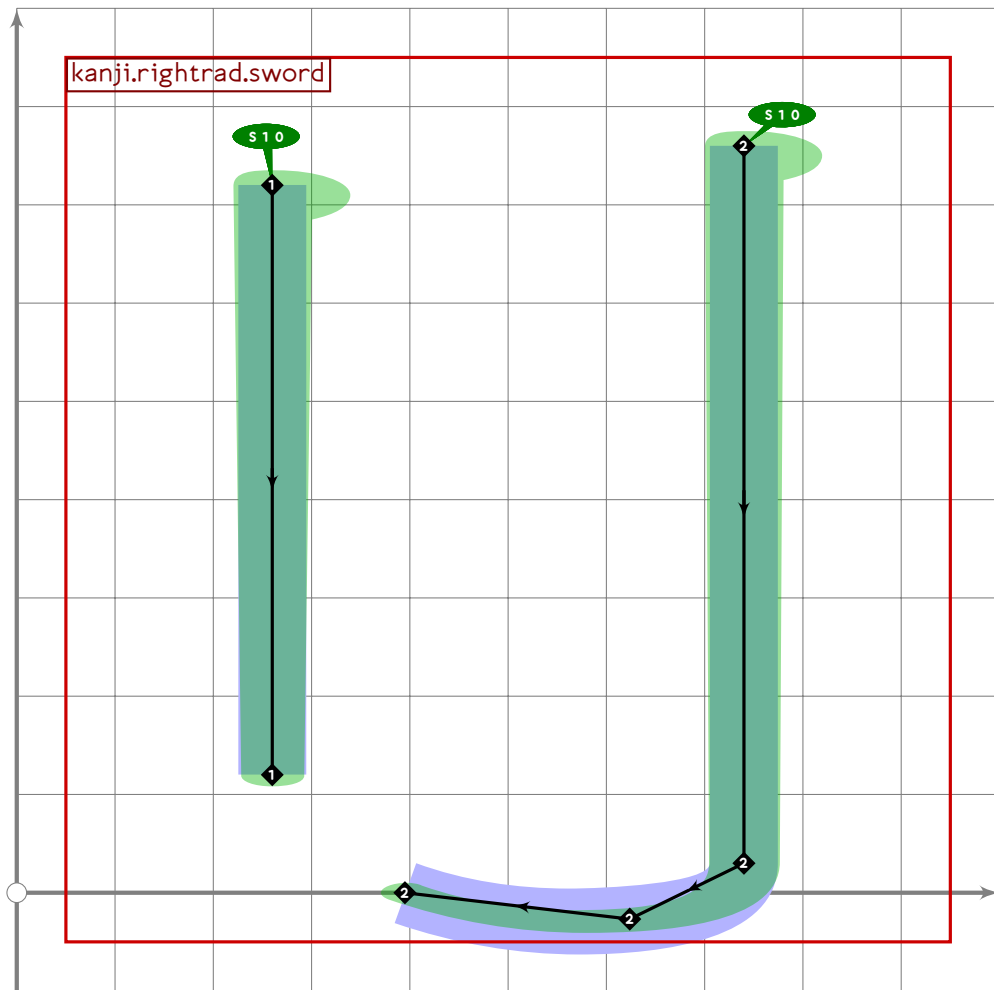
```
1 %
2 % Unicode page 52 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input bottomrad.mp;
37 input buildkanji.mp;
38 input gradeeight.mp;
39 input gradenine.mp;
40 input gradeone.mp;
41 input gradesix.mp;
42 input gradethree.mp;
43 input gradetwo.mp;
44 input leftrad.mp;
45 input radical.mp;
46 input toprad.mp;
47
48 

---

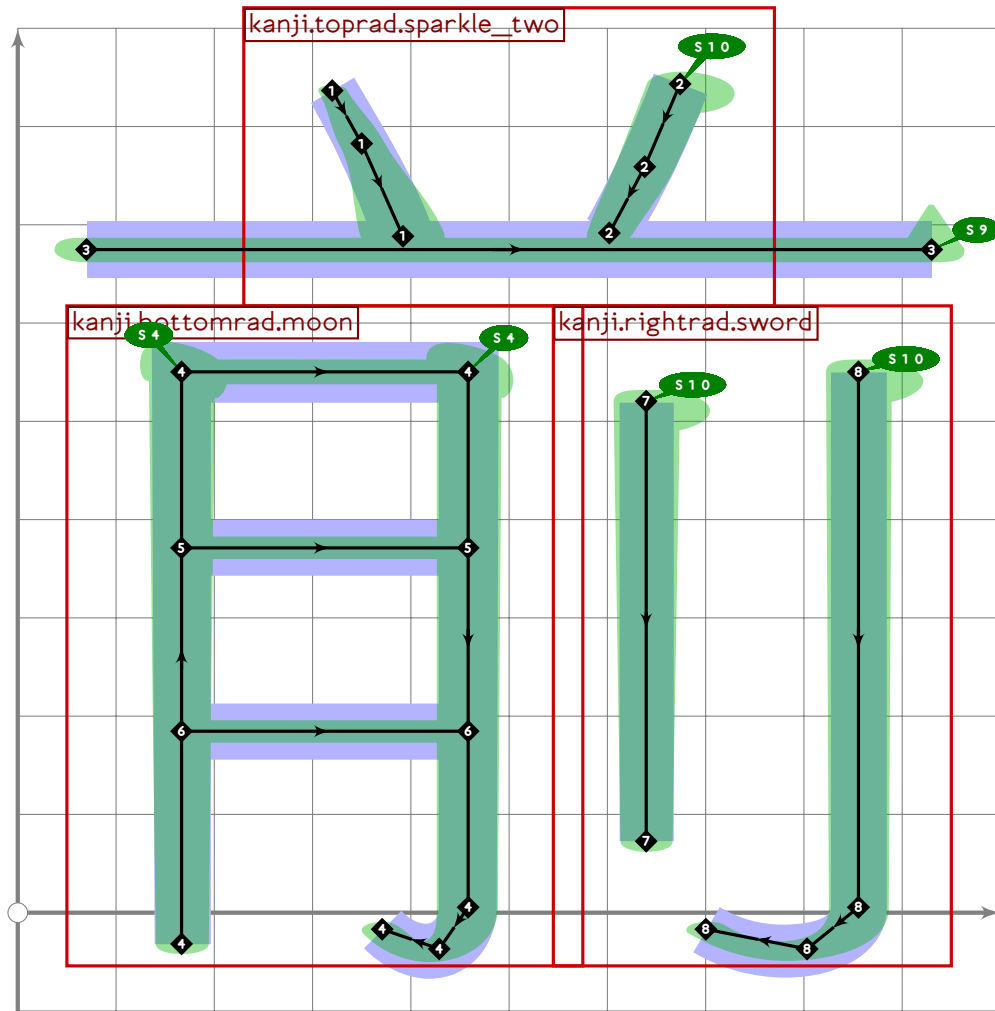

```



```

49
50 vardef kanji.rightrad.sword =
51   push_pbox_toexpand("kanji.rightrad.sword");
52   push_stroke((260,720)-(260,120),(1.6,1.6)-(1.4,1.4));
53   set_boserif(0,0,10);
54   push_stroke((740,760),(1.6,1.6));
55   set_boserif(0,0,10);
56   build_kanji.add_jtail(0);
57   replace_strokep(0)(oldp shifted (-740,0) xscaled 2.3 shifted (740,0));
58   expand_pbox;
59 enddef;
60
61

```

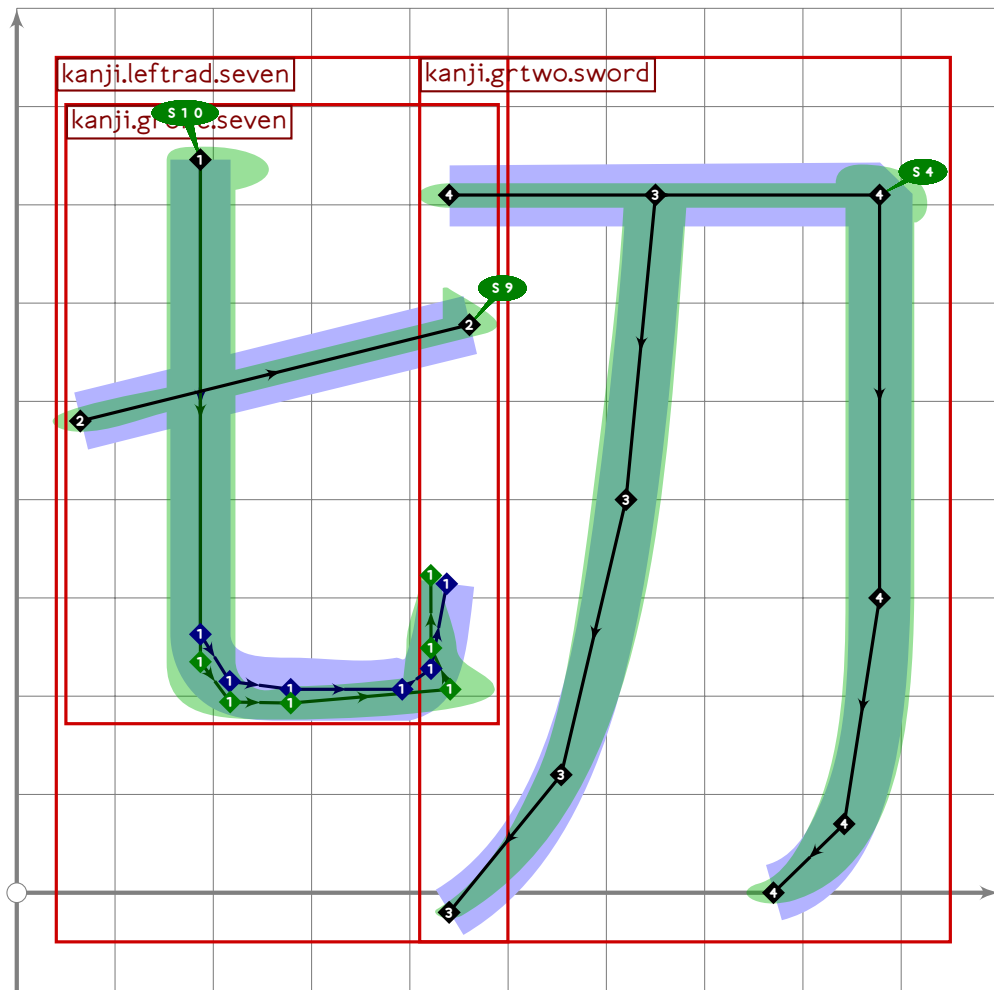


```

62
63 vardef kanji.grtwo.before =
64   tsu_xform(identity yscaled (780/720))
65   (build_kanji.level(build_kanji.tb(570,0)
66     (build_kanji.sscale(xscaled 0.6)(kanji.toprad.sparkle_two);
67     push_stroke((70,120)-(930,120),(1.6,1.6)-(1.6,1.6));
68     set_boserif(0,0,whatever);
69     set_boserif(0,1,9);
70     )
71   (build_kanji.lr(560,30)
72     (kanji.bottomrad.moon)
73     (kanji.rightrad.sword)));
74 enddef;

```

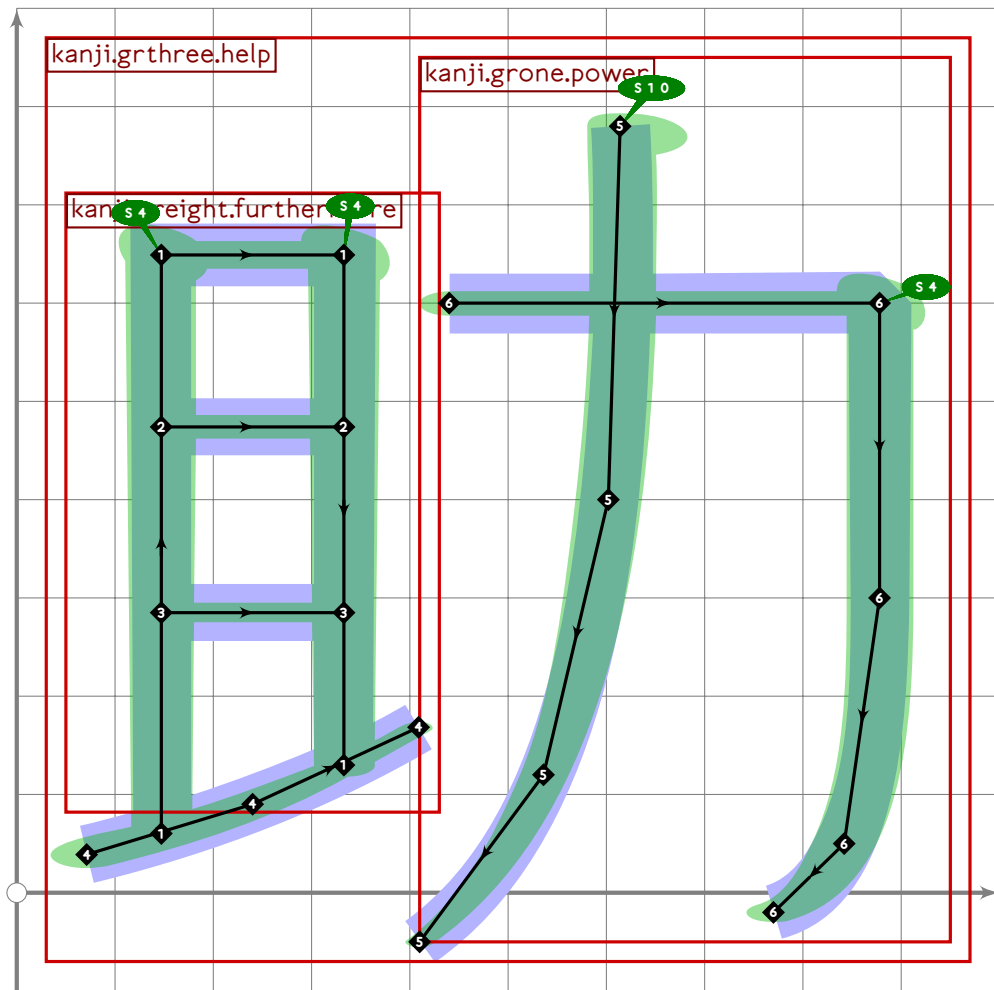




```

75
76 vardef kanji.grtwo.cut =
77   build_kanji.level(build_kanji.lr(450,80)
78     (kanji.leftrad.seven)
79     (kanji.grtwo.sword));
80 enddef;
81
82

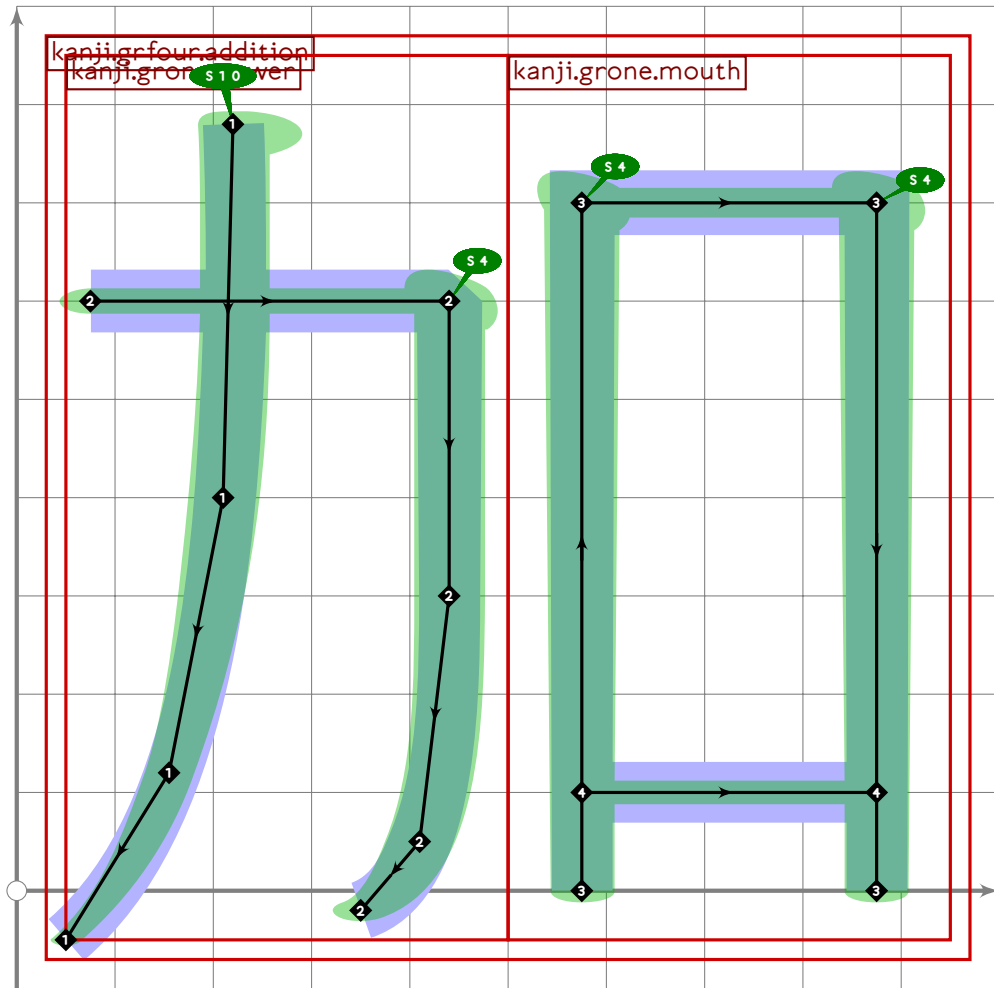
```



```

83
84 vardef kanji.grthree.help =
85   push_pbox_toexpand("kanji.grthree.help");
86   build_kanji.level(build_kanji.lr(420,20)
87     (build_kanji.lift_skirt(230,170)
88       (build_kanji.sscale(yscaled 0.7)
89         (kanji.greight.furthermore);
90         replace_strokep(0)(oldp shifted (0,-80));
91         replace_strokep(-3)((point 0 of oldp shifted (0,-80))-
92           (subpath (1,length oldp-1) of oldp)-
93           (point infinity of oldp shifted (0,-80))))))
94   (kanji.grone.power));
95   expand_pbox;
96 enddef;
97
98

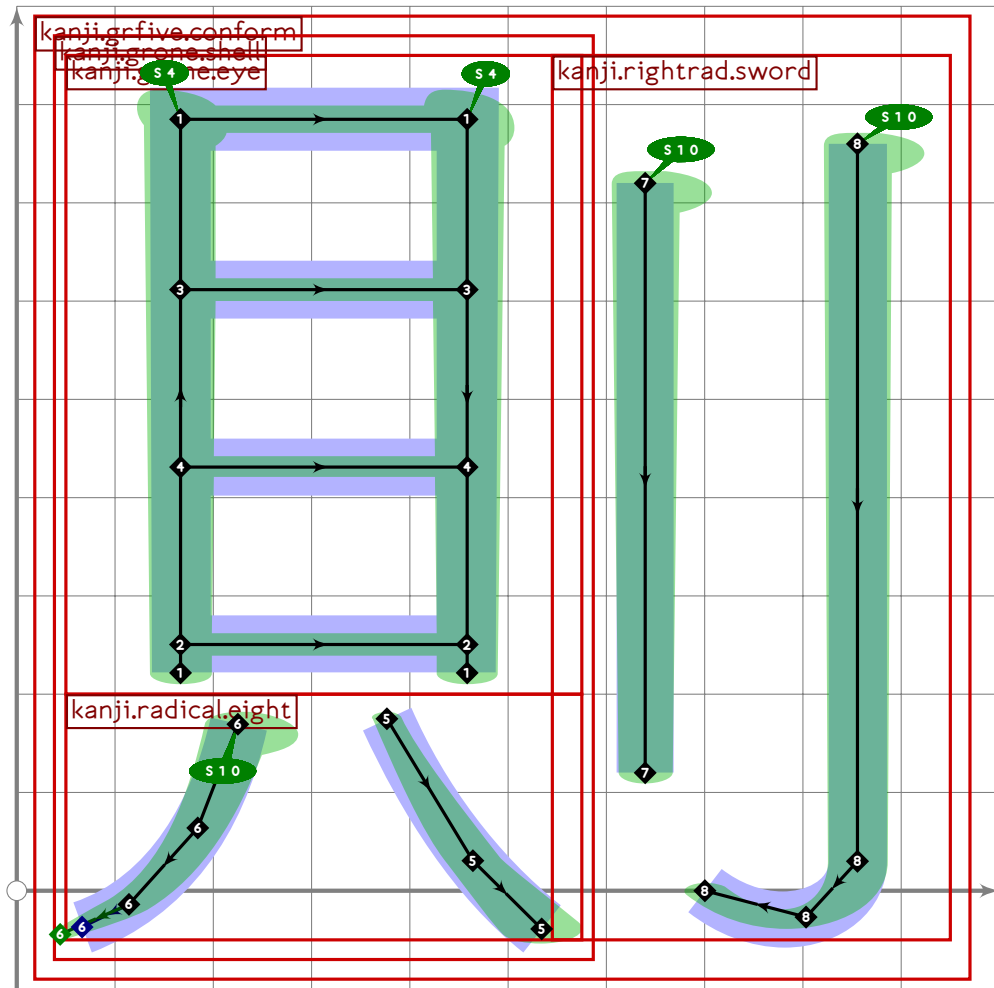
```



```

99
100 vardef kanji.grfour.addition =
101   push_pbox_toexpand("kanji.grfour.addition");
102   build_kanji.level(build_kanji.lr(500,0)
103     (kanji.grone.power)
104     (kanji.grone.mouth));
105   expand_pbox;
106 enddef;
107
108

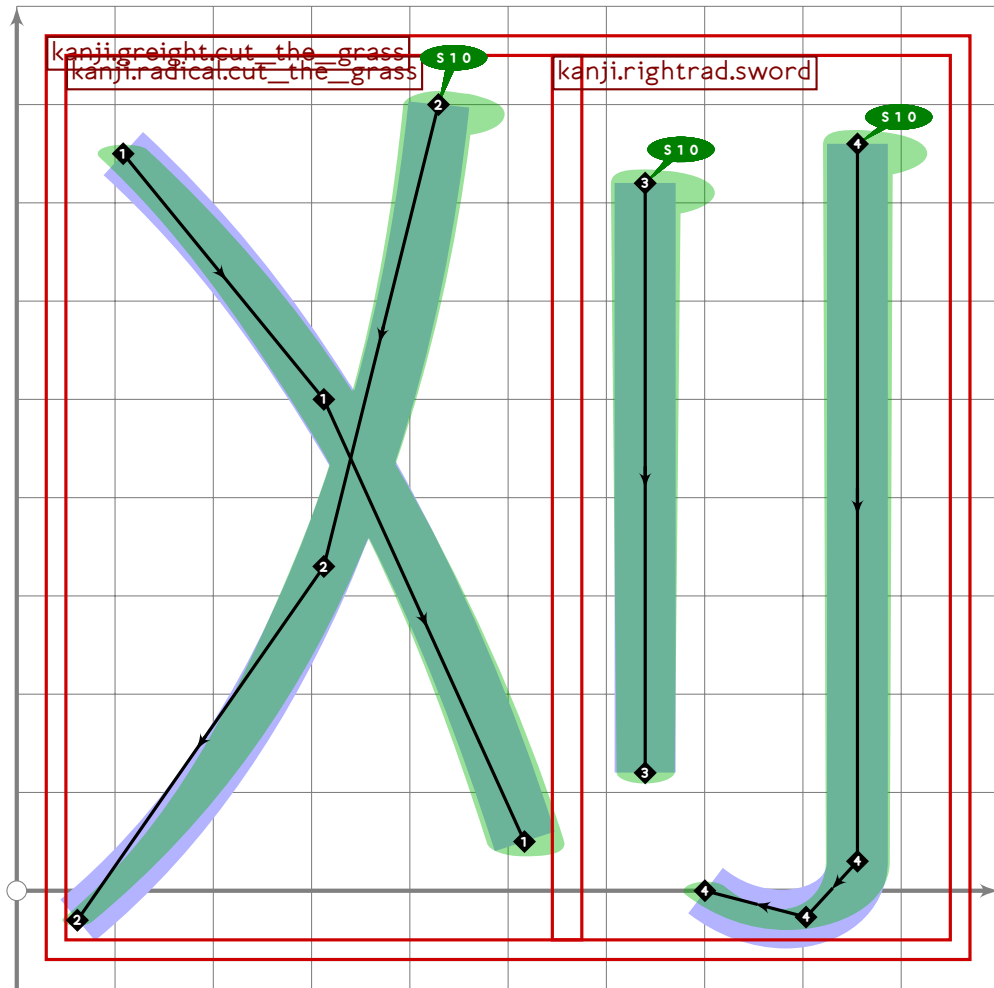
```



```

109
110 vardef kanji.grfive.conform =
111   push_pbox_toexpand("kanji.grfive.conform");
112   build_kanji.level(build_kanji.lr(560,30)
113     (kanji.grone.shell)
114     (kanji.rightrad.sword));
115   expand_pbox;
116 enddef;
117
118

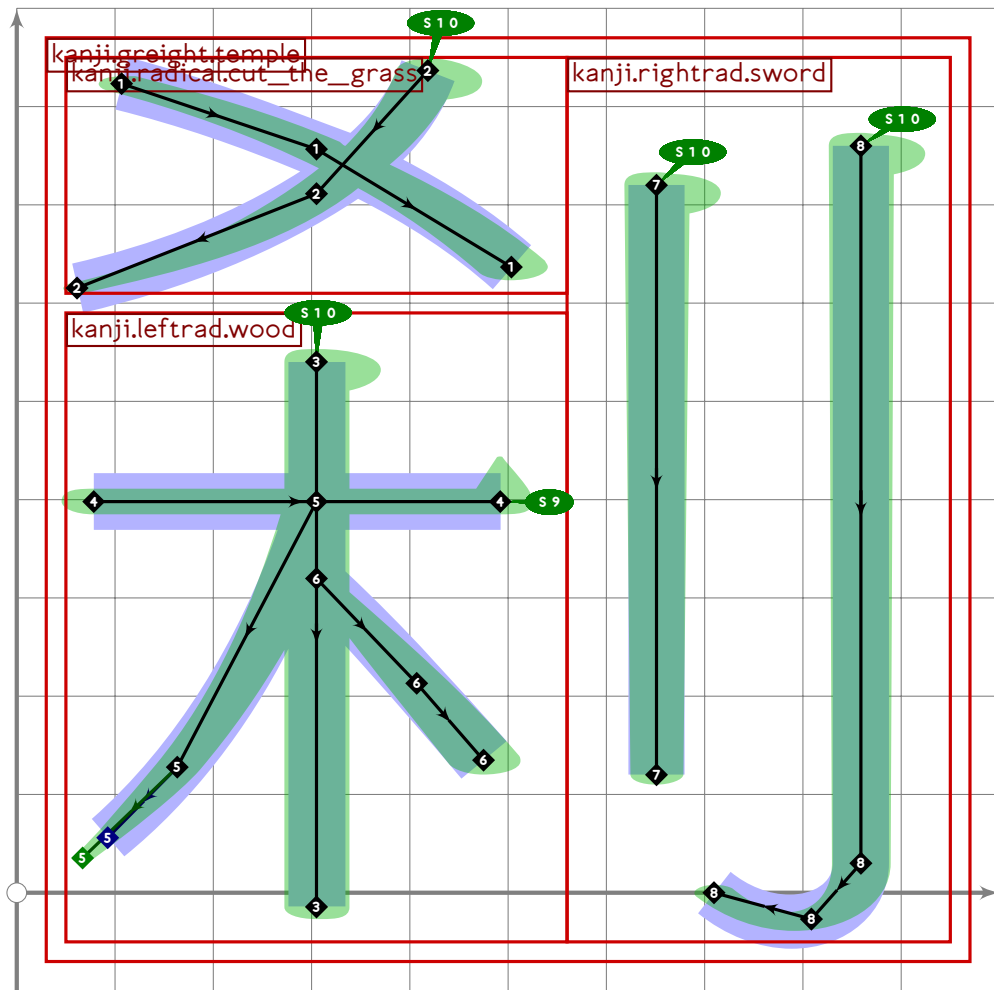
```



```

119
120 vardef kanji.greight.cut_the_grass =
121   push_pbox_toexpand("kanji.greight.cut_the_grass");
122   build_kanji.level(build_kanji.lr(560,30)
123     (kanji.radical.cut_the_grass)
124     (kanji.rightrad.sword));
125   expand_pbox;
126 enddef;

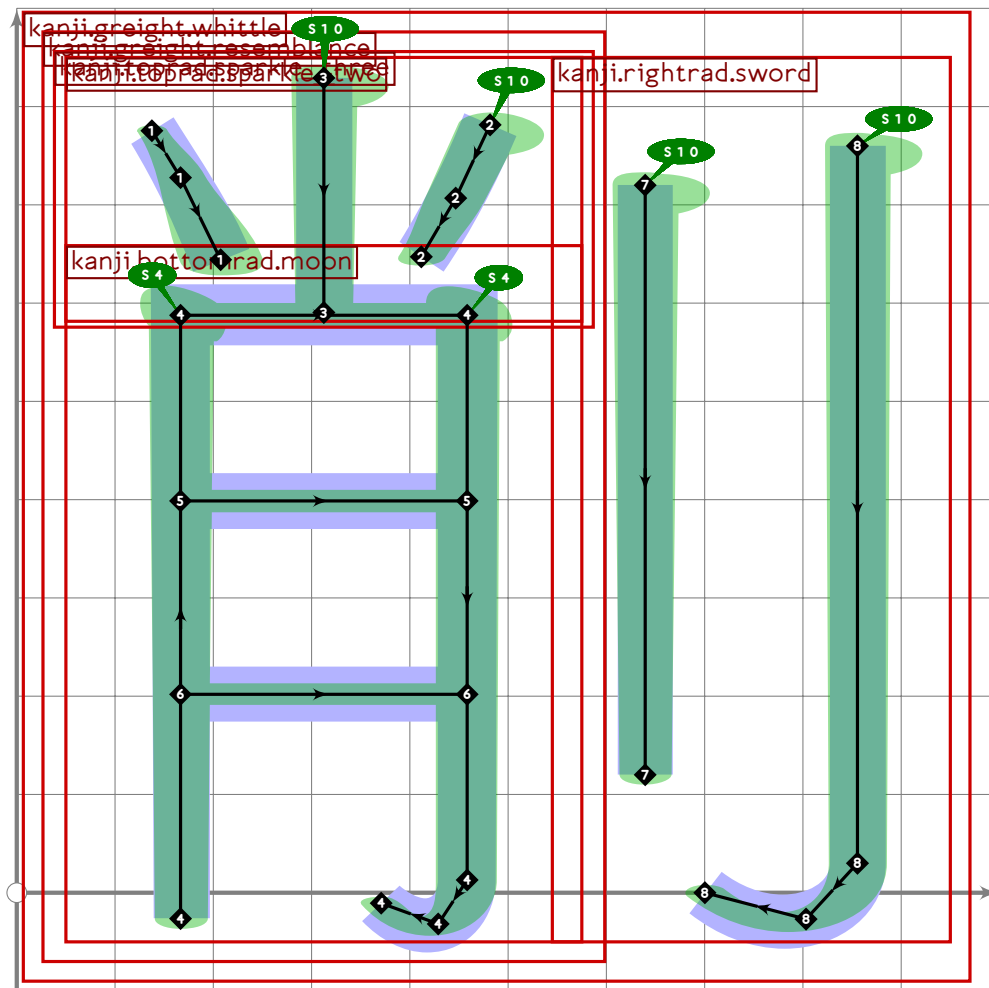
```



```

127
128 vardef kanji.greight.temple =
129   push_pbox_toexpand("kanji.greight.temple");
130   build_kanji.level(build_kanji.lr(560,0)
131     (build_kanji.tb(600,-20)
132       (kanji.radical.cut_the_grass)
133       (kanji.leftrad.wood))
134     (kanji.rightrad.sword));
135   expand_pbox;
136 enddef;

```



```

137
138 vardef kanji.greight.whittle =
139   push_pbox_toexpand("kanji.greight.whittle");
140   build_kanji.level(build_kanji.lr(560,30)
141     (kanji.greight.resemblance)
142     (kanji.rightrad.sword));
143   expand_pbox;
144 enddef;

```

```

145
146
147
148 % tou/katana "sword"
149 begintsuglyph("uni5200";0);
150   kanji.grtwo.sword;
151   tsu_render;
152 endtsuglyph;
153
154 % tou "sword radical"
155 begintsuglyph("uni5202";2);
156   kanji.rightrad.sword;
157   tsu_render;

```

[see page 468]

[see page 1379]

```

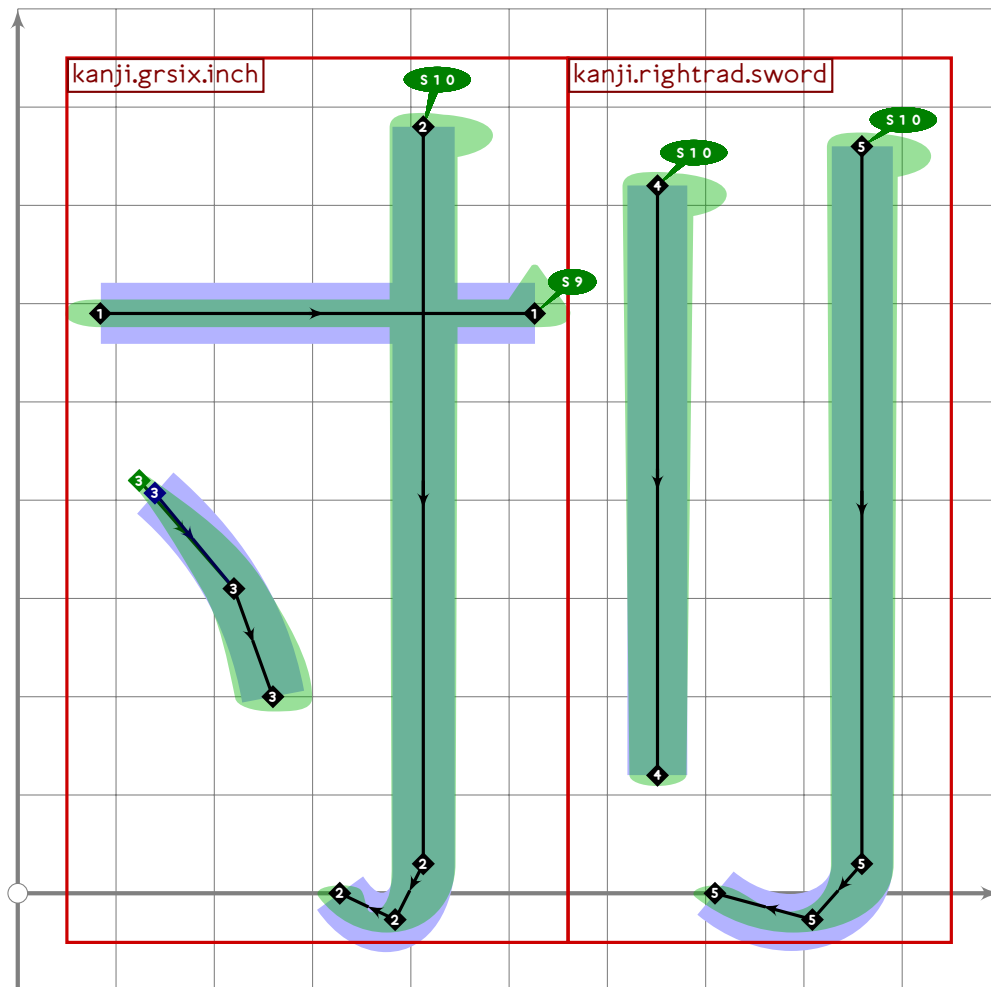
158 endtsuglyph;
159
160 % bun/wa "minute" or "understand" (wakarimasu ka?)
161 begintsuglyph("uni5206";6);
162 kanji.grtwo.minute;
163 tsu_render;
164 endtsuglyph;
165
166 % setsu/ki "cut"
167 begintsuglyph("uni5207";7);
168 kanji.grtwo.cut;
169 tsu_render;
170 endtsuglyph;
171
172 % gai/ka "mow"
173 begintsuglyph("uni5208";8);
174 kanji.greight.cut_the_grass;
175 tsu_render;
176 endtsuglyph;
177

```

[see page 451]

[see page 1381]

[see page 1385]



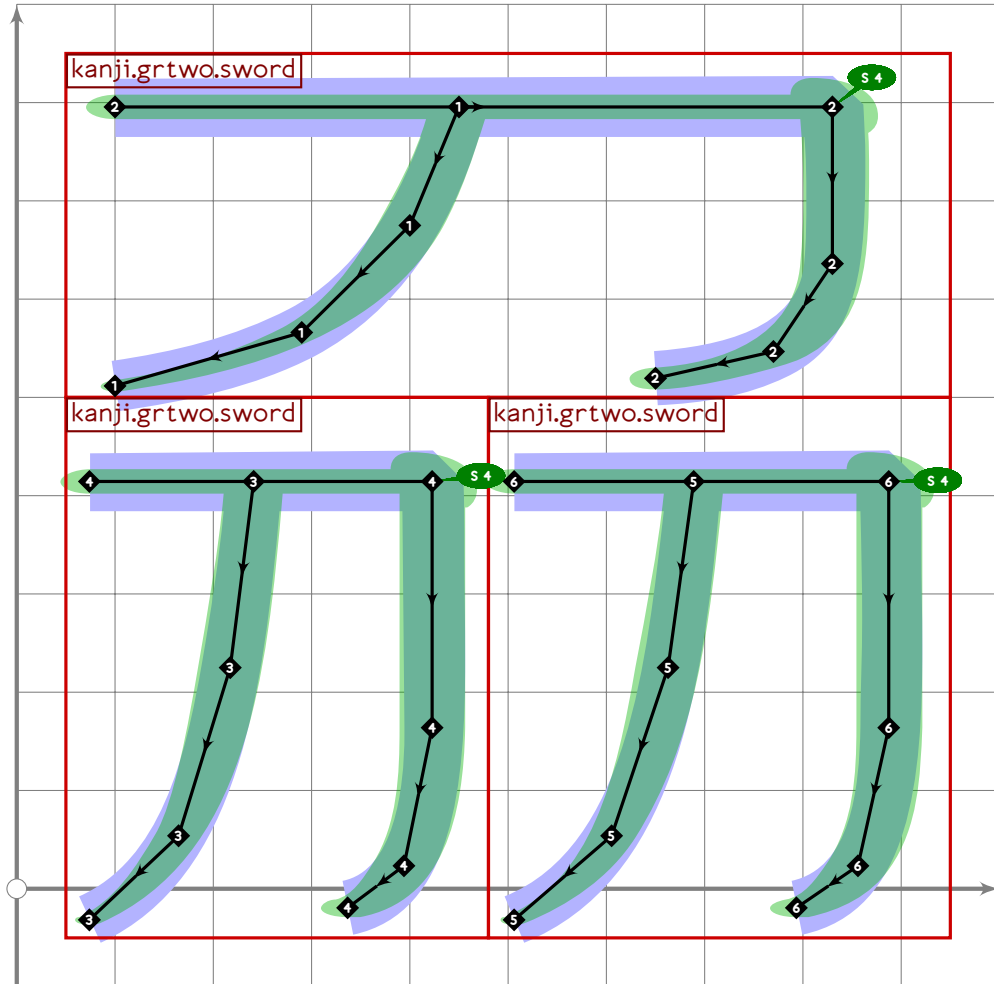
178 % extra



```

179 begint Suglyph("uni520C";12);
180 build_kanji.level(build_kanji.lr(560,0)
181   (kanji.grsix.inch)
182   (kanji.rightrad.sword));
183 tsu_render;
184 endtsuglyph;
185

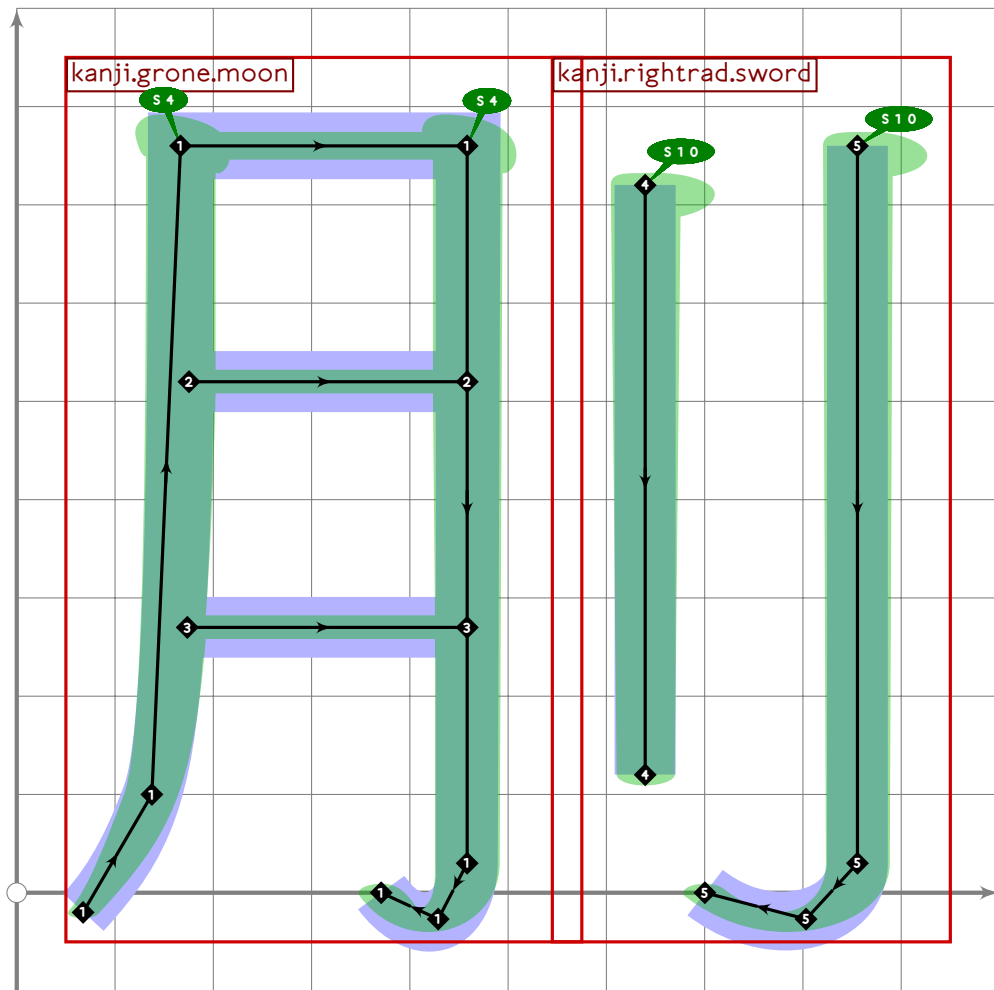
```



```

186 % extra
187 begint Suglyph("uni5215";21);
188 build_kanji.level(build_kanji.tricluster(1)
189   (kanji.grtwo.sword)
190   (kanji.grtwo.sword)
191   (kanji.grtwo.sword));
192 tsu_render;
193 endtsuglyph;
194

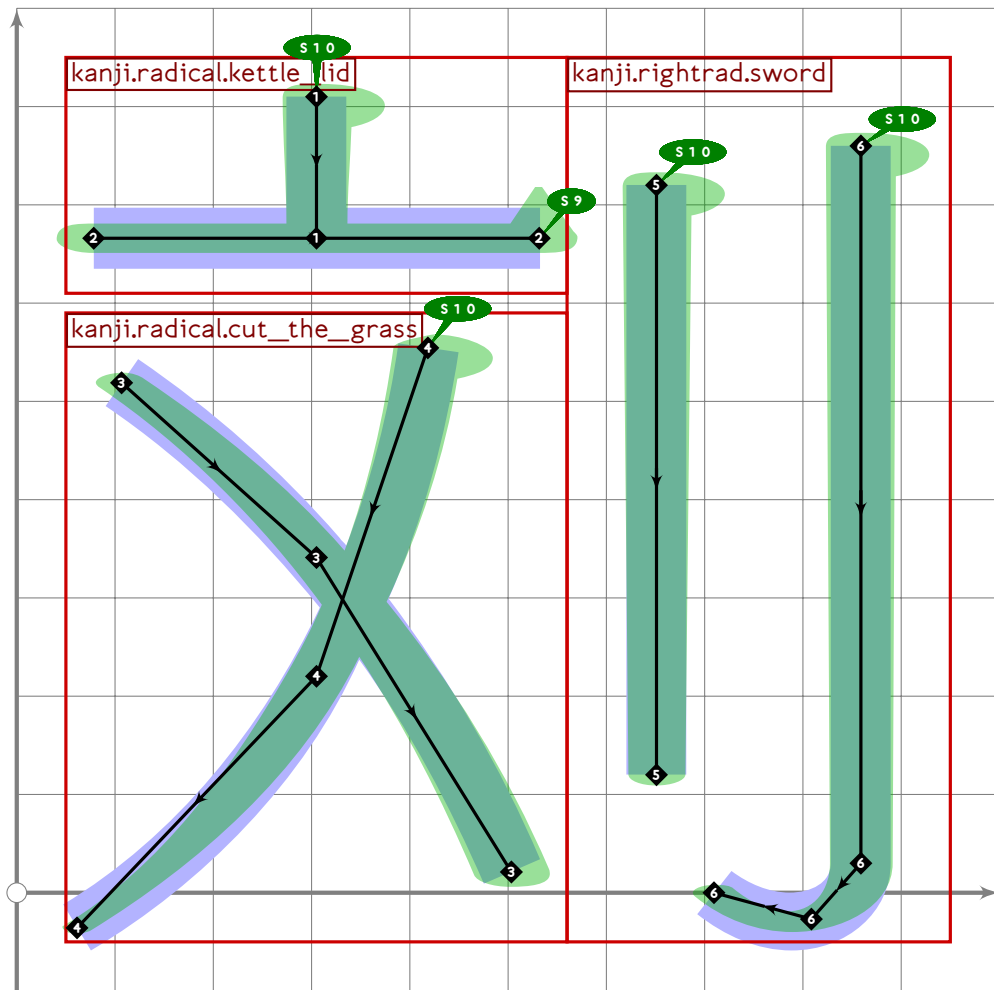
```



```

195 % extra: punishment by cutting off the feet (wtf?)
196 begintsuglyph("uni5216";22);
197 build_kanji.level(build_kanji.lr(560,30)
198     (kanji.grone.moon)
199     (kanji.rightrad.sword));
200 tsu_render;
201 endsuglyph;
202

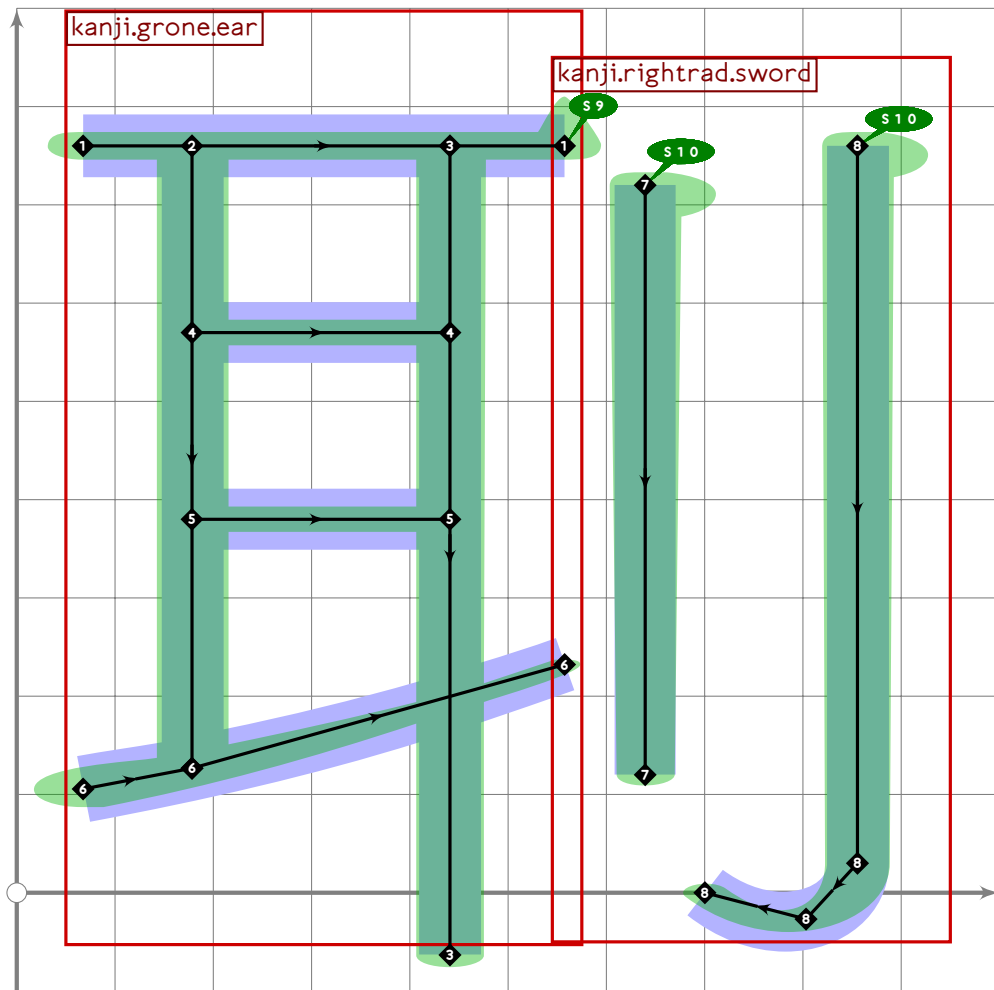
```



```

203 % extra: kill, destroy
204 begint Suglyph("uni5218";24);
205 build_kanji.level(build_kanji.lr(560,0)
206     (build_kanji.tb(600,-20)
207         (kanji.radical.kettle_lid)
208         (kanji.radical.cut_the_grass))
209     (kanji.rightrad.sword));
210 tsu_render;
211 endtsuglyph;
212

```



```

213 % extra: punishment by cutting off the ears
214 begintsuglyph("uni5235",53);
215 build_kanji.level(build_kanji.lr(560,30)
216 (tsu_xform(identity yscaled (760/720))(kanji.grone.ear))
217 (kanji.rightrad.sword));
218 tsu_render;
219 endtsuglyph;
220
221 % satsu "temple/central pillar of pagoda"
222 begintsuglyph("uni5239",57);
223 kanji.greight.temple;
224 tsu_render;
225 endtsuglyph;
226
227 % soku/notto "conform"
228 begintsuglyph("uni5247",71);
229 kanji.grfive.conform;
230 tsu_render;
231 endtsuglyph;
232
233 % saku/kezu "whittle, sharpen, plane"

```

[see page 1386]

[see page 1384]

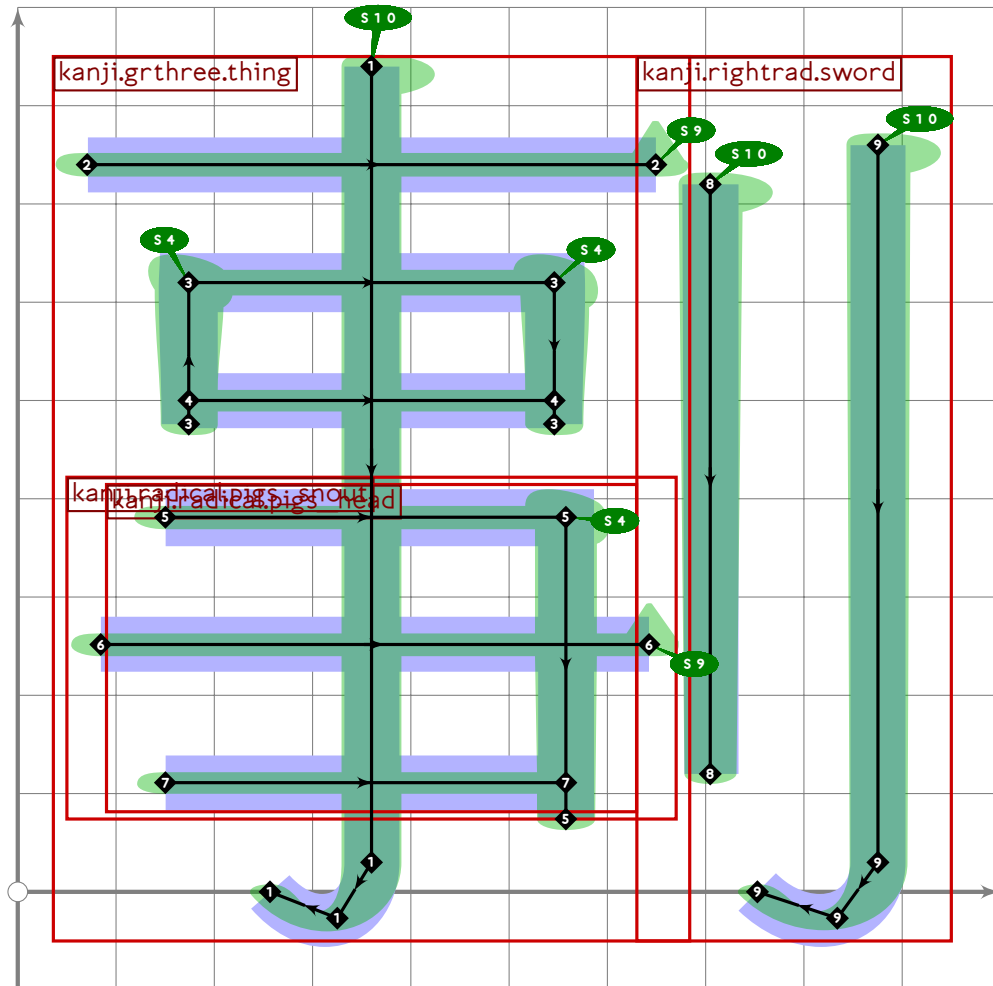
```

234 begintsuglyph("uni524A";74);
235 kanji.greight.whittle;
236 tsu_render;
237 endtsuglyph;
238
239 % zen/mae "before"
240 begintsuglyph("uni524D";77);
241 kanji.grtwo.before;
242 tsu_render;
243 endtsuglyph;
244

```

[see page 1387]

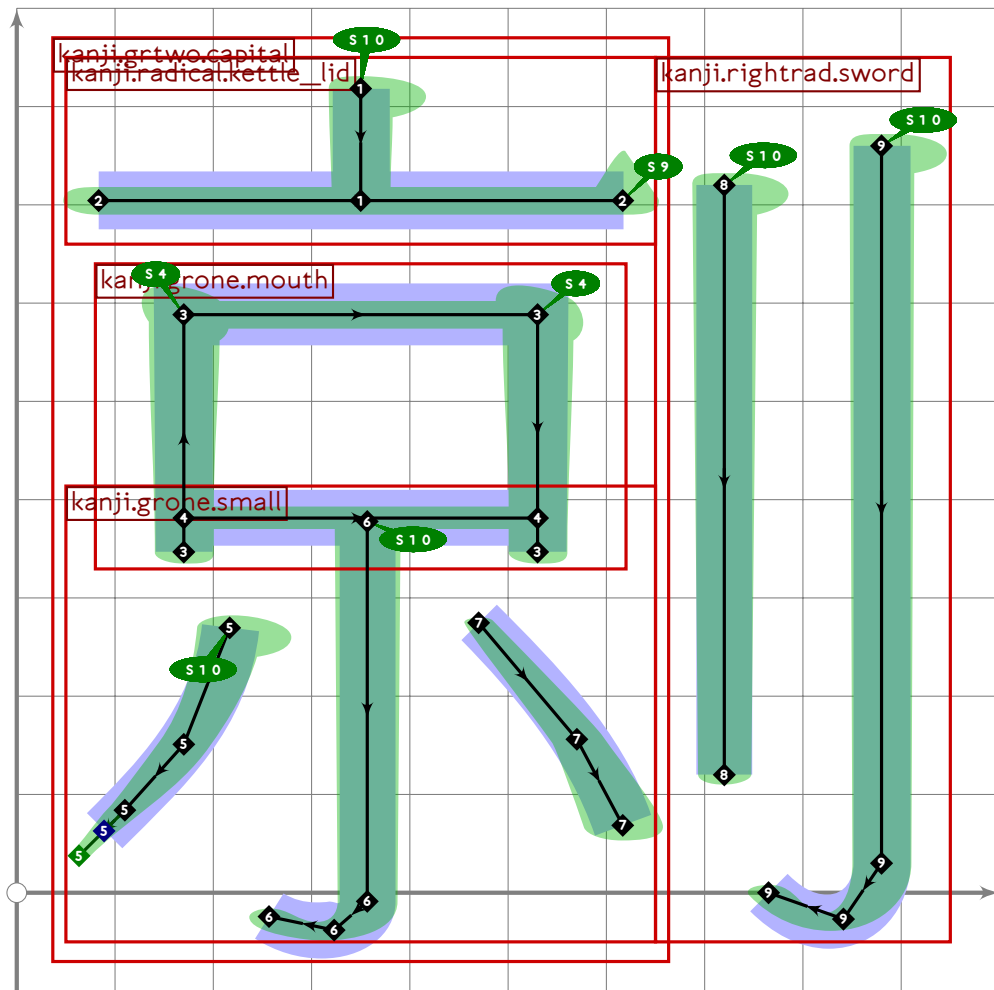
[see page 1380]



```

245 % extra: "stab"
246 begintsuglyph("uni525A";90);
247 build_kanji.level(build_kanji.lr(650,40)
248   (kanji.grthree.thing)
249   (kanji.rightrad.sword));
250 tsu_render;
251 endtsuglyph;
252

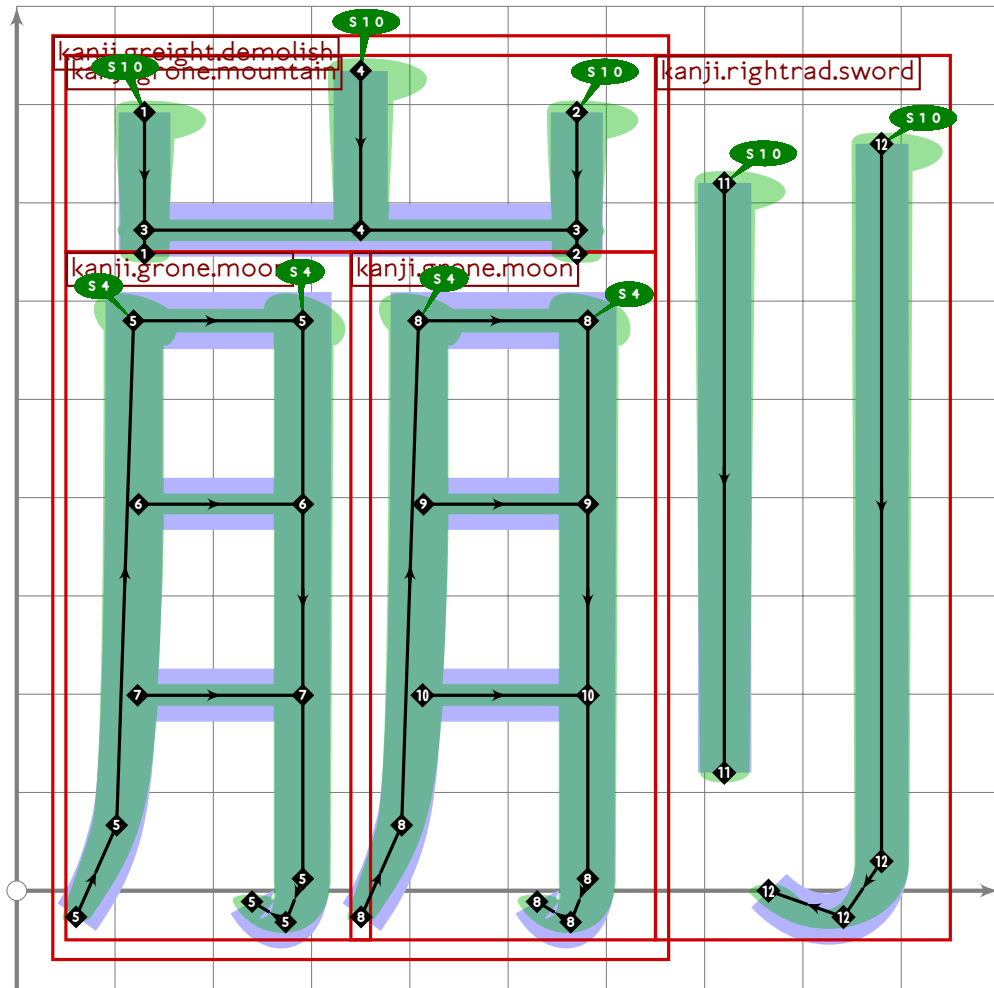
```



```

253 % extra: "brand" (probably yet another criminal punishment)
254 begintsuglyph("uni5260";96);
255 build_kanji.level(build_kanji.lr(650,0)
256   (kanji.grtwo.capital)
257   (kanji.righthtrad.sword));
258 tsu_render;
259 endsuglyph;
260

```



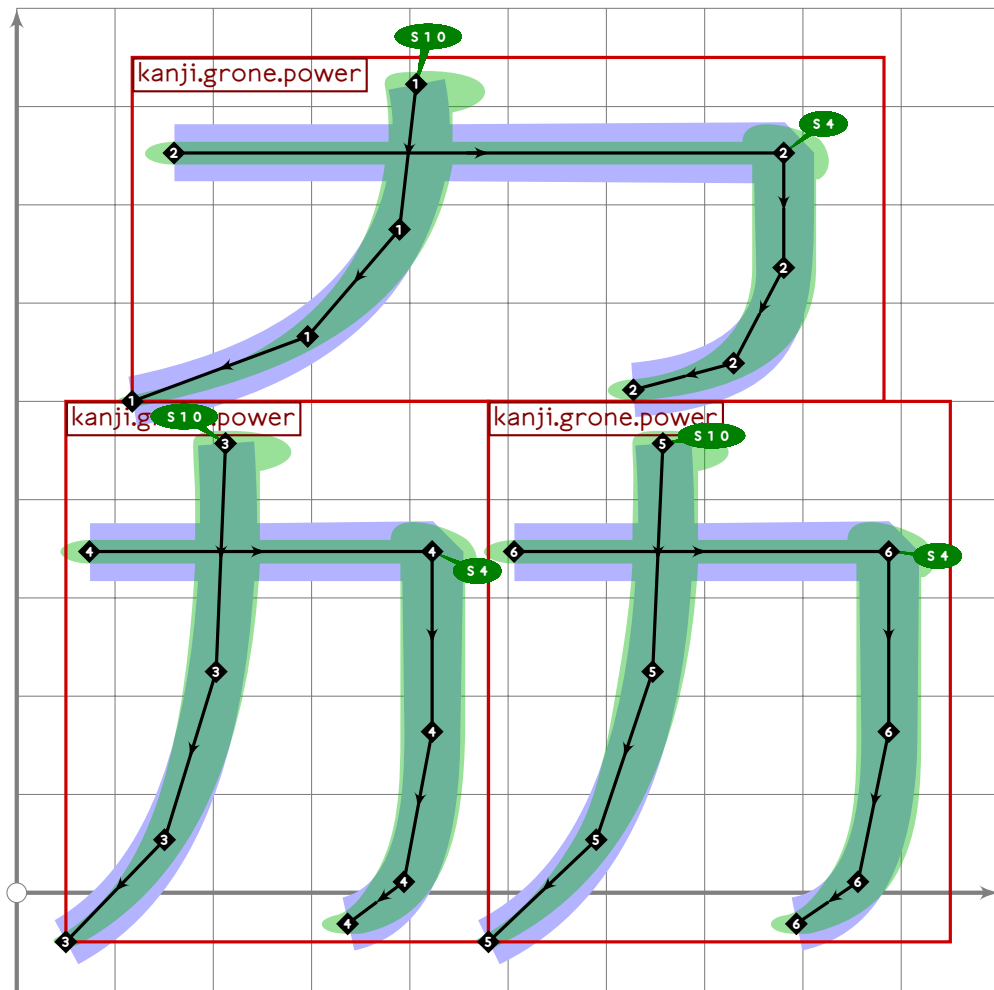
```

261 % extra
262 begintsuglyph("uni527B";123);
263 build_kanji.level(build_kanji.lr(650,0)
264   (kanji.greight.demolish)
265   (kanji.rightrad.sword));
266 tsu_render;
267 endtsuglyph;
268
269 % ryoku "power", as in Koizumi Itsuki has teh "chounouryoku"
270 begintsuglyph("uni529B";155);
271 kanji.grone.power;
272 tsu_render;
273 endtsuglyph;
274
275 % kuwa "addition", also "Canada"
276 begintsuglyph("uni52A0";160);
277 kanji.grfour.addition;
278 tsu_render;
279 endtsuglyph;
280

```

[see page 404]

[see page 1383]



```

281 % extra
282 begintsuglyph("uni52A6",166);
283   build_kanji.level(build_kanji.tricluster(0.85)
284     (kanji.grone.power)
285     (kanji.grone.power)
286     (kanji.grone.power));
287   tsu_render;
288 endsuglyph;
289
290 % jo/tasu "help"
291 begintsuglyph("uni52A9",169);
292   kanji.grthree.help;
293   tsu_render;
294 endsuglyph;
295
296 % hou/tsutsu "wrapping radical"
297 begintsuglyph("uni52F9",249);
298   kanji.radical.wrapping;
299   tsu_render;
300 endsuglyph;
301

```

[see page 1382]

[see page 361]



```
302 % shaku "ladle" (also a unit of measure)
303 begintsuglyph\("uni52FA";250\); [see page 533]
304 kanji.greight.ladle;
305 tsu\_render;
306 endtsuglyph;
307
308 % mochi/naka "not", esp. "must not"
309 begintsuglyph\("uni52FF";255\); [see page 546]
310 kanji.grnine.must\_not;
311 tsu\_render;
312 endtsuglyph;
313
314 

---


315
316 endfont;
317
318 

---


```

# tsuku-53.mp

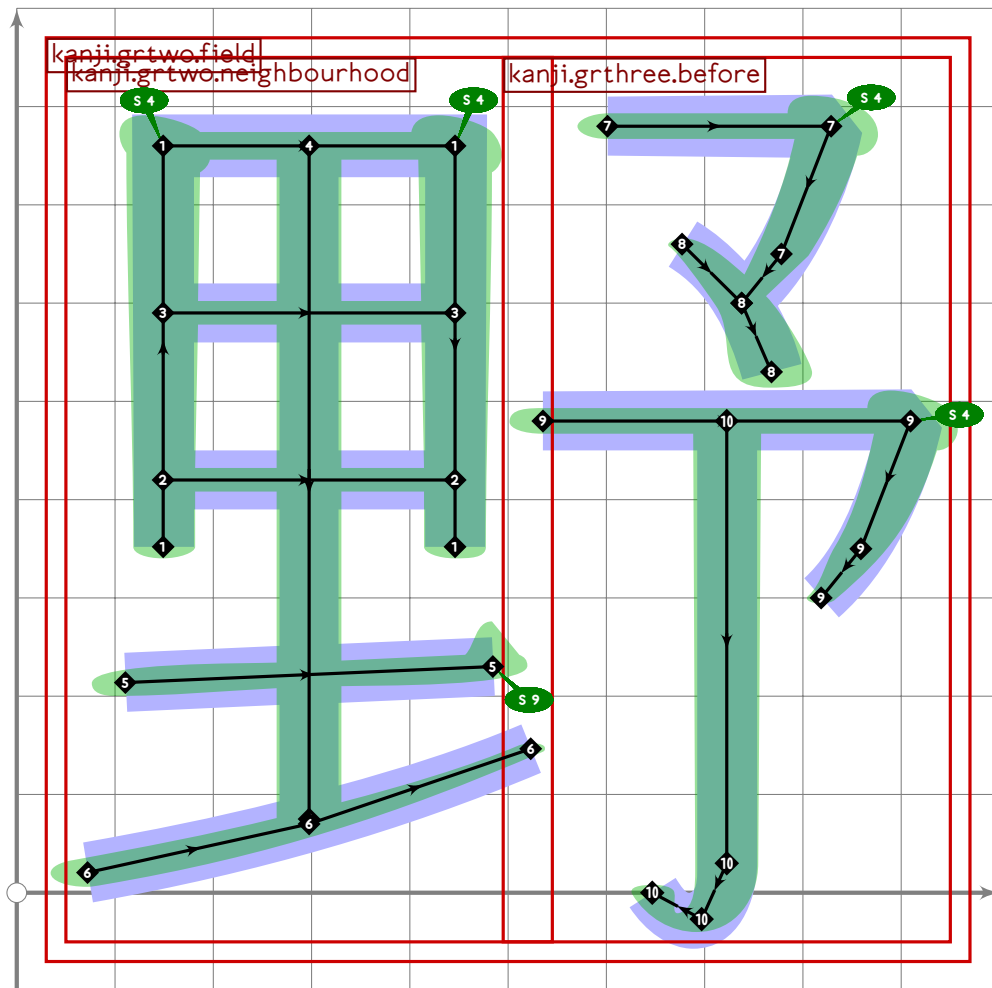
```
1 %
2 % Unicode page 53 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradefive.mp;
39 input gradefour.mp;
40 input gradenine.mp;
41 input gradeone.mp;
42 input gradesix.mp;
43 input gradethree.mp;
44 input gradetwo.mp;
45 input leftrad.mp;
46 input radical.mp;
47 input rare.mp;
48 input toprad.mp;
49
50 

---

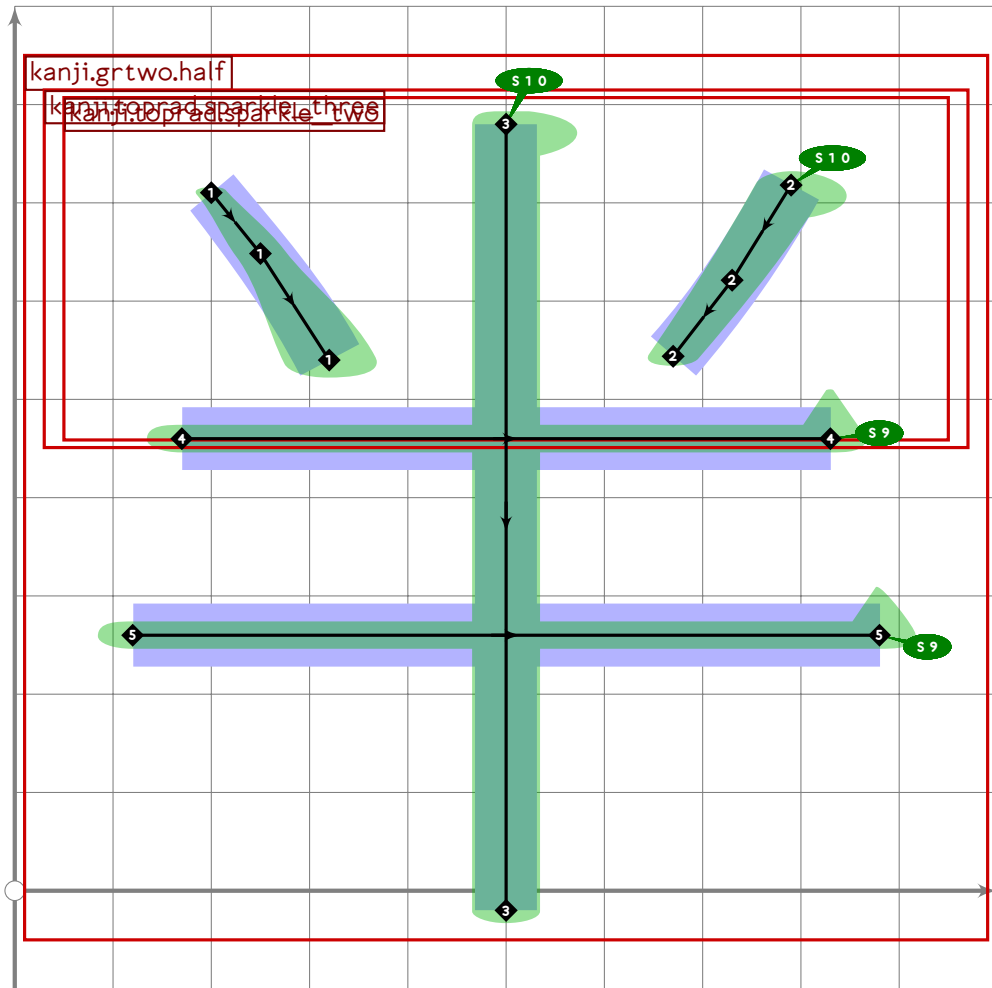

```



```

51
52 vardef kanji.grtwo.field =
53   push_pbox_toexpand("kanji.grtwo.field");
54   build_kanji.level(build_kanji.cliff_enclose(
55     build_kanji.tb(380,67)
56     (kanji.grone.white)
57     (kanji.grone.small)));
58   begingroup
59     save myxf;
60     transform myxf;
61     point 2 of get_strokep(-6) transformed myxf=point 2 of get_strokep(-6);
62     ypart (point 0 of get_strokep(-6) transformed myxf)=760;
63     xpart myxf=yxpart myxf=0;
64     xxpart myxf=1;
65     replace_strokep(-6)(oldp transformed myxf);
66   endgroup;
67   set_boserif(-6,0,whatever);
68   set_boserif(-1,0,whatever);
69   expand_pbox;
70 enddef;

```



```

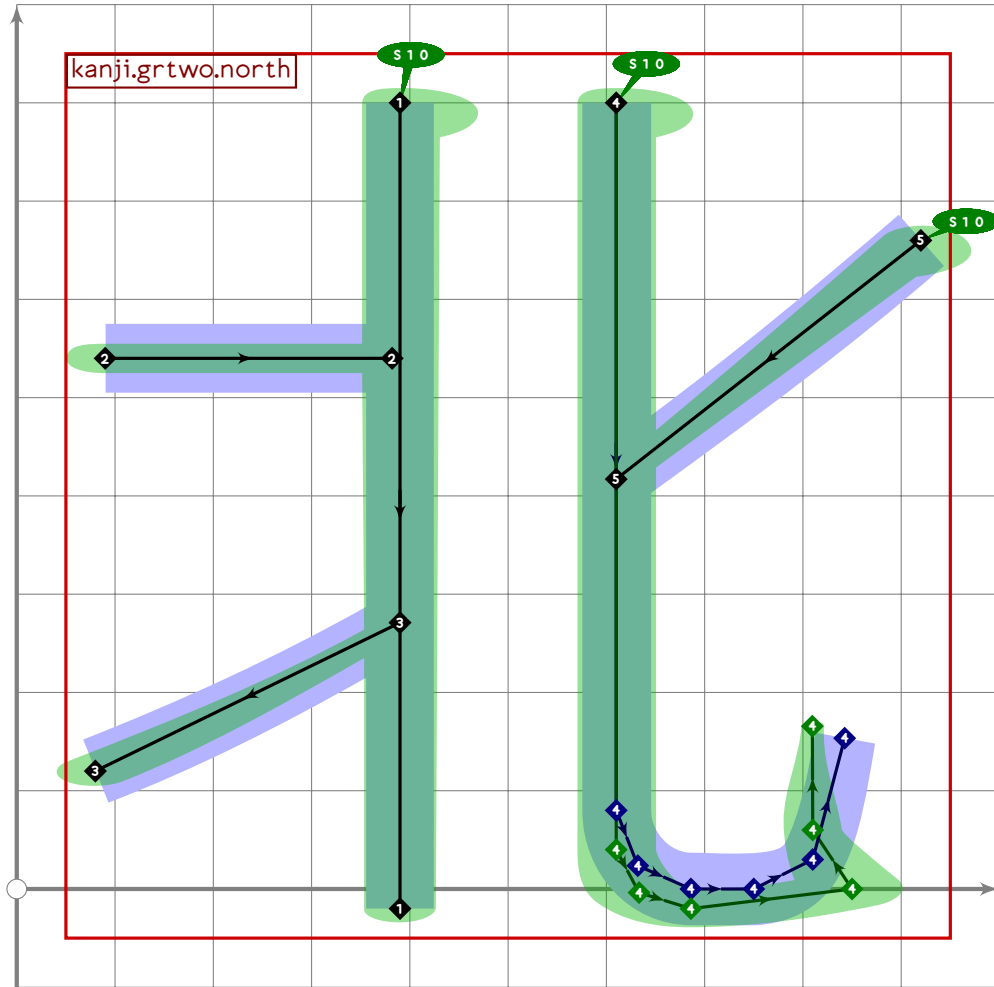
71
72 vardef kanji.grtwo.half =
73   push_pbox_toexpand("kanji.grtwo.half");
74   build_kanji.level(begingroup
75     save saved_path,mytr;
76     path saved_path;
77     transform mytr;
78     xpart mytr=xy part mytr=yx part mytr=0;
79     xx part mytr=1;
80     (500,160) transformed mytr=(500,540);
81     (500,780) transformed mytr=(500,780);
82     tsu_xform(mytr)
83     (kanji.toprad.sparkle_three;sav ed_path:=get_strokep(0));
84     replace_strokep(0)(sav ed_path);
85     push_stroke((170,460)-(830,460),
86       (1.6,1.6)-(1.6,1.6));
87     set_boserif(0,1,9);
88     push_stroke((120,260)-(880,260),
89       (1.6,1.6)-(1.6,1.6));
90     set_boserif(0,1,9);
91   endgroup);

```

```

92 expand_pbox;
93 enddef;

```



```

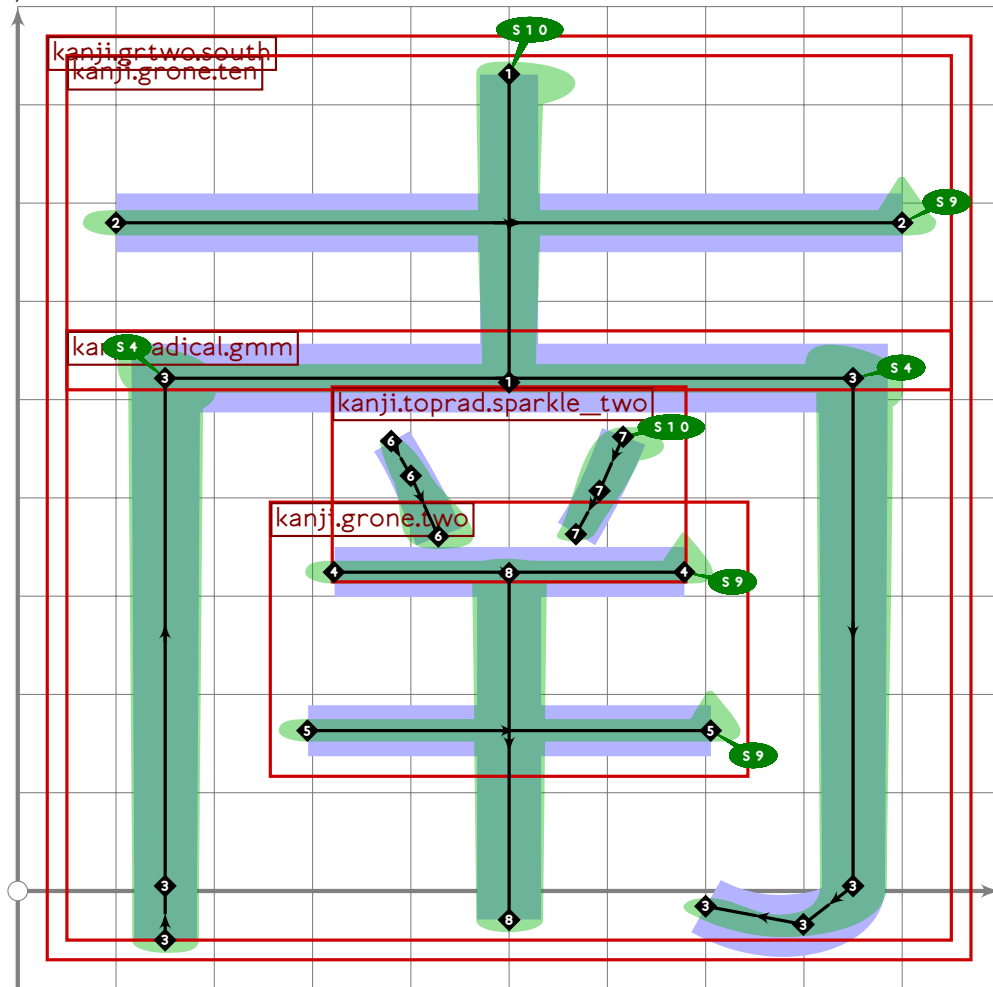
94
95 vardef kanji.grtwo.north =
96   push_pbox_toexpand("kanji.grtwo.north");
97   push_stroke((390,800)-(390,-20),(1.6,1.6)-(1.5,1.5));
98   set_boserif(0,0,10);
99   push_stroke((90,540)-(382,540),(1.6,1.6)-(1.6,1.6));
100  push_stroke((920,660)..tension 1.2..(500,340)..(80,120),
101    (1.1,1.1)-(1.6,1.6));
102  push_stroke((610,800),(1.6,1.6));
103  build_kanji.add_ltail(0);
104  set_boserif(0,0,10);
105  push_stroke(subpath
106    (0,xpart (get_stroke(-1) intersectiontimes get_stroke(0)))
107    of get_stroke(-1),
108    (1.6,1.6)-(1.1,1.1));
109  set_boserif(0,0,10);
110  replace_stroke(-2)(subpath
111    (xpart (oldp intersectiontimes get_stroke(-4)),infinity)
112    of oldp);

```

```

113 expand_pbox;
114 enddef;

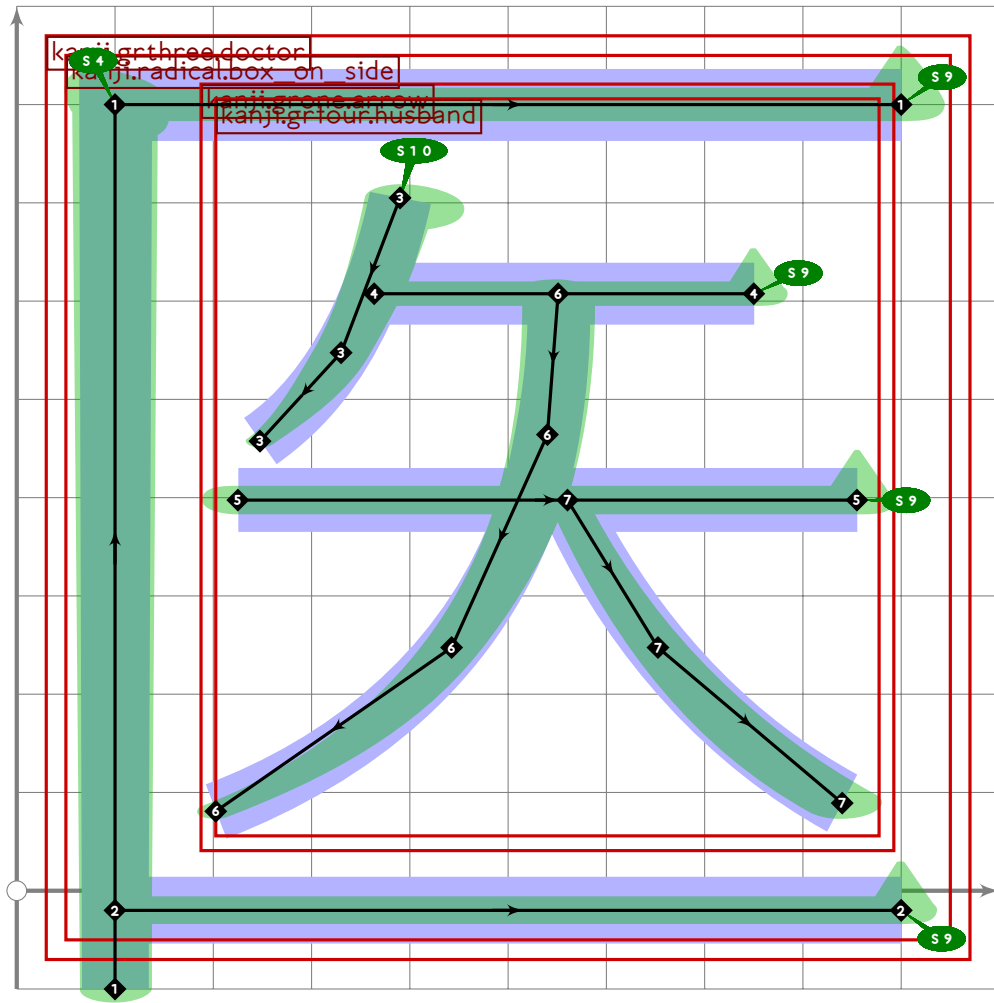
```



```

115
116 vardef kanji.grtwo.south =
117   push_pbox_toexpand("kanji.grtwo.south");
118   build_kanji.tb(540,60)
119     (kanji.grone.ten)
120     (kanji.radical.gmm;
121       build_kanji.sscale(xyscaled (0.54,0.45))(kanji.grone.two);
122       build_kanji.sscale(xyscaled (0.4,0.32) shifted (0,230))
123         (kanji.toprad.sparkle_two);
124       push_stroke((500,492)-(500,-20),(1.6,1.6)-(1.5,1.5));
125     );
126   expand_pbox;
127 enddef;
128
129

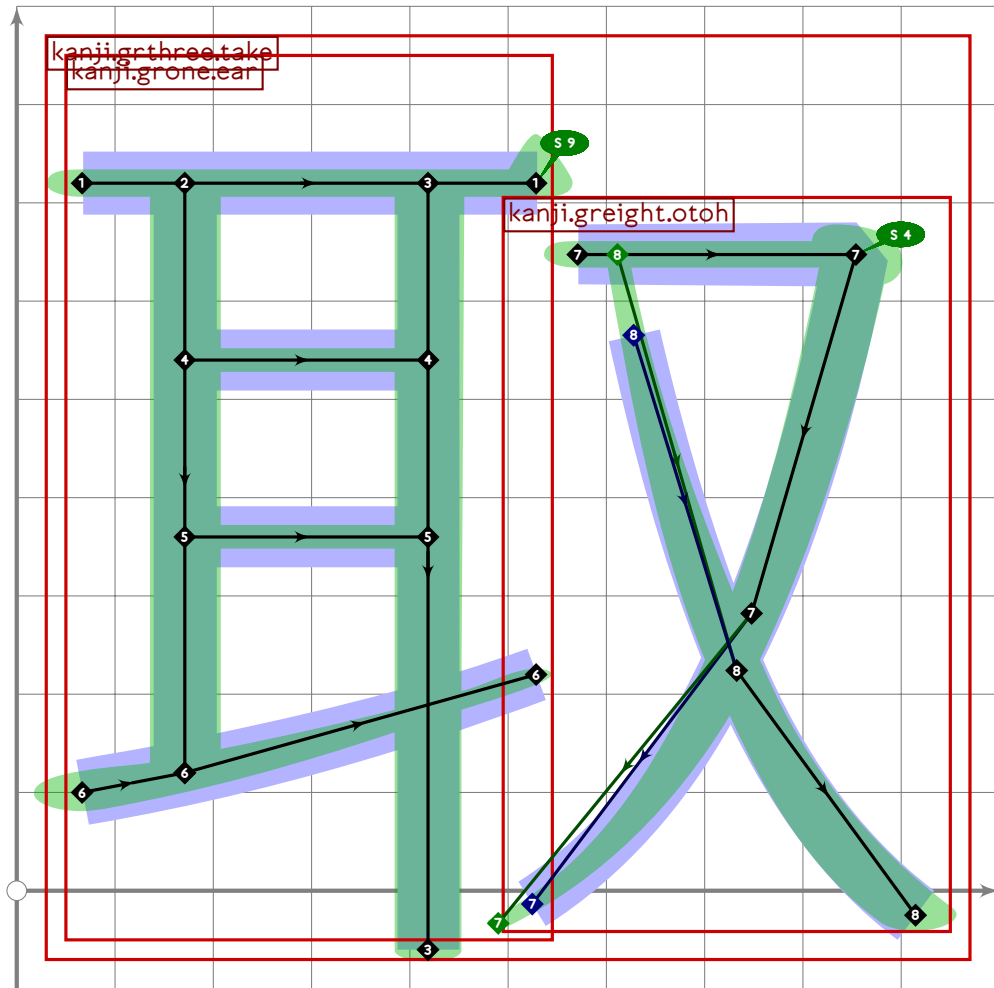
```



```

130
131 vardef kanji.grthree.doctor =
132   push_pbox_toexpand("kanji.grthree.doctor");
133   kanji.radical.box_on_side;
134   build_kanji.sscale(scaled 0.75 shifted (40,0))(kanji.grtwo.arrow);
135   expand_pbox;
136 enddef;

```



```

137
138 vardef kanji.grthree.take =
139   push_pbox_toexpand("kanji.grthree.take");
140   build_kanji.lr(520,50)
141     (kanji.grone.ear)
142     (tsu_xform(identity yscaled 0.83)(kanji.greight.otoh));
143   expand_pbox;
144 enddef;
145
146
147
148 % by itself means "be flustered"
149 begintsuglyph("uni5306",6); [see page 340]
150   kanji.radical.crossed_must_not;
151   tsu_render;
152 endtsuglyph;
153
154 % hi/saji "spoon"
155 begintsuglyph("uni5315",21); [see page 356]
156   kanji.radical.spoon;
157   tsu_render;

```



158 endtsuglyph;  
159  
160 % ka/ba "change"  
161 begintsuglyph("uni5316",22); [see page 478]  
162 kanji.grthree.change;  
163 tsu\_render;  
164 endtsuglyph;  
165  
166 % hoku/kita "north"  
167 begintsuglyph("uni5317",23); [see page 1401]  
168 kanji.grtwo.north;  
169 tsu\_render;  
170 endtsuglyph;  
171  
172 % hou/hakogamae "box on side radical"  
173 begintsuglyph("uni531A",26); [see page 338]  
174 kanji.radical.box\_on\_side;  
175 tsu\_render;  
176 endtsuglyph;  
177  
178 % kyou/suku "deliverance"  
179 begintsuglyph("uni5321",33); [see page 545]  
180 kanji.grnine.deliverance;  
181 tsu\_render;  
182 endtsuglyph;  
183  
184 % i "doctor"  
185 begintsuglyph("uni533B",59); [see page 1403]  
186 kanji.grthree.doctor;  
187 tsu\_render;  
188 endtsuglyph;  
189  
190 % juu/too "ten"  
191 begintsuglyph("uni5341",65); [see page 414]  
192 kanji.grone.ten;  
193 tsu\_render;  
194 endtsuglyph;  
195  
196 % sen "one thousand"  
197 begintsuglyph("uni5343",67); [see page 401]  
198 kanji.grone.one\_thousand;  
199 tsu\_render;  
200 endtsuglyph;  
201  
202 % han/naka "half"  
203 begintsuglyph("uni534A",74); [see page 1400]  
204 kanji.grtwo.half;  
205 tsu\_render;

```

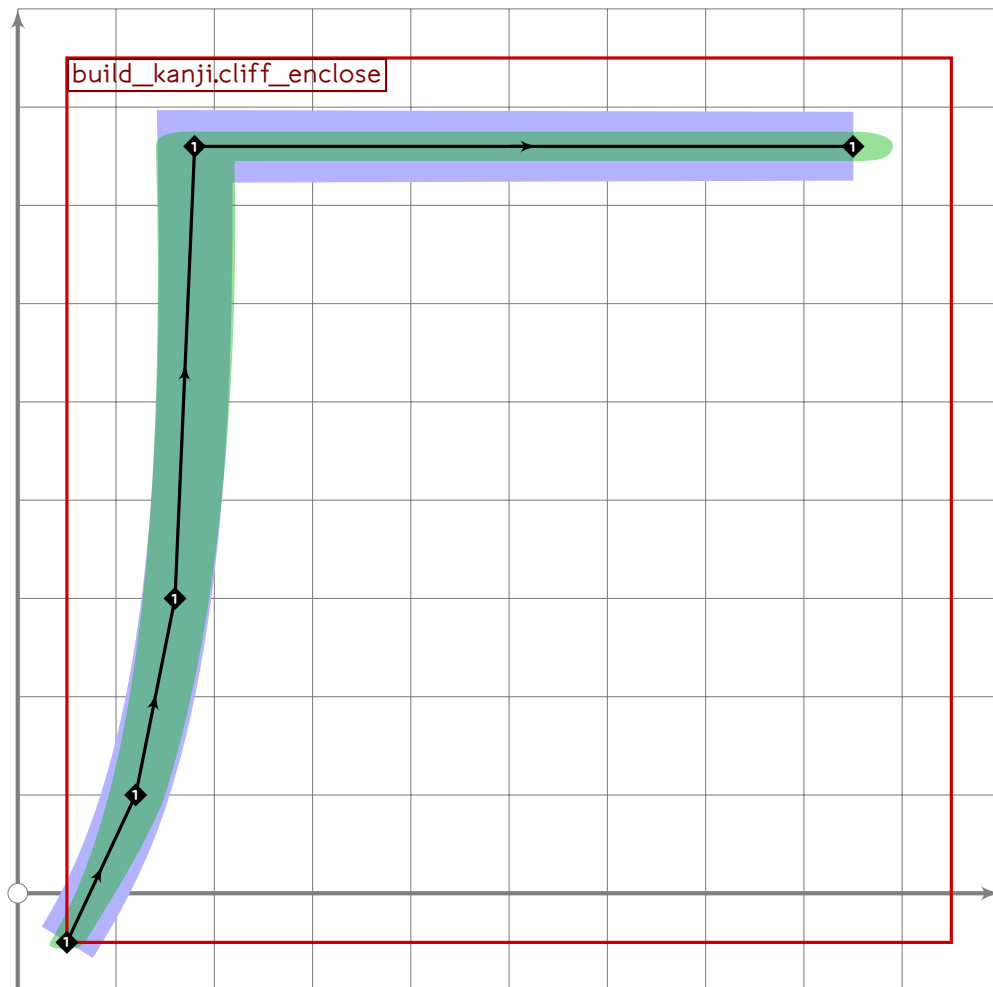
206 endtsuglyph;
207
208 % go/uma "noon"
209 begintsuglyph("uni5348";72);
210 kanji.grtwo.noon;
211 tsu_render;
212 endtsuglyph;
213
214 % nan/minami "south"
215 begintsuglyph("uni5357";87);
216 kanji.grtwo.south;
217 tsu_render;
218 endtsuglyph;
219
220 % sen/urana "divination"
221 begintsuglyph("uni5360";96);
222 kanji.greight.divination;
223 tsu_render;
224 endtsuglyph;
225

```

[see page 456]

[see page 1402]

[see page 528]



```

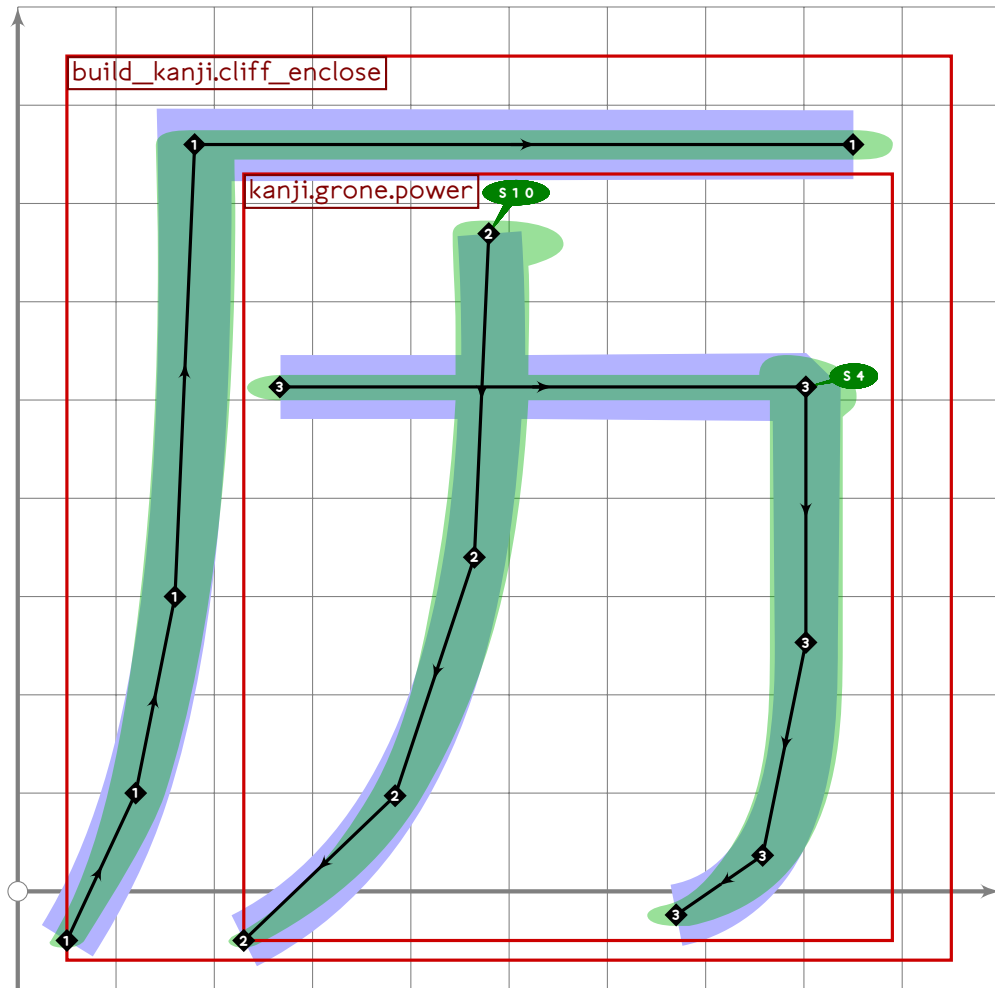
226 % karigane "cliff radical"

```

```

227 begint Suglyph("uni5382",130);
228 build_kanji.cliff_enclose();
229 tsu_render;
230 endtsuglyph;
231

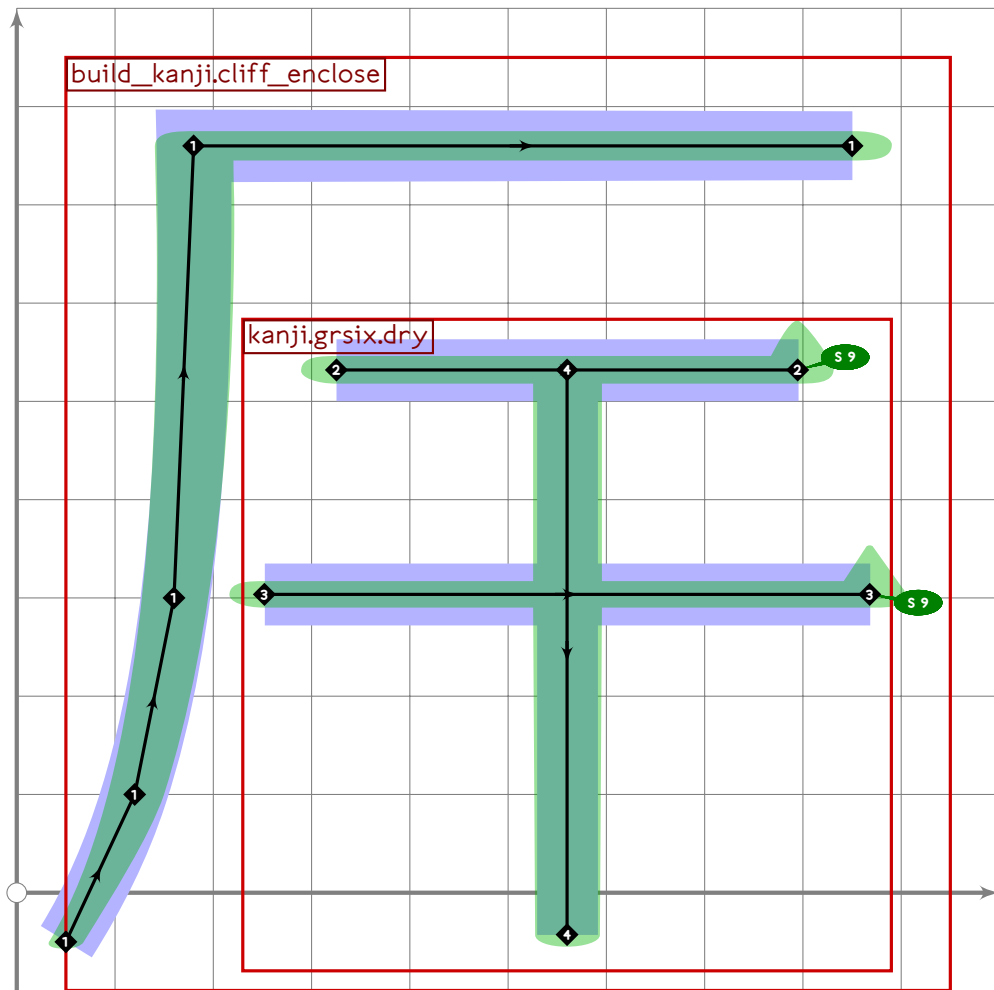
```



```

232 % extra
233 begint Suglyph("uni5386",134);
234 build_kanji.cliff_enclose(kanji.grone.power);
235 tsu_render;
236 endtsuglyph;
237

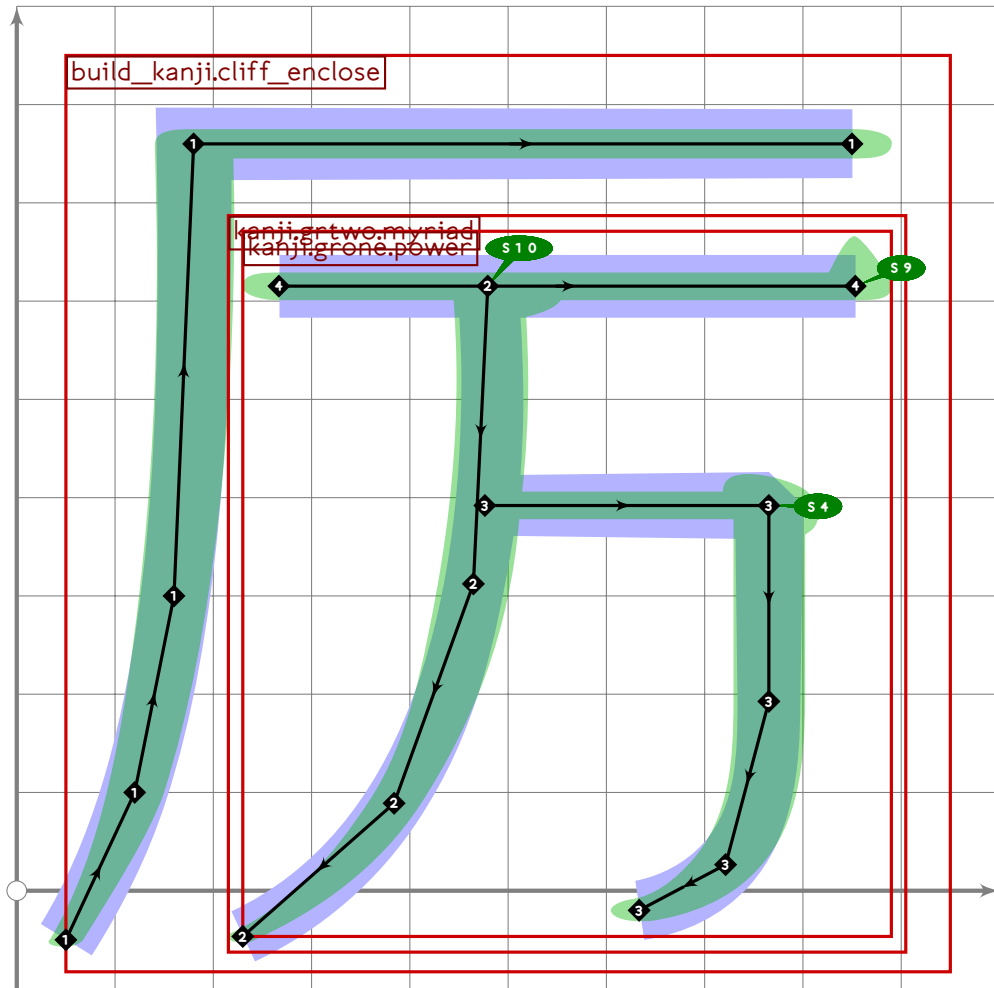
```



```

238 % extra
239 begint Suglyph("uni5388",136);
240 build_kanji.cliff_enclose(build_kanji.sscale(yscaled 0.85 shifted (0,-100))
241   (kanji.grsix.dry));
242 tsu_render;
243 endsuglyph;
244

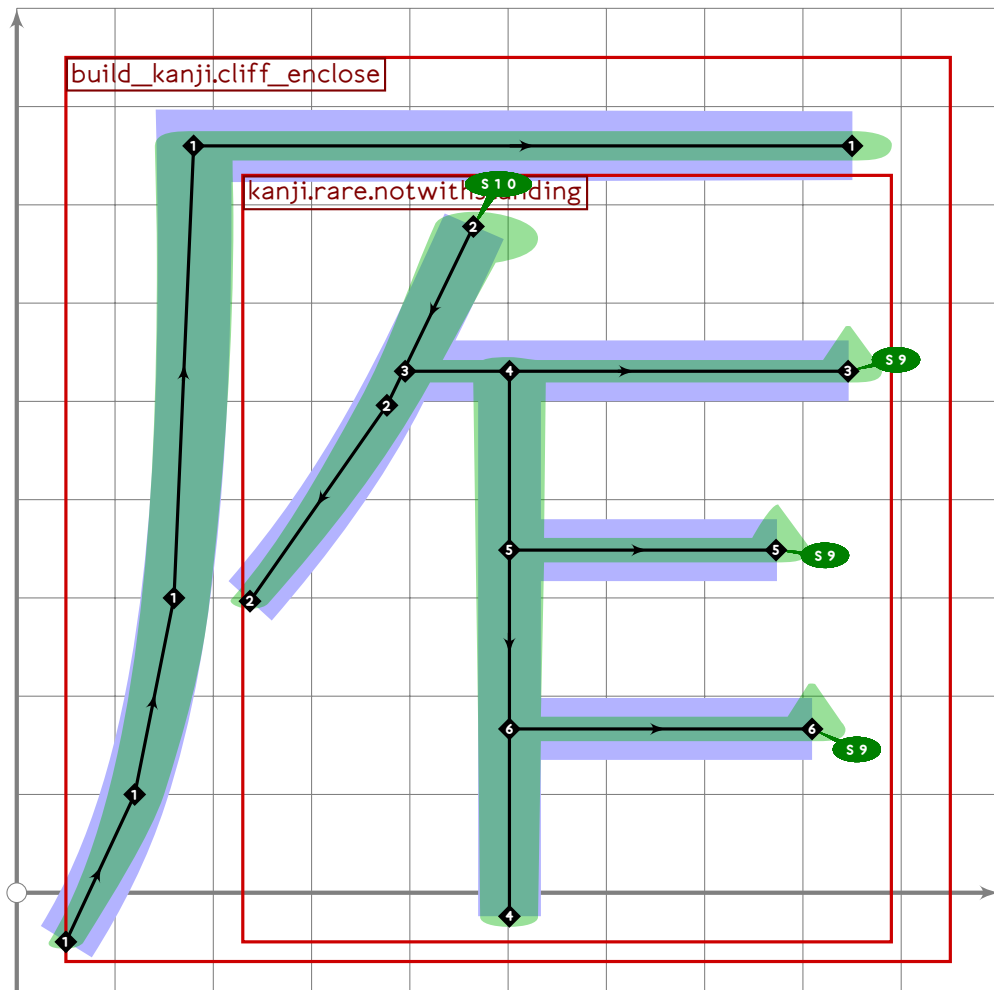
```



```

245 % extra
246 begint Suglyph("uni5389";137);
247 build_kanji.cliff_enclose(tsu_xform(identity yscaled 0.92)
248   (kanji.grtwo.myriad));
249 tsu_render;
250 endsuglyph;
251

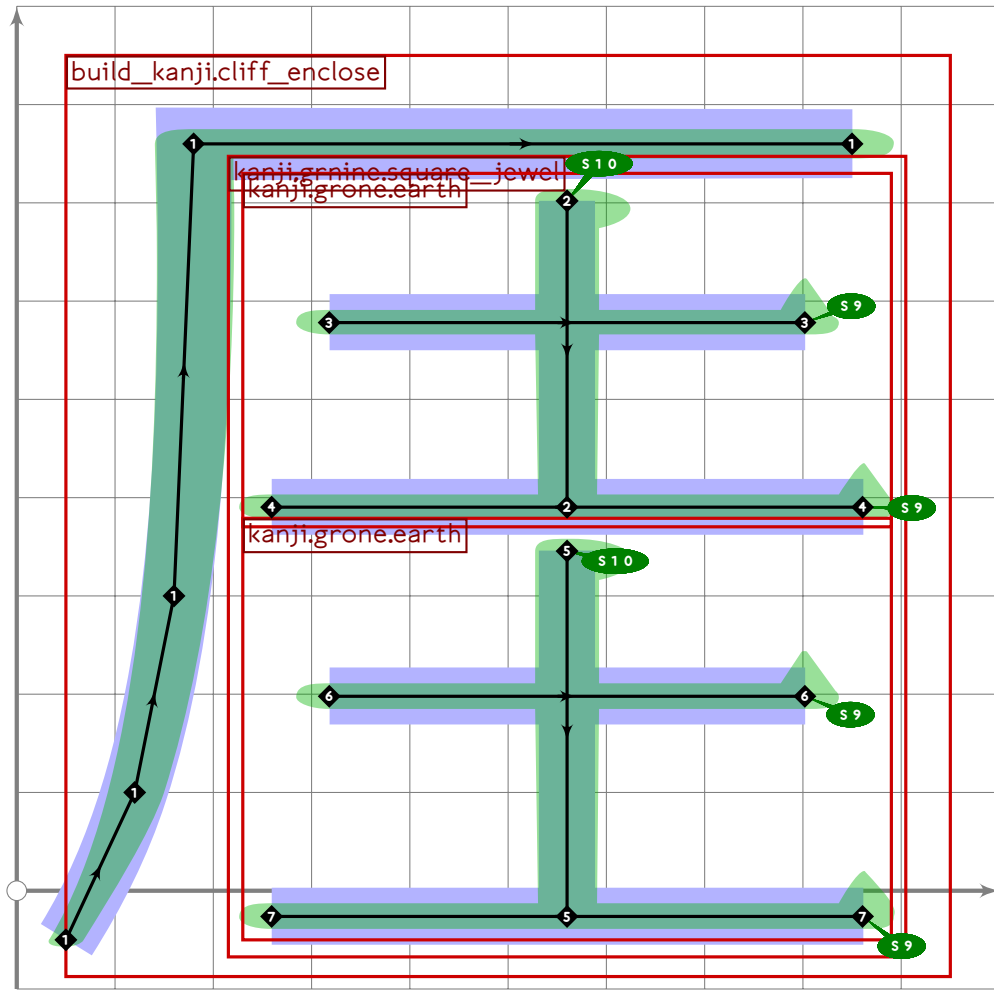
```



```

252 % extra
253 beginsuglyph("uni538F";143);
254 build_kanji.cliff_enclose(kanji.rare.notwithstanding);
255 tsu_render;
256 endsuglyph;
257

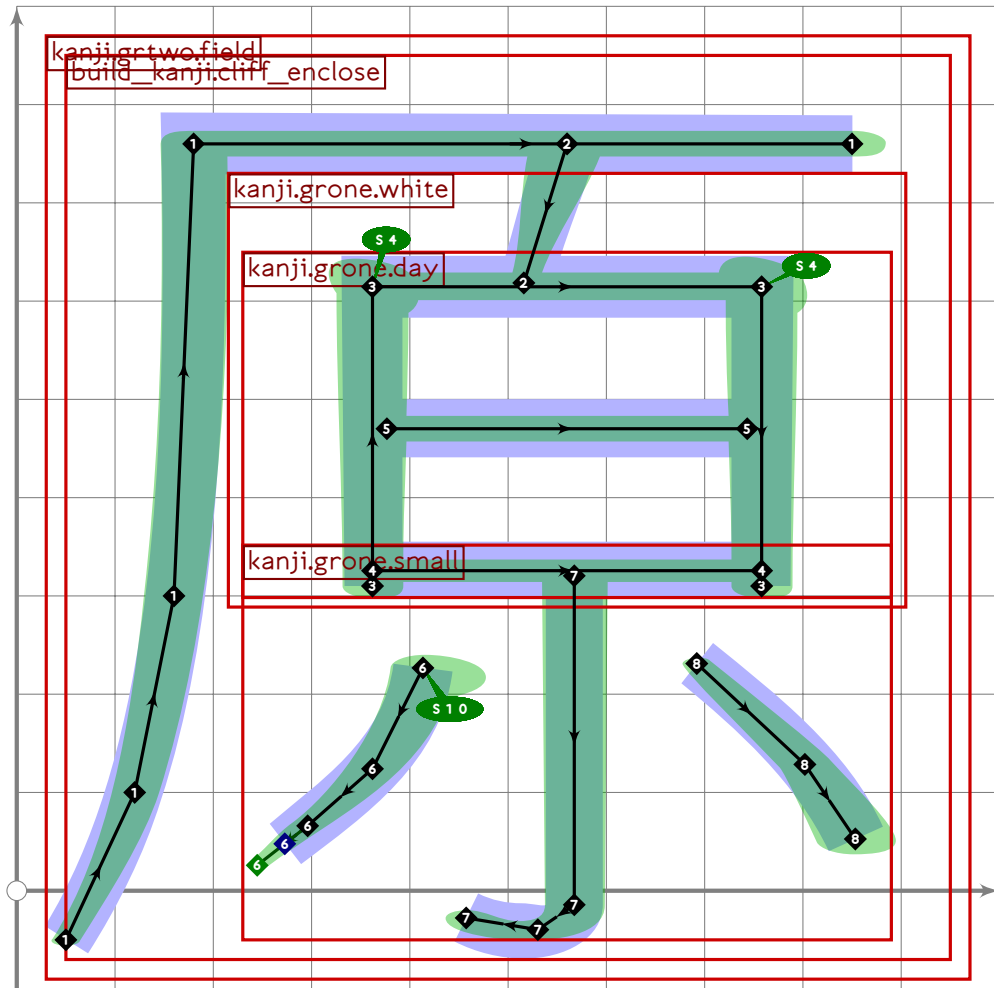
```



```

258 % extra
259 begint Suglyph("uni5393";147);
260 build_kanji.cliff_enclose(kanji.gnone.square_jewel);
261 tsu_render;
262 endsuglyph;
263

```



```

264 % gen/hara "field"
265 begintsuglyph("uni539F";159);
266 kanji.grtwo.field;
267 tsu_render;
268 endsuglyph;

```

269

```

270 % "mu radical"

```

```

271 begintsuglyph("uni53B6";182);
272 kanji.radical.mu;
273 tsu_render;
274 endsuglyph;

```

[see page 346]

275

```

276 % kyo/sa "go away"

```

```

277 begintsuglyph("uni53BB";187);
278 kanji.grthree.go_away;
279 tsu_render;
280 endsuglyph;

```

[see page 481]

281

```

282 % yuu/mata "on the other hand"

```

```

283 begintsuglyph("uni53C8";200);
284 kanji.greight.otoh;

```

[see page 536]



285 `tsu_render;`  
286 `endsuglyph;`  
287  
288 `% yuu/tomo "friend"`  
289 `begintsuglyph("uni53CB",203);` [see page 438]  
290 `kanji.grtwo.friend;`  
291 `tsu_render;`  
292 `endsuglyph;`  
293  
294 `% han/so "anti"`  
295 `begintsuglyph("uni53CD",205);` [see page 474]  
296 `kanji.grthree.anti;`  
297 `tsu_render;`  
298 `endsuglyph;`  
299  
300 `% shu/tori "take"`  
301 `begintsuglyph("uni53D6",214);` [see page 1404]  
302 `kanji.grthree.take;`  
303 `tsu_render;`  
304 `endsuglyph;`  
305  
306 `% kou/kuchi "mouth"`  
307 `begintsuglyph("uni53E3",227);` [see page 396]  
308 `kanji.grone.mouth;`  
309 `tsu_render;`  
310 `endsuglyph;`  
311  
312 `% ko/furo "old"`  
313 `begintsuglyph("uni53E4",228);` [see page 459]  
314 `kanji.grtwo.old;`  
315 `tsu_render;`  
316 `endsuglyph;`  
317  
318 `% ku "phrase"`  
319 `begintsuglyph("uni53E5",229);` [see page 513]  
320 `kanji.grfive.phrase;`  
321 `tsu_render;`  
322 `endsuglyph;`  
323  
324 `% tada "only"`  
325 `begintsuglyph("uni53EA",234);` [see page 548]  
326 `kanji.grnine.only;`  
327 `tsu_render;`  
328 `endsuglyph;`  
329  
330 `% shou/me "call"`  
331 `begintsuglyph("uni53EC",236);` [see page 525]  
332 `kanji.greight.call;`

```

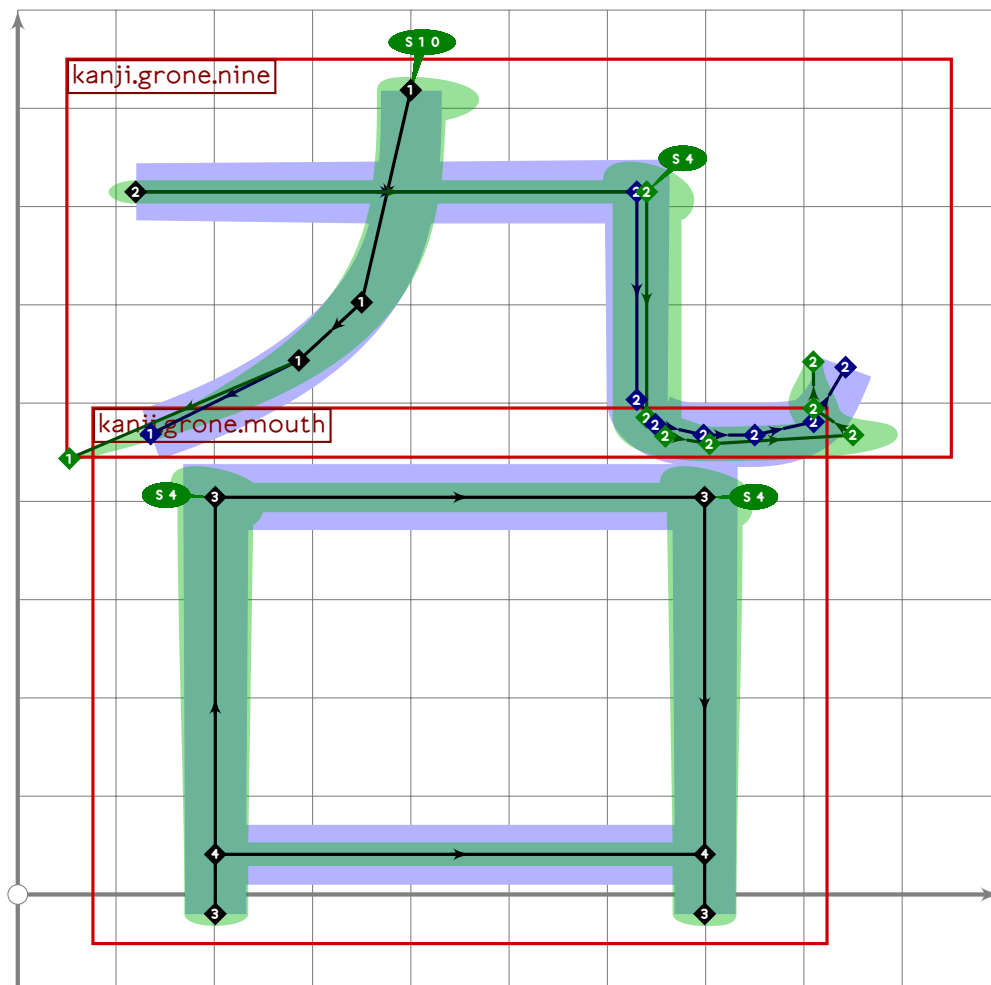
333 tsu_render;
334 endtsuglyph;
335
336 % ka/be "passable"
337 begintsuglyph("uni53EF";239);
338 kanji.grfive.passable;
339 tsu_render;
340 endtsuglyph;
341
342 % tai/utana "pedestal"
343 begintsuglyph("uni53F0";240);
344 kanji.grtwo.pedestal;
345 tsu_render;
346 endtsuglyph;
347
348 % migi "right"
349 begintsuglyph("uni53F3";243);
350 kanji.grone.right;
351 tsu_render;
352 endtsuglyph;
353

```

[see page 512]

[see page 461]

[see page 406]



```
354 % extra
355 \begin{suglyph}{"uni53F4";244};
356 \build_kanji.tb(470,50)
357   (kanji.grone.nine)
358   (\build_kanji.sscale(xscaled 0.83 shifted (-50,0))
359     (kanji.grone.mouth));
360 \tsu_render;
361 \end{suglyph};
362
363 % shi/tsukasado "director" or "official (person)"
364 \begin{suglyph}{"uni53F8";248}; [see page 499]
365   kanji.grfour.director;
366   \tsu_render;
367 \end{suglyph};
368
369 _____
370
371 \endfont;
372
373 _____
```

# tsuku-54.mp

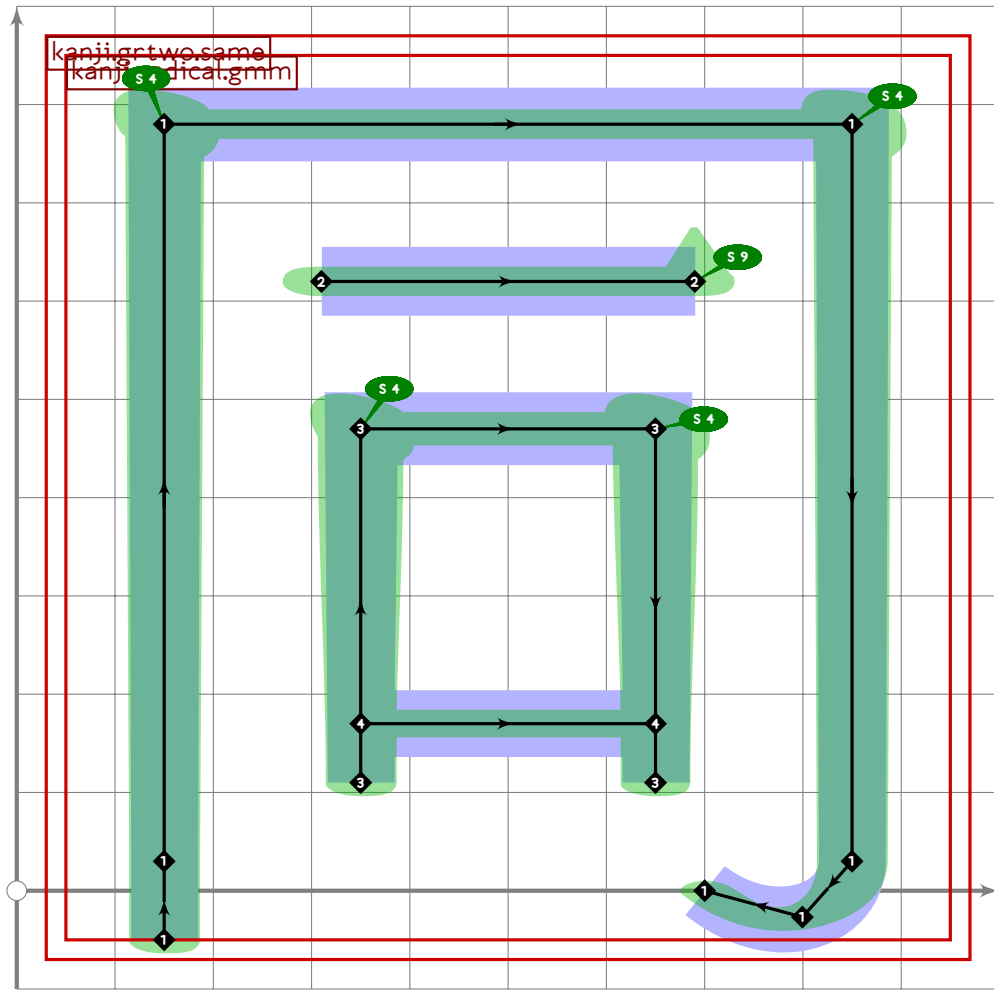
```
1 %
2 % Unicode page 54 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradefive.mp;
39 input gradefour.mp;
40 input gradenine.mp;
41 input gradeone.mp;
42 input gradethree.mp;
43 input gradetwo.mp;
44 input leftrad.mp;
45 input radical.mp;
46 input rare.mp;
47
48 

---

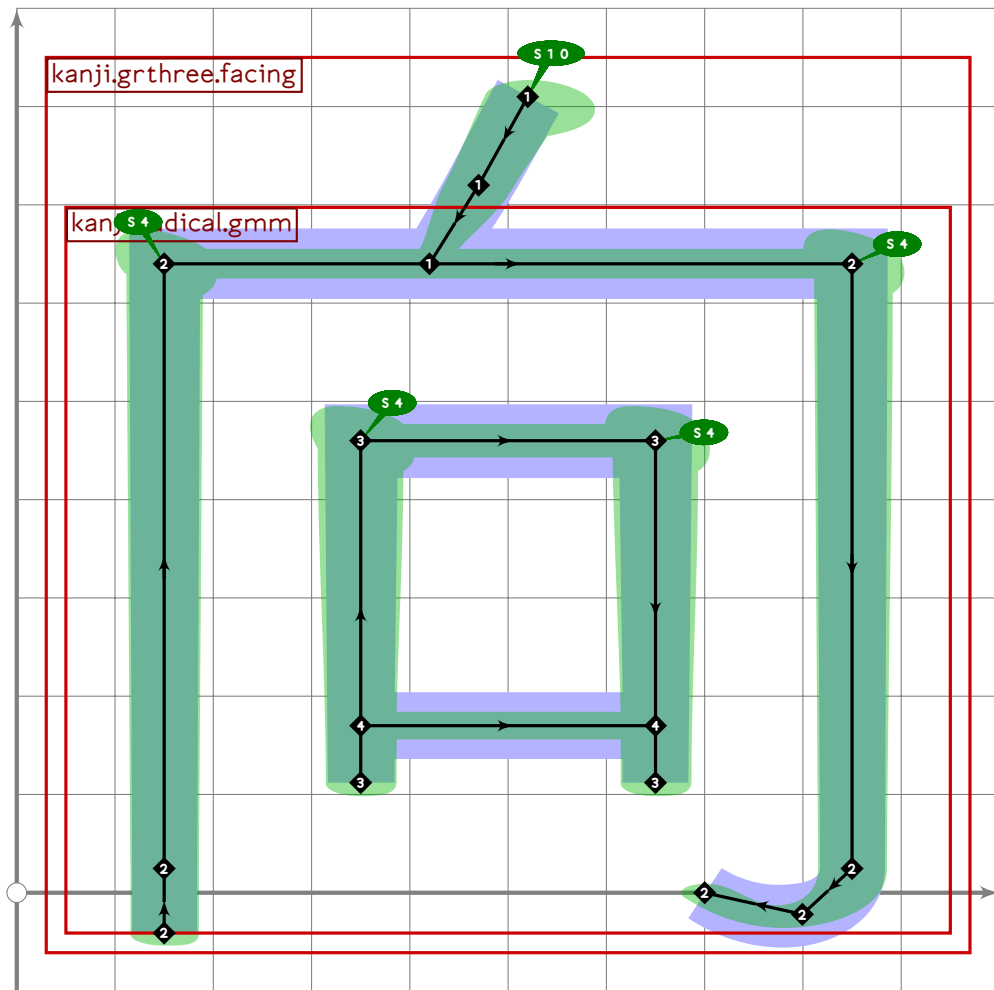

```



```

49
50 vardef kanji.grtwo.same =
51   push_pbox_toexpand("kanji.grtwo.same");
52   kanji.radical.gmm;
53   push_stroke((310,620)-(690,620),(1,6,1,6)-(1,6,1,6));
54   set_boserif(0,1,9);
55   build_kanji.box((350,470),(650,170));
56   expand_pbox;
57 enddef;
58
59

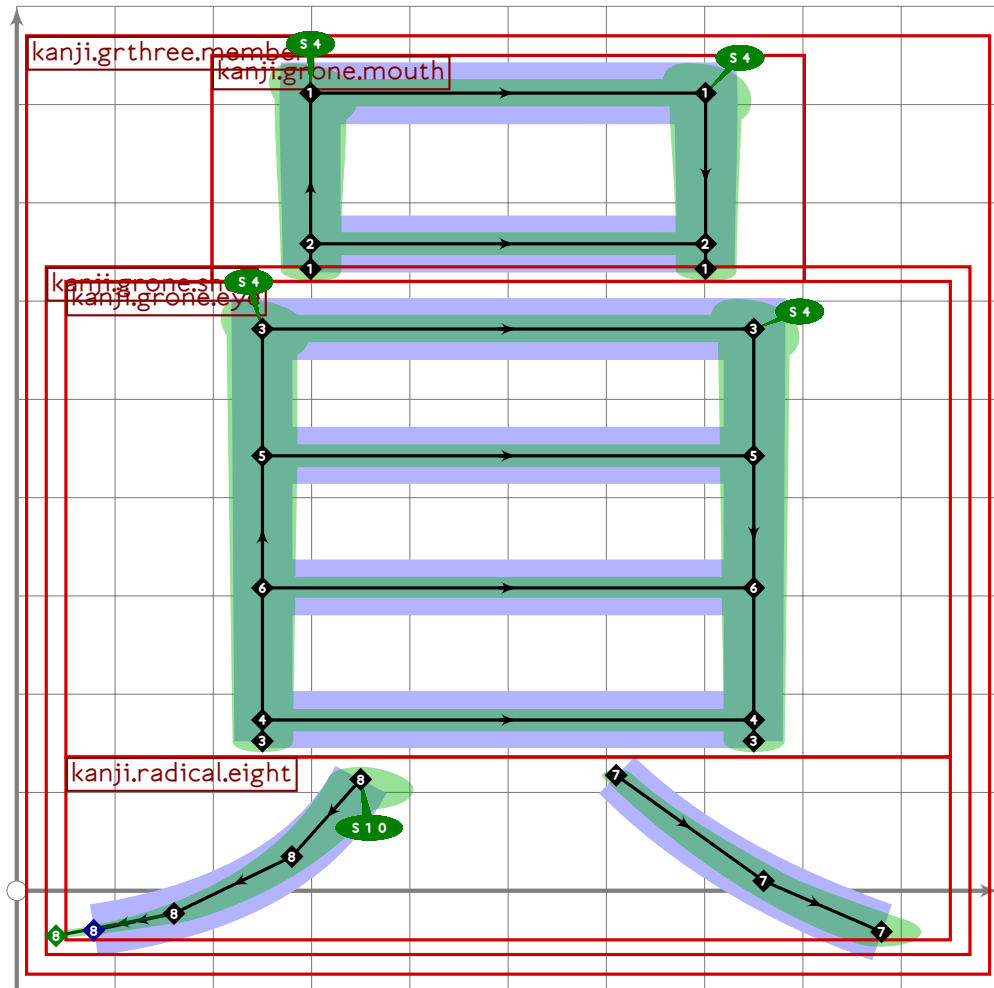
```



```

60
61 vardef kanji.grthree.facing =
62   push_pbox_toexpand("kanji.grthree.facing");
63   push_stroke((520,810)..tension 1.2..(470,720)..(420,640),
64     (1.7,1.7)-(1.5,1.5)-(1,1));
65   set_boserif(0,0,10);
66   tsu_xform(identity yscaled (640/780))(kanji.radical.gmm);
67   build_kanji.box((350,460),(650,170));
68   expand_pbox;
69 enddef;

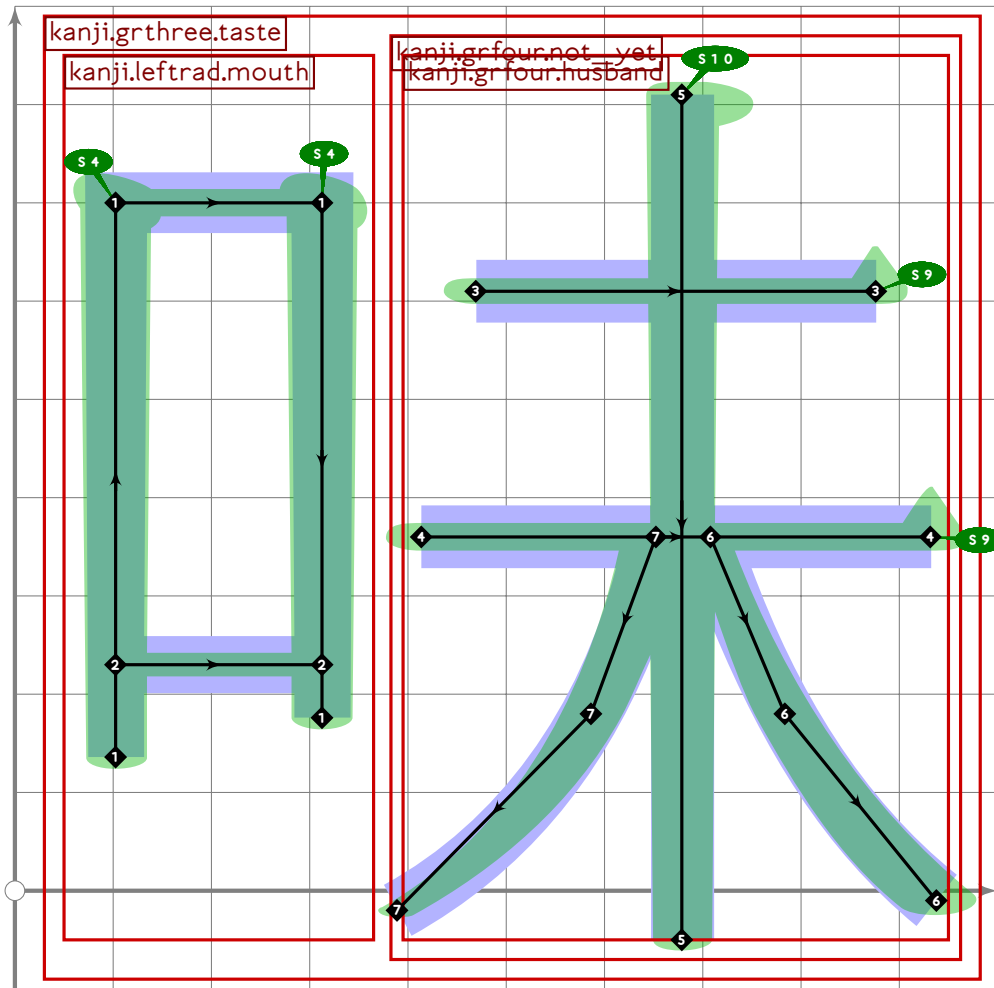
```



```

70
71 vardef kanji.grthree.member =
72   push_pbox_toexpand("kanji.grthree.member");
73   build_kanji.level(build_kanji.tb(620,0)
74     (build_kanji.sscale(xscaled 0.67)(kanji.grone.mouth))
75     (kanji.grone.shell));
76   expand_pbox;
77 enddef;

```

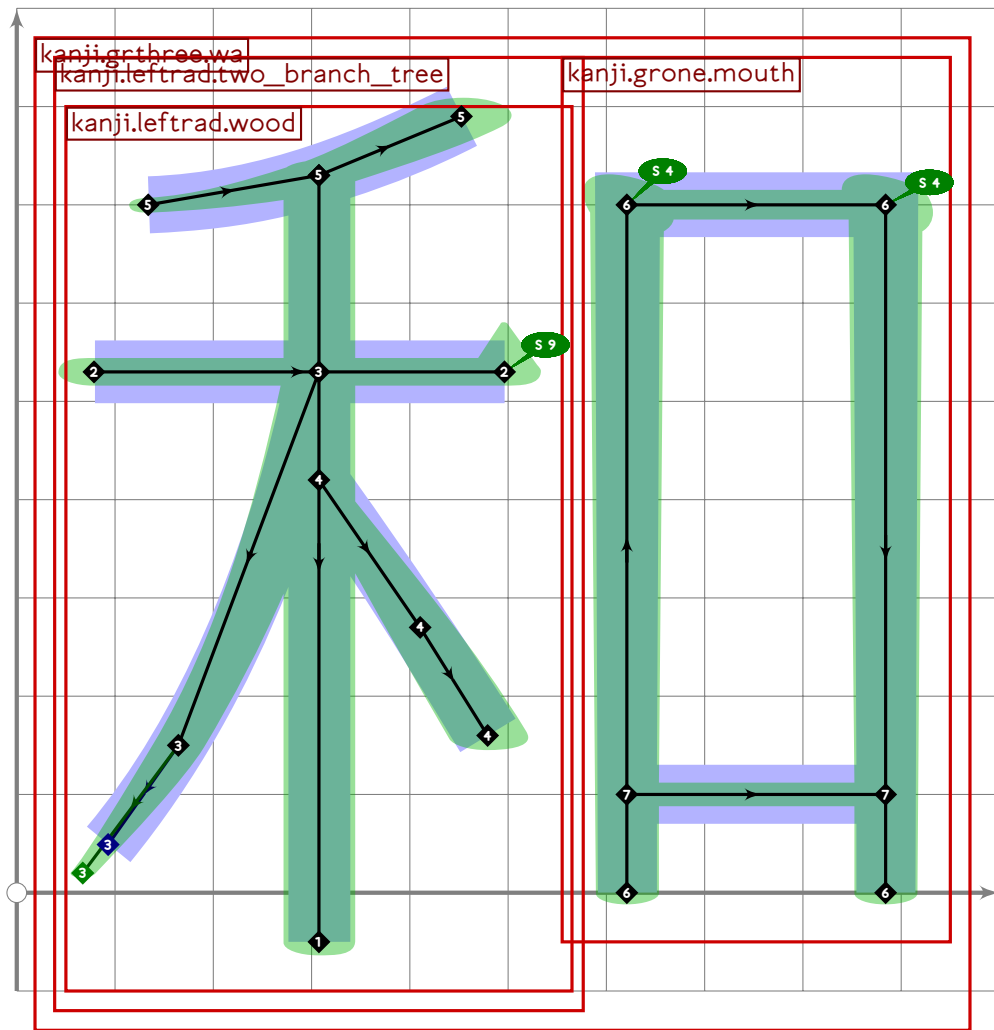


```

78
79 vardef kanji.grthree.taste =
80   push_pbox_toexpand("kanji.grthree.taste");
81   build_kanji.lr(380,-30)
82     (kanji.leftrad.mouth)
83     (kanji.grfour.not_yet);
84   expand_pbox;
85 enddef;

```





```

86
87 vardef kanji.grthree.wa =
88   push_pbox_toexpand("kanji.grthree.wa");
89   build_kanji.lr(560,10)
90     (kanji.leftrad.two_branch_tree)
91     (kanji.grone.mouth);
92   expand_pbox;
93 enddef;

```

94

95

96

```

97 % kaku/onoono "every"
98 begintsuglyph("uni5404",4);
99   kanji.grfour.every;
100   tsu_render;
101 endtsuglyph;

```

[see page 501]

102

```

103 % gou/a "meet"
104 begintsuglyph("uni5408",8);
105   kanji.grtwo.join;

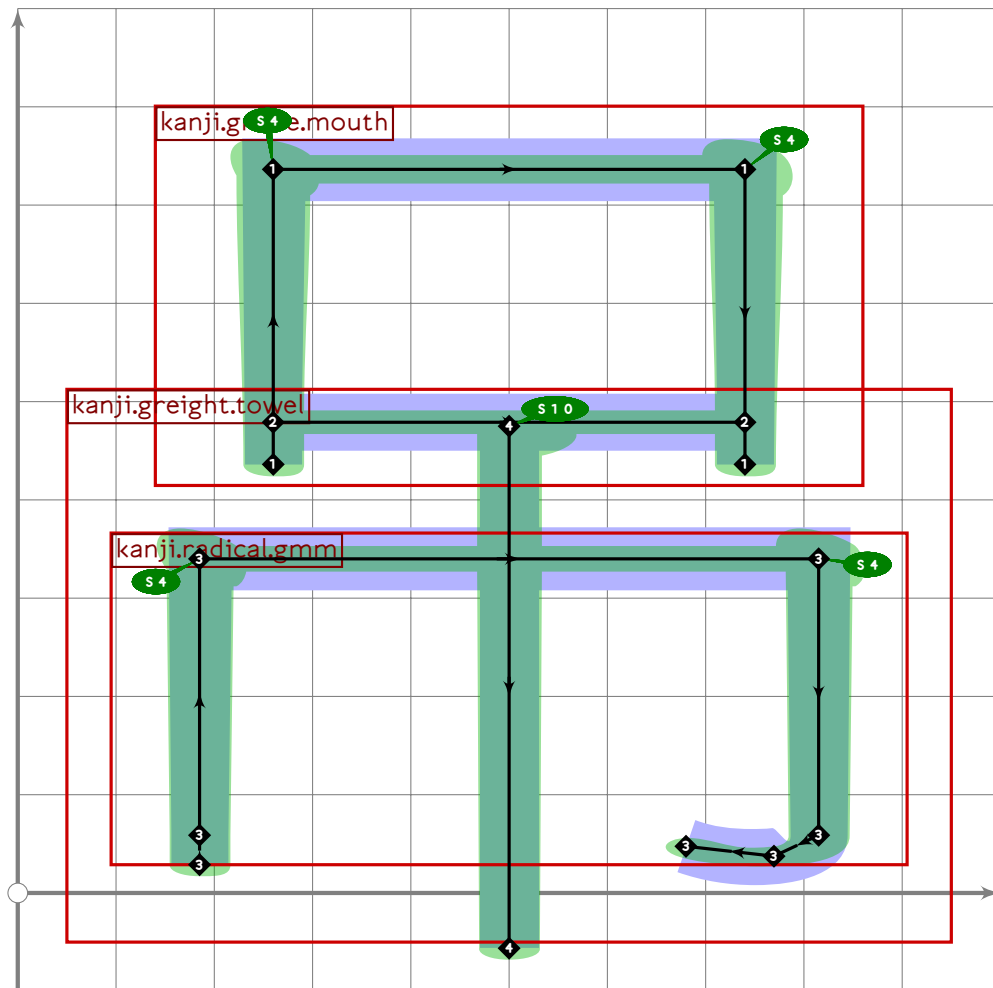
```

[see page 444]

```

106 tsu_render;
107 endtsuglyph;
108

```



```

109 % extra chou/tsu "hanging"
110 begintsuglyph("uni540A",10);
111 build_kanji.level(build_kanji.tb(440,145)
112 (build_kanji.sscale(scaled 0.8)(kanji.grone.mouth))
113 (kanji.greight.towel));
114 tsu_render;
115 endtsuglyph;
116
117 % dou/onaji "the same"
118 begintsuglyph("uni540C",12);
119 kanji.grtwo.same;
120 tsu_render;
121 endtsuglyph;
122
123 % na "name"
124 begintsuglyph("uni540D",13);
125 kanji.grone.name;
126 tsu_render;

```

[see page 1417]

[see page 397]

127 `endtsuglyph;`  
128  
129 `% ri "officer"`  
130 `begintsuglyph("uni540F",15);` [see page 535]  
131 `kanji.greight.officer;`  
132 `tsu_render;`  
133 `endtsuglyph;`  
134  
135 `% kou/mu "facing"`  
136 `begintsuglyph("uni5411",17);` [see page 1418]  
137 `kanji.grthree.facing;`  
138 `tsu_render;`  
139 `endtsuglyph;`  
140  
141 `% go/ware "my, mine"`  
142 `begintsuglyph("uni543E",62);` [see page 547]  
143 `kanji.grnine.my;`  
144 `tsu_render;`  
145 `endtsuglyph;`  
146  
147 `% ryo "spine"`  
148 `begintsuglyph("uni5442",66);` [see page 539]  
149 `kanji.greight.spine;`  
150 `tsu_render;`  
151 `endtsuglyph;`  
152  
153 `% koku "revelation"`  
154 `begintsuglyph("uni544A",74);` [see page 511]  
155 `kanji.grfour.revelation;`  
156 `tsu_render;`  
157 `endtsuglyph;`  
158  
159 `% shuu/mawa "circuit"`  
160 `begintsuglyph("uni5468",104);` [see page 497]  
161 `kanji.grfour.circuit;`  
162 `tsu_render;`  
163 `endtsuglyph;`  
164  
165 `% mi/aji "taste"`  
166 `begintsuglyph("uni5473",115);` [see page 1420]  
167 `kanji.grthree.taste;`  
168 `tsu_render;`  
169 `endtsuglyph;`  
170  
171 `% wa/yawa "wa" (supposedly-untranslatable term equated with Japanese spirit)`  
172 `begintsuglyph("uni548C",140);` [see page 1421]  
173 `kanji.grthree.wa;`  
174 `tsu_render;`

```
175 endtsuglyph;
176
177 % hin.shina "goods"
178 begintsuglyph("uni54C1",193); [see page 482]
179 kanji.grthree.goods;
180 tsu_render;
181 endtsuglyph;
182
183 % in "member"
184 begintsuglyph("uni54E1",225); [see page 1419]
185 kanji.grthree.member;
186 tsu_render;
187 endtsuglyph;
188
189 % ka/uta "big brother" (needed for ka/uta "song")
190 begintsuglyph("uni54E5",229); [see page 557]
191 kanji.rare.big_brother;
192 tsu_render;
193 endtsuglyph;
194
195 

---

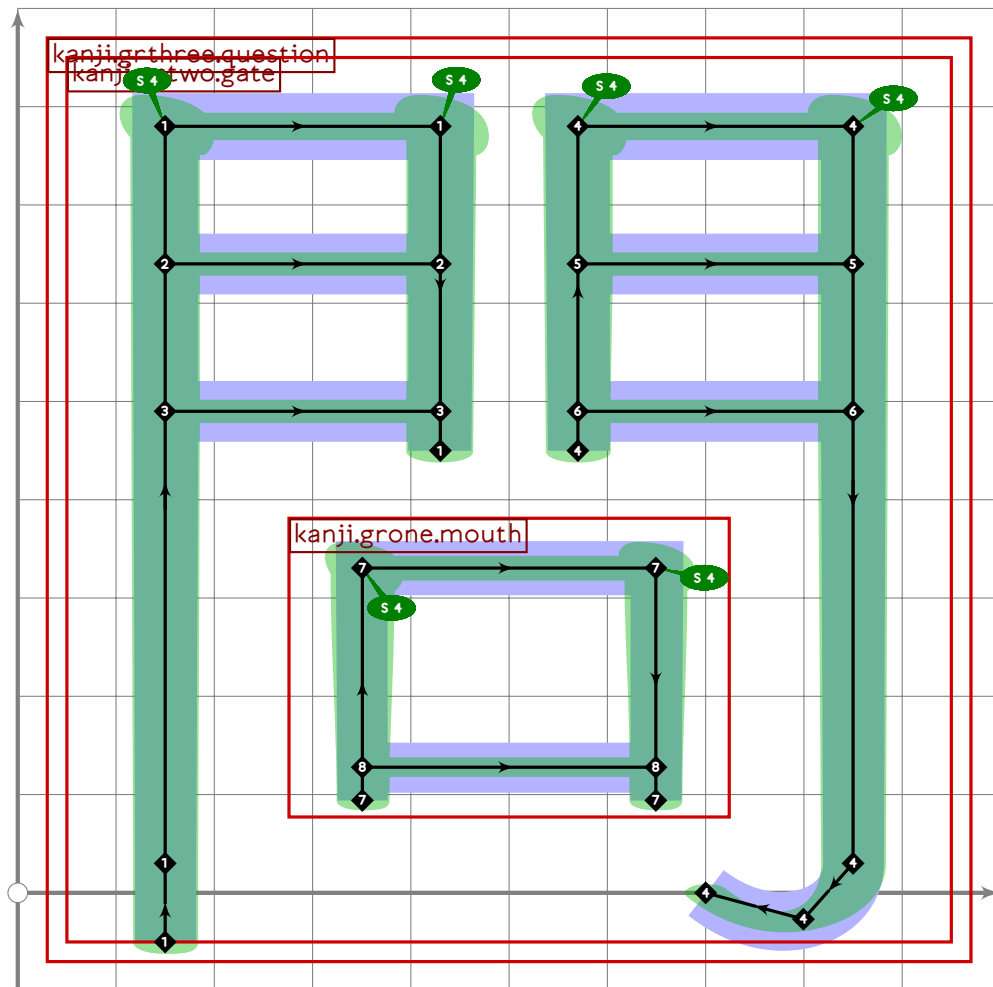

196
197 endfont;
198
199 

---


```

# tsuku-55.mp

```
1 %  
2 % Unicode page 55 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradeone.mp;  
38 input gradetwo.mp;  
39  
40 _____
```



```
41  
42 vardef kanji.grthree.question =  
43   push_pbox_toexpand("kanji.grthree.question");
```

```
44 build_kanji.gate_enclose(  
45   build_kanji.sscale(scaled 0.8)(kanji.grone.mouth));  
46 expand_pbox;  
47 enddef;  
48  
49 

---

  
50  
51 % mon/to "question"  
52 begintsuglyph("uni554F";79); [see page 1425]  
53 kanji.grthree.question;  
54 tsu_render;  
55 endtsuglyph;  
56  
57 

---

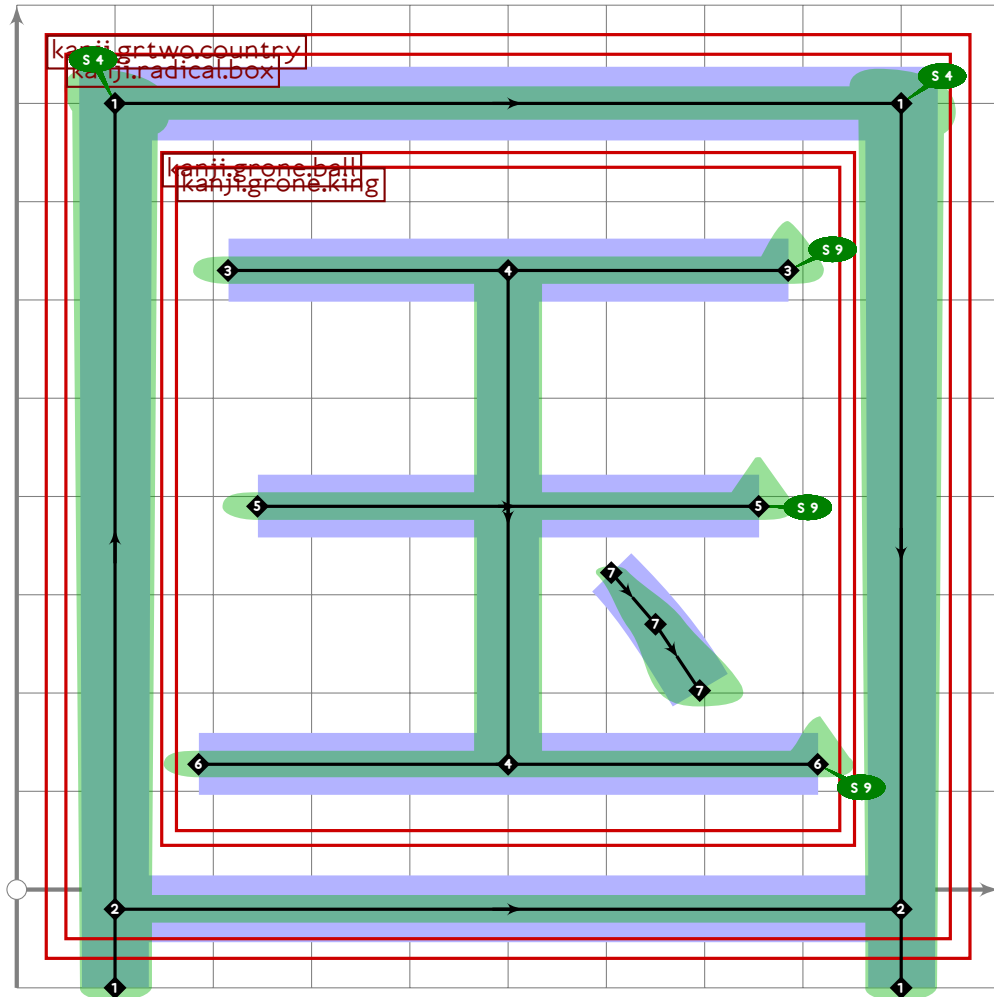
  
58  
59 endfont;  
60  
61 

---


```

# tsuku-56.mp

```
1 %  
2 % Unicode page 56 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradeone.mp;  
38 input gradesix.mp;  
39 input gradetwo.mp;  
40 input radical.mp;  
41  
42
```

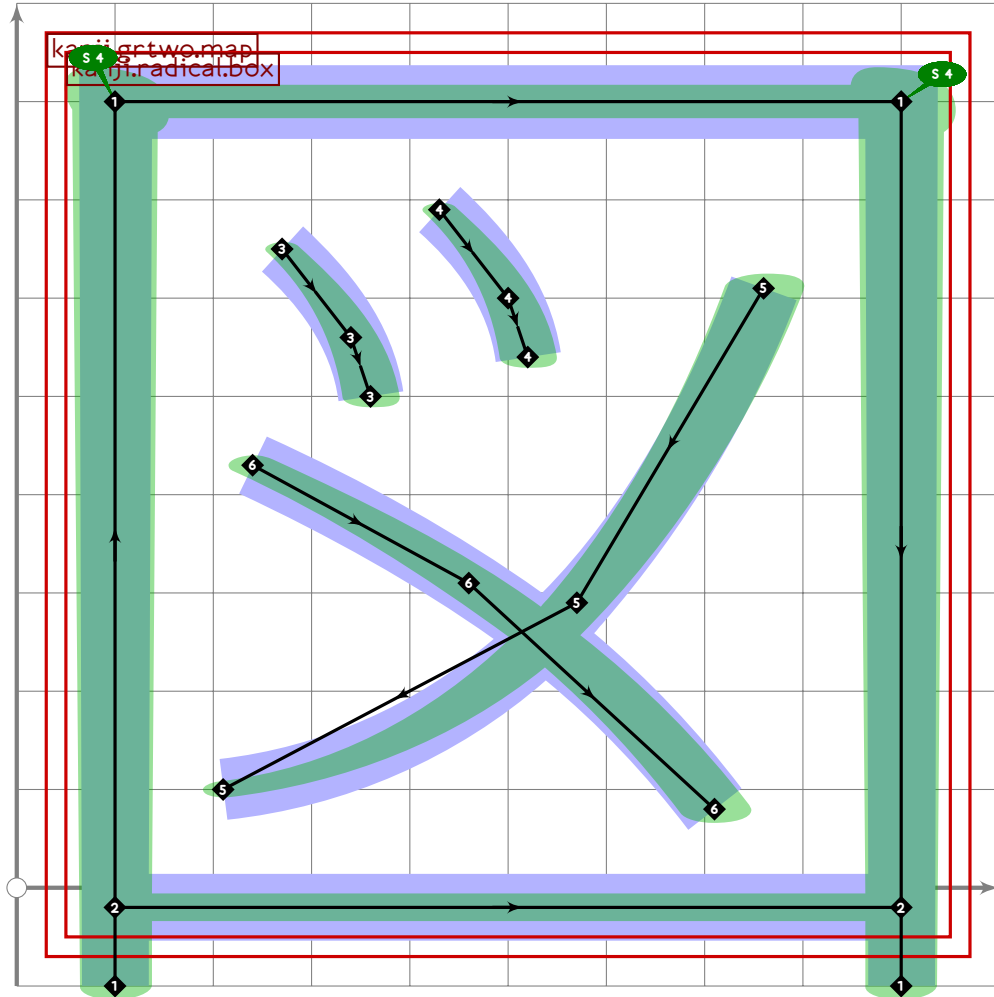


43

```

44 vardef kanji.grtwo.country =
45   push_pbox_toexpand("kanji.grtwo.country");
46   kanji.radical.box;
47   build_kanji.sscale(scaled 0.75)(kanji.grone.ball);
48   expand_pbox;
49 enddef;

```



```

50
51 vardef kanji.grtwo.map =
52   push_pbox_toexpand("kanji.grtwo.map");
53   kanji.radical.box;
54   push_stroke((270,650)..tension 1.2..(340,560)..(360,500),
55     (1,1)-(1.2,1.2)-(1.3,1.3));
56   push_stroke(get_strokep(0) shifted ((430,690)-point 0 of get_strokep(0)),
57     get_strokeq(0));
58   push_stroke((760,610)..tension 1.2..(570,290)..(210,100),
59     (1.6,1.6)-(1.4,1.4)-(1.1,1.1));
60   push_stroke((240,430)..tension 1.2..(460,310)..(710,80),
61     (1.2,1.2)-(1.4,1.4)-(1.5,1.5));
62   expand_pbox;
63 enddef;
64

```



65

66

67 % box radical

68 `begintsuglyph("uni56D7",215);`

[see page 336]

69 `kanji.radical.box;`

70 `tsu_render;`

71 `endtsuglyph;`

72

73 % shi/yon "four"

74 `begintsuglyph("uni54DB",219);`

[see page 385]

75 `kanji.grone.four;`

76 `tsu_render;`

77 `endtsuglyph;`

78

79 % kai "counter for occurrences"

80 `begintsuglyph("uni54DE",222);`

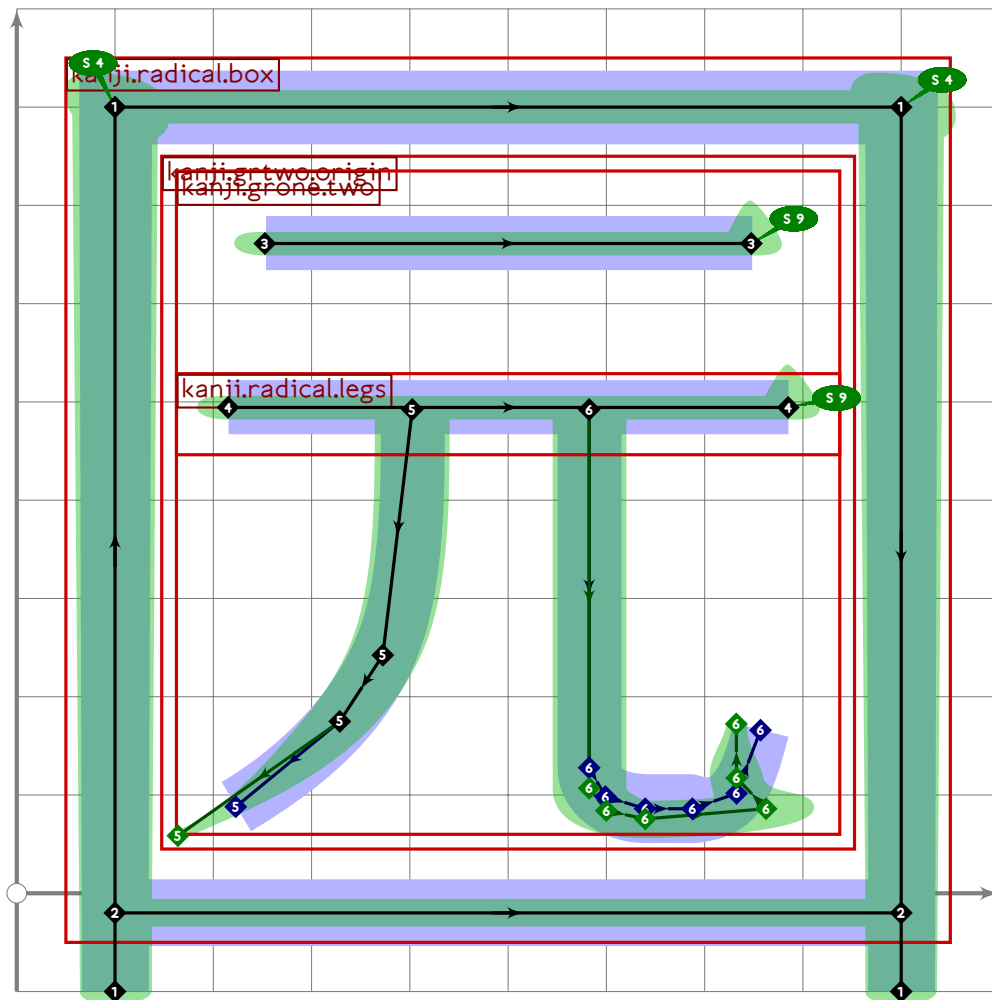
[see page 458]

81 `kanji.grtwo.origin;`

82 `tsu_render;`

83 `endtsuglyph;`

84



85 % extra

```
86 begintsuglyph("uni56ED",237);
87   kanji.radical.box;
88   build_kanji.sscale(scaled 0.75)(kanji.grtwo.origin);
89   tsu_render;
90 endsuglyph;
91
92 % koma "bothered"
93 begintsuglyph("uni56F0",240); [see page 518]
94   kanji.grsix.bothered;
95   tsu_render;
96 endsuglyph;
97
98 % zu/haka "map"
99 begintsuglyph("uni56F3",243); [see page 1428]
100   kanji.grtwo.map;
101   tsu_render;
102 endsuglyph;
103
104 % koku/kuni "country"
105 begintsuglyph("uni56FD",253); [see page 1428]
106   kanji.grtwo.country;
107   tsu_render;
108 endsuglyph;
109
110 

---


111
112 endfont;
113
114 

---


```

# tsuku-57.mp

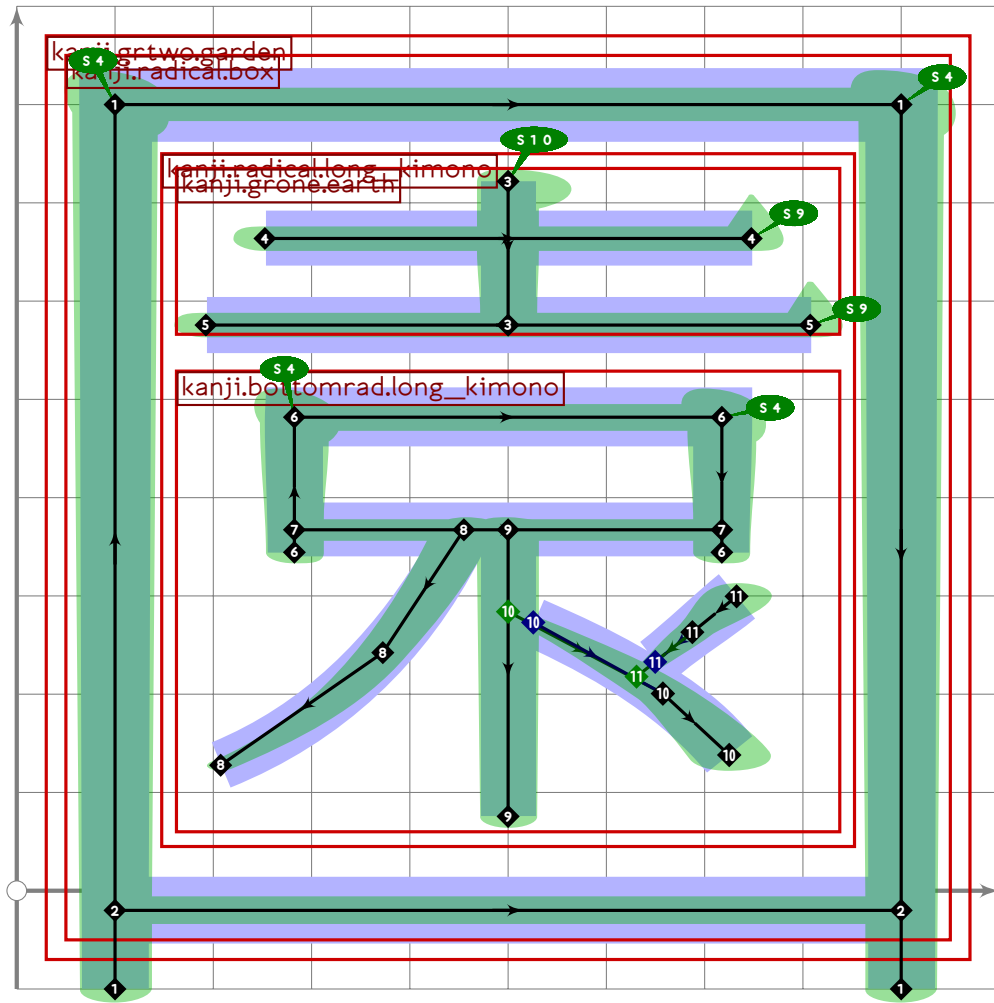
```
1 %
2 % Unicode page 57 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradenine.mp;
39 input gradeone.mp;
40 input gradethree.mp;
41 input leftrad.mp;
42 input radical.mp;
43
44 

---

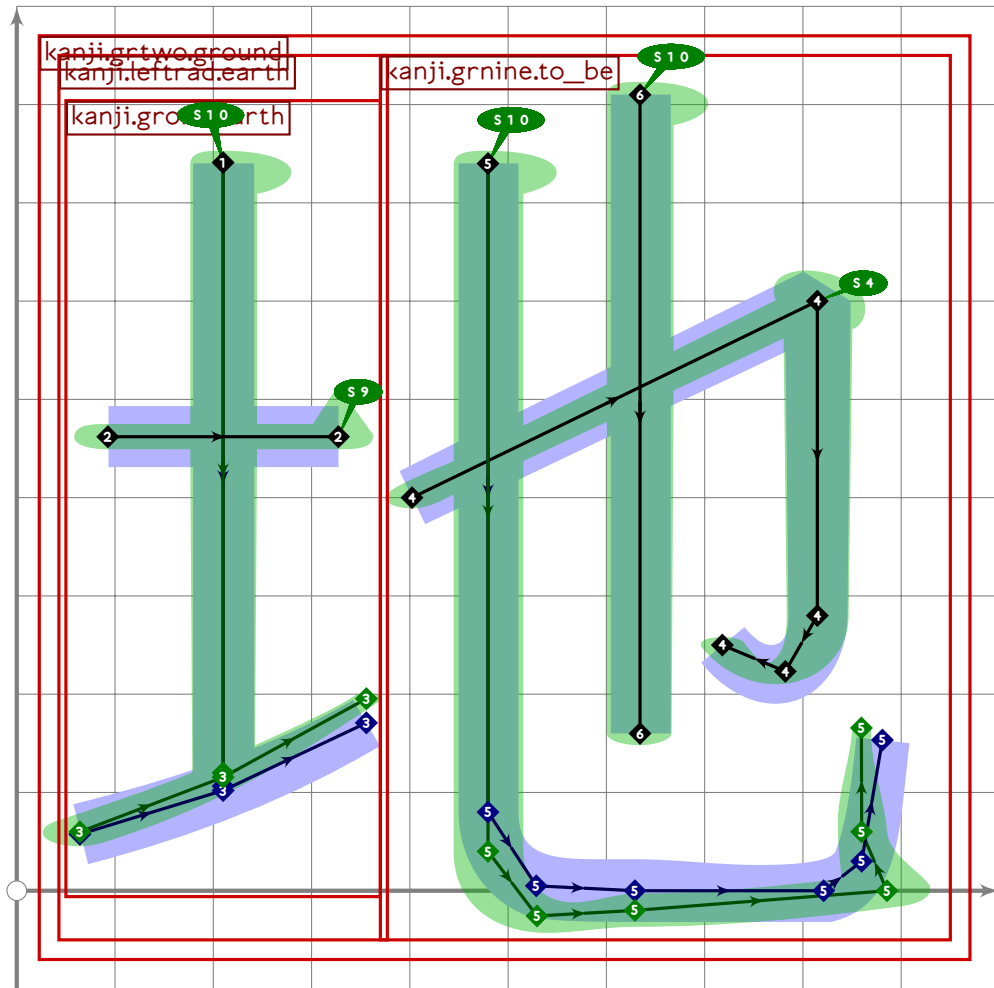

```



```

45
46 vardef kanji.grtwo.garden =
47   push_pbox_toexpand("kanji.grtwo.garden");
48   kanji.radical.box;
49   build_kanji.scale(scaled 0.75)
50     (kanji.radical.long_kimono);
51   expand_pbox;
52 enddef;

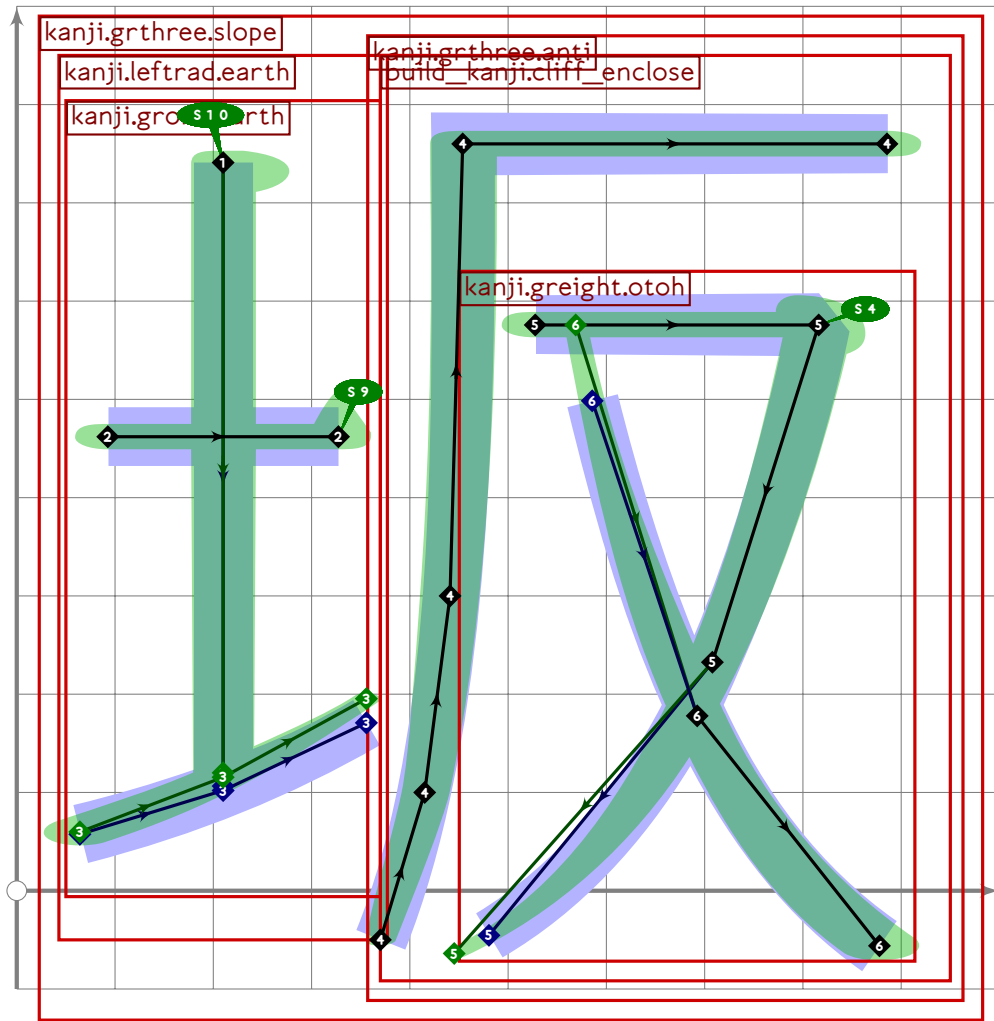
```



```

53
54 vardef kanji.grtwo.ground =
55   push_pbox_toexpand("kanji.grtwo.ground");
56   build_kanji.level(build_kanji.lr(370,0)
57     (kanji.leftrad.earth)
58     (kanji.grnine.to_be));
59   expand_pbox;
60 enddef;
61
62

```



```

63
64 vardef kanji.grthree.slope =
65   push_pbox_toexpand("kanji.grthree.slope");
66   build_kanji.level(build_kanji.lr(370,0)
67     (kanji.leftrad.earth)
68     (kanji.grthree.anti));
69   expand_pbox;
70 enddef;
71
72
73
74 % en/zono "garden"
75 begintsuglyph("uni5712";18);
76 kanji.grtwo.garden;
77 tsu_render;
78 endsuglyph;
79
80 % tsuchi/do "earth"
81 begintsuglyph("uni571F";31);
82 kanji.grone.earth;

```

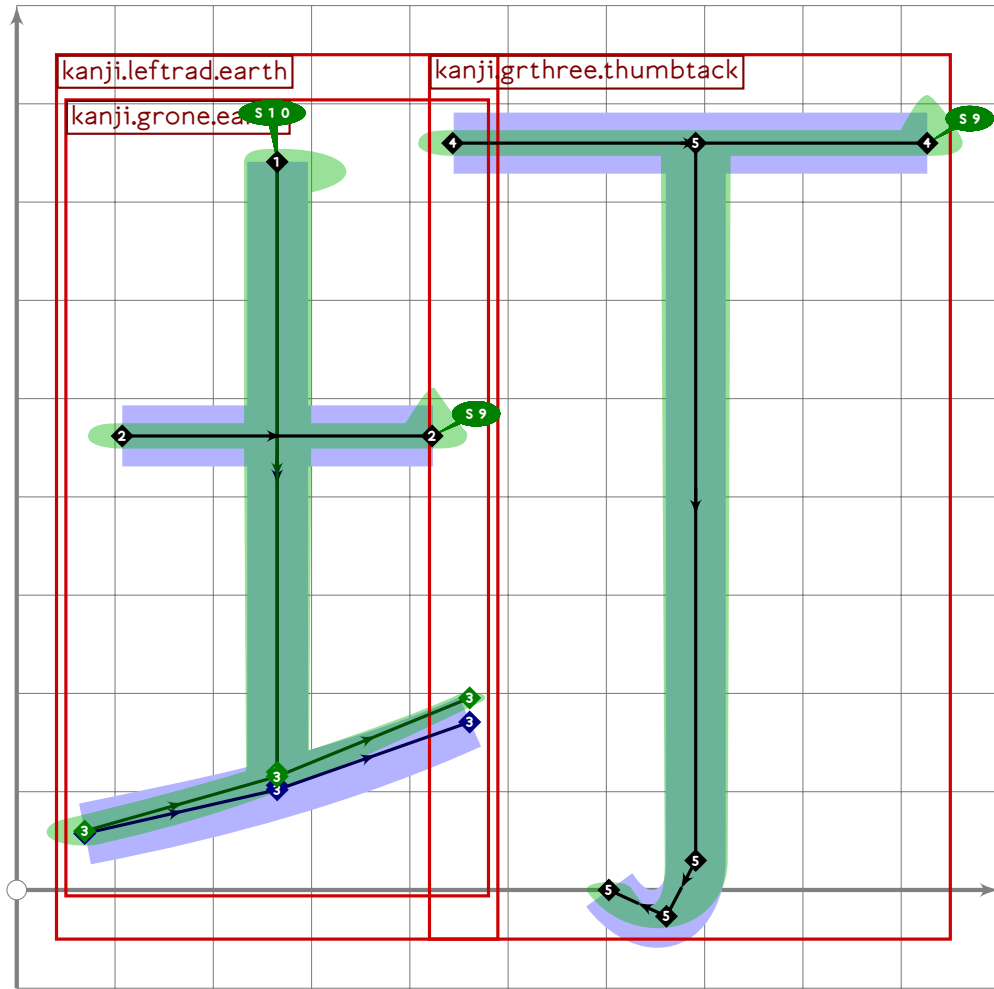
[see page 1432]

[see page 379]

```

83 tsu_render;
84 endsuglyph;
85

```



```

86 % extra
87 begintsuglyph("uni5722";34);
88 build_kanji.level(build_kanji.lr(450,60)
89 (kanji.leftrad.earth)
90 (kanji.grthree.thumbtack));
91 tsu_render;
92 endsuglyph;
93
94 % kei/ka "square jewel"
95 begintsuglyph("uni572D";45);
96 kanji.gnine.square_jewel;
97 tsu_render;
98 endsuglyph;
99
100 % chi/ji "ground"
101 begintsuglyph("uni5730";48);
102 kanji.grtwo.ground;
103 tsu_render;

```

[see page 551]

[see page 1433]

```
104 endtsuglyph;  
105  
106 % han/saka "slope"  
107 begintsuglyph("uni5742",66); [see page 1434]  
108 kanji.grthree.slope;  
109 tsu_render;  
110 endtsuglyph;  
111  
112 

---

  
113  
114 endfont;  
115  
116 

---


```



# tsuku-58.mp

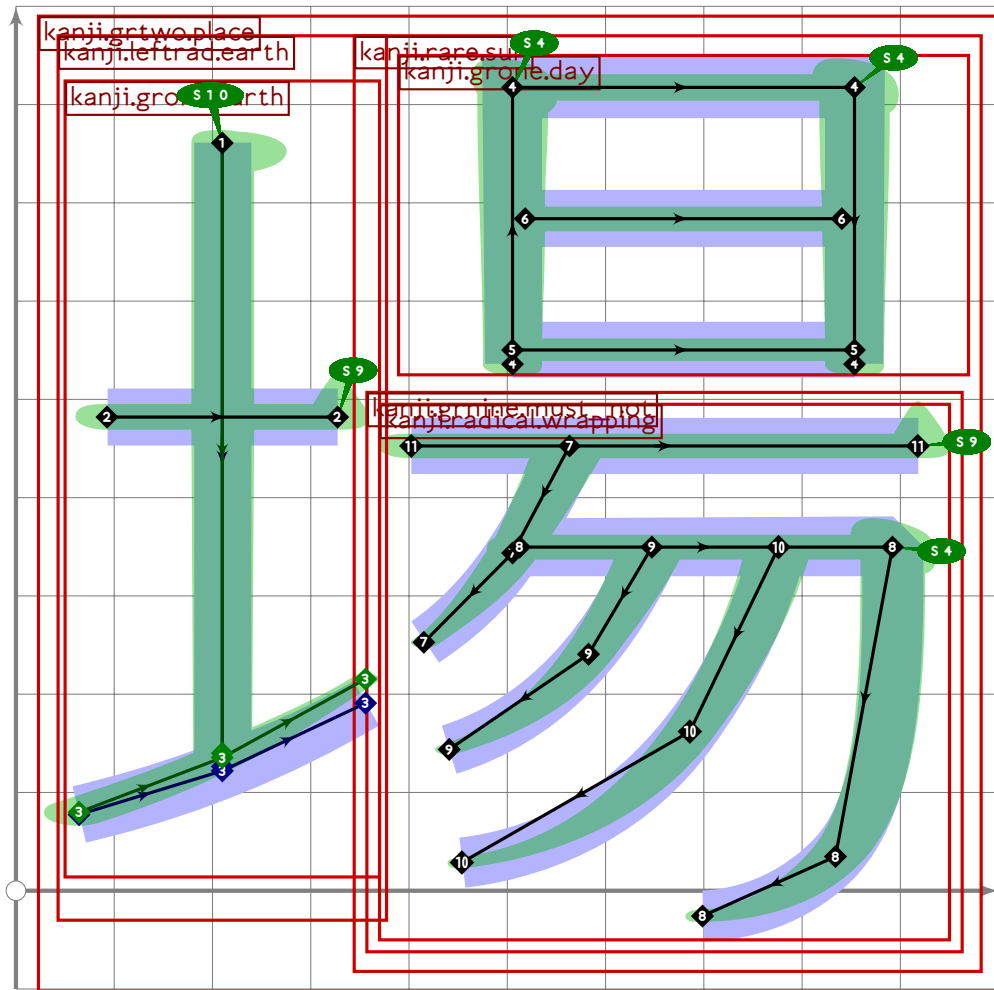
```
1 %
2 % Unicode page 58 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradefour.mp;
38 input gradenine.mp;
39 input gradeone.mp;
40 input gradetwo.mp;
41 input leftrad.mp;
42 input radical.mp;
43 input rare.mp;
44
45 

---

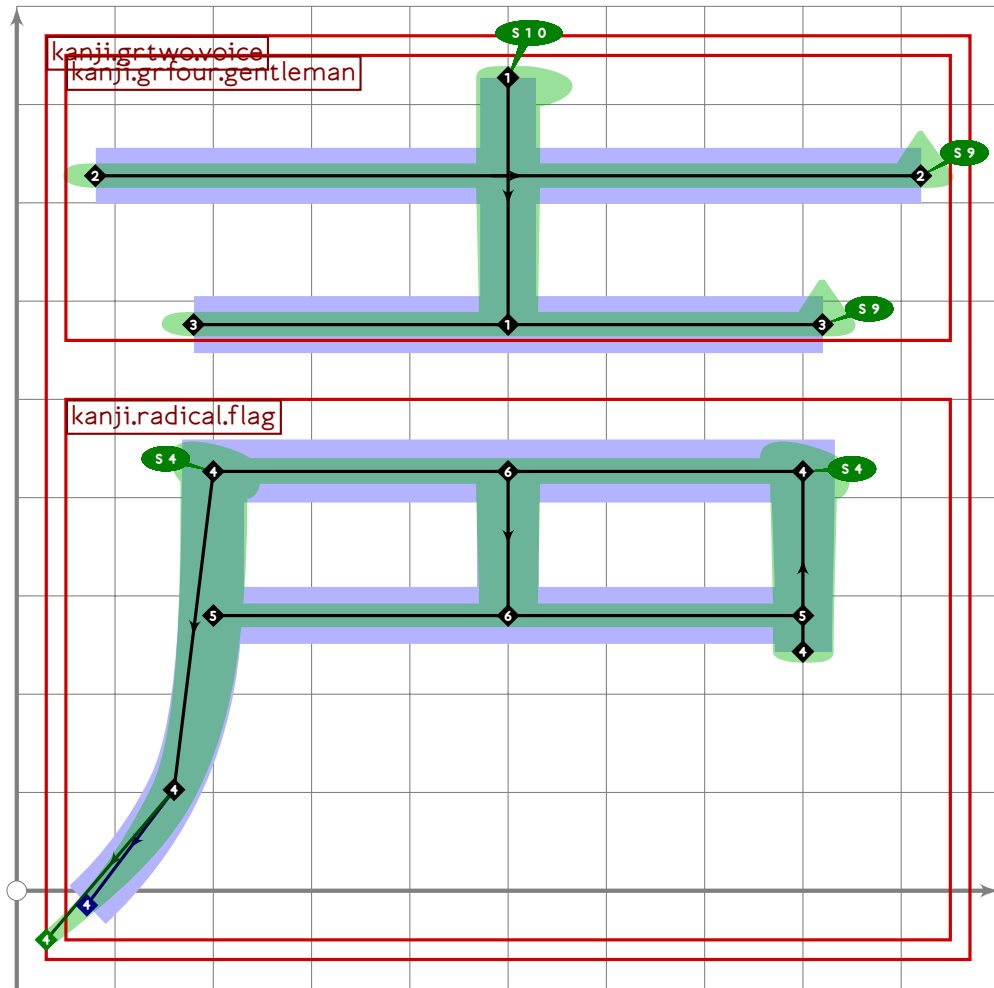

```



```

46
47 vardef kanji.grtwo.place =
48   push_pbox_toexpand("kanji.grtwo.place");
49   build_kanji.level(build_kanji.lr(370,0)
50     (tsu_xform(identity shifted (0,20))(kanji.leftrad.earth))
51     (kanji.rare.sun));
52   expand_pbox;
53 enddef;

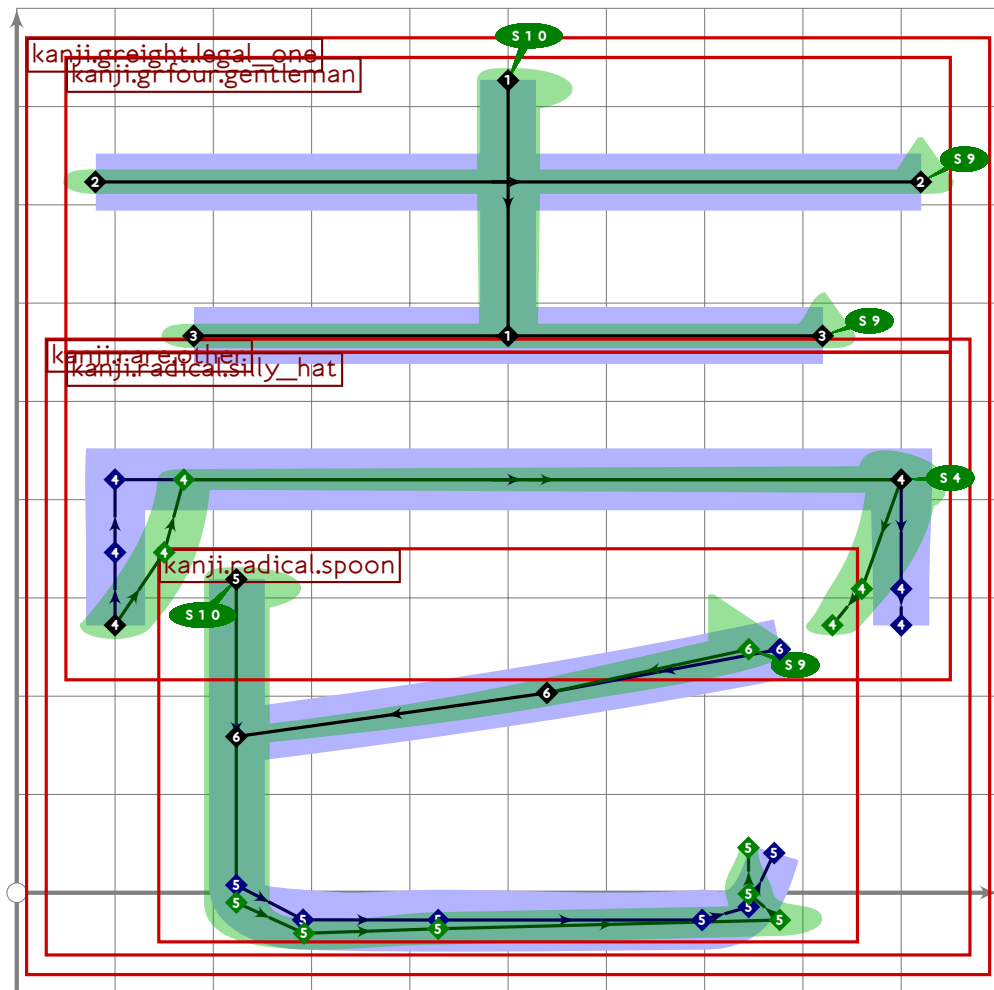
```



```

54
55 vardef kanji.grtwo.voice =
56   push_pbox_toexpand("kanji.grtwo.voice");
57   build_kanji.tb(530,-60)
58     (kanji.grfour.gentleman)
59     (kanji.radical.flag;
60       push_stroke((500,730)-(500,490),(1,5,1,5)-(1,4,1,4)));
61     expand_pbox;
62   enddef;
63
64

```



```

65
66 vardef kanji.greight.legal_one =
67   push_pbox_toexpand("kanji.greight.legal_one");
68   build_kanji.level(build_kanji.tb(550,0)
69     (kanji.grfour.gentleman)
70     (kanji.rare.other;
71       set_bosize(-3,0)));
72   expand_pbox;
73 enddef;
74
75
76
77 % shou/ba "place"
78 beginsuglyph("uni5834",52);
79   kanji.grtwo.place;
80   tsu_render;
81 endsuglyph;
82
83 % shi "gentleman" ("samurai" radical)
84 beginsuglyph("uni58EB",235);
85   kanji.grfour.gentleman;

```

[see page 1438]

[see page 504]

```
86  tsu_render;
87  endtsuglyph;
88
89  % ichi/hitotsu "one" (formal, also first musical scale degree)
90  begintsuglyph("uni58F1",241); [see page 1440]
91  kanji.greight.legal_one;
92  tsu_render;
93  endtsuglyph;
94
95  % sei/koe "voice"
96  begintsuglyph("uni58F0",240); [see page 1439]
97  kanji.grtwo.voice;
98  tsu_render;
99  endtsuglyph;
100
101  % bai/u "sell"
102  begintsuglyph("uni58F2",242); [see page 466]
103  kanji.grtwo.sell;
104  tsu_render;
105  endtsuglyph;
106
107  _____
108
109  endfont;
110
111  _____
```

# tsuku-59.mp

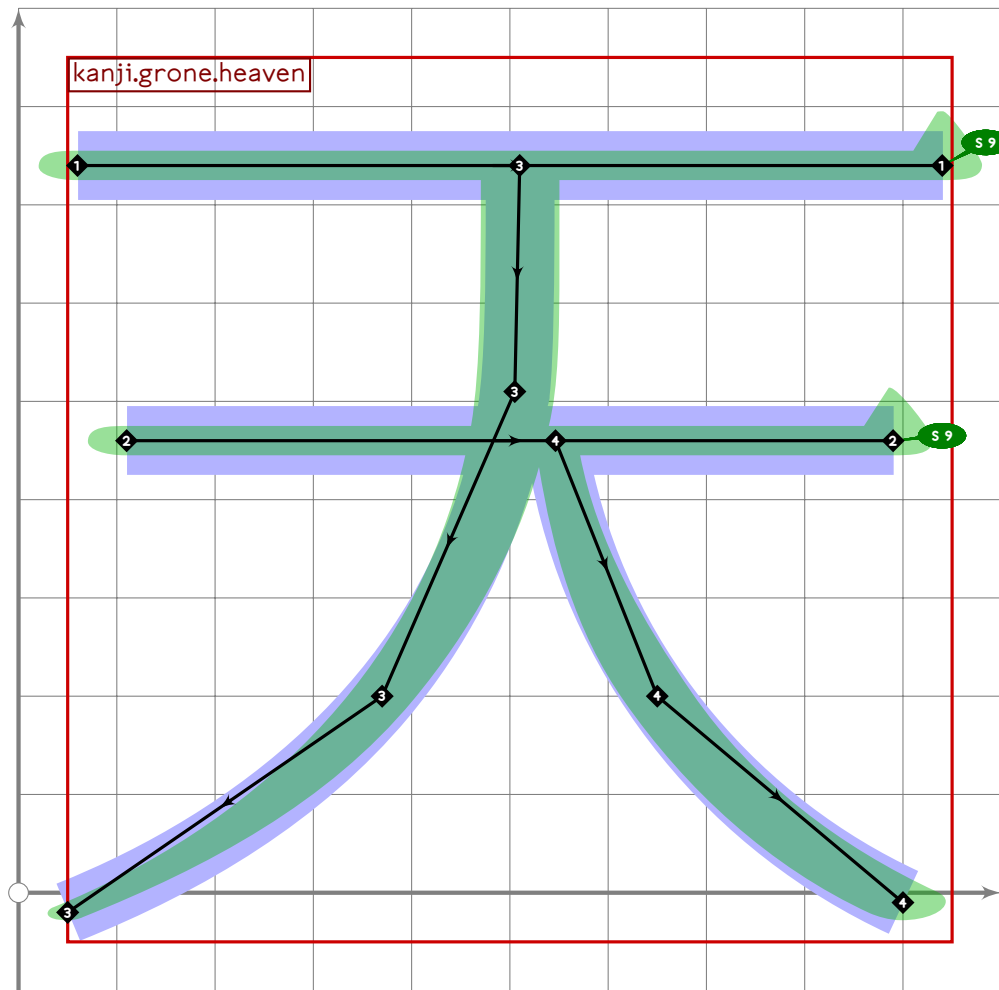
```
1 %
2 % Unicode page 59 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradefour.mp;
39 input gradenine.mp;
40 input gradeone.mp;
41 input gradethree.mp;
42 input gradetwo.mp;
43 input leftrad.mp;
44 input radical.mp;
45 input rare.mp;
46
47 

---

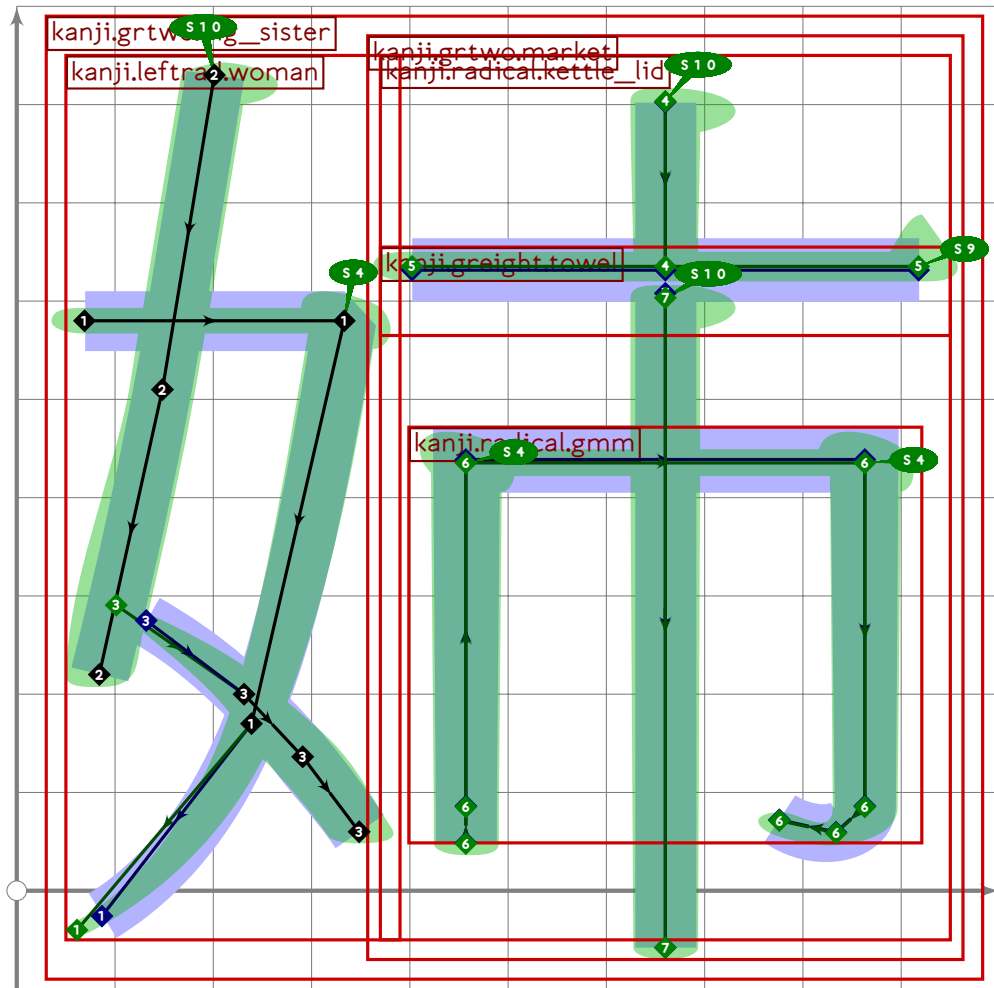

```



```

48
49 vardef kanji.grone.heaven =
50   push_pbox_toexpand("kanji.grone.heaven");
51   push_stroke((60,740)-(940,740),(1.6,1.6)-(1.6,1.6));
52   set_boserif(0,1,9);
53   push_stroke((110,460)-(890,460),(1.6,1.6)-(1.6,1.6));
54   set_boserif(0,1,9);
55   push_stroke((510,740){down}..(505,510)..(370,200)..{curl 0.5}(50,-20),
56     (1.6,1.6)-(1.6,1.6)-(1.4,1.4)-(1.1,1.1));
57   push_stroke(((get_strokep(-1) intersectionpoint get_strokep(0))+50,0)..
58     (650,200)..(900,-10),
59     (1.1,1.1)-(1.5,1.5)-(1.7,1.7));
60   expand_pbox;
61 enddef;
62
63

```

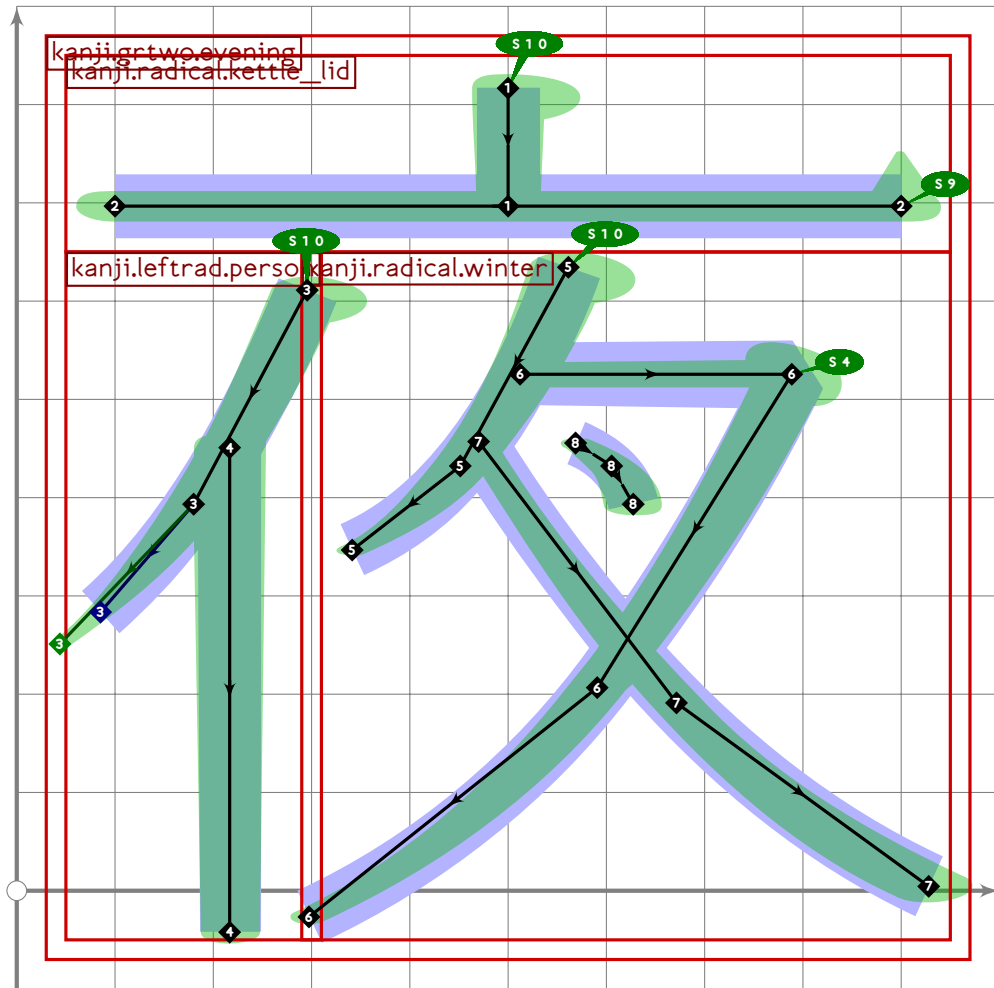


```

64
65 vardef kanji.grtwo.big_sister =
66   push_pbox_toexpand("kanji.grtwo.big_sister");
67   build_kanji.lr(380,20)
68     (kanji.leftrad.woman)
69     (kanji.grtwo.market);
70   expand_pbox;
71 enddef;

```

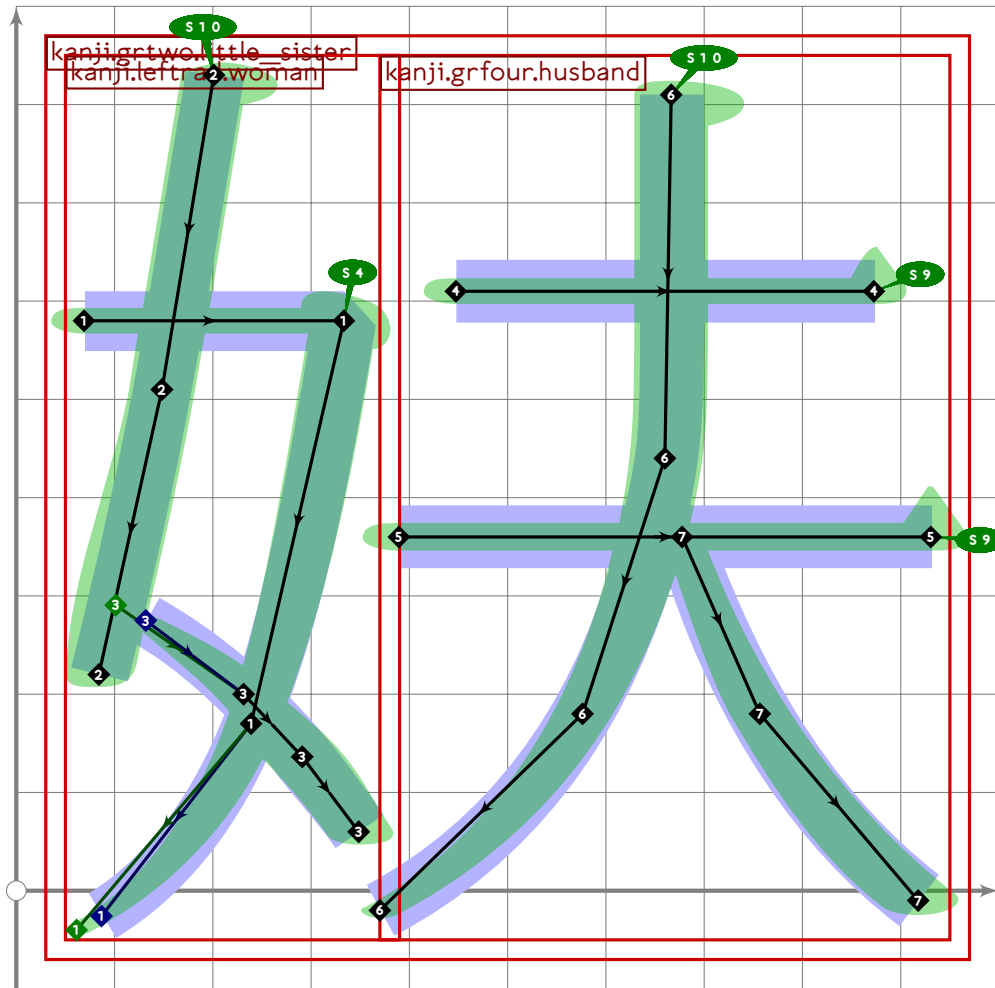




```

72
73 vardef kanji.grtwo.evening =
74   push_pbox_toexpand("kanji.grtwo.evening");
75   build_kanji.level(build_kanji.tb(650,0)
76     (kanji.radical.kettle_lid)
77     (build_kanji.lr(300,20)
78       (kanji.leftrad.person)
79       (kanji.radical.winter;
80         push_stroke(
81           (430,600)..tension 1.2..(480,570)..(510,520),
82           (1,1,1)-(1,4,1,4)-(1,6,1,6)))));
83   set_bosize(0,73);
84   expand_pbox;
85 enddef;

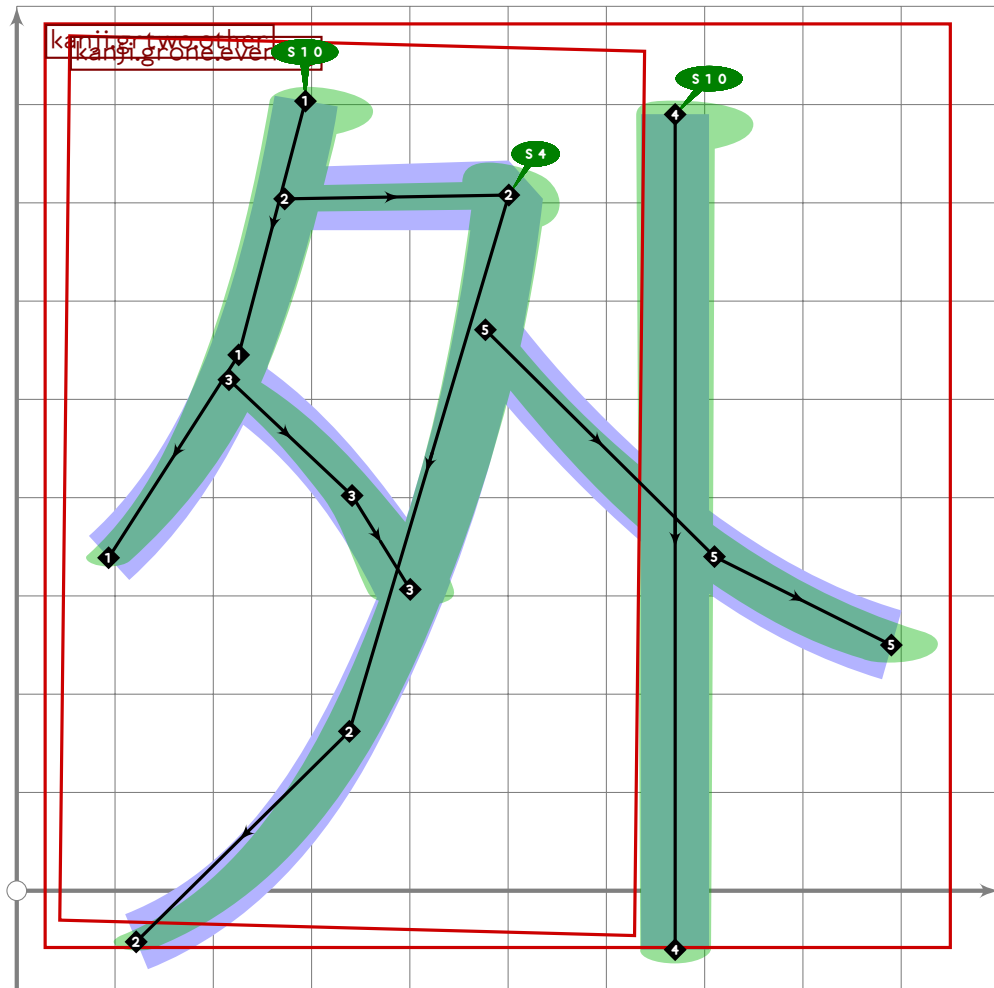
```



```

86
87 vardef kanji.grtwo.little_sister =
88   push_pbox_toexpand("kanji.grtwo.little_sister");
89   build_kanji.lr(380,20)
90     (kanji.leftrad.woman)
91     (kanji.grfour.husband);
92   expand_pbox;
93 enddef;

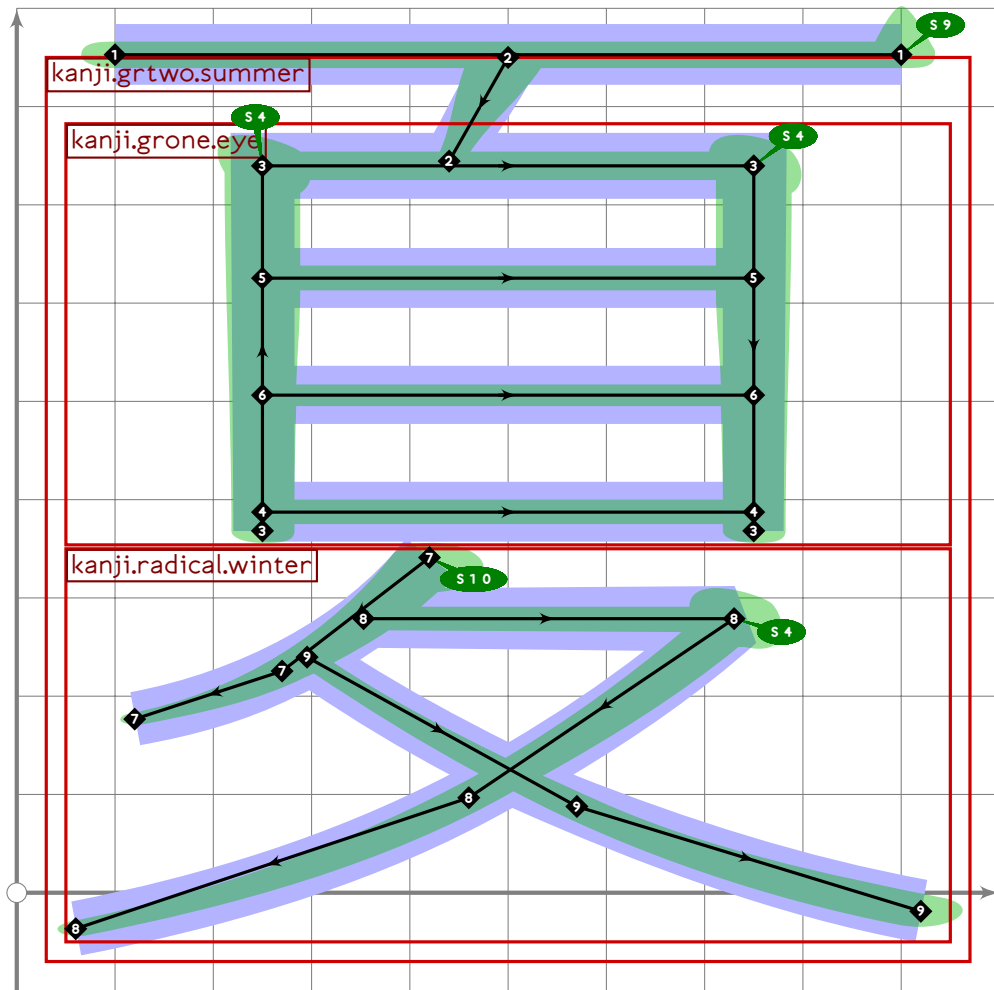
```



```

94
95 vardef kanji.grtwo.other =
96   push_pbox_toexpand("kanji.grtwo.other");
97   tsu_xform(identity shifted (-50,-500) rotated -1 xscaled 0.65
98     shifted (50,520))
99   (kanji.grone.evening);
100  push_stroke((670,790)..(670,-60),
101    (1.6,1.6)-(1.5,1.5));
102  set_boserif(0,0,10);
103  push_stroke(
104    (point 1.25 of get_stroke(-2))..tension 1.2..(710,340)..(890,250),
105    (1.1,1.1)-(1.5,1.5)-(1.8,1.8));
106  expand_pbox;
107 enddef;

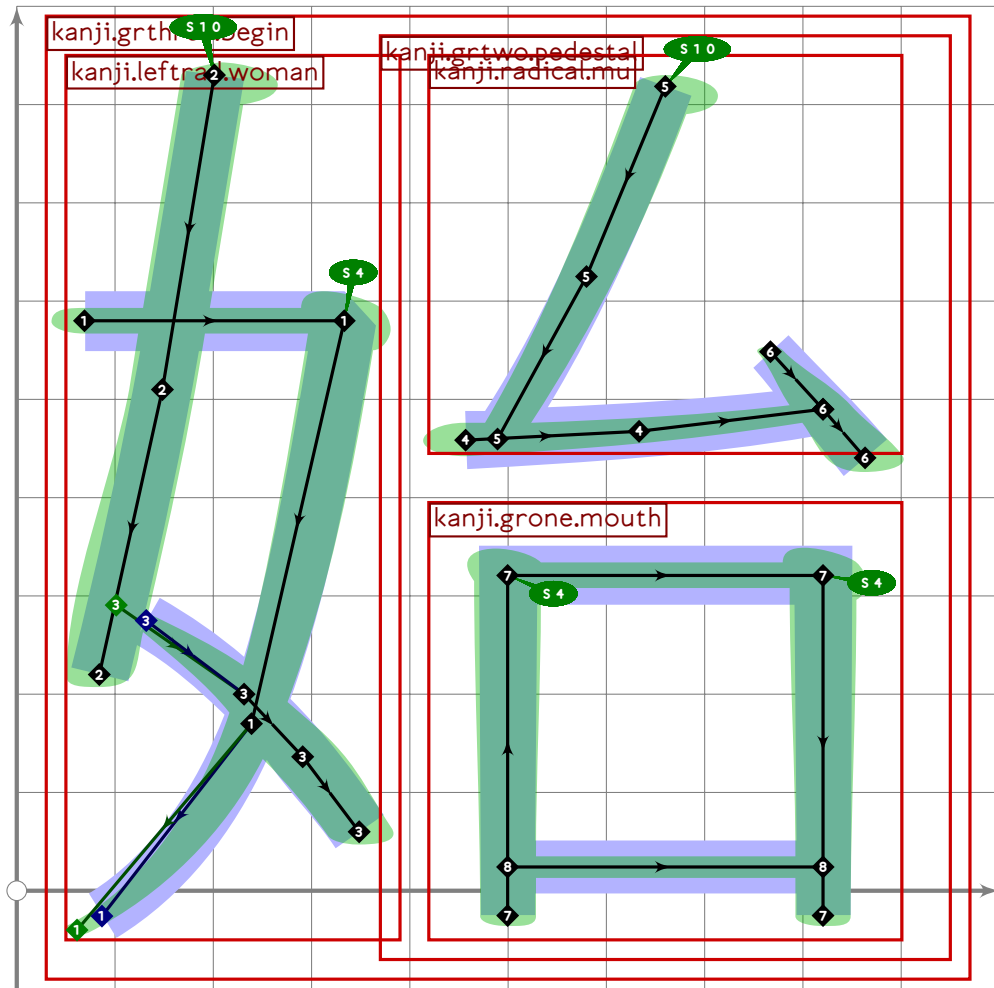
```



```

108
109 vardef kanji.grtwo.summer =
110   push_pbox_toexpand("kanji.grtwo.summer");
111   build_kanji.level(build_kanji.tb(350,0)
112     (push_stroke((100,855)-(900,855),(1.6,1.6));
113       set_boserif(0,1,9);
114       push_stroke((500,850)-(440,660),(1.7,1.7)-(1,1));
115       tsu_xform(identity yscaled (660/770))(kanji.grone.eye)
116       (kanji.radical.winter));
117   expand_pbox;
118 enddef;
119
120

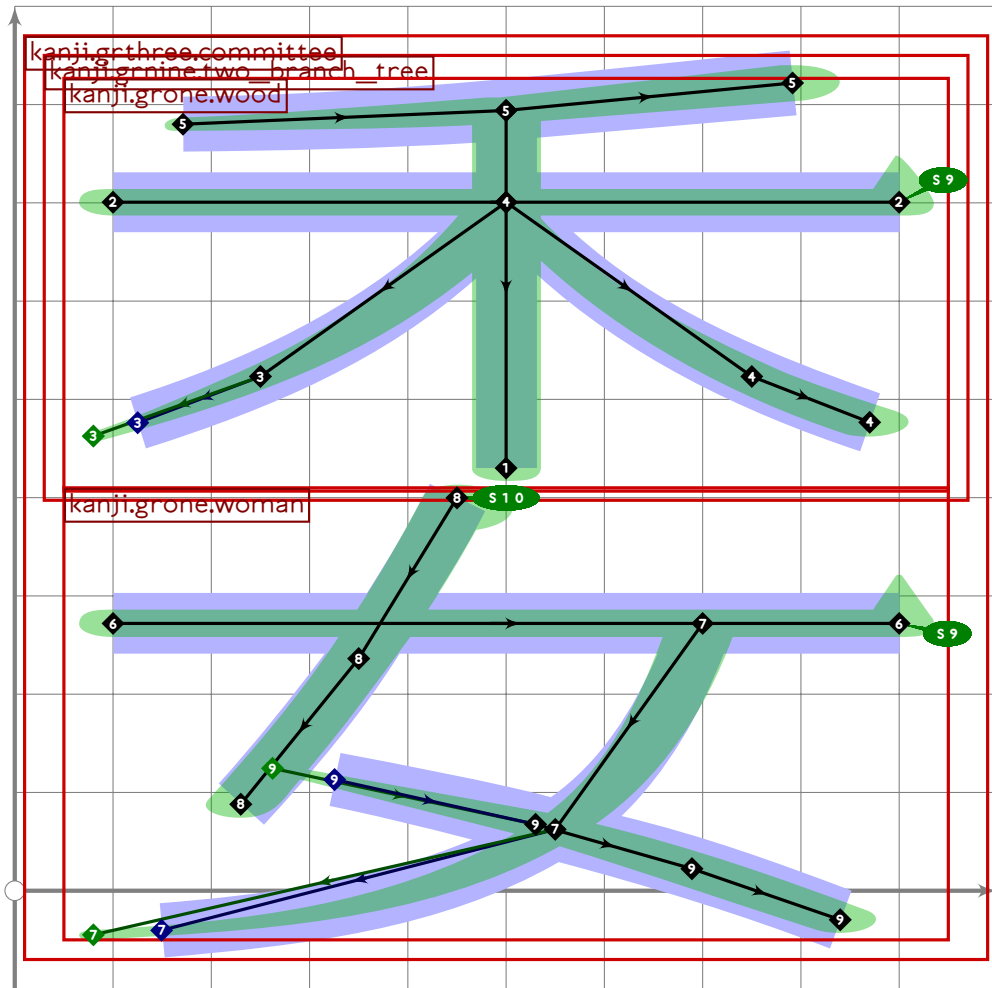
```



```

121
122 vardef kanji.grthree.begin =
123   push_pbox_toexpand("kanji.grthree.begin");
124   build_kanji.lr(380,20)
125     (kanji.leftrad.woman)
126     (kanji.grtwo.pedestal);
127   expand_pbox;
128 enddef;

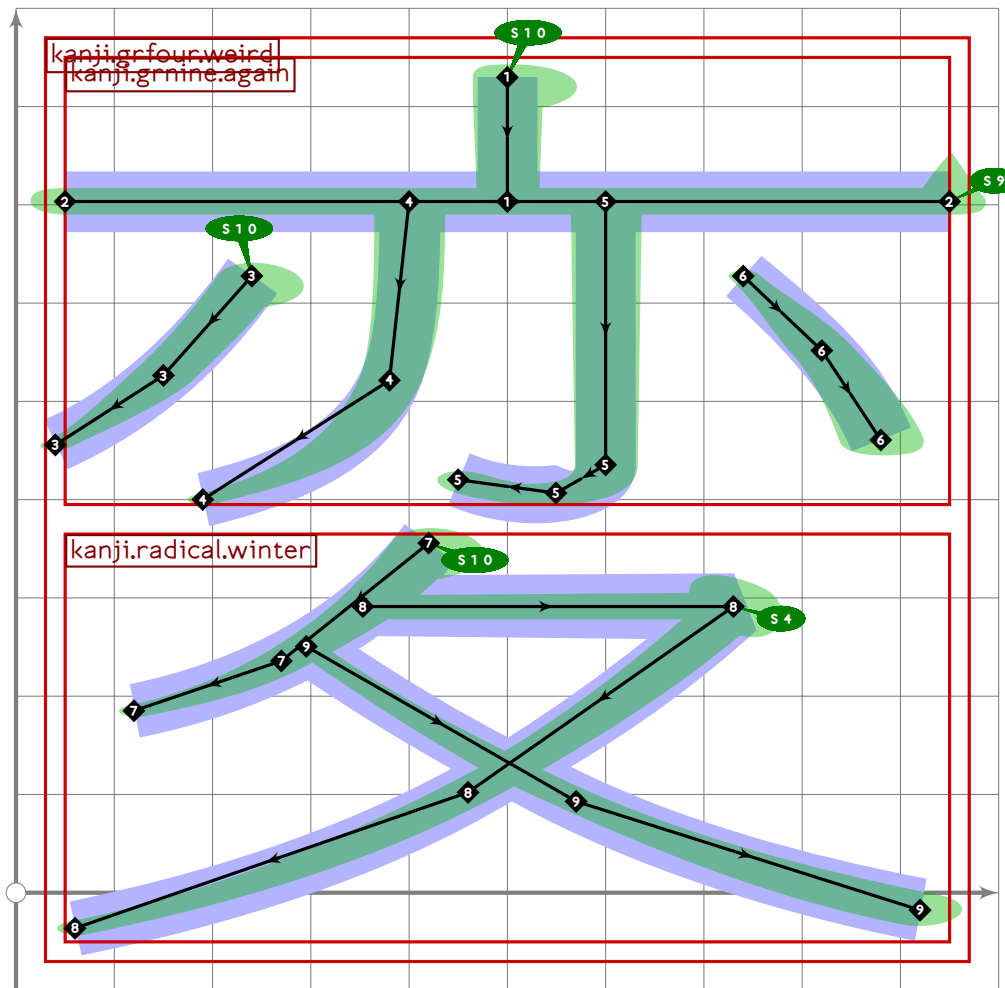
```



```

129
130 vardef kanji.grthree.committee =
131   push_pbox_toexpand("kanji.grthree.committee");
132   build_kanji.tb(420,-20)
133     (kanji.grnine.two_branch_tree)
134     (kanji.grone.woman);
135   expand_pbox;
136 enddef;
137
138

```



```

139
140 vardef kanji.grfour.weird =
141   push_pbox_toexpand("kanji.grfour.weird");
142   build_kanji.level(build_kanji.tb(380,-30)
143     (kanji.grnine.again)
144     (kanji.radical.winter));
145   expand_pbox;
146 enddef;
147
148
149
150 % chi/shuu "winter radical"
151 begintsuglyph("uni5902";2);
152   kanji.radical.winter;
153   tsu_render;
154 endtsuglyph;
155
156 % hen/ka "weird"
157 begintsuglyph("uni5909";9);
158   kanji.grfour.weird;
159   tsu_render;

```

[see page 360]

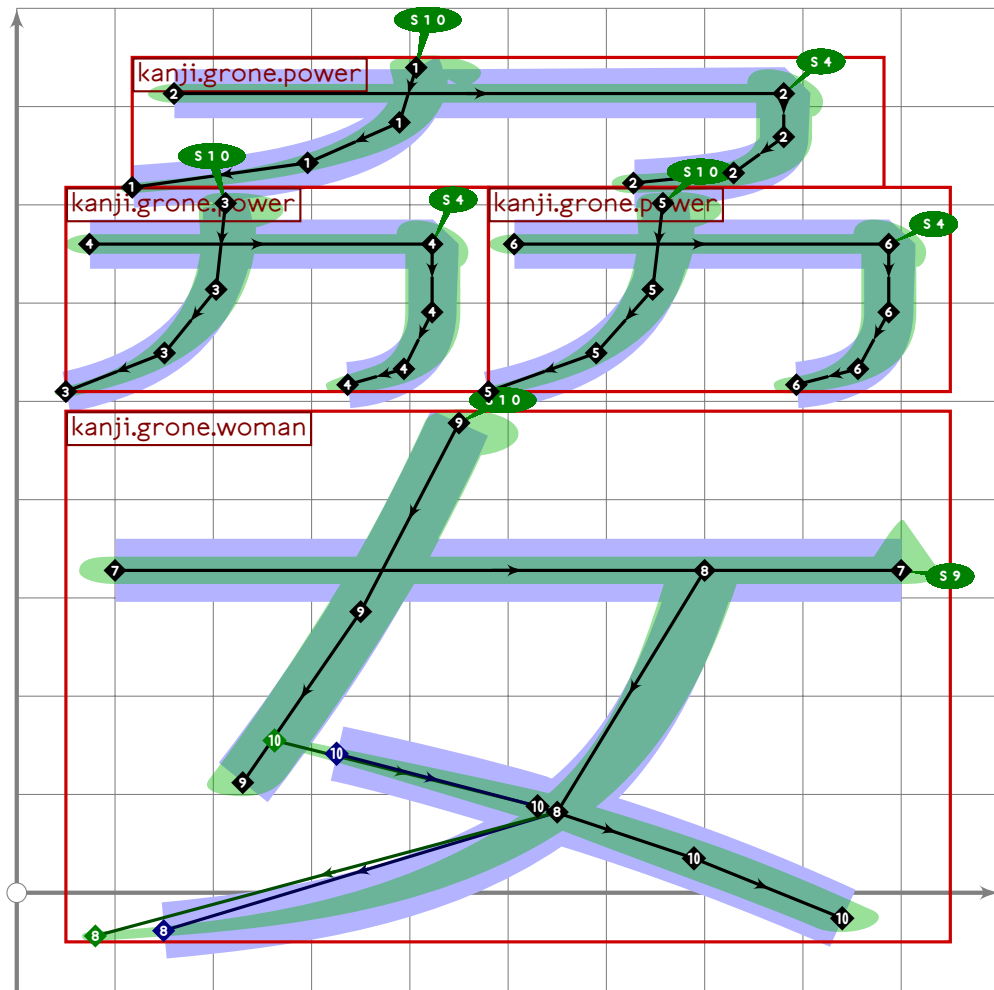
[see page 1451]

160 endtsuglyph;  
161  
162 % ka/natsu "summer"  
163 begintsuglyph("uni590F",15); [see page 1448]  
164 kanji.grtwo.summer;  
165 tsu\_render;  
166 endtsuglyph;  
167  
168 % yuu/seki "evening"  
169 begintsuglyph("uni5915",21); [see page 381]  
170 kanji.grone.evening;  
171 tsu\_render;  
172 endtsuglyph;  
173  
174 % gai/hoka "except"  
175 begintsuglyph("uni5916",22); [see page 1447]  
176 kanji.grtwo.other;  
177 tsu\_render;  
178 endtsuglyph;  
179  
180 % ta/oo "many"  
181 begintsuglyph("uni591A",26); [see page 448]  
182 kanji.grtwo.many;  
183 tsu\_render;  
184 endtsuglyph;  
185  
186 % ya/yoru "evening"  
187 begintsuglyph("uni591C",28); [see page 1445]  
188 kanji.grtwo.evening;  
189 tsu\_render;  
190 endtsuglyph;  
191  
192 % dai/oo "big"  
193 begintsuglyph("uni5927",39); [see page 368]  
194 kanji.grone.big;  
195 tsu\_render;  
196 endtsuglyph;  
197  
198 % ten "heaven"  
199 begintsuglyph("uni5929",41); [see page 1443]  
200 kanji.grone.heaven;  
201 tsu\_render;  
202 endtsuglyph;  
203  
204 % tai/futo "thick"  
205 begintsuglyph("uni592A",42); [see page 470]  
206 kanji.grtwo.thick;  
207 tsu\_render;



208 `endtsuglyph;`  
209  
210 `% fu/otto "husband"`  
211 `begintsuglyph("uni592B",43);` [see page 506]  
212 `kanji.grfour.husband;`  
213 `tsu_render;`  
214 `endtsuglyph;`  
215  
216 `% rare, but needed to build more common glyphs`  
217 `begintsuglyph("uni592C",44);` [see page 559]  
218 `kanji.rare.decide;`  
219 `tsu_render;`  
220 `endtsuglyph;`  
221  
222 `% rare, but needed to build more common glyphs`  
223 `begintsuglyph("uni592D",45);` [see page 560]  
224 `kanji.rare.early_death;`  
225 `tsu_render;`  
226 `endtsuglyph;`  
227  
228 `% ou "centre"`  
229 `begintsuglyph("uni592E",46);` [see page 477]  
230 `kanji.grthree.centre;`  
231 `tsu_render;`  
232 `endtsuglyph;`  
233  
234 `% shitsu/ushina "disappear"`  
235 `begintsuglyph("uni5931",49);` [see page 500]  
236 `kanji.grfour.disappear;`  
237 `tsu_render;`  
238 `endtsuglyph;`  
239  
240 `% en/oo "suffocate"`  
241 `begintsuglyph("uni5944",68);` [see page 552]  
242 `kanji.grnine.suffocate;`  
243 `tsu_render;`  
244 `endtsuglyph;`  
245  
246 `% jo/onna "woman"`  
247 `begintsuglyph("uni5973",115);` [see page 423]  
248 `kanji.grone.woman;`  
249 `tsu_render;`  
250 `endtsuglyph;`  
251  
252 `% me/yatsu "guy"`  
253 `begintsuglyph("uni5974",116);` [see page 532]  
254 `kanji.greight.guy;`  
255 `tsu_render;`

256 `endtsuglyph;`  
257  
258 `% kou/su "fancy" (British sense)`  
259 `begintsuglyph("uni597D",125);` [see page 503]  
260 `kanji.grfour.fancy;`  
261 `tsu_render;`  
262 `endtsuglyph;`  
263  
264 `% mai/imouto "younger sister"`  
265 `begintsuglyph("uni59B9",185);` [see page 1446]  
266 `kanji.grtwo.little_sister;`  
267 `tsu_render;`  
268 `endtsuglyph;`  
269  
270 `% nee as in onesan "elder sister"`  
271 `begintsuglyph("uni59C9",201);` [see page 1444]  
272 `kanji.grtwo.big_sister;`  
273 `tsu_render;`  
274 `endtsuglyph;`  
275  
276 `% shi/haji "begin"`  
277 `begintsuglyph("uni59CB",203);` [see page 1449]  
278 `kanji.grthree.begin;`  
279 `tsu_render;`  
280 `endtsuglyph;`  
281  
282 `% i/yuda "committee"`  
283 `begintsuglyph("uni59D4",212);` [see page 1450]  
284 `kanji.grthree.committee;`  
285 `tsu_render;`  
286 `endtsuglyph;`  
287



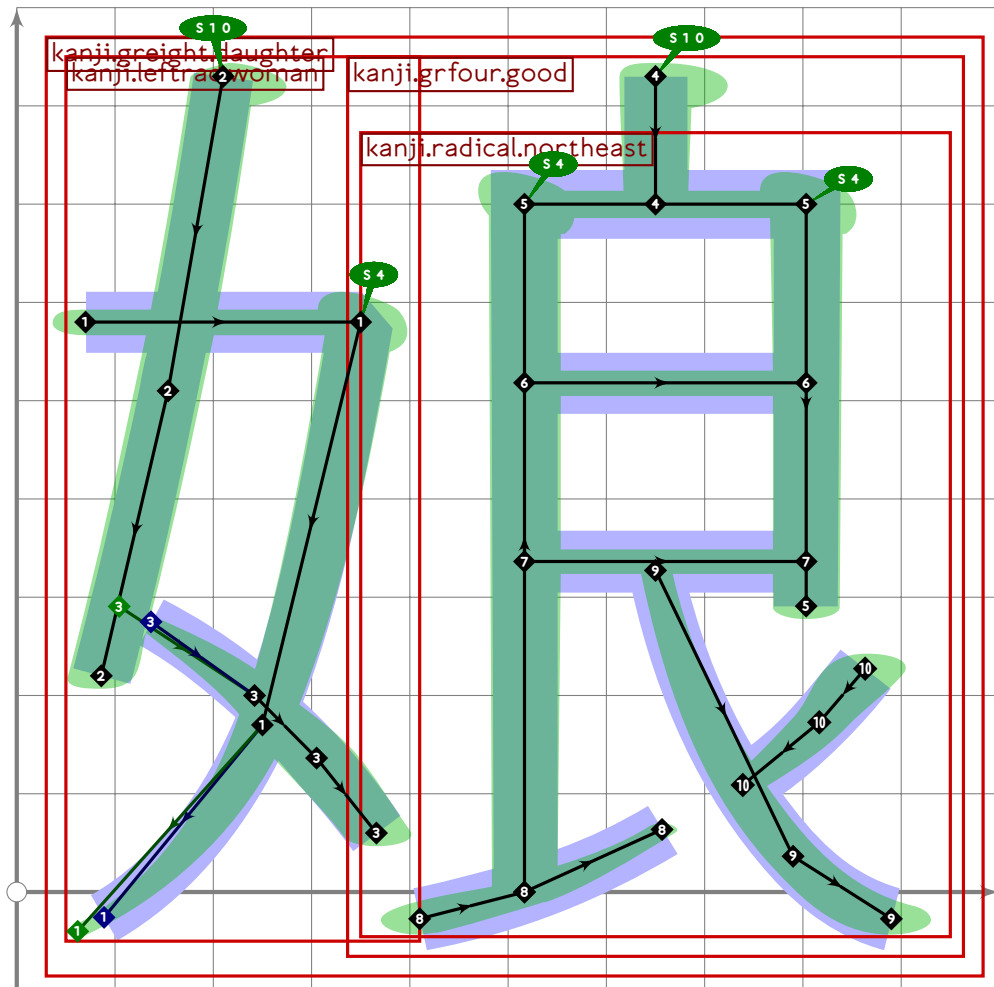
```

288 % extra
289 begint Suglyph("uni59ED",237);
290 build_kanji.tb(500,-20)
291   (build_kanji.tricluster(0.85)
292     (kanji.grone.power)
293     (kanji.grone.power)
294     (kanji.grone.power))
295   (kanji.grone.woman);
296 tsu_render;
297 endtsuglyph;
298
299 _____
300
301 endfont;
302
303 _____

```

# tsuku-5a.mp

```
1 %  
2 % Unicode page 5a (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradefour.mp;  
38 input leftrad.mp;  
39 input radical.mp;  
40  
41 _____
```



```
42  
43 vardef kanji.greight.daughter =
```

```
44 push_pbox_toexpand("kanji.greight.daughter");
45 build_kanji.lr(380,60)
46   (kanji.leftrad.woman)
47   (kanji.grfour.good);
48 expand_pbox;
49 enddef;
50
51 

---


52
53 % chi/shuu "winter radical"
54 begintsuglyph("uni5A18",24); [see page 1456]
55   kanji.greight.daughter;
56   tsu_render;
57 endtsuglyph;
58
59 

---


60
61 endfont;
62
63 

---


```

# tsuku-5b.mp

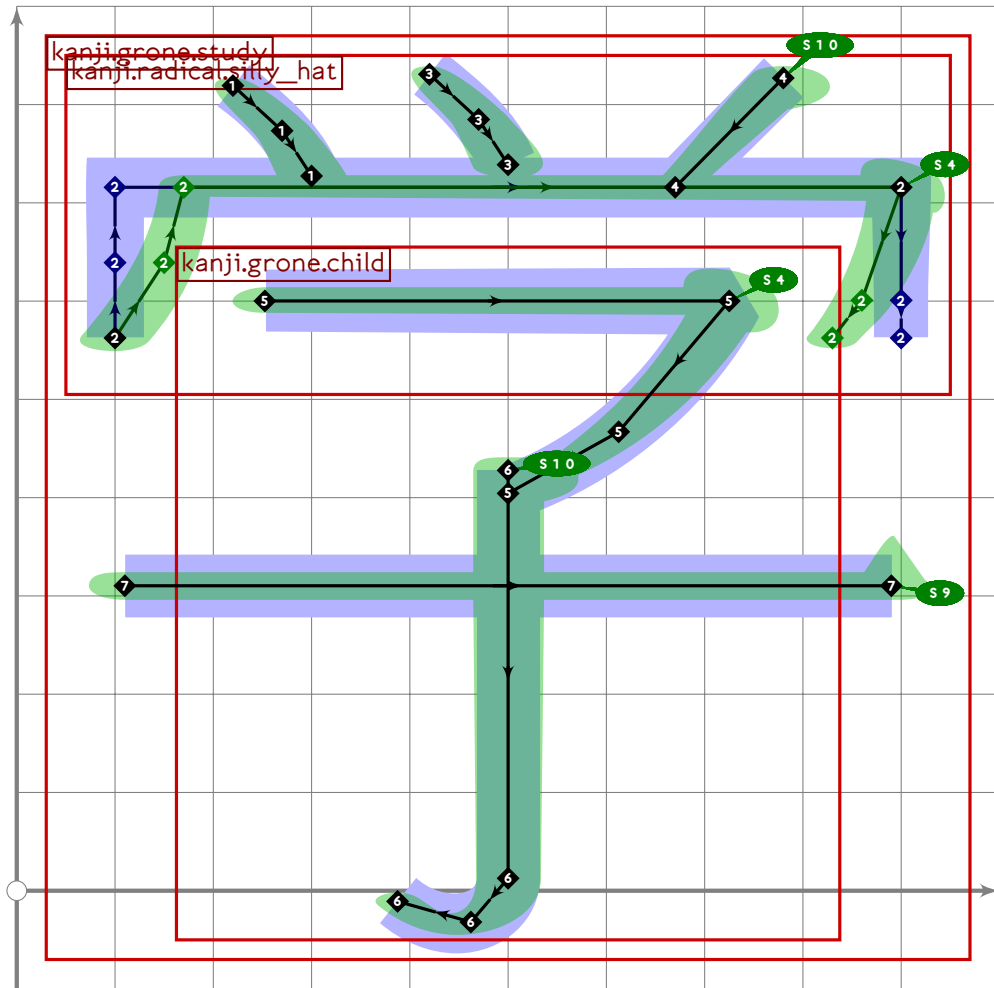
```
1 %
2 % Unicode page 5b (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradefour.mp;
39 input gradeone.mp;
40 input gradesix.mp;
41 input gradethree.mp;
42 input gradetwo.mp;
43 input leftrad.mp;
44 input radical.mp;
45 input rare.mp;
46
47 

---


```



```

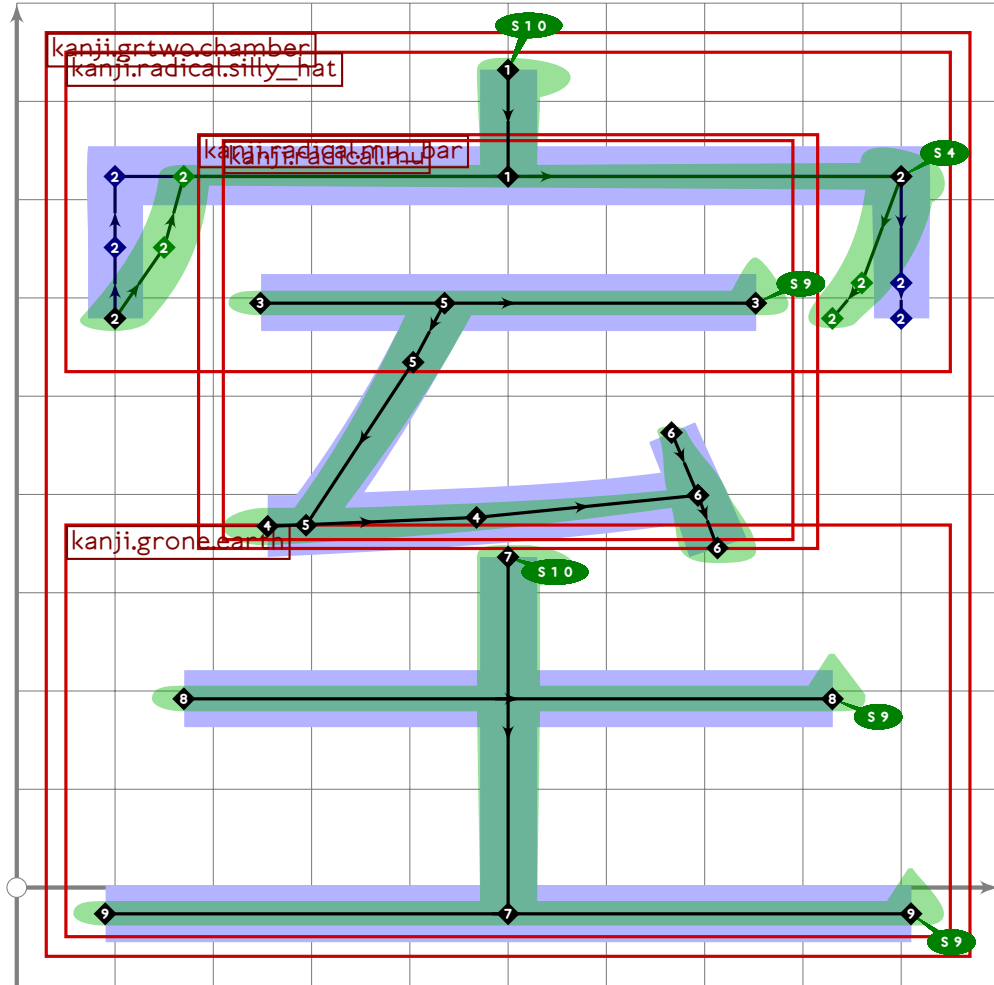
48
49 vardef kanji.grone.study =
50   push_pbox_toexpand("kanji.grone.study");
51   begingroup
52     save saved_path;
53     path saved_path;
54     build_kanji.tb(580,150)
55       (kanji.radical.silly_hat;
56         replace_strokep(-1)((220,770)..(270,650)..(300,530));
57         replace_strokeq(-1)((1.2,1.2)-(1.5,1.5)-(1.7,1.7));
58         set_bosize(-1)(95);
59         set_boserif(-1,0,whatever);
60         push_stroke((420,800)..(470,680)..(500,560),
61           (1.2,1.2)-(1.5,1.5)-(1.7,1.7));
62         set_bosize(0,95);
63         push_stroke((780,790)-(670,500),(1.7,1.7)-(1.3,1.3));
64         set_bosize(0,95);
65         set_boserif(0,0,10);
66       )
67     (build_kanji.sscale(xscaled 0.75)
68       (kanji.grone.child;saved_path:=get_strokep(0));

```

```

69     replace_stroke(0)(saved_path));
70 endgroup;
71 expand_pbox;
72 enddef;
73
74

```

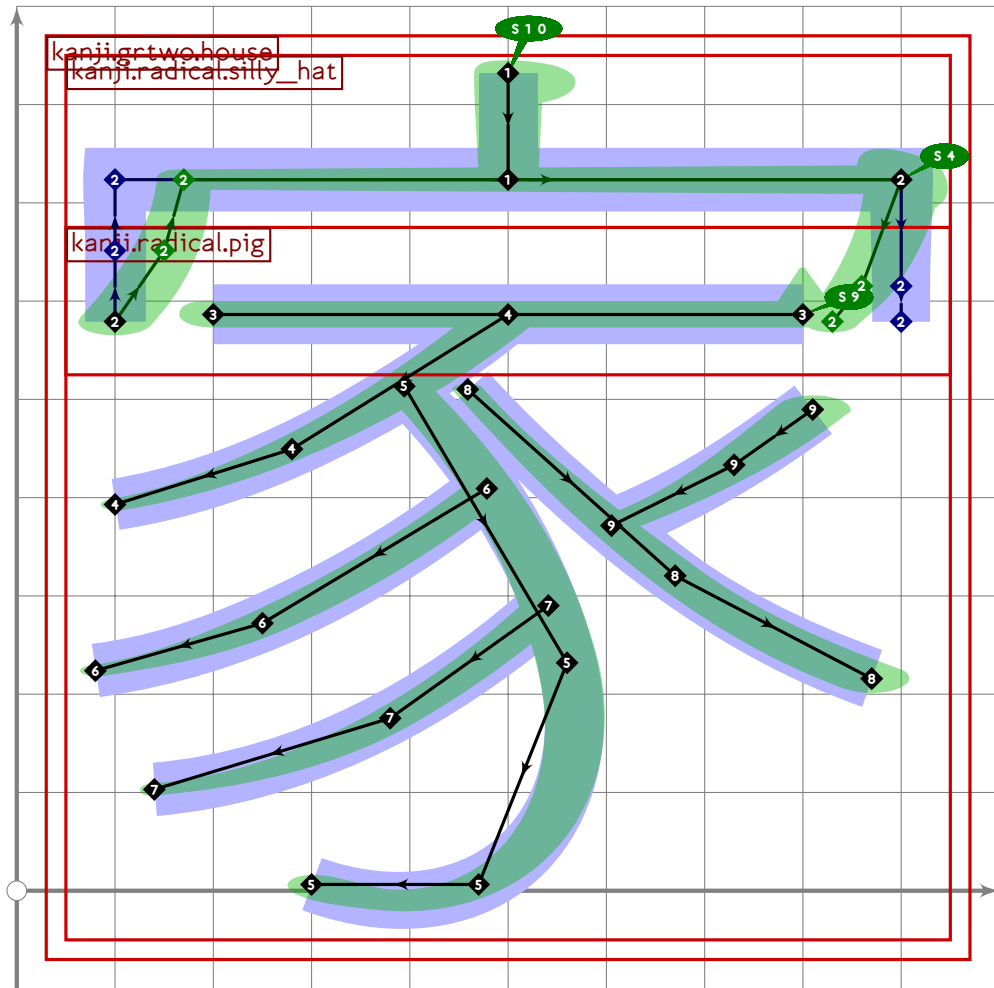


```

75
76 vardef kanji.grtwo.chamber =
77   push_pbox_toexpand("kanji.grtwo.chamber");
78   build_kanji.tb(600,150)
79     (kanji.radical.silly_hat)
80     (build_kanji.level(build_kanji.tb(420,100)
81       (build_kanji.sscale(scaled 0.7)(kanji.radical.mu_bar))
82       (kanji.grone.earth)));
83   expand_pbox;
84 enddef;

```

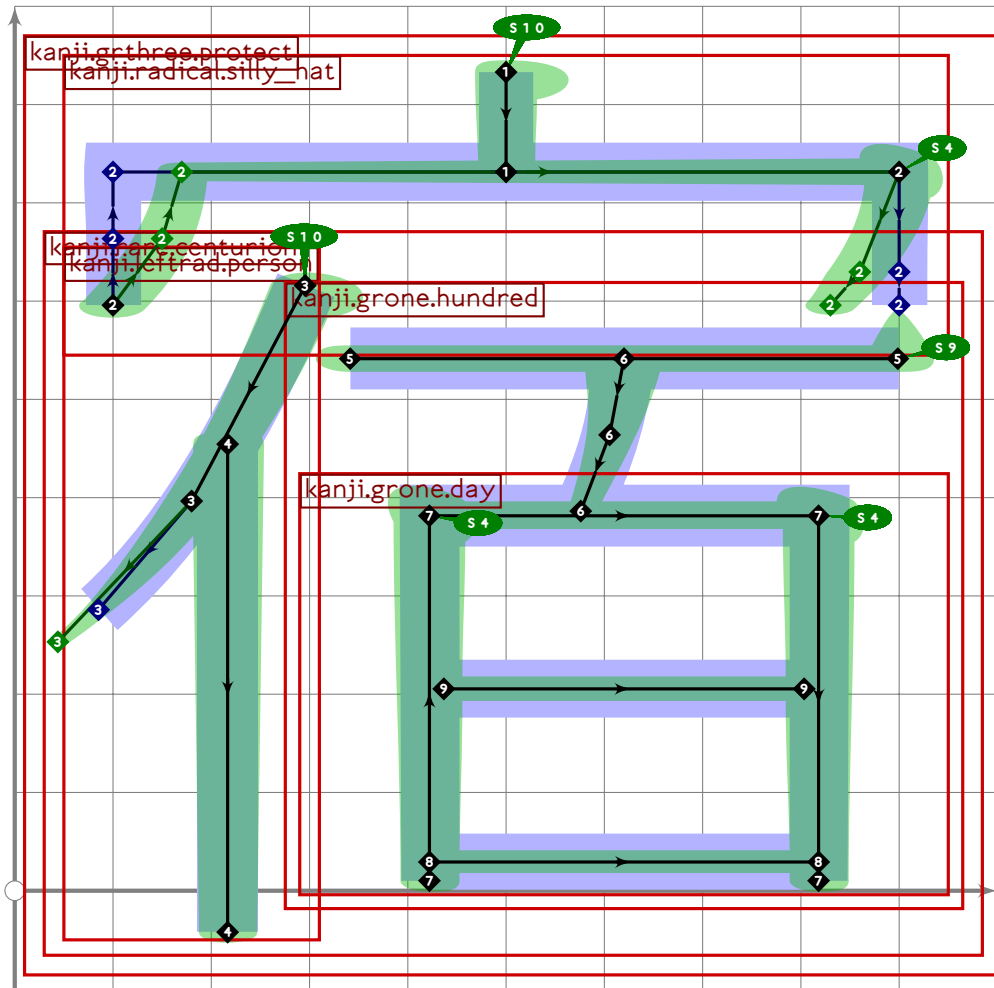




```

85
86 vardef kanji.grtwo.house =
87   push_pbox_toexpand("kanji.grtwo.house");
88   build_kanji.level(build_kanji.tb(600,150)
89     (kanji.radical.silly_hat)
90     (kanji.radical.pig));
91   expand_pbox;
92 enddef;
93
94

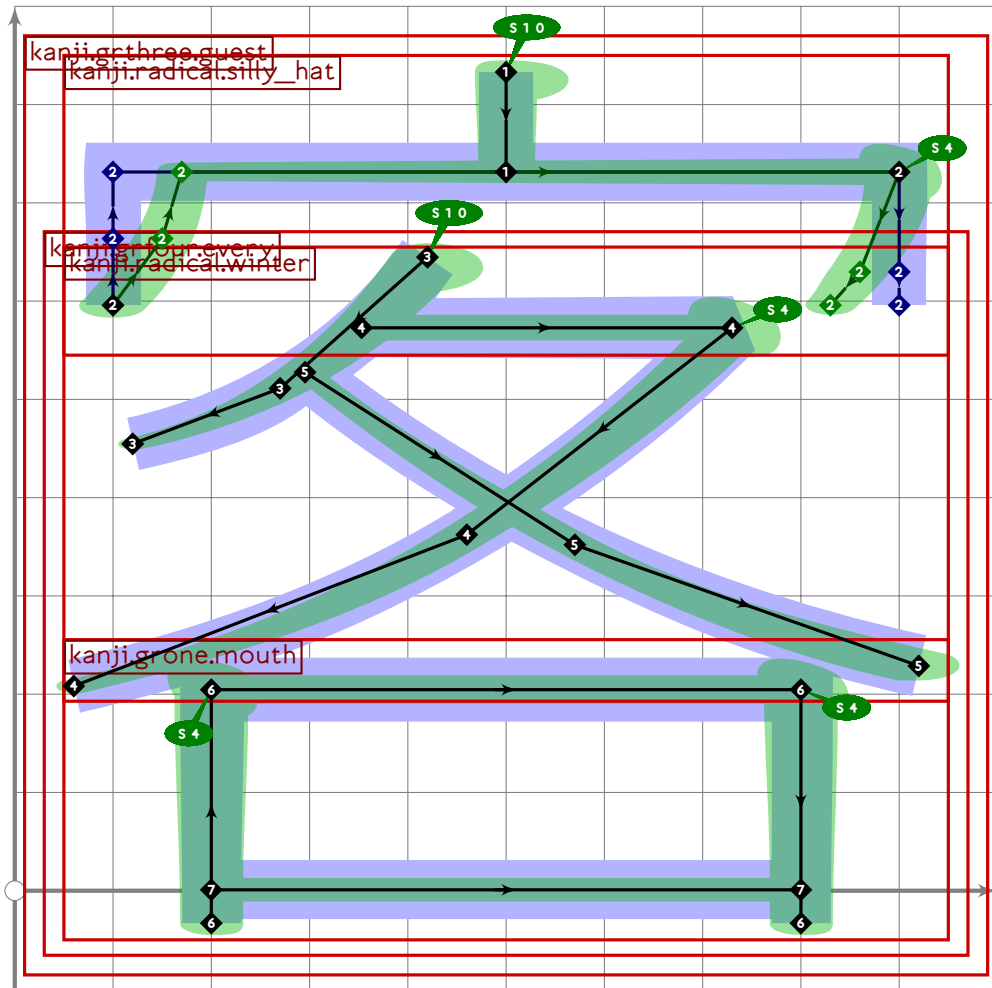
```



```

95
96 vardef kanji.grthree.inn =
97   push_pbox_toexpand("kanji.grthree.protect");
98   build_kanji.tb(600,110)
99     (kanji.radical.silly_hat)
100     (kanji.rare.centurion);
101   expand_pbox;
102 enddef;

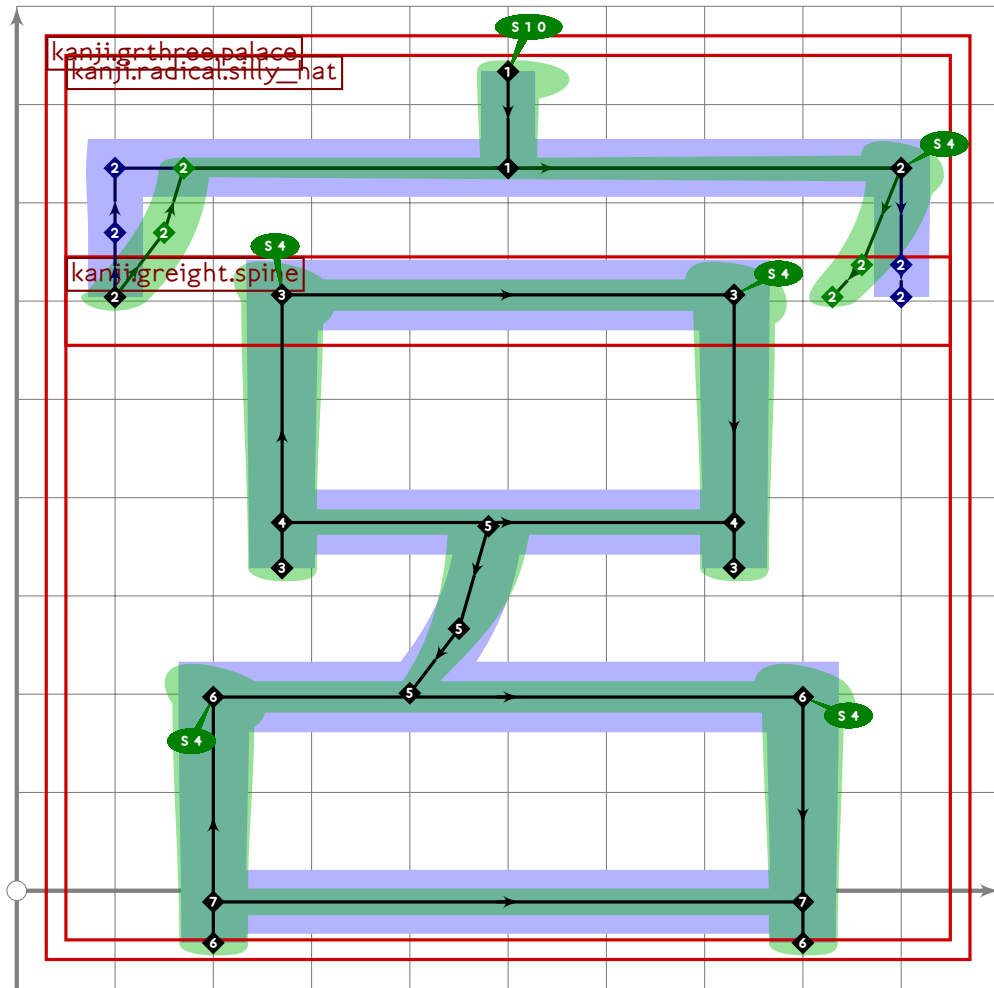
```



```

103
104 vardef kanji.grthree.guest =
105   push_pbox_toexpand("kanji.grthree.guest");
106   build_kanji.tb(600,110)
107     (kanji.radical.silly_hat)
108     (kanji.grfour.every);
109   expand_pbox;
110 enddef;

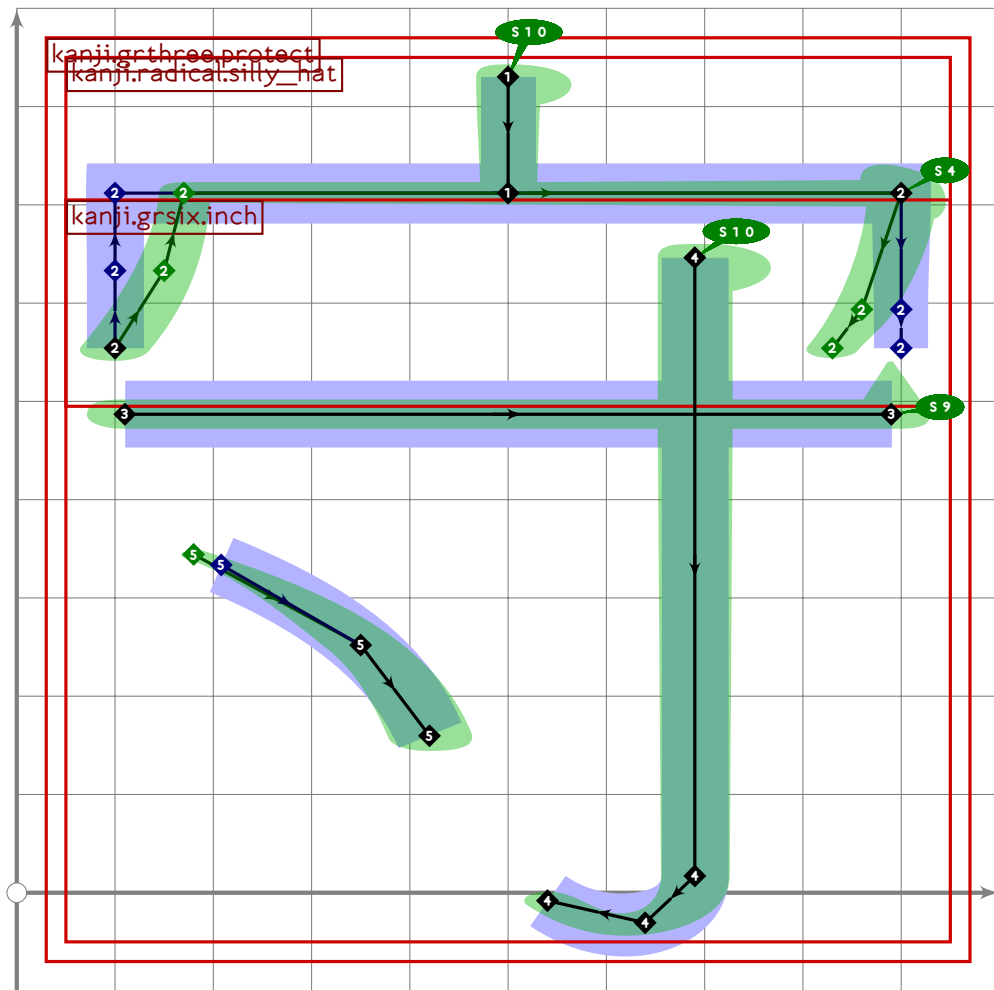
```



```

111
112 vardef kanji.grthree.palace =
113   push_pbox_toexpand("kanji.grthree.palace");
114   build_kanji.tb(600,90)
115     (kanji.radical.silly_hat)
116     (kanji.greight.spine);
117   expand_pbox;
118 enddef;

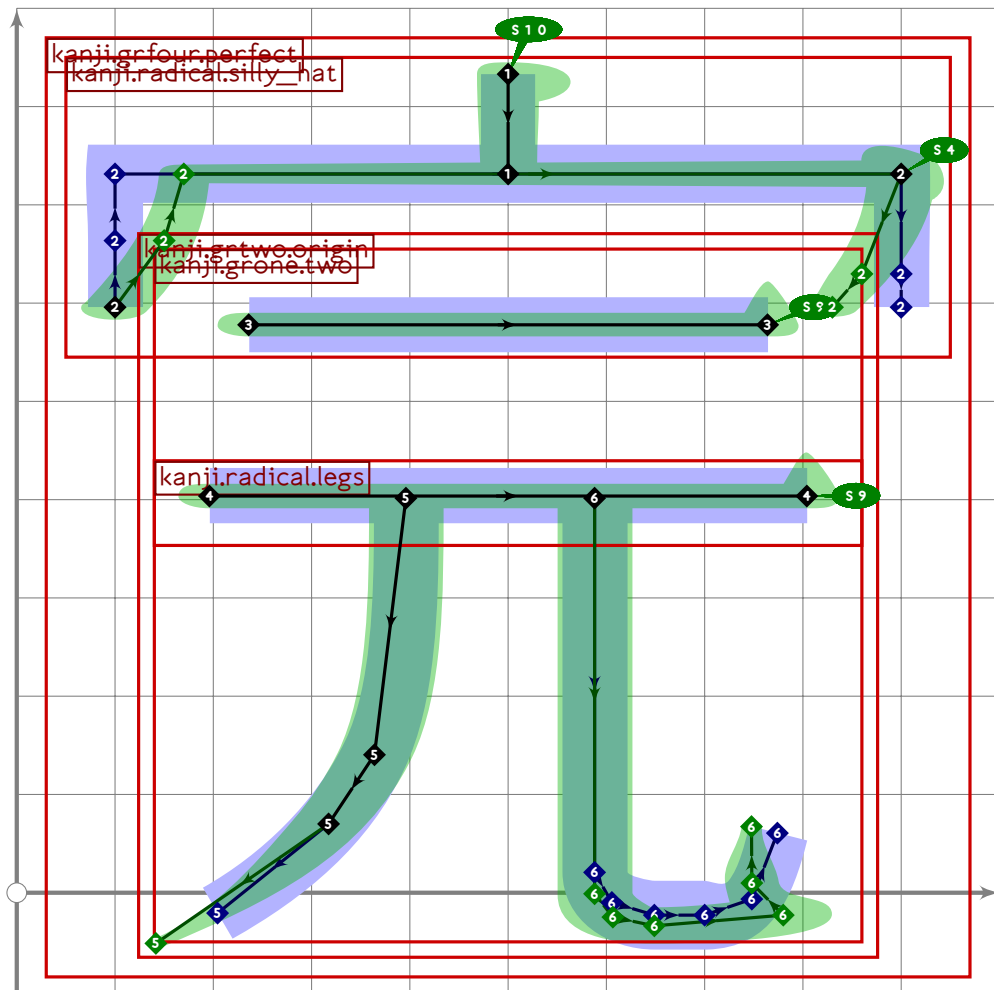
```



```

119
120 vardef kanji.grthree.protect =
121   push_pbox_toexpand("kanji.grthree.protect");
122   build_kanji.tb(600,210)
123     (kanji.radical.silly_hat)
124     (kanji.grsix.inch);
125   expand_pbox;
126 enddef;
127
128

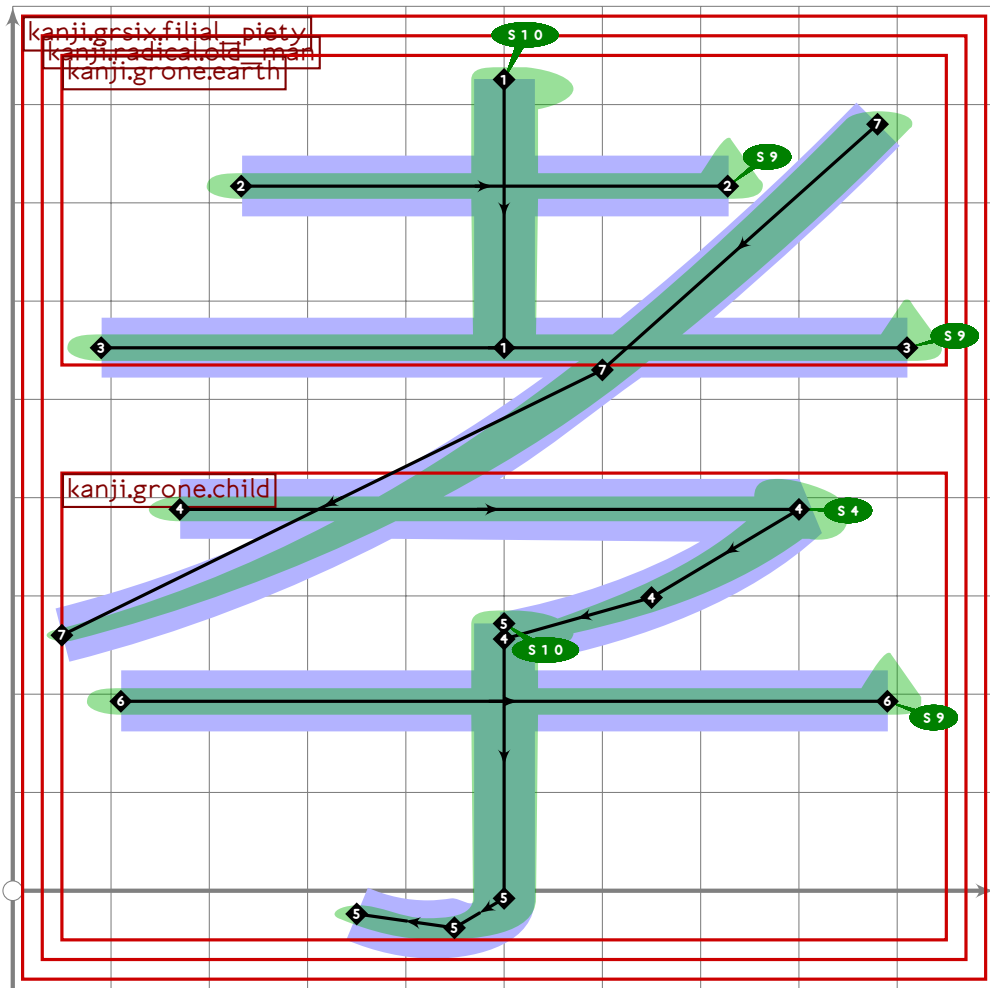
```



```

129
130 vardef kanji.grfour.perfect =
131   push_pbox_toexpand("kanji.grfour.perfect");
132   build_kanji.tb(600,110)
133     (kanji.radical.silly_hat)
134     (build_kanji.sscale(xscaled 0.8)(kanji.grtwo.origin));
135   expand_pbox;
136 enddef;
137
138

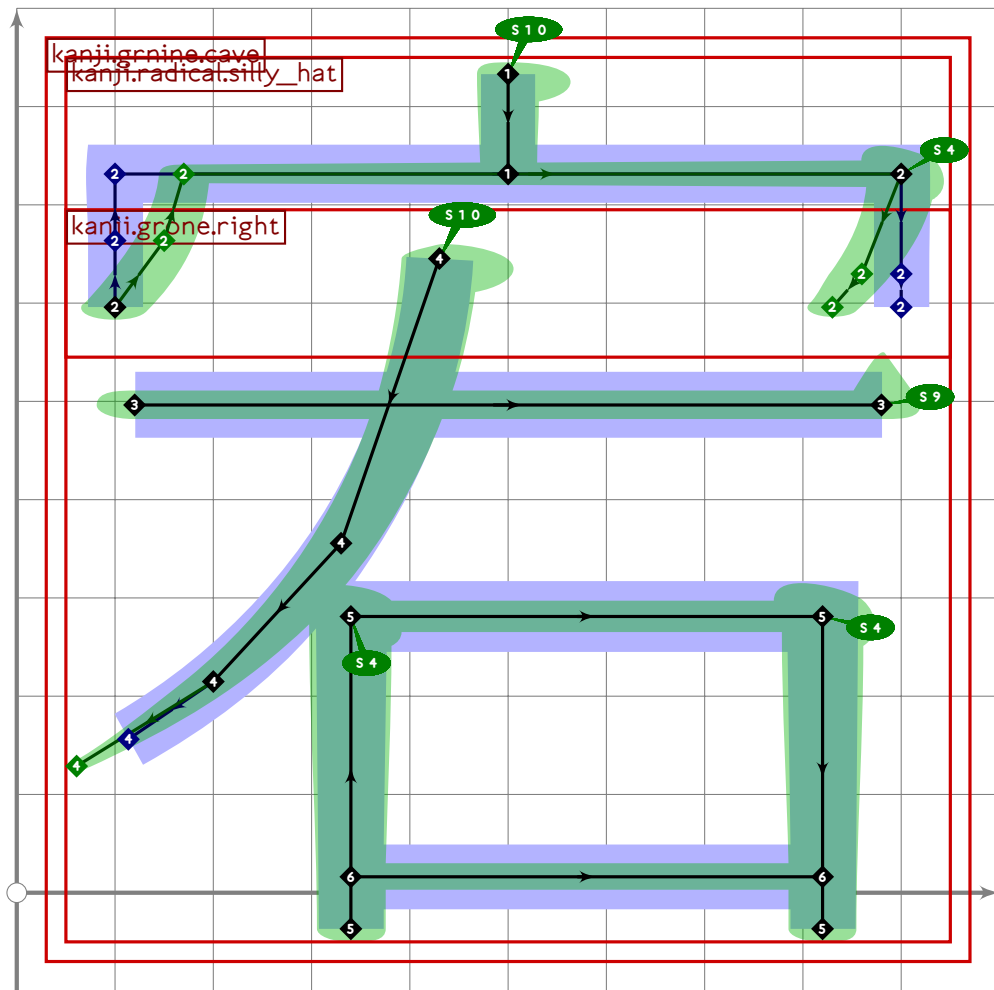
```



```

139
140 vardef kanji.grsix.filial_piety =
141   push_pbox_toexpand("kanji.grsix.filial_piety");
142   kanji.radical.old_man(kanji.grone.child);
143   expand_pbox;
144 enddef;
145
146

```

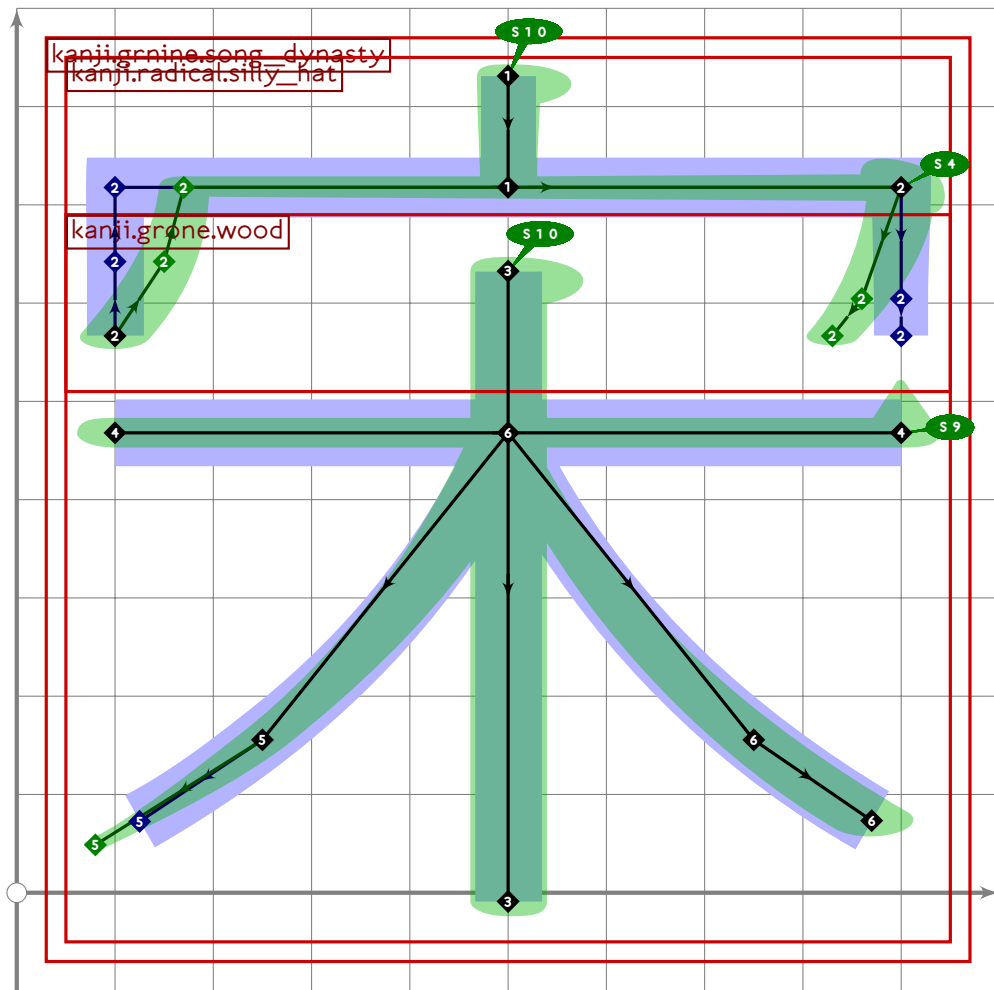


```

147
148 vardef kanji.grnine.cave =
149   push_pbox_toexpand("kanji.grnine.cave");
150   build_kanji.tb(620,150)
151     (kanji.radical.silly_hat)
152     (kanji.grone.right);
153   expand_pbox;
154 enddef;

```





```

155
156 vardef kanji.grnine.song_dynasty =
157   push_pbox_toexpand("kanji.grnine.song_dynasty");
158   build_kanji.tb(600,180)
159     (kanji.radical.silly_hat)
160     (kanji.grone.wood);
161   expand_pbox;
162 enddef;

```

```

163
164
165
166 % ko "child"
167 begintsuglyph("uni5B50",80);
168   kanji.grone.child;
169   tsu_render;
170 endtsuglyph;

```

[see page 373]

```

171
172 % ketsu/hitori "mosquito larva"
173 begintsuglyph("uni5B51",81);
174   kanji.rare.mosquito_larva;
175   tsu_render;

```

[see page 563]

```

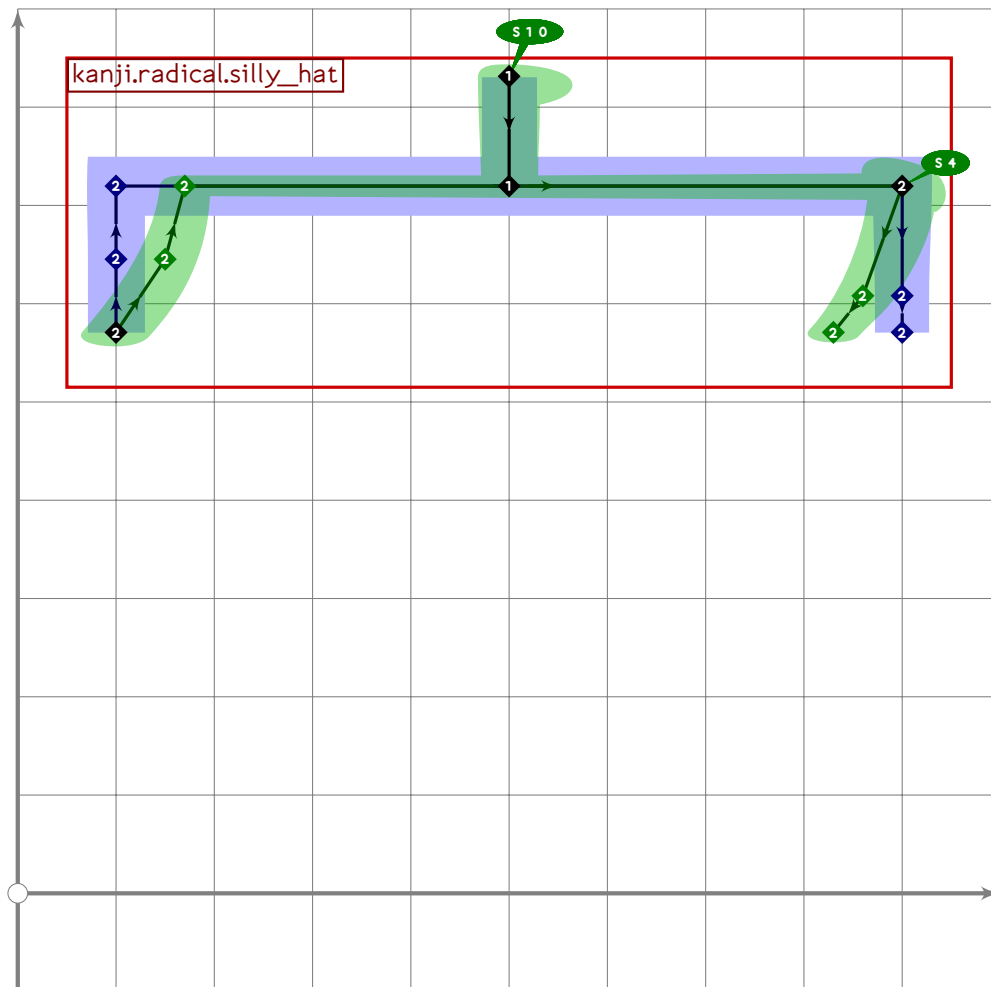
176 endtsuglyph;
177
178 % ji "character"
179 begintsuglyph("uni5B57";87);
180 kanji.grone.character;
181 tsu_render;
182 endtsuglyph;
183
184 % kou/taka "filial piety"
185 begintsuglyph("uni5B5D";93);
186 kanji.grsix.filial_piety;
187 tsu_render;
188 endtsuglyph;
189
190 % gaku "school"
191 begintsuglyph("uni5B66";102);
192 kanji.grone.study;
193 tsu_render;
194 endtsuglyph;
195

```

[see page 372]

[see page 1467]

[see page 1459]



```

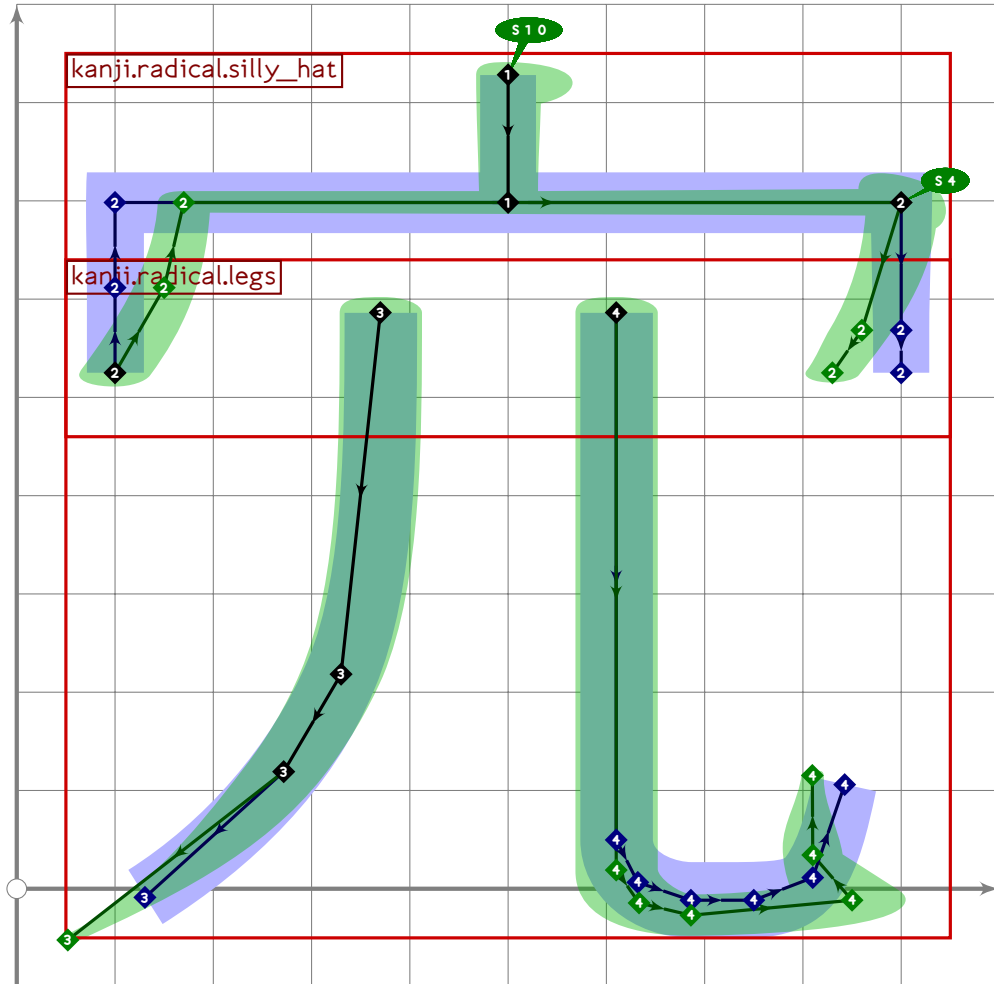
196 % silly hat radical

```

```

197 begint Suglyph("uni5B80",128);
198 build_kanji.tb(500,-30)
199 (kanji.radical.silly_hat)
200 ();
201 tsu_render;
202 endtsuglyph;
203

```

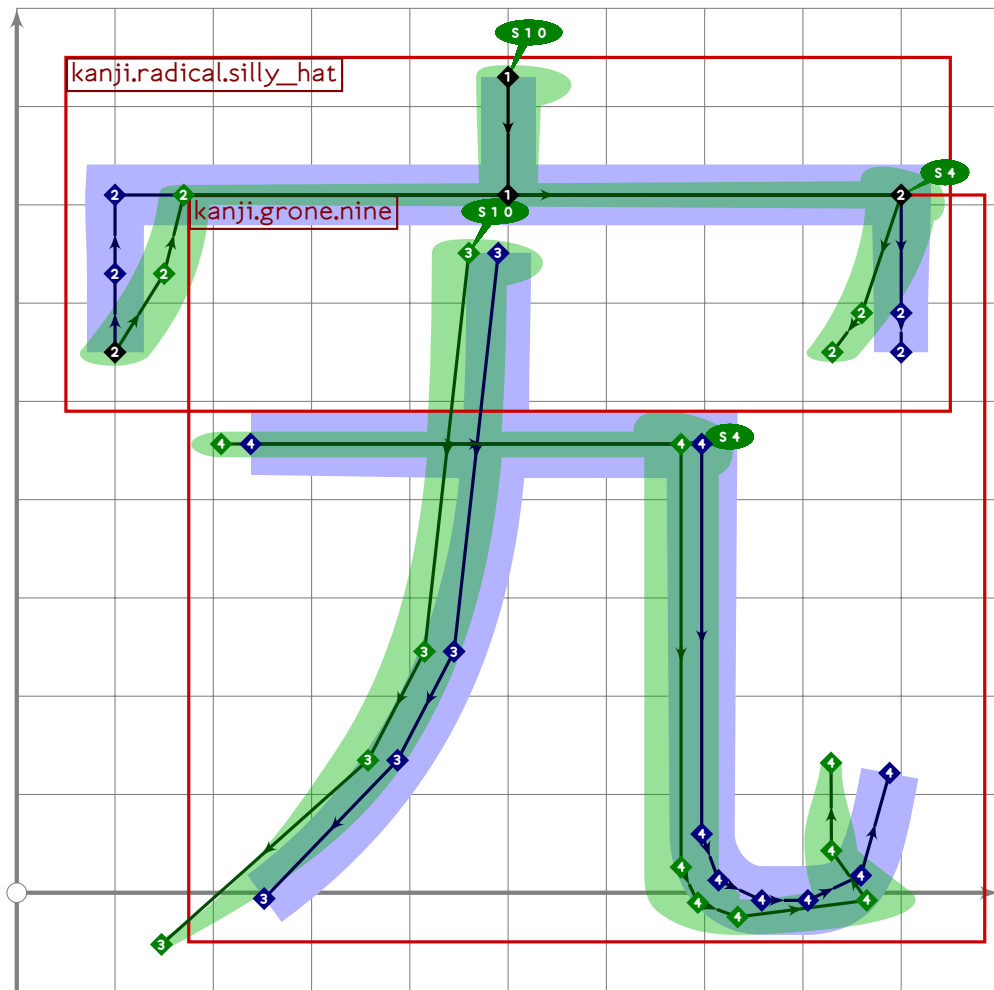


```

204 % extra
205 begint Suglyph("uni5B82",130);
206 build_kanji.tb(550,180)
207 (kanji.radical.silly_hat)
208 (kanji.radical.legs);
209 tsu_render;
210 endtsuglyph;
211
212 % ta/hebi "other"
213 begint Suglyph("uni5B83",131);
214 kanji.rare.other;
215 tsu_render;
216 endtsuglyph;
217

```

[see page 565]



```

218 % extra
219 begintsuglyph("uni5B84",132);
220 build_kanji.tb(600,220)
221   (kanji.radical.silly_hat)
222   (build_kanji.sscale(xscaled 0.9 shifted (80-30*mincho,0))
223     (kanji.grone.nine));
224 tsu_render;
225 endtsuglyph;
226
227 % shu/mamo "protect"
228 begintsuglyph("uni5B88",136);
229 kanji.grthree.protect;
230 tsu_render;
231 endtsuglyph;
232
233 % an/yasu "easy/cheap"
234 begintsuglyph("uni5B89",137);
235 kanji.grthree.easy;
236 tsu_render;
237 endtsuglyph;
238

```

[see page 1465]

[see page 480]

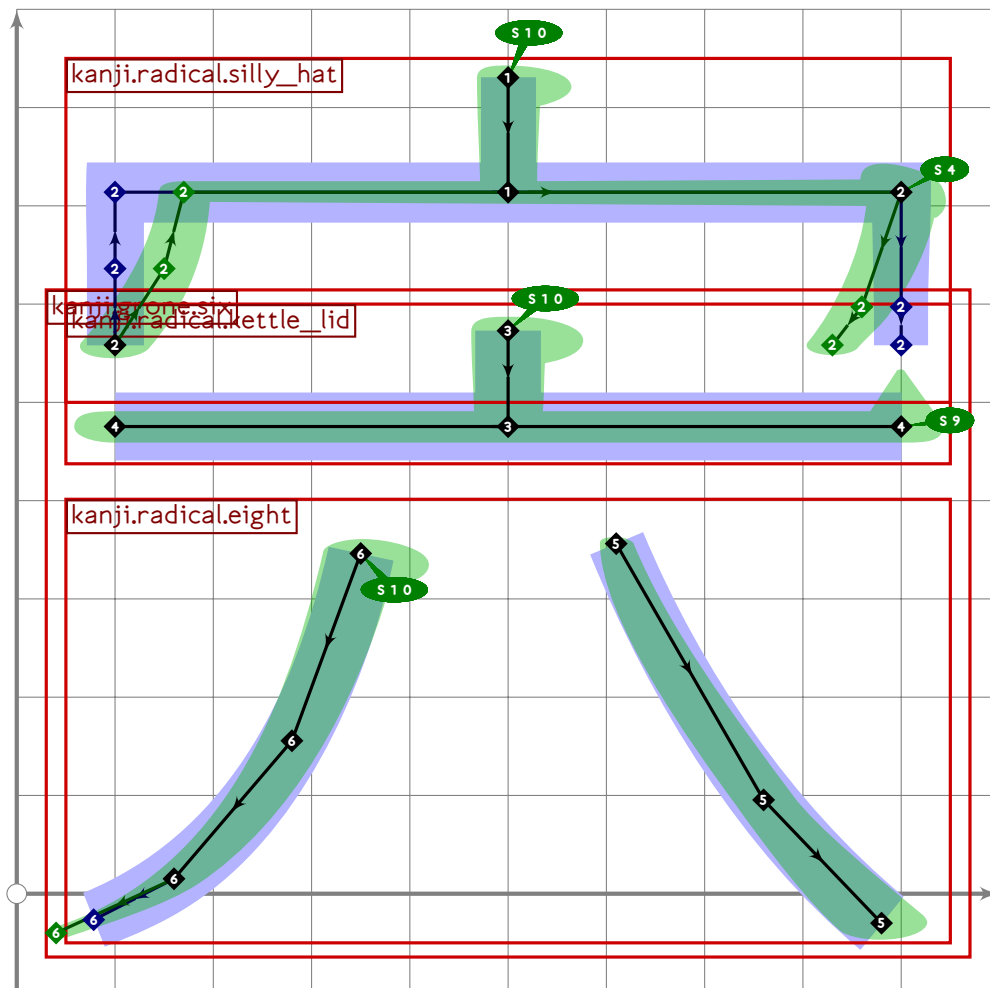
```

239 % "song dynasty"
240 begintsuglyph("uni5B8B",139);
241   kanji.grnine.song_dynasty;
242   tsu_render;
243 endtsuglyph;
244
245 % kan "perfect"
246 begintsuglyph("uni5B8C",140);
247   kanji.grfour.perfect;
248   tsu_render;
249 endtsuglyph;
250

```

[see page 1469]

[see page 1466]



```

251 % extra "meat"
252 begintsuglyph("uni5B8D",141);
253   build_kanji.tb(550,100)
254     (kanji.radical.silly_hat)
255     (kanji.grone.six);
256   tsu_render;
257 endtsuglyph;
258
259 % "cave"

```

```

260 begintsuglyph("uni5B95";149);
261 kanji.grnine.cave;
262 tsu_render;
263 endtsuglyph;

```

[see page 1468]

```

264
265 % kyaku "guest"
266 begintsuglyph("uni5BA2";162);
267 kanji.grthree.guest;
268 tsu_render;
269 endtsuglyph;

```

[see page 1463]

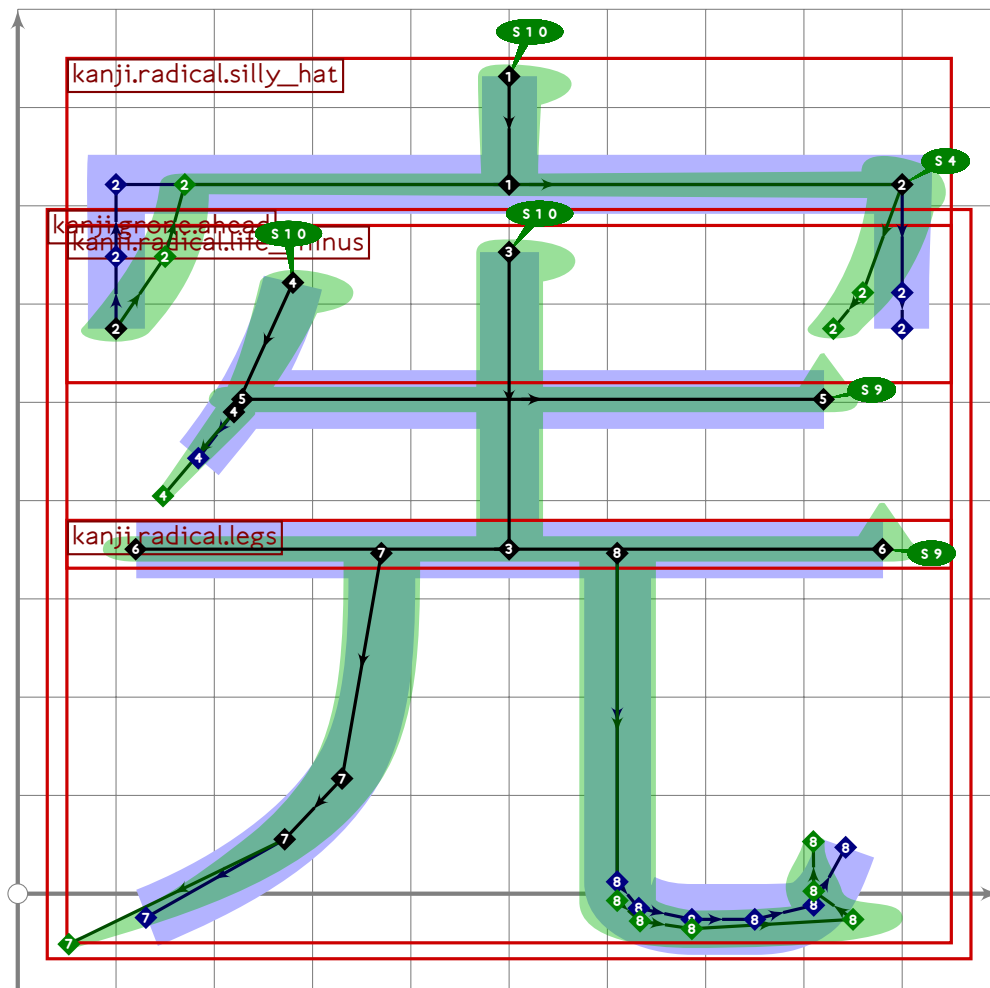
```

270
271 % shitsu/muro "chamber"
272 begintsuglyph("uni5BA4";164);
273 kanji.grtwo.chamber;
274 tsu_render;
275 endtsuglyph;

```

[see page 1460]

276



```

277 % extra
278 begintsuglyph("uni5BAA";170);
279 build_kanji.tb(600,160)
280 (kanji.radical.silly_hat)

```

```

281     (kanji.grone.ahead);
282     tsu_render;
283 endtsuglyph;
284
285 % kyuu/miya "house"
286 begintsuglyph("uni5BAE",174); [see page 1464]
287     kanji.grthree.palace;
288     tsu_render;
289 endtsuglyph;
290
291 % ka/ie "house"
292 begintsuglyph("uni5BB6",182); [see page 1461]
293     kanji.grtwo.house;
294     tsu_render;
295 endtsuglyph;
296
297 % shuku/yado "inn"
298 begintsuglyph("uni5BBF",191); [see page 1462]
299     kanji.grthree.inn;
300     tsu_render;
301 endtsuglyph;
302
303 % su/miki "inch", also often a radical
304 begintsuglyph("uni5BF8",248); [see page 522]
305     kanji.grsix.inch;
306     tsu_render;
307 endtsuglyph;
308
309 % tera/ji "temple"
310 begintsuglyph("uni5BFA",250); [see page 469]
311     kanji.grtwo.temple;
312     tsu_render;
313 endtsuglyph;
314
315 _____
316
317 endfont;
318
319 _____

```

# tsuku-5c.mp

```
1 %
2 % Unicode page 5c (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

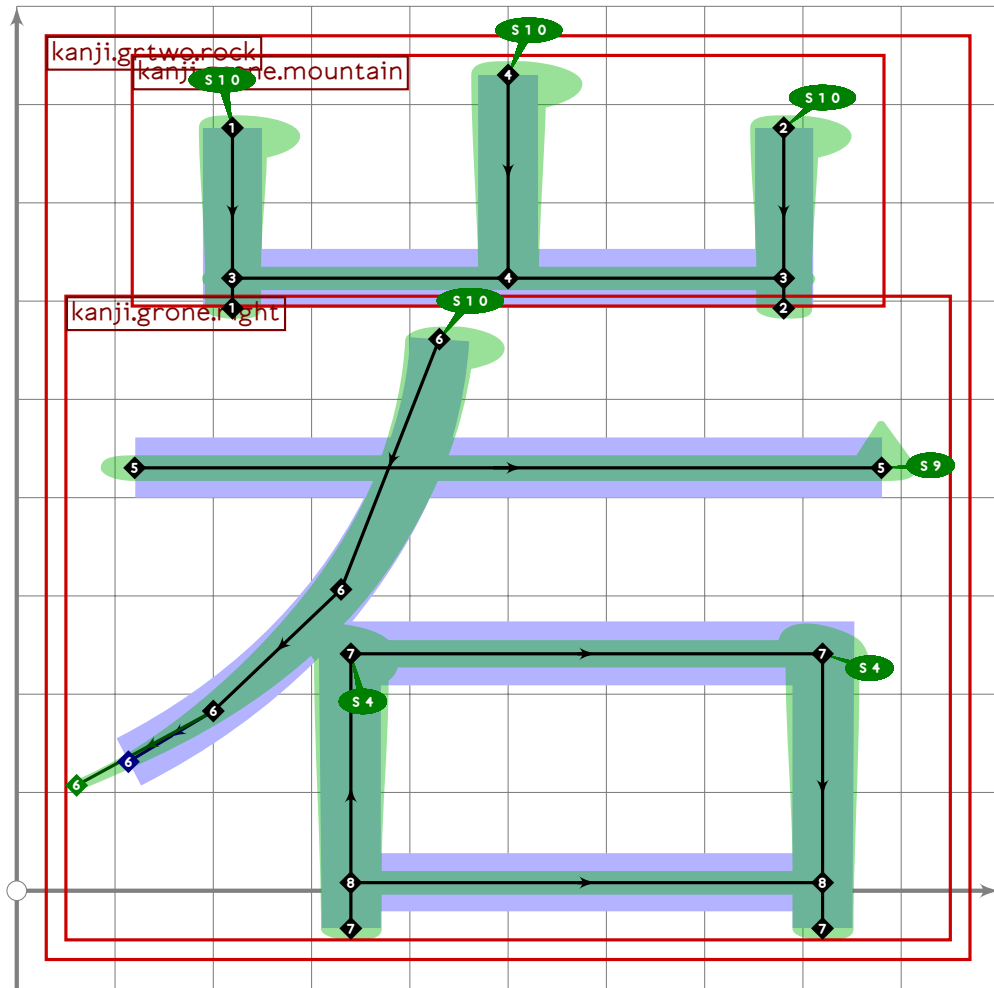
---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradefive.mp;
39 input gradeone.mp;
40 input gradesix.mp;
41 input gradetwo.mp;
42 input radical.mp;
43
44 

---


```

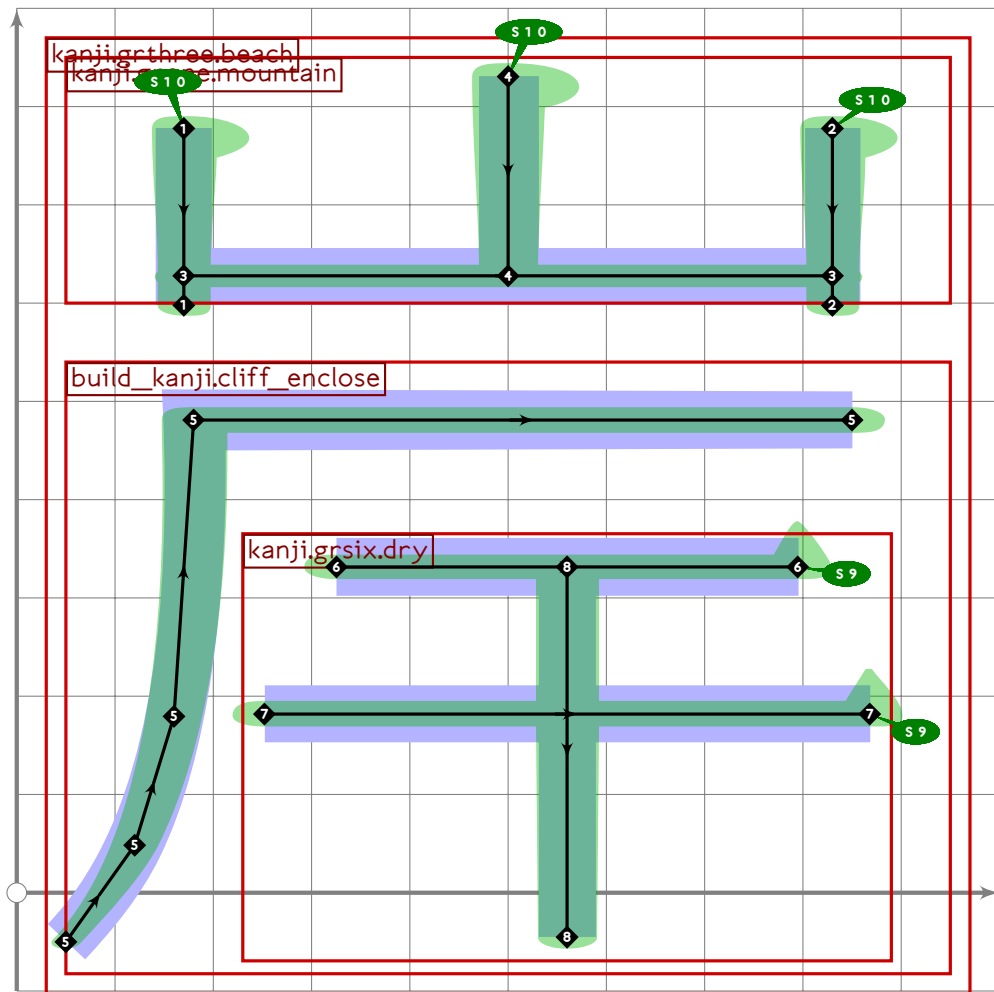




```

45
46 vardef kanji.grtwo.rock =
47   push_pbox_toexpand("kanji.grtwo.rock");
48   build_kanji.level(build_kanji.tb(600,10)
49     (build_kanji.sscale(xscaled 0.85)(kanji.grone.mountain))
50     (kanji.grone.right));
51   expand_pbox;
52 enddef;
53
54

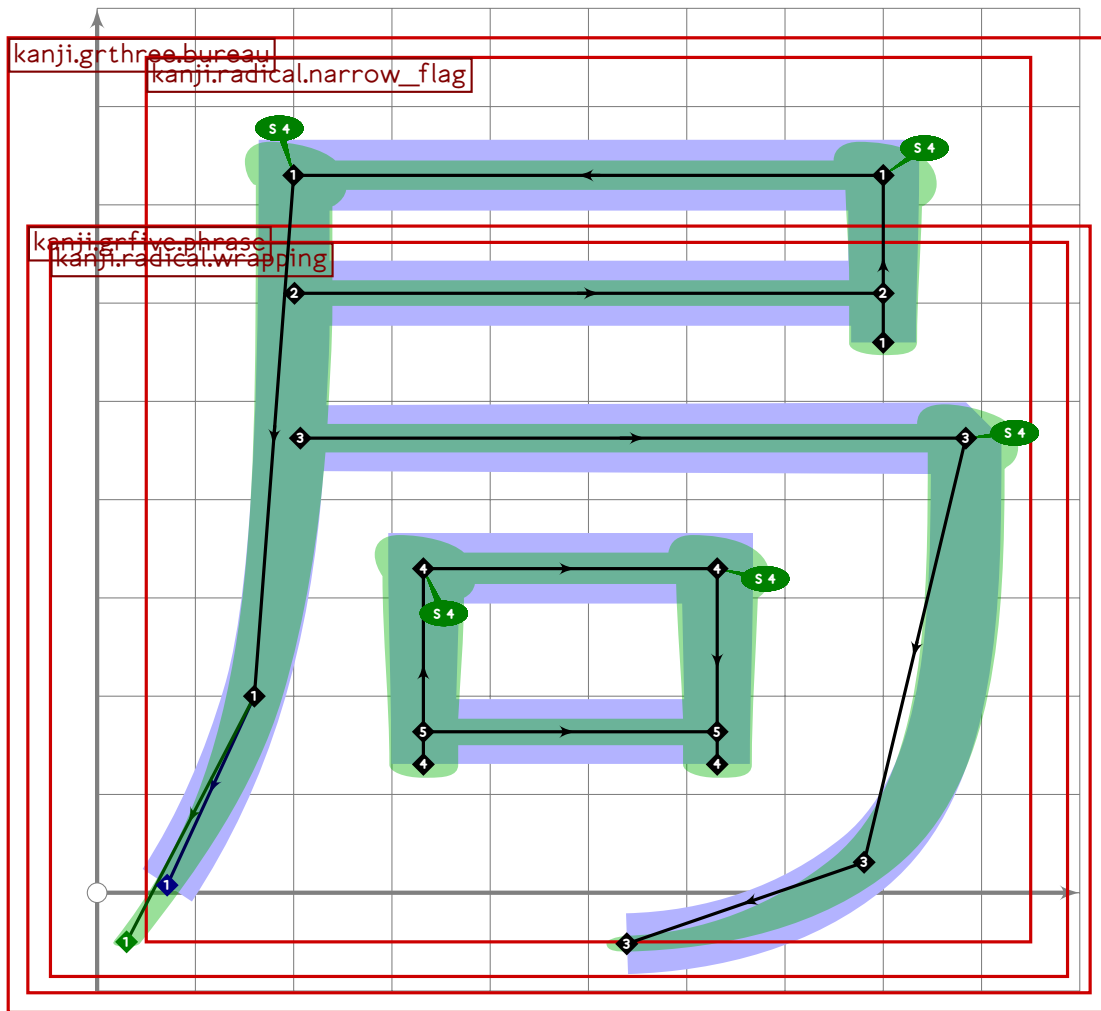
```



```

55
56 vardef kanji.grthree.beach =
57   push_pbox_toexpand("kanji.grthree.beach");
58   build_kanji.level(build_kanji.tb(570;-60)
59     (kanji.grone.mountain)
60     (build_kanji.cliff_enclose(
61       build_kanji.sscale(yscaled 0.85 shifted (0;-100))
62       (kanji.grsix.dry))));
63   expand_pbox;
64 enddef;

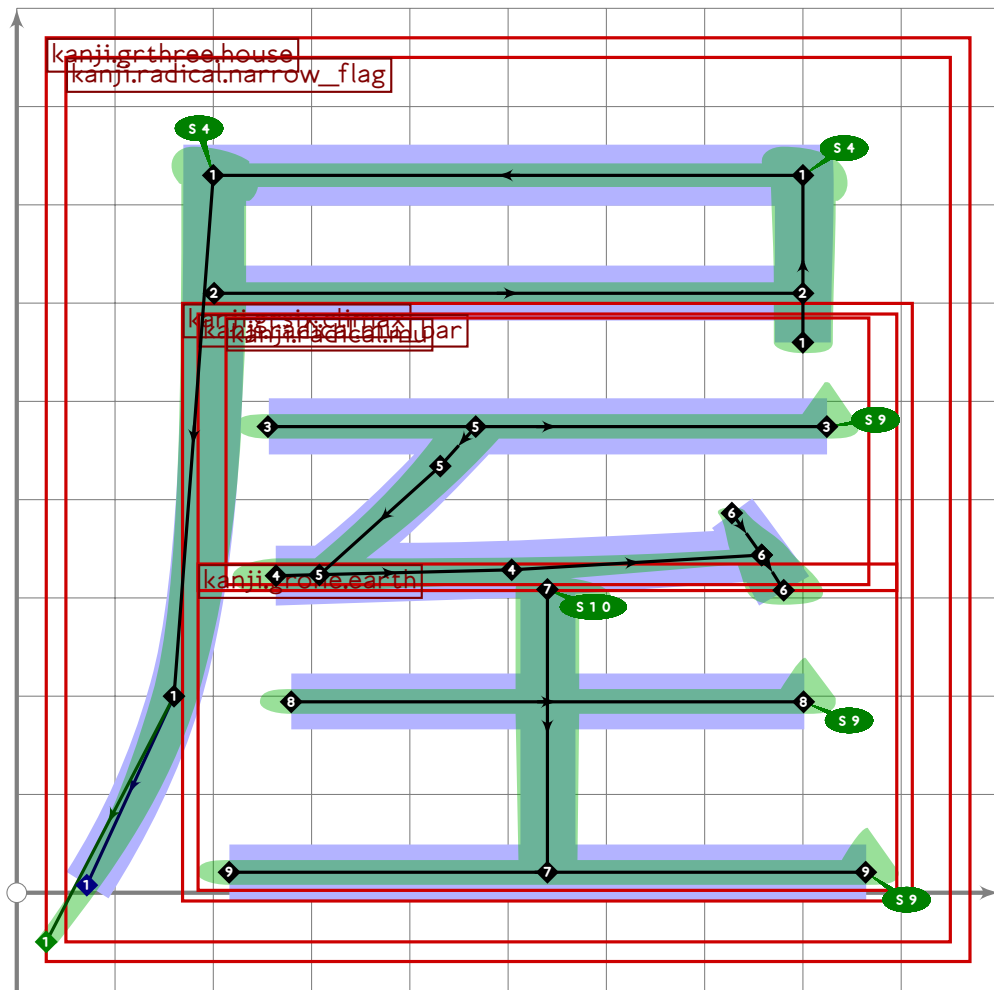
```



```

65
66 vardef kanji.grthree.bureau =
67   push_pbox_toexpand("kanji.grthree.bureau");
68   build_kanji.level(
69     kanji.radical.narrow_flag;
70     build_kanji.sscale(xyscaled (1.15,0.83) shifted (-30,-110))
71     (kanji.grfive.phrase;set_bosize(-3,0));
72   expand_pbox;
73 enddef;

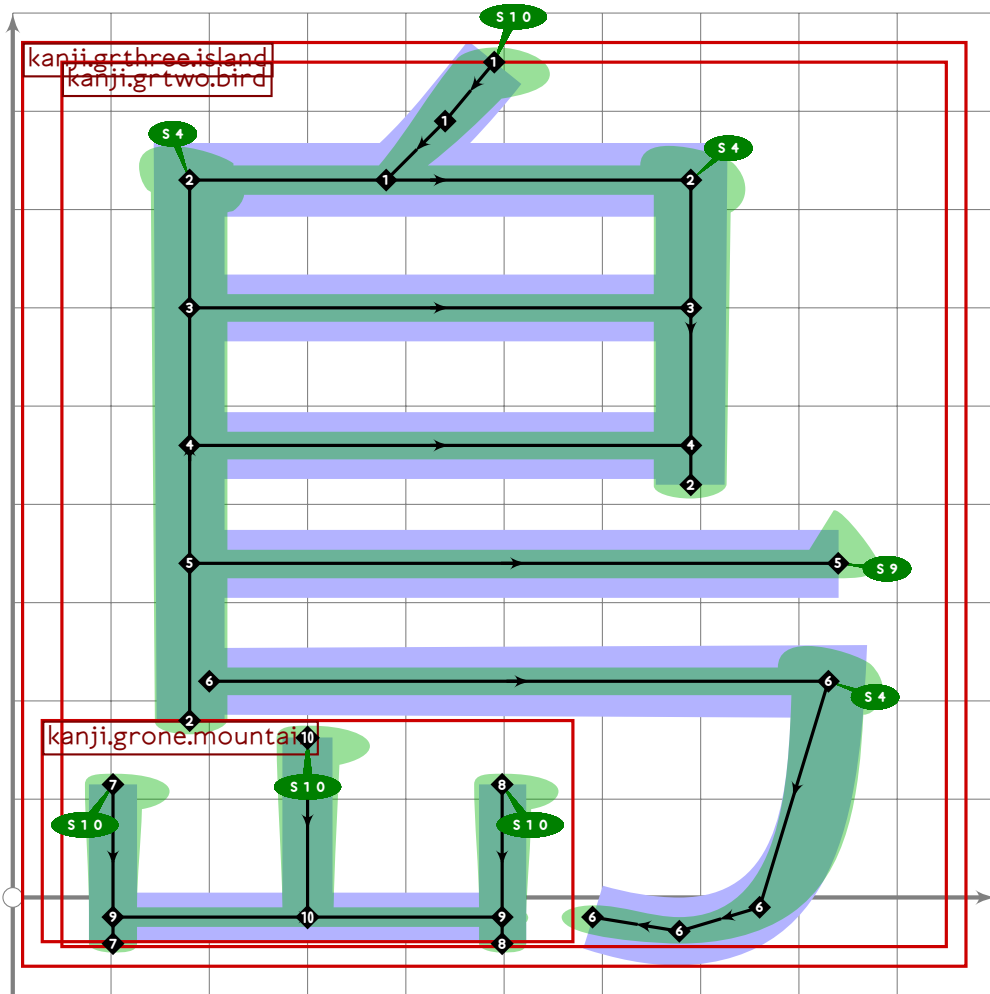
```



```

74
75 vardef kanji.grthree.house =
76   push_pbox_toexpand("kanji.grthree.house");
77   build_kanji.level(
78     kanji.radical.narrow_flag;
79     build_kanji.sscale(xyscaled (0.79,0.54) shifted (40,-150))
80     (kanji.grsix.climax));
81   expand_pbox;
82 enddef;

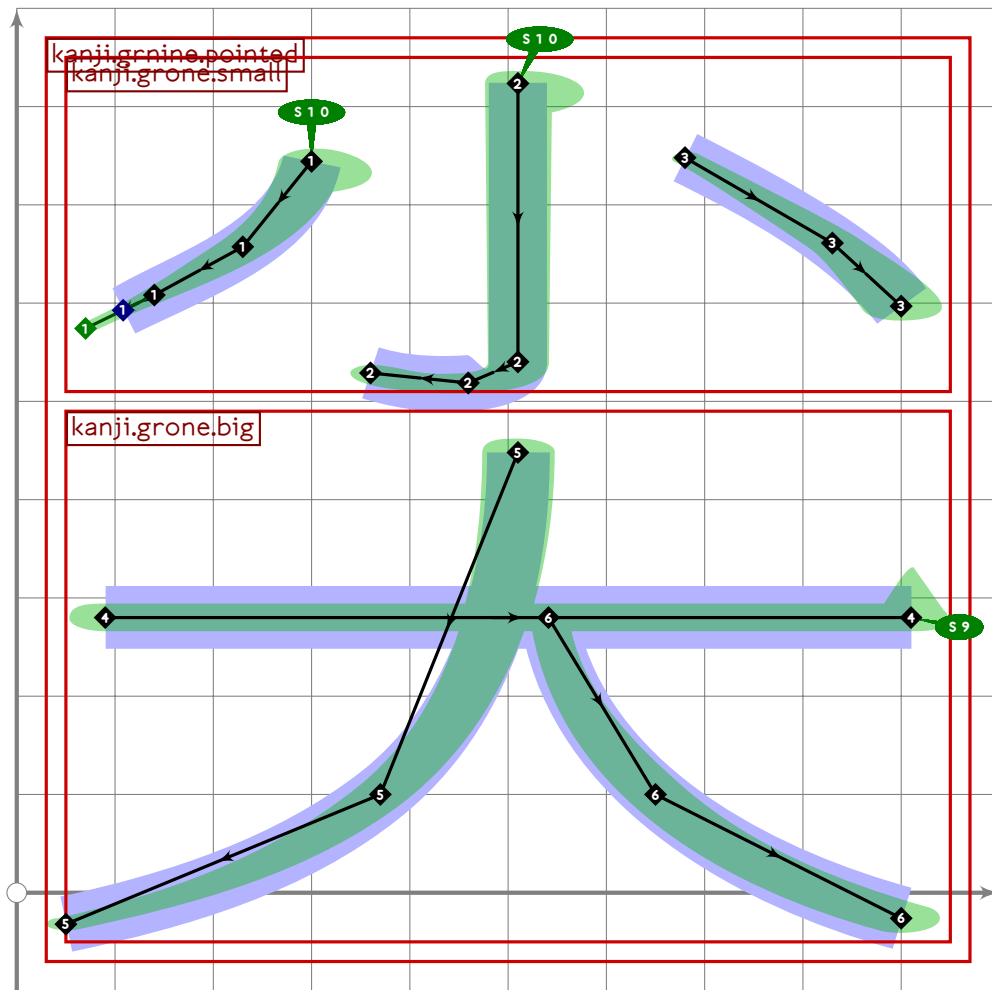
```



```

83
84 vardef kanji.grthree.island =
85   push_pbox_toexpand("kanji.grthree.island");
86   kanji.grtwo.bird;
87   pop_stroke;pop_stroke;pop_stroke;pop_stroke;
88   build_kanji.sscale(xyscaled (0.6,0.25) shifted (-200,-325))
89     (kanji.grone.mountain);
90   expand_pbox;
91 enddef;
92
93

```



```

94
95 vardef kanji.grnine.pointed =
96   push_pbox_toexpand("kanji.grnine.pointed");
97   build_kanji.tb(500,-20)
98     (kanji.grone.small)
99     (kanji.grone.big);
100  expand_pbox;
101  enddef;
102
103
104
105 vardef kanji.radical.narrow_flag =
106   push_pbox_toexpand("kanji.radical.narrow_flag");
107   push_stroke((800,560)-(800,730)-(200,730){down}..(160,200)..(30,50),
108     (1.5,1.5)-(1.6,1.6)-(1.6,1.6)-(1.3,1.3)-(0.9,0.9));
109   set_botip(0,1,1);
110   set_botip(0,2,1);
111   set_boserif(0,1,4);
112   set_boserif(0,2,4);
113   set_bosize(0,93);
114   push_stroke(((0,610)-(1000,610))

```

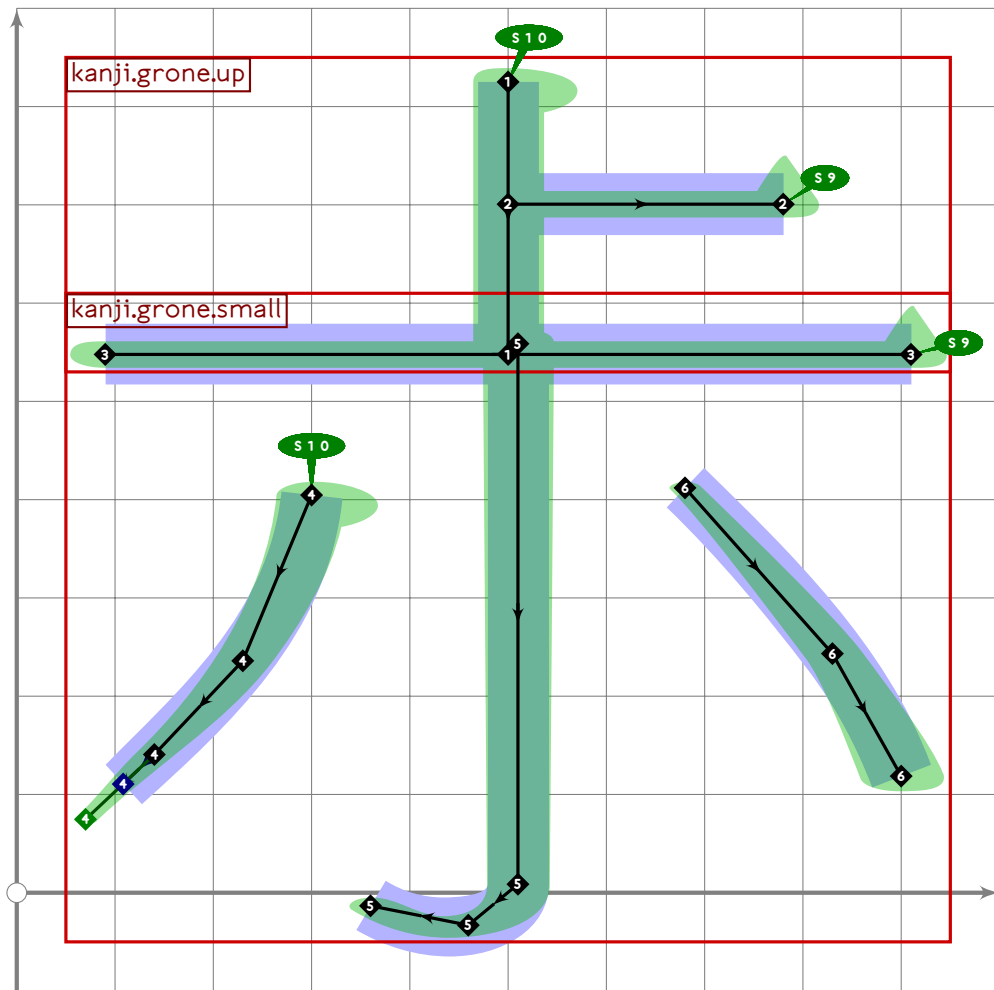
```

115     intersectionpoint reverse get_strokep(0)-(800,610),
116     (1.5,1.5)-(1.5,1.5));
117     set_bosize(0,93);
118     expand_pbox;
119 enddef;
120
121 

---


122
123 % shuu/chii "small"
124 begintsuglyph("uni5C0F",15); [see page 412]
125     kanji.grone.small;
126     tsu_render;
127 endtsuglyph;
128
129 % sho/suko "little"
130 begintsuglyph("uni5C11",17); [see page 446]
131     kanji.grtwo.little;
132     tsu_render;
133 endtsuglyph;
134
135 % pointed
136 begintsuglyph("uni5C16",22); [see page 1482]
137     kanji.grnine.pointed;
138     tsu_render;
139 endtsuglyph;
140

```

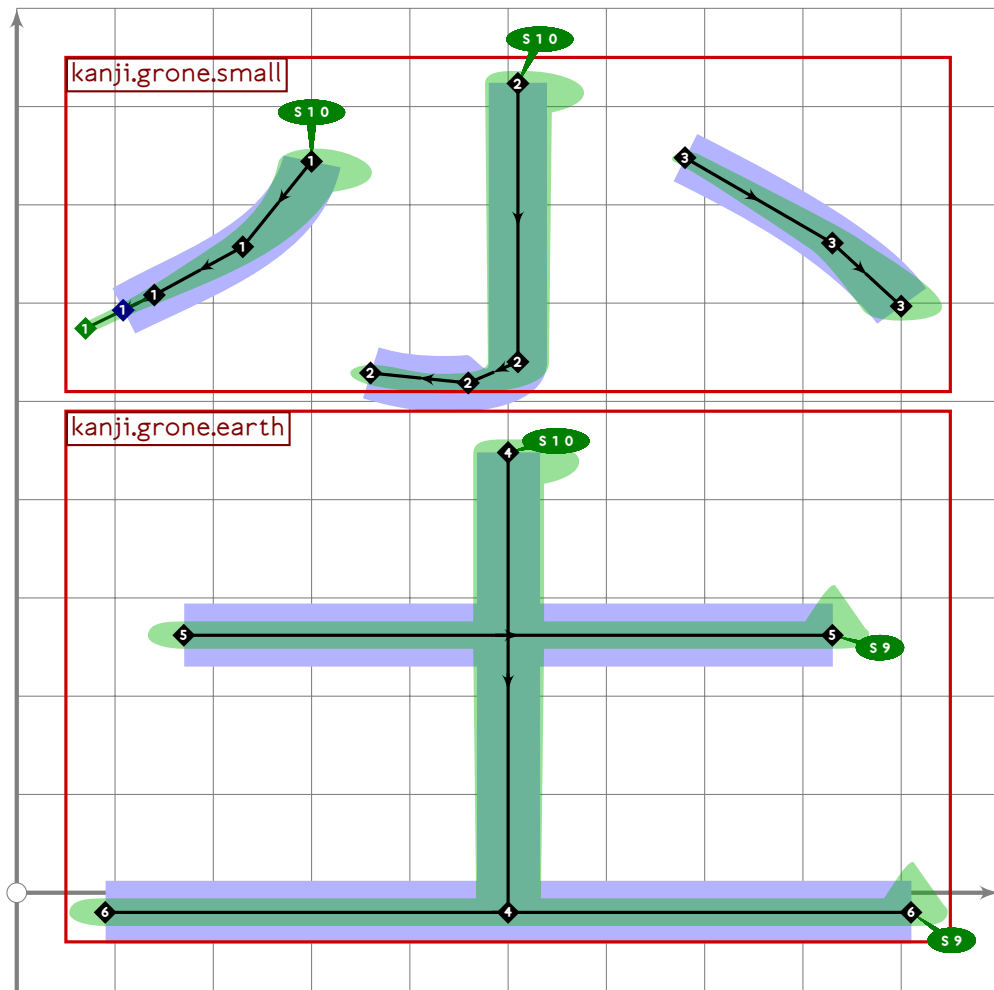


```

141 % extra "younger brother"
142 begint Suglyph("uni5C17";23);
143 build_kanji.level(build_kanji.tb(570,80)
144   (kanji.grone.up)
145   (kanji.grone.small;set_boserif(-1,0,whatever)));
146 tsu_render;
147 endsuglyph;
148

```





149 % extra

150 `begintsuglyph("uni5C18",24);`

151 `build_kanji.tb(500,-20)`

152 `(kanji.grone.small)`

153 `(kanji.grone.earth);`

154 `tsu_render;`

155 `endtsuglyph;`

156

157 % shi/katashiro "corpse" or "flag radial"

158 `begintsuglyph("uni5C38",56);`

[see page 341]

159 `kanji.radical.flag;`

160 `tsu_render;`

161 `endtsuglyph;`

162

163 % shaku "foot (unit of measure)," "bamboo flute," or "blowjob"

164 `begintsuglyph("uni5C3A",58);`

[see page 517]

165 `kanji.grsix.blowjob;`

166 `tsu_render;`

167 `endtsuglyph;`

168

169 % ni/ama "nun"

170 `begintsuglyph("uni5C3C",60);` [see page 534]  
171 `kanji.greight.nun;`  
172 `tsu_render;`  
173 `endtsuglyph;`  
174  
175 `% kyoku/tsubone "bureau"`  
176 `begintsuglyph("uni5C40",64);` [see page 1479]  
177 `kanji.grthree.bureau;`  
178 `tsu_render;`  
179 `endtsuglyph;`  
180  
181 `% oku/ya "house"`  
182 `begintsuglyph("uni5C4B",75);` [see page 1480]  
183 `kanji.grthree.house;`  
184 `tsu_render;`  
185 `endtsuglyph;`  
186  
187 `% yama/san "mountain"`  
188 `begintsuglyph("uni5C71",113);` [see page 395]  
189 `kanji.grone.mountain;`  
190 `tsu_render;`  
191 `endtsuglyph;`  
192  
193 `% gan/iwa "rock"`  
194 `begintsuglyph("uni5CA9",169);` [see page 1477]  
195 `kanji.grtwo.rock;`  
196 `tsu_render;`  
197 `endtsuglyph;`  
198  
199 `% gan/kishi "beach"`  
200 `begintsuglyph("uni5CB8",184);` [see page 1478]  
201 `kanji.grthree.beach;`  
202 `tsu_render;`  
203 `endtsuglyph;`  
204  
205 `% tou/shima "island"`  
206 `begintsuglyph("uni5CF6",246);` [see page 1481]  
207 `kanji.grthree.island;`  
208 `tsu_render;`  
209 `endtsuglyph;`  
210  
211 

---

  
212  
213 `endfont;`  
214  
215 

---

# tsuku-5d.mp

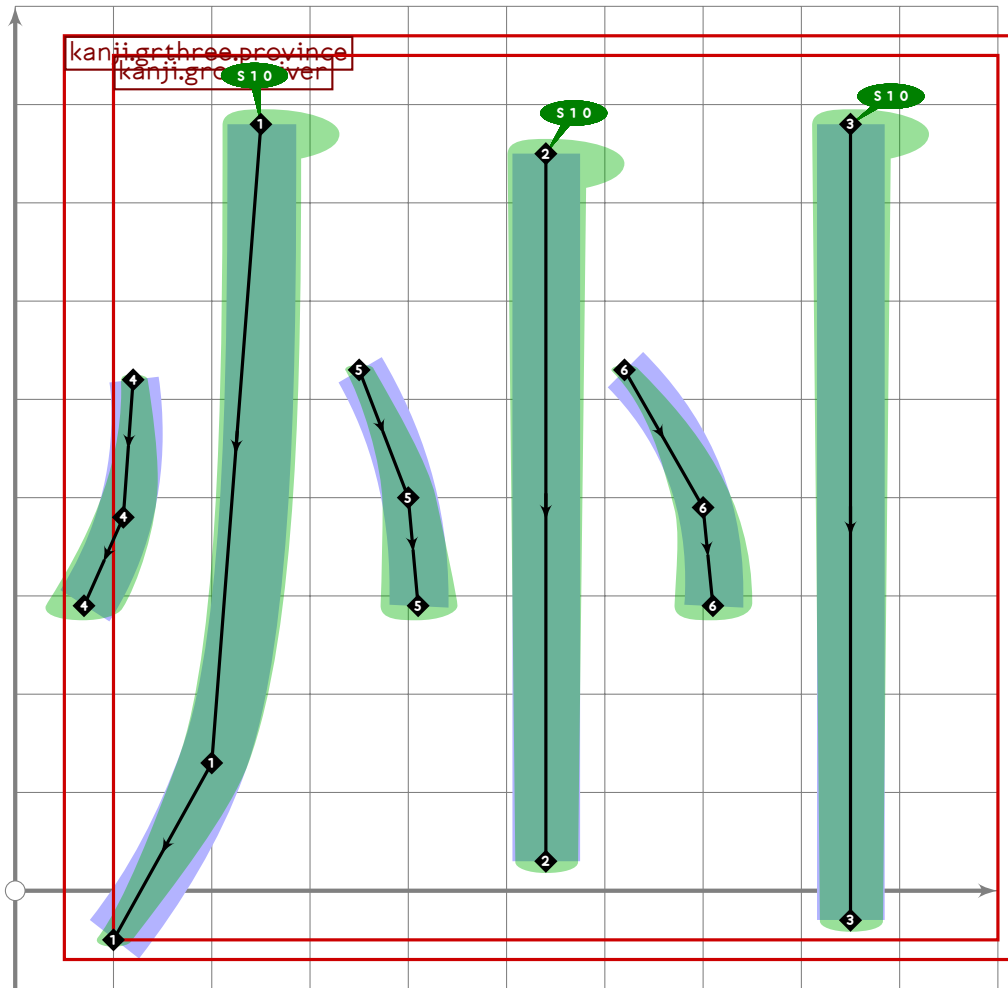
```
1 %
2 % Unicode page 5d (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradenine.mp;
39 input gradeone.mp;
40 input gradesix.mp;
41 input gradethree.mp;
42 input gradetwo.mp;
43 input radical.mp;
44
45 

---

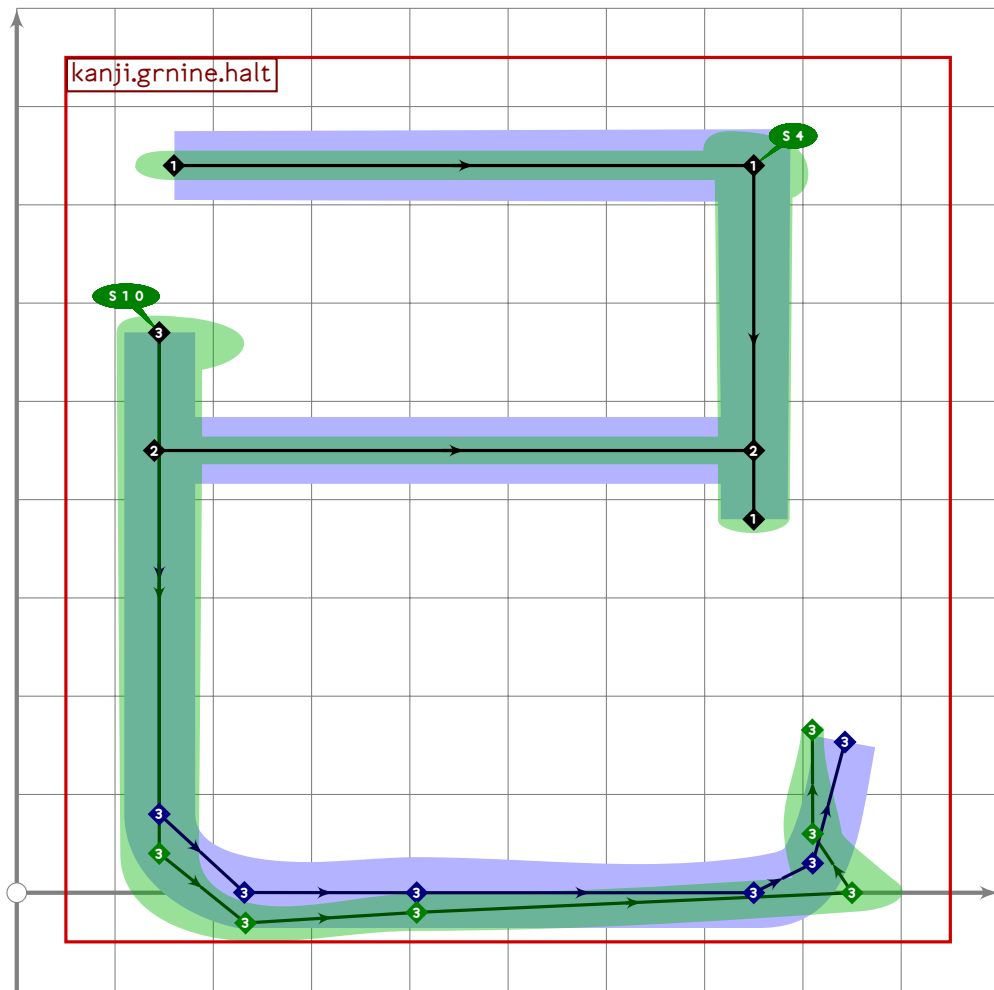

```



```

46
47 vardef kanji.grthree.province =
48   push_pbox_toexpand("kanji.grthree.province");
49   tsu_xform(identity shifted (50,0))(kanji.grthree.province);
50   push_stroke((120,520)..(110,380)..(70,290),
51     (1,1)-(1.5,1.5)-(1.8,1.8));
52   set_bosize(0,82);
53   push_stroke((350,530)..(400,400)..(410,290),
54     (1,1)-(1.4,1.4)-(1.8,1.8));
55   set_bosize(0,82);
56   push_stroke((620,530)..(700,390)..(710,290),
57     (1,1)-(1.5,1.5)-(1.8,1.8));
58   set_bosize(0,82);
59   expand_pbox;
60 enddef;
61
62

```



```

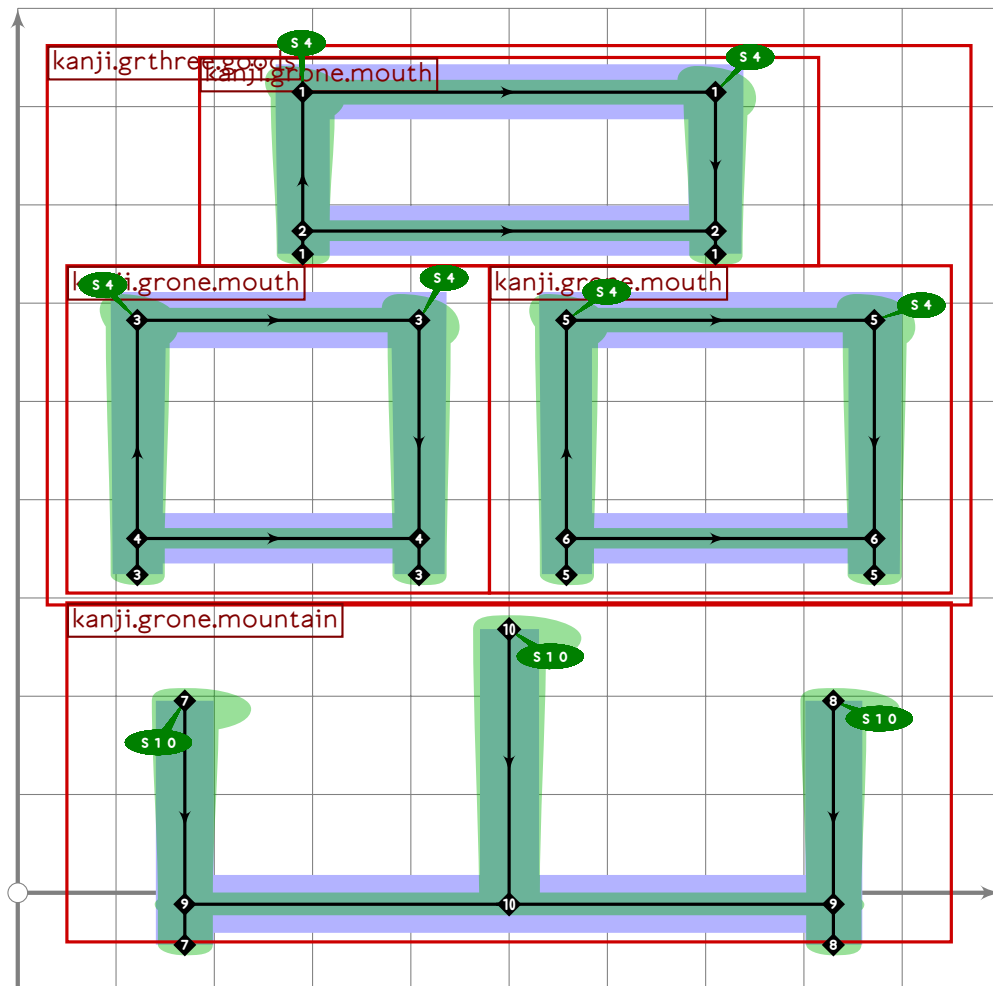
63
64 vardef kanji.grnine.halt =
65   push_pbox_toexpand("kanji.grnine.halt");
66   push_stroke((160,740)-(750,740)-(750,380),
67     (1.6,1.6)-(1.6,1.6)-(1.5,1.5));
68   set_botip(0,1);
69   set_boserif(0,1,4);
70   push_stroke((140,450)-(750,450),
71     (1.5,1.5)-(1.5,1.5));
72   push_stroke((145,570),(1.7,1.7));
73   set_boserif(0,0,10);
74   build_kanji.add_ltail(0);
75   expand_pbox;
76 enddef;
77
78
79
80 % hou/kuzu "demolish"
81 begint Suglyph("uni5D29";41);
82 kanji.greight.demolish;
83 tsu_render;

```

[see page 526]

84 endtsuglyph;

85



86 % extra

87 begint Suglyph("uni5D52";82);

88 build\_kanji.tb(300,-10)

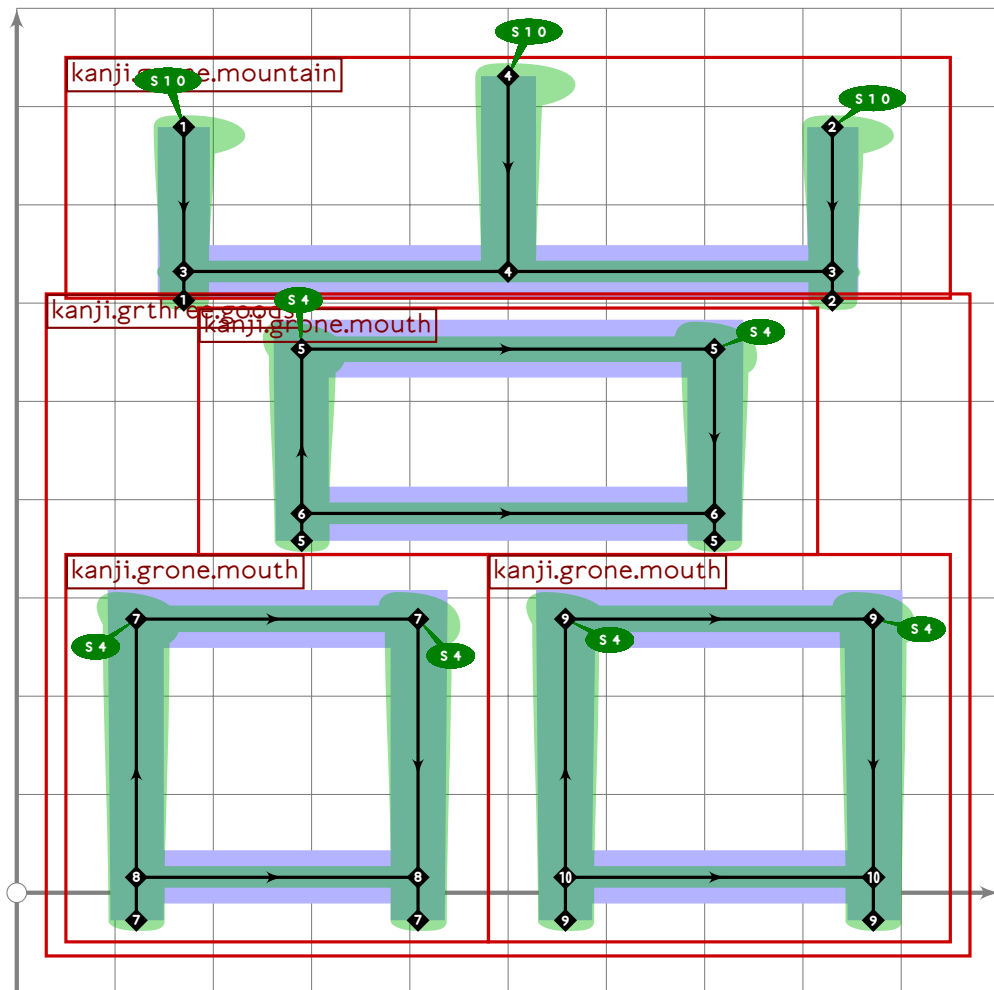
89 (kanji.grthree.goods)

90 (kanji.grone.mountain);

91 tsu\_render;

92 endtsuglyph;

93



```

94 % extra
95 begintsuglyph("uni5D53",83);
96 build_kanji.level(build_kanji.tb(600,-10)
97   (kanji.grone.mountain)
98   (kanji.grthree.goods));
99 tsu_render;
100 endsuglyph;
101
102 % kawa "river"
103 begintsuglyph("uni5DDD",221);
104 kanji.grone.river;
105 tsu_render;
106 endsuglyph;
107
108 % shuu "province"
109 begintsuglyph("uni5DDE",222);
110 kanji.grthree.province;
111 tsu_render;
112 endsuglyph;
113
114 % takumi "craft"

```

[see page 407]

[see page 1488]

115 `begintsuglyph("uni5DE5",229);` [see page 434]  
116 `kanji.grtwo.craft;`  
117 `tsu_render;`  
118 `endtsuglyph;`  
119  
120 `% hidari "left"`  
121 `begintsuglyph("uni5DE6",230);` [see page 391]  
122 `kanji.grone.left;`  
123 `tsu_render;`  
124 `endtsuglyph;`  
125  
126 `% ko/ki "self" (dict. says also "snake" but almost no words use it that way)`  
127 `begintsuglyph("uni5DF1",241);` [see page 523]  
128 `kanji.grsix.self;`  
129 `tsu_render;`  
130 `endtsuglyph;`  
131  
132 `% i/ya "halt"`  
133 `begintsuglyph("uni5DF2",242);` [see page 1489]  
134 `kanji.grnine.halt;`  
135 `tsu_render;`  
136 `endtsuglyph;`  
137  
138 `% shi/mi "snake zodiac sign"`  
139 `begintsuglyph("uni5DF3",243);` [see page 550]  
140 `kanji.grnine.snake_sign;`  
141 `tsu_render;`  
142 `endtsuglyph;`  
143  
144 `% ha/tomoe "tomoe"`  
145 `begintsuglyph("uni5DF4",244);` [see page 554]  
146 `kanji.grnine.tomoe;`  
147 `tsu_render;`  
148 `endtsuglyph;`  
149  
150 `% kin/oo/aba "towel" or "hanging scroll"`  
151 `begintsuglyph("uni5DFE",254);` [see page 540]  
152 `kanji.greight.towel;`  
153 `tsu_render;`  
154 `endtsuglyph;`  
155  


---

156  
157  
158 `endfont;`  
159  


---

160



# tsuku-5e.mp

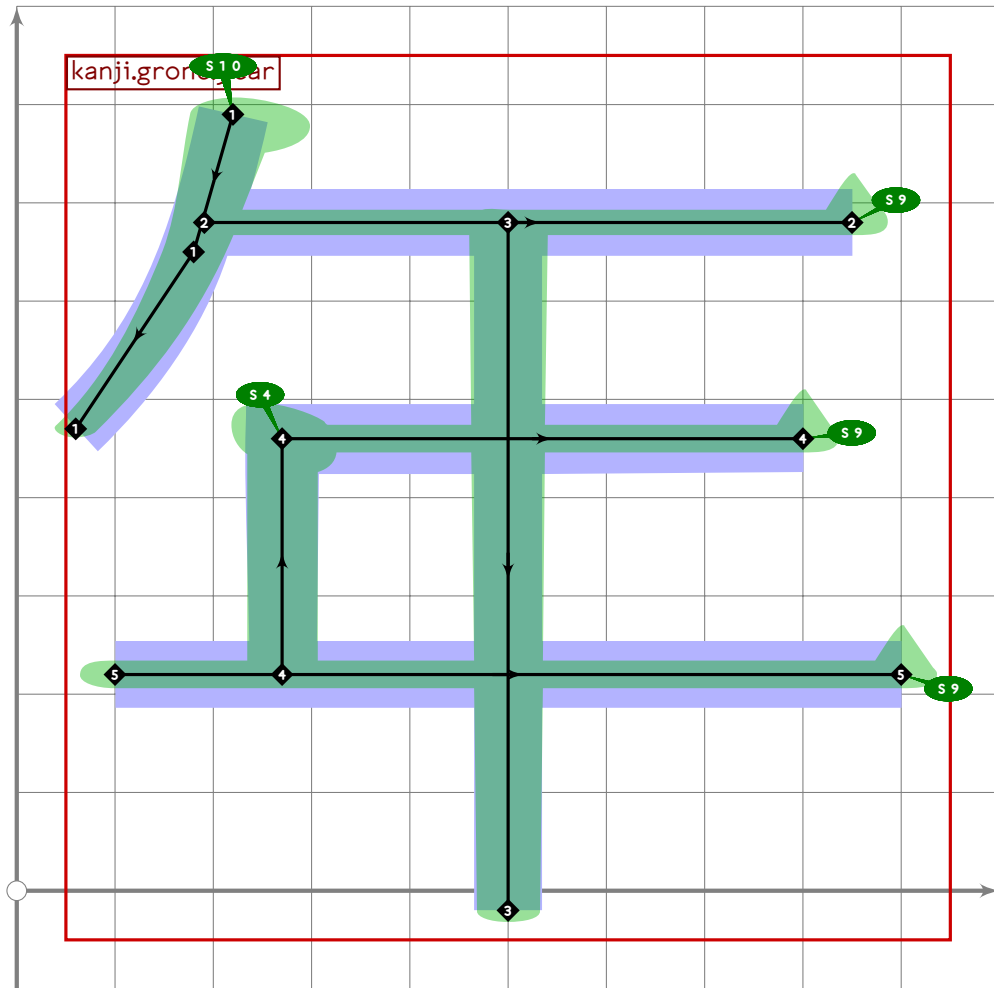
```
1 %
2 % Unicode page 5e (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradefour.mp;
39 input gradenine.mp;
40 input gradeone.mp;
41 input gradesix.mp;
42 input gradethree.mp;
43 input gradetwo.mp;
44 input leftrad.mp;
45 input radical.mp;
46 input rare.mp;
47 input toprad.mp;
48
49 

---

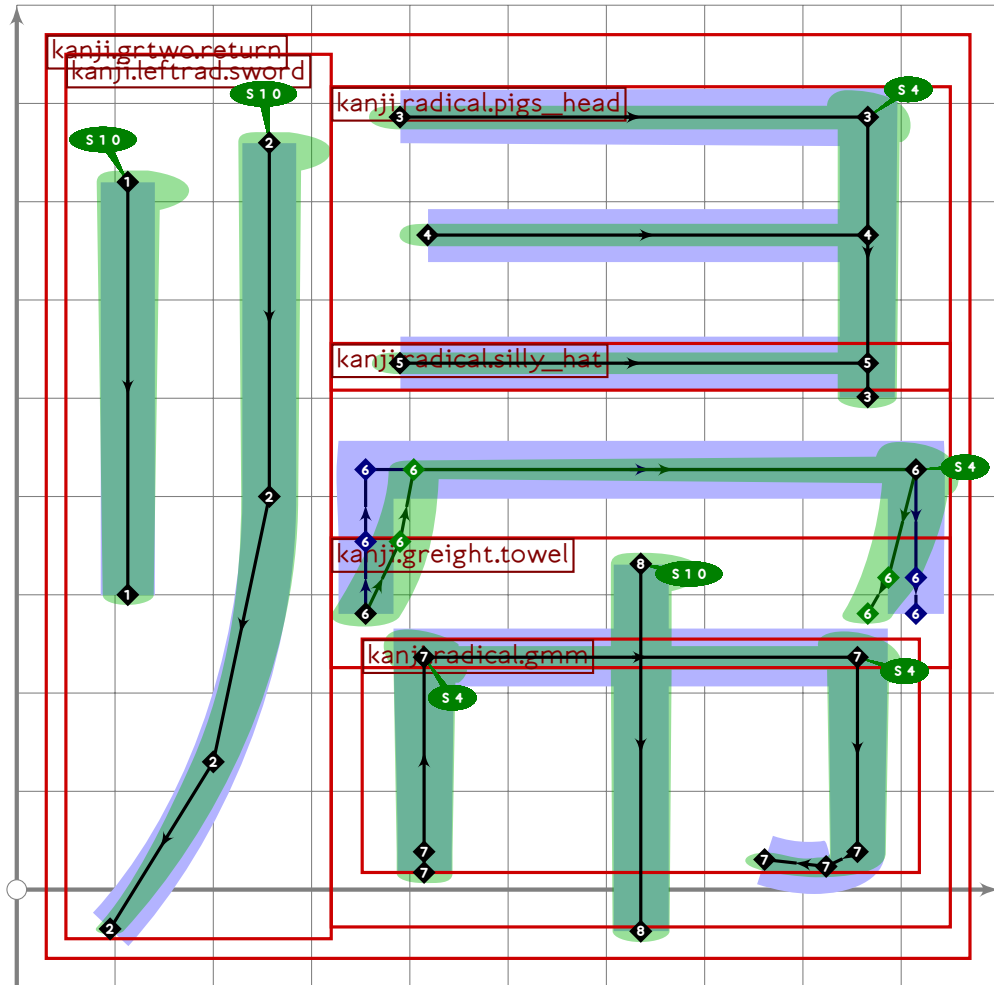

```



```

50
51 vardef kanji.grone.year =
52   push_pbox_toexpand("kanji.grone.year");
53   push_stroke((220,790){curl 0!}..(180,650)..(60,470),
54     (1,7,1,7)-(1,4,1,4)-(1,1,1,1));
55   set_boserif(0,0,10);
56   push_stroke(
57     (((0,680)-(1000,680)) intersectionpoint get_strokep(0))-(850,680),
58     (1,4,1,4)-(1,5,1,5));
59   set_boserif(0,1,9);
60   push_stroke((500,680)-(500,-20),(1,6,1,6)-(1,4,1,4));
61   push_stroke((270,220)-(270,460)-(800,460),
62     (1,5,1,5)-(1,5,1,5)-(1,5,1,5));
63   set_botip(0,1,1);
64   set_boserif(0,1,4);
65   set_boserif(0,2,9);
66   push_stroke((100,220)-(900,220),(1,5,1,5)-(1,5,1,5));
67   set_boserif(0,1,9);
68   expand_pbox;
69 enddef;
70

```



72

73 vardef kanji.grtwo.return =

74 push\_pbox\_toexpand("kanji.grtwo.return");

75 % can't just invoke "broom" because of Japanese style difference

76 % between "pig's snout" and "pig's head" radicals

77 build\_kanji.level(build\_kanji.lr(320,0)

78 (kanji.leftrad.sword)

79 (build\_kanji.sscale(yscaled 0.95 shifted (0,-10))

80 (build\_kanji.tb(550,50)

81 (kanji.radical.pigs\_head)

82 (build\_kanji.tb(450,200)

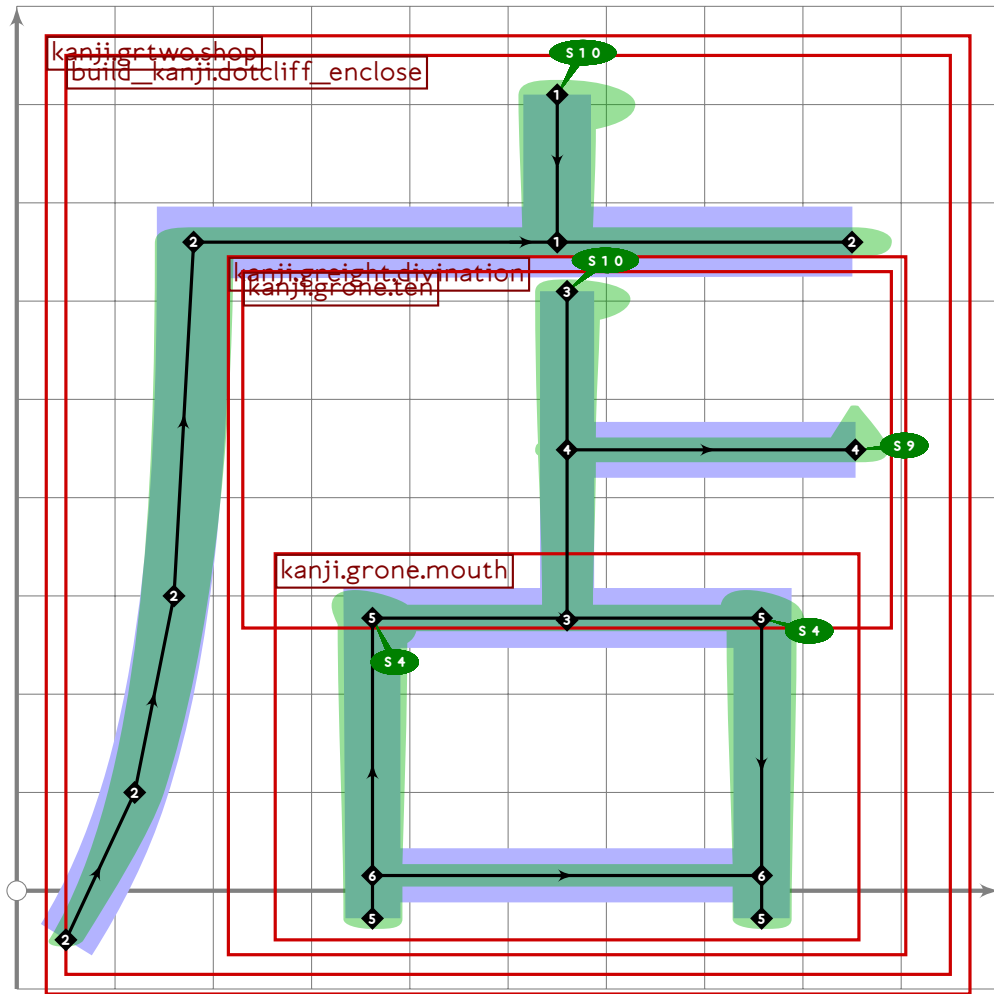
83 (kanji.radical.silly\_hat;

84 set\_bosize(-1,0))

85 (kanji.greight.towel))));

86 expand\_pbox;

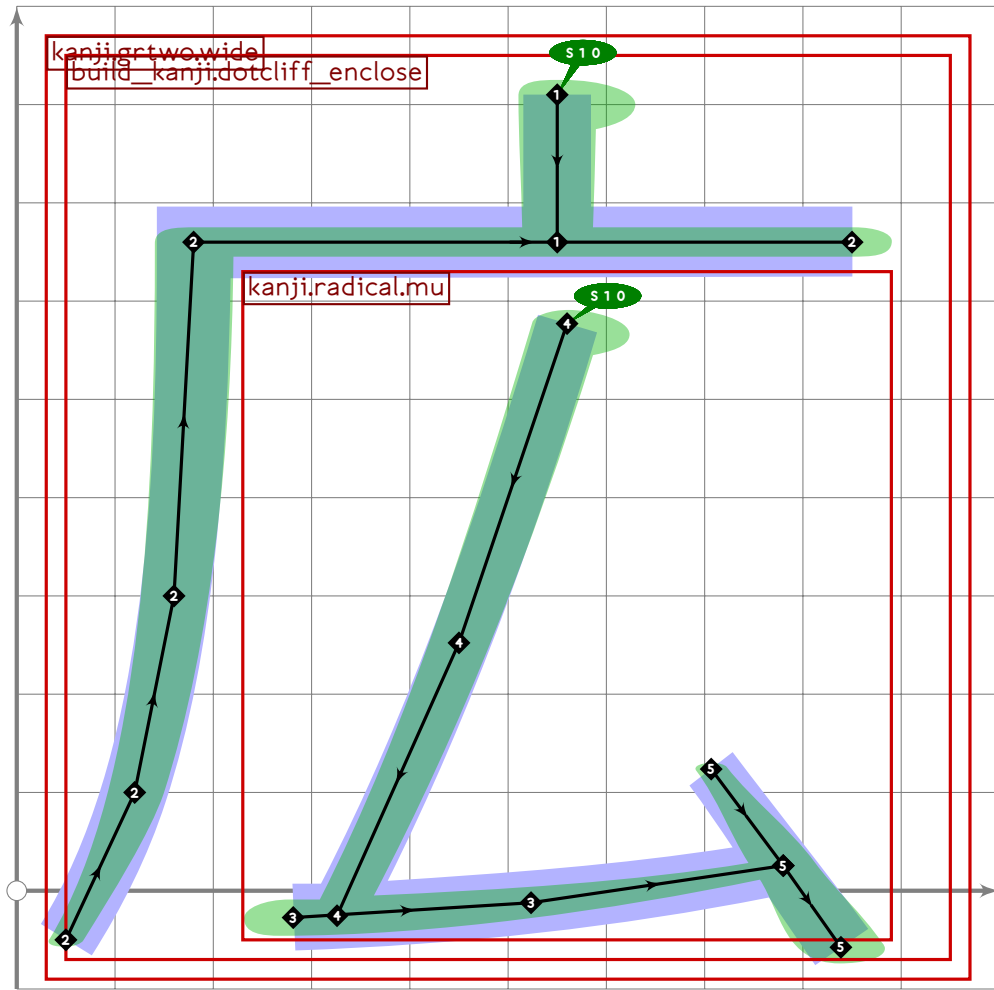
87 enddef;



```

88
89 vardef kanji.grtwo.shop =
90   push_pbox_toexpand("kanji.grtwo.shop");
91   build_kanji.dotcliff_enclose(kanji.greight.divination);
92   expand_pbox;
93 enddef;

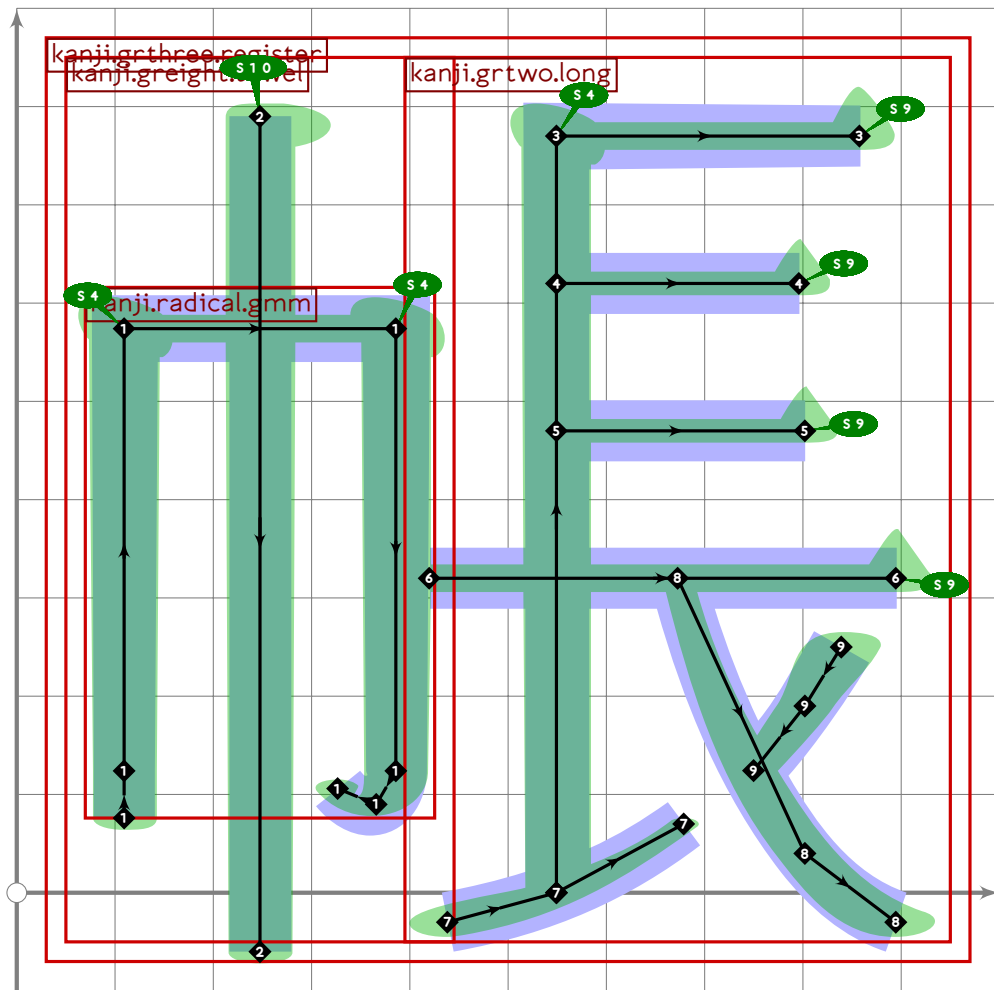
```



```

94
95 vardef kanji.grtwo.wide =
96   push_pbox_toexpand("kanji.grtwo.wide");
97   build_kanji.dotcliff_enclose(kanji.radical.mu);
98   expand_pbox;
99 enddef;
100
101

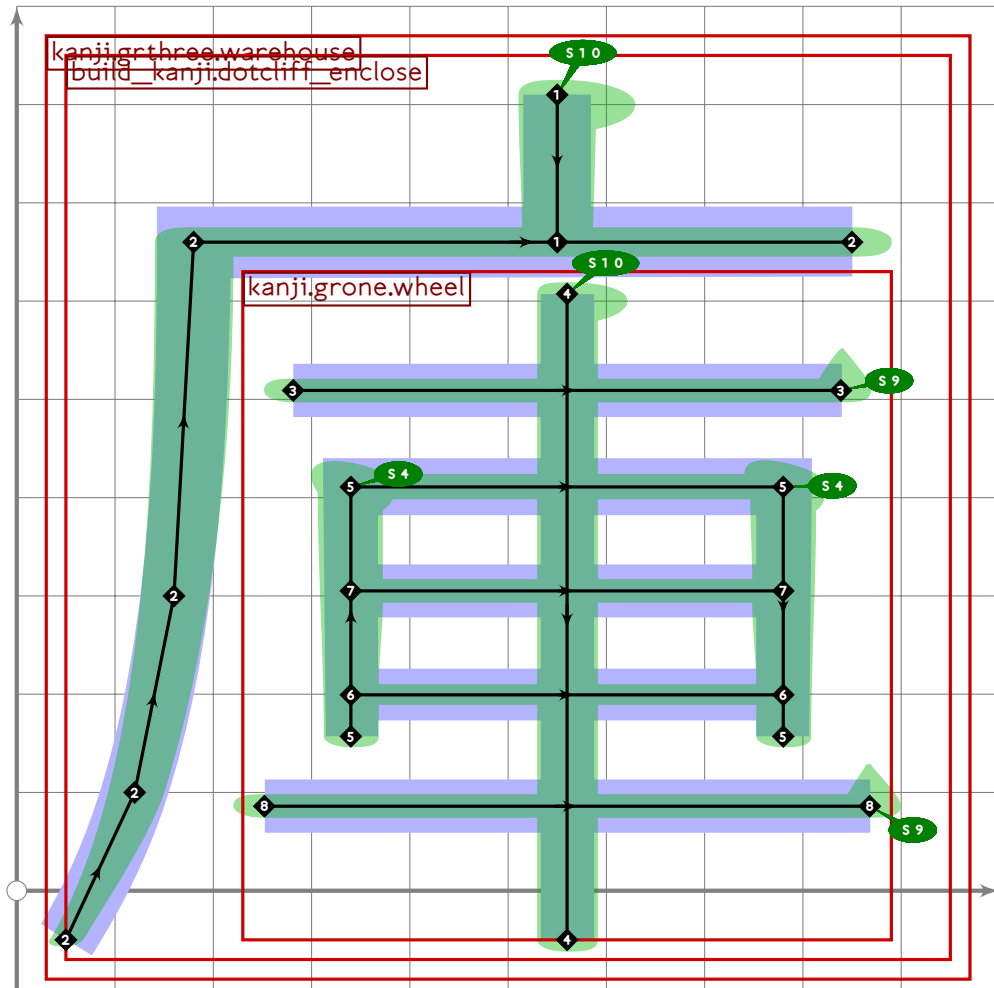
```



```

102
103 vardef kanji.grthree.register =
104   push_pbox_toexpand("kanji.grthree.register");
105   build_kanji.level(build_kanji.lr(420,50)
106     (kanji.greight.towel)
107     (kanji.grtwo.long));
108   expand_pbox;
109 enddef;

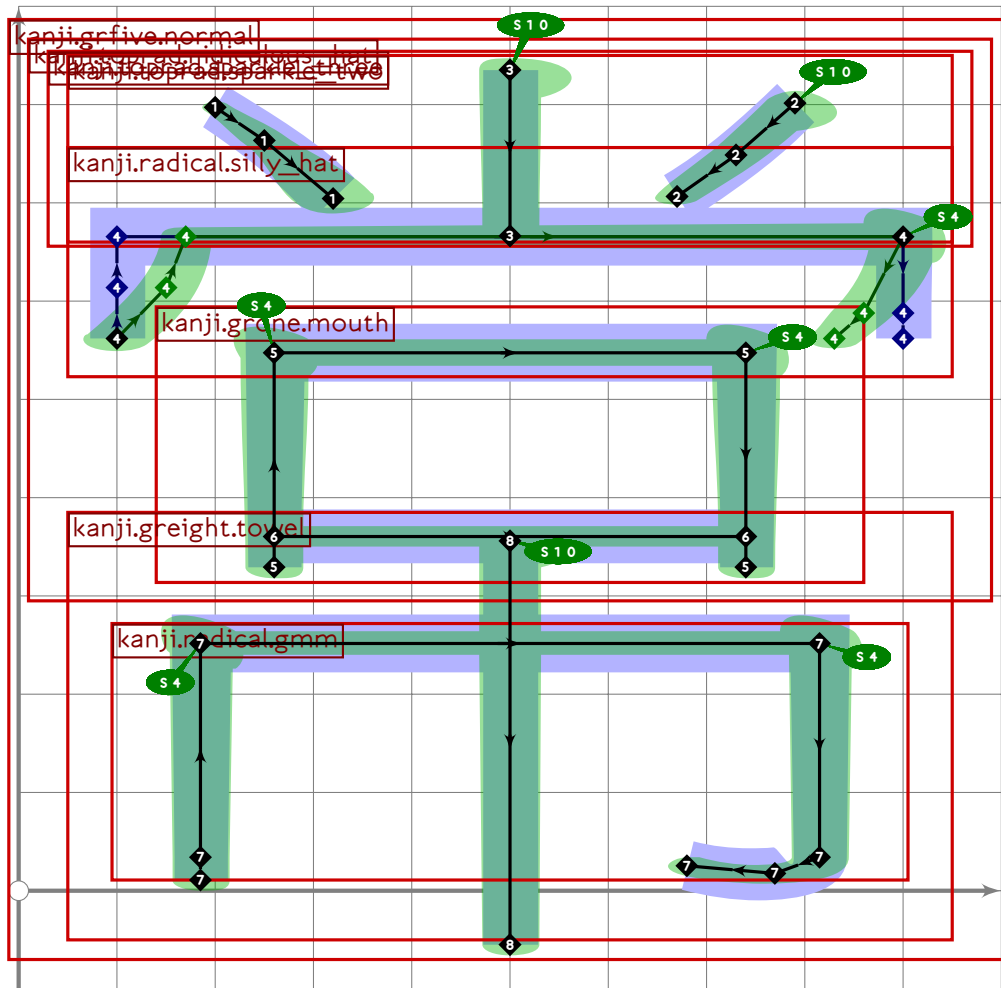
```



```

110
111 vardef kanji.grthree.warehouse =
112   push_pbox_toexpand("kanji.grthree.warehouse");
113   build_kanji.dotcliff_enclose(kanji.grone.wheel);
114   expand_pbox;
115 enddef;
116
117

```



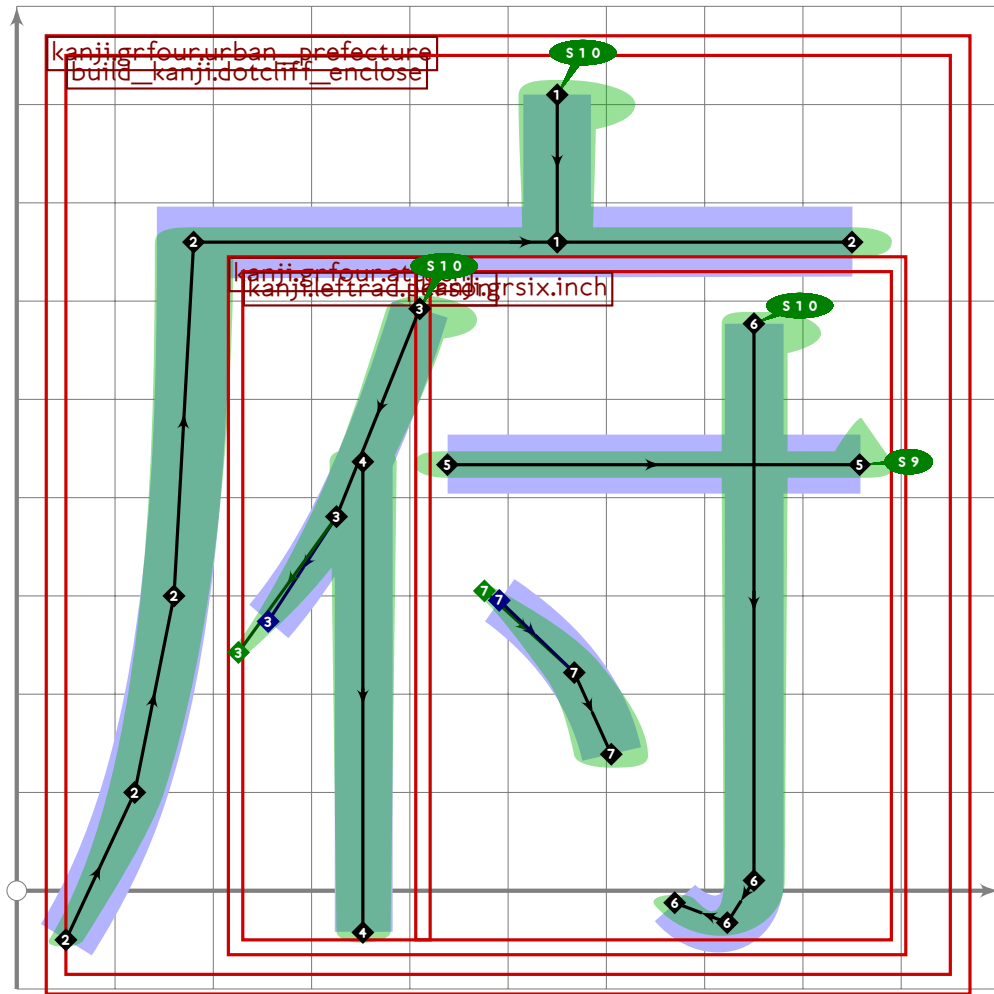
```

118
119 vardef kanji.grfive.normal =
120   push_pbox_toexpand("kanji.grfive.normal");
121   build_kanji.level(build_kanji.tb(340,90)
122     (kanji.toprad.ridiculous_hat)
123     (kanji.greight.towel));
124   expand_pbox;
125 enddef;
126
127

```



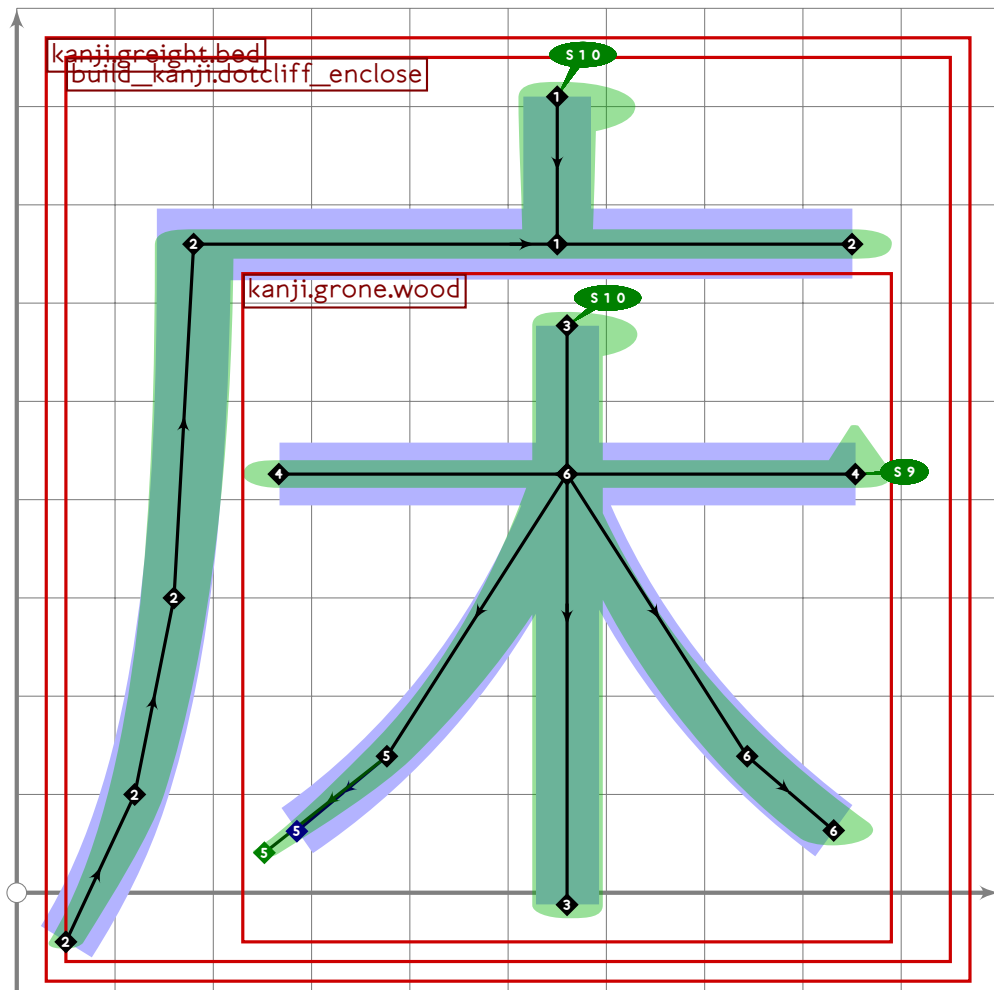




```

137
138 vardef kanji.grfour.urban_prefecture =
139   push_pbox_toexpand("kanji.grfour.urban_prefecture");
140   build_kanji.dotcliff_enclose(kanji.grfour.attach);
141   expand_pbox;
142 enddef;
143
144

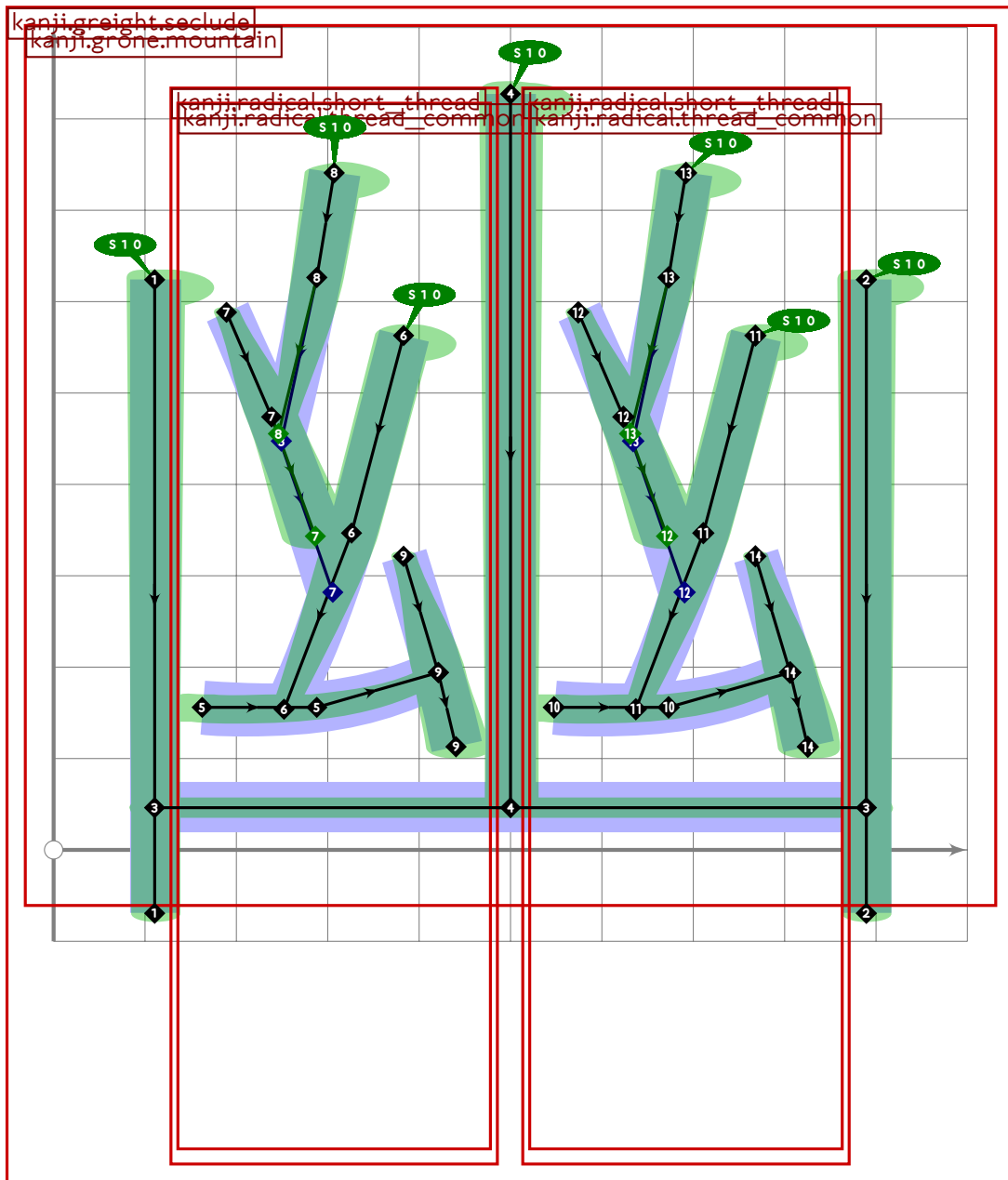
```



```

145
146 vardef kanji.greight.bed =
147   push_pbox_toexpand("kanji.greight.bed");
148   build_kanji.dotcliff_enclose(kanji.grone.wood);
149   expand_pbox;
150 enddef;

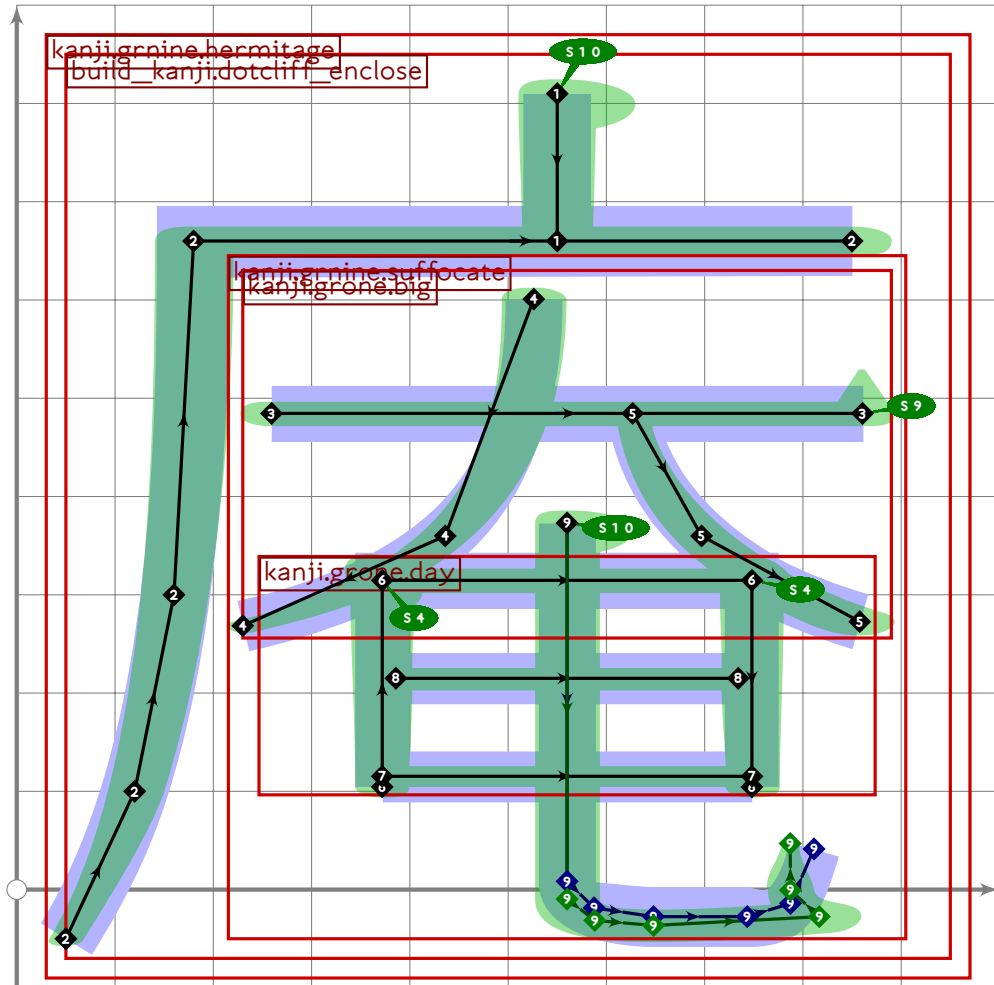
```



```

151
152 vardef kanji.greight.seclude =
153   push_pbox_toexpand("kanji.greight.seclude");
154   build_kanji.sscale(xyscaled (1.18,1.07) shifted (0,20))
155     (kanji.grone.mountain);
156   build_kanji.sscale(xyscaled (0.38,0.83) shifted (-193,15))
157     (kanji.radical.short_thread);
158   build_kanji.sscale(xyscaled (0.38,0.83) shifted (192,15))
159     (kanji.radical.short_thread);
160   for i=-14 upto 0: set_bosize(i,80); endfor;
161   expand_pbox;
162 enddef;
163

```

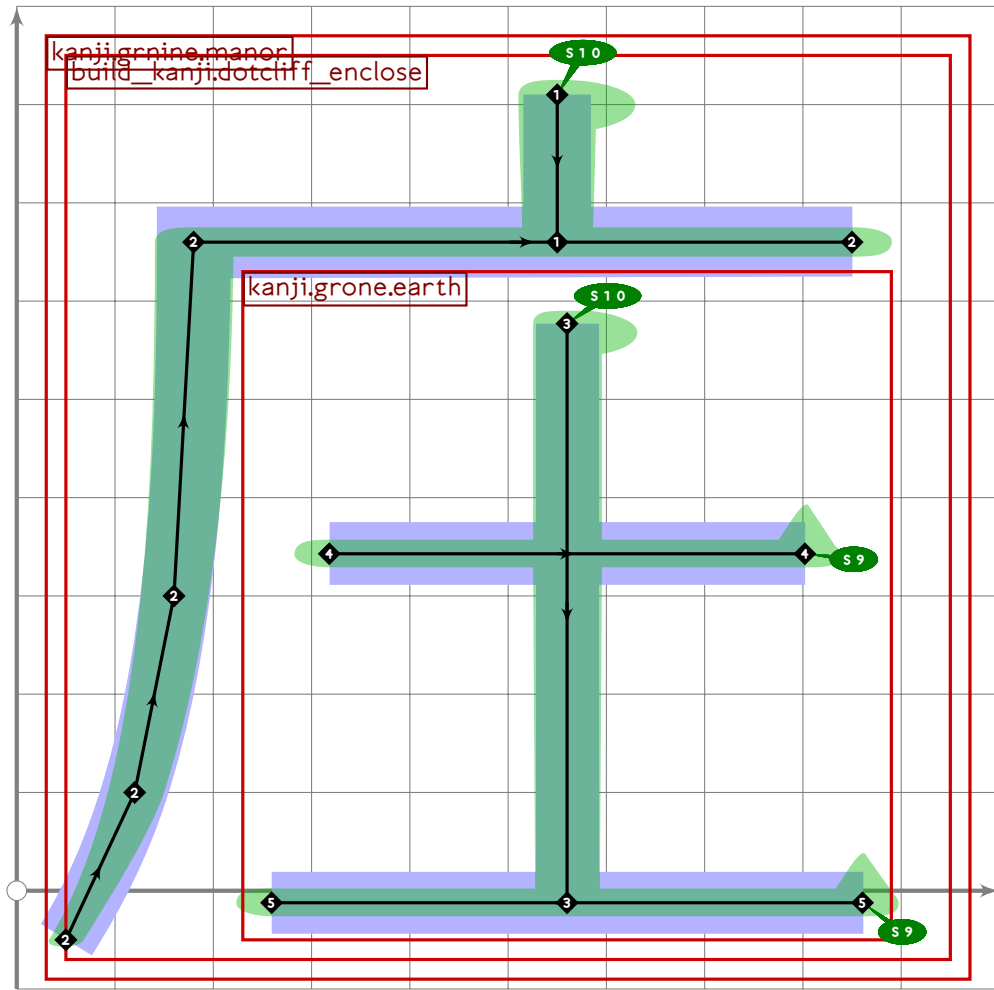


165

```

166 vardef kanji.grnine.hermitage =
167   push_pbox_toexpand("kanji.grnine.hermitage");
168   build_kanji.dotcliff_enclose(kanji.grnine.suffocate);
169   expand_pbox;
170 enddef;

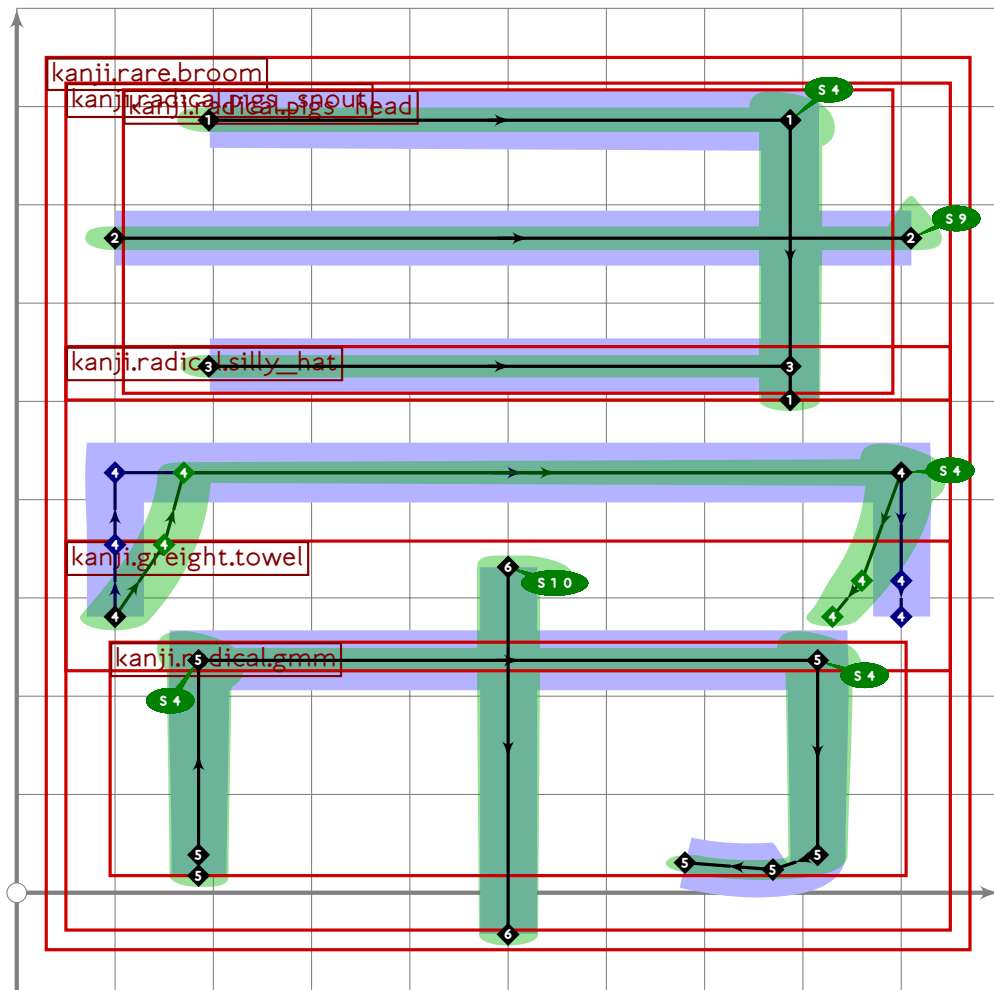
```



```

171
172 vardef kanji.grnine.manor =
173   push_pbox_toexpand("kanji.grnine.manor");
174   build_kanji.dotcliff_enclose(kanji.grnone.earth);
175   expand_pbox;
176 enddef;
177
178

```



```

179
180 vardef kanji.rare.broom =
181   push_pbox_toexpand("kanji.rare.broom");
182   build_kanji.level(build_kanji.sscale(yscaled 0.95 shifted (0,-10))
183     (build_kanji.tb(550,50)
184       (kanji.radical.pigs_snout)
185       (build_kanji.tb(450,200)
186         (kanji.radical.silly_hat;
187           set_bosize(-1,0))
188         (kanji.greight.towel))));
189   expand_pbox;
190 enddef;
191
192
193
194 vardef kanji.leftrad.sword =
195   push_pbox_toexpand("kanji.leftrad.sword");
196   push_stroke((260,720)-(260,300),(1.6,1.6)-(1.4,1.4));
197   set_boseref(0,0,10);
198   push_stroke((740,760)-(740,400){down}..(550,130)..(200,-40),
199     (1.6,1.6)-(1.5,1.5)-(1.3,1.3)-(1,1));

```

```

200 set_boserif(0,0,10);
201 expand_pbox;
202 enddef;
203
204 

---


205
206 vardef kanji.toprad.ridiculous_hat =
207   push_pbox_toexpand("kanji.toprad.ridiculous_hat");
208   build_kanji.level(build_kanji.tb(620,156)
209     (kanji.toprad.sparkle_three)
210     (build_kanji.tb(600,410)
211       (kanji.radical.silly_hat;set_bosize(-1,0))
212       (build_kanji.sscale(xyscaled (0.8,0.64) shifted (0,-120))
213         (kanji.grone.mouth)))));
214   expand_pbox;
215 enddef;
216
217 

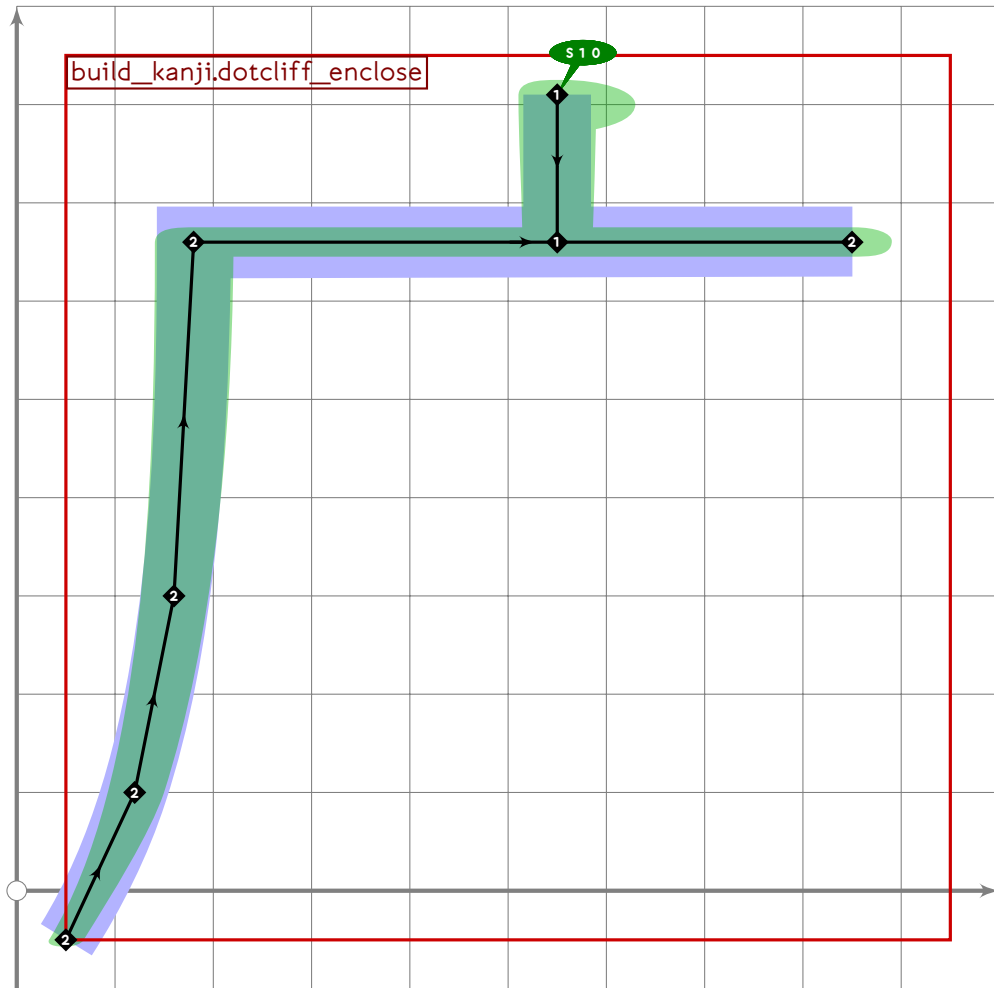
---


218
219 % shi/ichi "market"
220 begintsuglyph("uni5E02",2); [see page 449]
221   kanji.grtwo.market;
222   tsu_render;
223 endtsuglyph;
224
225 % sou/houki "broom" as in houkiboshi "comet"
226 begintsuglyph("uni5E1A",26); [see page 1507]
227   kanji.rare.broom;
228   tsu_render;
229 endtsuglyph;
230
231 % ki/kae "return"
232 begintsuglyph("uni5E30",48); [see page 1495]
233   kanji.grtwo.return;
234   tsu_render;
235 endtsuglyph;
236
237 % chou/tobari "register"
238 begintsuglyph("uni5E33",51); [see page 1498]
239   kanji.grthree.register;
240   tsu_render;
241 endtsuglyph;
242
243 % jou/tsune "normal"
244 begintsuglyph("uni5E38",56); [see page 1500]
245   kanji.grfive.normal;
246   tsu_render;
247 endtsuglyph;

```



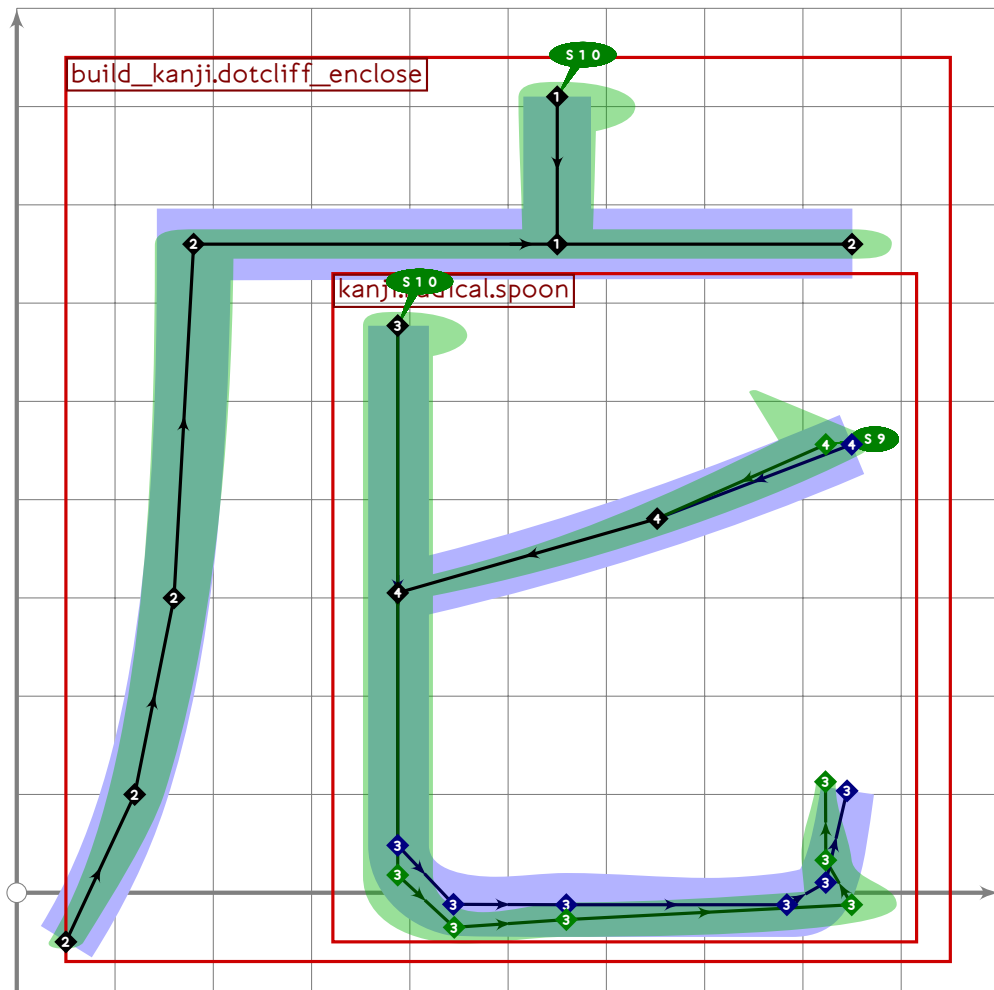
248  
 249 % nen/toshi "year"  
 250 `begintsuglyph("uni5E74",116);` [see page 1494]  
 251 `kanji.grone.year;`  
 252 `tsu_render;`  
 253 `endtsuglyph;`  
 254  
 255 % hei/awa "merger"  
 256 `begintsuglyph("uni5E76",118);` [see page 561]  
 257 `kanji.rare.merger;`  
 258 `tsu_render;`  
 259 `endtsuglyph;`  
 260  
 261 % you/chiisai "short thread radical"  
 262 `begintsuglyph("uni5E7A",122);` [see page 354]  
 263 `kanji.radical.short_thread;`  
 264 `tsu_render;`  
 265 `endtsuglyph;`  
 266  
 267 % kan/ho "dry"  
 268 `begintsuglyph("uni5E7C",124);` [see page 520]  
 269 `kanji.grsix.dry;`  
 270 `tsu_render;`  
 271 `endtsuglyph;`  
 272  
 273 % yuu as in yuurei "seclude"  
 274 `begintsuglyph("uni5E7D",125);` [see page 1504]  
 275 `kanji.greight.seclude;`  
 276 `tsu_render;`  
 277 `endtsuglyph;`  
 278



```

279 % madare "dotted cliff radical"
280 begintsuglyph("uni5E7F";127);
281 build_kanji.dotcliff_enclose();
282 tsu_render;
283 endsuglyph;
284

```

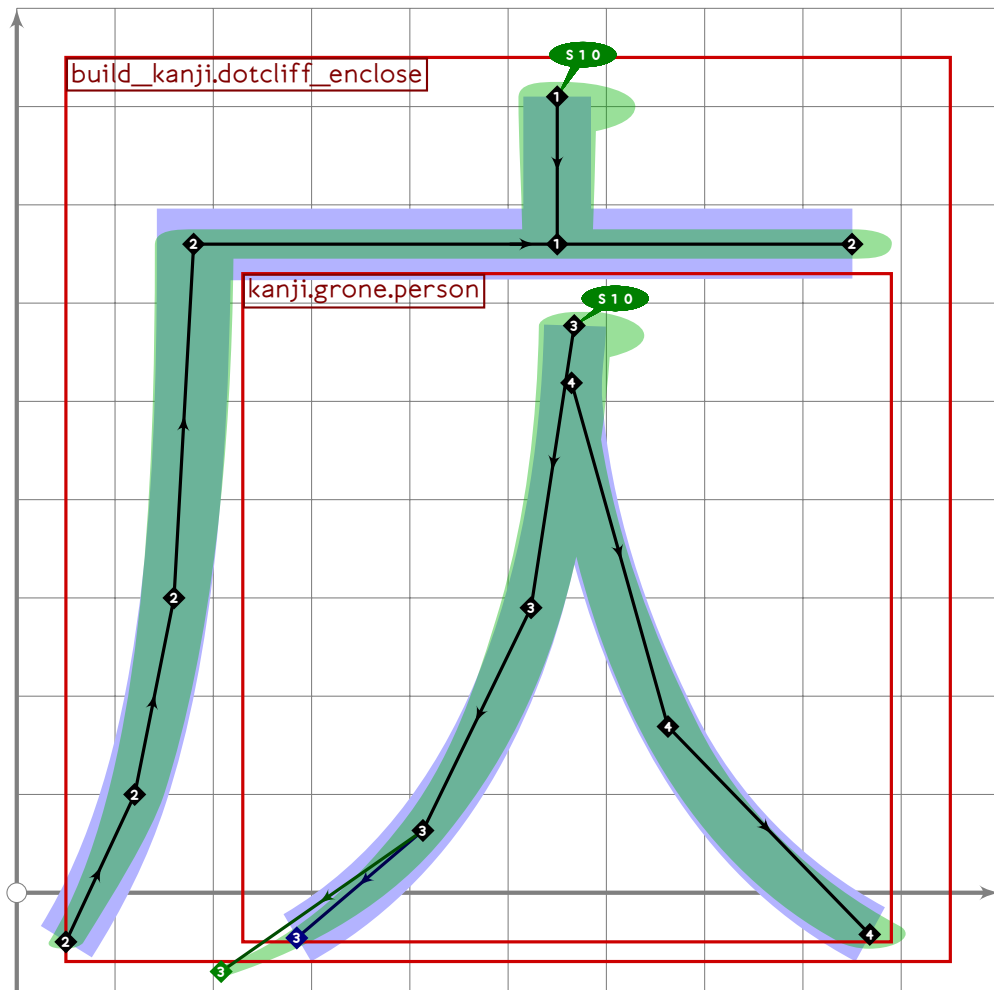


```

285 % extra
286 begintsuglyph("uni5E80",128);
287 build_kanji.dotcliff_enclose(
288     build_kanji.sscale(xscaled 0.9 shifted (80,0))
289     (kanji.radical.spoon));
290 tsu_render;
291 endsuglyph;
292
293 % chou/yakushou "government office"
294 begintsuglyph("uni5E81",129);
295 kanji.grsix.government_office;
296 tsu_render;
297 endsuglyph;
298

```

[see page 1501]



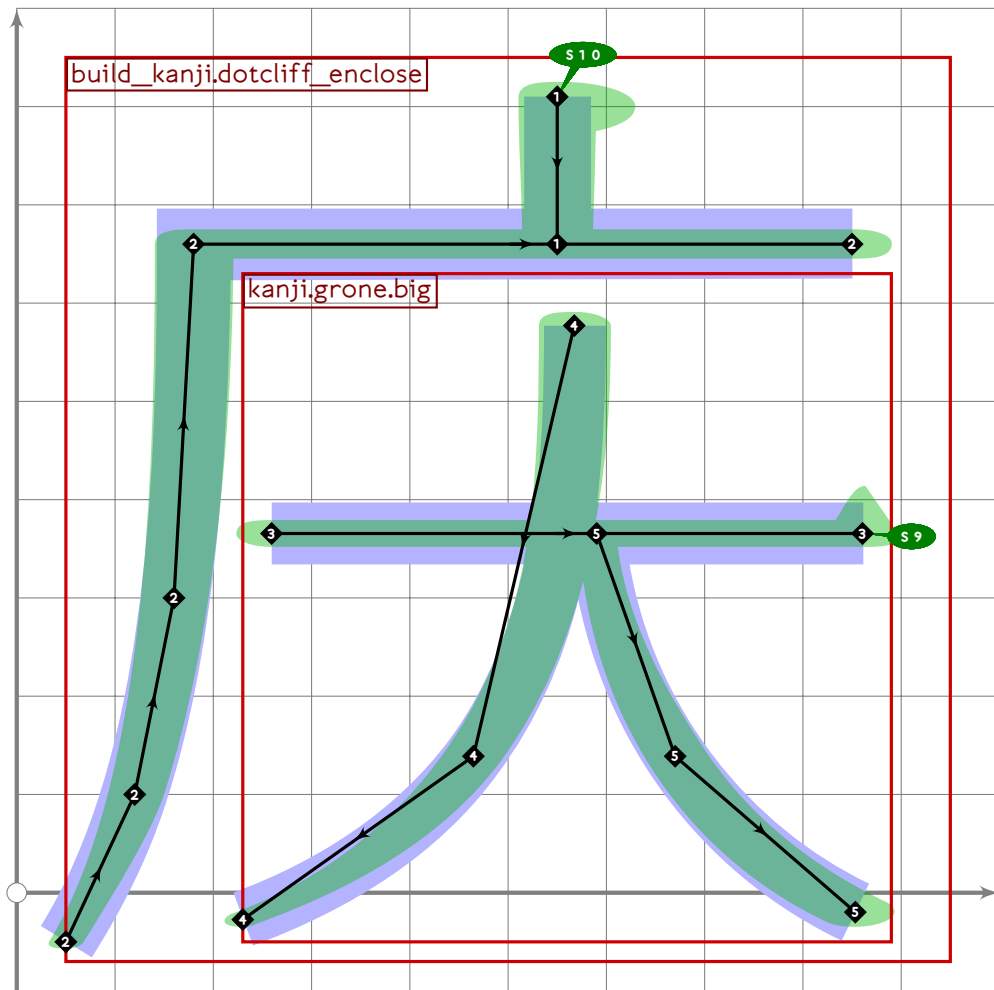
```

299 % extra
300 begintsuglyph("uni5E82";130);
301 build_kanji.dotcliff_enclose(kanji.grone.person);
302 tsu_render;
303 endtsuglyph;
304
305 % kou/hiro "wide"
306 begintsuglyph("uni5E83";131);
307 kanji.grtwo.wide;
308 tsu_render;
309 endtsuglyph;
310
311 % kou/hiro "wide"
312 begintsuglyph("uni5E84";132);
313 kanji.grnine.manor;
314 tsu_render;
315 endtsuglyph;
316

```

[see page 1497]

[see page 1506]



```

317 % extra
318 begintsuglyph("uni5E86",134);
319 build_kanji.dotcliff_enclose(kanji.grone.big);
320 tsu_render;
321 endtsuglyph;
322
323 % toko/yuka "bed"
324 begintsuglyph("uni5E8A",138);
325 kanji.greight.bed;
326 tsu_render;
327 endtsuglyph;
328
329 % ten/mise "shop"
330 begintsuglyph("uni5E97",151);
331 kanji.grtwo.shop;
332 tsu_render;
333 endtsuglyph;
334
335 % fu "urban prefecture"
336 begintsuglyph("uni5E9C",156);
337 kanji.grfour.urban_prefecture;

```

[see page 1503]

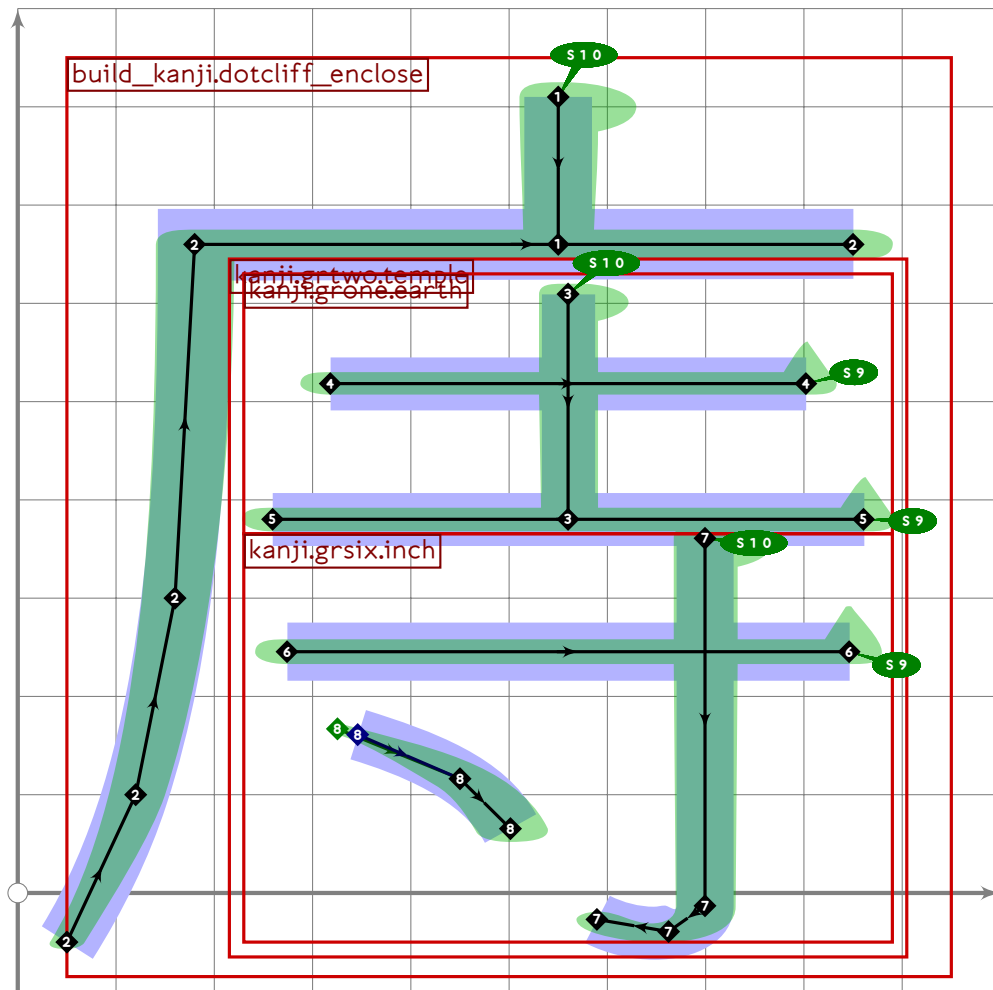
[see page 1496]

[see page 1502]

```

338 tsu_render;
339 endsuglyph;
340

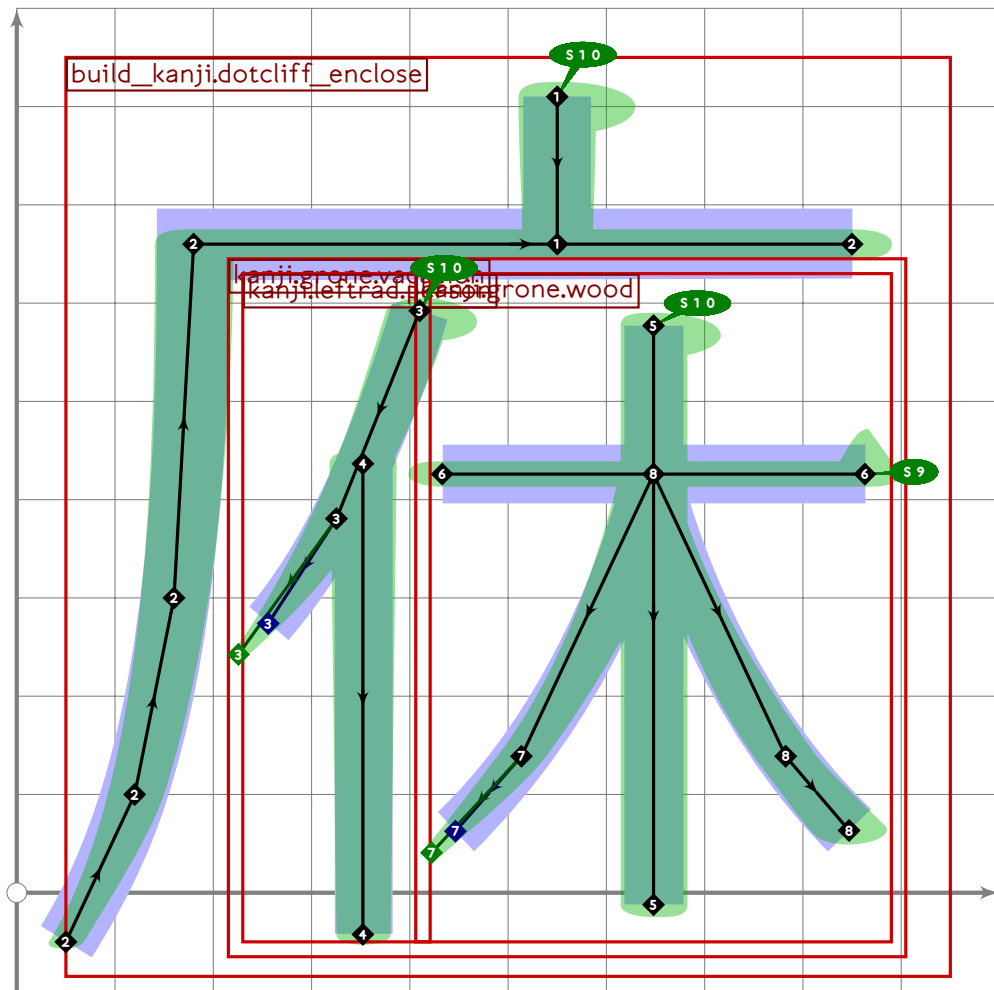
```



```

341 % extra
342 beginsuglyph("uni5EA4",164);
343 build_kanji.dotcliff_enclose(kanji.grtwo.temple);
344 tsu_render;
345 endsuglyph;
346

```



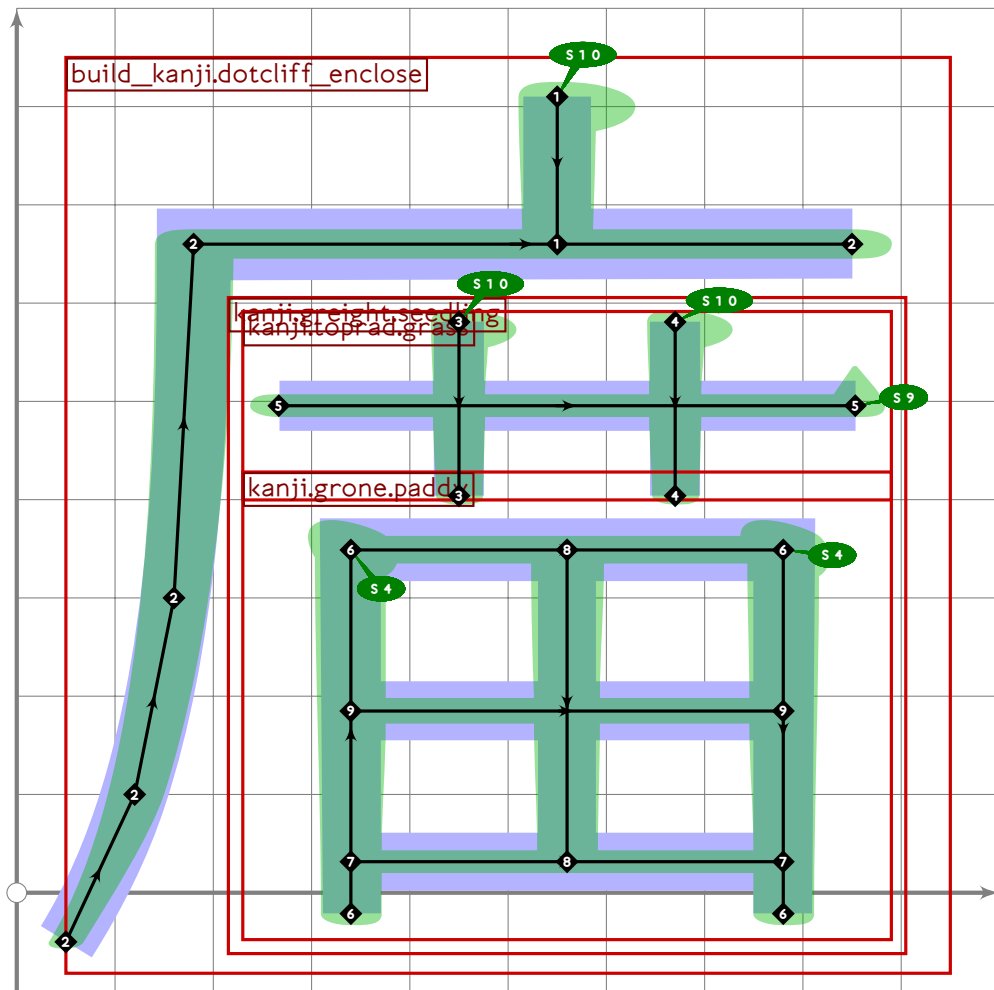
```

347 % extra
348 begint Suglyph("uni5EA5",165);
349 build_kanji.dotcliff_enclose(kanji.grone.vacation);
350 tsu_render;
351 ends Suglyph;
352
353 % ko/kura "warehouse"
354 begint Suglyph("uni5EAB",171);
355 kanji.grthree.warehouse;
356 tsu_render;
357 ends Suglyph;
358
359 % an/iori "hermitage"
360 begint Suglyph("uni5EB5",181);
361 kanji.grnine.hermitage;
362 tsu_render;
363 ends Suglyph;
364

```

[see page 1499]

[see page 1505]



```

365 % extra
366 beginsuglyph("uni5EBF";191);
367   build_kanji.dotcliff_enclose(
368     tsu_xform(identity yscaled 0.94)(kanji.greight.seedling));
369   tsu_render;
370 endsuglyph;

```

371

```

372 % extra

```

```

373 beginsuglyph("uni5EFE";254);
374   kanji.radical.aitch;
375   tsu_render;
376 endsuglyph;

```

[see page 334]

377

378

379

```

380 endfont;

```

381

382



# tsuku-5f.mp

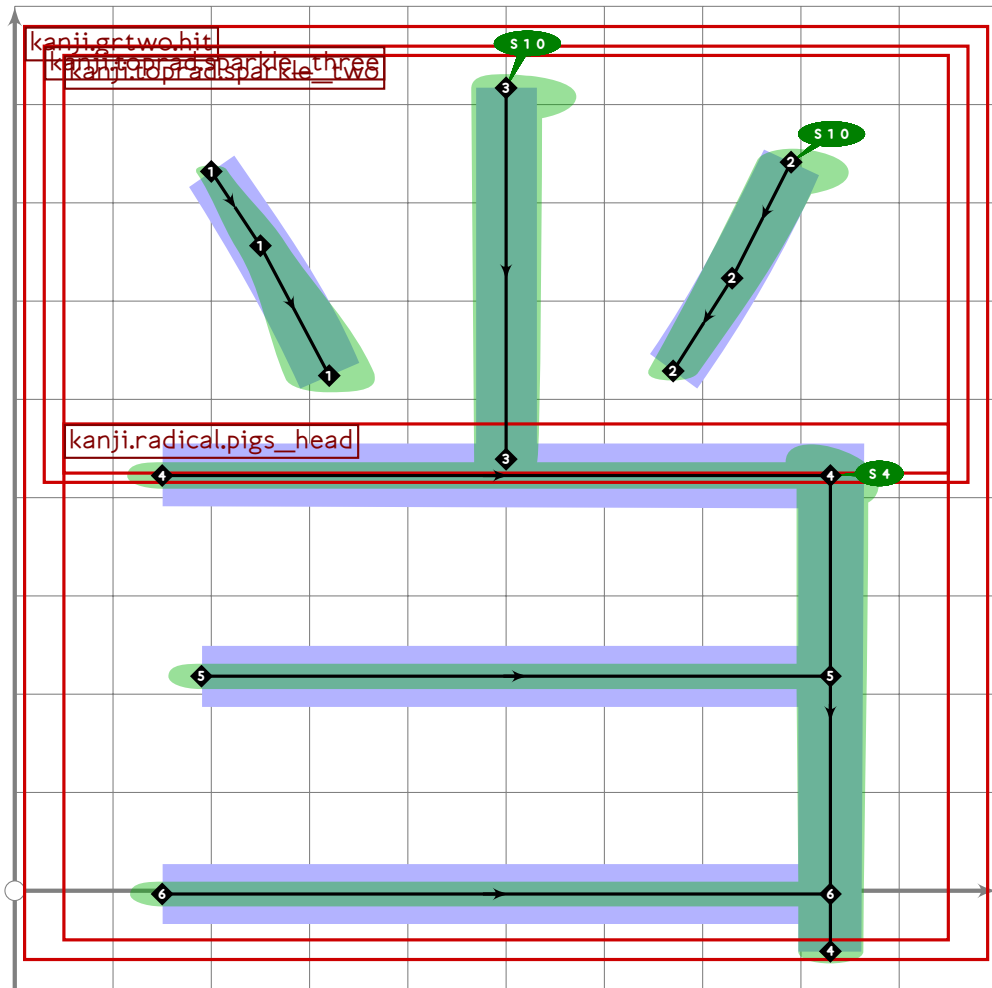
```
1 %
2 % Unicode page 5f (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input bottomrad.mp;
37 input buildkanji.mp;
38 input gradeeight.mp;
39 input gradefive.mp;
40 input gradefour.mp;
41 input gradenine.mp;
42 input gradeone.mp;
43 input gradesix.mp;
44 input gradethree.mp;
45 input gradetwo.mp;
46 input leftrad.mp;
47 input radical.mp;
48 input rare.mp;
49 input toprad.mp;
50
51 

---

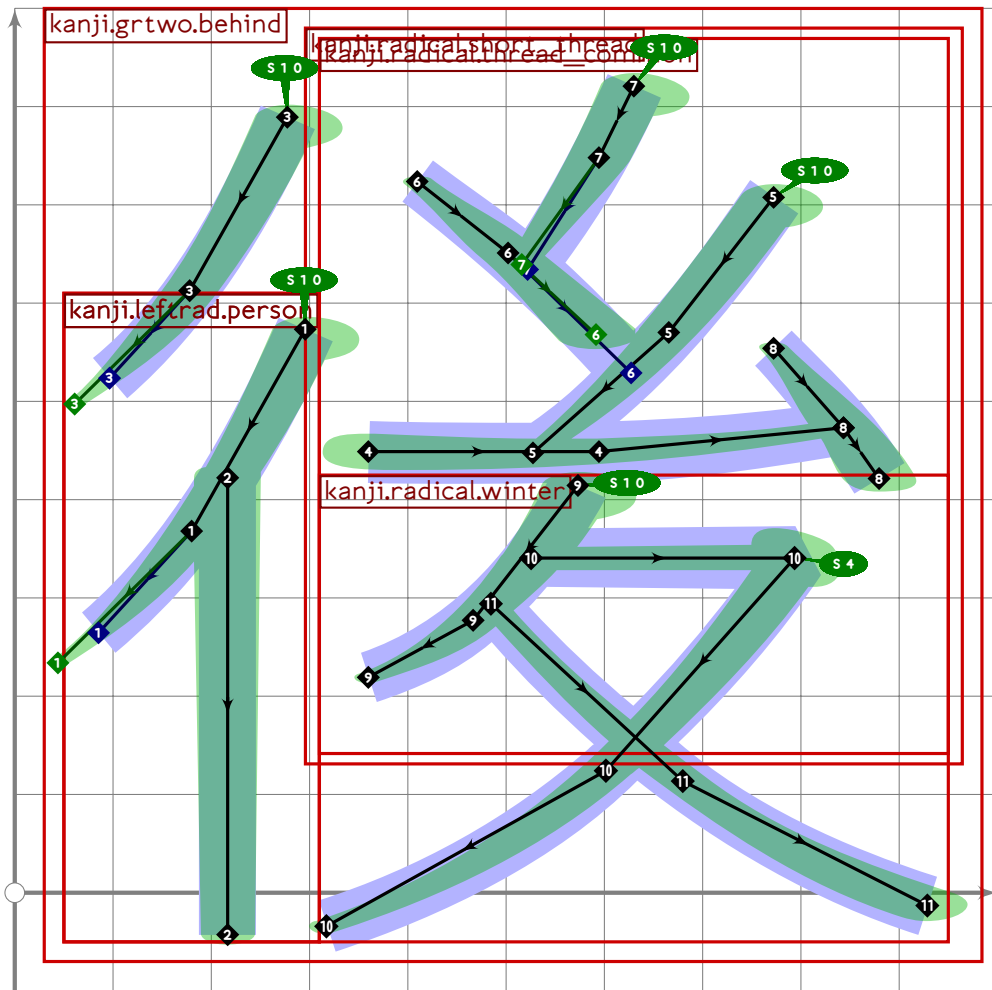

```



```

52
53 vardef kanji.grtwo.hit =
54   push_pbox_toexpand("kanji.grtwo.hit");
55   build_kanji.level(build_kanji.tb(450,50)
56     (kanji.toprad.sparkle_three)
57     (kanji.radical.pigs_head));
58   expand_pbox;
59 enddef;

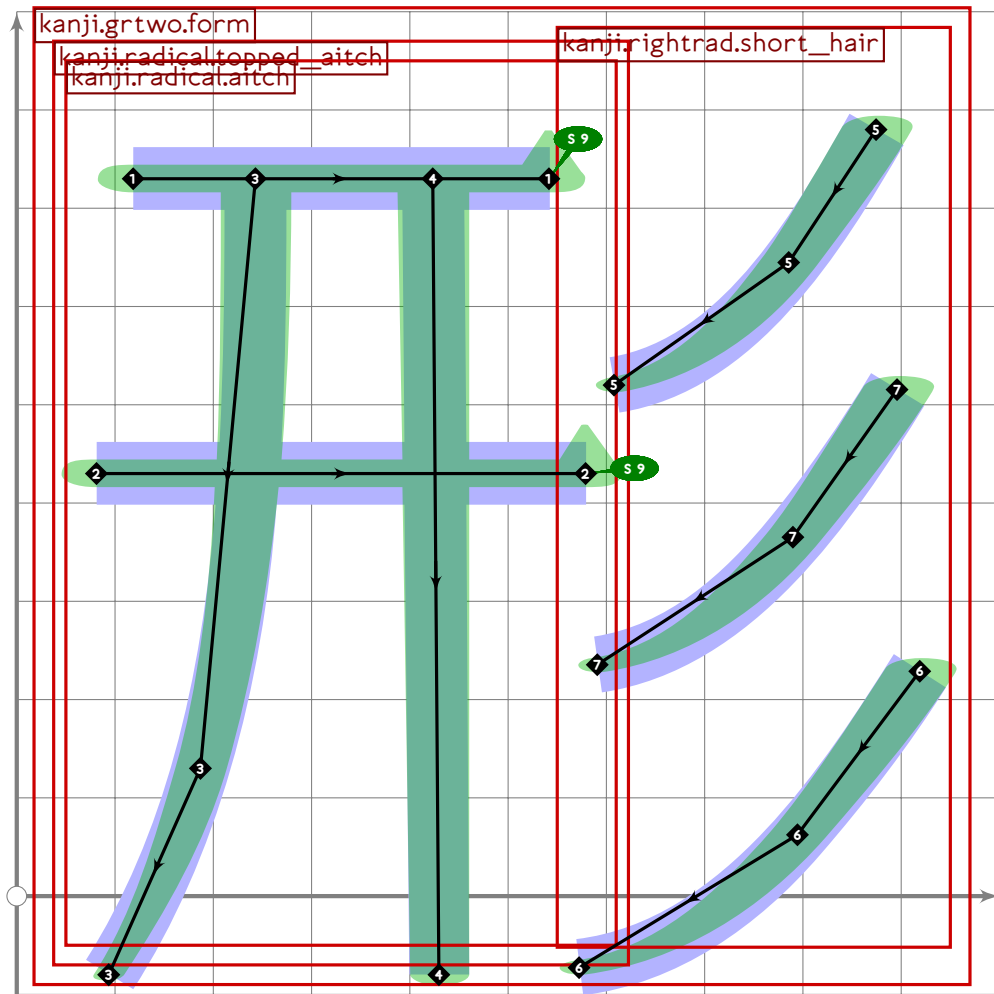
```



```

60
61 vardef kanji.grtwo.behind =
62   push_pbox_toexpand("kanji.grtwo.behind");
63   build_kanji.level(build_kanji.lr(310,0)
64     (build_kanji.harmonic(240,0.86,0)(kanji.leftrad.person))
65     (build_kanji.tb(400,50)
66       (kanji.radical.short_thread)
67       (kanji.radical.winter)));
68   expand_pbox;
69 enddef;

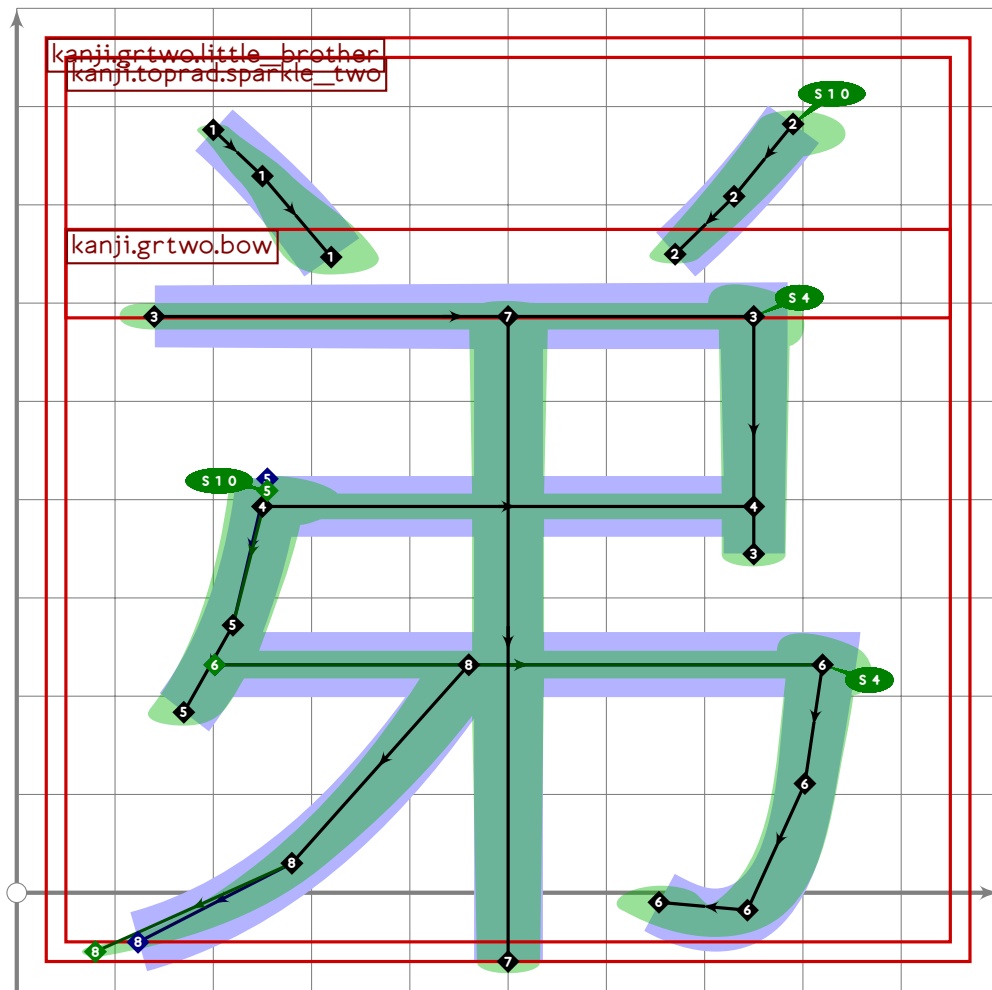
```



```

70
71 vardef kanji.grtwo.form =
72   push_pbox_toexpand("kanji.grtwo.form");
73   build_kanji.level(build_kanji.lr(580,60)
74     (kanji.radical.topped_aitch)
75     (tsu_xform(identity yscaled 1.04)(kanji.rightrad.short_hair)));
76   expand_pbox;
77 enddef;

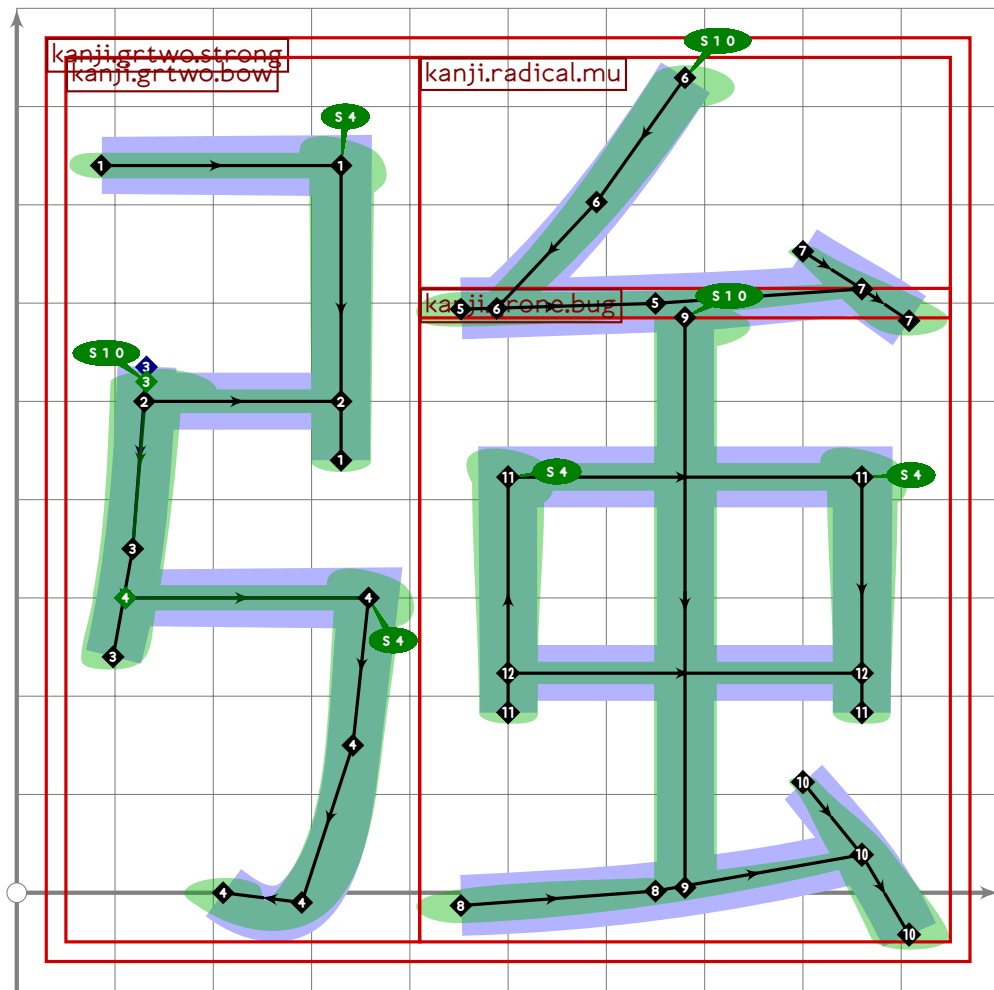
```



```

78
79 vardef kanji.grtwo.little_brother =
80   push_pbox_toexpand("kanji.grtwo.little_brother");
81   build_kanji.level(build_kanji.tb(630,90)
82     (kanji.toprad.sparkle_two)
83     (kanji.grtwo.bow));
84   replace_strokep(0)((point 0 of oldp)-
85     ((subpath (1,infinity) of oldp)
86       shifted (-820,0) xscaled 0.45 shifted (820,0)));
87   push_stroke((500,ypart point 0 of get_strokep(-3))-(500,-70),
88     (1.6,1.6)-(1.4,1.4));
89   push_stroke(
90     ((get_strokep(0) intersectionpoint get_strokep(-1))+(-40,0))..
91     tension 1.2..(280,30)..(80,-60),
92     (1.6,1.6)-(1.4,1.4)-(0.9,0.9));
93   expand_pbox;
94 enddef;

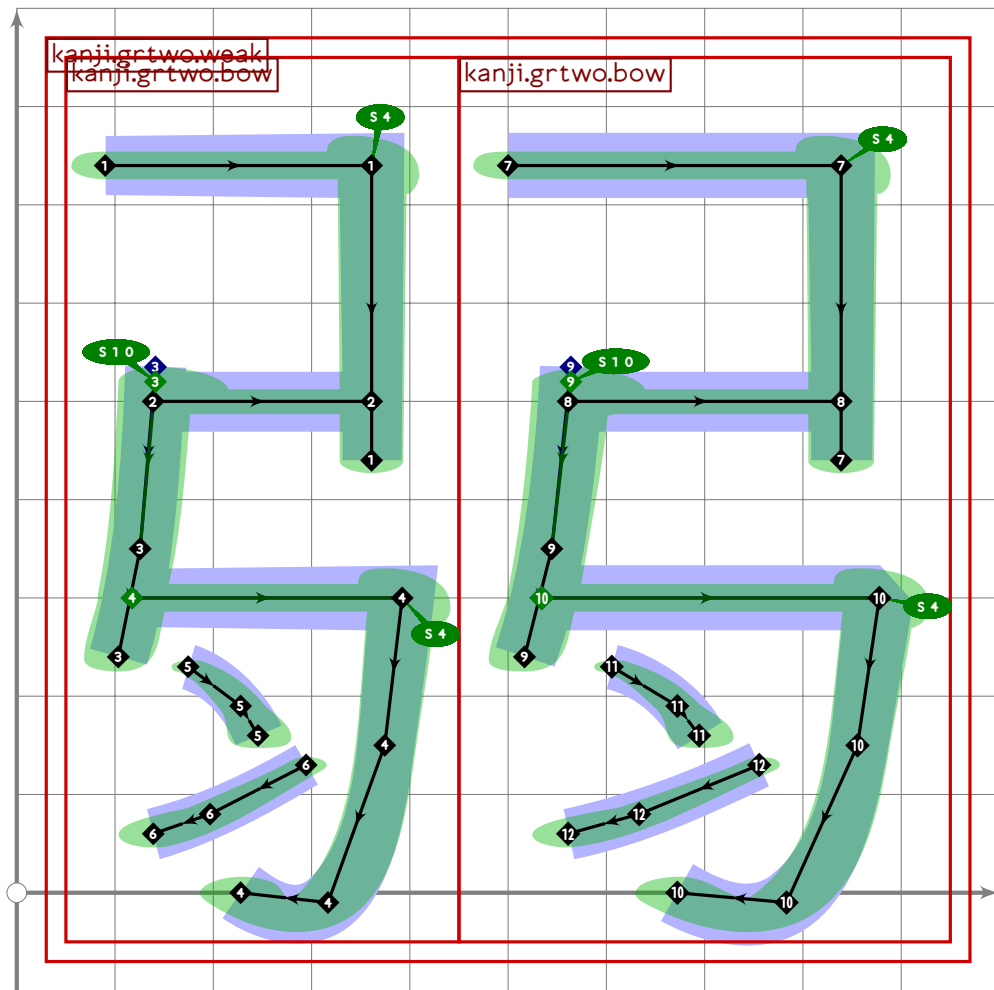
```



```

95
96 vardef kanji.grtwo.strong =
97   push_pbox_toexpand("kanji.grtwo.strong");
98   build_kanji.level(build_kanji.lr(410,0)
99     (kanji.grtwo.bow)
100     (build_kanji.tb(600,30)
101       (kanji.radical.mu)
102       (kanji.grone.bug)));
103   expand_pbox;
104 enddef;

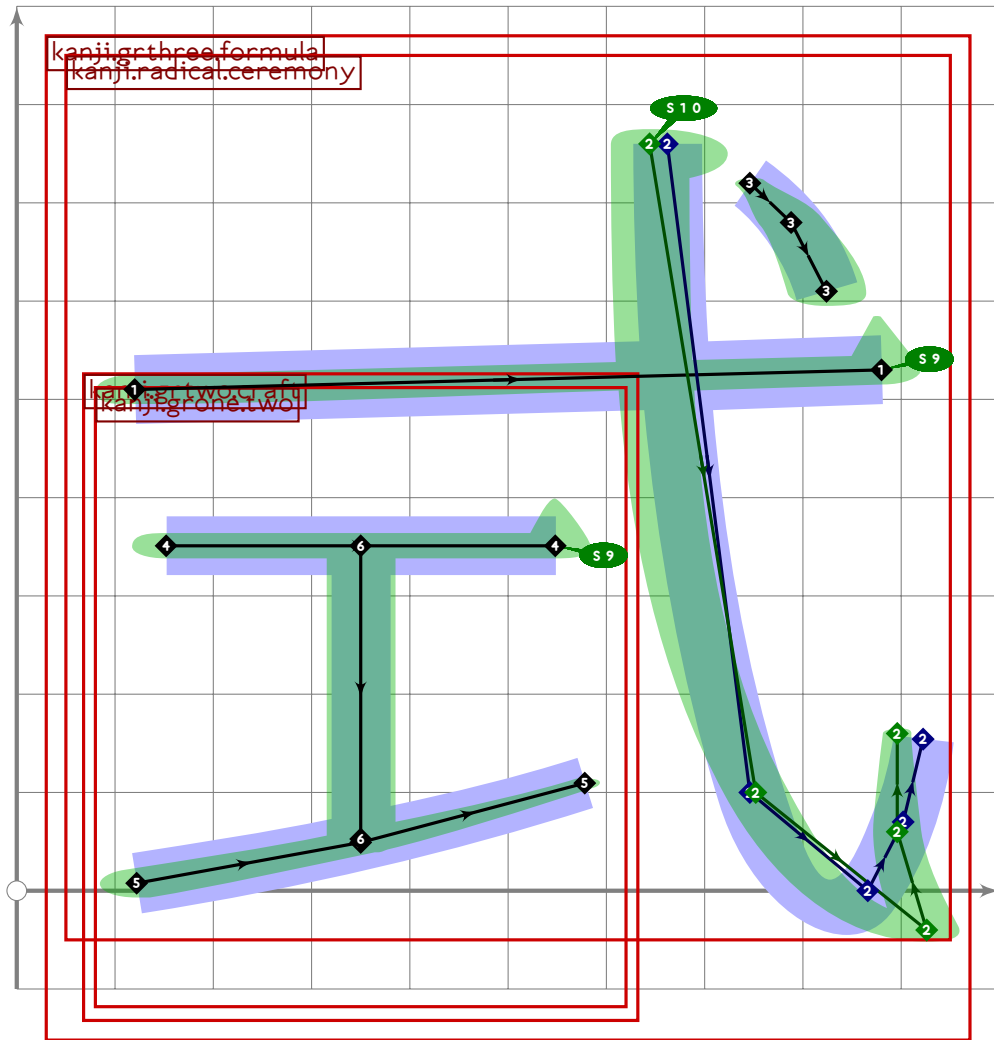
```



```

105
106 vardef kanji.grtwo.weak =
107   push_pbox_toexpand("kanji.grtwo.weak");
108   build_kanji.lr(450,0)
109     (tsu_curve_kanji.grtwo_helper.weak)
110     (tsu_curve_kanji.grtwo_helper.weak);
111   expand_pbox;
112 enddef;
113
114 vardef tsu_curve_kanji.grtwo_helper.weak =
115   kanji.grtwo.bow;
116   push_stroke((330,230)..tension 1.2..(450,190)..(490,160),
117     (1.2,1.2)-(1.4,1.4)-(1.8,1.8));
118   set_bosize(0,80);
119   push_stroke((600,130)..tension 1.2..(380,80)..(250,60),
120     (1.3,1.3)-(1.6,1.6)-(1.9,1.9));
121   set_bosize(0,80);
122 enddef;
123
124

```

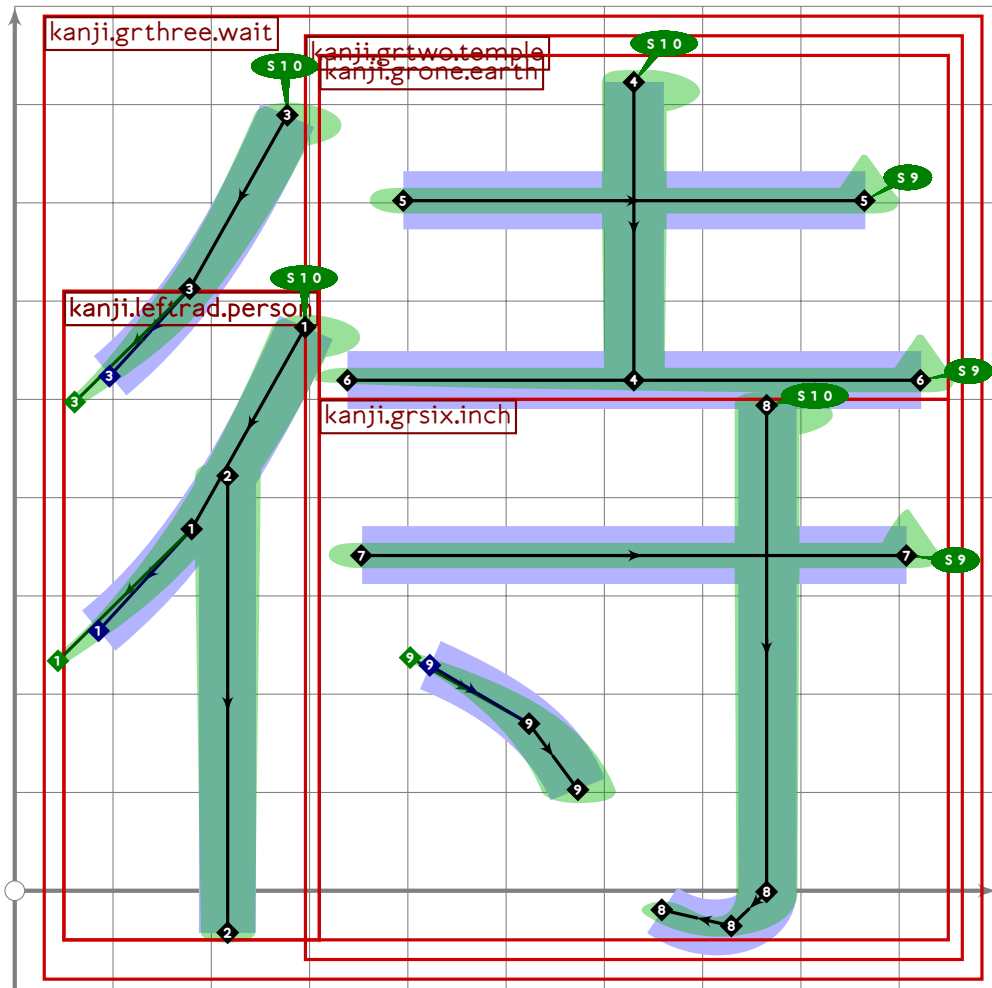


```

125
126 vardef kanji.grthree.formula =
127   push_pbox_toexpand("kanji.grthree.formula");
128   kanji.radical.ceremony;
129   replace_stroke(-1)(oldp shifted (-950,0) xscaled 0.6 shifted (950,0));
130   replace_stroke(0)(oldp shifted (-950,0) xscaled 0.6 shifted (950,0));
131   build_kanji.sscale(xyscaled (0.6,0.7) shifted (-150,-200))
132     (build_kanji.lift_skirt(400,250)(kanji.grtwo.craft));
133   expand_pbox;
134 enddef;

```

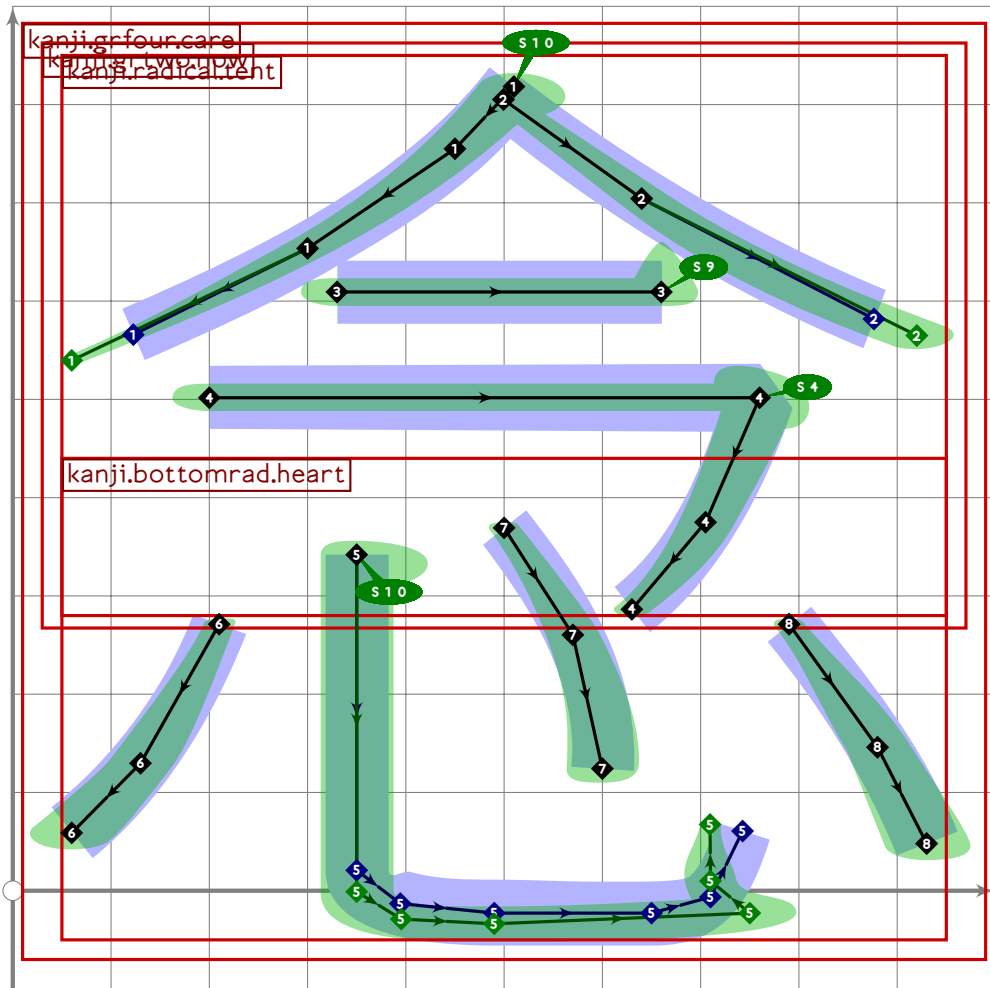




```

135
136 vardef kanji.grthree.wait =
137   push_pbox_toexpand("kanji.grthree.wait");
138   build_kanji.level(build_kanji.lr(310,0)
139     (build_kanji.harmonic(240,0.86,0)(kanji.leftrad.person))
140     (kanji.grtwo.temple));
141   expand_pbox;
142 enddef;
143
144

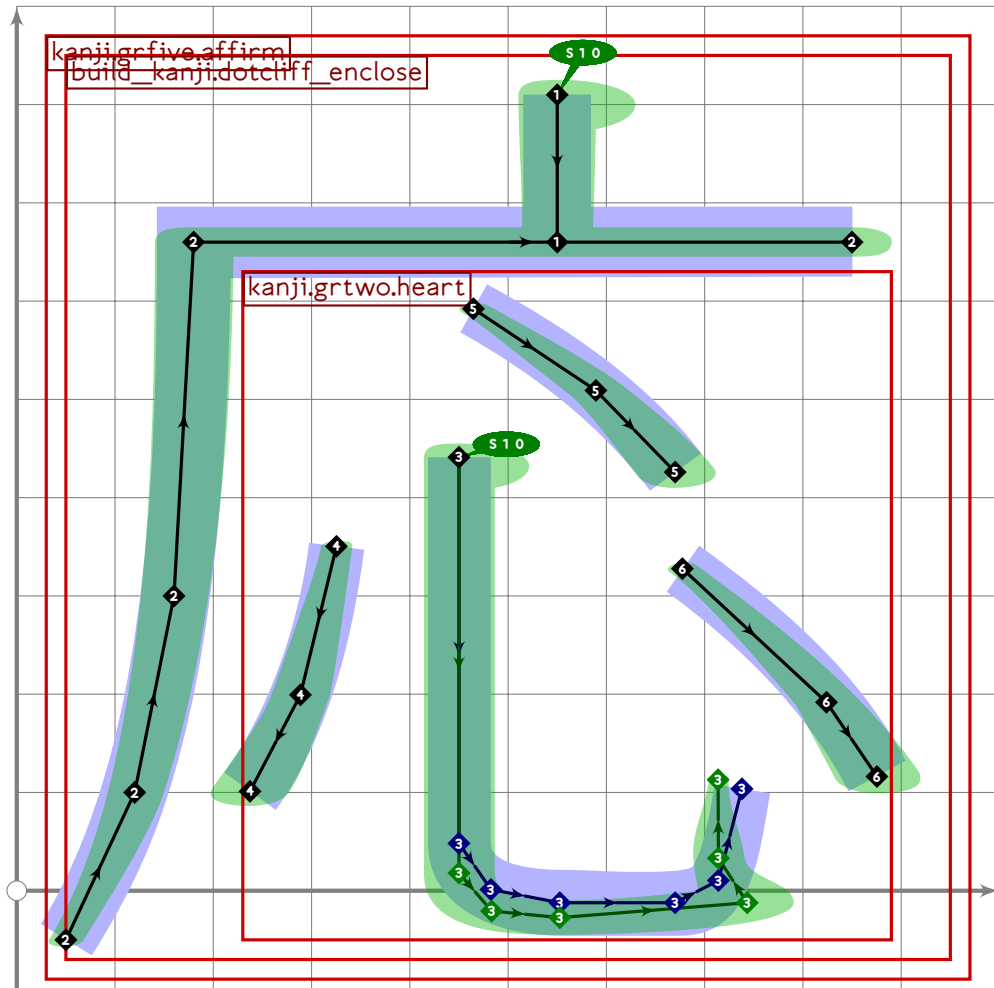
```



```

145
146 vardef kanji.grfour.care =
147   push_pbox_toexpand("kanji.grfour.care");
148   build_kanji.level(build_kanji.tb(360,160)
149     (kanji.grtwo.now;
150       replace_strokep(0)
151         ((point 0 of oldp)-
152           (subpath (1,infinity) of (oldp shifted (-point 1 of oldp)
153             xscaled 0.5
154               shifted (point 1 of oldp))))))
155     (kanji.bottomrad.heart));
156   expand_pbox;
157 enddef;
158
159

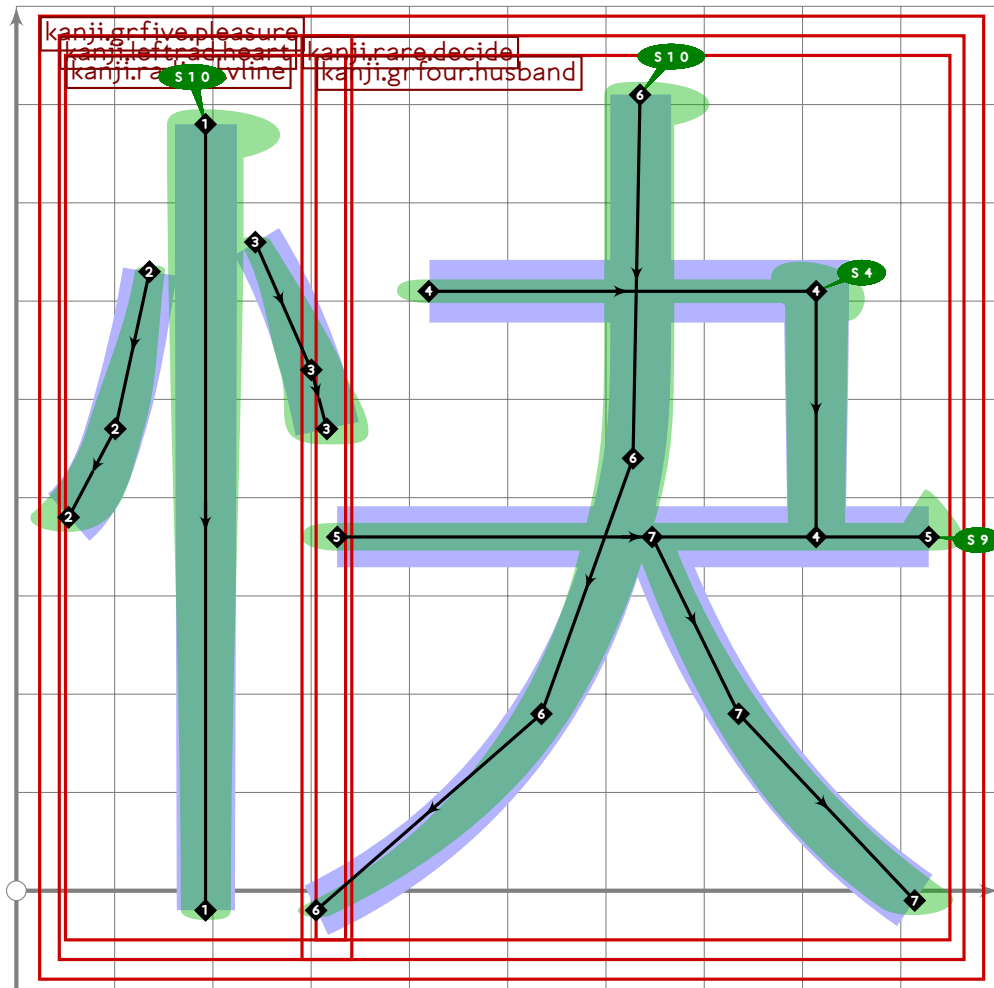
```



```

160
161 vardef kanji.grfive.affirm =
162   push_pbox_toexpand("kanji.grfive.affirm");
163   build_kanji.dotcliff_enclose(kanji.grtwo.heart);
164   expand_pbox;
165 enddef;

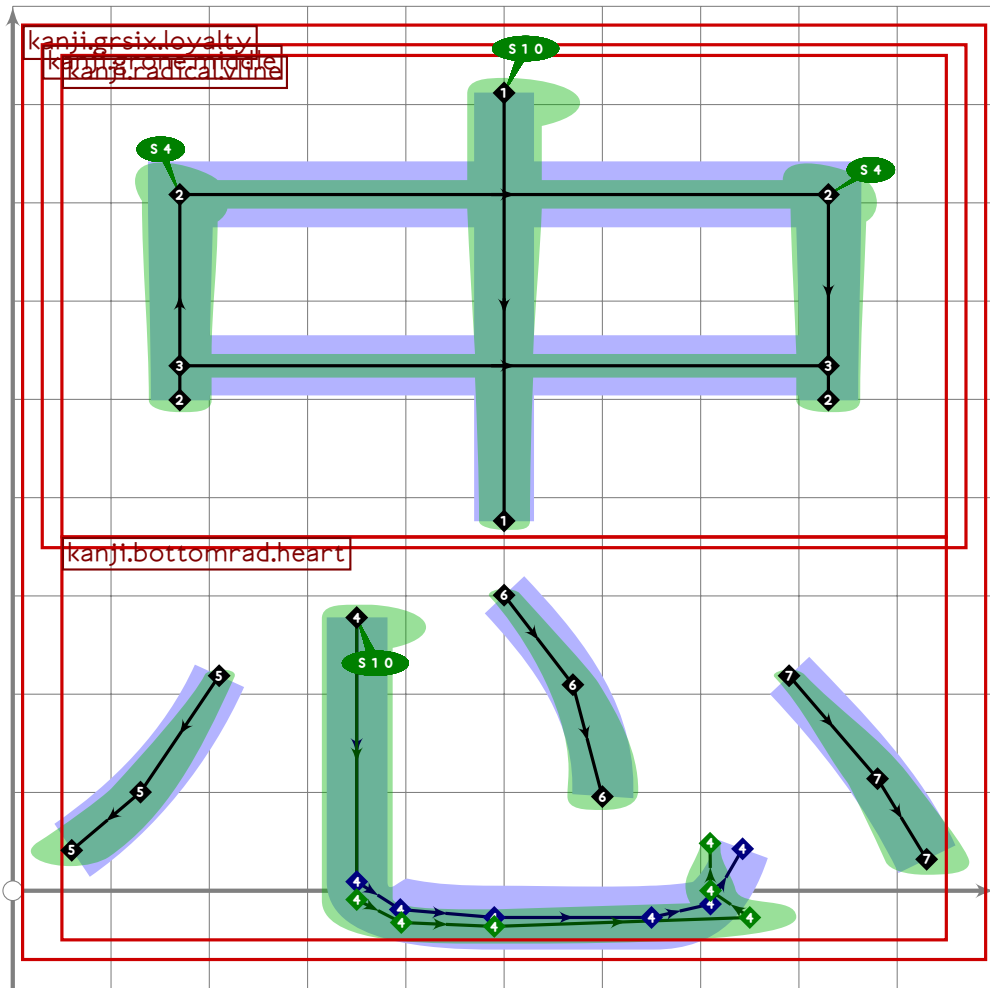
```



```

166
167 vardef kanji.gr five.pleasure =
168   push_pbox_toexpand("kanji.gr five.pleasure");
169   build_kanji.level(build_kanji.lr(320,30)
170     (kanji.leftrad.heart)
171     (kanji.rare.decide));
172   expand_pbox;
173 enddef;
174
175

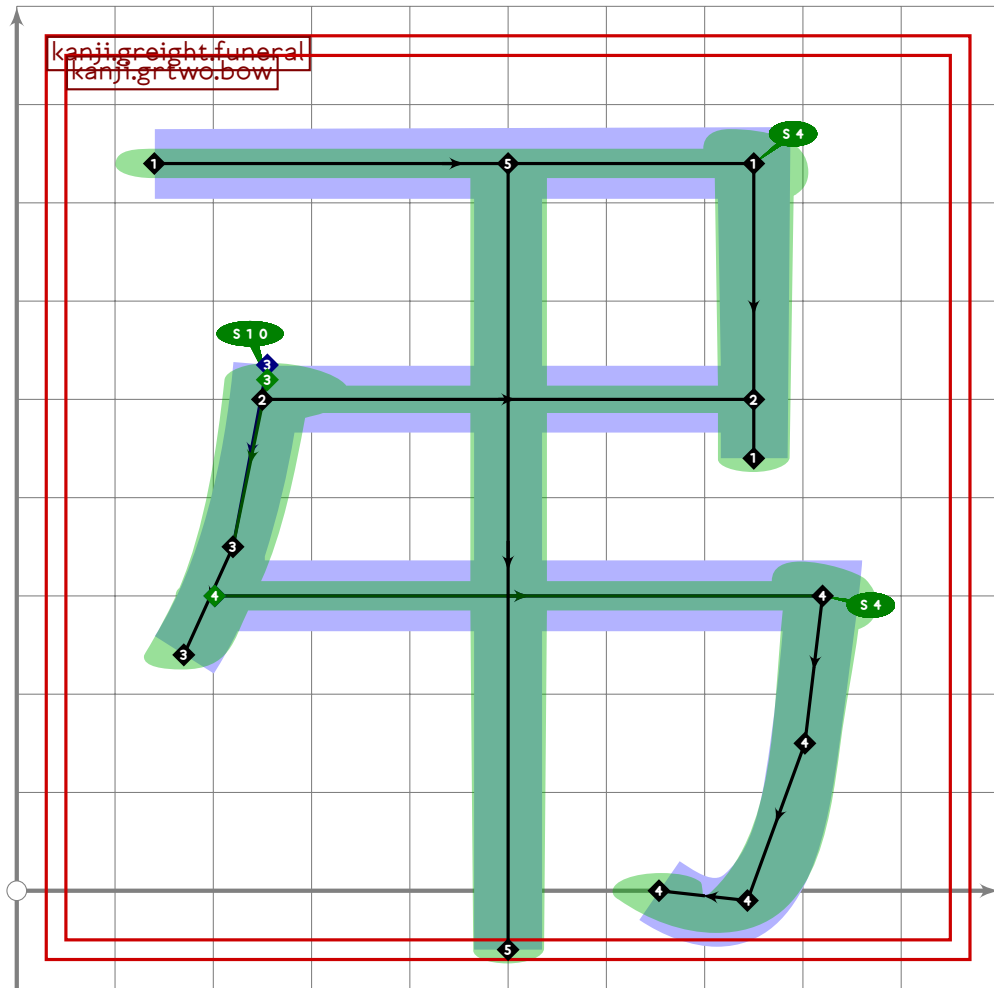
```



```

176
177 vardef kanji.grsix.loyalty =
178   push_pbox_toexpand("kanji.grsix.loyalty");
179   build_kanji.level(build_kanji.tb(360,0)
180     (kanji.grone.middle)
181     (kanji.bottomrad.heart));
182   expand_pbox;
183 enddef;
184
185

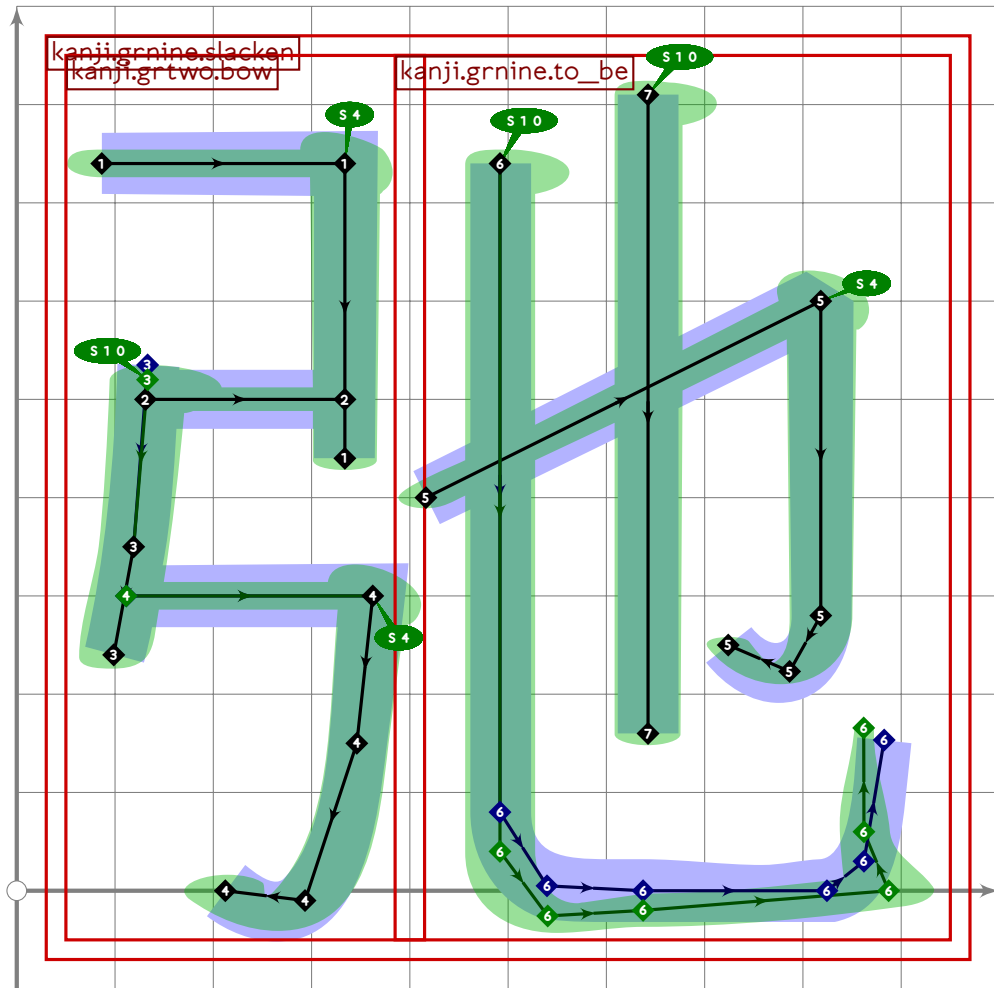
```



```

186
187 vardef kanji.greight.funeral =
188   push_pbox_toexpand("kanji.greight.funeral");
189   kanji.grtwo.bow;
190   replace_strokep(0)((point 0 of oldp)-
191     ((subpath (1,infinity) of oldp)
192       shifted (-820,0) xscaled 0.45 shifted (820,0)));
193   push_stroke((500,740)-(500,-60),(1.6,1.6)-(1.5,1.5));
194   expand_pbox;
195 enddef;
196
197

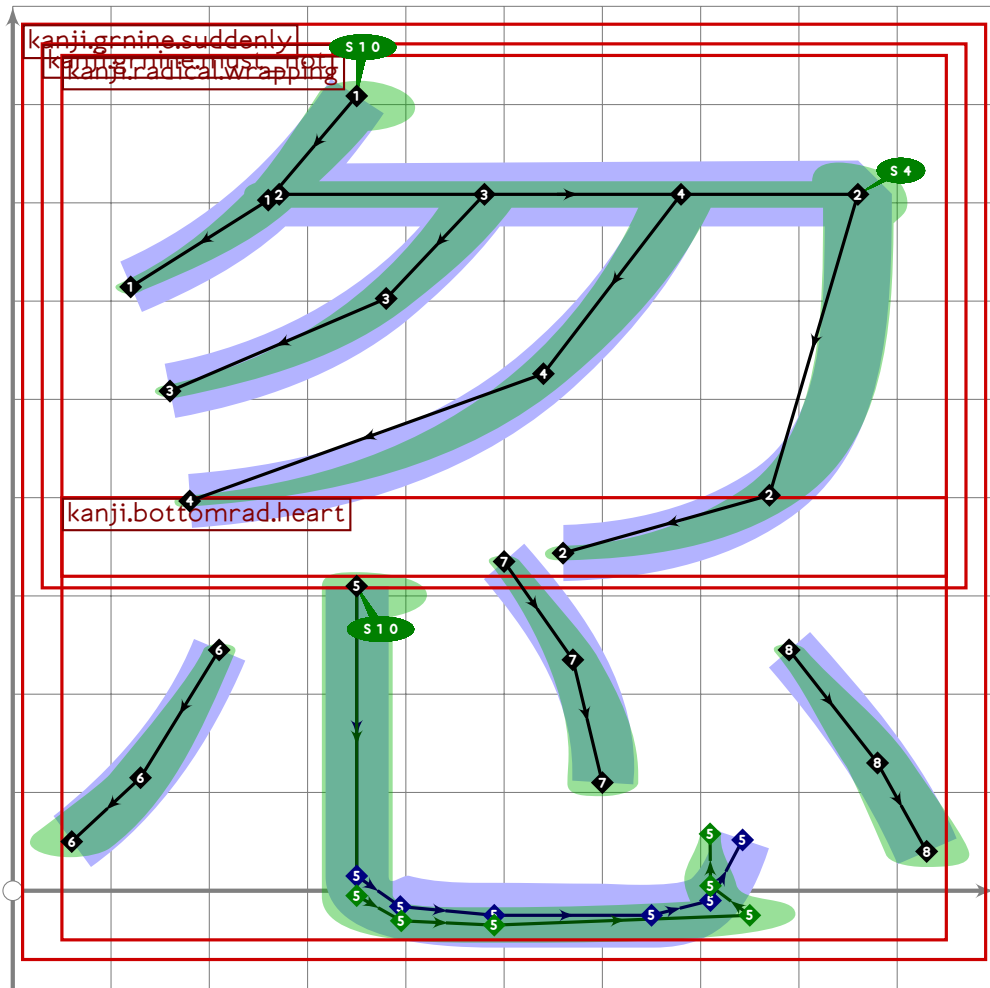
```



```

198
199 vardef kanji.grnine.slacken =
200   push_pbox_toexpand("kanji.grnine.slacken");
201   build_kanji.level(build_kanji.lr(400,30)
202     (kanji.grtwo.bow)
203     (kanji.grnine.to_be));
204   expand_pbox;
205 enddef;

```

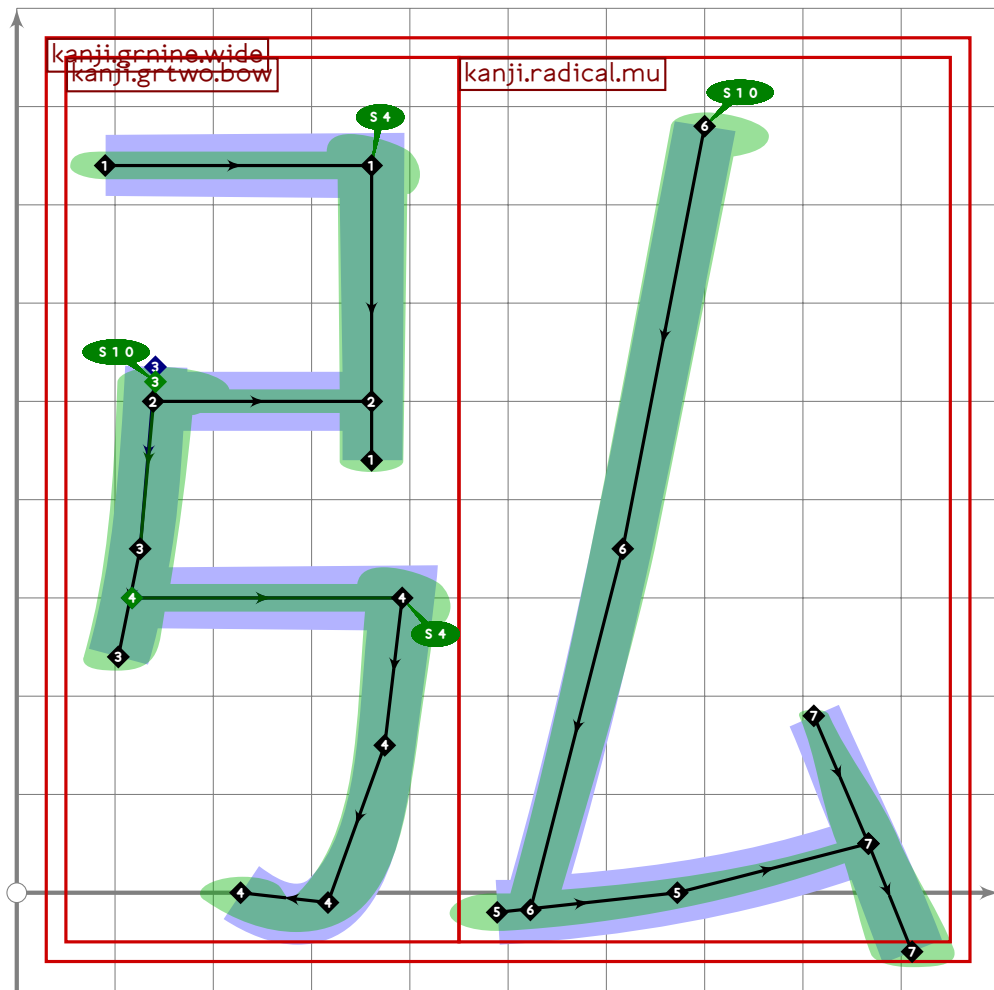


```

206
207 vardef kanji.grnine.suddenly =
208   push_pbox_toexpand("kanji.grnine.suddenly");
209   build_kanji.level(build_kanji.tb(360,80)
210     (kanji.grnine.must_not)
211     (kanji.bottomrad.heart));
212   expand_pbox;
213 enddef;

```





```

214
215 vardef kanji.grnine.wide =
216   push_pbox_toexpand("kanji.grnine.wide");
217   build_kanji.level(build_kanji.lr(450,0)
218     (kanji.grtwo.bow)
219     (kanji.radical.mu));
220   expand_pbox;
221 enddef;

```

222

223

224

```

225 % yoku/iguromi "ceremony radical"

```

```

226 begintsuglyph("uni5F0B";11);

```

[see page 339]

```

227   kanji.radical.ceremony;

```

```

228   tsu_render;

```

```

229 endtsuglyph;

```

230

```

231 % shiki/nori "formula"

```

```

232 begintsuglyph("uni5F0F";15);

```

[see page 1524]

```

233   kanji.grthree.formula;

```

```

234   tsu_render;

```

```

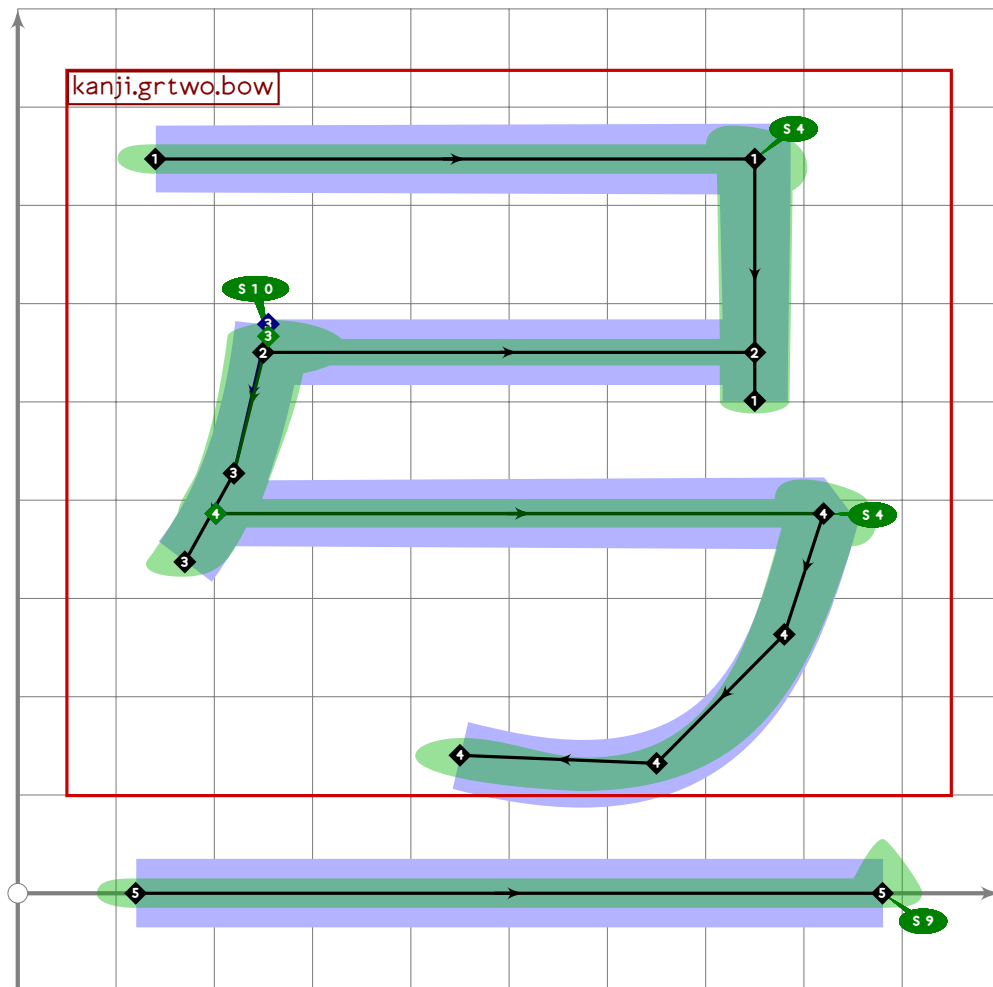
235 endtsuglyph;
236
237 % kyu/yumi "bow" (projectile weapon)
238 begintsuglyph("uni5F13",19);
239 kanji.grtwo.bow;
240 tsu_render;
241 endtsuglyph;
242
243 % chou/tomura "funeral"
244 begintsuglyph("uni5F14",20);
245 kanji.greight.funeral;
246 tsu_render;
247 endtsuglyph;
248
249 % in/hi "pull"
250 begintsuglyph("uni5F15",21);
251 kanji.grtwo.pull;
252 tsu_render;
253 endtsuglyph;
254

```

[see page 428]

[see page 1530]

[see page 463]



```

255 % te "phoneme only"

```

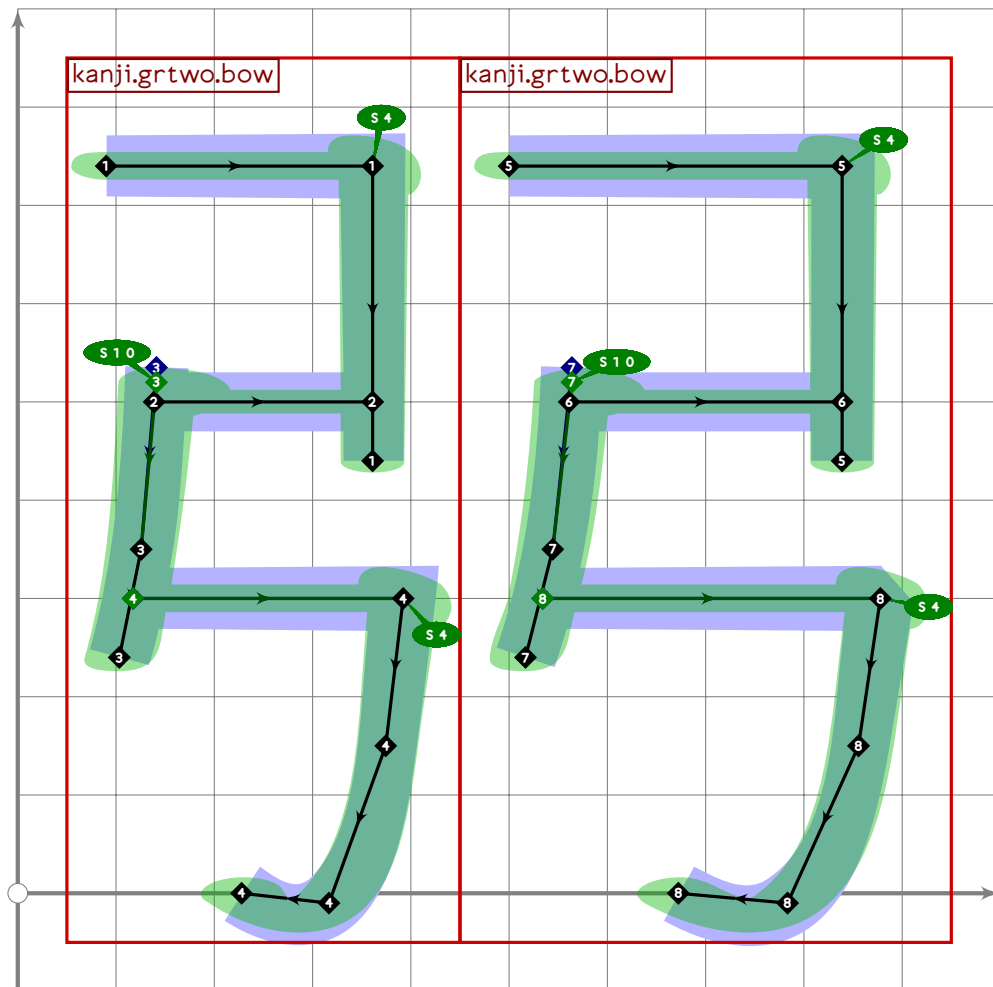
```

256 begintsuglyph("uni5F16",22);
257 tsu_xform(identity shifted (0,-780) yscaled 0.82 shifted (0,780))
258 (kanji.grtwo.bow);
259 push_stroke((120,0)-(880,0),(1.6,1.6)-(1.6,1.6));
260 set_boserif(0,1,9);
261 tsu_render;
262 endtsuglyph;
263
264 % kou/hiro "wide" (used in names)
265 begintsuglyph("uni5F18",24);
266 kanji.grnine.wide;
267 tsu_render;
268 endtsuglyph;
269
270 % chi/taru "slacken"
271 begintsuglyph("uni5F1B",27);
272 kanji.grnine.slacken;
273 tsu_render;
274 endtsuglyph;
275

```

[see page 1533]

[see page 1531]



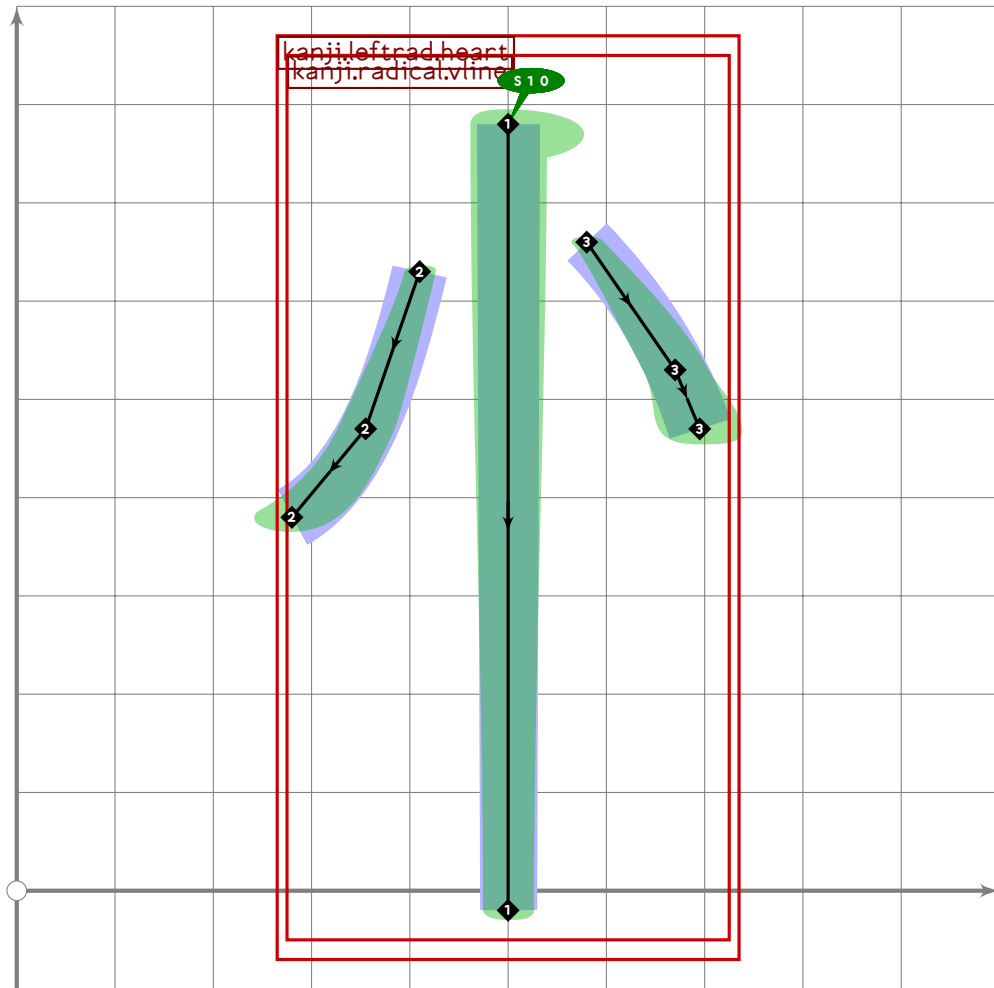
276 % extra

```

277 begintsuglyph("uni5F1C";28);
278 build_kanji.level(build_kanji.lr(450,0)
279 (kanji.grtwo.bow)
280 (kanji.grtwo.bow));
281 tsu_render;
282 endtsuglyph;
283
284 % twi/otouto "little brother"
285 begintsuglyph("uni5F1F";31); [see page 1521]
286 kanji.grtwo.little_brother;
287 tsu_render;
288 endtsuglyph;
289
290 % jyaku/yowa "weak"
291 begintsuglyph("uni5F31";49); [see page 1523]
292 kanji.grtwo.weak;
293 tsu_render;
294 endtsuglyph;
295
296 % kyou/tsuyo "strong"
297 begintsuglyph("uni5F37";55); [see page 1522]
298 kanji.grtwo.strong;
299 tsu_render;
300 endtsuglyph;
301
302 % needed for lots of other things, rare by itself
303 begintsuglyph("uni5F50";80); [see page 353]
304 kanji.radical.pigs_tail;
305 tsu_render;
306 endtsuglyph;
307
308 % tou/a(tari) "hit"
309 begintsuglyph("uni5F53";83); [see page 1518]
310 kanji.grtwo.hit;
311 tsu_render;
312 endtsuglyph;
313
314 % san "short hair radical"
315 begintsuglyph("uni5F61";97); [see page 362]
316 kanji.rightrad.short_hair;
317 tsu_render;
318 endtsuglyph;
319
320 % kei/kata "form"
321 begintsuglyph("uni5F62";98); [see page 1520]
322 kanji.grtwo.form;
323 tsu_render;
324 endtsuglyph;

```

325  
326 % gen/hiko "boy"  
327 `begintsuglyph("uni5F66";102);` [see page 543]  
328 `kanji.grnine.boy;`  
329 `tsu_render;`  
330 `endtsuglyph;`  
331  
332 % tai/matsu "wait"  
333 `begintsuglyph("uni5F85";133);` [see page 1525]  
334 `kanji.grthree.wait;`  
335 `tsu_render;`  
336 `endtsuglyph;`  
337  
338 % go/shiri "behind"  
339 `begintsuglyph("uni5F8C";140);` [see page 1519]  
340 `kanji.grtwo.behind;`  
341 `tsu_render;`  
342 `endtsuglyph;`  
343  
344 % shin/kokoro "heart"  
345 `begintsuglyph("uni5FC3";195);` [see page 441]  
346 `kanji.grtwo.heart;`  
347 `tsu_render;`  
348 `endtsuglyph;`  
349

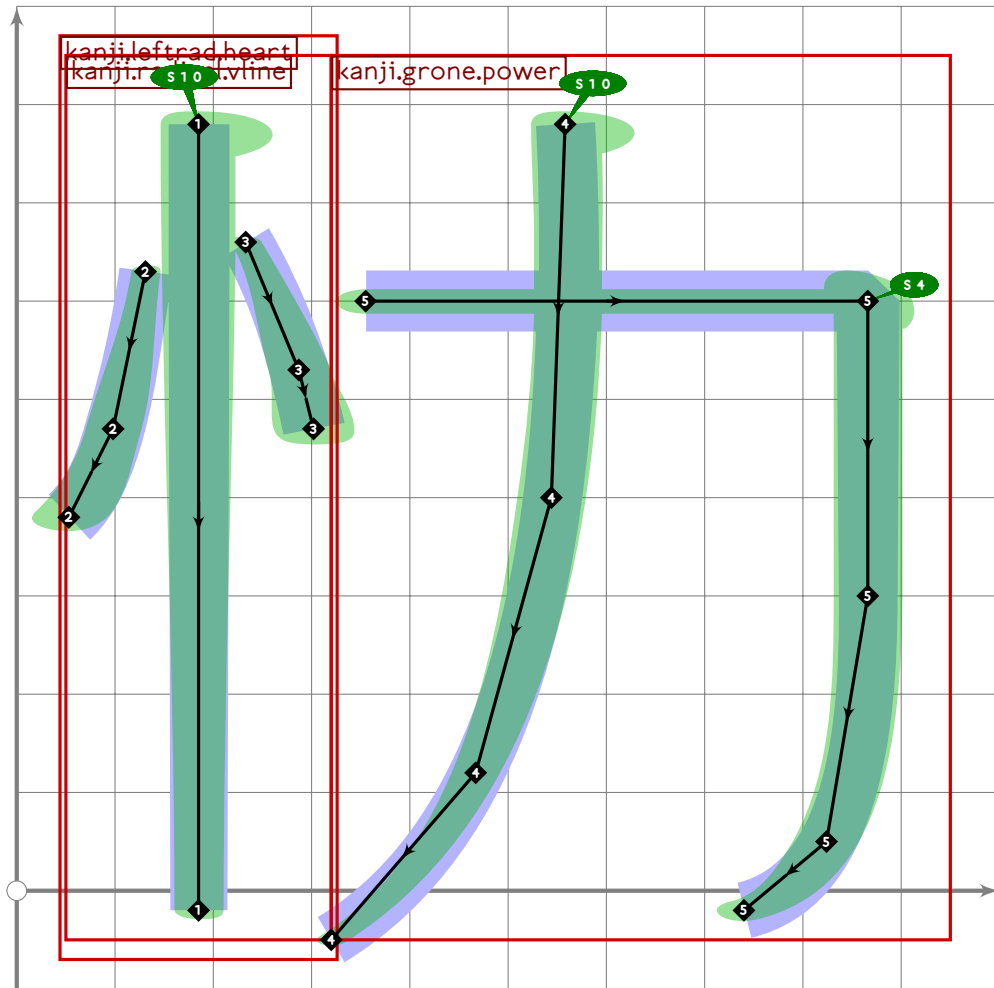


```

350 % left radical version
351 beginsuglyph("uni5FC4";196);
352 build_kanji.sscale(xscaled 0.5)(kanji.leftrad.heart);
353 tsu_render;
354 endsuglyph;
355
356 % hitsu/nagara "inevitable"
357 beginsuglyph("uni5FC5";197);
358 kanji.grfour.inevitable;
359 tsu_render;
360 endsuglyph;
361

```

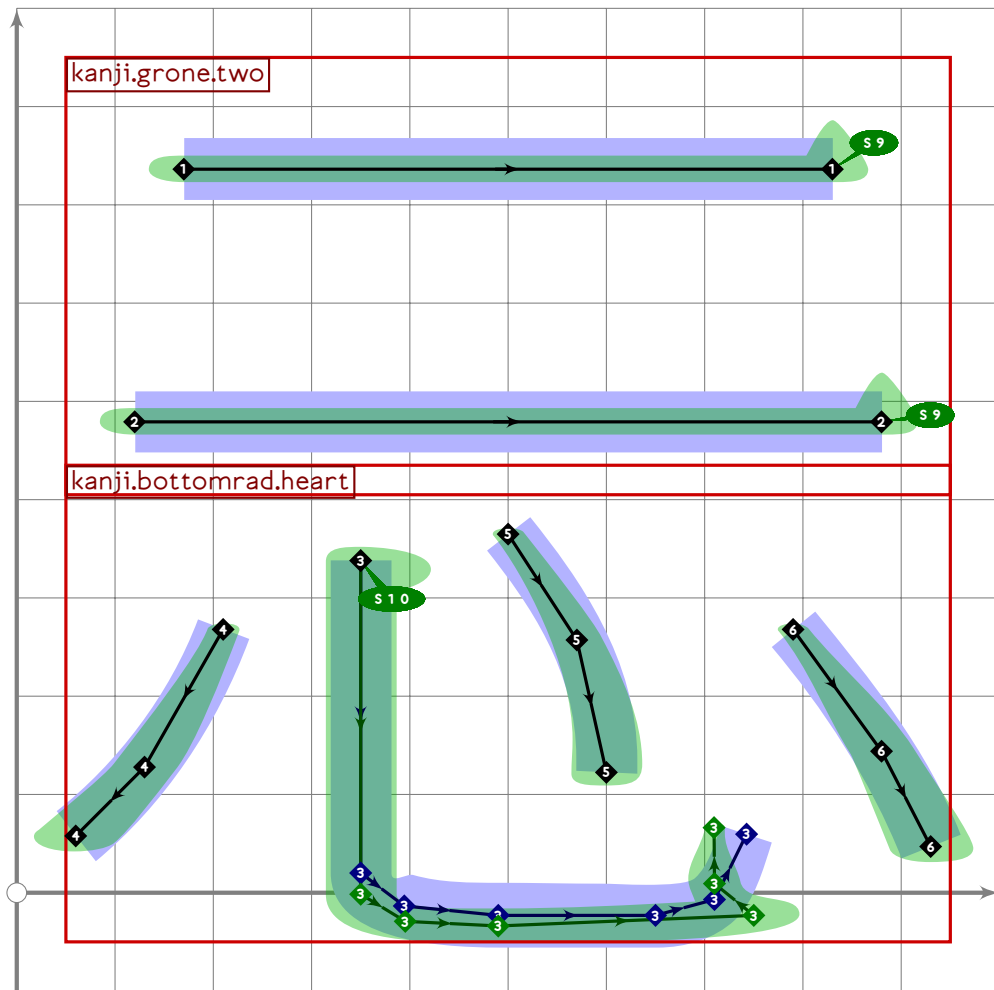
[see page 507]



```

362 % extra "great achievement"
363 beginsuglyph("uni5FC7",199);
364 build_kanji.level(build_kanji.lr(320,0)
365   (kanji.leftrad.heart)
366   (kanji.grone.power));
367 tsu_render;
368 endsuglyph;
369

```

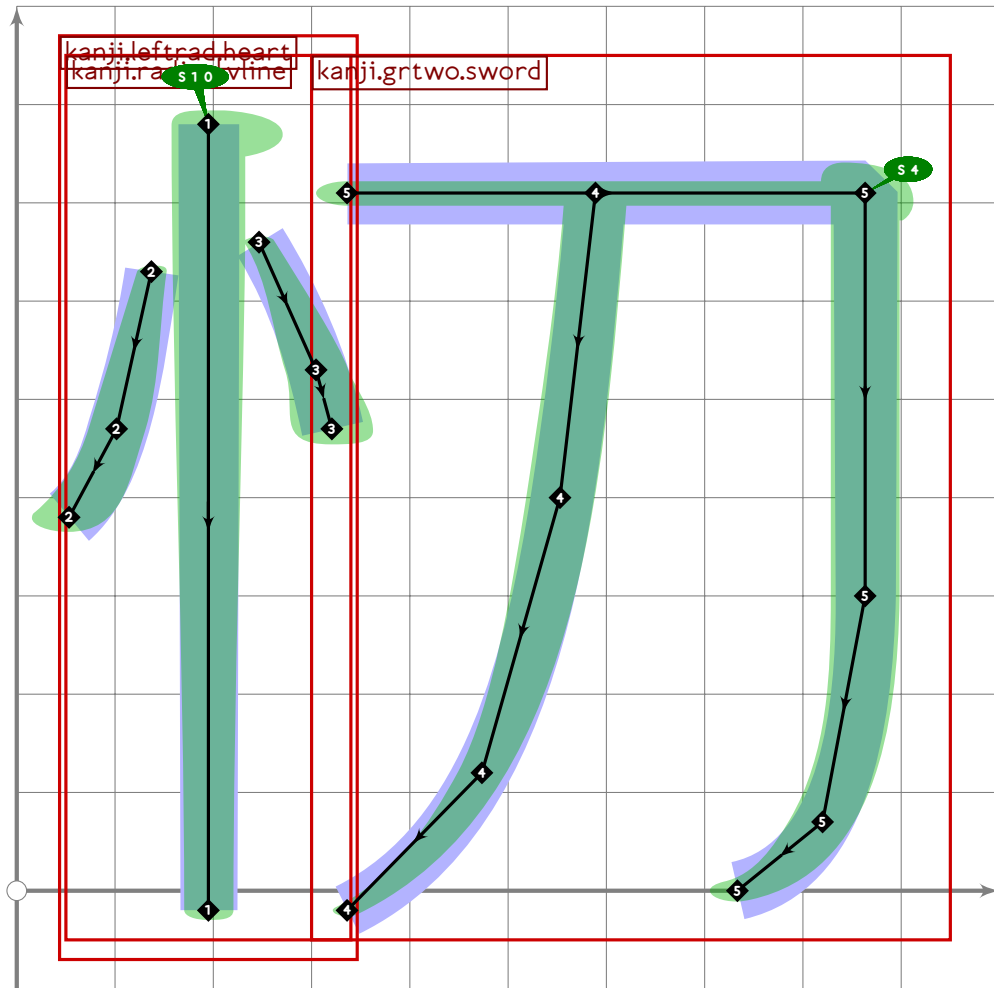


```

370 % extra
371 begint Suglyph("uni5FC8",200);
372 build_kanji.level(build_kanji.tb(420,30)
373   (kanji.grone.two)
374   (kanji.bottomrad.heart));
375 tsu_render;
376 endsuglyph;
377

```

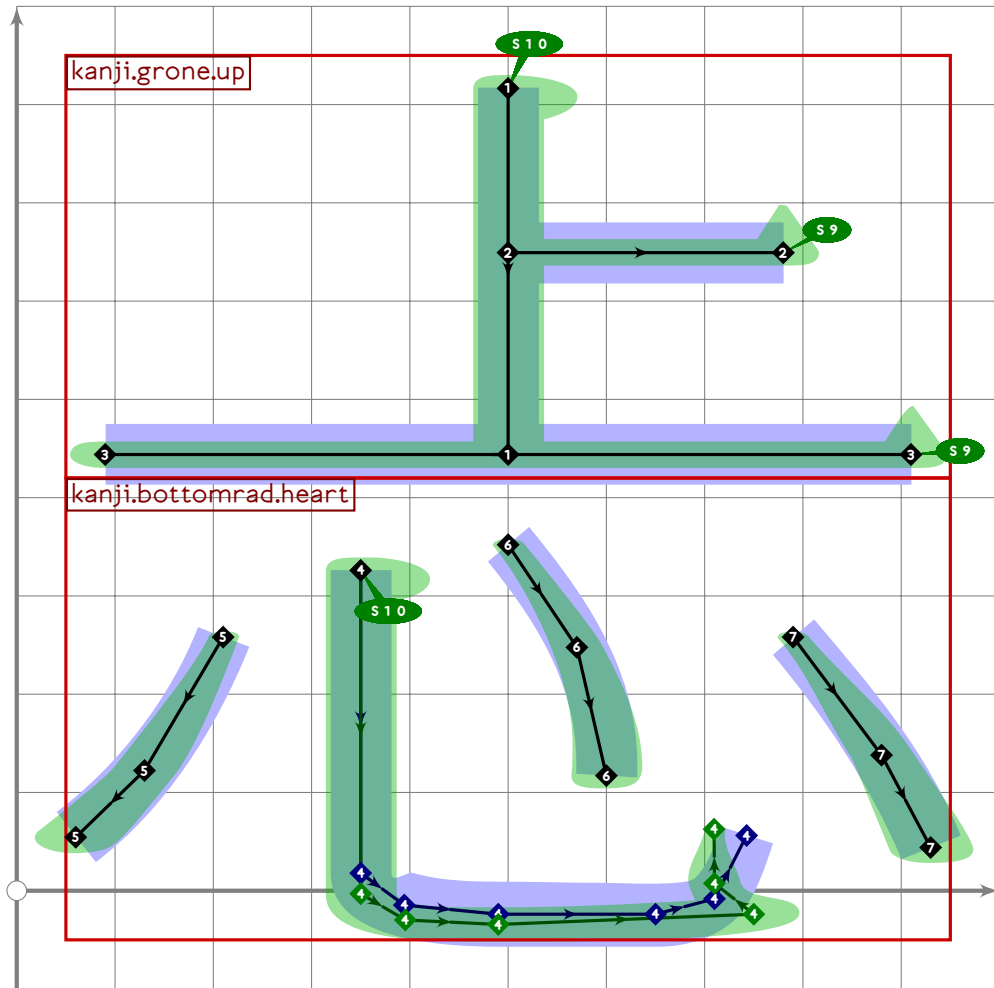




```

378 % extra
379 begint Suglyph("uni5FC9",201);
380 build_kanji.level(build_kanji.lr(320,40)
381   (kanji.leftrad.heart)
382   (kanji.grtwo.sword));
383 tsu_render;
384 endsuglyph;
385

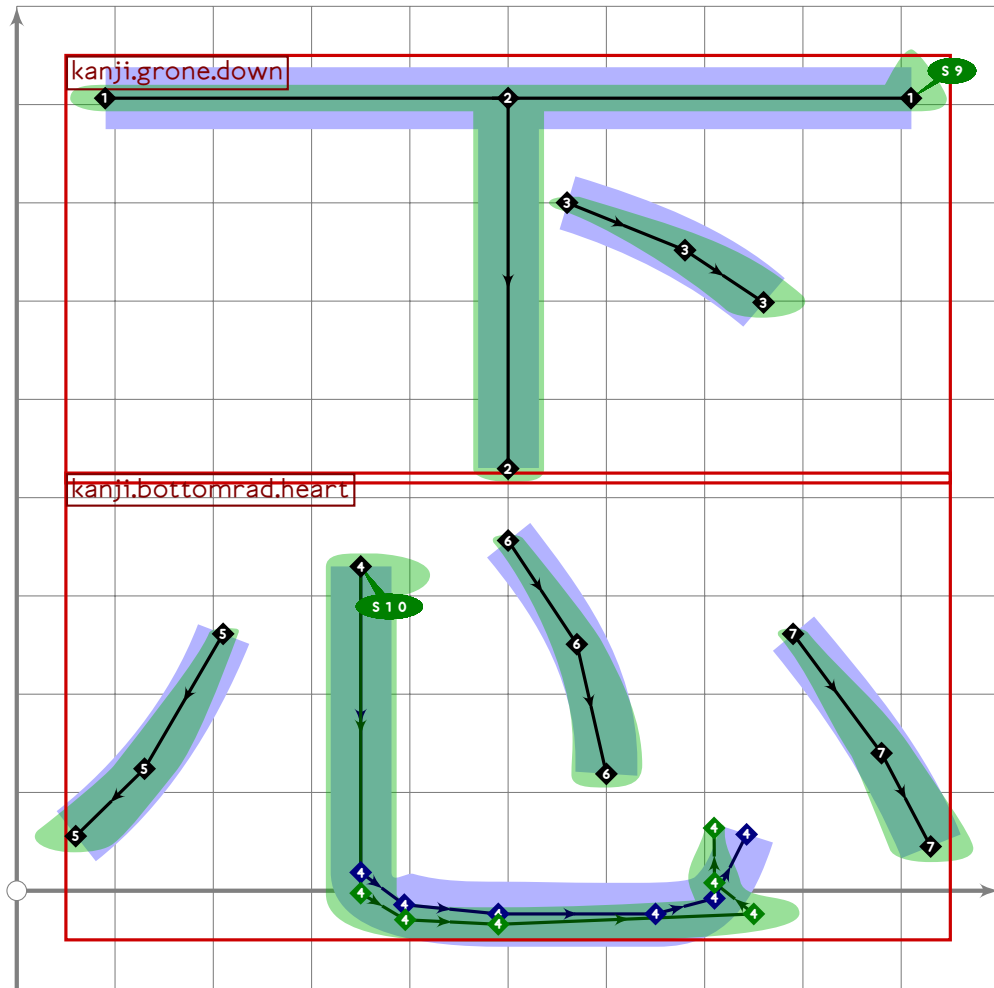
```



```

386 % extra
387 begint Suglyph("uni5FD0",208);
388 build_kanji.level(build_kanji.tb(420,0)
389   (kanji.grone.up)
390   (kanji.bottomrad.heart));
391 tsu_render;
392 endsuglyph;
393

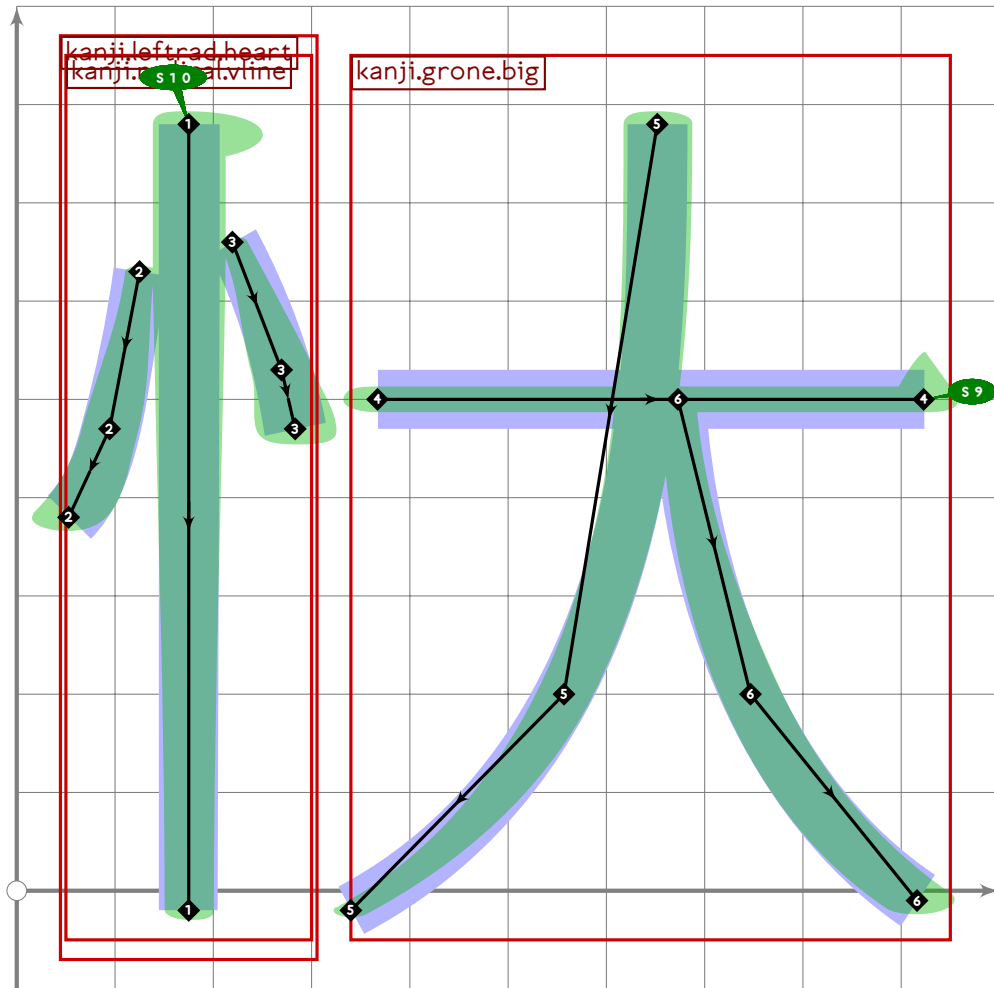
```



```

394 % extra
395 begint Suglyph("uni5FD1";209);
396 build_kanji.level(build_kanji.tb(420,10)
397   (kanji.grone.down)
398   (kanji.bottomrad.heart));
399 tsu_render;
400 endsuglyph;
401

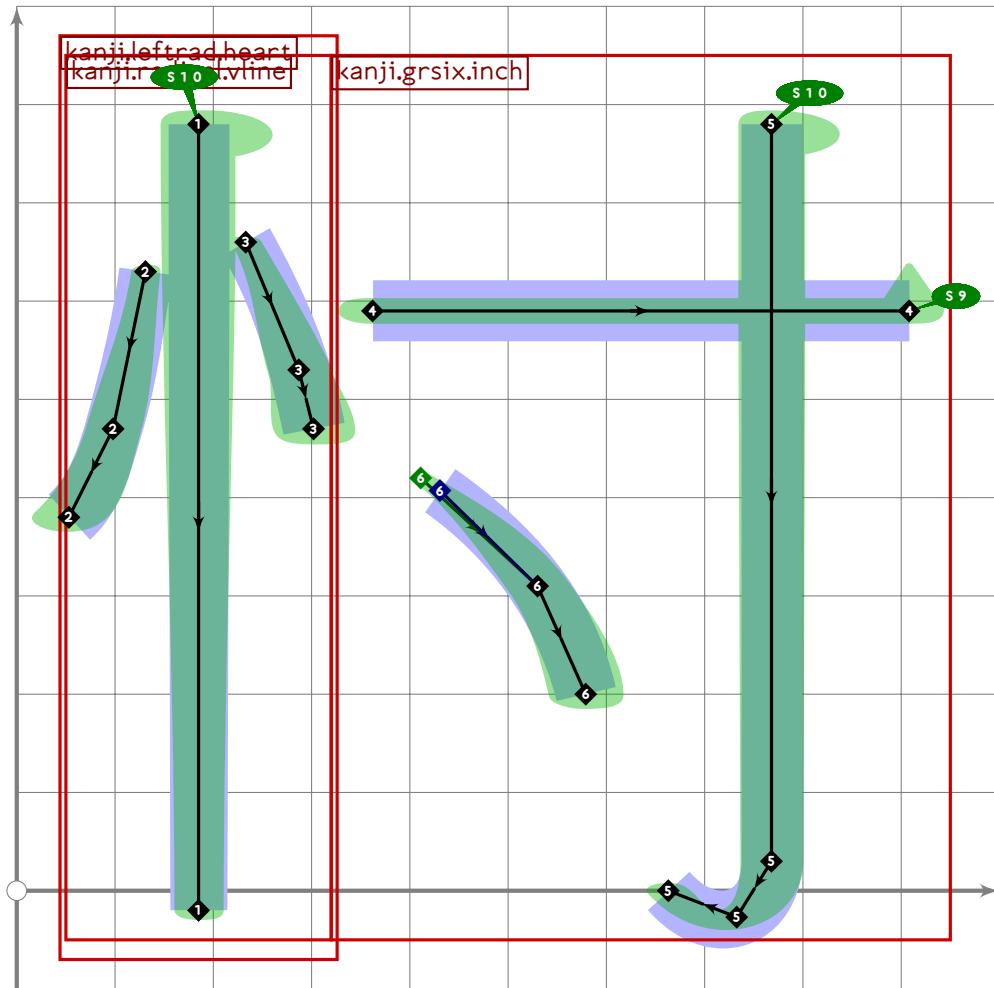
```



```

402 % extra
403 begint Suglyph("uni5FD5",213);
404 build_kanji.level(build_kanji.lr(320,-40)
405   (kanji.leftrad.heart)
406   (kanji.grone.big));
407 tsu_render;
408 endsuglyph;
409

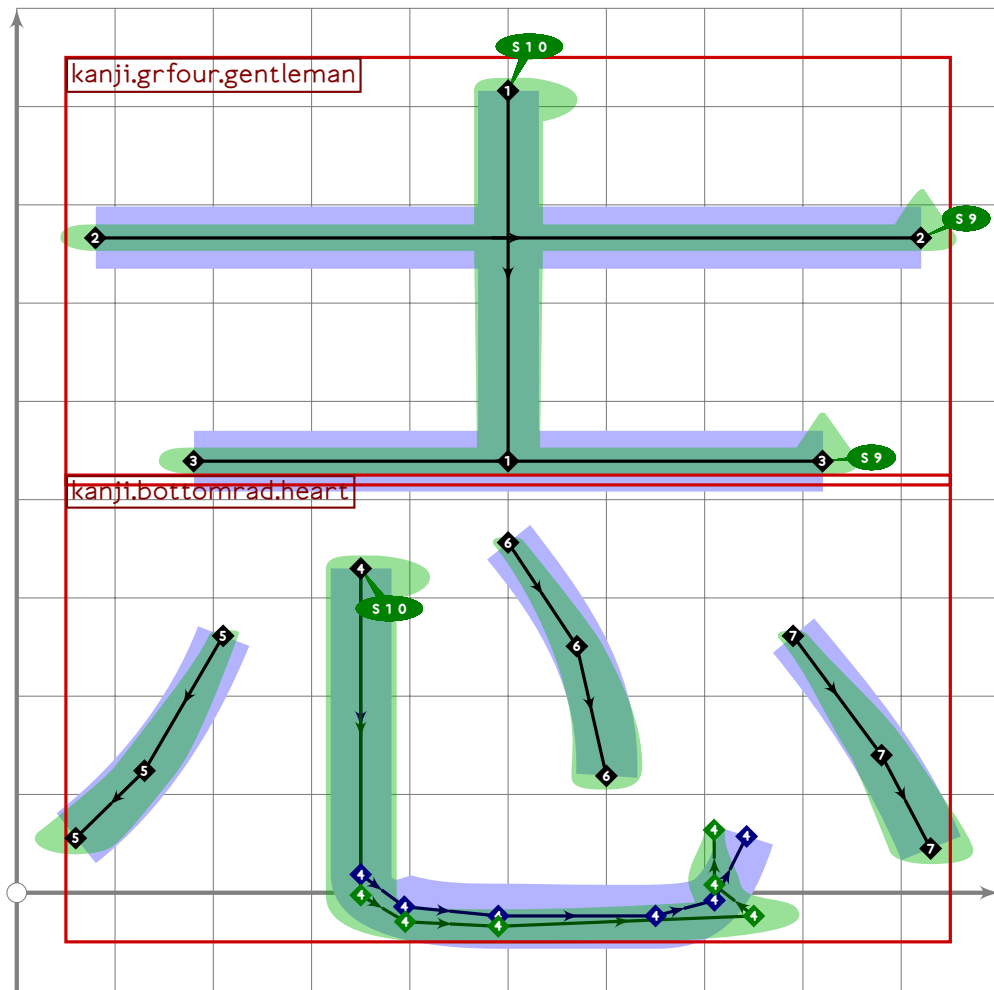
```



```

410 % extra
411 begint Suglyph("uni5FD6",214);
412 build_kanji.level(build_kanji.lr(320,0)
413   (kanji.leftrad.heart)
414   (kanji.grsix.inch));
415 tsu_render;
416 endsuglyph;
417

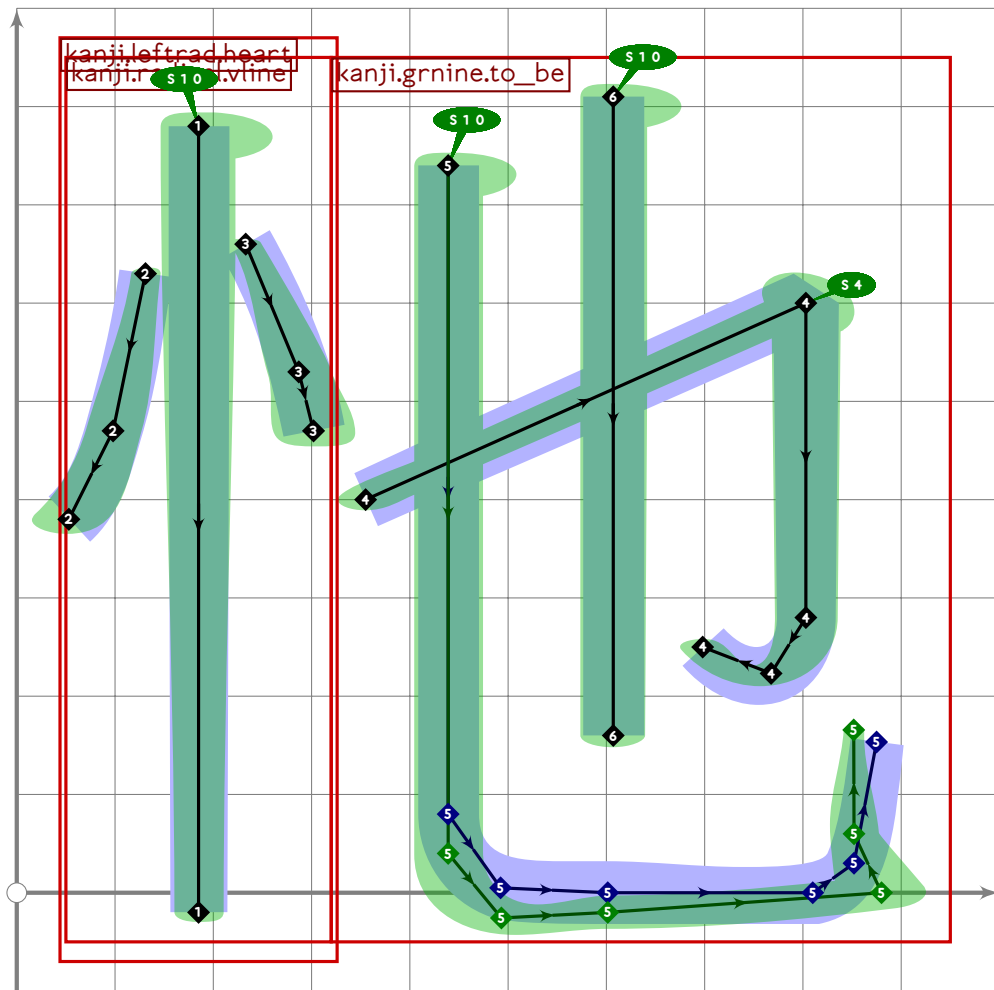
```



```

418 % extra
419 begint Suglyph("uni5FD7",215);
420 build_kanji.level(build_kanji.tb(420,10)
421   (kanji.grfour.gentleman)
422   (kanji.bottomrad.heart));
423 tsu_render;
424 endtsuglyph;
425

```

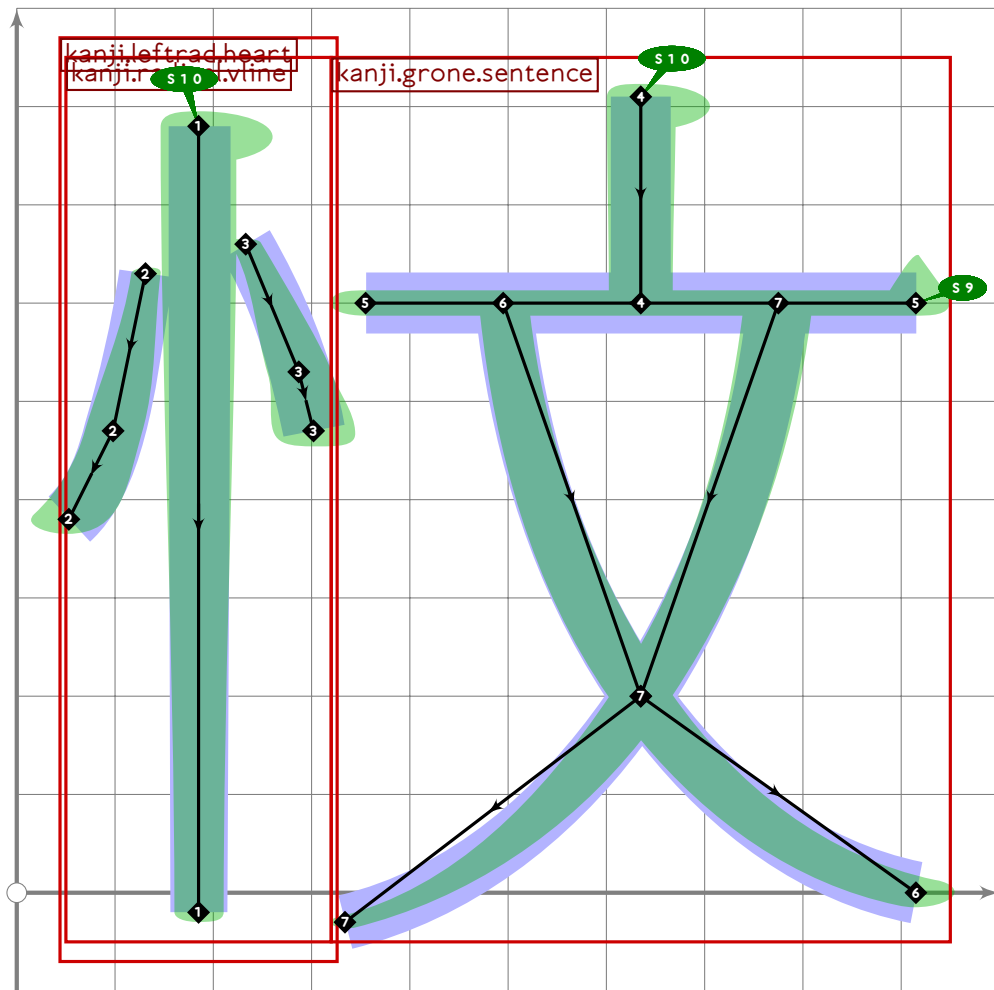


```

426 % extra
427 begintsuglyph("uni5FDA",218);
428   build_kanji.level(build_kanji.lr(320,0)
429     (kanji.leftrad.heart)
430     (kanji.grnine.to_be));
431   tsu_render;
432 endsuglyph;
433
434 % ou/ata "affirm"
435 begintsuglyph("uni5FDC",220);
436   kanji.grfive.affirm;
437   tsu_render;
438 endsuglyph;
439

```

[see page 1527]



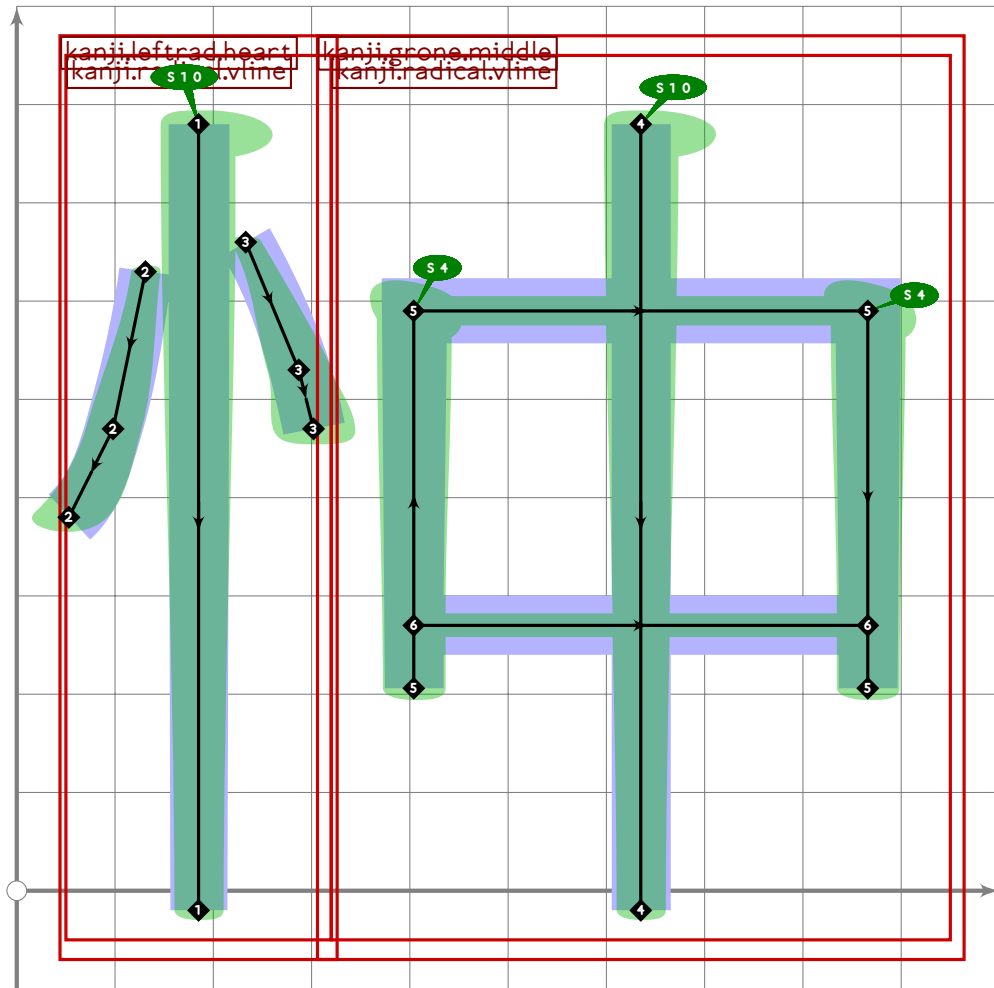
```

440 % extra
441 begintsuglyph("uni5FDF",223);
442 build_kanji.level(build_kanji.lr(320,0)
443   (kanji.leftrad.heart)
444   (kanji.grone.sentence));
445 tsu_render;
446 endtsuglyph;
447
448 % chuu/kiyoshi "loyalty"
449 begintsuglyph("uni5FE0",224);
450 kanji.grsix.loyalty;
451 tsu_render;
452 endtsuglyph;
453

```

[see page 1529]

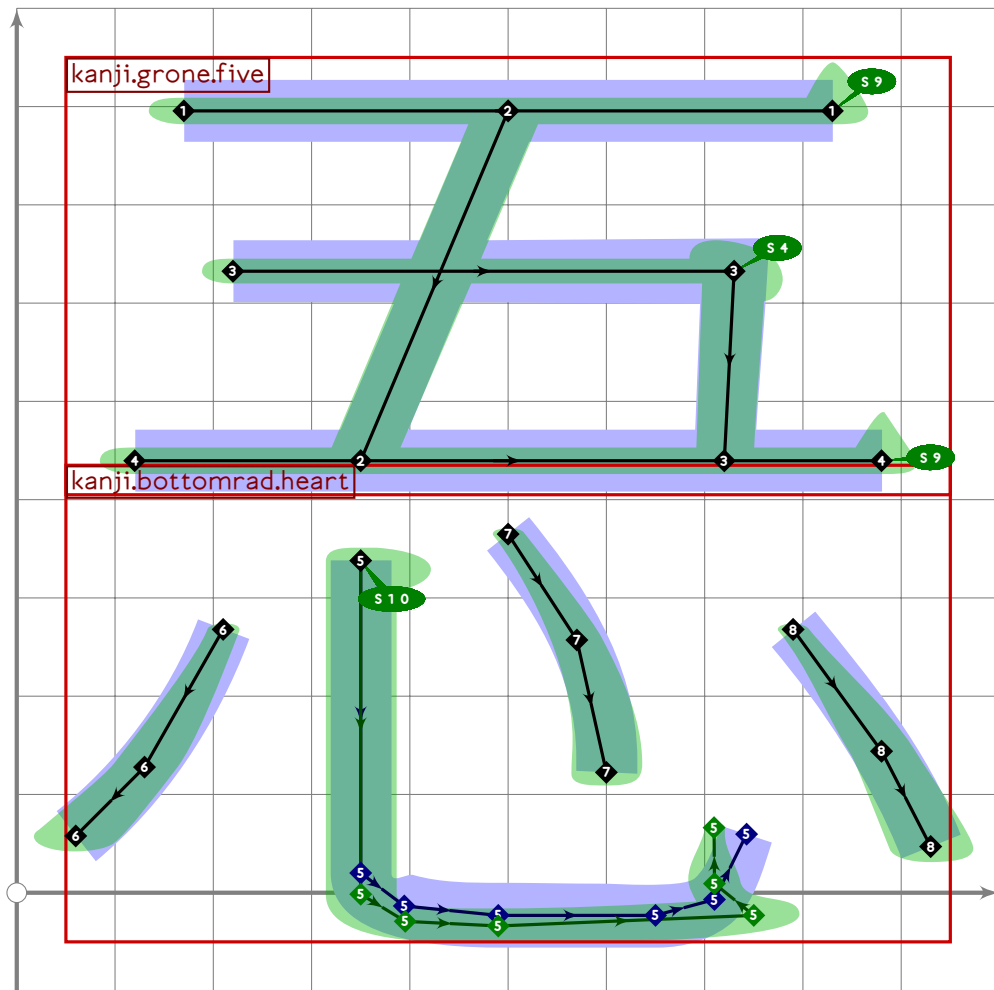




```

454 % extra
455 begintsuglyph("uni5FE1";225);
456 build_kanji.level(build_kanji.lr(320,0)
457   (kanji.leftrad.heart)
458   (kanji.grone.middle));
459 tsu_render;
460 endsuglyph;
461

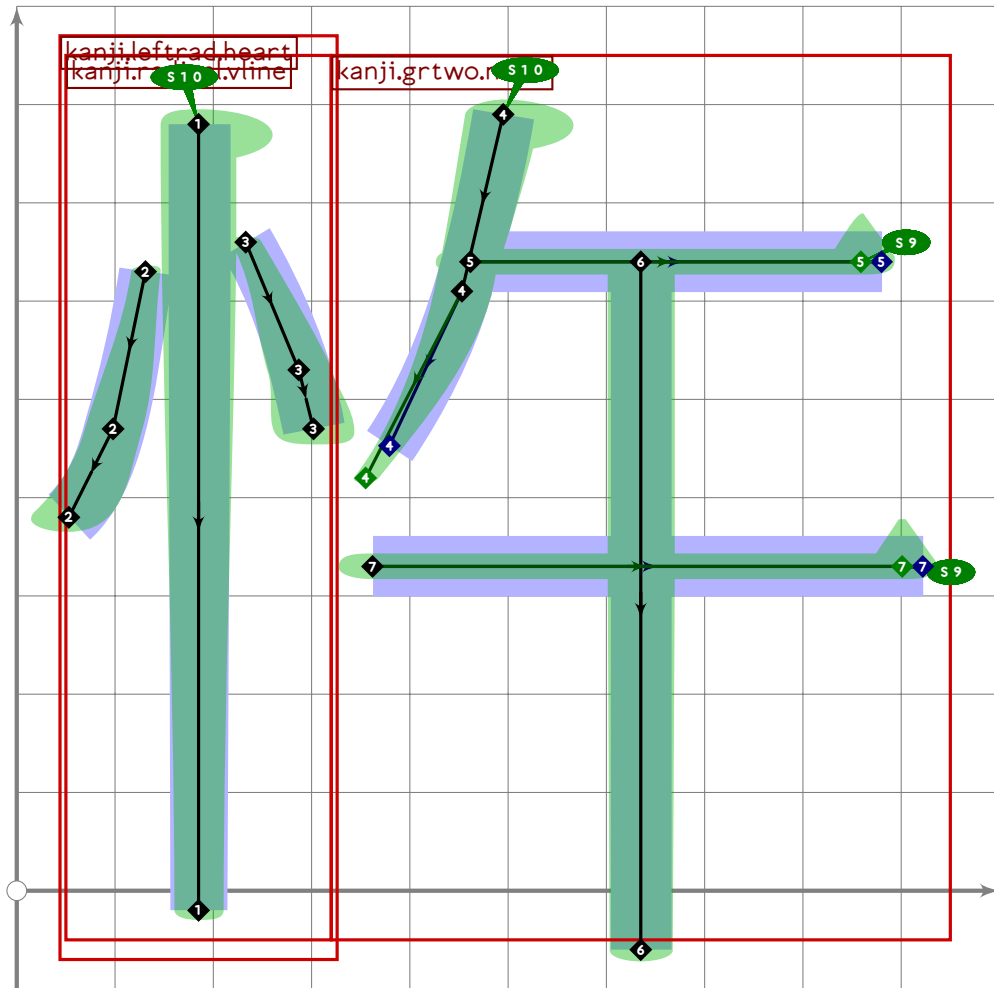
```



```

462 % extra
463 begint Suglyph("uni5FE2",226);
464 build_kanji.level(build_kanji.tb(420,30)
465   (kanji.grone.five)
466   (kanji.bottomrad.heart));
467 tsu_render;
468 endsuglyph;
469

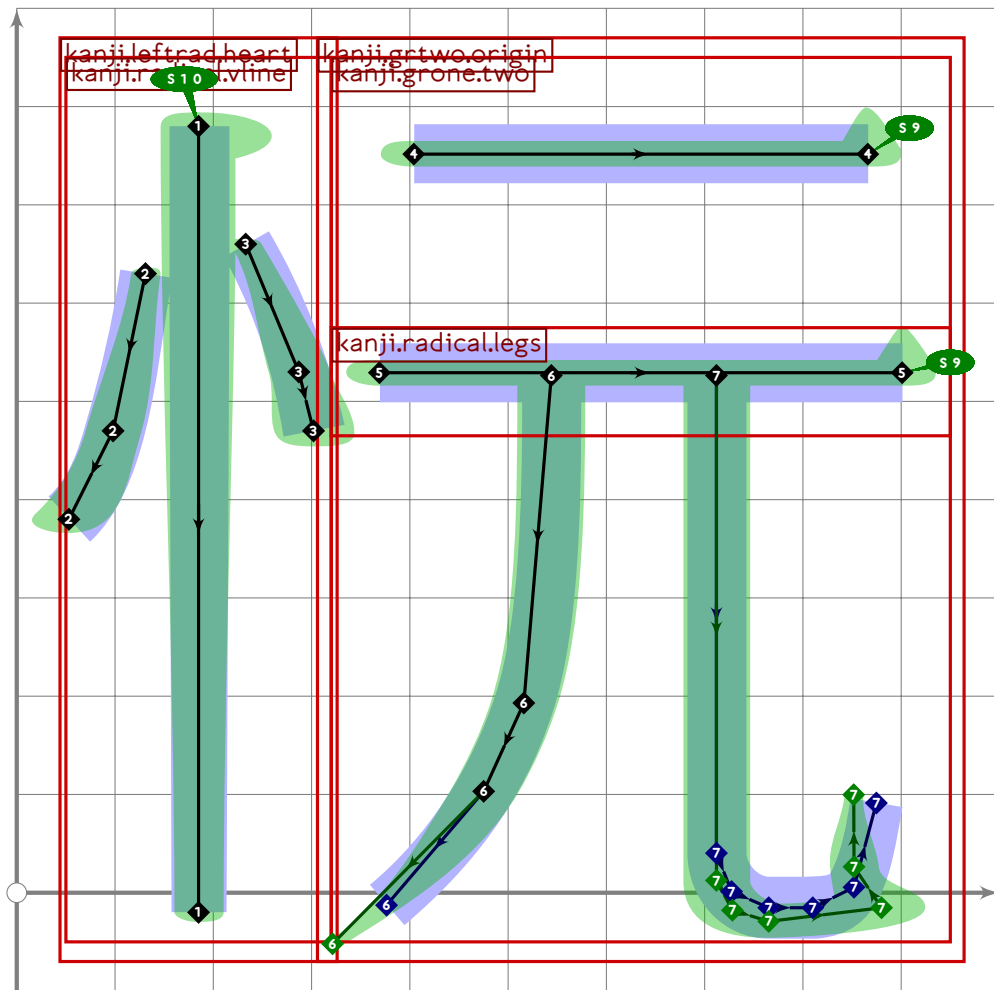
```



```

470 % extra
471 begint Suglyph("uni5FE4",228);
472 build_kanji.level(build_kanji.lr(320,0)
473   (kanji.leftrad.heart)
474   (kanji.grtwo.noon));
475 tsu_render;
476 endsuglyph;
477

```

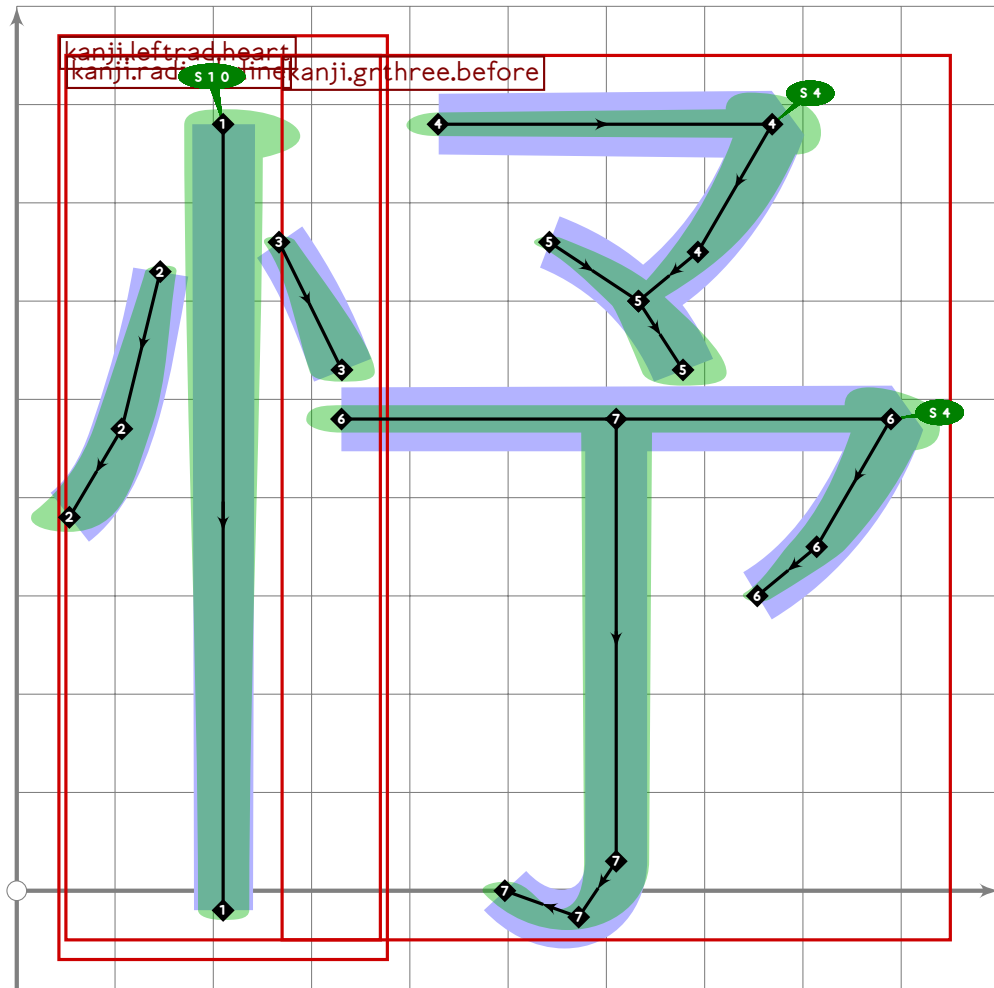


```

478 % extra
479 begintsuglyph("uni5FE8";232);
480 build_kanji.level(build_kanji.lr(320,0)
481   (kanji.leftrad.heart)
482   (kanji.grtwo.origin));
483 tsu_render;
484 endsuglyph;
485
486 % kai/kokoroyo "pleasure"
487 begintsuglyph("uni5FEB";235);
488 kanji.grfive.pleasure;
489 tsu_render;
490 endsuglyph;
491

```

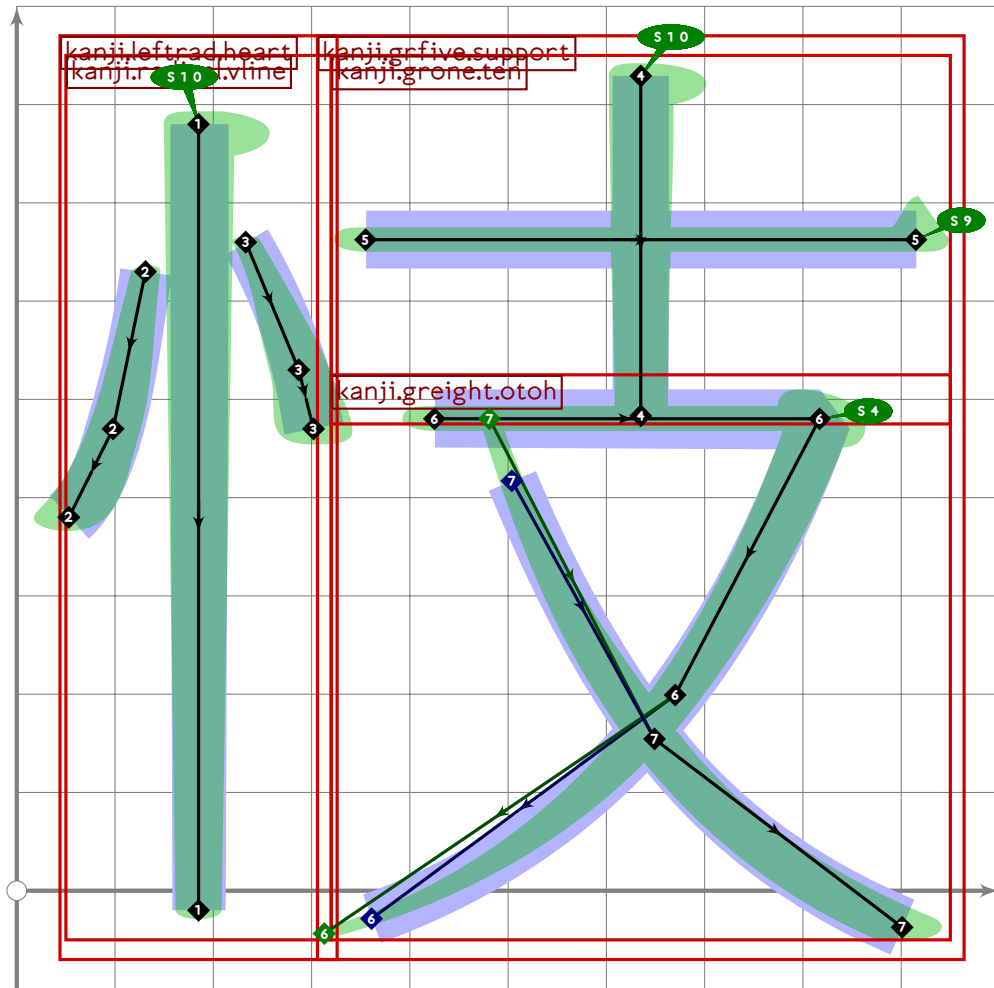
[see page 1528]



```

492 % extra
493 begint Suglyph("uni5FEC",236);
494 build_kanji.level(build_kanji.lr(320,100)
495   (kanji.leftrad.heart;
496     replace_stroke(0)(subpath (0,1) of oldp);
497     replace_strokeq(0)(subpath (0,1) of oldq))
498   (kanji.grthree.before));
499 tsu_render;
500 endtsuglyph;
501

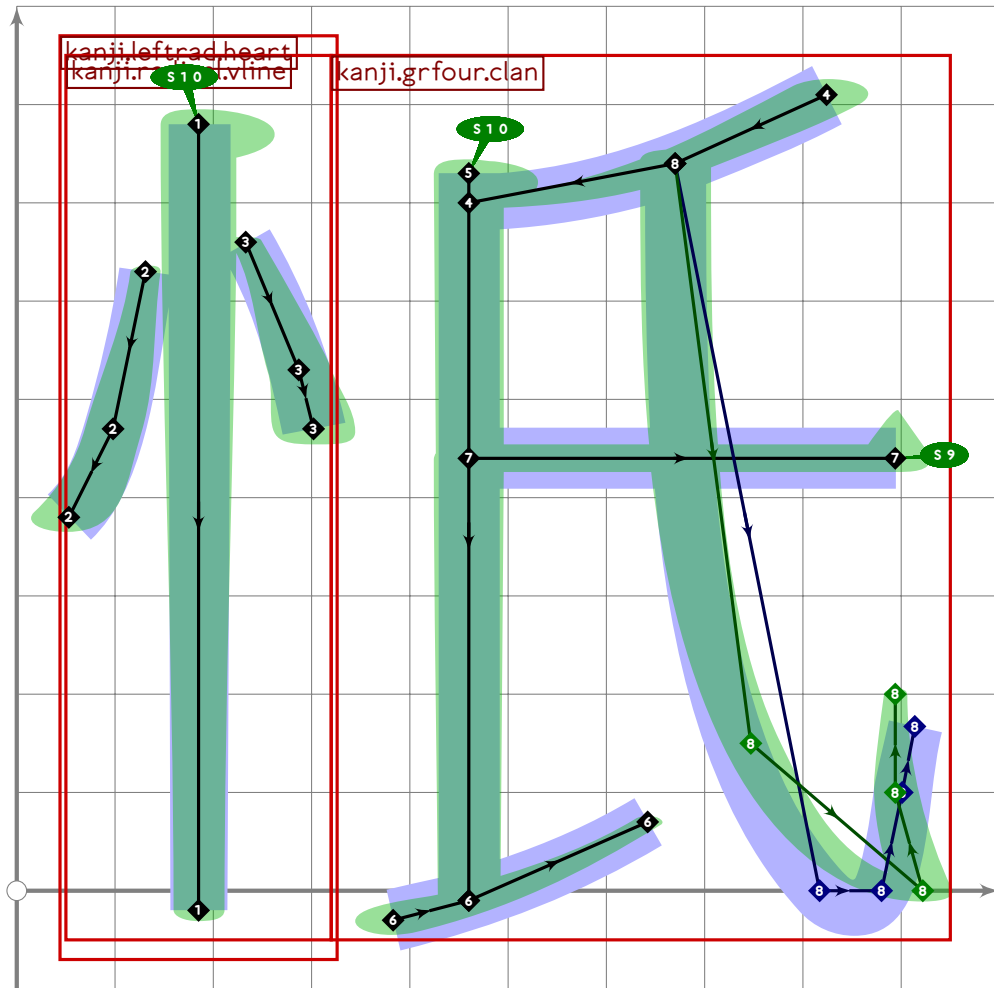
```



```

502 % extra
503 begint Suglyph("uni5FEE";238);
504 build_kanji.level(build_kanji.lr(320,0)
505   (kanji.leftrad.heart)
506   (kanji.grfive.support));
507 tsu_render;
508 endsuglyph;
509

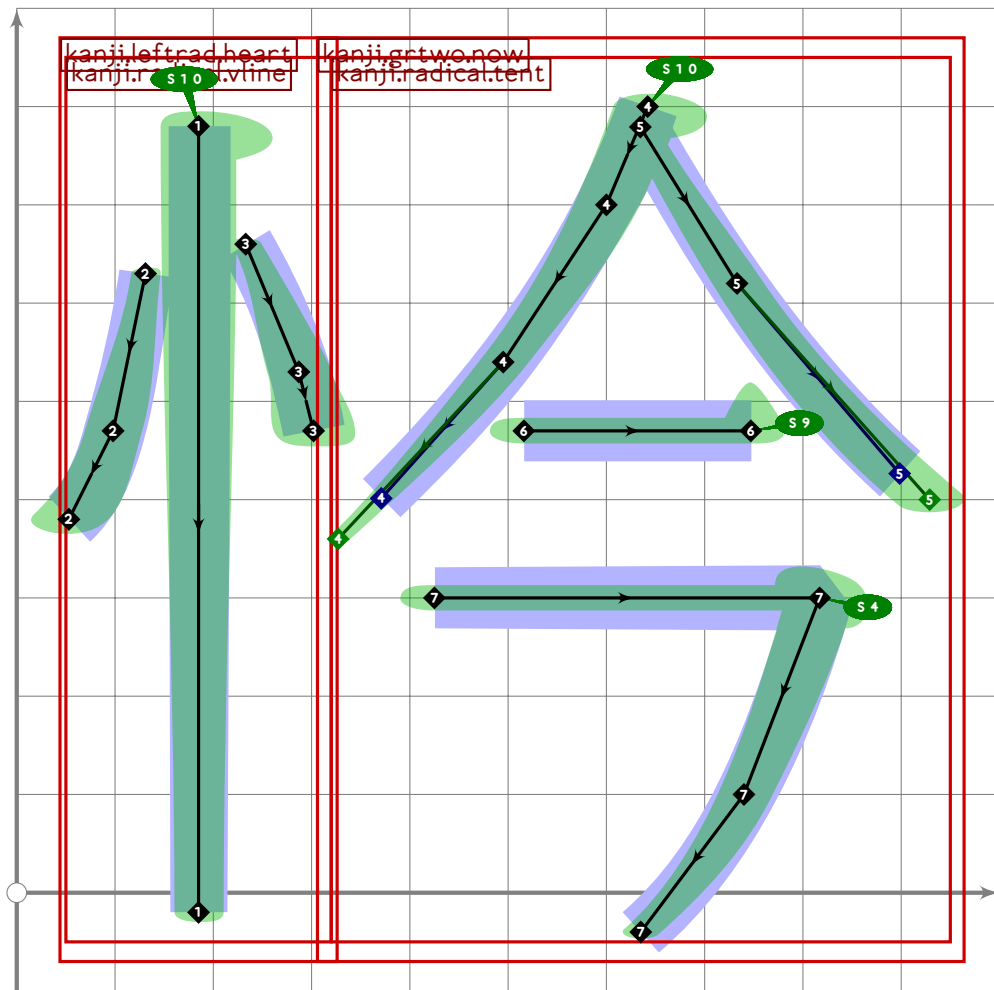
```



```

510 % extra
511 begint Suglyph("uni5FEF";239);
512 build_kanji.level(build_kanji.lr(320,0)
513   (kanji.leftrad.heart)
514   (kanji.grfour.clan));
515 tsu_render;
516 endsuglyph;
517

```



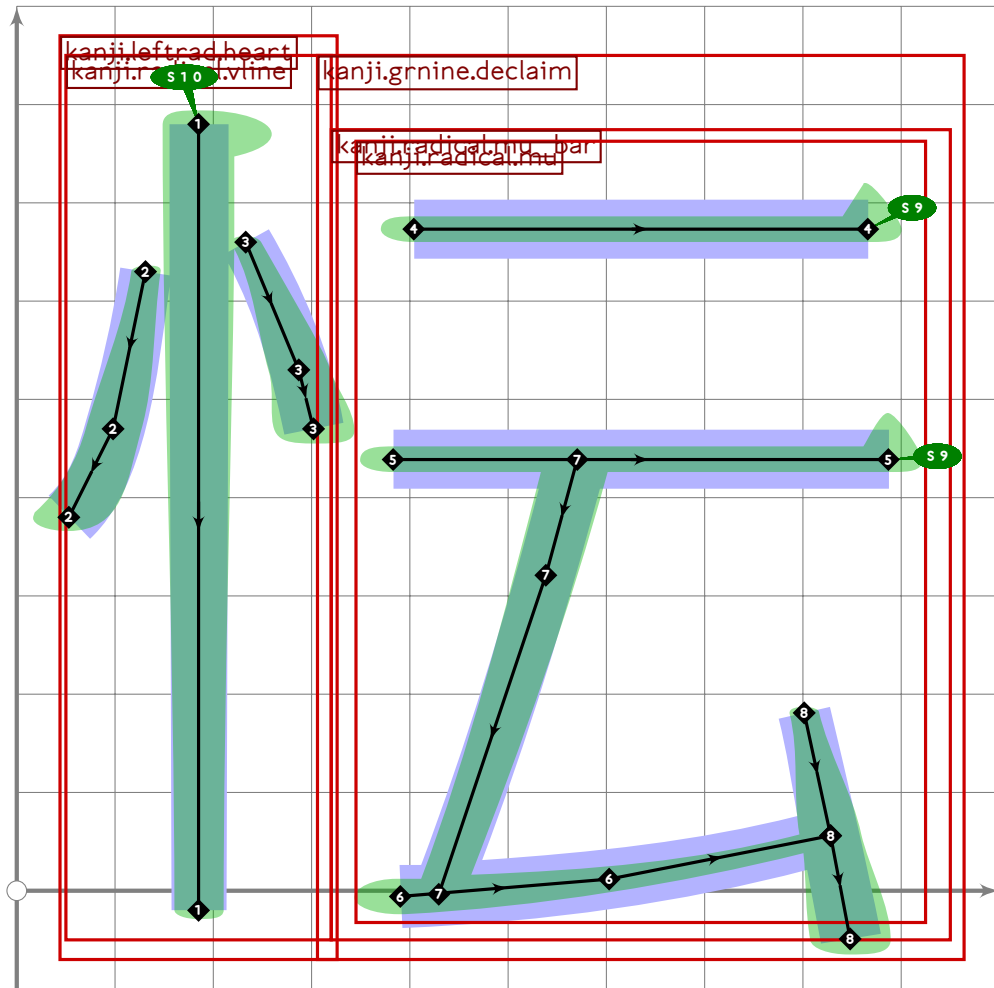
```

518 % extra
519 begintsuglyph("uni5FF4",244);
520 build_kanji.level(build_kanji.lr(320,0)
521   (kanji.leftrad.heart)
522   (kanji.grtwo.now));
523 tsu_render;
524 endsuglyph;
525
526 % nen "care"
527 begintsuglyph("uni5FF5",245);
528 kanji.grfour.care;
529 tsu_render;
530 endsuglyph;
531

```

[see page 1526]

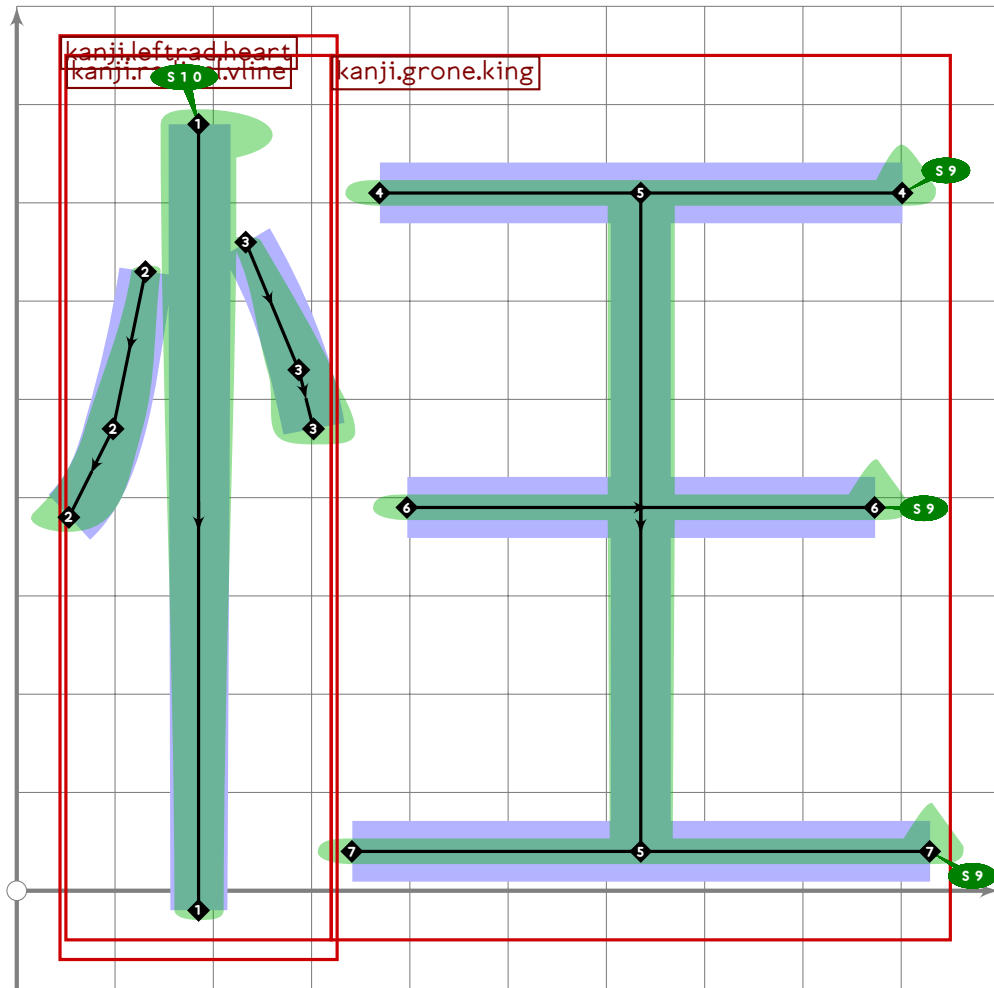




```

532 % extra
533 begint Suglyph("uni5FF6",246);
534 build_kanji.level(build_kanji.lr(320,0)
535   (kanji.leftrad.heart)
536   (kanji.grnine.declaim));
537 tsu_render;
538 endsuglyph;
539

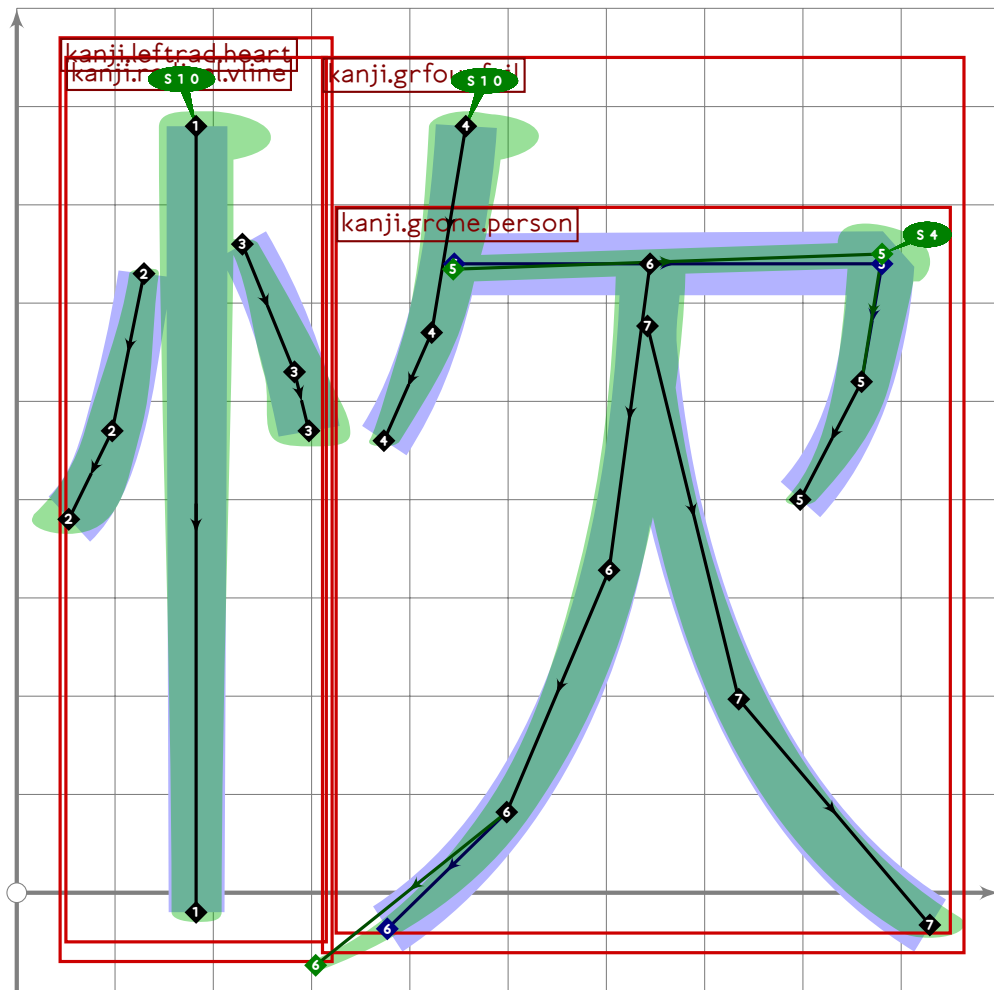
```



```

540 % extra
541 begint Suglyph("uni5FF9";249);
542 build_kanji.level(build_kanji.lr(320,0)
543   (kanji.leftrad.heart)
544   (kanji.grone.king));
545 tsu_render;
546 endsuglyph;
547

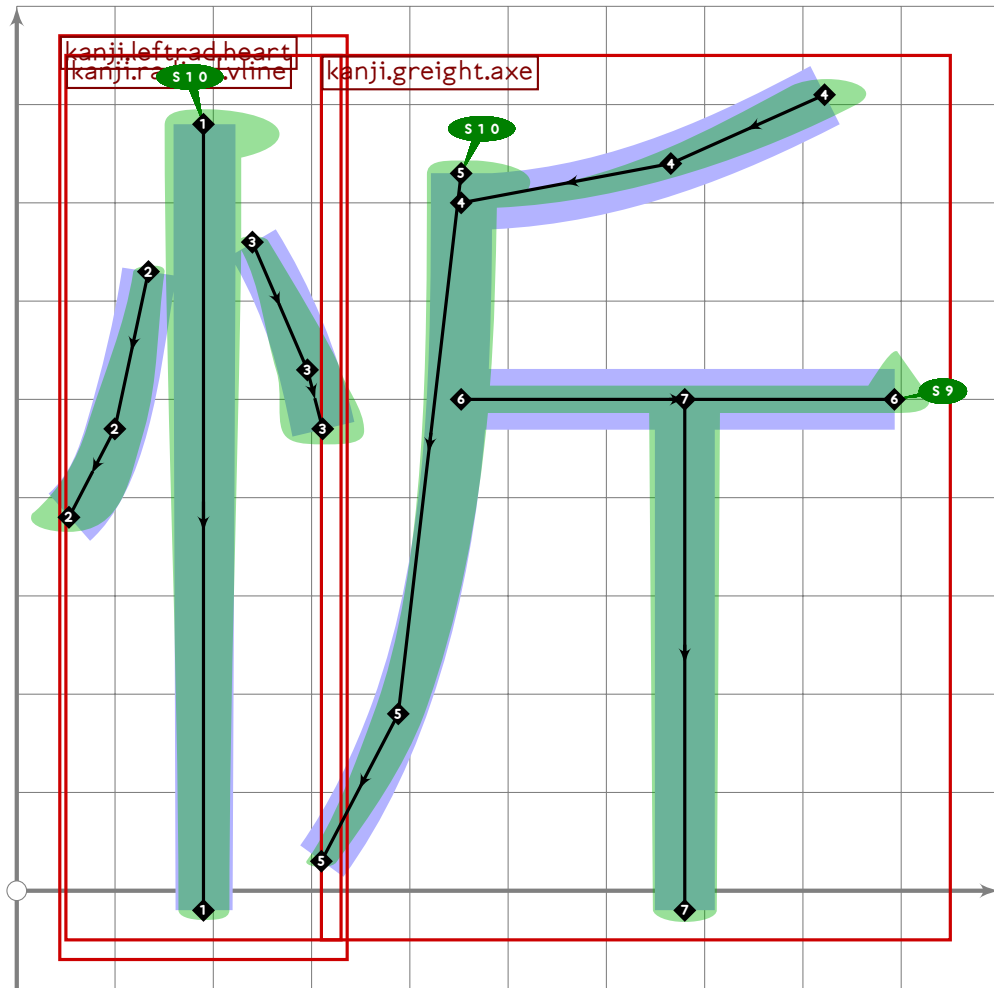
```



```

548 % extra
549 begintsuglyph("uni5FFA",250);
550 build_kanji.level(build_kanji.lr(320,-10)
551   (kanji.leftrad.heart)
552   (kanji.grfour.fail));
553 tsu_render;
554 endsuglyph;
555

```

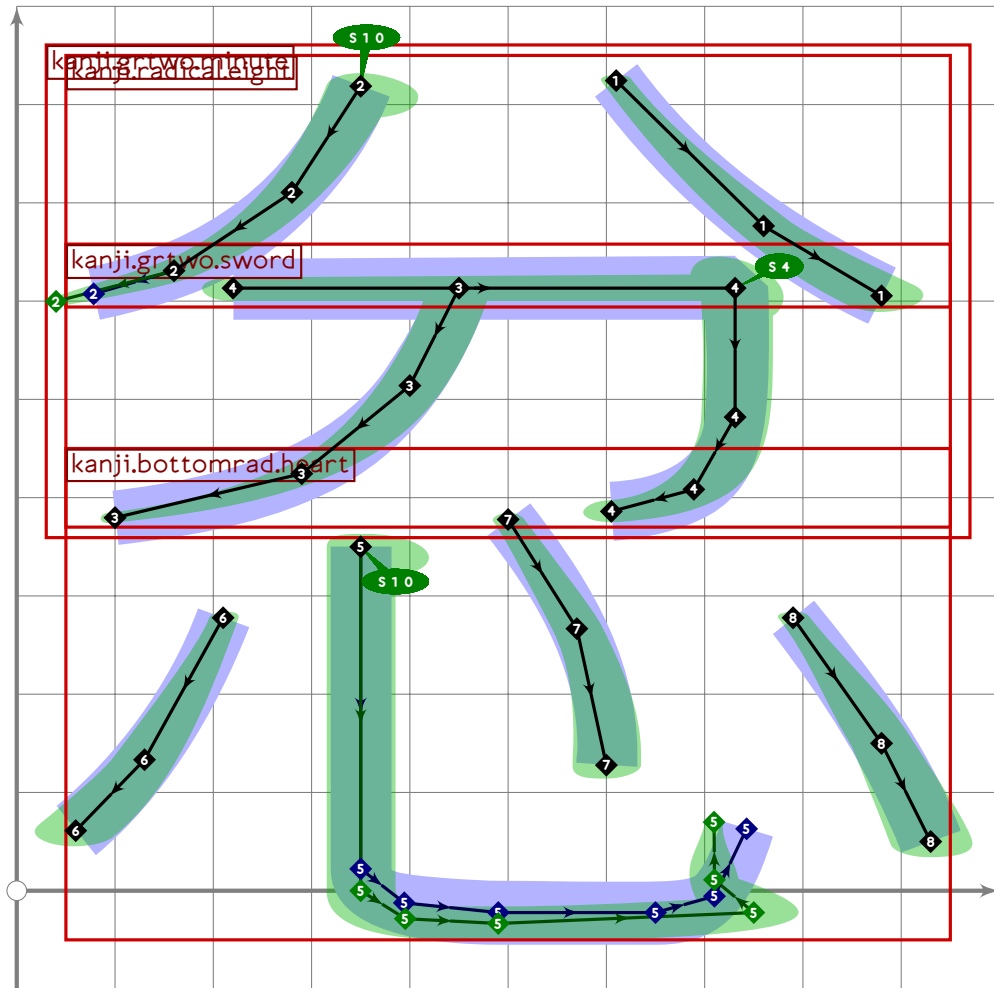


```

556 % extra
557 begintsuglyph("uni5FFB";251);
558 build_kanji.level(build_kanji.lr(320,20)
559   (kanji.leftrad.heart)
560   (kanji.greight.axe));
561 tsu_render;
562 endsuglyph;
563
564 % kotsu/tachima "suddenly"
565 begintsuglyph("uni5FFD";253);
566 kanji.grnine.suddenly;
567 tsu_render;
568 endsuglyph;
569

```

[see page 1532]



```

570 % extra "be angry"
571 beginsuglyph("uni5FFF";255);
572 build_kanji.level(build_kanji.tb(410,80)
573   (kanji.grtwo.minute)
574   (kanji.bottomrad.heart));
575 tsu_render;
576 endsuglyph;
577
578 _____
579
580 endfont;
581
582 _____

```

# tsuku-60.mp

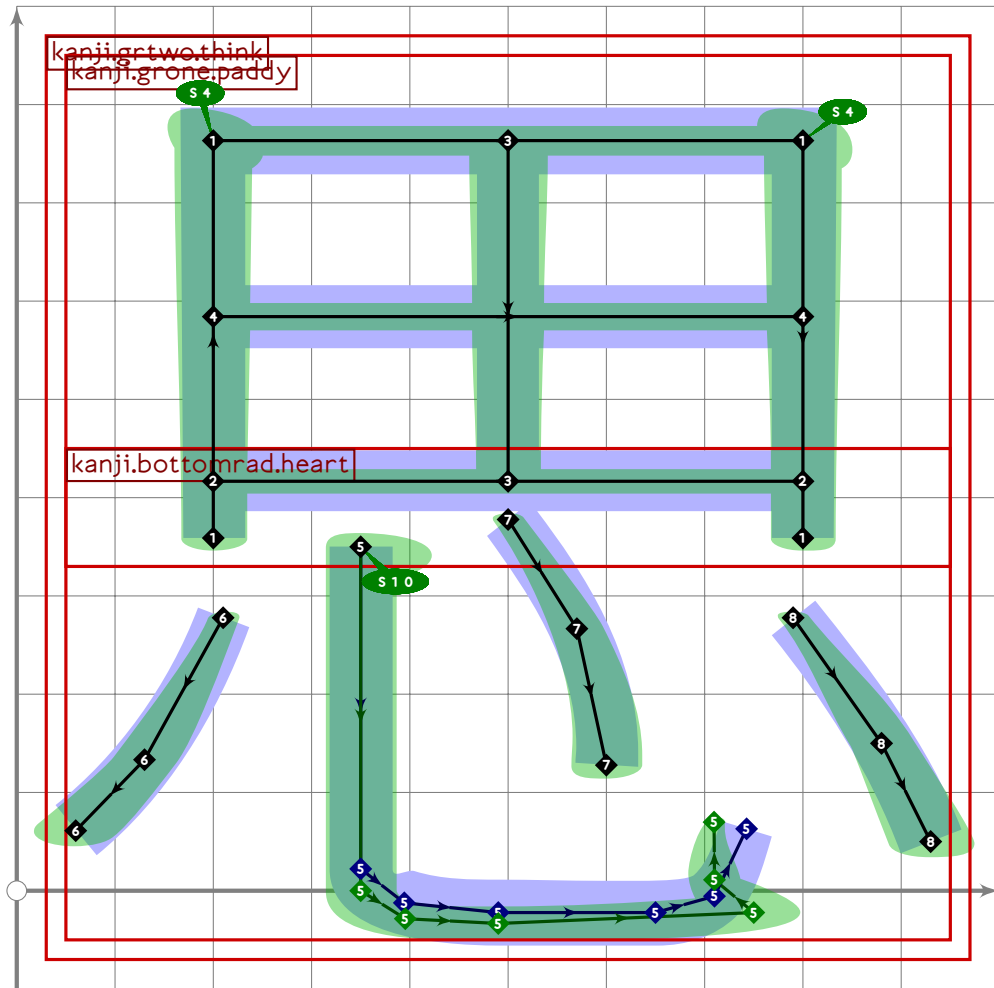
```
1 %
2 % Unicode page 60 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input bottomrad.mp;
37 input buildkanji.mp;
38 input gradeeight.mp;
39 input gradefive.mp;
40 input gradefour.mp;
41 input gradenine.mp;
42 input gradeone.mp;
43 input gradesix.mp;
44 input gradethree.mp;
45 input gradetwo.mp;
46 input leftrad.mp;
47 input radical.mp;
48 input rare.mp;
49
50 

---

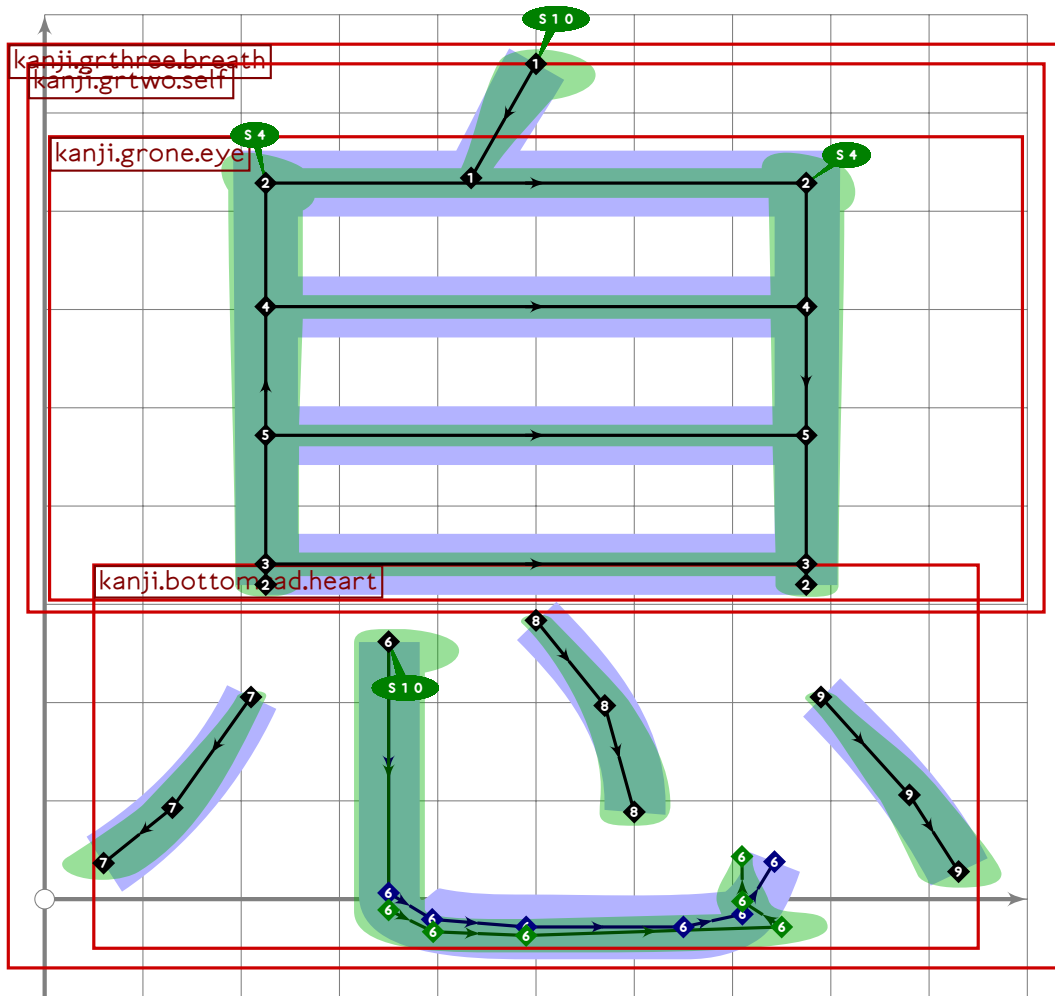

```



```

51
52 vardef kanji.grtwo.think =
53   push_pbox_toexpand("kanji.grtwo.think");
54   build_kanji.level(build_kanji.tb(390,120)
55     (kanji.grone.paddy)
56     (kanji.bottomrad.heart));
57   expand_pbox;
58 enddef;
59
60

```

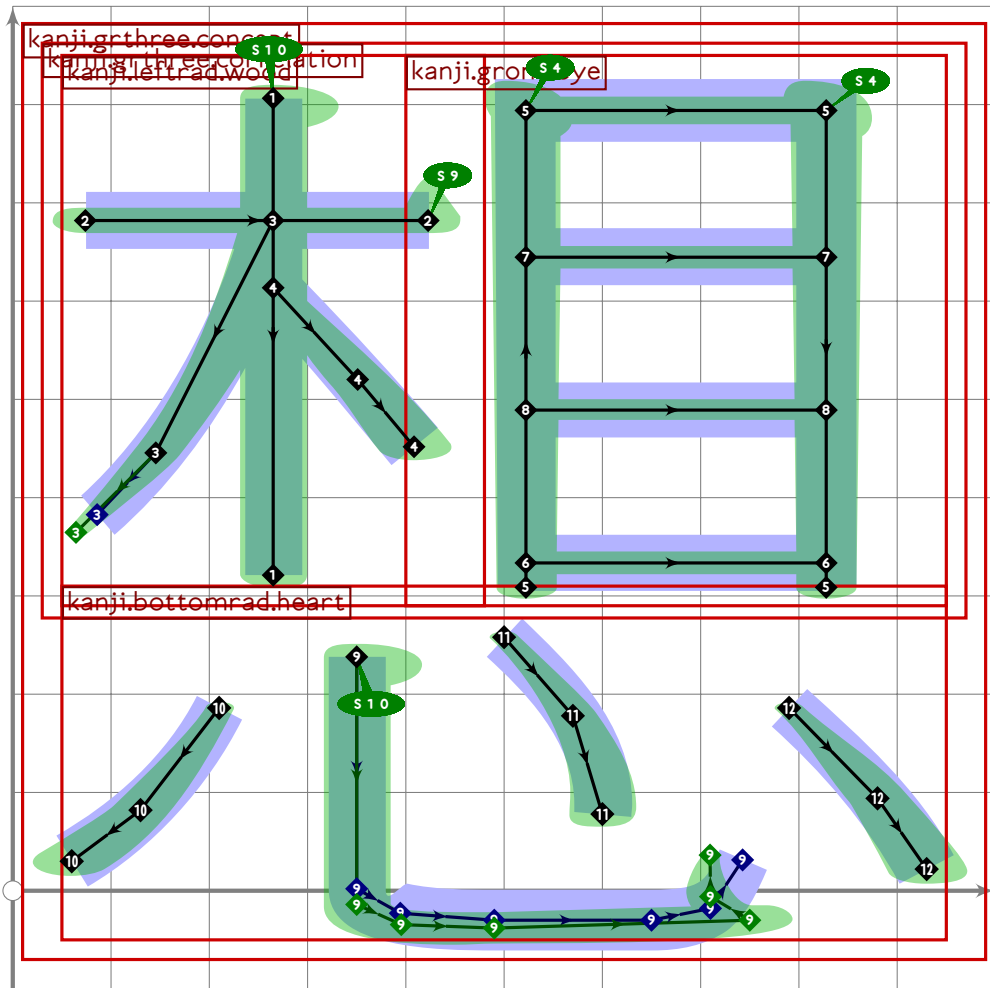


```

61
62 vardef kanji.grthree.breath =
63   push_pbox_toexpand("kanji.grthree.breath");
64   build_kanji.level(build_kanji.tb(320,40)
65     (build_kanji.sscale(xscaled 1.1)(kanji.grtwo.self))
66     (kanji.bottomrad.heart));
67   expand_pbox;
68 enddef;

```

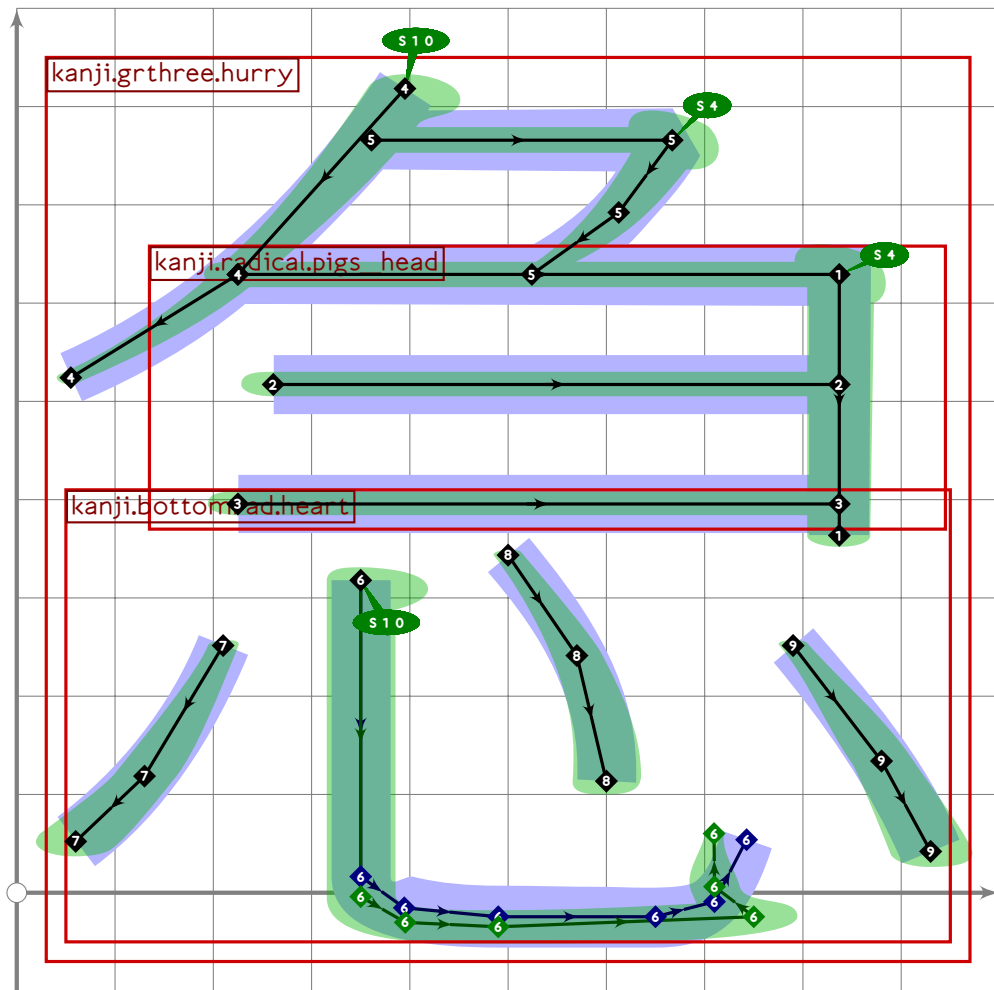




```

69
70 vardef kanji.grthree.concept =
71   push_pbox_toexpand("kanji.grthree.concept");
72   build_kanji.level(build_kanji.tb(300,20)
73     (kanji.grthree.correlation)
74     (kanji.bottomrad.heart));
75   expand_pbox;
76 enddef;

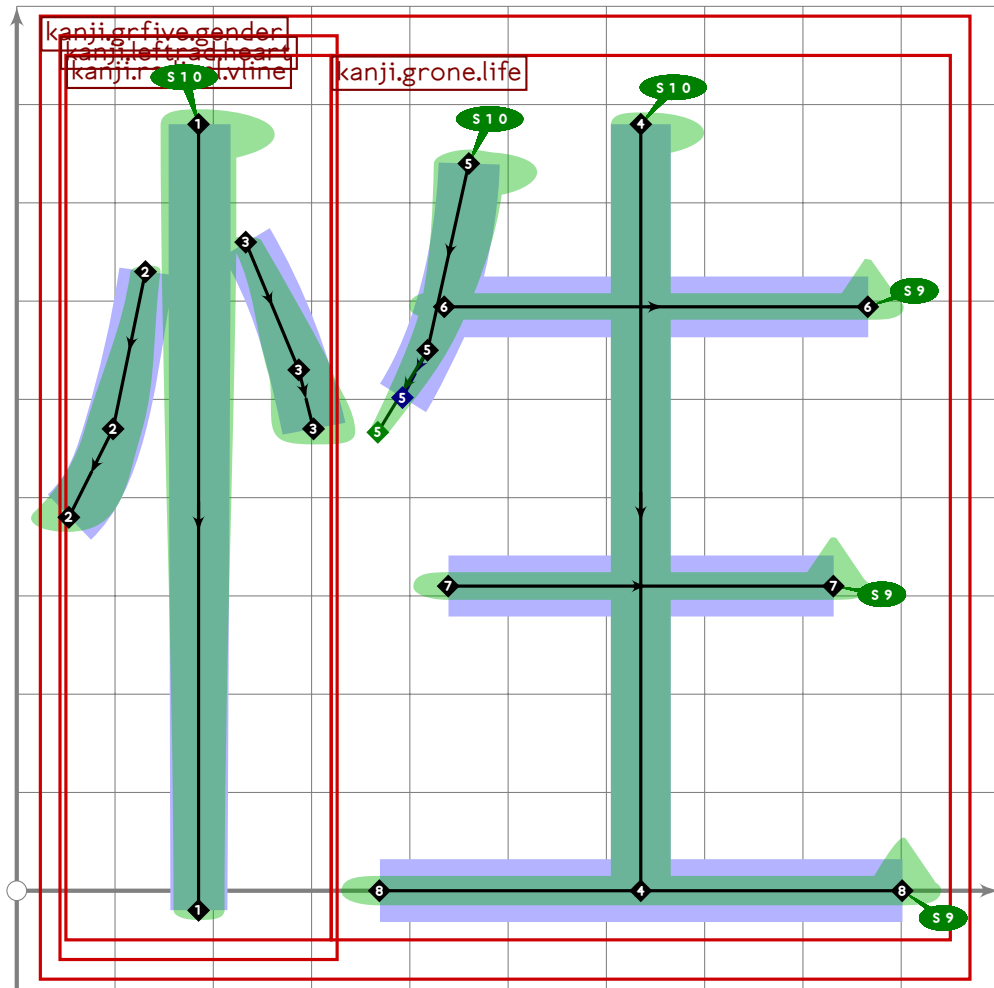
```



```

77
78 vardef kanji.grthree.hurry =
79   push_pbox_toexpand("kanji.grthree.hurry");
80   build_kanji.level(build_kanji.tb(390,40)
81     (build_kanji.sscale(xscaled 0.9 shifted (40,0))
82       (build_kanji.attach_fishhook(0.6)
83         (kanji.radical.pigs_head)))
84     (kanji.bottomrad.heart));
85   expand_pbox;
86 enddef;
87
88

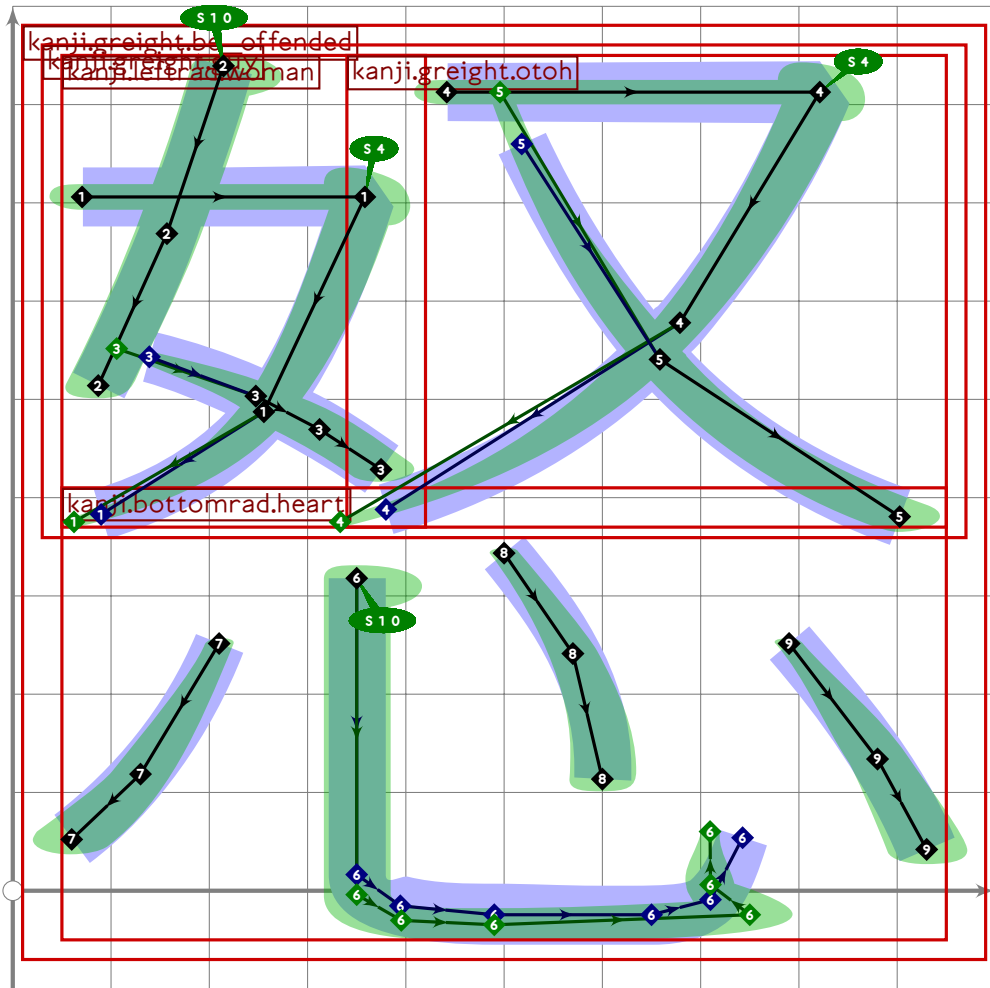
```



```

89
90 vardef kanji.grfive.gender =
91   push_pbox_toexpand("kanji.grfive.gender");
92   build_kanji.level(build_kanji.lr(320,0)
93     (kanji.leftrad.heart)
94     (kanji.grone.life));
95   expand_pbox;
96 enddef;
97
98

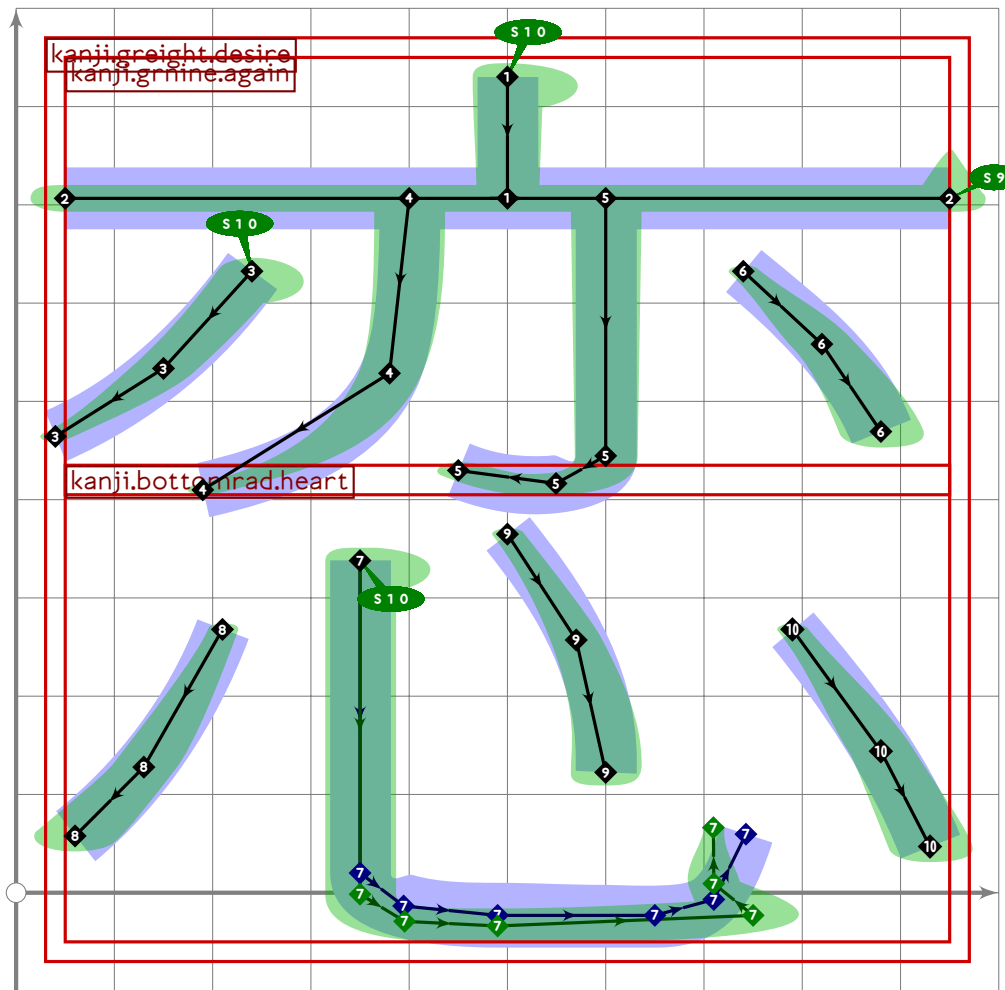
```



```

99
100 vardef kanji.greight.be_offended =
101   push_pbox_toexpand("kanji.greight.be_offended");
102   build_kanji.level(build_kanji.tb(390,40)
103     (kanji.greight.guy)
104     (kanji.bottomrad.heart));
105   expand_pbox;
106 enddef;

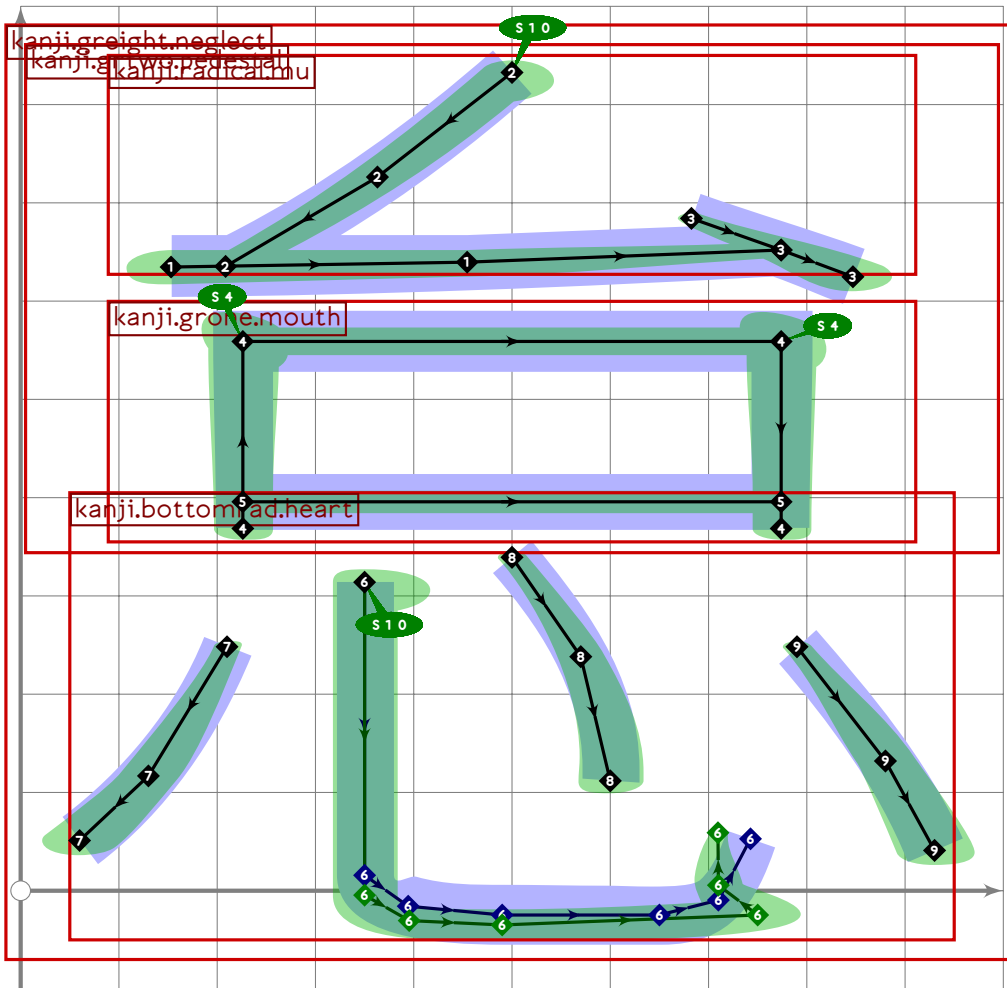
```



```

107
108 vardef kanji.greight.desire =
109   push_pbox_toexpand("kanji.greight.desire");
110   build_kanji.level(build_kanji.tb(420,30)
111     (kanji.grnine.again)
112     (kanji.bottomrad.heart));
113   expand_pbox;
114 enddef;

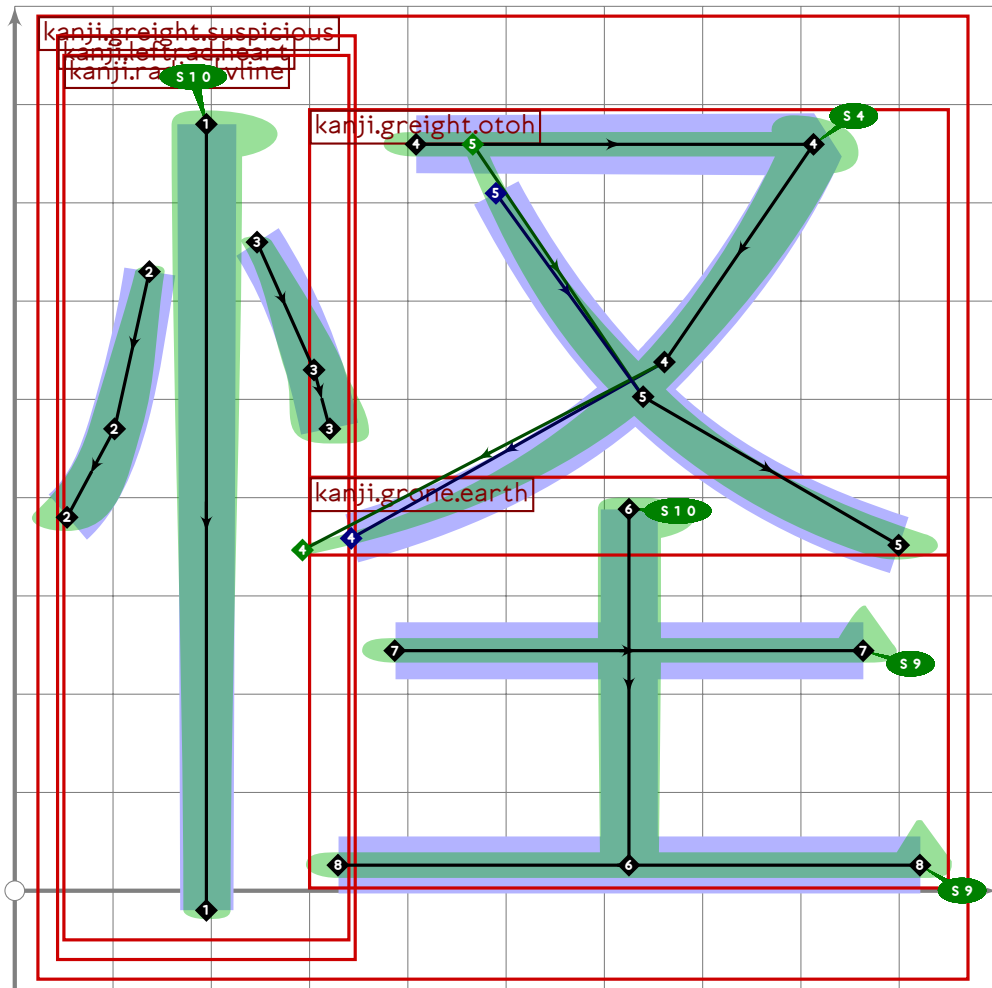
```



```

115
116 vardef kanji.greight.neglect =
117   push_pbox_toexpand("kanji.greight.neglect");
118   build_kanji.level(build_kanji.tb(380,50)
119     (build_kanji.sscale(xscaled 1.1)(kanji.grtwo.pedestal))
120     (kanji.bottomrad.heart));
121   expand_pbox;
122 enddef;

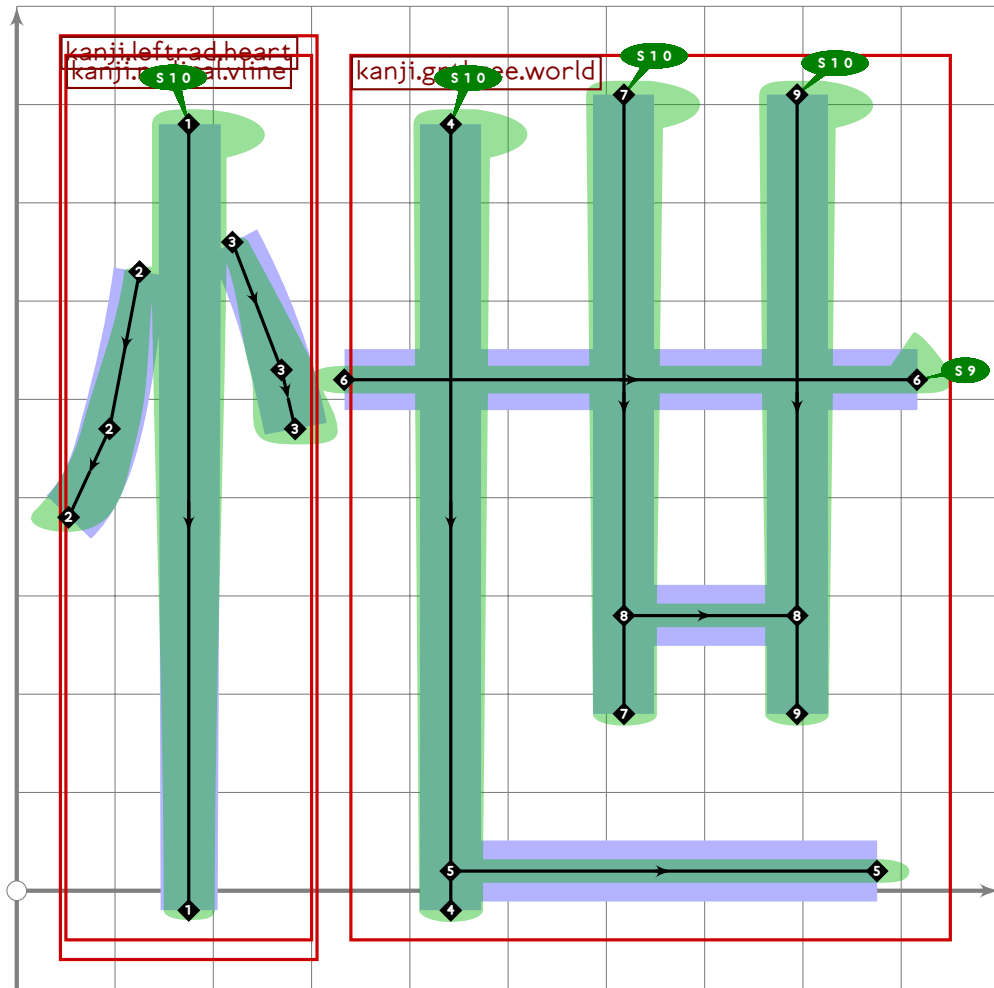
```



```

123
124 vardef kanji.greight.suspicious =
125   push_pbox_toexpand("kanji.greight.suspicious");
126   build_kanji.level(build_kanji.lr(320,40)
127     (kanji.leftrad.heart)
128     (build_kanji.sscale(yscaled 0.88)(build_kanji.tb(380,90)
129       (kanji.greight.otoh)
130       (kanji.grone.earth))));
131   expand_pbox;
132 enddef;
133
134
135

```

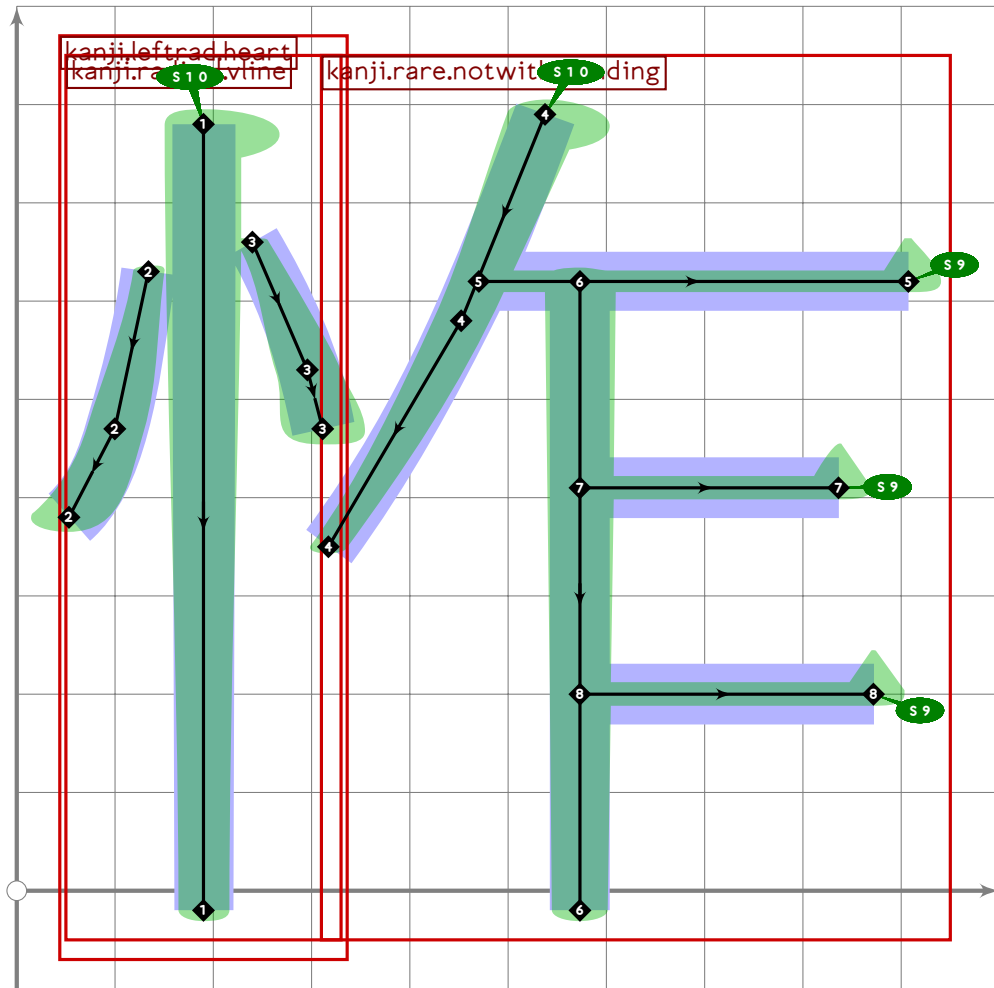


```

136 % extra
137 begint Suglyph("uni6008",8);
138 build_kanji.level(build_kanji.lr(320,-40)
139   (kanji.leftrad.heart)
140   (kanji.grthree.world));
141 tsu_render;
142 endsuglyph;
143

```

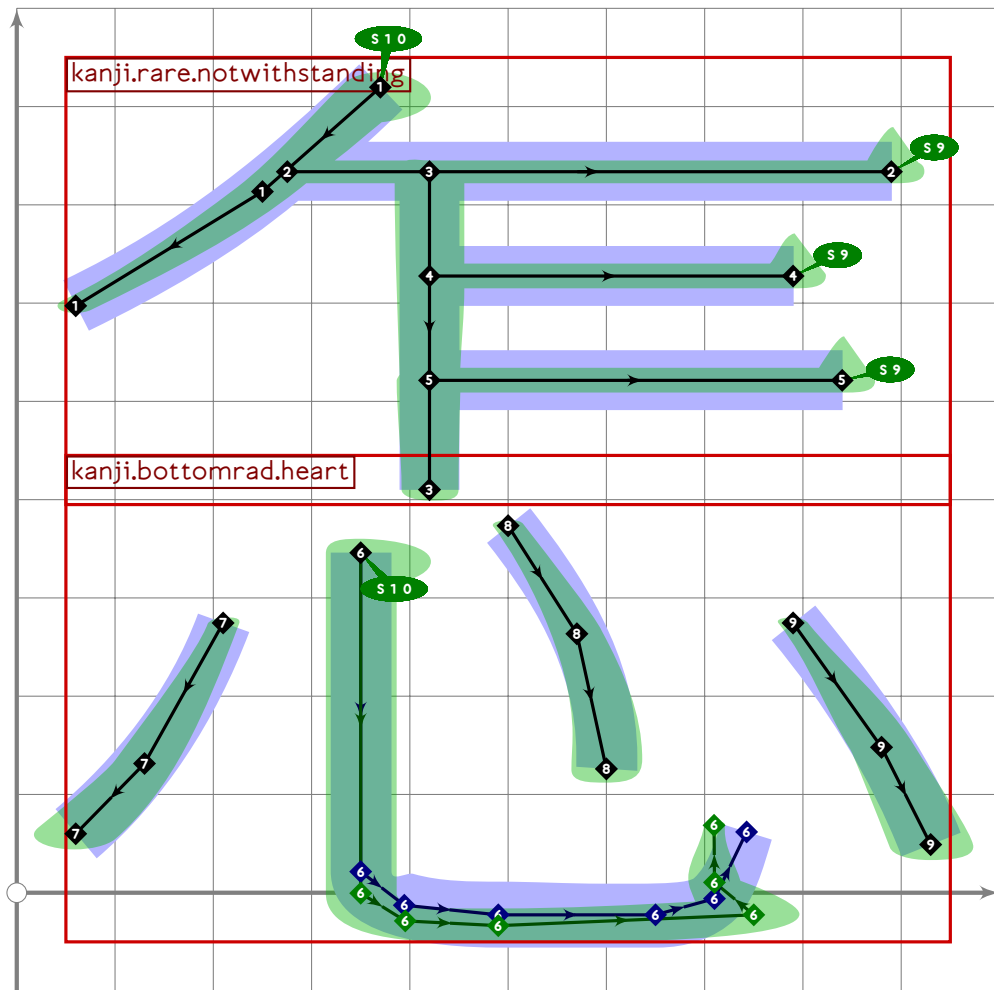




```

144 % extra
145 begintsuglyph("uni600D";13);
146 build_kanji.level(build_kanji.lr(320,20)
147   (kanji.leftrad.heart)
148   (kanji.rare.notwithstanding));
149 tsu_render;
150 endsuglyph;
151

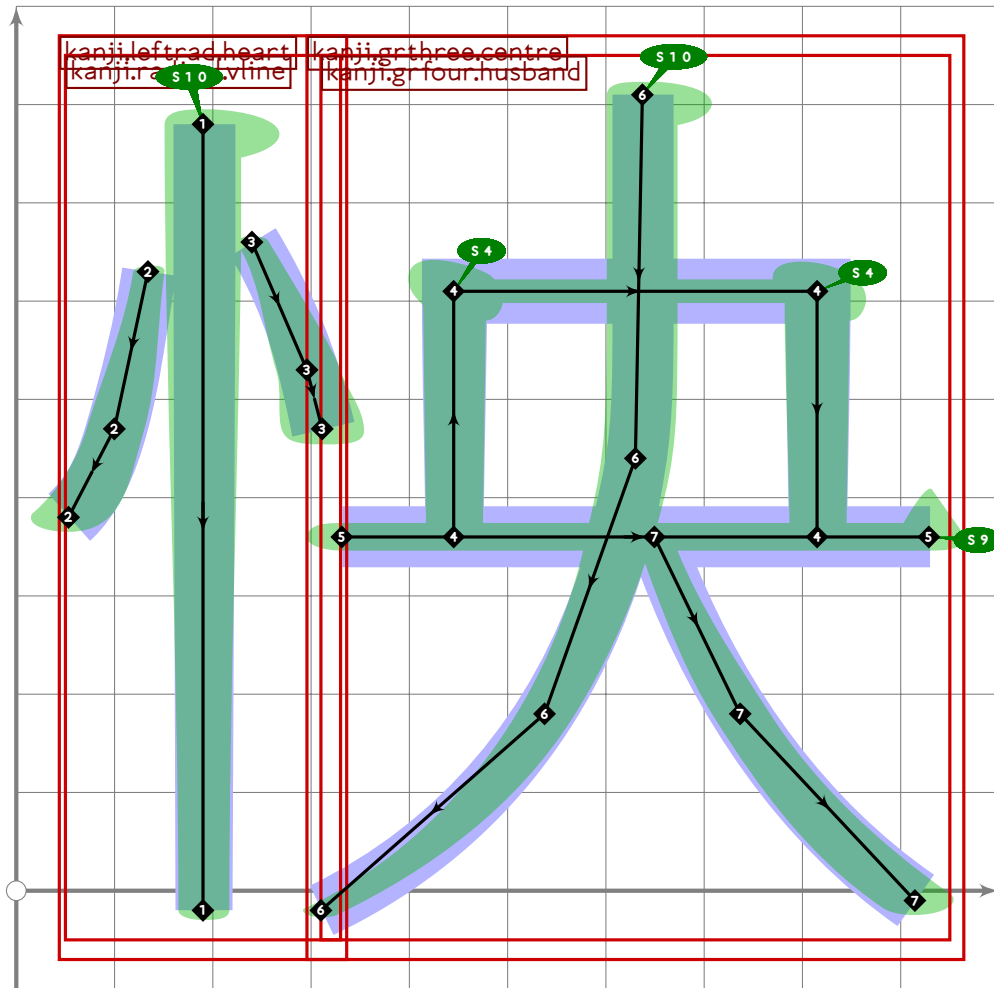
```



```

152 % extra
153 begint Suglyph("uni600E",14);
154 build_kanji.level(build_kanji.tb(420,50)
155   (kanji.rare.notwithstanding)
156   (kanji.bottomrad.heart));
157 tsu_render;
158 endsuglyph;
159

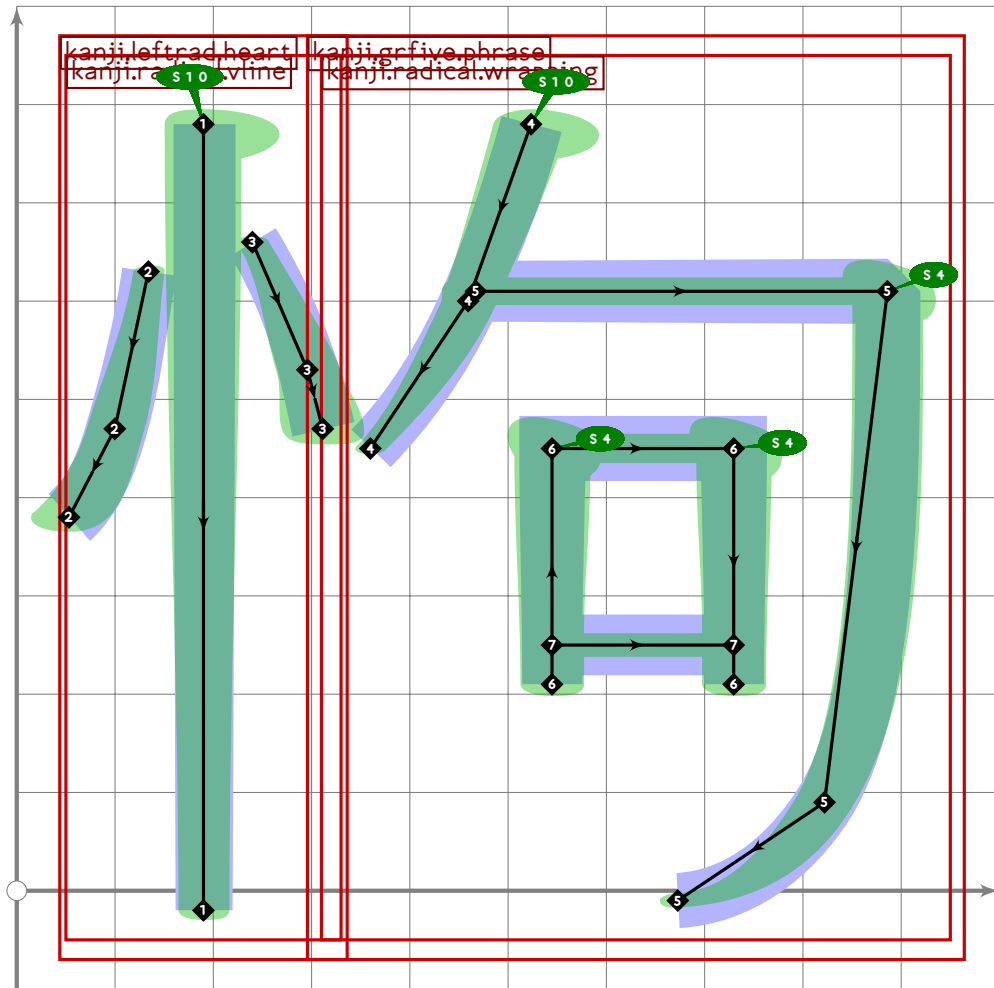
```



```

160 % extra
161 begint Suglyph("uni600F",15);
162 build_kanji.level(build_kanji.lr(320,20)
163   (kanji.leftrad.heart)
164   (kanji.grthree centre));
165 tsu_render;
166 endsuglyph;
167

```

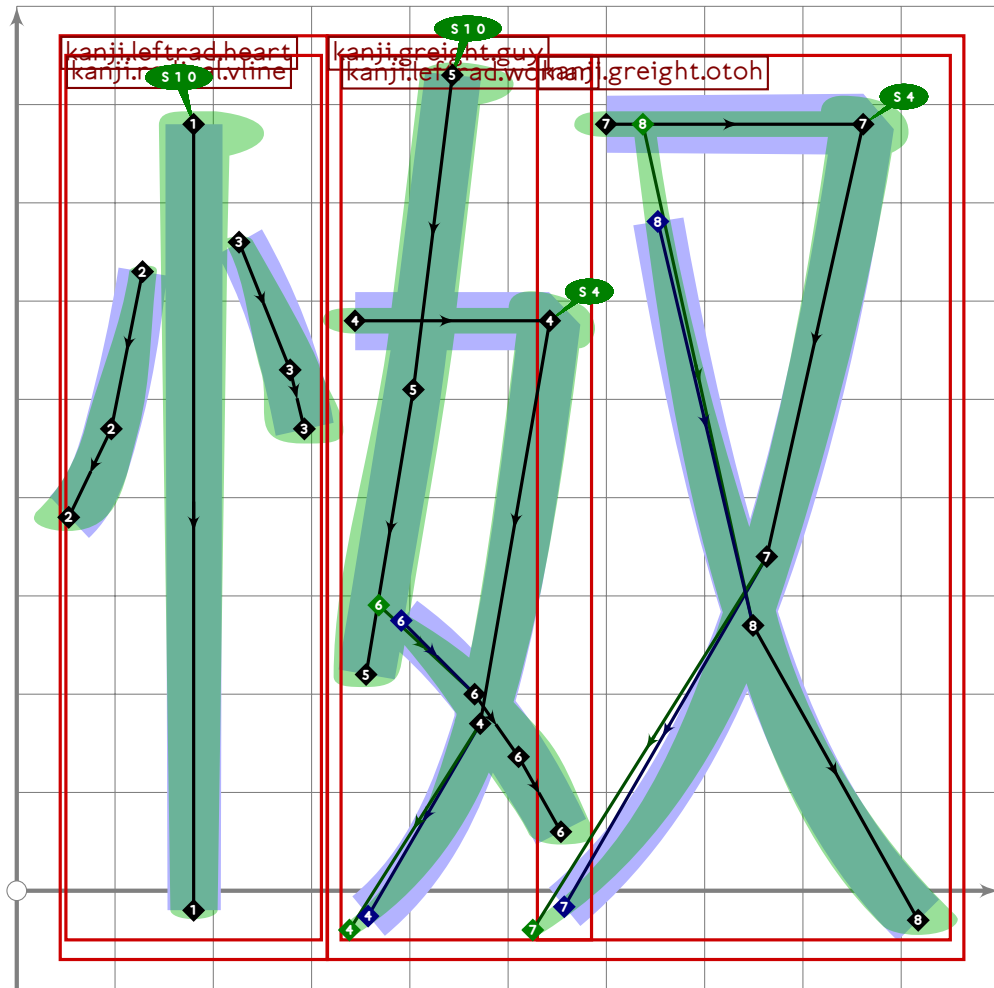


```

168 % extra
169 begintsuglyph("uni6010";16);
170 build_kanji.level(build_kanji.lr(320,20)
171   (kanji.leftrad.heart)
172   (kanji.grfive.phrase));
173 tsu_render;
174 endsuglyph;
175
176 % do/ika "be offended"
177 begintsuglyph("uni6012";18);
178 kanji.greight.be_offended;
179 tsu_render;
180 endsuglyph;
181

```

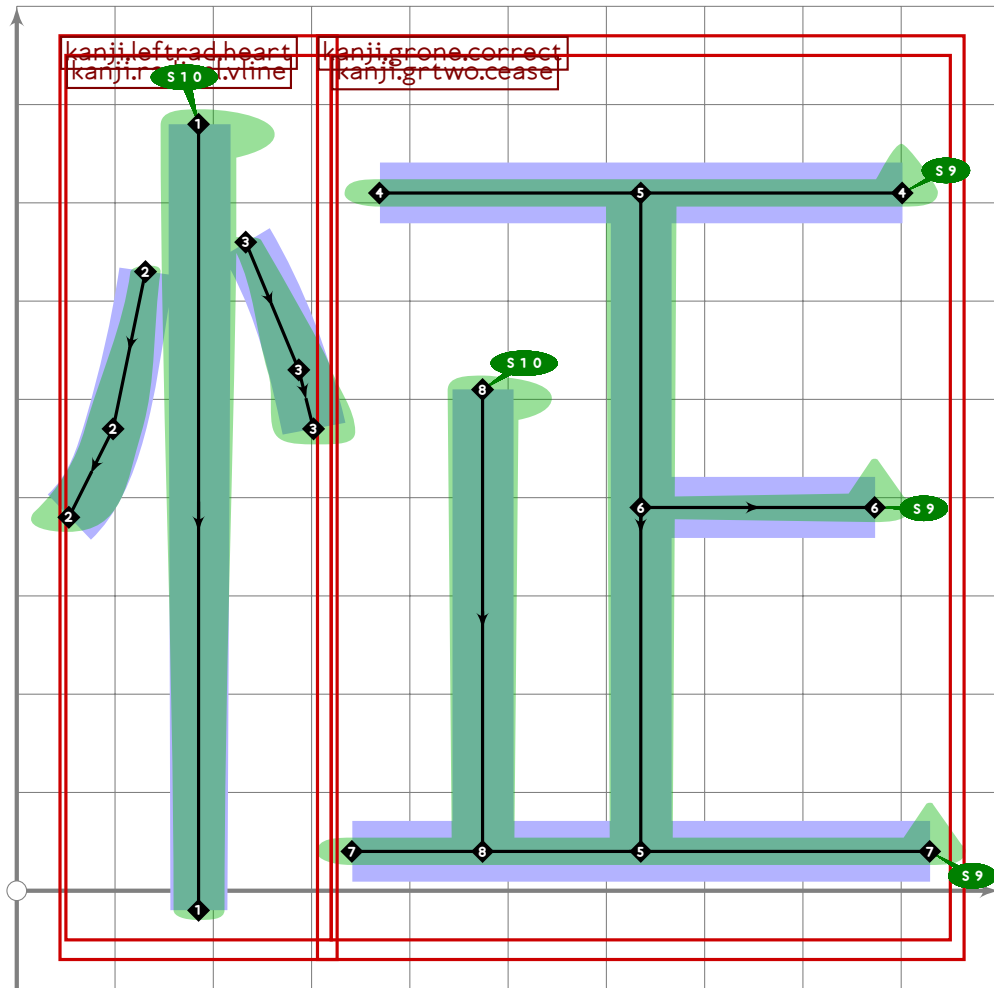
[see page 1568]



```

182 % extra
183 begint Suglyph("uni6013";19);
184 build_kanji.level(build_kanji.lr(320,-20)
185   (kanji.leftrad.heart)
186   (kanji.greight.guy));
187 tsu_render;
188 endsuglyph;
189

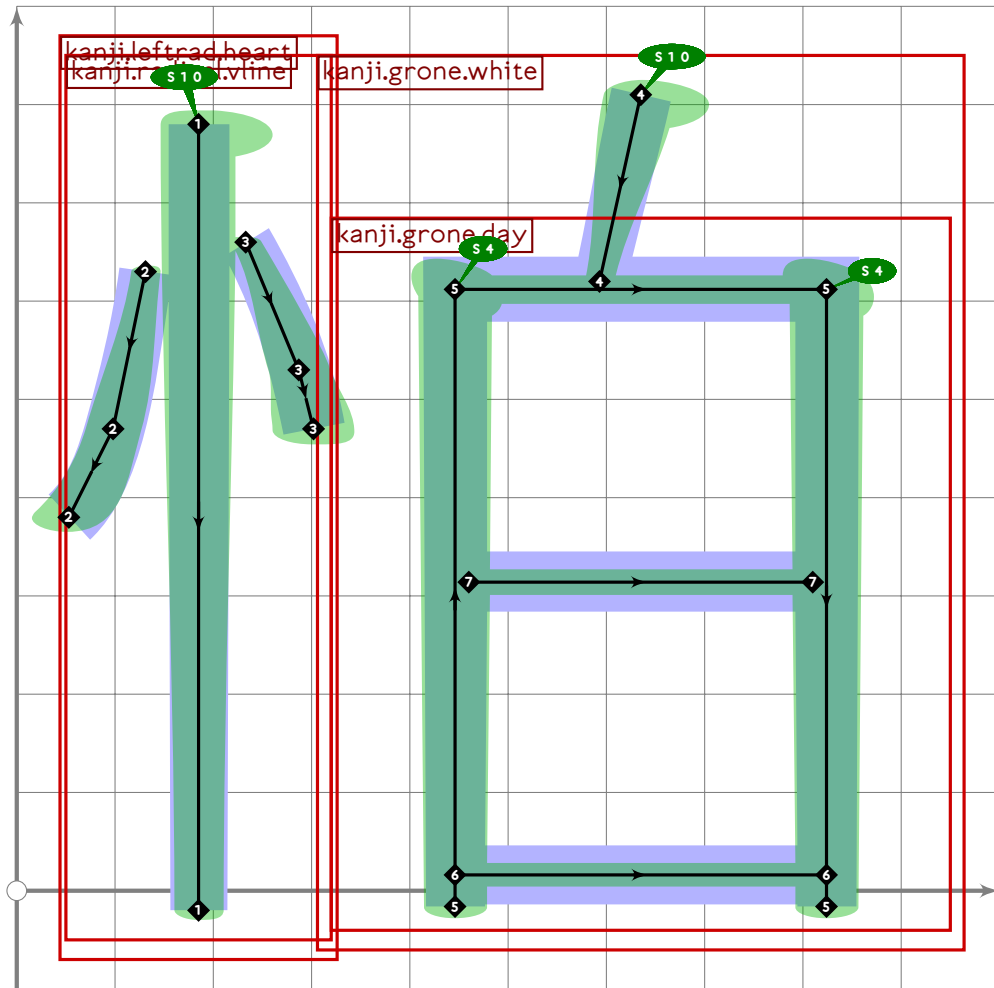
```



```

190 % extra
191 begint Suglyph("uni6014",20);
192 build_kanji.level(build_kanji.lr(320,0)
193   (kanji.leftrad.heart)
194   (kanji.grone.correct));
195 tsu_render;
196 endsuglyph;
197

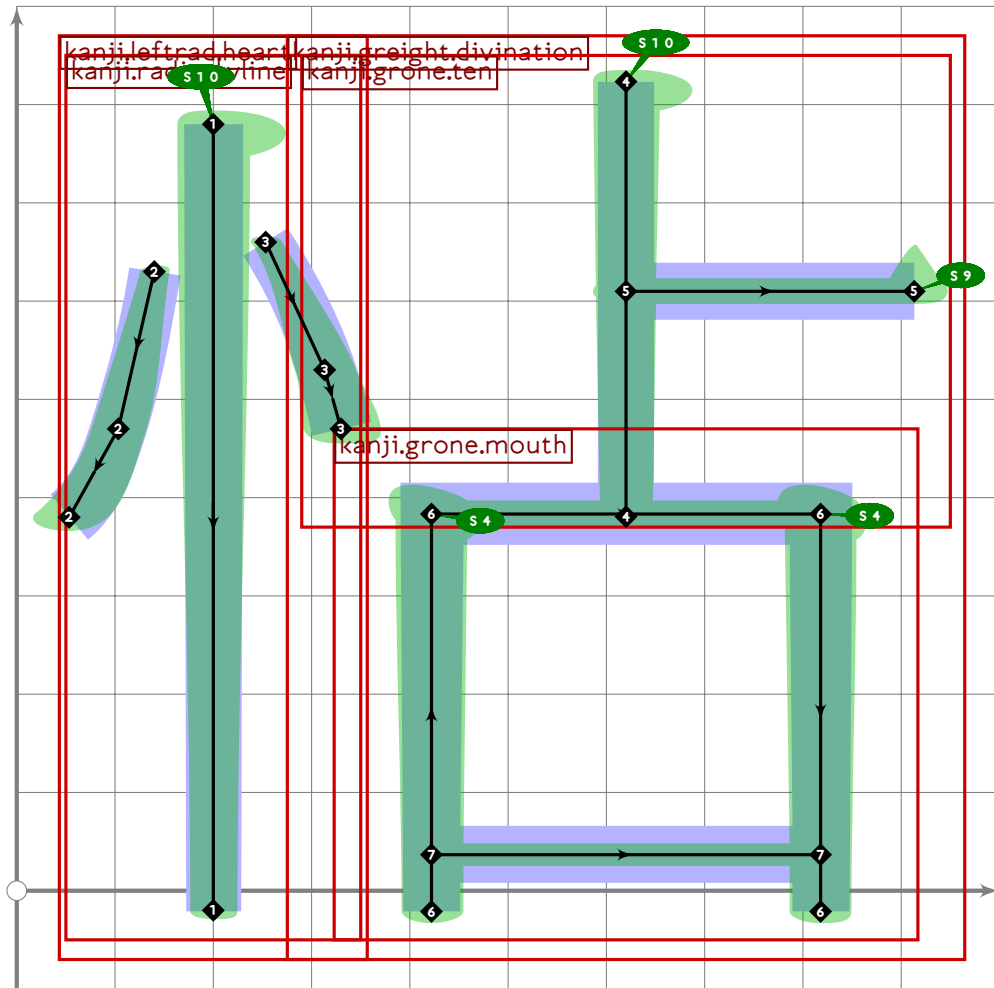
```



```

198 % extra
199 begint Suglyph("uni6015",21);
200 build_kanji.level(build_kanji.lr(320,0)
201   (kanji.leftrad.heart)
202   (kanji.grone.white));
203 tsu_render;
204 endsuglyph;
205

```

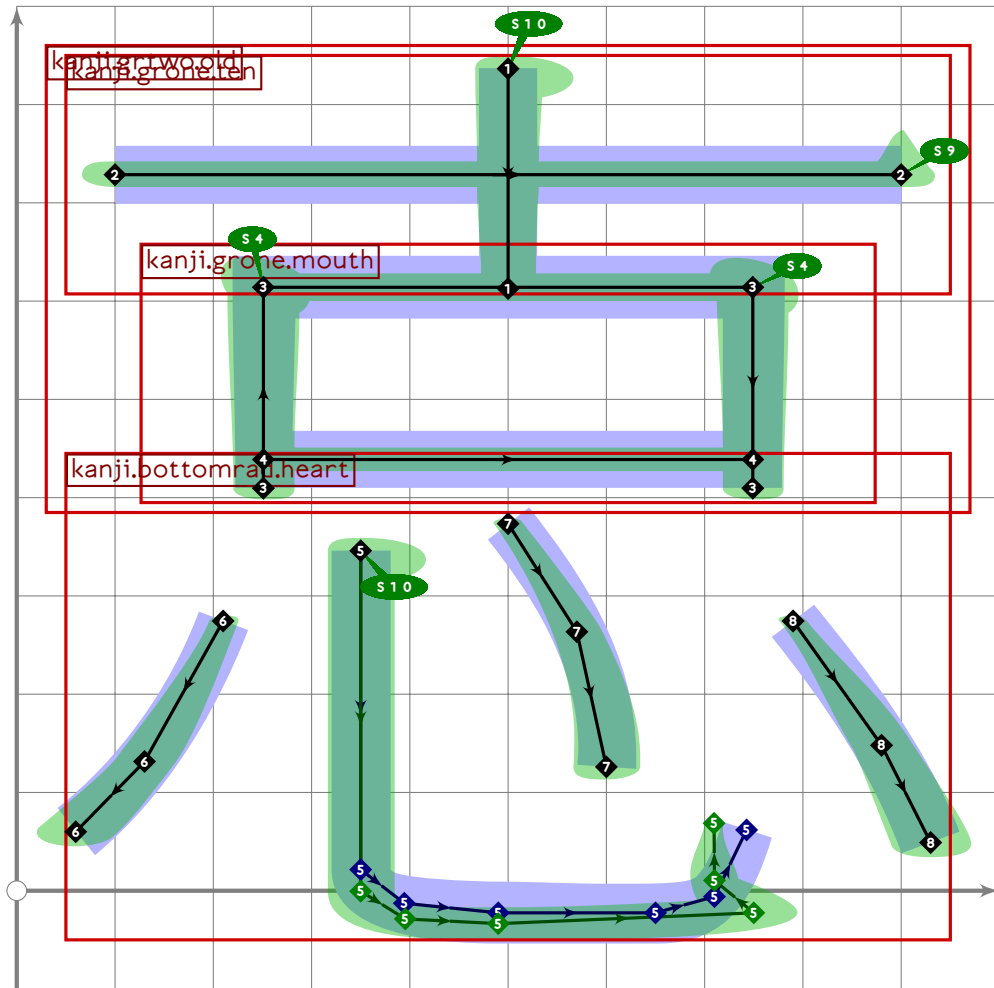


```

206 % extra
207 begint Suglyph("uni6017";23);
208 build_kanji.level(build_kanji.lr(320,60)
209 (kanji.leftrad.heart)
210 (kanji.greight.divination));
211 tsu_render;
212 endtsuglyph;
213

```

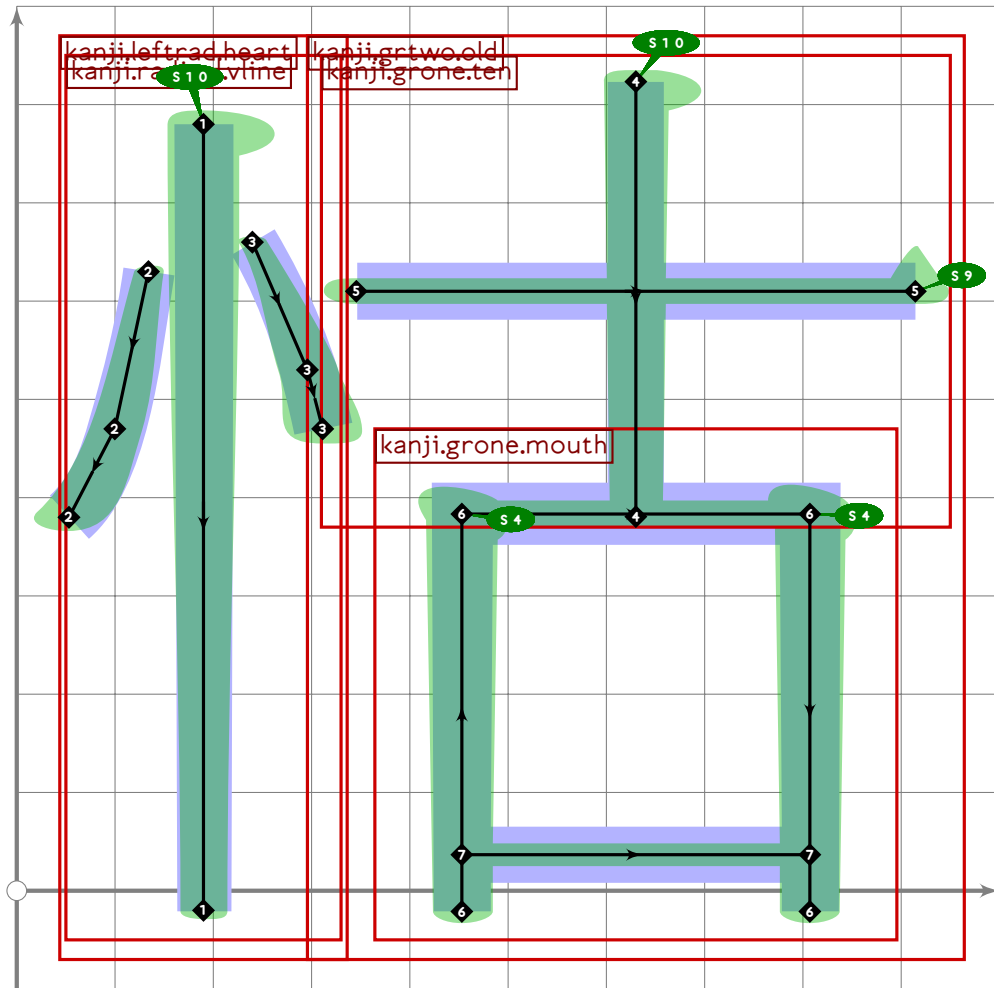




```

214 % extra
215 begint Suglyph("uni6018";24);
216 build_kanji.level(build_kanji.tb(420,50)
217   (kanji.grtwo.old)
218   (kanji.pottomrad.heart));
219 tsu_render;
220 endsuglyph;
221

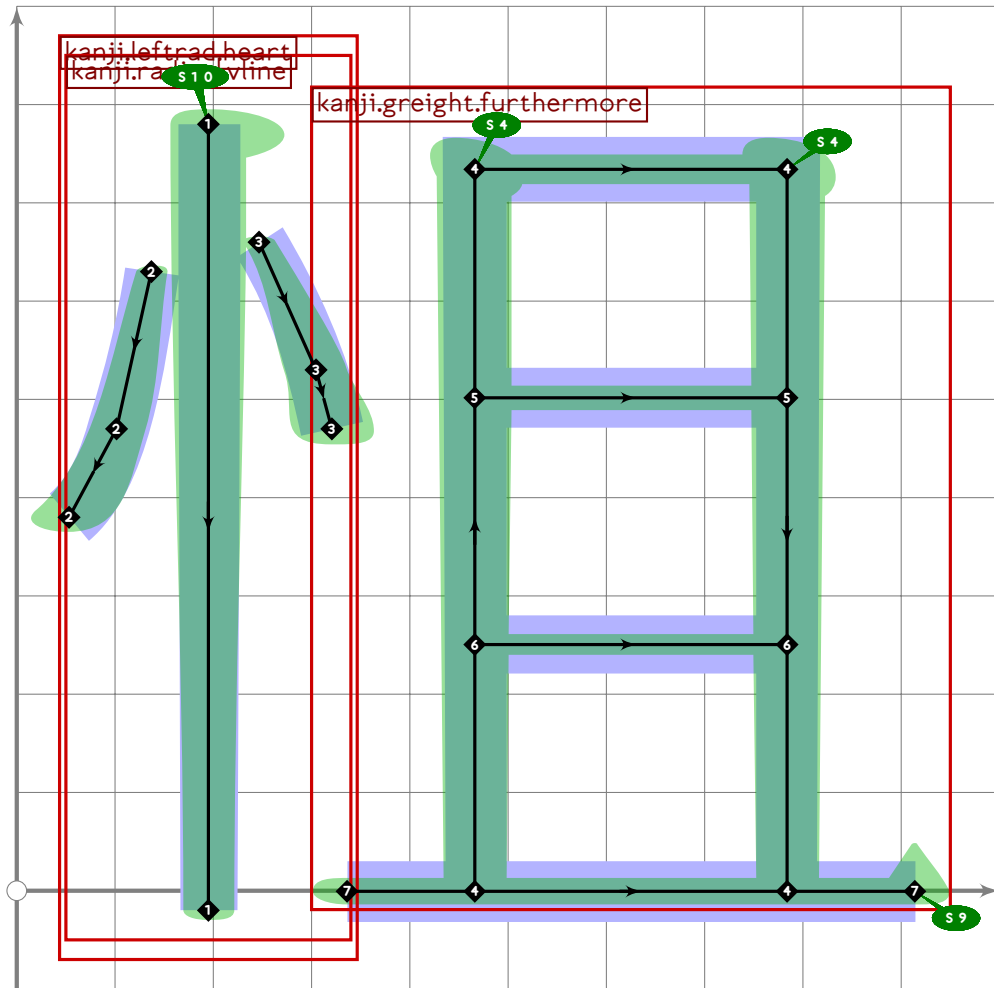
```



```

222 % extra
223 begint Suglyph("uni6019";25);
224 build_kanji.level(build_kanji.lr(320,20)
225   (kanji.leftrad.heart)
226   (kanji.grtwo.old));
227 tsu_render;
228 endsuglyph;
229

```

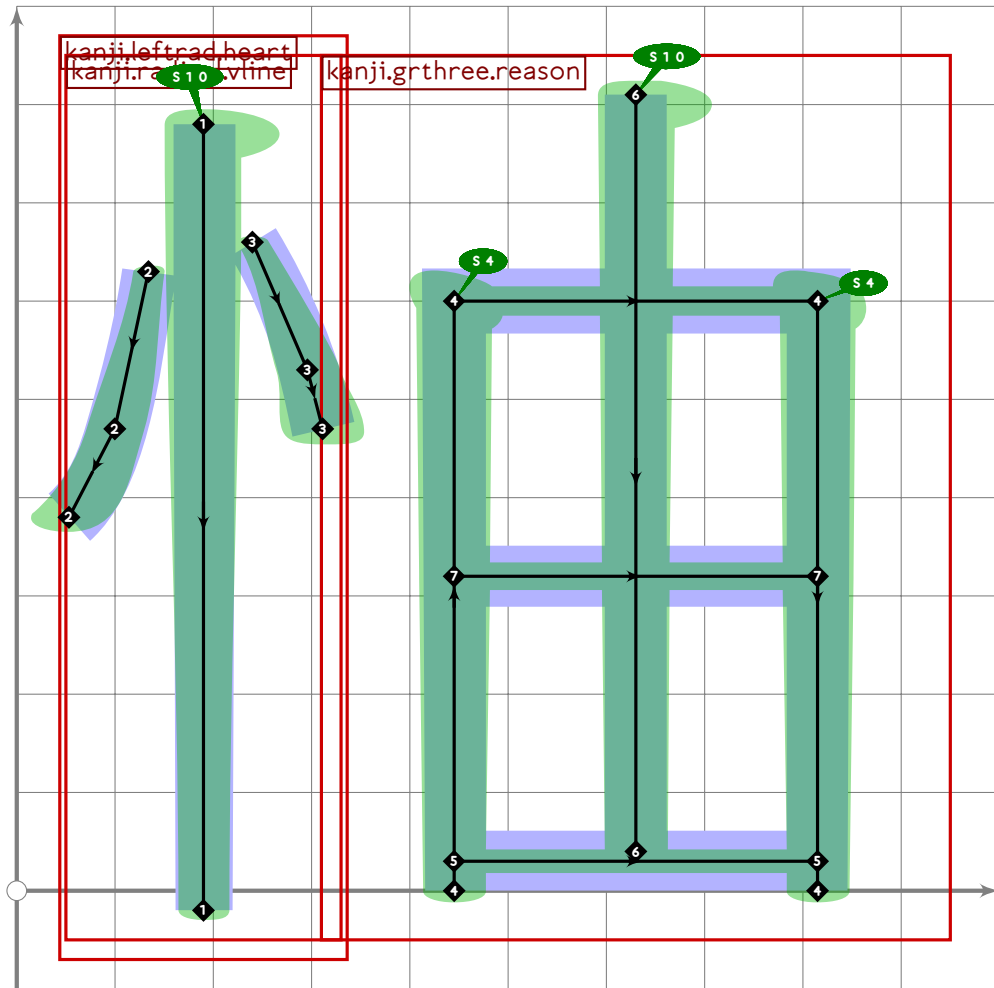


```

230 % extra
231 begintsuglyph("uni601A";26);
232 build_kanji.level(build_kanji.lr(320,40)
233   (kanji.leftrad.heart)
234   (build_kanji.sscale(yscaled 0.93)(kanji.greight.furthermore)));
235 tsu_render;
236 endsuglyph;
237
238 % shi/omo "think"
239 begintsuglyph("uni601D";29);
240 kanji.grtwo.think;
241 tsu_render;
242 endsuglyph;
243

```

[see page 1563]

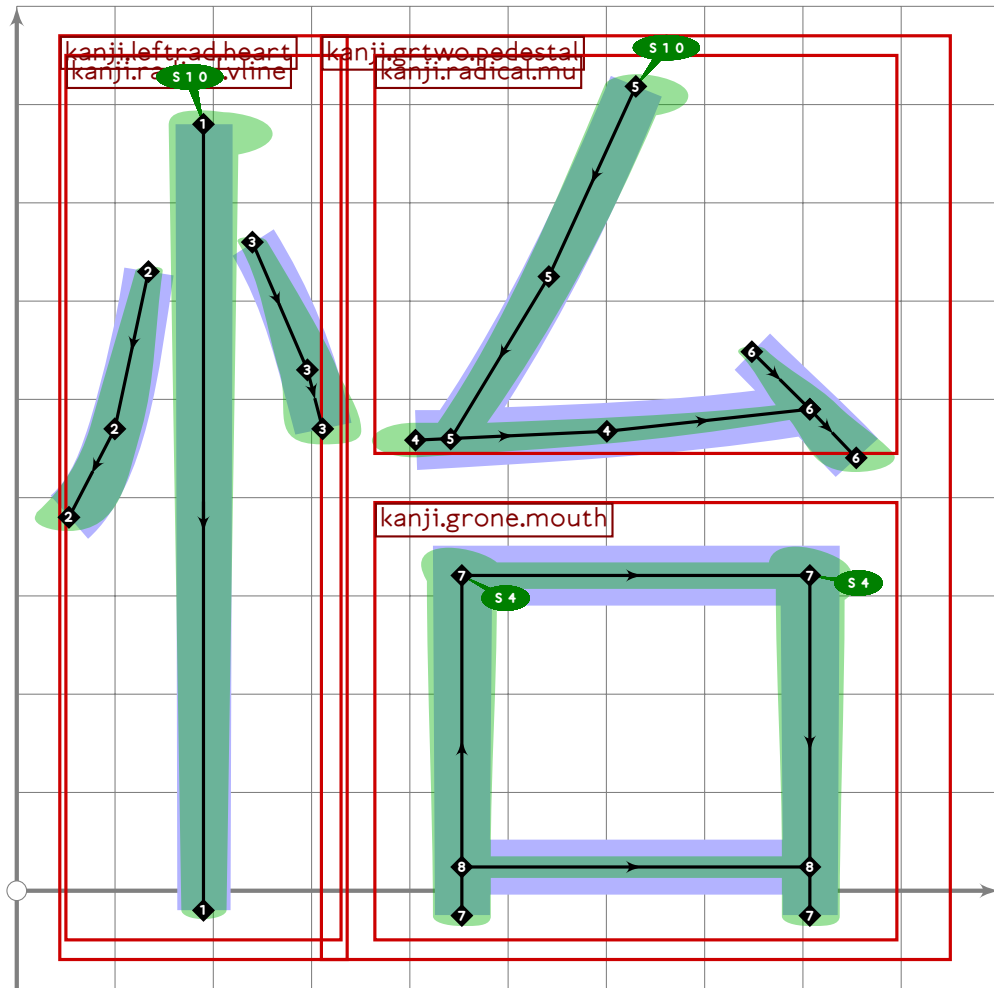


```

244 % extra
245 begintsuglyph("uni601E";30);
246 build_kanji.level(build_kanji.lr(320,20)
247   (kanji.leftrad.heart)
248   (kanji.grthree.reason));
249 tsu_render;
250 endsuglyph;
251
252 % kai/okota/nama "neglect"
253 begintsuglyph("uni6020";32);
254 kanji.greight.neglect;
255 tsu_render;
256 endsuglyph;
257

```

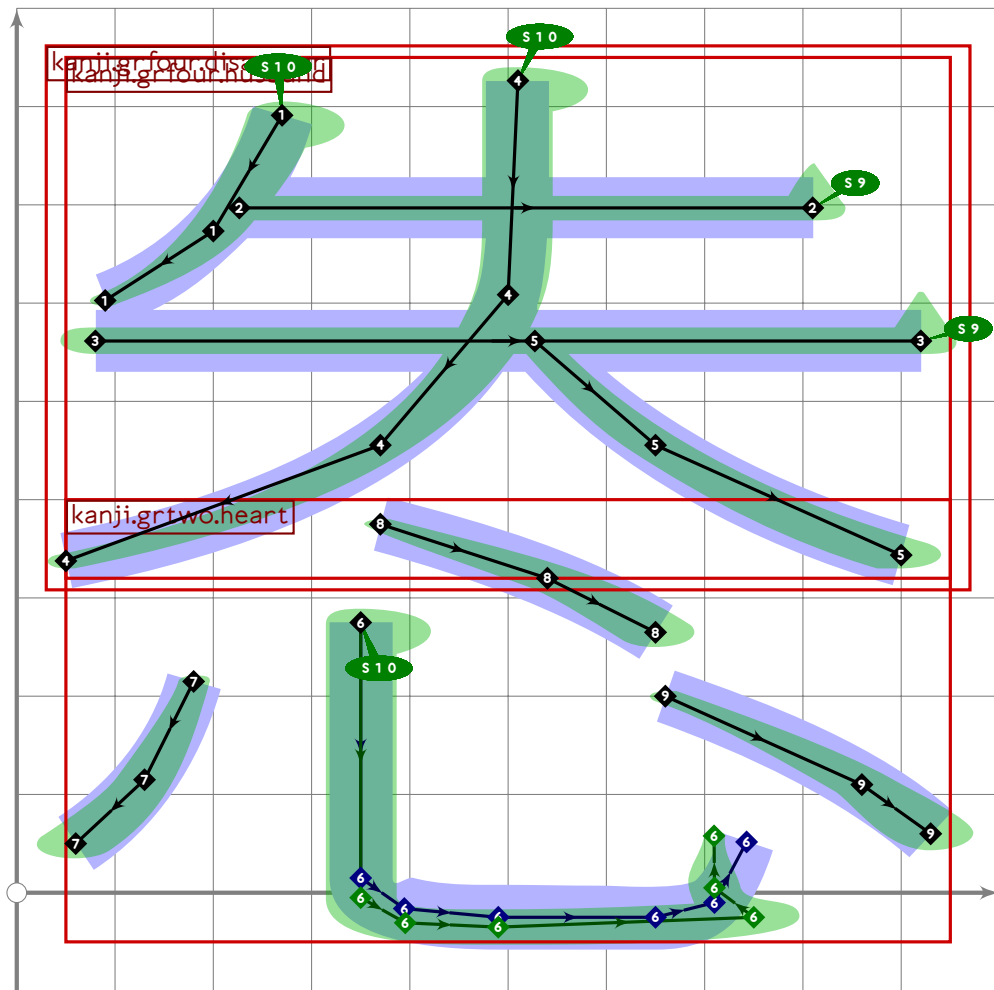
[see page 1570]



```

258 % extra
259 begint Suglyph("uni6021",33);
260 build_kanji.level(build_kanji.lr(320,20)
261   (kanji.leftrad.heart)
262   (kanji.grtwo.pedestal));
263 tsu_render;
264 endsuglyph;
265

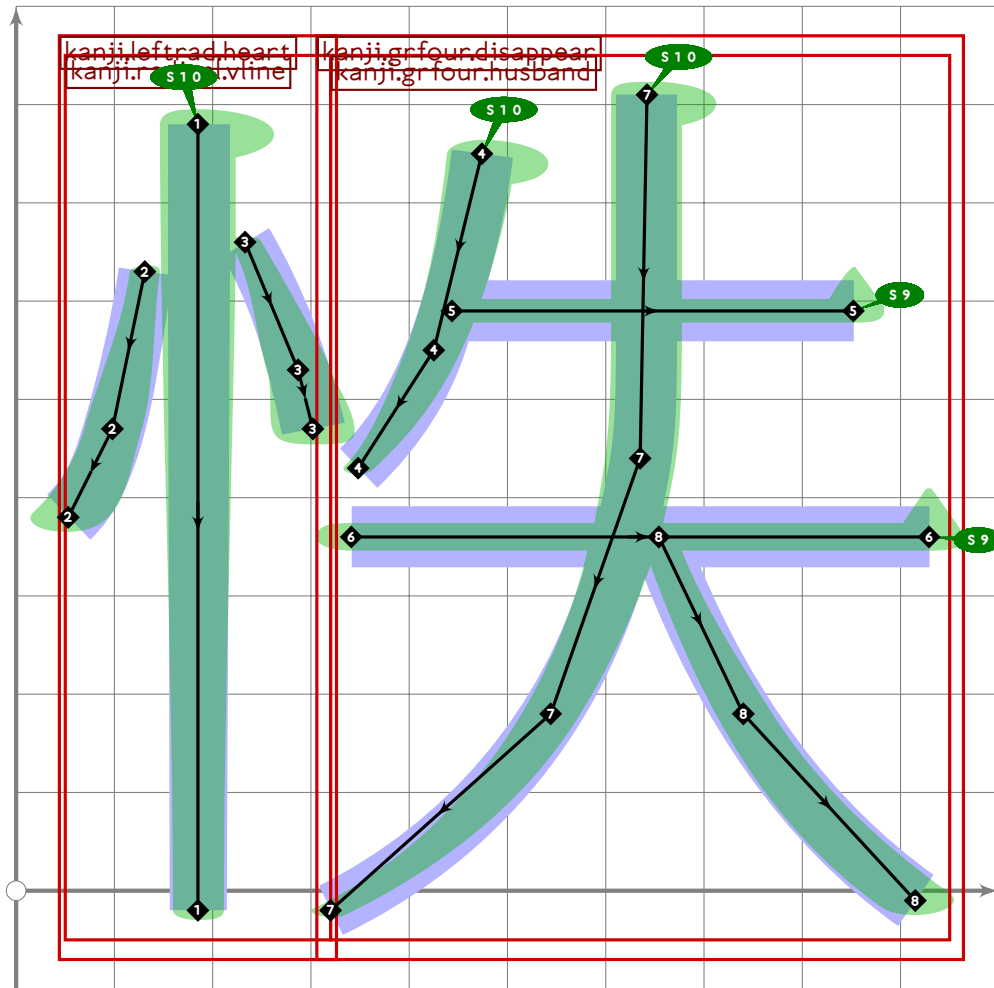
```



```

266 % extra
267 begint Suglyph("uni6022",34);
268 build_kanji.level(build_kanji.tb(360,80)
269   (kanji.grfour.disappear)
270   (kanji.grtwo.heart));
271 tsu_render;
272 endsuglyph;
273

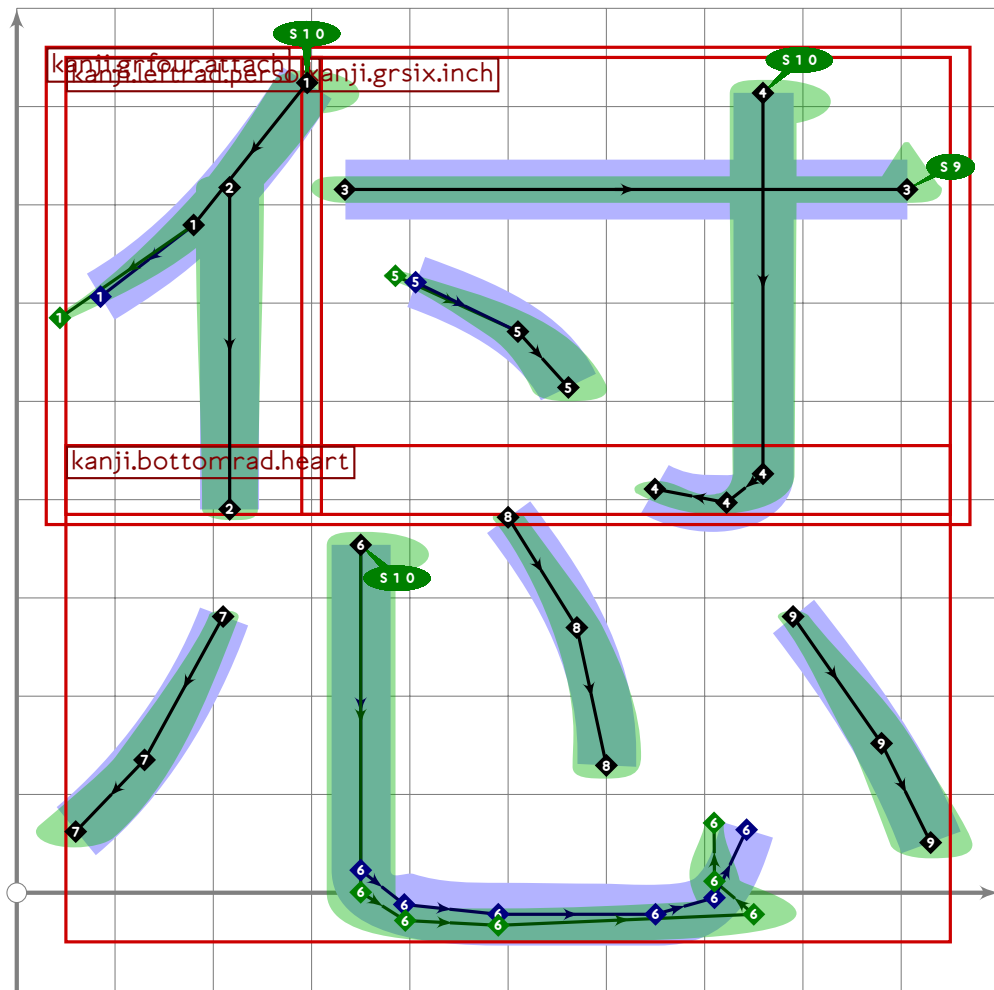
```



```

274 % extra
275 begint Suglyph("uni6023",35);
276 build_kanji.level(build_kanji.lr(320,0)
277   (kanji.leftrad.heart)
278   (kanji.grfour.disappear));
279 tsu_render;
280 endsuglyph;
281

```



```

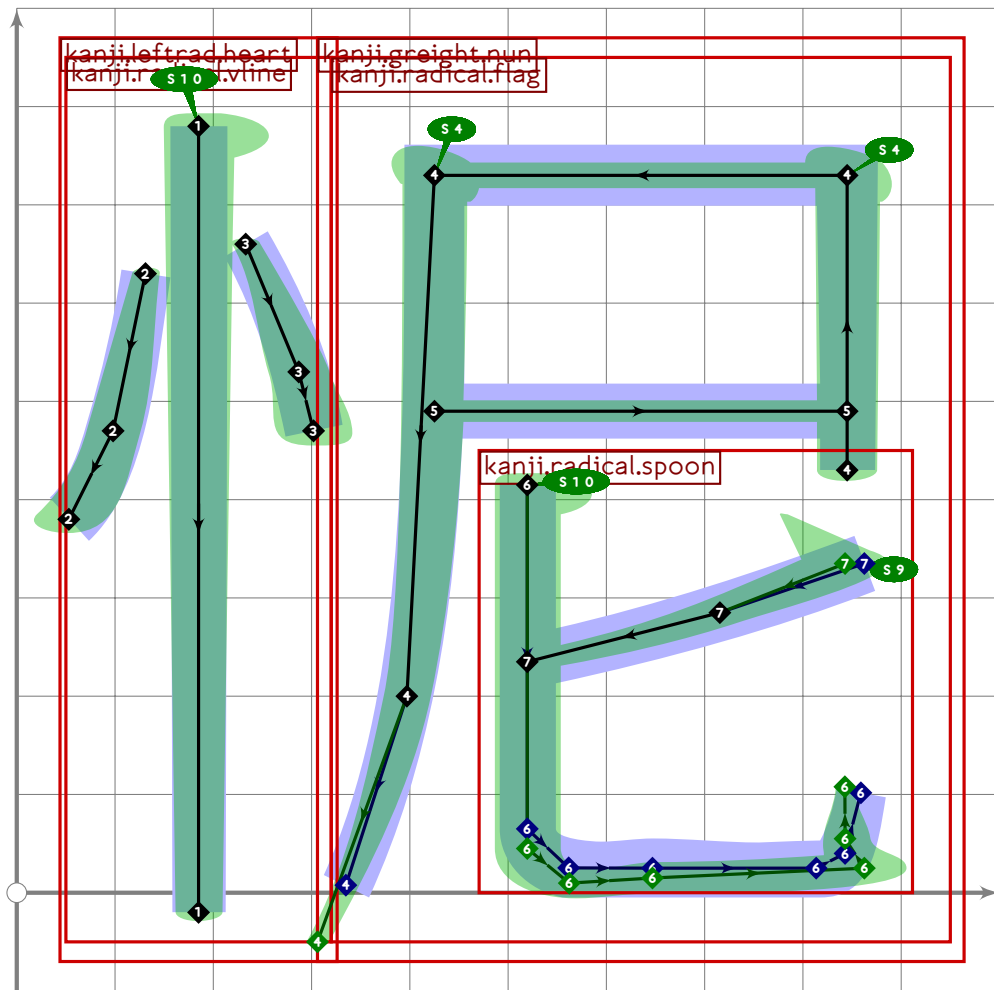
282 % extra
283 begintsuglyph("uni6024",36);
284 build_kanji.level(build_kanji.tb(420,70)
285   (kanji.grfour.attach)
286   (kanji.bottomrad.heart));
287 tsu_render;
288 endsuglyph;
289
290 % kyuu/iso "hurry"
291 begintsuglyph("uni6025",37);
292 kanji.grthree.hurry;
293 tsu_render;
294 endsuglyph;
295
296 % sei/saga "gender"
297 begintsuglyph("uni6027",39);
298 kanji.grfive.gender;
299 tsu_render;
300 endsuglyph;
301

```

[see page 1566]

[see page 1567]



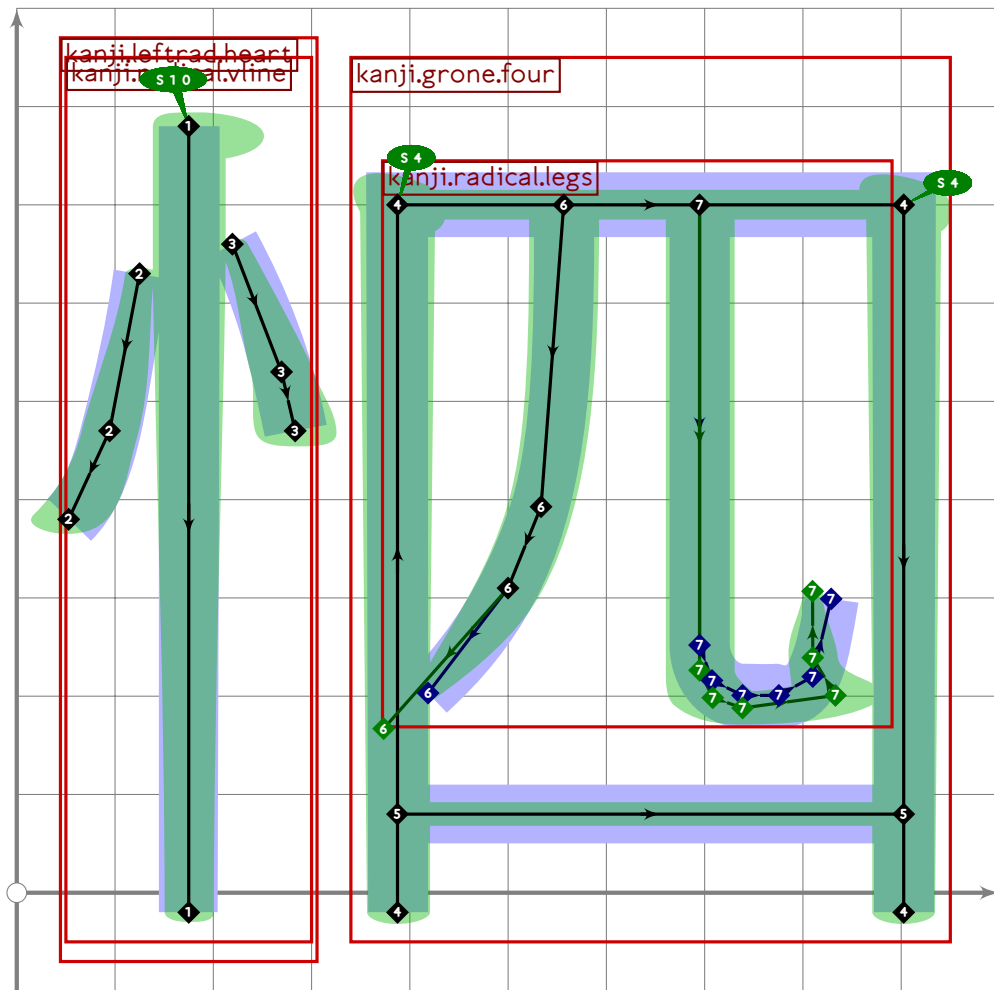


```

302 % extra
303 begintsuglyph("uni6029";41);
304 build_kanji.level(build_kanji.lr(320,0)
305   (kanji.leftrad.heart)
306   (kanji.greight.nun));
307 tsu_render;
308 endsuglyph;
309
310 % kai/aya "suspicious"
311 begintsuglyph("uni602A";42);
312 kanji.greight.suspicious;
313 tsu_render;
314 endsuglyph;
315

```

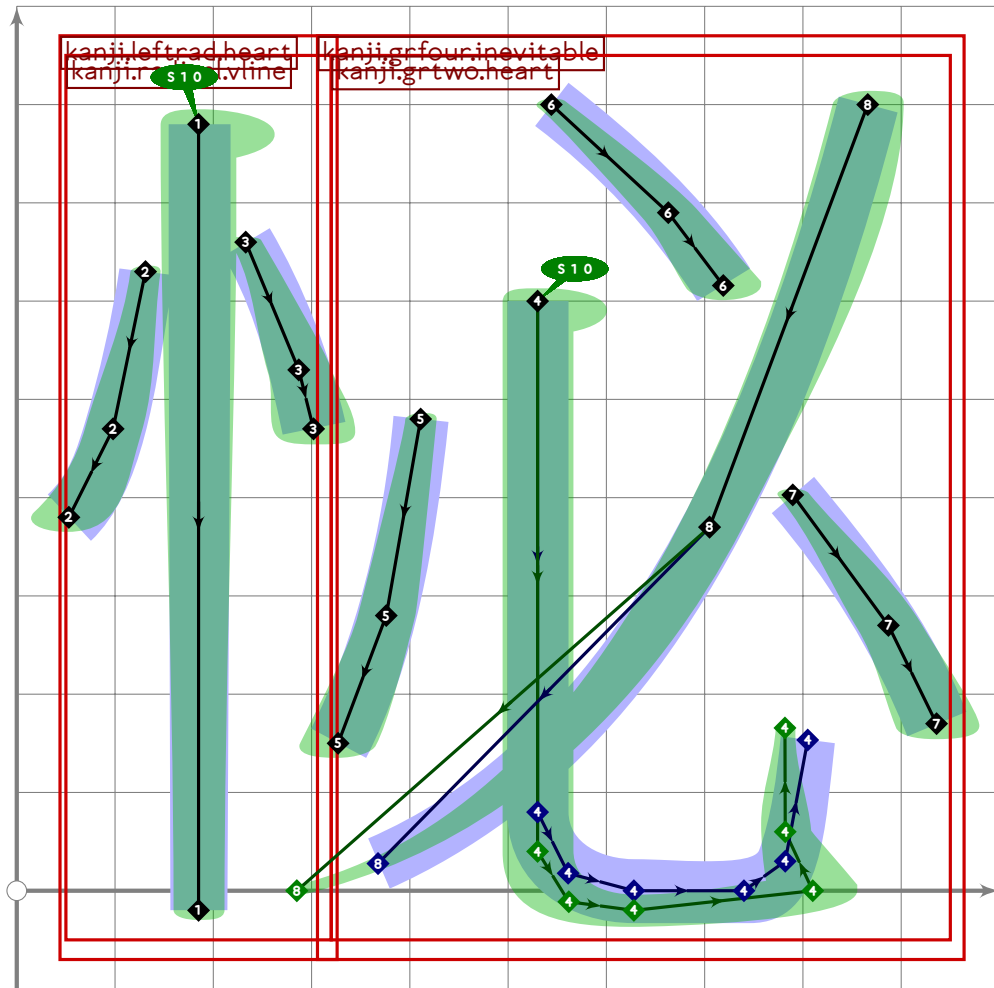
[see page 1571]



```

316 % extra
317 begint Suglyph("uni602C";44);
318 build_kanji.level(build_kanji.lr(320,-40)
319   (kanji.leftrad.heart)
320   (kanji.grone.four));
321 tsu_render;
322 endsuglyph;
323

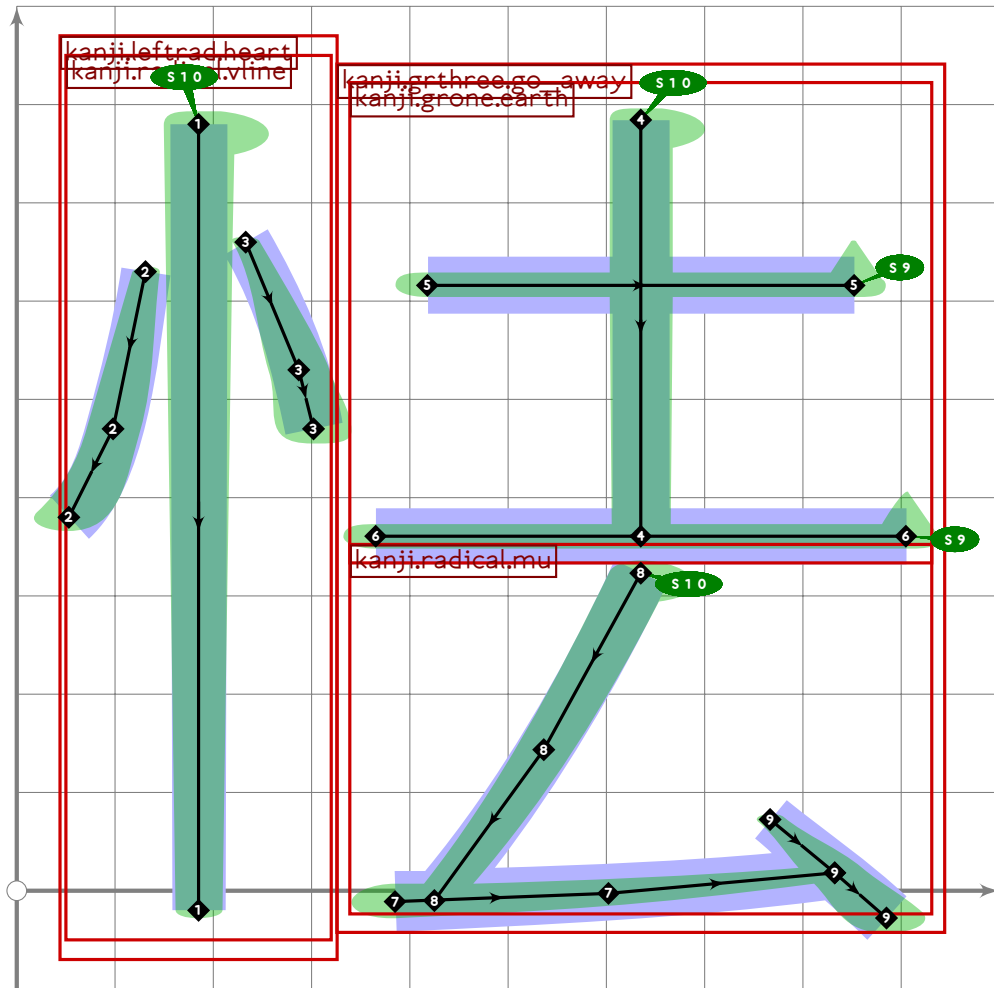
```



```

324 % extra
325 beginsuglyph("uni602D";45);
326 build_kanji.level(build_kanji.lr(320,0)
327   (kanji.leftrad.heart)
328   (kanji.grfour.inevitable));
329 tsu_render;
330 endsuglyph;
331

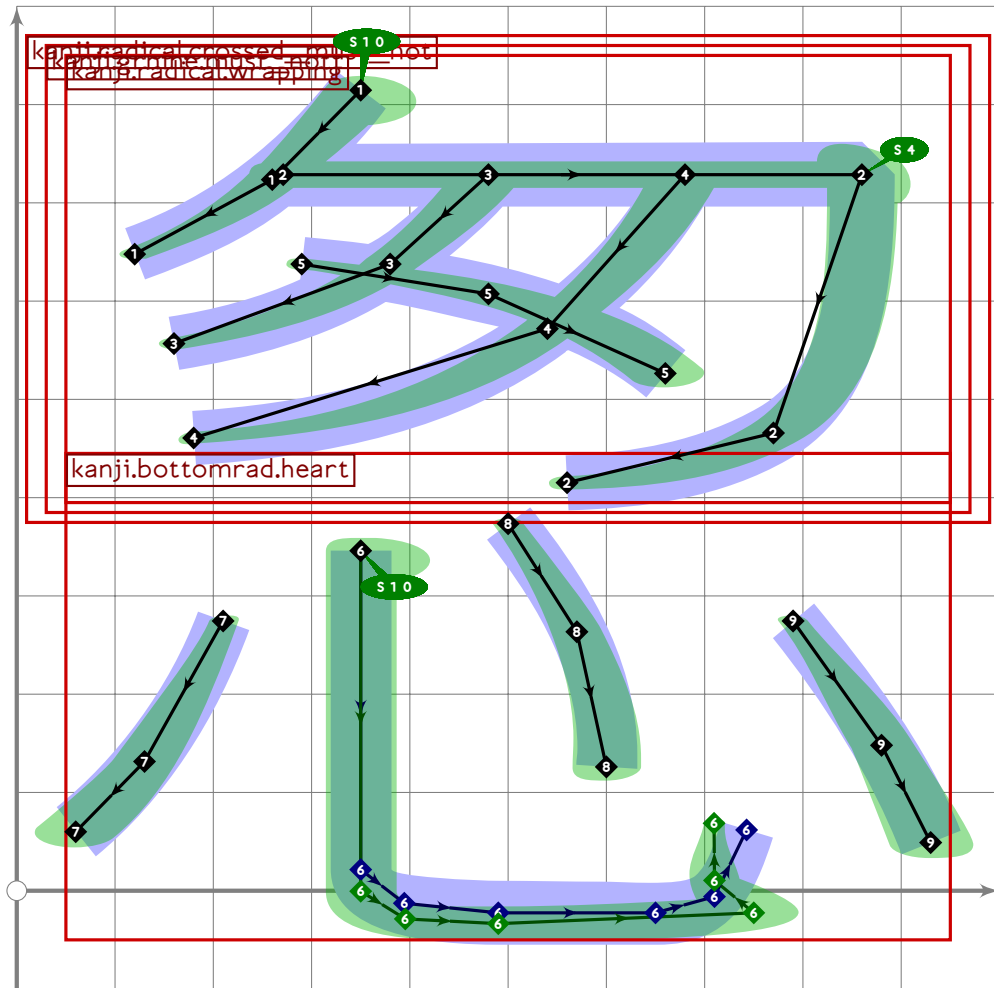
```



```

332 % extra
333 beginsuglyph("uni602F"47);
334 build_kanji.level(build_kanji.lr(320,0)
335   (kanji.leftrad.heart)
336   (build_kanji.sscale(scaled 0.94)(kanji.grthree.go_away)));
337 tsu_render;
338 endsuglyph;
339

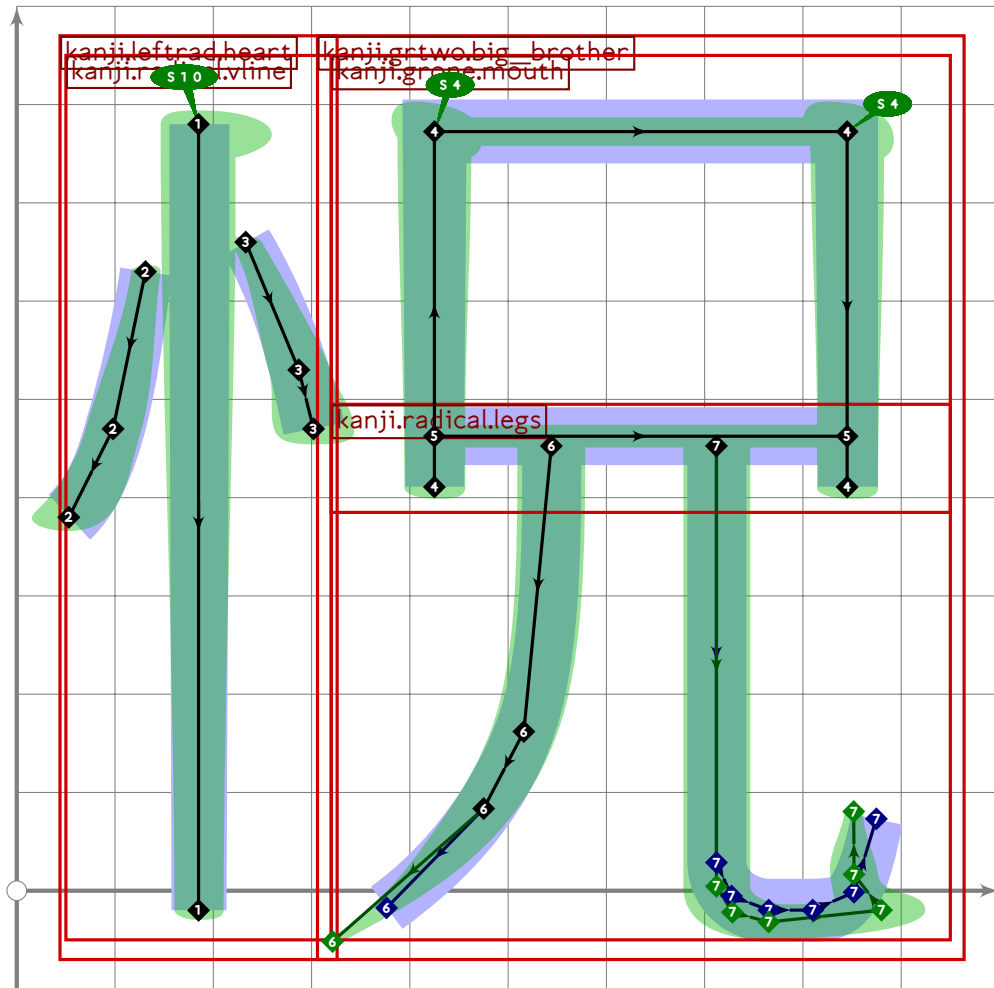
```



```

340 % extra
341 begint Suglyph("uni6031";49);
342 build_kanji.level(build_kanji.tb(420,50)
343   (kanji.radical.crossed_must_not)
344   (kanji.bottomrad.heart));
345 tsu_render;
346 endtsuglyph;
347

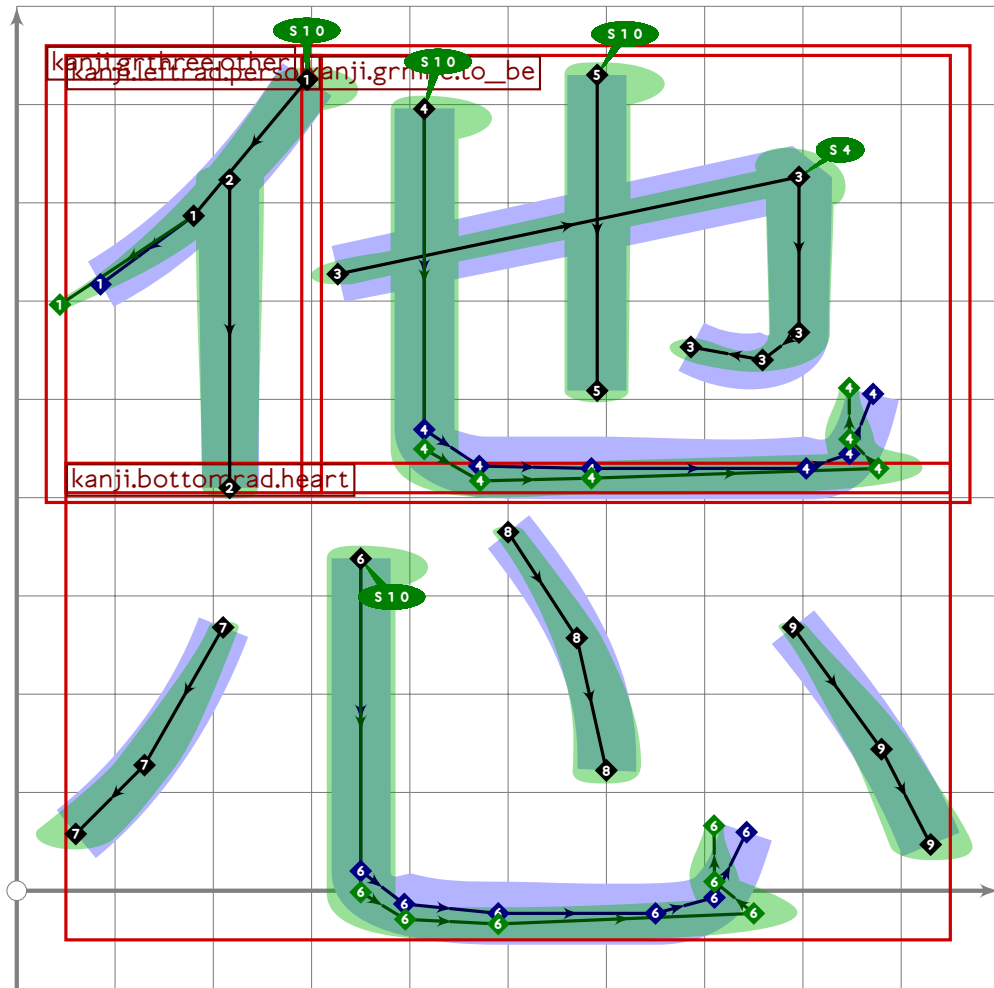
```



```

348 % extra
349 begint Suglyph("uni6033",51);
350 build_kanji.level(build_kanji.lr(320,0)
351   (kanji.leftrad.heart)
352   (kanji.grtwo.big_brother));
353 tsu_render;
354 endsuglyph;
355

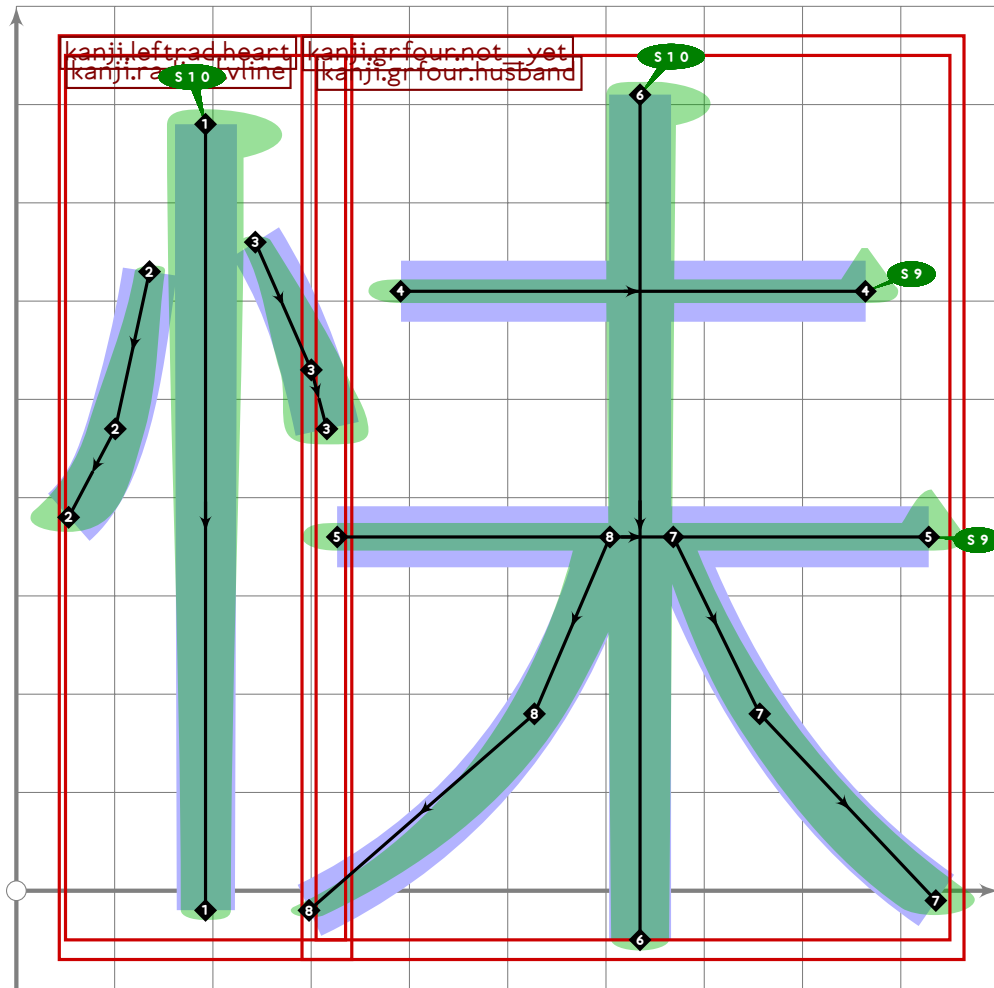
```



```

356 % extra
357 begint Suglyph("uni6039",57);
358 build_kanji.level(build_kanji.tb(420,30)
359   (kanji.grthree.other)
360   (kanji.bottomrad.heart));
361 tsu_render;
362 endsuglyph;
363

```

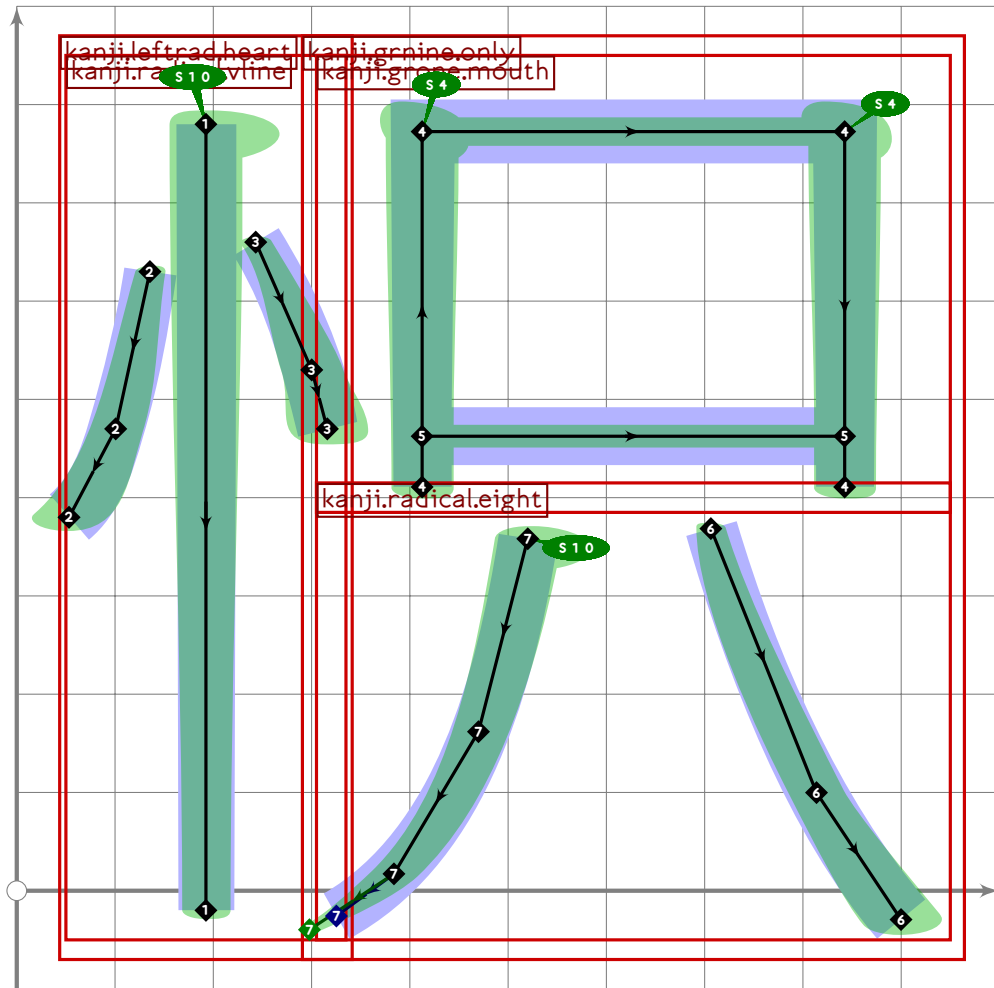


```

364 % extra
365 begintsuglyph("uni603D",61);
366 build_kanji.level(build_kanji.lr(320,30)
367   (kanji.leftrad.heart)
368   (kanji.grfour.not_yet));
369 tsu_render;
370 endsuglyph;
371

```

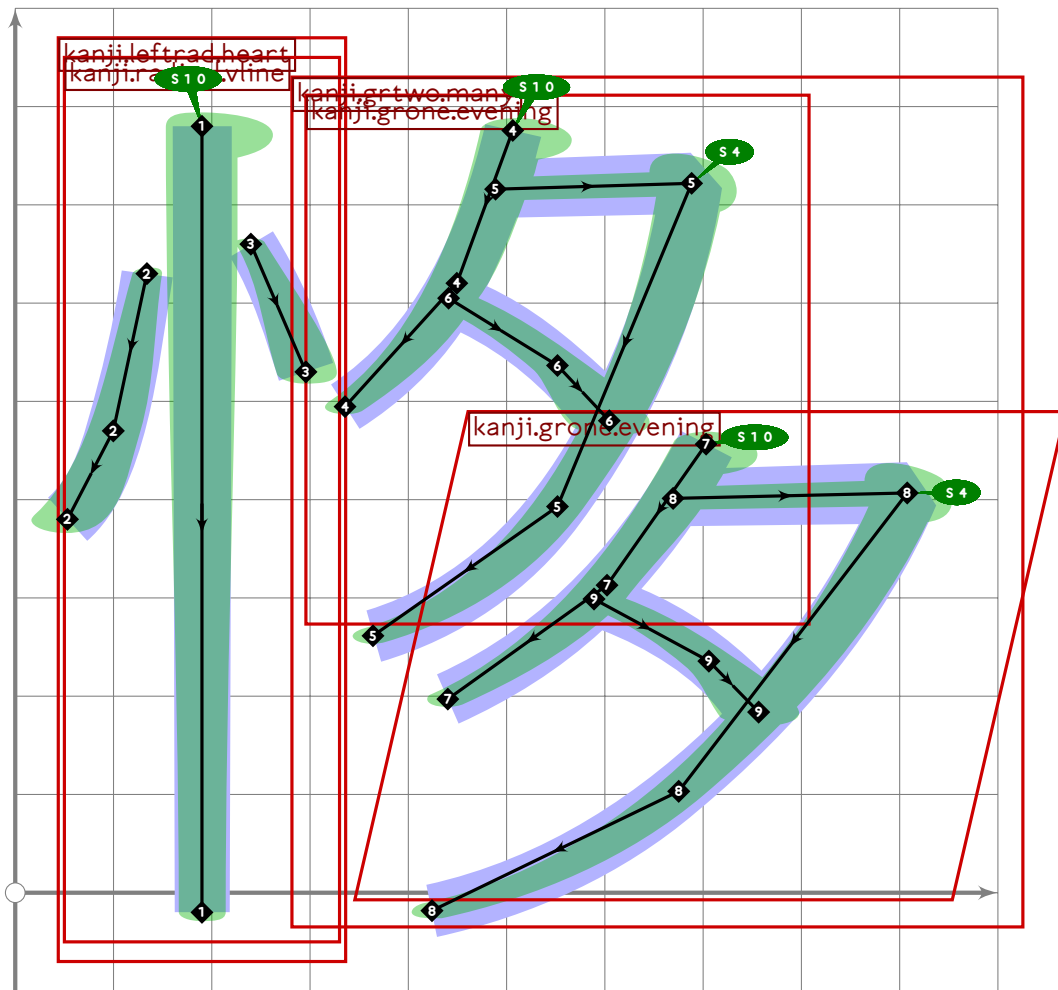




```

372 % extra
373 beginsuglyph("uni603E",62);
374 build_kanji.level(build_kanji.lr(320,30)
375   (kanji.leftrad.heart)
376   (kanji.grnine.only));
377 tsu_render;
378 endsuglyph;
379

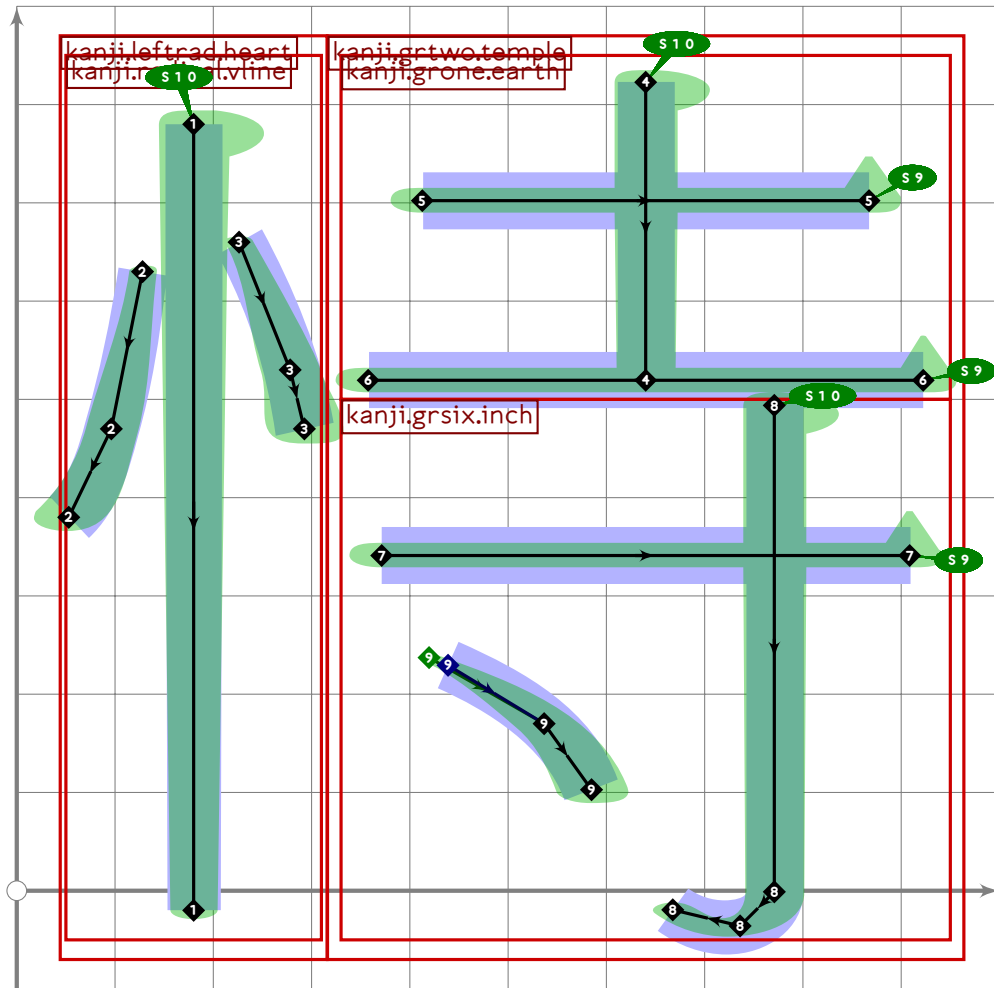
```



```

380 % extra
381 begint Suglyph("uni6040",64);
382 build_kanji.level(build_kanji.lr(320,20)
383   (kanji.leftrad.heart;
384     replace_stroke(0)(subpath (0,1) of oldp);
385     replace_strokeq(0)(subpath (0,1) of oldq))
386   (build_kanji.scale(yscaled 0.92 shifted (0,-20))(kanji.grtwo.many)));
387 tsu_render;
388 endsuglyph;
389

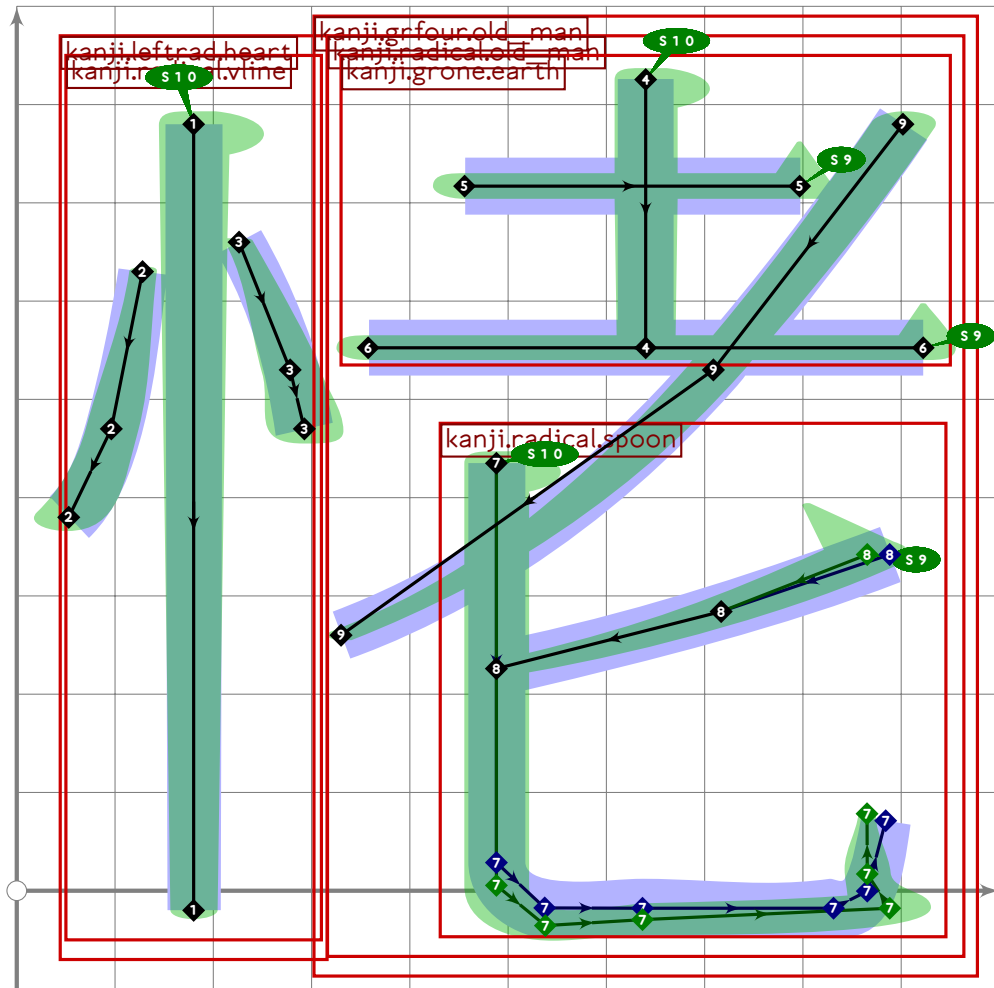
```



```

390 % extra
391 begint Suglyph("uni6043",67);
392 build_kanji.level(build_kanji.lr(320,-20)
393   (kanji.leftrad.heart)
394   (kanji.grtwo.temple));
395 tsu_render;
396 endsuglyph;
397

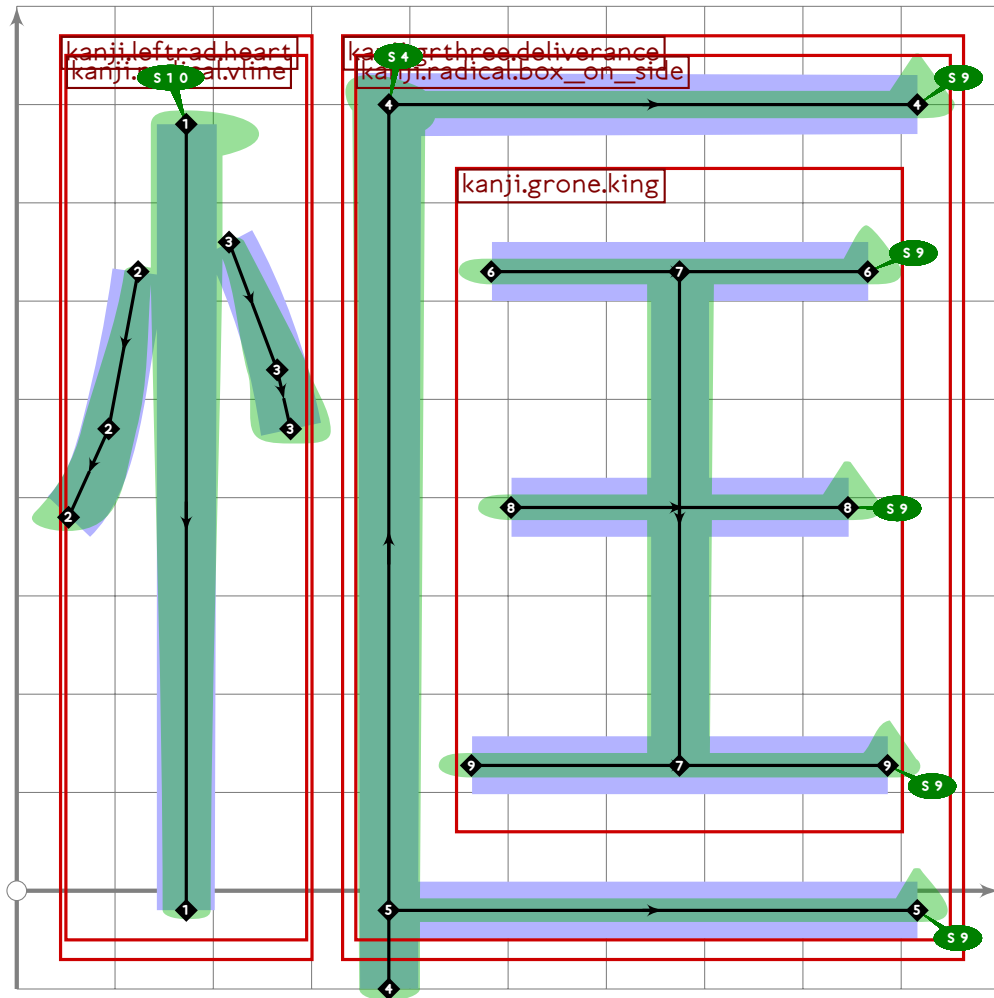
```



```

398 % extra
399 begint Suglyph("uni6045",69);
400 build_kanji.level(build_kanji.lr(320,-20)
401   (kanji.leftrad.heart)
402   (kanji.grfour.old_man));
403   tsu_render;
404   endtsuglyph;
405

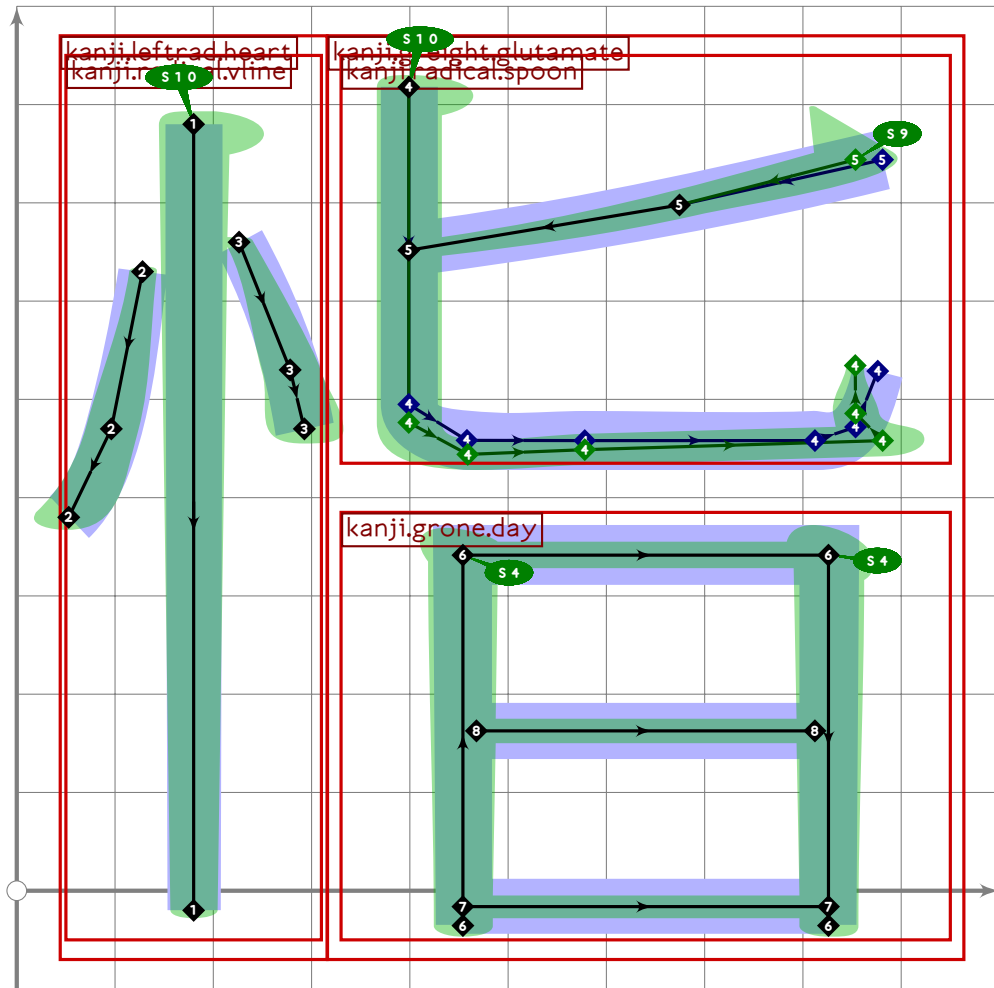
```



```

406 % extra
407 beginsuglyph("uni6047";71);
408   build_kanji.level(build_kanji.lr(320,-50)
409     (kanji.leftrad.heart)
410     (kanji.grnine.deliverance));
411   tsu_render;
412 endsuglyph;
413

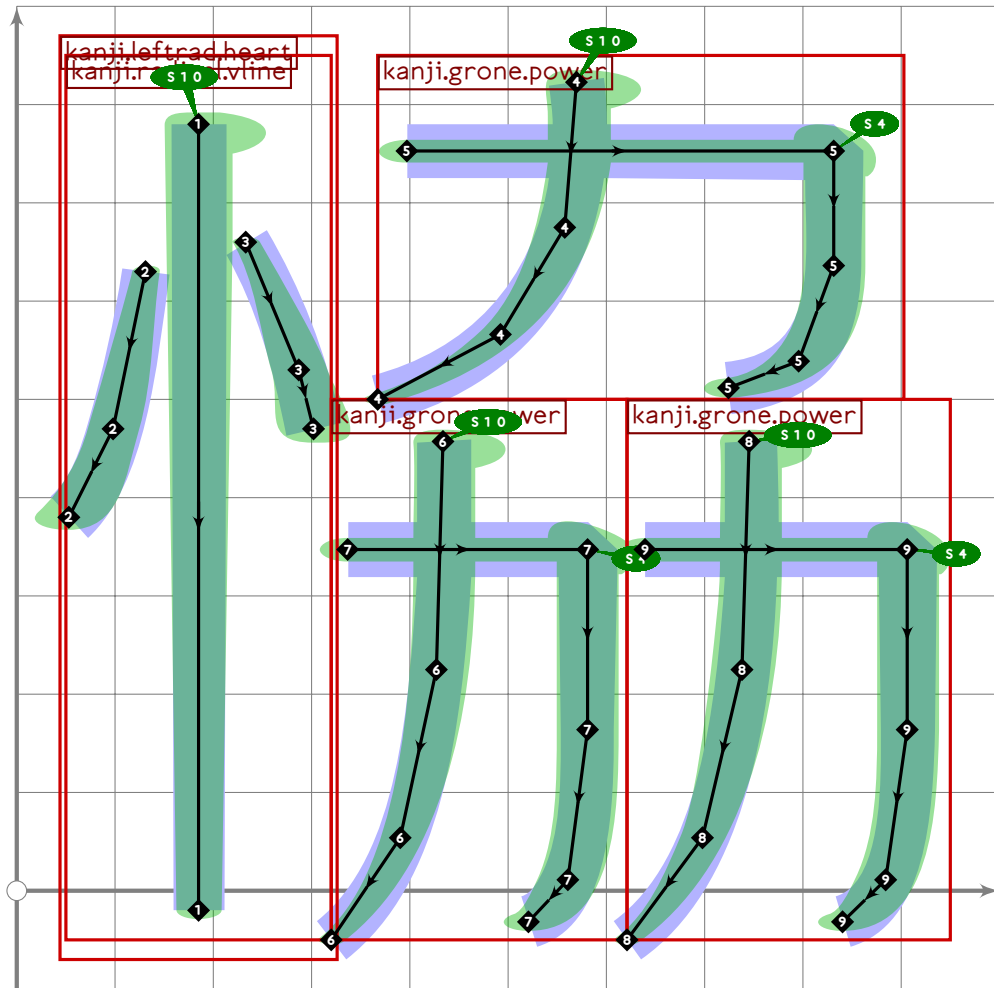
```



```

414 % extra
415 begint Suglyph("uni6049";73);
416 build_kanji.level(build_kanji.lr(320,-20)
417   (kanji.leftrad.heart)
418   (kanji.greight.glutamate));
419 tsu_render;
420 endsuglyph;
421

```

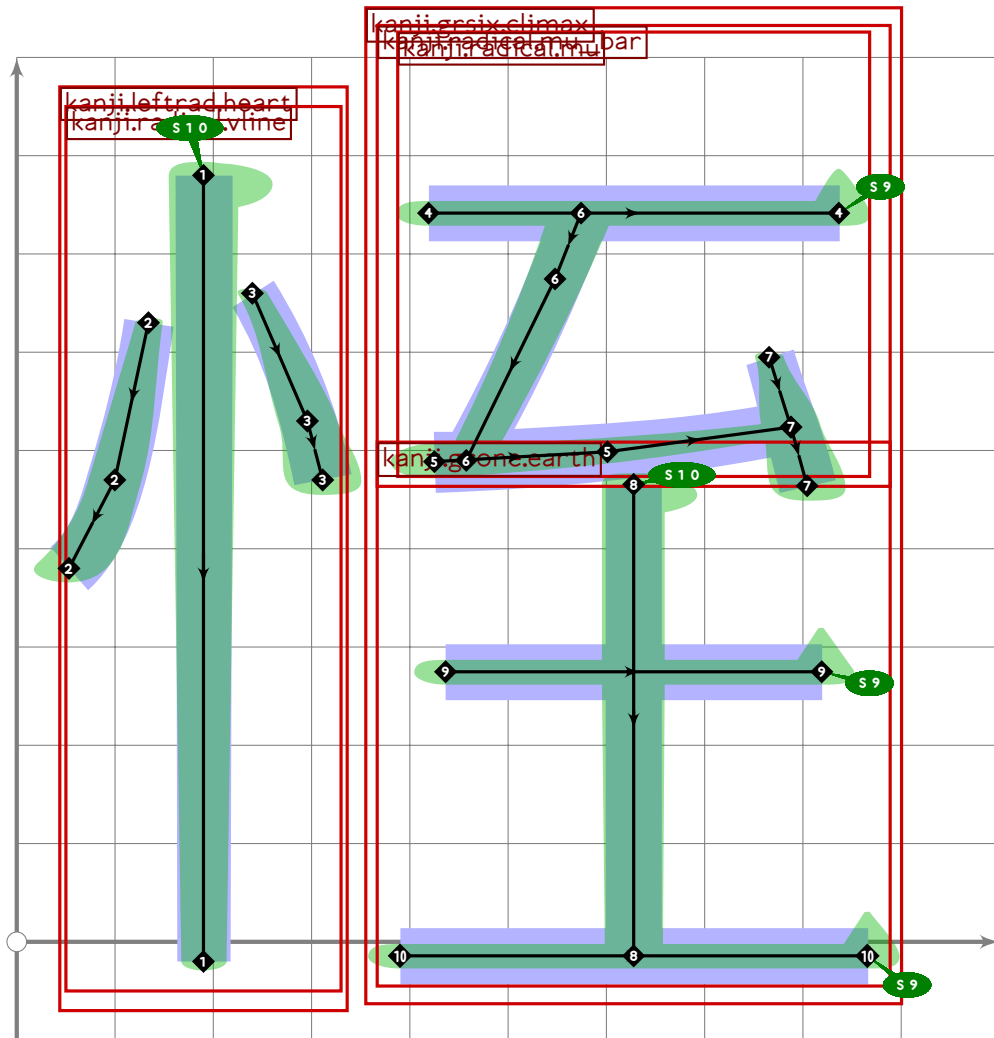


```

422 % extra
423 begintsuglyph("uni604A";74);
424 build_kanji.level(build_kanji.lr(320,0)
425   (kanji.leftrad.heart)
426   (build_kanji.triclust(0.85)
427     (kanji.grone.power)
428     (kanji.grone.power)
429     (kanji.grone.power)));
430 tsu_render;
431 endtsuglyph;
432
433 % koi/ren "love" ("take" side of "give and take")
434 begintsuglyph("uni604B";75);
435 kanji.greight.desire;
436 tsu_render;
437 endtsuglyph;
438

```

[see page 1569]

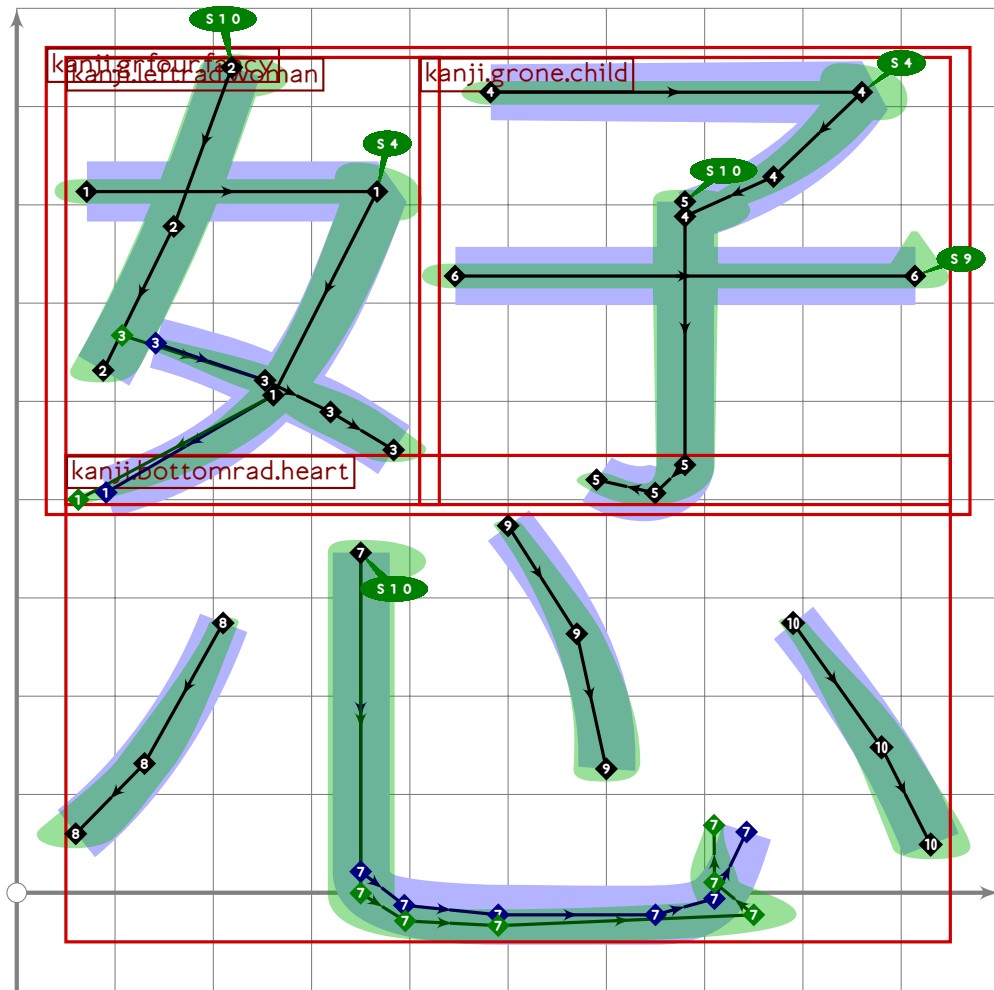


```

439 % extra
440 \begin{suglyph}{\uni604E}{78};
441   \build_kanji.level(\build_kanji.lr(350,-40)
442     (\kanji.leftrad.heart)
443     (\tsu_xform(identity scaled 0.9)(\kanji.grsix.climax)));
444   \tsu_render;
445 \end{suglyph};
446

```

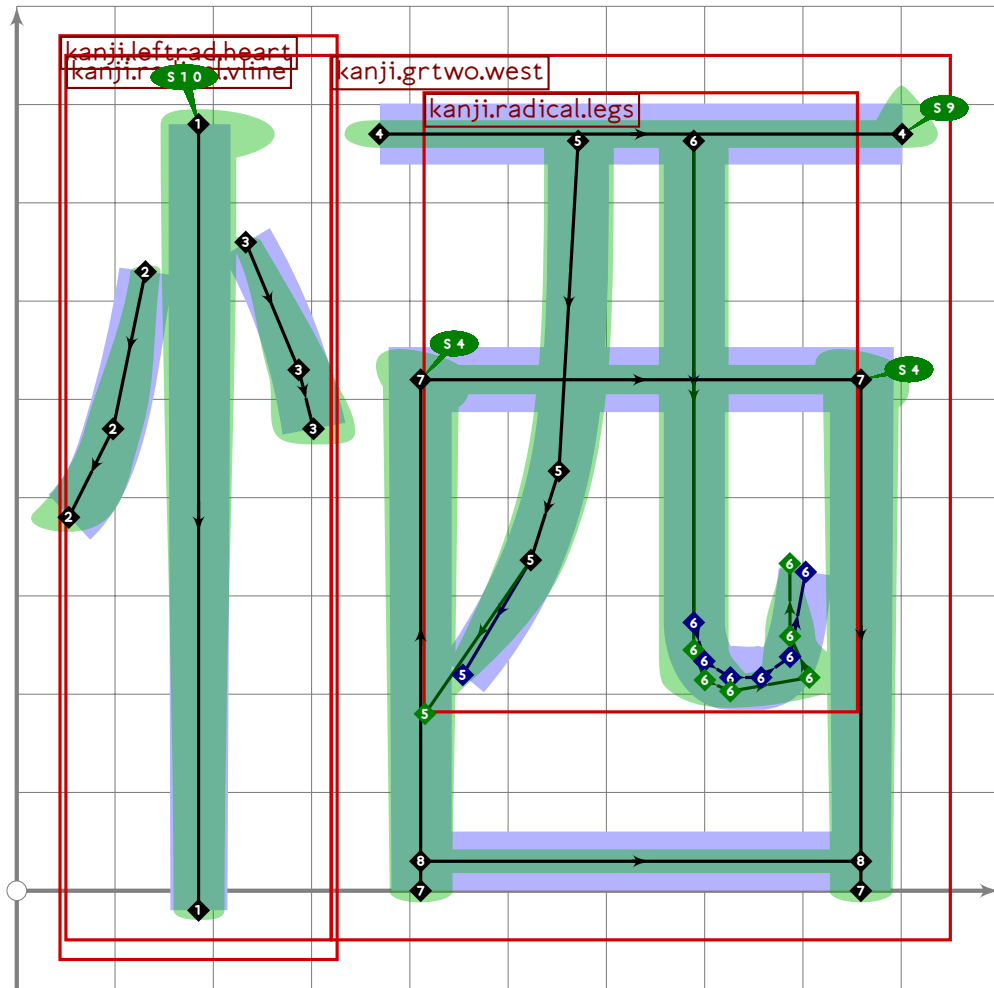




```

447 % extra
448 begint Suglyph("uni604F";79);
449 build_kanji.level(build_kanji.tb(420,50)
450   (kanji.grfour.fancy)
451   (kanji.bottomrad.heart));
452 tsu_render;
453 endtsuglyph;
454

```



```

455 % extra
456 begintsuglyph("uni6053",83);
457 build_kanji.level(build_kanji.lr(320,0)
458   (kanji.leftrad.heart)
459   (kanji.grtwo.west));
460 tsu_render;
461 endsuglyph;
462
463 % soku/iki "breath"
464 begintsuglyph("uni606F",111);
465 kanji.grthree.breath;
466 tsu_render;
467 endsuglyph;
468
469 % sou/omo "concept"
470 begintsuglyph("uni60F3",243);
471 kanji.grthree.concept;
472 tsu_render;
473 endsuglyph;
474
475

```

[see page 1564]

[see page 1565]

476

477 **endfont;**

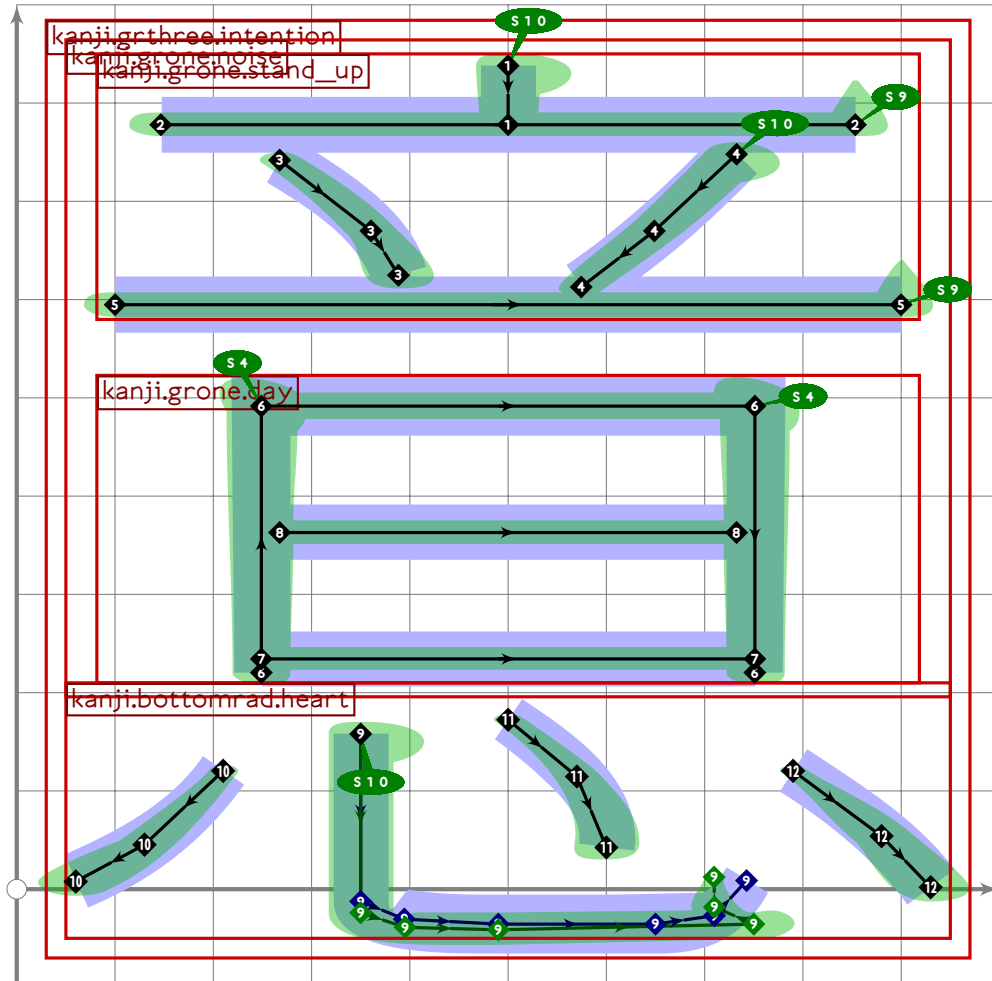
478

479

---

# tsuku-61.mp

```
1 %  
2 % Unicode page 61 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input bottomrad.mp;  
37 input buildkanji.mp;  
38 input gradefive.mp;  
39 input gradeone.mp;  
40 input radical.mp;  
41  
42 _____
```

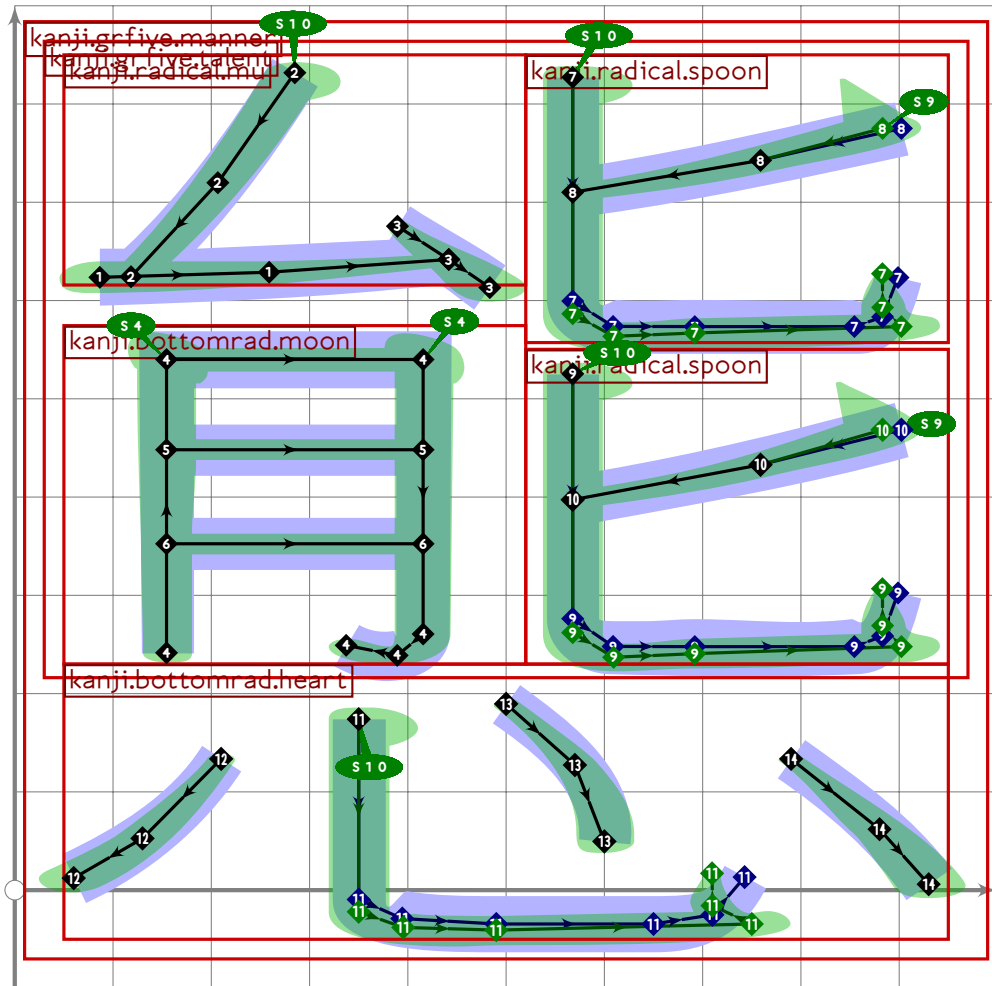


43

```

44 vardef kanji.grthree.intention =
45   push_pbox_toexpand("kanji.grthree.intention");
46   build_kanji.level(build_kanji.tb(210,0)
47     (kanji.grone.noise)
48     (kanji.bottomrad.heart));
49   expand_pbox;
50 enddef;
51
52

```



```

53
54 vardef kanji.grfive.manner =
55   push_pbox_toexpand("kanji.grfive.manner");
56   build_kanji.level(build_kanji.tb(230,0)
57     (kanji.grfive.talent)
58     (kanji.bottomrad.heart));
59   expand_pbox;
60 enddef;
61
62
63
64 % i/moto "intention"

```

```
65 begintsuglyph\("uni610F";15\); [see page 1609]
66 kanji.grthree.intention;
67 tsu\_render;
68 endtsuglyph;
69
70 % tai/waza "manner"
71 begintsuglyph\("uni614B";75\); [see page 1609]
72 kanji.grfive.manner;
73 tsu\_render;
74 endtsuglyph;
75
76 

---


77
78 endfont;
79
80 

---


```

Part V

U+6200 to U+75FF





# tsuku-62.mp

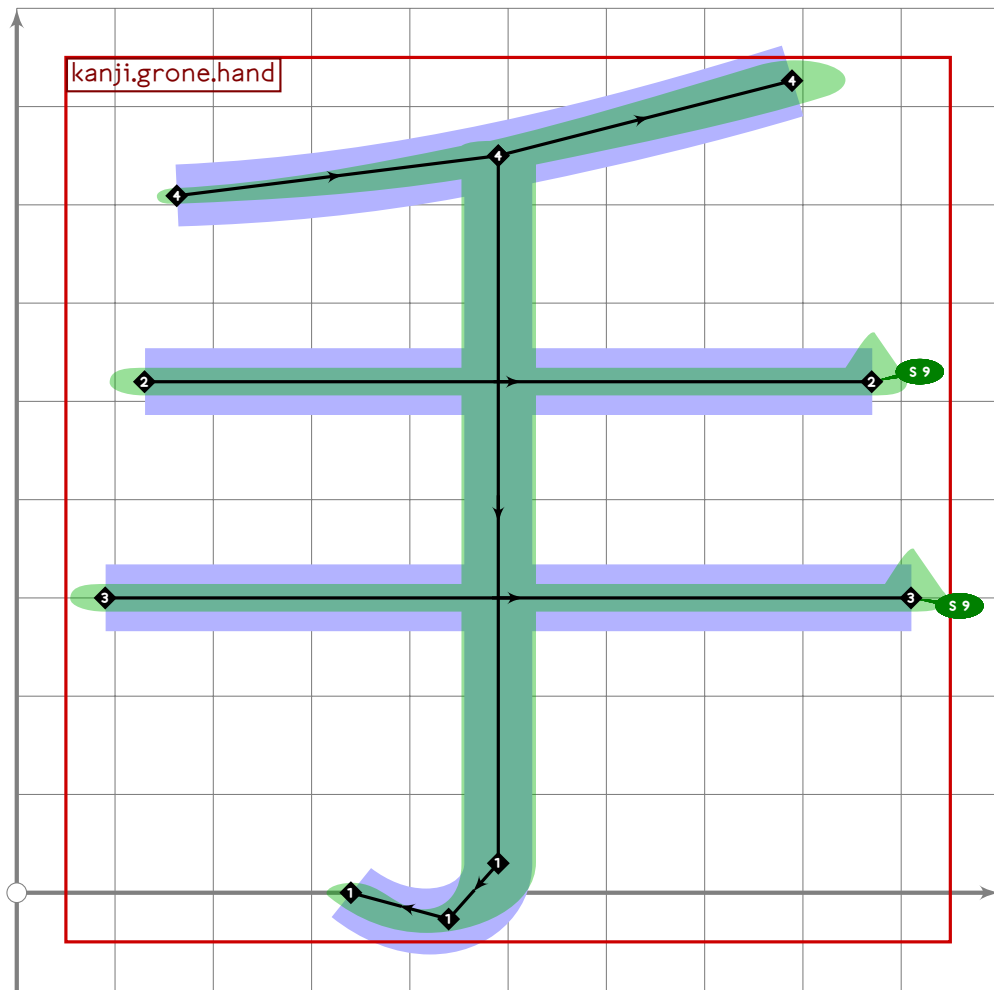
```
1 %
2 % Unicode page 62 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradeone.mp;
39 input gradethree.mp;
40 input gradetwo.mp;
41 input leftrad.mp;
42 input radical.mp;
43
44 

---

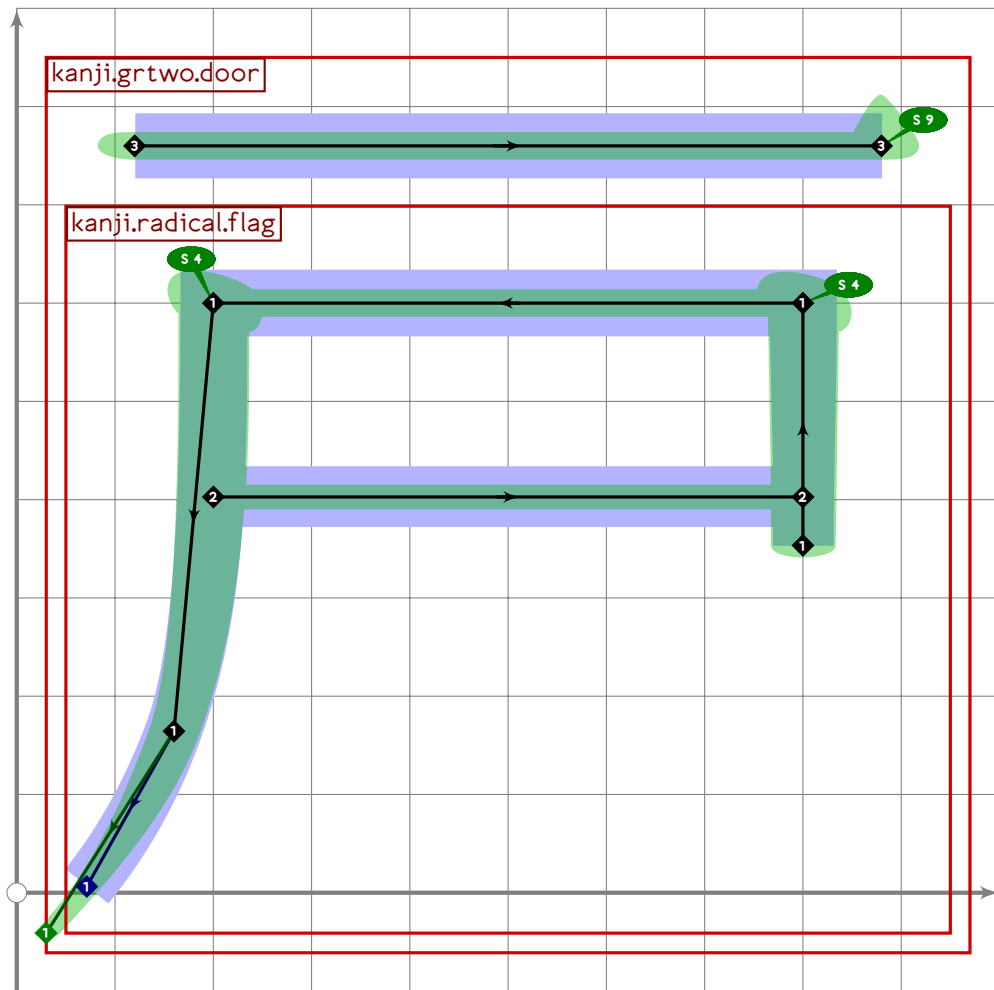

```



```

45
46 vardef kanji.grone.hand =
47   push_pbox_toexpand("kanji.grone.hand");
48   build_kanji.add_beret(
49     push_stroke((490,750),(1.6,1.6));
50     build_kanji.add_jtail(0);
51     push_stroke((130,520)-(870,520),(1.5,1.5)-(1.5,1.5));
52     set_boserif(0,1,9);
53     push_stroke((90,300)-(910,300),(1.5,1.5)-(1.5,1.5));
54     set_boserif(0,1,9);
55   );
56   expand_pbox;
57 enddef;
58
59

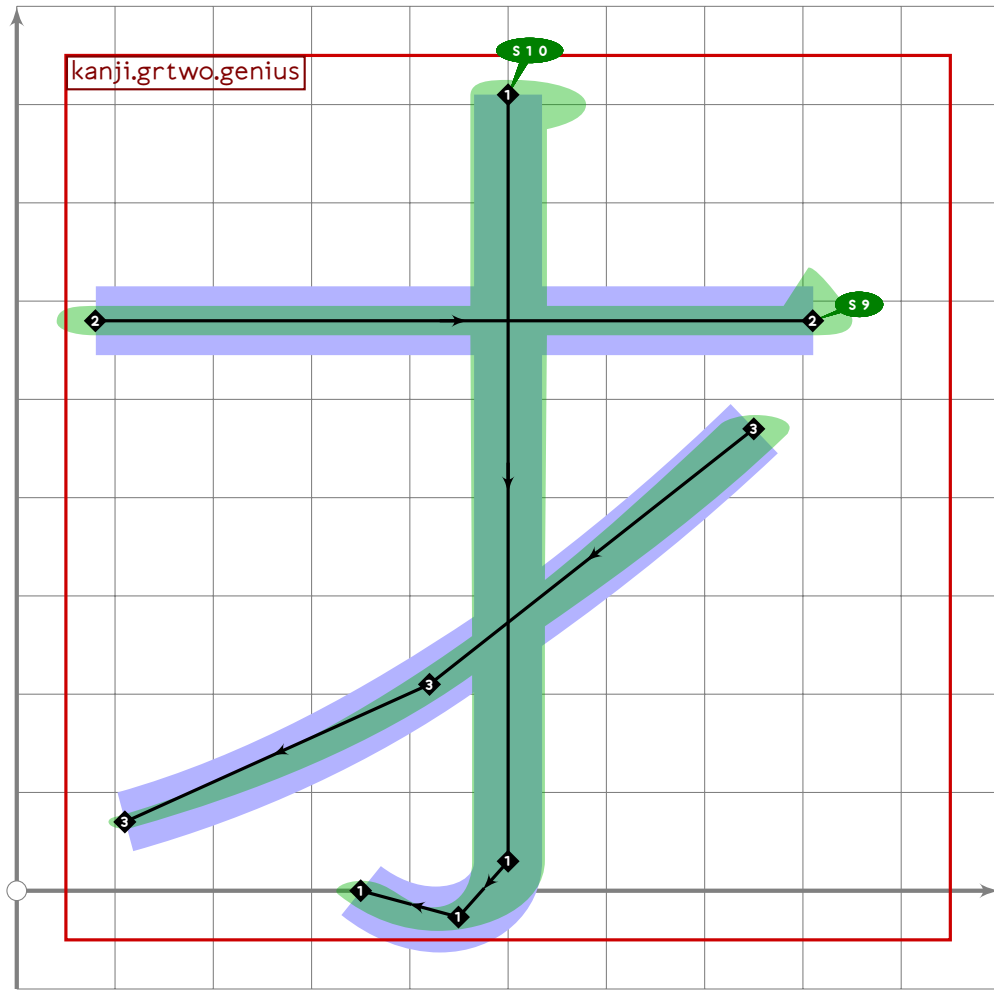
```



```

60
61 vardef kanji.grtwo.door =
62   push_pbox_toexpand("kanji.grtwo.door");
63   tsu_xform(identity yscaled (600/730))(kanji.radical.flag);
64   push_stroke((120,760)-(880,760),(1,6,1,6));
65   set_boserif(0,1,9);
66   set_bosize(0,95);
67   expand_pbox;
68 enddef;

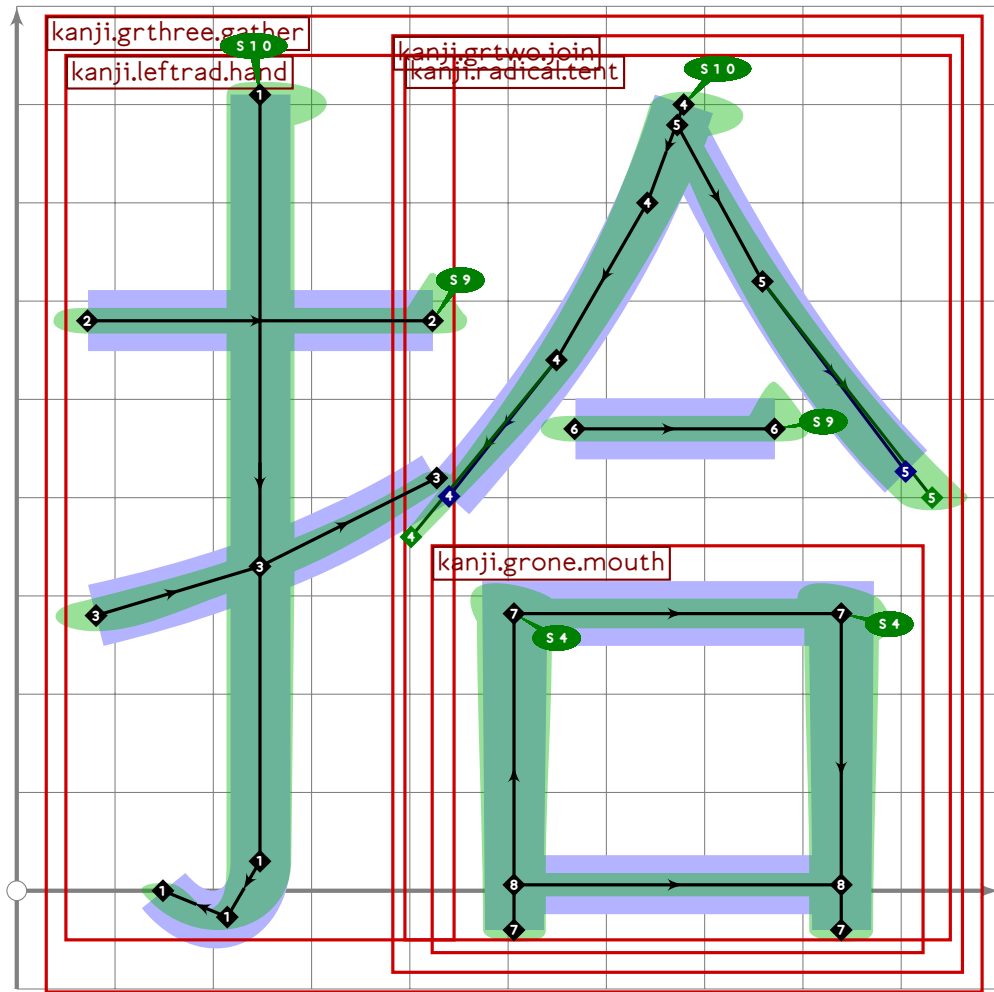
```



```

69
70 vardef kanji.grtwo.genius =
71   push_pbox_toexpand("kanji.grtwo.genius");
72   push_stroke((500,810),(1.6,1.6));
73   build_kanji.add_jtail(0);
74   set_boserif(0,0,10);
75   push_stroke((80,580)-(810,580),(1.6,1.6)-(1.6,1.6));
76   set_boserif(0,1,9);
77   push_stroke((750,470)..tension 1.2..(420,210)..(110,70),
78     (1.5,1.5)-(1.2,1.2)-(1,1));
79   expand_pbox;
80 enddef;
81
82

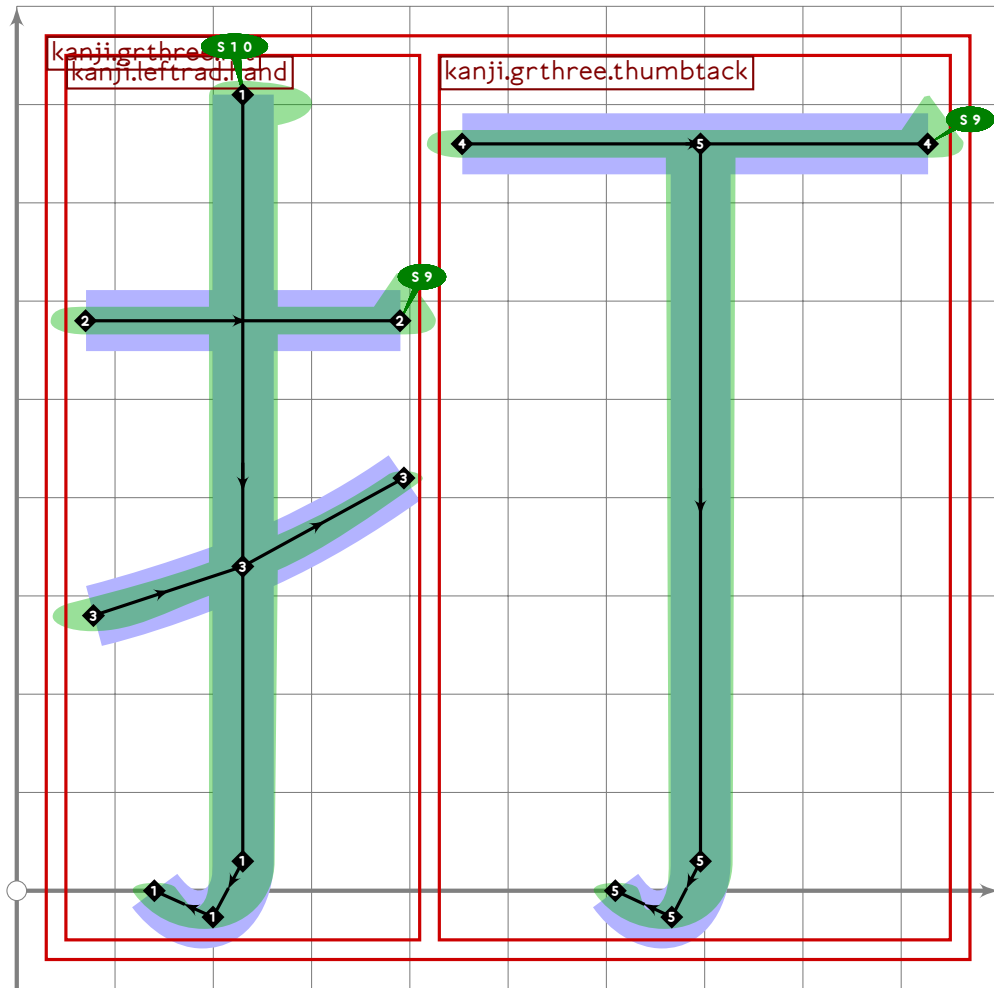
```



```

83
84 vardef kanji.grthree.gather =
85   push_pbox_toexpand("kanji.grthree.gather");
86   build_kanji.level(build_kanji.lr(420,50)
87     (kanji.leftrad.hand)
88     (kanji.grtwo.join));
89   expand_pbox;
90 enddef;

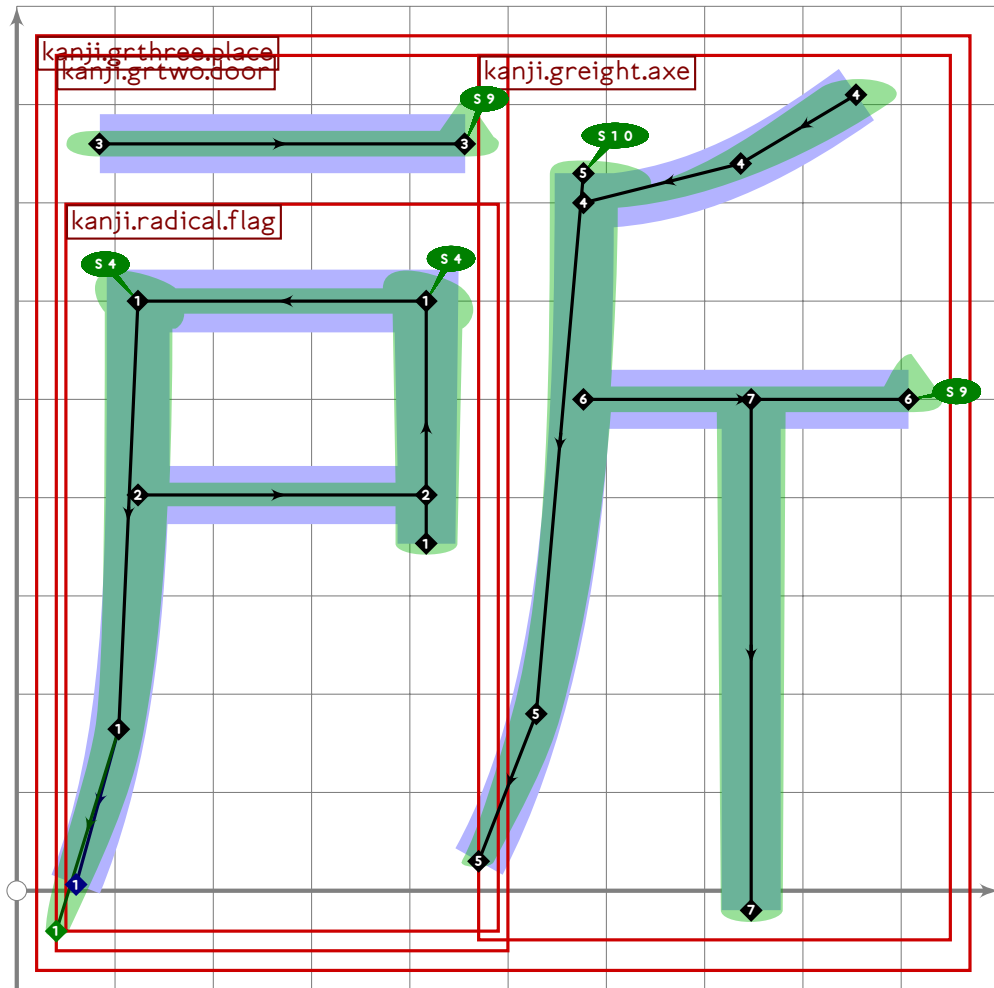
```



```

91
92 vardef kanji.grthree.hit =
93   push_pbox_toexpand("kanji.grthree.hit");
94   build_kanji.level(build_kanji.lr(420,-20)
95     (kanji.leftrad.hand)
96     (kanji.grthree.thumbtack));
97   expand_pbox;
98 enddef;

```



99

```

100 vardef kanji.grthree.place =
101   push_pbox_toexpand("kanji.grthree.place");
102   build_kanji.level(build_kanji.lr(480,20)
103     (kanji.grtwo.door)
104     (kanji.greight.axe));
105   expand_pbox;
106 enddef;

```

107

108

109

```

110 % ko/to "door"
111 begintsuglyph("uni6238",56);
112   kanji.grtwo.door;
113   tsu_render;
114 endtsuglyph;
115

```

[see page 1615]

```

116 % sho/tokoro "place"
117 begintsuglyph("uni6240",64);
118   kanji.grthree.place;
119   tsu_render;

```

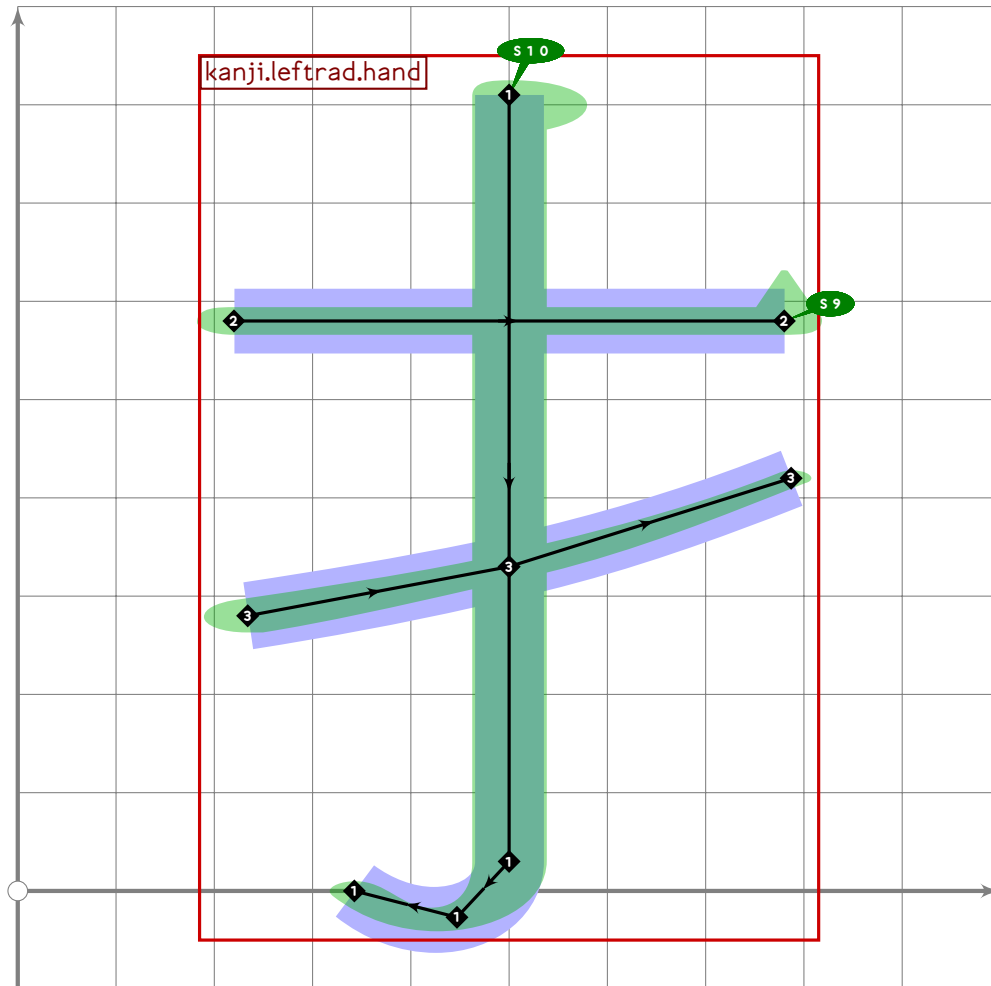
[see page 1619]

```

120 endtsuglyph;
121
122 % te "hand"
123 begintsuglyph("uni624B";75);
124 kanji.grone.hand;
125 tsu_render;
126 endtsuglyph;
127

```

[see page 1614]



```

128 % hand radical
129 begintsuglyph("uni624C";76);
130 build_kanji.sscale(xscaled 0.7)(kanji.leftrad.hand);
131 tsu_render;
132 endtsuglyph;
133
134 % da/u "hit"
135 begintsuglyph("uni6253";83);
136 kanji.grthree.hit;
137 tsu_render;
138 endtsuglyph;
139
140 % sai "genius" or "years of age"

```

[see page 1618]



```
141 begintsuglyph("uni624D";77); [see page 1616]
142 kanji.grtwo.genius;
143 tsu_render;
144 endtsuglyph;
145
146 % shuu/hiro "gather"
147 begintsuglyph("uni62FE";254); [see page 1617]
148 kanji.grthree.gather;
149 tsu_render;
150 endtsuglyph;
151
152 

---


153
154 endfont;
155
156 

---


```

# tsuku-63.mp

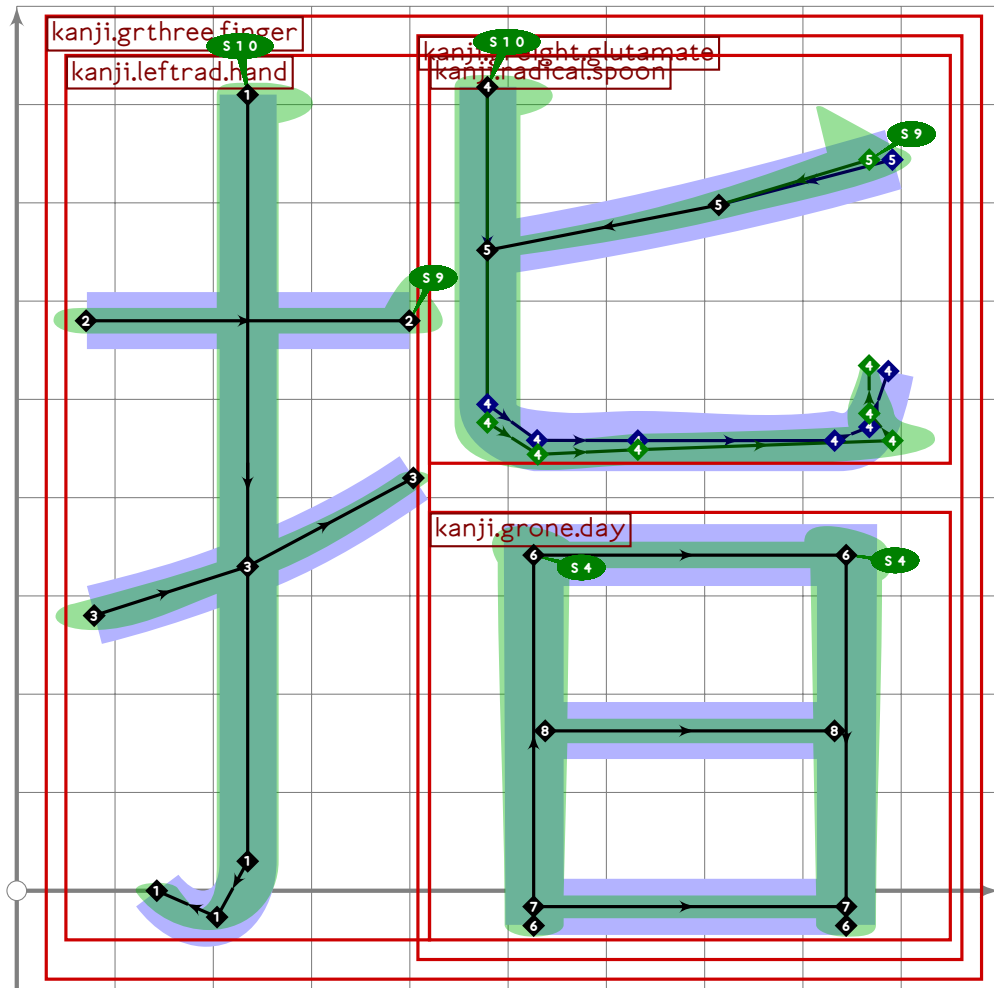
```
1 %
2 % Unicode page 63 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradeone.mp;
39 input gradesix.mp;
40 input gradetwo.mp;
41 input leftrad.mp;
42 input radical.mp;
43 input toprad.mp;
44
45 

---

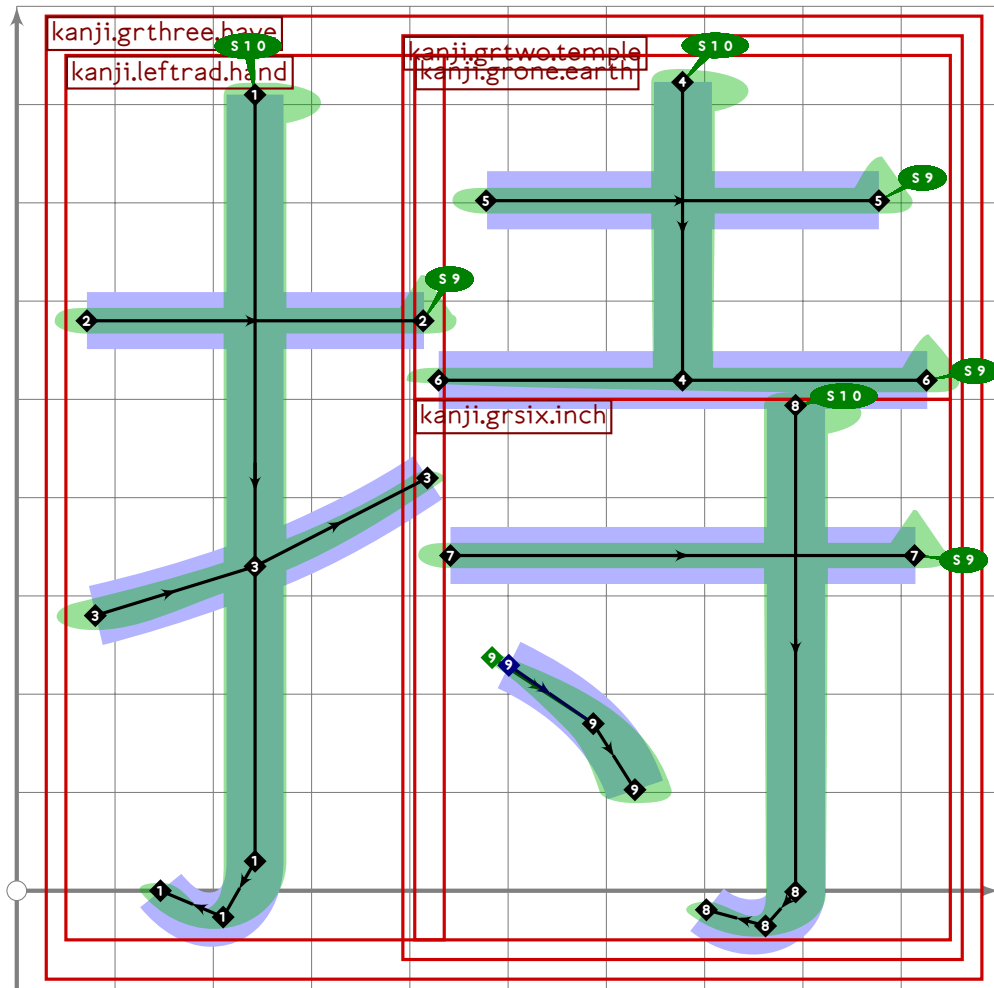

```



```

46
47 vardef kanji.grthree.finger =
48   push_pbox_toexpand("kanji.grthree.finger");
49   build_kanji.level(build_kanji.lr(420,0)
50     (kanji.leftrad.hand)
51     (kanji.greight.glutamate));
52   expand_pbox;
53 enddef;

```



```

54
55 vardef kanji.grthree.have =
56   push_pbox_toexpand("kanji.grthree.have");
57   build_kanji.level(build_kanji.lr(420,30)
58     (kanji.leftrad.hand)
59     (kanji.grtwo.temple));
60   expand_pbox;
61 enddef;
62
63

```



```
84  tsu_render;
85  endtsuglyph;
86
87  % byou/ega "depict"
88  begintsuglyph("uni63CF",207); [see page 1625]
89  kanji.greight.depict;
90  tsu_render;
91  endtsuglyph;
92
93  _____
94
95  endfont;
96
97  _____
```

# tsuku-65.mp

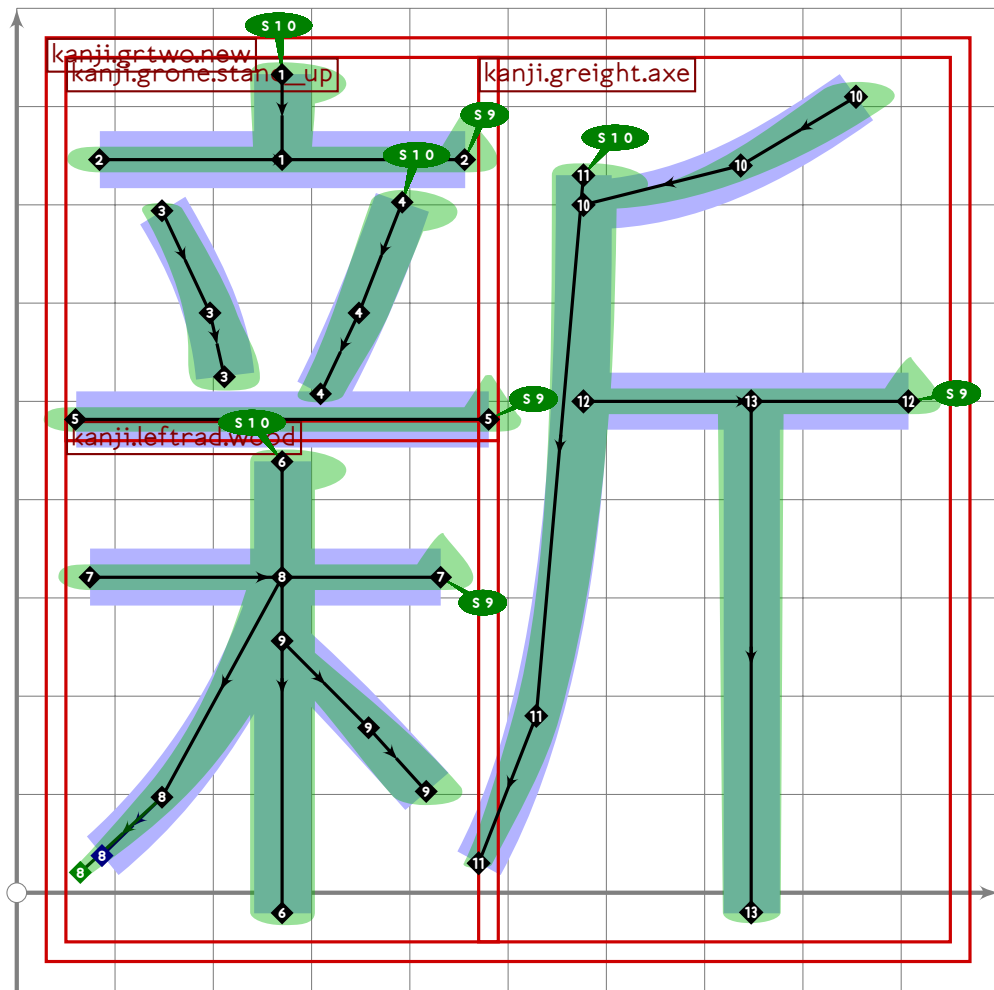
```
1 %
2 % Unicode page 65 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradefive.mp;
39 input gradeone.mp;
40 input gradetwo.mp;
41 input leftrad.mp;
42 input radical.mp;
43 input rare.mp;
44
45 

---


```

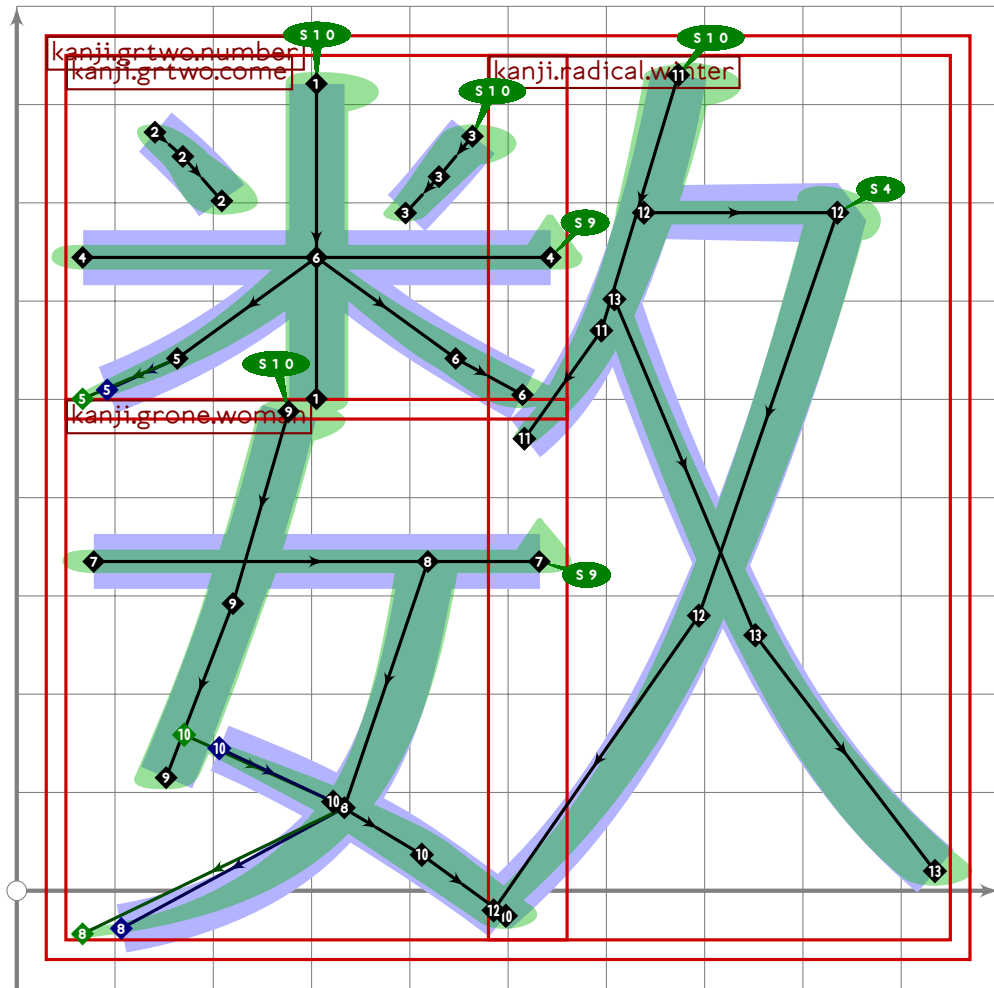


```

46
47 vardef kanji.grtwo.new =
48   push_pbox_toexpand("kanji.grtwo.new");
49   build_kanji.level(build_kanji.lr(480,20)
50     (build_kanji.tb(470,20)
51       (kanji.grone.stand_up)
52       (kanji.leftrad.wood))
53     (kanji.greight.axe));
54   expand_pbox;
55 enddef;

```

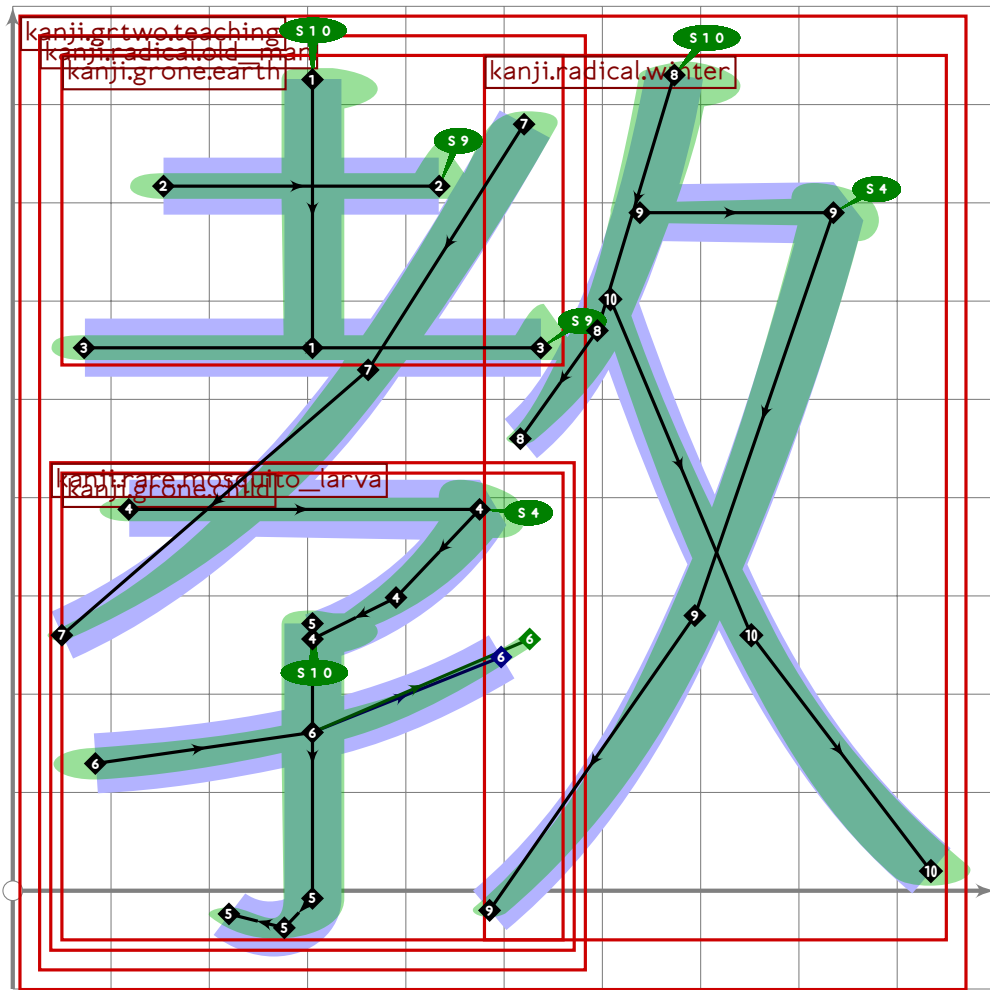




```

56
57 vardef kanji.grtwo.number =
58   push_pbox_toexpand("kanji.grtwo.number");
59   build_kanji.level(build_kanji.lr(520,80)
60     (build_kanji.tb(490,20)
61       (kanji.grtwo.come;
62         set_bosize(-5,0);
63         replace_strokep(-4)(oldp shifted (0,80));
64         replace_strokeq(-4)((1.2,1.2)-(1.4,1.4)-(1.7,1.7));
65         set_bosize(-4,0,whatever);
66         replace_strokep(-3)(oldp shifted (0,60)))
67       (kanji.grone.woman))
68     (kanji.radical.winter));
69   expand_pbox;
70 enddef;

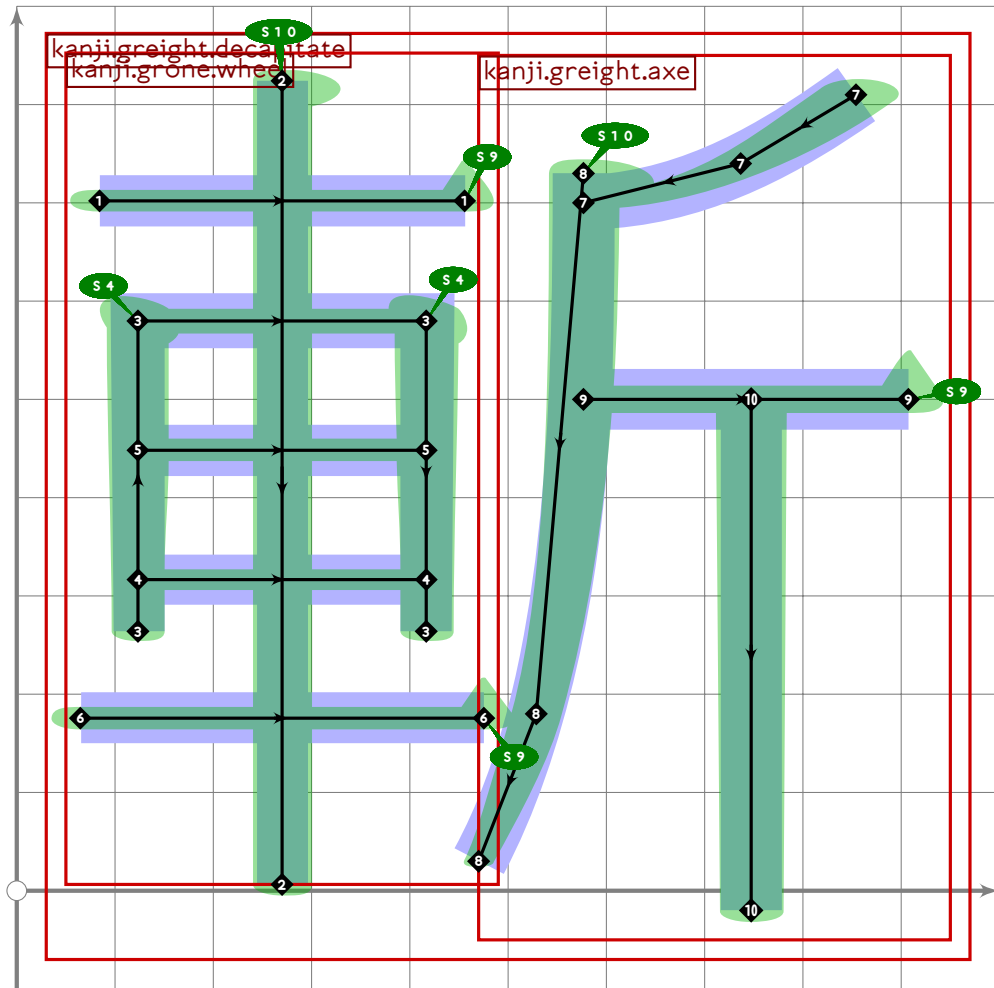
```



```

71
72 vardef kanji.grtwo.teaching =
73   push_pbox_toexpand("kanji.grtwo.teaching");
74   build_kanji.level(build_kanji.lr(520,80)
75     (kanji.radical.old_man(kanji.rare.mosquito_larva))
76     (kanji.radical.winter));
77   expand_pbox;
78 enddef;
79
80

```



```

81
82 vardef kanji.greight.decapitate =
83   push_pbox_toexpand("kanji.greight.decapitate");
84   build_kanji.lr(480,20)
85     (build_kanji.sscale(yscaled 0.94 shifted (0,30))
86       (kanji.grone.wheel))
87     (kanji.greight.axe);
88   expand_pbox;
89 enddef;

```

```

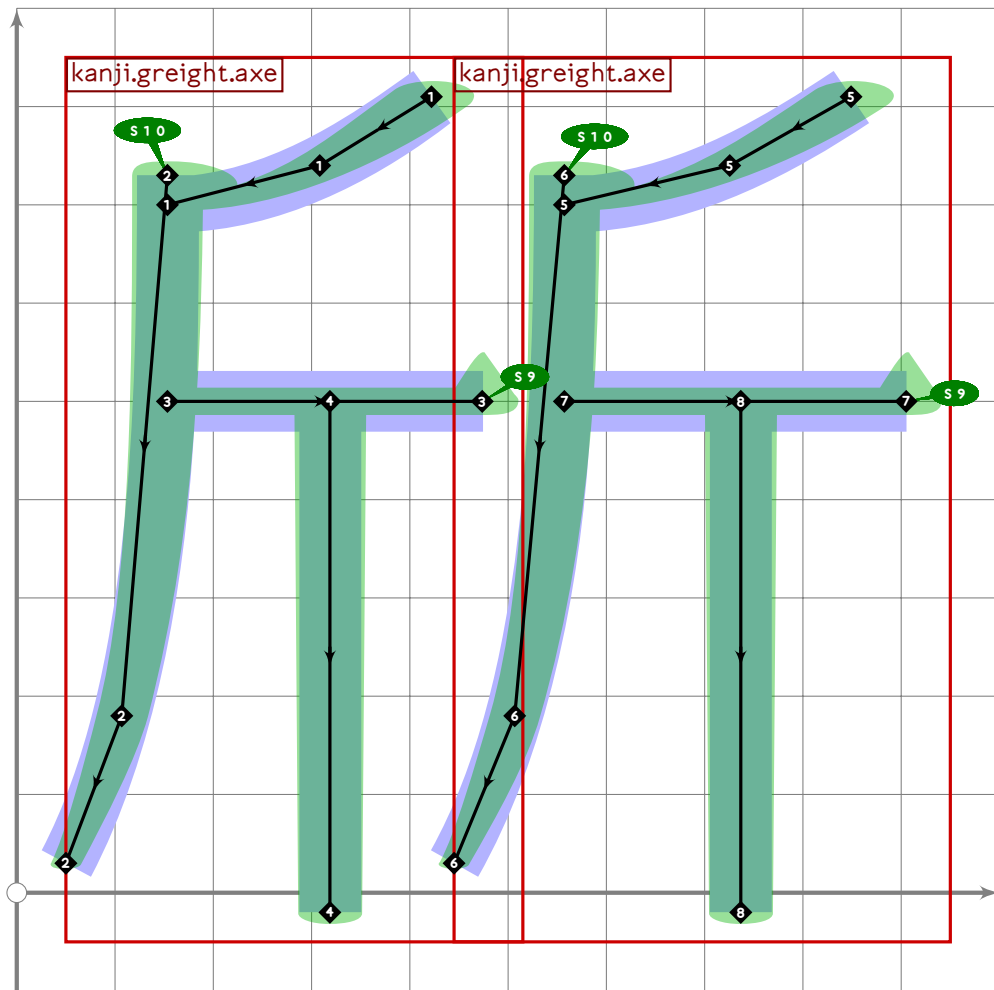
92
93 % shi/sasa "support"
94 begint Suglyph("uni652F",47);
95   kanji.grfive.support;
96   tsu_render;
97 endtsuglyph;
98
99 % kyou/oshi "teaching"
100 begint Suglyph("uni6559",89);
101   kanji.grtwo.teaching;

```

[see page 514]

[see page 1630]

```
102   tsu_render;
103   endtsuglyph;
104
105   % suu/kazu "number"
106   begintsuglyph("uni6570",112); [see page 1629]
107   kanji.grtwo.number;
108   tsu_render;
109   endtsuglyph;
110
111   % bun/fumi "sentence"
112   begintsuglyph("uni6587",135); [see page 408]
113   kanji.grone.sentence;
114   tsu_render;
115   endtsuglyph;
116
117   % to/masu "dipper"
118   begintsuglyph("uni6597",151); [see page 527]
119   kanji.greight.dipper;
120   tsu_render;
121   endtsuglyph;
122
123   % kin/ono "axe"
124   begintsuglyph("uni65A4",164); [see page 524]
125   kanji.greight.axe;
126   tsu_render;
127   endtsuglyph;
128
```



```

129 % extra
130 begintsuglyph("uni65A6";166);
131 build_kanji.level(build_kanji.lr(480,70)
132   (kanji.greight.axe)
133   (kanji.greight.axe));
134 tsu_render;
135 endtsuglyph;
136
137 % zan/ki "decapitate"
138 begintsuglyph("uni65AC";172);
139 kanji.greight.decapitate;
140 tsu_render;
141 endtsuglyph;
142
143 % shin/atara "new"
144 begintsuglyph("uni65B0";176);
145 kanji.grtwo.new;
146 tsu_render;
147 endtsuglyph;
148
149 % hou/kata "direction" or "how to do it"

```

[see page 1631]

[see page 1628]

150 `begintsuglyph("uni65B9",185);` [see page 435]  
151 `kanji.grtwo.direction;`  
152 `tsu_render;`  
153 `endtsuglyph;`  
154  
155 `% hi/nichi "day"`  
156 `begintsuglyph("uni65E5",229);` [see page 375]  
157 `kanji.grone.day;`  
158 `tsu_render;`  
159 `endtsuglyph;`  
160  
161 `% shi/mune/uma "vaguely good" or "uma" in "umami"`  
162 `begintsuglyph("uni65E8",232);` [see page 531]  
163 `kanji.greight.glutamate;`  
164 `tsu_render;`  
165 `endtsuglyph;`  
166  
167 `% hayaku "early"`  
168 `begintsuglyph("uni65E9",233);` [see page 378]  
169 `kanji.grone.early;`  
170 `tsu_render;`  
171 `endtsuglyph;`  
172  
173 

---

  
174  
175 `endfont;`  
176  
177 

---

# tsuku-66.mp

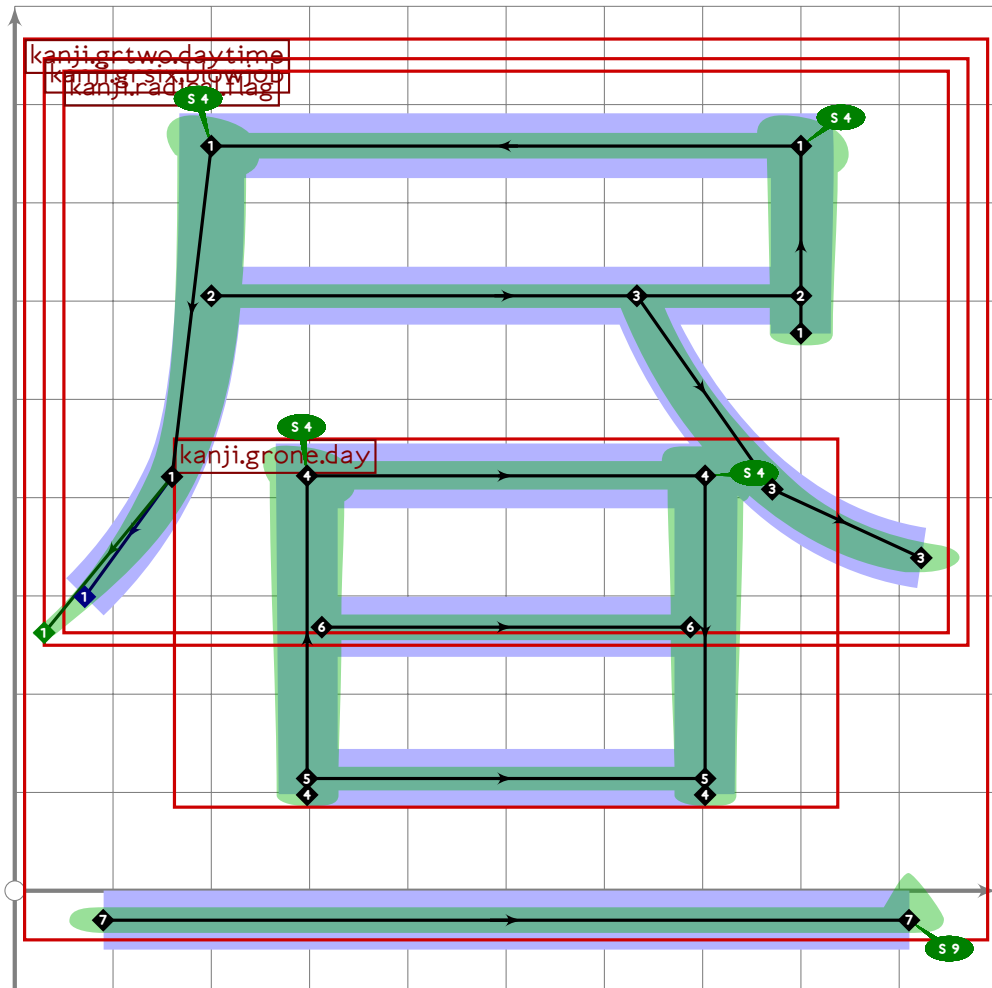
```
1 %
2 % Unicode page 66 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input bottomrad.mp;
37 input buildkanji.mp;
38 input gradenine.mp;
39 input gradeone.mp;
40 input gradesix.mp;
41 input gradethree.mp;
42 input gradetwo.mp;
43 input leftrad.mp;
44 input radical.mp;
45 input rare.mp;
46 input toprad.mp;
47
48 

---


```

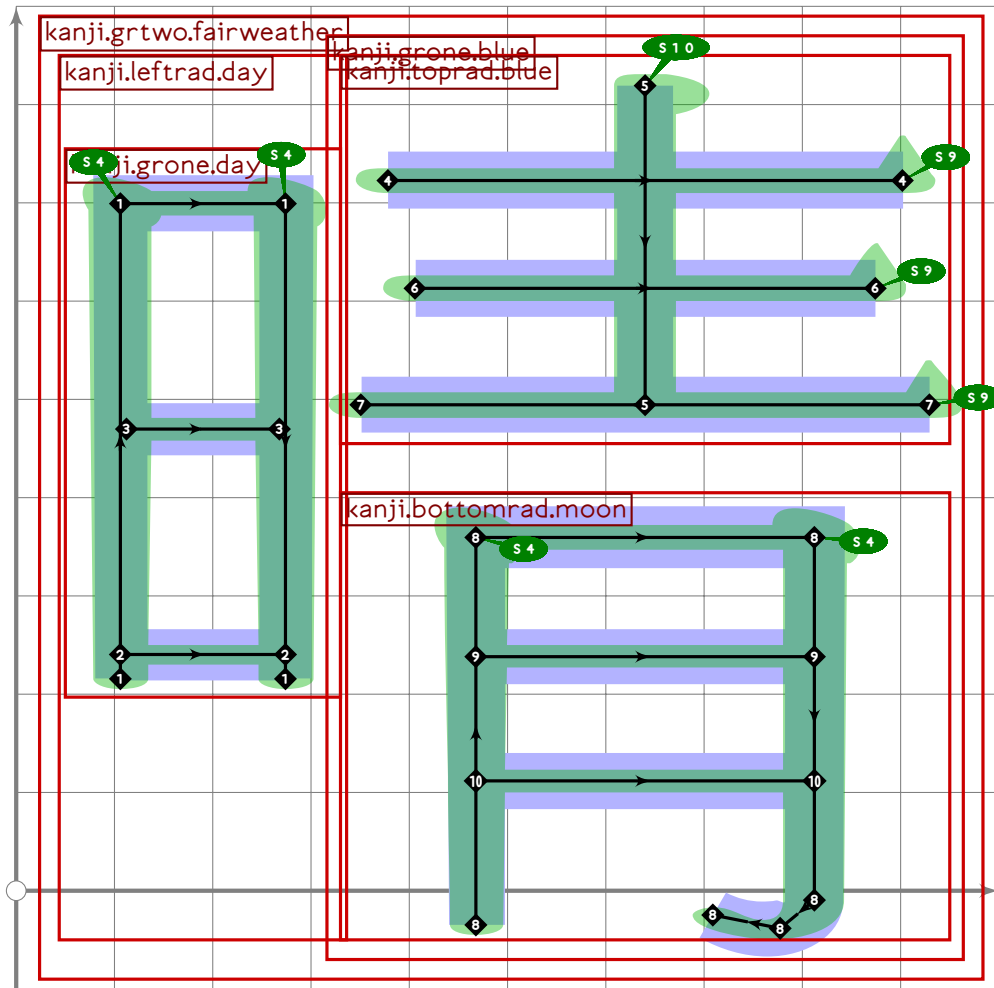


```

49
50 vardef kanji.grtwo.daytime =
51   push_pbox_toexpand("kanji.grtwo.daytime");
52   build_kanji.level(build_kanji.sscale(yscaled 0.9 shifted (0,30))
53     (build_kanji.tb(360,290)
54       (build_kanji.spread_legs(280)(kanji.grsix.blowjob))
55       (build_kanji.sscale(scaled 0.75)(kanji.grone.day)));
56   push_stroke((90,-30)-(910,-30),(1.6,1.6)-(1.6,1.6));
57   set_boserif(0,1,9));
58   expand_pbox;
59 enddef;

```

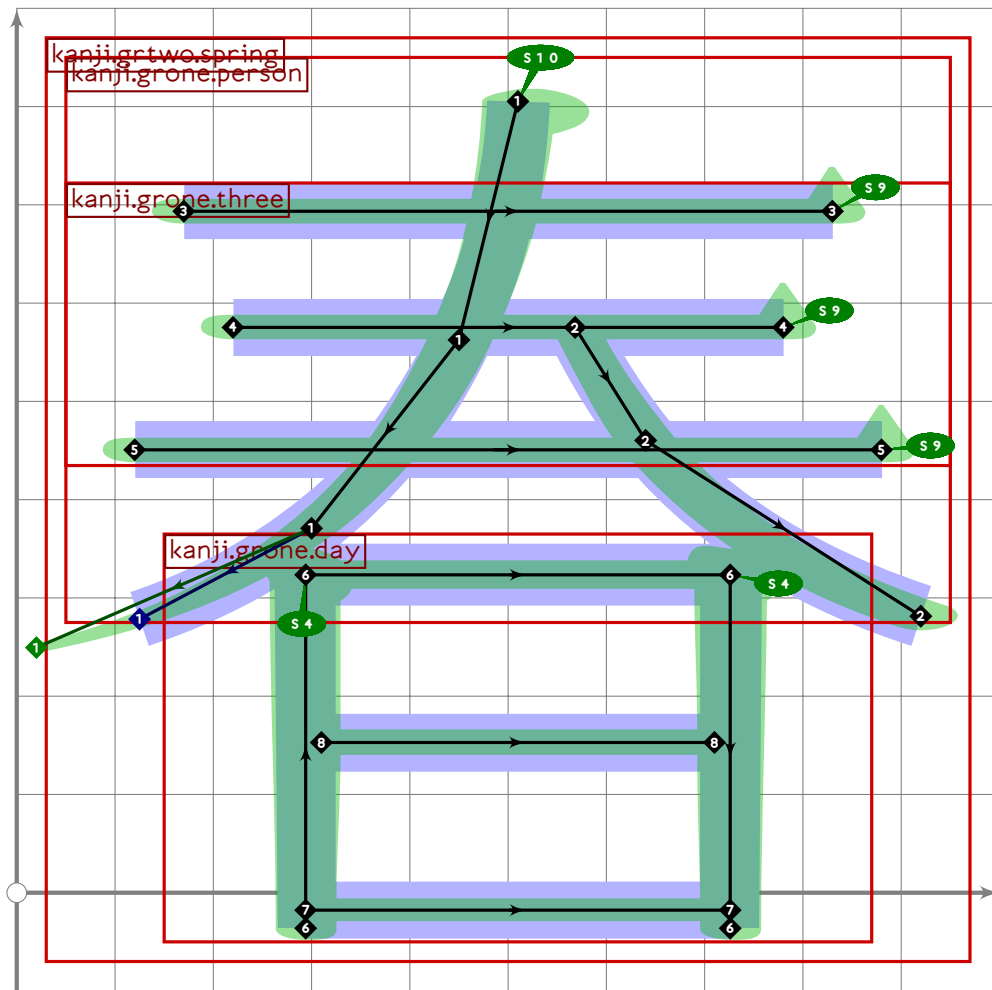




```

60
61 vardef kanji.grtwo.fairweather =
62   push_pbox_toexpand("kanji.grtwo.fairweather");
63   build_kanji.lr(330,0)
64     (kanji.leftrad.day)
65     (kanji.grone.blue);
66   expand_pbox;
67 enddef;

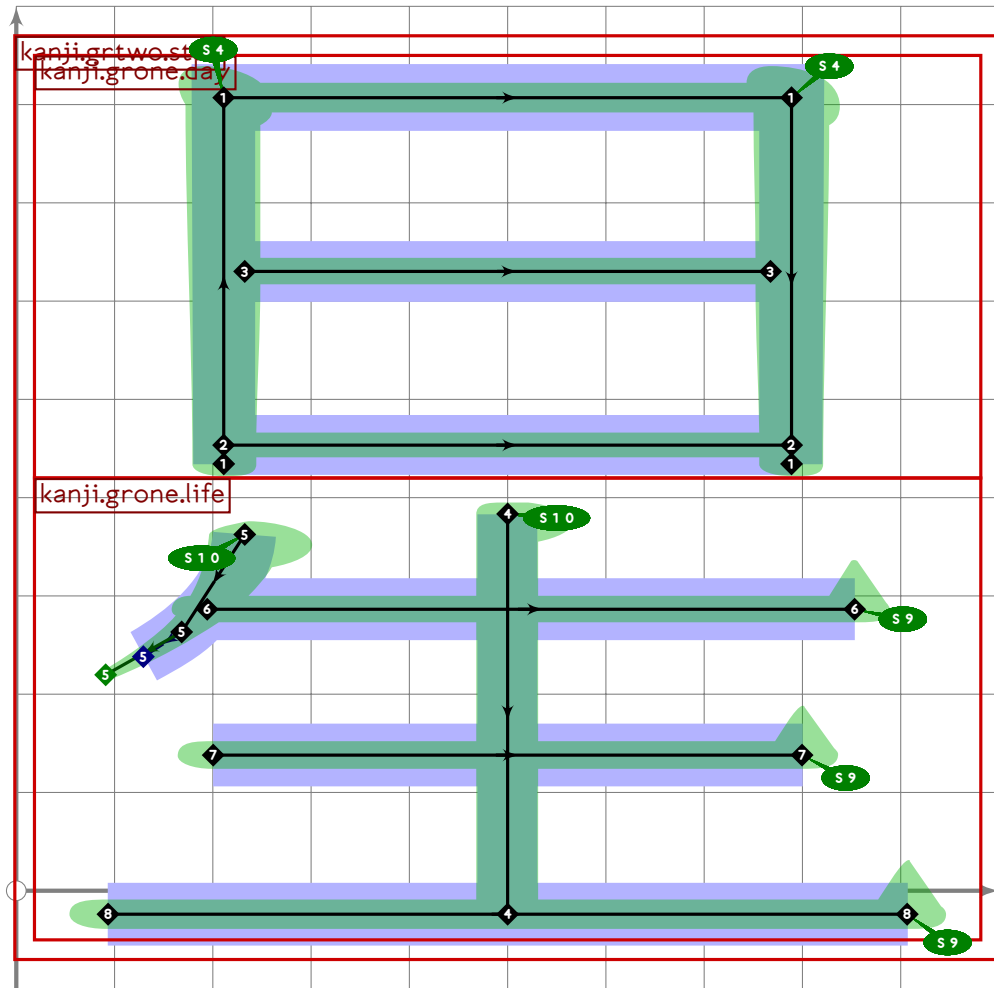
```



```

68
69 vardef kanji.grtwo.spring =
70   push_pbox_toexpand("kanji.grtwo.spring");
71   build_kanji.tb(320,90)
72   (kanji.grone.person;
73     build_kanji.sscale(xyscaled (1,0.5) shifted (0,30))
74     (kanji.grone.three);
75     replace_strokep(-3)
76     (subpath (xpart (oldp intersectiontimes get_strokep(-1)),infinity)
77       of oldp))
78   (build_kanji.sscale(xscaled 0.8 shifted (10,0))
79     (kanji.grone.day));
80   expand_pbox;
81 enddef;

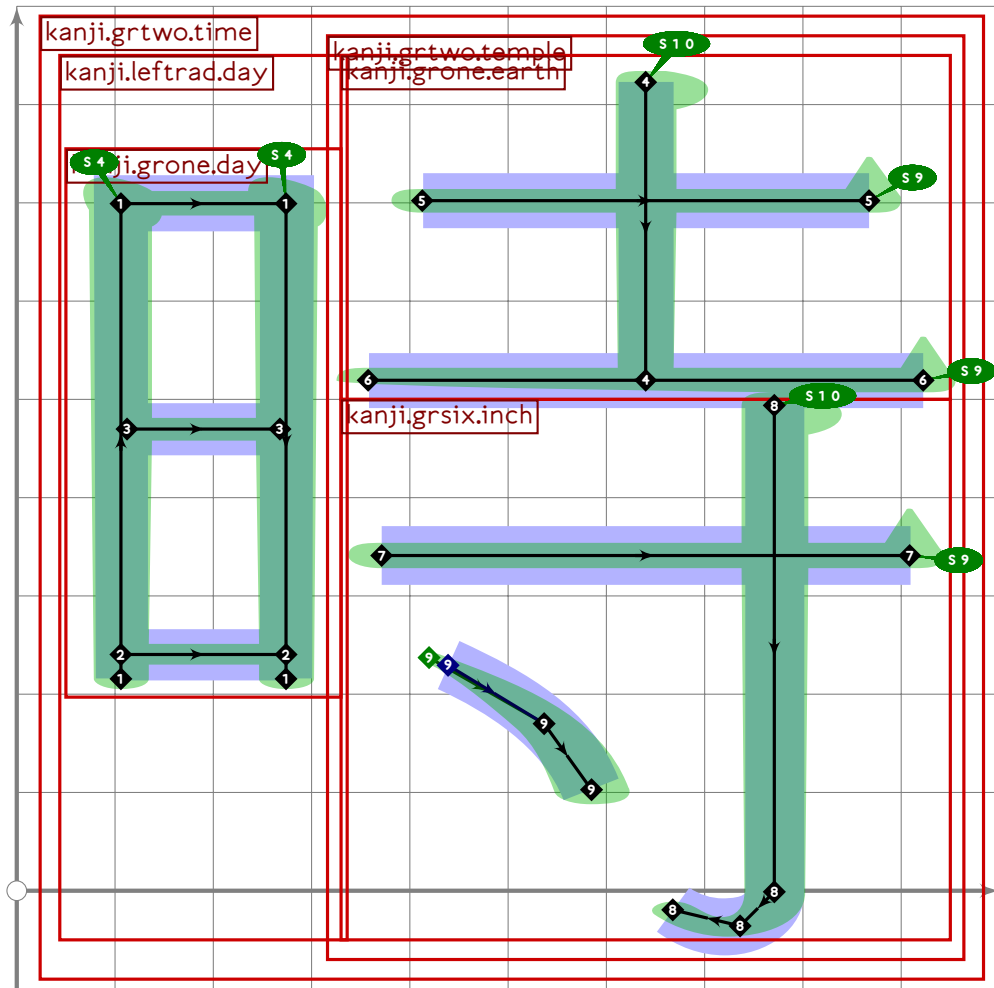
```



```

82
83 vardef kanji.grtwo.star =
84   push_pbox_toexpand("kanji.grtwo.star");
85   build_kanji.sscale(xscaled 1.07)(build_kanji.tb(420,0)
86     (kanji.grone.day)
87     (kanji.grone.life));
88   expand_pbox;
89 enddef;

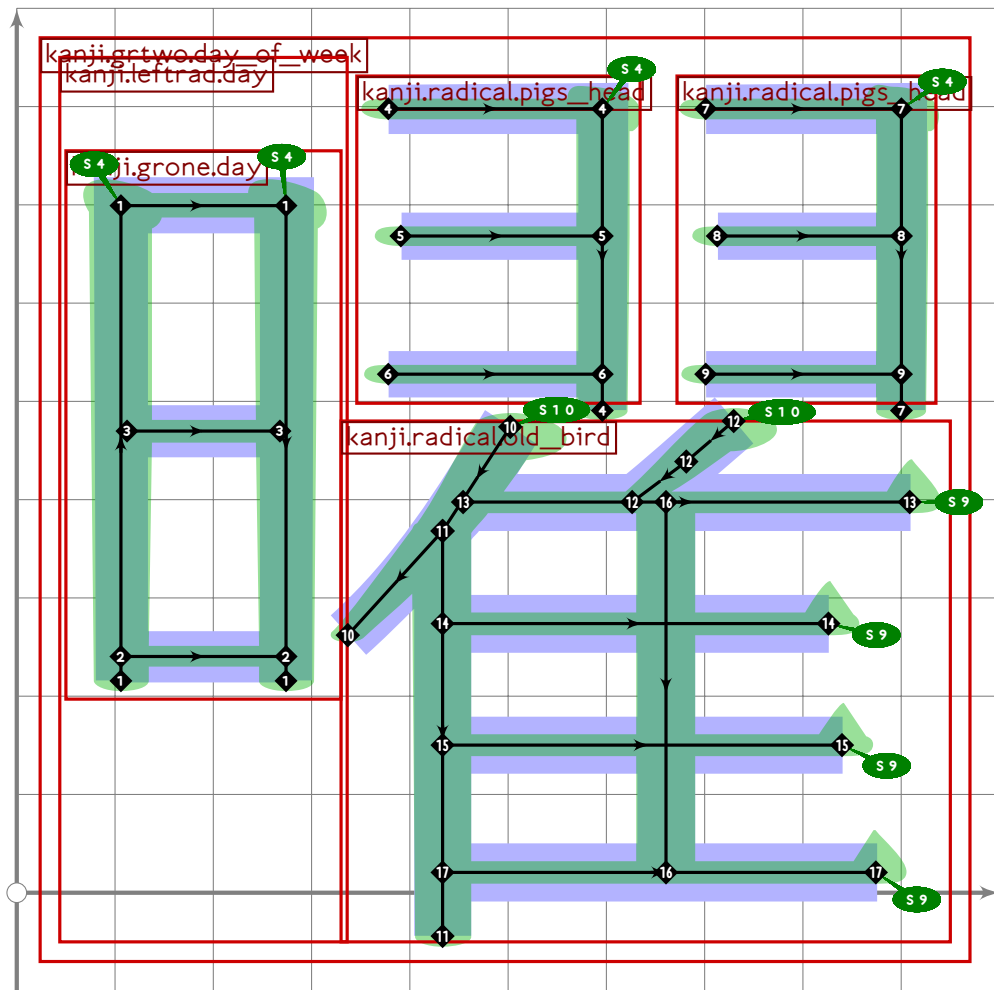
```



```

90
91 vardef kanji.grtwo.time =
92   push_pbox_toexpand("kanji.grtwo.time");
93   build_kanji.lr(330,0)
94     (kanji.leftrad.day)
95     (kanji.grtwo.temple);
96   expand_pbox;
97 enddef;

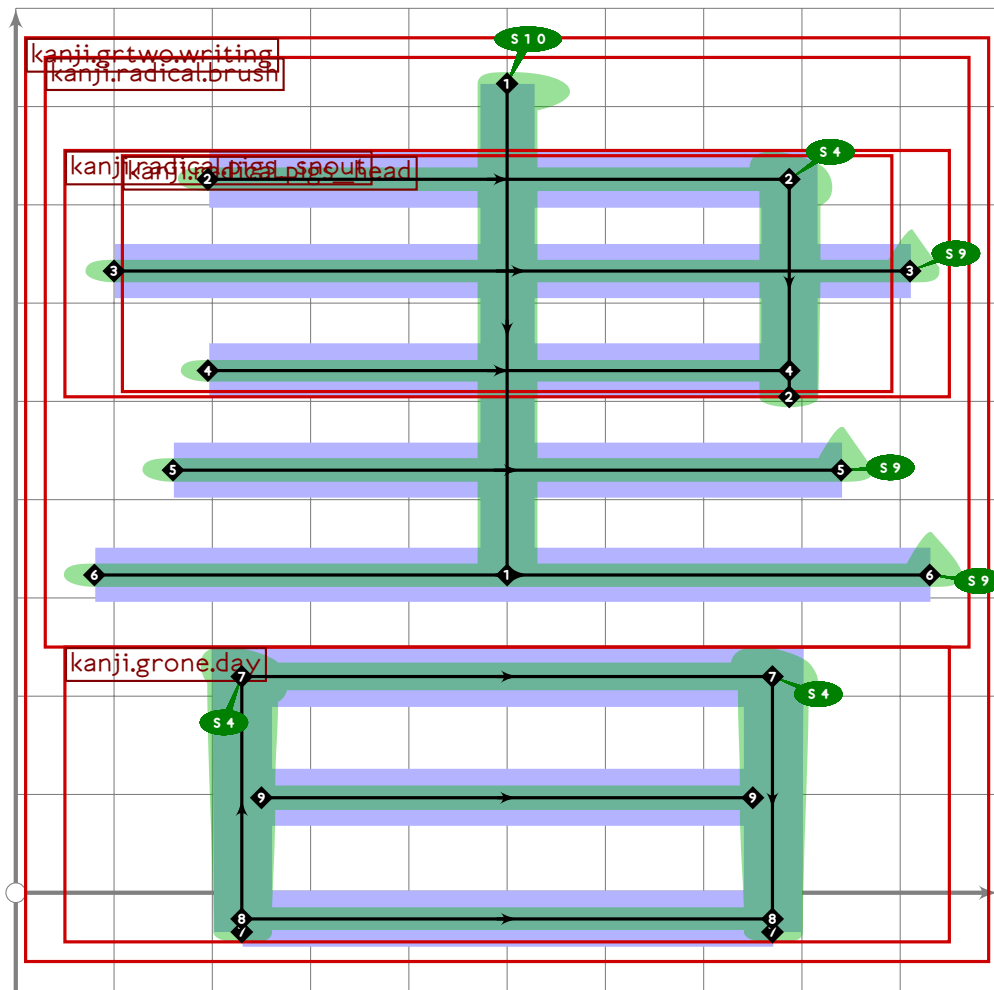
```



```

98
99 vardef kanji.grtwo.day_of_week =
100   push_pbox_toexpand("kanji.grtwo.day_of_week");
101   build_kanji.lr(330,0)
102     (kanji.leftrad.day)
103     (build_kanji.tb(480,0)
104       (build_kanji.lr(520,-10)
105         (build_kanji.sscale(scaled 0.9)
106           (kanji.radical.pigs_head))
107         (build_kanji.sscale(scaled 0.9)
108           (kanji.radical.pigs_head)))
109       (kanji.radical.old_bird));
110   expand_pbox;
111   enddef;
112

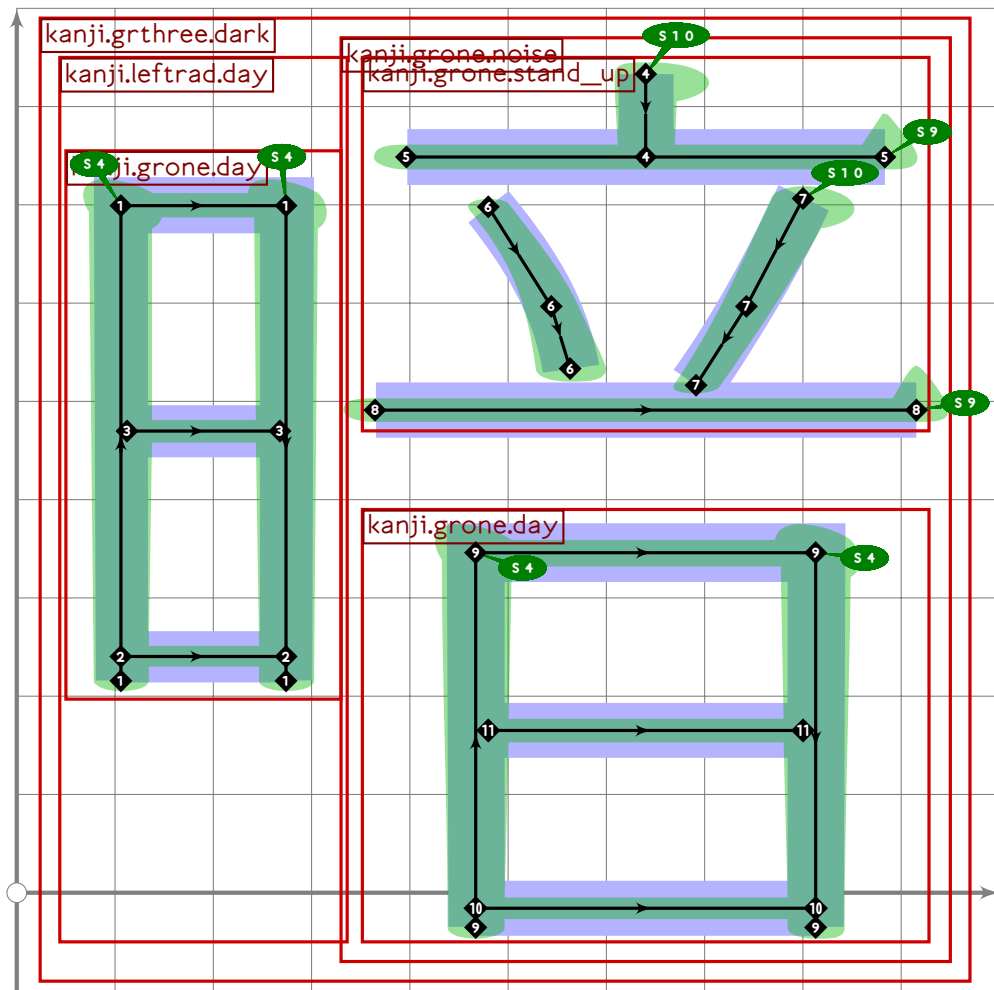
```



```

113 % "write" is a reserved word
114 vardef kanji.grtwo.writing =
115   push_pbox_toexpand("kanji.grtwo.writing");
116   build_kanji.tb(250,0)
117     (kanji.radical.brush;
118     replace_stroke(-5)((point 0 of oldp)-
119     (oldp intersectionpoint get_stroke(0))))
120   (kanji.grone.day);
121   expand_pbox;
122 enddef;
123
124

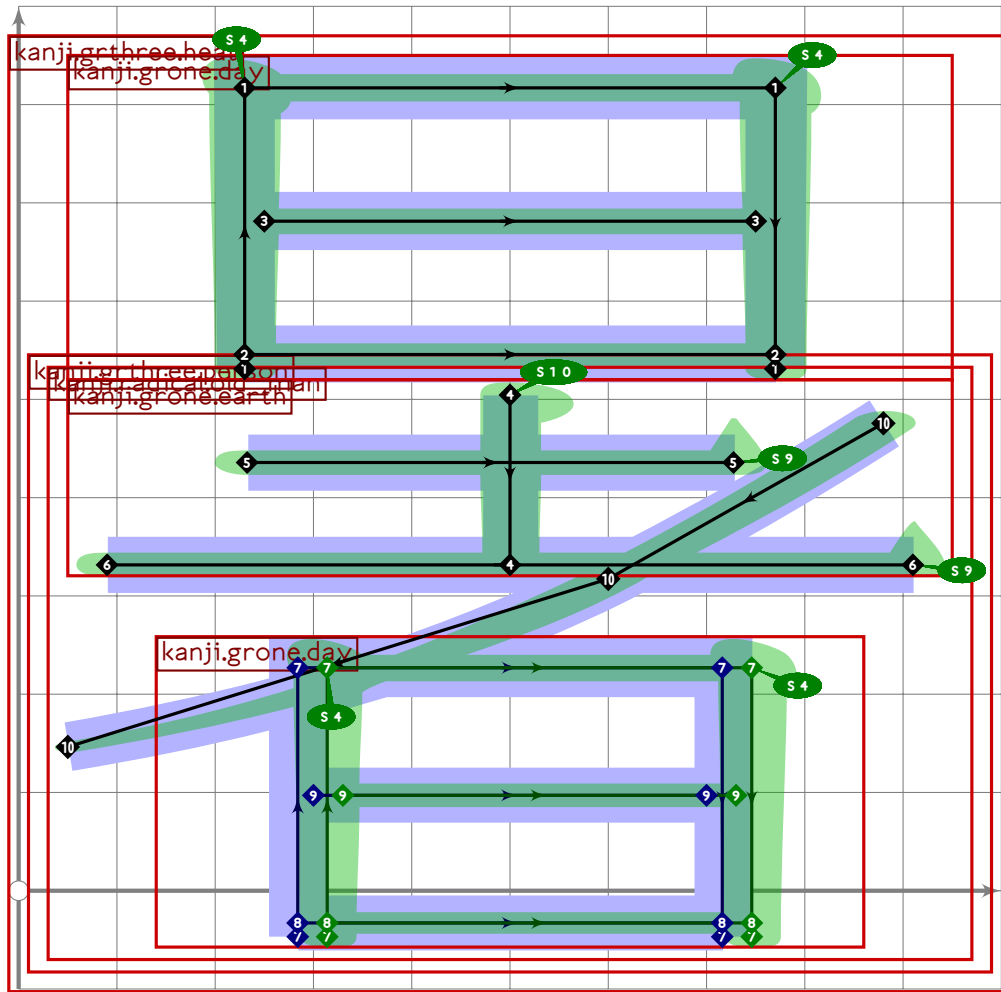
```



```

125
126 vardef kanji.grthree.dark =
127   push_pbox_toexpand("kanji.grthree.dark");
128   build_kanji.lr(330,0)
129     (kanji.leftrad.day)
130     (kanji.grone.noise);
131   expand_pbox;
132 enddef;

```

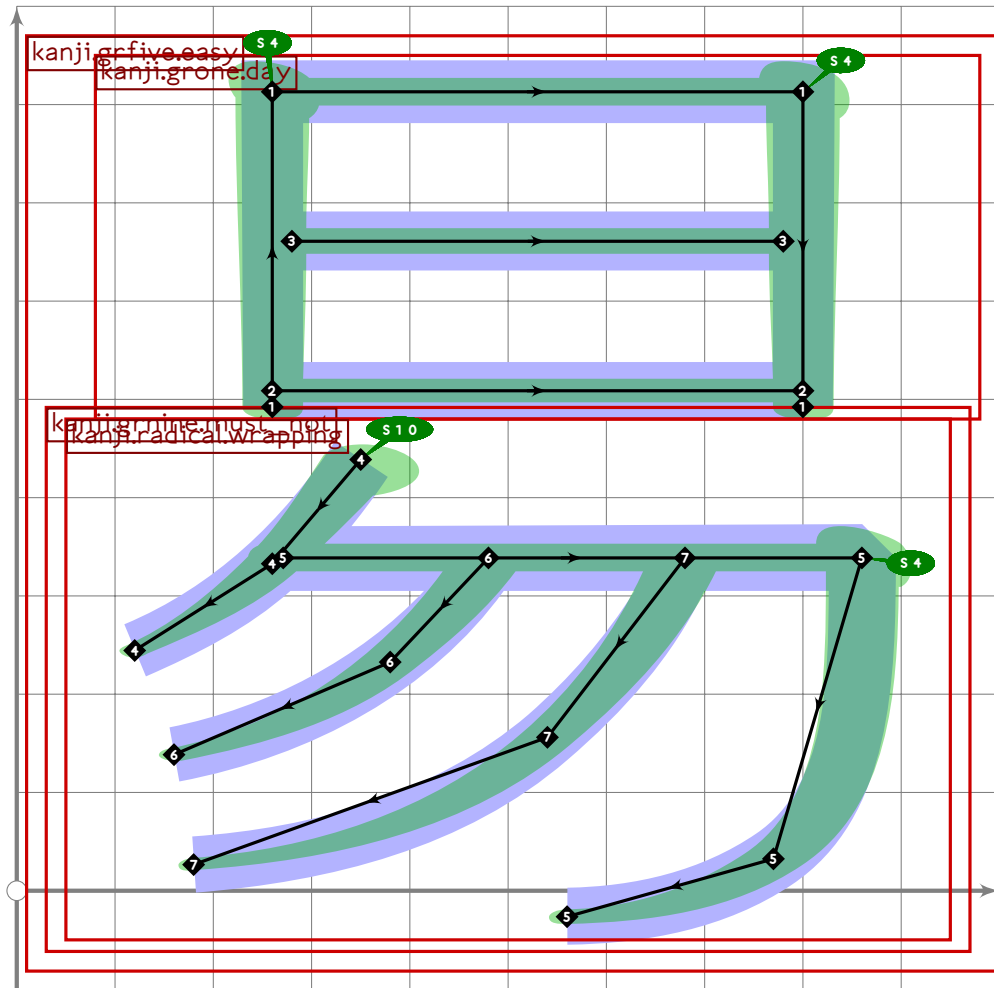


```

133
134 vardef kanji.grthree.heat =
135   push_pbox_toexpand("kanji.grthree.heat");
136   build_kanji.tb(520,0)
137     (kanji.grthree.day)
138     (kanji.grthree.person);
139   expand_pbox;
140 enddef;
141
142

```





```

143
144 vardef kanji.grfive.easy =
145   push_pbox_toexpand("kanji.grfive.easy");
146   build_kanji.tb(480,0)
147     (tsu_xform(identity shifted (30,0))(kanji.grone.day))
148     (kanji.grnine.must_not);
149   expand_pbox;
150 enddef;

```

```

153
154 % mei/aka "light"
155 begintsuglyph("uni660E",14);
156 kanji.grtwo.light;
157 tsu_render;
158 endtsuglyph;
159
160 % eki/yasi/yasu "easy"
161 begintsuglyph("uni6613",19);
162 kanji.grfive.easy;
163 tsu_render;

```

[see page 445]

[see page 1645]

164 `endtsuglyph;`  
165  
166 `% seki/mukashi "once upon a time"`  
167 `begintsuglyph("uni6614",20);` [see page 486]  
168 `kanji.grthree.once_upon_a_time;`  
169 `tsu_render;`  
170 `endtsuglyph;`  
171  
172 `% you "sun" or "open" (rare, but part of other chars)`  
173 `begintsuglyph("uni661C",28);` [see page 566]  
174 `kanji.rare.sun;`  
175 `tsu_render;`  
176 `endtsuglyph;`  
177  
178 `% sei/hoshi "star"`  
179 `begintsuglyph("uni661F",31);` [see page 1639]  
180 `kanji.grtwo.star;`  
181 `tsu_render;`  
182 `endtsuglyph;`  
183  
184 `% shun/haru "spring (season)"`  
185 `begintsuglyph("uni6625",37);` [see page 1638]  
186 `kanji.grtwo.spring;`  
187 `tsu_render;`  
188 `endtsuglyph;`  
189  
190 `% chuu/hiro "daytime"`  
191 `begintsuglyph("uni663C",60);` [see page 1636]  
192 `kanji.grtwo.daytime;`  
193 `tsu_render;`  
194 `endtsuglyph;`  
195  
196 `% jo/toki "time"`  
197 `begintsuglyph("uni6642",66);` [see page 1640]  
198 `kanji.grtwo.time;`  
199 `tsu_render;`  
200 `endtsuglyph;`  
201  
202 `% sei/ha "fair or clear weather"`  
203 `begintsuglyph("uni6674",116);` [see page 1637]  
204 `kanji.grtwo.fairweather;`  
205 `tsu_render;`  
206 `endtsuglyph;`  
207  
208 `% sho/atsu "heat"`  
209 `begintsuglyph("uni6691",145);` [see page 1644]  
210 `kanji.grthree.heat;`  
211 `tsu_render;`

212 endtsuglyph;  
213  
214 % an/kura "dark"  
215 begintsuglyph("uni6697",151); [see page 1643]  
216 kanji.grthree.dark;  
217 tsu\_render;  
218 endtsuglyph;  
219  
220 % you "day of week"  
221 begintsuglyph("uni66DC",220); [see page 1641]  
222 kanji.grtwo.day\_of\_week;  
223 tsu\_render;  
224 endtsuglyph;  
225  
226 % kyoku/ma "melody"  
227 begintsuglyph("uni66F2",242); [see page 485]  
228 kanji.grthree.melody;  
229 tsu\_render;  
230 endtsuglyph;  
231  
232 % sho/ka "writing"  
233 begintsuglyph("uni66F8",248); [see page 1642]  
234 kanji.grtwo.writing;  
235 tsu\_render;  
236 endtsuglyph;  
237  
238 

---

  
239  
240 endfont;  
241  
242 

---

# tsuku-67.mp

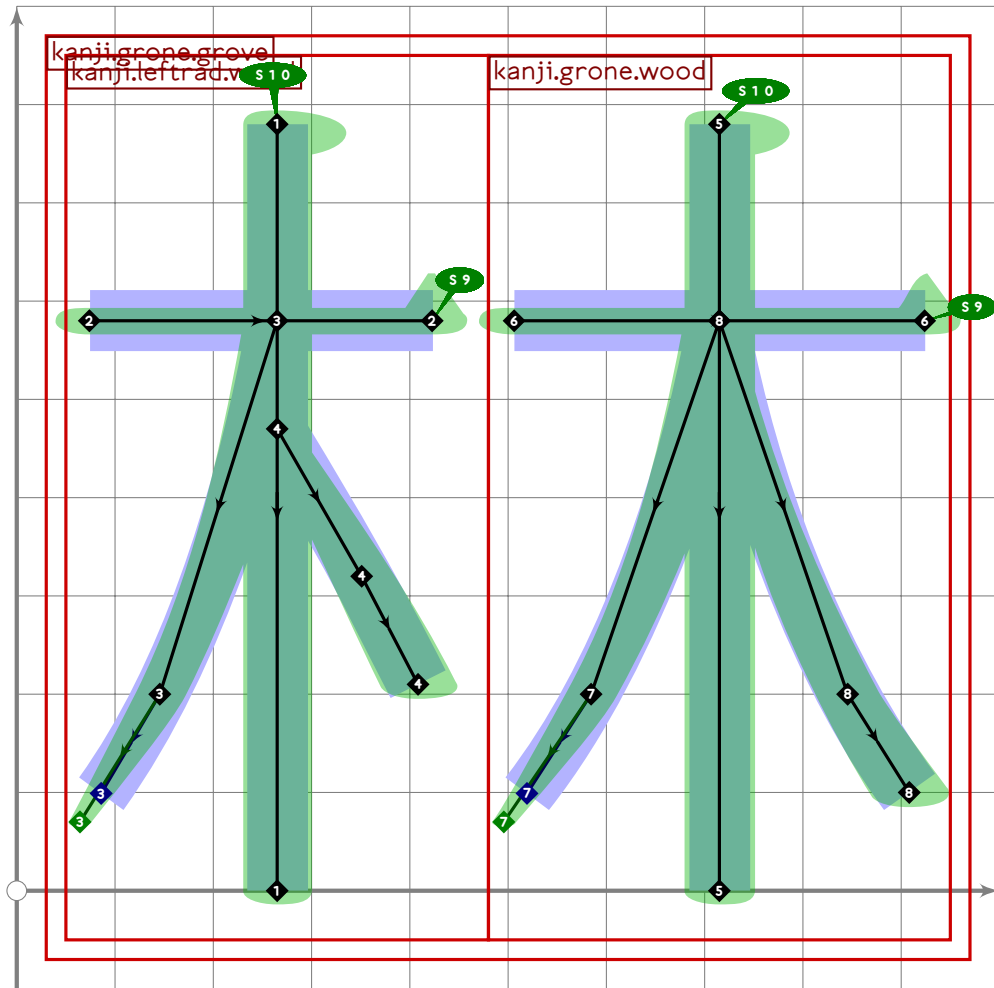
```
1 %
2 % Unicode page 67 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradefour.mp;
39 input gradeone.mp;
40 input gradesix.mp;
41 input gradethree.mp;
42 input gradetwo.mp;
43 input leftrad.mp;
44
45 

---

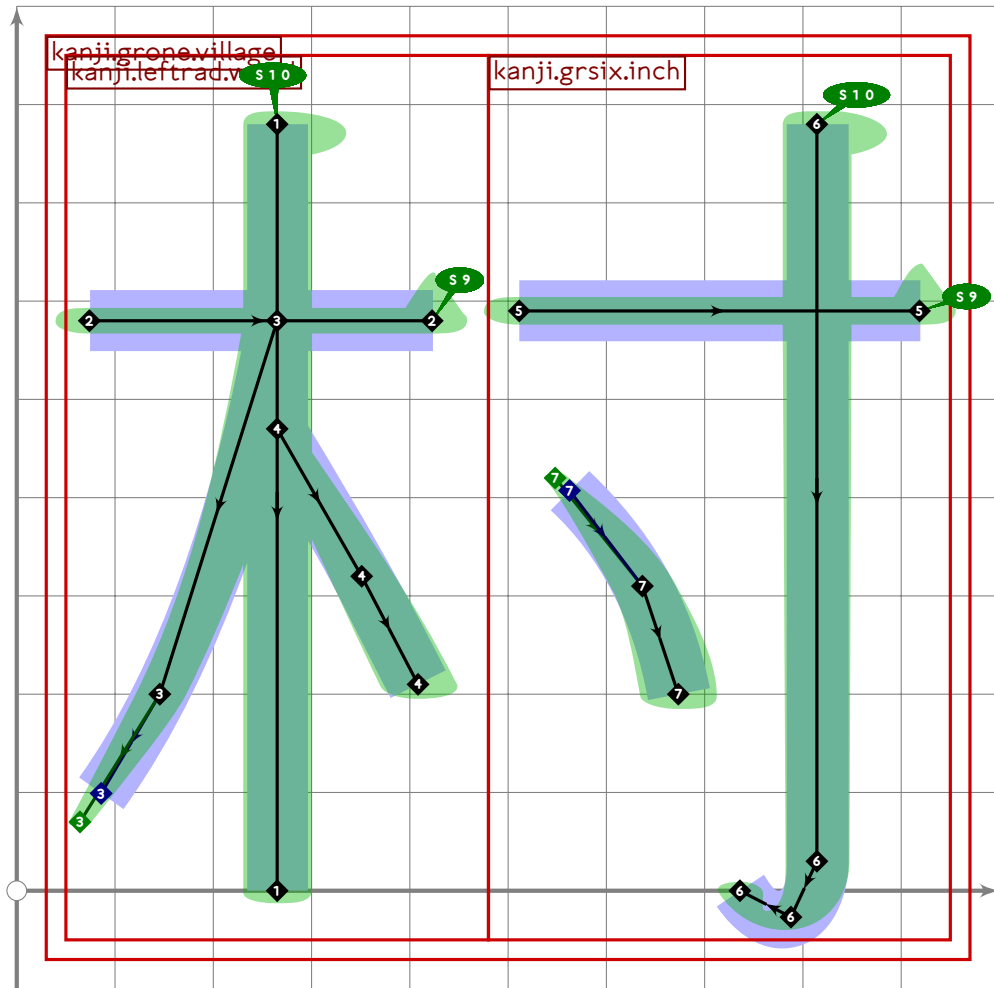

```



```

46
47 vardef kanji.grone.grove =
48   push_pbox_toexpand("kanji.grone.grove");
49   build_kanji.lr(480,0)
50     (kanji.leftrad.wood)
51     (kanji.grone.wood);
52   expand_pbox;
53 enddef;

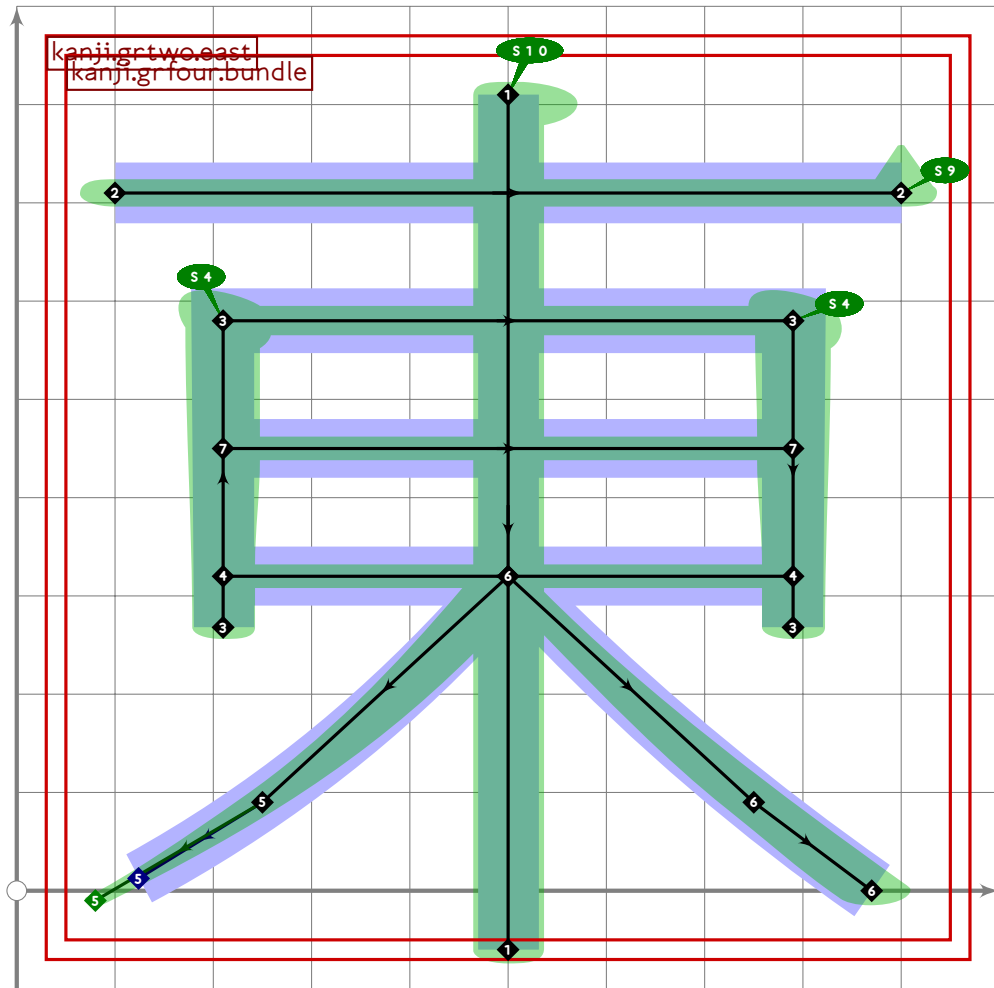
```



```

54
55 vardef kanji.grone.village =
56   push_pbox_toexpand("kanji.grone.village");
57   build_kanji.lr(480,0)
58     (kanji.leftrad.wood)
59     (kanji.grsix.inch);
60   expand_pbox;
61 enddef;
62
63

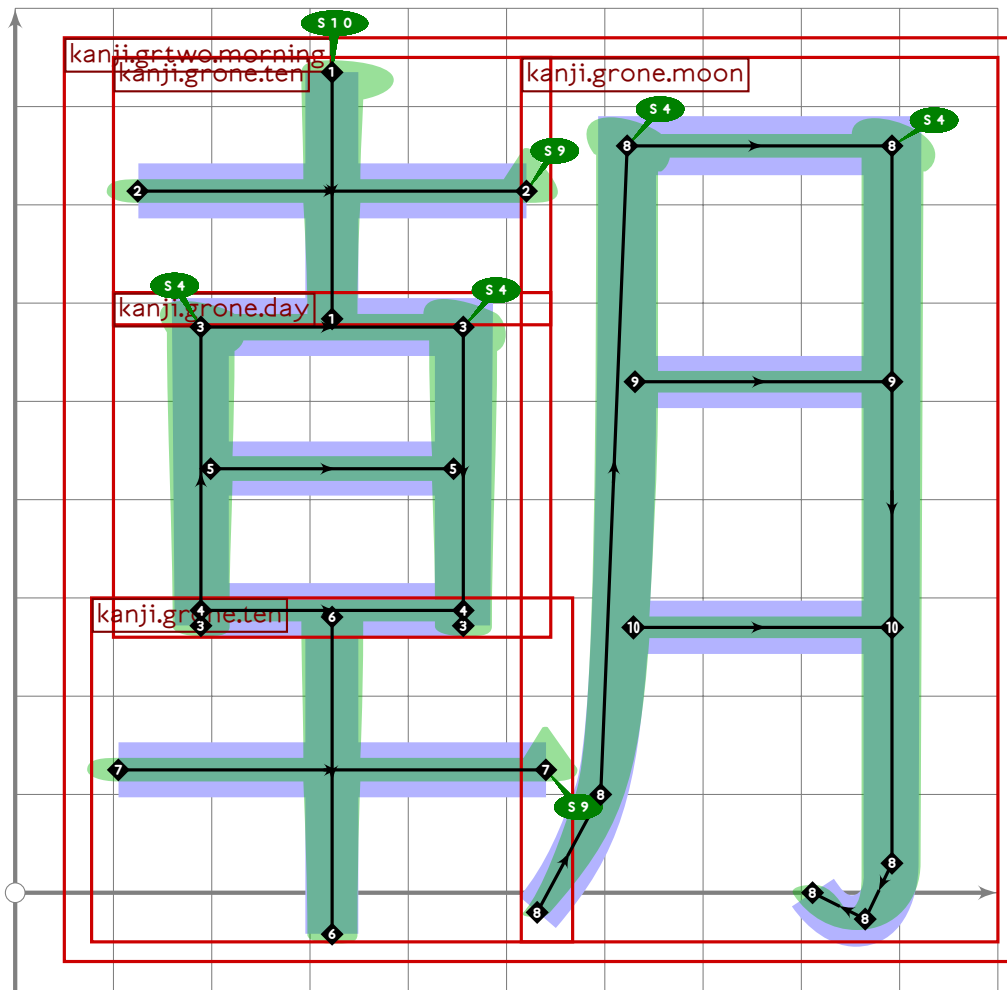
```



```

64
65 vardef kanji.grtwo.east =
66   push_pbox_toexpand("kanji.grtwo.east");
67   kanji.grfour.bundle;
68   push_stroke((210,450)-(790,450),(1.5,1.5)-(1.5,1.5));
69   set_bosize(0,get_bosize(-1));
70   expand_pbox;
71 enddef;

```

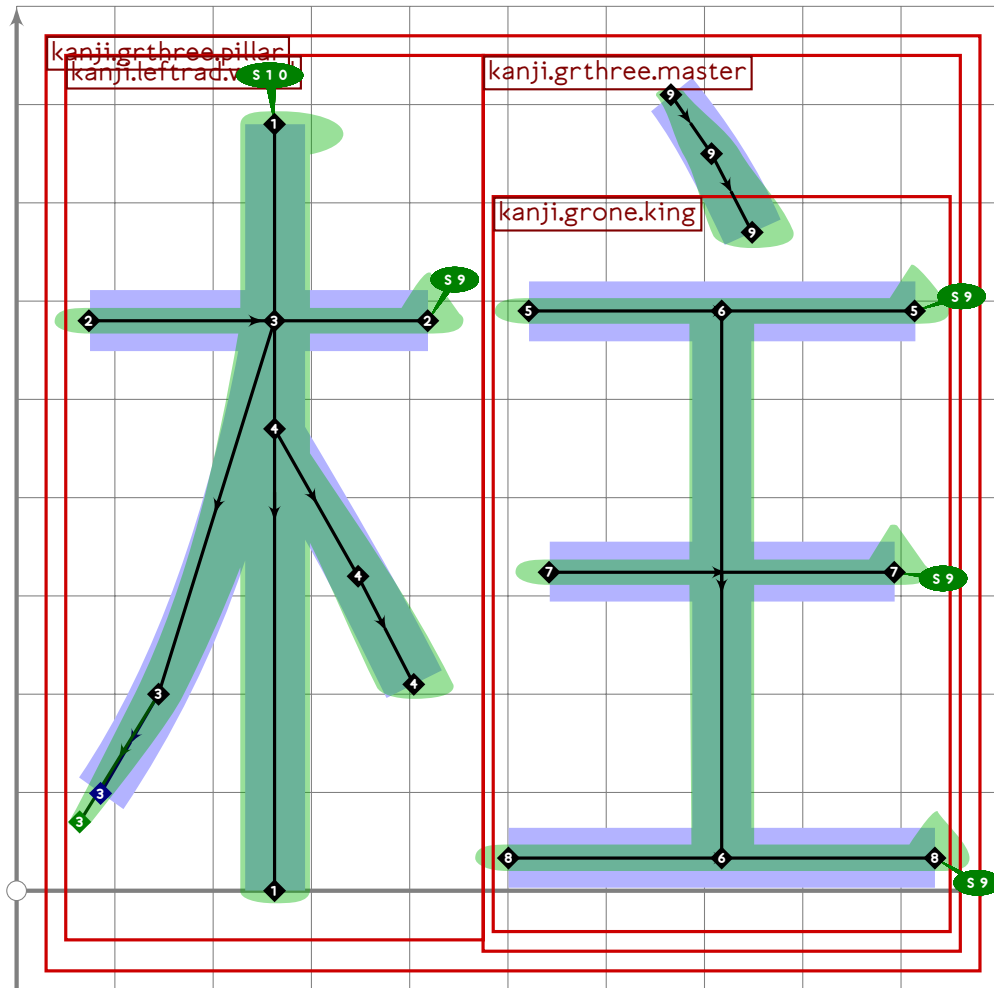


```

72
73 vardef kanji.grtwo.morning =
74   push_pbox_toexpand("kanji.grtwo.morning");
75   tsu_xform(identity shifted (50,0))
76   (build_kanji.level(build_kanji.lr(480,30)
77     (build_kanji.tb(280,40)
78       (build_kanji.tb(460,50)
79         (kanji.grone.ten)
80         (kanji.grone.day))
81       (build_kanji.sscale(xscaled 1.1)
82         (kanji.grone.ten;
83           set_boserif(-1,0,whatever))))))
84   (kanji.grone.moon));
85   expand_pbox;
86 enddef;
87
88

```

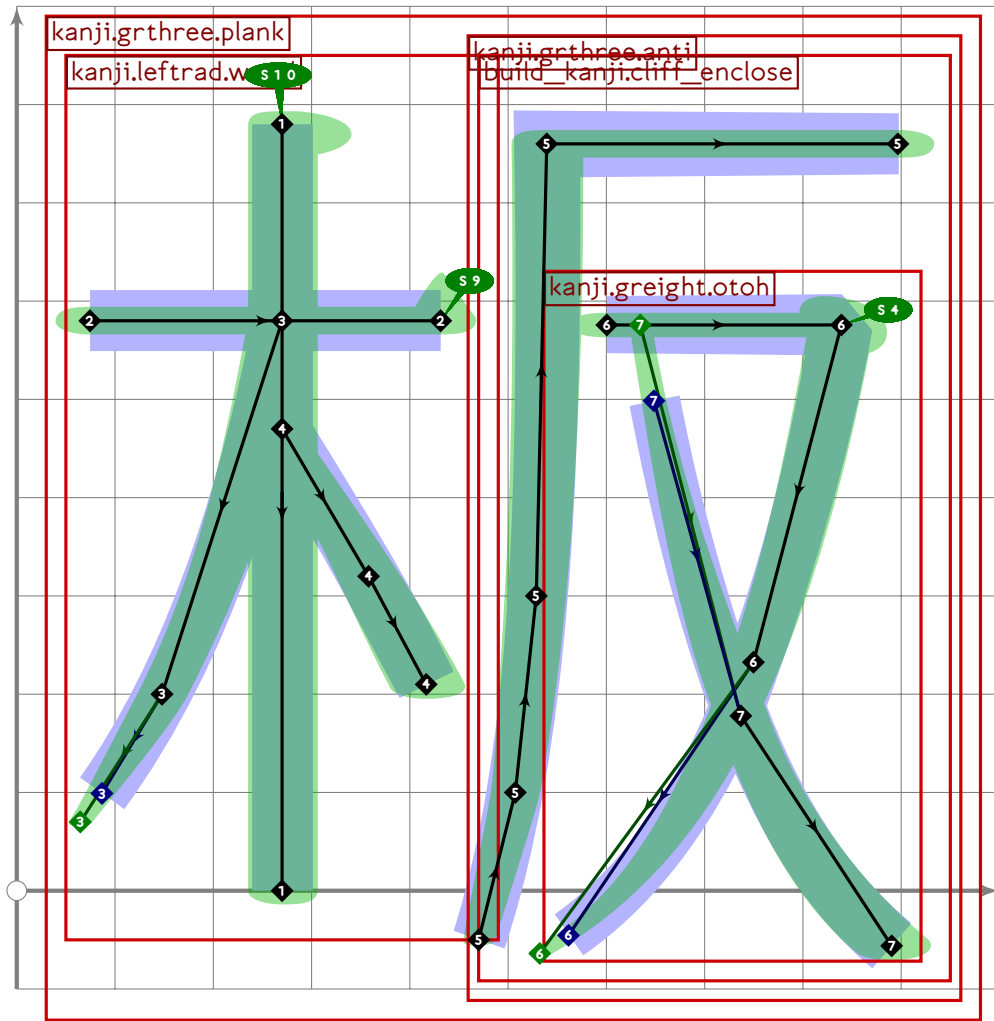




```

89
90 vardef kanji.grthree.pillar =
91   push_pbox_toexpand("kanji.grthree.pillar");
92   build_kanji.lr(480,-10)
93     (kanji.leftrad.wood)
94     (kanji.grthree.master);
95   expand_pbox;
96 enddef;

```



```

97
98 vardef kanji.grthree.plank =
99   push_pbox_toexpand("kanji.grthree.plank");
100   build_kanji.lr(480,20)
101     (kanji.leftrad.wood)
102     (kanji.grthree.anti);
103   expand_pbox;
104 enddef;
105
106
107
108 % tsuki/getsu "moon"
109 begintsuglyph("uni6708";8);
110   kanji.grone.moon;
111   tsu_render;
112 endtsuglyph;
113
114 % chou/asa "morning"
115 begintsuglyph("uni671D";29);
116   kanji.grtwo.morning;

```

[see page 394]

[see page 1652]

117 `tsu_render;`  
118 `endtsuglyph;`  
119  
120 `% ki "wood"`  
121 `begintsuglyph("uni6728",40);` [see page 424]  
122 `kanji.grone.wood;`  
123 `tsu_render;`  
124 `endtsuglyph;`  
125  
126 `% mi/ima "not yet", also zodiac sign of the ram`  
127 `begintsuglyph("uni672A",42);` [see page 509]  
128 `kanji.grfour.not_yet;`  
129 `tsu_render;`  
130 `endtsuglyph;`  
131  
132 `% hon "book"`  
133 `begintsuglyph("uni672C",44);` [see page 370]  
134 `kanji.grone.book;`  
135 `tsu_render;`  
136 `endtsuglyph;`  
137  
138 `% son/mura "village"`  
139 `begintsuglyph("uni6751",81);` [see page 1650]  
140 `kanji.grone.village;`  
141 `tsu_render;`  
142 `endtsuglyph;`  
143  
144 `% soku/taaba "bundle"`  
145 `begintsuglyph("uni675F",95);` [see page 496]  
146 `kanji.grfour.bundle;`  
147 `tsu_render;`  
148 `endtsuglyph;`  
149  
150 `% ku/rai "come"`  
151 `begintsuglyph("uni6765",101);` [see page 432]  
152 `kanji.grtwo.come;`  
153 `tsu_render;`  
154 `endtsuglyph;`  
155  
156 `% tou/higashi "east"`  
157 `begintsuglyph("uni6771",113);` [see page 1651]  
158 `kanji.grtwo.east;`  
159 `tsu_render;`  
160 `endtsuglyph;`  
161  
162 `% han/ita "plank"`  
163 `begintsuglyph("uni677F",127);` [see page 1654]  
164 `kanji.grthree.plank;`

```
165 tsu_render;
166 endtsuglyph;
167
168 % rin/hayashi "grove"
169 begintsuglyph("uni6797",151); [see page 1649]
170 kanji.grone.grove;
171 tsu_render;
172 endtsuglyph;
173
174 % chuu/hashira "pillar"
175 begintsuglyph("uni67F1",241); [see page 1653]
176 kanji.grthree.pillar;
177 tsu_render;
178 endtsuglyph;
179
180 

---

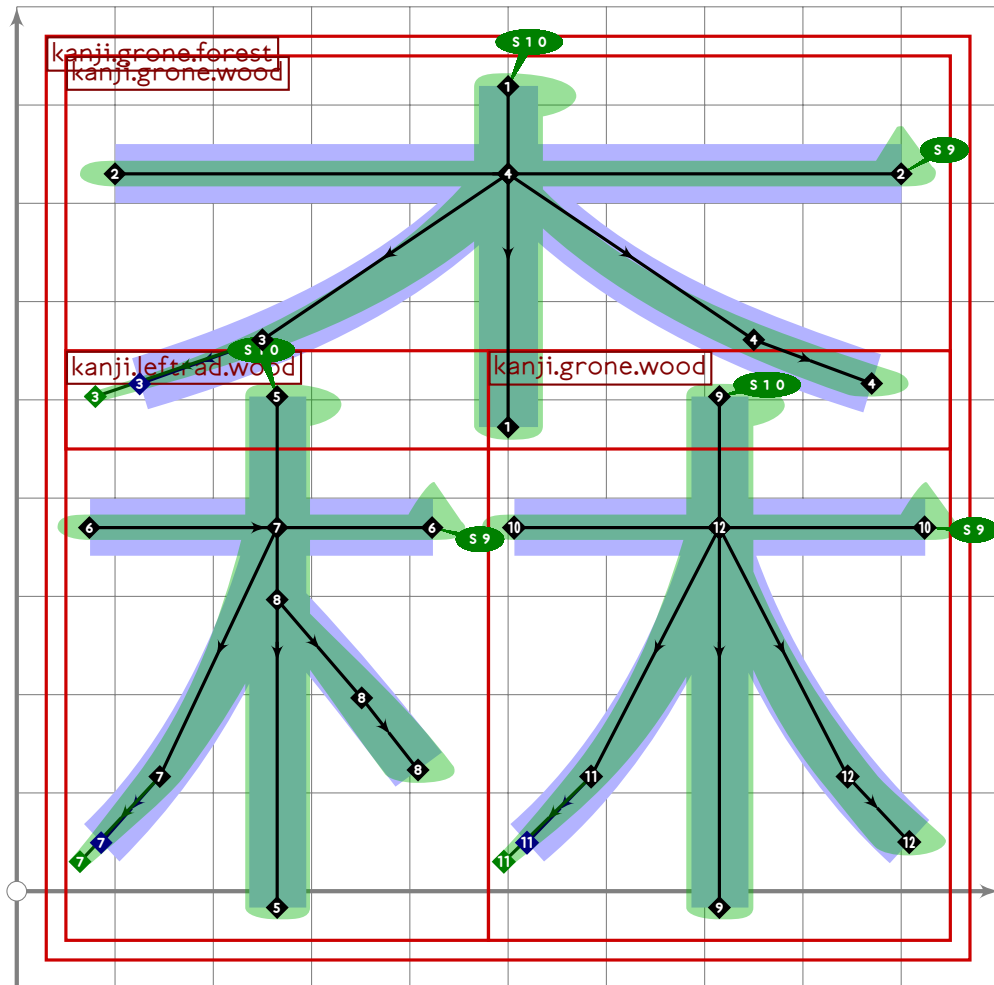

181
182 endfont;
183
184 

---


```

# tsuku-68.mp

```
1 %  
2 % Unicode page 68 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradeone.mp;  
38 input gradetwo.mp;  
39 input leftrad.mp;  
40 input radical.mp;  
41  
42 _____
```

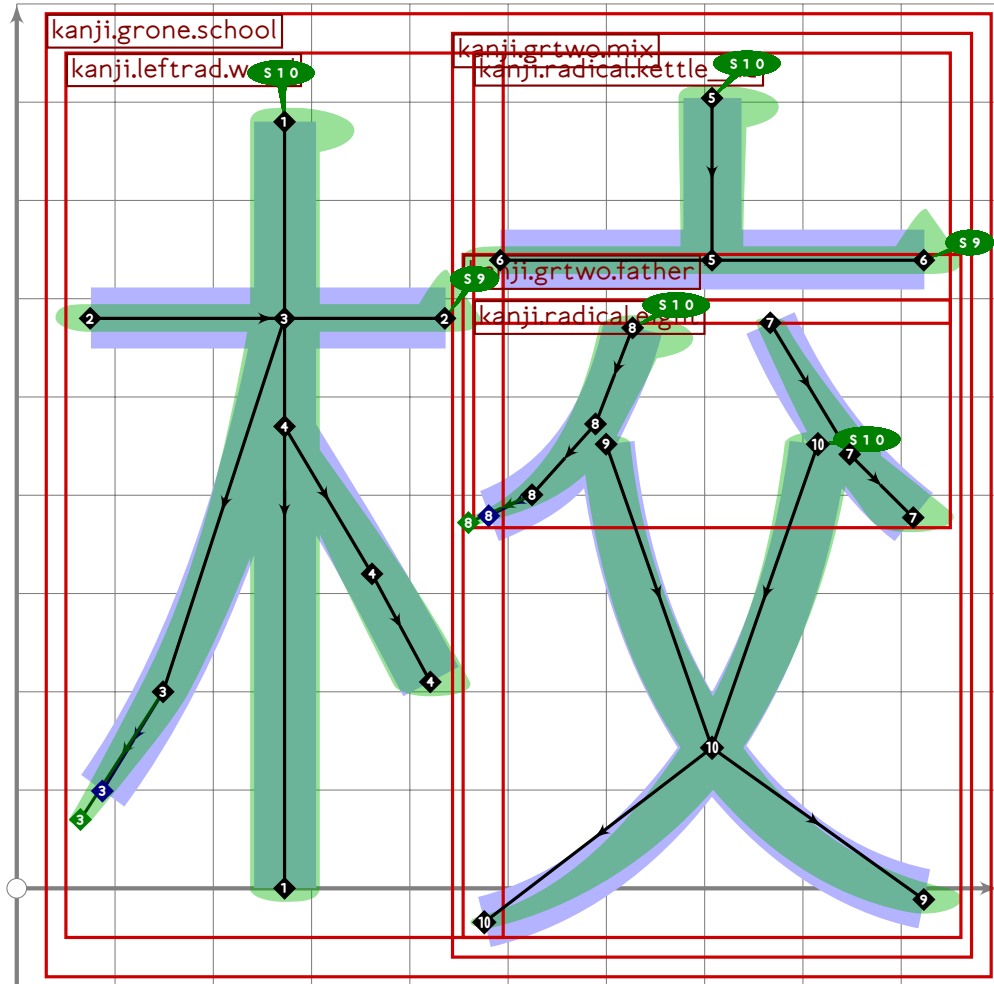


43

```

44 vardef kanji.grone.forest =
45   push_pbox_toexpand("kanji.grone.forest");
46   build_kanji.tb(500,100)
47     (kanji.grone.wood)
48     (build_kanji.lr(480,0)
49       (kanji.leftrad.wood)
50       (kanji.grone.wood));
51   expand_pbox;
52 enddef;

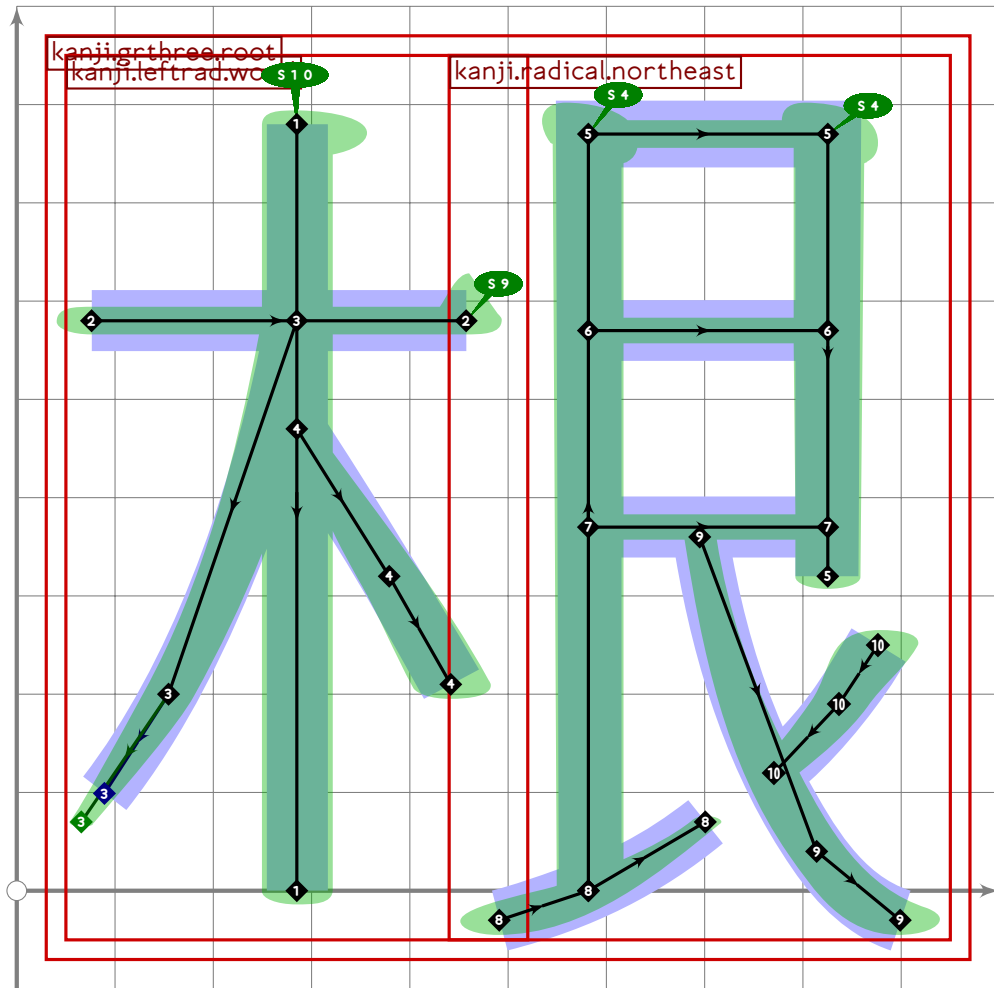
```



```

53
54 vardef kanji.grone.school =
55   push_pbox_toexpand("kanji.grone.school");
56   build_kanji.lr(480,30)
57     (kanji.leftrad.wood)
58     (kanji.grtwo.mix);
59   expand_pbox;
60 enddef;
61
62

```



```

63
64 vardef kanji.grthree.root =
65   push_pbox_toexpand("kanji.grthree.root");
66   build_kanji.lr(480,80)
67     (kanji.leftrad.wood)
68     (kanji.radical.northeast);
69   expand_pbox;
70 enddef;
71
72
73
74 % kou "school"
75 begintsuglyph("uni6821",33);
76   kanji.grone.school;
77   tsu_render;
78 endtsuglyph;
79
80 % kon/ne "root"
81 begintsuglyph("uni6839",57);
82   kanji.grthree.root;
83   tsu_render;

```

[see page 1658]

[see page 1659]

```
84 endtsuglyph;  
85  
86 % shin/mori "forest"  
87 begintsuglyph("uni68EE",238); [see page 1658]  
88   kanji.grone.forest;  
89   tsu_render;  
90 endtsuglyph;  
91  
92 _____  
93  
94 endfont;  
95  
96 _____
```



# tsuku-69.mp

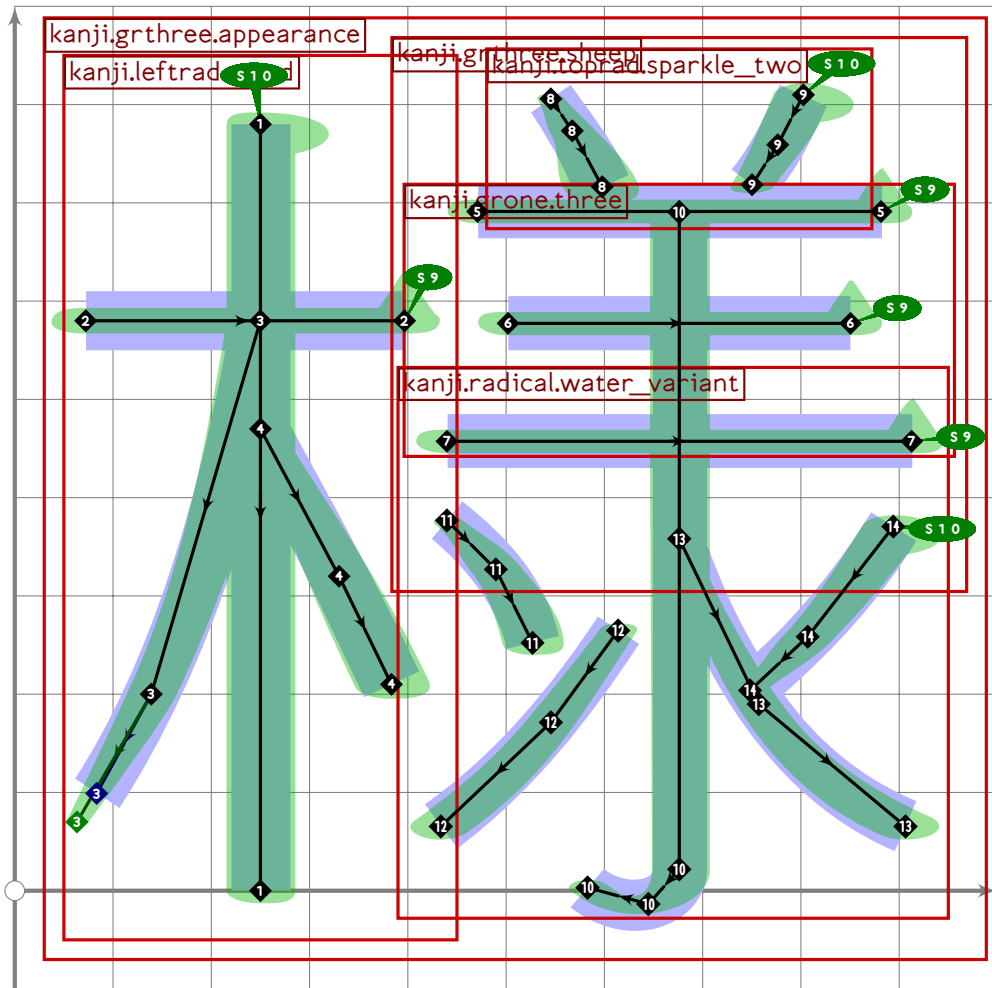
```
1 %
2 % Unicode page 69 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeone.mp;
38 input gradesix.mp;
39 input gradethree.mp;
40 input gradetwo.mp;
41 input leftrad.mp;
42 input radical.mp;
43 input toprad.mp;
44
45 

---

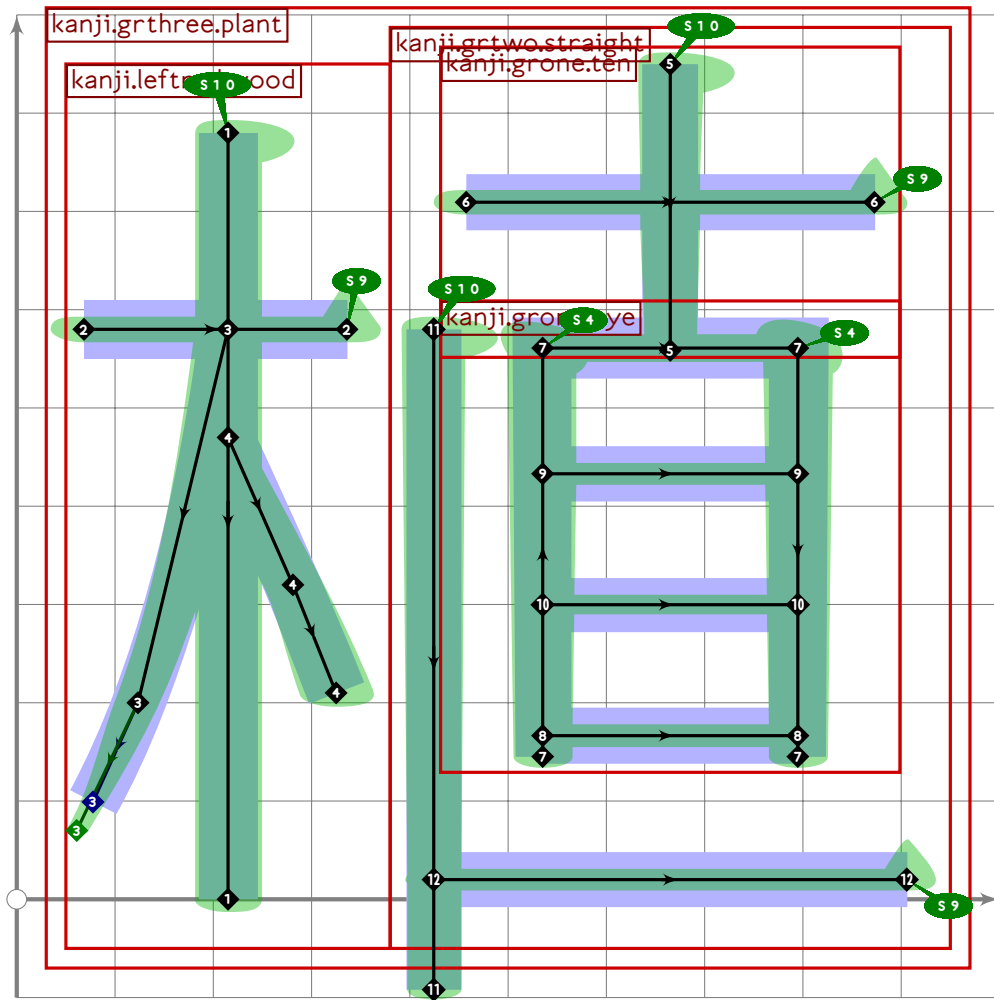

46
```



```

47 % this is "sama," the honorific, also "you" as in "you ni"
48 vardef kanji.grthree.appearance =
49   push_pbox_toexpand("kanji.grthree.appearance");
50   build_kanji.lr(420,60)
51     (kanji.leftrad.wood)
52     (build_kanji.level(build_kanji.sscale(yscaled 0.95)(
53       build_kanji.tb(420,240)
54         (build_kanji.sscale(shifted (10,0))(kanji.grthree.sheep))
55         (kanji.radical.water_variant);
56       replace_strokep(-4)
57         ((point 0 of get_strokep(-5))--subpath (1,infinity) of oldp);
58       set_boserif(-4,0,whatever);
59       set_bosize(-5,0)));
60   expand_pbox;
61 enddef;

```



```

62
63 vardef kanji.grthree.plant =
64   push_pbox_toexpand("kanji.grthree.plant");
65   build_kanji.lr(380,0)
66     (kanji.leftrad.wood)
67     (kanji.grtwo.straight);
68   expand_pbox;
69 enddef;

```

```

70
71
72
73 % shoku/u "plant"
74 begintsuglyph("uni690D",13);
75   kanji.grthree.plant;
76   tsu_render;
77 endtsuglyph;
78
79 % gaku/tano "music" or "fun"
80 begintsuglyph("uni697D",125);
81   kanji.grtwo.fun;
82   tsu_render;

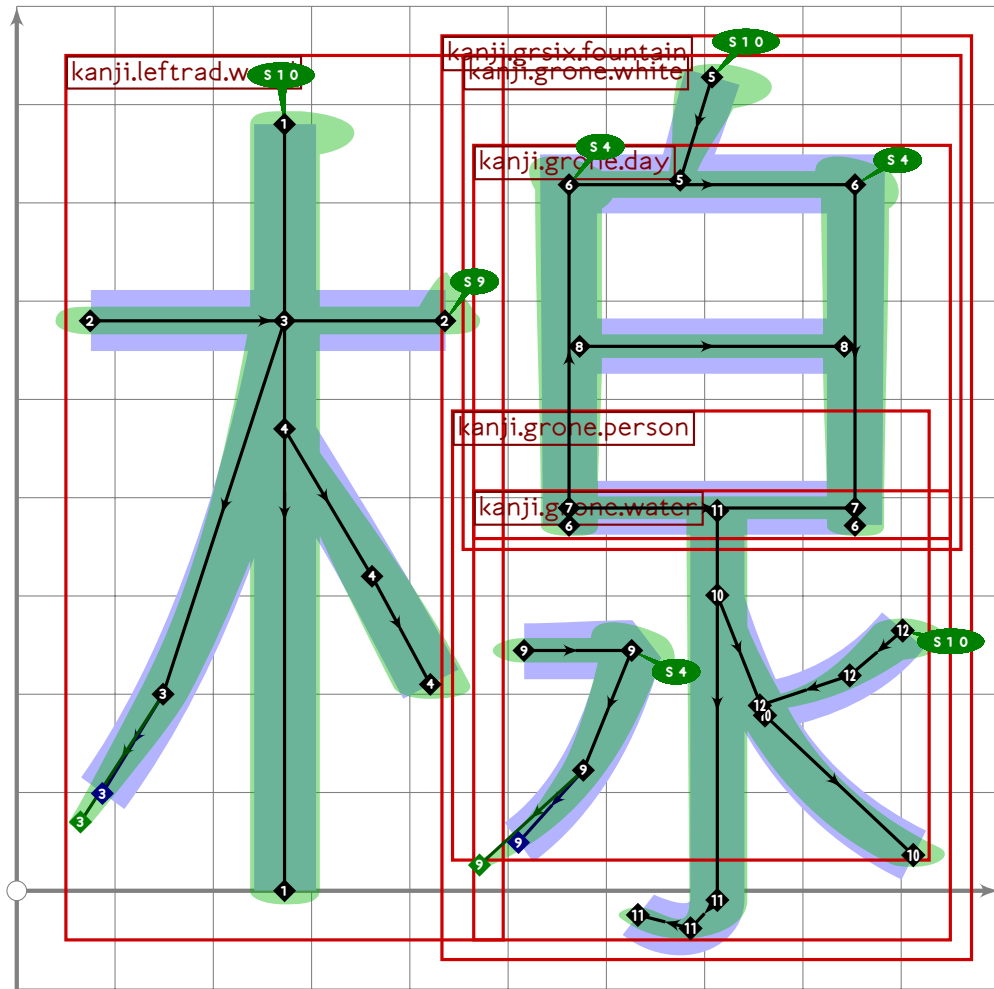
```

[see page 1663]

[see page 439]

83 endtsuglyph;

84



85 % hanzou "container for pouring water"

86 `begintsuglyph("uni697E";126);`

87 `build_kanji.lr(480,30)`

88 `(kanji.leftrad.wood)`

89 `(kanji.grsix.fountain);`

90 `tsu_render;`

91 `endtsuglyph;`

92

93 % you/sama "honorific suffix with difficult literal meaning"

94 `begintsuglyph("uni69D8";216);`

[see page 1662]

95 `kanji.grthree.appearance;`

96 `tsu_render;`

97 `endtsuglyph;`

98

99

100

101 `endfont;`

102

103

# tsuku-6a.mp

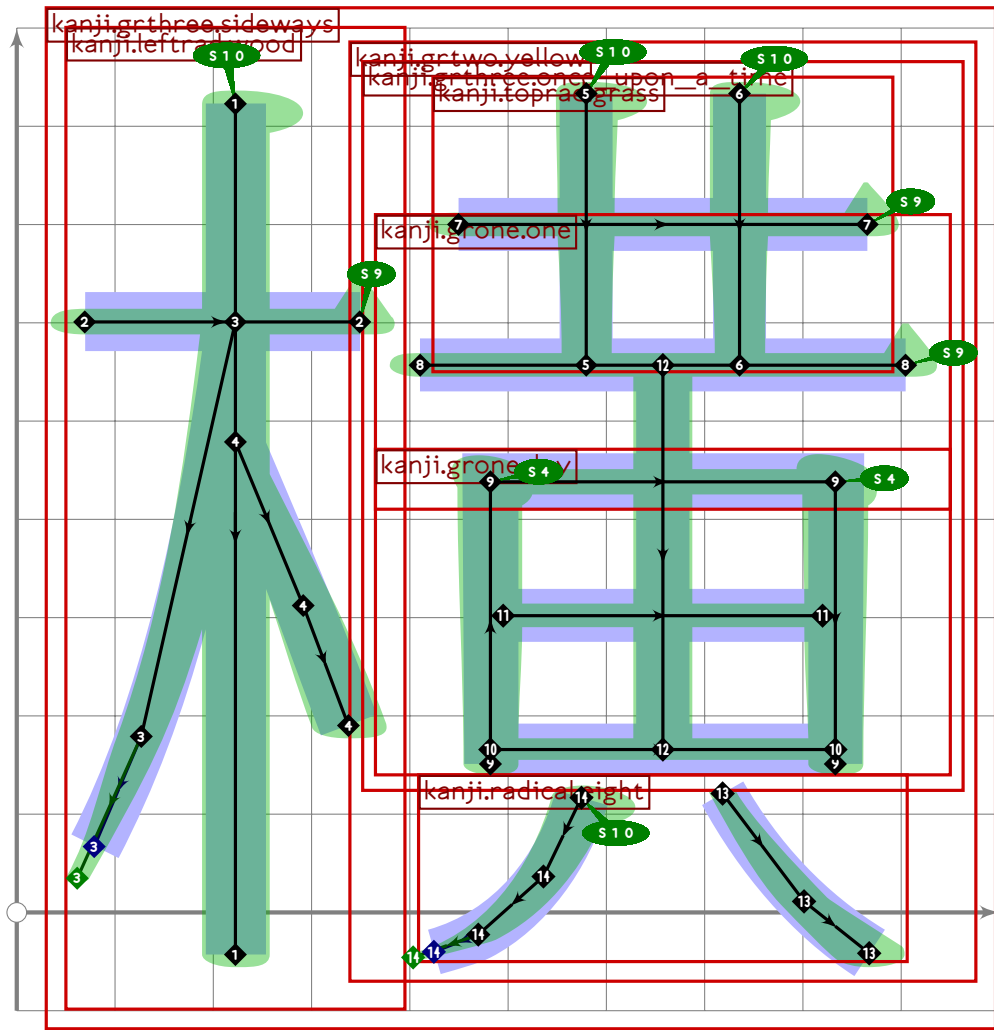
```
1 %
2 % Unicode page 6a (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeone.mp;
38 input gradethree.mp;
39 input gradetwo.mp;
40 input leftrad.mp;
41 input radical.mp;
42 input toprad.mp;
43
44 

---


```



```

45
46 vardef kanji.grthree.sideways =
47   push_pbox_toexpand("kanji.grthree.sideways");
48   build_kanji.lr(380,30)
49     (build_kanji.sscale(yscaled 1.11)(kanji.leftrad.wood))
50     (kanji.grtwo.yellow);
51   expand_pbox;
52 enddef;

```

53  
54

```

55
56 % ou/yoku "sideways"
57 begint Suglyph("uni6A2A";42);
58   kanji.grthree.sideways;
59   tsu_render;
60 endtsuglyph;

```

[see page 1666]

61  
62

```

63
64 endfont;

```

65

66

---

# tsuku-6b.mp

```
1 %
2 % Unicode page 6b (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

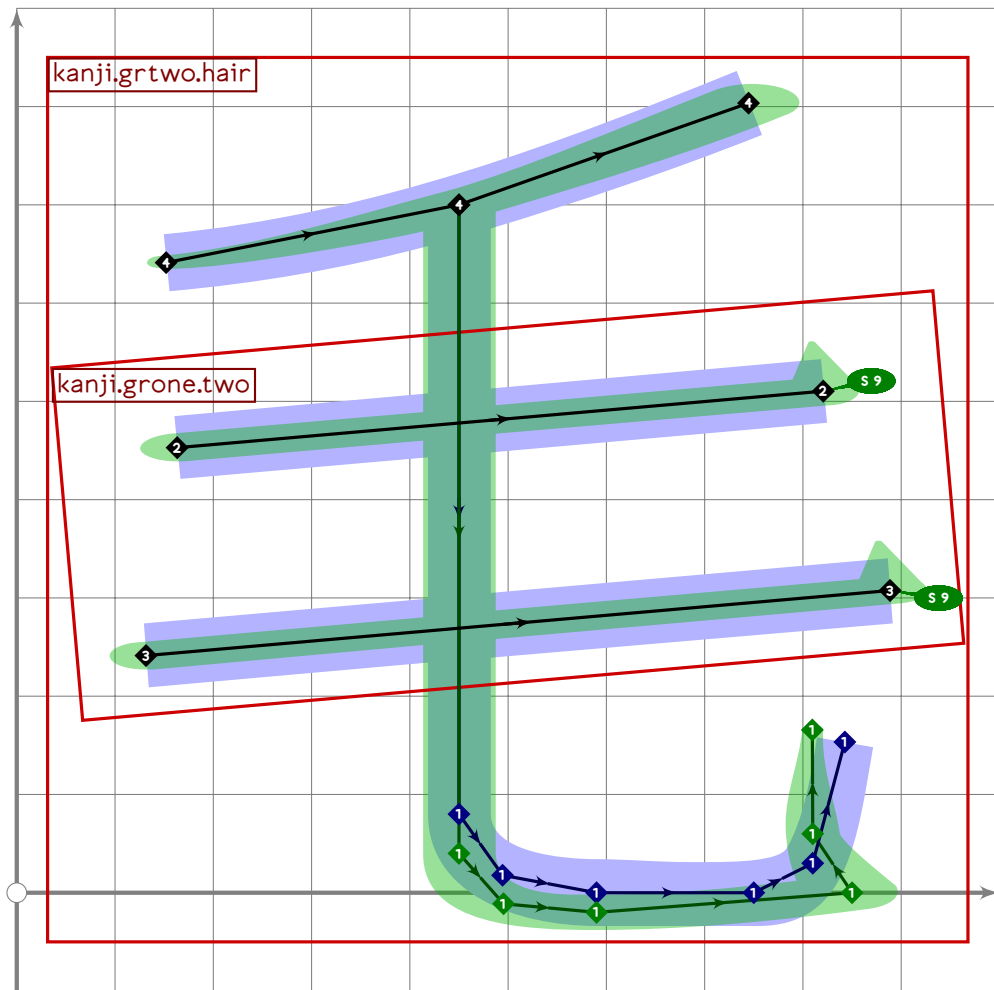
---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradefive.mp;
38 input gradefour.mp;
39 input gradeone.mp;
40 input gradetwo.mp;
41 input leftrad.mp;
42 input radical.mp;
43 input rare.mp;
44 input toprad.mp;
45
46 

---


```

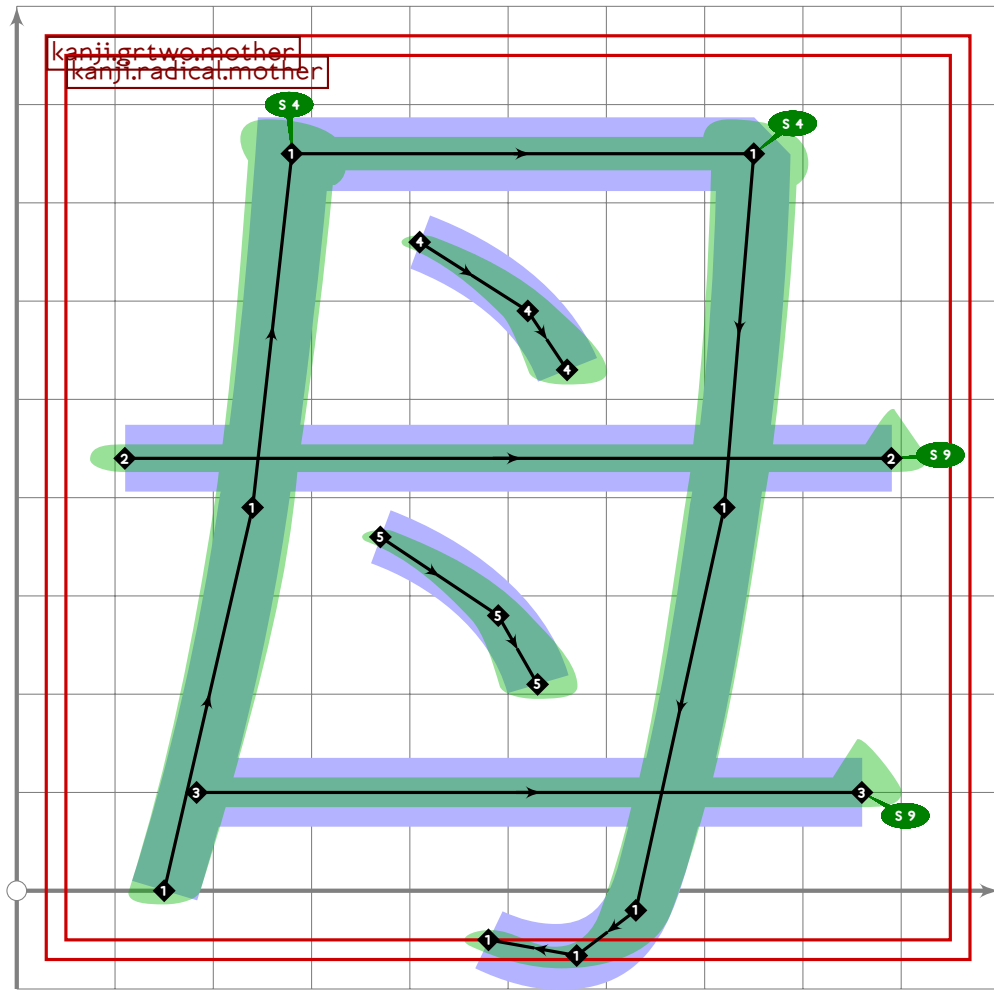




```

47
48 vardef kanji.grtwo.hair =
49   push_pbox_toexpand("kanji.grtwo.hair");
50   build_kanji.level(build_kanji.add_beret(
51     push_stroke((450,700),(1.6,1.6));
52     build_kanji.add_tail(0);
53     build_kanji.sscale(yscaled 0.4 rotated 5)(kanji.grone.two)));
54   expand_pbox;
55 enddef;

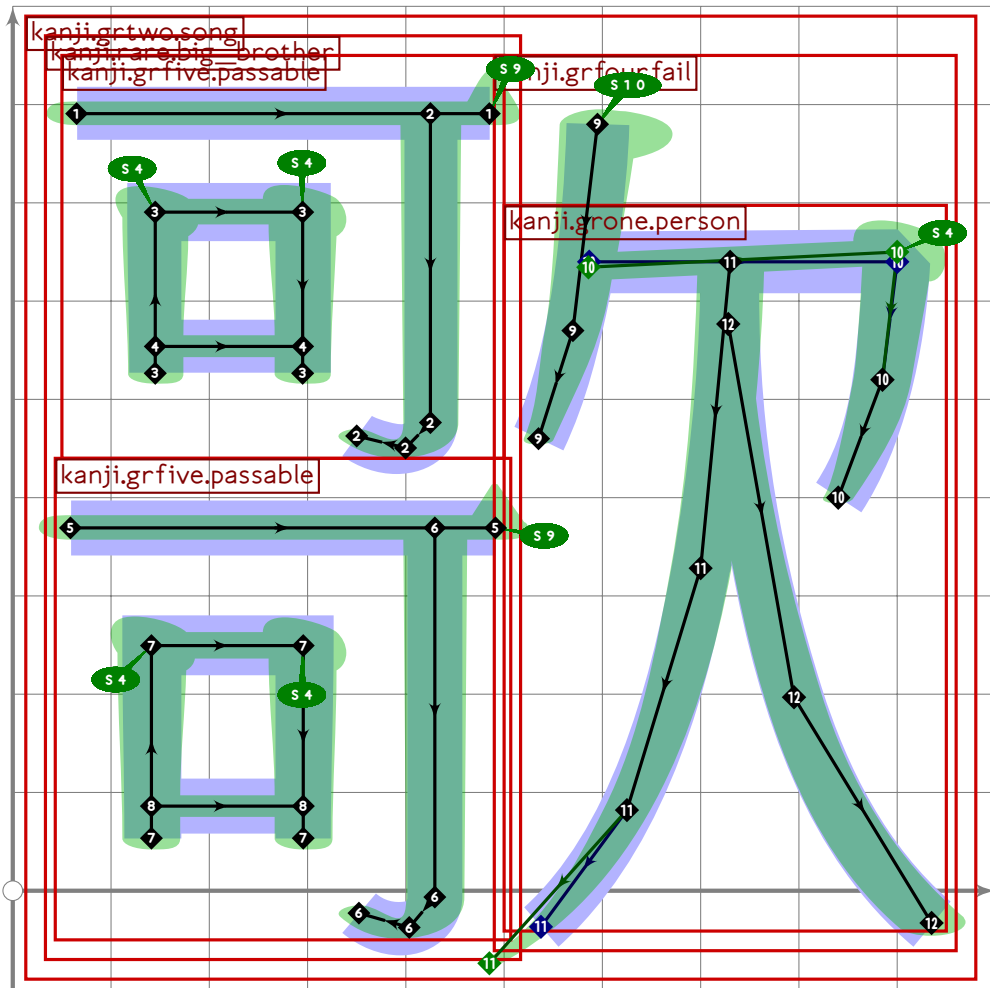
```



```

56
57 vardef kanji.grtwo.mother =
58   push_pbox_toexpand("kanji.grtwo.mother");
59   kanji.radical.mother;
60   push_stroke((410,660)..tension 1.2..(520,590)..(560,530),
61     (1,1,1)-(14,1,4)-(17,1,7));
62   set_bosize(0,90);
63   push_stroke((370,360)..tension 1.2..(490,280)..(530,210),
64     (1,1,1)-(14,1,4)-(17,1,7));
65   set_bosize(0,90);
66   expand_pbox;
67 enddef;

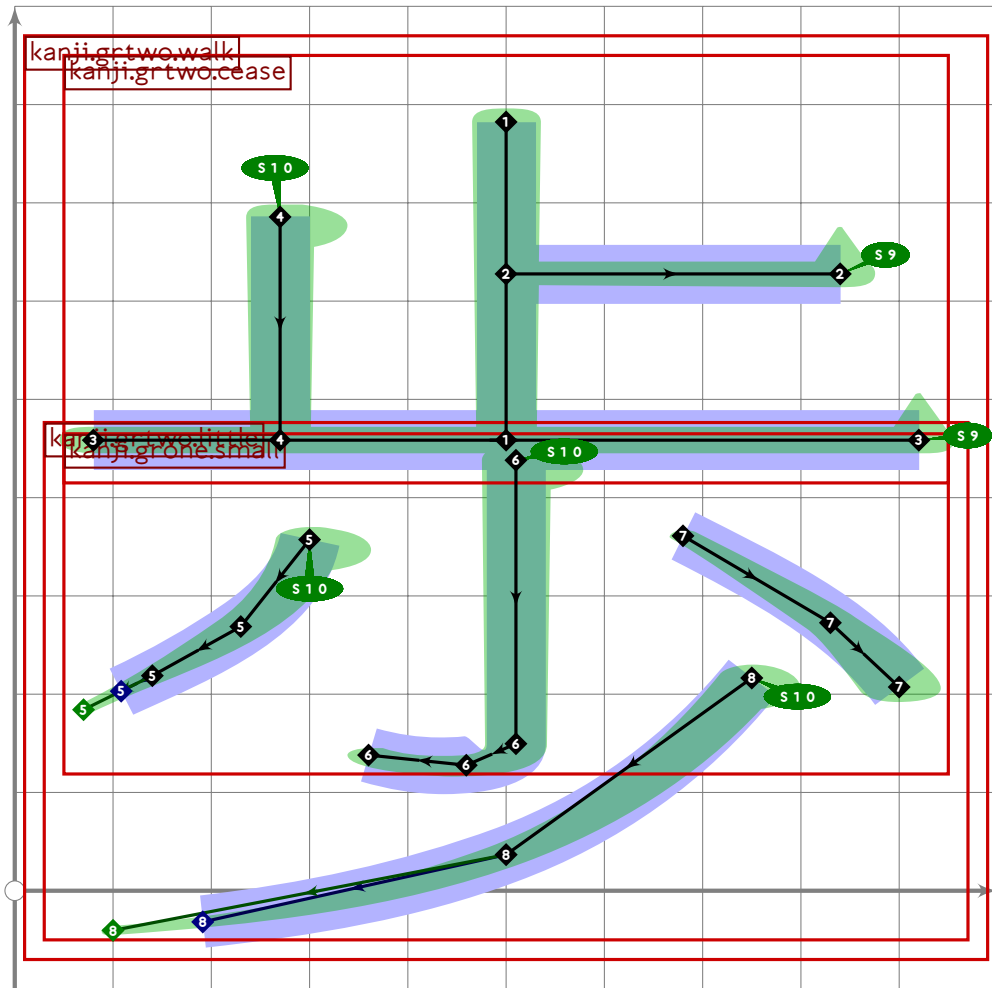
```



```

68
69 vardef kanji.grtwo.song =
70   push_pbox_toexpand("kanji.grtwo.song");
71   build_kanji.lr(500,0)
72     (kanji.rare.big_brother)
73     (kanji.grfour.fail);
74   expand_pbox;
75 enddef;

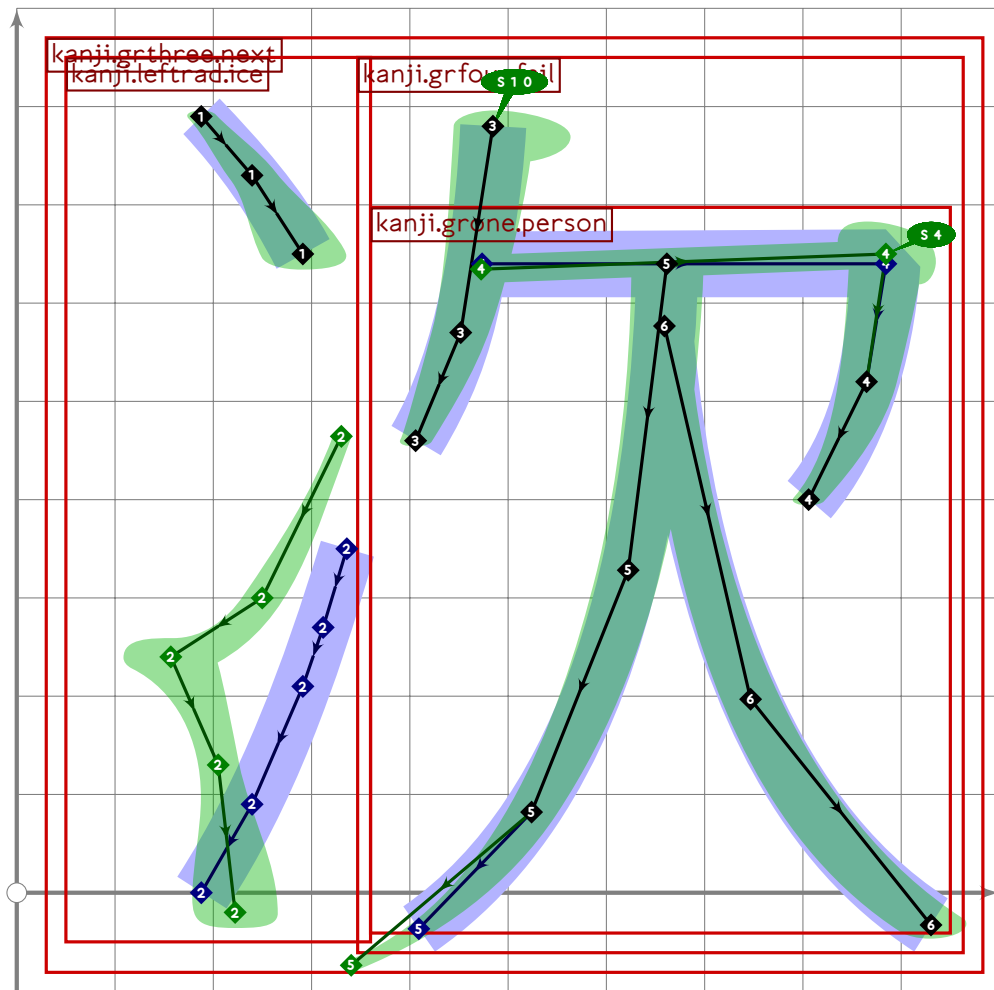
```



```

76
77 vardef kanji.grtwo.walk =
78   push_pbox_toexpand("kanji.grtwo.walk");
79   build_kanji.level(build_kanji.tb(440,50)
80     (kanji.grtwo.cease)
81     (kanji.grtwo.little));
82   expand_pbox;
83 enddef;
84
85

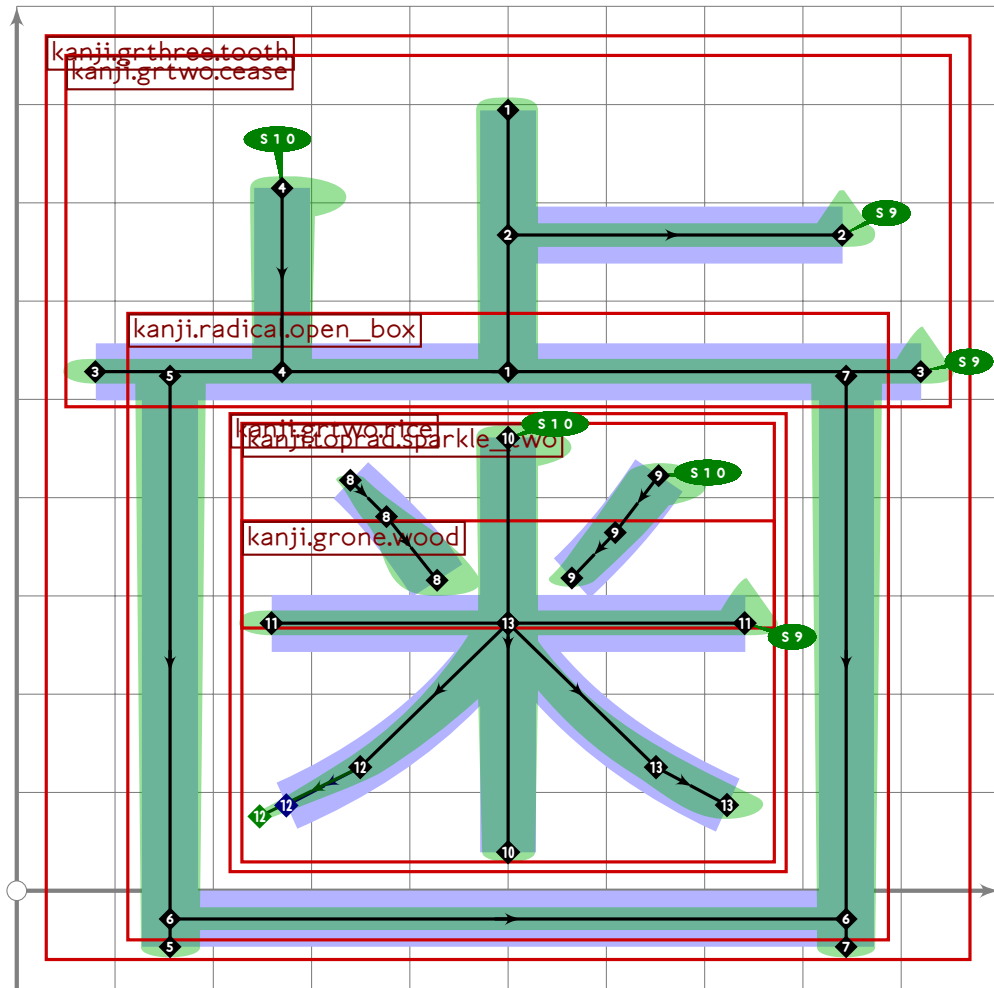
```



```

86
87 vardef kanji.grthree.next =
88   push_pbox_toexpand("kanji.grthree.next");
89   build_kanji.lr(360,0)
90     (kanji.leftrad.ice)
91     (kanji.grfour.fail);
92   expand_pbox;
93 enddef;

```



```

94
95 vardef kanji.grthree.tooth =
96   push_pbox_toexpand("kanji.grthree.tooth");
97   build_kanji.level(build_kanji.tb(540,95)
98     (kanji.grtwo.cease)
99     (build_kanji.sscale(xscaled 0.86)(
100       kanji.radical.open_box;
101       set_boserif(-2,0,whatever);
102       set_boserif(0,0,whatever);
103       build_kanji.sscale(scaled 0.7 shifted (0,-20))(kanji.grtwo.rice))));
104   expand_pbox;
105 enddef;

```

---

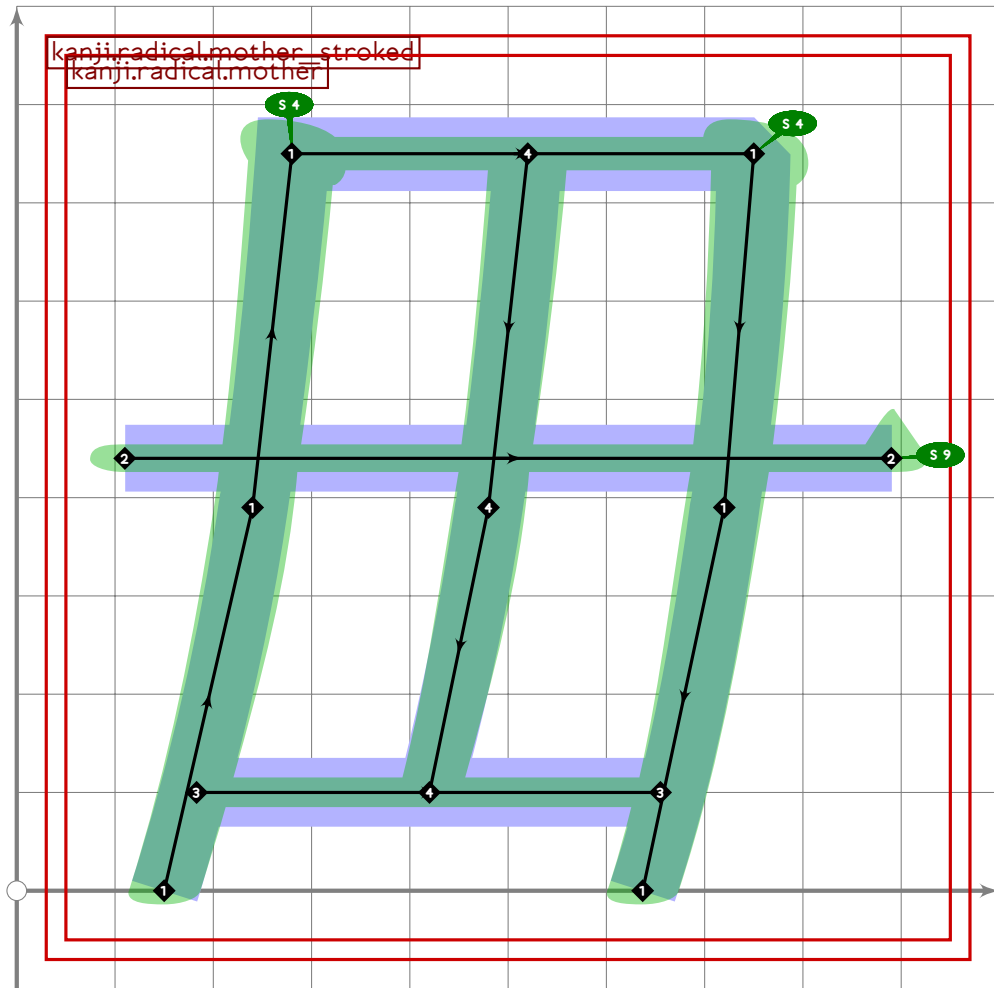
```

106
107
108
109 % ketsu/ka/akubi "fail" or "yawn"
110 beginsuglyph("uni6B20",32);
111   kanji.grfour.fail;
112   tsu_render;
113 endtsuglyph;
114

```

[see page 502]

115 % ji/tsugi "next"  
116 `begintsuglyph("uni6B21",33);` [see page 1673]  
117 `kanji.grthree.next;`  
118 `tsu_render;`  
119 `endtsuglyph;`  
120  
121 % ka/uta "song"  
122 `begintsuglyph("uni6B4C",76);` [see page 1671]  
123 `kanji.grtwo.song;`  
124 `tsu_render;`  
125 `endtsuglyph;`  
126  
127 % shi/toma "stop"  
128 `begintsuglyph("uni6B62",98);` [see page 430]  
129 `kanji.grtwo.cease;`  
130 `tsu_render;`  
131 `endtsuglyph;`  
132  
133 % sei/tada/machi "correct"  
134 `begintsuglyph("uni6B63",99);` [see page 374]  
135 `kanji.grone.correct;`  
136 `tsu_render;`  
137 `endtsuglyph;`  
138  
139 % ho/aruku "walk"  
140 `begintsuglyph("uni6B69",105);` [see page 1672]  
141 `kanji.grtwo.walk;`  
142 `tsu_render;`  
143 `endtsuglyph;`  
144  
145 % shi/ha "tooth"  
146 `begintsuglyph("uni6B6F",111);` [see page 1674]  
147 `kanji.grthree.tooth;`  
148 `tsu_render;`  
149 `endtsuglyph;`  
150  
151 % extra: mother radical, stroked version  
152 `begintsuglyph("uni6BCB",203);` [see page 345]  
153 `kanji.radical.mother_stroked;`  
154 `tsu_render;`  
155 `endtsuglyph;`  
156



```

157 % further variation
158 begint Suglyph("uni6BCC",204);
159 kanji.radical.mother_stroked;
160 replace_strokep(-3)(subpath (0,xpart (oldp intersectiontimes
161   ((500,0)-(1000,0)))) of oldp);
162 replace_strokeq(-3)(subpath (0,length get_strokep(-3)) of oldq);
163 replace_stroke(-1)((183,100)-(655,100));
164 set_boserif(-1,1,whatever);
165 tsu_render;
166 endtsuglyph;

```

```

167
168 % bo/haha "mother"
169 begint Suglyph("uni6BCD",205);
170 kanji.grtwo.mother;
171 tsu_render;
172 endtsuglyph;

```

[see page 1670]

```

173
174 % mai/goto "every"
175 begint Suglyph("uni6BCE",206);
176 kanji.grtwo.every;
177 tsu_render;

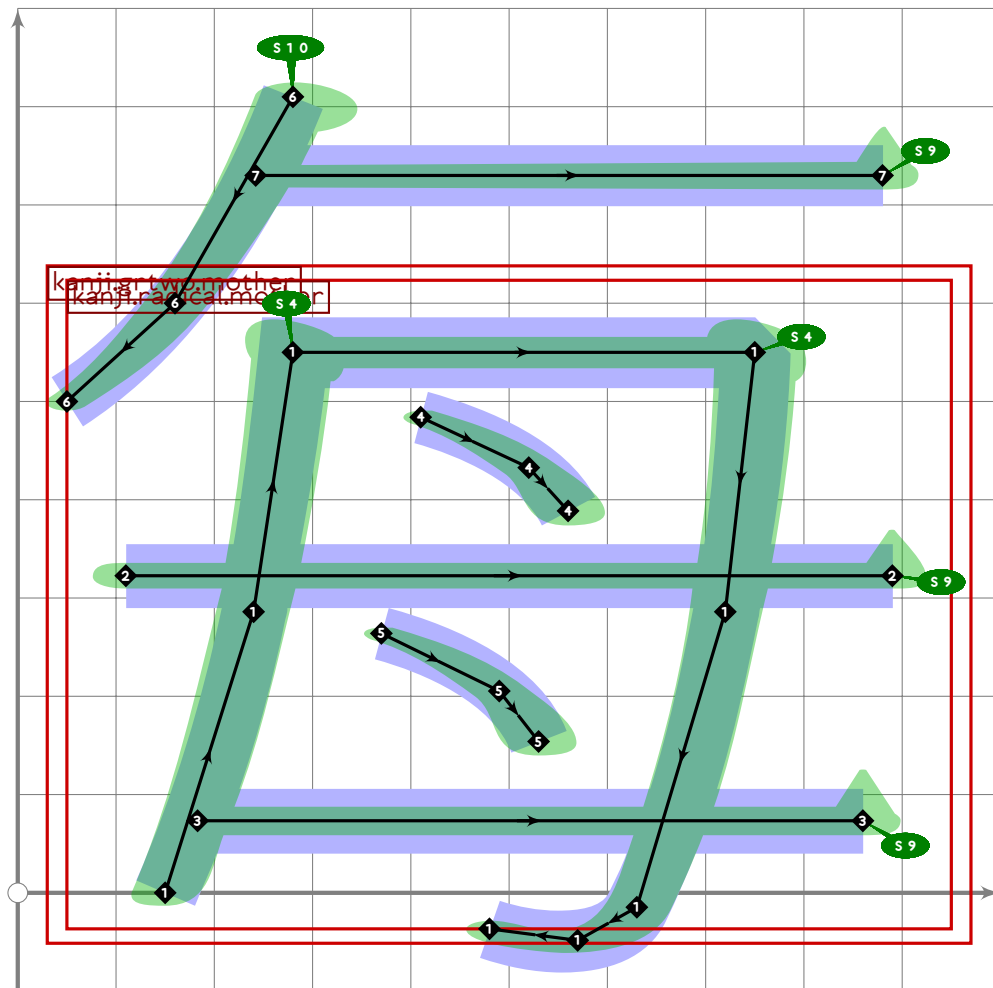
```

[see page 436]



178 endtsuglyph;

179



180 % extra, closely related to previous

181 `begintsuglyph("uni6BCF",207);`

182 `tsu_xform(identity yscaled (550/750))`

183 `(kanji.grtwo.mother);`

184 `push_stroke((280,810)..tension 1.2..(160,600)..(50,500),`

185 `(1.7,1.7)-(1.5,1.5)-(1.2,1.2));`

186 `set_boserif(0,0,10);`

187 `set_bosize(0,90);`

188 `push_stroke((get_strokep(0) intersectionpoint ((0,730)-(1000,730)))-`

189 `(880,730),`

190 `(1.5,1.5)-(1.6,1.6));`

191 `set_boserif(0,1,9);`

192 `set_bosize(0,90);`

193 `tsu_render;`

194 `endtsuglyph;`

195

196 % mou/ke "hair"

197 `begintsuglyph("uni6BDB",219);`

198 `kanji.grtwo.hair;`

[see page 1669]

```
199  tsu_render;  
200  endtsuglyph;  
201  
202  _____  
203  
204  endfont;  
205  
206  _____
```

# tsuku-6c.mp

```
1 %
2 % Unicode page 6c (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input bottomrad.mp;
37 input buildkanji.mp;
38 input gradefour.mp;
39 input gradenine.mp;
40 input gradeone.mp;
41 input gradesix.mp;
42 input gradethree.mp;
43 input gradetwo.mp;
44 input leftrad.mp;
45 input radical.mp;
46 input rare.mp;
47 input topfad.mp;
48
49 

---

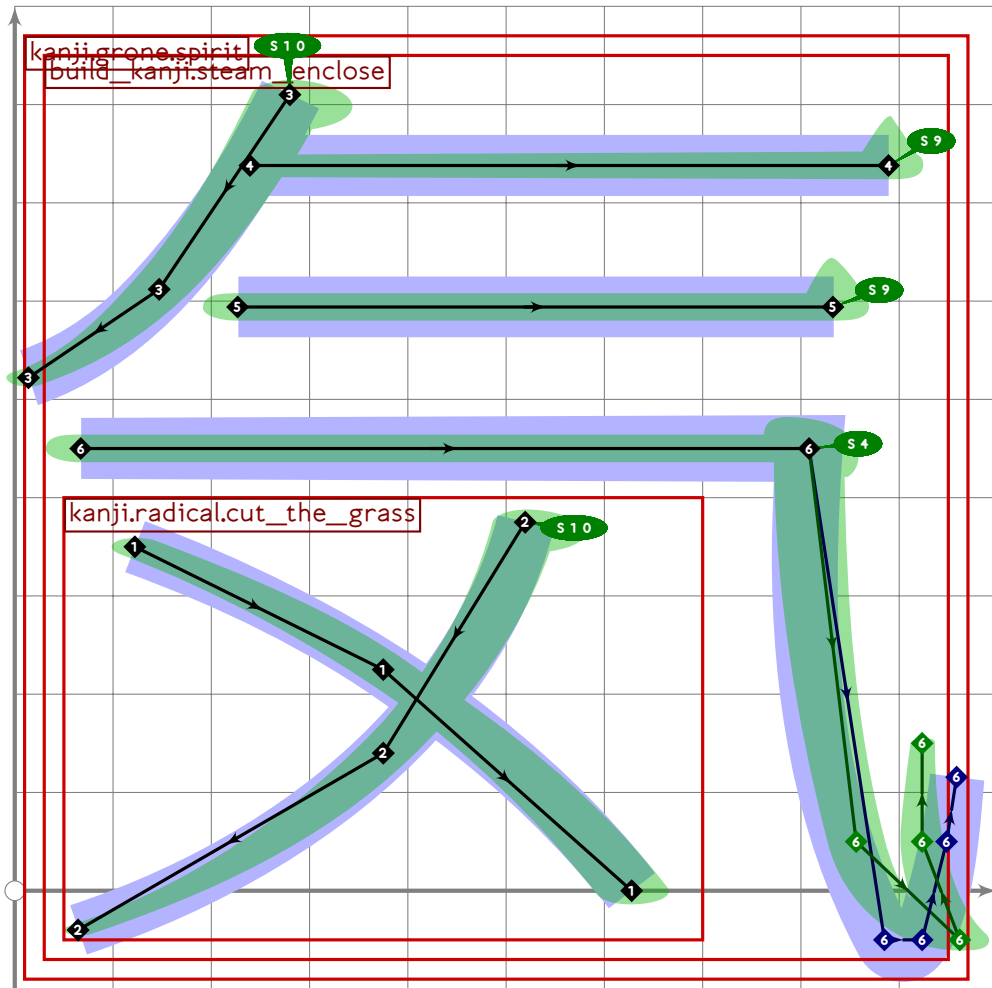

50
51 vardef build_kanji.steam_enclose(expr ur)(text contents) =
52   push_pbox_toexpand("build_kanji.steam_enclose");
53   begingroup
54     save xfa,xfb,xfc,xfd;
55     transform xfa,xfb,xfc,xfd;
56     (50,-50) transformed xfc=(50,-50);
57     (950,850) transformed xfc=ur;
58     xypart xfc=yxpart xfc=0;
59     tsu_xform(xfc)(contents);
60
61     (0,0) transformed xfa=(0,950) transformed xfc;
62     (1,1) transformed xfa=(280,810);
63     xypart xfa=yxpart xfa=0;
64     (0,0) transformed xfb=(1100,950) transformed xfc;
65     (1,1) transformed xfb=(970,810);
66     xypart xfb=yxpart xfb=0;
67     (0,1) transformed xfd=(1100,950) transformed xfc;
68     (1,0) transformed xfd=(1000,-50);
69     xypart xfd=yxpart xfd=0;
70
```

```

71  push_stroke(((1,1)..tension 1.2..(0.5,0.45)..(0,0.2)) transformed xfa,
72  (1.7,1.7)–(1.5,1.5)–(1.2,1.2));
73  set_boserif(0,0,10);
74  set_bosize(0,90);
75
76  push_stroke((get_strokep(0) intersectionpoint
77  (((0,0.8)–(1,0.8)) transformed xfa))–
78  ((0.5,0.8) transformed xfb),
79  (1.5,1.5)–(1.6,1.6));
80  set_boserif(0,1,9);
81  set_bosize(0,90);
82
83  push_stroke(((0.8,0.4) transformed xfa)–((0.15,0.4) transformed xfb),
84  (1.6,1.6)–(1.6,1.6));
85  set_boserif(0,1,9);
86  set_bosize(0,90);
87
88  push_stroke(((0.2,0) transformed xfa)–(interpath(mincho,
89  (0,1)..tension 1.6..(0.4,0)..(0.6,0)..tension 1.5..
90  (0.73,0.2)..(0.8,0.4),
91  (0,1)..tension 1.6..(0.25,0.2)..{right}(0.8,0){curl 1}..
92  (0.6,0.2)..(0.6,0.4)
93  ) transformed xfd),
94  (1.6,1.6)–(1.6,1.6)–(1.4,1.4)–
95  (1.4,1.4)–(1.2,1.2)–(0.9,0.9));
96  set_boserif(0,1,4);
97  set_botip(0,1,1);
98  set_bosize(0,90);
99  endgroup;
100 expand_pbox;
101 enddef;
102
103

```

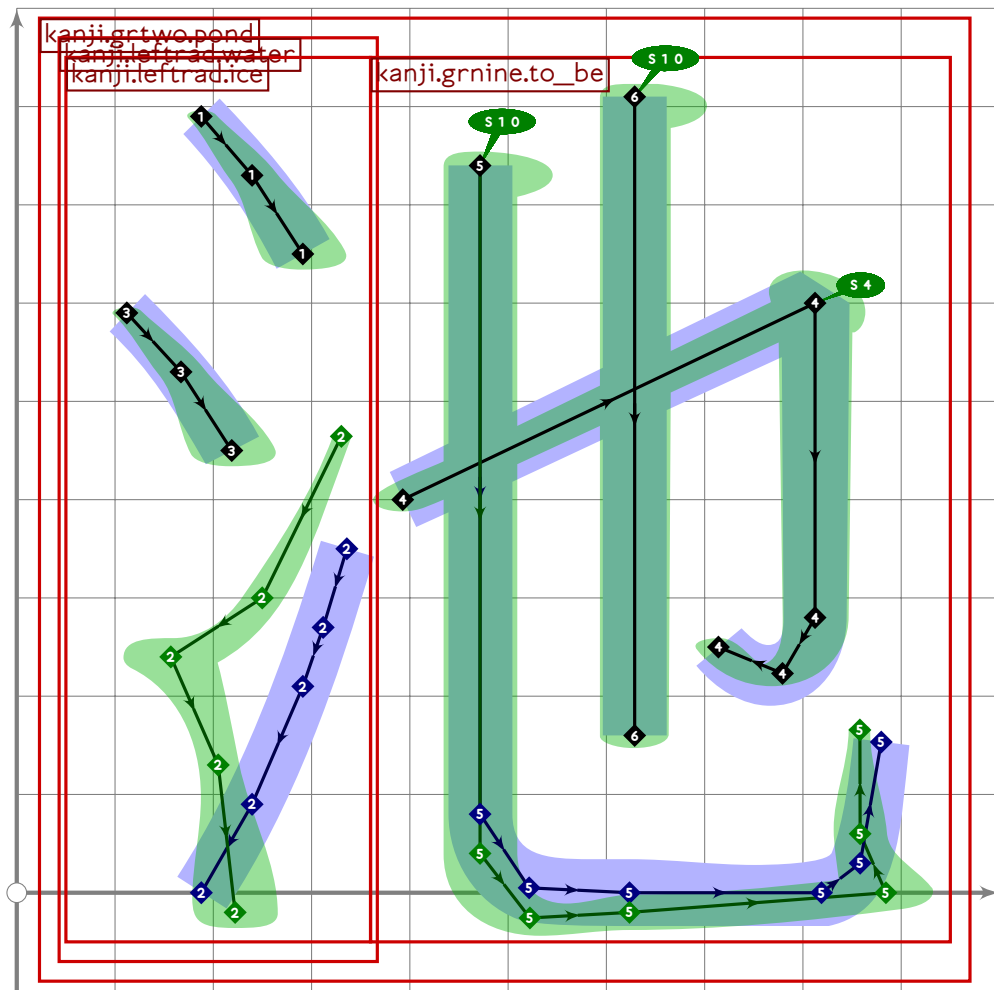
---



```

104
105 vardef kanji.grone.spirit =
106   push_pbox_toexpand("kanji.grone.spirit");
107   build_kanji.steam_enclose((700,400)
108     (kanji.radical.cut_the_grass);
109   expand_pbox;
110 enddef;
111
112

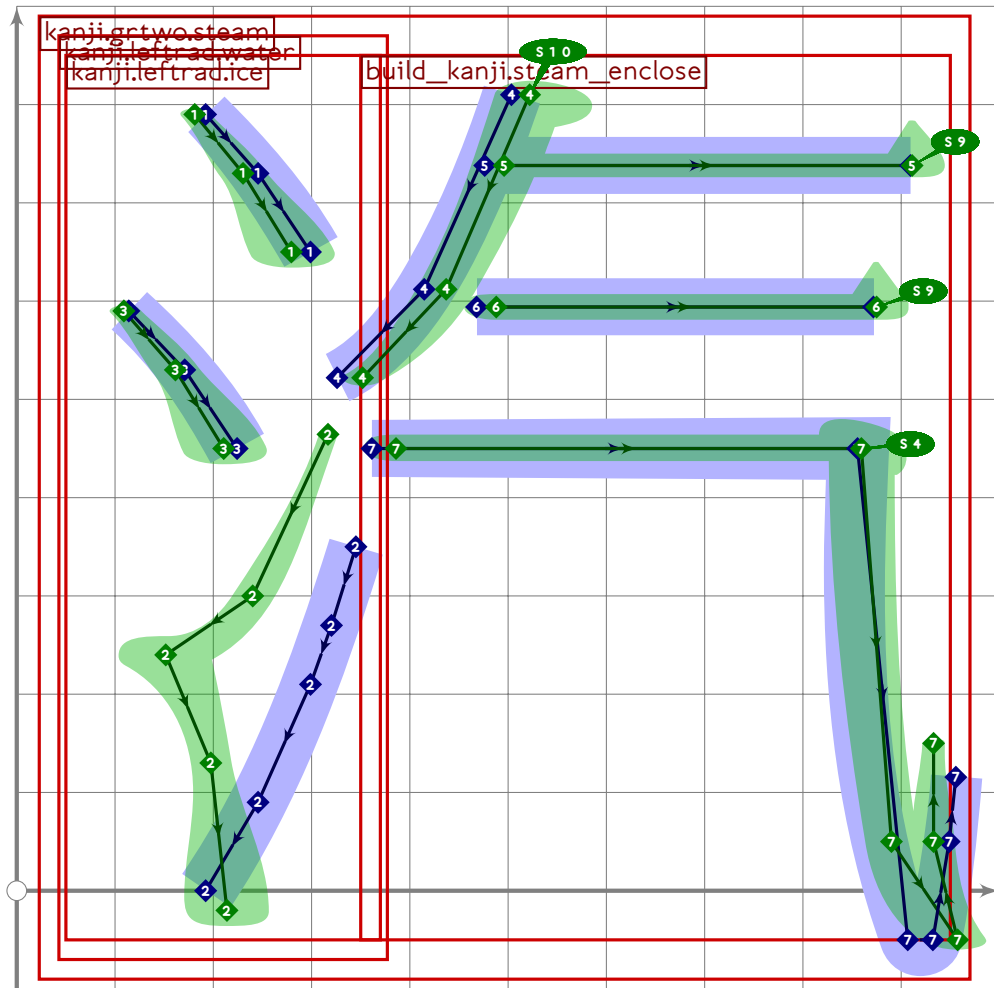
```



```

113
114 vardef kanji.grtwo.pond =
115   push_pbox_toexpand("kanji.grtwo.pond");
116   build_kanji.lr(360,0)
117     (kanji.leftrad.water)
118     (kanji.grnine.to_be);
119   expand_pbox;
120 enddef;

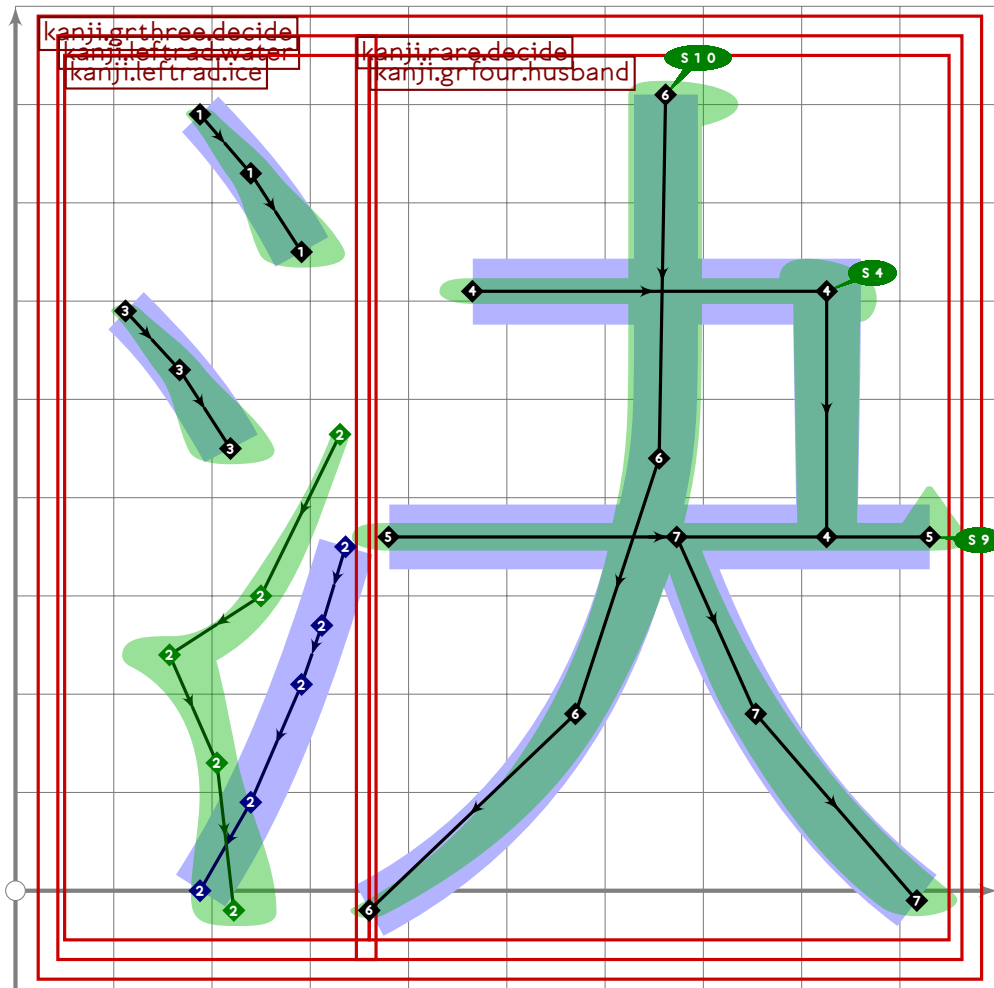
```



```

121
122 vardef kanji.grtwo.steam =
123   push_pbox_toexpand("kanji.grtwo.steam");
124   build_kanji.lr(360,20-50*mincho)
125     (kanji.leftrad.water)
126     (build_kanji.steam_enclose((700,400))());
127   expand_pbox;
128 enddef;
129
130

```

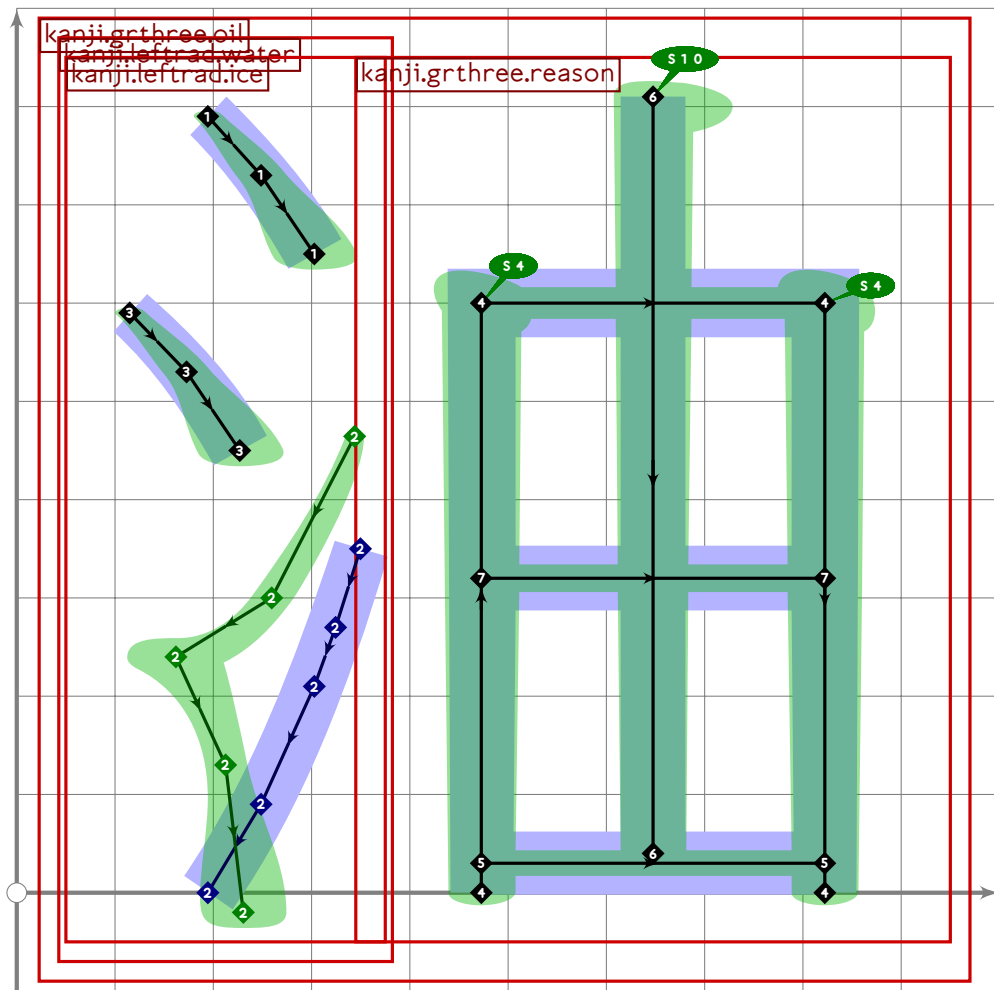


```

131
132 vardef kanji.grthree.decide =
133   push_pbox_toexpand("kanji.grthree.decide");
134   build_kanji.lr(360,0)
135     (kanji.leftrad.water)
136     (kanji.rare.decide);
137   expand_pbox;
138 enddef;

```

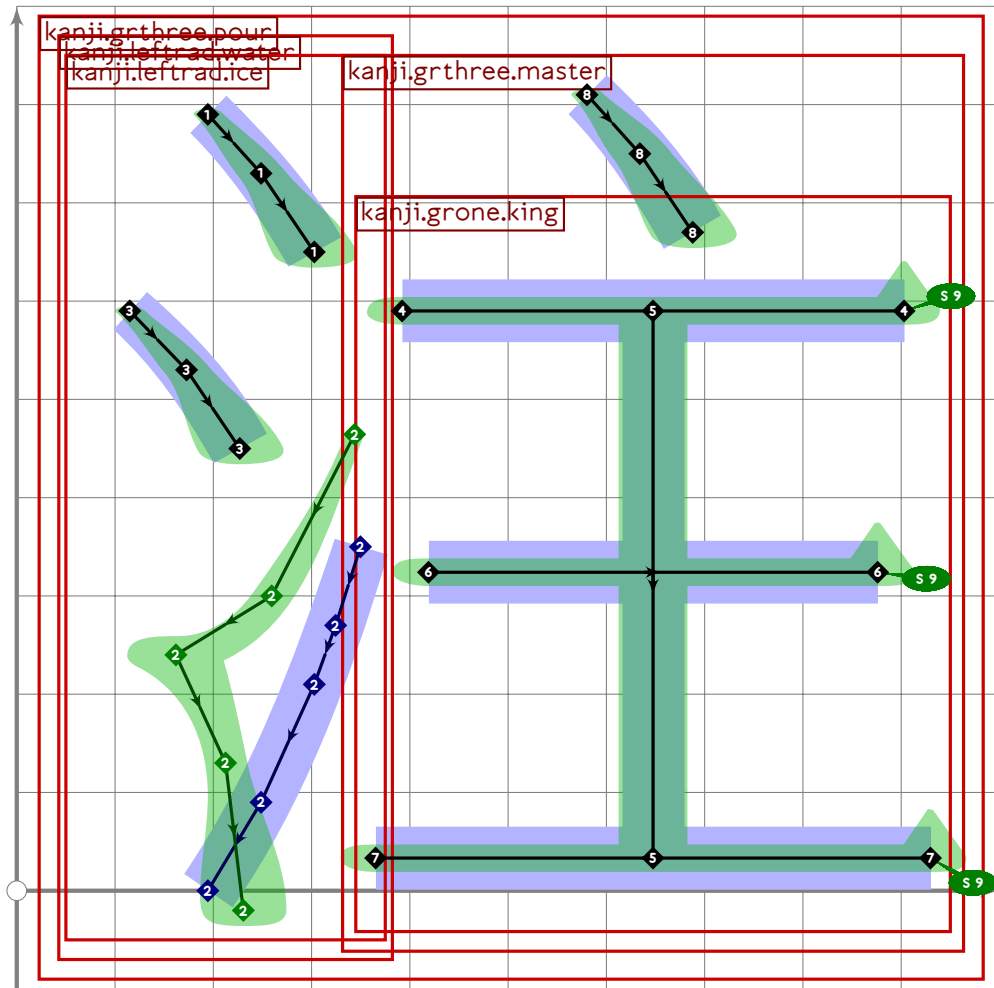




```

139
140 vardef kanji.grthree.oil =
141   push_pbox_toexpand("kanji.grthree.oil");
142   build_kanji.lr(360,30)
143     (kanji.leftrad.water)
144     (kanji.grthree.reason);
145   expand_pbox;
146 enddef;

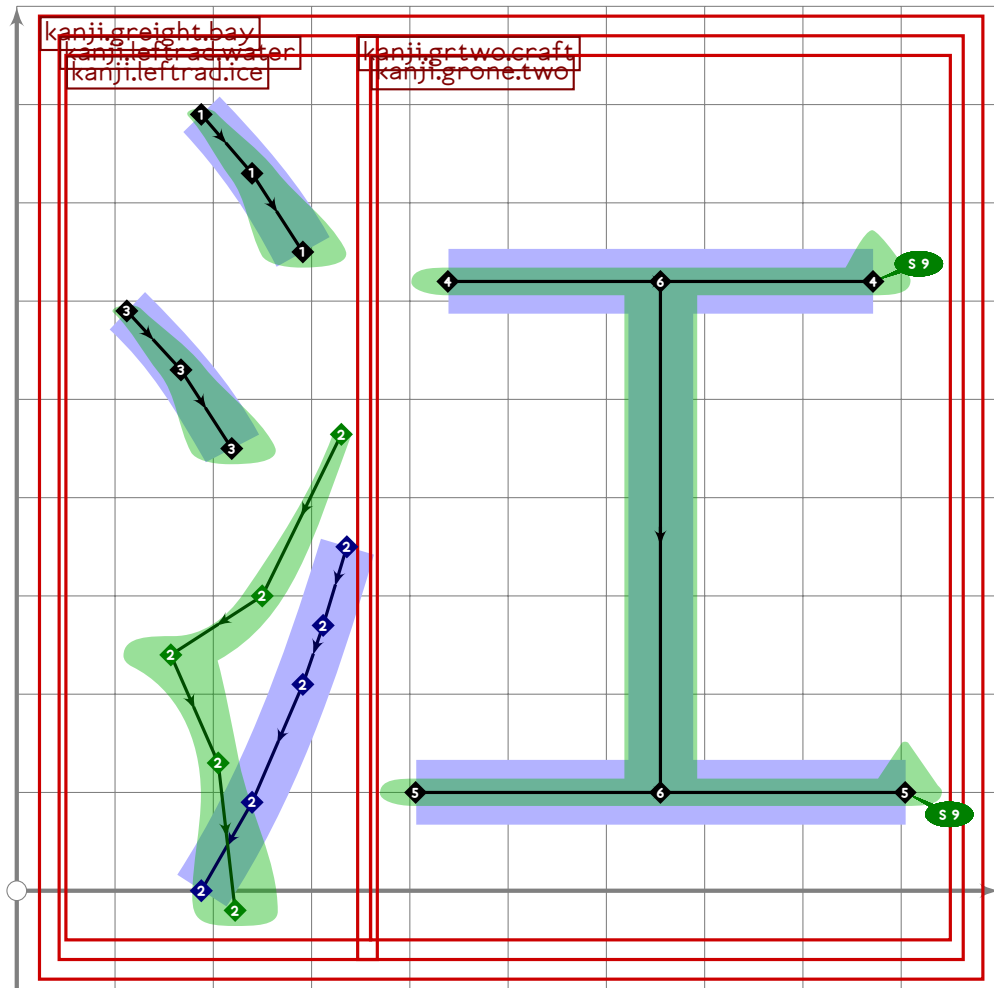
```



```

147
148 vardef kanji.grthree.pour =
149   push_pbox_toexpand("kanji.grthree.pour");
150   build_kanji.lr(360,30)
151     (kanji.leftrad.water)
152     (kanji.grthree.master);
153   expand_pbox;
154 enddef;
155
156

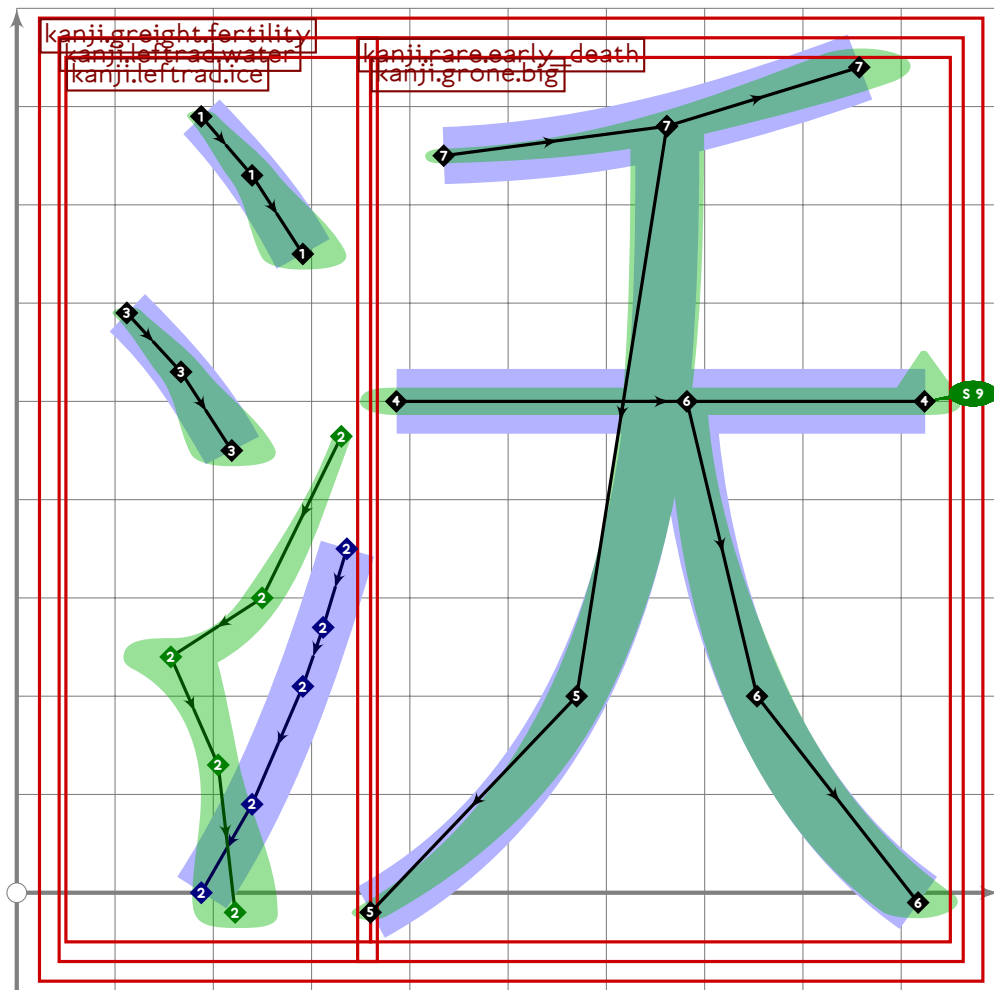
```



```

157
158 vardef kanji.greight.bay =
159   push_pbox_toexpand("kanji.greight.bay");
160   build_kanji.lr(360,0)
161     (kanji.leftrad.water)
162     (kanji.grtwo.craft);
163   expand_pbox;
164 enddef;

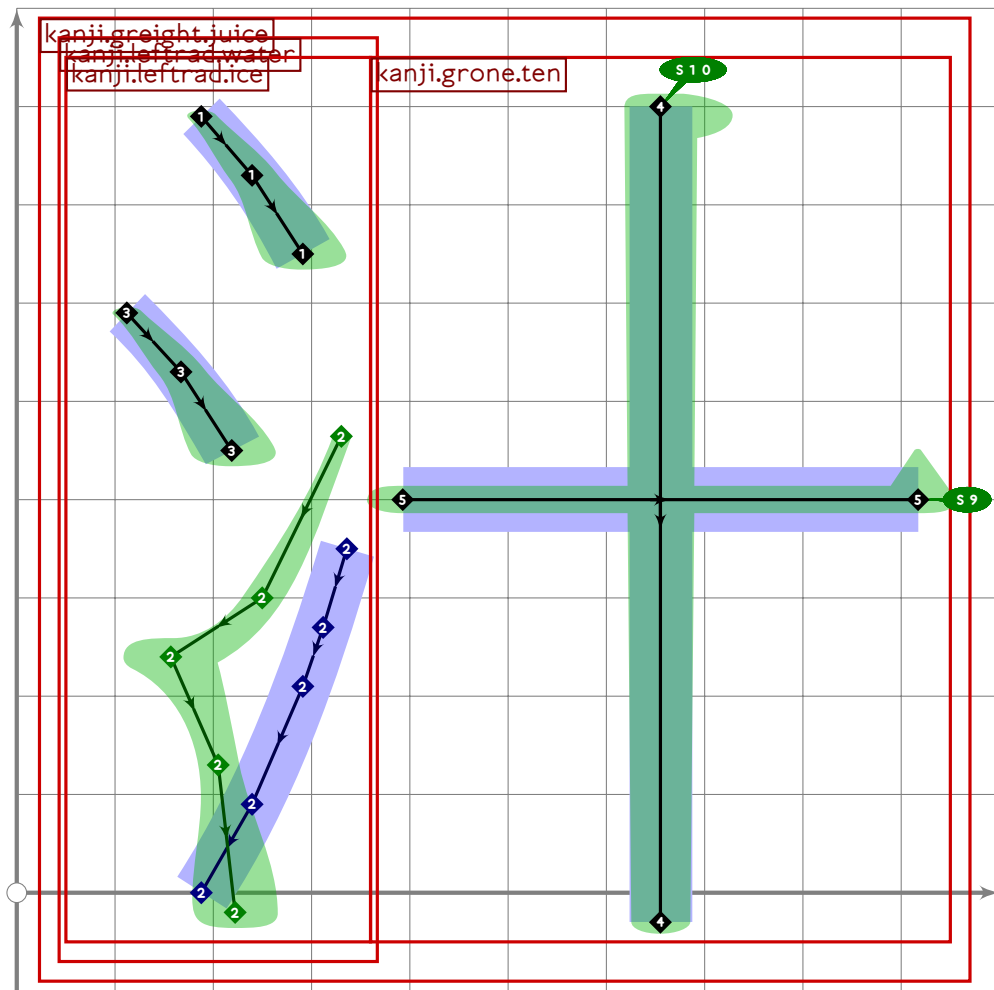
```



```

165
166 vardef kanji.greight.fertility =
167   push_pbox_toexpand("kanji.greight.fertility");
168   build_kanji.lr(360,0)
169     (kanji.leftrad.water)
170     (kanji.rare.early_death);
171   expand_pbox;
172 enddef;

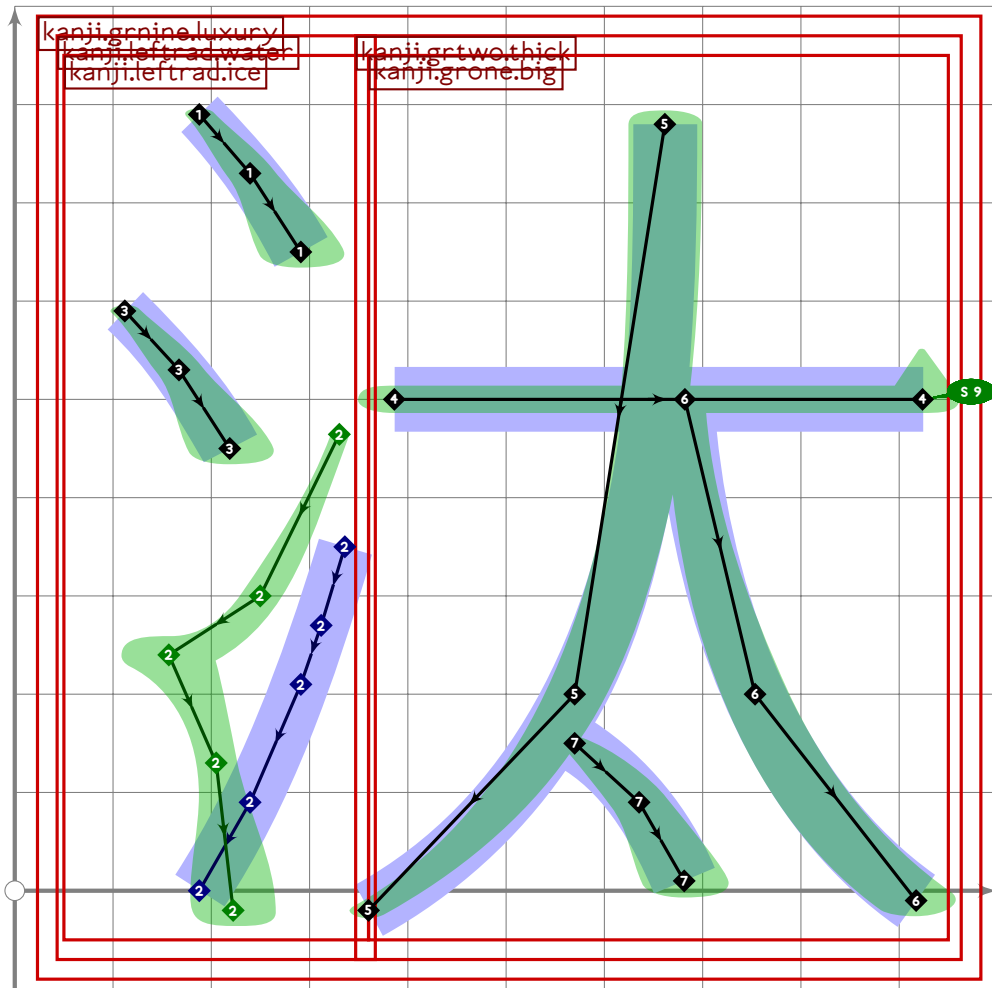
```



```

173
174 vardef kanji.greight.juice =
175   push_pbox_toexpand("kanji.greight.juice");
176   build_kanji.lr(360,0)
177     (kanji.leftrad.water)
178     (kanji.grone.ten);
179   expand_pbox;
180 enddef;
181
182

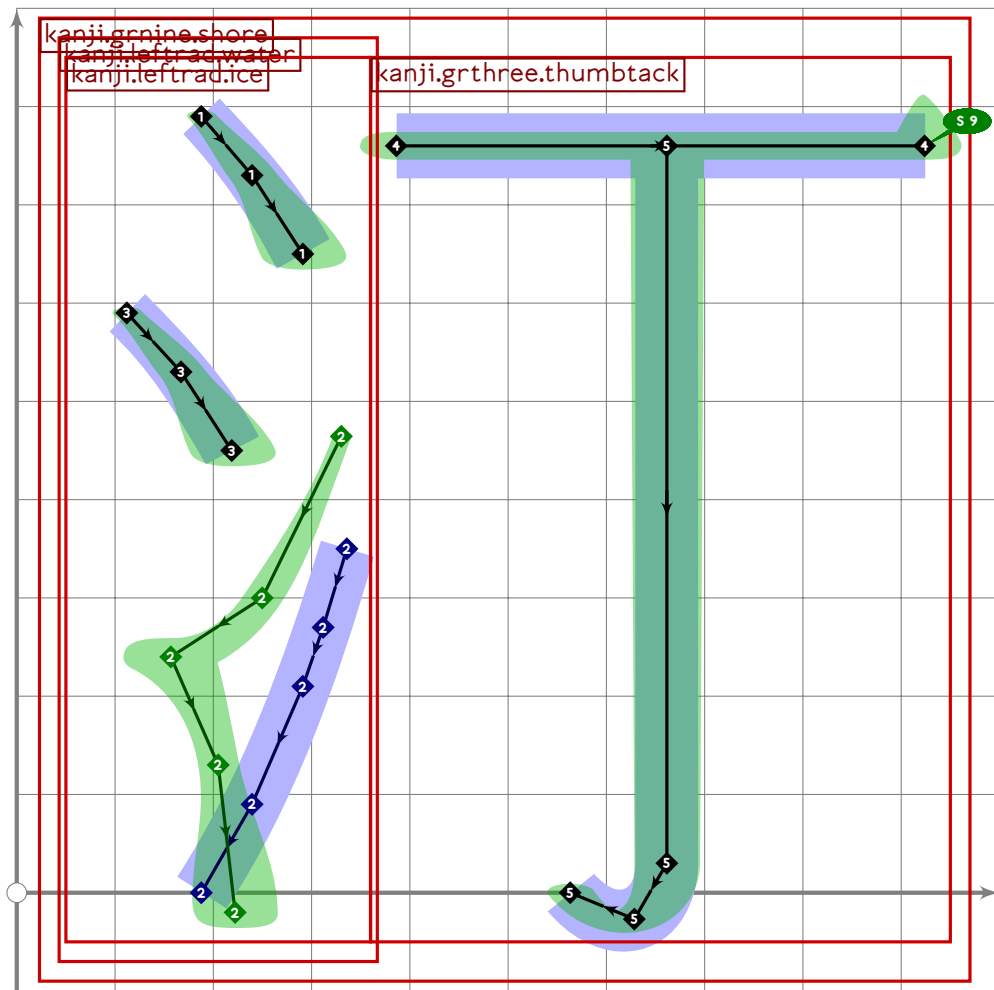
```



```

183
184 vardef kanji.grnine.luxury =
185   push_pbox_toexpand("kanji.grnine.luxury");
186   build_kanji.lr(360,0)
187     (kanji.leftrad.water)
188     (kanji.grtwo.thick);
189   expand_pbox;
190 enddef;

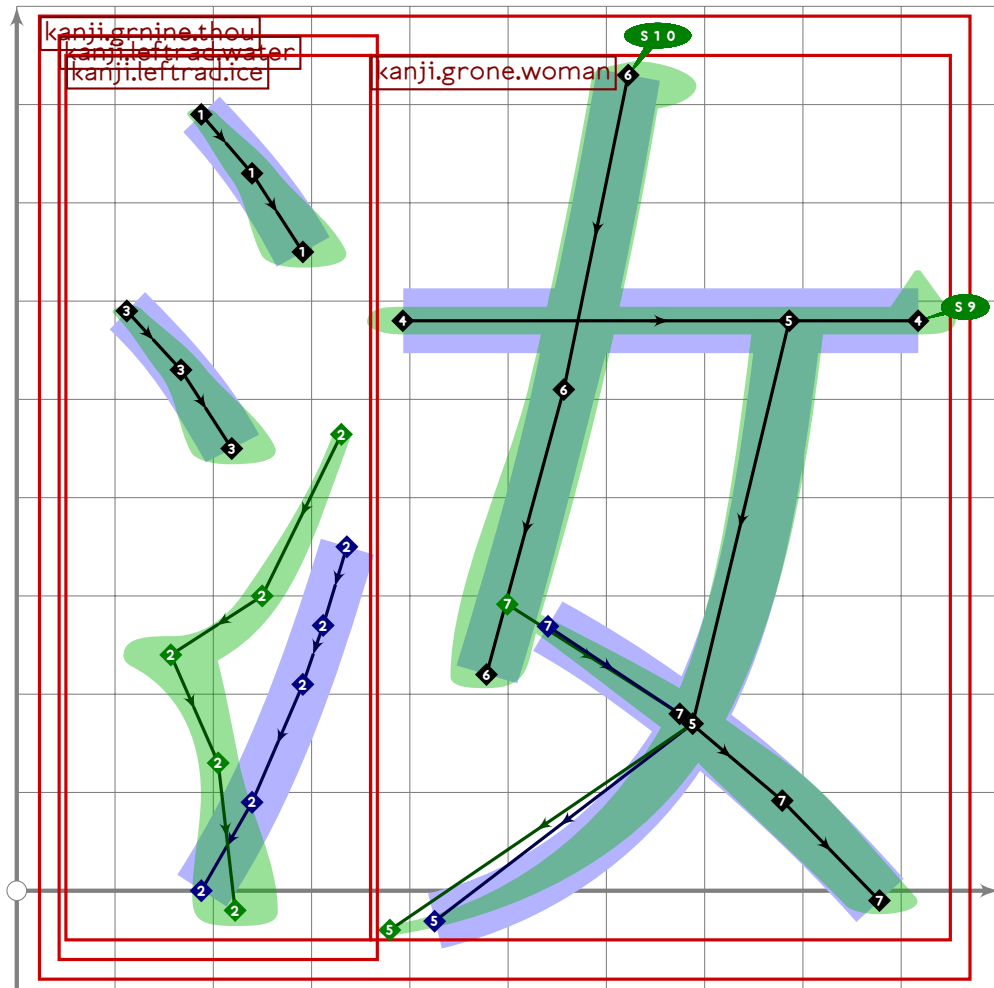
```



```

191
192 vardef kanji.grnine.shore =
193   push_pbox_toexpand("kanji.grnine.shore");
194   build_kanji.lr(360,0)
195     (kanji.leftrad.water)
196     (kanji.grthree.thumbtack);
197   expand_pbox;
198 enddef;

```

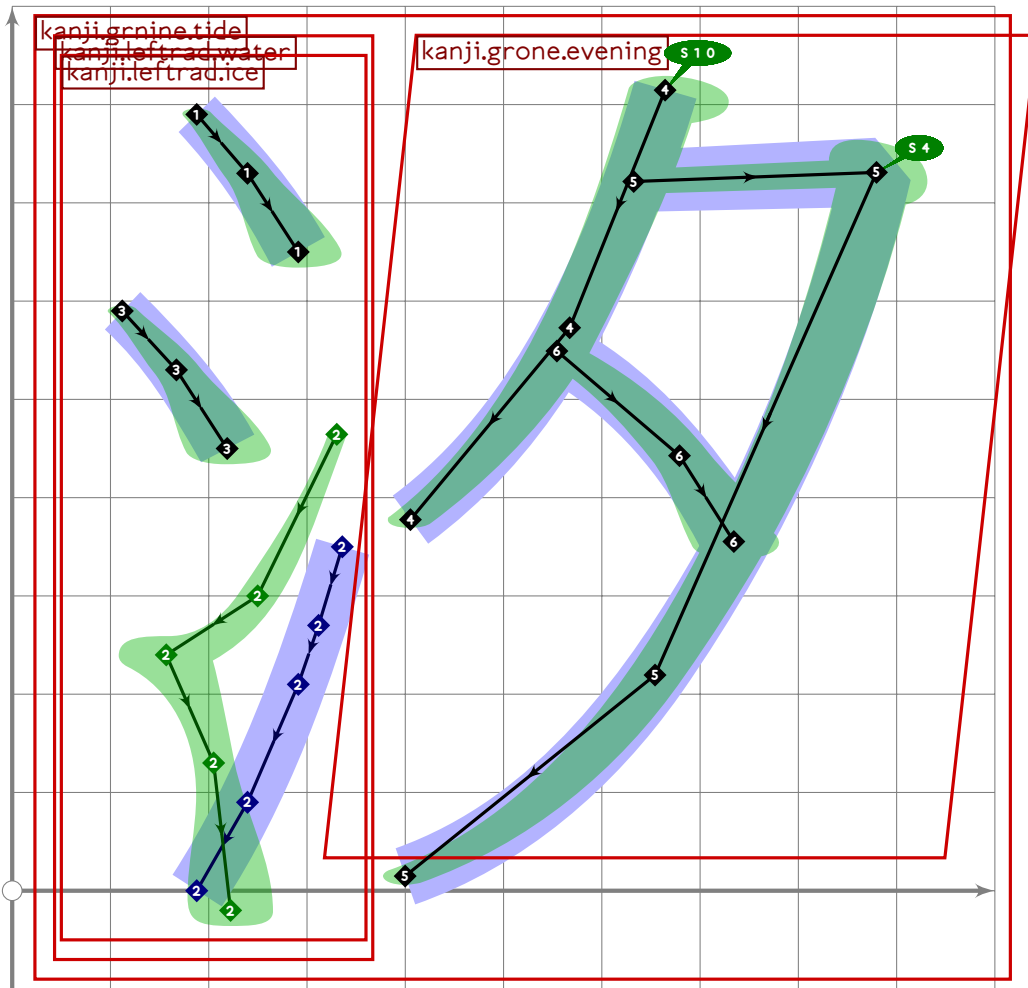


```

199
200 vardef kanji.grnine.thou =
201   push_pbox_toexpand("kanji.grnine.thou");
202   build_kanji.lr(360,0)
203     (kanji.leftrad.water)
204     (kanji.grone.woman);
205   expand_pbox;
206 enddef;

```





```

207
208 vardef kanji.grnine.tide =
209   push_pbox_toexpand("kanji.grnine.tide");
210   build_kanji.lr(360,0)
211     (kanji.leftrad.water)
212     (tsu_xform(identity xyscaled (1.07,0.93) slanted 0.17 shifted (-60,80))
213       (kanji.grone.evening));
214   expand_pbox;
215 enddef;

```

216

217

218

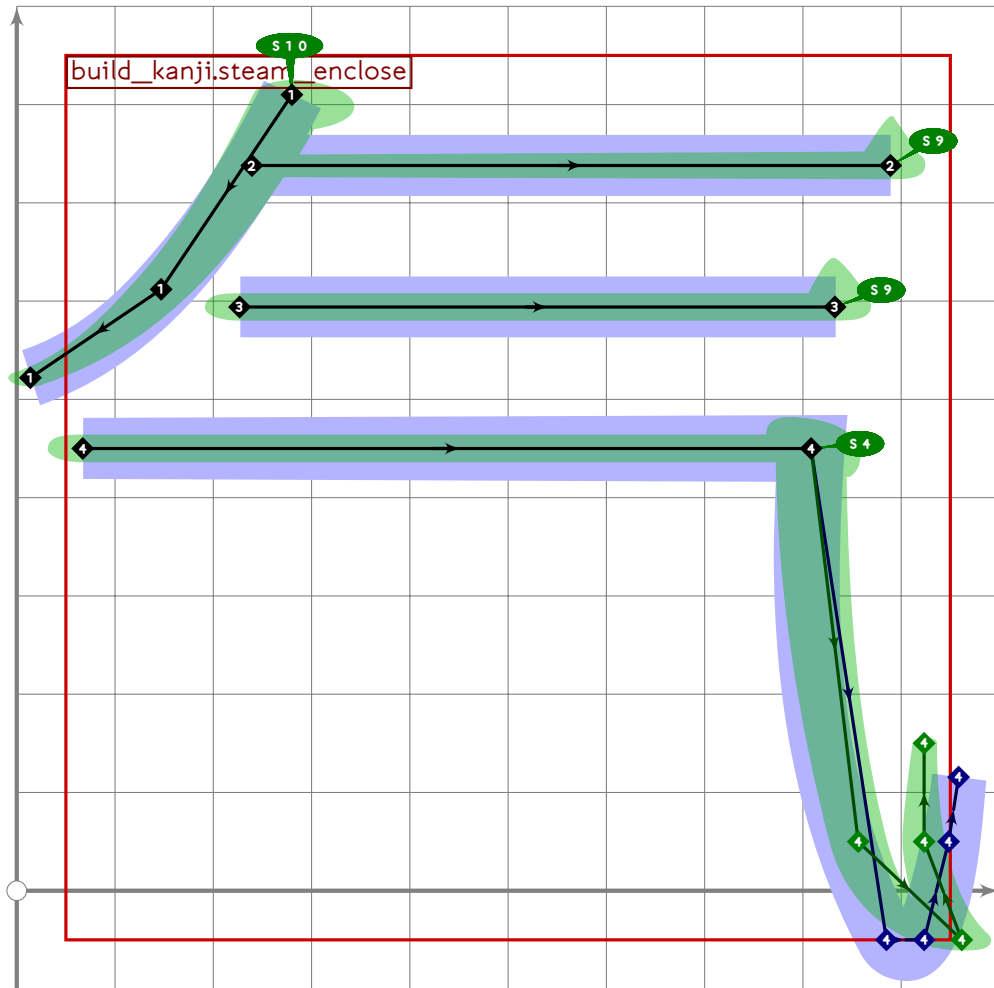
```

219 % shi/uji "clan"
220 beginsuglyph("uni6C0F",15);
221   kanji.grfour.clan;
222   tsu_render;
223 endsuglyph;

```

[see page 498]

224

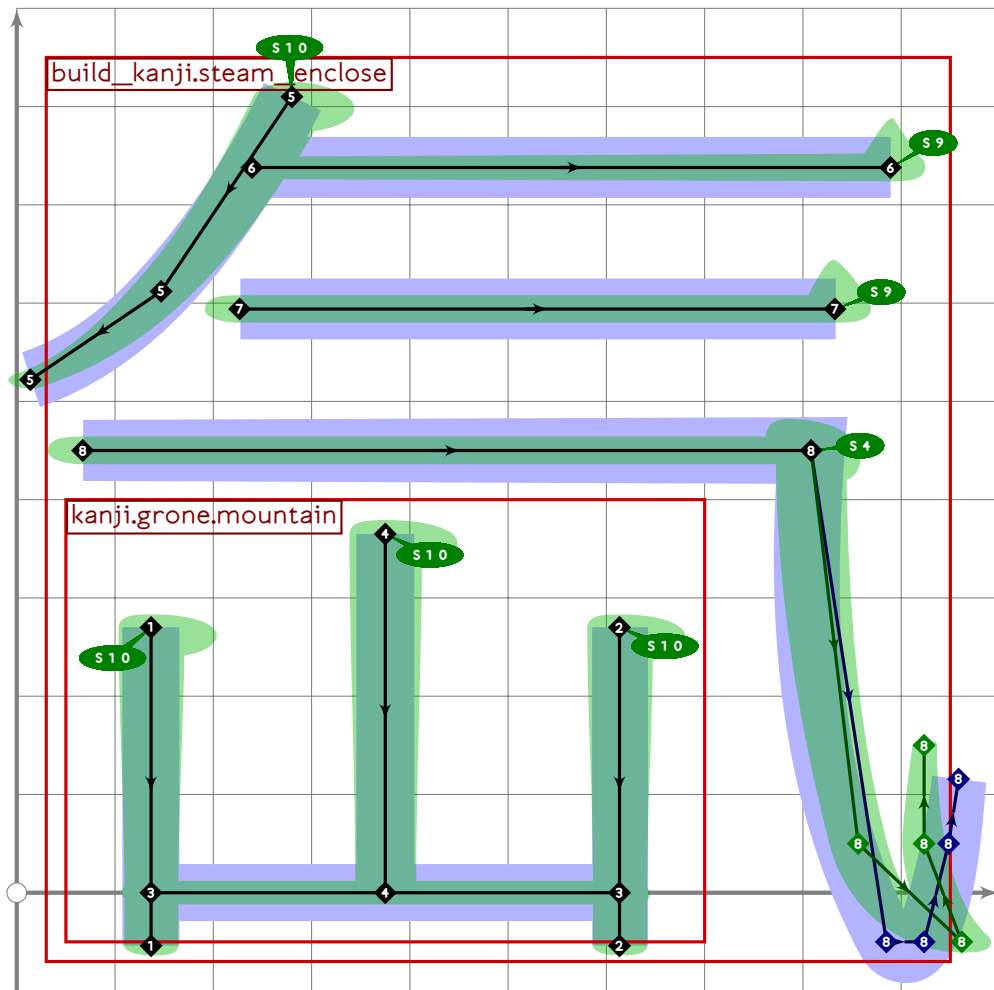


```

225 % sei/tada/machi "correct"
226 begintsuglyph("uni6C14";20);
227 build_kanji.steam_enclose((700,400))();
228 tsu_render;
229 endsuglyph;
230
231 % ki/iki "spirit"
232 begintsuglyph("uni6C17";23);
233 kanji.grone.spirit;
234 tsu_render;
235 endsuglyph;
236

```

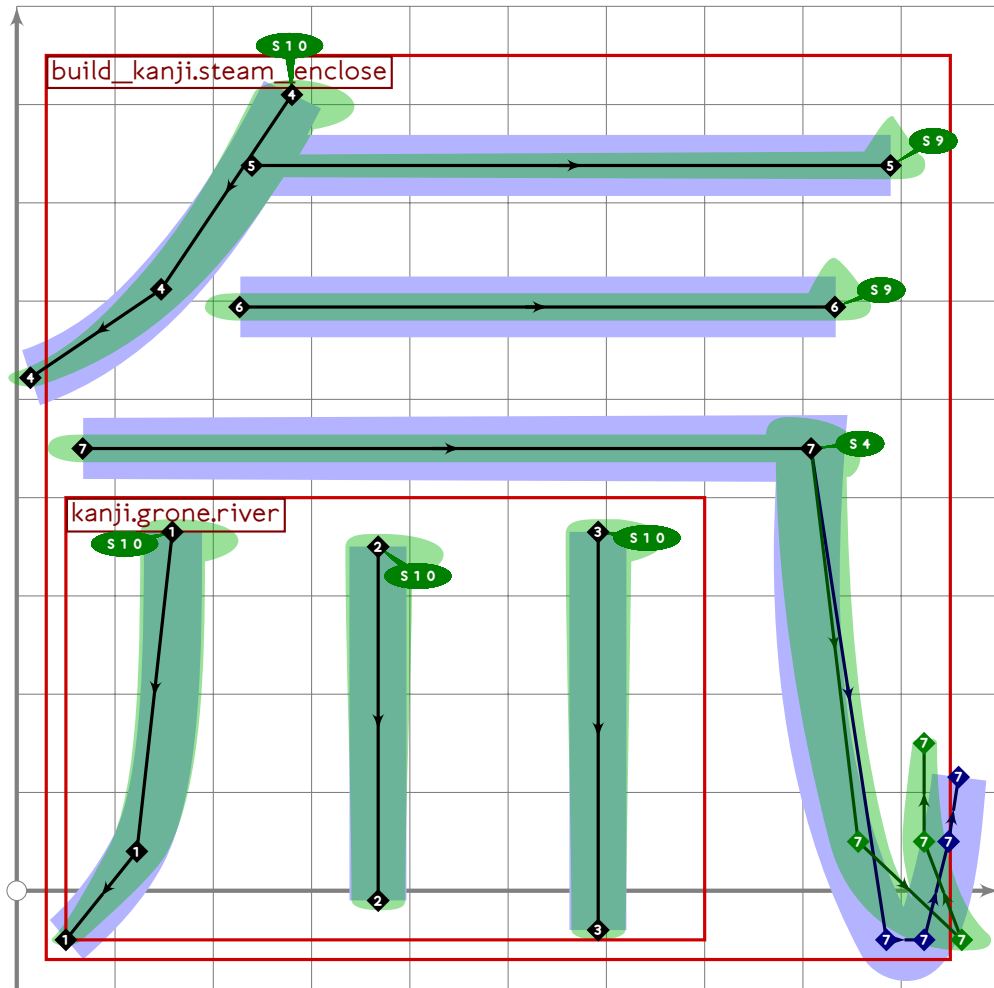
[see page 1681]



```

237 % extra
238 begint Suglyph("uni6C19",25);
239 build_kanji.steam_enclose((700,400))(kanji.grone.mountain);
240 tsu_render;
241 endtsuglyph;
242

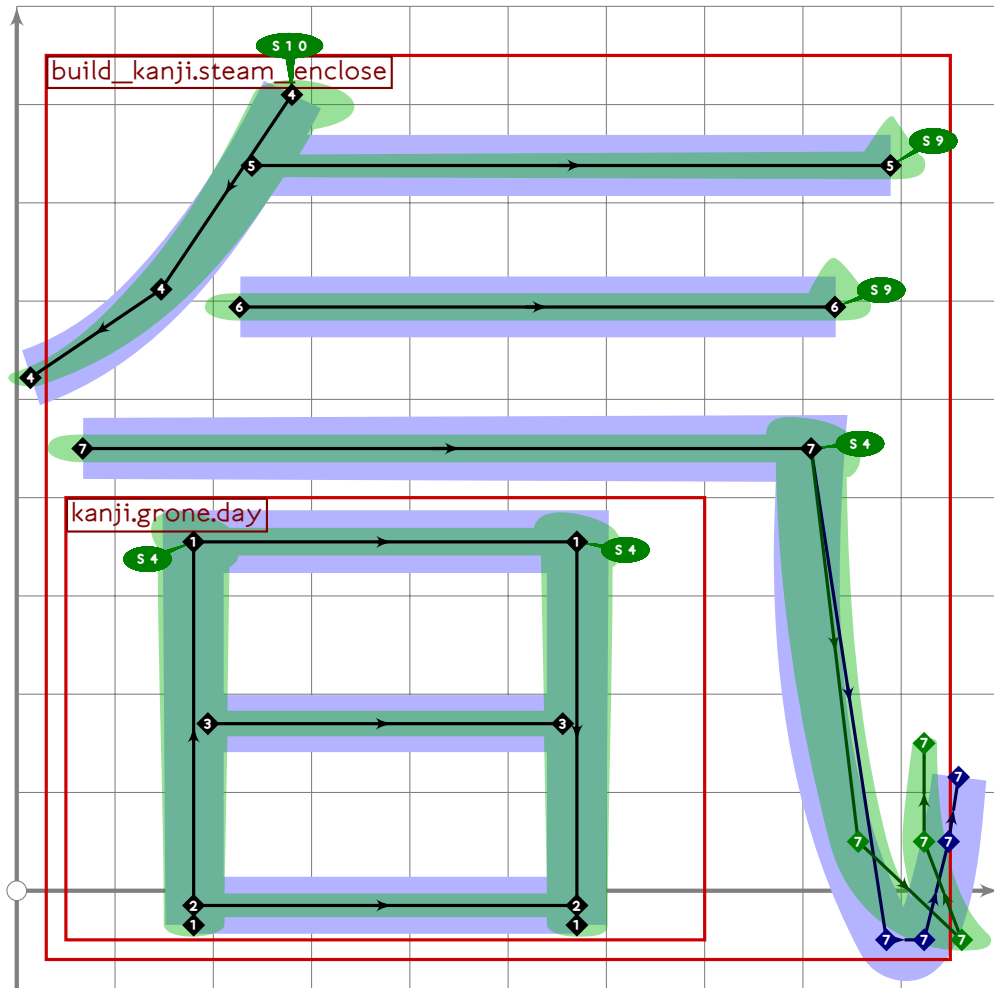
```



```

243 % extra
244 begint Suglyph("uni6C1A",26);
245 build_kanji.steam_enclose((700,400))(kanji.grone.river);
246 tsu_render;
247 endtsuglyph;
248

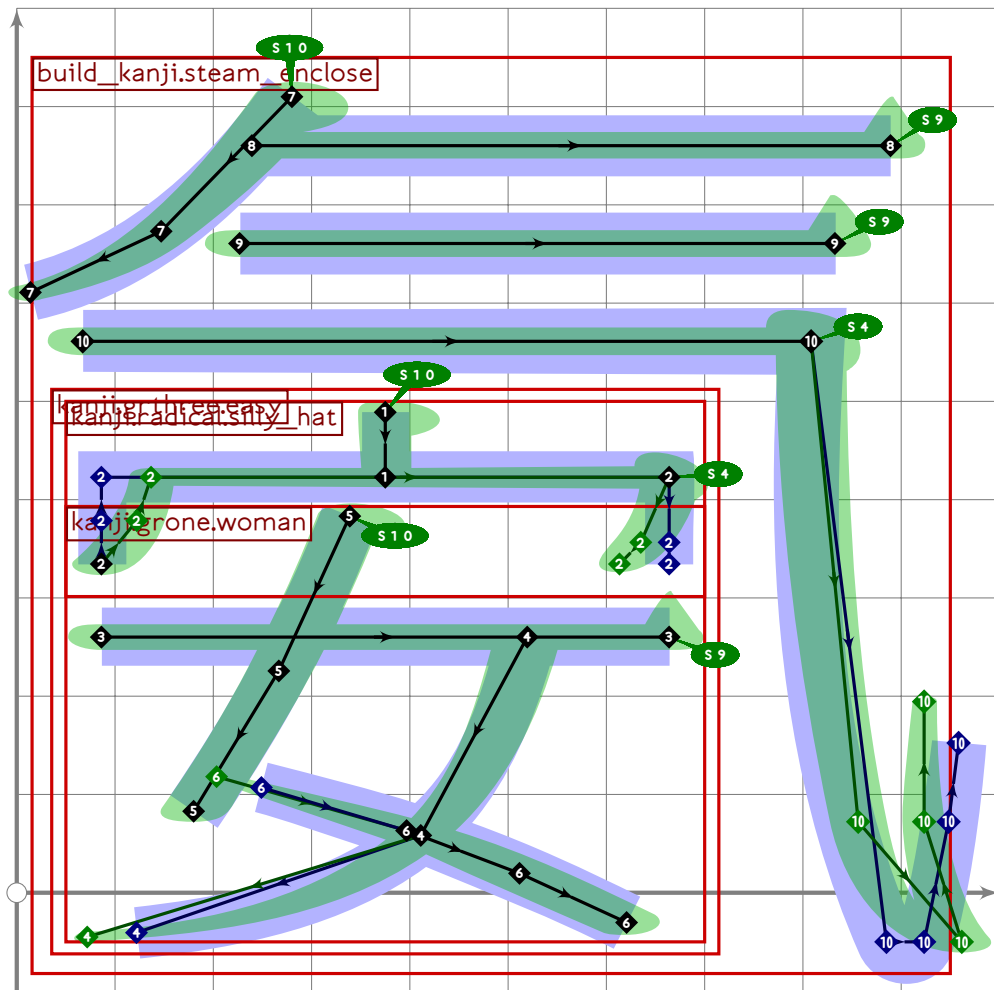
```



```

249 % extra
250 begint Suglyph("uni6C1C",28);
251 build_kanji.steam_enclose((700,400))(kanji.grone.day);
252 tsu_render;
253 endtsuglyph;
254

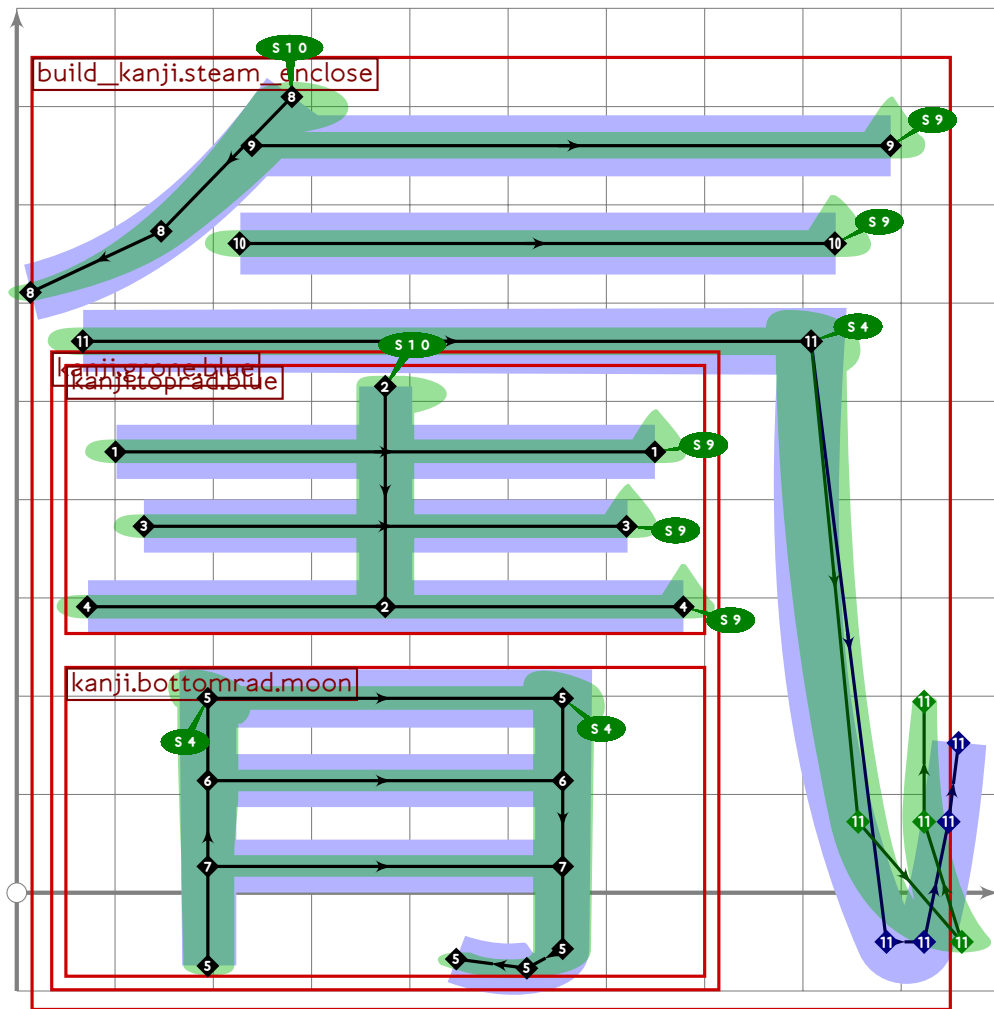
```



```

255 % extra
256 begintuglyph("uni6C28";40);
257 build_kanji.steam_enclose((700,500))(kanji.grthree.easy);
258 tsu_render;
259 endtuglyph;
260

```

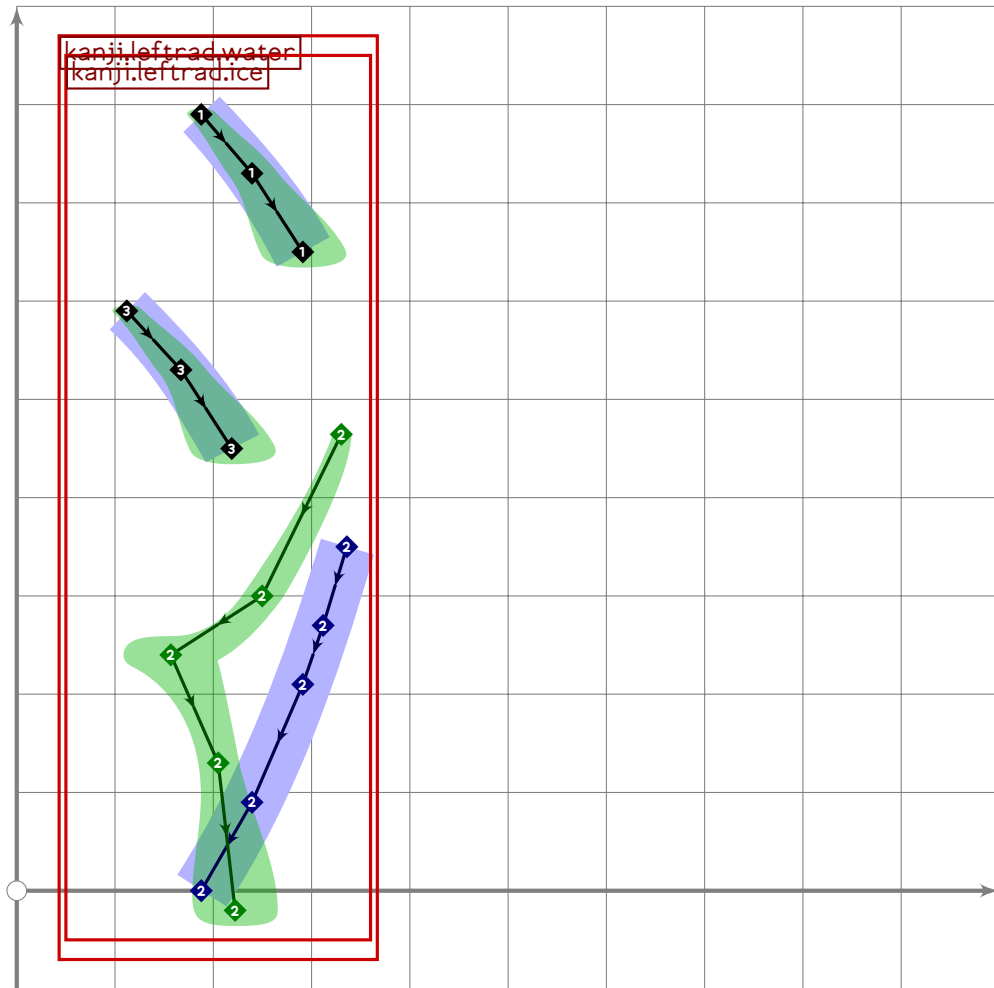


```

261 % extra
262 begintsuglyph("uni6C30";48);
263   build_kanji.steam_enclose((700,500)
264     (build_kanji.sscale(yscaled 1.13)(kanji.grone.blue));
265   tsu_render;
266 endsuglyph;
267
268 % sui/mizu "water"
269 begintsuglyph("uni6C34";52);
270   kanji.grone.water;
271   tsu_render;
272 endsuglyph;
273

```

[see page 420]



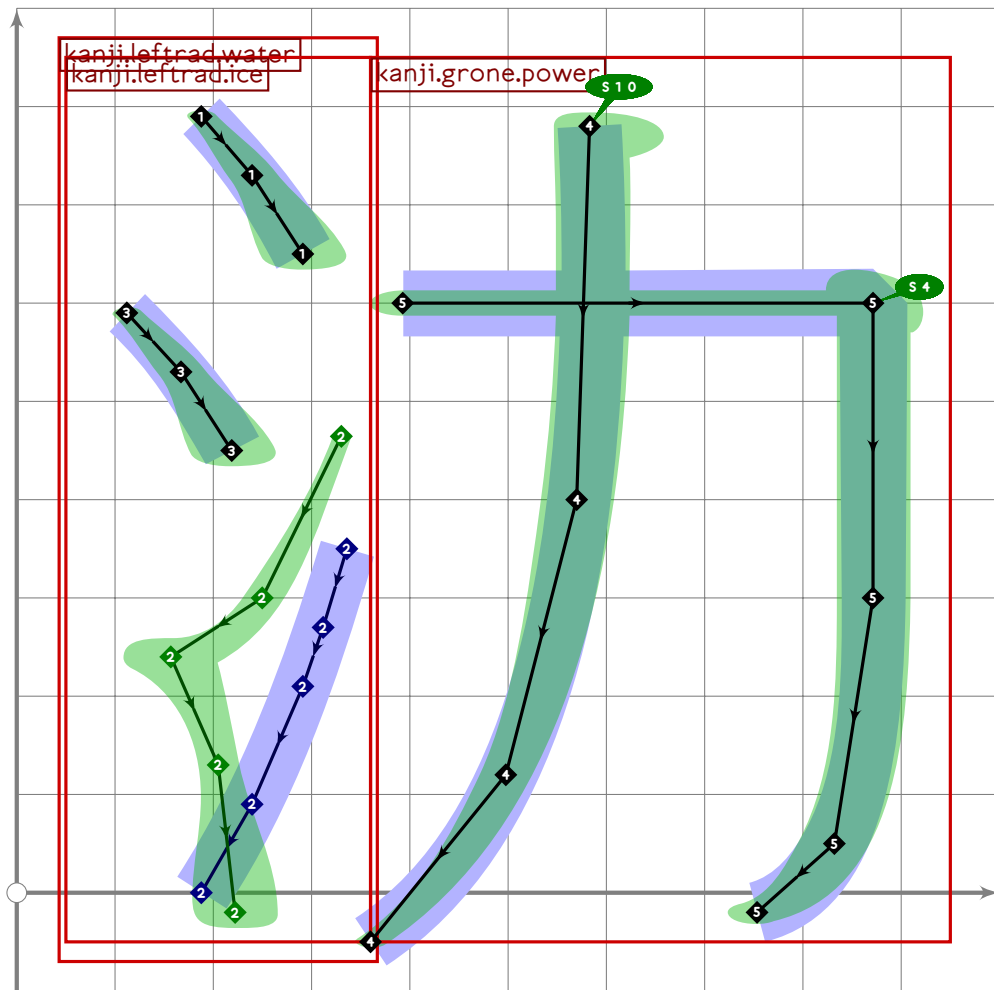
```

274 % extra "water side radical"
275 begintsuglyph("uni6C35",53);
276 build_kanji.lr(360,0)
277   (kanji.leftrad.water)
278   ();
279   tsu_render;
280 endsuglyph;
281
282 % water radical variant
283 begintsuglyph("uni6C3A",58);
284   kanji.radical.water_variant;
285   tsu_render;
286 endsuglyph;
287

```

[see page 359]

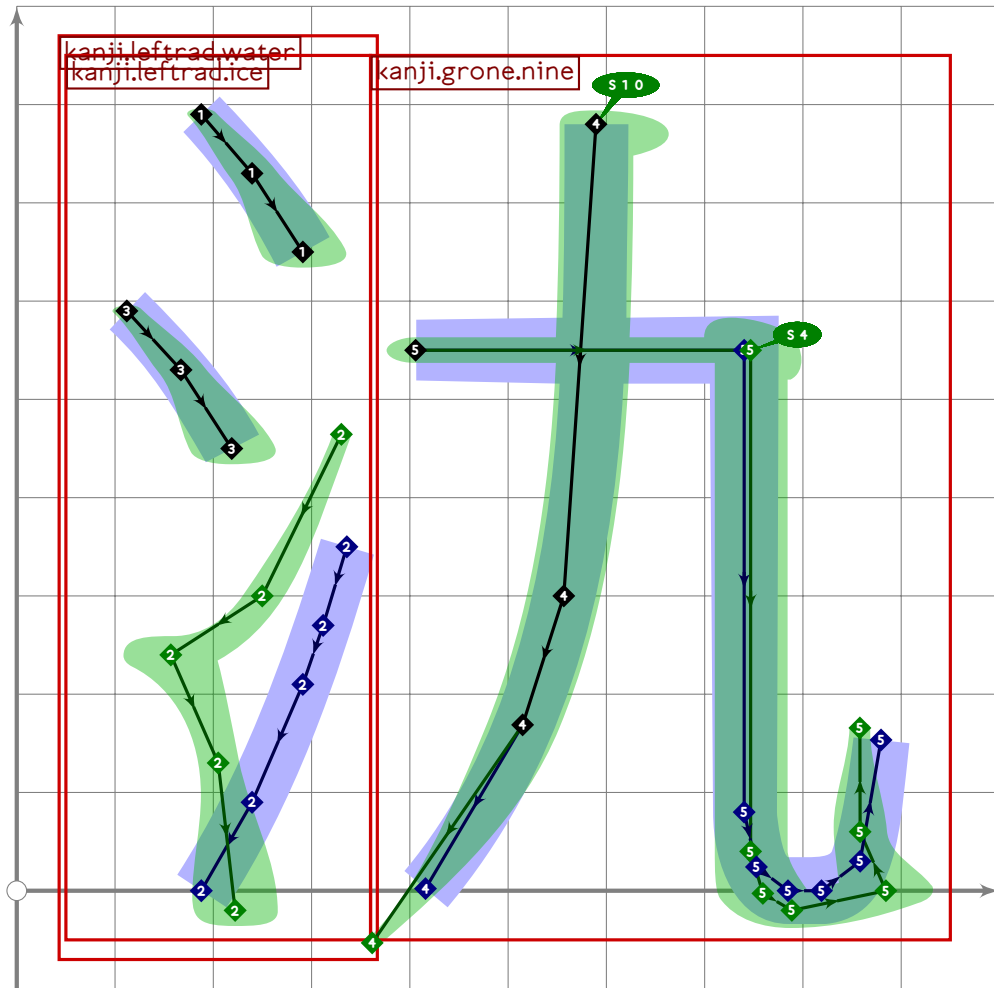




```

288 % extra
289 beginsuglyph("uni6C3B",59);
290 build_kanji.lr(360,0)
291   (kanji.leftrad.water)
292   (kanji.grone.power);
293 tsu_render;
294 endsuglyph;
295

```



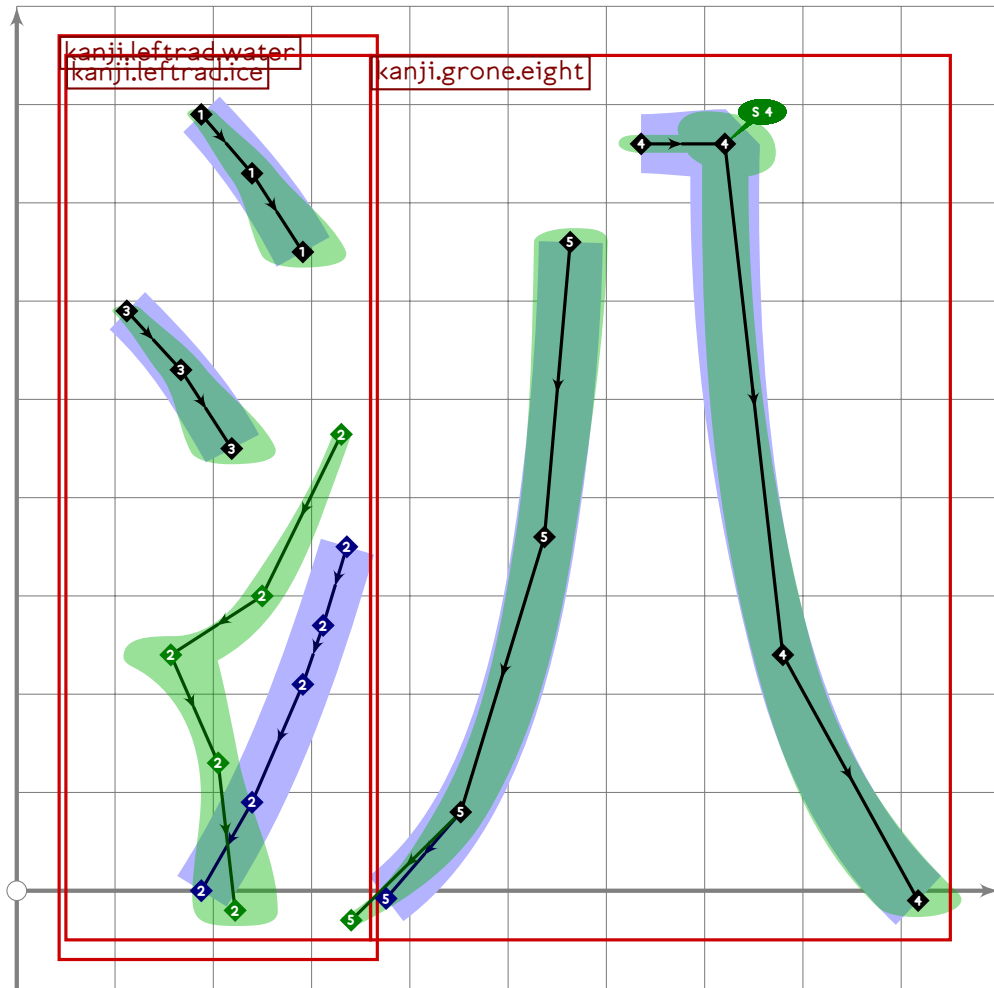
```

296 % extra
297 begintsuglyph("uni6C3F",63);
298 build_kanji.lr(360,0)
299 (kanji.leftrad.water)
300 (kanji.grone.nine);
301 tsu_render;
302 endtsuglyph;
303
304 % tei/migiwa "shore"
305 begintsuglyph("uni6C40",64);
306 kanji.grnine.shore;
307 tsu_render;
308 endtsuglyph;
309
310 % juu/shiru "juice" or "soup"
311 begintsuglyph("uni6C41",65);
312 kanji.greight.juice;
313 tsu_render;
314 endtsuglyph;
315

```

[see page 1691]

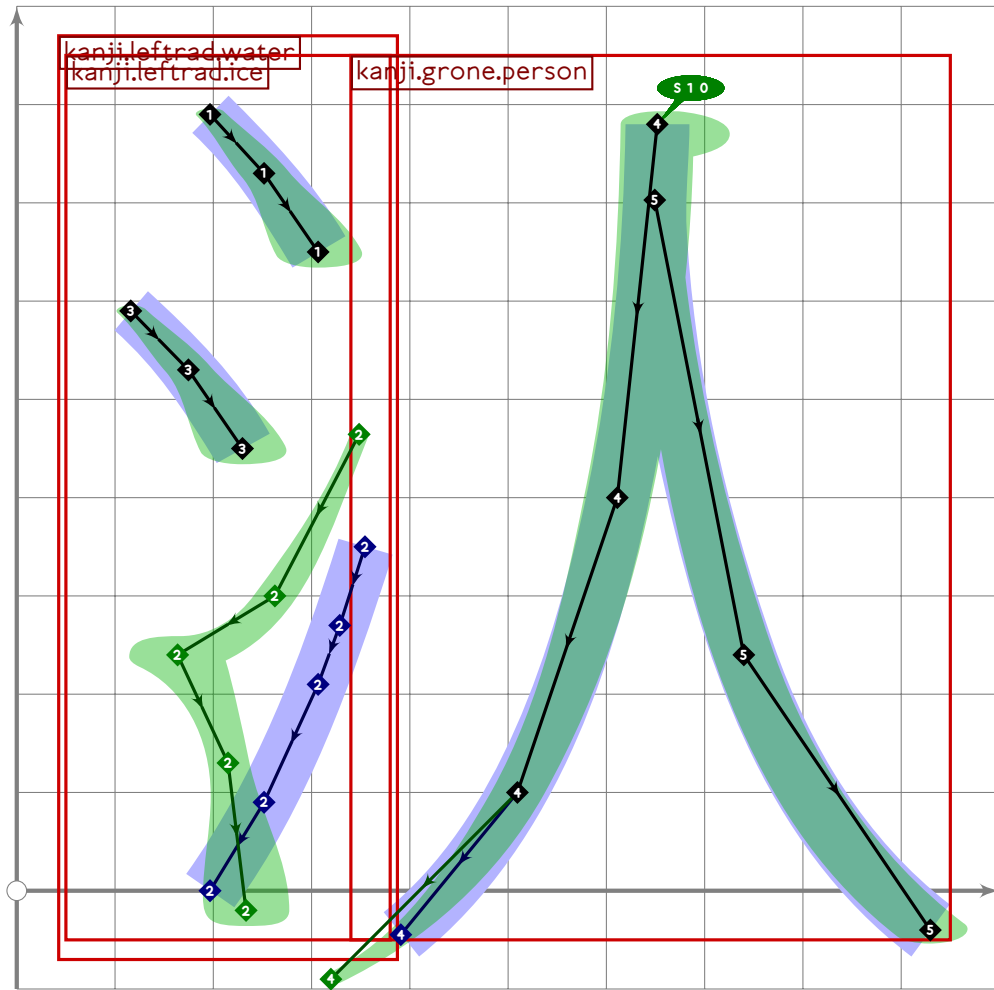
[see page 1689]



```

316 % extra
317 begint Suglyph("uni6C43",67);
318 build_kanji.lr(360,0)
319   (kanji.leftrad.water)
320   (kanji.grone.eight);
321   tsu_render;
322 endsuglyph;
323

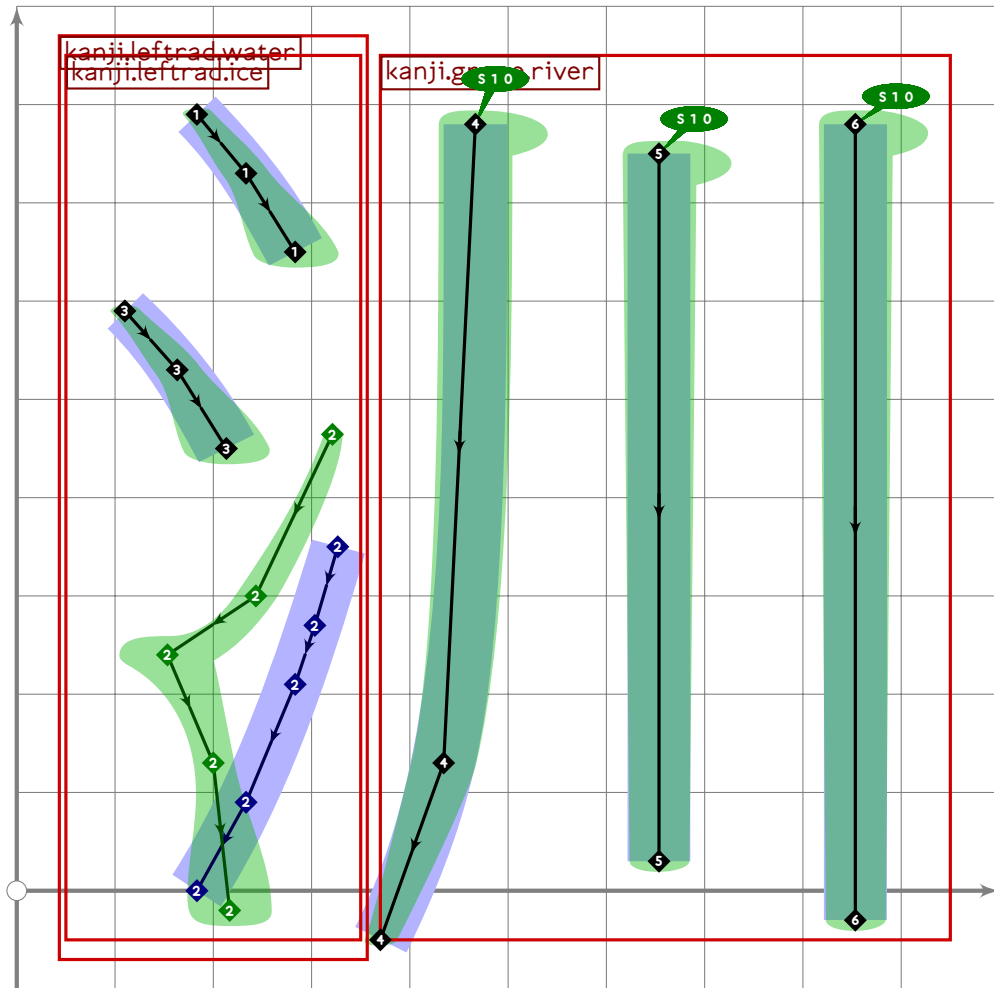
```



```

324 % extra
325 beginsuglyph("uni6C44",68);
326 build_kanji.lr(360,40)
327   (kanji.leftrad.water)
328   (kanji.grone.person);
329 tsu_render;
330 endsuglyph;
331

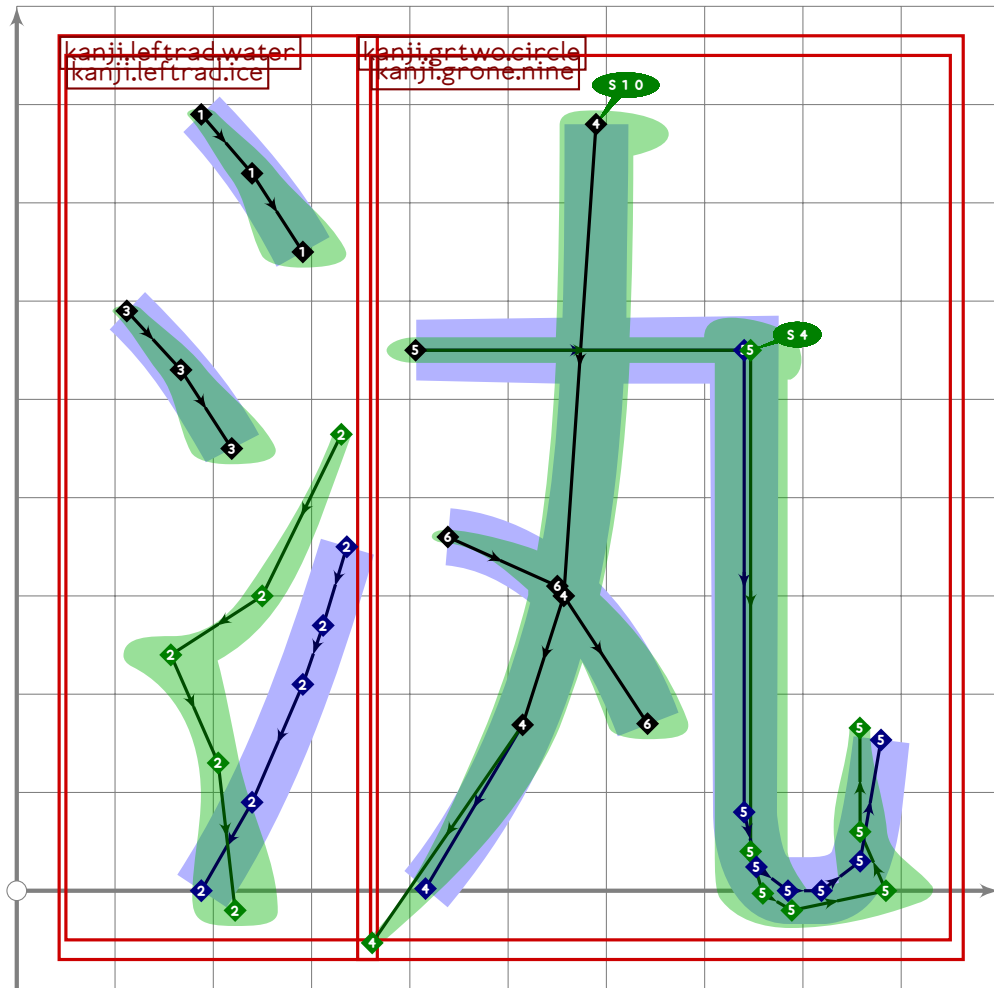
```



```

332 % extra
333 begint Suglyph("uni6C4C",76);
334 build_kanji.lr(360,-20)
335   (kanji.leftrad.water)
336   (kanji.g.river);
337   tsu_render;
338   endtsuglyph;
339

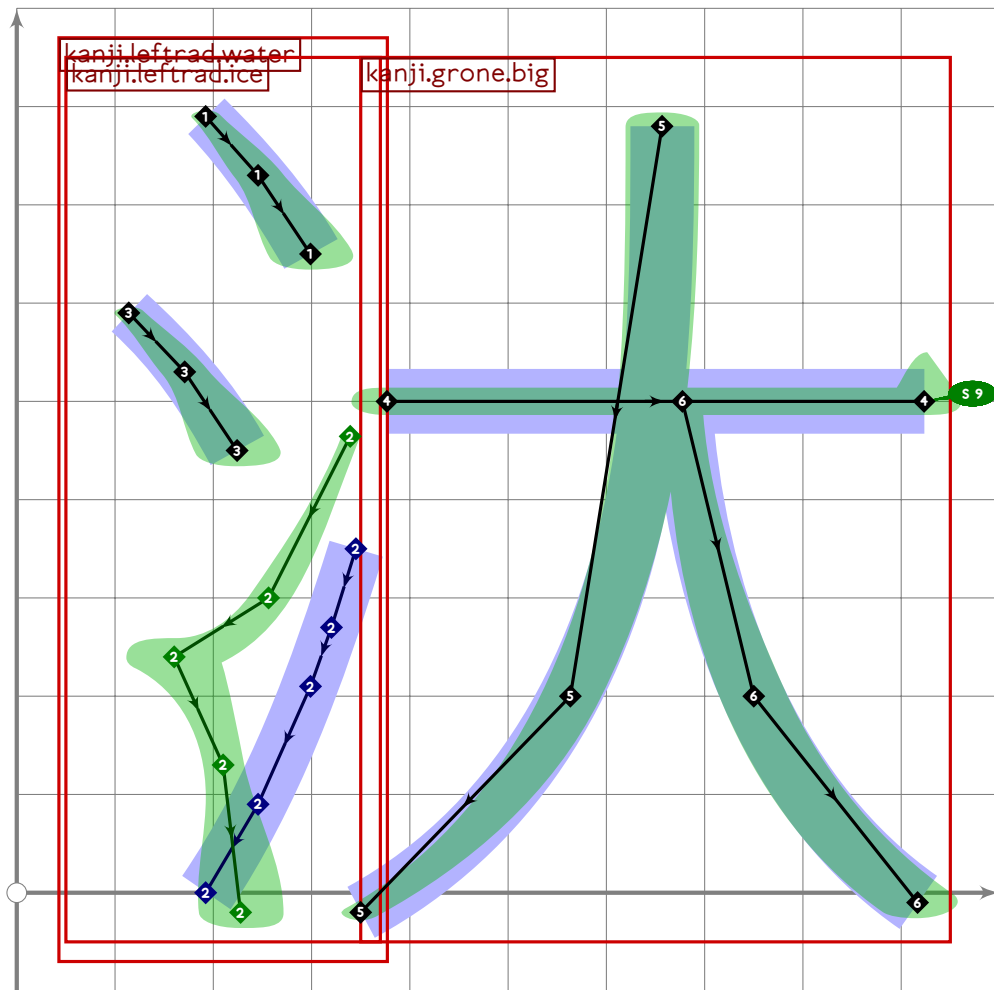
```



```

340 % extra
341 begint Suglyph("uni6C4D";77);
342 build_kanji.lr(360,0)
343   (kanji.leftrad.water)
344   (kanji.grtwo.circle);
345   tsu_render;
346 endsuglyph;
347

```

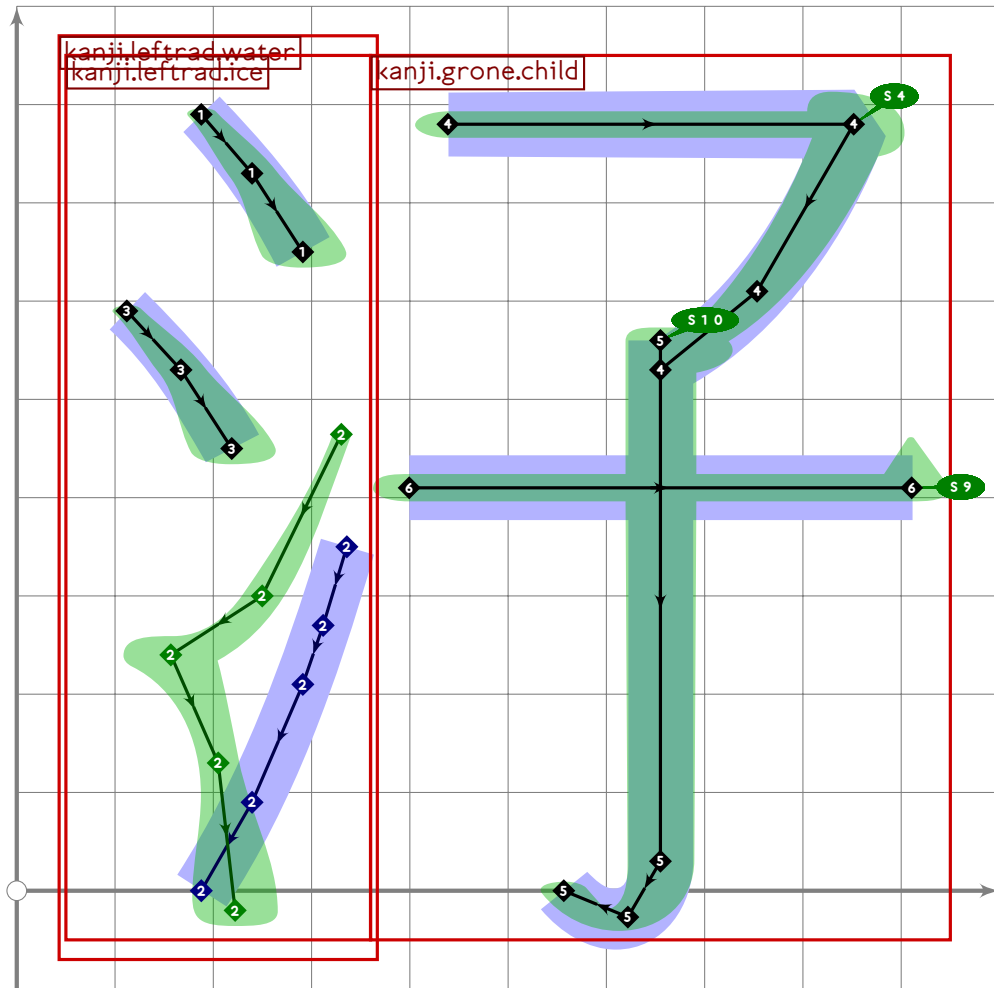


```

348 % extra
349 begintsuglyph("uni6C4F";79);
350 build_kanji.lr(360,20)
351   (kanji.leftrad.water)
352   (kanji.grone.big);
353   tsu_render;
354 endtsuglyph;
355
356 % seki/shio "tide"
357 begintsuglyph("uni6C50";80);
358   kanji.grnine.tide;
359   tsu_render;
360 endtsuglyph;
361

```

[see page 1693]

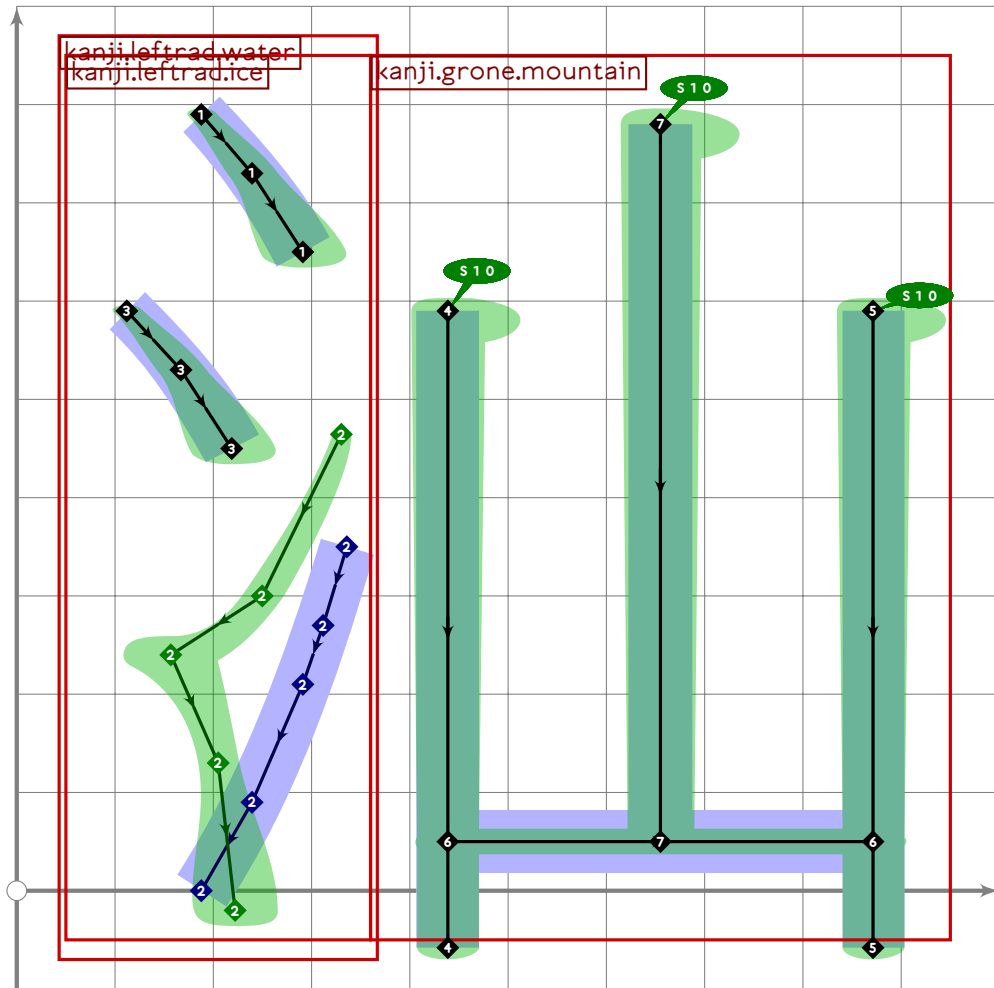


```

362 % extra
363 begint Suglyph("uni6C53",83);
364 build_kanji.lr(360,0)
365   (kanji.leftrad.water)
366   (kanji.grone.child);
367 tsu_render;
368 endtsuglyph;
369

```

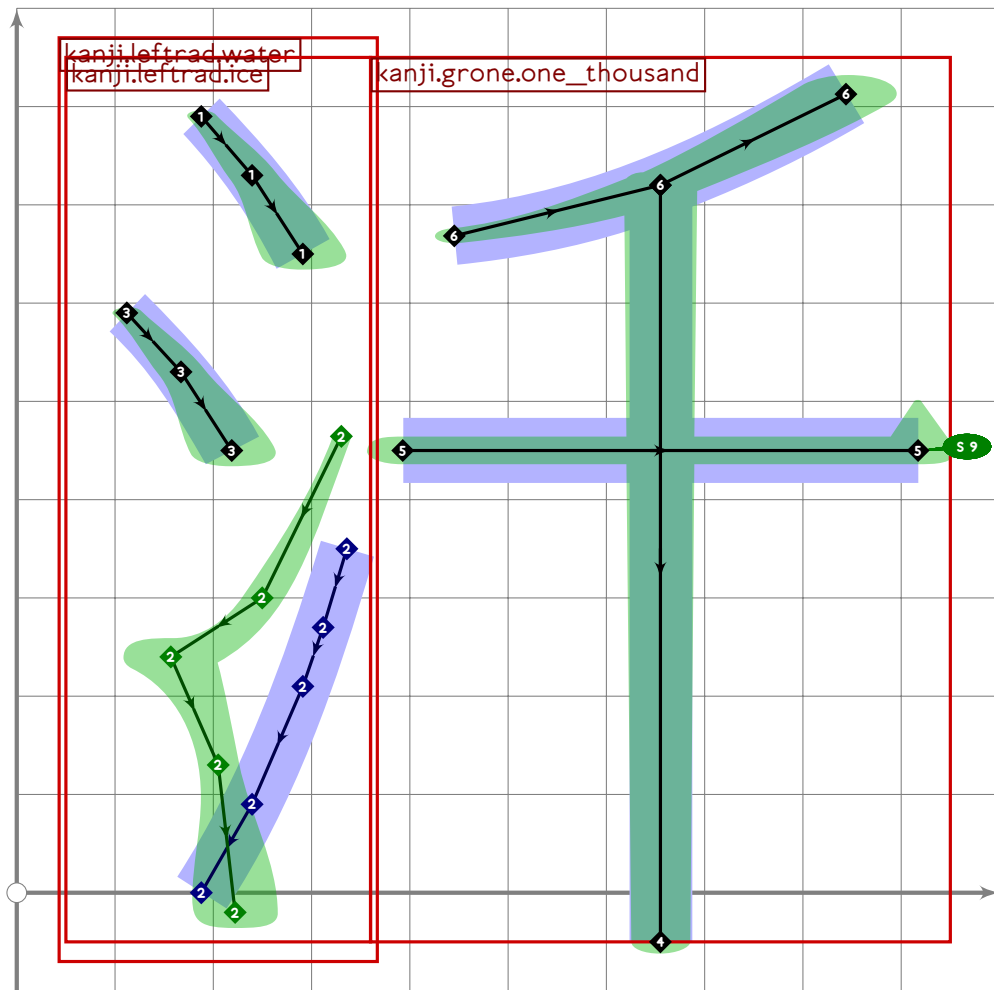




```

370 % extra "fish swimming"
371 begint Suglyph("uni6C55",85);
372 build_kanji.lr(360,0)
373   (kanji.leftrad.water)
374   (kanji.grone.mountain);
375   tsu_render;
376   endtsuglyph;
377

```



```

378 % extra
379 begintsuglyph("uni6C58",88);
380 build_kanji.lr(360,0)
381   (kanji.leftrad.water)
382   (kanji.grone.one_thousand);
383   tsu_render;
384 endsuglyph;
385
386 % jo/nanji "thou"
387 begintsuglyph("uni6C5D",93);
388   kanji.grnine.thou;
389   tsu_render;
390 endsuglyph;
391
392 % kou/e "bay" ("e" in "Edo")
393 begintsuglyph("uni6C5F",95);
394   kanji.greight.bay;
395   tsu_render;
396 endsuglyph;
397
398 % chi/ike "pond"

```

[see page 1692]

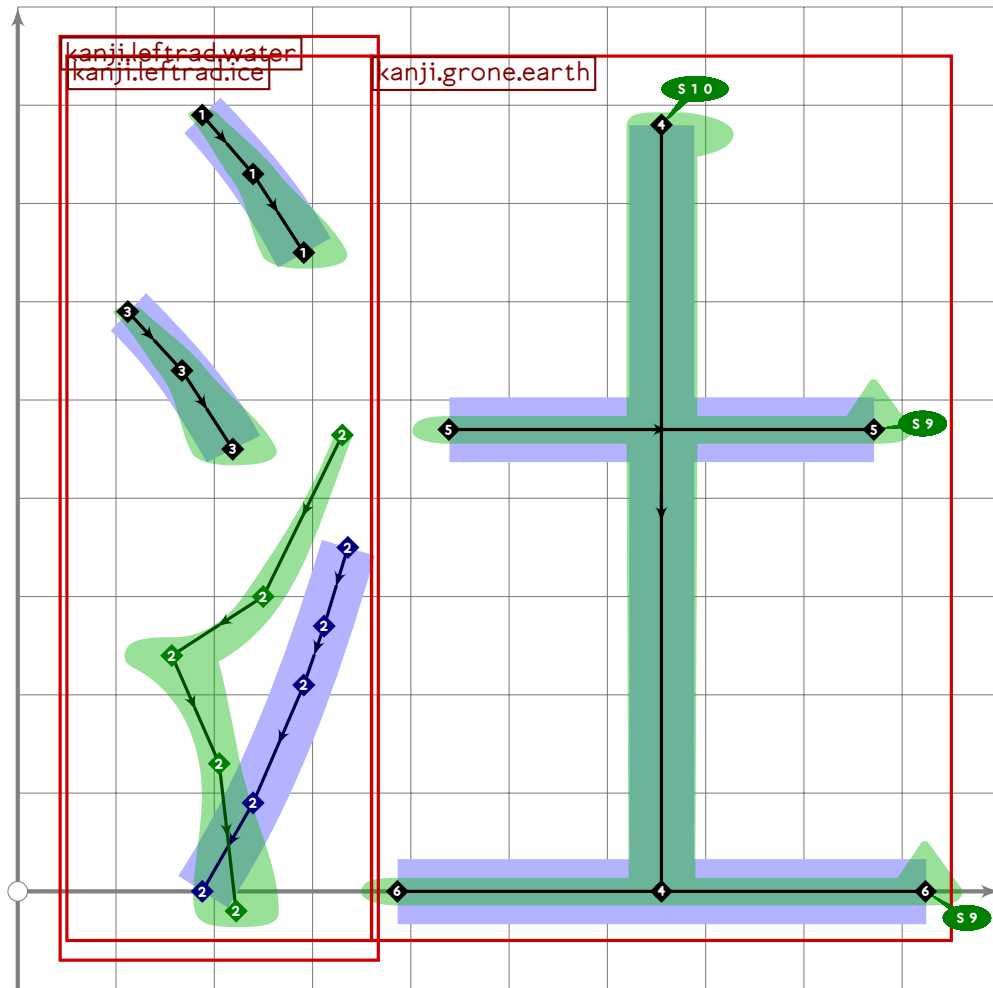
[see page 1687]

```

399 begintsuglyph("uni6C60";96);
400 kanji.grtwo.pond;
401 tsu_render;
402 endtsuglyph;
403

```

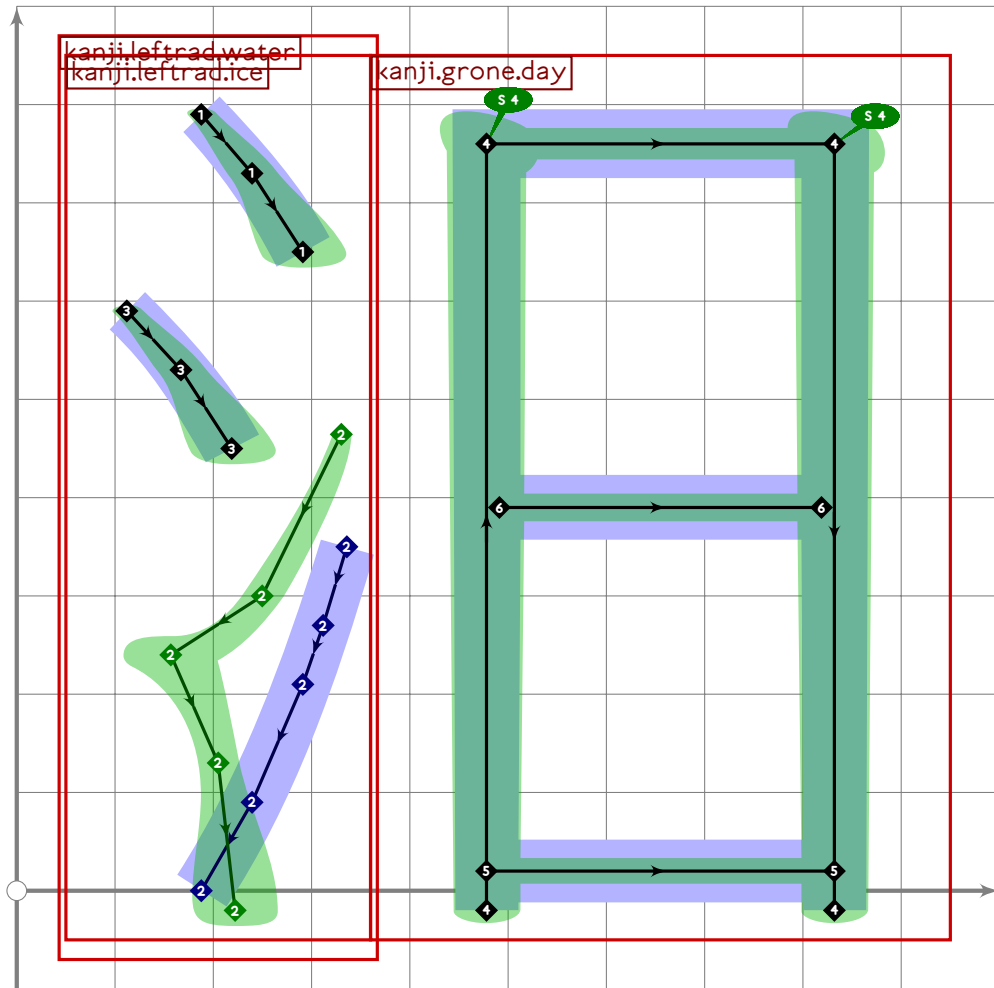
[see page 1682]



```

404 % extra
405 begintsuglyph("uni6C62";98);
406 build_kanji.lr(360,0)
407 (kanji.leftrad.water)
408 (kanji.grone.earth);
409 tsu_render;
410 endtsuglyph;
411

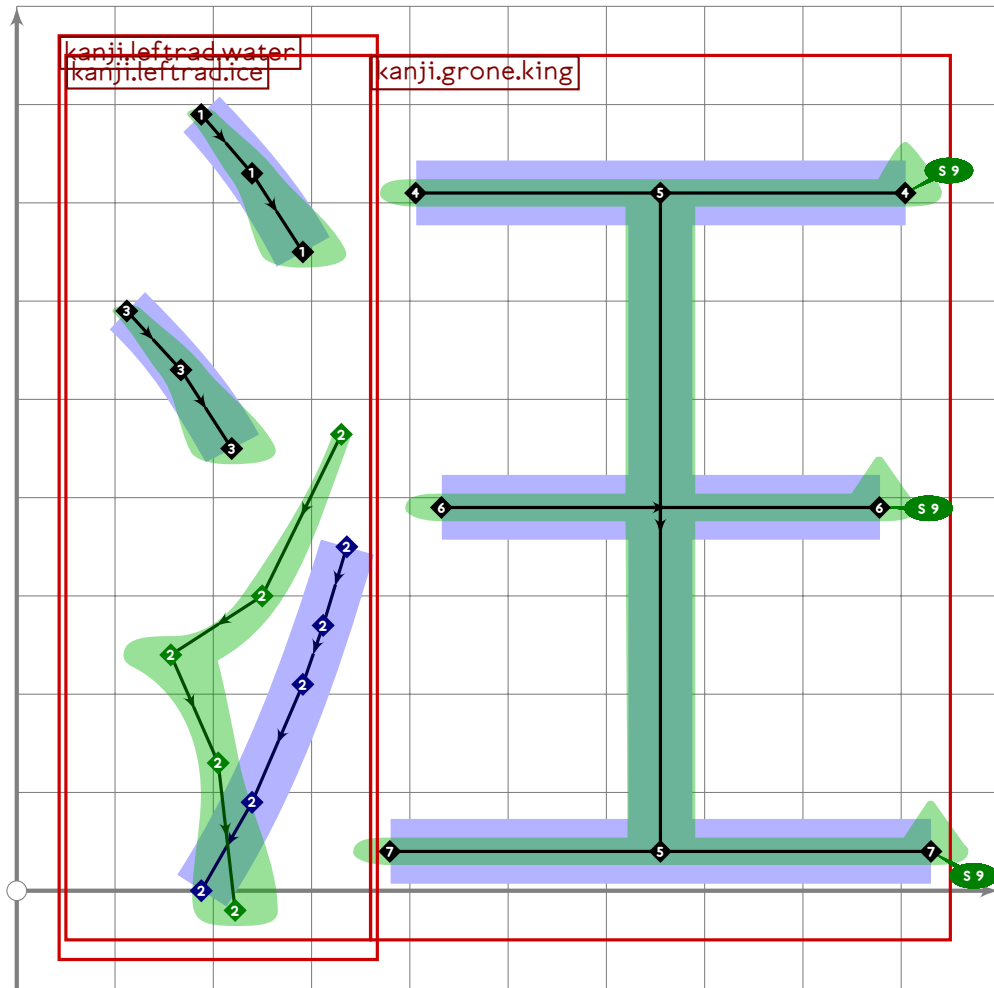
```



```

412 % extra
413 begint Suglyph("uni6C68",104);
414 build_kanji.lr(360,0)
415   (kanji.leftrad.water)
416   (kanji.grone.day);
417 tsu_render;
418 endsuglyph;
419

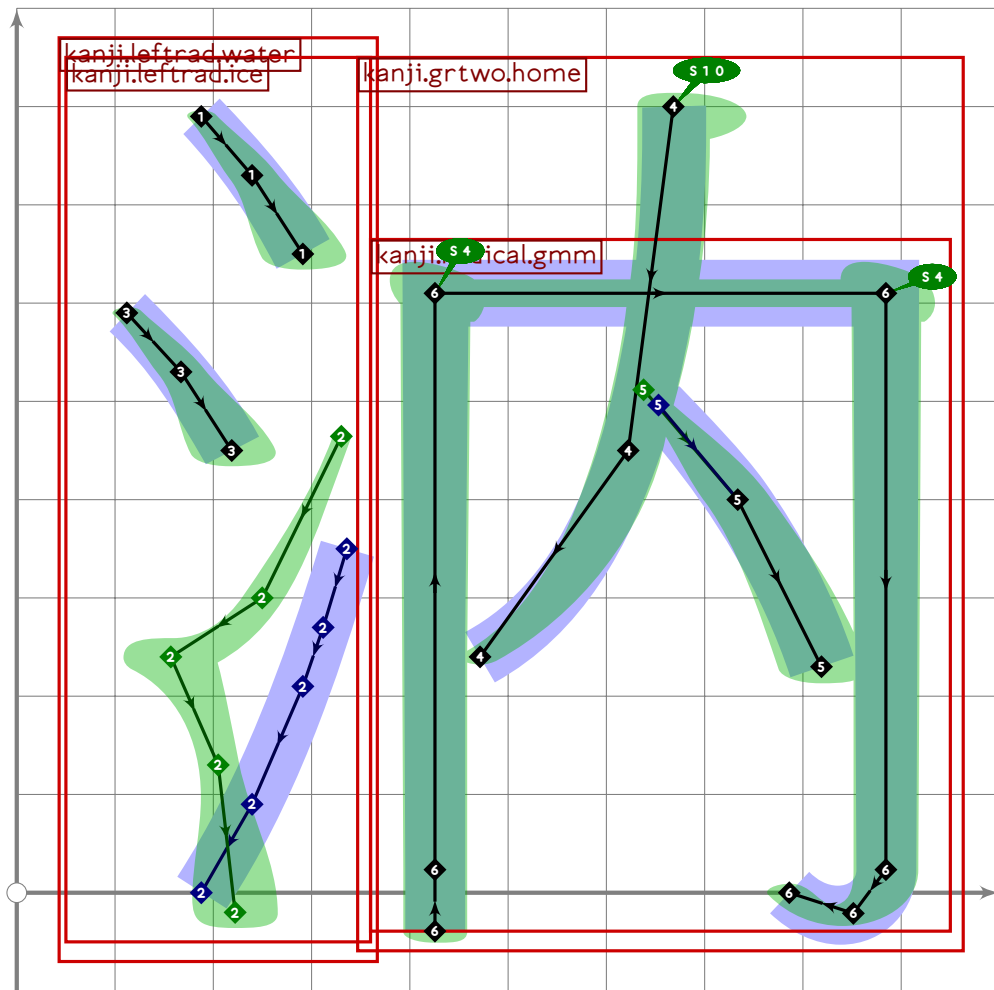
```



```

420 % extra
421 begint Suglyph("uni6C6A",106);
422 build_kanji.lr(360,0)
423   (kanji.leftrad.water)
424   (kanji.grone.king);
425 tsu_render;
426 endsuglyph;
427

```

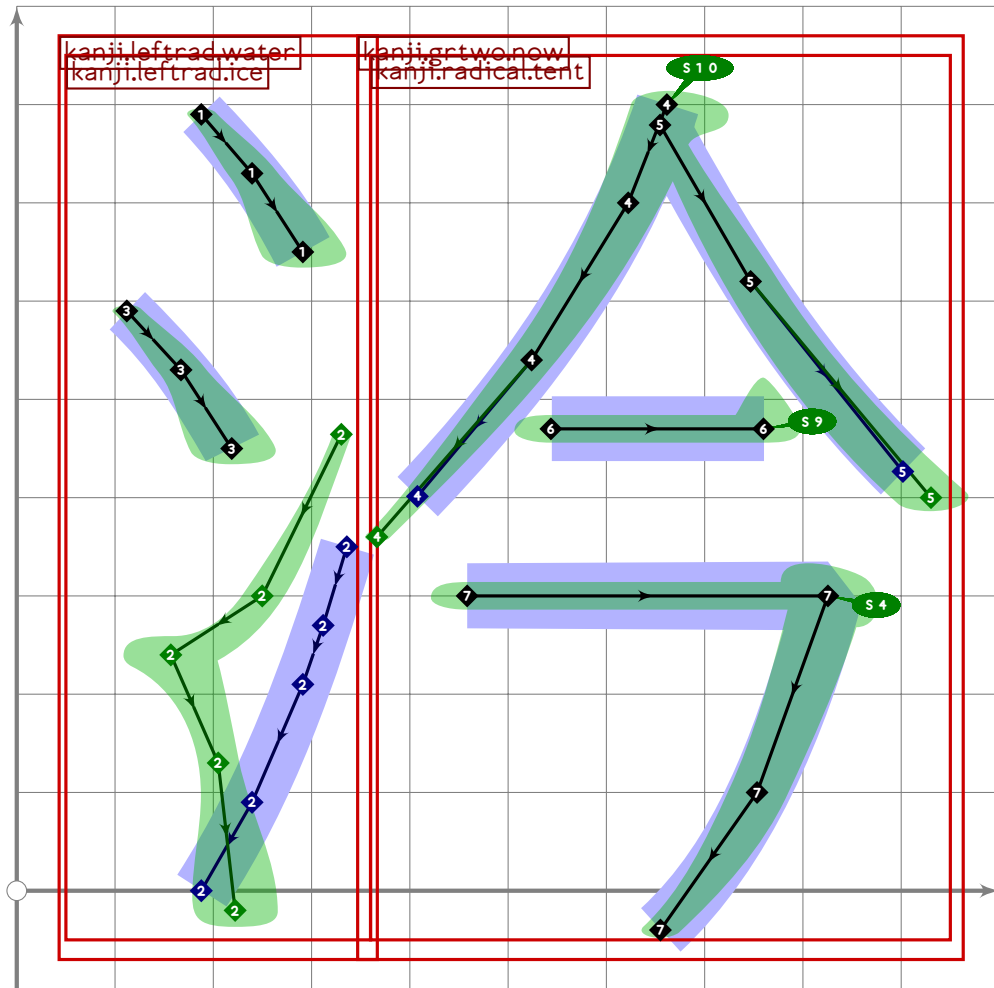


```

428 % extra
429 begintsuglyph("uni6C6D";109);
430 build_kanji.lr(360,0)
431   (kanji.leftrad.water)
432   (kanji.grtwo.home);
433   tsu_render;
434 endsuglyph;
435
436 % ta/ogo "luxury"
437 begintsuglyph("uni6C70";112);
438   kanji.grnine.luxury;
439   tsu_render;
440 endsuglyph;
441

```

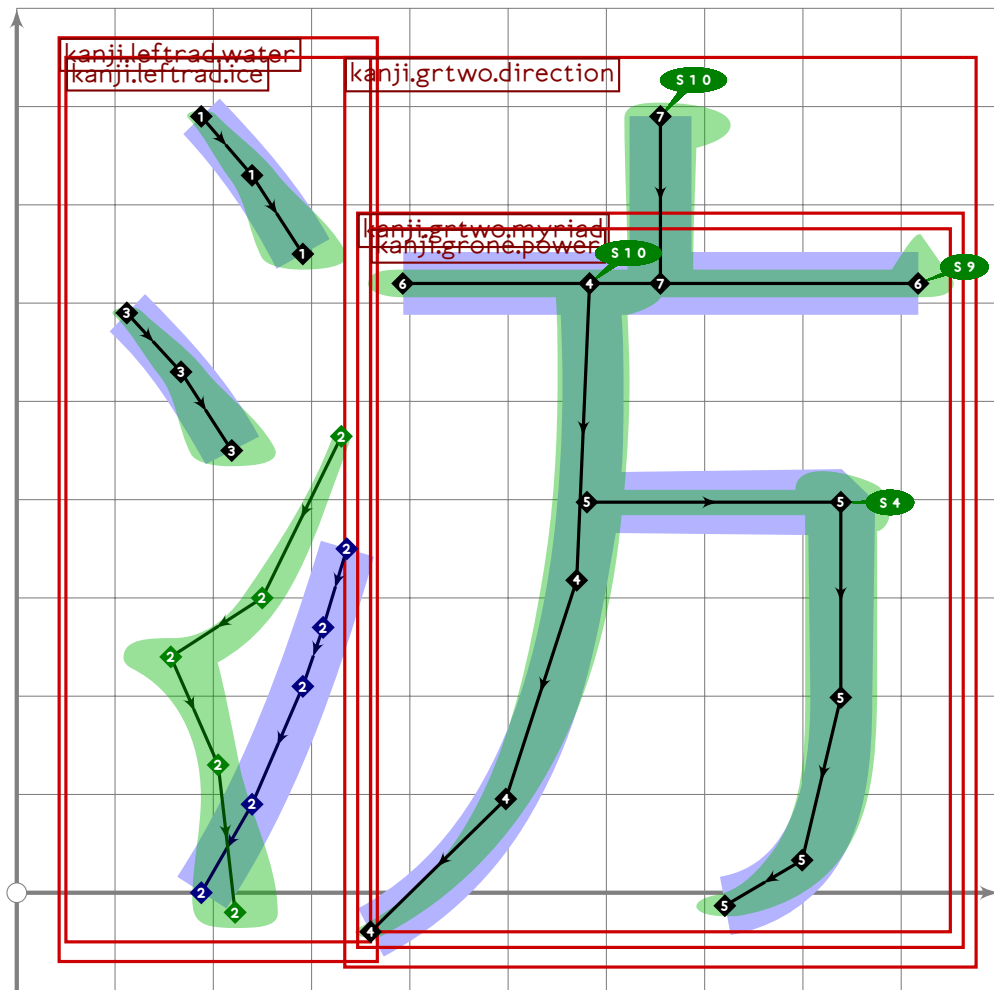
[see page 1690]



```

442 % extra
443 begintsuglyph("uni6C75",117);
444 build_kanji.lr(360,0)
445   (kanji.leftrad.water)
446   (kanji.grtwo.now);
447   tsu_render;
448 endsuglyph;
449

```



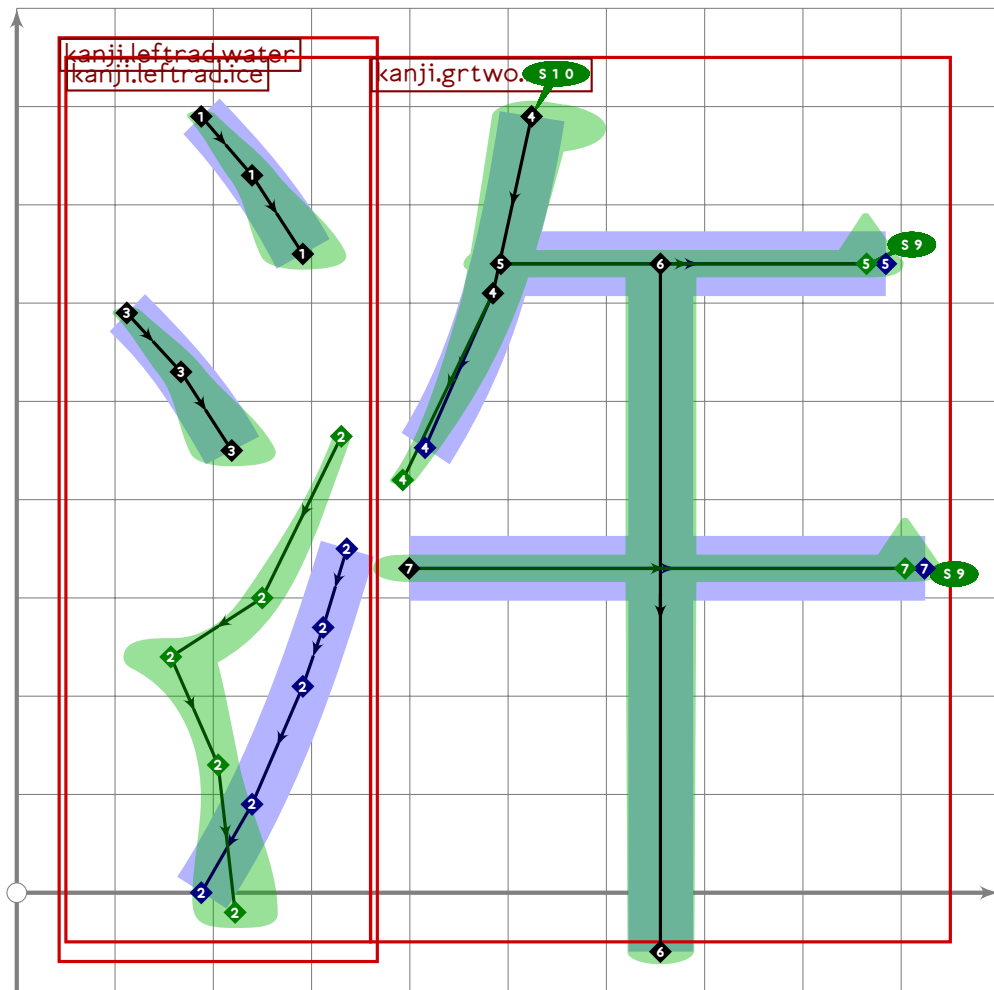
```

450 % extra
451 begintsuglyph("uni6C78",120);
452 build_kanji.lr(360,0)
453 (kanji.leftrad.water)
454 (kanji.grtwo.direction);
455 tsu_render;
456 endsuglyph;
457
458 % ketsu/ki "decide"
459 begintsuglyph("uni6C7A",122);
460 kanji.grthree.decide;
461 tsu_render;
462 endsuglyph;
463

```

[see page 1684]



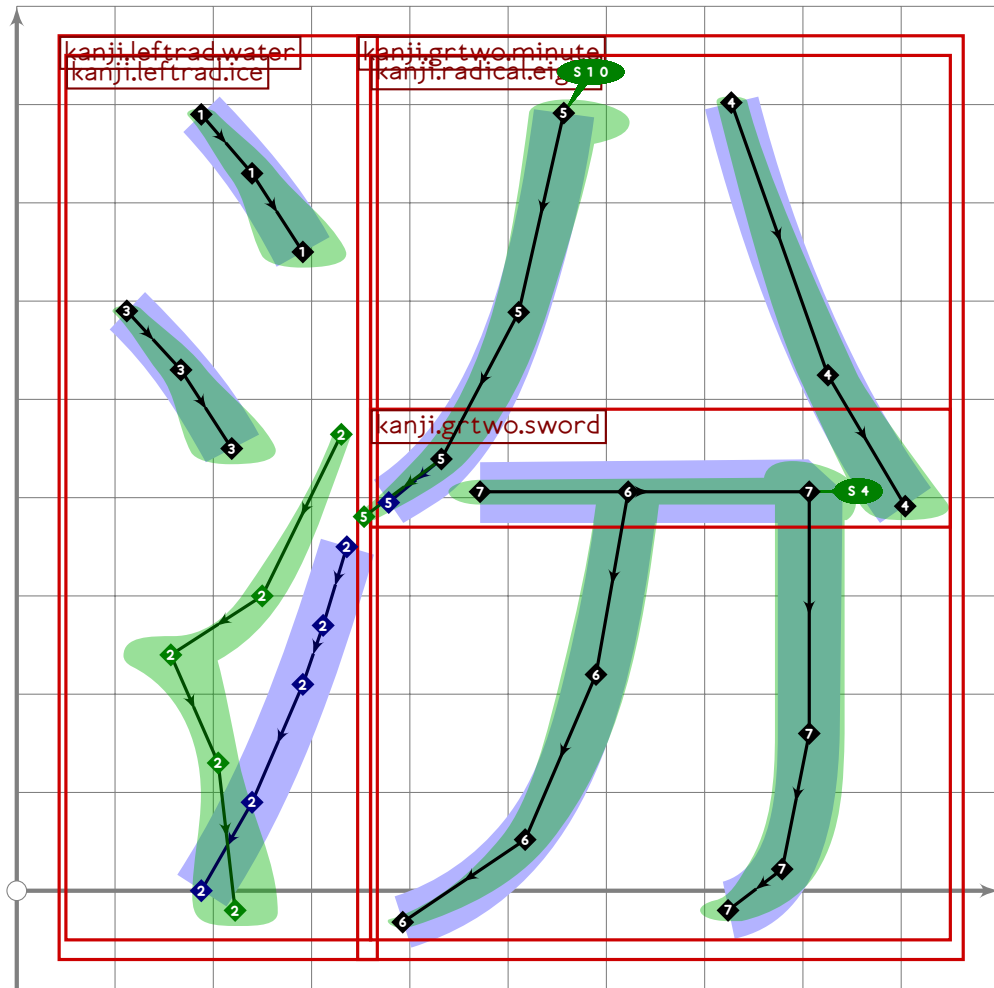


```

464 % extra
465 begintsuglyph("uni6C7B",123);
466 build_kanji.lr(360,0)
467 (kanji.leftrad.water)
468 (kanji.grtwo.noon);
469 tsu_render;
470 endsuglyph;
471
472 % ki "steam"
473 begintsuglyph("uni6C7D",125);
474 kanji.grtwo.steam;
475 tsu_render;
476 endsuglyph;
477

```

[see page 1683]



478 % extra "name of a Chinese river"

479 `begintsuglyph("uni6C7E";126);`

480 `build_kanji.lr(360,0)`

481 `(kanji.leftrad.water)`

482 `(kanji.grtwo.minute);`

483 `tsu_render;`

484 `endtsuglyph;`

485

486 % you/soso "fertility"

487 `begintsuglyph("uni6C83";131);`

[see page 1688]

488 `kanji.greight.fertility;`

489 `tsu_render;`

490 `endtsuglyph;`

491

492 % yu/abura "oil"

493 `begintsuglyph("uni6CB9";185);`

[see page 1685]

494 `kanji.grthree.oil;`

495 `tsu_render;`

496 `endtsuglyph;`

497

498 % sen/izumi "spring" or "fountain" (not the season)

```
499 begintsuglyph("uni6CC9",201); [see page 521]
500 kanji.grsix.fountain;
501 tsu_render;
502 endtsuglyph;
503
504 % chuu/soso "pour"
505 begintsuglyph("uni6CE8",232); [see page 1686]
506 kanji.grthree.pour;
507 tsu_render;
508 endtsuglyph;
509
510 

---


511
512 endfont;
513
514 

---


```

# tsuku-6d.mp

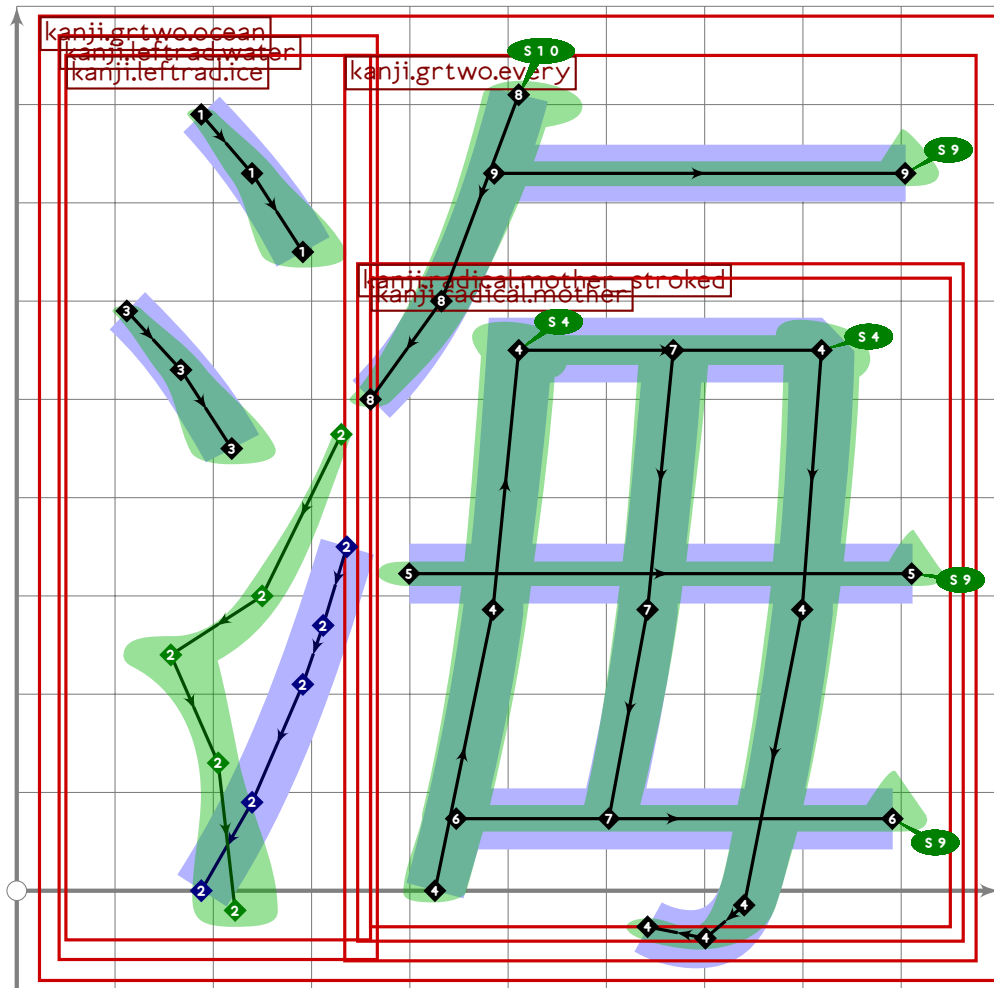
```
1 %
2 % Unicode page 6d (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input bottomrad.mp;
37 input buildkanji.mp;
38 input gradeeight.mp;
39 input gradefive.mp;
40 input gradenine.mp;
41 input gradeone.mp;
42 input gradetwo.mp;
43 input leftrad.mp;
44 input radical.mp;
45 input toprad.mp;
46
47 

---

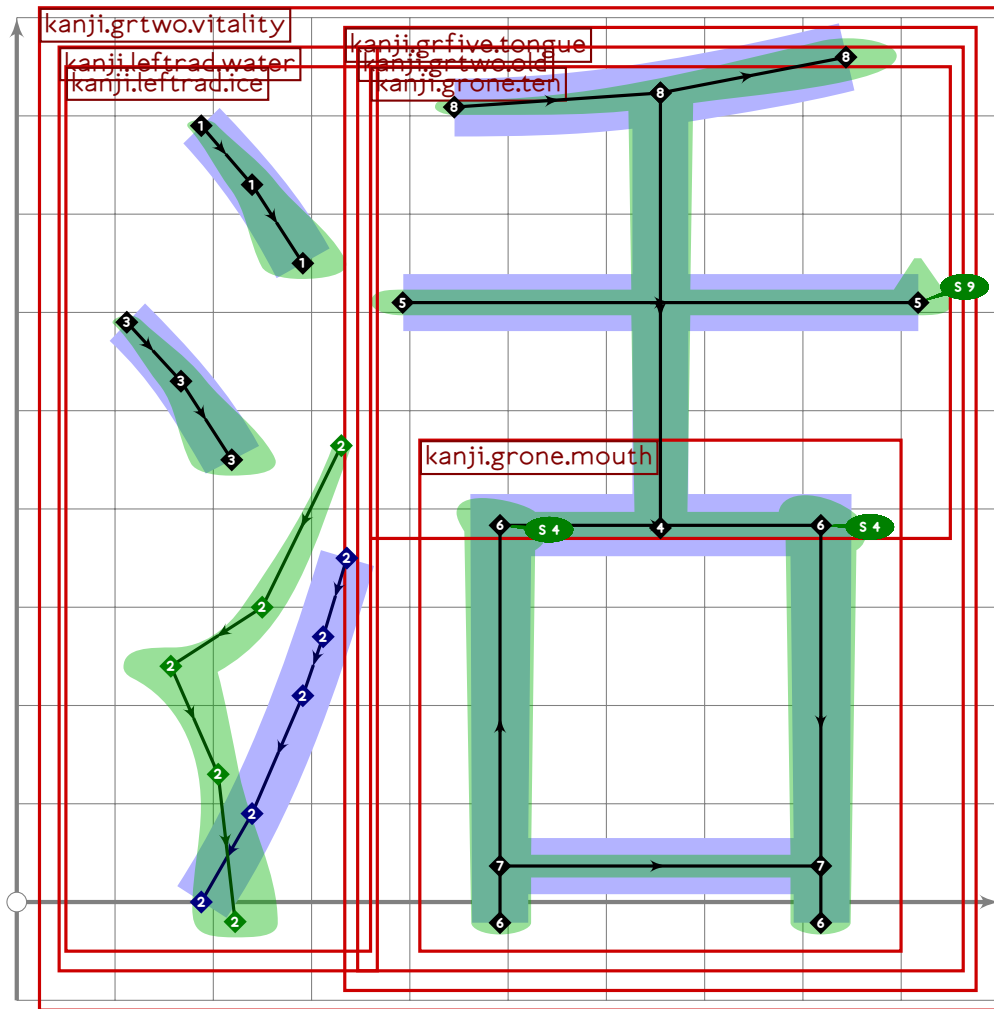

```



```

48
49 vardef kanji.grtwo.ocean =
50   push_pbox_toexpand("kanji.grtwo.ocean");
51   build_kanji.lr(360,0)
52     (kanji.leftrad.water)
53     (kanji.grtwo.every);
54   expand_pbox;
55 enddef;

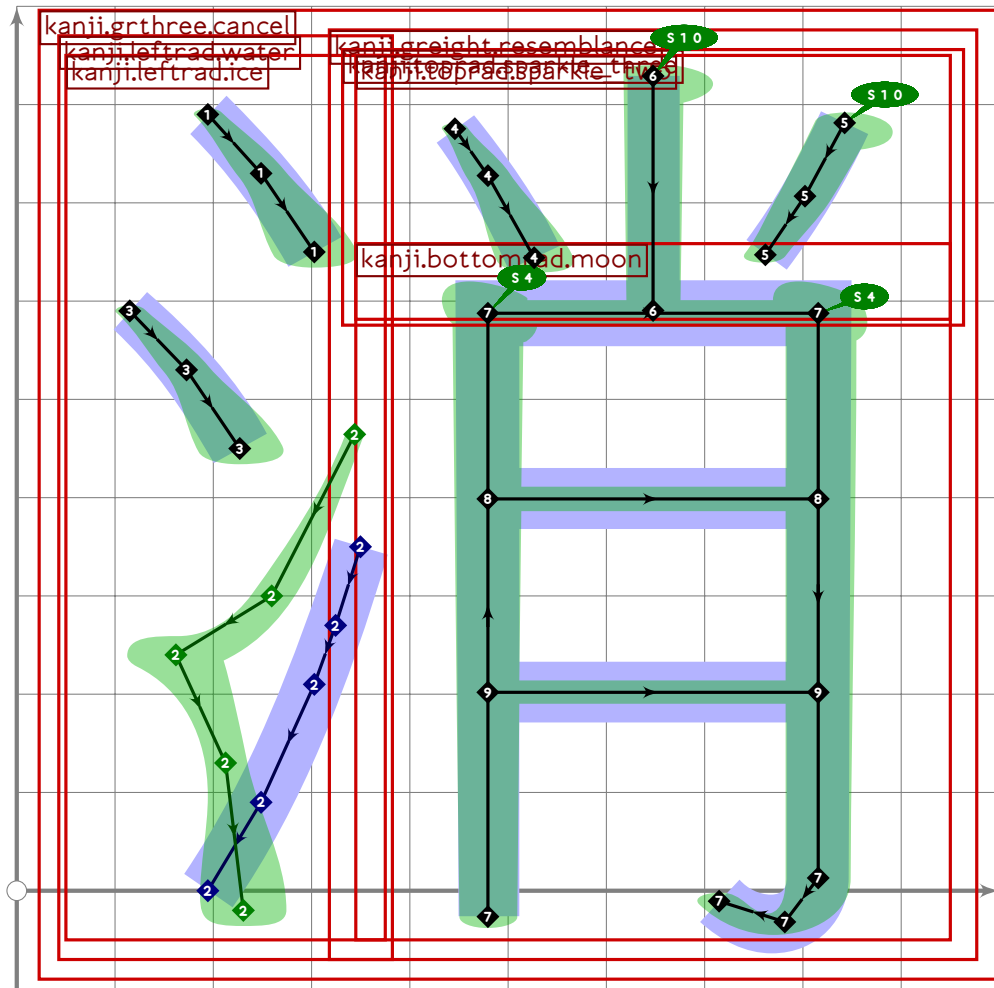
```



```

56
57 vardef kanji.grtwo.vitality =
58   push_pbox_toexpand("kanji.grtwo.vitality");
59   build_kanji.lr(360,0)
60     (kanji.leftrad.water)
61     (kanji.grfive.tongue);
62   expand_pbox;
63 enddef;
64
65

```



```

66
67 vardef kanji.grthree.cancel =
68   push_pbox_toexpand("kanji.grthree.cancel");
69   build_kanji.lr(360,30)
70     (kanji.leftrad.water)
71     (kanji.greight.resemblance);
72   expand_pbox;
73 enddef;
74
75
76
77 % katsu/i "correct"
78 begintsuglyph("uni6D3B";59); [see page 1722]
79   kanji.grtwo.vitality;
80   tsu_render;
81 endtsuglyph;
82
83 % kai/umi "ocean"
84 begintsuglyph("uni6D77";119); [see page 1721]
85   kanji.grtwo.ocean;
86   tsu_render;

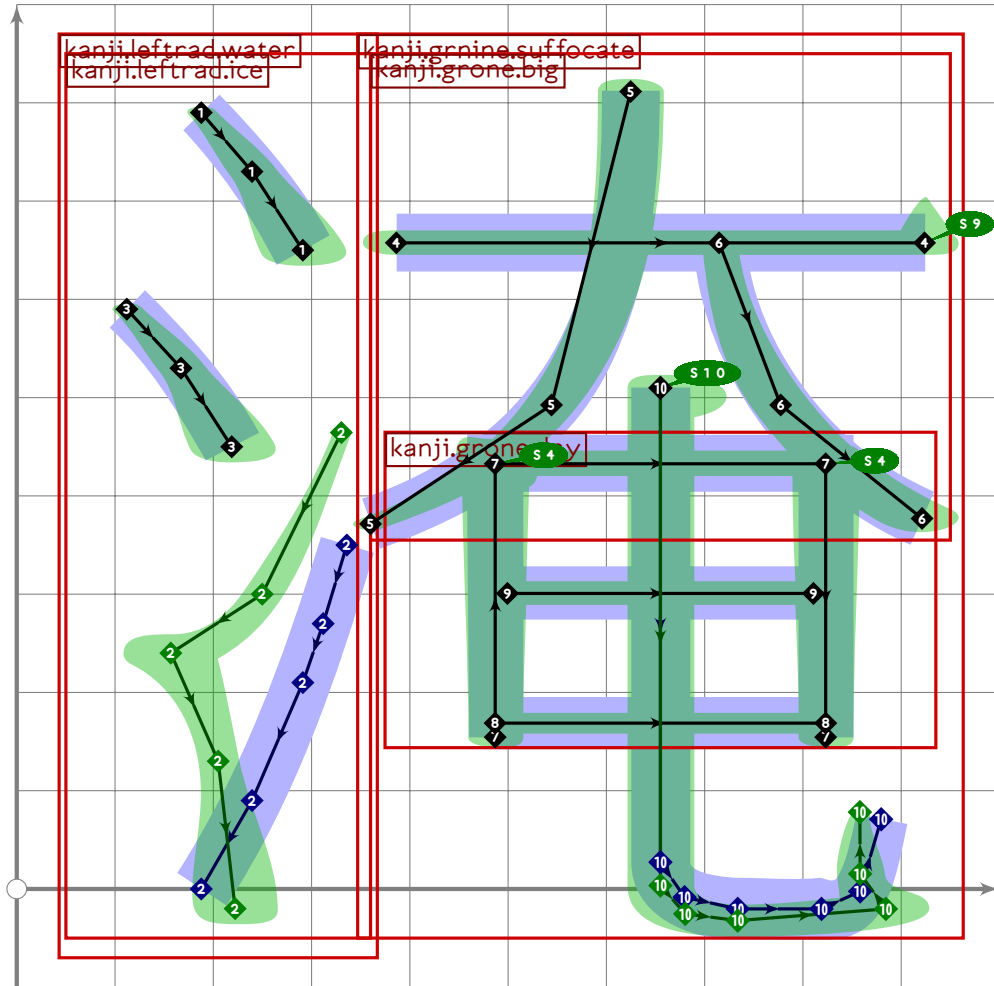
```

```

87 endtsuglyph;
88
89 % shou/ki "cancel"
90 begintsuglyph("uni6D88",136);
91   kanji.grthree.cancel;
92   tsu_render;
93 endtsuglyph;
94

```

[see page 1723]



```

95 % extra en/i "soak" (in particular, making tea or coffee)
96 begintsuglyph("uni6DF9",249);
97   build_kanji.lr(360,0)
98     (kanji.leftrad.water)
99     (kanji.grnine.suffocate);
100   tsu_render;
101 endtsuglyph;
102
103 _____
104
105 endfont;
106
107 _____

```



# tsuku-6e.mp

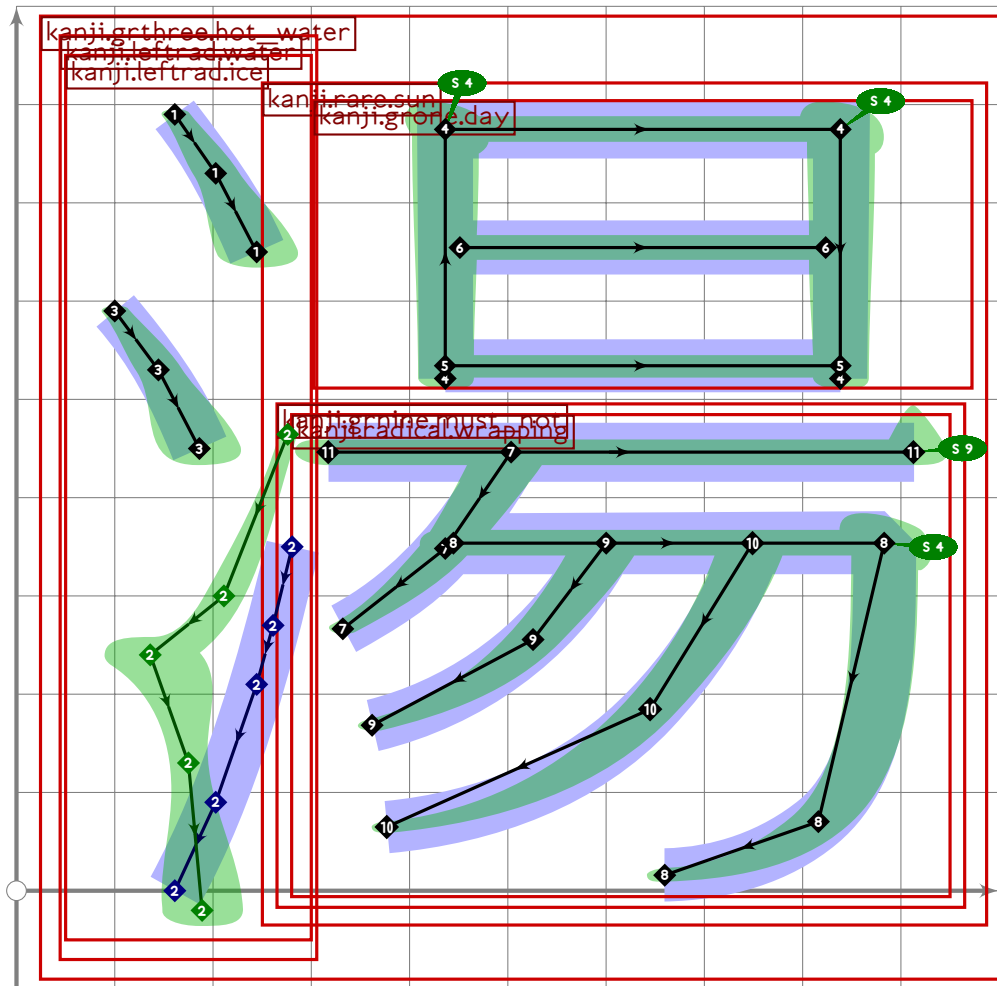
```
1 %
2 % Unicode page 6e (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradenine.mp;
38 input gradeone.mp;
39 input gradesix.mp;
40 input leftrad.mp;
41 input radical.mp;
42 input rare.mp;
43
44 

---


```

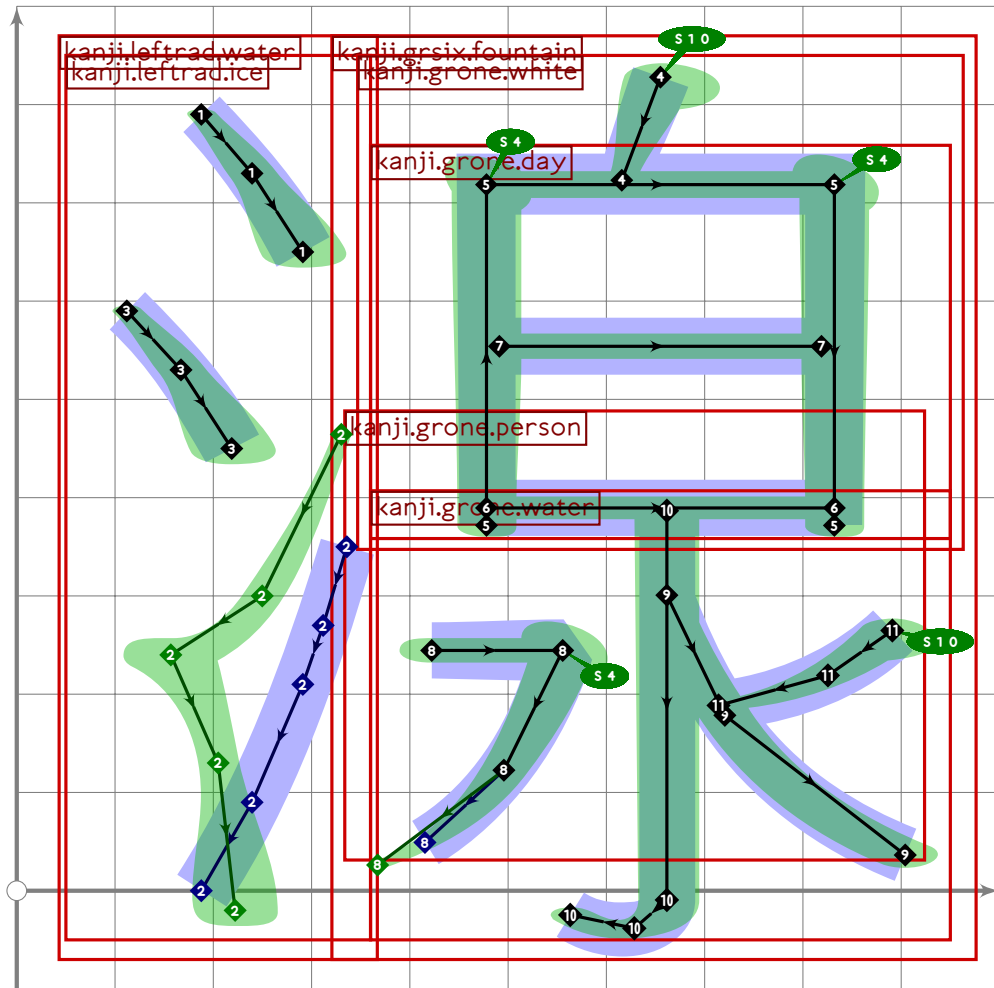


```

45
46 vardef kanji.grthree.hot_water =
47   push_pbox_toexpand("kanji.grthree.hot_water");
48   build_kanji.lr(290,20)
49     (kanji.leftrad.water)
50     (build_kanji.sscale(yscaled 0.9)(kanji.rare.sun));
51   expand_pbox;
52 enddef;
53
54
55
56 % tou/you "hot water"
57 begint Suglyph("uni6E6F",111);
58   kanji.grthree.hot_water;
59   tsu_render;
60 endtsuglyph;
61

```

[see page 1726]



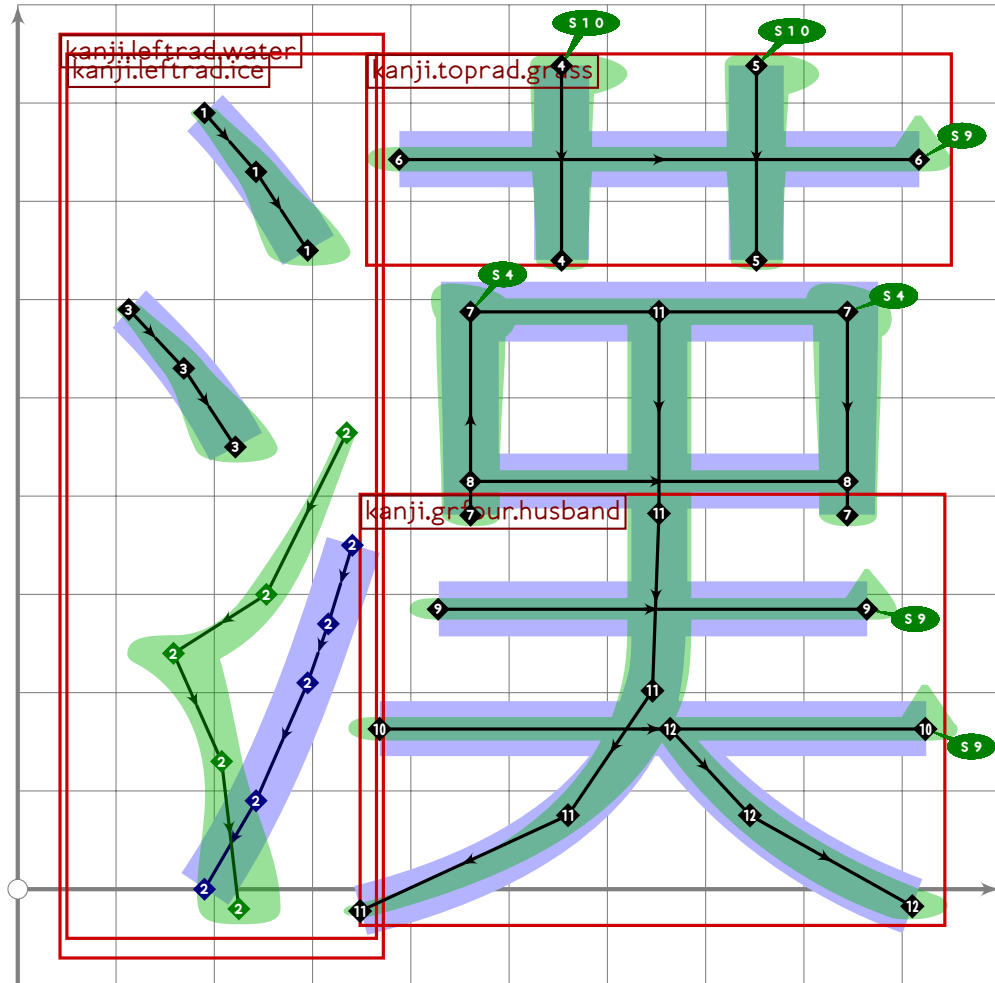
```

62 % extra
63 \begin{suglyph}("uni6E76";118);
64 \build_kanji.lr(360,0)
65   (kanji.leftrad.water)
66   (kanji.grsix.fountain);
67   tsu_render;
68 \end{suglyph};
69
70
71
72 \endfont;
73
74

```

# tsuku-6f.mp

```
1 %  
2 % Unicode page 6f (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradefour.mp;  
38 input leftrad.mp;  
39 input toprad.mp;  
40  
41 _____  
42
```



43 % kan "Chinese"

```
44 begintsuglyph("uni6F22",34);
45 build_kanji.level(build_kanji.lr(360,10)
46   (kanji.leftrad.water)
47   (build_kanji.tb(630,-10)
48     (kanji.toprad.grass)
49     (build_kanji.box((210,800),(790,570)));
50     tsu_xform(identity yscaled 0.65 shifted (-10,0))
51     (kanji.grfour.husband);
52     replace_strokep(-1)((500,800)-oldp);
53     replace_strokeq(-1)((1.6,1.6)-oldq);
54     set_bosserif(-1,0,whatever)))));
55 tsu_render;
56 endtsuglyph;
57
58 

---


59
60 endfont;
61
62 

---


```

# tsuku-70.mp

```
1 %  
2 % Unicode page 70 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %
```

```
5-29 [Standard copyright notice]
```

```
30
```

```
31
```

```
32
```

```
33 beginfont
```

```
34
```

```
35 % AUTODEPS
```

```
36 input bottomrad.mp;
```

```
37 input buildkanji.mp;
```

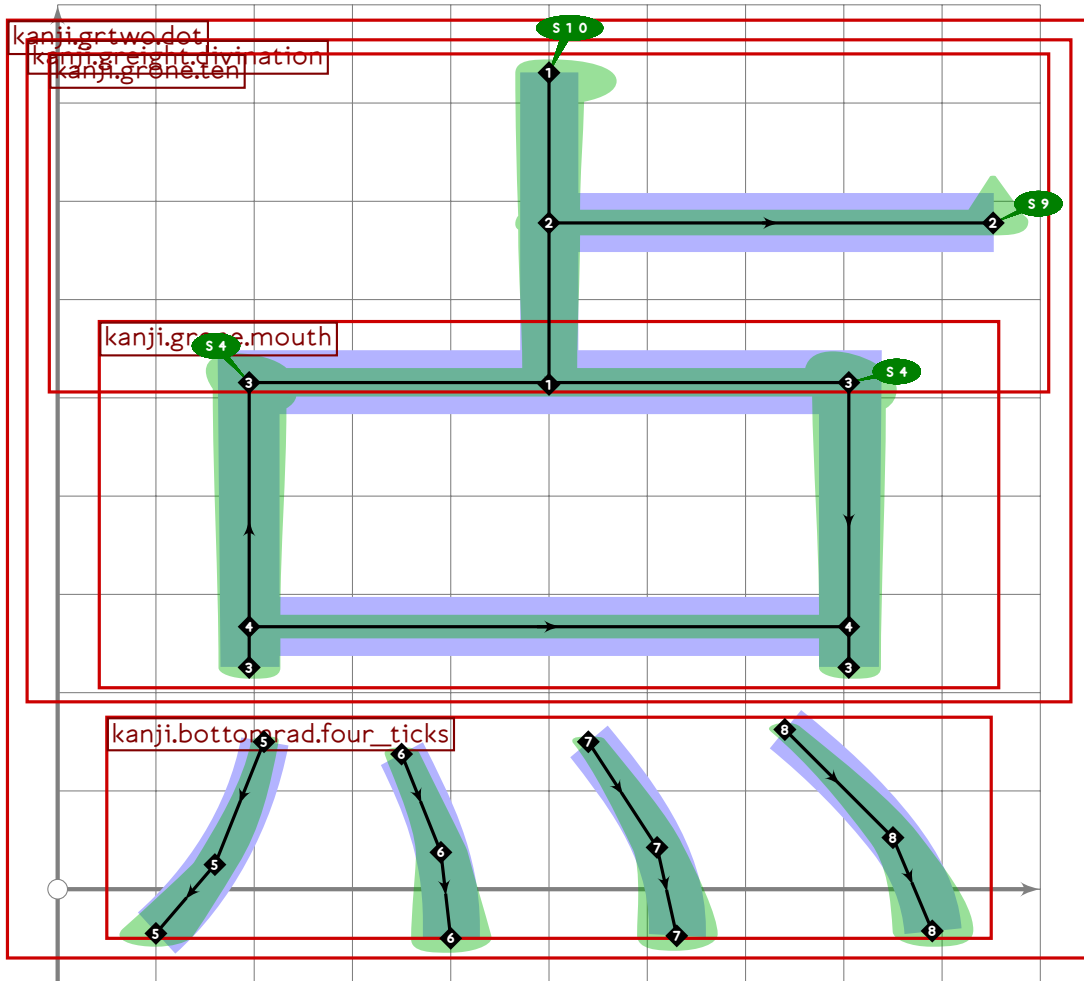
```
38 input gradeeight.mp;
```

```
39 input gradeone.mp;
```

```
40
```

```
41
```

```
42
```

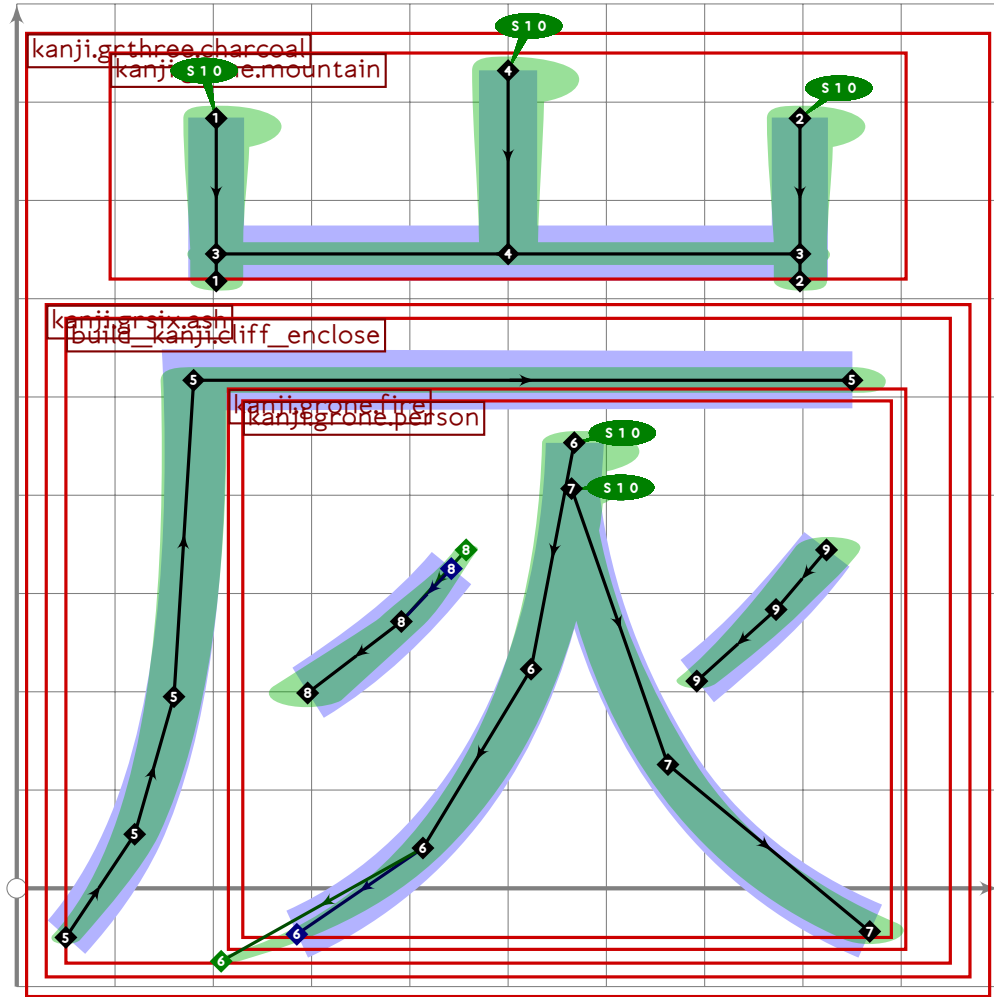


```
43 % "point" is a reserved word
```

```

44 vardef kanji.grtwo.dot =
45   push_pbox_toexpand("kanji.grtwo.dot");
46   build_kanji.tb(190,-30)
47     (build_kanji.sscale(xscaled 1.13)
48       (kanji.greight.divination))
49     (kanji.bottomrad.four_ticks);
50   expand_pbox;
51 enddef;
52
53

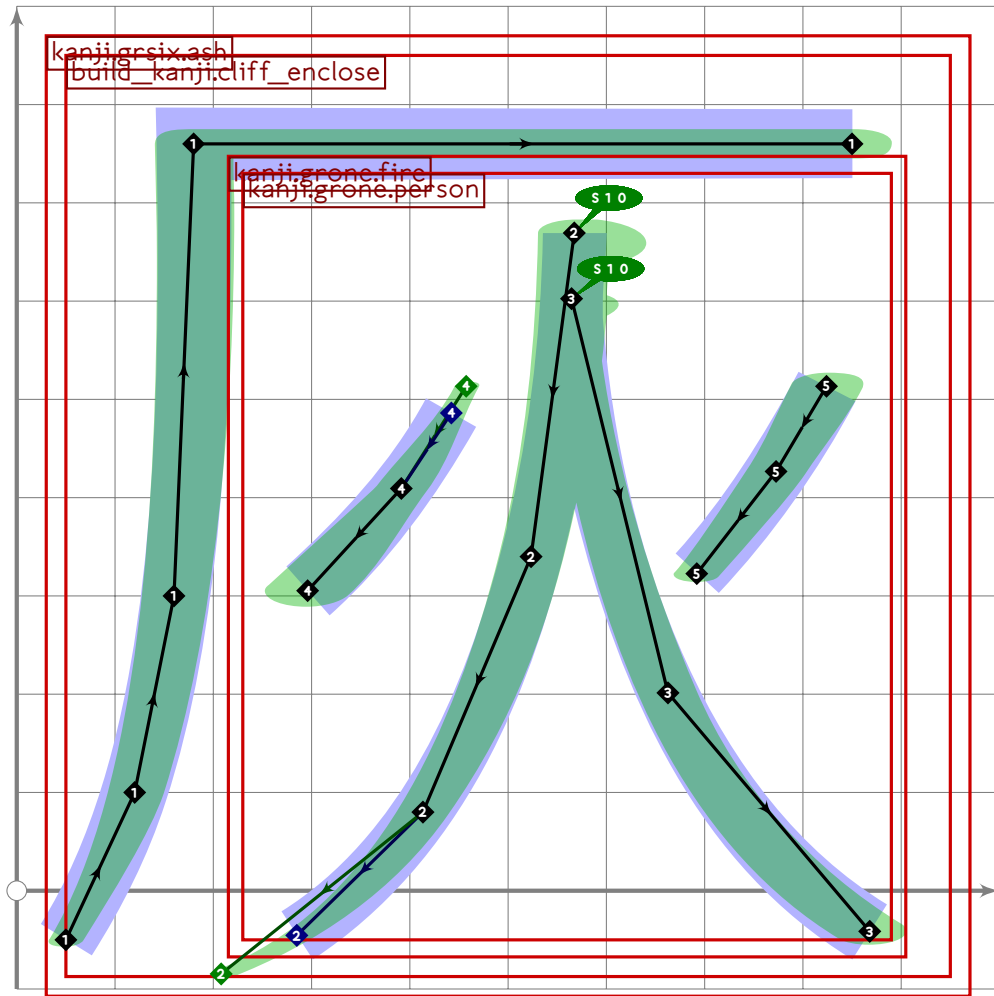
```



```

54
55 vardef kanji.grthree.charcoal =
56   push_pbox_toexpand("kanji.grthree.charcoal");
57   build_kanji.level(build_kanji.tb(600,-40)
58     (build_kanji.sscale(xscaled 0.9)(kanji.grone.mountain))
59     (kanji.grsix.ash));
60   expand_pbox;
61 enddef;
62
63

```



```

64
65 vardef kanji.grsix.ash =
66   push_pbox_toexpand("kanji.grsix.ash");
67   build_kanji.cliff_enclose(kanji.grone.fire);
68   expand_pbox;
69 enddef;

```

---

```

70
71
72
73 % hi/ka "fire"
74 begintsuglyph("uni706B";107); [see page 383]
75   kanji.grone.fire;
76   tsu_render;
77 endtsuglyph;
78
79 % kai/hai "ash"
80 begintsuglyph("uni7070";112); [see page 1732]
81   kanji.grsix.ash;
82   tsu_render;
83 endtsuglyph;

```

84



```
85 % tan/sumi "charcoal"
86 begintsuglyph("uni70AD";173); [see page 1731]
87 kanji.grthree.charcoal;
88 tsu_render;
89 endtsuglyph;
90
91 % ten/tsu "point"
92 begintsuglyph("uni70B9";185); [see page 1731]
93 kanji.grtwo.dot;
94 tsu_render;
95 endtsuglyph;
96
97 

---

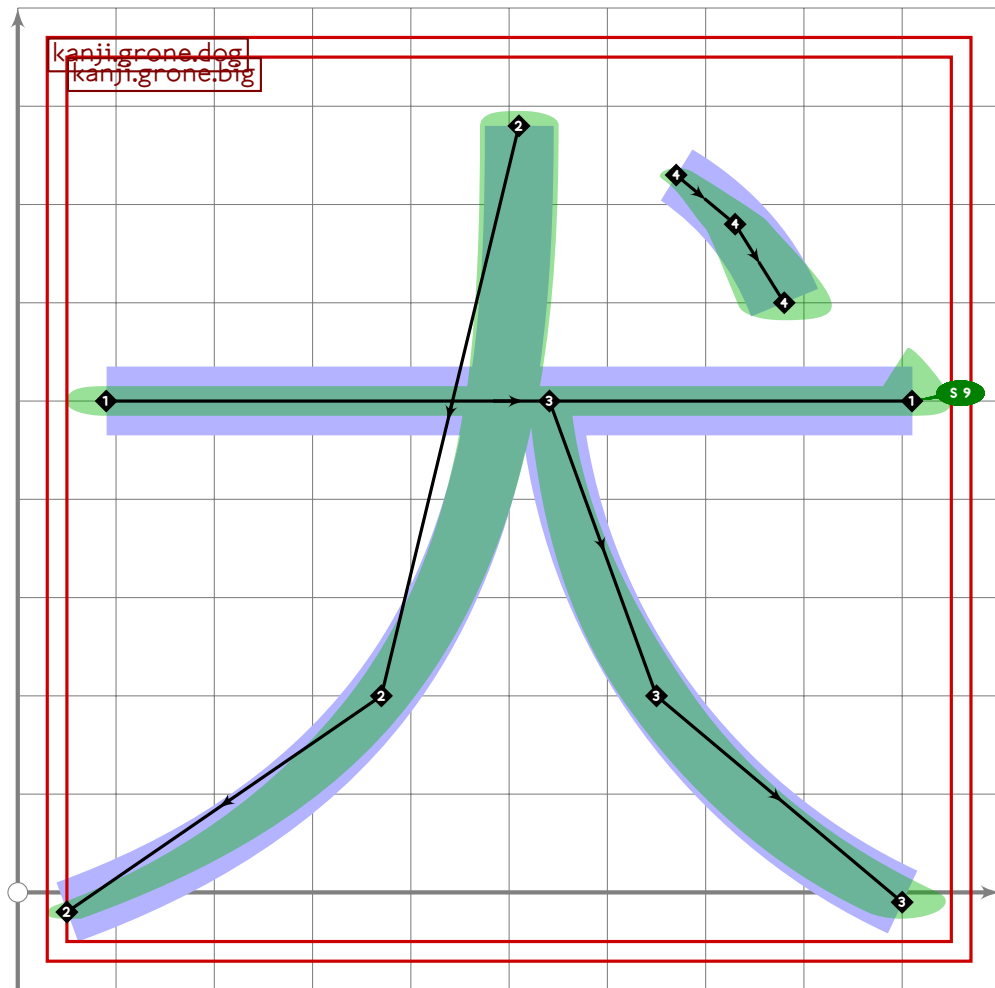

98
99 endfont;
100
101 

---


```

# tsuku-72.mp

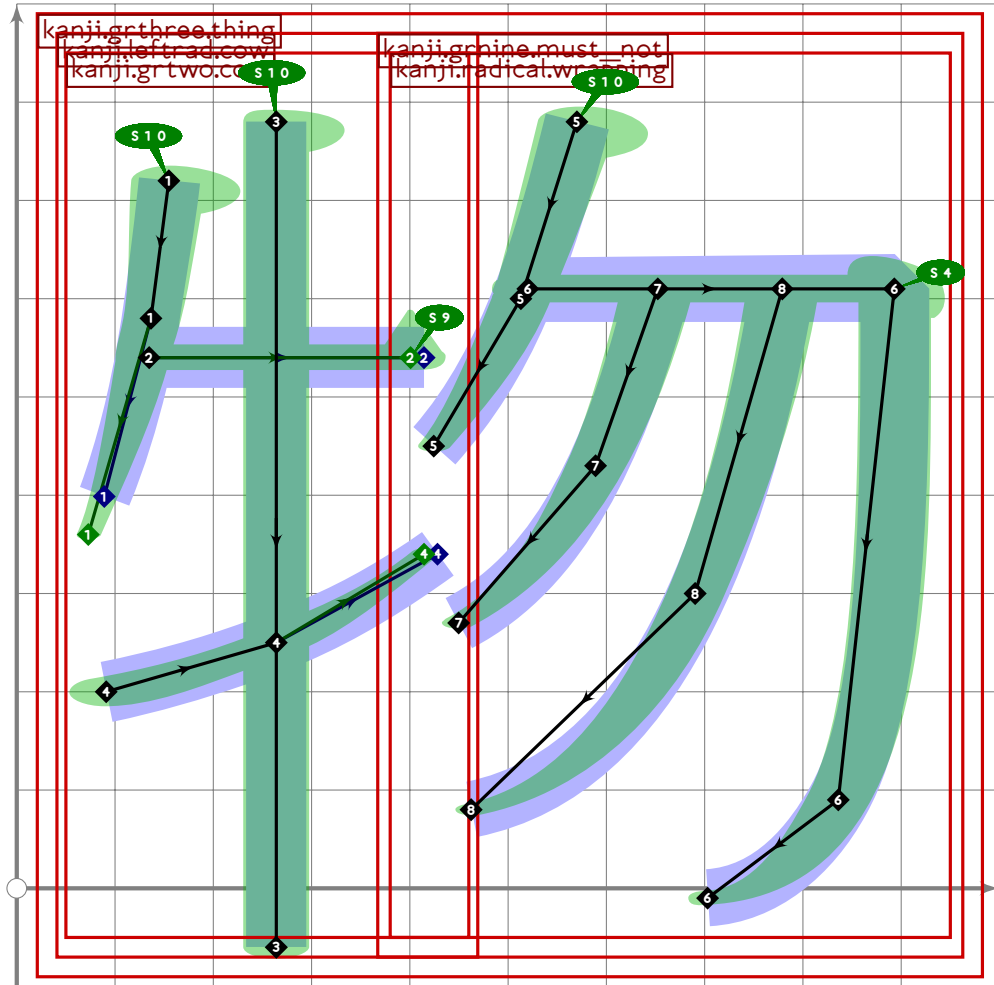
```
1 %  
2 % Unicode page 72 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradenine.mp;  
38 input gradeone.mp;  
39 input gradethree.mp;  
40 input gradetwo.mp;  
41 input radical.mp;  
42  
43 _____
```



```

44
45 vardef kanji.grone.dog =
46   push_pbox_toexpand("kanji.grone.dog");
47   kanji.grone.big;
48   push_stroke((670,730)..(730,680)..(780,600),
49     (1,1)-(14,14)-(18,18));
50   expand_pbox;
51 enddef;
52
53

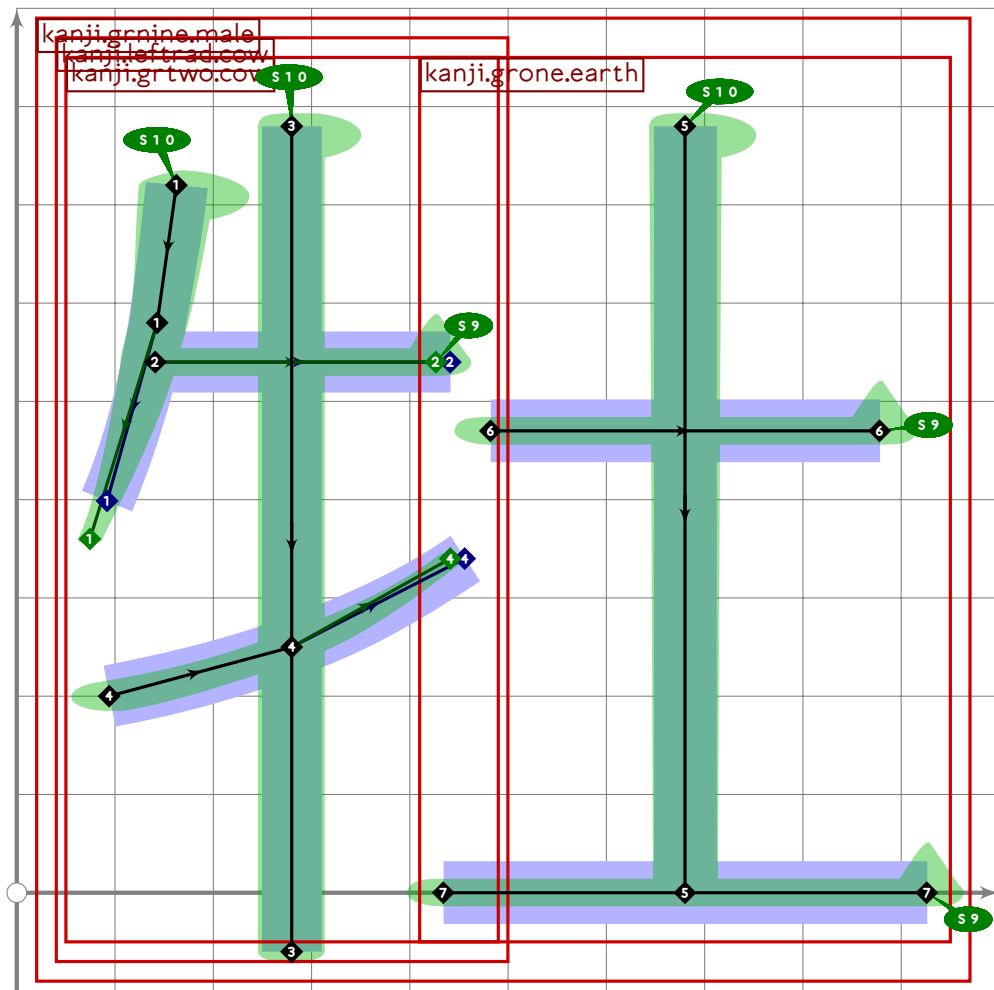
```



```

54
55 vardef kanji.grthree.thing =
56   push_pbox_toexpand("kanji.grthree.thing");
57   build_kanji.lr(420,80)
58     (kanji.leftrad.cow)
59     (kanji.grnine.must_not);
60   expand_pbox;
61 enddef;
62
63

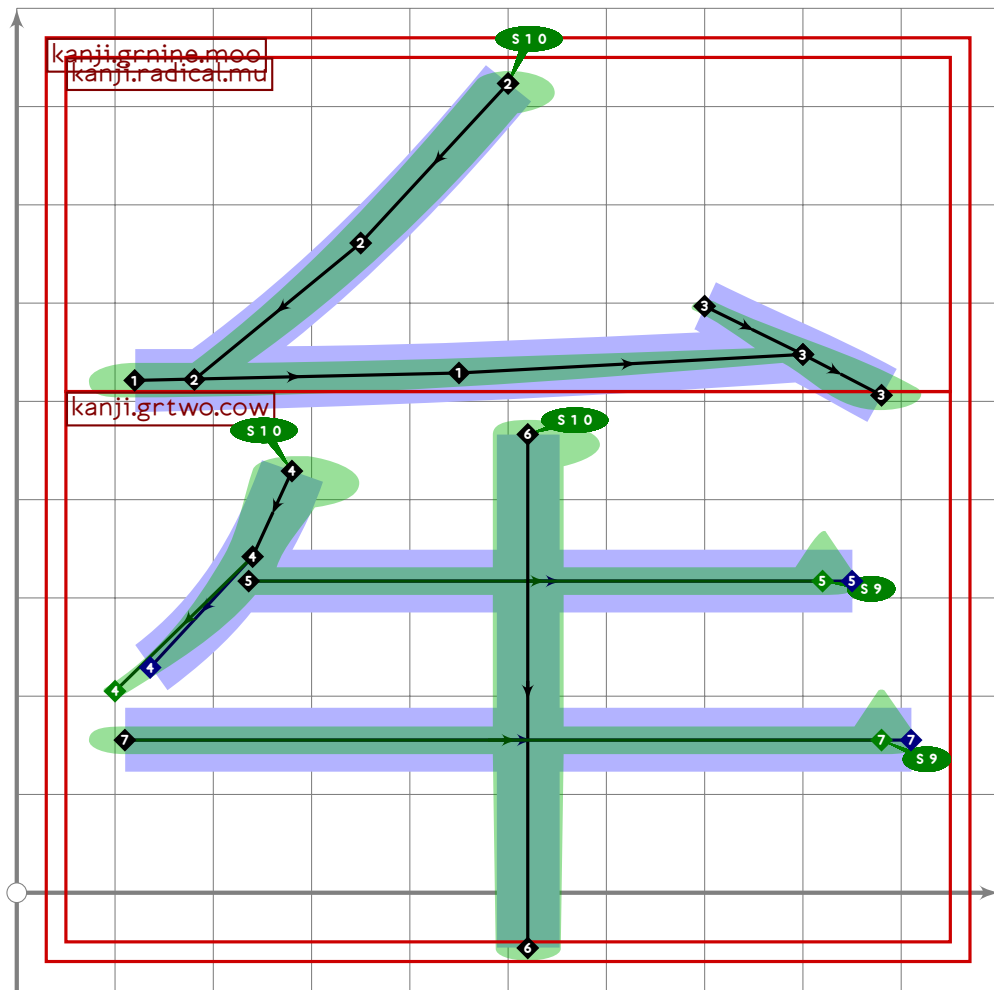
```



```

64
65 vardef kanji.gnine.male =
66   push_pbox_toexpand("kanji.gnine.male");
67   build_kanji.lr(450,80)
68     (kanji.leftrad.cow)
69     (kanji.grone.earth);
70   expand_pbox;
71 enddef;

```



```

72
73 vardef kanji.grnine.moo =
74   push_pbox_toexpand("kanji.grnine.moo");
75   build_kanji.tb(510,0)
76     (kanji.radical.mu)
77     (kanji.grtwo.cow);
78   expand_pbox;
79 enddef;
80
81
82
83 vardef kanji.leftrad.cow =
84   push_pbox_toexpand("kanji.leftrad.cow");
85   kanji.grtwo.cow;
86   replace_stroke(0)((140,200)..tension 1.2..(520,250)..(880-30*mincho,340));
87   replace_stroke(0)((1.7,1.7)-(1.5,1.5)-(1,1));
88   set_boserif(0,1,whatever);
89   expand_pbox;
90 enddef;
91
92

```

93

94 % chichi "father"

95 `begintsuglyph("uni7236";54);`

[see page 437]

96 `kanji.grtwo.father;`

97 `tsu_render;`

98 `endsuglyph;`

99

100 % kyuu/ushi "cow"

101 `begintsuglyph("uni725B";91);`

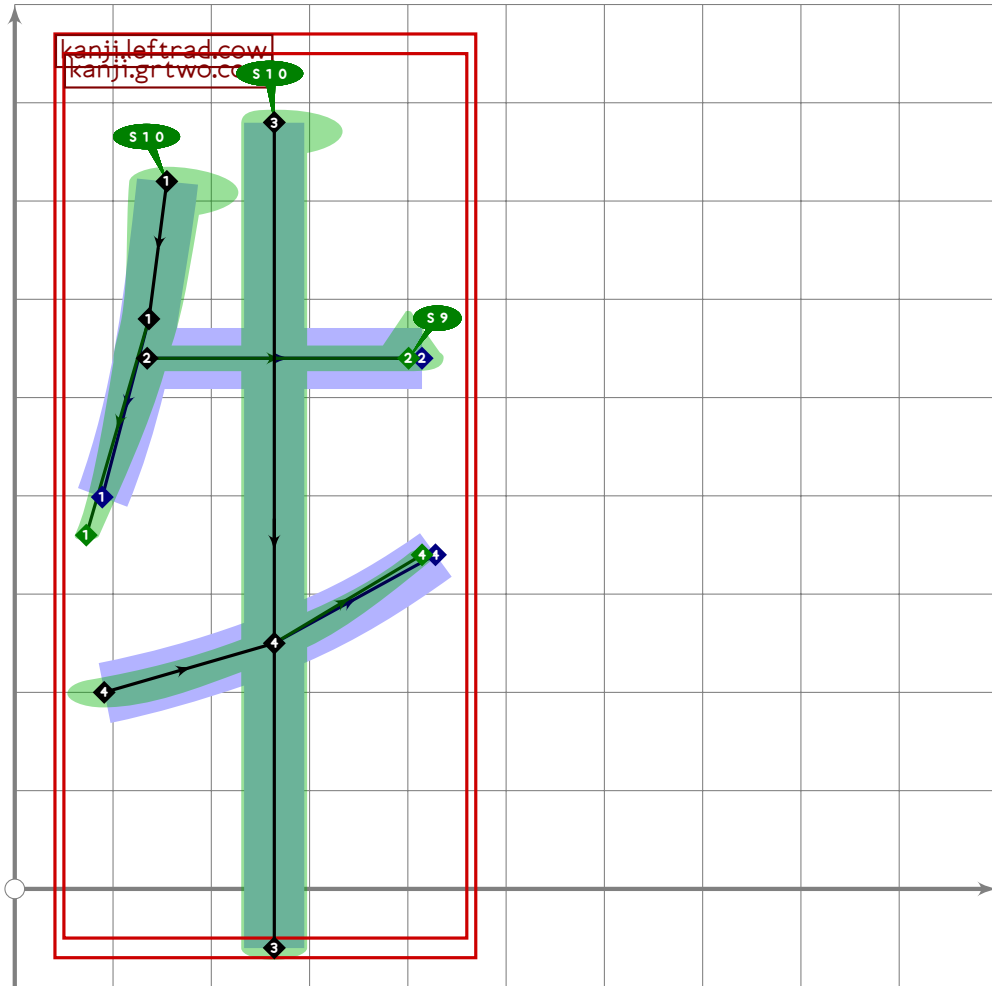
[see page 433]

102 `kanji.grtwo.cow;`

103 `tsu_render;`

104 `endsuglyph;`

105



106 % naked cow radical

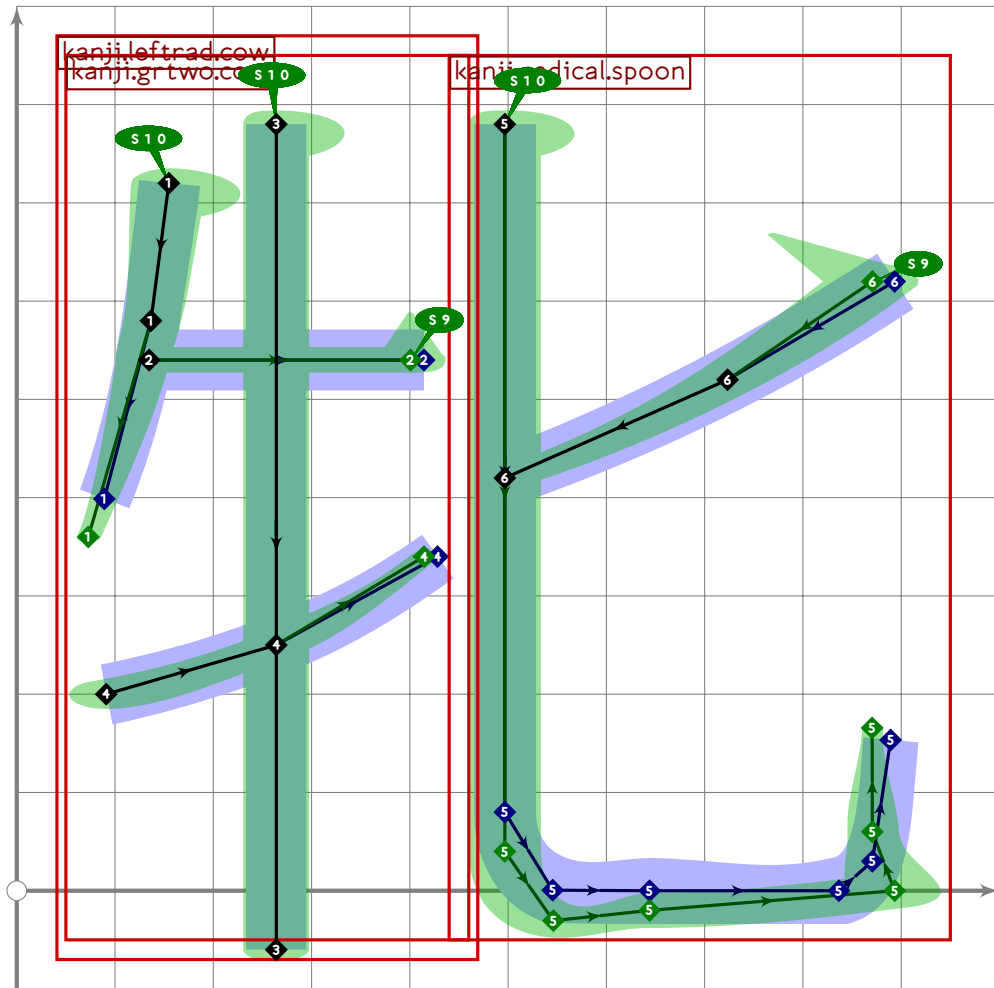
107 `begintsuglyph("uni725C";92);`

108 `build_kanji.lr(450,20)(kanji.leftrad.cow)();`

109 `tsu_render;`

110 `endsuglyph;`

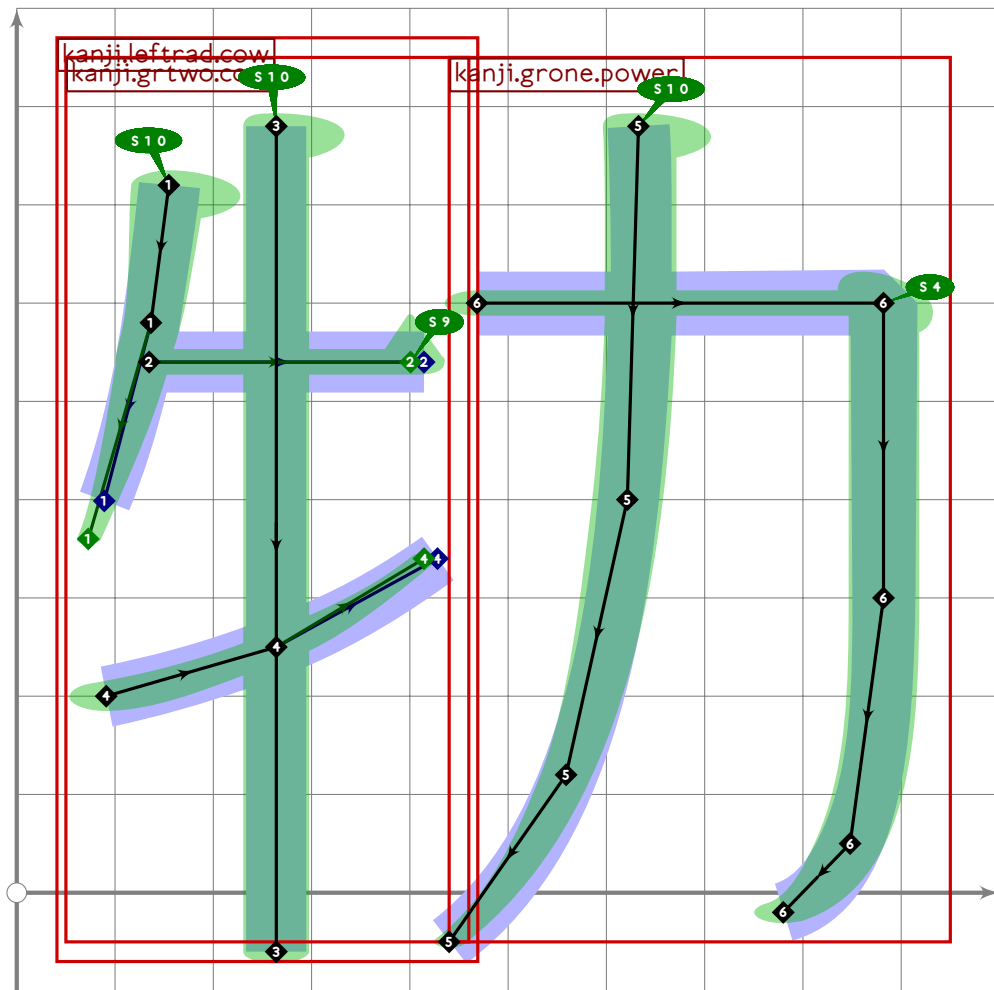
111



```

112 % extra "female"
113 begint Suglyph("uni725D";93);
114 build_kanji.lr(450,20)
115   (kanji.leftrad.cow)
116   (kanji.radical.spoon);
117 tsu_render;
118 endtsuglyph;
119

```



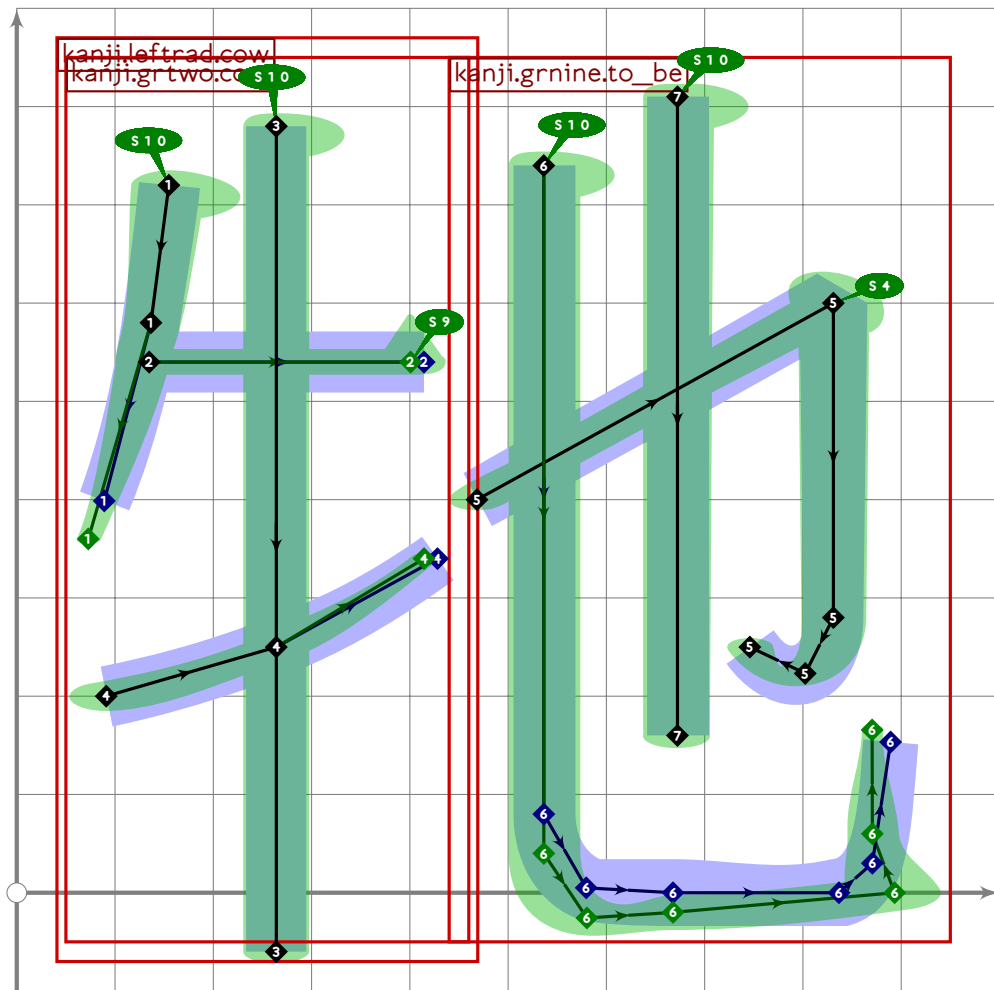
```

120 % extra
121 begintsuglyph("uni725E";94);
122 build_kanji.lr(450,20)
123   (kanji.leftrad.cow)
124   (kanji.grone.power);
125   tsu_render;
126 endsuglyph;
127
128 % bou/mu "moo (cow sound)"
129 begintsuglyph("uni725F";95);
130   kanji.grnine.moo;
131   tsu_render;
132 endsuglyph;
133

```

[see page 1737]





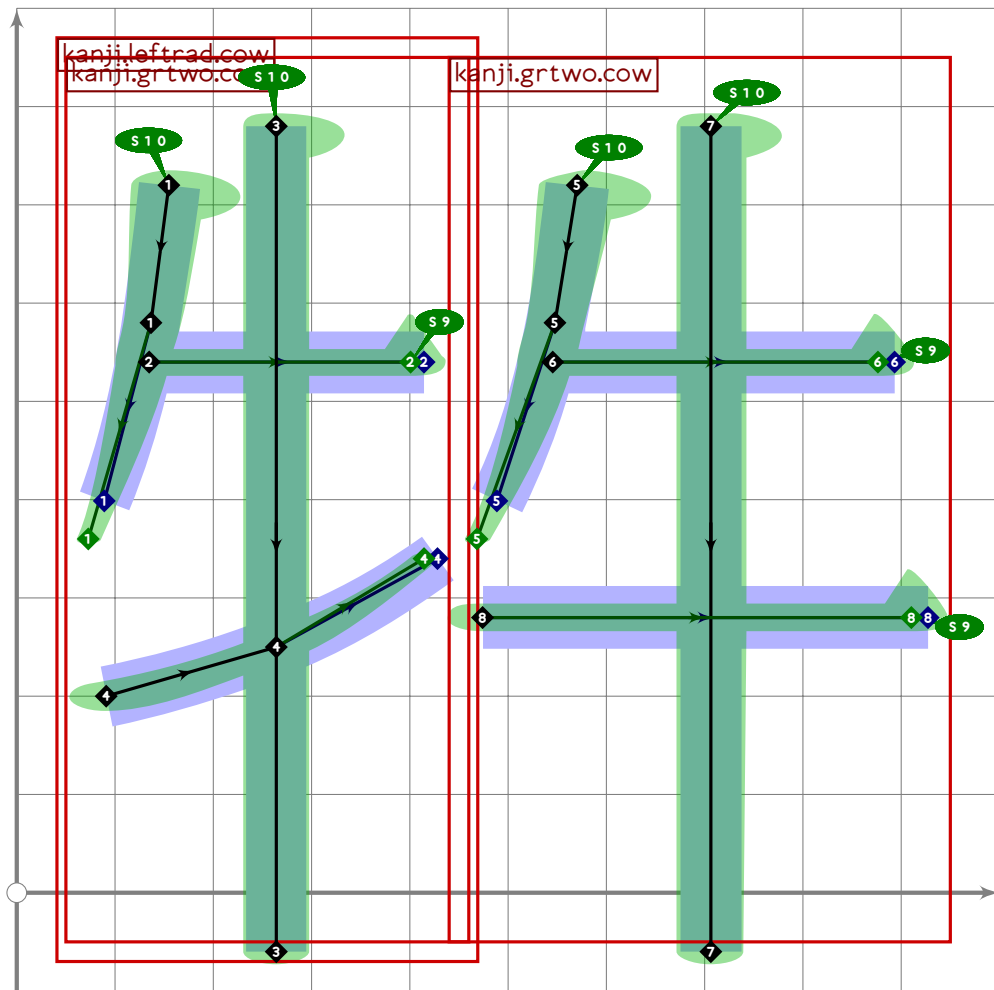
```

134 % extra
135 begintsuglyph("uni7260";96);
136 build_kanji.lr(450,20)
137 (kanji.leftrad.cow)
138 (kanji.grnine.to_be);
139 tsu_render;
140 endtsuglyph;
141
142 % bo/osu "male (animal)"
143 begintsuglyph("uni7261";97);
144 kanji.grnine.male;
145 tsu_render;
146 endtsuglyph;
147
148 % butsu/mono "thing"
149 begintsuglyph("uni7269";105);
150 kanji.grthree.thing;
151 tsu_render;
152 endtsuglyph;
153

```

[see page 1736]

[see page 491]



```

154 % extra
155 begintsuglyph("uni726A";106);
156 build_kanji.lr(450,20)
157 (kanji.leftrad.cow)
158 (kanji.grtwo.cow);
159 tsu_render;
160 endsuglyph;
161
162 % inu "dog"
163 begintsuglyph("uni72AC";172);
164 kanji.grone.dog;
165 tsu_render;
166 endsuglyph;
167
168 -----
169
170 endfont;
171
172 -----

```

[see page 1735]

# tsuku-73.mp

```
1 %
2 % Unicode page 73 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input gradeone.mp;
37
38 

---


39
40 % gyoku/tama "ball" or "precious"
41 begintsuglyph("uni7389",137); [see page 367]
42   kanji.grone.ball;
43   tsu_render;
44 endtsuglyph;
45
46 % ou "king"
47 begintsuglyph("uni738B",139); [see page 389]
48   kanji.grone.king;
49   tsu_render;
50 endtsuglyph;
51
52 

---

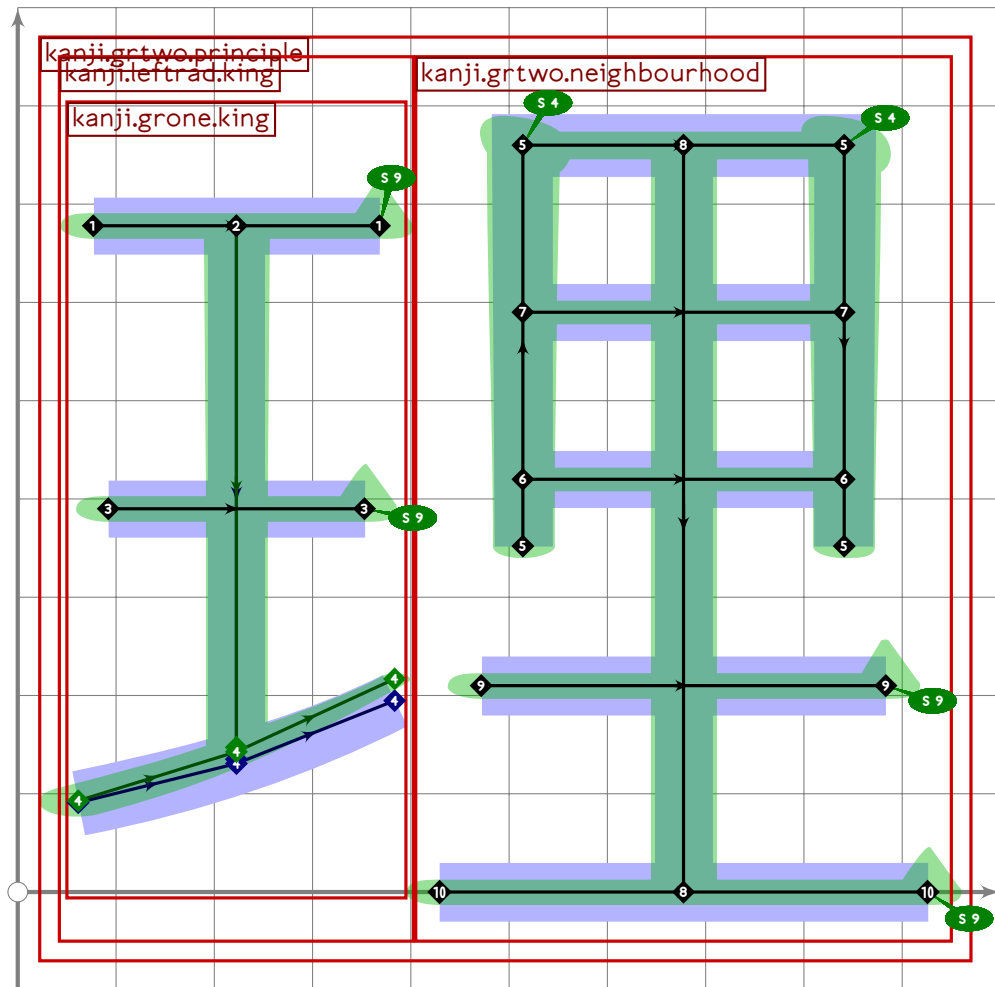

53
54 endfont;
55
56 

---


```

# tsuku-74.mp

```
1 %  
2 % Unicode page 74 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradeone.mp;  
38 input gradetwo.mp;  
39 input leftrad.mp;  
40  
41 _____
```



```
42  
43 vardef kanji.grtwo.principle =
```

```
44 push_pbox_toexpand("kanji.grtwo.principle");
45 build_kanji.lr(400,-10)
46   (kanji.leftrad.king)
47   (kanji.grtwo.neighbourhood);
48 expand_pbox;
49 enddef;
50
51 

---


52
53 % ri/kotowari "principle"
54 beginsuglyph("uni7406",6); [see page 1744]
55   kanji.grtwo.principle;
56   tsu_render;
57 endsuglyph;
58
59 

---


60
61 endfont;
62
63 

---


```

# tsuku-75.mp

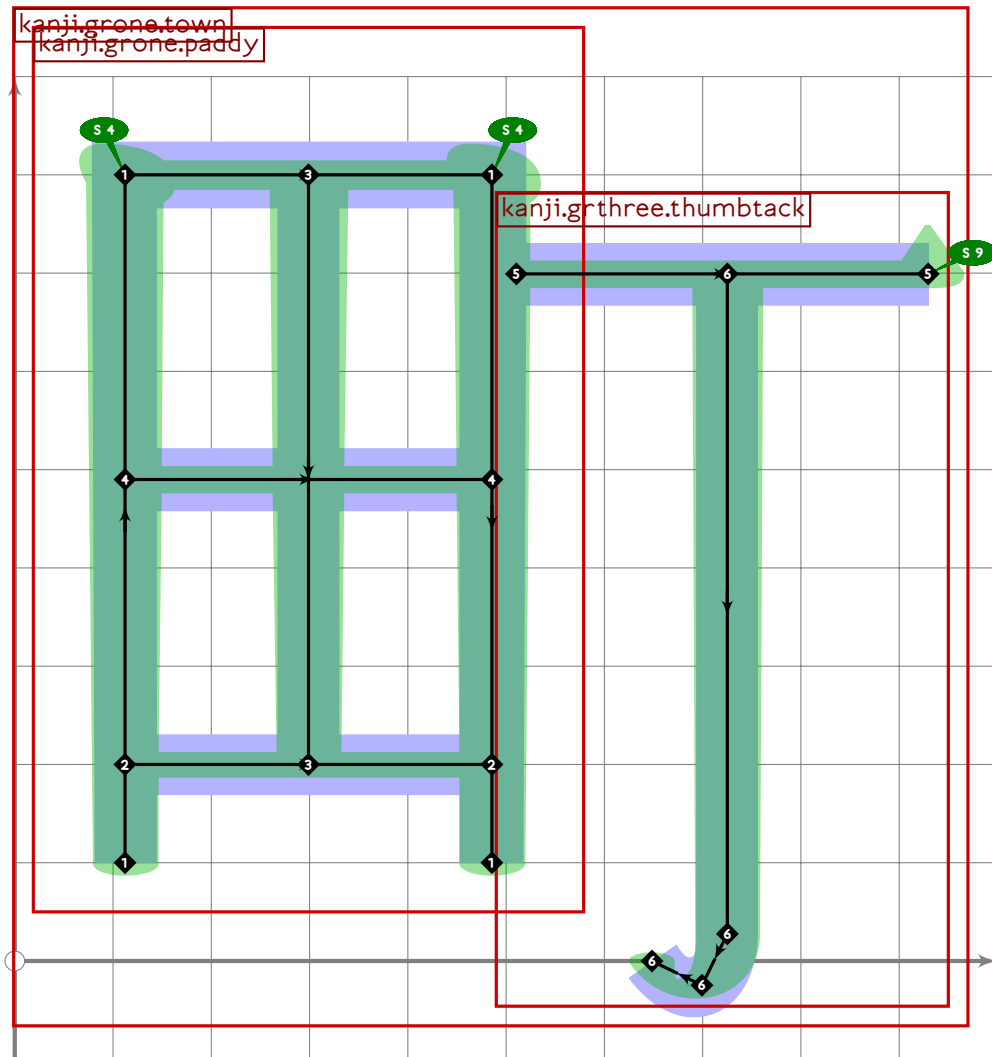
```
1 %
2 % Unicode page 75 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeone.mp;
38 input gradethree.mp;
39 input gradetwo.mp;
40 input radical.mp;
41 input rare.mp;
42 input toprad.mp;
43
44 

---

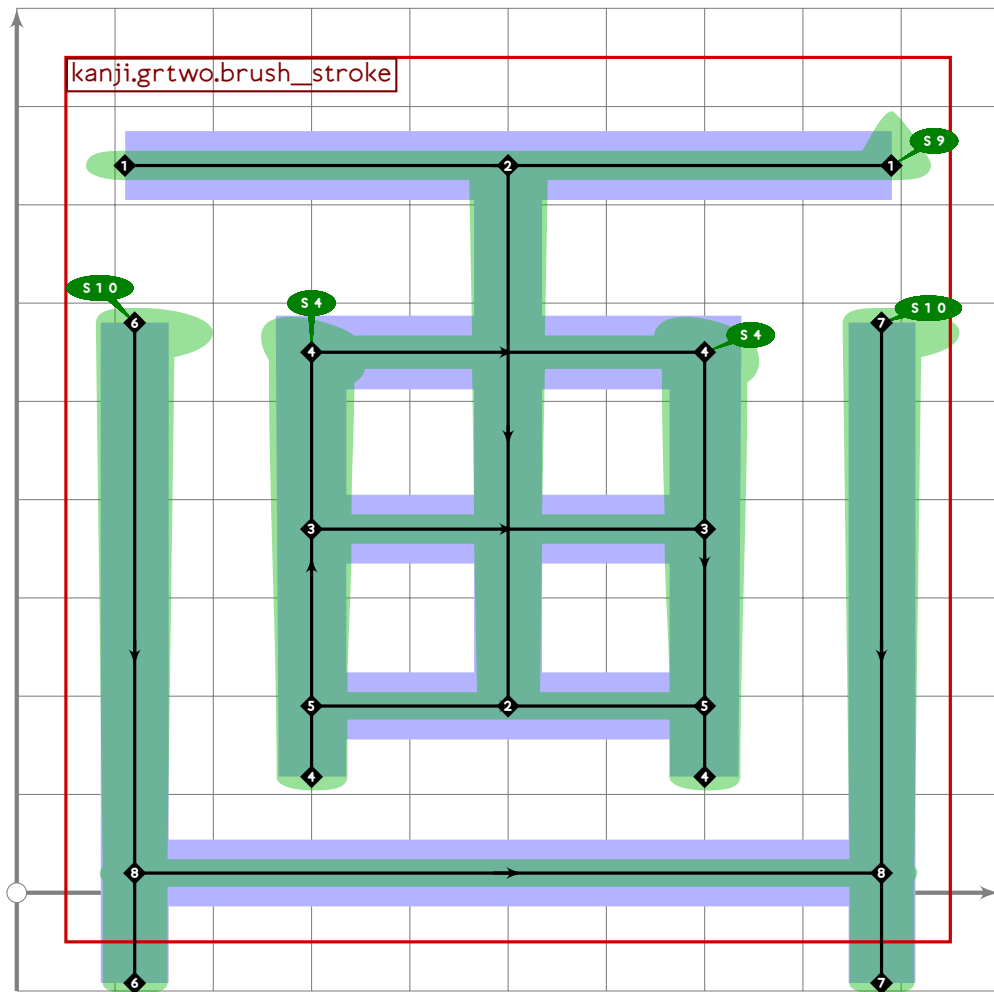

```



```

45
46 vardef kanji.grone.town =
47   push_pbox_toexpand("kanji.grone.town");
48   build_kanji.level(build_kanji.lr(550,120)
49     (tsu_xform(identity shifted (-50,100))(kanji.grone.paddy))
50     (tsu_xform(identity yscaled 0.92)
51       (kanji.grthree.thumbtack)));
52   expand_pbox;
53 enddef;
54
55

```

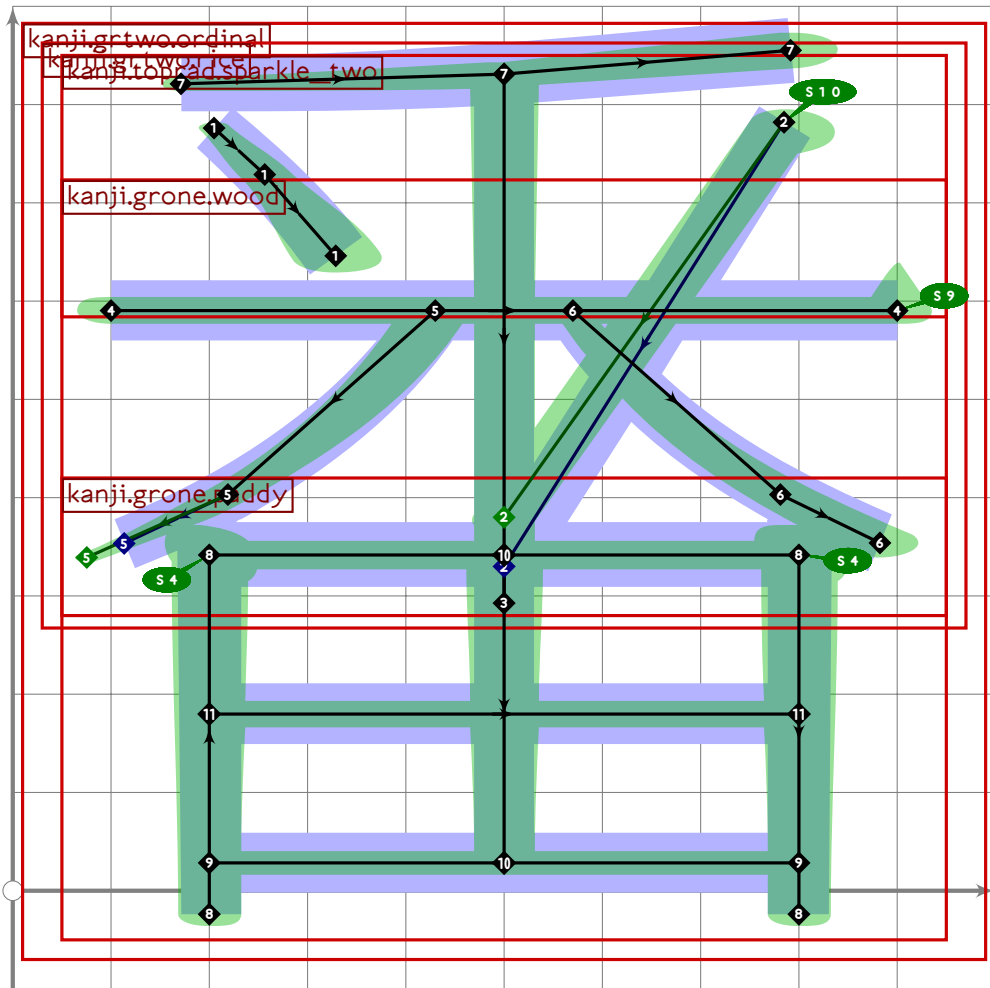


```

56
57 vardef kanji.grtwo.brush_stroke =
58   push_pbox_toexpand("kanji.grtwo.brush_stroke");
59   push_stroke((110,740)-(890,740),(1.6,1.6)-(1.6,1.6));
60   set_boserif(0,19);
61   push_stroke((500,740)-(500,190),
62     (1.6,1.6)-(1.4,1.4));
63   push_stroke((300,370)-(700,370),
64     (1.6,1.6)-(1.6,1.6));
65   build_kanji.box((300,550),(700,190));
66   build_kanji.cup((120,580),(880,20));
67   expand_pbox;
68 enddef;

```





```

69
70 vardef kanji.grtwo.ordinal =
71   push_pbox_toexpand("kanji.grtwo.ordinal");
72   build_kanji.level(build_kanji.tb(350,140)
73     (build_kanji.spread_legs(140)(build_kanji.add_beret(
74       kanji.grtwo.rice)))
75     (kanji.grone.paddy));
76   replace_stroke(-9)((point 0 of oldp)-(500,330+50*mincho));
77   expand_pbox;
78 enddef;
79

```

```

80
81
82 % sei/ki "life"
83 begint Suglyph("uni751F";31); [see page 390]
84   kanji.grone.life;
85   tsu_render;
86 endtsuglyph;
87
88 % you/mochi "job"
89 begint Suglyph("uni7528";40); [see page 443]

```

90 `kanji.grtwo.job;`  
 91 `tsu_render;`  
 92 `endtsuglyph;`  
 93  
 94 % you "walled road"  
 95 `begintsuglyph("uni752C",44);` [see page 567]  
 96 `kanji.rare.walled_road;`  
 97 `tsu_render;`  
 98 `endtsuglyph;`  
 99  
 100 % ta "rice paddy"  
 101 `begintsuglyph("uni7530",48);` [see page 402]  
 102 `kanji.grone.paddy;`  
 103 `tsu_render;`  
 104 `endtsuglyph;`  
 105  
 106 % yu/yoshi "reason" or "cause"  
 107 `begintsuglyph("uni7531",49);` [see page 489]  
 108 `kanji.grthree.reason;`  
 109 `tsu_render;`  
 110 `endtsuglyph;`  
 111  
 112 % shin/mou "have the honour to," "monkey zodiac sign," etc.  
 113 `begintsuglyph("uni7533",51);` [see page 483]  
 114 `kanji.grthree.have_honour;`  
 115 `tsu_render;`  
 116 `endtsuglyph;`  
 117  
 118 % otoko "man"  
 119 `begintsuglyph("uni7537",55);` [see page 392]  
 120 `kanji.grone.man;`  
 121 `tsu_render;`  
 122 `endtsuglyph;`  
 123  
 124 % chuu/machi "town"  
 125 `begintsuglyph("uni753A",58);` [see page 1747]  
 126 `kanji.grone.town;`  
 127 `tsu_render;`  
 128 `endtsuglyph;`  
 129  
 130 % ga/ega "brush stroke" (or "picture" but that is reserved)  
 131 `begintsuglyph("uni753B",59);` [see page 1748]  
 132 `kanji.grtwo.brush_stroke;`  
 133 `tsu_render;`  
 134 `endtsuglyph;`  
 135  
 136 % ban/tsuga "ordinal number"  
 137 `begintsuglyph("uni756A",106);` [see page 1749]

```
138  kanji.grtwo.ordinal;  
139  tsu_render;  
140  endtsuglyph;
```

141-142

```
143  _____
```

144

```
145  endfont;
```

146

```
147  _____
```



Part VI

U+7600 to U+89FF



# tsuku-76.mp

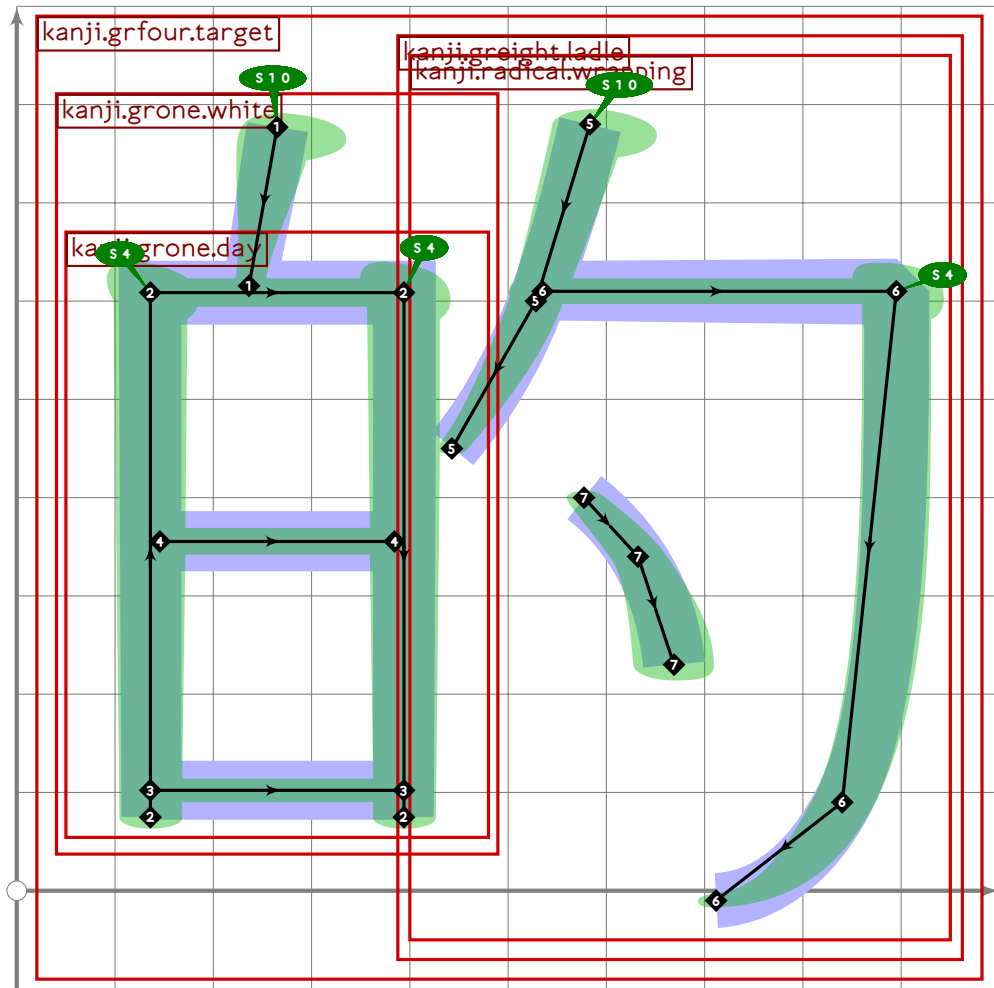
```
1 %  
2 % Unicode page 76 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 

---

  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradeeight.mp;  
38 input gradeone.mp;  
39 input gradethree.mp;  
40 input gradetwo.mp;  
41 input leftrad.mp;  
42 input radical.mp;  
43  
44 

---


```



```

45
46 vardef kanji.grfour.target =
47   push_pbox_toexpand("kanji.grfour.target");
48   build_kanji.level(build_kanji.lr(440,80)
49     (build_kanji.sscale(yscaled 0.85 shifted (0,30))
50       (kanji.grone.white))
51       (kanji.greight.ladle));
52   expand_pbox;
53 enddef;

```

54

55

56

57 % shiro "white"

58 `begintsuglyph("uni767D";125);`

[see page 422]

59 `kanji.grone.white;`

60 `tsu_render;`

61 `endtsuglyph;`

62

63 % hyako/momo "hundred"

64 `begintsuglyph("uni767E";126);`

[see page 388]

65 `kanji.grone.hundred;`



```
66 tsu_render;
67 endtsuglyph;
68
69 % teki/mato "target" and adjective ending [see page 1756]
70 begintsuglyph("uni7684",132);
71 kanji.grfour.target;
72 tsu_render;
73 endtsuglyph;
74
75 % moku/me "eye" [see page 382]
76 begintsuglyph("uni76EE",238);
77 kanji.grone.eye;
78 tsu_render;
79 endtsuglyph;
80
81 % choku/nao multiple meanings including "straight" and "honesty"
82 % "The 'nao' in Naota is for honesty"
83 begintsuglyph("uni76F4",244); [see page 467]
84 kanji.grtwo.straight;
85 tsu_render;
86 endtsuglyph;
87
88 % sou/ai "mutual" but also "indication seen by fortune teller"
89 begintsuglyph("uni76F8",248); [see page 479]
90 kanji.grthree.correlation;
91 tsu_render;
92 endtsuglyph;
93
94 

---

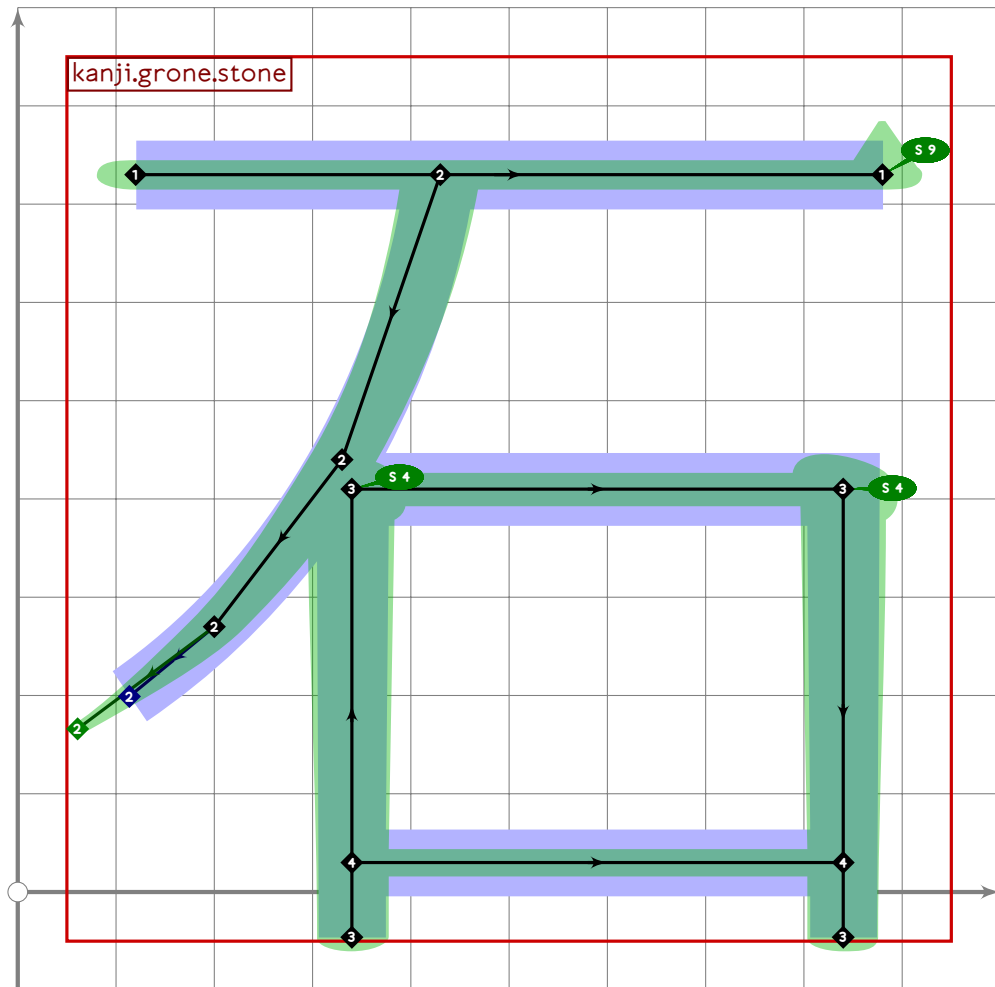

95
96 endfont;
97
98 

---


```

# tsuku-77.mp

```
1 %  
2 % Unicode page 77 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradefour.mp;  
38 input gradeone.mp;  
39 input gradetwo.mp;  
40  
41 _____
```

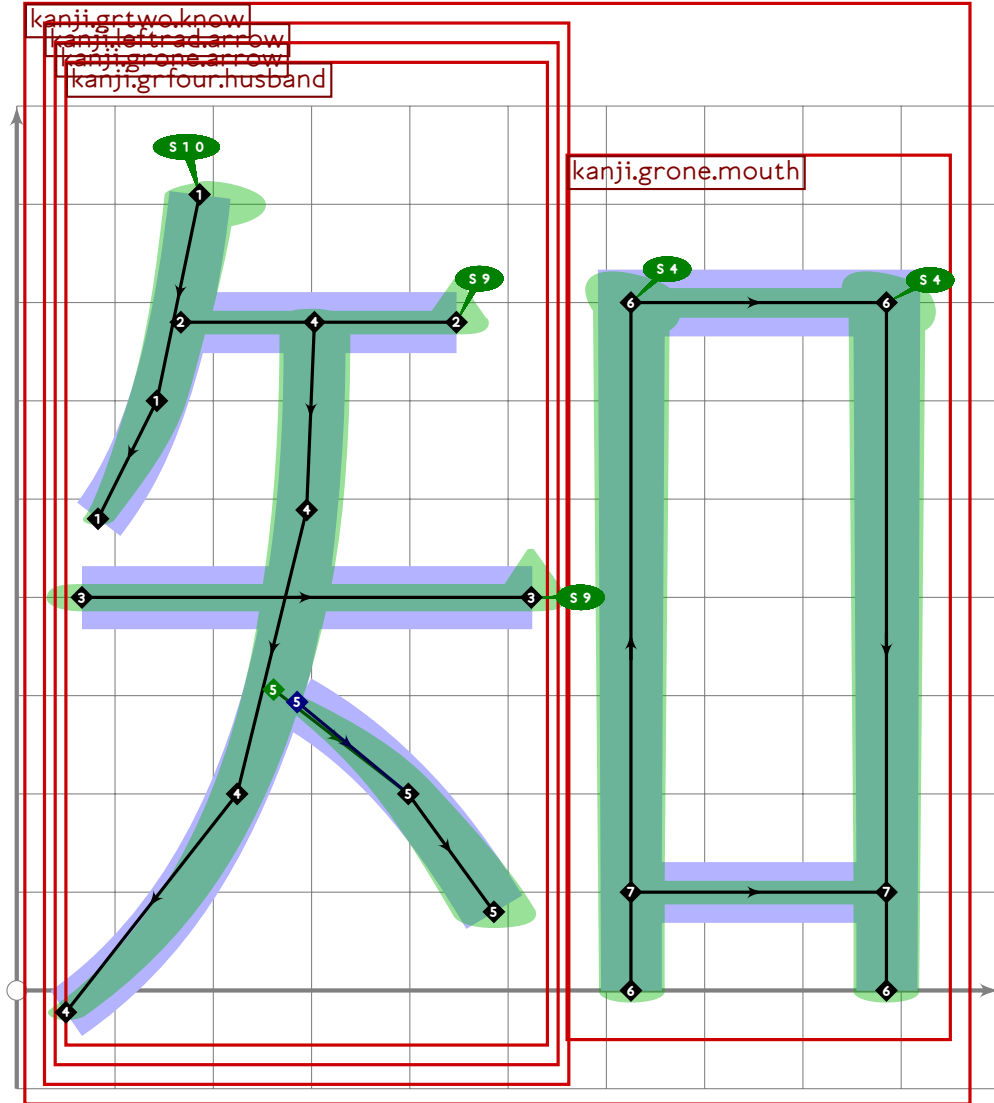


```
42  
43 vardef kanji.grone.stone =
```

```

44 push_pbox_toexpand("kanji.grone.stone");
45 push_stroke((120,730)..(880,730),(1,6,1,6)-(1,6,1,6));
46 set_boserif(0,1,9);
47 push_stroke((430,730)..(330,440)..(200,270)..(50,160),
48 (1,6,1,6)-(1,5,1,5)-(1,3,1,3)-(0,8,0,8));
49 build_kanji.box((340,410),(840,30));
50 expand_pbox;
51 enddef;
52
53

```

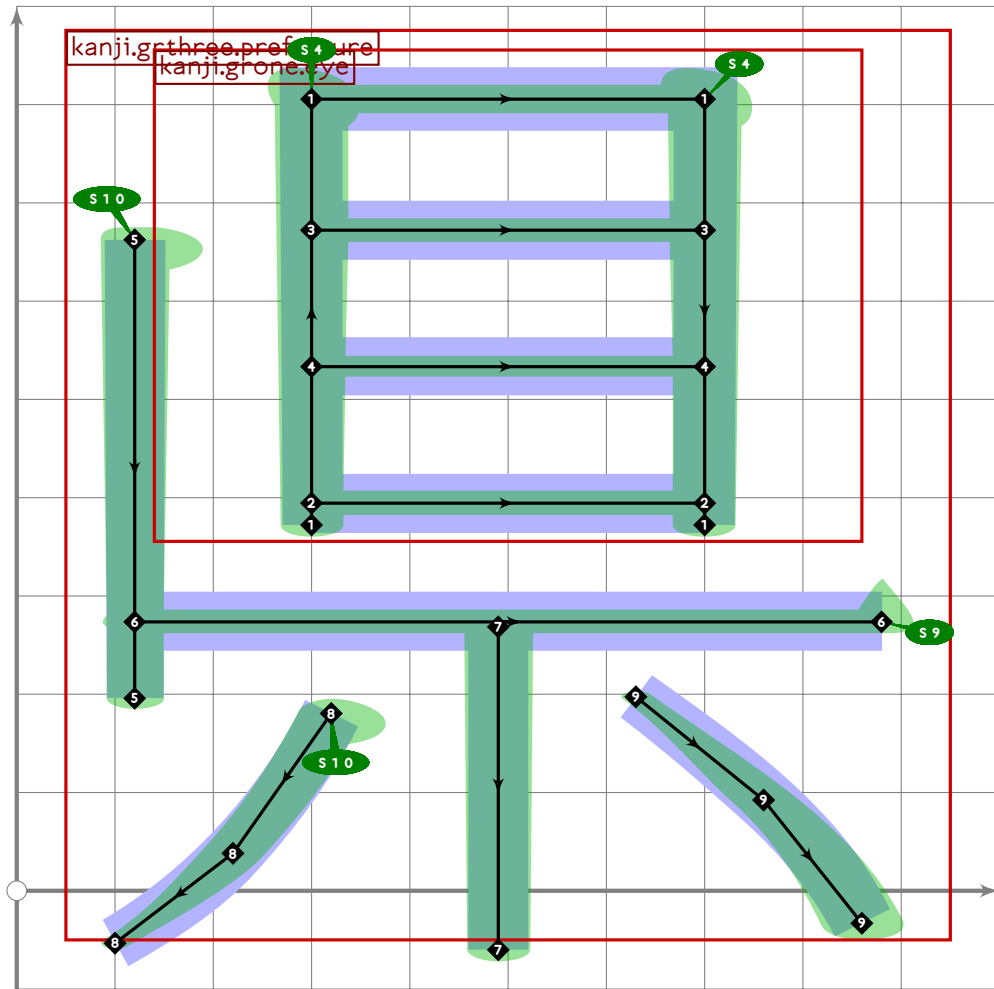


```

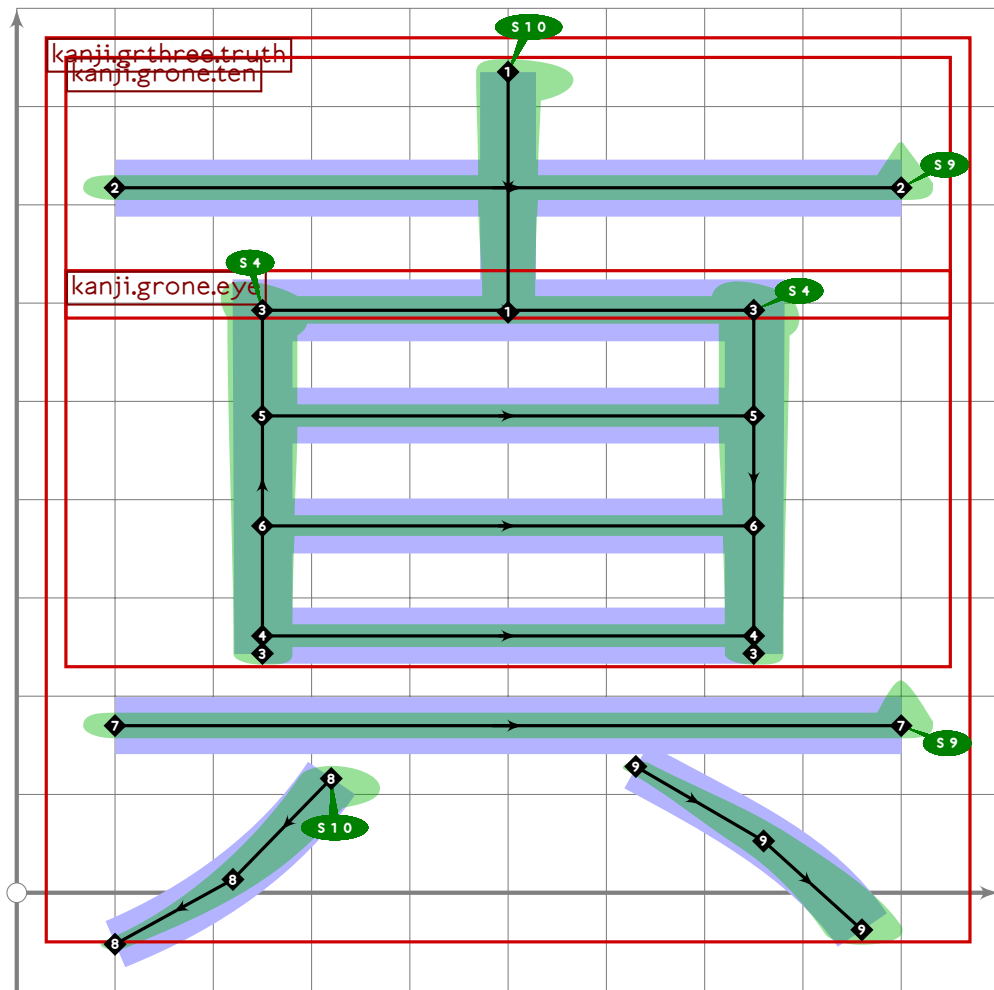
54
55 vardef kanji.grtwo.know =
56 push_pbox_toexpand("kanji.grtwo.know");
57 build_kanji.level(build_kanji.lr(550,-20)
58 (kanji.leftrad.arrow)
59 (kanji.grone.mouth));
60 expand_pbox;
61 enddef;

```

62  
63



```
64  
65 vardef kanji.grthree.prefecture =  
66   push_pbox_toexpand("kanji.grthree.prefecture");  
67   build_kanji.level(build_kanji.tb(240,30)  
68     (build_kanji.sscale(scaled 0.80 shifted (0,100))(kanji.grone.eyre);  
69     build_kanji.cup((120,580),(880,20));  
70     set_bosize(-1,0);  
71     set_boserif(0,1,9))  
72   (push_stroke((490,890)-(490,-80),(1.6,1.6)-(1.5,1.5));  
73     push_stroke((320,630)..tension 1.3..(220,210)..(100,-60),  
74       (1.6,1.6)-(1.5,1.5)-(1,1));  
75     set_boserif(0,0,10);  
76     push_stroke((630,680)..tension 1.3..(760,370)..(860,0),  
77       (1,1)-(1.5,1.5)-(1.8,1.8))));  
78   expand_pbox;  
79 enddef;
```



```

80
81 vardef kanji.grthree.truth =
82   push_pbox_toexpand("kanji.grthree.truth");
83   build_kanji.level(build_kanji.tb(200,-60)
84     (build_kanji.tb(500,70)
85       (kanji.grone.ten)
86       (kanji.grone.ey)
87     (push_stroke((100,850)-(900,850),(1.6,1.6)-(1.6,1.6));
88       set_boserif(0,1,9);
89     push_stroke((320,630)..tension 1.3..(220,210)..(100,-60),
90       (1.6,1.6)-(1.5,1.5)-(1,1));
91     set_boserif(0,0,10);
92     push_stroke((630,680)..tension 1.3..(760,370)..(860,0),
93       (1,1)-(1.5,1.5)-(1.8,1.8)))));
94   expand_pbox;
95 enddef;
96
97
98
99 vardef kanji.leftrad.arrow =
100  push_pbox_toexpand("kanji.leftrad.arrow");

```

```

101 kanji.grtwo.arrow;
102 replace_stroke(0)((point 1.6 of get_stroke(-1)..(690,200)..(850,80));
103 replace_strokeq(0)((0.9,0.9)-(1.5,1.5)-(1.8,1.8));
104 expand_pbox;
105 enddef;

```

106



107

```

108 % ken/ka "prefecture"

```

```

109 begintsuglyph("uni770C";12); [see page 1760]

```

```

110 kanji.grthree.prefecture;

```

```

111 tsu_render;

```

```

112 endtsuglyph;

```

113

```

114 % shin/ma "truth"

```

```

115 begintsuglyph("uni771F";31); [see page 1761]

```

```

116 kanji.grthree.truth;

```

```

117 tsu_render;

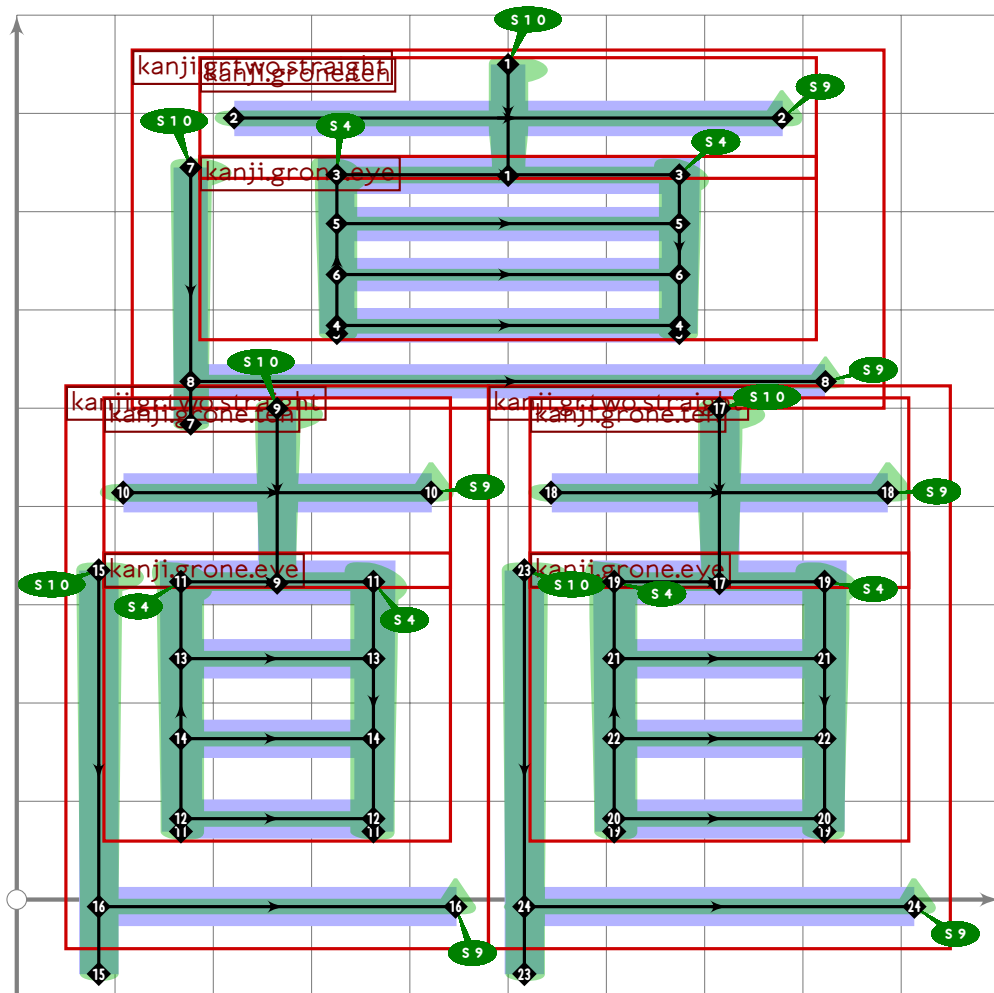
```

```

118 endtsuglyph;

```

119



```

121 % extra: "luxuriance"

```

```

122 begintsuglyph("uni77D7",215);
123   build_kanji.triclust(0.85)
124     (build_kanji.thickness(0.7)(kanji.grtwo.straight))
125     (build_kanji.thickness(0.8)(kanji.grtwo.straight))
126     (build_kanji.thickness(0.8)(kanji.grtwo.straight));
127   tsu_render;
128 endtsuglyph;
129
130 % shi/ya "arrow"
131 begintsuglyph("uni77E2",226); [see page 425]
132   kanji.grtwo.arrow;
133   tsu_render;
134 endtsuglyph;
135
136 % chi/shi "to know"
137 begintsuglyph("uni77E5",229); [see page 1759]
138   kanji.grtwo.know;
139   tsu_render;
140 endtsuglyph;
141
142 % seki/ishi "stone"
143 begintsuglyph("uni77F3",243); [see page 1758]
144   kanji.grone.stone;
145   tsu_render;
146 endtsuglyph;
147
148 _____
149
150 endfont;
151
152 _____

```

# tsuku-79.mp

```
1 %
2 % Unicode page 79 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

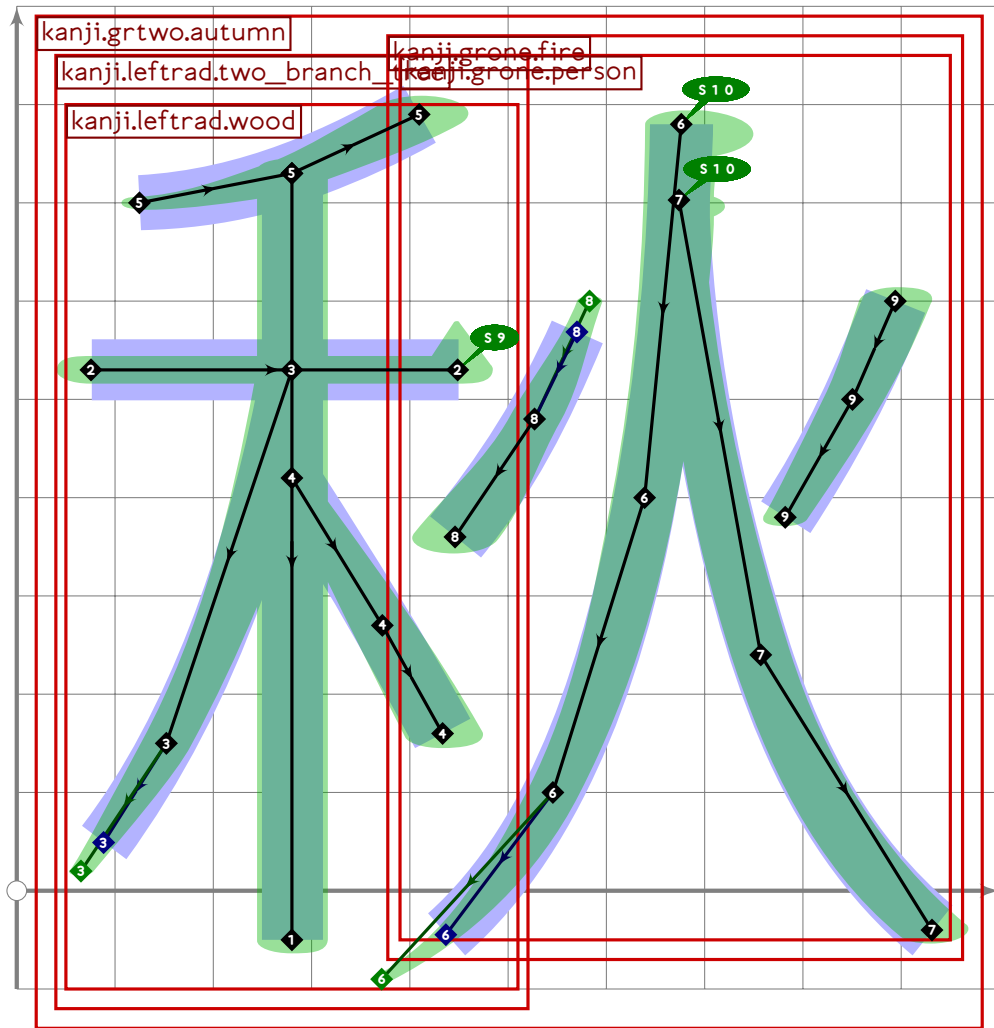
---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradenine.mp;
39 input gradeone.mp;
40 input gradethree.mp;
41 input leftrad.mp;
42 input radical.mp;
43
44 

---


```

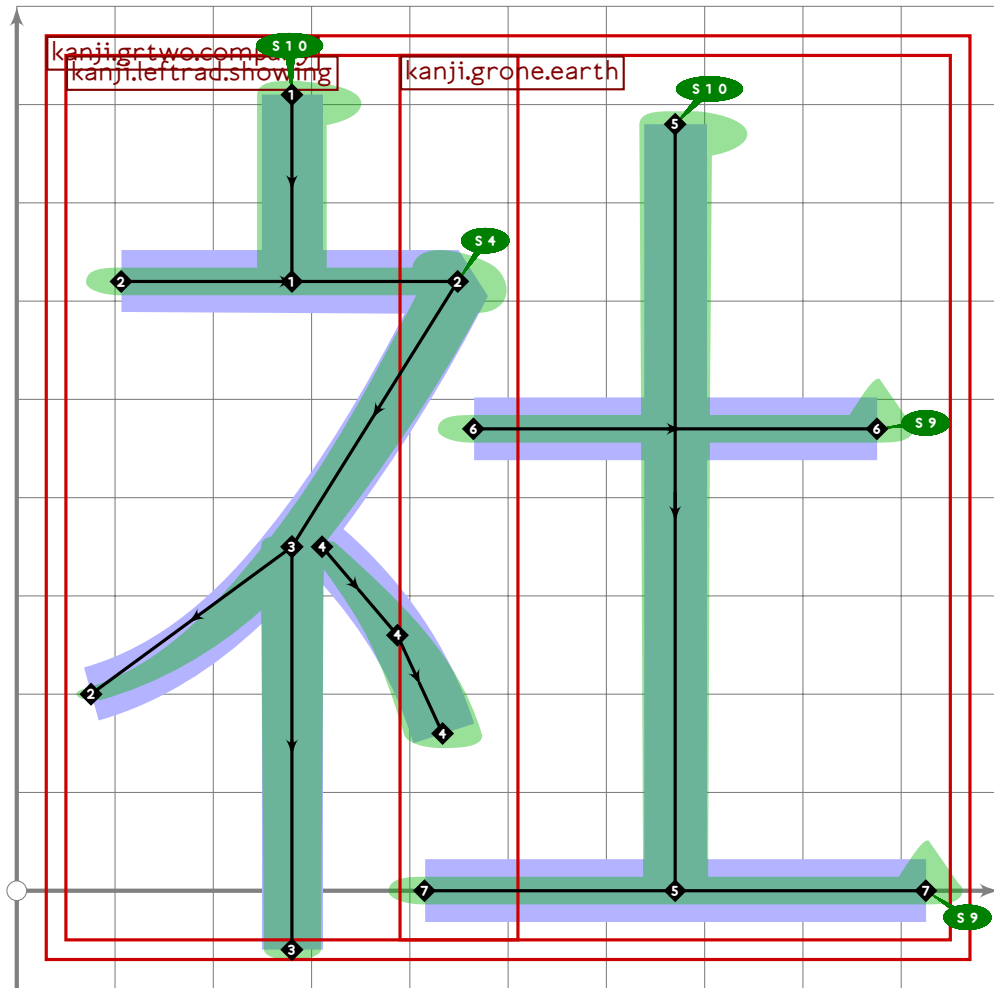




```

45
46 vardef kanji.grtwo.autumn =
47   push_pbox_toexpand("kanji.grtwo.autumn");
48   build_kanji.lr(450,120)
49     (kanji.leftrad.two_branch_tree)
50     (kanji.grone.fire);
51   expand_pbox;
52 enddef;

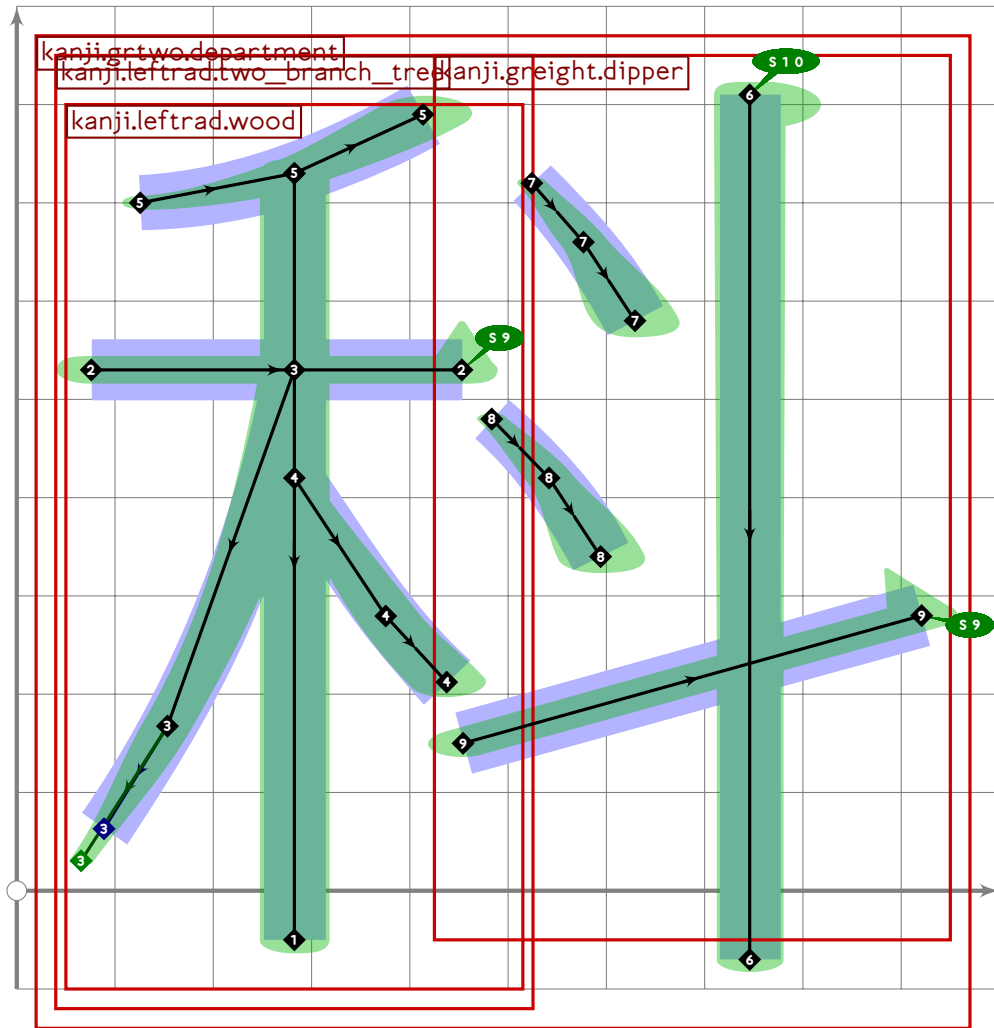
```



```

53
54 vardef kanji.grtwo.company =
55   push_pbox_toexpand("kanji.grtwo.company");
56   build_kanji.lr(450,120)
57     (kanji.leftrad.showing)
58     (kanji.grohe.earth);
59   expand_pbox;
60 enddef;

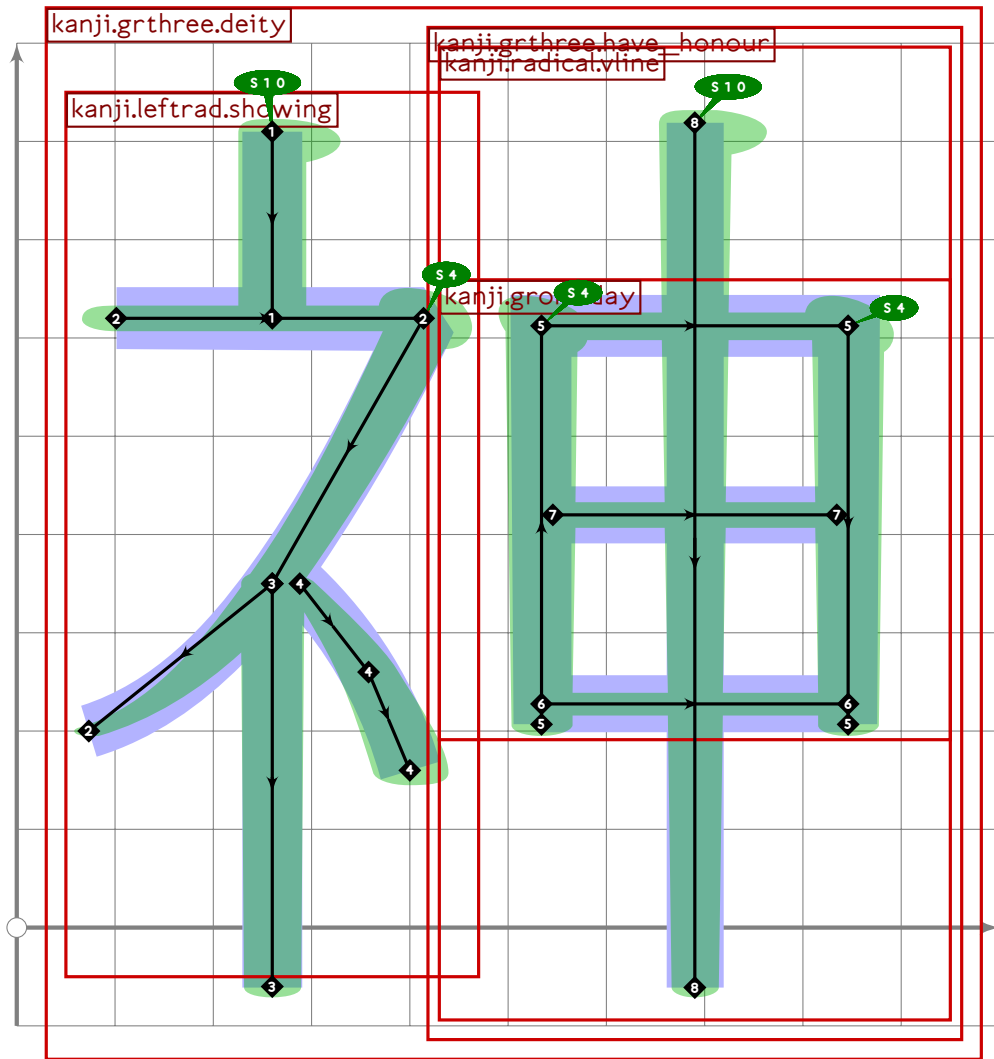
```



```

61
62 vardef kanji.grtwo.department =
63   push_pbox_toexpand("kanji.grtwo.department");
64   build_kanji.lr(470,90)
65     (build_kanji.lift_skirt(300,140)
66       (kanji.leftrad.two_branch_tree);
67       replace_stroke(-4)((point 0 of oldp)..(xpart point 1 of oldp,-50))
68       (kanji.greight.dipper);
69   expand_pbox;
70 enddef;
71
72

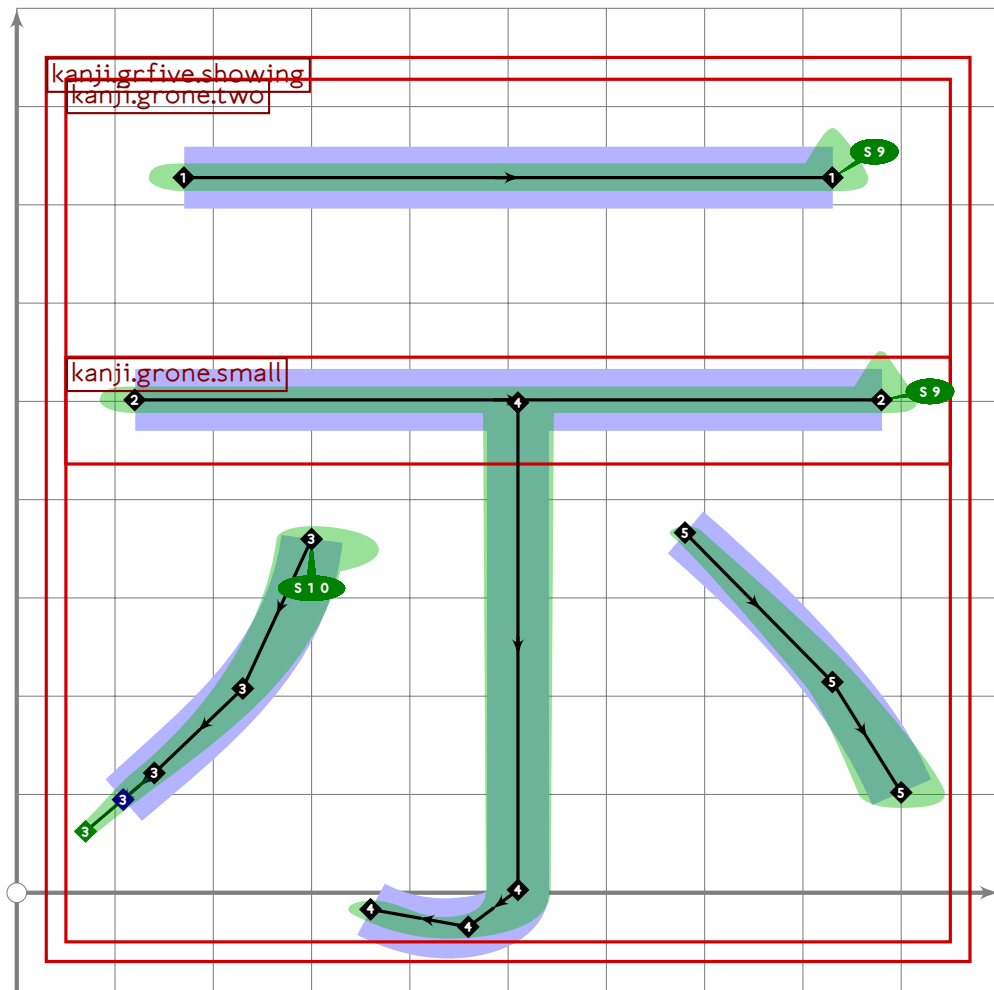
```



```

73
74 vardef kanji.grthree.deity =
75   push_pbox_toexpand("kanji.grthree.deity");
76   build_kanji.lr(450,40)
77     (kanji.leftrad.showing)
78     (kanji.grthree.have_honour);
79   expand_pbox;
80 enddef;
81
82

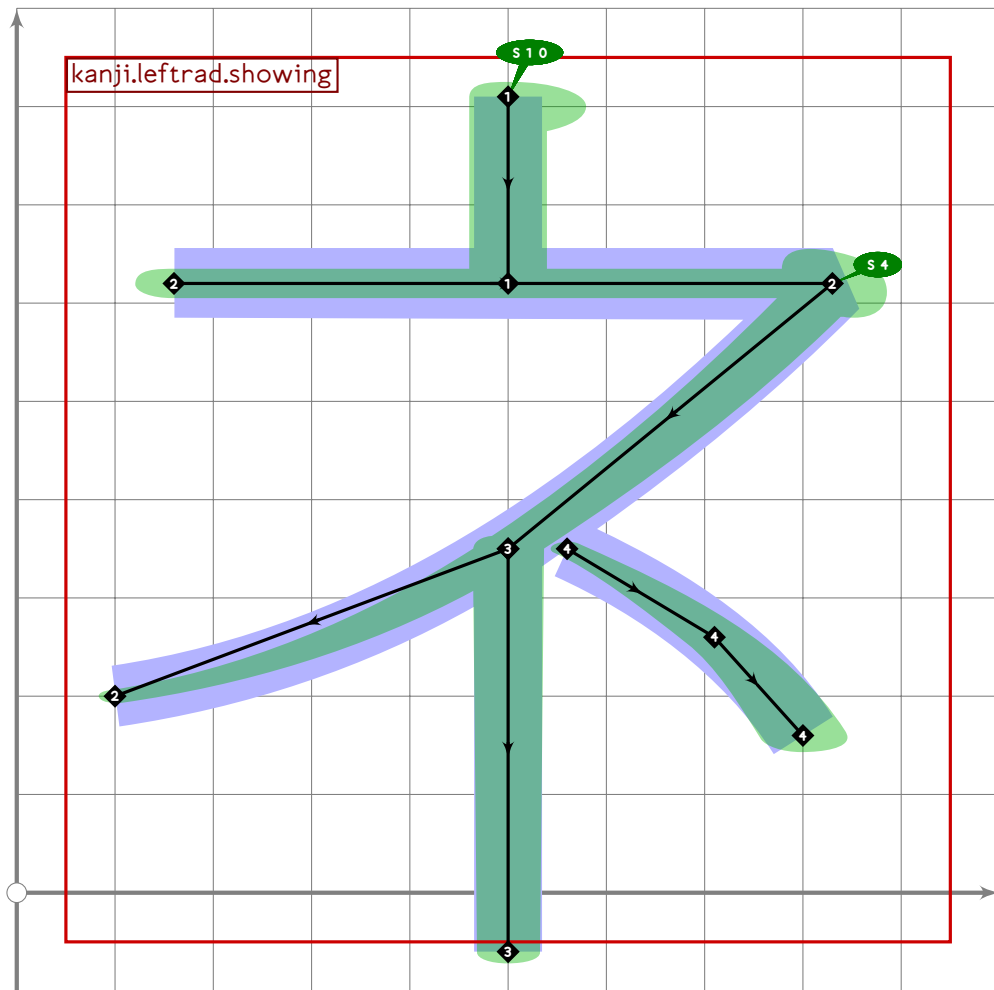
```



```

83
84 vardef kanji.grfive.showing =
85   push_pbox_toexpand("kanji.grfive.showing");
86   build_kanji.level(build_kanji.tb(480,130)
87     (build_kanji.sscale(yscaled 0.9)(kanji.grone.two))
88     (kanji.grone.small));
89   set_boserif(-1,0,whatever);
90   expand_pbox;
91 enddef;
92
93
94
95

```



```

96
97 vardef kanji.leftrad.showing =
98   push_pbox_toexpand("kanji.leftrad.showing");
99   push_stroke((500,810)-(500,620),(1.6,1.6)-(1.57,1.57));
100  set_bosertif(0,0,10);
101  push_stroke((160,620)-(830,620)..tension 1.2..
102    (500,350)..(100,200),
103    (1.6,1.6)-(1.6,1.6)-(1.4,1.4)-(1,1));
104  set_botip(0,1,0);
105  set_bosertif(0,1,4);
106  push_stroke((500,350)-(500,-60),(1.5,1.5)-(1.4,1.4));
107  push_stroke((560,350)..tension 1.2..(710,260)..(800,160),
108    (1,1)-(1.4,1.4)-(1.7,1.7));
109  expand_pbox;
110 enddef;
111
112
113
114 % ji/shime "show" (also older radical form)
115 begint Suglyph("uni793A",58);
116 kanji.grfive.showing;

```

[see page 1769]

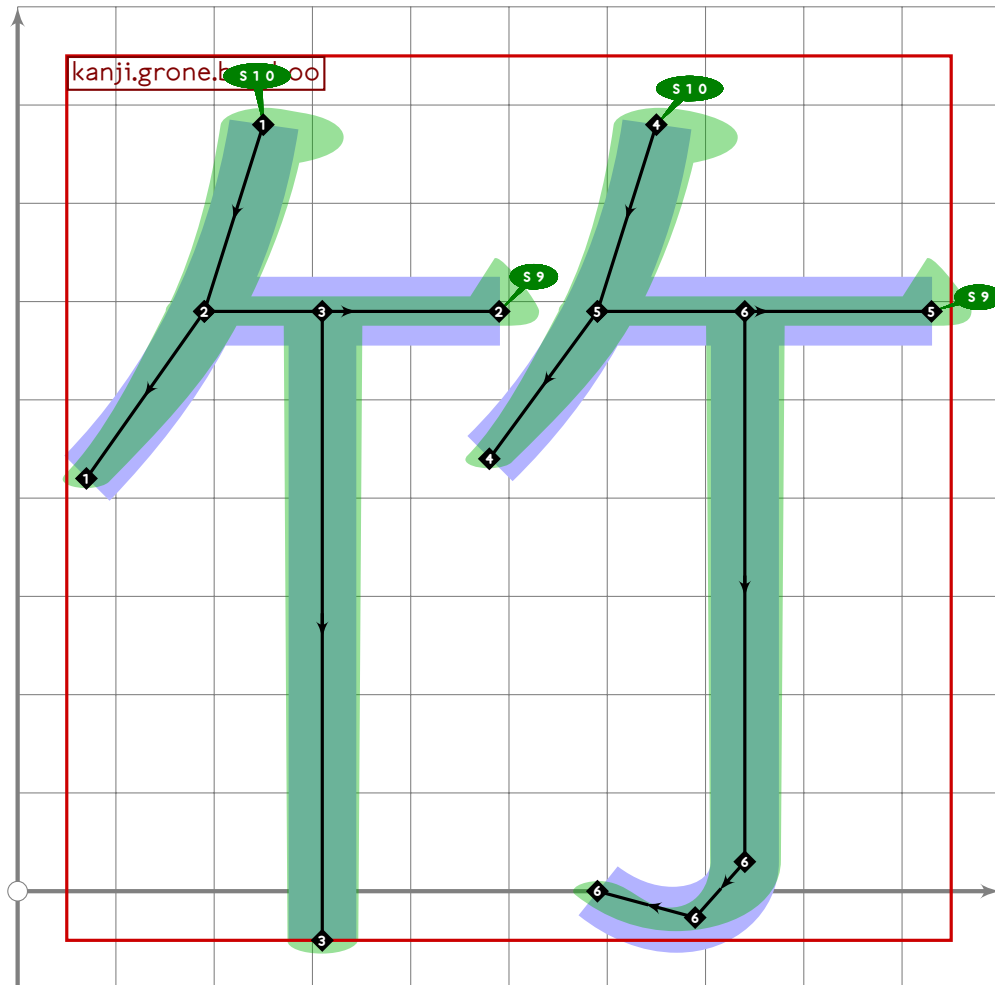
```

117   tsu_render;
118 endtsuglyph;
119
120 % "showing" radical (simple, more popular form)
121   begintsuglyph("uni793B";59); [see page 1770]
122   kanji.leftrad.showing;
123   tsu_render;
124 endtsuglyph;
125
126 % sha/yashiro "company"
127   begintsuglyph("uni793E";62); [see page 1766]
128   kanji.grtwo.company;
129   tsu_render;
130 endtsuglyph;
131
132 % shin/kami "deity"
133   begintsuglyph("uni795E";94); [see page 1768]
134   kanji.grthree.deity;
135   tsu_render;
136 endtsuglyph;
137
138 % ka/ine little meaning by itself, called "two-branch tree" as a radical
139   begintsuglyph("uni79BE";190); [see page 555]
140   kanji.grnine.two_branch_tree;
141   tsu_render;
142 endtsuglyph;
143
144 % shuu/aki "autumn"
145   begintsuglyph("uni79CB";203); [see page 1765]
146   kanji.grtwo.autumn;
147   tsu_render;
148 endtsuglyph;
149
150 % ka "department"
151   begintsuglyph("uni79D1";209); [see page 1767]
152   kanji.grtwo.department;
153   tsu_render;
154 endtsuglyph;
155
156 _____
157
158 endfont;
159
160 _____

```

# tsuku-7a.mp

```
1 %  
2 % Unicode page 7a (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradeone.mp;  
38 input gradetwo.mp;  
39 input radical.mp;  
40 input toprad.mp;  
41  
42 _____
```



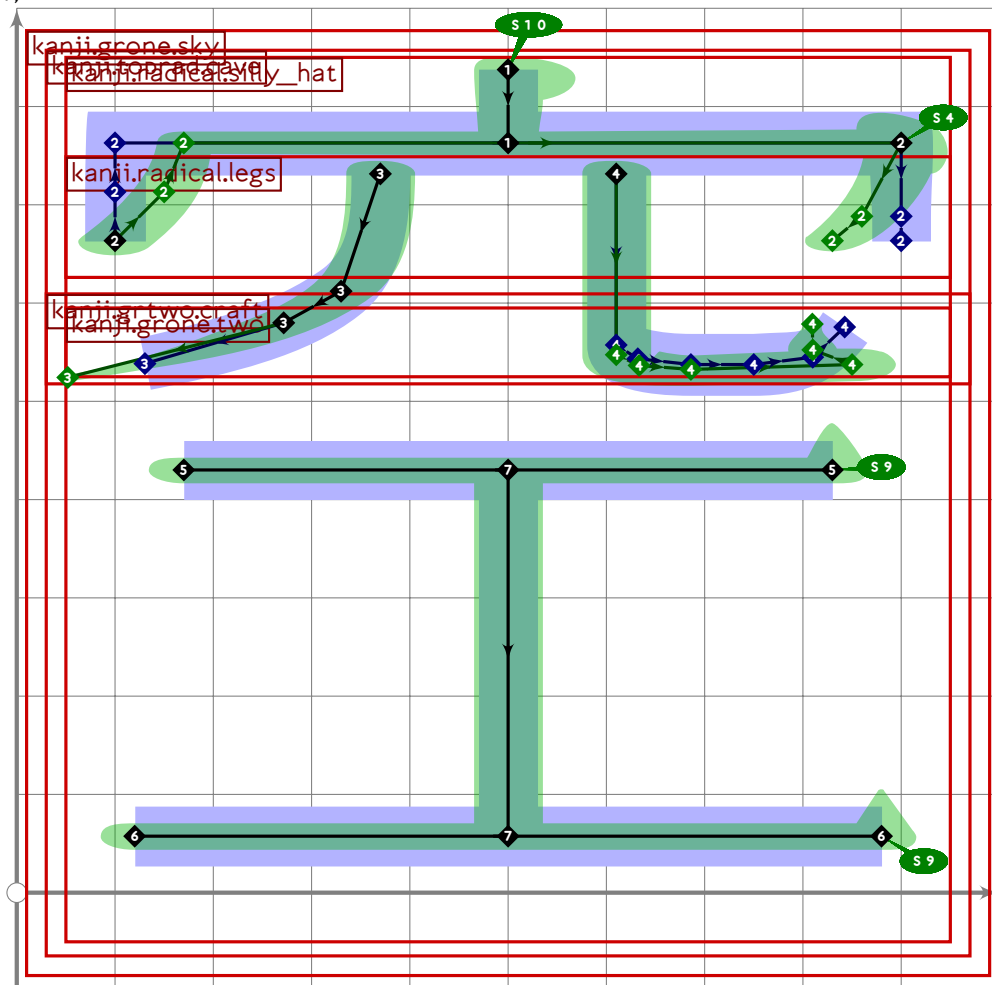
43



```

44 vardef kanji.grone.bamboo =
45   push_pbox_toexpand("kanji.grone.bamboo");
46   push_stroke((250,780)..(190,590)..(70,420),
47     (1.7,1.7)-(1.6,1.6)-(1.2,1.2));
48   set_boserif(0,0,10);
49   push_stroke((190,590)-(490,590),
50     (1.6,1.6)-(1.6,1.6));
51   set_boserif(0,1,9);
52   push_stroke((310,590)-(310,-50),
53     (1.6,1.6)-(1.5,1.5));
54   push_stroke((650,780)..(590,590)..(480,440),
55     (1.7,1.7)-(1.6,1.6)-(1.2,1.2));
56   set_boserif(0,0,10);
57   push_stroke((590,590)-(930,590),
58     (1.6,1.6)-(1.6,1.6));
59   set_boserif(0,1,9);
60   push_stroke((740,590),
61     (1.6,1.6));
62   build_kanji.add_jtail(0);
63   expand_pbox;
64 enddef;

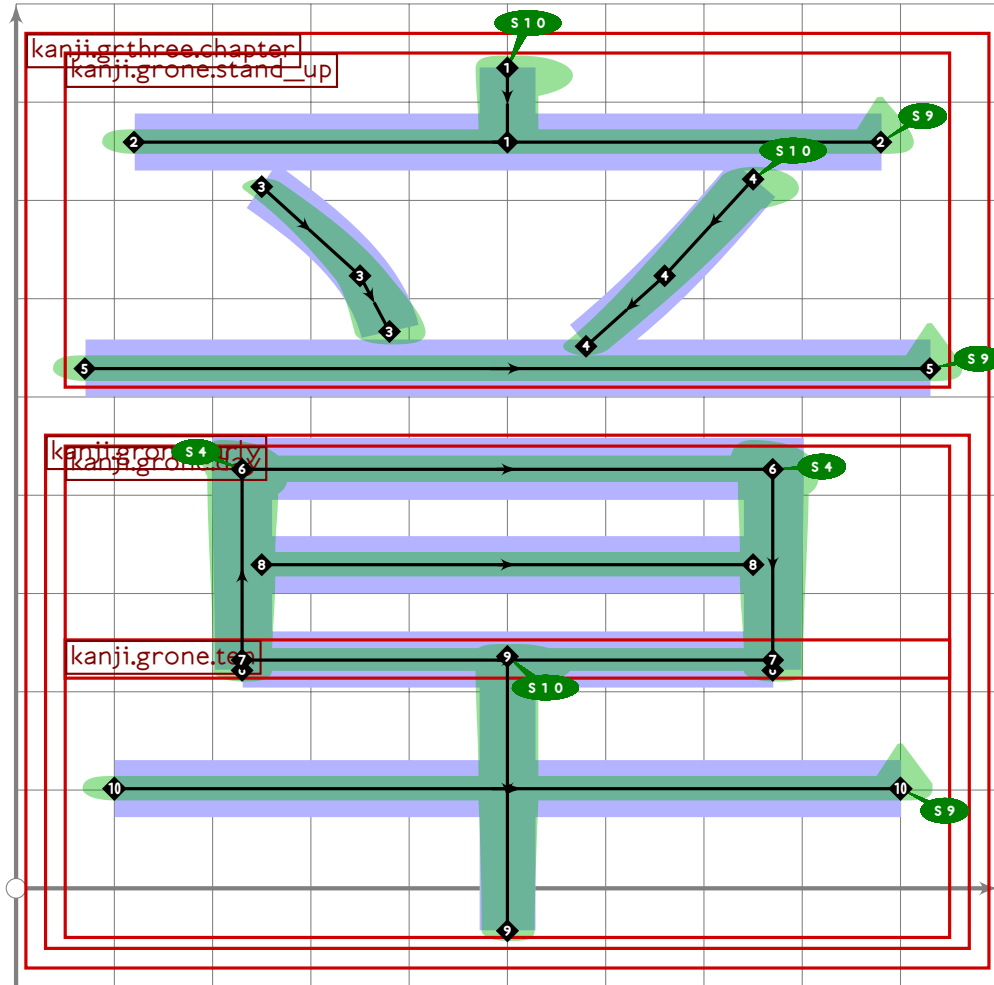
```



```

65
66 vardef kanji.grone.sky =
67   push_pbox_toexpand("kanji.grone.sky");
68   build_kanji.level(build_kanji.tb(560,70)
69     (kanji.toprad.cave)
70     (kanji.grtwo.craft));
71   expand_pbox;
72 enddef;
73
74

```



```

75
76 vardef kanji.grthree.chapter =
77   push_pbox_toexpand("kanji.grthree.chapter");
78   build_kanji.level(build_kanji.tb(480,-60)
79     (kanji.grone.stand_up)
80     (kanji.grone.early));
81   expand_pbox;
82 enddef;
83
84
85

```

86 % kara/sora "sky"  
87 `begintsuglyph("uni7A7A";122);` [see page 1774]  
88 `kanji.grone.sky;`  
89 `tsu_render;`  
90 `endtsuglyph;`  
91  
92 % ta "stand up"  
93 `begintsuglyph("uni7ACB";203);` [see page 413]  
94 `kanji.grone.stand_up;`  
95 `tsu_render;`  
96 `endtsuglyph;`  
97  
98 % shou/aki "chapter"  
99 `begintsuglyph("uni7AE0";224);` [see page 1774]  
100 `kanji.grthree.chapter;`  
101 `tsu_render;`  
102 `endtsuglyph;`  
103  
104 % chiku/take "bamboo"  
105 `begintsuglyph("uni7AF9";249);` [see page 1773]  
106 `kanji.grone.bamboo;`  
107 `tsu_render;`  
108 `endtsuglyph;`  
109  
110 

---

  
111  
112 `endfont;`  
113  
114 

---

# tsuku-7b.mp

```
1 %
2 % Unicode page 7b (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---

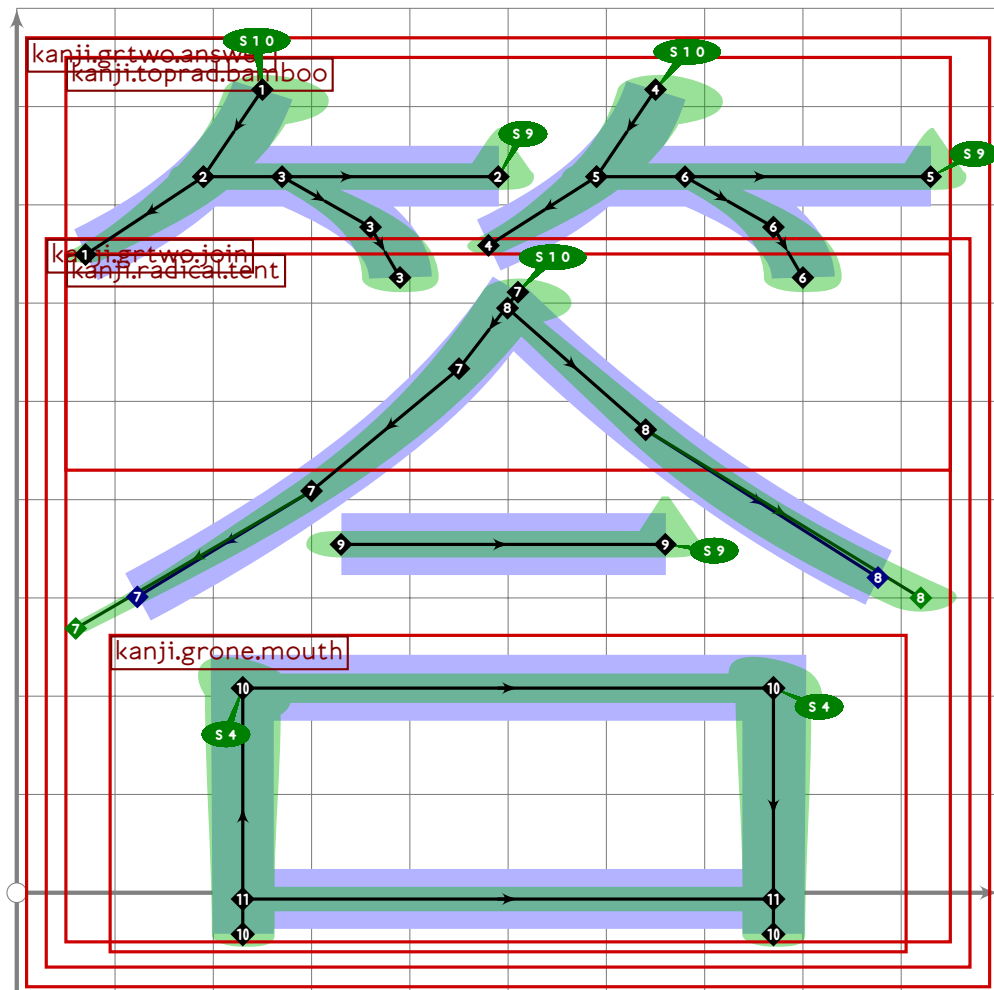

32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeone.mp;
38 input gradetwo.mp;
39 input radical.mp;
40
41 

---


42
43 vardef kanji.toprad.bamboo =
44   push_pbox_toexpand("kanji.toprad.bamboo");
45   push_stroke((250,780)..(190,590)..(70,420),
46     (1,7,1,7)-(1,6,1,6)-(1,2,1,2));
47   set_boserif(0,0,10);
48   push_stroke((190,590)-(490,590),(1,6,1,6)-(1,6,1,6));
49   set_boserif(0,1,9);
50   push_stroke((270,590)..tension 1.2..(360,480)..(390,370),
51     (1,1,1,1)-(1,5,1,5)-(1,7,1,7));
52   push_stroke((650,780)..(590,590)..(480,440),
53     (1,7,1,7)-(1,6,1,6)-(1,2,1,2));
54   set_boserif(0,0,10);
55   push_stroke((590,590)-(930,590),(1,6,1,6)-(1,6,1,6));
56   set_boserif(0,1,9);
57   push_stroke((680,590)..tension 1.2..(770,480)..(800,370),
58     (1,1,1,1)-(1,5,1,5)-(1,7,1,7));
59   expand_pbox;
60 enddef;
61
62 

---

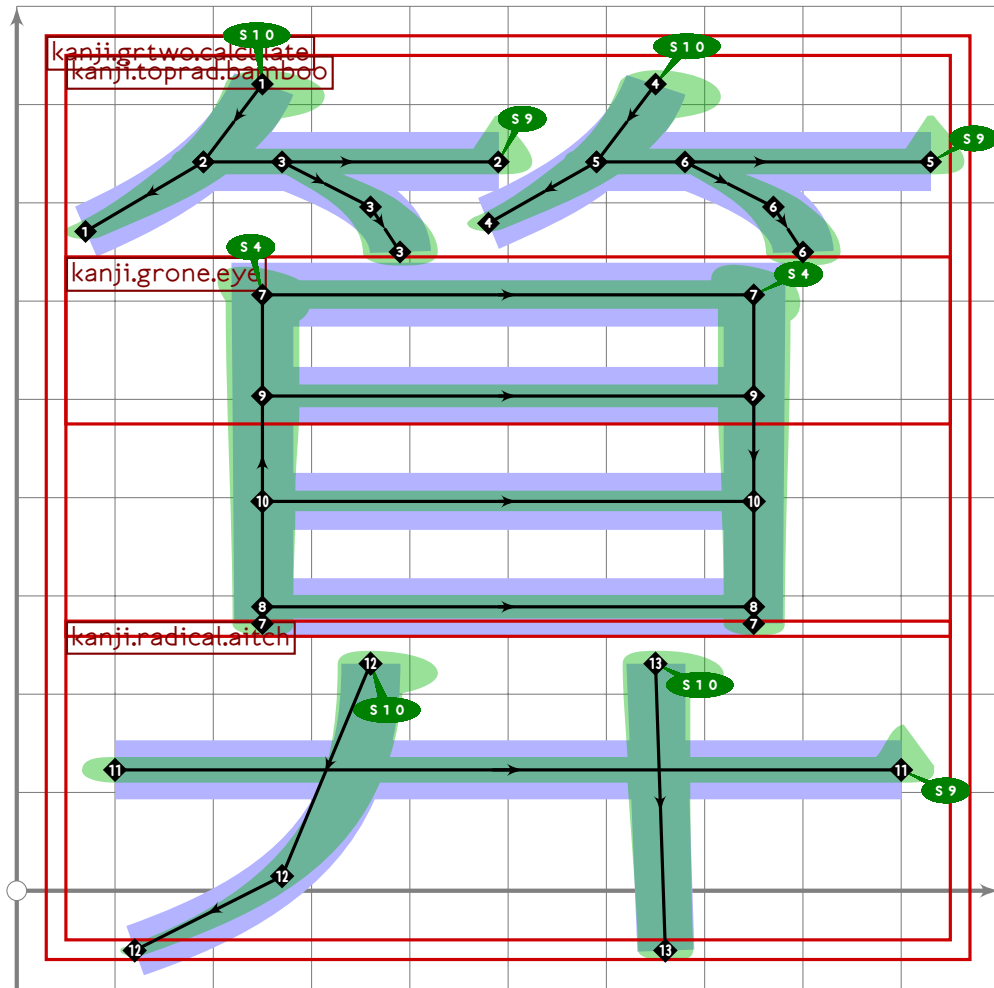

```



```

63
64 vardef kanji.grtwo.answer =
65   push_pbox_toexpand("kanji.grtwo.answer");
66   build_kanji.level(build_kanji.tb(540,220)
67     (kanji.toprad.bamboo)
68     (kanji.grtwo.join));
69   expand_pbox;
70 enddef;

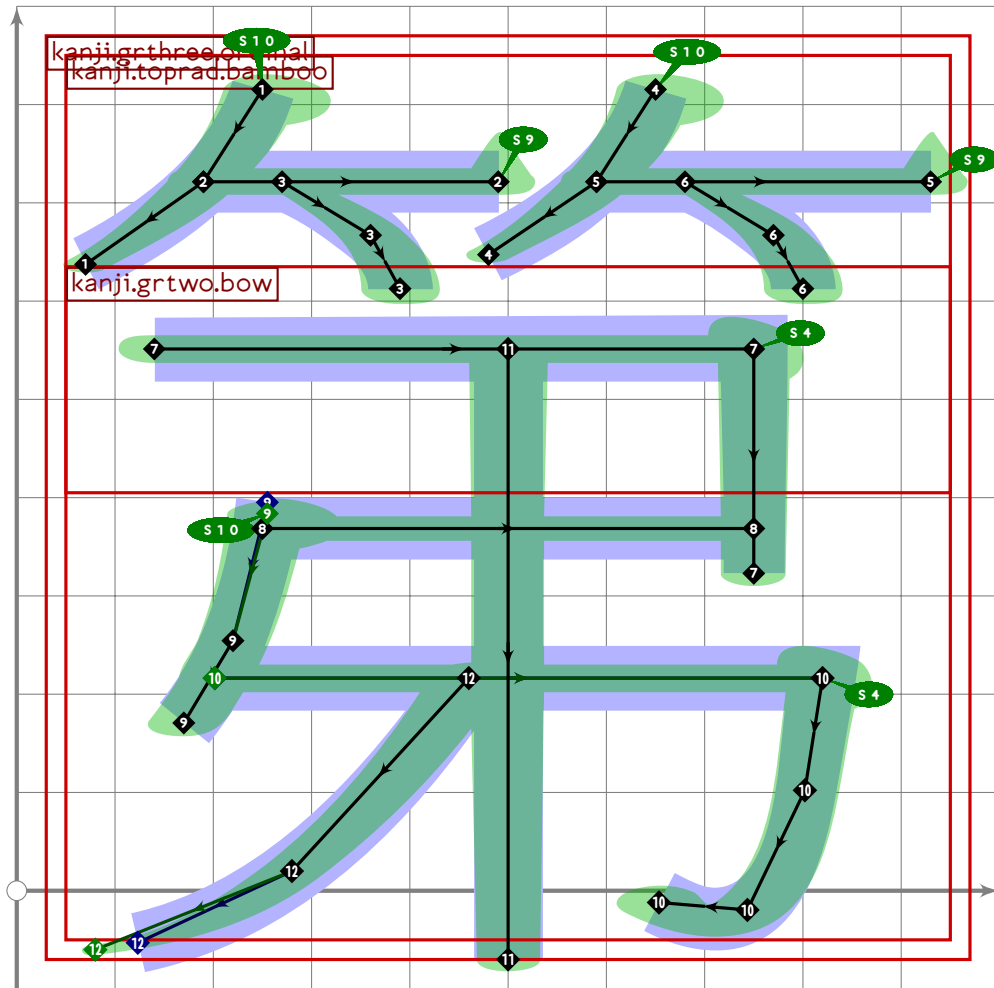
```



```

71
72 vardef kanji.grtwo.calculate =
73   push_pbox_toexpand("kanji.grtwo.calculate");
74   build_kanji.level(build_kanji.tb(560,170)
75     (kanji.toprad.bamboo)
76     (build_kanji.tb(360,20)
77       (kanji.grone.ey)
78       (kanji.radical.aitch)));
79   expand_pbox;
80 enddef;
81
82

```



```

83
84 vardef kanji.grthree.ordinal =
85   push_pbox_toexpand("kanji.grthree.ordinal");
86   build_kanji.level(build_kanji.tb(520,230)
87     (kanji.toprad.bamboo)
88     (kanji.grtwo.bow));
89   push_stroke((500,ypart point 0 of get_stroke(-3))-(500,-70),
90     (1.6,1.6)-(1.4,1.4));
91   replace_stroke(-1)((point 0 of oldp)-
92     ((subpath (1,infinity) of oldp)
93       shifted (-820,0) xscaled 0.45 shifted (820,0)));
94   push_stroke(((get_stroke(0) intersectionpoint get_stroke(-1))+(-40,0)..
95     tension 1.2..(280,20)..(80,-60),
96     (1.6,1.6)-(1.4,1.4)-(0.9,0.9));
97   expand_pbox;
98 enddef;
99

```

```

100
101
102 % dai "ordinal number"
103 begint Suglyph("uni7B2C",44);

```

[see page 1779]

```
104 kanji.grthree.ordinal;
105 tsu_render;
106 endtsuglyph;
107
108 % tou/kota "answer"
109 begintsuglyph("uni7B54";84); [see page 1777]
110 kanji.grtwo.answer;
111 tsu_render;
112 endtsuglyph;
113
114 % sen/soru "calculate"
115 begintsuglyph("uni7B97";151); [see page 1778]
116 kanji.grtwo.calculate;
117 tsu_render;
118 endtsuglyph;
119
120 

---


121
122 endfont;
123
124 

---


```



# tsuku-7c.mp

```
1 %
2 % Unicode page 7c (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradefour.mp;
38 input gradeone.mp;
39 input gradetwo.mp;
40 input radical.mp;
41 input topfad.mp;
42
43 

---


44
45 % bei/kome "rice", also "USA" and "metre"
46 begintsuglyph("uni7C73",115); [see page 464]
47   kanji.grtwo.rice;
48   tsu_render;
49 endtsuglyph;
50
51 % shi/ito "thread"
52 begintsuglyph("uni7CF8",248); [see page 415]
53   kanji.grone.thread;
54   tsu_render;
55 endtsuglyph;
56
57 % kei "lineage"
58 begintsuglyph("uni7CFB",251); [see page 508]
59   kanji.grfour.lineage;
60   tsu_render;
61 endtsuglyph;
62
63 

---


64
65 endfont;
66
67 

---


```

# tsuku-7d.mp

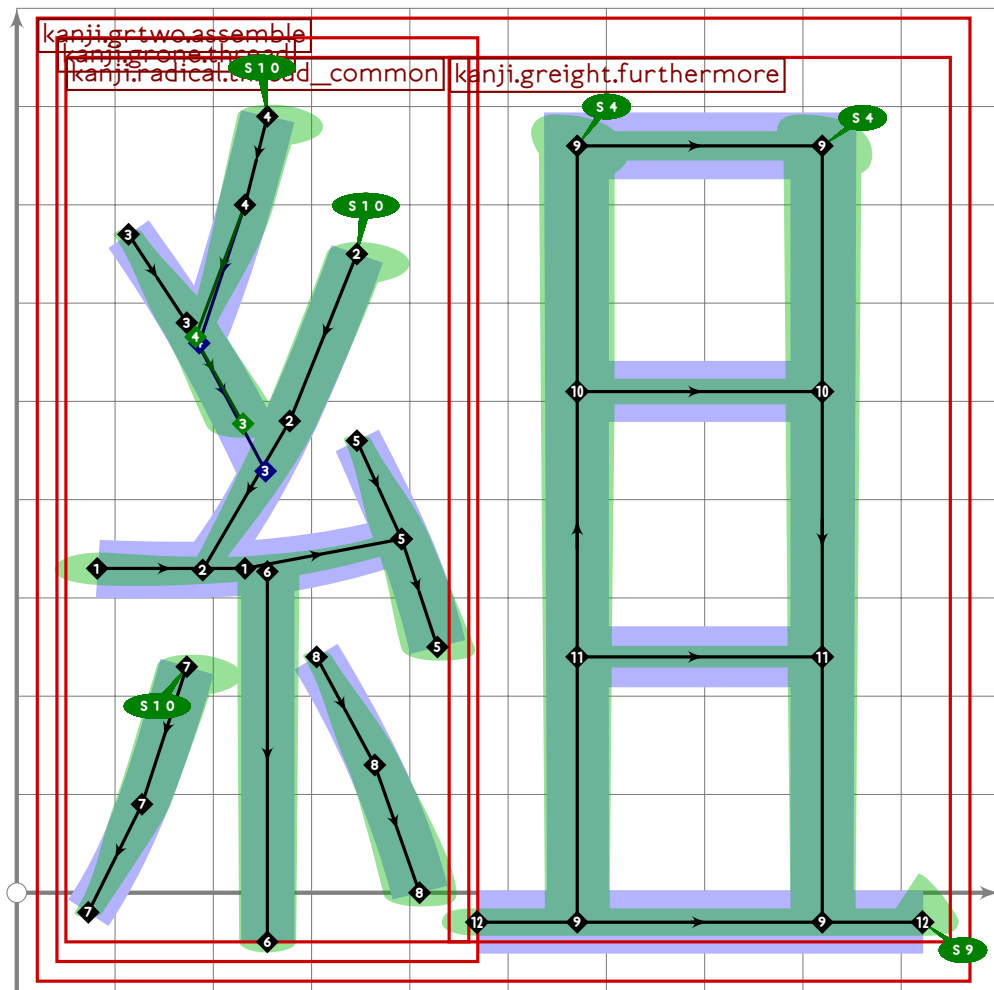
```
1 %
2 % Unicode page 7d (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradefour.mp;
39 input gradenine.mp;
40 input gradeone.mp;
41 input gradesix.mp;
42 input gradetwo.mp;
43 input radical.mp;
44
45 

---

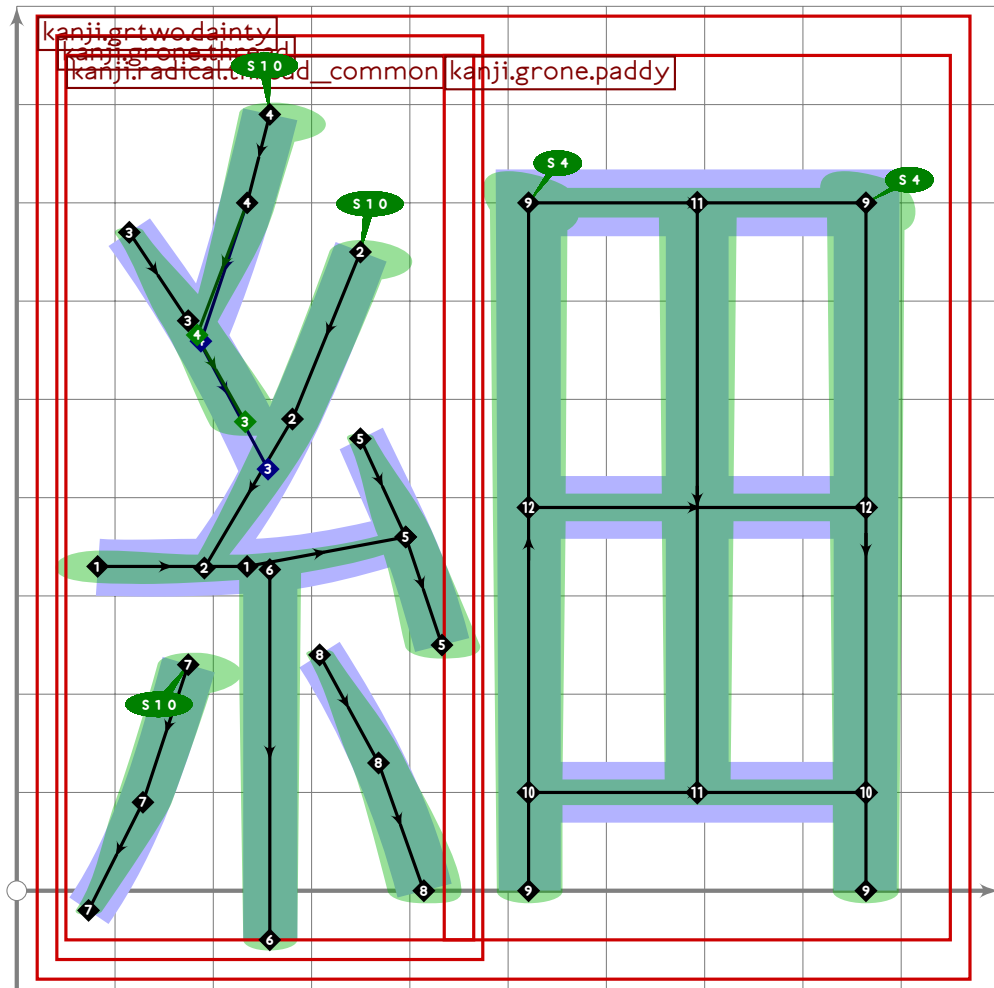

```



```

46
47 vardef kanji.grtwo.assemble =
48   push_pbox_toexpand("kanji.grtwo.assemble");
49   build_kanji.lr(450,20)
50     (kanji.grone.thread)
51     (kanji.greight.furthermore);
52   expand_pbox;
53 enddef;

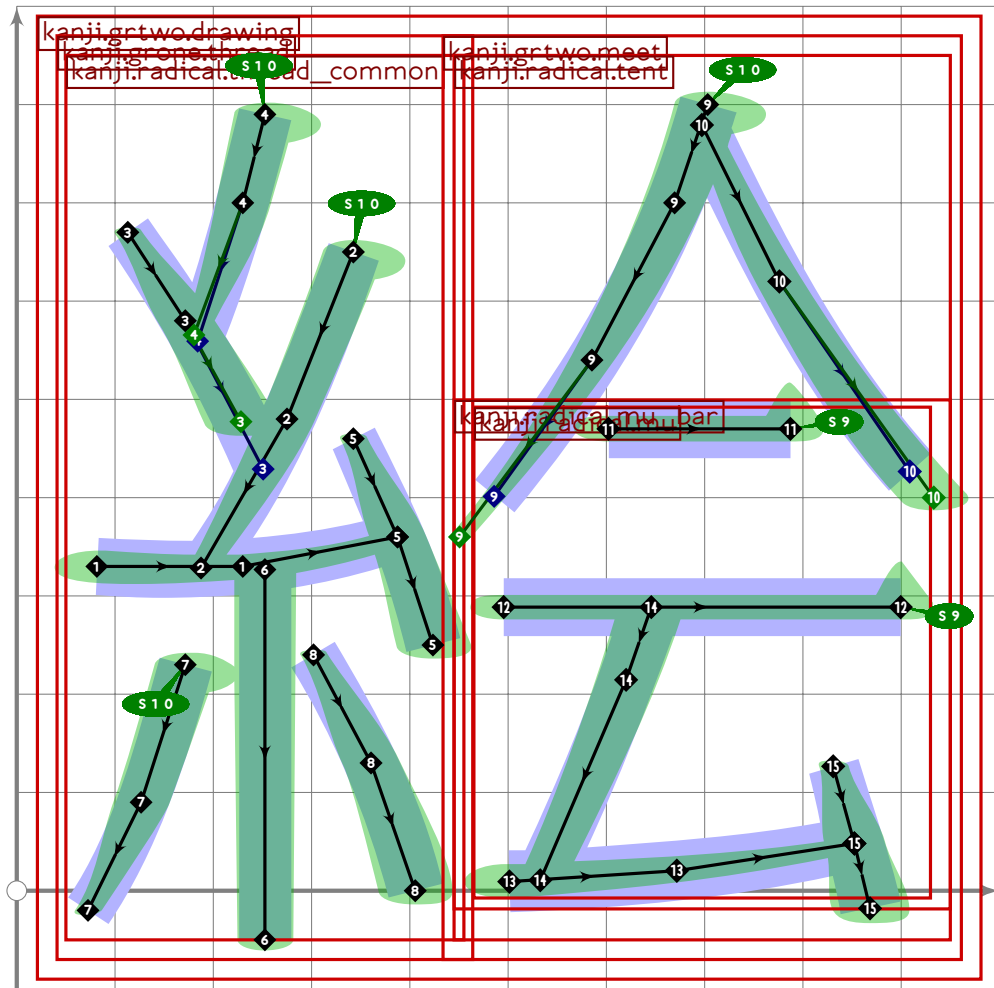
```



```

54
55 vardef kanji.grtwo.dainty =
56   push_pbox_toexpand("kanji.grtwo.dainty");
57   build_kanji.lr(450,30)
58     (kanji.grone.thread)
59     (kanji.grone.paddy);
60   expand_pbox;
61 enddef;
62

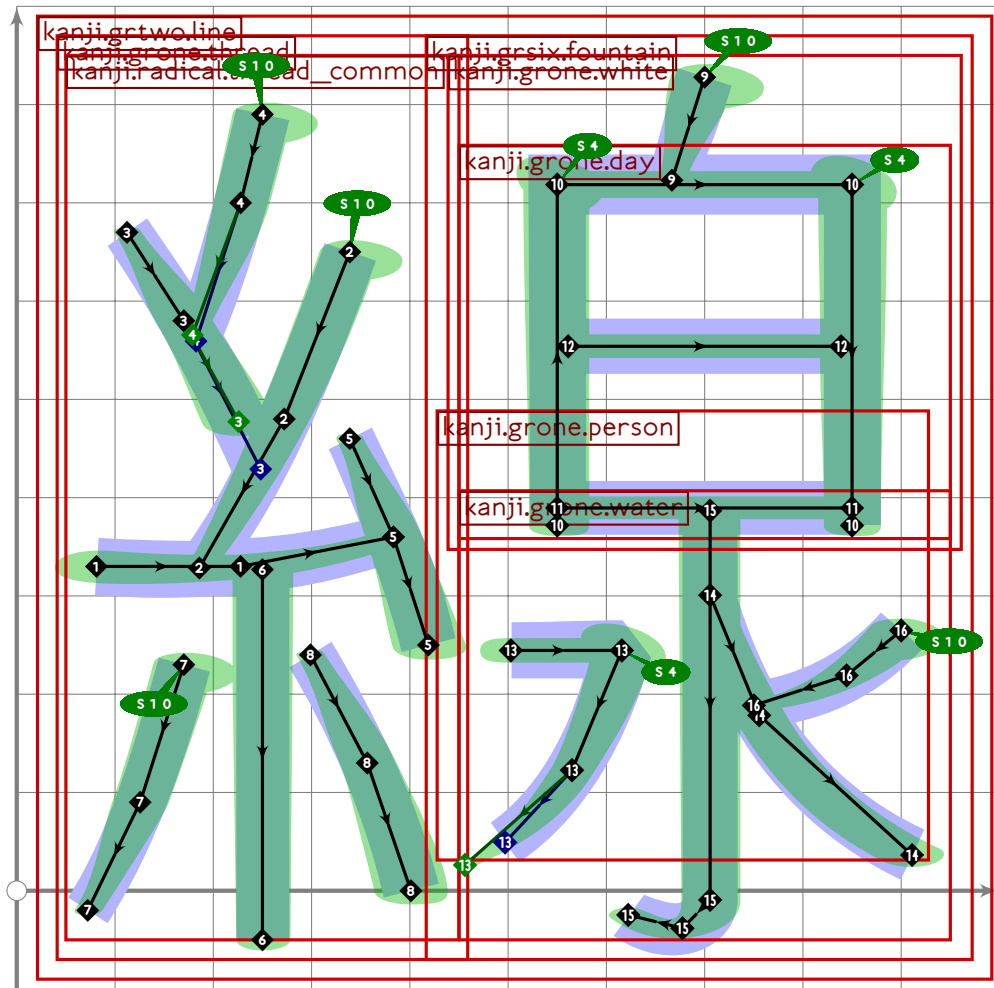
```



```

63 % "picture" is a reserved word
64 vardef kanji.grtwo.drawing =
65   push_pbox_toexpand("kanji.grtwo.drawing");
66   build_kanji.lr(450,10)
67     (kanji.grone.thread)
68     (kanji.grtwo.meet);
69   expand_pbox;
70 enddef;

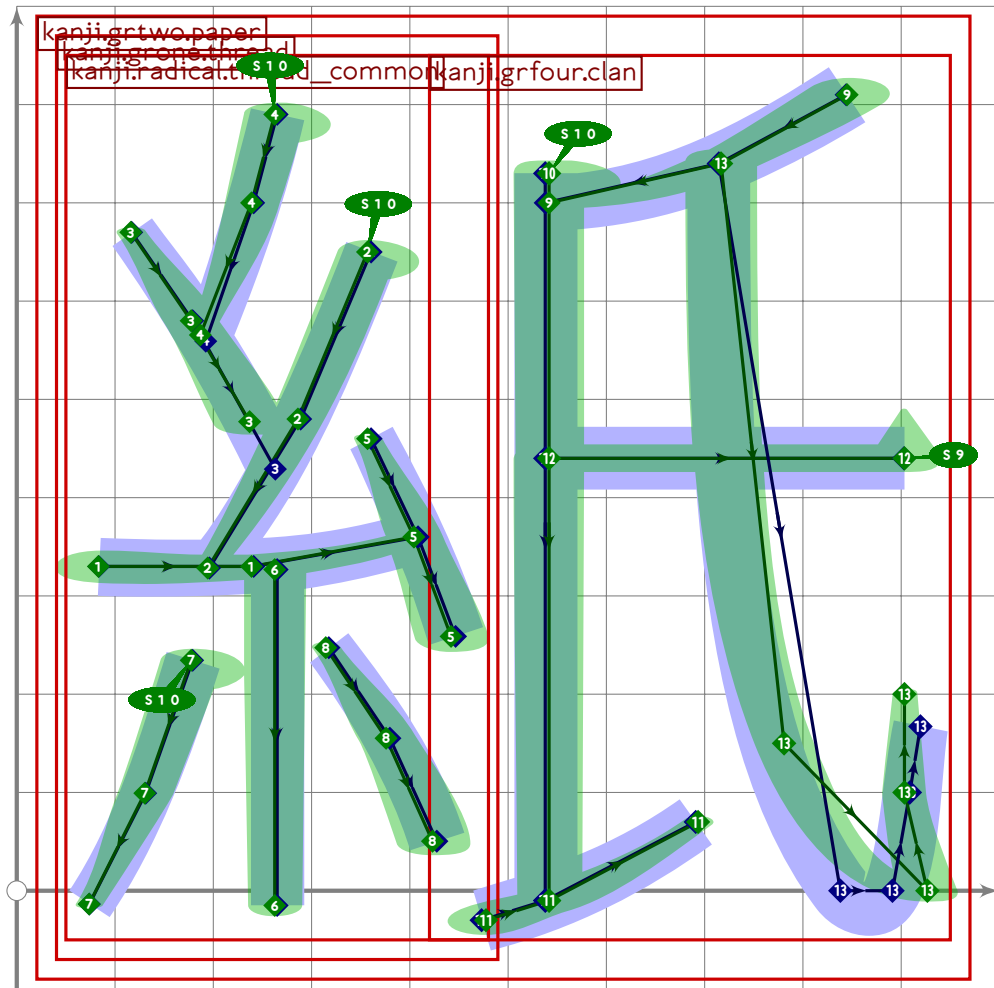
```



```

71
72 vardef kanji.grtwo.line =
73   push_pbox_toexpand("kanji.grtwo.line");
74   build_kanji.lr(450,0)
75     (kanji.grone.thread)
76     (kanji.grsix.fountain);
77   expand_pbox;
78 enddef;

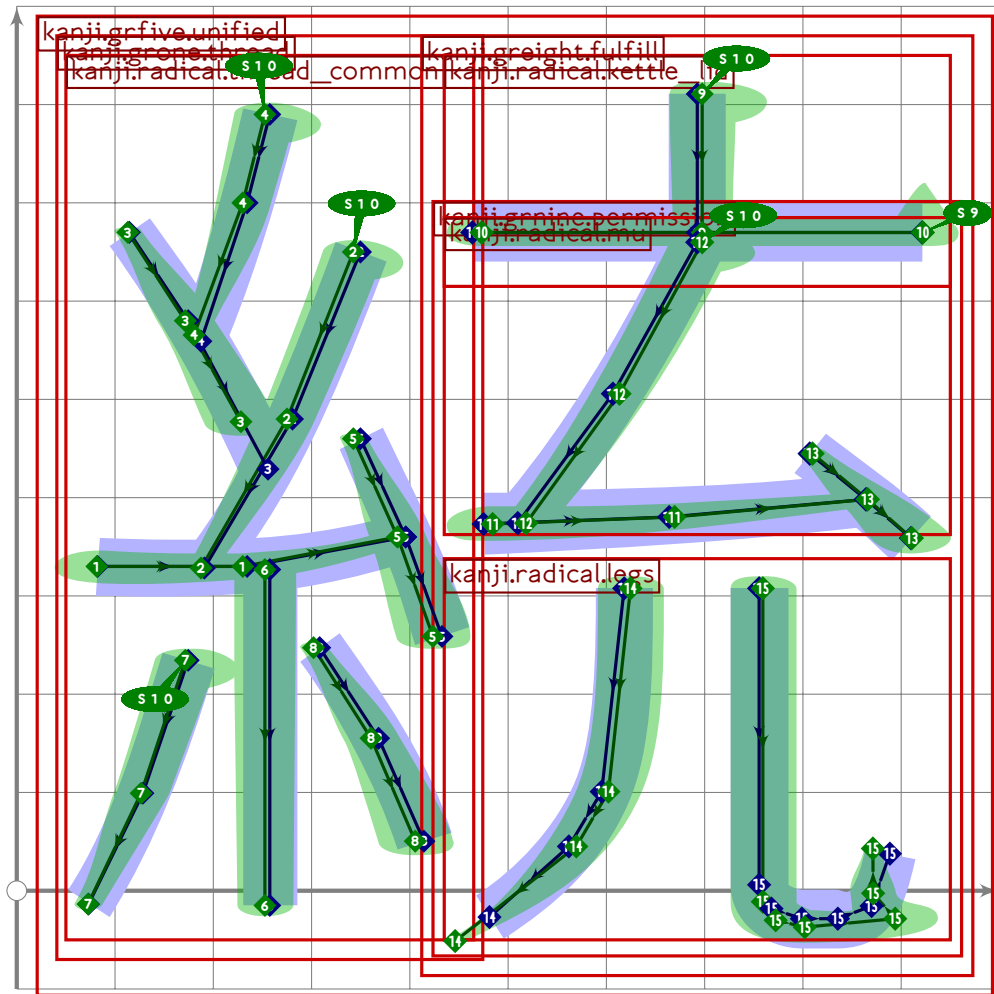
```



```

79
80 vardef kanji.grtwo.paper =
81   push_pbox_toexpand("kanji.grtwo.paper");
82   build_kanji.lr(450,60-10*mincho)
83     (build_kanji.lift_skirt(300,60)(kanji.grone.thread))
84     (kanji.grfour.clan);
85   expand_pbox;
86 enddef;
87
88

```



```

89
90 vardef kanji.grfive.unified =
91   push_pbox_toexpand("kanji.grfive.unified");
92   build_kanji.lr(450,30-20*mincho
93     (build_kanji.lift_skirt(300,60)(kanji.grone.thread))
94     (kanji.greight. fulfill);
95   expand_pbox;
96 enddef;

```

```

97
98
99
100 % shi/kami "paper"
101 beginsuglyph("uni7D19",25);
102   kanji.grtwo.paper;
103   tsu_render;
104 endsuglyph;
105
106 % dai/hoso "dainty"
107 beginsuglyph("uni7D30",48);
108   kanji.grtwo.dainty;
109   tsu_render;

```

[see page 1787]

[see page 1784]



```
110 endtsuglyph;
111
112 % so/ku "assemble"
113 begintsuglyph("uni7D44",68); [see page 1783]
114 kanji.grtwo.assemble;
115 tsu_render;
116 endtsuglyph;
117
118 % tou/su "unified"
119 begintsuglyph("uni7D71",113); [see page 1788]
120 kanji.grfive.unified;
121 tsu_render;
122 endtsuglyph;
123
124 % kai/e "picture"
125 begintsuglyph("uni7D75",117); [see page 1785]
126 kanji.grtwo.drawing;
127 tsu_render;
128 endtsuglyph;
129
130 % sen/suji "line" (geometric, rail, telephone)
131 begintsuglyph("uni7DDA",218); [see page 1786]
132 kanji.grtwo.line;
133 tsu_render;
134 endtsuglyph;
135
136 

---

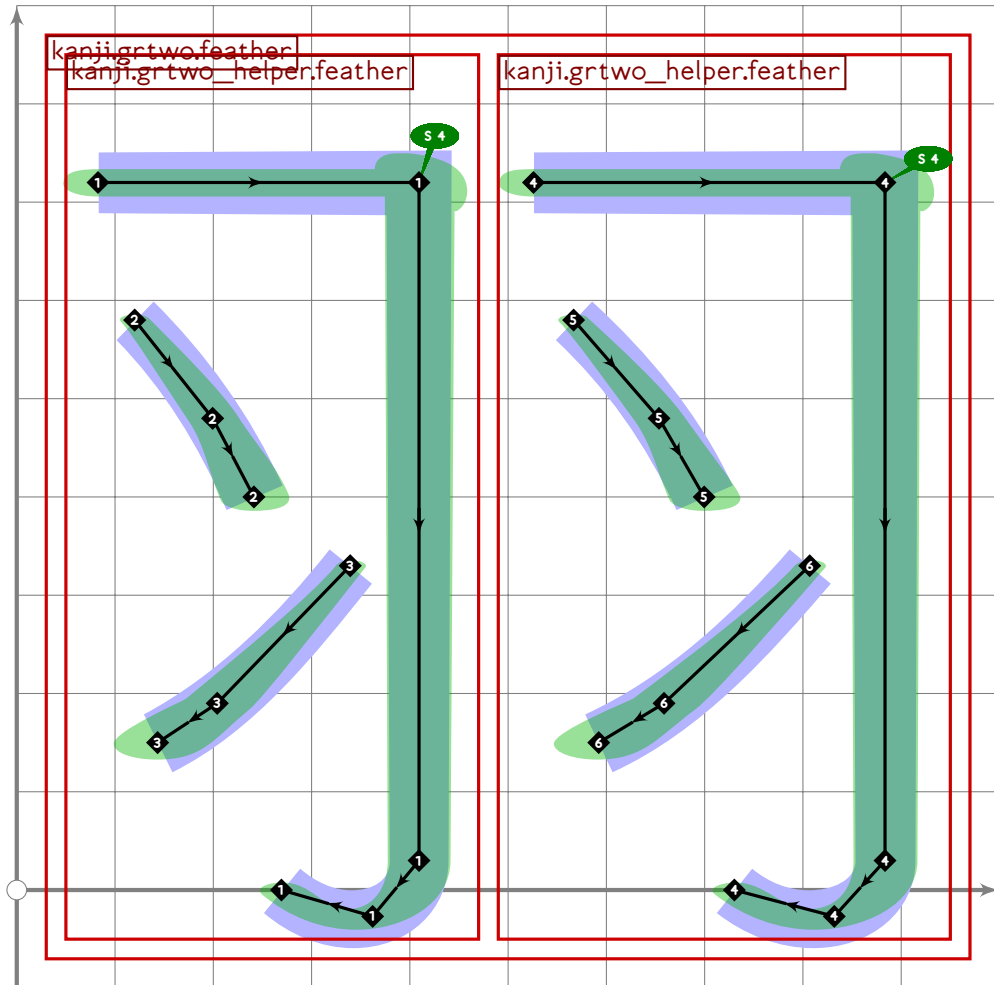

137
138 endfont;
139
140 

---


```

# tsuku-7f.mp

```
1 %  
2 % Unicode page 7f (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradeone.mp;  
38 input gradethree.mp;  
39 input toprad.mp;  
40  
41 _____
```



```
42  
43 vardef kanji.grtwo.feather =
```

```

44 push_pbox_toexpand("kanji.grtwo.feather");
45 build_kanji.lr(480,-20)
46   (kanji.grtwo_helper.feather)
47   (kanji.grtwo_helper.feather);
48 expand_pbox;
49 enddef;
50
51 vardef kanji.grtwo_helper.feather =
52   push_pbox_toexpand("kanji.grtwo_helper.feather");
53   push_stroke((60,720)-(410,720),(1.6,1.6)-(1.6,1.6));
54   build_kanji.add_jtail(0);
55   replace_strokep(0)(oldp xscaled 2);
56   set_botip(0,1,1);
57   set_boserif(0,1,4);
58   push_stroke((200,580)..tension 1.2..(370,480)..(460,400),
59     (1,1)-(1.3,1.3)-(1.6,1.6));
60   push_stroke((670,330)..tension 1.2..(380,190)..(250,150),
61     (1,1)-(1.6,1.6)-(1.9,1.9));
62   expand_pbox;
63 enddef;
64
65 

---


66
67 % you/hitsuji "sheep"
68 begintsuglyph("uni7F8A",138); [see page 490]
69   kanji.grthree.sheep;
70   tsu_render;
71 endtsuglyph;
72
73 % u/hane "feather"
74 begintsuglyph("uni7FBD",189); [see page 1790]
75   kanji.grtwo.feather;
76   tsu_render;
77 endtsuglyph;
78
79 

---


80
81 endfont;
82
83 

---



```

# tsuku-80.mp

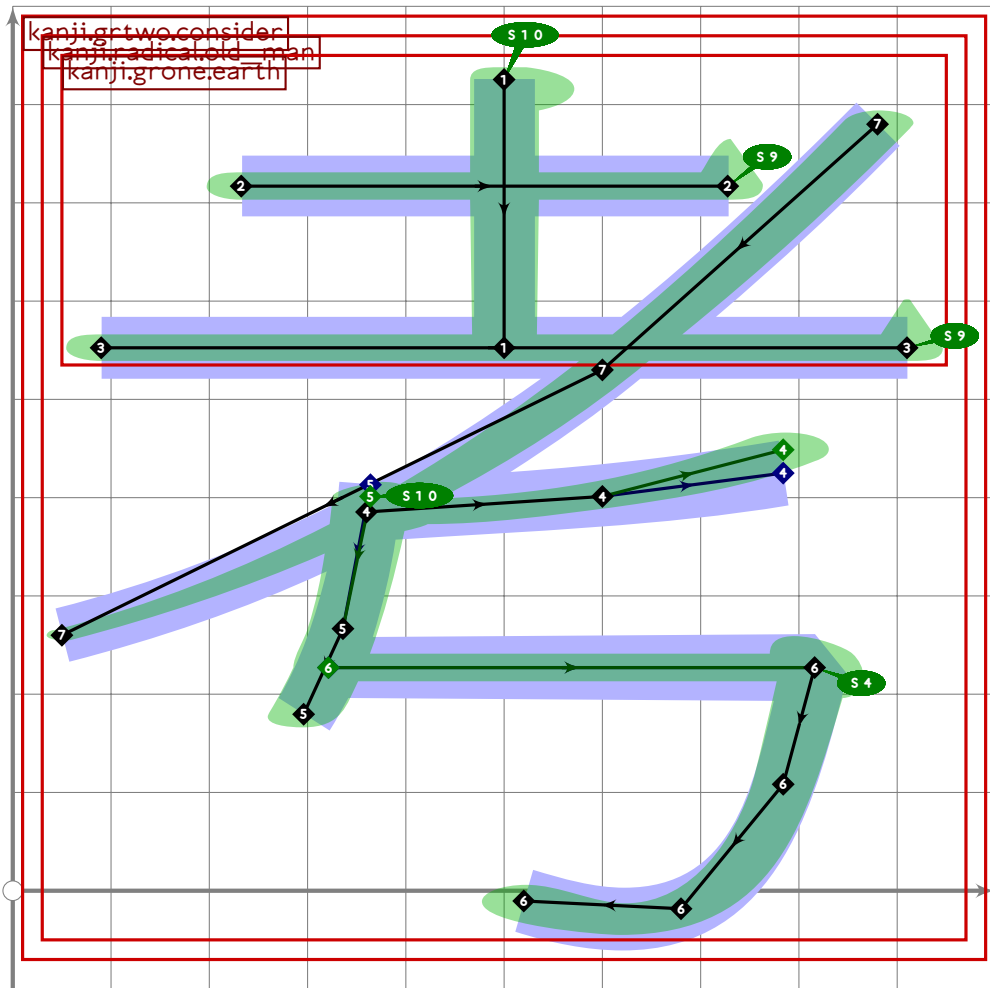
```
1 %
2 % Unicode page 80 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input bottomrad.mp;
37 input buildkanji.mp;
38 input gradeeight.mp;
39 input gradefive.mp;
40 input gradefour.mp;
41 input gradeone.mp;
42 input gradethree.mp;
43 input gradetwo.mp;
44 input radical.mp;
45 input toprad.mp;
46
47 

---

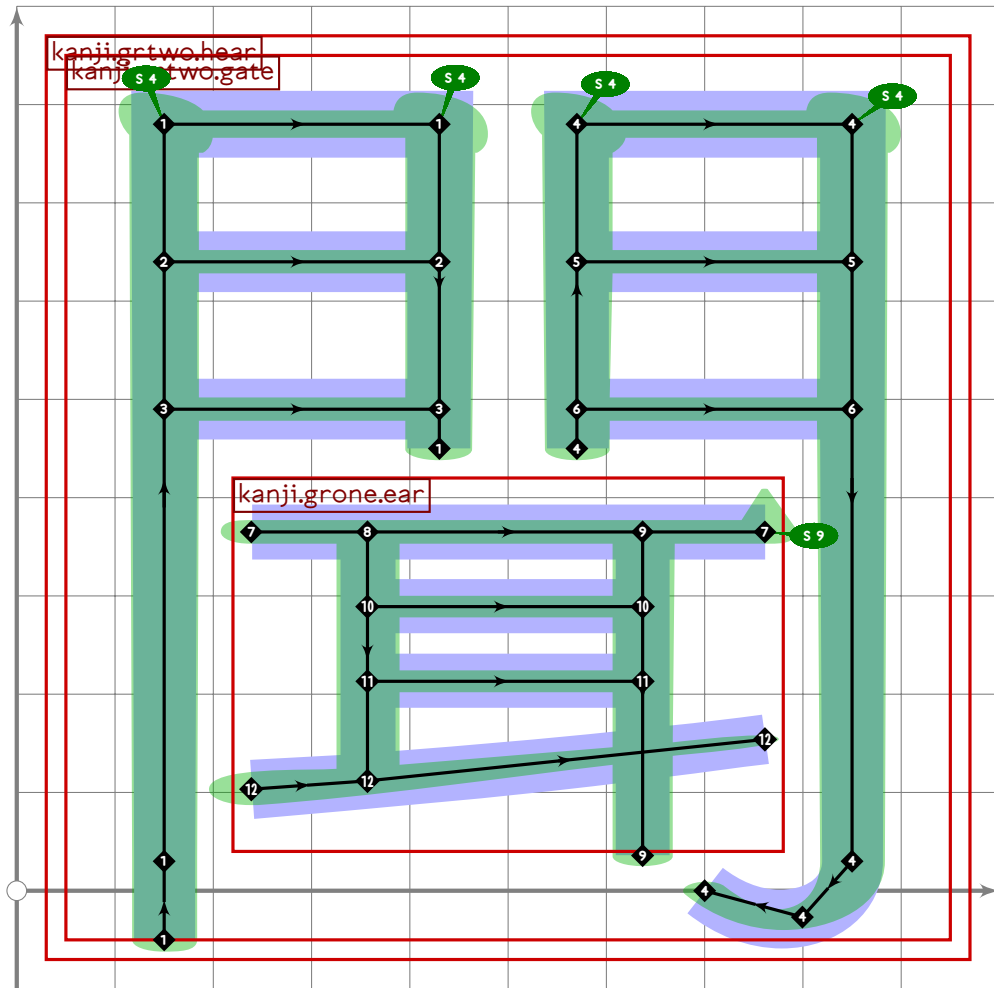

```



```

48
49 vardef kanji.grtwo.consider =
50   push_pbox_toexpand("kanji.grtwo.consider");
51   kanji.radical.old_man(
52     build_kanji.sscale(xyscaled (0.8,1.5) shifted (60,220))
53     (push_stroke((250,500)..tension 1.2..(550,520)..(780,550+30*mincho),
54       (1.5,1.5)–(1.5,1.5)–(1.9,1.9));
55     push_stroke((255,535-15*mincho)..tension 1.2..(220,350)..(170,240),
56       (1.7,1.7)–(1.6,1.6)–(1.6,1.6));
57     set_boserif(0,0,10);
58     push_stroke((get_strokep(0) intersectionpoint ((0,300)–(1000,300)))–
59       (820,300)..tension 1.7..(780,150)..(650,-10)..{curl 0.1}(450,0),
60       (1.6,1.6)–(1.6,1.6)–(1.5,1.5)–(1.7,1.7)–(1.8,1.8));
61     set_botip(0,1,1);
62     set_boserif(0,1,4));
63   expand_pbox;
64 enddef;

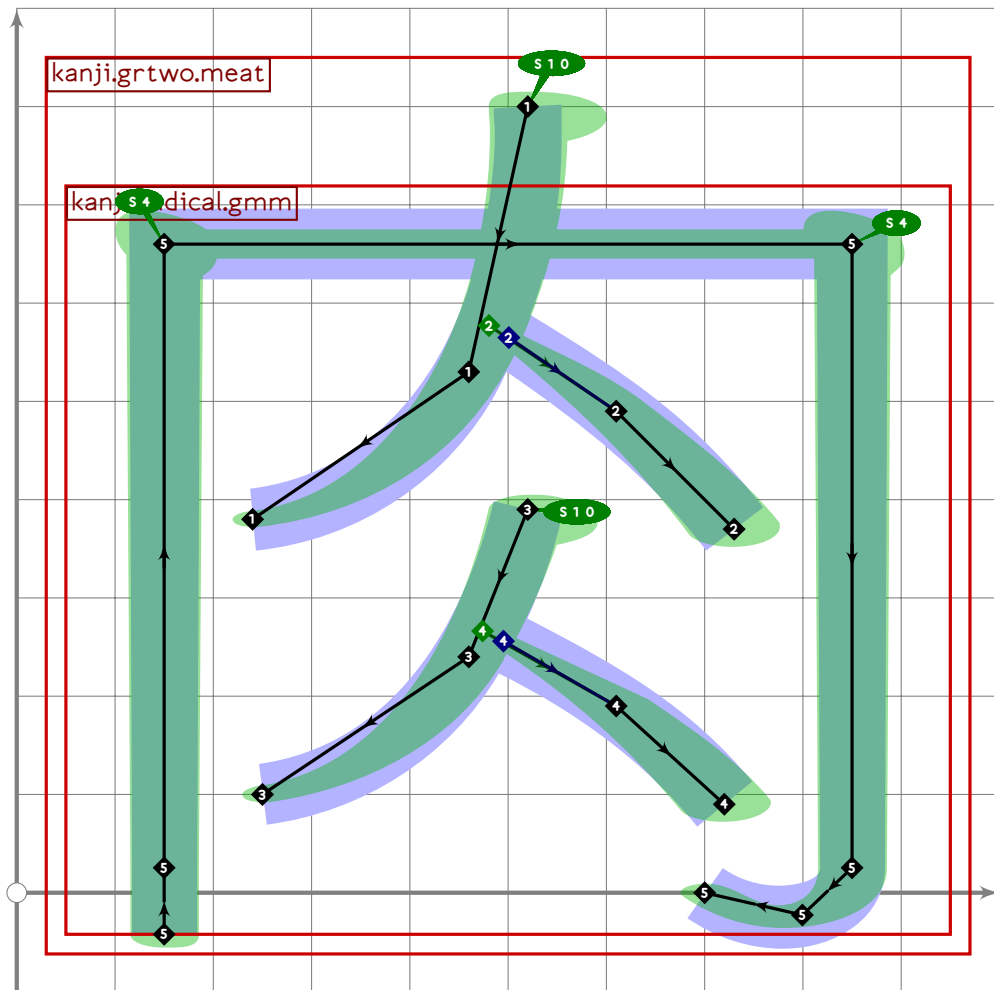
```



```

65
66 vardef kanji.grtwo.hear =
67   push_pbox_toexpand("kanji.grtwo.hear");
68   build_kanji.gate_enclose(kanji.grone.ear);
69   expand_pbox;
70 enddef;

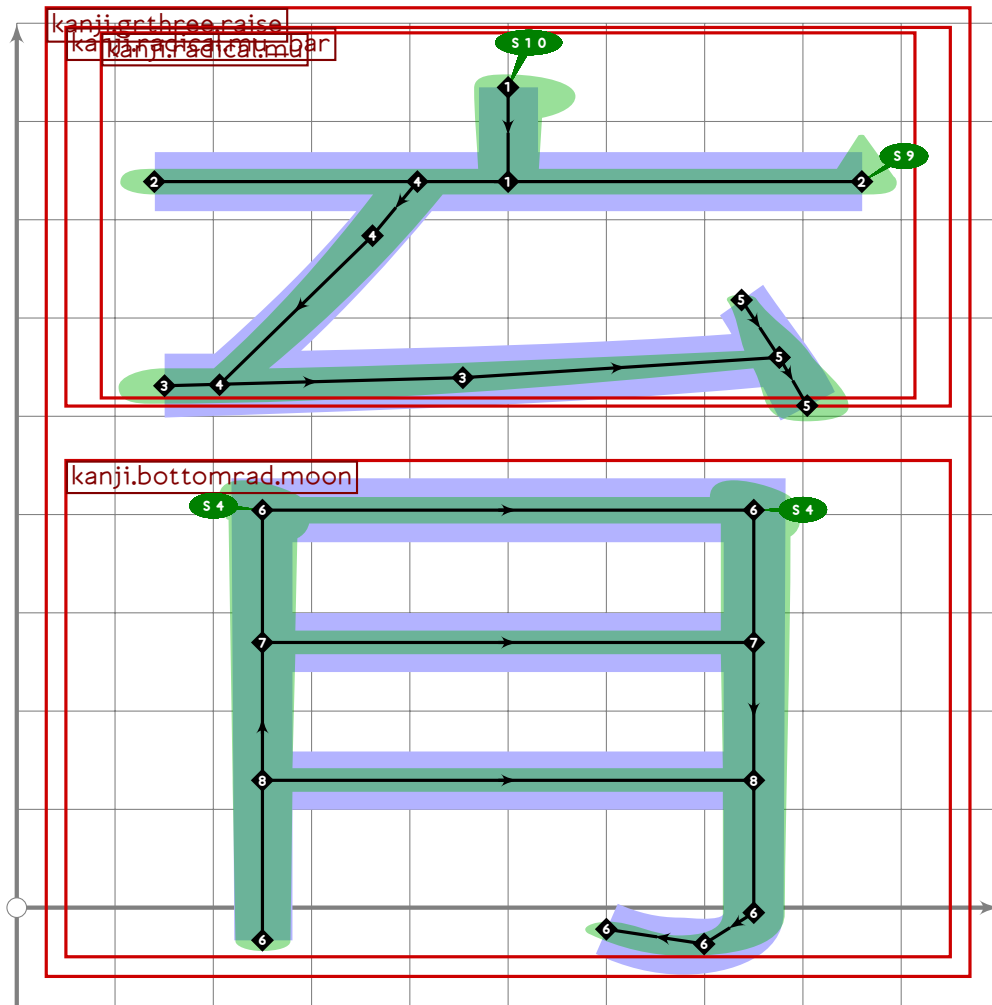
```



```

71
72 vardef kanji.grtwo.meat =
73   push_pbox_toexpand("kanji.grtwo.meat");
74   push_stroke((520,800)..tension 1.2..(460,530)..(240,380),
75     (1.6,1.6)-(1.5,1.5)-(1.1,1.1));
76   set_boserif(0,0,10);
77   push_stroke((point 0.8 of get_strokep(0))..tension 1.2..(610,490)..(730,370),
78     (0.9,0.9)-(1.5,1.5)-(1.8,1.8));
79   push_stroke((520,390)..tension 1.2..(460,240)..(250,100),
80     (1.6,1.6)-(1.5,1.5)-(1.1,1.1));
81   set_boserif(0,0,10);
82   push_stroke((point 0.8 of get_strokep(0))..tension 1.2..(610,190)..(720,90),
83     (0.9,0.9)-(1.5,1.5)-(1.8,1.8));
84   tsu_xform(identity yscaled (660/780))(kanji.radical.gmm);
85   expand_pbox;
86 enddef;
87
88

```



```

89
90 vardef kanji.grthree.raise =
91   push_pbox_toexpand("kanji.grthree.raise");
92   build_kanji.level(build_kanji.tb(480,-50)
93     (push_stroke((500,810)-(500,560),(1.6,1.6)-(1.5,1.5));
94     set_boserif(0,0,10);
95     tsu_xform(identity yscaled (560/780))(kanji.radical.mu_bar))
96     (kanji.bottomrad.moon));
97   expand_pbox;
98 enddef;
99

```

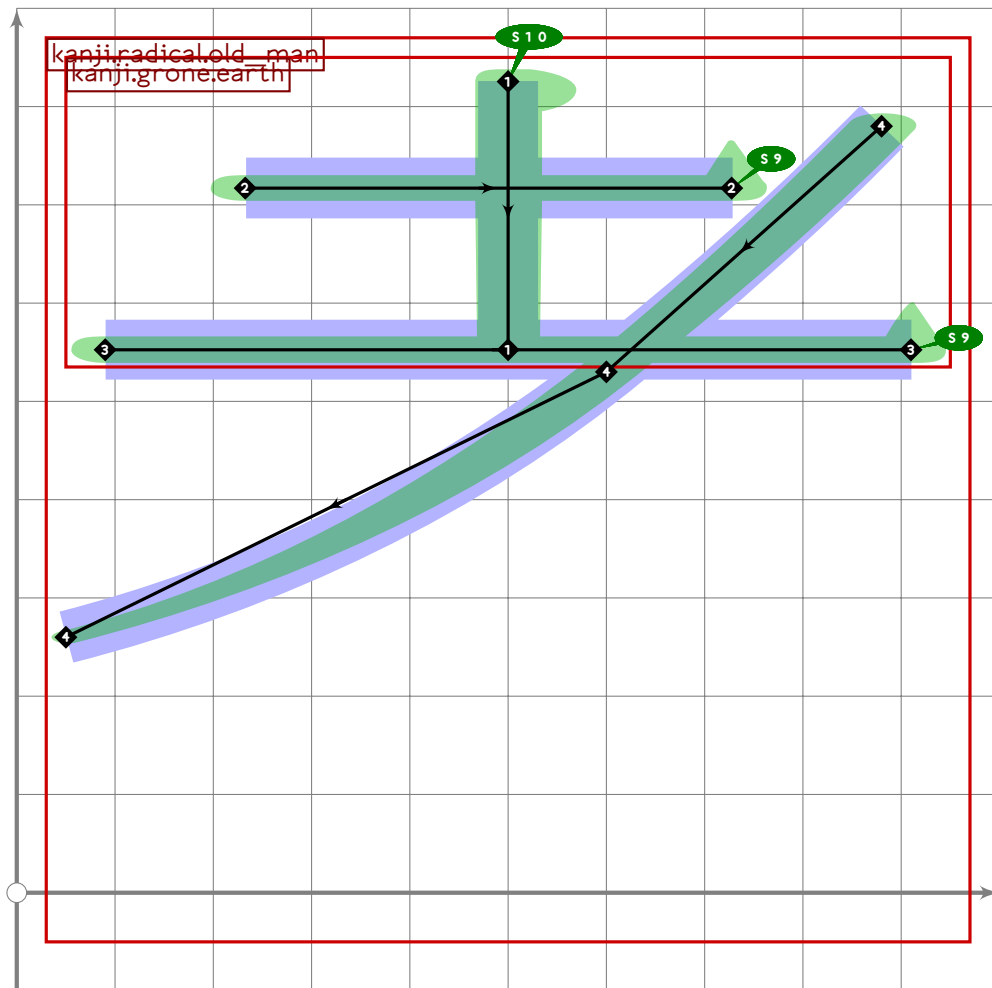
```

100
101
102 % rou/o "old man"
103 begintsuglyph("uni8001";1);
104   kanji.grfour.old_man;
105   tsu_render;
106 endtsuglyph;
107

```

[see page 510]





108 % "old man without a spoon" radical

109 `begintsuglyph("uni8002",2);`

110 `kanji.radical.old_man();`

111 `tsu_render;`

112 `endtsuglyph;`

113

114 % kou/kanga "consider"

115 `begintsuglyph("uni8003",3);`

[see page 1793]

116 `kanji.grtwo.consider;`

117 `tsu_render;`

118 `endtsuglyph;`

119

120 % sha/mono "person" or "thing"

121 `begintsuglyph("uni8005",5);`

[see page 488]

122 `kanji.grthree.person;`

123 `tsu_render;`

124 `endtsuglyph;`

125

126 % ken/mi "ear"

127 `begintsuglyph("uni8033",51);`

[see page 377]

128 `kanji.grone.ear;`

129 `tsu_render;`  
130 `endtsuglyph;`  
131  
132 `% bun/ki "hear"`  
133 `begintsuglyph("uni805E";94);` [see page 1794]  
134 `kanji.grtwo.hear;`  
135 `tsu_render;`  
136 `endtsuglyph;`  
137  
138 `% brush radical`  
139 `begintsuglyph("uni807F";127);` [see page 337]  
140 `kanji.radical.brush;`  
141 `tsu_render;`  
142 `endtsuglyph;`  
143  
144 `% niku "meat"`  
145 `begintsuglyph("uni8089";137);` [see page 1795]  
146 `kanji.grtwo.meat;`  
147 `tsu_render;`  
148 `endtsuglyph;`  
149  
150 `% shou/ayaka "resemblance"`  
151 `begintsuglyph("uni8096";150);` [see page 537]  
152 `kanji.greight.resemblance;`  
153 `tsu_render;`  
154 `endtsuglyph;`  
155  
156 `% iku/soda "raise"`  
157 `begintsuglyph("uni80B2";178);` [see page 1796]  
158 `kanji.grthree.raise;`  
159 `tsu_render;`  
160 `endtsuglyph;`  
161  
162 `% nou/yo "talent"`  
163 `begintsuglyph("uni80FD";253);` [see page 515]  
164 `kanji.grfive.talent;`  
165 `tsu_render;`  
166 `endtsuglyph;`  
167  
168 

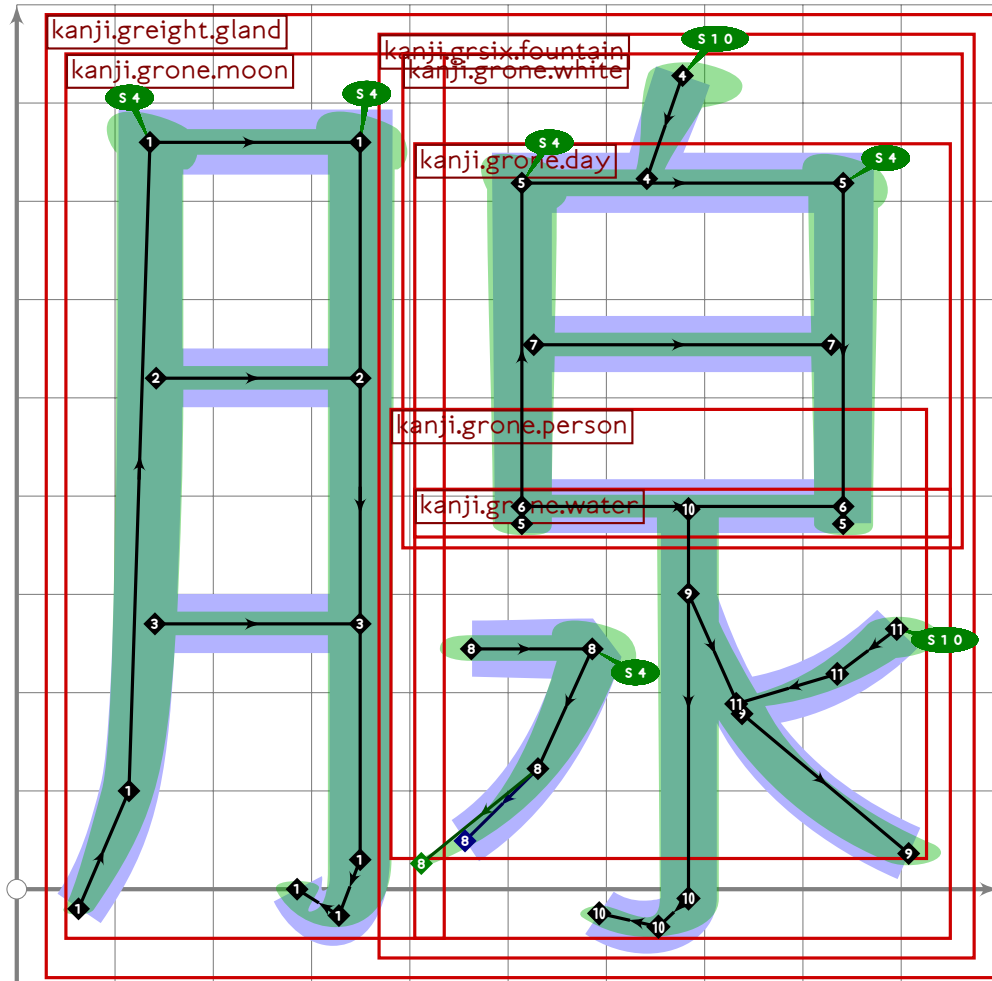
---

  
169  
170 `endfont;`  
171  
172 

---

# tsuku-81.mp

```
1 %  
2 % Unicode page 81 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradeone.mp;  
38 input gradesix.mp;  
39 input gradetwo.mp;  
40 input radical.mp;  
41  
42 _____
```



43

```

44 vardef kanji.greight.gland =
45   push_pbox_toexpand("kanji.greight.gland");
46   build_kanji.lr(420,30)
47     (kanji.grone.moon)
48     (kanji.grsix.fountain);
49   expand_pbox;
50 enddef;
51
52 

---


53
54 % sen "gland"
55 begintsuglyph("uni817A",122); [see page 1800]
56   kanji.greight.gland;
57   tsu_render;
58 endsuglyph;
59
60 % ji as in jibun "self"
61 begintsuglyph("uni81EA",234); [see page 465]
62   kanji.grtwo.self;
63   tsu_render;
64 endsuglyph;
65
66 % shi/ita "climax"
67 begintsuglyph("uni81F3",243); [see page 519]
68   kanji.grsix.climax;
69   tsu_render;
70 endsuglyph;
71
72 

---


73
74 endfont;
75
76 

---



```

# tsuku-82.mp

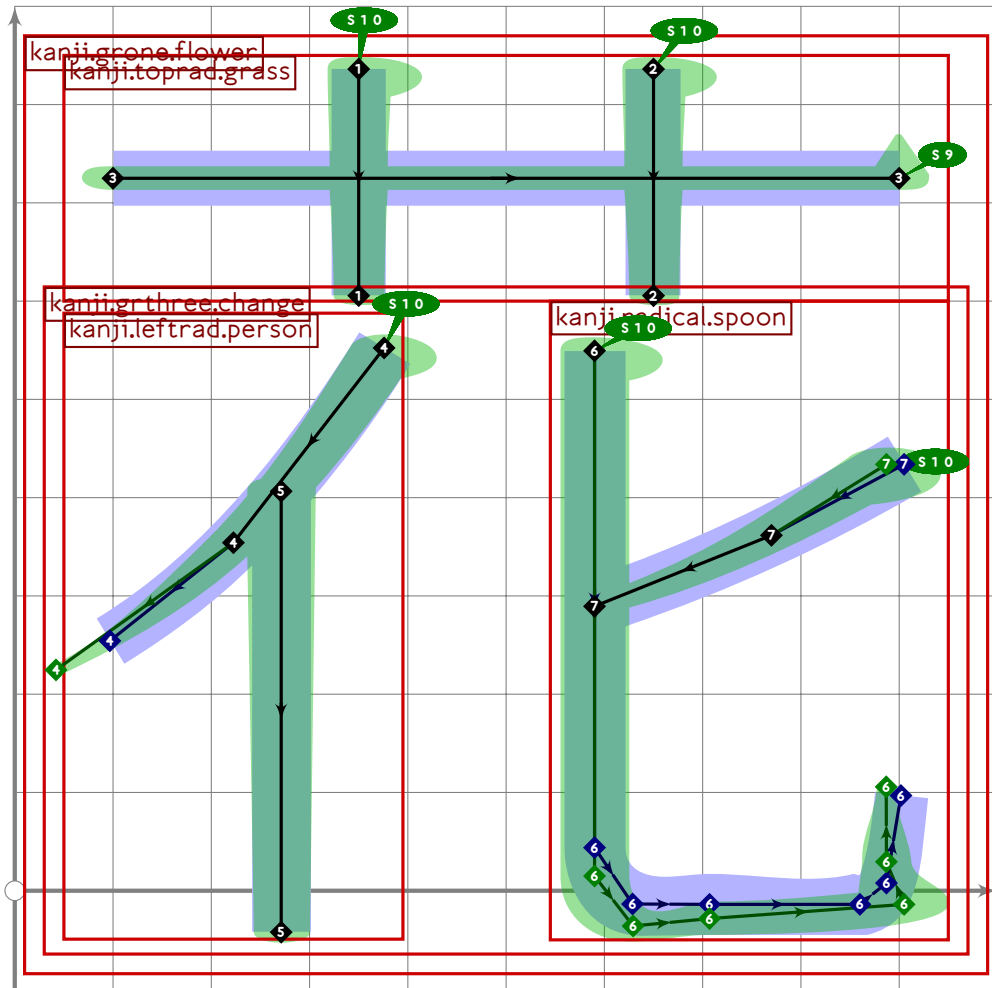
```
1 %
2 % Unicode page 82 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradefive.mp;
39 input gradefour.mp;
40 input gradenine.mp;
41 input gradeone.mp;
42 input gradethree.mp;
43 input gradetwo.mp;
44 input leftrad.mp;
45 input radical.mp;
46 input rare.mp;
47 input toprad.mp;
48
49 

---

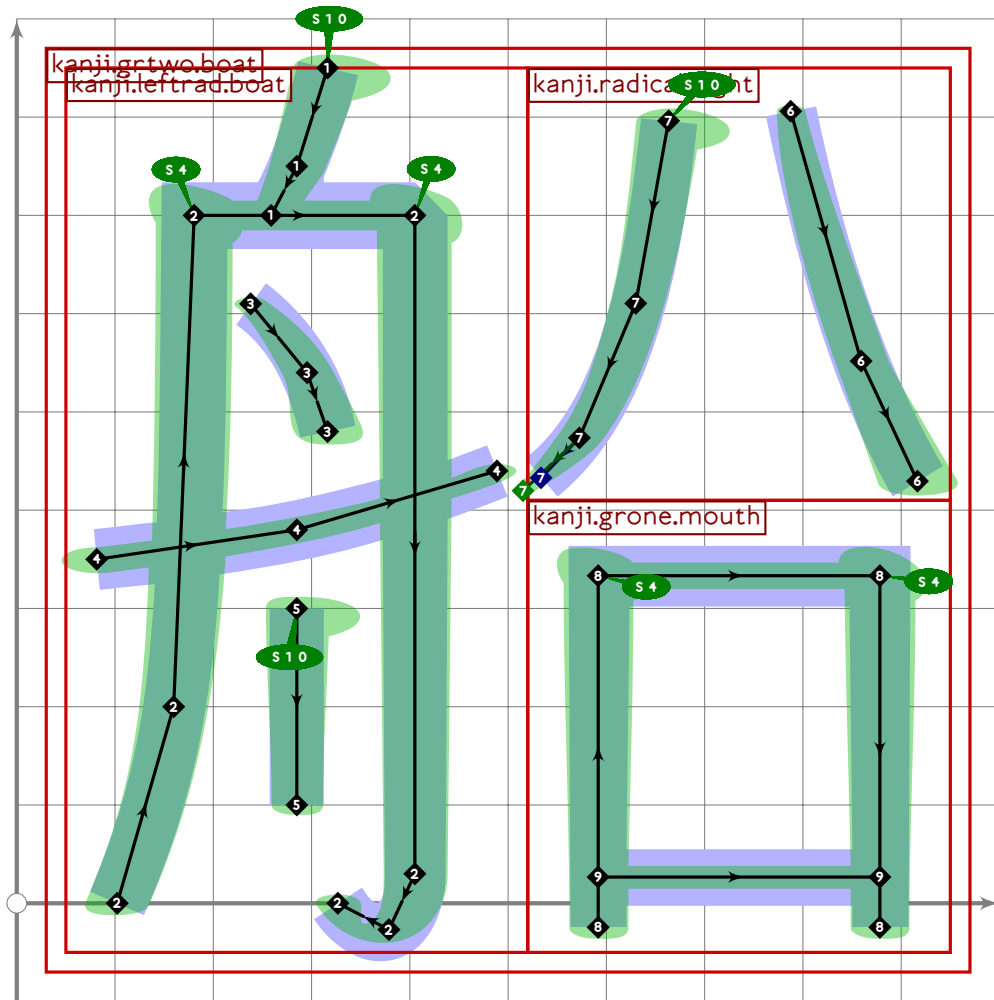

```



```

50
51 vardef kanji.grone.flower =
52   push_pbox_toexpand("kanji.grone.flower");
53   build_kanji.tb(600,0)
54     (kanji.toprad.grass)
55     (kanji.grthree.change);
56   expand_pbox;
57 enddef;
58
59

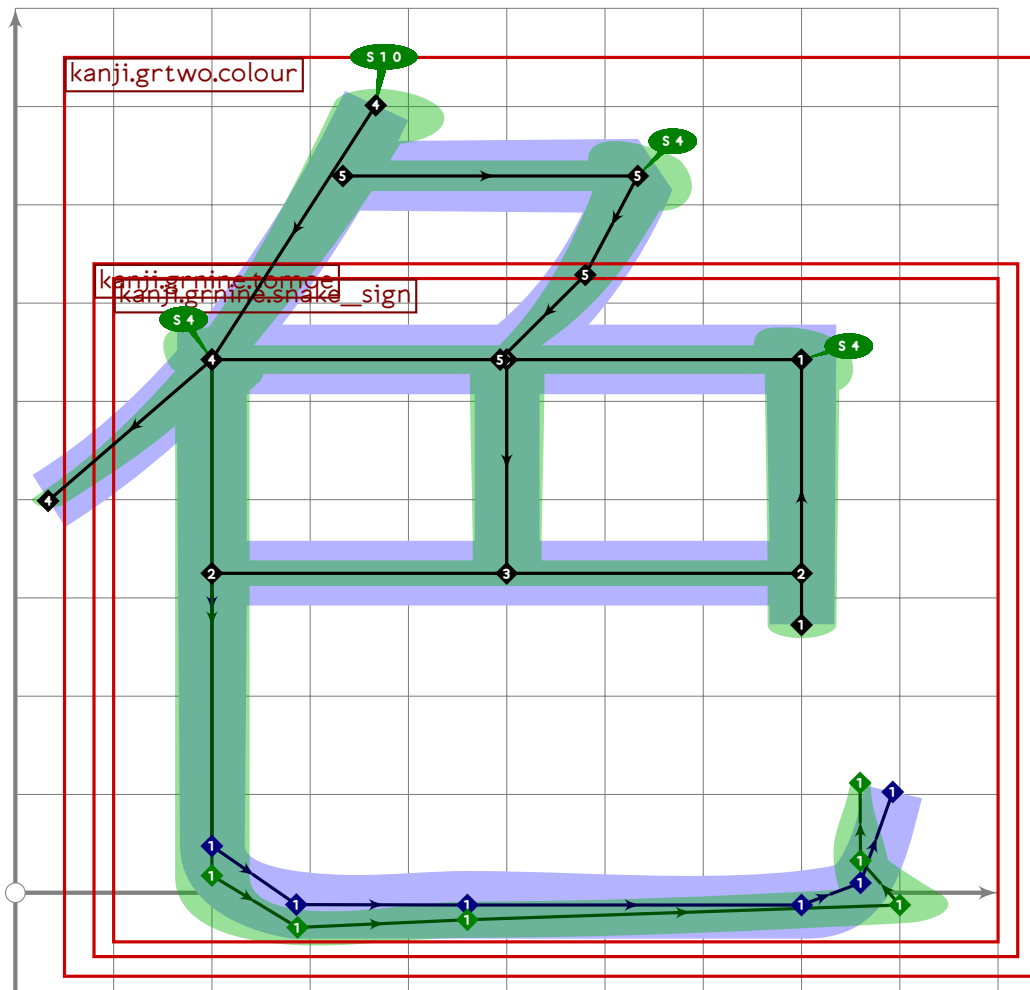
```



```

60
61 vardef kanji.grtwo.boat =
62   push_pbox_toexpand("kanji.grtwo.boat");
63   build_kanji.lr(520,0)
64   (kanji.leftrad.boat)
65   (build_kanji.level(build_kanji.tb(410,0)
66     (kanji.radical.eight)
67     (kanji.grone.mouth)));
68   expand_pbox;
69 enddef;

```

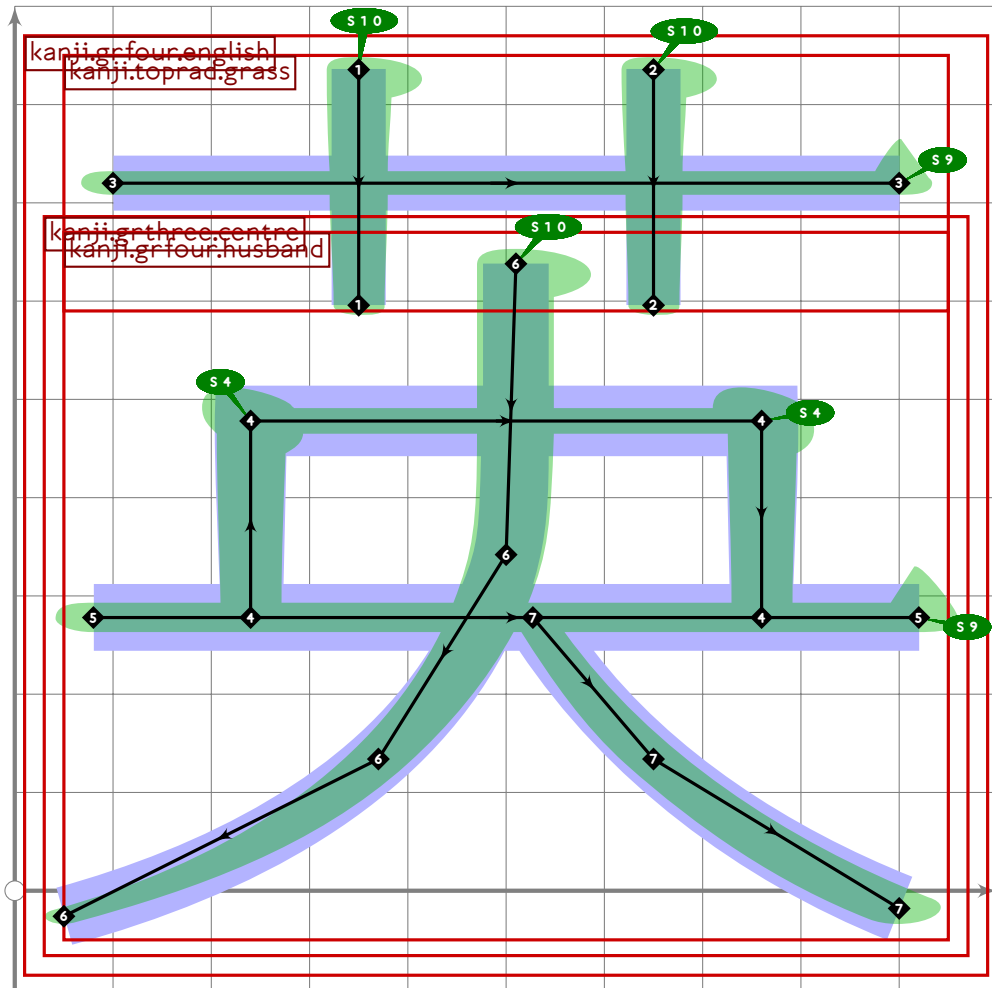


```

70
71 vardef kanji.grtwo.colour =
72   push_pbox_toexpand("kanji.grtwo.colour");
73   build_kanji.attach_fishhook(0.75)
74   (tsu_xform(identity shifted (50,0))(kanji.grnine.tomoe));
75   expand_pbox;
76 enddef;
77
78

```

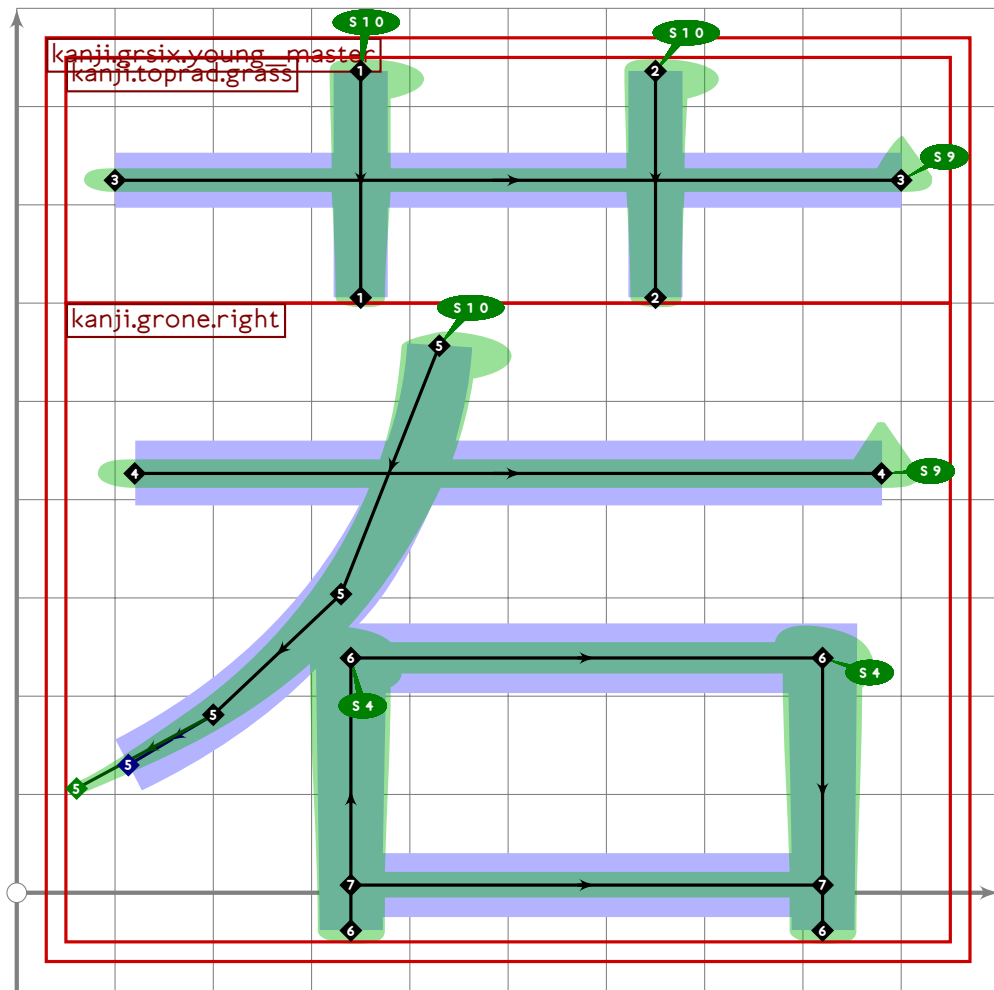




```

79
80 vardef kanji.grfour.english =
81   push_pbox_toexpand("kanji.grfour.english");
82   build_kanji.tb(630,80)
83     (kanji.toprad.grass)
84     (kanji.grthree centre);
85   expand_pbox;
86 enddef;
87
88

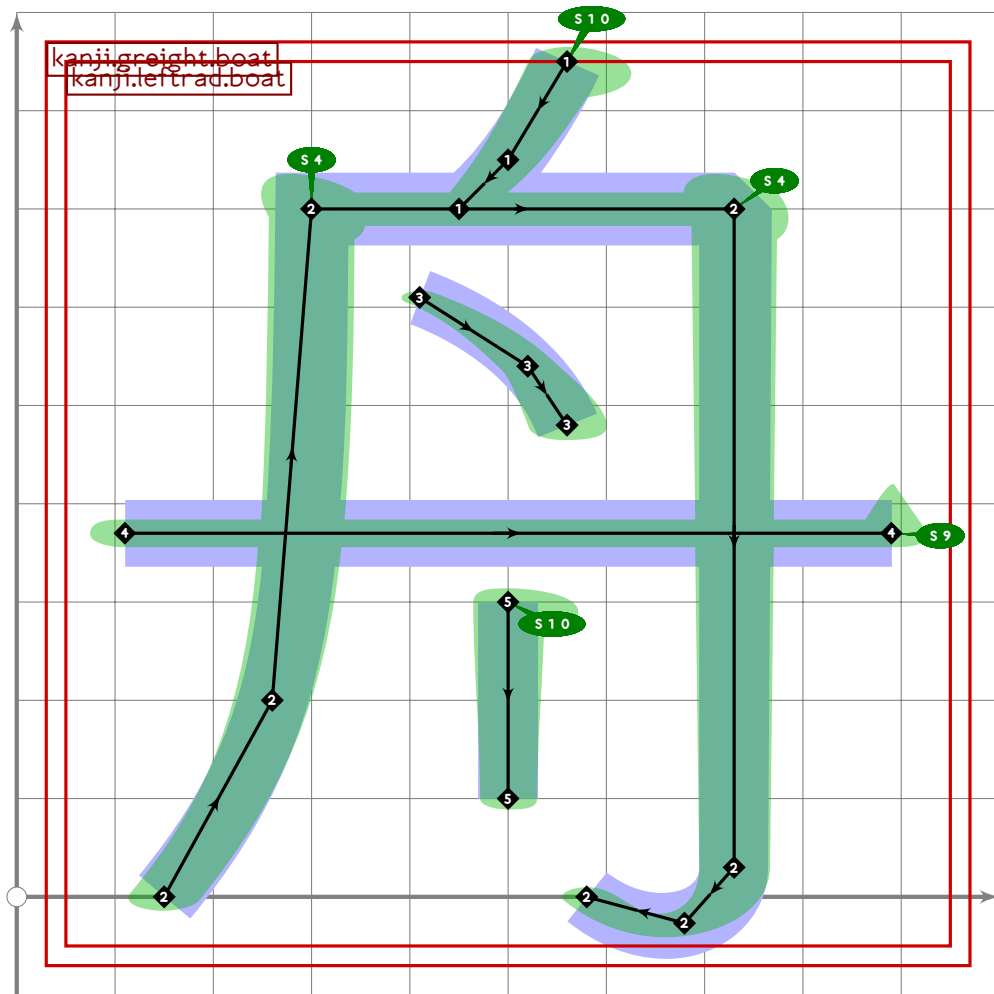
```



```

89
90 vardef kanji.grsix.young_master =
91   push_pbox_toexpand("kanji.grsix.young_master");
92   build_kanji.tb(600,0)
93     (kanji.toprad.grass)
94     (kanji.grone.right);
95   expand_pbox;
96 enddef;
97
98

```



99

```

100 vardef kanji.greight.boat =
101   push_pbox_toexpand("kanji.greight.boat");
102   kanji.leftrad.boat;
103   replace_strokep(-1)((110,370)-(890,370));
104   replace_strokeq(-1)((1.5,1.5)-(1.5,1.5));
105   set_boserif(-1,19);
106   expand_pbox;
107 enddef;

```

108

109

110

```

111 vardef kanji.leftrad.boat =
112   push_pbox_toexpand("kanji.leftrad.boat");
113   push_stroke((560,850)..tension 1.2..(500,750)..(450,700),
114     (1.6,1.6)-(1.4,1.4)-(1.2,1.2));
115   set_boserif(0,0,10);
116   push_stroke(
117     (150,0)..(260,200)..fdir 89.5{(300,700)-(730,700),
118     (1.5,1.5)-(1.6,1.6)-(1.7,1.7)-(1.7,1.7));
119   build_kanji.add_jtail(0);

```

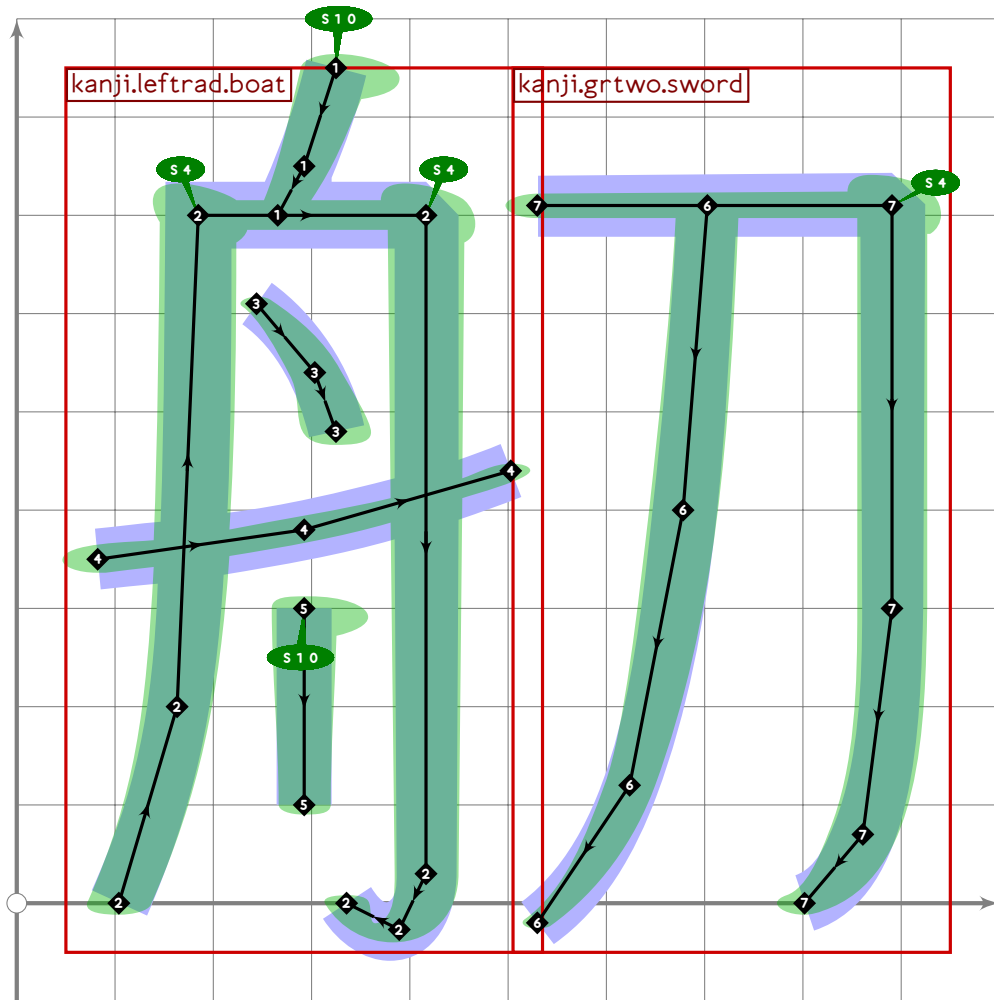
```

120 set_botip(0,2,1);
121 set_botip(0,3,0);
122 set_boserif(0,2,4);
123 set_boserif(0,3,4);
124 push_stroke((410,610)..tension 1.2..(520,540)..(560,480),
125   (1.1,1.1)-(1.4,1.4)-(1.7,1.7));
126 set_bosize(0,90);
127 push_stroke((110,350)..tension 1.2..(500,380)..(890,440),
128   (1.6,1.6)-(1.5,1.5)-(1.1,1.1));
129 push_stroke((500,300)-(500,100),
130   (1.6,1.6)-(1.4,1.4));
131 set_boserif(0,0,10);
132 set_bosize(0,90);
133 expand_pbox;
134 endif;
135
136 

---


137
138 % zetsu/shita "tongue"
139 begintsuglyph("uni820C",12); [see page 516]
140 kanji.grfive.tongue;
141 tsu_render;
142 endtsuglyph;
143
144 % shuu/fune "boat"
145 begintsuglyph("uni821F",31); [see page 1807]
146 kanji.greight.boat;
147 tsu_render;
148 endtsuglyph;
149

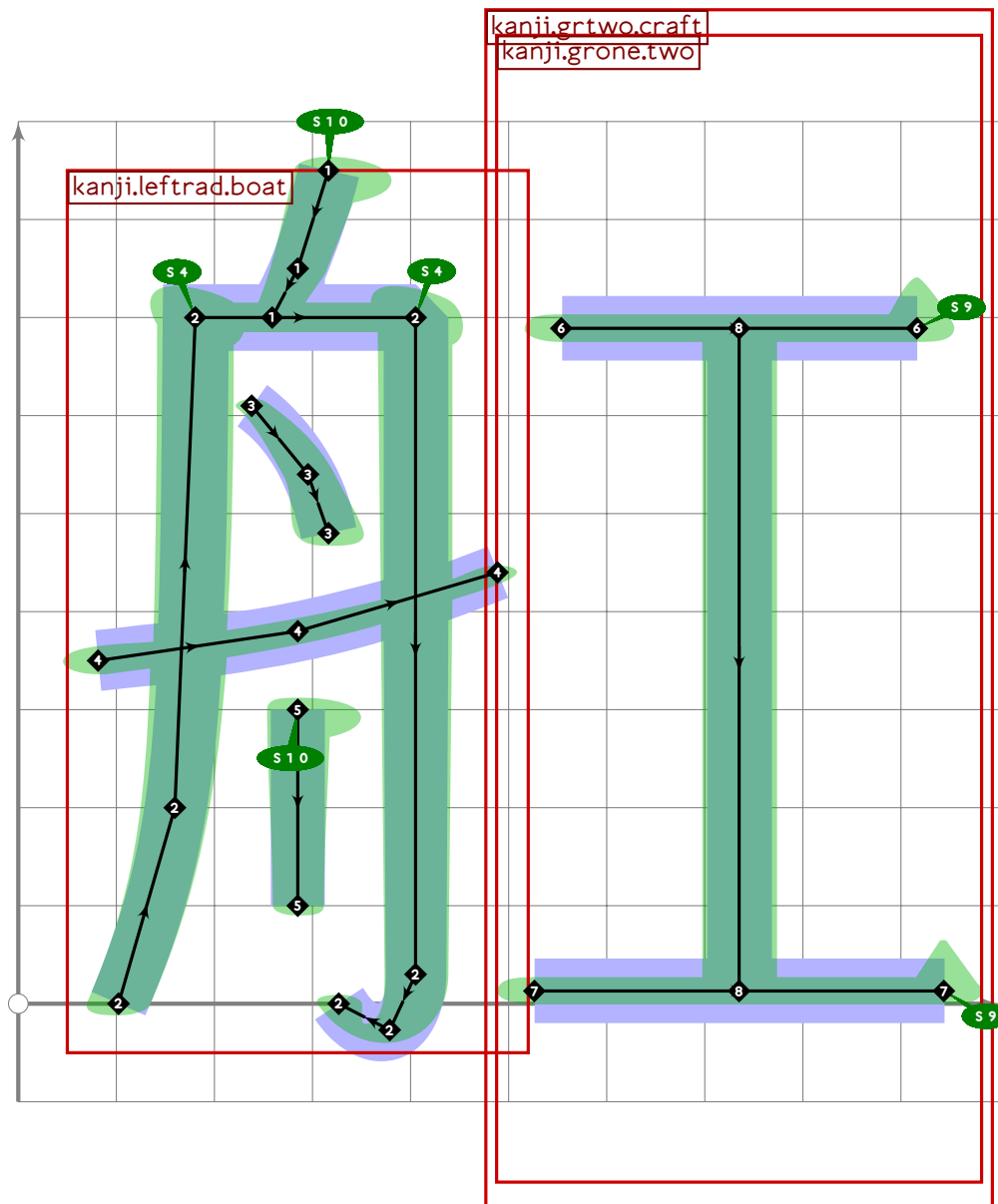
```



```

150 % extra
151 begint Suglyph("uni8220",32);
152 build_kanji.lr(520,30)
153   (kanji.leftrad.boat)
154   (kanji.grtwo.sword);
155   tsu_render;
156 endtsuglyph;
157

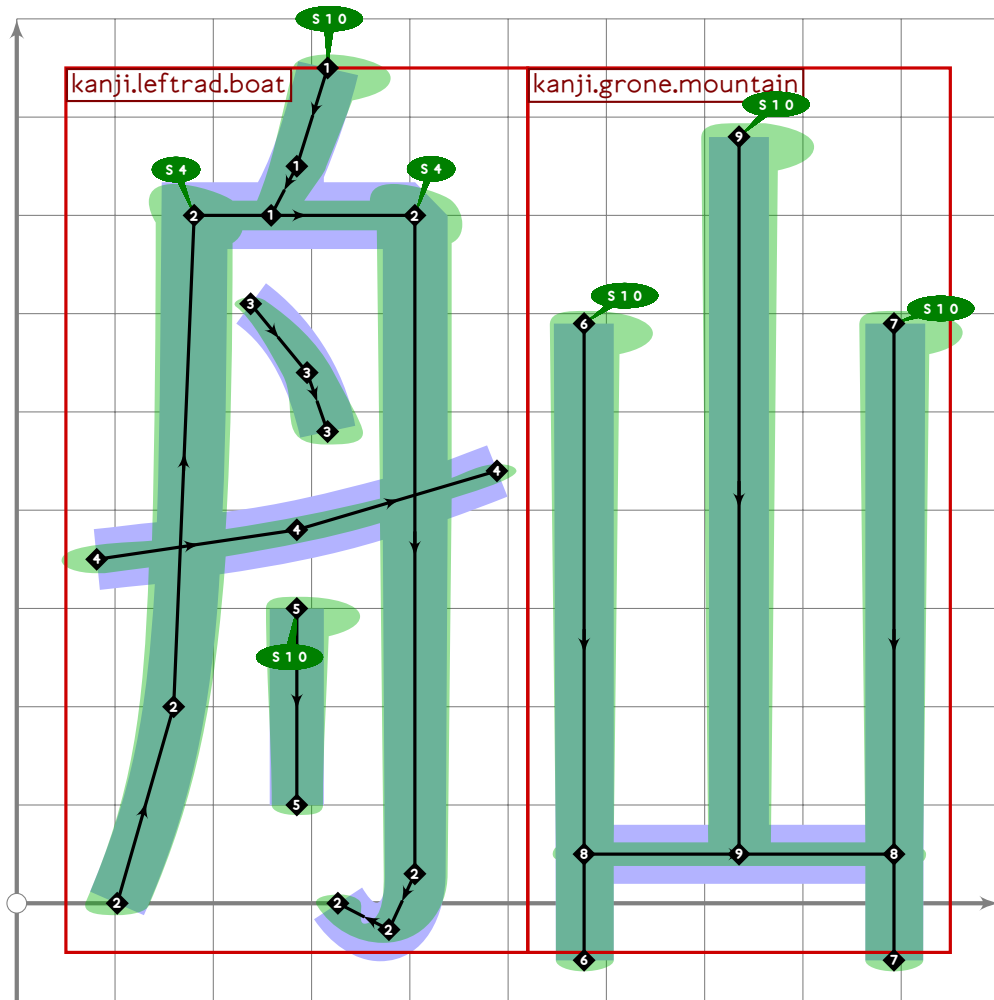
```



```

158 % extra: boat
159 begintsuglyph("uni8221",33);
160 build_kanji.lr(520,0)
161   (kanji.leftrad.boat)
162   (build_kanji.sscale(xyscaled (1.15,1.3))(kanji.grtwo.craft));
163   tsu_render;
164 endsuglyph;
165

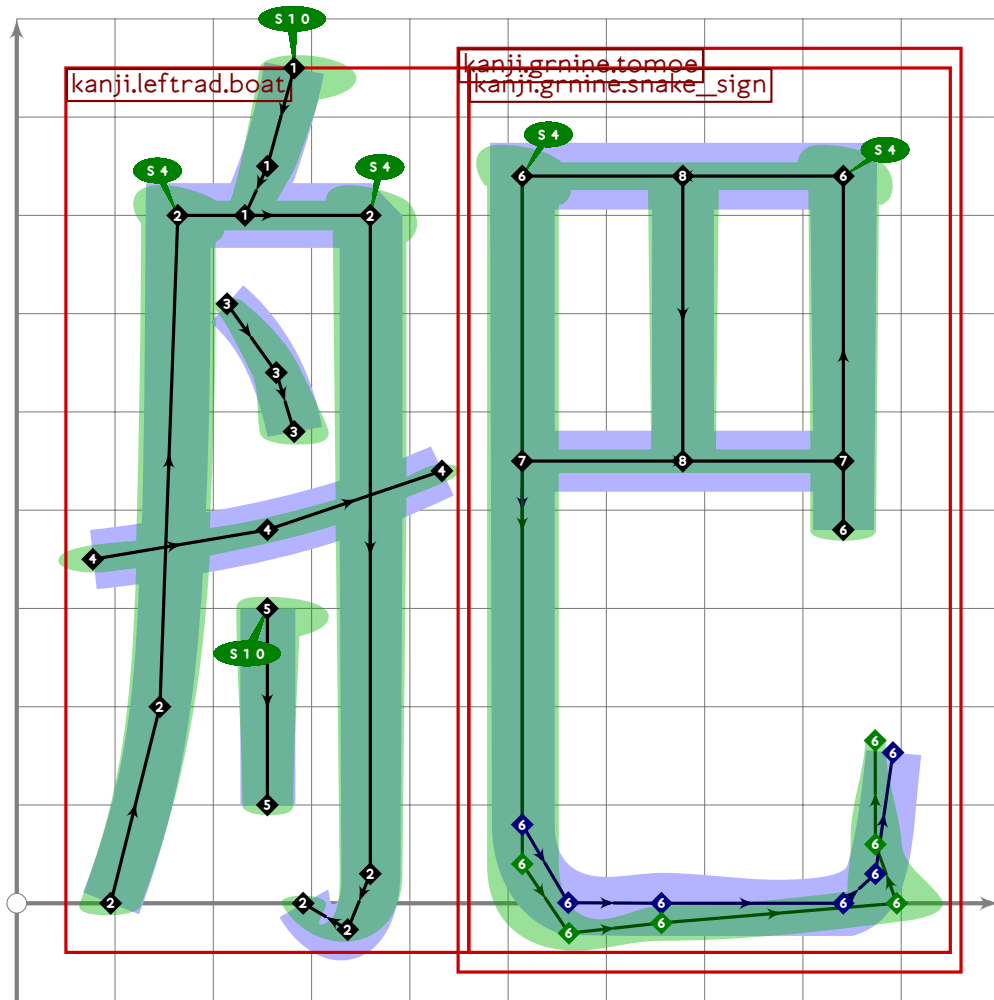
```



```

166 % extra: "English" meaning is "sampan"
167 begint Suglyph("uni8222",34);
168 build_kanji.lr(520,0)
169   (kanji.leftrad.boat)
170   (kanji.grone.mountain);
171   tsu_render;
172 endtsuglyph;
173

```

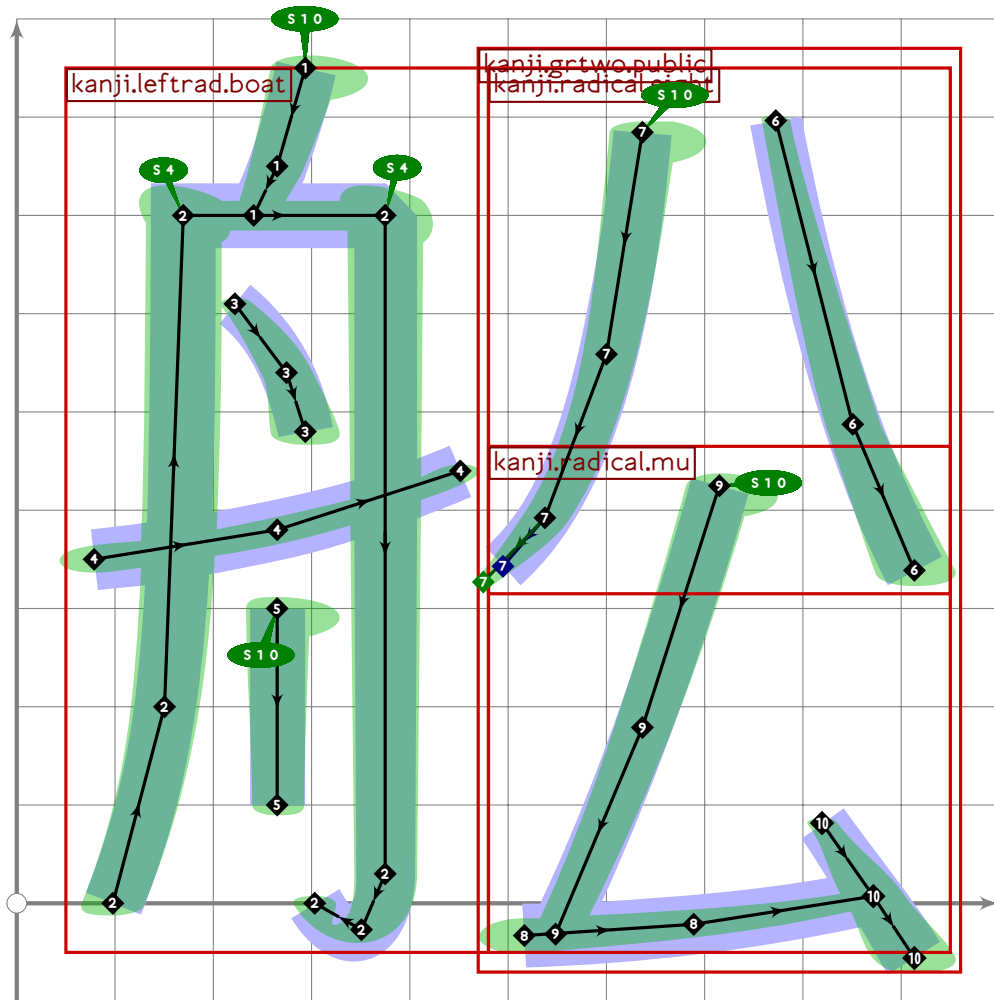


```

174 % extra
175 begint Suglyph("uni8225",37);
176 build_kanji.lr(460,0)
177 (kanji.leftrad.boat)
178 (kanji.grnine.tomoe);
179 tsu_render;
180 endsuglyph;
181

```

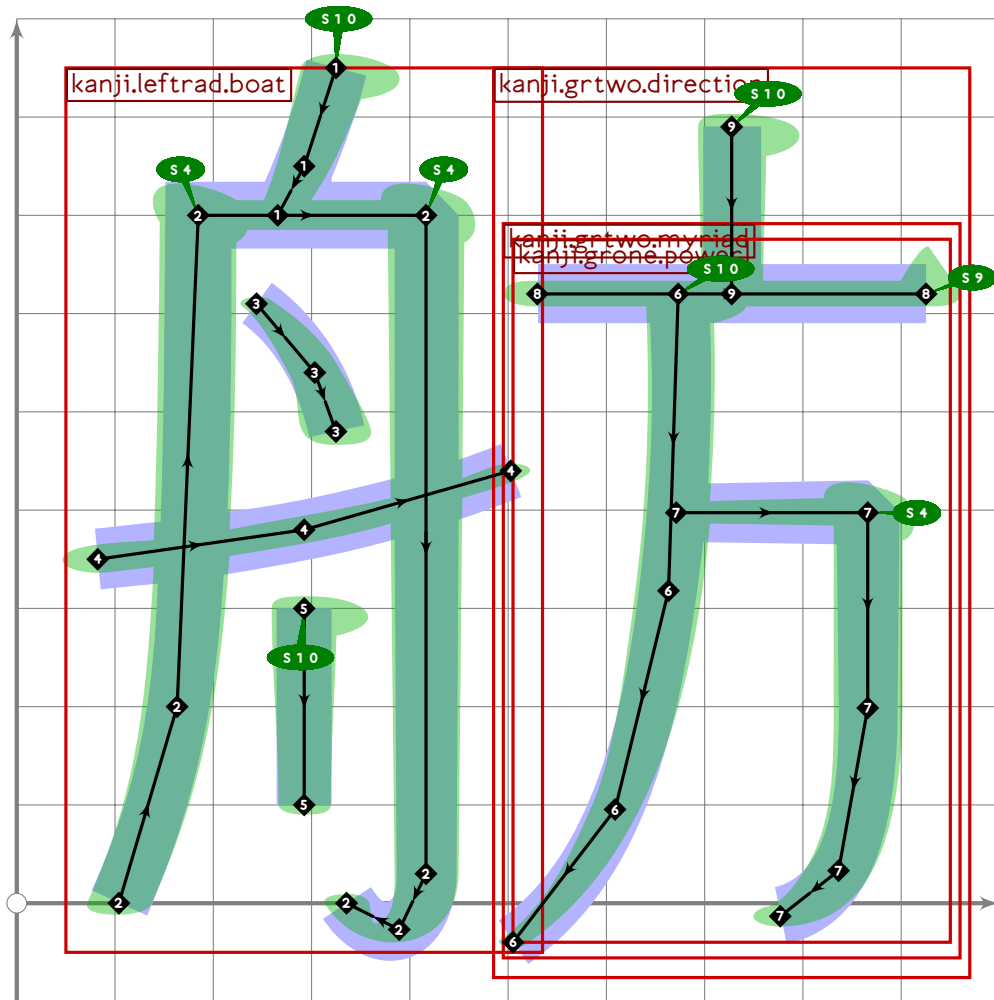




```

182 % extra: boat
183 begintsuglyph("uni8229";41);
184 build_kanji.lr(480,0)
185   (kanji.leftrad.boat)
186   (kanji.grtwo.public);
187   tsu_render;
188 endsuglyph;
189

```



```

190 % extra: moor/berth
191 begintsuglyph("uni822B",43);
192 build_kanji.lr(520,30)
193   (kanji.leftrad.boat)
194   (kanji.grtwo.direction);
195   tsu_render;
196 endsuglyph;
197
198 % sen/fune "boat"
199 begintsuglyph("uni8239",57);
200 kanji.grtwo.boat;
201 tsu_render;
202 endsuglyph;
203
204 % kon/ushitora "northeast"
205 begintsuglyph("uni826E",110);
206 kanji.radical.northeast;
207 tsu_render;
208 endsuglyph;
209
210 % ryou/yo "good"

```

[see page 1803]

[see page 347]

```

211 begintsuglyph("uni826F",111);
212 kanji.grfour.good;
213 tsu_render;
214 endsuglyph;

```

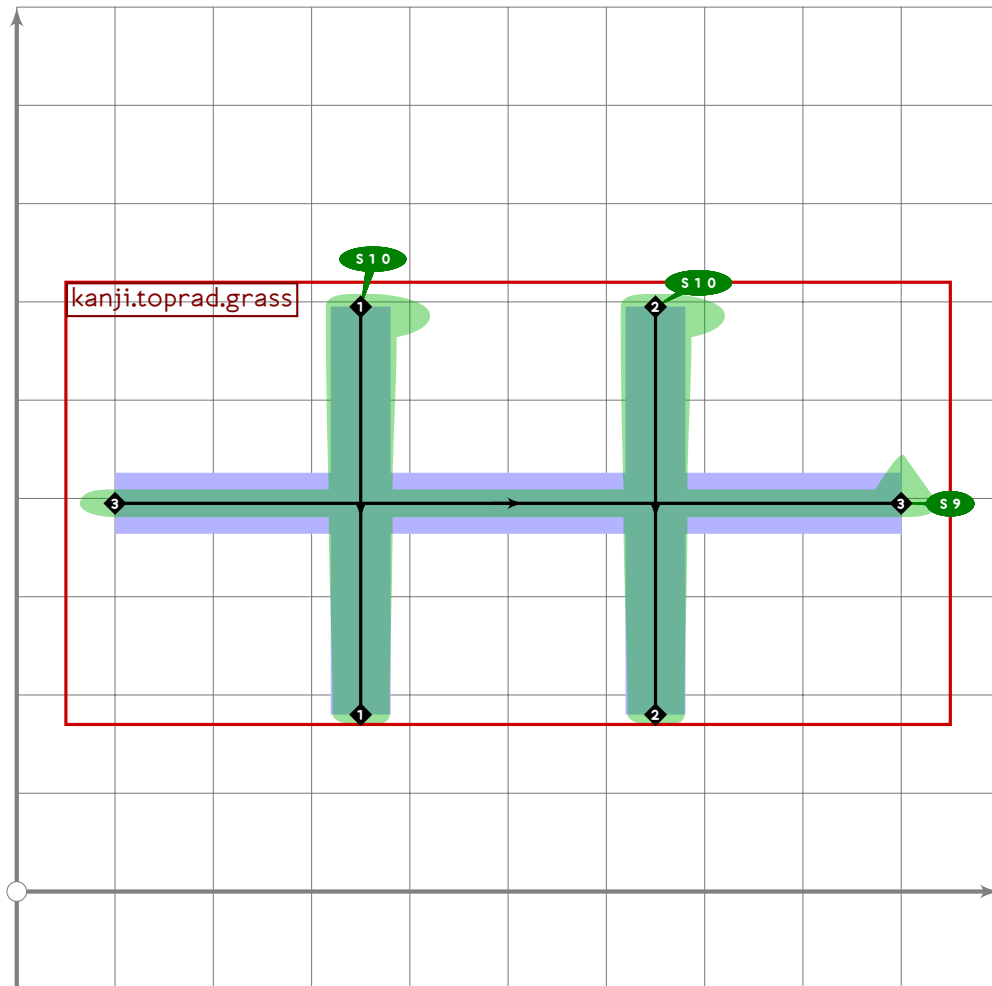
[see page 505]

```

215
216 % shoku/iro "colour"
217 begintsuglyph("uni8272",114);
218 kanji.grtwo.colour;
219 tsu_render;
220 endsuglyph;
221

```

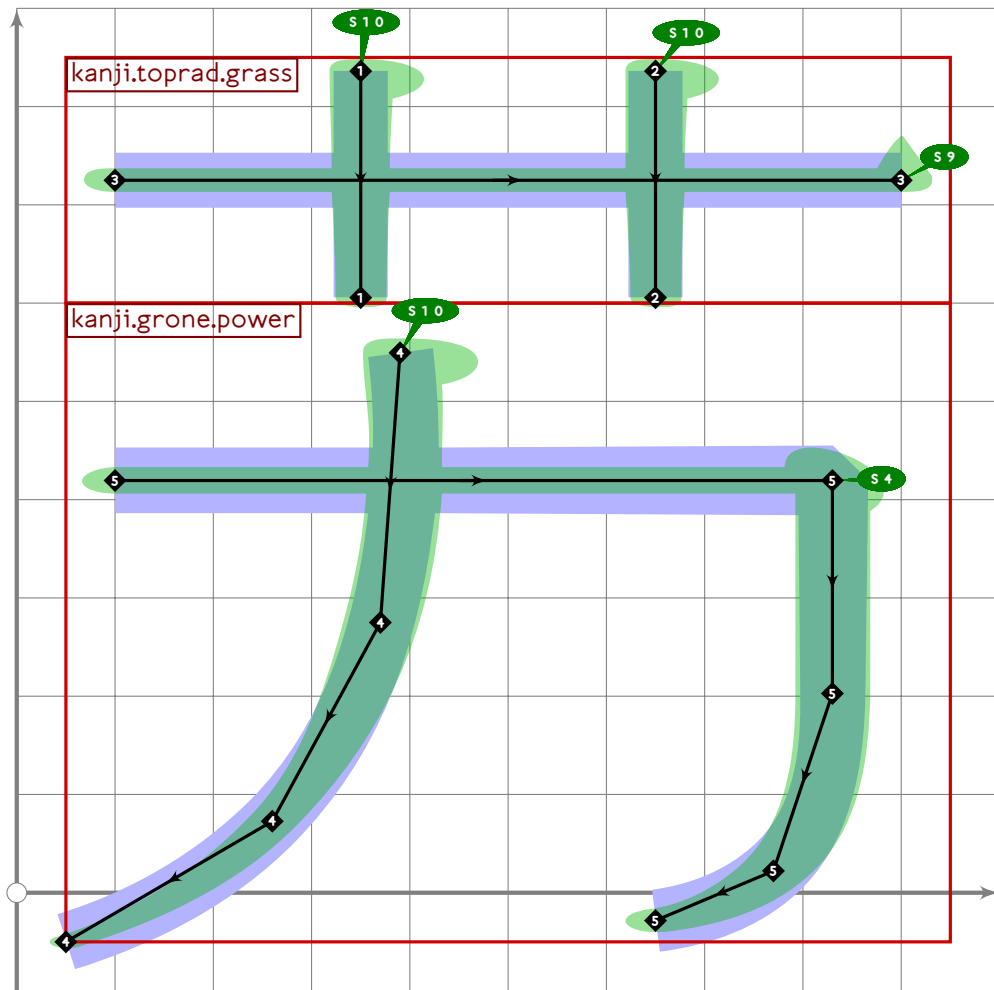
[see page 1804]



```

222 % extra "naked grass radical"
223 begintsuglyph("uni8279",121);
224 build_kanji.sscale(yscaled 0.5)(kanji.toprad.grass);
225 tsu_render;
226 endsuglyph;
227

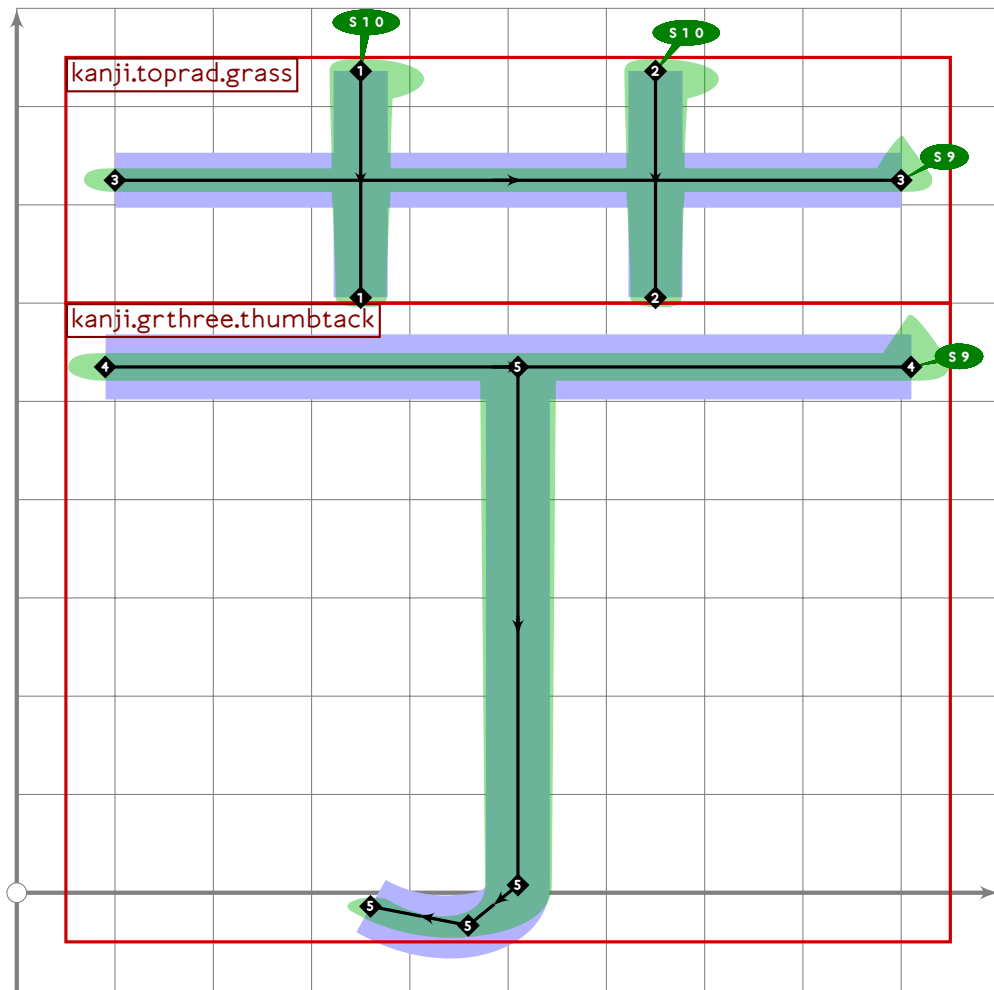
```



```

228 % extra
229 begint Suglyph("uni827B",123);
230 build_kanji.tb(600,0)
231   (kanji.toprad.grass)
232   (kanji.grone.power);
233   tsu_render;
234 endsuglyph;
235

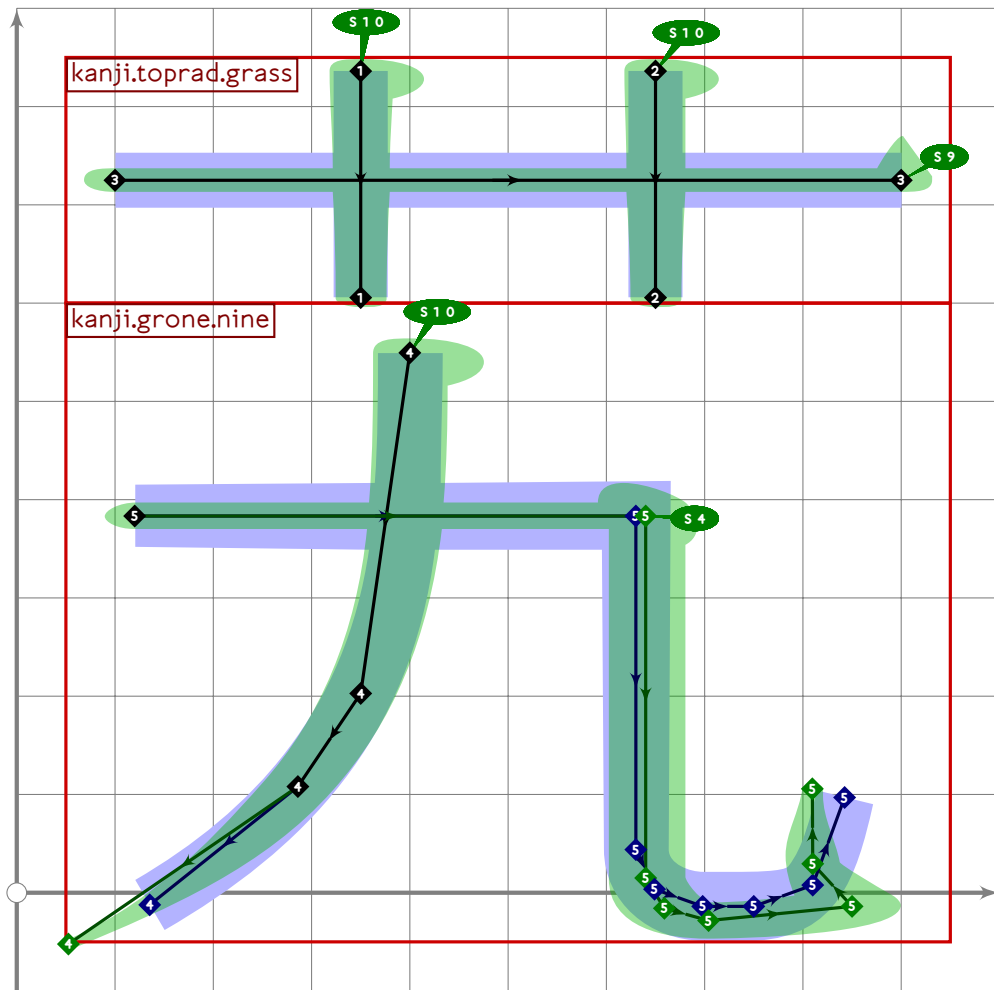
```



```

236 % extra
237 begint Suglyph("uni827C",124);
238 build_kanji.tb(600,0)
239   (kanji.toprad.grass)
240   (kanji.grthree.thumbtack);
241   tsu_render;
242   endsuglyph;
243

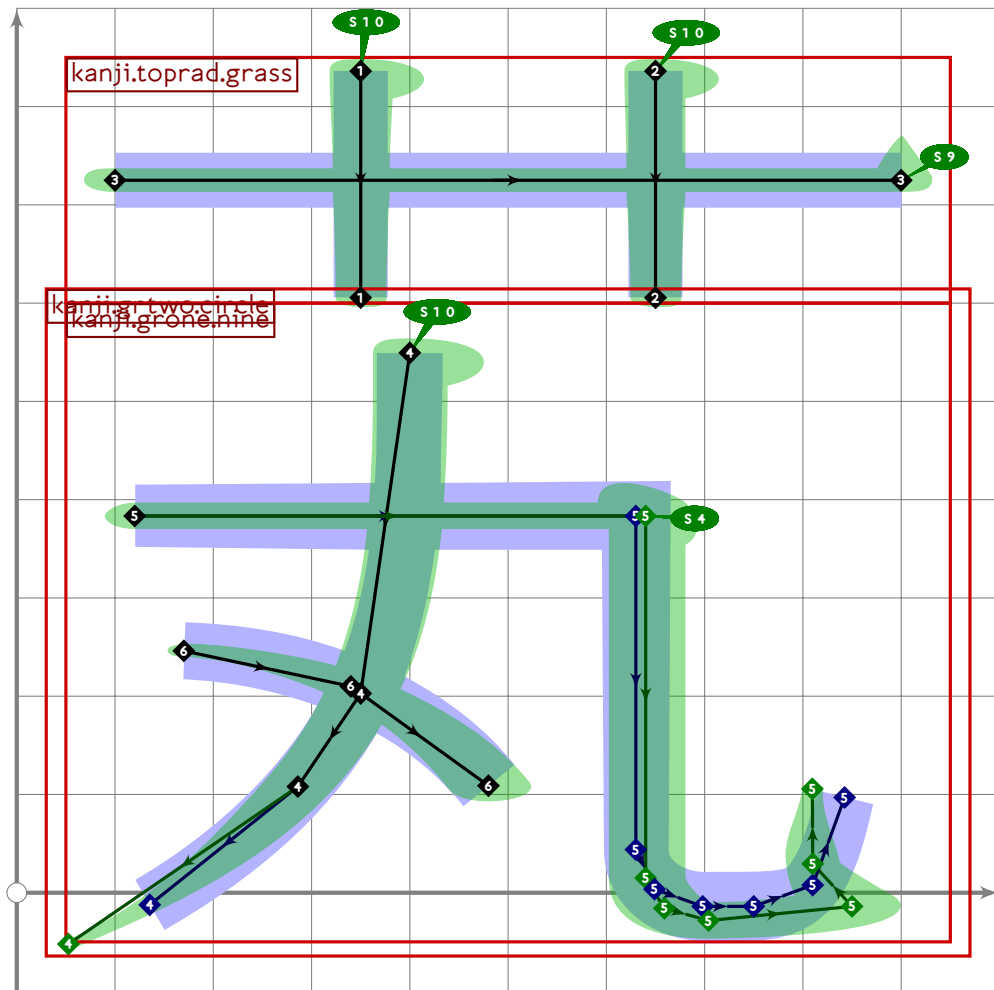
```



```

244 % extra
245 begint Suglyph("uni827D",125);
246 build_kanji.tb(600,0)
247   (kanji.toprad.grass)
248   (kanji.grone.nine);
249   tsu_render;
250 endtsuglyph;
251

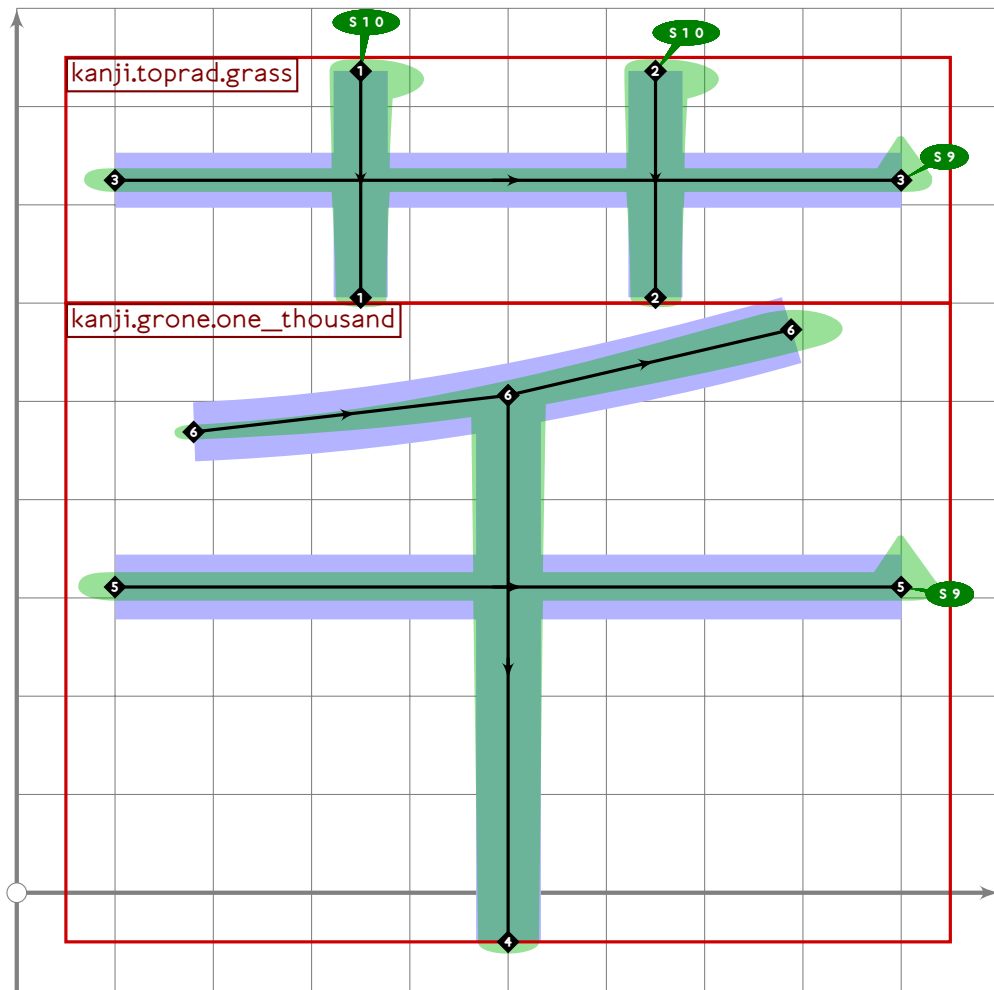
```



```

252 % extra
253 begint Suglyph("uni8284",132);
254 build_kanji.tb(600,0)
255   (kanji.toprad.grass)
256   (kanji.grtwo.circle);
257   tsu_render;
258   endtsuglyph;
259

```

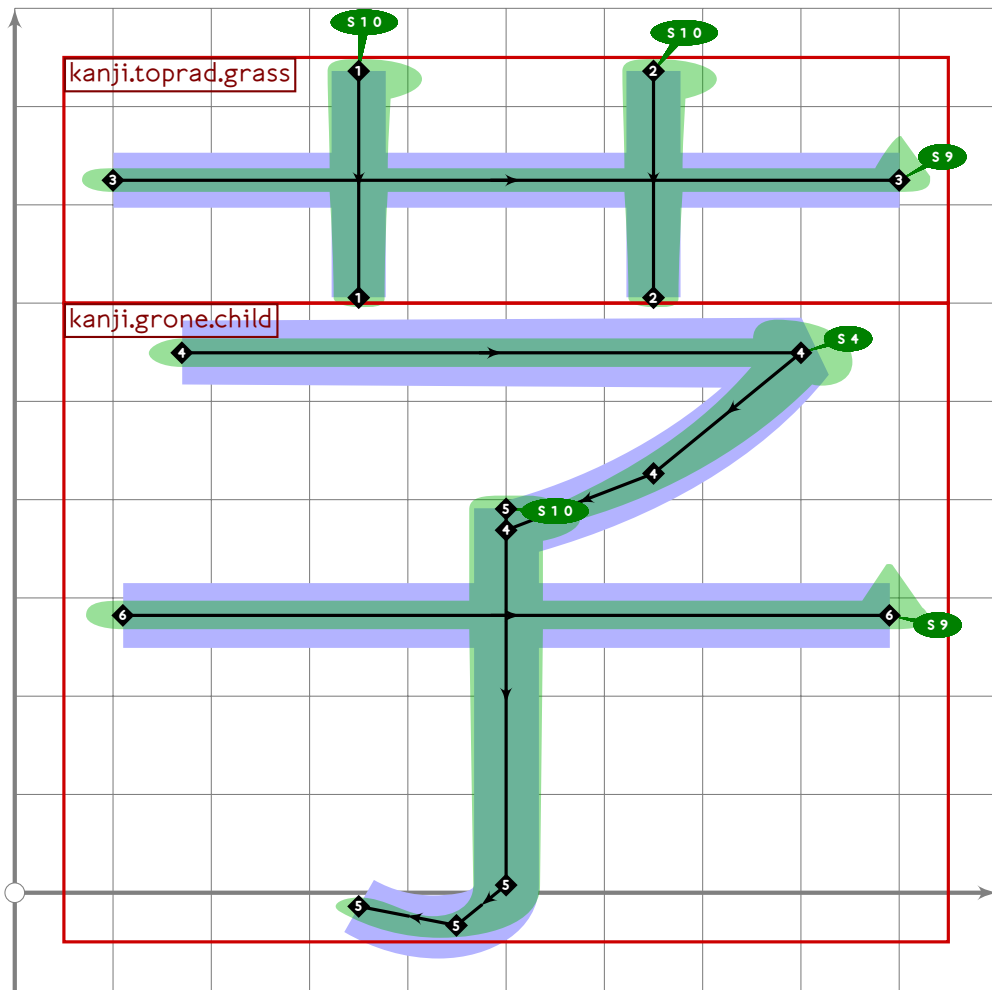


```

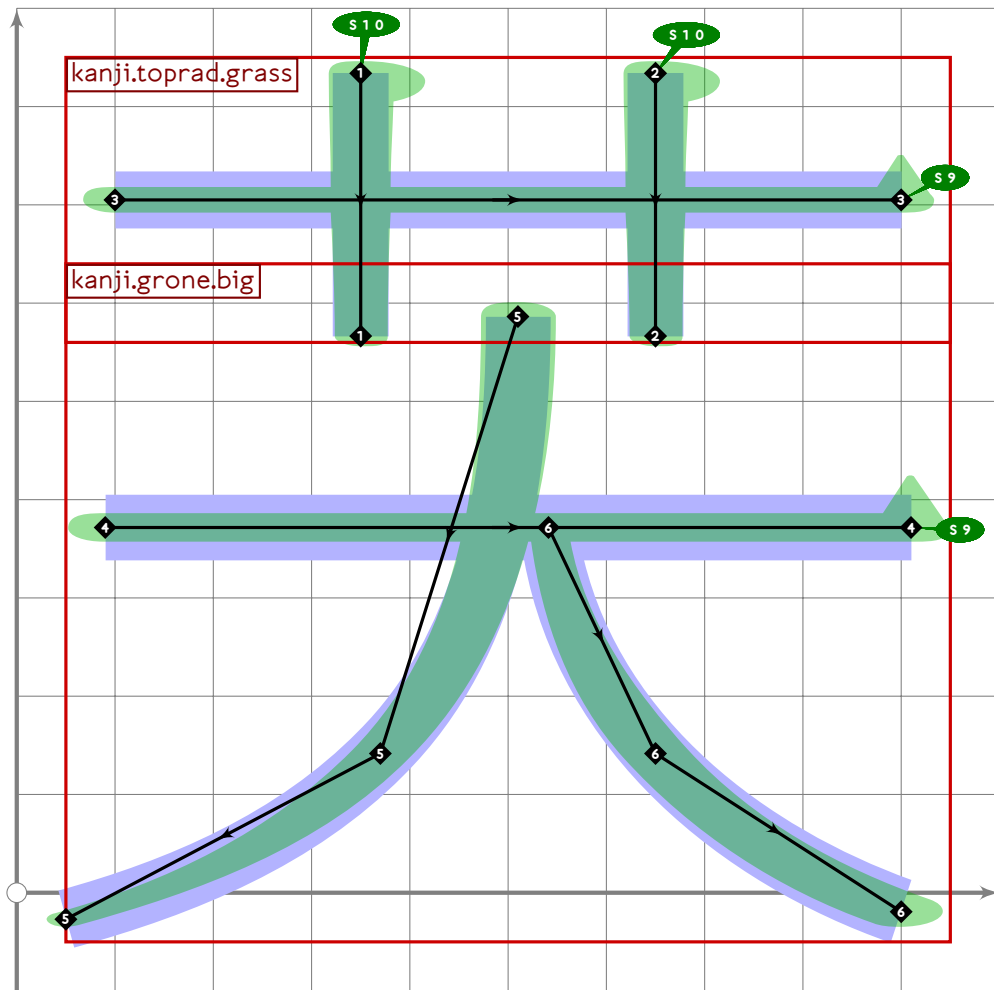
260 % extra
261 begint Suglyph("uni828A",138);
262 build_kanji.tb(600,0)
263   (kanji.toprad.grass)
264   (kanji.grone.one_thousand);
265   tsu_render;
266 endtsuglyph;
267

```





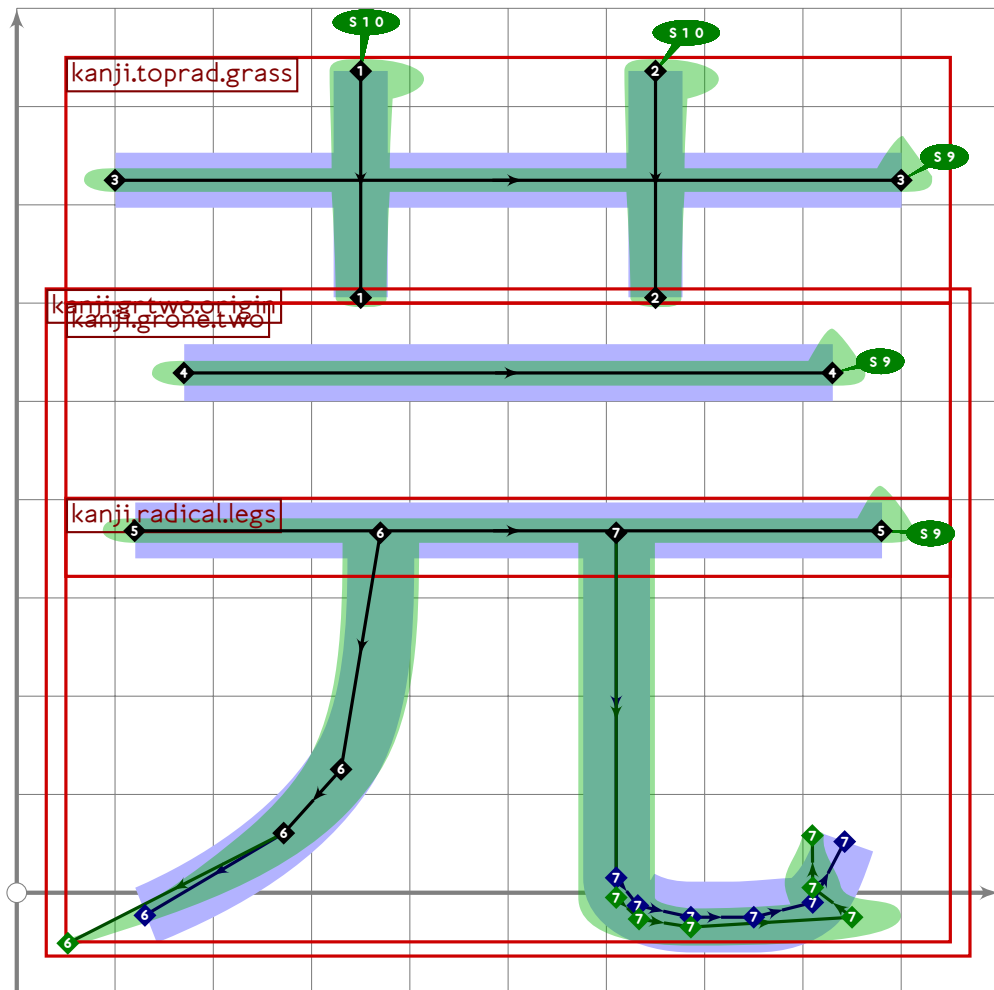
```
268 % extra
269 begint Suglyph("uni8293";147);
270 build_kanji.tb(600,0)
271 (kanji.toprad.grass)
272 (kanji.grone.child);
273 tsu_render;
274 endsuglyph;
275
```



```

276 % extra
277 begint Suglyph("uni8296",150);
278 build_kanji.tb(600,80)
279   (kanji.toprad.grass)
280   (kanji.grone.big);
281   tsu_render;
282 endsuglyph;
283

```

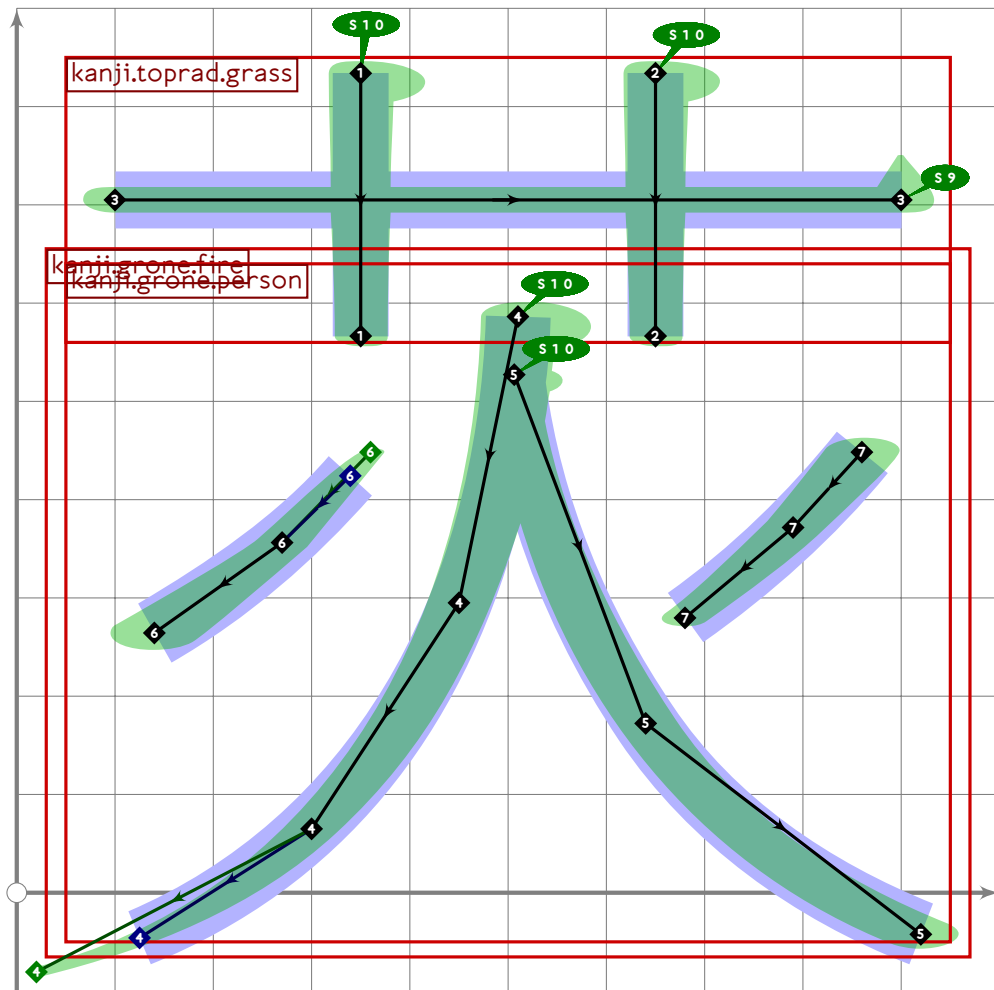


```

284 % extra
285 begintsuglyph("uni82AB",171);
286 build_kanji.tb(600,0)
287 (kanji.toprad.grass)
288 (kanji.grtwo.origin);
289 tsu_render;
290 endtsuglyph;
291
292 % hana "flower"
293 begintsuglyph("uni82B1",177);
294 kanji.grone.flower;
295 tsu_render;
296 endtsuglyph;
297

```

[see page 1802]

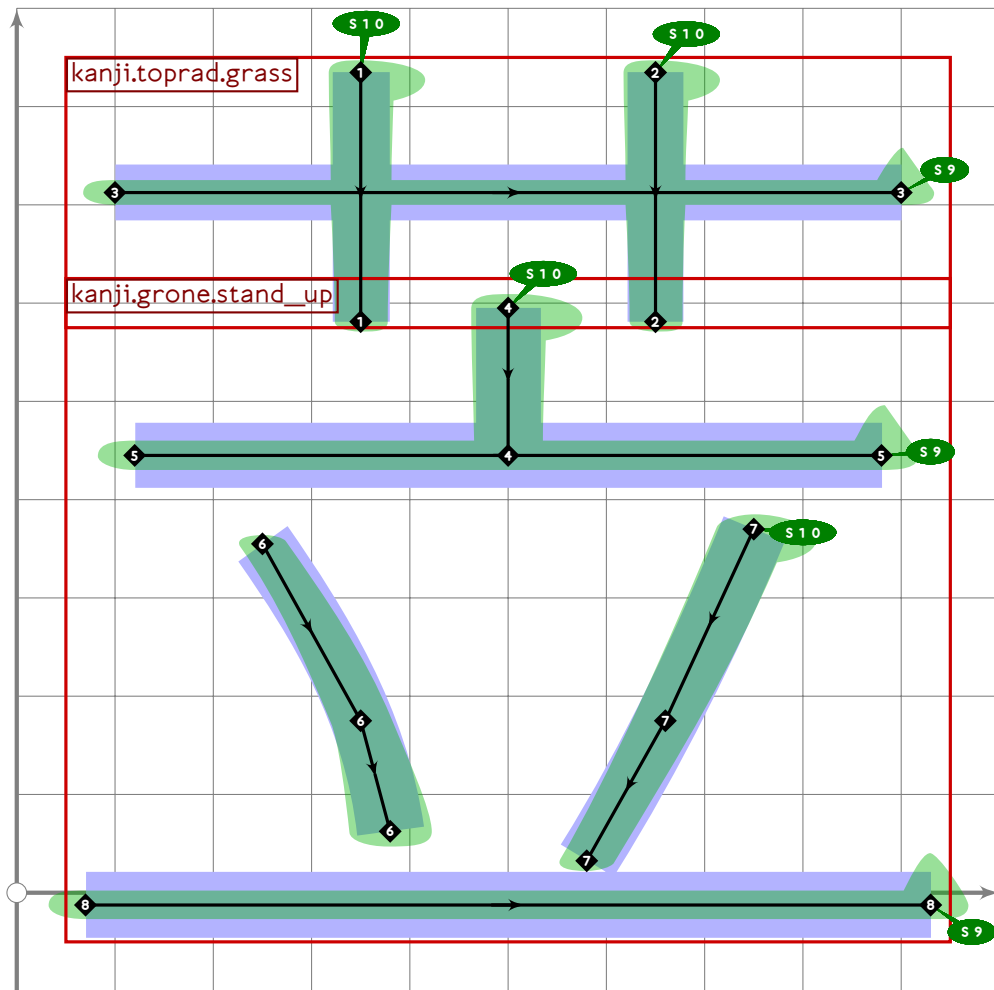


```

298 % extra
299 begint Suglyph("uni82C2",194);
300 build_kanji.tb(600,80)
301   (kanji.toprad.grass)
302   (kanji.grone.fire);
303   tsu_render;
304 endtsuglyph;
305
306 % byo/nae "rice seedling"
307 begint Suglyph("uni82D7",215);
308   kanji.greight.seedling;
309   tsu_render;
310 endtsuglyph;
311

```

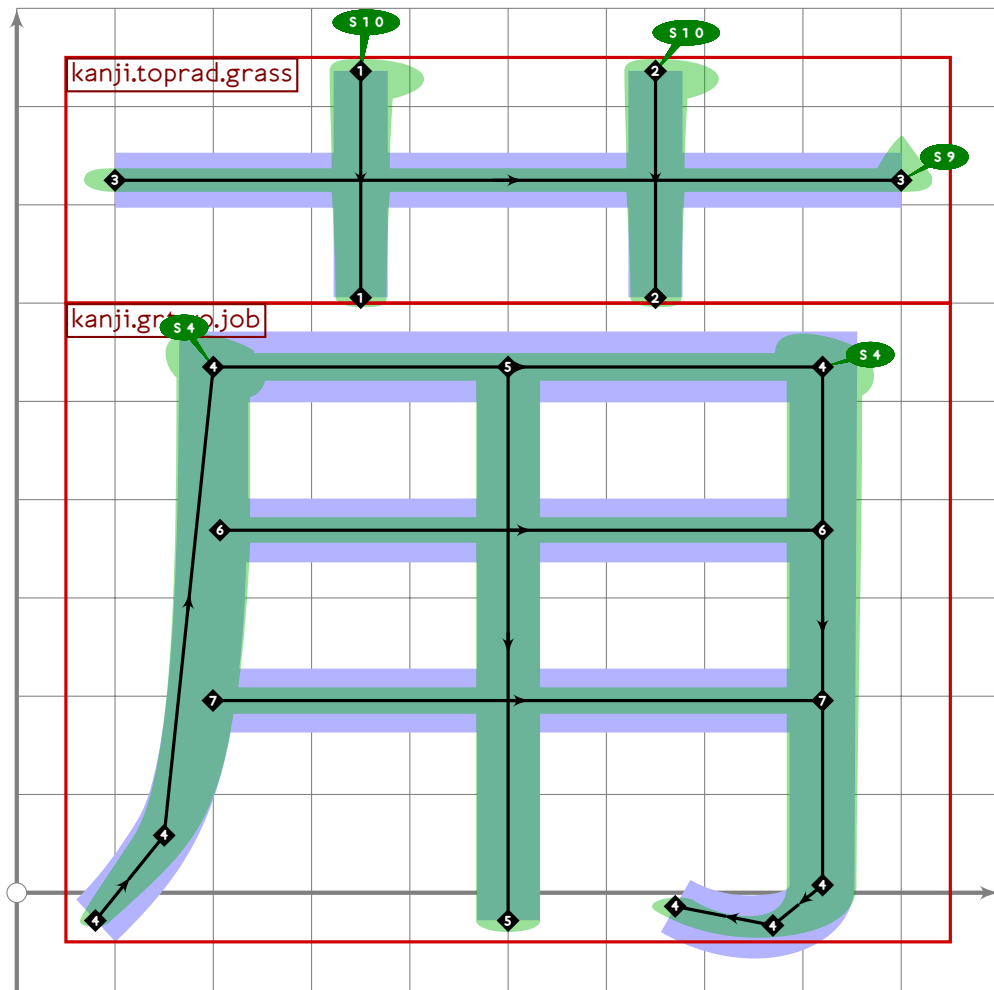
[see page 538]



```

312 % extra
313 begint Suglyph("uni82D9",217);
314 build_kanji.tb(600,50)
315   (kanji.toprad.grass)
316   (kanji.grone.stand_up);
317   tsu_render;
318 endsuglyph;
319

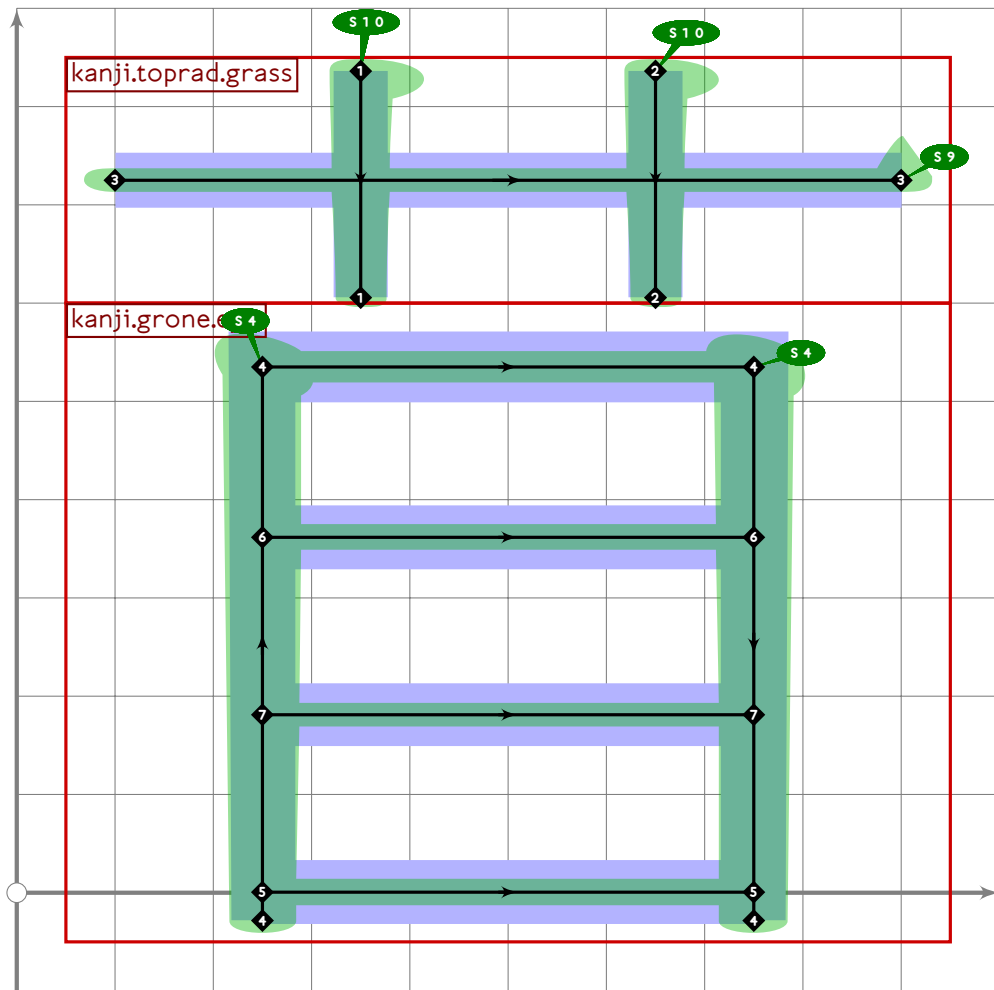
```



```

320 % extra
321 begint Suglyph("uni82DA",218);
322 build_kanji.tb(600,0)
323   (kanji.toprad.grass)
324   (kanji.grtwo.job);
325   tsu_render;
326 endsuglyph;
327

```

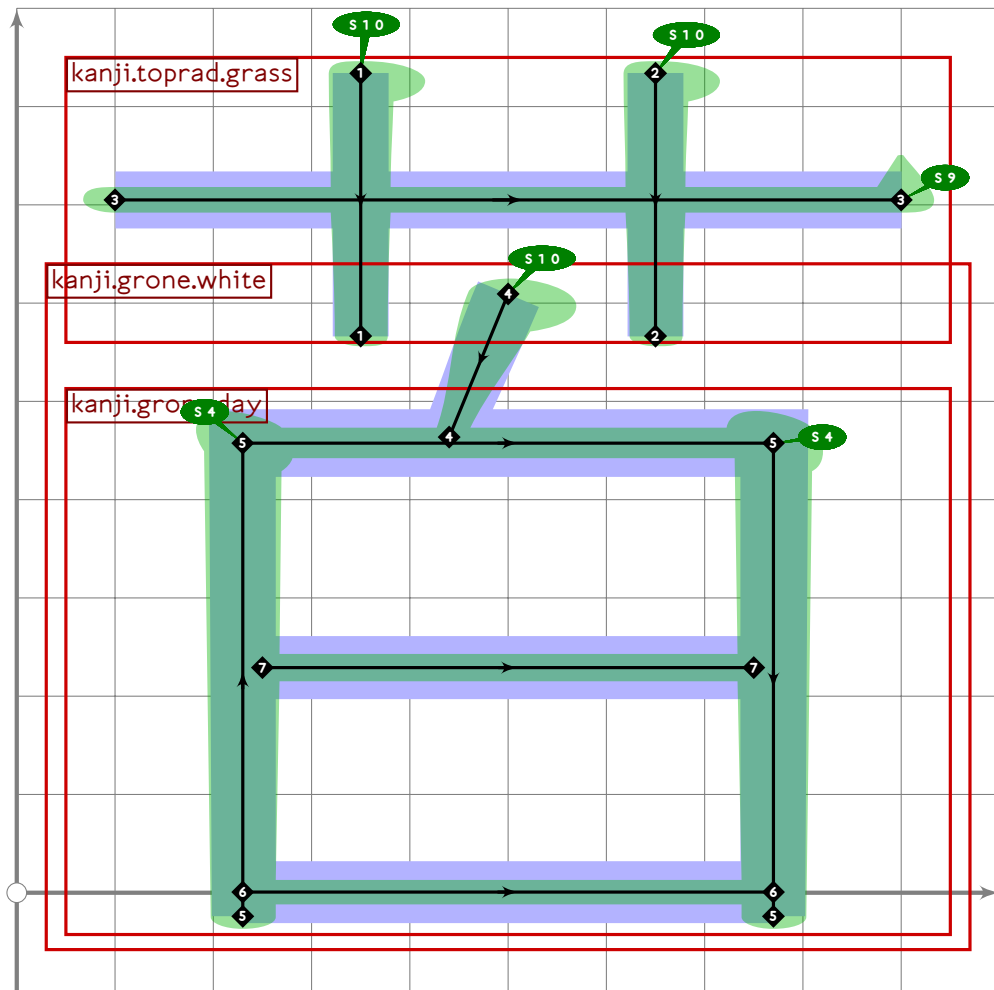


```

328 % extra
329 begintsuglyph("uni82DC",220);
330 build_kanji.tb(600,0)
331 (kanji.toprad.grass)
332 (kanji.grone.eye);
333 tsu_render;
334 endtsuglyph;
335
336 % waka "young master"
337 begintsuglyph("uni82E5",229);
338 kanji.grsix.young_master;
339 tsu_render;
340 endtsuglyph;
341

```

[see page 1806]

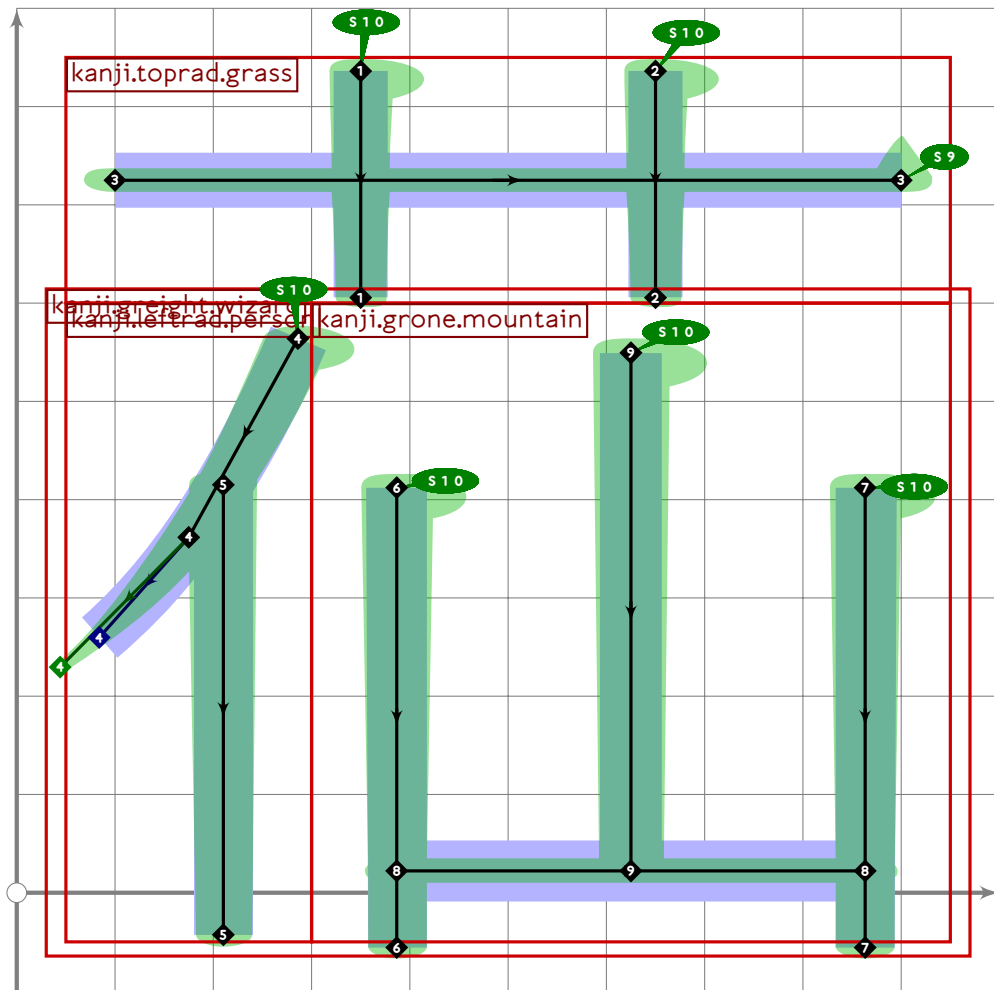


```

342 % extra
343 begint Suglyph("uni82E9",233);
344 build_kanji.tb(600,80)
345   (kanji.toprad.grass)
346   (kanji.grone.white);
347   tsu_render;
348 endtsuglyph;
349

```

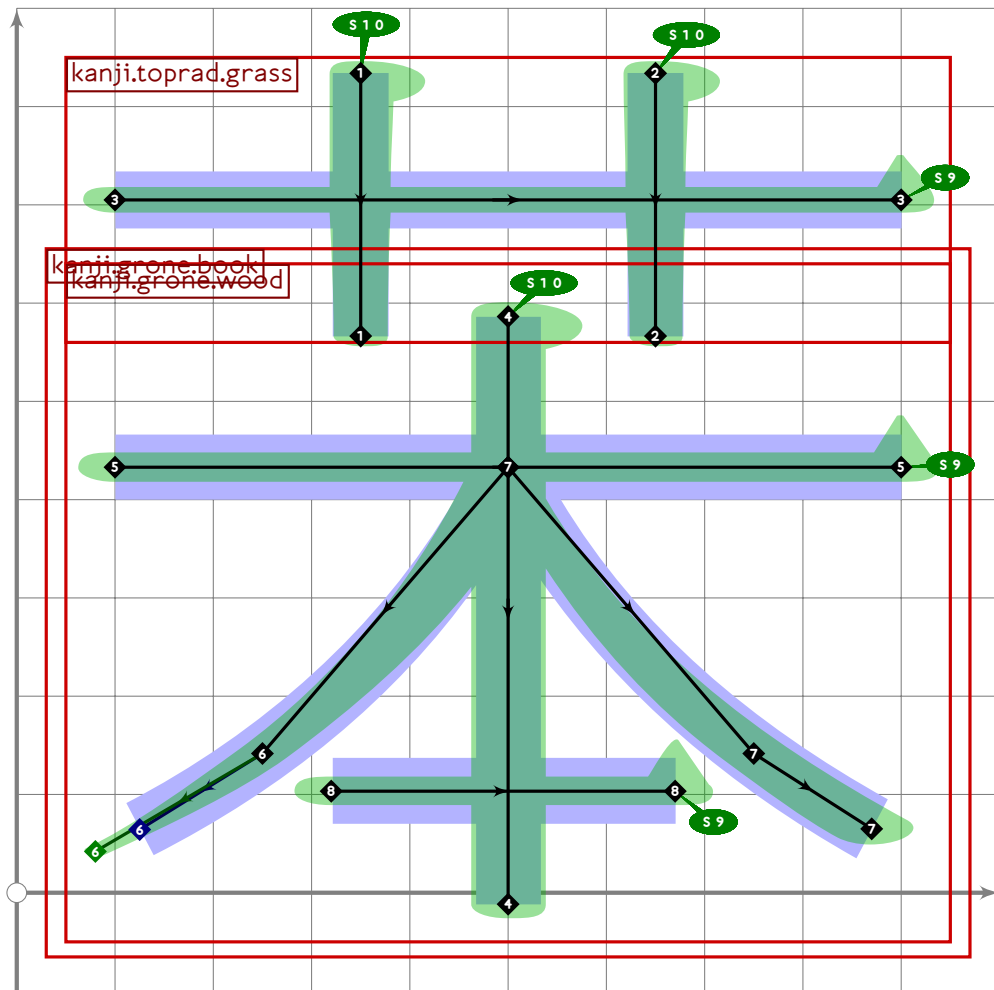




```

350 % extra
351 begint Suglyph("uni82EE",238);
352 build_kanji.tb(600,0)
353 (kanji.toprad.grass)
354 (kanji.greight.wizard);
355 tsu_render;
356 endtsuglyph;
357

```

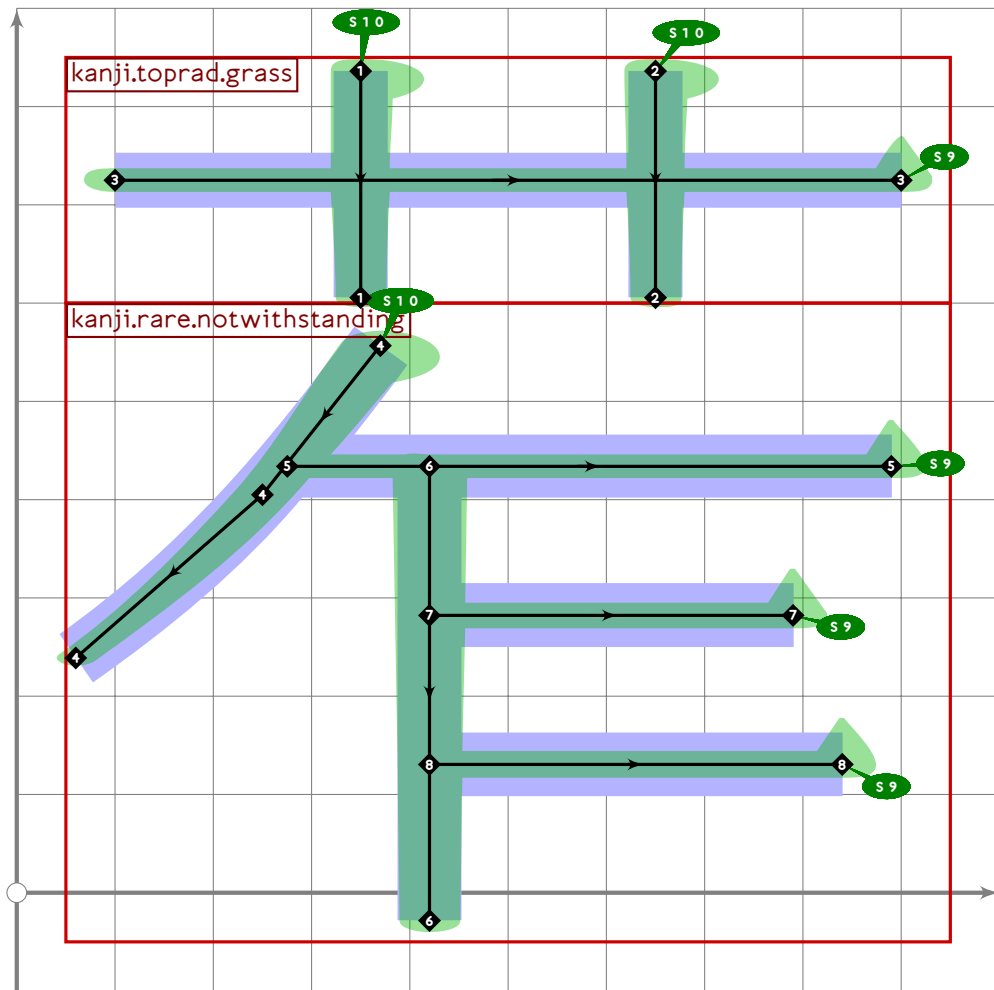


```

358 % extra
359 begintsuglyph("uni82EF",239);
360 build_kanji.tb(600,80)
361   (kanji.toprad.grass)
362   (kanji.grone.book);
363   tsu_render;
364 endsuglyph;
365
366 % ei "English"
367 begintsuglyph("uni82F1",241);
368   kanji.grfour.english;
369   tsu_render;
370 endsuglyph;
371

```

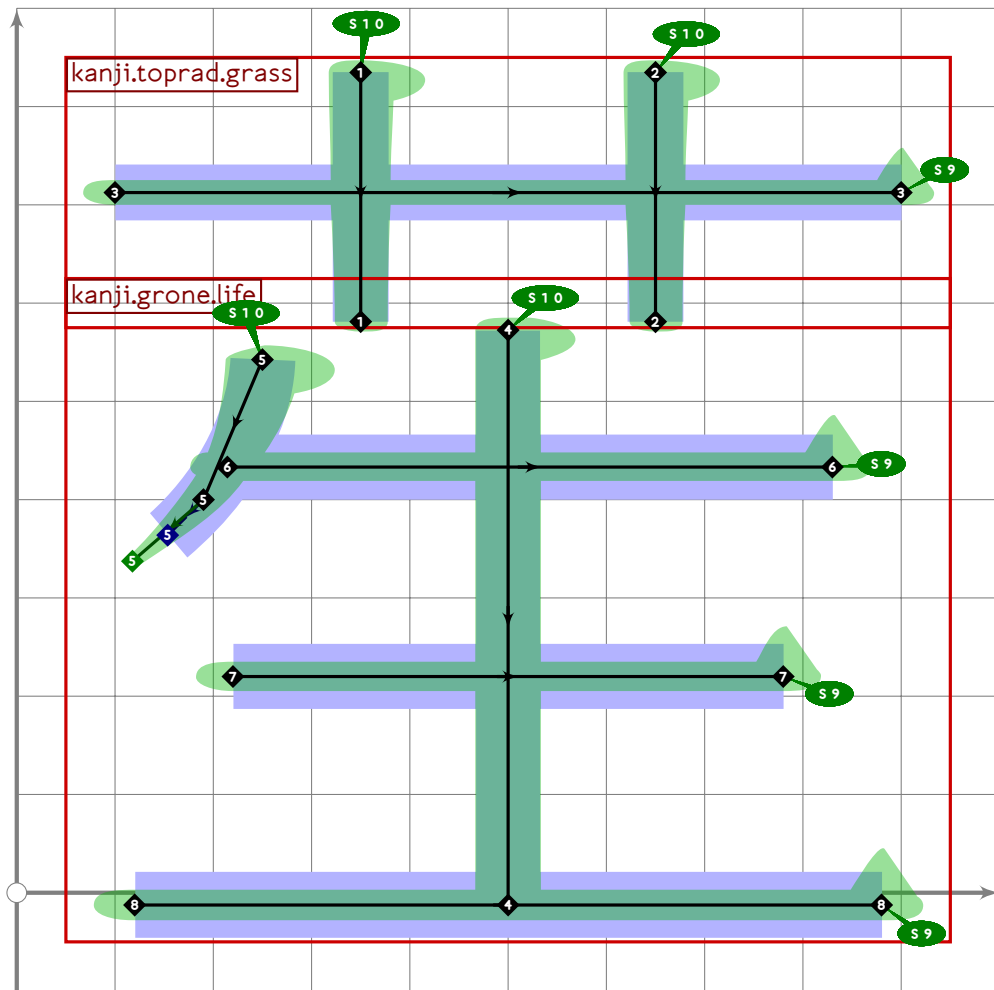
[see page 1805]



```

372 % extra
373 begint Suglyph("uni82F2",242);
374 build_kanji.tb(600,0)
375   (kanji.toprad.grass)
376   (kanji.rare.notwithstanding);
377   tsu_render;
378   endtsuglyph;
379

```



```

380 % extra
381 begint Suglyph("uni82FC",252);
382 build_kanji.tb(600,50)
383   (kanji.toprad.grass)
384   (kanji.grone.life);
385   tsu_render;
386 endtsuglyph;
387
388 _____
389
390 endfont;
391
392 _____

```

# tsuku-83.mp

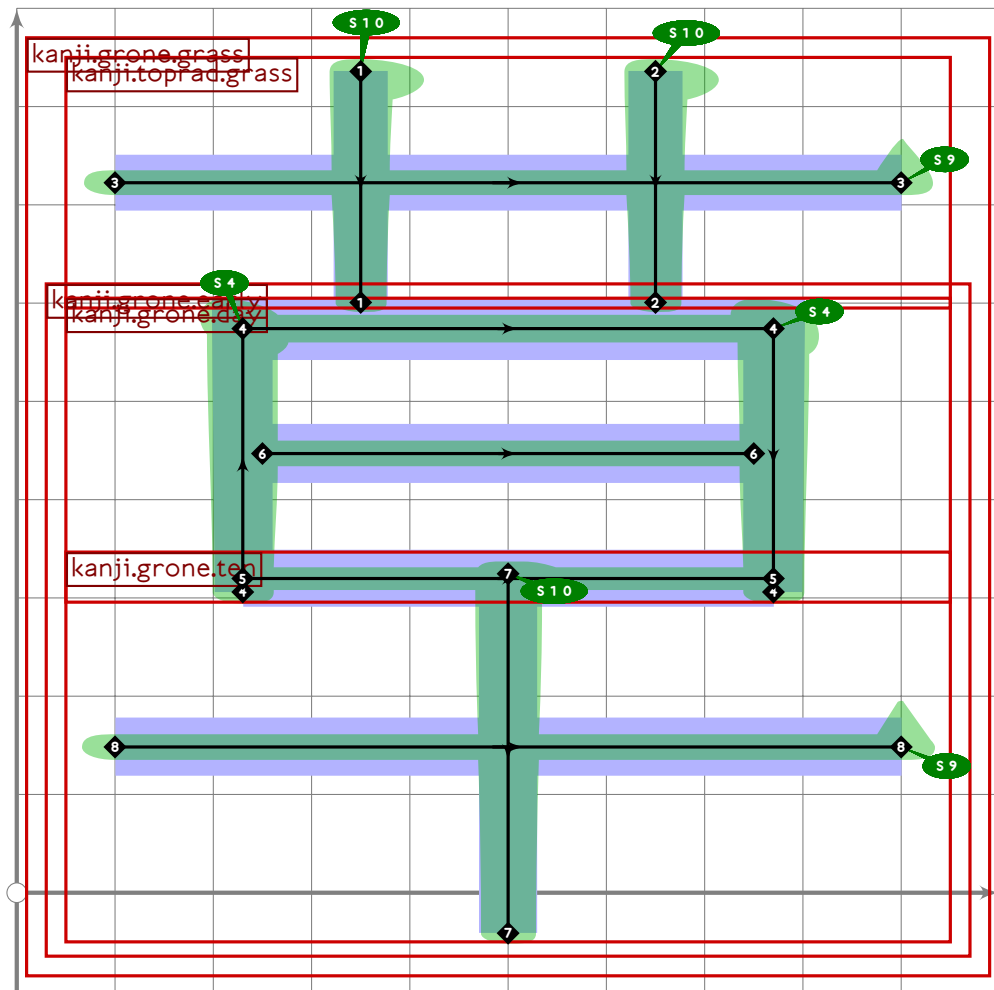
```
1 %  
2 % Unicode page 83 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 

---

  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradenine.mp;  
38 input gradeone.mp;  
39 input gradethree.mp;  
40 input gradetwo.mp;  
41 input leftrad.mp;  
42 input radical.mp;  
43 input rare.mp;  
44 input toprad.mp;  
45  
46 

---

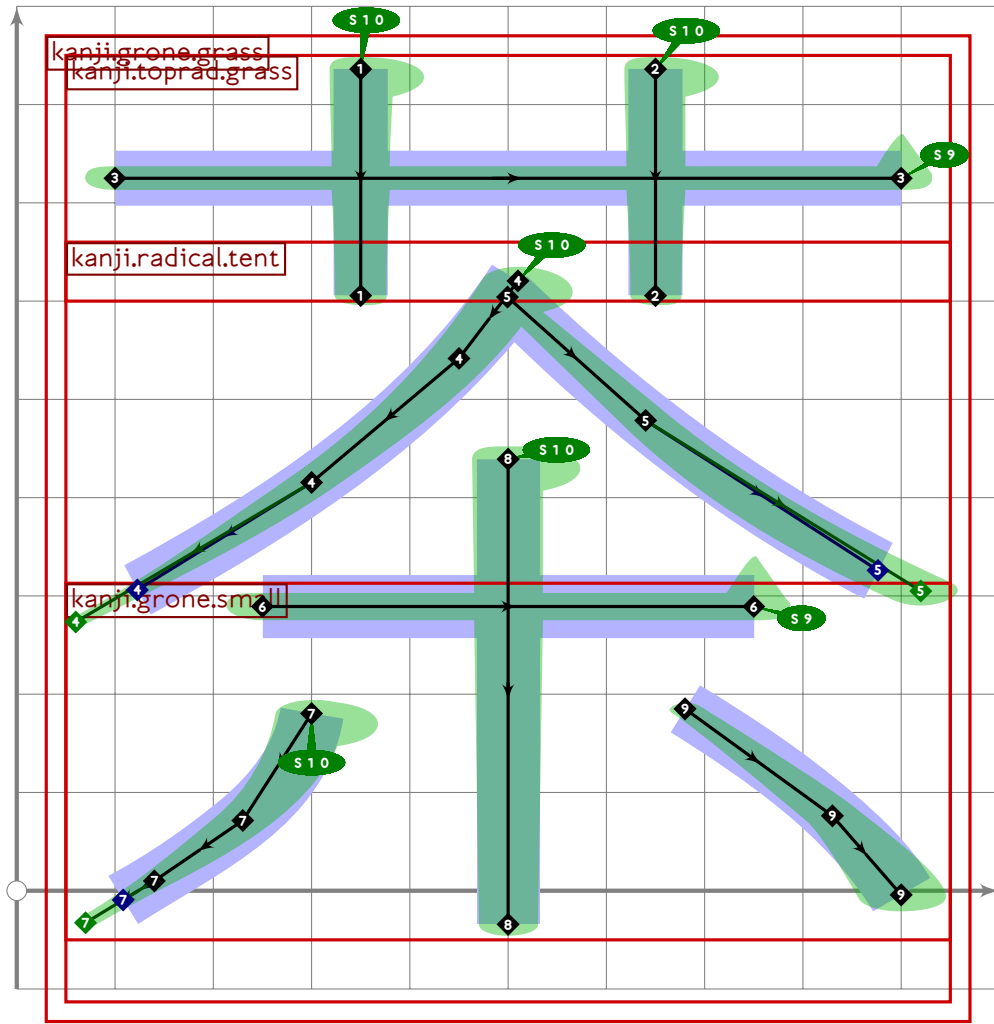

```



```

47
48 vardef kanji.grone.grass =
49   push_pbox_toexpand("kanji.grone.grass");
50   build_kanji.tb(600,10)
51     (kanji.toprad.grass)
52     (kanji.grone.early);
53   expand_pbox;
54 enddef;
55
56

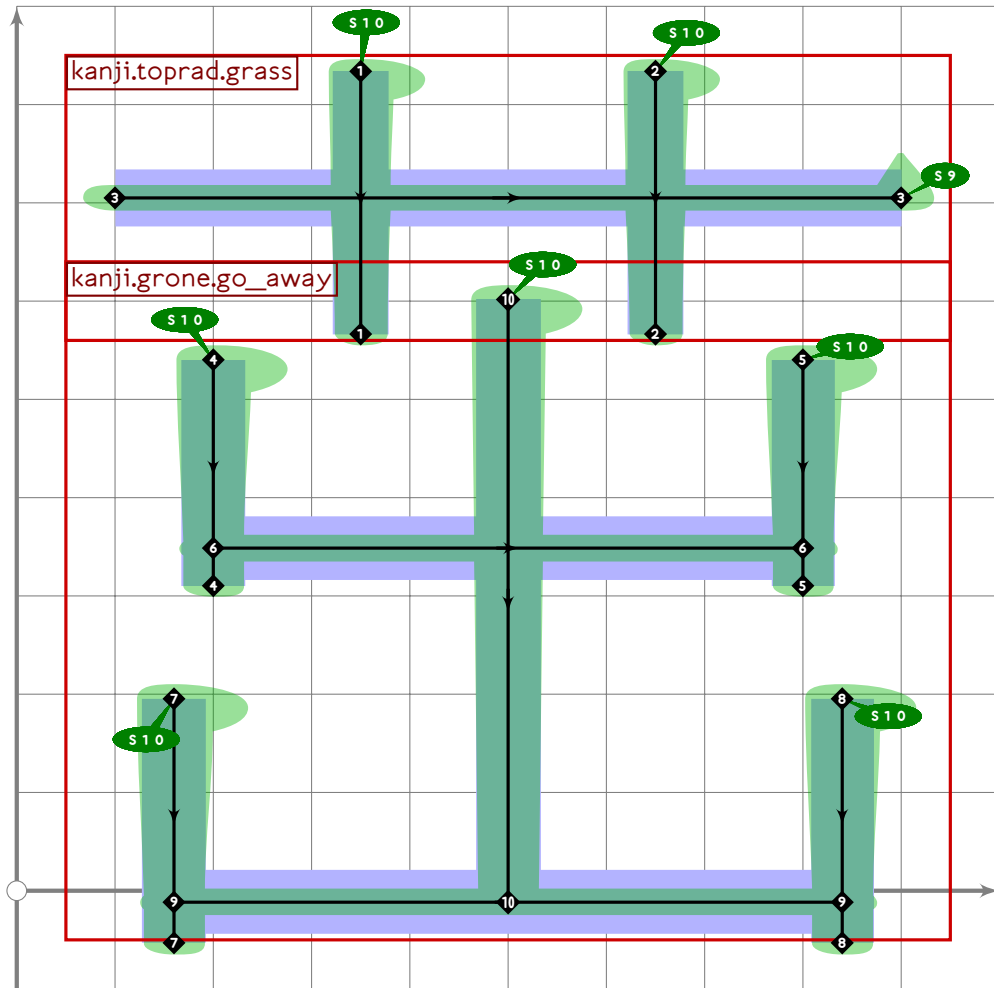
```



```

57
58 vardef kanji.grtwo.tea =
59   push_pbox_toexpand("kanji.grone.grass");
60   build_kanji.tb(630,60)
61     (kanji.toprad.grass)
62     (build_kanji.level(
63       kanji.radical.tent;
64       replace_strokep(0)((250,380)-(750,380));
65       tsu_xform(identity yscaled 0.6 shifted (0,-100))
66       (kanji.grone.small);
67       replace_strokep(-1)((500,570)-(500,-30));
68       replace_strokeq(-1)((1.6,1.6)-(1.4,1.4));
69     ));
70   expand_pbox;
71 enddef;
72
73
74

```

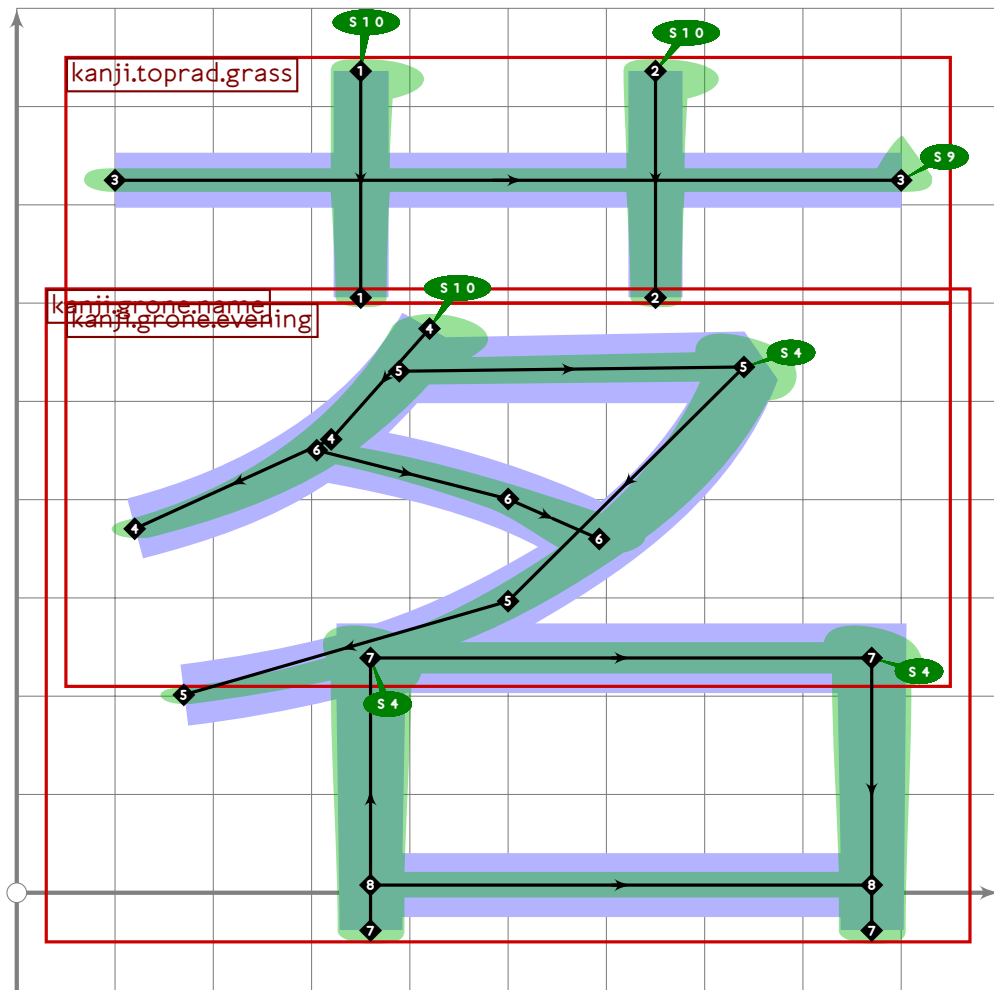


```

75 % extra
76 begint Suglyph("uni8301";1);
77 build_kanji.tb(600,80)
78   (kanji.toprad.grass)
79   (kanji.grone.go_away);
80   tsu_render;
81   endtsuglyph;
82

```

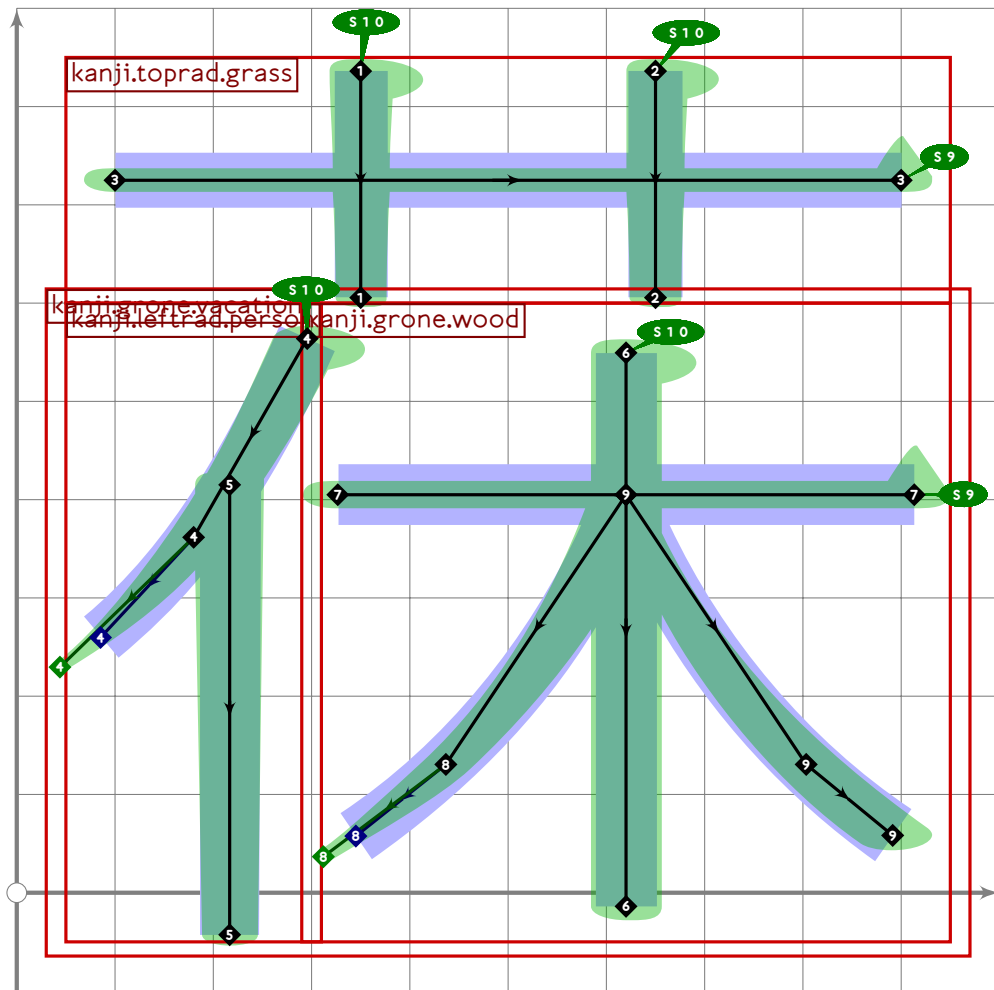




```

83 % myou/cha "tea"
84 begint Suglyph("uni8317",23);
85 build_kanji.tb(600,0)
86 (kanji.toprad.grass)
87 (kanji.grone.name);
88 tsu_render;
89 endtsuglyph;
90

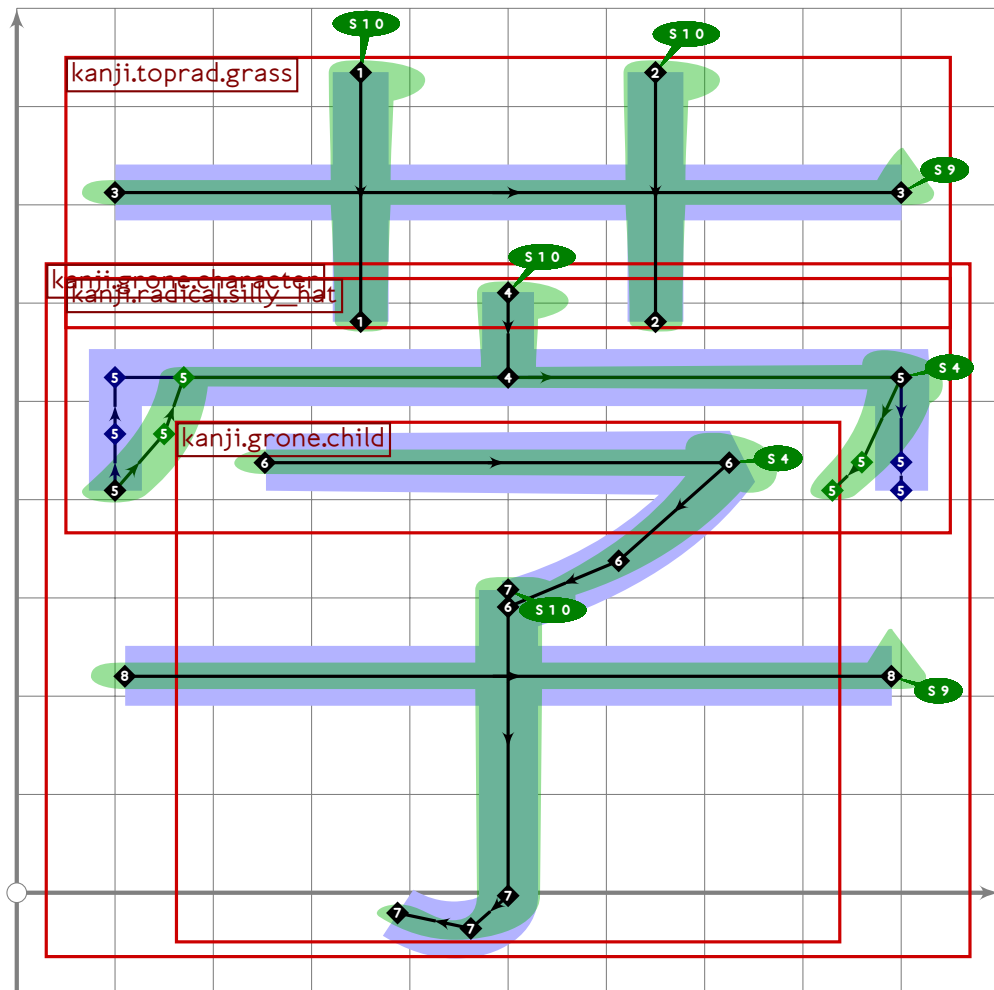
```



```

91 % extra
92 begint Suglyph("uni8320",32);
93 build_kanji.tb(600,0)
94   (kanji.toprad.grass)
95   (kanji.grone.vacation);
96   tsu_render;
97   endtsuglyph;
98

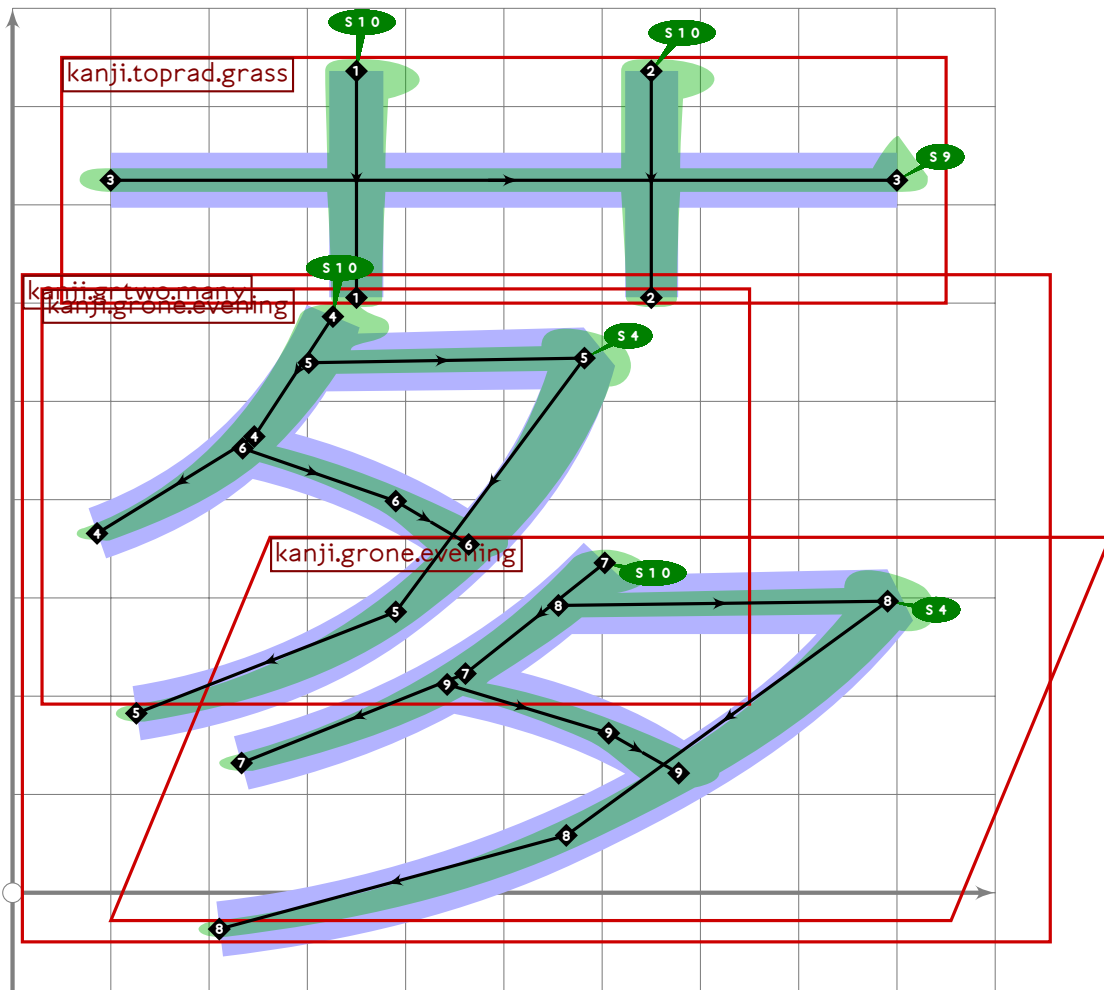
```



```

99 % extra
100 begint Suglyph("uni8321";33);
101 build_kanji.tb(600,50)
102   (kanji.toprad.grass)
103   (kanji.grone.character);
104   tsu_render;
105 endsuglyph;
106

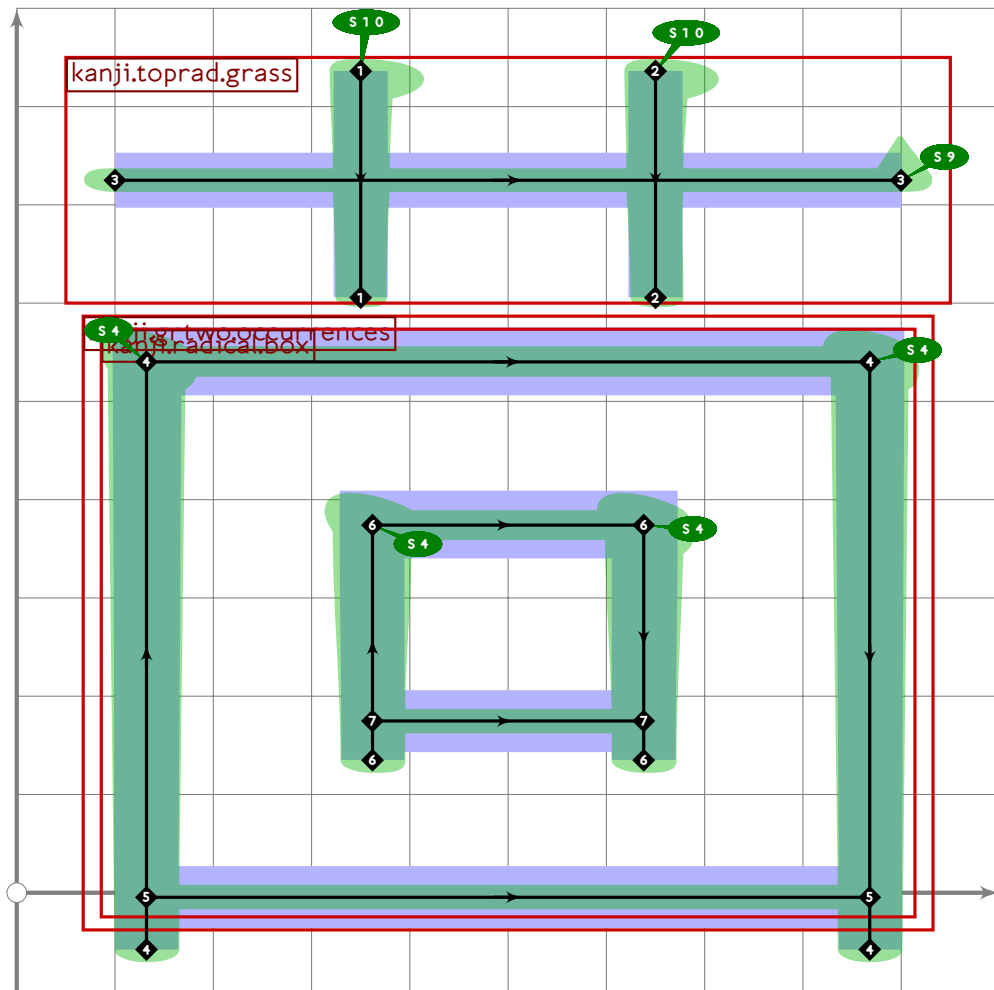
```



```

107 % extra
108 begintsuglyph("uni8324",36);
109 build_kanji.tb(600,0)
110   (kanji.toprad.grass)
111   (kanji.grtwo.many);
112   tsu_render;
113 endtsuglyph;
114

```

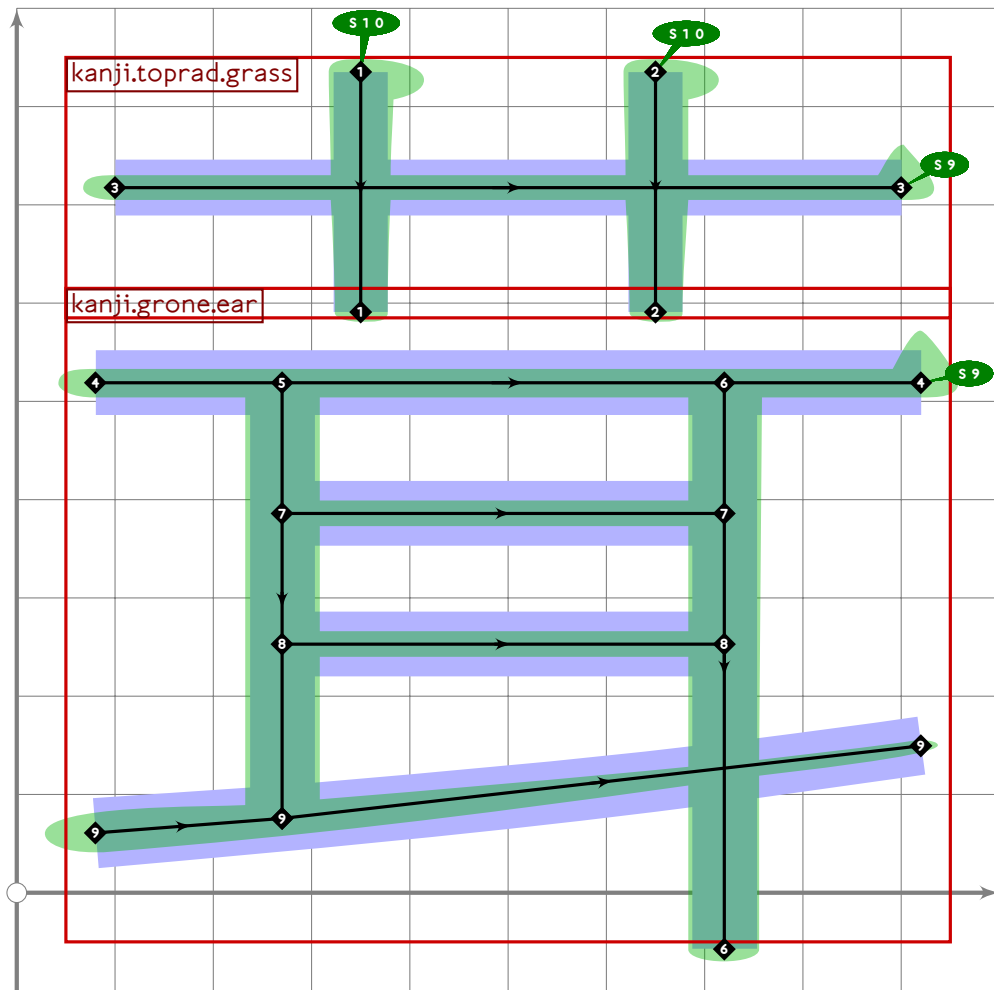


```

115 % extra
116 begint Suglyph("uni8334",52);
117 build_kanji.tb(600,0)
118 (kanji.toprad.grass)
119 (build_kanji.sscale(scaled 0.92)(kanji.grtwo.occurrences));
120 tsu_render;
121 endsuglyph;
122
123 % cha/sa "tea"
124 begint Suglyph("uni8336",54);
125 kanji.grtwo.tea;
126 tsu_render;
127 endsuglyph;
128

```

[see page 1835]



```

129 % extra
130 begint Suglyph("uni8338",56);
131 build_kanji.tb(600,30)
132 (kanji.toprad.grass)
133 (kanji.grone.ear);
134 tsu_render;
135 endtsuglyph;

```

```

136
137 % sou/kusa "grass"
138 begint Suglyph("uni8349",73);
139 kanji.grone.grass;
140 tsu_render;
141 endtsuglyph;

```

[see page 1834]

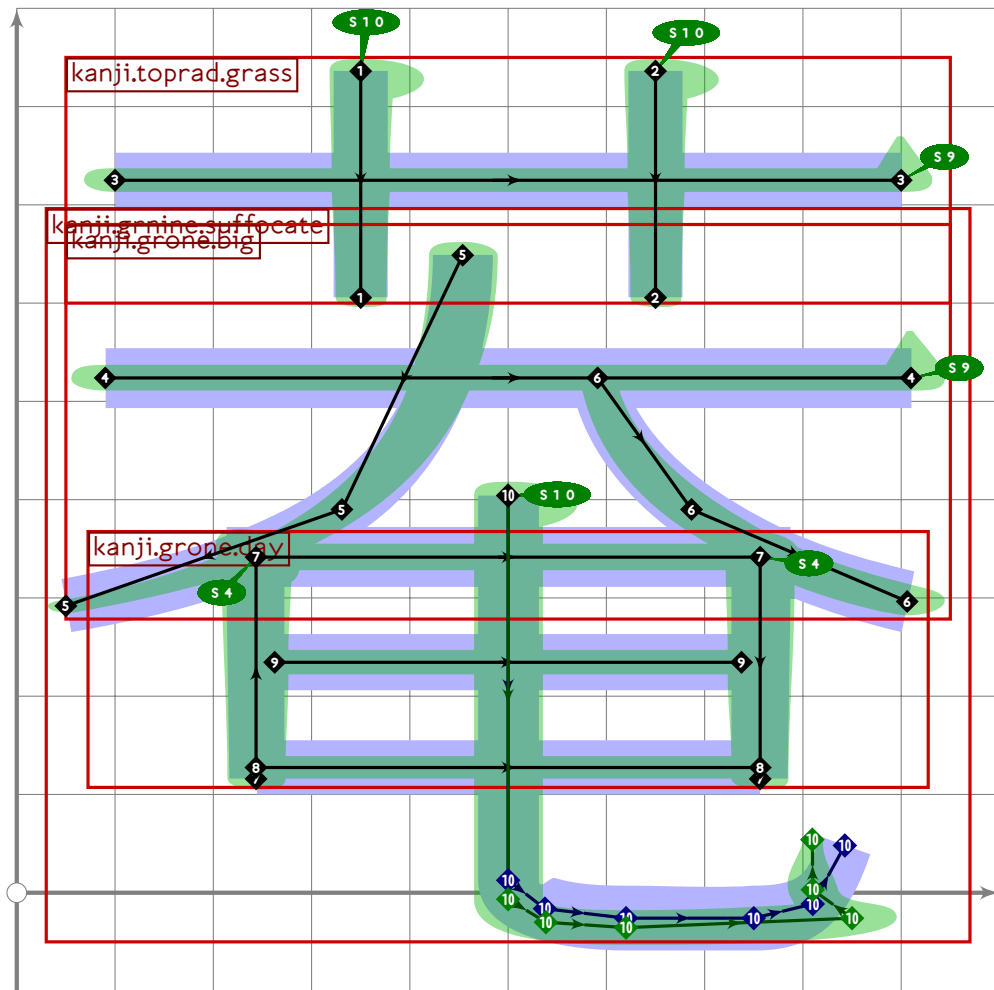
```

142
143 % hoku/wazurawashii "no meaning given, but needed to build 'boku'"
144 begint Suglyph("uni83D0",208);
145 kanji.rare.eight_three_dee_zero;
146 tsu_render;
147 endtsuglyph;

```

[see page 562]

148



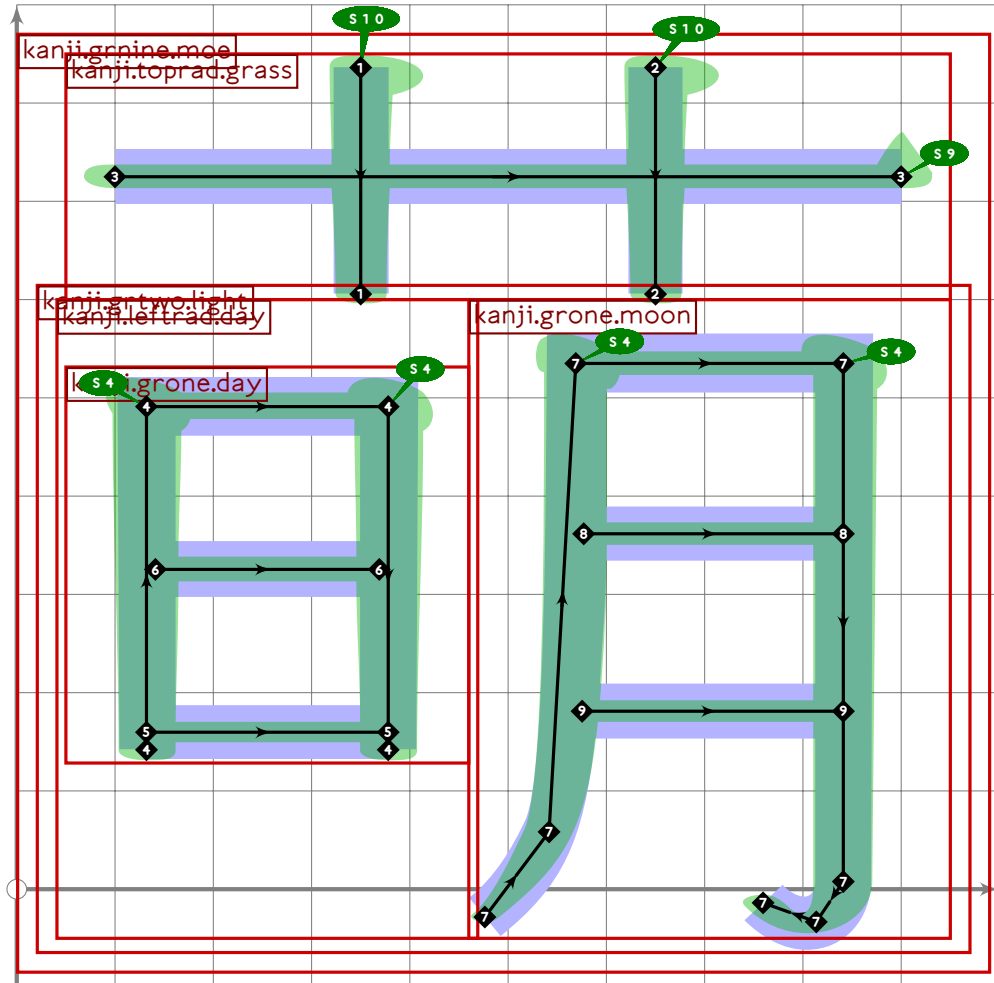
```

149 % extra an/iori "hermitage"
150 beginstuglyph("uni83F4",244);
151 build_kanji.tb(640,80)
152   (kanji.toprad.grass)
153   (kanji.grnine.suffocate);
154   tsu_render;
155 endstuglyph;
156
157 _____
158
159 endfont;
160
161 _____

```

# tsuku-84.mp

```
1 %  
2 % Unicode page 84 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradeone.mp;  
38 input gradetwo.mp;  
39 input leftrad.mp;  
40 input toprad.mp;  
41  
42 _____
```



43



```
44 vardef kanji.grnine.moe =
45   push_pbox_toexpand("kanji.grnine.moe");
46   build_kanji.tb(600,0)
47     (kanji.toprad.grass)
48     (kanji.grtwo.light);
49   expand_pbox;
50 enddef;
51
52 

---


53
54 % moe (untranslatable)
55 begintsuglyph("uni840C";12); [see page 1845]
56   kanji.grnine.moe;
57   tsu_render;
58 endtsuglyph;
59
60 

---

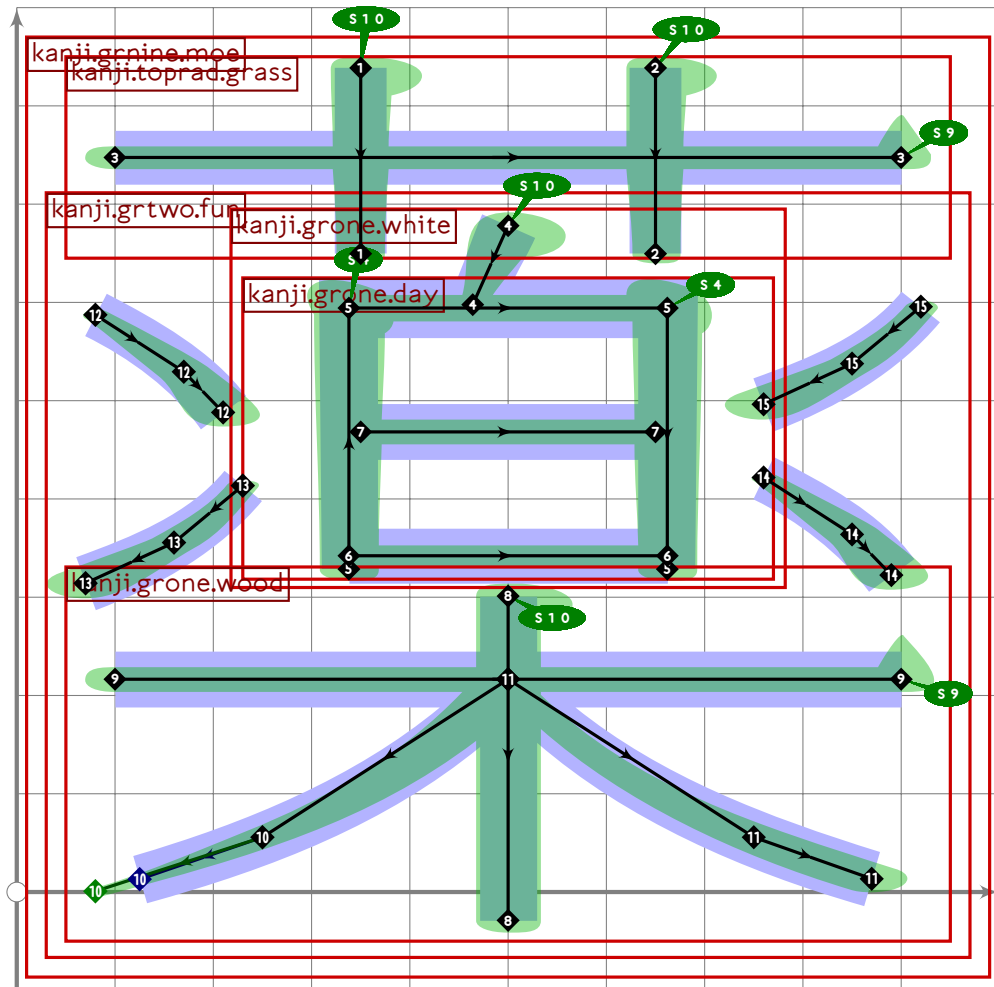

61
62 endfont;
63
64 

---


```

# tsuku-85.mp

```
1 %  
2 % Unicode page 85 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradeone.mp;  
38 input gradetwo.mp;  
39 input topfad.mp;  
40  
41 _____
```



```
42  
43 vardef kanji.grthree.medicine =
```

```
44 push_pbox_toexpand("kanji.grnine.moe");
45 build_kanji.tb(670,50)
46   (kanji.toprad.grass)
47   (kanji.grtwo.fun);
48 expand_pbox;
49 enddef;
50
51 

---


52
53 % yaku/kusuri "medicine"
54 begintsuglyph("uni85AC";172); [see page 1846]
55   kanji.grthree.medicine;
56   tsu_render;
57 endtsuglyph;
58
59 

---


60
61 endfont;
62
63 

---


```

# tsuku-86.mp

```
1 %
2 % Unicode page 86 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeone.mp;
38
39 

---


40
41 % mushi "bug"
42 begintsuglyph("uni866B";107); [see page 371]
43 kanji.grone.bug;
44 tsu_render;
45 endtsuglyph;
46
47 

---

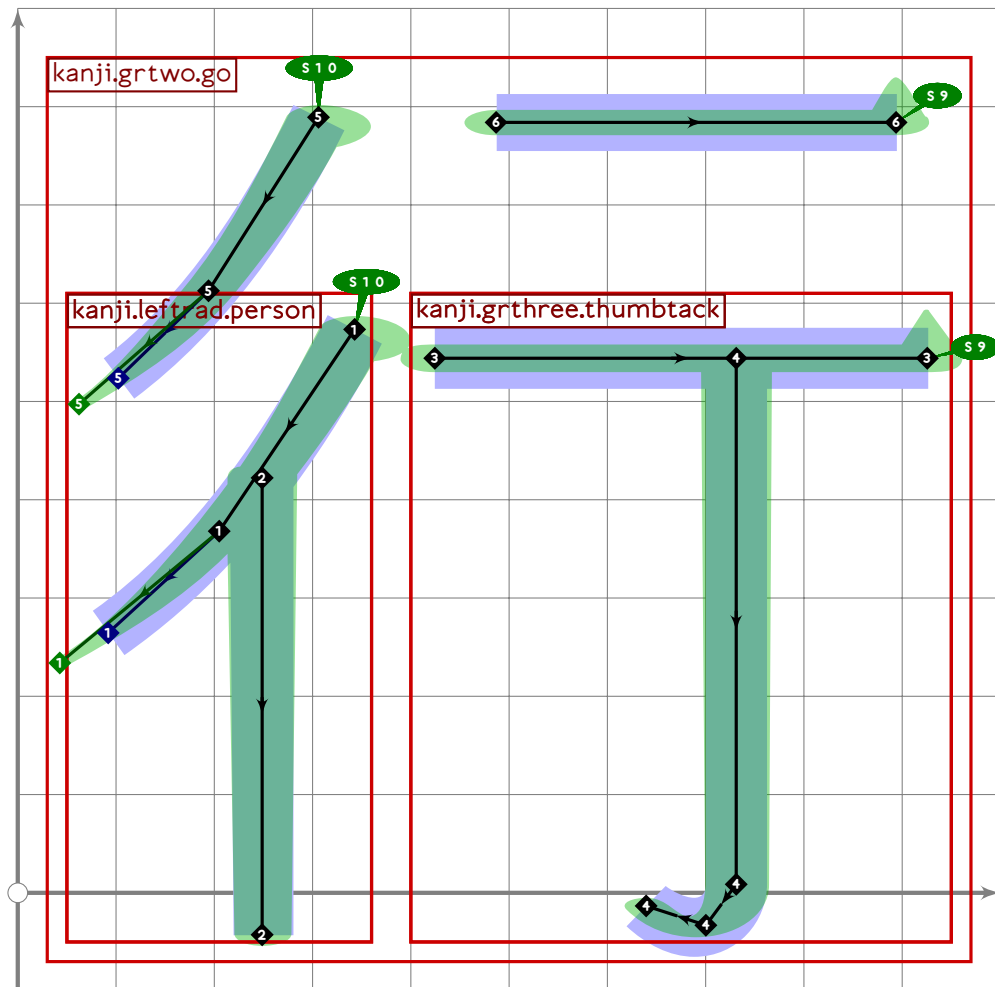

48
49 endfont;
50
51 

---


```

# tsuku-88.mp

```
1 %  
2 % Unicode page 88 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradethree.mp;  
38 input leftrad.mp;  
39  
40 _____
```



```
41  
42 vardef kanji.grtwo.go =  
43   push_pbox_toexpand("kanji.grtwo.go");
```

```
44 build_kanji.harmonic(240,0.86,50)
45   (build_kanji.level(build_kanji.lr(380,-40)
46     (kanji.leftrad.person)
47     (kanji.grthree.thumbtack)));
48 replace_strokep(-4)(oldp shifted (50,0));
49 expand_pbox;
50 enddef;
51
52 

---


53
54 % kou/i(ku) "go"
55 begint Suglyph("uni884C",76); [see page 1849]
56   kanji.grtwo.go;
57   tsu_render;
58 endtsuglyph;
59
60 

---

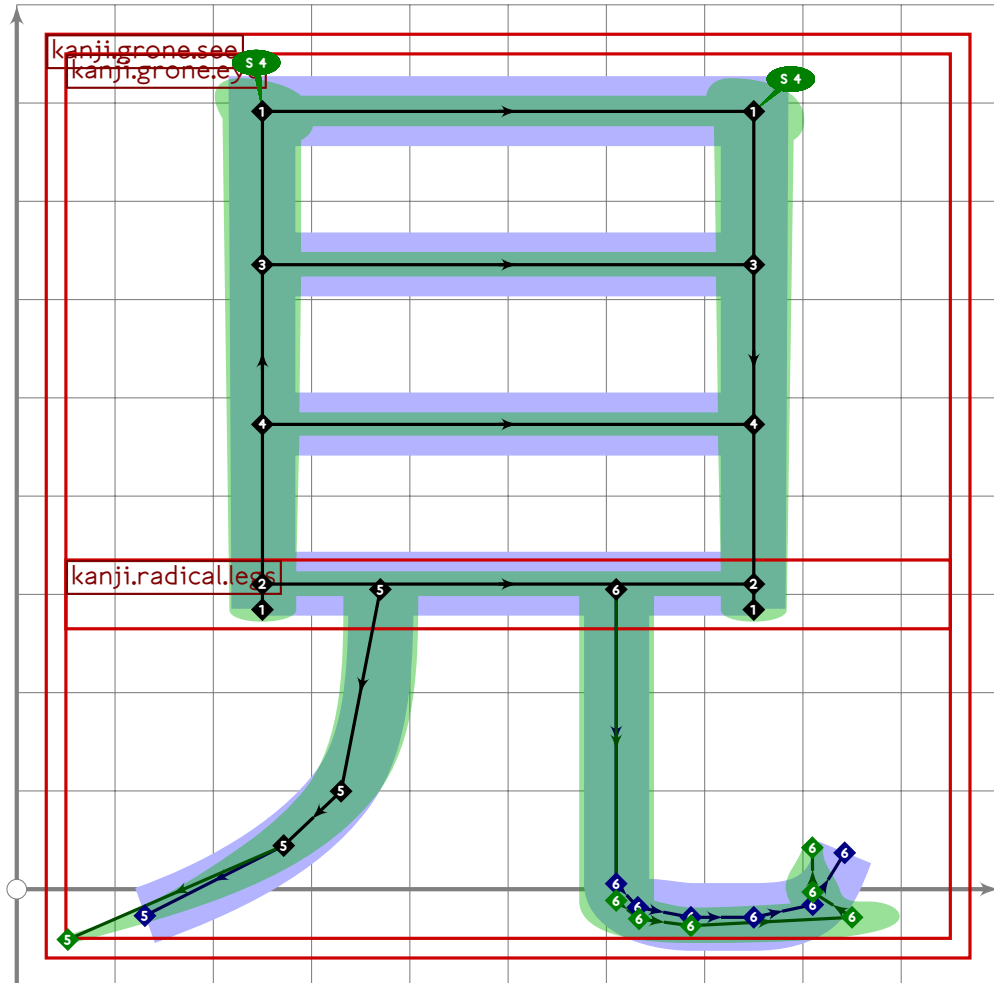

61
62 endfont;
63
64 

---


```

# tsuku-89.mp

```
1 %  
2 % Unicode page 89 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradeone.mp;  
38 input gradetwo.mp;  
39 input leftrad.mp;  
40 input radical.mp;  
41  
42 _____
```

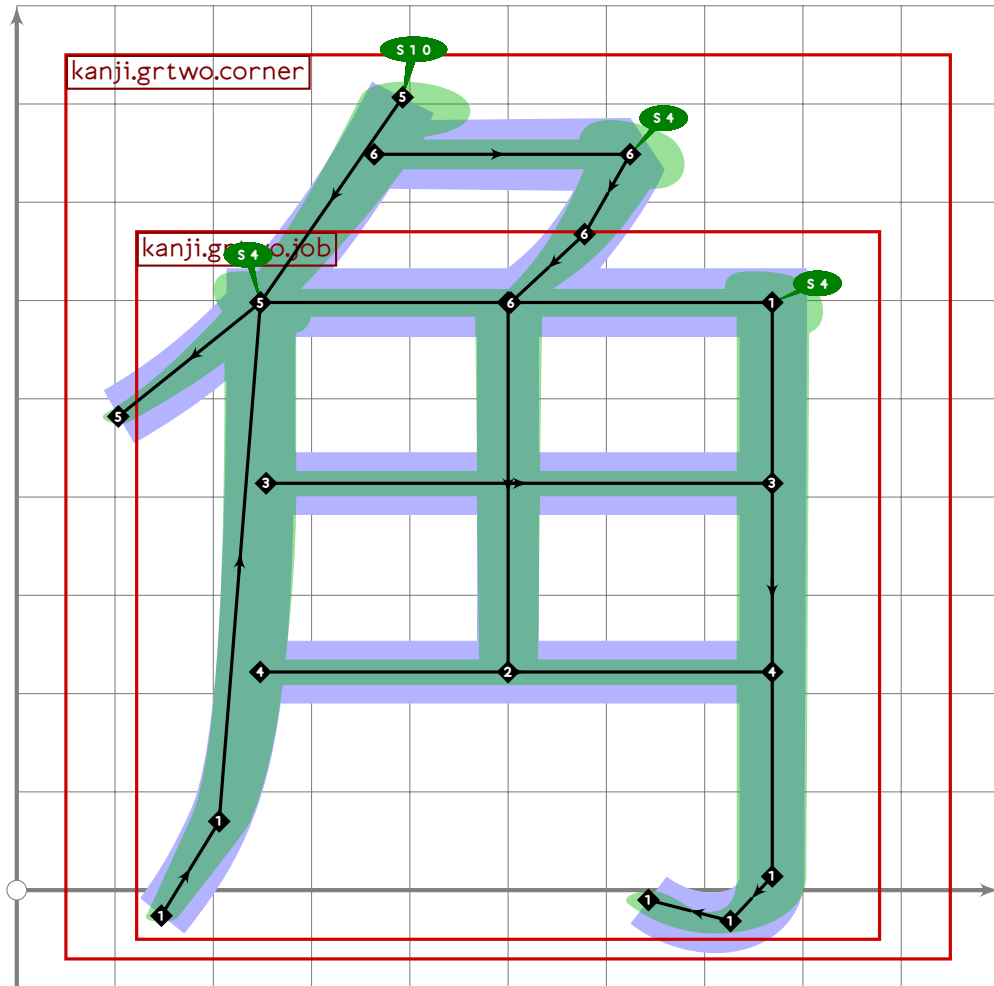


43

```

44 vardef kanji.grone.see =
45   push_pbox_toexpand("kanji.grone.see");
46   build_kanji.level(build_kanji.tb(300,70)
47     (kanji.grone.ey)
48     (kanji.radical.legs));
49   expand_pbox;
50 enddef;
51
52

```

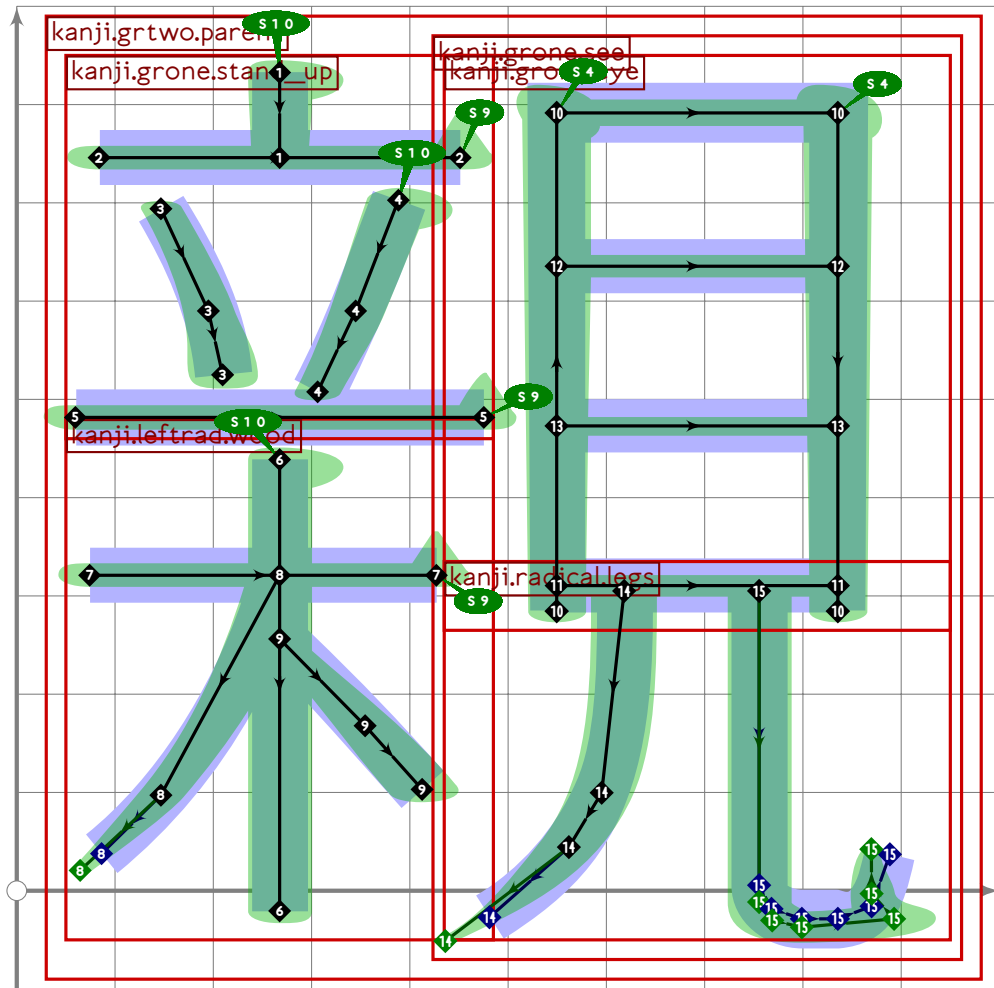


```

53
54 vardef kanji.grtwo.corner =
55   push_pbox_toexpand("kanji.grtwo.corner");
56   build_kanji.attach_fishhook(0.8)(
57     build_kanji.sscale(xscaled 0.84)(kanji.grtwo.job);
58     replace_strokep(-2)((500,760)-(500,290)));
59   expand_pbox;
60 enddef;

```

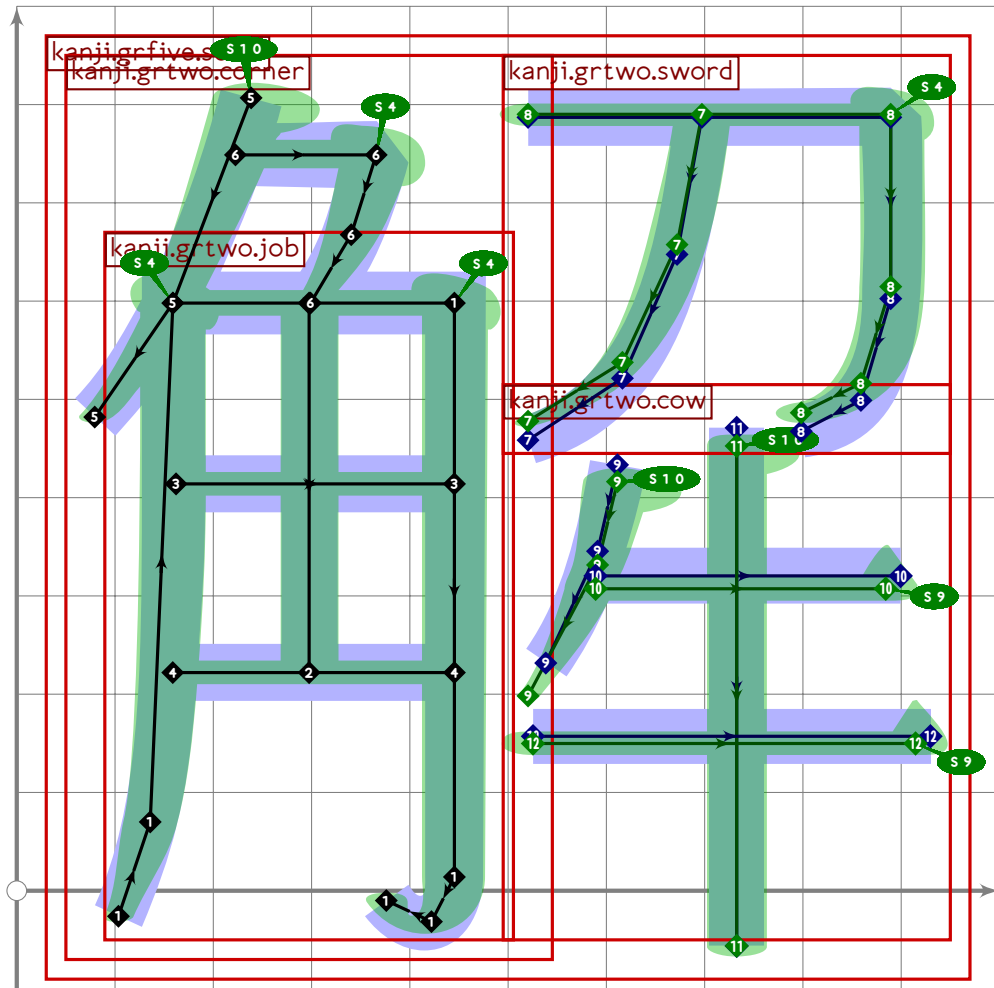




```

61
62 vardef kanji.grtwo.parent =
63   push_pbox_toexpand("kanji.grtwo.parent");
64   build_kanji.level(build_kanji.lr(460,50)
65     (build_kanji.tb(470,20)
66       (kanji.grone.stand_up)
67       (kanji.leftrad.wood))
68     (kanji.grone.see));
69   expand_pbox;
70 enddef;
71
72

```



```

73
74 vardef kanji.grfive.solve =
75   push_pbox_toexpand("kanji.grfive.solve");
76   build_kanji.lr(520,50)
77     (kanji.grtwo.corner)
78     (build_kanji.level(build_kanji.tb(480,70-40*mincho)
79       (kanji.grtwo.sword)
80       (kanji.grtwo.cow)));
81   expand_pbox;
82 enddef;
83

```

---

```

84
85
86 % sai/nishi "West" or "Spain"
87 begint Suglyph("uni897F",127);
88   kanji.grtwo.west;
89   tsu_render;
90 endtsuglyph;
91
92 % ken/mi "see"
93 begint Suglyph("uni898B",139);

```

[see page 471]

[see page 1852]

```
94 kanji.grone.see;
95 tsu_render;
96 endtsuglyph;
97
98 % shin/oya/shita "parent"
99 begintsuglyph("uni89AA",170); [see page 1853]
100 kanji.grtwo.parent;
101 tsu_render;
102 endtsuglyph;
103
104 % kaku/kado "corner"
105 begintsuglyph("uni89D2",210); [see page 1852]
106 kanji.grtwo.corner;
107 tsu_render;
108 endtsuglyph;
109
110 % kai/to "solve"
111 begintsuglyph("uni89E3",227); [see page 1854]
112 kanji.grfive.solve;
113 tsu_render;
114 endtsuglyph;
115
116 _____
117
118 endfont;
119
120 _____
```



Part VII

U+8A00 to U+9FFF



# tsuku-8a.mp

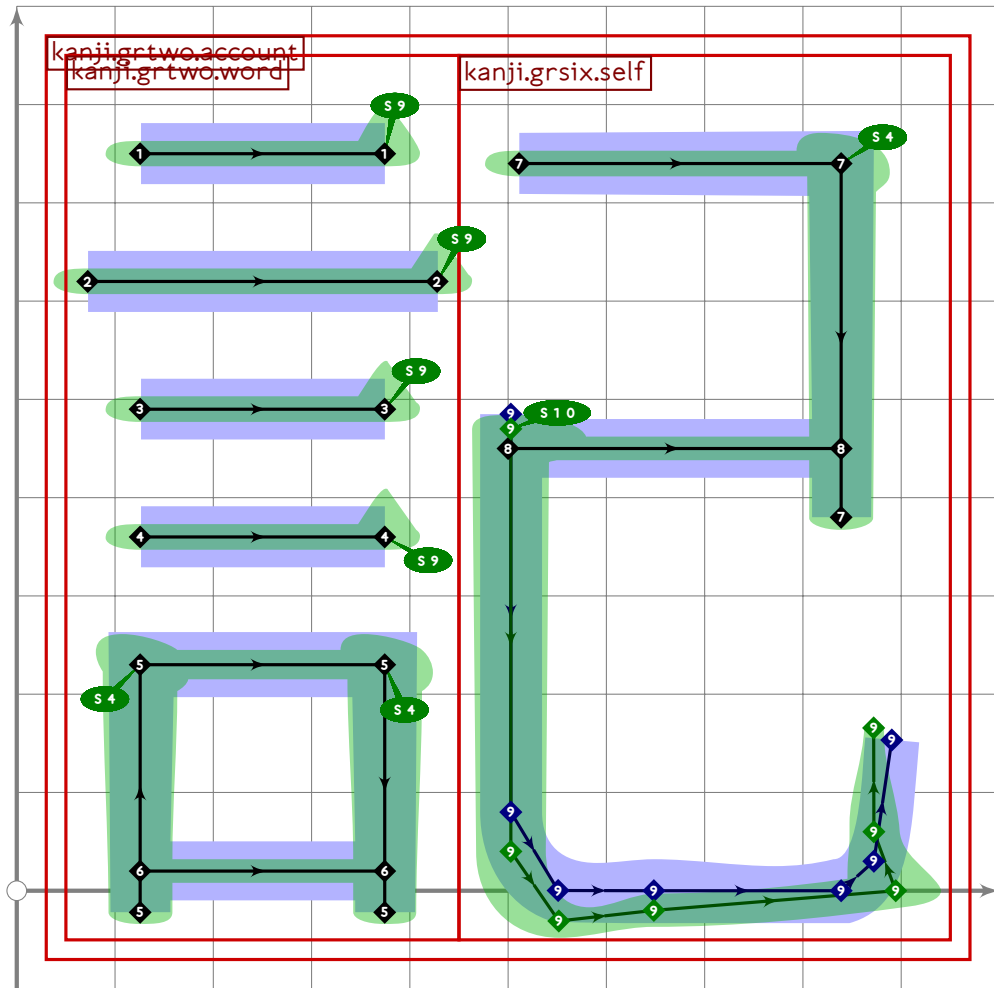
```
1 %
2 % Unicode page 8a (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradefive.mp;
39 input gradefour.mp;
40 input gradenine.mp;
41 input gradeone.mp;
42 input gradesix.mp;
43 input gradethree.mp;
44 input gradetwo.mp;
45 input leftrad.mp;
46 input radical.mp;
47 input rare.mp;
48
49 

---


```

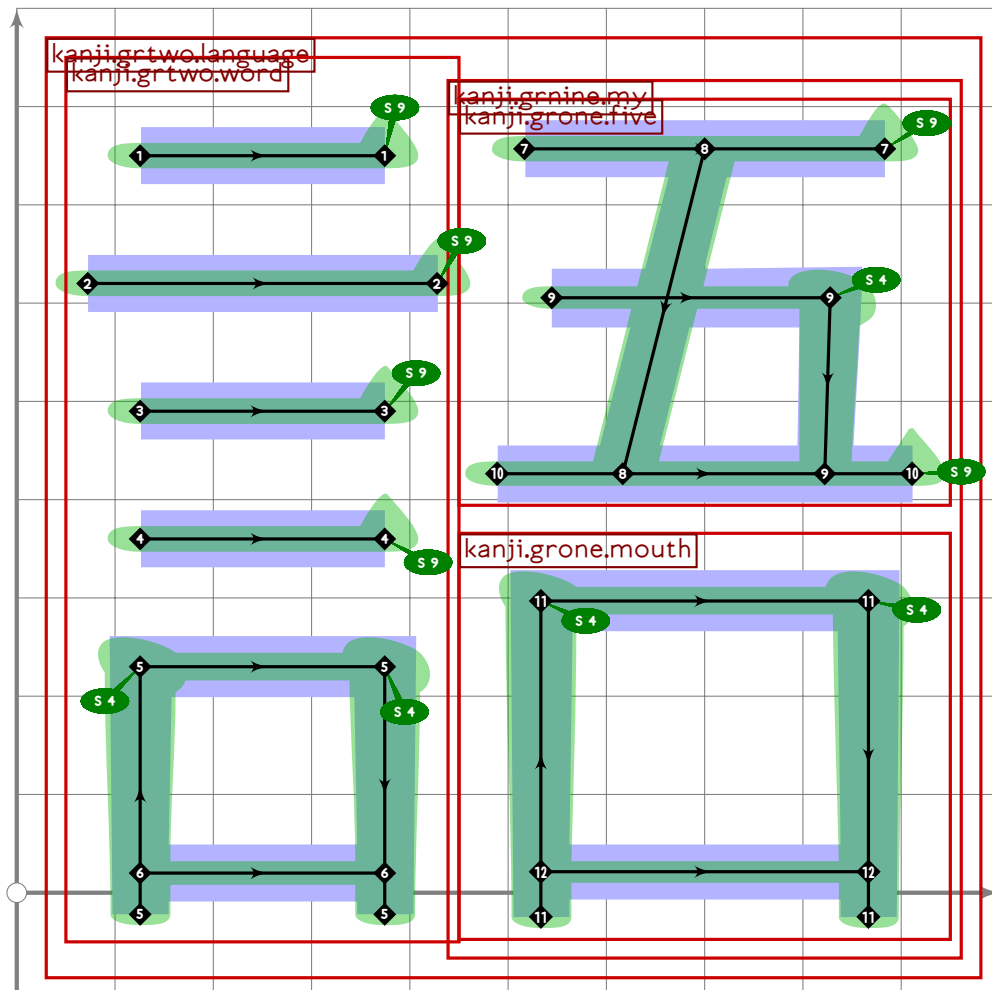


```

50
51 vardef kanji.grtwo.account =
52   push_pbox_toexpand("kanji.grtwo.account");
53   build_kanji.level(build_kanji.lr(450,0)
54     (kanji.grtwo.word)
55     (kanji.grsix.self));
56   expand_pbox;
57 enddef;

```

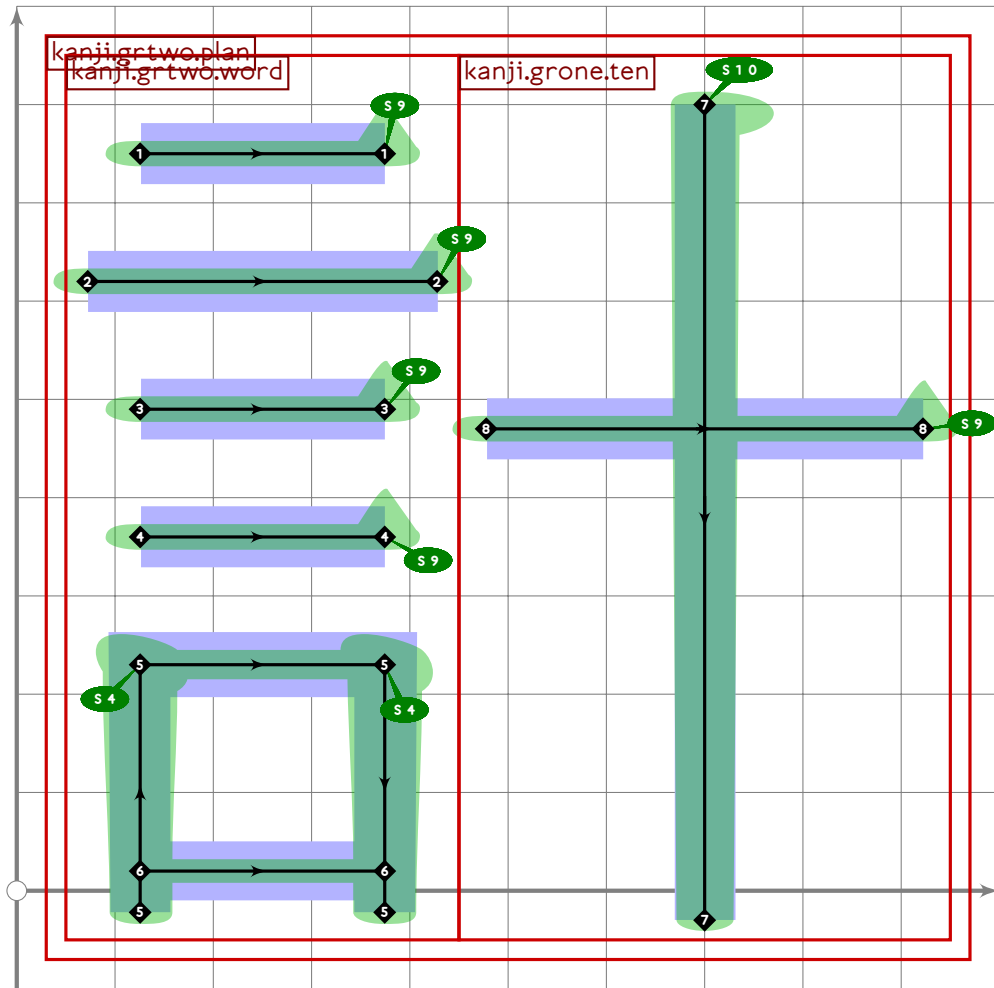




```

58
59 vardef kanji.grtwo.language =
60   push_pbox_toexpand("kanji.grtwo.language");
61   build_kanji.level(build_kanji.lr(450,0)
62     (kanji.grtwo.word)
63     (tsu_xform(identity yscaled 0.95)
64       (kanji.grnine.my)));
65   expand_pbox;
66 enddef;

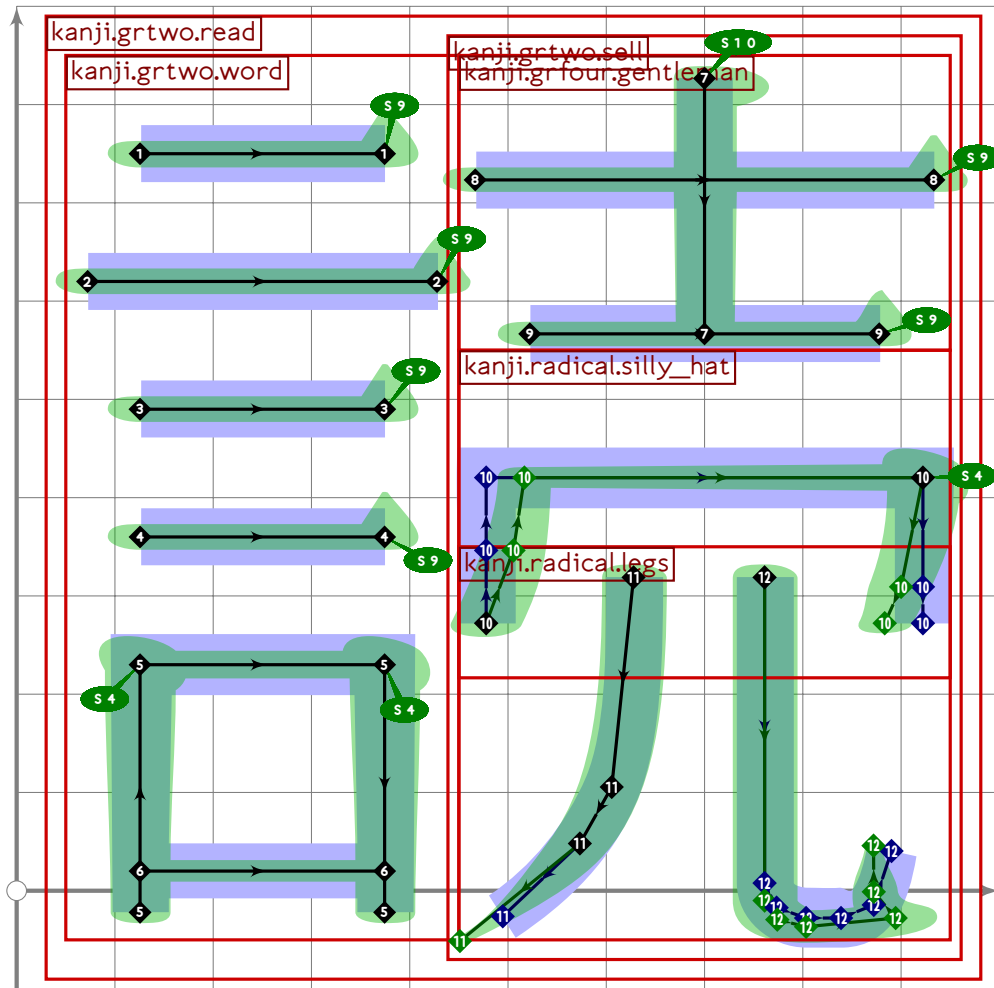
```



```

67
68 vardef kanji.grtwo.plan =
69   push_pbox_toexpand("kanji.grtwo.plan");
70   build_kanji.level(build_kanji.lr(450,0)
71     (kanji.grtwo.word)
72     (kanji.grone.ten;
73     replace_strokep(0)(oldp shifted (0,70))));
74   expand_pbox;
75 enddef;

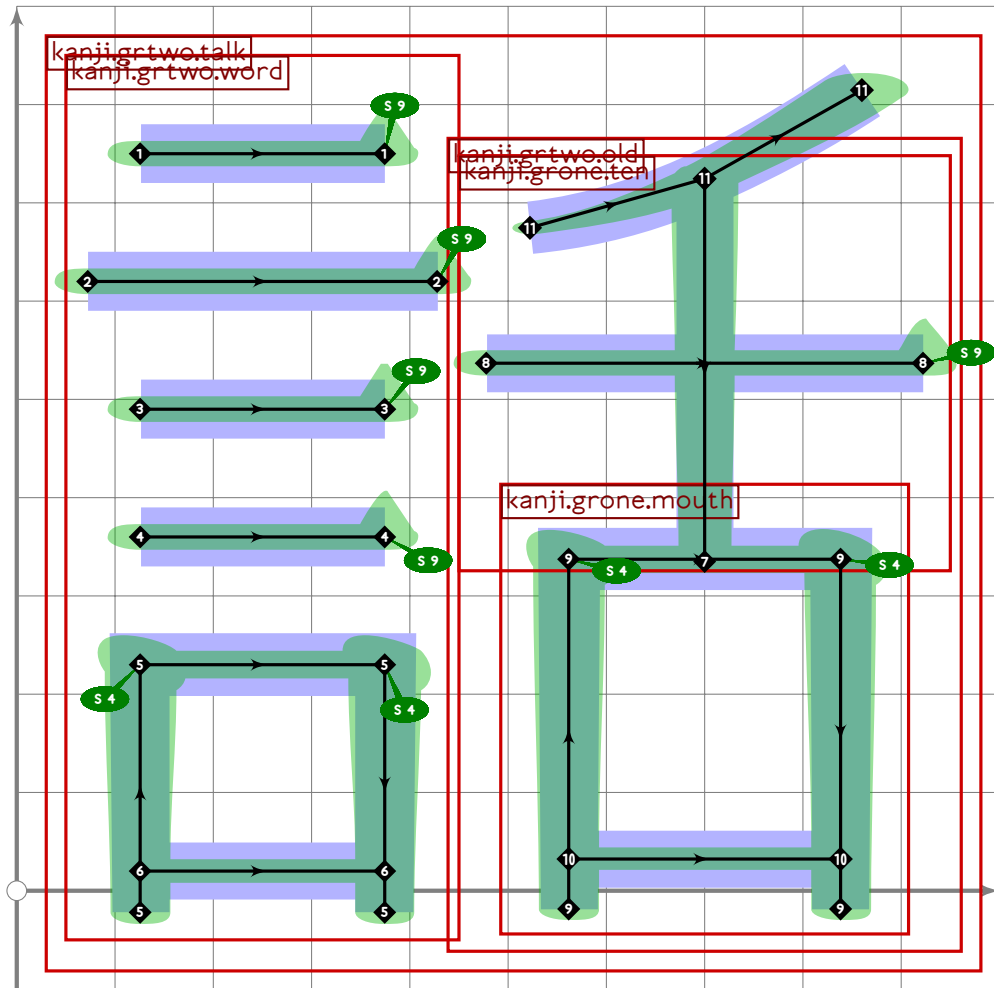
```



```

76
77 vardef kanji.grtwo.read =
78   push_pbox_toexpand("kanji.grtwo.read");
79   build_kanji.level(build_kanji.lr(450,0)
80     (kanji.grtwo.word)
81     (kanji.grtwo.sell));
82   expand_pbox;
83 enddef;

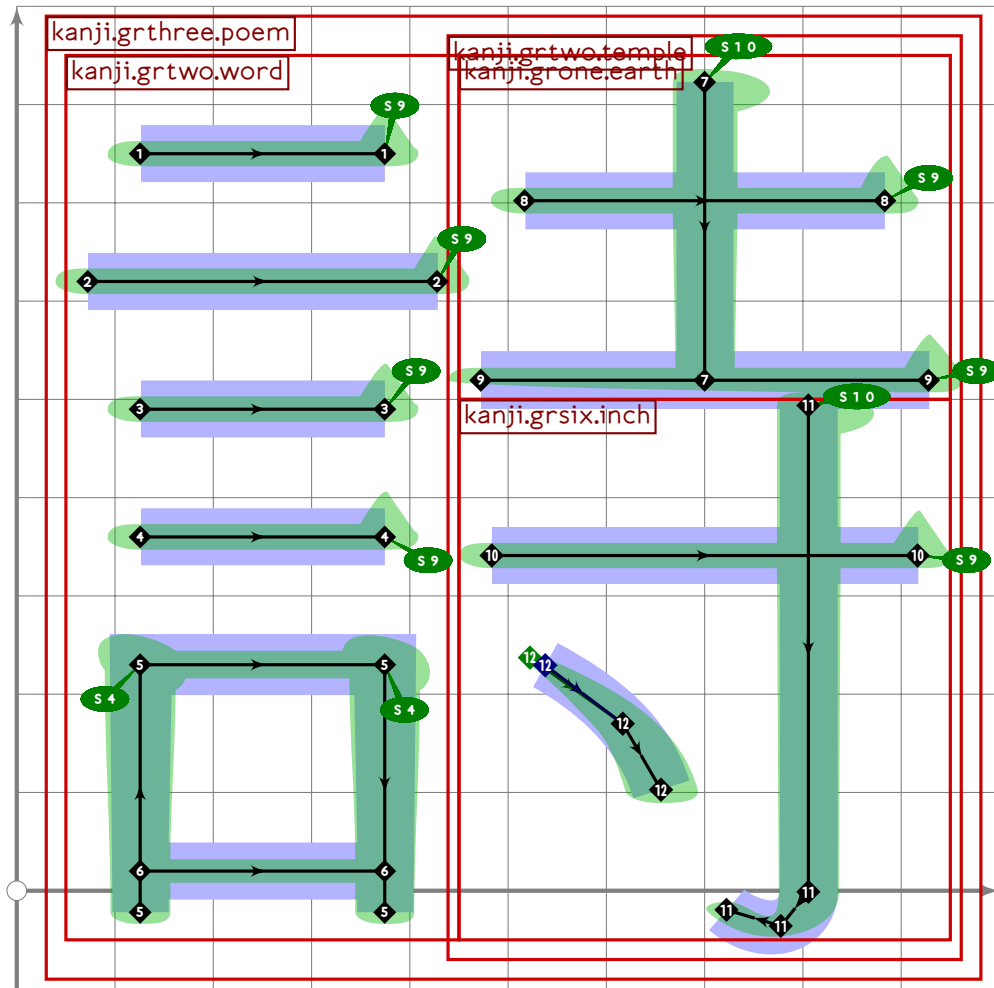
```



```

84
85 vardef kanji.grtwo.talk =
86   push_pbox_toexpand("kanji.grtwo.talk");
87   build_kanji.level(build_kanji.lr(450,0)
88     (kanji.grtwo.word)
89     (build_kanji.add_beret(tsu_xform(identity yscaled 0.88)
90       (kanji.grtwo.old))));
91   expand_pbox;
92 enddef;
93
94

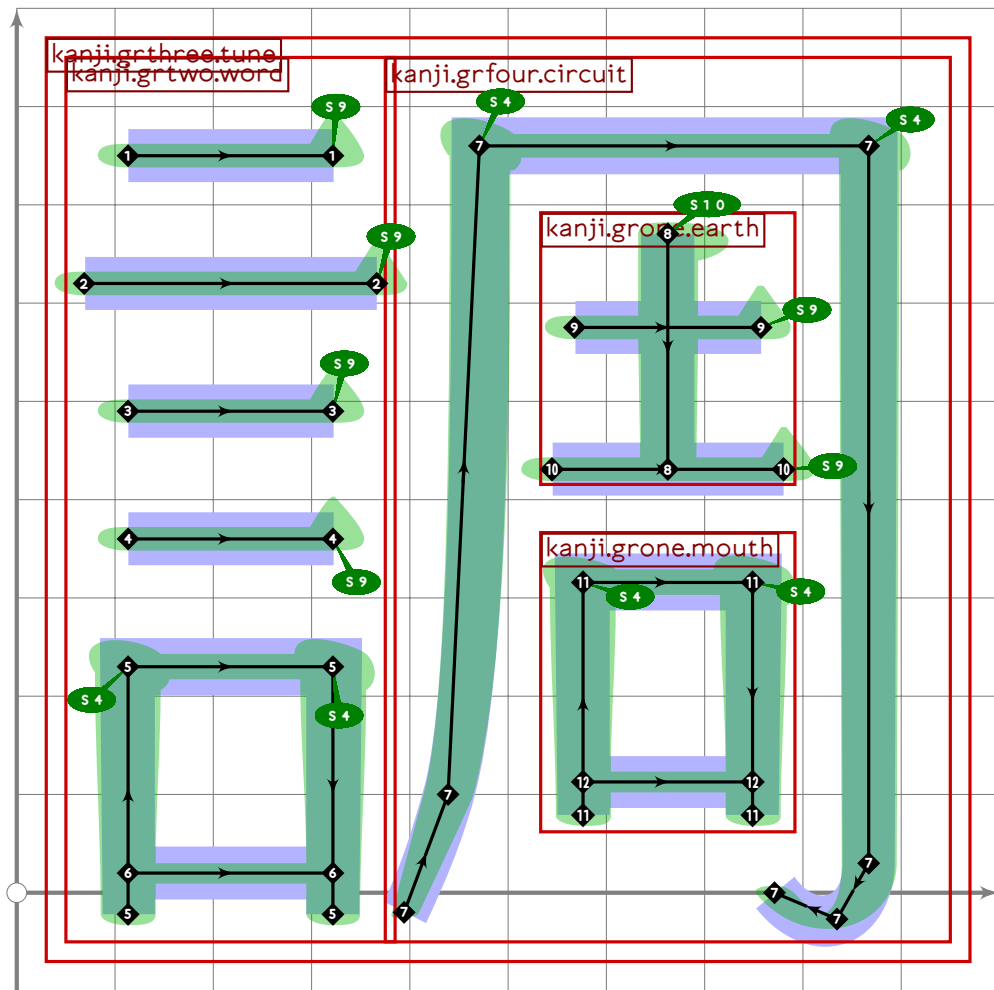
```



```

95
96 vardef kanji.grthree.poem =
97   push_pbox_toexpand("kanji.grthree.poem");
98   build_kanji.level(build_kanji.lr(450,0)
99     (kanji.grtwo.word)
100     (kanji.grtwo.temple));
101   expand_pbox;
102 enddef;

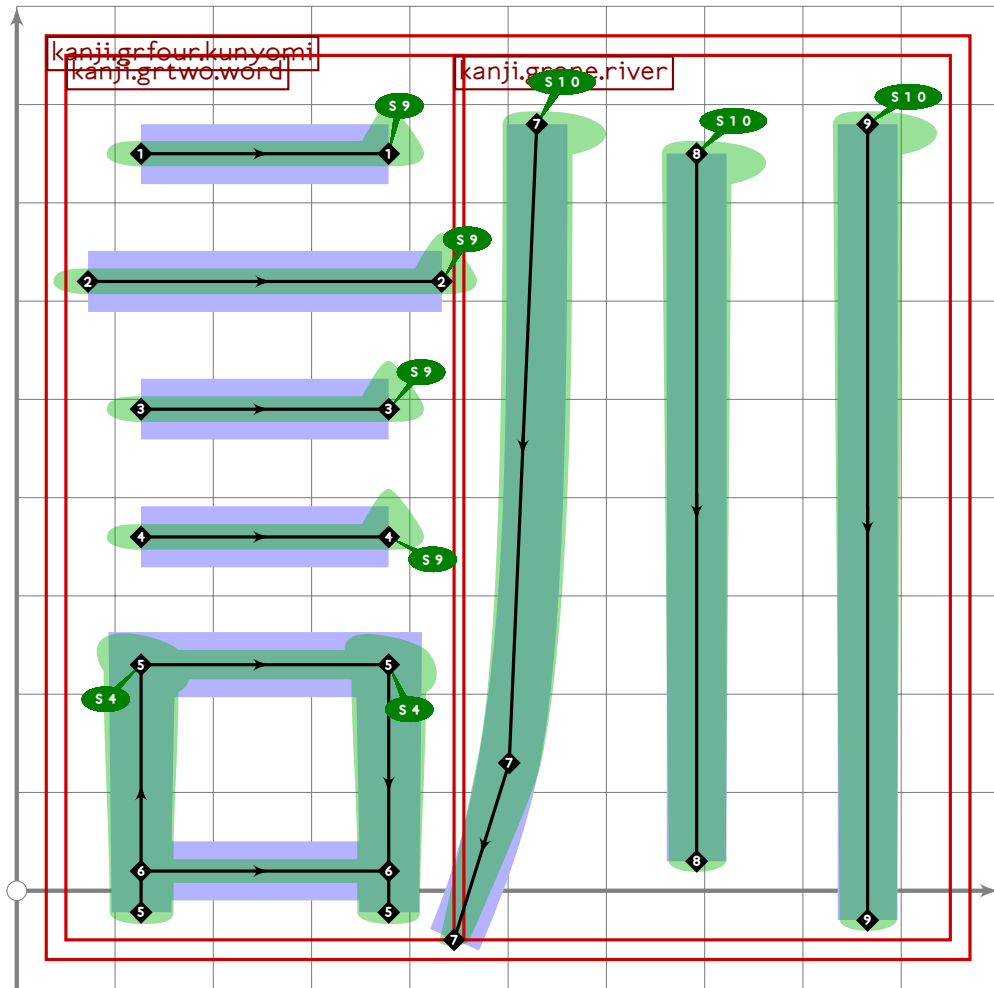
```



```

103
104 vardef kanji.grthree.tune =
105   push_pbox_toexpand("kanji.grthree.tune");
106   build_kanji.level(build_kanji.lr(380,10)
107     (kanji.grtwo.word)
108     (kanji.grfour.circuit));
109   expand_pbox;
110 enddef;
111
112

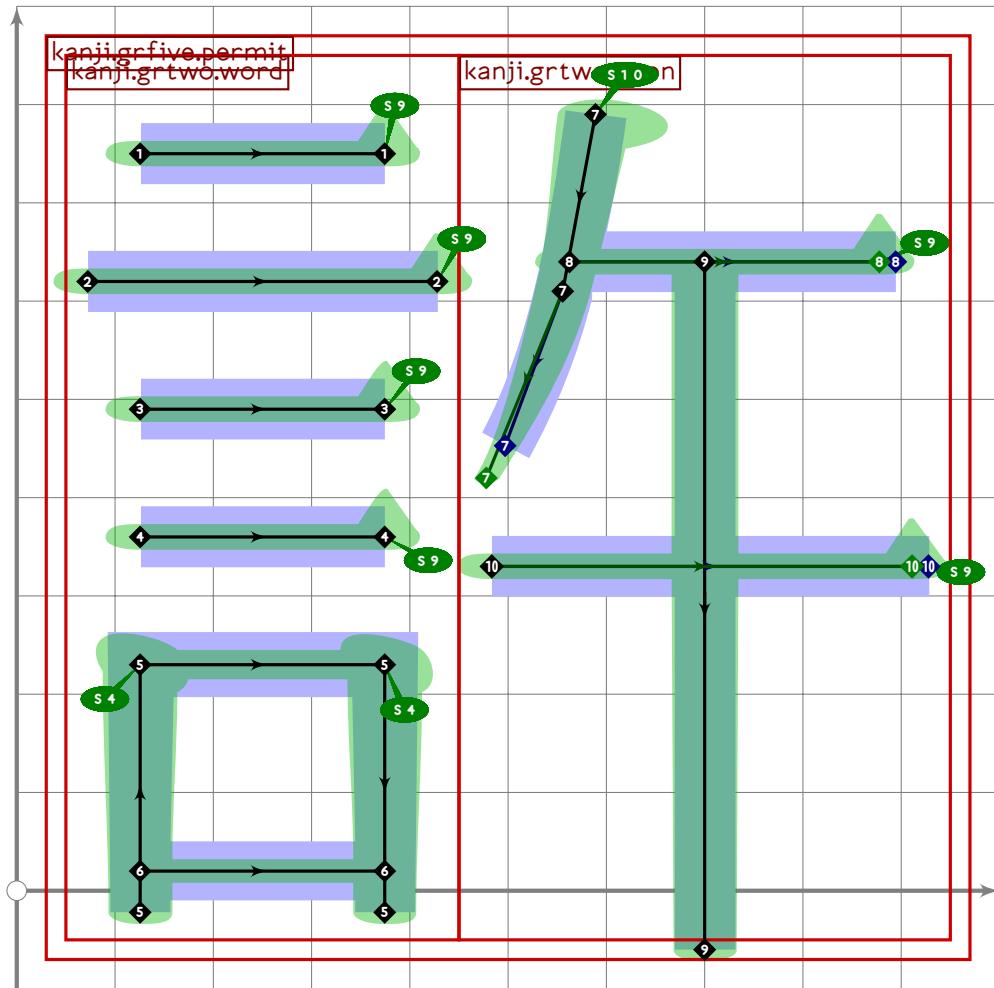
```



```

113
114 vardef kanji.grfour.kunyomi =
115   push_pbox_toexpand("kanji.grfour.kunyomi");
116   build_kanji.level(build_kanji.lr(450,10)
117     (kanji.grtwo.word)
118     (kanji.grone.river));
119   expand_pbox;
120 enddef;
121
122

```

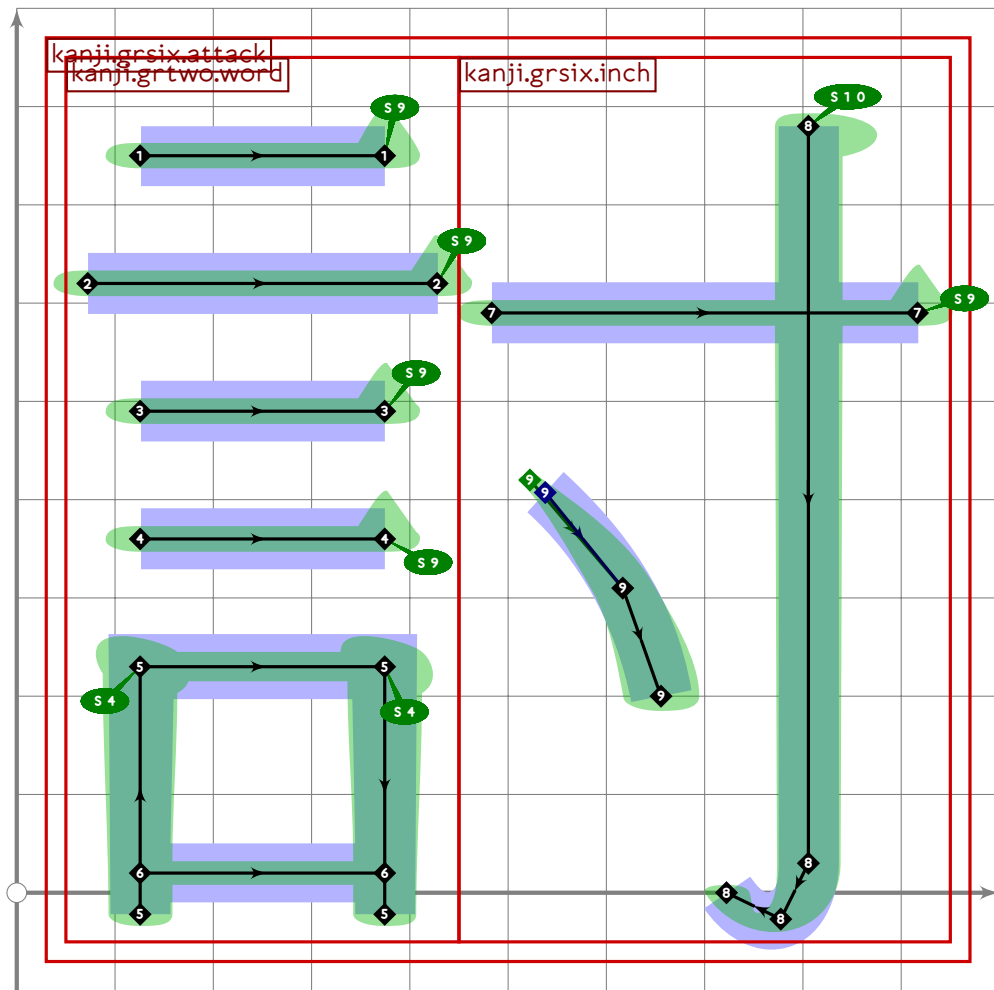


```

123
124 vardef kanji.grfive.permit =
125   push_pbox_toexpand("kanji.grfive.permit");
126   build_kanji.level(build_kanji.lr(450,0)
127     (kanji.grtwo.word)
128     (kanji.grtwo.noon));
129   expand_pbox;
130 enddef;
131
132

```

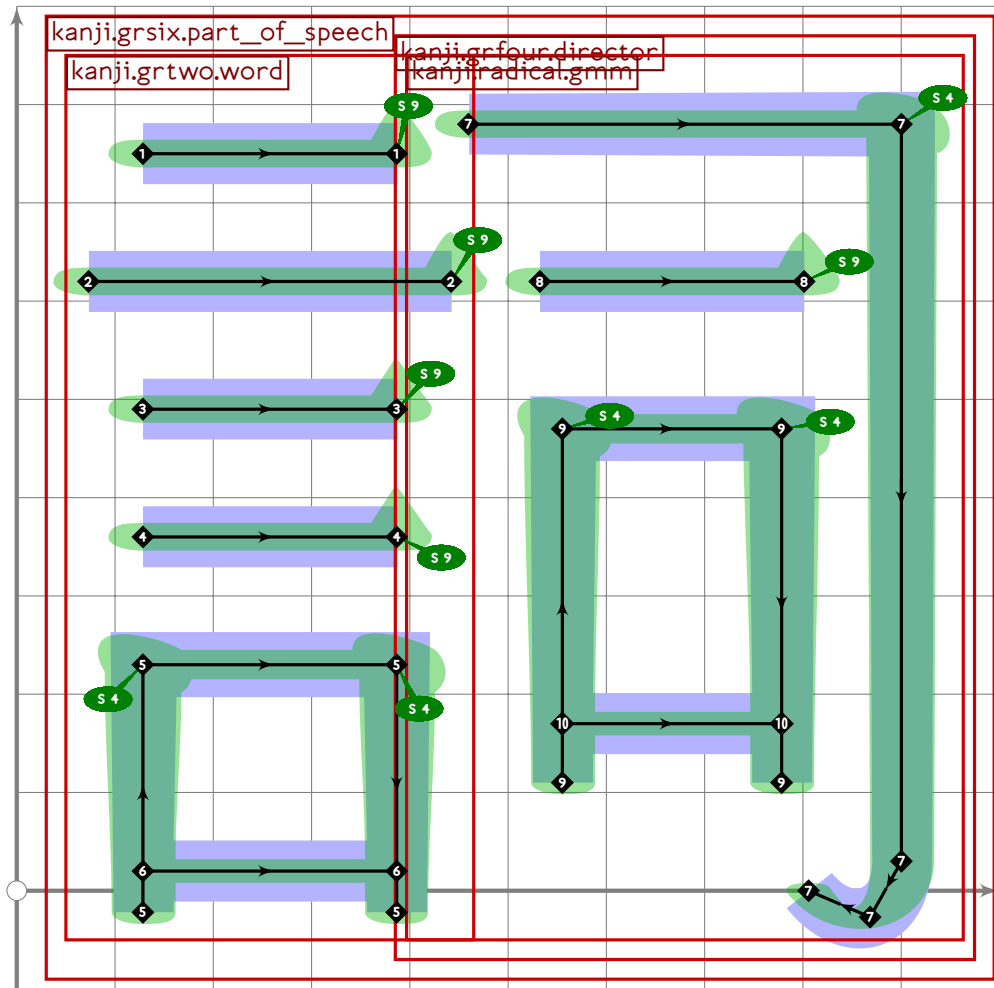




```

133
134 vardef kanji.grsix.attack =
135   push_pbox_toexpand("kanji.grsix.attack");
136   build_kanji.level(build_kanji.lr(450,0)
137     (kanji.grtwo.word)
138     (kanji.grsix.inch));
139   expand_pbox;
140 enddef;

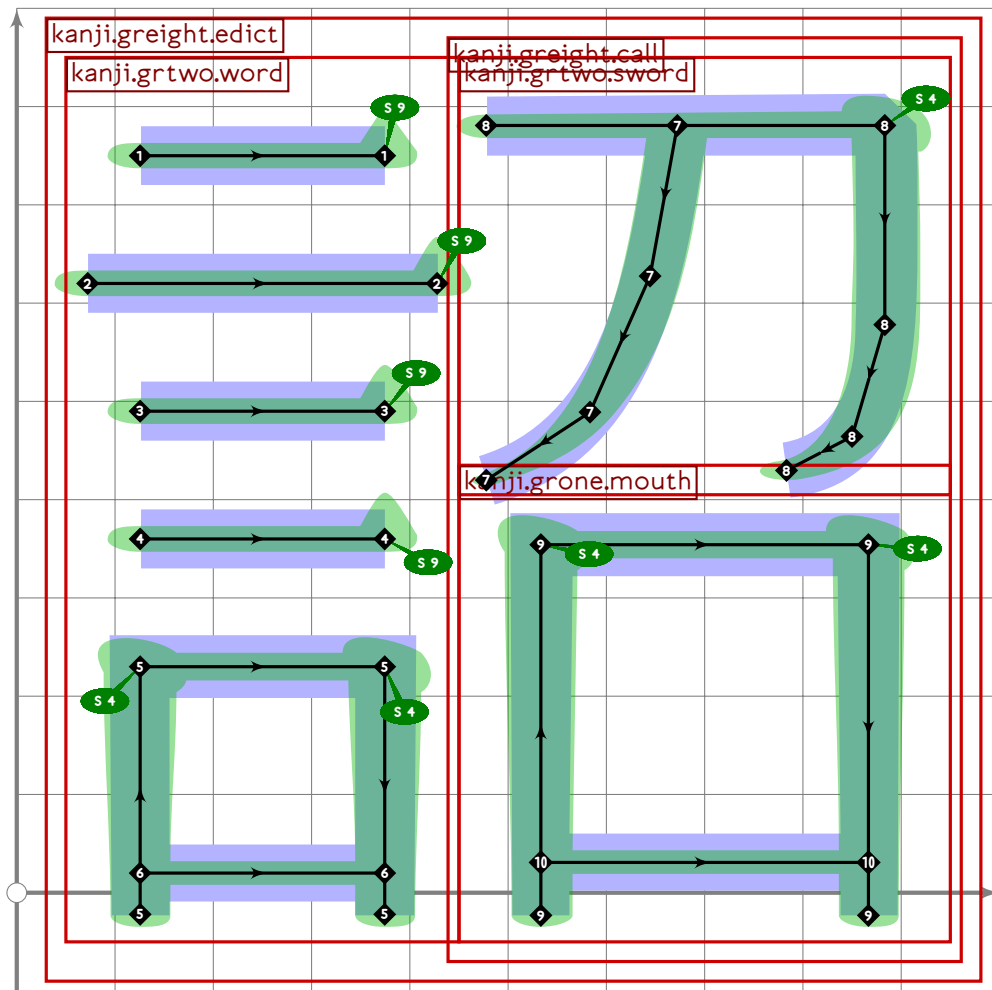
```



```

141
142 vardef kanji.grsix.part_of_speech =
143   push_pbox_toexpand("kanji.grsix.part_of_speech");
144   build_kanji.level(build_kanji.lr(450,30)
145     (kanji.grtwo.word)
146     (kanji.grfour.director));
147   expand_pbox;
148 enddef;
149
150

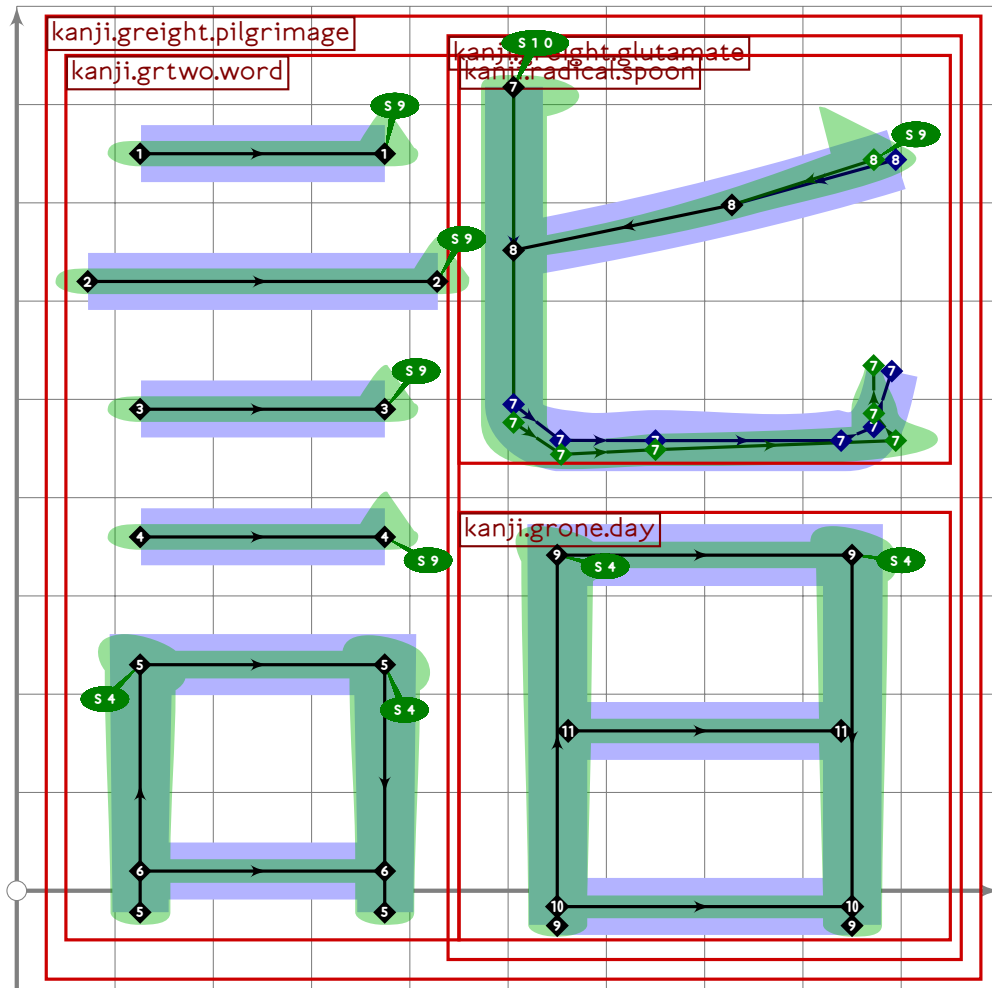
```



```

151
152 vardef kanji.greight.edict =
153   push_pbox_toexpand("kanji.greight.edict");
154   build_kanji.level(build_kanji.lr(450,0)
155     (kanji.grtwo.word)
156     (kanji.greight.call));
157   expand_pbox;
158 enddef;

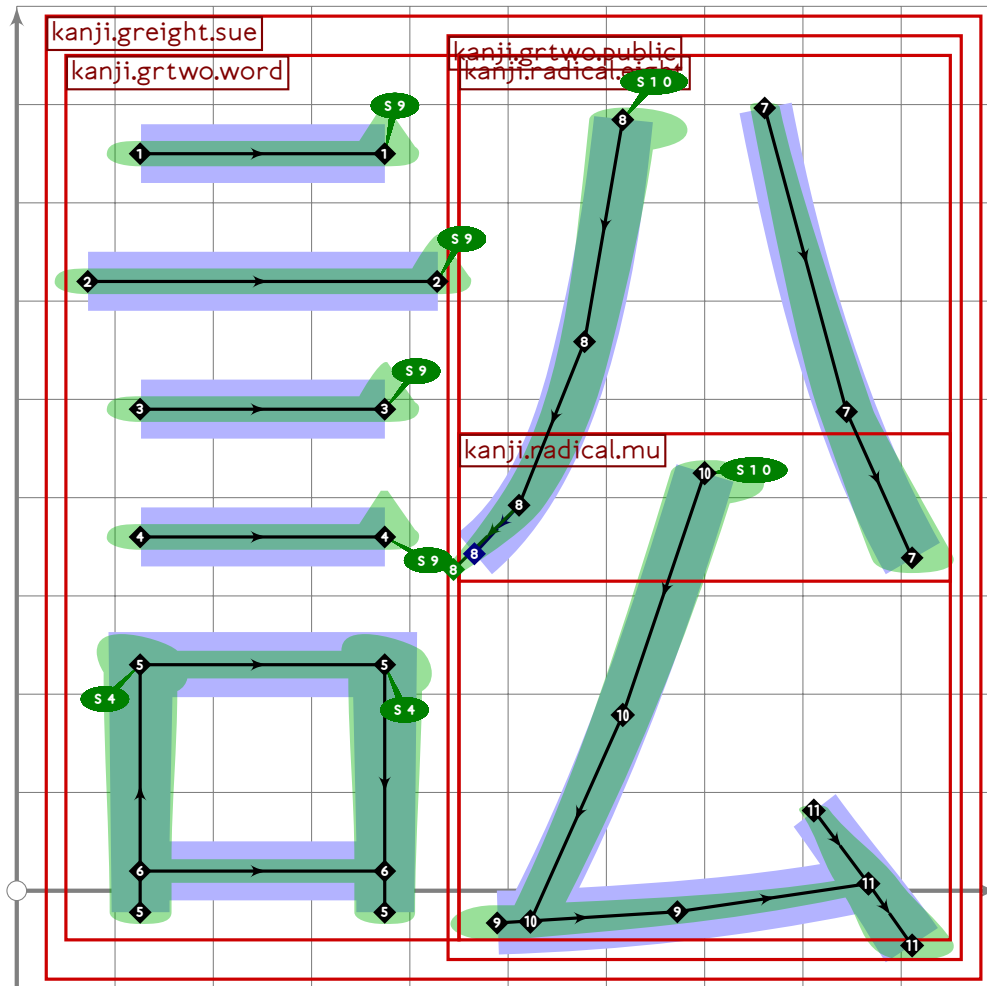
```



```

159
160 vardef kanji.greight.pilgrimage =
161   push_pbox_toexpand("kanji.greight.pilgrimage");
162   build_kanji.level(build_kanji.lr(450,0)
163     (kanji.grtwo.word)
164     (kanji.greight.glutamate));
165   expand_pbox;
166 enddef;
167
168 vardef kanji.greight.revise =
169   push_pbox_toexpand("kanji.greight.revise");
170   build_kanji.level(build_kanji.lr(450,0)
171     (kanji.grtwo.word)
172     (kanji.grthree.thumbtack));
173   expand_pbox;
174 enddef;

```

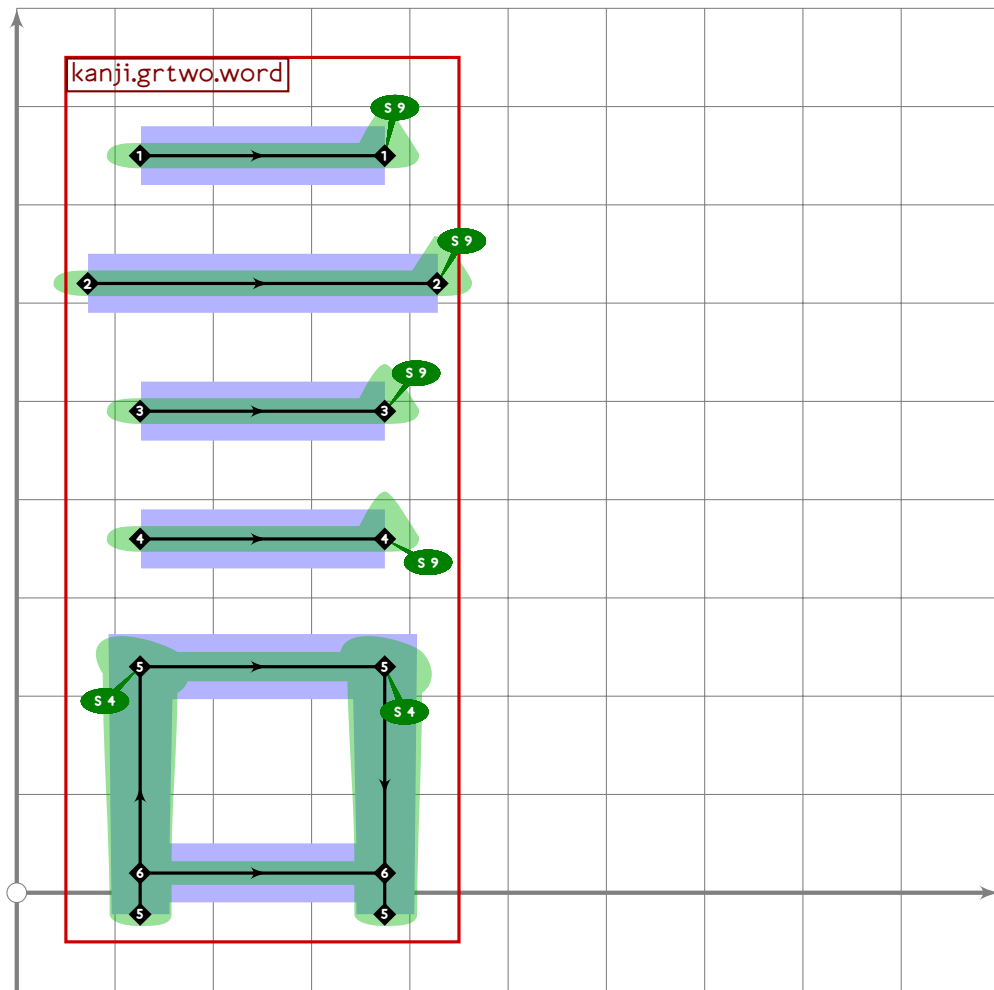


```

175
176 vardef kanji.greight.sue =
177   push_pbox_toexpand("kanji.greight.sue");
178   build_kanji.level(build_kanji.lr(450,0)
179     (kanji.grtwo.word)
180     (kanji.grtwo.public));
181   expand_pbox;
182 enddef;
183
184
185
186 % gen/i "word"
187 begintsuglyph("uni8A00",0);
188   kanji.grtwo.word;
189   tsu_render;
190 endsuglyph;
191

```

[see page 472]

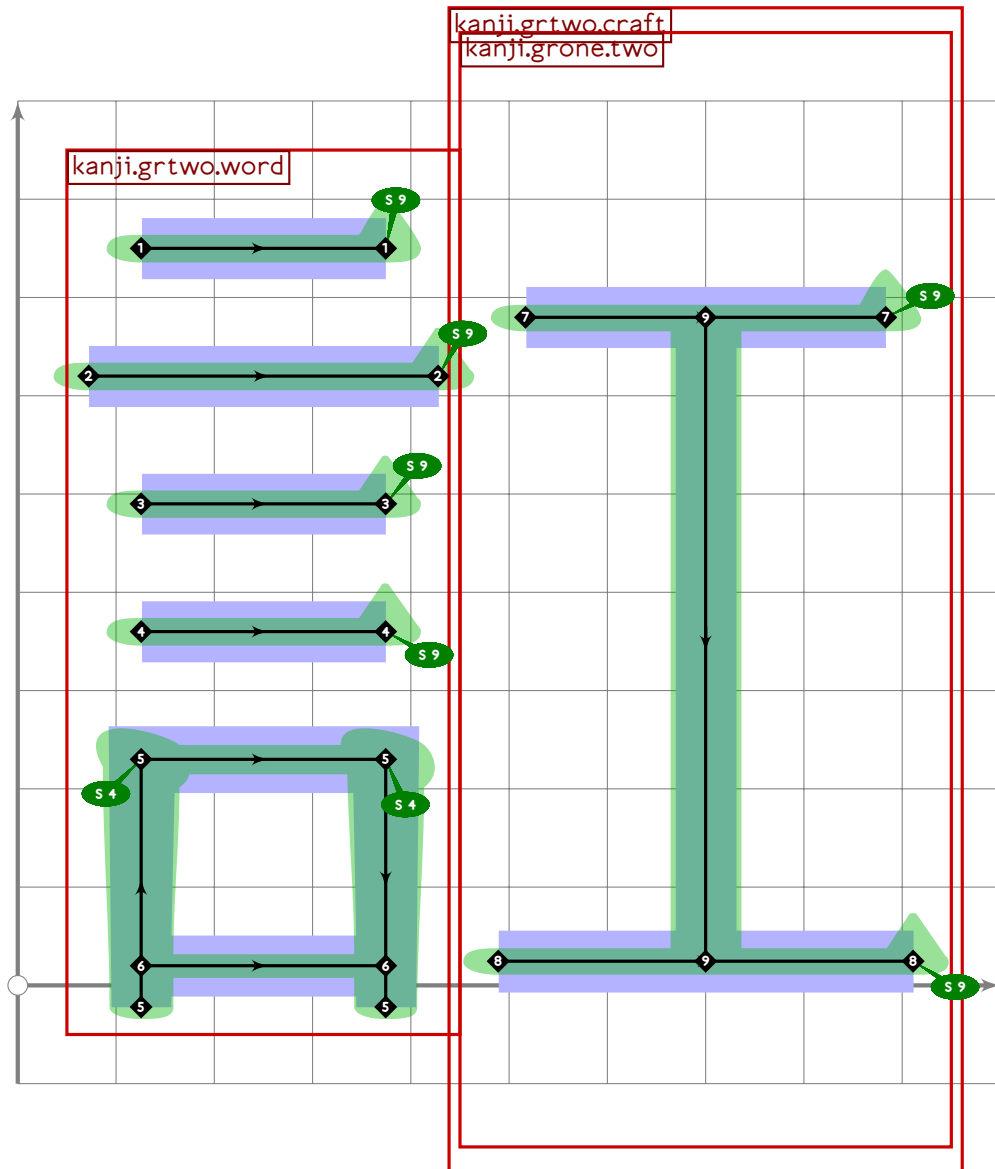


```

192 % extra (word left radical)
193 begintsuglyph("uni8A01";1);
194 build_kanji.lr(450,0)
195 (kanji.grtwo.word)
196 ();
197 tsu_render;
198 endsuglyph;
199
200 % kei/haka "plan"
201 begintsuglyph("uni8A08";8);
202 kanji.grtwo.plan;
203 tsu_render;
204 endsuglyph;
205

```

[see page 1862]



```

206 % extra: kou "become confused"
207 begintsuglyph("uni8A0C";12);
208 build_kanji.level(build_kanji.lr(450,0)
209 (kanji.grtwo.word)
210 (build_kanji.sscale(yscaled 1.26)(kanji.grtwo.craft)));
211 tsu_render;
212 endtsuglyph;
213
214 % tou/u "attack"
215 begintsuglyph("uni8A0E";14);
216 kanji.grsix.attack;
217 tsu_render;
218 endtsuglyph;
219
220 % kun "native Japanese kanji pronunciation"
221 % of course "kun" is the "on" reading of this kanji, don't be silly

```

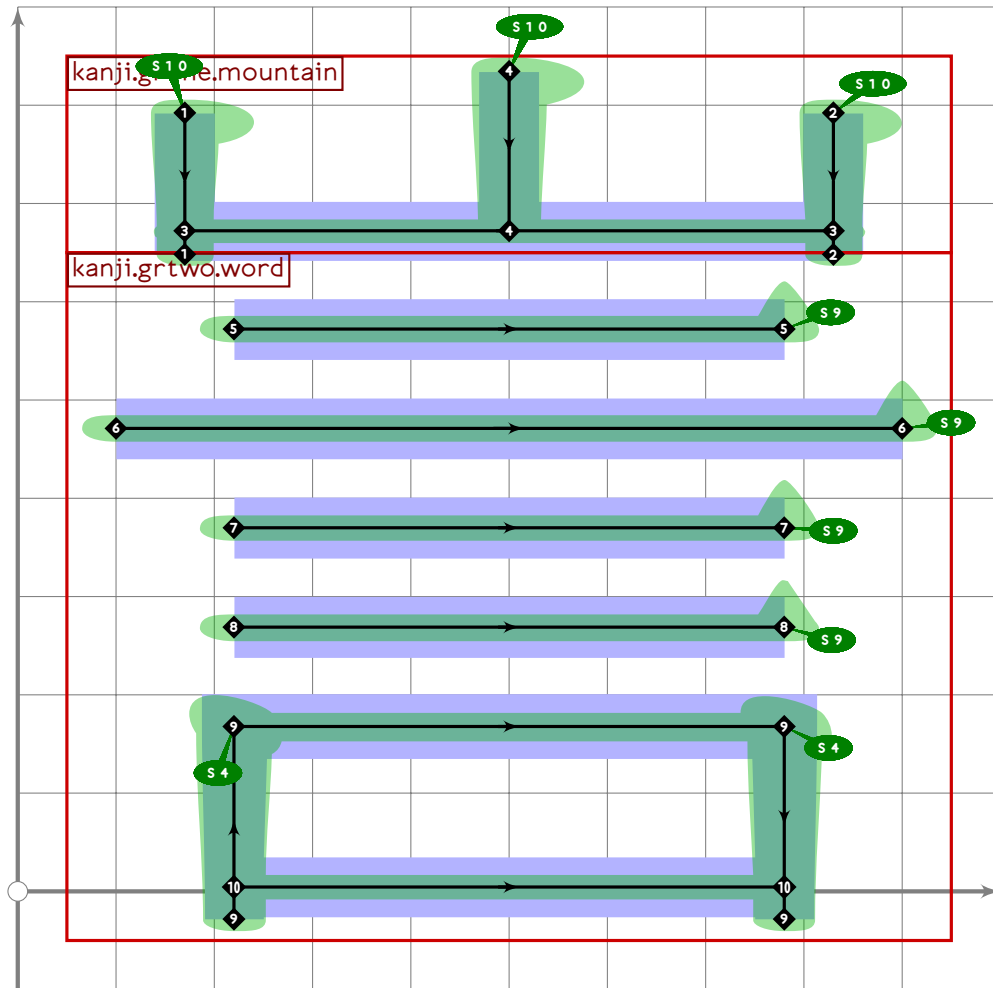
[see page 1869]

```

222 begint Suglyph("uni8A13";19);
223 kanji.grfour.kunyomi;
224 tsu_render;
225 endtsuglyph;
226

```

[see page 1867]

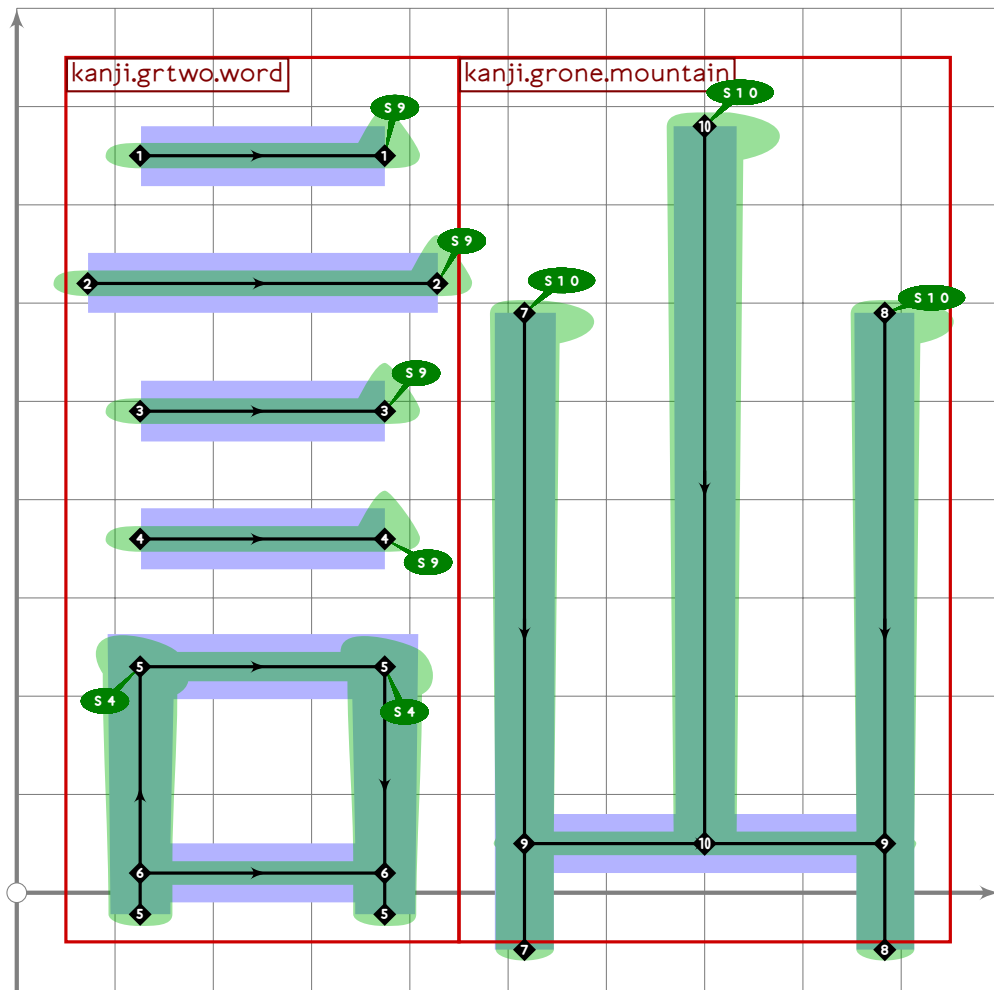


```

227 % extra
228 begint Suglyph("uni8A14";20);
229 build_kanji.level(build_kanji.tb(650,0)
230   (kanji.grone.mountain)
231   (kanji.grtwo.word));
232 tsu_render;
233 endtsuglyph;
234

```



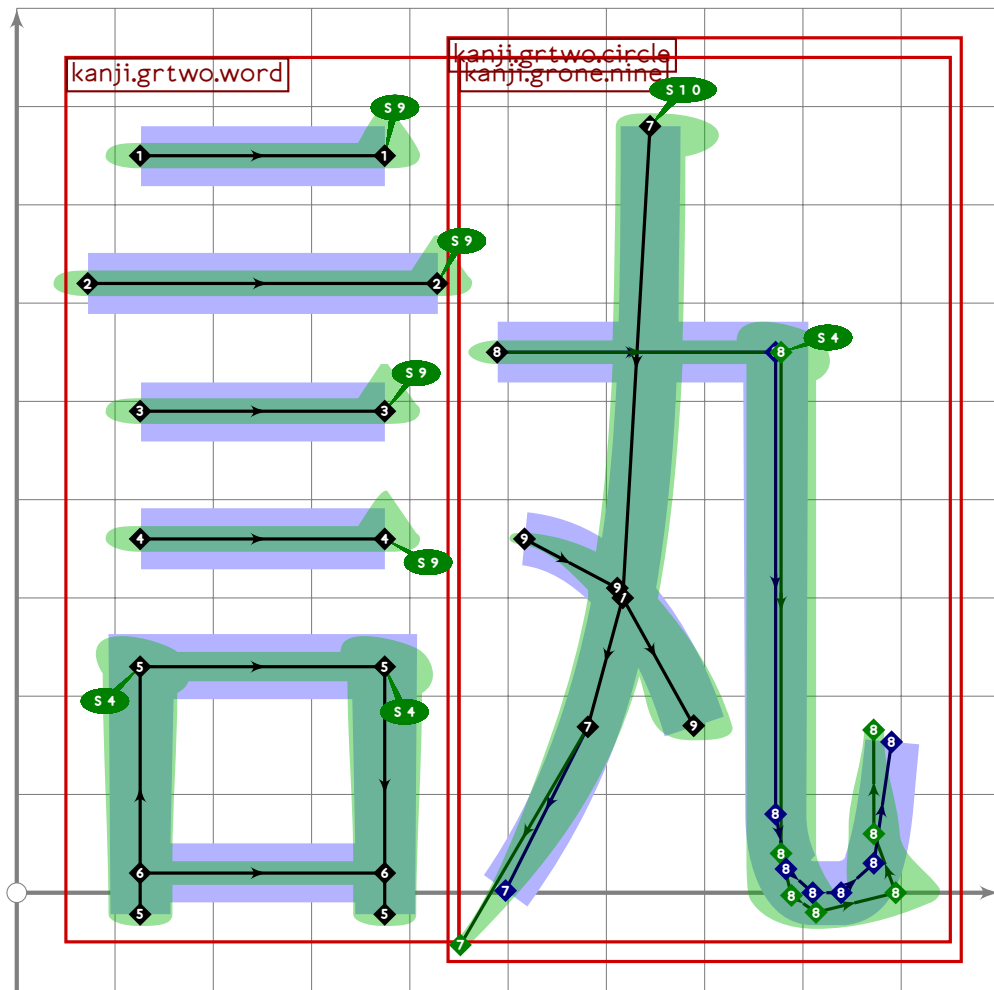


```

235 % extra
236 begintsuglyph("uni8A15",21);
237 build_kanji.level(build_kanji.lr(450,0)
238   (kanji.grtwo.word)
239   (kanji.grone.mountain));
240 tsu_render;
241 endsuglyph;
242
243 % ki/shiru "account"
244 begintsuglyph("uni8A18",24);
245 kanji.grtwo.account;
246 tsu_render;
247 endsuglyph;
248

```

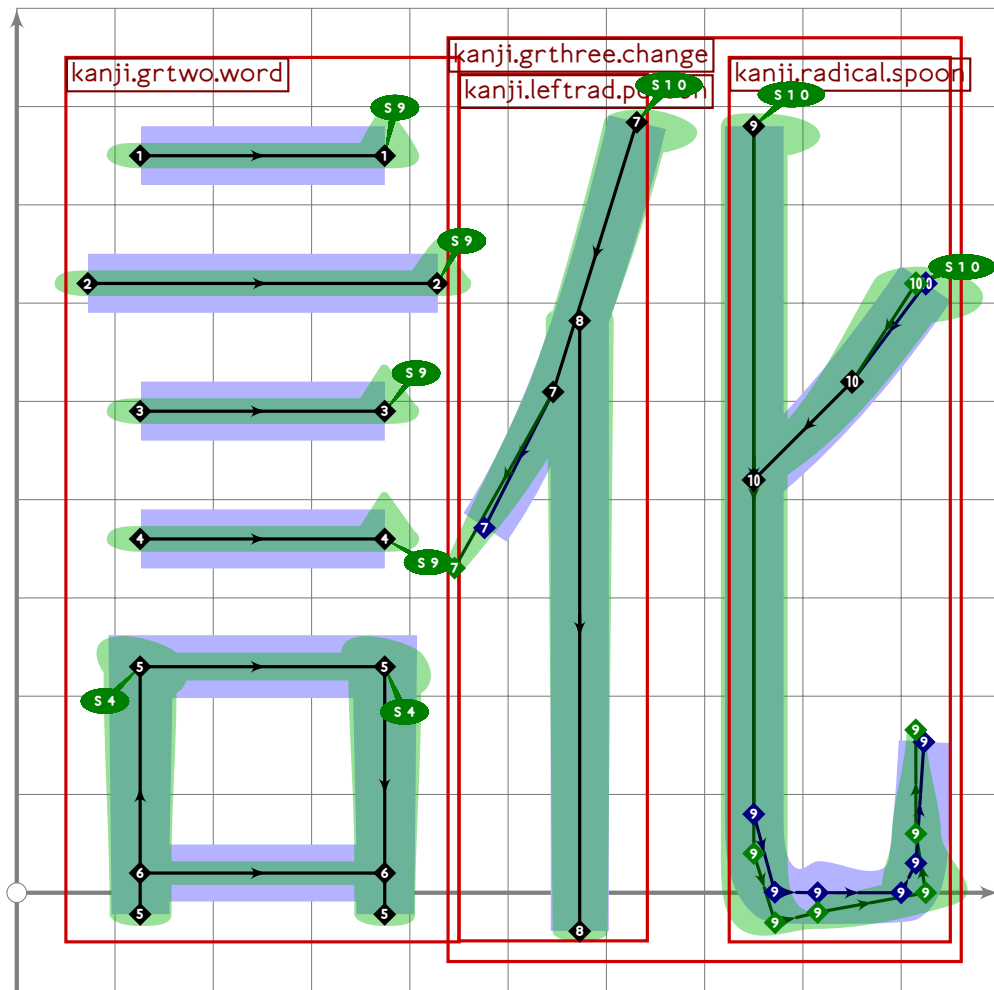
[see page 1860]



```

249 % extra
250 begint Suglyph("uni8A19";25);
251 build_kanji.level(build_kanji.lr(450,0)
252   (kanji.grtwo.word)
253   (kanji.grtwo.circle));
254 tsu_render;
255 endsuglyph;
256

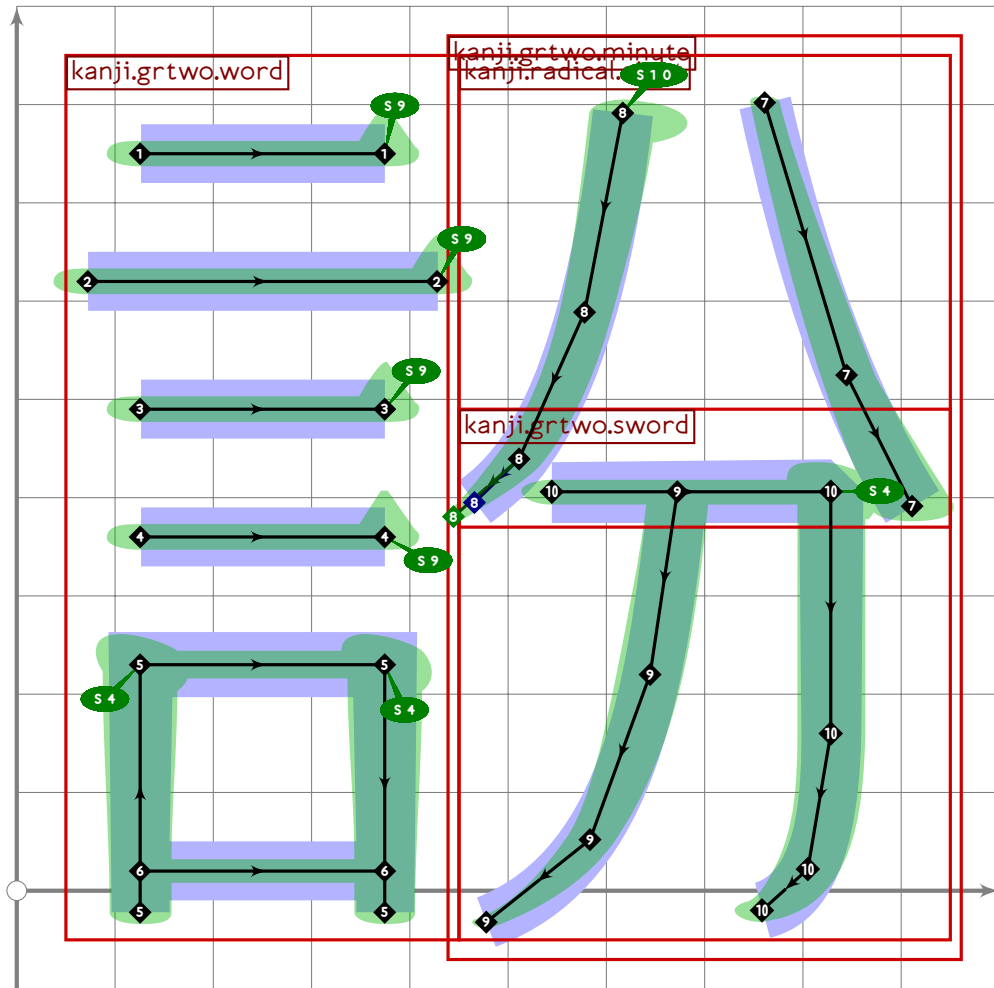
```



```

257 % ka/nama "accent (speech)"
258 begintsuglyph("uni8A1B";27);
259 build_kanji.level(build_kanji.lr(450,0)
260   (kanji.grtwo.word)
261   (kanji.grthree.change));
262 tsu_render;
263 endsuglyph;
264

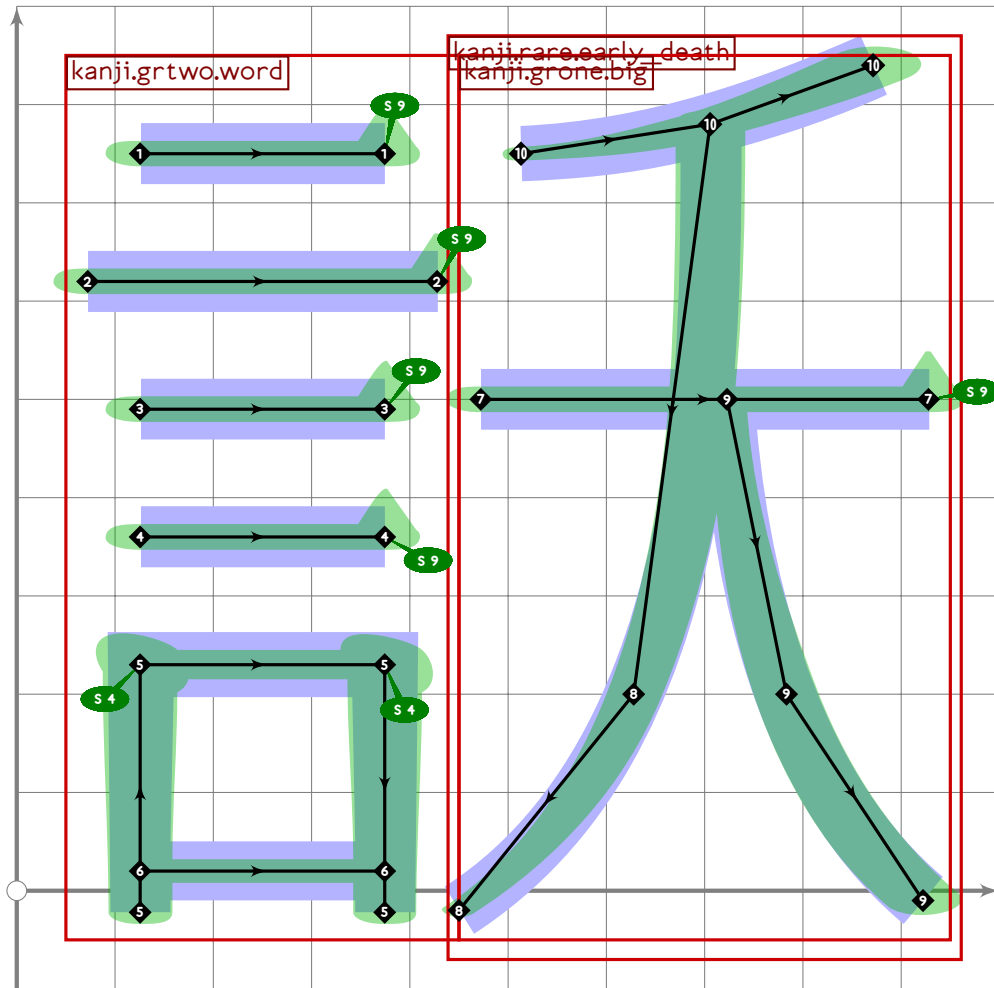
```



```

265 % extra
266 begint Suglyph("uni8A1C",28);
267 build_kanji.level(build_kanji.lr(450,0)
268   (kanji.grtwo.word)
269   (kanji.grtwo.minute));
270 tsu_render;
271 endsuglyph;
272

```

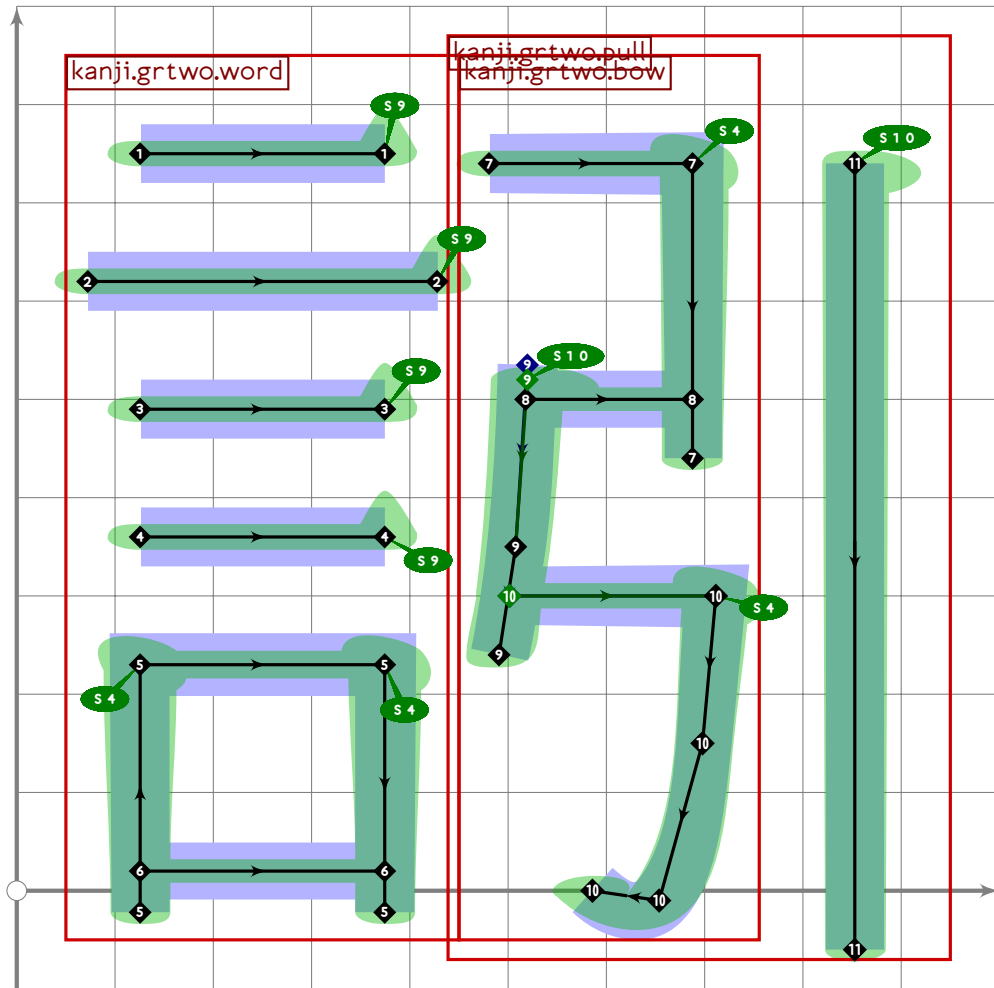


```

273 % extra
274 begintsuglyph("uni8A1E",30);
275 build_kanji.level(build_kanji.lr(450,0)
276   (kanji.grtwo.word)
277   (kanji.rare.early_death));
278 tsu_render;
279 endsuglyph;
280
281 % shou "sue"
282 begintsuglyph("uni8A1F",31);
283 kanji.greight.sue;
284 tsu_render;
285 endsuglyph;
286

```

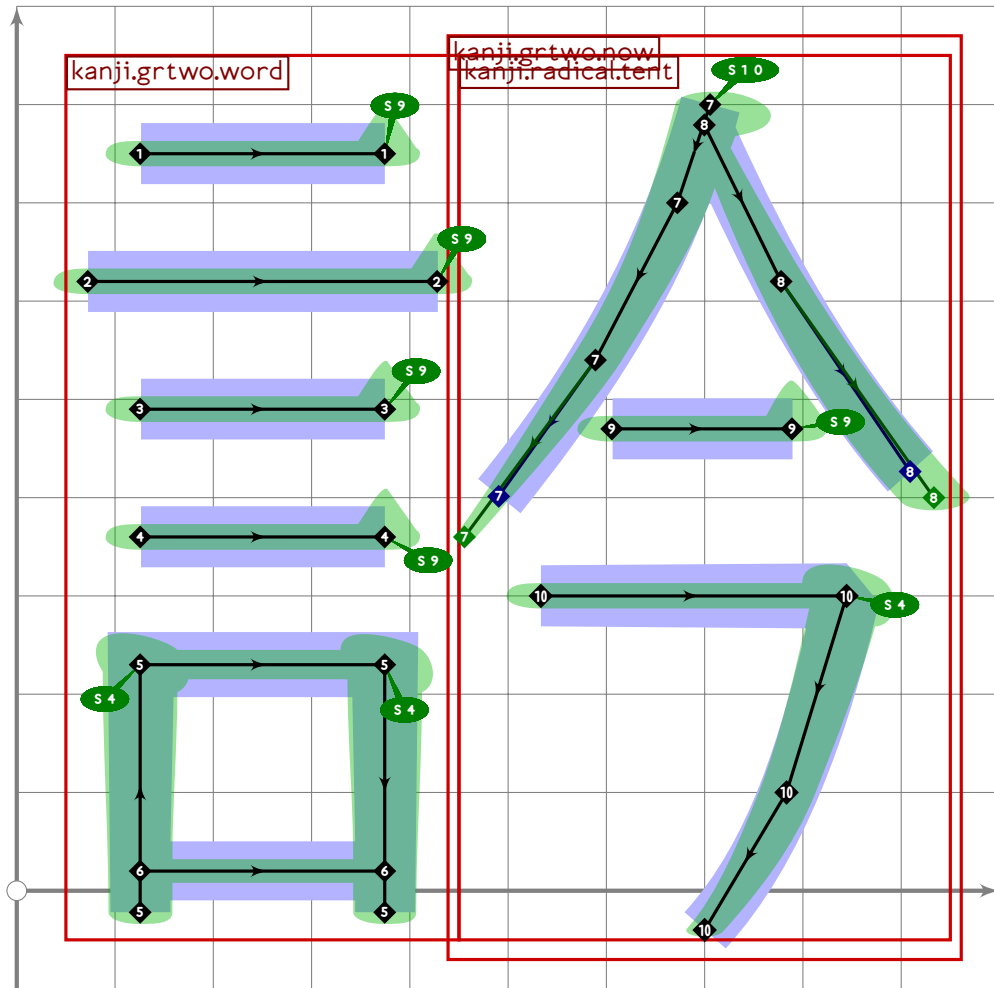
[see page 1873]



```

287 % extra
288 begint Suglyph("uni8A20",32);
289 build_kanji.level(build_kanji.lr(450,0)
290 (kanji.grtwo.word)
291 (kanji.grtwo.pull));
292 tsu_render;
293 endsuglyph;
294

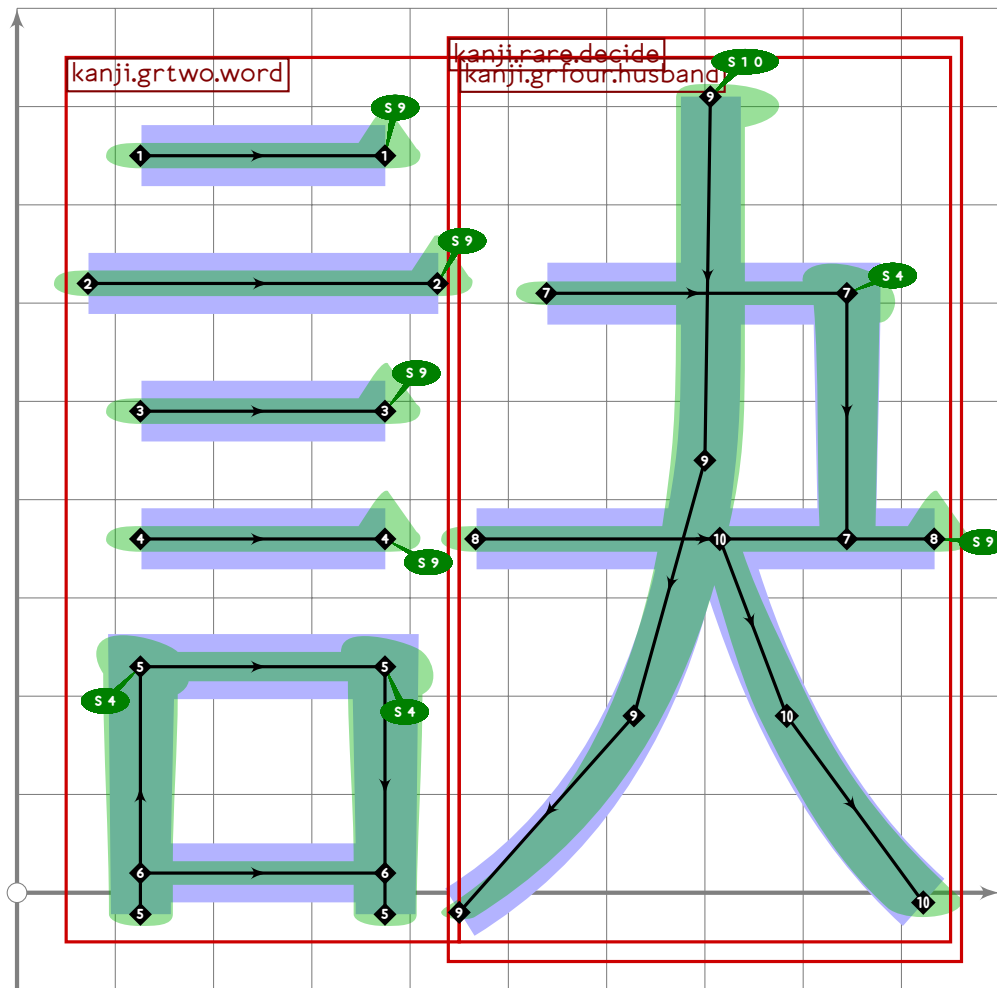
```



```

295 % extra
296 begint Suglyph("uni8A21",33);
297 build_kanji.level(build_kanji.lr(450,0)
298   (kanji.grtwo.word)
299   (kanji.grtwo.now));
300 tsu_render;
301 endsuglyph;
302

```

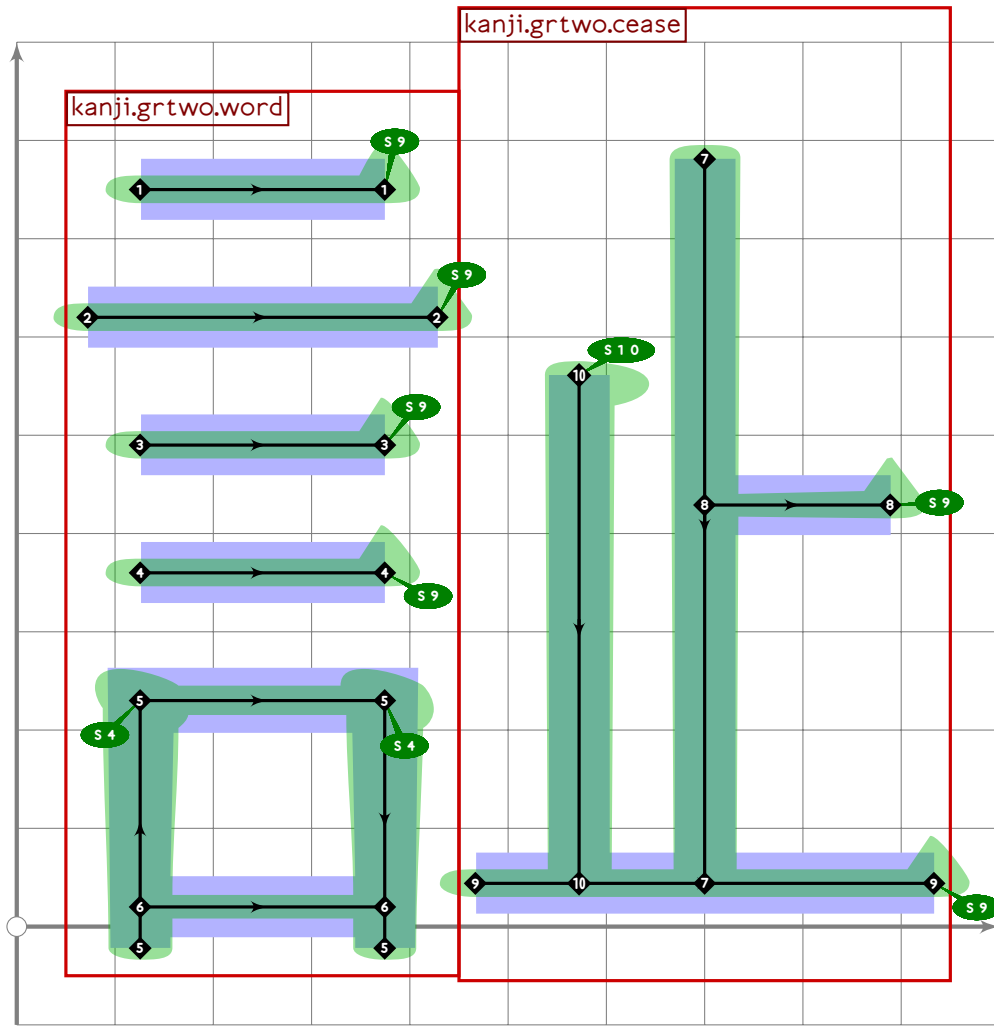


```

303 % extra: separation
304 begint Suglyph("uni8A23",35);
305 build_kanji.level(build_kanji.lr(450,0)
306   (kanji.grtwo.word)
307   (kanji.rare.decide));
308 tsu_render;
309 endsuglyph;
310

```

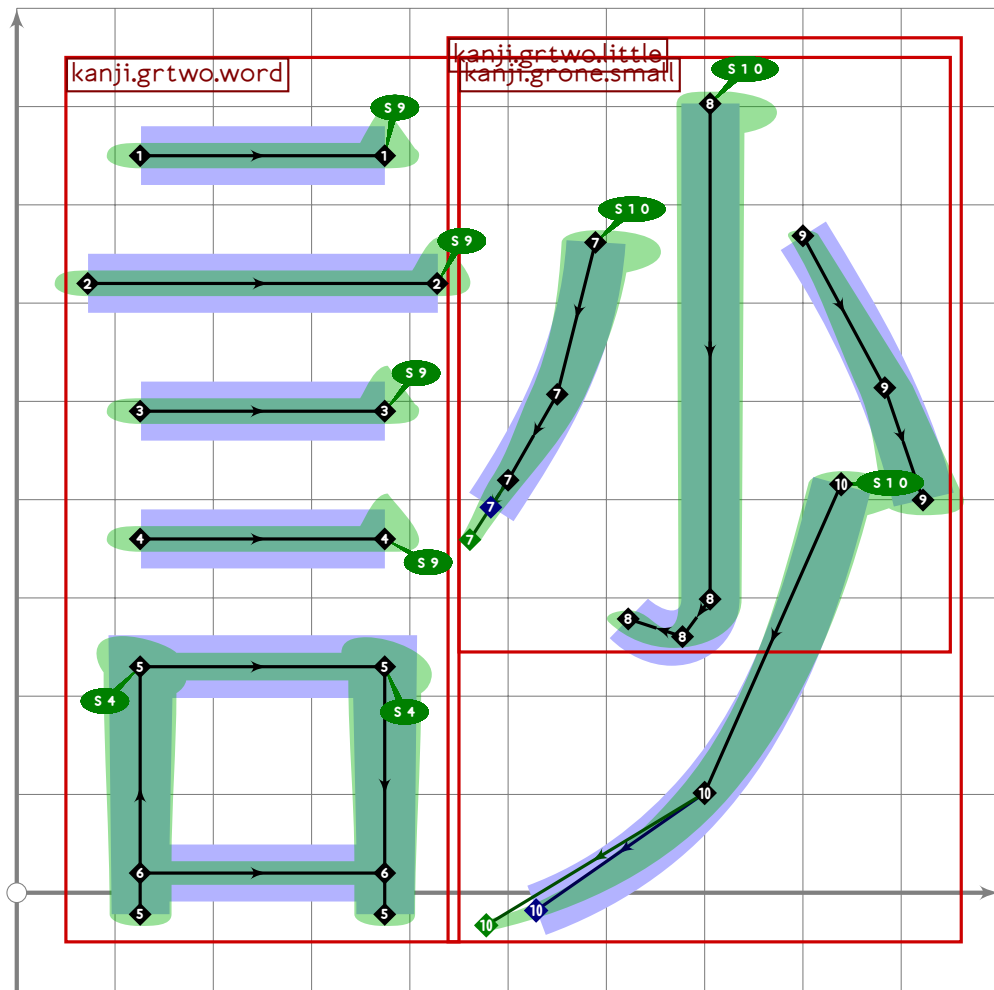




```

311 % extra
312 begint Suglyph("uni8A28";40);
313 build_kanji.level(build_kanji.lr(450,0)
314   (kanji.grtwo.word)
315   (tsu_xform(identity yscaled 1.1)(kanji.grtwo.cease)));
316 tsu_render;
317 endtsuglyph;
318

```

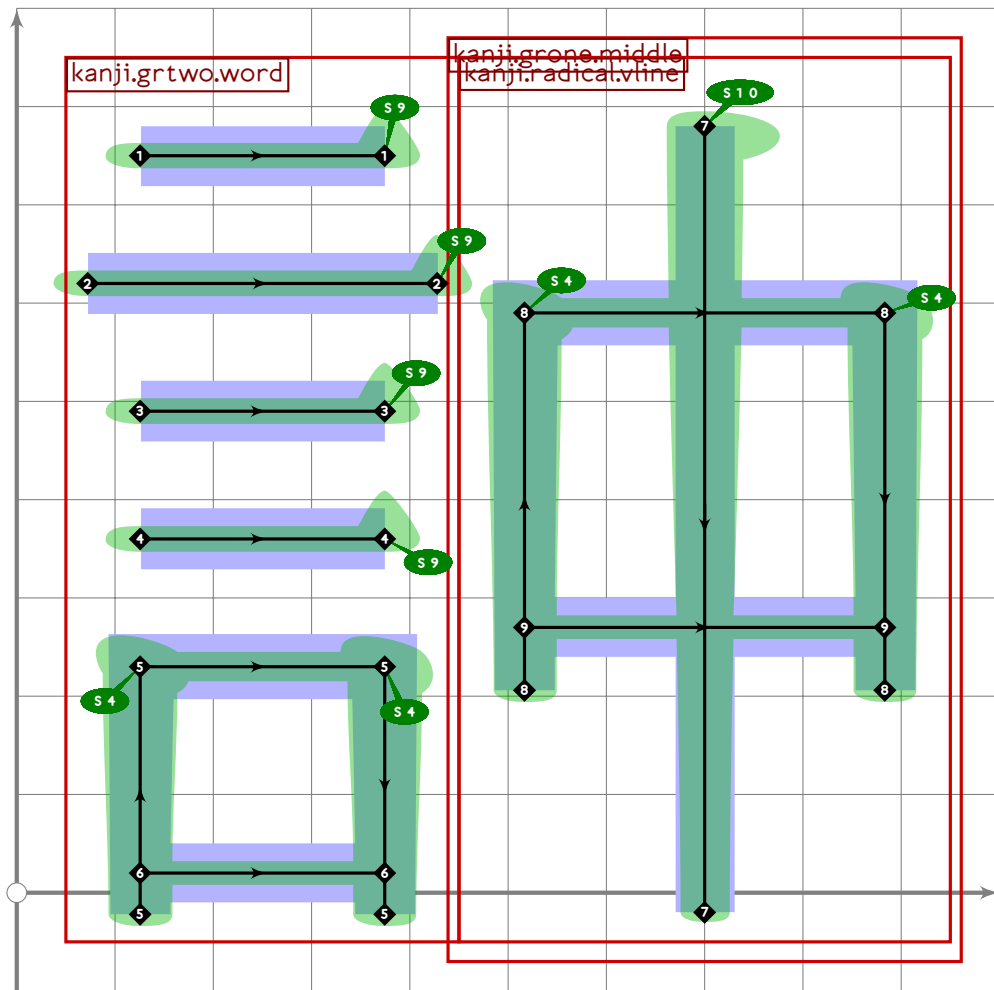


```

319 % extra
320 begintsuglyph("uni8A2C";44);
321 build_kanji.level(build_kanji.lr(450,0)
322   (kanji.grtwo.word)
323   (kanji.grtwo.little));
324 tsu_render;
325 endsuglyph;
326
327 % kyo/yuru "permit" (forgive)
328 begintsuglyph("uni8A31";49);
329 kanji.grfive.permit;
330 tsu_render;
331 endsuglyph;
332

```

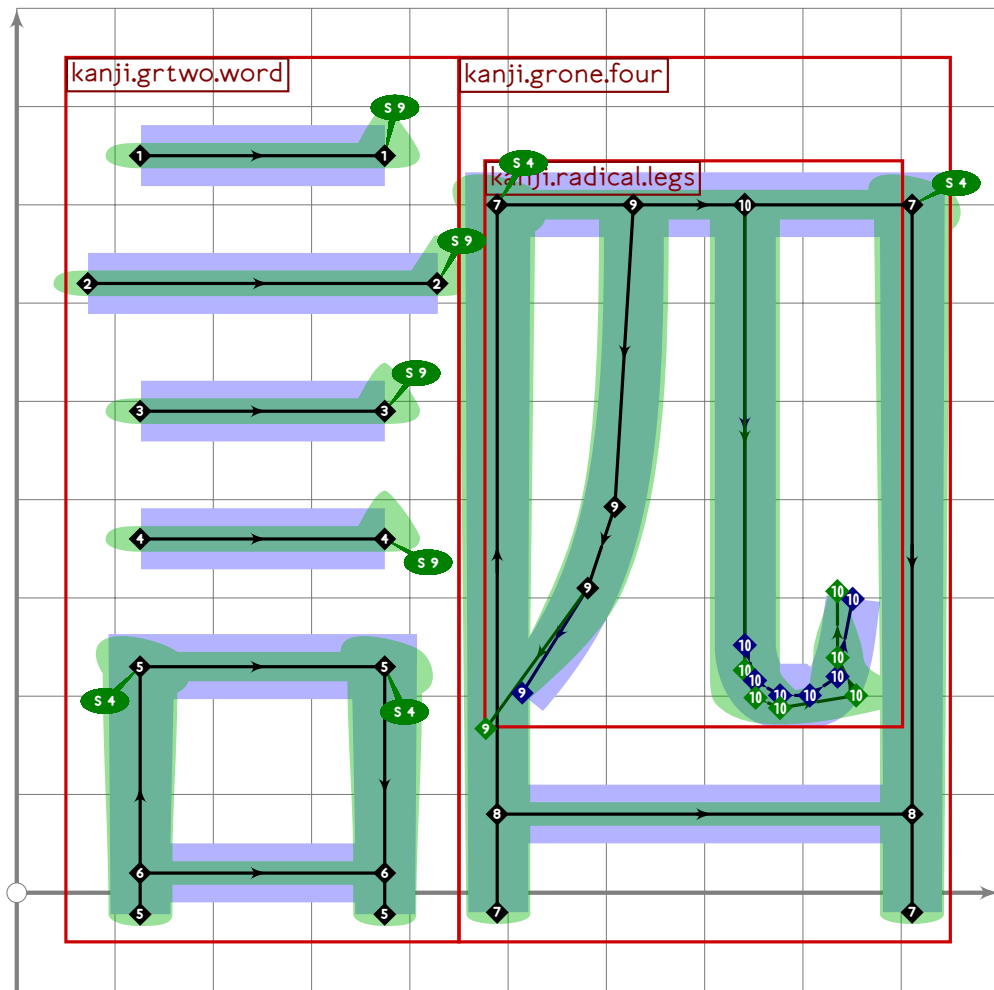
[see page 1868]



```

333 % extra
334 begint Suglyph("uni8A32",50);
335 build_kanji.level(build_kanji.lr(450,0)
336   (kanji.grtwo.word)
337   (kanji.grone.middle));
338 tsu_render;
339 endsuglyph;
340

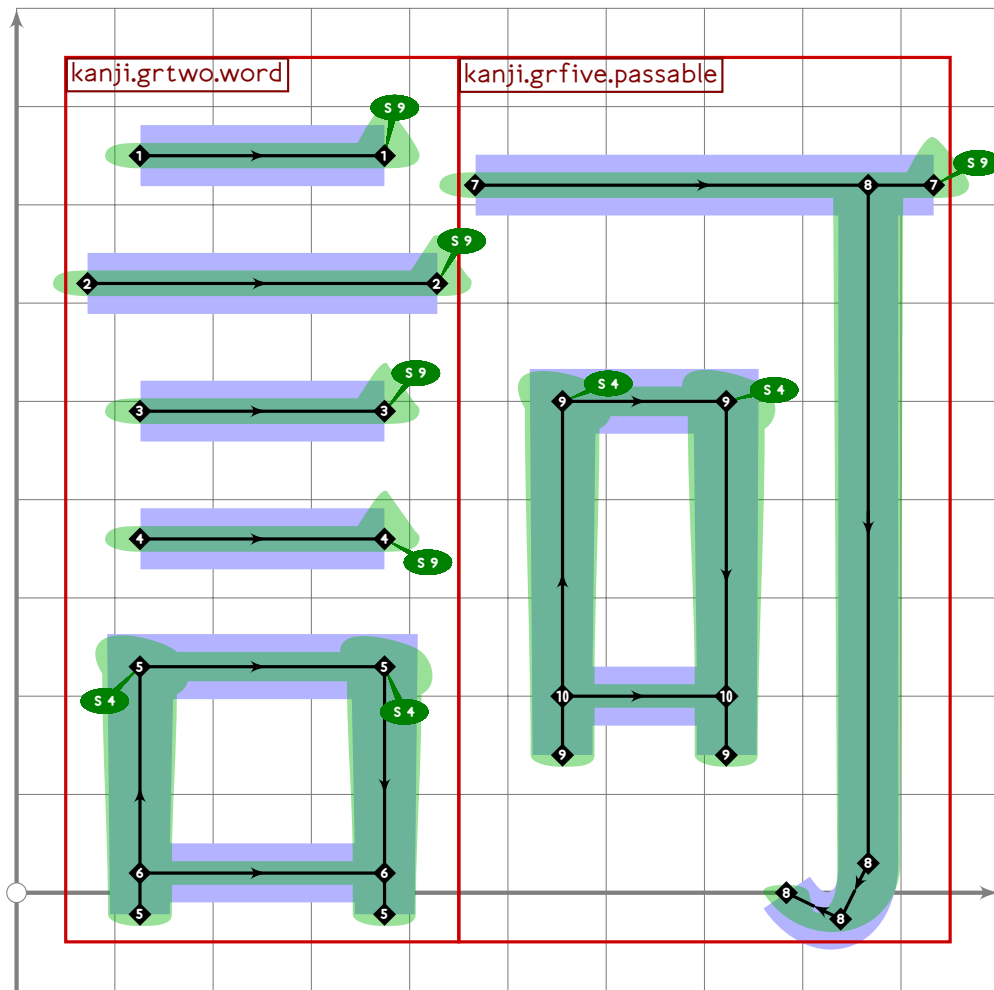
```



```

341 % extra
342 begint Suglyph("uni8A35",53);
343 build_kanji.level(build_kanji.lr(450,0)
344   (kanji.grtwo.word)
345   (kanji.grone.four));
346 tsu_render;
347 endsuglyph;
348

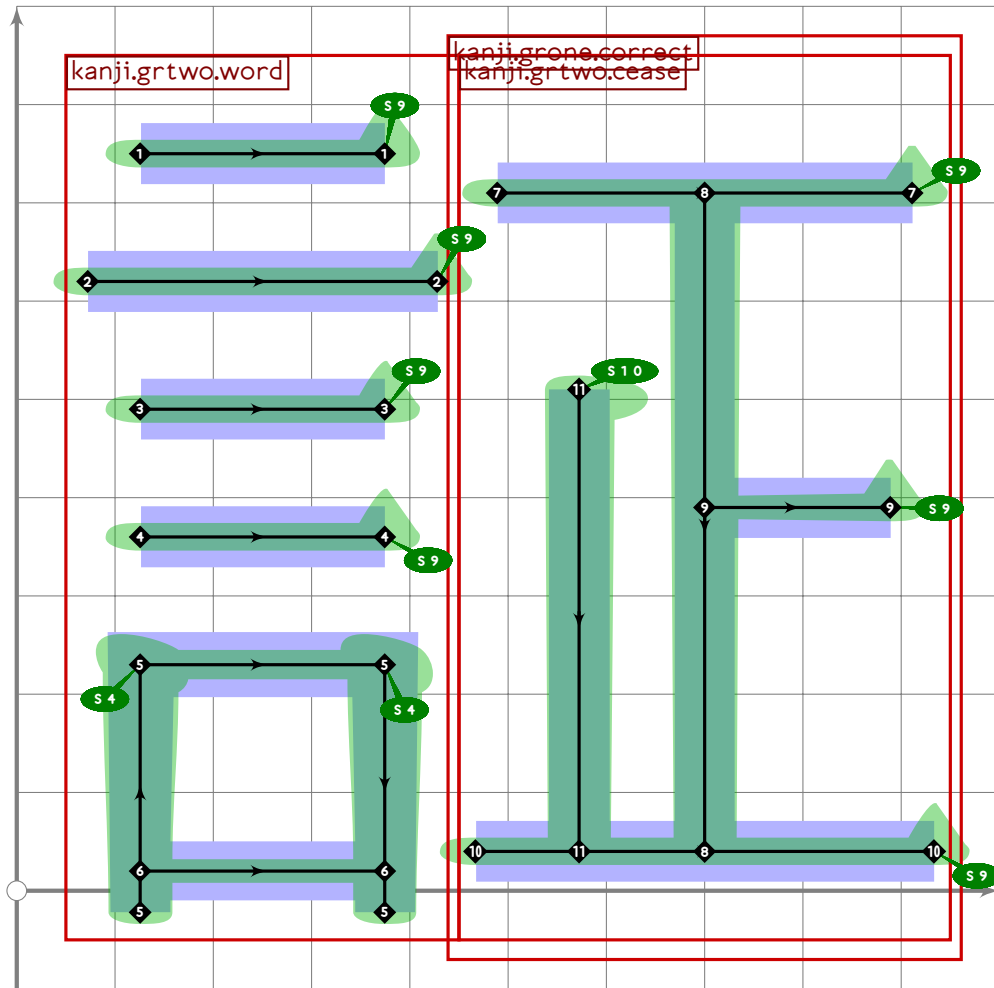
```



```

349 % extra
350 begint Suglyph("uni8A36",54);
351 build_kanji.level(build_kanji.lr(450,0)
352   (kanji.grtwo.word)
353   (kanji.grfive.passable));
354 tsu_render;
355 endsuglyph;
356

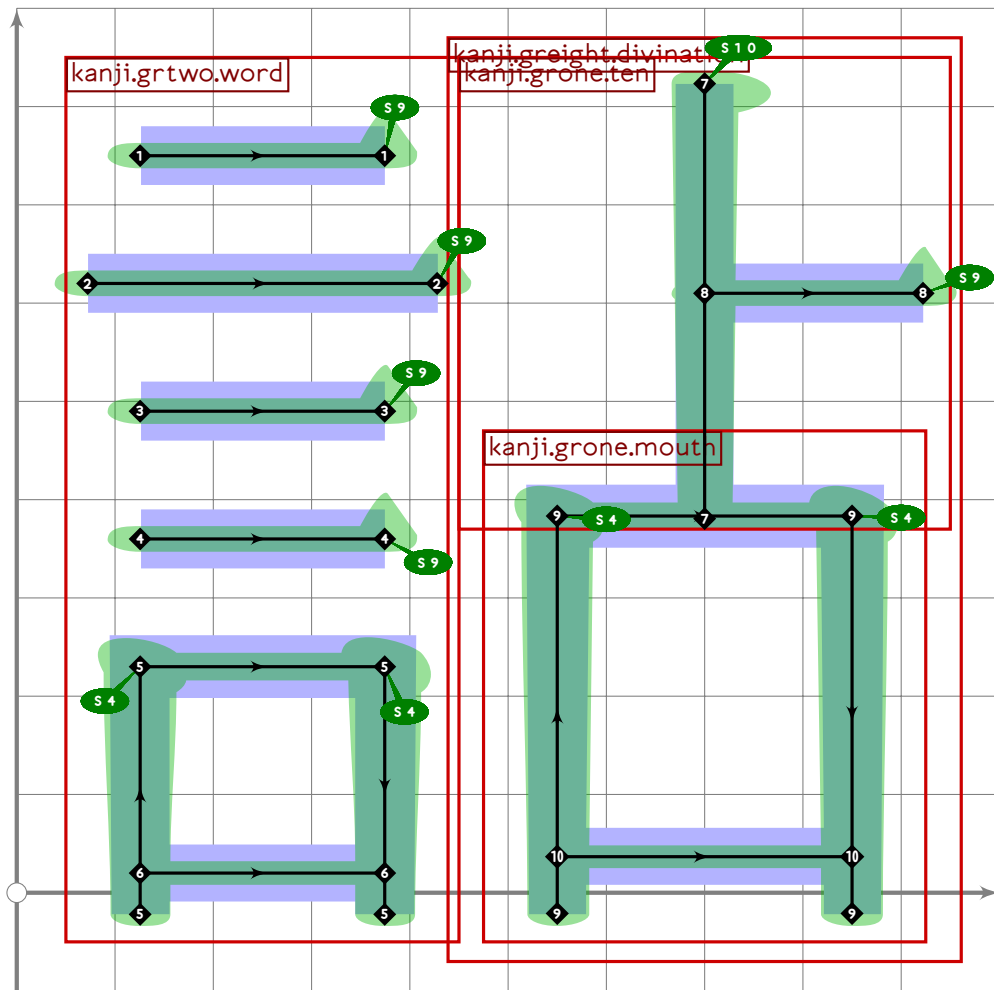
```



```

357 % extra
358 begintsuglyph("uni8A3C",60);
359 build_kanji.level(build_kanji.lr(450,0)
360   (kanji.grtwo.word)
361   (kanji.grone.correct));
362 tsu_render;
363 endsuglyph;
364

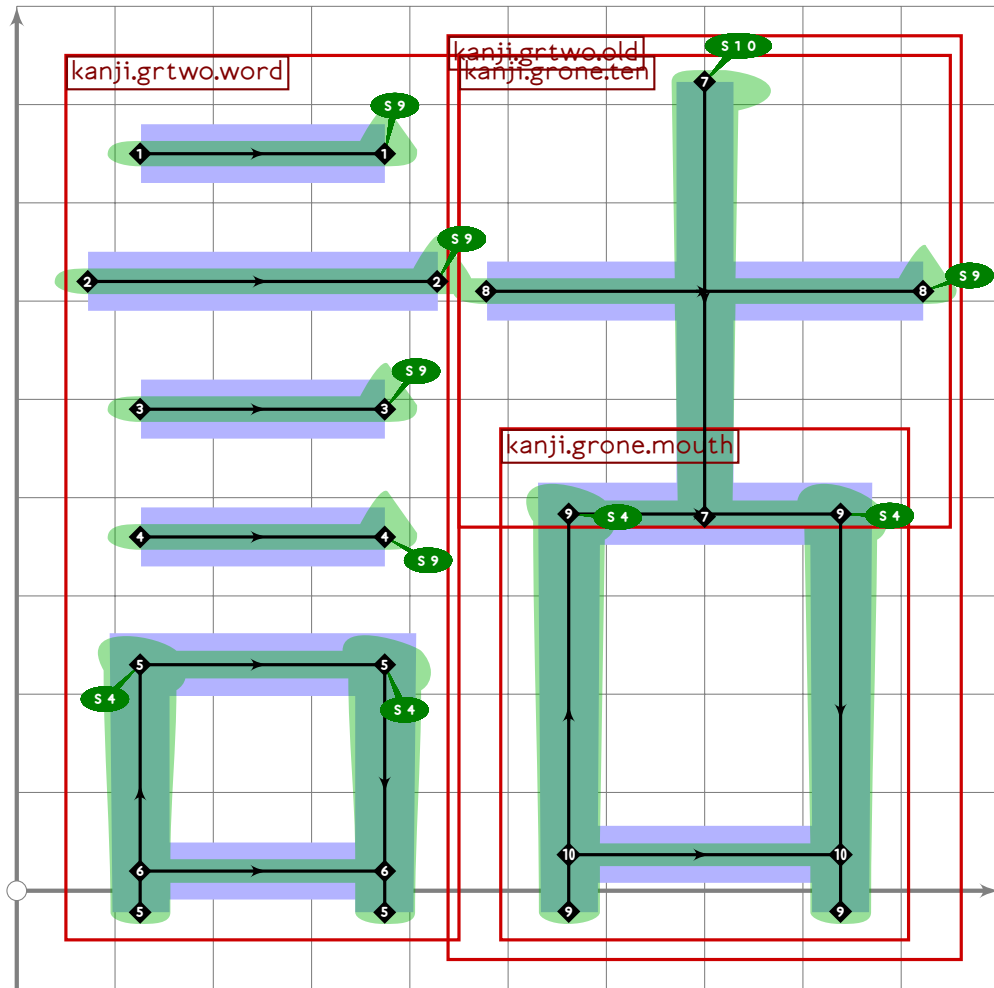
```



```

365 % extra
366 begint Suglyph("uni8A40",64);
367 build_kanji.level(build_kanji.lr(450,0)
368   (kanji.grtwo.word)
369   (kanji.greight.divination));
370 tsu_render;
371 endsuglyph;
372

```

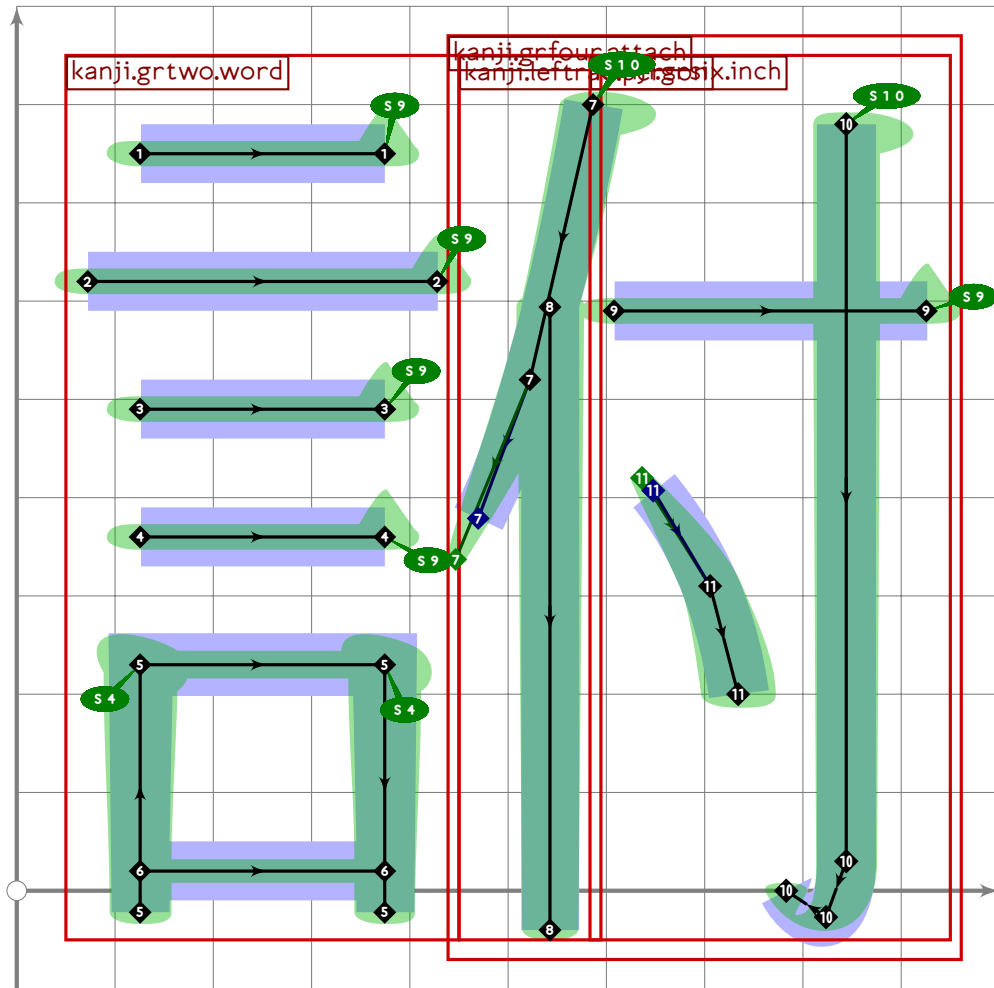


```

373 % extra
374 begint Suglyph("uni8A41",65);
375 build_kanji.level(build_kanji.lr(450,0)
376   (kanji.grtwo.word)
377   (kanji.grtwo.old));
378 tsu_render;
379 endsuglyph;
380

```

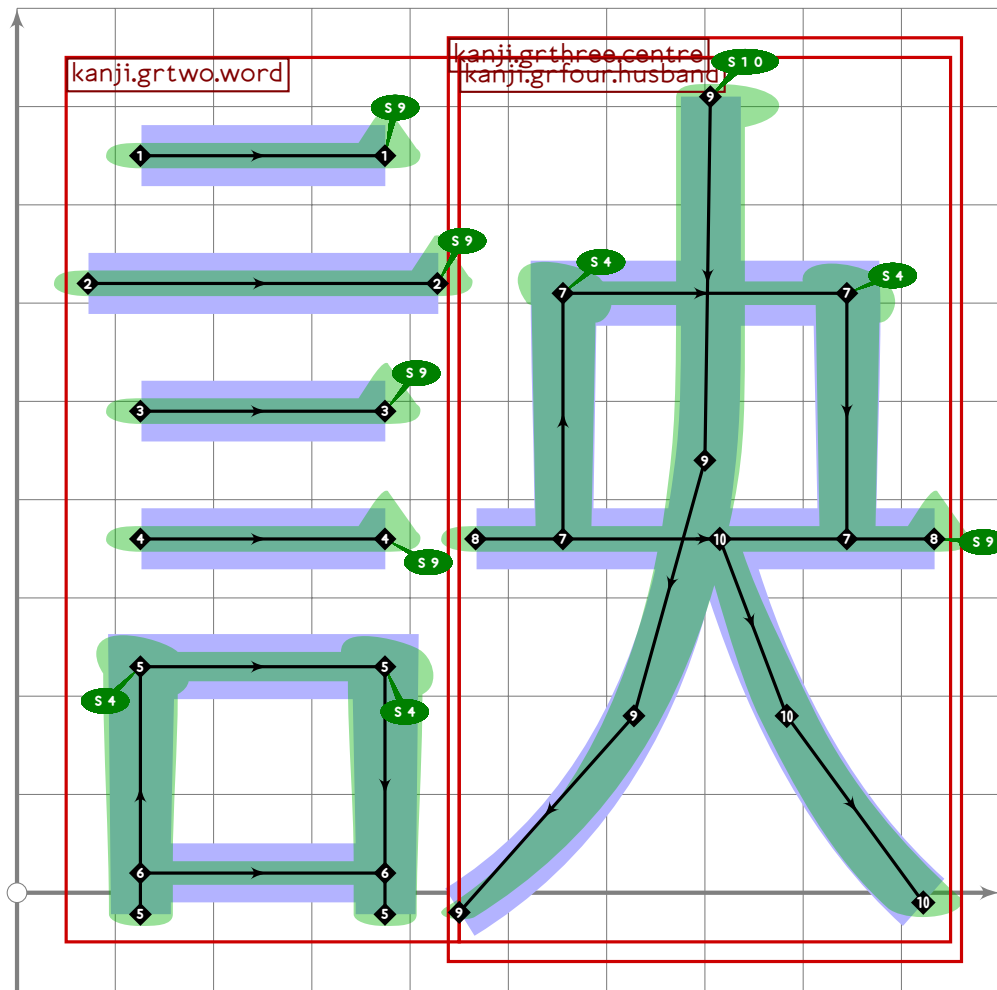




```

381 % extra
382 begint Suglyph("uni8A42",66);
383 build_kanji.level(build_kanji.lr(450,0)
384   (kanji.grtwo.word)
385   (kanji.grfour.attach));
386 tsu_render;
387 endsuglyph;
388

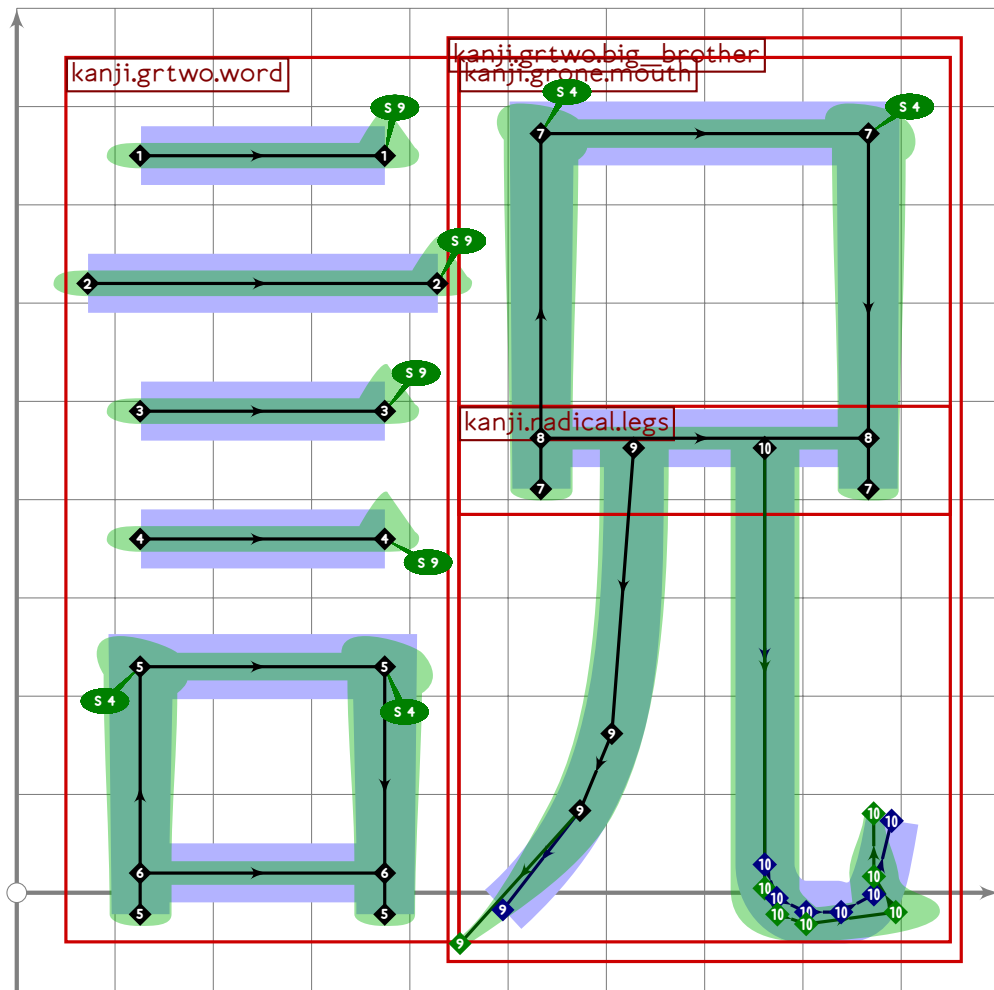
```



```

389 % extra
390 begint Suglyph("uni8A47",71);
391 build_kanji.level(build_kanji.lr(450,0)
392   (kanji.grtwo.word)
393   (kanji.grthree centre));
394 tsu_render;
395 endsuglyph;
396

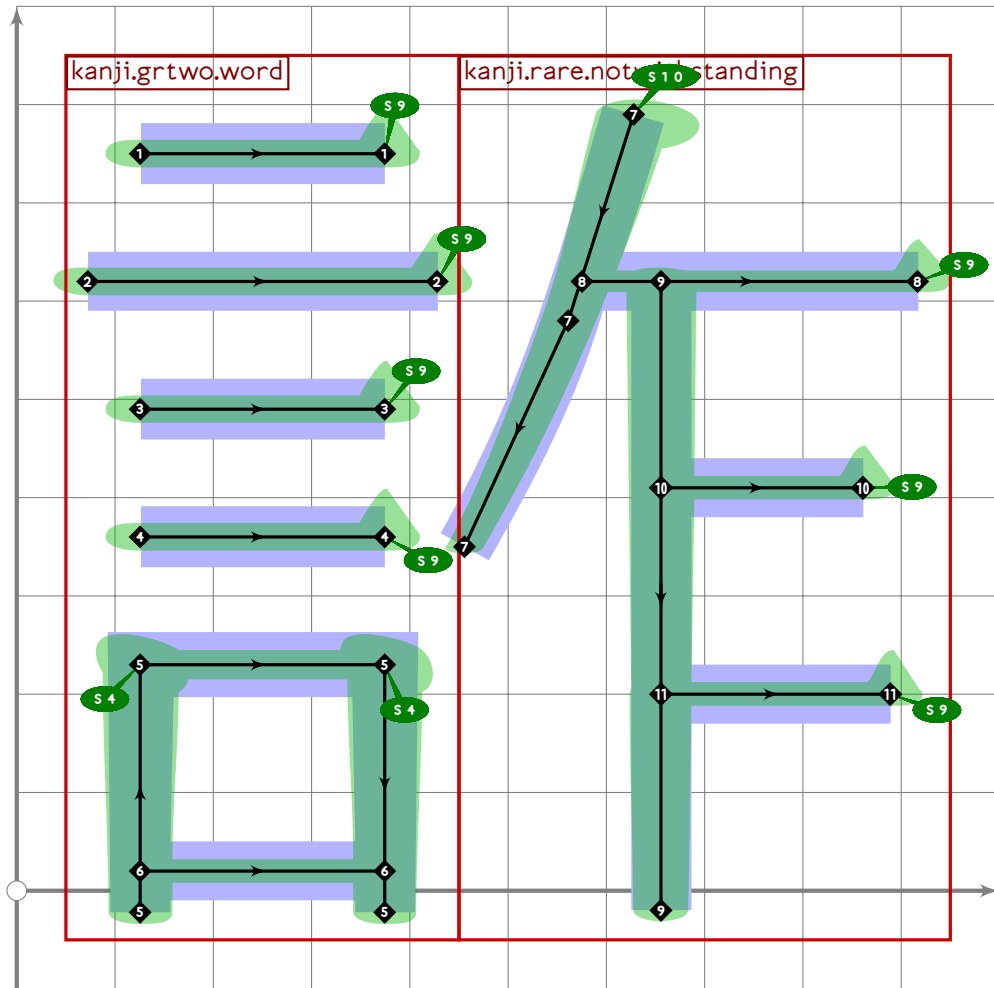
```



```

397 % extra
398 begint Suglyph("uni8A4B";75);
399 build_kanji.level(build_kanji.lr(450,0)
400   (kanji.grtwo.word)
401   (kanji.grtwo.big_brother));
402 tsu_render;
403 endsuglyph;
404

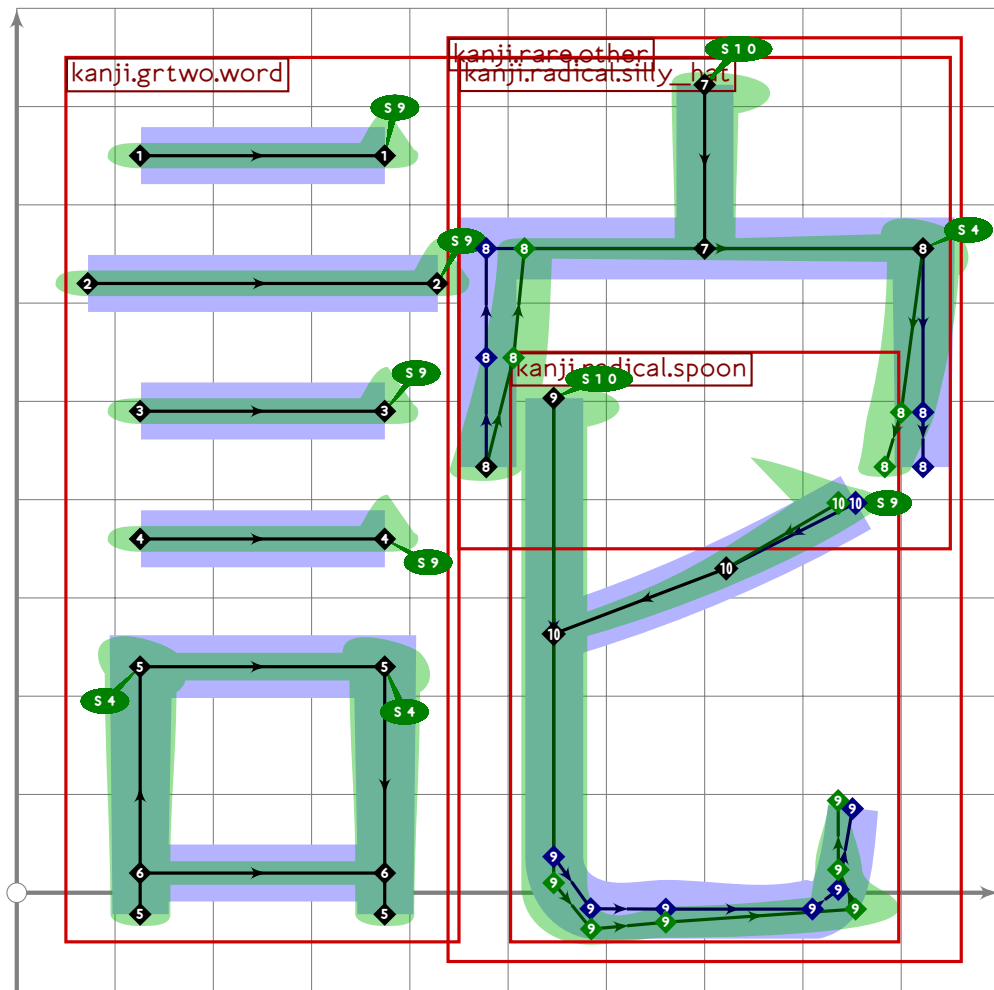
```



```

405 % extra
406 begintsuglyph("uni8A50",80);
407 build_kanji.level(build_kanji.lr(450,0)
408   (kanji.grtwo.word)
409   (kanji.rare.notwithstanding));
410 tsu_render;
411 endsuglyph;
412

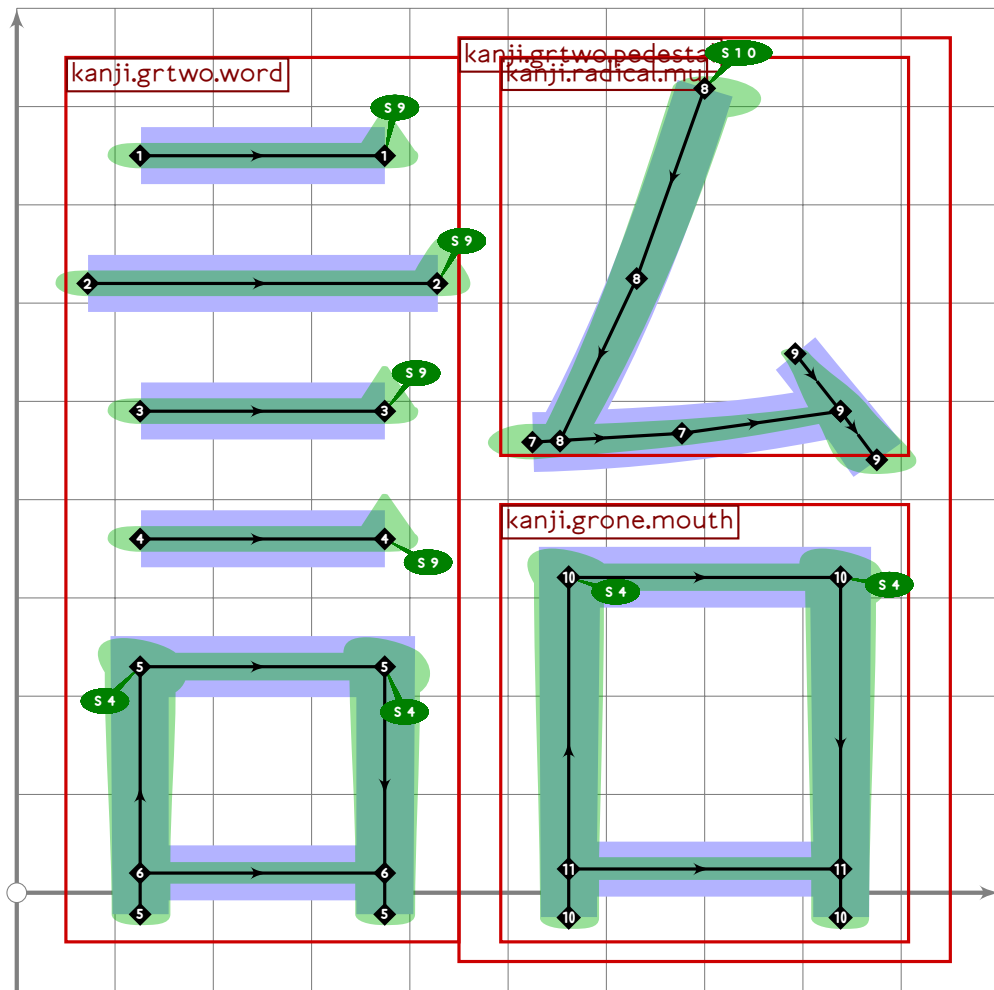
```



```

413 % extra
414 begint Suglyph("uni8A51",81);
415 build_kanji.level(build_kanji.lr(450,0)
416   (kanji.grtwo.word)
417   (kanji.rare.other));
418 tsu_render;
419 endsuglyph;
420

```

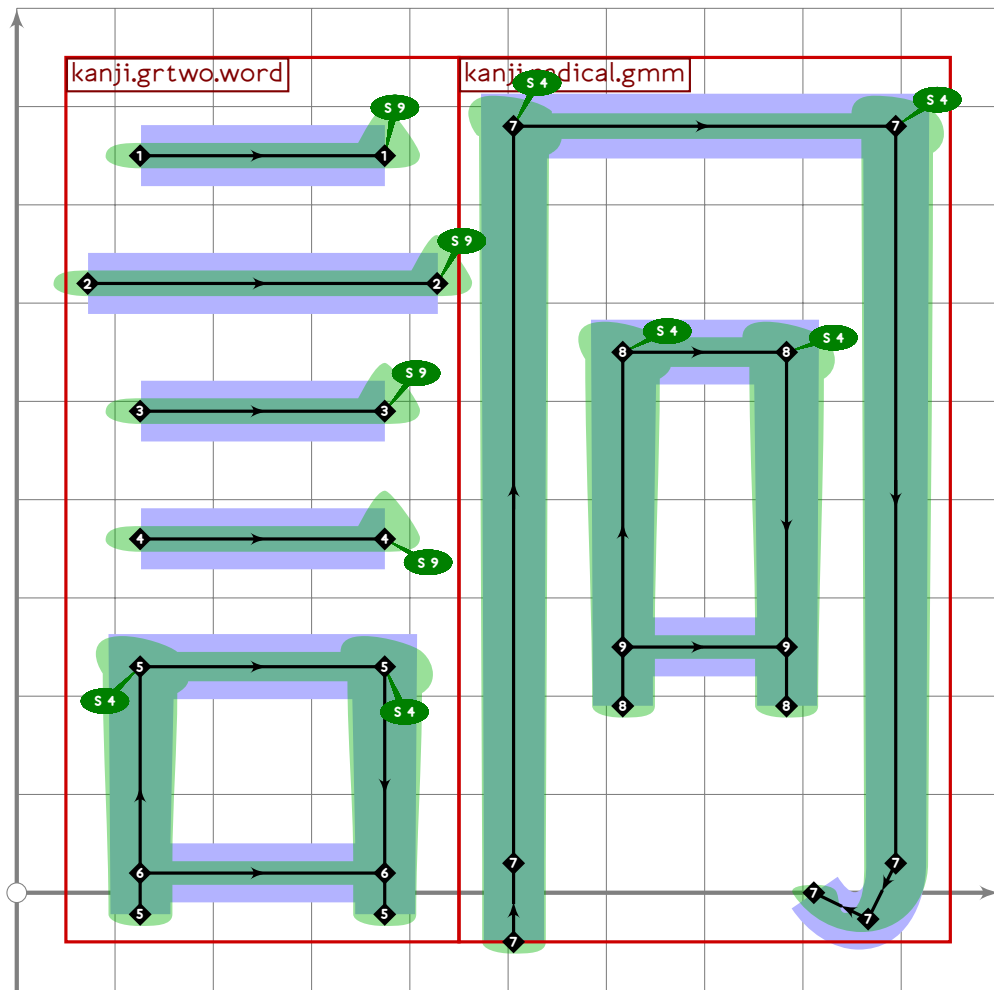


```

421 % extra
422 begintsuglyph("uni8A52",82);
423 build_kanji.level(build_kanji.lr(450,0)
424   (kanji.grtwo.word)
425   (kanji.grtwo.pedestal));
426 tsu_render;
427 endsuglyph;
428
429 % shou/mikotonori "imperial edict"
430 begintsuglyph("uni8A54",84);
431 kanji.greight.edict;
432 tsu_render;
433 endsuglyph;
434

```

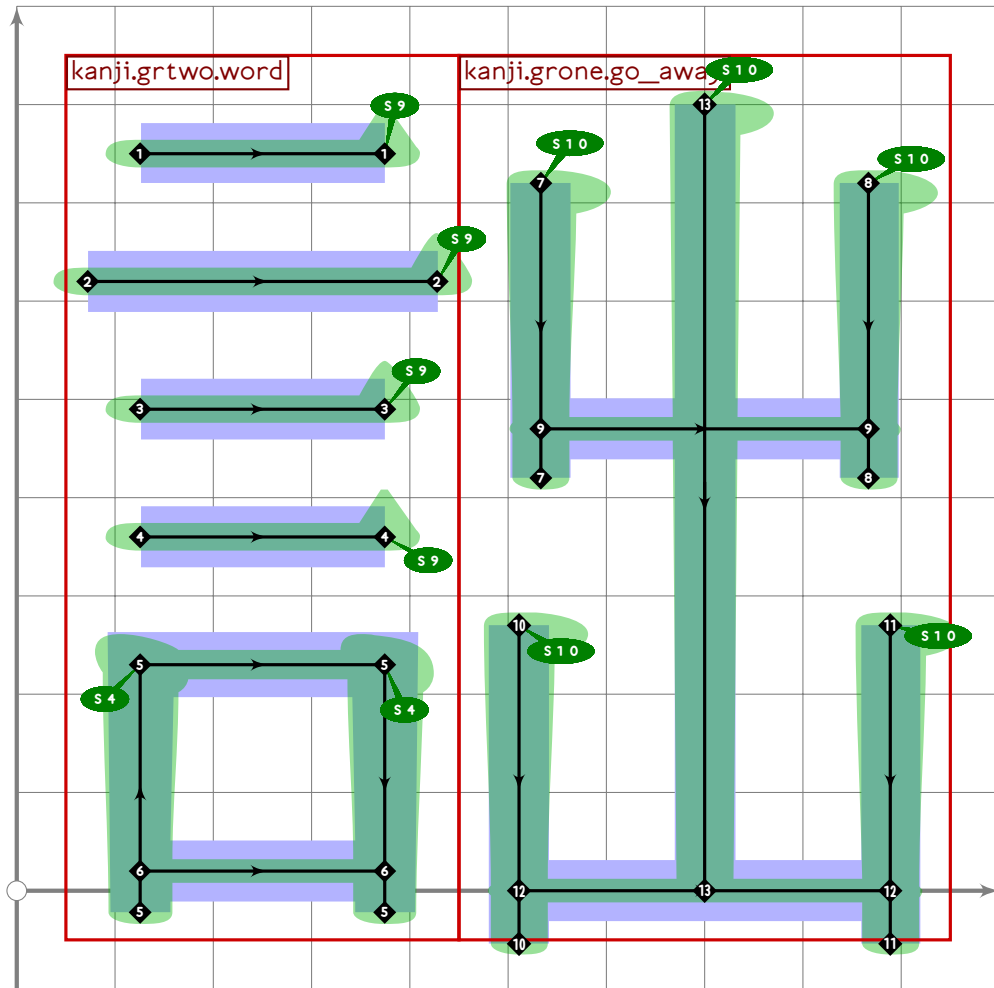
[see page 1871]



```

435 % extra
436 begint Suglyph("uni8A57",87);
437 build_kanji.level(build_kanji.lr(450,0)
438   (kanji.grtwo.word)
439   (kanji.radical.gmm;
440     build_kanji.box((350,550),(650,250));));
441 tsu_render;
442 endtsuglyph;
443

```

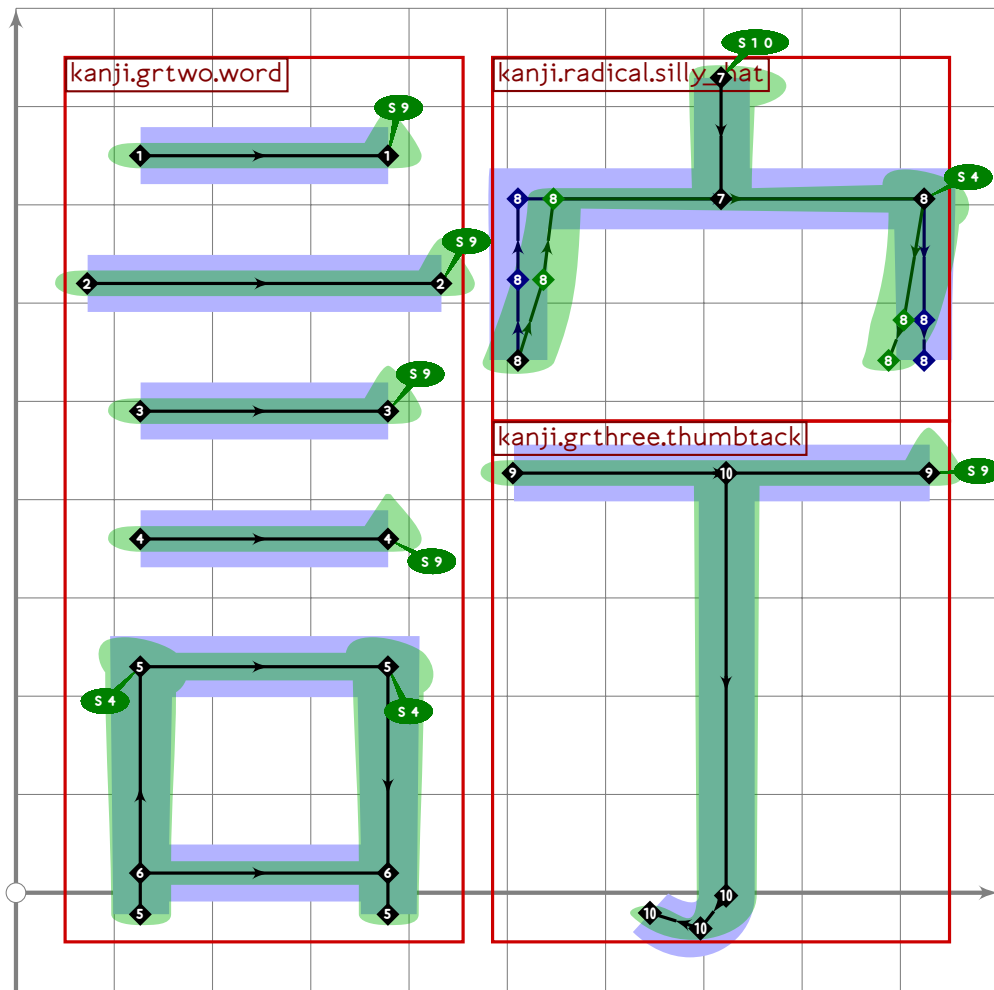


```

444 % extra
445 begint Suglyph("uni8A58",88);
446 build_kanji.level(build_kanji.lr(450,0)
447   (kanji.grtwo.word)
448   (kanji.grone.go_away));
449 tsu_render;
450 endsuglyph;
451

```





```

452 % extra
453 begintsuglyph("uni8A5D";93);
454 build_kanji.level(build_kanji.lr(470,-30)
455 (kanji.grtwo.word)
456 (build_kanji.tb(480,0)
457 (kanji.radical.silly_hat)
458 (kanji.grthree.thumbtack)));
459 tsu_render;
460 endsuglyph;
461
462 % shi "part of speech"
463 begintsuglyph("uni8A5E";94);
464 kanji.grsix.part_of_speech;
465 tsu_render;
466 endsuglyph;
467
468 % kei/mou "pilgrimage"
469 begintsuglyph("uni8A63";99);
470 kanji.greight.pilgrimage;
471 tsu_render;
472 endsuglyph;

```

[see page 1870]

[see page 1872]

473  
474 % shi/uta "poem"  
475 `begintsuglyph("uni8A69",105);` [see page 1865]  
476 `kanji.grthree.poem;`  
477 `tsu_render;`  
478 `endtsuglyph;`  
479  
480 % wa/hana "talk"  
481 `begintsuglyph("uni8A71",113);` [see page 1864]  
482 `kanji.grtwo.talk;`  
483 `tsu_render;`  
484 `endtsuglyph;`  
485  
486 % go/kata "language"  
487 `begintsuglyph("uni8A9E",158);` [see page 1861]  
488 `kanji.grtwo.language;`  
489 `tsu_render;`  
490 `endtsuglyph;`  
491  
492 % goku/yo "read"  
493 `begintsuglyph("uni8AAD",173);` [see page 1863]  
494 `kanji.grtwo.read;`  
495 `tsu_render;`  
496 `endtsuglyph;`  
497  
498 % chou/shira "tune"  
499 `begintsuglyph("uni8ABF",191);` [see page 1866]  
500 `kanji.grthree.tune;`  
501 `tsu_render;`  
502 `endtsuglyph;`  
503  
504 

---

  
505  
506 `endfont;`  
507  
508 

---

# tsuku-8b.mp

1 %  
2 % Unicode page 8b (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %

5-29 [Standard copyright notice]

30

31

32

33 beginfont

34

35 % AUTODEPS

36 input buildkanji.mp;

37 input gradeone.mp;

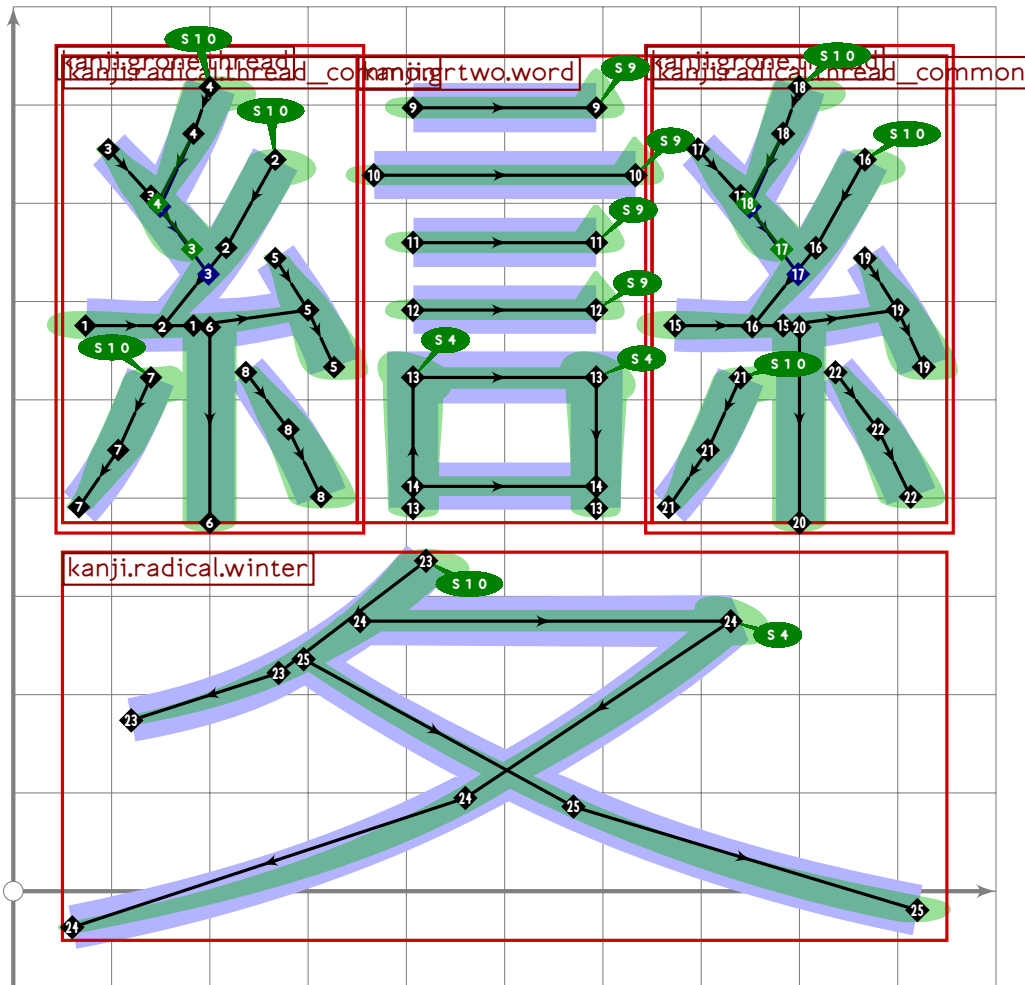
38 input gradetwo.mp;

39 input radical.mp;

40

41

42



43 % extra: alternate "hen"

```
44 begintsuglyph("uni8B8A",138);
45   build_kanji.level(build_kanji.tb(360,-30)
46     (build_kanji.sscale(xscaled 0.333 shifted (-300,0))(kanji.grone.thread);
47     build_kanji.sscale(xscaled 0.333)(kanji.grtwo.word);
48     build_kanji.sscale(xscaled 0.333 shifted (300,0))(kanji.grone.thread))
49     (kanji.radical.winter));
50   tsu_render;
51 endtsuglyph;
52
53 

---

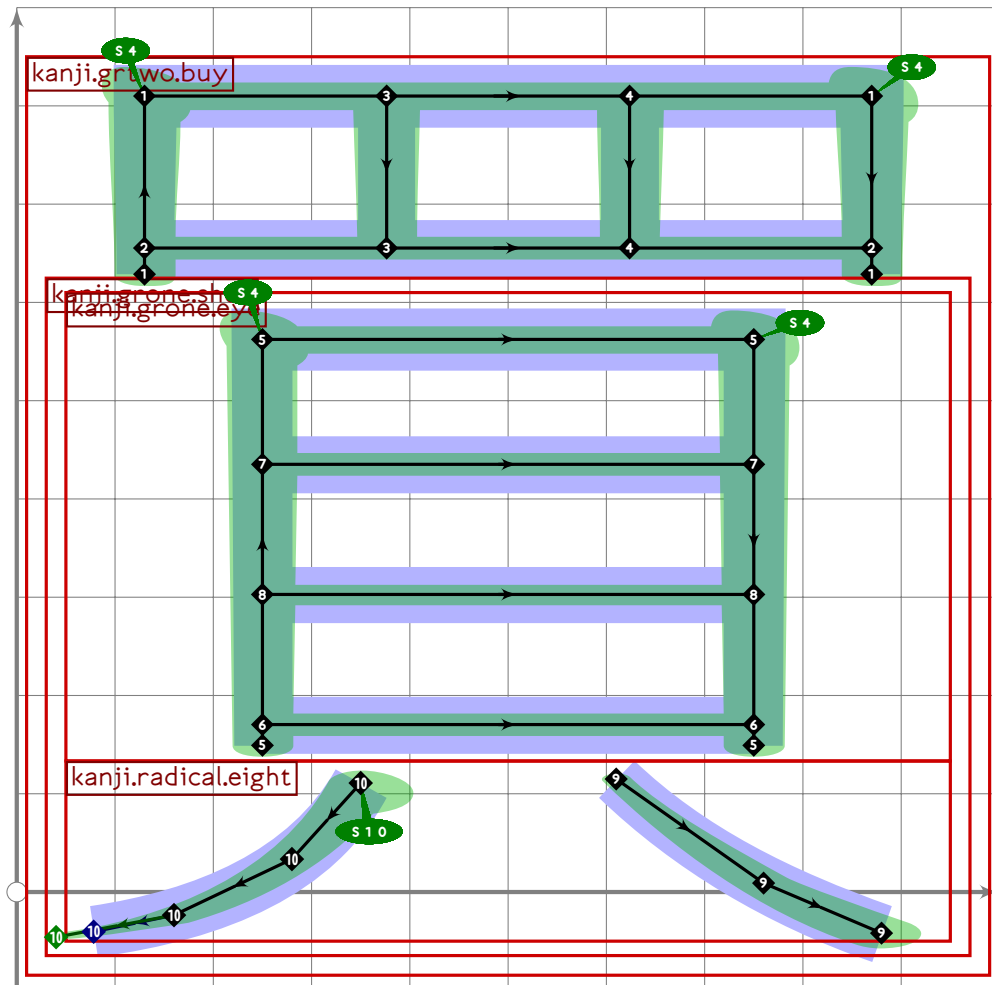

54
55 endfont;
56
57 

---


```

# tsuku-8c.mp

```
1 %  
2 % Unicode page 8c (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradeone.mp;  
38 input gradethree.mp;  
39 input radical.mp;  
40  
41 _____
```

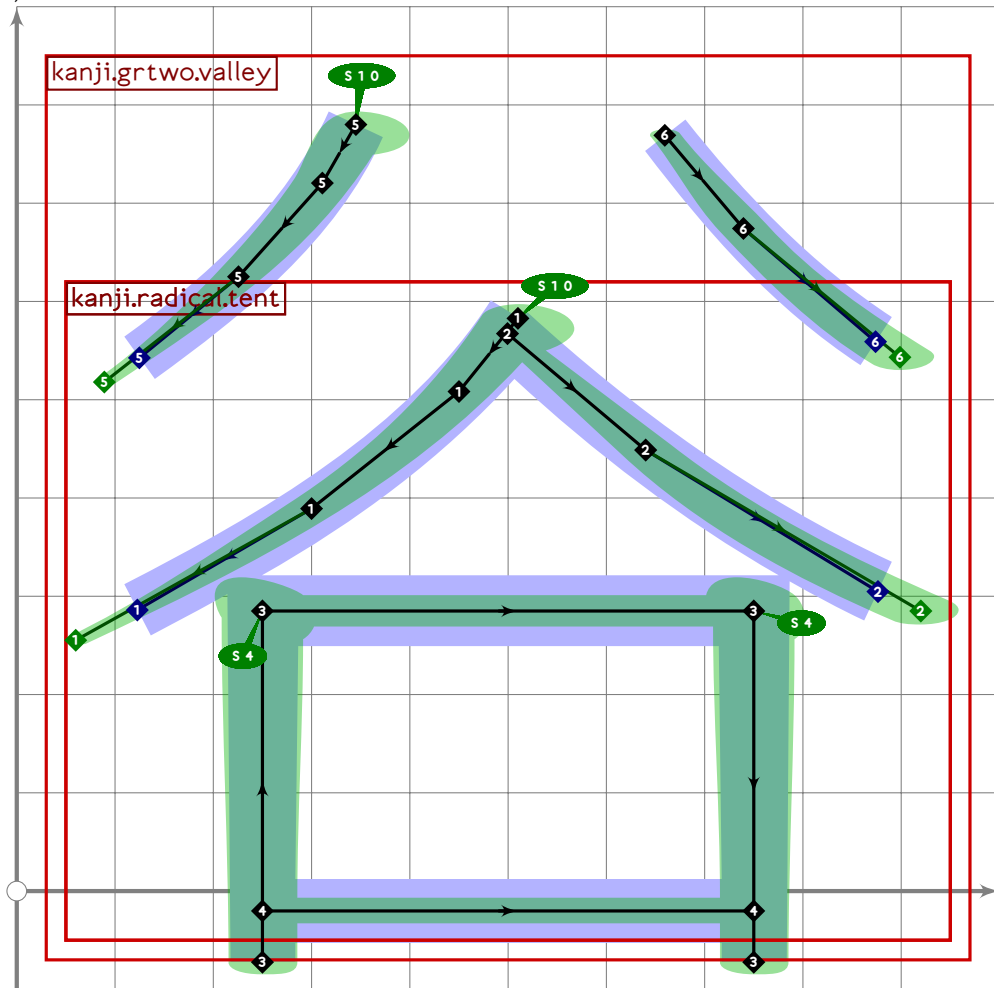


```
42  
43 vardef kanji.grtwo.buy =
```

```

44 push_pbox_toexpand("kanji.grtwo.buy");
45 build_kanji.level(build_kanji.tb(610,0)
46   (begingroup
47     save x,y;
48     numeric x[],y[];
49     x1=x5=130;
50     x2=x6=0.333[x1,x4];
51     x3=x7=0.667[x1,x4];
52     x4=x8=1000-x1;
53     y1=y2=y3=y4=700;
54     y5=y6=y7=y8=120;
55     build_kanji.box(z1,z8);
56     push_stroke(z2-z6,(1.6,1.6)-(1.5,1.5));
57     push_stroke(z3-z7,(1.6,1.6)-(1.5,1.5));
58   endgroup)
59   (kanji.grone.shell));
60 expand_pbox;
61 enddef;

```



```

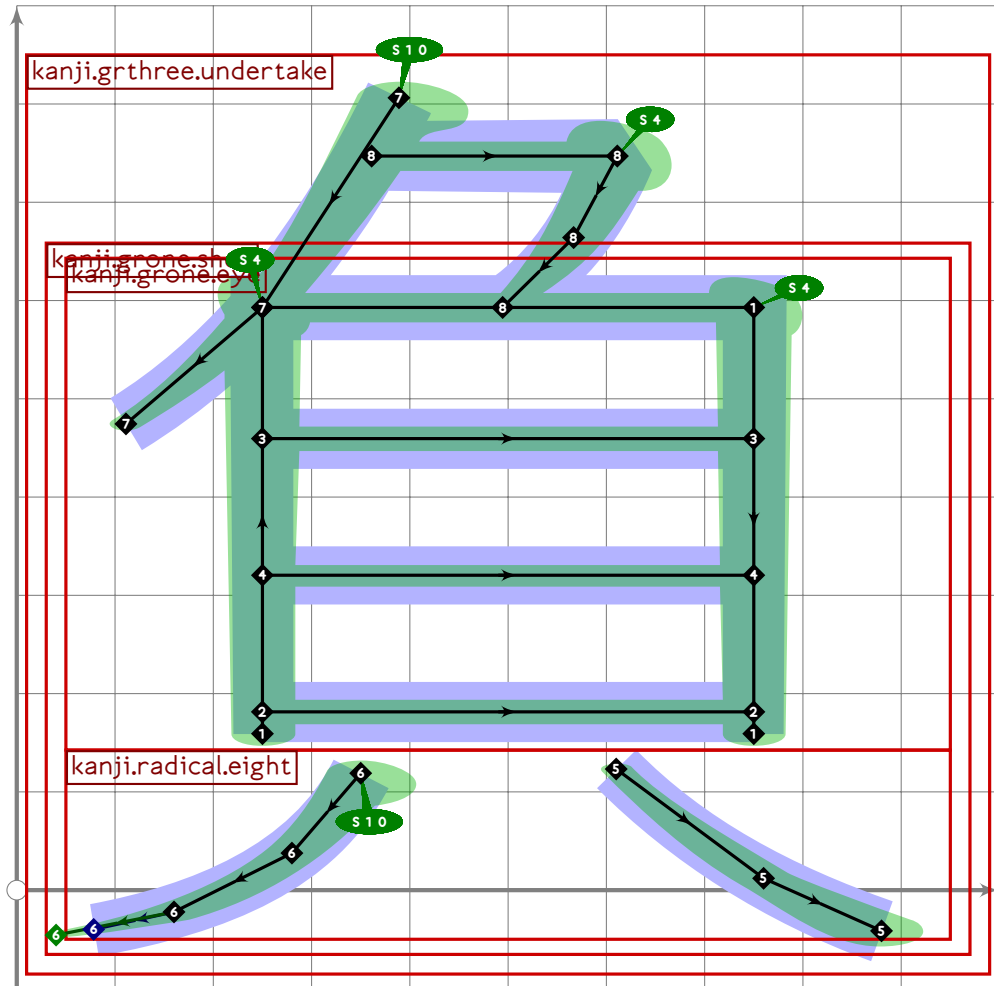
62
63 vardef kanji.grtwo.valley =
64   push_pbox_toexpand("kanji.grtwo.valley");

```

```

65 build_kanji.harmonic(230,0.8,260)(build_kanji.level(
66   kanji.radical.tent;
67   pop_stroke;
68   build_kanji.box((250,400),(750,-10));
69 ));
70 expand_pbox;
71 enddef;
72
73

```



```

74
75 vardef kanji.grthree.undertake =
76   push_pbox_toexpand("kanji.grthree.undertake");
77   build_kanji.attach_fishhook(0.77)(kanji.grone.shell);
78   expand_pbox;
79 enddef;
80
81
82
83 % koku/tani "valley"
84 begint Suglyph("uni8C37",55);
85 kanji.grtwo.valley;

```

[see page 1906]

```

86  tsu_render;
87  endtsuglyph;
88
89  % tou/mame "bean"
90  begintsuglyph("uni8C46";70); [see page 475]
91  kanji.grthree.bean;
92  tsu_render;
93  endtsuglyph;
94
95  % inoko "pig" radical
96  begintsuglyph("uni8C55";85); [see page 351]
97  kanji.radical.pig;
98  tsu_render;
99  endtsuglyph;
100
101 % bai/kai "shellfish"
102 begintsuglyph("uni8C9D";157); [see page 410]
103 kanji.grone.shell;
104 tsu_render;
105 endtsuglyph;
106
107 % fu/ma "undertake"
108 begintsuglyph("uni8CA0";160); [see page 1907]
109 kanji.grthree.undertake;
110 tsu_render;
111 endtsuglyph;
112
113 % gai/ka "buy"
114 begintsuglyph("uni8CB7";183); [see page 1905]
115 kanji.grtwo.buy;
116 tsu_render;
117 endtsuglyph;
118
119 _____
120
121 endfont;
122
123 _____

```



# tsuku-8d.mp

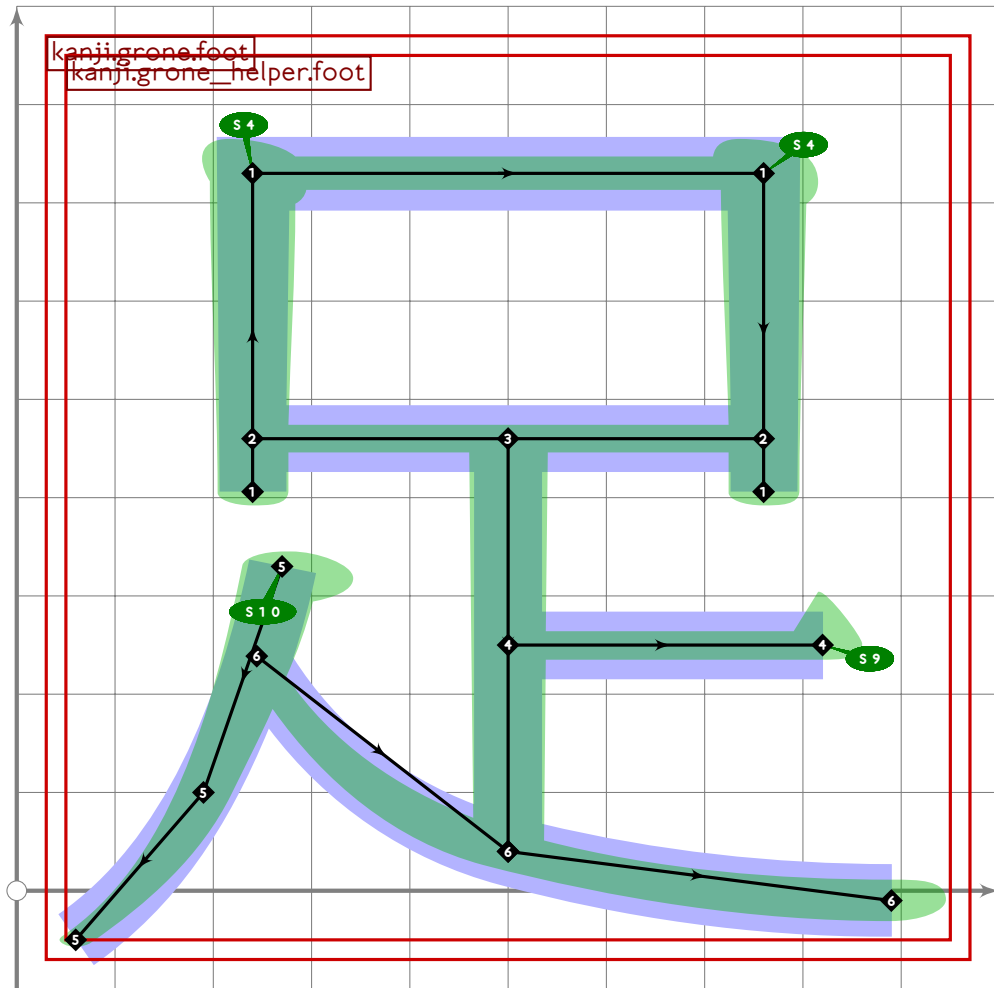
```
1 %
2 % Unicode page 8d (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37
38 

---

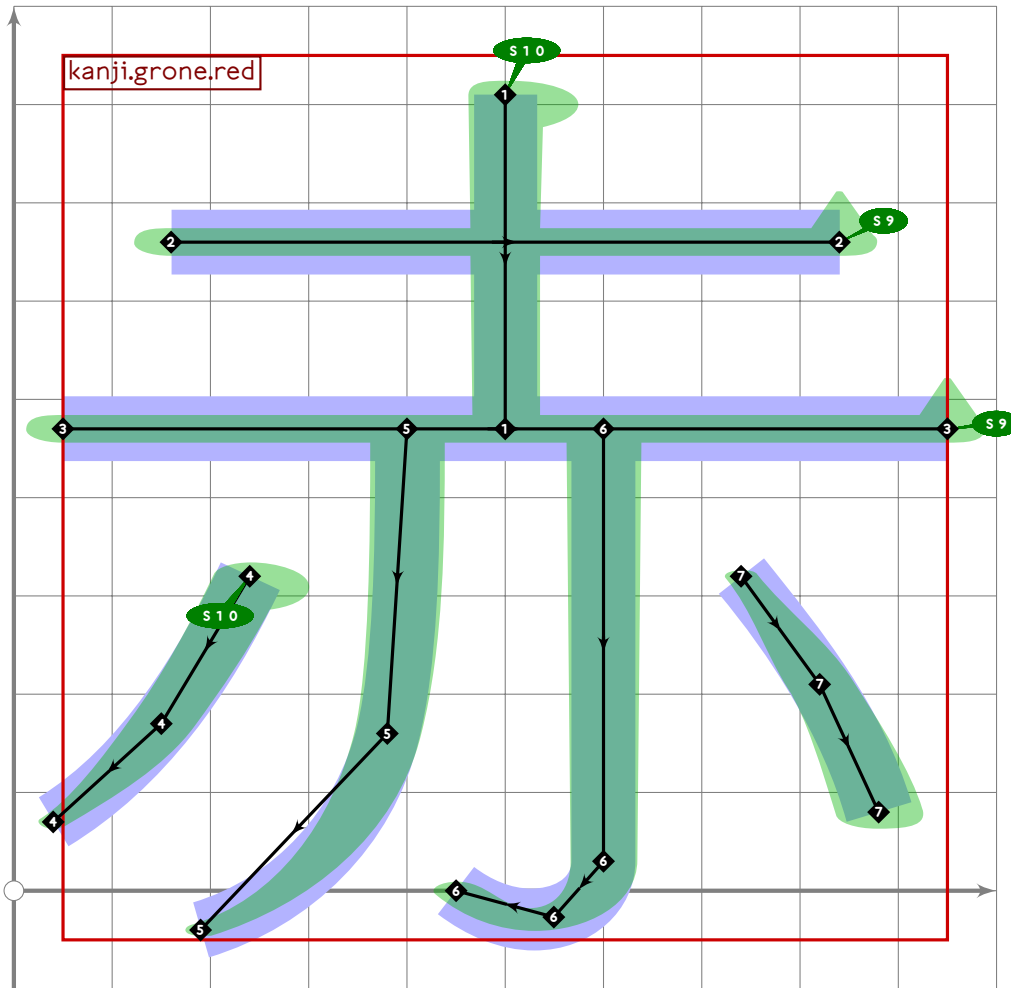

39
40 vardef kanji.grone_helper.foot =
41   push_pbox_toexpand("kanji.grone_helper.foot");
42   push_stroke((270,330)..tension 1.3..(190,100)..(60,-50),
43     (1.6,1.6)-(1.3,1.3)-(1,1));
44   set_bosserif(0,0,10);
45   push_stroke((point 0.4 of get_strokep(0))..(500,40)..tension 1.5..(890,-10),
46     (1,1)-(1.7,1.7)-(2,2));
47   expand_pbox;
48 enddef;
```



```

49
50 vardef kanji.grone.foot =
51   push_pbox_toexpand("kanji.grone.foot");
52   build_kanji.box((240,730),(760,460));
53   push_stroke((500,460)-(500,40),(1.6,1.6)-(1.5,1.5));
54   push_stroke((500,250)-(820,250),(1.5,1.5)-(1.6,1.6));
55   set_boserif(0,1,9);
56   kanji.grone_helper.foot;
57   expand_pbox;
58 enddef;

```

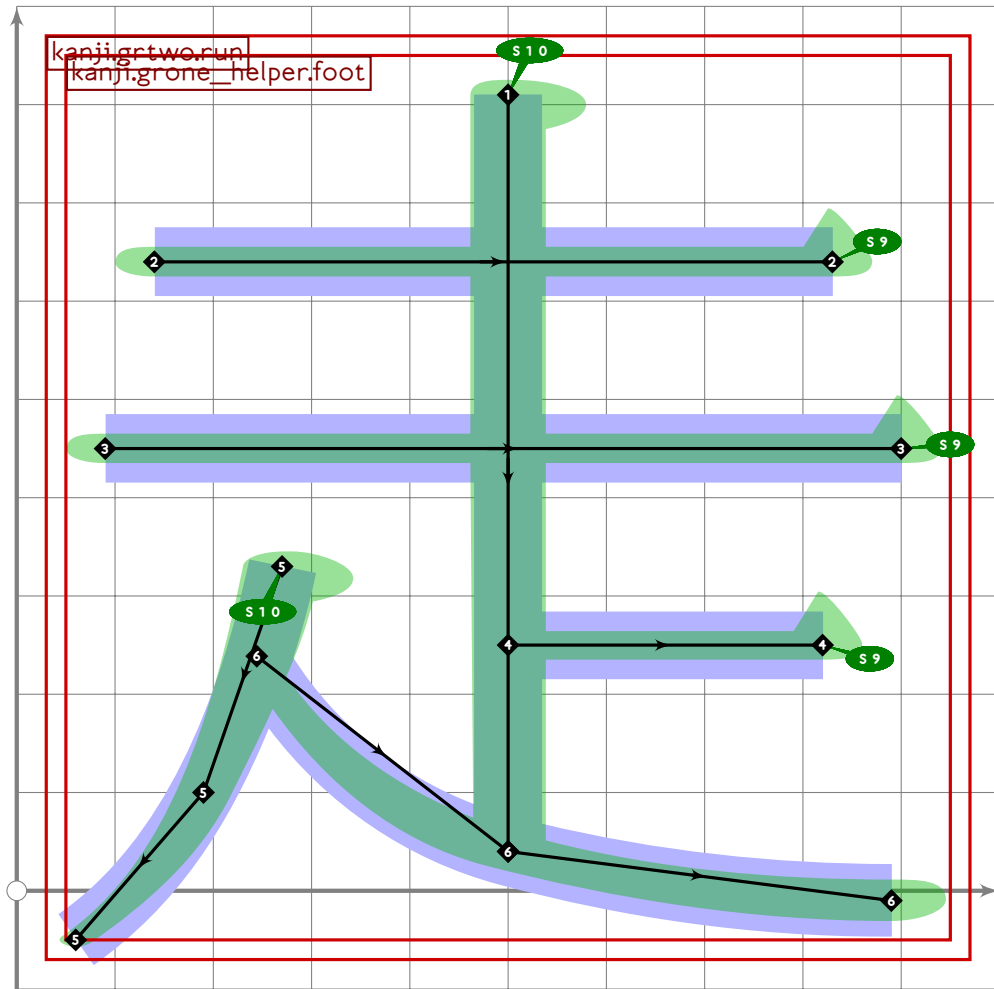


```

59
60 vardef kanji.grone.red =
61   push_pbox_toexpand("kanji.grone.red");
62   push_stroke((500,810)-(500,470),(1.6,1.6)-(1.5,1.5));
63   set_boserif(0,0,10);
64   push_stroke((160,660)-(840,660),(1.6,1.6)-(1.6,1.6));
65   set_boserif(0,1,9);
66   push_stroke((50,470)-(950,470),(1.6,1.6)-(1.6,1.6));
67   set_boserif(0,1,9);
68   push_stroke((240,320)..tension 1.3..(150,170)..(40,70),
69     (1.6,1.6)-(1.5,1.5)-(1,1));
70   set_boserif(0,0,10);
71   push_stroke((400,470){down}..tension 1.3..(380,160)..(190,-40),
72     (1.6,1.6)-(1.5,1.5)-(1,1));
73   push_stroke((600,470),(1.6,1.6));
74   build_kanji.add_jtail(0);
75   push_stroke((740,320)..tension 1.3..(820,210)..(880,80),
76     (1,1)-(1.5,1.5)-(1.8,1.8));
77   for i=-6 upto 0: set_bosize(i,94); endfor;
78   expand_pbox;
79 enddef;

```

80  
81



```
82  
83 vardef kanji.grtwo.run =  
84   push_pbox_toexpand("kanji.grtwo.run");  
85   push_stroke((500,810)-(500,40),(1.6,1.6)-(1.5,1.5));  
86   set_boserif(0,0,10);  
87   push_stroke((140,640)-(830,640),(1.6,1.6)-(1.6,1.6));  
88   set_boserif(0,1,9);  
89   push_stroke((90,450)-(900,450),(1.6,1.6)-(1.6,1.6));  
90   set_boserif(0,1,9);  
91   push_stroke((500,250)-(820,250),(1.5,1.5)-(1.6,1.6));  
92   set_boserif(0,1,9);  
93   kanji.grone_helper.foot;  
94   expand_pbox;  
95 enddef;
```

96  
97  
98

```
99 % aka/seki "red"  
100 begint Suglyph("uni8D64",100);
```

[see page 1911]

```
101  kanji.grone.red;
102  tsu_render;
103  endtsuglyph;
104
105  % sou/hasi "run"
106  begintsuglyph("uni8D70",112); [see page 1912]
107  kanji.grtwo.run;
108  tsu_render;
109  endtsuglyph;
110
111  % ashi/soku "foot"
112  begintsuglyph("uni8DB3",179); [see page 1910]
113  kanji.grone.foot;
114  tsu_render;
115  endtsuglyph;
116
117  _____
118
119  endfont;
120
121  _____
```

# tsuku-8e.mp

```
1 %
2 % Unicode page 8e (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeone.mp;
38
39 

---


40
41 % kuruma "car/wheel"
42 begintsuglyph\("uni8ECA";202\); [see page 421]
43 kanji.grone.wheel;
44 tsu\_render;
45 endtsuglyph;
46
47 

---

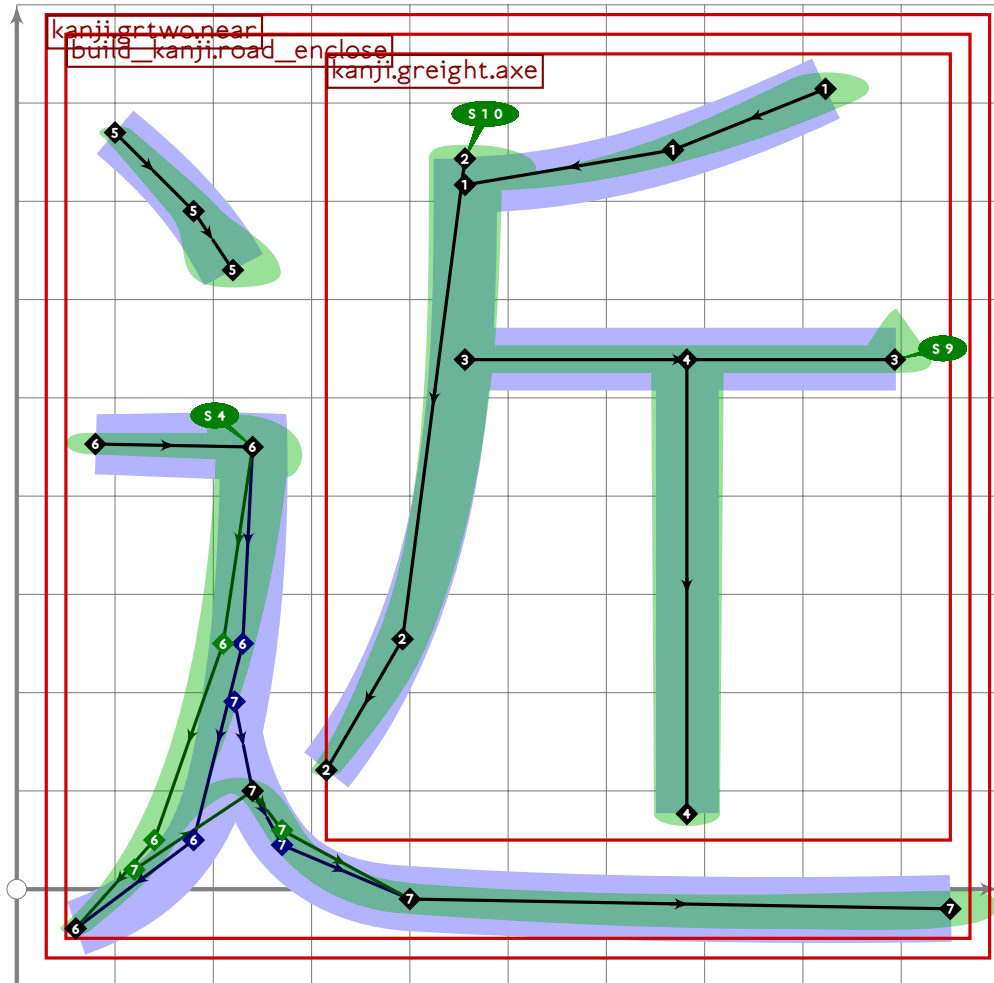

48
49 endfont;
50
51 

---


```

# tsuku-8f.mp

```
1 %  
2 % Unicode page 8f (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradeeight.mp;  
38 input gradeone.mp;  
39 input gradethree.mp;  
40 input gradetwo.mp;  
41  
42 _____
```



43

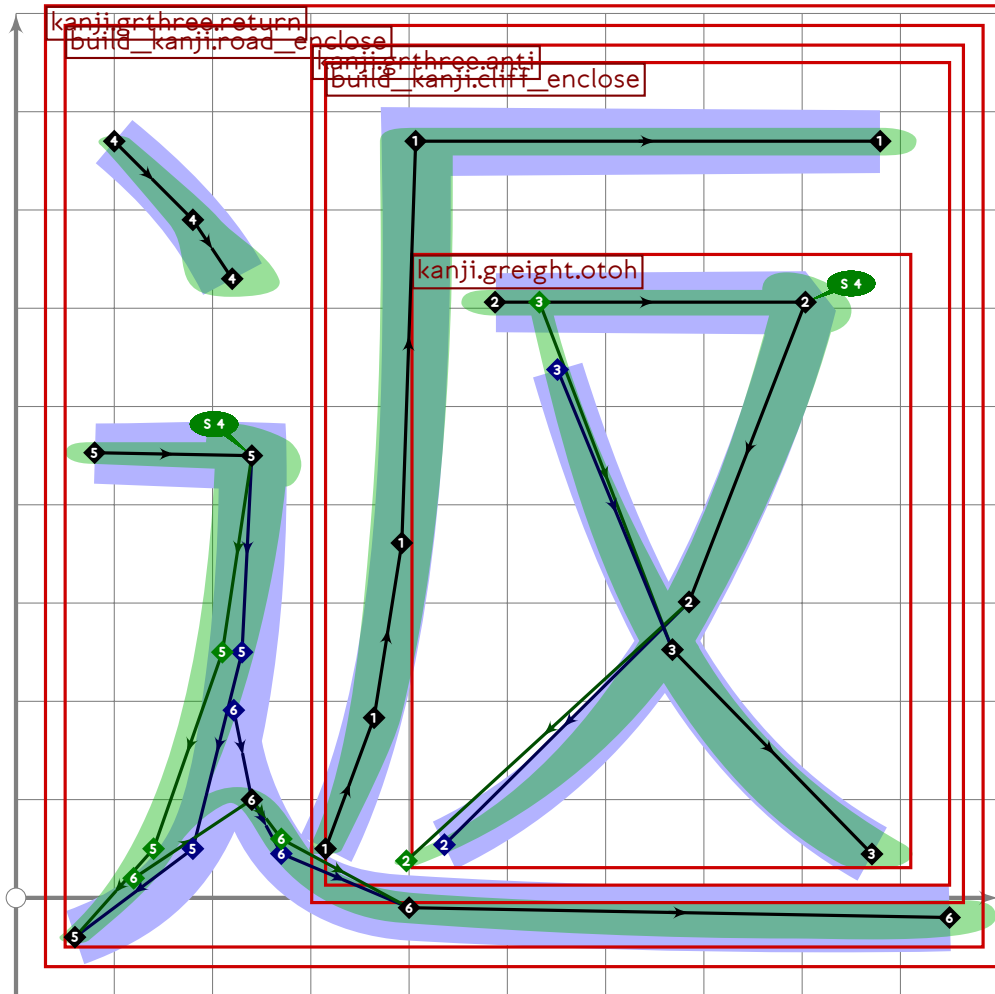
```

44 vardef kanji.grtwo.near =
45   push_pbox_toexpand("kanji.grtwo.near");
46   build_kanji.road_enclose(kanji.greight.axe);
47   expand_pbox;
48 enddef;

```

49

50



51

```

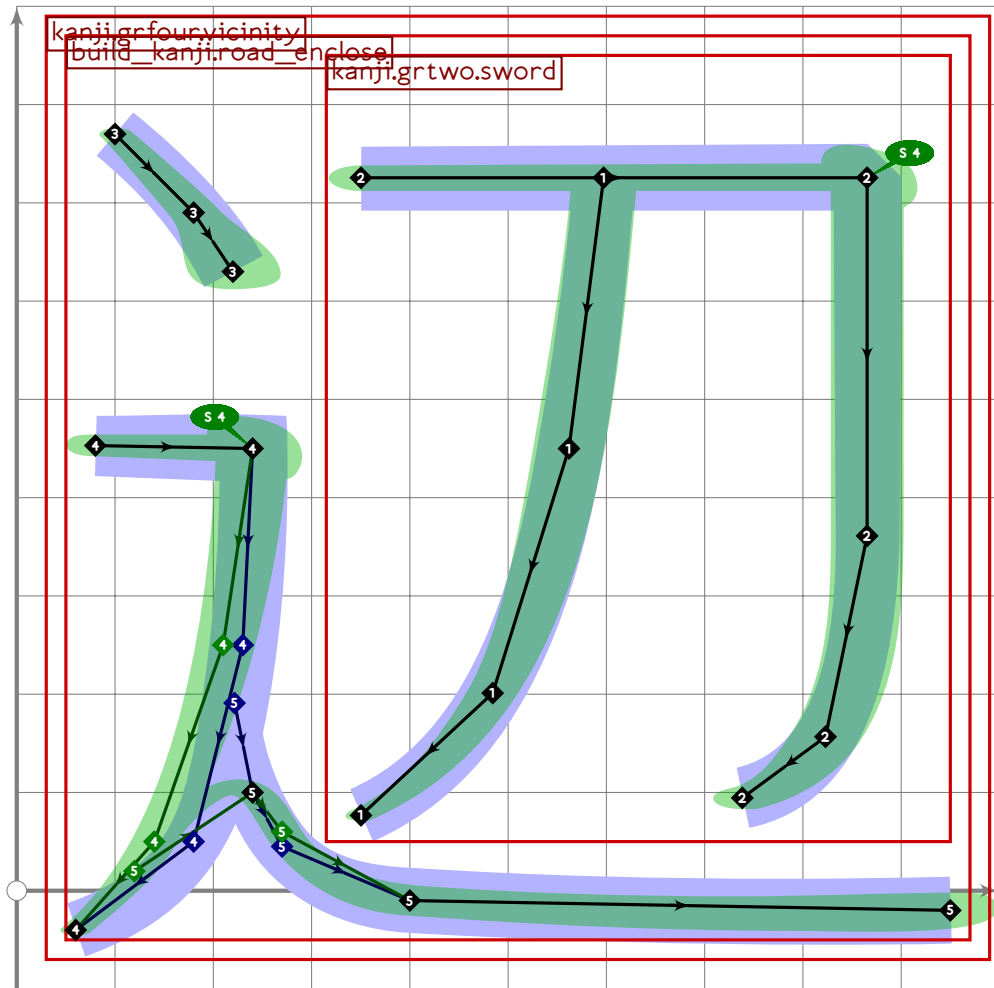
52 vardef kanji.grthree.return =
53   push_pbox_toexpand("kanji.grthree.return");
54   build_kanji.road_enclose(kanji.grthree.anti);
55   expand_pbox;
56 enddef;

```

57

58

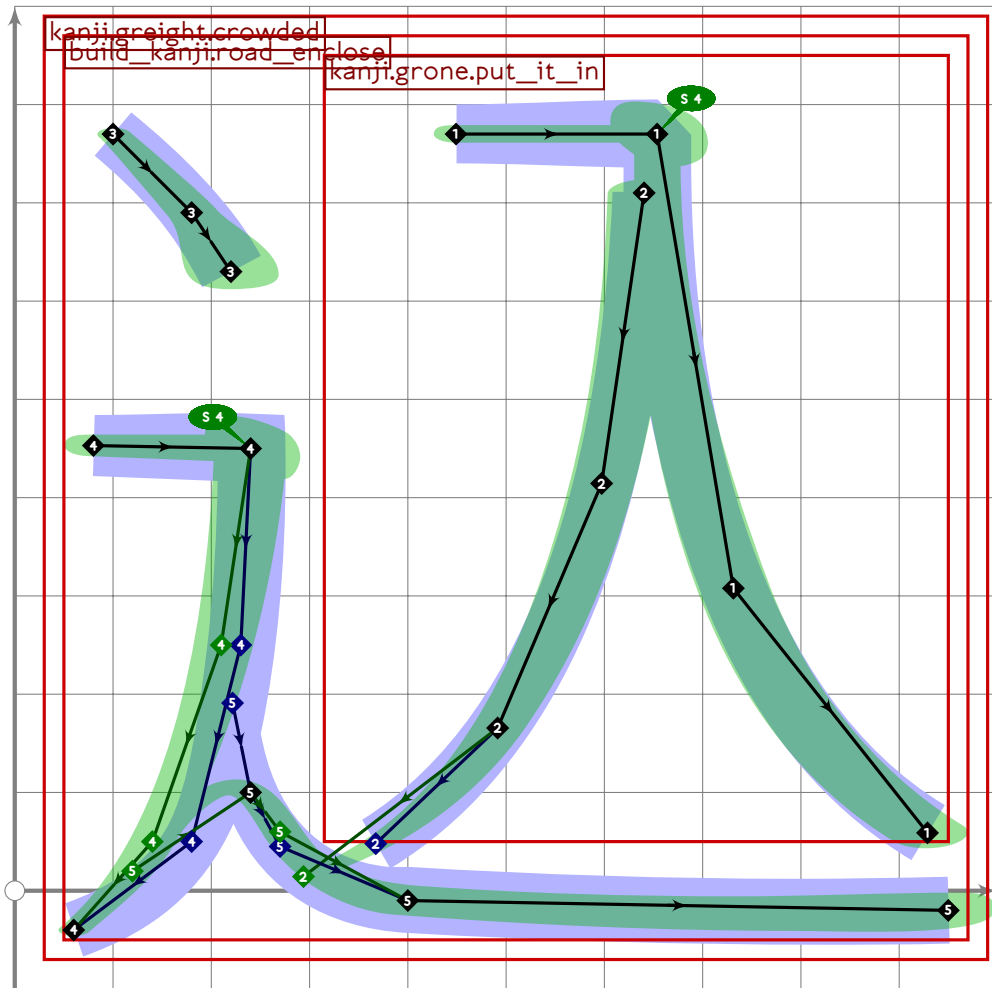




```

59
60 vardef kanji.grfour.vicinity =
61   push_pbox_toexpand("kanji.grfour.vicinity");
62   build_kanji.road_enclose(kanji.grtwo.sword);
63   expand_pbox;
64 enddef;
65
66

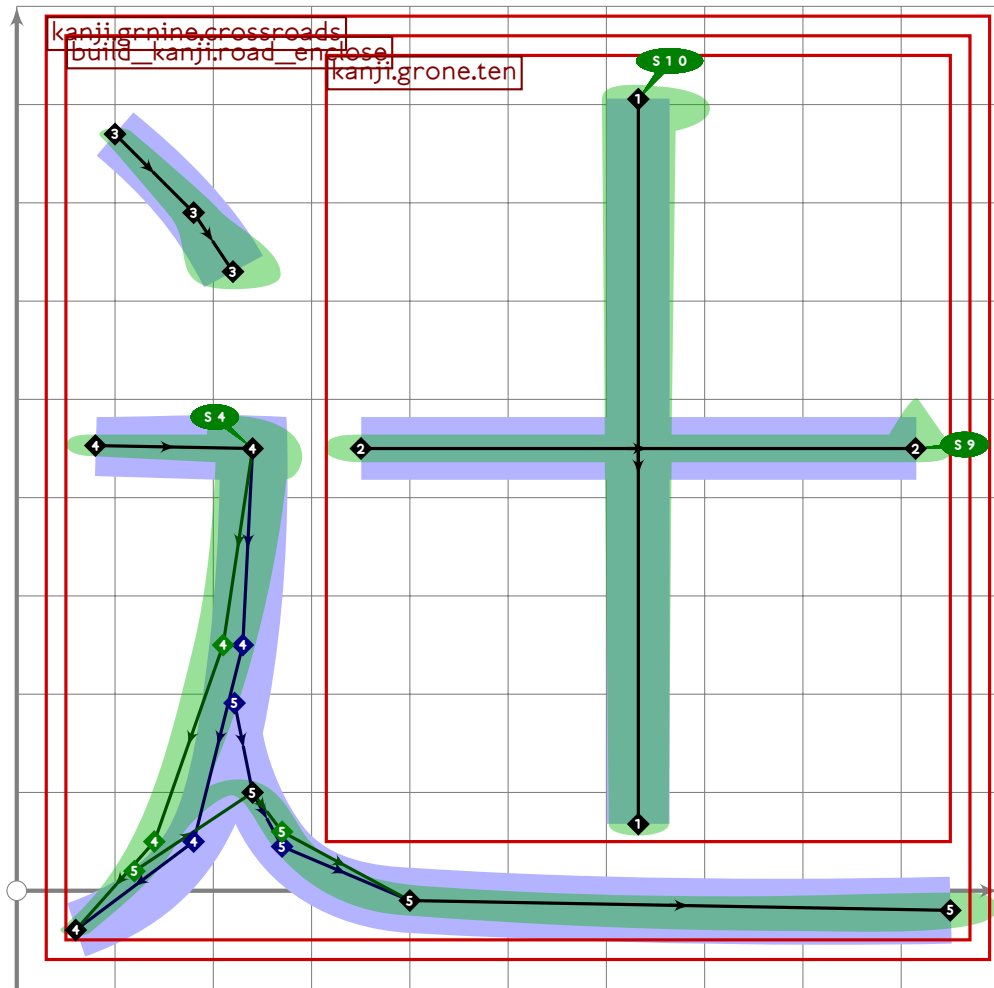
```



```

67
68 vardef kanji.greight.crowded =
69   push_pbox_toexpand("kanji.greight.crowded");
70   build_kanji.road_enclose(kanji.grone.put_it_in);
71   expand_pbox;
72 enddef;
73
74

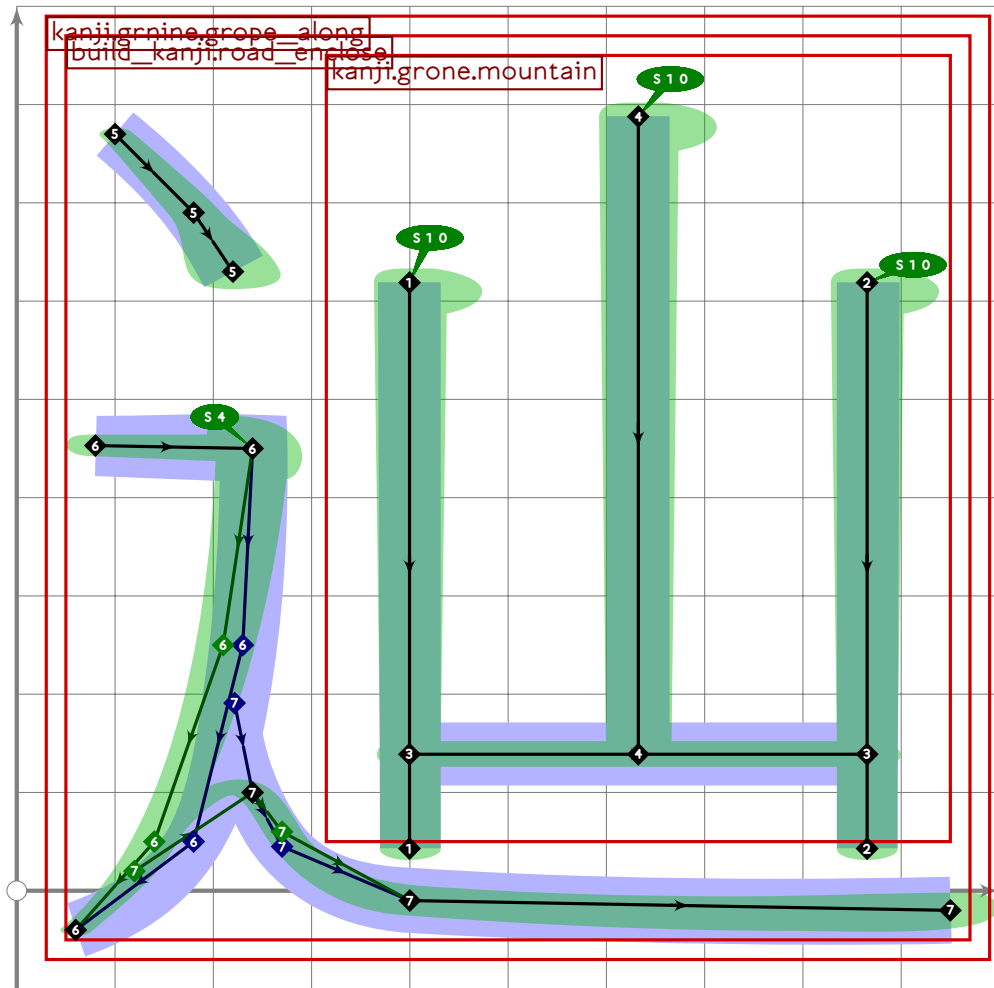
```



```

75
76 vardef kanji.grnine.crossroads =
77   push_pbox_toexpand("kanji.grnine.crossroads");
78   build_kanji.road_enclose(kanji.grone.ten);
79   expand_pbox;
80 enddef;

```



```

81
82 vardef kanji.grnine.grope_along =
83   push_pbox_toexpand("kanji.grnine.grope_along");
84   build_kanji.road_enclose(kanji.grone.mountain);
85   expand_pbox;
86 enddef;

```

---

```

87
88
89
90 % hen/ata "vicinity"
91   begintsuglyph("uni8FBA",186); [see page 1917]
92   kanji.grfour.vicinity;
93   tsu_render;
94   endtsuglyph;
95
96 % tsuji "crossroads"
97   begintsuglyph("uni8FBB",187); [see page 1919]
98   kanji.grnine.crossroads;
99   tsu_render;
100  endtsuglyph;
101

```

102 % ko "crowded"  
103 `begintsuglyph("uni8FBC",188);` [see page 1918]  
104 `kanji.greight.crowded;`  
105 `tsu_render;`  
106 `endsuglyph;`  
107  
108 % ten/tado "grope along"  
109 `begintsuglyph("uni8FBF",191);` [see page 1920]  
110 `kanji.grnine.grope_along;`  
111 `tsu_render;`  
112 `endsuglyph;`  
113  
114 % kin/chika "near"  
115 `begintsuglyph("uni8FD1",209);` [see page 1916]  
116 `kanji.grtwo.near;`  
117 `tsu_render;`  
118 `endsuglyph;`  
119  
120 % hen/kae "return"  
121 `begintsuglyph("uni8FD4",212);` [see page 1916]  
122 `kanji.grthree.return;`  
123 `tsu_render;`  
124 `endsuglyph;`  
125  
126 

---

  
127  
128 `endfont;`  
129  
130 

---

# tsuku-90.mp

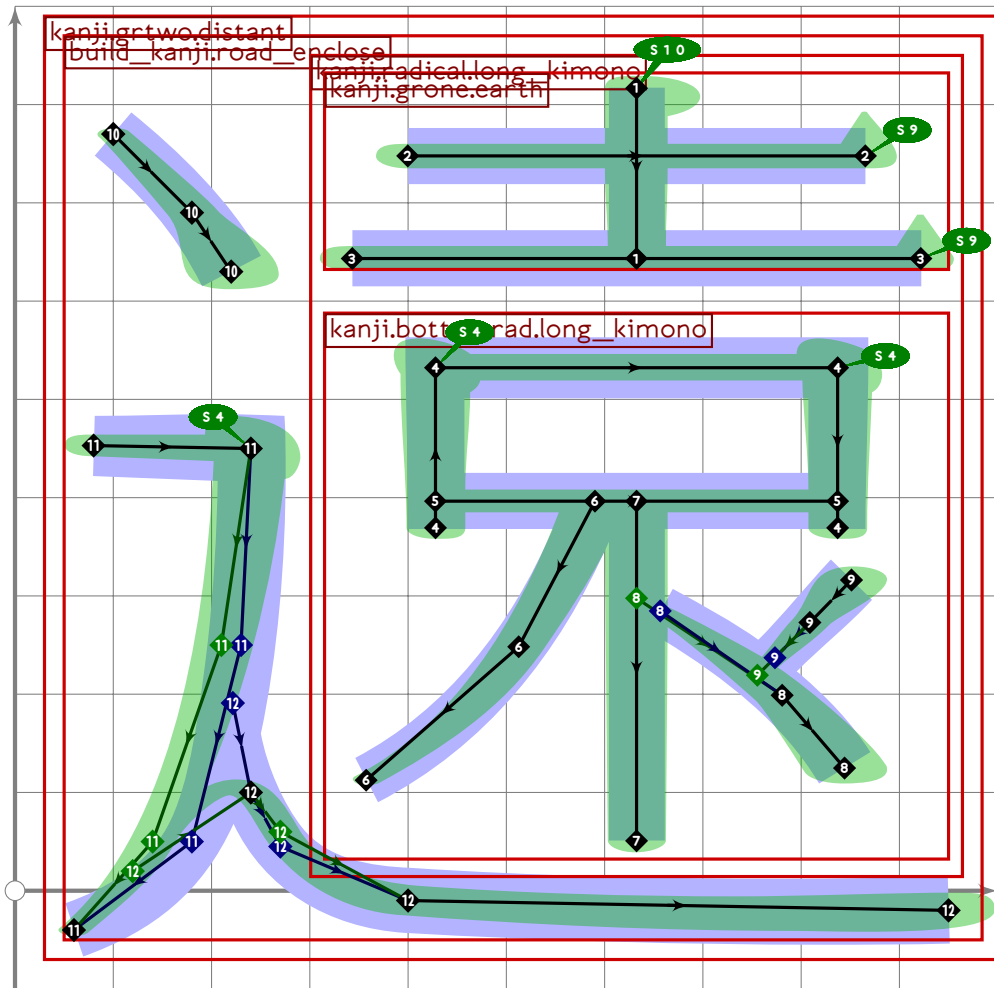
```
1 %
2 % Unicode page 90 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradefour.mp;
38 input gradeone.mp;
39 input gradetwo.mp;
40 input radical.mp;
41 input rare.mp;
42 input toprad.mp;
43
44 

---

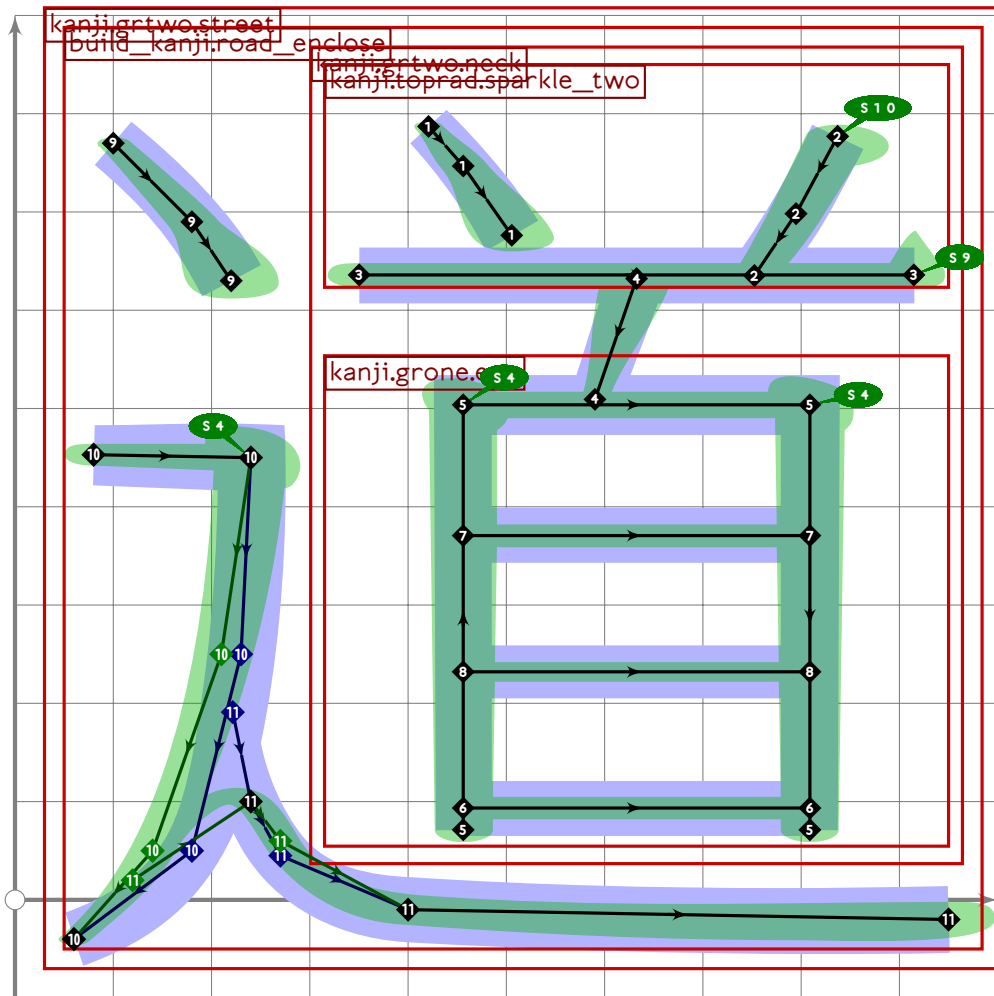

```



```

45
46 vardef kanji.grtwo.distant =
47   push_pbox_toexpand("kanji.grtwo.distant");
48   build_kanji.road_enclose(tsu_xform(identity shifted (0,-20))
49     (kanji.radical.long_kimono));
50   expand_pbox;
51 enddef;

```

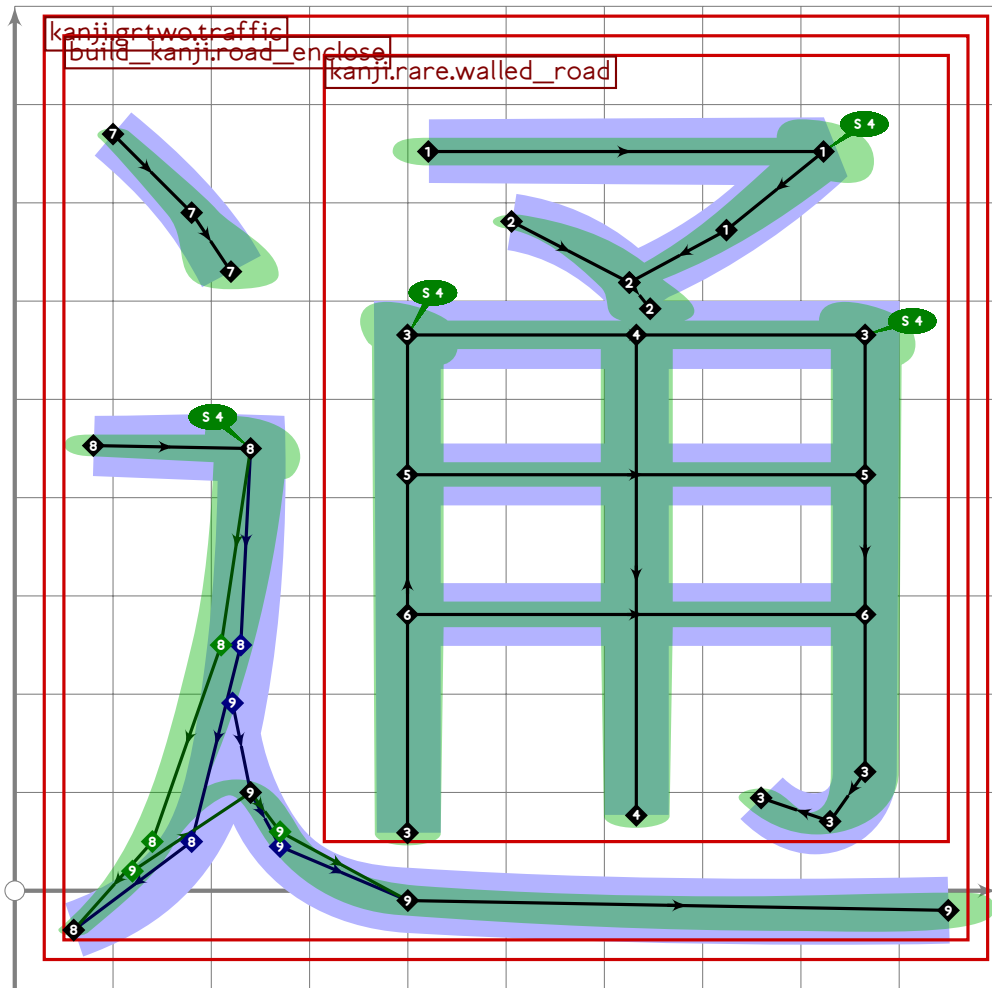


```

52
53 vardef kanji.grtwo.street =
54   push_pbox_toexpand("kanji.grtwo.street");
55   build_kanji.road_enclose(kanji.grtwo.neck);
56   expand_pbox;
57 enddef;

```

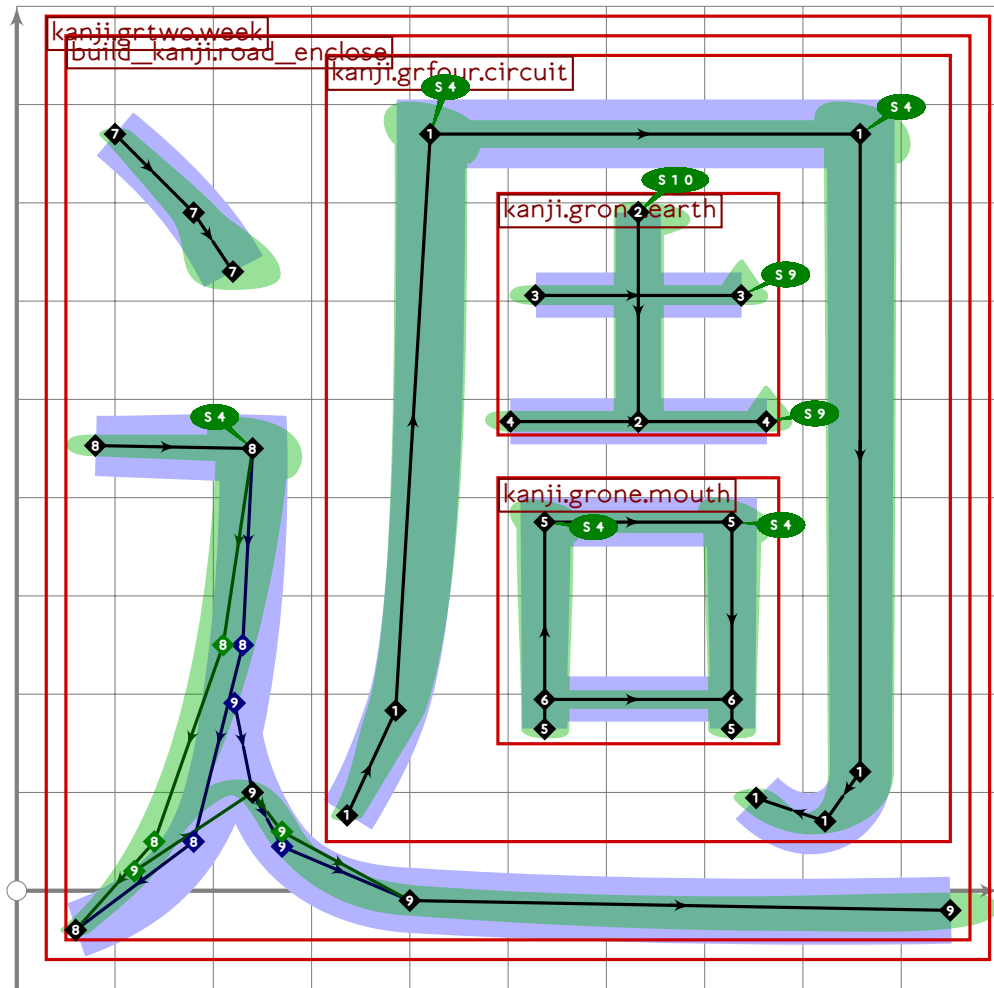




```

58
59 vardef kanji.grtwo.traffic =
60   push_pbox_toexpand("kanji.grtwo.traffic");
61   build_kanji.road_enclose(kanji.rare.walled_road);
62   expand_pbox;
63 enddef;

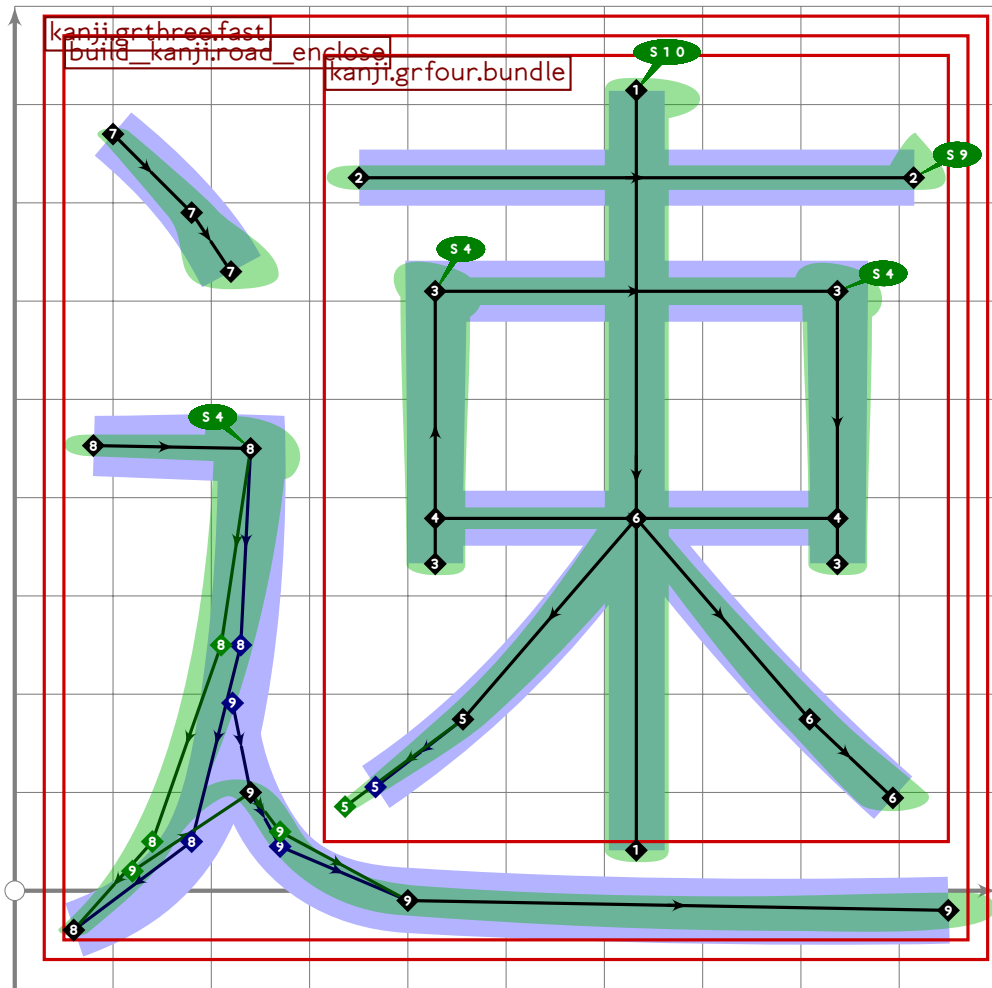
```



```

64
65 vardef kanji.grtwo.week =
66   push_pbox_toexpand("kanji.grtwo.week");
67   build_kanji.road_enclose(kanji.grfour.circuit);
68   expand_pbox;
69 enddef;
70
71

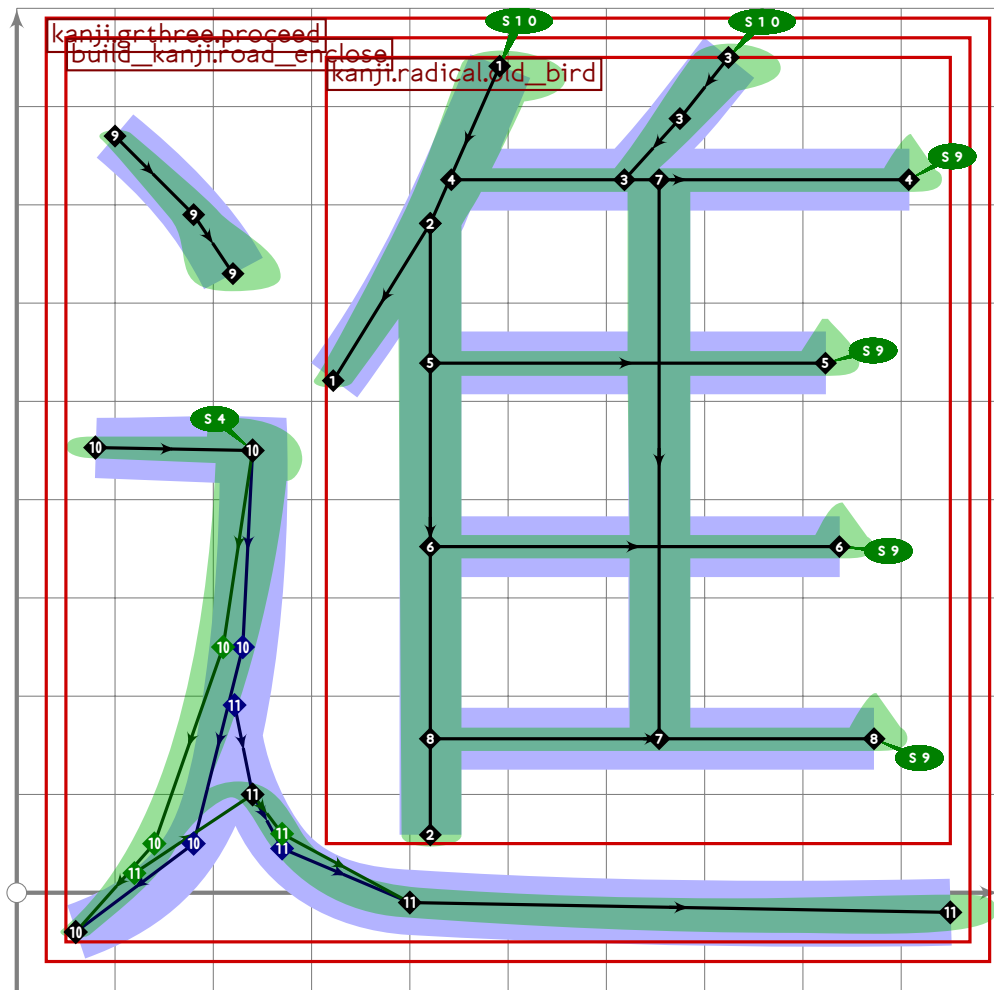
```



```

72
73 vardef kanji.grthree.fast =
74   push_pbox_toexpand("kanji.grthree.fast");
75   build_kanji.road_enclose(kanji.grfour.bundle);
76   expand_pbox;
77 enddef;

```



```

78
79 vardef kanji.grthree.proceed =
80   push_pbox_toexpand("kanji.grthree.proceed");
81   build_kanji.road_enclose(kanji.radical.old_bird);
82   expand_pbox;
83 enddef;

```

84

85

86

```

87 % tsuu/too "distant"
88 begintsuglyph("uni901A";26);
89   kanji.grtwo.traffic;
90   tsu_render;
91 endtsuglyph;

```

[see page 1925]

92

```

93 % soku/haya "fast"
94 begintsuglyph("uni901F";31);
95   kanji.grthree.fast;
96   tsu_render;
97 endtsuglyph;

```

[see page 1927]

98

99 % shuu "week"  
100 `begintsuglyph("uni9031";49);` [see page 1926]  
101 `kanji.grtwo.week;`  
102 `tsu_render;`  
103 `endsuglyph;`  
104  
105 % sin/susu "proceed"  
106 `begintsuglyph("uni9032";50);` [see page 1928]  
107 `kanji.grthree.proceed;`  
108 `tsu_render;`  
109 `endsuglyph;`  
110  
111 % dou/michi "street"  
112 `begintsuglyph("uni9053";83);` [see page 1924]  
113 `kanji.grtwo.street;`  
114 `tsu_render;`  
115 `endsuglyph;`  
116  
117 % en/too "distant"  
118 `begintsuglyph("uni9060";96);` [see page 1923]  
119 `kanji.grtwo.distant;`  
120 `tsu_render;`  
121 `endsuglyph;`  
122  
123 

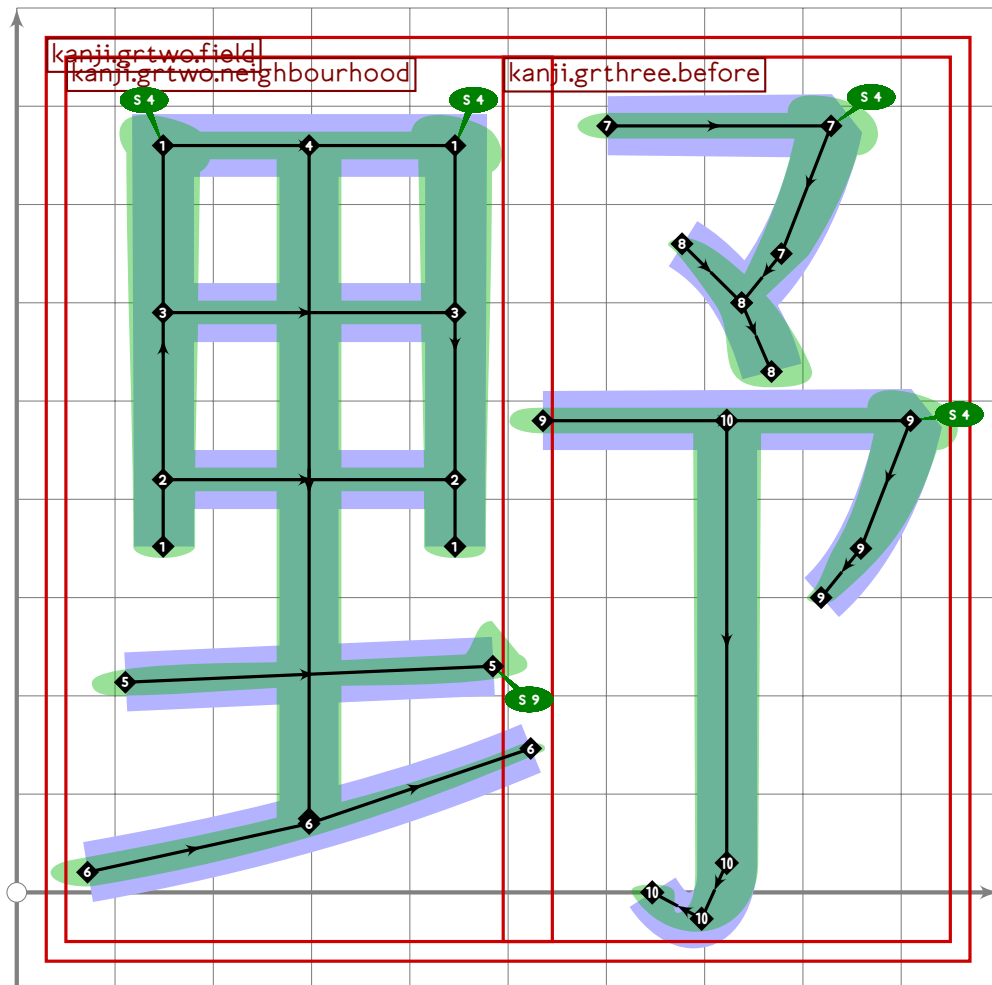
---

  
124  
125 `endfont;`  
126  
127 

---

# tsuku-91.mp

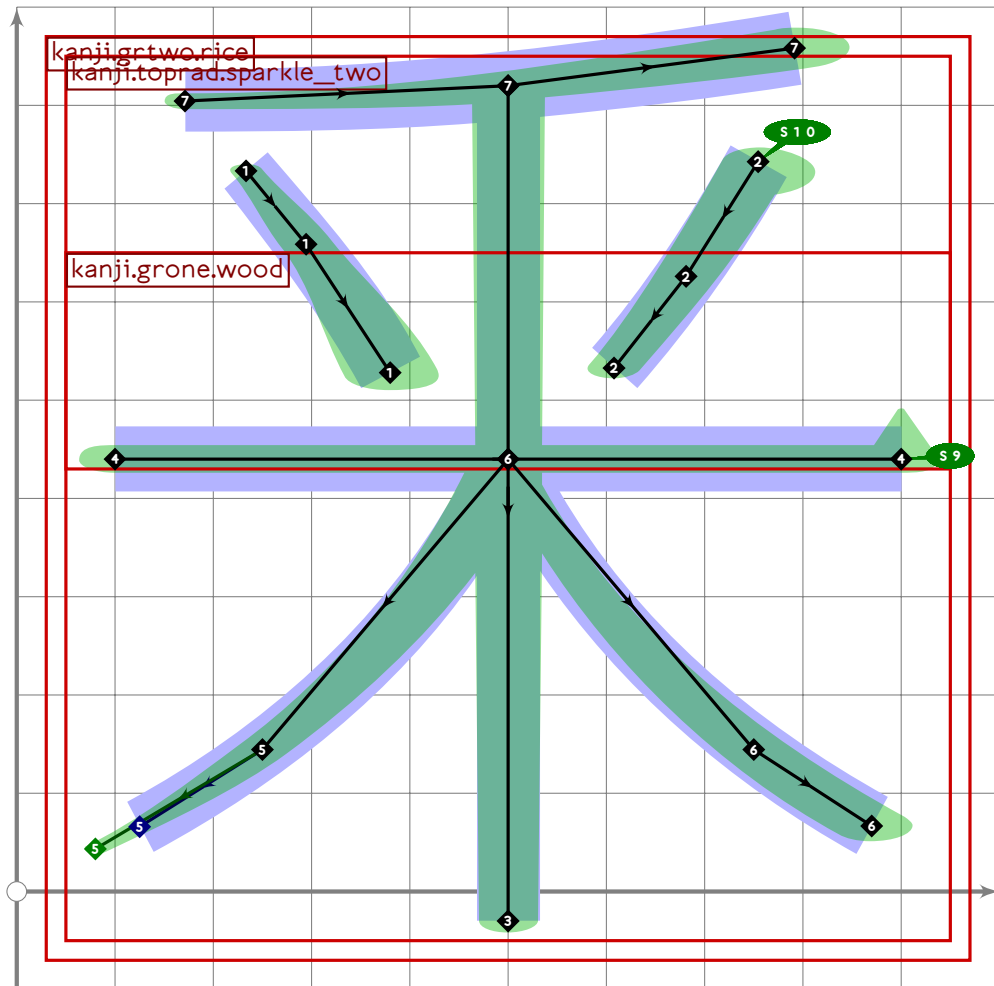
```
1 %  
2 % Unicode page 91 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradeone.mp;  
38 input gradethree.mp;  
39 input gradetwo.mp;  
40 input radical.mp;  
41 input toprad.mp;  
42  
43 _____
```



```

44
45 vardef kanji.grtwo.field =
46   push_pbox_toexpand("kanji.grtwo.field");
47   build_kanji.level(build_kanji.lr(520,50)
48     (build_kanji.lift_skirt(250,150)(kanji.grtwo.neighbourhood))
49     (kanji.grthree.before));
50   expand_pbox;
51 enddef;
52
53
54

```



```

55 % han/irodori "separate" or "divide" but mostly "topped rice radical"
56 begintsuglyph("uni91C6",198);
57   build_kanji.add_beret(kanji.grtwo.rice);
58   tsu_render;
59 endtsuglyph;
60
61 % ri/sato, multiple meanings including 3.929km and "neighbourhood"
62 begintsuglyph("uni91CC",204);
63   kanji.grtwo.neighbourhood;
64   tsu_render;

```

[see page 455]

```
65 endtsuglyph;
66
67 % ya/no "field"
68 begintsuglyph("uni91CE";206); [see page 1399]
69 kanji.grtwo.field;
70 tsu_render;
71 endtsuglyph;
72
73 % kane/kin "gold"
74 begintsuglyph("uni91D1";209); [see page 387]
75 kanji.grone.gold;
76 tsu_render;
77 endtsuglyph;
78
79 

---


80
81 endfont;
82
83 

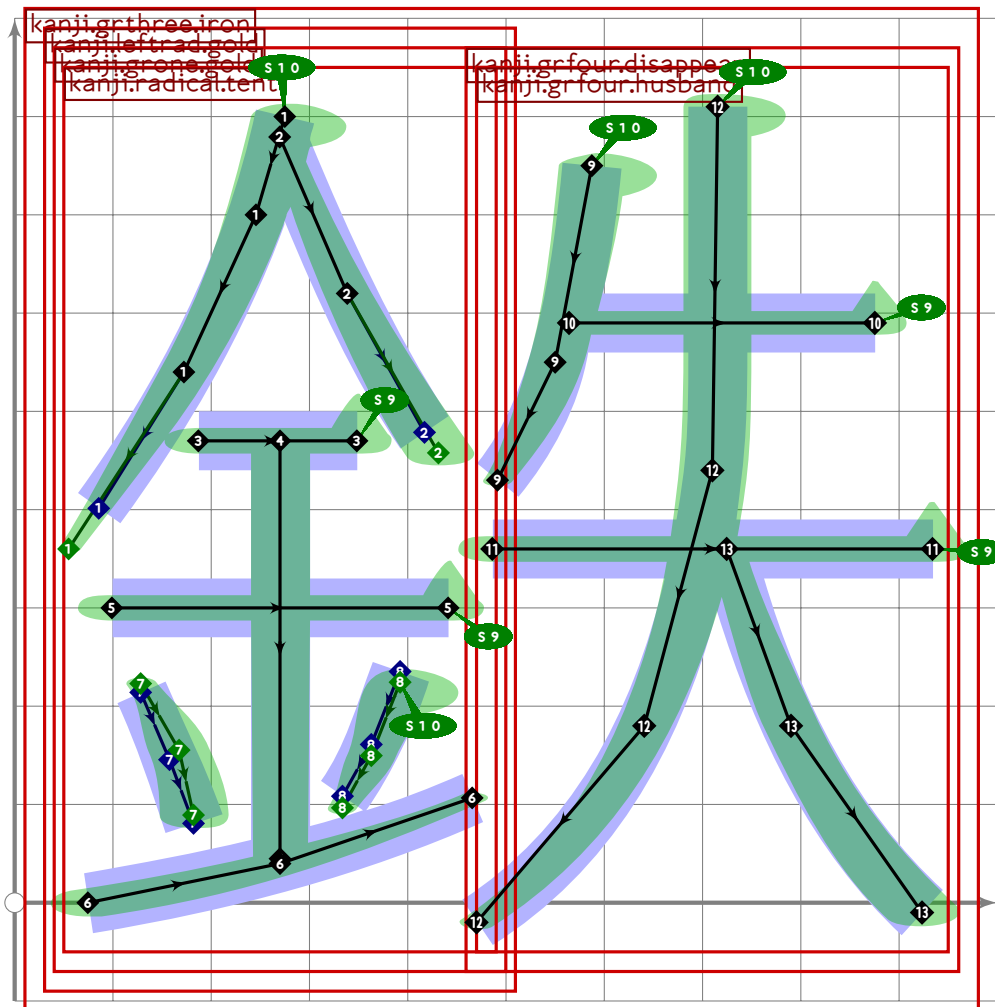
---


```



# tsuku-92.mp

```
1 %  
2 % Unicode page 92 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradefour.mp;  
38 input gradeone.mp;  
39 input radical.mp;  
40  
41 _____
```

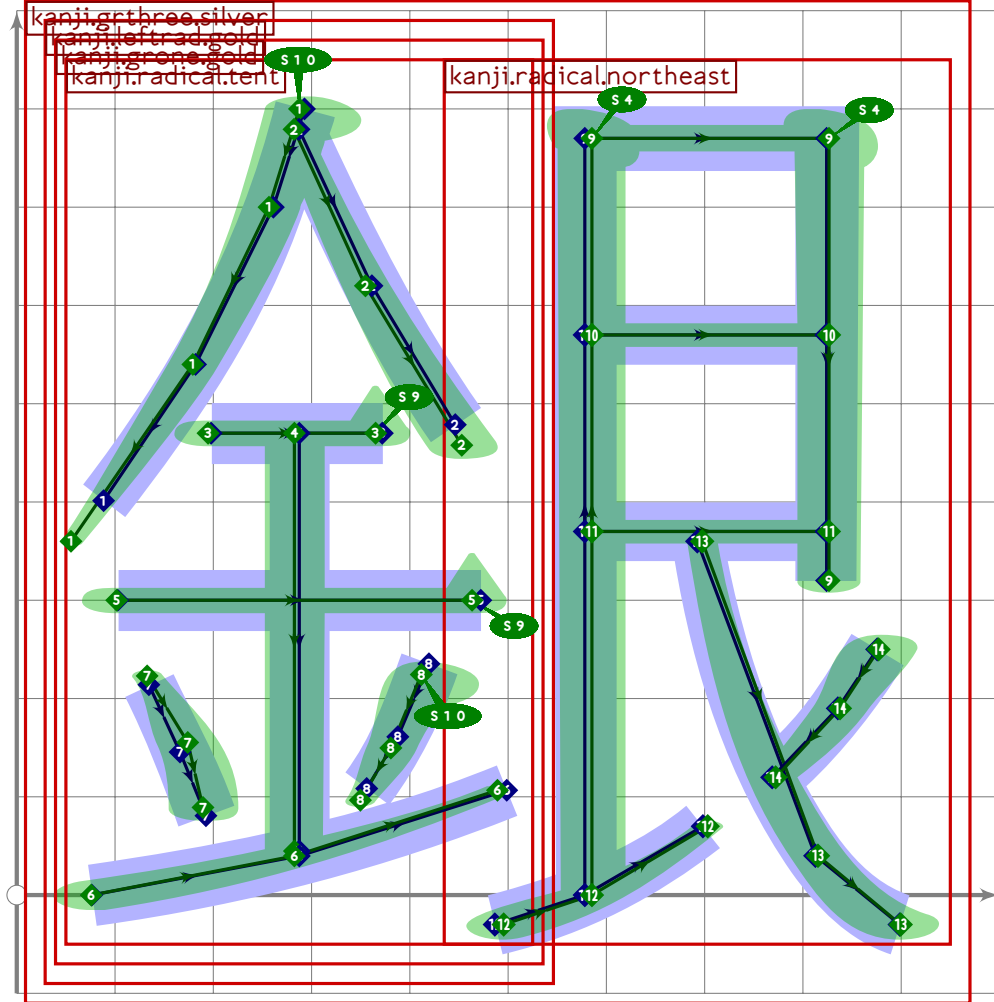


```
42  
43 vardef kanji.grthree.iron =
```

```

44 push_pbox_toexpand("kanji.grthree.iron");
45 build_kanji.level(build_kanji.lr(480,20)
46   (kanji.leftrad.gold)
47   (kanji.grfour.disappear));
48 expand_pbox;
49 endif;

```



```

50
51 vardef kanji.grthree.silver =
52   push_pbox_toexpand("kanji.grthree.silver");
53   build_kanji.level(build_kanji.lr(480,90-20*mincho)
54     (kanji.leftrad.gold)
55     (kanji.radical.northeast));
56   expand_pbox;
57 endif;
58
59
60
61 vardef kanji.leftrad.gold =
62   push_pbox_toexpand("kanji.leftrad.gold");
63   build_kanji.lift_skirt(250,120)(kanji.grone.gold);

```

```
64 replace\_strokep(-6)(subpath (0,1,7) of oldp);
65 expand\_pbox;
66 enddef;
67
68 

---


69
70 % tetsu/kurogane "iron"
71 begintsuglyph("uni9244",68); \[see page 1933\]
72 kanji.grthree.iron;
73 tsu\_render;
74 endtsuglyph;
75
76 % gin/shirogane "silver"
77 begintsuglyph("uni9280",128); \[see page 1934\]
78 kanji.grthree.silver;
79 tsu\_render;
80 endtsuglyph;
81
82 

---


83
84 endfont;
85
86 

---


```

# tsuku-95.mp

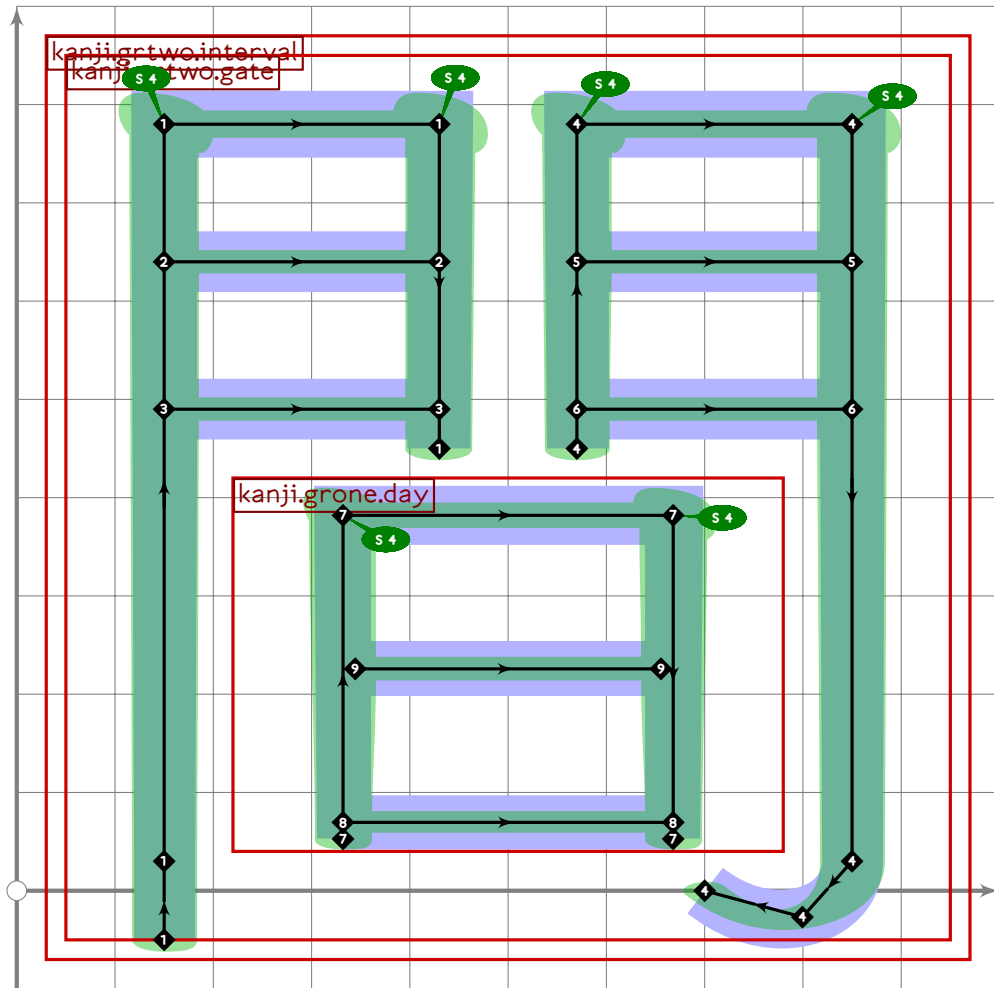
```
1 %
2 % Unicode page 95 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradenine.mp;
38 input gradeone.mp;
39 input gradesix.mp;
40 input gradethree.mp;
41 input gradetwo.mp;
42 input radical.mp;
43
44 

---

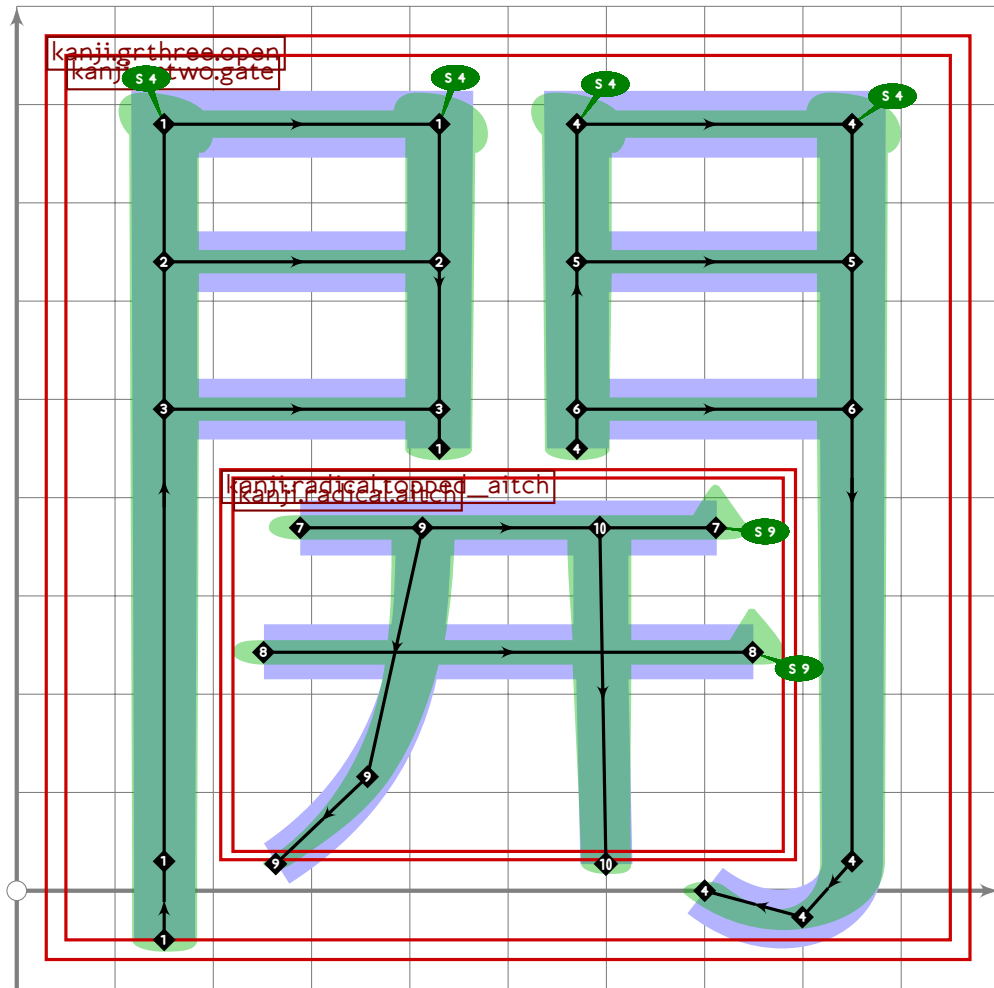

```



```

45
46 vardef kanji.grtwo.interval =
47   push_pbox_toexpand("kanji.grtwo.interval");
48   build_kanji.gate_enclose(kanji.grone.day);
49   expand_pbox;
50 enddef;
51
52

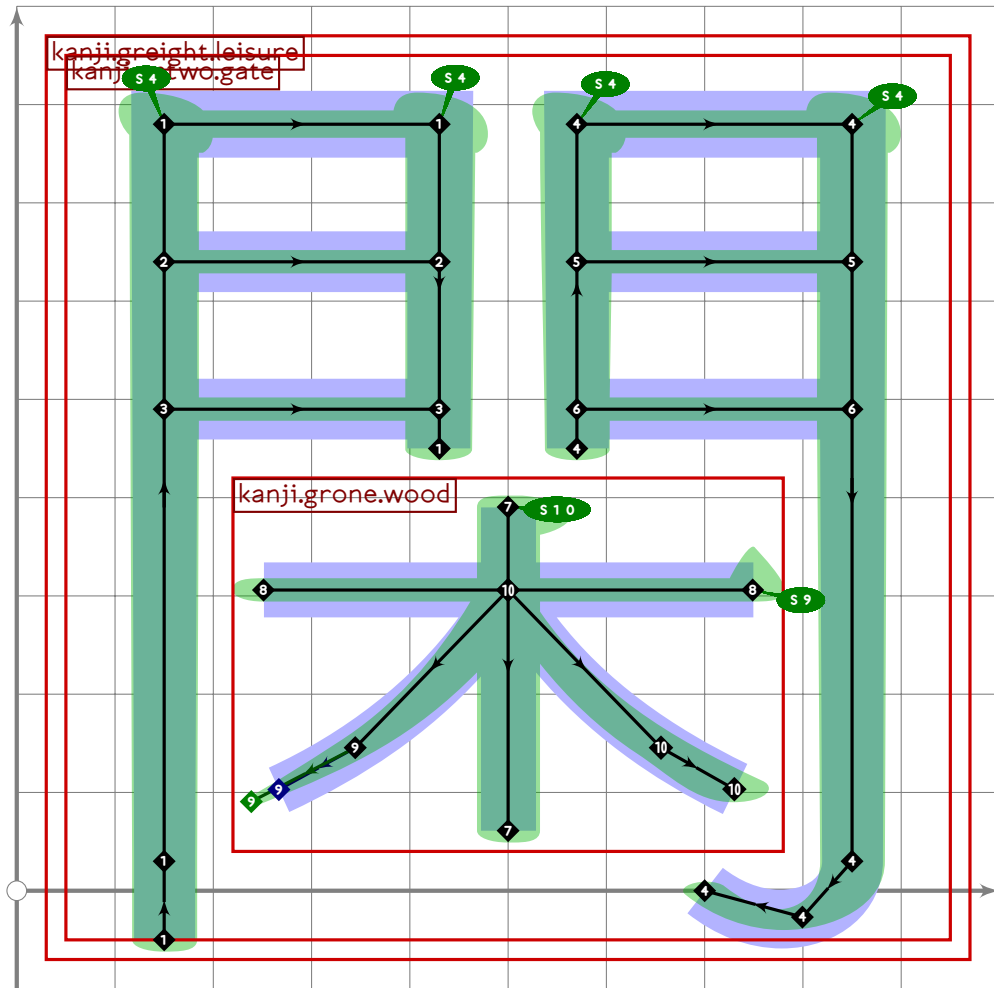
```



```

53
54 vardef kanji.grthree.open =
55   push_pbox_toexpand("kanji.grthree.open");
56   build_kanji.gate_enclose(kanji.radical.topped_aitch);
57   expand_pbox;
58 enddef;
59
60

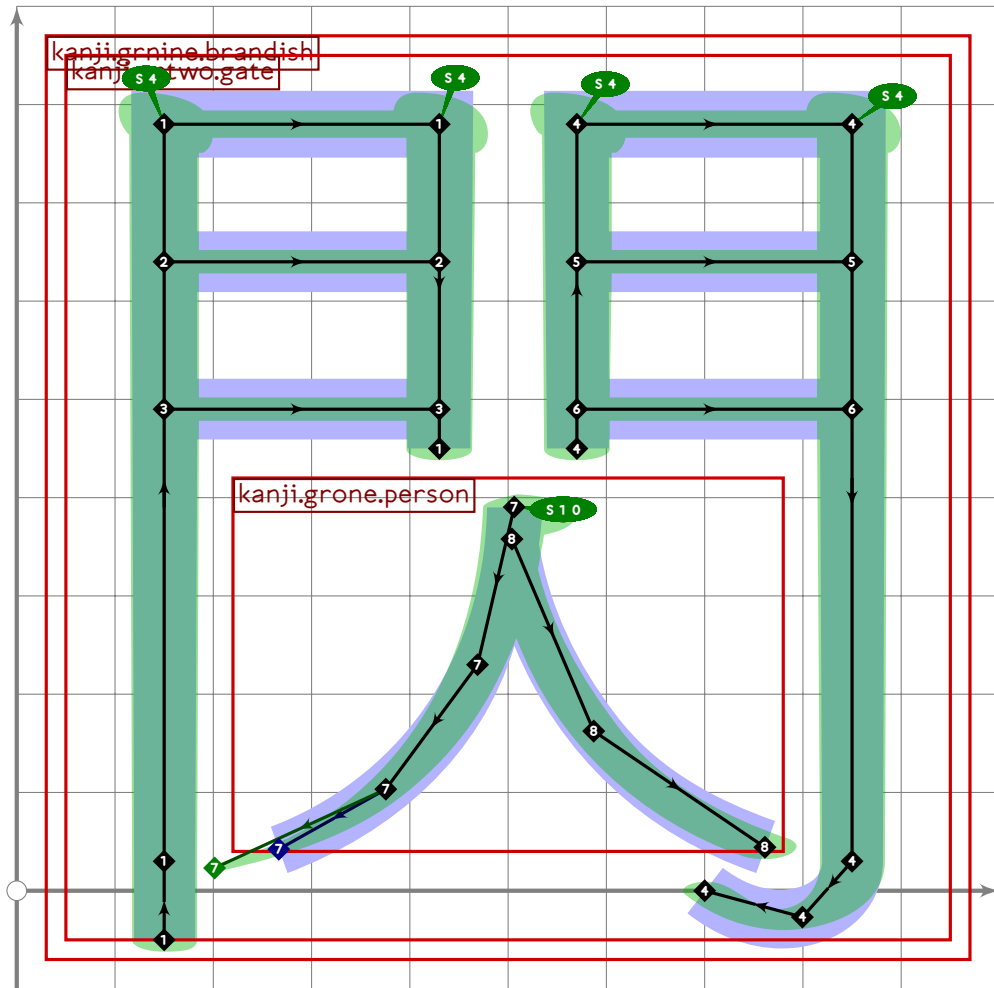
```



```

61
62 vardef kanji.greight.leisure =
63   push_pbox_toexpand("kanji.greight.leisure");
64   build_kanji.gate_enclose(kanji.grone.wood);
65   expand_pbox;
66 enddef;
67
68

```

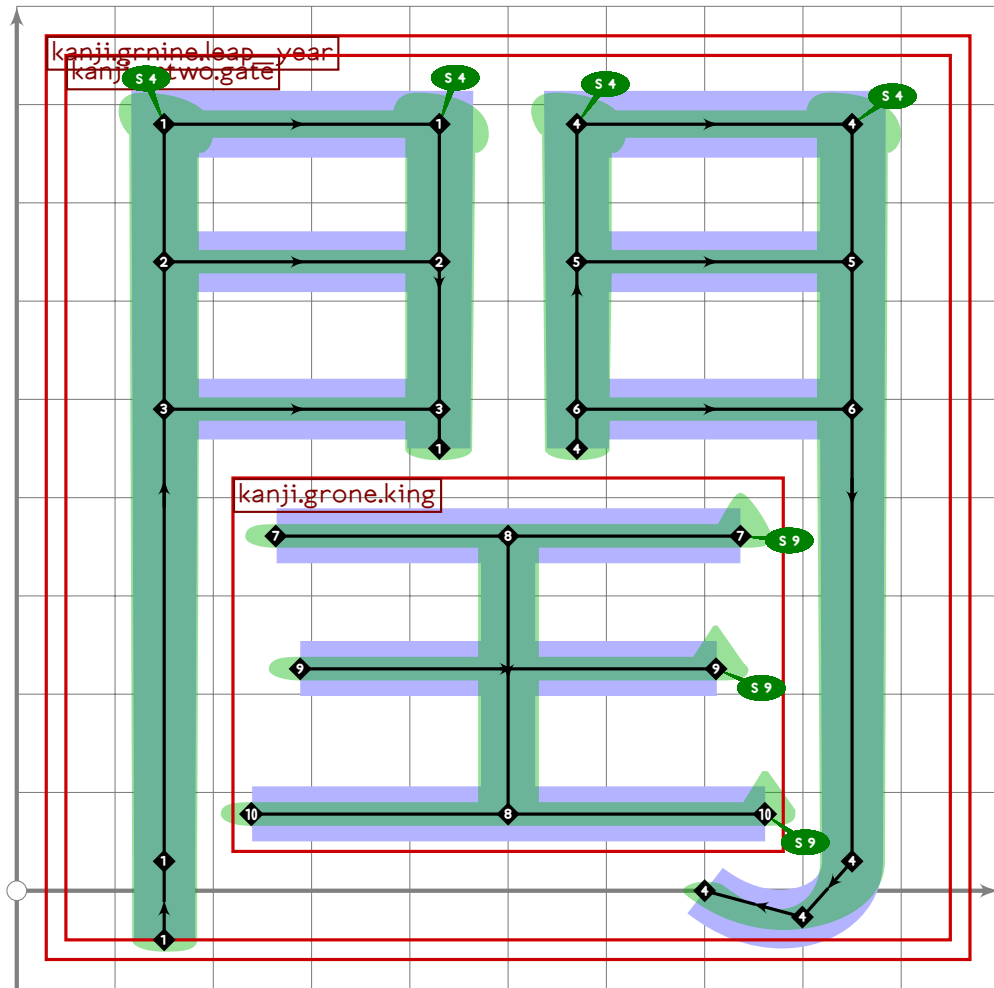


```

69
70 vardef kanji.grnine.brandish =
71   push_pbox_toexpand("kanji.grnine.brandish");
72   build_kanji.gate_enclose(kanji.grone.person);
73   expand_pbox;
74 enddef;

```





```

75
76 vardef kanji.grnine.leap_year =
77   push_pbox_toexpand("kanji.grnine.leap_year");
78   build_kanji.gate_enclose(kanji.grone.king);
79   expand_pbox;
80 enddef;

```

81

82

83

84 % chou/naga "long"

```
85   begintsuglyph("uni9577",119);
```

[see page 447]

```
86   kanji.grtwo.long;
```

```
87   tsu_render;
```

```
88   endtsuglyph;
```

89

90 % mon/kado "gate"

```
91   begintsuglyph("uni9580",128);
```

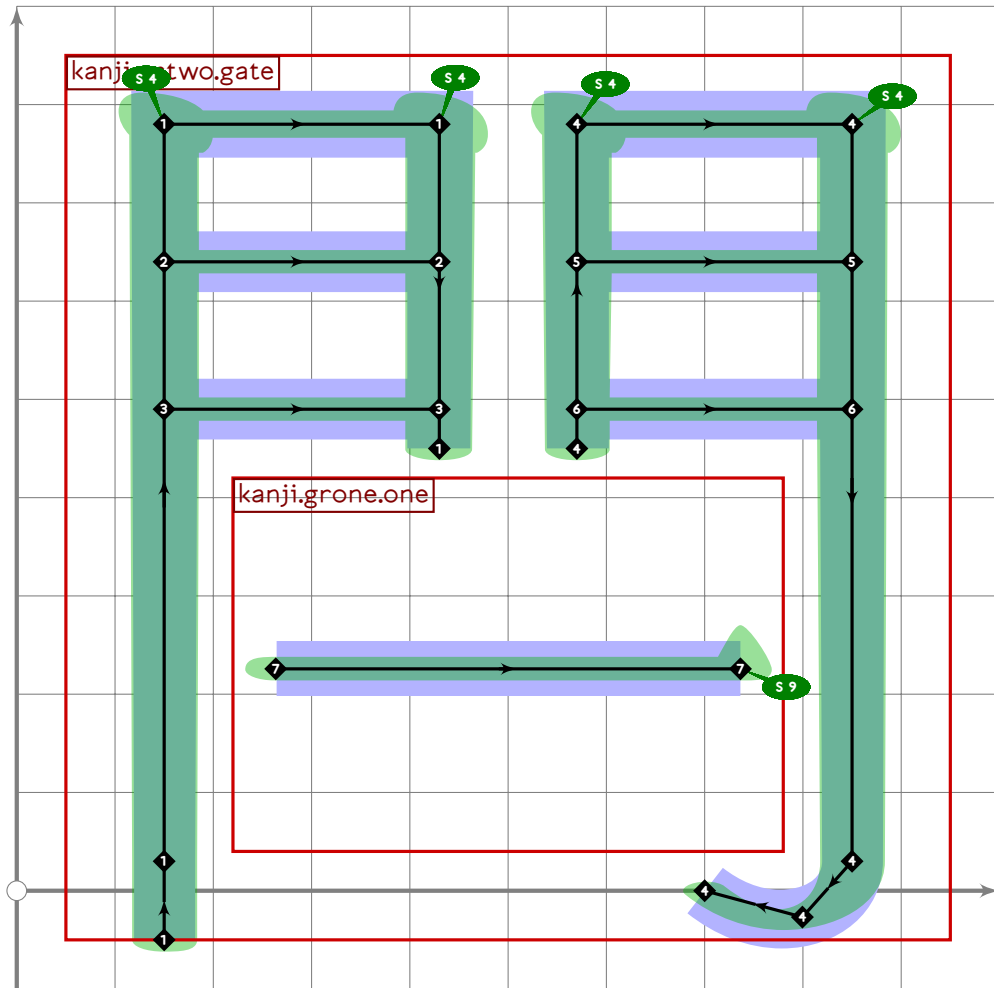
[see page 440]

```
92   kanji.grtwo.gate;
```

```
93   tsu_render;
```

```
94   endtsuglyph;
```

95

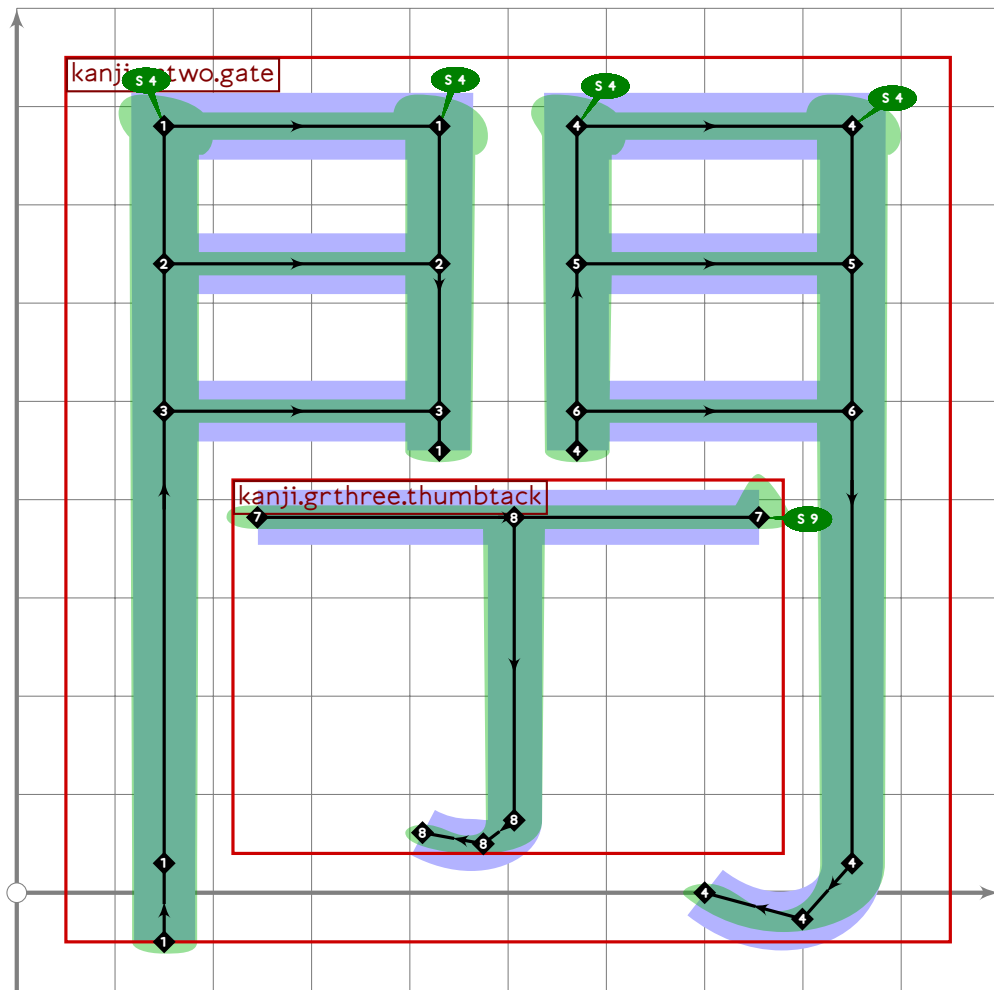


```

96 % extra
97 begint Suglyph("uni9582",130);
98   build_kanji.gate_enclose(kanji.grone.one);
99   tsu_render;
100 endtsuglyph;
101
102 % sen/hirame "brandish"
103 begint Suglyph("uni9583",131);
104   kanji.grnine.brandish;
105   tsu_render;
106 endtsuglyph;
107

```

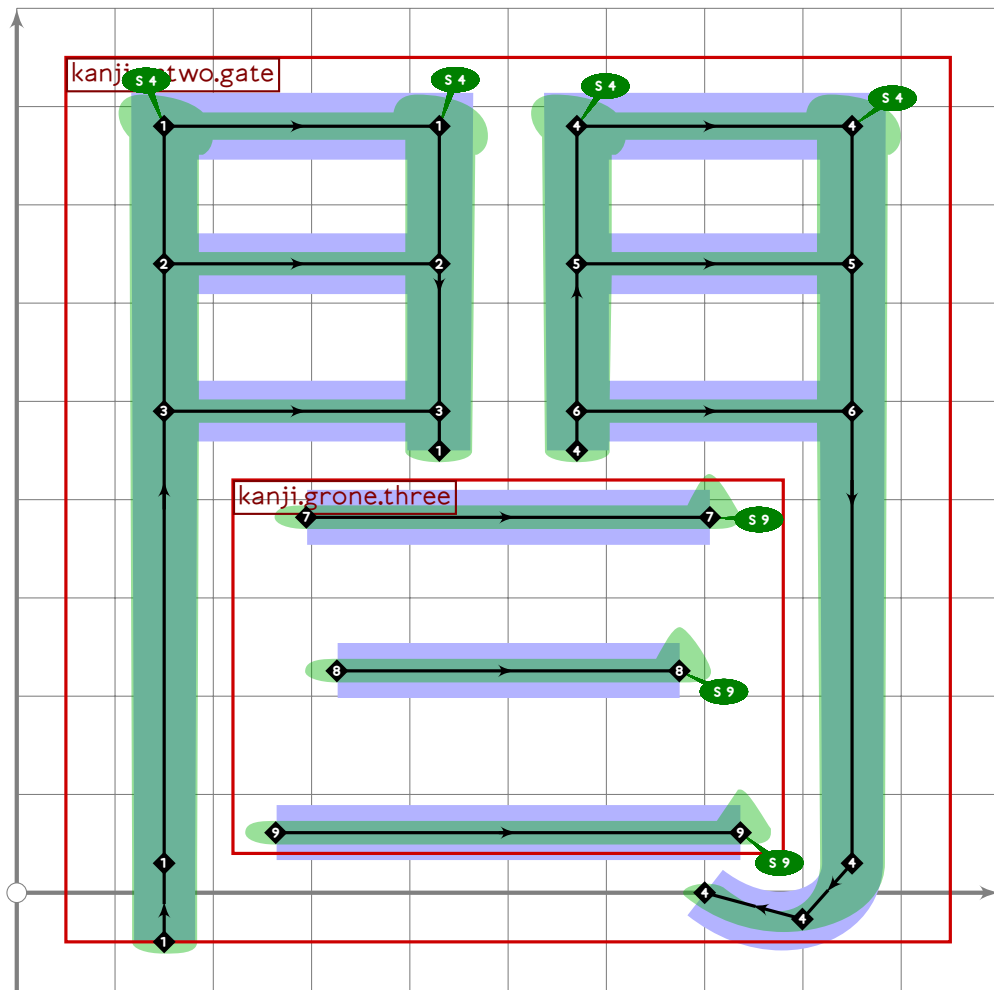
[see page 1940]



```

108 % extra
109 begintsuglyph("uni9585";133);
110 build_kanji.gate_enclose(kanji.grthree.thumbtack);
111 tsu_render;
112 endsuglyph;
113

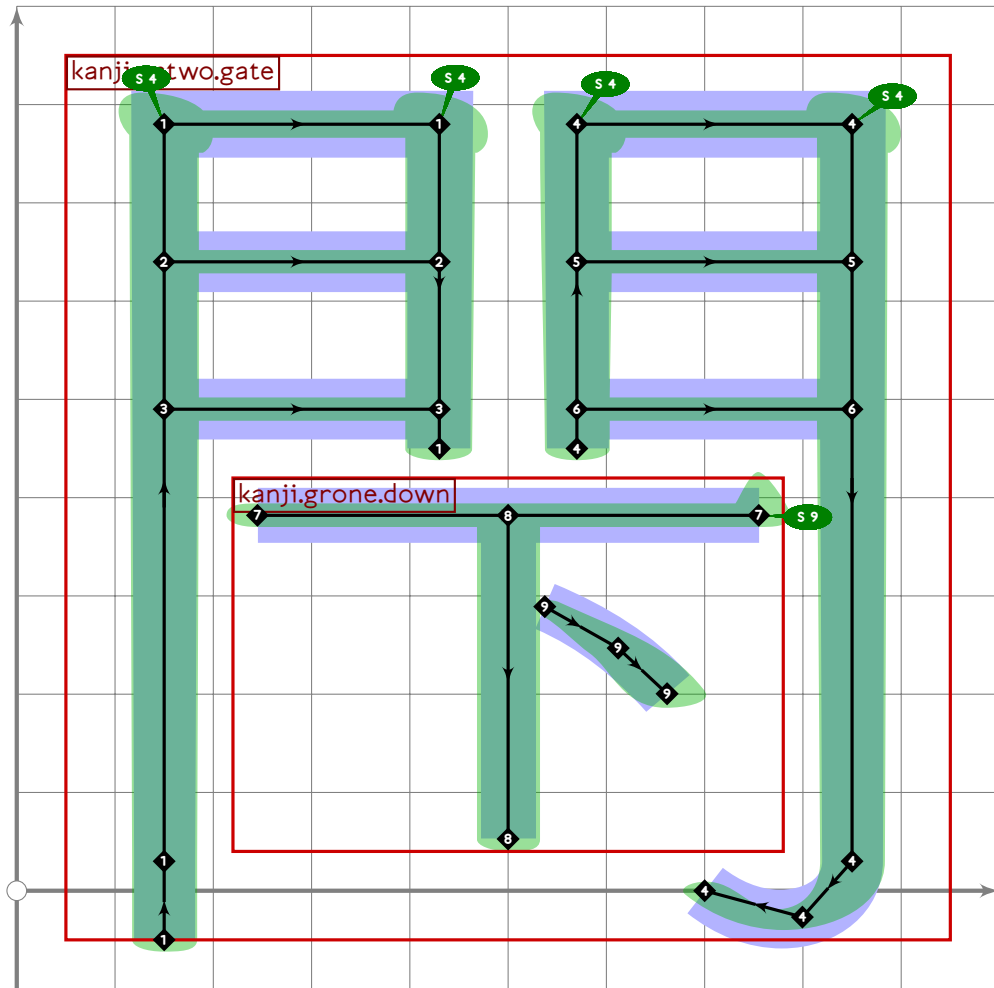
```



```

114 % extra
115 begint Suglyph("uni9586",134);
116   build_kanji.gate_enclose(kanji.gone.three);
117   tsu_render;
118   endtsuglyph;
119

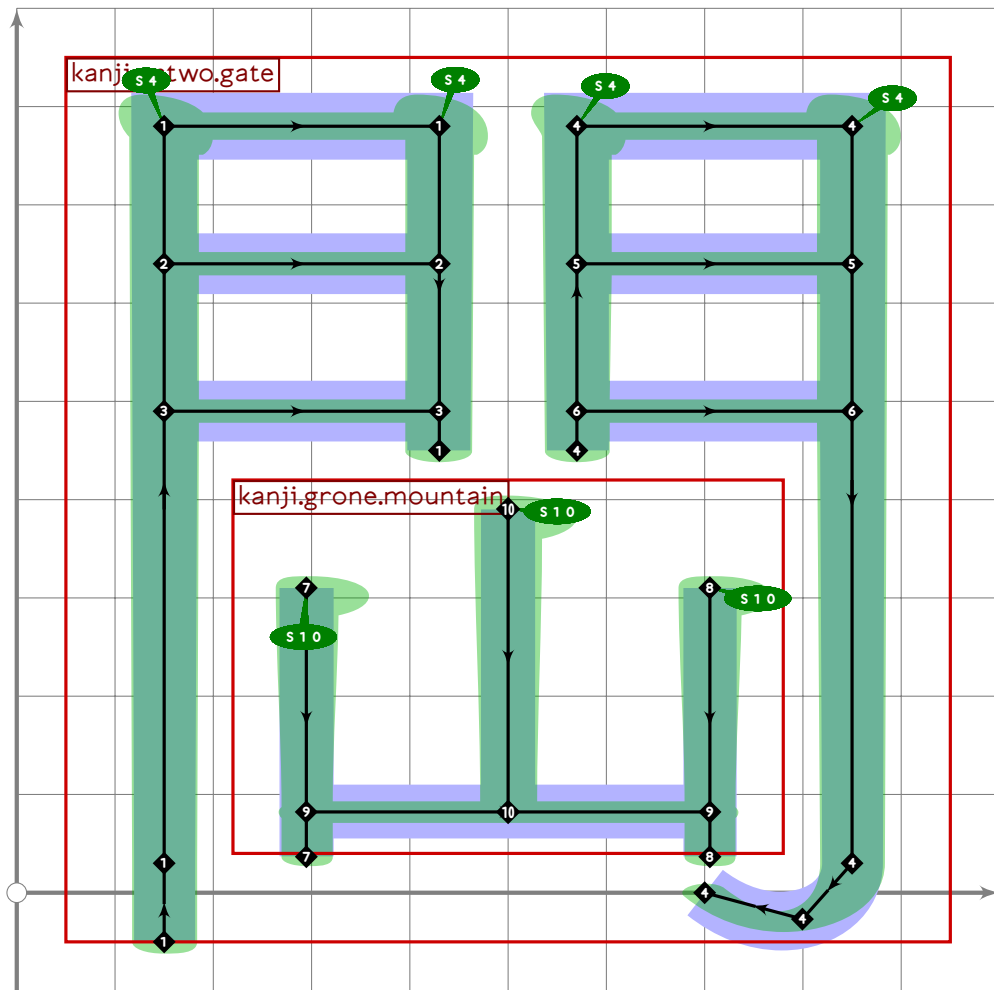
```



```

120 % hei/to "block up"
121 begint Suglyph("uni9587",135);
122 build_kanji.gate_enclose(kanji.gro.ne.down);
123 tsu_render;
124 endsuglyph;
125

```



```

126 % tsuka "choke"
127 begintsuglyph("uni958A",138);
128 build_kanji.gate_enclose(kanji.grone.mountain);
129 tsu_render;
130 endtsuglyph;

```

```

131
132 % kai/hira "open"
133 begintsuglyph("uni958B",139);
134 kanji.grthree.open;
135 tsu_render;
136 endtsuglyph;

```

[see page 1938]

```

137
138 % jun/urru "leap year"
139 begintsuglyph("uni958F",143);
140 kanji.grnine.leap_year;
141 tsu_render;
142 endtsuglyph;

```

[see page 1941]

```

143
144 % kan/hima "leisure"
145 begintsuglyph("uni9591",145);
146 kanji.greight.leisure;

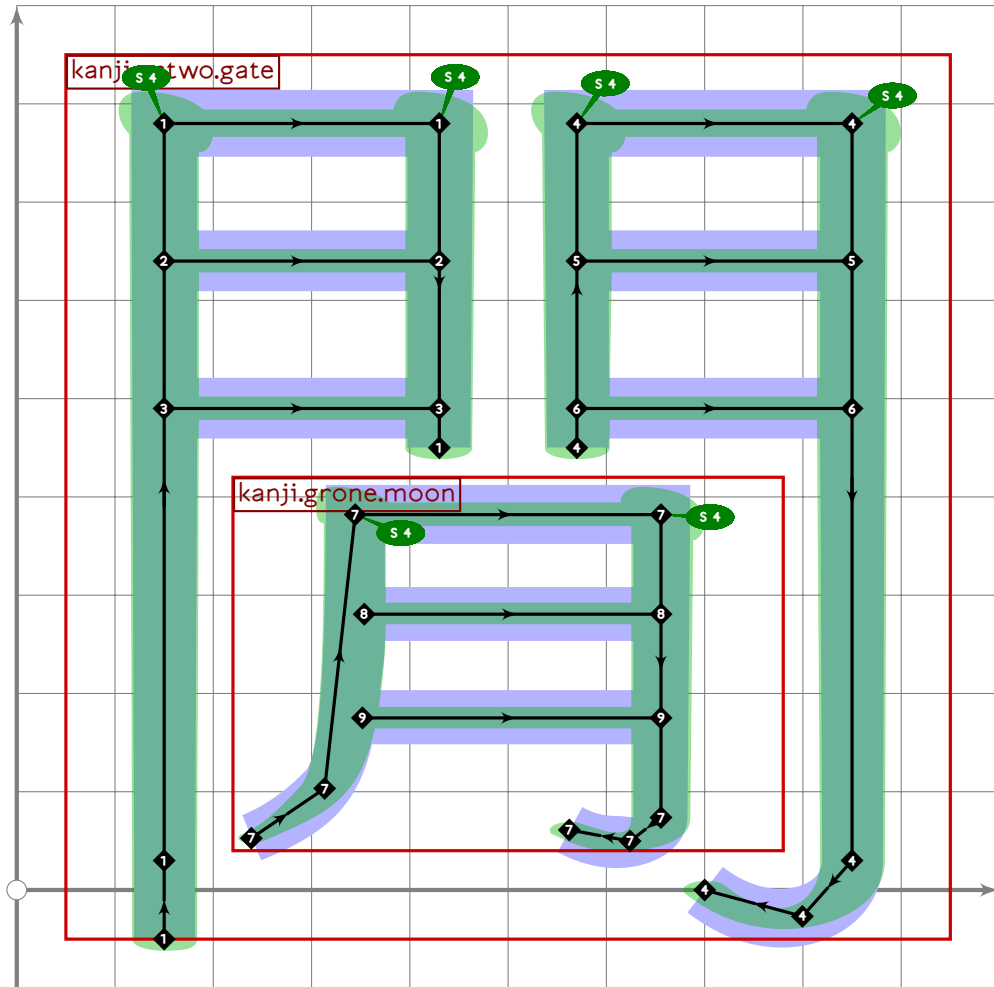
```

[see page 1939]

```

147 tsu_render;
148 endsuglyph;
149

```

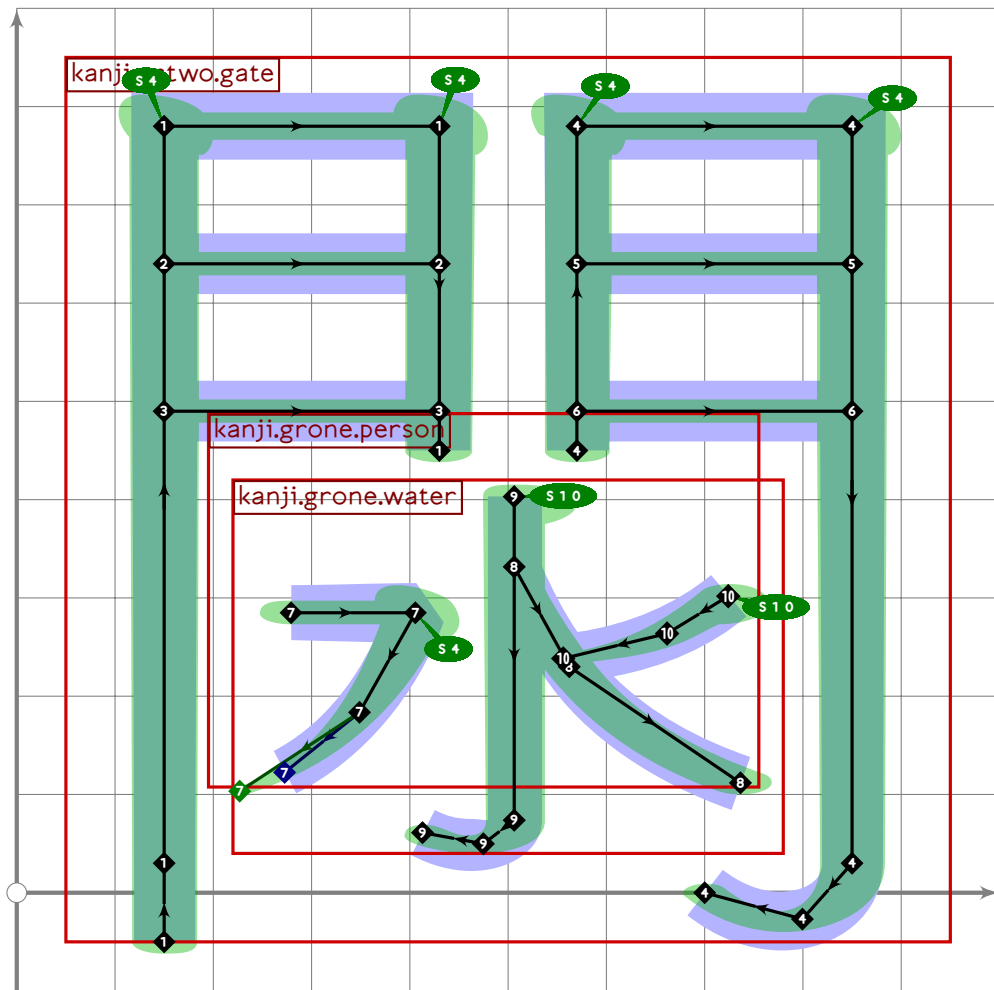


```

150 % extra
151 begintsuglyph("uni9592";146);
152 build_kanji.gate_enclose(kanji.grone.moon);
153 tsu_render;
154 endsuglyph;
155
156 % kan/aida "interval"
157 begintsuglyph("uni9593";147);
158 kanji.grtwo.interval;
159 tsu_render;
160 endsuglyph;
161

```

[see page 1937]

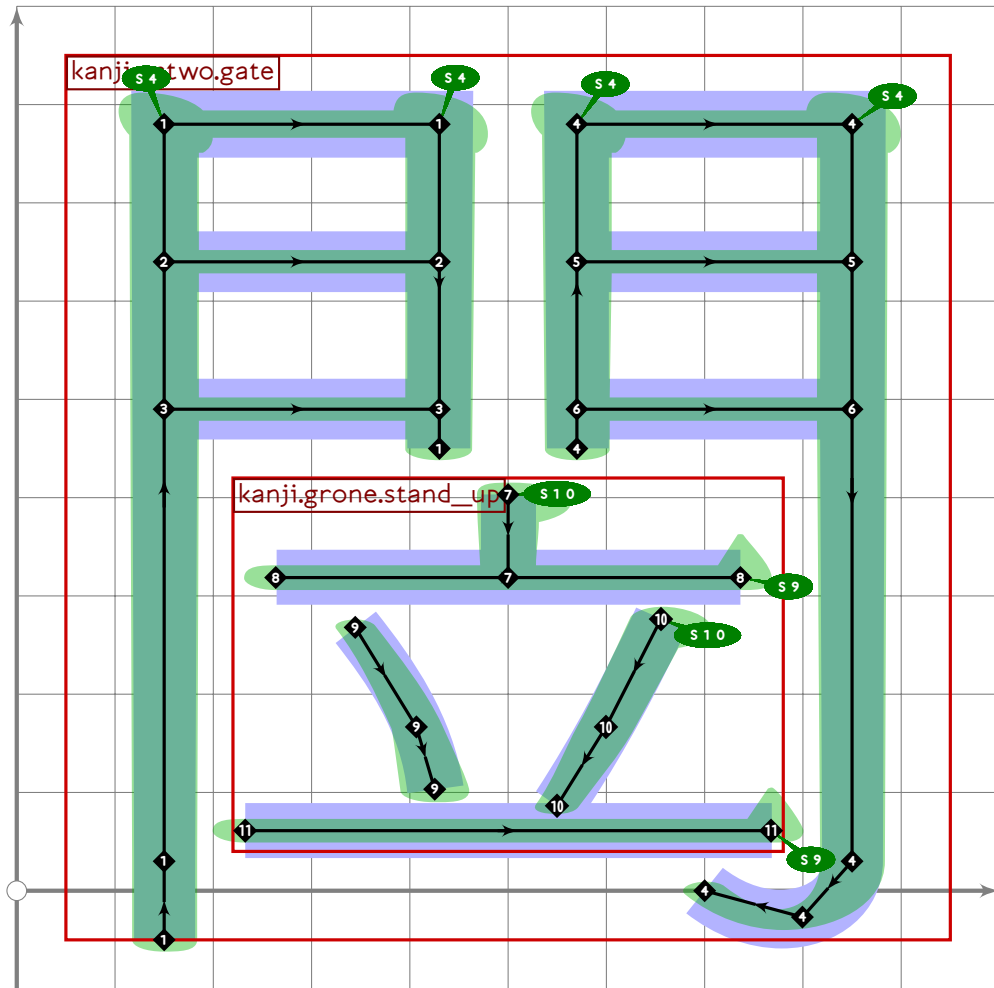


```

162 % extra
163 begint Suglyph("uni9596";150);
164 build_kanji.gate_enclose(kanji.grone.water);
165 tsu_render;
166 endsuglyph;
167

```

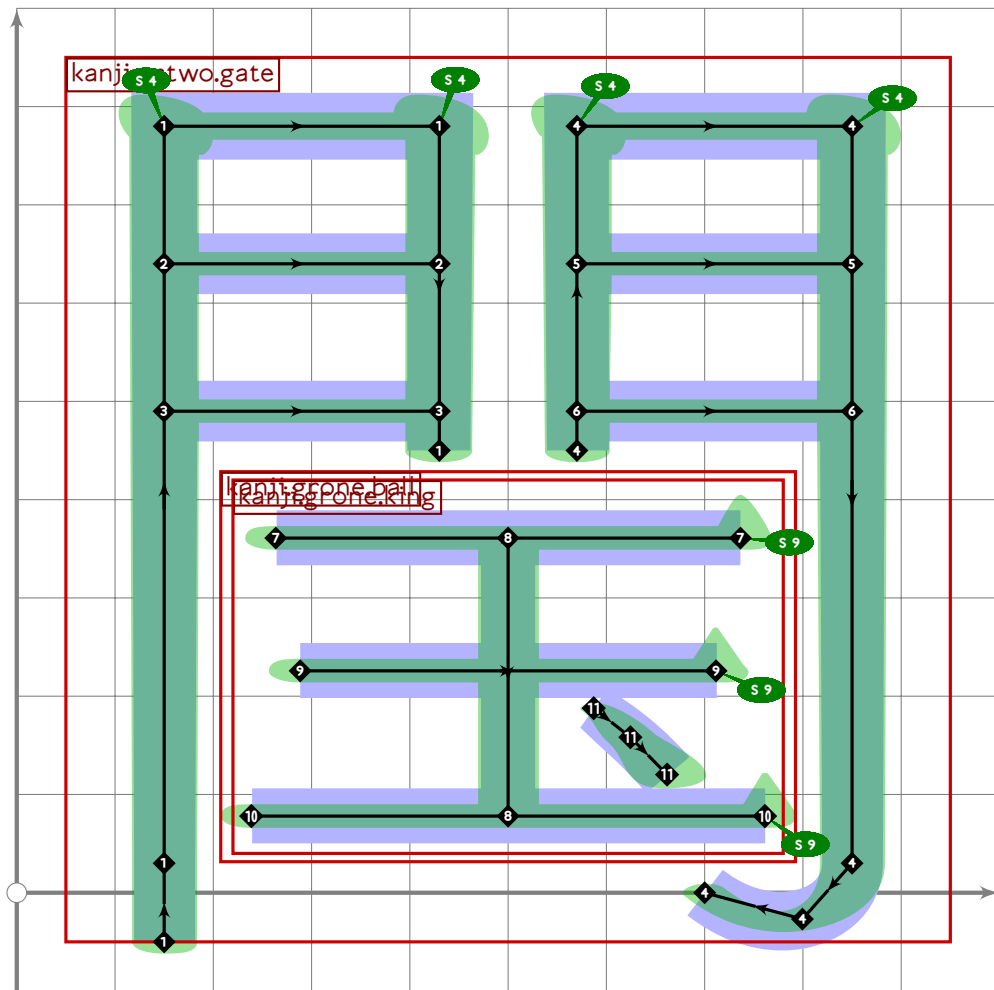




```

168 % extra
169 begint Suglyph("uni959A";154);
170 build_kanji.gate_enclose(kanji.grone.stand_up);
171 tsu_render;
172 endsuglyph;
173

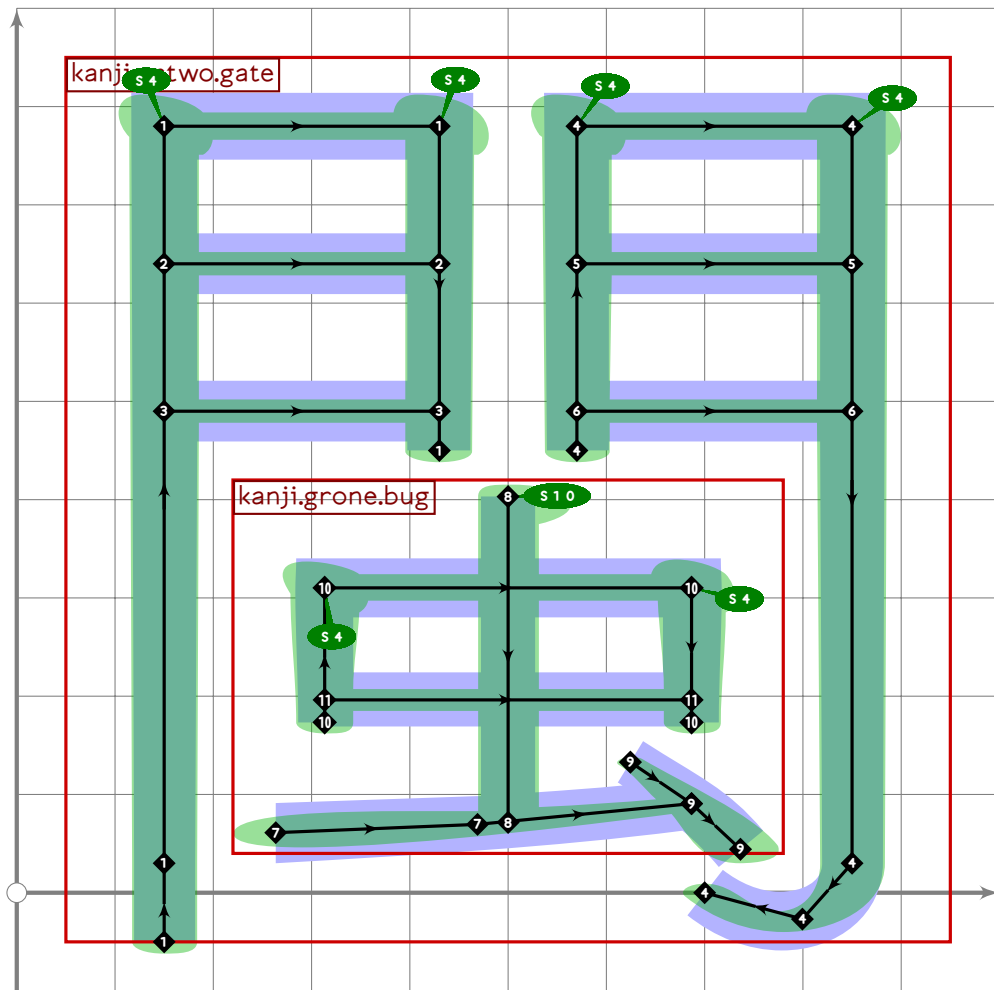
```



```

174 % extra
175 beginsuglyph("uni95A0",160);
176 build_kanji.gate_enclose(kanji.grone.ball);
177 tsu_render;
178 endsuglyph;
179

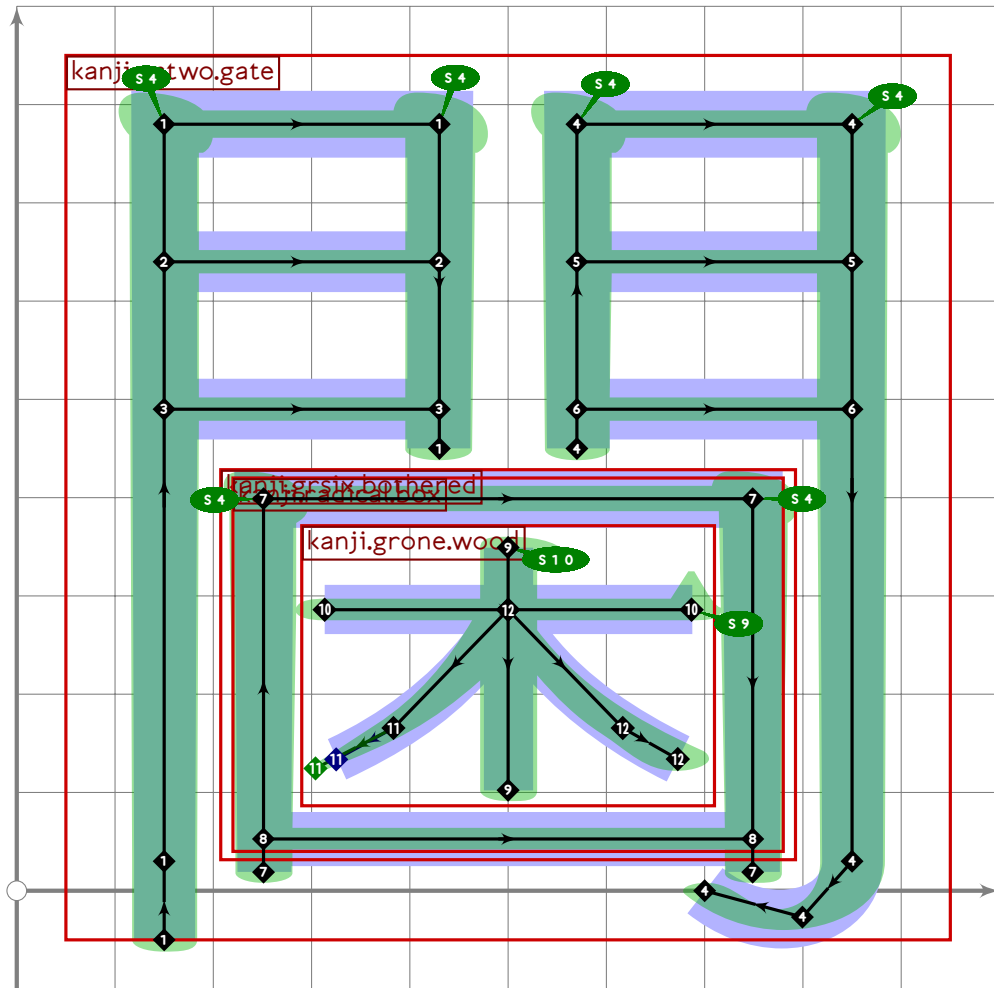
```



```

180 % extra
181 begint Suglyph("uni95A9",169);
182 build_kanji.gate_enclose(kanji.grone.bug);
183 tsu_render;
184 endsuglyph;
185

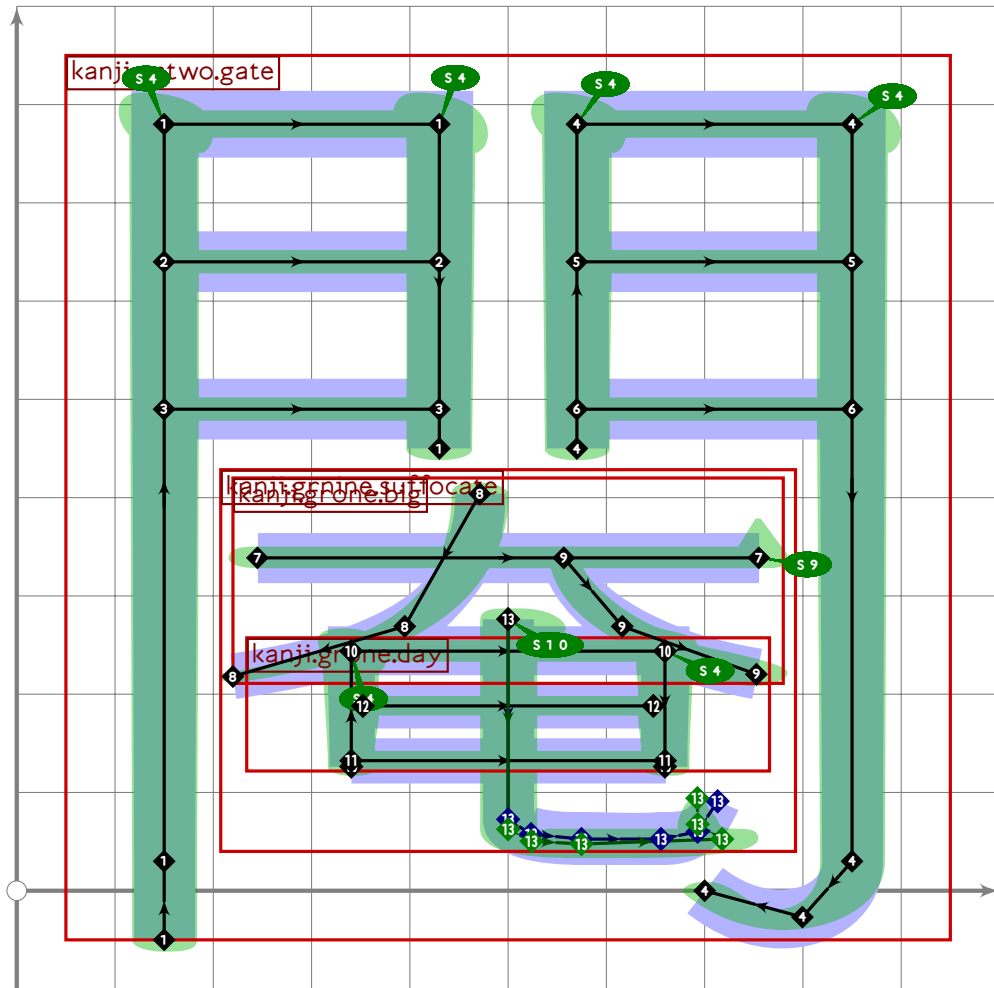
```



```

186 % extra
187 begint Suglyph("uni95AB",171);
188 build_kanji.gate_enclose(kanji.grsix.bothered);
189 tsu_render;
190 endsuglyph;
191

```



```

192 % extra en/an/oo "eunuch"
193 begint Suglyph("uni95B9";185);
194 build_kanji.gate_enclose(kanji.grnine.suffocate);
195 tsu_render;
196 endsuglyph;
197
198 -----
199
200 endfont;
201
202 -----

```

# tsuku-96.mp

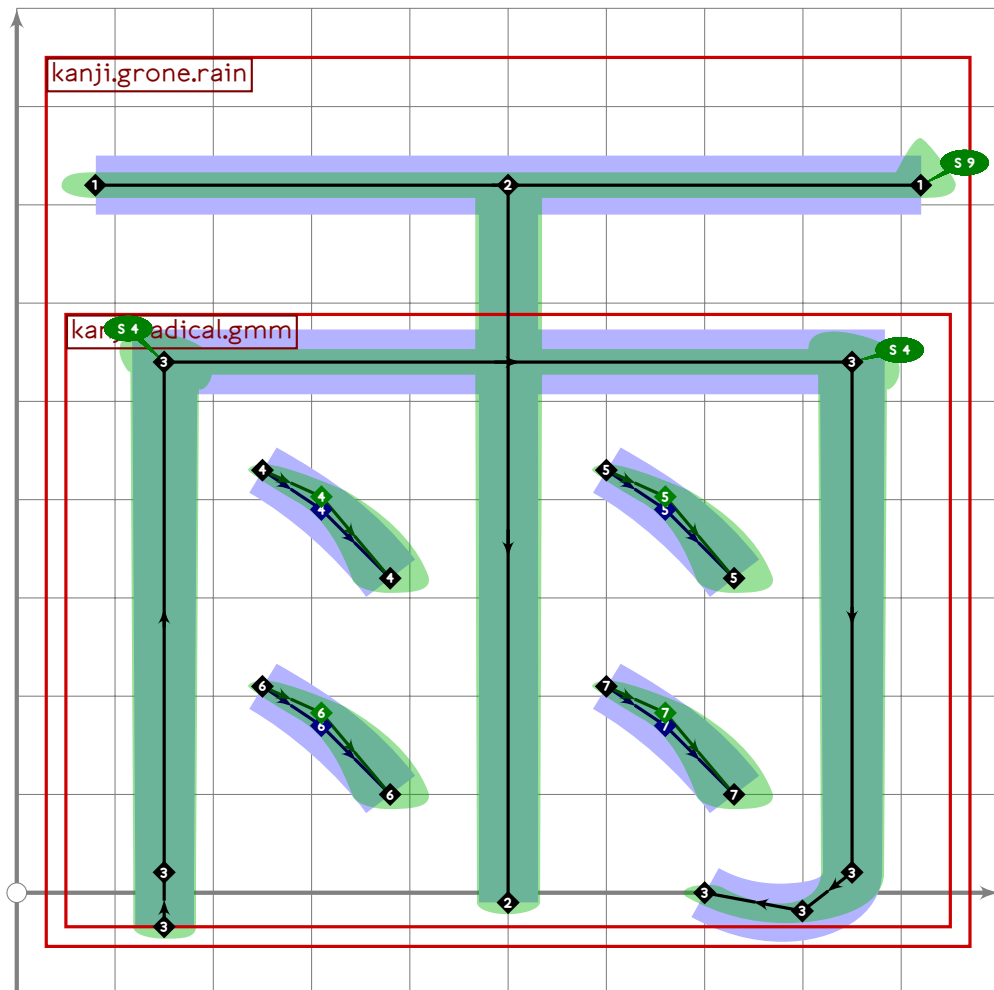
```
1 %
2 % Unicode page 96 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradenine.mp;
39 input gradeone.mp;
40 input gradethree.mp;
41 input radical.mp;
42 input rare.mp;
43 input toprad.mp;
44
45 

---

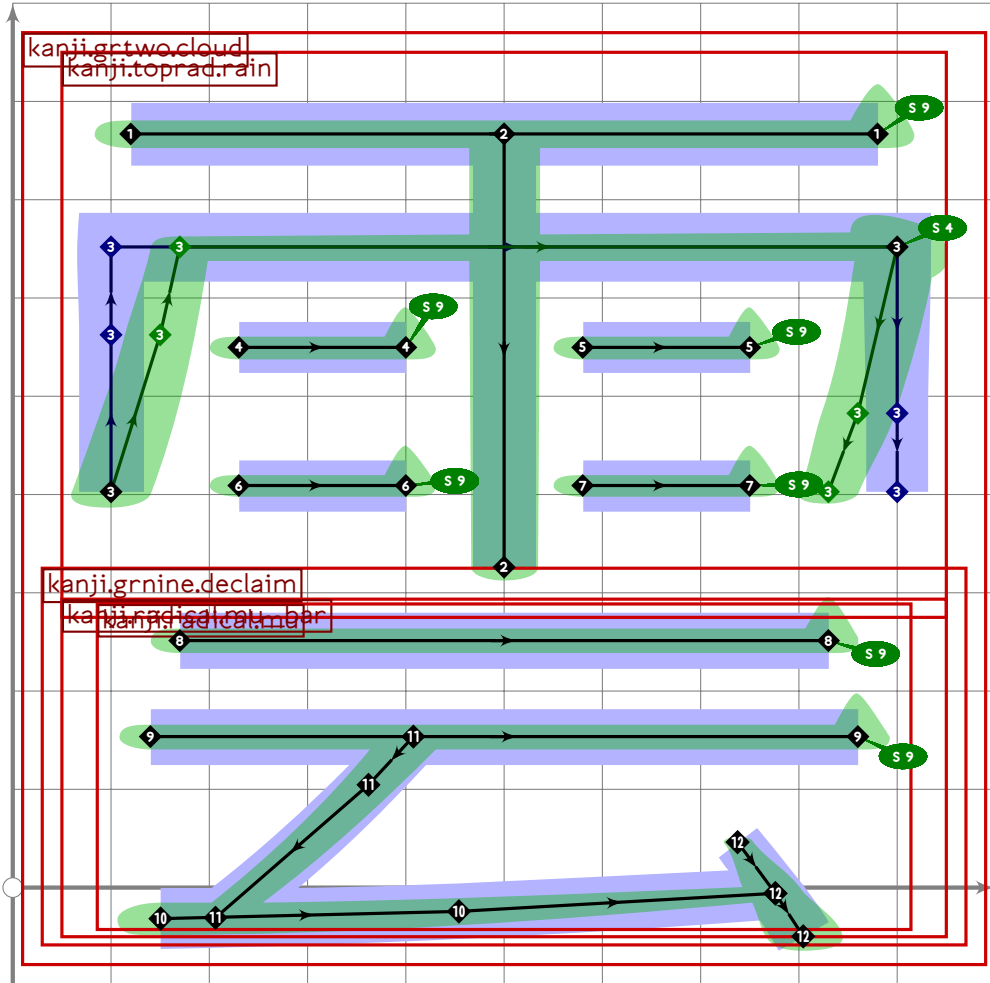

```



```

46
47 vardef kanji.grone.rain =
48   push_pbox_toexpand("kanji.grone.rain");
49   build_kanji.level(
50     push_stroke((80,720)-(920,720),(1.6,1.6)-(1.6,1.6));
51     set_boserif(0,1,9);
52     push_stroke((500,720)-(500,-10),(1.6,1.6)-(1.5,1.5));
53     tsu_xform(identity yscaled (540/780))(kanji.radical.gmm);
54     push_stroke((250,430)..tension 1.2..(310,390+13*mincho)..(380,320),
55       (1,1)-(1.4,1.4)-(1.7,1.7));
56     set_bosize(0,80);
57     push_stroke(get_strokeq(0) shifted (350,0),get_strokeq(0));
58     set_bosize(0,80);
59     push_stroke(get_strokeq(-1) shifted (0,-220),get_strokeq(-1));
60     set_bosize(0,80);
61     push_stroke(get_strokeq(-2) shifted (350,-220),get_strokeq(-2));
62     set_bosize(0,80);
63   );
64   expand_pbox;
65 enddef;
66

```

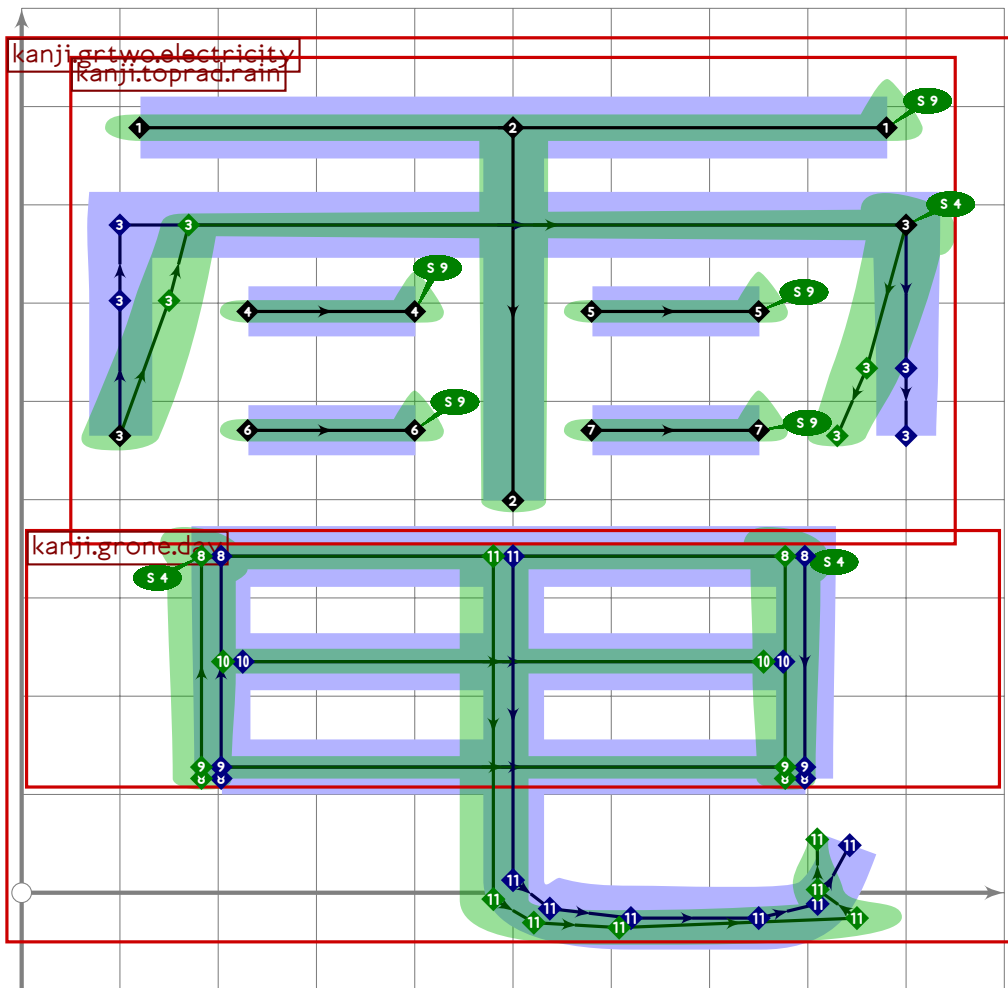


```

68
69 vardef kanji.grtwo.cloud =
70   push_pbox_toexpand("kanji.grtwo.cloud");
71   build_kanji.tb(300,50)
72     (kanji.toprad.rain)
73     (kanji.grnine.declaim);
74   expand_pbox;
75 enddef;

```

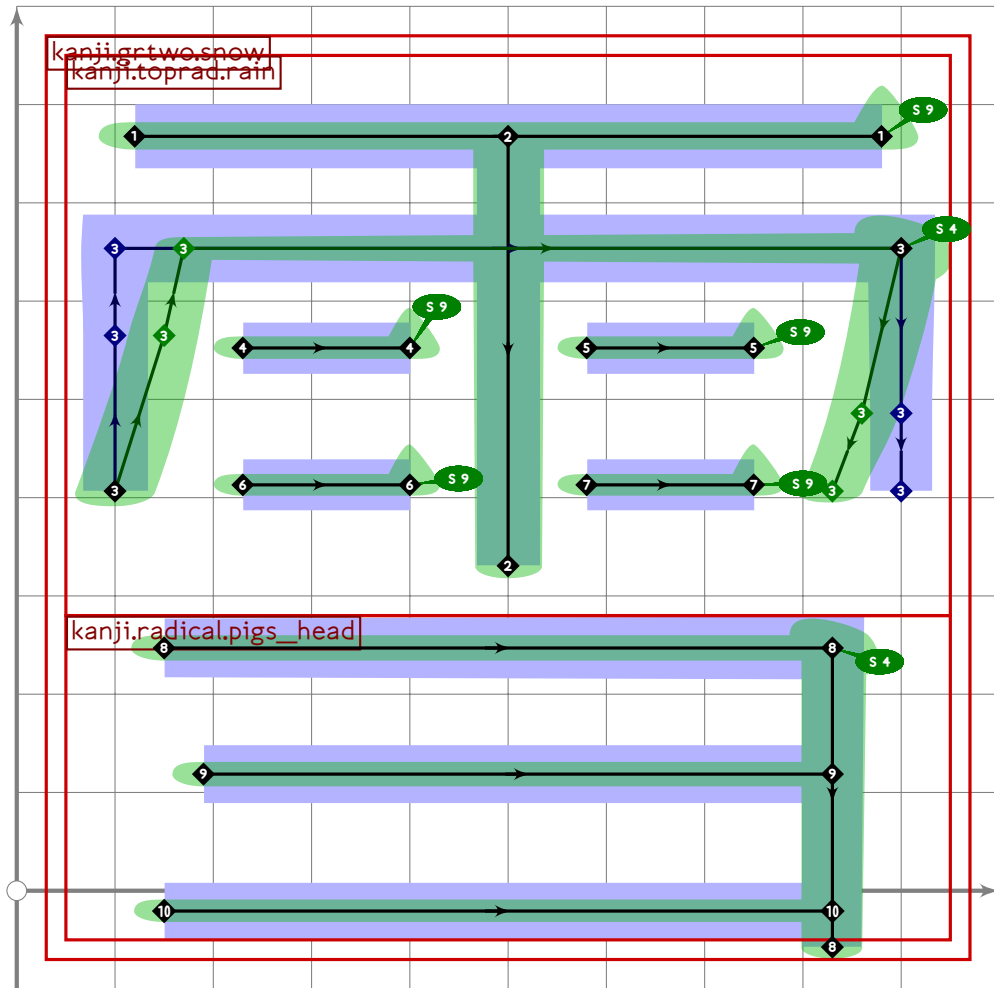




```

76
77 vardef kanji.grtwo.electricity =
78   push_pbox_toexpand("kanji.grtwo.electricity");
79   build_kanji.tb(370,30)
80     (kanji.toprad.rain)
81     (build_kanji.sscale(xyscaled (1,1,0.6) shifted (-20*mincho,150))
82       (kanji.grone.day);
83     push_stroke((point 1.5 of get_stroke(-2)),(1,6,1,6));
84     build_kanji.add_tail(0);
85   expand_pbox;
86 enddef;

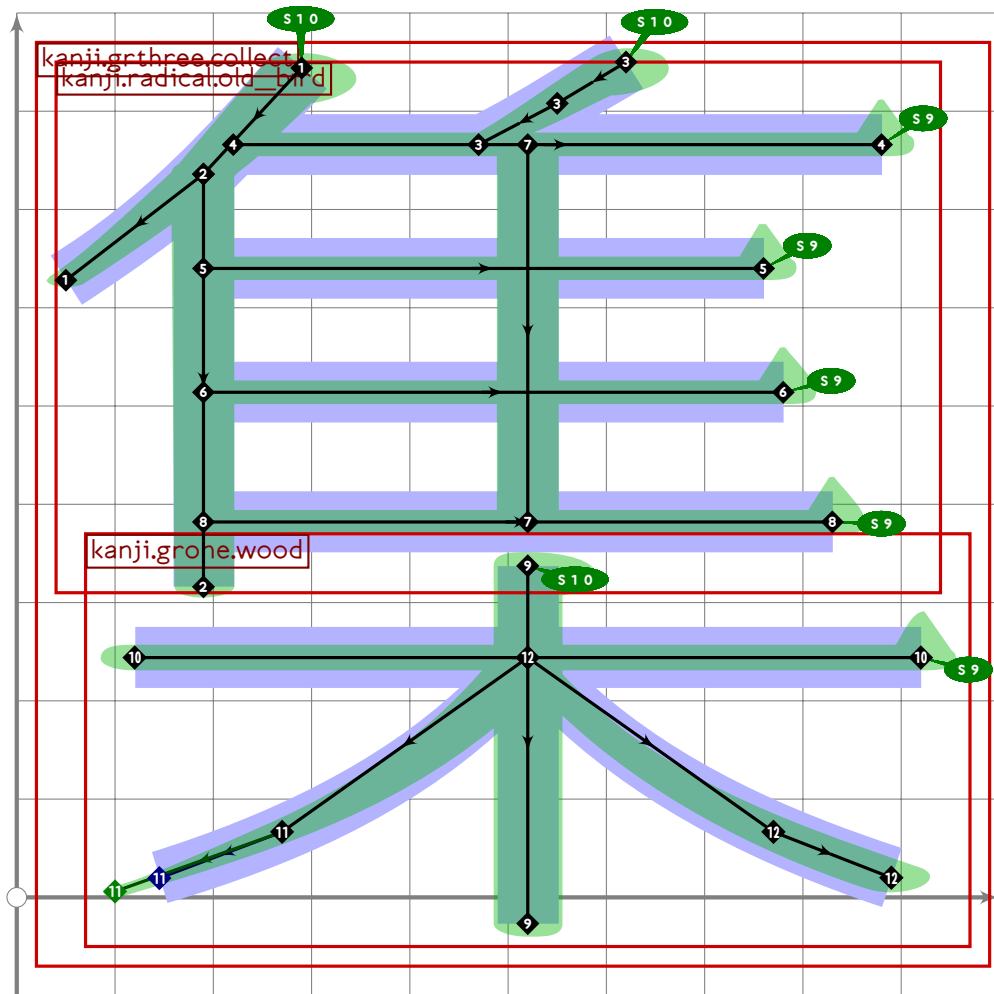
```



```

87
88 vardef kanji.grtwo.snow =
89   push_pbox_toexpand("kanji.grtwo.snow");
90   build_kanji.tb(280,0)
91     (kanji.toprad.rain)
92     (kanji.radical.pigs_head);
93   expand_pbox;
94 enddef;
95
96

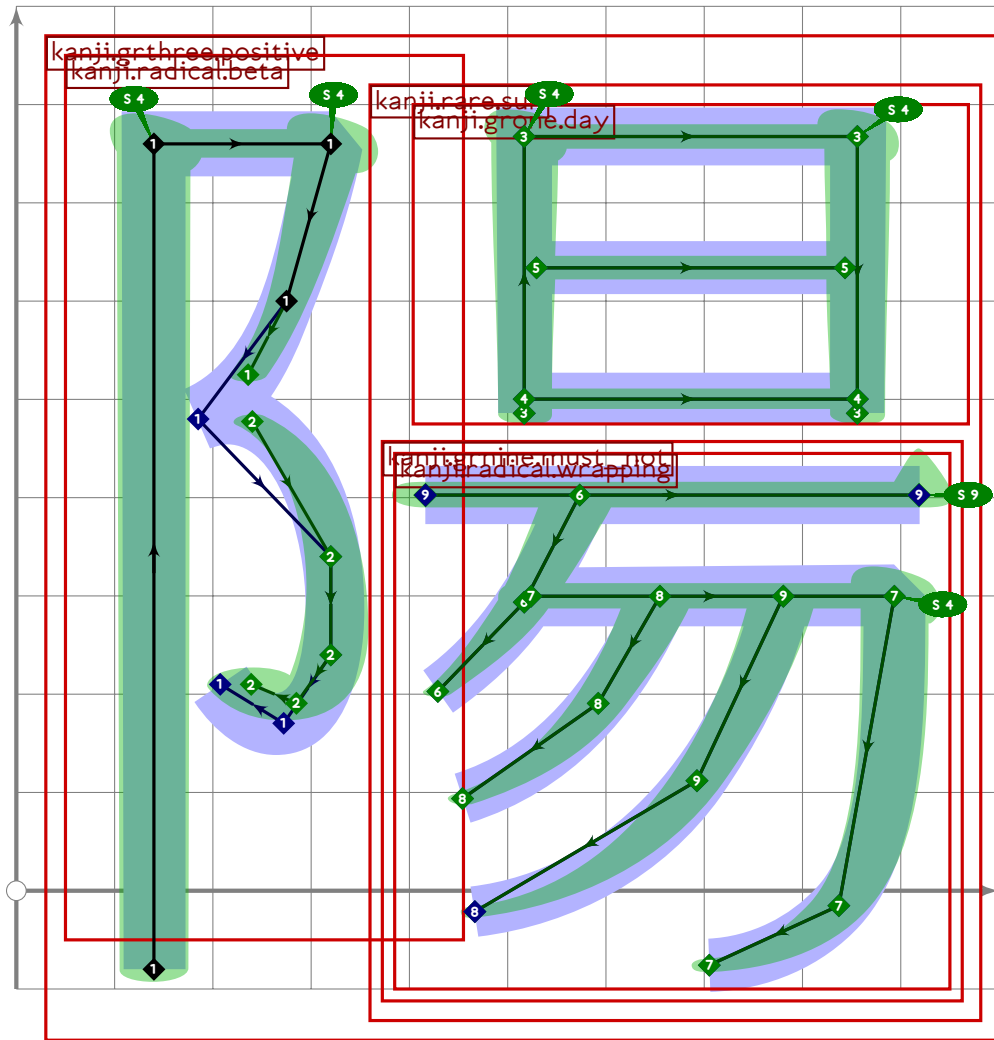
```



```

97
98 vardef kanji.grthree.collect =
99   push_pbox_toexpand("kanji.grthree.collect");
100  build_kanji.tb(340,60)
101    (build_kanji.sscale(shifted (-10,0))(kanji.radical.old_bird))
102    (build_kanji.sscale(shifted (20,0))(kanji.grone.wood));
103  expand_pbox;
104 enddef;

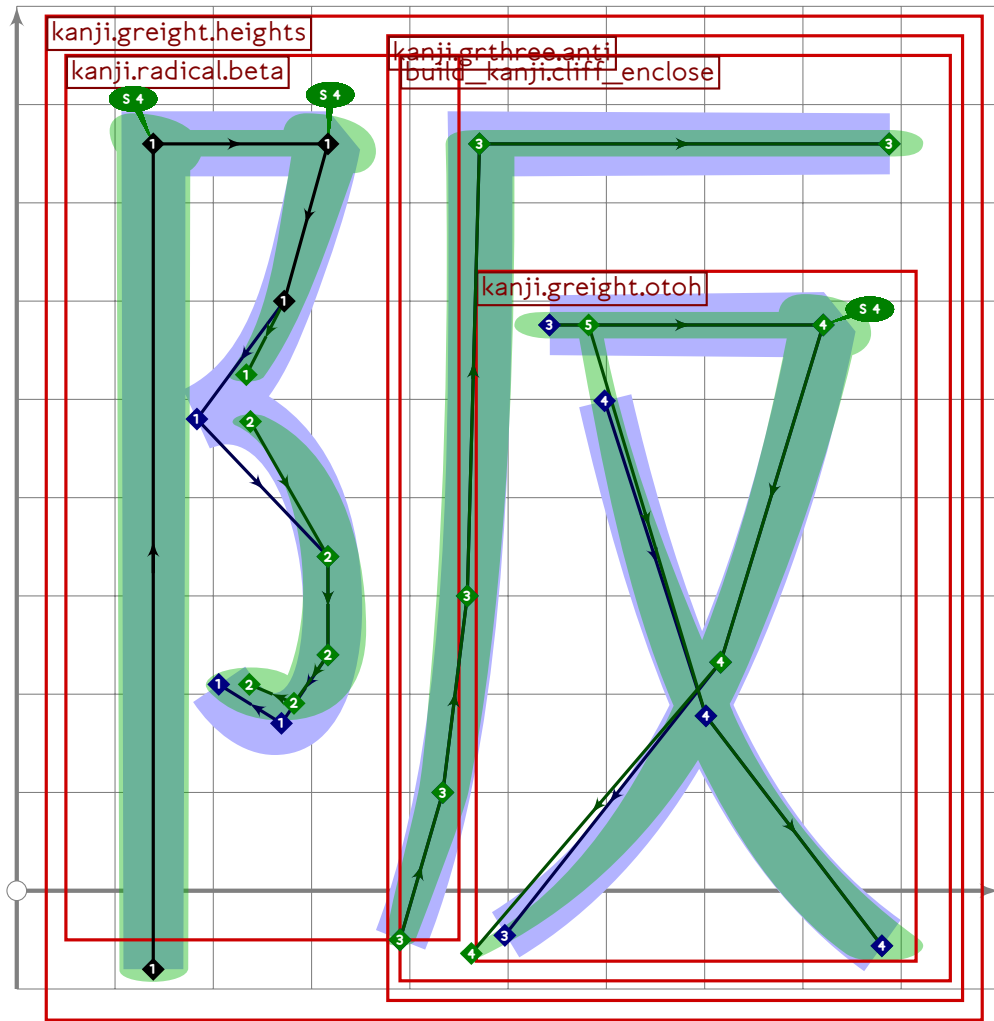
```



```

105
106 vardef kanji.grthree.positive =
107   push_pbox_toexpand("kanji.grthree.positive");
108   build_kanji.lr(420,70)
109     (kanji.radical.beta)
110     (build_kanji.sscale(shifted (0,-50))(kanji.rare.sun));
111   expand_pbox;
112 enddef;
113
114

```

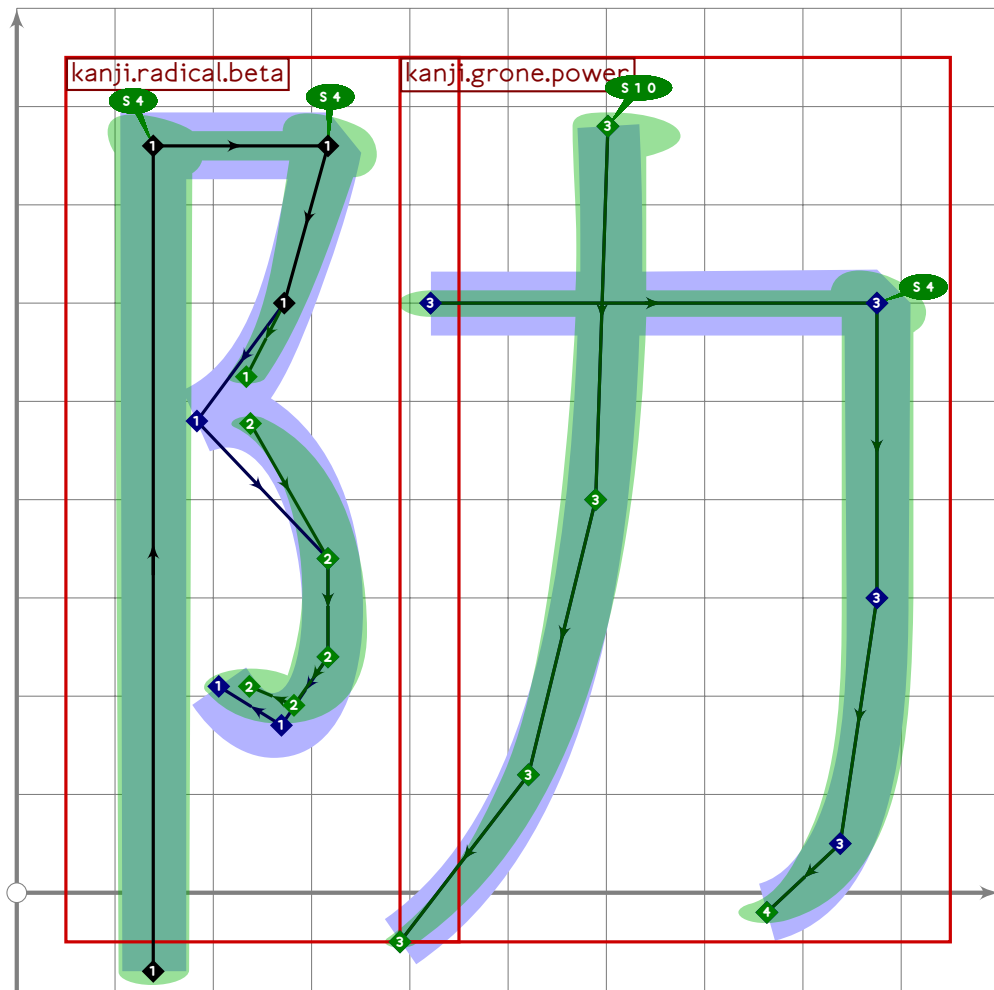


```

115
116 vardef kanji.greight.heights =
117   push_pbox_toexpand("kanji.greight.heights");
118   build_kanji.level(build_kanji.lr(420,60)
119     (kanji.radical.beta)
120     (kanji.grthree.anti));
121   expand_pbox;
122 enddef;
123
124
125
126 % kozato "left village" (beta-looking) radical
127 begintsuglyph("uni961D",29);
128   kanji.radical.beta;
129   tsu_render;
130 endsuglyph;
131

```

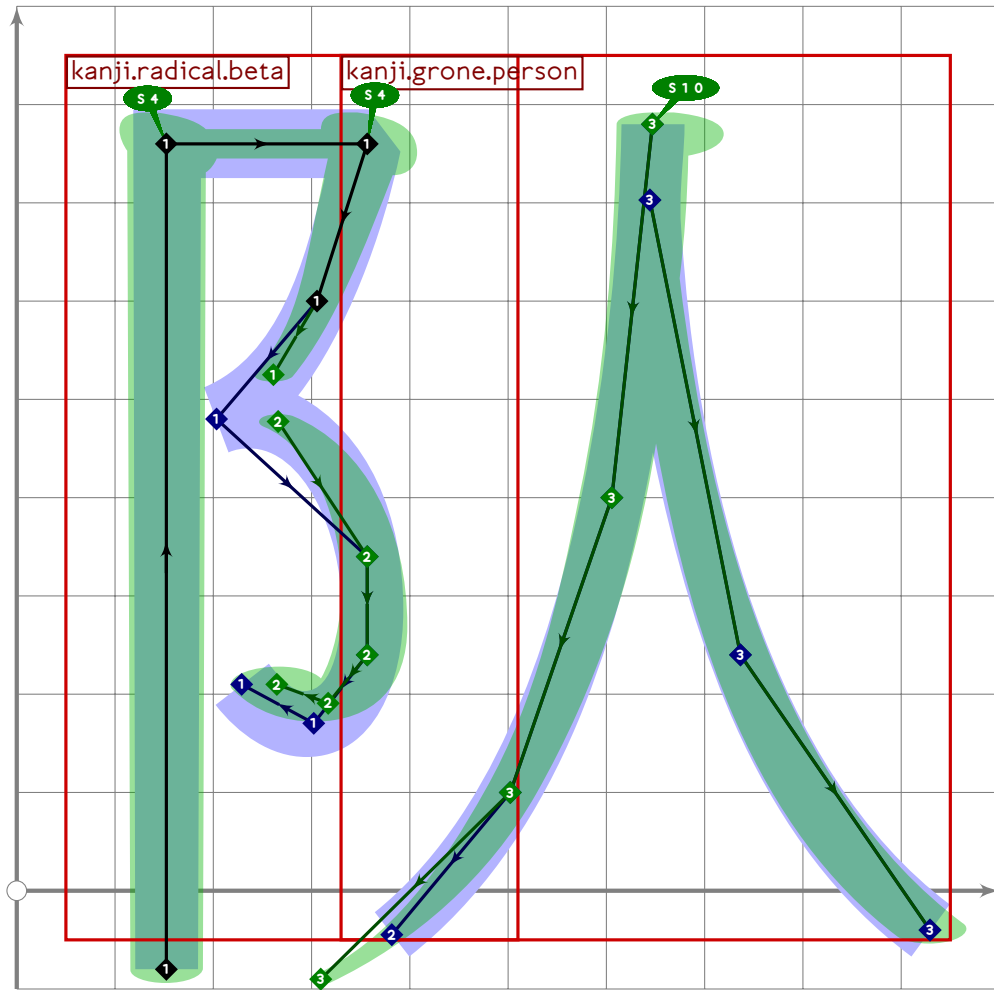
[see page 335]



```

132 % extra "vein"
133 begint Suglyph("uni961E";30);
134 build_kanji.level(build_kanji.lr(420,60)
135   (kanji.radical.beta)
136   (kanji.grone.power));
137 tsu_render;
138 endsuglyph;
139

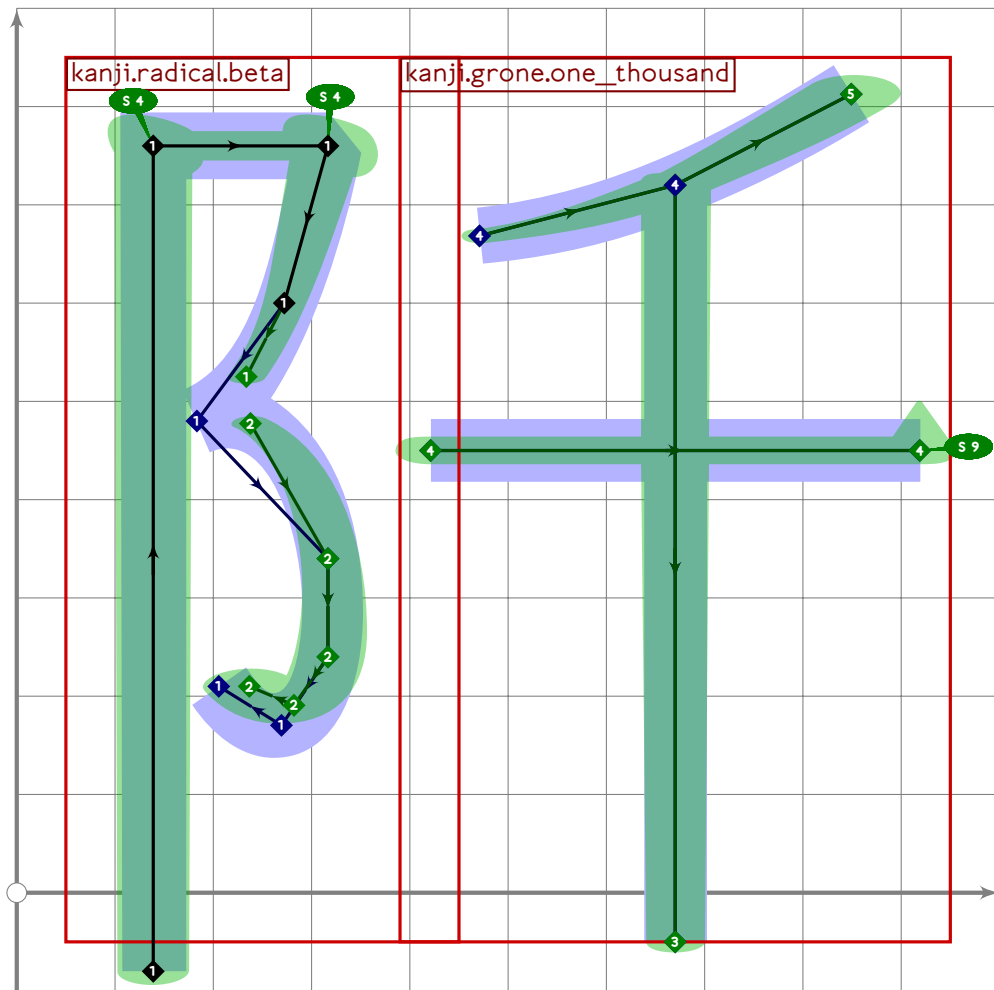
```



```

140 % extra
141 begint Suglyph("uni961F",31);
142 build_kanji.level(build_kanji.lr(420,180)
143   (kanji.radical.beta)
144   (kanji.grone.person));
145 tsu_render;
146 endsuglyph;
147

```

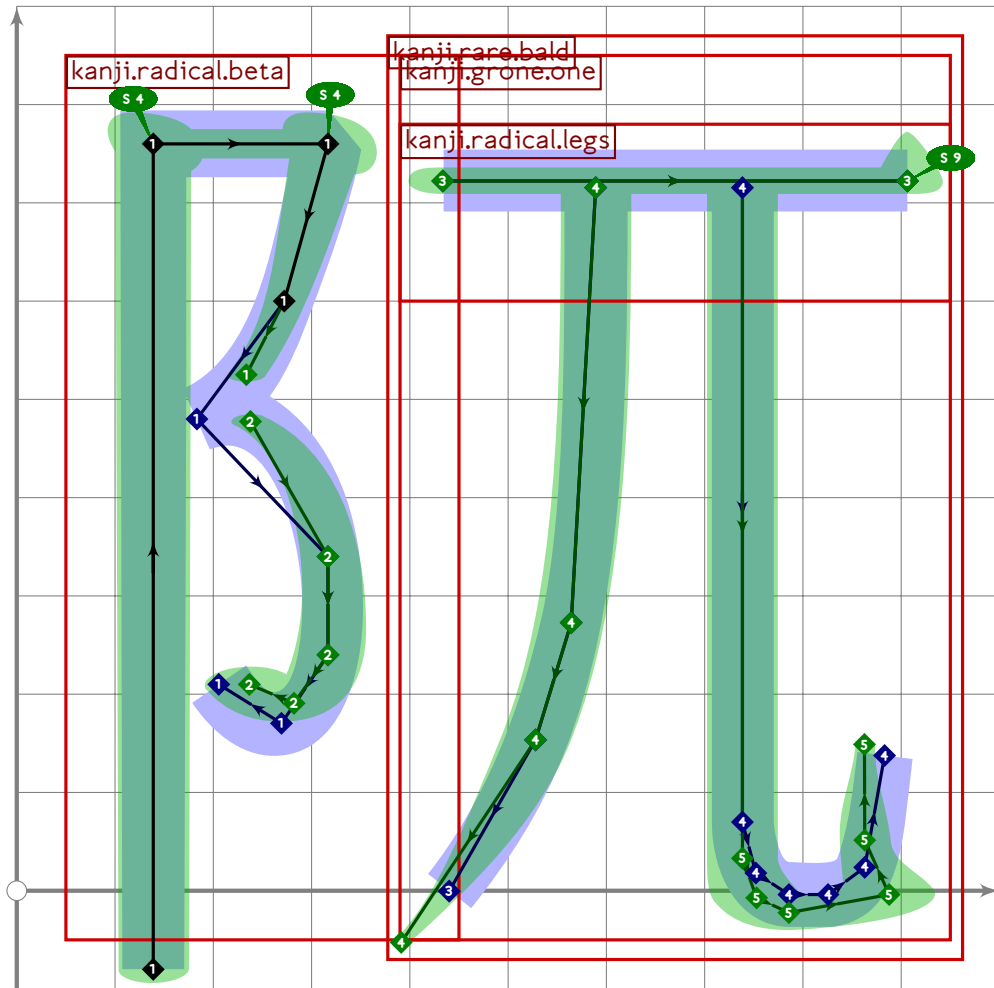


```

148 % extra "thousand"
149 begintsuglyph("uni9621";33);
150 build_kanji.level(build_kanji.lr(420,60)
151   (kanji.radical.beta)
152   (kanji.grone.one_thousand));
153 tsu_render;
154 endsuglyph;
155

```

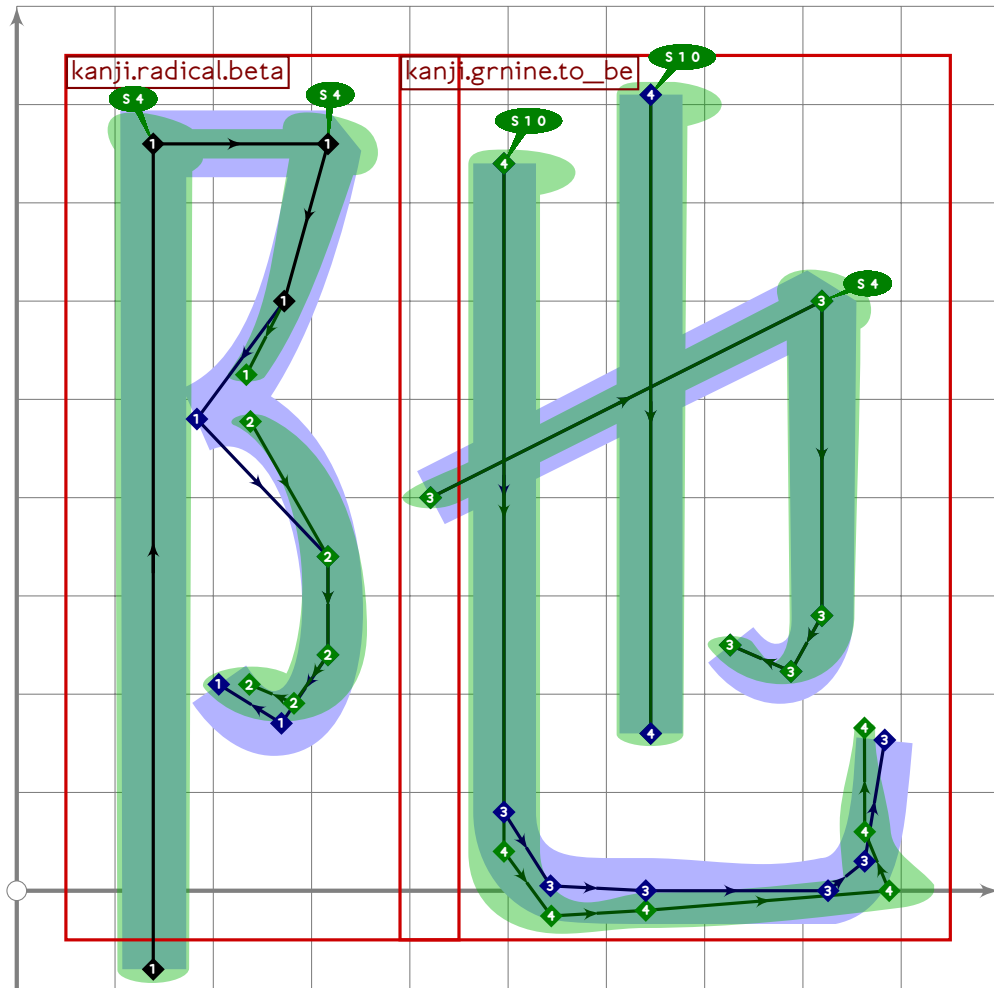




```

156 % extra
157 begint Suglyph("uni9622",34);
158 build_kanji.level(build_kanji.lr(420,60)
159   (kanji.radical.beta)
160   (kanji.rare.bald));
161 tsu_render;
162 endsuglyph;
163

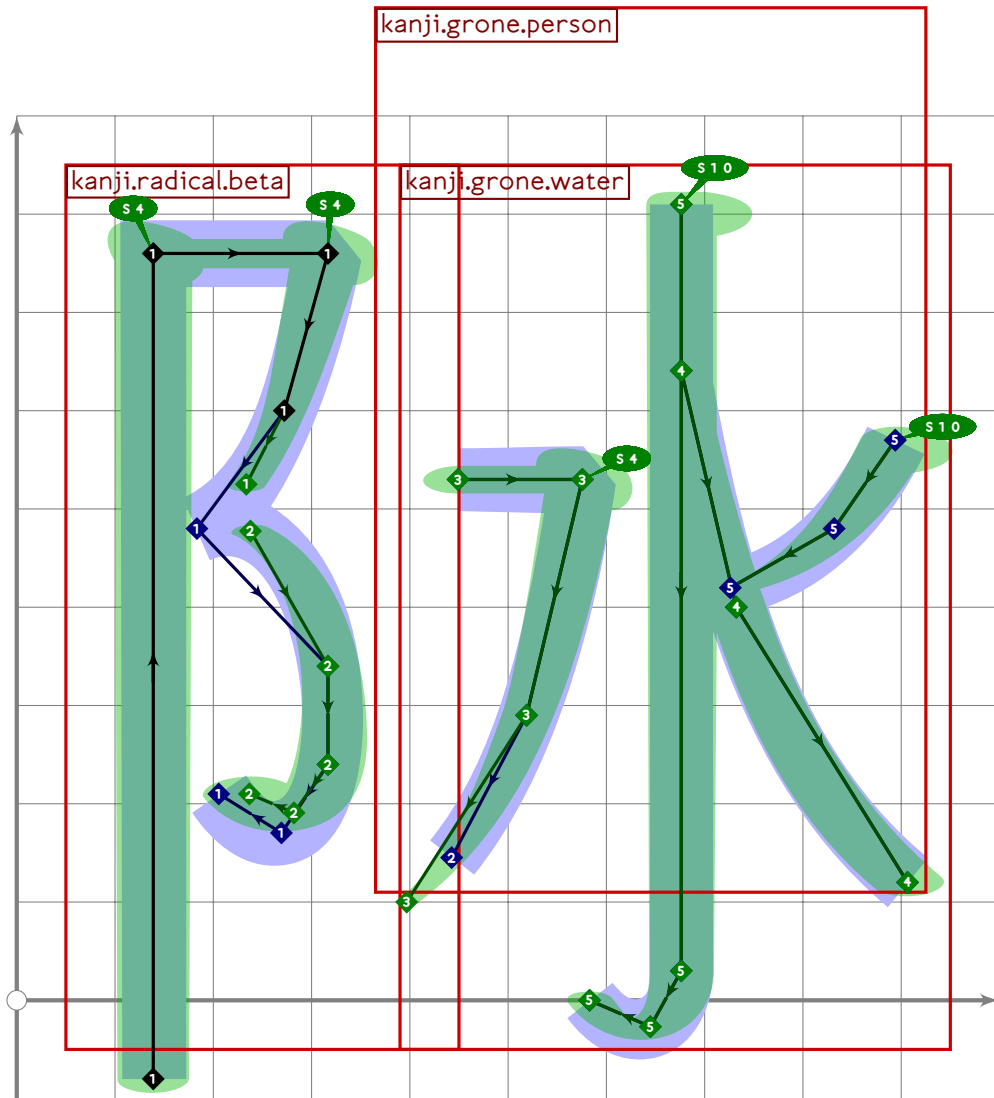
```



```

164 % extra
165 begint Suglyph("uni9624",36);
166 build_kanji.level(build_kanji.lr(420,60)
167   (kanji.radical.beta)
168   (kanji.grnine.to_be));
169 tsu_render;
170 endsuglyph;
171

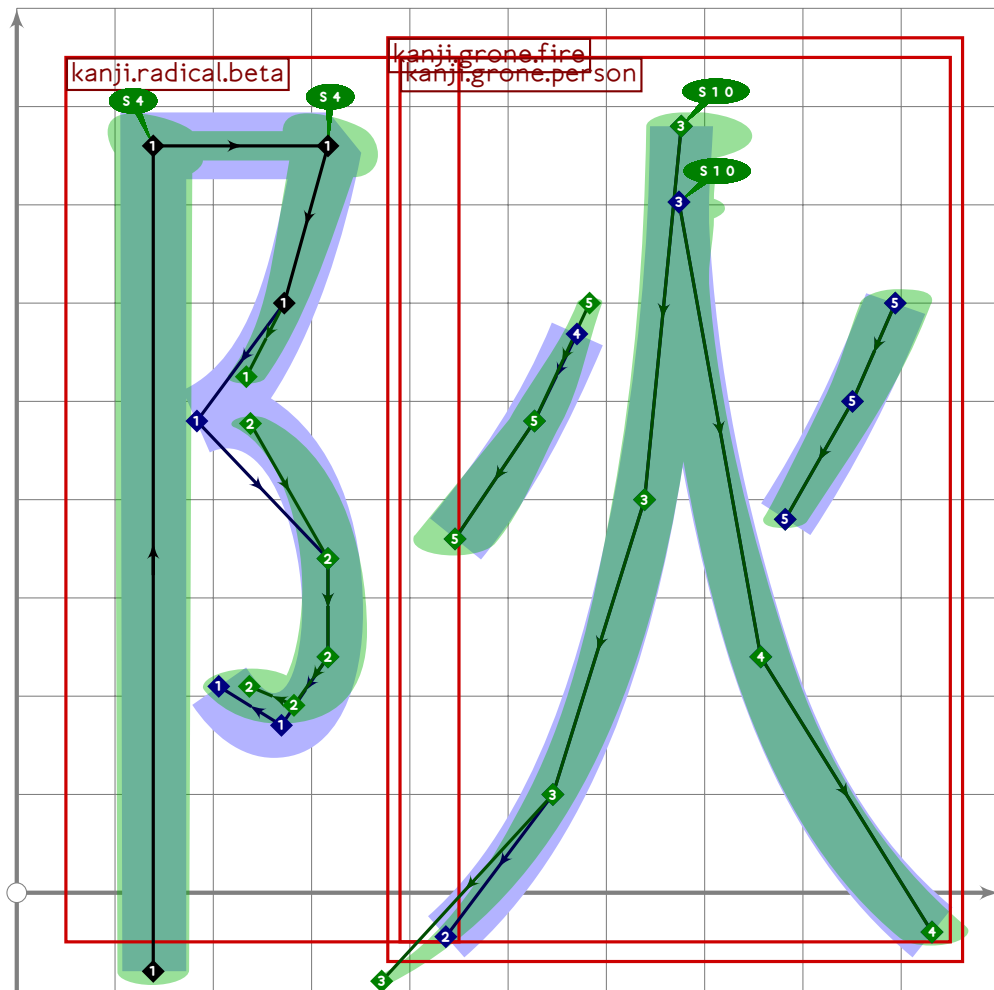
```



```

172 % extra
173 begint Suglyph("uni9625";37);
174 build_kanji.level(build_kanji.lr(420,60)
175   (kanji.radical.beta)
176   (kanji.grone.water));
177 tsu_render;
178 endsuglyph;
179

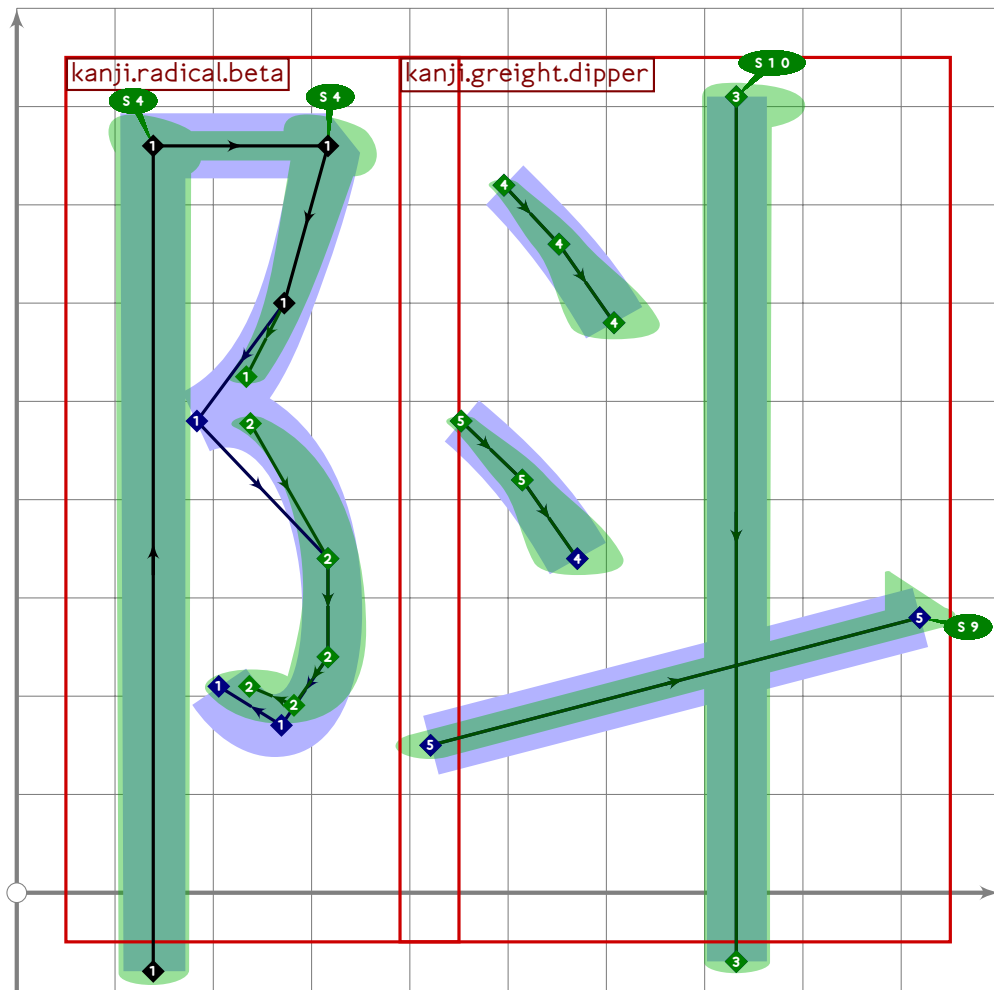
```



```

180 % extra
181 begint Suglyph("uni9626",38);
182 build_kanji.level(build_kanji.lr(420,60)
183   (kanji.radical.beta)
184   (kanji.gro.ne.fire));
185 tsu_render;
186 endsuglyph;
187

```



```

188 % extra
189 begintsuglyph("uni9627",39);
190 build_kanji.level(build_kanji.lr(420,60)
191   (kanji.radical.beta)
192   (kanji.greight.dipper));
193 tsu_render;
194 endsuglyph;
195
196 % han/saka "heights"
197 begintsuglyph("uni962A",42);
198 kanji.greight.heights;
199 tsu_render;
200 endsuglyph;
201
202 % sai/tori "old bird" radical
203 begintsuglyph("uni96B9",185);
204 kanji.radical.old_bird;
205 tsu_render;
206 endsuglyph;
207
208 % shuu/atsu "collect"

```

[see page 1961]

[see page 348]

209 `begintsuglyph("uni96C6",198);` [see page 1959]  
210 `kanji.grthree.collect;`  
211 `tsu_render;`  
212 `endtsuglyph;`  
213  
214 `% u/ame "rain"`  
215 `begintsuglyph("uni96E8",232);` [see page 1955]  
216 `kanji.grone.rain;`  
217 `tsu_render;`  
218 `endtsuglyph;`  
219  
220 `% satsu/yuki "snow"`  
221 `begintsuglyph("uni96EA",234);` [see page 1958]  
222 `kanji.grtwo.snow;`  
223 `tsu_render;`  
224 `endtsuglyph;`  
225  
226 `% un/kumo "cloud"`  
227 `begintsuglyph("uni96F2",242);` [see page 1956]  
228 `kanji.grtwo.cloud;`  
229 `tsu_render;`  
230 `endtsuglyph;`  
231  
232 `% den "electricity"`  
233 `begintsuglyph("uni96FB",251);` [see page 1957]  
234 `kanji.grtwo.electricity;`  
235 `tsu_render;`  
236 `endtsuglyph;`  
237  
238 `% you/hi "positive"`  
239 `begintsuglyph("uni96FD",253);` [see page 1960]  
240 `kanji.grthree.positive;`  
241 `tsu_render;`  
242 `endtsuglyph;`  
243  
244 

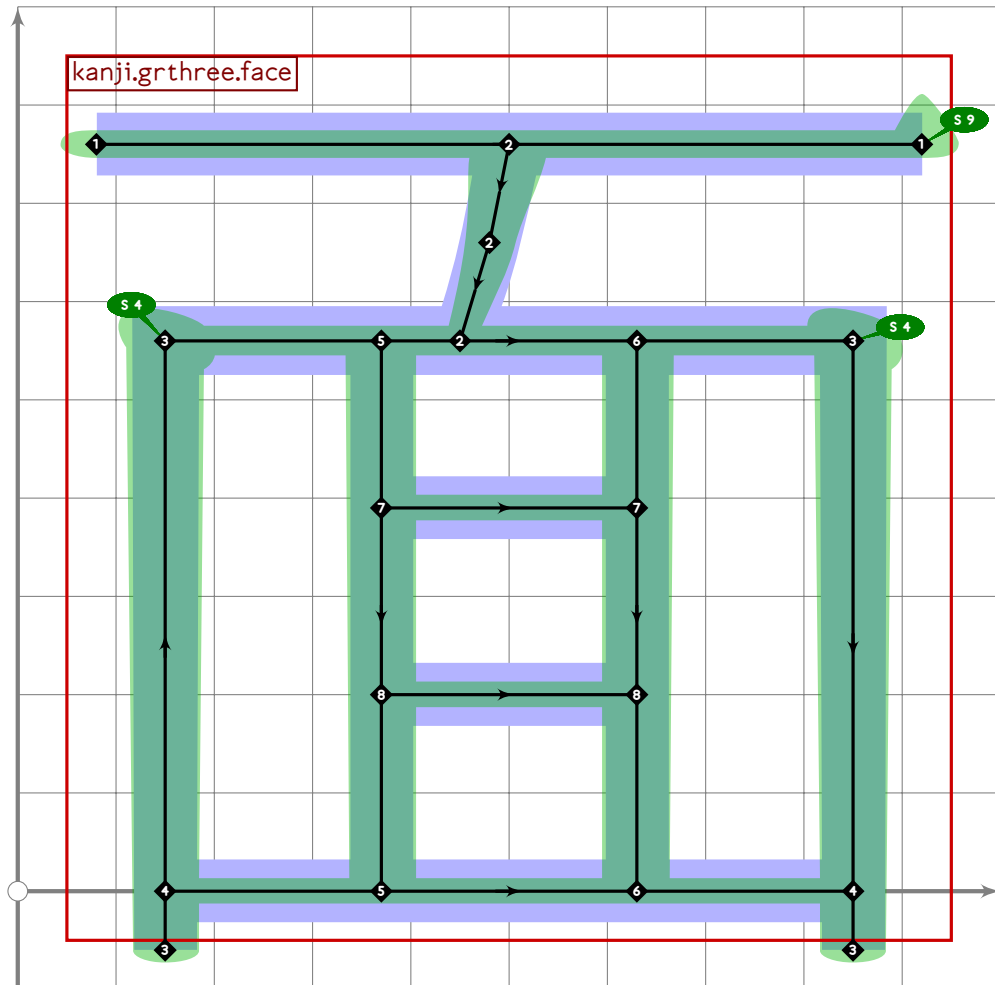
---

  
245  
246 `endfont;`  
247  
248 

---

# tsuku-97.mp

```
1 %
2 % Unicode page 97 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 -----
32
33 beginfont
34
35 % AUTODEPS
36 input bottomrad.mp;
37 input buildkanji.mp;
38 input gradeone.mp;
39 input rare.mp;
40 input toprad.mp;
41
42 -----
```

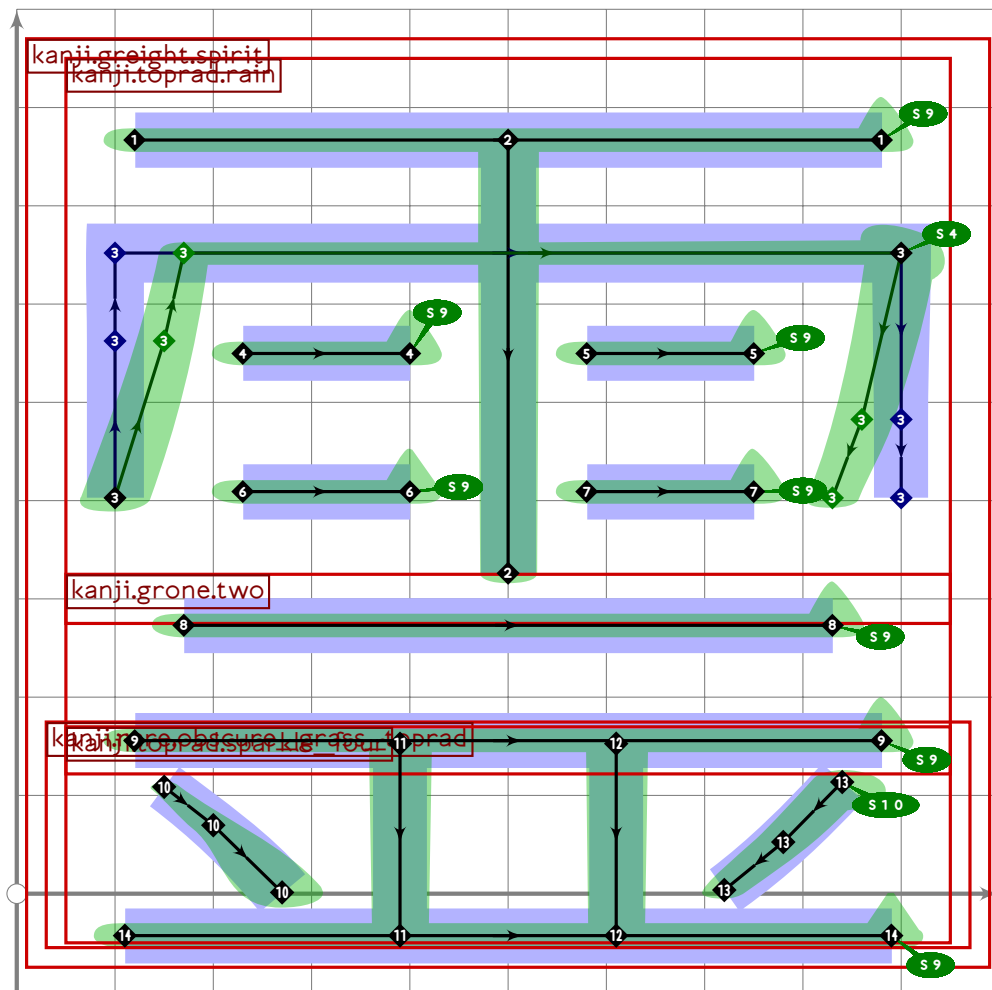


43

```

44 vardef kanji.grthree.face =
45   push_pbox_toexpand("kanji.grthree.face");
46   push_stroke((80,760)-(920,760),
47     (1.6,1.6)-(1.6,1.6));
48   set_boseref(0,1,9);
49   push_stroke((500,760)..(480,660)..(450,560),
50     (1.7,1.7)-(1.3,1.3)-(1,1));
51   build_kanji.box((150,560),(850,0));
52   push_stroke((370,560)-(370,0),(1.6,1.6)-(1.5,1.5));
53   push_stroke((630,560)-(630,0),(1.6,1.6)-(1.5,1.5));
54   push_stroke((370,390)-(630,390),(1.5,1.5)-(1.5,1.5));
55   push_stroke((370,200)-(630,200),(1.5,1.5)-(1.5,1.5));
56   for i=-7 upto 0: set_bosize(i,92); endfor;
57   expand_pbox;
58 enddef;
59
60

```



```

61
62 vardef kanji.greight.spirit =
63   push_pbox_toexpand("kanji.greight.spirit");
64   build_kanji.level(build_kanji.tb(300,50)

```



```

65     (kanji.toprad.rain)
66     (build_kanji.tb(420,115)
67       (kanji.grone.two)
68       (kanji.rare.obscure_grass_toprad;
69         set_boserif(-3,0,whatever);
70         set_boserif(-2,0,whatever))));
71   expand_pbox;
72 enddef;
73
74 

---


75
76 % rei/tama "spirit"
77 begintsuglyph("uni970A";10); [see page 1972]
78   kanji.greight.spirit;
79   tsu_render;
80 endtsuglyph;
81
82 % ao "blue"
83 begintsuglyph("uni9752";82); [see page 369]
84   kanji.grone.blue;
85   tsu_render;
86 endtsuglyph;
87
88 % men/omo "face"
89 begintsuglyph("uni9762";98); [see page 1972]
90   kanji.grthree.face;
91   tsu_render;
92 endtsuglyph;
93
94 % oto/on "noise"
95 begintsuglyph("uni97F3";243); [see page 399]
96   kanji.grone.noise;
97   tsu_render;
98 endtsuglyph;
99
100 

---


101
102 endfont;
103
104 

---



```

# tsuku-98.mp

```
1 %
2 % Unicode page 98 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---

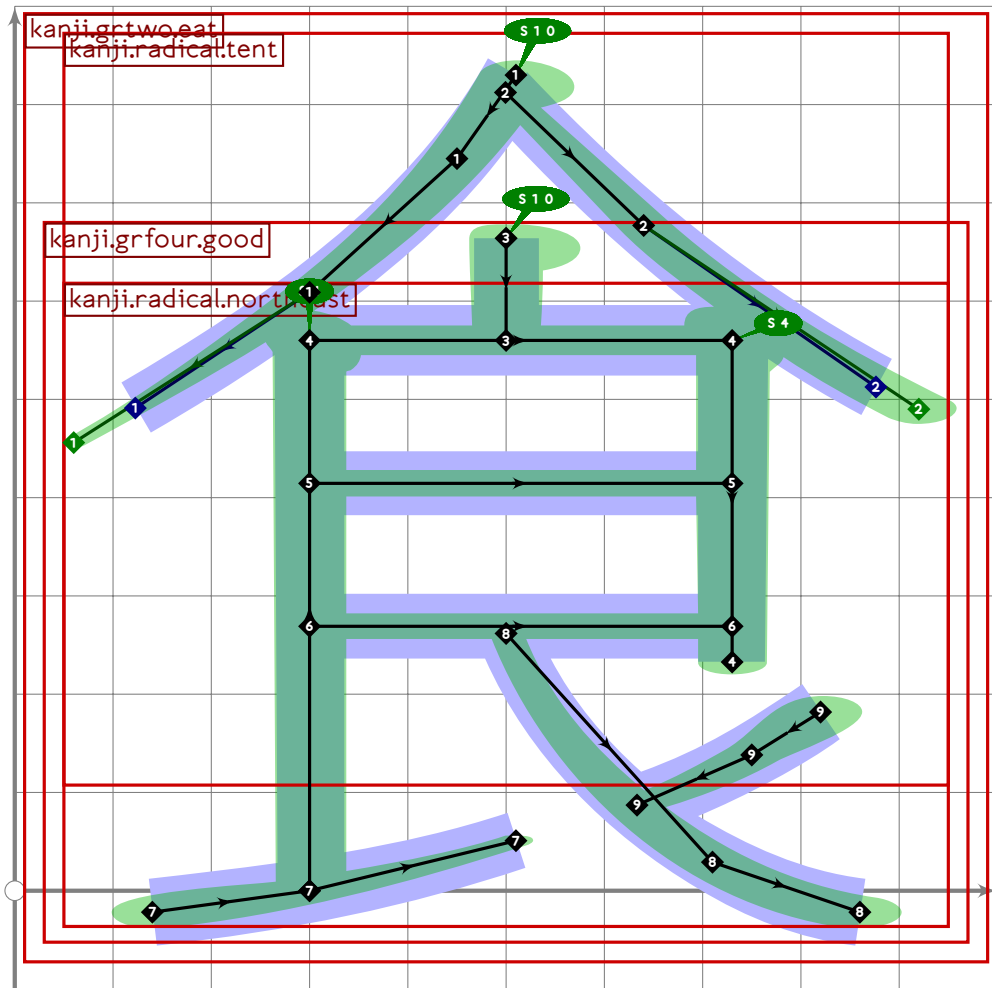

32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradefour.mp;
38 input gradenine.mp;
39 input gradeone.mp;
40 input gradethree.mp;
41 input radical.mp;
42
43 

---


44
45 vardef build_kanji.wind_enclose(text contents) =
46   push_pbox_toexpand("build_kanji.wind_enclose");
47   push_stroke((50,-50)..(120,100)..(160,300)..tension 1.2..(180,760)
48     -interpath(mincho,
49       (770,760){down}..tension 1.2 and 1.6..(810,0)..(860,0)..tension 1.5..
50       (890,100)..(910,200),
51       (760,760){down}..(780,100)..{fright}(910,-40){curl 1}..
52       (890,60)..(890,160)),
53     (1,1)-(1.3,1.3)-(1.5,1.5)-(1.6,1.6)-(1.6,1.6)-
54     (1.4,1.4)-(1.4,1.4)-(1.2,1.2)-(0.9,0.9));
55   set_botip(0,3,1);
56   set_botip(0,4,1);
57   set_boserif(0,3,4);
58   set_boserif(0,4,4);
59   begingroup
60     save t;
61     transform t;
62     (50,-50) transformed t=(230,-50);
63     (950,-50) transformed t=(700,-50);
64     (950,850) transformed t=(700,660+20*mincho);
65     tsu_xform(t)(contents);
66   endgroup;
67   expand_pbox;
68 enddef;
69
70 

---

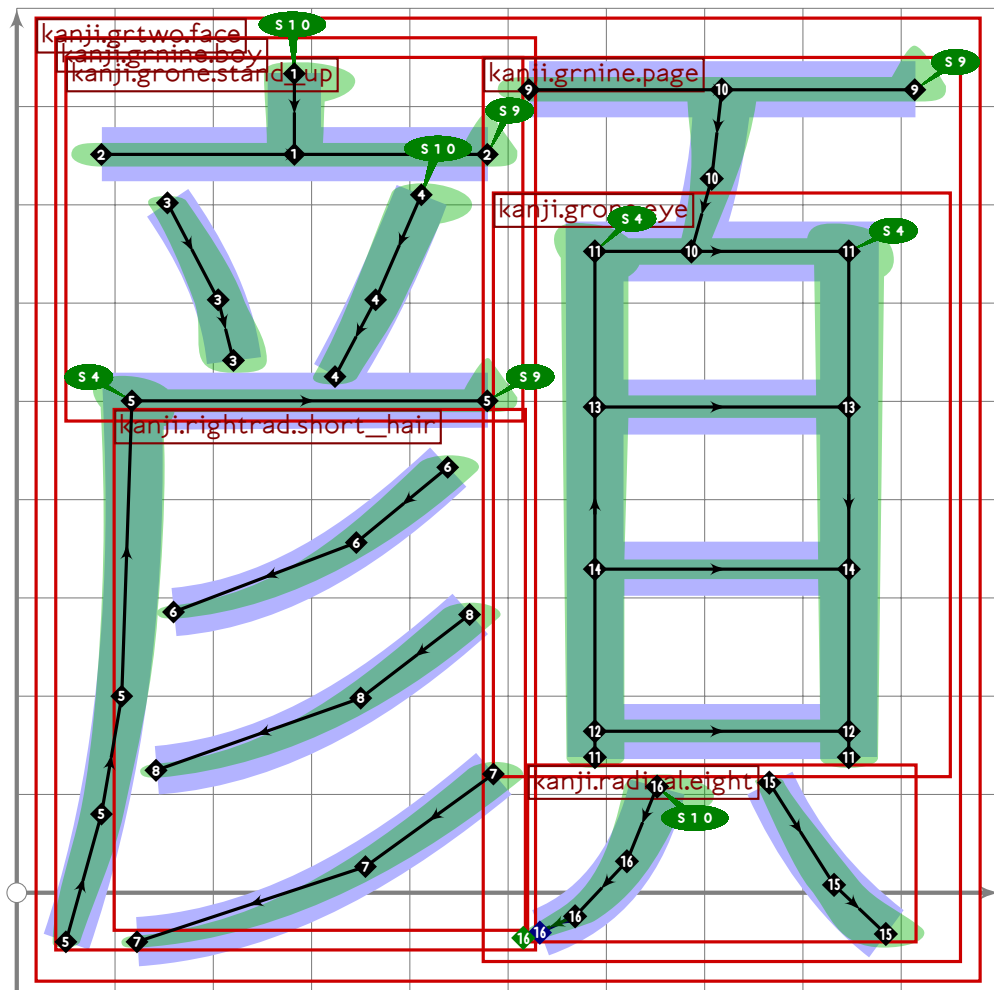

```



```

71
72 vardef kanji.grtwo.eat =
73   push_pbox_toexpand("kanji.grtwo.eat");
74   build_kanji.level(
75     tsu_xform(identity yscaled 0.85 shifted (0,150))
76     (kanji.radical.tent);
77   pop_stroke;
78   tsu_xform(identity yscaled 0.8)(kanji.grfour.good);
79   expand_pbox;
80 enddef;

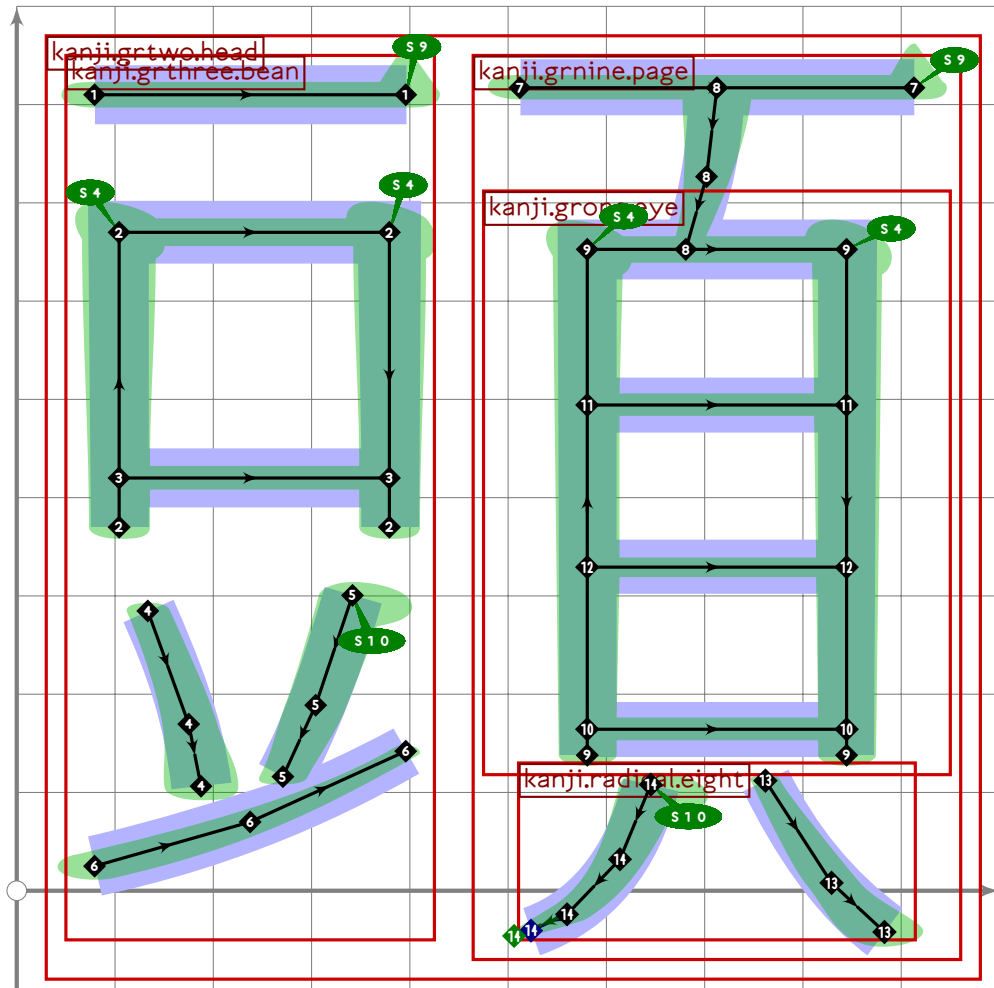
```



```

81
82 vardef kanji.grtwo.face =
83   push_pbox_toexpand("kanji.grtwo.face");
84   build_kanji.lr(500,30)
85     (kanji.grnine.boy)
86     (kanji.grnine.page);
87   expand_pbox;
88 enddef;

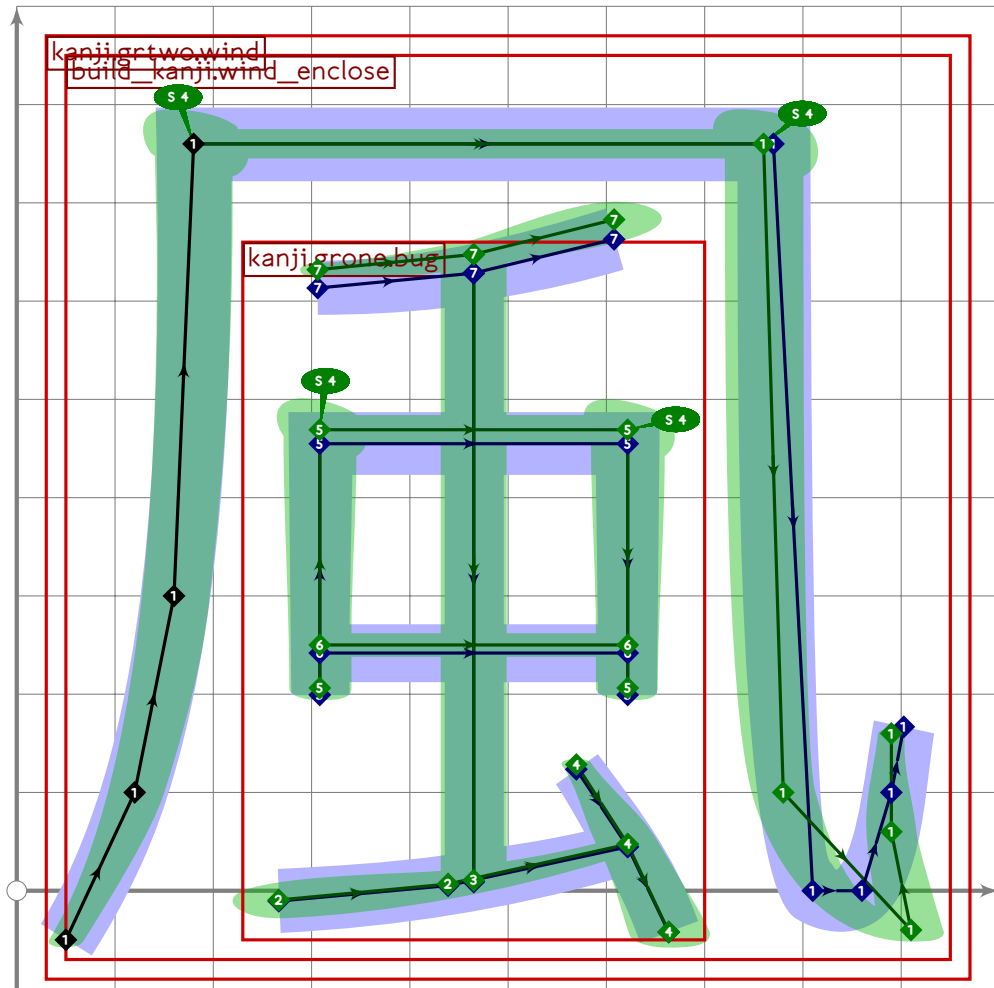
```



```

89
90 vardef kanji.grtwo.head =
91   push_pbox_toexpand("kanji.grtwo.head");
92   build_kanji.lr(450,-50)
93     (build_kanji.lift_skirt(320,150)(kanji.grthree.beam))
94     (kanji.grnine.page);
95   expand_pbox;
96 enddef;

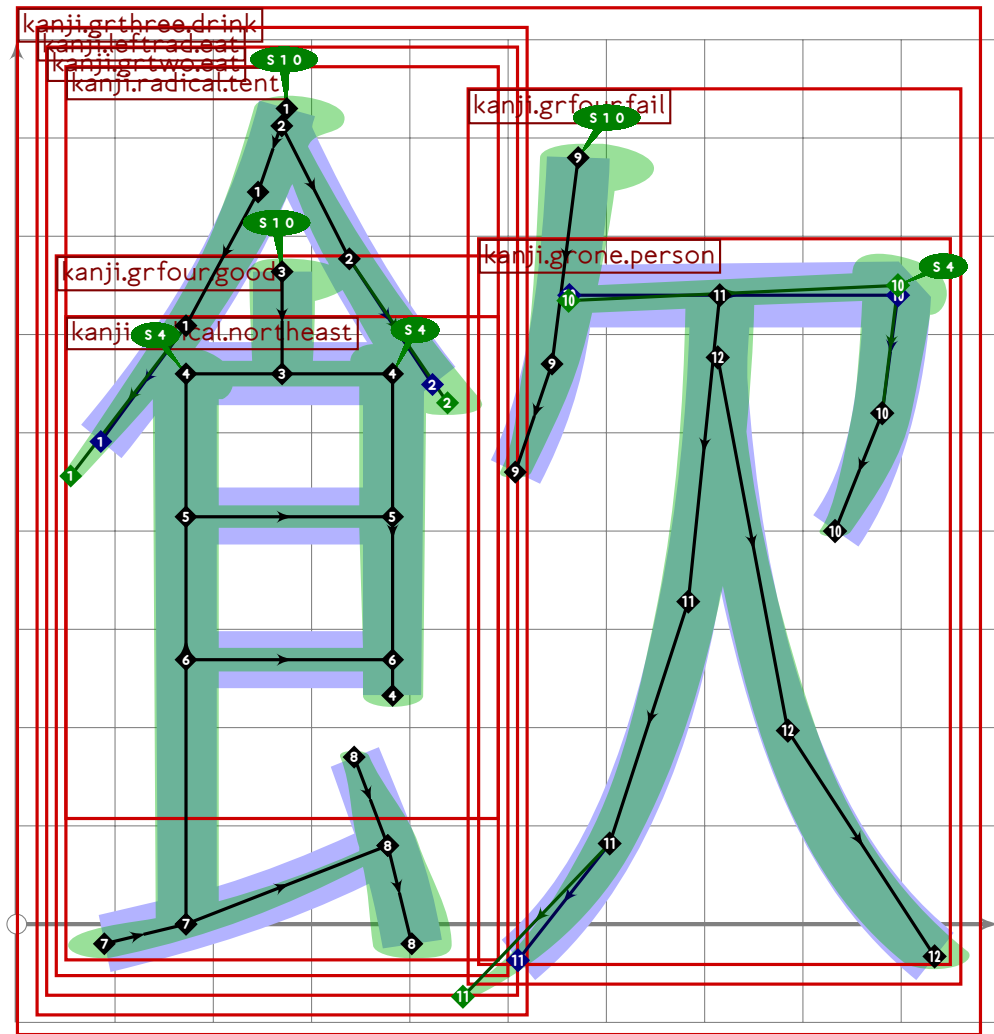
```



```

97
98 vardef kanji.grtwo.wind =
99   push_pbox_toexpand("kanji.grtwo.wind");
100   build_kanji.wind_enclose(build_kanji.add_beret(kanji.grone.bug));
101   expand_pbox;
102 enddef;
103
104

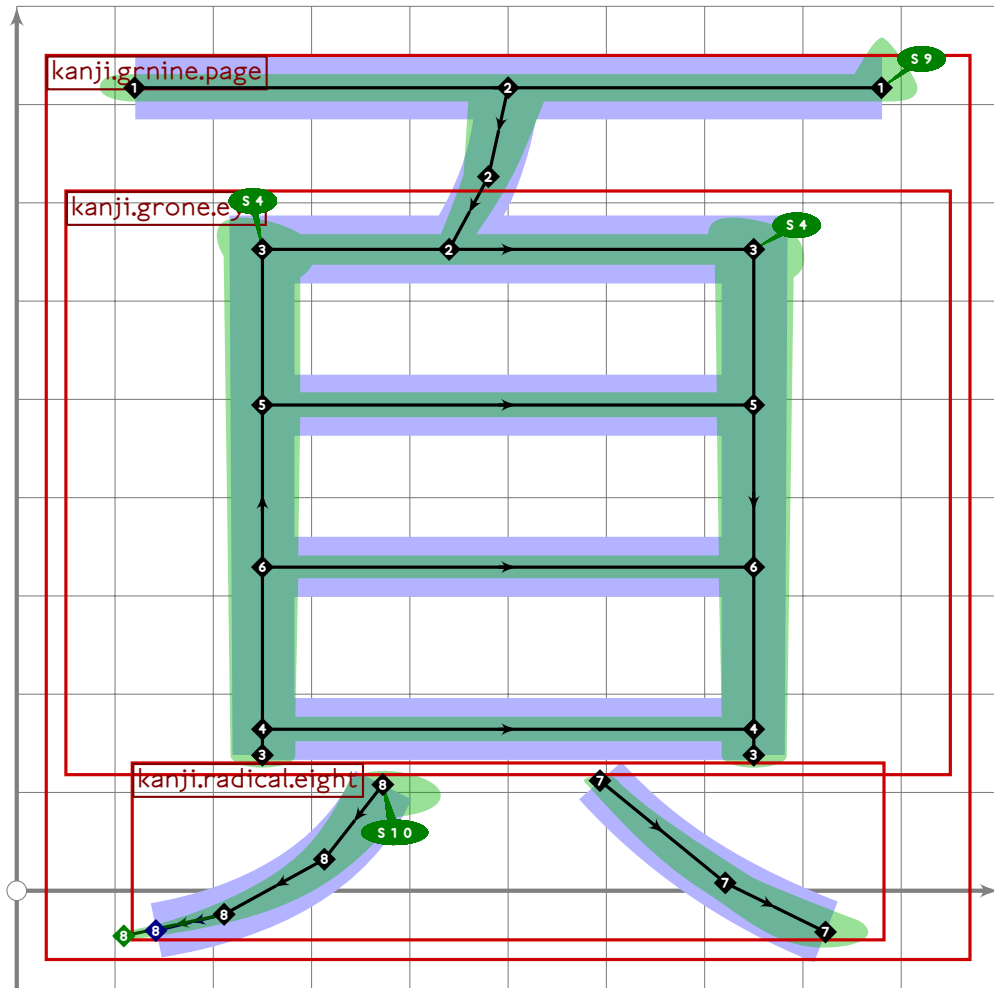
```



```

105
106 vardef kanji.grthree.drink =
107   push_pbox_toexpand("kanji.grthree.drink");
108   build_kanji.lr(480,20)
109     (kanji.leftrad.eat)
110     (kanji.grfour.fail);
111   expand_pbox;
112 enddef;
113
114

```



```

115
116 vardef kanji.grnine.page =
117   push_pbox_toexpand("kanji.grnine.page");
118   build_kanji.level(build_kanji.tb(120,20)
119     (push_stroke((120,810)-(880,810),
120       (1.6,1.6)-(1.6,1.6));
121     set_boserif(0,1,9);
122     push_stroke((500,810)..(480,700)..(440,610),
123       (1.7,1.7)-(1.3,1.3)-(1,1));
124     tsu_xform(identity yscaled (610/760))(kanji.grnone.ey))
125     (build_kanji.sscale(xscaled 0.85)(kanji.radical.eight)));
126   expand_pbox;
127 enddef;
128
129
130
131 vardef kanji.leftrad.eat =
132   push_pbox_toexpand("kanji.leftrad.eat");
133   kanji.grtwo.eat;
134   pop_stroke;
135   replace_stroke(-6)(subpath(0,1.75) of oldp);

```



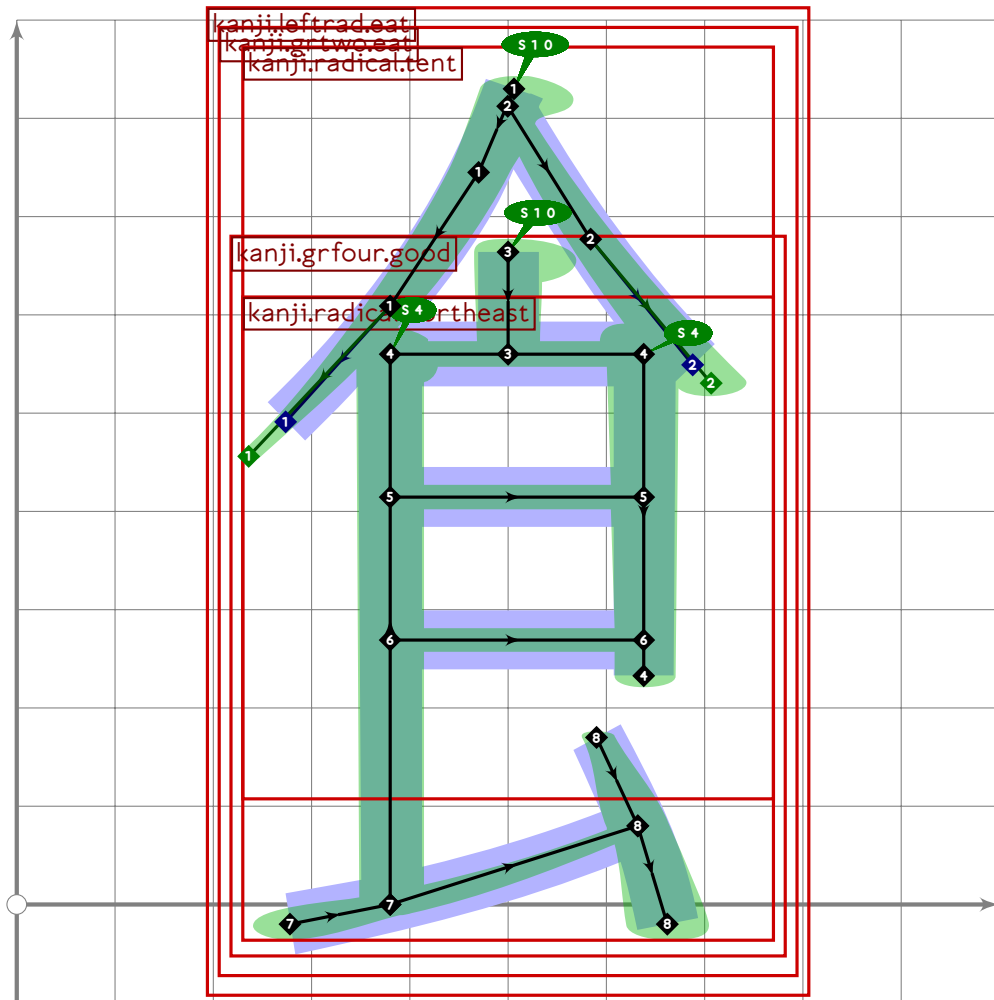
```

136 replace_strokep(-1)
137   ((130,-20)..tension 1.2..(point 0 of get_strokep(-4)..(720,80)));
138 replace_strokep(0)((650,170)..tension 1.3..(720,80)..(770,-20));
139 replace_strokeq(0)((1,1)-(1.5,1.5)-(1.8,1.8));
140 expand_pbox;
141 enddef;
142
143 

---


144
145 % ketsu/peeji "page"
146 begintsuglyph("uni9801";1); [see page 1980]
147   kanji.grnine.page;
148   tsu_render;
149 endtsuglyph;
150
151 % tou/atama "head"
152 begintsuglyph("uni982D";45); [see page 1977]
153   kanji.grtwo.head;
154   tsu_render;
155 endtsuglyph;
156
157 % gen/kao "face"
158 begintsuglyph("uni9854";84); [see page 1976]
159   kanji.grtwo.face;
160   tsu_render;
161 endtsuglyph;
162
163 % fuu/kaze "wind"
164 begintsuglyph("uni98A8";168); [see page 1978]
165   kanji.grtwo.wind;
166   tsu_render;
167 endtsuglyph;
168
169 % shoku/ta "eat"
170 begintsuglyph("uni98DF";223); [see page 1975]
171   kanji.grtwo.eat;
172   tsu_render;
173 endtsuglyph;
174

```



```

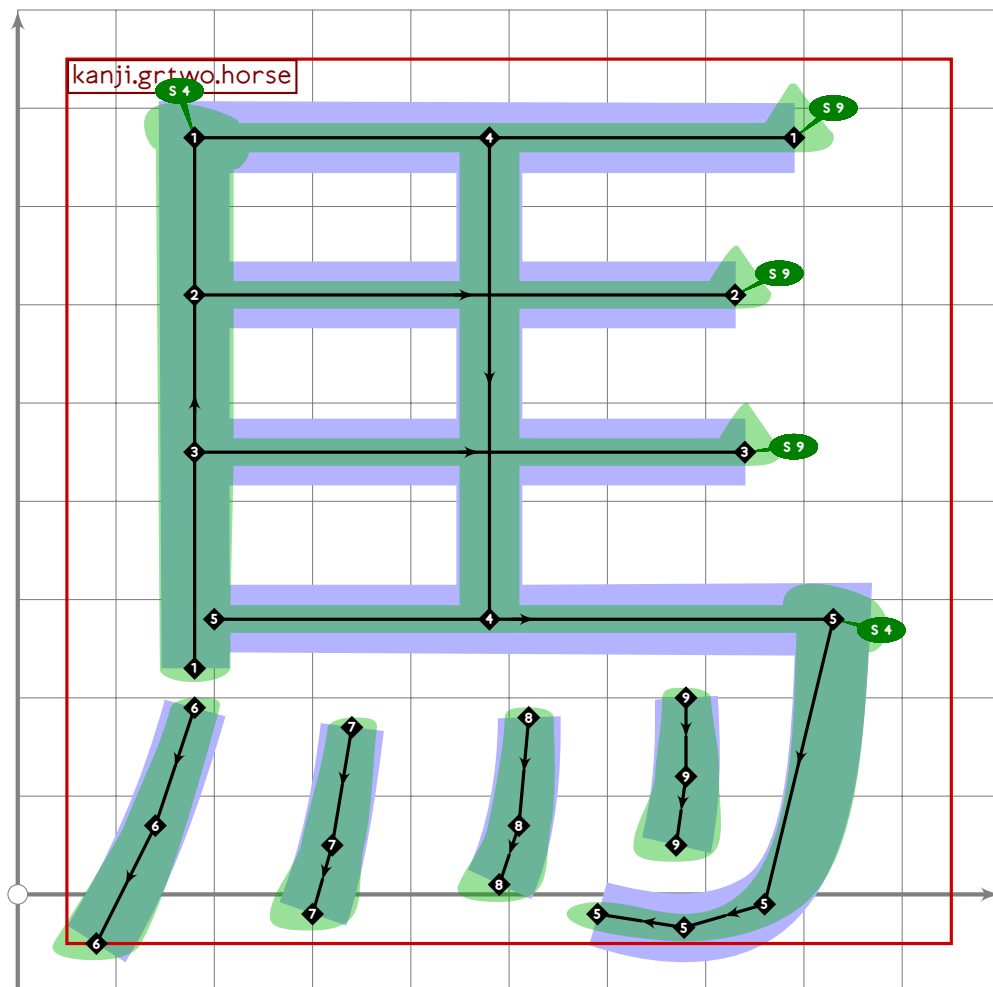
175 % simplified "eat" for use as radical
176 \begintsuglyph("uni98E0",224);
177 \build_kanji.sscale(xscaled 0.6)(kanji.leftrad.eat);
178 \tsu_render;
179 \endtsuglyph;
180
181 % in/no "drink"
182 \begintsuglyph("uni98F2",242);
183 \kanji.grthree.drink;
184 \tsu_render;
185 \endtsuglyph;
186
187 _____
188
189 \endfont;
190
191 _____

```

[see page 1979]

# tsuku-99.mp

```
1 %  
2 % Unicode page 99 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradeone.mp;  
38 input gradesix.mp;  
39 input gradetwo.mp;  
40 input radical.mp;  
41 input topnad.mp;  
42  
43 _____
```

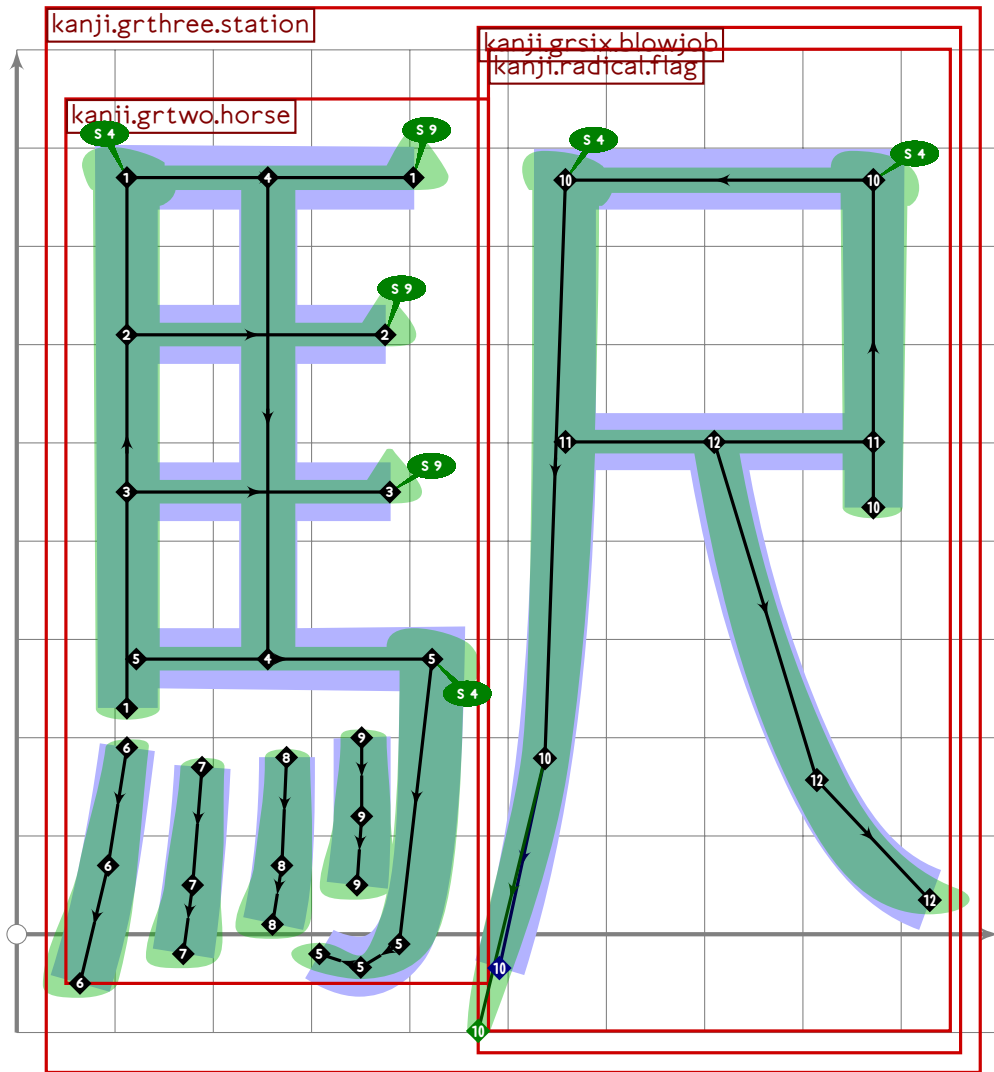


```

44
45 vardef kanji.grtwo.horse =
46   push_pbox_toexpand("kanji.grtwo.horse");
47   push_stroke((180,230)-(180,770)-(790,770),
48     (1.5,1.5)-(1.6,1.6)-(1.6,1.6));
49   set_boserif(0,1,4);
50   set_boserif(0,2,9);
51   set_botip(0,1,1);
52   push_stroke((180,610)-(730,610),
53     (1.5,1.5)-(1.5,1.5));
54   set_boserif(0,1,9);
55   push_stroke((180,450)-(740,450),
56     (1.5,1.5)-(1.5,1.5));
57   set_boserif(0,1,9);
58   push_stroke((480,770)-(480,280),(1.4,1.4)-(1.3,1.3));
59   push_stroke((200,280)-(830,280){dir 268}..(760,-10)..{curl 0.2}(590,-20),
60     (1.5,1.5)-(1.5,1.5)-(1.5,1.5)-(1.5,1.5)-(1.4,1.4)-(1.2,1.2));
61   replace_strokep(0)(insert_nodes(oldp)((length oldp)-0.5));
62   set_boserif(0,1,4);
63   set_botip(0,1,1);
64   push_stroke((180,190)..tension 1.2..(140,70)..(80,-50),
65     (1.2,1.2)-(1.4,1.4)-(1.7,1.7));
66   push_stroke((340,170)..tension 1.2..(320,50)..(300,-20),
67     (1.2,1.2)-(1.4,1.4)-(1.7,1.7));
68   push_stroke((520,180)..tension 1.2..(510,70)..(490,10),
69     (1.2,1.2)-(1.4,1.4)-(1.7,1.7));
70   push_stroke((680,200)..tension 1.2..(680,120)..(670,50),
71     (1.2,1.2)-(1.4,1.4)-(1.7,1.7));
72   expand_pbox;
73 enddef;
74
75

```

---



```

76
77 vardef kanji.grthree.station =
78   push_pbox_toexpand("kanji.grthree.station");
79   build_kanji.lr(480,0)
80     (kanji.grtwo.horse)
81     (build_kanji.sscale(yscaled 1.11)
82       (kanji.grsix.blowjob));
83   expand_pbox;
84 enddef;

```

```

85
86
87
88 % shu/kubi "neck"
89 begint Suglyph("uni9996";150);
90   kanji.grtwo.neck;
91   tsu_render;
92 endtsuglyph;
93
94 % ba/uma "horse"

```

[see page 454]

```
95 begintsuglyph("uni99AC",172); [see page 1984]
96 kanji.grtwo.horse;
97 tsu_render;
98 endsuglyph;
99
100 % eki "station"
101 begintsuglyph("uni99C5",197); [see page 1985]
102 kanji.grthree.station;
103 tsu_render;
104 endsuglyph;
105
106 

---


107
108 endfont;
109
110 

---


```

# tsuku-9a.mp

```
1 %  
2 % Unicode page 9a (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %
```

```
5-29 [Standard copyright notice]
```

```
30
```

```
31
```

```
32
```

```
33 beginfont
```

```
34
```

```
35 % AUTODEPS
```

```
36 input buildkanji.mp;
```

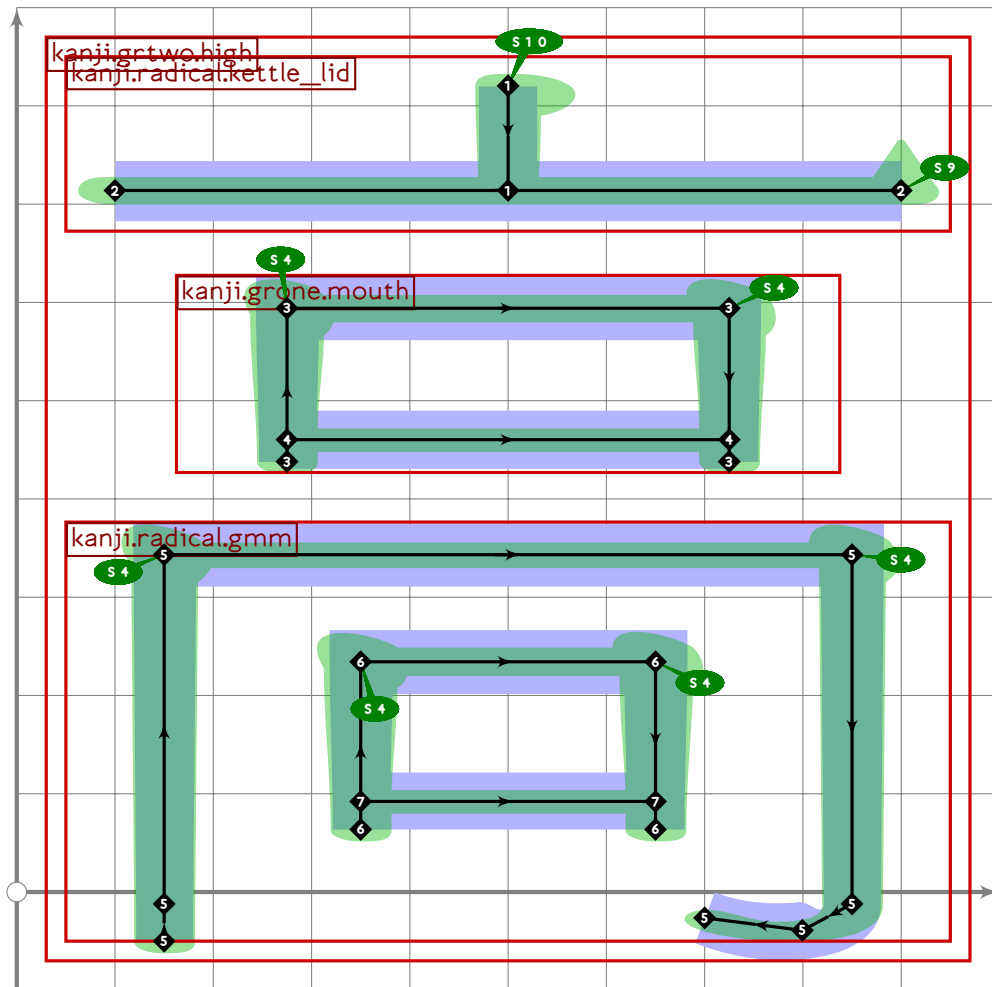
```
37 input gradeone.mp;
```

```
38 input gradetwo.mp;
```

```
39 input radical.mp;
```

```
40
```

```
41
```



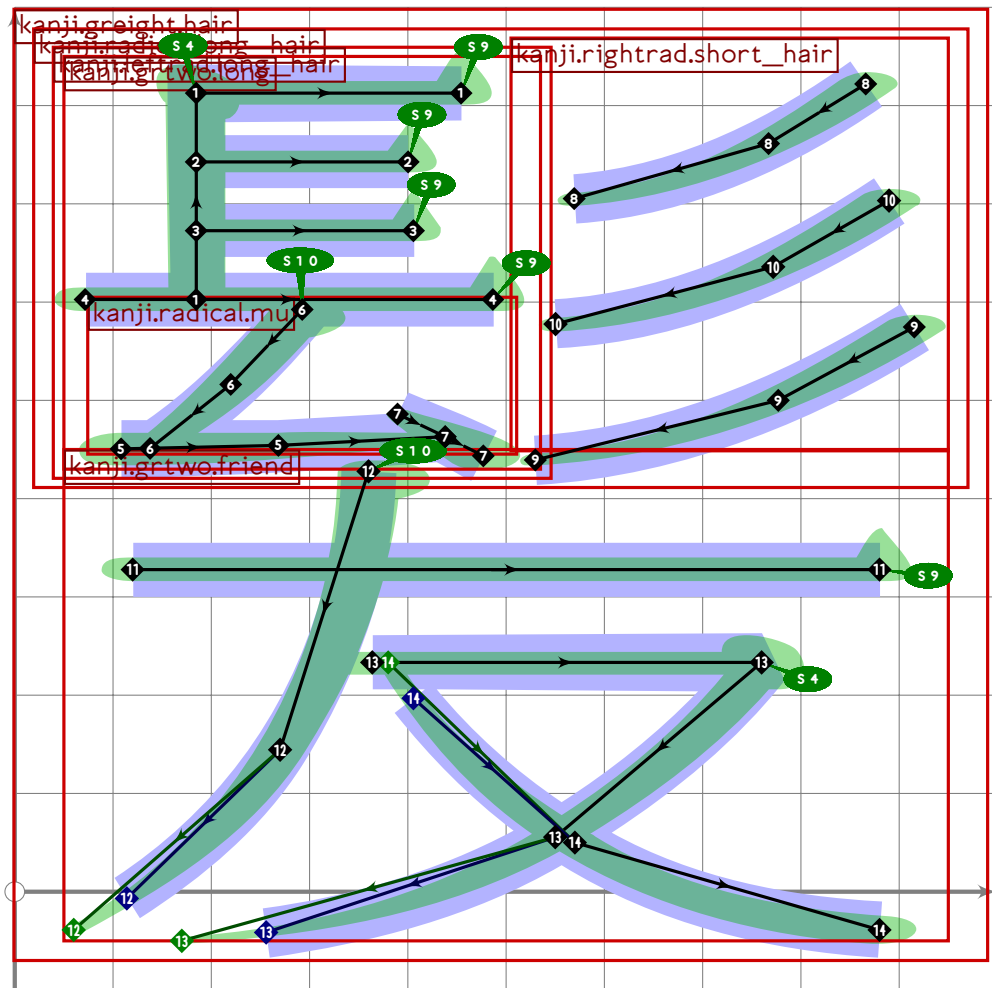
```
42
```

```
43 vardef kanji.grtwo.high =
```

```

44 push_pbox_toexpand("kanji.grtwo.high");
45 build_kanji.level(build_kanji.tb(650,-45)
46   (kanji.radical.kettle_lid)
47   (build_kanji.tb(550,-67)
48     (build_kanji.sscale(xscaled 0.75)(kanji.grone.mouth))
49     (kanji.radical.gmm;
50       build_kanji.box((350,550),(650,250));
51     ));
52 expand_pbox;
53 endif;
54
55

```



```

56
57 vardef kanji.greight.hair =
58   push_pbox_toexpand("kanji.greight.hair");
59   build_kanji.level(build_kanji.tb(440,20)
60     (kanji.radical.long_hair)
61     (kanji.grtwo.friend));
62   expand_pbox;
63 endif;
64

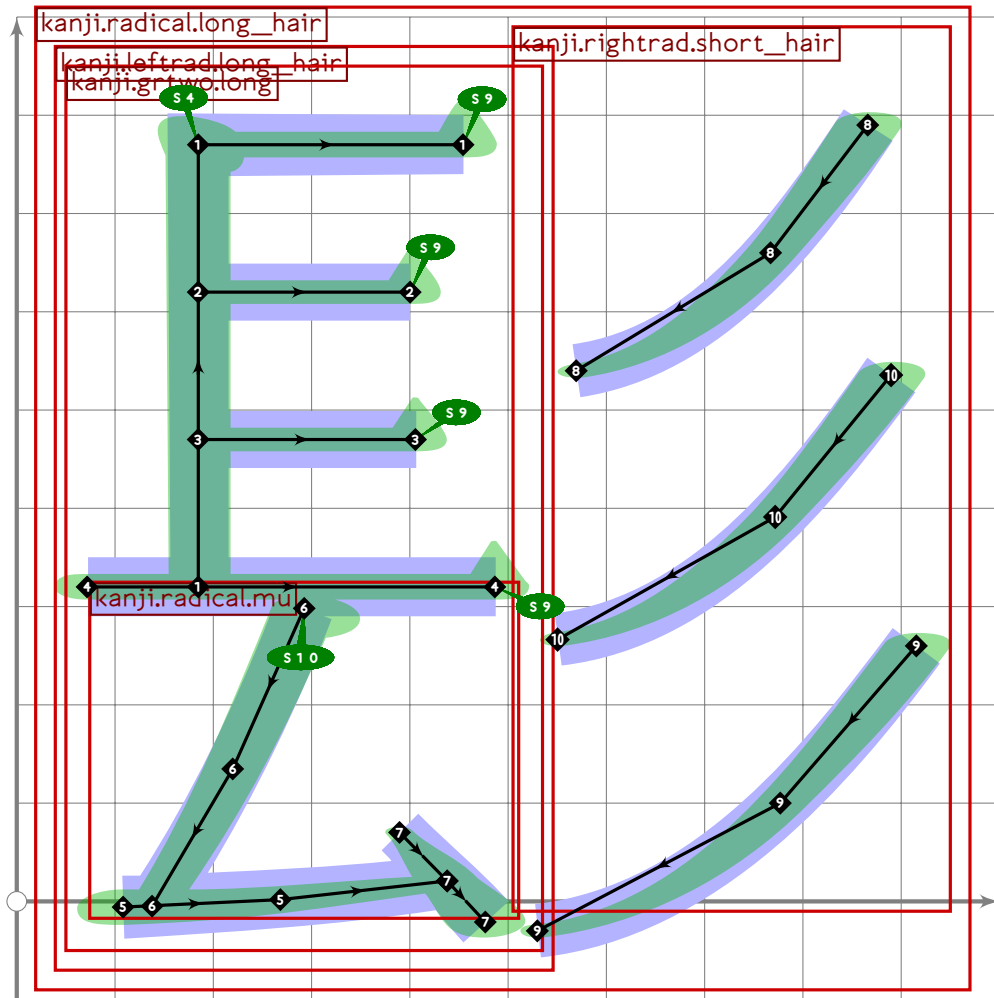
```



```

65
66
67 vardef kanji.leftrad.long_hair =
68   push_pbox_toexpand("kanji.leftrad.long_hair");
69   build_kanji.level(
70     kanji.grtwo.long;
71     pop_stroke;pop_stroke;pop_stroke;
72     replace_strokep(-3)((300,320)-(300,770)-(800,770));
73     build_kanji.sscale(xyscaled (0,9,0,38) shifted (0,-240))
74     (kanji.radical.mu));
75   expand_pbox;
76 enddef;
77
78

```



```

79
80 vardef kanji.radical.long_hair =
81   push_pbox_toexpand("kanji.radical.long_hair");
82   build_kanji.level(build_kanji.lr(520,30)
83     (kanji.leftrad.long_hair)
84     (tsu_xform(identity shifted (0,40))
85     (kanji.rightrad.short_hair)));

```

```
86 expand_pbox;
87 enddef;
88
89 

---


90
91 % kou/taka "high"
92 begintsuglyph("uni9AD8",216); [see page 1987]
93 kanji.grtwo.high;
94 tsu_render;
95 endtsuglyph;
96
97 % hyuu/kamigashira "long hair radical"
98 begintsuglyph("uni9ADF",223); [see page 1989]
99 kanji.radical.long_hair;
100 tsu_render;
101 endtsuglyph;
102
103 % hatsu/kami "hair of the head"
104 begintsuglyph("uni9AEA",234); [see page 1988]
105 kanji.greight.hair;
106 tsu_render;
107 endtsuglyph;
108
109 

---

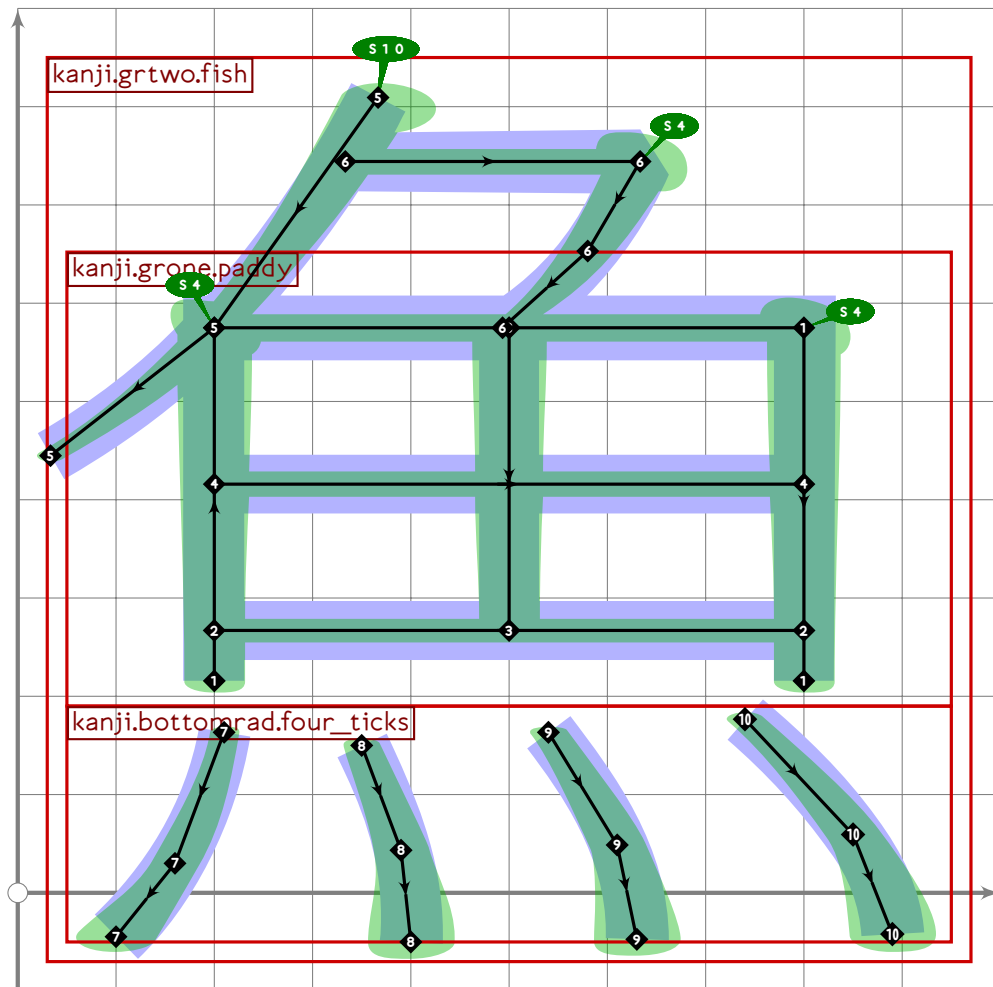

110
111 endfont;
112
113 

---


```

# tsuku-9b.mp

```
1 %  
2 % Unicode page 9b (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input bottomrad.mp;  
37 input buildkanji.mp;  
38 input gradeone.mp;  
39  
40 _____
```



```
41  
42 vardef kanji.grtwo.fish =  
43   push_pbox_toexpand("kanji.grtwo.fish");
```

```
44 build_kanji.level(build_kanji.tb(190,0)
45   (build_kanji.attach_fishhook(0.7)(kanji.grone.paddy))
46   (kanji.bottomrad.four_ticks));
47   expand_pbox;
48 enddef;
49
50 

---


51
52 % gyo/sakana "fish"
53 begintsuglyph("uni9B5A";90); [see page 1991]
54   kanji.grtwo.fish;
55   tsu_render;
56 endtsuglyph;
57
58 

---

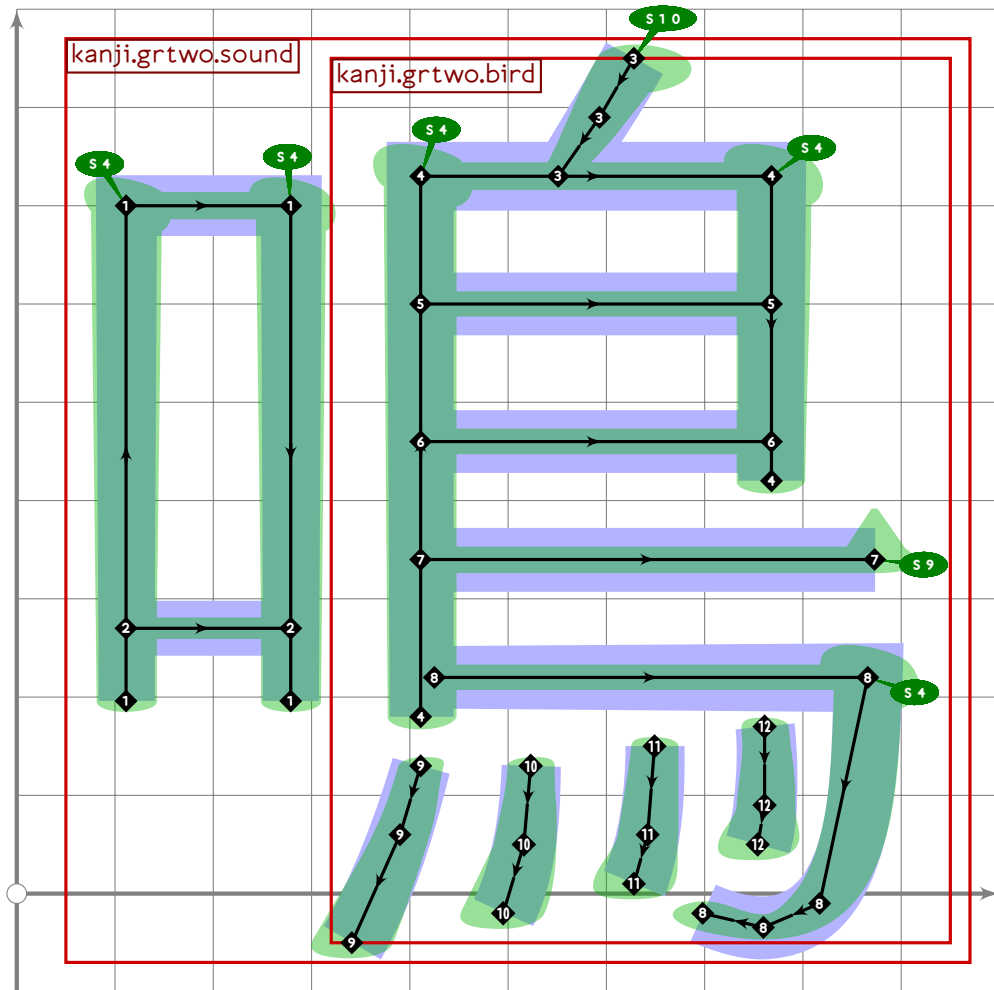

59
60 endfont;
61
62 

---


```

# tsuku-9c.mp

```
1 %  
2 % Unicode page 9c (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradetwo.mp;  
38  
39 _____
```



```
40  
41 vardef kanji.grtwo.sound =  
42   push_pbox_toexpand("kanji.grtwo.sound");  
43   build_kanji.lr(330,20)
```

```
44 (build_kanji.box((240,700),(760,280));
45   replace_stroke(0)(oldp shifted (0,-10)))
46 (kanji.grtwo.bird);
47   expand_pbox;
48 endif;
49
50 

---


51
52 % chou/tori "bird"
53   begintsuglyph("uni9CE5",229); [see page 427]
54   kanji.grtwo.bird;
55   tsu_render;
56   endtsuglyph;
57
58 % mei/na "sound"
59   begintsuglyph("uni9CF4",244); [see page 1993]
60   kanji.grtwo.sound;
61   tsu_render;
62   endtsuglyph;
63
64 

---


65
66 endfont;
67
68 

---


```

# tsuku-9e.mp

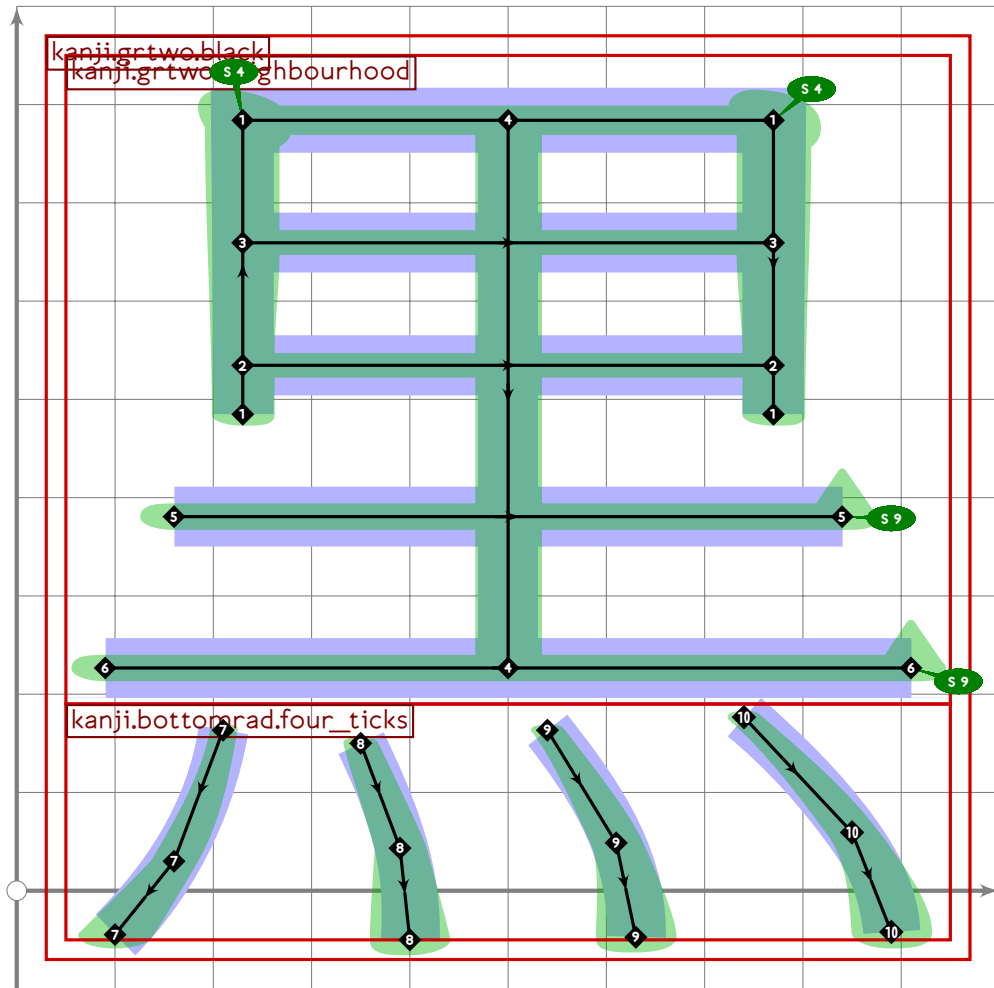
```
1 %
2 % Unicode page 9e (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input bottomrad.mp;
37 input buildkanji.mp;
38 input gradeone.mp;
39 input gradethree.mp;
40 input gradetwo.mp;
41 input radical.mp;
42 input toprad.mp;
43
44 

---


```

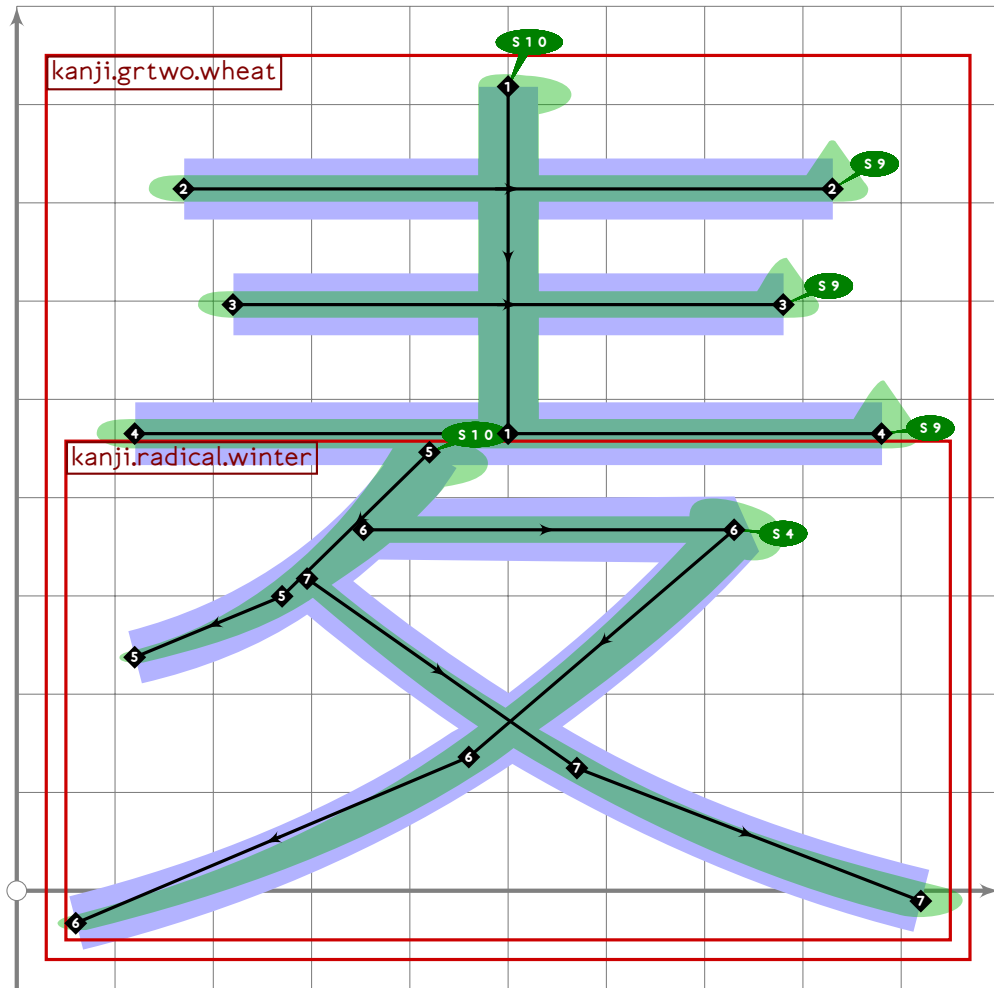


```

45
46 vardef kanji.grtwo.black =
47   push_pbox_toexpand("kanji.grtwo.black");
48   build_kanji.tb(190,0)
49     (kanji.grtwo.neighbourhood)
50     (kanji.bottomrad.four_ticks);
51   expand_pbox;
52 enddef;

```





```

53
54 vardef kanji.grtwo.wheat =
55   push_pbox_toexpand("kanji.grtwo.wheat");
56   build_kanji.level(build_kanji.tb(450,15)
57     (push_stroke((500,780)-(500,0),
58       (1,5,1,5)-(1,4,1,4));
59     set_boserif(0,0,10);
60     push_stroke((170,550)-(830,550),
61       (1,6,1,6)-(1,6,1,6));
62     set_boserif(0,1,9);
63     push_stroke((220,290)-(780,290),
64       (1,6,1,6)-(1,6,1,6));
65     set_boserif(0,1,9);
66     push_stroke((120,0)-(880,0),
67       (1,7,1,7)-(1,7,1,7));
68     set_boserif(0,1,9)
69     (kanji.radical.winter));
70   expand_pbox;
71 enddef;
72
73

```

```
74
75 % baku/mugi "wheat"
76 begintsuglyph("uni9EA6",166); [see page 1997]
77 kanji.grtwo.wheat;
78 tsu_render;
79 endtsuglyph;
80
81 % kou/ki "yellow"
82 begintsuglyph("uni9EC4",196); [see page 473]
83 kanji.grtwo.yellow;
84 tsu_render;
85 endtsuglyph;
86
87 % koku/kuro "black"
88 begintsuglyph("uni9ED2",210); [see page 1996]
89 kanji.grtwo.black;
90 tsu_render;
91 endtsuglyph;
92
93 _____
94
95 endfont;
96
97 _____
```

# tsuku-9f.mp

```
1 %
2 % Unicode page 9f (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---

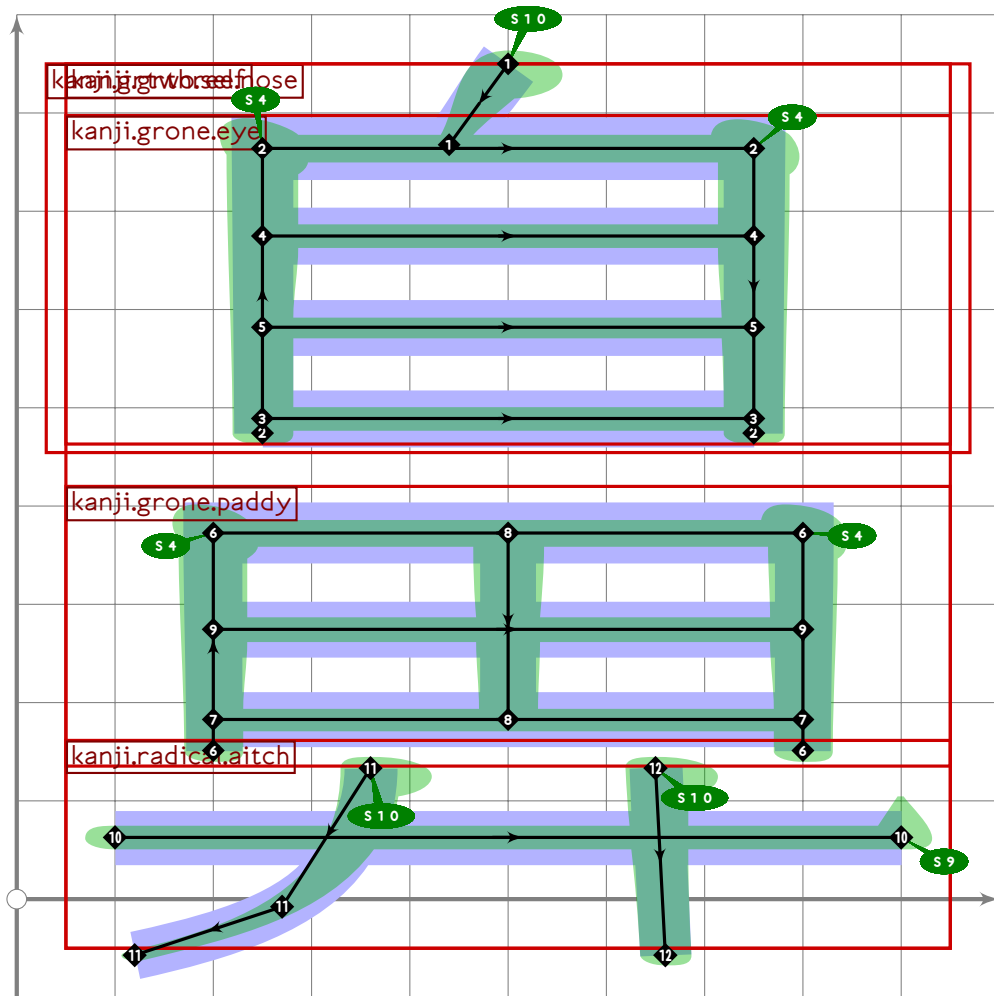

32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeone.mp;
38 input gradetwo.mp;
39 input radical.mp;
40
41 

---


42
43 vardef kanji.grthree.nose =
44   push_pbox_toexpand("kanji.grthree.nose");
45   expand_pbox;
46 enddef;
47
48 

---


49
```



```

50 % bi/hana "nose"
51 begint Suglyph("uni9F3B",59);
52 kanji.grthree.nose;
53 build_kanji.tb(440,-40)
54   (kanji.grtwo.self)
55   (build_kanji.tb(330,50)
56     (kanji.grone.paddy)
57     (kanji.radical.aitch));
58 tsu_render;
59 endsuglyph;
60
61 _____
62
63 endfont;
64
65 _____

```

Part VIII

U+A000 to U+10FFFF



# tsuku-f7.mp

```
1 %
2 % Unicode page F7 (Adobe PUA) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---

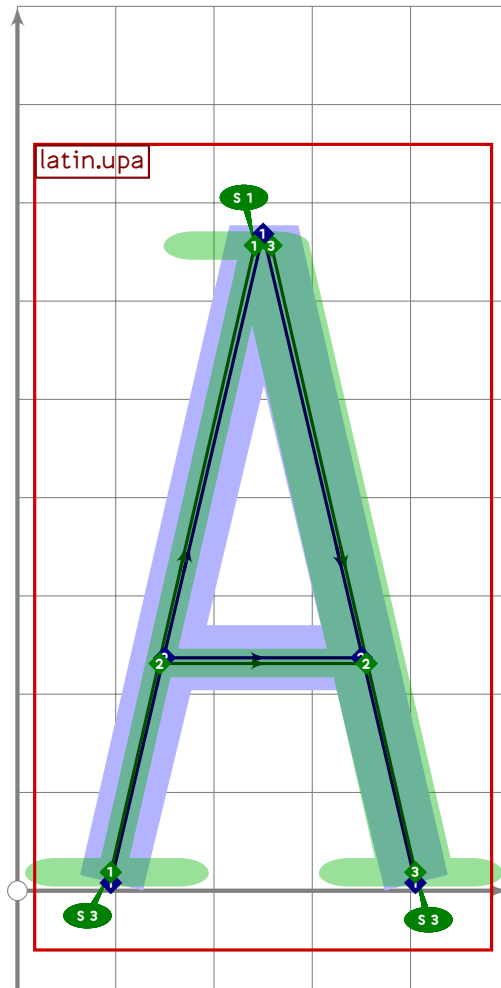

32
33 beginfont
34
35 input latin-intro.mp;
36
37 % AUTODEPS
38 input latin.mp;
39
40 latin_wide_sc_top:=0.4[latin_wide_xheight,latin_wide_top];
41
42 transform tsu_xf.sc;
43
44 (0,latin_wide_low_h) transformed tsu_xf.sc = (20,latin_wide_low_h);
45 (1000,latin_wide_low_h) transformed tsu_xf.sc = (980,latin_wide_low_h);
46 (0,latin_wide_top) transformed tsu_xf.sc = (20,latin_wide_sc_top);
47
48 

---


49
```

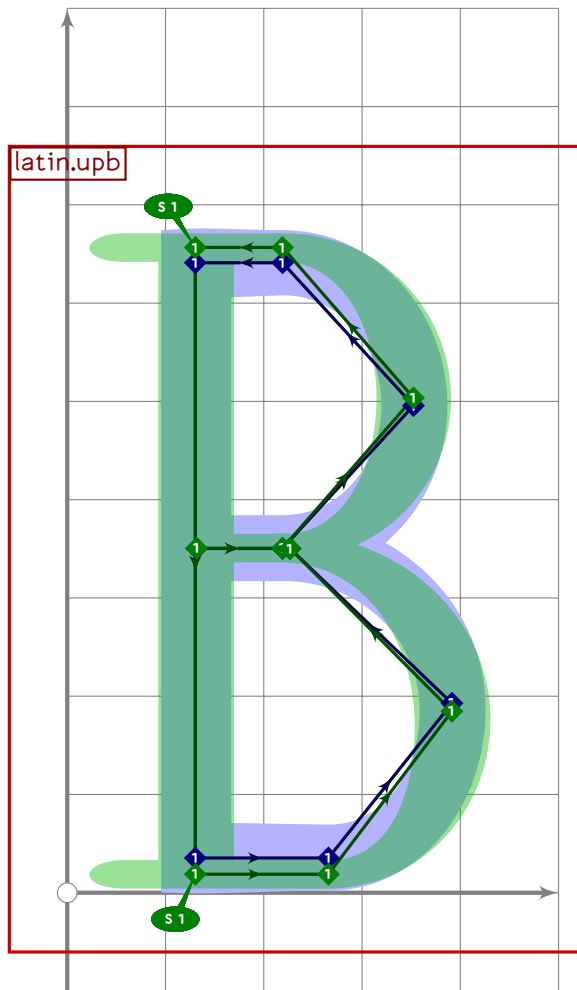
## Latin Small Caps

```
50 % LATIN SMALL CAPS
51
52 % WARNING changing rescale setting
53 tsu_rescale_half;
54
```



```
55 % A
56 begint Suglyph("uniF761";97);
57 tsu_xform(tsu_xf.sc)(latin.upa);
58 tsu_render;
59 endsuglyph;
60
```

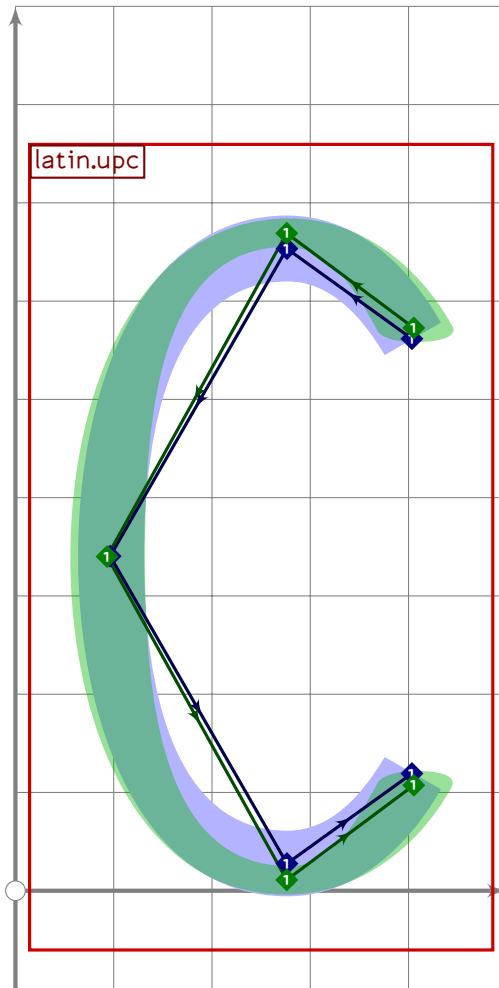




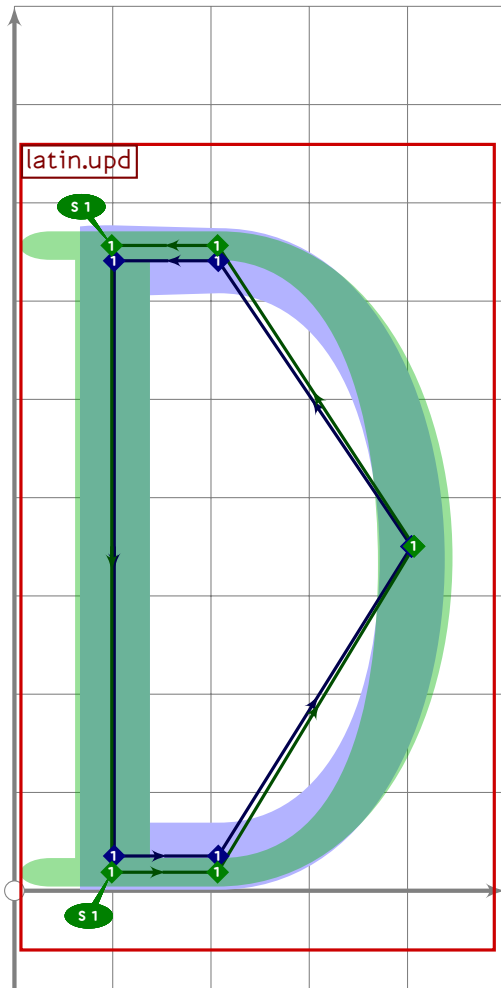
```

61 % B
62 beginsuglyph("uniF762";98);
63 tsu_xform(tsu_xf.sc)(latin.upb);
64 tsu_render;
65 endsuglyph;
66

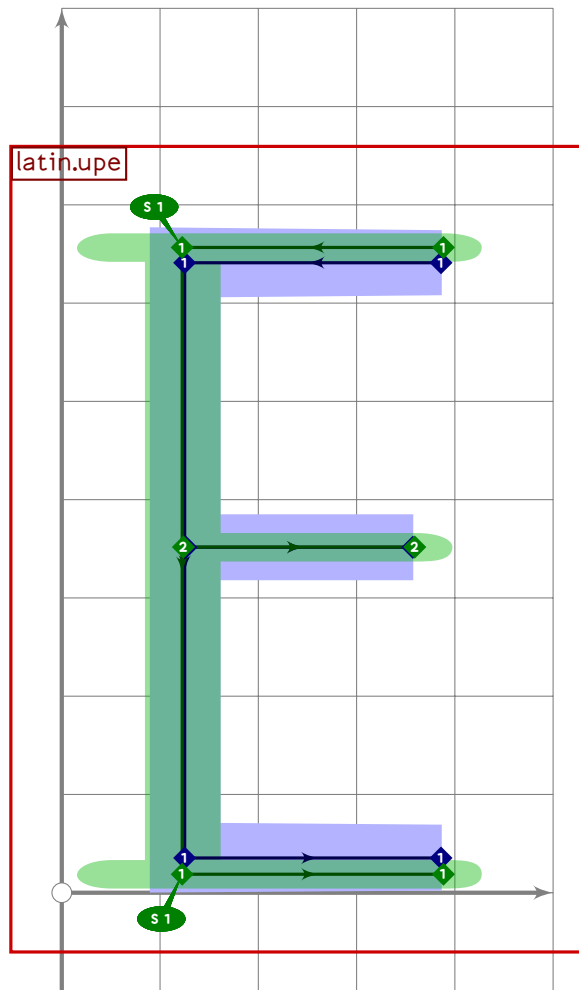
```



```
67 % C
68 begintuglyph("uniF763";99);
69 tsu_xform(tsu_xf.sc)(latin.upc);
70 tsu_render;
71 endtuglyph;
72
```



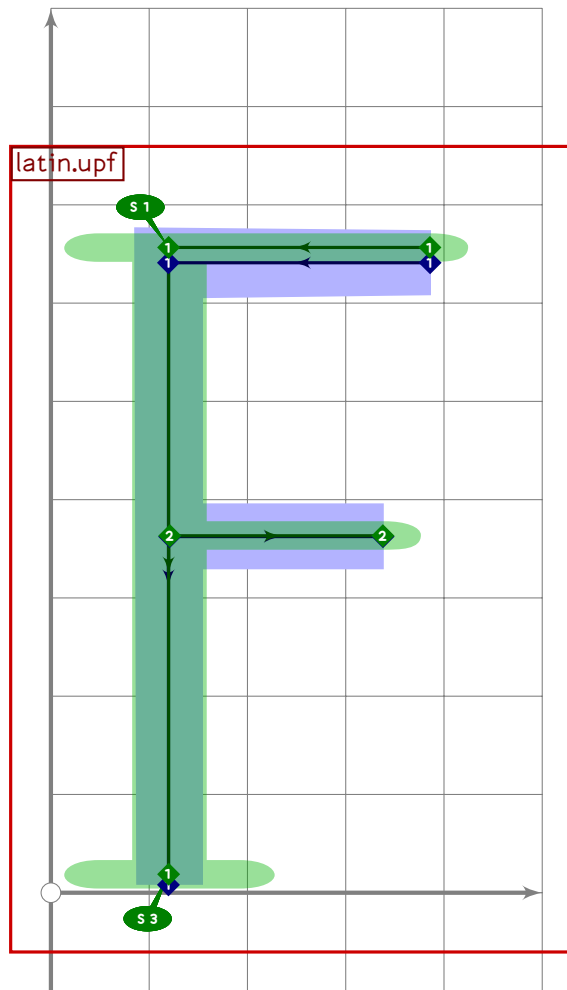
```
73 % D  
74 begintsuglyph("uniF764";100);  
75 tsu_xform(tsu_xf.sc)(latin.upd);  
76 tsu_render;  
77 endsuglyph;  
78
```



```

79 % E
80 begint Suglyph("uniF765";101);
81   tsu_xform(tsu_xf.sc)(latin.ufe);
82   tsu_render;
83   endtsuglyph;
84

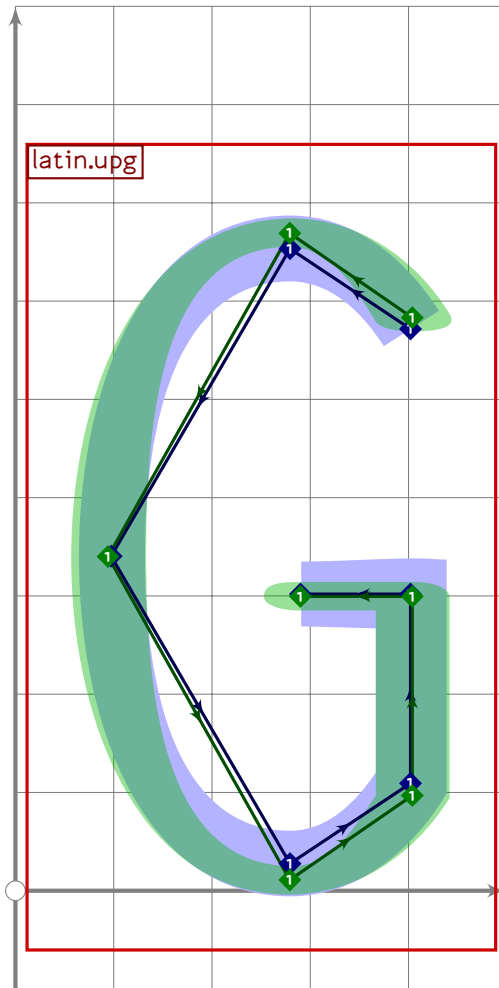
```



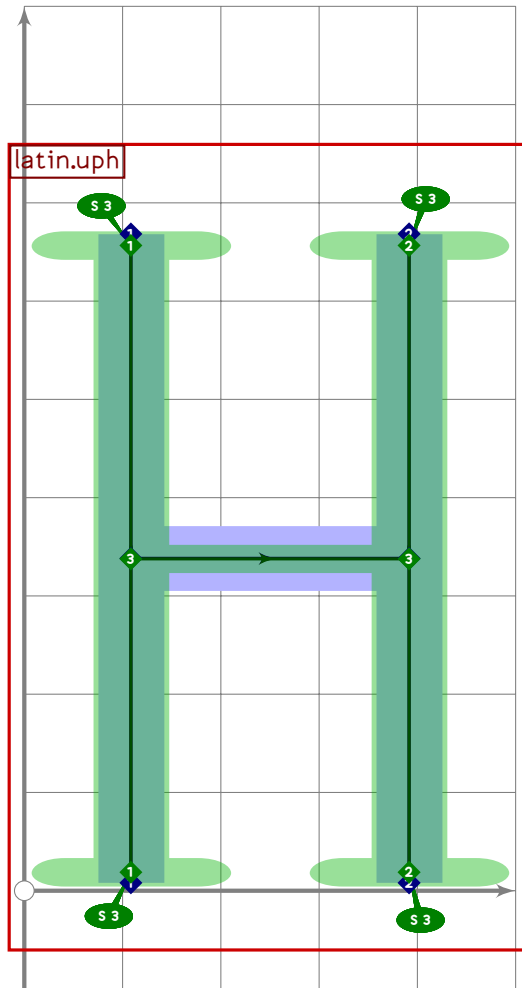
```

85 % F
86 begintuglyph("uniF766",102);
87   tsu_xform(tsu_xf.sc)(latin.upf);
88   tsu_render;
89   endtuglyph;
90

```



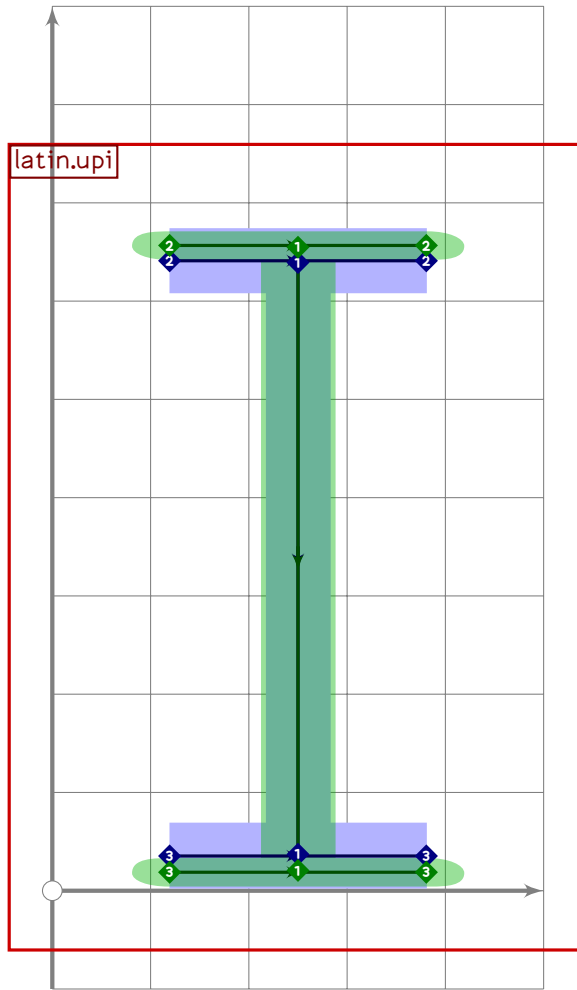
```
91 % G
92 begint Suglyph("uniF767";103);
93 tsu_xform(tsu_xf.sc)(latin.upg);
94 tsu_render;
95 endtsuglyph;
96
```



```

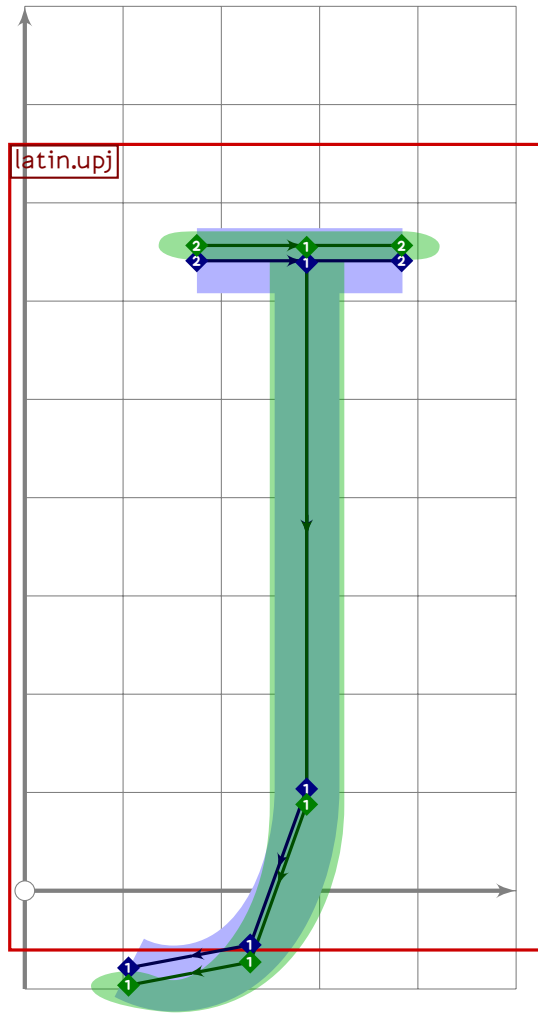
97 % H
98 begint Suglyph("uniF768",104);
99   tsu_xform(tsu_xf.sc)(latin.uph);
100   tsu_render;
101   endtsuglyph;
102

```



```
103 % I
104 begint Suglyph("uniF769";105);
105   tsu_xform(tsu_xf.sc)(latin.upi);
106   tsu_render;
107 endtsuglyph;
108
```

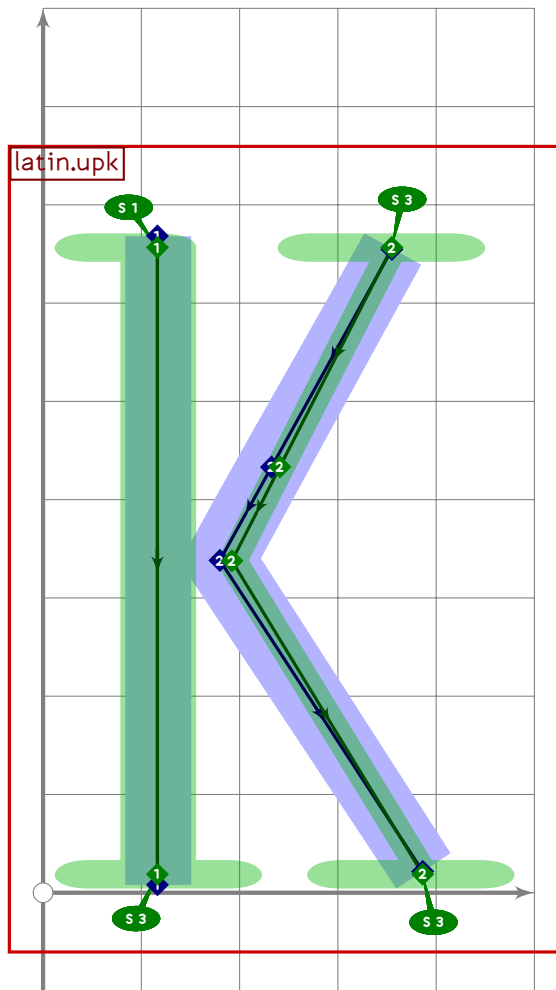




```

109 % J
110 begint Suglyph("uniF76A";106);
111 tsu_xform(tsu_xf.sc)(latin.upj);
112 tsu_render;
113 endsuglyph;
114

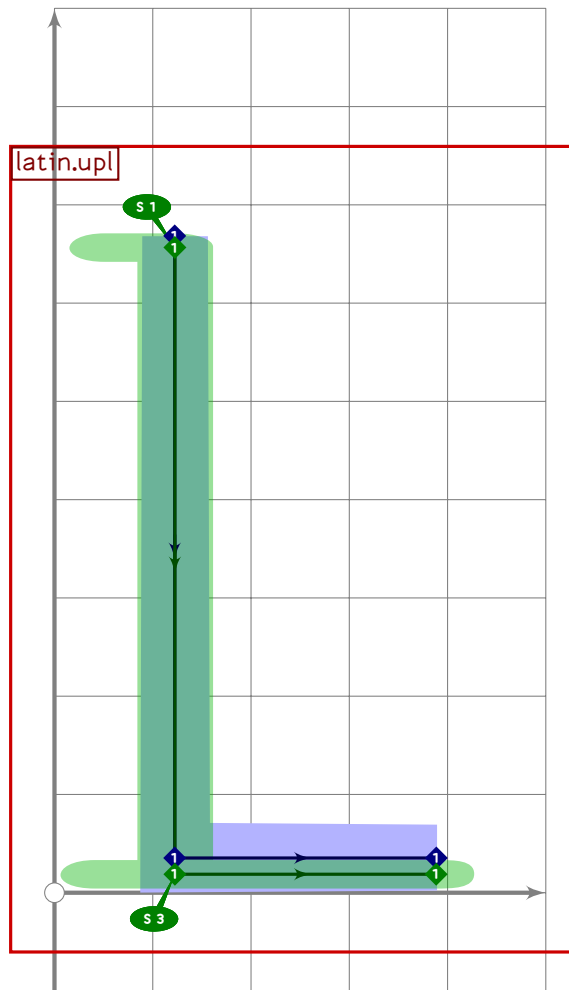
```



```

115 % K
116 begintsuglyph("uniF76B",107);
117 tsu_xform(tsu_xf.sc)(latin.upk);
118 tsu_render;
119 endsuglyph;
120

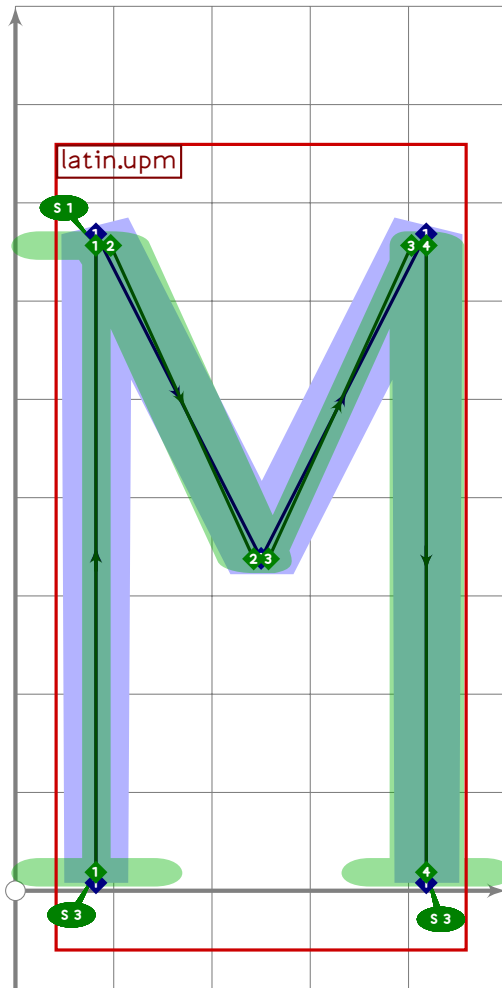
```



```

121 % L
122 begint Suglyph("uniF76C",108);
123   tsu_xform(tsu_xf.sc)(latin.upl);
124   tsu_render;
125   endtsuglyph;
126

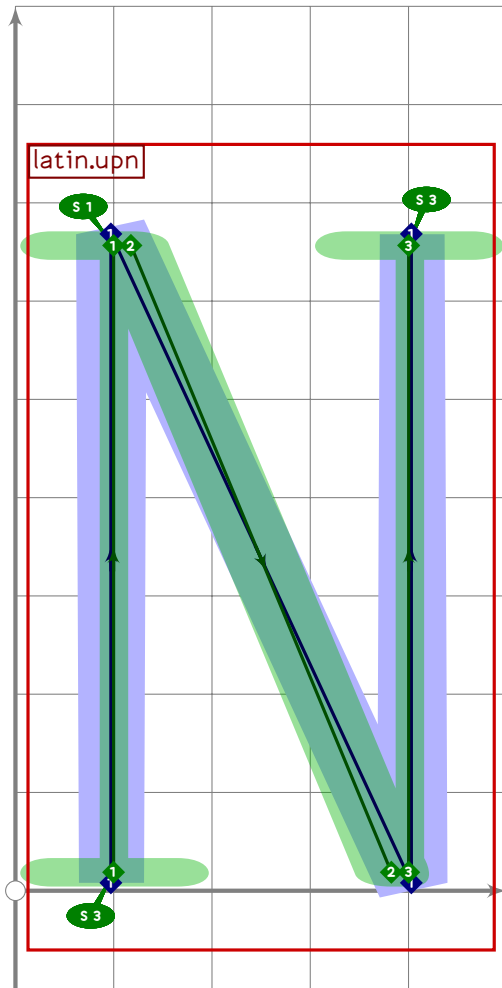
```



```

127 % M
128 begintsuglyph("uniF76D",109);
129 tsu_xform(tsu_xf.sc)(latin.upm);
130 tsu_render;
131 endsuglyph;
132

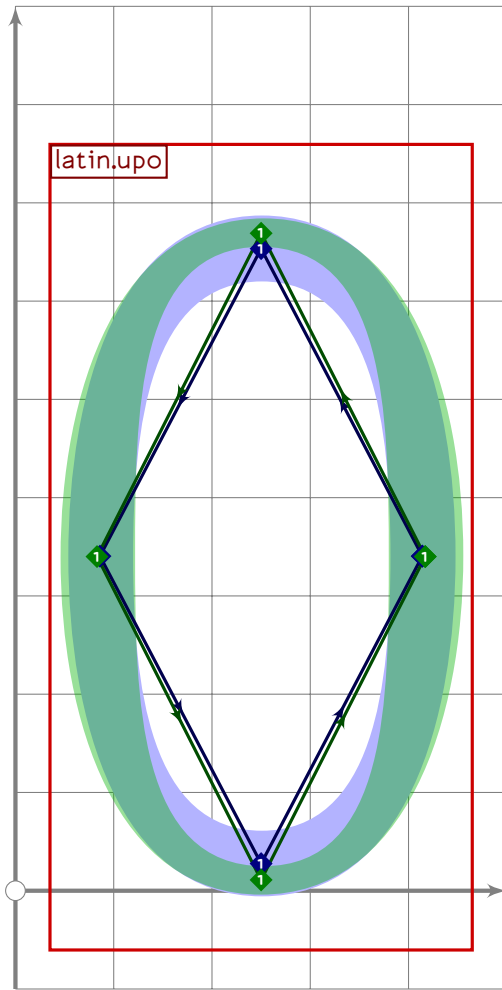
```



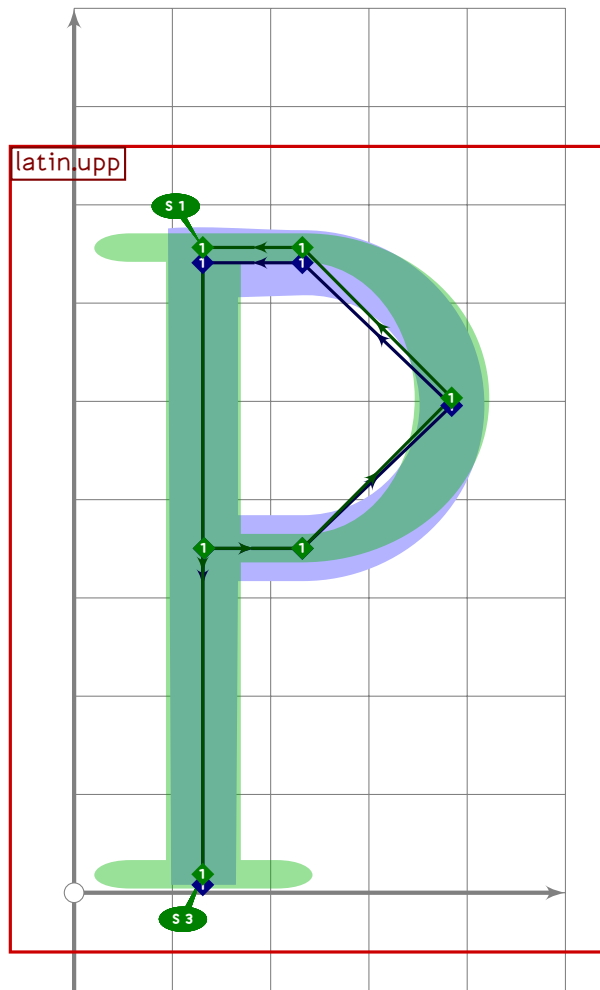
```

133 % N
134 begint Suglyph("uniF76E",110);
135   tsu_xform(tsu_xf.sc)(latin.upn);
136   tsu_render;
137   endtsuglyph;
138

```



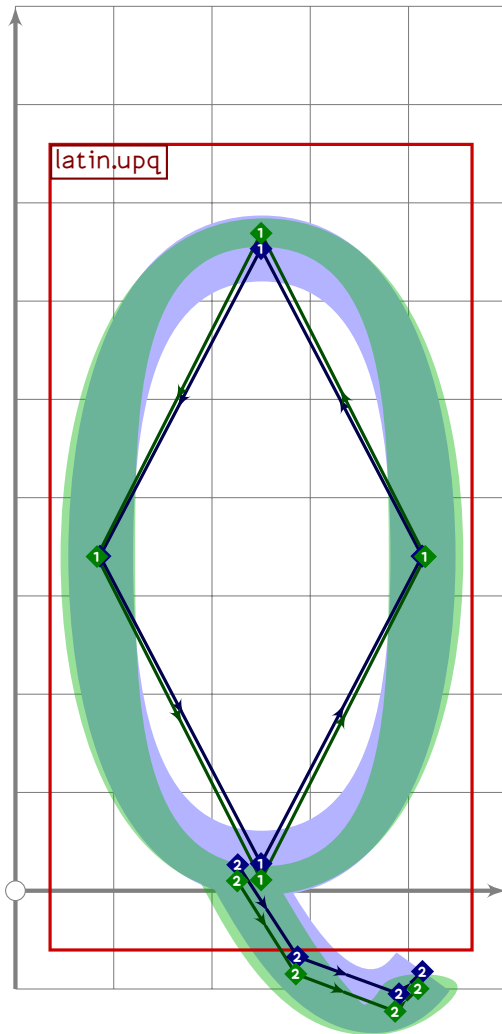
```
139 % O
140 begintsuglyph("uniF76F",111);
141 tsu_xform(tsu_xf.sc)(latin.upo);
142 tsu_render;
143 endsuglyph;
144
```



```

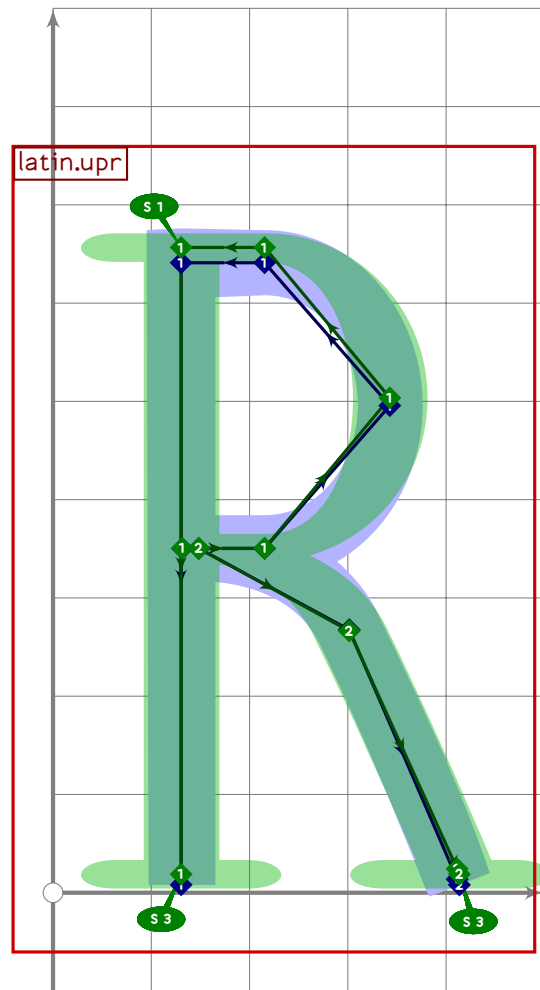
145 % P
146 begint Suglyph("uniF770";112);
147 tsu_xform(tsu_xf.sc)(latin,upp);
148 tsu_render;
149 endsuglyph;
150

```

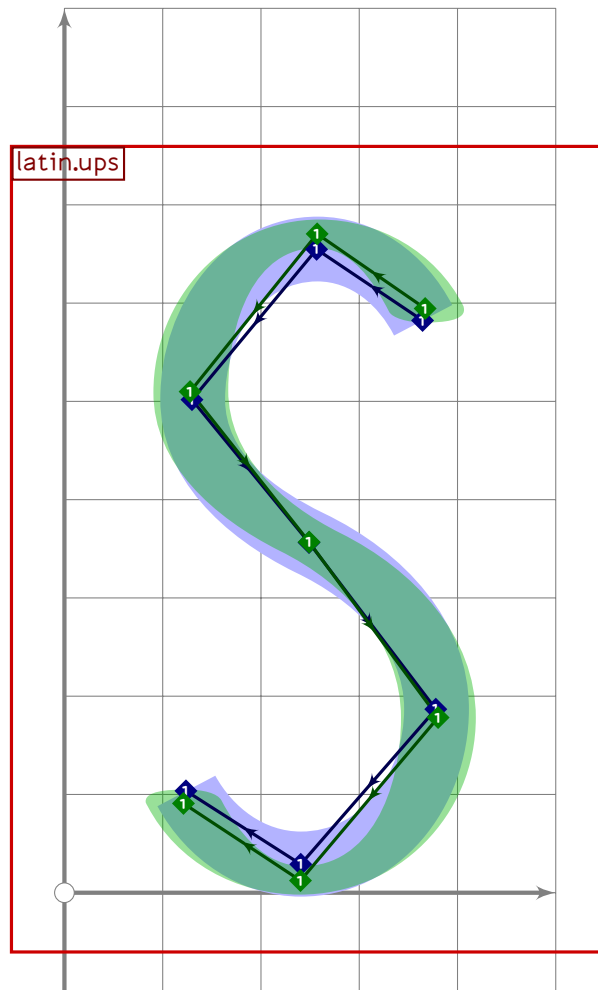


```
151 % Q
152 beginsuglyph("uniF771";113);
153 tsu_xform(tsu_xf.sc)(latin.upq);
154 tsu_render;
155 endsuglyph;
156
```

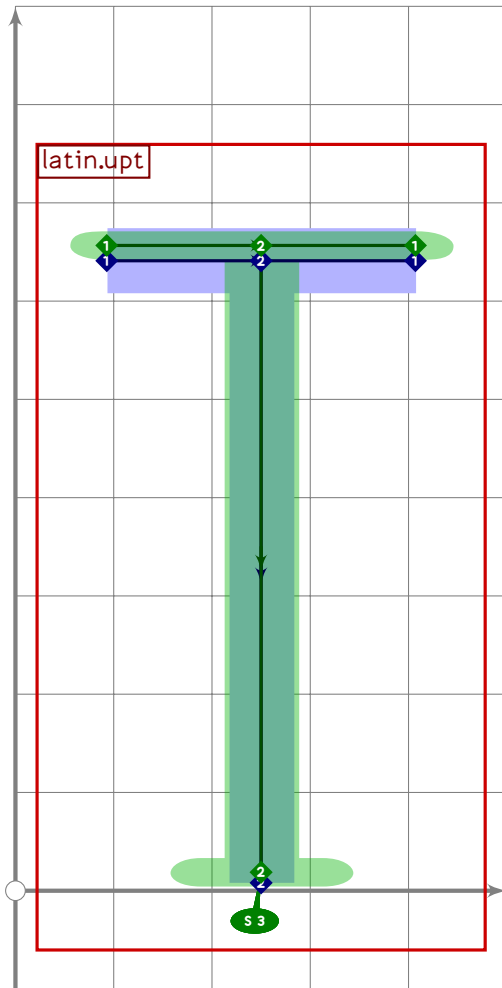




```
157 % R
158 begint Suglyph("uniF772",114);
159 tsu_xform(tsu_xf.sc)(latin.upr);
160 tsu_render;
161 endtsuglyph;
162
```



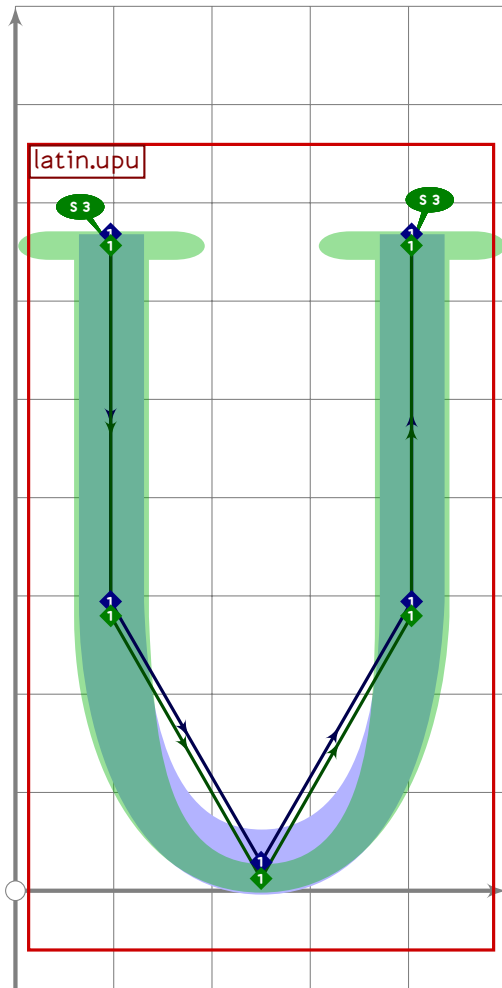
```
163 % S
164 begintsuglyph("uniF773",115);
165 tsu_xform(tsu_xf.sc)(latin.ups);
166 tsu_render;
167 endsuglyph;
168
```



```

169 % T
170 begint Suglyph("uniF774",116);
171 tsu_xform(tsu_xf.sc)(latin.upt);
172 tsu_render;
173 endsuglyph;
174

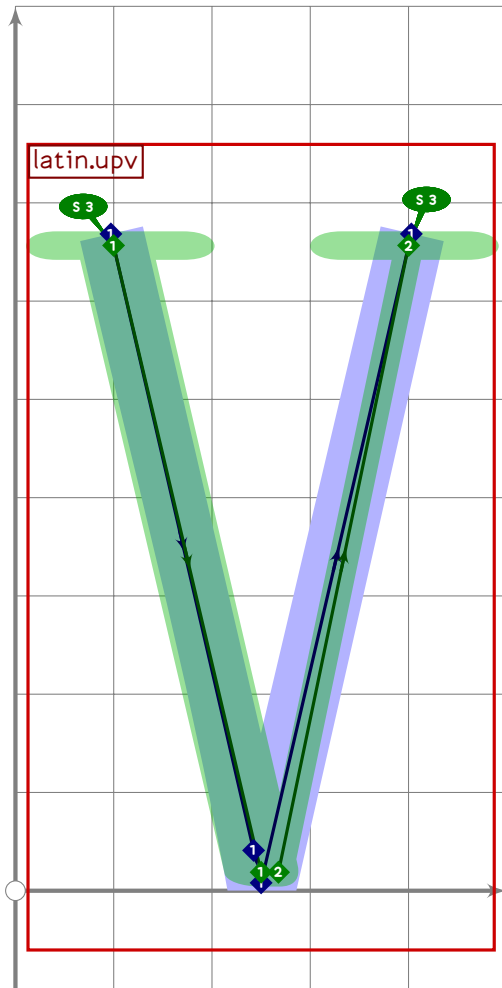
```



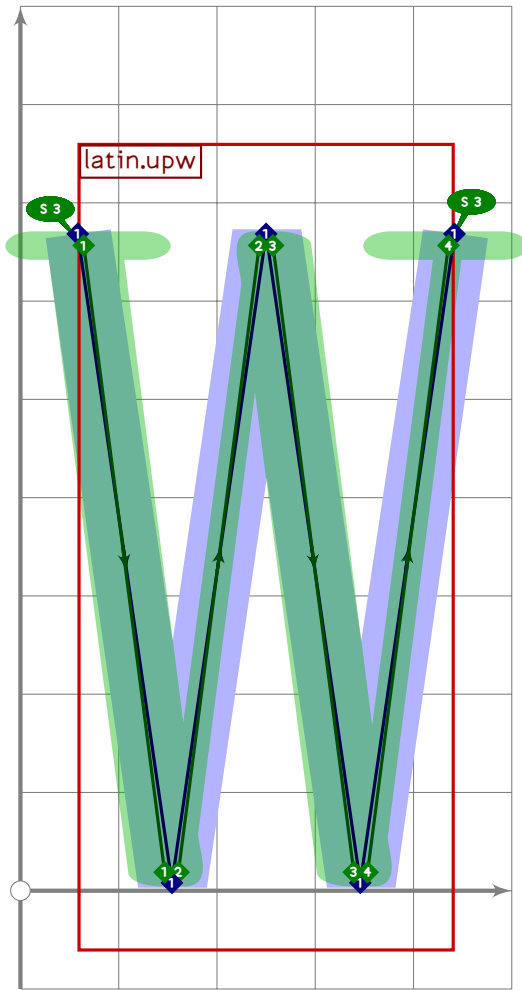
```

175 % U
176 begintsuglyph("uniF775";117);
177 tsu_xform(tsu_xf.sc)(latin.upu);
178 tsu_render;
179 endsuglyph;
180

```



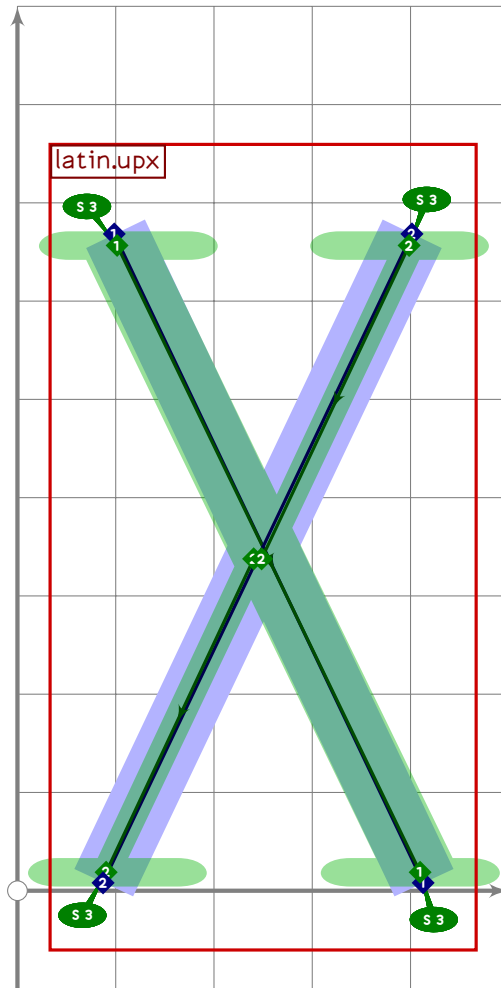
```
181 % V
182 begint Suglyph("uniF776",118);
183   tsu_xform(tsu_xf.sc)(latin.upv);
184   tsu_render;
185 endtsuglyph;
186
```



```

187 % W
188 beginsuglyph("uniF777";119);
189 tsu_xform(tsu_xf.sc)(latin.upw);
190 tsu_render;
191 endsuglyph;
192

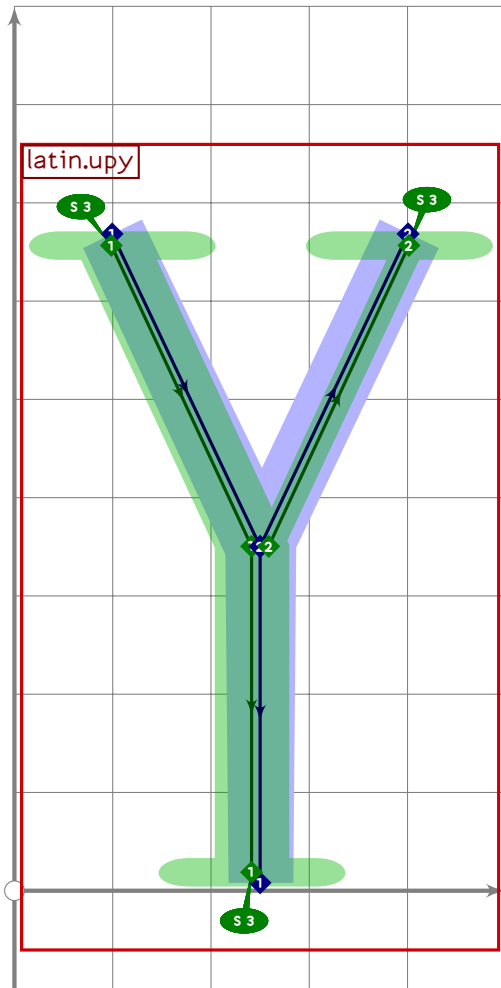
```



```

193 % X
194 beginsuglyph("uniF778",120);
195   tsu_xform(tsu_xf.sc)(latin.upx);
196   tsu_render;
197 endsuglyph;
198

```

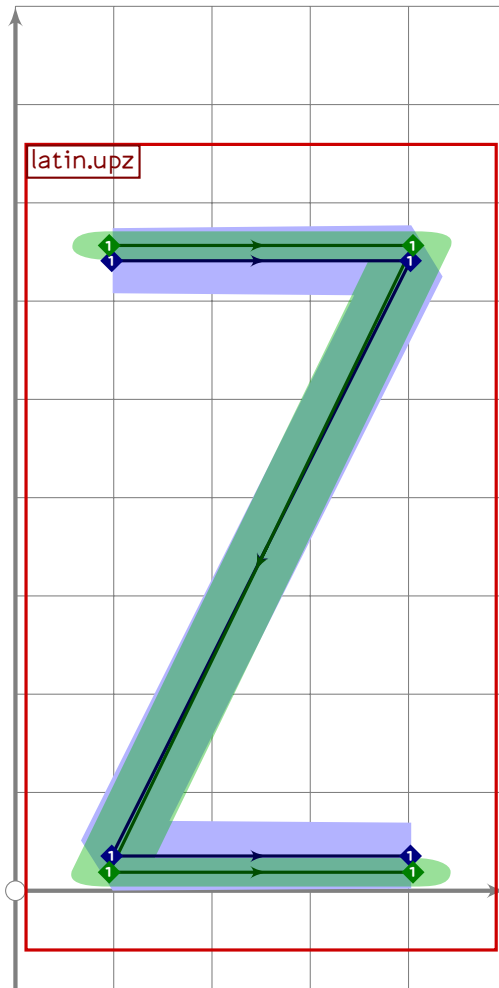


```

199 % Y
200 begintsuglyph("uniF779",121);
201 tsu_xform(tsu_xf.sc)(latin.upy);
202 tsu_render;
203 endsuglyph;
204

```





```
205 % Z
206 begintsuglyph("uniF77A",122);
207 tsu_xform(tsu_xf.sc)(latin.upz);
208 tsu_render;
209 endsuglyph;
210
211 _____
212
213 endfont;
214
215 _____
```

# tsuku-ff.mp

```
1 %
2 % Unicode page FF (Full-width and Half-width Forms) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---

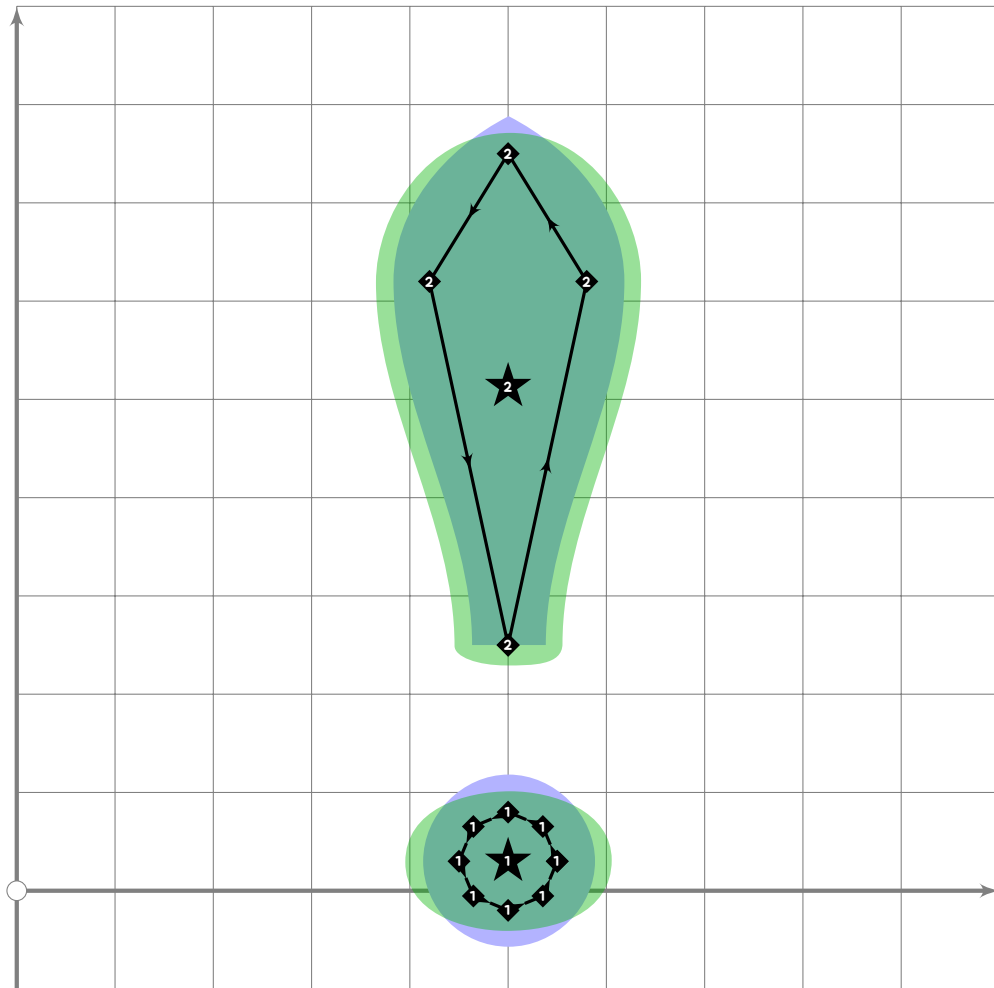

32
33 beginfont
34
35 input latin-intro.mp;
36
37 % AUTODEPS
38 input accent.mp;
39 input dakuten.mp;
40 input katakana.mp;
41 input latin.mp;
42 input numerals.mp;
43 input punct.mp;
44
45 

---


46
```

## Full-Width Forms

```
47 % FULL-WIDTH FORMS
48
49 % WARNING this code is substantially duplicated in tsuku-00; just
50 % enough differences to make sharing impractical
51
```



```

52 % exclamation point
53 begintsuglyph("uniFF01",1);
54   if tsu_pbrush_size>=tsu_punct_size:
55     push_lcblob(fullcircle
56       xscaled (tsu_punct_size+tsu_pbrush_size)
57       yscaled (tsu_punct_size+tsu_pbrush_size*tsu_pbrush_shape)
58       rotated tsu_pbrush_angle
59       shifted (500,30));
60   else:
61     push_stroke(fullcircle scaled tsu_punct_size shifted (500,30),
62       (2,2)-(2,2)-(2,2)-(2,2)-cycle);
63     if tsu_pbrush_size>=3:
64       push_lcblob(get_strokep(0));
65     fi;
66   fi;
67
68   push_stroke((500,250){up}..(580,620){up}..{curl 1}(500,750){curl 1}..
69     (420,620){down}..{down}(500,250),
70     (2,2)-(2,2)-(2,2)-(2,2)-(2,2));
71
72   if tsu_pbrush_size>=30:

```

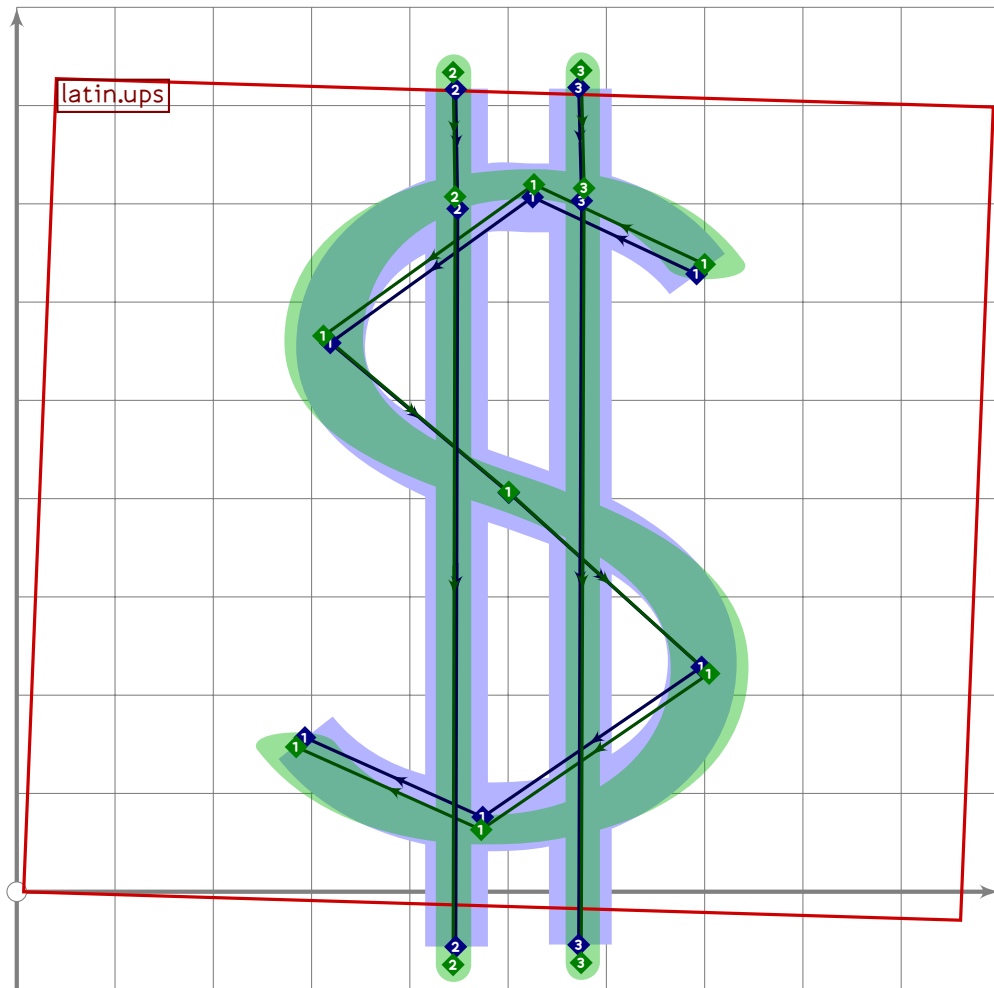
```

73     push_lcblob((subpath (0,1,3,9) of get_strokep(0))-cycle);
74     fi;
75     tsu_render;
76 endtsuglyph;
77
78 % ASCII (neither left nor right) quotation mark
79 begint Suglyph("uniFF02",2);
80 punct.asciquote;
81 tsu_render;
82 endtsuglyph;
83
84 % number sign
85 begint Suglyph("uniFF03",3);
86 punct.numbersign;
87 tsu_render;
88 endtsuglyph;
89

```

[see page 274]

[see page 297]



```

90 % dollar sign
91 begint Suglyph("uniFF04",4);
92 tsu_xform(identity shifted -centre_pt
93     rotated -2 xyscaled (1.06,0.92) shifted centre_pt)(latin.ups);

```

```

94
95 numeric x[],y[];
96 x1=x2=0.38[xpart llcorner get_strokep(0),xpart lrcorner get_strokep(0)];
97 x3=x4=0.69[xpart llcorner get_strokep(0),xpart lrcorner get_strokep(0)];
98 y1=y3=1.12[latin_wide_low_r,latin_wide_high_r];
99 y2=y4=(-0.15)[latin_wide_low_r,latin_wide_high_r];
100
101 z5=(get_strokep(0) intersectionpoint (z1-z2))+(2,-1);
102 push_stroke((z1-z5-z2) shifted (0,-1),
103   (2,2)-(2,2)-(2,2));
104 set_bosize(0,85);
105 set_boalternate(0);
106
107 z6=(get_strokep(-1) intersectionpoint (z3-z4))+(3,1);
108 push_stroke((z3-z6-z4) shifted (0,1),
109   (2,2)-(2,2)-(2,2));
110 set_bosize(0,85);
111 set_boalternate(0);
112
113 tsu_render;
114 endtsuglyph;
115
116 % percent
117 begintsuglyph("uniFF05",5); [see page 301]
118 punct.percent;
119 tsu_render;
120 endtsuglyph;
121
122 % ampersand
123 begintsuglyph("uniFF06",6); [see page 273]
124 punct.ampersand;
125 tsu_render;
126 endtsuglyph;
127

```



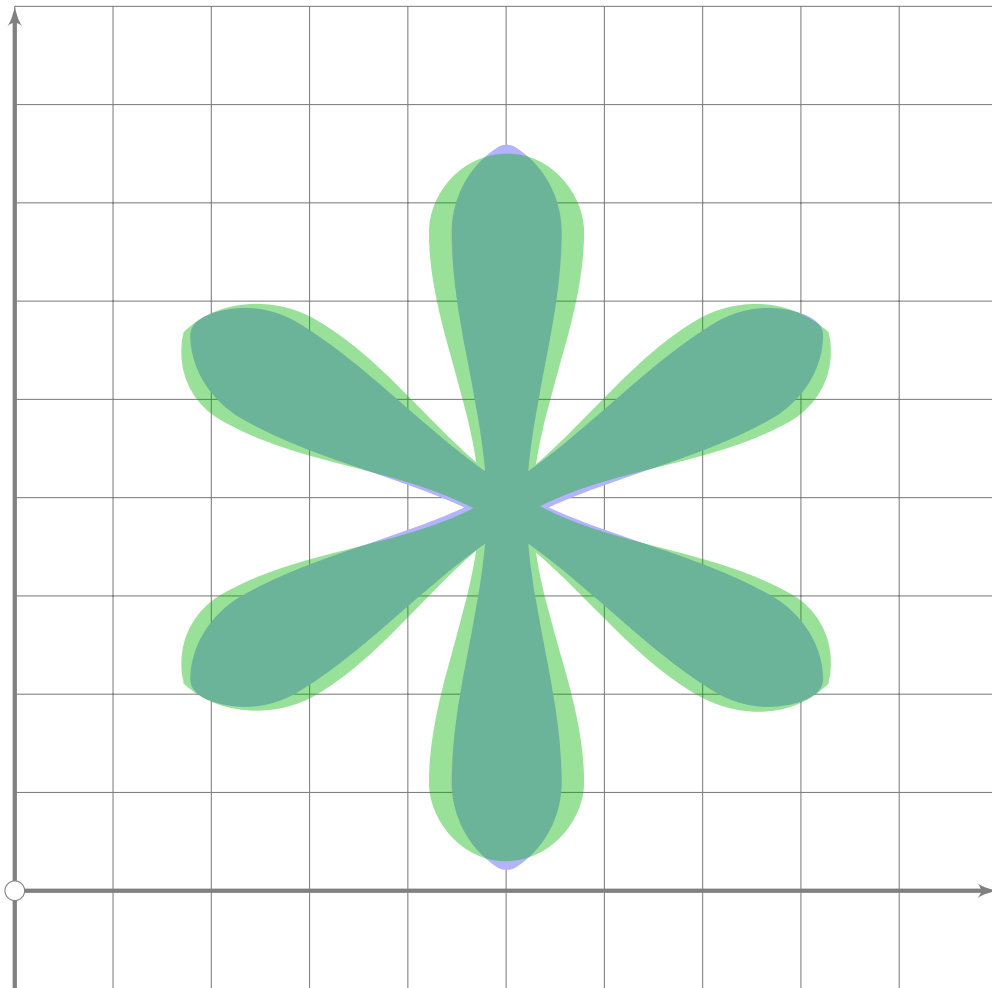
```

128 % apostrophe
129 begintsuglyph("uniFF07";7);
130 punct.make_comma((480,vmetric(0.94)),0);
131 tsu_render;
132 endsuglyph;
133
134 % left and right parentheses
135 begintsuglyph("uniFF08";8);
136 punct.paren_left;
137 tsu_render;
138 endsuglyph;
139 begintsuglyph("uniFF09";9);
140 punct.paren_right;
141 tsu_render;
142 endsuglyph;
143

```

[see page 299]

[see page 300]

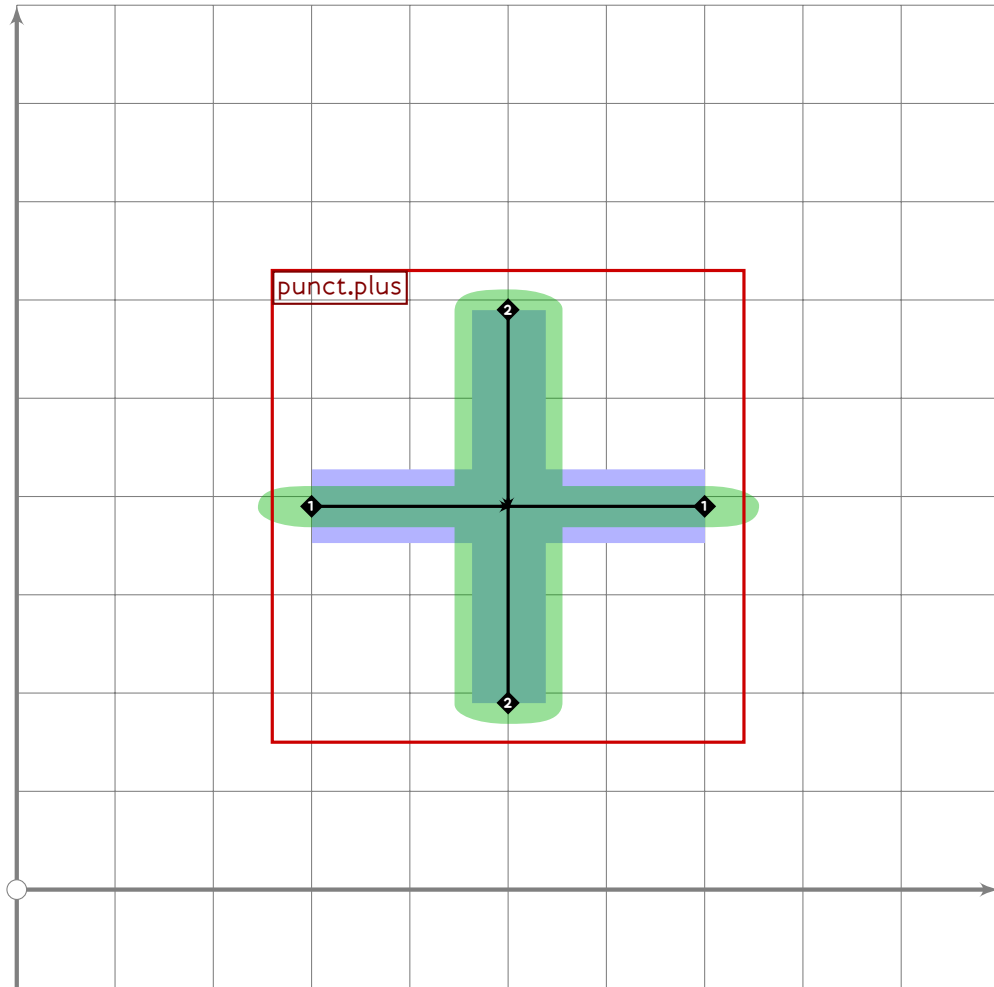


```

144 % asterisk
145 begintsuglyph("uniFF0A";10);
146   begingroup
147     path lobe,glyph[];
148
149     lobe:=(1,0){up}..(tsu_brush_max*tsu_punct_size/2,280){up}
150       ..{curl 1}(0,350){curl 1}..(-tsu_brush_max*tsu_punct_size/2,280){down};
151     lobe:=(lobe..(lobe rotated 180)..cycle) scaled (tsu_punct_size/100);
152
153     default_nib:=fix_nib(50*tsu_brush_max,
154       50*tsu_brush_max*tsu_brush_shape,
155       tsu_brush_angle);
156     pen_stroke()(lobe shifted centre_pt)(glyph1);
157     pen_stroke()(lobe rotated 60 shifted centre_pt)(glyph2);
158     pen_stroke()(lobe rotated 120 shifted centre_pt)(glyph3);
159
160     dangerousFill glyph1.r;
161     dangerousFill glyph2.r;
162     dangerousFill glyph3.r;
163   endgroup;
164 endtsuglyph;

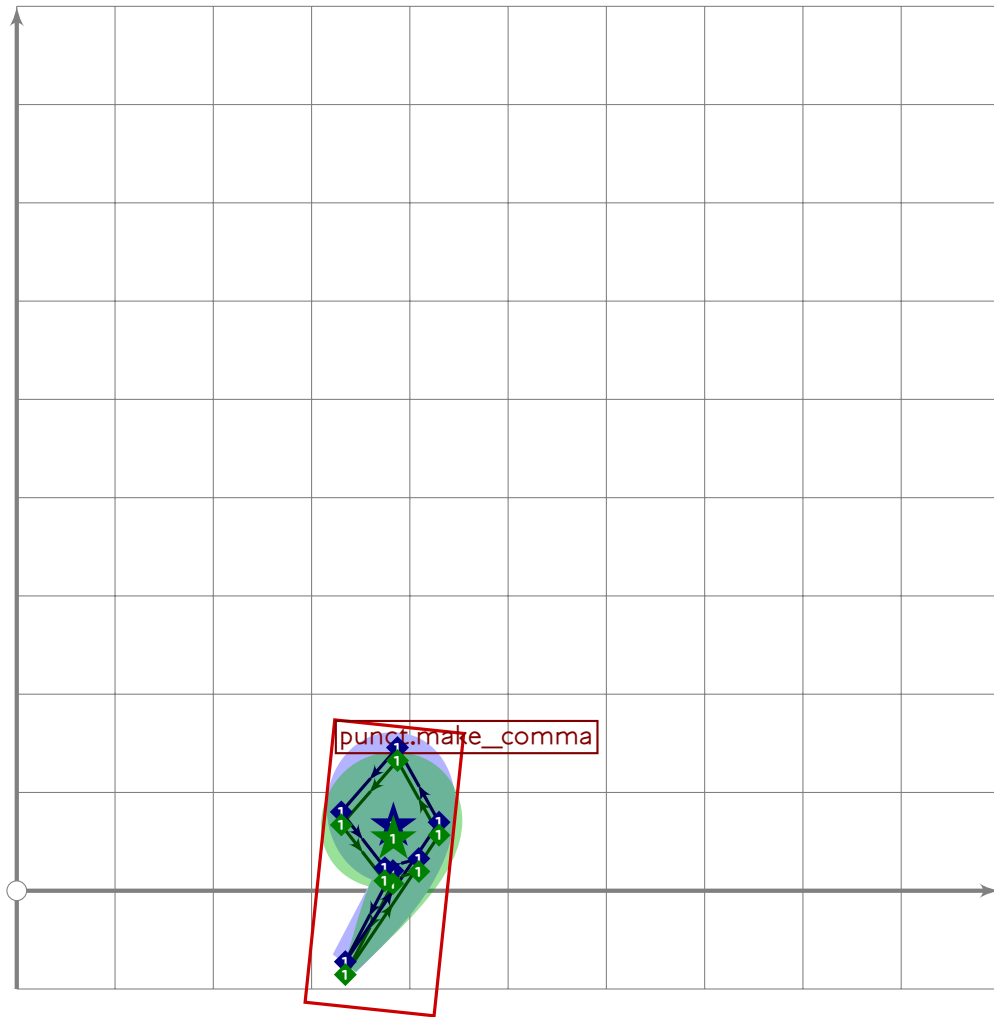
```

165

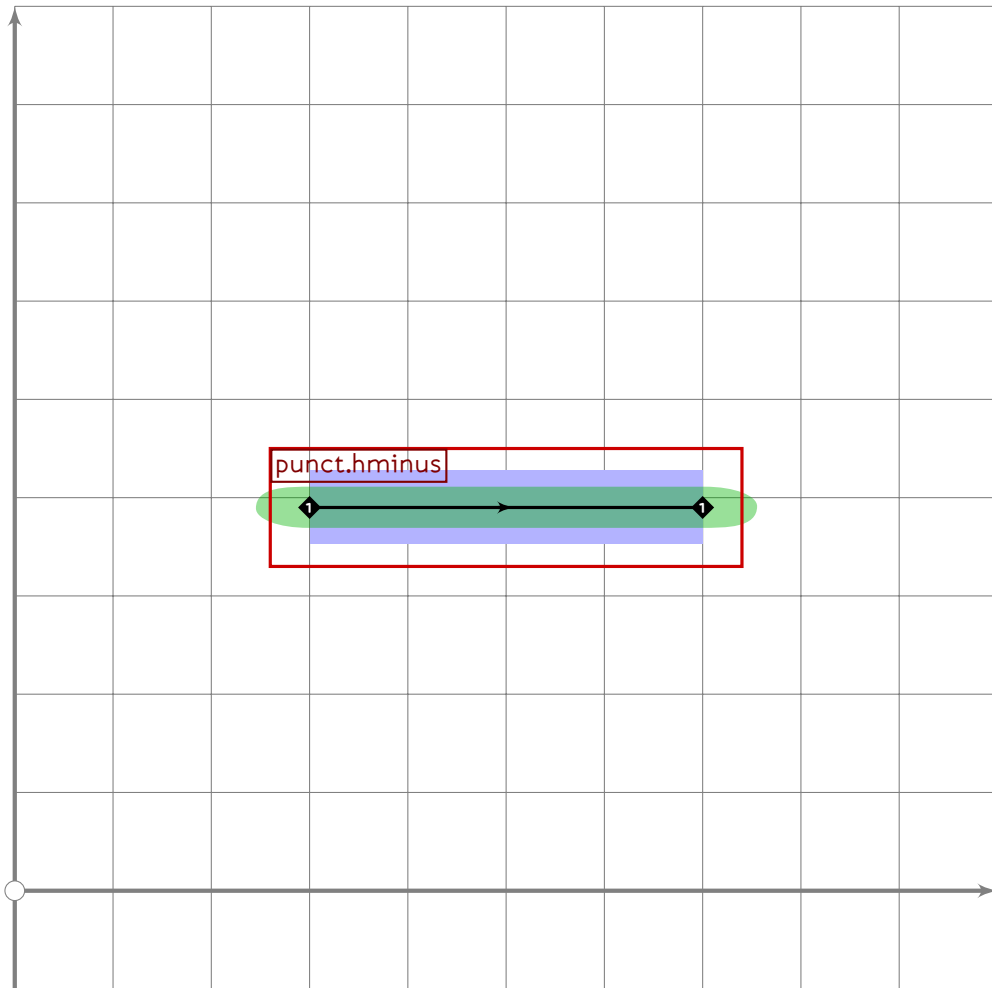


```
166 % plus
167 beginsuglyph("uniFF0B";1);
168 punct.plus
169     (identity scaled (2*tsu_punct_size) shifted centre_pt);
170 tsu_render;
171 endsuglyph;
172
```





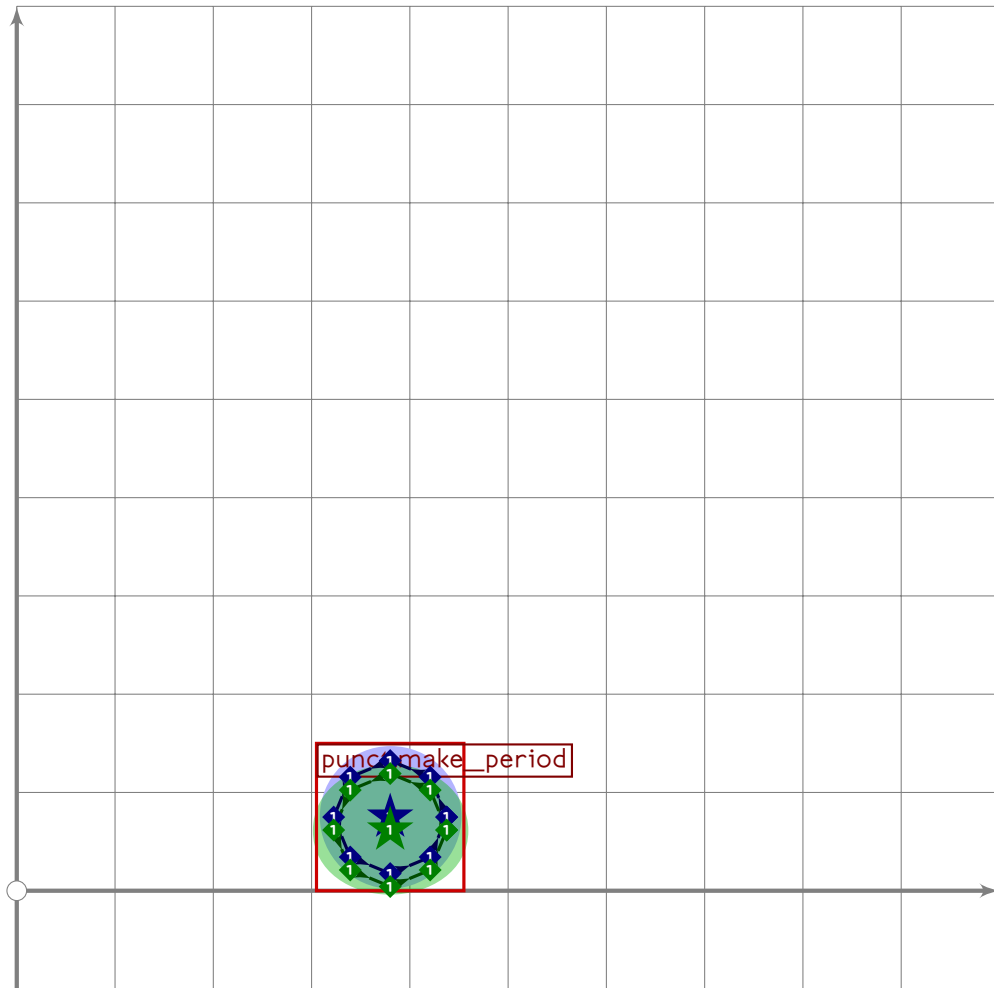
```
173 % comma
174 beginsuglyph("uniFFOC";12);
175 punct.make_comma((380,vmetric(0.03)),0);
176 tsu_render;
177 endsuglyph;
178
```



```

179 % hyphen-minus
180 begintsuglyph("uniFF0D",13);
181 punct.hminus
182   (identity scaled (2*tsu_punct_size) shifted centre_pt);
183 tsu_render;
184 endsuglyph;
185

```



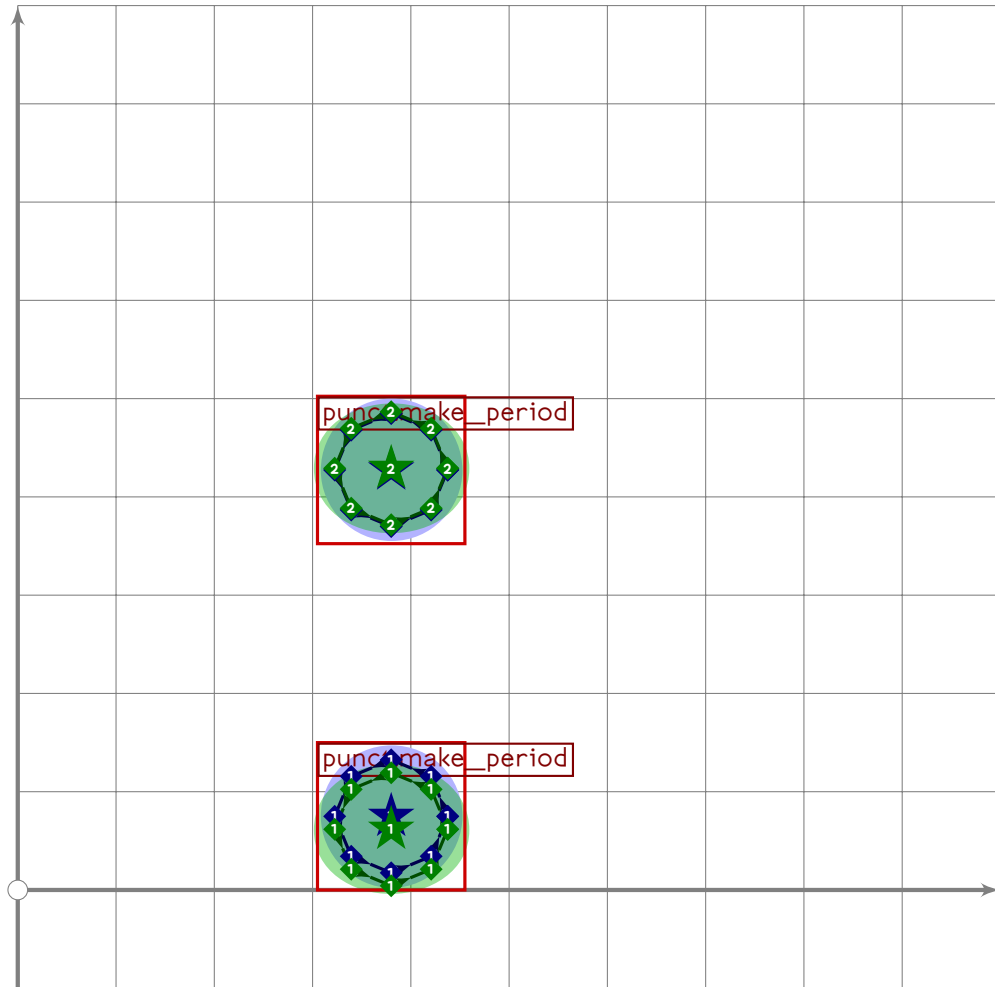
```

186 % period
187 begintsuglyph("uniFF0E",14);
188 punct.make_period((380,vmetric(0.03)));
189 tsu_render;
190 endtsuglyph;
191
192 % slash
193 begintsuglyph("uniFF0F",15); [see page 307]
194 punct.slash;
195 tsu_render;
196 endtsuglyph;
197
198 % 0
199 begintsuglyph("uniFF10",16); [see page 244]
200 numeral.zero;
201 tsu_render;
202 endtsuglyph;
203
204 % 1
205 begintsuglyph("uniFF11",17); [see page 245]
206 numeral.one;

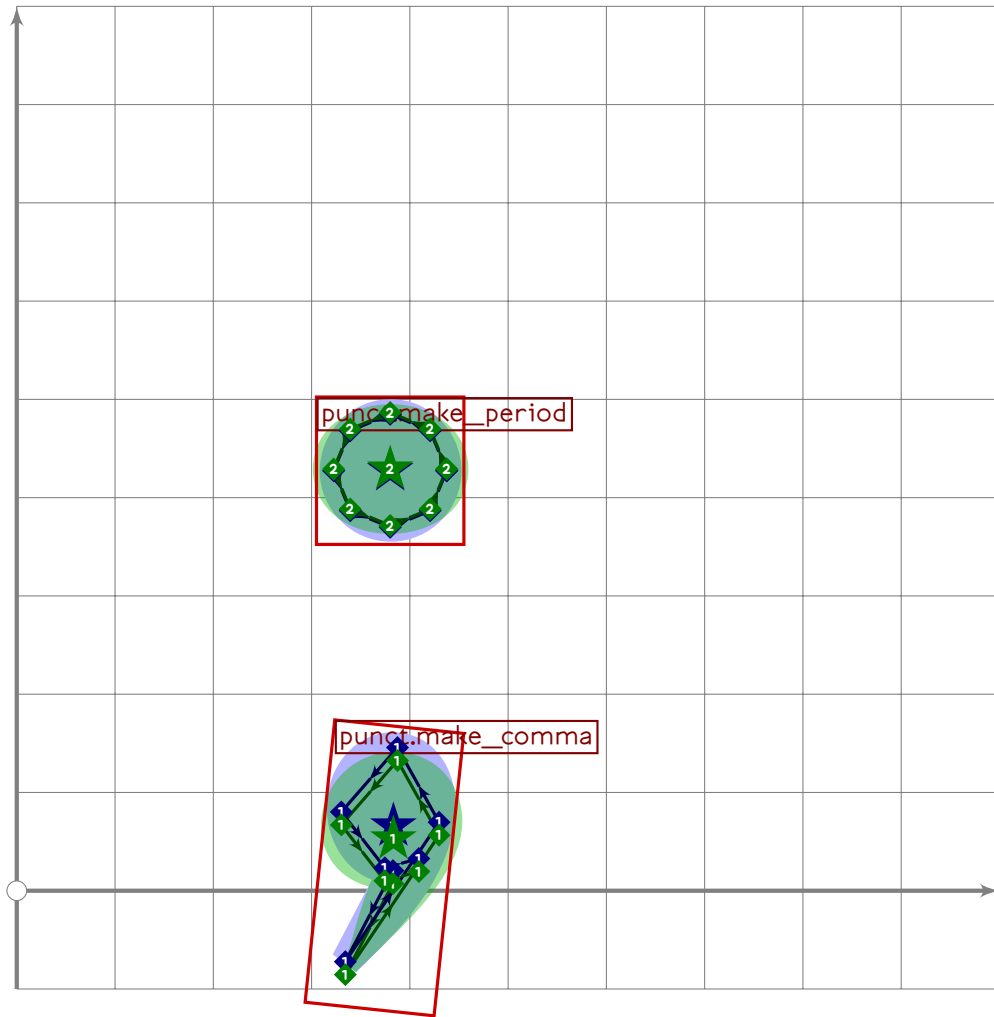
```

207 `tsu_render;`  
208 `endtsuglyph;`  
209  
210 `% 2`  
211 `begintsuglyph("uniFF12";18);` [see page 246]  
212 `numeral.two;`  
213 `tsu_render;`  
214 `endtsuglyph;`  
215  
216 `% 3`  
217 `begintsuglyph("uniFF13";19);` [see page 247]  
218 `numeral.three;`  
219 `tsu_render;`  
220 `endtsuglyph;`  
221  
222 `% 4`  
223 `begintsuglyph("uniFF14";20);` [see page 248]  
224 `numeral.four;`  
225 `tsu_render;`  
226 `endtsuglyph;`  
227  
228 `% 5`  
229 `begintsuglyph("uniFF15";21);` [see page 249]  
230 `numeral.five;`  
231 `tsu_render;`  
232 `endtsuglyph;`  
233  
234 `% 6`  
235 `begintsuglyph("uniFF16";22);` [see page 250]  
236 `numeral.six;`  
237 `tsu_render;`  
238 `endtsuglyph;`  
239  
240 `% 7`  
241 `begintsuglyph("uniFF17";23);` [see page 251]  
242 `numeral.seven;`  
243 `tsu_render;`  
244 `endtsuglyph;`  
245  
246 `% 8`  
247 `begintsuglyph("uniFF18";24);` [see page 252]  
248 `numeral.eight;`  
249 `tsu_render;`  
250 `endtsuglyph;`  
251  
252 `% 9`  
253 `begintsuglyph("uniFF19";25);` [see page 253]  
254 `numeral.nine;`

```
255 tsu_render;  
256 endsuglyph;  
257
```



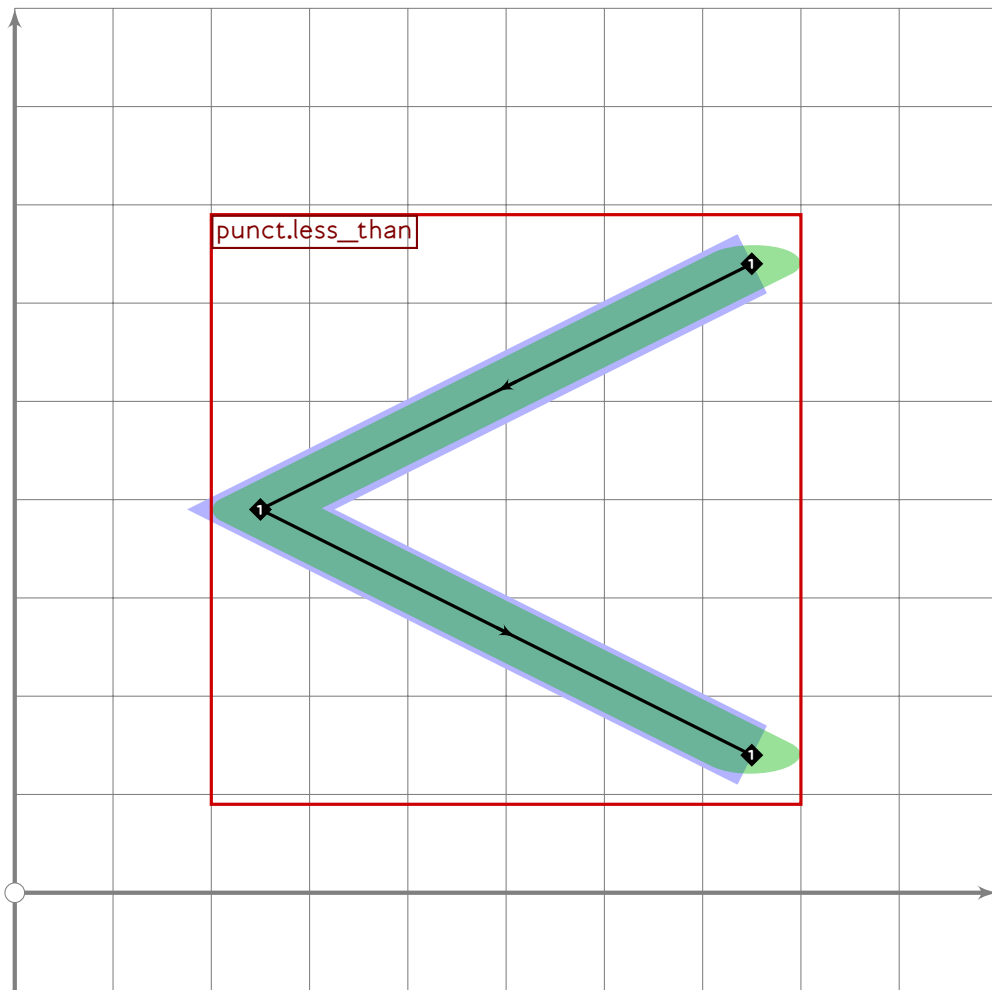
```
258 % colon  
259 beginsuglyph("uniFF1A",26);  
260 punct.make_period((380,vmetric(0.03)));  
261 punct.make_period((380,vmetric(0.56)));  
262 tsu_render;  
263 endsuglyph;  
264
```



```

265 % semicolon
266 begint Suglyph("uniFF1B",27);
267 punct.make_comma((380,vmetric(0.03)),0);
268 punct.make_period((380,vmetric(0.56)));
269 tsu_render;
270 endsuglyph;
271

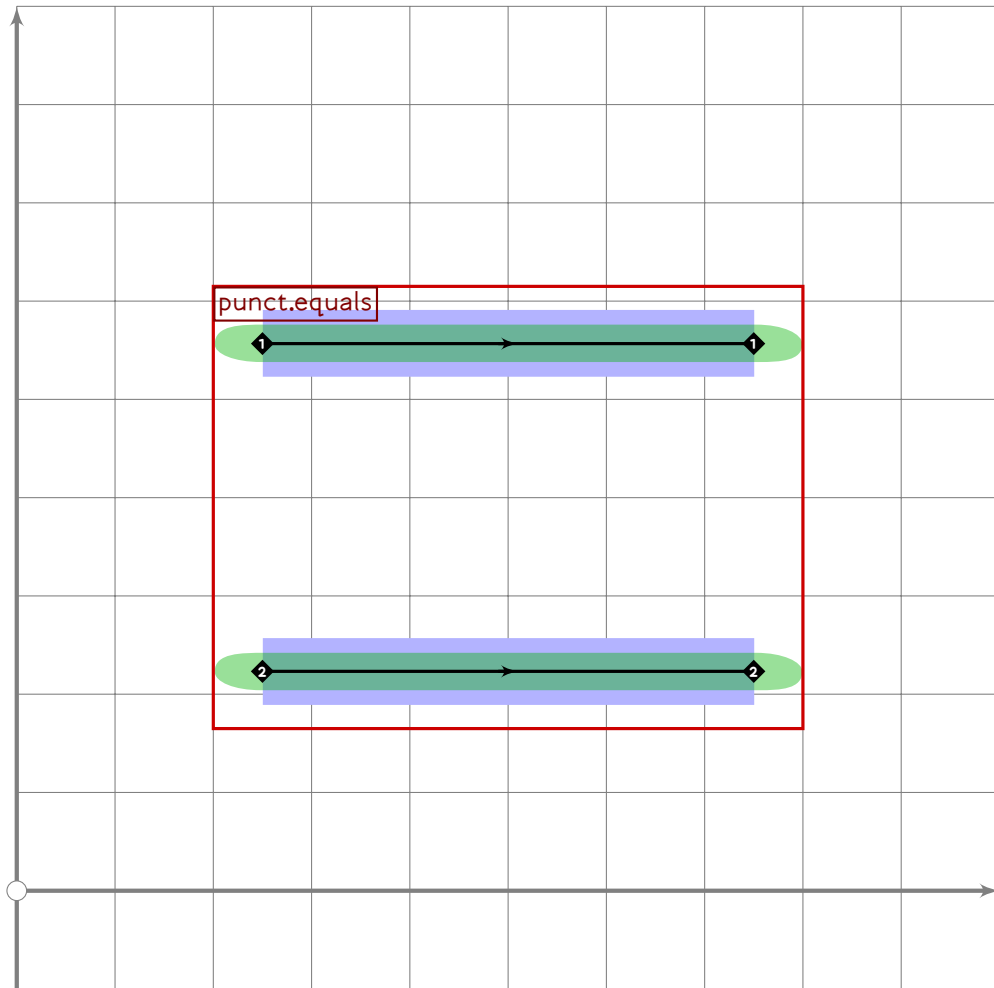
```



```

272 % less than
273 begintsuglyph("uniFF1C";28);
274 punct.less_than
275   (identity scaled (2.5*tsu_punct_size) shifted centre_pt);
276 tsu_render;
277 endsuglyph;
278

```

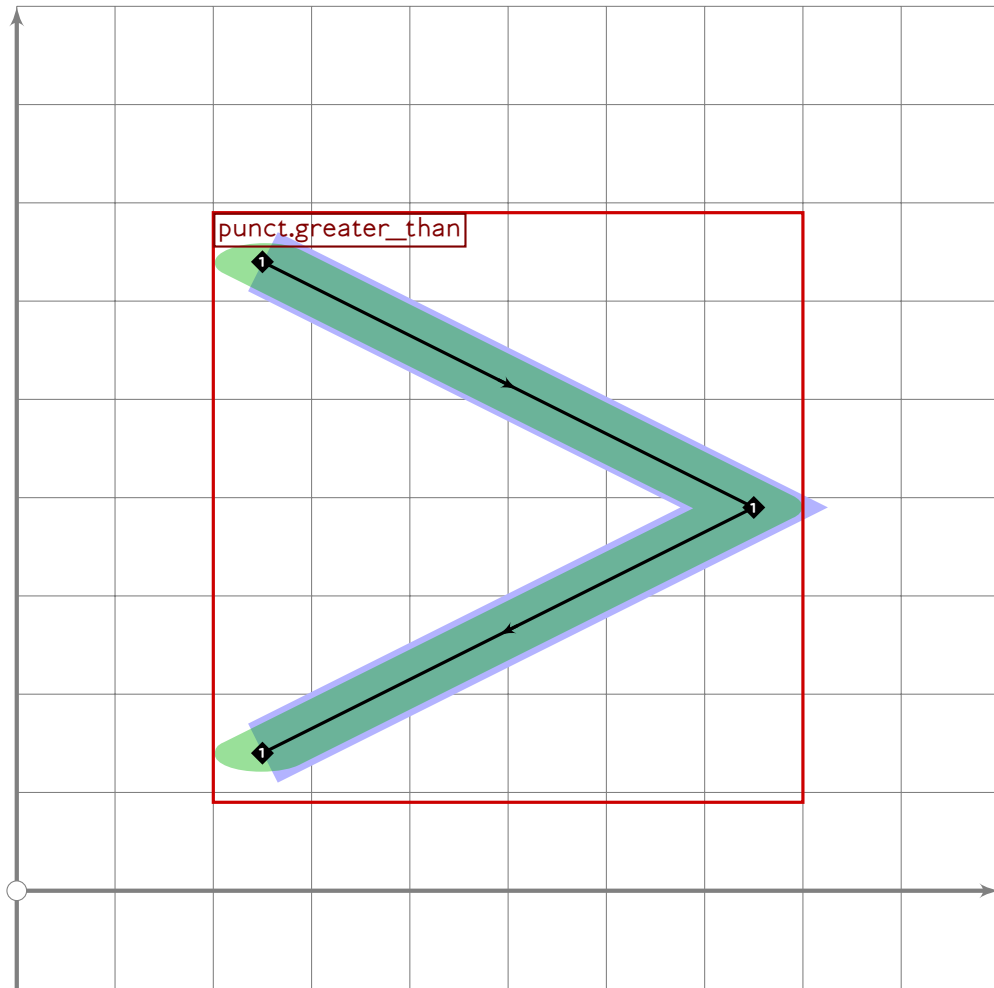


```

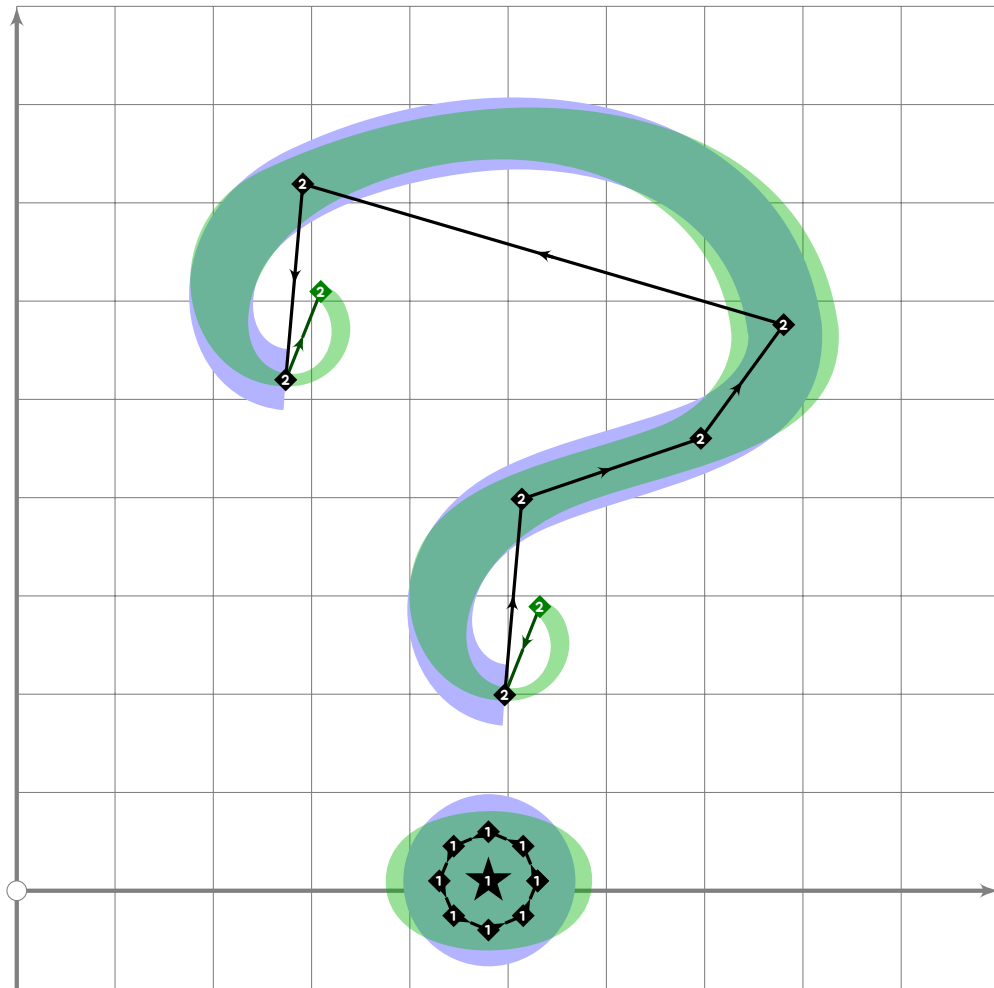
279 % equals
280 begint Suglyph("uniFF1D";29);
281   punct.equals
282   (identity scaled (2.5*tsu_punct_size) shifted centre_pt);
283   tsu_render;
284 endsuglyph;
285

```





```
286 % greater than
287 begint Suglyph("uniFF1E",30);
288 punct.greater_than
289 (identity scaled (2.5*tsu_punct_size) shifted centre_pt);
290 tsu_render;
291 endsuglyph;
292
```



```

293 % question mark
294 begintsuglyph("uniFF1F",31);
295     numeric r;
296     if tsu_pbrush_size>=tsu_punct_size:
297         push_lcblob(fullcircle
298             xscaled (tsu_punct_size+tsu_pbrush_size)
299             yscaled (tsu_punct_size+tsu_pbrush_size*tsu_pbrush_shape)
300             rotated tsu_pbrush_angle
301             shifted (480,10));
302         r:=tsu_pbrush_size;
303     else:
304         push_stroke(fullcircle scaled tsu_punct_size shifted (480,10),
305             (2,2)-(2,2)-(2,2)-(2,2)-cycle);
306         if tsu_pbrush_size>=30:
307             push_lcblob(get_strokep(0));
308         fi;
309         r:=tsu_punct_size;
310     fi;
311
312     push_stroke((480,300){right}..(480,300-r){left}..
313         (480,300+r)..(480+2.5*r,600)..

```

```

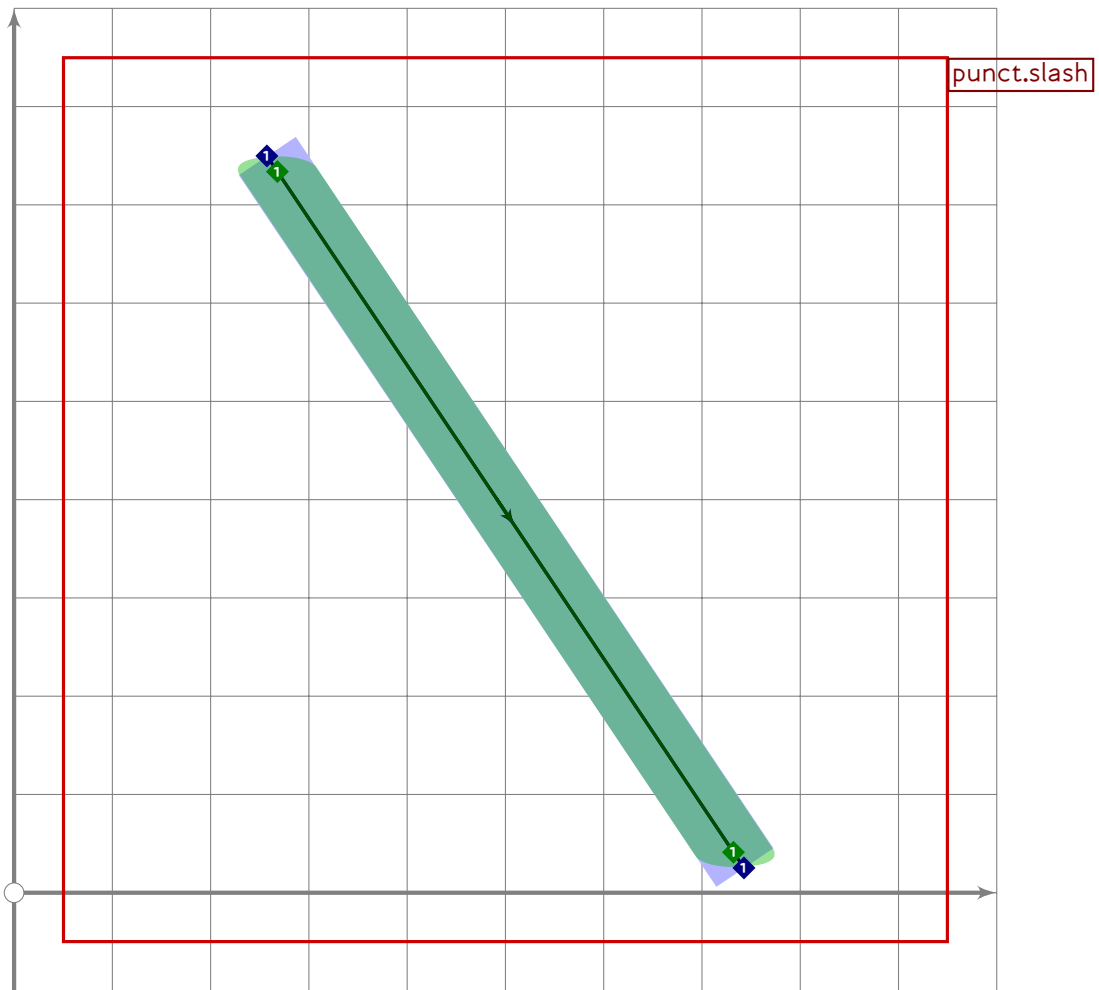
314     tension 1.3..(480-2.5*r,600+r)..
315     (480-2.5*r,600-r){right}..
316     (480-2.5*r,600){left},
317     (0.8,0.8)-(1,1)-(2,2)-(2,2)-(2,2)-(2,2)-(1,1)-(0.8,0.8));
318     replace_stroke(0)(insert_nodes(oldp)(2.5) rotatedaround ((480,10),-5));
319
320     tsu_render;
321 endtsuglyph;
322
323 % commercial at
324     begintsuglyph("uniFF20",32); [see page 276]
325     punct.atsign;
326     tsu_render;
327 endtsuglyph;
328
329 % A
330     begintsuglyph("uniFF21",33); [see page 167]
331     latin.upa;
332     tsu_render;
333 endtsuglyph;
334
335 % B
336     begintsuglyph("uniFF22",34); [see page 170]
337     latin.upb;
338     tsu_render;
339 endtsuglyph;
340
341 % C
342     begintsuglyph("uniFF23",35); [see page 172]
343     latin.upc;
344     tsu_render;
345 endtsuglyph;
346
347 % D
348     begintsuglyph("uniFF24",36); [see page 172]
349     latin.upd;
350     tsu_render;
351 endtsuglyph;
352
353 % E
354     begintsuglyph("uniFF25",37); [see page 174]
355     latin.upe;
356     tsu_render;
357 endtsuglyph;
358
359 % F
360     begintsuglyph("uniFF26",38); [see page 175]
361     latin.upf;

```

362 `tsu_render;`  
363 `endtsuglyph;`  
364  
365 `% G`  
366 `begintsuglyph("uniFF27",39);` [see page 176]  
367 `latin.upg;`  
368 `tsu_render;`  
369 `endtsuglyph;`  
370  
371 `% H`  
372 `begintsuglyph("uniFF28",40);` [see page 177]  
373 `latin.uph;`  
374 `tsu_render;`  
375 `endtsuglyph;`  
376  
377 `% I`  
378 `begintsuglyph("uniFF29",41);` [see page 178]  
379 `latin.upi;`  
380 `tsu_render;`  
381 `endtsuglyph;`  
382  
383 `% J`  
384 `begintsuglyph("uniFF2A",42);` [see page 179]  
385 `latin.upj;`  
386 `tsu_render;`  
387 `endtsuglyph;`  
388  
389 `% K`  
390 `begintsuglyph("uniFF2B",43);` [see page 181]  
391 `latin.upk;`  
392 `tsu_render;`  
393 `endtsuglyph;`  
394  
395 `% L`  
396 `begintsuglyph("uniFF2C",44);` [see page 182]  
397 `latin.upl;`  
398 `tsu_render;`  
399 `endtsuglyph;`  
400  
401 `% M`  
402 `begintsuglyph("uniFF2D",45);` [see page 183]  
403 `latin.upm;`  
404 `tsu_render;`  
405 `endtsuglyph;`  
406  
407 `% N`  
408 `begintsuglyph("uniFF2E",46);` [see page 185]  
409 `latin.upn;`

410 `tsu_render;`  
411 `endtsuglyph;`  
412  
413 `% O`  
414 `begintsuglyph("uniFF2F",47);` [see page 187]  
415 `latin.upo;`  
416 `tsu_render;`  
417 `endtsuglyph;`  
418  
419 `% P`  
420 `begintsuglyph("uniFF30",48);` [see page 189]  
421 `latin.upp;`  
422 `tsu_render;`  
423 `endtsuglyph;`  
424  
425 `% Q`  
426 `begintsuglyph("uniFF31",49);` [see page 190]  
427 `latin.upq;`  
428 `tsu_render;`  
429 `endtsuglyph;`  
430  
431 `% R`  
432 `begintsuglyph("uniFF32",50);` [see page 191]  
433 `latin.upr;`  
434 `tsu_render;`  
435 `endtsuglyph;`  
436  
437 `% S`  
438 `begintsuglyph("uniFF33",51);` [see page 192]  
439 `latin.ups;`  
440 `tsu_render;`  
441 `endtsuglyph;`  
442  
443 `% T`  
444 `begintsuglyph("uniFF34",52);` [see page 193]  
445 `latin.upt;`  
446 `tsu_render;`  
447 `endtsuglyph;`  
448  
449 `% U`  
450 `begintsuglyph("uniFF35",53);` [see page 195]  
451 `latin.upu;`  
452 `tsu_render;`  
453 `endtsuglyph;`  
454  
455 `% V`  
456 `begintsuglyph("uniFF36",54);` [see page 196]  
457 `latin.upv;`

458 `tsu_render;`  
459 `endtsuglyph;`  
460  
461 `% W`  
462 `begintsuglyph("uniFF37",55);` [see page 197]  
463 `latin.upw;`  
464 `tsu_render;`  
465 `endtsuglyph;`  
466  
467 `% X`  
468 `begintsuglyph("uniFF38",56);` [see page 199]  
469 `latin.upx;`  
470 `tsu_render;`  
471 `endtsuglyph;`  
472  
473 `% Y`  
474 `begintsuglyph("uniFF39",57);` [see page 200]  
475 `latin.upy;`  
476 `tsu_render;`  
477 `endtsuglyph;`  
478  
479 `% Z`  
480 `begintsuglyph("uniFF3A",58);` [see page 201]  
481 `latin.upz;`  
482 `tsu_render;`  
483 `endtsuglyph;`  
484  
485 `% left and right square brackets`  
486 `begintsuglyph("uniFF3B",59);` [see page 308]  
487 `punct.sqb_left;`  
488 `tsu_render;`  
489 `endtsuglyph;`



```

490 % backslash
491 begintsuglyph("uniFF3C",60);
492 tsu_xform(identity reflectedabout (centre_pt,(centre_pt+down)))
493   (punct.slash);
494 tsu_render;
495 endtsuglyph;
496 begintsuglyph("uniFF3D",61); [see page 309]
497   punct.sqb_right;
498   tsu_render;
499 endtsuglyph;
500
501 % circumflex/caret
502 begintsuglyph("uniFF3E",62); [see page 46]
503   tsu_accent.circumflex;
504   tsu_render;
505 endtsuglyph;
506
507 % underscore
508 begintsuglyph("uniFF3F",63); [see page 310]
509   punct.underscore;
510   tsu_render;

```

```
511 endtsuglyph;
512
513 % grave accent
514 begintsuglyph("uniFF40",64); [see page 48]
515     tsu_accent.grave;
516     tsu_render;
517 endtsuglyph;
518
519 % a
520 begintsuglyph("uniFF41",65); [see page 202]
521     latin.low;
522     tsu_render;
523 endtsuglyph;
524
525 % b
526 begintsuglyph("uniFF42",66); [see page 205]
527     latin.lowb;
528     tsu_render;
529 endtsuglyph;
530
531 % c
532 begintsuglyph("uniFF43",67); [see page 206]
533     latin.lowc;
534     tsu_render;
535 endtsuglyph;
536
537 % d
538 begintsuglyph("uniFF44",68); [see page 207]
539     latin.lowd;
540     tsu_render;
541 endtsuglyph;
542
543 % e
544 begintsuglyph("uniFF45",69); [see page 208]
545     latin.love;
546     tsu_render;
547 endtsuglyph;
548
549 % f
550 begintsuglyph("uniFF46",70); [see page 212]
551     latin.lowf;
552     tsu_render;
553 endtsuglyph;
554
555 % g
556 begintsuglyph("uniFF47",71); [see page 213]
557     latin.lowg;
558     tsu_render;
```



559 endtsuglyph;  
560  
561 % h  
562 begintsuglyph("uniFF48";72); [see page 214]  
563 latin.lowh;  
564 tsu\_render;  
565 endtsuglyph;  
566  
567 % i  
568 begintsuglyph("uniFF49";73); [see page 216]  
569 latin.lowi;  
570 tsu\_render;  
571 endtsuglyph;  
572  
573 % j  
574 begintsuglyph("uniFF4A";74); [see page 217]  
575 latin.lowj;  
576 tsu\_render;  
577 endtsuglyph;  
578  
579 % k  
580 begintsuglyph("uniFF4B";75); [see page 219]  
581 latin.lowk;  
582 tsu\_render;  
583 endtsuglyph;  
584  
585 % l  
586 begintsuglyph("uniFF4C";76); [see page 220]  
587 latin.lowl;  
588 tsu\_render;  
589 endtsuglyph;  
590  
591 % m  
592 begintsuglyph("uniFF4D";77); [see page 221]  
593 latin.lowm;  
594 tsu\_render;  
595 endtsuglyph;  
596  
597 % n  
598 begintsuglyph("uniFF4E";78); [see page 222]  
599 latin.lown;  
600 tsu\_render;  
601 endtsuglyph;  
602  
603 % o  
604 begintsuglyph("uniFF4F";79); [see page 225]  
605 latin.lowo;  
606 tsu\_render;

607 endtsuglyph;  
608  
609 % p  
610 begintsuglyph("uniFF50",80); [see page 227]  
611 latin.lowp;  
612 tsu\_render;  
613 endtsuglyph;  
614  
615 % q  
616 begintsuglyph("uniFF51",81); [see page 228]  
617 latin.lowq;  
618 tsu\_render;  
619 endtsuglyph;  
620  
621 % r  
622 begintsuglyph("uniFF52",82); [see page 229]  
623 latin.lowr;  
624 tsu\_render;  
625 endtsuglyph;  
626  
627 % s  
628 begintsuglyph("uniFF53",83); [see page 230]  
629 latin.lows;  
630 tsu\_render;  
631 endtsuglyph;  
632  
633 % t  
634 begintsuglyph("uniFF54",84); [see page 233]  
635 latin.lowt;  
636 tsu\_render;  
637 endtsuglyph;  
638  
639 % u  
640 begintsuglyph("uniFF55",85); [see page 236]  
641 latin.lowu;  
642 tsu\_render;  
643 endtsuglyph;  
644  
645 % v  
646 begintsuglyph("uniFF56",86); [see page 237]  
647 latin.lowv;  
648 tsu\_render;  
649 endtsuglyph;  
650  
651 % w  
652 begintsuglyph("uniFF57",87); [see page 238]  
653 latin.loww;  
654 tsu\_render;

655 `endtsuglyph;`  
656  
657 `% x`  
658 `begintsuglyph("uniFF58",88);` [see page 240]  
659 `latin.lowx;`  
660 `tsu_render;`  
661 `endtsuglyph;`  
662  
663 `% y`  
664 `begintsuglyph("uniFF59",89);` [see page 241]  
665 `latin.lowy;`  
666 `tsu_render;`  
667 `endtsuglyph;`  
668  
669 `% z`  
670 `begintsuglyph("uniFF5A",90);` [see page 243]  
671 `latin.lowz;`  
672 `tsu_render;`  
673 `endtsuglyph;`  
674  
675 `% left and right square brackets, around vertical line`  
676 `begintsuglyph("uniFF5B",91);` [see page 277]  
677 `punct.brace_left;`  
678 `tsu_render;`  
679 `endtsuglyph;`  
680 `begintsuglyph("uniFF5C",92);` [see page 311]  
681 `punct.vline;`  
682 `tsu_render;`  
683 `endtsuglyph;`  
684 `begintsuglyph("uniFF5D",93);` [see page 278]  
685 `punct.brace_right;`  
686 `tsu_render;`  
687 `endtsuglyph;`  
688  
689 `% "fullwidth tilde" - identical to "wave dash"`  
690 `begintsuglyph("uniFF5E",94);` [see page 312]  
691 `punct.wavedash;`  
692 `tsu_render;`  
693 `endtsuglyph;`  
694  
695 `% left and right white parentheses`  
696 `begintsuglyph("uniFF5F",95);` [see page 313]  
697 `punct.wparen_left;`  
698 `tsu_render;`  
699 `endtsuglyph;`  
700 `begintsuglyph("uniFF60",96);` [see page 314]  
701 `punct.wparen_right;`  
702 `tsu_render;`

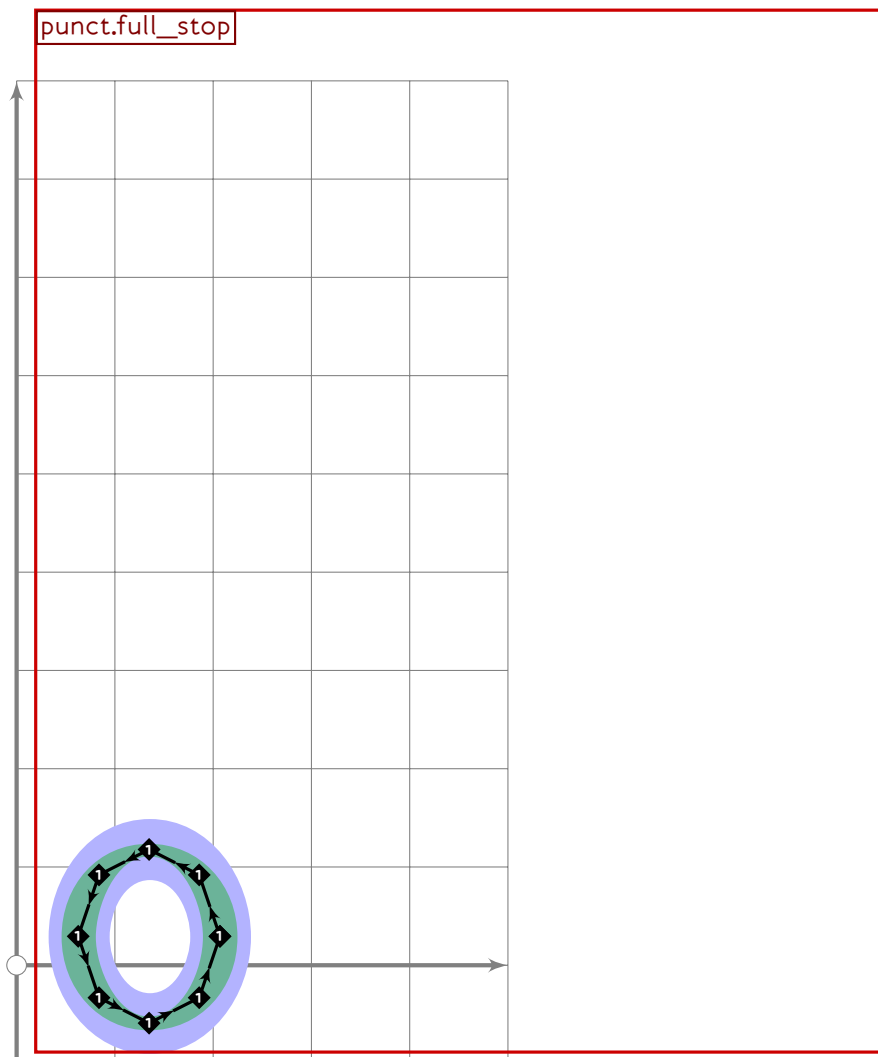
```
703 endtsuglyph;  
704  
705 

---

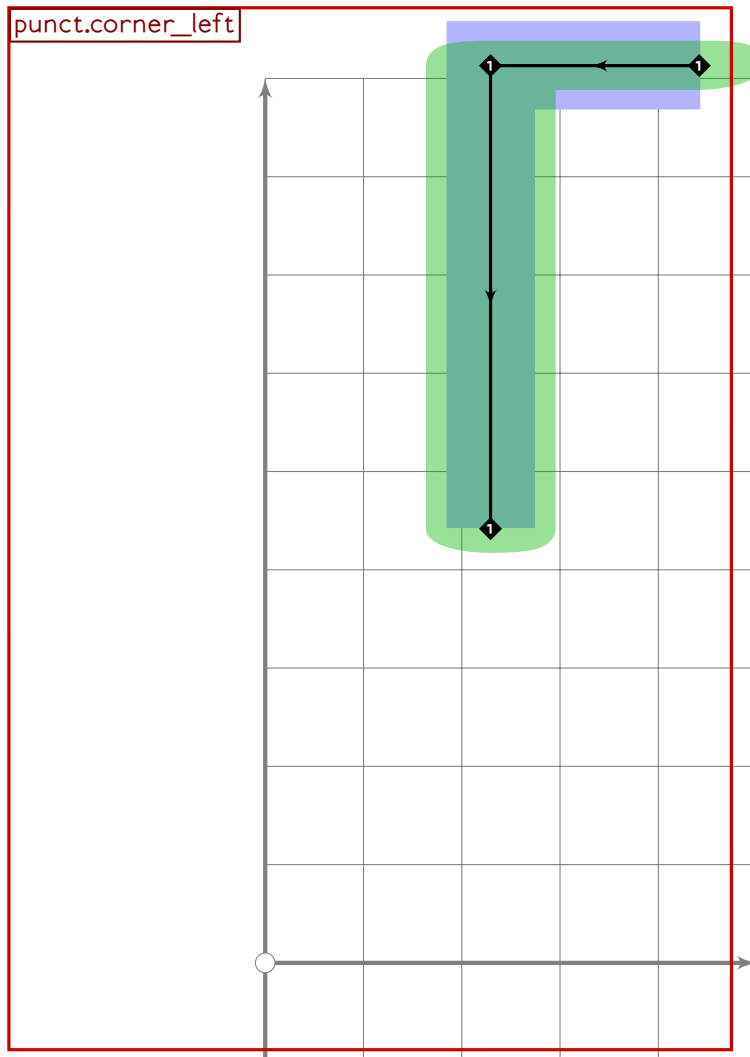
  
706
```

## Half-Width Punctuation

```
707 % HALF-WIDTH PUNCTUATION  
708  
709 % WARNING changing rescale setting  
710 tsu_rescale_half;  
711
```



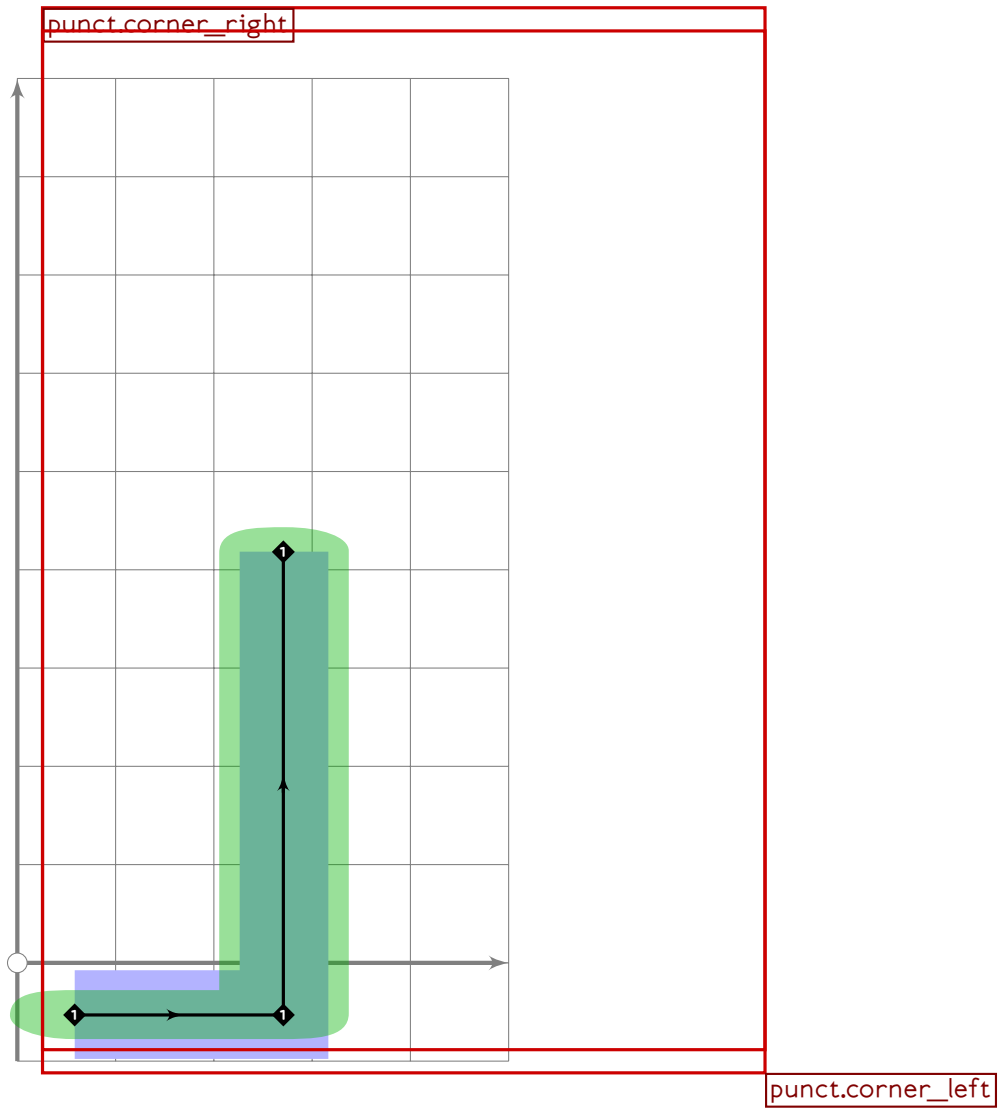
```
712 % ideographic full stop  
713 begint Suglyph("uniFF61";97);  
714 punct.full_stop;  
715 tsu_render;  
716 endtsuglyph;  
717
```



```

718 % left and right corner brackets
719 begintsuglyph("uniFF62";98);
720 punct.corner_left;
721 tsu_render;
722 endsuglyph;

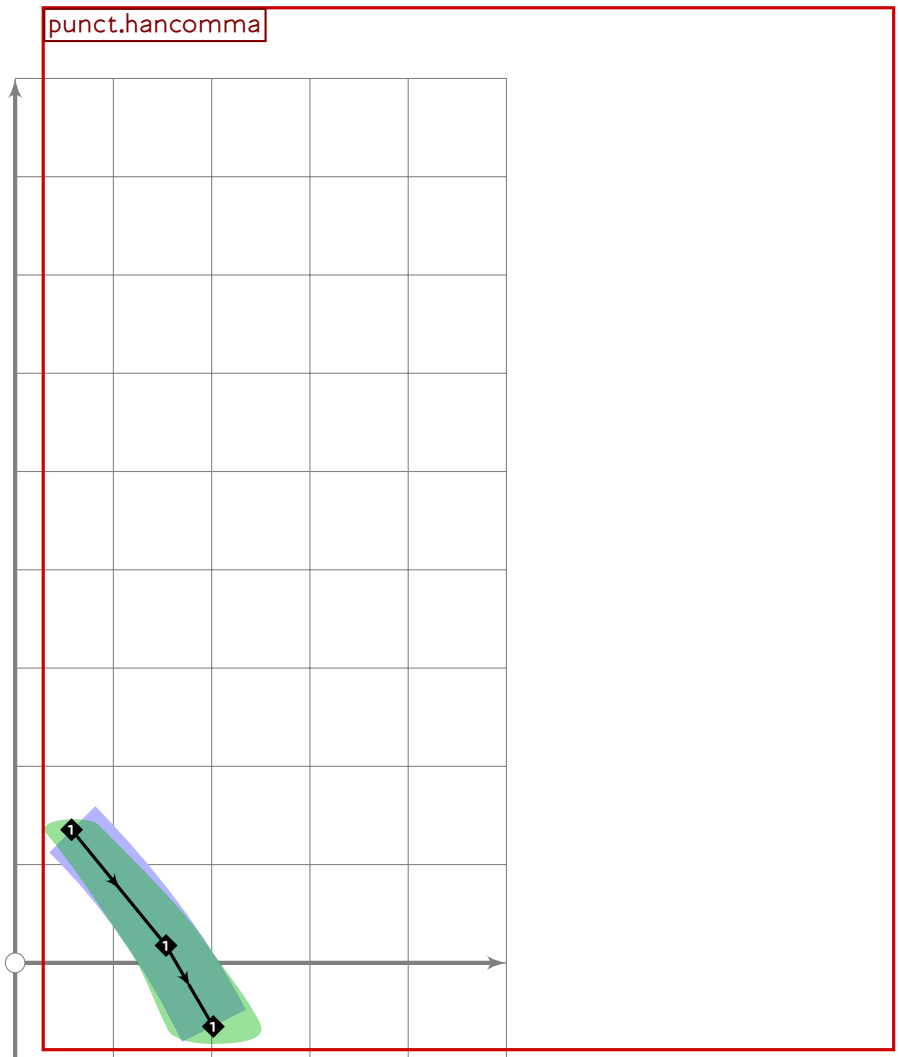
```



```

723 begintuglyph("uniFF63";99);
724   punct.corner_right;
725   tsu_render;
726 endtuglyph;
727

```



```

728 % ideographic comma
729 begint Suglyph("uniFF64";100);
730 punct.hancomma;
731 tsu_render;
732 endsuglyph;
733
734
735

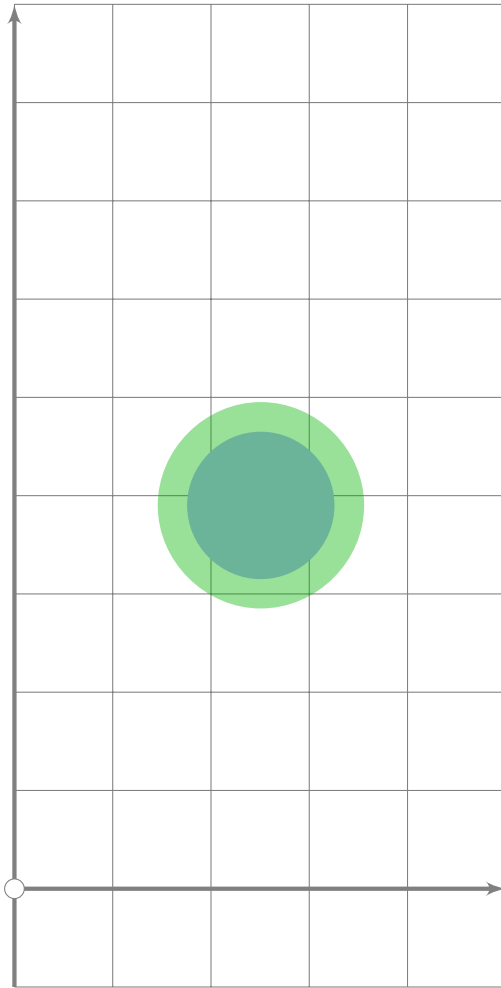
```

### Half-Width Katakana

```

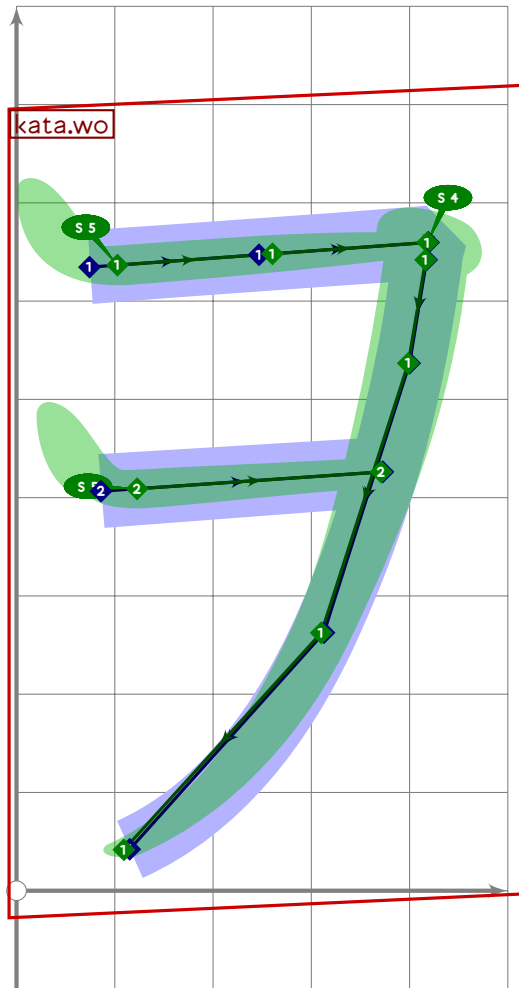
736 % HALF-WIDTH KATAKANA
737
738 % WARNING changing rescale setting
739 tsu_rescale_half_katakana;
740

```

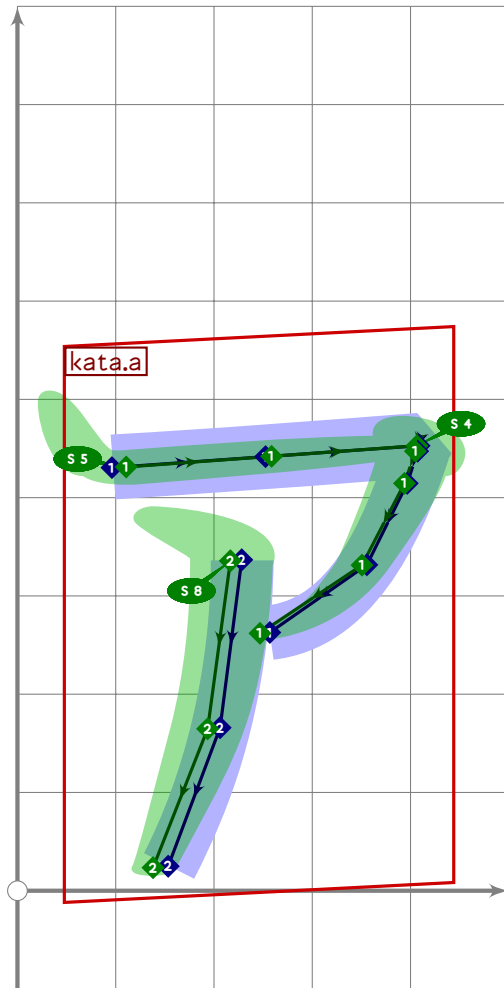


```
741 % katakana middle dot
742 begintsuglyph("uniFF65";101);
743   Fill fullcircle scaled (200*tsu_brush_max) shifted (250,ypart centre_pt);
744 endsuglyph;
745
```





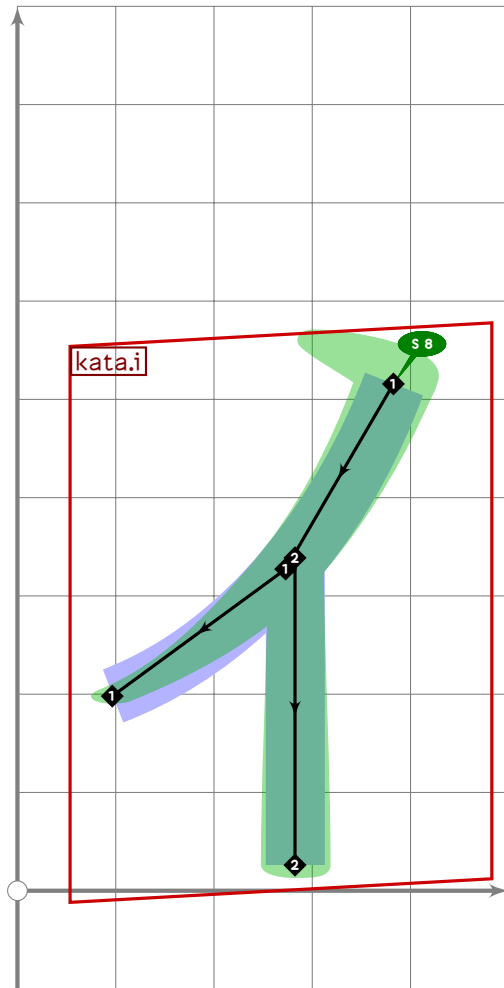
```
746 % katakana "wo"  
747 begintsuglyph("uniFF66";102);  
748 kata.wo;  
749 tsu_render;  
750 endsuglyph;  
751
```



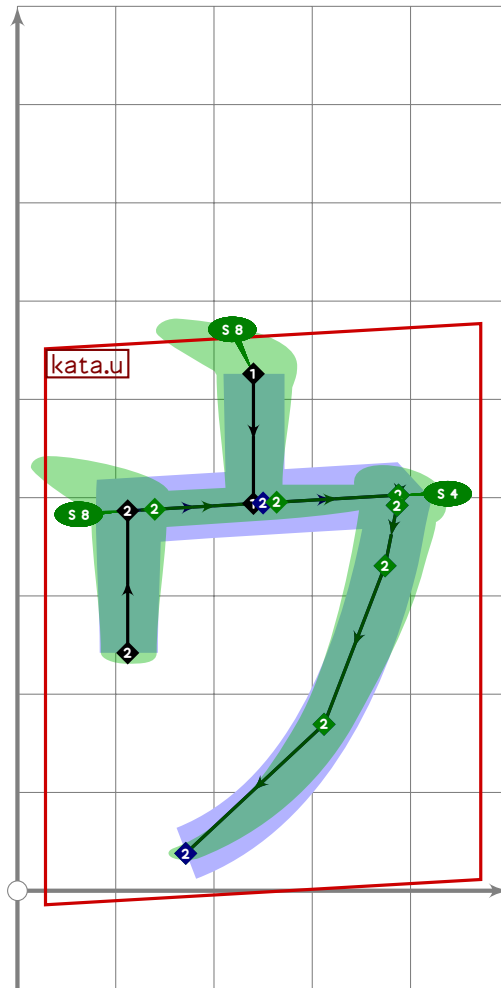
```

752 % katakana "small a"
753 begintsuglyph("uniFF67";103);
754 tsu_xform(tsu_xf.smallkana)(kata.a);
755 tsu_render;
756 endtsuglyph;
757

```



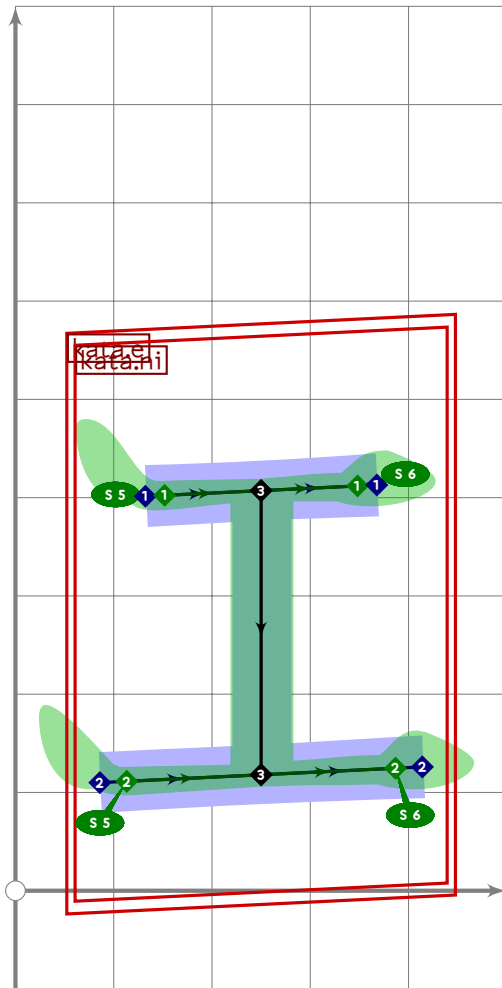
```
758 % katakana "small i"  
759 begintsuglyph("uniFF68";104);  
760 tsu_xform(tsu_xf.smallkana)(kata.i);  
761 tsu_render;  
762 endsuglyph;  
763
```



```

764 % katakana "small u"
765 begintsuglyph("uniFF69";105);
766 tsu_xform(tsu_xf.smallkana)(kata.u);
767 tsu_render;
768 endsuglyph;
769

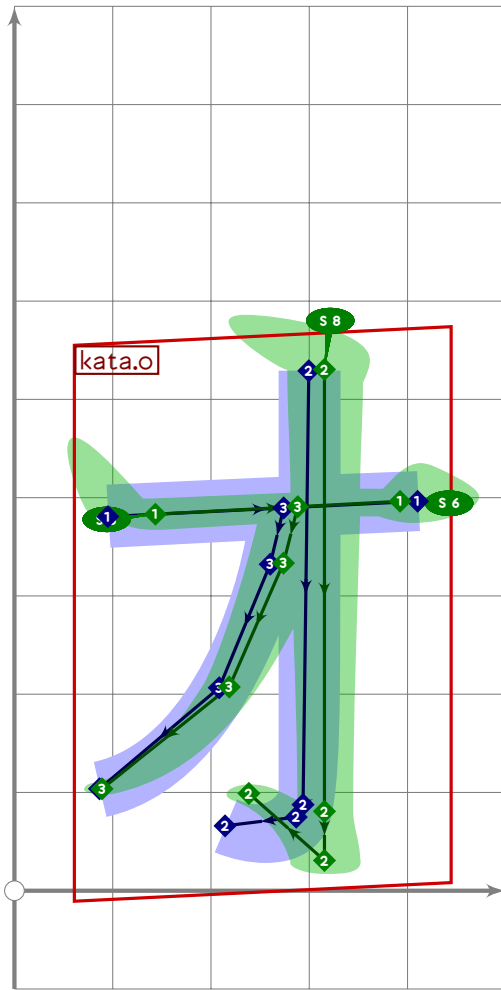
```



```

770 % katakana "small e"
771 begintsuglyph("uniFF6A";106);
772 tsu_xform(tsu_xf.smallkana)(kata.e);
773 tsu_render;
774 endsuglyph;
775

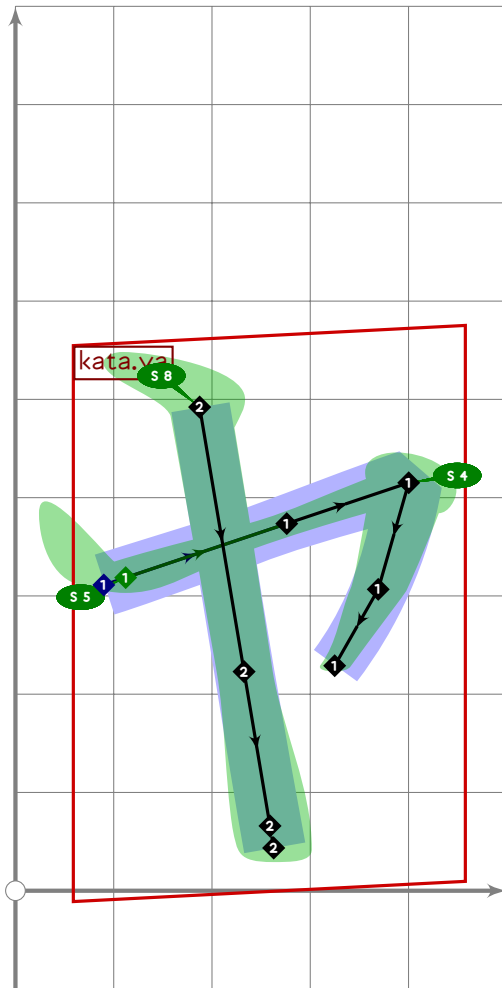
```



```

776 % katakana "small o"
777 begint Suglyph("uniFF6B";107);
778 tsu_xform(tsu_xf.smallkana)(kata.o);
779 tsu_render;
780 endtsuglyph;
781

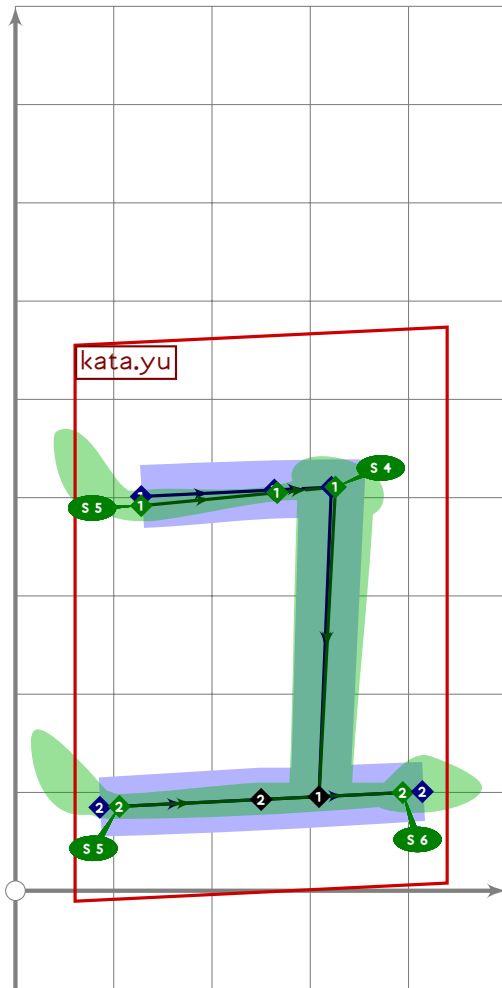
```



```

782 % katakana "small ya"
783 begintsuglyph("uniFF6C",108);
784 tsu_xform(tsu_xf.smallkana)(kata.ya);
785 tsu_render;
786 endtsuglyph;
787

```

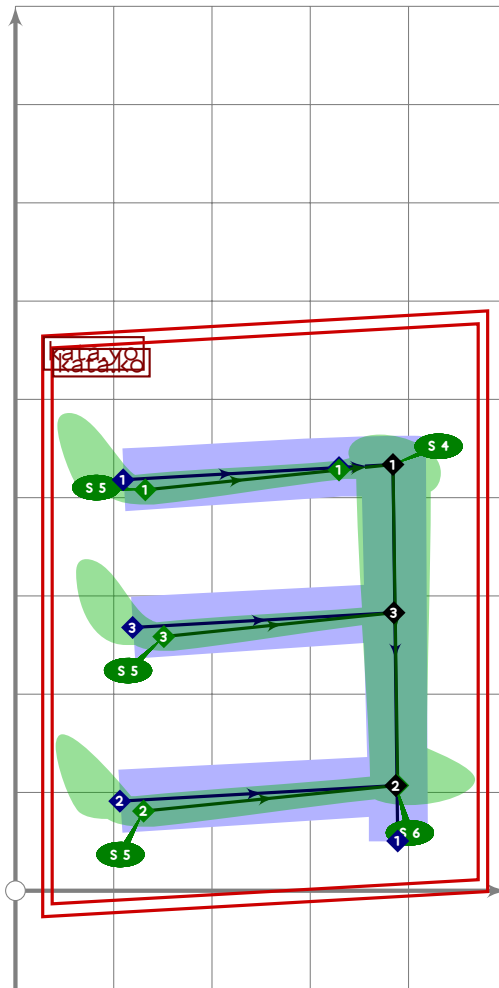


```

788 % katakana "small yu"
789 begintsuglyph("uniFF6D",109);
790 tsu_xform(tsu_xf.smallkana)(kata.yu);
791 tsu_render;
792 endsuglyph;
793

```

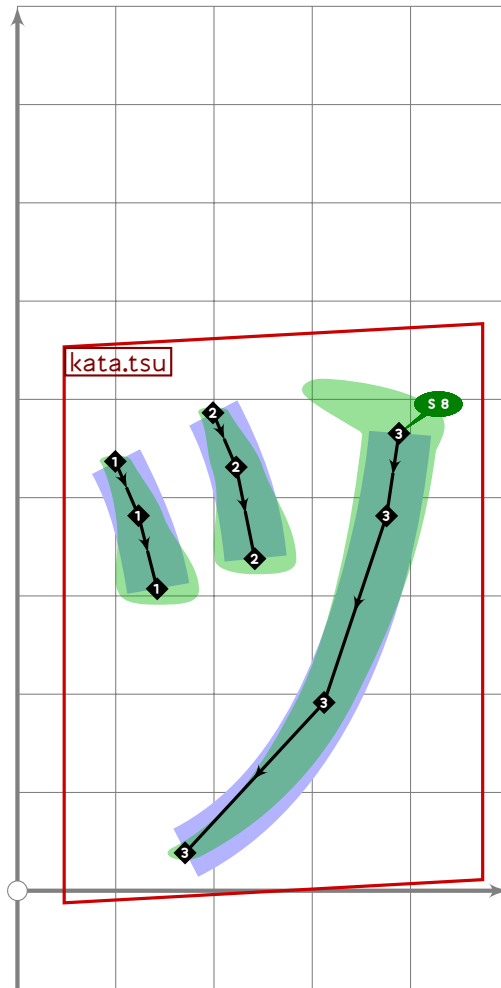




```

794 % katakana "small yo"
795 begintsuglyph("uniFF6E";110);
796 tsu_xform(tsu_xf.smallkana)(kata.yo);
797 tsu_render;
798 endtsuglyph;
799

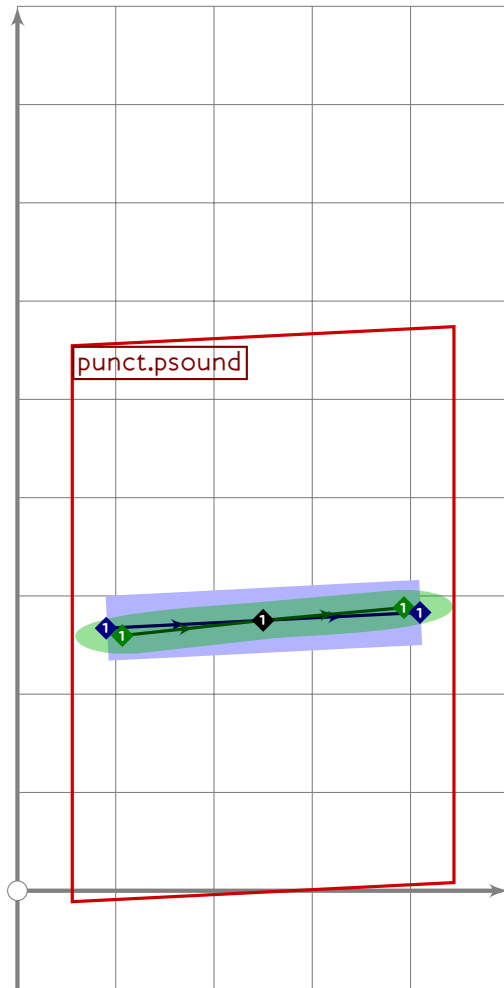
```



```

800 % katakana "small tsu"
801 begintsuglyph("uniFF6F";111);
802 tsu_xform(tsu_xf.smallkana)(kata.tsu);
803 tsu_render;
804 endsuglyph;
805

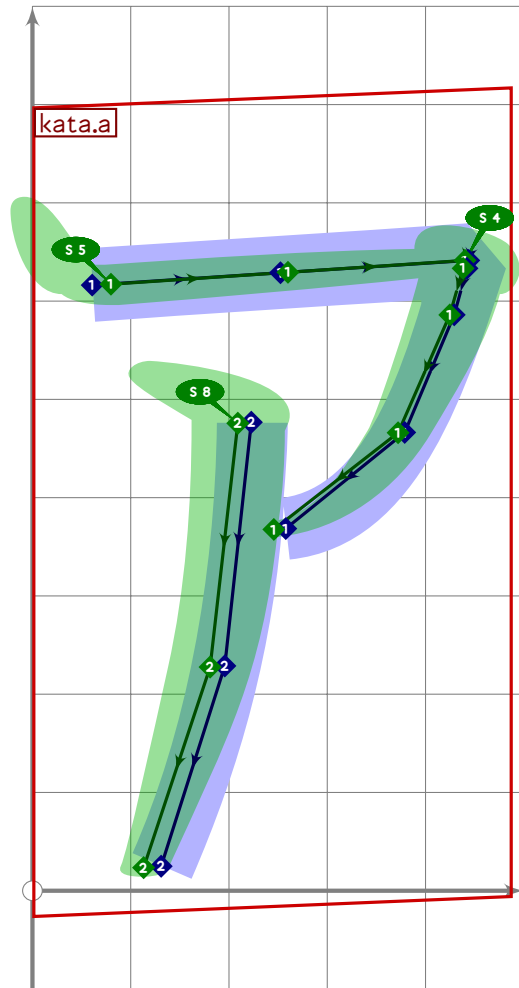
```



```

806 % hira/kata "prolonged sound mark"
807 begintsuglyph("uniFF70",112);
808 tsu_xform(tsu_xf.smallkana)(punct.psound);
809 tsu_render;
810 endtsuglyph;
811

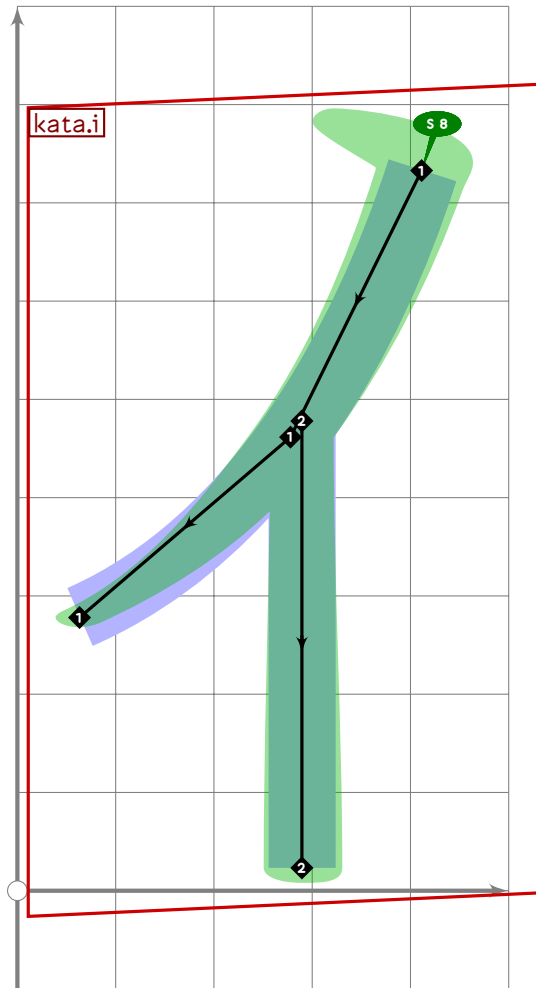
```



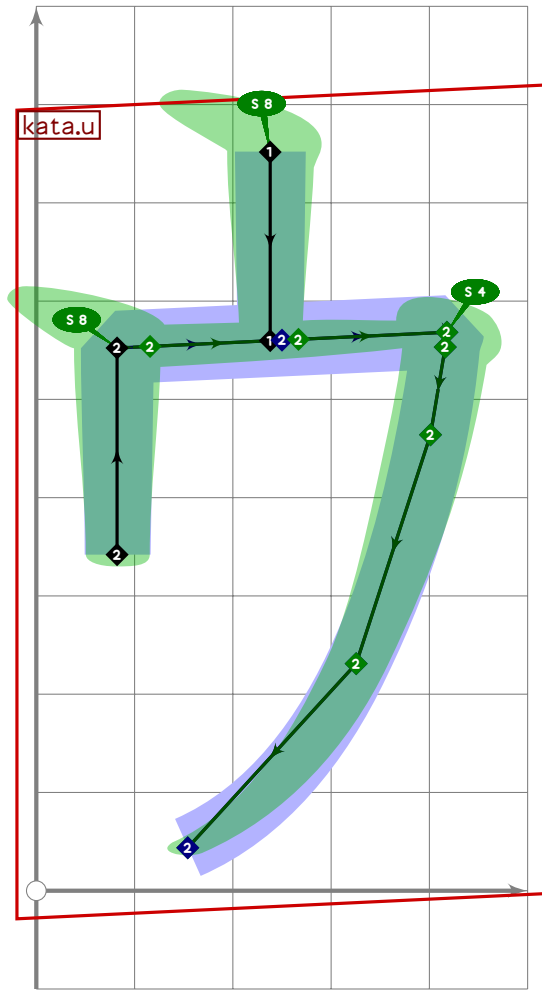
```

812 % katakana "a"
813 begint Suglyph("uniFF71";113);
814 kata.a;
815 tsu_render;
816 endtsuglyph;
817

```



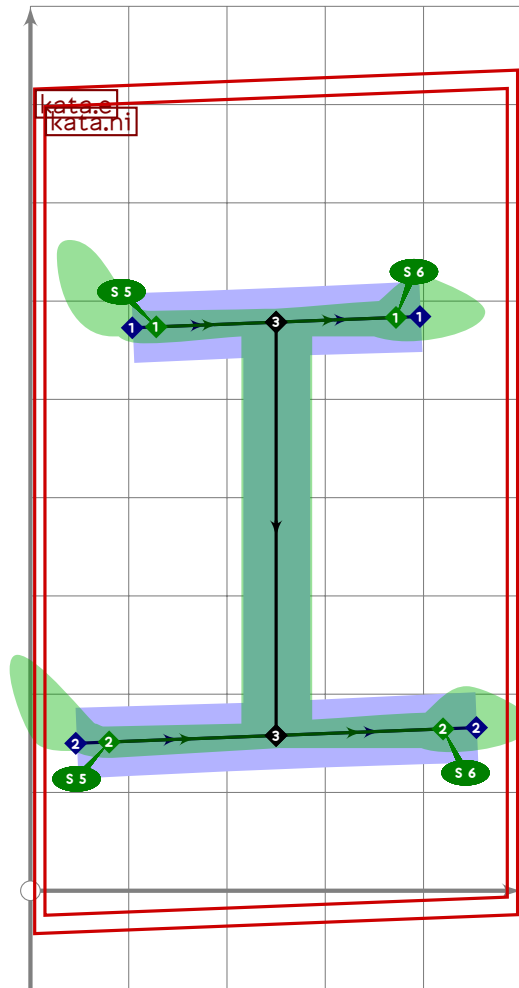
```
818 % katakana "i"  
819 begintsuglyph("uniFF72",114);  
820 kata.i;  
821 tsu_render;  
822 endsuglyph;  
823
```



```

824 % katakana "u"
825 begintsuglyph("uniFF73",115);
826 kata.u;
827 tsu_render;
828 endtsuglyph;
829

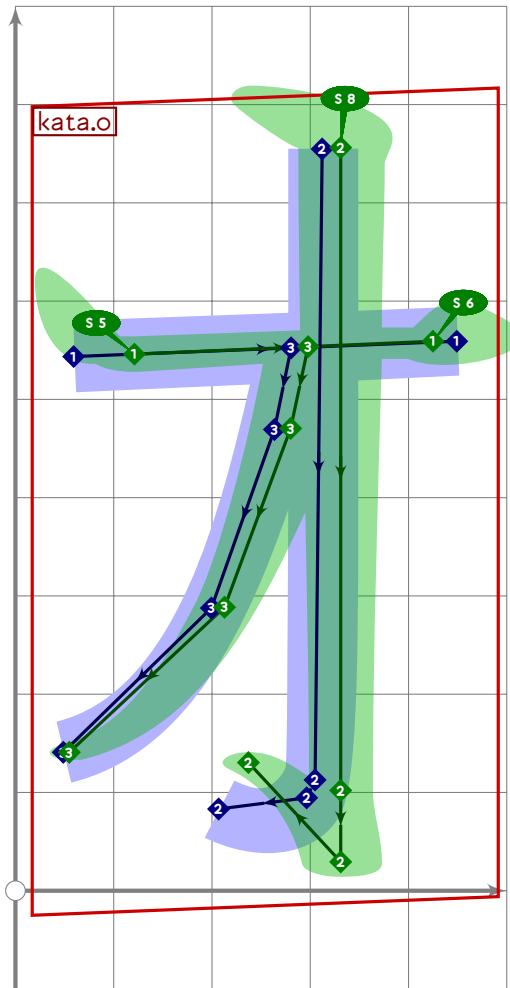
```



```

830 % katakana "e"
831 begint Suglyph("uniFF74";116);
832 kata.e;
833 tsu_render;
834 endtsuglyph;
835

```

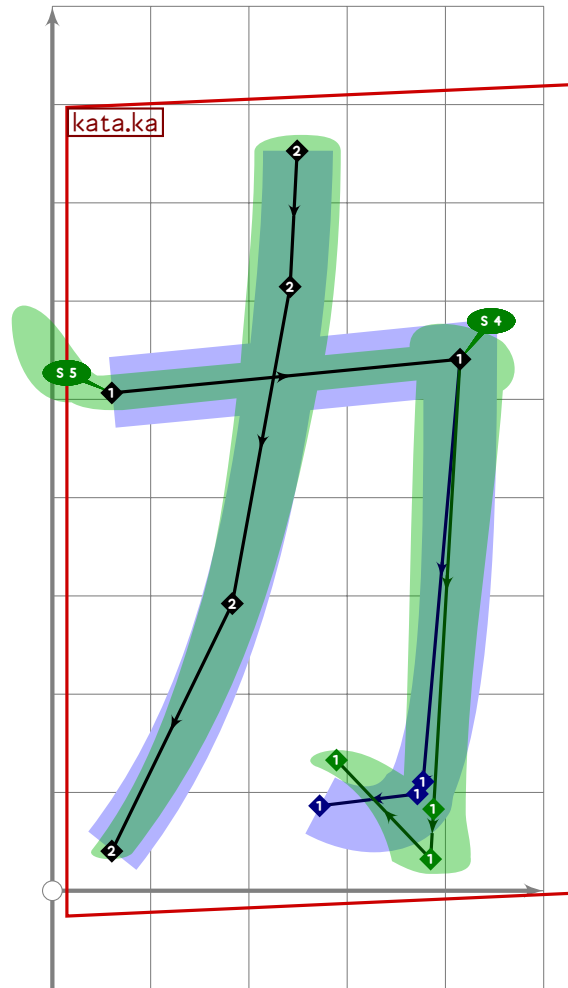


```

836 % katakana "o"
837 begintsuglyph("uniFF75";117);
838 kata.o;
839 tsu_render;
840 endsuglyph;
841

```

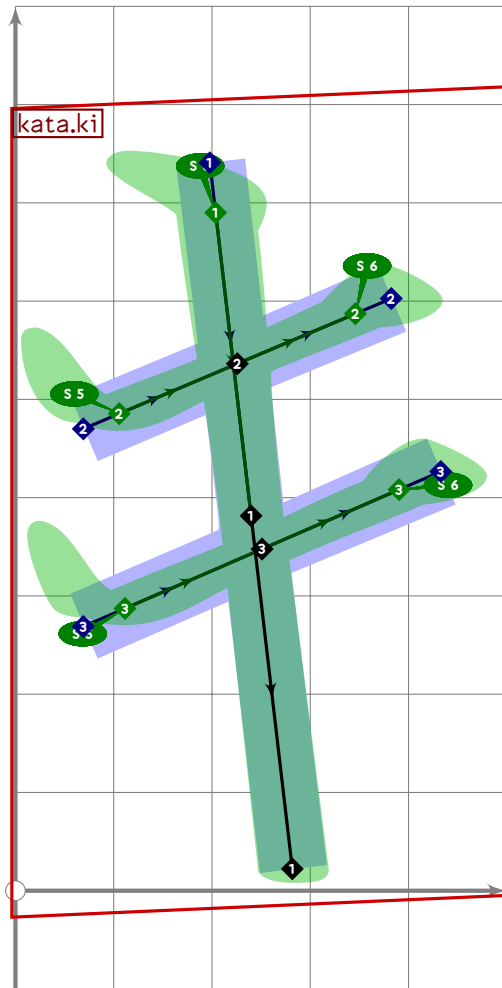




```

842 % katakana "ka"
843 begint Suglyph("uniFF76";118);
844 kata.ka;
845 tsu_render;
846 endtsuglyph;
847

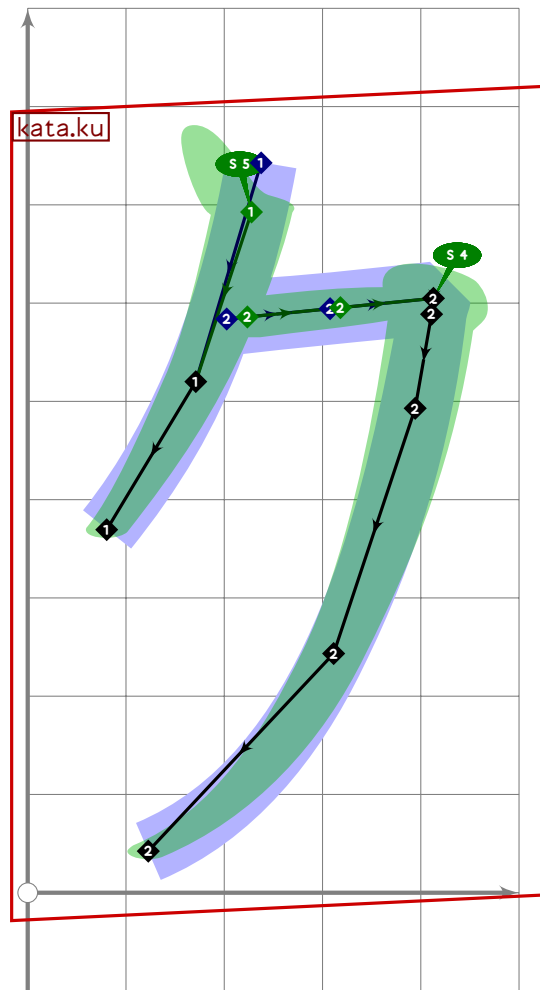
```



```

848 % katakana "ki"
849 begint Suglyph("uniFF77",119);
850 kata.ki;
851 tsu_render;
852 endsuglyph;
853

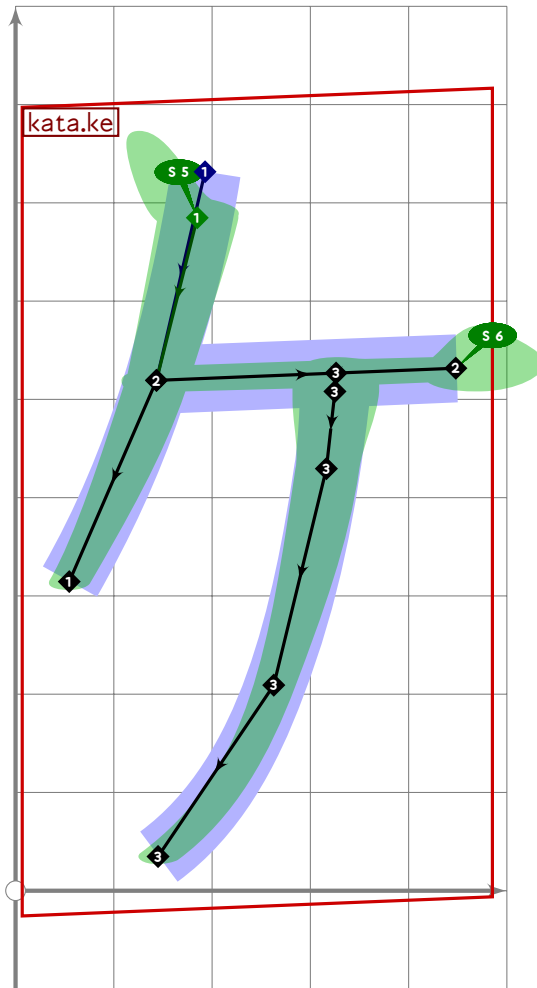
```



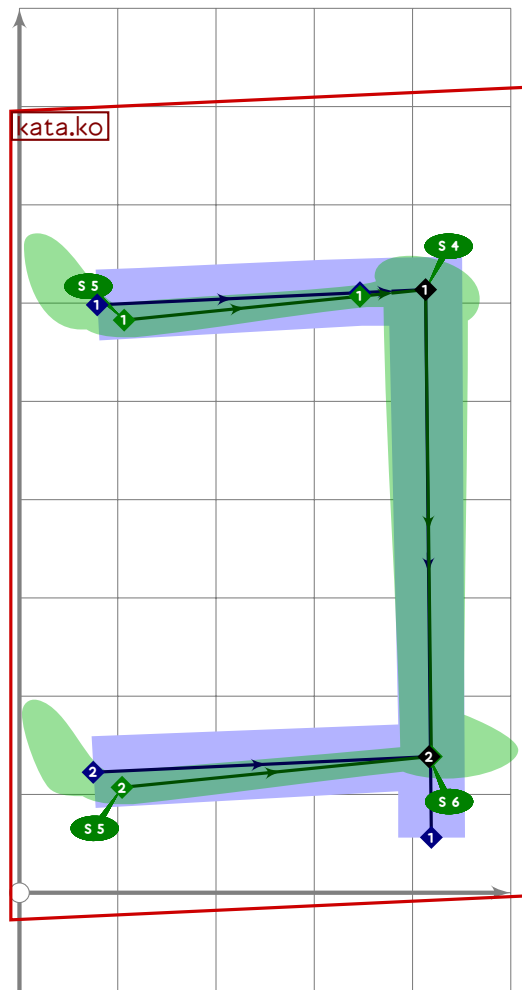
```

854 % katakana "ku"
855 begintsuglyph("uniFF78",120);
856 kata.ku;
857 tsu_render;
858 endsuglyph;
859

```



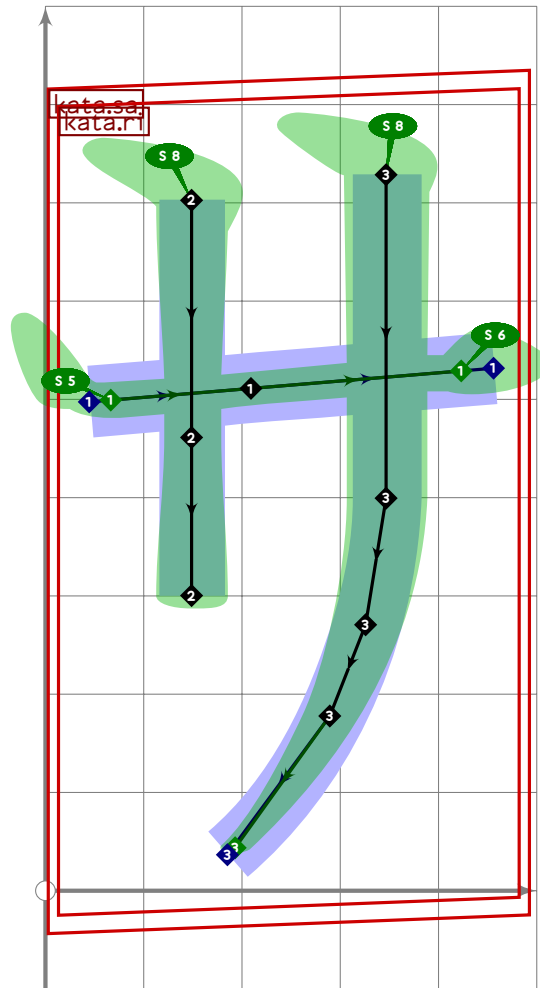
```
860 % katakana "ke"  
861 begintsuglyph("uniFF79",121);  
862 kata.ke;  
863 tsu_render;  
864 endsuglyph;  
865
```



```

866 % katakana "ko"
867 begint Suglyph("uniFF7A";122);
868 kata.ko;
869 tsu_render;
870 endtsuglyph;
871

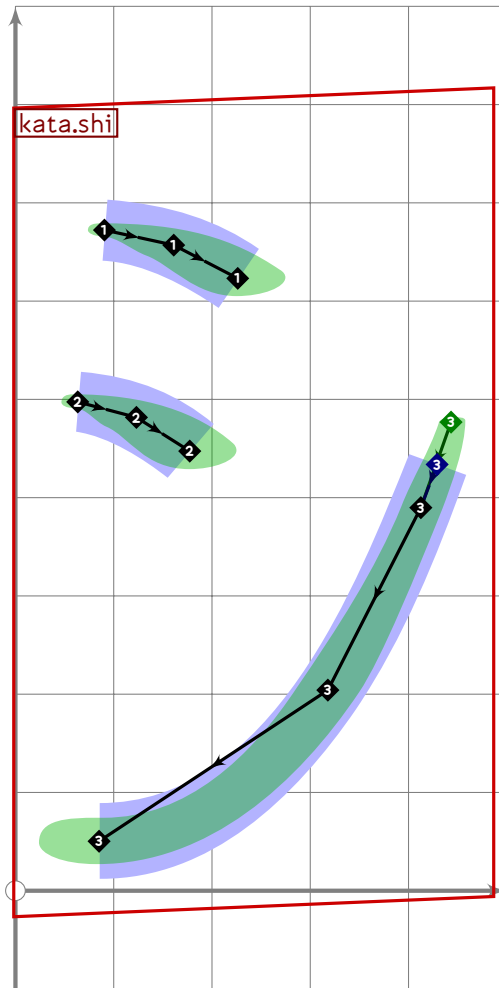
```



```

872 % katakana "sa"
873 begintsuglyph("uniFF7B",123);
874 kata.sa;
875 tsu_render;
876 endsuglyph;
877

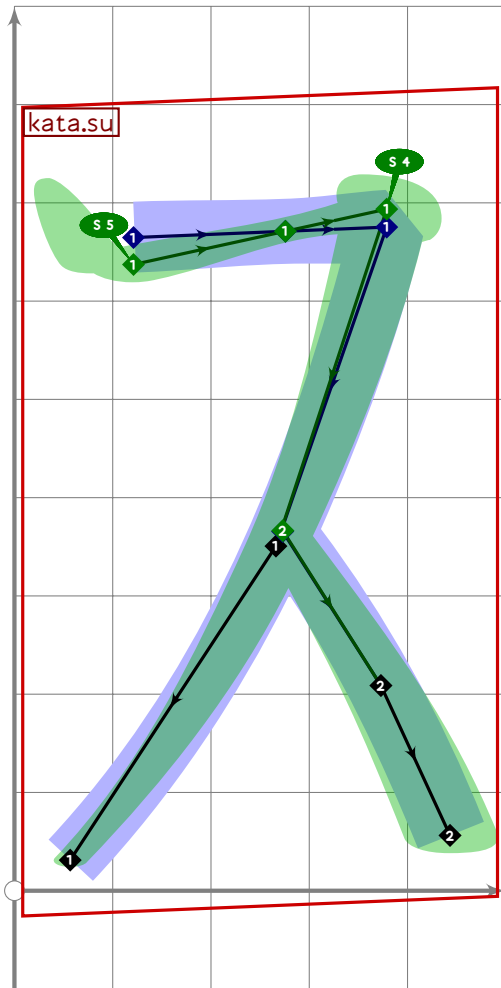
```



```

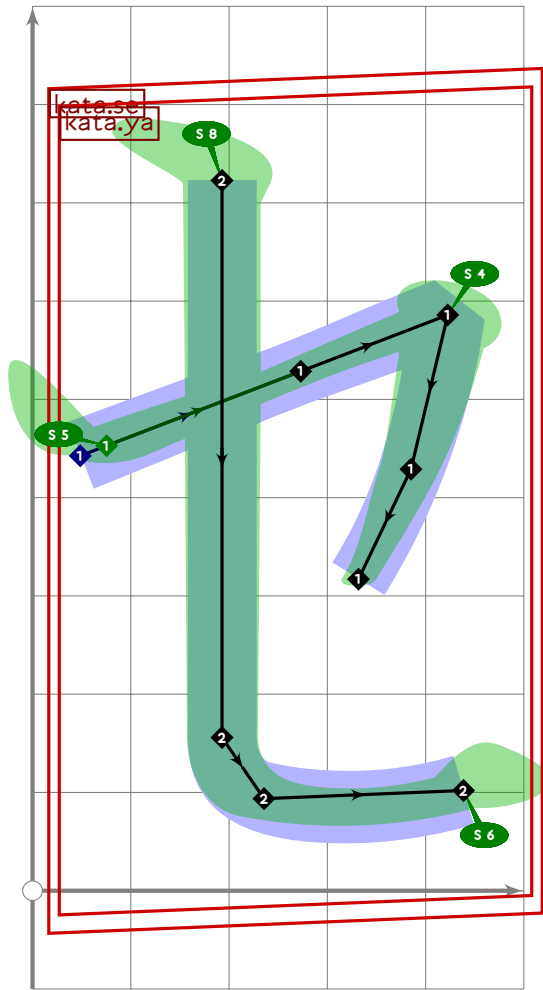
878 % katakana "shi"
879 begint Suglyph("uniFF7C",124);
880 kata.shi;
881 tsu_render;
882 endtsuglyph;
883

```



```
884 % katakana "su"  
885 begintsuglyph("uniFF7D",125);  
886 kata.su;  
887 tsu_render;  
888 endsuglyph;  
889
```

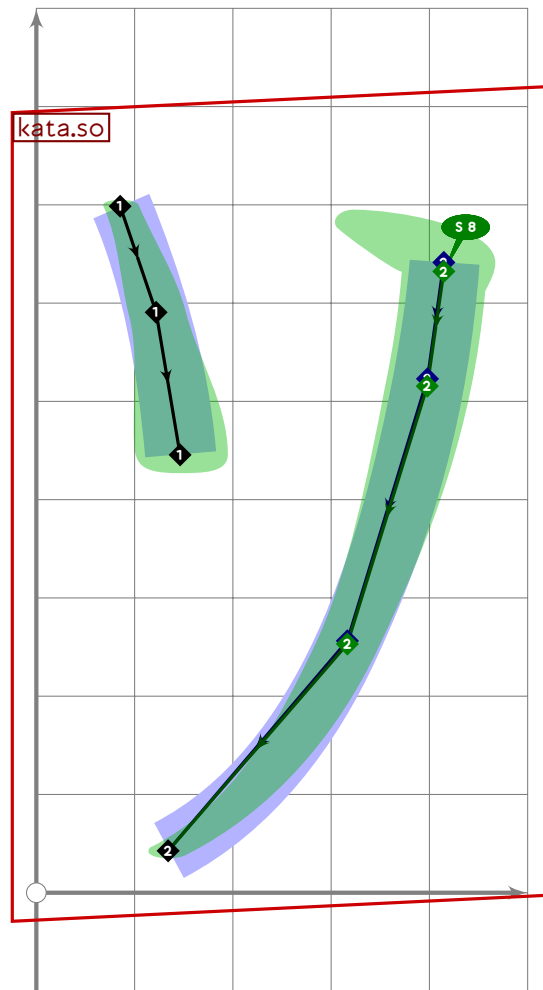




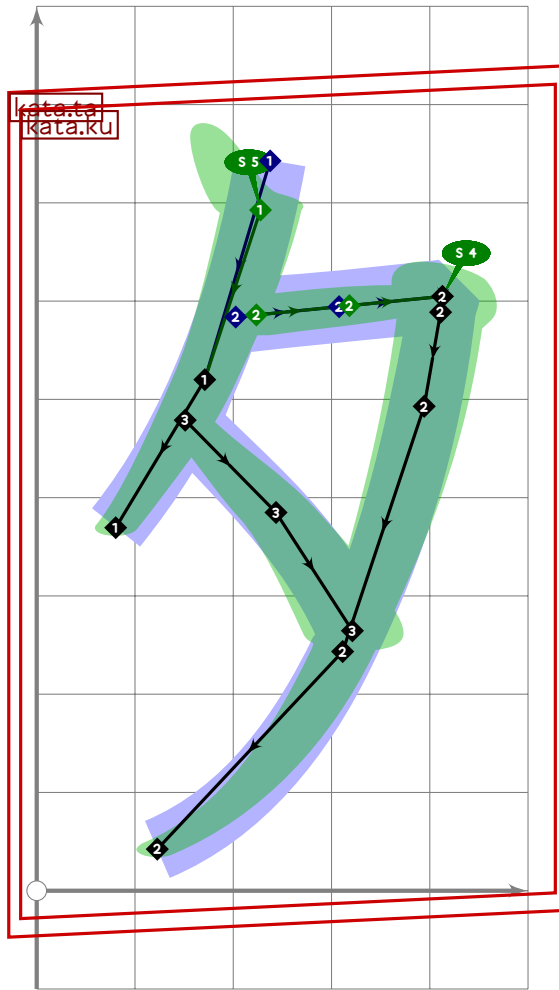
```

890 % katakana "se"
891 begint Suglyph("uniFF7E";126);
892 kata.se;
893 tsu_render;
894 endtsuglyph;
895

```



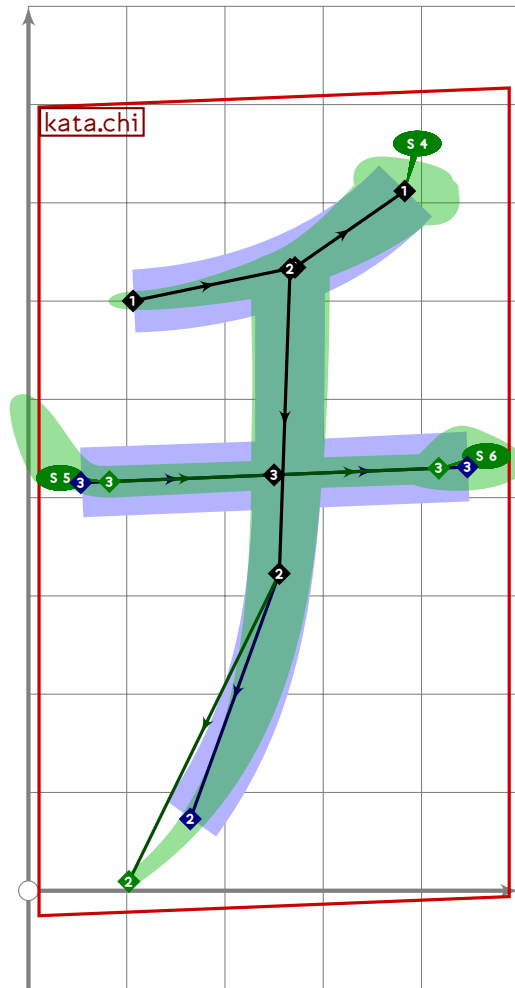
```
896 % katakana "so"  
897 begint Suglyph("uniFF7F",127);  
898 kata.so;  
899 tsu_render;  
900 endtsuglyph;  
901
```



```

902 % katakana "ta"
903 begint Suglyph("uniFF80",128);
904 kata.ta;
905 tsu_render;
906 endtsuglyph;
907

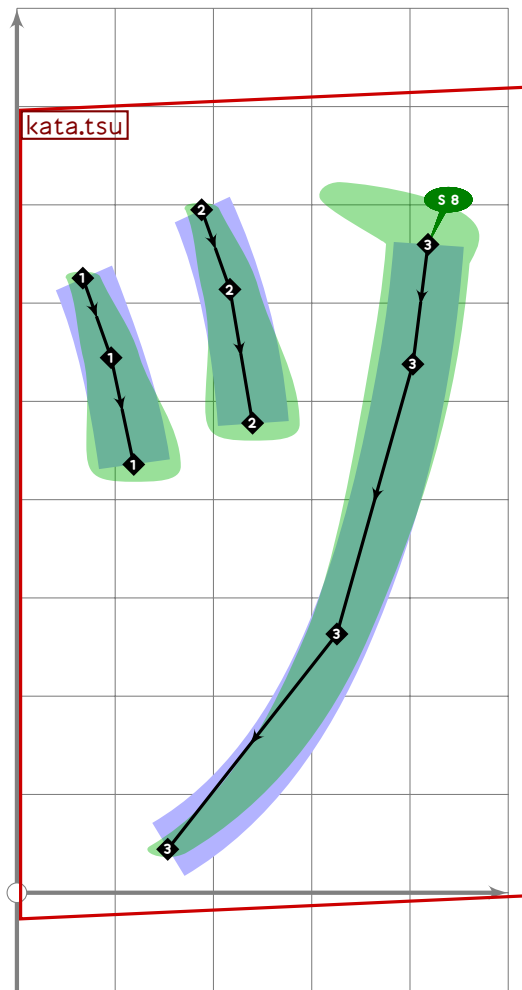
```



```

908 % katakana "chi"
909 begintsuglyph("uniFF81";129);
910 kata.chi;
911 tsu_render;
912 endsuglyph;
913

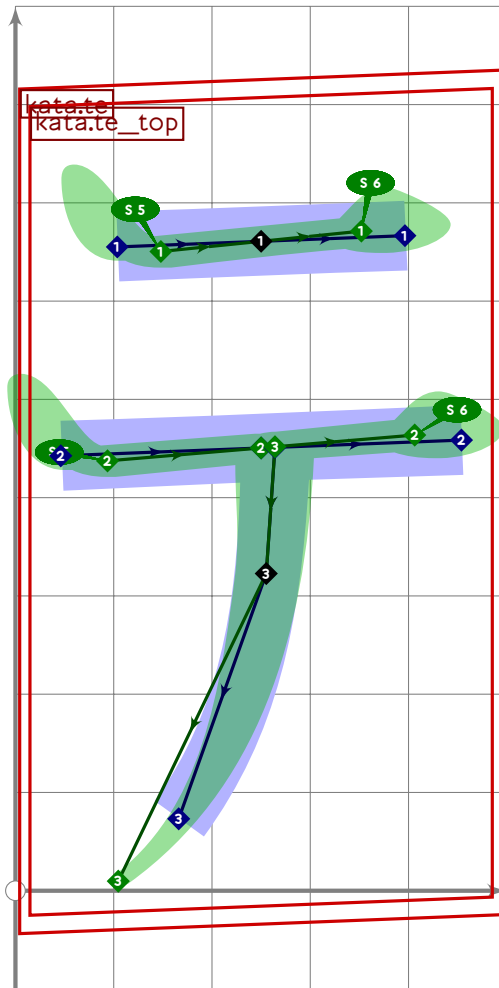
```



```

914 % katakana "tsu"
915 begint Suglyph("uniFF82",130);
916 kata.tsu;
917 tsu_render;
918 endtsuglyph;
919

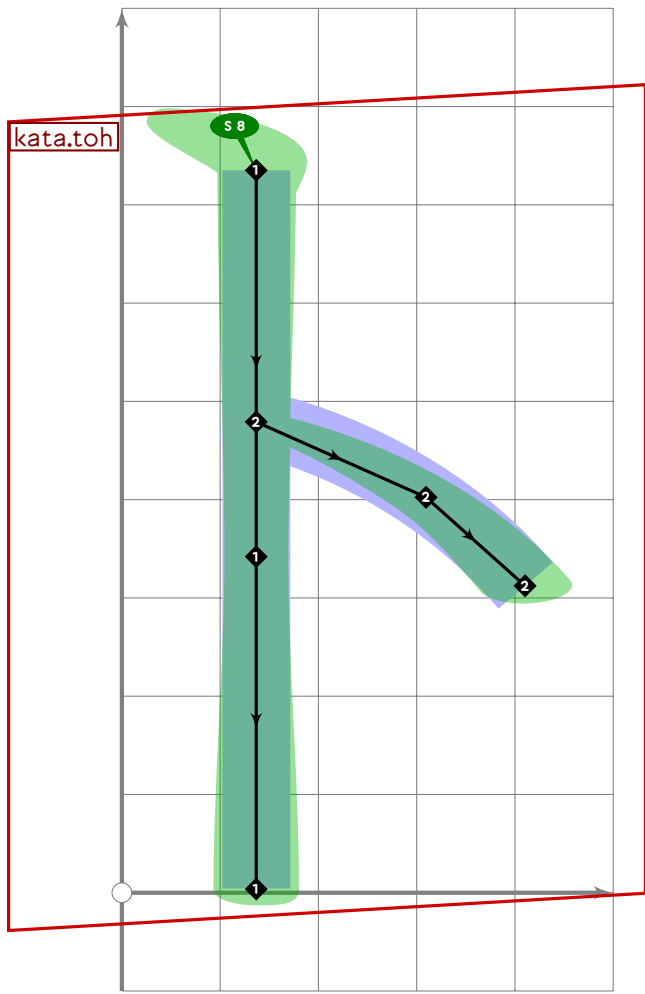
```



```

920 % katakana "te"
921 begint Suglyph("uniFF83",131);
922 kata.te;
923 tsu_render;
924 endtsuglyph;
925

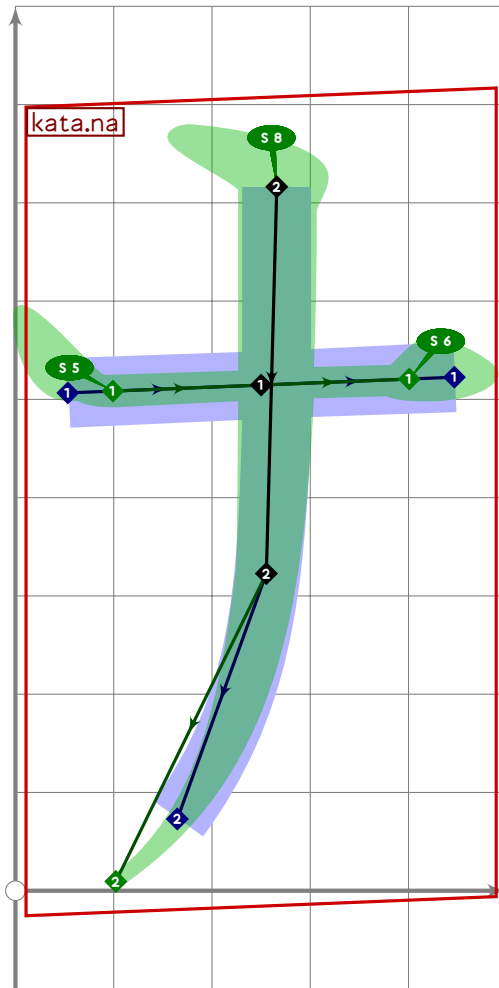
```



```

926 % katakana "to"
927 beginsuglyph("uniFF84",132);
928 kata.toh;
929 tsu_render;
930 endsuglyph;
931

```

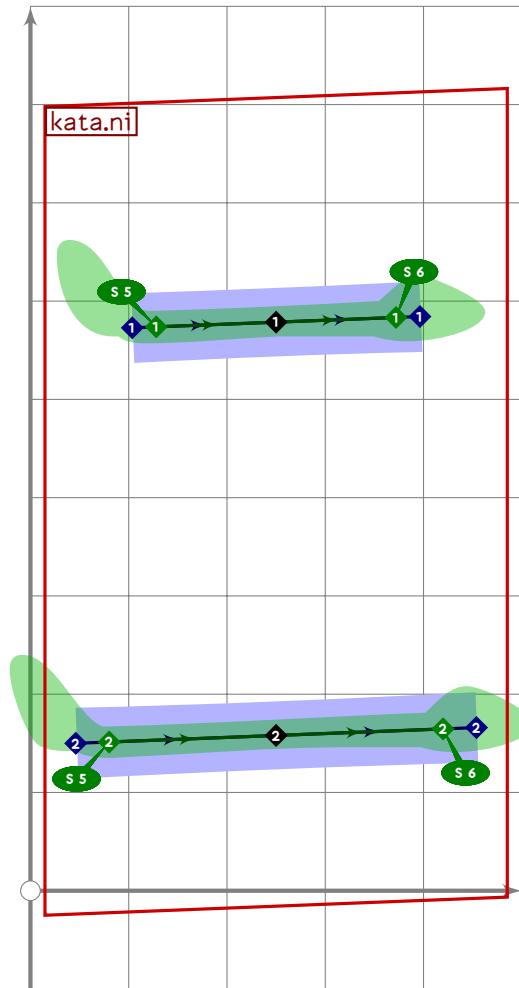


```

932 % katakana "na"
933 begintsuglyph("uniFF85";133);
934 kata.na;
935 tsu_render;
936 endsuglyph;
937

```

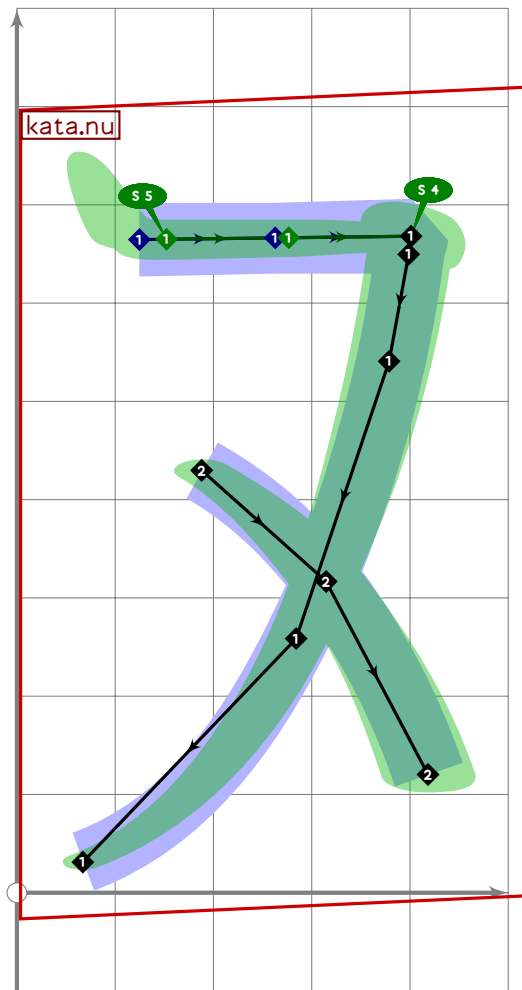




```

938 % katakana "ni"
939 begintsuglyph("uniFF86",134);
940 kata.ni;
941 tsu_render;
942 endsuglyph;
943

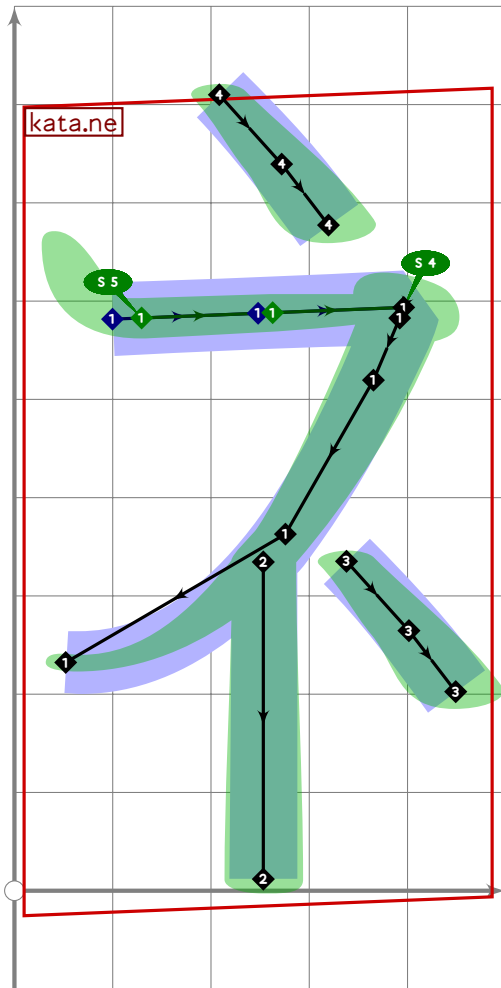
```



```

944 % katakana "nu"
945 begintsuglyph("uniFF87",135);
946 kata.nu;
947 tsu_render;
948 endsuglyph;
949

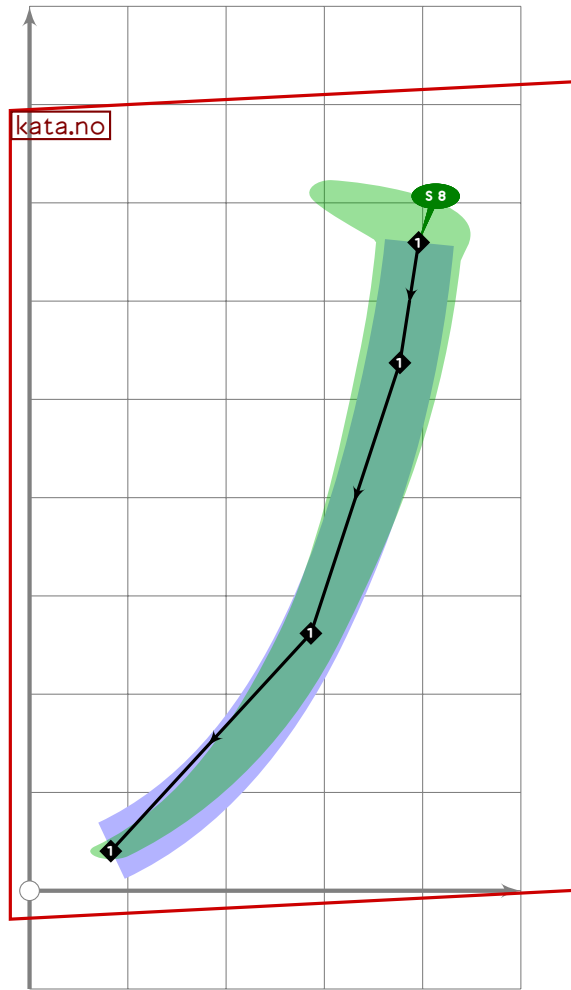
```



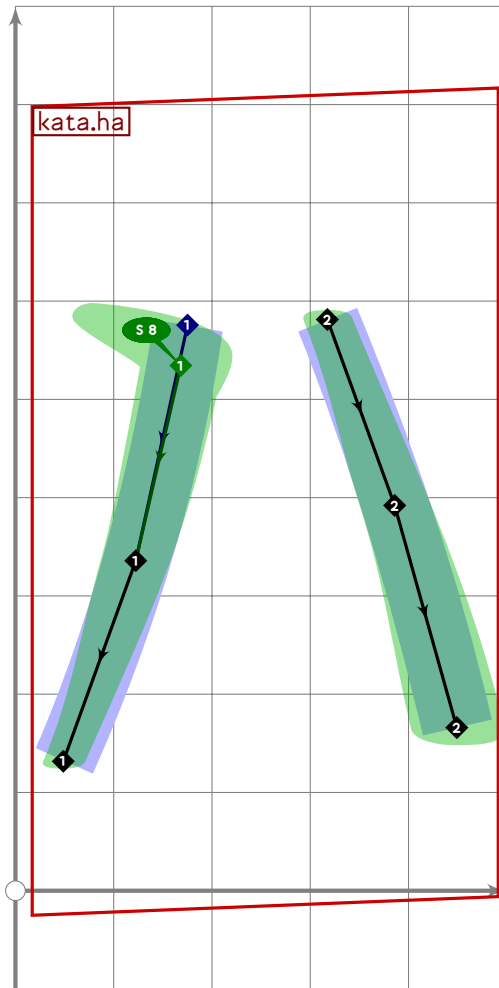
```

950 % katakana "ne"
951 begint Suglyph("uniFF88",136);
952 kata.ne;
953 tsu_render;
954 endtsuglyph;
955

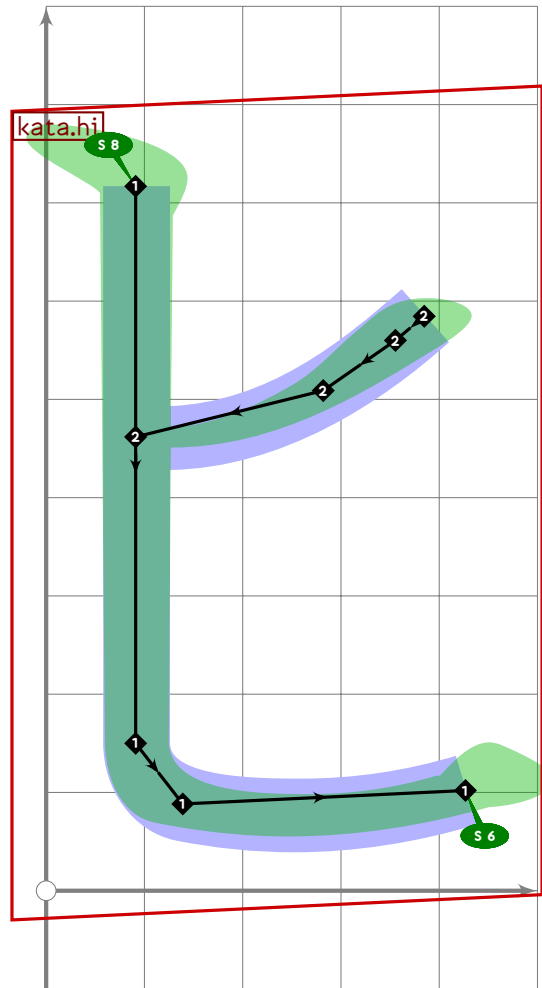
```



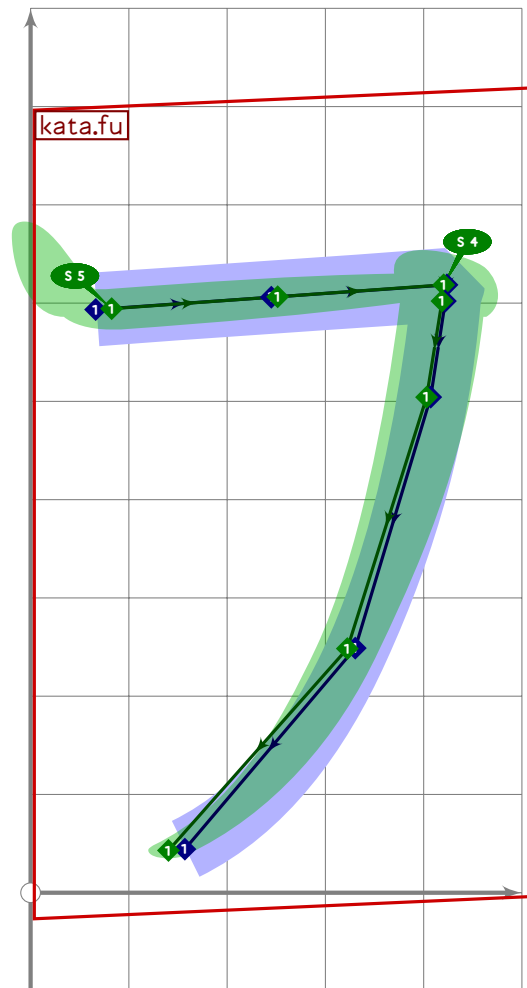
```
956 % katakana "no"  
957 begintsuglyph("uniFF89",137);  
958 kata.no;  
959 tsu_render;  
960 endsuglyph;  
961
```



```
962 % katakana "ha"  
963 begintsuglyph("uniFF8A",138);  
964 kata.ha;  
965 tsu_render;  
966 endsuglyph;  
967
```



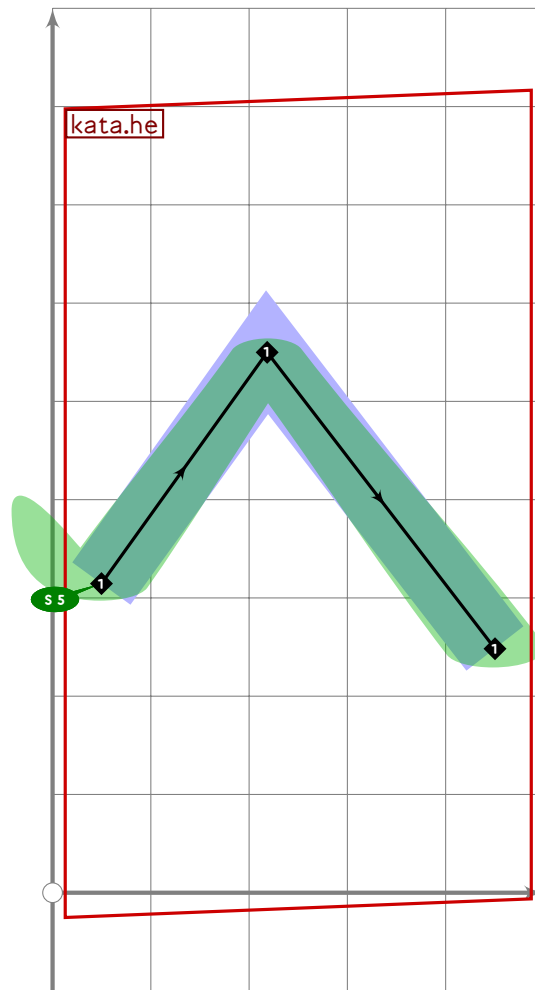
```
968 % katakana "hi"  
969 begintsuglyph("uniFF8B",139);  
970 kata.hi;  
971 tsu_render;  
972 endtsuglyph;  
973
```



```

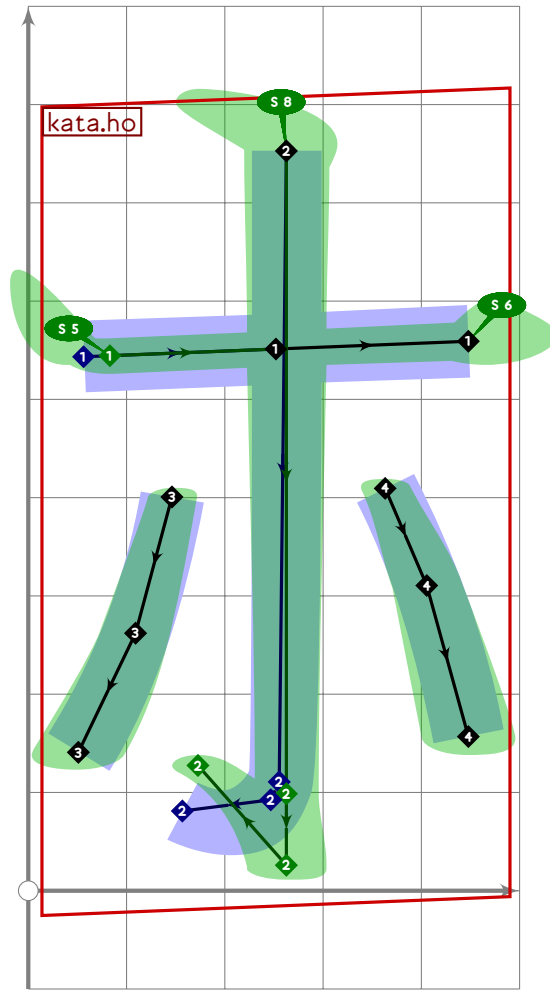
974 % katakana "fu"
975 begintsuglyph("uniFF8C",140);
976 kata.fu;
977 tsu_render;
978 endtsuglyph;
979

```



```
980 % katakana "he"  
981 begintsuglyph("uniFF8D",141);  
982 kata.he;  
983 tsu_render;  
984 endtsuglyph;  
985
```

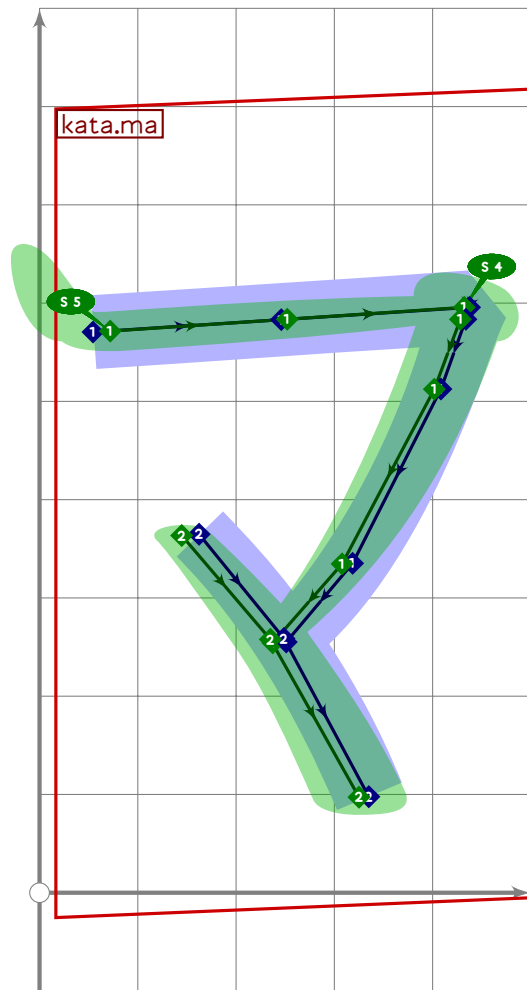




```

986 % katakana "ho"
987 begint Suglyph("uniFF8E",142);
988 kata.ho;
989 tsu_render;
990 endtsuglyph;
991

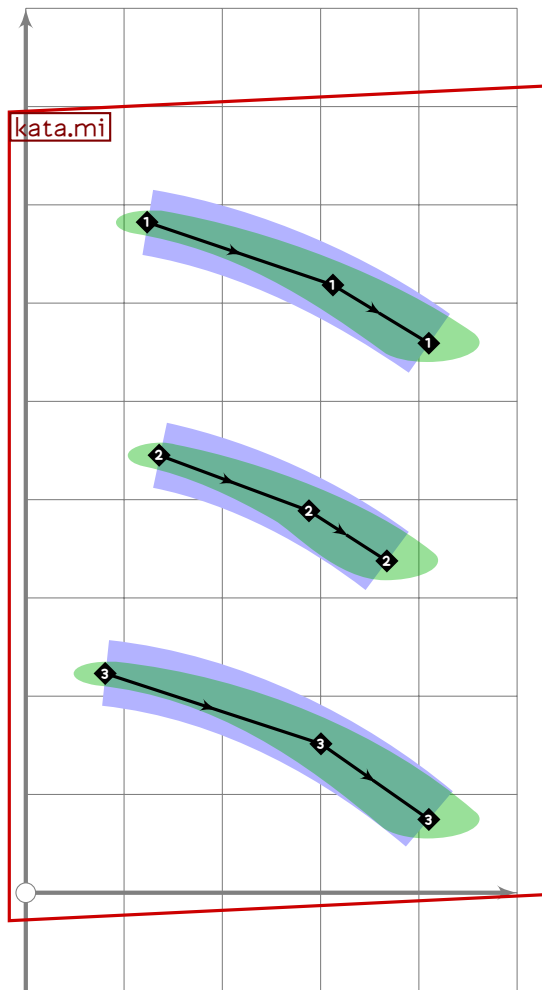
```



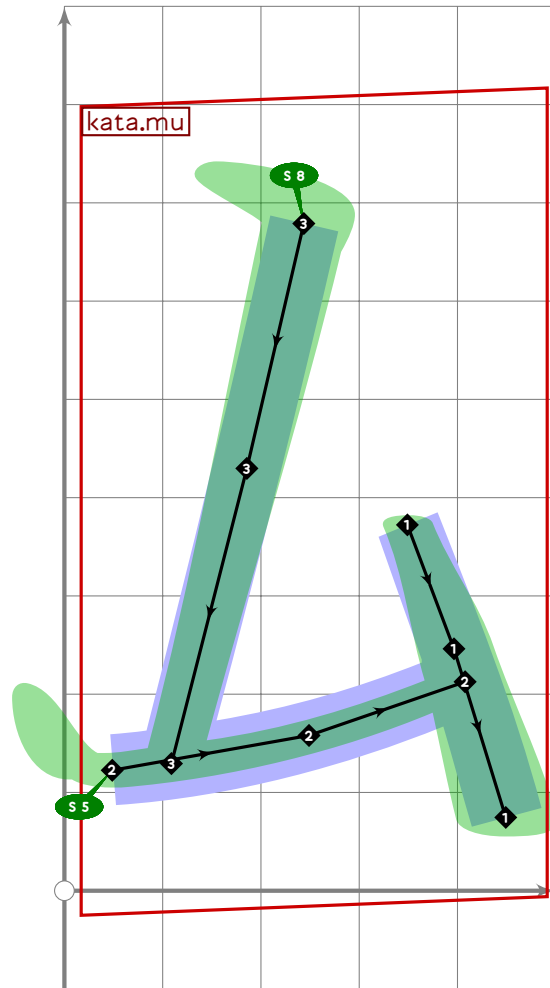
```

992 % katakana "ma"
993 begint Suglyph("uniFF8F",143);
994 kata.ma;
995 tsu_render;
996 endtsuglyph;
997

```



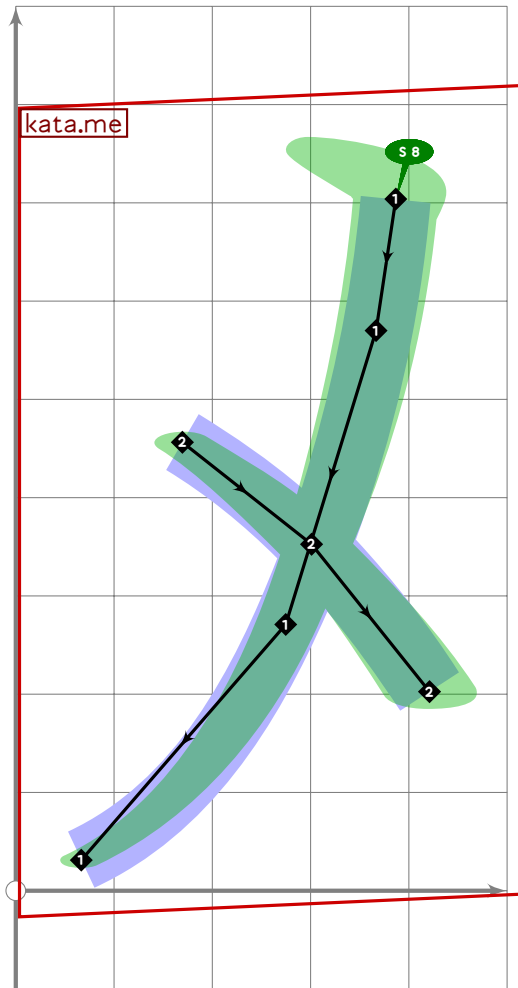
```
998 % katakana "mi"  
999 begintsuglyph("uniFF90",144);  
1000 kata.mi;  
1001 tsu_render;  
1002 endtsuglyph;  
1003
```



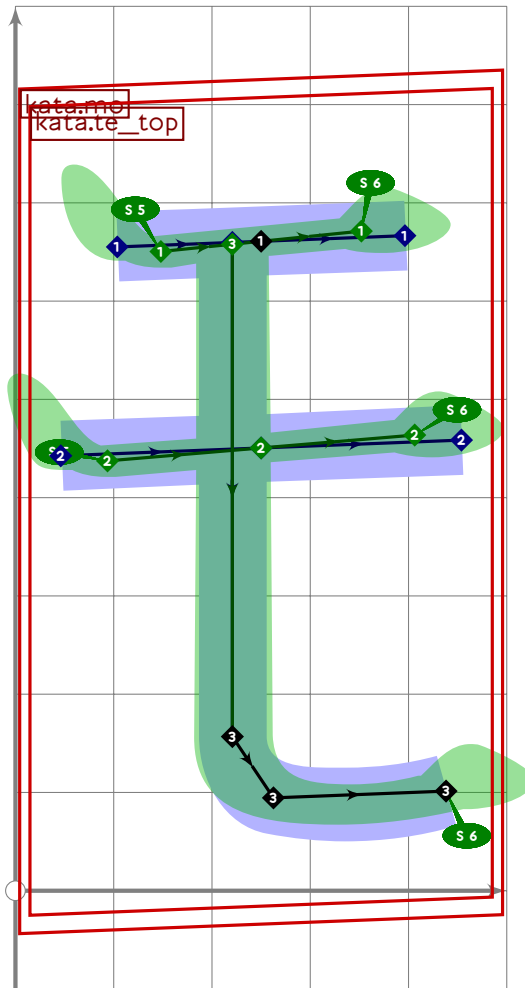
```

1004 % katakana "mu"
1005 begintsuglyph("uniFF91";145);
1006 kata.mu;
1007 tsu_render;
1008 endsuglyph;
1009

```



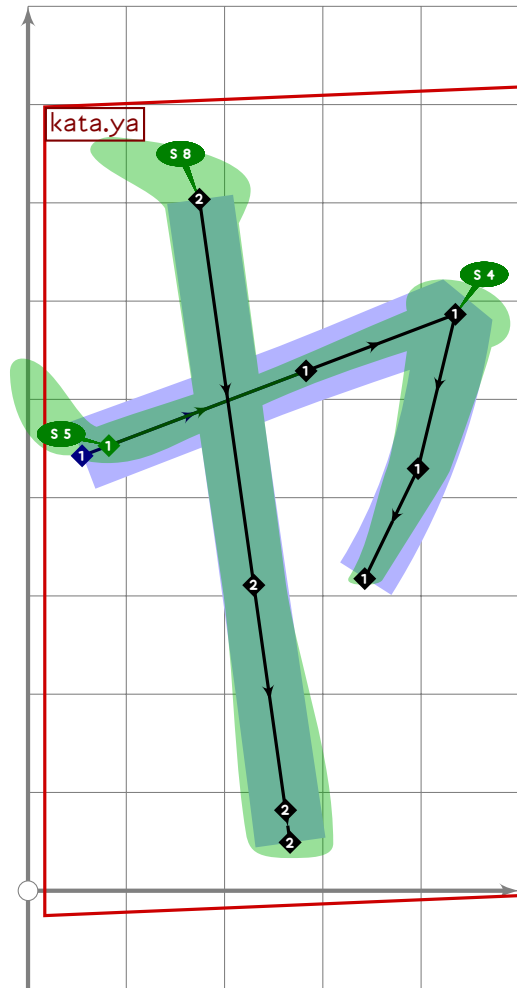
```
1010 % katakana "me"  
1011 begintsuglyph("uniFF92";146);  
1012 kata.me;  
1013 tsu_render;  
1014 endsuglyph;  
1015
```



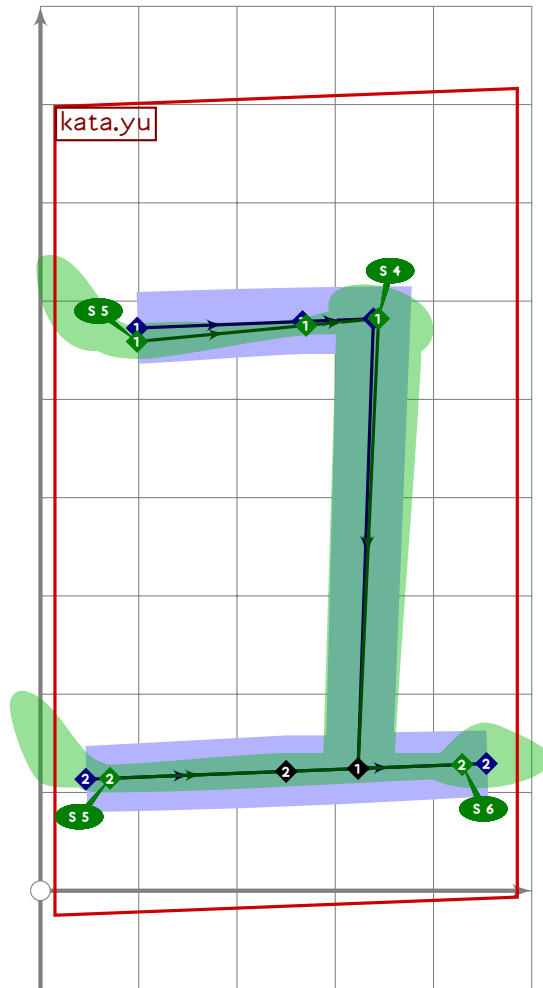
```

1016 % katakana "mo"
1017 begintsuglyph("uniFF93";147);
1018 kata.mo;
1019 tsu_render;
1020 endsuglyph;
1021

```



```
1022 % katakana "ya"  
1023 begintsuglyph("uniFF94",148);  
1024 kata.ya;  
1025 tsu_render;  
1026 endsuglyph;  
1027
```

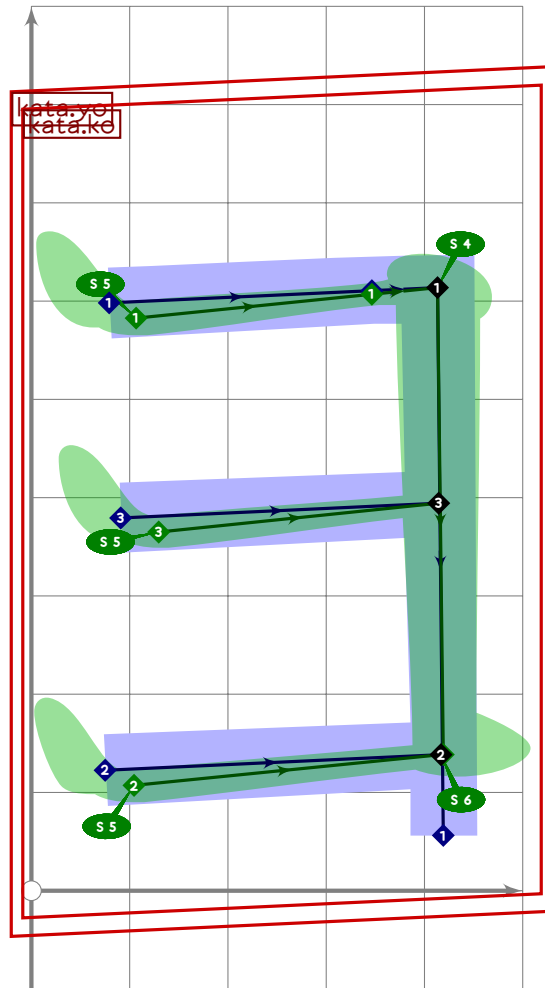


```

1028 % katakana "yu"
1029 begint Suglyph("uniFF95";149);
1030 kata.yu;
1031 tsu_render;
1032 endtsuglyph;
1033

```

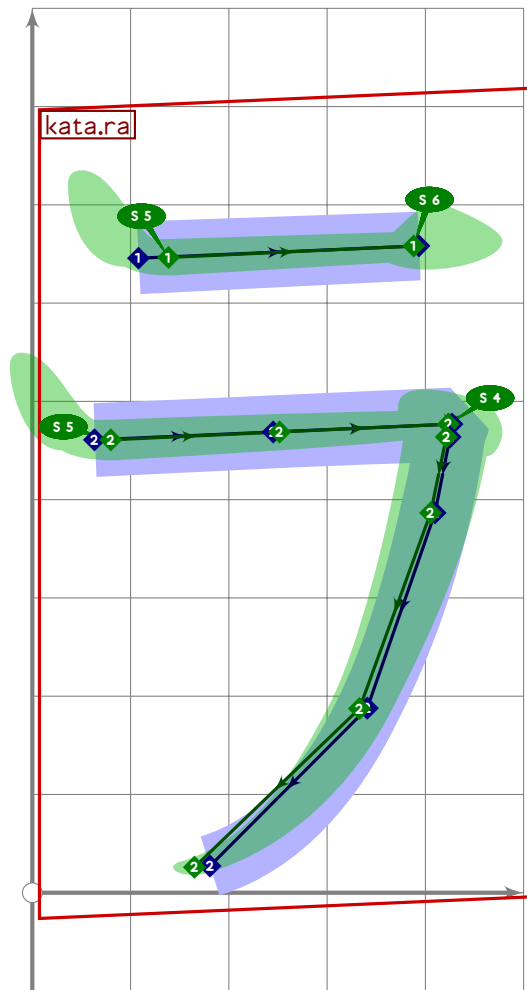




```

1034 % katakana "yo"
1035 begintsuglyph("uniFF96",150);
1036 kata.yo;
1037 tsu_render;
1038 endsuglyph;
1039

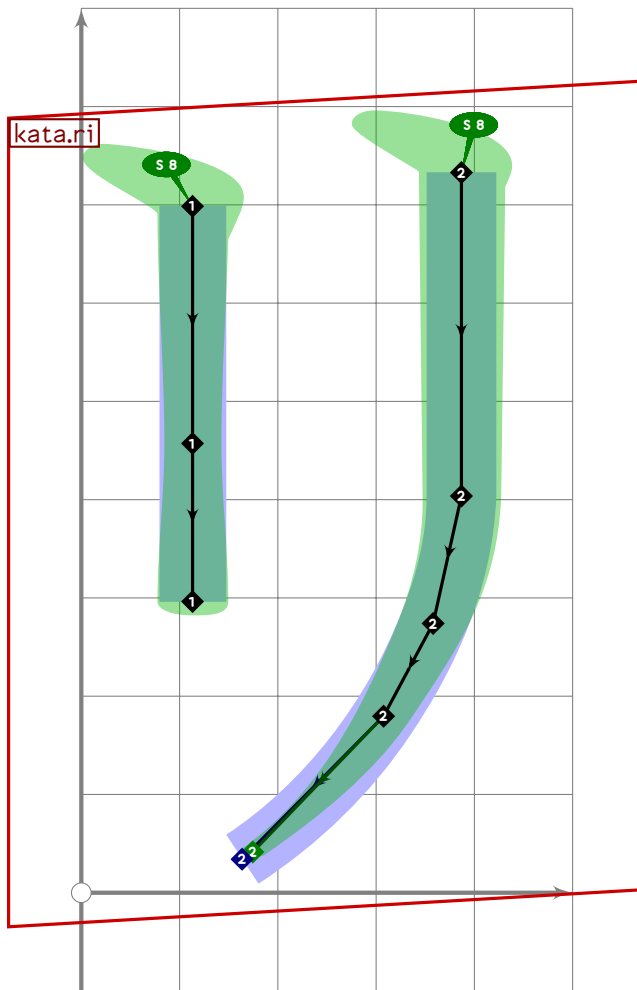
```



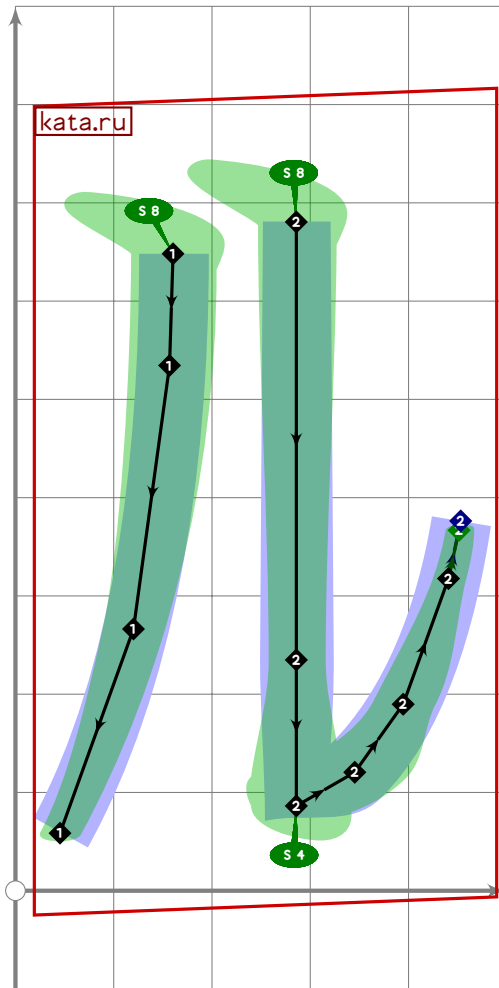
```

1040 % katakana "ra"
1041 begintsuglyph("uniFF97",151);
1042 kata.ra;
1043 tsu_render;
1044 endsuglyph;
1045

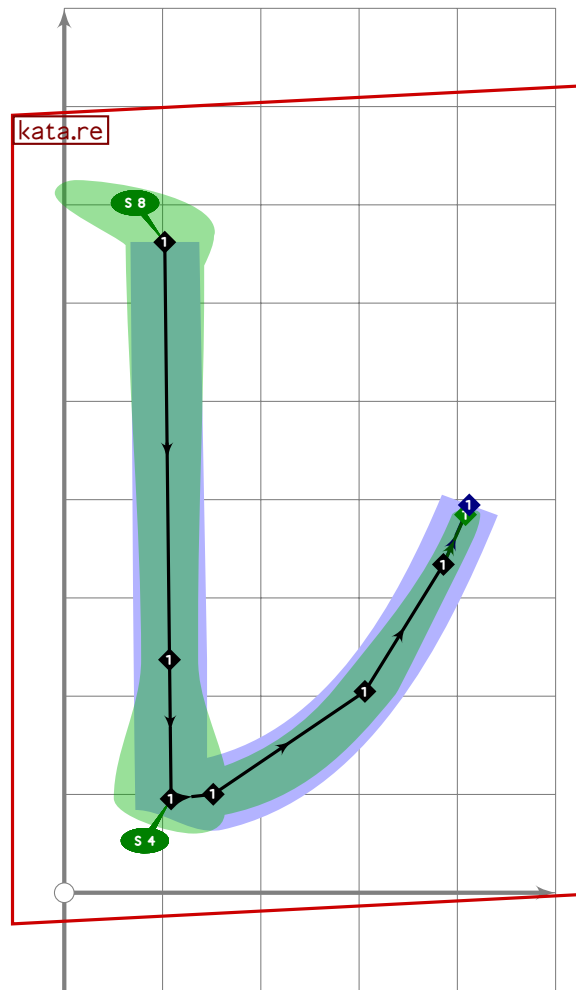
```



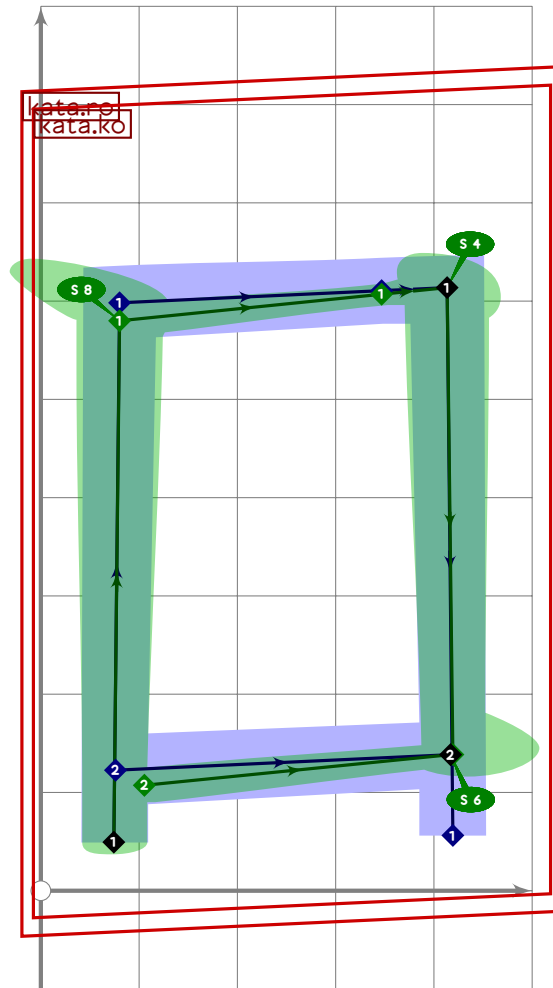
```
1046 % katakana "ri"  
1047 begintsuglyph("uniFF98",152);  
1048 kata.ri;  
1049 tsu_render;  
1050 endsuglyph;  
1051
```



```
1052 % katakana "ru"  
1053 begintsuglyph("uniFF99",153);  
1054 kata.ru;  
1055 tsu_render;  
1056 endsuglyph;  
1057
```



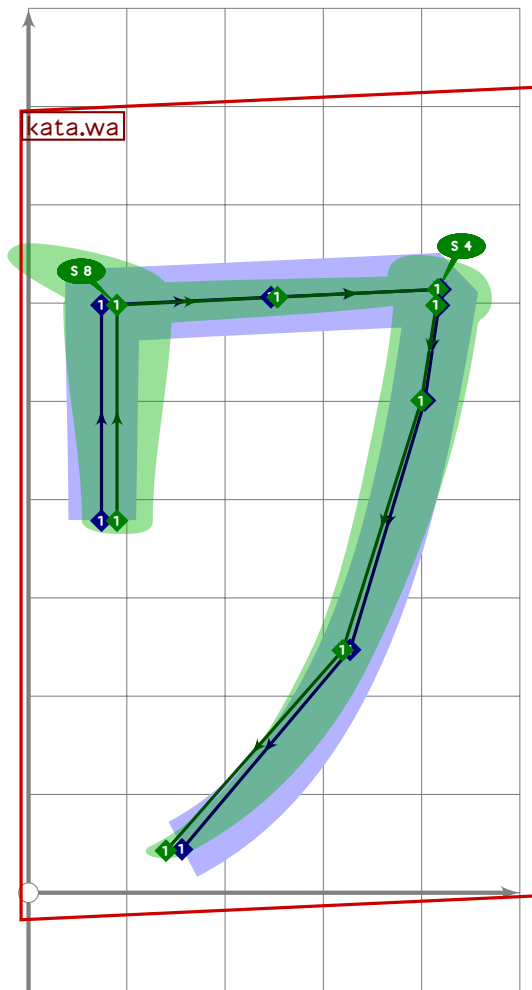
```
1058 % katakana "re"  
1059 begintsuglyph("uniFF9A",154);  
1060 kata.re;  
1061 tsu_render;  
1062 endsuglyph;  
1063
```



```

1064 % katakana "ro"
1065 begintsuglyph("uniFF9B",155);
1066 kata.ro;
1067 tsu_render;
1068 endsuglyph;
1069

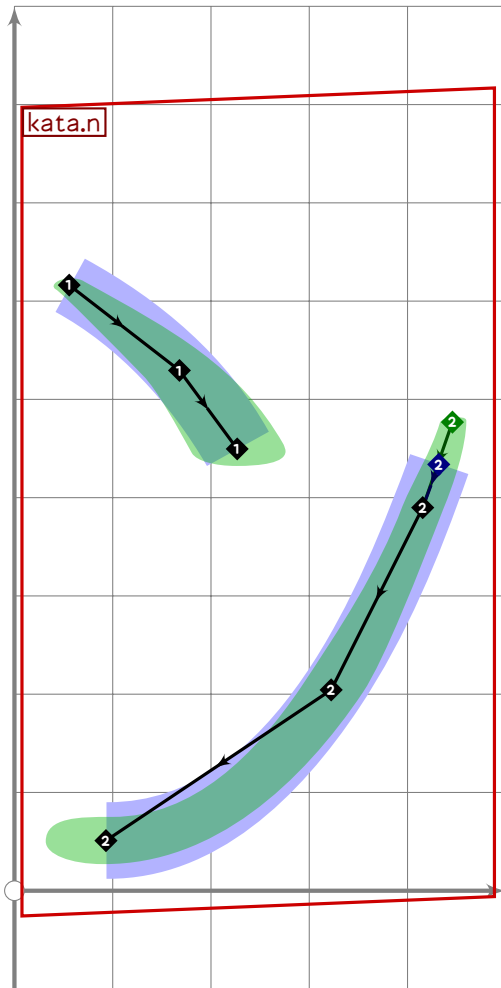
```



```

1070 % katakana "wa"
1071 begintsuglyph("uniFF9C";156);
1072 kata.wa;
1073 tsu_render;
1074 endsuglyph;
1075

```

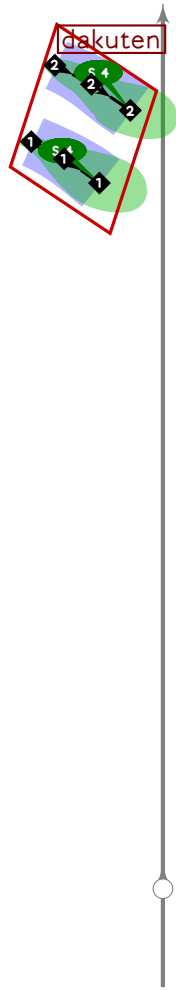


```

1076 % katakana "n"
1077 begintsuglyph("uniFF9D";157);
1078 kata.n;
1079 tsu_render;
1080 endsuglyph;
1081
1082 % WARNING changing rescale setting
1083 tsu_rescale_native_zero;
1084

```

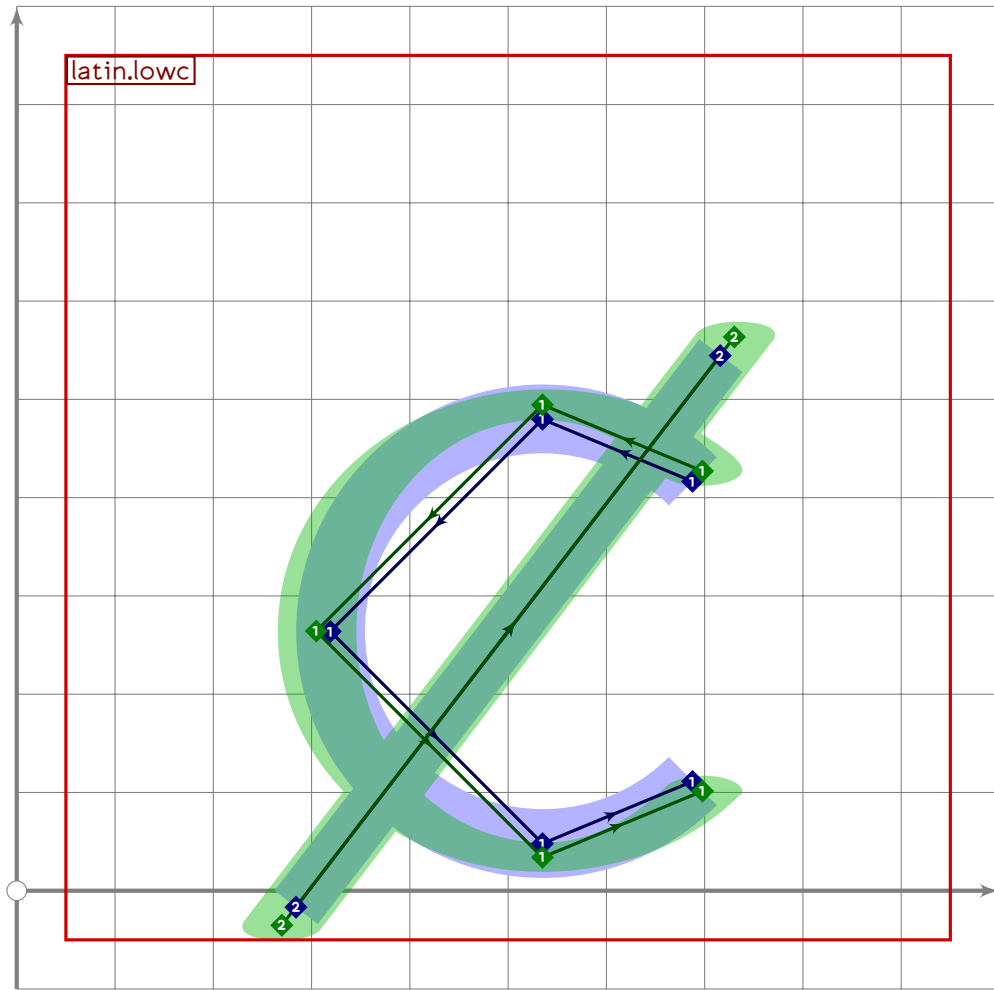




```
1085 % combining dakuten
1086 beginsuglyph("uniFF9E",158);
1087     dakuten(identity
1088         scaled 0.8 rotated 25 shifted (-130,780) xscaled 0.7);
1089     tsu_render;
1090 endsuglyph;
1091
```



```
1092 % combining handakuten
1093 begintsuglyph("uniFF9F",159);
1094   Fill fullcircle scaled (handakuten_outer*0.75) shifted (-90,780);
1095   unFill reverse fullcircle scaled (handakuten_inner*0.75) shifted (-90,780);
1096 endsuglyph;
1097
1098 % WARNING changing rescale setting
1099 tsu_rescale_full;
```

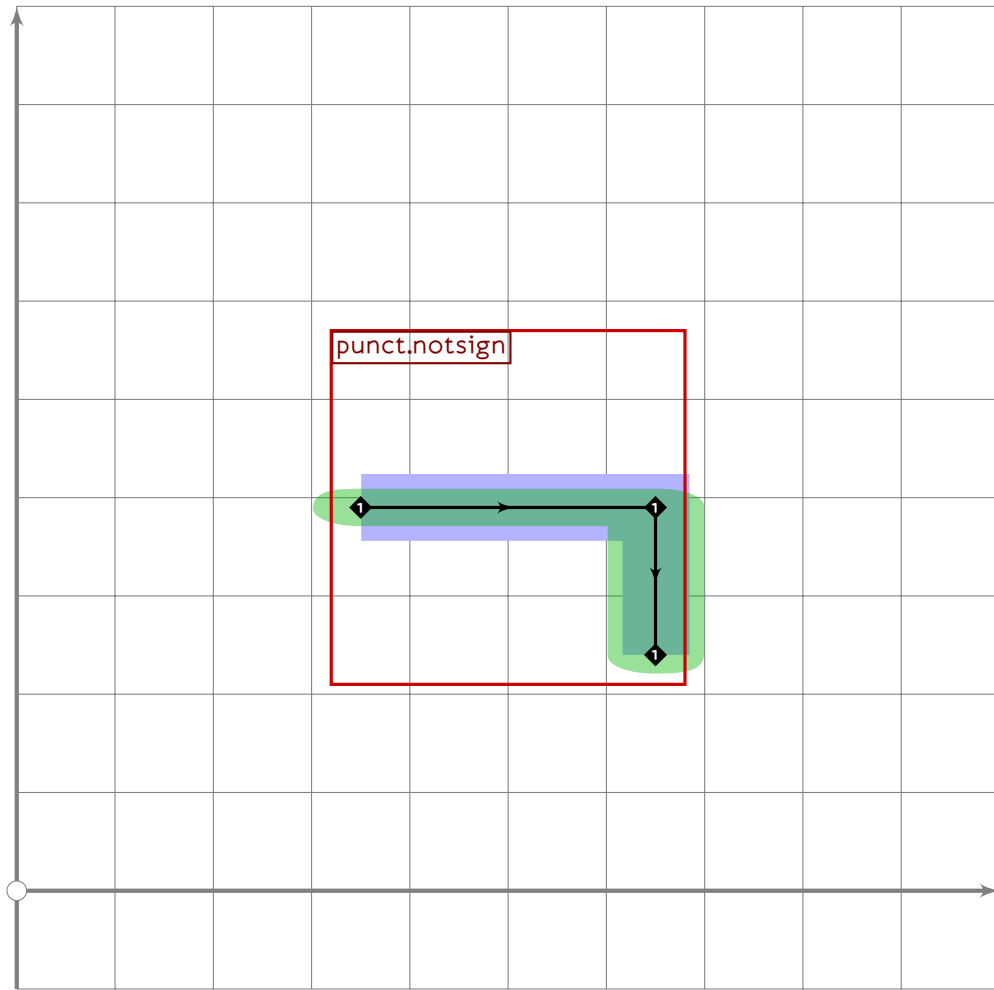


```

1100
1101 begintsuglyph("uniFFE0",224);
1102 tsu_accent.apply(latin.lowc)(tsu_accent.slash);
1103 tsu_render;
1104 endtsuglyph;
1105
1106 begintsuglyph("uniFFE1",225);
1107 punct.pound;
1108 tsu_render;
1109 endtsuglyph;

```

[see page 304]



```

1110
1111 begintsuglyph("uniFFE2";226);
1112 punct.notsign
1113 (identity scaled (1.5*tsu_punct_size) shifted centre_pt);
1114 tsu_render;
1115 endsuglyph;

```

```

1116
1117 begintsuglyph("uniFFE3";227);
1118 tsu_accent.macron;
1119 tsu_render;
1120 endsuglyph;

```

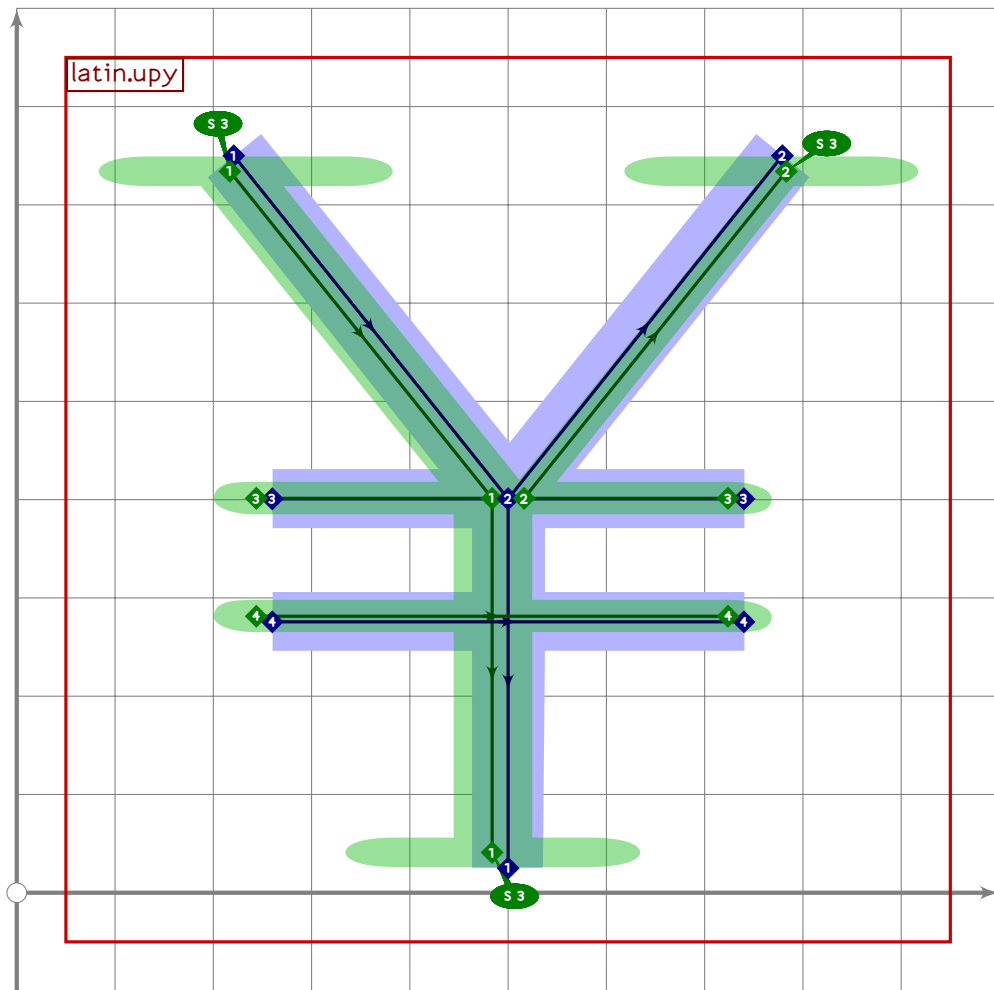
[see page 51]

```

1121
1122 begintsuglyph("uniFFE4";228);
1123 punct.bvline;
1124 tsu_render;
1125 endsuglyph;

```

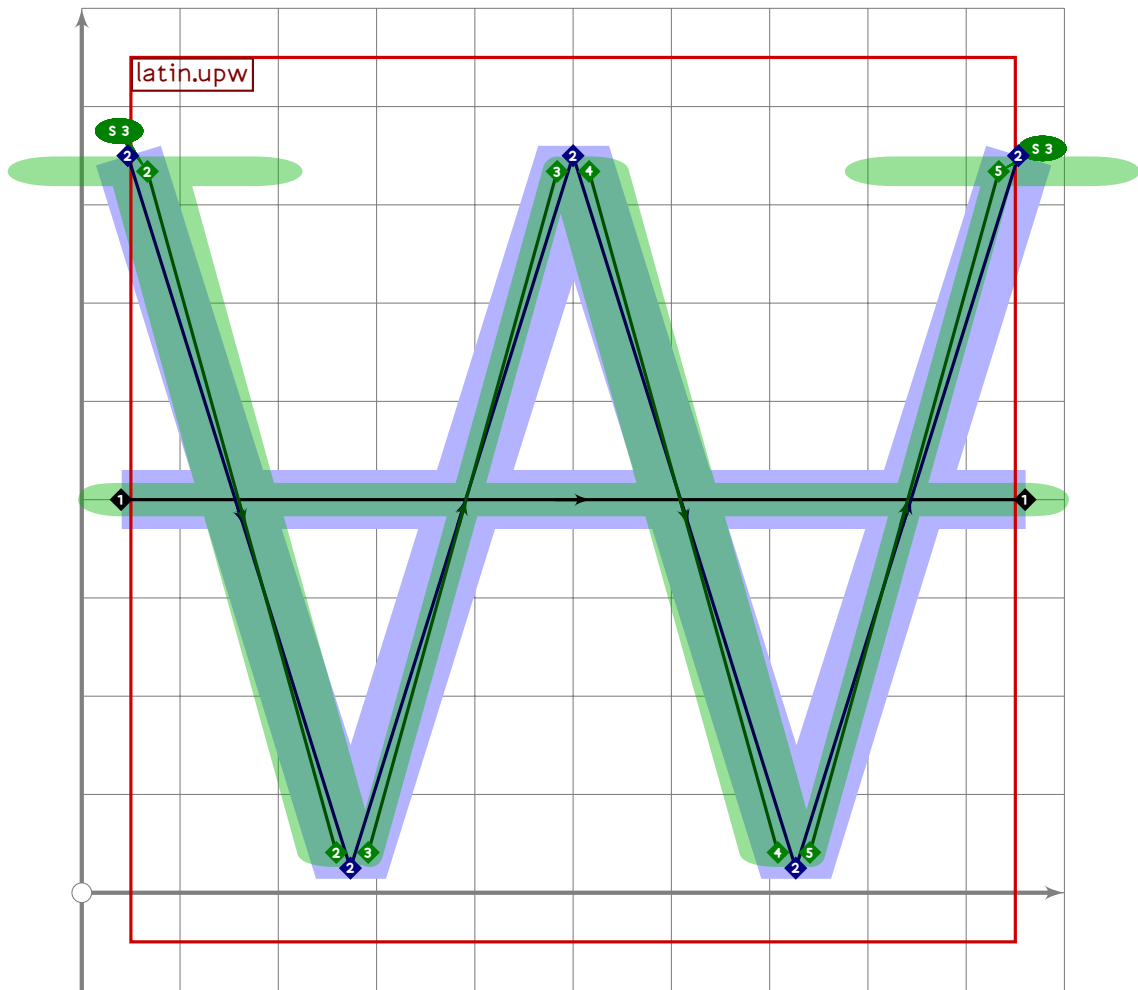
[see page 279]



```

1126
1127 begintsuglyph("uniFFE5";229);
1128   latin.upy;
1129   push_stroke(((-240,0)-(240,0)) shifted point 1 of get_stroke(-1),
1130     (2,2)-(2,2));
1131   set_bosize(0,80);
1132   push_stroke(((-240,0)-(240,0)) shifted point 1.333 of get_stroke(-2),
1133     (2,2)-(2,2));
1134   set_bosize(0,80);
1135   tsu_render;
1136 endtsuglyph;

```



```

1137
1138 begintsuglyph("uniFFE6",230);
1139 push_stroke((40,400)-(960,400),(2,2)-(2,2);
1140 set_bosize(0,80);
1141 latin.upw;
1142 tsu_render;
1143 endsuglyph;
1144
1145 _____
1146
1147 endfont;
1148
1149 _____

```

# tsuku-1f1.mp

```
1 % Unicode page 1F1 (Enclosed Supplement) for Tsukurimashou
2 % Copyright (C) 2011 Matthew Skala
3 %
4-28 [Standard copyright notice]
29
30 

---

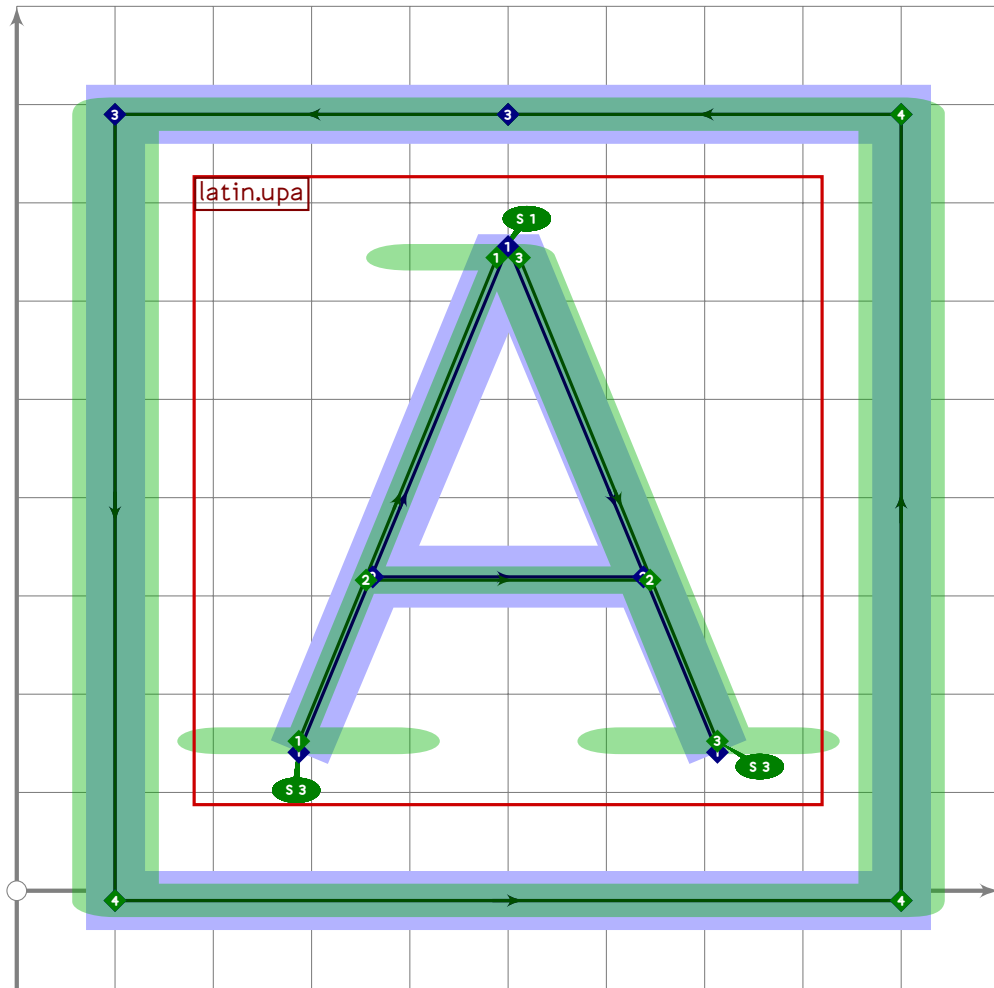

31
32 beginfont
33
34 input latin-intro.mp;
35
36 % AUTODEPS
37 input enclosed.mp;
38 input latin.mp;
39
40 

---


41
```

## Squared Latin

```
42 % SQUARED LATIN
43
```

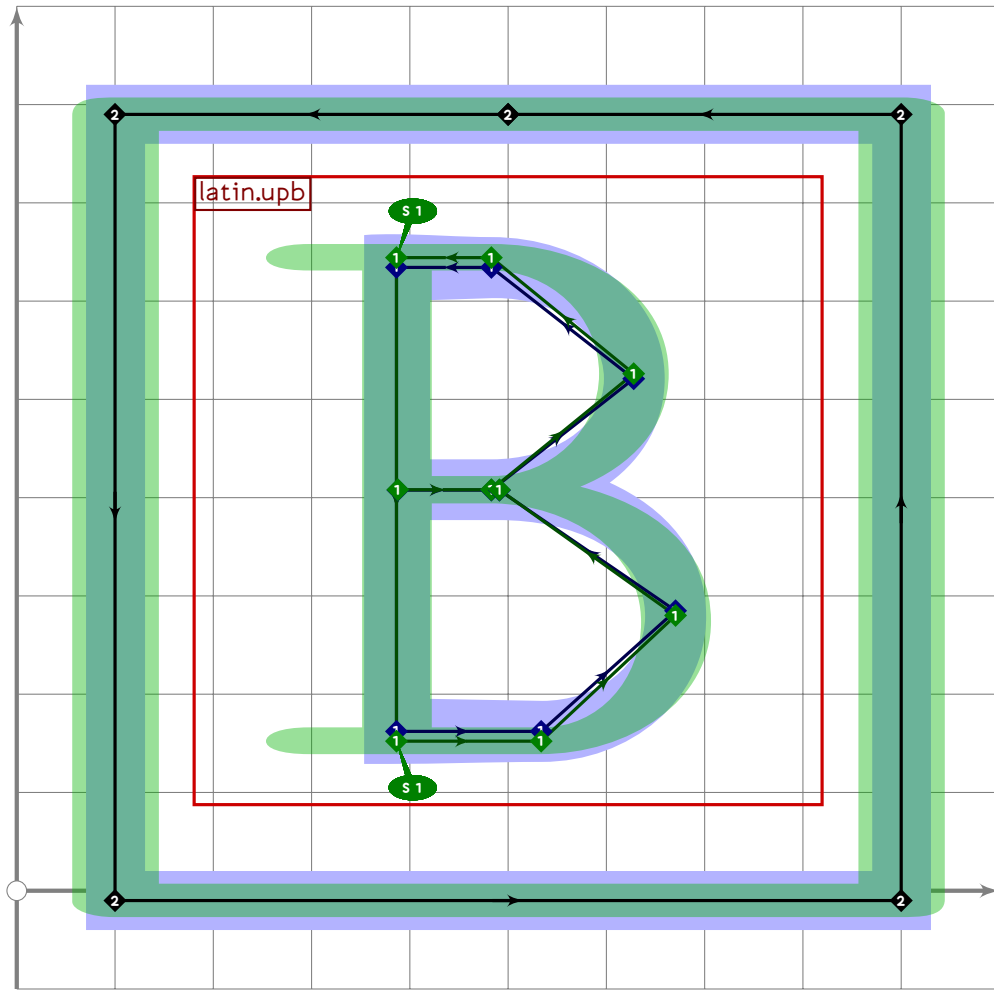


```

44 % A
45 beginsuglyph("u1F130";48);
46 square.single(latin.upa);
47 tsu_render;
48 endsuglyph;
49

```

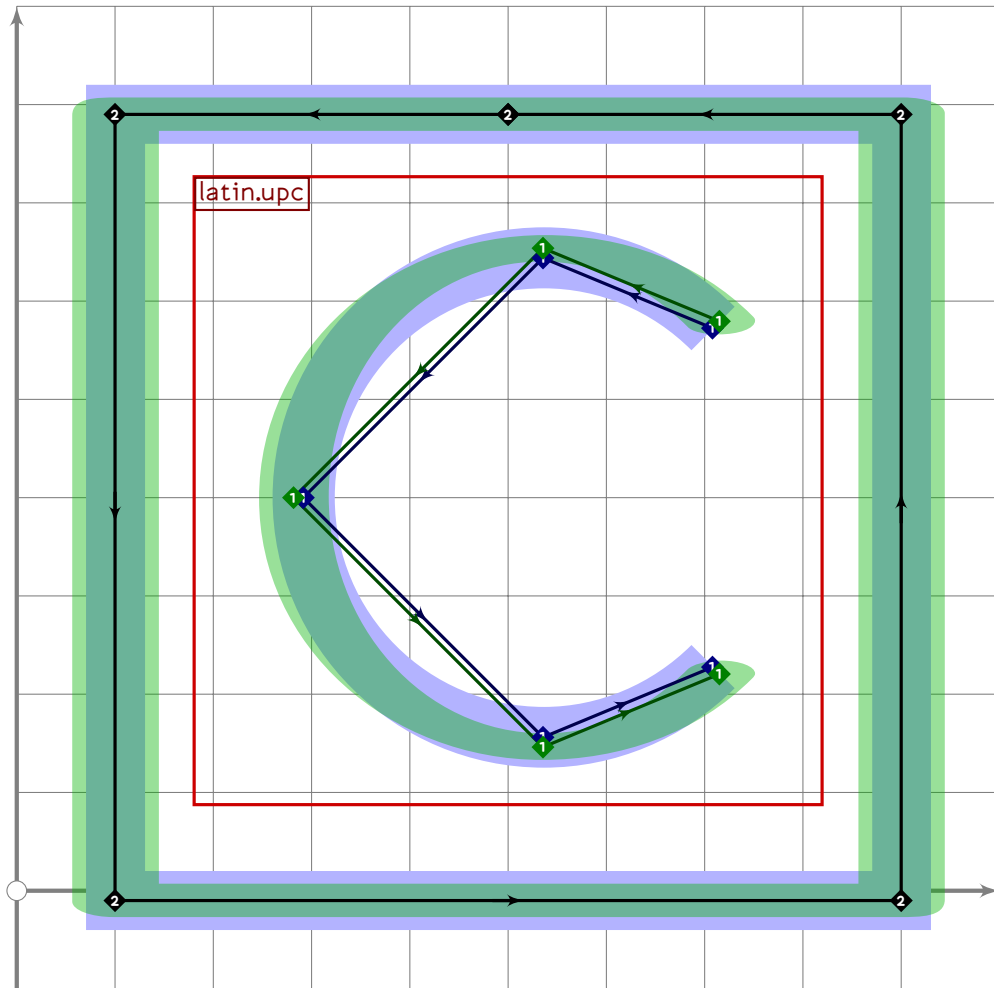




```

50 % B
51 begintsuglyph("u1F131",49);
52 square.single(latin.upb);
53 tsu_render;
54 endsuglyph;
55

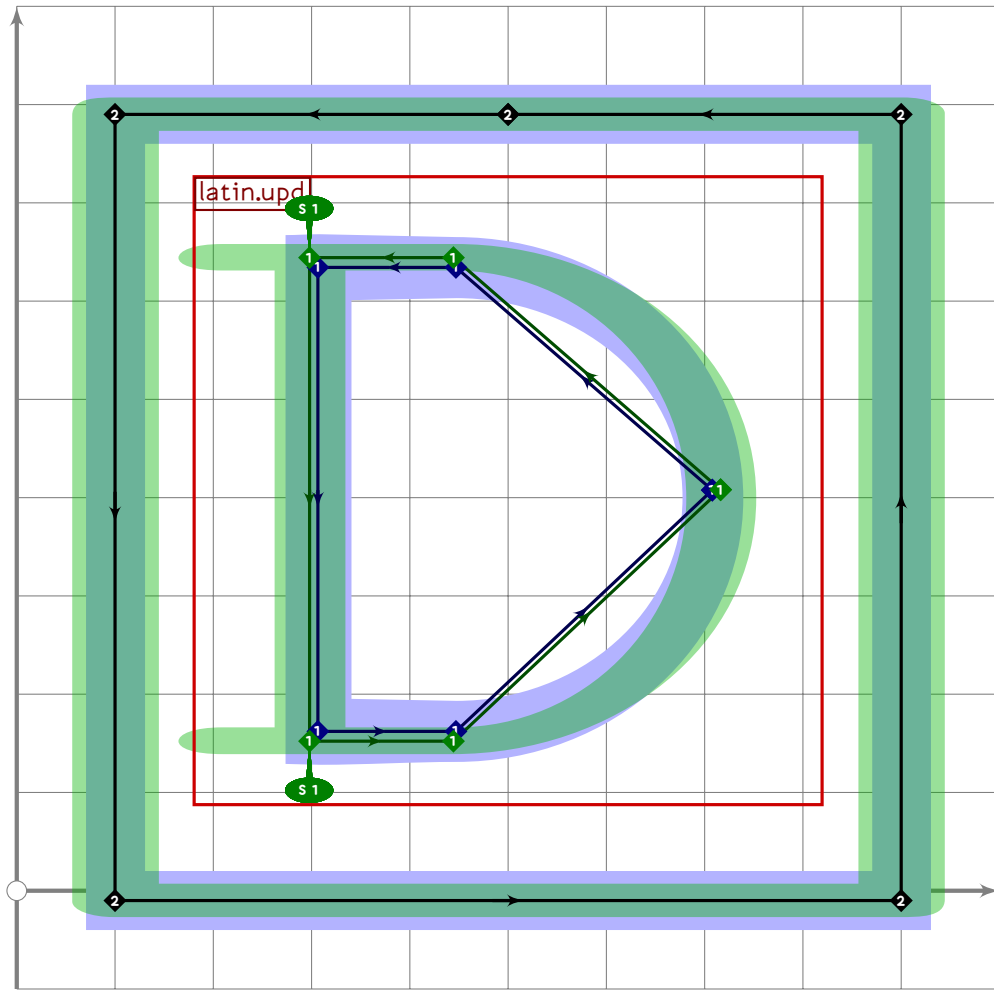
```



```

56 % C
57 begint Suglyph("u1F132";50);
58   square.single(latin.upc);
59   tsu_render;
60 endsuglyph;
61

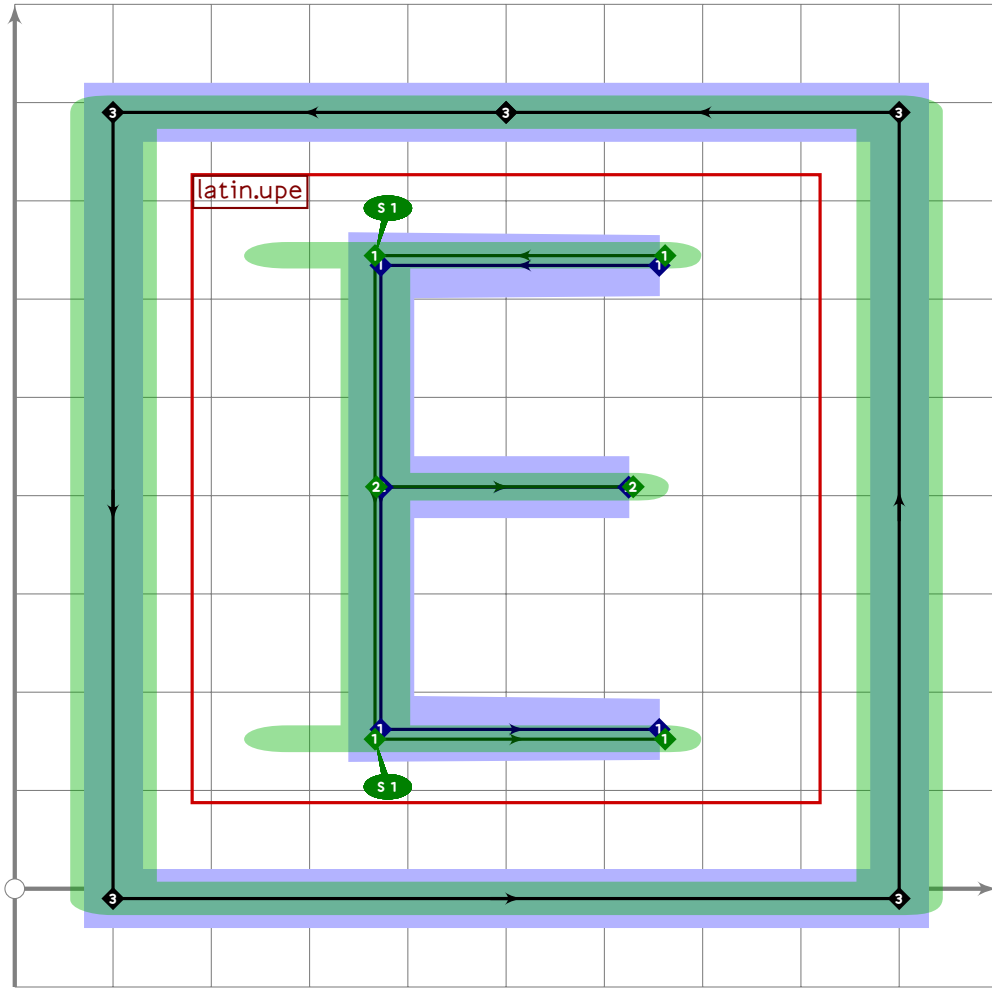
```



```

62 % D
63 begint Suglyph("u1F133",51);
64 square.single(latin.upd);
65 tsu_render;
66 endsuglyph;
67

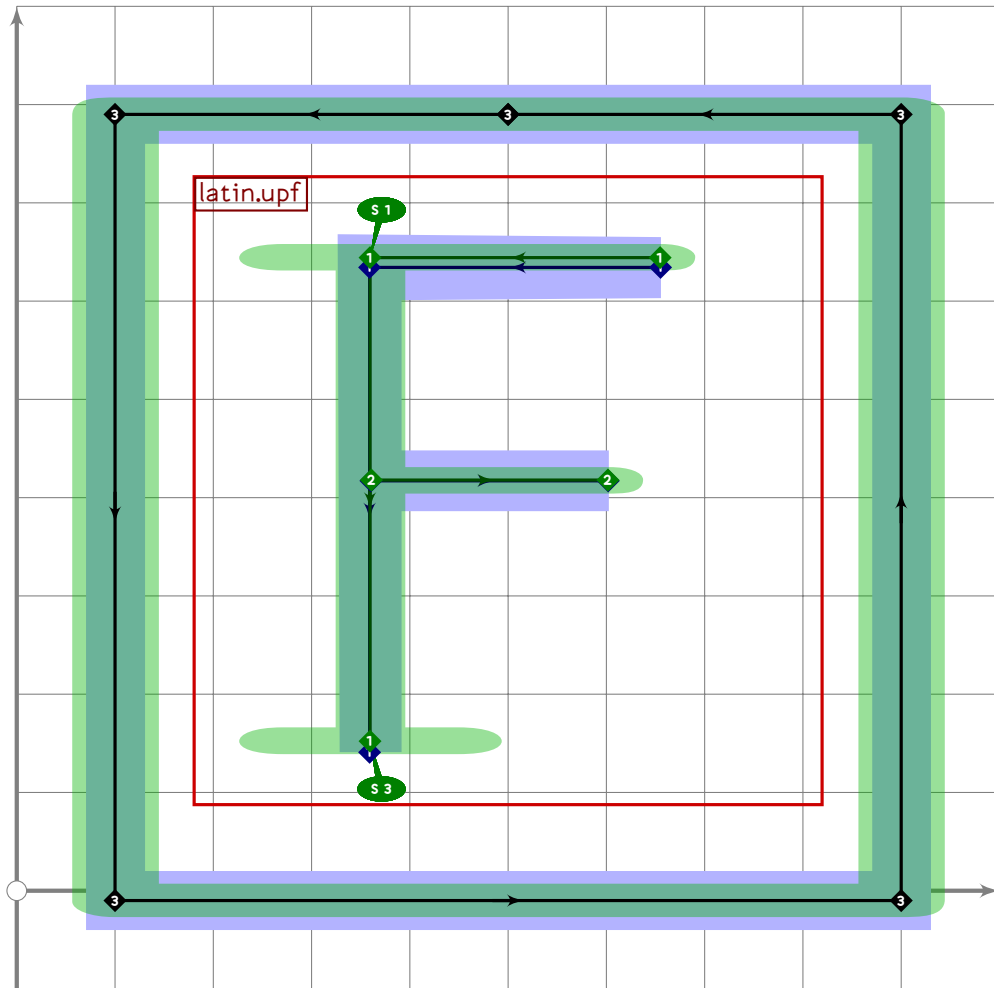
```



```

68 % E
69 begint Suglyph("u1F134",52);
70 square.single(latin.upe);
71 tsu_render;
72 endsuglyph;
73

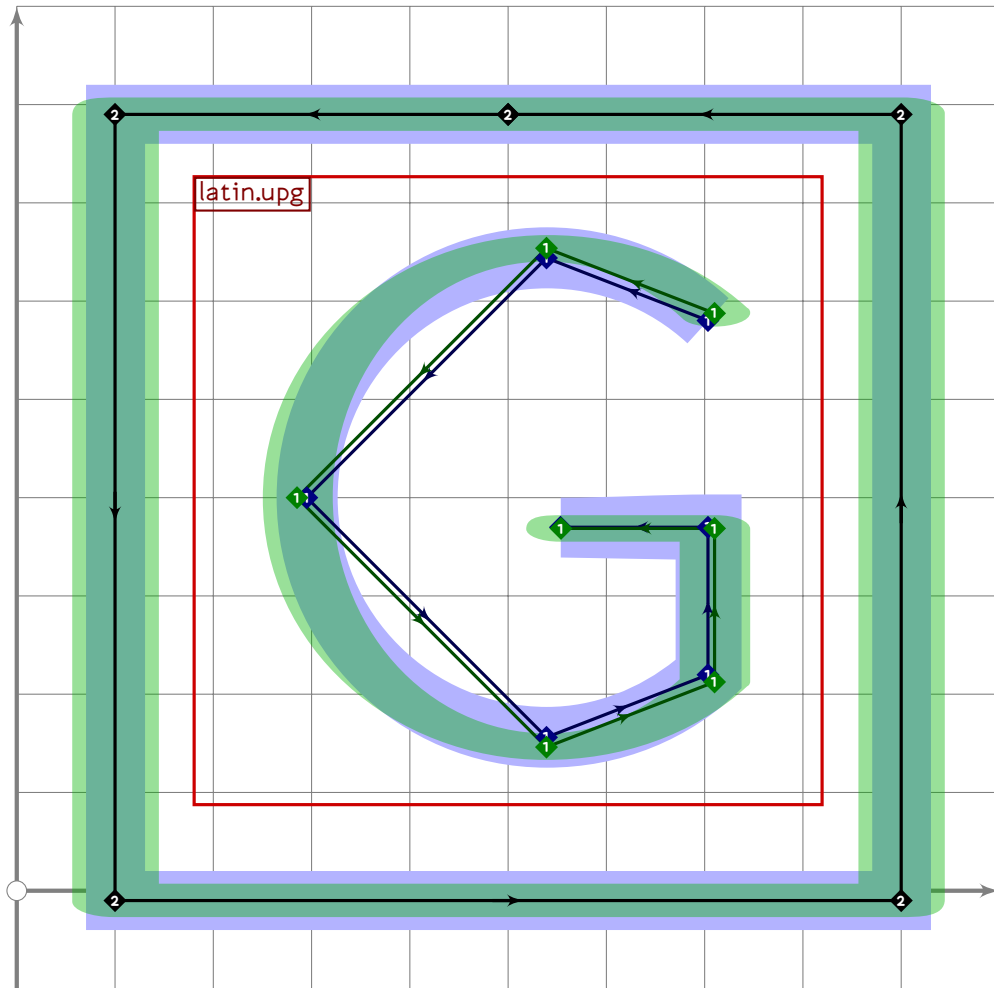
```



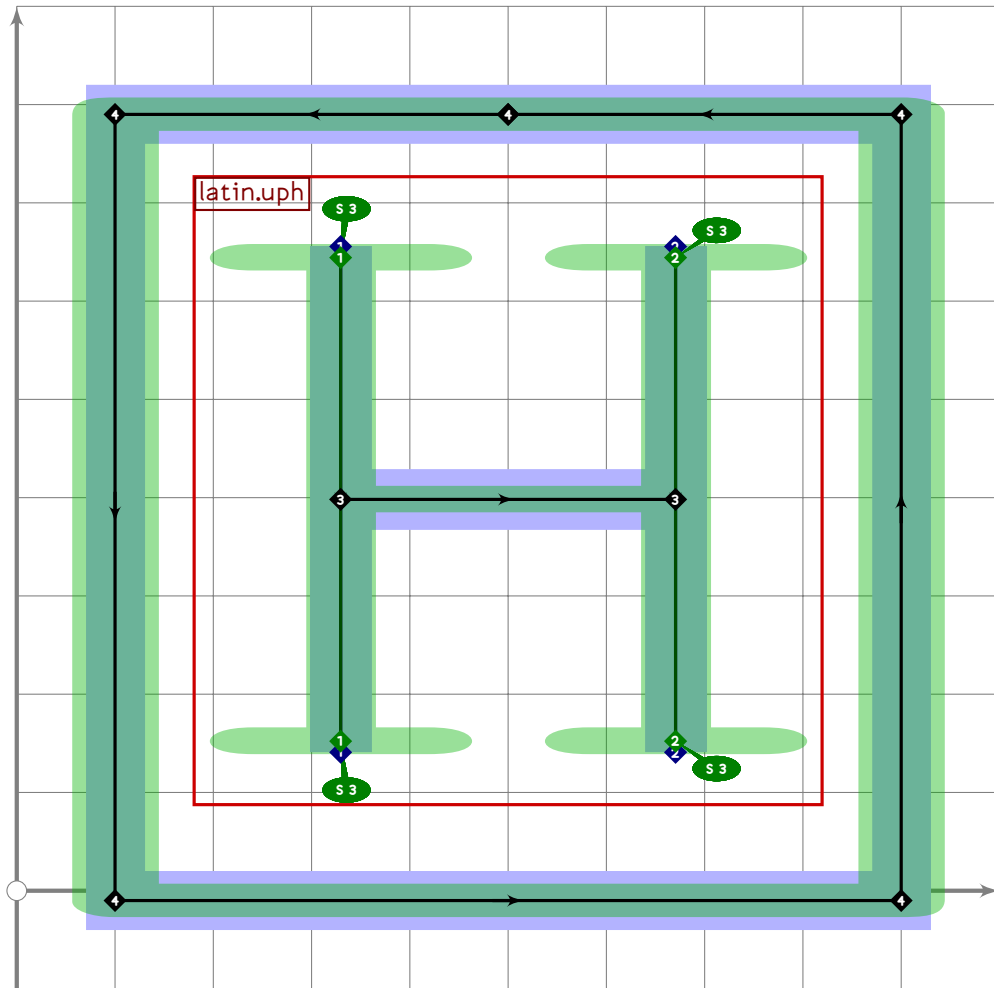
```

74 % F
75 begint Suglyph("u1F135",53);
76 square.single(latin.upf);
77 tsu_render;
78 endsuglyph;
79

```



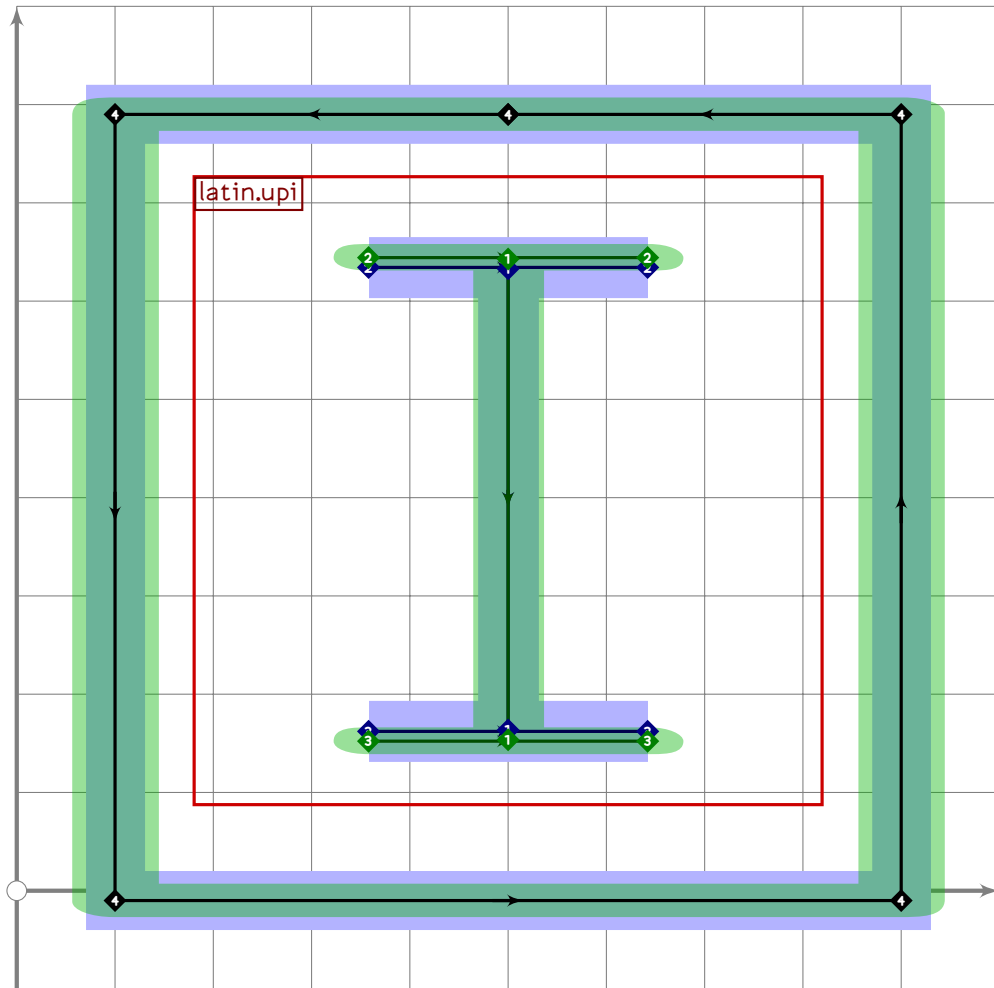
```
80 % G
81 begintsuglyph("u1F136",54);
82 square.single(latin.upg);
83 tsu_render;
84 endsuglyph;
85
```



```

86 % H
87 begint Suglyph("u1F137";55);
88   square.single(latin.uph);
89   tsu_render;
90 endsuglyph;
91

```

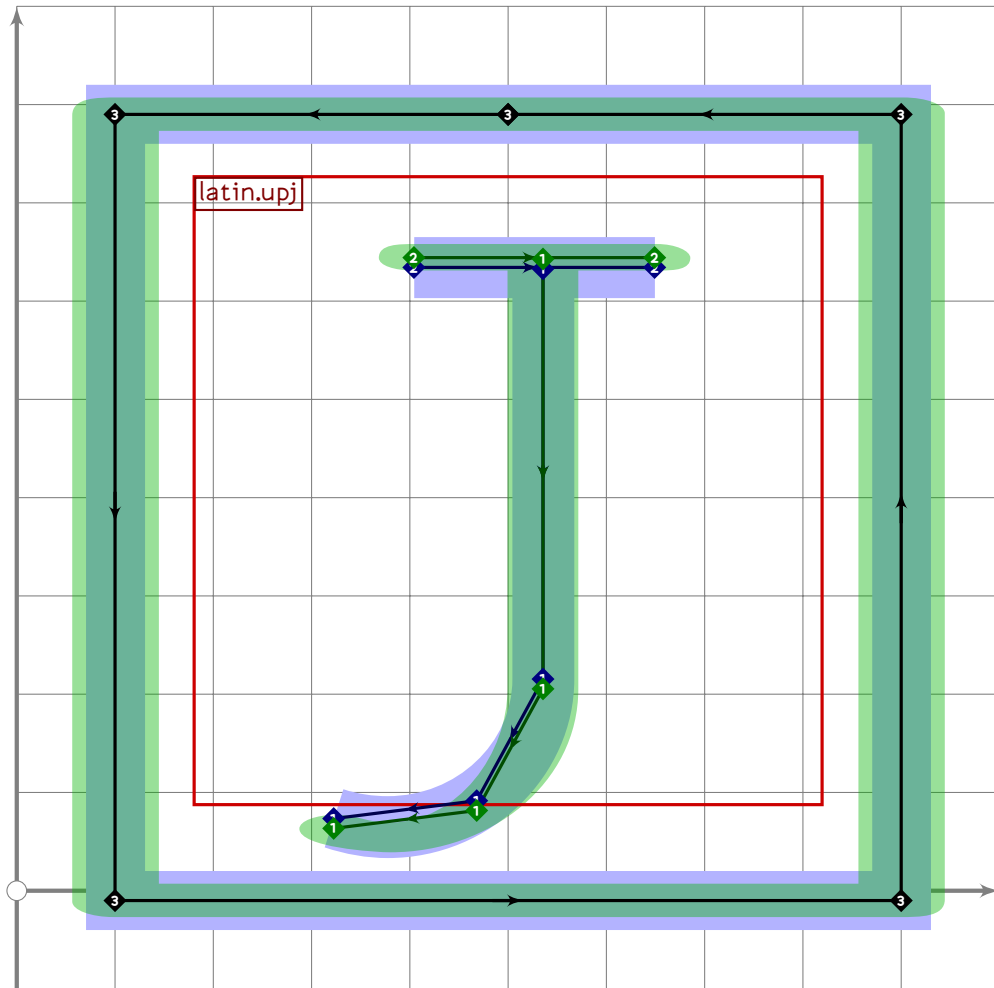


```

92 % I
93 begint Suglyph("u1F138",56);
94 square.single(latin.upi);
95 tsu_render;
96 endsuglyph;
97

```

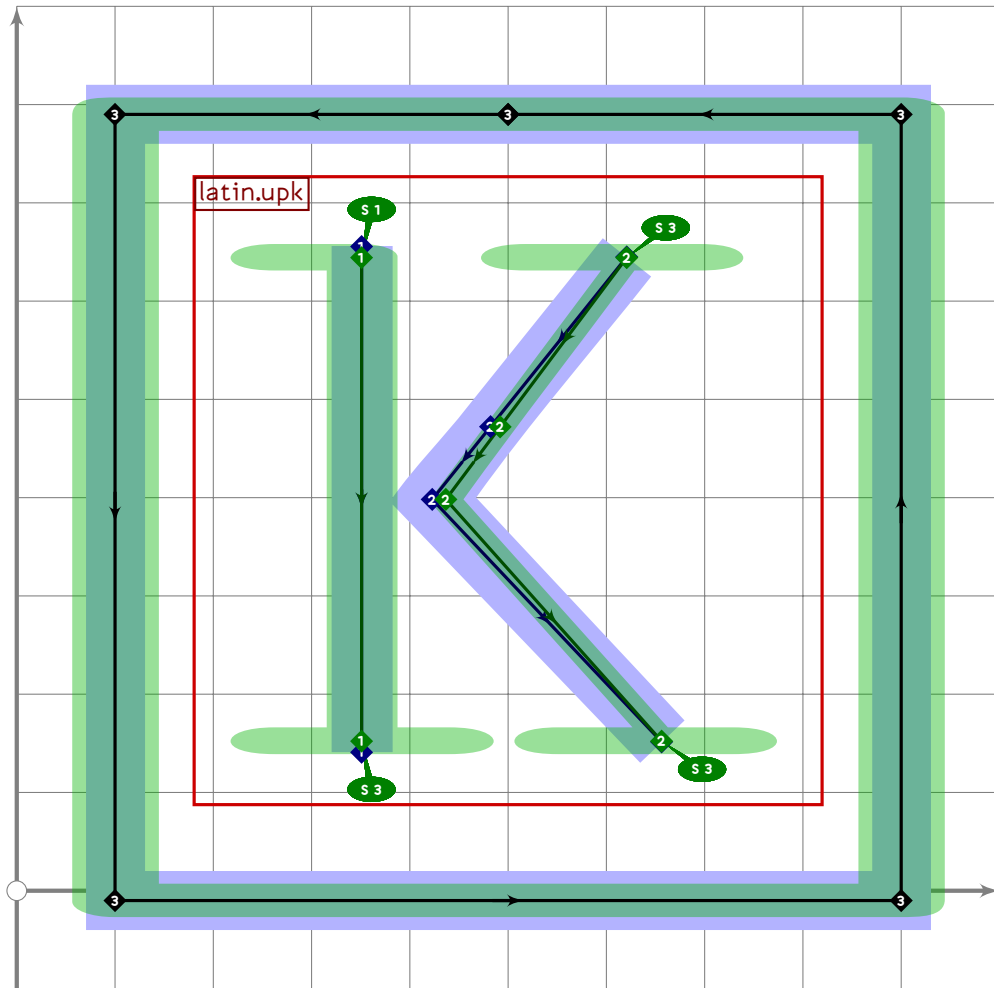




```

98 % J
99 begint Suglyph("u1F139",57);
100 square.single(latin.upj);
101 tsu_render;
102 endsuglyph;
103

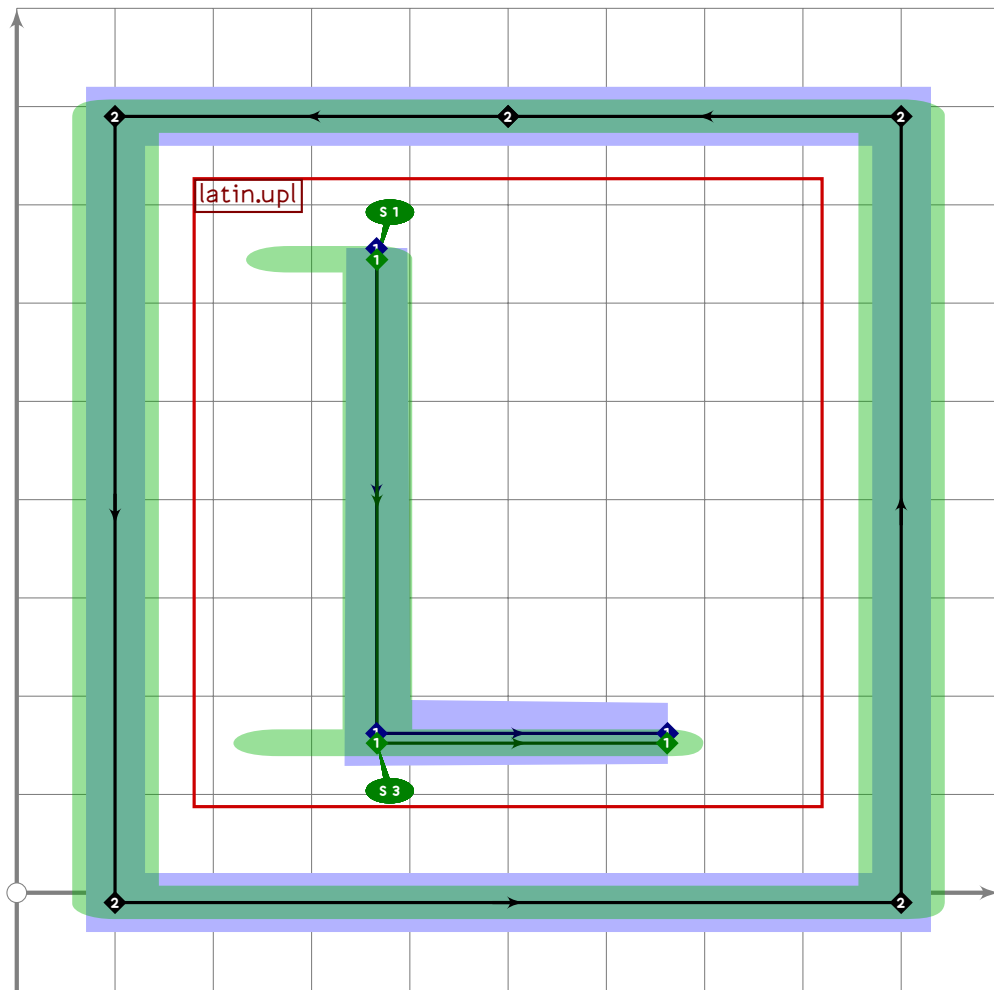
```



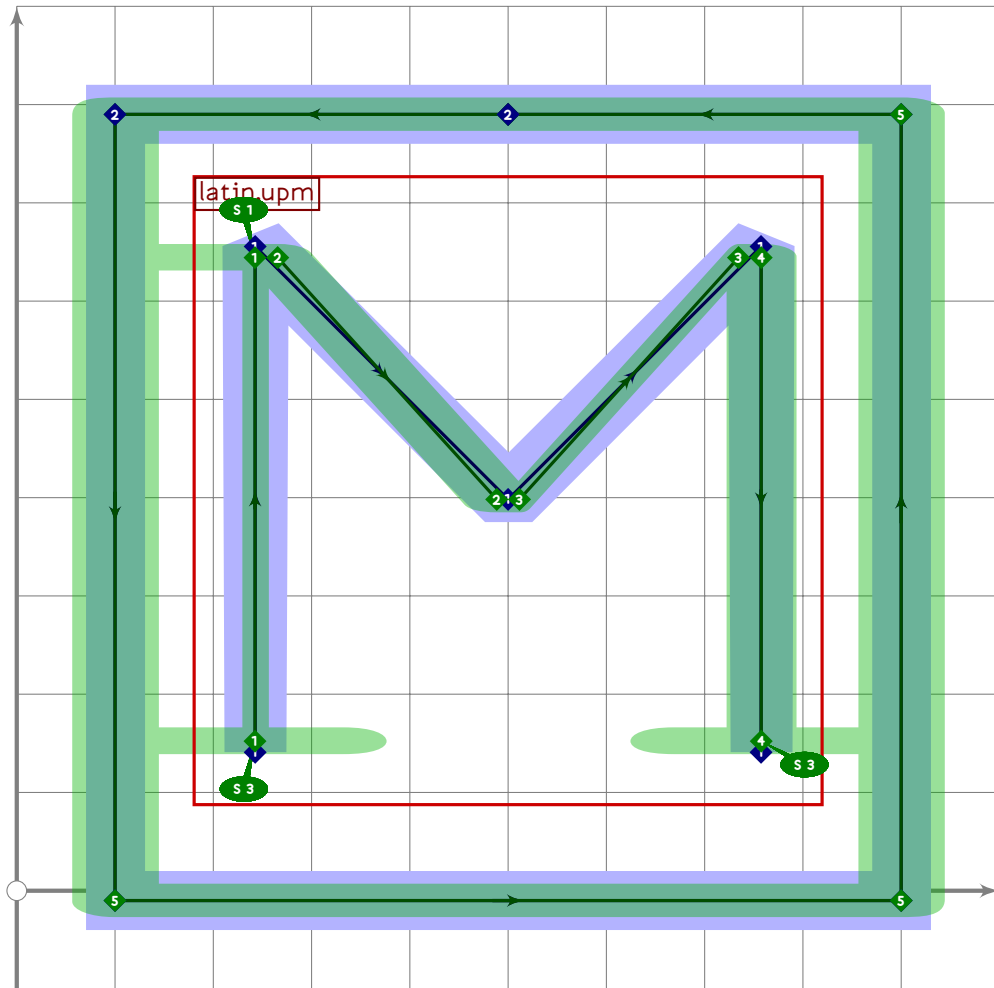
```

104 % K
105 begint Suglyph("u1F13A",58);
106 square.single(latin.upk);
107 tsu_render;
108 endsuglyph;
109

```



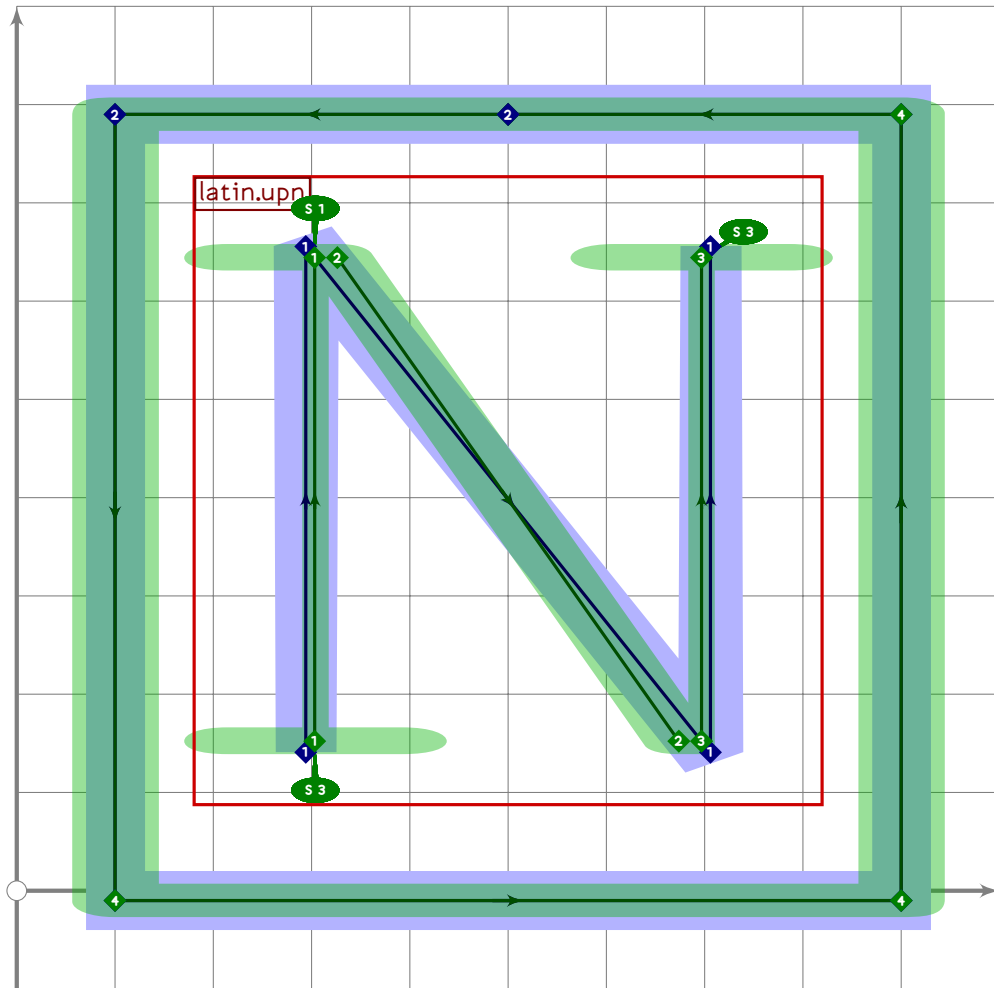
```
110 % L
111 begintsuglyph("u1F13B",59);
112 square.single(latin.upl);
113 tsu_render;
114 endsuglyph;
115
```



```

116 % M
117 begint Suglyph("u1F13C",60);
118   square.single(latin.upm);
119   tsu_render;
120 endsuglyph;
121

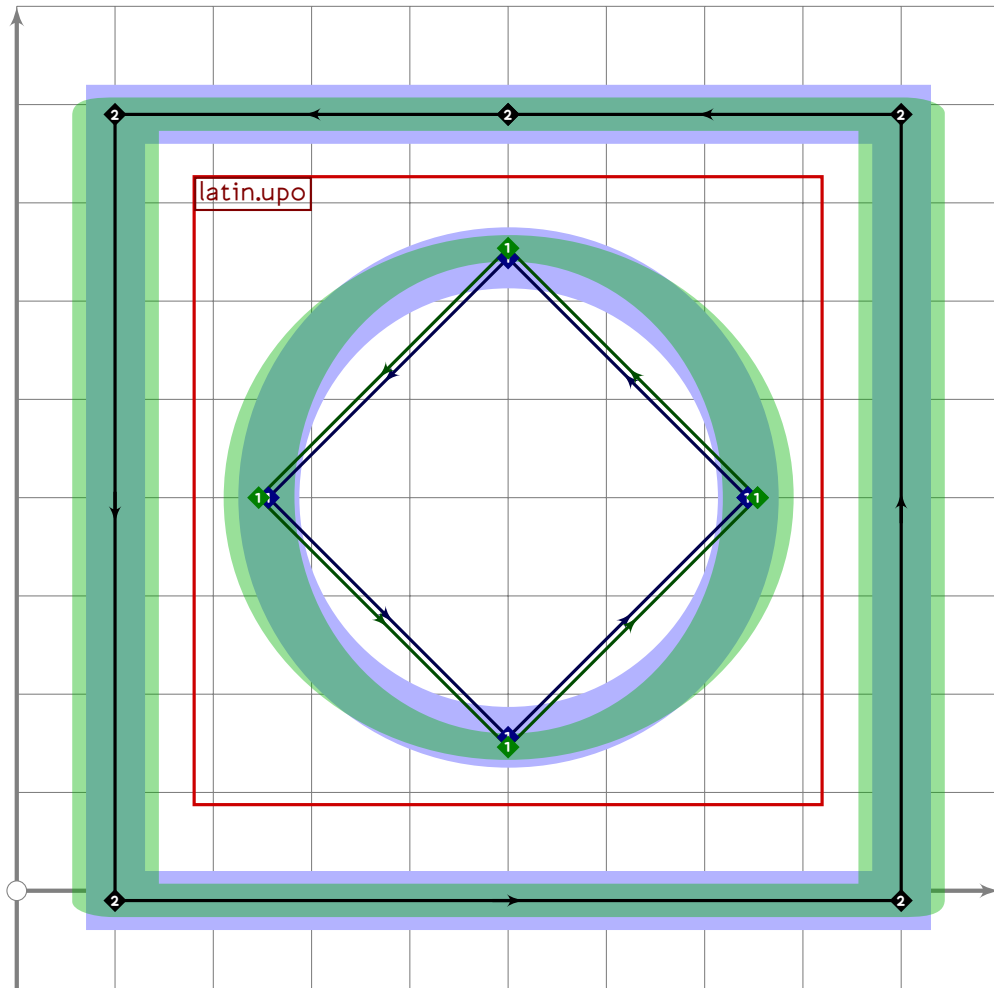
```



```

122 % N
123 beginsuglyph("u1F13D";61);
124 square.single(latin.upn);
125 tsu_render;
126 endsuglyph;
127

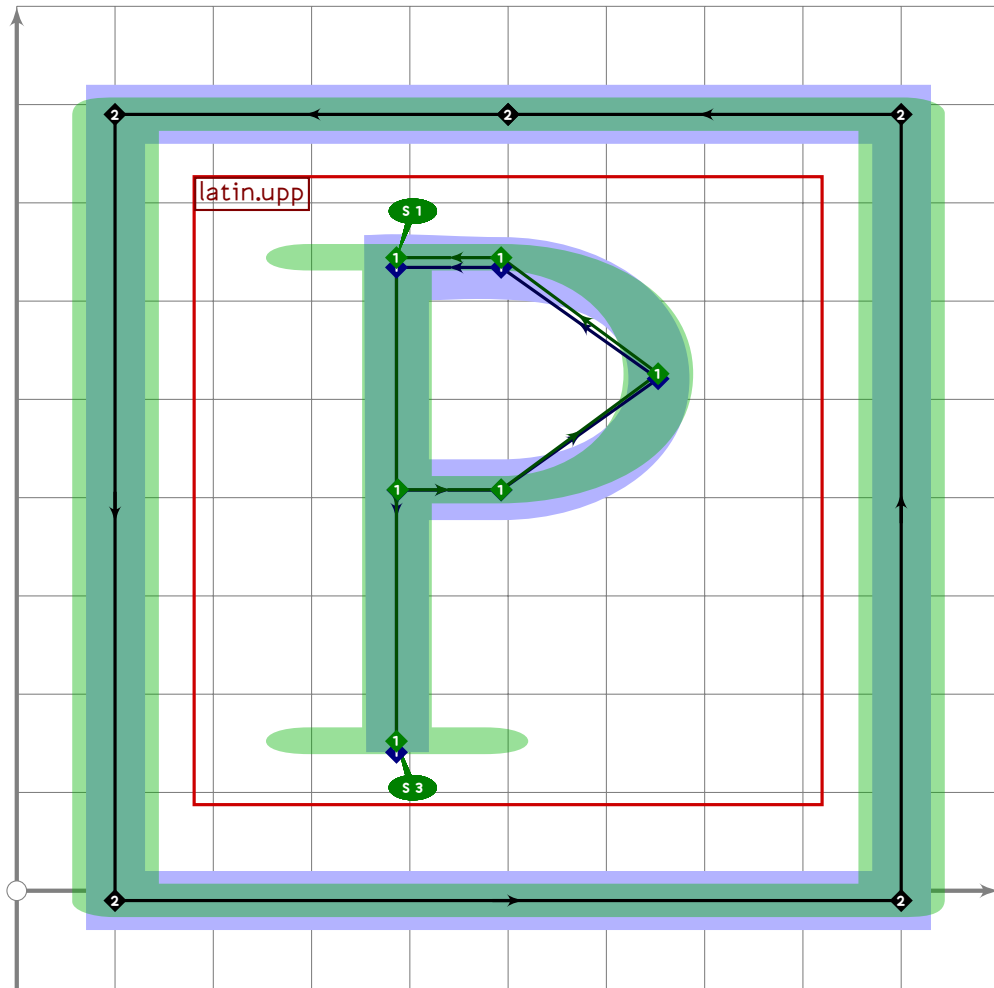
```



```

128 % O
129 begintsuglyph("u1F13E",62);
130 square.single(latin.upo);
131 tsu_render;
132 endsuglyph;
133

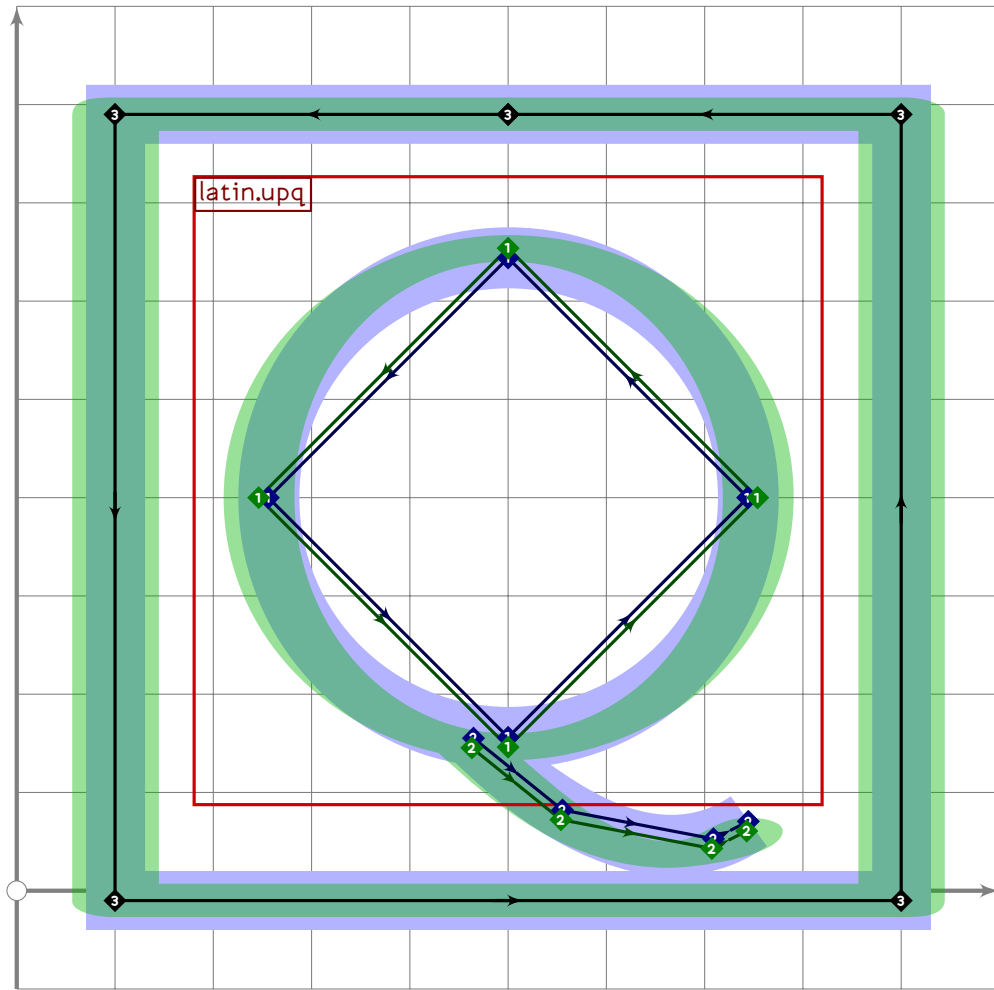
```



```

134 % P
135 begint Suglyph("u1F13F",63);
136 square.single(latin.upp);
137 tsu_render;
138 endsuglyph;
139

```

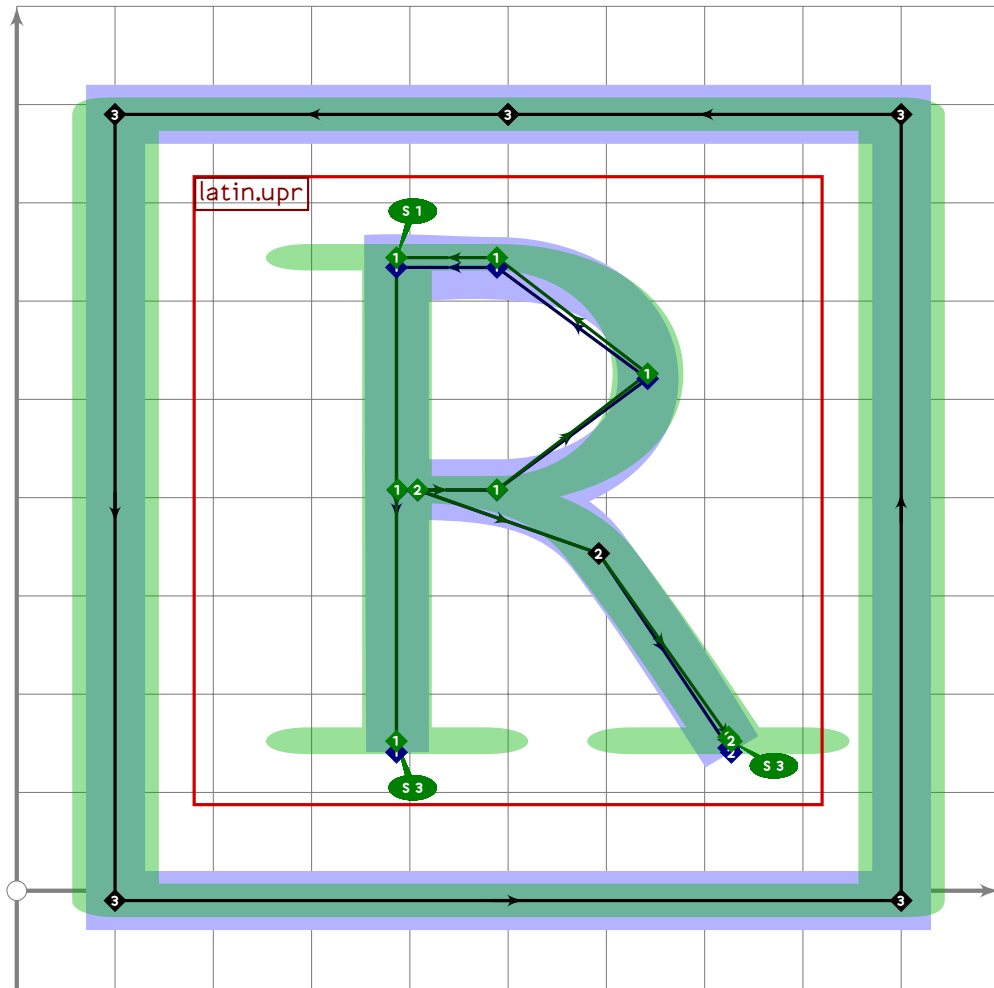


```

140 % Q
141 begint Suglyph("u1F140";64);
142 square.single(latin.upq);
143 tsu_render;
144 endsuglyph;
145

```

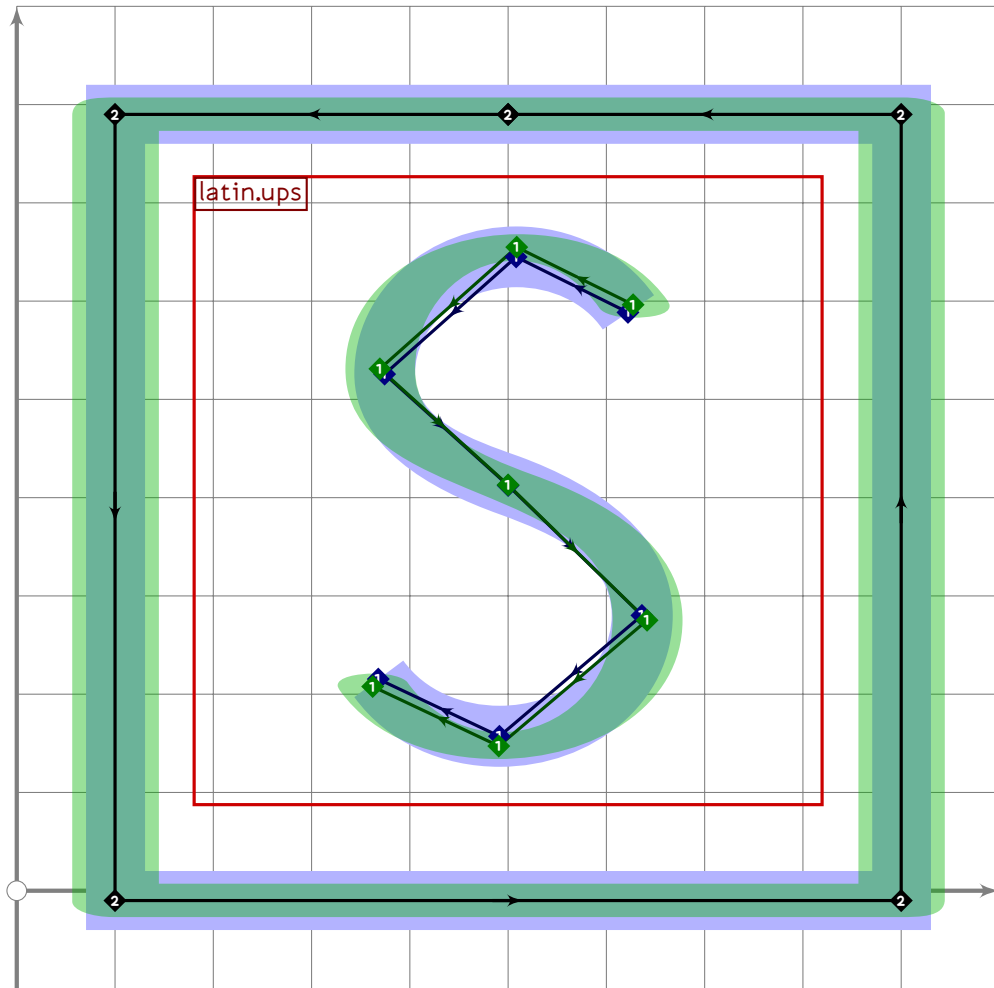




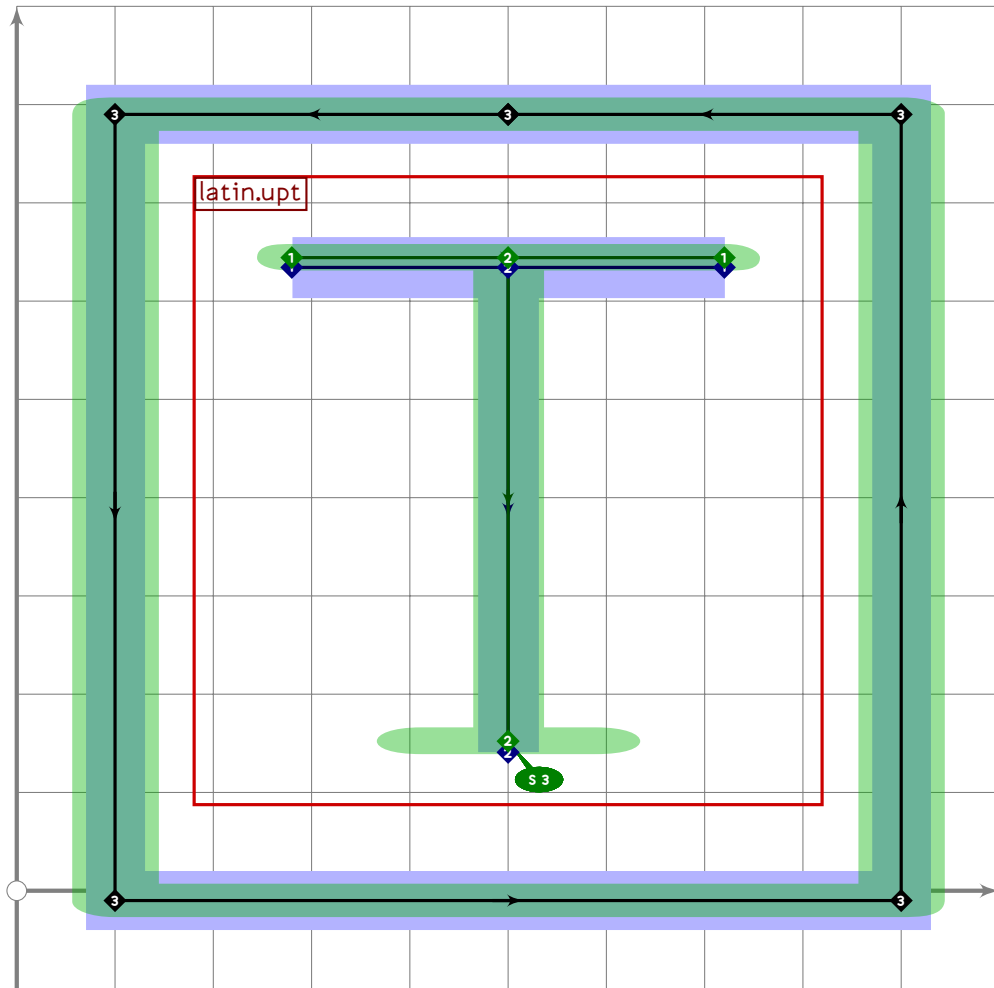
```

146 % R
147 begintuglyph("u1F141",65);
148   square.single(latin.upr);
149   tsu_render;
150 endtuglyph;
151

```



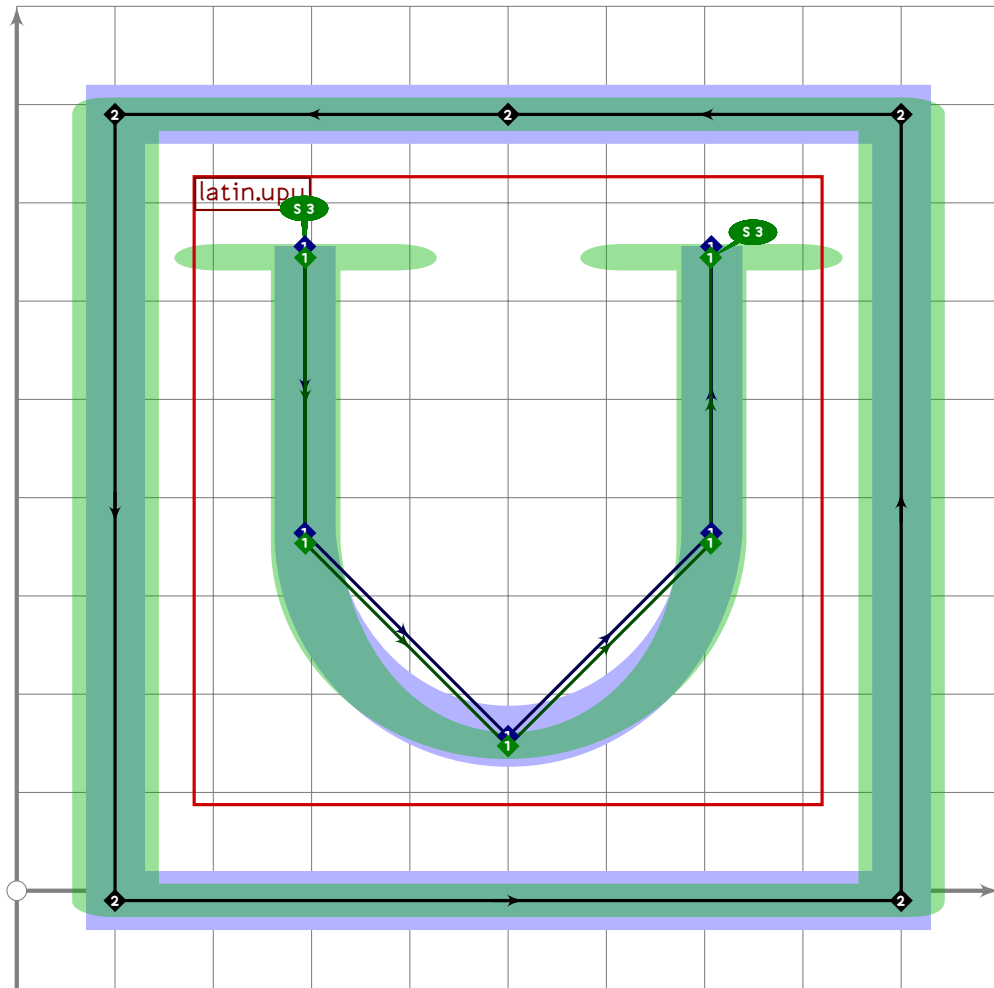
```
152 % S
153 begint Suglyph("u1F142",66);
154 square.single(latin.ups);
155 tsu_render;
156 endsuglyph;
157
```



```

158 % T
159 begint Suglyph("u1F143",67);
160 square.single(latin.upt);
161 tsu_render;
162 endsuglyph;
163

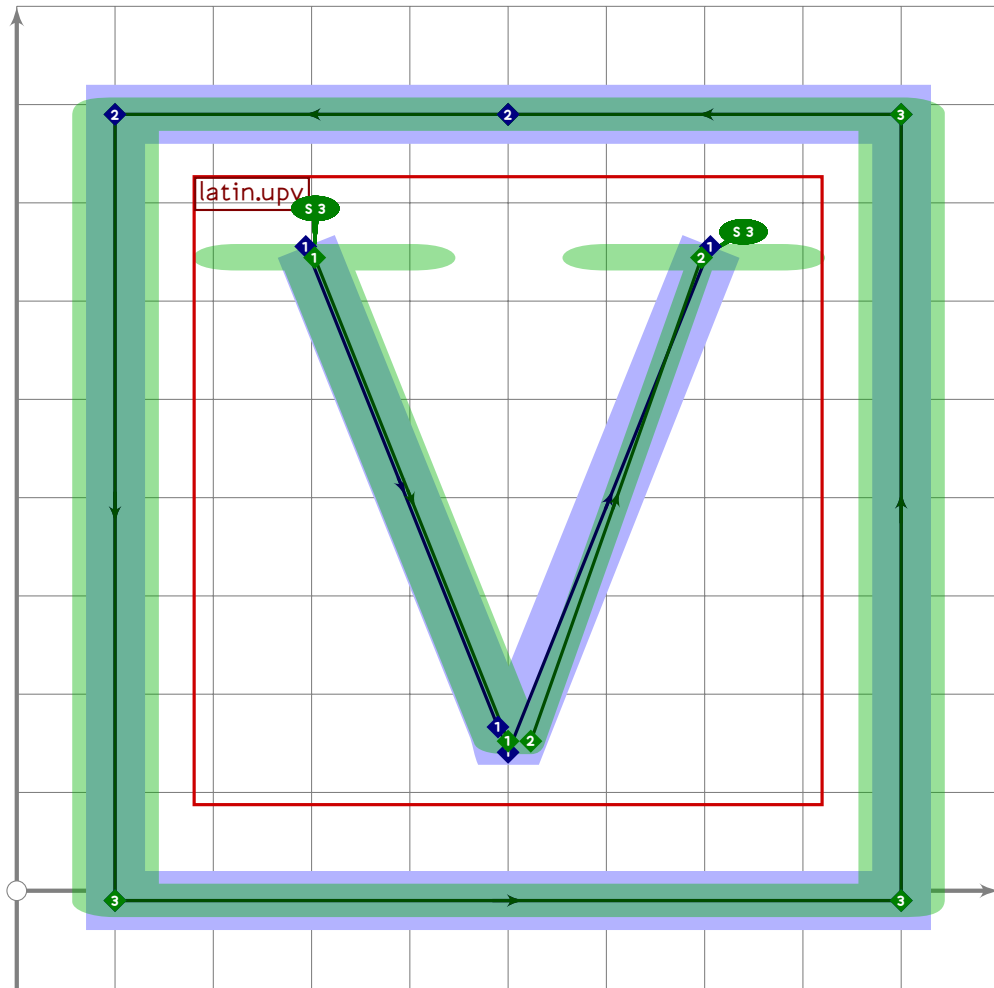
```



```

164 % U
165 begint Suglyph("u1F144",68);
166 square.single(latin.upu);
167 tsu_render;
168 endtsuglyph;
169

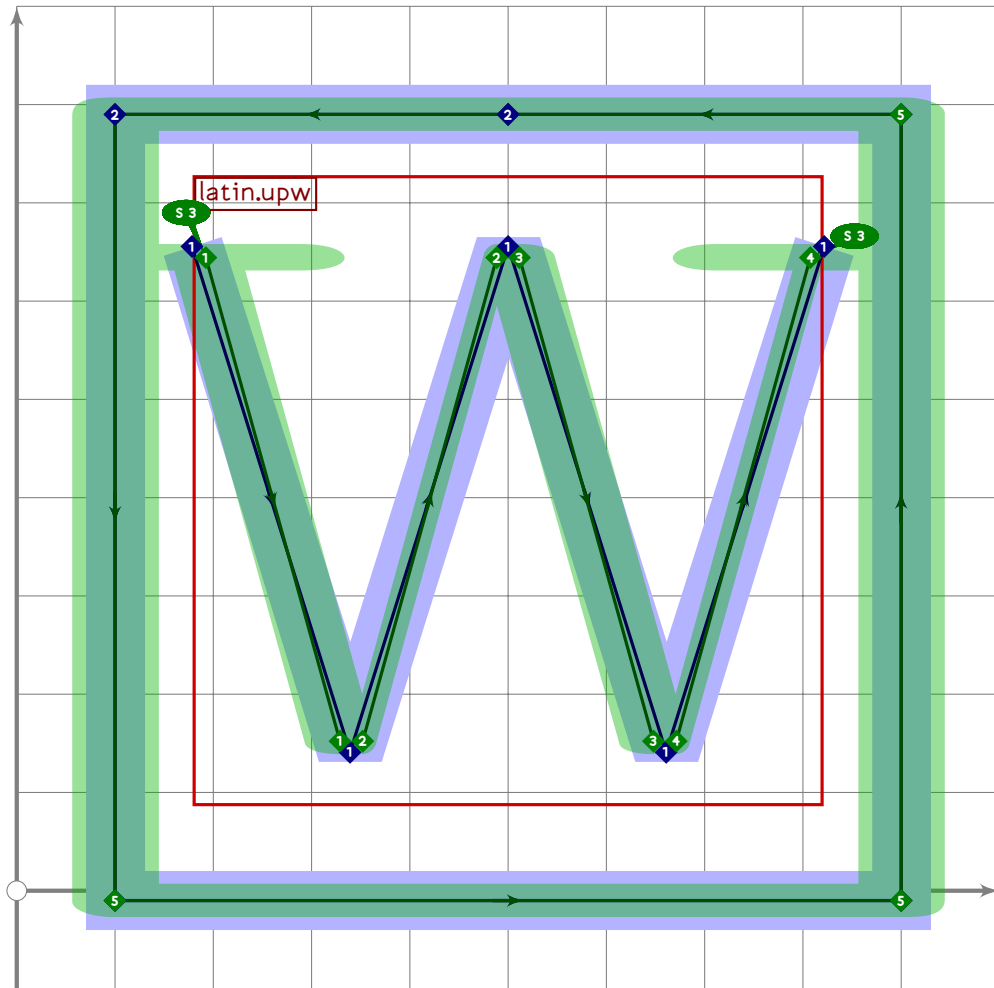
```



```

170 % V
171 begint Suglyph("u1F145",69);
172 square.single(latin.upv);
173 tsu_render;
174 endtsuglyph;
175

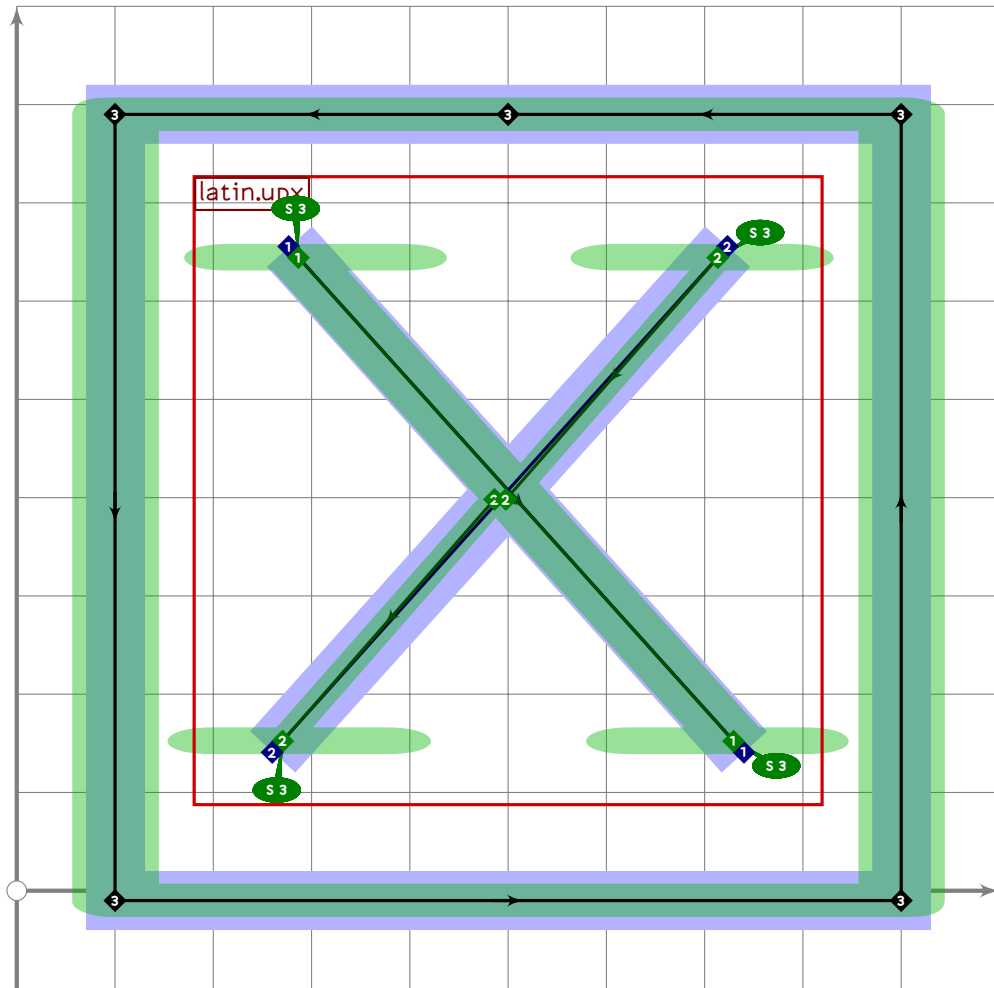
```



```

176 % W
177 begint Suglyph("u1F146";70);
178 square.single(latin.upw);
179 tsu_render;
180 endsuglyph;
181

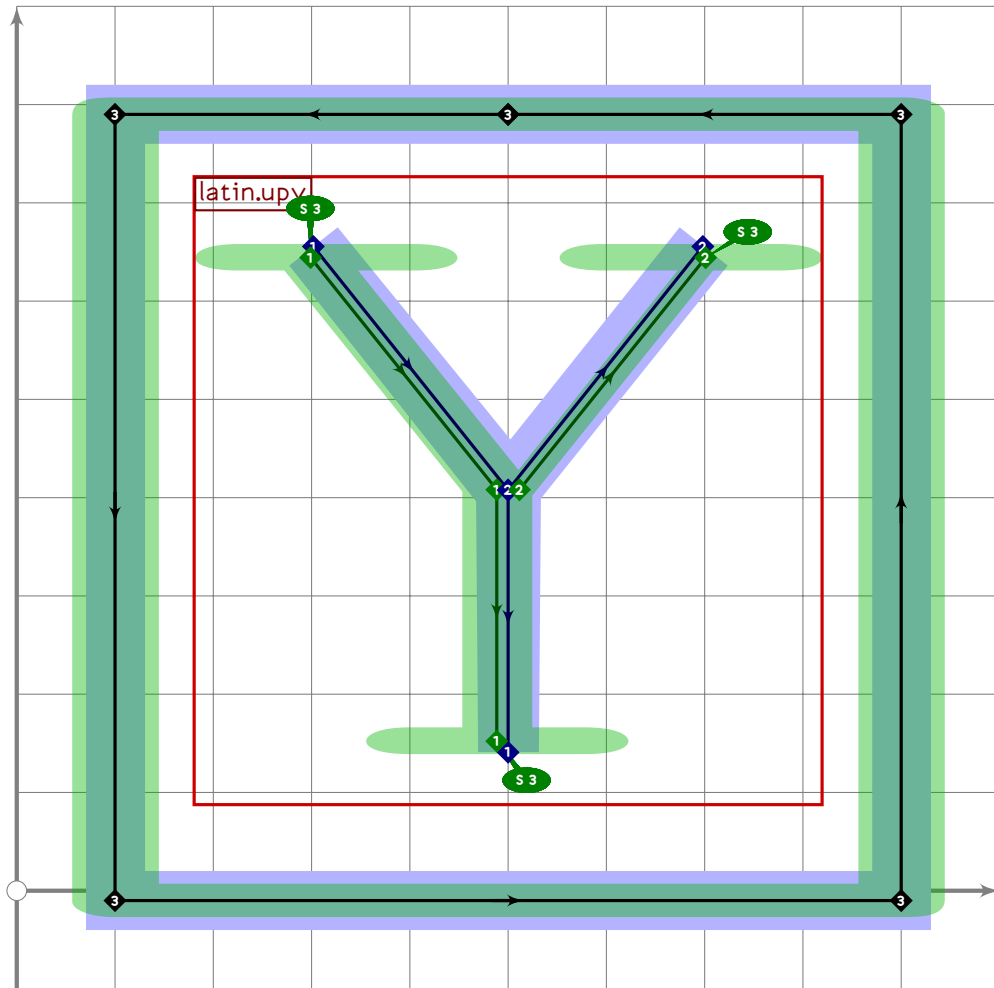
```



```

182 % X
183 begintsuglyph("u1F147";71);
184 square.single(latin.upx);
185 tsu_render;
186 endsuglyph;
187

```

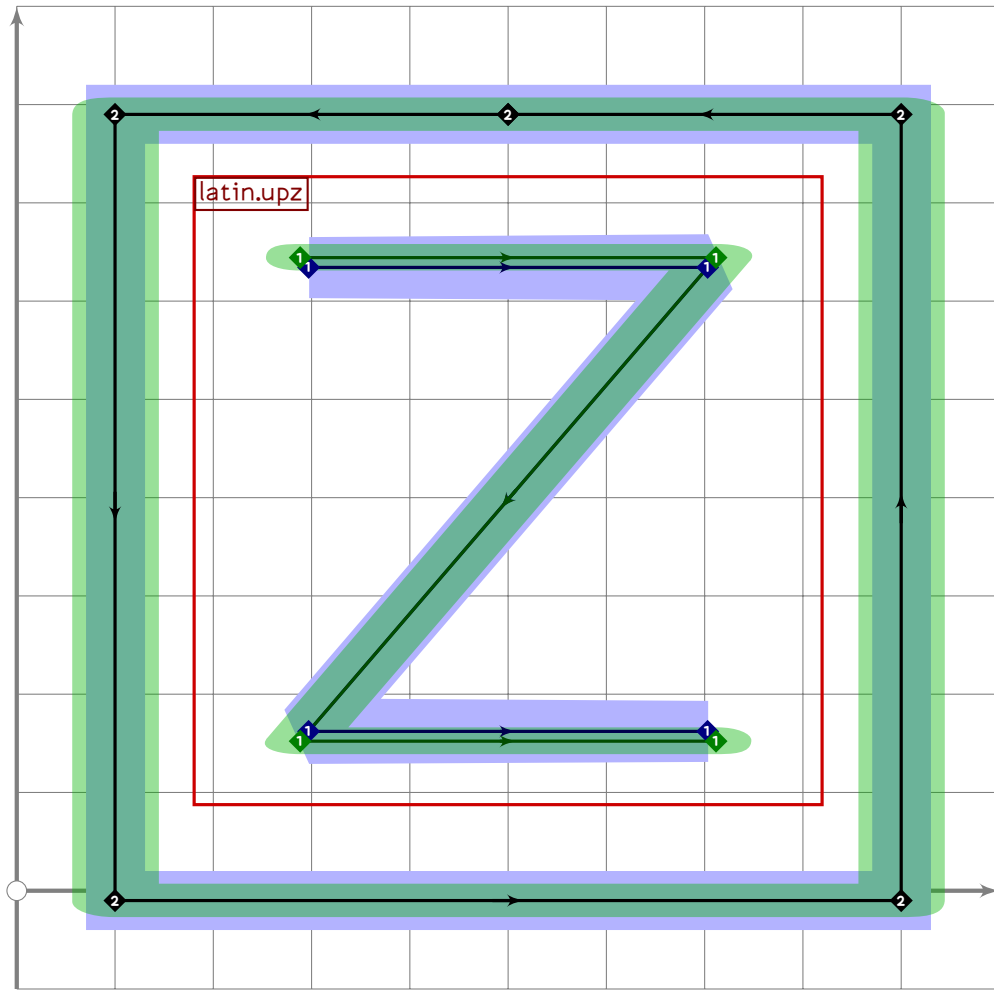


```

188 % Y
189 begint Suglyph("u1F148";72);
190 square.single(latin.upy);
191 tsu_render;
192 endsuglyph;
193

```





```

194 % Z
195 begint Suglyph("u1F149";73);
196 square.single(latin.upz);
197 tsu_render;
198 endtsuglyph;
199
200
201

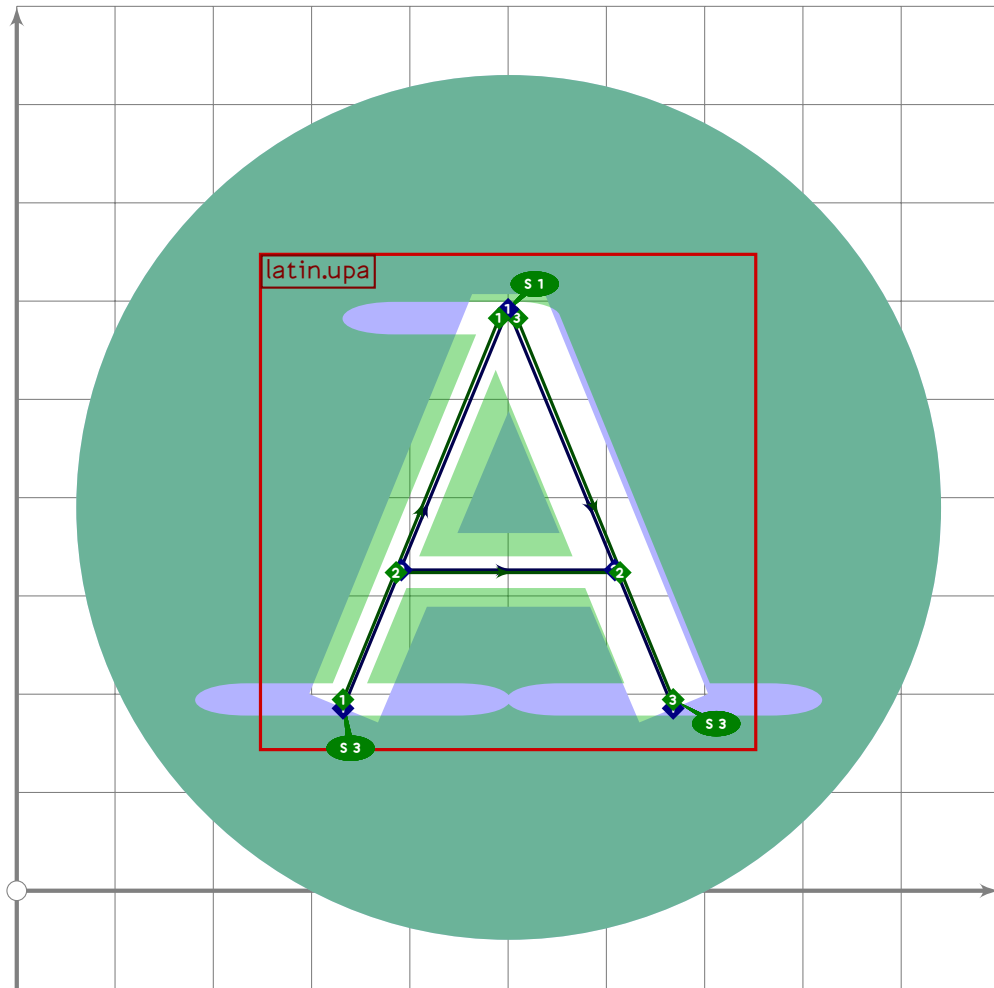
```

## Inverse Circled Latin

```

202 % INVERSE CIRCLED LATIN
203

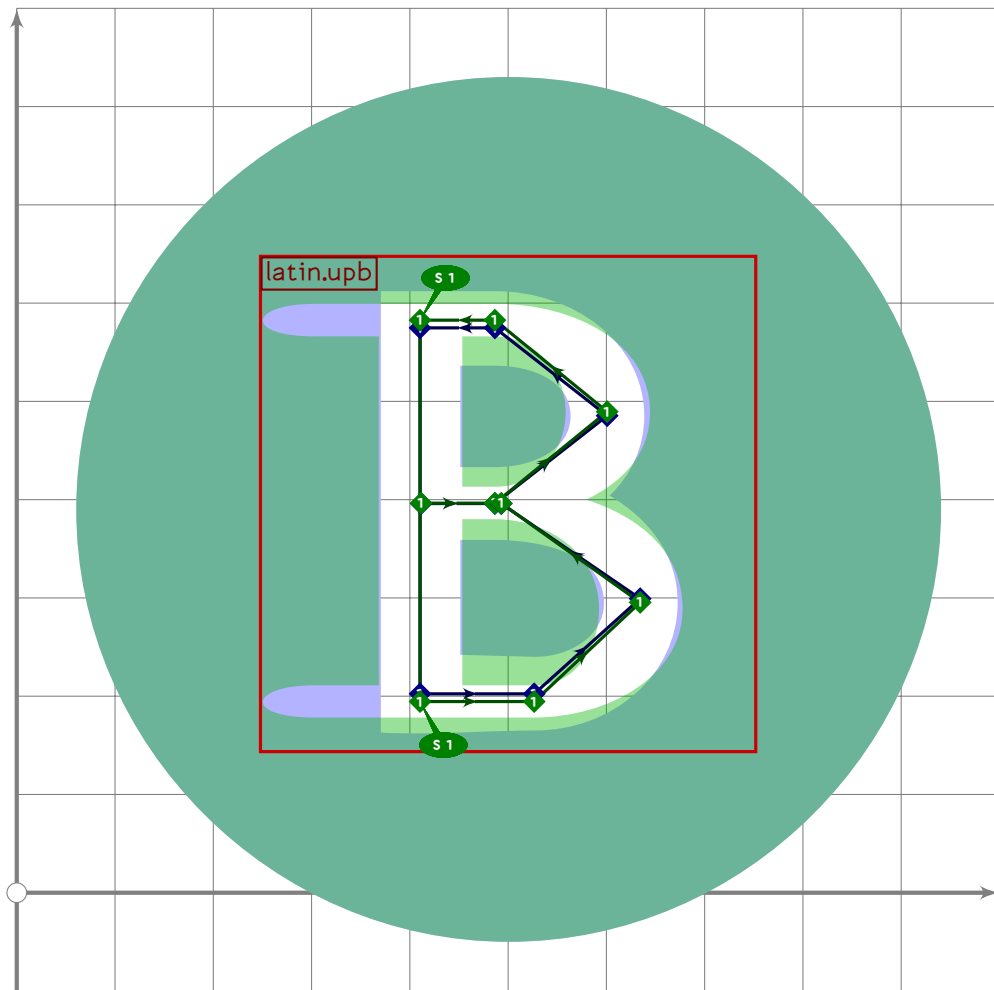
```



```

204 % A
205 % BACKGROUND 25CF
206 begint Suglyph("u1F150";80);
207 tsu_xform(tsu_xf.cletter)(latin.upa);
208 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
209 tsu_render;
210 endtsuglyph;
211

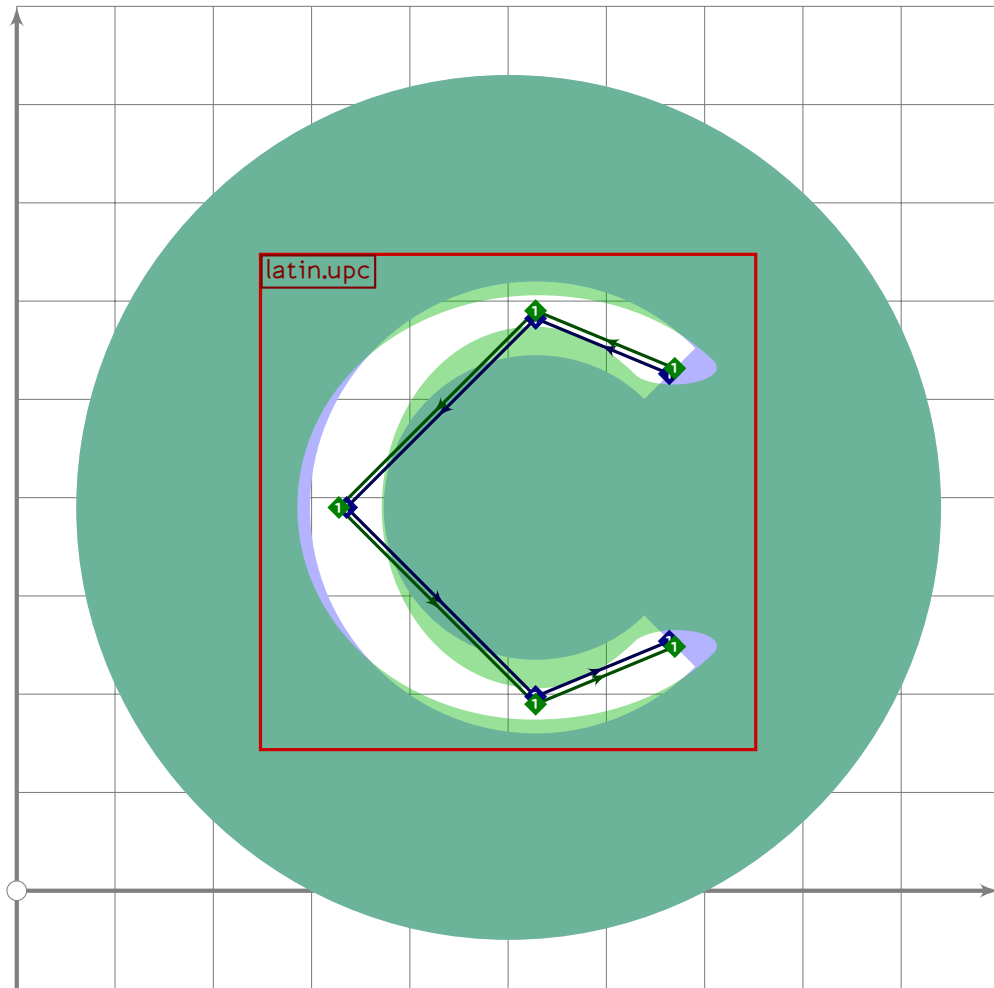
```



```

212 % B
213 % BACKGROUND 25CF
214 begint Suglyph("u1F151";81);
215 tsu_xform(tsu_xf.cletter)(latin.upb);
216 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
217 tsu_render;
218 endtsuglyph;
219

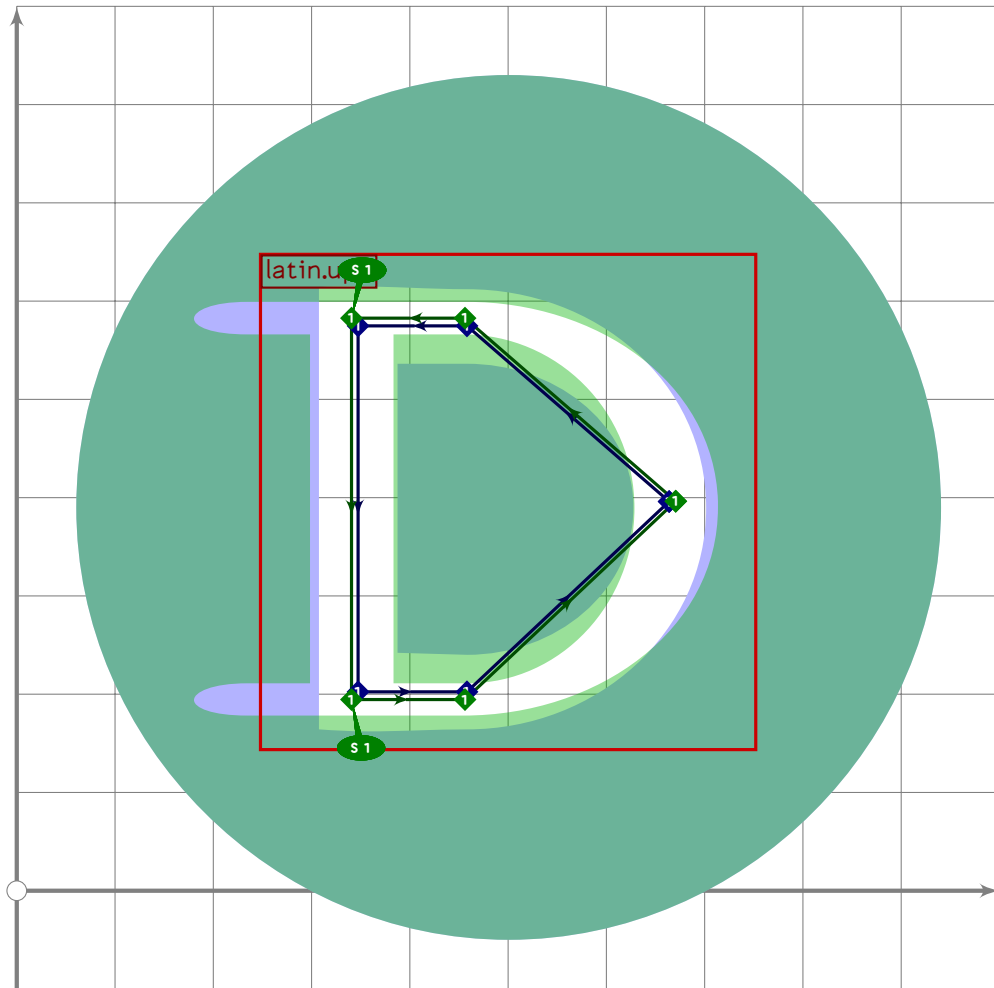
```



```

220 % C
221 % BACKGROUND 25CF
222 begint Suglyph("u1F152";82);
223 tsu_xform(tsu_xf.cletter)(latin.upc);
224 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
225 tsu_render;
226 endtsuglyph;
227

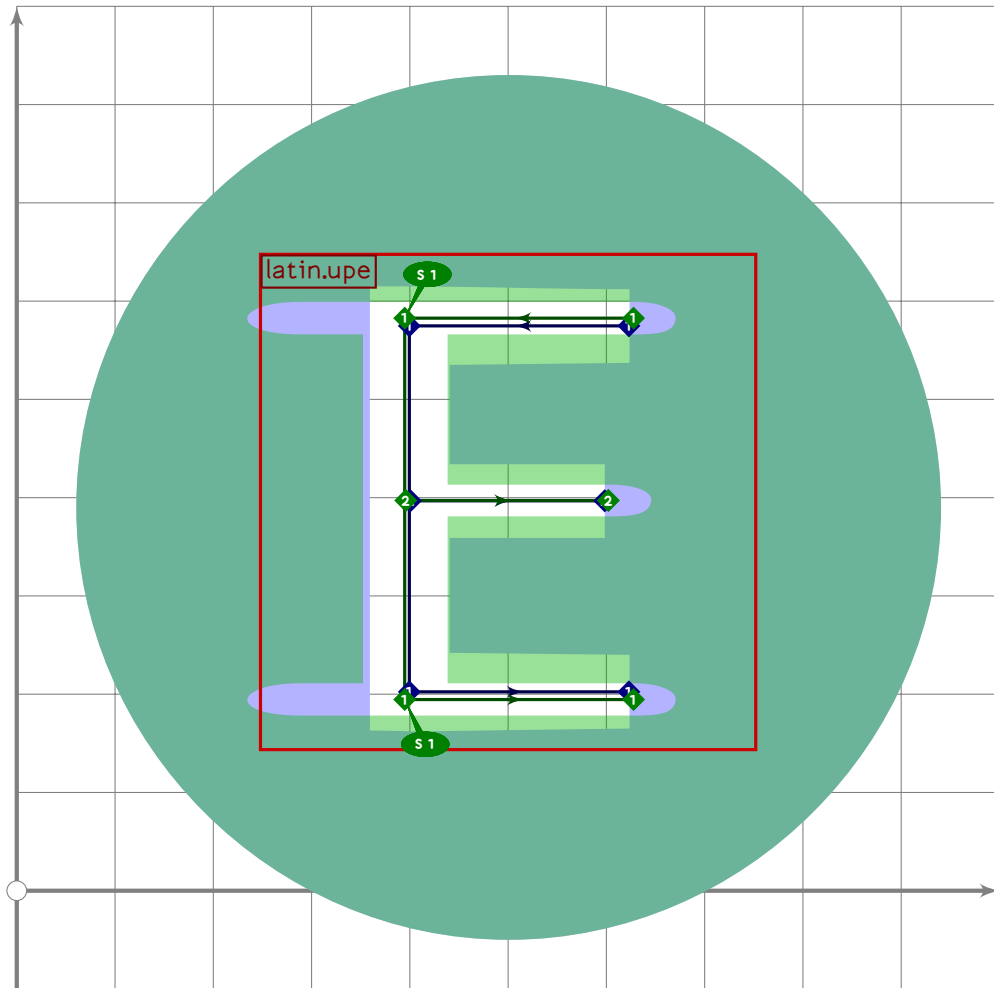
```



```

228 % D
229 % BACKGROUND 25CF
230 begint Suglyph("u1F153";83);
231 tsu_xform(tsu_xf.cletter)(latin.upd);
232 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
233 tsu_render;
234 endtsuglyph;
235

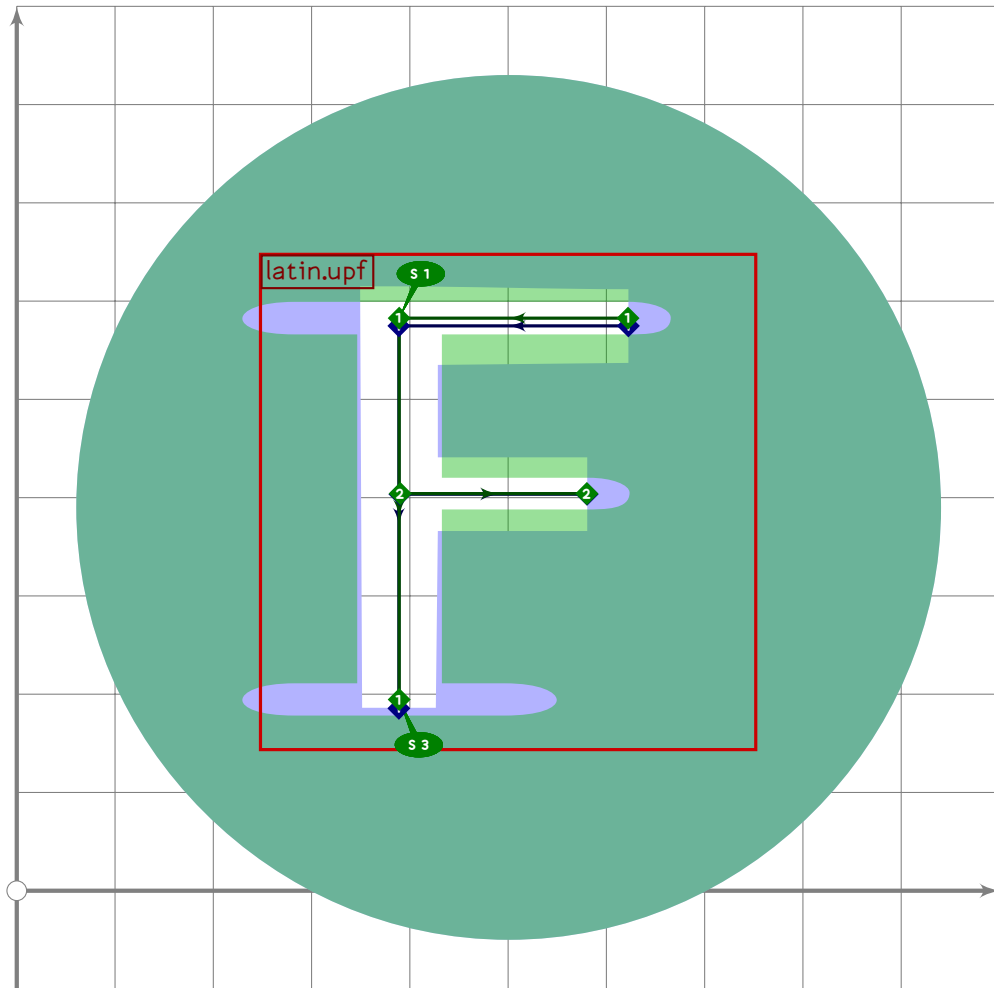
```



```

236 % E
237 % BACKGROUND 25CF
238 begint Suglyph("u1F154";84);
239 tsu_xform(tsu_xf.cletter)(latin.upe);
240 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
241 tsu_render;
242 endtsuglyph;
243

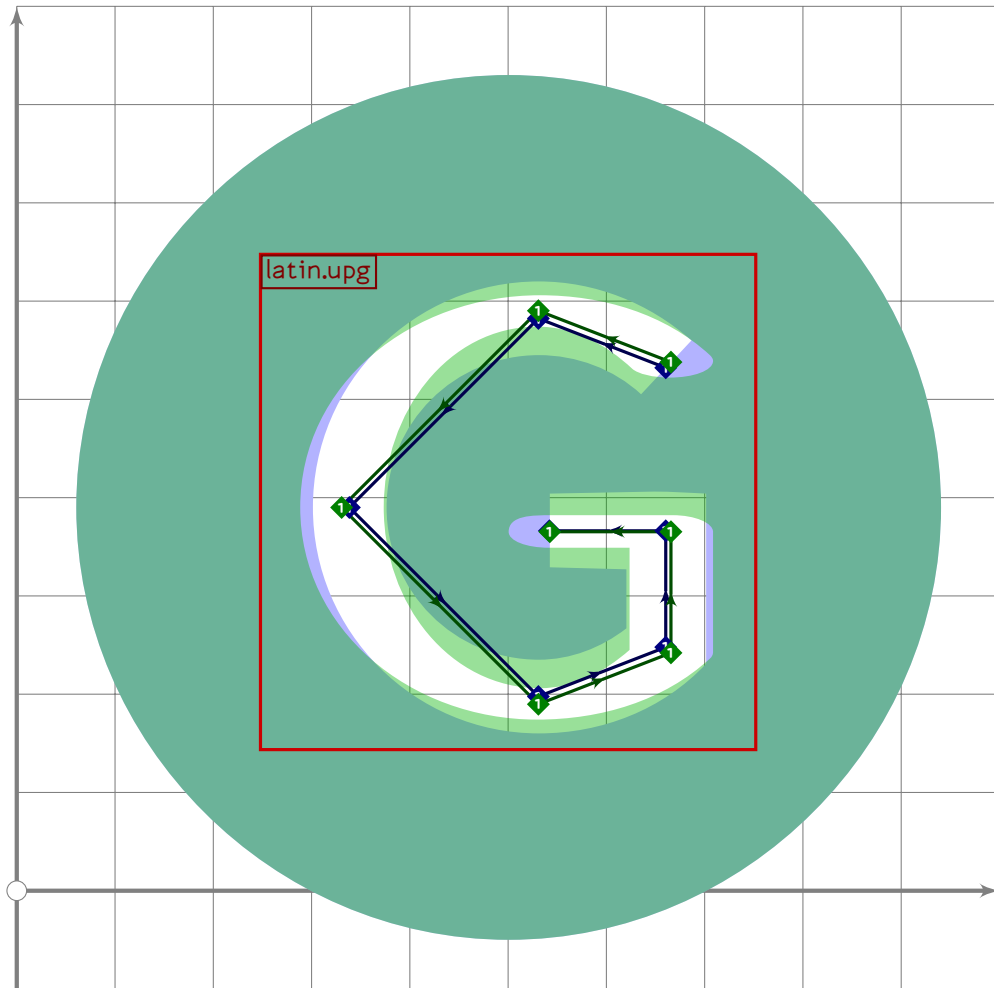
```



```

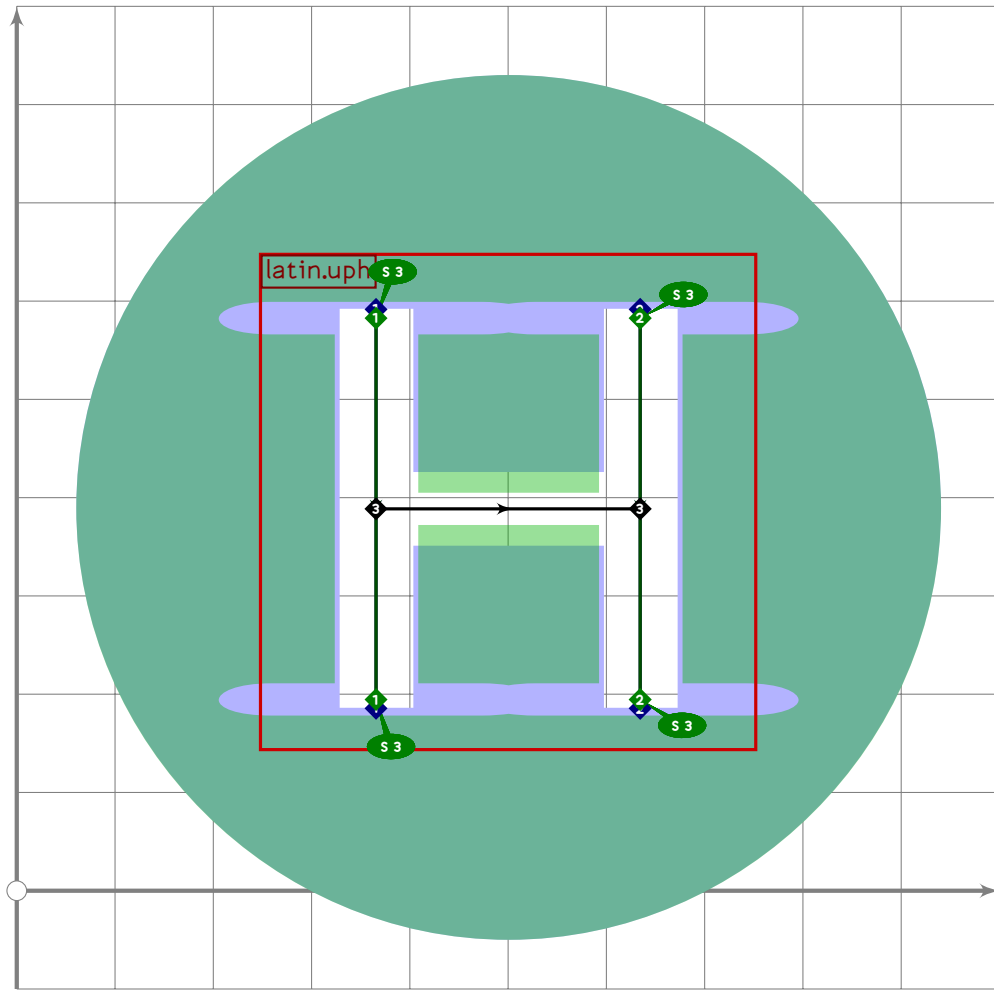
244 % F
245 % BACKGROUND 25CF
246 begint Suglyph("u1F155";85);
247 tsu_xform(tsu_xf.cletter)(latin.upf);
248 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
249 tsu_render;
250 endtsuglyph;
251

```



```
252 % G
253 % BACKGROUND 25CF
254 begint Suglyph("u1F156";86);
255 tsu_xform(tsu_xf.cletter)(latin.upg);
256 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
257 tsu_render;
258 endtsuglyph;
259
```

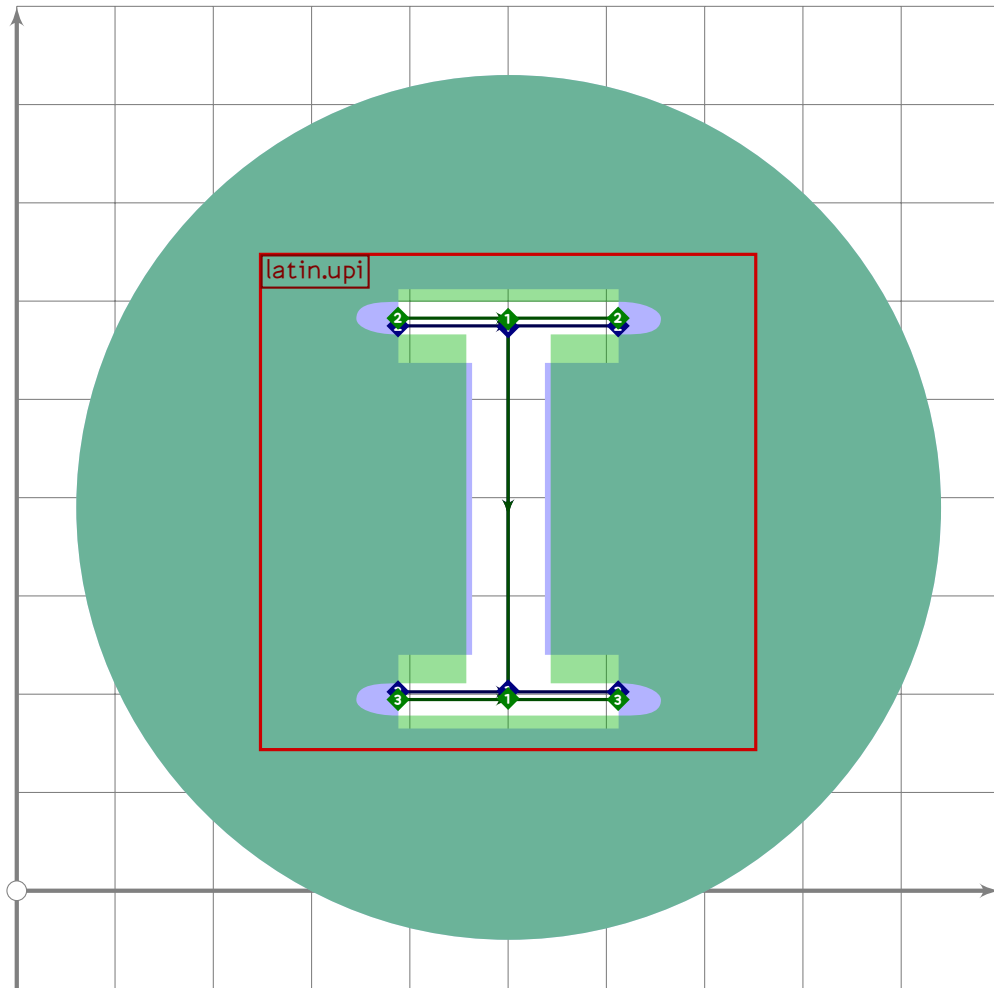




```

260 % H
261 % BACKGROUND 25CF
262 begint Suglyph("u1F157";87);
263   tsu_xform(tsu_xf.cletter)(latin.uph);
264   i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
265   tsu_render;
266 endtsuglyph;
267

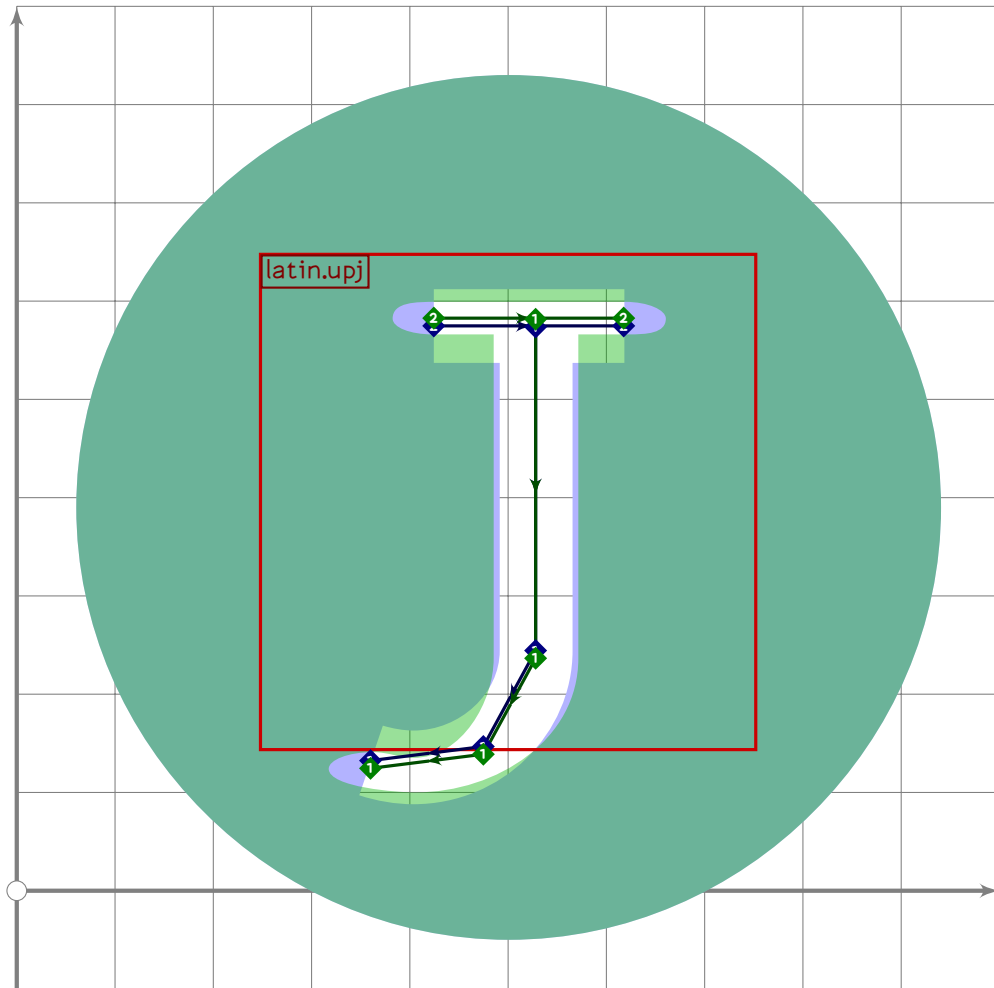
```



```

268 % I
269 % BACKGROUND 25CF
270 begint Suglyph("u1F158";88);
271 tsu_xform(tsu_xf.cletter)(latin.upi);
272 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
273 tsu_render;
274 endtsuglyph;
275

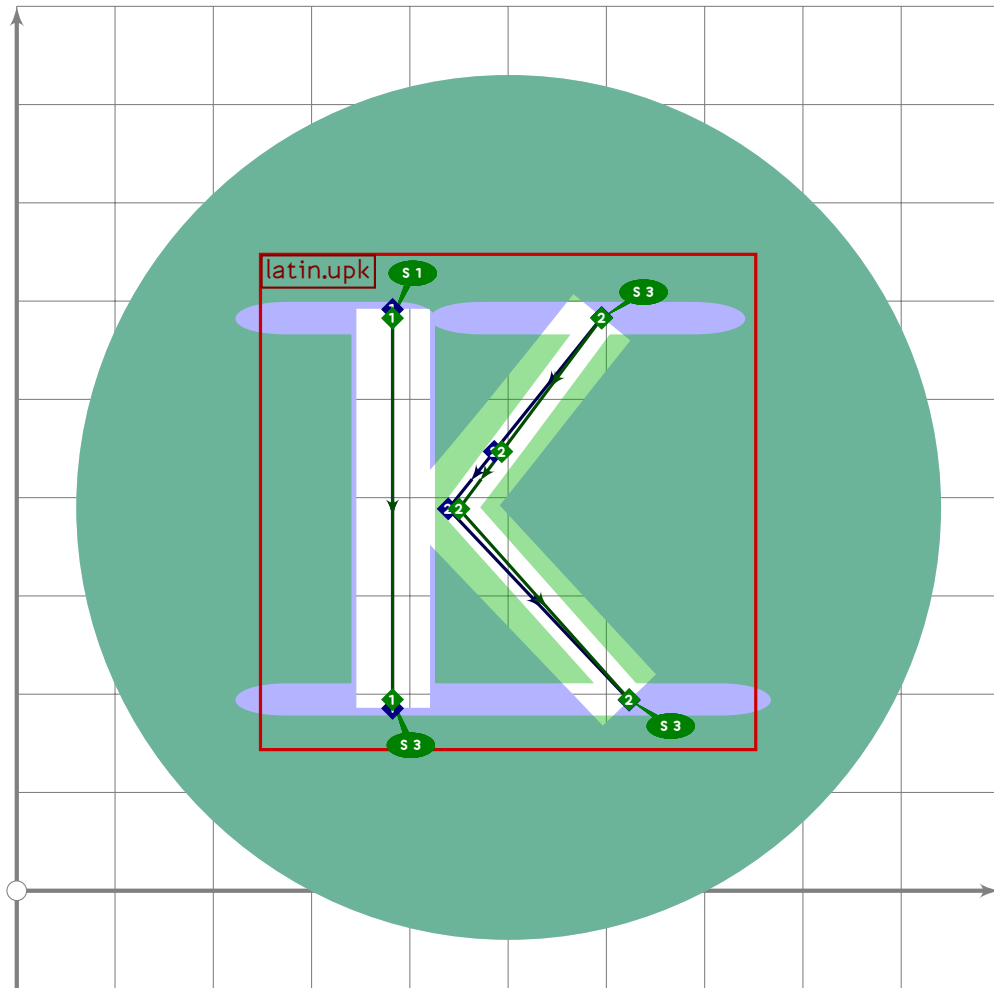
```



```

276 % J
277 % BACKGROUND 25CF
278 begint Suglyph("u1F159";89);
279 tsu_xform(tsu_xf.cletter)(latin.upj);
280 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
281 tsu_render;
282 endtsuglyph;
283

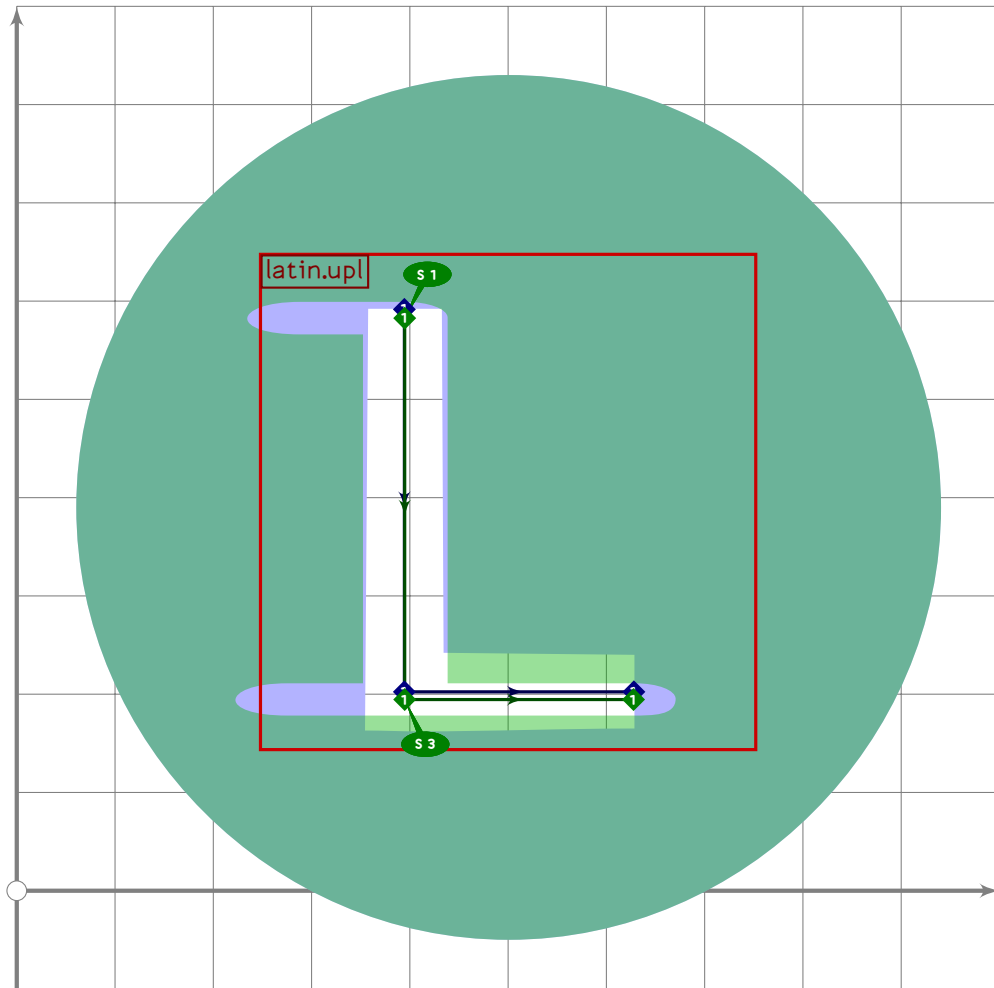
```



```

284 % K
285 % BACKGROUND 25CF
286 begint Suglyph("u1F15A";90);
287 tsu_xform(tsu_xf.cletter)(latin.upk);
288 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
289 tsu_render;
290 endtsuglyph;
291

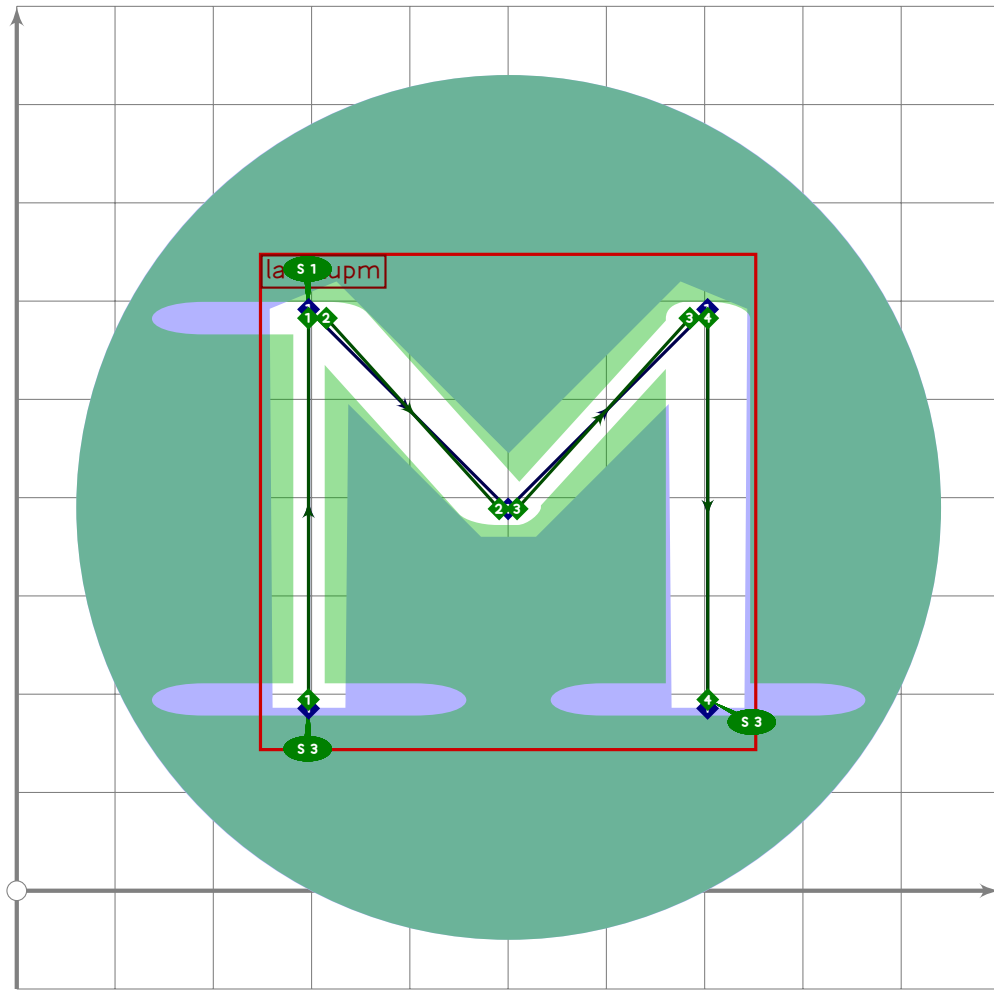
```



```

292 % L
293 % BACKGROUND 25CF
294 begint Suglyph("u1F15B";91);
295 tsu_xform(tsu_xf.cletter)(latin.upl);
296 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
297 tsu_render;
298 endsuglyph;
299

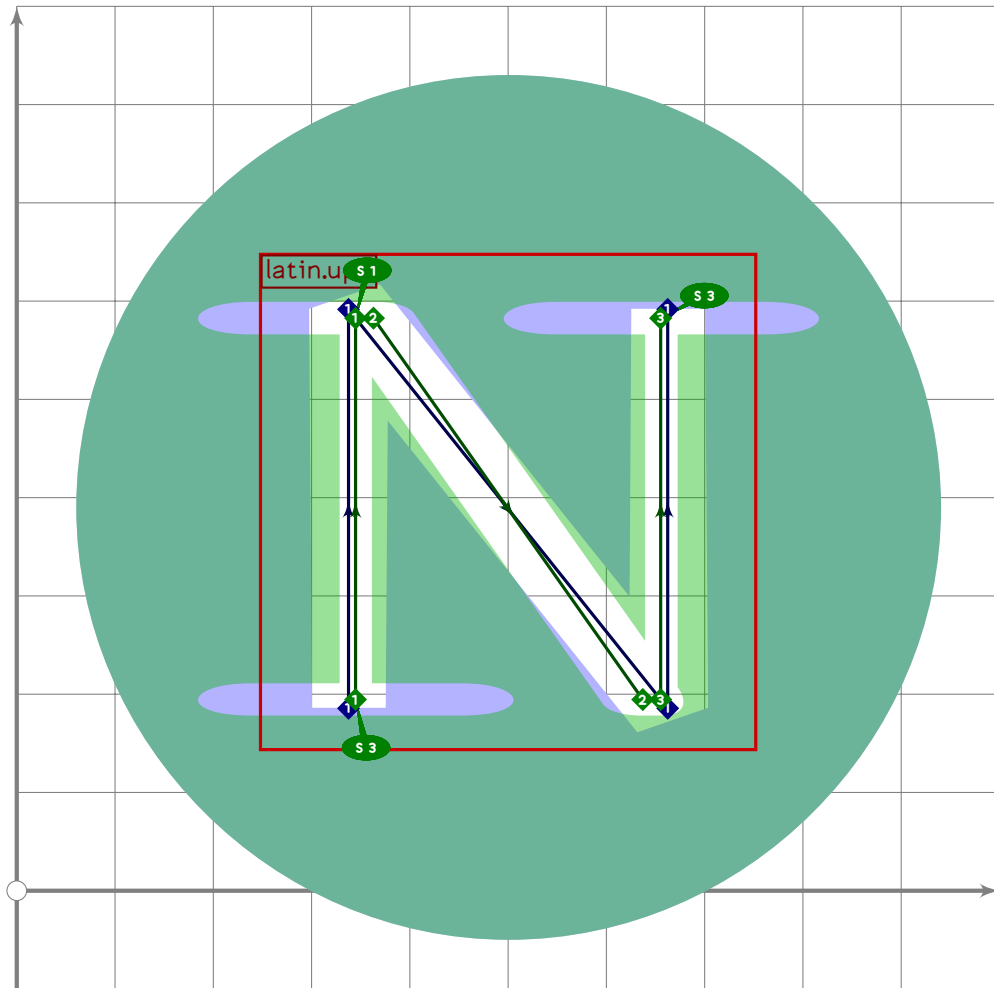
```



```

300 % M
301 % BACKGROUND 25CF
302 begint Suglyph("u1F15C";92);
303   tsu_xform(tsu_xf.cletter)(latin.upm);
304   i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
305   tsu_render;
306 endtsuglyph;
307

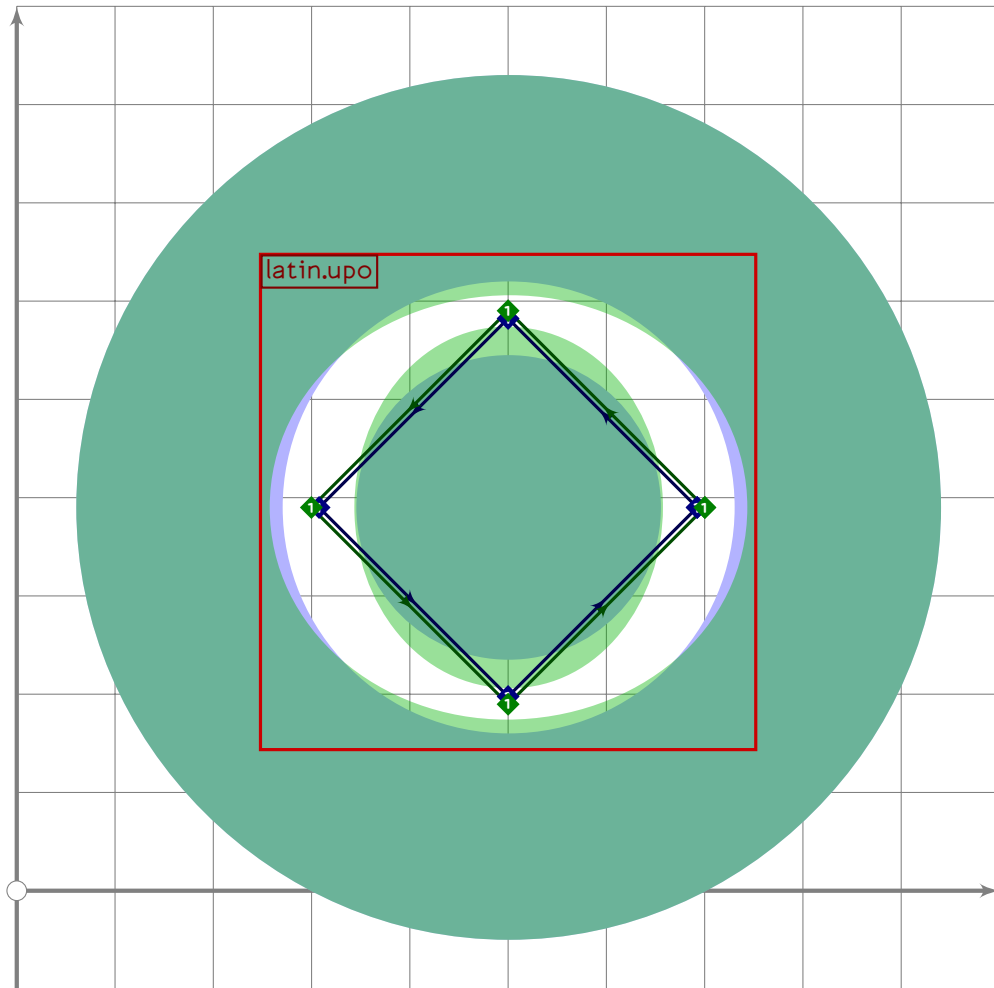
```



```

308 % N
309 % BACKGROUND 25CF
310 begint Suglyph("u1F15D";93);
311 tsu_xform(tsu_xf.cletter)(latin.upn);
312 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
313 tsu_render;
314 endtsuglyph;
315

```

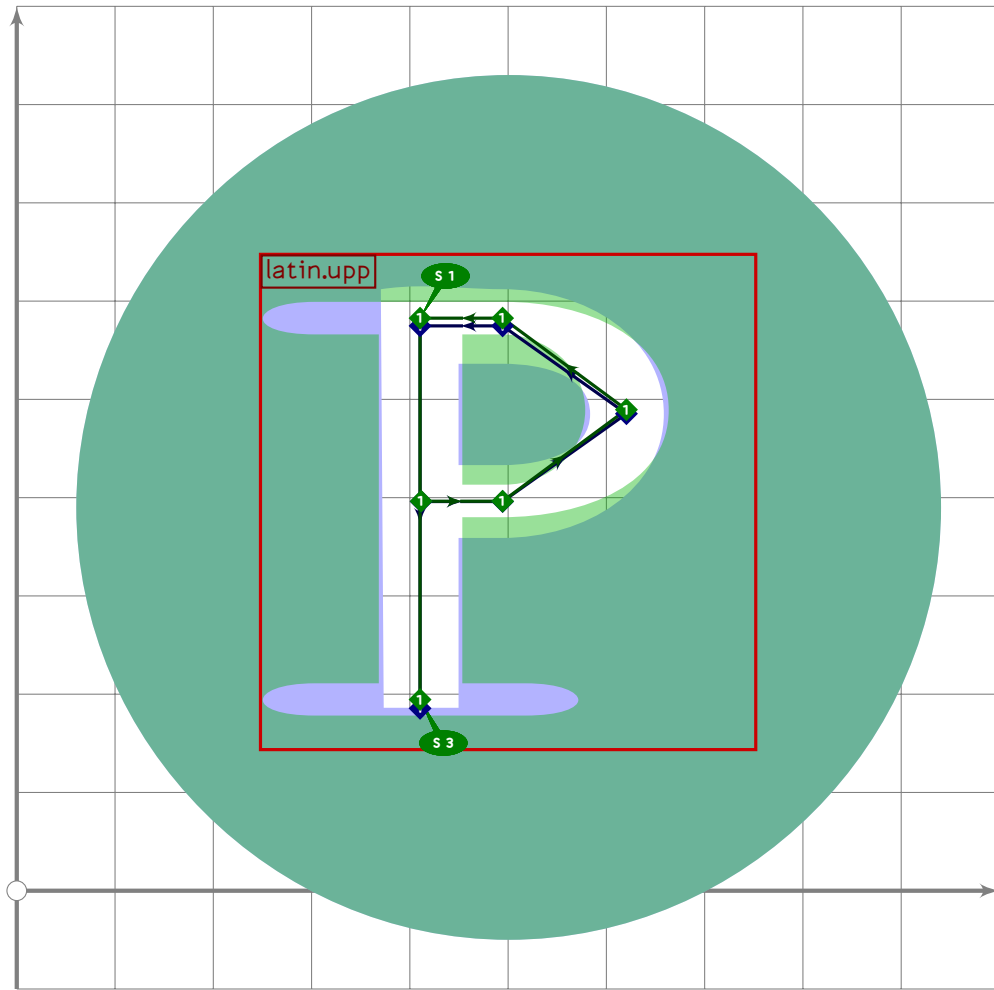


```

316 % O
317 % BACKGROUND 25CF
318 begint Suglyph("u1F15E";94);
319 tsu_xform(tsu_xf.cletter)(latin.upo);
320 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
321 tsu_render;
322 endtsuglyph;
323

```

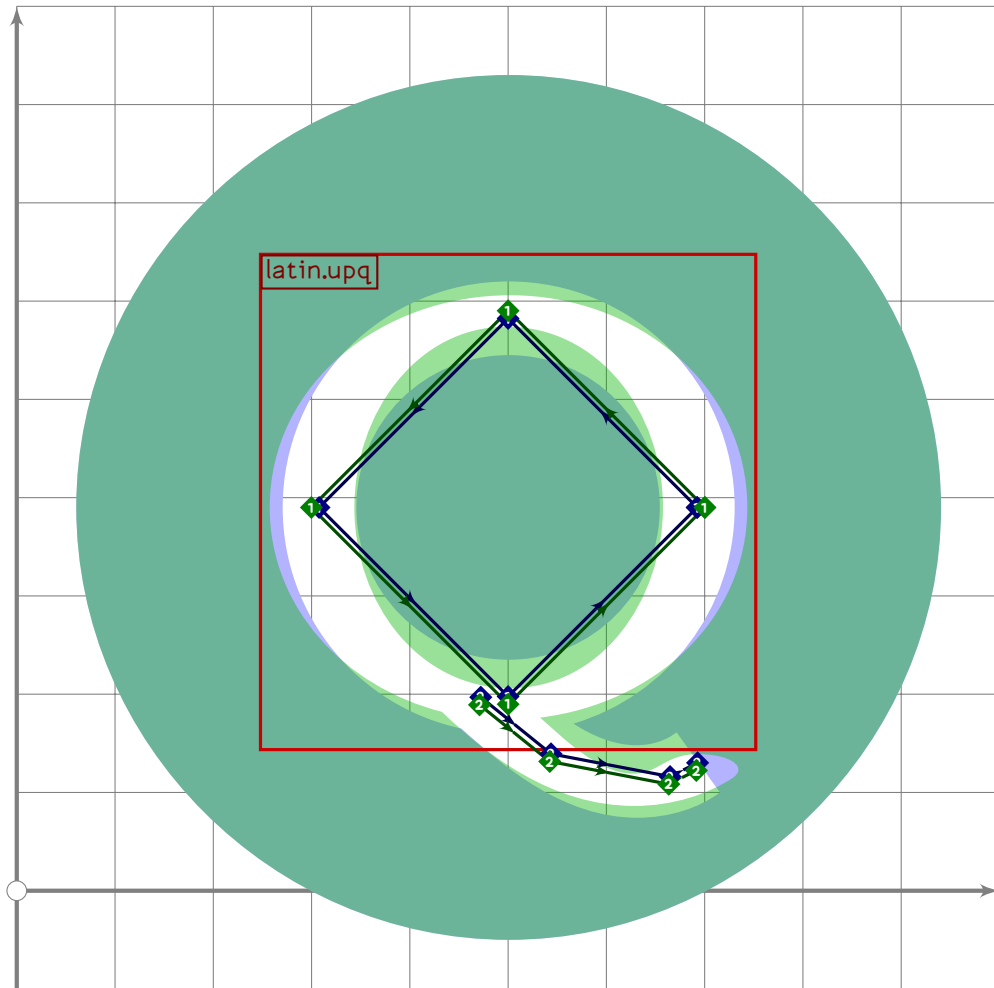




```

324 % P
325 % BACKGROUND 25CF
326 begint Suglyph("u1F15F";95);
327 tsu_xform(tsu_xf.cletter)(latin.upp);
328 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
329 tsu_render;
330 endsuglyph;
331

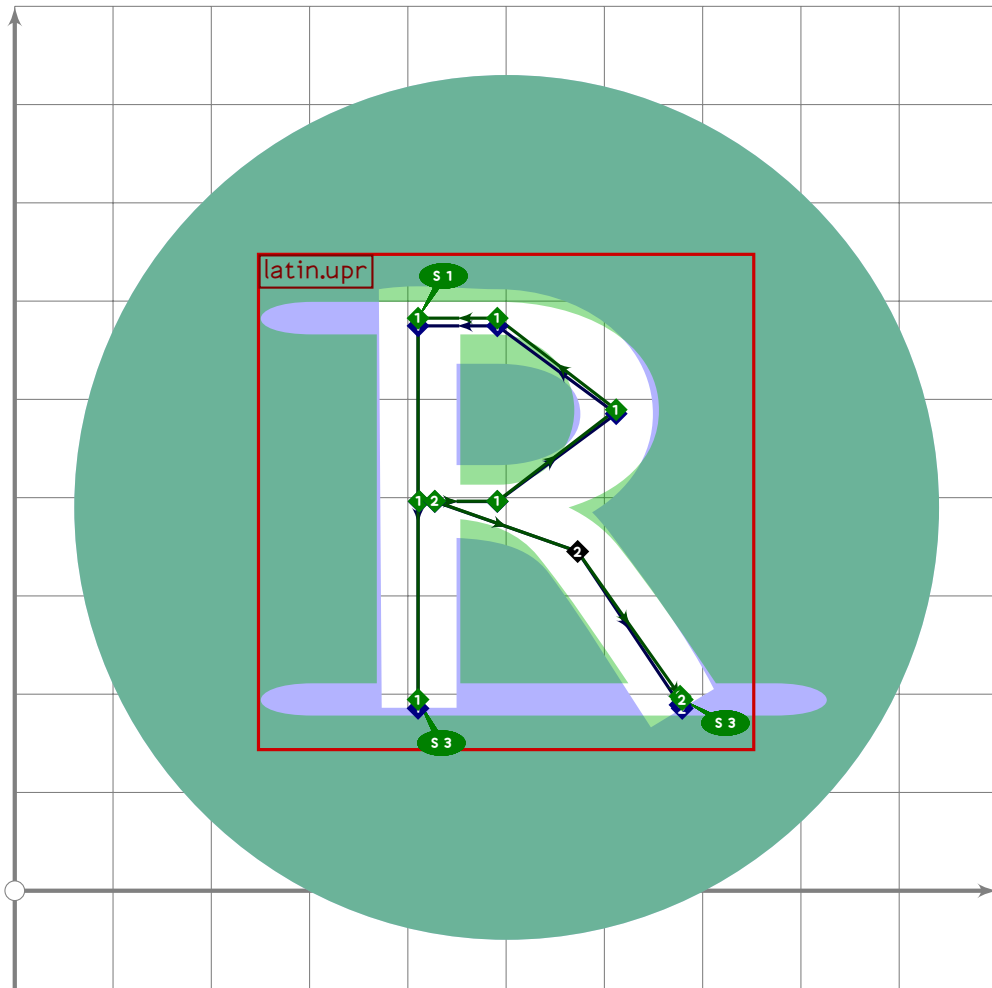
```



```

332 % Q
333 % BACKGROUND 25CF
334 begint Suglyph("u1F160";96);
335 tsu_xform(tsu_xf.cletter)(latin.upq);
336 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
337 tsu_render;
338 endtsuglyph;
339

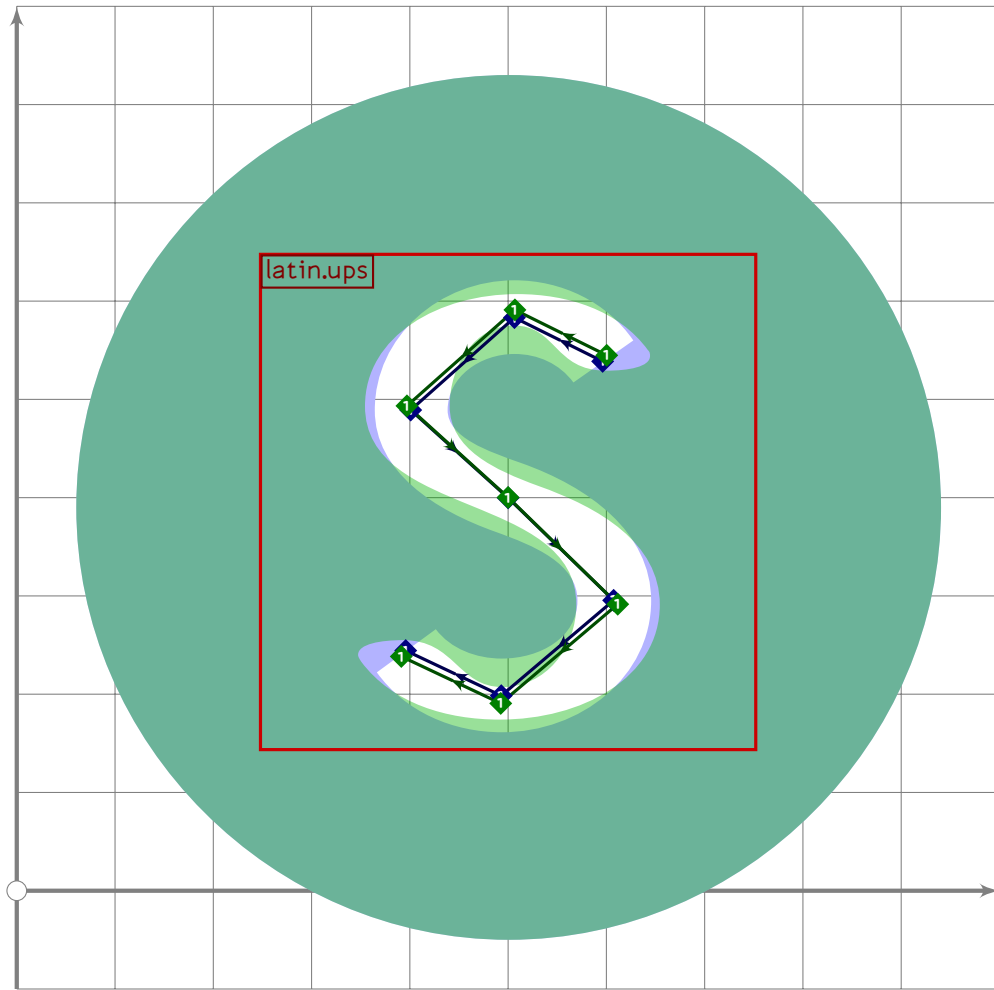
```



```

340 % R
341 % BACKGROUND 25CF
342 begint Suglyph("u1F161";97);
343 tsu_xform(tsu_xf.cletter)(latin.upr);
344 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
345 tsu_render;
346 endtsuglyph;
347

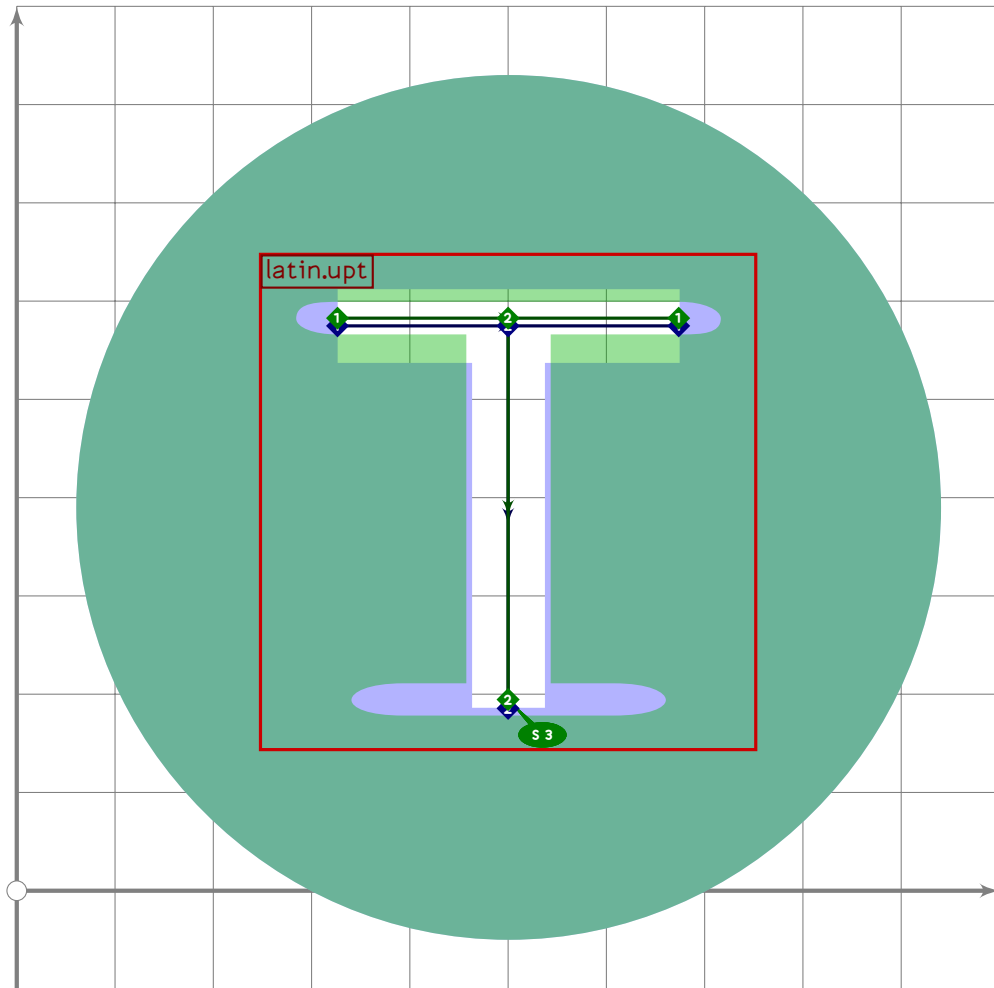
```



```

348 % S
349 % BACKGROUND 25CF
350 begint Suglyph("u1F162";98);
351   tsu_xform(tsu_xf.cletter)(latin.ups);
352   i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
353   tsu_render;
354 endtsuglyph;
355

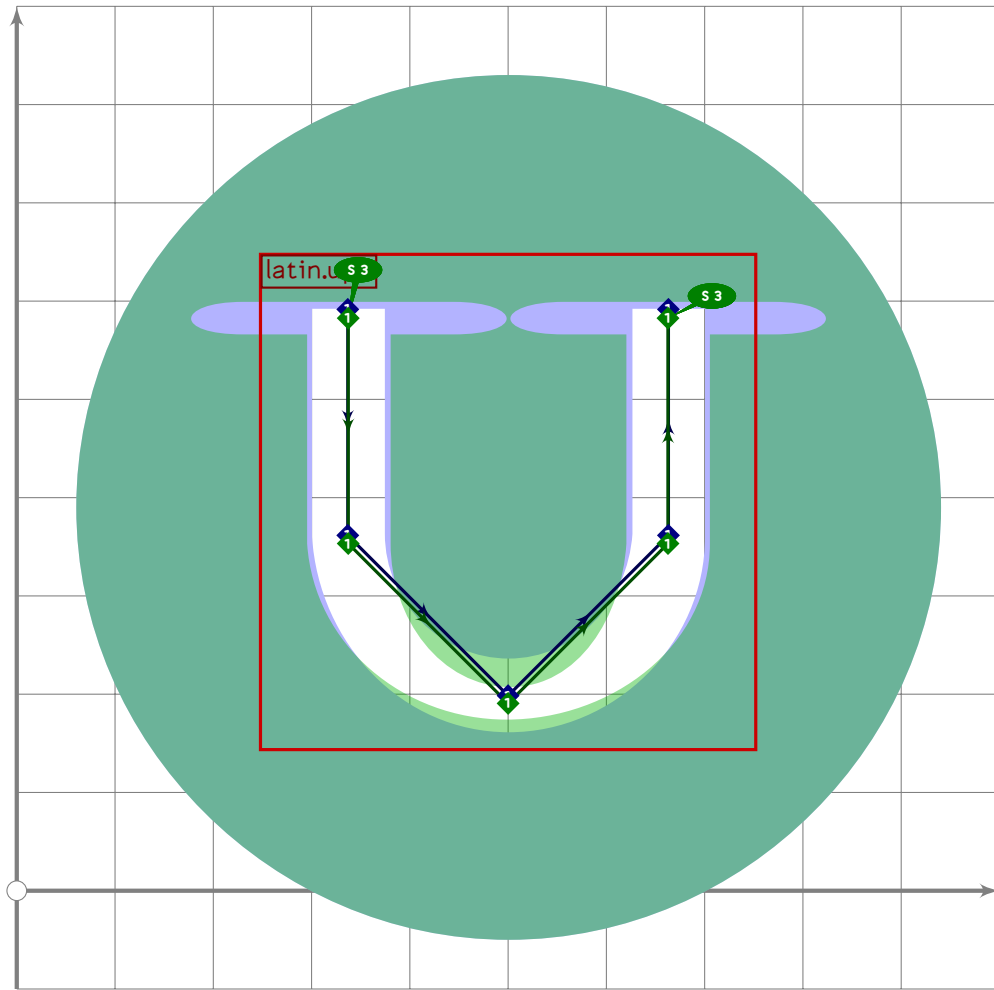
```



```

356 % T
357 % BACKGROUND 25CF
358 begint Suglyph("u1F163";99);
359 tsu_xform(tsu_xf.cletter)(latin.upt);
360 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
361 tsu_render;
362 endtsuglyph;
363

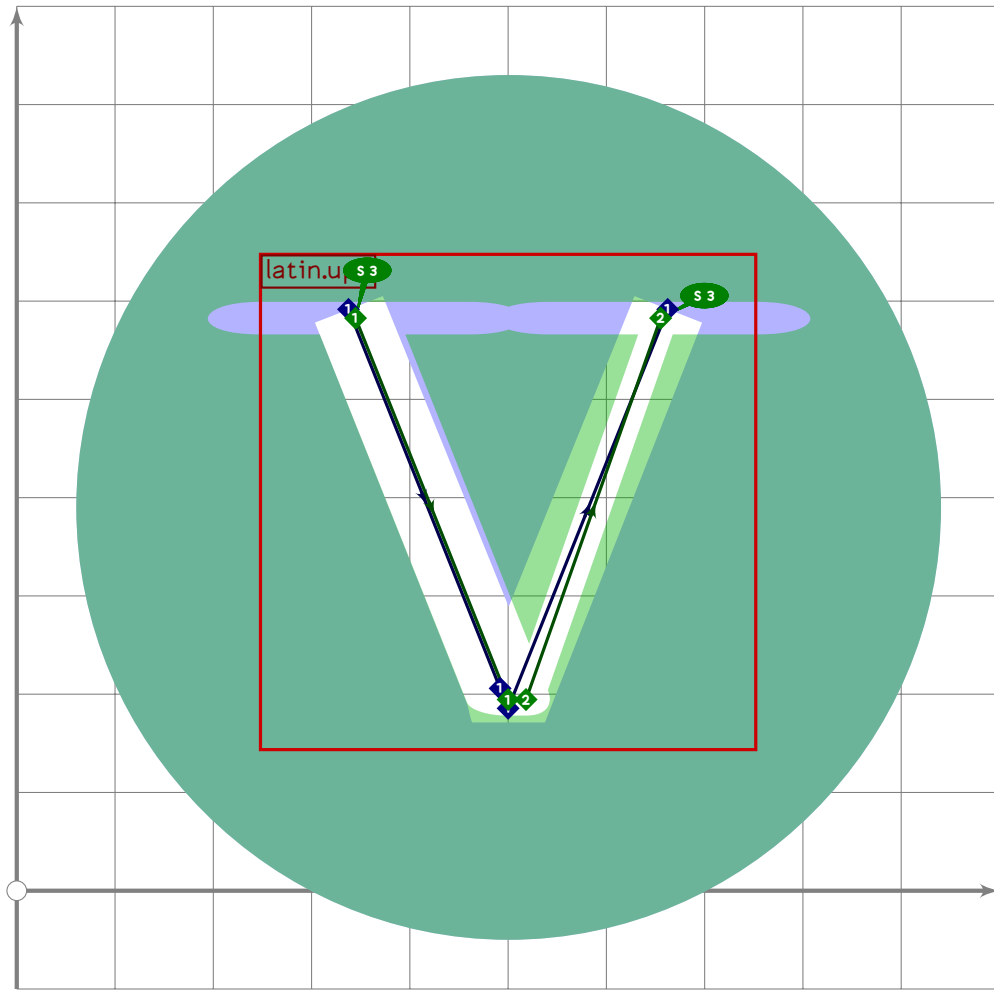
```



```

364 % U
365 % BACKGROUND 25CF
366 begint Suglyph("u1F164";100);
367 tsu_xform(tsu_xf.cletter)(latin.upu);
368 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
369 tsu_render;
370 endtsuglyph;
371

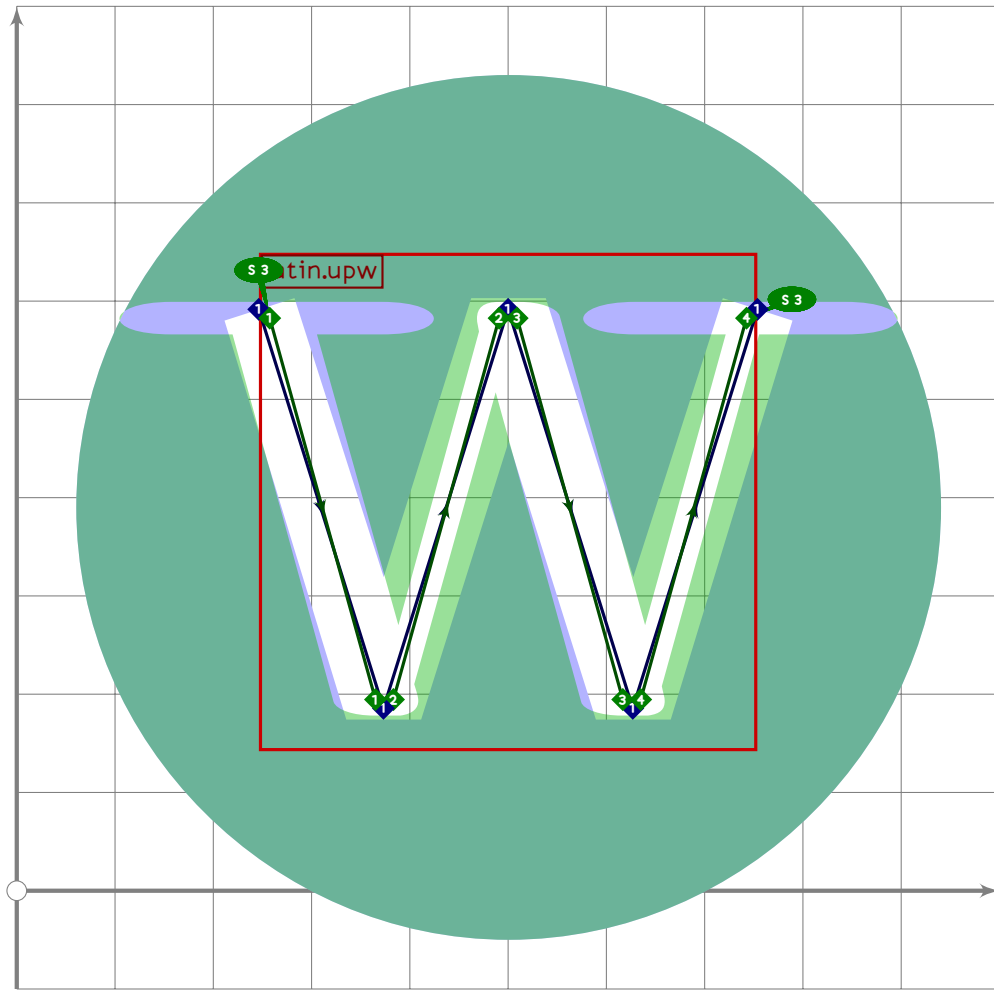
```



```

372 % V
373 % BACKGROUND 25CF
374 begint Suglyph("u1F165";101);
375 tsu_xform(tsu_xf.cletter)(latin.upv);
376 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
377 tsu_render;
378 endtsuglyph;
379

```

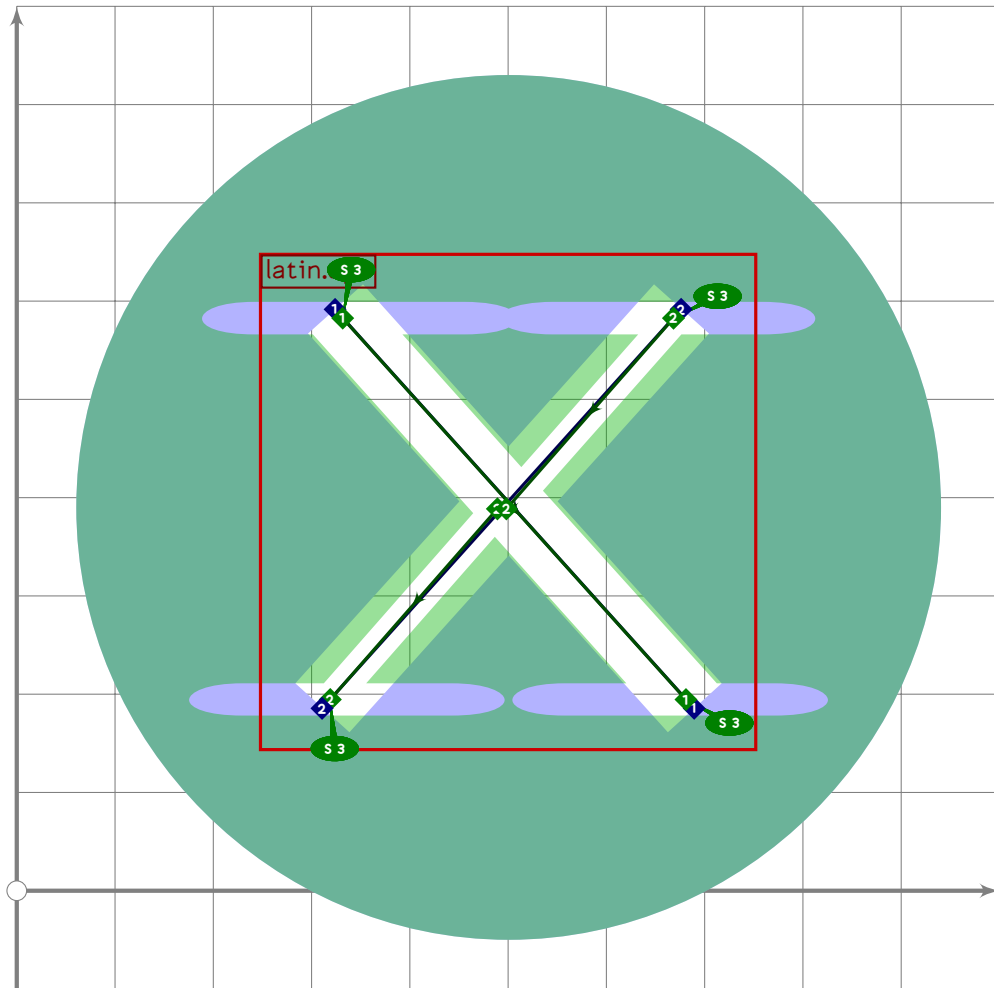


```

380 % W
381 % BACKGROUND 25CF
382 begint Suglyph("u1F166";102);
383 tsu_xform(tsu_xf.cletter)(latin.upw);
384 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
385 tsu_render;
386 endtsuglyph;
387

```

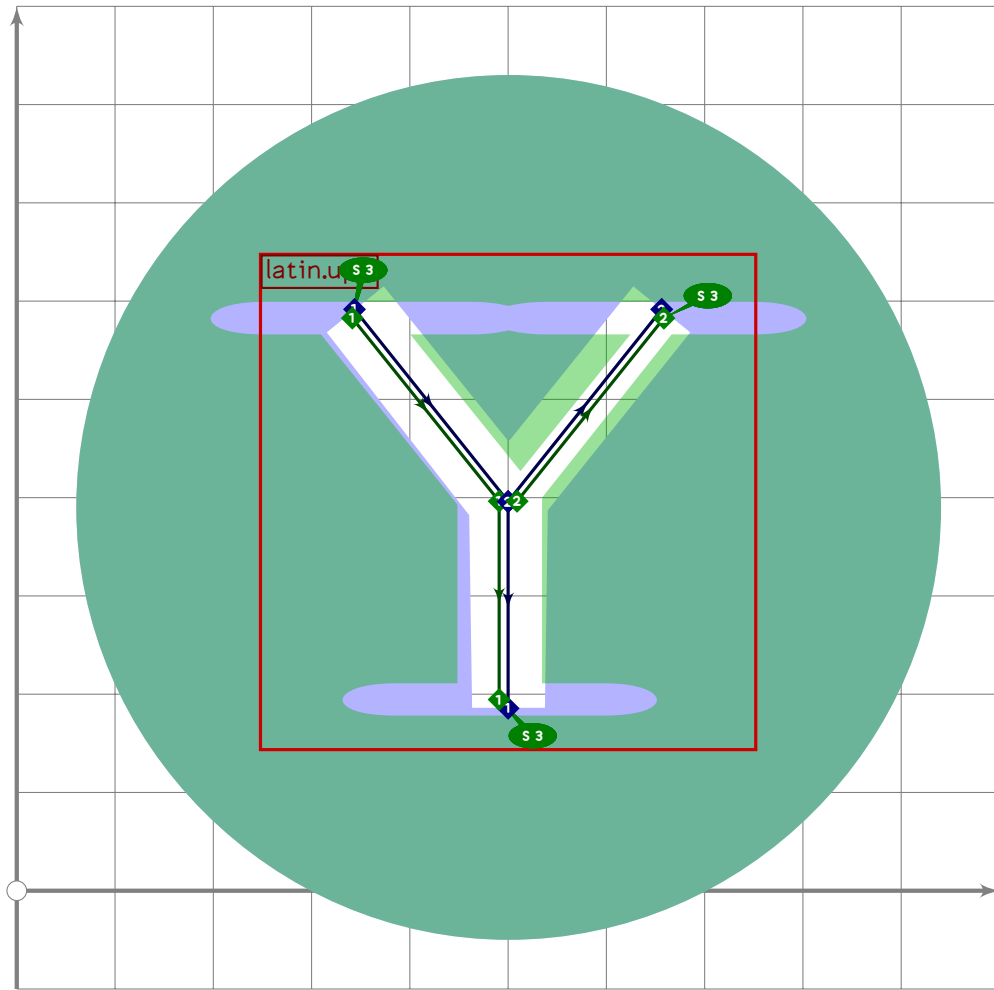




```

388 % X
389 % BACKGROUND 25CF
390 begint Suglyph("u1F167";103);
391   tsu_xform(tsu_xf.cletter)(latin.upx);
392   i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
393   tsu_render;
394 endtsuglyph;
395

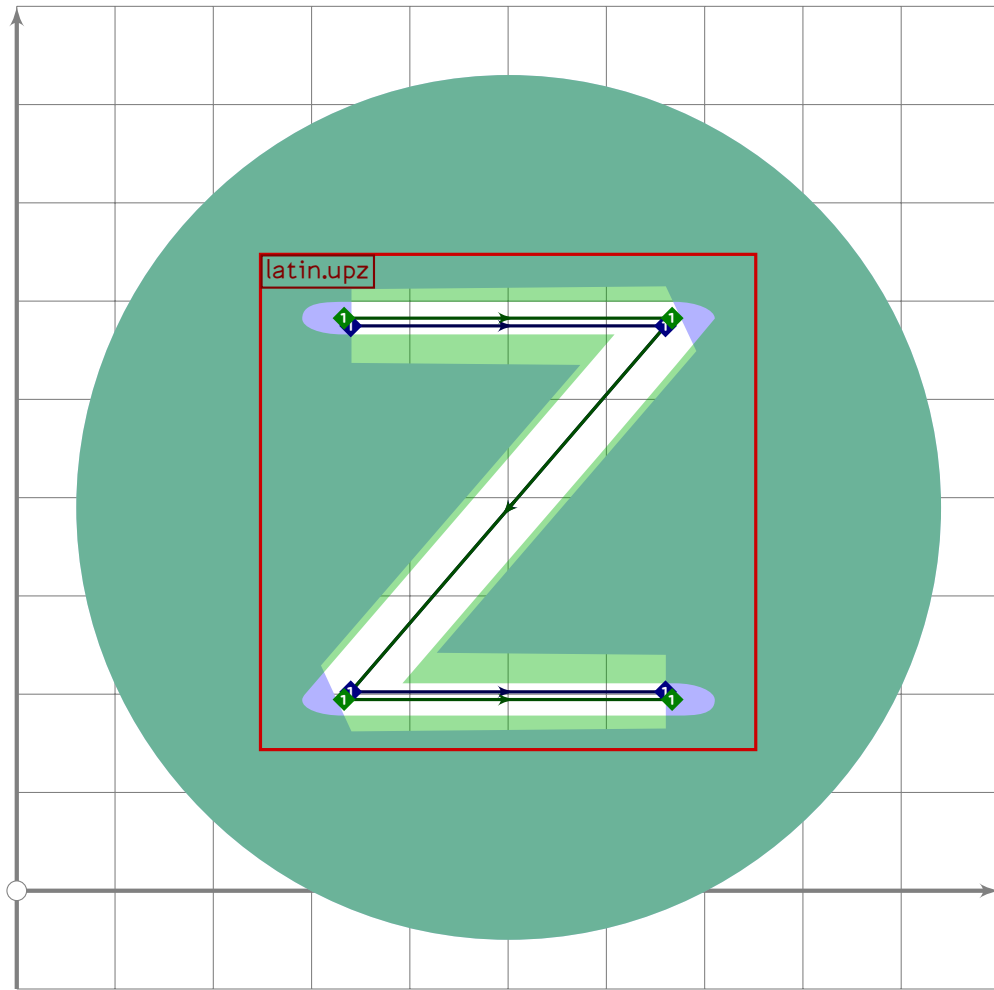
```



```

396 % Y
397 % BACKGROUND 25CF
398 begint Suglyph("u1F168";104);
399 tsu_xform(tsu_xf.cletter)(latin.upy);
400 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
401 tsu_render;
402 endtsuglyph;
403

```



```

404 % Z
405 % BACKGROUND 25CF
406 begint Suglyph("u1F169";105);
407 tsu_xform(tsu_xf.cletter)(latin.upz);
408 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
409 tsu_render;
410 endtsuglyph;
411
412
413

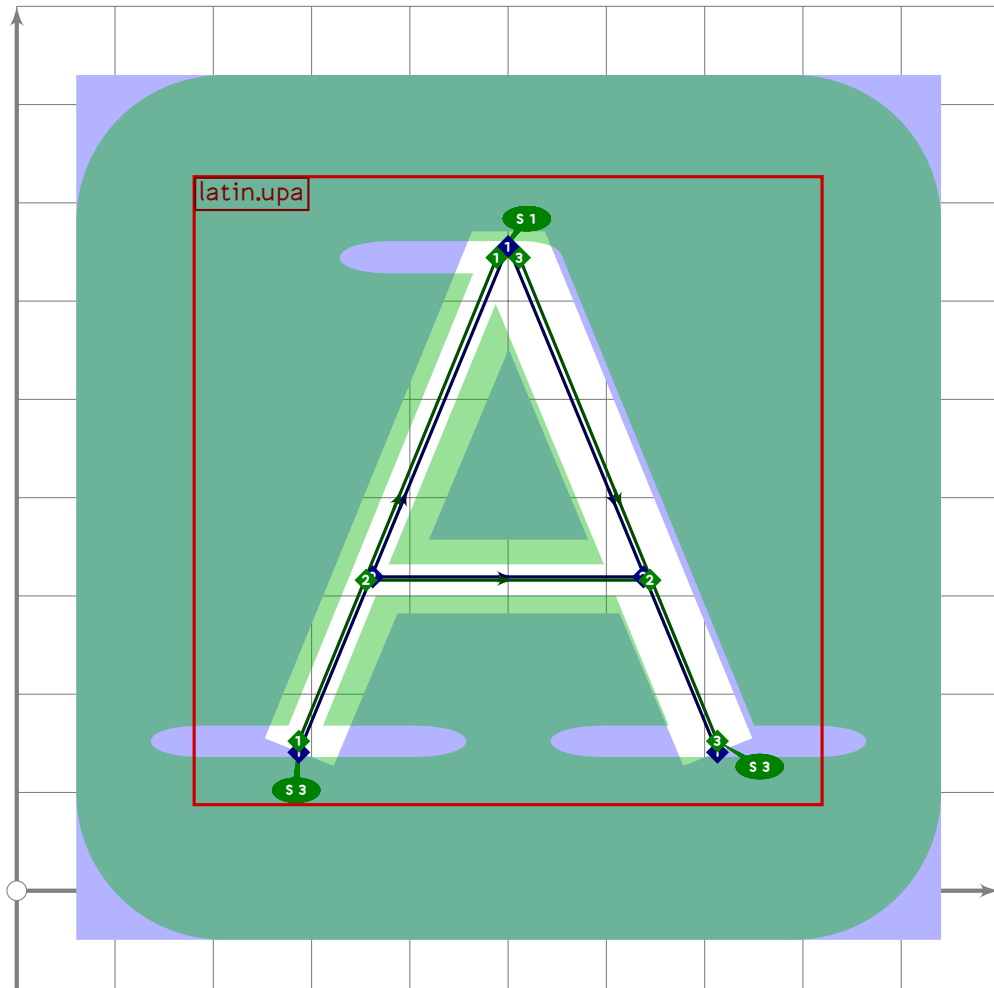
```

## Inverse Squared Latin

```

414 % INVERSE SQUARED LATIN
415

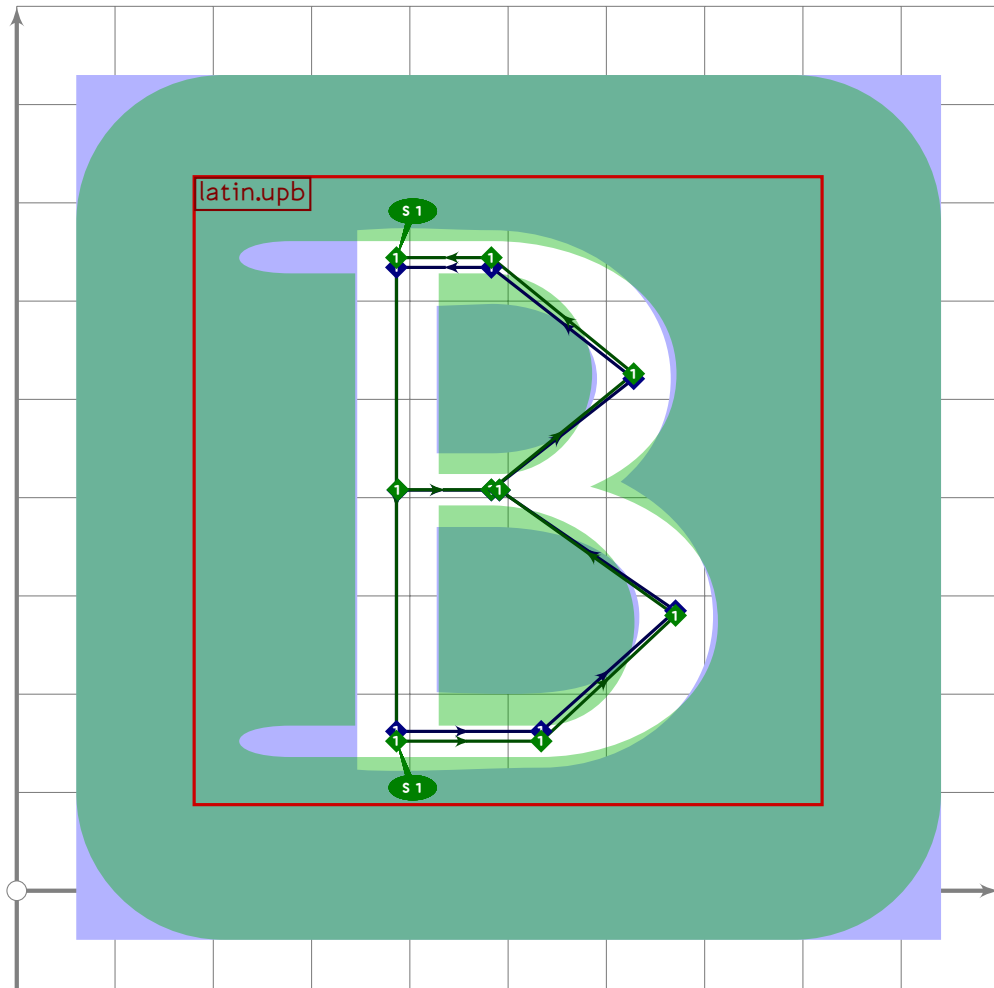
```



```

416 % A
417 % BACKGROUND F1712
418 beginsuglyph("u1F170";112);
419   tsu_xform(tsu_xf.sletter)(latin.upa);
420   i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
421   tsu_render;
422 endsuglyph;
423

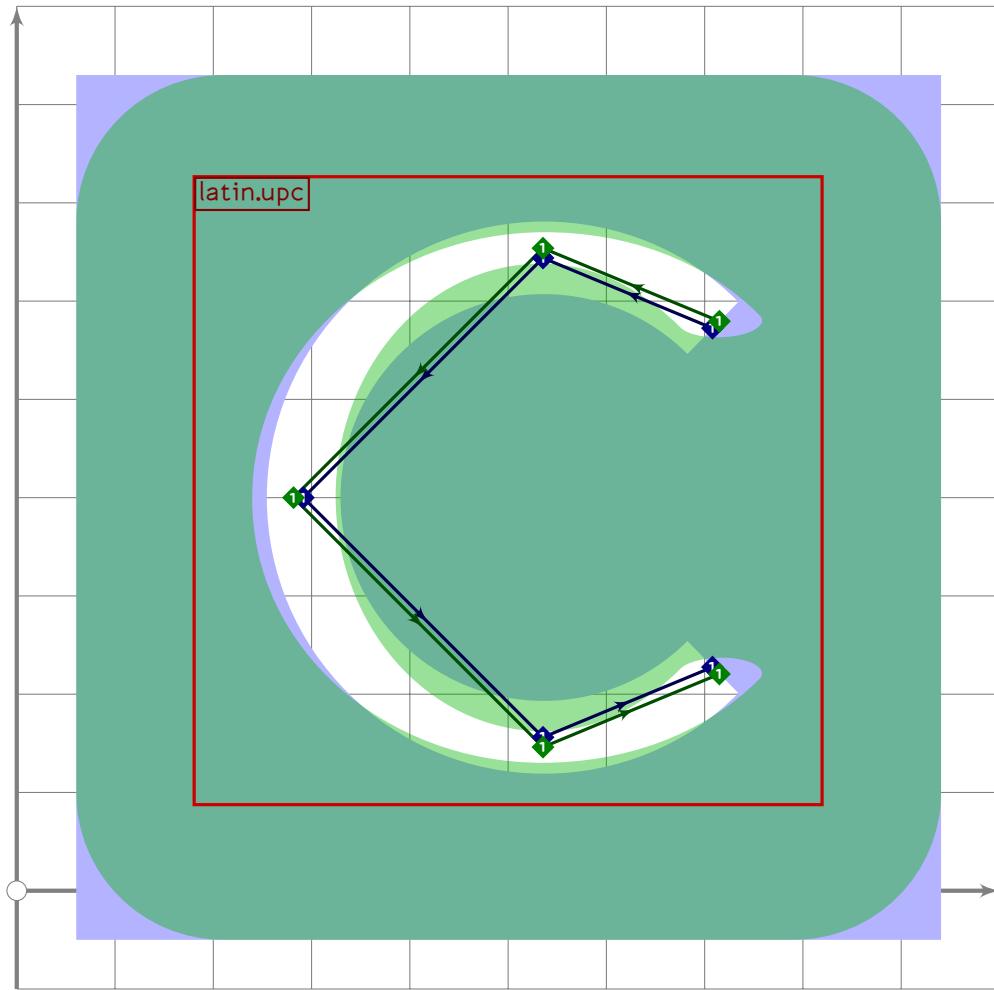
```



```

424 % B
425 % BACKGROUND F1712
426 begint Suglyph("u1F171";113);
427 tsu_xform(tsu_xf.sletter)(latin.upb);
428 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
429 tsu_render;
430 endtsuglyph;
431

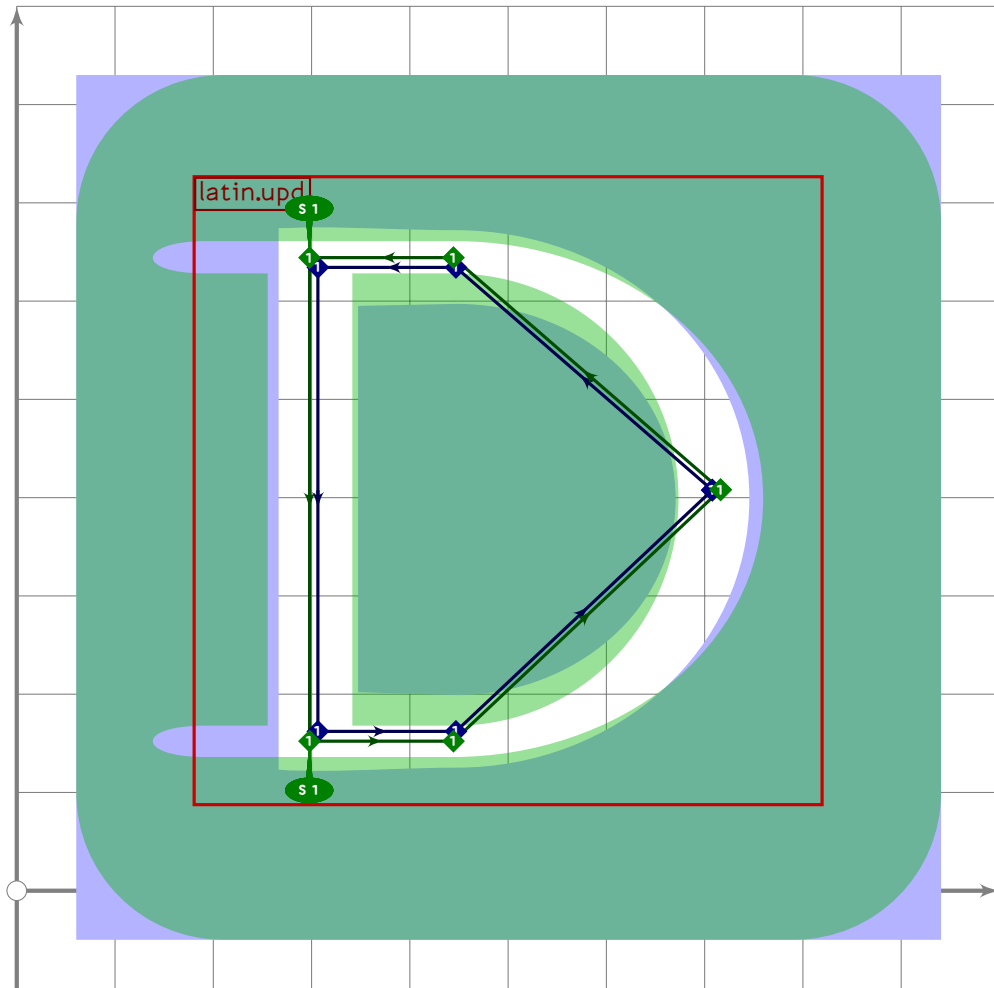
```



```

432 % C
433 % BACKGROUND F1712
434 begint Suglyph("u1F172";114);
435 tsu_xform(tsu_xf.sletter)(latin.upc);
436 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
437 tsu_render;
438 endtsuglyph;
439

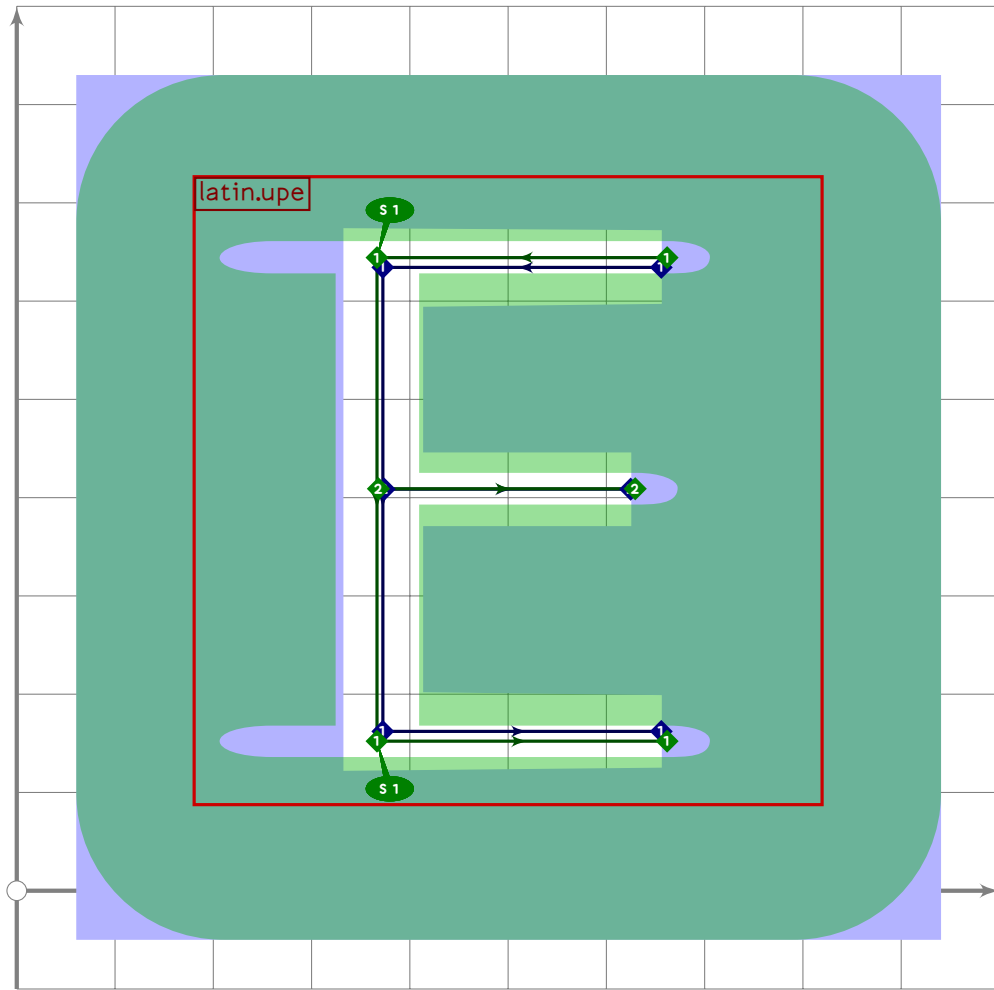
```



```

440 % D
441 % BACKGROUND F1712
442 begint Suglyph("u1F173";115);
443 tsu_xform(tsu_xf.sletter)(latin.upd);
444 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
445 tsu_render;
446 endtsuglyph;
447

```

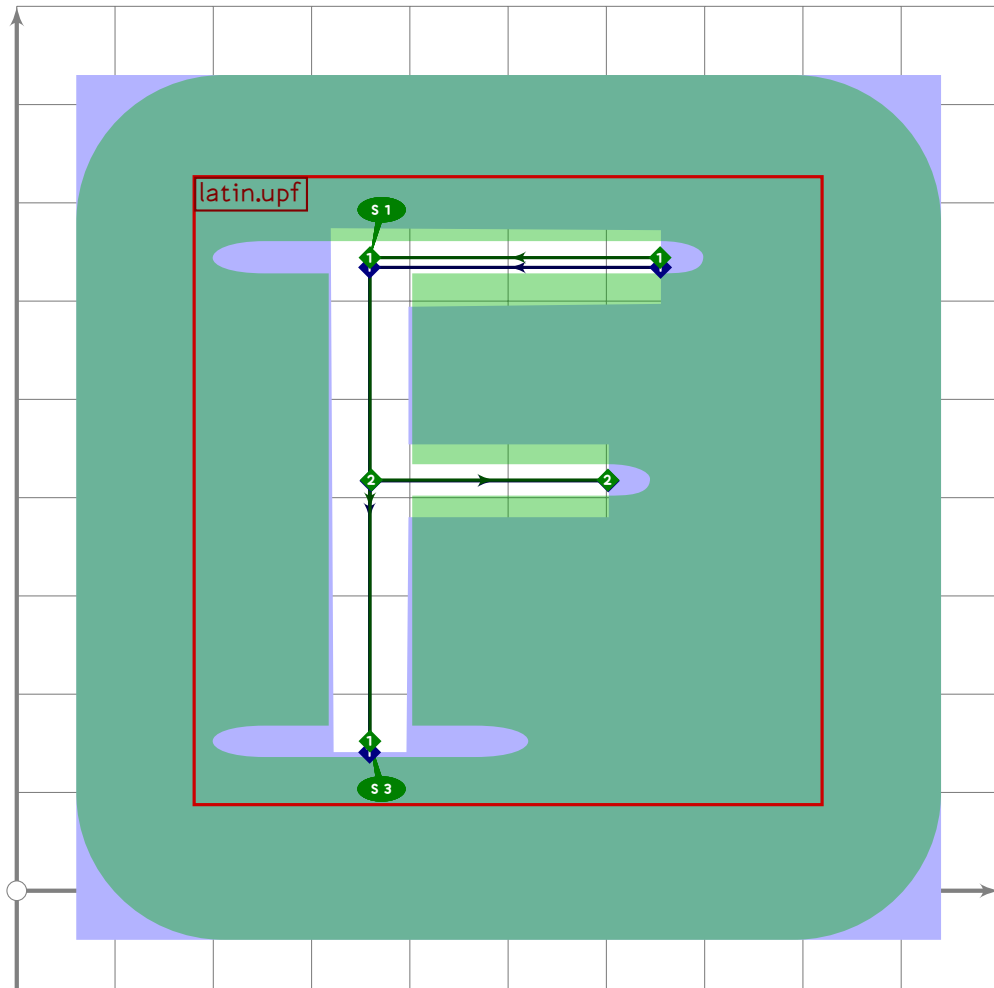


```

448 % E
449 % BACKGROUND F1712
450 begint Suglyph("u1F174";116);
451   tsu_xform(tsu_xf.sletter)(latin.upe);
452   i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
453   tsu_render;
454 endtsuglyph;
455

```

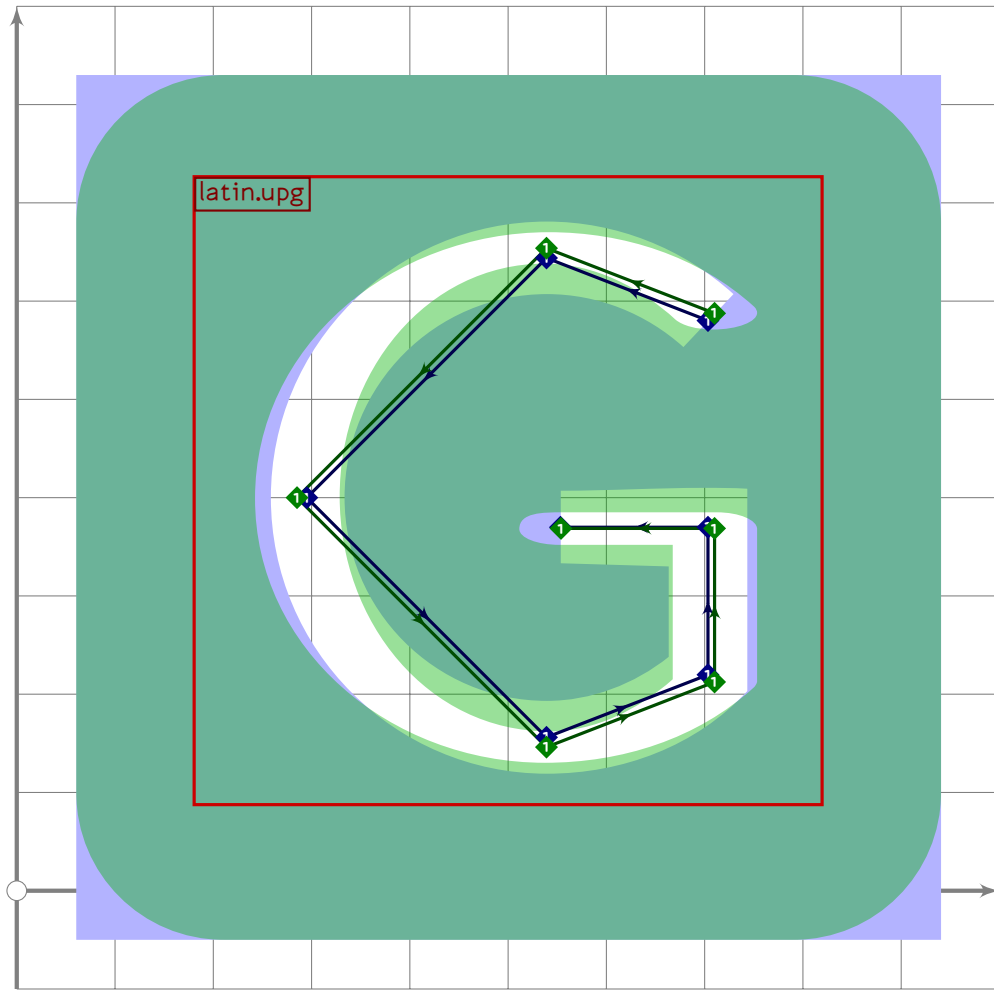




```

456 % F
457 % BACKGROUND F1712
458 begint Suglyph("u1F175";117);
459 tsu_xform(tsu_xf.sletter)(latin.upf);
460 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
461 tsu_render;
462 endtsuglyph;
463

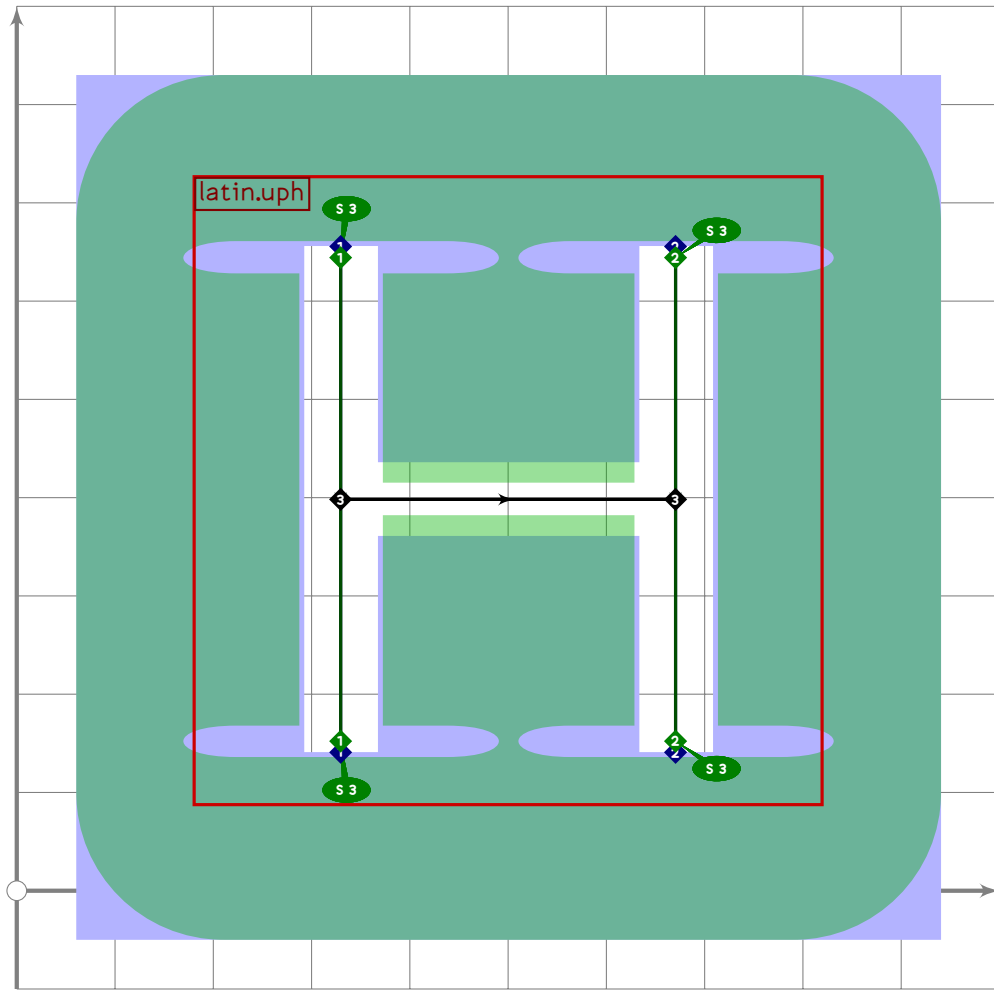
```



```

464 % G
465 % BACKGROUND F1712
466 begint Suglyph("u1F176";118);
467 tsu_xform(tsu_xf.sletter)(latin.upg);
468 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
469 tsu_render;
470 endtsuglyph;
471

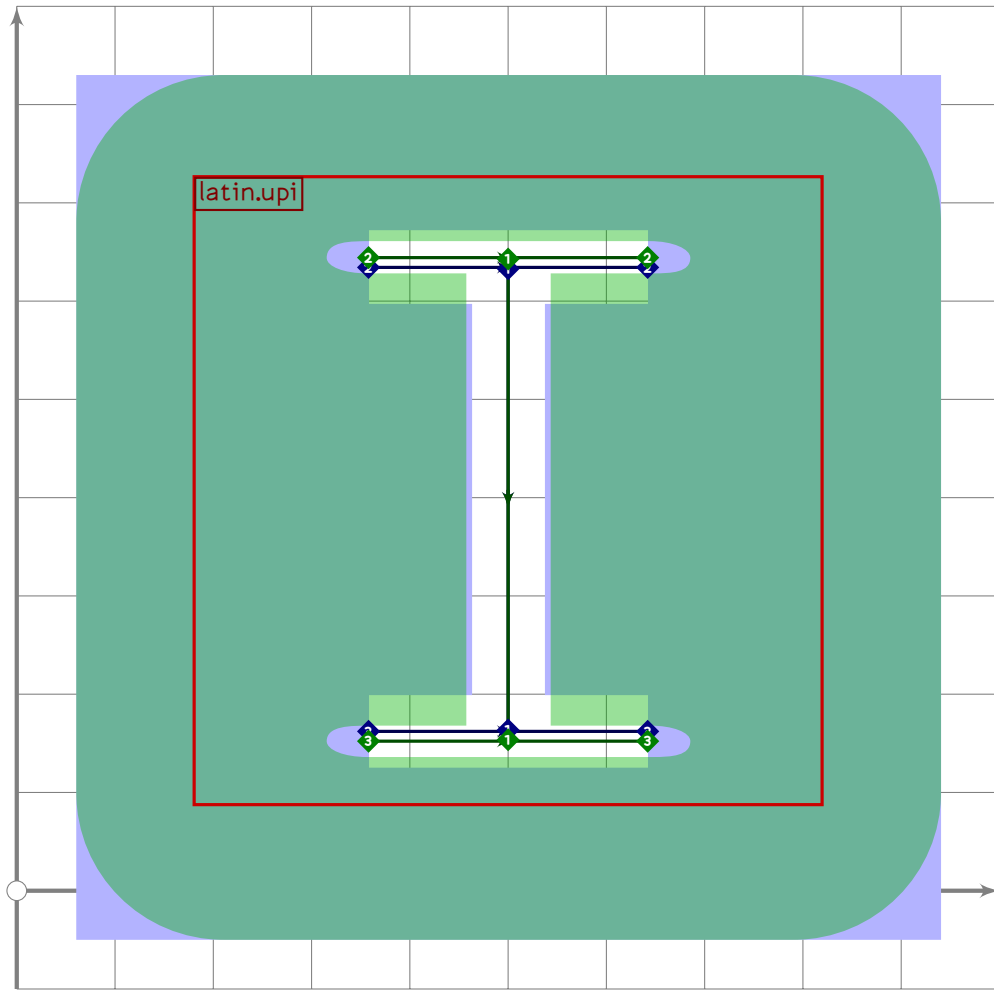
```



```

472 % H
473 % BACKGROUND F1712
474 begint Suglyph("u1F177";119);
475 tsu_xform(tsu_xf.sletter)(latin.uph);
476 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
477 tsu_render;
478 endtsuglyph;
479

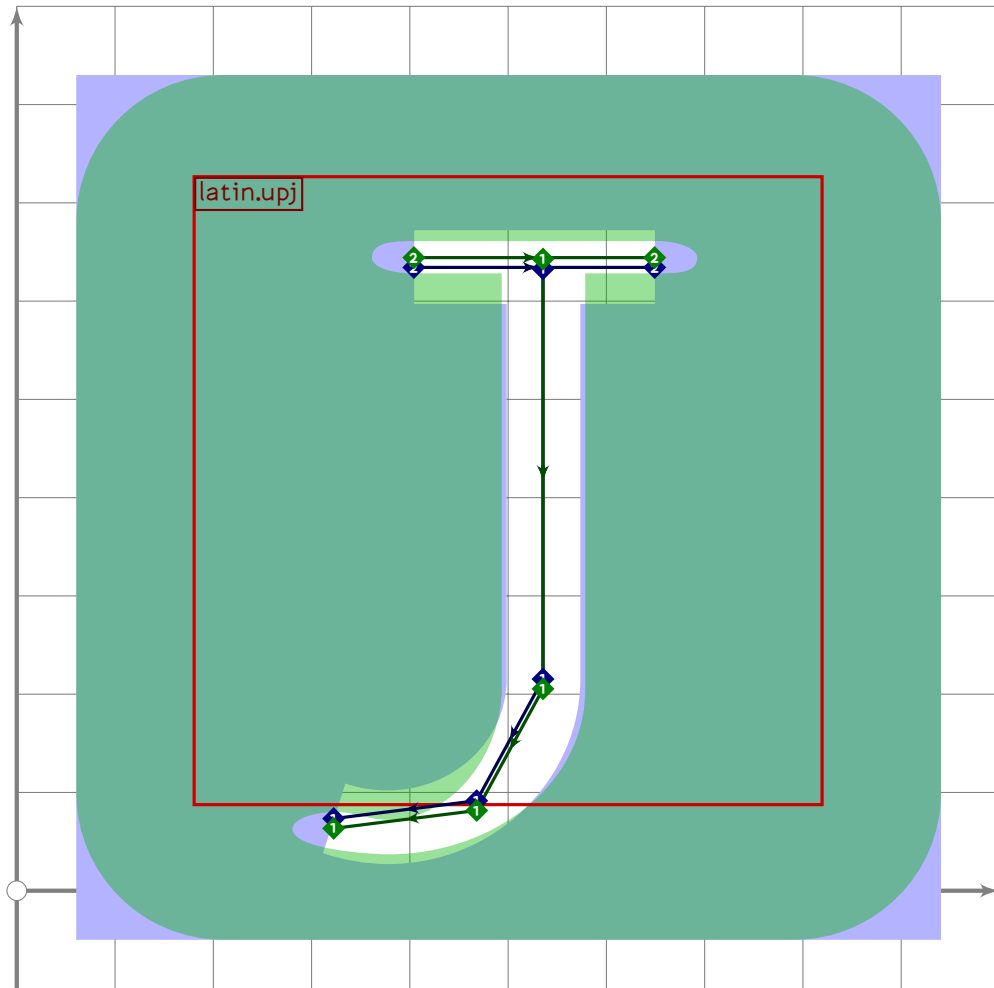
```



```

480 % I
481 % BACKGROUND F1712
482 begint Suglyph("u1F178";120);
483 tsu_xform(tsu_xf.sletter)(latin.upi);
484 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
485 tsu_render;
486 endtsuglyph;
487

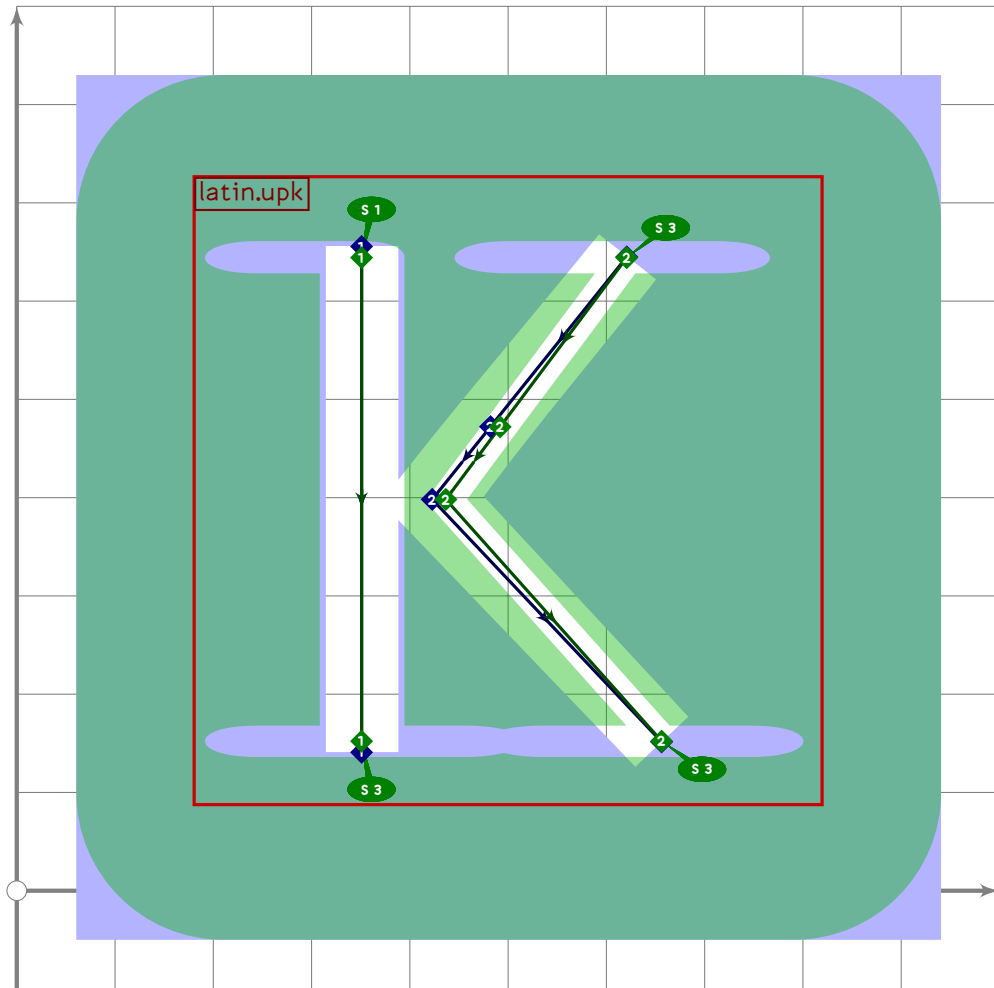
```



```

488 % J
489 % BACKGROUND F1712
490 begint Suglyph("u1F179";121);
491 tsu_xform(tsu_xf.sletter)(latin.upj);
492 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
493 tsu_render;
494 endtsuglyph;
495

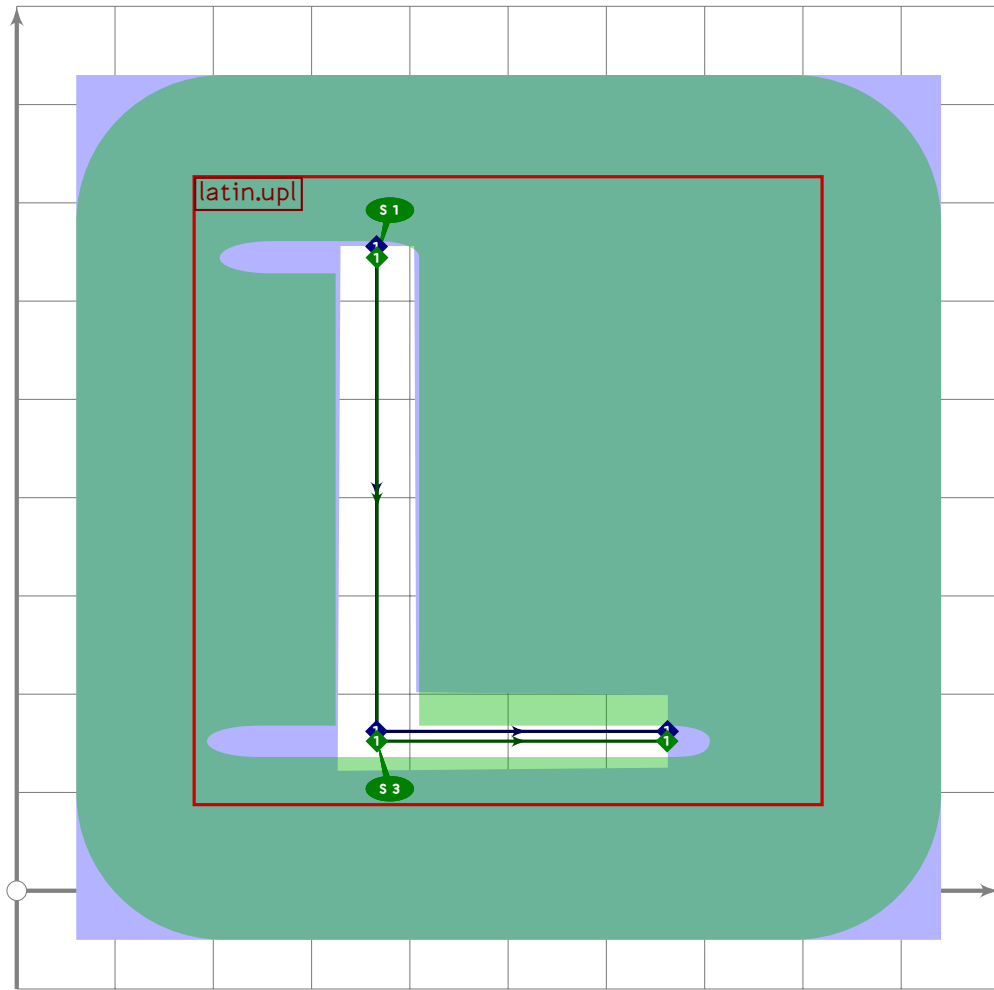
```



```

496 % K
497 % BACKGROUND F1712
498 beginsuglyph("u1F17A";122);
499 tsu_xform(tsu_xf.sletter)(latin.upk);
500 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
501 tsu_render;
502 endsuglyph;
503

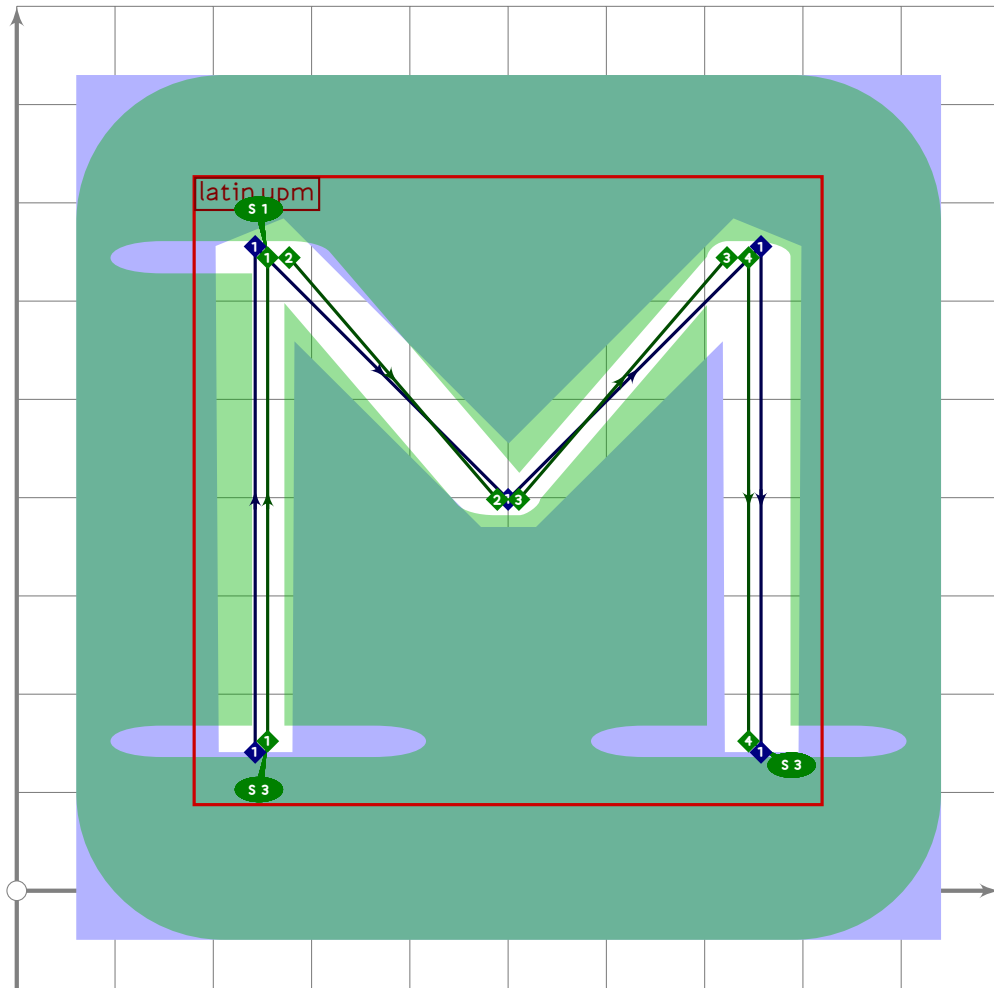
```



```

504 % L
505 % BACKGROUND F1712
506 begint Suglyph("u1F17B";123);
507 tsu_xform(tsu_xf.sletter)(latin.upl);
508 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
509 tsu_render;
510 endtsuglyph;
511

```

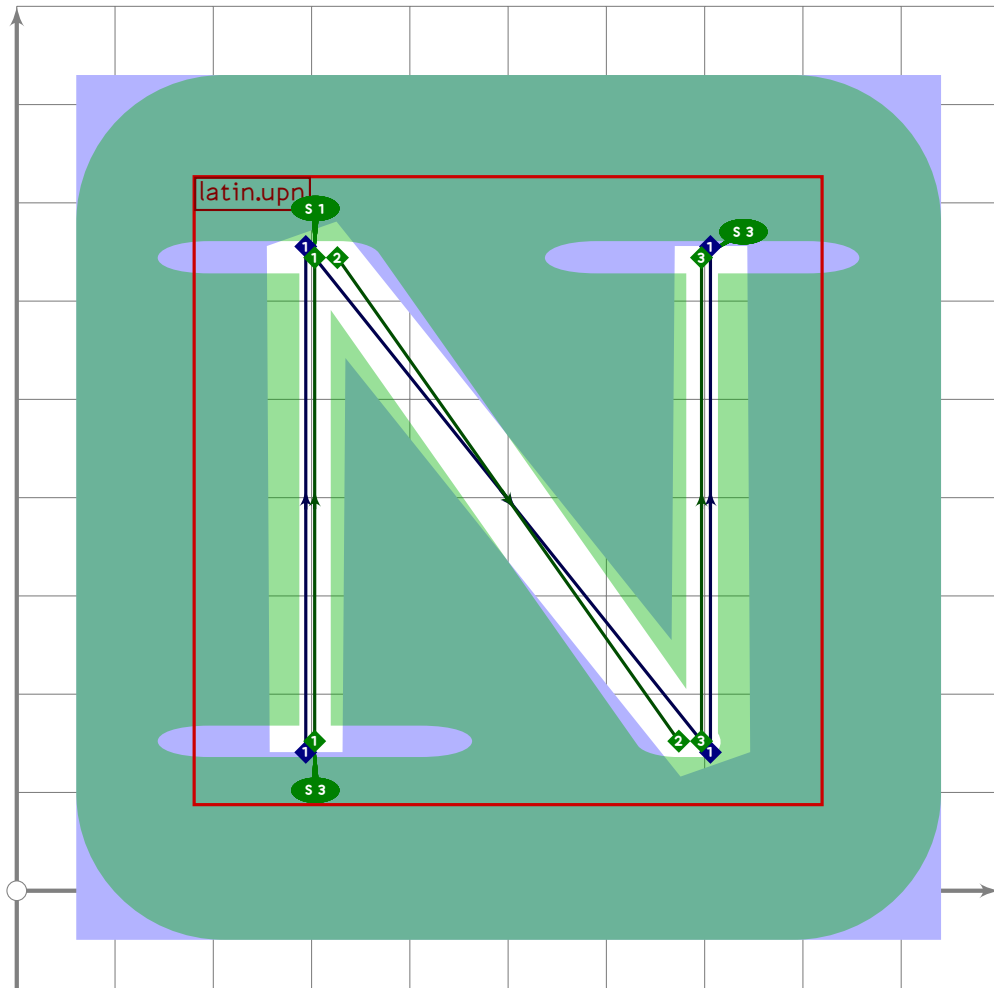


```

512 % M
513 % BACKGROUND F1712
514 begint Suglyph("u1F17C";124);
515 if do_alteration:
516     tsu_xform(tsu_xf.sletter
517         shifted -centre_pt xscaled 0.95 shifted centre_pt)(latin.upm);
518 else:
519     tsu_xform(tsu_xf.sletter)(latin.upm);
520 fi;
521 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
522 tsu_render;
523 endtsuglyph;
524

```

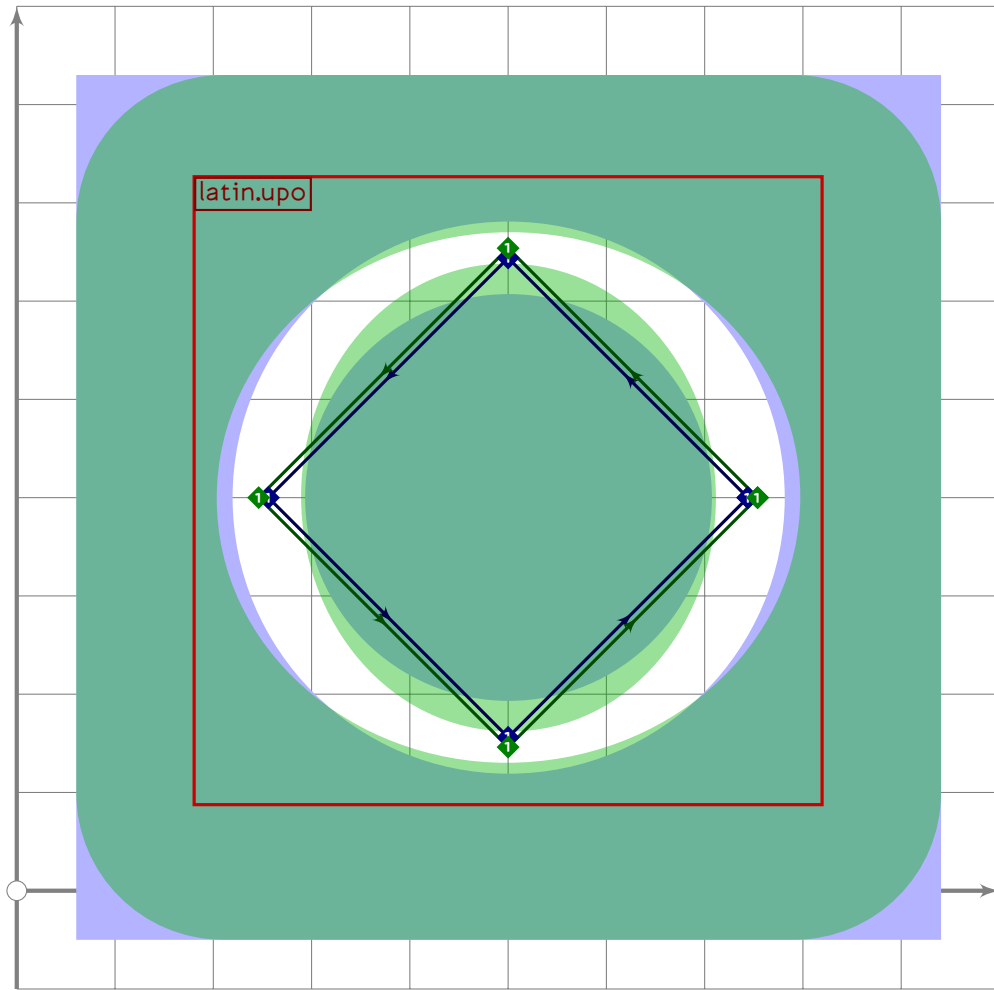




```

525 % N
526 % BACKGROUND F1712
527 beginsuglyph("u1F17D",125);
528 tsu_xform(tsu_xf.sletter)(latin.upn);
529 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
530 tsu_render;
531 endsuglyph;
532

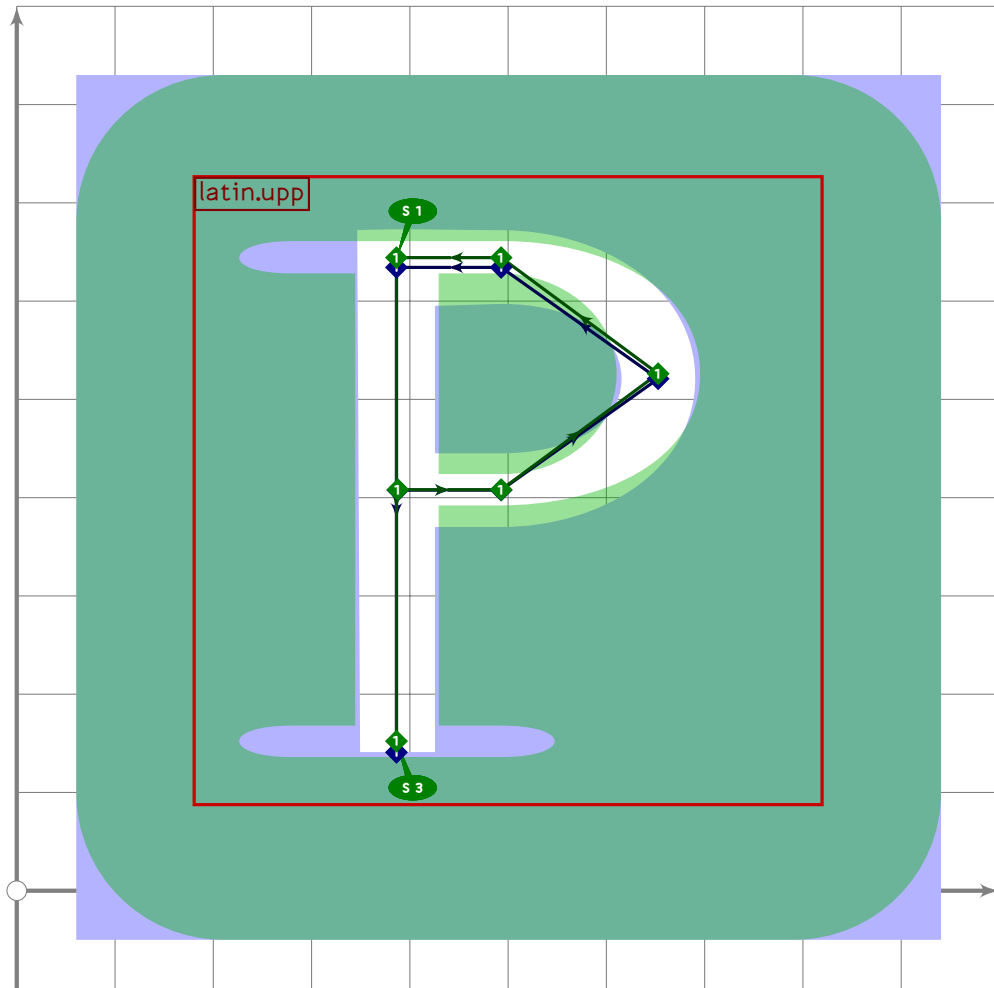
```



```

533 % O
534 % BACKGROUND F1712
535 begint Suglyph("u1F17E";126);
536 tsu_xform(tsu_xf.sletter)(latin.upo);
537 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
538 tsu_render;
539 endtsuglyph;
540

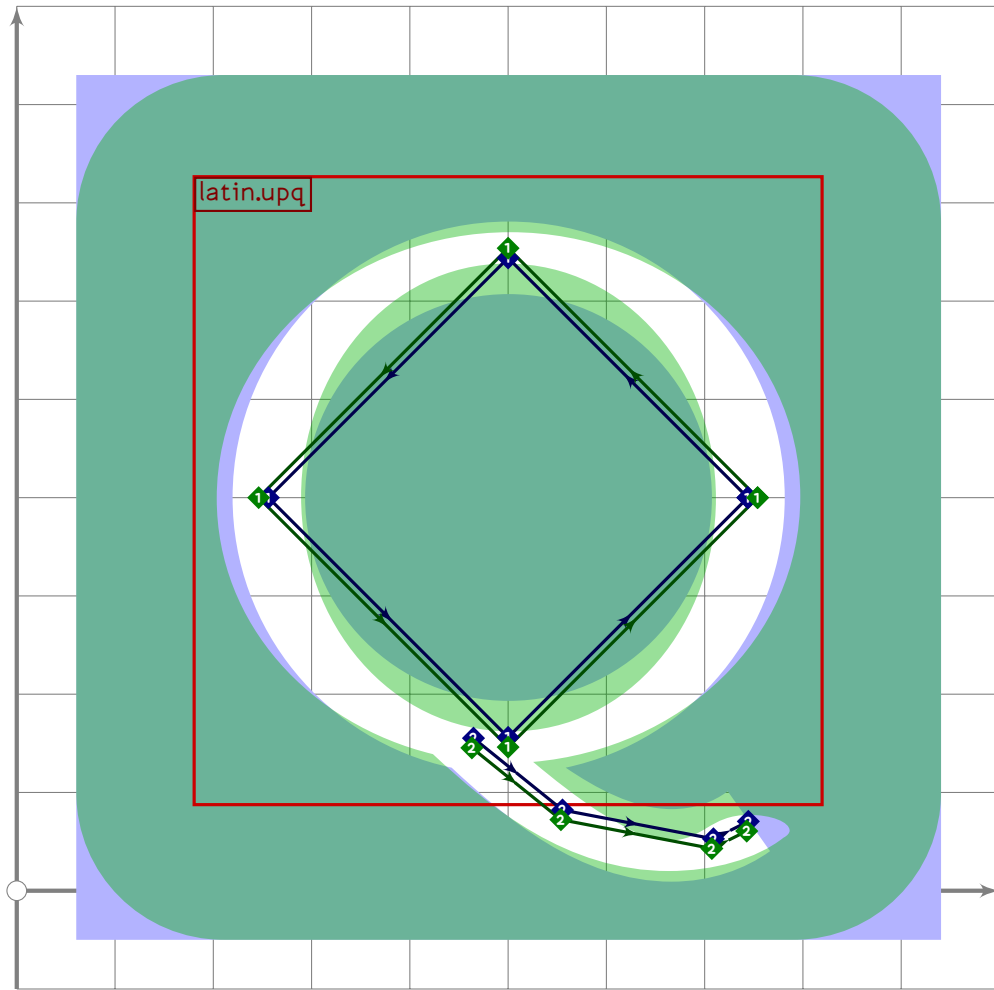
```



```

541 % P
542 % BACKGROUND F1712
543 begint Suglyph("u1F17F";127);
544 tsu_xform(tsu_xf.sletter)(latin.upp);
545 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
546 tsu_render;
547 endtsuglyph;
548

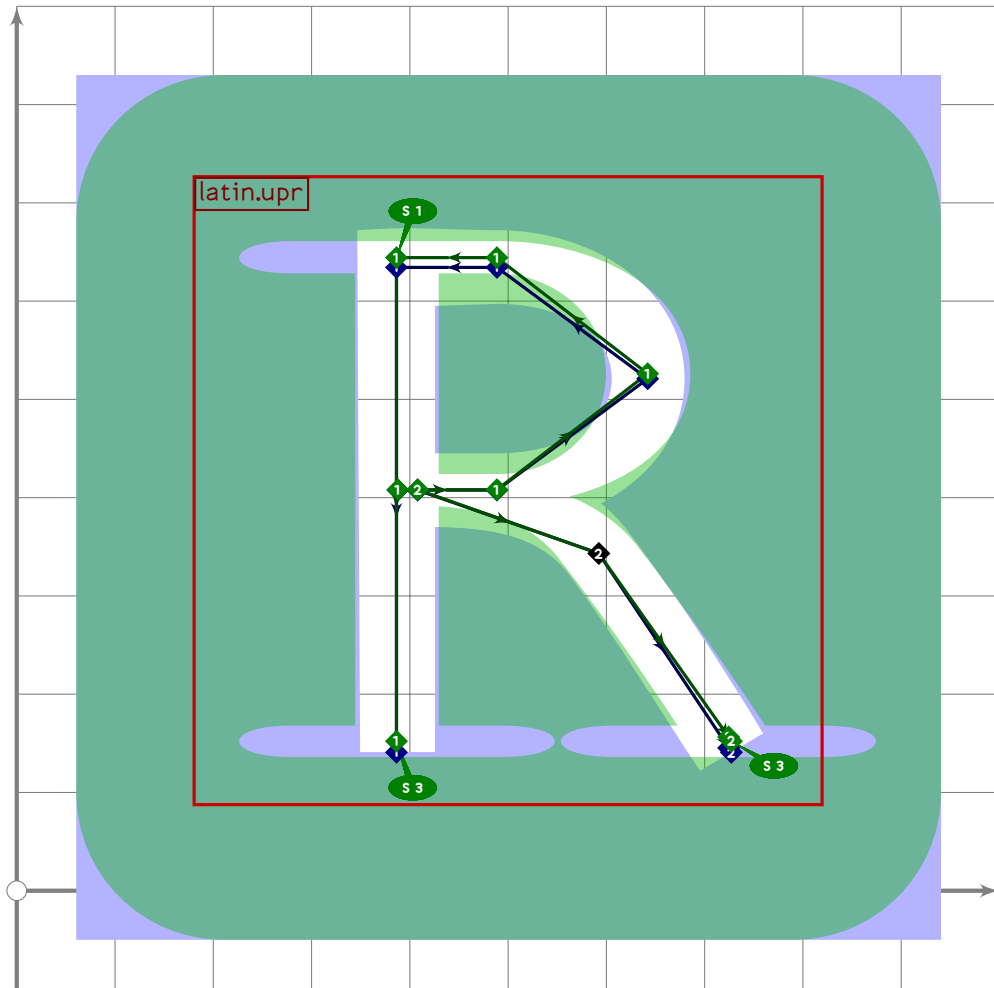
```



```

549 % Q
550 % BACKGROUND F1712
551 begint Suglyph("u1F180";128);
552 tsu_xform(tsu_xf.sletter)(latin.upq);
553 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
554 tsu_render;
555 endtsuglyph;
556

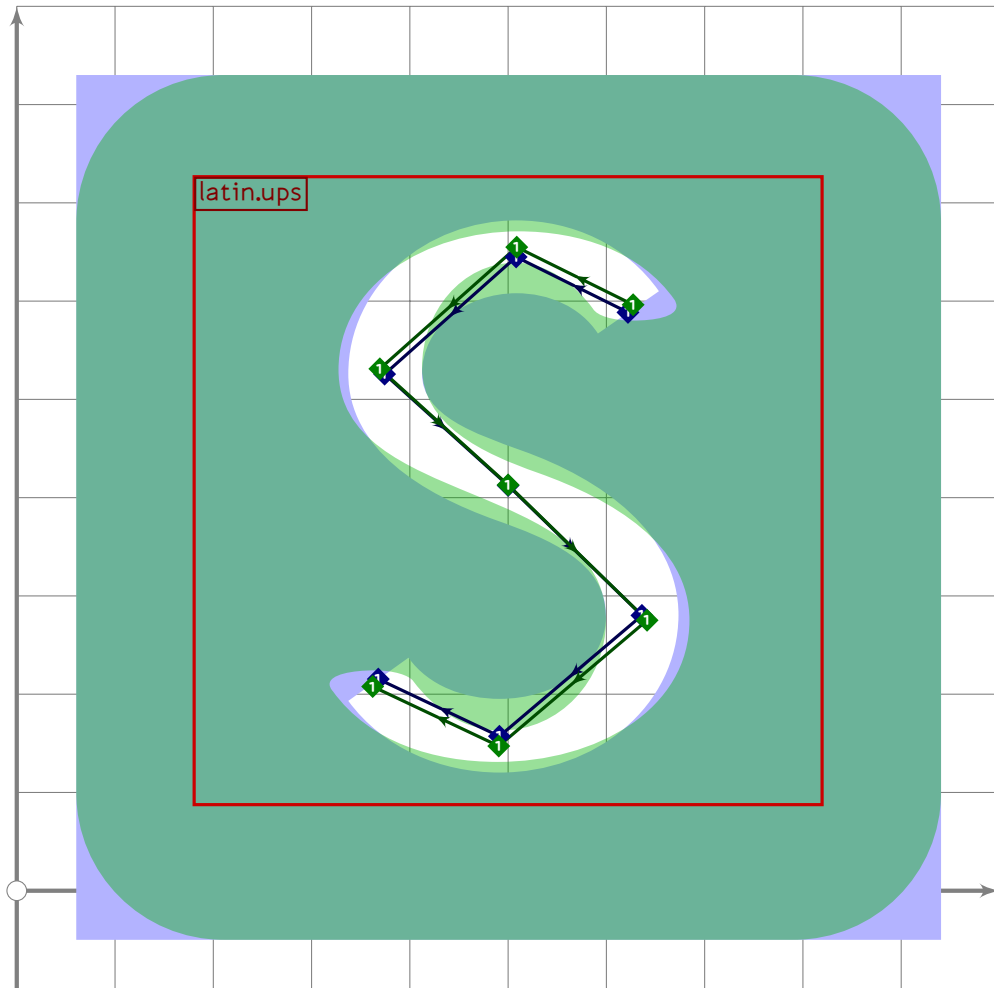
```



```

557 % R
558 % BACKGROUND F1712
559 begint Suglyph("u1F181";129);
560 tsu_xform(tsu_xf.sletter)(latin.upr);
561 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
562 tsu_render;
563 endtsuglyph;
564

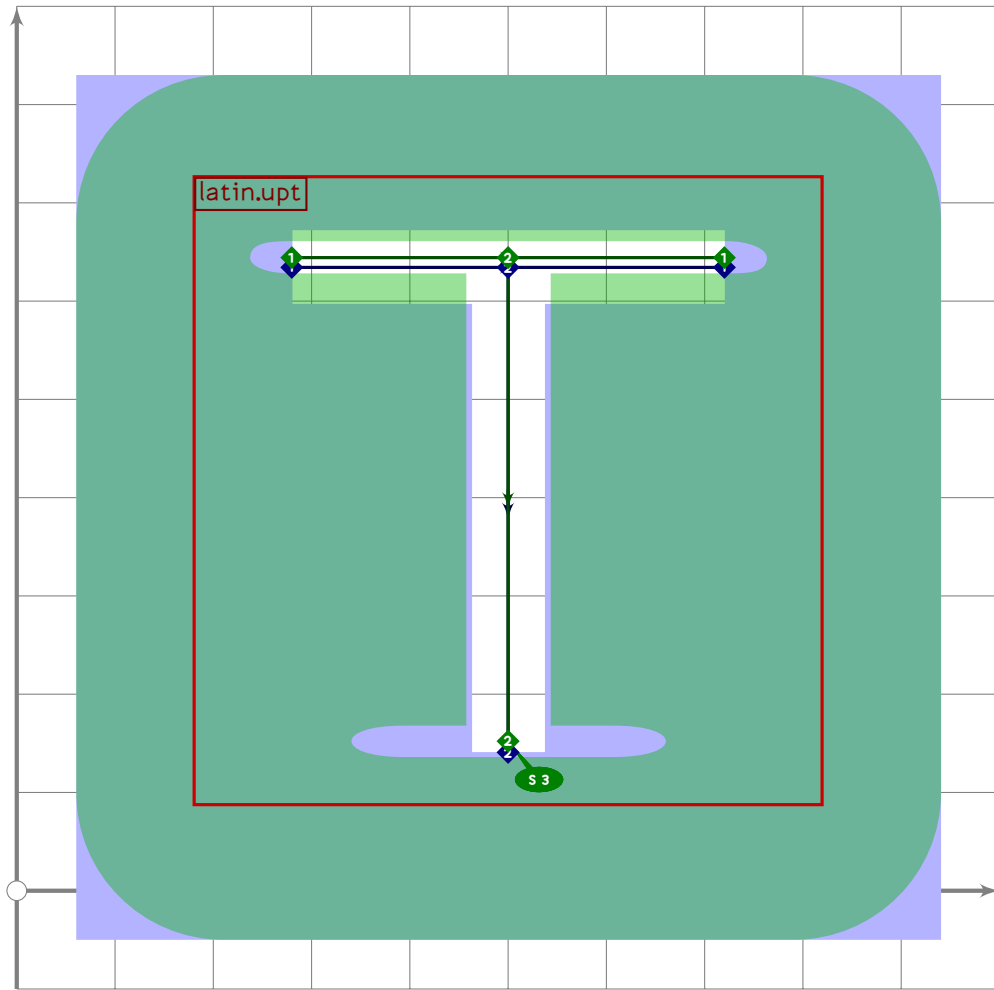
```



```

565 % S
566 % BACKGROUND F1712
567 begint Suglyph("u1F182";130);
568 tsu_xform(tsu_xf.sletter)(latin.ups);
569 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
570 tsu_render;
571 endtsuglyph;
572

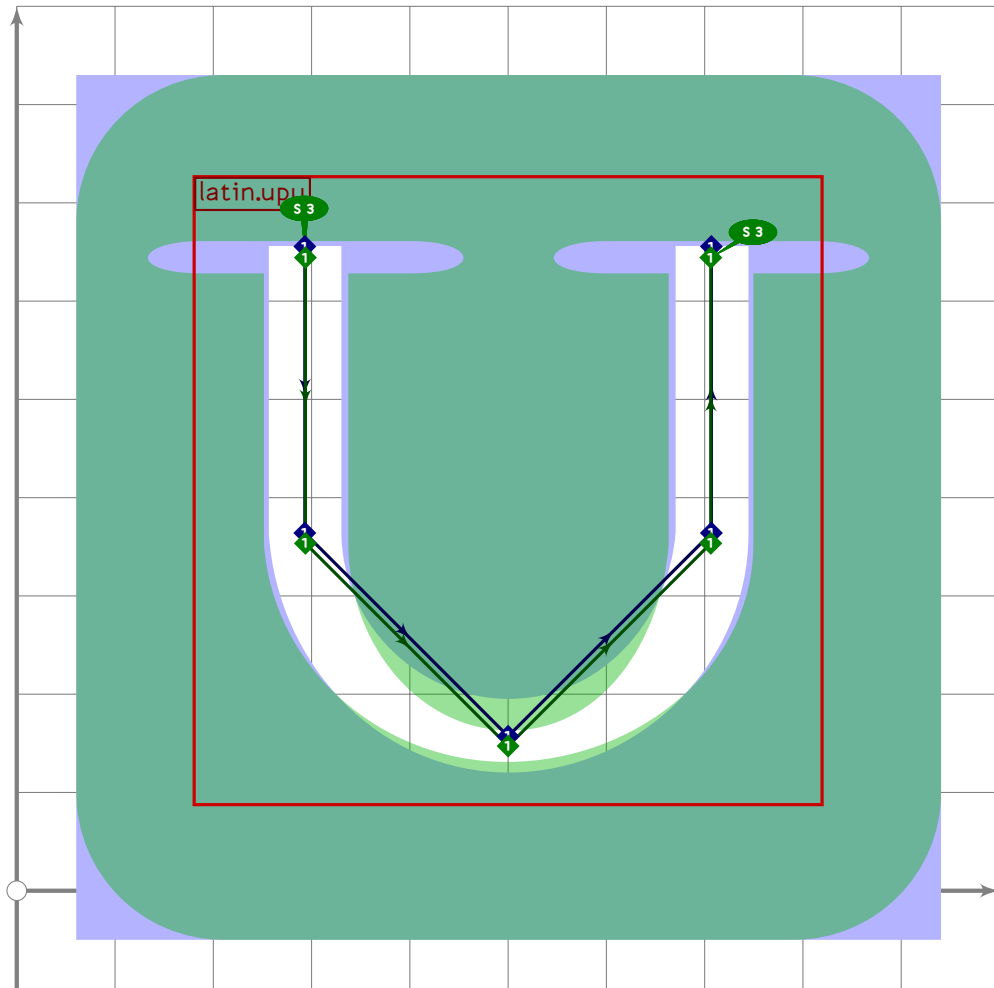
```



```

573 % T
574 % BACKGROUND F1712
575 begint Suglyph("u1F183";131);
576 tsu_xform(tsu_xf.sletter)(latin.upt);
577 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
578 tsu_render;
579 endtsuglyph;
580

```

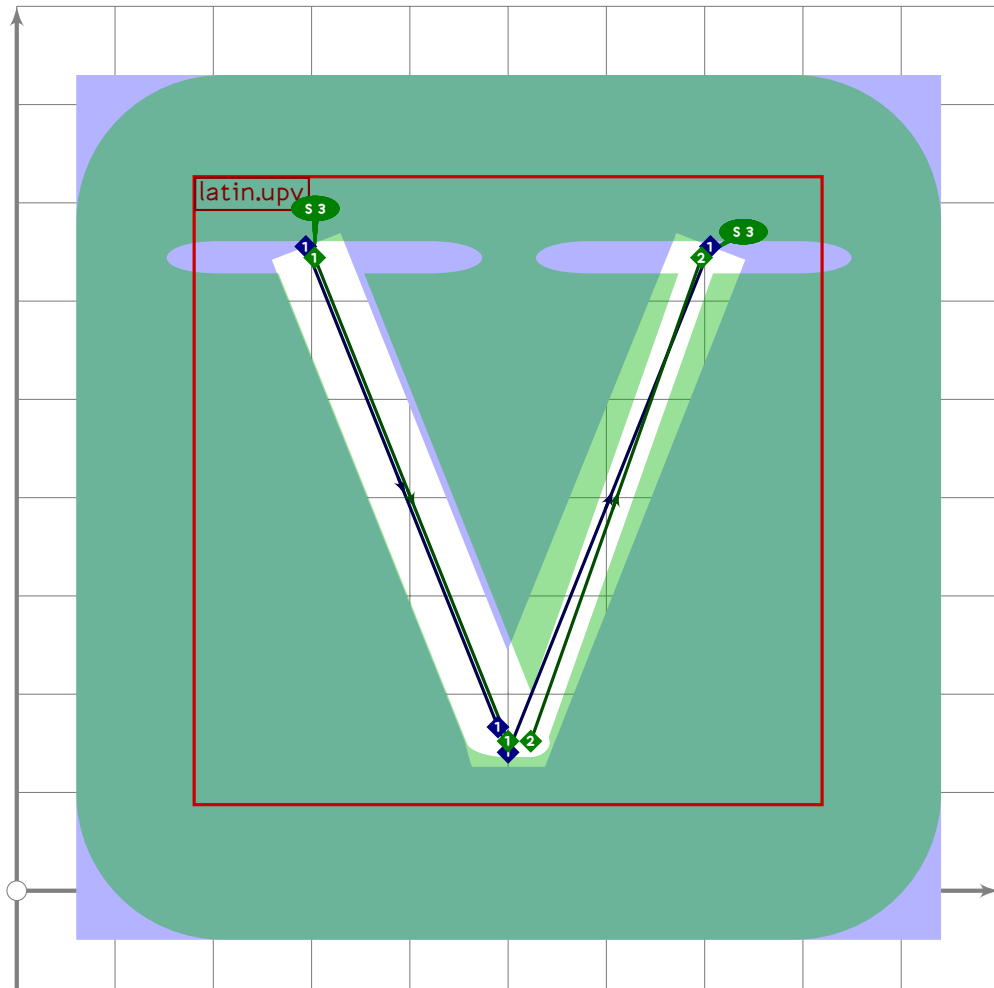


```

581 % U
582 % BACKGROUND F1712
583 begint Suglyph("u1F184";132);
584 tsu_xform(tsu_xf.sletter)(latin.upu);
585 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
586 tsu_render;
587 endtsuglyph;
588

```

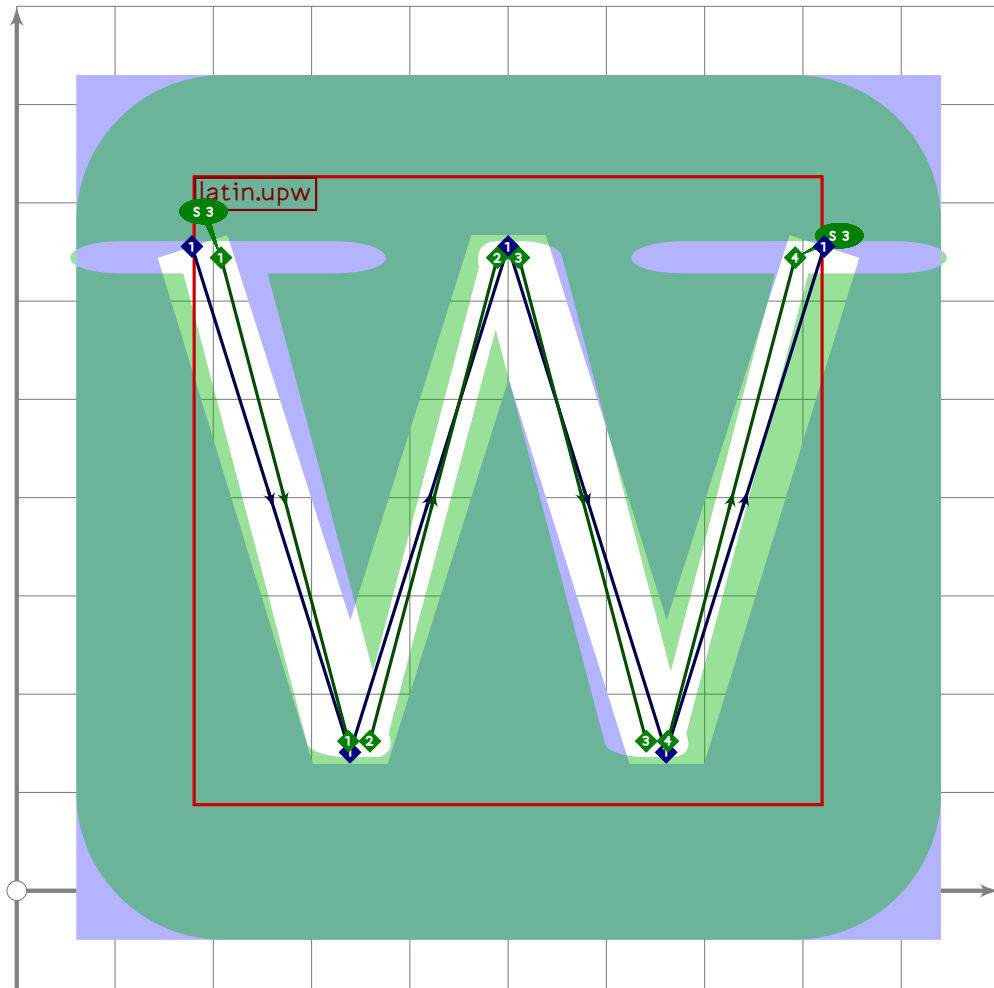




```

589 % V
590 % BACKGROUND F1712
591 begint Suglyph("u1F185";133);
592 tsu_xform(tsu_xf.sletter)(latin.upv);
593 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
594 tsu_render;
595 endtsuglyph;
596

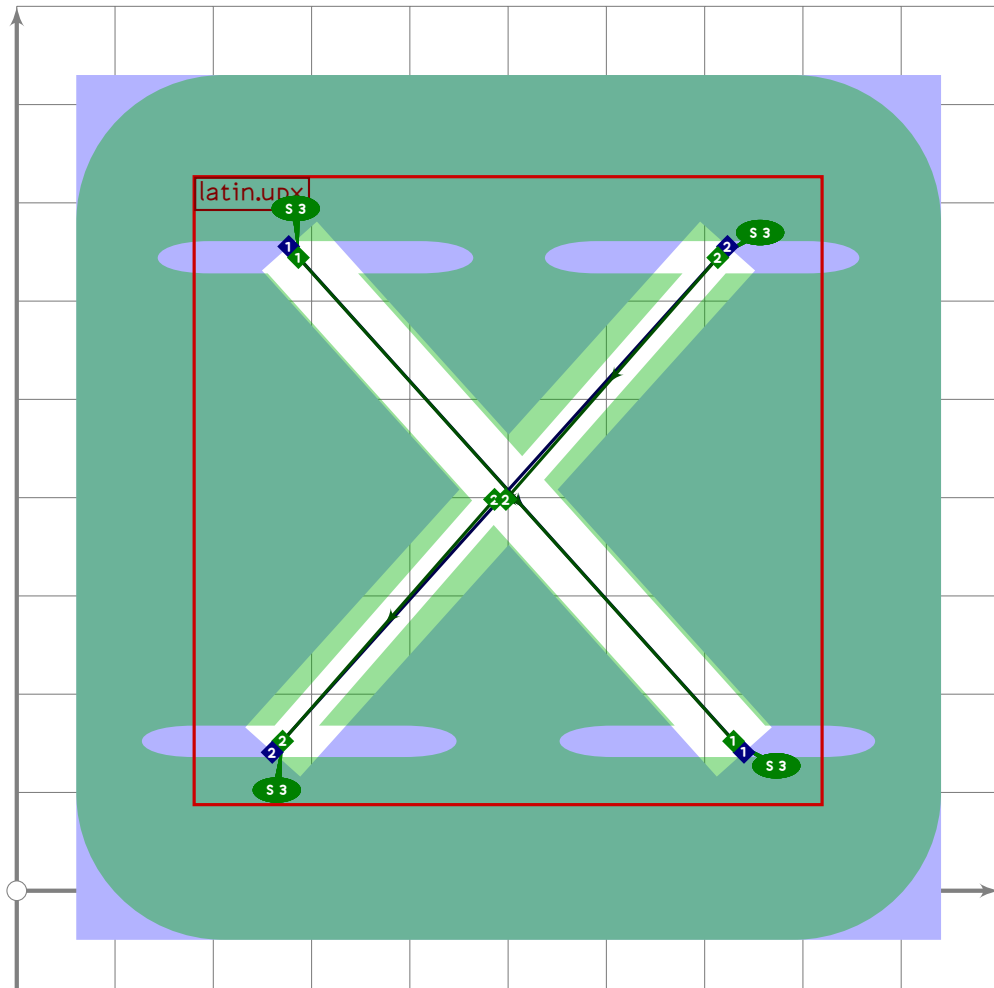
```



```

597 % W
598 % BACKGROUND F1712
599 begintsuglyph("u1F186";134);
600 if do_alteration:
601     tsu_xform(tsu_xf.sletter
602         shifted -centre_pt xscaled 0.95 shifted centre_pt)(latin.upw);
603 else:
604     tsu_xform(tsu_xf.sletter)(latin.upw);
605 fi;
606 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
607 tsu_render;
608 endtsuglyph;
609

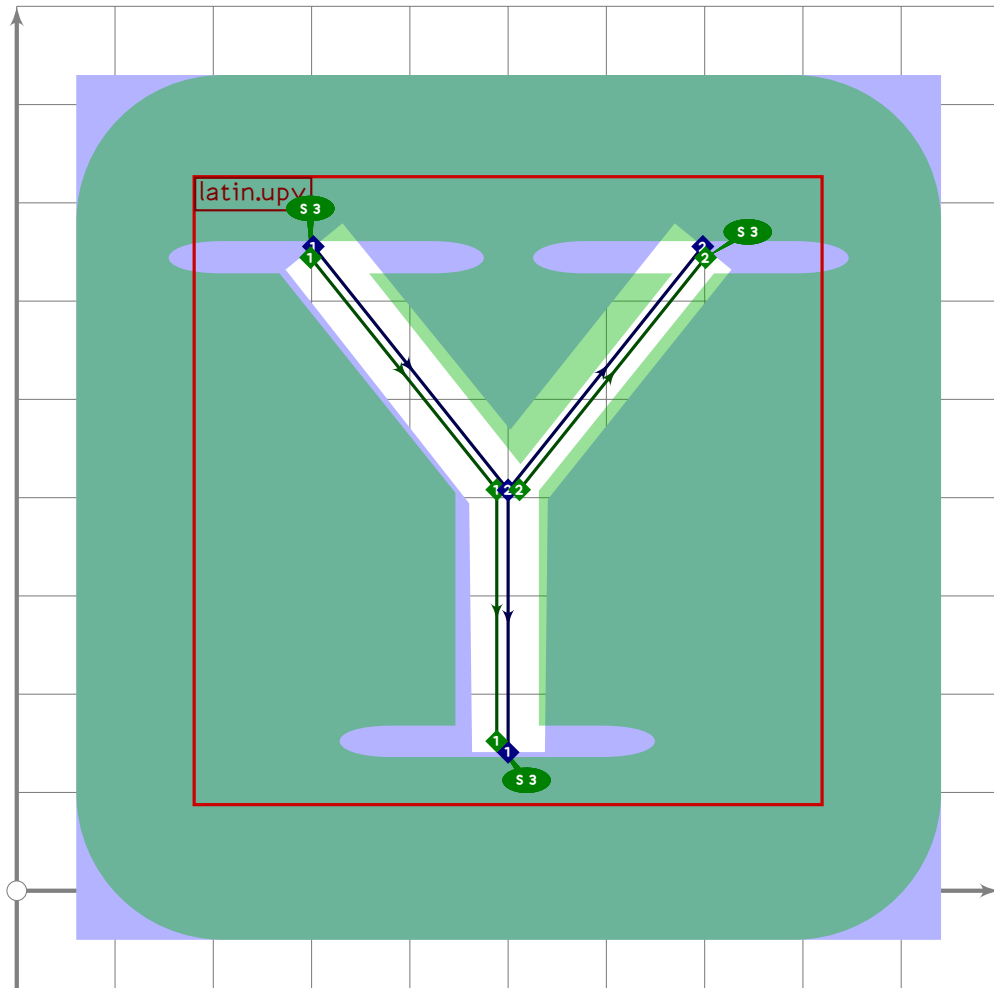
```



```

610 % X
611 % BACKGROUND F1712
612 begint Suglyph("u1F187";135);
613 tsu_xform(tsu_xf.sletter)(latin.upx);
614 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
615 tsu_render;
616 endsuglyph;
617

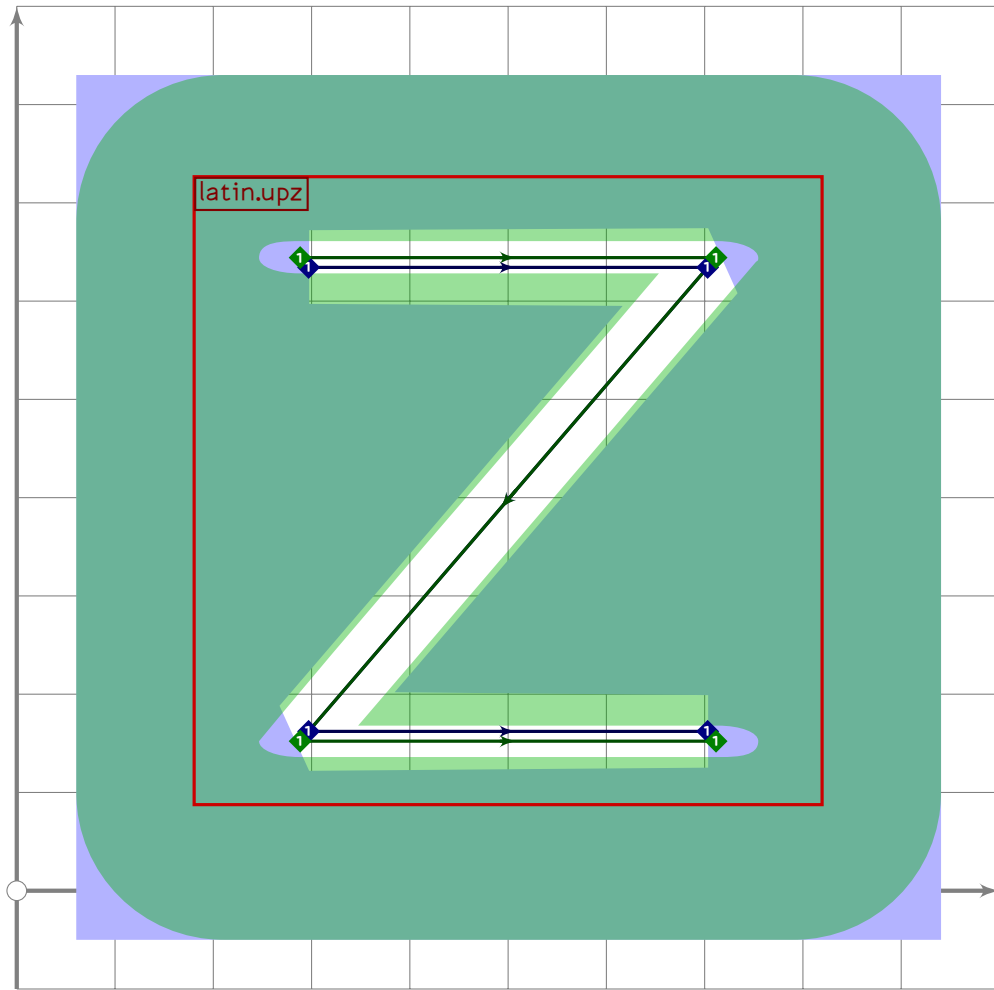
```



```

618 % Y
619 % BACKGROUND F1712
620 beginsuglyph("u1F188";136);
621 tsu_xform(tsu_xf.sletter)(latin.upy);
622 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
623 tsu_render;
624 endsuglyph;
625

```



```

626 % Z
627 % BACKGROUND F1712
628 begint Suglyph("u1F189";137);
629 tsu_xform(tsu_xf.sletter)(latin.upz);
630 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
631 tsu_render;
632 endtsuglyph;
633
634 _____
635
636 endfont;
637
638 _____

```

# tsuku-f17.mp

```
1 %
2 % Unicode page F17 (Tsukurimashou-specific extensions) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---

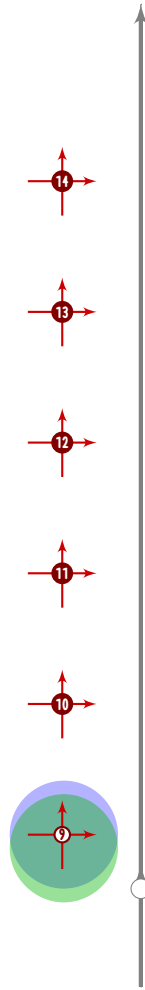

32
33 beginfont
34
35 input latin-intro.mp;
36
37 % AUTODEPS
38 input accent.mp;
39 input buildkanji.mp;
40 input enclosed.mp;
41 input gradeone.mp;
42 input iching.mp;
43 input katakana.mp;
44 input latin.mp;
45 input leftrad.mp;
46
47 

---


48
```

## Combining Dots For I Ching

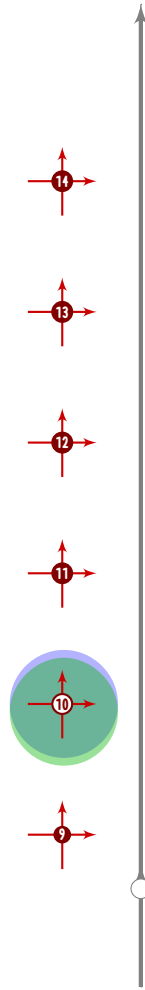
```
49 % COMBINING DOTS FOR I CHING
50
51 % WARNING changing rescale setting
52 tsu_rescale_native_zero;
53
54 vardef make_iching_anchors(expr lnum,lmax) =
55   for i:=1 upto lmax:
56     push_anchor(if i=lnum: -1 else: 1 fi*anc_iching_line(i),
57     identity shifted (((1,i) transformed iching_xform)
58     +(1000-iching.size)*0.25*right+1000*left));
59   endfor;
60 enddef;
```



```

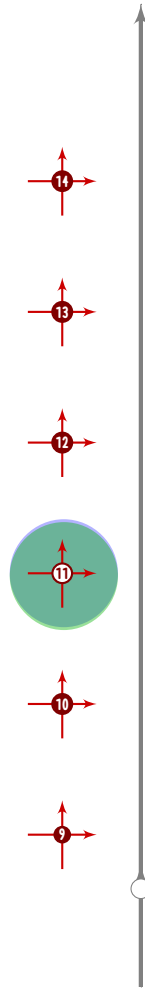
61
62 begintsuglyph("ichingdot1.6";1);
63   Fill iching.dot(1,6) shifted (-1000,0);
64   make_iching_anchors(1,6);
65   tsu_render;
66 endsuglyph;

```

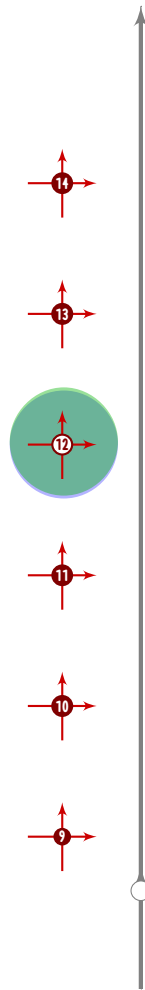


```
67  
68 begintsuglyph("ichingdot2.6",2);  
69 Fill iching.dot(2,6) shifted (-1000,0);  
70 make_iching_anchors(2,6);  
71 tsu_render;  
72 endsuglyph;
```

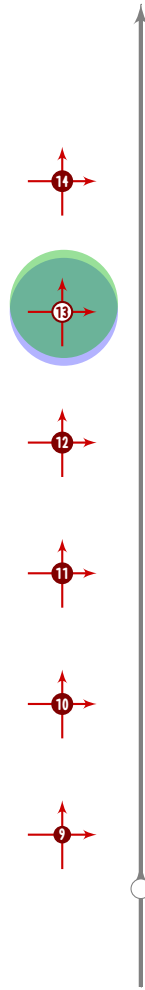




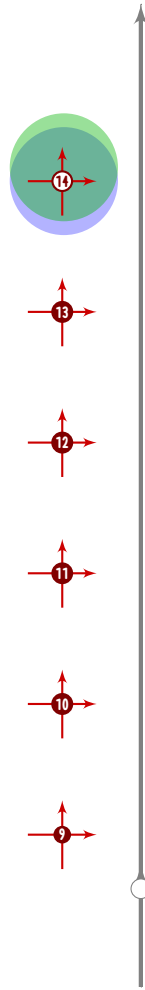
```
73  
74 begintsuglyph("ichingdot3.6",3);  
75 Fill iching.dot(3,6) shifted (-1000,0);  
76 make_iching_anchors(3,6);  
77 tsu_render;  
78 endsuglyph;
```



```
79  
80 begintsuglyph("ichingdot4.6",4);  
81 Fill iching.dot(4,6) shifted (-1000,0);  
82 make_iching_anchors(4,6);  
83 tsu_render;  
84 endsuglyph;
```



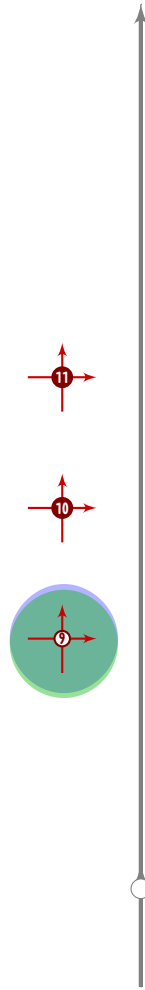
```
85  
86 begintsuglyph("ichingdot5.6",5);  
87 Fill iching.dot(5,6) shifted (-1000,0);  
88 make_iching_anchors(5,6);  
89 tsu_render;  
90 endsuglyph;
```



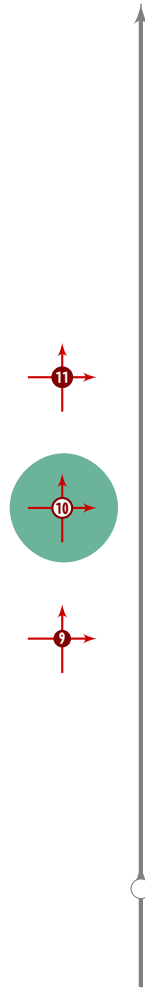
```

91
92 begintsuglyph("ichingdot6.6",6);
93 Fill iching.dot(6,6) shifted (-1000,0);
94 make_iching_anchors(6,6);
95 tsu_render;
96 endsuglyph;

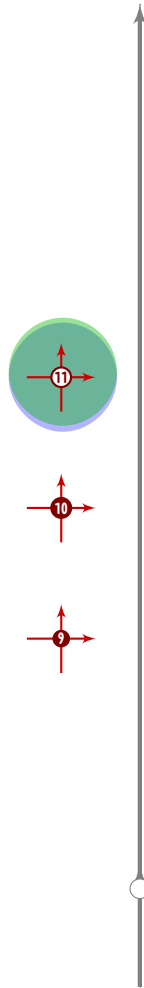
```



```
97  
98 begintsuglyph("ichingdot1.3",7);  
99 Fill iching.dot(1,3) shifted (-1000,0);  
100 make_iching_anchors(1,3);  
101 tsu_render;  
102 endsuglyph;
```



```
103  
104 begintsuglyph("ichingdot2.3",8);  
105 Fill iching.dot(2,3) shifted (-1000,0);  
106 make_iching_anchors(2,3);  
107 tsu_render;  
108 endsuglyph;
```



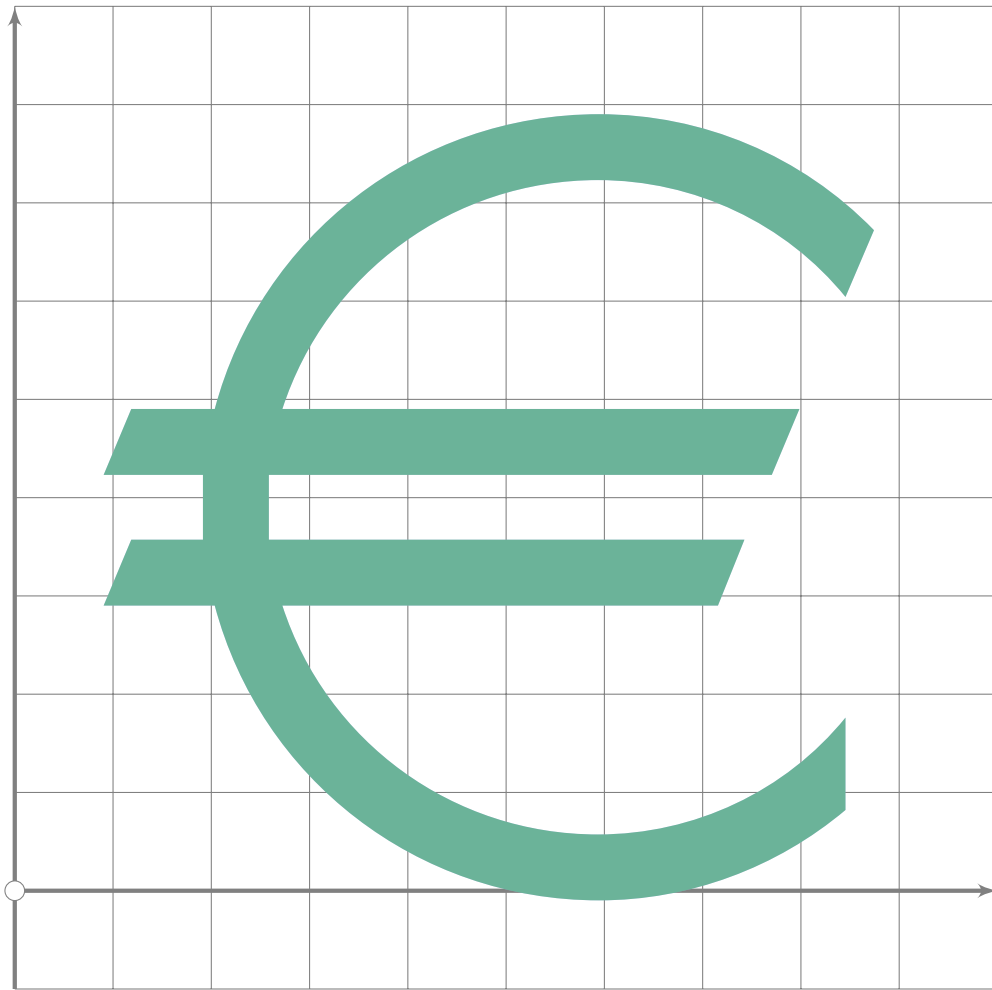
```
109
110 begintsuglyph("ichingdot3.3";9);
111 Fill iching.dot(3,3) shifted (-1000,0);
112 make_iching_anchors(3,3);
113 tsu_render;
114 endsuglyph;
115
116 % WARNING changing rescale setting
117 tsu_rescale_full;
118
119 

---


120
```

## Miscellaneous

121 **% MISCELLANEOUS**



```

122
123 begintsuglyph("Euro.official",16);
124 z25=(fullcircle scaled 10) intersectionpoint ((0,0)-(10*dir 40));
125 z11=(0,-6);
126
127 z1=(0,6);
128 z2=(fullcircle scaled 12) intersectionpoint ((-10,1.5)-(0,1.5));
129 y3=y2;
130 z3-z4=whatever*(z25-z11);
131 z4=(-7.5,0.5);
132 z5=(fullcircle scaled 12) intersectionpoint ((-10,0.5)-(0,0.5));
133 z6=(-6,0);
134 z7=(fullcircle scaled 12) intersectionpoint ((-10,-0.5)-(0,-0.5));
135 y8=y7;
136 z8-z9=whatever*(z25-z11);
137 z9=(-7.5,-1.5);
138 z10=(fullcircle scaled 12) intersectionpoint ((-10,-1.5)-(0,-1.5));
139 z13=(fullcircle scaled 10) intersectionpoint ((0,0)-(10*dir 320));
140 z12=(fullcircle scaled 12) intersectionpoint (z13-(z13+(0,-3)));
141 z14=(0,-5);
142 z15=(fullcircle scaled 10) intersectionpoint ((-10,-1.5)-(0,-1.5));

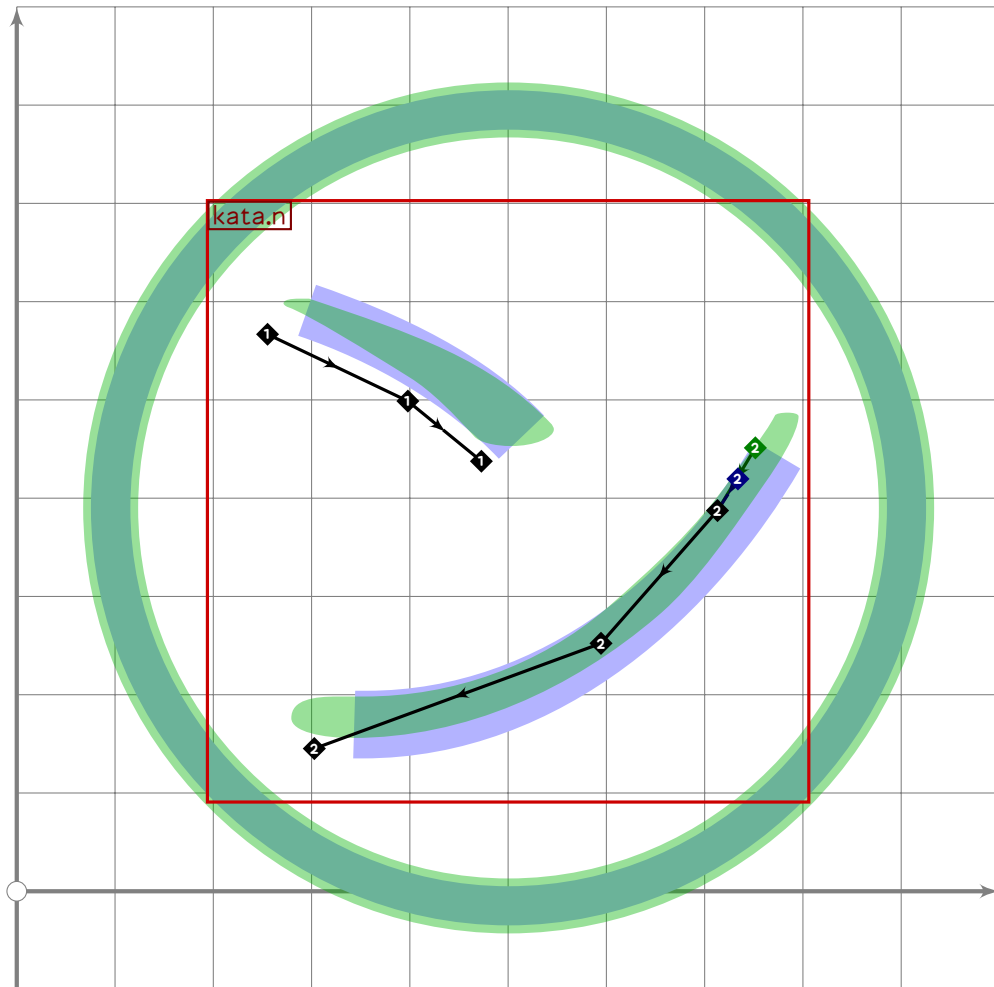
```



```

143 y16=-1.5;
144 z16=whatever[z11,z25];
145 y17=-0.5;
146 z17=whatever[z11,z25];
147 z18=(fullcircle scaled 10) intersectionpoint ((-10,-0.5)-(0,-0.5));
148 z19=(-5,0);
149 z20=(fullcircle scaled 10) intersectionpoint ((-10,0.5)-(0,0.5));
150 y21=0.5;
151 z21=whatever[z11,z25];
152 y22=1.5;
153 z22=whatever[z11,z25];
154 z23=(fullcircle scaled 10) intersectionpoint ((-10,1.5)-(0,1.5));
155 z24=(0,5);
156 z26=(fullcircle scaled 12) intersectionpoint (z11-1.5[z11,z25]);
157 path euro;
158 euro:=z1..z2-z3-z4-z5..z6..z7-z8-z9-z10..z11..z12-z13..
159     z14..z15-z16-z17-z18..z19..z20-z21-z22-z23..z24..z25-z26..cycle;
160 dangerousFill euro scaled (400/6) shifted (centre_pt+90*right);
161 endtsuglyph;
162

```

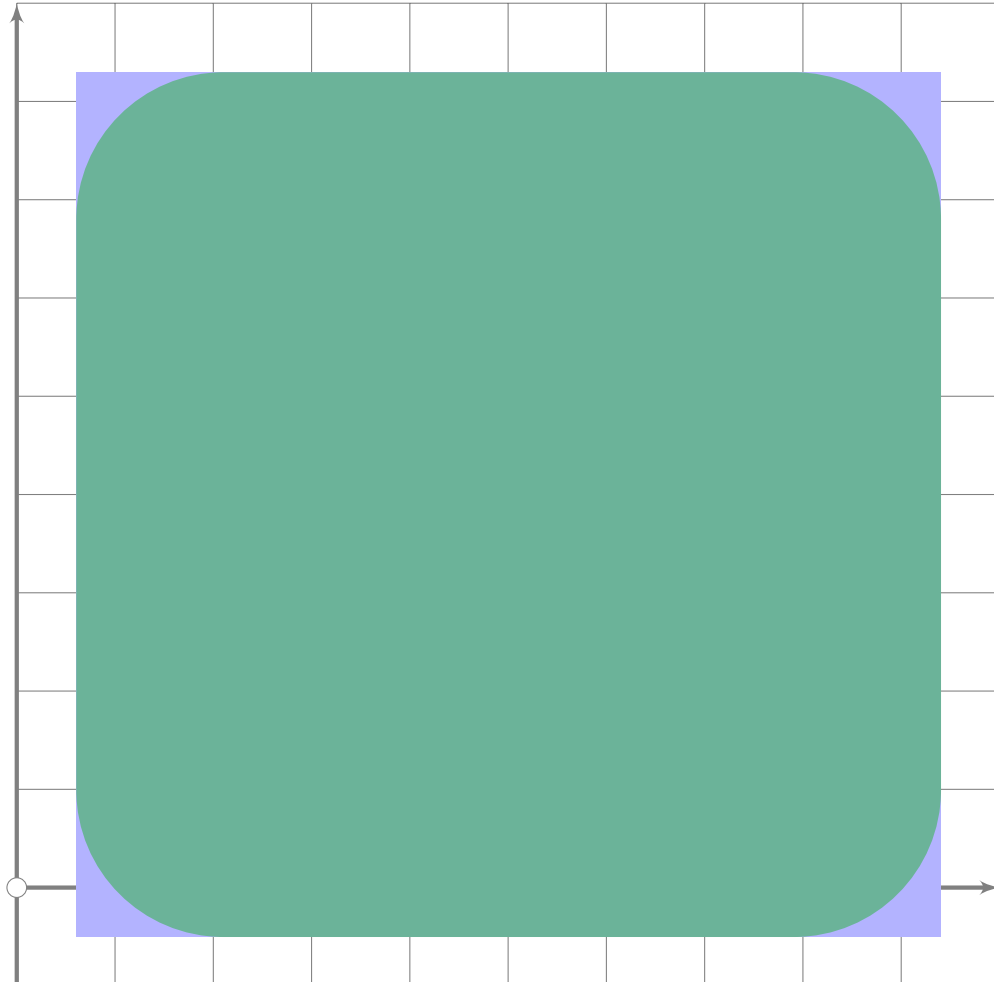


163 % circled "katakana n"

```

164 begint Suglyph("uF1711";17);
165 circle.single;
166 tsu_xform(tsu_xf.circled)(kata.n);
167 tsu_render_in_circle(tsu_xf.cbound);
168 endsuglyph;
169

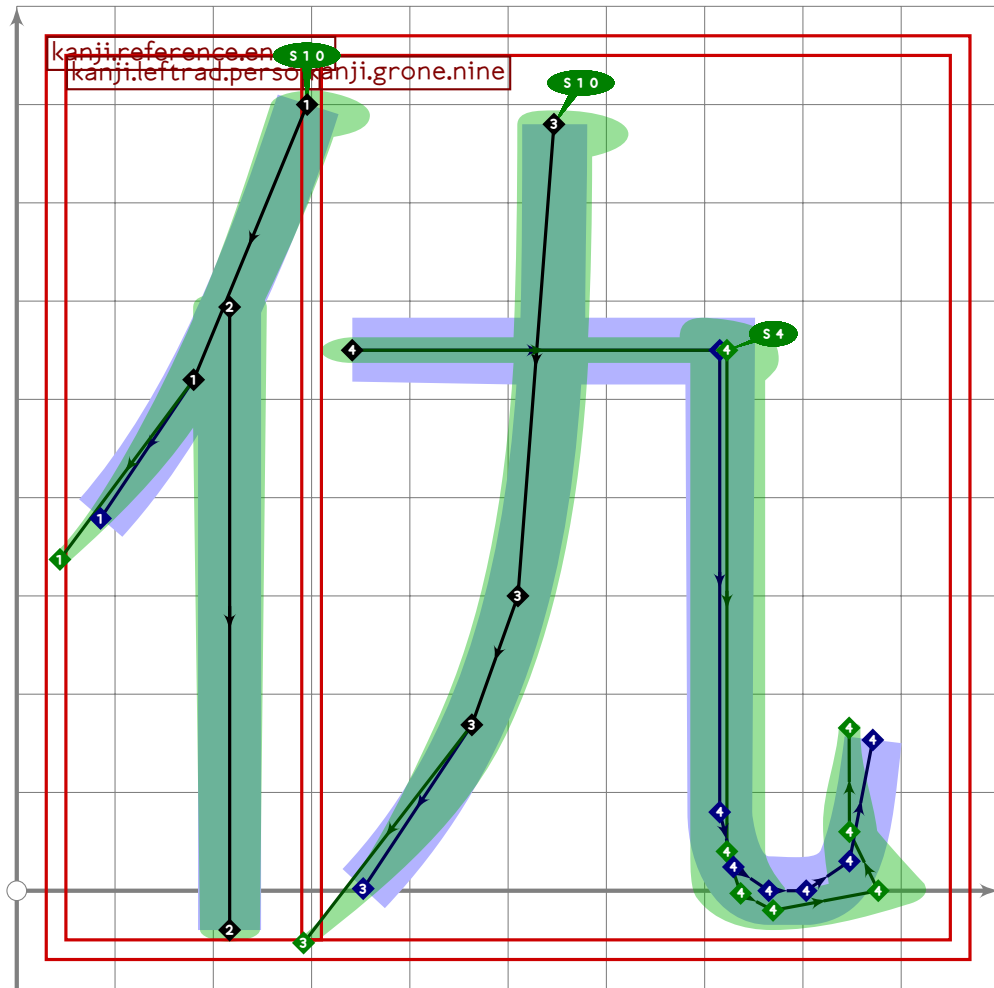
```



```

170 % background for use with enclosed alpha
171 begint Suglyph("squarebackground";18);
172 if sharp_corners:
173     dangerousFill (60,830)-(60,-50)-(940,-50)-(940,830)-cycle;
174 else:
175     path crnp;
176     crnp:=(60+1.5*tsu_punct_size,830){left}..
177         {down}(60,830-1.5*tsu_punct_size);
178     dangerousFill crnp-
179         (crnp rotatedaround (centre_pt,90))-
180         (crnp rotatedaround (centre_pt,180))-
181         (crnp rotatedaround (centre_pt,270))-cycle;
182 fi;
183 endsuglyph;
184

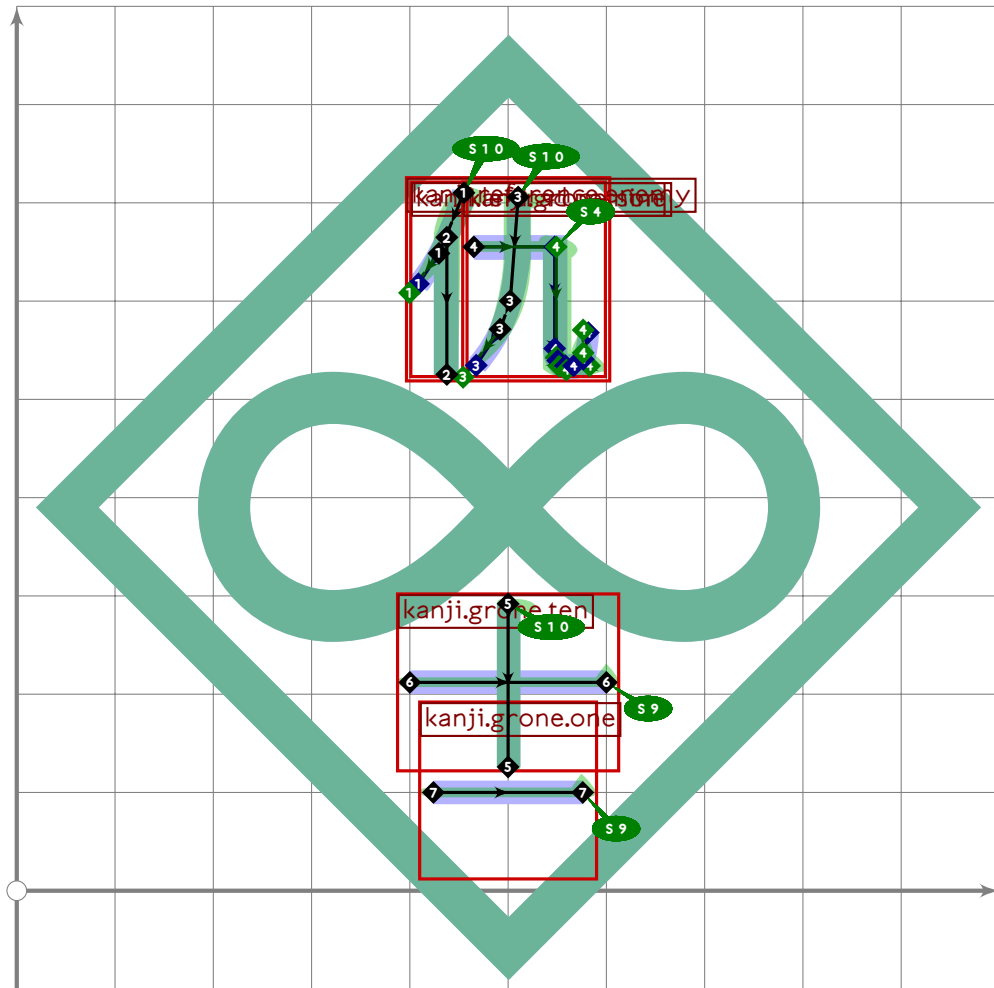
```



```

185 % Individual Eleven
186 vardef kanji.reference.enemy =
187   push_pbox_toexpand("kanji.reference.enemy");
188   build_kanji.lr(300,20)
189     (kanji.leftrad.person)
190     (kanji.grone.nine);
191   expand_pbox;
192 enddef;

```



```

193 begintsuglyph("individualeven",19);
194 numeric x[],y[];
195 z3=z7=centre_pt;
196 z3-z1=z5-z3;
197 z3-z2=z4-z3;
198 z3-z8=z6-z3;
199 y1=y3;
200 y2=y6;
201 x2=x8;
202 y2-y1=x2-x1;
203 x3-x1=290;
204 x2-x1=111;
205 save default_nib;
206 path default_nib;
207 path iepa,iepb;
208 default_nib:=fix_nib(53,53,0);
209 pen_stroke(z1{up}..z2{right}..z3..z4{right}..{up}z5)(iepa);
210 dangerousFill iepa;
211 % do this in between the halves of the infinity, to work around a bug
212 dangerousFill unitsquare shifted (-0.5,-0.5) scaled 680
213   rotated 45 shifted centre_pt;

```

```

214 dangerousFill reverse unitsquare shifted (-0.5,-0.5) scaled 590
215   rotated 45 shifted centre_pt;
216 pen_stroke()(z5{up}..z6{left}..z7..z8{left}..{up}z1)(iepb);
217 dangerousFill iepb;
218 build_kanji.sscale(scaled 0.22 shifted (0,230))
219   (kanji.reference.enemy);
220 build_kanji.sscale(xyscaled (0.25,0.20) shifted (0,-180))
221   (kanji.grone.ten);
222 build_kanji.sscale(scaled 0.20 shifted (0,-290))
223   (kanji.grone.one);
224 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,35); i:=i-1; endfor;
225 tsu_render;
226 endtsuglyph;
227
228
229

```

---

## Tomoe Ornaments

```

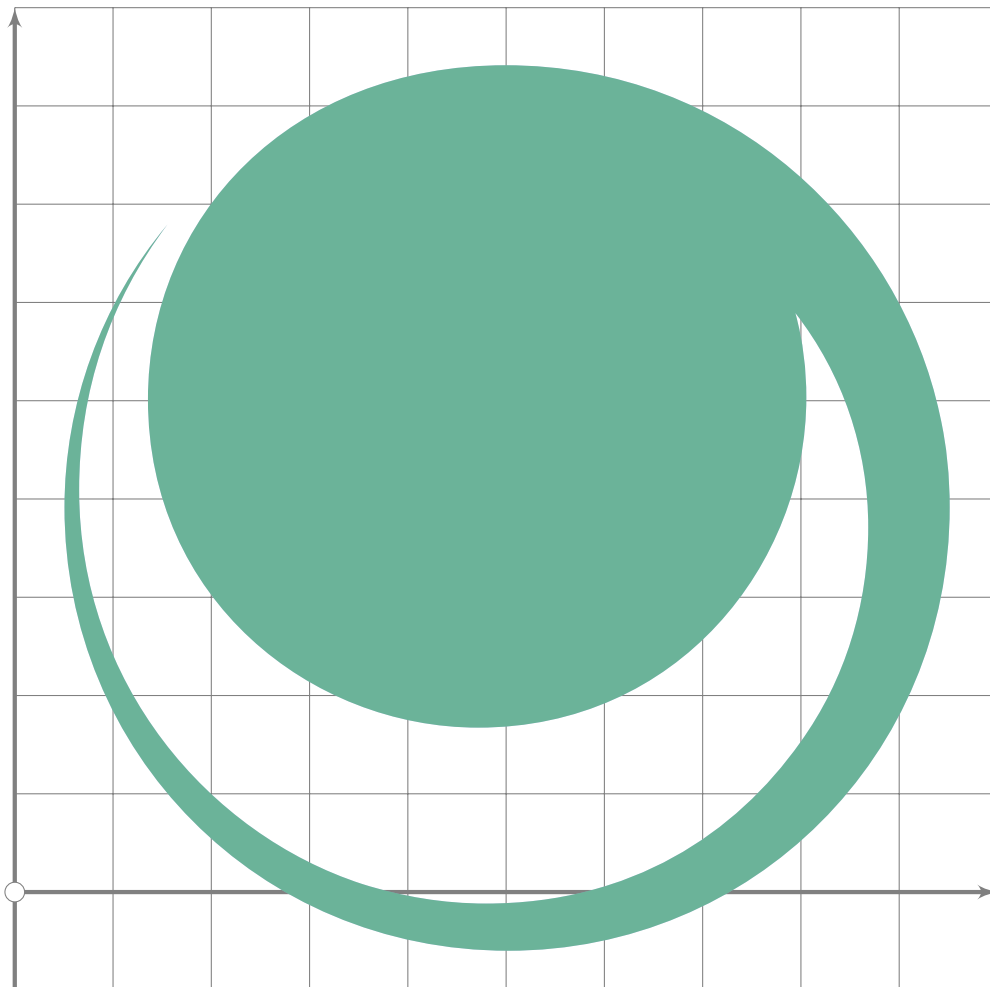
230 % TOMOE ORNAMENTS
231
232 vardef spiral_interpolate(expr start_cart,end_cart,ckpts,loops) =
233   begingroup
234     pair start_pol,end_pol,inter_pol;
235
236     start_pol:=(abs(start_cart),angle(start_cart));
237     end_pol:=(abs(end_cart),angle(end_cart));
238     if (ypart start_pol)-(ypart end_pol)>180:
239       start_pol:=start_pol+(0,-360);
240     fi;
241     if (ypart end_pol)-(ypart start_pol)>180:
242       end_pol:=end_pol+(0,-360);
243     fi;
244     end_pol:=end_pol+(0,360*loops);
245     for i=1 upto ckpts:
246       begingroup
247         inter_pol:=(i/(ckpts+1))[start_pol,end_pol];
248         ((dir ypart inter_pol)*xpart inter_pol)
249       endgroup
250     if i<ckpts: .. fi
251   endfor
252 endgroup
253 enddef;
254
255 vardef make_tomoe(expr k,ir,or,hr,phase,
256   tail_start,tail_advance,ckpts,do_flip) =
257   begingroup
258     path tomoe;

```

```

259 pair tail_tip;
260
261 loops:=if k=1: 1 else: 0 fi;
262 tail_tip:=(dir (tail_advance-360/k))*or;
263 tomoe:=(subpath (tail_start/90,3) of (right..up..left..down..cycle))
264   scaled hr shifted (ir+hr,0);
265 tomoe:=tomoe{curl 1}..
266   spiral_interpolate(point infinity of tomoe,tail_tip,ckpts,-loops)..
267   {curl 1}tail_tip{curl 1}..
268   spiral_interpolate(tail_tip,point 0 of tomoe,ckpts,loops)..cycle;
269
270 if do_flip: tomoe:=tomoe xscaled -1; fi;
271
272 for i=1 upto k:
273   dangerousFill tomoe rotated (phase+i*360/k) shifted centre_pt;
274   endfor;
275 endgroup;
276 enddef;
277

```

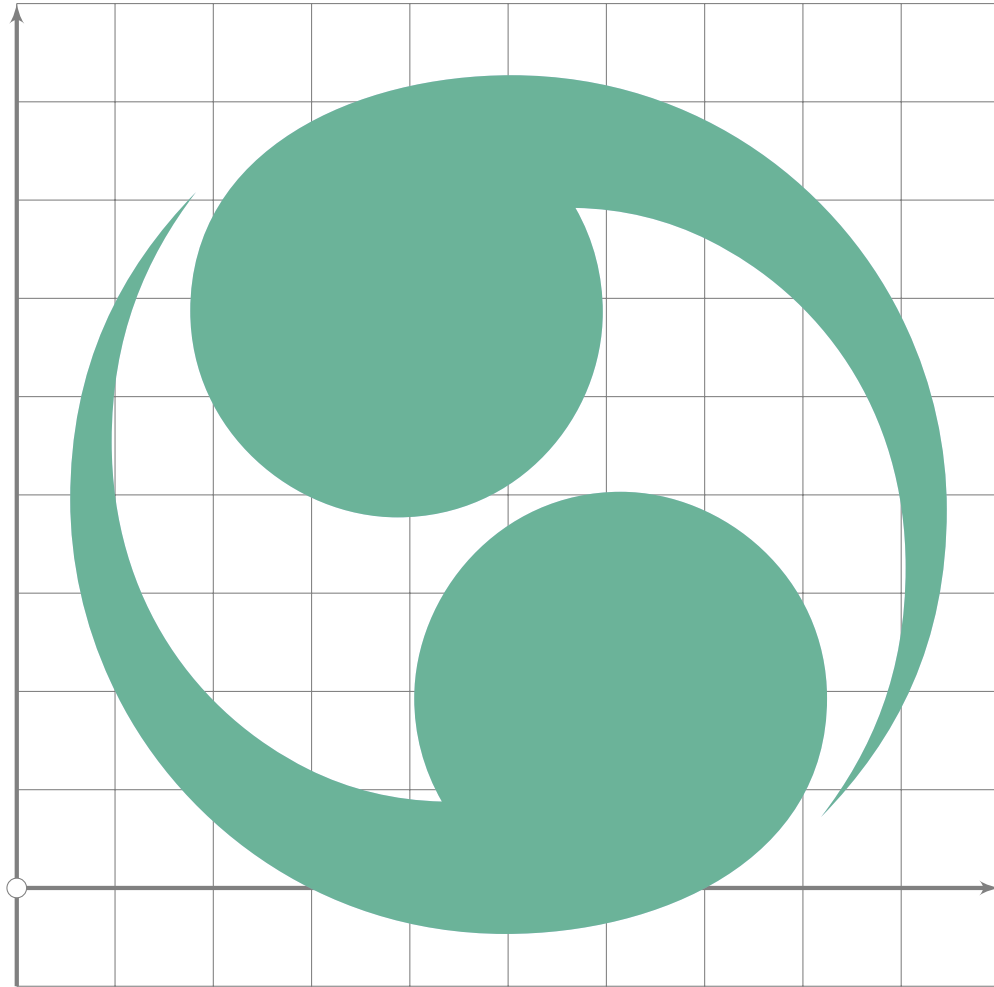


```

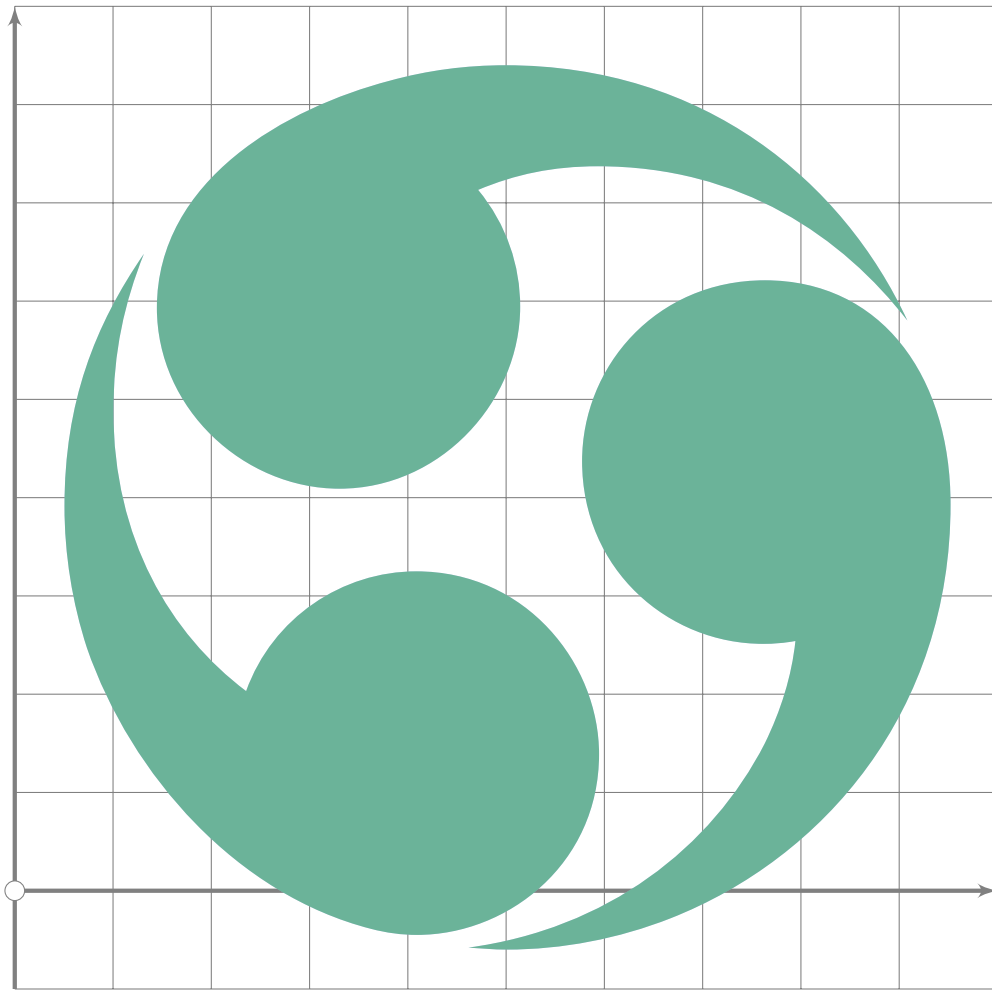
278 % hitotsudomoe ornament
279 begintsuglyph("tomoel",49);

```

```
280 make_tomoe(1,-219,450,335,105,0,35,6,false);  
281 endsuglyph;  
282
```

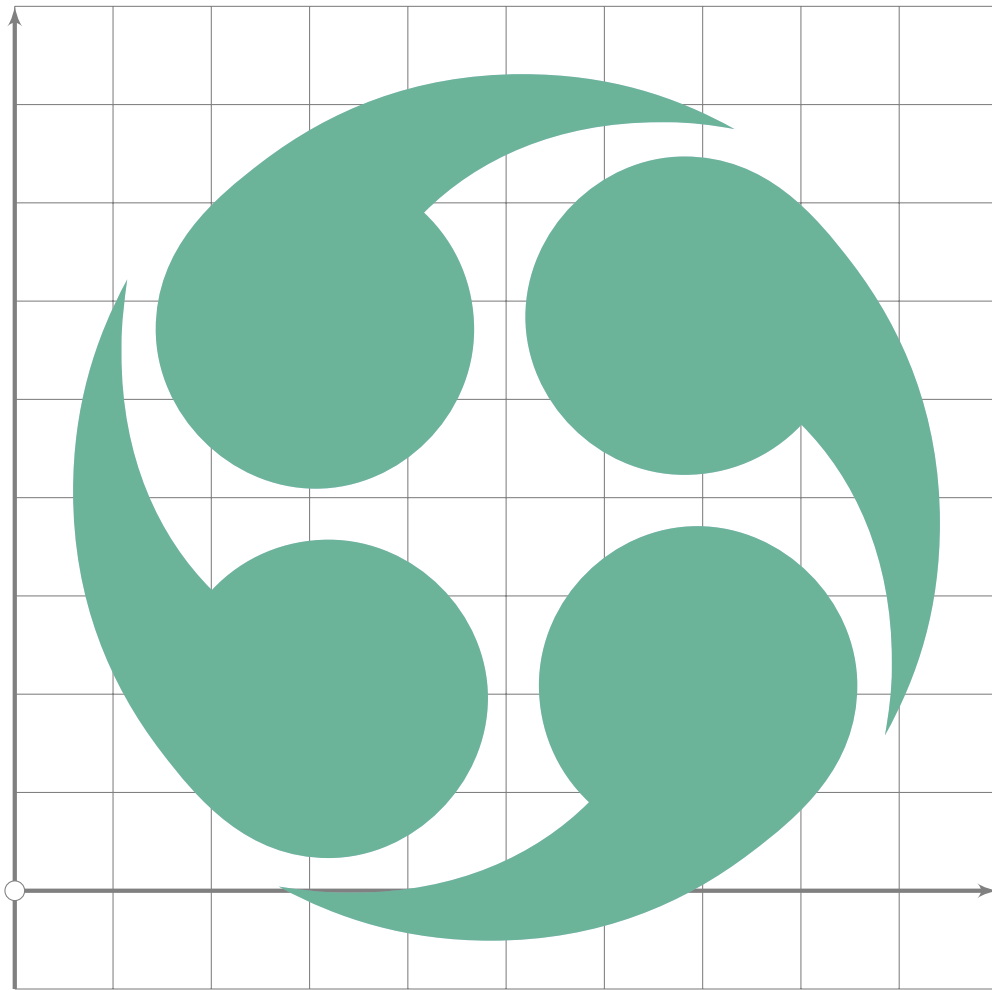


```
283 % futatsudomoe ornament  
284 beginsuglyph("tomoe2",50);  
285 make_tomoe(2,17,450,210,120,15,15,4,false);  
286 endsuglyph;  
287
```

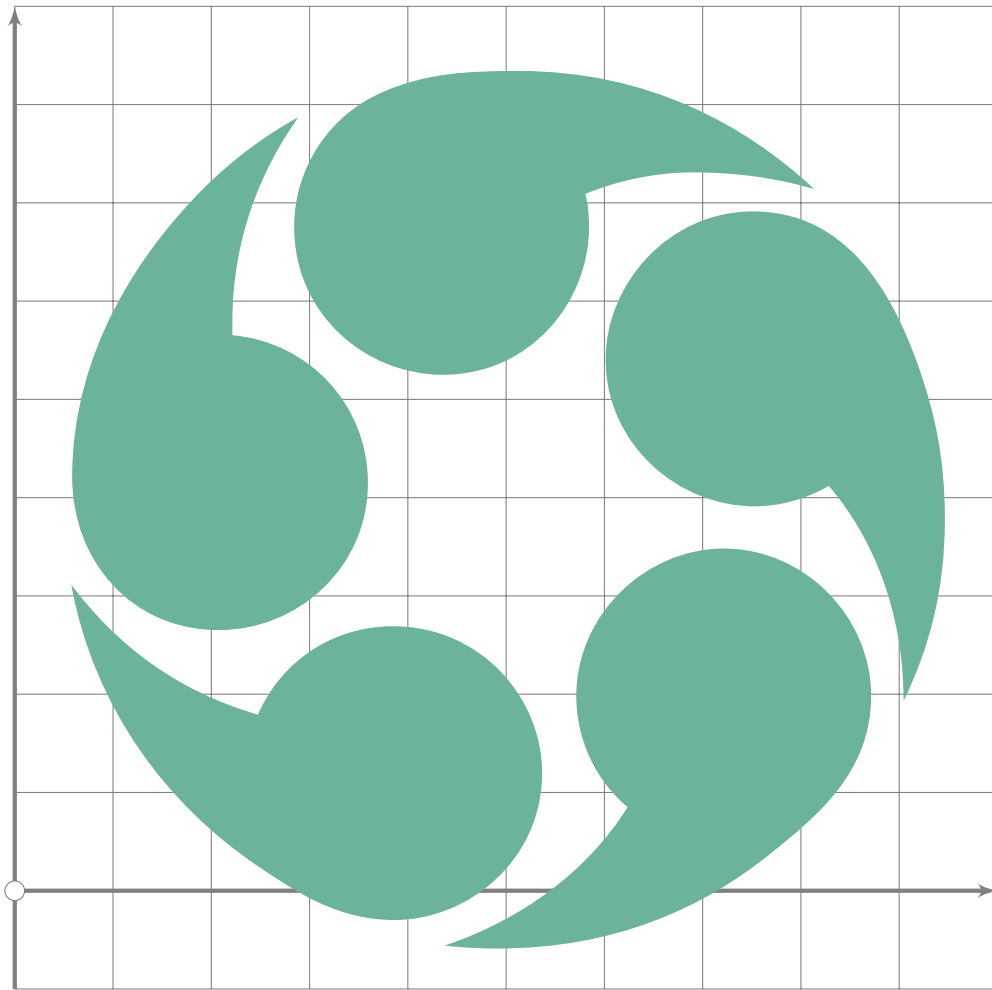


```
288 % mitsudomoe ornament
289 begintsuglyph("tomoe3",51);
290 make_tomoe(3,81,450,185,130,5,15,3,false);
291 endsuglyph;
292
```

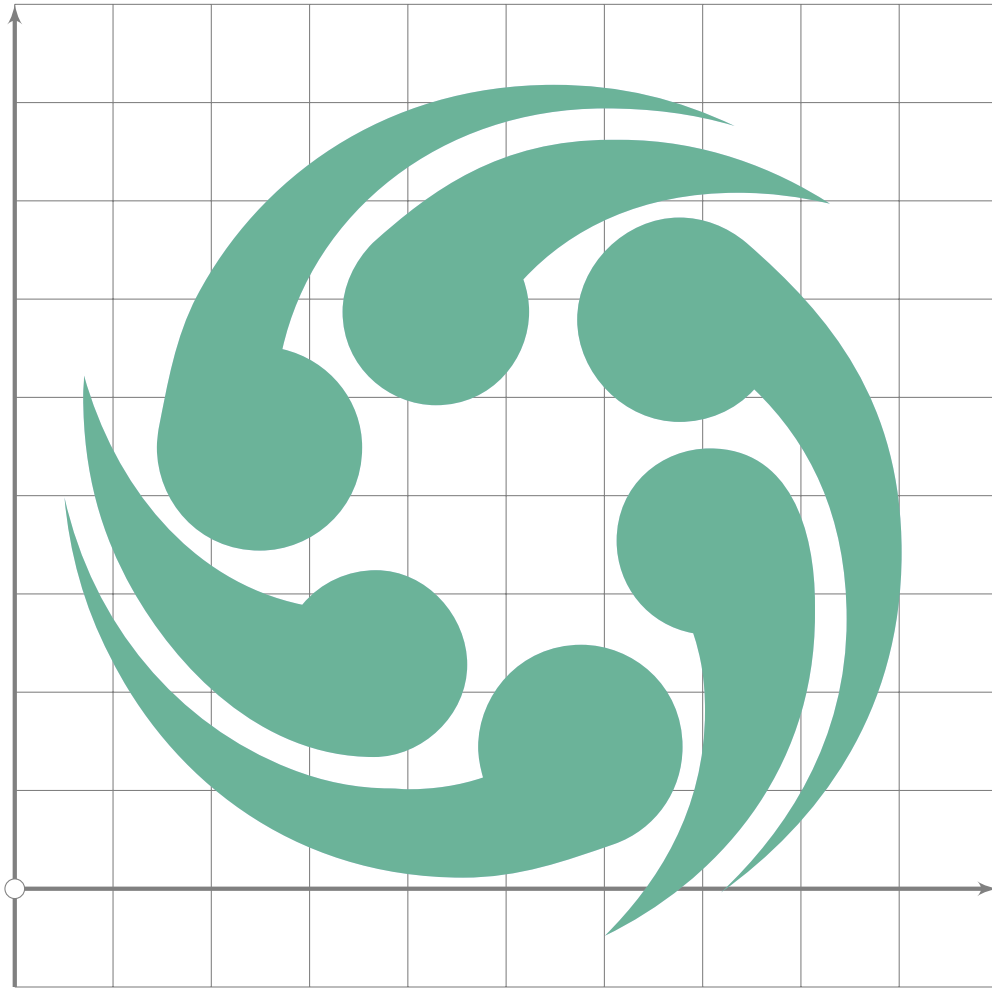




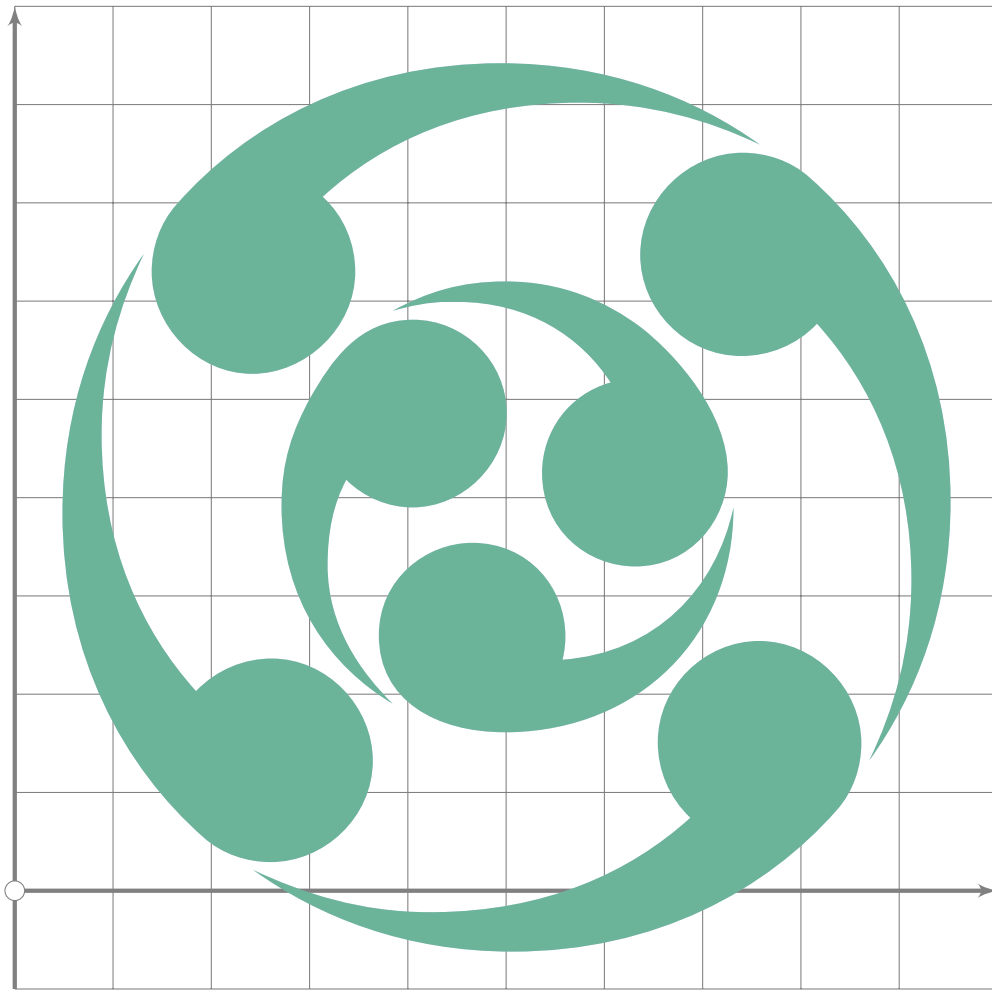
```
293 % yotsudomoe ornament
294 begintsuglyph("tomoe4",52);
295 make_tomoe(4,104,450,162,47,12,12,4,false);
296 endsuglyph;
297
```



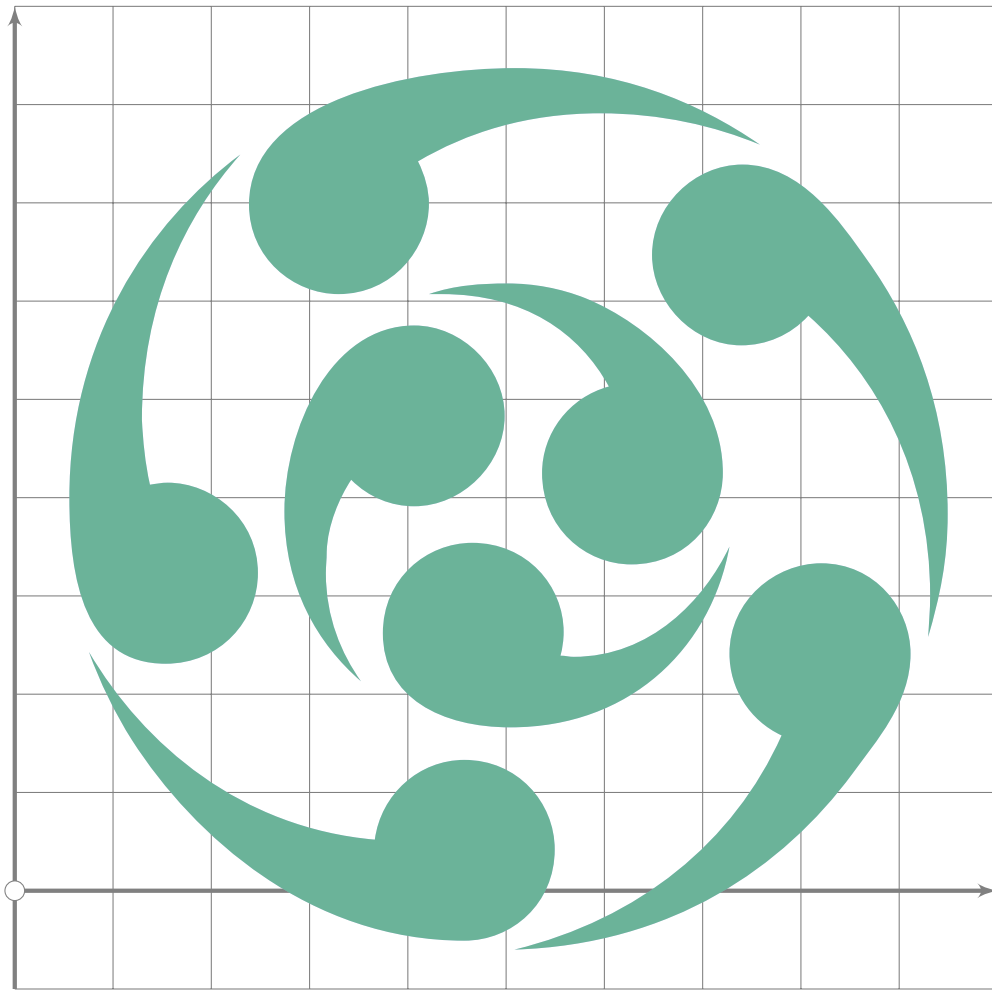
```
298 % 5-tsumomoe ornament
299 begintsuglyph("tomoe5",53);
300 make_tomoe(5,143,450,150,31,10,15,3,false);
301 endsuglyph;
302
```



```
303 % 6-tsudomoe ornament
304 begintsuglyph("tomoe6",54);
305 make_tomoe(3,154,450,104,47,2,12,4,false);
306 make_tomoe(3,115,450,95,110,22,53,4,false);
307 endsuglyph;
308
```



```
309 % 7-tsudomoe ornament
310 begintsuglyph("tomoe7",55);
311 make_tomoe(4,248,450,104,47,2,8,4,false);
312 make_tomoe(3,40,231,95,75,15,15,4,true);
313 endsuglyph;
314
```



```
315 % 8-tsudomoe ornament
316 begintsuglyph("tomoe8",56);
317 make_tomoe(5,260,450,92,47,2,8,4,false);
318 make_tomoe(3,40,231,92,75,15,25,4,true);
319 endsuglyph;
320
321 

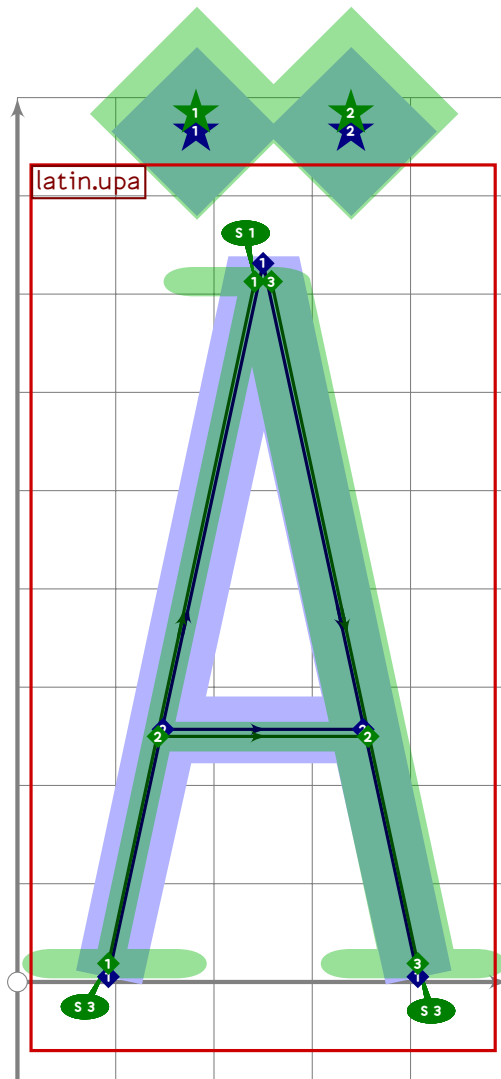
---


322
```

## Heavy Metal Umlaut

```
323 % HEAVY METAL UMLAUT
324
325 % WARNING, setting rescale
326 tsu_rescale_half;
327
328 % naked heavy metal umlaut
329 begintsuglyph("dieresis.hmu",64);
330 tsu_accent.heavy_metal_umlaut;
331 tsu_render;
332 endsuglyph;
333
```

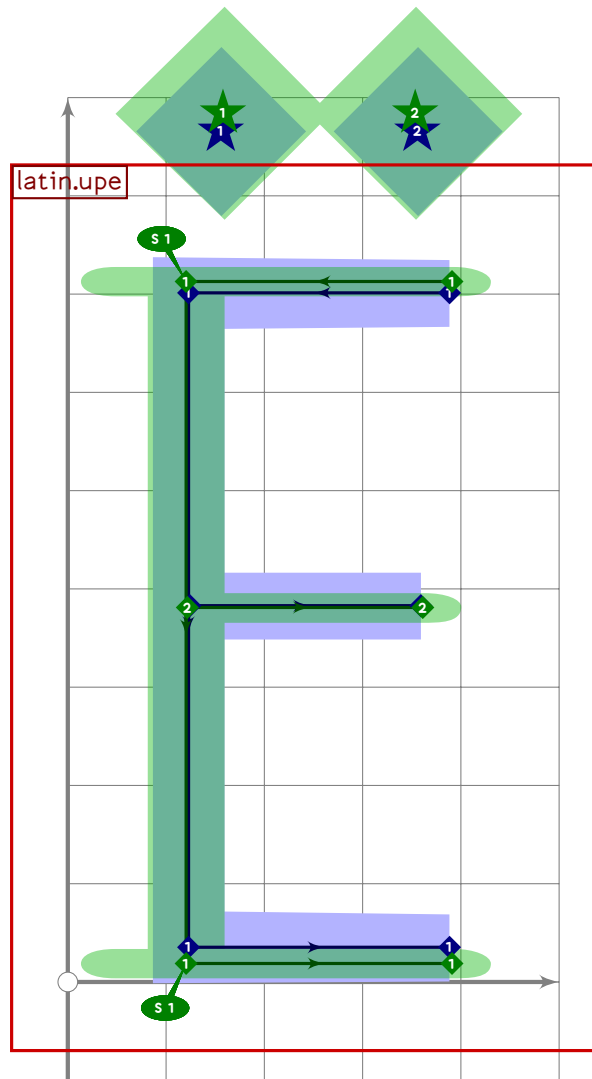
[see page 49]



```

334 % A with heavy metal umlaut
335 begint Suglyph("Adieresis.hmu",65);
336   tsu_accent.apply(tsu_accent.capital(latin.upa))
337     (tsu_accent.heavy_metal_umlaut);
338   tsu_render;
339 endtsuglyph;
340

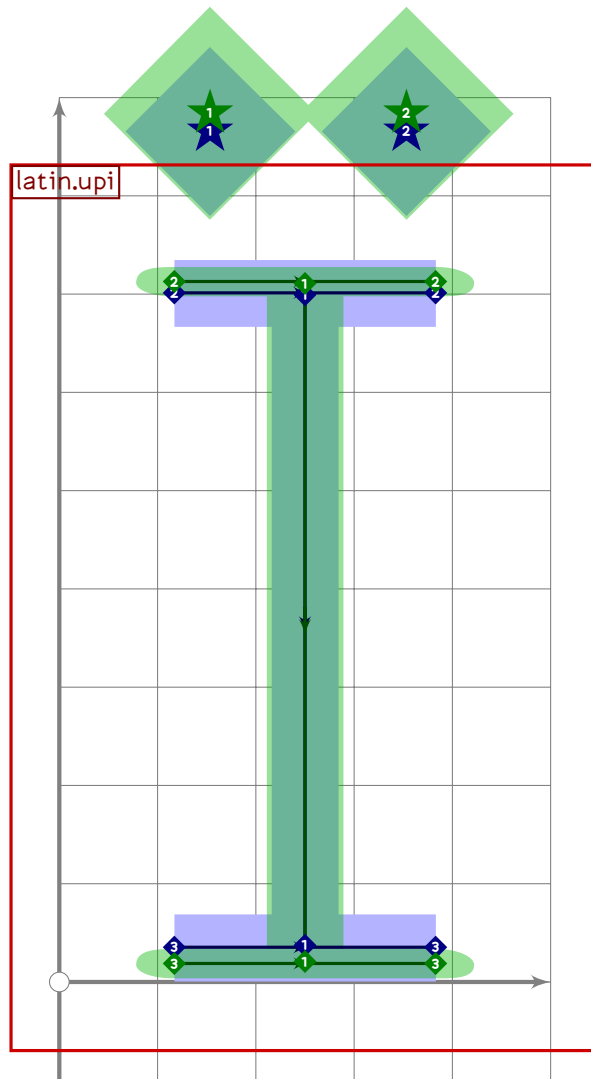
```



```

341 % E with heavy metal umlaut
342 begint Suglyph("Edieresis.hmu",66);
343   tsu_accent.apply(tsu_accent.capital(latin.upe))
344     (tsu_accent.heavy_metal_umlaut);
345   tsu_render;
346 endsuglyph;
347

```

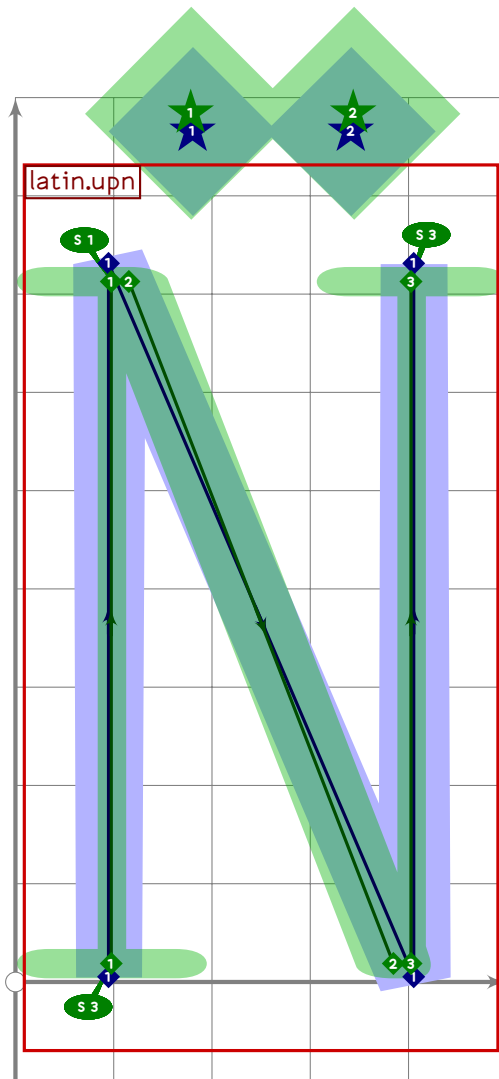


```

348 % I with heavy metal umlaut
349 begint Suglyph("Idieresis.hmu",67);
350 tsu_accent.apply(tsu_accent.capital(latin.upi))
351   (tsu_accent.heavy_metal_umlaut);
352 replace_lcblob(-1)(oldblob shifted (-15,0));
353 replace_lcblob(0)(oldblob shifted (-15,0));
354 tsu_render;
355 endtsuglyph;
356

```

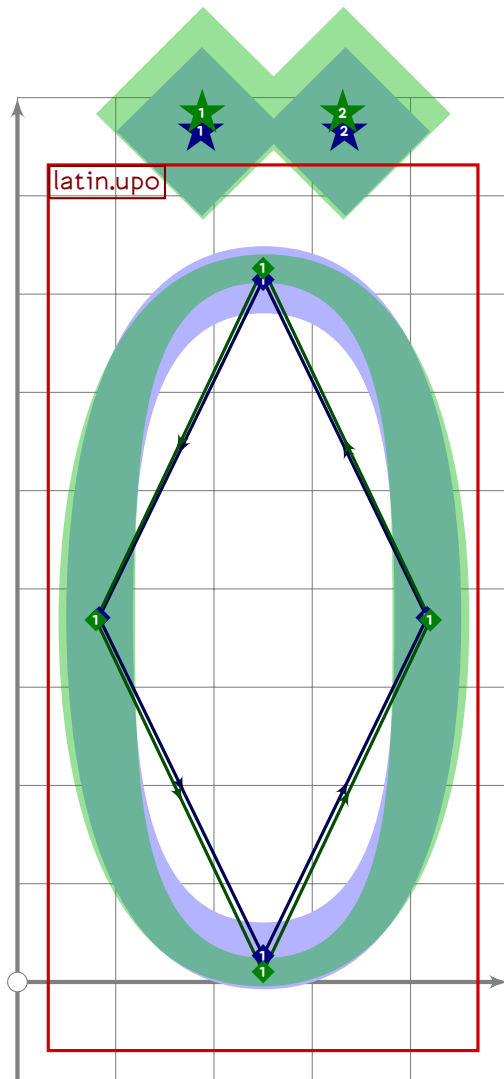




```

357 % N with heavy metal umlaut
358 begint Suglyph("Ndieresis.hmu",68);
359   tsu_accent.apply(tsu_accent.capital(latin.upn))
360     (tsu_accent.heavy_metal_umlaut);
361   tsu_render;
362 endsuglyph;
363

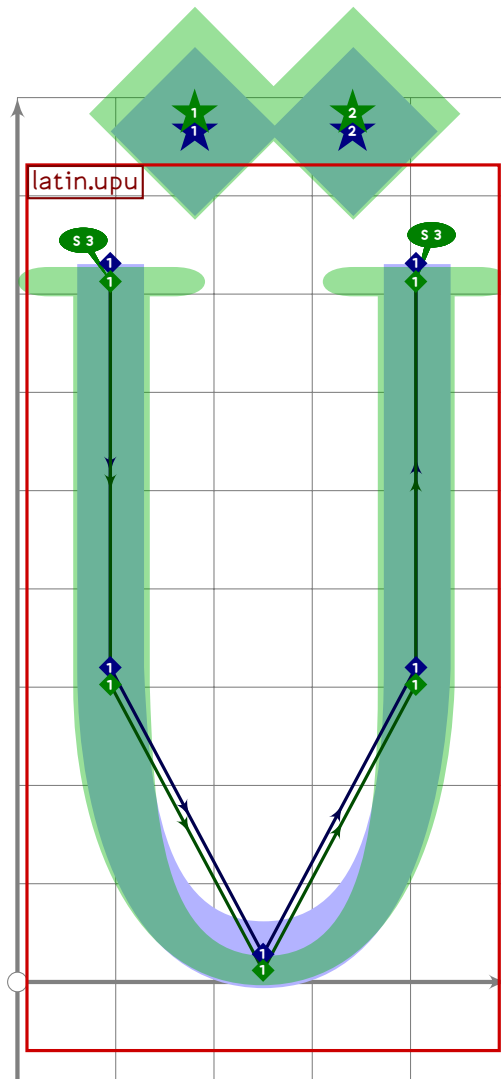
```



```

364 % O with heavy metal umlaut
365 begint Suglyph("Odieresis.hmu",69);
366   tsu_accent.apply(tsu_accent.capital(latin.upo))
367     (tsu_accent.heavy_metal_umlaut);
368   tsu_render;
369 endsuglyph;
370

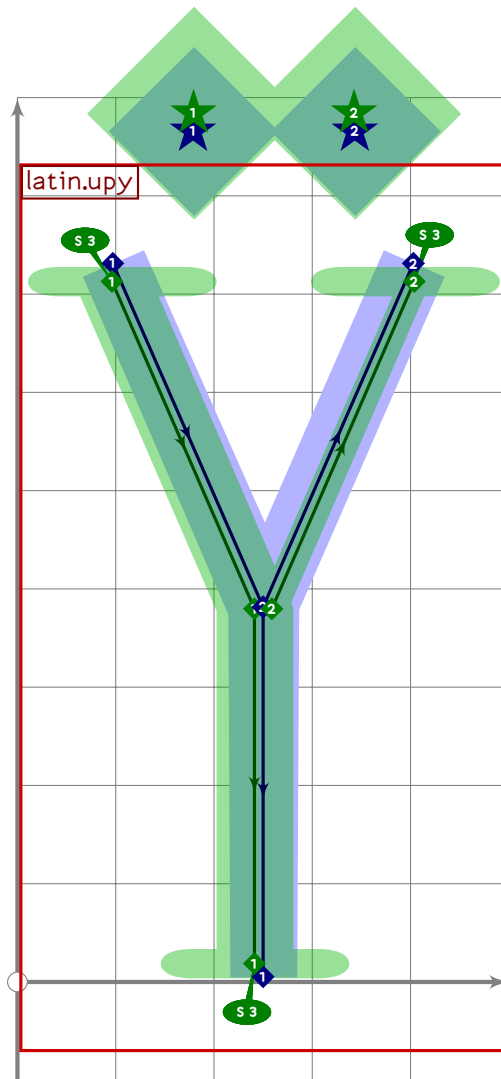
```



```

371 % U with heavy metal umlaut
372 begint Suglyph("Udieresis.hmu",70);
373   tsu_accent.apply(tsu_accent.capital(latin.upu))
374     (tsu_accent.heavy_metal_umlaut);
375   tsu_render;
376 endsuglyph;
377

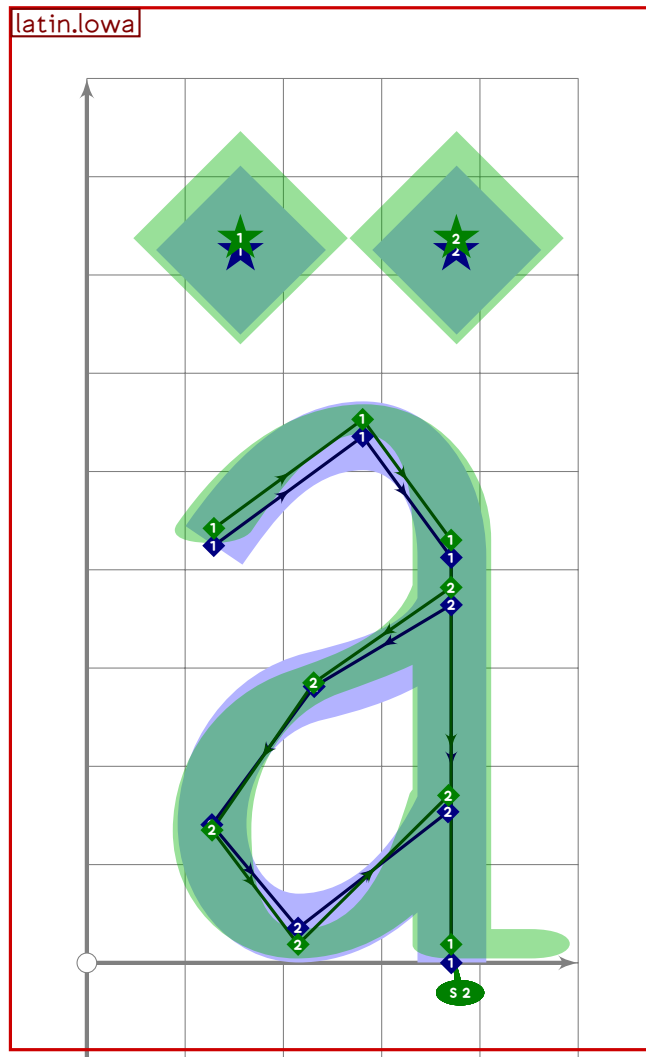
```



```

378 % Y with heavy metal umlaut
379 begint Suglyph("Ydieresis.hmu",71);
380 tsu_accent.apply(tsu_accent.capital(latin.upy))
381   (tsu_accent.heavy_metal_umlaut);
382 tsu_render;
383 endsuglyph;
384

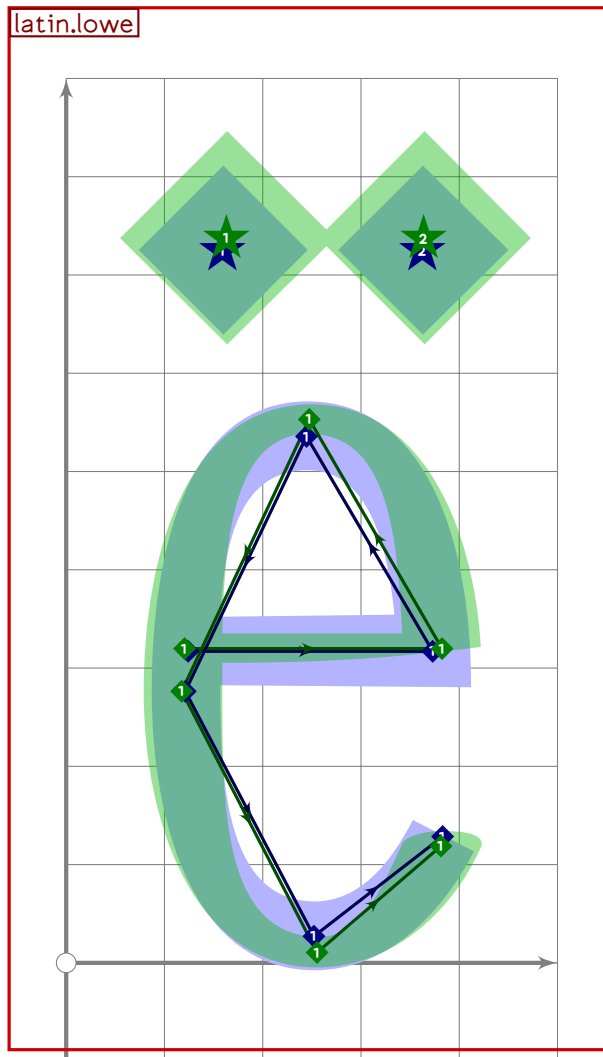
```



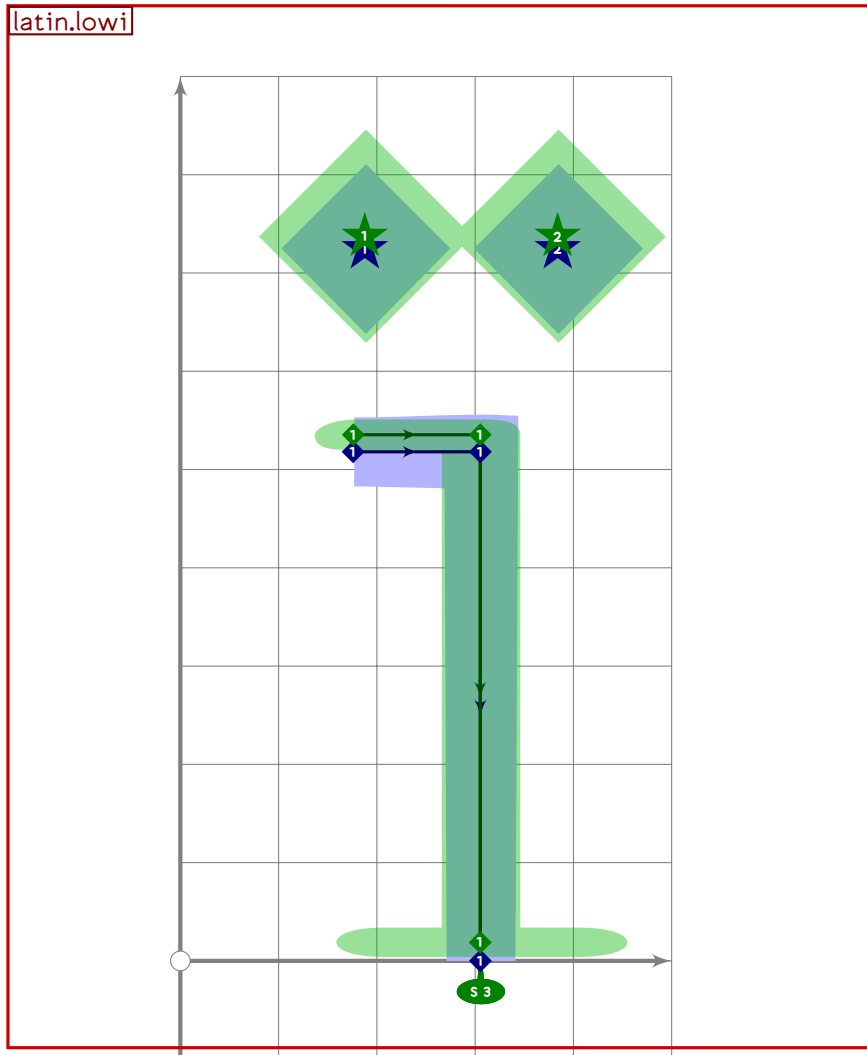
```

385 % a with heavy metal umlaut
386 begintsuglyph("adieresis.hmu";72);
387 tsu_accent.apply(latin.lowa)(tsu_accent.heavy_metal_umlaut);
388 tsu_render;
389 endsuglyph;
390

```



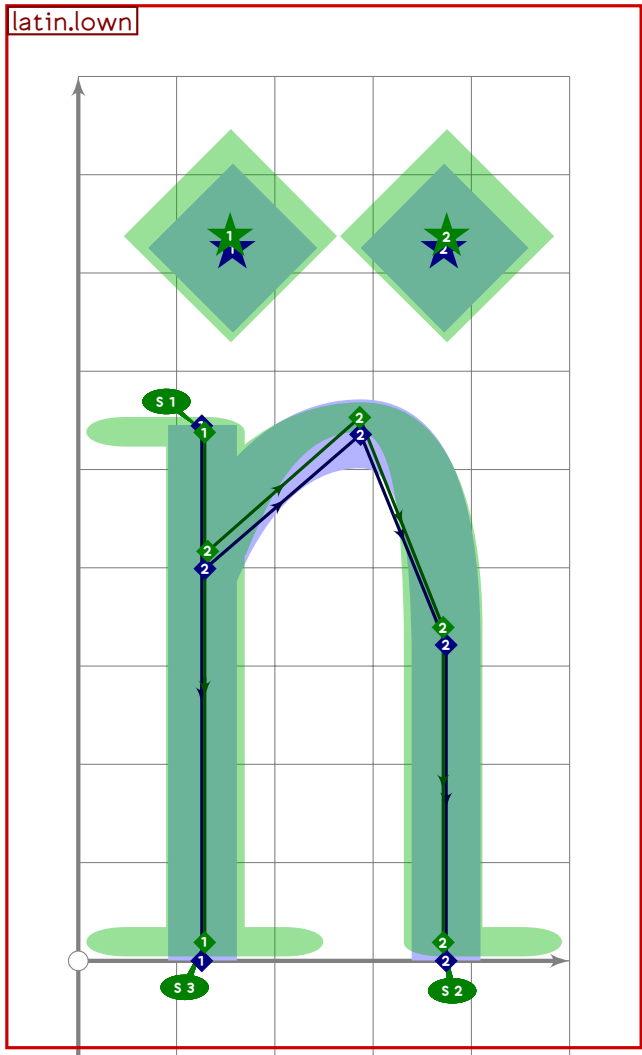
```
391 % e with heavy metal umlaut
392 beginsuglyph("edieresis.hmu";73);
393   tsu_accent.apply(latin.love)(tsu_accent.heavy_metal_umlaut);
394   tsu_render;
395 endsuglyph;
396
```



```

397 % i with heavy metal umlaut
398 begint Suglyph("idieresis.hmu",74);
399 tsu_accent.apply(
400   latin.lowi;
401   replace_strokep(0)(oldp shifted (70*right));
402   pop_lcblob;
403 )(tsu_accent.heavy_metal_umlaut);
404 replace_lcblob(-1)(oldblob shifted (50*right));
405 replace_lcblob(0)(oldblob shifted (50*left));
406 tsu_render;
407 endsuglyph;
408

```

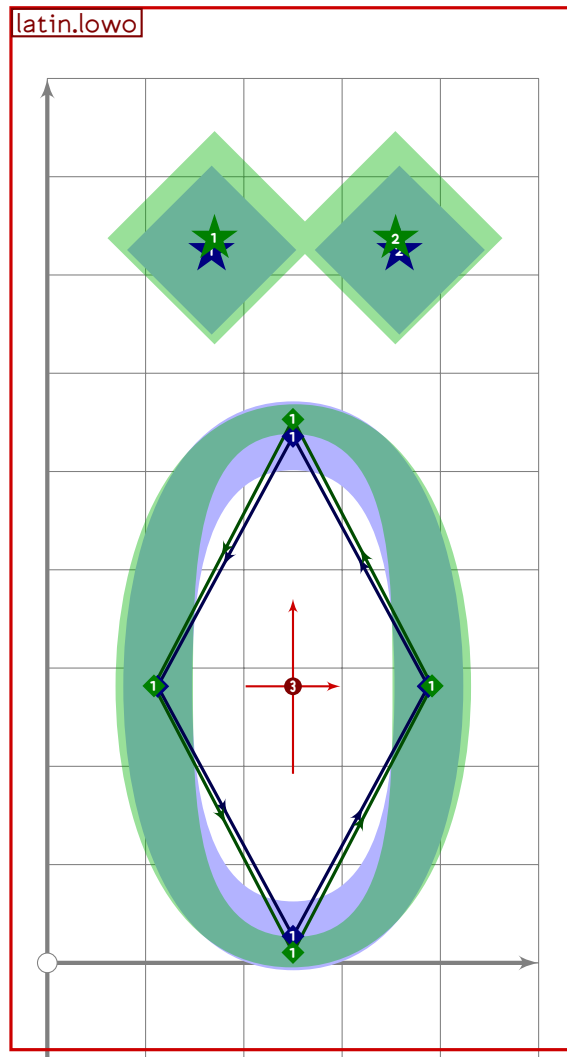


```

409 % n with heavy metal umlaut
410 begintsuglyph("ndieresis.hmu";75);
411   tsu_accent.apply(latin.lown)(tsu_accent.heavy_metal_umlaut);
412   tsu_render;
413 endsuglyph;
414

```

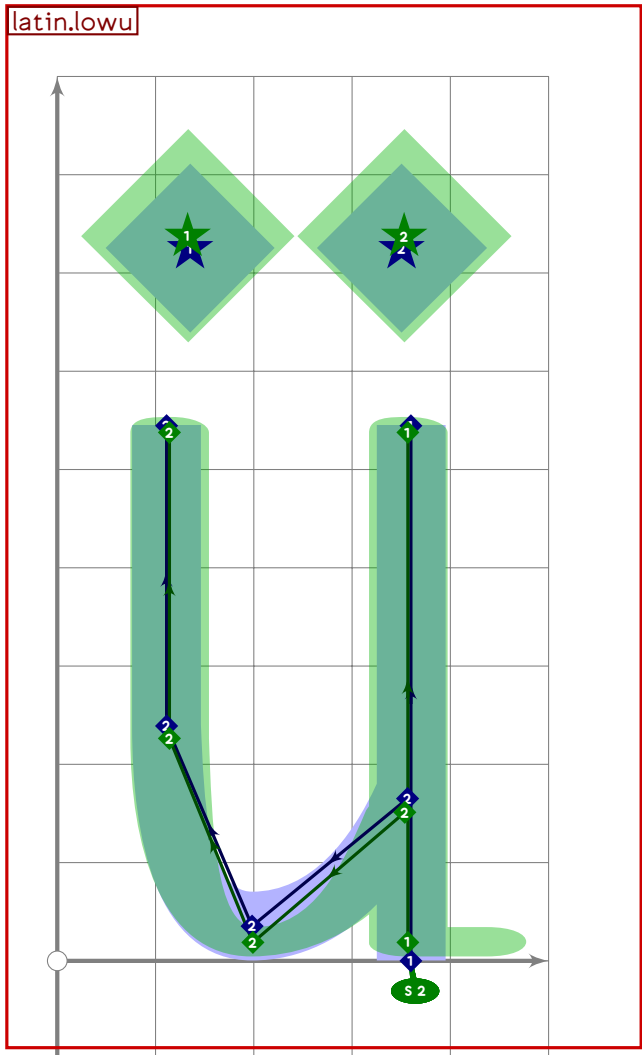




```

415 % o with heavy metal umlaut
416 begintsuglyph("odieresis.hmu";76);
417   tsu_accent.apply(latin.lowo)(tsu_accent.heavy_metal_umlaut);
418   tsu_render;
419 endsuglyph;
420

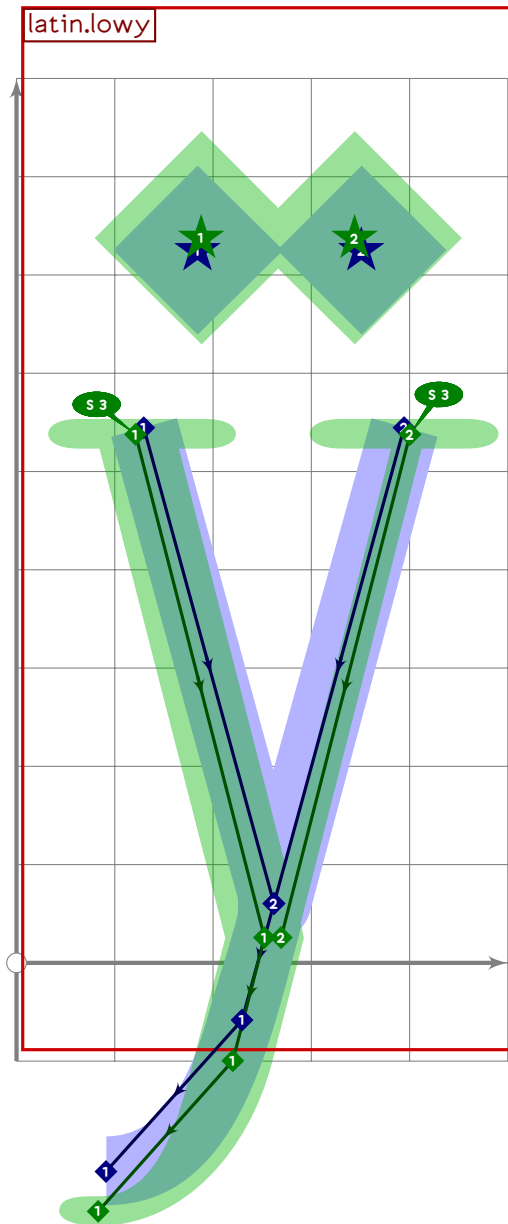
```



```

421 % u with heavy metal umlaut
422 beginsuglyph("udieresis.hmu";77);
423 tsu_accent.apply(latin.lowu)(tsu_accent.heavy_metal_umlaut);
424 replace_lcblob(-1)(oldblob shifted (-60,0));
425 replace_lcblob(0)(oldblob shifted (-60,0));
426 tsu_render;
427 endsuglyph;
428

```



```

429 % y with heavy metal umlaut
430 begintsuglyph("ydieresis.hmu",78);
431 tsu_accent.apply(latin.lowy)(tsu_accent.heavy_metal_umlaut);
432 tsu_render;
433 endsuglyph;
434
435
436

```

## Genji-Mon

```

437 % GENJI-MON
438
439 % WARNING, setting rescale
440 tsu_rescale_full;

```

```

441
442 genji_grid:=150;
443 if unknown genji_hw:
444   genji_hw:=tsu_brush_max/1.5;
445   if genji_hw>0.85: genji_hw:=0.85; fi;
446 fi;
447 if genji_outline: genji_hw:=1-genji_hw; fi;
448
449 vardef dflt_genji_coords =
450   transform genji_coords;
451   genji_coords=identity scaled genji_grid shifted (whatever,whatever);
452   (3,3) transformed genji_coords=centre_pt;
453 enddef;
454
455 % gb(x) - start a line at the bottom in file x
456 % gf(y) - go forward, to or from rank y
457 % gs(k) - go sideways k steps
458 % ge - end a line (at top or bottom)
459 % gt - end a line (T junction)
460 % gx - end a line and start a new one (X junction)
461 % gr - turn to right
462 % gl - turn to left (only used for Yume no Ukihashi)
463 % gbk(l,r) - draw background with l/r squares removed at upper left, right
464 % gp(i,r) - build a simple "spike" in index 1, to rank r
465 % gj(s,e) - build a simple "jumper" from s to e
466
467 vardef gb(expr a) =
468   dflt_genji_coords;
469   genji_coords:=identity scaled 0.5 shifted (a,1) transformed genji_coords;
470   path genji_path;
471   genji_path:=((-genji_hw,1)-(-genji_hw,-genji_hw)-
472     (genji_hw,-genji_hw)-((genji_hw,1)) transformed genji_coords;
473   path genji_spine;
474   genji_spine:=(0,0) transformed genji_coords;
475   genji_coords:=identity shifted (0,2) transformed genji_coords;
476 enddef;
477
478 vardef gf(expr a) =
479   gs(4-a);
480 enddef;
481
482 vardef gs(expr a) =
483   genji_path:=((-genji_hw,2*a-1) transformed genji_coords)-
484     genji_path-
485     ((genji_hw,2*a-1) transformed genji_coords);
486   genji_coords:=identity shifted (0,2*a) transformed genji_coords;
487 enddef;
488

```

```

489 vardef ge =
490   genji_path:=((-genji_hw,genji_hw) transformed genji_coords)-
491     genji_path-
492     ((genji_hw,genji_hw) transformed genji_coords)-
493     cycle;
494   if genji_outline:
495     unFill reverse genji_path;
496   else:
497     Fill genji_path;
498   fi;
499   genji_spine:=genji_spine-((0,0) transformed genji_coords);
500   if unknown gsp: gsp:=1; fi;
501   write ("SEGMENT "&(decimal gsp)&" 0 "&(decimal length genji_spine))
502     to "proof.prf";
503   for i=0 upto length genji_spine:
504     write ("POINT "&(decimal gsp)&" "&(decimal i)&" "&
505           (decimal xpart point i of genji_spine)&" "&
506           (decimal ypart point i of genji_spine)) to "proof.prf";
507   endfor;
508   gsp:=gsp+1;
509 enddef;
510
511 vardef gt =
512   genji_path:=((-genji_hw,genji_hw) transformed genji_coords)-
513     genji_path-
514     ((genji_hw,genji_hw) transformed genji_coords)-
515     cycle;
516   if genji_outline:
517     unFill reverse genji_path;
518   else:
519     Fill genji_path;
520   fi;
521   genji_spine:=genji_spine-((0,-1) transformed genji_coords);
522   if unknown gsp: gsp:=1; fi;
523   write ("SEGMENT "&(decimal gsp)&" 0 "&(decimal length genji_spine))
524     to "proof.prf";
525   for i=0 upto length genji_spine:
526     write ("POINT "&(decimal gsp)&" "&(decimal i)&" "&
527           (decimal xpart point i of genji_spine)&" "&
528           (decimal ypart point i of genji_spine)) to "proof.prf";
529   endfor;
530   gsp:=gsp+1;
531 enddef;
532
533 vardef gx =
534   gt;
535   genji_path:=((-genji_hw,1)-(-genji_hw,genji_hw)-
536     (genji_hw,genji_hw)-(-genji_hw,1)) transformed genji_coords;

```

```

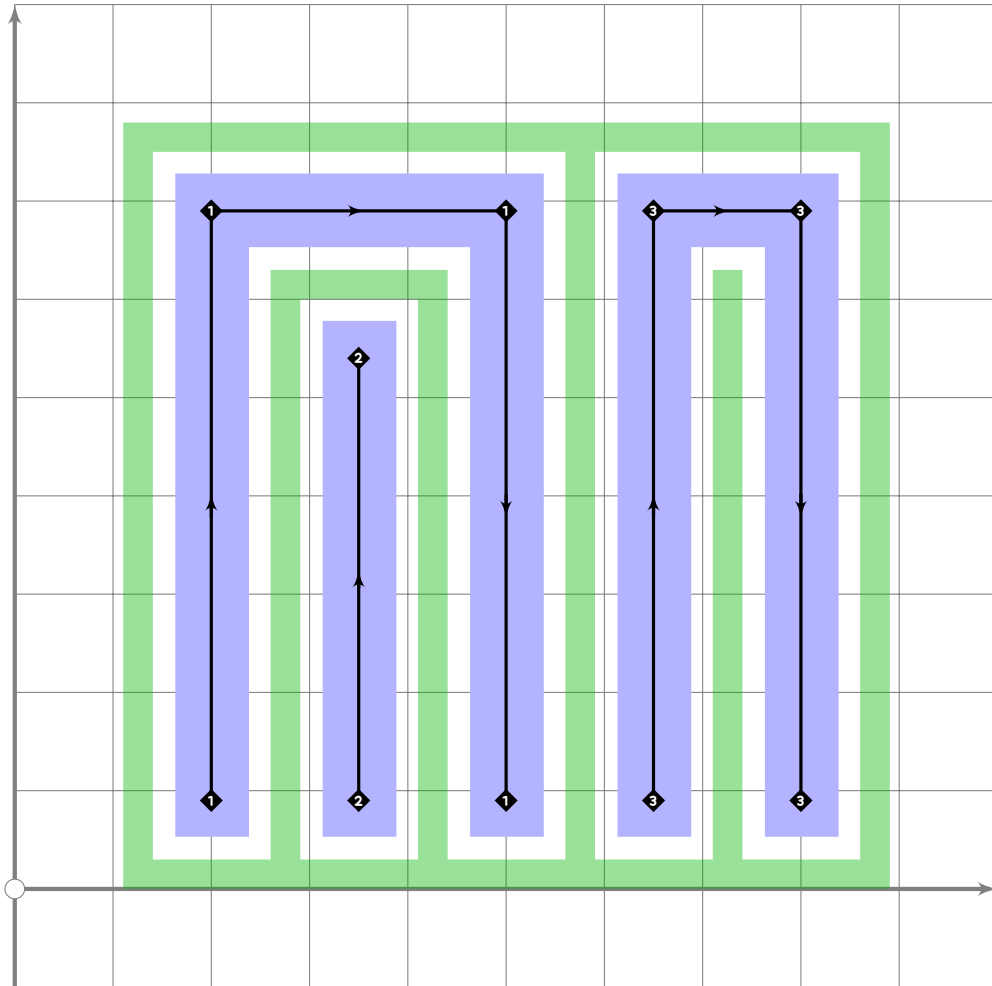
537 genji_spine:=(0,1) transformed genji_coords;
538 genji_coords:=identity shifted (0,2) transformed genji_coords;
539 enddef;
540
541 vardef gr =
542   genji_path:=((1,genji_hw) transformed genji_coords)-
543     ((-genji_hw,genji_hw) transformed genji_coords)-
544     genji_path-
545     ((genji_hw,-genji_hw) transformed genji_coords)-
546     ((1,genji_hw) transformed genji_coords);
547   genji_spine:=genji_spine-((0,0) transformed genji_coords);
548   genji_coords:=identity shifted (0,2) rotated -90 transformed genji_coords;
549 enddef;
550
551 vardef gl =
552   genji_path:=((-1,genji_hw) transformed genji_coords)-
553     ((-genji_hw,genji_hw) transformed genji_coords)-
554     genji_path-
555     ((genji_hw,genji_hw) transformed genji_coords)-
556     ((-1,genji_hw) transformed genji_coords);
557   genji_spine:=genji_spine-((0,0) transformed genji_coords);
558   genji_coords:=identity shifted (0,2) rotated 90 transformed genji_coords;
559 enddef;
560
561 vardef gbk(expr lcut,rcut) =
562   gsp:=whatever;
563   if genji_outline:
564     path genji_path;
565     genji_path:=(genji_hw/2,genji_hw/2)-(6-genji_hw/2,genji_hw/2)-
566       if rcut>0:
567         (6-genji_hw/2,5-genji_hw/2)-
568         (6-genji_hw/2-rcut,5-genji_hw/2)-
569         (6-genji_hw/2-rcut,6-genji_hw/2)-
570       else:
571         (6-genji_hw/2,6-genji_hw/2)-
572       fi
573     if lcut>0:
574       (genji_hw/2+lcut,6-genji_hw/2)-
575       (genji_hw/2+lcut,5-genji_hw/2)-
576       (genji_hw/2,5-genji_hw/2)-
577     else:
578       (genji_hw/2,6-genji_hw/2)-
579     fi
580     cycle;
581     dflt_genji_coords;
582     Fill genji_path transformed genji_coords;
583   fi;
584 enddef;

```

```

585
586 vardef gp(expr i,r) =
587   gb(i);gf(r);ge;
588 enddef;
589
590 vardef gj(expr si,ei) =
591   gb(si);gf(1);gr;if ei>si+1:gs(ei-si-1);fi;gr;gf(1);ge;
592 enddef;
593
594 vardef gtt(expr a,b) =
595   gb(a);gf(b);gt;
596 enddef;
597

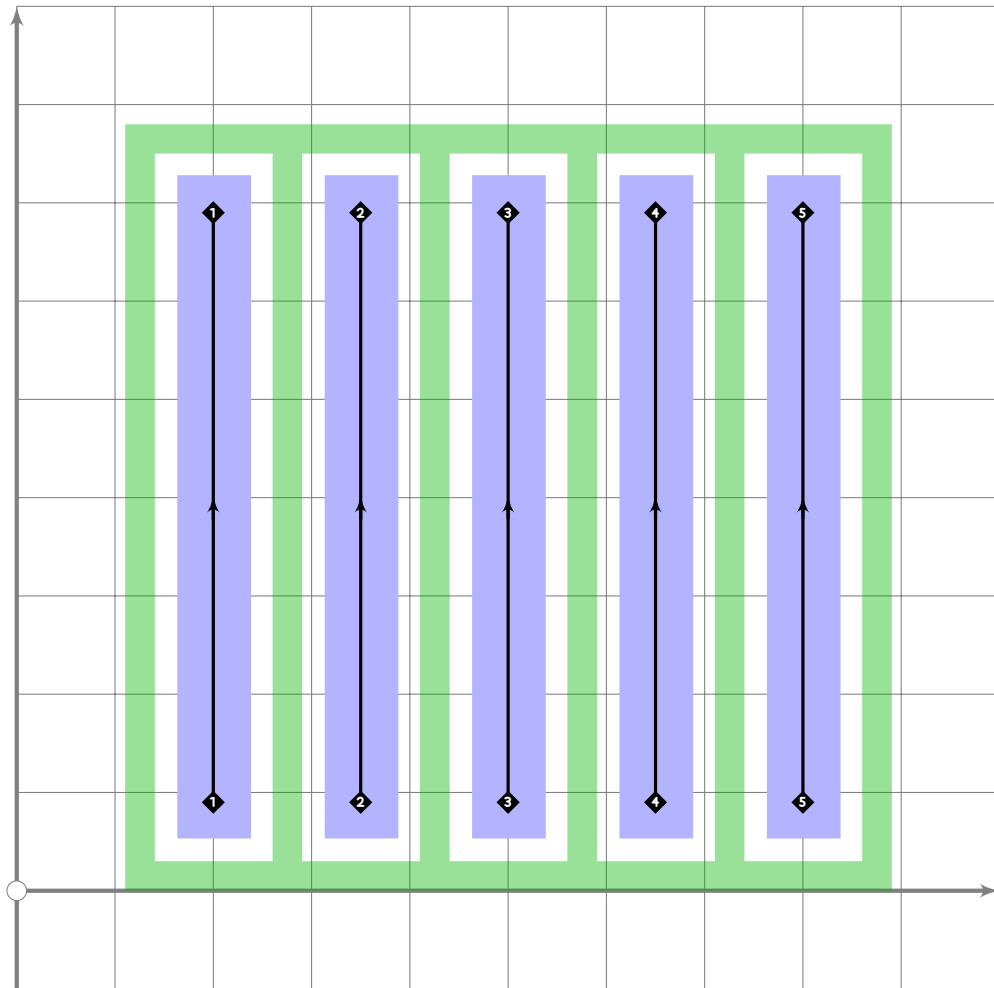
```



```

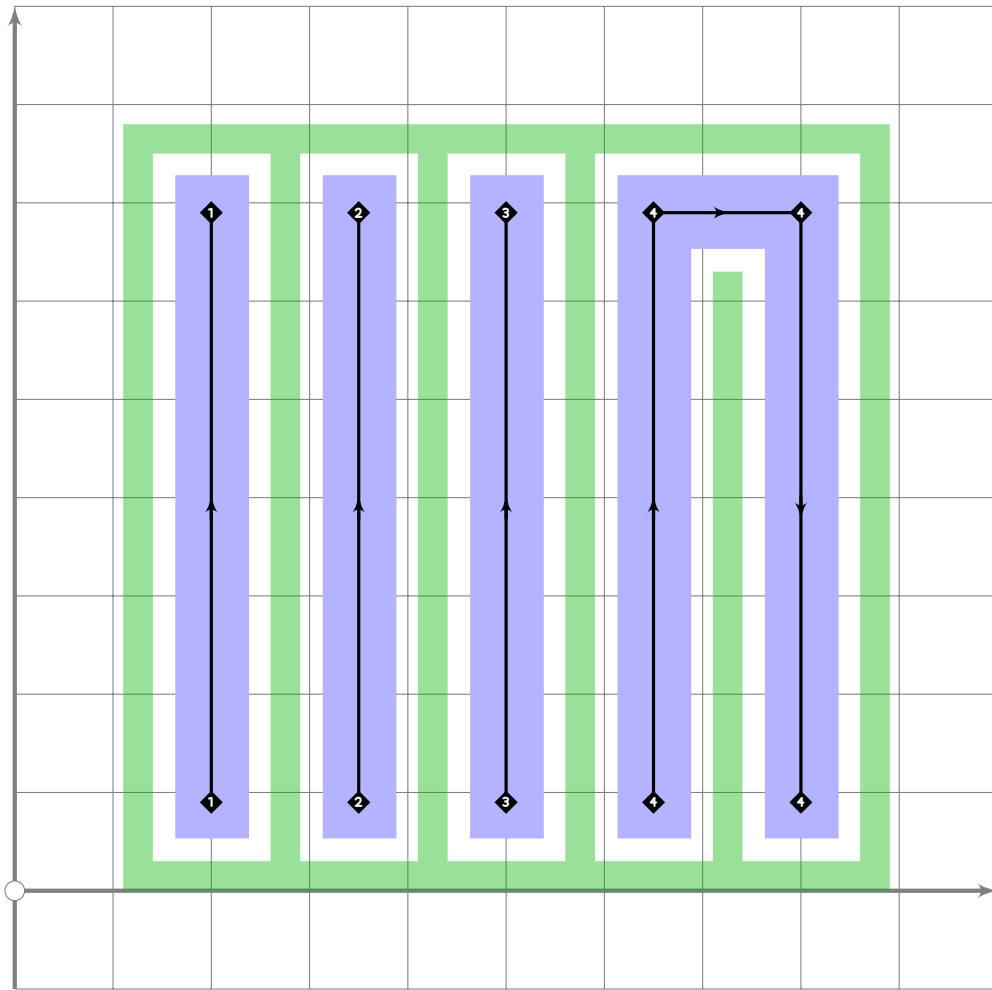
598 % #1 Kiritsubo
599 begint Suglyph("genjimon01",193);
600 gbk(0,0);
601 gj(1,3);
602 gp(2,2);
603 gj(4,5);
604 endtsuglyph;
605

```



```
606 % #2 Hahakigi
607 beginsuglyph("genjimon02",194);
608 gbk(0,0);
609 gp(1,1);
610 gp(2,1);
611 gp(3,1);
612 gp(4,1);
613 gp(5,1);
614 endsuglyph;
615
```

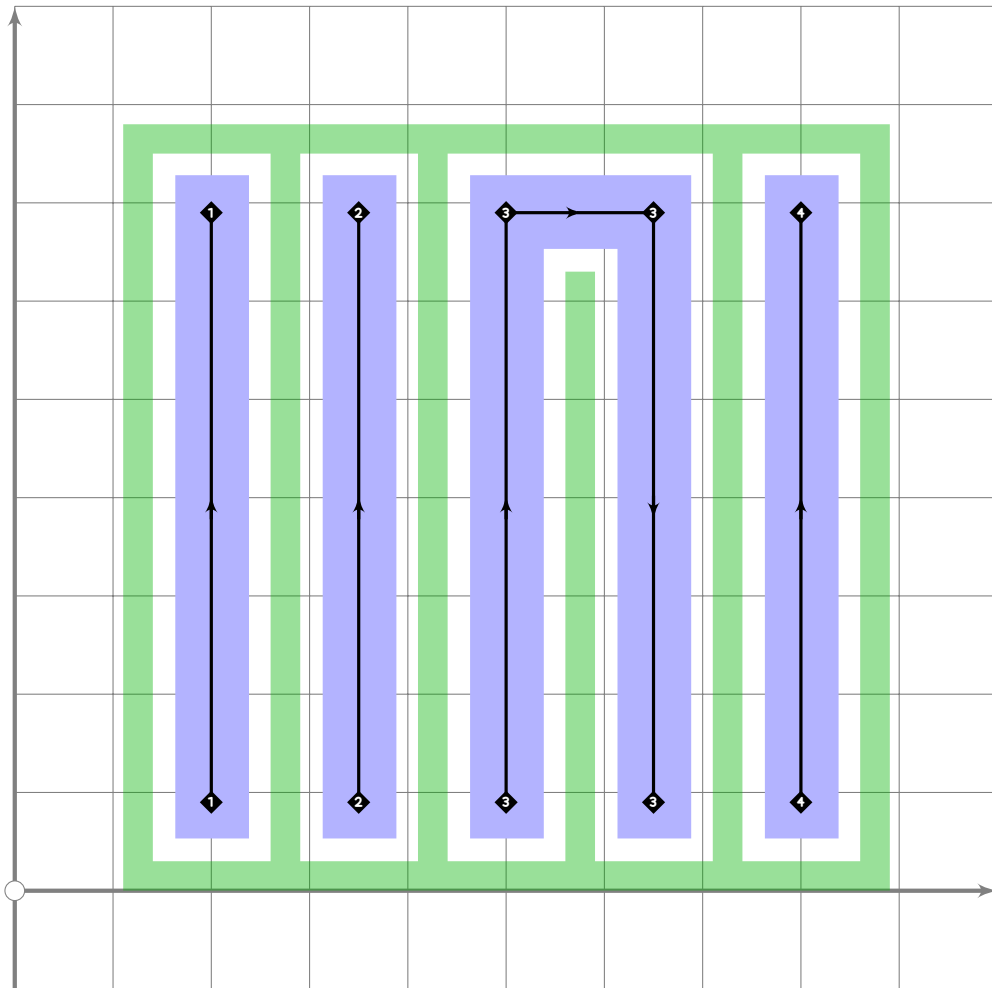




```

616 % #3 Utsusemi
617 beginsuglyph("genjimon03",195);
618 gbk(0,0);
619 gp(1,1);
620 gp(2,1);
621 gp(3,1);
622 gj(4,5);
623 endsuglyph;
624

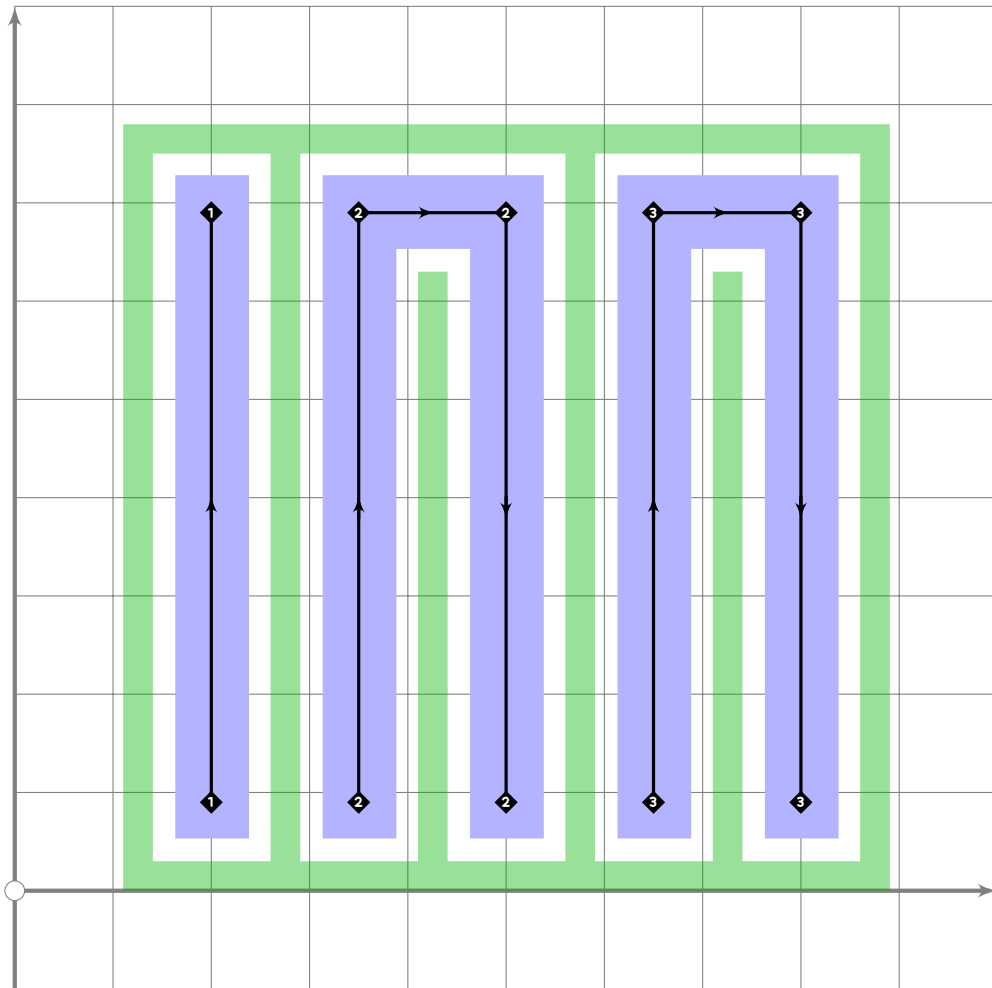
```



```

625 % #4 Yuugao
626 begintsuglyph("genjimon04",196);
627 gbk(0,0);
628 gp(1,1);
629 gp(2,1);
630 gj(3,4);
631 gp(5,1);
632 endsuglyph;
633

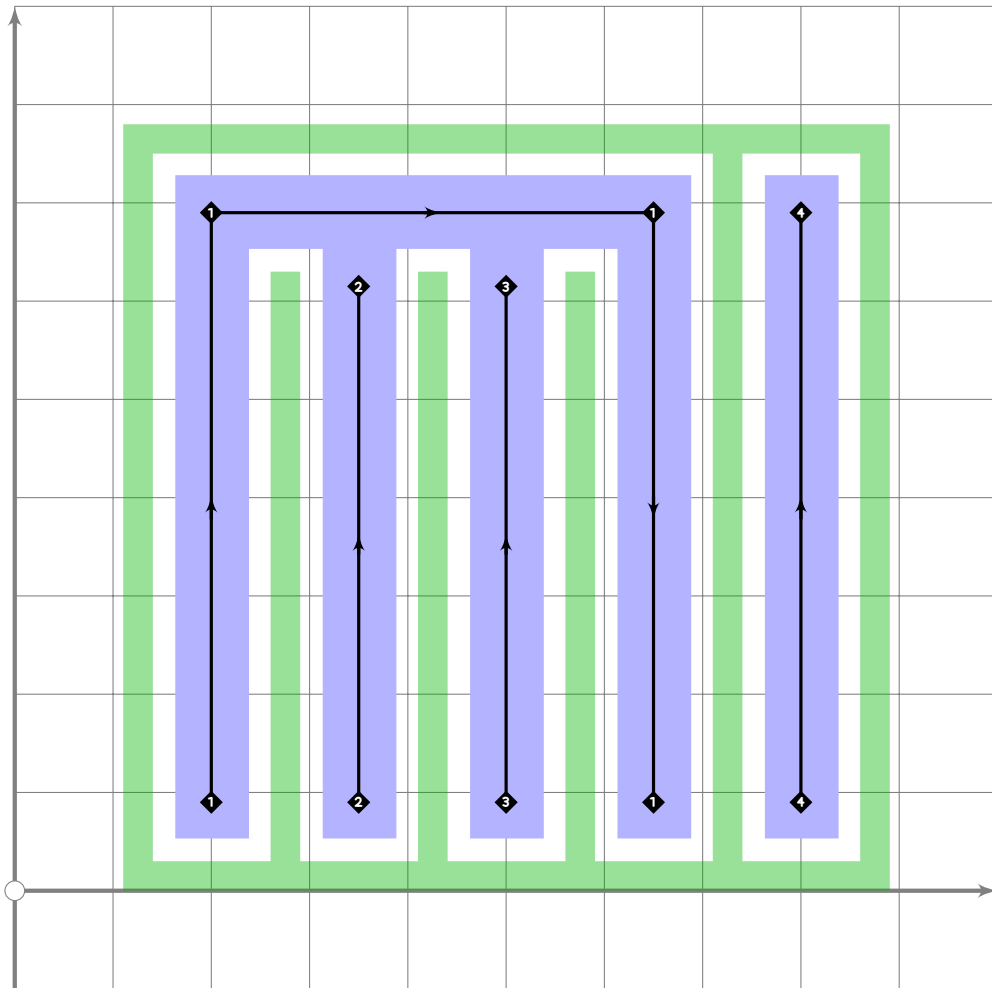
```



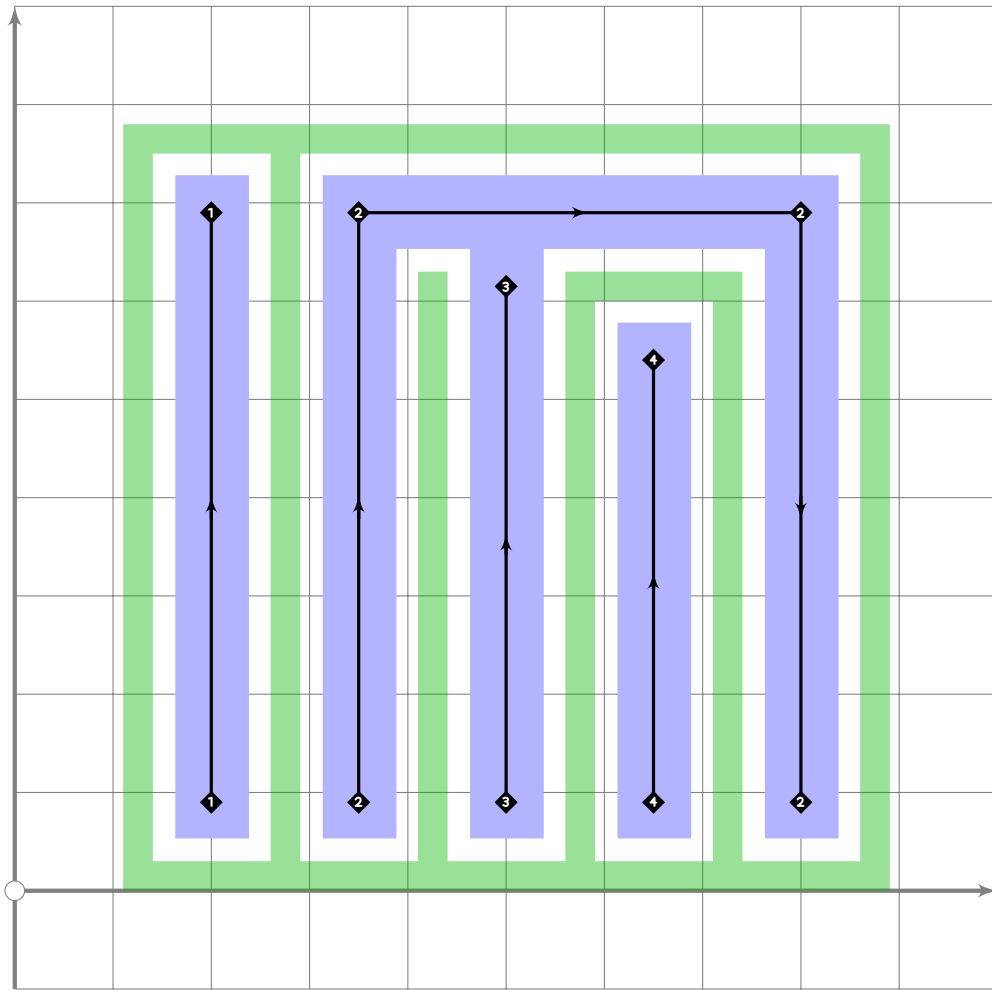
```

634 % #5 Wakamurasaki
635 begintsuglyph("genjimon05",197);
636 gbk(0,0);
637 gp(1,1);
638 gj(2,3);
639 gj(4,5);
640 endsuglyph;
641

```



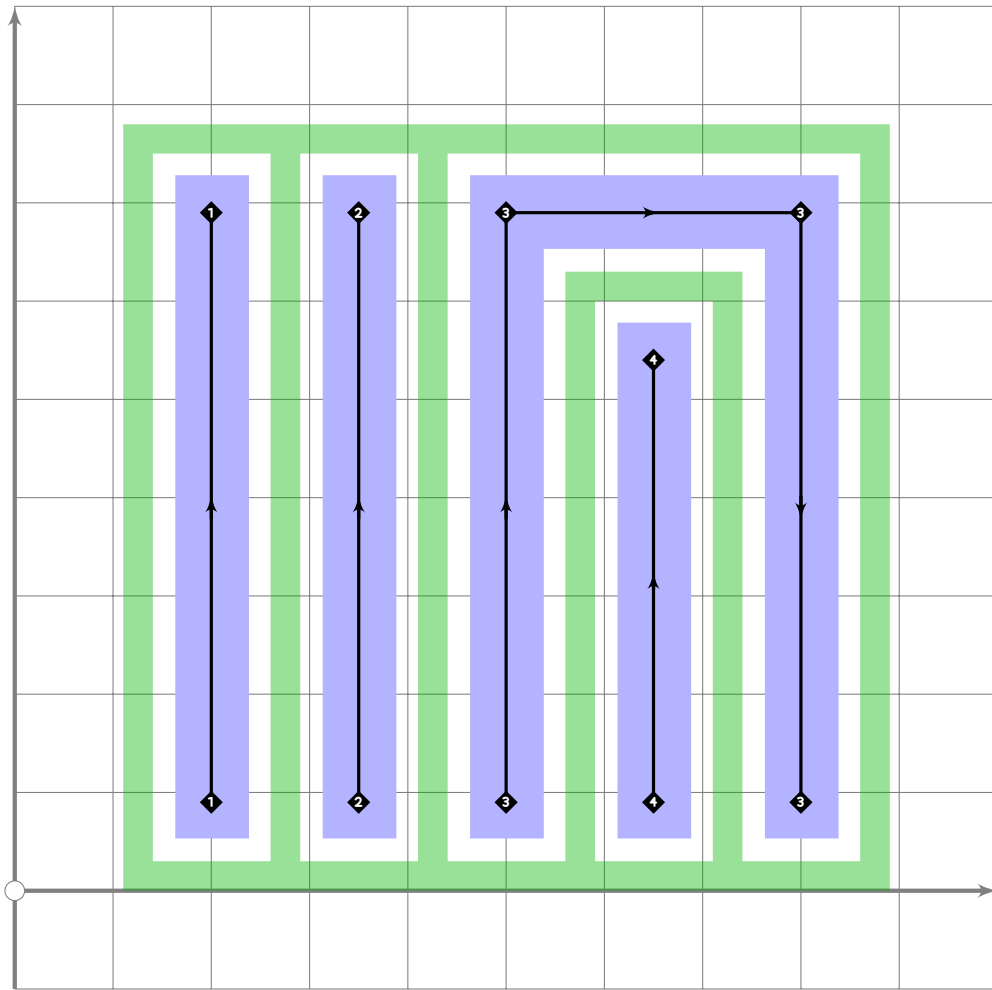
```
642 % #6 Suetsumuhana
643 begintsuglyph("genjimon06",198);
644 gbk(0,0);
645 gj(1,4);
646 gtt(2,1);
647 gtt(3,1);
648 gp(5,1);
649 endtsuglyph;
650
```



```

651 % #7 Momiji no Ga
652 begintsuglyph("genjimon07",199);
653 gbk(0,0);
654 gp(1,1);
655 gj(2,5);
656 gtt(3,1);
657 gp(4,2);
658 endtsuglyph;
659

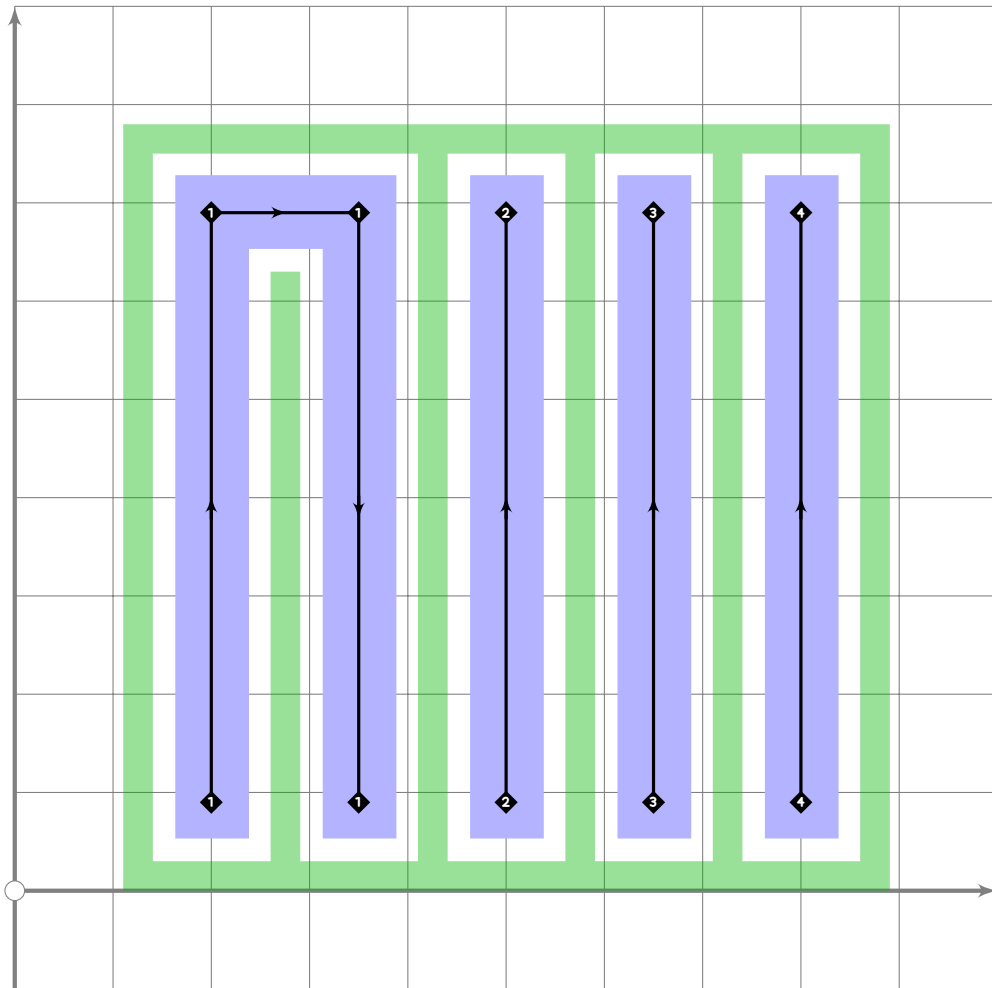
```



```

660 % #8 Hana no En
661 begintsuglyph("genjimon08";200);
662 gbk(0,0);
663 gp(1,1);
664 gp(2,1);
665 gj(3,5);
666 gp(4,2);
667 endtsuglyph;
668

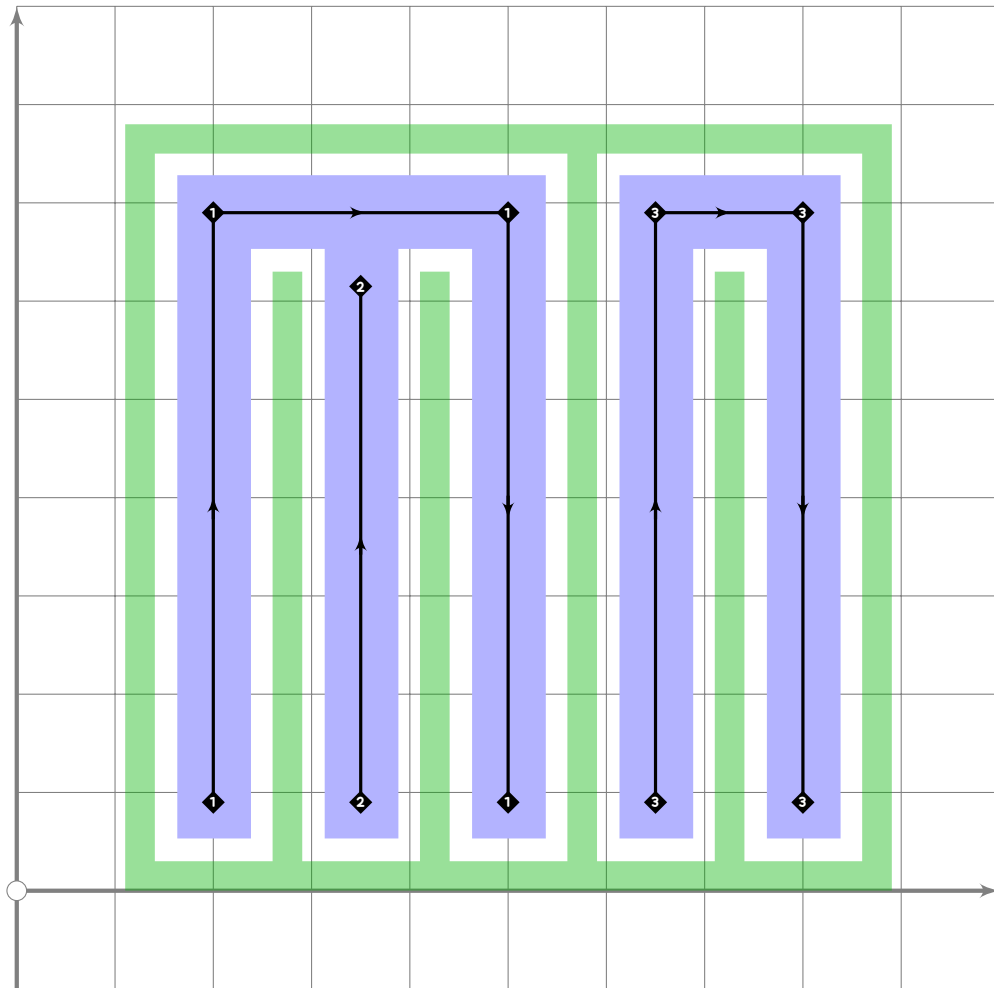
```



```

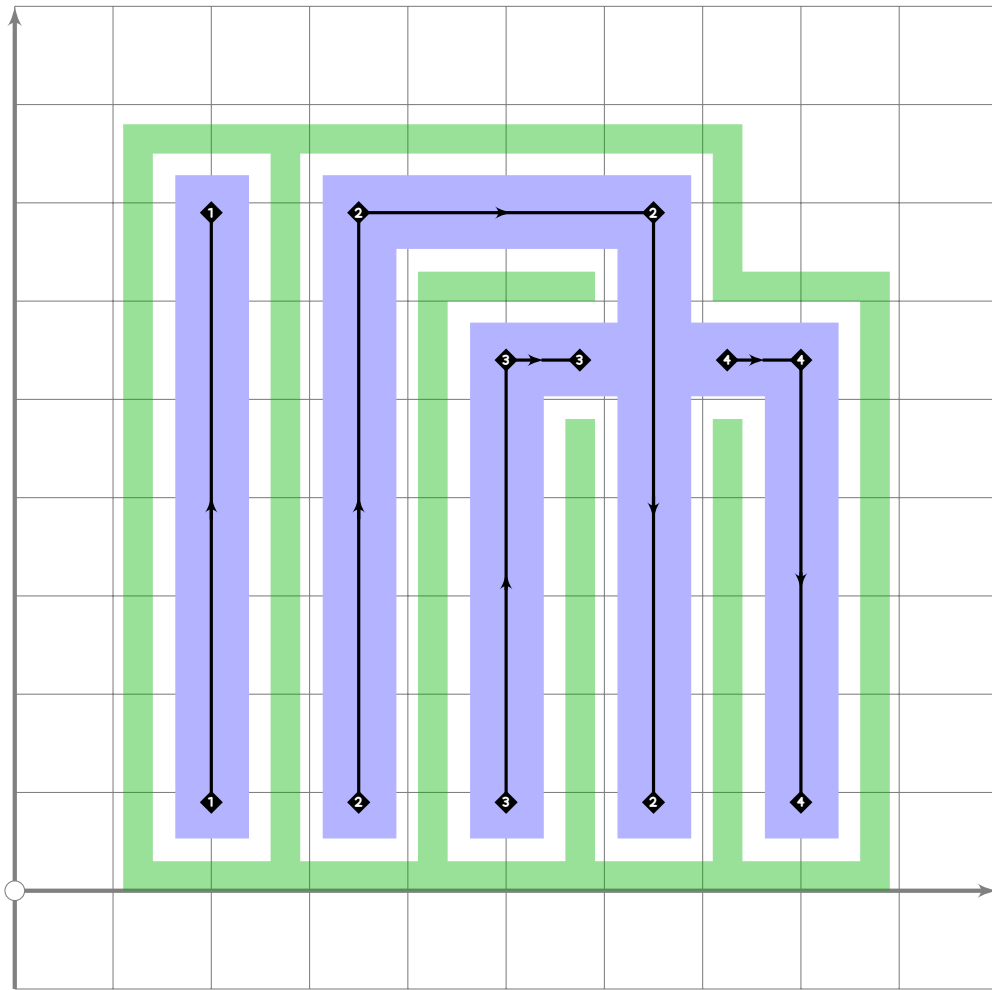
669 % #9 Aoi
670 begintsuglyph("genjimon09",201);
671 gbk(0,0);
672 gj(1,2);
673 gp(3,1);
674 gp(4,1);
675 gp(5,1);
676 endtsuglyph;
677

```



```
678 % #10 Sakaki
679 beginsuglyph("genjimon10",202);
680 gbk(0,0);
681 gj(1,3);
682 gtt(2,1);
683 gj(4,5);
684 endsuglyph;
685
```

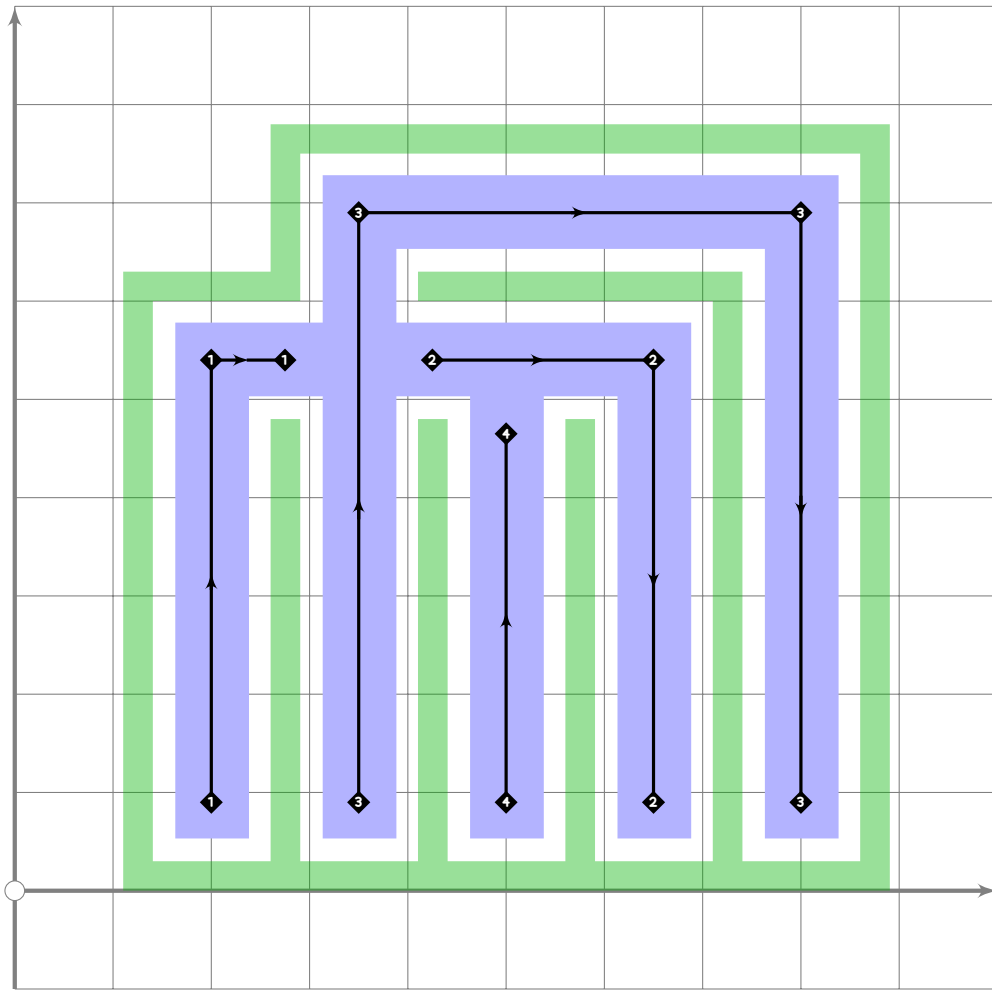




```

686 % #11 Hana Chiru Sato
687 beginsuglyph("genjimon11",203);
688 gbk(0,1);
689 gp(1,1);
690 gj(2,4);
691 gb(3);gf(2);gr:gx;gr;gf(2);ge;
692 endsuglyph;
693

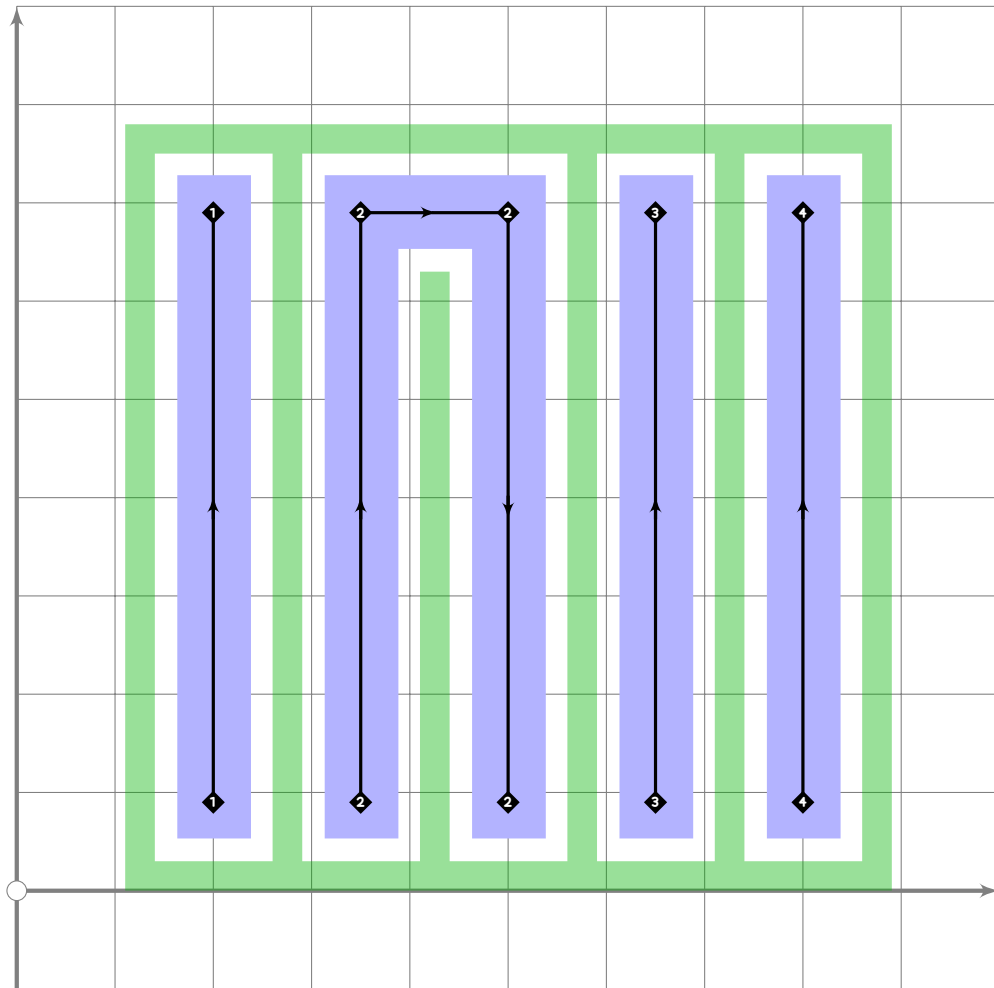
```



```

694 % #12 Suma
695 beginsuglyph("genjimon12";204);
696   gbk(1,0);
697   gb(1);gf(2);gr;gx;gs(1);gr;gf(2);ge;
698   gj(2,5);
699   gtt(3,2);
700 endsuglyph;
701

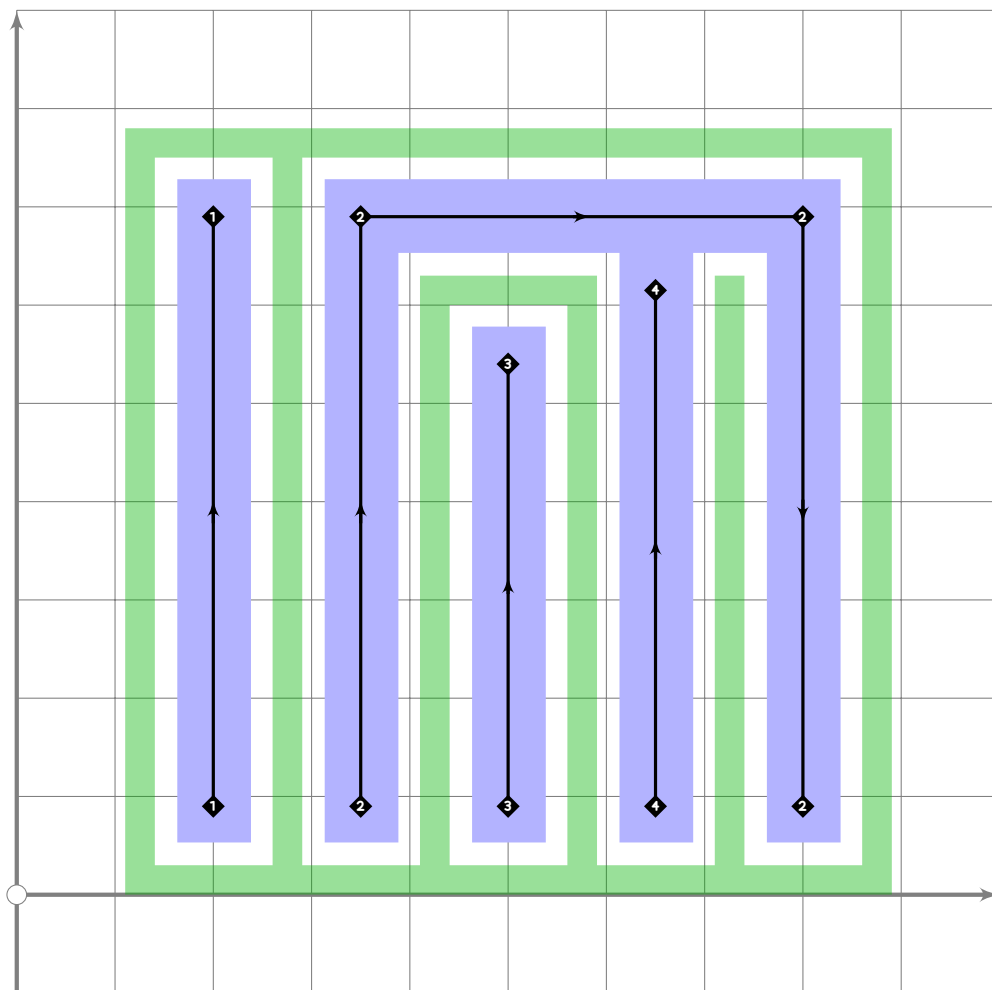
```



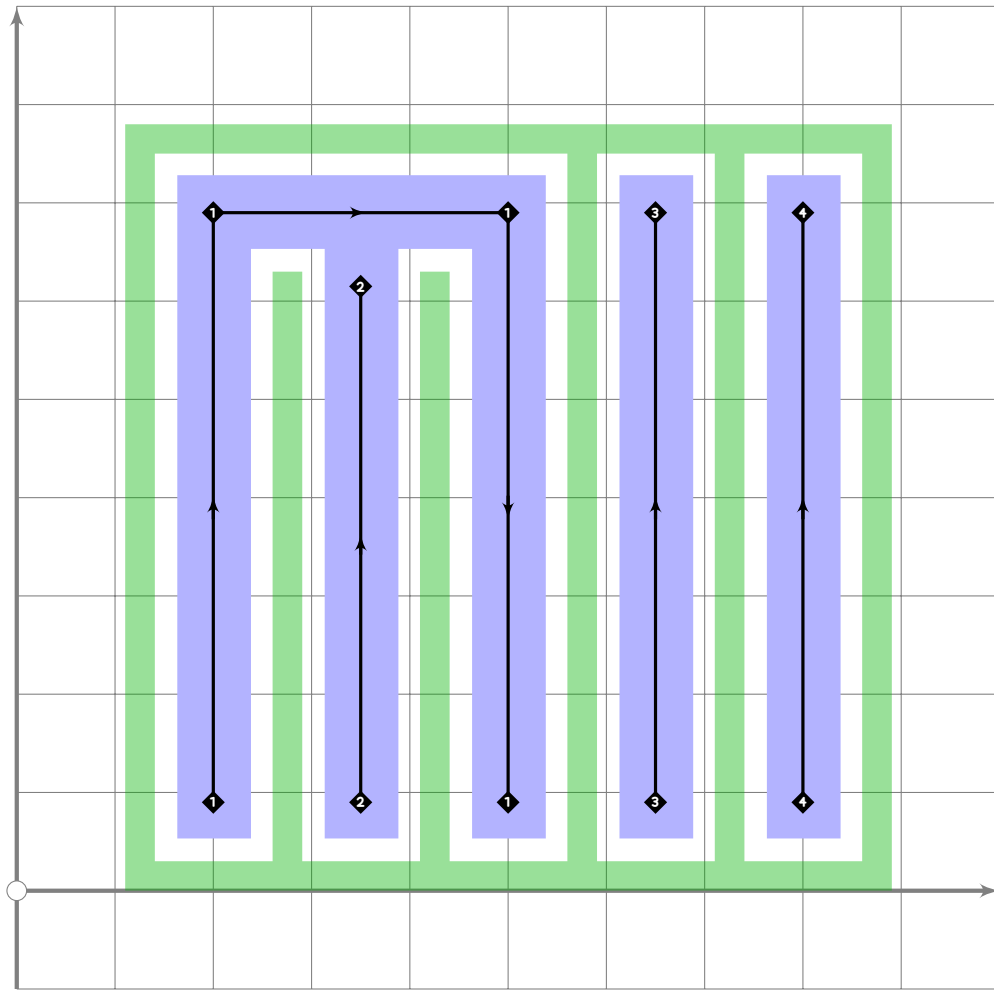
```

702 % #13 Akashi
703 begintsuglyph("genjimon13";205);
704 gbk(0,0);
705 gp(1,1);
706 gj(2,3);
707 gp(4,1);
708 gp(5,1);
709 endtsuglyph;
710

```



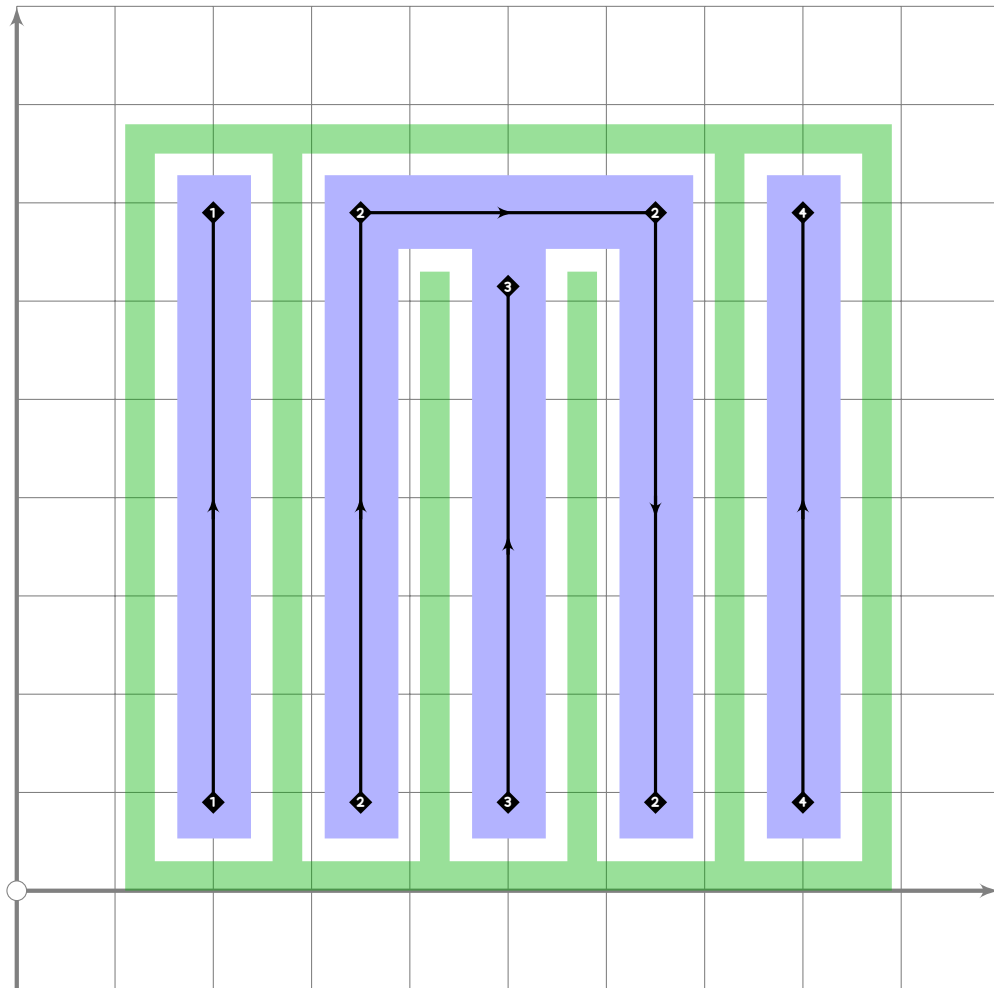
```
711 % #14 Miotsukushi
712 beginsuglyph("genjimon14",206);
713 gbk(0,0);
714 gp(1,1);
715 gj(2,5);
716 gp(3,2);
717 gtt(4,1);
718 endsuglyph;
719
```



```

720 % #15 Yomogyuu
721 begint Suglyph("genjimon15",207);
722 gbk(0,0);
723 gj(1,3);
724 gtt(2,1);
725 gp(4,1);
726 gp(5,1);
727 endtsuglyph;
728

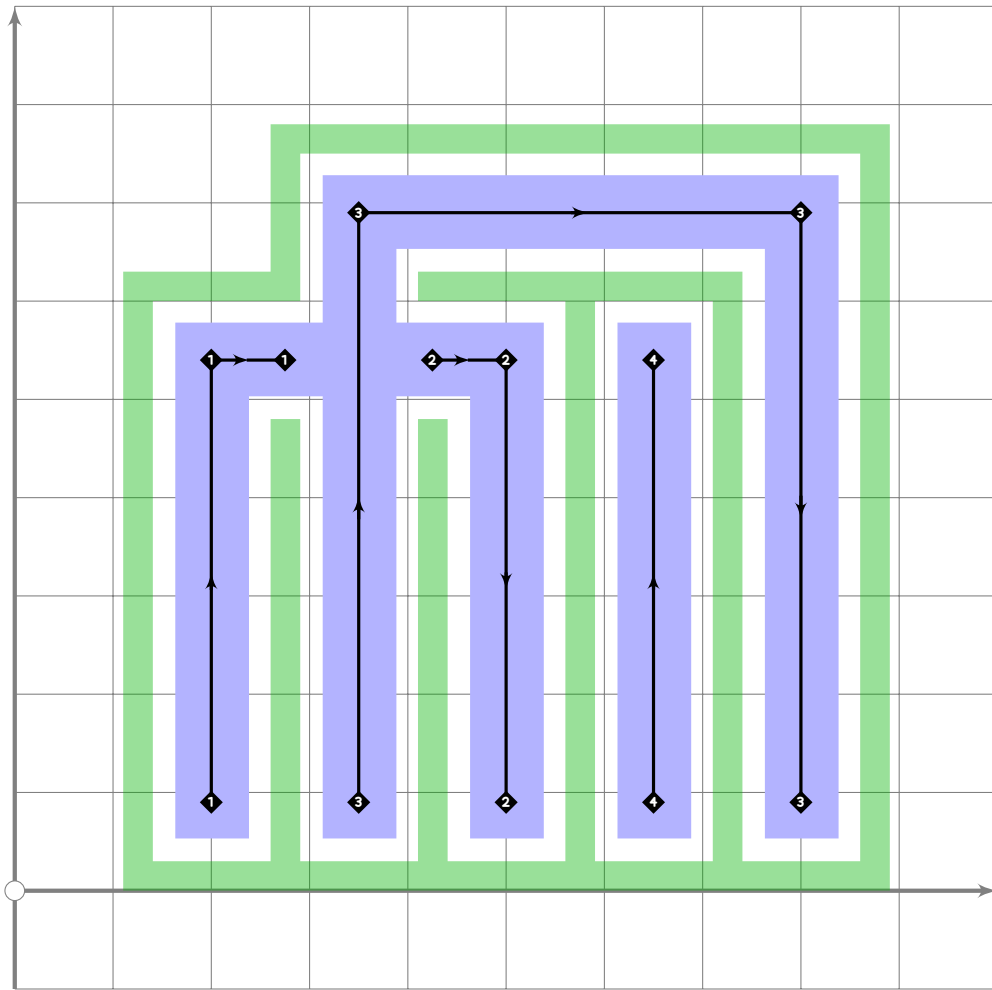
```



```

729 % #16 Sekiya
730 begintsuglyph("genjimon16",208);
731 gbk(0,0);
732 gp(1,1);
733 gj(2,4);
734 gtt(3,1);
735 gp(5,1);
736 endtsuglyph;
737

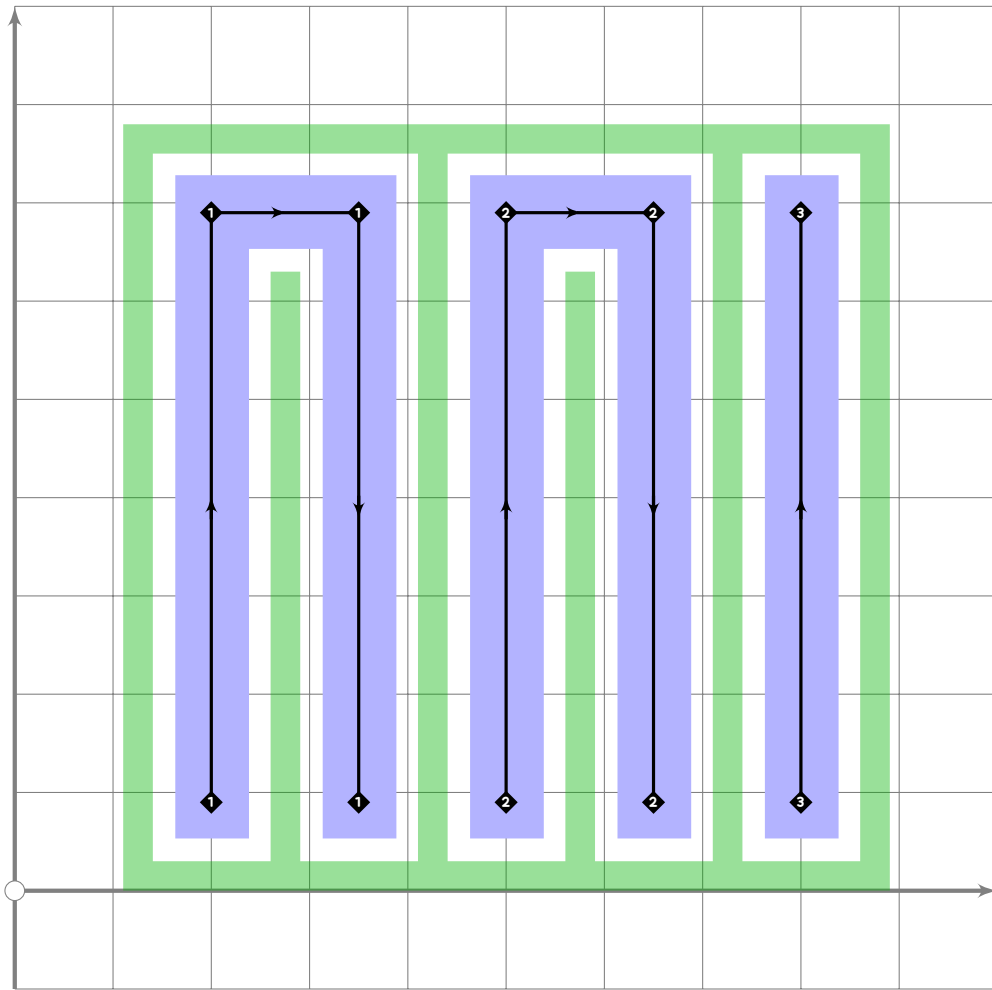
```



```

738 % #17 Eawase
739 beginsuglyph("genjimon17";209);
740 gbk(1,0);
741 gb(1);gf(2);gr;gx;gr;gf(2);ge;
742 gj(2,5);
743 gp(4,2);
744 endsuglyph;
745

```

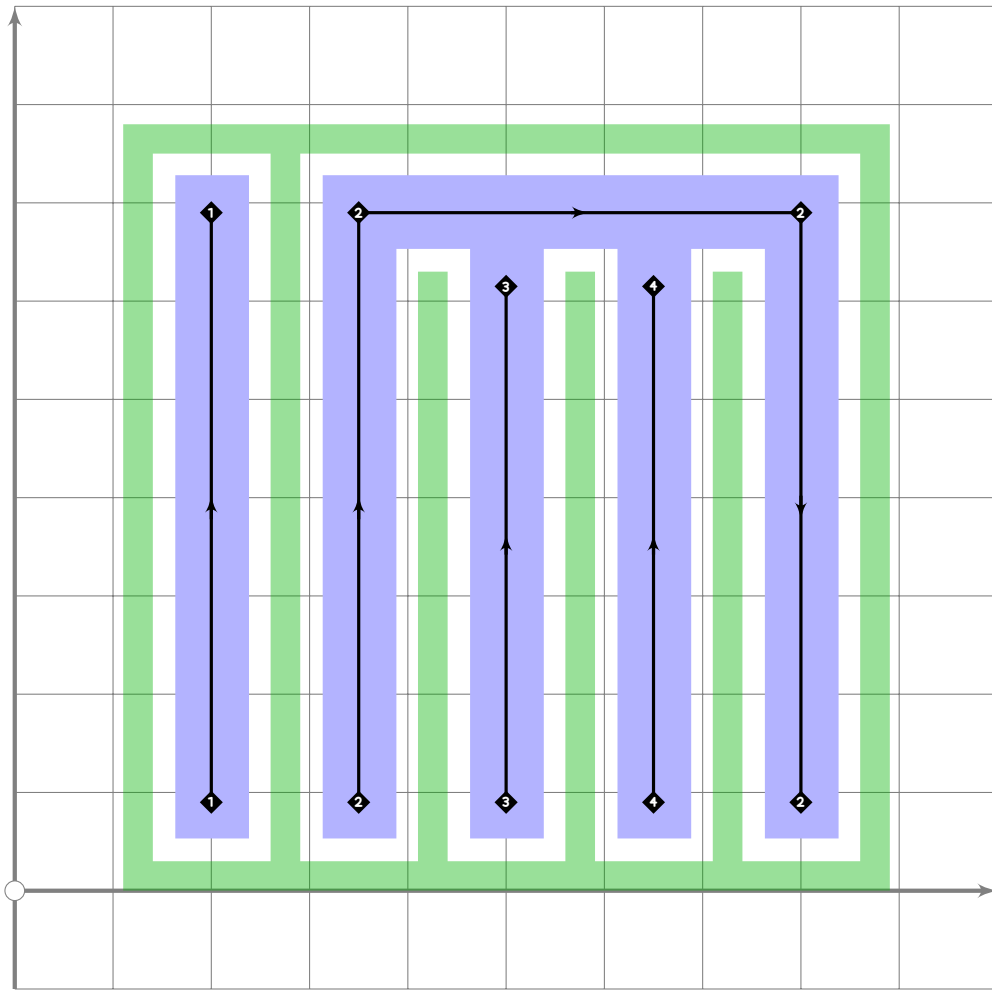


```

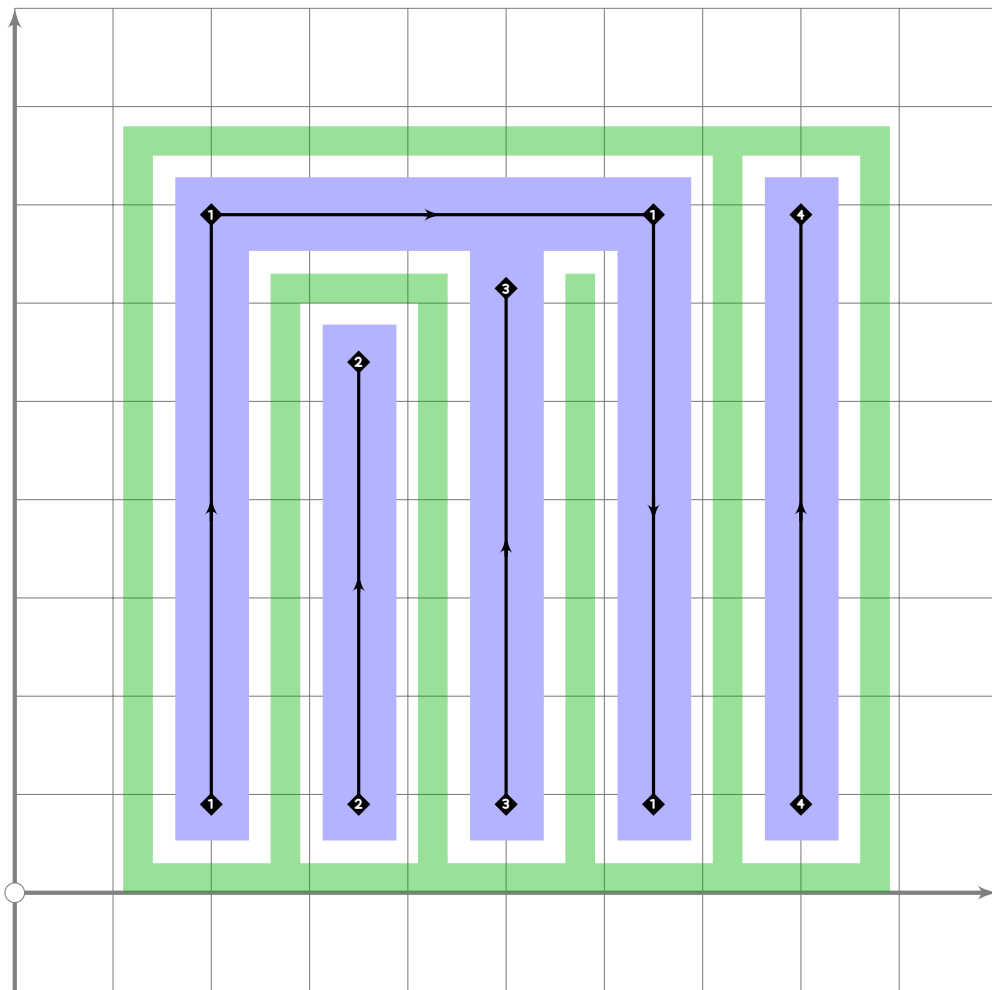
746 % #18 Matsukaze
747 begintsuglyph("genjimon18",210);
748 gbk(0,0);
749 gj(1,2);
750 gj(3,4);
751 gp(5,1);
752 endsuglyph;
753

```





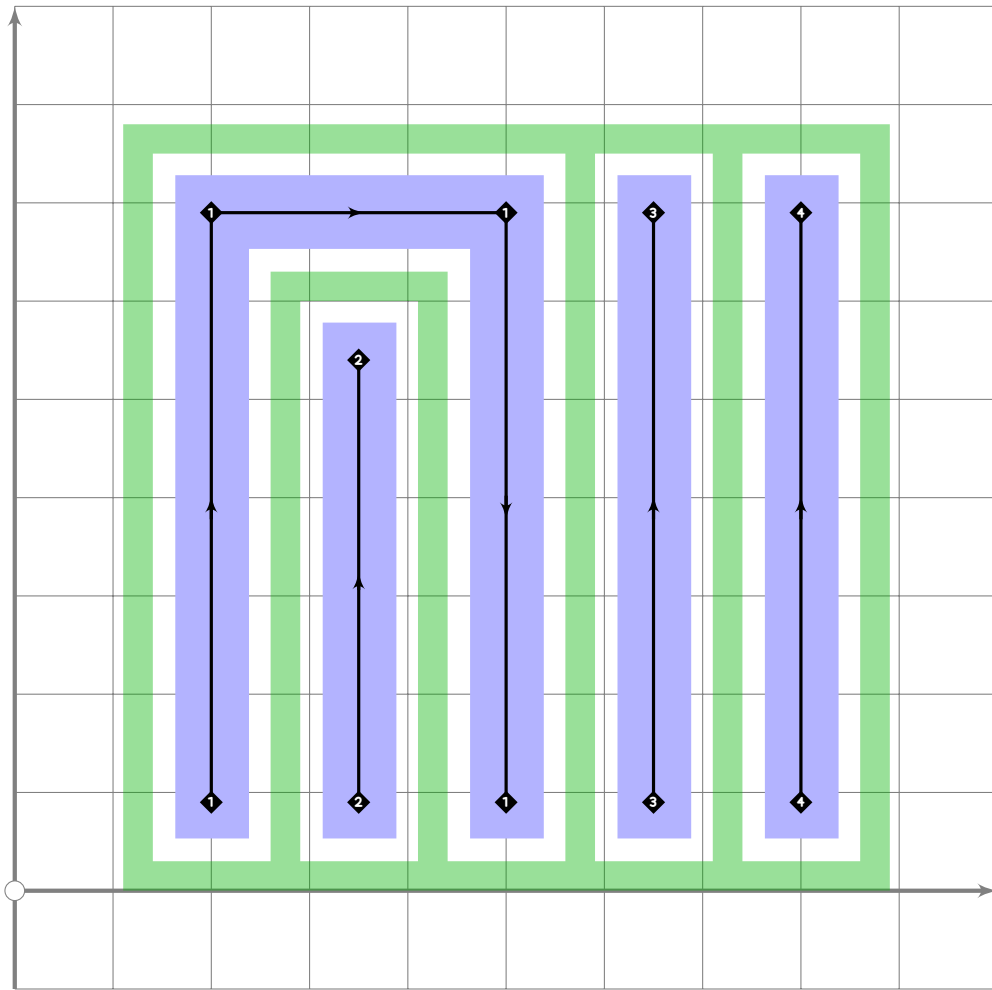
```
754 % #19 Usugumo
755 begintsuglyph("genjimon19",211);
756 gbk(0,0);
757 gp(1,1);
758 gj(2,5);
759 gtt(3,1);
760 gtt(4,1);
761 endsuglyph;
762
```



```

763 % #20 Asagao
764 begintsuglyph("genjimon20",212);
765 gbk(0,0);
766 gj(1,4);
767 gp(2,2);
768 gtt(3,1);
769 gp(5,1);
770 endtsuglyph;
771

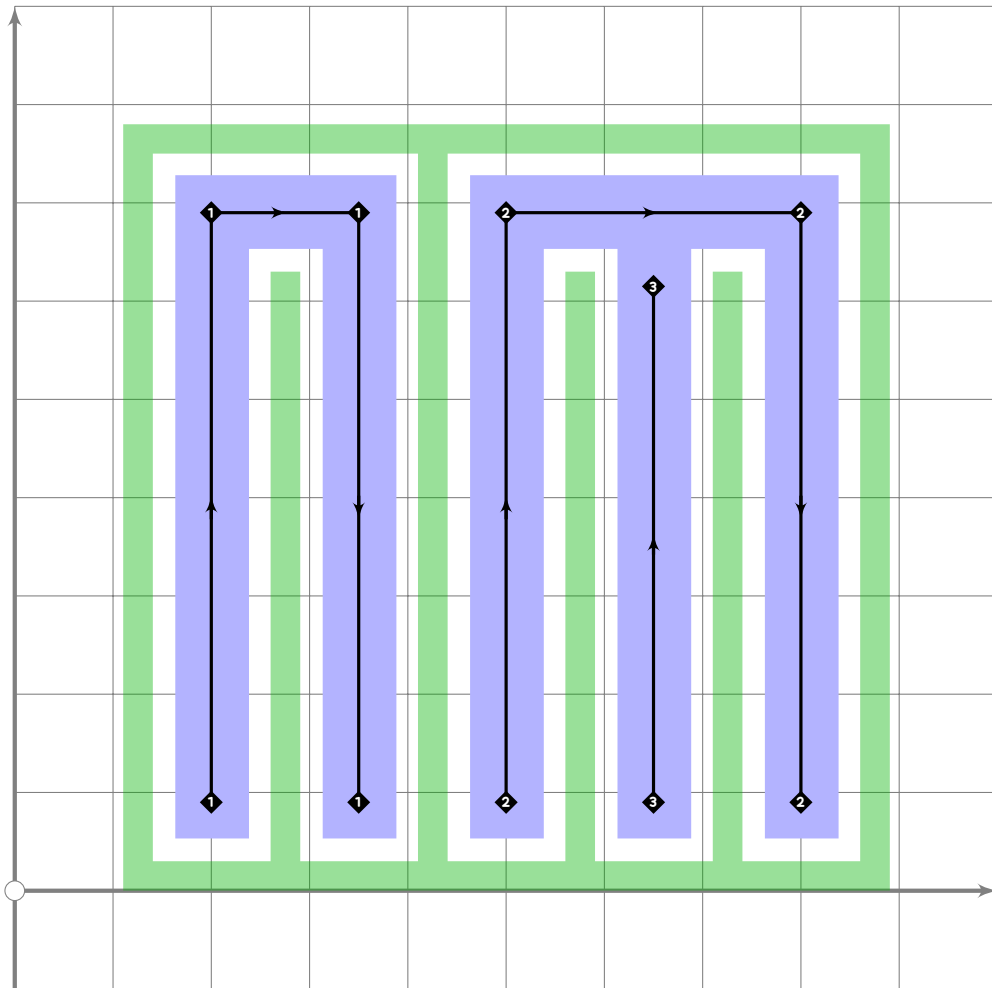
```



```

772 % #21 Otome
773 begintsuglyph("genjimon21",213);
774 gbk(0,0);
775 gj(1,3);
776 gp(2,2);
777 gp(4,1);
778 gp(5,1);
779 endtsuglyph;
780

```

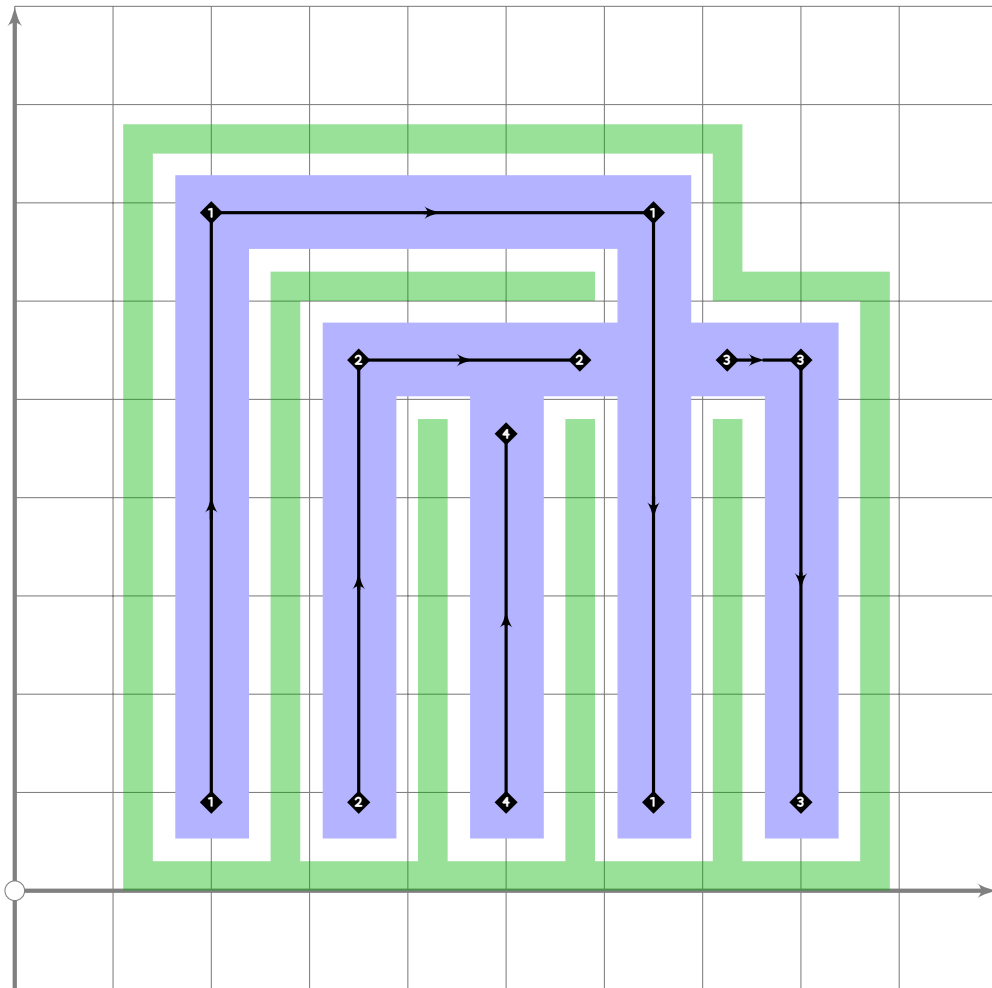


```

781 % #22 Tamakazura
782 beginsuglyph("genjimon22",214);
783 gbk(0,0);
784 gj(1,2);
785 gj(3,5);
786 gtt(4,1);
787 endsuglyph;
788

```

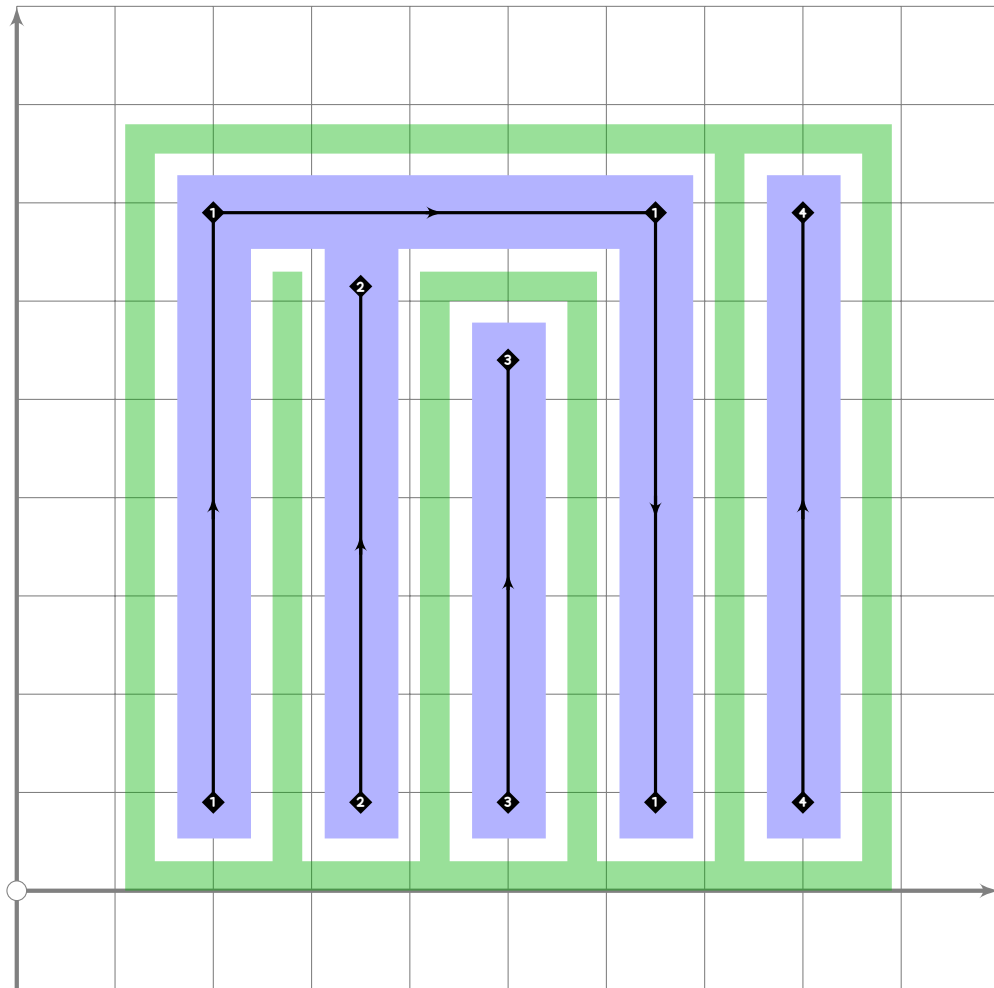




```

797 % #24 Kochou
798 beginsuglyph("genjimon24";216);
799 gbk(0,1);
800 gj(1,4);
801 gb(2);gf(2);gr;gs(1);gx;gr;gf(2);ge;
802 gtt(3,2);
803 endsuglyph;
804

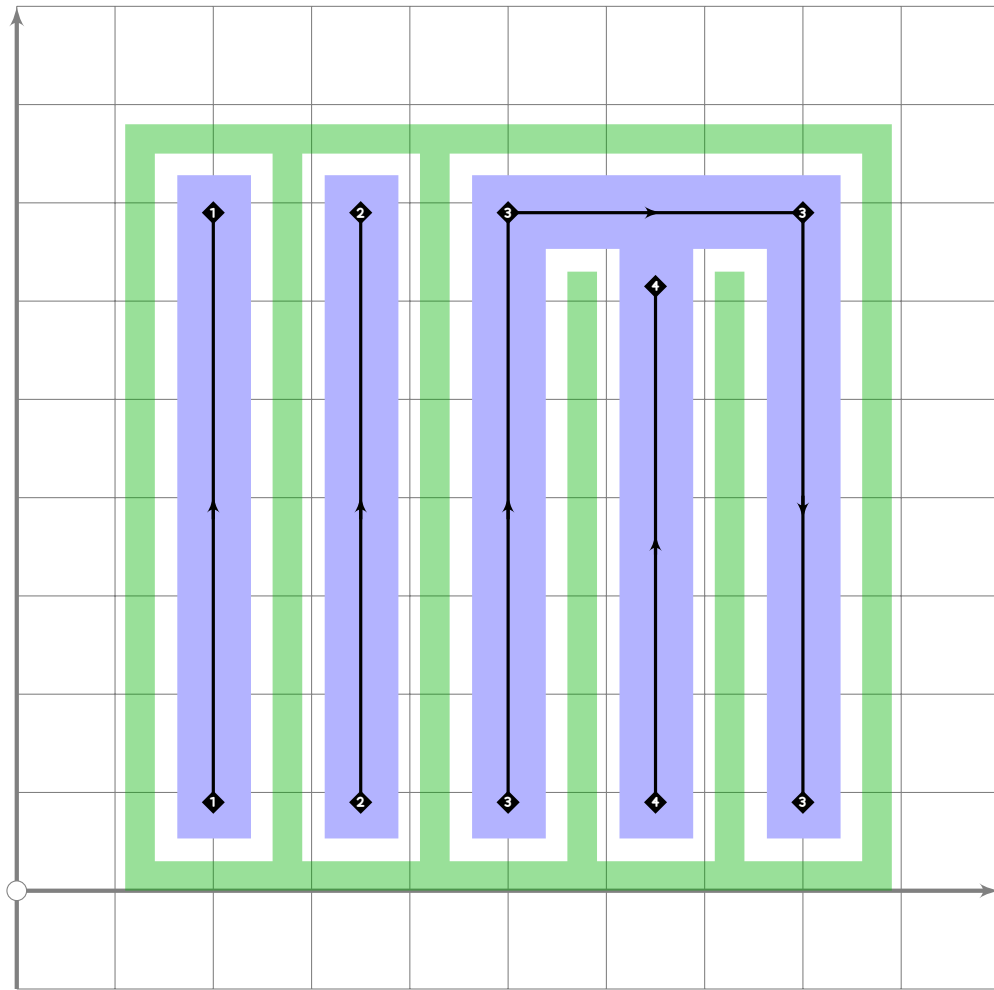
```



```

805 % #25 Hotaru
806 begintsuglyph("genjimon25";217);
807 gbk(0,0);
808 gj(1,4);
809 gtt(2,1);
810 gp(3,2);
811 gp(5,1);
812 endtsuglyph;
813

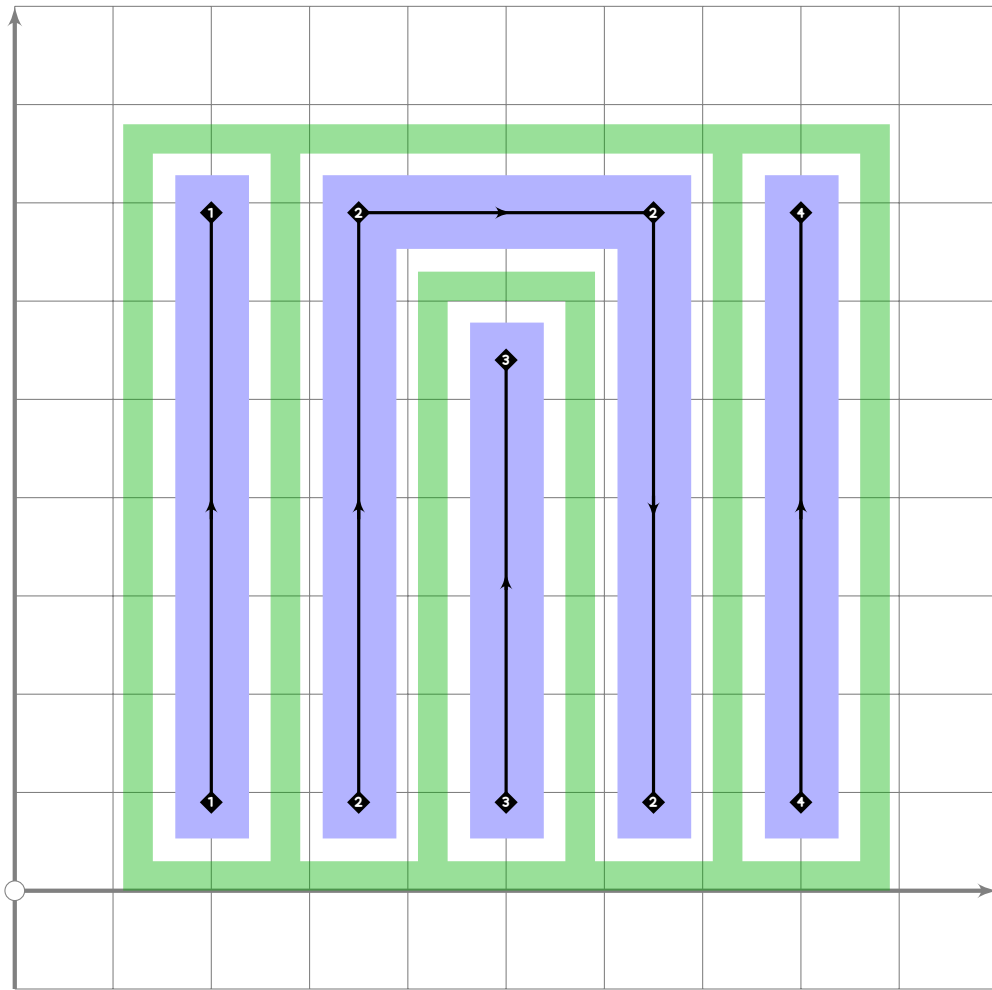
```



```

814 % #26 Tokonatsu
815 begintsuglyph("genjimon26",218);
816 gbk(0,0);
817 gp(1,1);
818 gp(2,1);
819 gj(3,5);
820 gtt(4,1);
821 endtsuglyph;
822
  
```

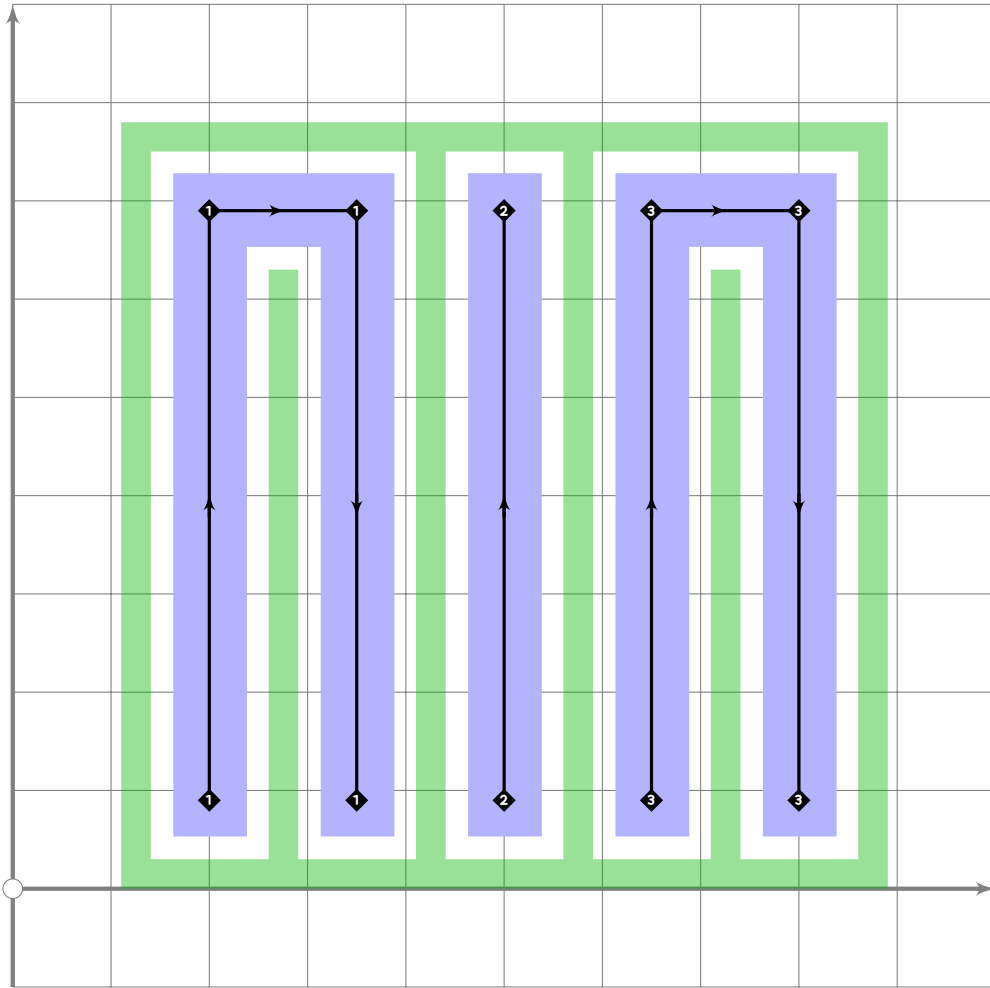




```

823 % #27 Kagaribi
824 begintsuglyph("genjimon27",219);
825 gbk(0,0);
826 gp(1,1);
827 gj(2,4);
828 gp(3,2);
829 gp(5,1);
830 endtsuglyph;
831

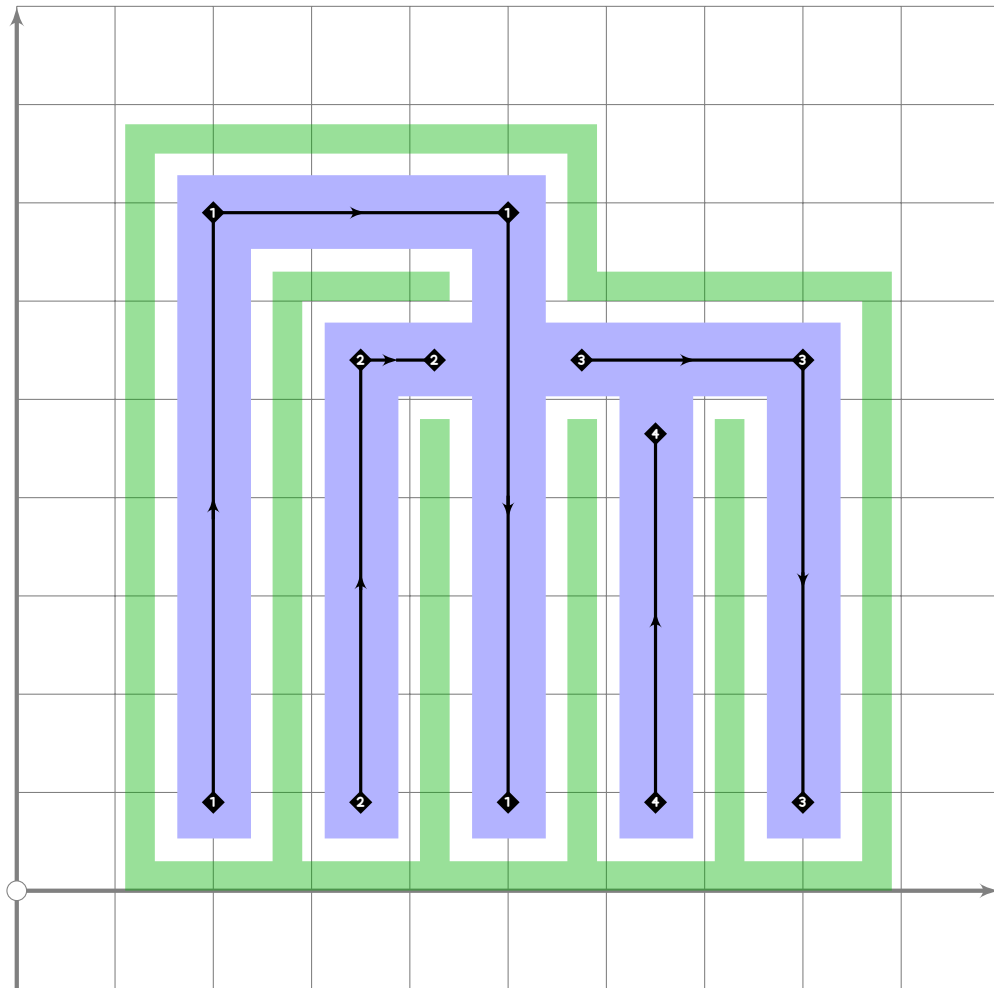
```



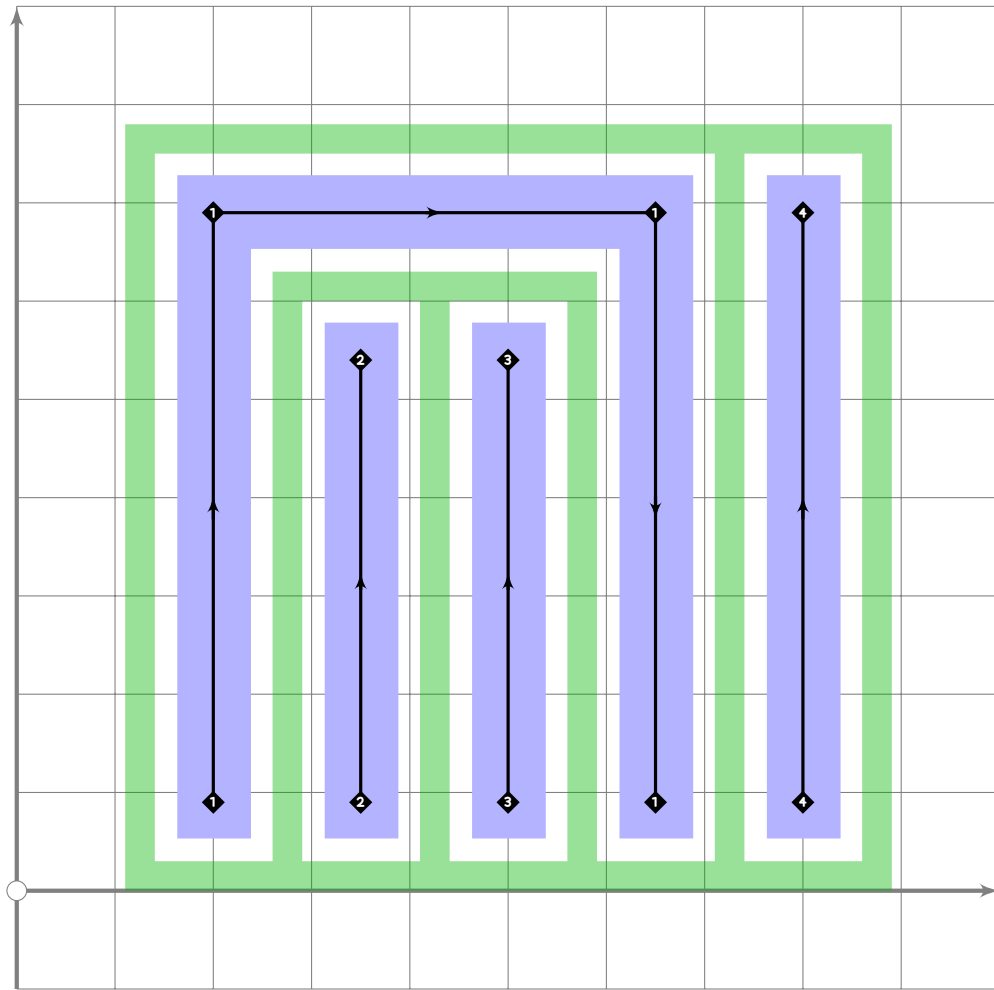
```

832 % #28 Nowaki
833 begintsuglyph("genjimon28",220);
834 gbk(0,0);
835 gj(1,2);
836 gp(3,1);
837 gj(4,5);
838 endsuglyph;
839

```



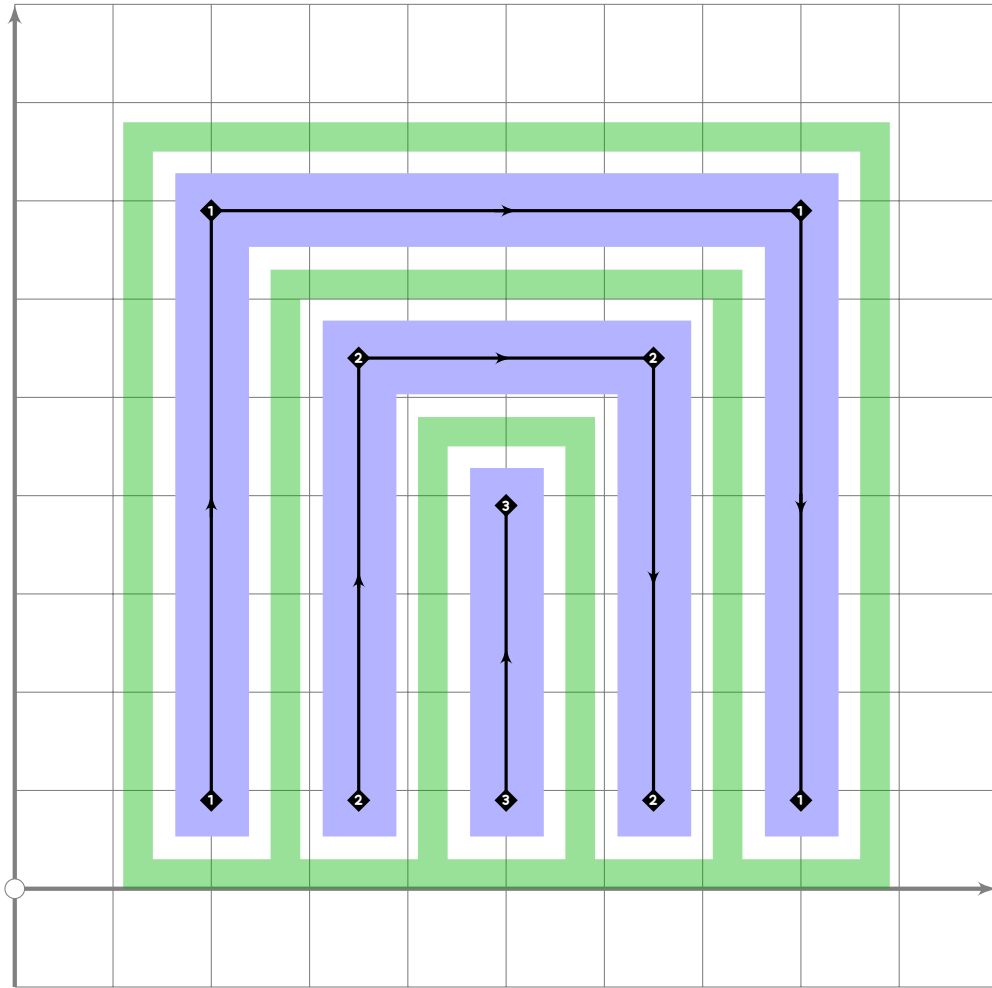
```
840 % #29 Miyuki
841 begint Suglyph("genjimon29";221);
842 gbk(0,2);
843 gj(1,3);
844 gb(2);gf(2);gr;gx;gs(1);gr;gf(2);ge;
845 gtt(4,2);
846 endtsuglyph;
847
```



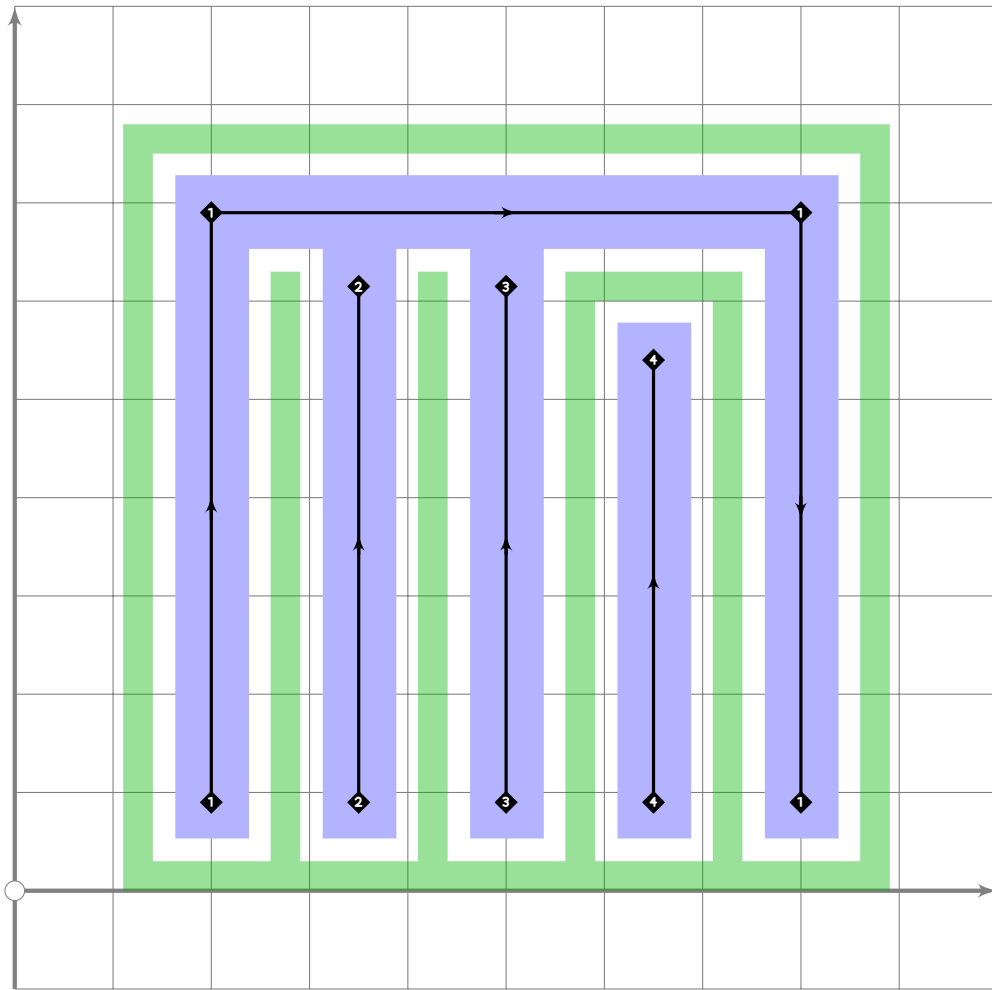
```

848 % #30 Fujibakama
849 begintsuglyph("genjimon30",222);
850 gbk(0,0);
851 gj(1,4);
852 gp(2,2);
853 gp(3,2);
854 gp(5,1);
855 endtsuglyph;
856

```



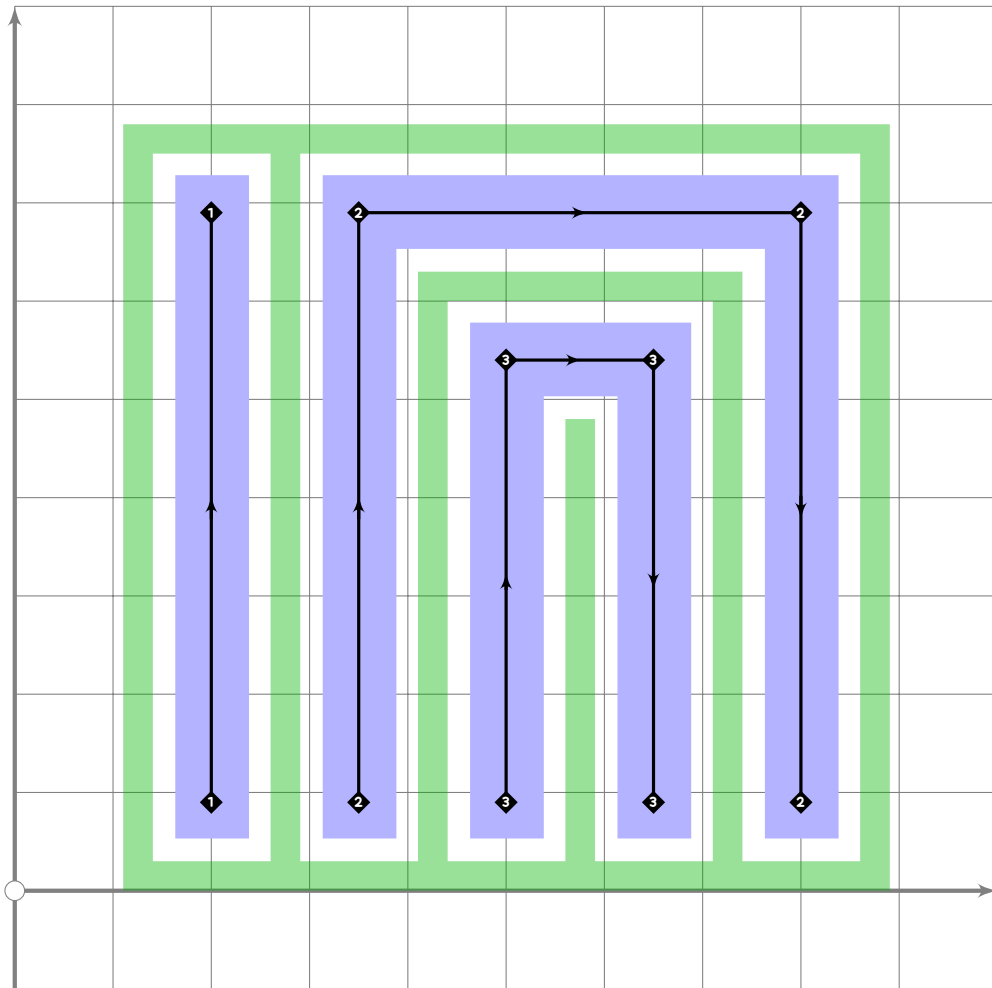
```
857 % #31 Makibashira
858 begintsuglyph("genjimon31",223);
859 gbk(0,0);
860 gj(1,5);
861 gb(2);gf(2);gr;gs(1);gr;gf(2);ge;
862 gp(3,3);
863 endsuglyph;
864
```



```

865 % #32 Umegae
866 begintsuglyph("genjimon32",224);
867 gbk(0,0);
868 gj(1,5);
869 gtt(2,1);
870 gtt(3,1);
871 gp(4,2);
872 endtsuglyph;
873

```



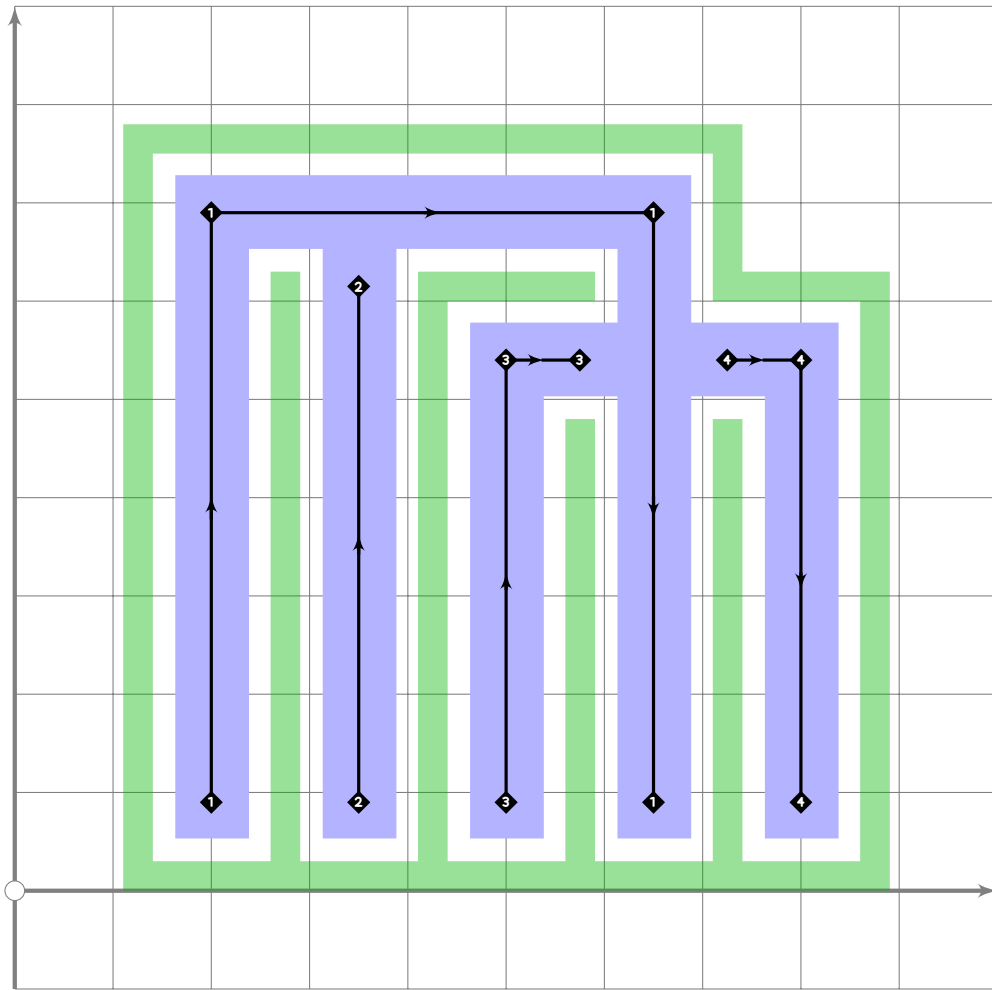
```

874 % #33 Fuji no Uraba
875 beginsuglyph("genjimon33";225);
876 gbk(0,0);
877 gp(1,1);
878 gj(2,5);
879 gb(3);gf(2);gr;gr;gf(2);ge;
880 endsuglyph;
881

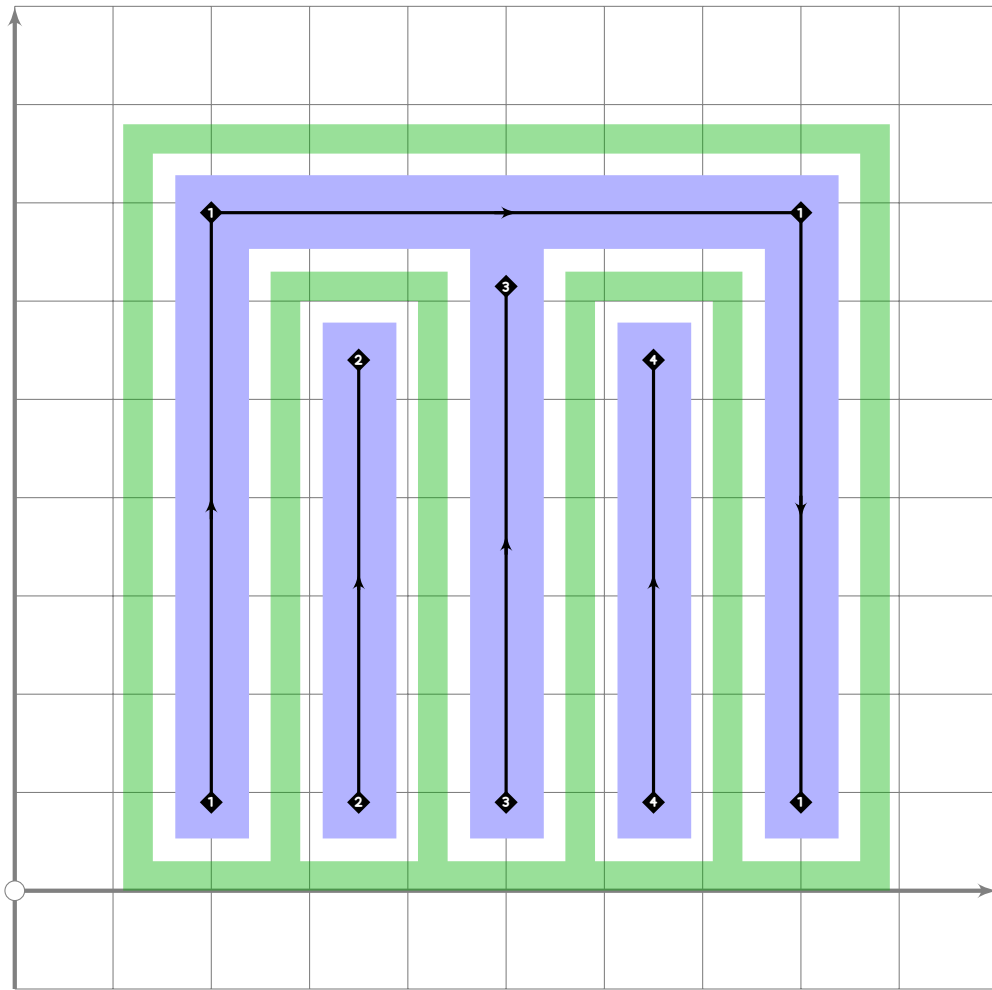
```







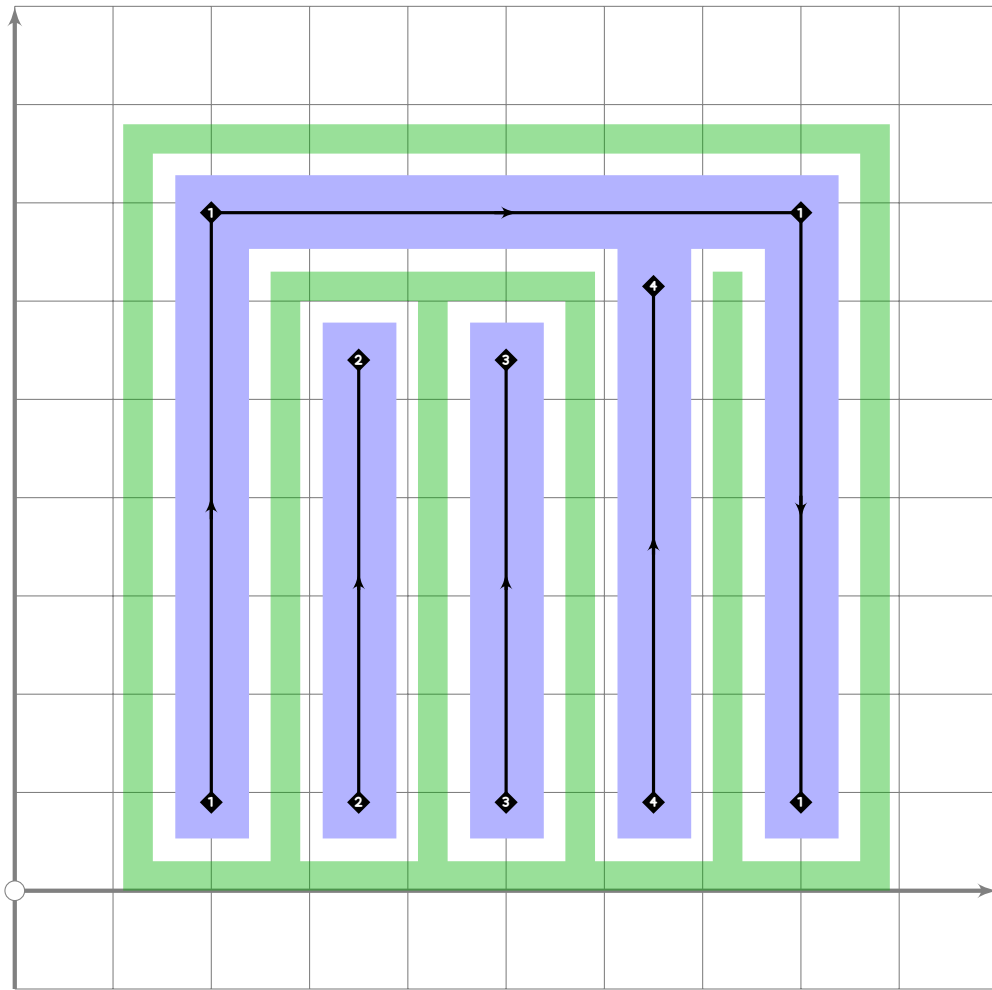
```
890 % #35 Wakana no Ge  
891 begintsuglyph("genjimon35";227);  
892 gbk(0,1);  
893 gj(1,4);  
894 gtt(2,1);  
895 gb(3);gf(2);gr;gx;gr;gf(2);ge;  
896 endsuglyph;  
897
```



```

898 % #36 Kashiwagi
899 begintsuglyph("genjimon36",228);
900 gbk(0,0);
901 gj(1,5);
902 gp(2,2);
903 gtt(3,1);
904 gp(4,2);
905 endtsuglyph;
906

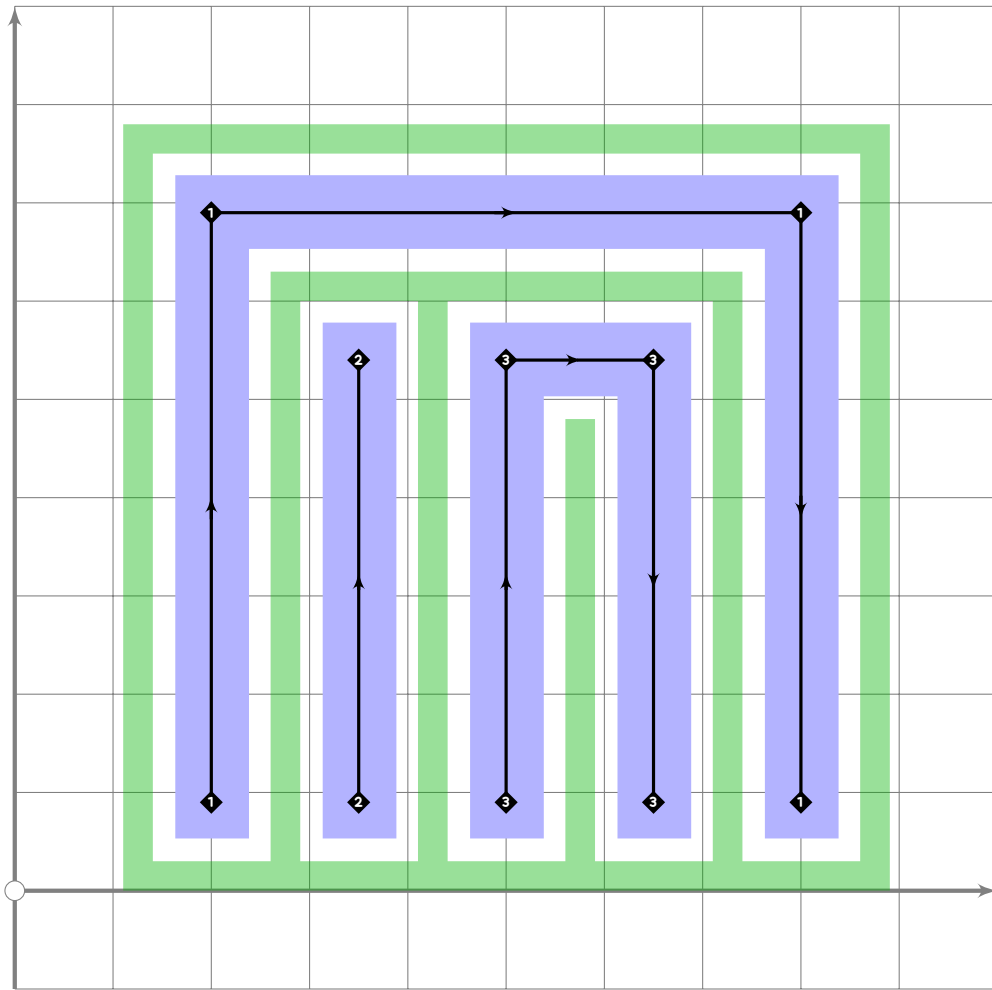
```



```

907 % #37 Yokobue
908 begintsuglyph("genjimon37",229);
909 gbk(0,0);
910 gj(1,5);
911 gp(2,2);
912 gp(3,2);
913 gtt(4,1);
914 endtsuglyph;
915

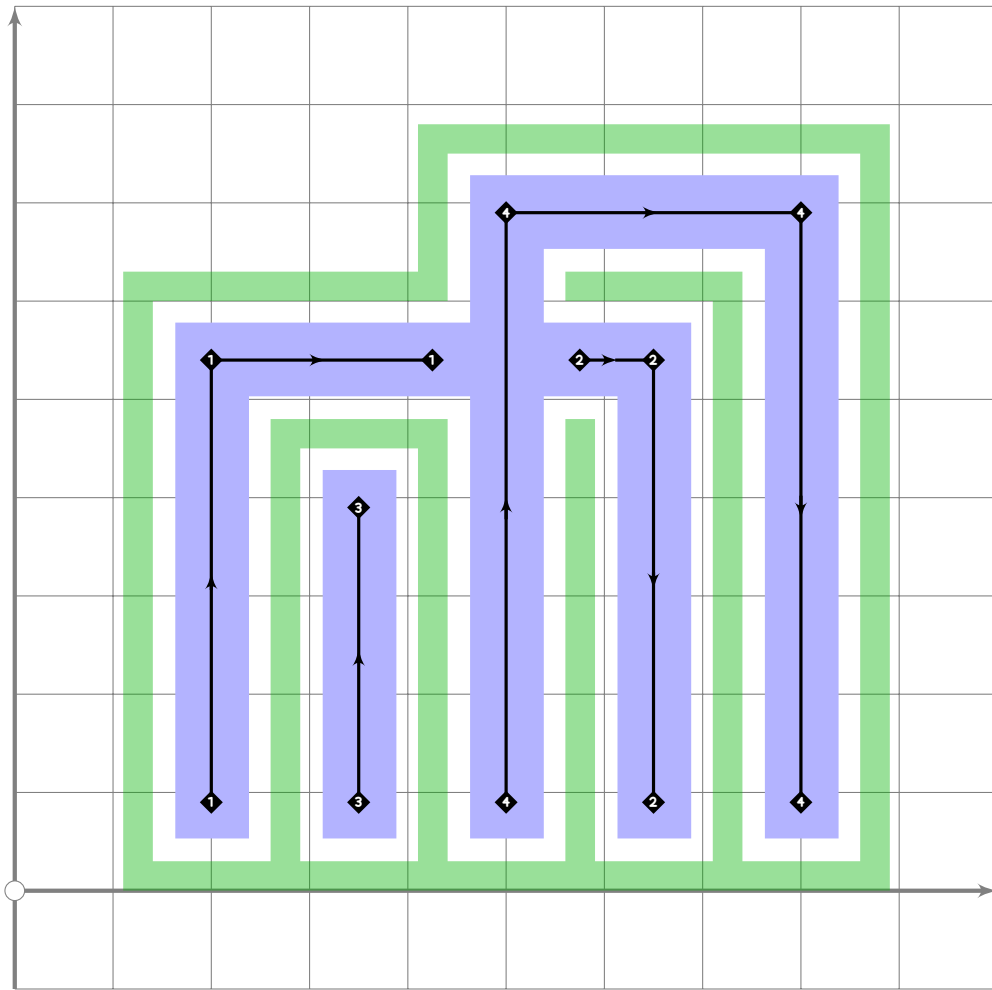
```



```

916 % #38 Suzumushi
917 begint Suglyph("genjimon38",230);
918 gbk(0,0);
919 gj(1,5);
920 gp(2,2);
921 gb(3);gf(2);gr;gr;gf(2);ge;
922 endtsuglyph;
923

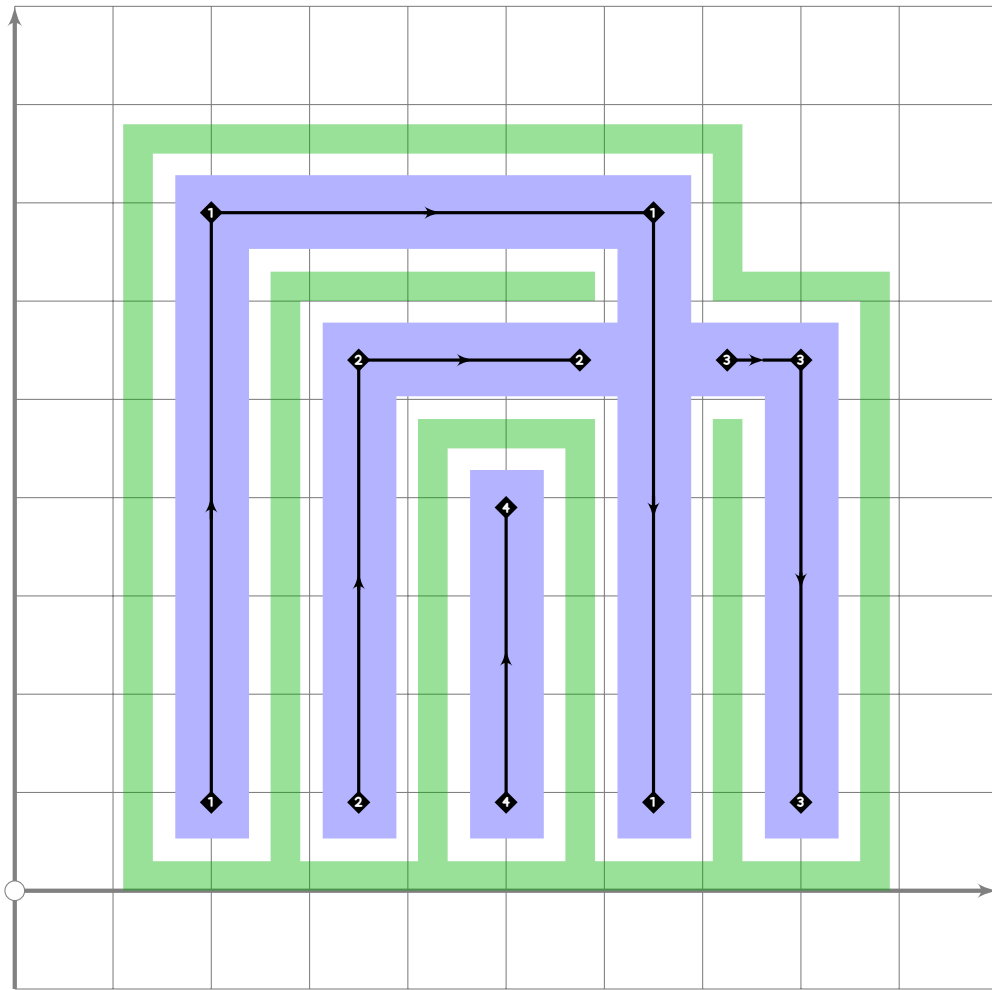
```



```

924 % #39 Yuugiri
925 begint Suglyph("genjimon39",231);
926 gbk(2,0);
927 gb(1);gf(2);gr;gs(1);gx;gr;gf(2);ge;
928 gp(2,3);
929 gj(3,5);
930 endtsuglyph;
931

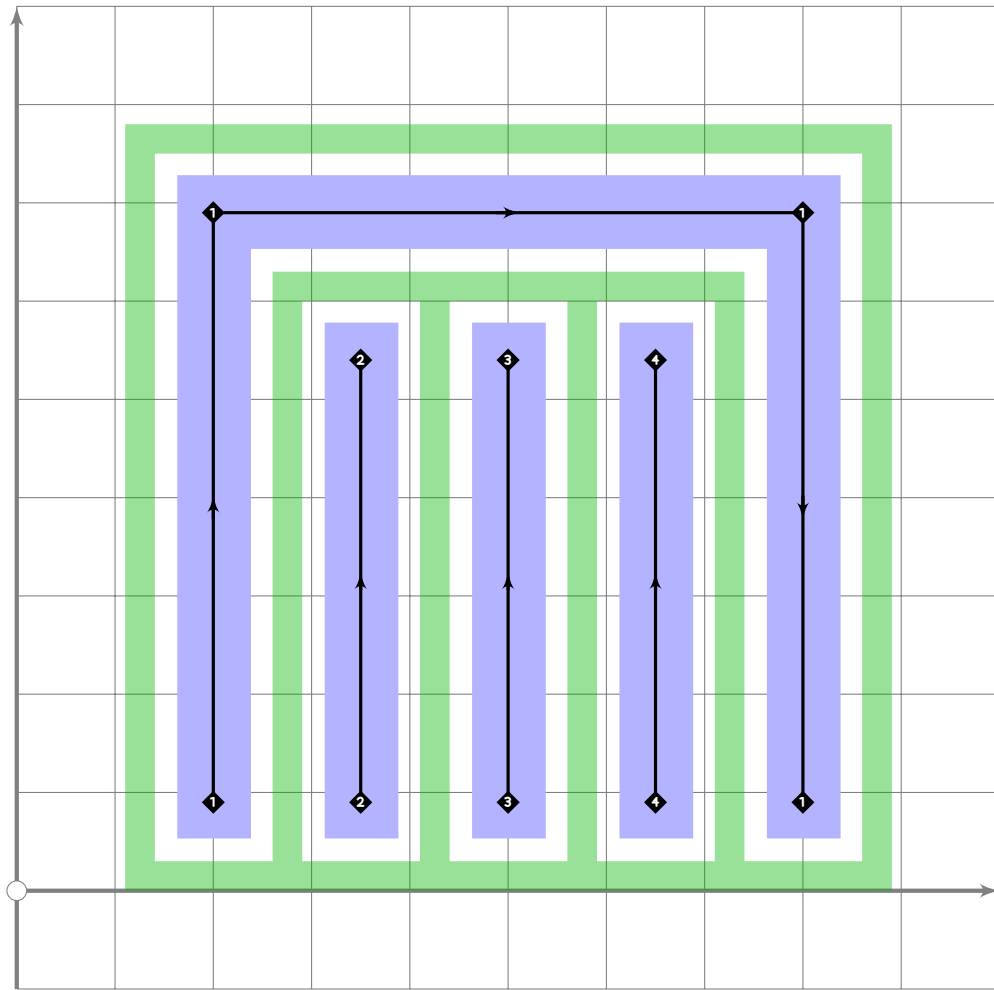
```



```

932 % #40 Minori
933 begintsuglyph("genjimon40",232);
934 gbk(0,1);
935 gj(1,4);
936 gb(2);gf(2);gr;gs(1);gx;gr;gf(2);ge;
937 gp(3,3);
938 endsuglyph;
939

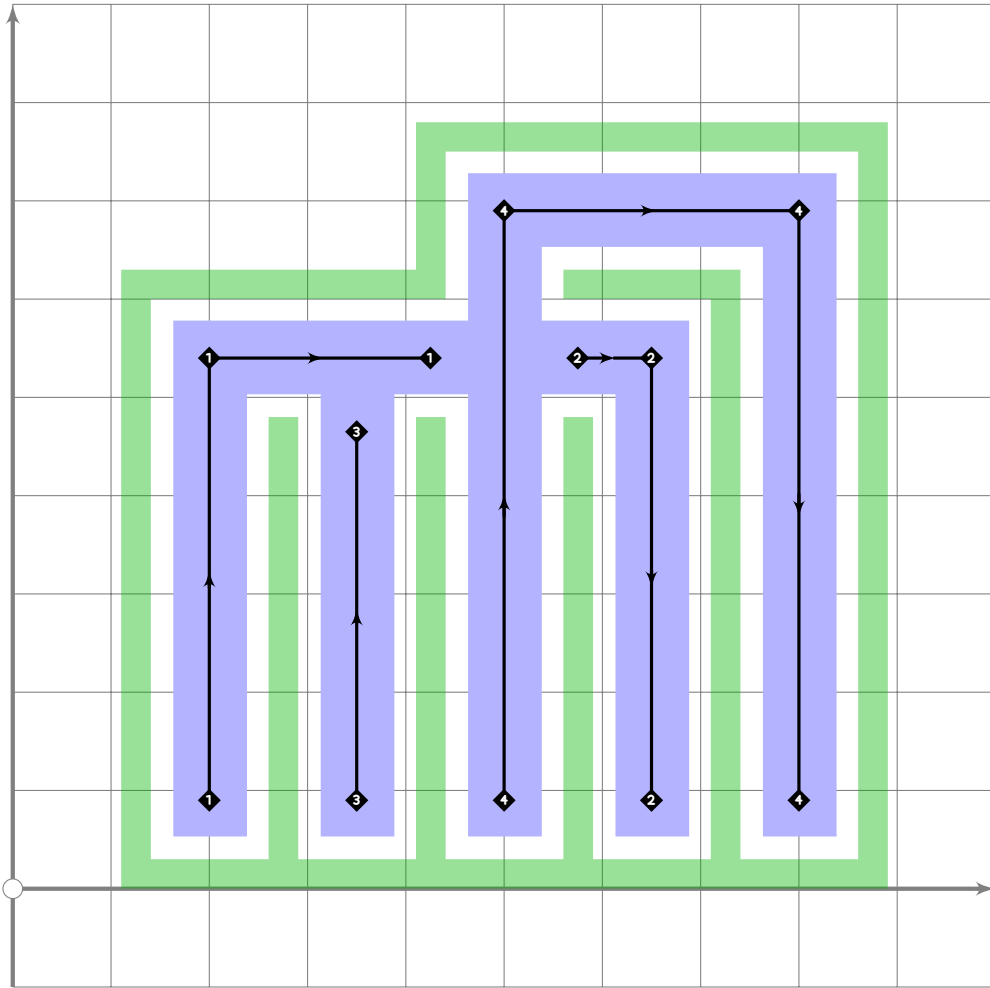
```



```

940 % #41 Maboroshi
941 beginsuglyph("genjimon41",233);
942 gbk(0,0);
943 gj(1,5);
944 gp(2,2);
945 gp(3,2);
946 gp(4,2);
947 endsuglyph;
948

```

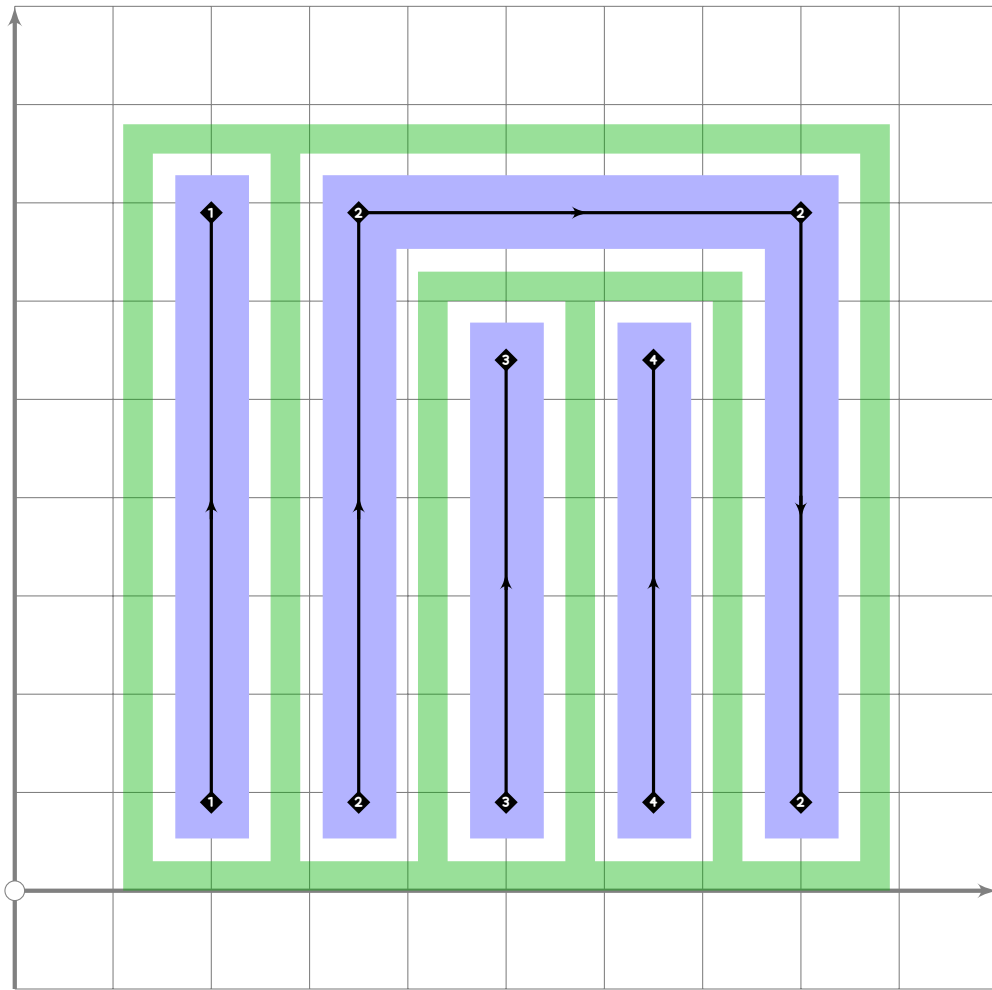


```

949 % #42 Ninounomiya
950 begintsuglyph("genjimon42",234);
951 gbk(2,0);
952 gb(1);gf(2);gr;gs(1);gx;gr;gf(2);ge;
953 gtt(2,2);
954 gj(3,5);
955 endsuglyph;
956

```

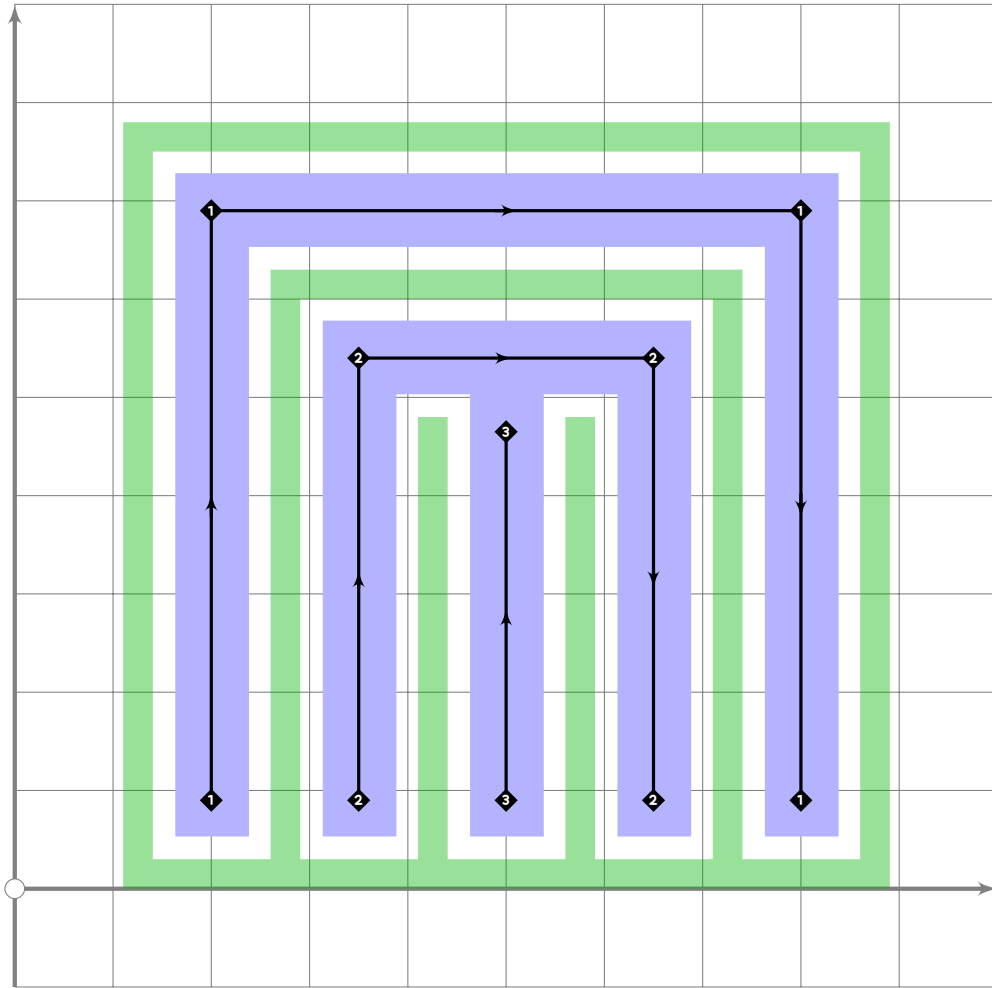




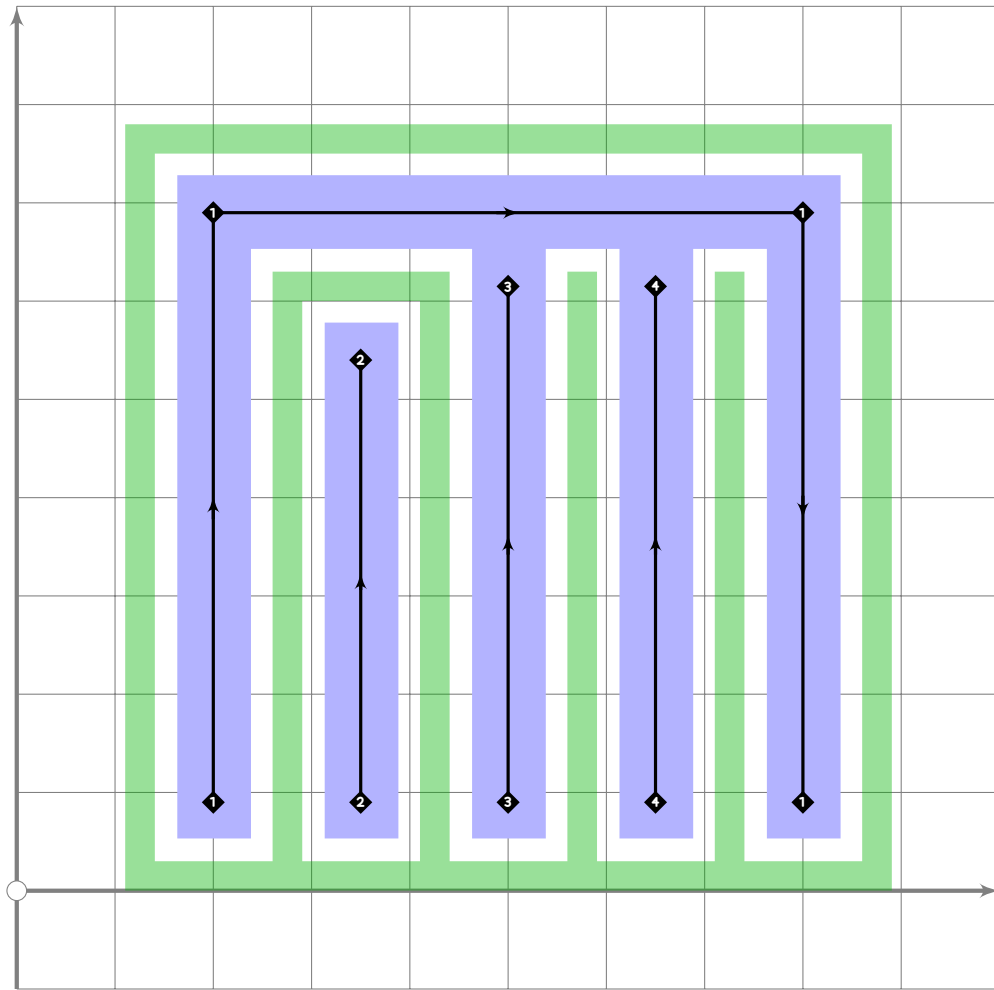
```

957 % #43 Koubai
958 begintsuglyph("genjimon43",235);
959 gbk(0,0);
960 gp(1,1);
961 gj(2,5);
962 gp(3,2);
963 gp(4,2);
964 endsuglyph;
965

```



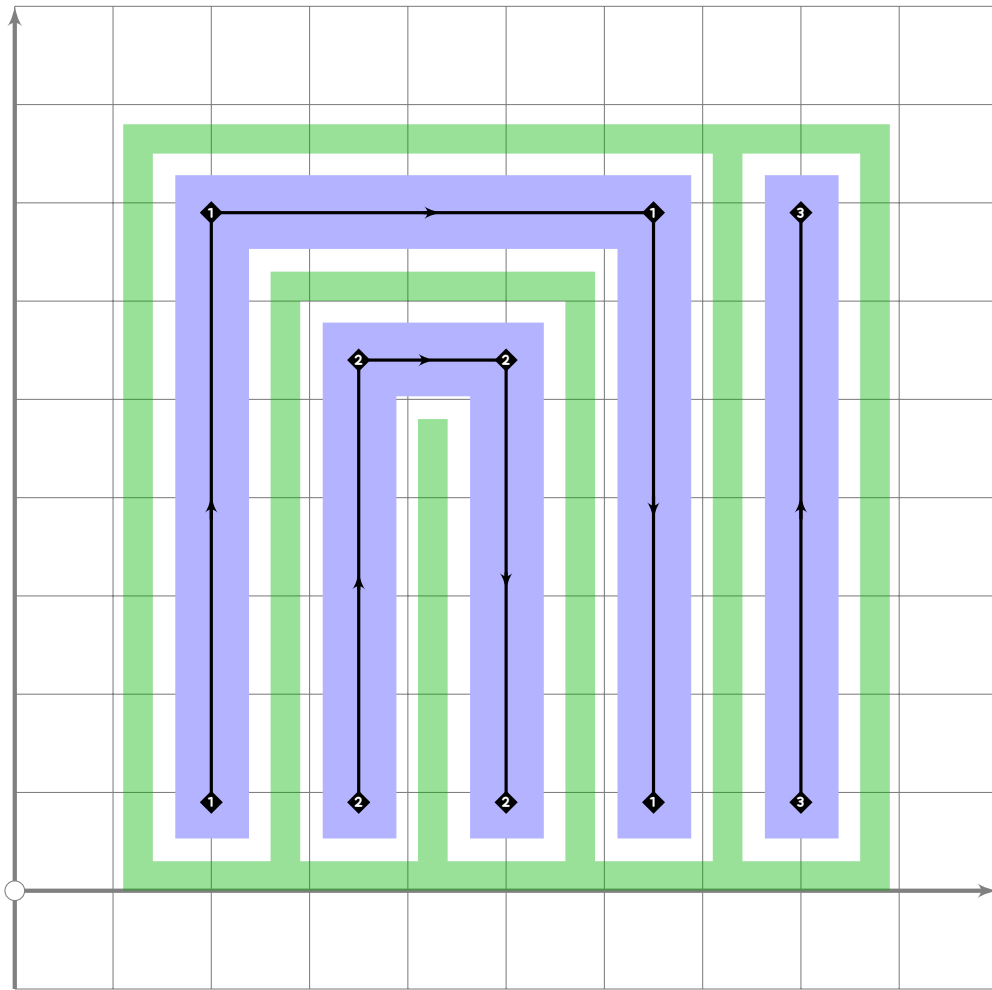
```
966 % #44 Takegawa
967 beginsuglyph("genjimon44";236);
968 gbk(0,0);
969 gj(1,5);
970 gb(2);gf(2);gr;gs(1);gr;gf(2);ge;
971 gtt(3,2);
972 endsuglyph;
973
```



```

974 % #45 Hashihime
975 begintsuglyph("genjimon45";237);
976 gbk(0,0);
977 gj(1,5);
978 gp(2,2);
979 gtt(3,1);
980 gtt(4,1);
981 endtsuglyph;
982

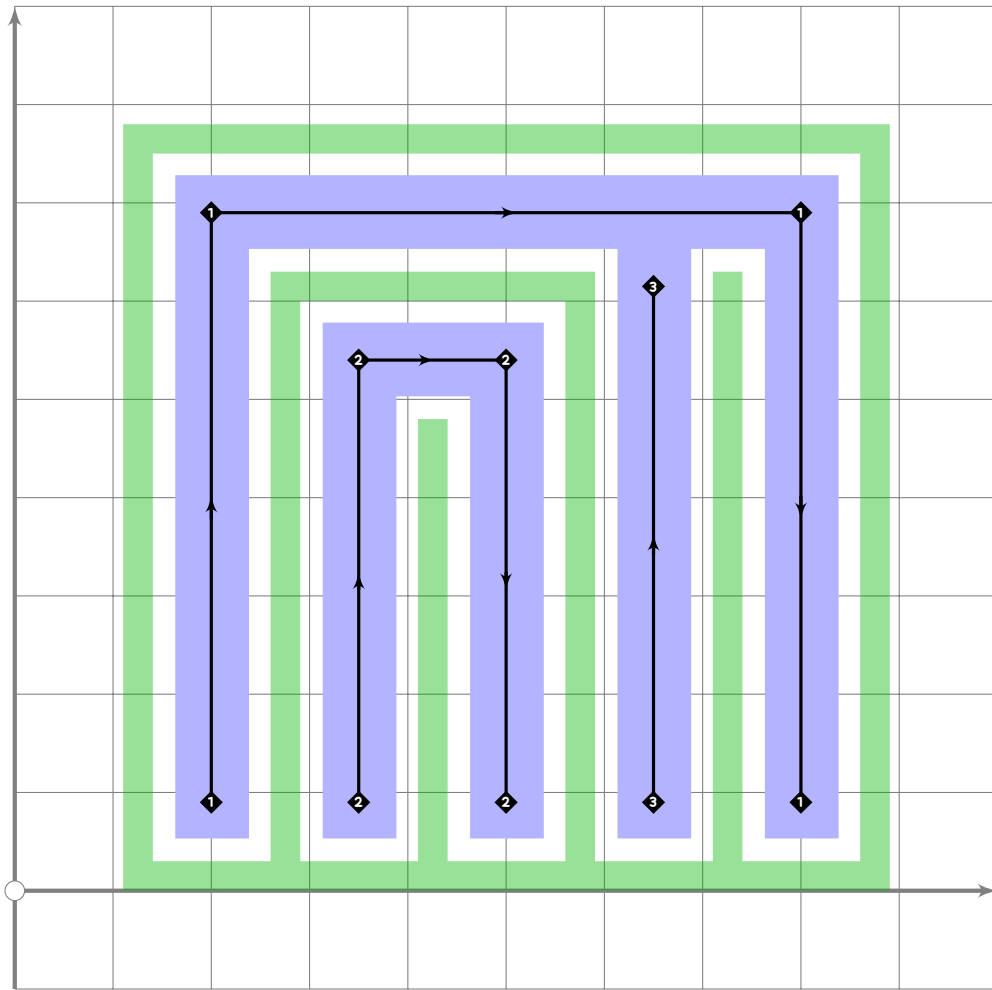
```



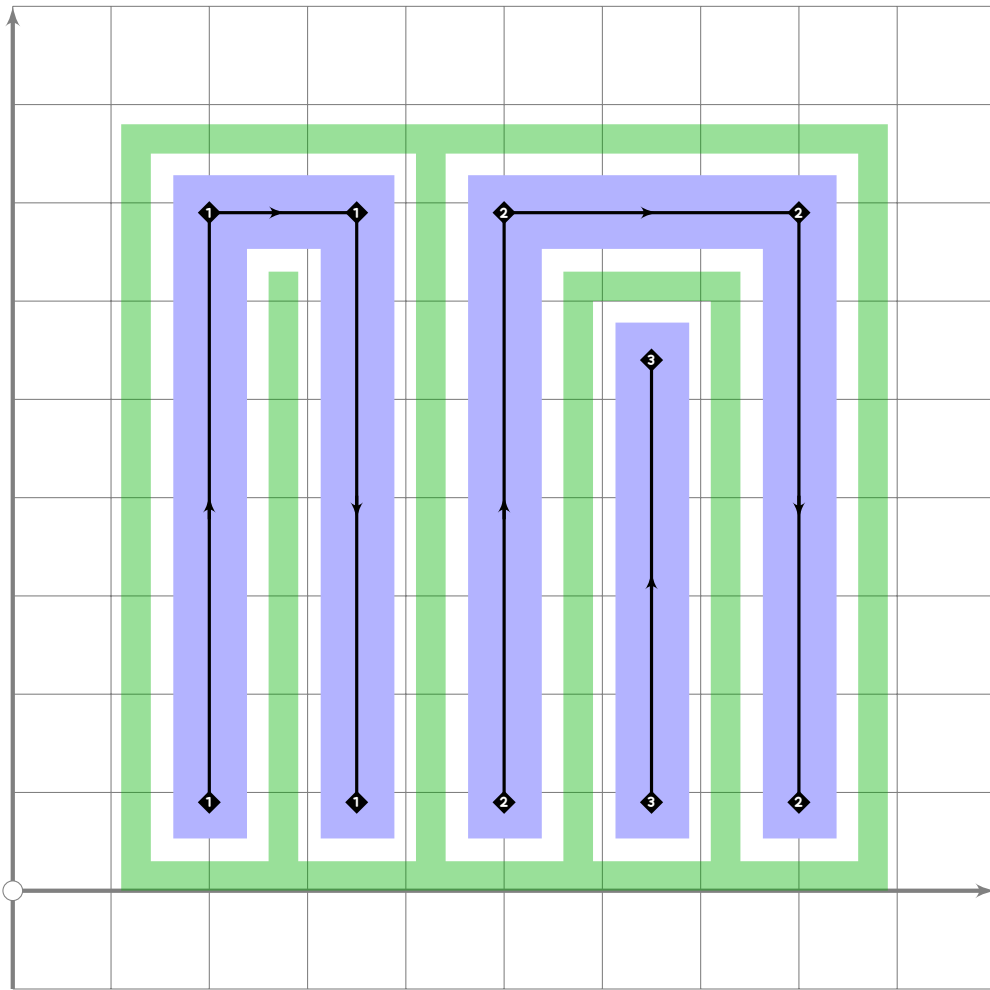
```

983 % #46 Shii ga Moto
984 begintsuglyph("genjimon46",238);
985 gbk(0,0);
986 gj(1,4);
987 gb(2);gf(2);gr;gr;gf(2);ge;
988 gp(5,1);
989 endsuglyph;
990

```



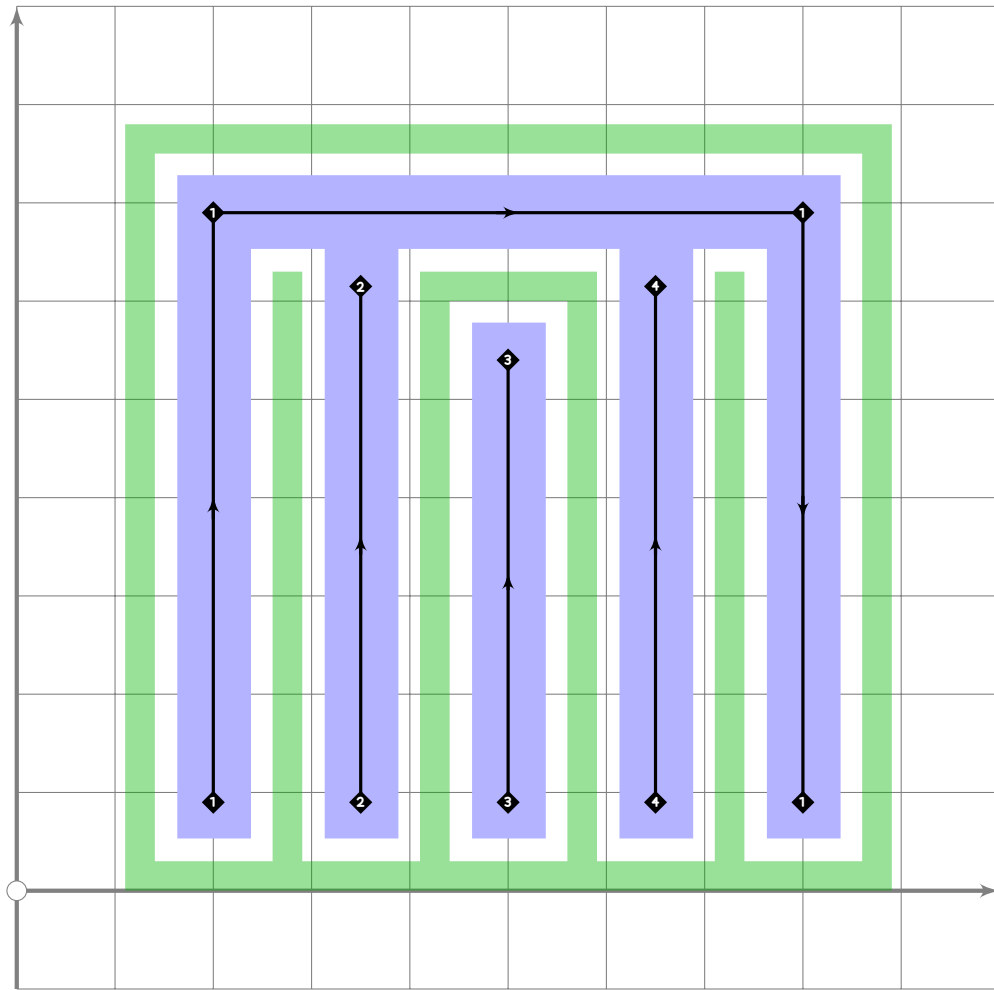
```
991 % #47 Agemaki
992 beginsuglyph("genjimon47",239);
993 gbk(0,0);
994 gj(1,5);
995 gb(2);gf(2);gr;gr;gf(2);ge;
996 gtt(4,1);
997 endsuglyph;
998
```



```

999 % #48 Sawarabi
1000 begintsuglyph("genjimon48",240);
1001 gbk(0,0);
1002 gj(1,2);
1003 gj(3,5);
1004 gp(4,2);
1005 endtsuglyph;
1006

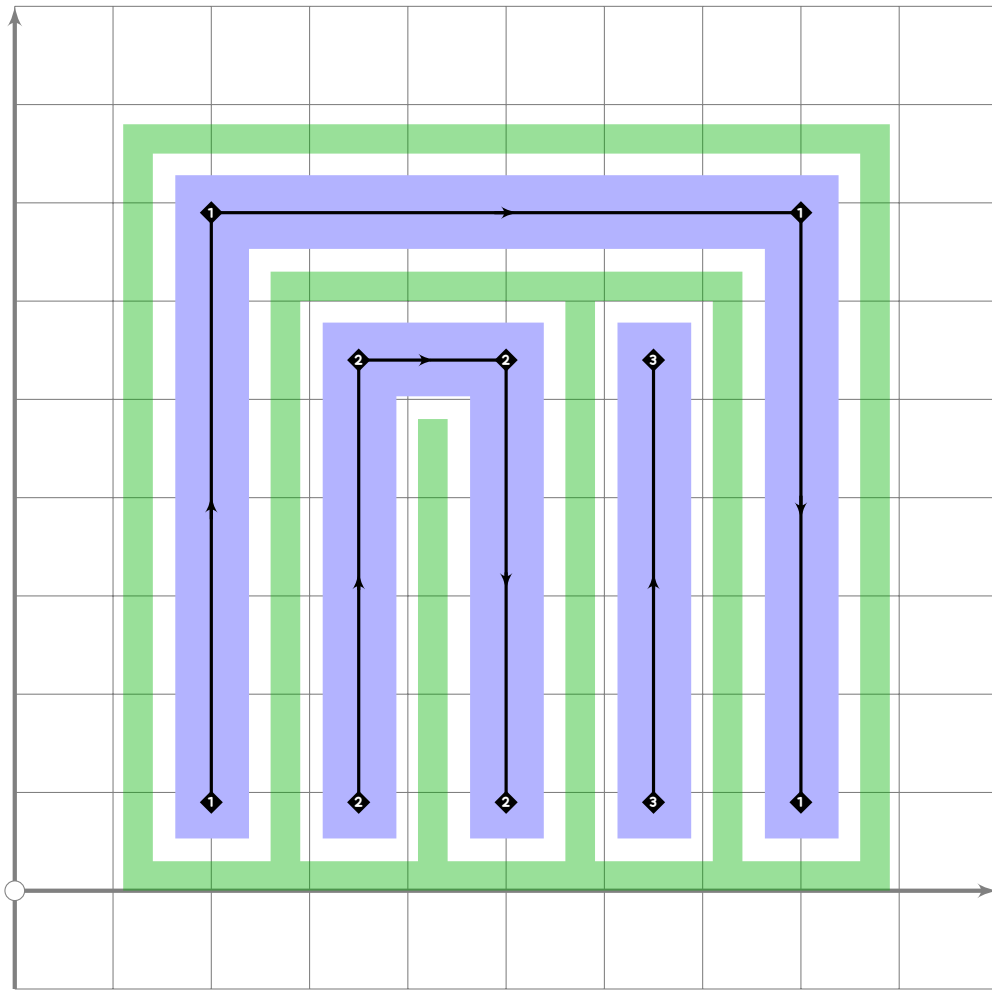
```



```
1007 % #49 Yadorigi  
1008 begintsuglyph("genjimon49";241);  
1009 gbk(0,0);  
1010 gj(1,5);  
1011 gtt(2,1);  
1012 gp(3,2);  
1013 gtt(4,1);  
1014 endsuglyph;  
1015
```



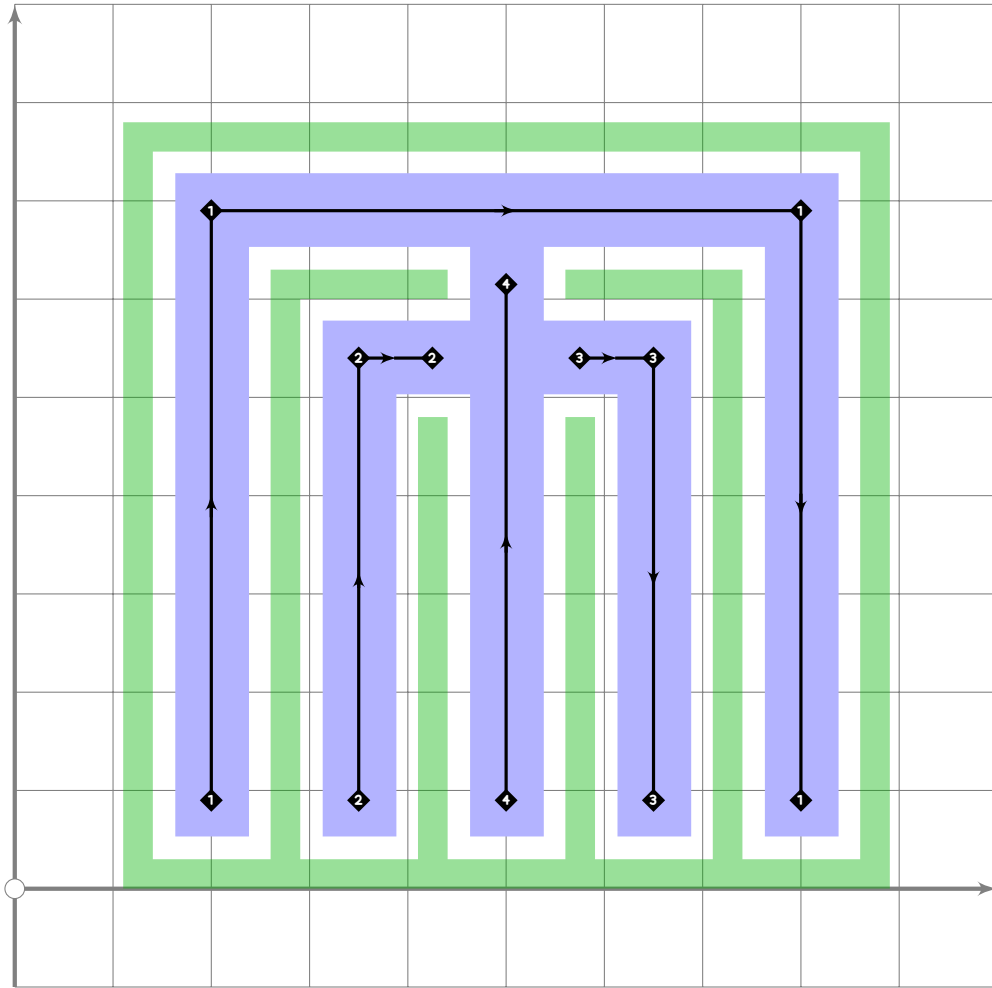




```

1025 % #51 Ukifune
1026 beginsuglyph("genjimon51",243);
1027 gbk(0,0);
1028 gj(1,5);
1029 gb(2);gf(2);gr;gr;gf(2);ge;
1030 gp(4,2);
1031 endsuglyph;
1032

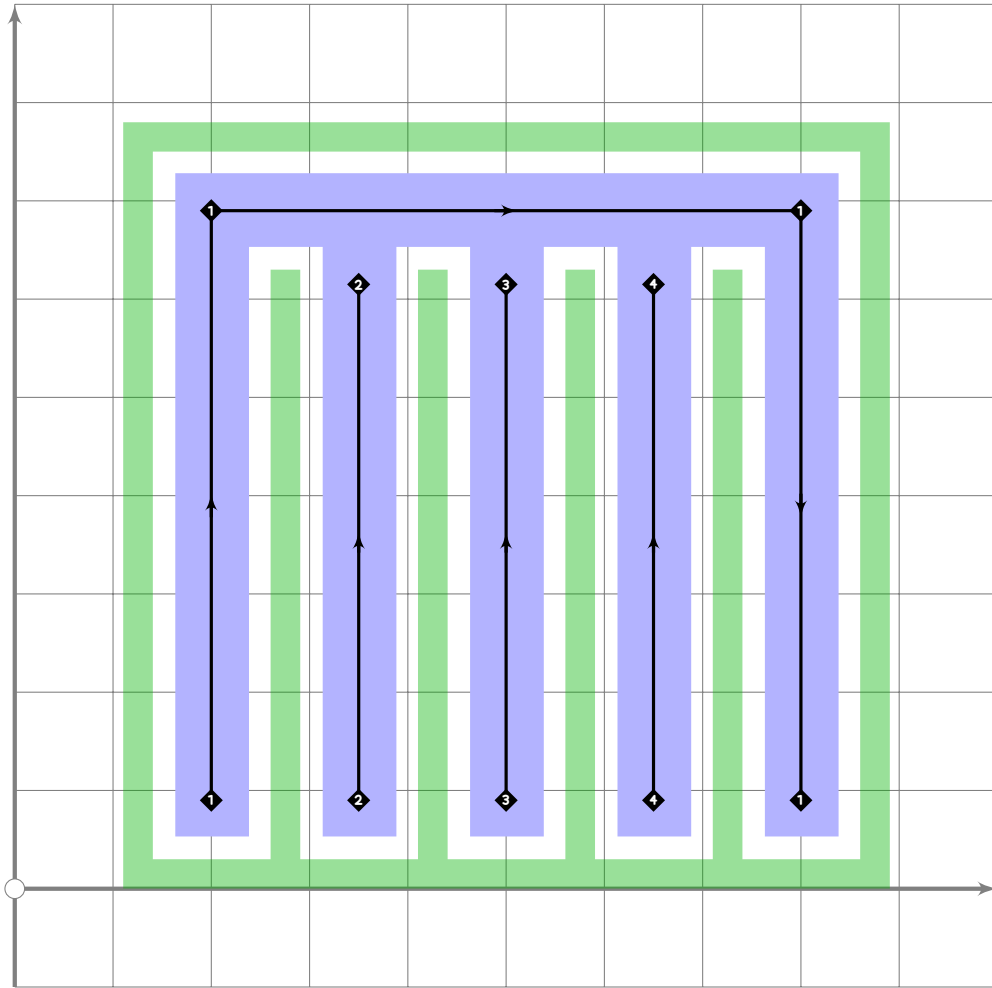
```



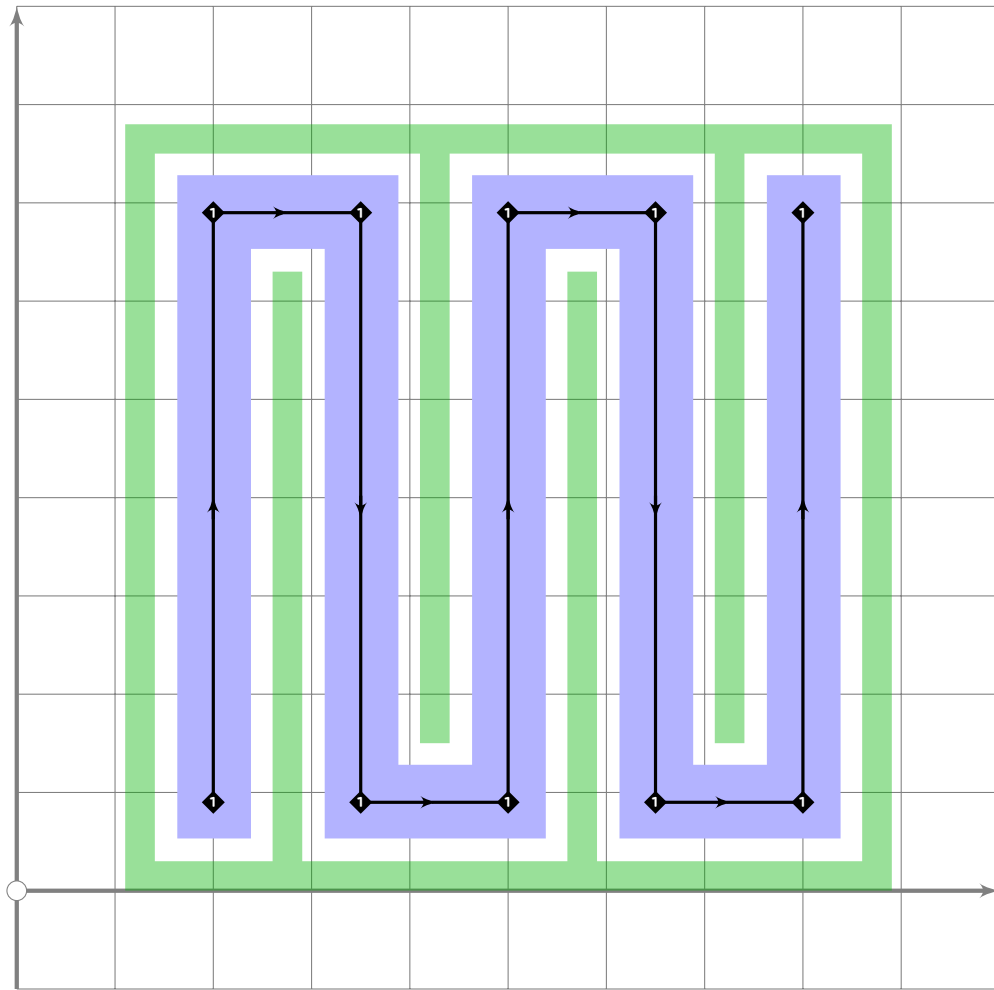
```

1033 % #52 Kagerou
1034 begintsuglyph("genjimon52",244);
1035 gbk(0,0);
1036 gj(1,5);
1037 gb(2);gf(2);gr;gx;gr;gf(2);ge;
1038 gtt(3,1);
1039 endsuglyph;
1040

```



```
1041 % #53 Tenarai
1042 beginsuglyph("genjimon53";245);
1043 gbk(0,0);
1044 gj(1,5);
1045 gtt(2,1);
1046 gtt(3,1);
1047 gtt(4,1);
1048 endsuglyph;
1049
```



```

1050 % #54 Yume no Ukihashi
1051 begintsuglyph("genjimon54";246);
1052 gbk(0,0);
1053 gb(1);gf(1);gr;gr;gf(1);gl;gl;gf(1);gr;gr;gf(1);gl;gl;gf(1);ge;
1054 endsuglyph;
1055
1056 _____
1057
1058 endfont;
1059
1060 _____

```

# tsuku-ff0.mp

```
1 %
2 % Unicode page FF0 (Fraction Numerators) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 input latin-intro.mp;
36 input numerals.mp;
37 input frac-intro.mp;
38
39 

---


40
```

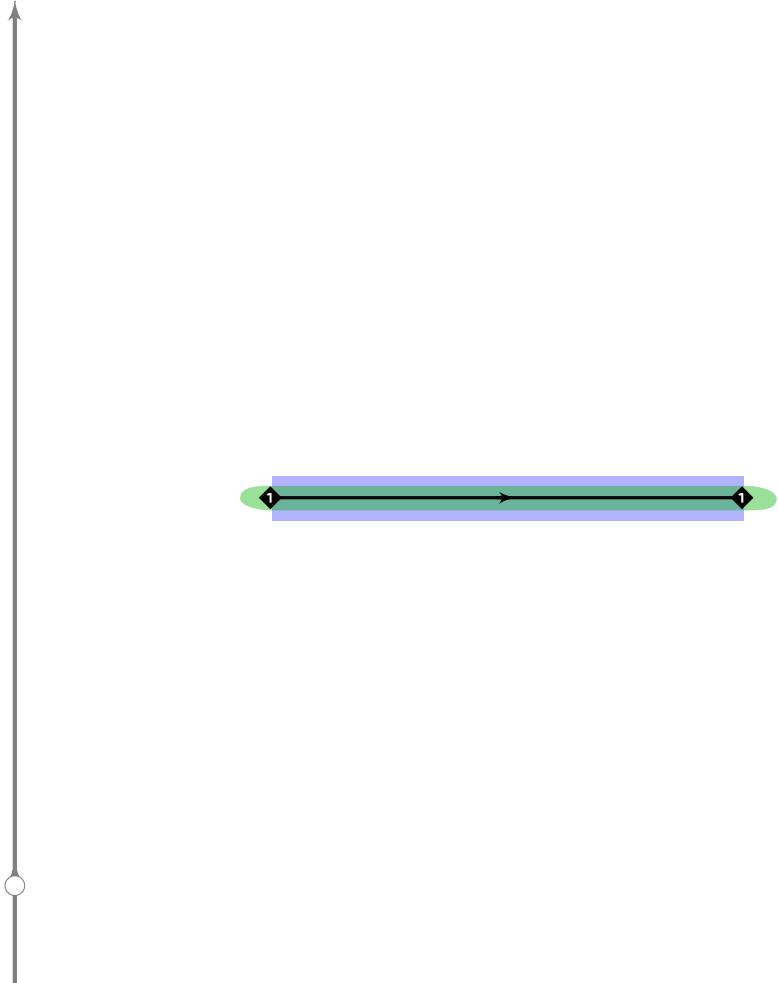
## Fraction Numerators

```
41 % FRACTION NUMERATORS
42
43 transform nxf[];
44
45 (frac.in.x1,frac.in.y1) transformed nxf1=(frac.one.x1,frac.one.y4);
46 (frac.in.x2,frac.in.y1) transformed nxf1=(frac.one.x2,frac.one.y4);
47 (frac.in.x1,frac.in.y2) transformed nxf1=(frac.one.x1,frac.one.y5);
48
49 (frac.in.x1,frac.in.y1) transformed nxf2=(frac.two.x1,frac.two.y4);
50 (frac.in.x2,frac.in.y1) transformed nxf2=(frac.two.x2,frac.two.y4);
51 (frac.in.x1,frac.in.y2) transformed nxf2=(frac.two.x1,frac.two.y5);
52 (frac.in.x1,frac.in.y1) transformed nxf3=(frac.two.x2,frac.two.y4);
53 (frac.in.x2,frac.in.y1) transformed nxf3=(frac.two.x3,frac.two.y4);
54 (frac.in.x1,frac.in.y2) transformed nxf3=(frac.two.x2,frac.two.y5);
55
56 (frac.in.x1,frac.in.y1) transformed nxf4=(frac.three.x1,frac.three.y4);
57 (frac.in.x2,frac.in.y1) transformed nxf4=(frac.three.x2,frac.three.y4);
58 (frac.in.x1,frac.in.y2) transformed nxf4=(frac.three.x1,frac.three.y5);
59 (frac.in.x1,frac.in.y1) transformed nxf5=(frac.three.x2,frac.three.y4);
60 (frac.in.x2,frac.in.y1) transformed nxf5=(frac.three.x3,frac.three.y4);
61 (frac.in.x1,frac.in.y2) transformed nxf5=(frac.three.x2,frac.three.y5);
62 (frac.in.x1,frac.in.y1) transformed nxf6=(frac.three.x3,frac.three.y4);
63 (frac.in.x2,frac.in.y1) transformed nxf6=(frac.three.x4,frac.three.y4);
64 (frac.in.x1,frac.in.y2) transformed nxf6=(frac.three.x3,frac.three.y5);
65
66 (frac.in.x1,frac.in.y1) transformed nxf7=(frac.four.x1,frac.four.y4);
67 (frac.in.x2,frac.in.y1) transformed nxf7=(frac.four.x2,frac.four.y4);
68 (frac.in.x1,frac.in.y2) transformed nxf7=(frac.four.x1,frac.four.y5);
```

```

69 (frac.in.x1,frac.in.y1) transformed nxf8=(frac.four.x2,frac.four.y4);
70 (frac.in.x2,frac.in.y1) transformed nxf8=(frac.four.x3,frac.four.y4);
71 (frac.in.x1,frac.in.y2) transformed nxf8=(frac.four.x2,frac.four.y5);
72 (frac.in.x1,frac.in.y1) transformed nxf9=(frac.four.x3,frac.four.y4);
73 (frac.in.x2,frac.in.y1) transformed nxf9=(frac.four.x4,frac.four.y4);
74 (frac.in.x1,frac.in.y2) transformed nxf9=(frac.four.x3,frac.four.y5);
75 (frac.in.x1,frac.in.y1) transformed nxf10=(frac.four.x4,frac.four.y4);
76 (frac.in.x2,frac.in.y1) transformed nxf10=(frac.four.x5,frac.four.y4);
77 (frac.in.x1,frac.in.y2) transformed nxf10=(frac.four.x4,frac.four.y5);
78
79 (frac.in.x1,frac.in.y1) transformed nxf11=(frac.half.x1,frac.half.y4);
80 (frac.in.x2,frac.in.y1) transformed nxf11=(frac.half.x2,frac.half.y4);
81 (frac.in.x1,frac.in.y2) transformed nxf11=(frac.half.x1,frac.half.y5);
82
83 tsu_rescale_native_zero;

```

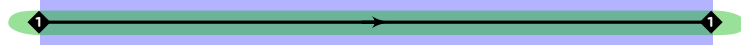


```

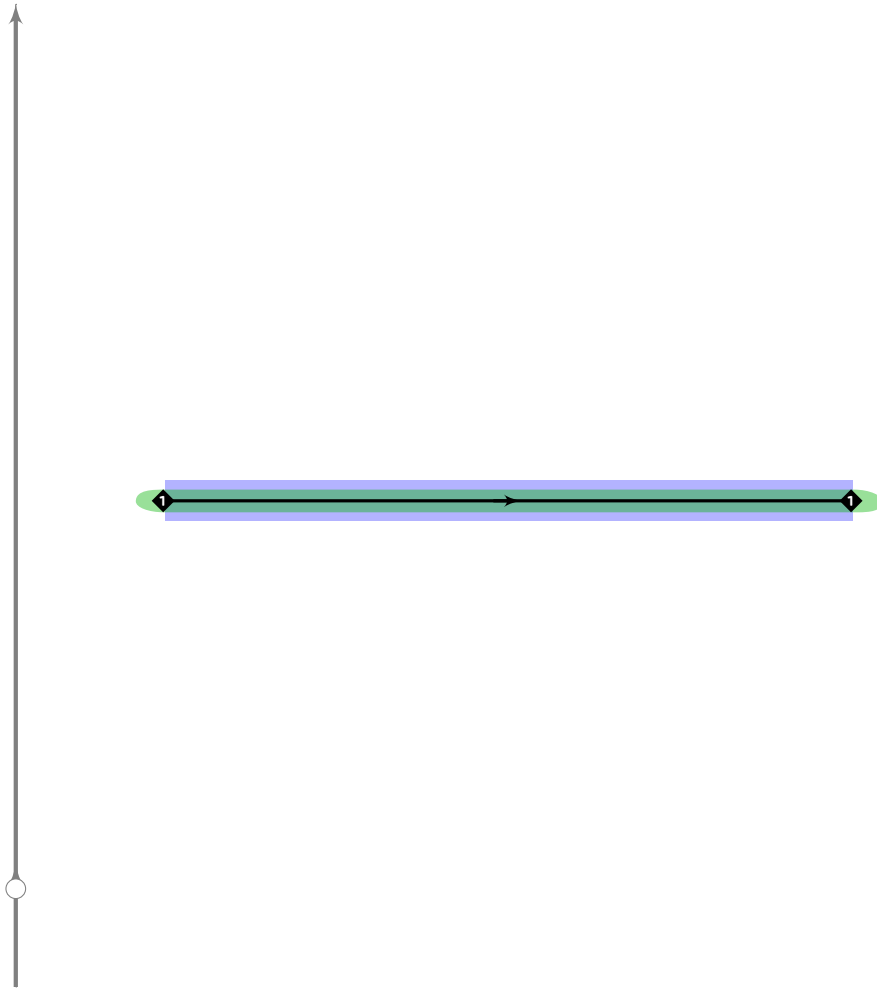
84
85 begint Suglyph("fraction.1",1);
86 push_stroke((( -0.25)[(frac.one.x1,frac.one.y3),(frac.one.x2,frac.one.y3)])
87   -(1.25)[(frac.one.x1,frac.one.y3),(frac.one.x2,frac.one.y3)]),
88   (2,2)-(2,2));
89 set_bosize(0,60);

```

```
90 tsu_render;  
91 endtsuglyph;
```

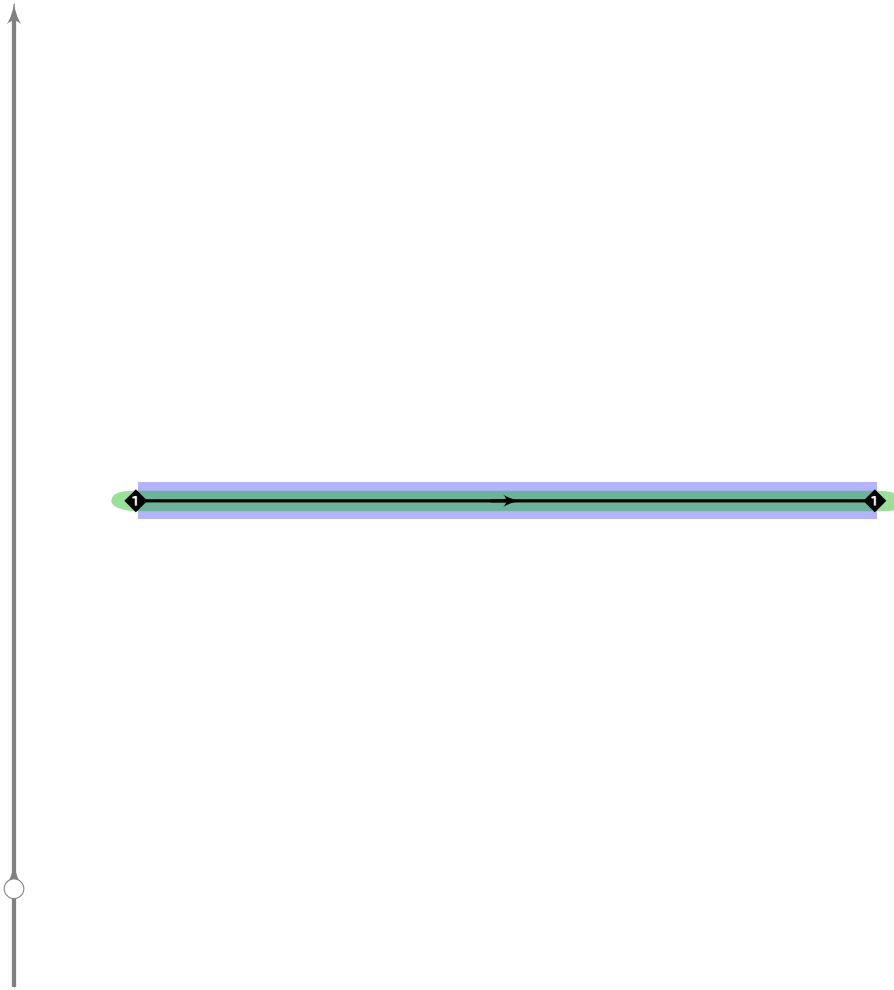


```
92  
93 begintsuglyph("fraction.2",2);  
94 push_stroke(((-0.07)[(frac.two.x1,frac.two.y3),(frac.two.x3,frac.two.y3]])  
95   -(1.07)[(frac.two.x1,frac.two.y3),(frac.two.x3,frac.two.y3)]),  
96   (2,2)-(2,2));  
97 set_bosize(0,60);  
98 tsu_render;  
99 endtsuglyph;
```

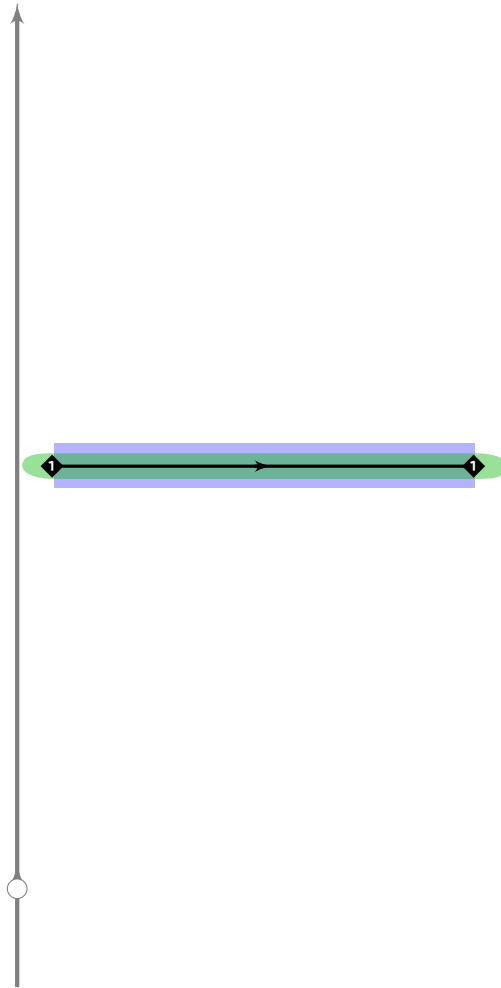


```
100  
101 begintsuglyph("fraction.3",3);  
102 push_stroke((frac.three.x1,frac.three.y3)-(frac.three.x4,frac.three.y3),  
103   (2,2)-(2,2));  
104 set_bosize(0,55);  
105 tsu_render;  
106 endsuglyph;
```





```
107  
108 begintsuglyph("fraction.4",4);  
109 push_stroke((0.03[(frac.four.x1,frac.four.y3),(frac.four.x5,frac.four.y3]])  
110     -(0.97[(frac.four.x1,frac.four.y3),(frac.four.x5,frac.four.y3]]),  
111     (2,2)-(2,2));  
112 set_bosize(0,50);  
113 tsu_render;  
114 endtsuglyph;
```



```

115
116 begintsuglyph("fraction.latr",5);
117 push_stroke(
118     ((-0.15)[(frac.half.x1,frac.half.y3),(frac.half.x2,frac.half.y3]])
119     -(1.15[(frac.half.x1,frac.half.y3),(frac.half.x2,frac.half.y3)]),
120     (2,2)-(2,2));
121 set_bosize(0,60);
122 tsu_render;
123 endsuglyph;
124
125 make_digit_set(nxf1,"0","1");
126
127 make_digit_set(nxf2,"0","2");
128 make_digit_set(nxf3,"0","3");
129
130 make_digit_set(nxf4,"0","4");
131 make_digit_set(nxf5,"0","5");
132 make_digit_set(nxf6,"0","6");
133
134 make_digit_set(nxf7,"0","7");
135 make_digit_set(nxf8,"0","8");

```

```
136 make_digit_set(nxf9,"0","9");
137 make_digit_set(nxf10,"0","a");
138
139 make_digit_set(nxf11,"0","b");
140
141 

---


142
143 endfont;
144
145 

---


```

# tsuku-ff1.mp

```
1 %
2 % Unicode page FF1 (Fraction Denominators) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 input latin-intro.mp;
36 input numerals.mp;
37 input frac-intro.mp;
38
39 

---


40
```

## Fraction Denominators

```
41 % FRACTION DENOMINATORS
42
43 transform nxf[];
44
45 (frac.in.x1,frac.in.y1) transformed nxf1=(frac.one.x1,frac.one.y1);
46 (frac.in.x2,frac.in.y1) transformed nxf1=(frac.one.x2,frac.one.y1);
47 (frac.in.x1,frac.in.y2) transformed nxf1=(frac.one.x1,frac.one.y2);
48
49 (frac.in.x1,frac.in.y1) transformed nxf2=(frac.two.x1,frac.two.y1);
50 (frac.in.x2,frac.in.y1) transformed nxf2=(frac.two.x2,frac.two.y1);
51 (frac.in.x1,frac.in.y2) transformed nxf2=(frac.two.x1,frac.two.y2);
52 (frac.in.x1,frac.in.y1) transformed nxf3=(frac.two.x2,frac.two.y1);
53 (frac.in.x2,frac.in.y1) transformed nxf3=(frac.two.x3,frac.two.y1);
54 (frac.in.x1,frac.in.y2) transformed nxf3=(frac.two.x2,frac.two.y2);
55
56 (frac.in.x1,frac.in.y1) transformed nxf4=(frac.three.x1,frac.three.y1);
57 (frac.in.x2,frac.in.y1) transformed nxf4=(frac.three.x2,frac.three.y1);
58 (frac.in.x1,frac.in.y2) transformed nxf4=(frac.three.x1,frac.three.y2);
59 (frac.in.x1,frac.in.y1) transformed nxf5=(frac.three.x2,frac.three.y1);
60 (frac.in.x2,frac.in.y1) transformed nxf5=(frac.three.x3,frac.three.y1);
61 (frac.in.x1,frac.in.y2) transformed nxf5=(frac.three.x2,frac.three.y2);
62 (frac.in.x1,frac.in.y1) transformed nxf6=(frac.three.x3,frac.three.y1);
63 (frac.in.x2,frac.in.y1) transformed nxf6=(frac.three.x4,frac.three.y1);
64 (frac.in.x1,frac.in.y2) transformed nxf6=(frac.three.x3,frac.three.y2);
65
66 (frac.in.x1,frac.in.y1) transformed nxf7=(frac.four.x1,frac.four.y1);
67 (frac.in.x2,frac.in.y1) transformed nxf7=(frac.four.x2,frac.four.y1);
68 (frac.in.x1,frac.in.y2) transformed nxf7=(frac.four.x1,frac.four.y2);
```

```

69 (frac.in.x1,frac.in.y1) transformed nxf8=(frac.four.x2,frac.four.y1);
70 (frac.in.x2,frac.in.y1) transformed nxf8=(frac.four.x3,frac.four.y1);
71 (frac.in.x1,frac.in.y2) transformed nxf8=(frac.four.x2,frac.four.y2);
72 (frac.in.x1,frac.in.y1) transformed nxf9=(frac.four.x3,frac.four.y1);
73 (frac.in.x2,frac.in.y1) transformed nxf9=(frac.four.x4,frac.four.y1);
74 (frac.in.x1,frac.in.y2) transformed nxf9=(frac.four.x3,frac.four.y2);
75 (frac.in.x1,frac.in.y1) transformed nxf10=(frac.four.x4,frac.four.y1);
76 (frac.in.x2,frac.in.y1) transformed nxf10=(frac.four.x5,frac.four.y1);
77 (frac.in.x1,frac.in.y2) transformed nxf10=(frac.four.x4,frac.four.y2);
78
79 (frac.in.x1,frac.in.y1) transformed nxf11=(frac.half.x1,frac.half.y1);
80 (frac.in.x2,frac.in.y1) transformed nxf11=(frac.half.x2,frac.half.y1);
81 (frac.in.x1,frac.in.y2) transformed nxf11=(frac.half.x1,frac.half.y2);
82
83 tsu_rescale_full;
84 make_digit_set(nxf1,"1","1");
85
86 tsu_rescale_native_zero;
87 make_digit_set(nxf2,"1","2");
88 tsu_rescale_full;
89 make_digit_set(nxf3,"1","3");
90
91 tsu_rescale_native_zero;
92 make_digit_set(nxf4,"1","4");
93 make_digit_set(nxf5,"1","5");
94 tsu_rescale_full;
95 make_digit_set(nxf6,"1","6");
96
97 tsu_rescale_native_zero;
98 make_digit_set(nxf7,"1","7");
99 make_digit_set(nxf8,"1","8");
100 make_digit_set(nxf9,"1","9");
101 tsu_rescale_full;
102 make_digit_set(nxf10,"1","a");
103
104 tsu_rescale_native_narrow;
105 make_digit_set(nxf11,"1","b");
106
107 _____
108
109 endfont;
110
111 _____

```



Part IX

Jieubsida core





# hangul.mp

```
1 %
2 % Hangul infrastructure for Jieubsida
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(hangul);
32
33 _____
34
35 input buildkanji.mp;
36
37 pair hgbox_ll,hgbox_ul,hgbox_lr,hgbox_ur;
38
39 hgbox_ll=(50,-50);
40 hgbox_ul=(50,850);
41 hgbox_lr=(950,-50);
42 hgbox_ur=(950,850);
43
44 pair hgbox_lb,hgbox_rb,hgbox_ub,hgbox_db;
45
46 hgbox_lb=0.5[hgbox_ll,hgbox_ul];
47 hgbox_rb=0.5[hgbox_lr,hgbox_ur];
48 hgbox_ub=0.5[hgbox_ul,hgbox_ur];
49 hgbox_db=0.5[hgbox_ll,hgbox_lr];
50
51 % return a translate-and-scale (no rotation or skew) transform that takes
52 % the (50,850)-(950,-50) square to the specified upper left and lower
53 % right coordinates
54 vardef hxf(expr ul,lr) =
55   begingroup
56     save rval;
57     transform rval;
58     hgbox_ul transformed rval=ul;
59     hgbox_lr transformed rval=lr;
60     hgbox_ll transformed rval=(xpart ul,ypart lr);
61     rval
62   endgroup
63 enddef;
64
65 vardef hxf_inout(expr iotype,ixf,oxf) =
66   begingroup
67     save rval,vv,hv;
68     transform rval;
69     pair vv,hv;
70     vv=(hgbox_ul transformed oxf)-(hgbox_ll transformed oxf);
```

```

71   hv=(hgbox_lr transformed oxf)-(hgbox_ll transformed oxf);
72   (hgbox_ul transformed rval)-(hgbox_ll transformed rval)=
73     whatever*vv;
74   (hgbox_lr transformed rval)-(hgbox_ll transformed rval)=
75     whatever*hv;
76   hgbox_rb transformed rval=whatever*vv+(hgbox_rb transformed
77     if (iotype mod 2)=1: oxf else: ixf fi);
78   hgbox_ub transformed rval=whatever*hv+(hgbox_ub transformed
79     if (iotype mod 4)>=2: oxf else: ixf fi);
80   hgbox_lb transformed rval=whatever*vv+(hgbox_lb transformed
81     if (iotype mod 8)>=4: oxf else: ixf fi);
82   hgbox_db transformed rval=whatever*hv+(hgbox_db transformed
83     if iotype>=8: oxf else: ixf fi);
84   rval
85   endgroup
86 enddef;
87
88 

---


89
90 % Much useful information about how Unicode encodes hangul syllables is
91 % at http://www.uni-graz.at/~katzer/korean\_hangul\_unicode.html , and
92 % I'm following that source's nomenclature of "lead, vowel, tail"
93
94 % jamo IDs used in the table:
95 % 100+ lead
96 % 300+ vowel
97 % 500+ tail
98 % add 100 for alternate form, which is usually the one used on the left in
99 % multi-consonant clusters (like "leftrad" or "lift_skirt" in kanji)
100
101 string hangul.jamo[]code;
102 boolean hangul.jamo[]invokes_alternate;
103
104 % fill in default values for jamo - saves typing
105 vardef hangul.fill_in_jamo(expr jid) =
106   if unknown hangul.jamo[jid]code: hangul.jamo[jid]code="jamo.bigx"; fi;
107   if unknown hangul.jamo[jid]w: hangul.jamo[jid]w=4; fi;
108   if unknown hangul.jamo[jid]h: hangul.jamo[jid]h=4; fi;
109   if unknown hangul.jamo[jid]lb: hangul.jamo[jid]lb=50; fi;
110   if unknown hangul.jamo[jid]rb: hangul.jamo[jid]rb=950; fi;
111   if unknown hangul.jamo[jid]ub: hangul.jamo[jid]ub=850; fi;
112   if unknown hangul.jamo[jid]db: hangul.jamo[jid]db=-50; fi;
113   if unknown hangul.jamo[jid]invokes_alternate:
114     hangul.jamo[jid]invokes_alternate=true;
115   fi;
116 enddef;
117
118 

---



```

## Jamo Combining Operations

```

120 % JAMO COMBINING OPERATIONS
121
122 % calling convention: hangul macros generally take a final set of
123 % parentheses containing a vowel ID and two transforms, ixf and oxf.
124 % The ixf transform will transform the (50,-50) to (950,850) square into
125 % where the jamo (or combination thereof) should be placed. The oxf
126 % transform transforms that same square into a possibly-larger space
127 % representing limits created by adjacent jamo; this allows for parts
128 % of jamo that may extend into the adjacent jamo's space conditionally
129 % on the shape of the adjacent jamo.
130 %
131 % The "id" family of arguments are jamo IDs pointing into the hangul.jamo
132 % tables.
133
134 vardef hangul.combine.lr(expr lid,rid)(expr vow,ixf,oxf) =
135 % put in default values if necessary
136 hangul.fill_in_jamo(lid);
137 hangul.fill_in_jamo(rid);
138
139 % set up transform variables
140 begingroup
141 save lixf,loxf,rixf,roxf;
142 transform lixf,loxf,rixf,roxf;
143
144 % left inner transform
145 hgbox_ul transformed lixf=hgbox_ul transformed ixf;
146 hgbox_ll transformed lixf=hgbox_ll transformed ixf;
147 if hangul.jamo[lid]w+hangul.jamo[rid]w=0:
148 hgbox_lr transformed lixf=(0.5[hgbox_ll,hgbox_lr]) transformed ixf;
149 else:
150 hgbox_lr transformed lixf=
151 ((hangul.jamo[lid]w/(hangul.jamo[lid]w+hangul.jamo[rid]w))
152 [hgbox_ll,hgbox_lr]) transformed ixf;
153 fi;
154
155 % right inner transform
156 hgbox_ur transformed rixf=hgbox_ur transformed ixf;
157 hgbox_lr transformed rixf=hgbox_lr transformed ixf;
158 hgbox_ll transformed rixf=hgbox_lr transformed lixf;
159
160 % left outer transform
161 (hgbox_ul transformed loxf)-(hgbox_ll transformed loxf)=
162 whatever*((hgbox_ul transformed oxf)-(hgbox_ll transformed oxf));
163 (hgbox_lr transformed loxf)-(hgbox_ll transformed loxf)=

```

```

164     whatever*((hgbox_lr transformed oxf)-(hgbox_ll transformed oxf));
165     (hgbox_lb transformed loxf)=
166     (whatever[hgbox_ll,hgbox_ul]) transformed oxf;
167     (hgbox_rb transformed loxf)=
168     (hangul.jamo[rid]lb,400) transformed rixf
169     +whatever*((hgbox_ul transformed oxf)-(hgbox_ll transformed oxf));
170     (hgbox_ub transformed loxf)=
171     (whatever[hgbox_ul,hgbox_ur]) transformed oxf;
172     (hgbox_db transformed loxf)=
173     (whatever[hgbox_ll,hgbox_lr]) transformed oxf;
174
175     % right outer transform
176     (hgbox_ul transformed roxf)-(hgbox_ll transformed roxf)=
177     whatever*((hgbox_ul transformed oxf)-(hgbox_ll transformed oxf));
178     (hgbox_lr transformed roxf)-(hgbox_ll transformed roxf)=
179     whatever*((hgbox_lr transformed oxf)-(hgbox_ll transformed oxf));
180     (hgbox_lb transformed roxf)=
181     (hangul.jamo[lid]rb,400) transformed lixf
182     +whatever*((hgbox_ul transformed oxf)-(hgbox_ll transformed oxf));
183     (hgbox_rb transformed roxf)=
184     (whatever[hgbox_lr,hgbox_ur]) transformed oxf;
185     (hgbox_ub transformed roxf)=
186     (whatever[hgbox_ul,hgbox_ur]) transformed oxf;
187     (hgbox_db transformed roxf)=
188     (whatever[hgbox_ll,hgbox_lr]) transformed oxf;
189
190     % draw the contents
191     hangul.scantokens hangul.jamo[lid]code (vow,lixf,loxf);
192     hangul.scantokens hangul.jamo[rid]code (vow,rixf,roxf);
193 endgroup;
194 enddef;
195
196 vardef hangul.combine.lcr(expr lid,cid,rid)(expr vow,ixf,oxf) =
197 % put in default values if necessary
198 hangul.fill_in_jamo(lid);
199 hangul.fill_in_jamo(cid);
200 hangul.fill_in_jamo(rid);
201
202 % set up transform variables
203 beingroup
204 save lixf,loxf,cixf,coxf,rixf,roxf;
205 transform lixf,loxf,cixf,coxf,rixf,roxf;
206
207 % left inner transform
208 hgbox_ul transformed lixf=hgbox_ul transformed ixf;
209 hgbox_ll transformed lixf=hgbox_ll transformed ixf;
210 if hangul.jamo[lid]w+hangul.jamo[cid]w+hangul.jamo[rid]w=0:
211     hgbox_lr transformed lixf=(0.333[hgbox_ll,hgbox_lr]) transformed ixf;

```

```

212 else:
213     hgbox_lr transformed lixf=
214         ((hantul.jamo[lid]w/
215         (hantul.jamo[lid]w+hantul.jamo[cid]w+hantul.jamo[rid]w))
216         [hgbox_ll,hgbox_lr]) transformed ixf;
217 fi;
218
219 % centre inner transform
220 hgbox_ul transformed cixf=hgbox_ur transformed lixf;
221 hgbox_ll transformed cixf=hgbox_lr transformed lixf;
222 if hantul.jamo[lid]w+hantul.jamo[cid]w+hantul.jamo[rid]w=0:
223     hgbox_lr transformed cixf=(0.667[hgbox_ll,hgbox_lr]) transformed ixf;
224 else:
225     hgbox_lr transformed cixf=
226         (((hantul.jamo[lid]w+hantul.jamo[cid]w)/
227         (hantul.jamo[lid]w+hantul.jamo[cid]w+hantul.jamo[rid]w))
228         [hgbox_ll,hgbox_lr]) transformed ixf;
229 fi;
230
231 % right inner transform
232 hgbox_ur transformed rixf=hgbox_ur transformed ixf;
233 hgbox_lr transformed rixf=hgbox_lr transformed ixf;
234 hgbox_ll transformed rixf=hgbox_lr transformed cixf;
235
236 % left outer transform
237 (hgbox_ul transformed loxf)-(hgbox_ll transformed loxf)=
238     whatever*((hgbox_ul transformed oxf)-(hgbox_ll transformed oxf));
239 (hgbox_lr transformed loxf)-(hgbox_ll transformed loxf)=
240     whatever*((hgbox_lr transformed oxf)-(hgbox_ll transformed oxf));
241 (hgbox_lb transformed loxf)=
242     (whatever[hgbox_ll,hgbox_ul]) transformed oxf;
243 (hgbox_rb transformed loxf)=
244     (hantul.jamo[cid]lb,400) transformed cixf
245     +whatever*((hgbox_ul transformed oxf)-(hgbox_ll transformed oxf));
246 (hgbox_ub transformed loxf)=
247     (whatever[hgbox_ul,hgbox_ur]) transformed oxf;
248 (hgbox_db transformed loxf)=
249     (whatever[hgbox_ll,hgbox_lr]) transformed oxf;
250
251 % centre outer transform
252 (hgbox_ul transformed coxf)-(hgbox_ll transformed coxf)=
253     whatever*((hgbox_ul transformed oxf)-(hgbox_ll transformed oxf));
254 (hgbox_lr transformed coxf)-(hgbox_ll transformed coxf)=
255     whatever*((hgbox_lr transformed oxf)-(hgbox_ll transformed oxf));
256 (hgbox_lb transformed coxf)=
257     (hantul.jamo[lid]rb,400) transformed lixf
258     +whatever*((hgbox_ul transformed oxf)-(hgbox_ll transformed oxf));
259 (hgbox_rb transformed coxf)=

```

```

260     (hangul.jamo[rid]lb,400) transformed rixf
261     +whatever*((hgbox_ul transformed oxf)-(hgbox_ll transformed oxf));
262 (hgbox_ub transformed coxf)=
263     (whatever[hgbox_ul,hgbox_ur]) transformed oxf;
264 (hgbox_db transformed coxf)=
265     (whatever[hgbox_ll,hgbox_lr]) transformed oxf;
266
267 % right outer transform
268 (hgbox_ul transformed roxf)-(hgbox_ll transformed roxf)=
269     whatever*((hgbox_ul transformed oxf)-(hgbox_ll transformed oxf));
270 (hgbox_lr transformed roxf)-(hgbox_ll transformed roxf)=
271     whatever*((hgbox_lr transformed oxf)-(hgbox_ll transformed oxf));
272 (hgbox_lb transformed roxf)=
273     (hangul.jamo[cid]rb,400) transformed cixf
274     +whatever*((hgbox_ul transformed oxf)-(hgbox_ll transformed oxf));
275 (hgbox_rb transformed roxf)=
276     (whatever[hgbox_lr,hgbox_ur]) transformed oxf;
277 (hgbox_ub transformed roxf)=
278     (whatever[hgbox_ul,hgbox_ur]) transformed oxf;
279 (hgbox_db transformed roxf)=
280     (whatever[hgbox_ll,hgbox_lr]) transformed oxf;
281
282 % draw the contents
283 hangul.scantokens hangul.jamo[lid]code (vow,lixf,loxf);
284 hangul.scantokens hangul.jamo[cid]code (vow,cixf,coxf);
285 hangul.scantokens hangul.jamo[rid]code (vow,rixf,roxf);
286 endgroup;
287 enddef;
288
289 vardef hangul.combine.syllable(expr lid,vid,tid)(expr vow,ixf,oxf) =
290 % put in default values if necessary
291 hangul.fill_in_jamo(lid);
292 hangul.fill_in_jamo(vid);
293 hangul.fill_in_jamo(tid);
294
295 % set up transform variables
296 beingroup
297     save lixf,loxf,vixf,voxf,tixf,toxf;
298     transform lixf,loxf,vixf,voxf,tixf,toxf;
299
300 % lead inner transform
301 hgbox_ul transformed lixf=hgbox_ul transformed ixf;
302 if hangul.jamo[lid]w+hangul.jamo[vid]w=0:
303     hgbox_ur transformed lixf=(0.5[hgbox_ul,hgbox_ur]) transformed ixf;
304 else:
305     hgbox_ur transformed lixf=
306         ((hangul.jamo[lid]w/(hangul.jamo[lid]w+hangul.jamo[vid]w))
307         [hgbox_ul,hgbox_ur]) transformed ixf;

```

```

308 fi;
309 if hangul.jamo[lid]h+hangul.jamo[vid]h+hangul.jamo[tid]h=0:
310     hgbox_ll transformed lixf=(0.333[hgbox_ul,hgbox_ll]) transformed ixf;
311 else:
312     hgbox_ll transformed lixf=
313         ((hangul.jamo[lid]h/
314             (hangul.jamo[lid]h+hangul.jamo[vid]h+hangul.jamo[tid]h))
315             [hgbox_ul,hgbox_ll]) transformed ixf;
316 fi;
317
318 % vowel inner transform
319 hgbox_ul transformed vixf=hgbox_lr transformed lixf;
320 if hangul.jamo[lid]h+hangul.jamo[vid]h+hangul.jamo[tid]h=0:
321     hgbox_ur transformed vixf=(0.333[hgbox_ur,hgbox_lr]) transformed ixf;
322     hgbox_lr transformed vixf=(0.333[hgbox_lr,hgbox_ur]) transformed ixf;
323 else:
324     hgbox_ur transformed vixf=
325         ((hangul.jamo[lid]h/
326             (hangul.jamo[lid]h+hangul.jamo[vid]h+hangul.jamo[tid]h))
327             [hgbox_ur,hgbox_lr]) transformed ixf;
328     hgbox_lr transformed vixf=
329         ((hangul.jamo[tid]h/
330             (hangul.jamo[lid]h+hangul.jamo[vid]h+hangul.jamo[tid]h))
331             [hgbox_lr,hgbox_ur]) transformed ixf;
332 fi;
333
334 % tail inner transform
335 hgbox_ll transformed tixf=hgbox_ll transformed ixf;
336 hgbox_lr transformed tixf=hgbox_lr transformed ixf;
337 hgbox_ur transformed tixf=hgbox_lr transformed vixf;
338
339 % lead outer transform
340 (hgbox_ul transformed loxf)-(hgbox_ll transformed loxf)=
341     whatever*((hgbox_ul transformed oxf)-(hgbox_ll transformed oxf));
342 (hgbox_lr transformed loxf)-(hgbox_ll transformed loxf)=
343     whatever*((hgbox_lr transformed oxf)-(hgbox_ll transformed oxf));
344 (hgbox_lb transformed loxf)=
345     (whatever[hgbox_ll,hgbox_ul]) transformed oxf;
346 (hgbox_rb transformed loxf)=
347     (hangul.jamo[vid]lb,400) transformed vixf
348     +whatever*((hgbox_ul transformed oxf)-(hgbox_ll transformed oxf));
349 (hgbox_ub transformed loxf)=
350     (whatever[hgbox_ul,hgbox_ur]) transformed oxf;
351 (hgbox_db transformed loxf)=
352     (500,hangul.jamo[vid]ub) transformed vixf
353     +whatever*((hgbox_lr transformed oxf)-(hgbox_ll transformed oxf));
354
355 % vowel outer transform

```

```

356 (hgbox_ul transformed vox f)-(hgbox_ll transformed vox f)=
357   whatever*((hgbox_ul transformed ox f)-(hgbox_ll transformed ox f));
358 (hgbox_lr transformed vox f)-(hgbox_ll transformed vox f)=
359   whatever*((hgbox_lr transformed ox f)-(hgbox_ll transformed ox f));
360 (hgbox_lb transformed vox f)=
361   (whatever[hgbox_ll,hgbox_ul]) transformed ox f;
362 (hgbox_rb transformed vox f)=
363   (whatever[hgbox_lr,hgbox_ur]) transformed ox f;
364 (hgbox_ub transformed vox f)=
365   (whatever[hgbox_ul,hgbox_ur]) transformed ox f;
366 (hgbox_db transformed vox f)=
367   (500,hangul,jamo[tid]ub) transformed tix f
368   +whatever*((hgbox_lr transformed ox f)-(hgbox_ll transformed ox f));
369
370 % tail outer transform
371 (hgbox_ul transformed tox f)-(hgbox_ll transformed tox f)=
372   whatever*((hgbox_ul transformed ox f)-(hgbox_ll transformed ox f));
373 (hgbox_lr transformed tox f)-(hgbox_ll transformed tox f)=
374   whatever*((hgbox_lr transformed ox f)-(hgbox_ll transformed ox f));
375 (hgbox_lb transformed tox f)=
376   (whatever[hgbox_ll,hgbox_ul]) transformed ox f;
377 (hgbox_rb transformed tox f)=
378   (whatever[hgbox_lr,hgbox_ur]) transformed ox f;
379 (hgbox_ub transformed tox f)=
380   (500,hangul,jamo[vid]db) transformed vix f
381   +whatever*((hgbox_lr transformed ox f)-(hgbox_ll transformed ox f));
382 (hgbox_db transformed tox f)=
383   (whatever[hgbox_ll,hgbox_lr]) transformed ox f;
384
385 % draw the contents
386 build_kanji.level(hangul.scantokens hangul.jamo[vid]code (vid,vix f,vox f));
387 hangul.scantokens hangul.jamo[lid]code (vid,lix f,loxf);
388 hangul.scantokens hangul.jamo[tid]code
389   (vid,hxf((100+20*mincho,850+30*mincho),(900-20*mincho,-50))
390   transformed tix f,tox f);
391 endgroup;
392 enddef;
393
394 vardef hangul.combine.tb(expr tid,bid)(expr vow,ix f,ox f) =
395 % put in default values if necessary
396 hangul.fill_in_jamo(tid);
397 hangul.fill_in_jamo(bid);
398
399 % set up transform variables
400 begingroup
401   save tix f,tox f,bix f,box f;
402   transform tix f,tox f,bix f,box f;
403

```



```

404 % top inner transform
405 hgbox_ul transformed tixf=hgbox_ul transformed ixf;
406 hgbox_ur transformed tixf=hgbox_ur transformed ixf;
407 if hangul.jamo[tid]h+hangul.jamo[bid]h=0;
408     hgbox_lr transformed tixf=(0.5[hgbox_ur,hgbox_lr]) transformed ixf;
409 else:
410     hgbox_lr transformed tixf=
411         ((hangul.jamo[tid]h/(hangul.jamo[tid]h+hangul.jamo[bid]h))
412         [hgbox_ur,hgbox_lr]) transformed ixf;
413 fi;
414
415 % bottom inner transform
416 hgbox_lr transformed bixf=hgbox_lr transformed ixf;
417 hgbox_ll transformed bixf=hgbox_ll transformed ixf;
418 hgbox_ur transformed bixf=hgbox_lr transformed tixf;
419
420 % left outer transform
421 (hgbox_ul transformed toxf)-(hgbox_ll transformed toxf)=
422     whatever*((hgbox_ul transformed oxf)-(hgbox_ll transformed oxf));
423 (hgbox_lr transformed toxf)-(hgbox_ll transformed toxf)=
424     whatever*((hgbox_lr transformed oxf)-(hgbox_ll transformed oxf));
425 (hgbox_lb transformed toxf)=
426     (whatever[hgbox_ll,hgbox_ul]) transformed oxf;
427 (hgbox_rb transformed toxf)=
428     (whatever[hgbox_lr,hgbox_ur]) transformed oxf;
429 (hgbox_ub transformed toxf)=
430     (whatever[hgbox_ul,hgbox_ur]) transformed oxf;
431 (hgbox_db transformed toxf)=
432     (500,hangul.jamo[bid]ub) transformed bixf
433     +whatever*((hgbox_lr transformed oxf)-(hgbox_ll transformed oxf));
434
435 % right outer transform
436 (hgbox_ul transformed boxf)-(hgbox_ll transformed boxf)=
437     whatever*((hgbox_ul transformed oxf)-(hgbox_ll transformed oxf));
438 (hgbox_lr transformed boxf)-(hgbox_ll transformed boxf)=
439     whatever*((hgbox_lr transformed oxf)-(hgbox_ll transformed oxf));
440 (hgbox_lb transformed boxf)=
441     (whatever[hgbox_ll,hgbox_ul]) transformed oxf;
442 (hgbox_rb transformed boxf)=
443     (whatever[hgbox_lr,hgbox_ur]) transformed oxf;
444 (hgbox_ub transformed boxf)=
445     (500,hangul.jamo[tid]db) transformed tixf
446     +whatever*((hgbox_lr transformed oxf)-(hgbox_ll transformed oxf));
447 (hgbox_db transformed boxf)=
448     (whatever[hgbox_ll,hgbox_lr]) transformed oxf;
449
450 % draw the contents
451 hangul.scantokens hangul.jamo[tid]code (vow,tixf,toxf);

```

```
452     hangul.scantokens hangul.jamo[bid]code (vow,bixf,boxf);  
453   endgroup;  
454 enddef;
```

## jamo-basic.mp

```
1 %
2 % Hangul basic jamo for Jieubsida
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(jamobasic);
32
33
34
```

---

### Filler Jamo

```
35 % FILLER JAMO
36
37 % filler for jamo not yet defined
38 vardef hangul.jamo.bigx(expr vow,ixf,oxf) =
39   tsu_xform(ixf)(
40     push_pbox_toexpand("jamo.bigx");
41     push_stroke((100,800)-(900,0),(1.5,1.5)-(1.5,1.5));
42     push_stroke((900,800)-(100,0),(1.5,1.5)-(1.5,1.5));
43     expand_pbox);
44 enddef;
45
46 % 230 head empty
47 hangul.jamo[230]code="jamo.empty";
48 hangul.jamo[230]w=0;
49 hangul.jamo[230]h=0;
50
51 % 500 tail empty
52 hangul.jamo[500]code="jamo.empty";
53 hangul.jamo[500]w=0;
54 hangul.jamo[500]h=0;
55
56 vardef hangul.jamo.empty(expr vow,ixf,oxf) =
57   % do nothing
58 enddef;
59
60
61
```

---

### Sios/Cieuc/Chieuch Family

```
62 % SIOS/CIEUC/CHIEUCH FAMILY
63
64 % this defines eighteen jamo that are closely related
65 % "bars" = 0, 1, or 2, number of horizontal strokes to add to sios
```

```

66 % 0 = sios, 1 = cieuc, 2 = chieuch
67 % "shove" = -1, 0, or 1, direction to shift top junction
68 % -1 = ceongchieum (left), 0 = (centre), 1 = chiteum (right)
69 % "isalt" = boolean, use "alternate" form
70
71 vardef hangul.jamo.sjc(expr bars,shove,isalt)(expr vow,ixf,oxf) =
72   tsu_xform(hxf_inout(if bars=2: 7 else: 5 fi,ixf,oxf))(
73     begingroup
74       push_pbox_toexpand("jamo.sjc");
75       save x,y;
76       numeric x[],y[];
77
78       if bars=2:
79         push_stroke((320,790)..(510,790)..(680,790+10*mincho),
80           (1.5,1.5)-(1.5,1.5)-(1.5,1.5));
81         set_boserif(0,0,5);
82         set_boserif(0,2,6);
83
84         z7=(180,600);
85         z8=(530,y7);
86         z9=(820,y7+20*mincho);
87       else:
88         z7=(270,740);
89         z8=(530,y7);
90         z9=(730,y7+20*mincho);
91       fi;
92
93       if bars>0:
94         push_stroke(z7..z8..z9,(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
95         set_boserif(0,0,5);
96         if (not isalt) and not (shove=-1):
97           set_boserif(0,2,6);
98         fi;
99       fi;
100
101       if shove=0:
102         z1=(530,if bars>0: y7-30+10*bars else: 720 fi);
103         if isalt:
104           z3=mincho[(170,140),(120,140)];
105           z2=(390-20*mincho,((390-y3)/(720-y3))*(y1-y3)+y3);
106         else:
107           z3=mincho[(200,50),(120,20)];
108           z2=(400-20*mincho,((340-y3)/(720-y3))*(y1-y3)+y3);
109         fi;
110       elseif shove=1:
111         z1=(780,if bars>0: y7-30+30*bars else: 720 fi);
112         if isalt:
113           z3=mincho[(130,140),(80,140)];

```

```

114     z2=(540-20*mincho,((390-y3)/(720-y3))*(y1-y3)+y3);
115     else:
116         z3=mincho[(160,50),(80,20)];
117         z2=(550-20*mincho,((340-y3)/(720-y3))*(y1-y3)+y3);
118     fi;
119 elseif shove=-1:
120     z1=(320,if bars>0: y7-30+10*bars else: 720 fi);
121     if isalt:
122         z3=mincho[(140,210),(90,210)];
123         z2=(260-20*mincho,((430-y3)/(720-y3))*(y1-y3)+y3);
124     else:
125         z3=mincho[(200,50),(120,20)];
126         z2=(280-20*mincho,((340-y3)/(720-y3))*(y1-y3)+y3);
127     fi;
128 fi;
129
130 push_stroke(z1..tension 1.2..z2..z3,(1,6,1,6)-(1,5,1,5)-(1,1));
131 if bars=0:
132     set_boserif(0,0,8);
133 fi;
134
135 z4=point 0.25 of get_strokep(0);
136 if shove=0:
137     if isalt:
138         z6=mincho[(740,180),(710,220)];
139     else:
140         z6=(810,70);
141     fi;
142     z5=(620+20*mincho,((360-y6)/(720-y6))*(y1-y6)+y6);
143 elseif shove=1:
144     if isalt:
145         z6=mincho[(940,180),(910,220)];
146         z5=(770+20*mincho,((390-y6)/(720-y6))*(y1-y6)+y6);
147     else:
148         z6=(810,70);
149         z5=(750+20*mincho,((360-y6)/(720-y6))*(y1-y6)+y6);
150     fi;
151 elseif shove=-1:
152     if isalt:
153         z6=mincho[(870,80),(840,130)];
154         z5=(520+20*mincho,((360-y6)/(720-y6))*(y1-y6)+y6);
155     else:
156         z6=(850,70);
157         z5=(520+20*mincho,((330-y6)/(720-y6))*(y1-y6)+y6);
158     fi;
159 fi;
160
161 push_stroke(z4..tension 1.2..z5..z6,

```

```

162      (1,1)-(1.3,1.3)-(1.7,1.7));
163
164      if bars=2:
165          set_bosize(-2,89);
166          set_bosize(-1,89);
167          set_bosize(0,89);
168          fi;
169          expand_pbox;
170      endgroup);
171 enddef;
172
173 _____
174

```

## Kiyeok

```

175 % KIYEOK
176
177 % 100 lead G
178 hangul.jamo[100]code="jamo.maybealt_kiyeok";
179 hangul.jamo[100]h=5;
180 hangul.jamo[100]w=3;
181 hangul.jamo[100]lb=450;
182 hangul.jamo[100]rb=800;
183 hangul.jamo[100]ub=820;
184 hangul.jamo[100]db=300;
185
186 % 101 lead GG
187 hangul.jamo[101]code="combine.lr(100,100)";
188 hangul.jamo[101]w=5;
189
190 % 501 tail G
191 hangul.jamo[501]code="jamo.kiyeok";
192 hangul.jamo[501]lb=450;
193 hangul.jamo[501]rb=800;
194 hangul.jamo[501]ub=820;
195 hangul.jamo[501]db=400;
196
197 % 502 tail GG
198 hangul.jamo[502]code="combine.lr(501,501)";
199 hangul.jamo[502]w=5;
200
201 vardef hangul.jamo.kiyeok(expr vow,ixf,oxf) =
202     tsu_xform(ixf)(
203         push_pbox_toexpand("jamo.kiyeok");
204         push_stroke((190+70*mincho,680)-(800,680+20*mincho)..tension 1.2..
205             (800-20*mincho,420)..(800-100*mincho,70),
206             (1.5,1.5)-(1.6,1.6)-(1.5,1.5)-(1.1,1.1));

```

```

207     set_boserif(0,0,5);
208     set_boserif(0,1,4);
209     set_botip(0,1,1);
210     expand_pbox);
211 enddef;
212
213 % 200 lead alt-G
214 hangul.jamo[200]code="jamo.alt_kiyeok";
215 hangul.jamo[200]h=5;
216 hangul.jamo[200]w=3;
217 hangul.jamo[200]lb=450;
218 hangul.jamo[200]rb=800;
219 hangul.jamo[200]ub=710;
220 hangul.jamo[200]db=300;
221
222 vardef hangul.jamo.alt_kiyeok(expr vow,ixf,oxf) =
223     tsu_xform(ixf)(
224         push_pbox_toexpand("jamo.alt_kiyeok");
225         push_stroke((190+80*mincho,680)-(840-20*mincho,680+20*mincho)..
226             tension 1.2..(560,360)..(40,50),
227             (1.5,1.5)-(1.6,1.6)-(1.4,1.4)-(1,1));
228         set_boserif(0,0,5);
229         set_boserif(0,1,4);
230         set_botip(0,1,0);
231         expand_pbox);
232 enddef;
233
234 vardef hangul.jamo.maybealt_kiyeok(expr vow,ixf,oxf) =
235     if unknown vow:
236         hangul.jamo.kiyeok(vow,ixf,oxf);
237     elseif hangul.jamo[vow]invokes_alternate:
238         hangul.jamo.alt_kiyeok(vow,ixf,oxf);
239     else:
240         hangul.jamo.kiyeok(vow,ixf,oxf);
241     fi;
242 enddef;
243
244 _____
245

```

## Nieun

```

246 % NIEUN
247
248 % 102 lead N
249 hangul.jamo[102]code="jamo.maybealt_nieun";
250 hangul.jamo[102]w=2.5;
251 hangul.jamo[102]lb=190;

```

```

252 hangul.jamo[102]rb=700;
253 hangul.jamo[102]ub=400;
254 hangul.jamo[102]db=140;
255
256 % 202 lead alt-N
257 hangul.jamo[202]code="jamo.alt_nieun";
258 hangul.jamo[202]w=2.5;
259 hangul.jamo[202]lb=190;
260 hangul.jamo[202]rb=700;
261 hangul.jamo[202]ub=400;
262 hangul.jamo[202]db=140;
263
264 % 504 tail N
265 hangul.jamo[504]code="jamo.nieun";
266 hangul.jamo[504]lb=190;
267 hangul.jamo[504]rb=700;
268 hangul.jamo[504]ub=400;
269 hangul.jamo[504]db=140;
270
271 % 604 tail alt-N
272 hangul.jamo[604]code="jamo.alt_nieun";
273 hangul.jamo[604]lb=190;
274 hangul.jamo[604]rb=700;
275 hangul.jamo[604]ub=400;
276 hangul.jamo[604]db=140;
277
278 vardef hangul.jamo.nieun_inside =
279   push_stroke(interpath(mincho,
280     (190,680)–(190,240)–(190,140)–(310,140)–(770,140),
281     (190,680)–(190,240){down}..(220,160)..{right}(310,140)–(770,140)),
282     (1.6,1.6)–(1.5,1.5)–(1.5,1.5)–(1.6,1.6)–(1.5,1.5));
283   set_boserif(0,0,8);
284   set_boserif(0,4,6);
285   set_botip(0,2,1);
286 enddef;
287
288 vardef hangul.jamo.nieun(expr vow,ixf,oxf) =
289   tsu_xform(ixf)(
290     push_pbox_toexpand("jamo.nieun");
291     hangul.jamo.nieun_inside;
292     expand_pbox);
293 enddef;
294
295 vardef hangul.jamo.alt_nieun_inside =
296   push_stroke(interpath(mincho,
297     (190,680)–(190,340)–(190,140)–(310,140)–(800,140),
298     (190,680)–(190,340){down}..(220,160)..{right}(310,140)..
299     (520,160)..(810,260)),

```



```

300     (1.6,1.6)-(1.5,1.5)-(1.5,1.5)-(1.6,1.6)-(1.4,1.4)-(1.1,1.1));
301     set_boserif(0,0,8);
302     set_botip(0,2,1);
303 enddef;
304
305 vardef hangul.jamo.alt_nieun(expr vow,ixf,oxf) =
306     tsu_xform(hxf_inout(1,ixf,oxf))(
307         push_pbox_toexpand("jamo.alt_nieun");
308         hangul.jamo.alt_nieun_inside;
309         expand_pbox);
310 enddef;
311
312 vardef hangul.jamo.maybealt_nieun(expr vow,ixf,oxf) =
313     if unknown vow:
314         hangul.jamo.nieun(vow,ixf,oxf);
315     elseif hangul.jamo[vow]invokes_alterate:
316         hangul.jamo.alt_nieun(vow,ixf,oxf);
317     else:
318         hangul.jamo.nieun(vow,ixf,oxf);
319     fi;
320 enddef;
321
322 _____
323

```

## Tikeut

```

324 % TIKEUT
325
326 % 103 lead D
327 hangul.jamo[103]code="jamo.maybealt_tikeut";
328 hangul.jamo[103]lb=190;
329 hangul.jamo[103]rb=500;
330 hangul.jamo[103]ub=850;
331 hangul.jamo[103]db=140;
332
333 % 104 lead DD
334 hangul.jamo[104]code="combine.lr(203,103)";
335
336 % 203 lead alt-D
337 hangul.jamo[203]code="jamo.alt_tikeut";
338 hangul.jamo[203]lb=190;
339 hangul.jamo[203]rb=500;
340 hangul.jamo[203]ub=850;
341 hangul.jamo[203]db=140;
342
343 % 507 tail D
344 hangul.jamo[507]code="jamo.tikeut";

```

```

345 hangul.jamo[507]lb=190;
346 hangul.jamo[507]rb=500;
347 hangul.jamo[507]ub=850;
348 hangul.jamo[507]db=140;
349
350 % 607 tail alt-D
351 hangul.jamo[607]code="jamo.alt_tikeut";
352 hangul.jamo[607]lb=190;
353 hangul.jamo[607]rb=500;
354 hangul.jamo[607]ub=850;
355 hangul.jamo[607]db=140;
356
357 vardef hangul.jamo.tikeut_inside(expr ixf) =
358   push_stroke((120+40*mincho,700+(15/yypart ixf)*mincho)..
359     (500,700)..(760,700+10*mincho),
360     (1.5,1.5)-(1.4,1.4)-(1.4,1.4));
361   set_boserif(0,2,6);
362 enddef;
363
364 vardef hangul.jamo.tikeut(expr vow,ixf,oxf) =
365   tsu_xform(ixf)(
366     push_pbox_toexpand("jamo.tikeut");
367     hangul.jamo.tikeut_inside(ixf);
368     hangul.jamo.nieun_inside;
369     expand_pbox);
370 enddef;
371
372 vardef hangul.jamo.alt_tikeut_inside(expr ixf) =
373   push_stroke((120+40*mincho,700+(15/yypart ixf)*mincho)..
374     (520,700)..(810,700+10*mincho),
375     (1.5,1.5)-(1.4,1.4)-(1.4,1.4));
376 enddef;
377
378 vardef hangul.jamo.alt_tikeut(expr vow,ixf,oxf) =
379   tsu_xform(hxf_inout(1,ixf,oxf))(
380     push_pbox_toexpand("jamo.alt_tikeut");
381     hangul.jamo.alt_tikeut_inside(ixf);
382     hangul.jamo.alt_nieun_inside;
383     expand_pbox);
384 enddef;
385
386 vardef hangul.jamo.maybealt_tikeut(expr vow,ixf,oxf) =
387   if unknown vow:
388     hangul.jamo.tikeut(vow,ixf,oxf);
389   elseif hangul.jamo[vow]invokes_alternate:
390     hangul.jamo.alt_tikeut(vow,ixf,oxf);
391   else:
392     hangul.jamo.tikeut(vow,ixf,oxf);

```

393 fi;  
394 enddef;  
395  
396 \_\_\_\_\_  
397

## Rieul

```
398 % RIEUL
399
400 % 105 lead R
401 hangul.jamo[105]code="jamo.maybealt_rieul";
402 hangul.jamo[105]lb=160;
403 hangul.jamo[105]rb=780;
404 hangul.jamo[105]ub=830;
405 hangul.jamo[105]db=50;
406
407 % 508 tail L
408 hangul.jamo[508]code="jamo.rieul";
409 hangul.jamo[508]lb=160;
410 hangul.jamo[508]rb=780;
411 hangul.jamo[508]ub=830;
412 hangul.jamo[508]db=50;
413
414 % 608 tail alt-L
415 hangul.jamo[608]code="jamo.alt_rieul";
416 hangul.jamo[608]lb=160;
417 hangul.jamo[608]rb=780;
418 hangul.jamo[608]ub=830;
419 hangul.jamo[608]db=50;
420
421 vardef hangul.jamo.rieul(expr vow,ixf,oxf) =
422   hangul.jamo.kiyeok(whatever,hxf((50,780),(850,340)) transformed ixf,oxf);
423   hangul.jamo.tikeut(vow,hxf((80,500),(930,0)) transformed ixf,oxf);
424   replace_strokep(-1)(subpath (0,0.14-0.22*mincho+
425     xpart (oldp intersectiontimes
426       ((xpart point infinity of get_strokep(-2),-50)-
427         (xpart point infinity of get_strokep(-2),850)))) of oldp);
428 enddef;
429
430 % 205 lead alt-R
431 hangul.jamo[205]code="jamo.alt_rieul";
432 hangul.jamo[205]lb=160;
433 hangul.jamo[205]rb=780;
434 hangul.jamo[205]ub=830;
435 hangul.jamo[205]db=50;
436
437 vardef hangul.jamo.alt_rieul(expr vow,ixf,oxf) =
```

```

438 hangul.jamo.kiyeok(whatever,hxf((50,780),(850,340)) transformed ixf,oxf);
439 hangul.jamo.alt_tikeut(vow,hxf((80,500),(930,0)) transformed ixf,oxf);
440 replace_strokep(-1)(subpath (0,0,14-0.22*mincho+
441   xpart (oldp intersectiontimes
442   ((xpart point infinity of get_strokep(-2),-50)-
443   (xpart point infinity of get_strokep(-2),850)))) of oldp);
444 enddef;
445
446 vardef hangul.jamo.maybealt_rieul(expr vow,ixf,oxf) =
447   if unknown vow:
448     hangul.jamo.rieul(vow,ixf,oxf);
449   elseif hangul.jamo[vow]invokes_alternate:
450     hangul.jamo.alt_rieul(vow,ixf,oxf);
451   else:
452     hangul.jamo.rieul(vow,ixf,oxf);
453   fi;
454 enddef;
455
456 -----
457

```

## Mieum

```

458 % MIEUM
459
460 % 106 lead M
461 hangul.jamo[106]code="jamo.mieum";
462 hangul.jamo[106]lb=170;
463 hangul.jamo[106]rb=790;
464 hangul.jamo[106]ub=760;
465 hangul.jamo[106]db=150;
466
467 % 516 tail M
468 hangul.jamo[516]code="jamo.mieum";
469 hangul.jamo[516]lb=170;
470 hangul.jamo[516]rb=790;
471 hangul.jamo[516]ub=760;
472 hangul.jamo[516]db=150;
473
474 vardef hangul.jamo.mieum(expr vow,ixf,oxf) =
475   tsu_xform(ixf)(
476     push_pbox_toexpand("jamo.mieum");
477     push_stroke((120+40*mincho,700+(15/yy part ixf)*mincho)..
478       (500,700)..{curl 1}(780,700+10*mincho){curl 1}..tension 1.2..
479       (780-10*mincho,420)..(780-30*mincho,150),
480       (1.5,1.5)-(1.4,1.4)-(1.5,1.5)-(1.4,1.4)-(1.1,1.1));
481     set_boserif(0,2,4);
482     set_botip(0,2,1);

```

```

483     push_stroke((190,680)-(190,110),(1,6,1,6)-(1,5,1,5));
484     set_boserif(0,0,8);
485     push_stroke((190,170)..(0.5[(190,170),(820,160)]+(0,-15)*mincho)..
486         (820,160),
487         (1,5,1,5)-(1,5,1,5));
488     expand_pbox);
489 enddef;
490
491 _____
492

```

## Pieup

```

493 % PIEUP
494
495 % 107 lead B
496 hangul.jamo[107]code="jamo.pieup";
497 hangul.jamo[107]lb=200;
498 hangul.jamo[107]rb=800;
499 hangul.jamo[107]h=5;
500
501 % 108 lead BB
502 hangul.jamo[108]code="combine.lr(207,107)";
503 hangul.jamo[108]h=5;
504 hangul.jamo[108]w=5;
505
506 % 517 tail B
507 hangul.jamo[517]code="jamo.pieup";
508 hangul.jamo[517]lb=200;
509 hangul.jamo[517]rb=800;
510 hangul.jamo[517]h=5;
511
512 vardef hangul.jamo.pieup(expr vow,ixf,oxf) =
513     tsu_xform(ixf)(
514         push_pbox_toexpand("jamo.pieup");
515         push_stroke((260,700-40*mincho)-(260,110),(1,6,1,6)-(1,5,1,5));
516         set_boserif(0,0,8);
517         push_stroke((260,450-10*mincho)-(740,450),(1,5,1,5)-(1,5,1,5));
518         push_stroke((740,700)-(740,120),(1,6,1,6)-(1,5,1,5));
519         set_boserif(0,0,8);
520         push_stroke((260,170-10*mincho)-(740,170),(1,5,1,5)-(1,5,1,5));
521         expand_pbox);
522 enddef;
523
524 % 207 lead alt-B
525 hangul.jamo[207]code="jamo.alt__pieup";
526
527 vardef hangul.jamo.alt__pieup(expr vow,ixf,oxf) =

```

```
528 hangul.jamo.pieup(vow,  
529 hxf((50,850-100*mincho),(950,-50+30*mincho)) transformed ixf,oxf);  
530 enddef;  
531  
532 _____  
533
```

## Sios

```
534 % SIOS  
535  
536 % 109 lead S  
537 hangul.jamo[109]code="jamo.sjc(0,0,false)";  
538 hangul.jamo[109]lb=250;  
539 hangul.jamo[109]rb=700;  
540  
541 % 110 lead SS  
542 hangul.jamo[110]code="combine.lr(209,109)";  
543  
544 % 519 tail S  
545 hangul.jamo[519]code="jamo.sjc(0,0,false)";  
546 hangul.jamo[519]lb=250;  
547 hangul.jamo[519]rb=700;  
548  
549 % 520 tail SS  
550 hangul.jamo[520]code="combine.lr(619,519)";  
551  
552 % 209 lead alt-S  
553 hangul.jamo[209]code="jamo.sjc(0,0,true)";  
554 hangul.jamo[209]lb=250;  
555 hangul.jamo[209]rb=700;  
556  
557 % 619 tail alt-S  
558 hangul.jamo[619]code="jamo.sjc(0,0,true)";  
559 hangul.jamo[619]lb=250;  
560 hangul.jamo[619]rb=700;  
561  
562 _____  
563
```

## Ieung

```
564 % IEUNG  
565  
566 % 111 lead empty (=NG)  
567 hangul.jamo[111]code="jamo.ieung";  
568 hangul.jamo[111]h=5;  
569  
570 % 521 tail NG
```

```

571 hangul.jamo[521]code="jamo.ieung";
572 hangul.jamo[521]h=3;
573
574 vardef hangul.jamo.ieung(expr vow,ixf,oxf) =
575   tsu_xform(ixf)(
576     push_pbox_toexpand("jamo.ieung");
577     if unknown vow:
578       push_stroke((530,750)..(200,375)..(500,0)..(800,375)..cycle,
579         (1.6,1.6)-(1.5,1.5)-(1.4,1.4)-(1.5,1.5)-cycle);
580     elseif (vow>=313) and (vow<=319):
581       push_stroke((530,750)..(200,425)..(500,100)..(800,425)..cycle,
582         (1.6,1.6)-(1.5,1.5)-(1.4,1.4)-(1.5,1.5)-cycle);
583     else:
584       push_stroke((530,750)..(200,375)..(500,0)..(800,375)..cycle,
585         (1.6,1.6)-(1.5,1.5)-(1.4,1.4)-(1.5,1.5)-cycle);
586     fi;
587     set_boserif(0,0,6);
588     expand_pbox);
589 replace_strokep(0)(insert_nodes(oldp)(0.5,1.5,2.5,3.5));
590 replace_strokeq(0)(insert_nodes(oldq)(0.5,1.5,2.5,3.5));
591 begingroup
592   save i,j,t;
593   numeric i,j,t;
594   i:=-1;
595   forever:
596     j:=find_whatever(otstroke,i);
597     exitif j=0;
598     j:=xpart (get_strokep(i) intersectiontimes get_strokep(0));
599     if (j>0) and (j<1):
600       replace_strokep(i)(subpath (j,infinity) of oldp);
601     fi;
602     if known tsu_do_serif[8]:
603       if 0<ypart (get_strokep(0) intersectiontimes
604         ((-80,80)+point 0 of get_strokep(i))-get_strokep(i)):
605         set_boserif(i,0,whatever);
606       fi;
607     fi;
608     i:=i-1;
609   endfor;
610 endgroup;
611 enddef;
612
613
614

```

---

Cieuc

615 % CIEUC

616  
617 % 112 lead J  
618 hangul.jamo[112]code="jamo.sjc(1,0,false)";  
619 hangul.jamo[112]lb=250;  
620 hangul.jamo[112]rb=700;  
621  
622 % 113 lead JJ  
623 hangul.jamo[113]code="combine.lr(212,112)";  
624  
625 % 522 tail J  
626 hangul.jamo[522]code="jamo.sjc(1,0,false)";  
627 hangul.jamo[522]lb=250;  
628 hangul.jamo[522]rb=700;  
629  
630 % 212 lead alt-J  
631 hangul.jamo[212]code="jamo.sjc(1,0,true)";  
632 hangul.jamo[212]lb=250;  
633 hangul.jamo[212]rb=700;  
634  
635 

---

  
636

## Chieuch

637 % CHIEUCH  
638  
639 % 114 lead C  
640 hangul.jamo[114]code="jamo.sjc(2,0,false)";  
641 hangul.jamo[114]lb=250;  
642 hangul.jamo[114]rb=700;  
643  
644 % 214 lead alt-C  
645 hangul.jamo[214]code="jamo.sjc(2,0,true)";  
646 hangul.jamo[214]lb=250;  
647 hangul.jamo[214]rb=700;  
648  
649 % 523 tail C  
650 hangul.jamo[523]code="jamo.sjc(2,0,false)";  
651 hangul.jamo[523]lb=250;  
652 hangul.jamo[523]rb=700;  
653  
654 

---

  
655

## Khieukh

656 % KHIEUKH  
657  
658 % 115 lead K



```

659 hangul.jamo[115]code="jamo.maybealt_khieukh";
660 hangul.jamo[115]h=5;
661 hangul.jamo[115]w=3;
662 hangul.jamo[115]lb=450;
663 hangul.jamo[115]rb=800;
664 hangul.jamo[115]ub=820;
665 hangul.jamo[115]db=300;
666
667 % 524 tail K
668 hangul.jamo[524]code="jamo.khieukh";
669 hangul.jamo[524]h=5;
670 hangul.jamo[524]w=3;
671 hangul.jamo[524]lb=450;
672 hangul.jamo[524]rb=800;
673 hangul.jamo[524]ub=820;
674 hangul.jamo[524]db=300;
675
676 vardef hangul.jamo.khieukh(expr vow,ixf,oxf) =
677   tsu_xform(ixf)(
678     push_pbox_toexpand("jamo.khieukh");
679     push_stroke((190+70*mincho,680)-(800,680+20*mincho)..tension 1.2..
680       (800-20*mincho,420)..(800-100*mincho,70),
681       (1.5,1.5)-(1.6,1.6)-(1.5,1.5)-(1.1,1.1));
682     set_boserif(0,0,5);
683     set_boserif(0,1,4);
684     set_botip(0,1,1);
685     push_stroke((210+70*mincho,380)-(point 1.9 of get_strokep(0)),
686       (1.6,1.6)-(1.5,1.5));
687     set_boserif(0,0,5);
688     expand_pbox);
689 enddef;
690
691 % 215 lead alt-K
692 hangul.jamo[215]code="jamo.alt_khieukh";
693 hangul.jamo[215]h=5;
694 hangul.jamo[215]w=3;
695 hangul.jamo[215]lb=450;
696 hangul.jamo[215]rb=800;
697 hangul.jamo[215]ub=710;
698 hangul.jamo[215]db=300;
699
700 vardef hangul.jamo.alt_khieukh(expr vow,ixf,oxf) =
701   tsu_xform(ixf)(
702     push_pbox_toexpand("jamo.alt_khieukh");
703     push_stroke((190+80*mincho,680)-(840-20*mincho,680+20*mincho)..
704       tension 1.2..(560,360)..(40,50),
705       (1.5,1.5)-(1.6,1.6)-(1.4,1.4)-(1,1));
706     set_boserif(0,0,5);

```

```

707     set_boserif(0,1,4);
708     set_botip(0,1,0);
709     push_stroke((210+80*mincho,400)-(point 1.6 of get_strokep(0)),
710         (1.5,1.5)-(1.4,1.4));
711     set_boserif(0,0,5);
712     expand_pbox);
713 enddef;
714
715 vardef hangul.jamo.maybealt_khieukh(expr vow,ixf,oxf) =
716     if unknown vow:
717         hangul.jamo.khieukh(vow,ixf,oxf);
718     elseif hangul.jamo[vow]invokes_alternate:
719         hangul.jamo.alt_khieukh(vow,ixf,oxf);
720     else:
721         hangul.jamo.khieukh(vow,ixf,oxf);
722     fi;
723 enddef;
724
725 

---


726

```

## Thieuth

```

727 % THIEUTH
728
729 % 116 lead T
730 hangul.jamo[116]code="jamo.maybealt_thieuth";
731 hangul.jamo[116]lb=190;
732 hangul.jamo[116]rb=500;
733 hangul.jamo[116]ub=850;
734 hangul.jamo[116]db=140;
735
736 % 525 tail T
737 hangul.jamo[525]code="jamo.thieuth";
738 hangul.jamo[525]lb=190;
739 hangul.jamo[525]rb=500;
740 hangul.jamo[525]ub=850;
741 hangul.jamo[525]db=140;
742
743 vardef hangul.jamo.thieuth(expr vow,ixf,oxf) =
744     tsu_xform(ixf)(
745         push_pbox_toexpand("jamo.thieuth");
746         hangul.jamo.tikeut_inside(ixf);
747         push_stroke((190,420)..(500,430-20*mincho)..(770,440),
748             (1.6,1.6)-(1.5,1.5)-(1.6,1.6));
749         set_boserif(0,2,6);
750         hangul.jamo.nieun_inside;
751         expand_pbox);

```

```

752 enddef;
753
754 % 216 lead alt-T
755 hangul.jamo[216]code="jamo.alt_thieuth";
756 hangul.jamo[216]lb=190;
757 hangul.jamo[216]rb=500;
758 hangul.jamo[216]ub=850;
759 hangul.jamo[216]db=140;
760
761 vardef hangul.jamo.alt_thieuth(expr vow,ixf,oxf) =
762   tsu_xform(hxf_inout(1,ixf,oxf))(
763     push_pbox_toexpand("jamo.alt_thieuth");
764     hangul.jamo.alt_tikeut_inside(ixf);
765     push_stroke((190,420)..(500,430-20*mincho)..(790,450),
766       (1.6,1.6)-(1.5,1.5)-(1.6,1.6));
767     hangul.jamo.alt_nieun_inside;
768     expand_pbox);
769 enddef;
770
771 vardef hangul.jamo.maybealt_thieuth(expr vow,ixf,oxf) =
772   if unknown vow:
773     hangul.jamo.thieuth(vow,ixf,oxf);
774   elseif hangul.jamo[vow]invokes_alternate:
775     hangul.jamo.alt_thieuth(vow,ixf,oxf);
776   else:
777     hangul.jamo.thieuth(vow,ixf,oxf);
778   fi;
779 enddef;
780
781 _____
782

```

## Phieuph

```

783 % PHIEUPH
784
785 % 117 lead P
786 hangul.jamo[117]code="jamo.phieuph";
787 hangul.jamo[117]w=5;
788 hangul.jamo[117]h=5;
789 hangul.jamo[117]lb=320;
790 hangul.jamo[117]rb=690;
791 hangul.jamo[117]ub=800;
792 hangul.jamo[117]db=160;
793
794 % 526 tail P
795 hangul.jamo[526]code="jamo.phieuph";
796 hangul.jamo[526]w=5;

```

```

797 hangul.jamo[526]h=5;
798 hangul.jamo[526]lb=320;
799 hangul.jamo[526]rb=690;
800 hangul.jamo[526]ub=800;
801 hangul.jamo[526]db=160;
802
803 vardef hangul.jamo.phieuph(expr vow,ixf,oxf) =
804   tsu_xform(ixf)(
805     push_pbox_toexpand("jamo.phieuph");
806     push_stroke((180,660)-(820,660),
807       (1.6,1.6)-(1.6,1.6));
808     set_boserif(0,0,5);
809     set_boserif(0,1,6);
810     push_stroke((250,530)..tension 1.2..(350,350)..(380,280),
811       (1.1,1.1)-(1.3,1.3)-(1.6,1.6));
812     push_stroke((730,550)..tension 1.2..(660,350)..(600,240),
813       (1.5,1.5)-(1.4,1.4)-(1.2,1.2));
814     push_stroke((120,160)-(880,160),
815       (1.6,1.6)-(1.6,1.6));
816     set_boserif(0,0,5);
817     set_boserif(0,1,6);
818     expand_pbox);
819 begingroup
820   save i,j,t;
821   numeric i,j,t;
822   i:=-4;
823   forever:
824     j:=find_whatever(otstroke,i);
825     exitif j=0;
826     j:=xpart (get_strokep(i) intersectiontimes get_strokep(0));
827     if (j>0) and (j<1):
828       replace_strokep(i)(subpath (j,infinity) of oldp);
829     fi;
830     if known tsu_do_serif[8]:
831       if 0<ypart (get_strokep(0) intersectiontimes
832         ((-50,50)+point 0 of get_strokep(i))-get_strokep(i)):
833         set_boserif(i,0,whatever);
834       fi;
835     fi;
836     i:=i-1;
837   endfor;
838 endgroup;
839 enddef;
840
841
842

```

---

## Hieuh

```
843 % HIEUH
844
845 % 118 lead H
846 hangul.jamo[118]code="jamo.hieuh";
847 hangul.jamo[118]h=5;
848 hangul.jamo[118]lb=200;
849 hangul.jamo[118]rb=800;
850
851 % 527 tail H
852 hangul.jamo[527]code="jamo.hieuh";
853 hangul.jamo[527]lb=200;
854 hangul.jamo[527]rb=800;
855
856 % 627 tail right-scooped H
857 hangul.jamo[627]code="combine.lr(500,527)";
858 hangul.jamo[627]lb=200;
859 hangul.jamo[627]rb=800;
860
861 vardef hangul.jamo.hieuh(expr vow,ixf,oxf) =
862   tsu_xform(hxf_inout(7,ixf,oxf))(
863     push_pbox_toexpand("jamo.hieuh");
864     push_stroke((320,790)..(510,790)..(680,790+10*mincho),
865       (1.5,1.5)-(1.5,1.5)-(1.5,1.5));
866     set_boserif(0,0,5);
867     set_boserif(0,2,6);
868     push_stroke((180,600)..(530,600)..(820,600+20*mincho),
869       (1.6,1.6)-(1.6,1.6)-(1.6,1.6));
870     set_boserif(0,0,5);
871     set_boserif(0,2,6);
872     push_stroke((520,500)..(300,250)..(500,0)..(700,250)..cycle,
873       (1.6,1.6)-(1.5,1.5)-(1.4,1.4)-(1.5,1.5)-cycle);
874     set_boserif(0,0,6);
875     set_bosize(-2,89);
876     set_bosize(-1,89);
877     set_bosize(0,89);
878     expand_pbox);
879   replace_strokep(0)(insert_nodes(oldp)(0.5,1.5,2.5,3.5));
880   replace_strokeq(0)(insert_nodes(oldq)(0.5,1.5,2.5,3.5));
881   begingroup
882     save i,j,t;
883     numeric i,j,t;
884     i:=-3;
885     forever:
886       j:=find_whatever(otstroke,i);
887       exitif j=0;
888       j:=xpart (get_strokep(i) intersectiontimes get_strokeq(0));
```

```

889     if (j>0) and (j<1):
890         replace_strokep(i)(subpath (j,infinity) of oldp);
891     fi;
892     if known tsu_do_serif[8]:
893         if 0<ypart (get_strokep(0) intersectiontimes
894             (((-80,80)+point 0 of get_strokep(i))-get_strokep(i)));
895             set_boserif(i,0,whatever);
896         fi;
897     fi;
898     i:=i-1;
899 endfor;
900 endgroup;
901 enddef;
902
903 _____
904

```

## Mixed Tails

```

905 % MIXED TAILS
906
907 % 503 tail GS
908 hangul.jamo[503]code="combine.lr(501,519)";
909
910 % 505 tail NJ
911 hangul.jamo[505]code="combine.lr(504,522)";
912
913 % 506 tail NH
914 hangul.jamo[506]code="combine.lr(504,527)";
915
916 % 509 tail LG
917 hangul.jamo[509]code="combine.lr(508,501)";
918
919 % 510 tail LM
920 hangul.jamo[510]code="combine.lr(508,516)";
921
922 % 511 tail LB
923 hangul.jamo[511]code="combine.lr(508,517)";
924
925 % 512 tail LS
926 hangul.jamo[512]code="combine.lr(508,519)";
927
928 % 513 tail LT
929 hangul.jamo[513]code="combine.lr(508,525)";
930
931 % 514 tail LP
932 hangul.jamo[514]code="combine.lr(508,526)";
933

```

```

934 % 515 tail LH
935 hangul.jamo[515]code="combine.lr(508,527)";
936 hangul.jamo[515]h=5;
937
938 % 518 tail BS
939 hangul.jamo[518]code="combine.lr(517,519)";
940 hangul.jamo[518]h=5;
941
942 _____
943

```

## Vowels

```

944 % VOWELS
945
946 % 300 vowel A
947 hangul.jamo[300]code="jamo.a";
948 hangul.jamo[300]w=2.5;
949 hangul.jamo[300]h=0;
950 hangul.jamo[300]lb=400;
951 hangul.jamo[300]rb=700;
952 hangul.jamo[300]ub=850;
953 hangul.jamo[300]db=100;
954
955 % 301 vowel AE
956 hangul.jamo[301]code="combine.lr(300,320)";
957 hangul.jamo[301]w=3;
958 hangul.jamo[301]h=0;
959 hangul.jamo[301]lb=340;
960 hangul.jamo[301]db=100;
961
962 vardef hangul.jamo.a(expr vow,ixf,oxf) =
963   tsu_xform(hxf_inout(11,ixf,oxf))(
964     push_pbox_toexpand("jamo.a");
965     push_stroke((440,820)-(440-10*mincho,0),(1.6,1.6)-(1.4,1.4));
966     set_boserif(0,0,8);
967     push_stroke((450,310)-(930-120*mincho,310+10*mincho),
968       (1.5,1.5)-(1.7,1.7));
969     set_boserif(0,1,6);
970     expand_pbox);
971 enddef;
972
973 % 302 vowel YA
974 hangul.jamo[302]code="jamo.ya";
975 hangul.jamo[302]w=3;
976 hangul.jamo[302]h=0;
977 hangul.jamo[302]lb=400;
978 hangul.jamo[302]rb=700;

```

```

979 hangul.jamo[302]ub=850;
980 hangul.jamo[302]db=100;
981
982 % 303 vowel YAE
983 hangul.jamo[303]code="combine.lr(302,320)";
984 hangul.jamo[303]w=3.5;
985 hangul.jamo[303]h=0;
986 hangul.jamo[303]lb=340;
987 hangul.jamo[303]db=100;
988
989 vardef hangul.jamo.ya(expr vow,ixf,oxf) =
990     tsu_xform(hxf_inout(11,ixf,oxf))(
991         push_pbox_toexpand("jamo.ya");
992         push_stroke((440,820)-(440-10*mincho,0),(1.6,1.6)-(1.4,1.4));
993         set_boserif(0,0,8);
994         push_stroke((450,520)-(930-120*mincho,520+10*mincho),
995             (1.5,1.5)-(1.7,1.7));
996         set_boserif(0,1,6);
997         push_stroke((450,270)-(930-120*mincho,270+10*mincho),
998             (1.5,1.5)-(1.7,1.7));
999         set_boserif(0,1,6);
1000     expand_pbox);
1001 enddef;
1002
1003 % 304 vowel EO
1004 hangul.jamo[304]code="jamo.eo";
1005 hangul.jamo[304]w=2.5;
1006 hangul.jamo[304]h=0;
1007 hangul.jamo[304]lb=300;
1008 hangul.jamo[304]rb=640;
1009 hangul.jamo[304]ub=850;
1010 hangul.jamo[304]db=100;
1011
1012 % 305 vowel E
1013 hangul.jamo[305]code="combine.lr(304,320)";
1014 hangul.jamo[305]w=3;
1015 hangul.jamo[305]h=0;
1016 hangul.jamo[305]lb=300;
1017 hangul.jamo[305]db=100;
1018
1019 vardef hangul.jamo.eo(expr vow,ixf,oxf) =
1020     tsu_xform(hxf_inout(11,ixf,oxf))(
1021         push_pbox_toexpand("jamo.eo");
1022         push_stroke((560,820)-(560-10*mincho,0),(1.6,1.6)-(1.4,1.4));
1023         set_boserif(0,0,8);
1024         if unknown vow: vow=304; fi;
1025         if vow=435:
1026             push_stroke((70+100*mincho,110)-(550,110+10*mincho),

```



```

1027     (1,7,1,7)-(1,5,1,5));
1028 elseif vow>=308:
1029     push_stroke((70+100*mincho,210)-(550,210+10*mincho),
1030     (1,7,1,7)-(1,5,1,5));
1031 else:
1032     push_stroke((70+100*mincho,310)-(550,310+10*mincho),
1033     (1,7,1,7)-(1,5,1,5));
1034 fi;
1035 set_boserif(0,0,5);
1036 expand_pbox);
1037 enddef;
1038
1039 % 306 vowel YEO
1040 hangul.jamo[306]code="jamo.yeo";
1041 hangul.jamo[306]w=2.5;
1042 hangul.jamo[306]h=0;
1043 hangul.jamo[306]lb=300;
1044 hangul.jamo[306]rb=640;
1045 hangul.jamo[306]ub=850;
1046 hangul.jamo[306]db=100;
1047
1048 % 307 vowel YE
1049 hangul.jamo[307]code="combine.lr(306,320)";
1050 hangul.jamo[307]w=3;
1051 hangul.jamo[307]h=0;
1052 hangul.jamo[307]lb=300;
1053 hangul.jamo[307]db=100;
1054
1055 vardef hangul.jamo.yeo(expr vow,ixf,oxf) =
1056     tsu_xform(hxf_inout(11,ixf,oxf))(
1057     push_pbox_toexpand("jamo.yeo");
1058     push_stroke((560,820)-(560-10*mincho,0),(1,6,1,6)-(1,4,1,4));
1059     set_boserif(0,0,8);
1060     push_stroke((70+100*mincho,520)-(550,520+10*mincho),
1061     (1,7,1,7)-(1,5,1,5));
1062     set_boserif(0,0,5);
1063     if unknown vow: vow=304; fi;
1064     if vow>=308:
1065         push_stroke((70+100*mincho,190)-(550,190+10*mincho),
1066         (1,7,1,7)-(1,5,1,5));
1067         if vow<=420:
1068             set_boserif(0,0,5);
1069         fi;
1070     else:
1071         push_stroke((70+100*mincho,270)-(550,270+10*mincho),
1072         (1,7,1,7)-(1,5,1,5));
1073         set_boserif(0,0,5);
1074     fi;

```

```

1075     expand_pbox);
1076 enddef;
1077
1078 % 308 vowel O
1079 hangul.jamo[308]code="jamo.o";
1080 hangul.jamo[308]w=0;
1081 hangul.jamo[308]h=3;
1082 hangul.jamo[308]invokes_alternate=false;
1083
1084 % 309 vowel WA
1085 hangul.jamo[309]code="combine.lr(308,300)";
1086 hangul.jamo[309]w=2;
1087 hangul.jamo[309]invokes_alternate=false;
1088
1089 % 310 vowel WAE
1090 hangul.jamo[310]code="combine.lr(308,301)";
1091 hangul.jamo[310]w=3;
1092 hangul.jamo[310]invokes_alternate=false;
1093
1094 % 311 vowel OE
1095 hangul.jamo[311]code="combine.lr(308,320)";
1096 hangul.jamo[311]w=1;
1097 hangul.jamo[311]invokes_alternate=false;
1098
1099 vardef hangul.jamo.o(expr vow,ixf,oxf) =
1100     begingroup
1101         save myxf;
1102         transform myxf[];
1103         myxf1=hxf_inout(13,ixf,oxf);
1104         hgbox_ll transformed myxf3=
1105             0.1[hgbox_ll transformed myxf1,
1106                 hgbox_ll transformed oxf];
1107         hgbox_ur transformed myxf3=
1108             (0.4*mincho)[hgbox_ur transformed myxf1,
1109                 hgbox_ur transformed oxf];
1110         if unknown vow: vow=308; fi;
1111         if vow=308:
1112             hgbox_lr transformed myxf3=
1113                 0.3[hgbox_lr transformed myxf1,
1114                     hgbox_lr transformed oxf];
1115             myxf2=hxf((50,750),(950,-50)) transformed myxf3;
1116         else:
1117             (hgbox_ur transformed myxf3)-(hgbox_lr transformed myxf3)=
1118                 (hgbox_ur transformed myxf1)-(hgbox_lr transformed myxf1);
1119             myxf2=myxf3;
1120         fi;
1121         tsu_xform(myxf2)(
1122             push_pbox_toexpand("jamo.o");

```

```

1123     push_stroke((540,900-100*mincho)-(540,350-10*mincho),
1124         (1.6,1.6)-(1.5,1.5));
1125     set_boserif(0,0,8);
1126     push_stroke((120,350)..(500,350-10*mincho)..(920,350),
1127         (1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1128     set_boserif(0,0,5);
1129     expand_pbox);
1130 endgroup;
1131 enddef;
1132
1133 % 312 vowel YO
1134 hangul.jamo[312]code="jamo.yo";
1135 hangul.jamo[312]w=0;
1136 hangul.jamo[312]h=3;
1137 hangul.jamo[312]invokes_alternate=false;
1138
1139 % "yo" isn't normally used in compounds, but let's keep the code for that
1140 vardef hangul.jamo.yo(expr vow,ixf,oxf) =
1141     begingroup
1142         save myxf;
1143         transform myxf[];
1144         myxf1=hexf_inout(13,ixf,oxf);
1145         hgbox_ll transformed myxf3=
1146             0.1[hgbox_ll transformed myxf1,
1147                 hgbox_ll transformed oxf];
1148         hgbox_ur transformed myxf3=
1149             (0.3*mincho)[hgbox_ur transformed myxf1,
1150                 hgbox_ur transformed oxf];
1151         if unknown vow: vow=312; fi;
1152         if vow=312:
1153             hgbox_lr transformed myxf3=
1154                 0.2[hgbox_lr transformed myxf1,
1155                     hgbox_lr transformed oxf];
1156             myxf2=hexf((50,750),(950,-50)) transformed myxf3;
1157         else:
1158             (hgbox_ur transformed myxf3)-(hgbox_lr transformed myxf3)=
1159                 (hgbox_ur transformed myxf1)-(hgbox_lr transformed myxf1);
1160             myxf2=myxf3;
1161         fi;
1162         tsu_xform(myxf2)(
1163             push_pbox_toexpand("jamo.yo");
1164             push_stroke((420,900-110*mincho)-(420,350-10*mincho),
1165                 (1.6,1.6)-(1.5,1.5));
1166             set_boserif(0,0,8);
1167             push_stroke((660,900-90*mincho)-(660,350-10*mincho),
1168                 (1.6,1.6)-(1.5,1.5));
1169             set_boserif(0,0,8);
1170             push_stroke((120,350)..(390,350-10*mincho)..

```

```

1171         (690,350-10*mincho)..(920,350),
1172         (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1173     set_boserif(0,0,5);
1174     expand_pbox);
1175 endgroup;
1176 enddef;
1177
1178 % 313 vowel U
1179 hangul.jamo[313]code="jamo.u";
1180 hangul.jamo[313]w=0;
1181 hangul.jamo[313]h=3;
1182 hangul.jamo[313]db=150;
1183 hangul.jamo[313]invokes_alternate=false;
1184
1185 % 314 vowel WEO
1186 hangul.jamo[314]code="combine.lr(313,304)";
1187 hangul.jamo[314]w=2;
1188 hangul.jamo[314]db=150;
1189 hangul.jamo[314]invokes_alternate=false;
1190
1191 % 315 vowel WE
1192 hangul.jamo[315]code="combine.lr(313,305)";
1193 hangul.jamo[315]w=3;
1194 hangul.jamo[315]db=150;
1195 hangul.jamo[315]invokes_alternate=false;
1196
1197 % 316 vowel WI
1198 hangul.jamo[316]code="combine.lr(313,320)";
1199 hangul.jamo[316]w=1;
1200 hangul.jamo[316]db=150;
1201 hangul.jamo[316]invokes_alternate=false;
1202
1203 vardef hangul.jamo.u(expr vow,ixf,oxf) =
1204     begingroup
1205         save myxf;
1206         transform myxf[];
1207         myxf1=hxf_inout(13,ixf,oxf);
1208         hgbox_ll transformed myxf3=
1209             0.2[hgbox_ll transformed myxf1,
1210                 hgbox_ll transformed oxf];
1211         hgbox_ur transformed myxf3=
1212             0.2[hgbox_ur transformed myxf1,
1213                 hgbox_ur transformed oxf];
1214         if unknown vow: vow=313; fi;
1215         if vow=313:
1216             hgbox_lr transformed myxf3=
1217                 0.1[hgbox_lr transformed myxf1,
1218                     hgbox_lr transformed oxf];

```

```

1219     myxf2=hxf((50,600),(950,-50)) transformed myxf3;
1220 else:
1221     (hgbox_ur transformed myxf3)-(hgbox_lr transformed myxf3)=
1222     (hgbox_ur transformed myxf1)-(hgbox_lr transformed myxf1);
1223     myxf2=myxf3;
1224 fi;
1225 tsu_xform(myxf2)(
1226     push_pbox_toexpand("jamo.o");
1227     push_stroke((540,700)-(540,50+100*mincho),
1228     (1.6,1.6)-(1.5,1.5));
1229     set_boserif(0,1,7);
1230     push_stroke((120,700)-(920,700),(1.6,1.6)-(1.6,1.6));
1231     set_boserif(0,0,5);
1232     expand_pbox);
1233 endgroup;
1234 endif;
1235
1236 % 317 vowel YU
1237 hangul.jamo[317]code="jamo.yu";
1238 hangul.jamo[317]w=0;
1239 hangul.jamo[317]h=3;
1240 hangul.jamo[317]db=150;
1241 hangul.jamo[317]invokes_alterate=false;
1242
1243 vardef hangul.jamo.yu(expr vow,ixf,oxf) =
1244     begingroup
1245     save myxf;
1246     transform myxf[];
1247     myxf1=hxf_inout(13,ixf,oxf);
1248     hgbox_ll transformed myxf3=
1249     0.2[hgbox_ll transformed myxf1,
1250     hgbox_ll transformed oxf];
1251     hgbox_ur transformed myxf3=
1252     0.2[hgbox_ur transformed myxf1,
1253     hgbox_ur transformed oxf];
1254     if unknown vow: vow=317; fi;
1255     if vow=317:
1256     hgbox_lr transformed myxf3=
1257     0.1[hgbox_lr transformed myxf1,
1258     hgbox_lr transformed oxf];
1259     myxf2=hxf((50,600),(950,-50)) transformed myxf3;
1260 else:
1261     (hgbox_ur transformed myxf3)-(hgbox_lr transformed myxf3)=
1262     (hgbox_ur transformed myxf1)-(hgbox_lr transformed myxf1);
1263     myxf2=myxf3;
1264 fi;
1265 tsu_xform(myxf2)(
1266     push_pbox_toexpand("jamo.yu");

```

```

1267     push_stroke((120,700)-(930,700),(1.6,1.6)-(1.6,1.6));
1268     set_boserif(0,0,5);
1269     push_stroke((400,700)-(400,50+100*mincho),
1270         (1.6,1.6)-(1.5,1.5));
1271     set_boserif(0,1,7);
1272     push_stroke((640,700)-(640,50+100*mincho),
1273         (1.6,1.6)-(1.5,1.5));
1274     set_boserif(0,1,7);
1275     expand_pbox);
1276 endgroup;
1277 endif;
1278
1279 % 318 vowel EU
1280 hangul.jamo[318]code="jamo.eu";
1281 hangul.jamo[318]w=0;
1282 hangul.jamo[318]h=3;
1283 hangul.jamo[318]invokes__alternate=false;
1284
1285 % 319 vowel YI
1286 hangul.jamo[319]code="combine.lr(318,320)";
1287 hangul.jamo[319]w=2;
1288 hangul.jamo[319]h=3;
1289 hangul.jamo[319]invokes__alternate=false;
1290
1291 vardef hangul.jamo.eu(expr vow,ixf,oxf) =
1292     begingroup
1293         save myxf;
1294         transform myxf[];
1295         myxf1=hxf_inout(13,ixf,oxf);
1296         hgbox_ll transformed myxf3=
1297             0.1[hgbox_ll transformed myxf1,
1298                 hgbox_ll transformed oxf];
1299         hgbox_ur transformed myxf3=
1300             0.1[hgbox_ur transformed myxf1,
1301                 hgbox_ur transformed oxf];
1302         if unknown vow: vow=318; fi;
1303         if vow=318:
1304             hgbox_lr transformed myxf3=
1305                 0.1[hgbox_lr transformed myxf1,
1306                     hgbox_lr transformed oxf];
1307             myxf2=hxf((50,600),(950,-50)) transformed myxf3;
1308         else:
1309             (hgbox_ur transformed myxf3)-(hgbox_lr transformed myxf3)=
1310                 (hgbox_ur transformed myxf1)-(hgbox_lr transformed myxf1);
1311             myxf2=myxf3;
1312         fi;
1313         tsu_xform(myxf2)(
1314             push_pbox_toexpand("jamo.eu");

```

```

1315     push_stroke((120,520)-(920,520),(1.6,1.6)-(1.6,1.6));
1316     set_boserif(0,0,5);
1317     expand_pbox);
1318 endgroup;
1319 enddef;
1320
1321 % 320 vowel I
1322 hangul.jamo[320]code="jamo.i";
1323 hangul.jamo[320]w=1.5;
1324 hangul.jamo[320]h=0;
1325 hangul.jamo[320]lb=490;
1326 hangul.jamo[320]rb=540;
1327 hangul.jamo[320]ub=850;
1328 hangul.jamo[320]db=-50;
1329 hangul.jamo[320]invokes_alterate=false;
1330
1331 vardef hangul.jamo.i(expr vow,ixf,oxf) =
1332     tsu_xform(hxf_inout(10,ixf,oxf))(
1333     push_pbox_toexpand("jamo.i");
1334     push_stroke((500,820)-(500,400)-(500-10*mincho,0),
1335     (1.6,1.6)-(1.5,1.5)-(1.4,1.4));
1336     set_boserif(0,0,8);
1337     expand_pbox);
1338 enddef;

```

# jamo-extra.mp

```
1 %
2 % Extra (not in Unicode syllable block) hangul jamo for Jieubsida
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(jamoextra);
32
33 _____
34
35 % special alternate vowel codes (used for non-syllable vowel jamo)
36 % 421 yo-ya
37 % 422 yo-yae
38 % 423 yo-i
39 % 424 yu-yeo
40 % 425 yu-ye
41 % 426 yu-i
42 % 427 araea-i
43 % 428 araea
44 % 429 o-eo
45 % 430 o-e
46 % 431 o-ye
47 % 432 yo-yeo
48 % 433 u-a
49 % 434 u-ae
50 % 435 u-eo-eu
51 % 436 u-ye
52 % 437 yu-a
53 % 438 yu-eo
54 % 439 yu-e
55 % 440 yi-u
56 % 441 i-araea
57 % 442 o-ya
58 % 443 o-yae
59
60 % 428 vowel ARAEA
61 hangul.jamo[428]code="jamo.araea";
62 hangul.jamo[428]w=0;
63 hangul.jamo[428]h=2;
64 hangul.jamo[428]invokes_alternate=false;
65
66 vardef hangul.jamo.araea(expr vow,ixf,oxf) =
67   begingroup
68     save tmpxf;
69     transform tmpxf;
70     if unknown vow: vow=428; fi;
```



```

71     tmpxf=hxf_inout(if vow=441: 1 else: 5 fi,ixf,oxf);
72     tsu_xform(tmpxf)(
73         push_pbox_toexpand("jamo.araea");
74         expand_pbox);
75     push_lcblob(fullcircle
76         scaled ((140+40*mincho)*sqrt(sqrt(xxpart tmpxf*yypart tmpxf)))
77         shifted ((if vow=441: 500 else: 540 fi,390) transformed tmpxf));
78     endgroup;
79 enddef;
80
81 _____
82

```

## Pansios

```

83 % PANSIOS
84
85 % 219 lead "letter that died out in the 16th century and nobody is sure
86 % how it was pronounced"
87 hangul.jamo[219]code="jamo.pansios";
88 hangul.jamo[219]lb=250;
89 hangul.jamo[219]rb=700;
90
91 % 628 tail LTDOIT16CANISHIWP
92 hangul.jamo[628]code="jamo.pansios";
93 hangul.jamo[628]lb=250;
94 hangul.jamo[628]rb=700;
95
96 vardef hangul.jamo.pansios(expr vow,ixf,oxf) =
97     tsu_xform(ixf)(
98         push_pbox_toexpand("jamo.pansios");
99         push_stroke((675,375+20*mincho)-(500,660+40*mincho)-
100             (150,90+10*mincho)-(850,90)-cycle,
101             (1.4,1.4)-(1.2,1.2)-(1.6,1.6)-(1.6,1.6)-cycle);
102         set_boserif(0,1,8);
103         set_botip(0,1,1);
104         set_botip(0,2,1);
105         set_botip(0,3,1);
106         expand_pbox);
107 enddef;
108
109 _____
110

```

## Yesieung

```

111 % YESIEUNG
112
113 % 220 lead NG (mnemonic: "yes, REALLY ieung, as opposed to 'ieung' which

```

```

114 % actually is 'empty' when in the lead")
115 hangul.jamo[220]code="jamo.yesieung";
116 hangul.jamo[220]h=5;
117
118 % 629 tail NG
119 hangul.jamo[629]code="jamo.yesieung";
120 hangul.jamo[629]h=5;
121
122 vardef hangul.jamo.yesieung(expr vow,ixf,oxf) =
123   tsu_xform(ixf)(
124     push_pbox_toexpand("jamo.yesieung");
125     push_stroke((500,750)-(500,660),(1.6,1.6)-(1.5,1.5));
126     set_boserif(0,0,8);
127     if unknown vow:
128       push_stroke((500,660)..(200,335)..(500,0)..(800,335)..cycle,
129         (1.6,1.6)-(1.5,1.5)-(1.4,1.4)-(1.5,1.5)-cycle);
130     elseif (vow>=313) and (vow<=319):
131       push_stroke((500,660)..(200,385)..(500,100)..(800,385)..cycle,
132         (1.6,1.6)-(1.5,1.5)-(1.4,1.4)-(1.5,1.5)-cycle);
133     else:
134       push_stroke((500,660)..(200,335)..(500,0)..(800,335)..cycle,
135         (1.6,1.6)-(1.5,1.5)-(1.4,1.4)-(1.5,1.5)-cycle);
136     fi;
137     expand_pbox);
138   replace_strokep(0)(insert_nodes(oldp)(0.5,1.5,2.5,3.5));
139   replace_strokeq(0)(insert_nodes(oldq)(0.5,1.5,2.5,3.5));
140   begingroup
141     save i,j,t;
142     numeric i,j,t;
143     i:=-2;
144     forever:
145       j:=find_whatever(otstroke,i);
146       exitif j=0;
147       j:=xpart (get_strokep(i) intersectiontimes get_strokep(0));
148       if (j>0) and (j<1):
149         replace_strokep(i)(subpath (j,infinity) of oldp);
150       fi;
151       if known tsu_do_serif[8]:
152         if 0<ypart (get_strokep(0) intersectiontimes
153           ((-80,80)+point 0 of get_strokep(i))-get_strokep(i)):
154           set_boserif(i,0,whatever);
155         fi;
156       fi;
157       i:=i-1;
158     endfor;
159   endgroup;
160 enddef;
161

```

## Yeorinhieuh

```

164 % YEORINHIEUH
165
166 % 221 lead ‘ (W’dia says medium-strength glottal stop)
167 hangul.jamo[221]code="jamo.yeorinhieuh";
168 hangul.jamo[221]h=5;
169 hangul.jamo[221]lb=200;
170 hangul.jamo[221]rb=800;
171
172 % 631 tail ‘
173 hangul.jamo[631]code="jamo.yeorinhieuh";
174 hangul.jamo[631]h=5;
175 hangul.jamo[631]lb=200;
176 hangul.jamo[631]rb=800;
177
178 vardef hangul.jamo.yeorinhieuh(expr vow,ixf,oxf) =
179   tsu_xform(hxf_inout(7,ixf,oxf))(
180     push_pbox_toexpand("jamo.yeorinhieuh");
181     push_stroke((180,780)..(530,780)..(820,780+20*mincho),
182       (1.6,1.6)–(1.6,1.6)–(1.6,1.6));
183     set_boserif(0,0,5);
184     set_boserif(0,2,6);
185     push_stroke((520,650)..(300,325)..(500,0)..(700,325)..cycle,
186       (1.6,1.6)–(1.5,1.5)–(1.4,1.4)–(1.5,1.5)–cycle);
187     set_boserif(0,0,6);
188     expand_pbox);
189   replace_strokep(0)(insert_nodes(oldp)(0.5,1.5,2.5,3.5));
190   replace_strokeq(0)(insert_nodes(oldq)(0.5,1.5,2.5,3.5));
191   begingroup
192     save i,j,t;
193     numeric i,j,t;
194     i:=-2;
195     forever:
196       j:=find_whatever(otstroke,i);
197       exitif j=0;
198       j:=xpart (get_strokep(i) intersectiontimes get_strokep(0));
199       if (j>0) and (j<1):
200         replace_strokep(i)(subpath (j,infinity) of oldp);
201       fi;
202       if known tsu_do_serif[8]:
203         if 0<ypart (get_strokep(0) intersectiontimes
204           ((-80,80)+point 0 of get_strokep(i)–get_strokep(i))):
205           set_boserif(i,0,whatever);
206       fi;

```

```
207     fi;
208     i:=i-1;
209     endfor;
210 endgroup;
211 enddef;
212
213
214
```

---

## Chitueum And Ceongchieum Variants

```
215 % CHITUEUM AND CEONGCHIEUM VARIANTS
216
217 % 222 lead right-shoved S
218 hangul.jamo[222]code="jamo.sjc(0,1,false)";
219 hangul.jamo[222]lb=250;
220 hangul.jamo[222]rb=700;
221
222 % 223 lead alt-right-shoved S
223 hangul.jamo[223]code="jamo.sjc(0,1,true)";
224 hangul.jamo[223]lb=250;
225 hangul.jamo[223]rb=700;
226
227 % 224 lead left-shoved S
228 hangul.jamo[224]code="jamo.sjc(0,-1,false)";
229 hangul.jamo[224]lb=250;
230 hangul.jamo[224]rb=700;
231
232 % 225 lead alt-left-shoved S
233 hangul.jamo[225]code="jamo.sjc(0,-1,true)";
234 hangul.jamo[225]lb=250;
235 hangul.jamo[225]rb=700;
236
237 % 226 lead right-shoved J
238 hangul.jamo[226]code="jamo.sjc(1,1,false)";
239 hangul.jamo[226]lb=250;
240 hangul.jamo[226]rb=700;
241
242 % 227 lead alt-right-shoved J
243 hangul.jamo[227]code="jamo.sjc(1,1,true)";
244 hangul.jamo[227]lb=250;
245 hangul.jamo[227]rb=700;
246
247 % 228 lead left-shoved J
248 hangul.jamo[228]code="jamo.sjc(1,-1,false)";
249 hangul.jamo[228]lb=250;
250 hangul.jamo[228]rb=700;
251
```

```
252 % 229 lead alt-left-shoved J
253 hangul.jamo[229]code="jamo.sjc(1,-1,true)";
254 hangul.jamo[229]lb=250;
255 hangul.jamo[229]rb=700;
256
257 

---


258
```

## Kapyeoun Variants

```
259 % KAPYEOUN VARIANTS
260
261 % 630 tail kapyeounpieup
262 hangul.jamo[630]code="combine.tb(517,521)";
263 hangul.jamo[630]h=6;
```

# jieub-bt.mp

```
1 %  
2 % Jieubsida Batang  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30
```

## Jieubsida Batang

```
31 % JIEUBSIDA BATANG  
32  
33 input tsuku-mi.mp;  
34  
35 stylename:="Batang";
```

# jieub-do.mp

```
1 %  
2 % Jieubsida Dodum  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30
```

## Jieubsida Dodum

```
31 % JIEUBSIDA DODUM  
32  
33 input tsuku-kg.mp;  
34  
35 stylename:="Dodum";
```

# jieub-sm.mp

```
1 %  
2 % Jieubsida Sun-Moon  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 % JIEUBSIDA Sun-Moon  
32  
33 input tsuku-bk.mp;  
34  
35 stylename:="Sun-Moon";
```



# hgpage.mp

```
1 %
2 % Generic Unicode page (precomposed hangul syllables) for Jieubsida
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(hgpage);
32
33 _____
34
35 beginfont
36
37 % AUTODEPS
38 input buildkanji.mp;
39 input hangul.mp;
40
41 % non-auto dep (accessed through code table)
42 input jamo-basic.mp;
43
44 string hexdigit[];
45
46 hexdigit[0]="0";hexdigit[1]="1";hexdigit[2]="2";hexdigit[3]="3";
47 hexdigit[4]="4";hexdigit[5]="5";hexdigit[6]="6";hexdigit[7]="7";
48 hexdigit[8]="8";hexdigit[9]="9";hexdigit[10]="A";hexdigit[11]="B";
49 hexdigit[12]="C";hexdigit[13]="D";hexdigit[14]="E";hexdigit[15]="F";
50
51 for i:=0 upto 255:
52   begintsuglyph("uni" & hgls_page
53     & hexdigit[floor(i/16)] & hexdigit[i mod 16],i);
54   message "uni" & hgls_page
55     & hexdigit[floor(i/16)] & hexdigit[i mod 16];
56   hangul.combine.syllable(100+hgls_lead,300+hgls_vowel,500+hgls_tail)
57     (300+hgls_vowel,identity,identity);
58   tsu_render;
59   endtsuglyph;
60   hgls_tail:=hgls_tail+1;
61   if hgls_tail>=28:
62     hgls_tail:=0;
63     hgls_vowel:=hgls_vowel+1;
64     if hgls_vowel>=21:
65       hgls_vowel:=0;
66       hgls_lead:=hgls_lead+1;
67       exitif hgls_lead>=19;
68   fi;
69 fi;
70 endfor;
```

71

72

---

73

74 **endfont;**

75

76

---

# jieub-11.mp

```
1 %
2 % Unicode page 11 (Hangul Jamo) for Jieubsida
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input hangul.mp;
37 input jamo-basic.mp;
38 input jamo-extra.mp;
39
40 

---

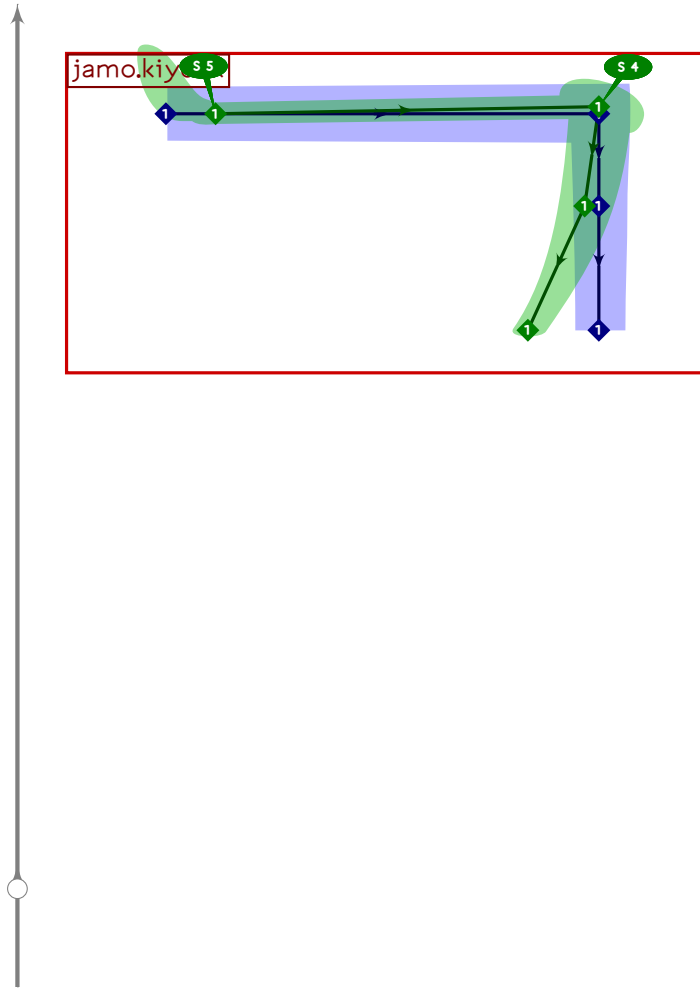

41
42 % This file covers the basic layout (layout 0): a lead, a vowel that may
43 % go both vertically and horizontally, and a non-empty tail. All jamo are
44 % defined for this layout. Other files (in private-use plane 15) define
45 % versions of some jamo for other layouts; the idea is that the jamo here
46 % are defaults, and an OpenType feature can substitute the others (or entire
47 % precomposed syllables) to improve the layout where applicable.
48
49 transform lixf,loxf,vixf,tvixf,voxf,tixf,toxf;
50
51 lixf=loxf=hxf((50,850),(700,525));
52 vixf=hxf((700,475),(950,250));
53 tvixf=hxf((700,535),(950,240));
54 voxf=hxf((50,850),(950,250));
55 tixf=hxf((100+20*mincho,275),(900-20*mincho,-50)) shifted (-1000,0);
56 toxf=hxf((50,275),(950,-50)) shifted (-1000,0);
57
58 

---


59
```

## Hangul Choseong (Lead) Jamo

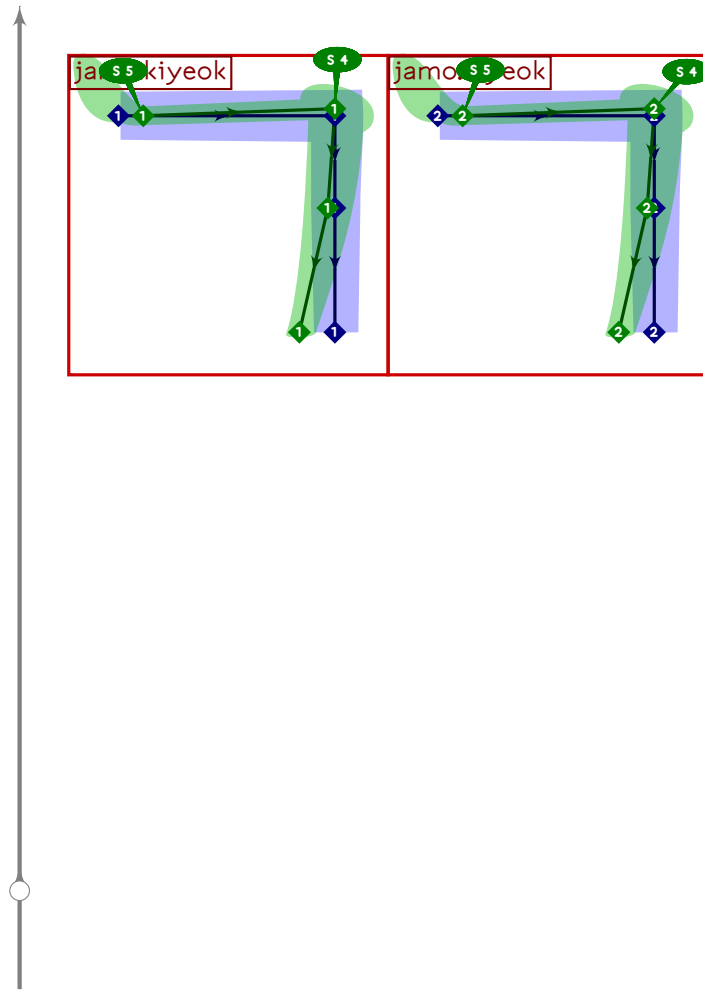
```
60 % HANGUL CHOSEONG (LEAD) JAMO
61
62 tsu_rescale_native_zero;
63
```



```

64 % hangul lead kiyook
65 begint Suglyph("uni1100",0);
66 hangul.jamo.kiyook(whatever,lixf,loxf);
67 tsu_render;
68 endtsuglyph;
69

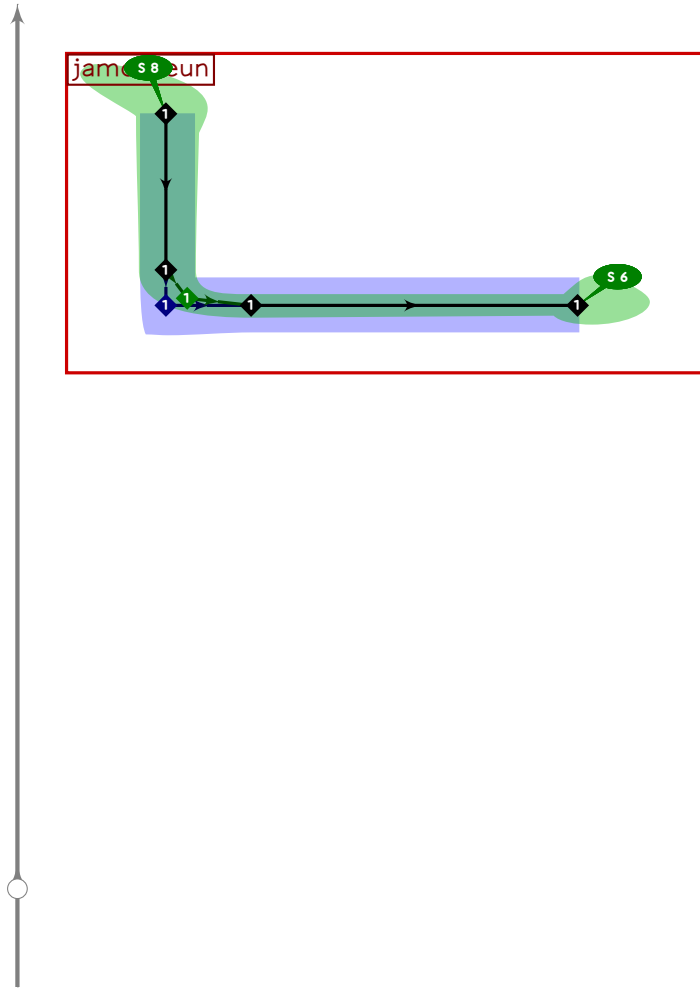
```



```

70 % hangul lead ssangkiyeok
71 begintsuglyph("uni1101",1);
72 hangul.combine.lr(100,100)(whatever,lixf,loxf);
73 tsu_render;
74 endsuglyph;
75

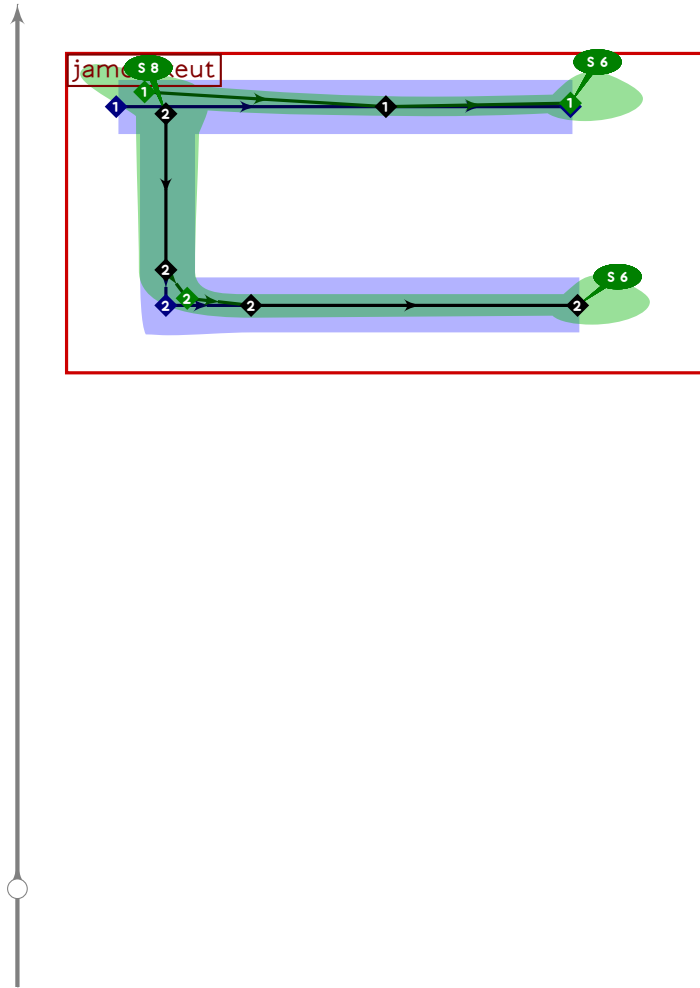
```



```

76 % hangul lead nieun
77 begint Suglyph("uni1102",2);
78 hangul.jamo.nieun(whatever,lixf,loxf);
79 tsu_render;
80 endtsuglyph;
81

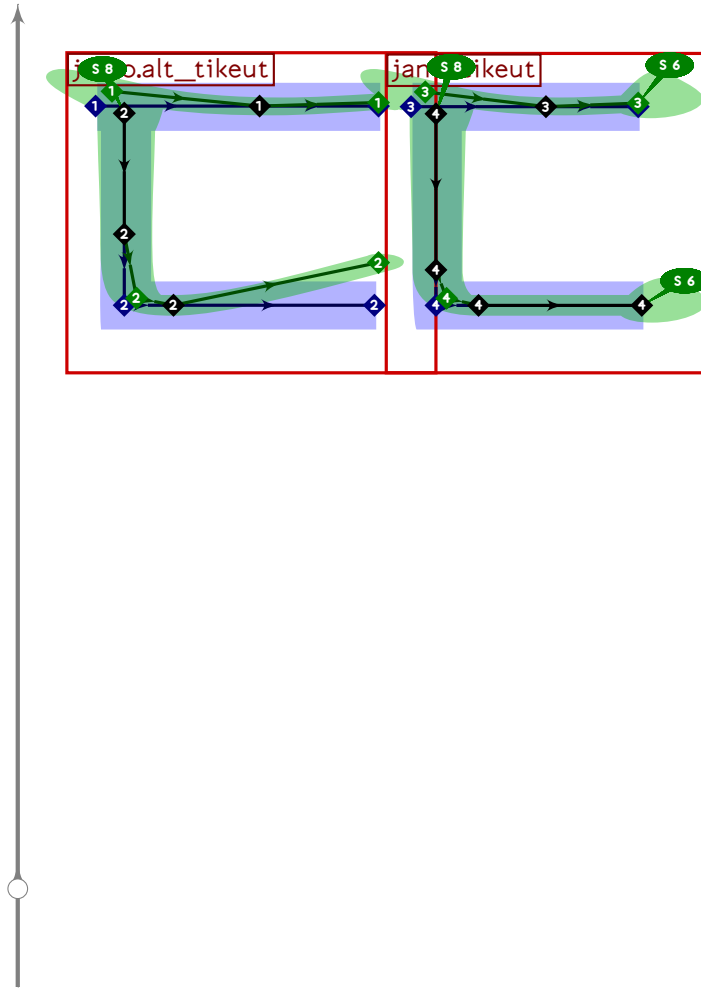
```



```

82 % hangul lead tikeut
83 begint Suglyph("uni1103",3);
84 hangul.jamo.tikeut(whatever,lixf,loxf);
85 tsu_render;
86 endtsuglyph;
87

```

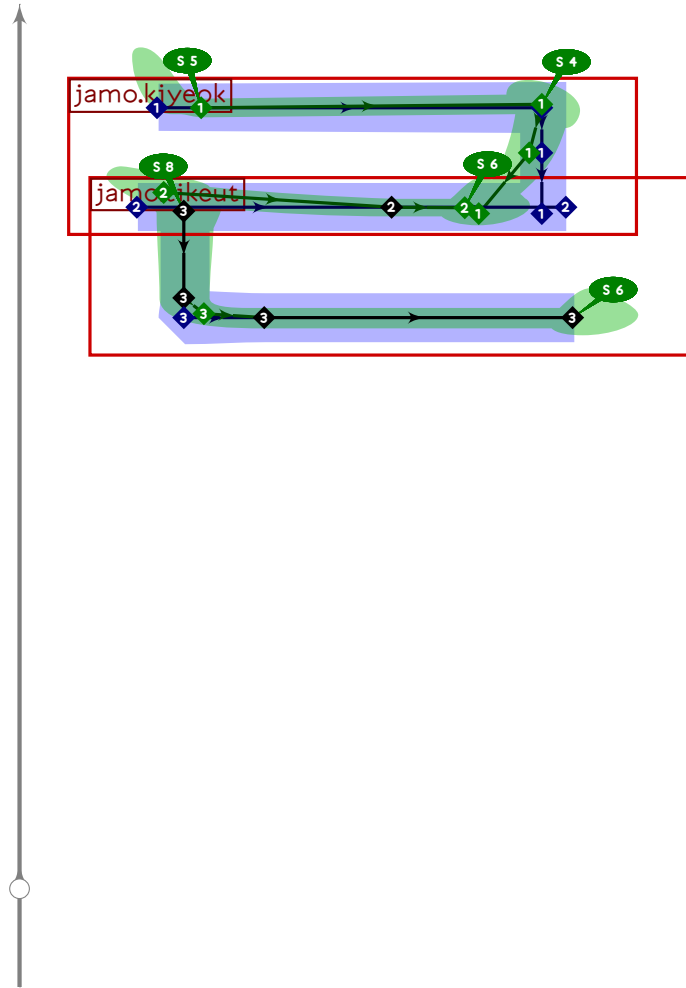


```

88 % hangul lead ssangtikeut
89 begintsuglyph("uni1104",4);
90 hangul.combine.lr(203,103)(whatever,lixf,loxf);
91 tsu_render;
92 endtsuglyph;
93

```

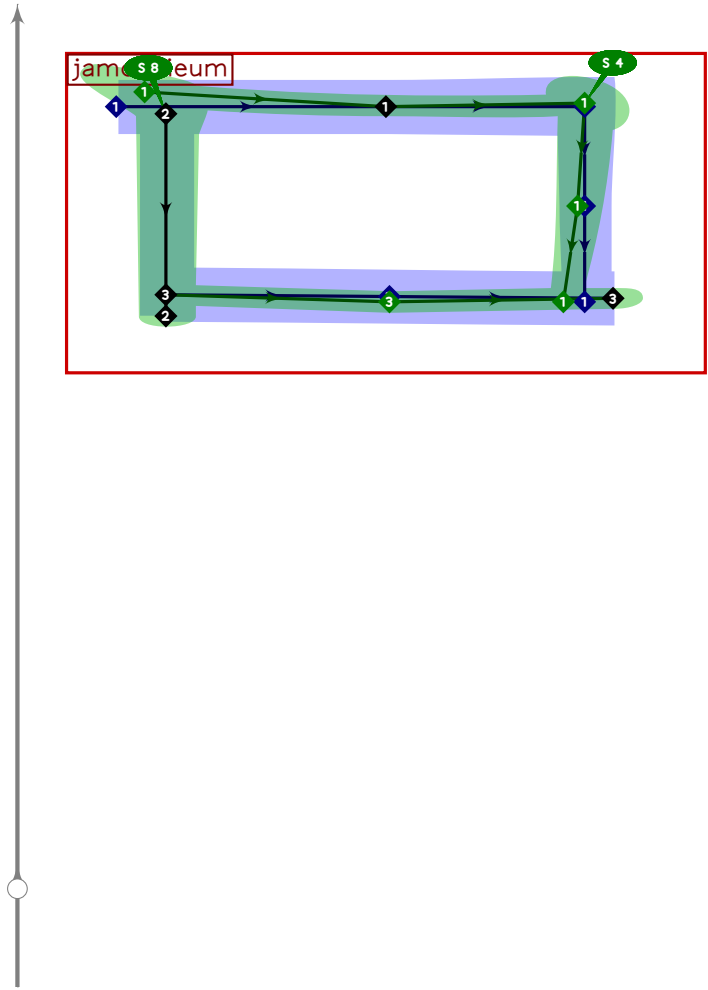




```

94 % hangul lead rieul
95 begint Suglyph("uni1105",5);
96 hangul.jamo.rieul(whatever,lixf,loxf);
97 tsu_render;
98 endtsuglyph;
99

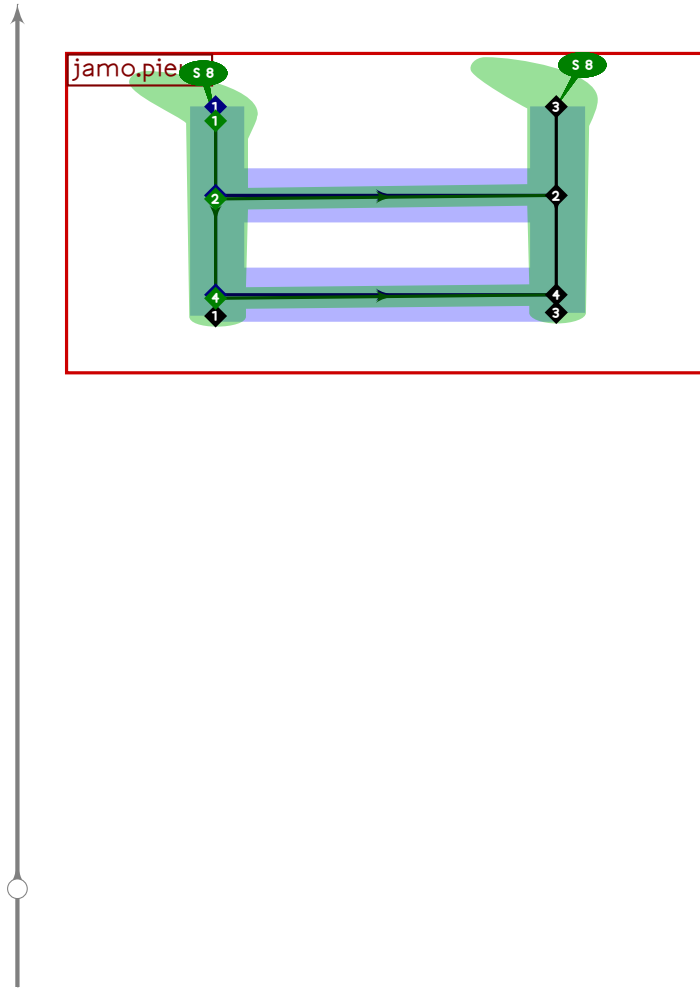
```



```

100 % hangul lead mieum
101 begintsuglyph("uni1106",6);
102 hangul.jamo.mieum(whatever,lixf,loxf);
103 tsu_render;
104 endsuglyph;
105

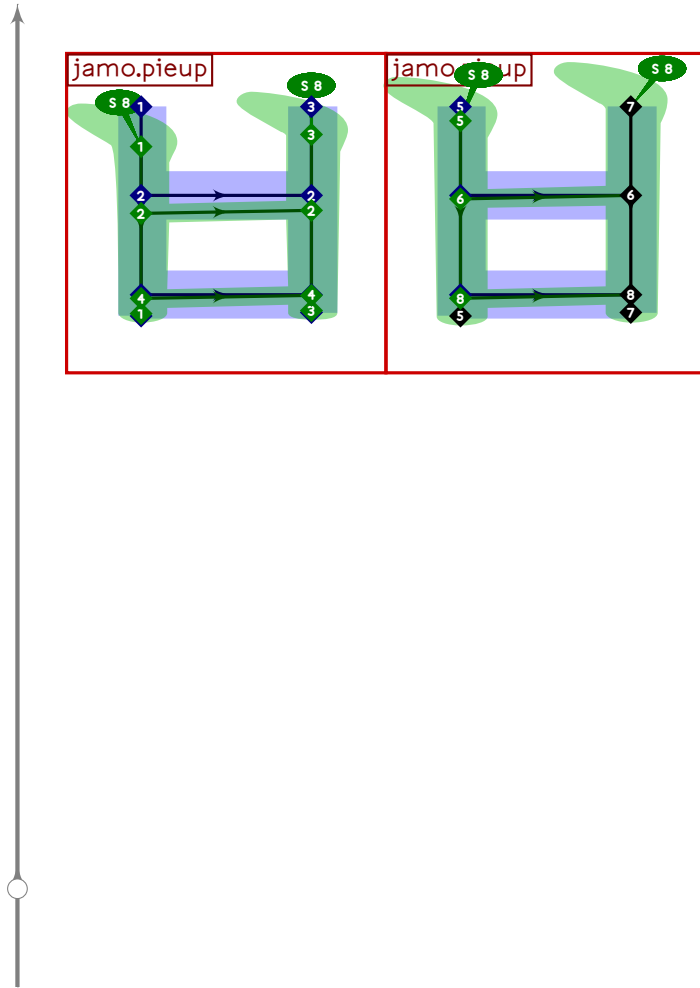
```



```

106 % hangul lead pieup
107 begintsuglyph("uni1107";7);
108 hangul.jamo.pieup(whatever,lixf,loxf);
109 tsu_render;
110 endsuglyph;
111

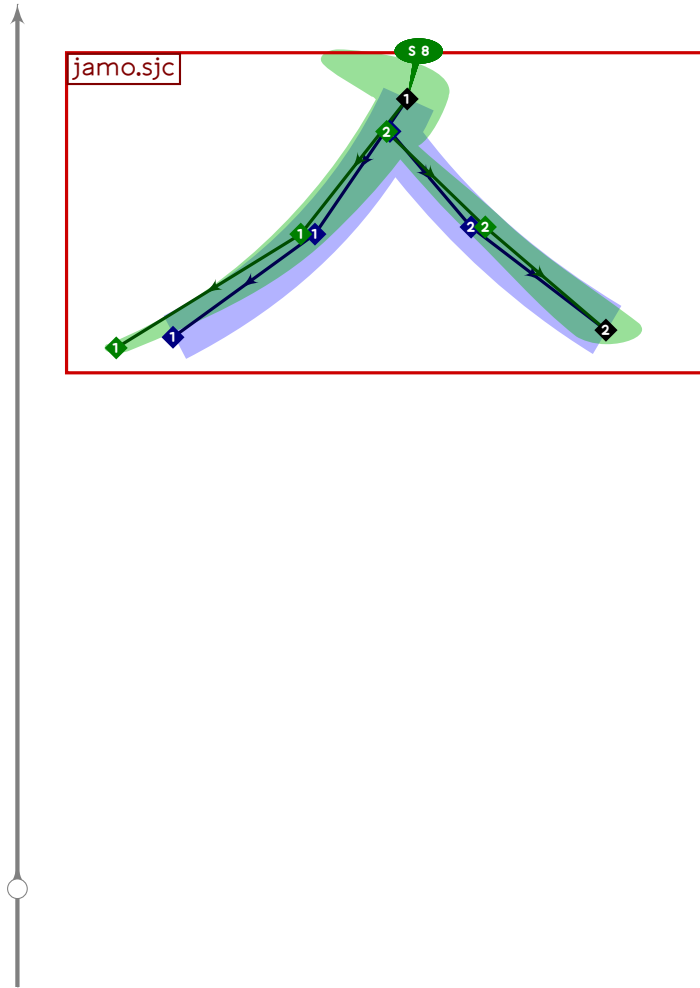
```



```

112 % hangul lead ssangpieup
113 begintsuglyph("uni1108",8);
114 hangul.combine.lr(207,107)(whatever,lixf,loxf);
115 tsu_render;
116 endtsuglyph;
117

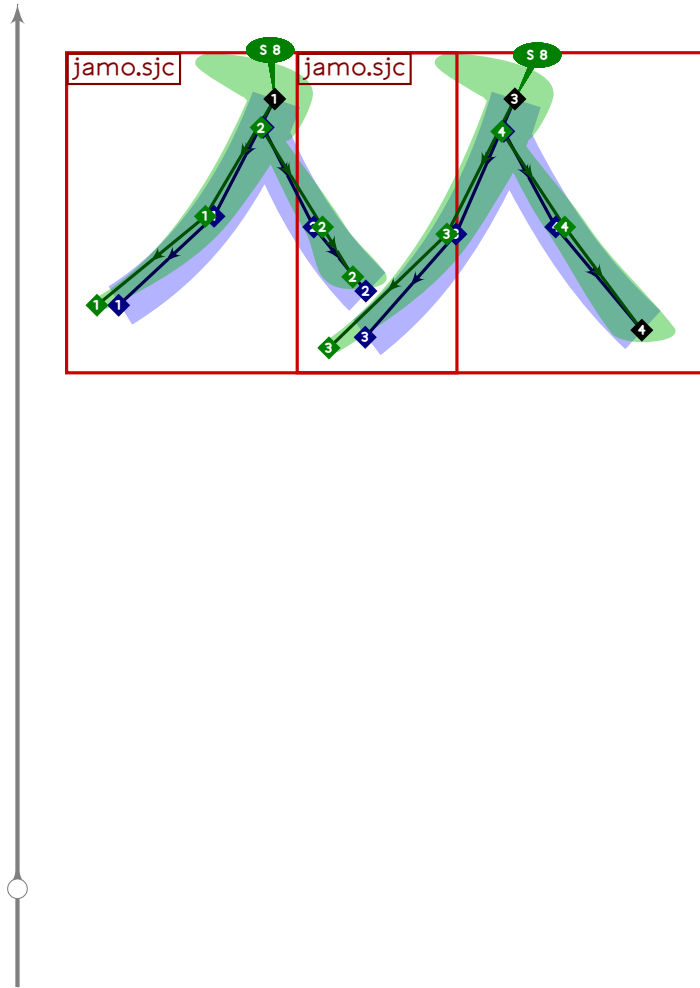
```



```

118 % hangul lead sios
119 begintsuglyph("uni1109";9);
120 hangul.jamo.sjc(0,0,false)(whatever,lixf,loxf);
121 tsu_render;
122 endtsuglyph;
123

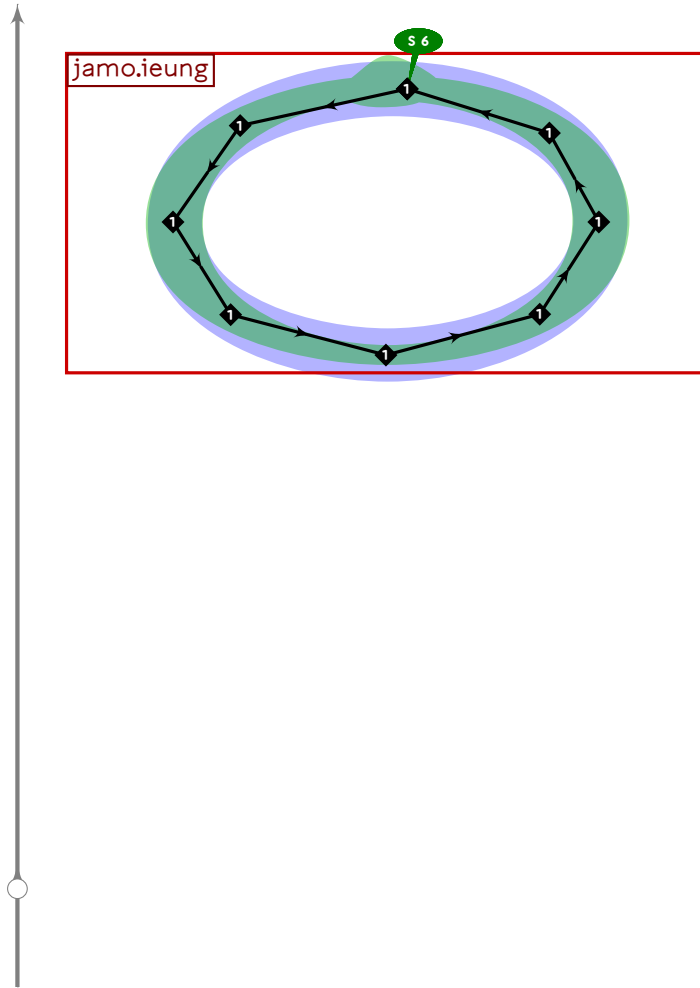
```



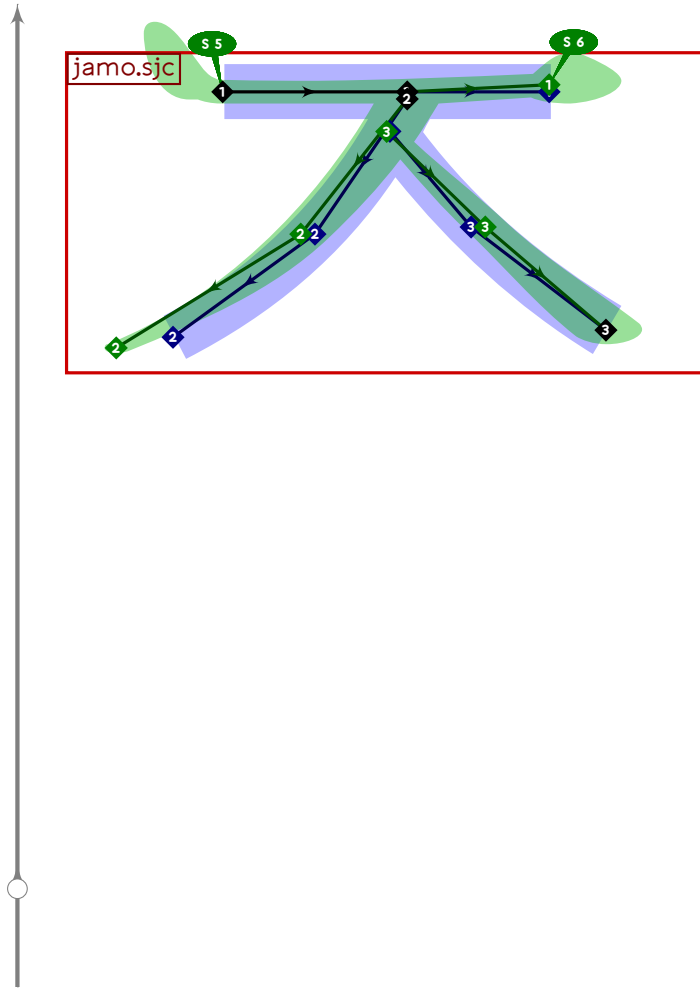
```

124 % hangul lead ssangsios
125 begint Suglyph("uni110A",10);
126 hangul.combine.lr(209,109)(whatever,lixf,loxf);
127 tsu_render;
128 endtsuglyph;
129

```



```
130 % hangul lead ieung
131 begintsuglyph("uni110B",11);
132 hangul.jamo.ieung(whatever,lixf,loxf);
133 tsu_render;
134 endsuglyph;
135
```

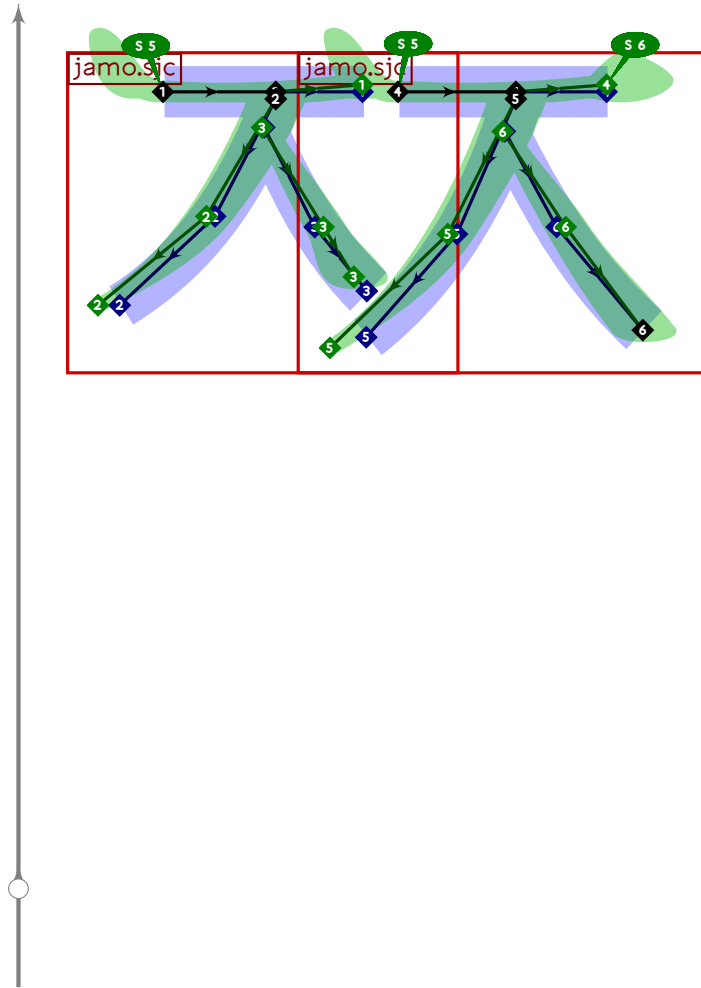


```

136 % hangul lead cieuc
137 begint Suglyph("uni110C";12);
138 hangul.jamo.sjc(1,0,false)(whatever,lixf,loxf);
139 tsu_render;
140 endtsuglyph;
141

```

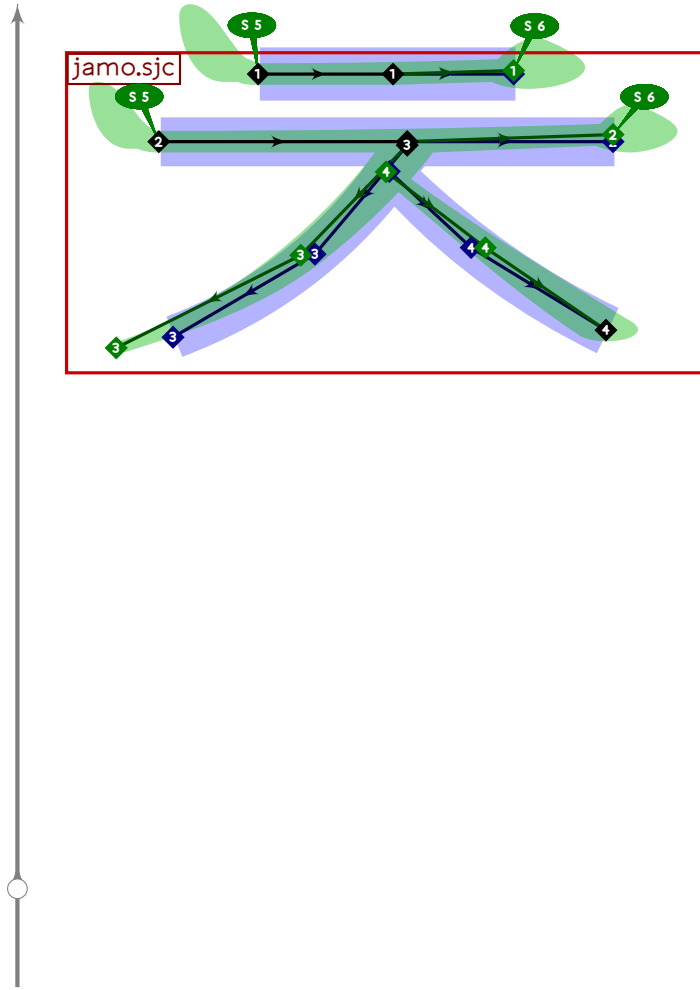




```

142 % hangul lead ssangcieuc
143 begint Suglyph("uni110D";13);
144 hangul.combine.lr(212,112)(whatever,lixf,loxf);
145 tsu_render;
146 endtsuglyph;
147

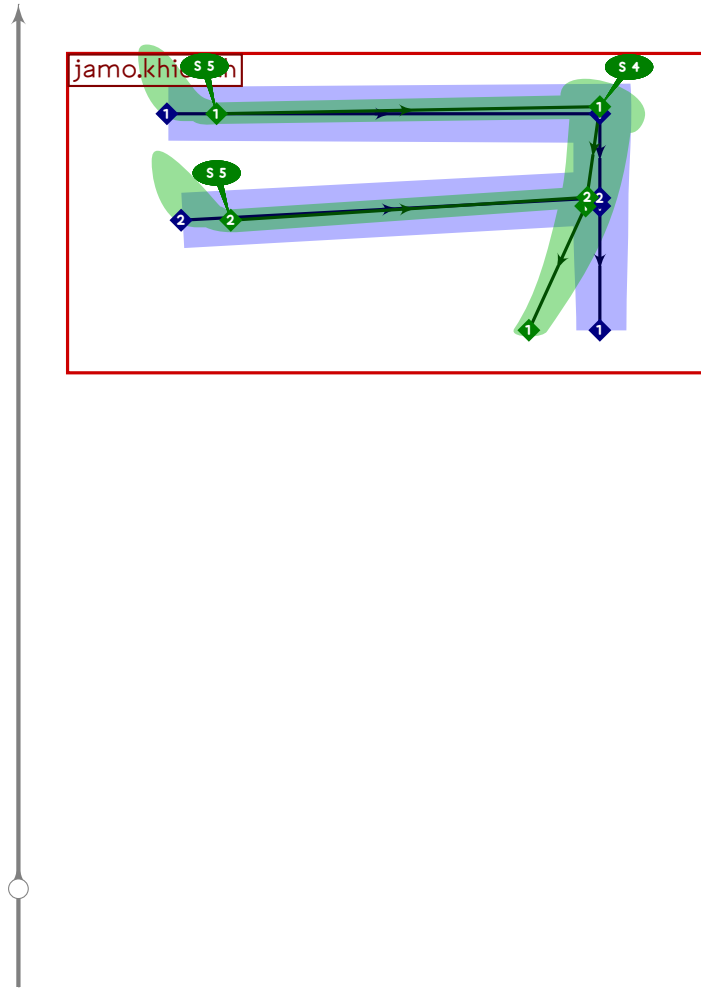
```



```

148 % hangul lead chieuch
149 begintsuglyph("uni110E",14);
150 hangul.jamo.sjc(2,0,false)(whatever,lixf,loxf);
151 tsu_render;
152 endsuglyph;
153

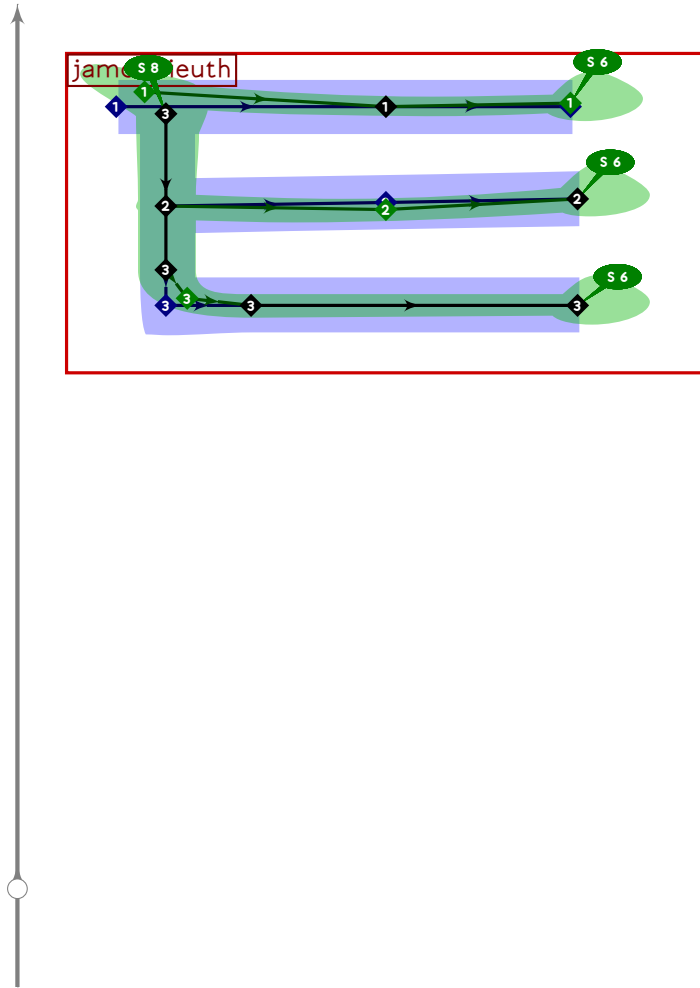
```



```

154 % hangul lead khieukh
155 begintsuglyph("uni110F",15);
156 hangul.jamo.khieukh(whatever,lixf,loxf);
157 tsu_render;
158 endsuglyph;
159

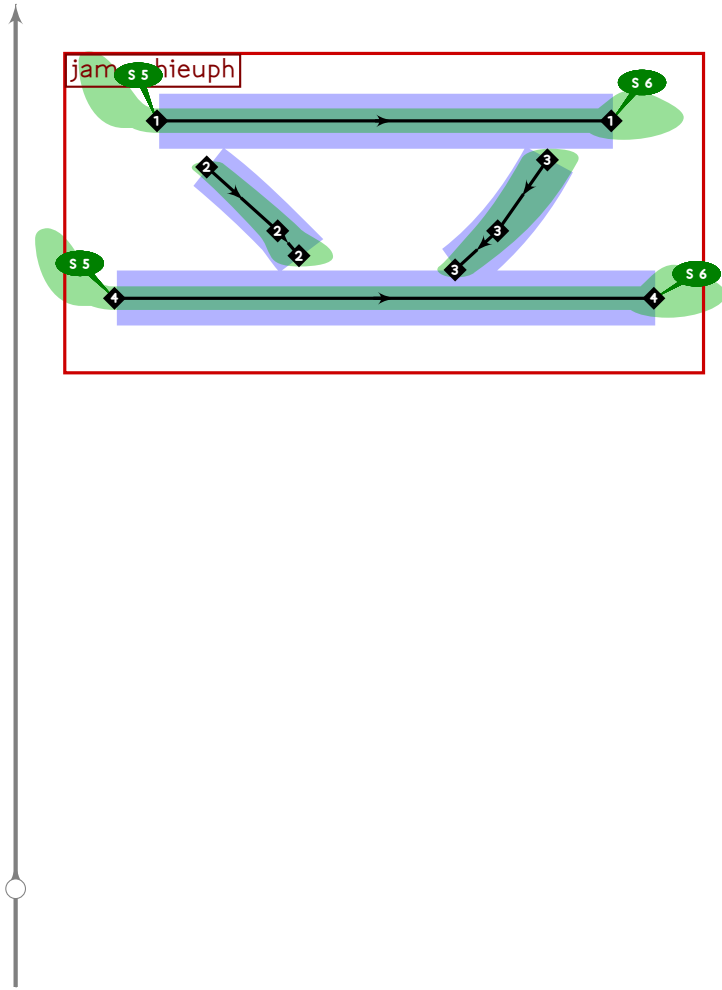
```



```

160 % hangul lead thieuth
161 begint Suglyph("uni1110";16);
162 hangul.jamo.thieuth(whatever,lixf,loxf);
163 tsu_render;
164 endtsuglyph;
165

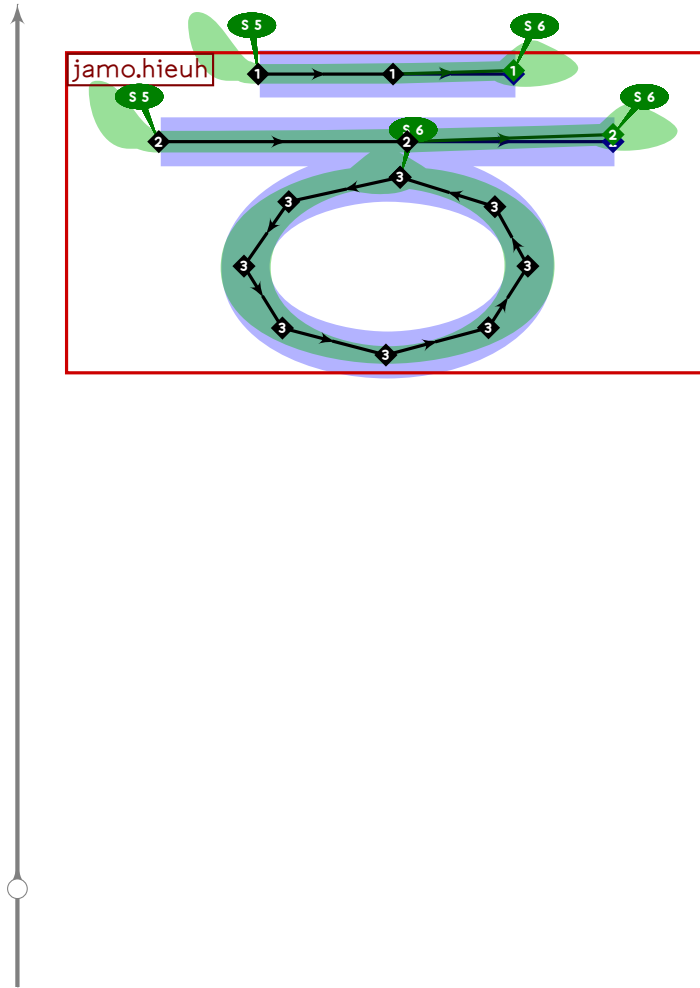
```



```

166 % hangul lead phieup
167 begint Suglyph("uni1111";17);
168 hangul.jamo.phieup(whatever,lixf,loxf);
169 tsu_render;
170 endsuglyph;
171

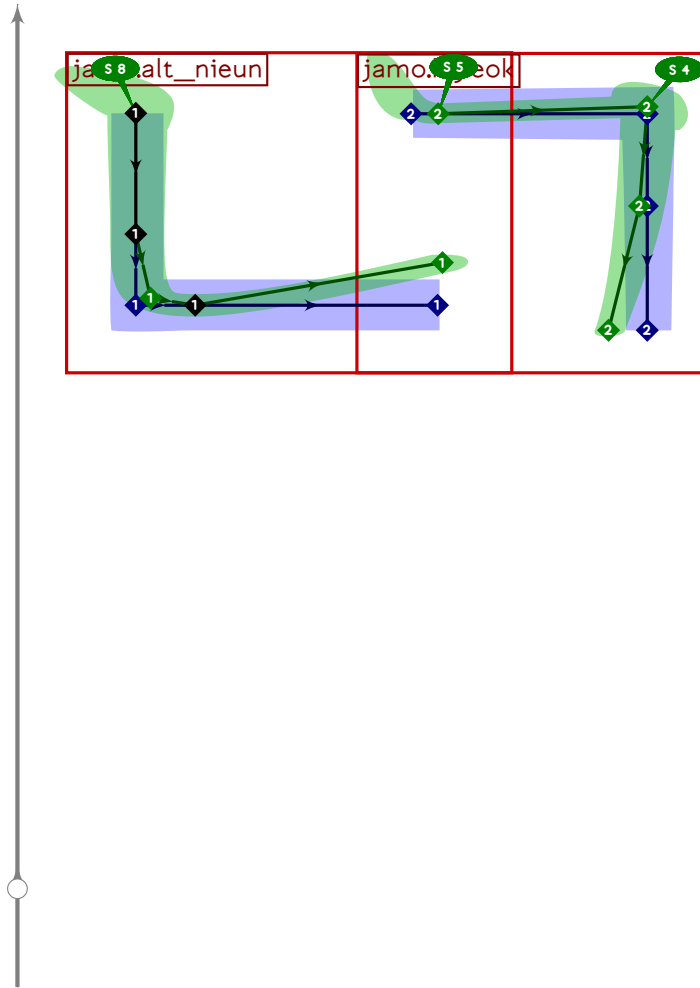
```



```

172 % hangul lead hieuh
173 begint Suglyph("uni1112";18);
174 hangul.jamo.hieuh(whatever,lixf,loxf);
175 tsu_render;
176 endtsuglyph;
177

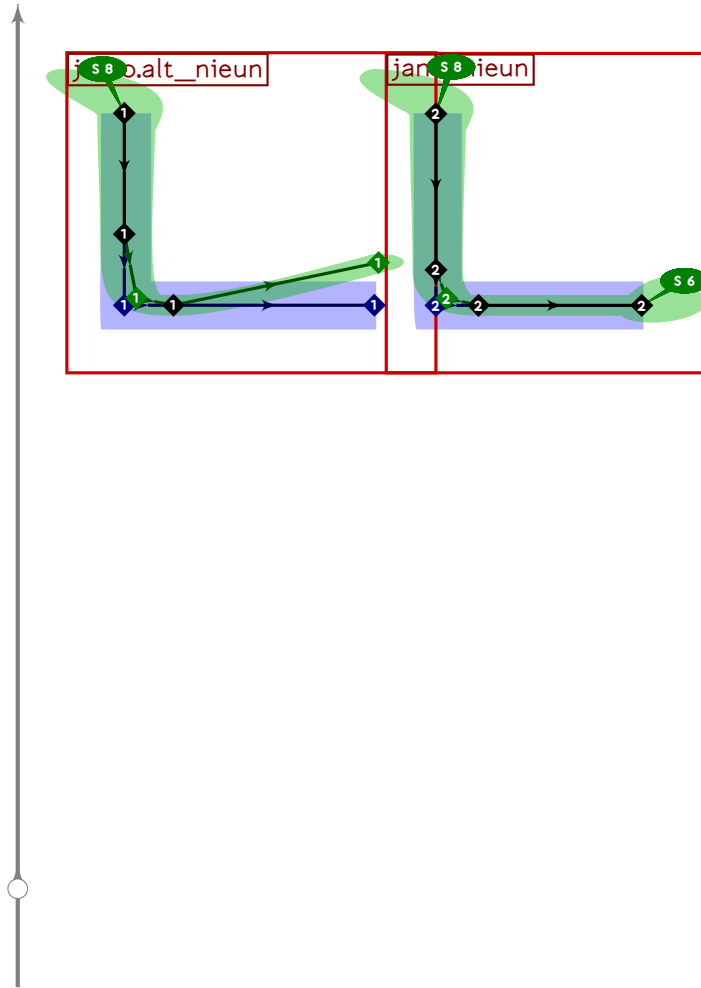
```



```

178 % hangul lead nieun-kiyeok
179 begintsuglyph("uni1113";19);
180 hangul.combine.lr(202,100)(whatever,lixf,loxf);
181 tsu_render;
182 endsuglyph;
183

```

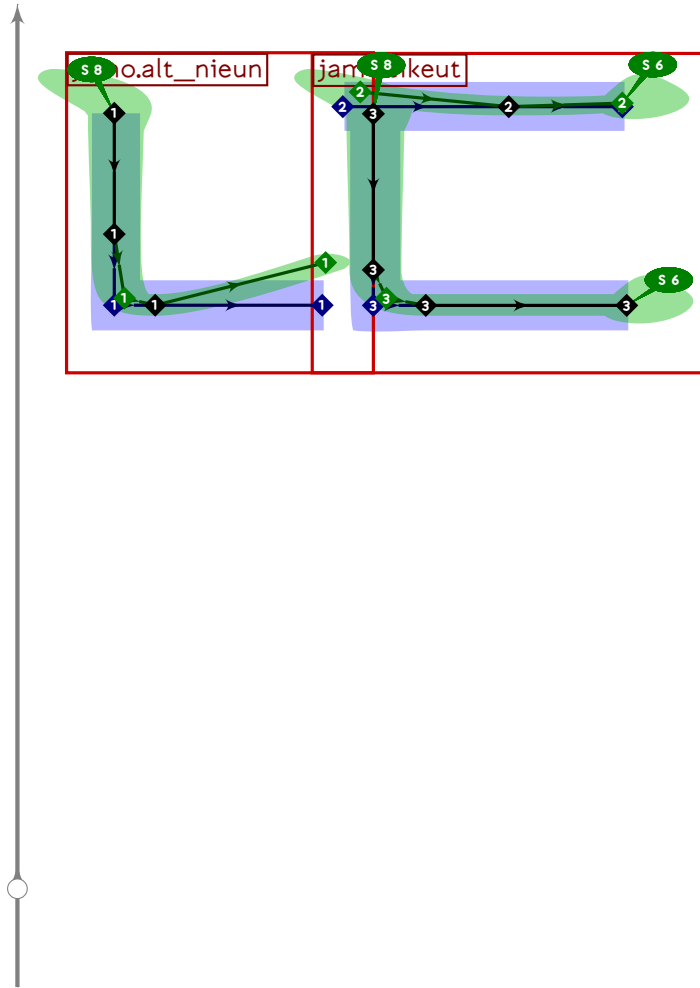


```

184 % hangul lead ssangnieun
185 begintsuglyph("uni1114";20);
186 hangul.combine.lr(202,102)(whatever,lixf,loxf);
187 tsu_render;
188 endsuglyph;
189

```

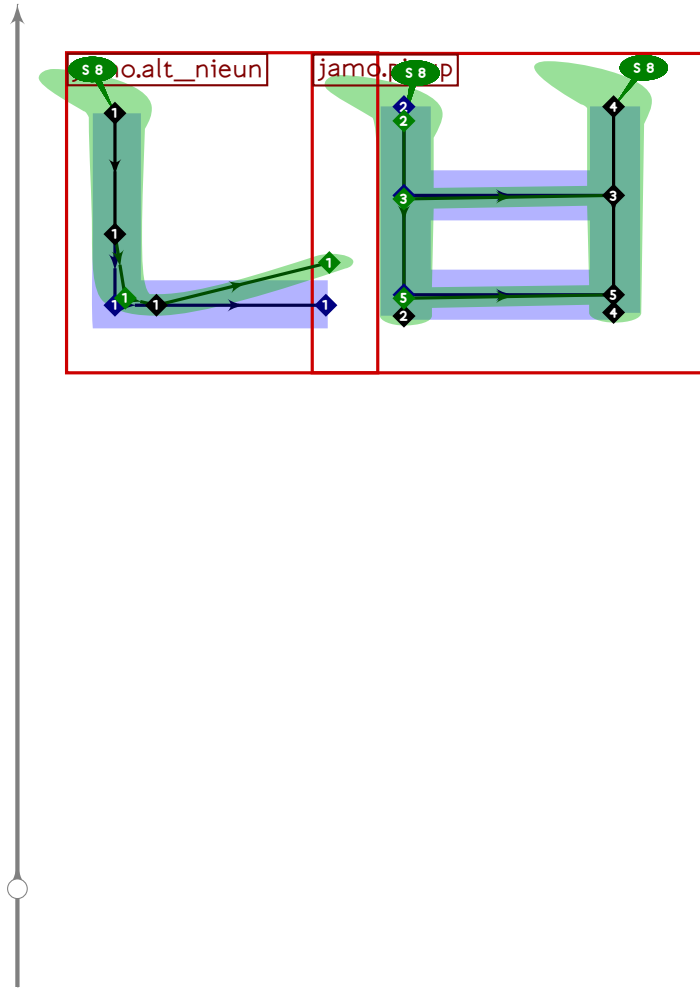




```

190 % hangul lead nieun-tikeut
191 beginsuglyph("uni1115";21);
192 hangul.combine.lr(202,103)(whatever,lixf,loxf);
193 tsu_render;
194 endsuglyph;
195

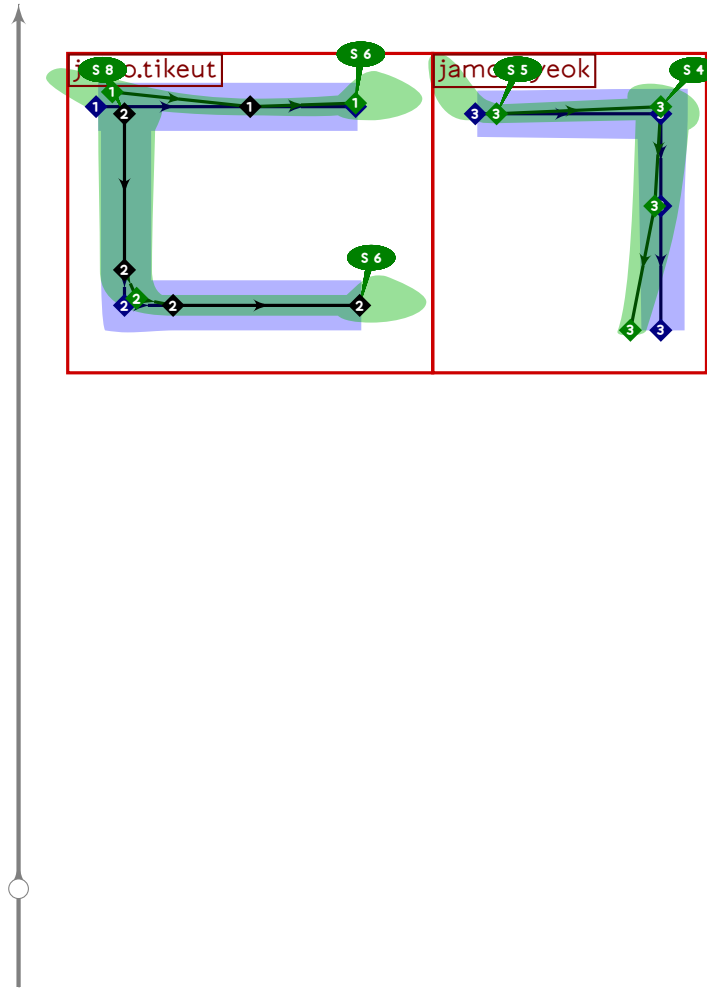
```



```

196 % hangul lead nieun-pieup
197 begintsuglyph("uni1116";22);
198 hangul.combine.lr(202,107)(whatever,lixf,loxf);
199 tsu_render;
200 endsuglyph;
201

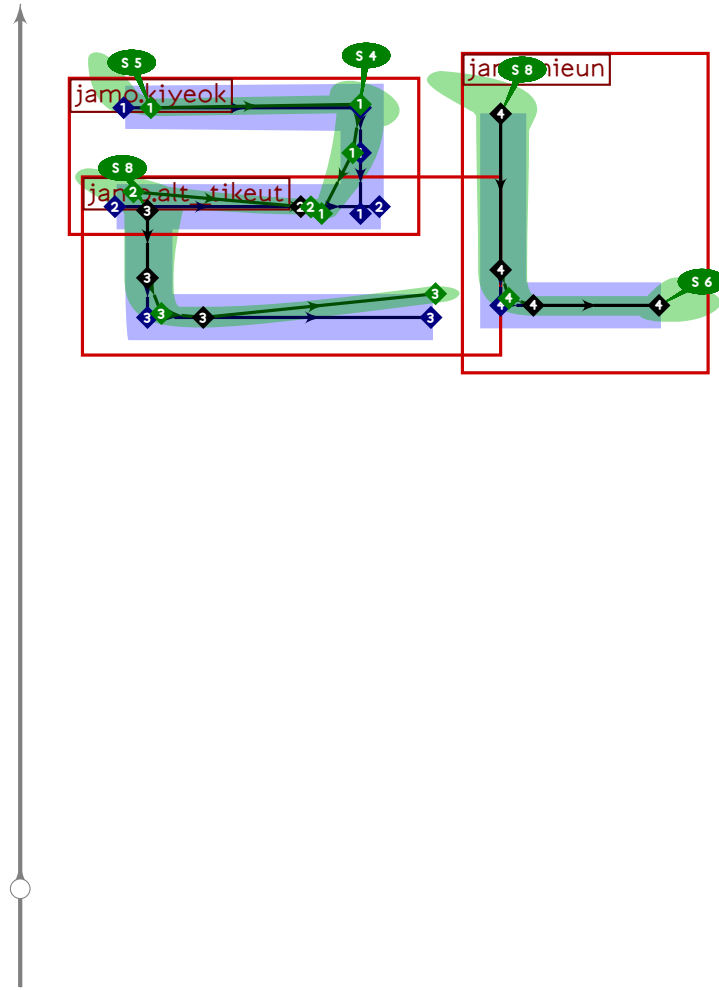
```



```

202 % hangul lead tikeut-kiyeok
203 beginsuglyph("uni1117";23);
204 hangul.combine.lr(103,100)(whatever,lixf,loxf);
205 tsu_render;
206 endsuglyph;
207

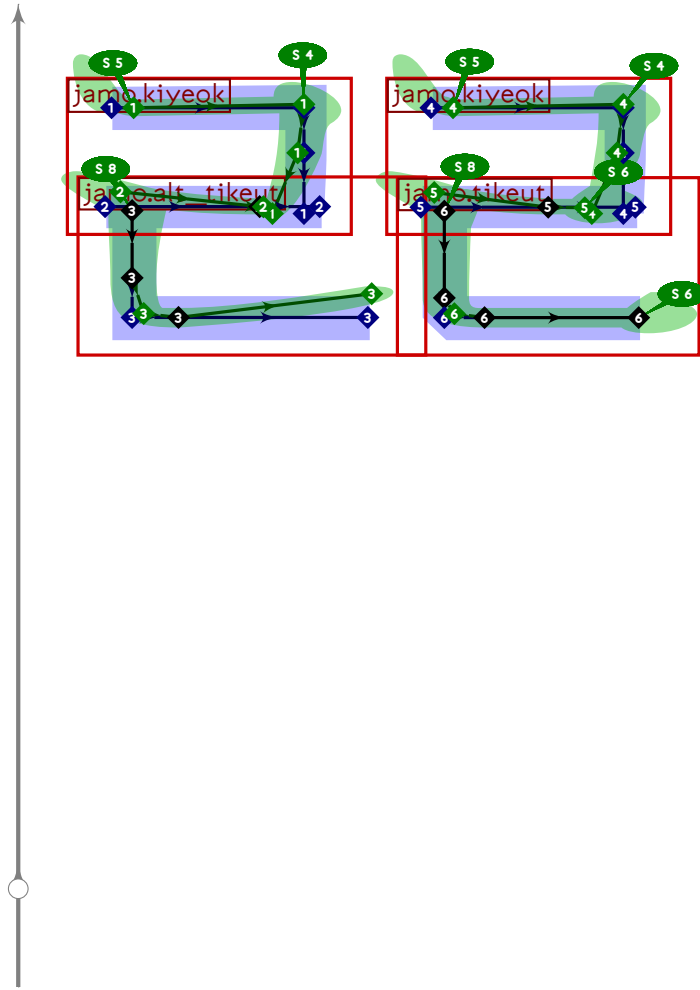
```



```

208 % hangul lead riul-nieun
209 begintsuglyph("uni1118",24);
210 hangul.combine.lr(205,102)(whatever,lixf,loxf);
211 tsu_render;
212 endtsuglyph;
213

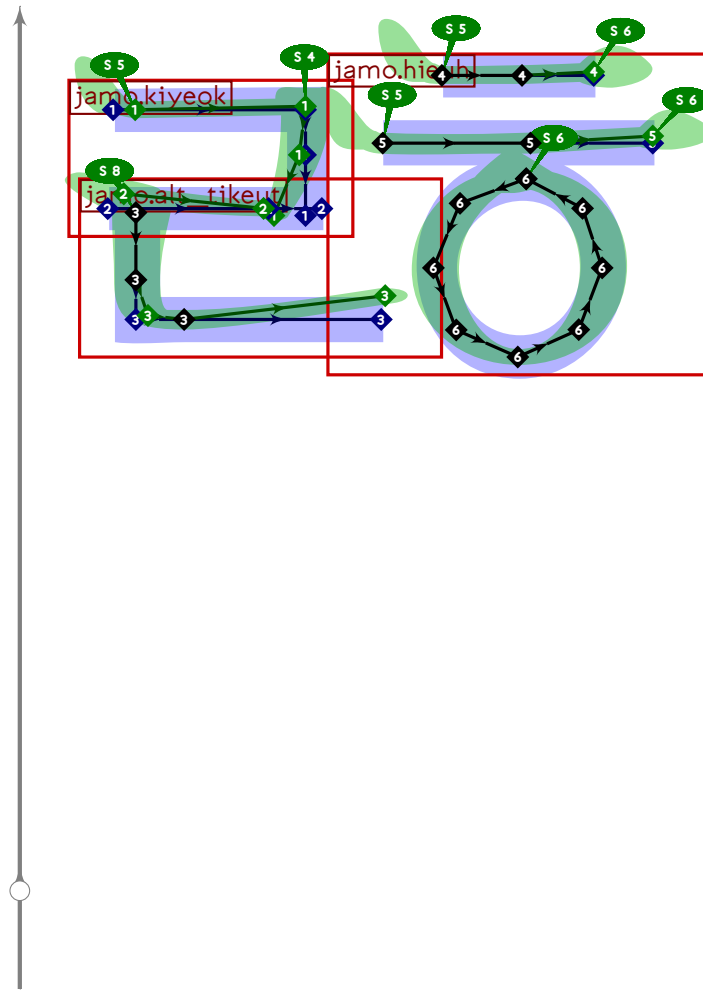
```



```

214 % hangul lead ssangrieul
215 begintsuglyph("uni1119";25);
216 hangul.combine.lr(205,105)(whatever,lixf,loxf);
217 tsu_render;
218 endtsuglyph;
219

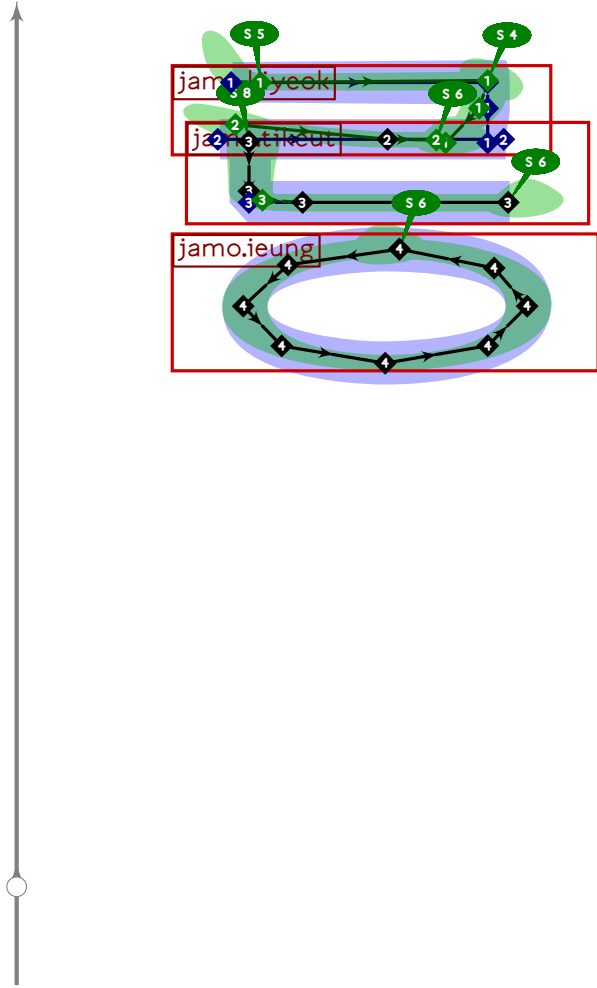
```



```

220 % hangul lead rieul-hieuh
221 begint Suglyph("uni111A",26);
222 hangul.combine.lr(205,118)(whatever,lixf,loxf);
223 tsu_render;
224 endtsuglyph;
225

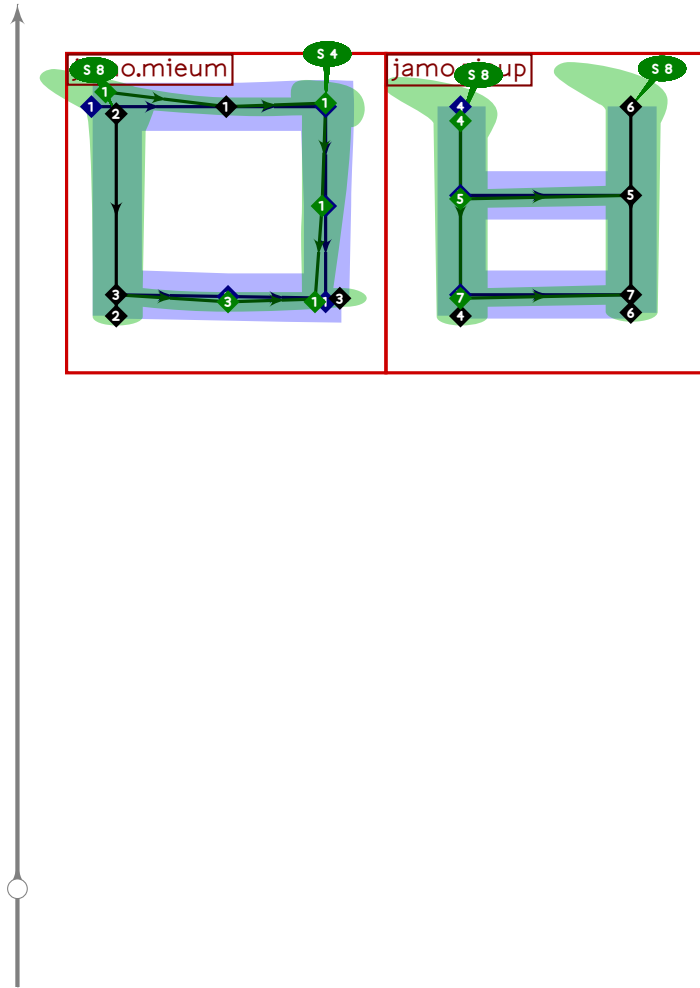
```



```

226 % hangul lead kapyeounrieul
227 begint Suglyph("uni111B";27);
228 hangul.combine.tb(105,521)(whatever,
229   hxf((200,850),(800,-50)) transformed lixf,loxf);
230 tsu_render;
231 ends Suglyph;
232

```

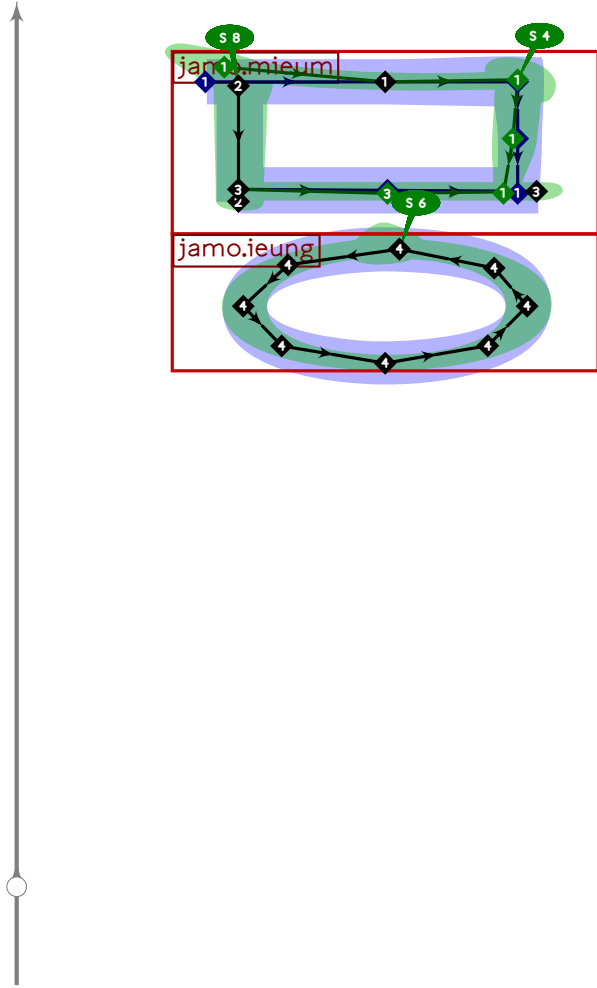


```

233 % hangul lead mieum-pieup
234 begintsuglyph("uni111C",28);
235 hangul.combine.lr(106,107)(whatever,lixf,loxf);
236 tsu_render;
237 endsuglyph;
238

```

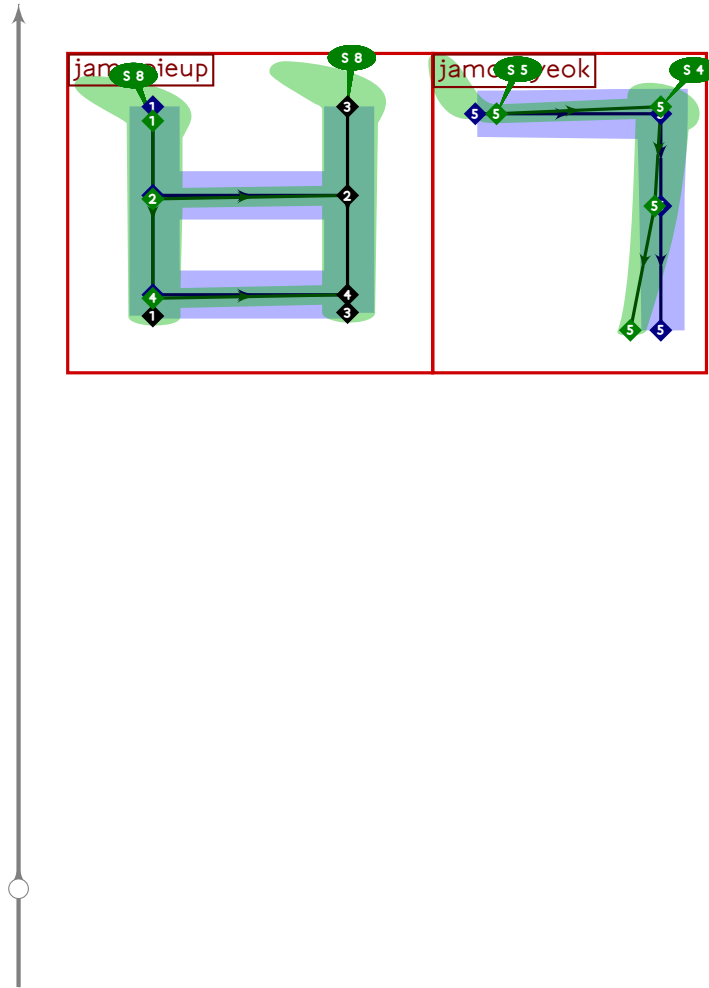




```

239 % hangul lead kapyeounmieum
240 begint Suglyph("uni111D",29);
241 hangul.combine.tb(106,521)(whatever,
242   hxf((200,850),(800,-50)) transformed lixf,loxf);
243 tsu_render;
244 endsuglyph;
245

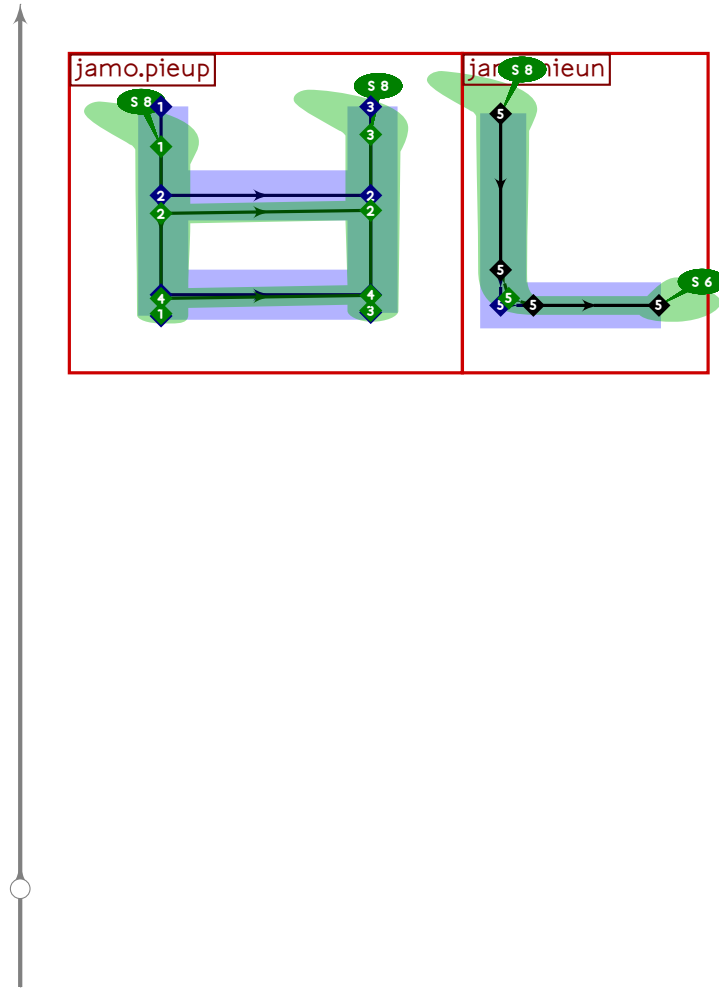
```



```

246 % hangul lead pieup-kiyeok
247 begintsuglyph("uni111E";30);
248 hangul.combine.lr(107,100)(whatever,lixf,loxf);
249 tsu_render;
250 endsuglyph;
251

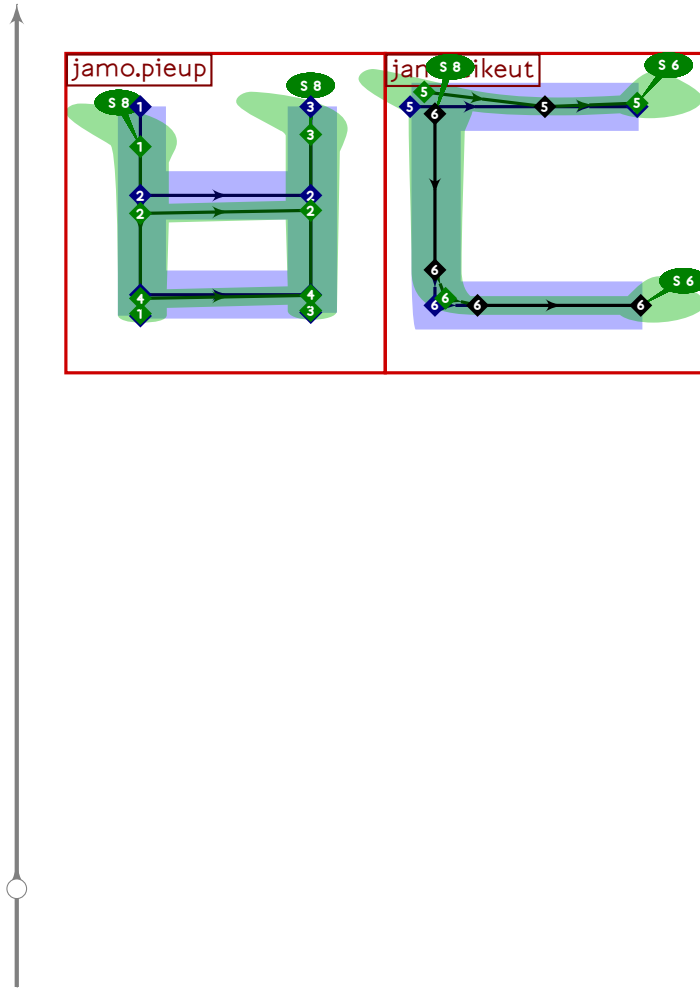
```



```

252 % hangul lead pieup-nieun
253 begintsuglyph("uni111F",31);
254 hangul.combine.lr(207,102)(whatever,lixf,loxf);
255 tsu_render;
256 endtsuglyph;
257

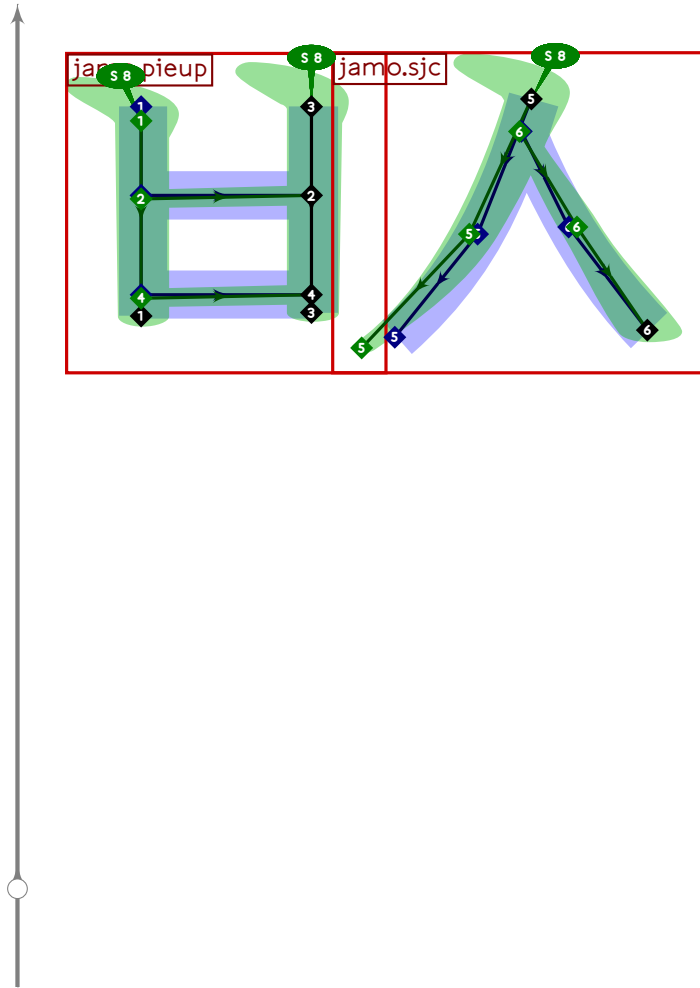
```



```

258 % hangul lead pieup-tikeut
259 begintsuglyph("uni1120",32);
260 hangul.combine.lr(207,103)(whatever,lixf,loxf);
261 tsu_render;
262 endtsuglyph;
263

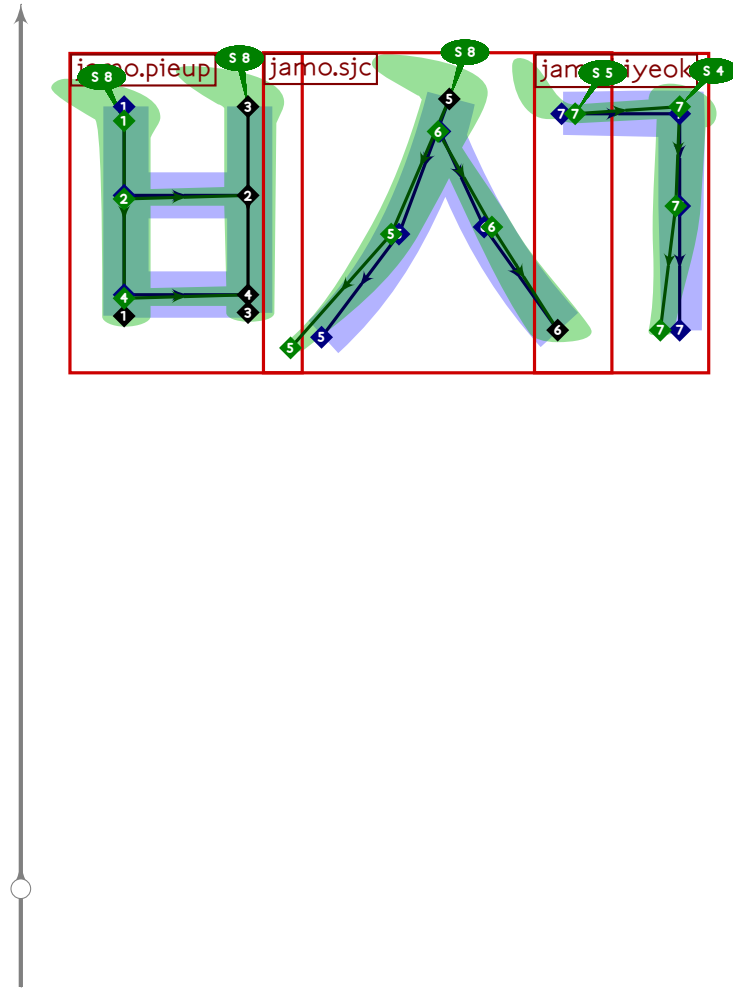
```



```

264 % hangul lead pieup-sios
265 begintsuglyph("uni1121";33);
266 hangul.combine.lr(107,109)(whatever,lixf,loxf);
267 tsu_render;
268 endtsuglyph;
269

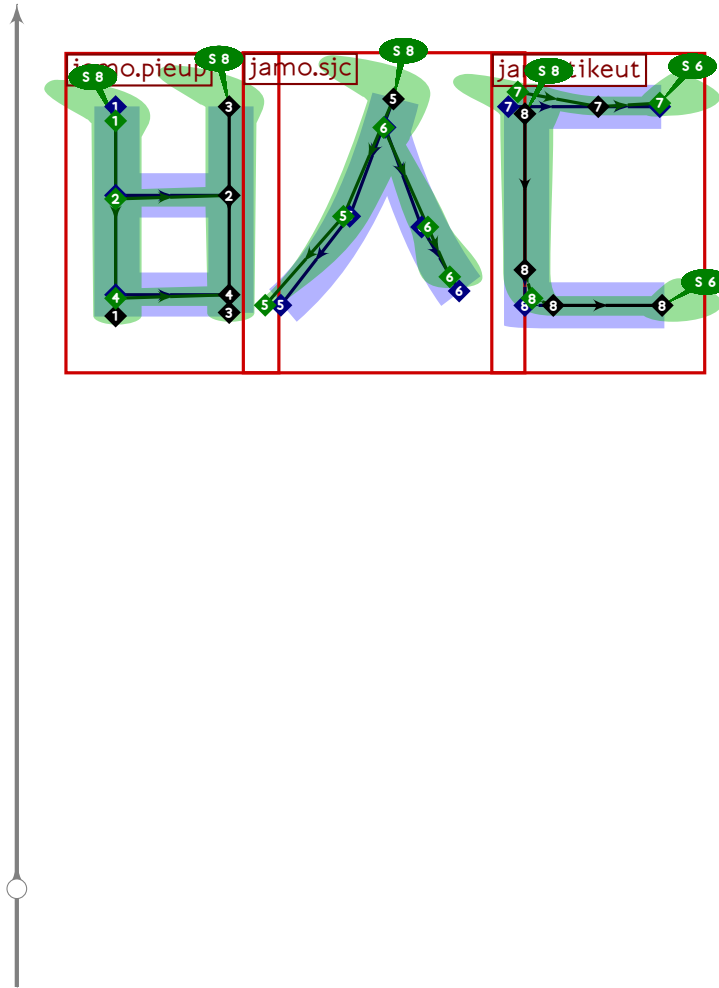
```



```

270 % hangul lead pieup-sios-kiyeok
271 begintsuglyph("uni1122",34);
272 hangul.combine.lcr(107,109,100)(whatever,lixf,loxf);
273 tsu_render;
274 endtsuglyph;
275

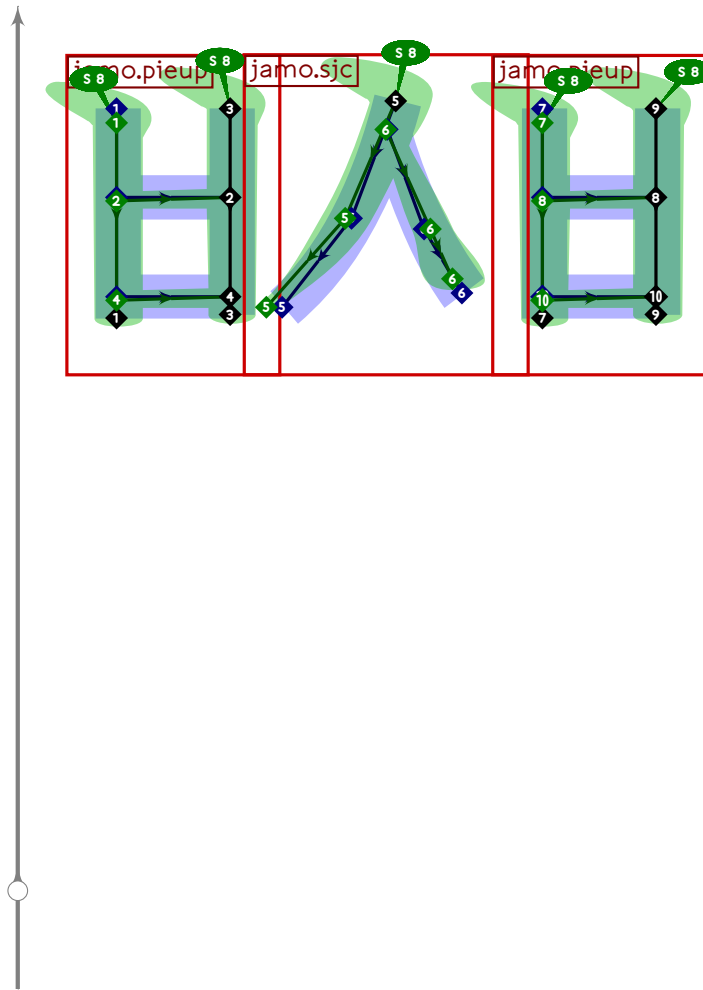
```



```

276 % hangul lead pieup-sios-tikeut
277 begintsuglyph("uni1123",35);
278 hangul.combine.lcr(107,209,103)(whatever,lixf,loxf);
279 tsu_render;
280 endsuglyph;
281

```

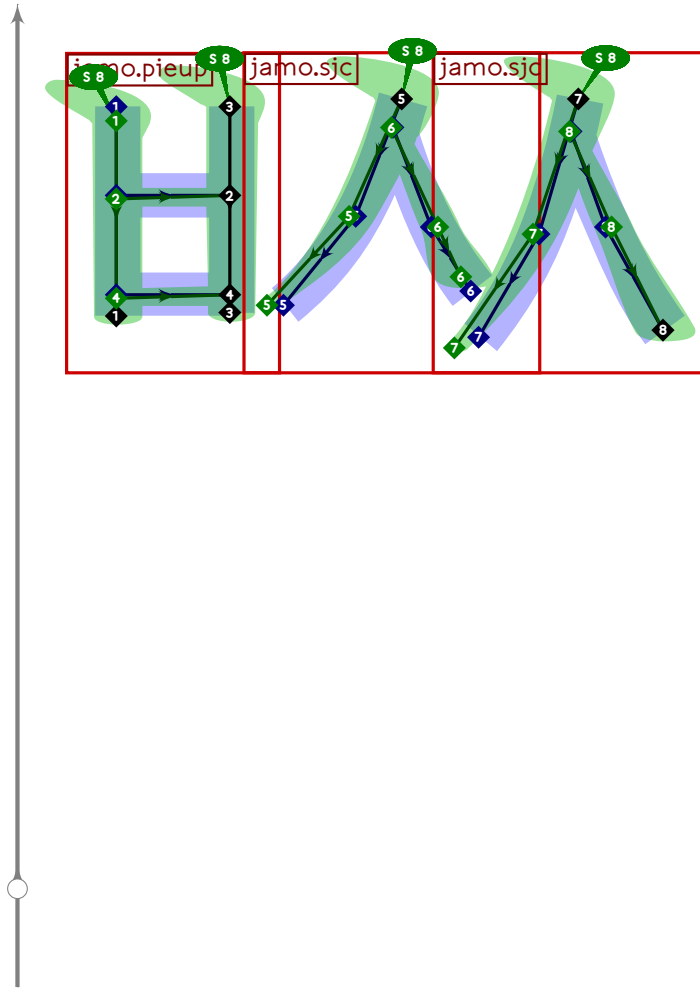


```

282 % hangul lead pieup-sios-pieup
283 begintsuglyph("uni1124",36);
284 hangul.combine.lcr(107,209,107)(whatever,lixf,loxf);
285 tsu_render;
286 endsuglyph;
287

```

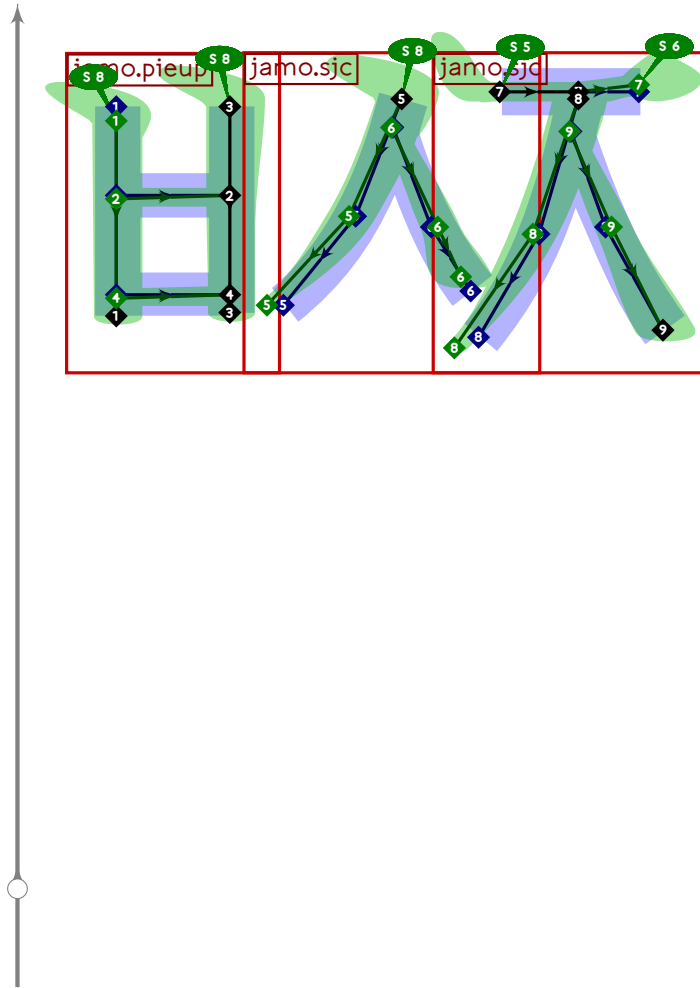




```

288 % hangul lead pieup-ssangsios
289 begintsuglyph("uni1125",37);
290 hangul.combine.lcr(107,209,109)(whatever,lixf,loxf);
291 tsu_render;
292 endsuglyph;
293

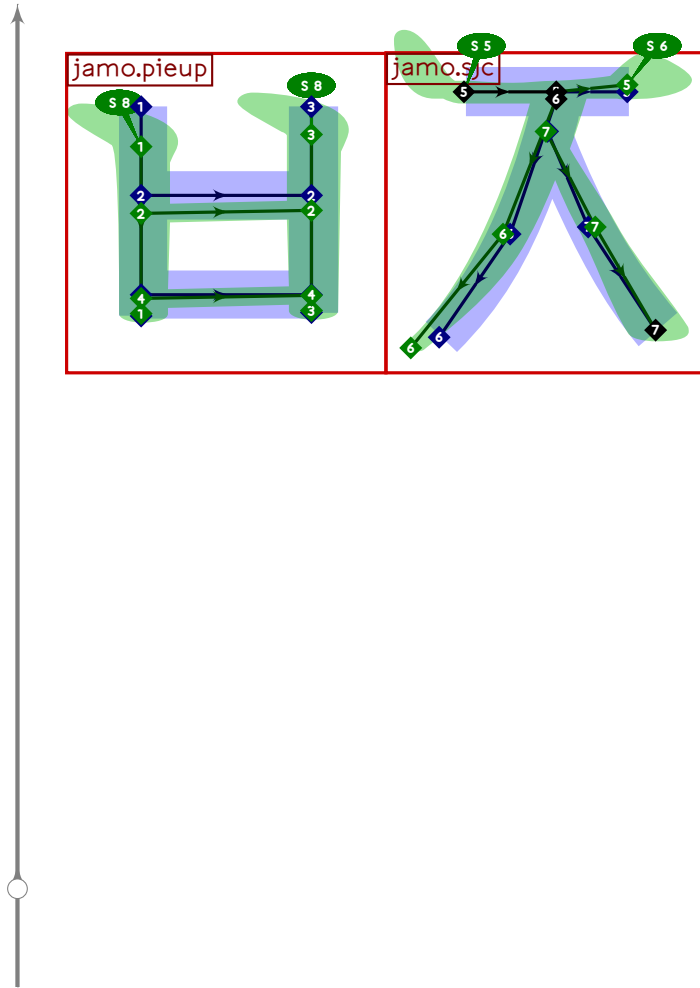
```



```

294 % hangul lead pieup-sios-cieuc
295 begintsuglyph("uni1126",38);
296 hangul.combine.lcr(107,209,112)(whatever,lixf,loxf);
297 tsu_render;
298 endsuglyph;
299

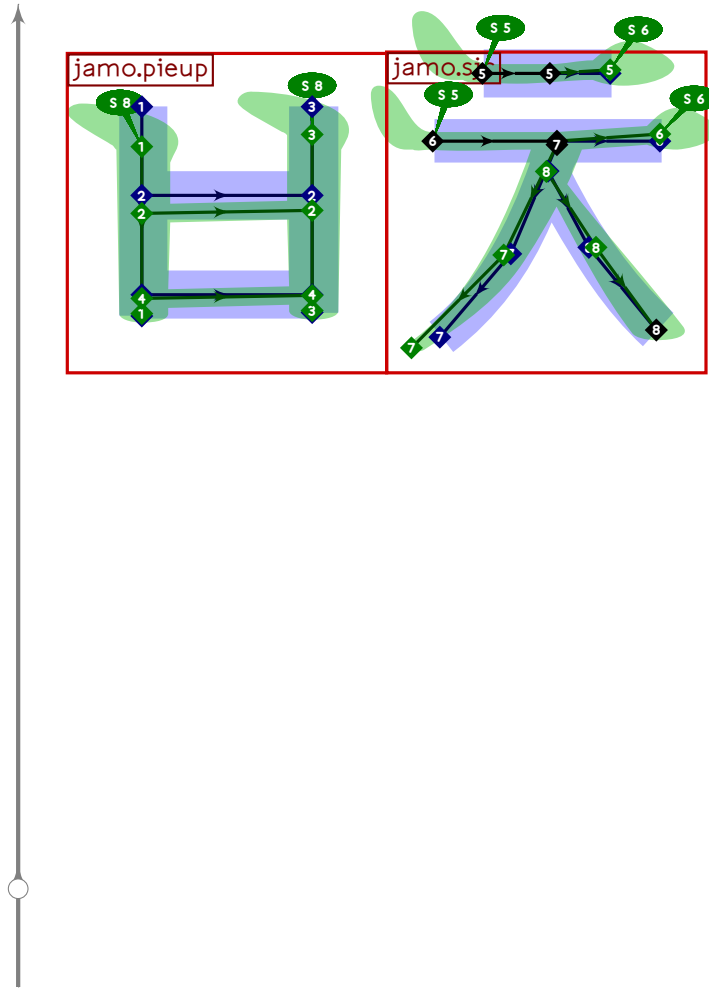
```



```

300 % hangul lead pieup-cieuc
301 begintsuglyph("uni1127",39);
302 hangul.combine.lr(207,112)(whatever,lixf,loxf);
303 tsu_render;
304 endtsuglyph;
305

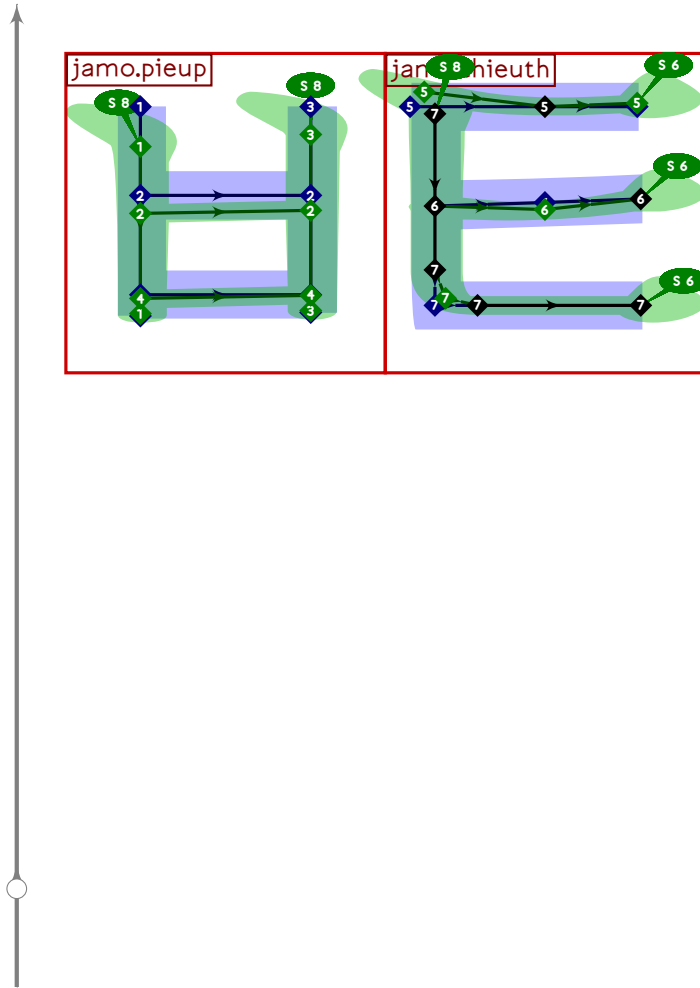
```



```

306 % hangul lead pieup-chieuch
307 begintsuglyph("uni1128",40);
308 hangul.combine.lr(207,114)(whatever,lixf,loxf);
309 tsu_render;
310 endsuglyph;
311

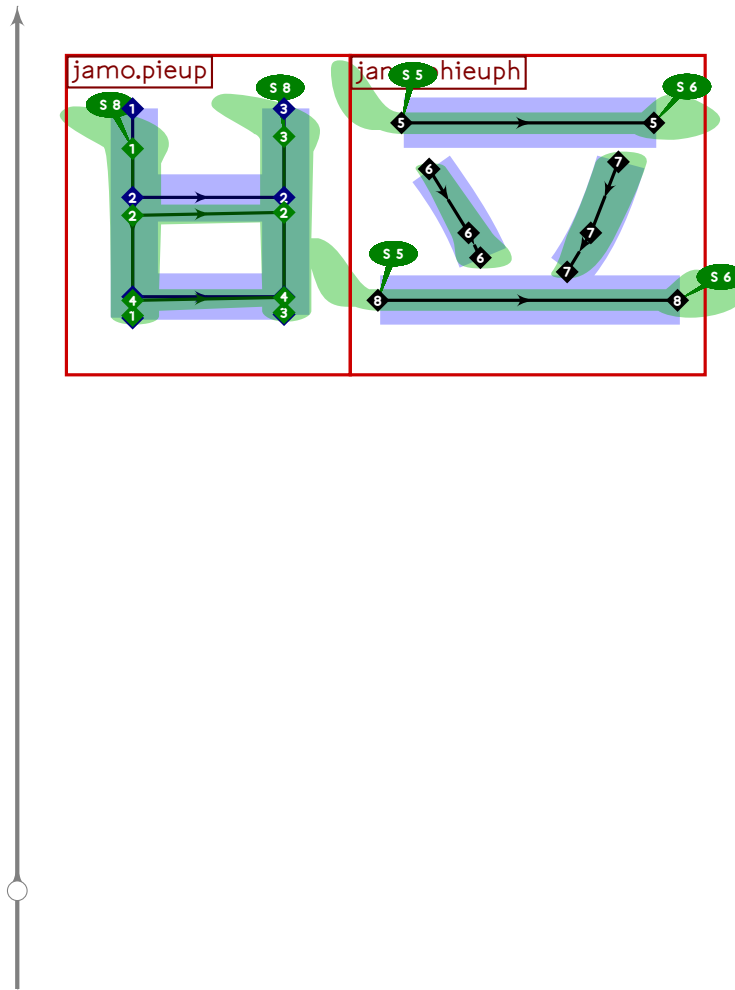
```



```

312 % hangul lead pieup-thieuth
313 begintsuglyph("uni1129",41);
314 hangul.combine.lr(207,116)(whatever,lixf,loxf);
315 tsu_render;
316 endtsuglyph;
317

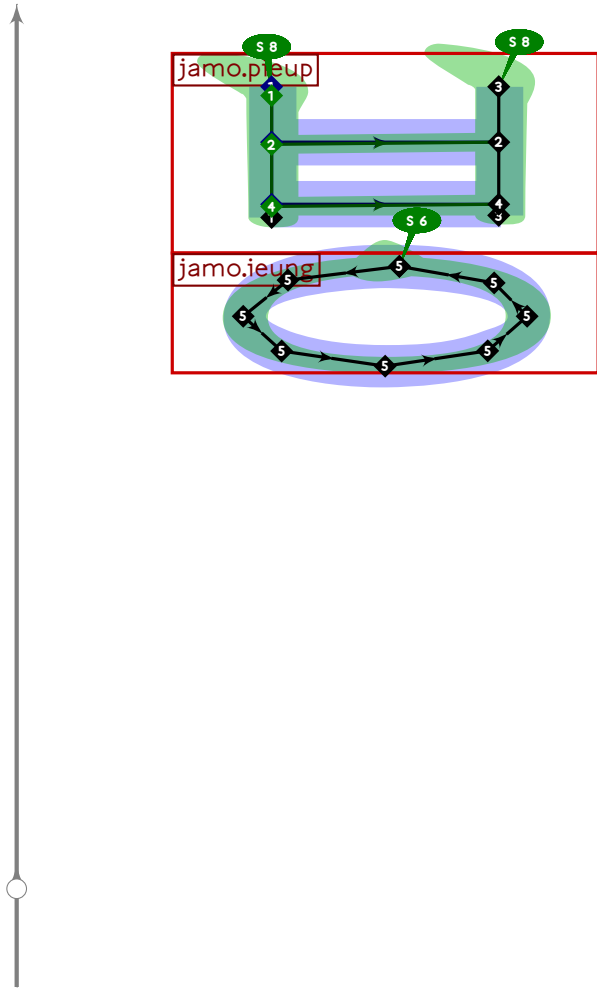
```



```

318 % hangul lead pieup-phieup
319 begintsuglyph("uni112A",42);
320 hangul.combine.lr(207,117)(whatever,lixf,loxf);
321 tsu_render;
322 endsuglyph;
323

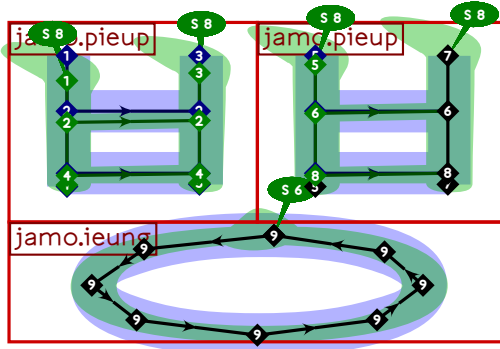
```



```

324 % hangul lead kapyeounpieup
325 begint Suglyph("uni112B",43);
326 hangul.combine.tb(107,521)(whatever,
327   hxf((200,850),(800,-50)) transformed lixf,loxf);
328 tsu_render;
329 endsuglyph;
330

```

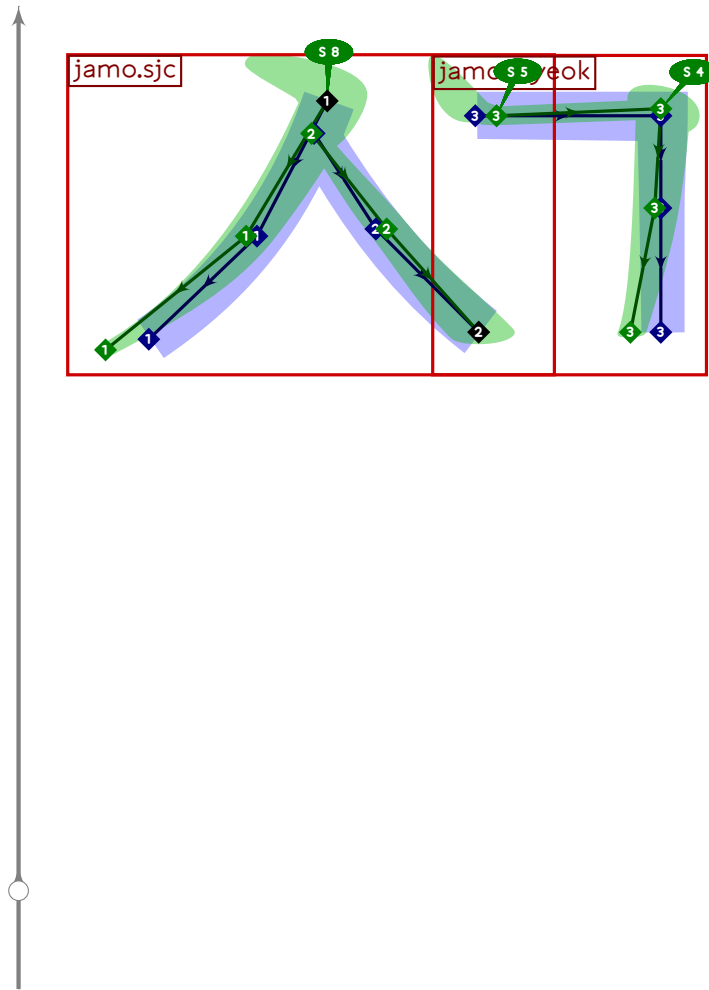


```

331 % hangul lead kapyeounssangpieup
332 begint Suglyph("uni112C",44);
333 hangul.combine.tb(108,521)(whatever,
334   hxf((150,850),(850,-50)) transformed lixf,loxf);
335 tsu_render;
336 endsuglyph;
337

```

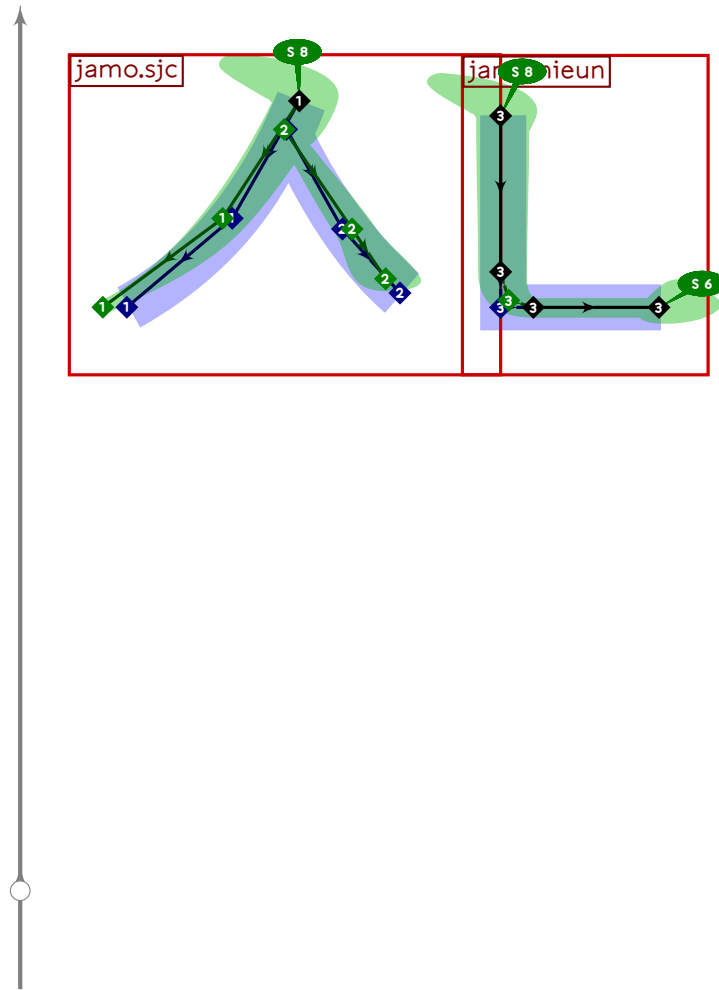




```

338 % hangul lead sios-kiyeok
339 begintsuglyph("uni112D";45);
340 hangul.combine.lr(109,100)(whatever,lixf,loxf);
341 tsu_render;
342 endtsuglyph;
343

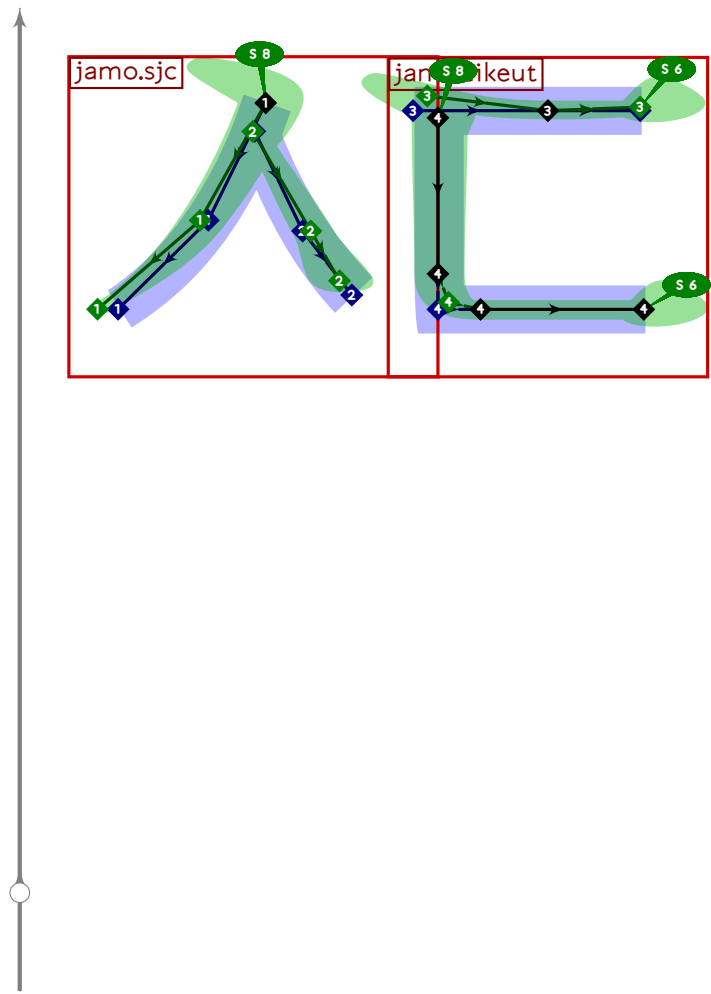
```



```

344 % hangul lead sios-nieun
345 begint Suglyph("uni112E",46);
346 hangul.combine.lr(209,102)(whatever,lixf,loxf);
347 tsu_render;
348 endtsuglyph;
349

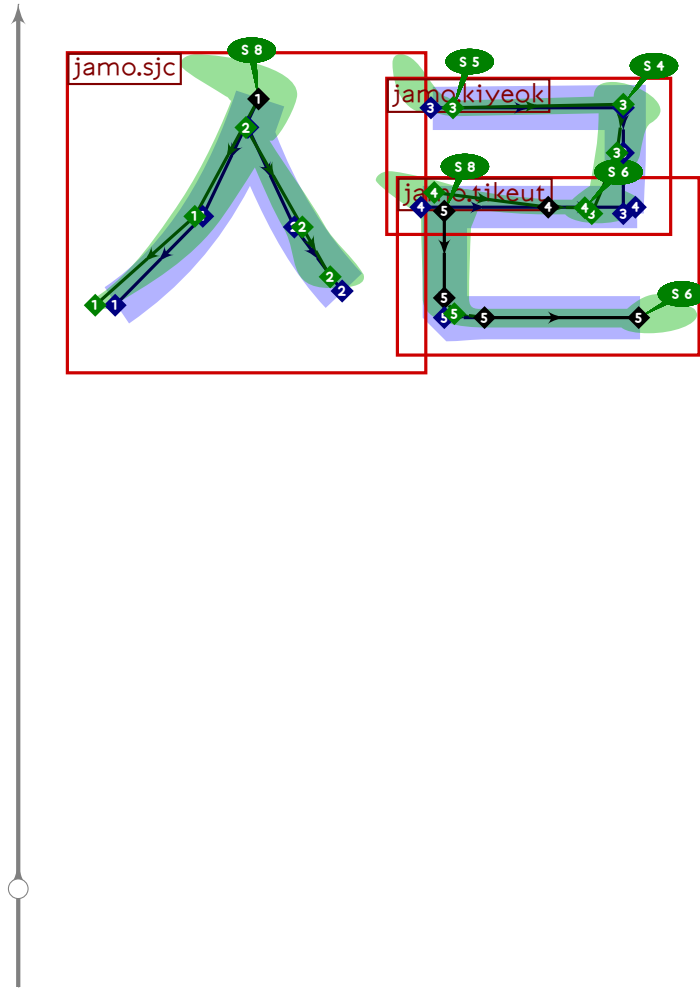
```



```

350 % hangul lead sios-tikeut
351 begintsuglyph("uni112F",47);
352 hangul.combine.lr(209,103)(whatever,lixf,loxf);
353 tsu_render;
354 endtsuglyph;
355

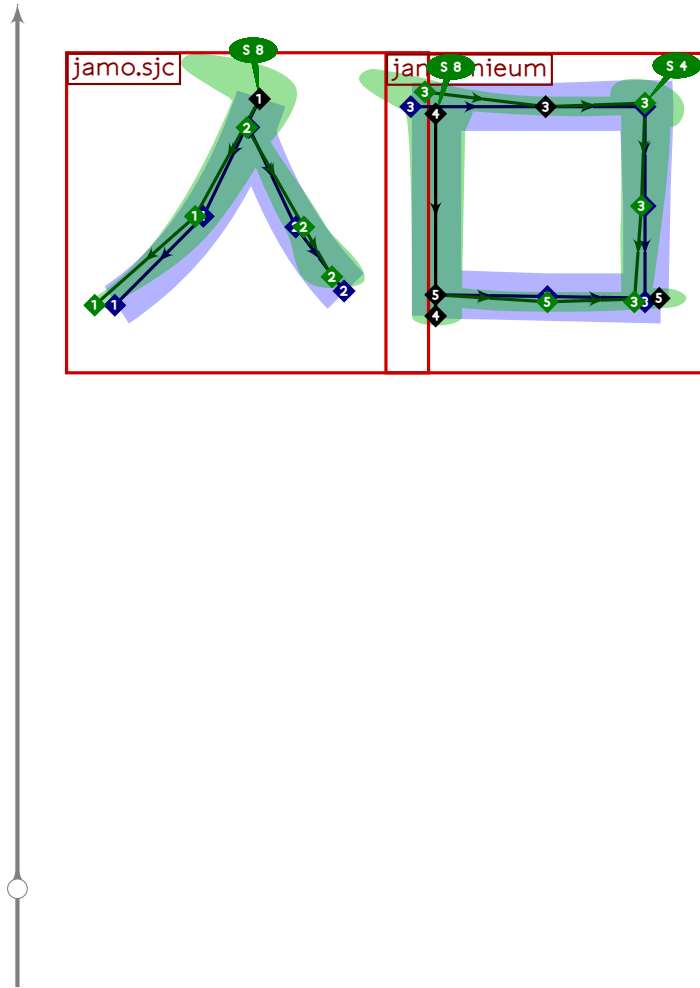
```



```

356 % hangul lead sios-rieul
357 begint Suglyph("uni1130",48);
358 hangul.combine.lr(209,105)(whatever,lixf,loxf);
359 tsu_render;
360 endtsuglyph;
361

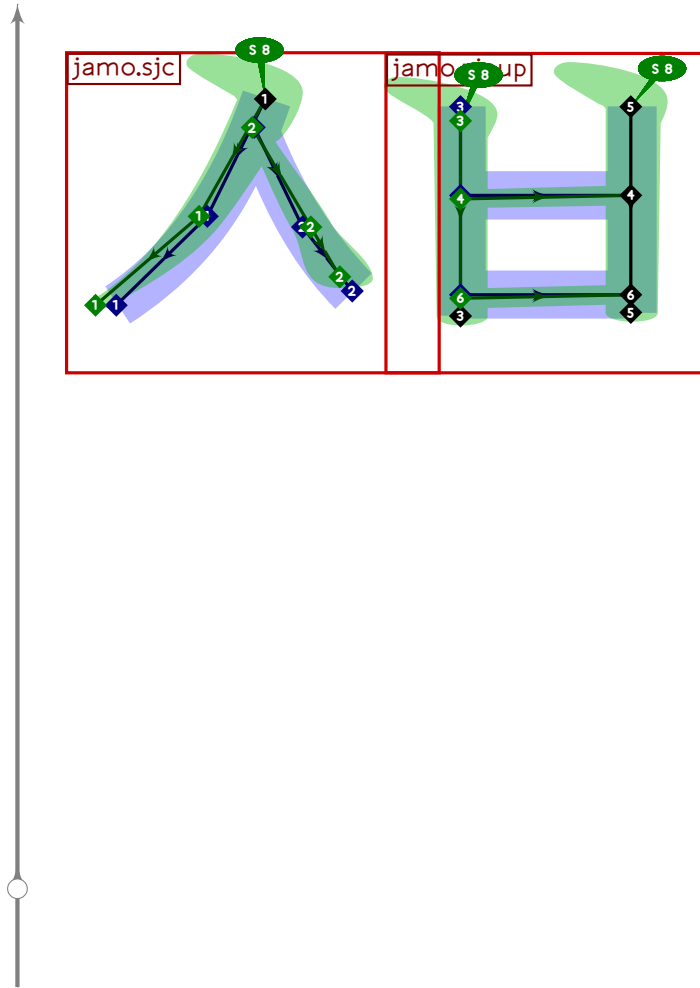
```



```

362 % hangul lead sios-mieum
363 begintsuglyph("uni1131";49);
364 hangul.combine.lr(209,106)(whatever,lixf,loxf);
365 tsu_render;
366 endsuglyph;
367

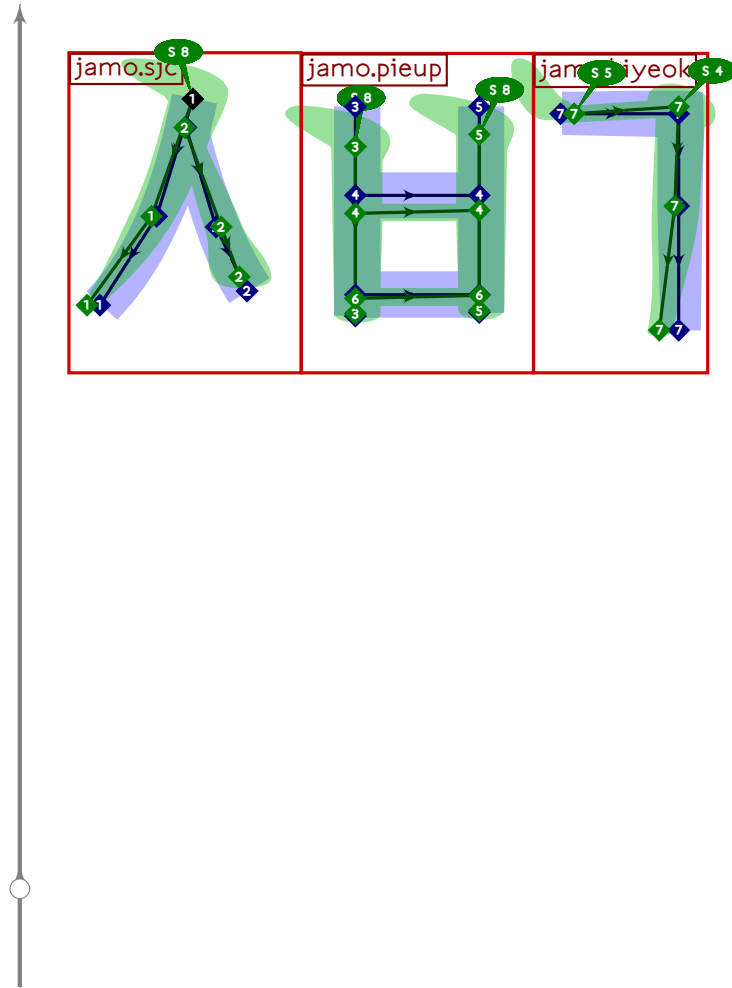
```



```

368 % hangul lead sios-pieup
369 begintsuglyph("uni1132",50);
370 hangul.combine.lr(209,107)(whatever,lixf,loxf);
371 tsu_render;
372 endsuglyph;
373

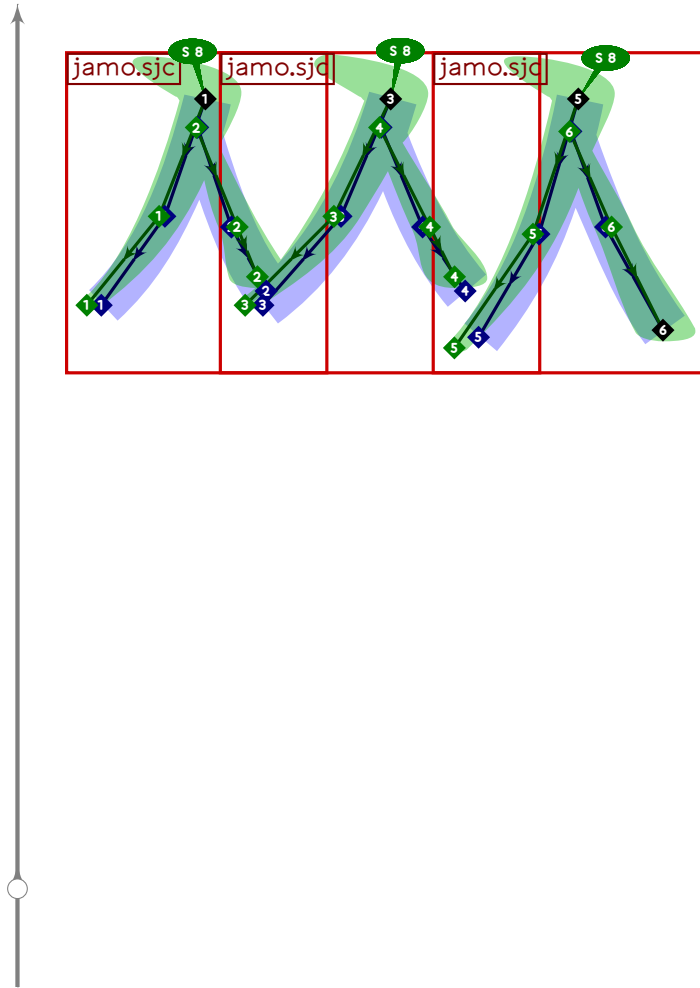
```



```

374 % hangul lead sios-pieup-kiyeok
375 begintsuglyph("uni1133",51);
376 hangul.combine.lcr(209,207,100)(whatever,lixf,loxf);
377 tsu_render;
378 endsuglyph;
379

```

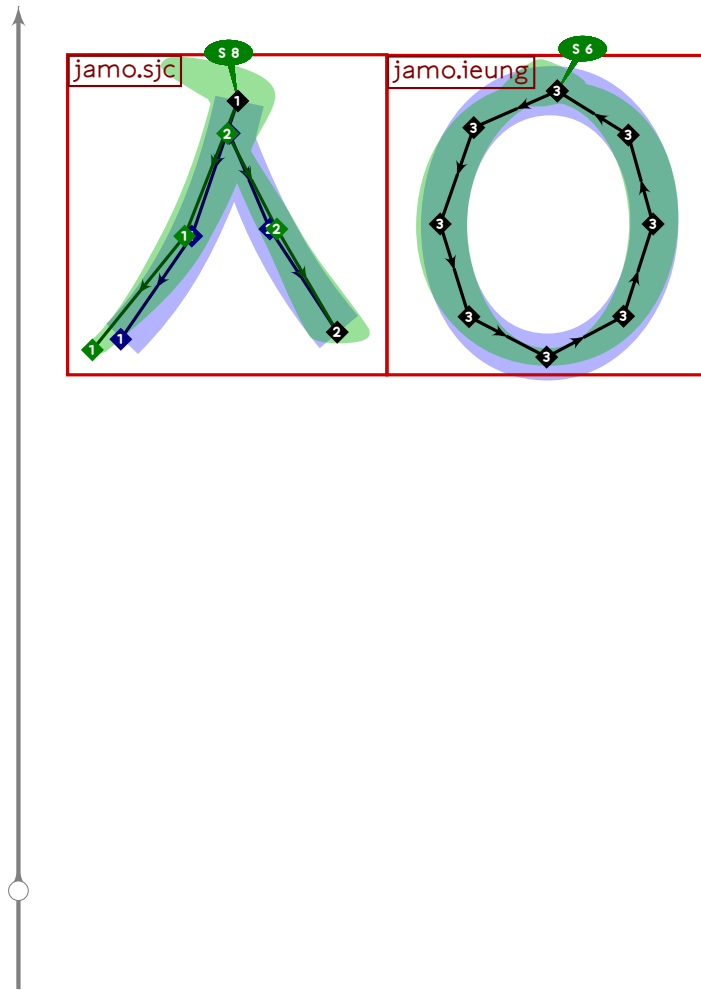


```

380 % hangul lead sios-sios-sios
381 begintsuglyph("uni1134",52);
382 hangul.combine.lcr(209,209,109)(whatever,lixf,loxf);
383 tsu_render;
384 endsuglyph;
385

```

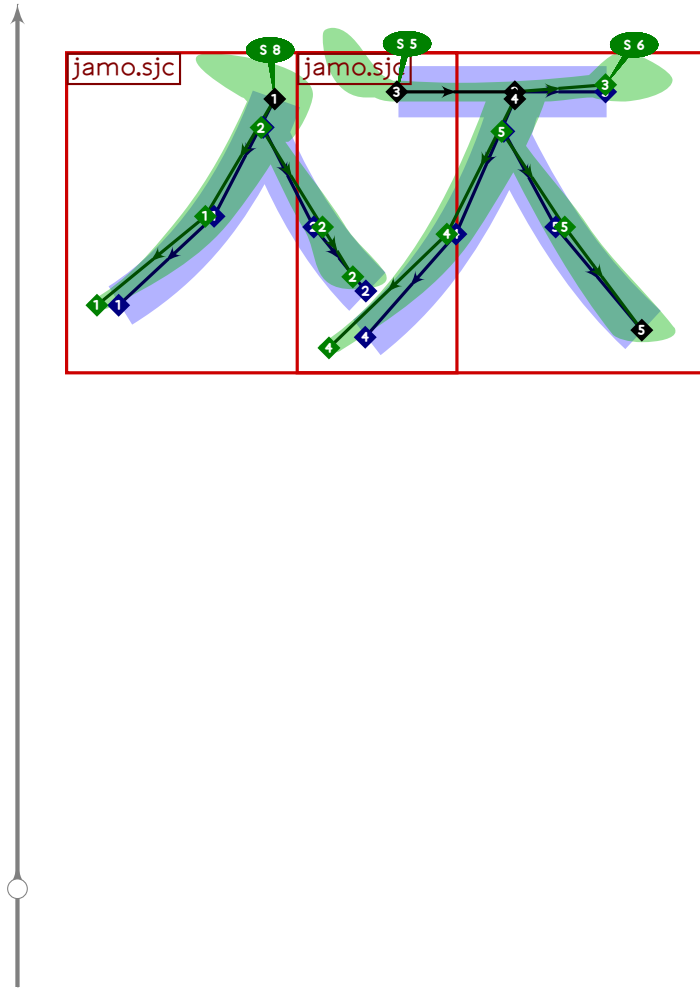




```

386 % hangul lead sios-ieung
387 begintsuglyph("uni1135",53);
388 hangul.combine.lr(109,111)(whatever,lixf,loxf);
389 tsu_render;
390 endtsuglyph;
391

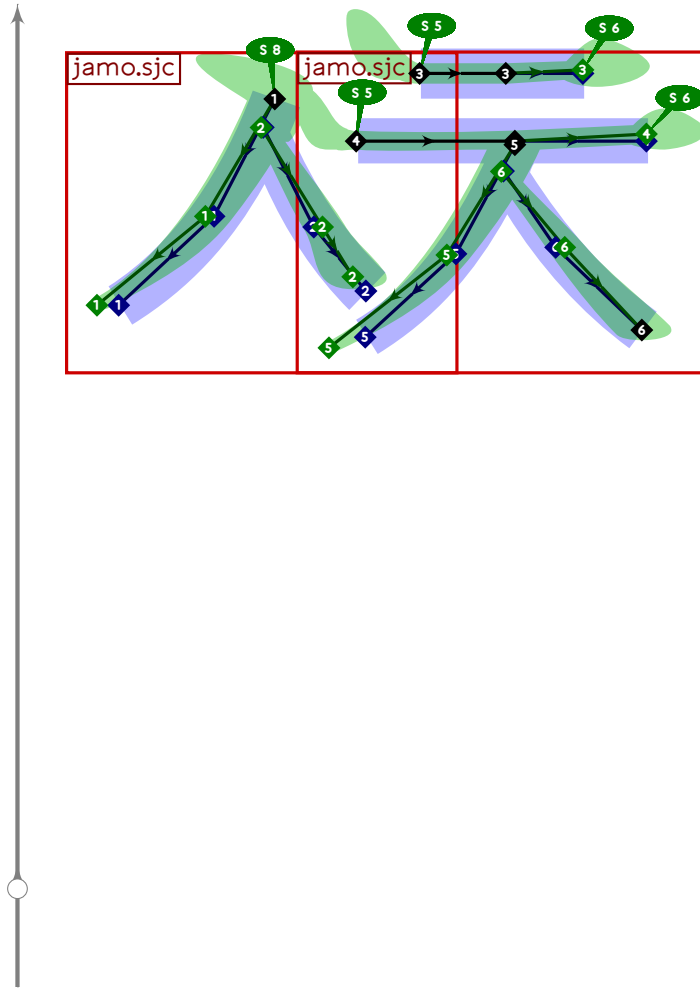
```



```

392 % hangul lead sios-cieuc
393 begintsuglyph("uni1136",54);
394 hangul.combine.lr(209,112)(whatever,lixf,loxf);
395 tsu_render;
396 endtsuglyph;
397

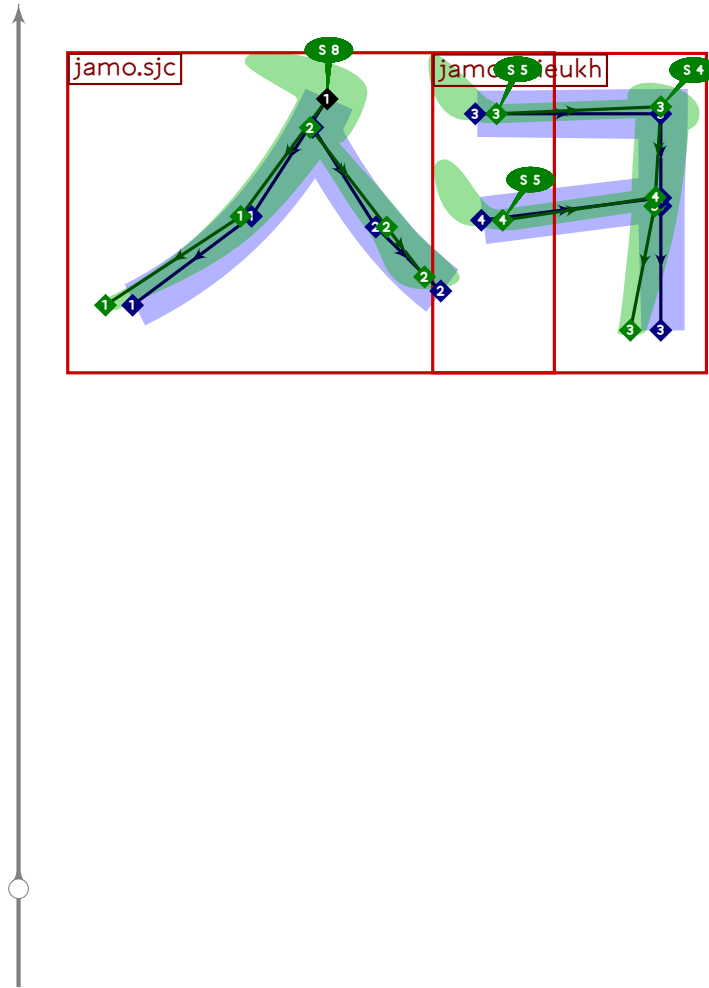
```



```

398 % hangul lead sios-chieuch
399 begintsuglyph("uni1137",55);
400 hangul.combine.lr(209,114)(whatever,lixf,loxf);
401 tsu_render;
402 endtsuglyph;
403

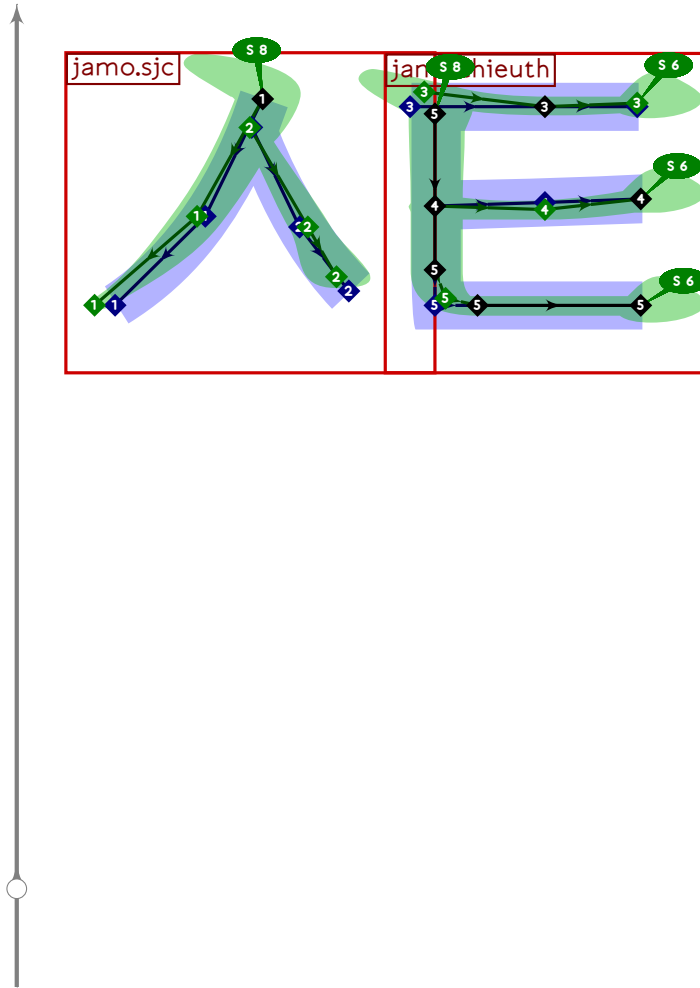
```



```

404 % hangul lead sios-khieukh
405 begintsuglyph("uni1138",56);
406 hangul.combine.lr(209,115)(whatever,lixf,loxf);
407 tsu_render;
408 endsuglyph;
409

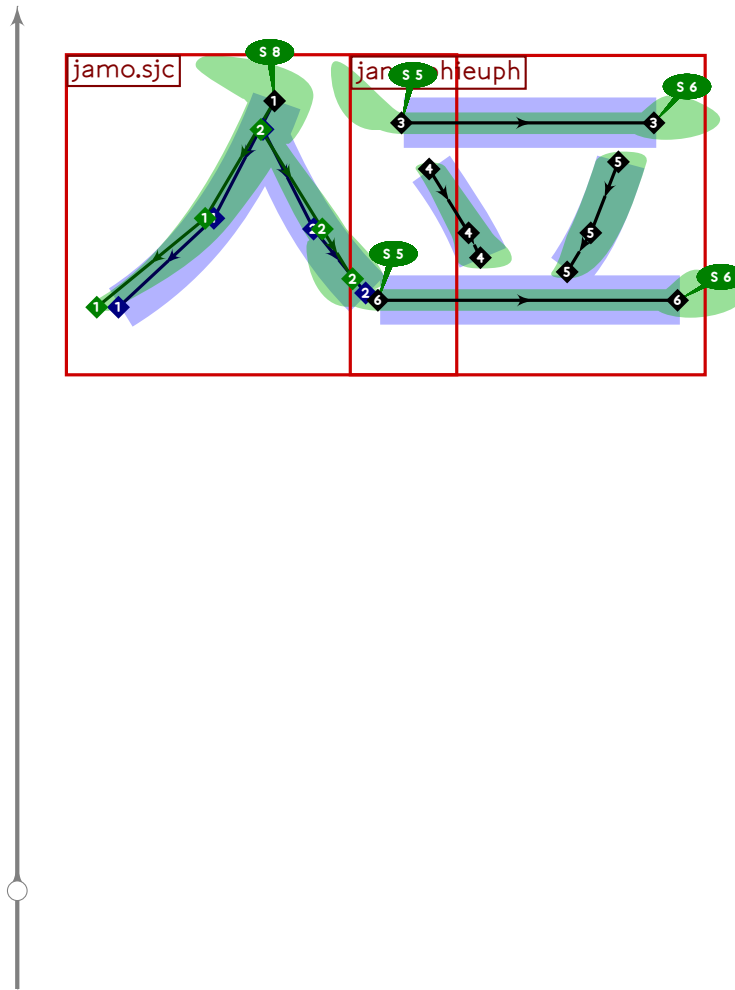
```



```

410 % hangul lead sios-thieuth
411 begint Suglyph("uni1139",57);
412 hangul.combine.lr(209,116)(whatever,lixf,loxf);
413 tsu_render;
414 endtsuglyph;
415

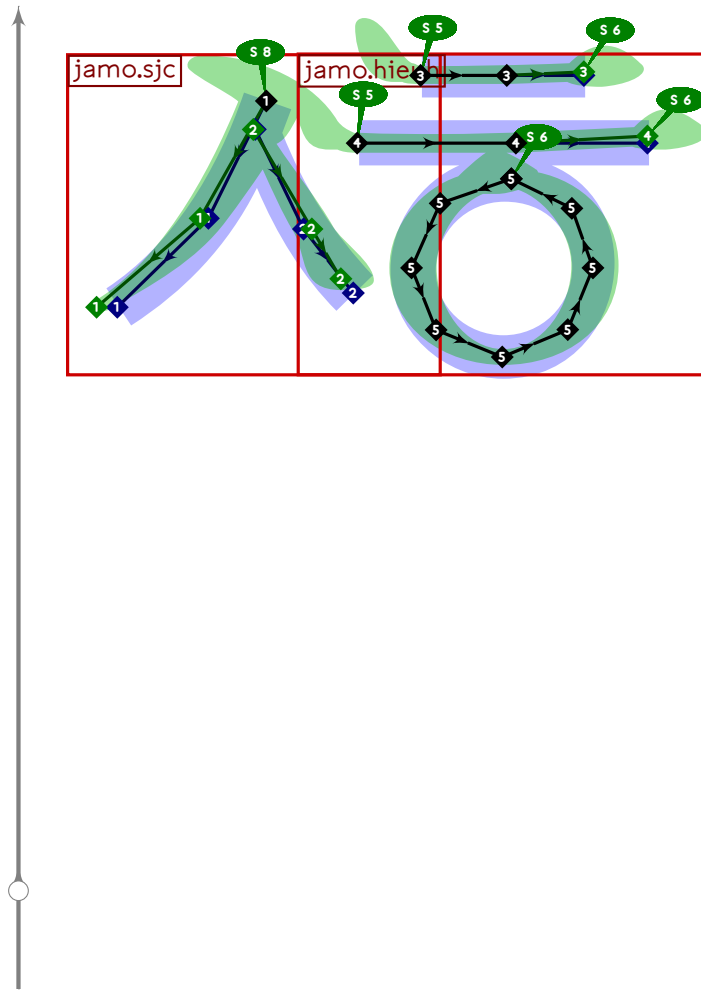
```



```

416 % hangul lead sios-phieuph
417 begint Suglyph("uni113A",58);
418 hangul.combine.lr(209,117)(whatever,lixf,loxf);
419 tsu_render;
420 endtsuglyph;
421

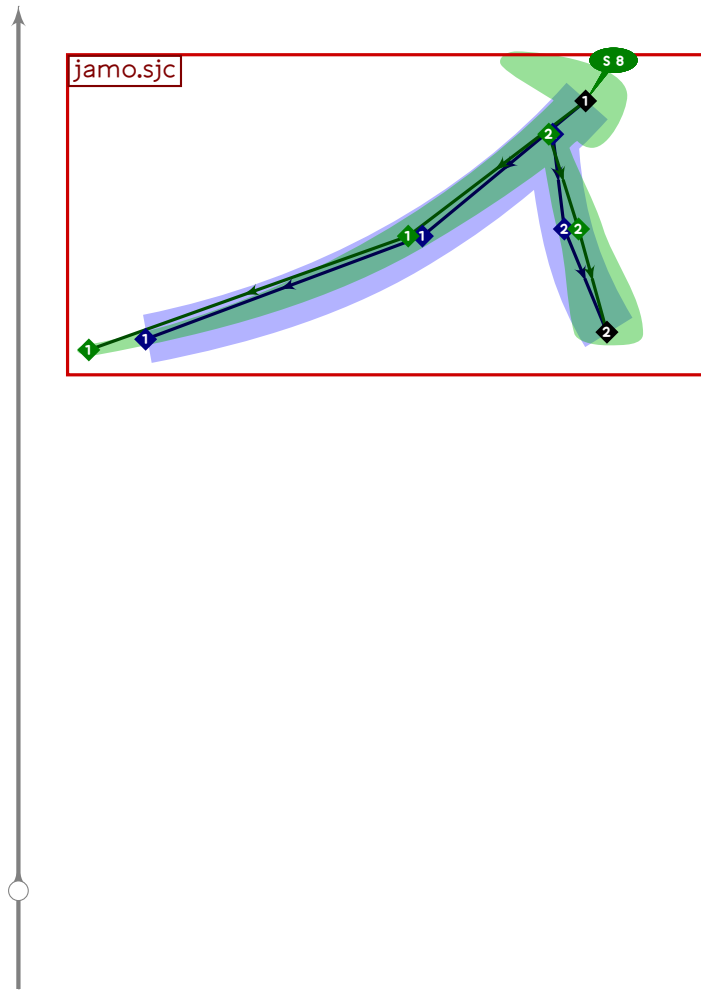
```



```

422 % hangul lead sios-hieuh
423 begintsuglyph("uni113B",59);
424 hangul.combine.lr(209,118)(whatever,lixf,loxf);
425 tsu_render;
426 endtsuglyph;
427

```

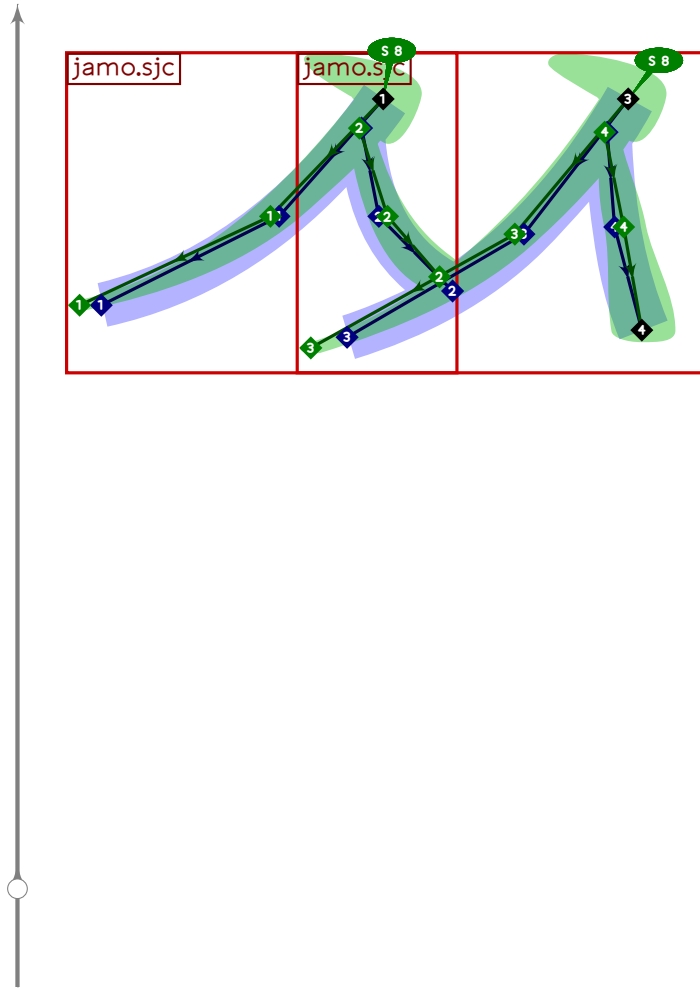


```

428 % hangul lead chitueumsios
429 begintsuglyph("uni113C",60);
430 hangul.jamo.sjc(0,1,false)(whatever,lixf,loxf);
431 tsu_render;
432 endtsuglyph;
433

```

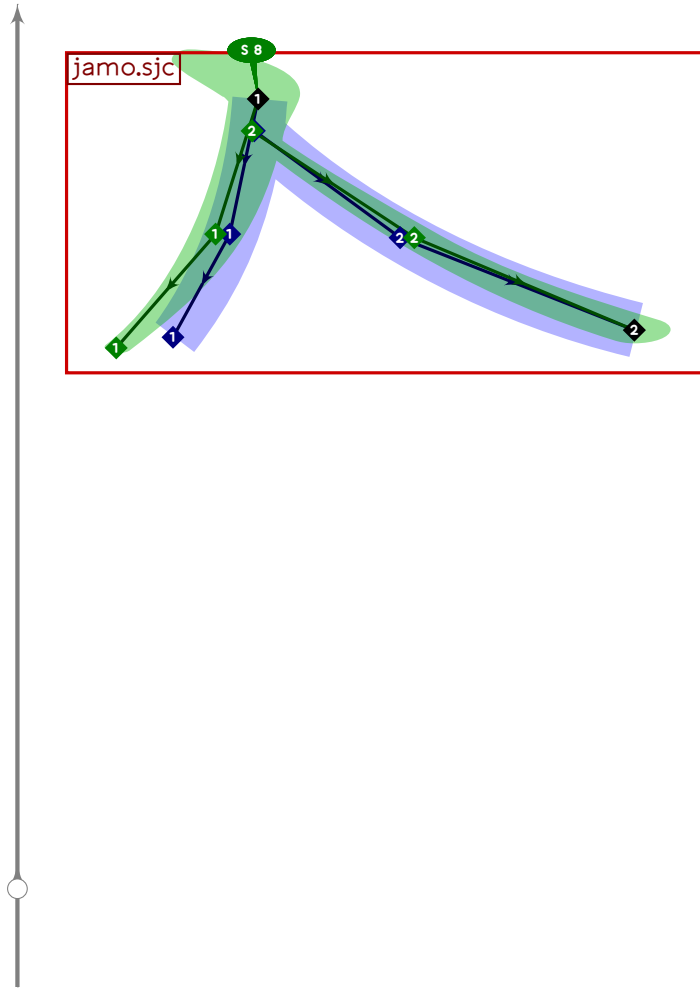




```

434 % hangul lead chitueumssangsios
435 begintsuglyph("uni113D",61);
436 hangul.combine.lr(223,222)(whatever,lixf,loxf);
437 tsu_render;
438 endsuglyph;
439

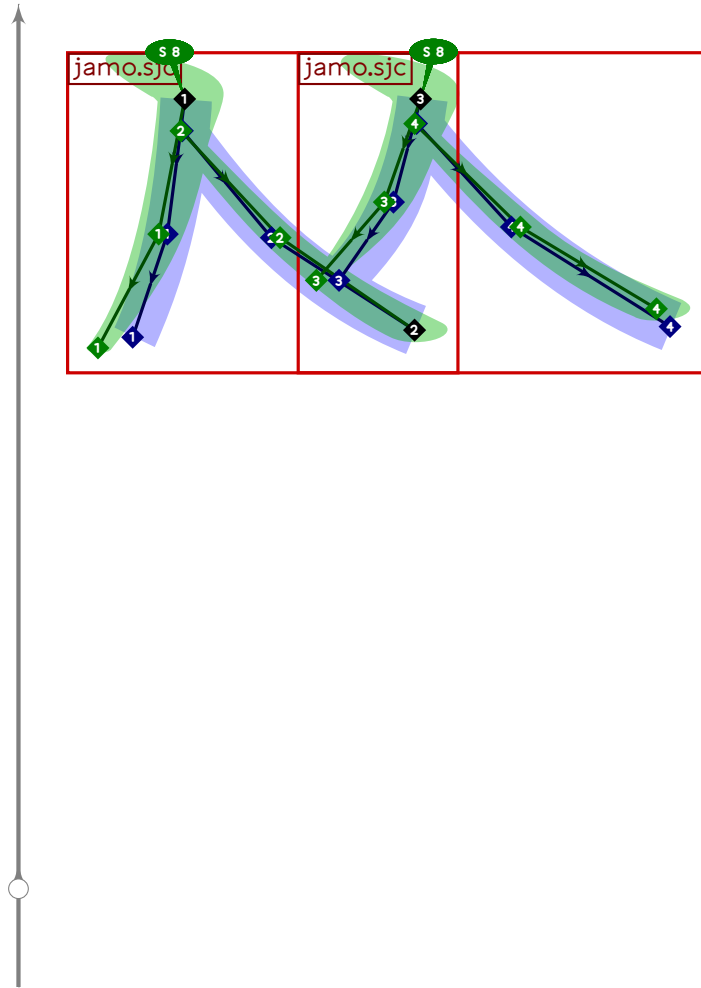
```



```

440 % hangul lead ceongchieumsios
441 begint Suglyph("uni113E",62);
442 hangul.jamo.sjc(0,-1,false)(whatever,lixf,loxf);
443 tsu_render;
444 endtsuglyph;
445

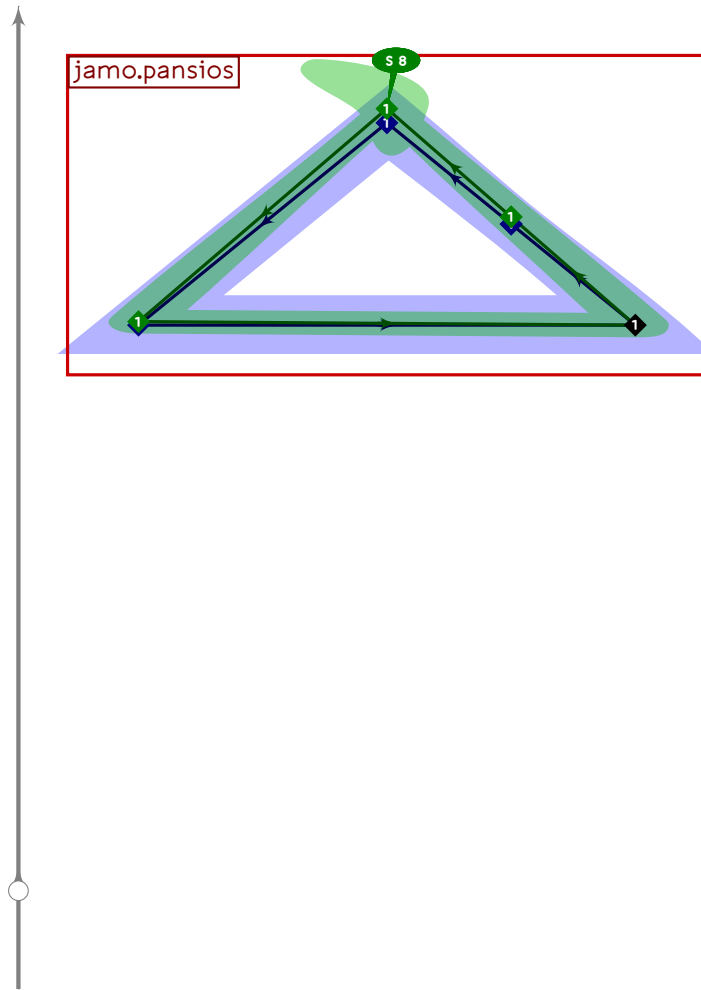
```



```

446 % hangul lead ceongchieumssangsios
447 begintsuglyph("uni113F",63);
448 hangul.combine.lr(224,225)(whatever,lixf,loxf);
449 tsu_render;
450 endsuglyph;
451

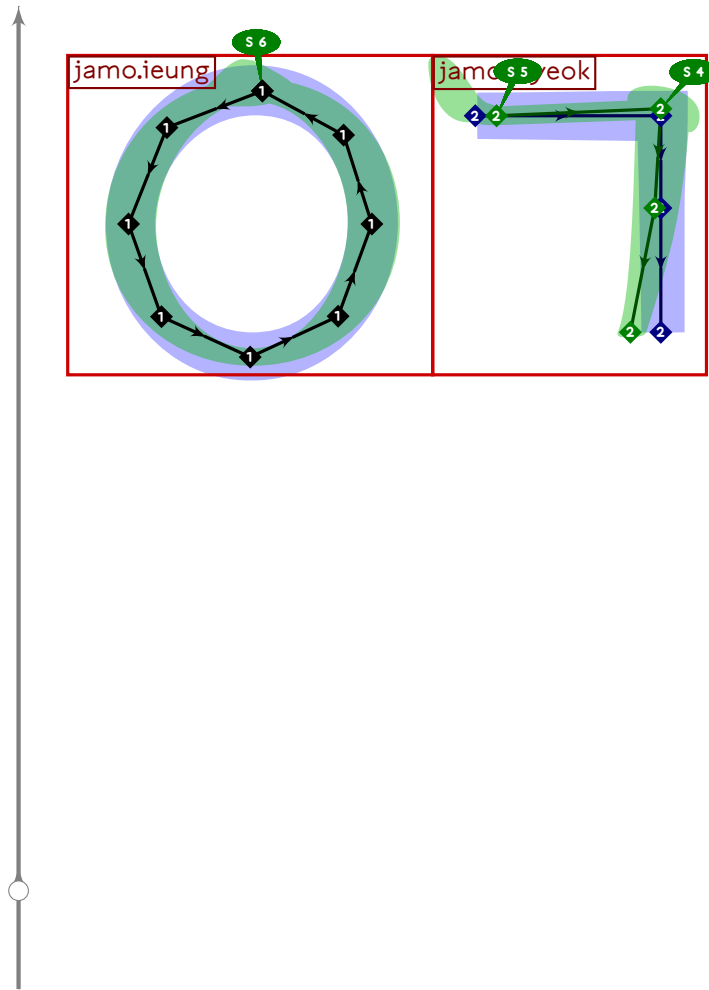
```



```

452 % hangul lead pansios
453 begintsuglyph("uni1140",64);
454 hangul.jamo.pansios(whatever,lixf,loxf);
455 tsu_render;
456 endtsuglyph;
457

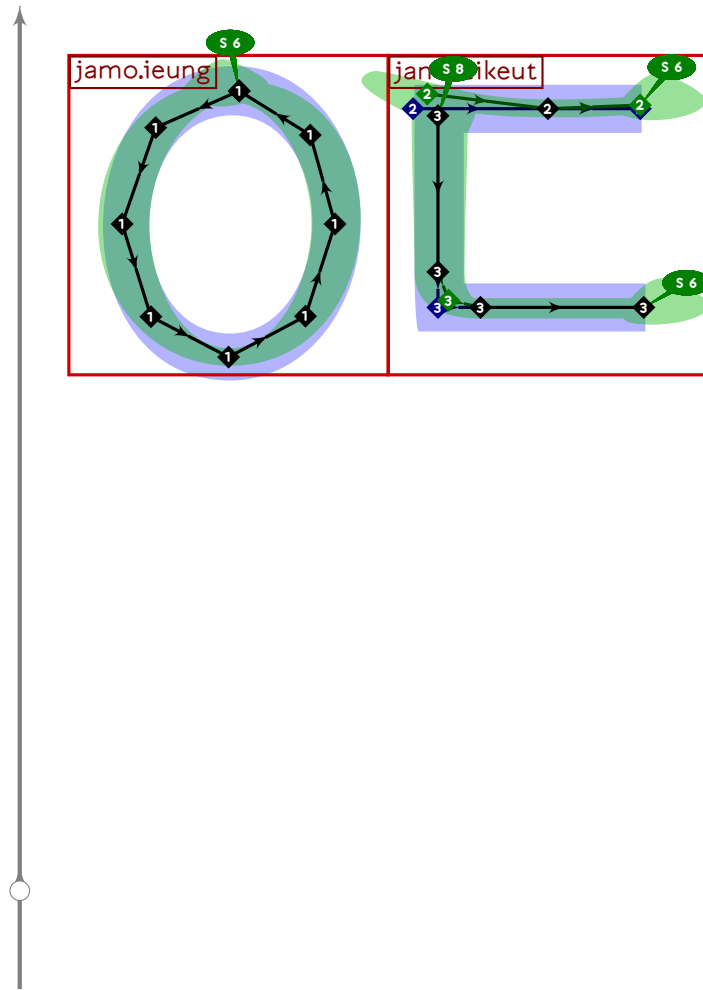
```



```

458 % hangul lead ieung-kiyeok
459 begintsuglyph("uni1141",65);
460 hangul.combine.lr(111,100)(whatever,lixf,loxf);
461 tsu_render;
462 endsuglyph;
463

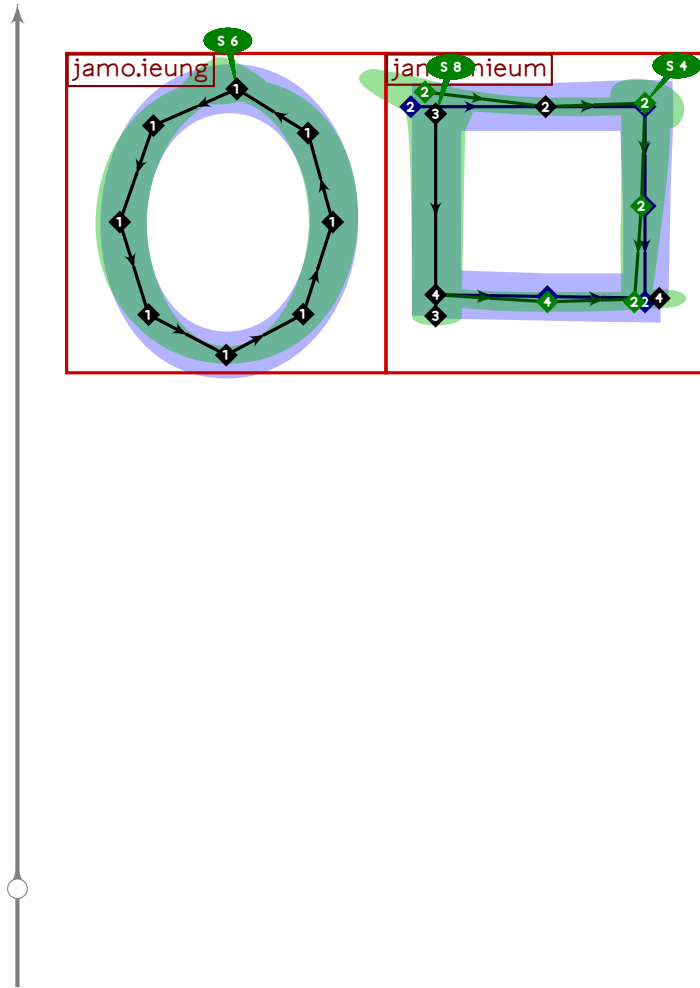
```



```

464 % hangul lead ieung-tikeut
465 begintsuglyph("uni1142",66);
466 hangul.combine.lr(111,103)(whatever,lixf,loxf);
467 tsu_render;
468 endsuglyph;
469

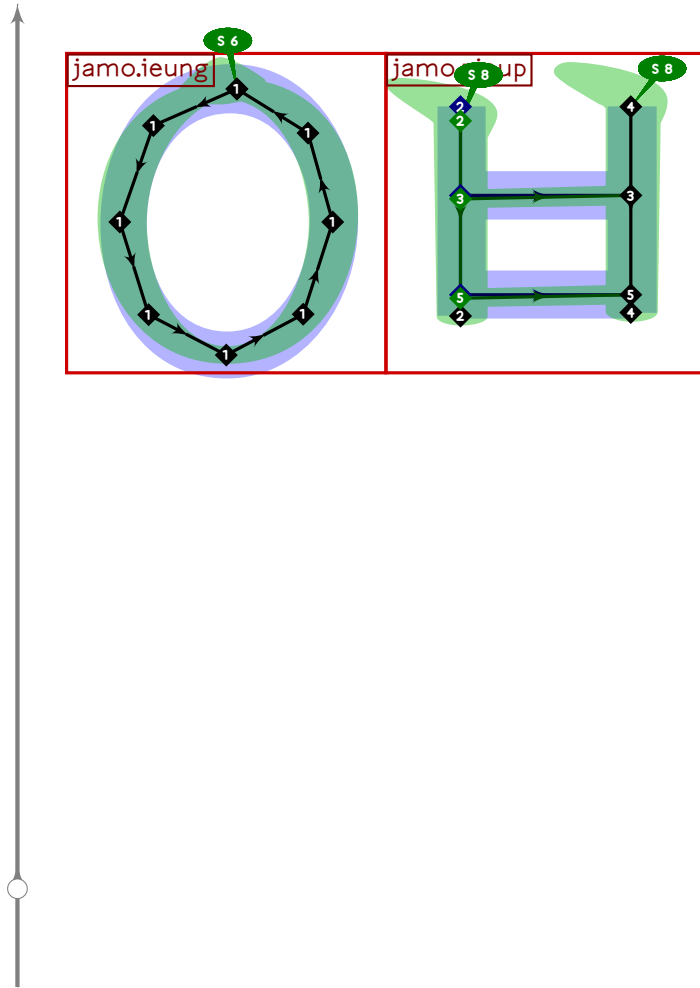
```



```

470 % hangul lead ieung-mieum
471 begintsuglyph("uni1143",67);
472 hangul.combine.lr(111,106)(whatever,lixf,loxf);
473 tsu_render;
474 endsuglyph;
475

```

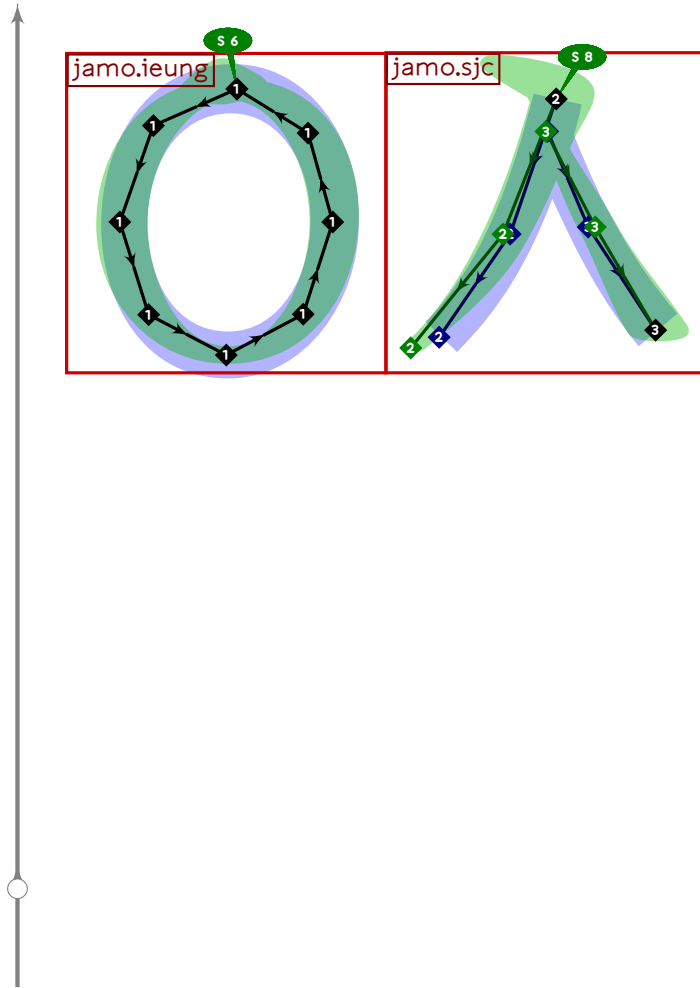


```

476 % hangul lead ieung-pieup
477 begintsuglyph("uni1144",68);
478 hangul.combine.lr(111,107)(whatever,lixf,loxf);
479 tsu_render;
480 endsuglyph;
481

```

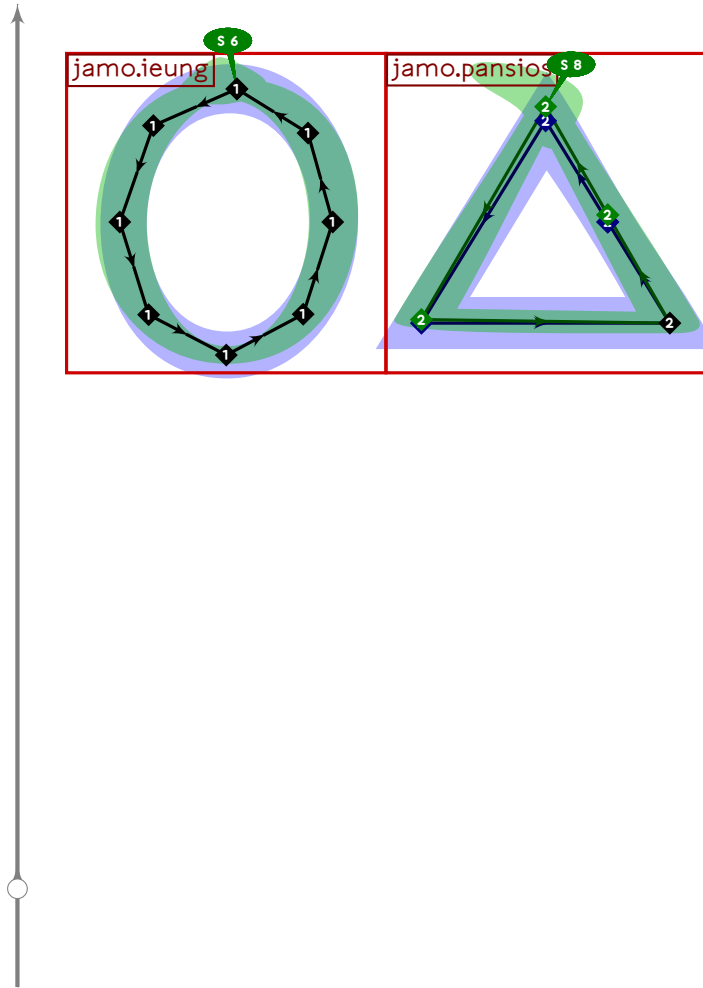




```

482 % hangul lead ieung-sios
483 begintsuglyph("uni1145",69);
484 hangul.combine.lr(111,109)(whatever,lixf,loxf);
485 tsu_render;
486 endsuglyph;
487

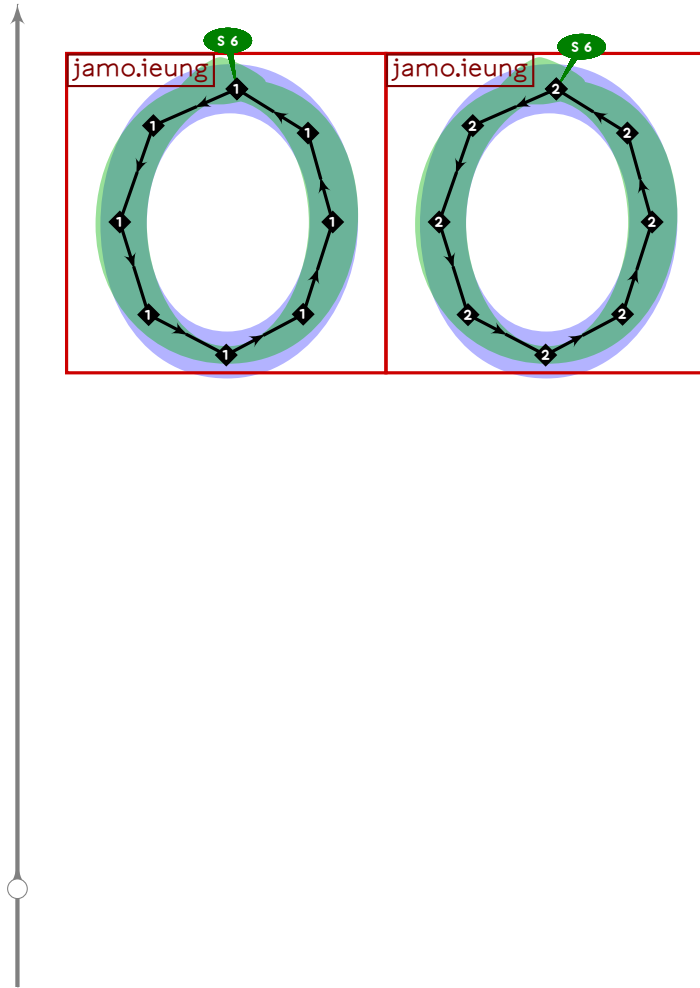
```



```

488 % hangul lead ieung-pansios
489 begintsuglyph("uni1146";70);
490 hangul.combine.lr(111,219)(whatever,lixf,loxf);
491 tsu_render;
492 endsuglyph;
493

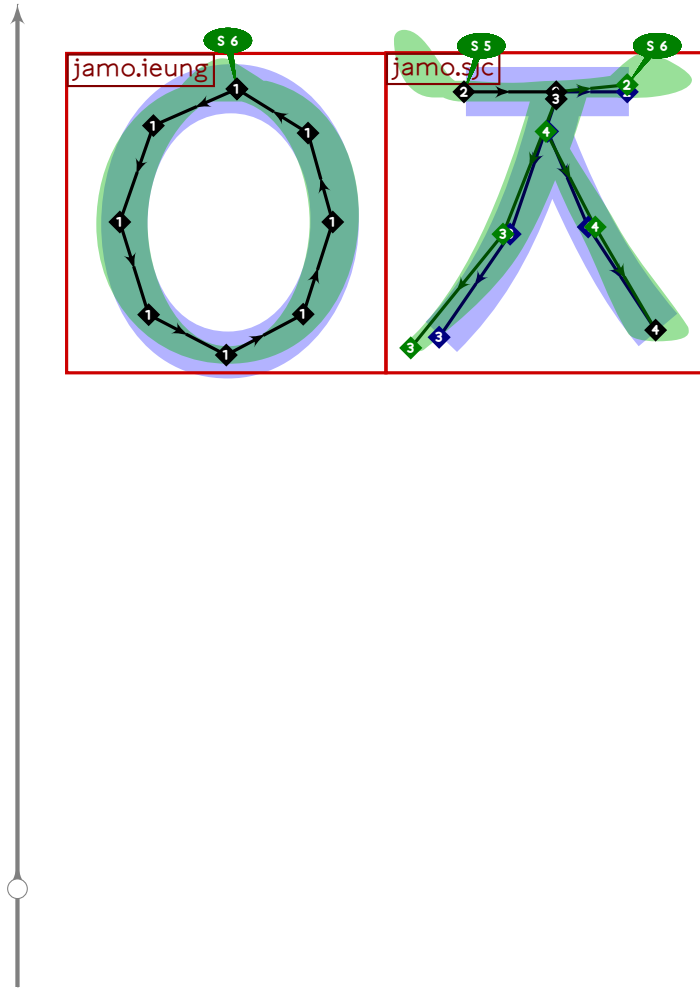
```



```

494 % hangul lead ssangieung
495 begintsuglyph("uni1147";71);
496 hangul.combine.lr(111,111)(whatever,lixf,loxf);
497 tsu_render;
498 endsuglyph;
499

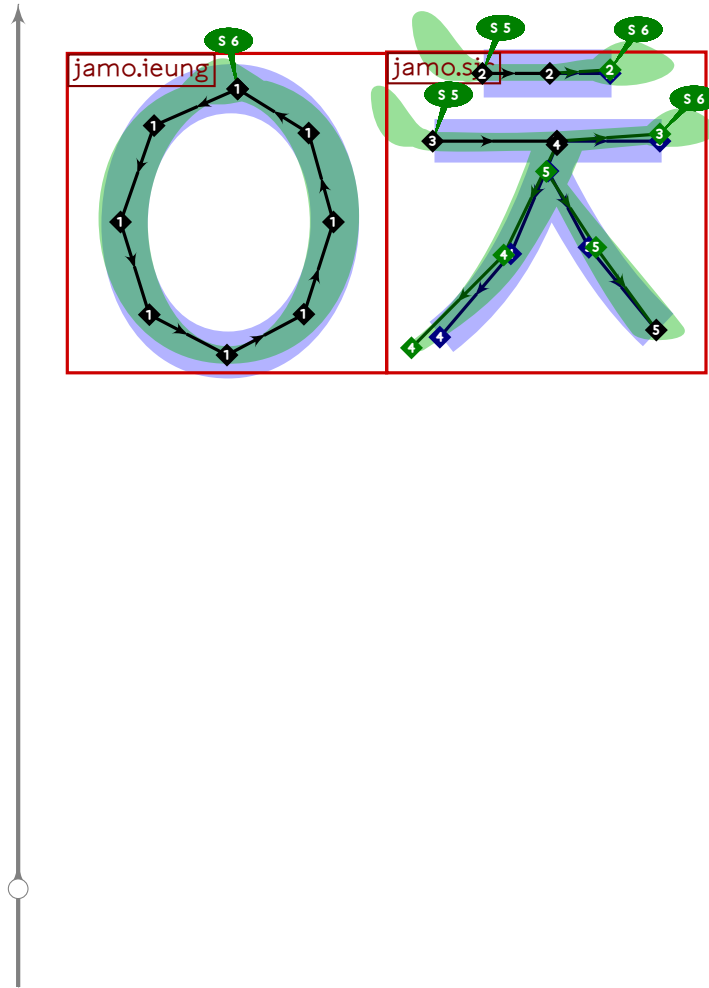
```



```

500 % hangul lead ieung-cieuc
501 begintsuglyph("uni1148";72);
502 hangul.combine.lr(111,112)(whatever,lixf,loxf);
503 tsu_render;
504 endsuglyph;
505

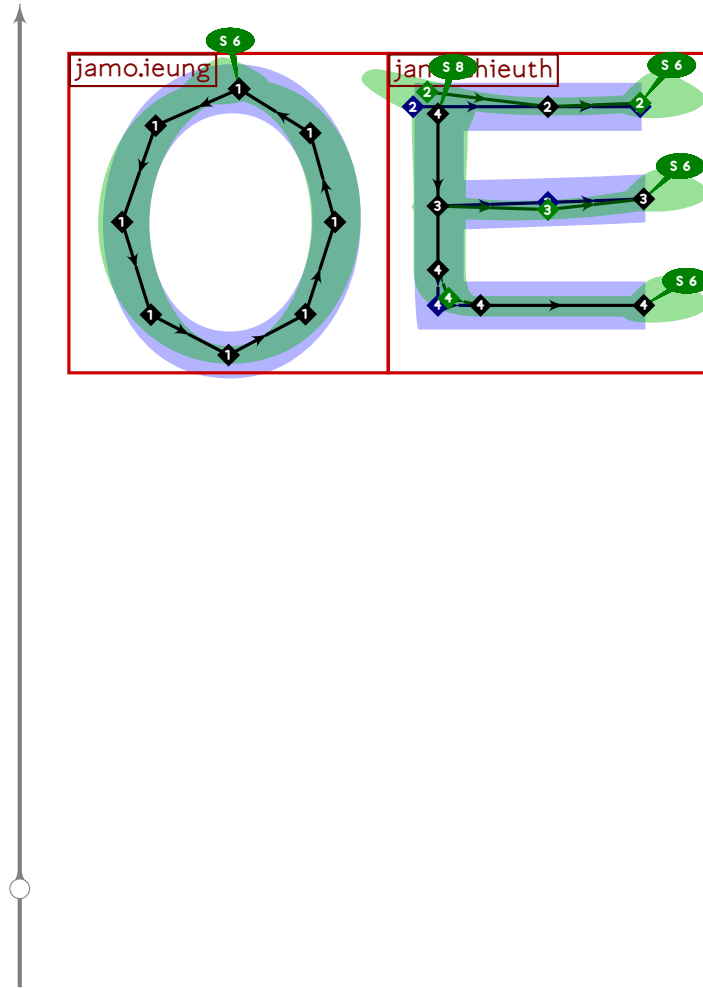
```



```

506 % hangul lead ieung-chieuch
507 begintsuglyph("uni1149",73);
508 hangul.combine.lr(111,114)(whatever,lixf,loxf);
509 tsu_render;
510 endsuglyph;
511

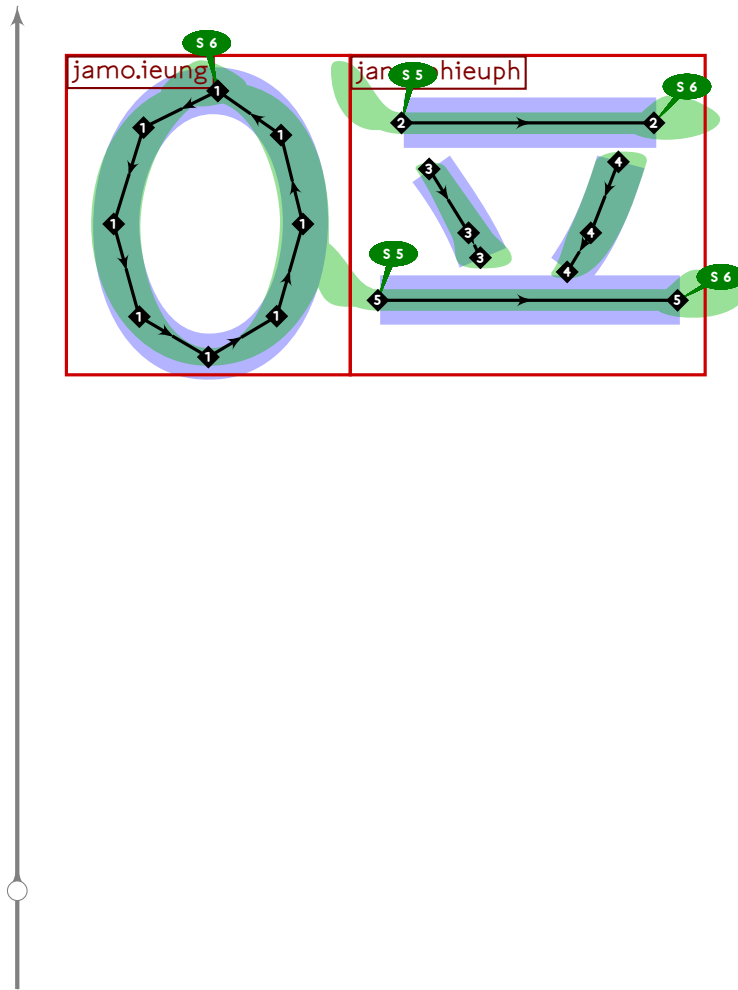
```



```

512 % hangul lead ieung-theiuth
513 begintsuglyph("uni114A",74);
514 hangul.combine.lr(111,116)(whatever,lixf,loxf);
515 tsu_render;
516 endsuglyph;
517

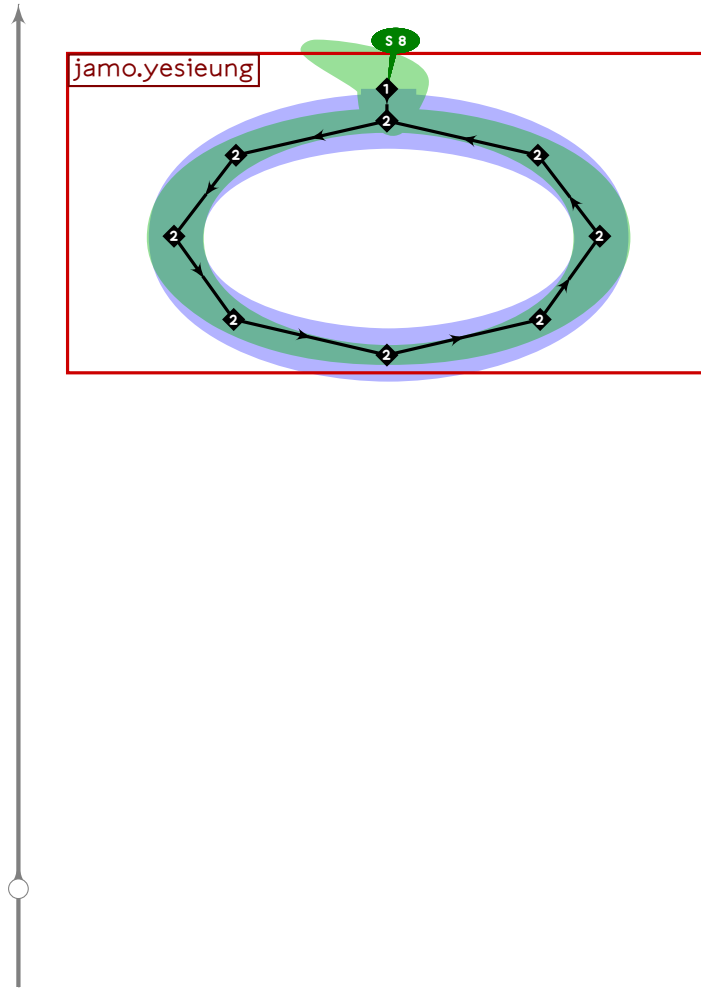
```



```

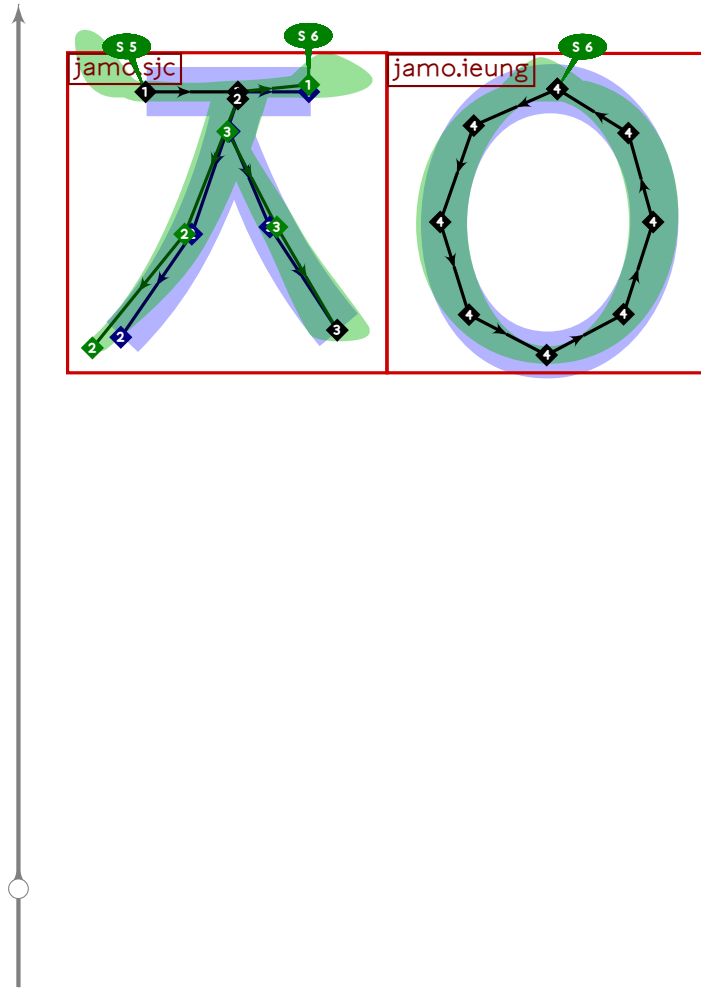
518 % hangul lead ieung-phieuph
519 begintsuglyph("uni114B";75);
520 hangul.combine.lr(111,117)(whatever,lixf,loxf);
521 tsu_render;
522 endsuglyph;
523

```



```
524 % hangul lead yesieung
525 begintsuglyph("uni114C",76);
526 hangul.jamo.yesieung(whatever,lixf,loxf);
527 tsu_render;
528 endsuglyph;
529
```

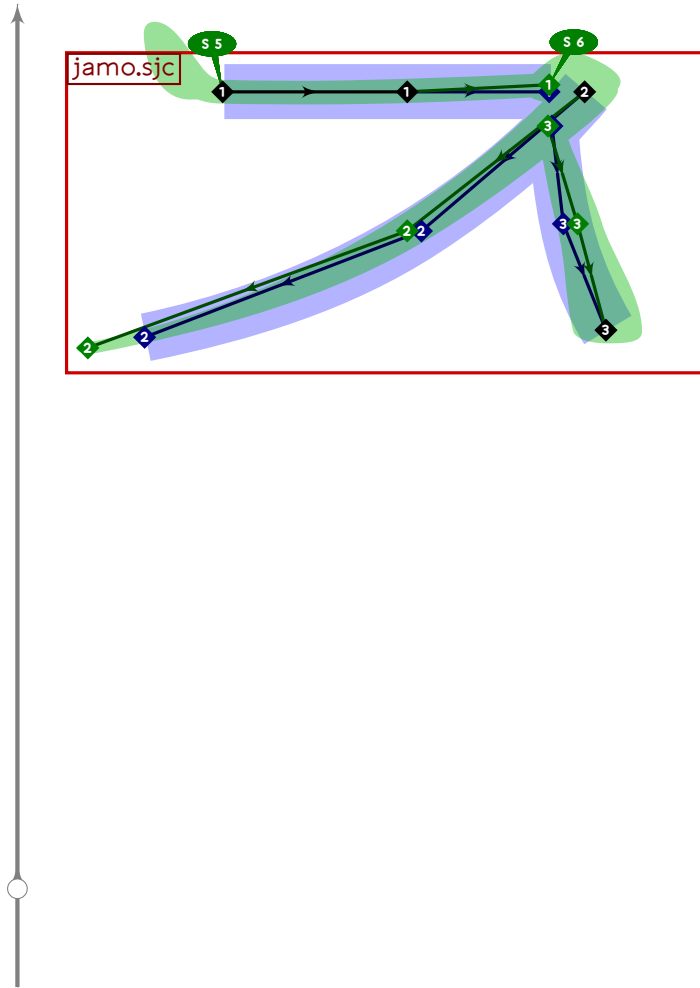




```

530 % hangul lead cieuc-ieung
531 begintsuglyph("uni114D",77);
532 hangul.combine.lr(112,111)(whatever,lixf,loxf);
533 tsu_render;
534 endsuglyph;
535

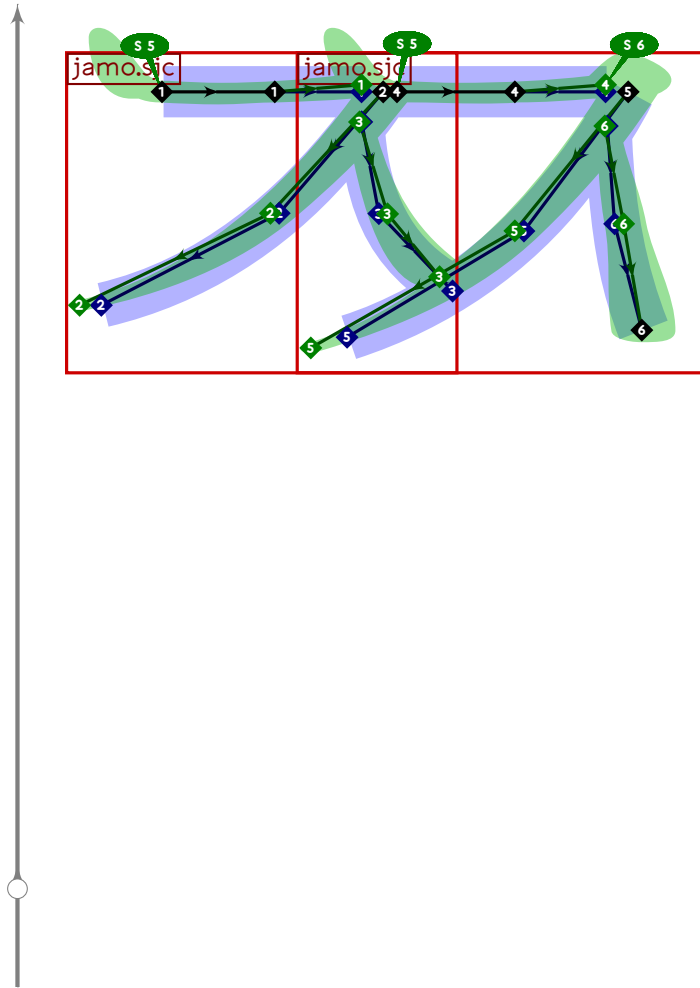
```



```

536 % hangul lead chitueumcieuc
537 begint Suglyph("uni114E",78);
538 hangul.jamo.sjc(1,1,false)(whatever,lixf,loxf);
539 tsu_render;
540 endtsuglyph;
541

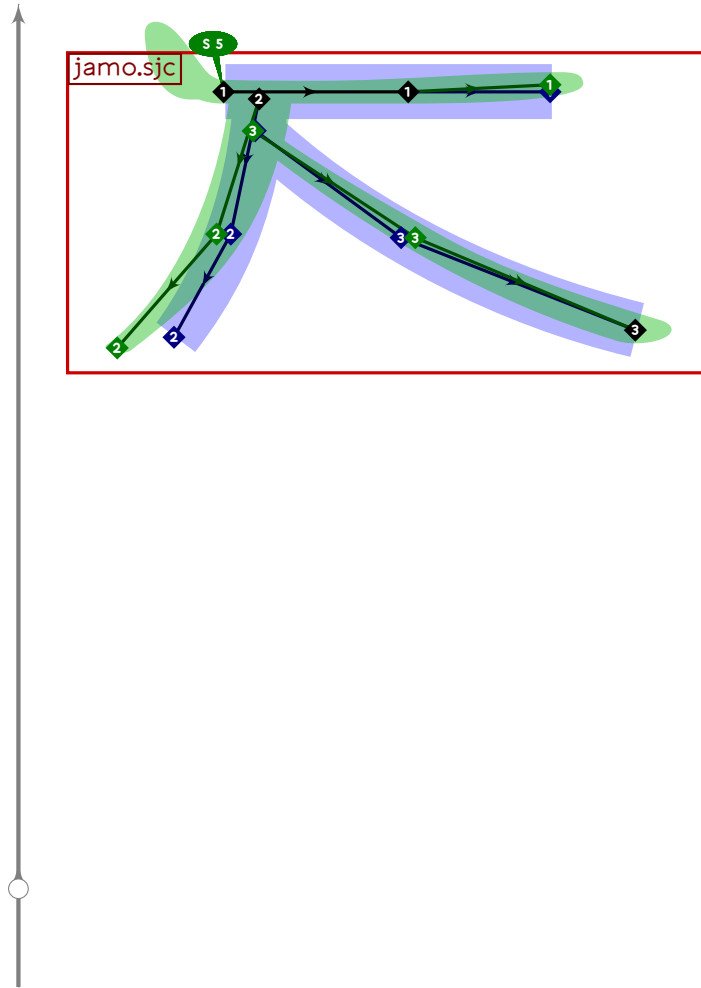
```



```

542 % hangul lead chitueumssangcieuc
543 begintsuglyph("uni114F";79);
544 hangul.combine.lr(227,226)(whatever,lixf,loxf);
545 tsu_render;
546 endsuglyph;
547

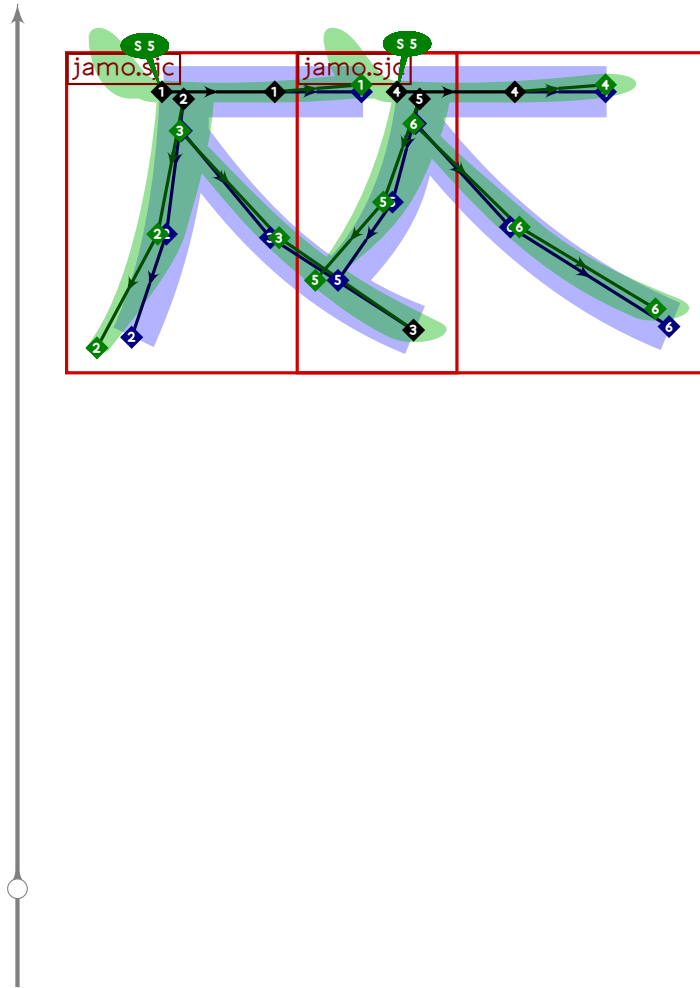
```



```

548 % hangul lead ceongchieumcieuc
549 begint Suglyph("uni1150",80);
550 hangul.jamo.sjc(1,-1,false)(whatever,lixf,loxf);
551 tsu_render;
552 endtsuglyph;
553

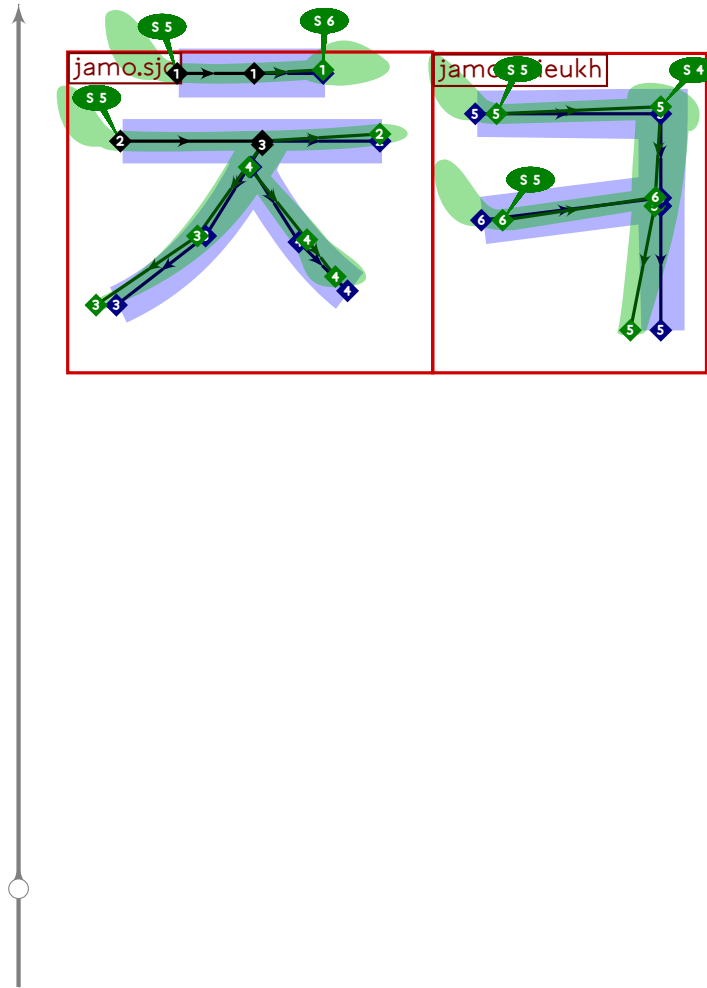
```



```

554 % hangul lead ceongchieumssangcieuc
555 begintsuglyph("uni1151",81);
556 hangul.combine.lr(228,229)(whatever,lixf,loxf);
557 tsu_render;
558 endsuglyph;
559

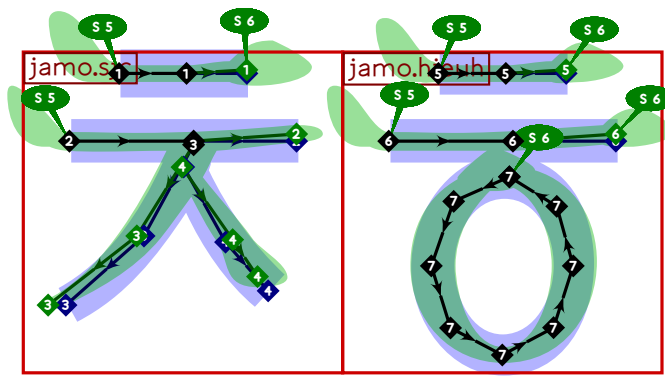
```



```

560 % hangul lead chieuch-khieukh
561 begintsuglyph("uni1152",82);
562 hangul.combine.lcr(214,230,115)(whatever,lixf,loxf);
563 tsu_render;
564 endsuglyph;
565

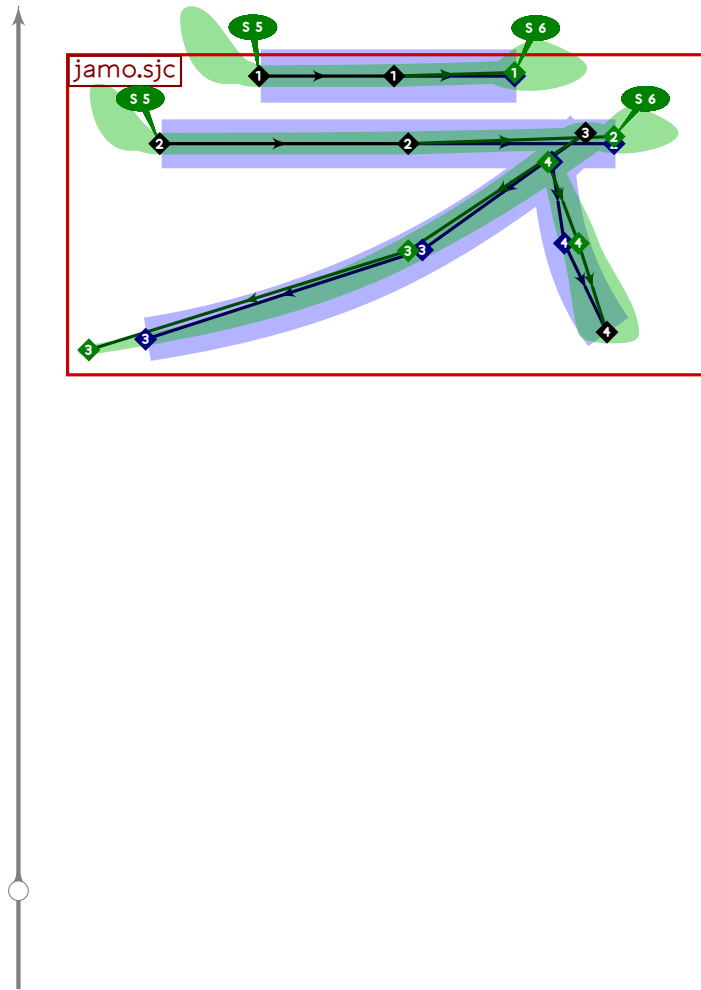
```



```

566 % hangul lead chieuch-hieuh
567 begintsuglyph("uni1153",83);
568 hangul.combine.lcr(214,230,118)(whatever,lixf,loxf);
569 tsu_render;
570 endsuglyph;
571

```

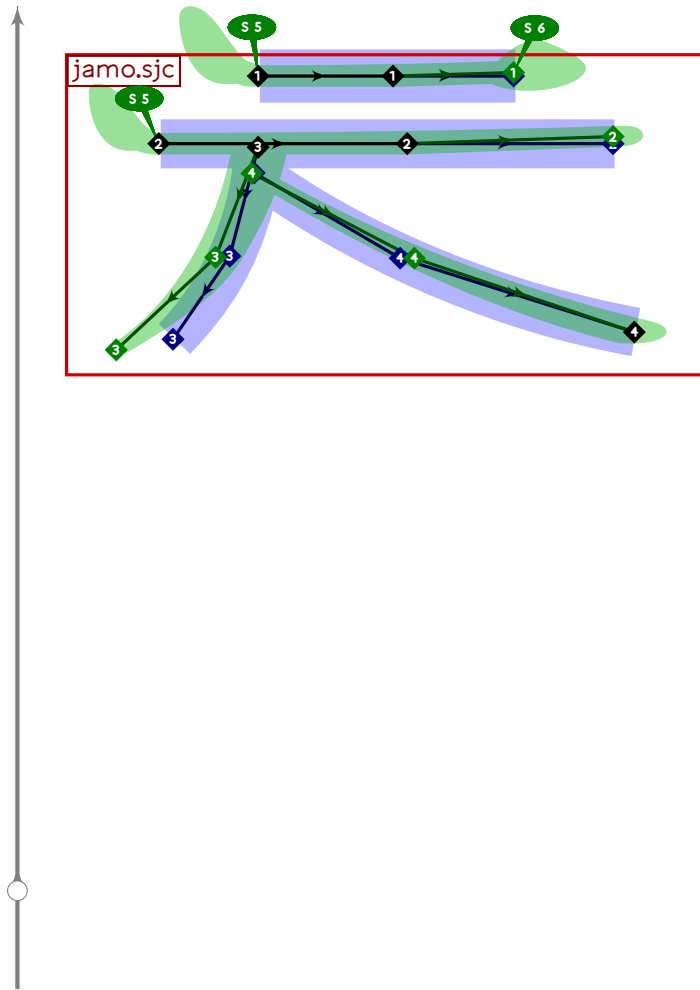


```

572 % hangul lead chitueumcieuc
573 begintsuglyph("uni1154",84);
574 hangul.jamo.sjc(2,1,false)(whatever,lixf,loxf);
575 tsu_render;
576 endtsuglyph;
577

```

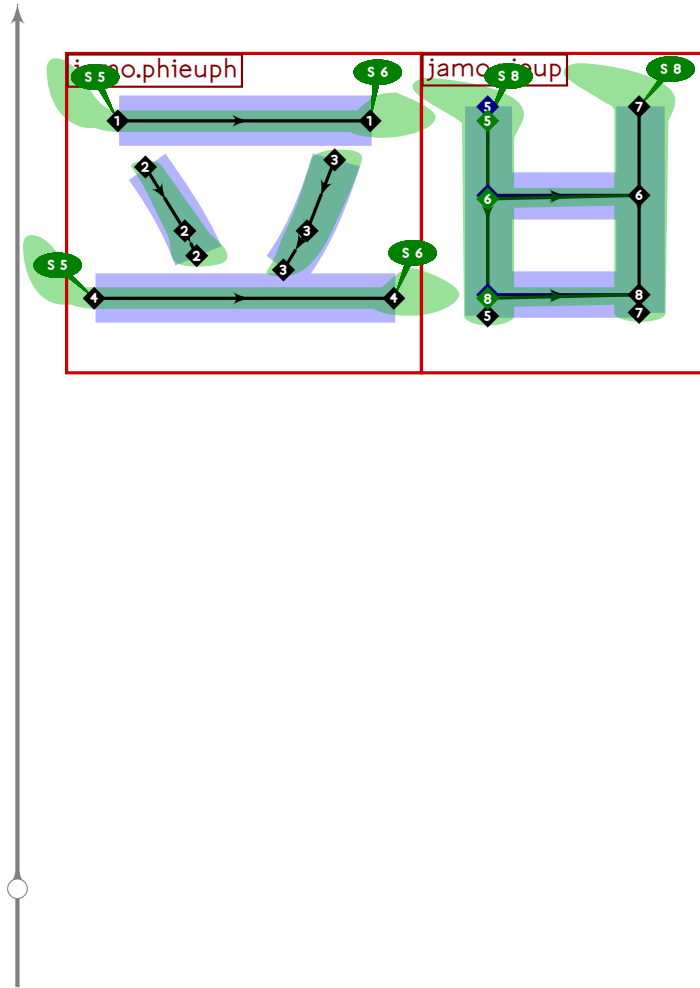




```

578 % hangul lead ceongchieumcieuc
579 begintsuglyph("uni1155",85);
580 hangul.jamo.sjc(2,-1,false)(whatever,lixf,loxf);
581 tsu_render;
582 endsuglyph;
583

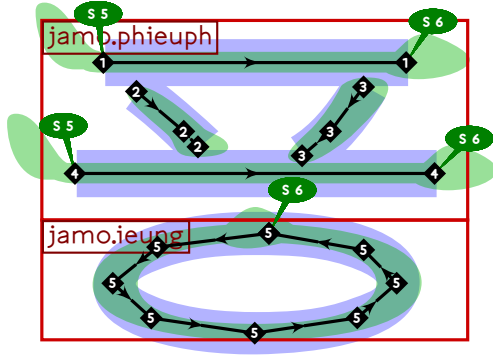
```



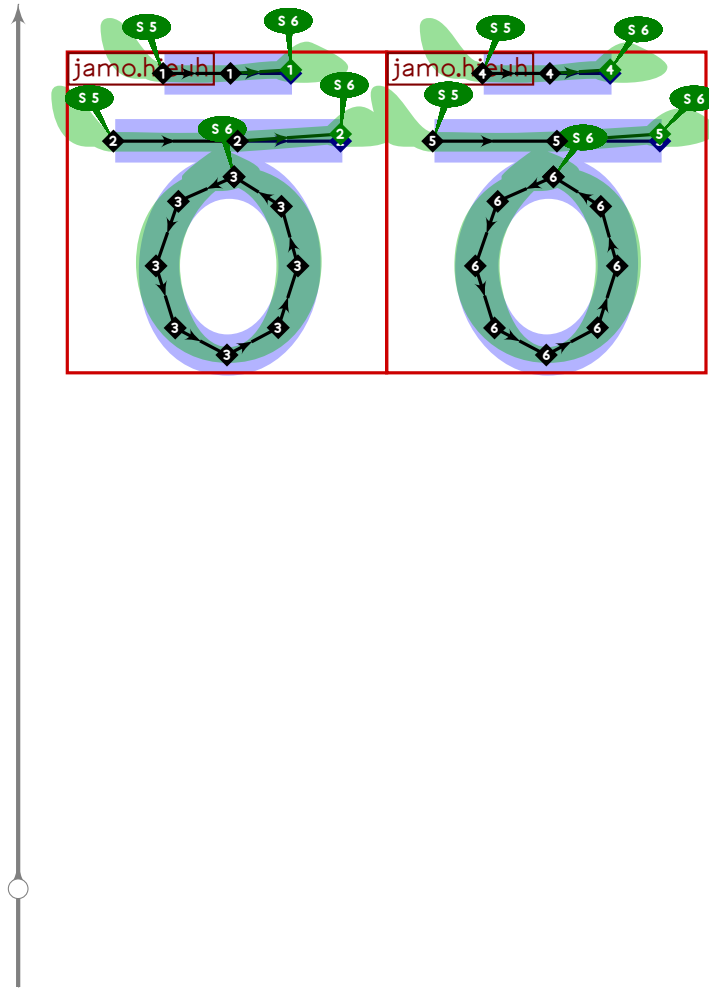
```

584 % hangul lead phieuph-pieup
585 begintsuglyph("uni1156",86);
586 hangul.combine.lr(117,107)(whatever,lixf,loxf);
587 tsu_render;
588 endsuglyph;
589

```



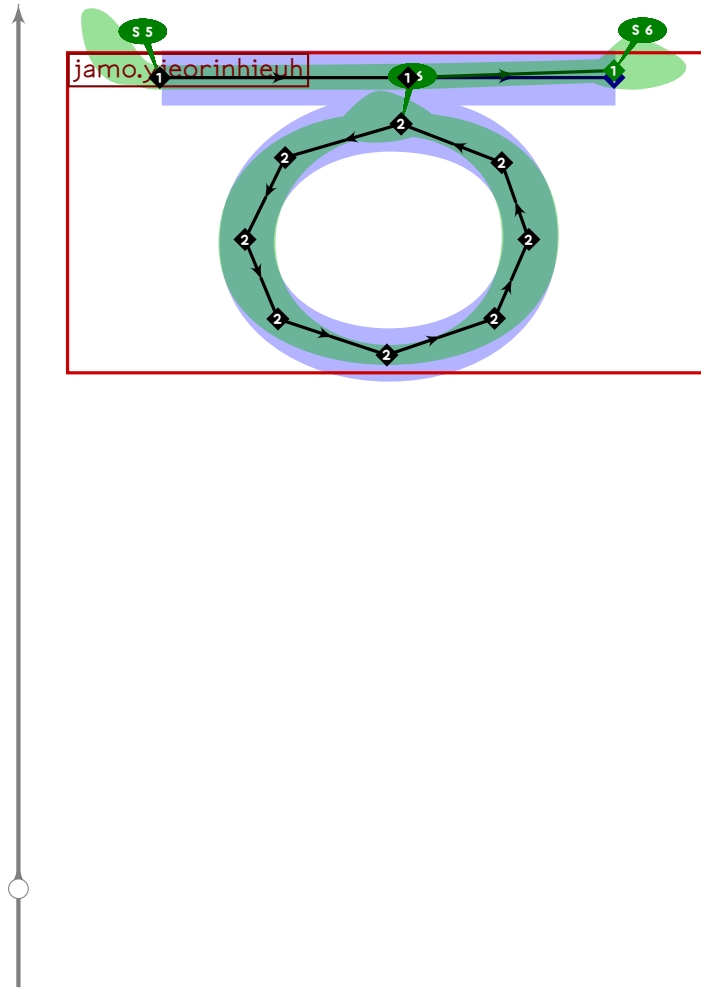
```
590 % hangul lead kapyeounphieuph
591 begint Suglyph("uni1157",87);
592 hangul.combine.tb(117,521)(whatever,
593   hxf((250,850),(850,-50)) transformed lixf,loxf);
594 tsu_render;
595 endsuglyph;
596
```



```

597 % hangul lead ssanghieuh
598 begintsuglyph("uni1158",88);
599 hangul.combine.lcr(118,230,118)(whatever,lixf,loxf);
600 tsu_render;
601 endtsuglyph;
602

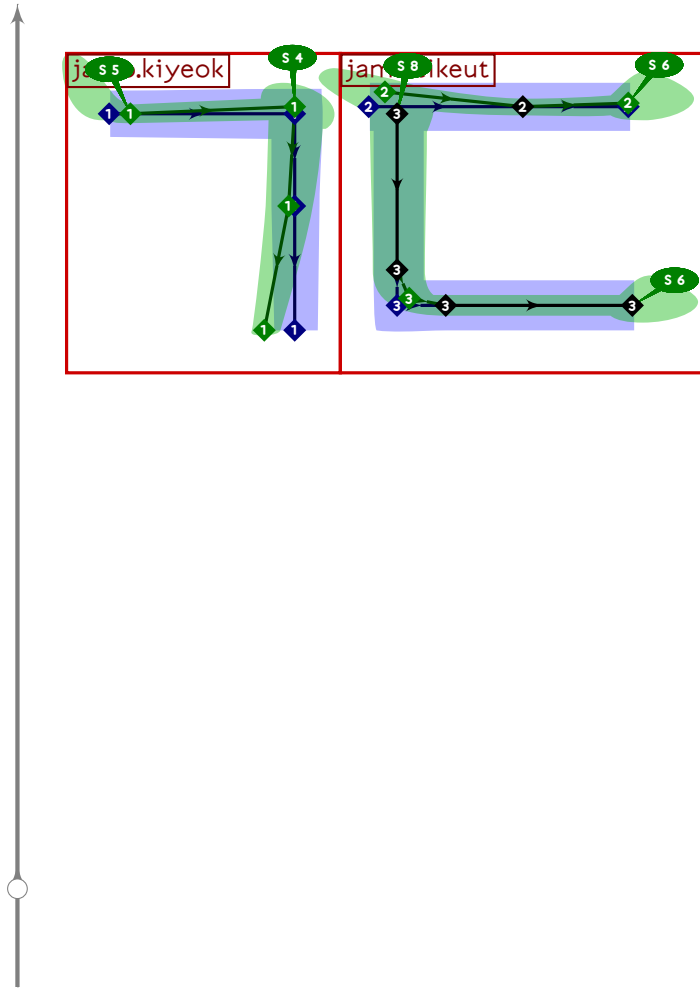
```



```

603 % hangul lead yeorinhieuh
604 begintsuglyph("uni1159",89);
605 hangul.jamo.yeorinhieuh(whatever,lixf,loxf);
606 tsu_render;
607 endsuglyph;
608

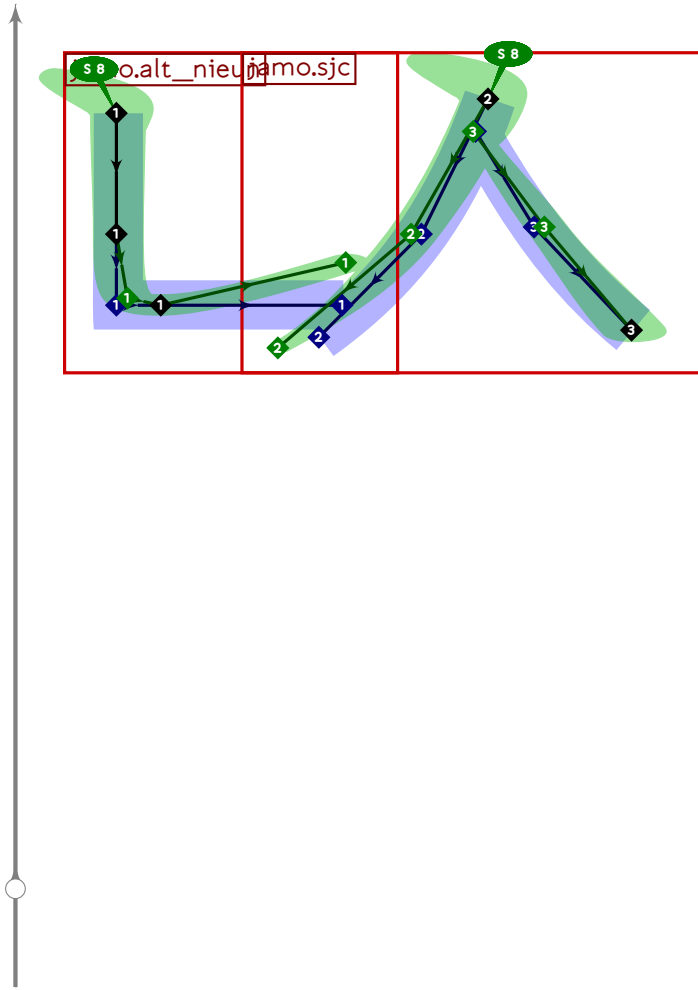
```



```

609 % hangul lead kiyeok-tikeut
610 begintsuglyph("uni115A";90);
611 hangul.combine.lr(100,103)(whatever,lixf,loxf);
612 tsu_render;
613 endtsuglyph;
614

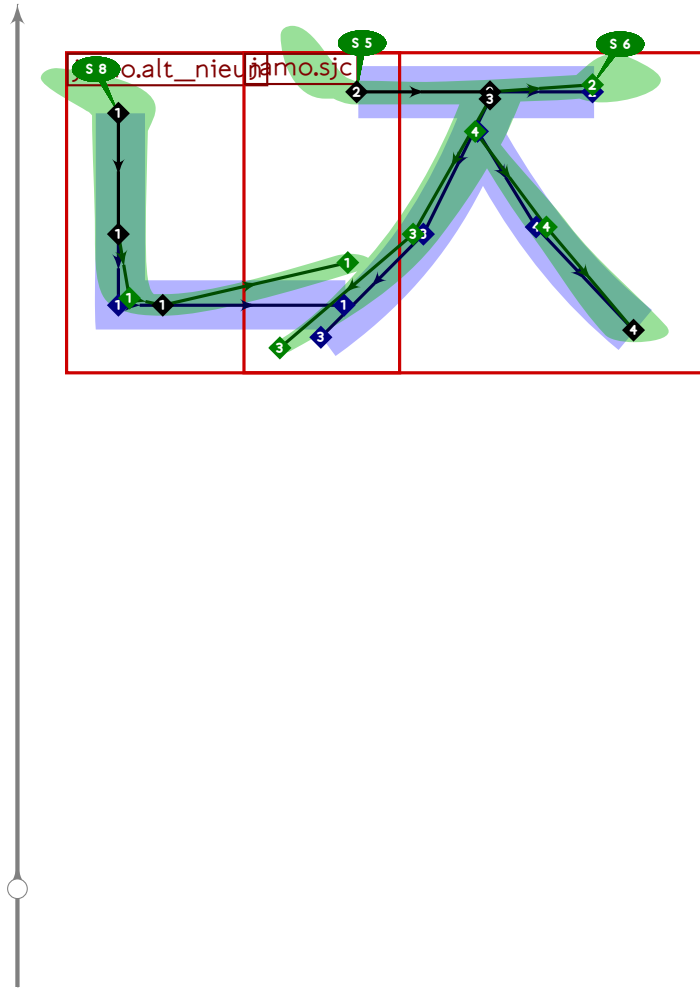
```



```

615 % hangul lead nieun-sios
616 begintsuglyph("uni115B";91);
617 hangul.combine.lr(202,109)(whatever,lixf,loxf);
618 tsu_render;
619 endtsuglyph;
620

```

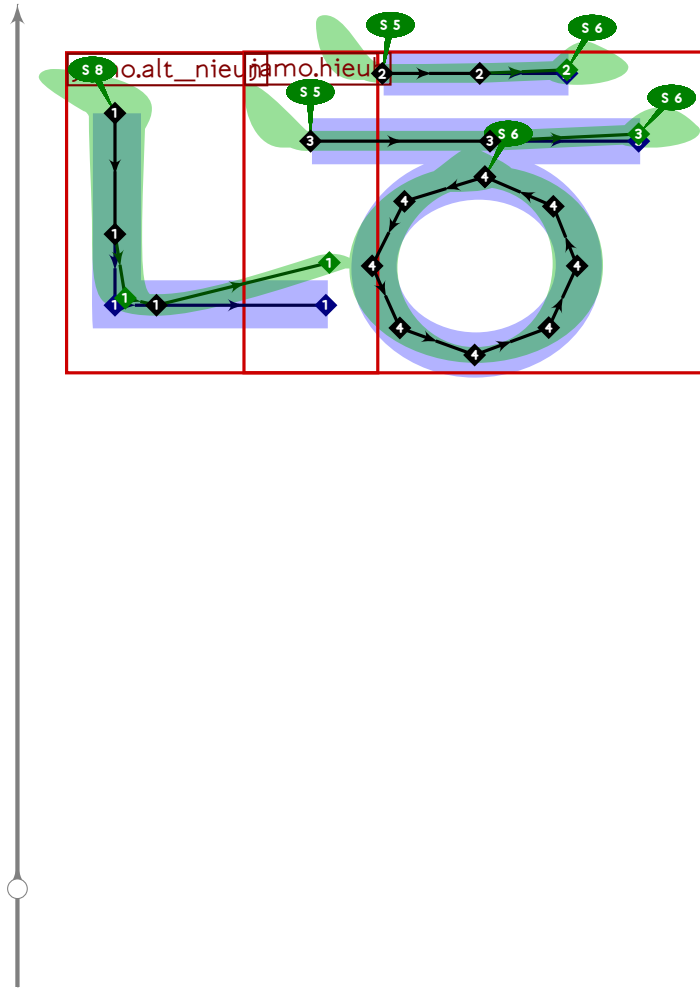


```

621 % hangul lead nieun-cieuc
622 begintsuglyph("uni115C";92);
623 hangul.combine.lr(202,112)(whatever,lixf,loxf);
624 tsu_render;
625 endsuglyph;
626

```

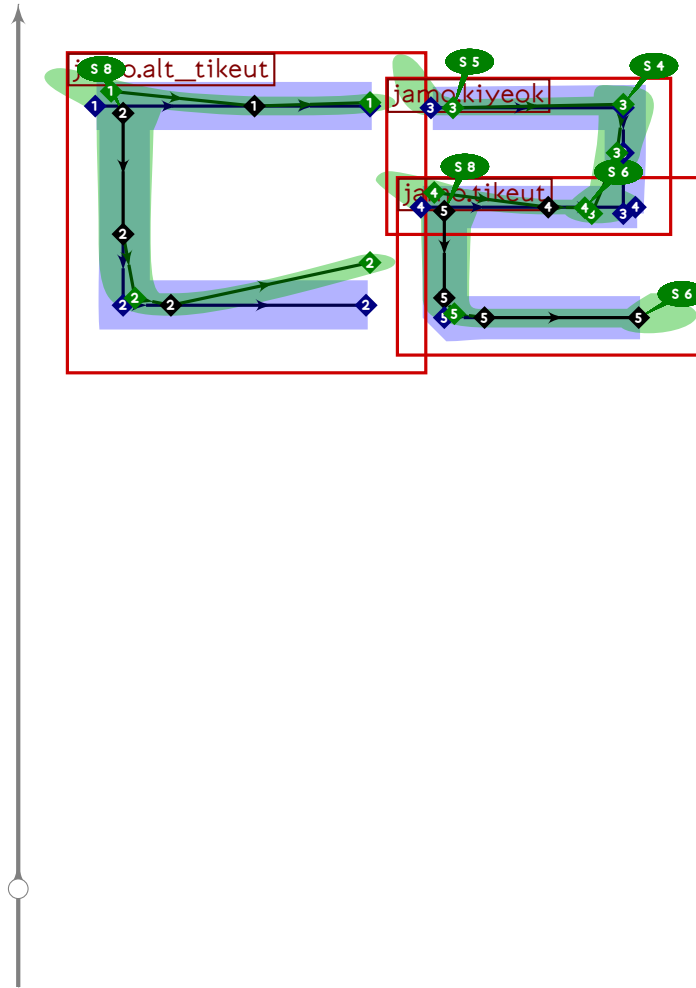




```

627 % hangul lead nieun-hieuh
628 begintsuglyph("uni115D";93);
629 hangul.combine.lr(202,118)(whatever,lixf,loxf);
630 tsu_render;
631 endsuglyph;
632

```



```

633 % hangul lead tikeut-rieul
634 begintsuglyph("uni115E";94);
635 hangul.combine.lr(203,105)(whatever,lixf,loxf);
636 tsu_render;
637 endtsuglyph;
638
639 % uni115F "lead filler" is a space created by assemble-font script
640
641 _____
642

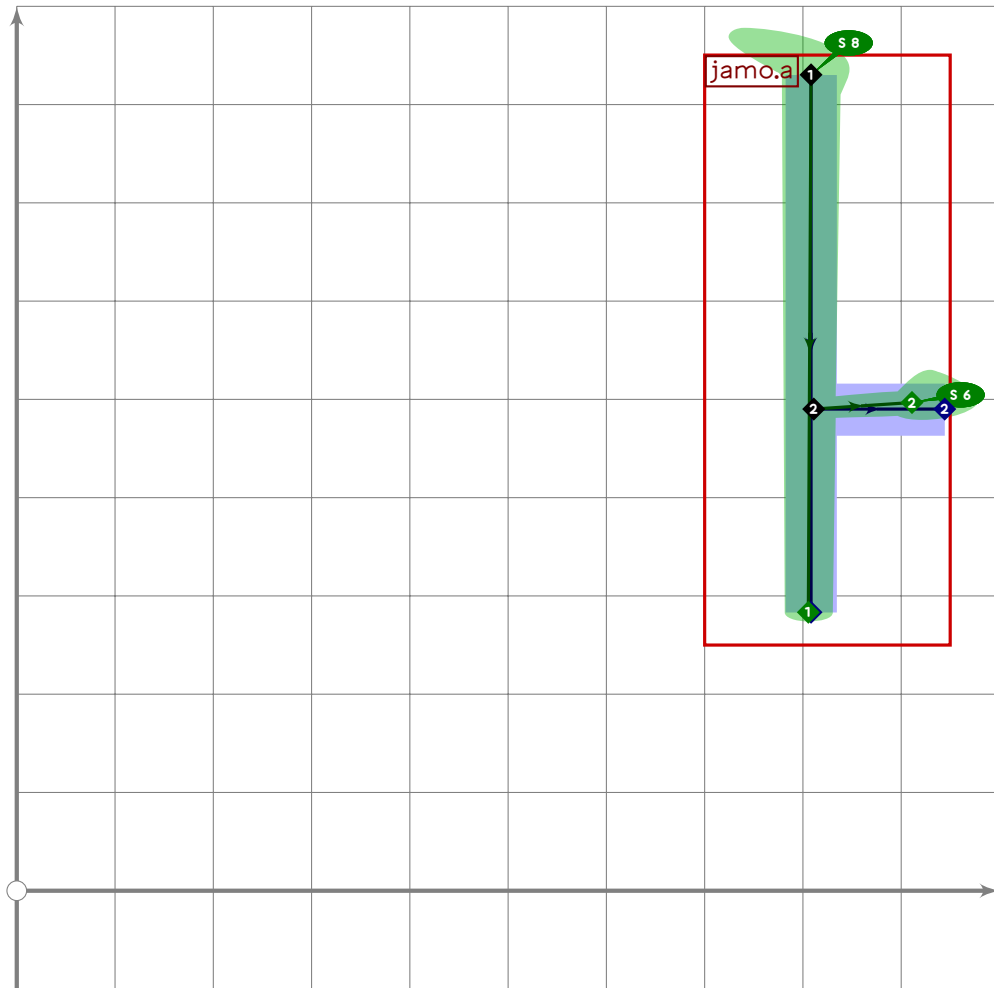
```

## Hangul Jungseong (Vowel) Jamo

```

643 % HANGUL JUNGSEONG (VOWEL) JAMO
644
645 tsu_rescale_full;
646
647 % uni1160 "vowel filler" is a space created by assemble-font script
648

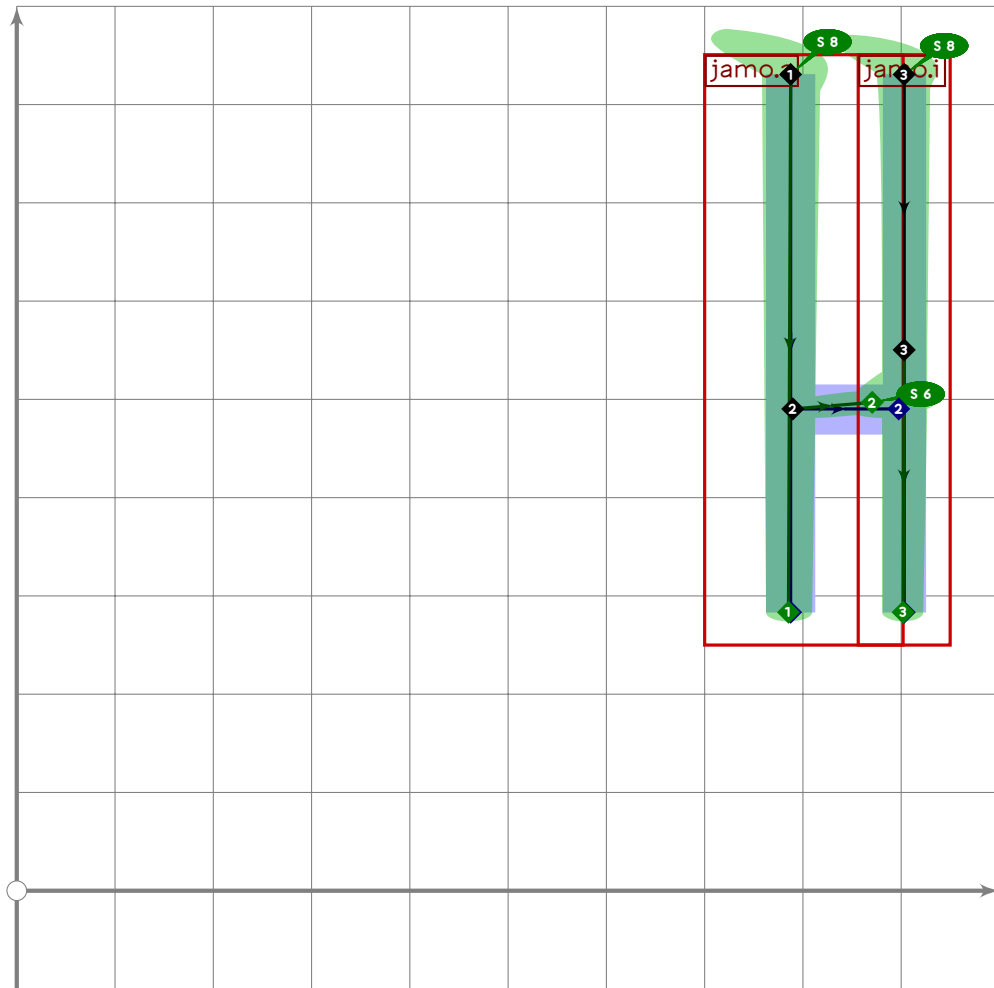
```



```

649 % hangul vowel a
650 begint Suglyph("uni1161";97);
651 hangul.jamo.a(300,vixf,voxf);
652 tsu_render;
653 endtsuglyph;
654

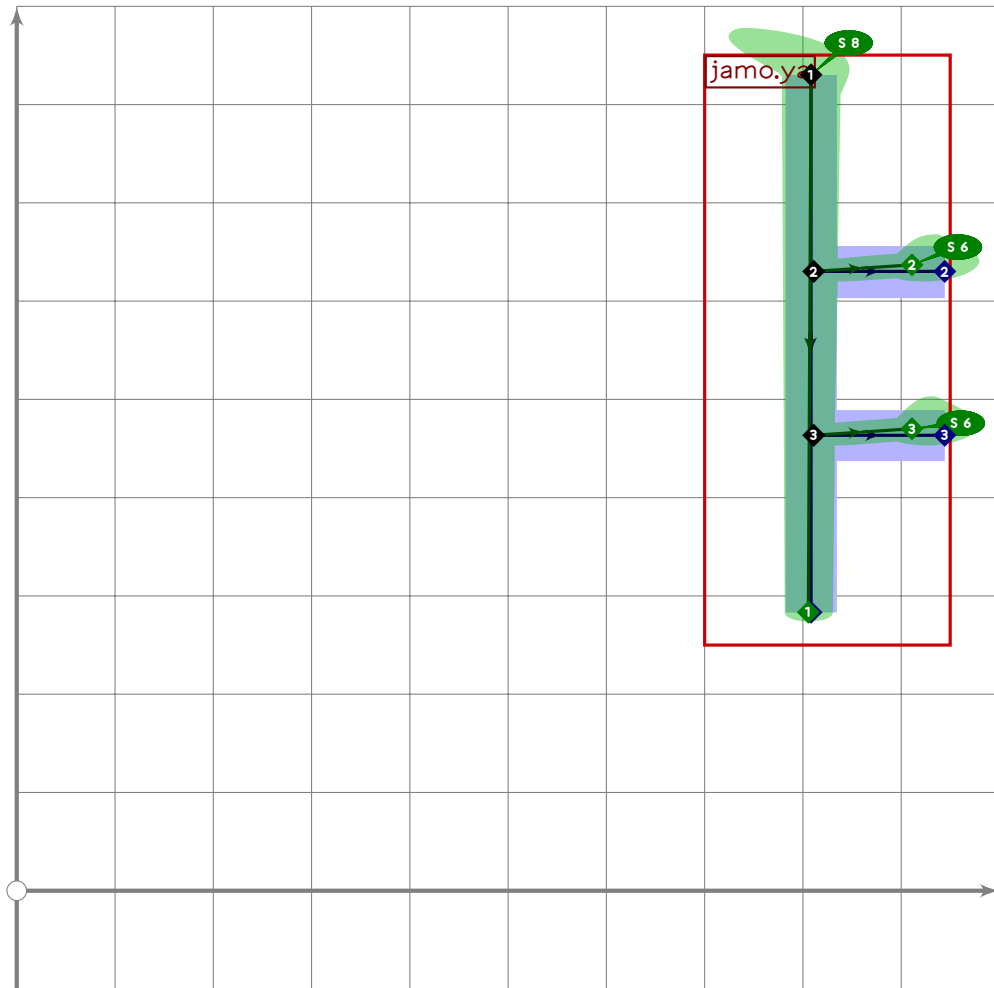
```



```

655 % hangul vowel ae
656 beginsuglyph("uni1162";98);
657 hangul.combine.lr(300,320)(301,vixf,voxf);
658 tsu_render;
659 endsuglyph;
660

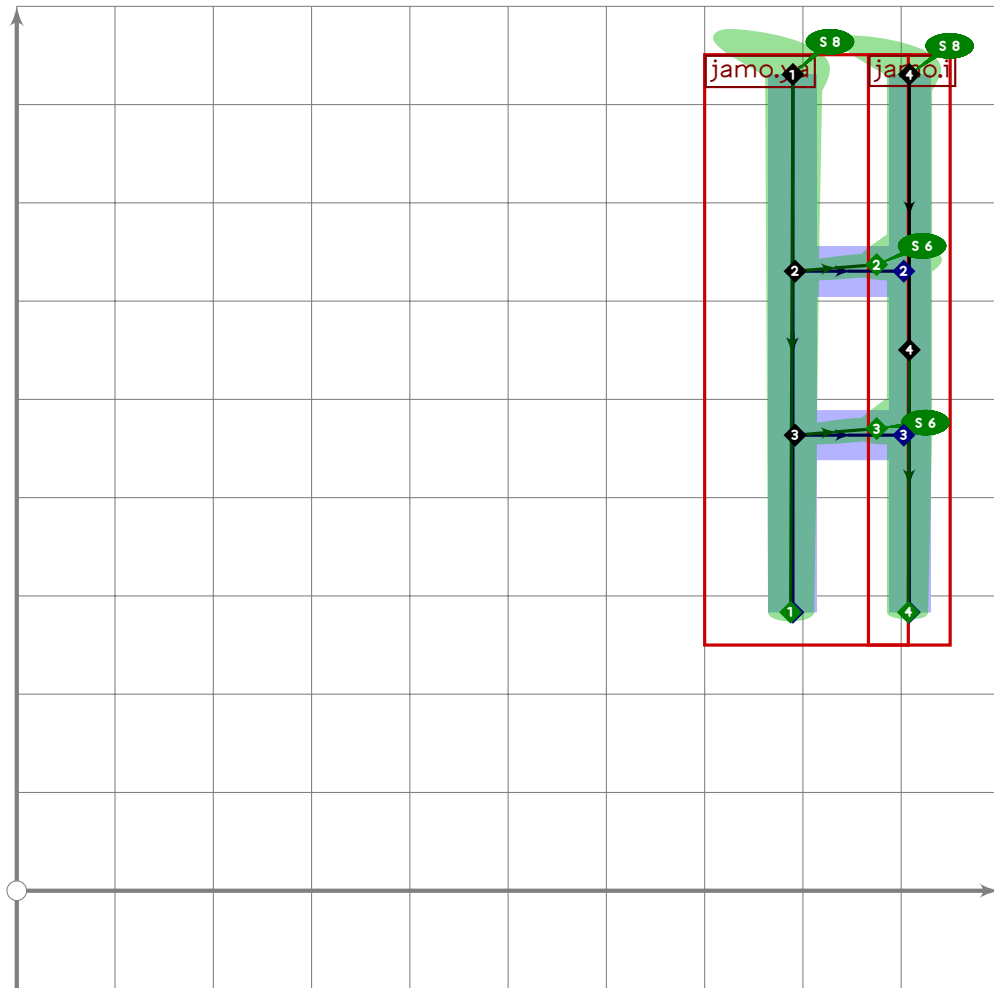
```



```

661 % hangul vowel ya
662 begint Suglyph("uni1163";99);
663 hangul.jamo.ya(302,vixf,voxf);
664 tsu_render;
665 endtsuglyph;
666

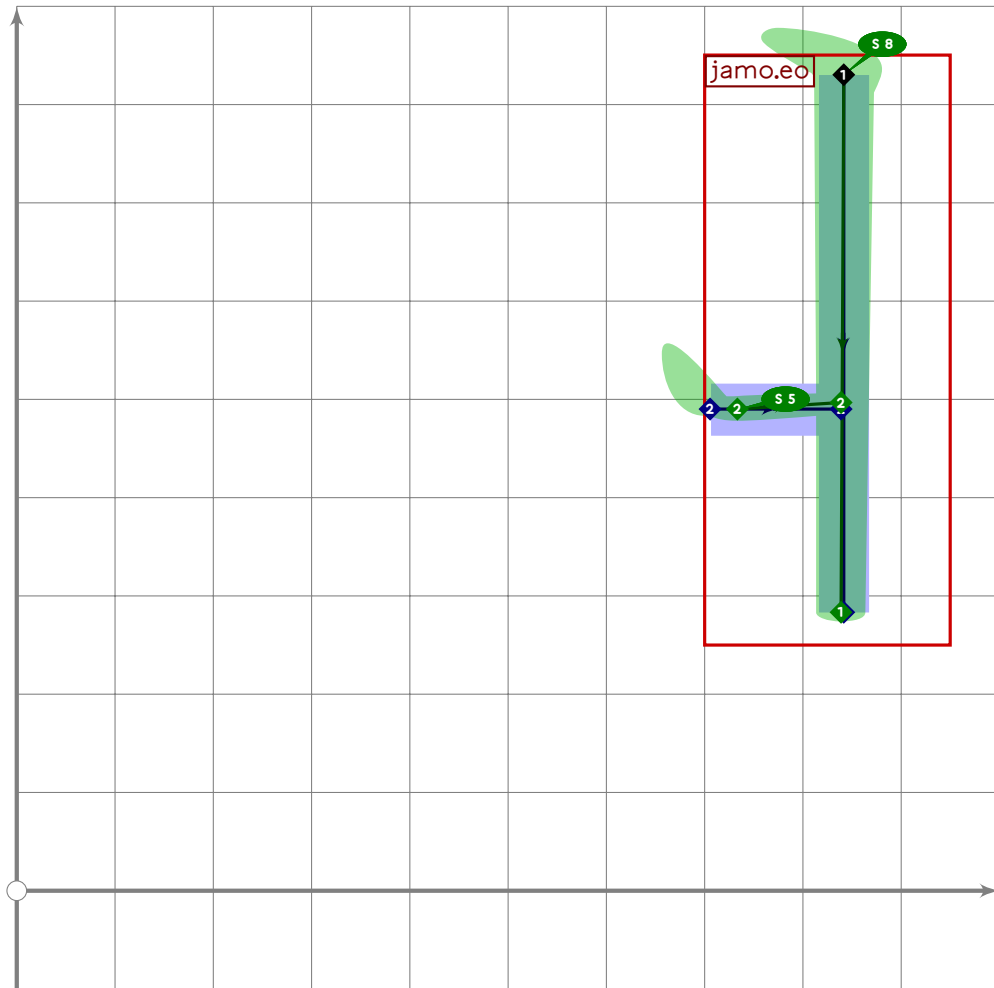
```



```

667 % hangul vowel yae
668 begint Suglyph("uni1164",100);
669 hangul.combine.lr(302,320)(303,vixf,voxf);
670 tsu_render;
671 endtsuglyph;
672

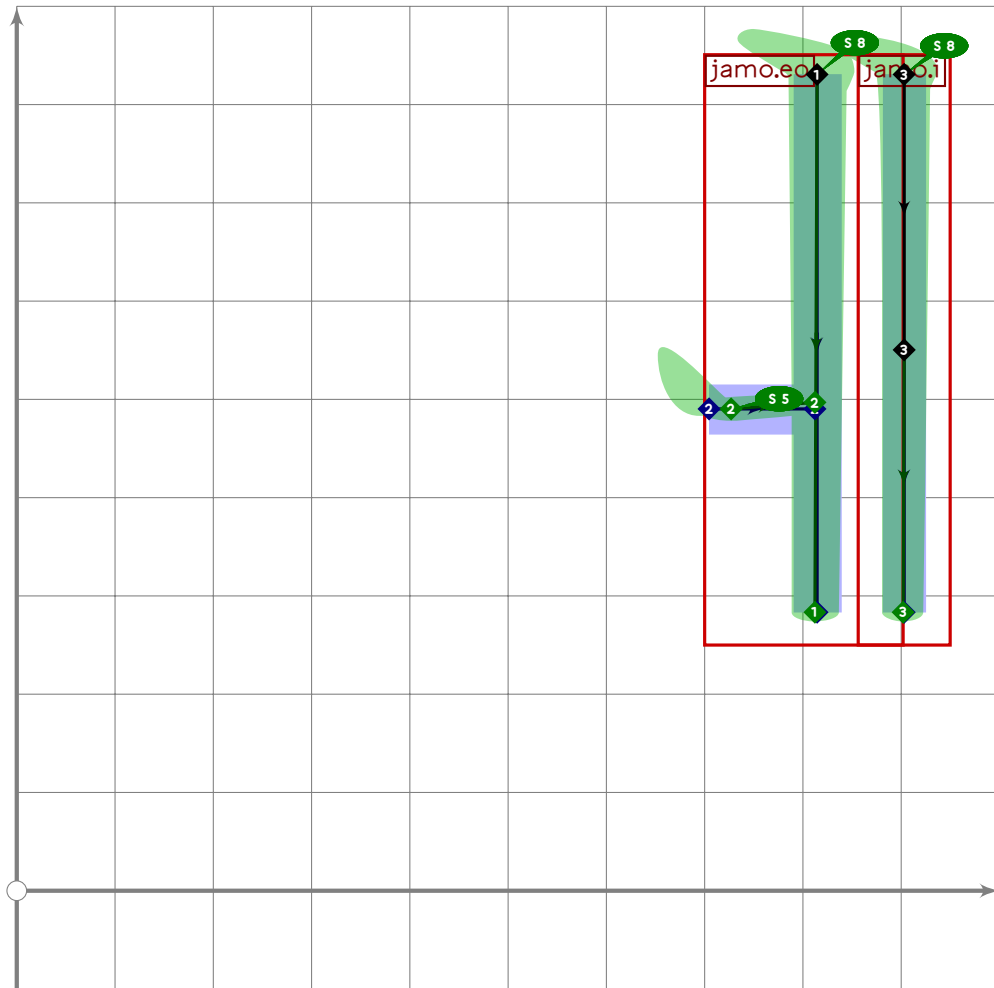
```



```

673 % hangul vowel eo
674 begint Suglyph("uni1165",101);
675 hangul.jamo.eo(304,vixf,voxf);
676 tsu_render;
677 endtsuglyph;
678

```

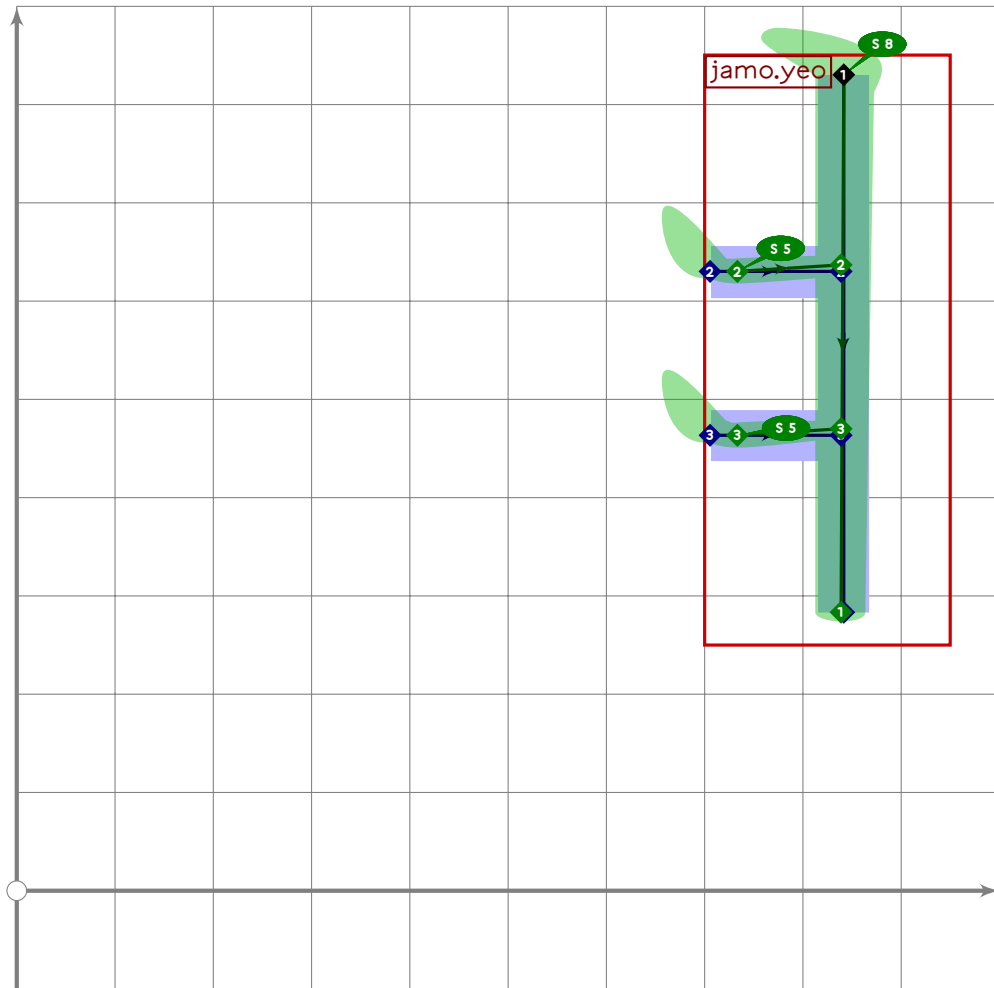


```

679 % hangul vowel e
680 begint Suglyph("uni1166",102);
681 hangul.combine.lr(304,320)(305,vixf,voxf);
682 tsu_render;
683 endtsuglyph;
684

```

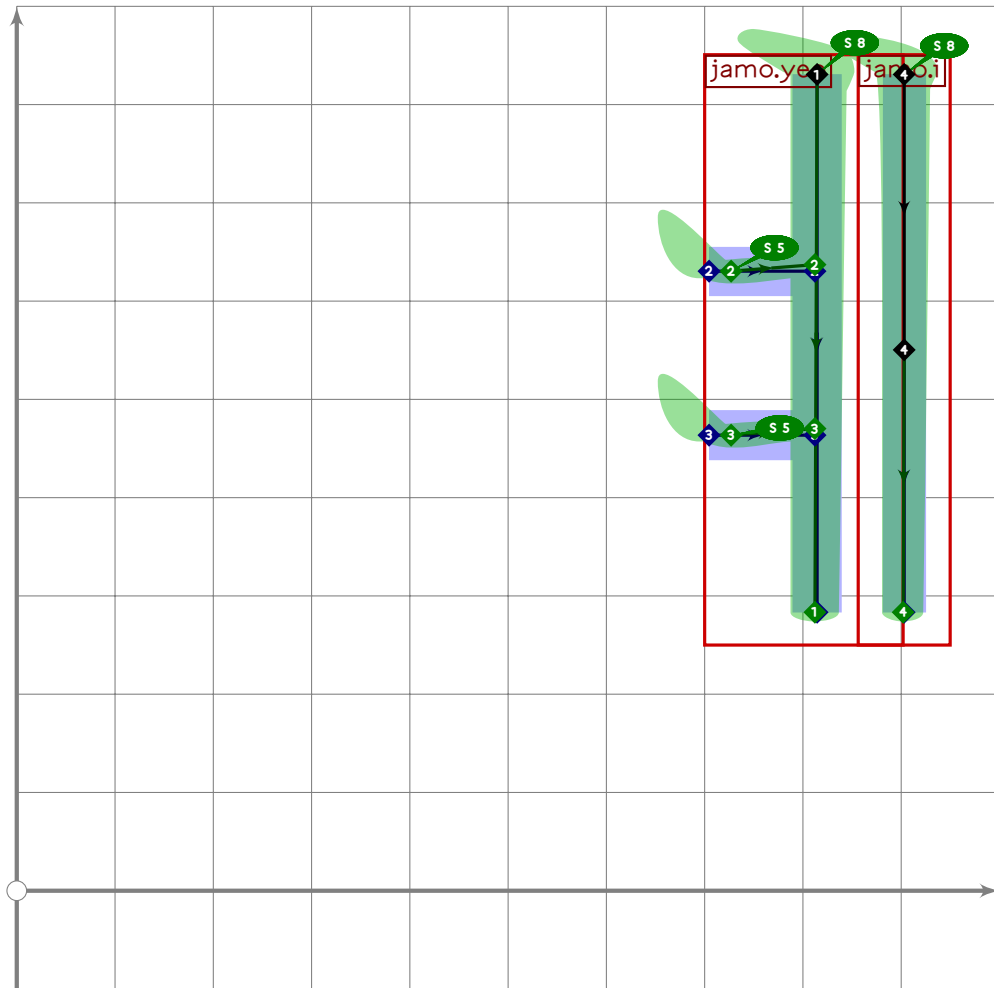




```

685 % hangul vowel yeo
686 begint Suglyph("uni1167",103);
687 hangul.jamo.yeo(306,vixf,voxf);
688 tsu_render;
689 endtsuglyph;
690

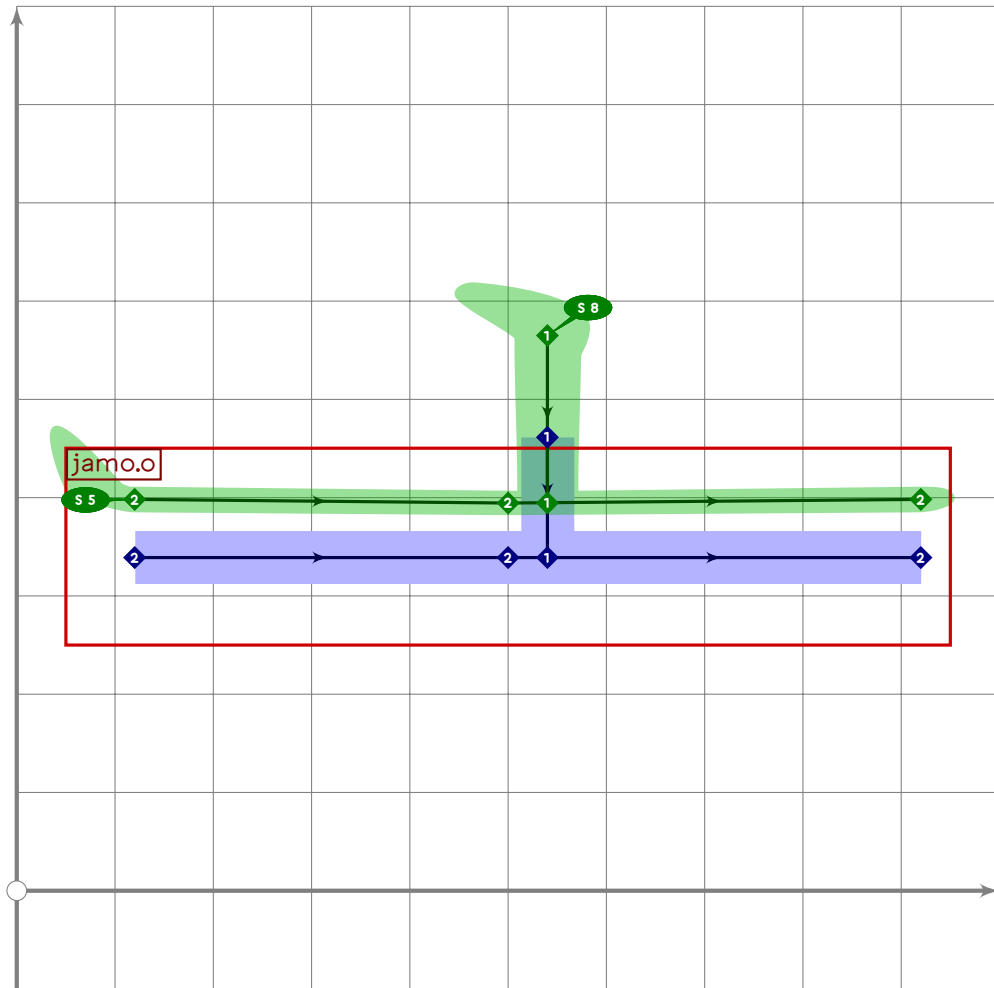
```



```

691 % hangul vowel ye
692 beginsuglyph("uni1168",104);
693 hangul.combine.lr(306,320)(307,vixf,voxf);
694 tsu_render;
695 endsuglyph;
696

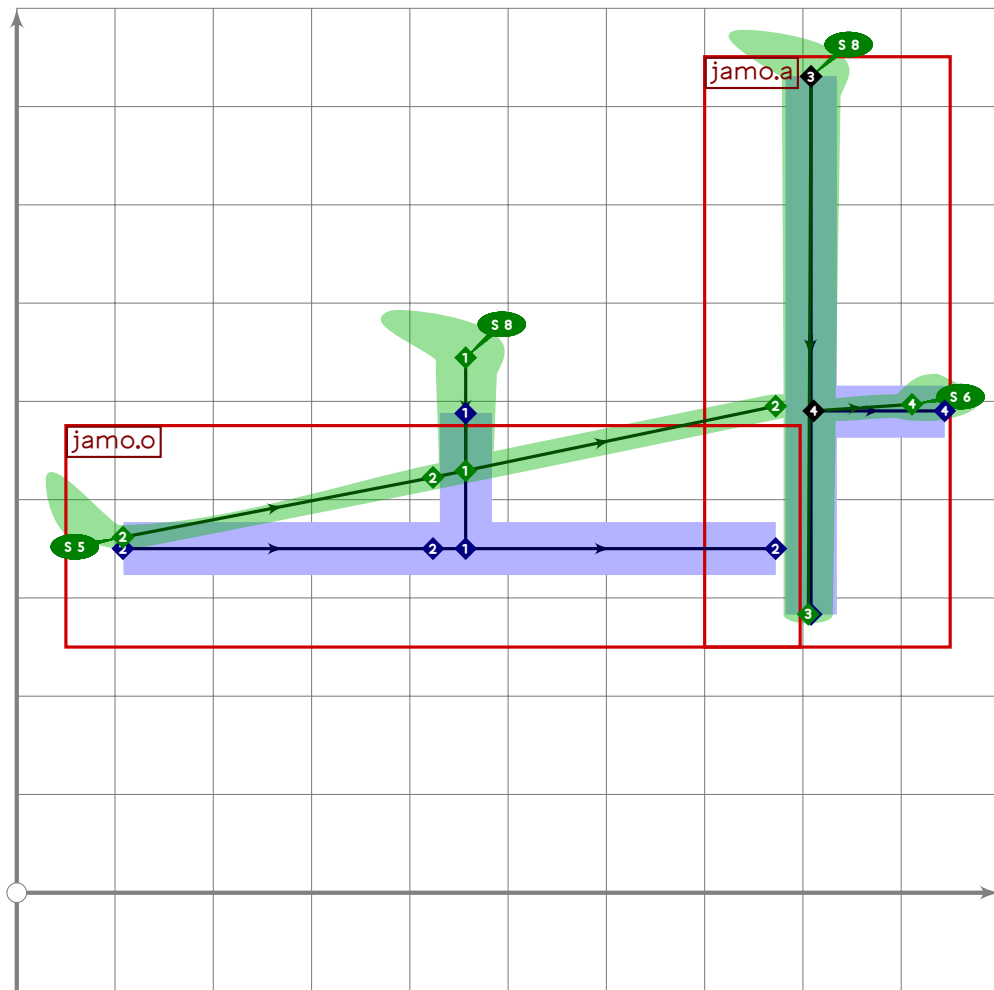
```



```

697 % hangul vowel o
698 begint Suglyph("uni1169",105);
699 hangul.jamo.o(308,vixf,voxf);
700 tsu_render;
701 endtsuglyph;
702

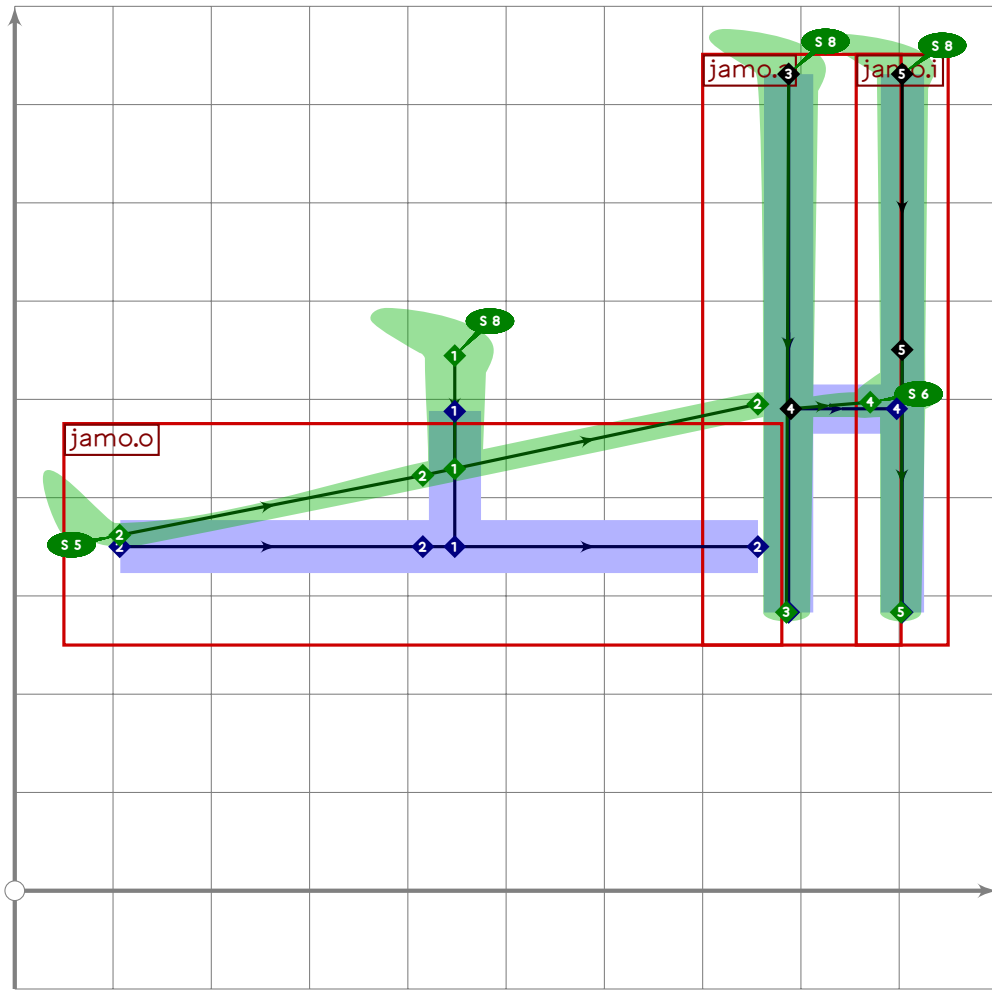
```



```

703 % hangul vowel wa
704 begintsuglyph("uni116A",106);
705 hangul.combine.lr(308,300)(309,vixf,voxf);
706 tsu_render;
707 endsuglyph;
708

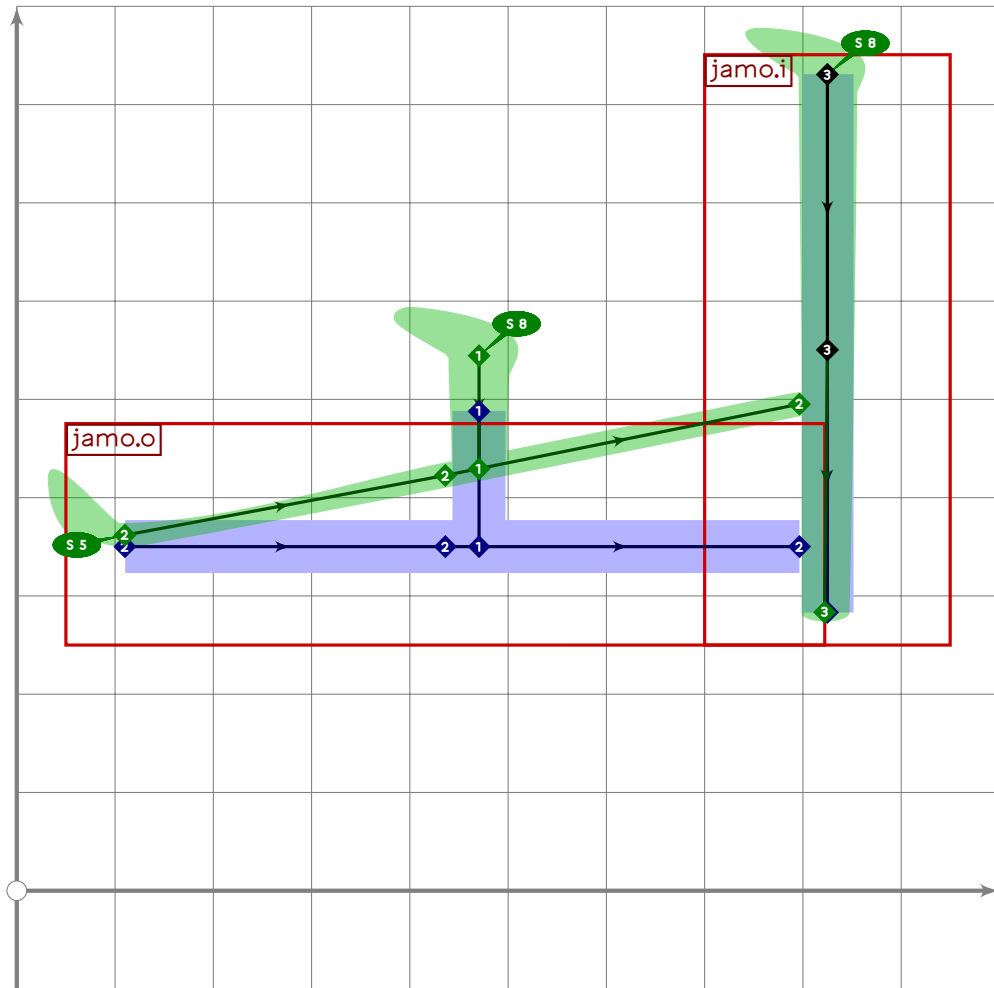
```



```

709 % hangul vowel wae
710 begintsuglyph("uni116B",107);
711 hangul.combine.lr(308,301)(310,vixf,voxf);
712 tsu_render;
713 endsuglyph;
714

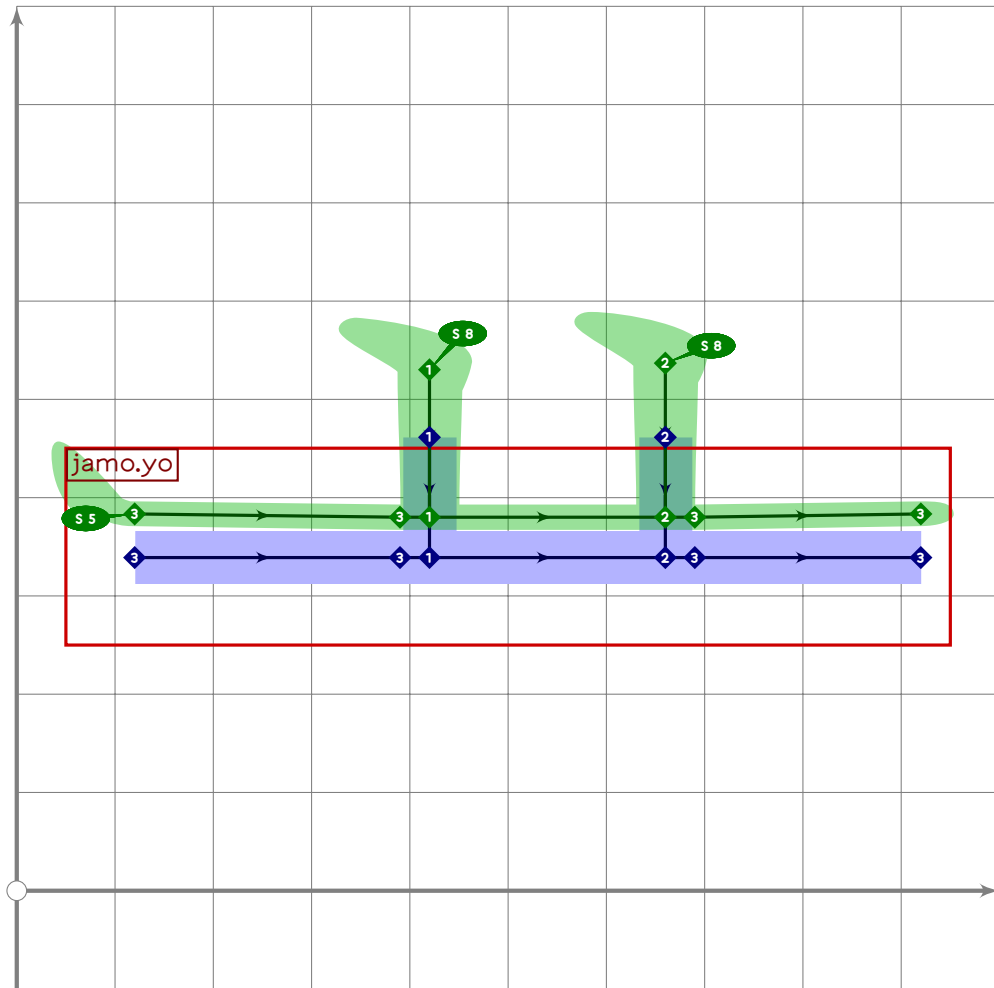
```



```

715 % hangul vowel oe
716 begint Suglyph("uni116C";108);
717 hangul.combine.lr(308,320)(311,vixf,voxf);
718 tsu_render;
719 endtsuglyph;
720

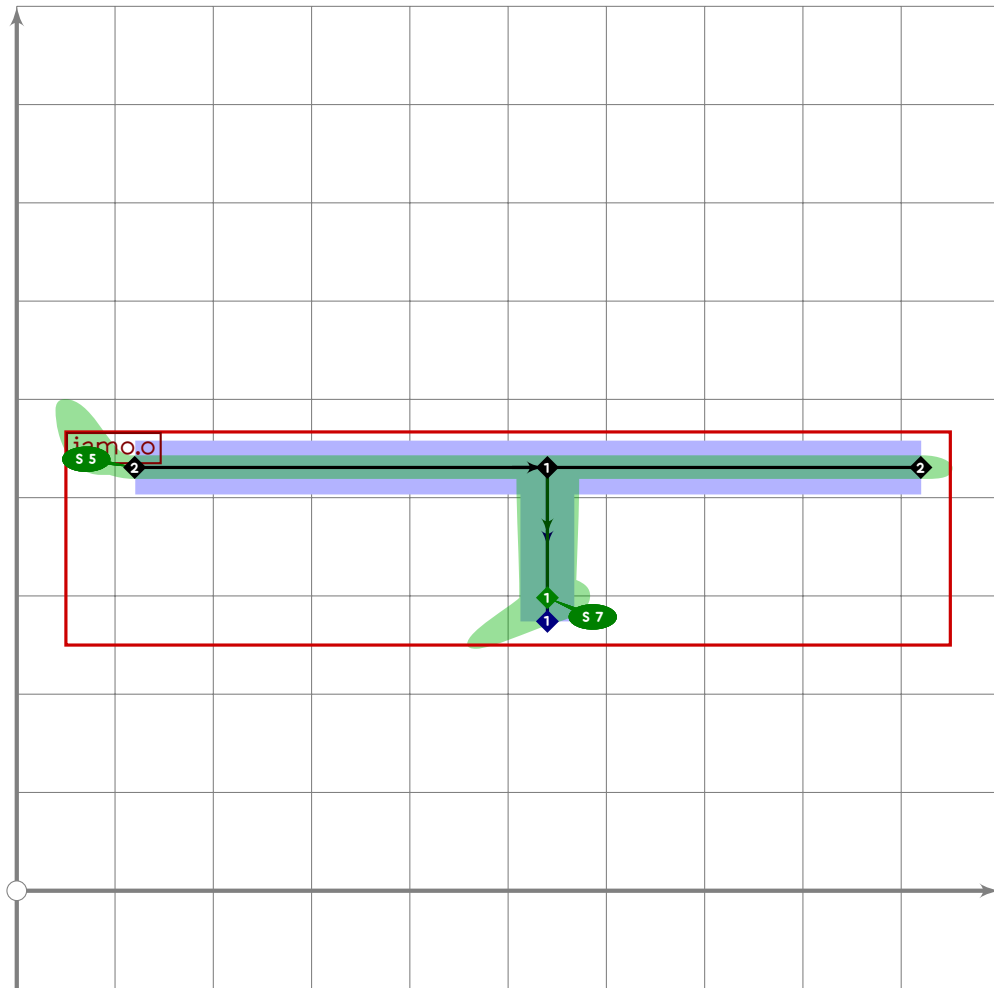
```



```

721 % hangul vowel yo
722 begint Suglyph("uni116D",109);
723 hangul.jamo.yo(312,vixf,voxf);
724 tsu_render;
725 endtsuglyph;
726

```

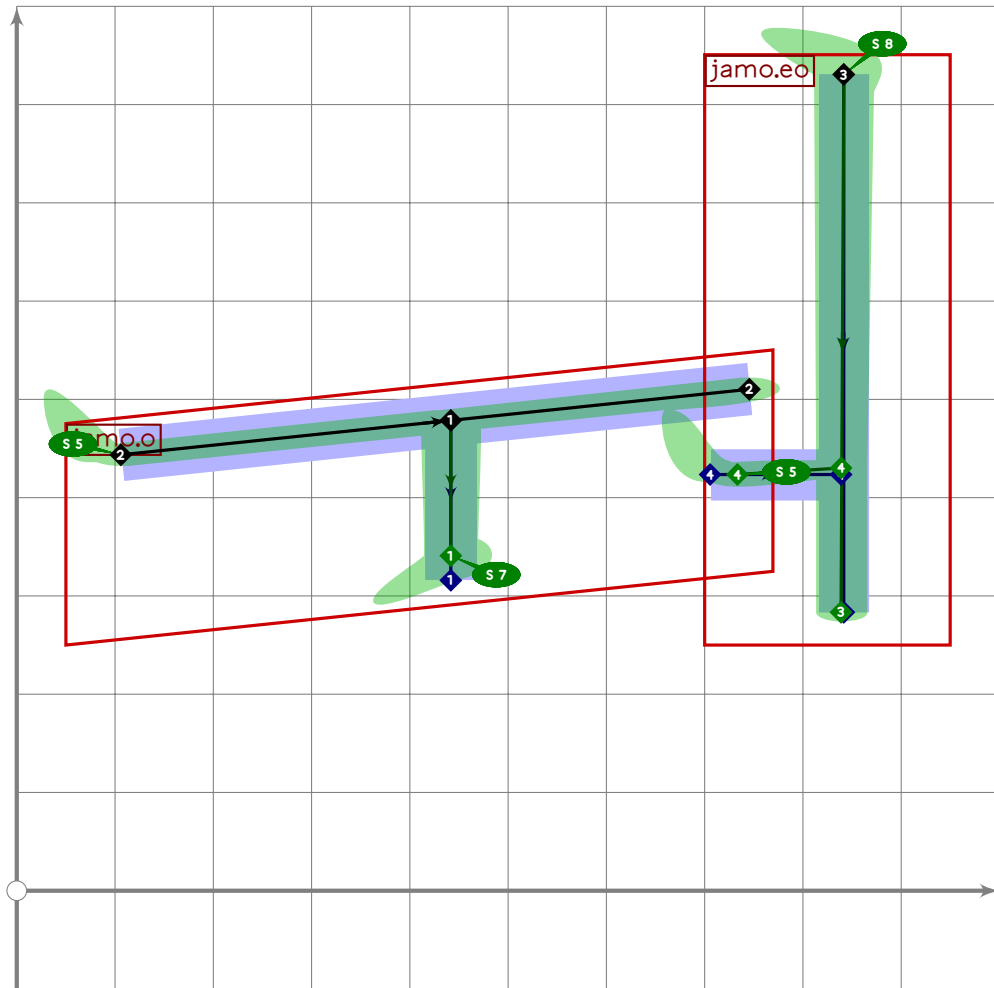


```

727 % hangul vowel u
728 begint Suglyph("uni116E",110);
729 hangul.jamo.u(313,vixf,voxf);
730 tsu_render;
731 endtsuglyph;
732

```

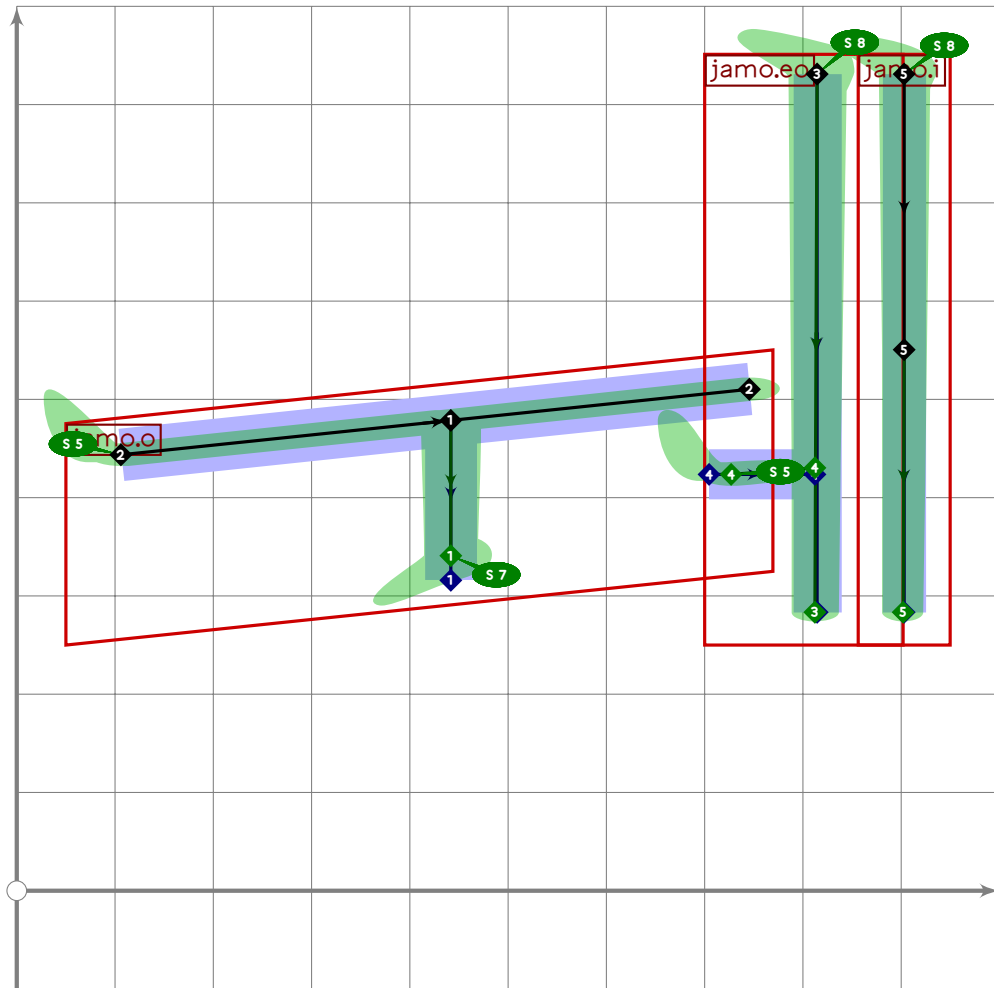




```

733 % hangul vowel weo
734 begintsuglyph("uni116F",111);
735 hangul.combine.lr(313,304)(314,vixf,voxf);
736 tsu_render;
737 endsuglyph;
738

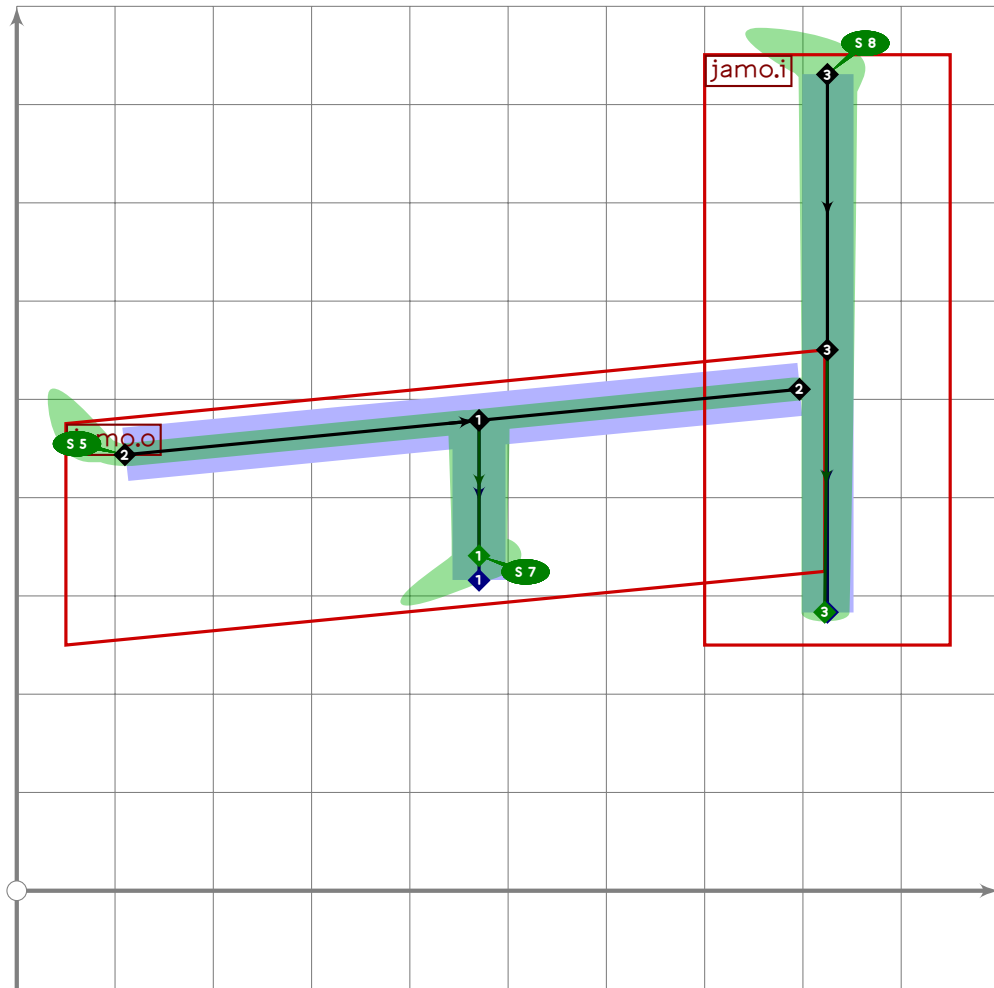
```



```

739 % hangul vowel we
740 begint Suglyph("uni1170";112);
741 hangul.combine.lr(313,305)(315,vixf,voxf);
742 tsu_render;
743 endtsuglyph;
744

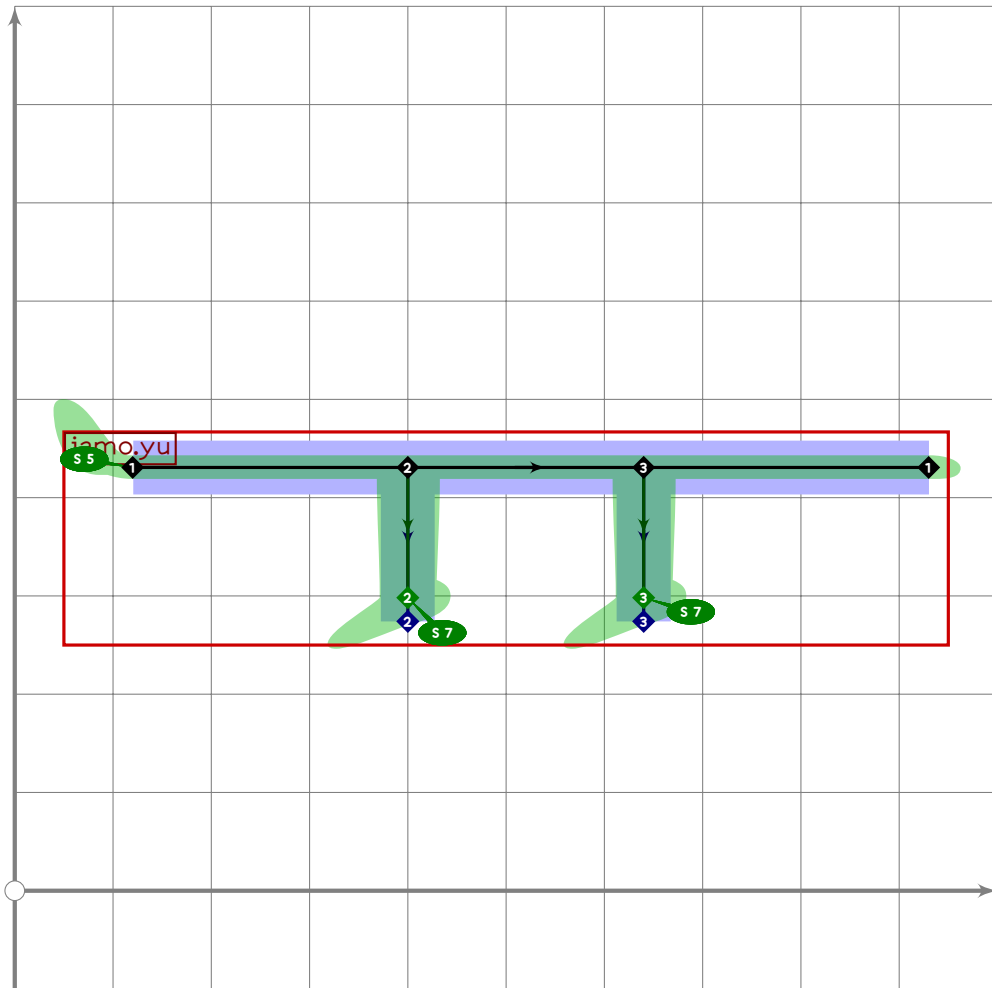
```



```

745 % hangul vowel wi
746 begint Suglyph("uni1171";113);
747 hangul.combine.lr(313,320)(316,vixf,voxf);
748 tsu_render;
749 endtsuglyph;
750

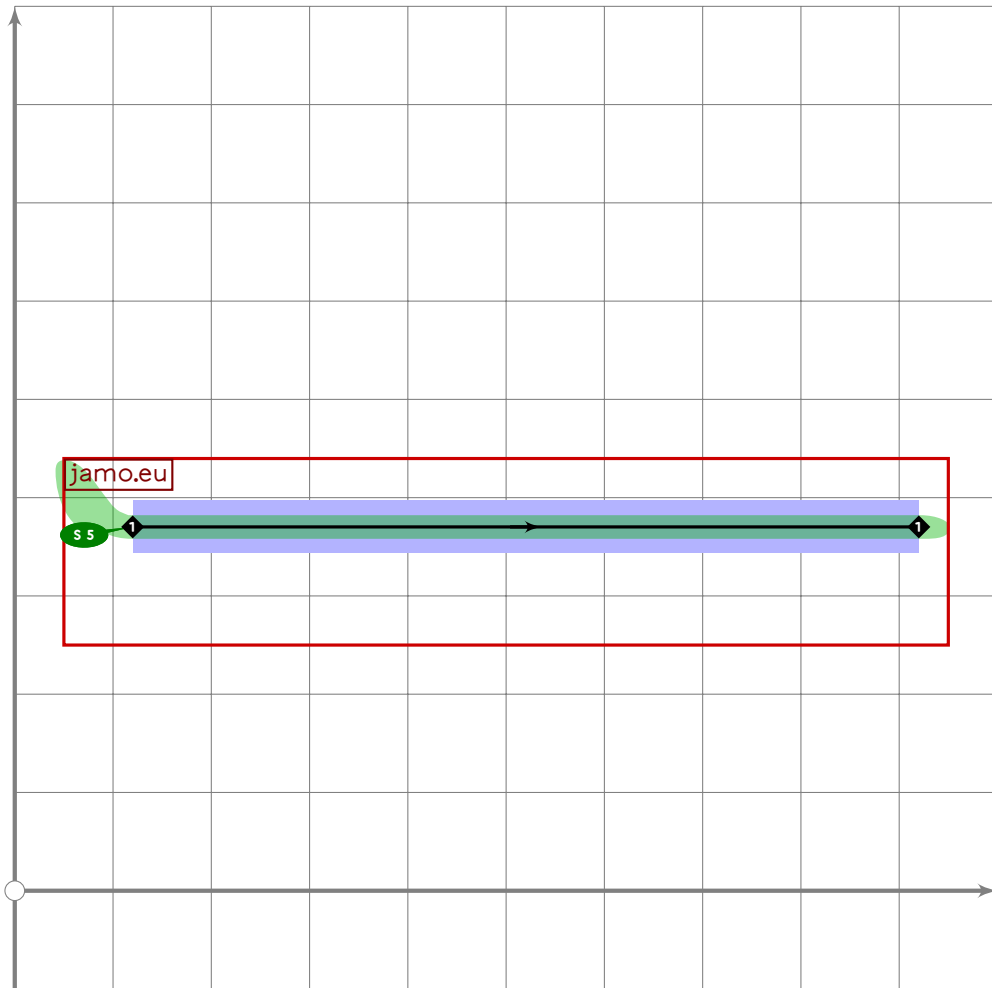
```



```

751 % hangul vowel yu
752 begint Suglyph("uni1172",114);
753 hangul.jamo.yu(317,vixf,voxf);
754 tsu_render;
755 endtsuglyph;
756

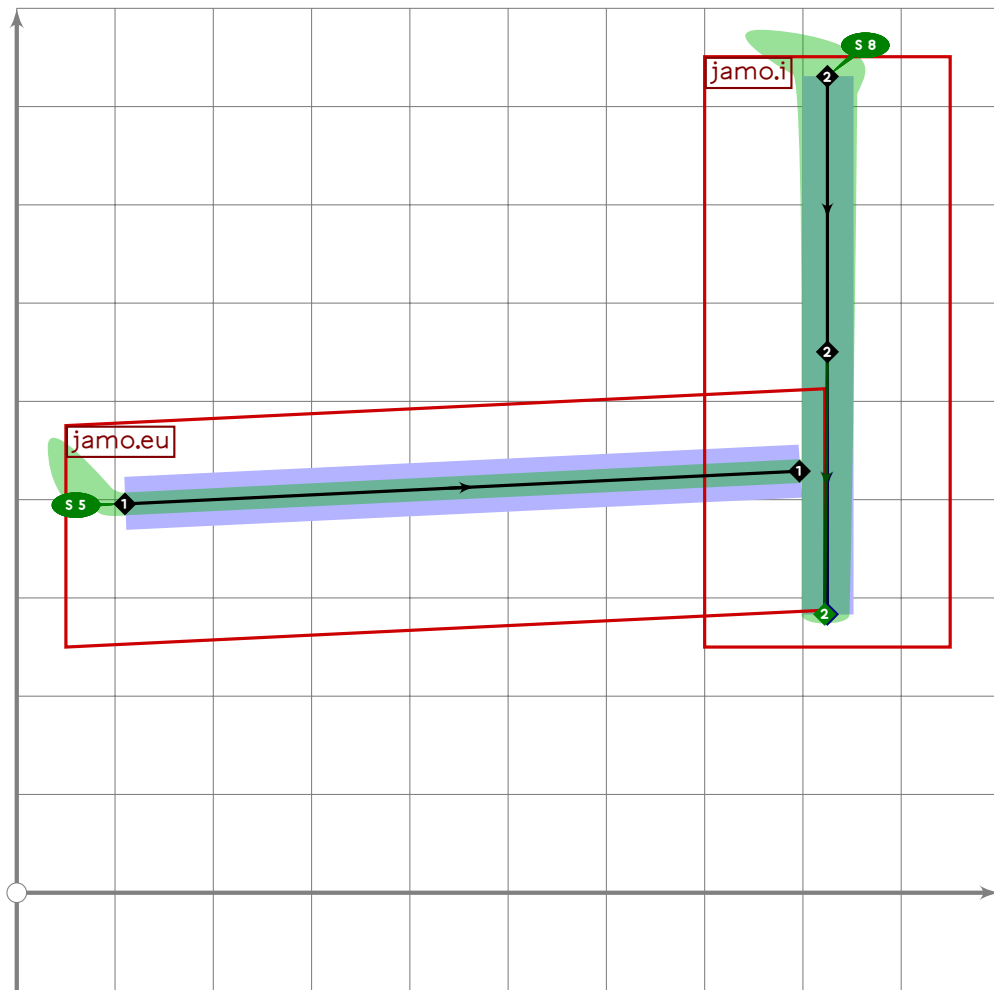
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```

757 % hangul vowel eu
758 begint Suglyph("uni1173",115);
759 hangul.jamo.eu(318,vixf,voxf);
760 tsu_render;
761 endtsuglyph;
762

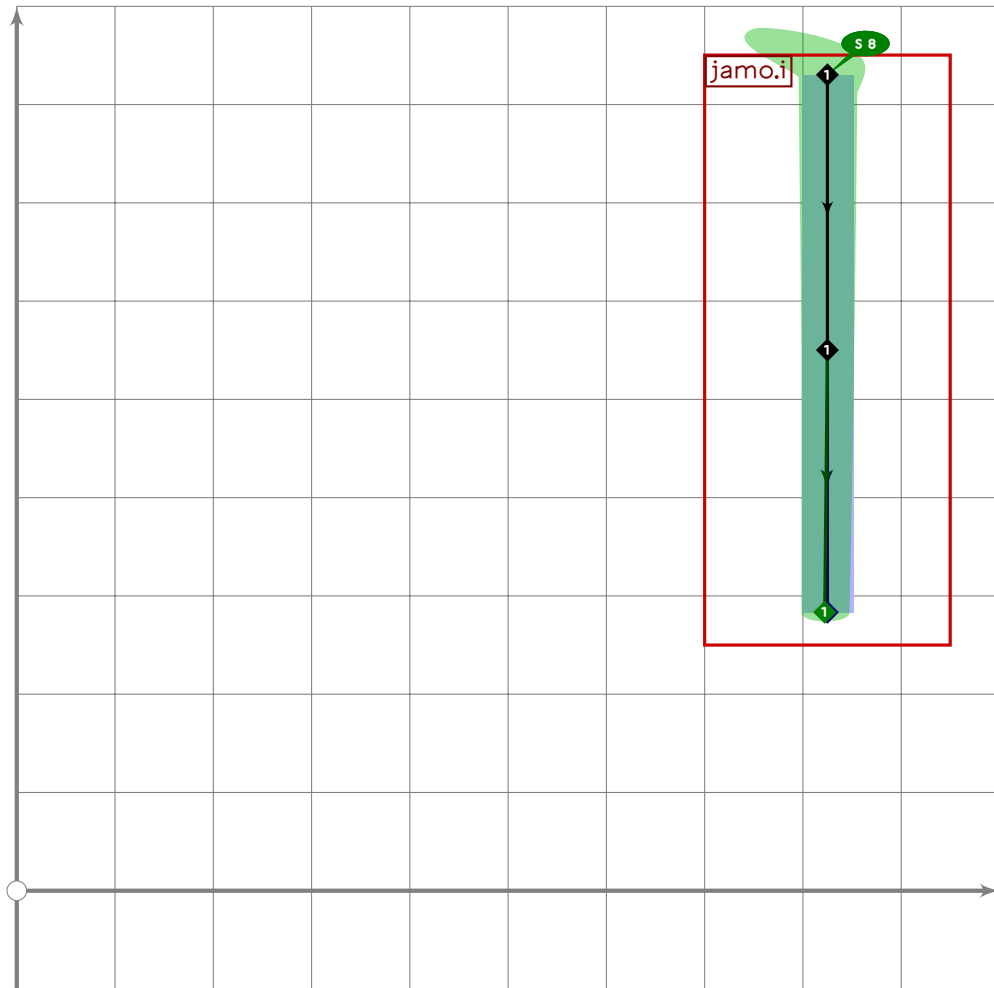
```



```

763 % hangul vowel yi
764 beginsuglyph("uni1174",116);
765 hangul.combine.lr(318,320)(319,vixf,voxf);
766 tsu_render;
767 endsuglyph;
768

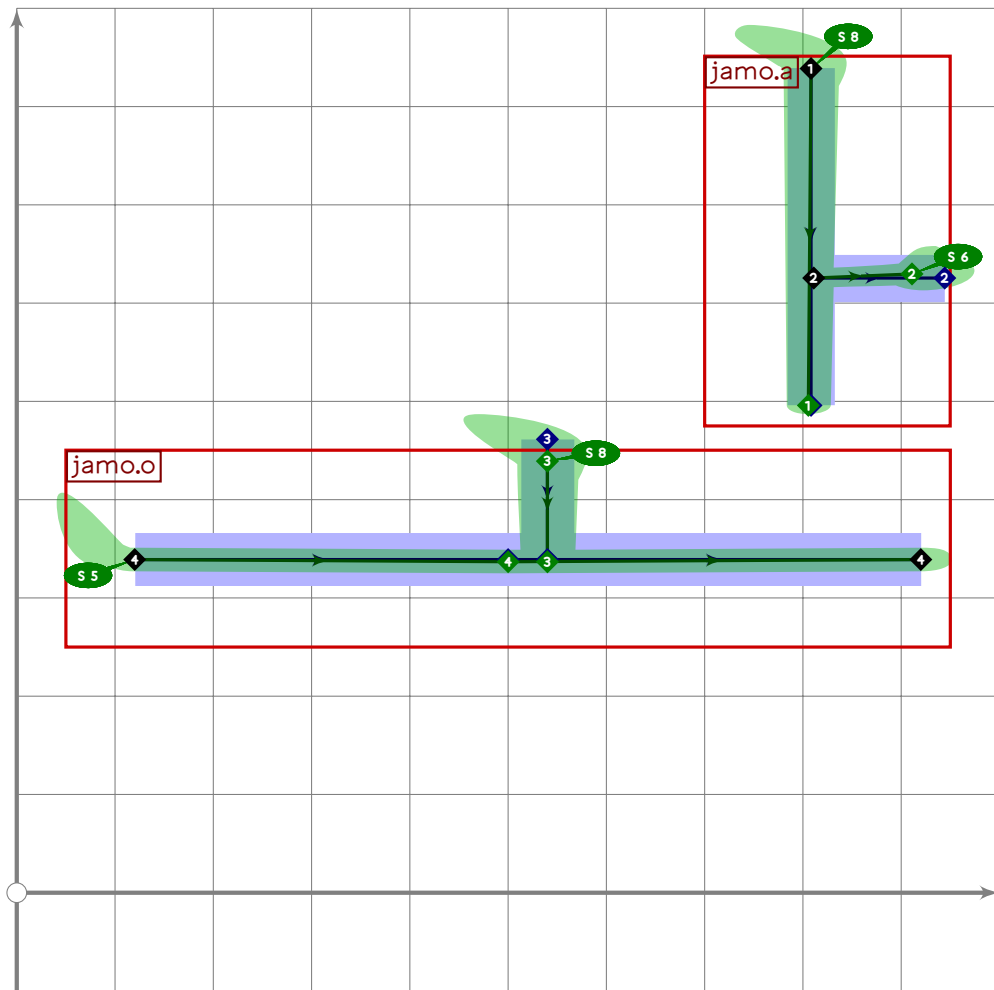
```



```

769 % hangul vowel i
770 begint Suglyph("uni1175",117);
771 hangul.jamo.i(320,vixf,voxf);
772 tsu_render;
773 endtsuglyph;
774

```

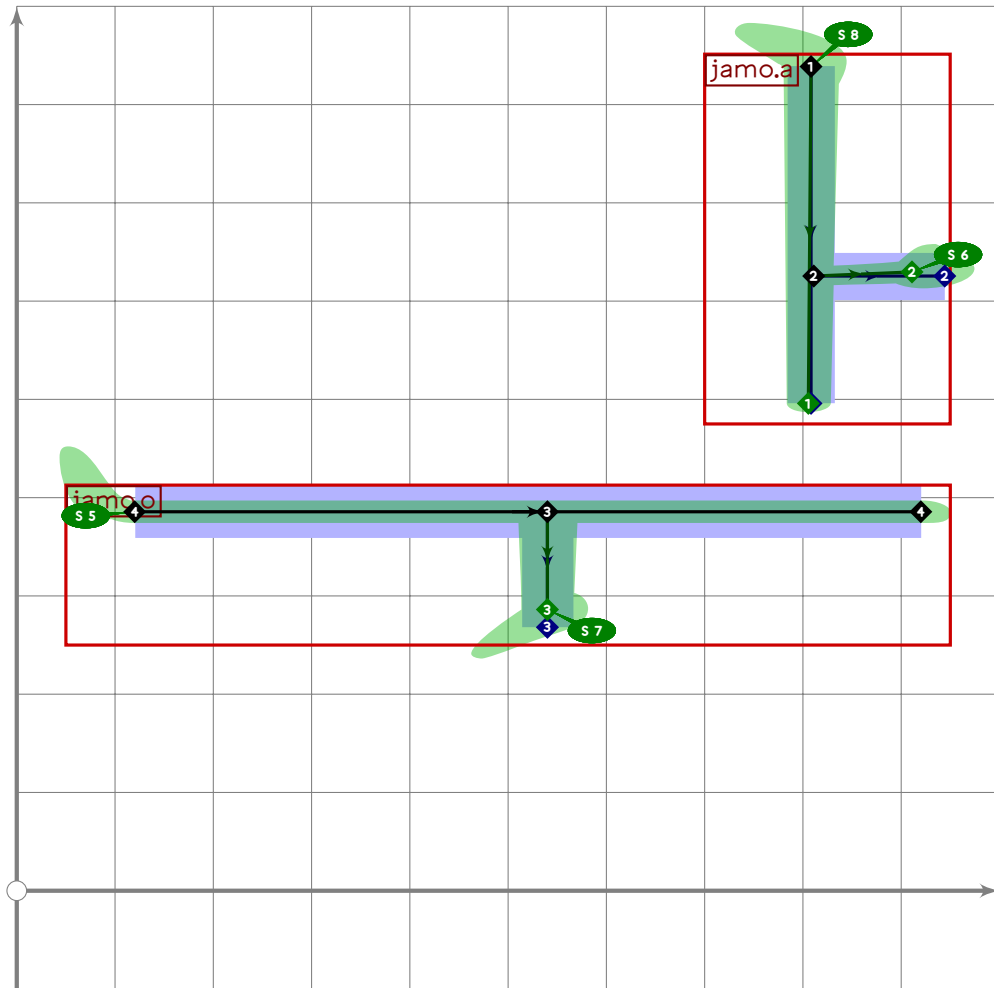


```

775 % hangul vowel a-o
776 begint Suglyph("uni1176",118);
777 hangul.combine.tb(300,308)(whatever,vixf,voxf);
778 tsu_render;
779 endsuglyph;
780

```

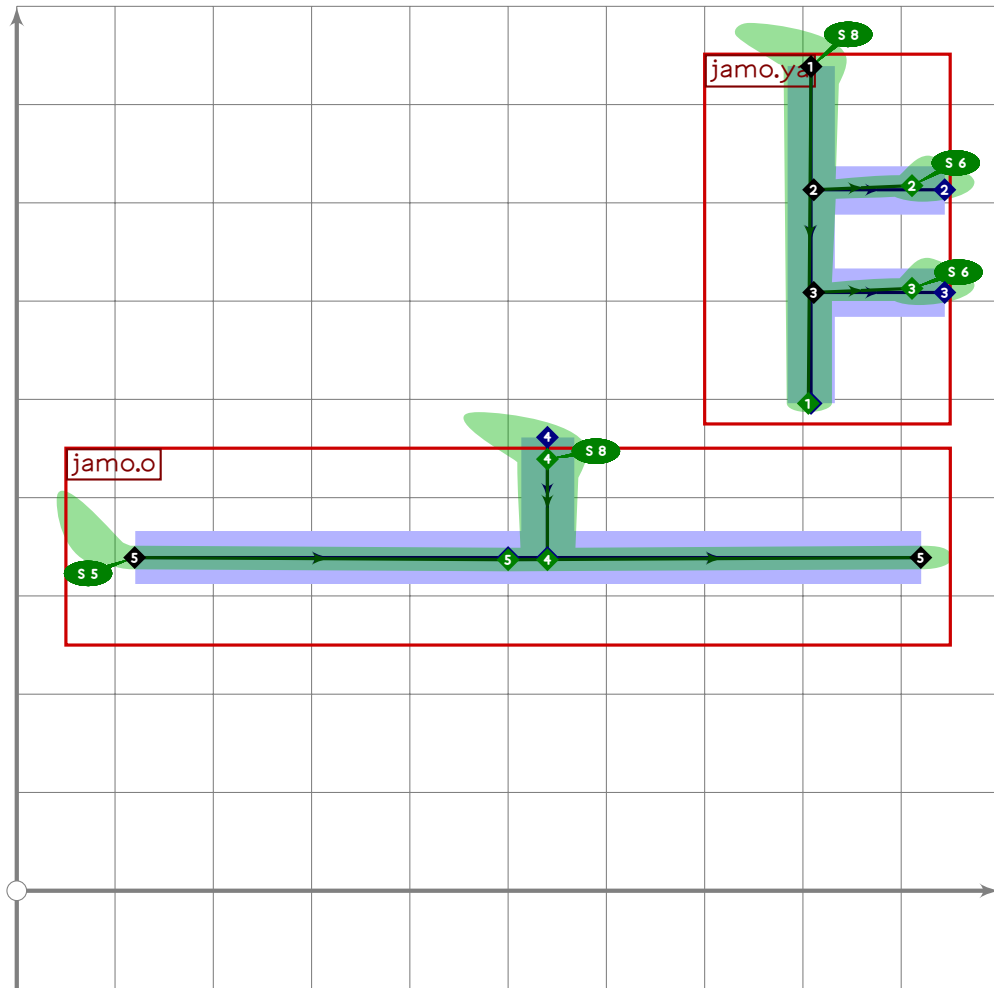




```

781 % hangul vowel a-u
782 begint Suglyph("uni1177",119);
783 hangul.combine.tb(300,313)(whatever,vixf,vox);
784 tsu_render;
785 endtsuglyph;
786

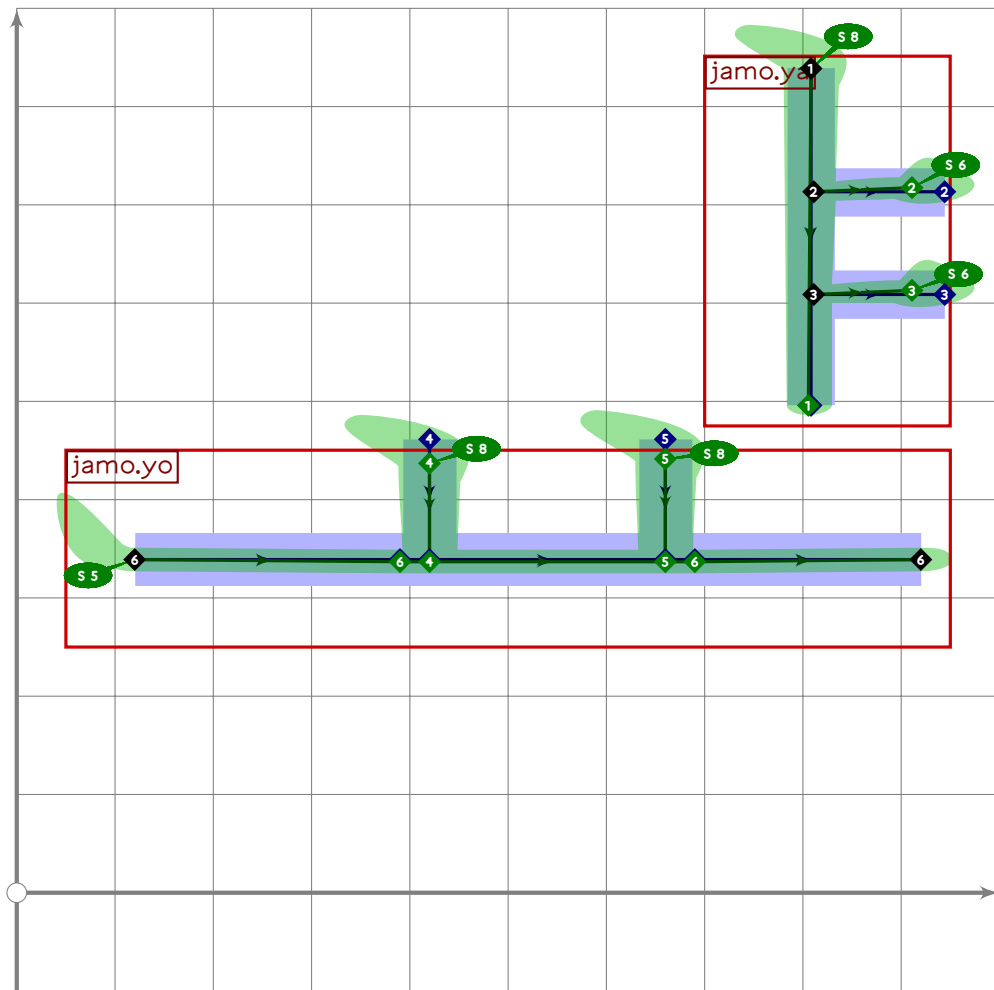
```



```

787 % hangul vowel ya-o
788 begint Suglyph("uni1178",120);
789 hangul.combine.tb(302,308)(whatever,vixf,voxf);
790 tsu_render;
791 endtsuglyph;
792

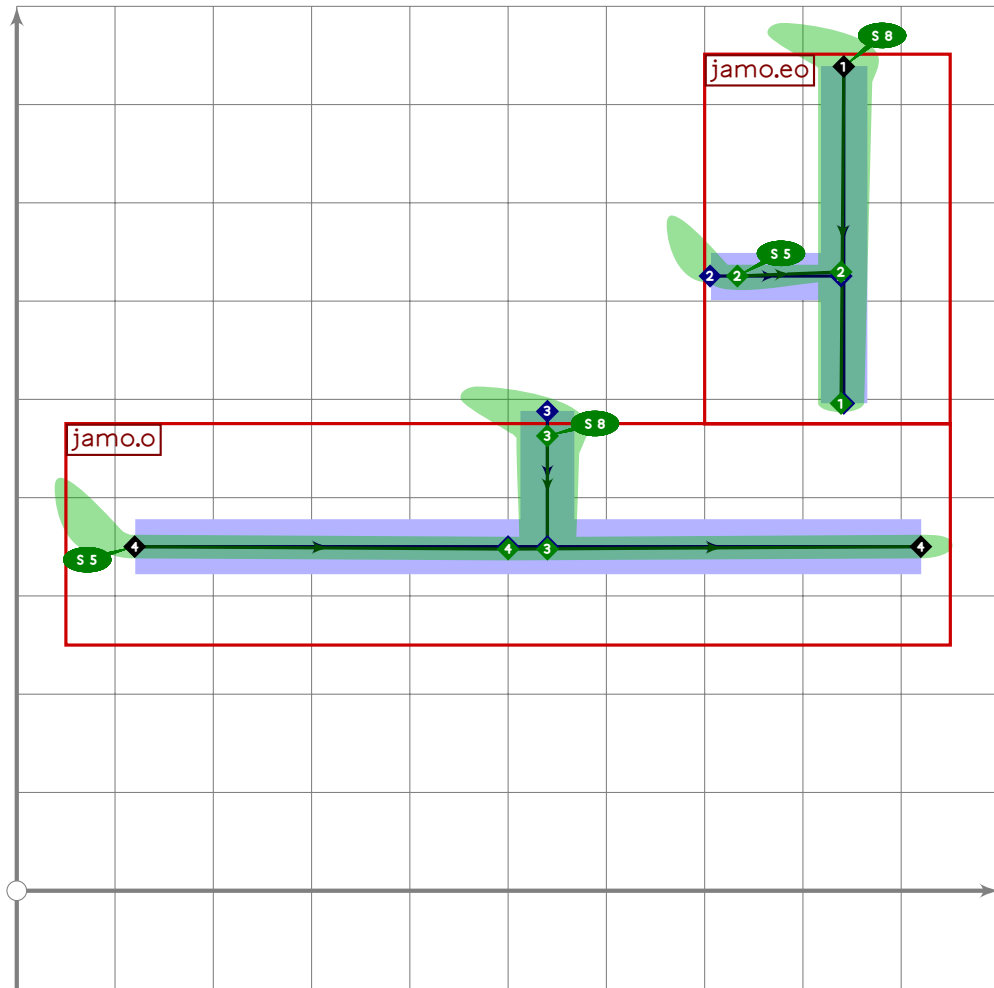
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```

793 % hangul vowel ya-yo
794 begintsuglyph("uni1179",121);
795 hangul.combine.tb(302,312)(whatever,vixf,vox);
796 tsu_render;
797 endsuglyph;
798

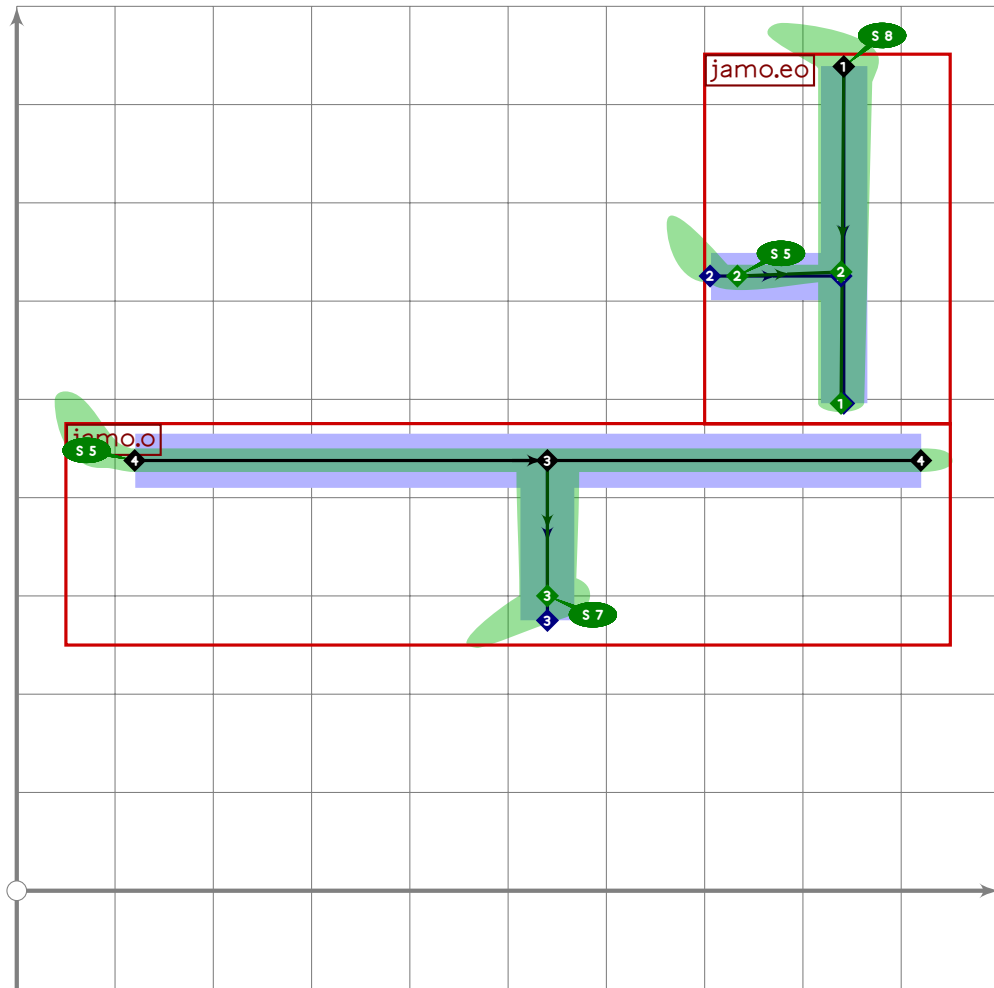
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```

799 % hangul vowel eo-o
800 begint Suglyph("uni117A",122);
801 hangul.combine.tb(304,308)(whatever,vixf,voxf);
802 tsu_render;
803 endtsuglyph;
804

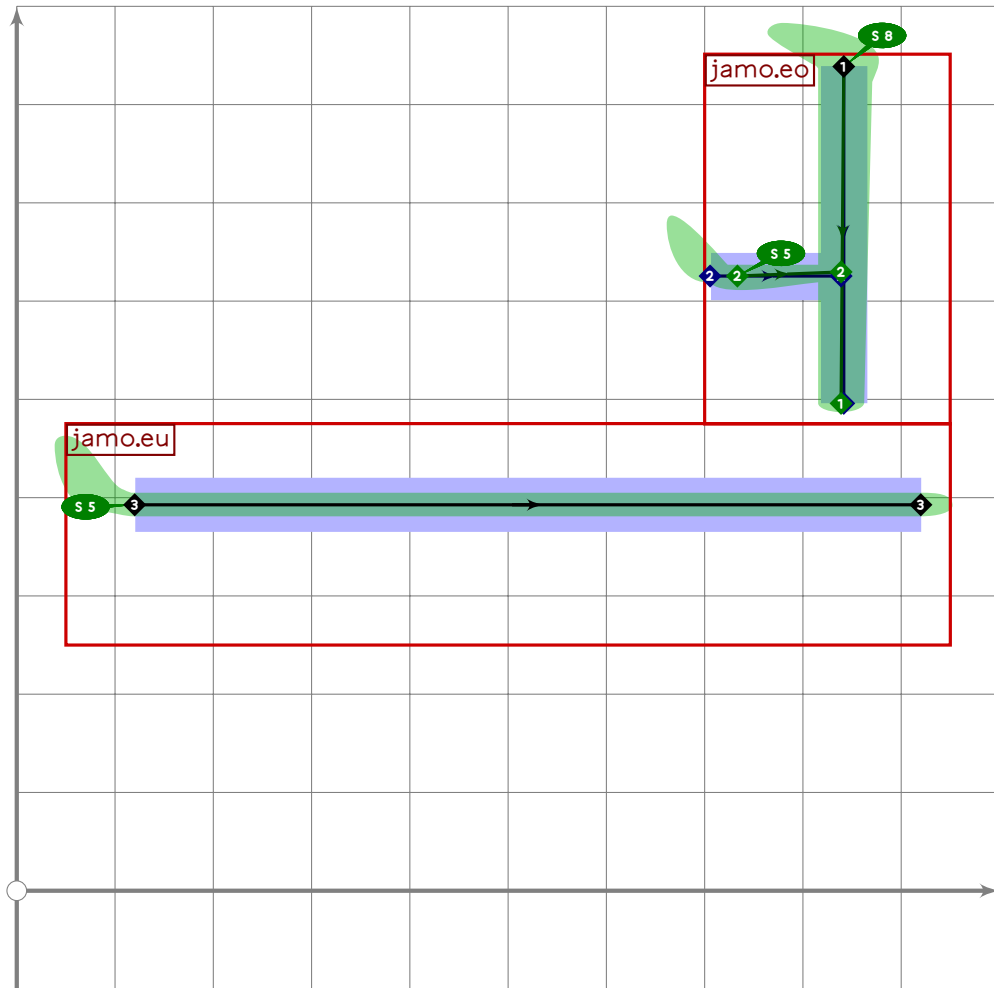
```



```

805 % hangul vowel eo-u
806 begint Suglyph("uni117B",123);
807 hangul.combine.tb(304,313)(whatever,vixf,voxf);
808 tsu_render;
809 endsuglyph;
810

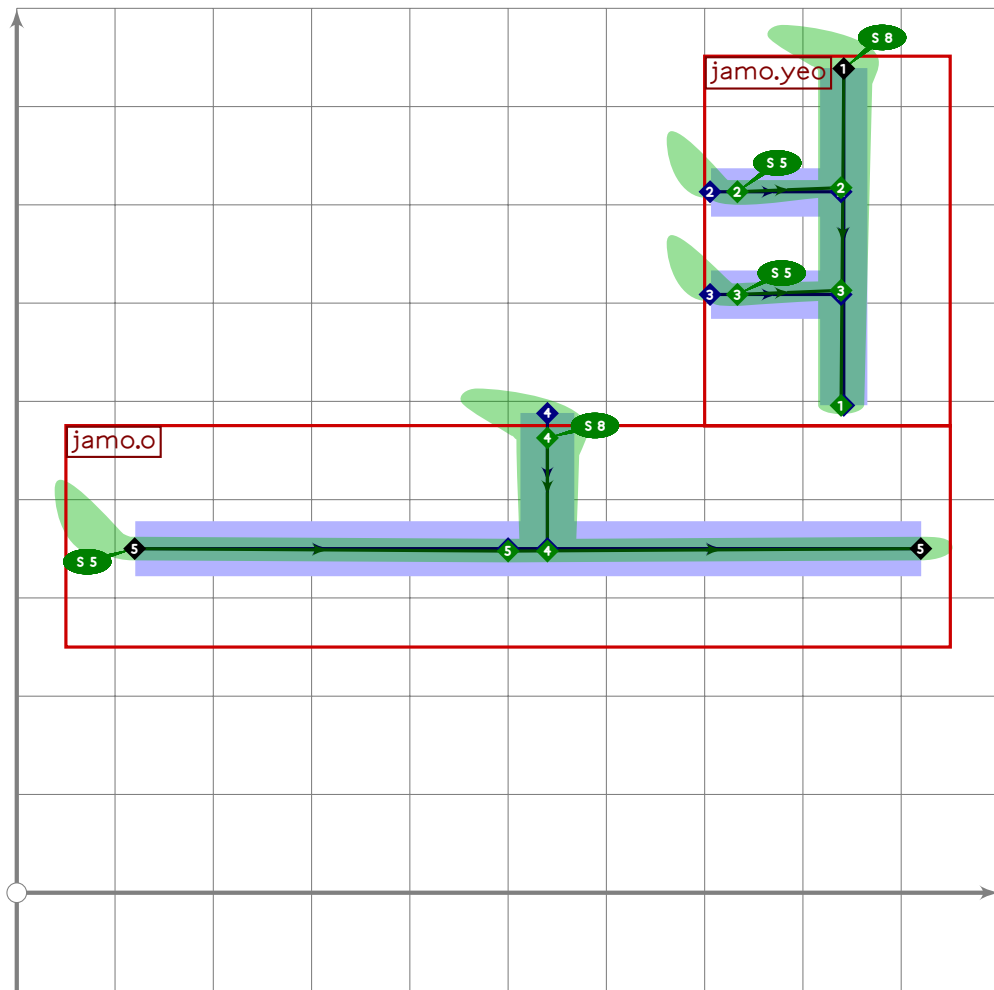
```



```

811 % hangul vowel eo-eu
812 begint Suglyph("uni117C",124);
813 hangul.combine.tb(304,318)(whatever,vixf,vox);
814 tsu_render;
815 endsuglyph;
816

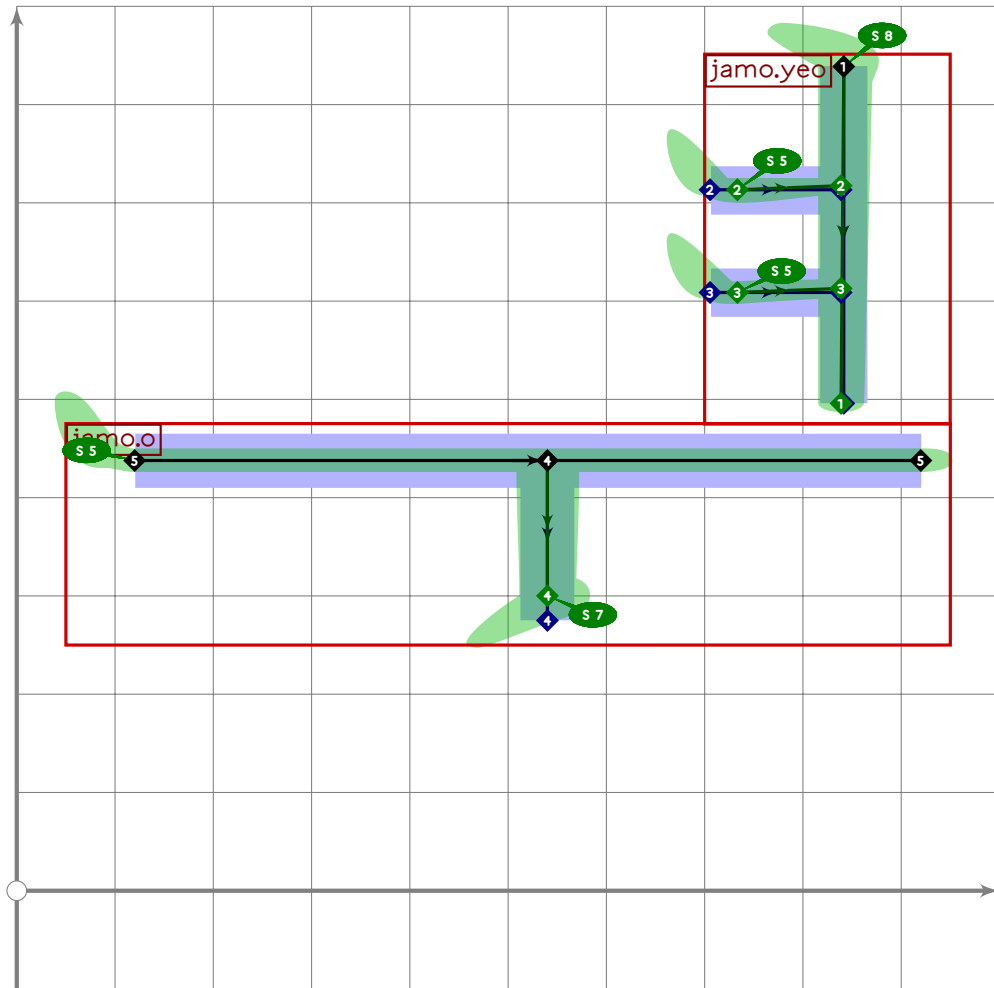
```



```

817 % hangul vowel yeo-o
818 begintsuglyph("uni117D",125);
819 hangul.combine.tb(306,308)(whatever,vixf,voxf);
820 tsu_render;
821 endsuglyph;
822

```

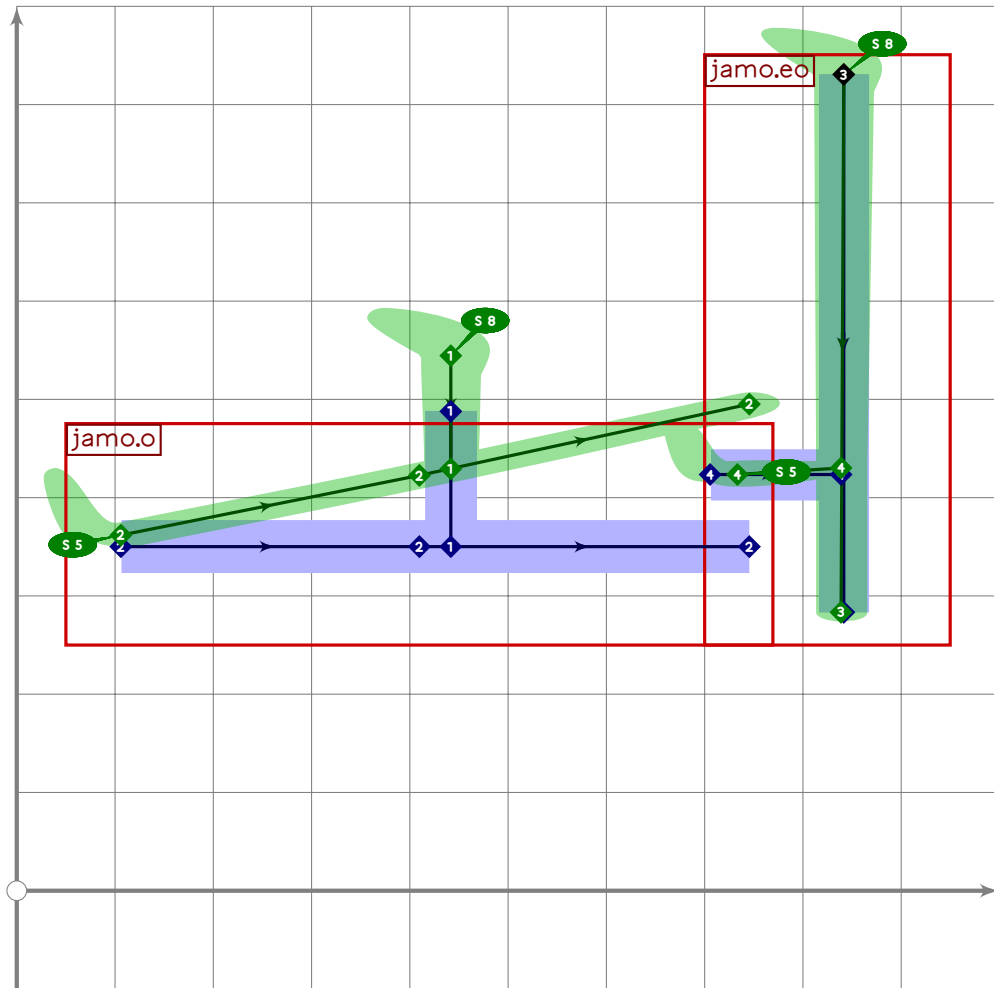


```

823 % hangul vowel yeo-u
824 begint Suglyph("uni117E",126);
825 hangul.combine.tb(306,313)(whatever,vixf,voxf);
826 tsu_render;
827 endtsuglyph;
828

```

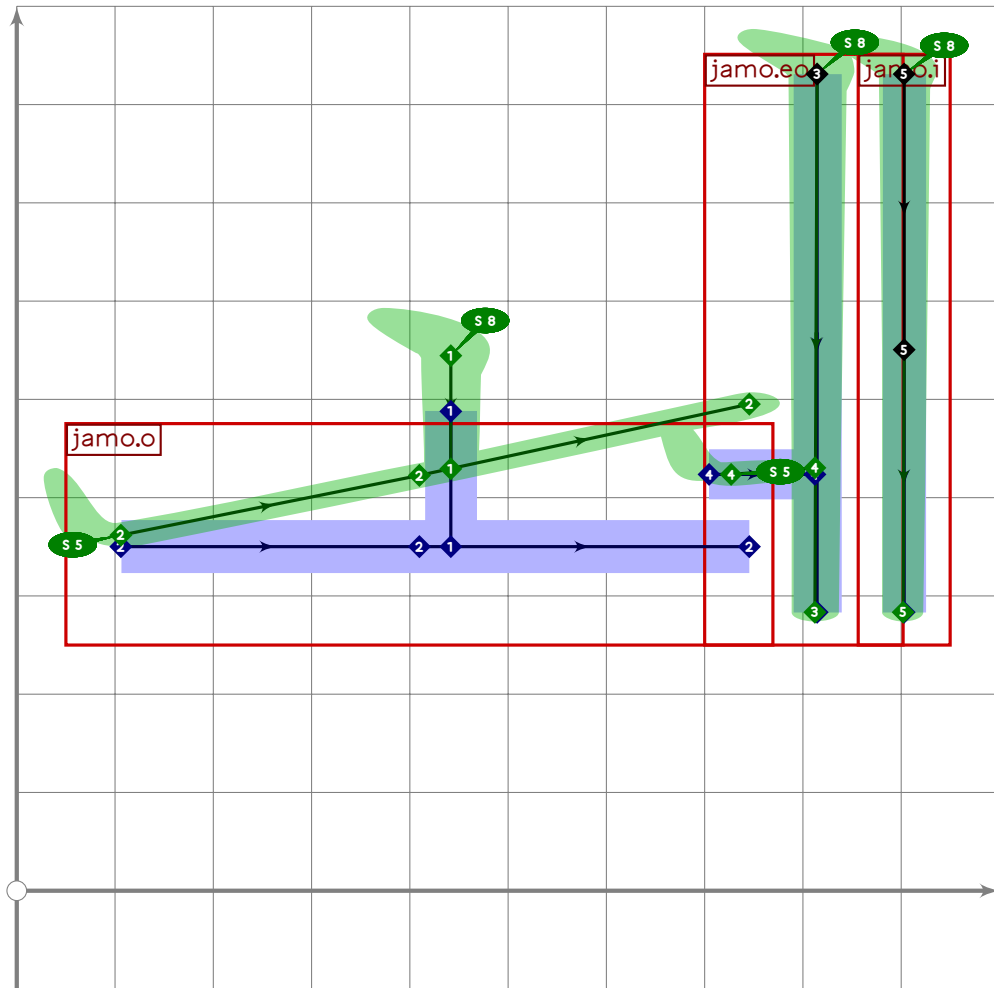




```

829 % hangul vowel o-eo
830 begint Suglyph("uni117F";127);
831 hangul.combine.lr(308,304)(429,vixf,voxf);
832 tsu_render;
833 endsuglyph;
834

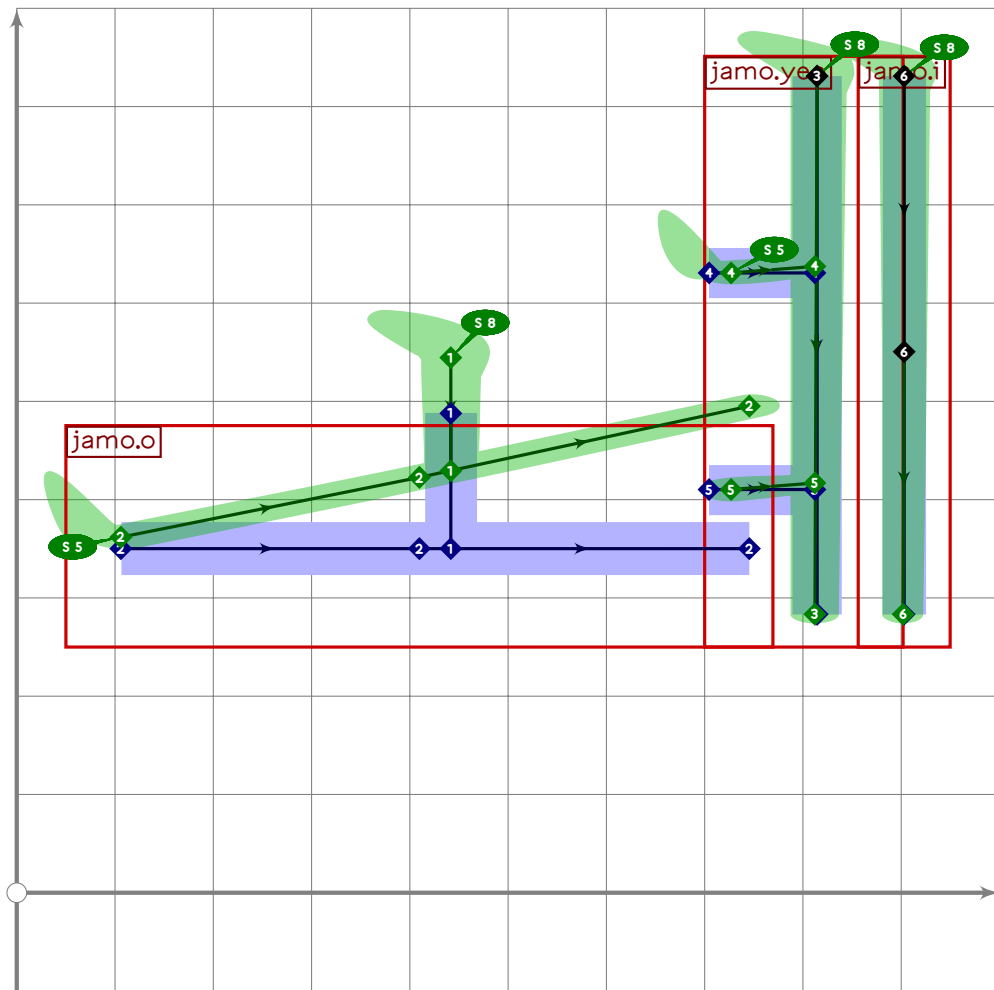
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```

835 % hangul vowel o-e
836 begint Suglyph("uni1180",128);
837 hangul.combine.lr(308,305)(430,vixf,voxf);
838 tsu_render;
839 endtsuglyph;
840

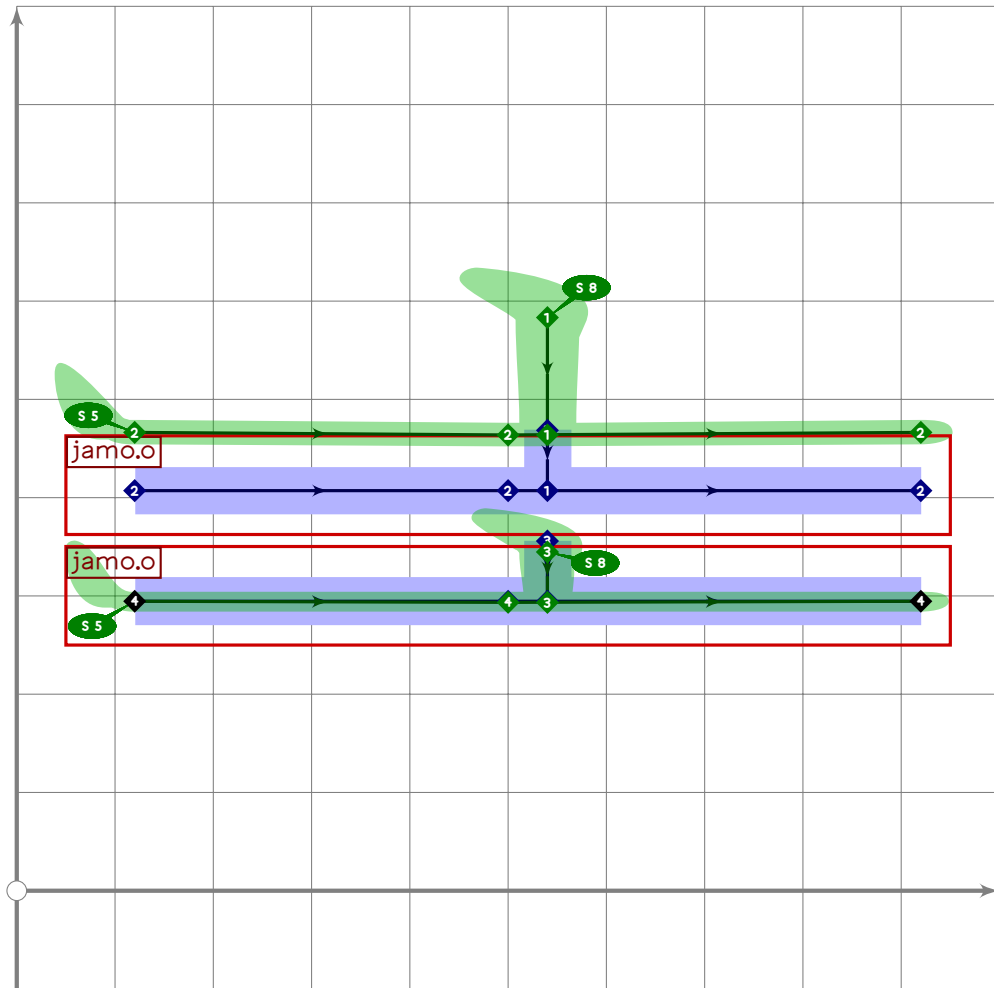
```



```

841 % hangul vowel o-ye
842 begint Suglyph("uni1181",129);
843 hangul.combine.lr(308,307)(431,vixf,voxf);
844 tsu_render;
845 endtsuglyph;
846

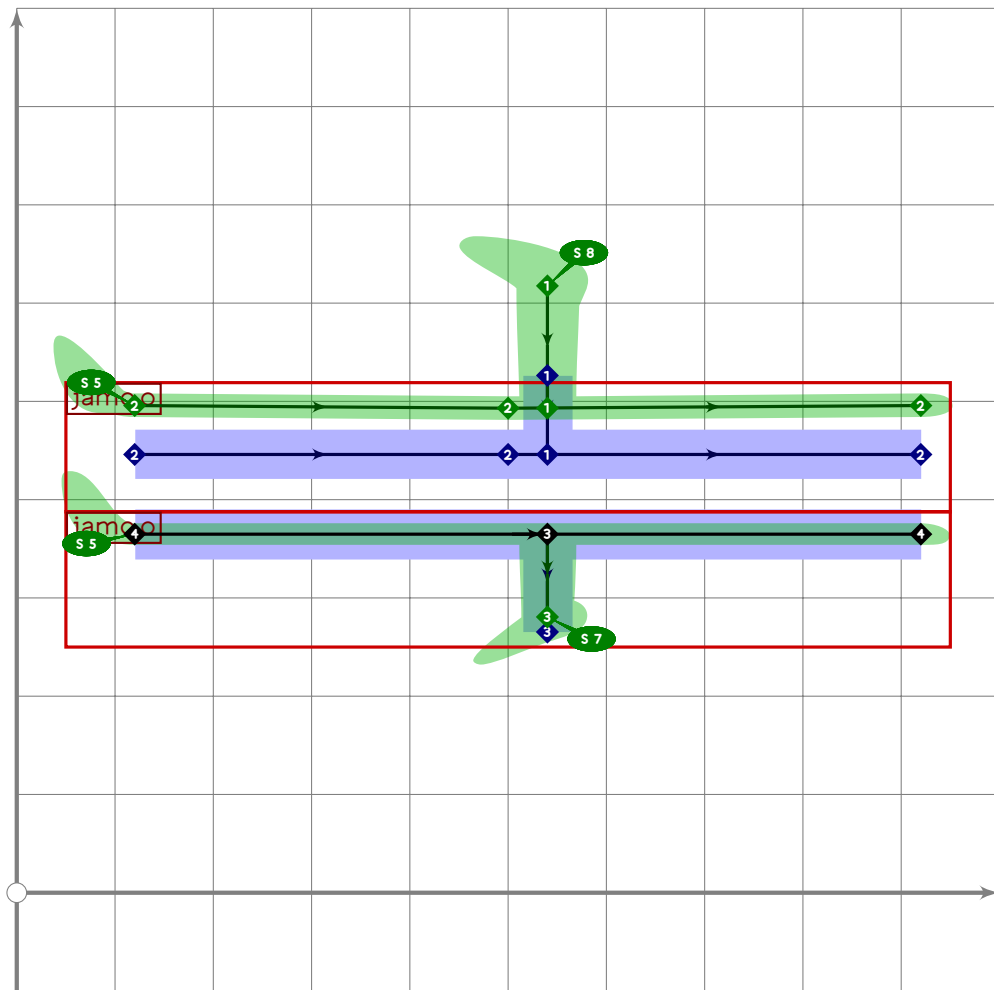
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```

847 % hangul vowel o-o
848 begint Suglyph("uni1182",130);
849 hangul.combine.tb(308,308)(whatever,vixf,voxf);
850 tsu_render;
851 endtsuglyph;
852

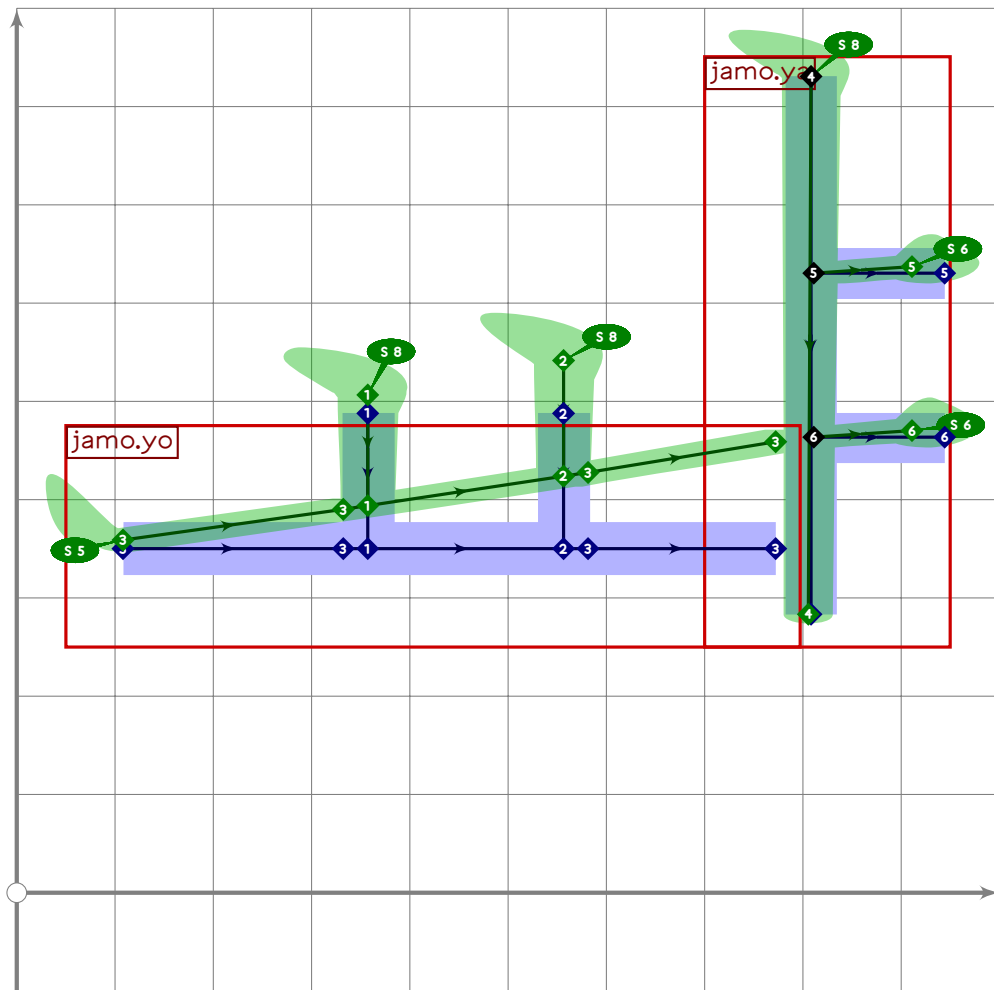
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```

853 % hangul vowel o-u
854 begint Suglyph("uni1183",131);
855 hangul.combine.tb(308,313)(whatever,tvixf,voxf);
856 tsu_render;
857 endsuglyph;
858

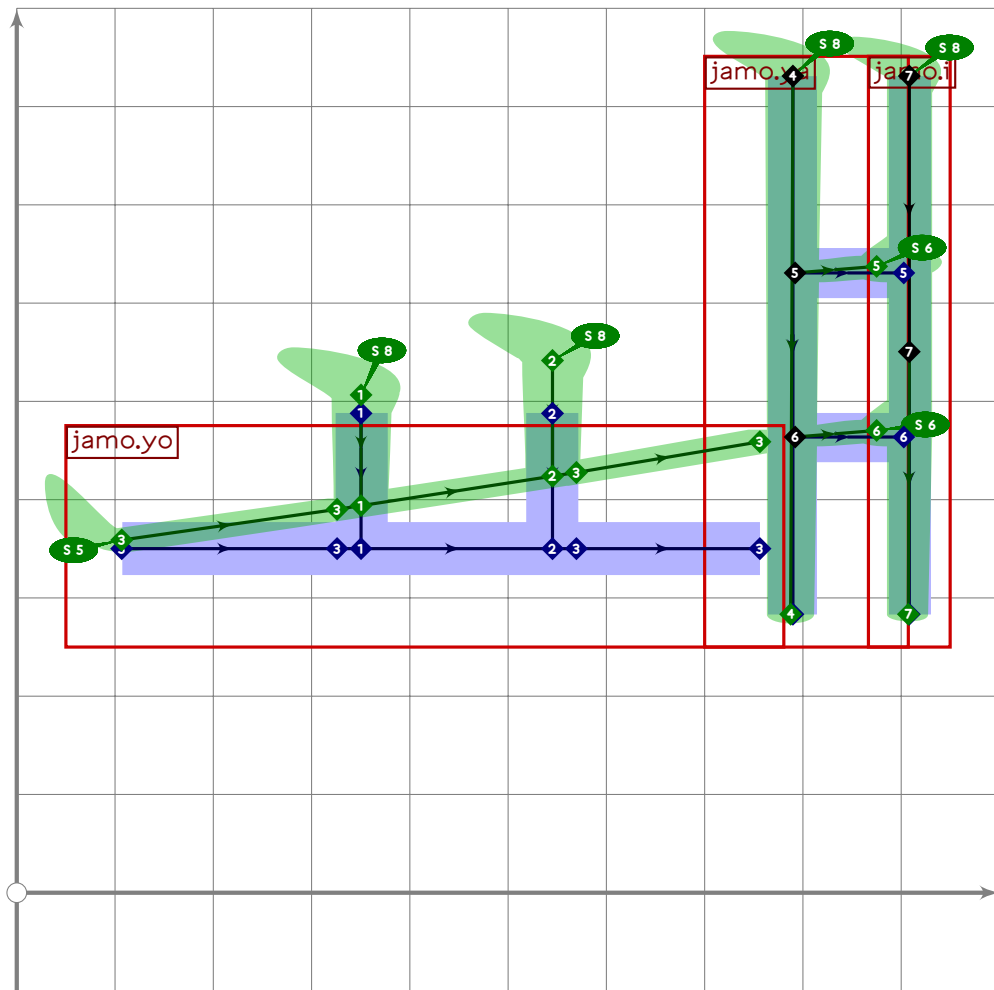
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```

859 % hangul vowel yo-ya
860 begint Suglyph("uni1184",132);
861 hangul.combine.lr(312,302)(421,vixf,voxf);
862 tsu_render;
863 endtsuglyph;
864

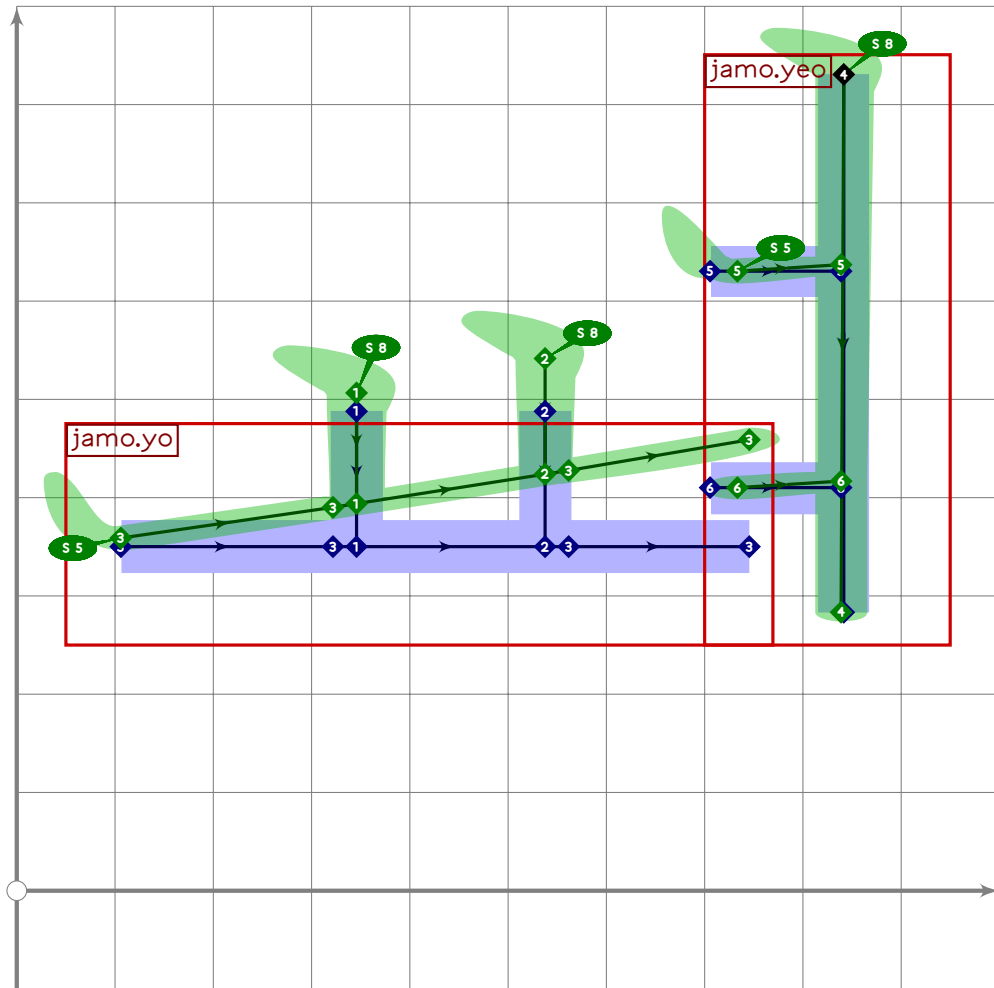
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```

865 % hangul vowel yo-yae
866 begintsuglyph("uni1185",133);
867 hangul.combine.lr(312,303)(422,vixf,voxf);
868 tsu_render;
869 endsuglyph;
870

```

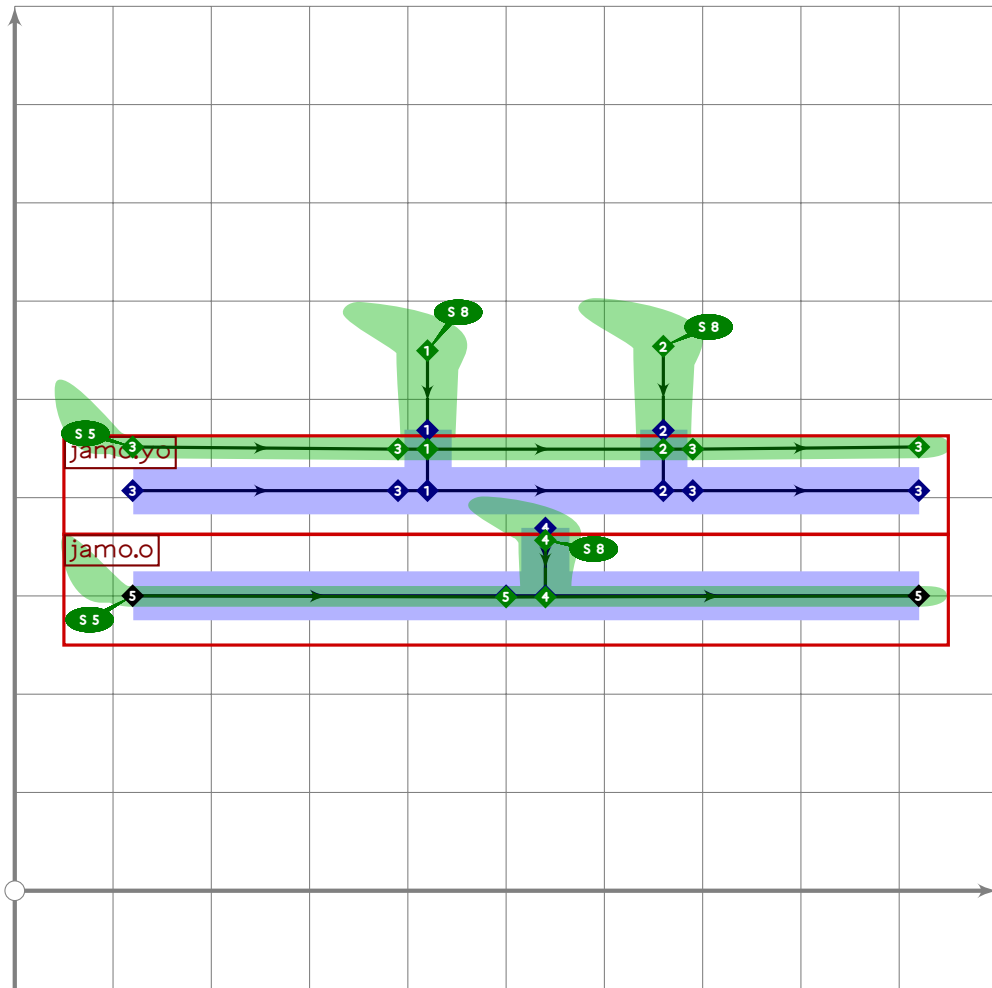


```

871 % hangul vowel yo-yeo
872 begint Suglyph("uni1186",134);
873 hangul.combine.lr(312,306)(432,vixf,voxf);
874 tsu_render;
875 endtsuglyph;
876

```

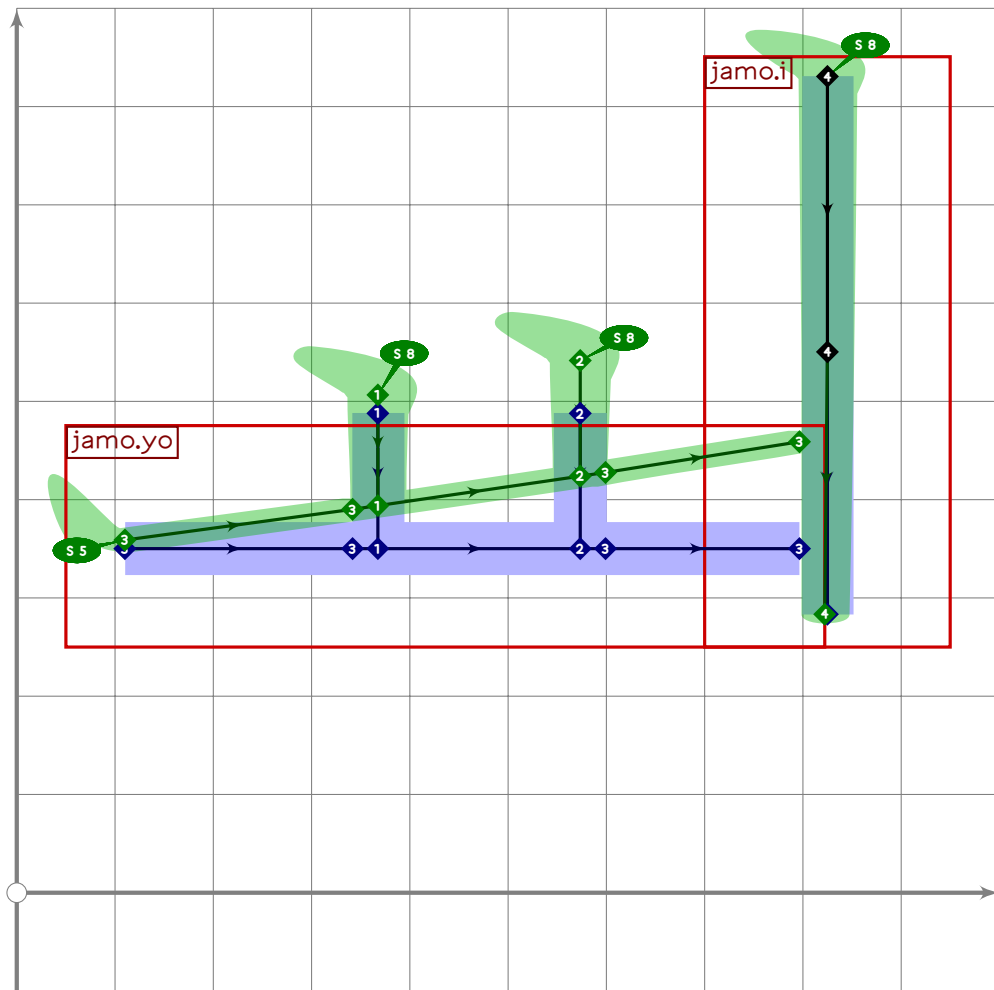




```

877 % hangul vowel yo-o
878 beginsuglyph("uni1187",135);
879 hangul.combine.tb(312,308)(whatever,vixf,vox);
880 tsu_render;
881 endsuglyph;
882

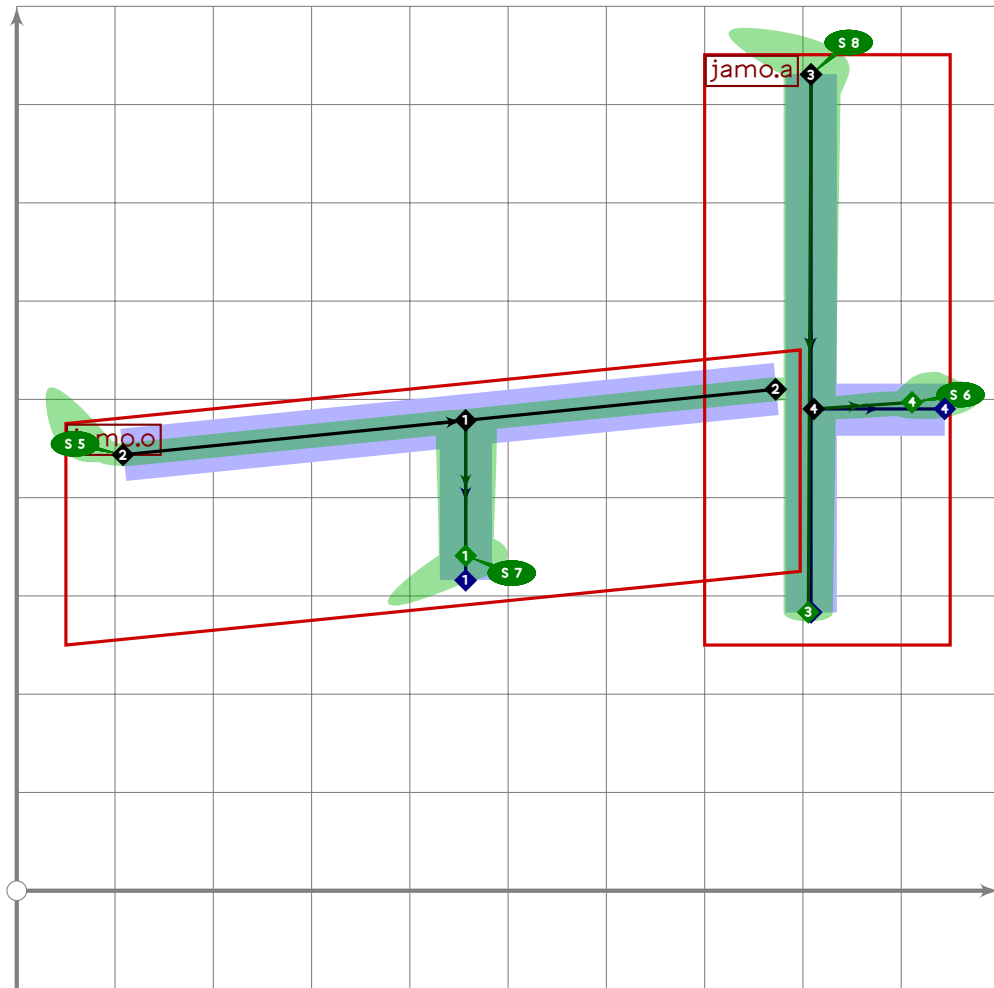
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```

883 % hangul vowel yo-i
884 begint Suglyph("uni1188",136);
885 hangul.combine.lr(312,320)(423,vixf,voxf);
886 tsu_render;
887 endtsuglyph;
888

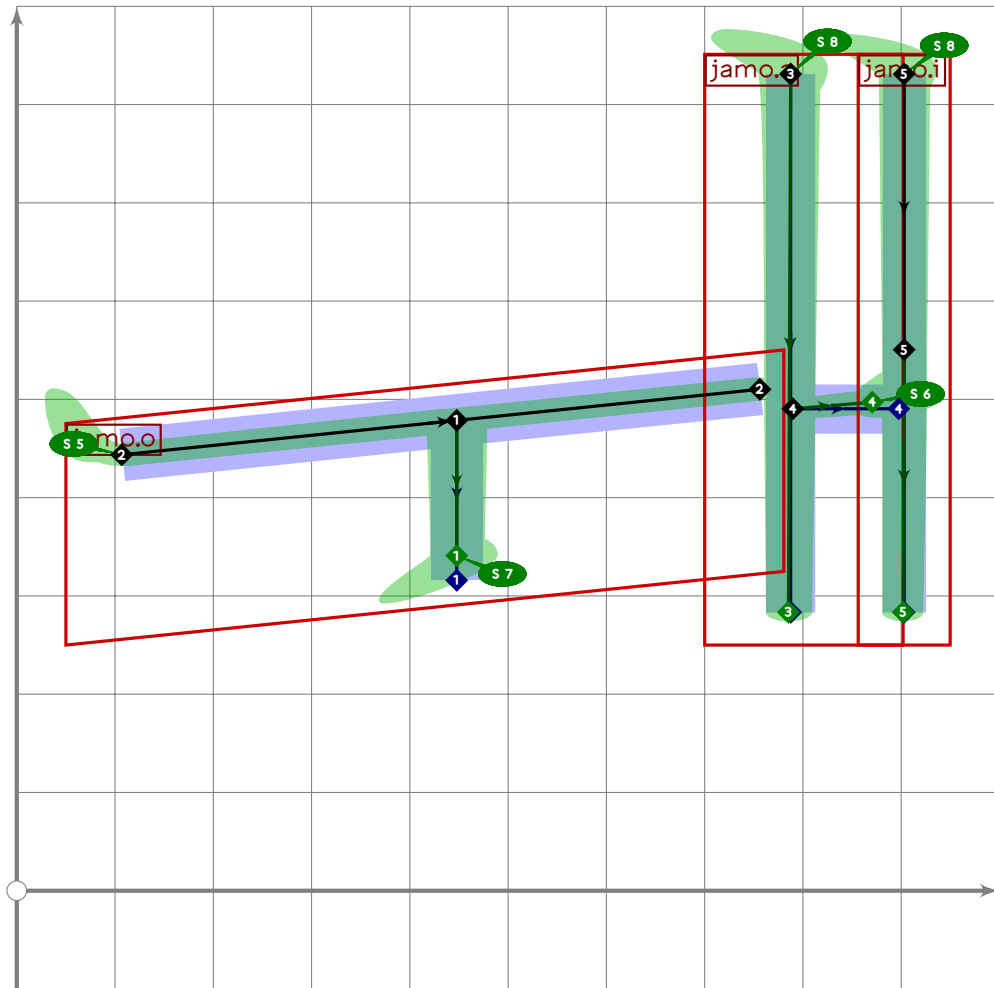
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```

889 % hangul vowel u-a
890 begint Suglyph("uni1189",137);
891 hangul.combine.lr(313,300)(433,vixf,voxf);
892 tsu_render;
893 endtsuglyph;
894

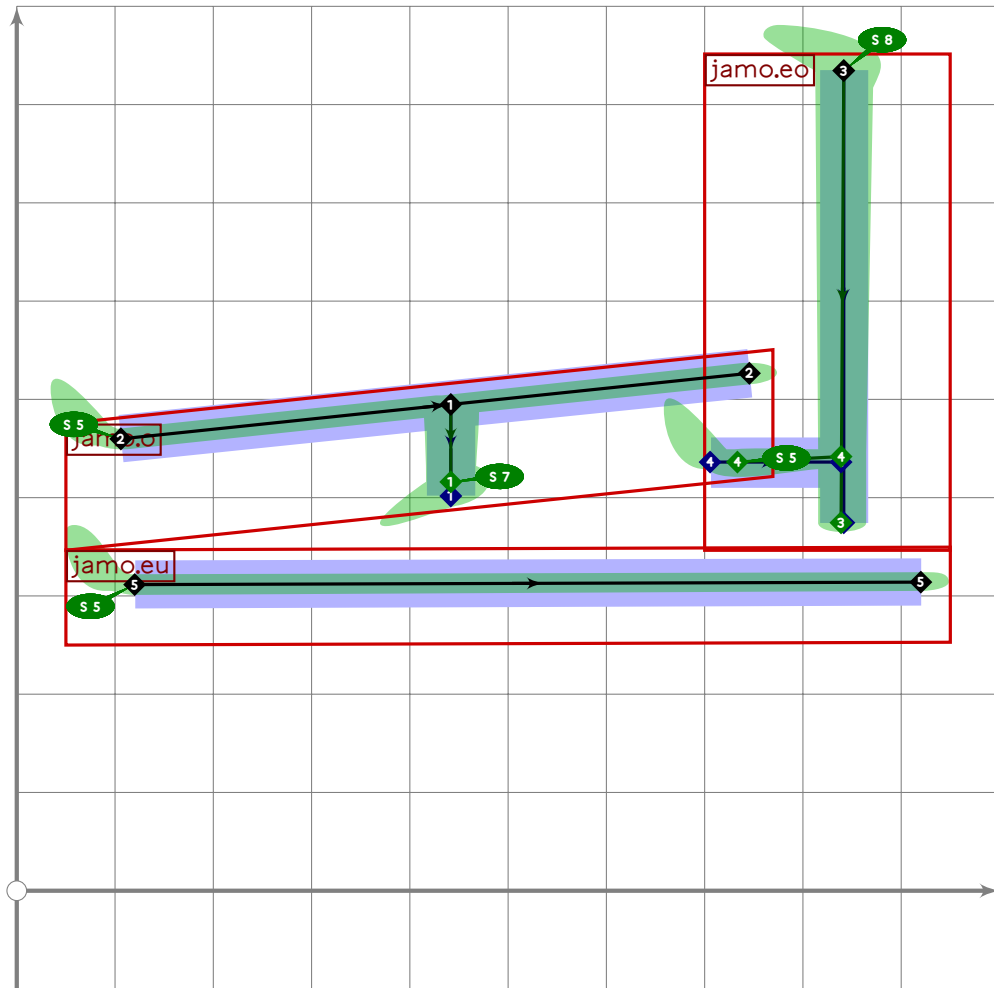
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```

895 % hangul vowel u-ae
896 begintsuglyph("uni118A",138);
897 hangul.combine.lr(313,301)(434,vixf,voxf);
898 tsu_render;
899 endsuglyph;
900

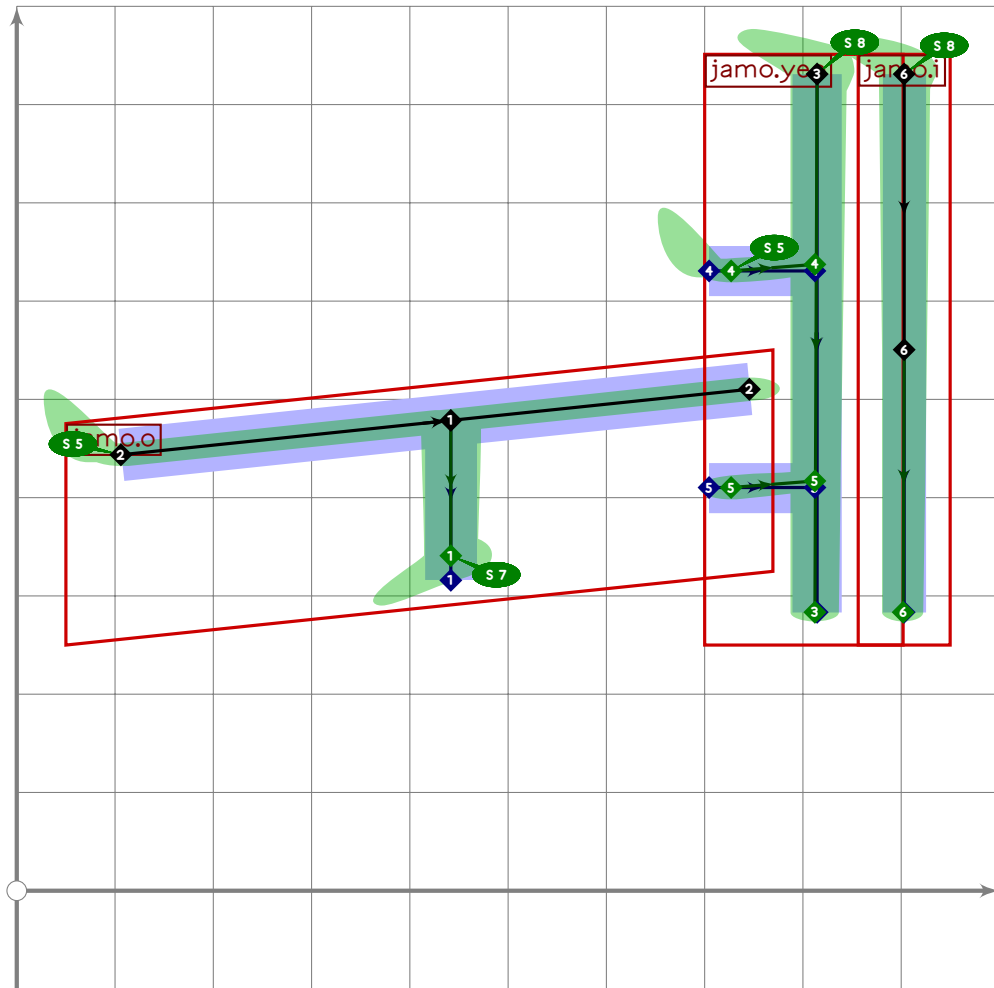
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```

901 % hangul vowel u-eo-eu
902 begint Suglyph("uni118B",139);
903 hangul.combine.tb(314,318)(435,vixf,voxf);
904 tsu_render;
905 endtsuglyph;
906

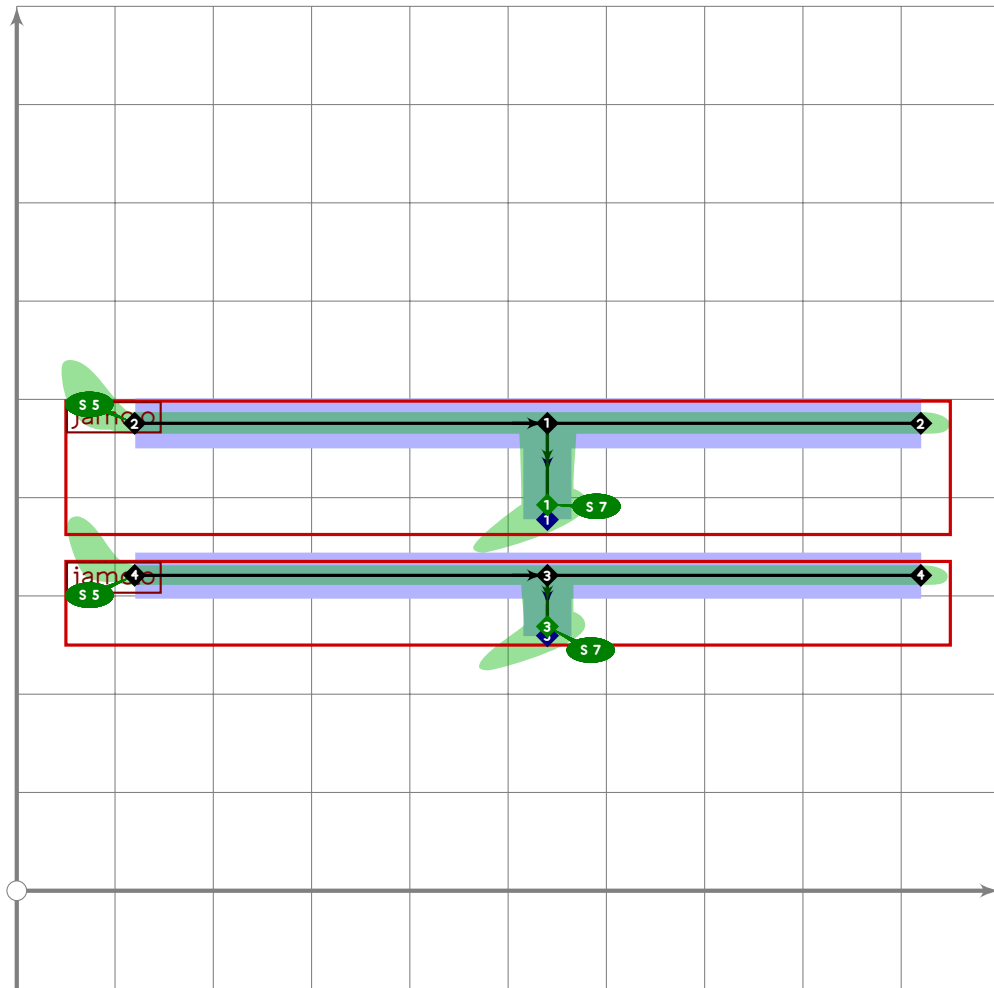
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```

907 % hangul vowel u-ye
908 begintsuglyph("uni118C";140);
909 hangul.combine.lr(313,307)(436,vixf,voxf);
910 tsu_render;
911 endsuglyph;
912

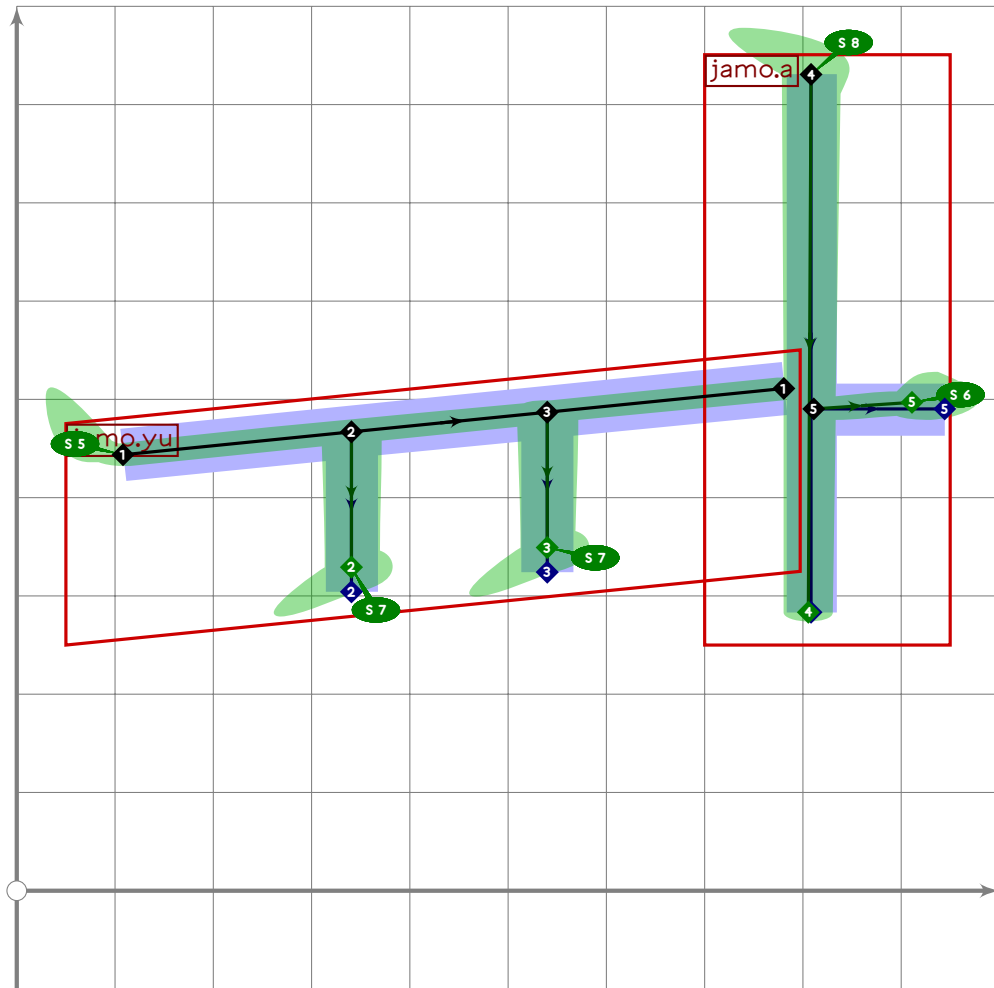
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```

913 % hangul vowel u-u
914 begint Suglyph("uni118D";141);
915 hangul.combine.tb(313,313)(whatever,vixf,voxf);
916 tsu_render;
917 endsuglyph;
918

```

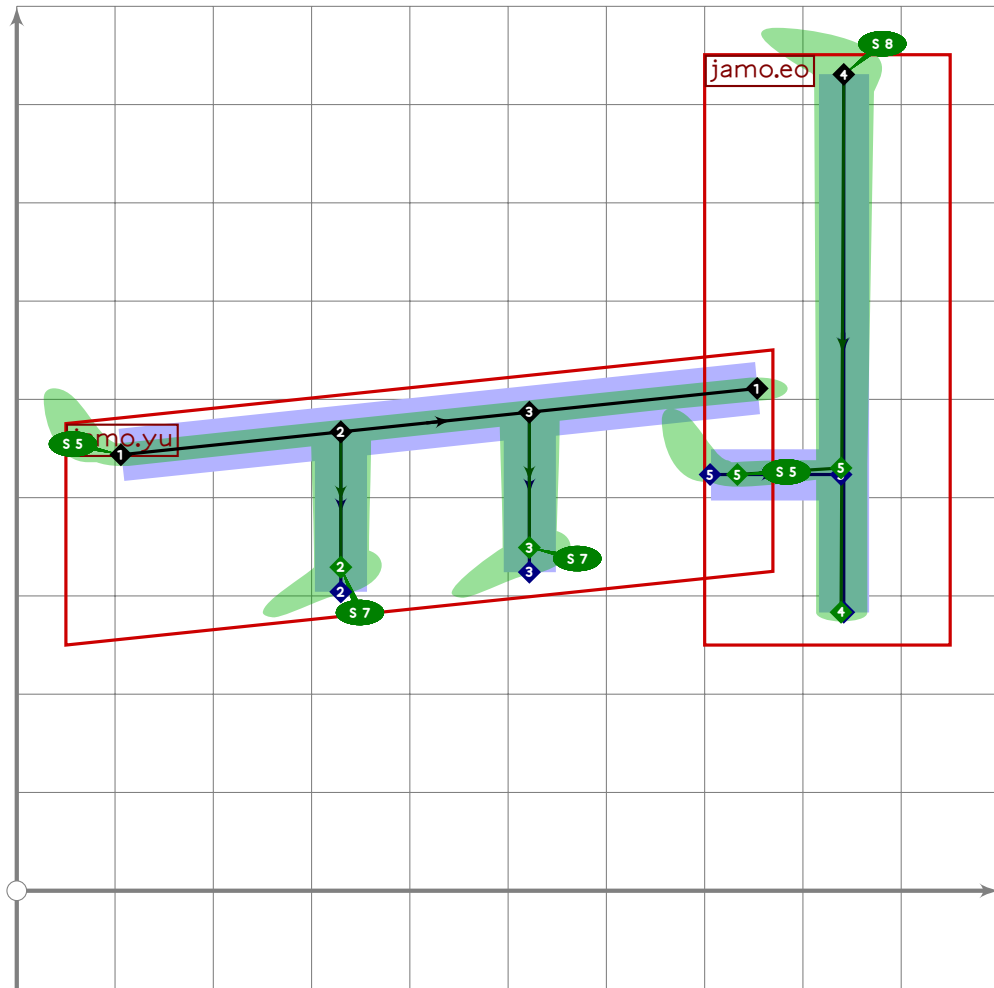


```

919 % hangul vowel yu-a
920 begint Suglyph("uni118E",142);
921 hangul.combine.lr(317,300)(437,vixf,voxf);
922 tsu_render;
923 endtsuglyph;
924

```

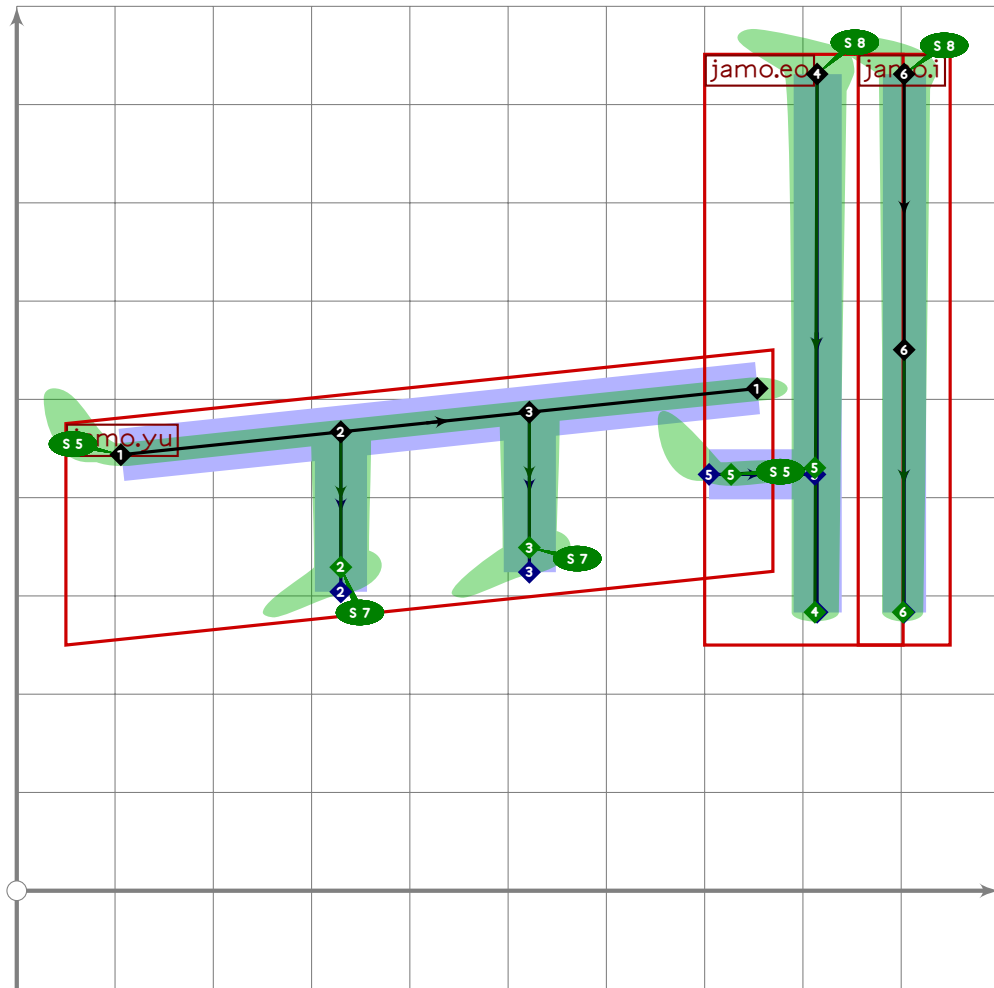




```

925 % hangul vowel yu-eo
926 beginsuglyph("uni118F",143);
927 hangul.combine.lr(317,304)(438,vixf,voxf);
928 tsu_render;
929 endsuglyph;
930

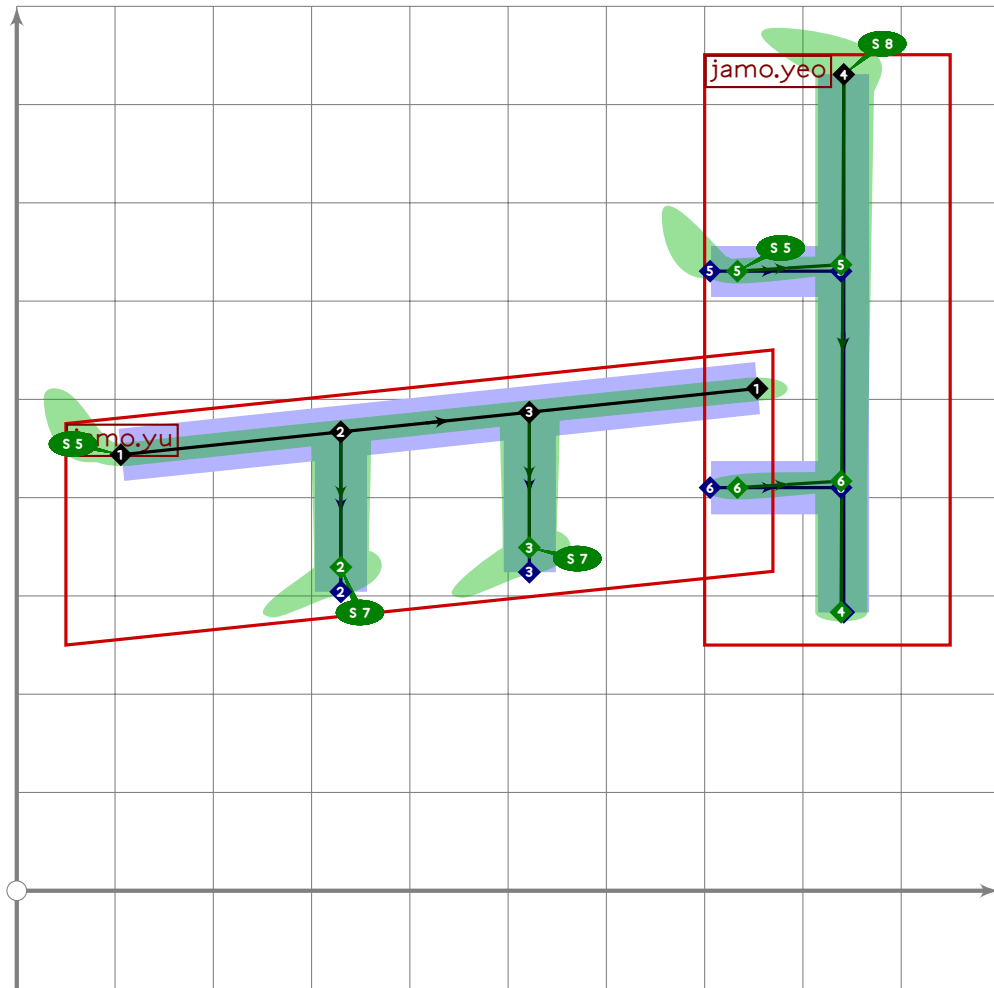
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```

931 % hangul vowel yu-e
932 begint Suglyph("uni1190",144);
933 hangul.combine.lr(317,305)(439,vixf,voxf);
934 tsu_render;
935 endtsuglyph;
936

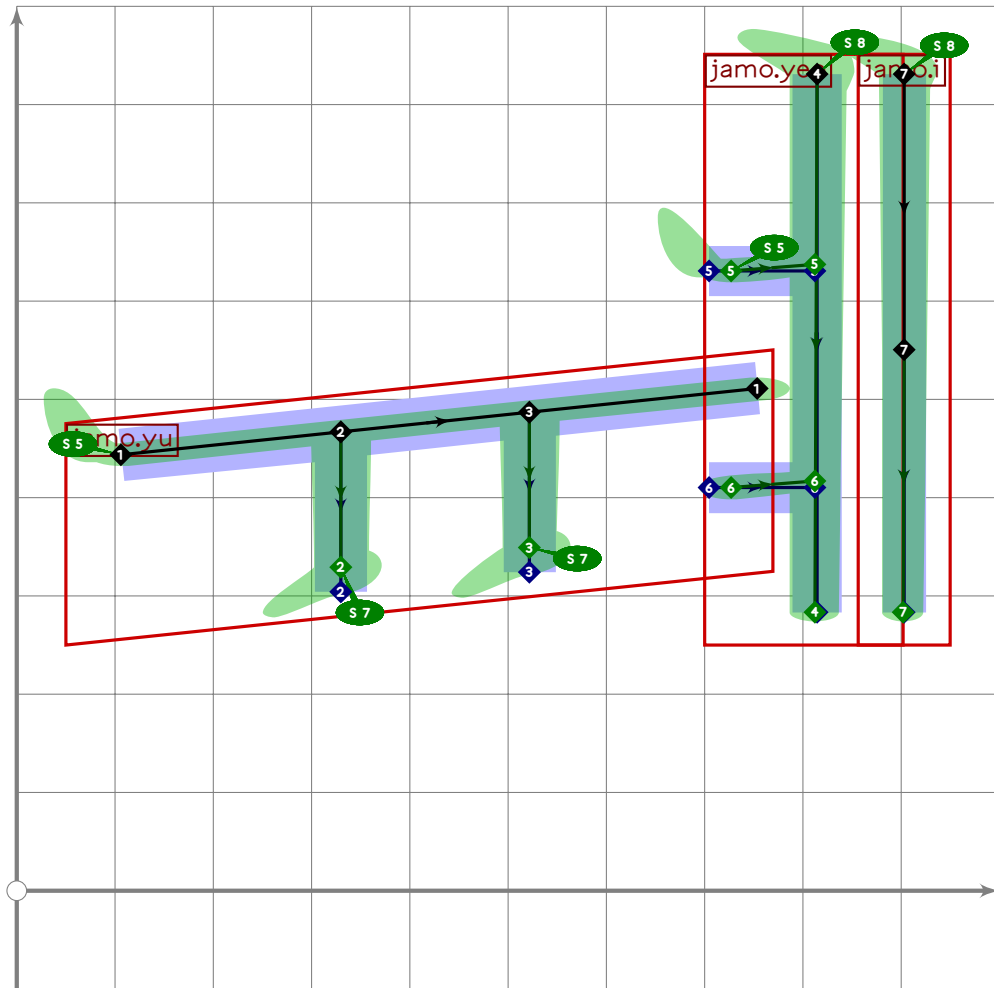
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```

937 % hangul vowel yu-yeo
938 begint Suglyph("uni1191";145);
939 hangul.combine.lr(317,306)(424,vixf,voxf);
940 tsu_render;
941 endtsuglyph;
942

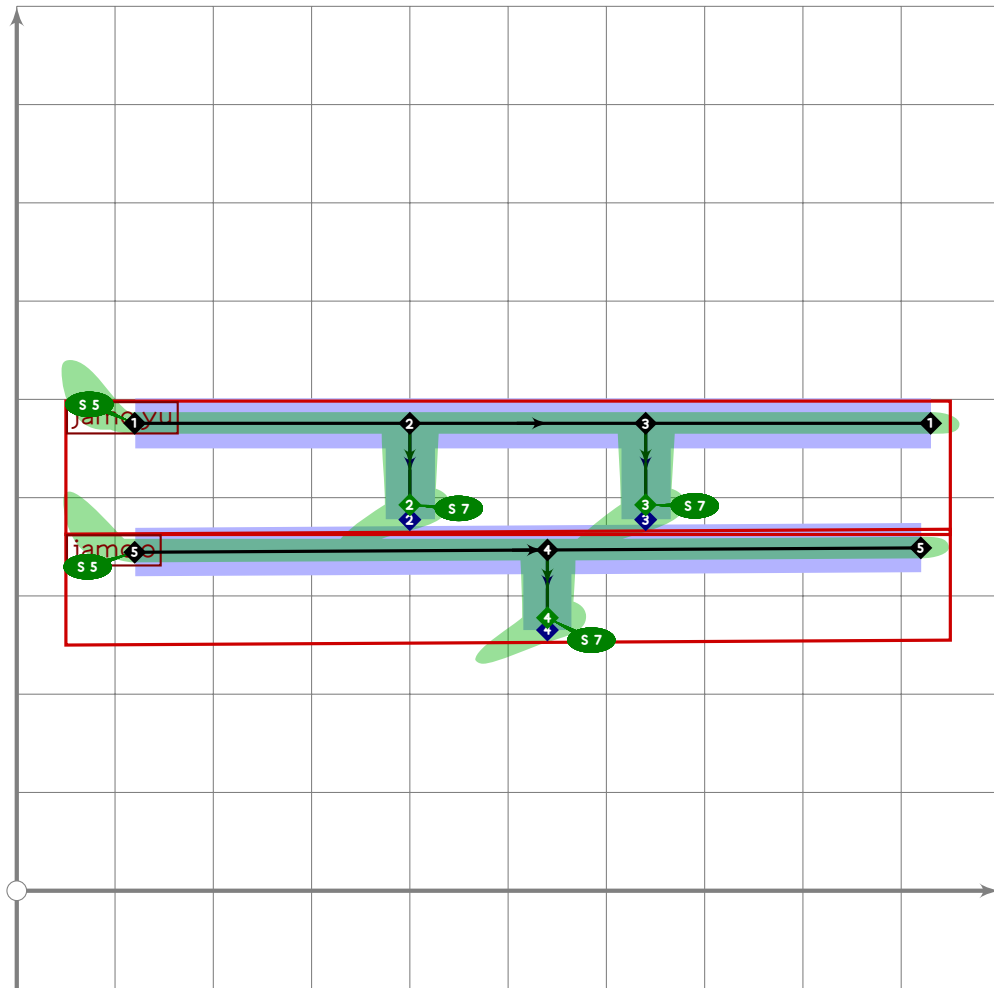
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```

943 % hangul vowel yu-ye
944 begintsuglyph("uni1192",146);
945 hangul.combine.lr(317,307)(425,vixf,voxf);
946 tsu_render;
947 endsuglyph;
948

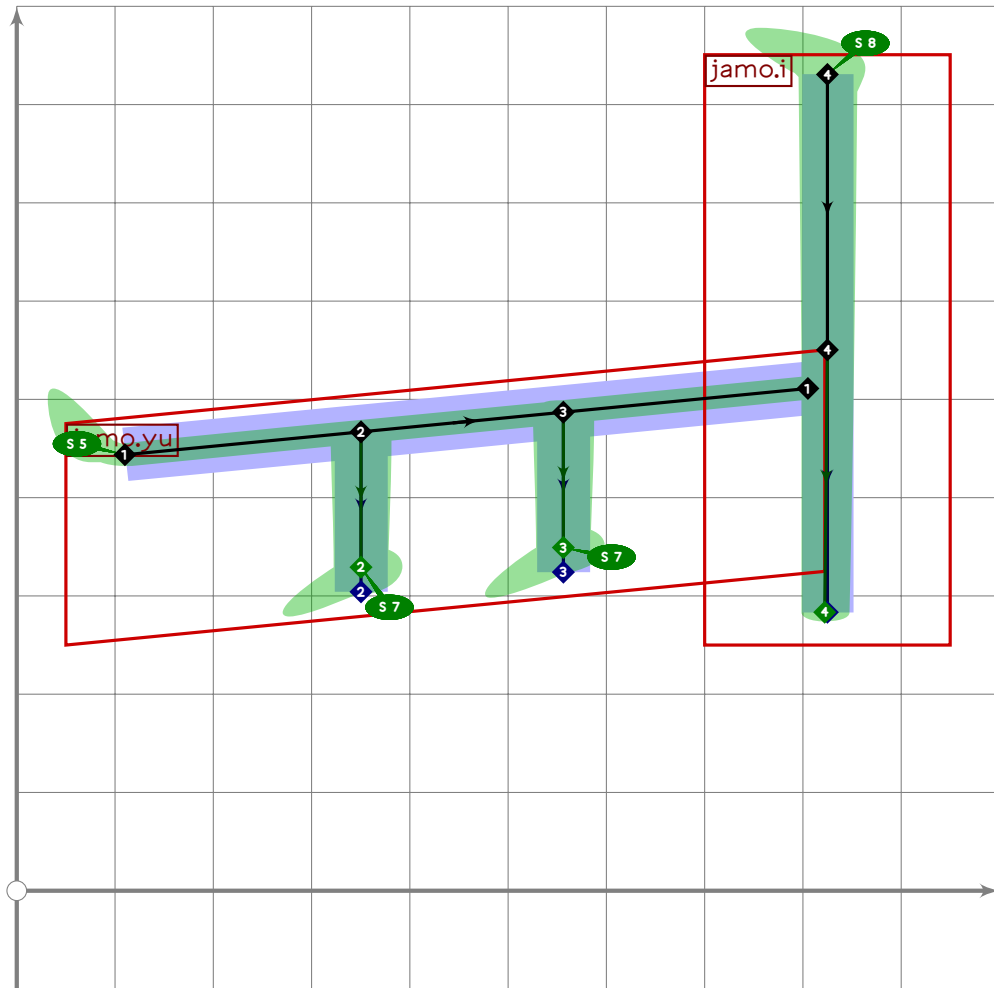
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```

949 % hangul vowel yu-u
950 begint Suglyph("uni1193",147);
951 hangul.combine.tb(317,313)(whatever,vixf,vox f);
952 tsu_render;
953 endsuglyph;
954

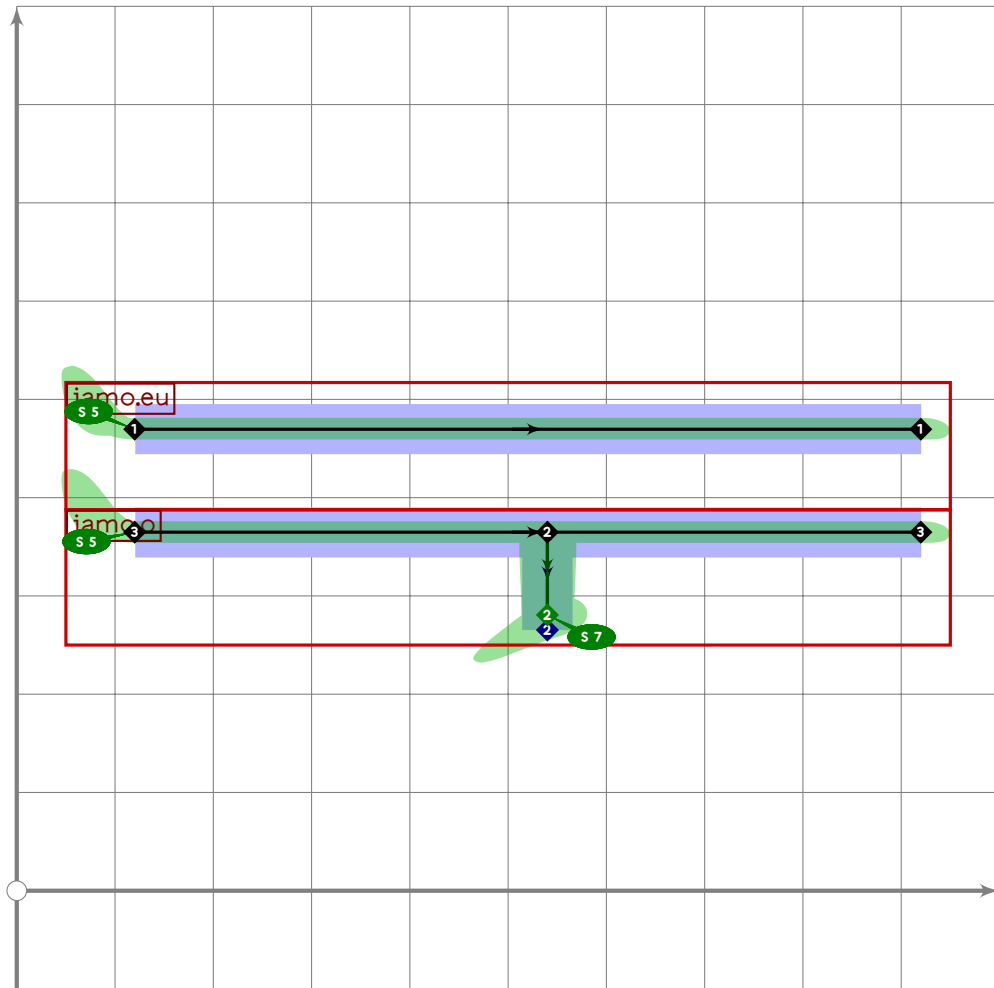
```



```

955 % hangul vowel yu-i
956 begint Suglyph("uni1194",148);
957 hangul.combine.lr(317,320)(426,vixf,voxf);
958 tsu_render;
959 endtsuglyph;
960

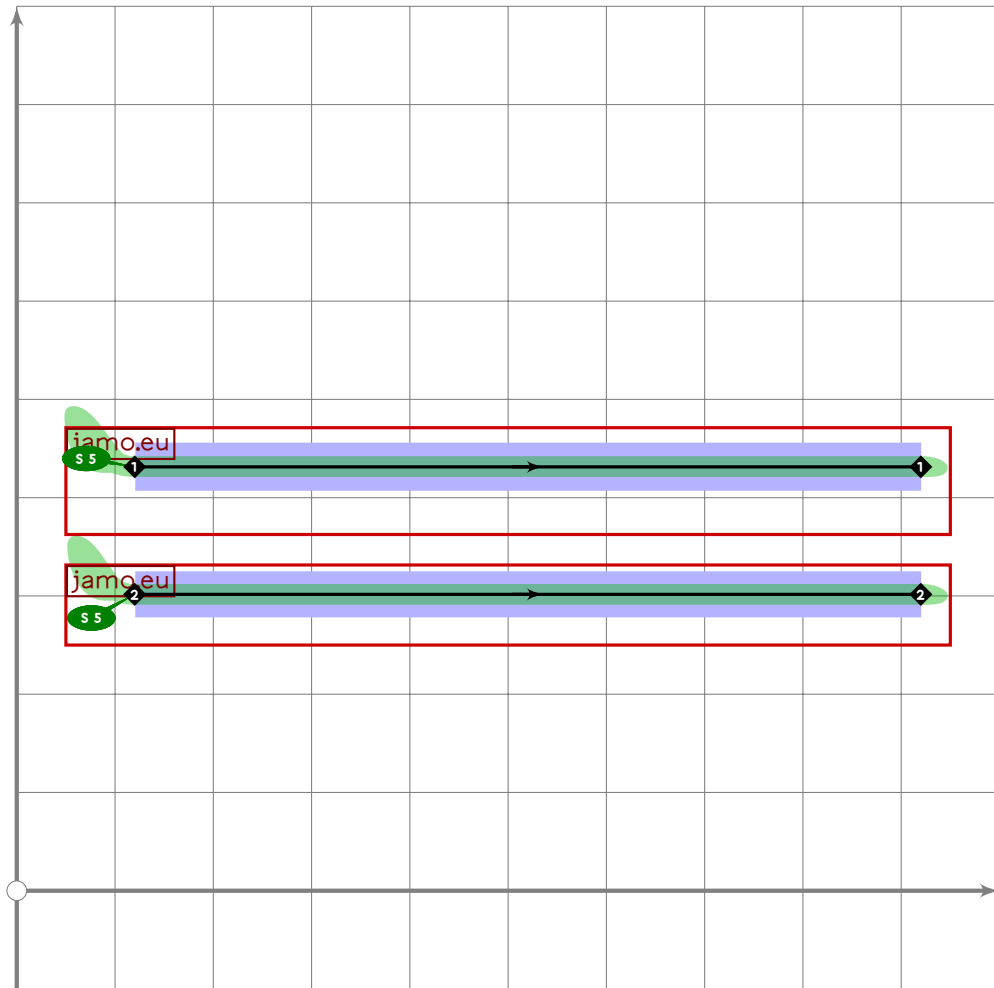
```



```

961 % hangul vowel eu-u
962 begint Suglyph("uni1195",149);
963 hangul.combine.tb(318,313)(whatever,tvixf,voxf);
964 tsu_render;
965 endtsuglyph;
966

```

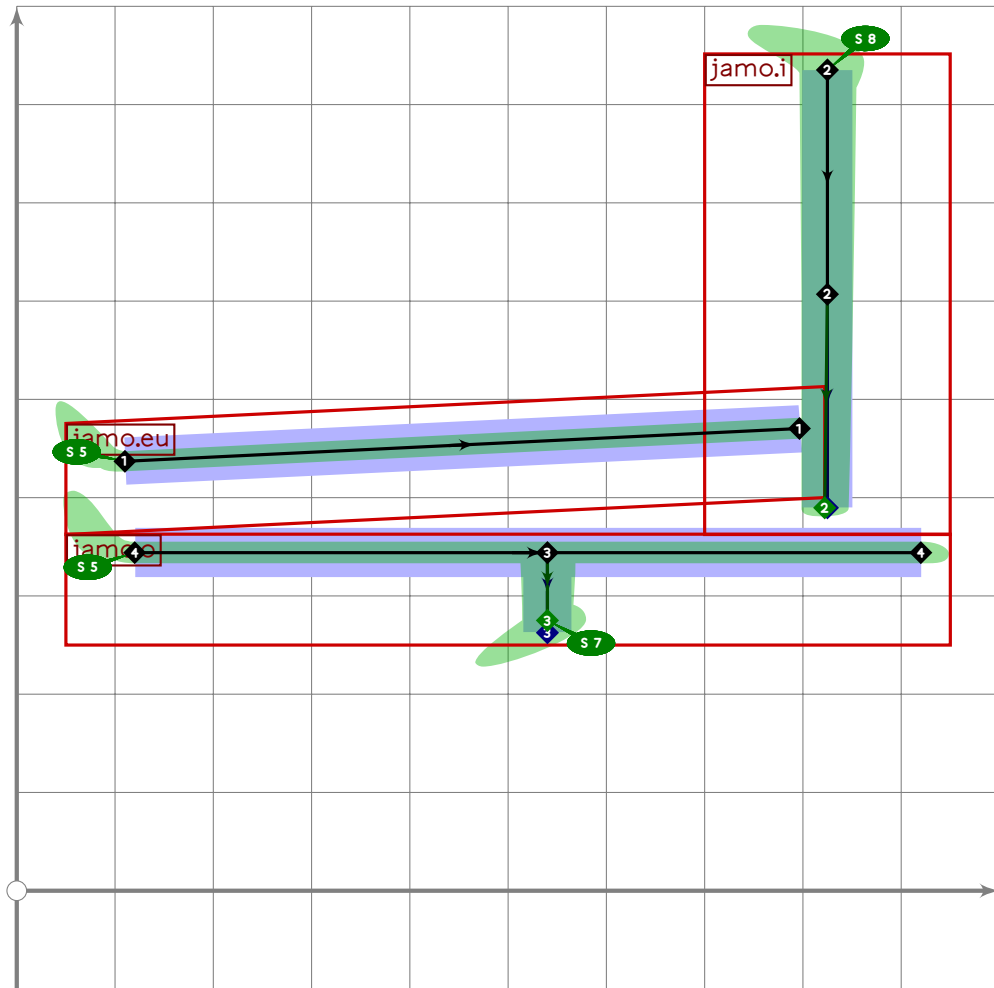


```

967 % hangul vowel eu-eu
968 begint Suglyph("uni1196",150);
969 hangul.combine.tb(318,318)(whatever,vixf,voxf);
970 tsu_render;
971 endtsuglyph;
972

```

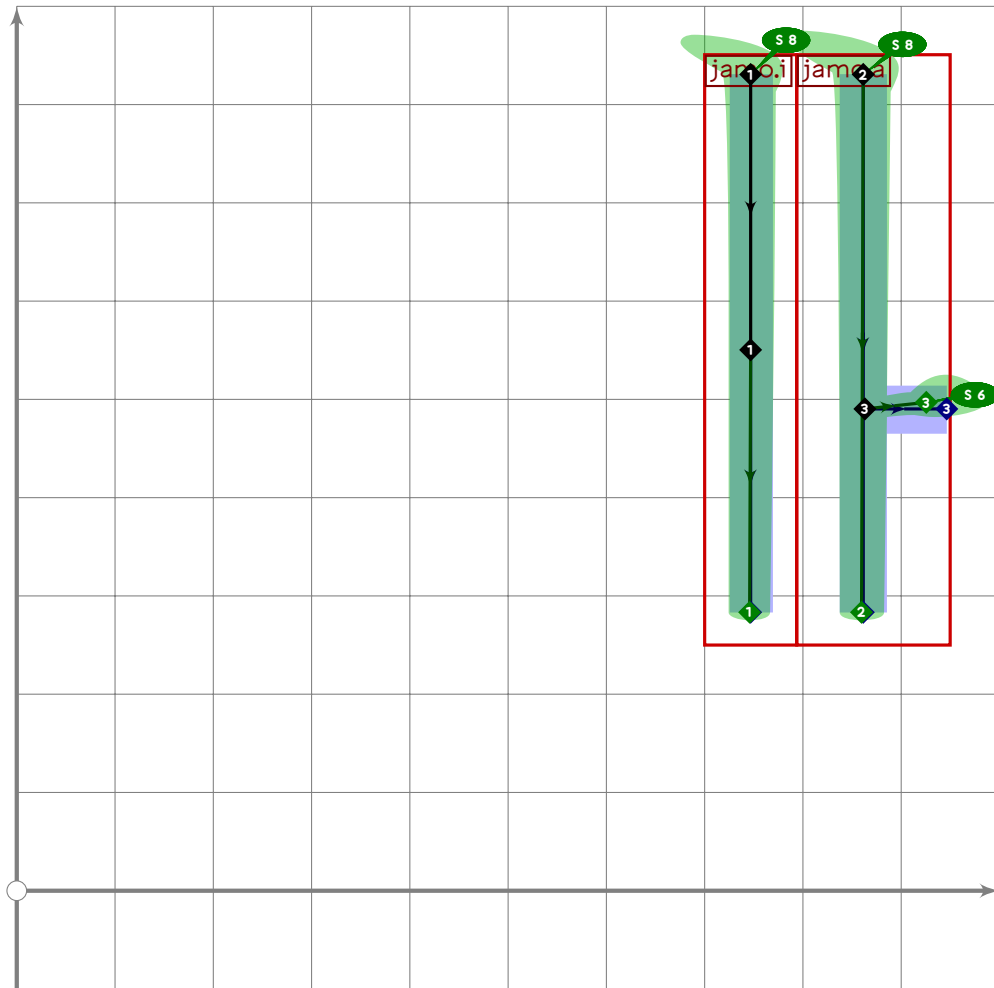




```

973 % hangul vowel yi-u
974 begint Suglyph("uni1197",151);
975 hangul.combine.tb(319,313)(440,vixf,voxf);
976 tsu_render;
977 endtsuglyph;
978

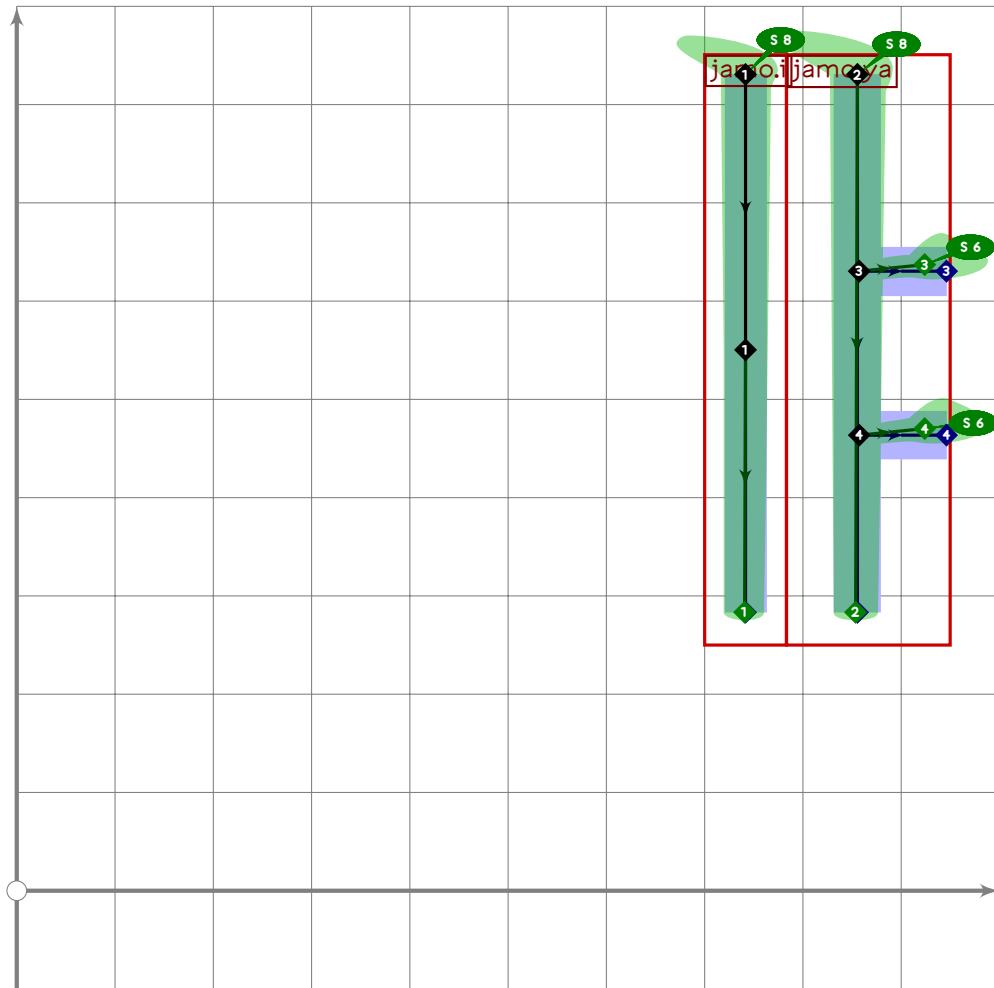
```



```

979 % hangul vowel i-a
980 begintsuglyph("uni1198",152);
981 hangul.combine.lr(320,300)(whatever,vixf,voxf);
982 tsu_render;
983 endsuglyph;
984

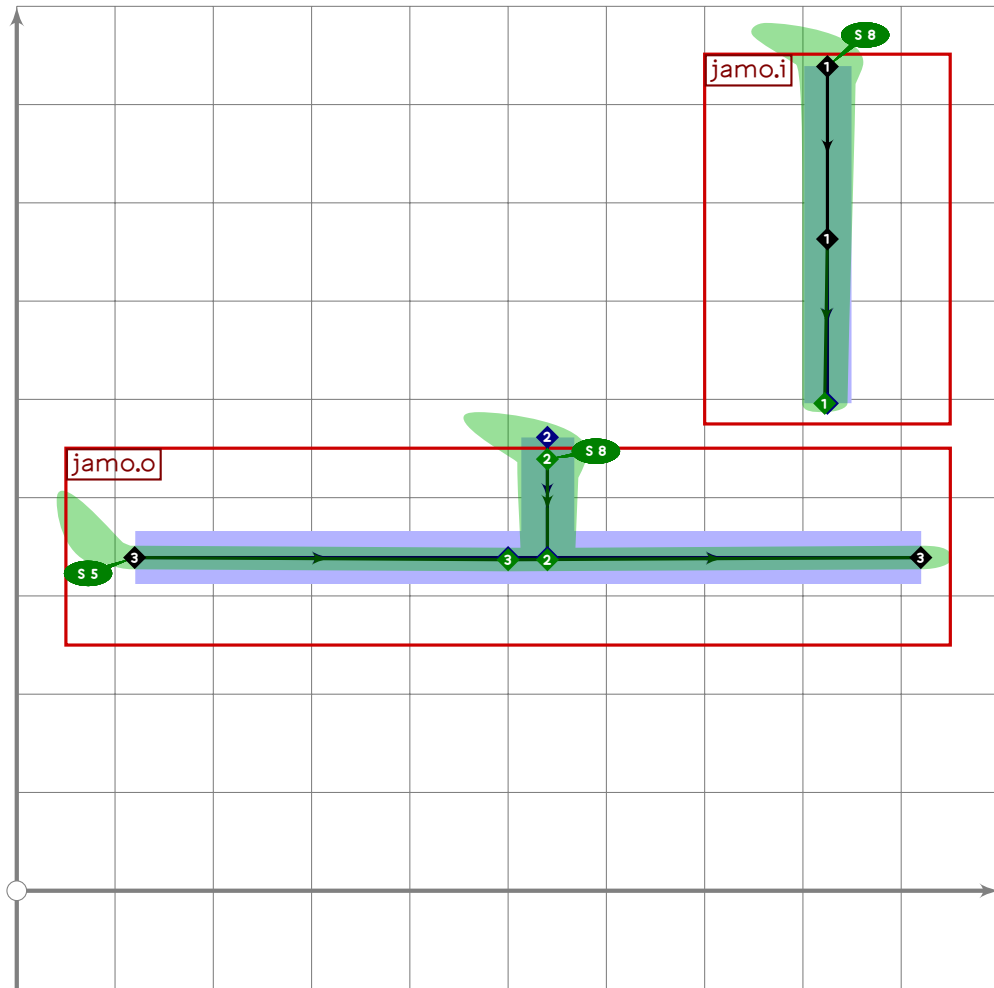
```



```

985 % hangul vowel i-ya
986 beginsuglyph("uni1199",153);
987 hangul.combine.lr(320,302)(whatever,vixf,voxf);
988 tsu_render;
989 endsuglyph;
990

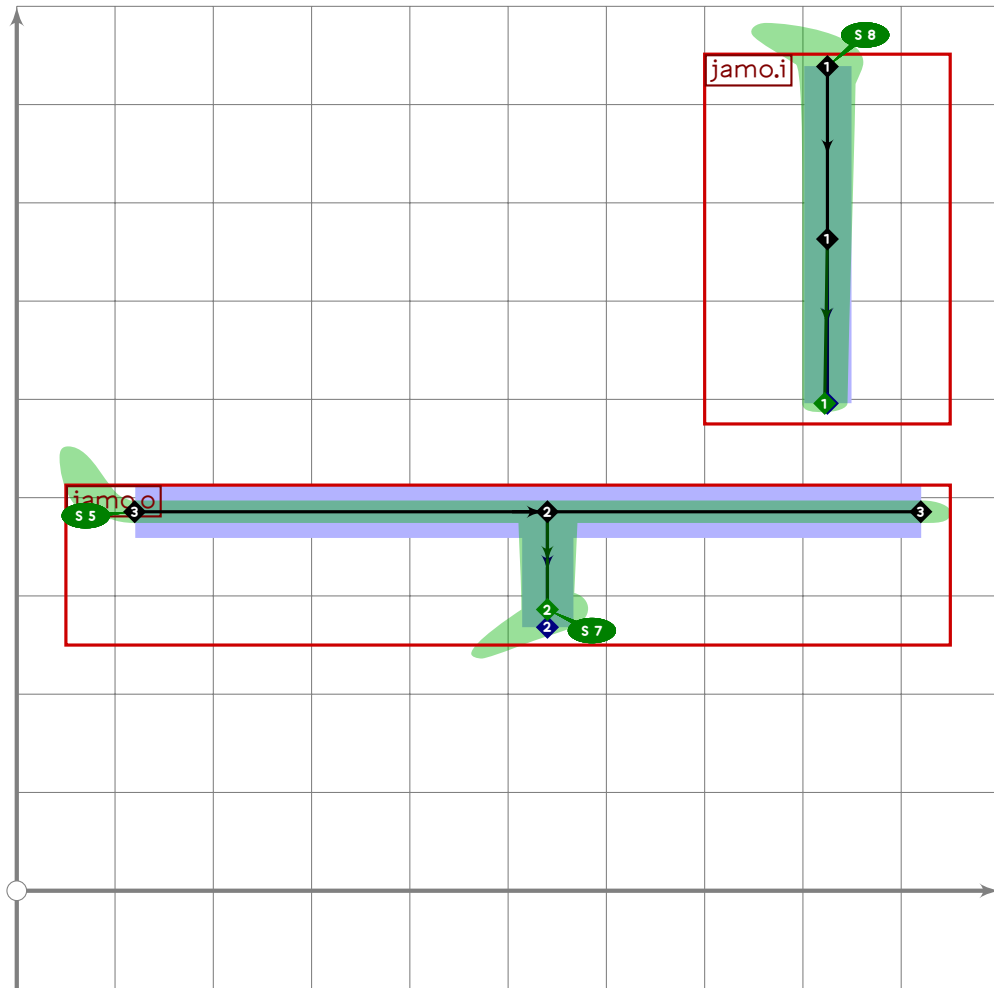
```



```

991 % hangul vowel i-o
992 begint Suglyph("uni119A",154);
993 hangul.combine.tb(320,308)(whatever,vixf,voxf);
994 tsu_render;
995 endtsuglyph;
996

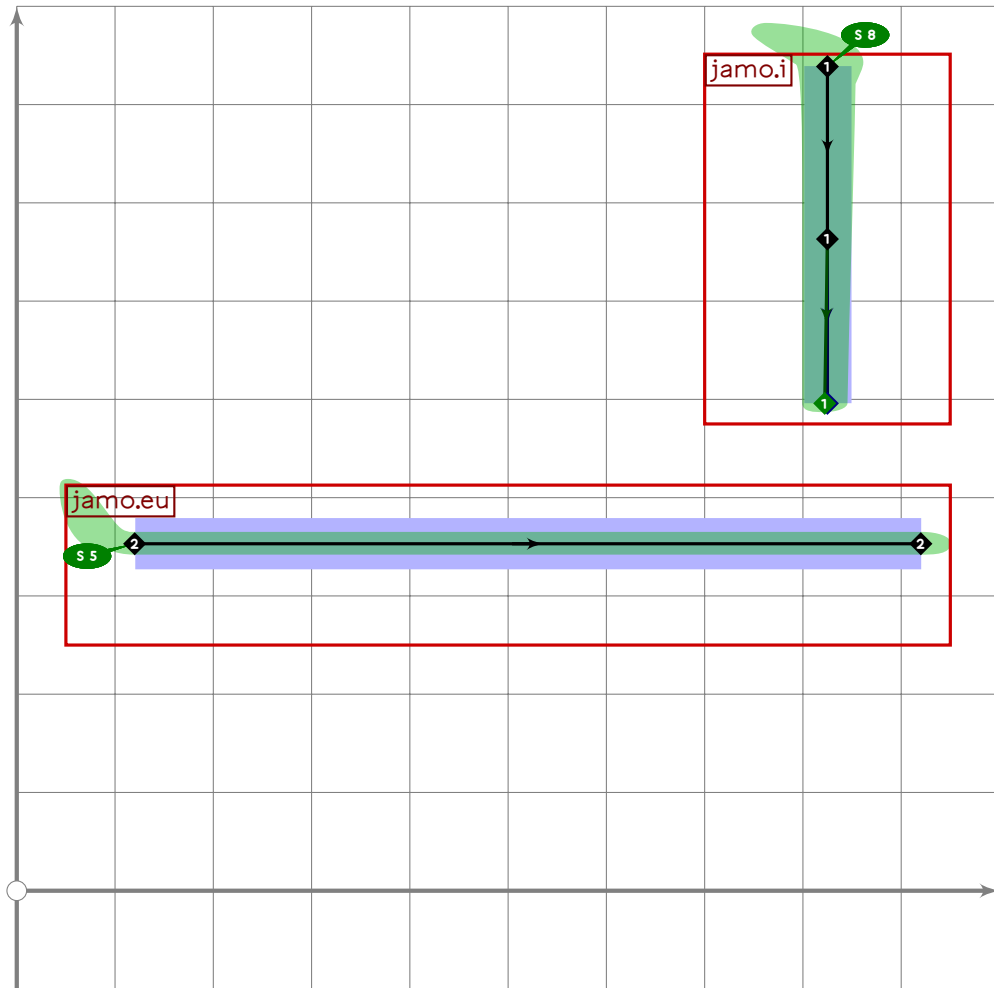
```



```

997 % hangul vowel i-u
998 begint Suglyph("uni119B",155);
999 hangul.combine.tb(320,313)(whatever,vixf,voxf);
1000 tsu_render;
1001 endsuglyph;
1002

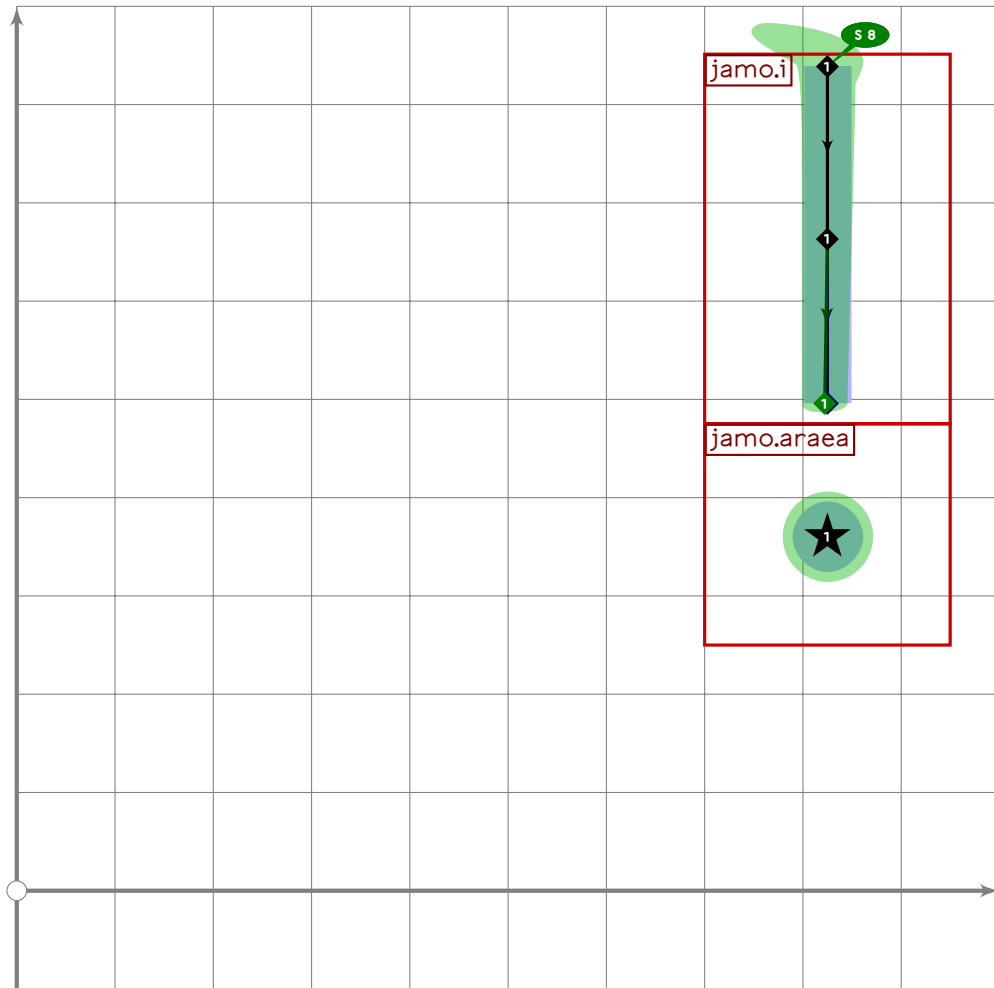
```



```

1003 % hangul vowel i-eu
1004 begint Suglyph("uni119C",156);
1005 hangul.combine.tb(320,318)(whatever,vixf,vox f);
1006 tsu_render;
1007 endtsuglyph;
1008

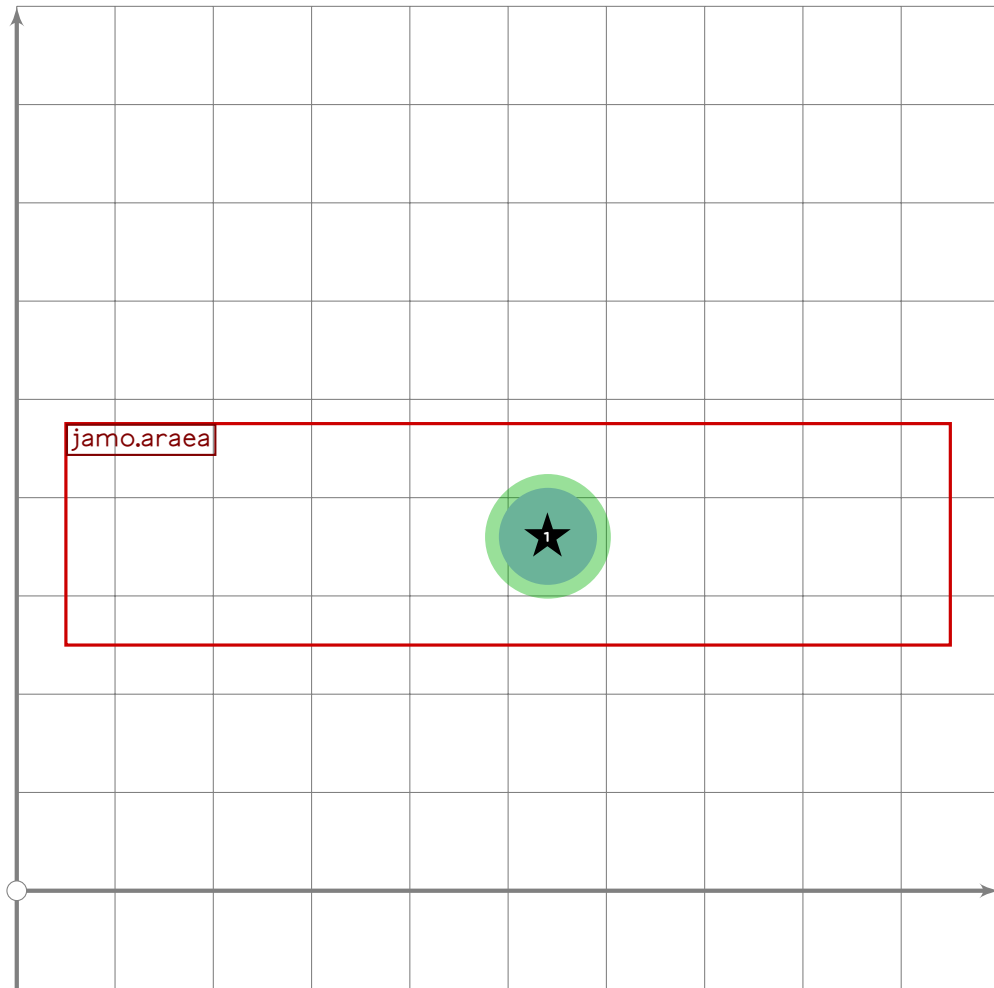
```



```

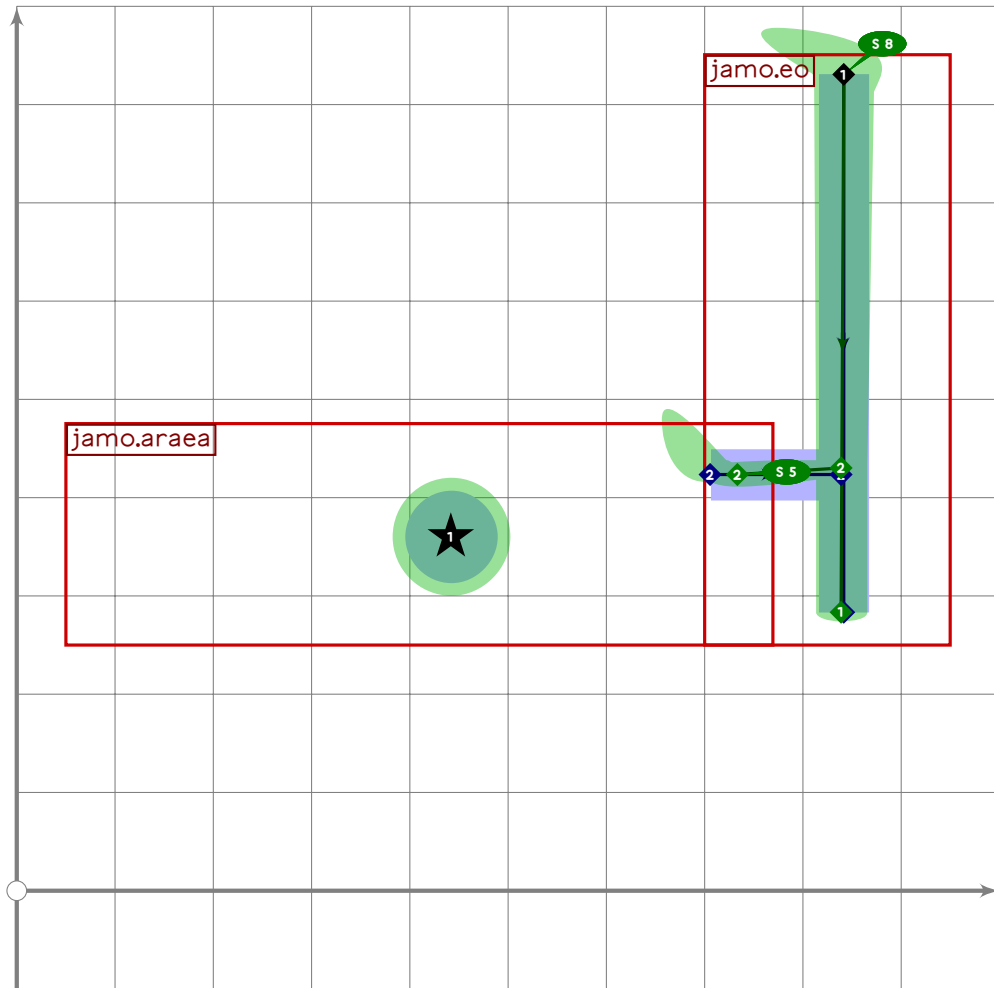
1009 % hangul vowel i-araea
1010 begint Suglyph("uni119D",157);
1011 hangul.combine.tb(320,428)(441,vixf,voxf);
1012 tsu_render;
1013 endtsuglyph;
1014

```



```
1015 % hangul vowel araea
1016 begint Suglyph("uni119E",158);
1017 hangul.jamo.araea(428,vixf,voxf);
1018 tsu_render;
1019 endtsuglyph;
1020
```

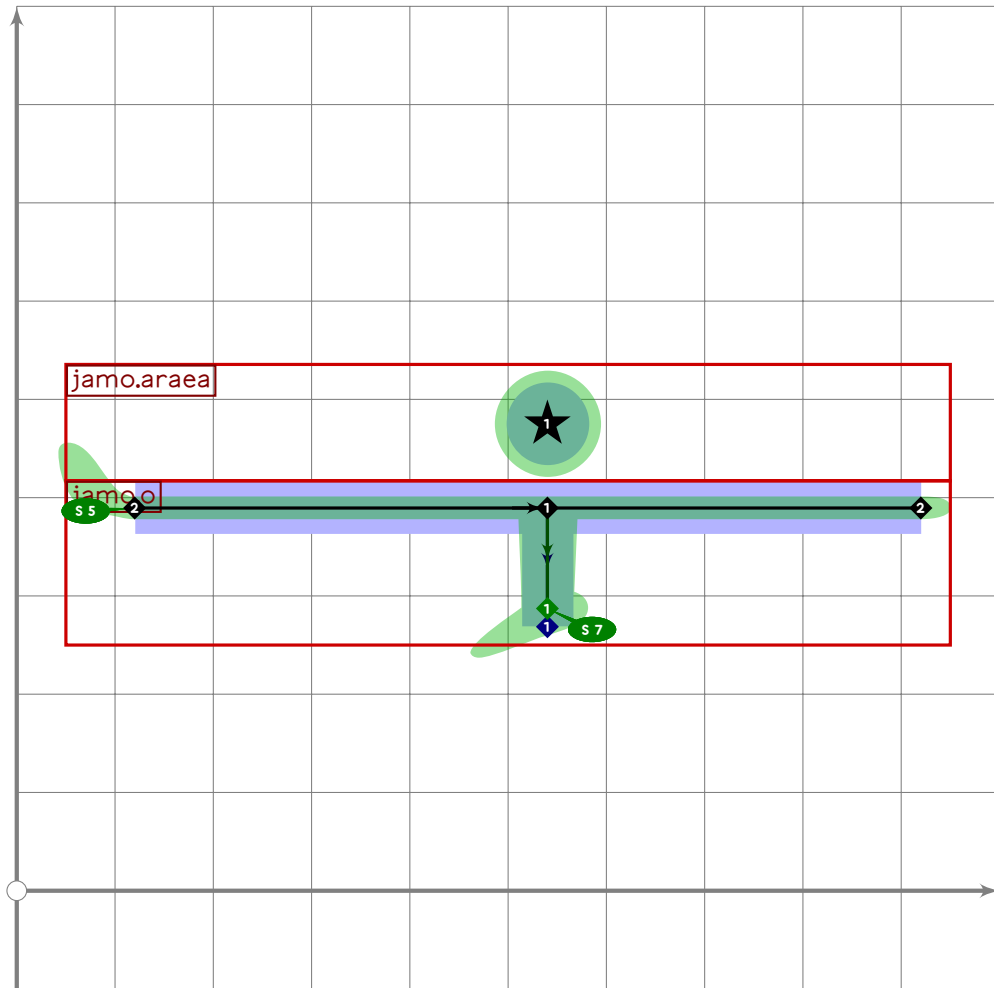




```

1021 % hangul vowel araea-eo
1022 begintsuglyph("uni119F",159);
1023 hangul.combine.lr(428,304)(whatever,vixf,voxf);
1024 tsu_render;
1025 endsuglyph;
1026

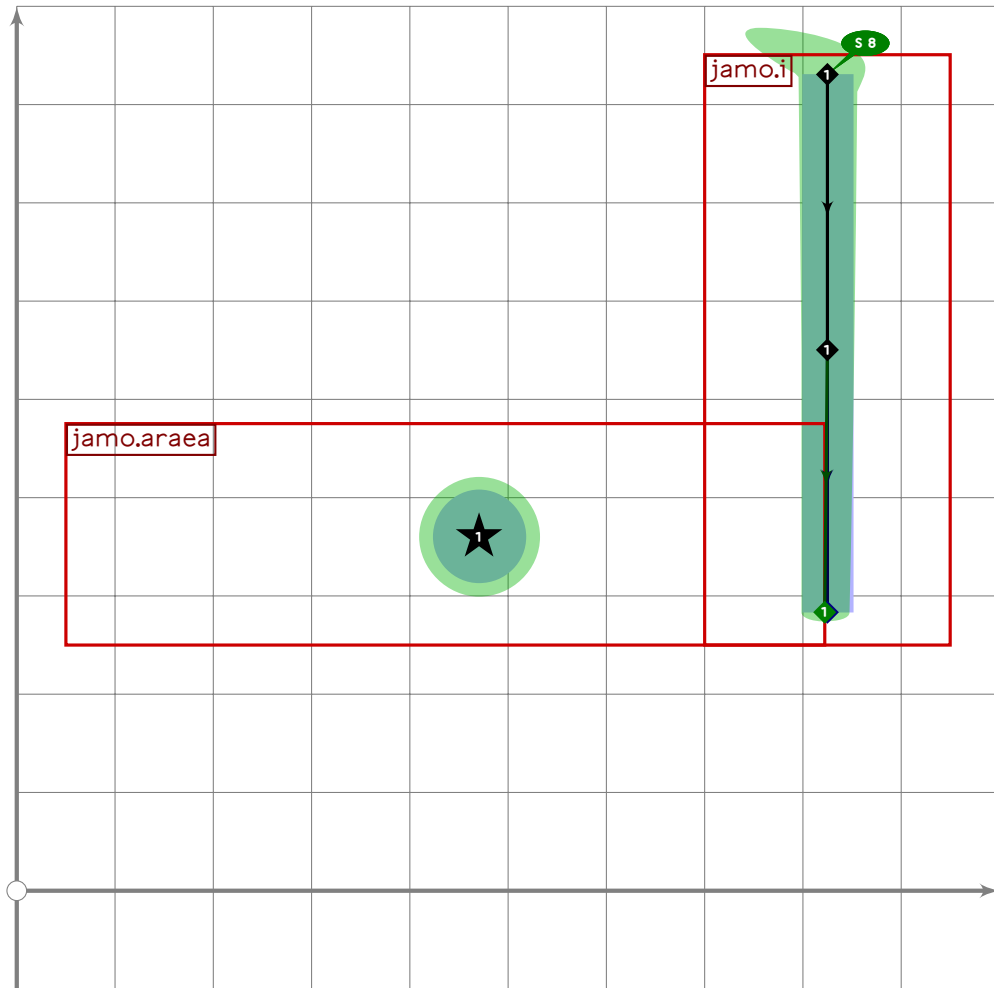
```



```

1027 % hangul vowel araea-u
1028 begintsuglyph("uni11A0",160);
1029 hangul.combine.tb(428,313)(whatever,tvixf,voxf);
1030 tsu_render;
1031 endsuglyph;
1032

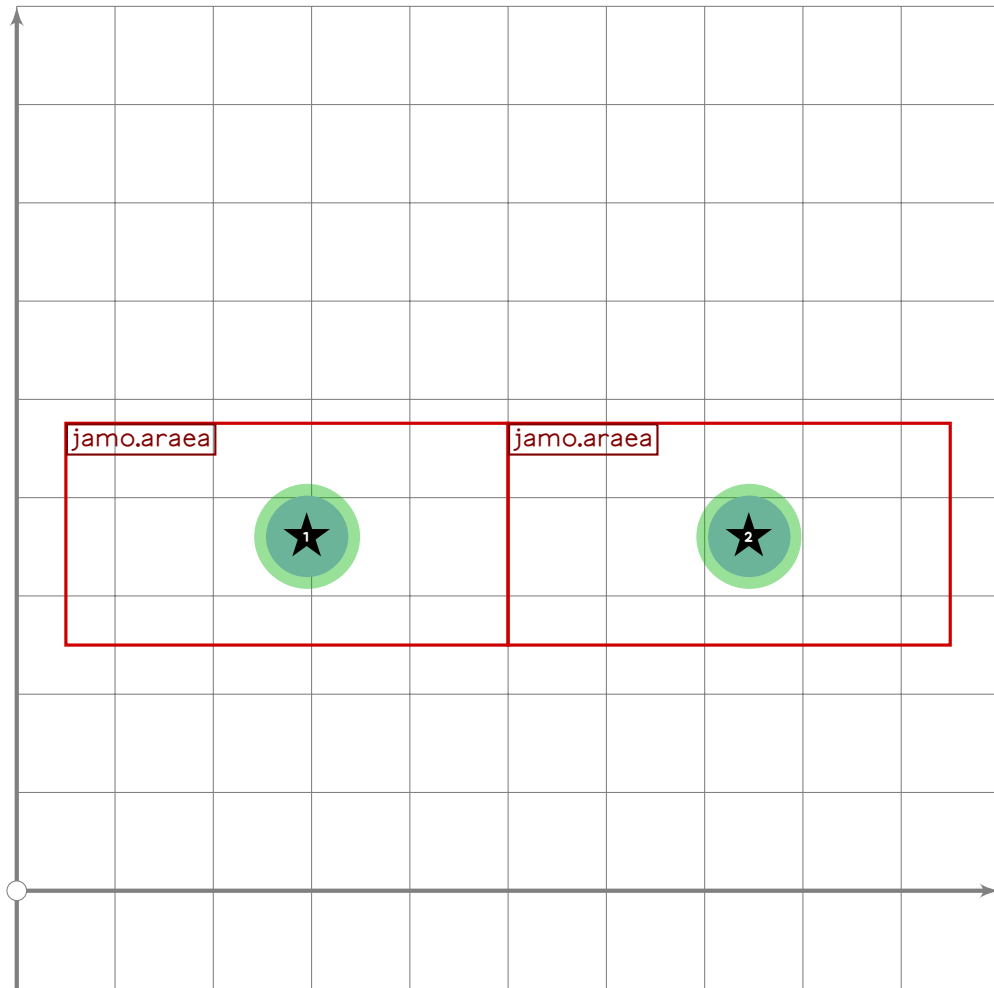
```



```

1033 % hangul vowel araea-i
1034 begint Suglyph("uni11A1",161);
1035 hangul.combine.lr(428,320)(427,vixf,vox f);
1036 tsu_render;
1037 endtsuglyph;
1038

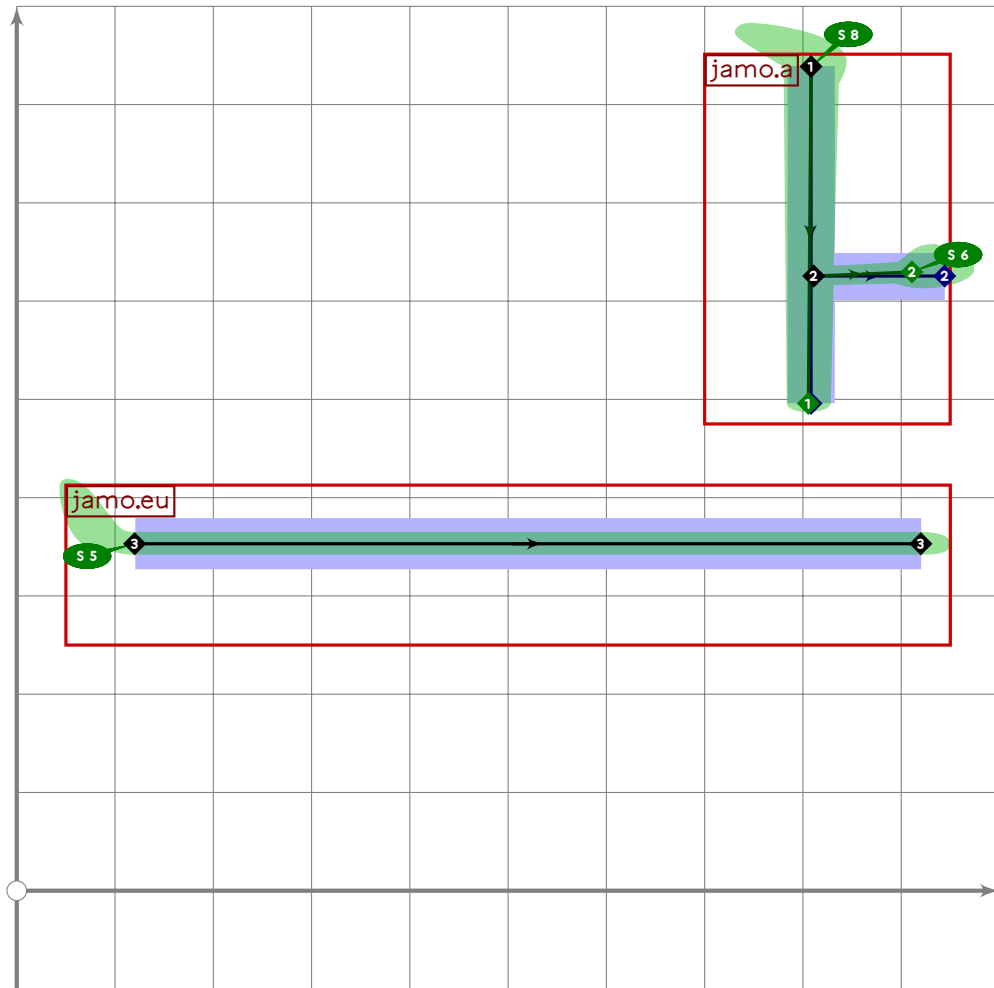
```



```

1039 % hangul vowel ssangaraea
1040 beginsuglyph("uni11A2",162);
1041 hangul.combine.lr(428,428)(whatever,
1042 hxf_inout(5,vixf,vox),vox);
1043 tsu_render;
1044 endsuglyph;
1045

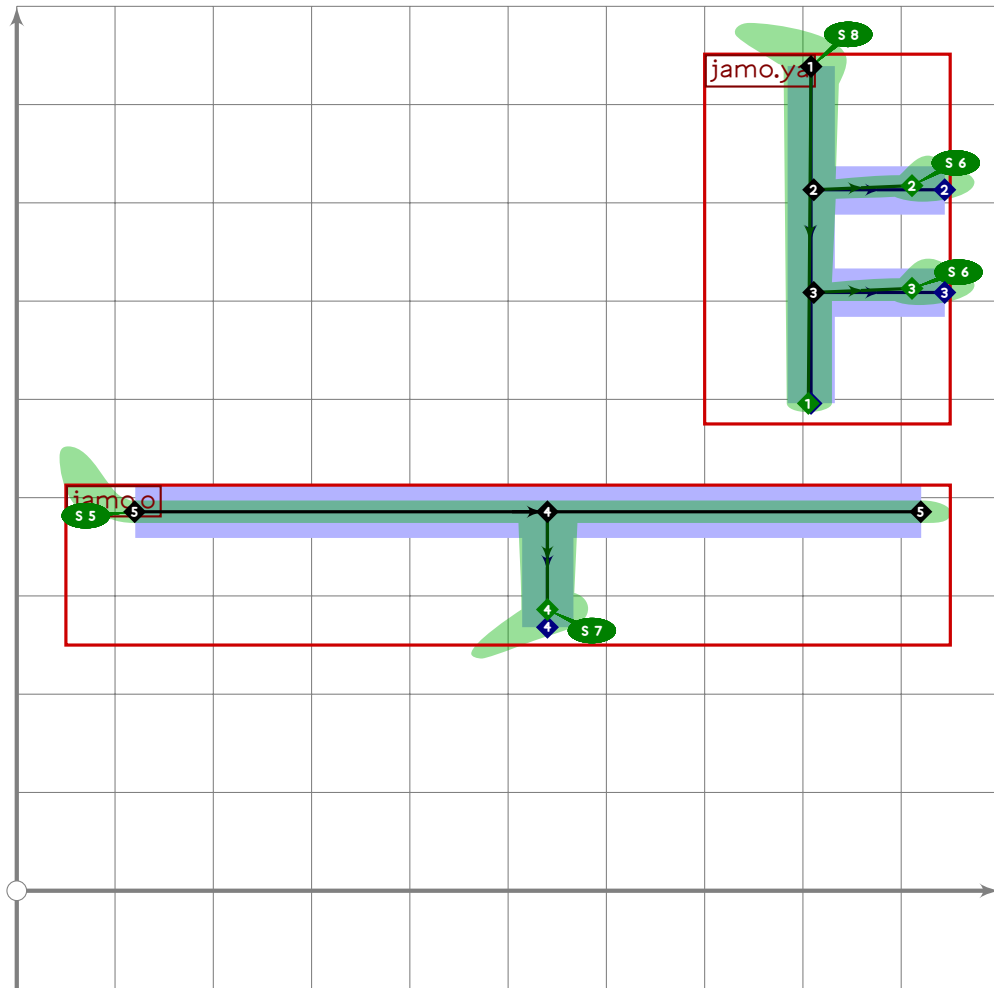
```



```

1046 % hangul vowel a-eu
1047 begint Suglyph("uni11A3",163);
1048 hangul.combine.tb(300,318)(whatever,vixf,vox);
1049 tsu_render;
1050 endtsuglyph;
1051

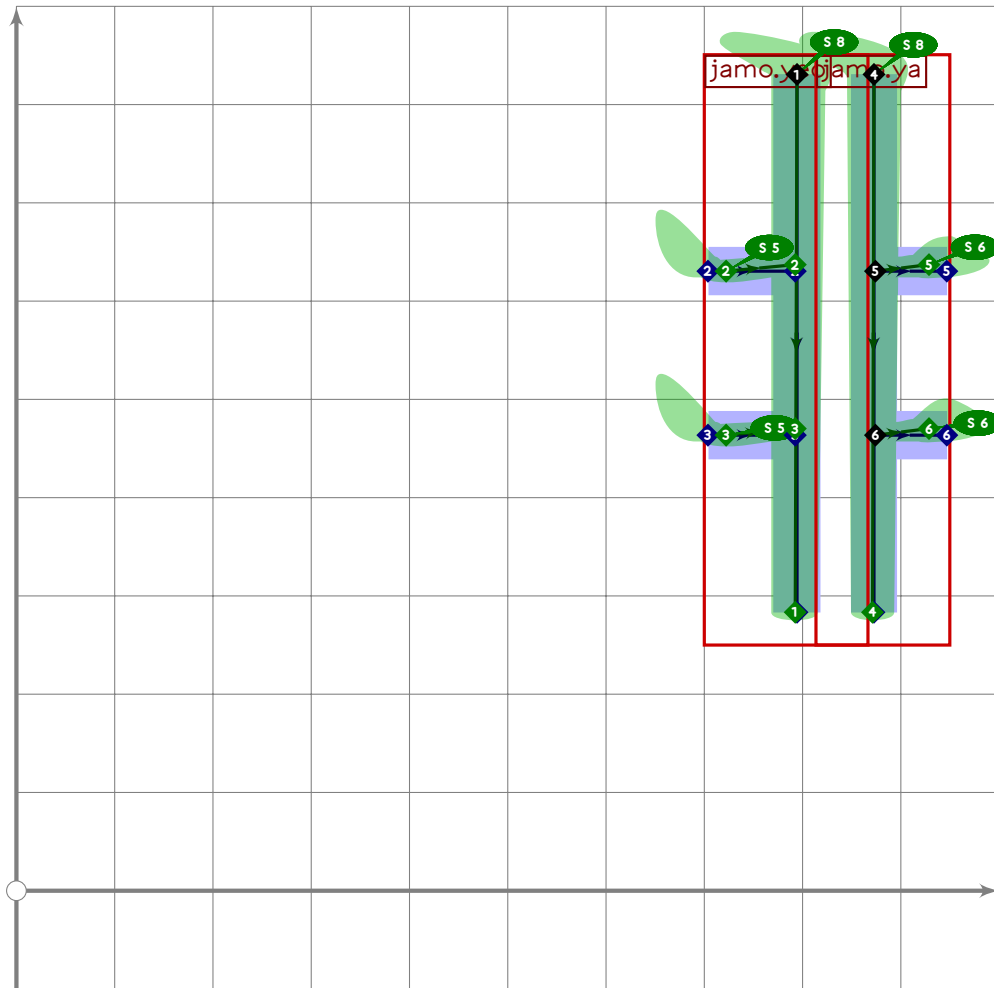
```



```

1052 % hangul vowel ya-u
1053 begint Suglyph("uni11A4",164);
1054 hangul.combine.tb(302,313)(whatever,vixf,voxf);
1055 tsu_render;
1056 endsuglyph;
1057

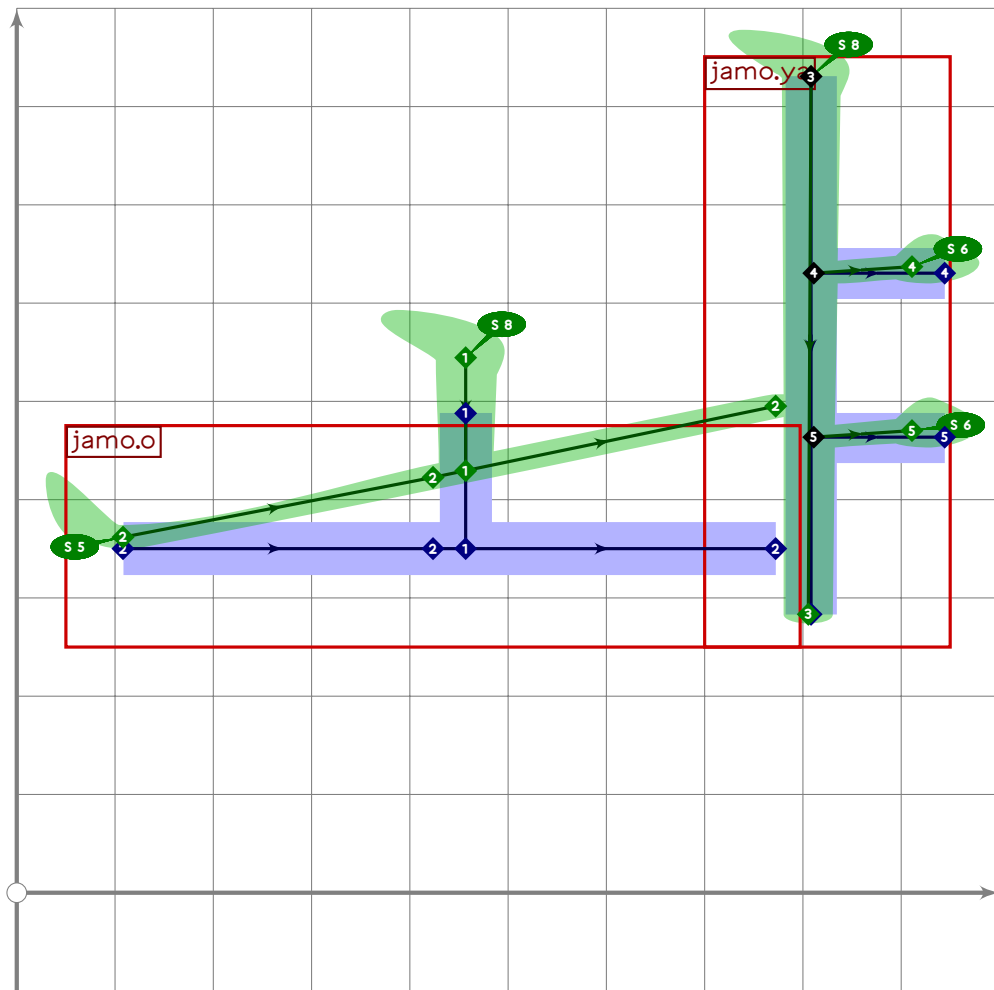
```



```

1058 % hangul vowel yeo-ya
1059 begintsuglyph("uni11A5",165);
1060 hangul.combine.lr(306,302)(whatever,vixf,voxf);
1061 tsu_render;
1062 endsuglyph;
1063

```

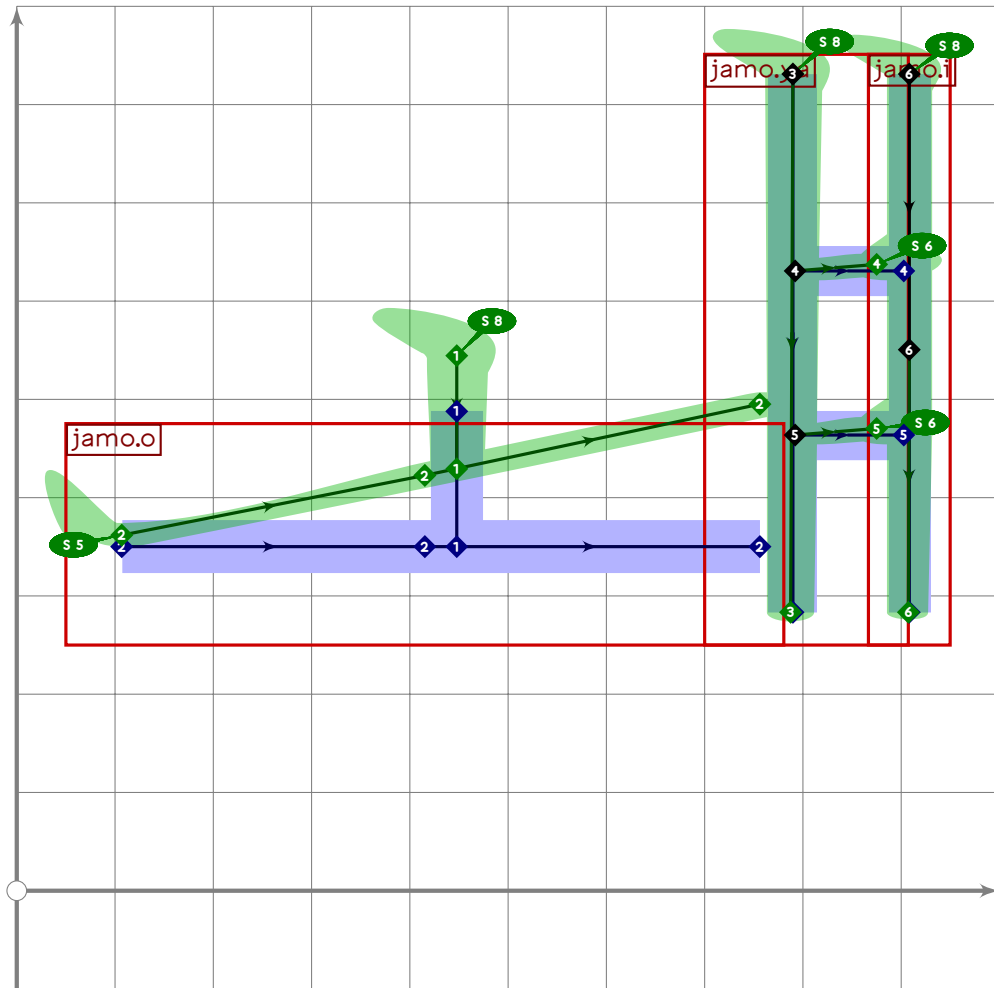


```

1064 % hangul vowel o-ya
1065 begintsuglyph("uni11A6",166);
1066 hangul.combine.lr(308,302)(442,vixf,voxf);
1067 tsu_render;
1068 endsuglyph;
1069

```





```

1070 % hangul vowel o-yae
1071 begint Suglyph("uni11A7",167);
1072 hangul.combine.lr(308,303)(443,vixf,voxf);
1073 tsu_render;
1074 endtsuglyph;
1075
1076
1077

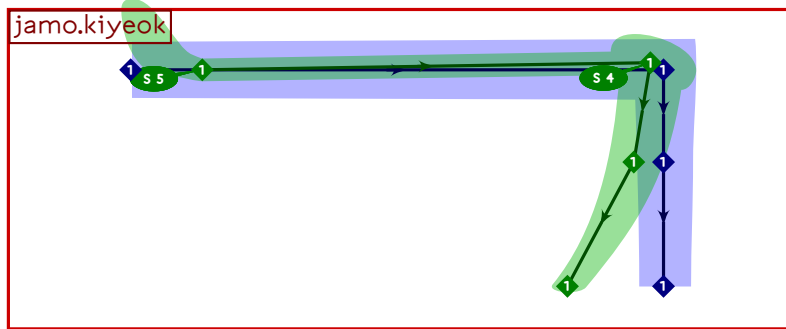
```

### Hangul Jongseong (Tail) Jamo

```

1078 % HANGUL JONGSEONG (TAIL) JAMO
1079
1080 tsu_rescale_native_zero;
1081

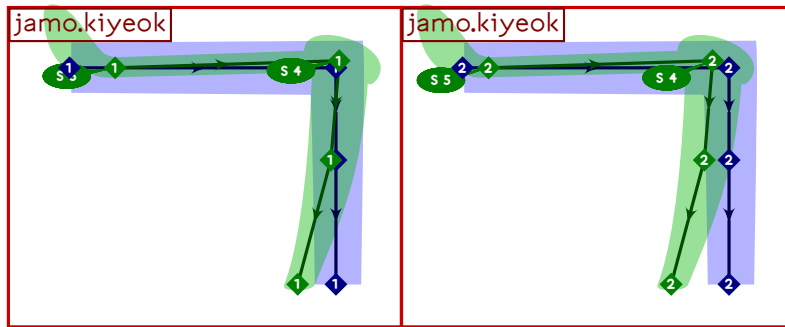
```



```

1082 % hangul tail kiyeok
1083 begintsuglyph("uni11A8",168);
1084 hangul.jamo.kiyeok(whatever,tixf,toxf);
1085 tsu_render;
1086 endtsuglyph;
1087

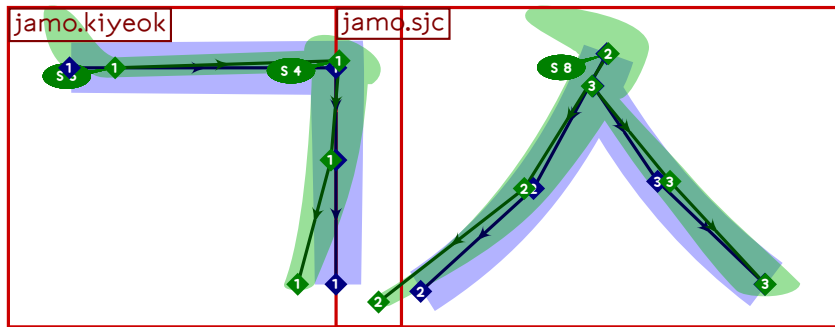
```



```

1088 % hangul tail ssangkiyeok
1089 begintsuglyph("uni11A9",169);
1090 hangul.combine.lr(501,501)(whatever,tixf,toxf);
1091 tsu_render;
1092 endsuglyph;
1093

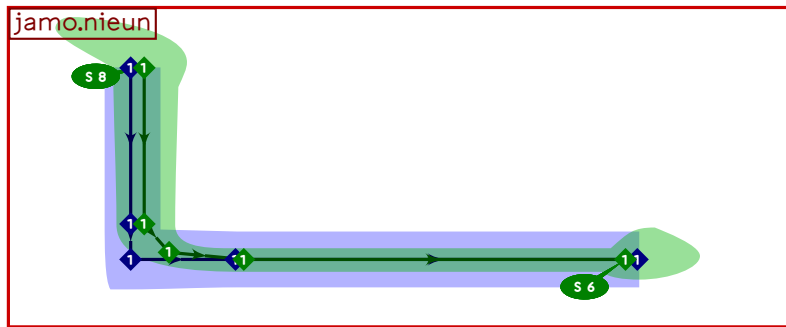
```



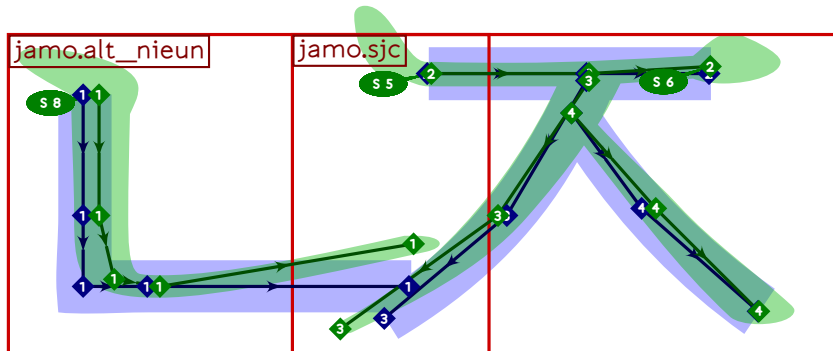
```

1094 % hangul tail kiyeok-sios
1095 begint Suglyph("uni11AA",170);
1096 hangul.combine.lr(501,519)(whatever,tixf,toxf);
1097 tsu_render;
1098 endtsuglyph;
1099

```



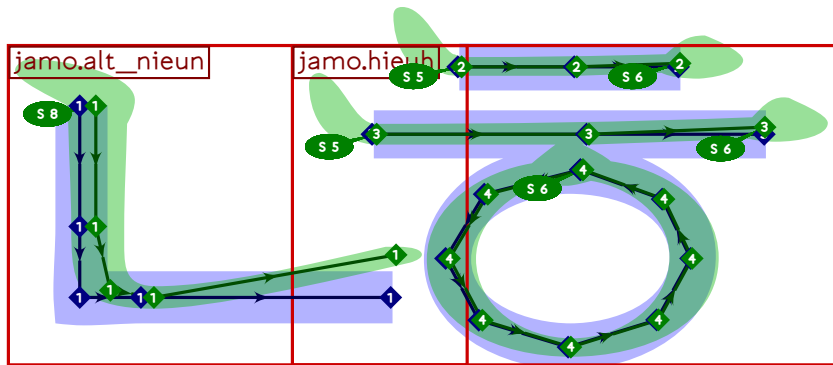
```
1100 % hangul tail nieun
1101 begint Suglyph("uni11AB",171);
1102 hangul.jamo.nieun(whatever,tixf,toxf);
1103 tsu_render;
1104 endtsuglyph;
1105
```



```

1106 % hangul tail nieun-cieuc
1107 begintsuglyph("uni11AC";172);
1108 hangul.combine.lr(604,522)(whatever,tixf,toxf);
1109 tsu_render;
1110 endsuglyph;
1111

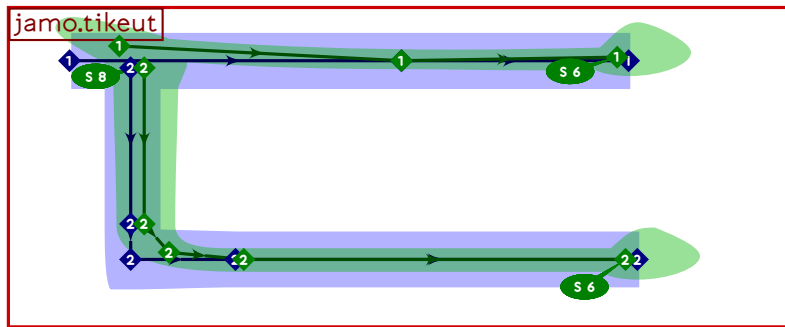
```



```

1112 % hangu tail nieun-hieuh
1113 begint Suglyph("uni11AD";173);
1114 hangu.combine.lr(604,527)(whatever,tixf,toxf);
1115 tsu_render;
1116 endsuglyph;
1117

```

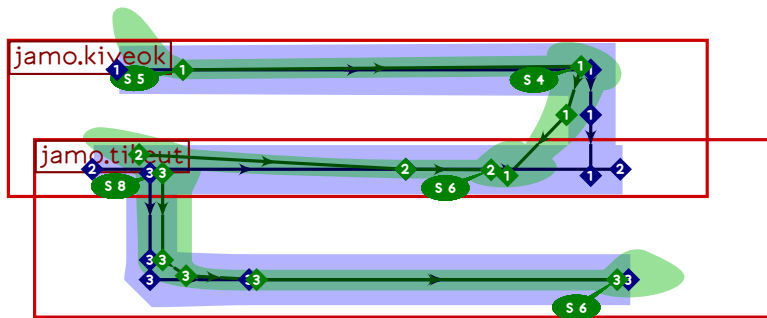


```

1118 % hangul tail tikeut
1119 begint Suglyph("uni11AE",174);
1120 hangul.jamo.tikeut(whatever,tixf,toxf);
1121 tsu_render;
1122 endtsuglyph;
1123

```

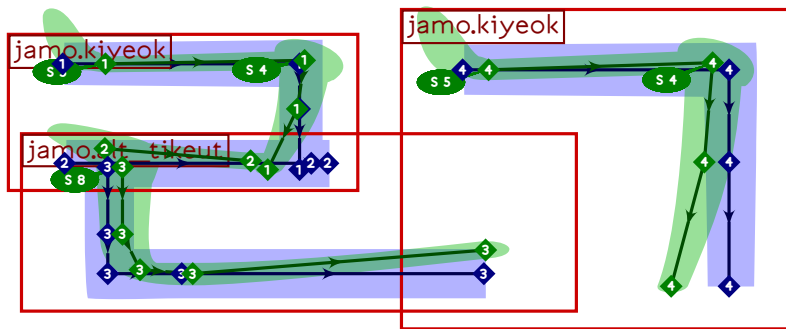




```

1124 % hangul tail rieul
1125 begint Suglyph("uni11AF",175);
1126 hangul.jamo.rieul(whatever,tixf,toxf);
1127 tsu_render;
1128 endtsuglyph;
1129

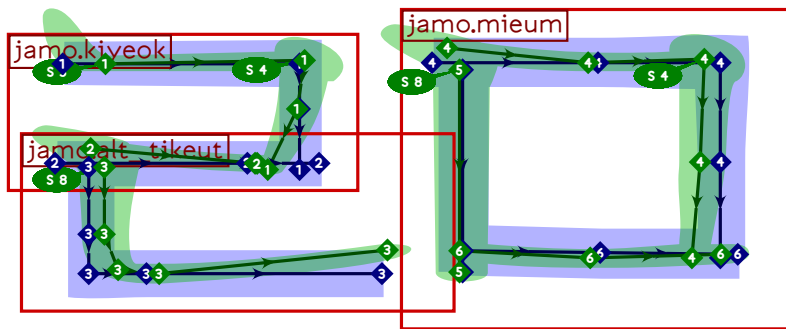
```



```

1130 % hangul tail rieul-kiyeok
1131 begintsuglyph("uni11B0",176);
1132 hangul.combine.lr(608,501)(whatever,tixf,toxf);
1133 tsu_render;
1134 endsuglyph;
1135

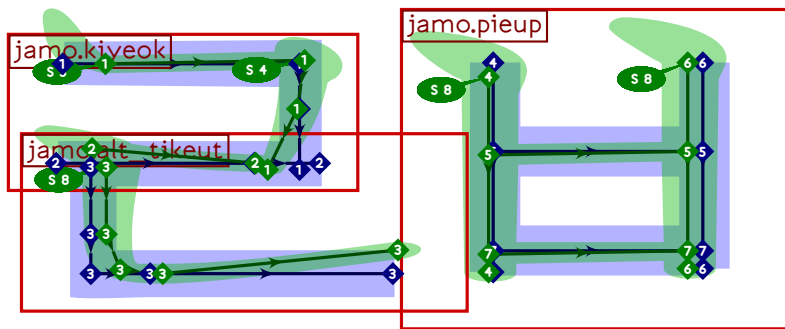
```



```

1136 % hangul tail rieul-mieum
1137 begint Suglyph("uni11B1";177);
1138 hangul.combine.lr(608,516)(whatever,tixf,toxf);
1139 tsu_render;
1140 endtsuglyph;
1141

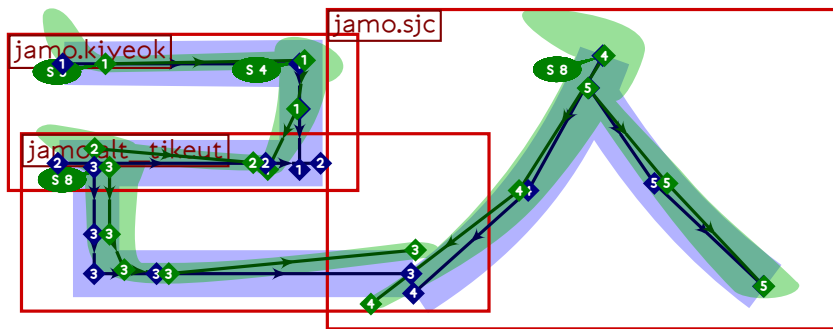
```



```

1142 % hangul tail rioul-pieup
1143 begint Suglyph("uni11B2",178);
1144 hangul.combine.lr(608,517)(whatever,tixf,toxf);
1145 tsu_render;
1146 endtsuglyph;
1147

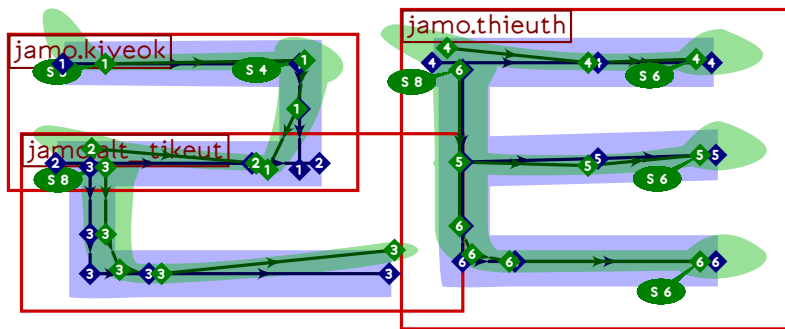
```



```

1148 % hangul tail rieul-sios
1149 begint Suglyph("uni11B3",179);
1150 hangul.combine.lr(608,519)(whatever,tixf,toxf);
1151 tsu_render;
1152 endtsuglyph;
1153

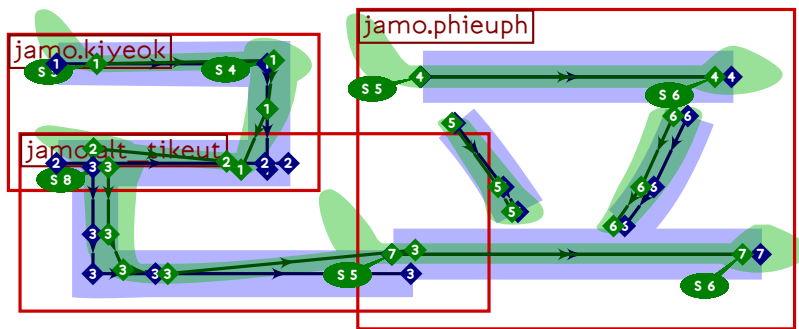
```



```

1154 % hangul tail rioul-thieuth
1155 begint Suglyph("uni11B4",180);
1156 hangul.combine.lr(608,525)(whatever,tixf,toxf);
1157 tsu_render;
1158 endtsuglyph;
1159

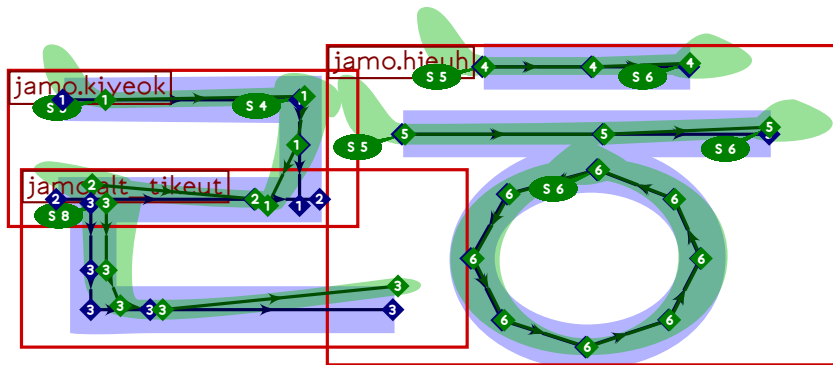
```



```

1160 % hangul tail rieul-phieuph
1161 begintsuglyph("uni11B5",181);
1162 hangul.combine.lr(608,526)(whatever,tixf,toxf);
1163 tsu_render;
1164 endsuglyph;
1165

```

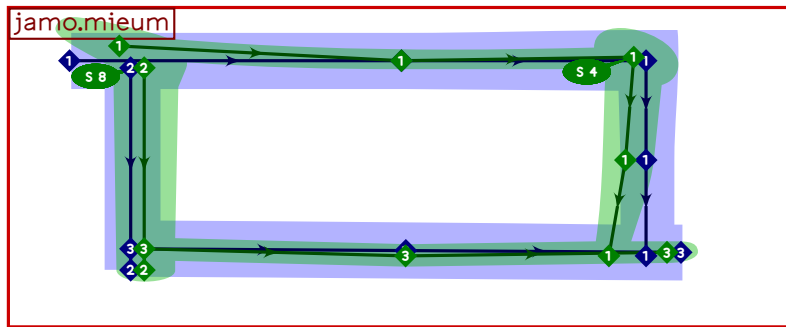


```

1166 % hangul tail rieul-hieuh
1167 beginsuglyph("uni11B6",182);
1168 hangul.combine.lr(608,527)(whatever,tixf,toxf);
1169 tsu_render;
1170 endsuglyph;
1171

```

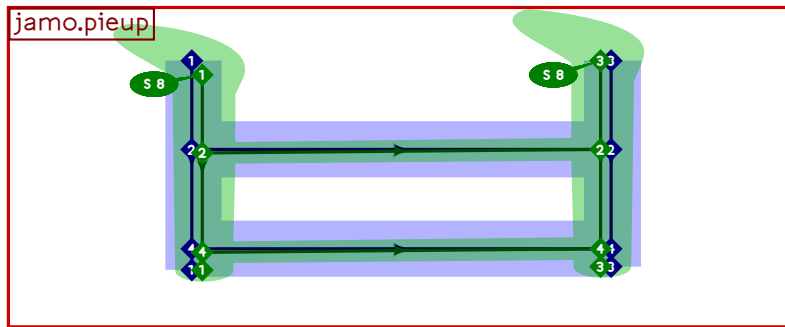




```

1172 % hangul tail mieum
1173 begint Suglyph("uni11B7",183);
1174 hangul.jamo.mieum(whatever,tixf,toxf);
1175 tsu_render;
1176 endtsuglyph;
1177

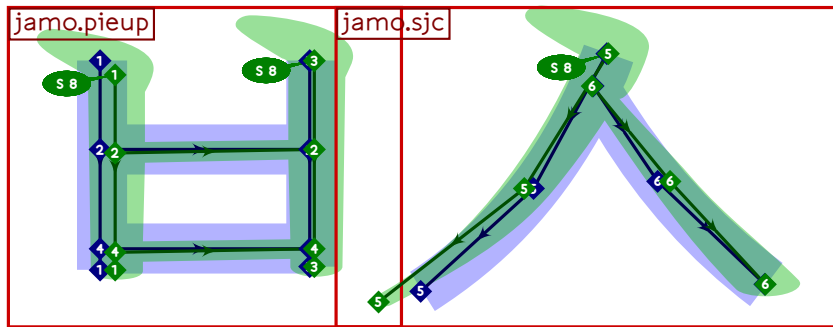
```



```

1178 % hangul tail pieup
1179 begintsuglyph("uni11B8",184);
1180 hangul.jamo.pieup(whatever,tixf,toxf);
1181 tsu_render;
1182 endtsuglyph;
1183

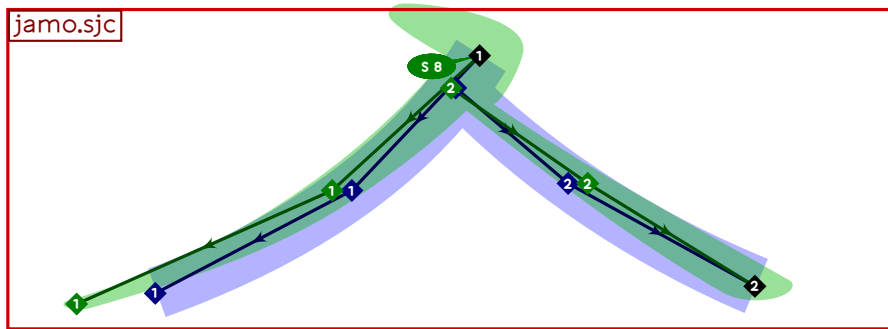
```



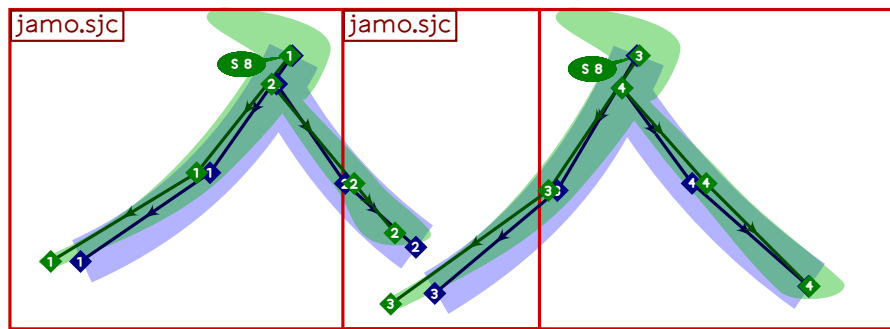
```

1184 % hangul tail pieup-sios
1185 begintsuglyph("uni11B9",185);
1186 hangul.combine.lr(517,519)(whatever,tixf,toxf);
1187 tsu_render;
1188 endsuglyph;
1189

```



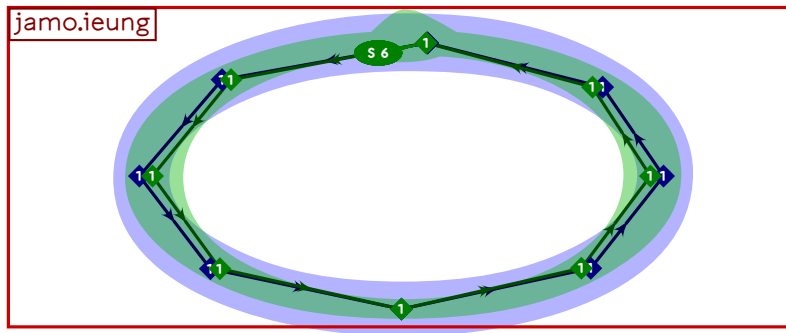
```
1190 % hangu tail sios
1191 begint Suglyph("uni11BA",186);
1192 hangu.jamo.sjc(0,0,false)(whatever,tixf,toxf);
1193 tsu_render;
1194 endtsuglyph;
1195
```



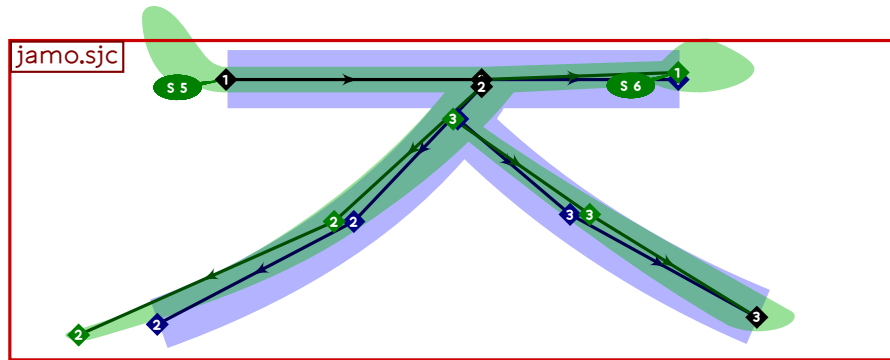
```

1196 % hangul tail ssangsios
1197 begint Suglyph("uni11BB",187);
1198 hangul.combine.lr(619,519)(whatever,tixf,toxf);
1199 tsu_render;
1200 endtsuglyph;
1201

```



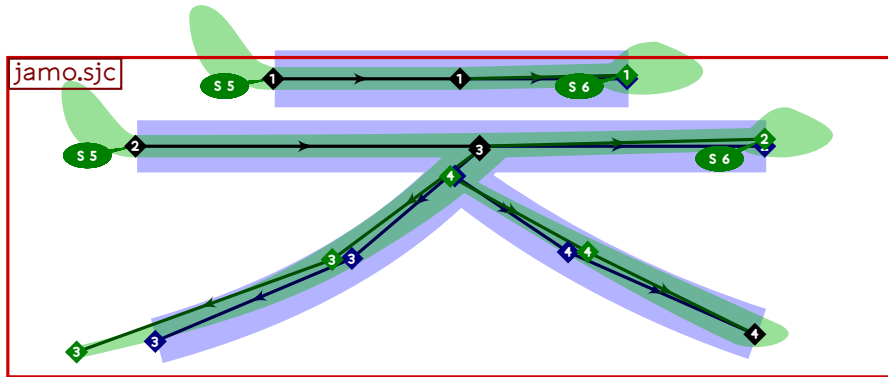
```
1202 % hangul tail ieung
1203 begint Suglyph("uni11BC";188);
1204 hangul.jamo.ieung(whatever,tixf,toxf);
1205 tsu_render;
1206 endtsuglyph;
1207
```



```

1208 % hangul tail cieuc
1209 begintsuglyph("uni11BD";189);
1210 hangul.jamoo.sjc(1,0,false)(whatever,tixf,toxf);
1211 tsu_render;
1212 endsuglyph;
1213

```

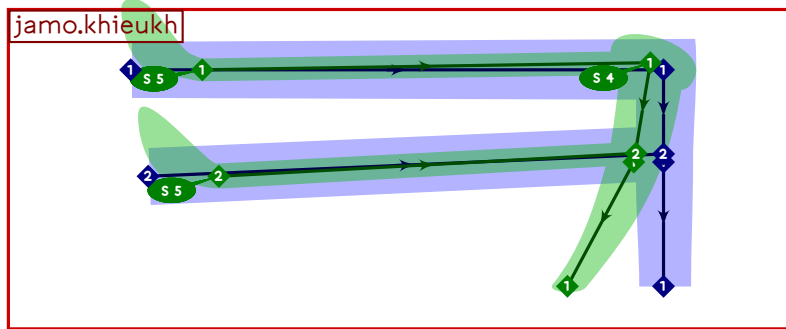


```

1214 % hangul tail chieuch
1215 begint Suglyph("uni11BE",190);
1216 hangul.jamo.sjc(2,0,false)(whatever,tixf,toxf);
1217 tsu_render;
1218 endtsuglyph;
1219

```

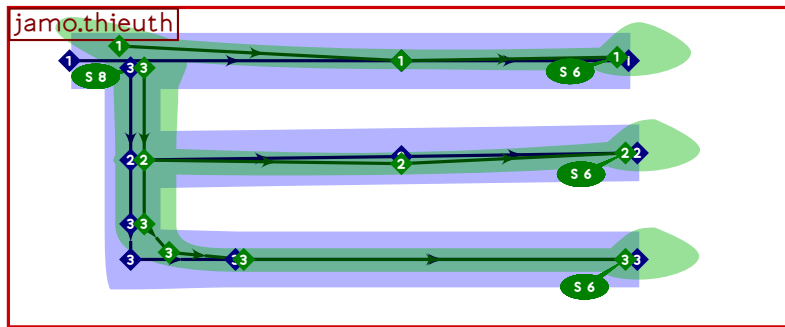




```

1220 % hangul tail khieukh
1221 begint Suglyph("uni11BF",191);
1222 hangul.jamo.khieukh(whatever,tixf,toxf);
1223 tsu_render;
1224 endtsuglyph;
1225

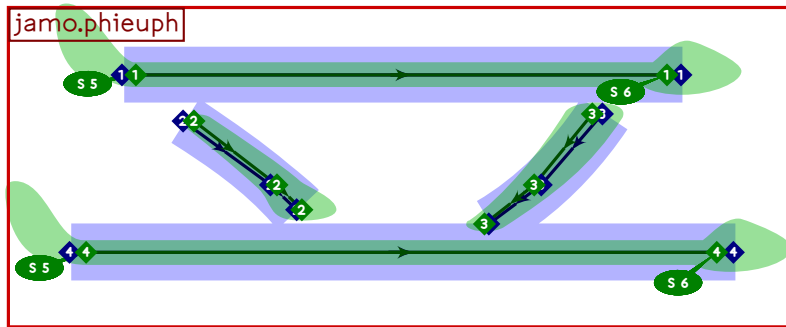
```



```

1226 % hangul tail thieuth
1227 begint Suglyph("uni11C0",192);
1228 hangul.jamo.thieuth(whatever,tixf,toxf);
1229 tsu_render;
1230 endtsuglyph;
1231

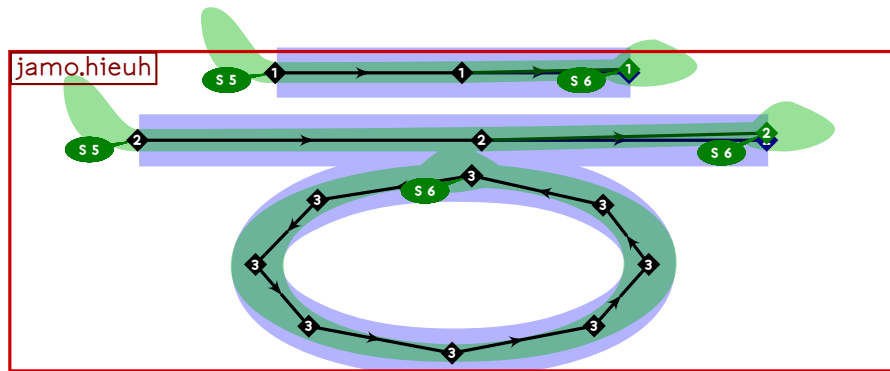
```



```

1232 % hangul tail phieuph
1233 begint Suglyph("uni11C1",193);
1234 hangul.jamo.phieuph(whatever,tixf,toxf);
1235 tsu_render;
1236 endtsuglyph;
1237

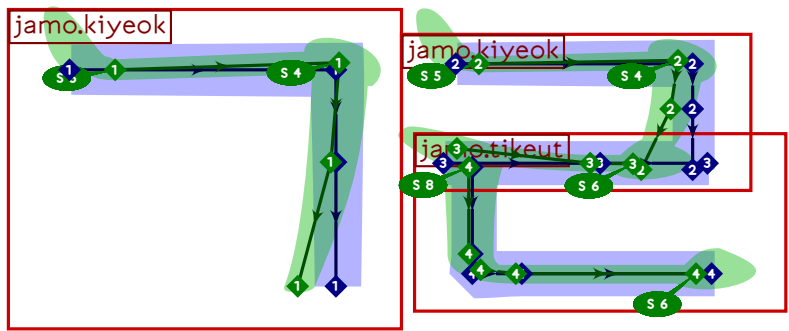
```



```

1238 % hangul tail hieuh
1239 begint Suglyph("uni11C2",194);
1240 hangul.jamo.hieuh(whatever,tixf,toxf);
1241 tsu_render;
1242 endtsuglyph;
1243

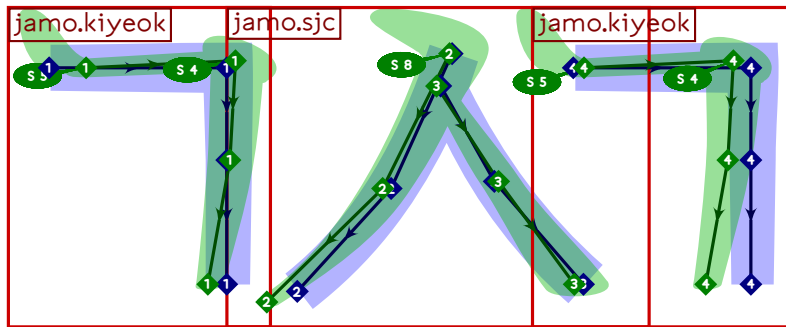
```



```

1244 % hangul tail kiyeok-rieul
1245 begint Suglyph("uni11C3",195);
1246 hangul.combine.lr(501,508)(whatever,tixf,toxf);
1247 tsu_render;
1248 endtsuglyph;
1249

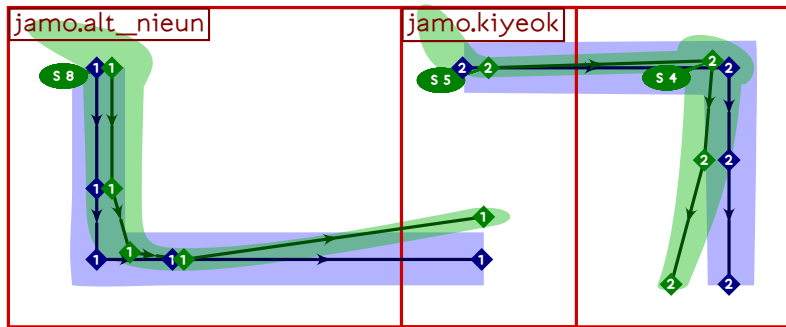
```



```

1250 % hangul tail kiyeok-sios-kiyeok
1251 begintsuglyph("uni11C4",196);
1252 hangul.combine.lcr(501,519,501)(whatever,tixf,toxf);
1253 tsu_render;
1254 endsuglyph;
1255

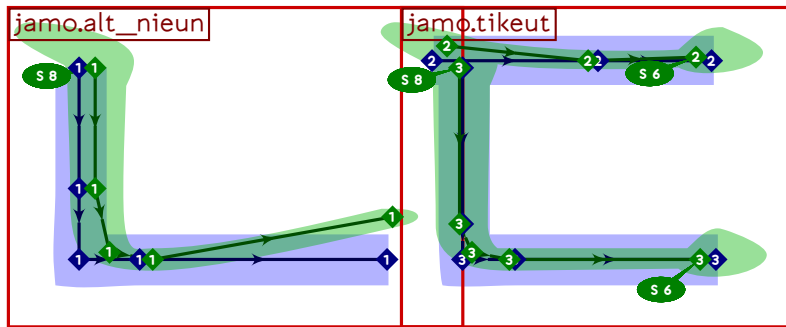
```



```

1256 % hangul tail nieun-kiyeok
1257 begint Suglyph("uni11C5",197);
1258 hangul.combine.lr(604,501)(whatever,tixf,toxf);
1259 tsu_render;
1260 endtsuglyph;
1261

```

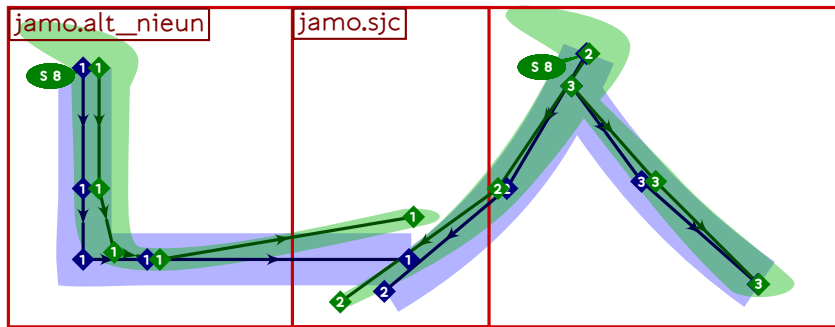


```

1262 % hangul tail nieun-tikeut
1263 begintsuglyph("uni11C6",198);
1264 hangul.combine.lr(604,507)(whatever,tixf,toxf);
1265 tsu_render;
1266 endsuglyph;
1267

```

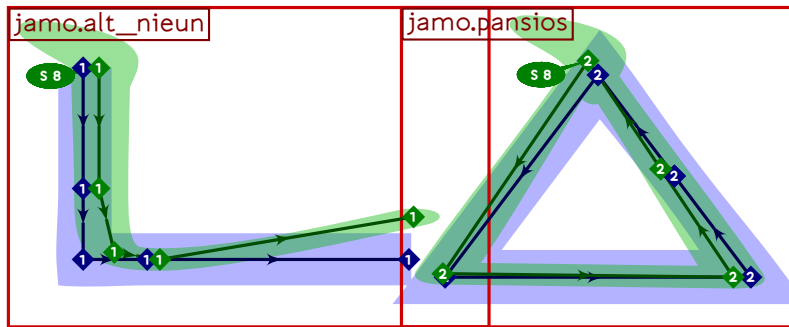




```

1268 % hangul tail nieun-sios
1269 begintsuglyph("uni11C7",199);
1270 hangul.combine.lr(604,519)(whatever,tixf,toxf);
1271 tsu_render;
1272 endsuglyph;
1273

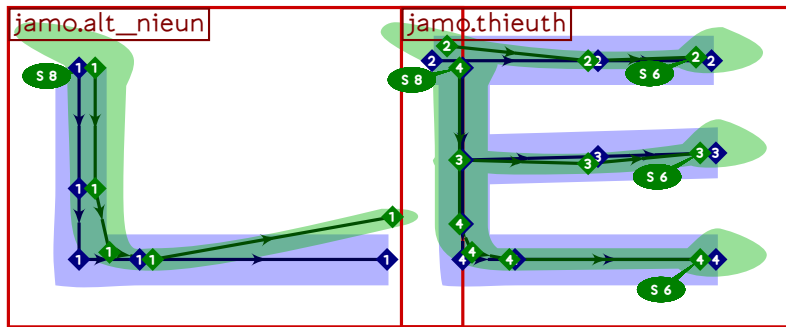
```



```

1274 % hangul tail nieun-pansios
1275 begintsuglyph("uni11C8";200);
1276 hangul.combine.lr(604,628)(whatever,tixf,toxf);
1277 tsu_render;
1278 endsuglyph;
1279

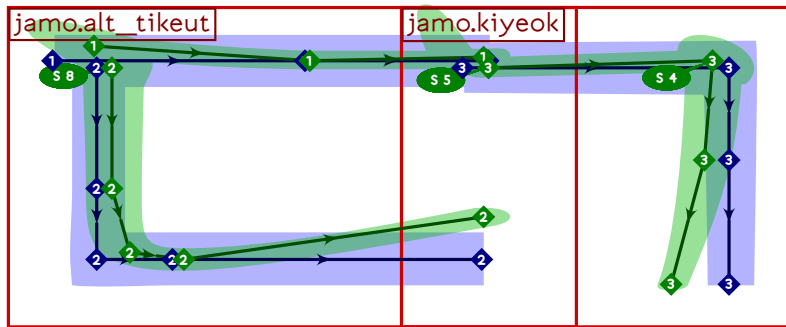
```



```

1280 % hangul tail nieun-thieuth
1281 begint Suglyph("uni11C9";201);
1282 hangul.combine.lr(604,525)(whatever,tixf,toxf);
1283 tsu_render;
1284 endtsuglyph;
1285

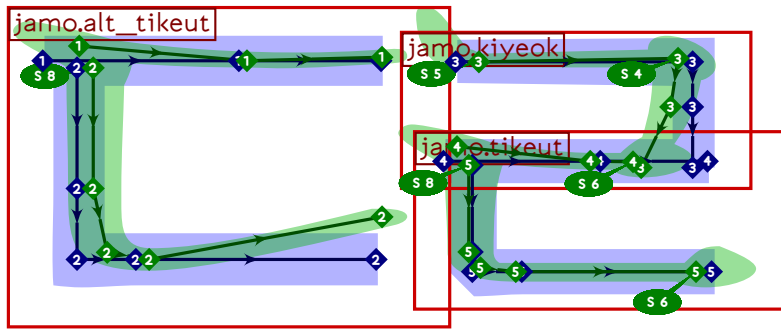
```



```

1286 % hangul tail tikeut-kiyeok
1287 begint Suglyph("uni11CA",202);
1288 hangul.combine.lr(607,501)(whatever,tixf,toxf);
1289 tsu_render;
1290 endtsuglyph;
1291

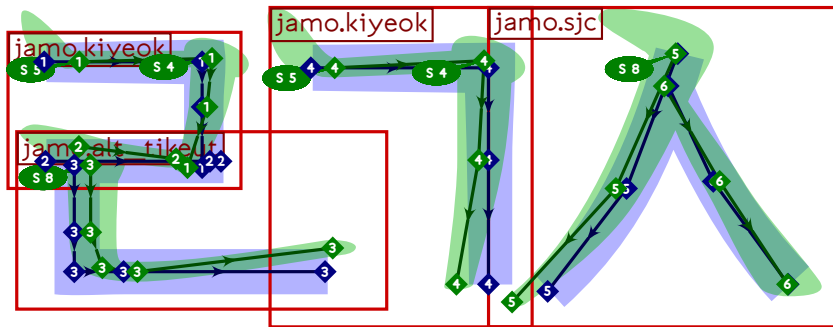
```



```

1292 % hangul tail tikeut-rieul
1293 begint Suglyph("uni11CB",203);
1294 hangul.combine.lr(607,508)(whatever,tixf,toxf);
1295 tsu_render;
1296 endtsuglyph;
1297

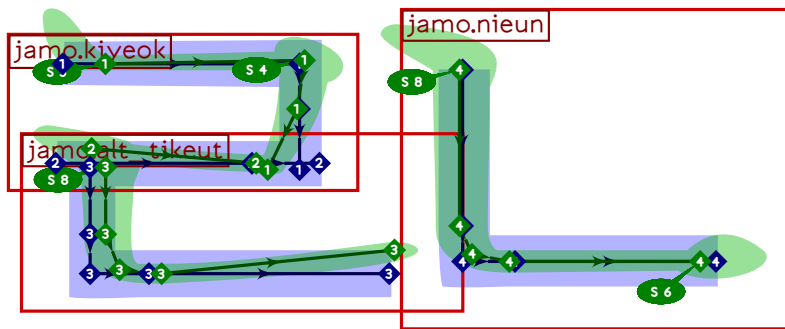
```



```

1298 % hangul tail rieul-kiyeok-sios
1299 begintsuglyph("uni11CC",204);
1300 hangul.combine.lcr(608,501,519)(whatever,tixf,toxf);
1301 tsu_render;
1302 endsuglyph;
1303

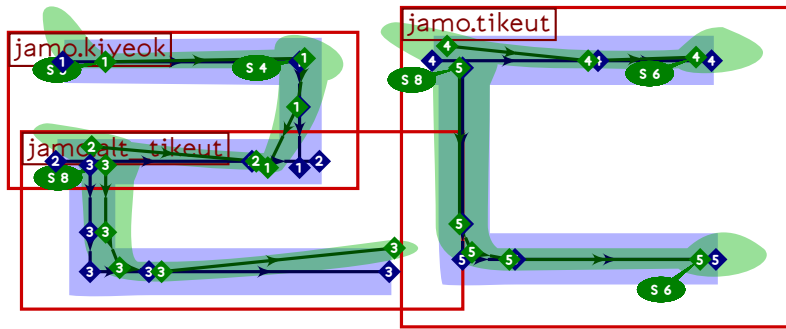
```



```

1304 % hangul tail rieul-nieun
1305 begint Suglyph("uni11CD";205);
1306 hangul.combine.lr(608,504)(whatever,tixf,toxf);
1307 tsu_render;
1308 endtsuglyph;
1309

```

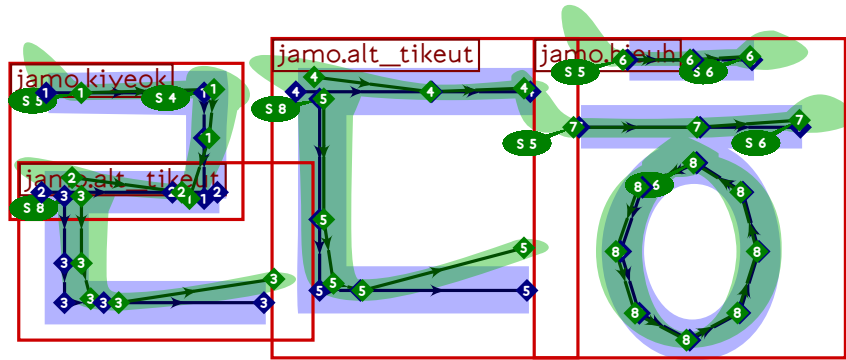


```

1310 % hangul tail rioul-tikeut
1311 begint Suglyph("uni11CE",206);
1312 hangul.combine.lr(608,507)(whatever,tixf,toxf);
1313 tsu_render;
1314 endtsuglyph;
1315

```

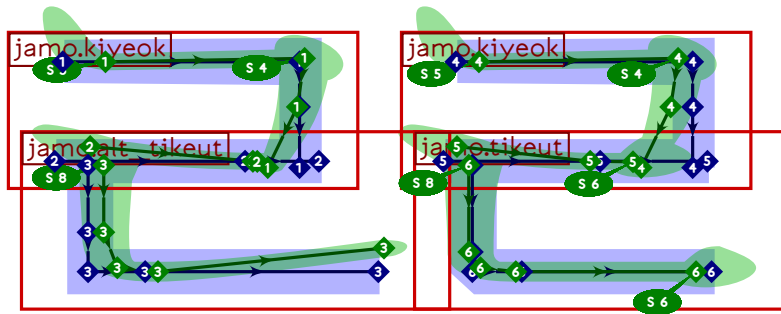




```

1316 % hangul tail rieul-tikeut-hieuh
1317 begint Suglyph("uni11CF";207);
1318 hangul.combine.lcr(608,607,627)(whatever;tixf,toxf);
1319 tsu_render;
1320 endtsuglyph;
1321

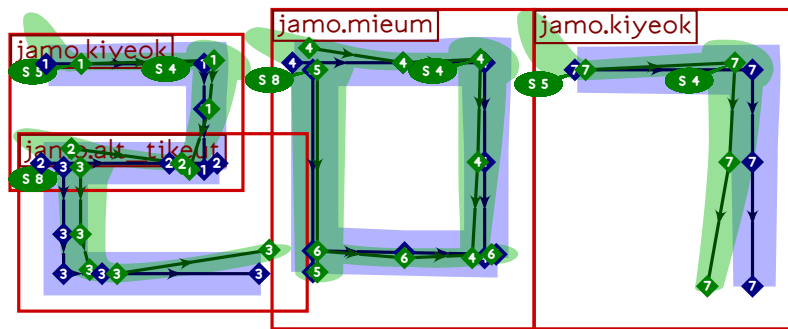
```



```

1322 % hangul tail rioul-rieul
1323 begintsuglyph("uni11D0",208);
1324 hangul.combine.lr(608,508)(whatever,tixf,toxf);
1325 tsu_render;
1326 endsuglyph;
1327

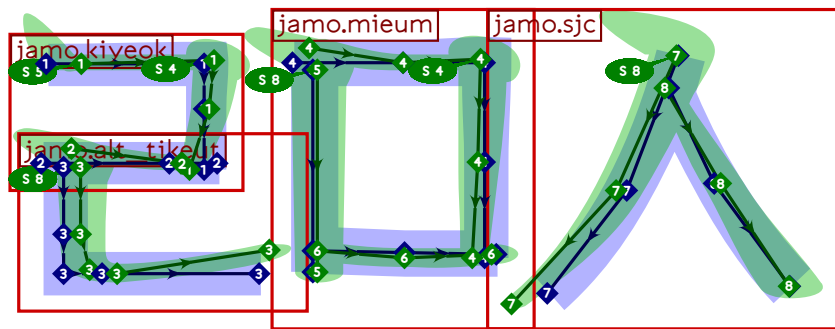
```



```

1328 % hangul tail rieul-mieum-kiyeok
1329 begintsuglyph("uni11D1",209);
1330 hangul.combine.lcr(608,516,501)(whatever,tixf,toxf);
1331 tsu_render;
1332 endsuglyph;
1333

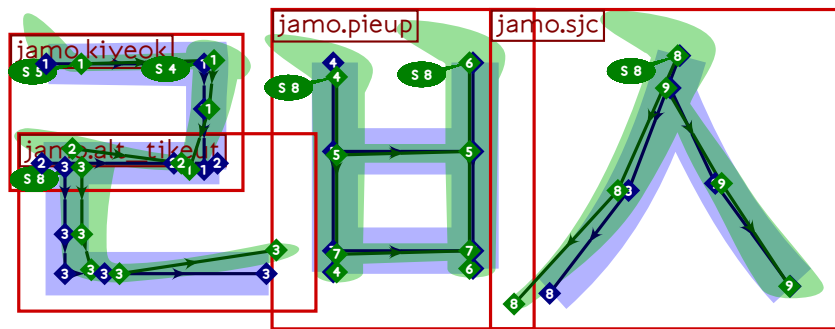
```



```

1334 % hangul tail rieul-mieum-sios
1335 begint Suglyph("uni11D2",210);
1336 hangul.combine.lcr(608,516,519)(whatever,tixf,toxf);
1337 tsu_render;
1338 endtsuglyph;
1339

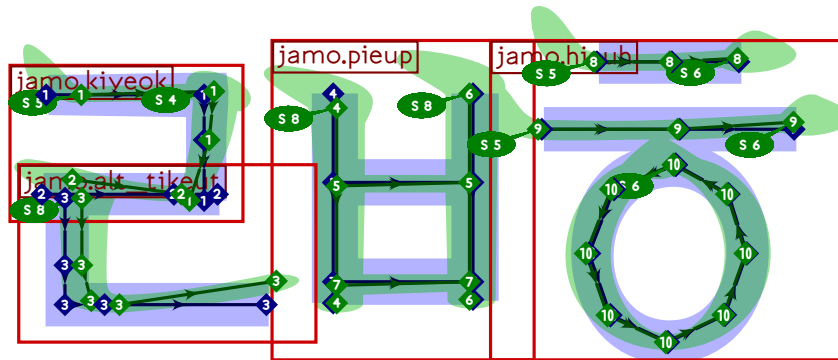
```



```

1340 % hangul tail rieul-pieup-sios
1341 begint Suglyph("uni11D3",211);
1342 hangul.combine.lcr(608,517,519)(whatever,tixf,toxf);
1343 tsu_render;
1344 endtsuglyph;
1345

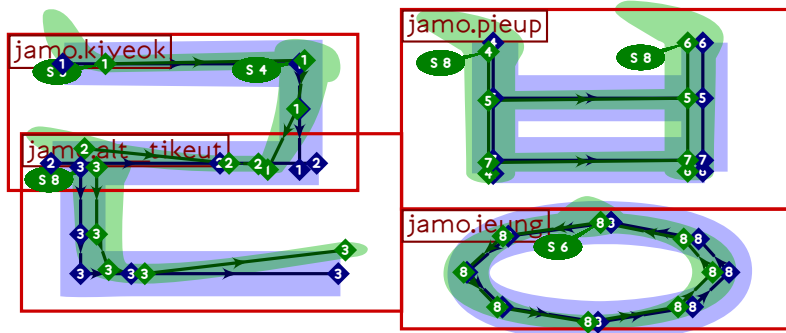
```



```

1346 % hangul tail rieul-pieup-hieuh
1347 begint Suglyph("uni11D4",212);
1348 hangul.combine.lcr(608,517,527)(whatever,tixf,toxf);
1349 tsu_render;
1350 endtsuglyph;
1351

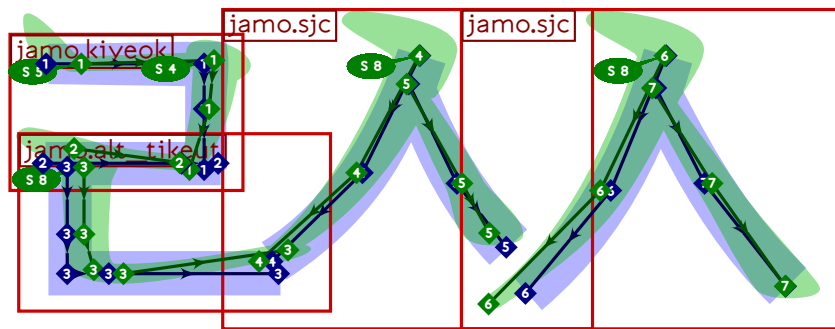
```



```

1352 % hangul tail rieul-kapyeounpieup
1353 begintsuglyph("uni11D5",213);
1354 hangul.combine.lr(608,630)(whatever,tixf,toxf);
1355 tsu_render;
1356 endsuglyph;
1357

```

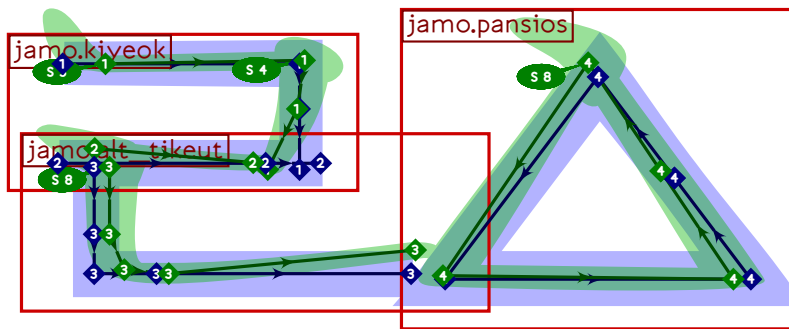


```

1358 % hangul tail rieul-sios-sios
1359 begint Suglyph("uni11D6",214);
1360 hangul.combine.lcr(608,619,519)(whatever,tixf,toxf);
1361 tsu_render;
1362 endtsuglyph;
1363

```

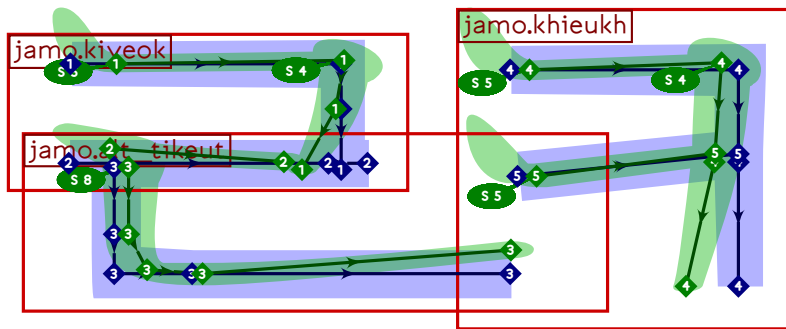




```

1364 % hangul tail rieul-pansios
1365 begintsuglyph("uni11D7",215);
1366 hangul.combine.lr(608,628)(whatever,tixf,toxf);
1367 tsu_render;
1368 endsuglyph;
1369

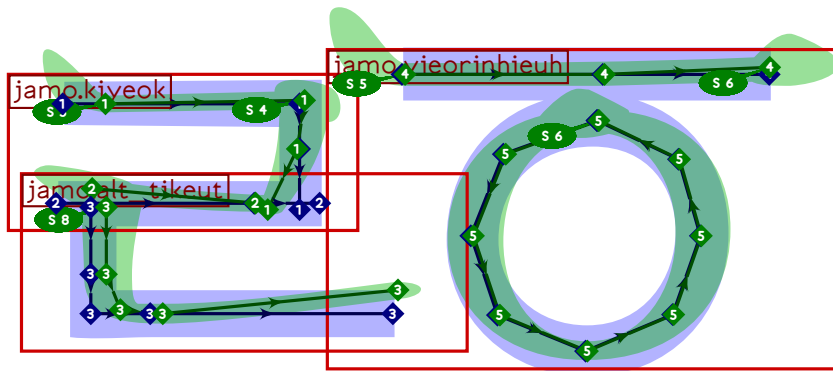
```



```

1370 % hangul tail rieul-khieukh
1371 begintsuglyph("uni11D8",216);
1372 hangul.combine.lr(608,524)(whatever,tixf,toxf);
1373 tsu_render;
1374 endsuglyph;
1375

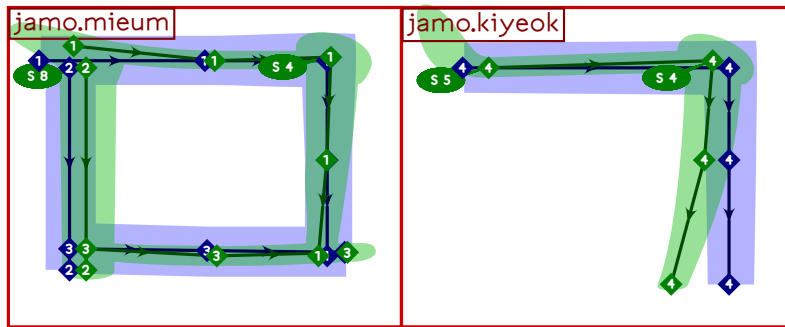
```



```

1376 % hangul tail rieul-yeorinhieuh
1377 begint Suglyph("uni11D9",217);
1378 hangul.combine.lr(608,631)(whatever,tixf,toxf);
1379 tsu_render;
1380 endtsuglyph;
1381

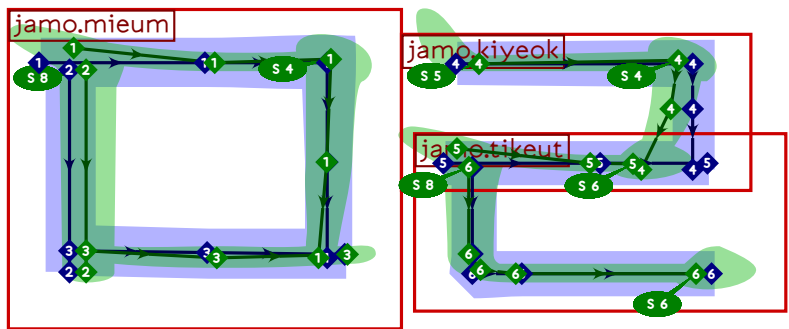
```



```

1382 % hangul tail mieum-kiyeok
1383 begint Suglyph("uni11DA",218);
1384 hangul.combine.lr(516,501)(whatever,tixf,toxf);
1385 tsu_render;
1386 endtsuglyph;
1387

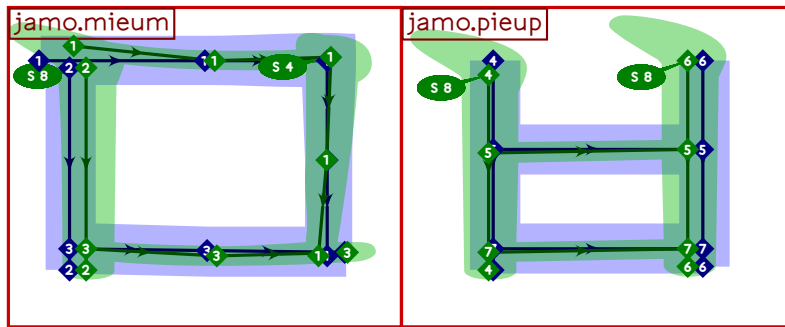
```



```

1388 % hangul tail mieum-rieul
1389 begint Suglyph("uni11DB",219);
1390 hangul.combine.lr(516,508)(whatever,tixf,toxf);
1391 tsu_render;
1392 endtsuglyph;
1393

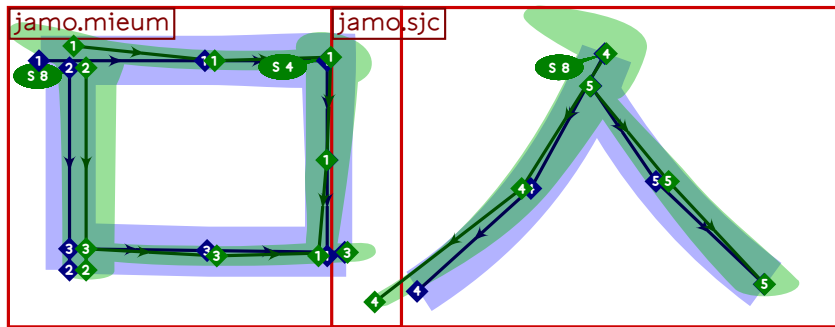
```



```

1394 % hangul tail mieum-pieup
1395 begint Suglyph("uni11DC";220);
1396 hangul.combine.lr(516,517)(whatever,tixf,toxf);
1397 tsu_render;
1398 endtsuglyph;
1399

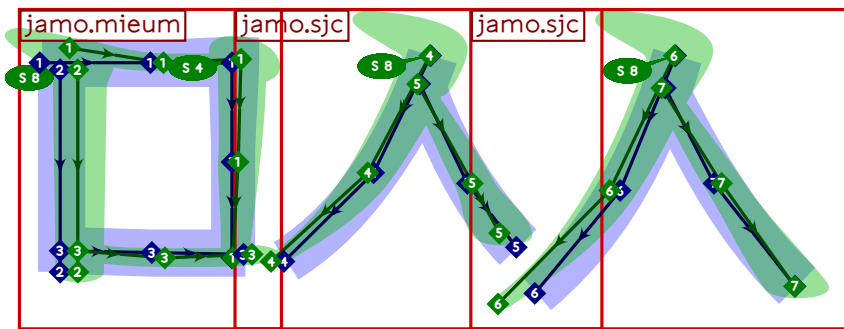
```



```

1400 % hangul tail mieum-sios
1401 begintsuglyph("uni11DD";221);
1402 hangul.combine.lr(516,519)(whatever,tixf,toxf);
1403 tsu_render;
1404 endsuglyph;
1405

```

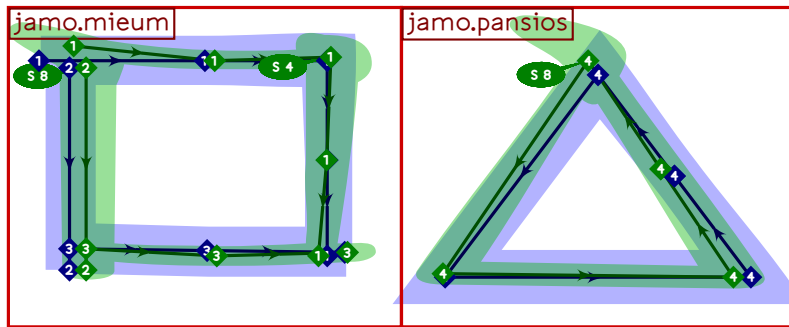


```

1406 % hangul tail mieum-sios-sios
1407 begintsuglyph("uni11DE",222);
1408 hangul.combine.lcr(516,619,519)(whatever,tixf,toxf);
1409 tsu_render;
1410 endsuglyph;
1411

```



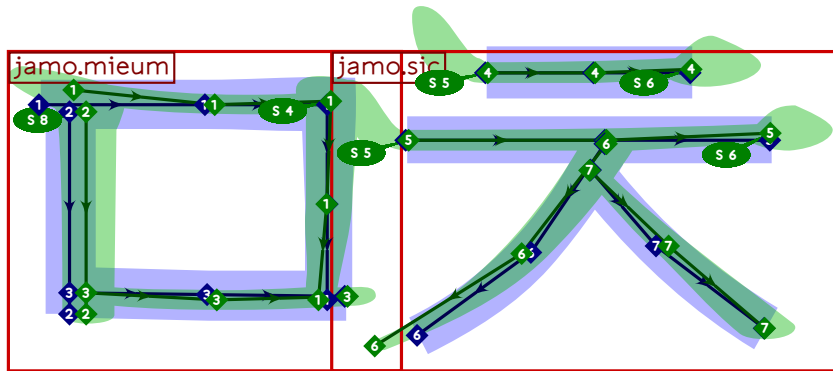


```

1412 % hangul tail mieum-pansios
1413 begint Suglyph("uni11DF",223);
1414 hangul.combine.lr(516,628)(whatever,tixf,toxf);
1415 tsu_render;
1416 endtsuglyph;
1417

```

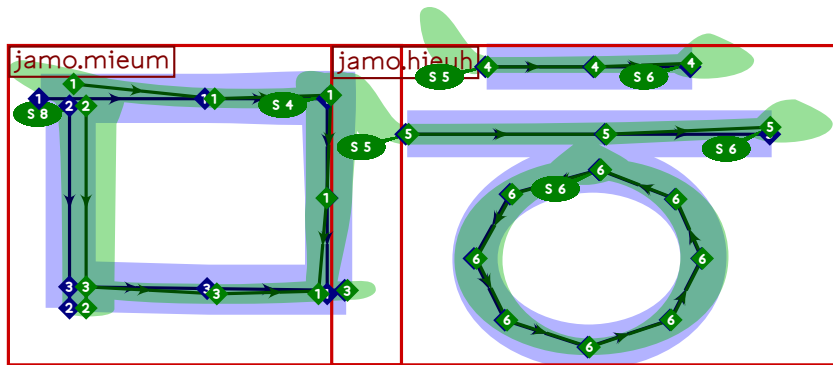




```

1418 % hangul tail mieum-chieuch
1419 begintsuglyph("uni11E0",224);
1420 hangul.combine.lr(516,523)(whatever,tixf,toxf);
1421 tsu_render;
1422 endsuglyph;
1423

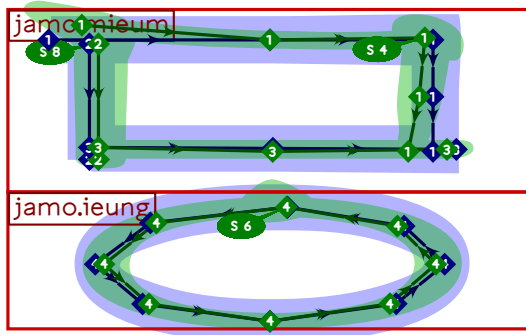
```



```

1424 % hangul tail mieum-hieuh
1425 begint Suglyph("uni11E1",225);
1426 hangul.combine.lr(516,527)(whatever,tixf,toxf);
1427 tsu_render;
1428 endtsuglyph;
1429

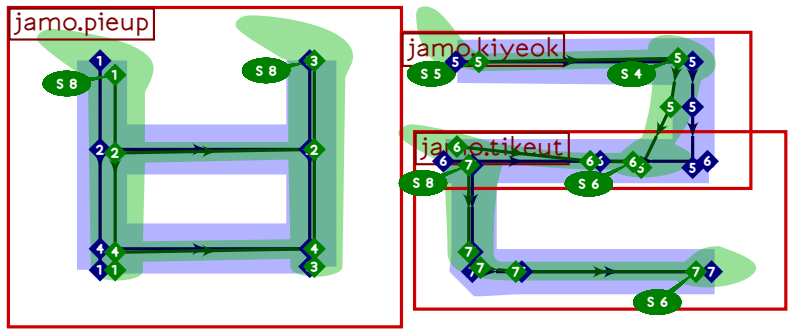
```



```

1430 % hangul tail kapyeounmieum
1431 begint Suglyph("uni11E2",226);
1432 hangul.combine.tb(516,521)(whatever,
1433   hxf((200,850),(800,-50)) transformed tixf,toxf);
1434 tsu_render;
1435 endsuglyph;
1436

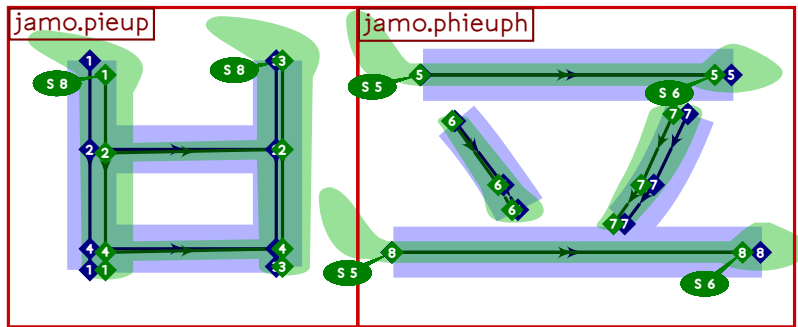
```



```

1437 % hangul tail pieup-rieul
1438 begintsuglyph("uni11E3",227);
1439 hangul.combine.lr(517,508)(whatever,tixf,toxf);
1440 tsu_render;
1441 endsuglyph;
1442

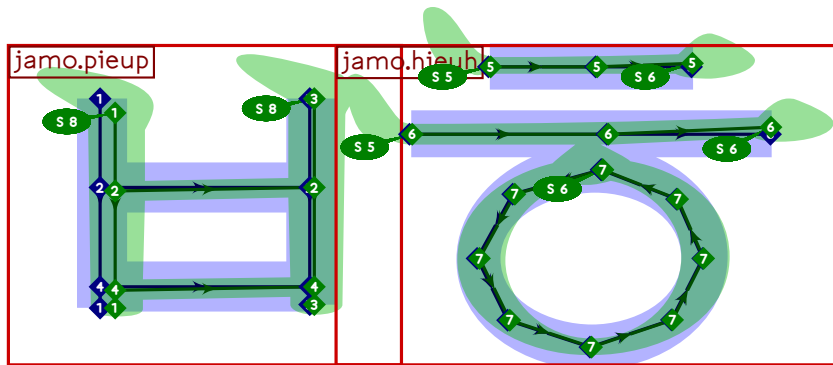
```



```

1443 % hangul tail pieup-phieuph
1444 begintsuglyph("uni11E4",228);
1445 hangul.combine.lr(517,526)(whatever,tixf,toxf);
1446 tsu_render;
1447 endsuglyph;
1448

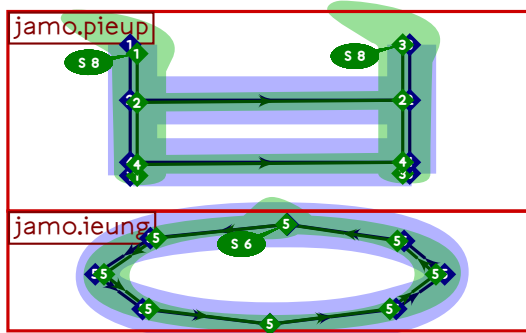
```



```

1449 % hangul tail pieup-hieuh
1450 begintsuglyph("uni11E5",229);
1451 hangul.combine.lr(517,527)(whatever,tixf,toxf);
1452 tsu_render;
1453 endsuglyph;
1454

```

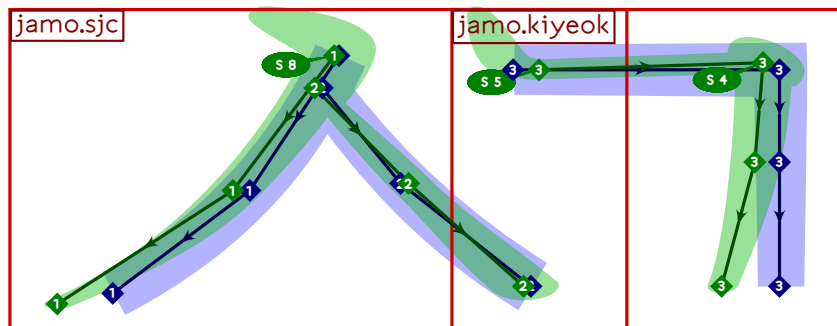


```

1455 % hangul tail kapyeounpieup
1456 begint Suglyph("uni11E6",230);
1457 hangul.combine.tb(517,521)(whatever,
1458   hxf((200,850),(800,-50)) transformed tixf,toxf);
1459 tsu_render;
1460 endtsuglyph;
1461

```

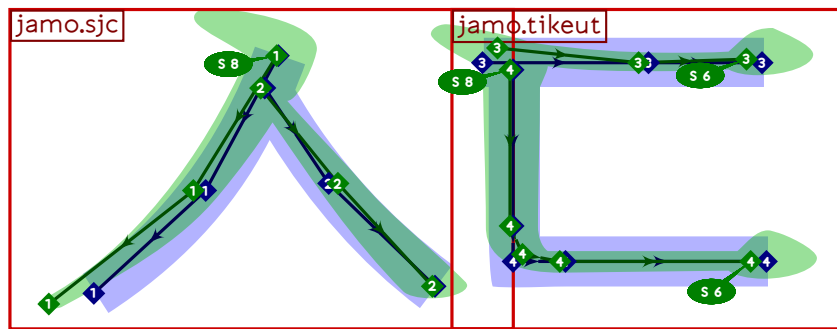




```

1462 % hangul tail sios-kiyeok
1463 begintsuglyph("uni11E7";231);
1464 hangul.combine.lr(519,501)(whatever,tixf,toxf);
1465 tsu_render;
1466 endtsuglyph;
1467

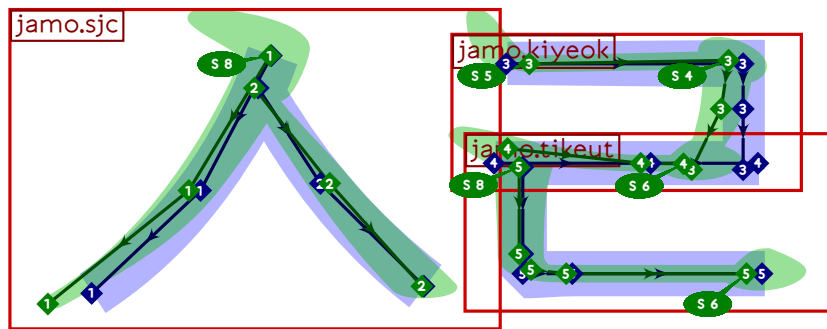
```



```

1468 % hangeul tail sios-tikeut
1469 begint Suglyph("uni11E8";232);
1470 hangeul.combine.lr(519,507)(whatever,tixf,toxf);
1471 tsu_render;
1472 endtsuglyph;
1473

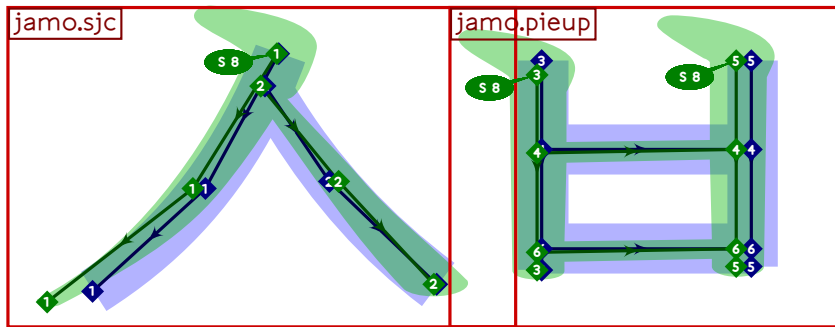
```



```

1474 % hangul tail sios-rieul
1475 begint Suglyph("uni11E9",233);
1476 hangul.combine.lr(519,508)(whatever,tixf,toxf);
1477 tsu_render;
1478 endtsuglyph;
1479

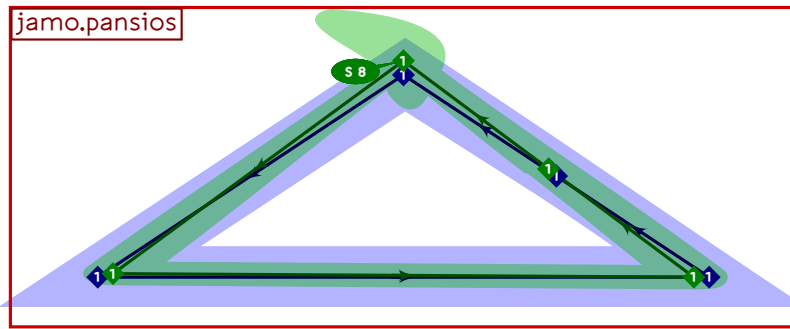
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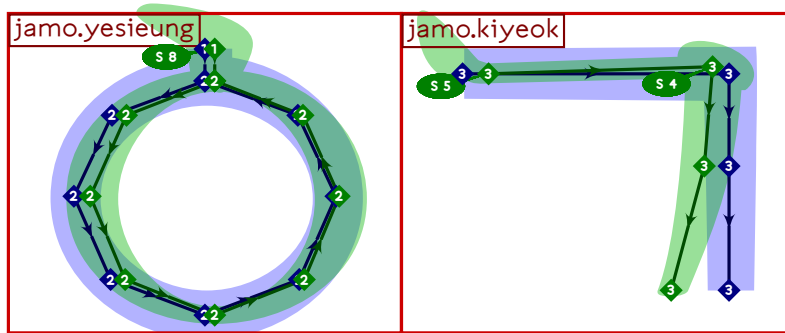
```

1480 % hangul tail sios-pieup
1481 begint Suglyph("uni11EA",234);
1482 hangul.combine.lr(519,517)(whatever,tixf,toxf);
1483 tsu_render;
1484 endtsuglyph;
1485

```



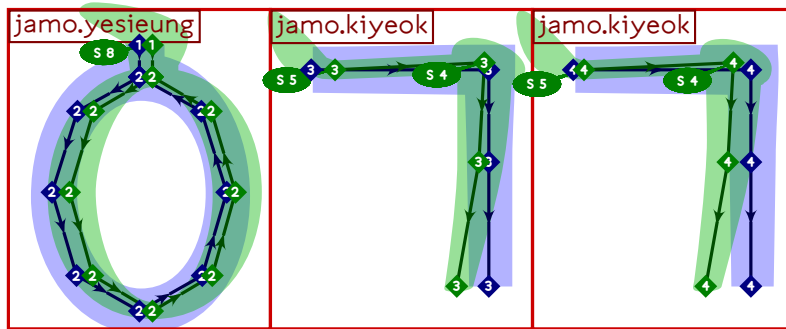
```
1486 % hangul tail pansios
1487 begint Suglyph("uni11EB";235);
1488 hangul.jamo.pansios(whatever,tixf,toxf);
1489 tsu_render;
1490 endtsuglyph;
1491
```



```

1492 % hangul tail yesieung-kiyeok
1493 begintsuglyph("uni11EC",236);
1494 hangul.combine.lr(629,501)(whatever,tixf,toxf);
1495 tsu_render;
1496 endsuglyph;
1497

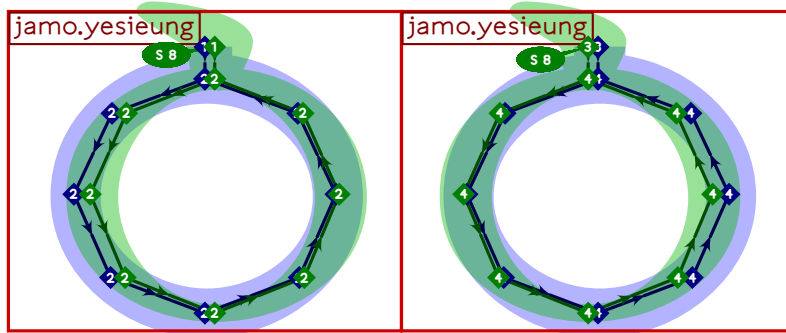
```



```

1498 % hangul tail yesieung-kiyeok-kiyeok
1499 begintsuglyph("uni11ED",237);
1500 hangul.combine.lcr(629,501,501)(whatever,tixf,toxf);
1501 tsu_render;
1502 endsuglyph;
1503

```

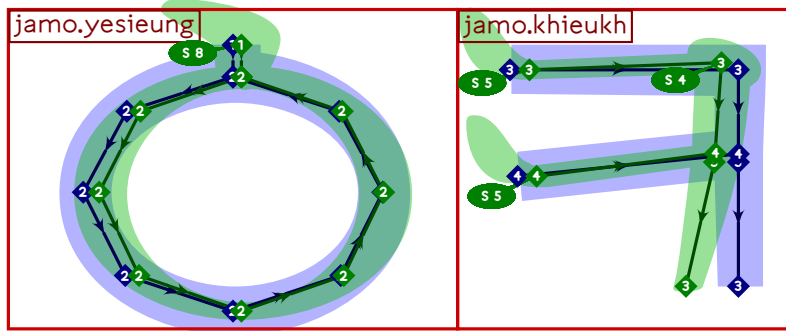


```

1504 % hangul tail yesieung=yesieung
1505 begintsuglyph("uni11EE";238);
1506 hangul.combine.lr(629,629)(whatever,tixf,toxf);
1507 tsu_render;
1508 endsuglyph;
1509

```

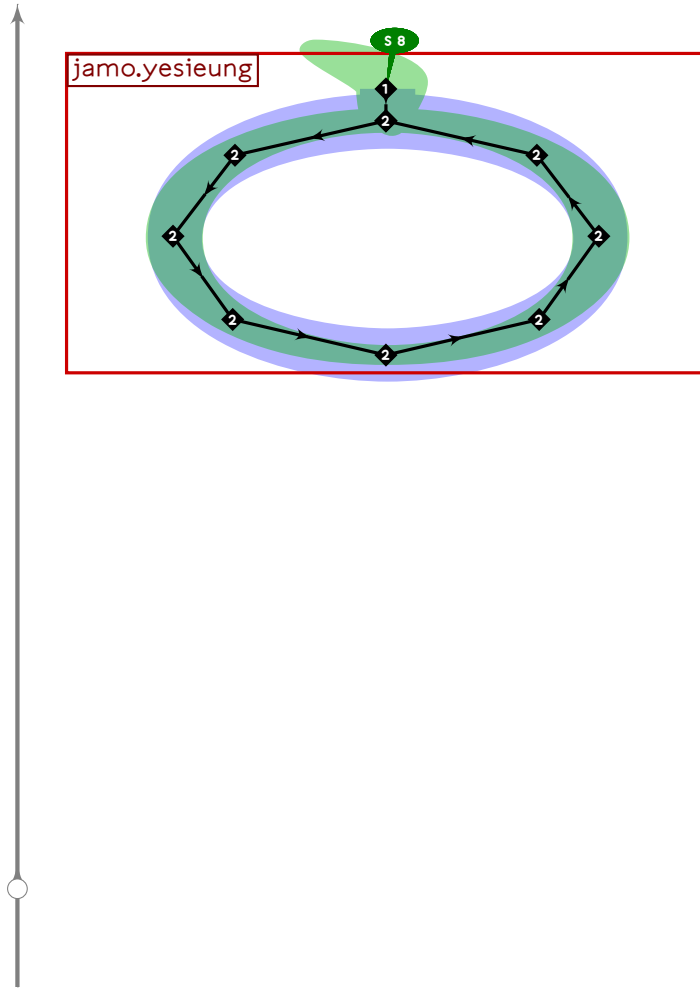




```

1510 % hangul tail yesieung-khieukh
1511 begint Suglyph("uni11EF";239);
1512 hangul.combine.lr(629,524)(whatever,tixf,toxf);
1513 tsu_render;
1514 endtsuglyph;
1515

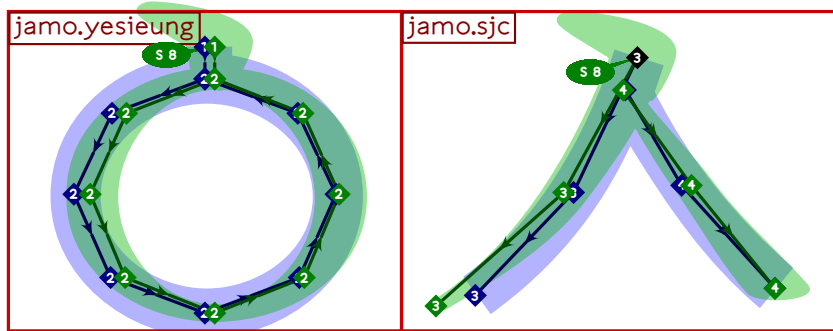
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```

1516 % hangul tail yesieung
1517 begintsuglyph("uni11F0",240);
1518 hangul.jamo.yesieung(whatever,lixf,loxf);
1519 tsu_render;
1520 endsuglyph;
1521

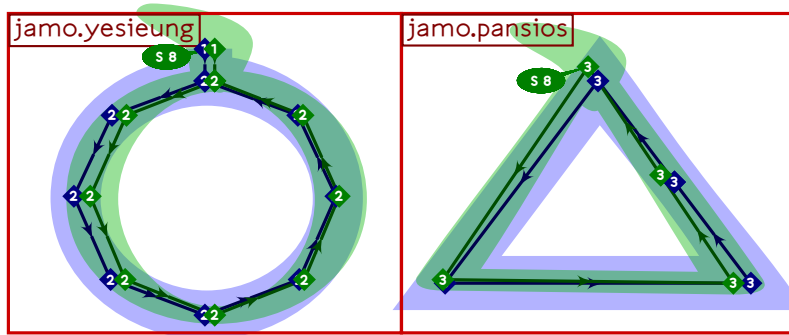
```



```

1522 % hangul tail yesieung-sios
1523 begintsuglyph("uni11F1",241);
1524 hangul.combine.lr(629,519)(whatever,tixf,toxf);
1525 tsu_render;
1526 endsuglyph;
1527

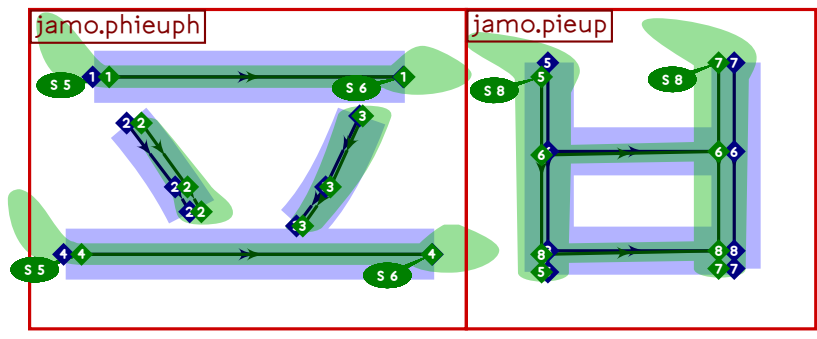
```



```

1528 % hangul tail yesieung-pansios
1529 begintsuglyph("uni11F2",242);
1530 hangul.combine.lr(629,628)(whatever,tixf,toxf);
1531 tsu_render;
1532 endsuglyph;
1533

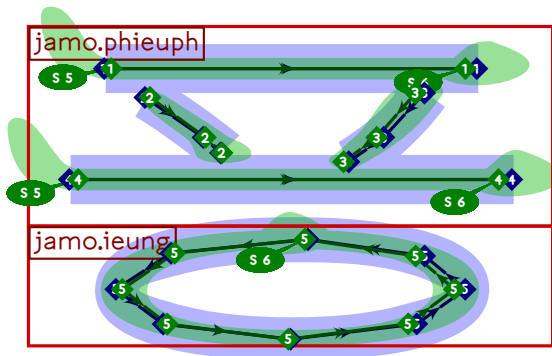
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```

1534 % hangul tail phieuph-pieup
1535 begint Suglyph("uni11F3",243);
1536 hangul.combine.lr(526,517)(whatever,tixf,toxf);
1537 tsu_render;
1538 endtsuglyph;
1539

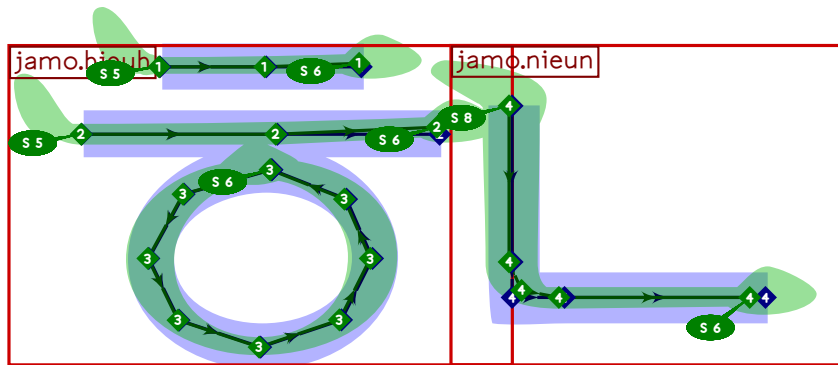
```



```

1540 % hangul tail kapyeounphieuph
1541 begint Suglyph("uni11F4",244);
1542 hangul.combine.tb(526,521)(whatever,
1543   hxf((250,850),(850,-50)) transformed tixf,toxf);
1544 tsu_render;
1545 endtsuglyph;
1546

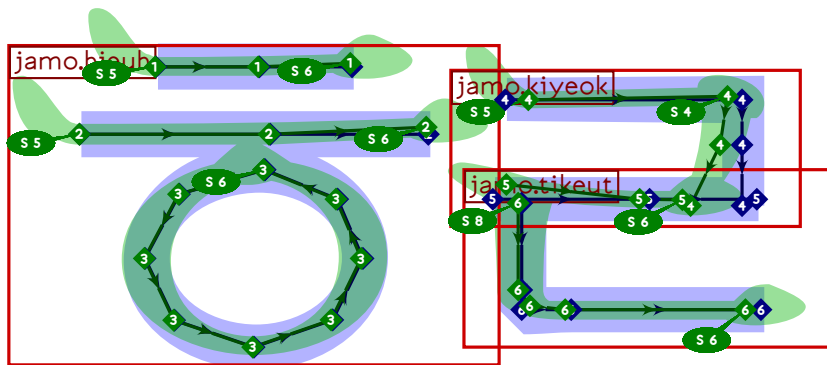
```



```

1547 % hangul tail hieuh-nieun
1548 begint Suglyph("uni11F5",245);
1549 hangul.combine.lr(527,504)(whatever,tixf,toxf);
1550 tsu_render;
1551 endtsuglyph;
1552

```

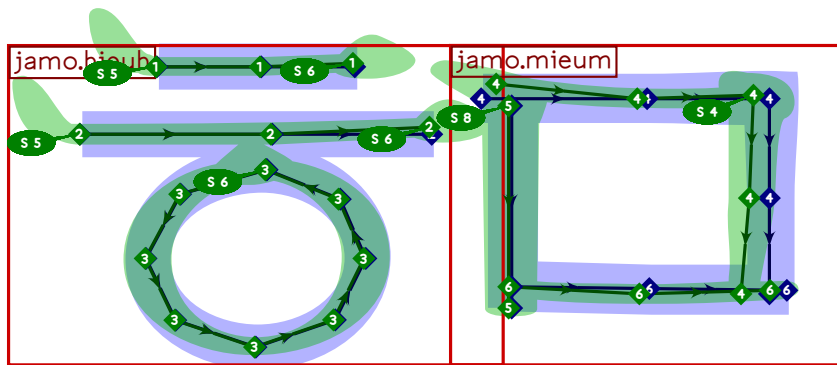


```

1553 % hangul tail hieuh-rieul
1554 begintsuglyph("uni11F6",246);
1555 hangul.combine.lr(527,508)(whatever,tixf,toxf);
1556 tsu_render;
1557 endsuglyph;
1558

```

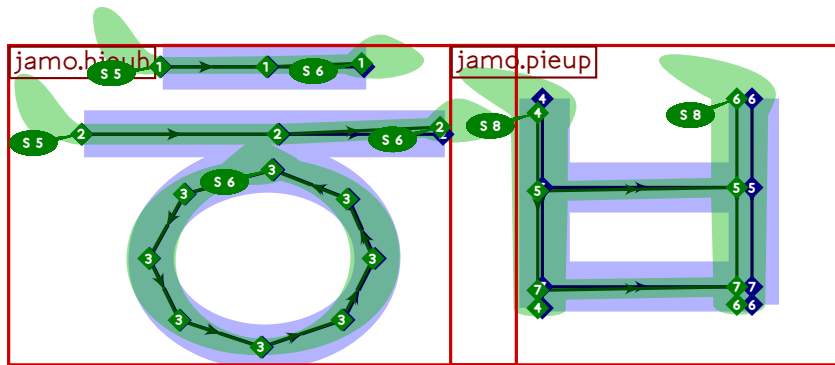




```

1559 % hangul tail hieuh-mieum
1560 begintuglyph("uni11F7",247);
1561 hangul.combine.lr(527,516)(whatever,tixf,toxf);
1562 tsu_render;
1563 endtuglyph;
1564

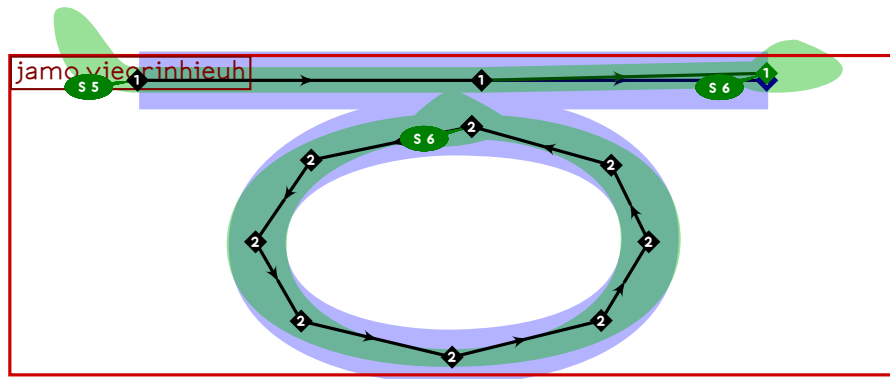
```



```

1565 % hangul tail hieuh-pieup
1566 begintsuglyph("uni11F8",248);
1567 hangul.combine.lr(527,517)(whatever,tixf,toxf);
1568 tsu_render;
1569 endsuglyph;
1570

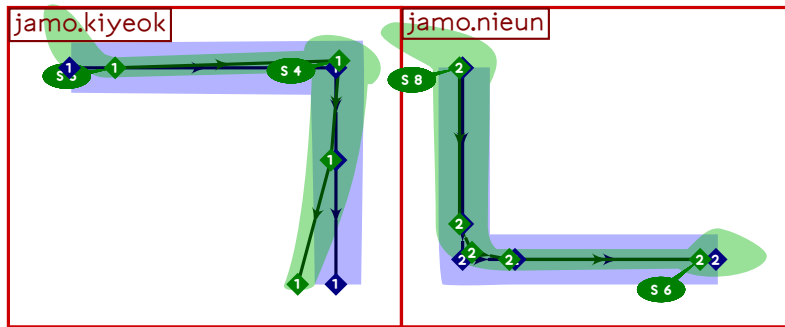
```



```

1571 % hangul tail yeorinhieuh
1572 begint Suglyph("uni11F9",249);
1573 hangul.jamo.yeorinhieuh(whatever,tixf,toxf);
1574 tsu_render;
1575 endtsuglyph;
1576

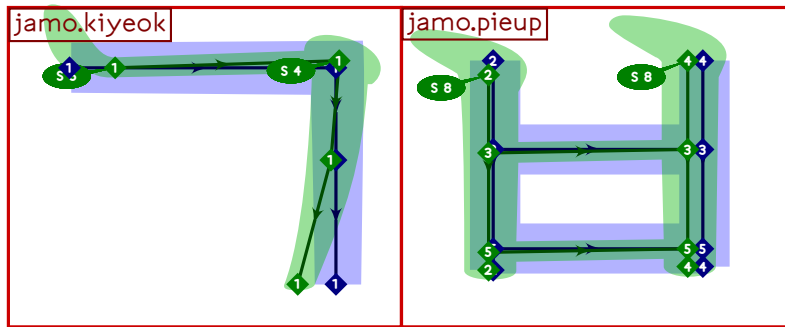
```



```

1577 % hangul tail kiyeok-nieun
1578 begintsuglyph("uni11FA",250);
1579 hangul.combine.lr(501,504)(whatever,tixf,toxf);
1580 tsu_render;
1581 endsuglyph;
1582

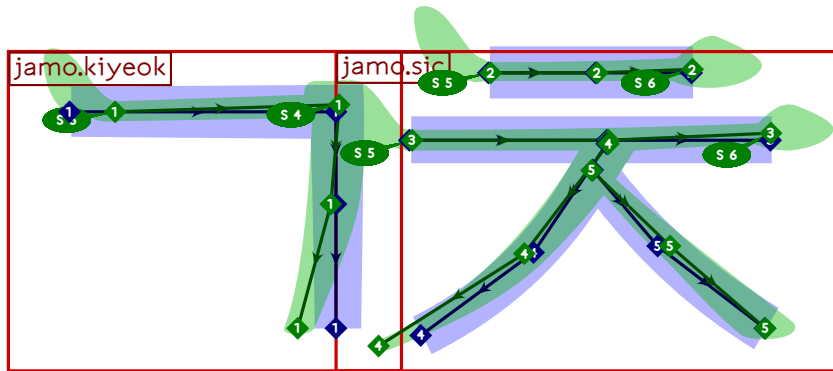
```



```

1583 % hangul tail kiyeok-pieup
1584 begintsuglyph("uni11FB",251);
1585 hangul.combine.lr(501,517)(whatever,tixf,toxf);
1586 tsu_render;
1587 endsuglyph;
1588

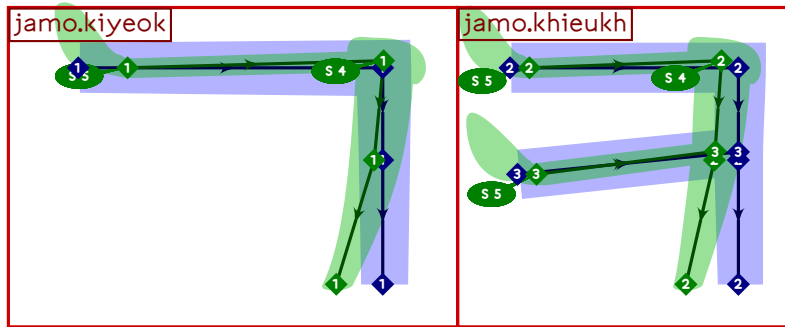
```



```

1589 % hangul tail kiyeok-chieuch
1590 begintsuglyph("uni11FC",252);
1591 hangul.combine.lr(501,523)(whatever,tixf,toxf);
1592 tsu_render;
1593 endsuglyph;
1594

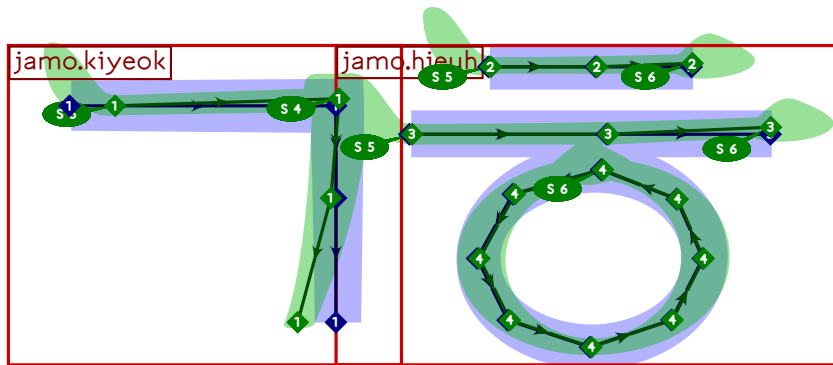
```



```

1595 % hangul tail kiyeok-khieukh
1596 begintsuglyph("uni11FD",253);
1597 hangul.combine.lr(501,524)(whatever,tixf,toxf);
1598 tsu_render;
1599 endsuglyph;
1600

```

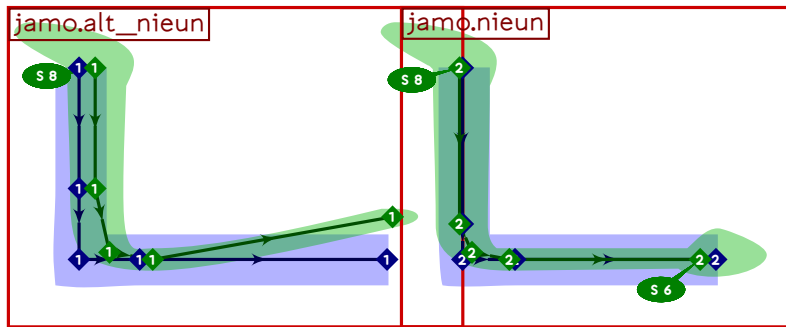


```

1601 % hangul tail kiyeok-hieuh
1602 begintsuglyph("uni11FE",254);
1603 hangul.combine.lr(501,527)(whatever,tixf,toxf);
1604 tsu_render;
1605 endsuglyph;
1606

```





```

1607 % hangul tail ssangnieun
1608 begintsuglyph("uni11FF",255);
1609 hangul.combine.lr(604,504)(whatever,tixf,toxf);
1610 tsu_render;
1611 endsuglyph;
1612
1613 _____
1614
1615 endfont;
1616
1617 _____

```

# jieub-31.mp

```
1 %
2 % Unicode page 31 (Hangul Compatibility Jamo) for Jieubsida
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---

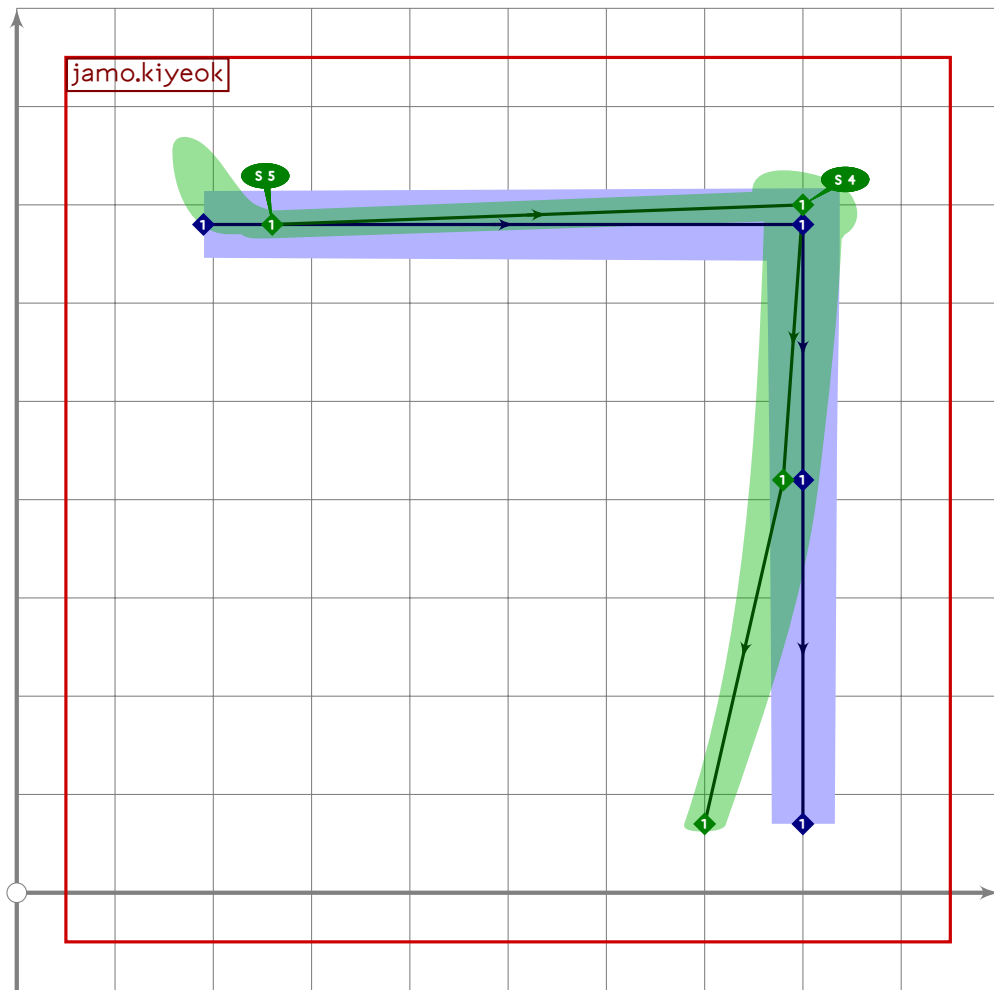

32
33 beginfont
34
35 % AUTODEPS
36 input hangul.mp;
37 input jamo-basic.mp;
38 input jamo-extra.mp;
39
40 

---


41
```

## Hangul Compatibility Jamo

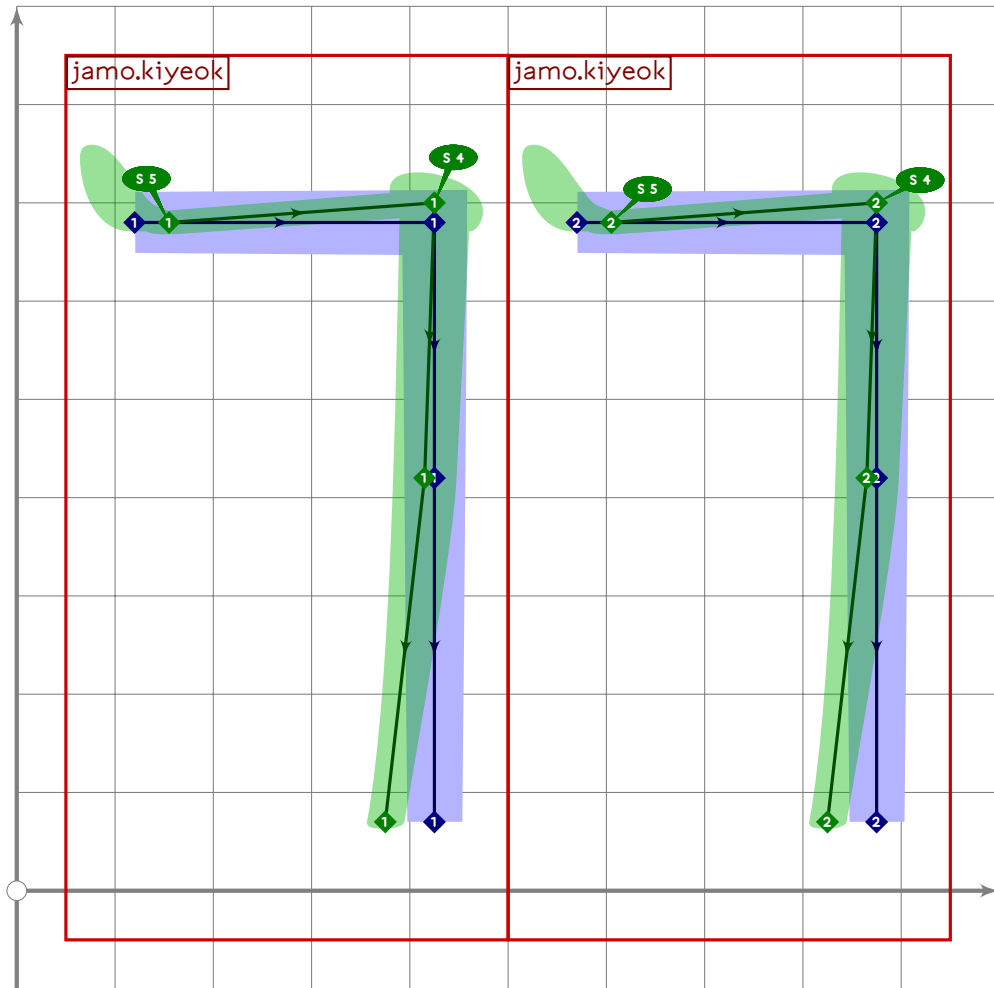
```
42 % HANGUL COMPATIBILITY JAMO
43
```



```

44 % hangul kiyeok
45 begint Suglyph("uni3131",49);
46 hangul.jam.o.kiyeok(whatever,identity,identity);
47 tsu_render;
48 endsuglyph;
49

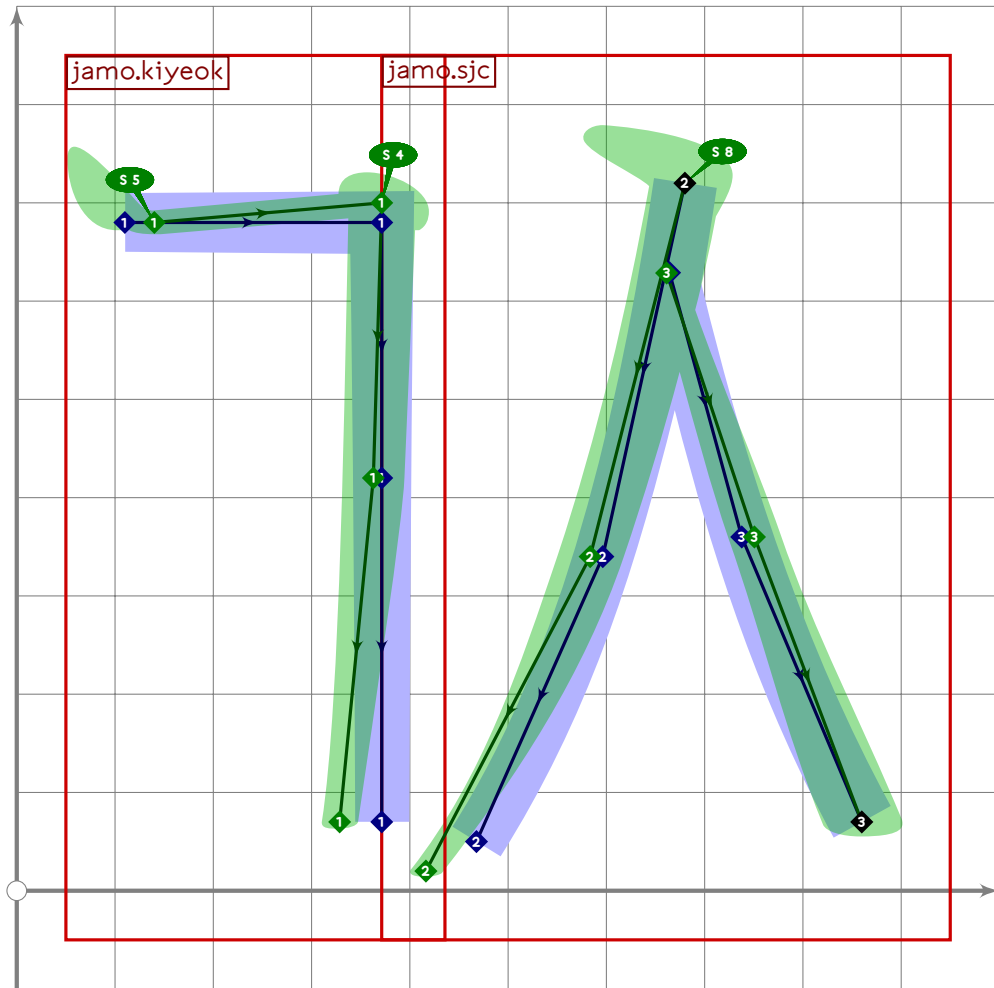
```



```

50 % hangul ssangkiyeok
51 begint Suglyph("uni3132",50);
52 hangul.combine.lr(100,100)(whatever;identity,identity);
53 tsu_render;
54 endsuglyph;
55

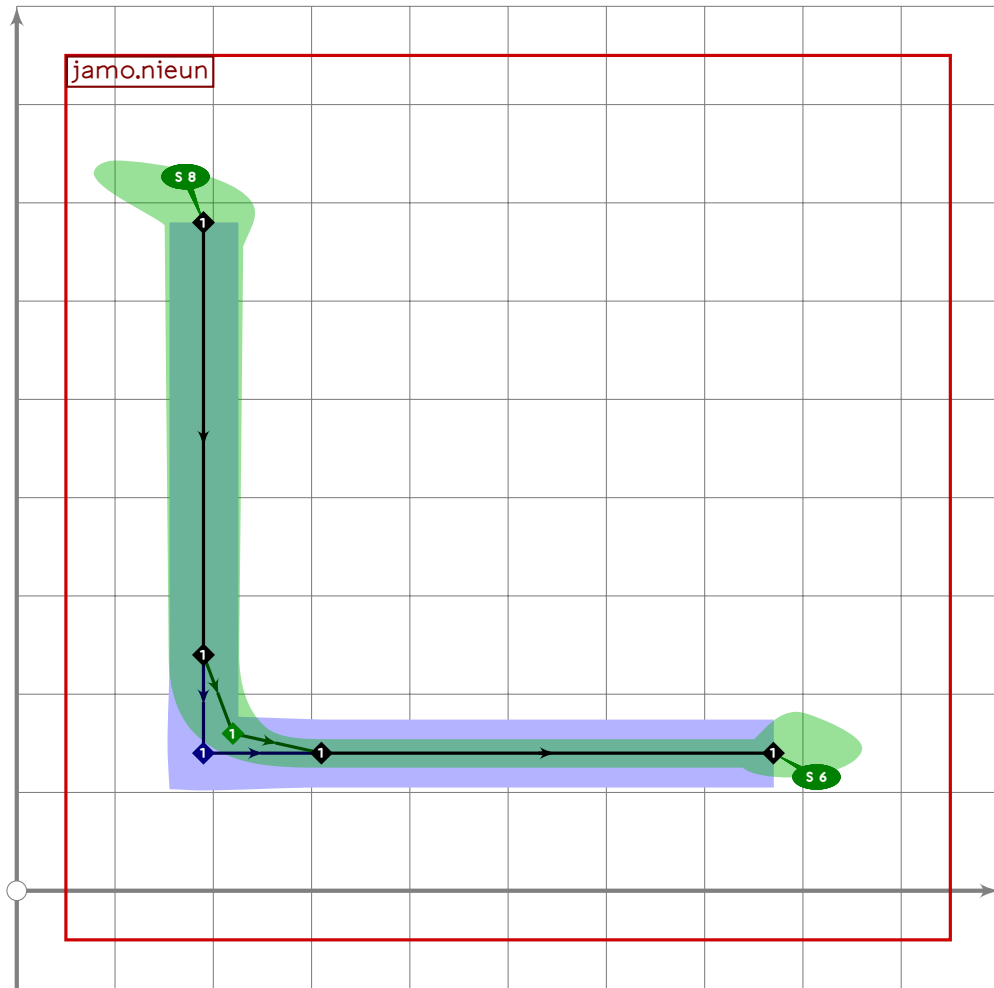
```



```

56 % hangul kiyeok-sios
57 begint Suglyph("uni3133",51);
58 hangul.combine.lr(100,109)(whatever,identity,identity);
59 tsu_render;
60 endsuglyph;
61

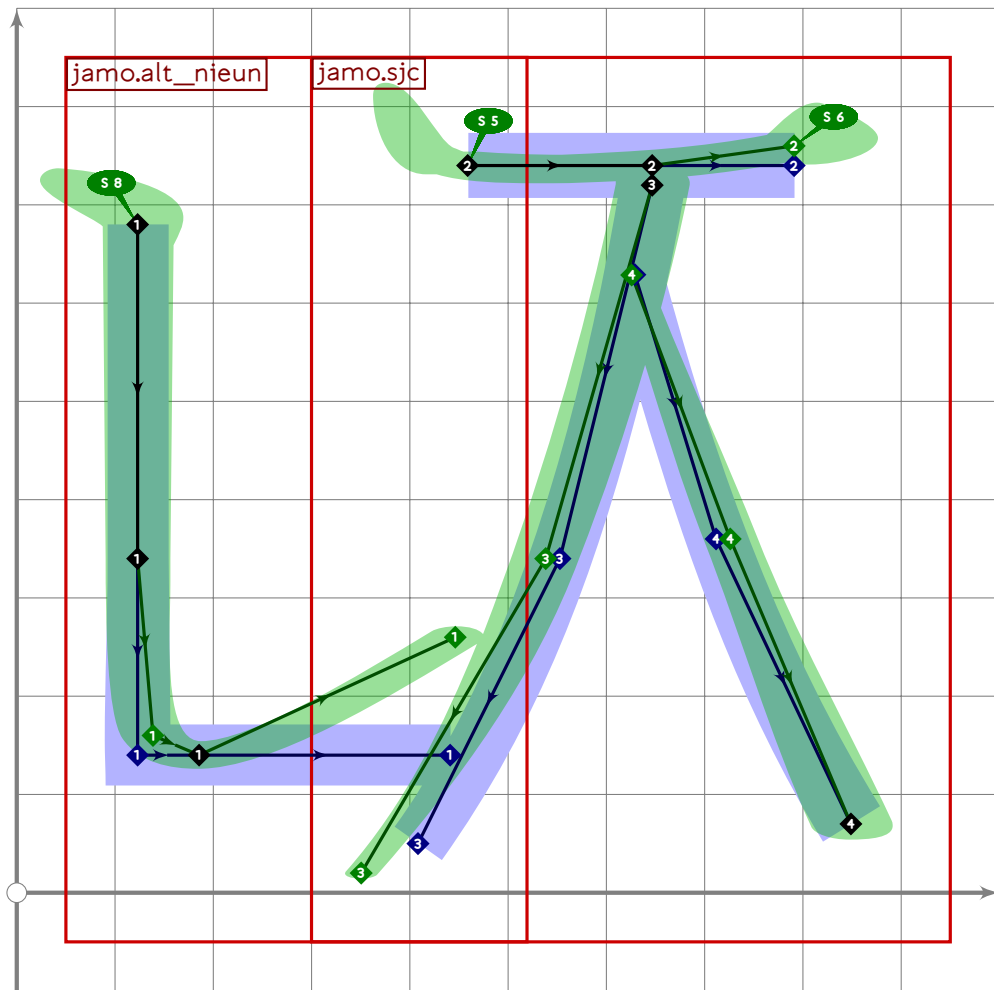
```



```

62 % hangul nieun
63 begint Suglyph("uni3134",52);
64 hangul.jamo.nieun(whatever,identity,identity);
65 tsu_render;
66 endsuglyph;
67

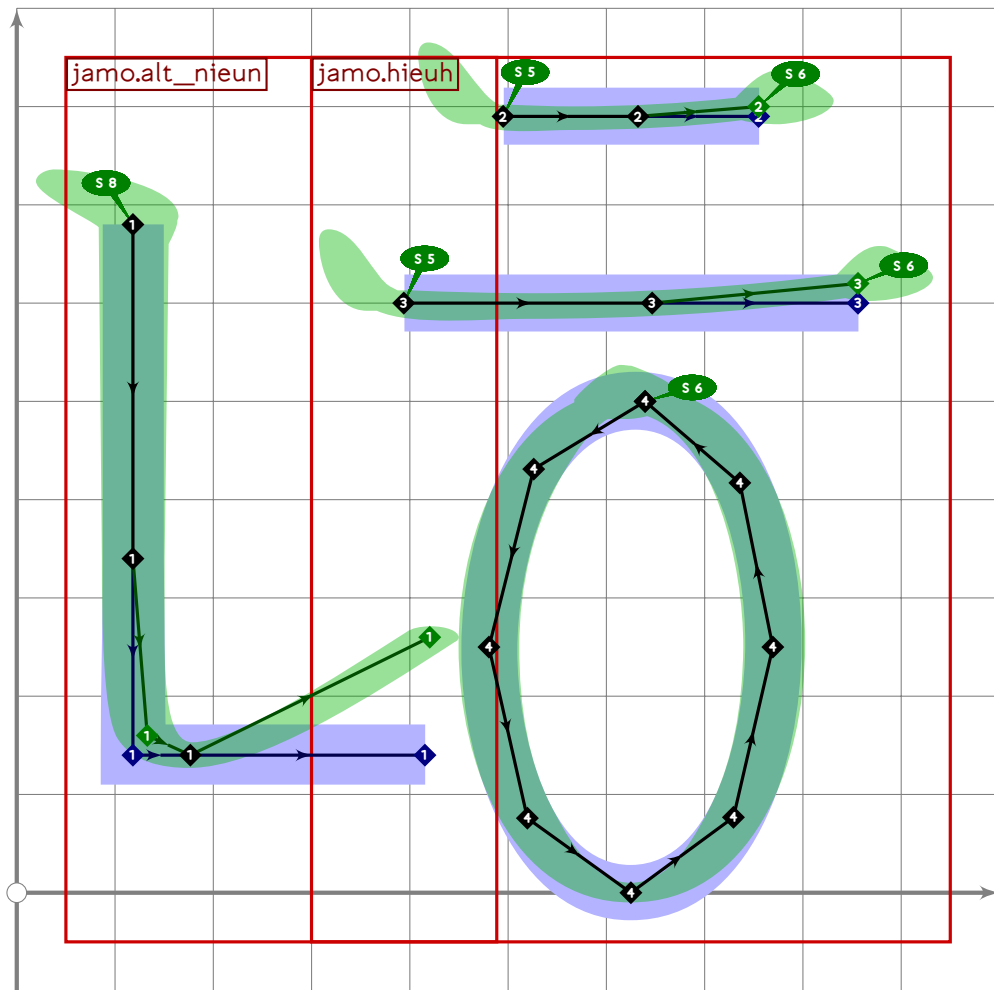
```



```

68 % hangul nieun-cieuc
69 begint Suglyph("uni3135",53);
70 hangul.combine.lr(202,112)(whatever,identity,identity);
71 tsu_render;
72 endsuglyph;
73

```

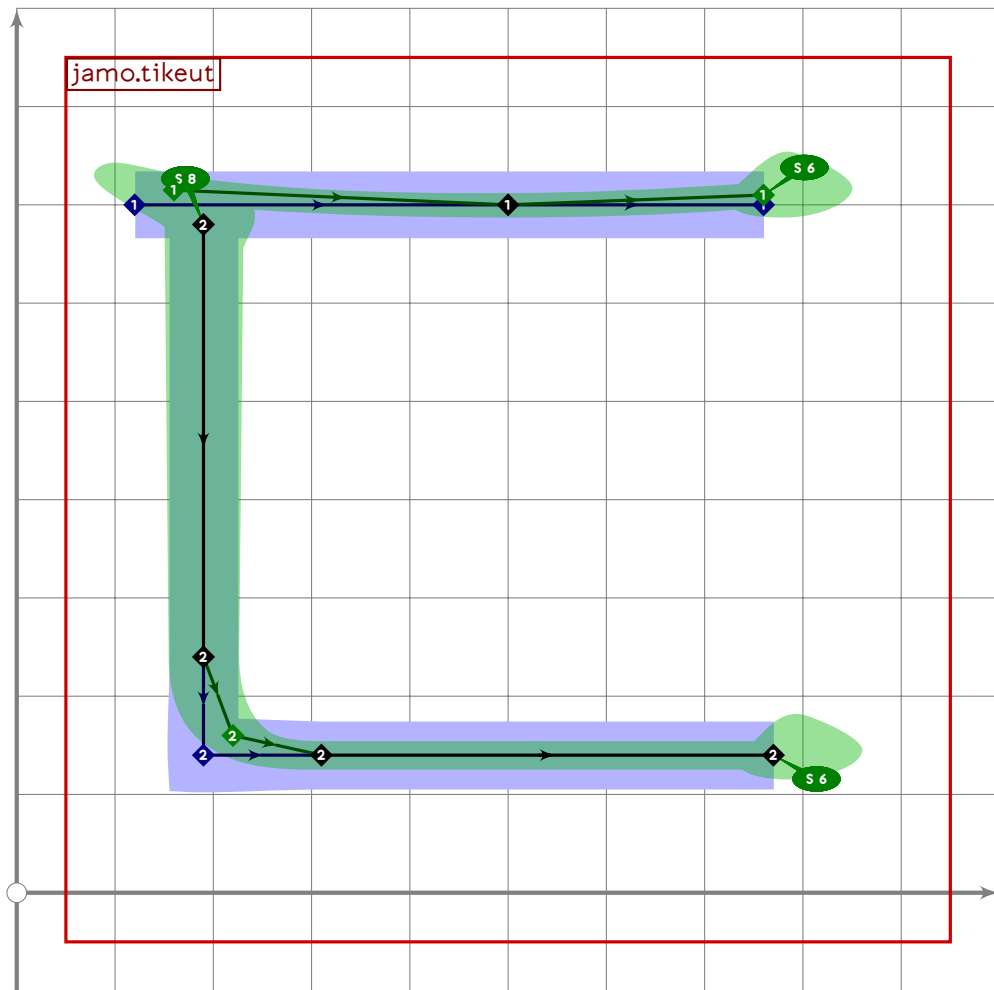


```

74 % hangul nieun-hieuh
75 begintsuglyph("uni3136",54);
76 hangul.combine.lr(202,118)(whatever,identity,identity);
77 tsu_render;
78 endsuglyph;
79

```

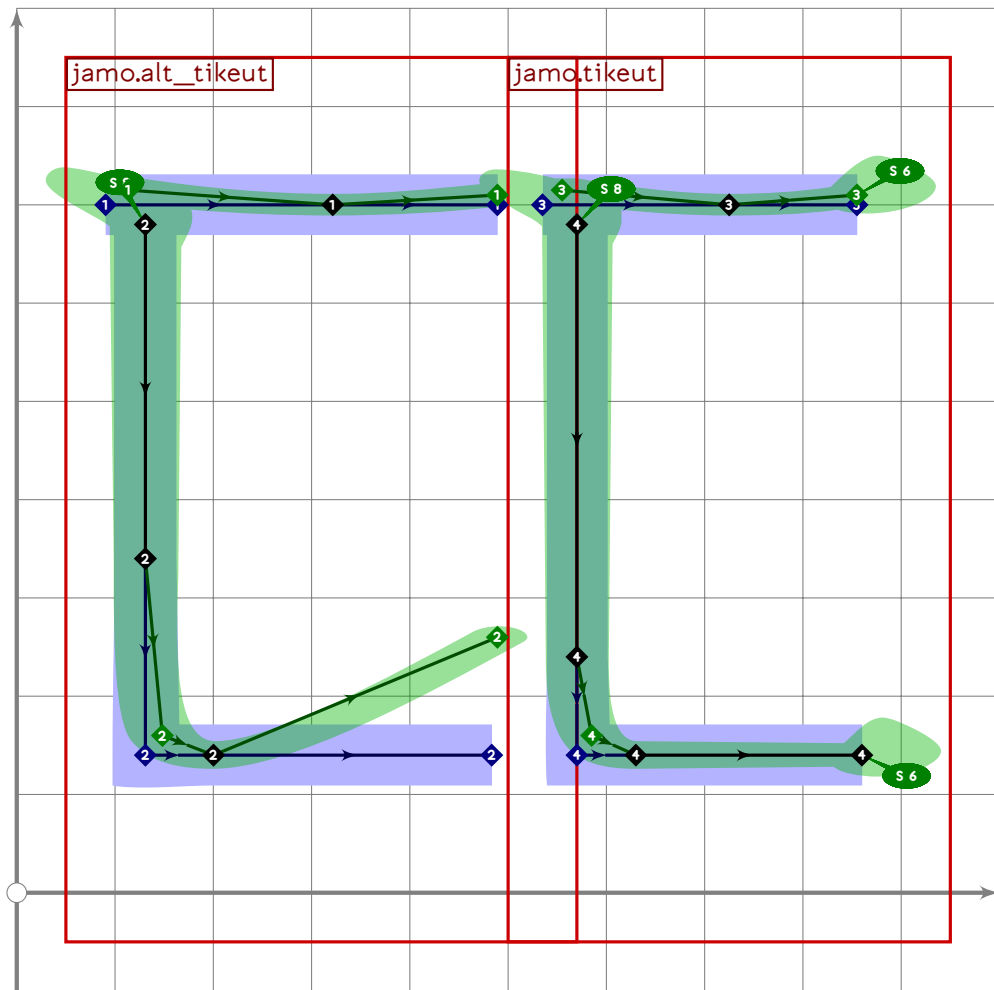




```

80 % hangul tikeut
81 begint Suglyph("uni3137",55);
82 hangul.jamo.tikeut(whatever,identity,identity);
83 tsu_render;
84 endsuglyph;
85

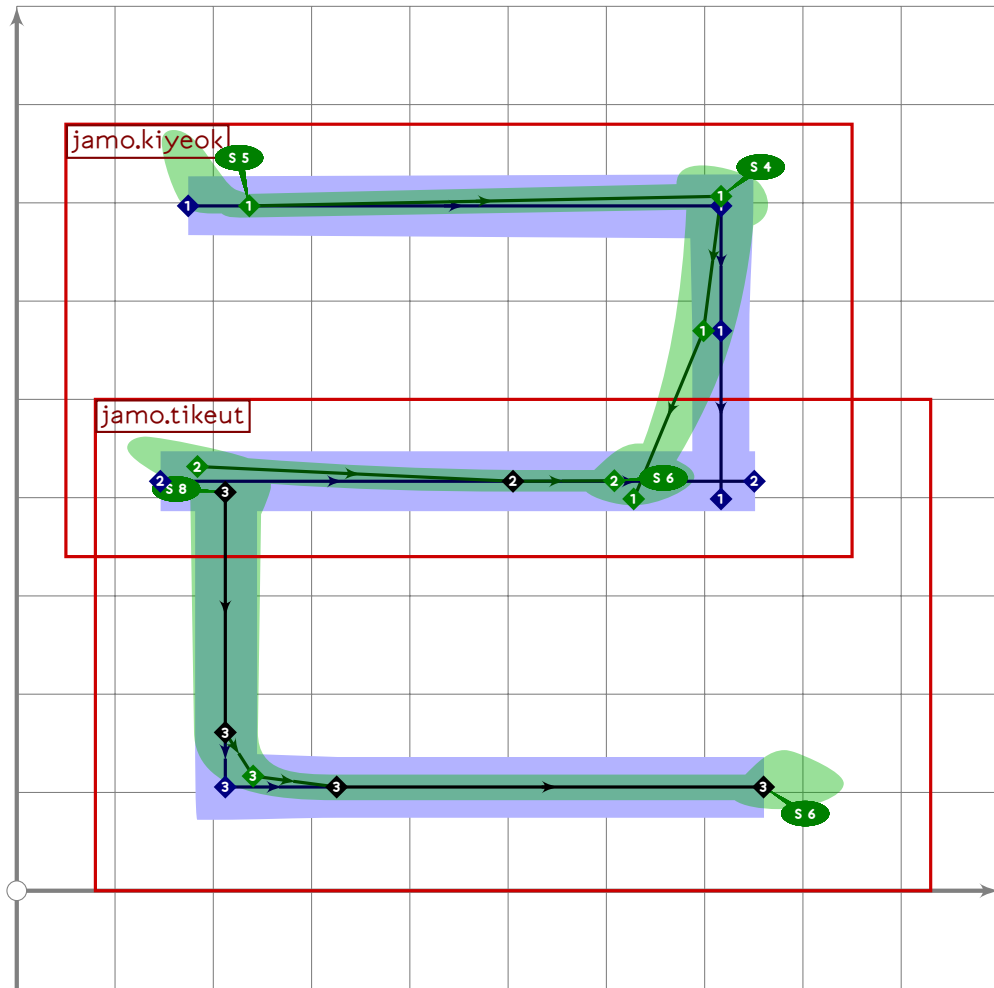
```



```

86 % hangul ssangtikeut
87 begint Suglyph("uni3138",56);
88 hangul.combine.lr(203,103)(whatever,identity,identity);
89 tsu_render;
90 endtsuglyph;
91

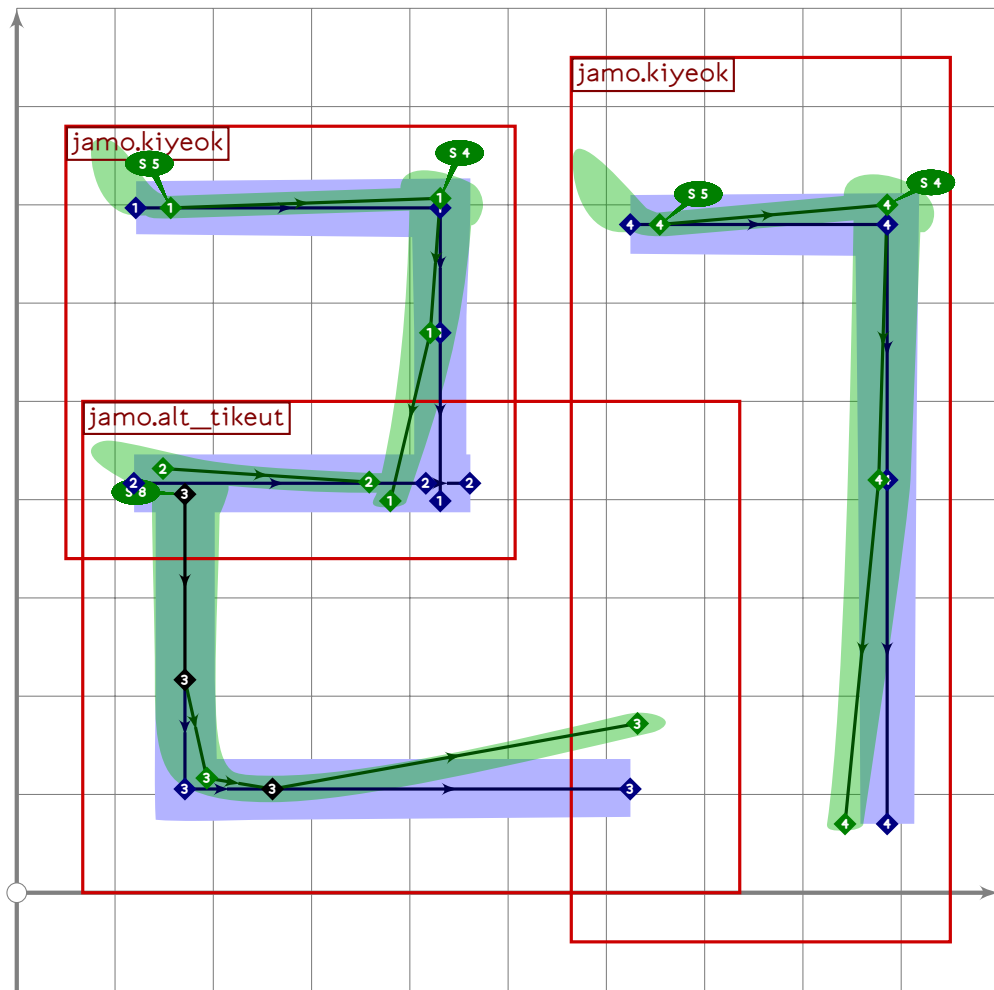
```



```

92 % hangul rieul
93 begint Suglyph("uni3139",57);
94 hangul.jamo.rieul(whatever,identity,identity);
95 tsu_render;
96 endtsuglyph;
97

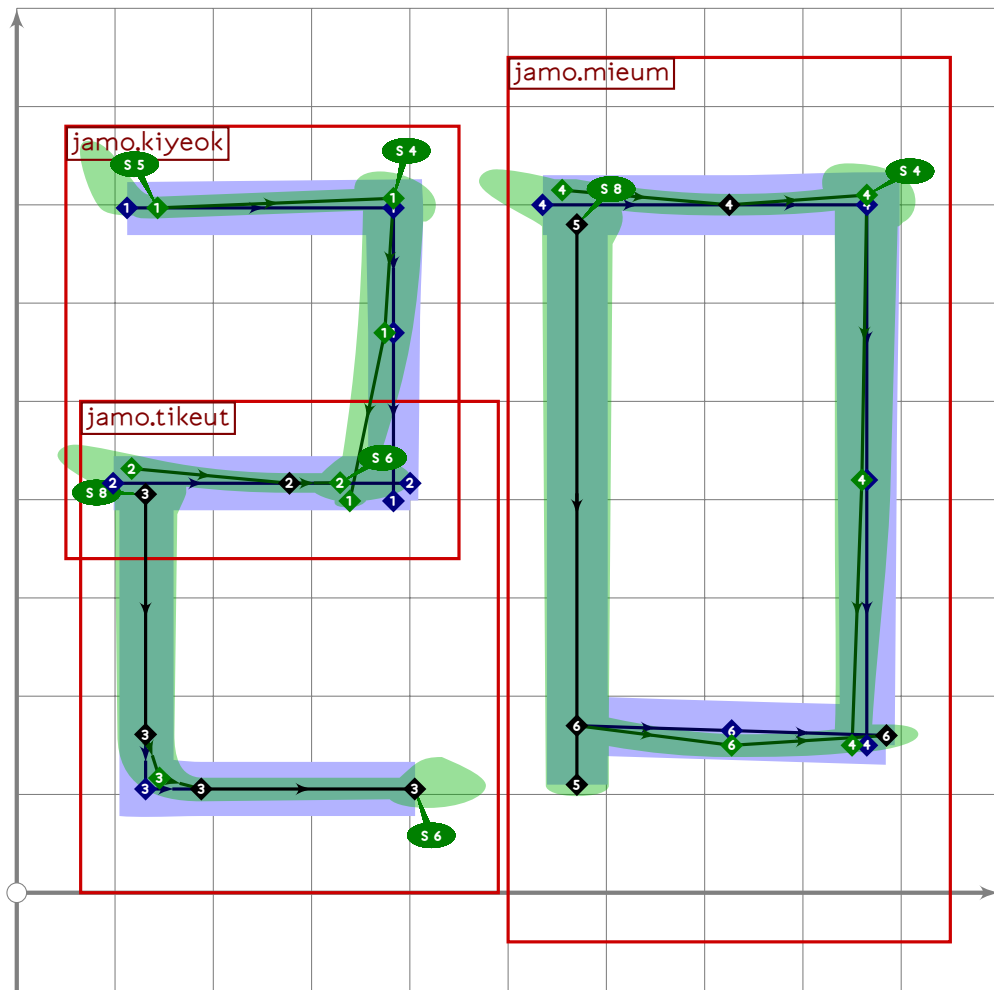
```



```

98 % hangul rioul-kiyeok
99 beginsuglyph("uni313A",58);
100 hangul.combine.lr(205,100)(whatever,identity,identity);
101 tsu_render;
102 endsuglyph;
103

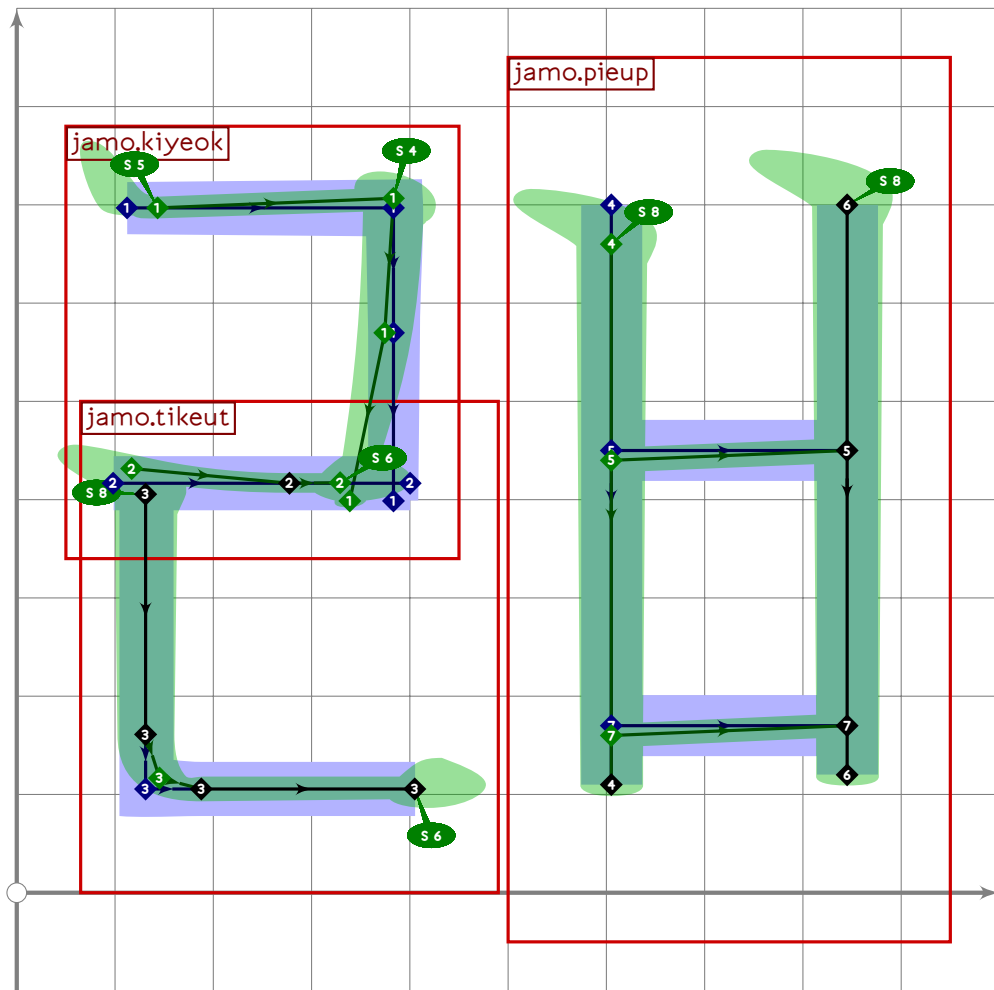
```



```

104 % hangul rioul-mieum
105 begint Suglyph("uni313B",59);
106 hangul.combine.lr(105,106)(whatever,identity,identity);
107 tsu_render;
108 endsuglyph;
109

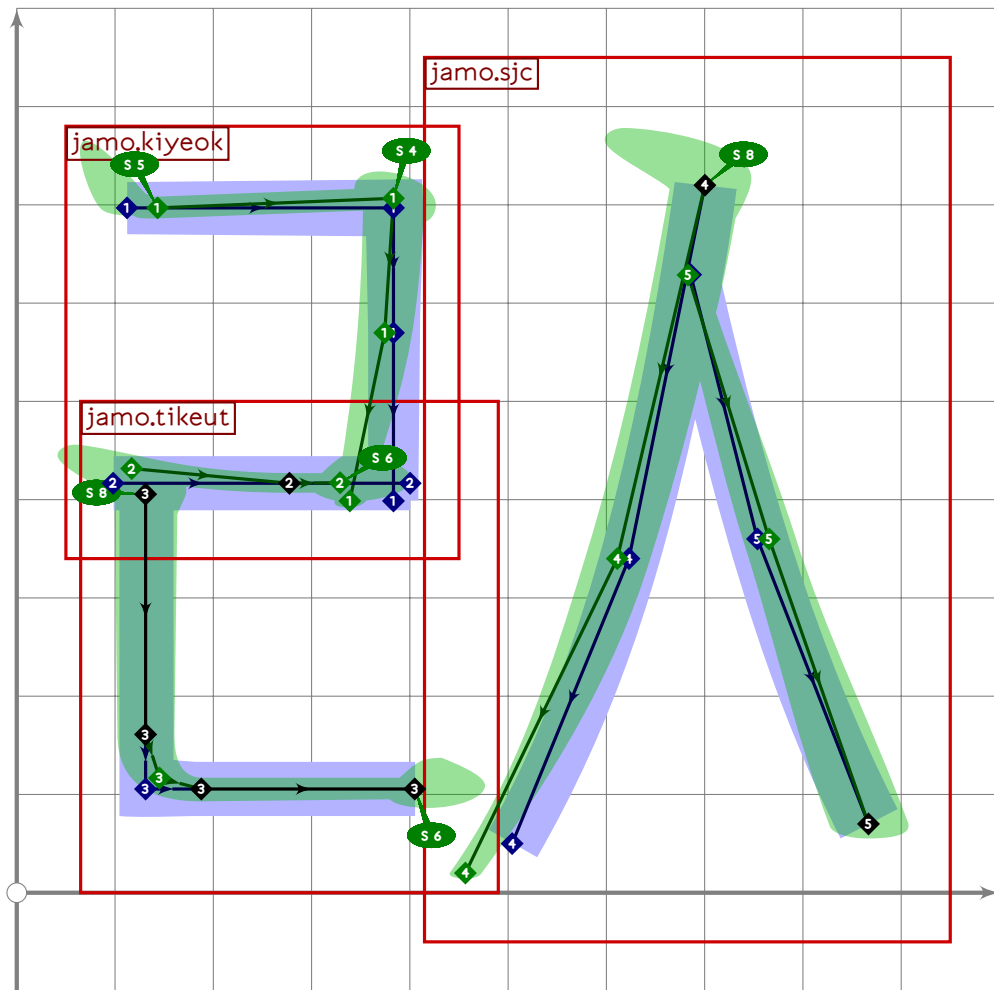
```



```

110 % hangul rieul-pieup
111 begintsuglyph("uni313C",60);
112 hangul.combine.lr(105,107)(whatever,identity,identity);
113 tsu_render;
114 endsuglyph;
115

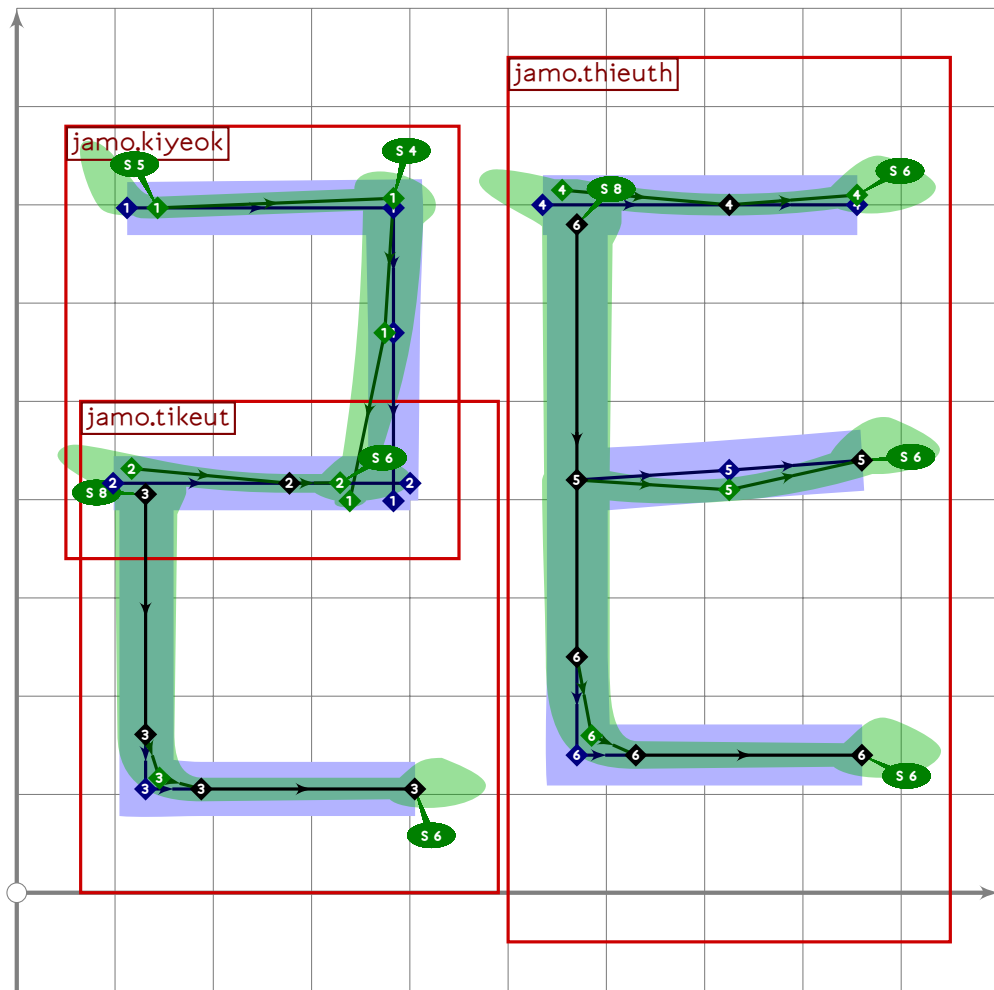
```



```

116 % hangul rieul-sios
117 begint Suglyph("uni313D";61);
118 hangul.combine.lr(105,109)(whatever;identity;identity);
119 tsu_render;
120 endsuglyph;
121

```

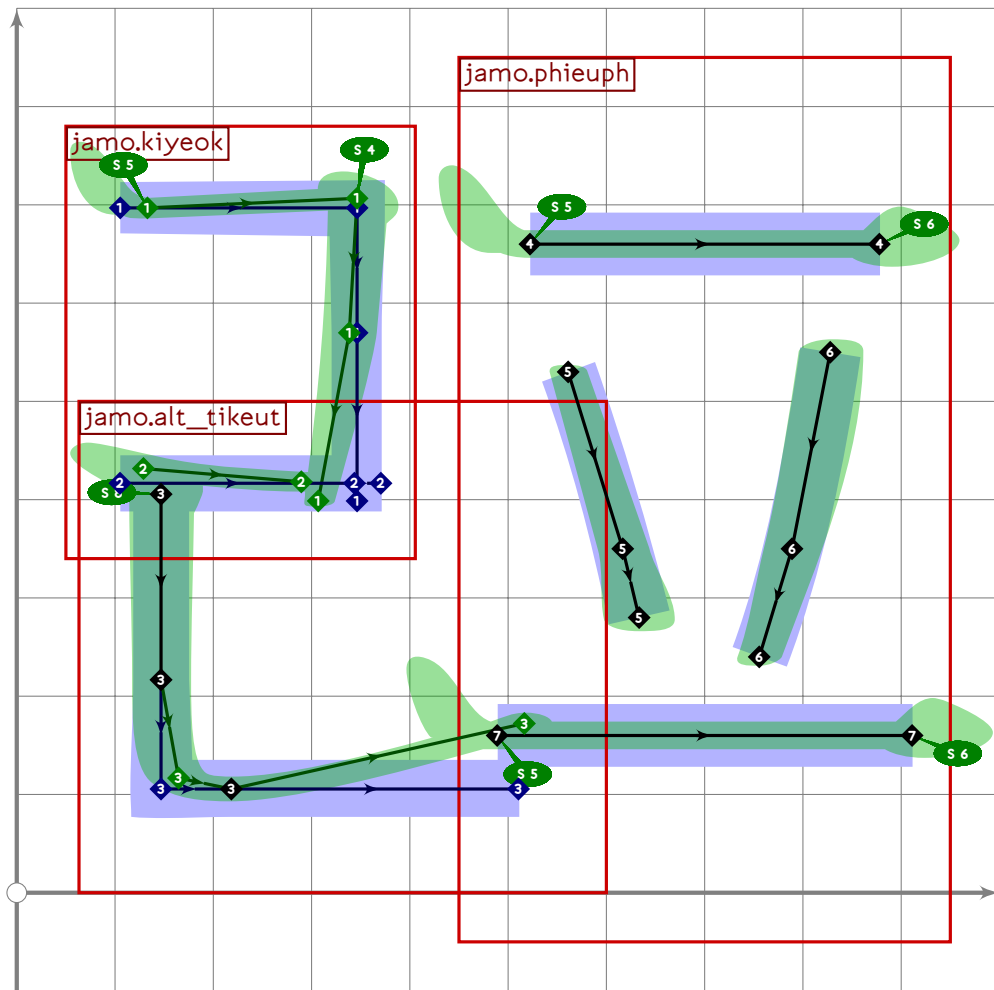


```

122 % hangul rieu-thieuth
123 beginsuglyph("uni313E",62);
124 hangul.combine.lr(105,116)(whatever,identity,identity);
125 tsu_render;
126 endsuglyph;
127

```

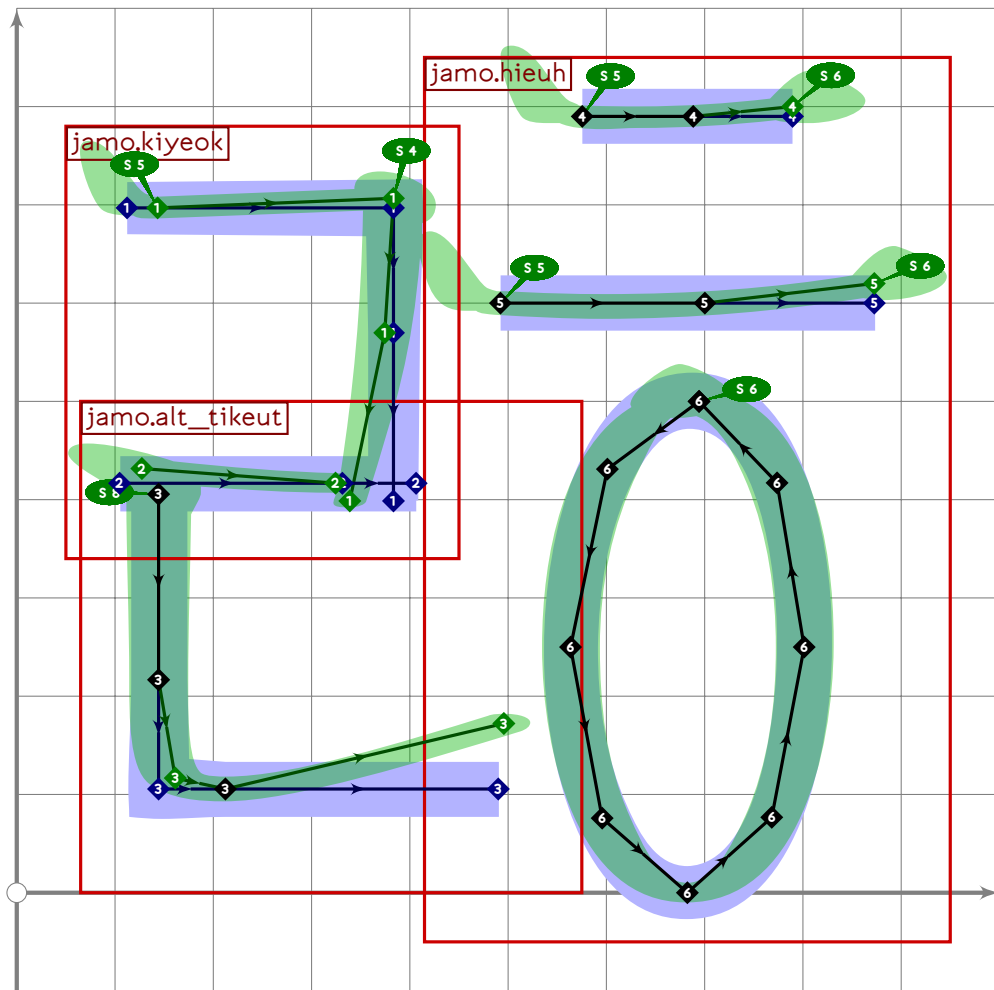




```

128 % hangul rieul-phieuph
129 begintsuglyph("uni313F",63);
130 hangul.combine.lr(205,117)(whatever,identity,identity);
131 tsu_render;
132 endsuglyph;
133

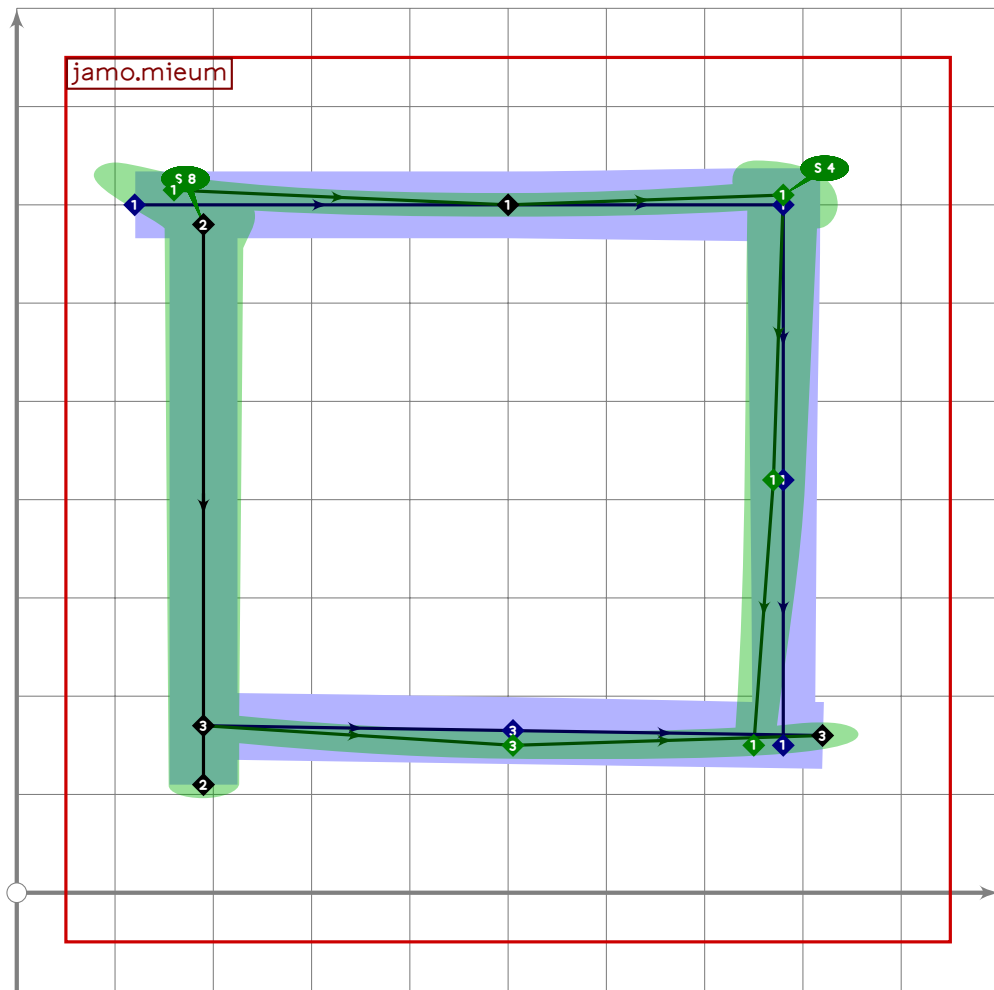
```



```

134 % hangul rioul-hieuh
135 begint Suglyph("uni3140",64);
136 hangul.combine.lr(205,118)(whatever,identity,identity);
137 tsu_render;
138 endsuglyph;
139

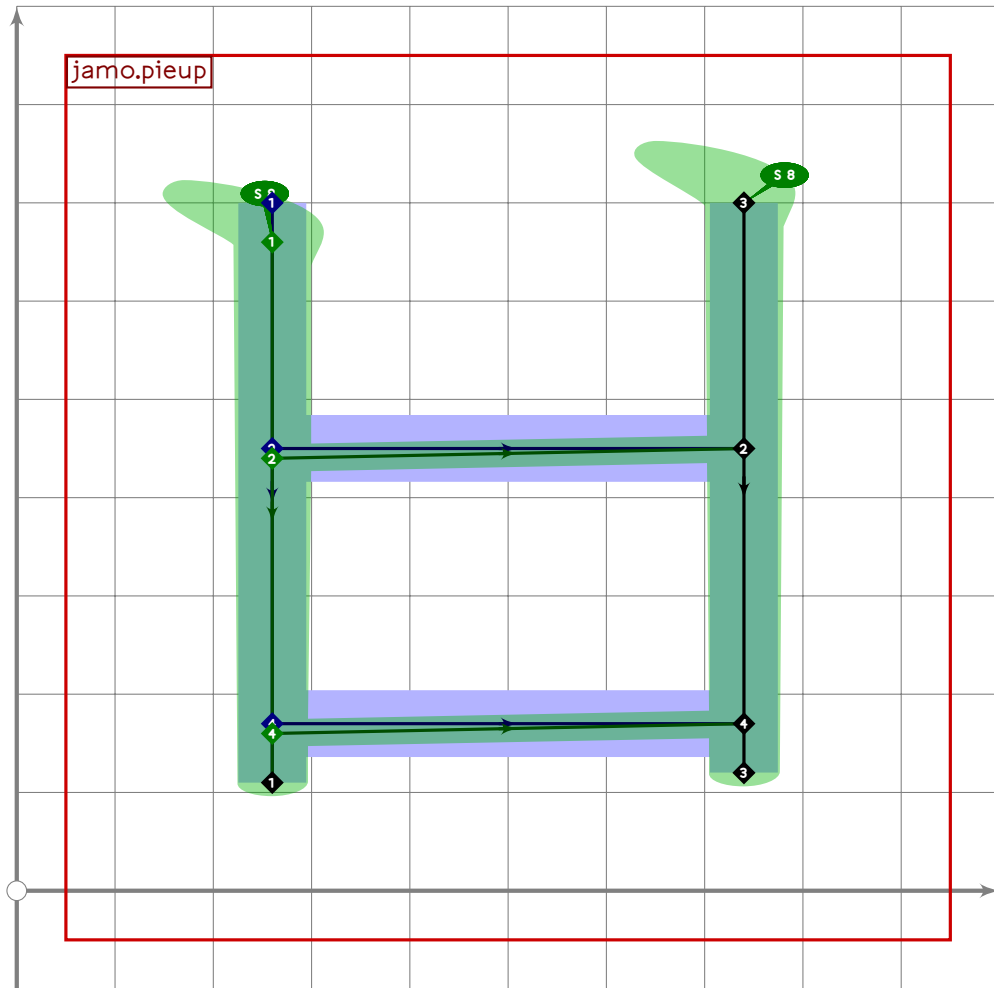
```



```

140 % hangul mieum
141 begint Suglyph("uni3141",65);
142 hangul.jamo.mieum(whatever,identity,identity);
143 tsu_render;
144 endsuglyph;
145

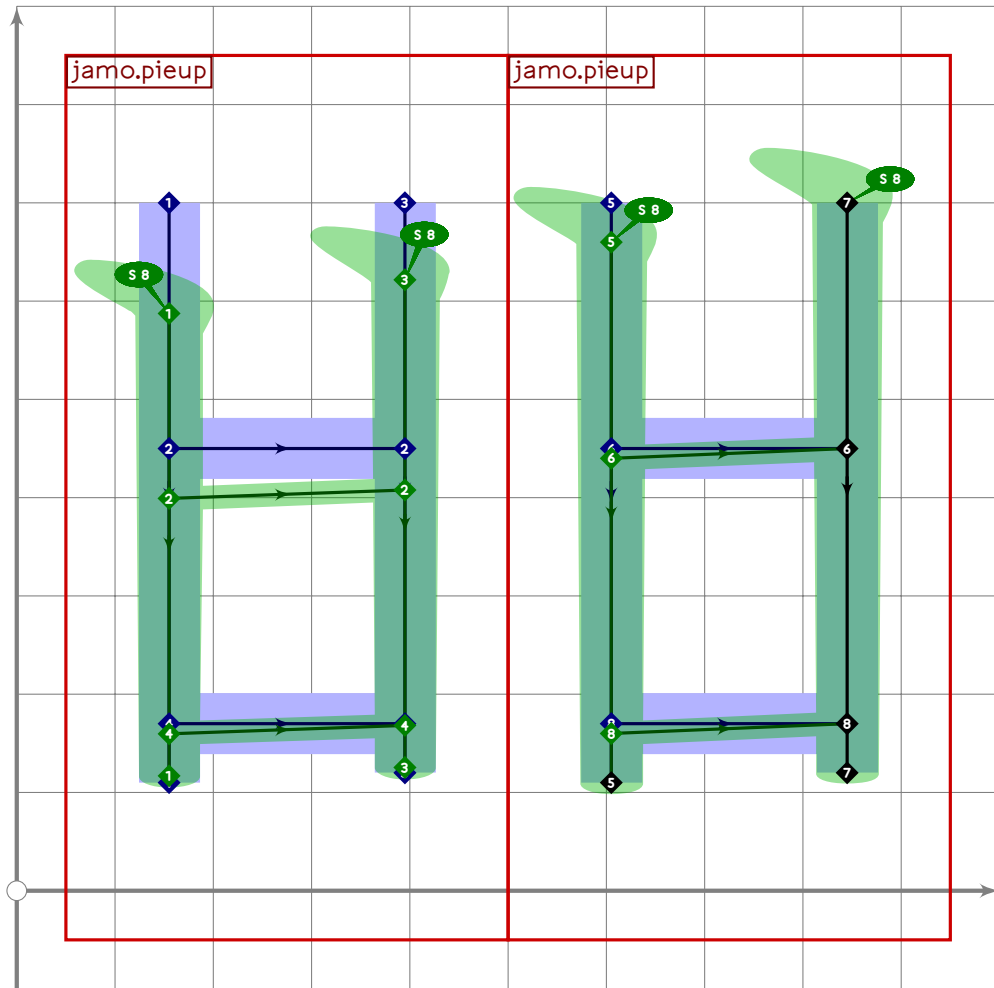
```



```

146 % hangul pieup
147 begint Suglyph("uni3142",66);
148 hangul.jamou.pieup(whatever,identity,identity);
149 tsu_render;
150 endsuglyph;
151

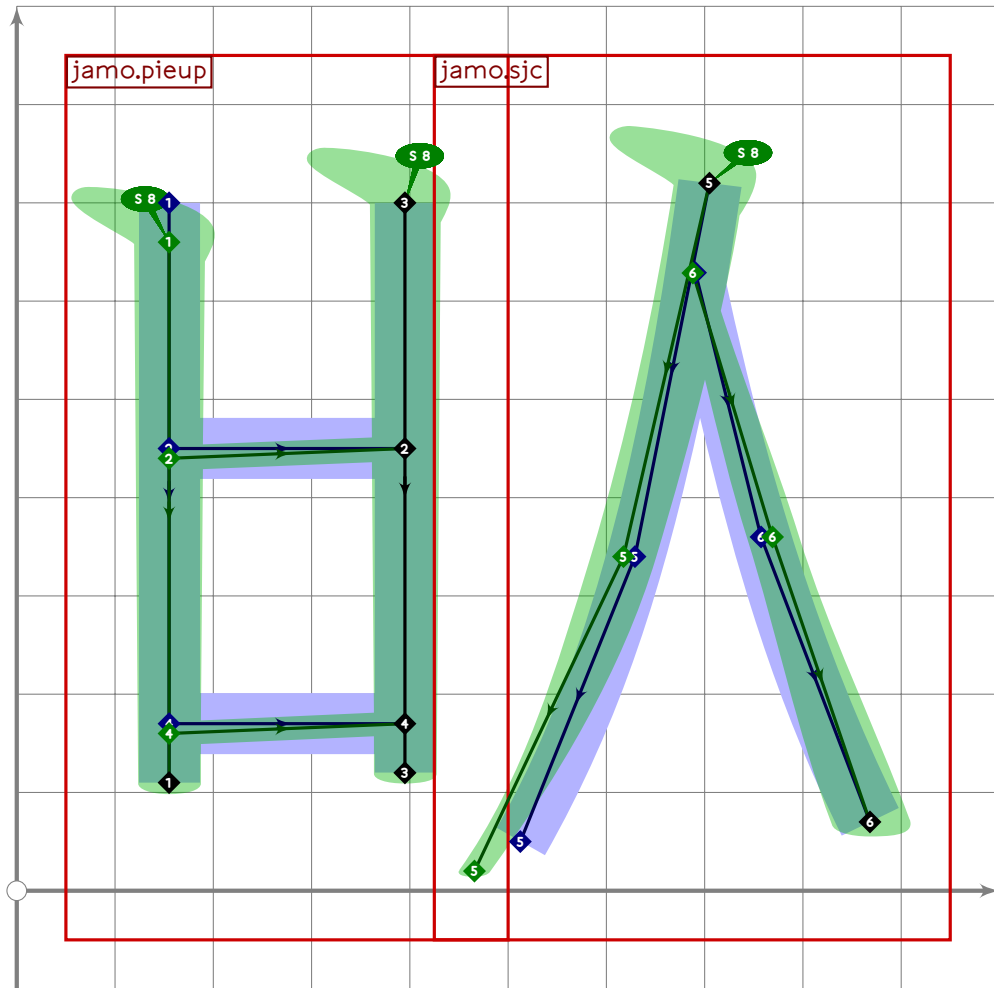
```



```

152 % hangul ssangpieup
153 begint Suglyph("uni3143",67);
154 hangul.combine.lr(207,107)(whatever,identity,identity);
155 tsu_render;
156 endsuglyph;
157

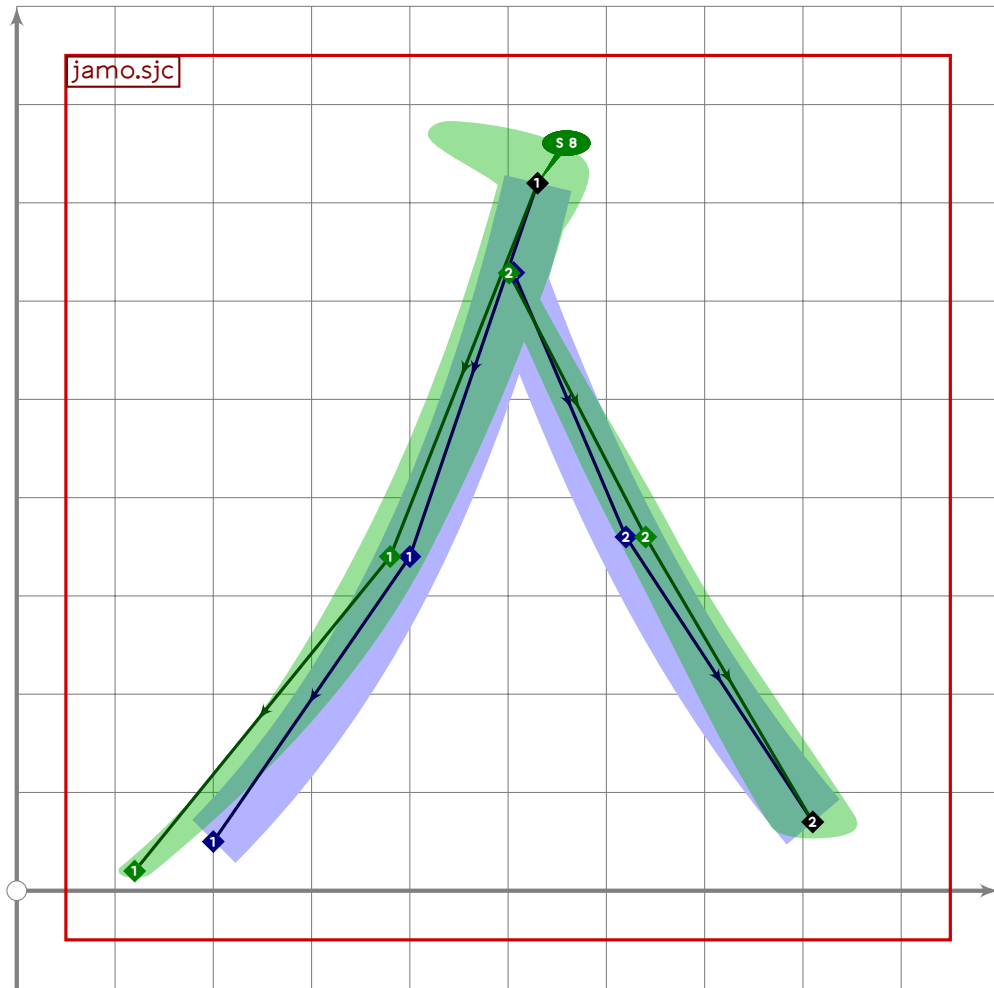
```



```

158 % hangul pieup-sios
159 begint Suglyph("uni3144",68);
160 hangul.combine.lr(107,109)(whatever,identity,identity);
161 tsu_render;
162 endsuglyph;
163

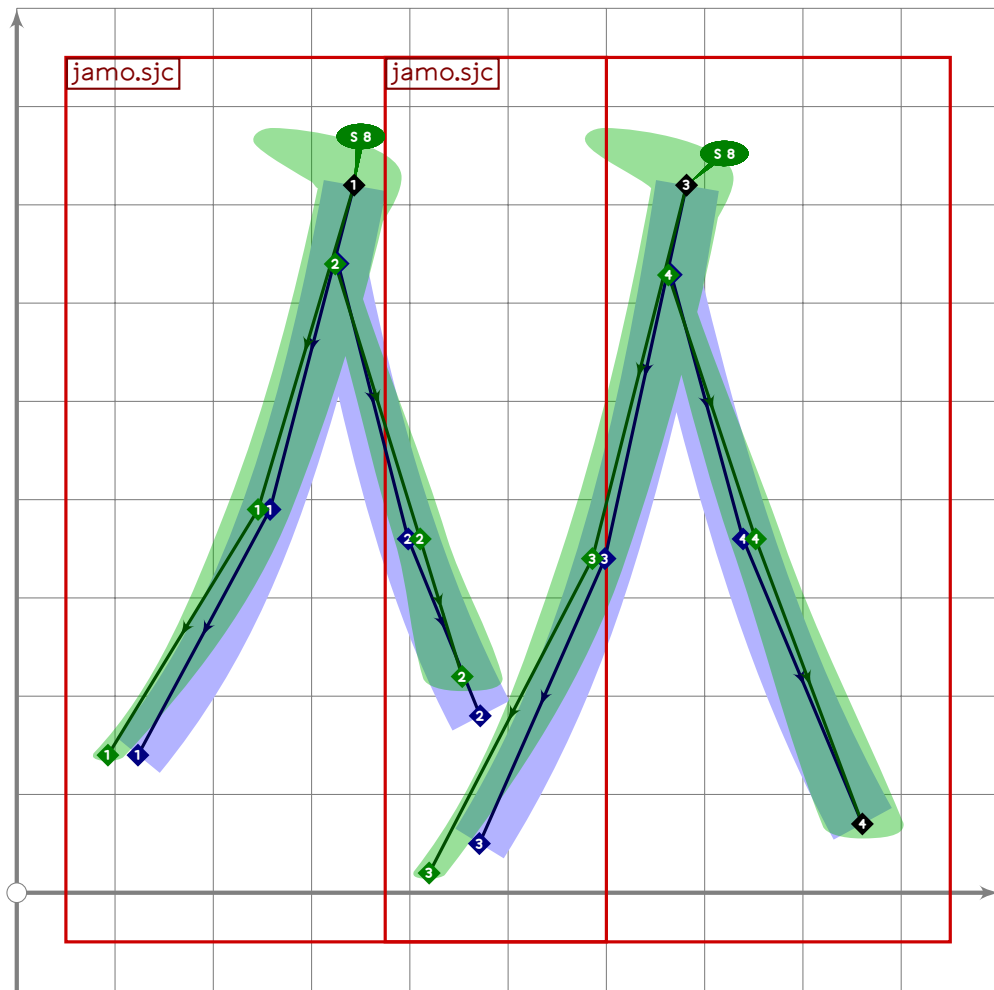
```



```

164 % hangul sios
165 begint Suglyph("uni3145",69);
166 hangul.jam'o.sjc(0,0,false)(whatever,identity;identity);
167 tsu_render;
168 endsuglyph;
169

```

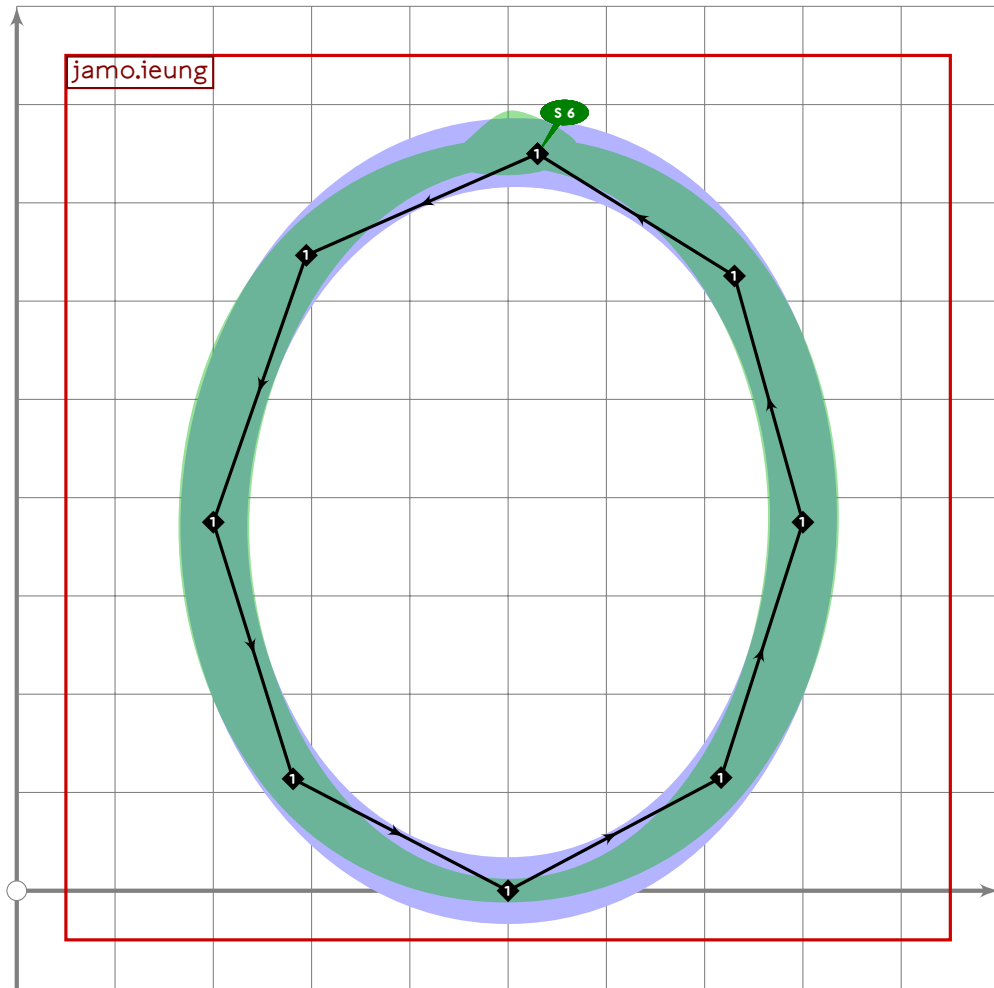


```

170 % hangul ssangsios
171 begintsuglyph("uni3146";70);
172 hangul.combine.lr(209,109)(whatever;identity;identity);
173 tsu_render;
174 endsuglyph;
175

```

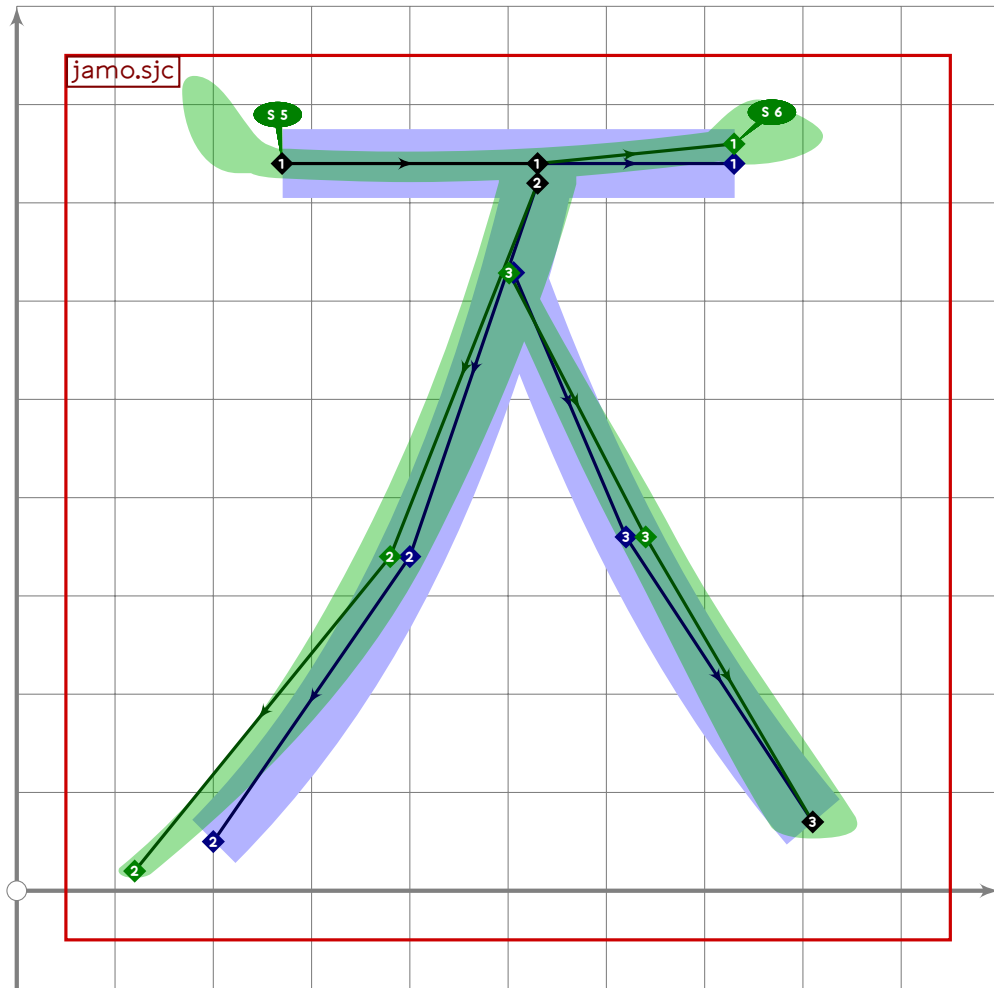




```

176 % hangul ieung
177 begint Suglyph("uni3147";71);
178 hangul.jamo.ieung(whatever;identity,identity);
179 tsu_render;
180 endsuglyph;
181

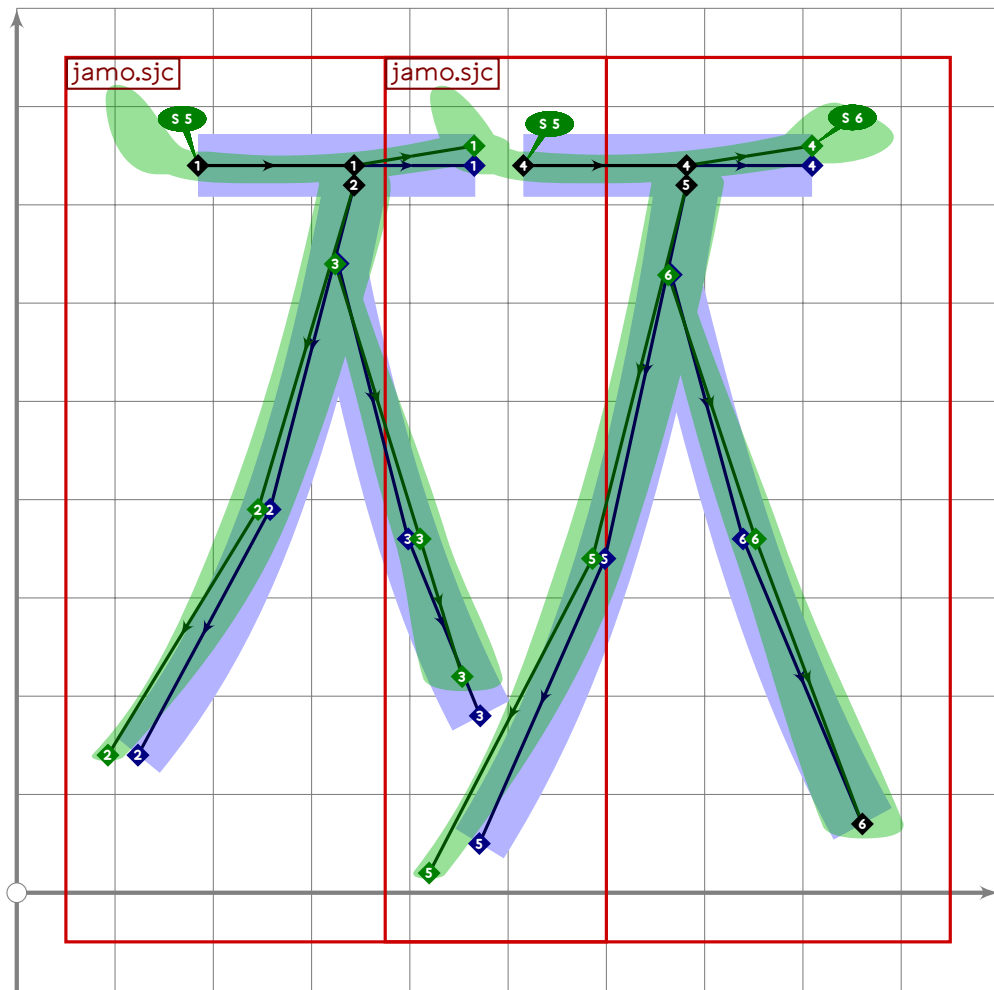
```



```

182 % hangul cieuc
183 begint Suglyph("uni3148";72);
184 hangul.jamo.sjc(1,0,false)(whatever;identity,identity);
185 tsu_render;
186 endsuglyph;
187

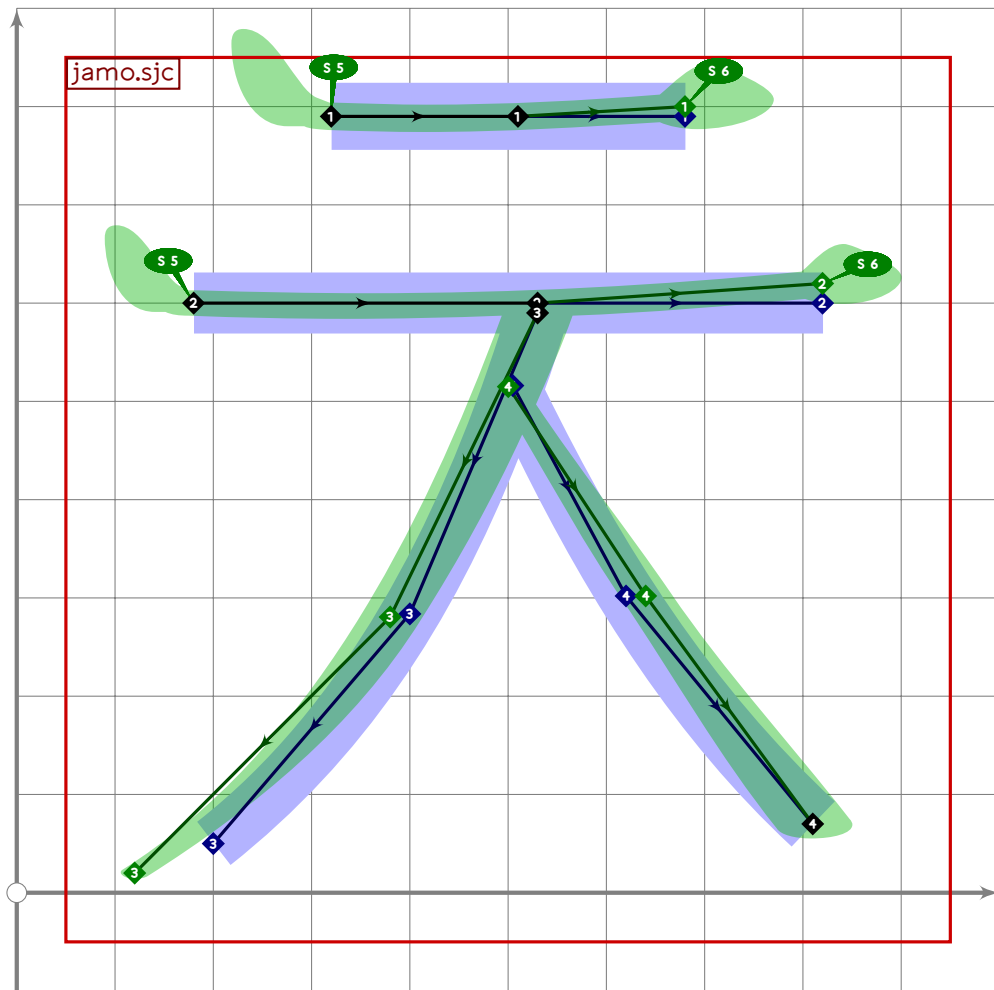
```



```

188 % hangul ssangcieuc
189 begint Suglyph("uni3149";73);
190 hangul.combine.lr(212,112)(whatever;identity;identity);
191 tsu_render;
192 endsuglyph;
193

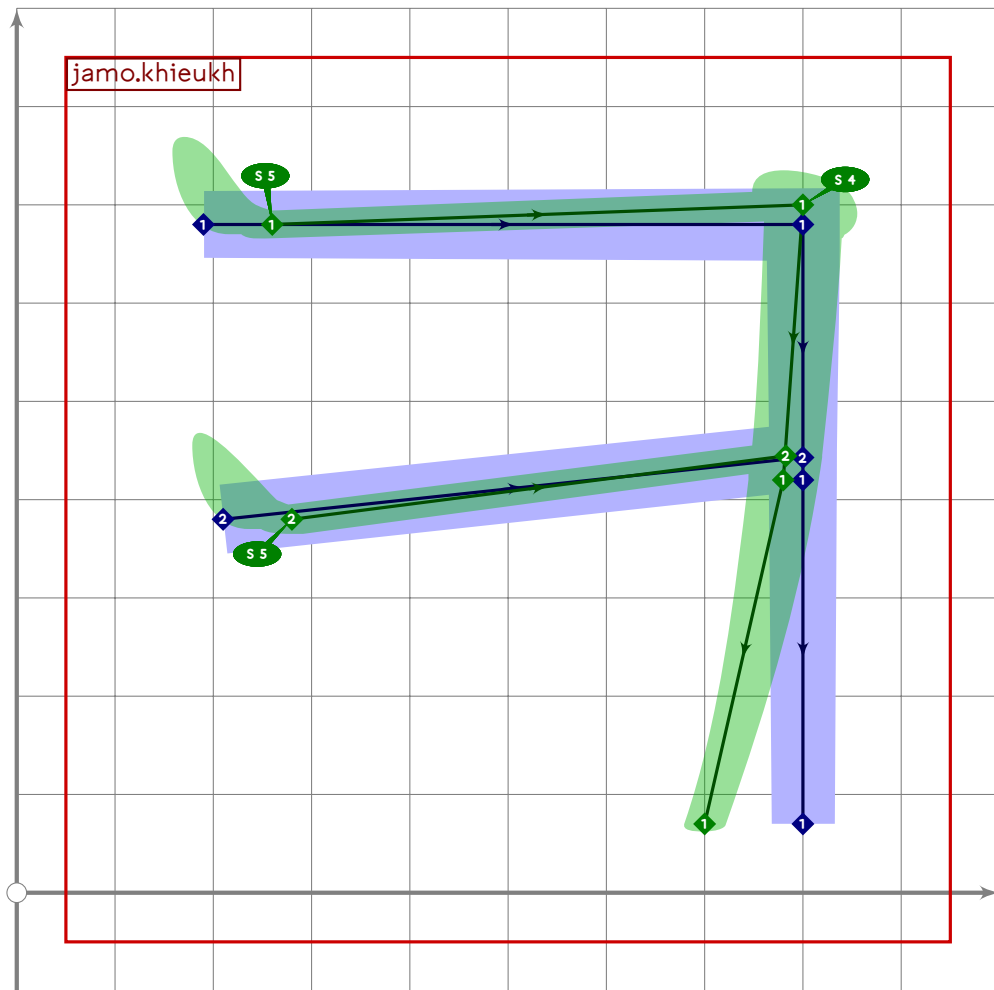
```



```

194 % hangul chieuch
195 begint Suglyph("uni314A";74);
196 hangul.jamo.sjc(2,0,false)(whatever,identity,identity);
197 tsu_render;
198 endtsuglyph;
199

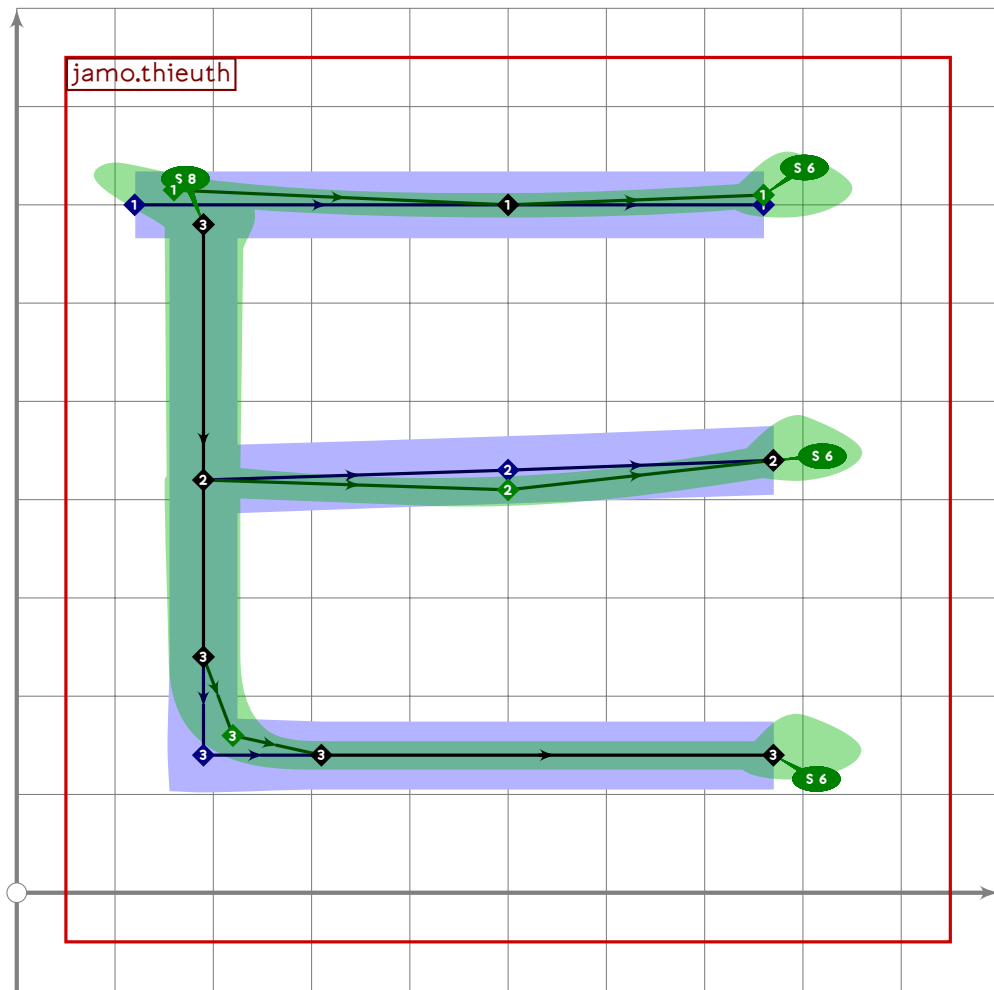
```



```

200 % hangul khieukh
201 begint Suglyph("uni314B";75);
202 hangul.jamo.khieukh(whatever,identity,identity);
203 tsu_render;
204 endsuglyph;
205

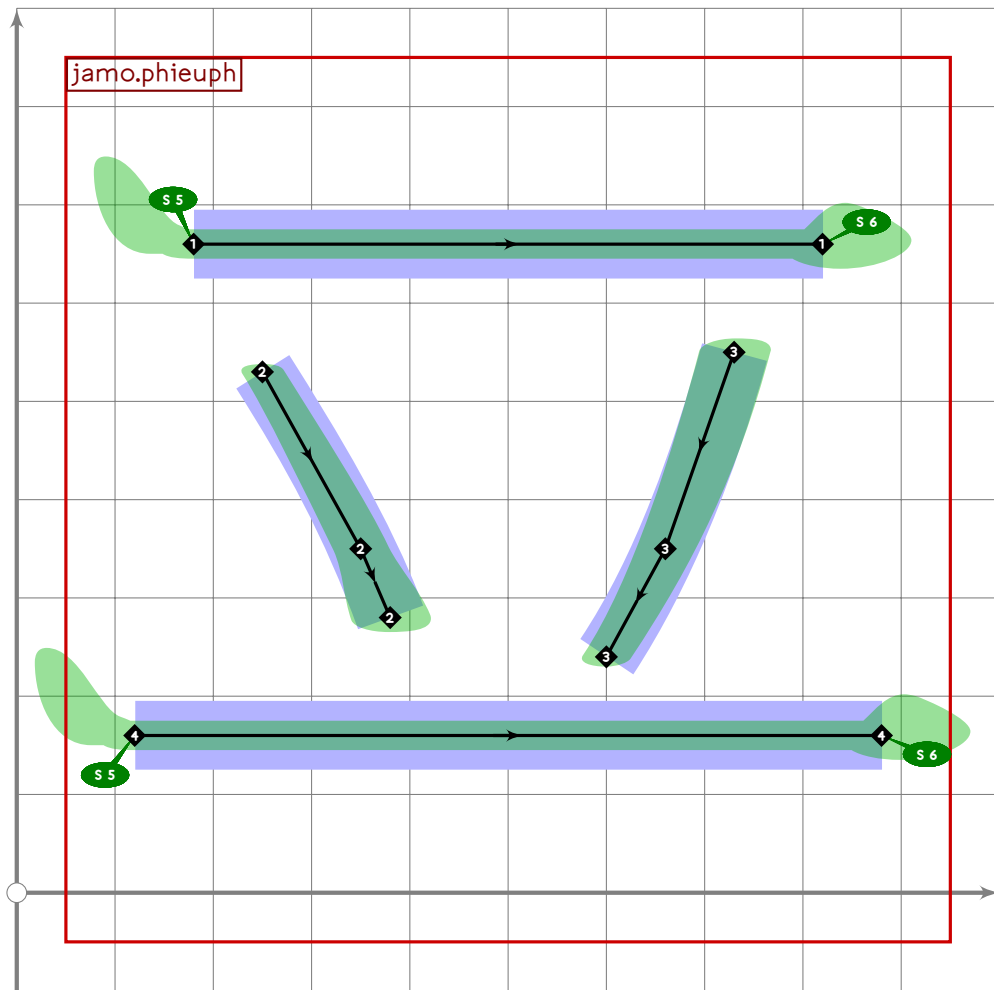
```



```

206 % hangul thieuth
207 beginsuglyph("uni314C";76);
208 hangul.jamo.thieuth(whatever,identity,identity);
209 tsu_render;
210 endsuglyph;
211

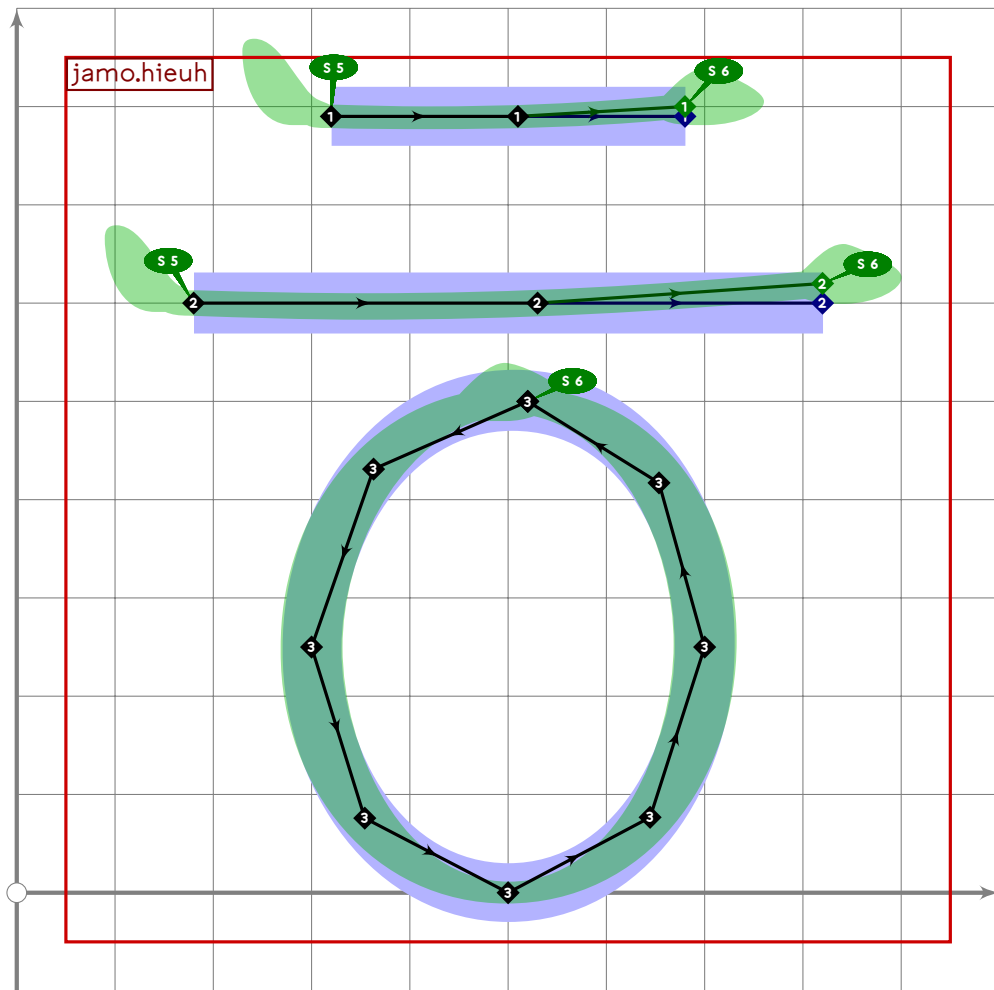
```



```

212 % hangul phieuph
213 begint Suglyph("uni314D";77);
214 hangul.jamo.phieuph(whatever;identity;identity);
215 tsu_render;
216 endsuglyph;
217

```

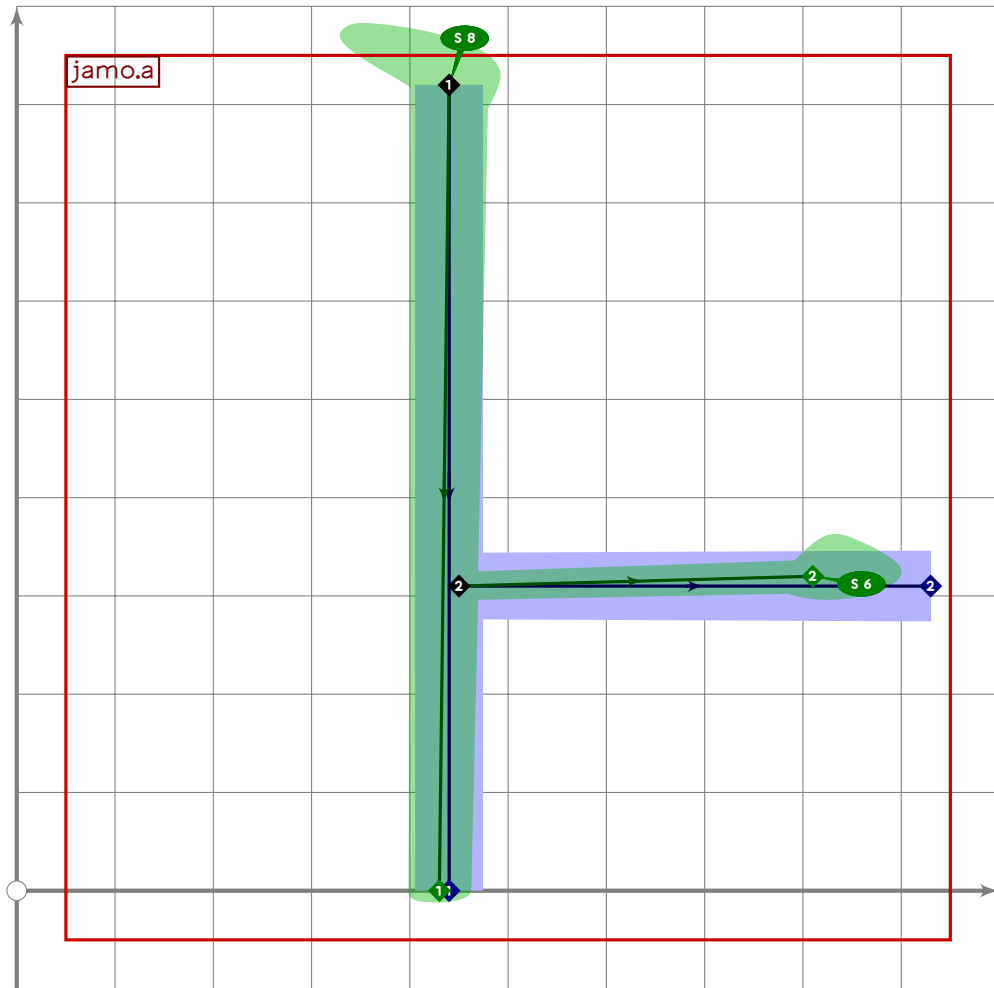


```

218 % hangul hieuh
219 begintsuglyph("uni314E";78);
220 hangul.jamo.hieuh(whatever;identity,identity);
221 tsu_render;
222 endsuglyph;
223

```

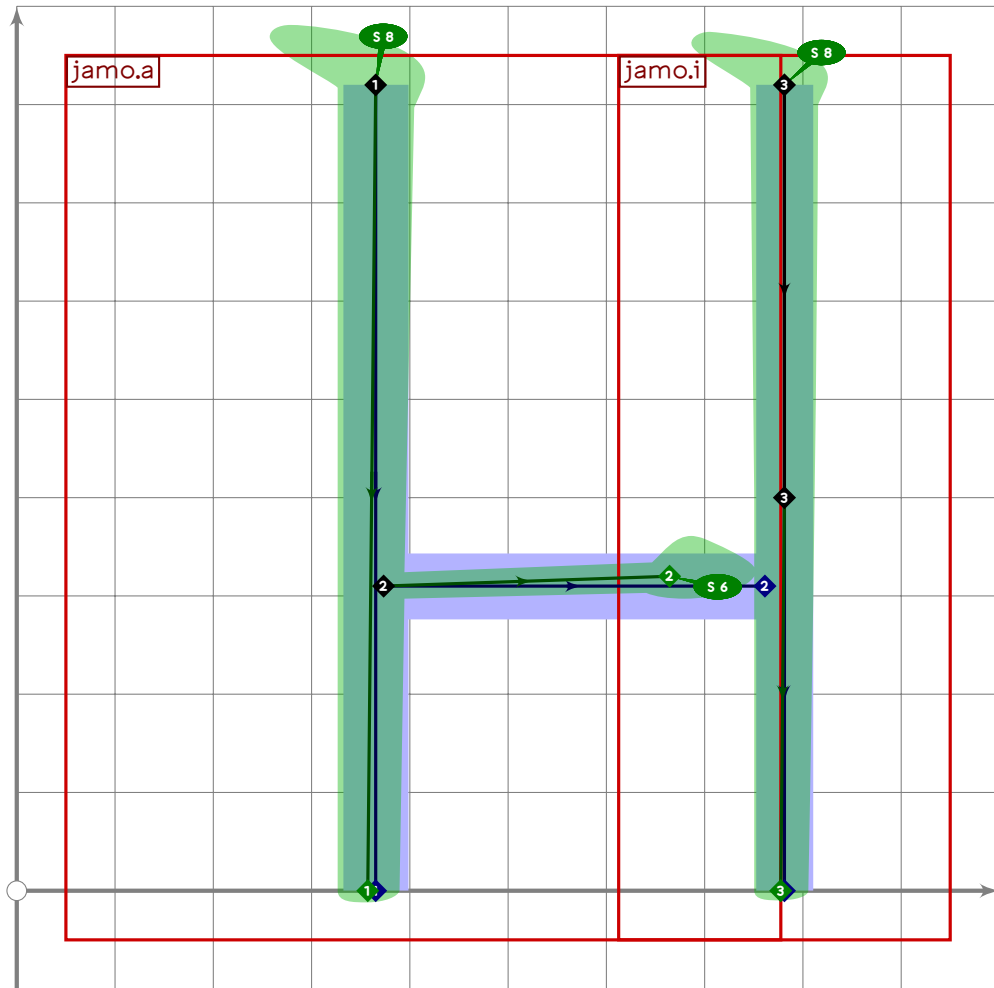




```

224 % hangul a
225 begint Suglyph("uni314F";79);
226 hangul.jamo.a(whatever,identity,identity);
227 tsu_render;
228 endsuglyph;
229

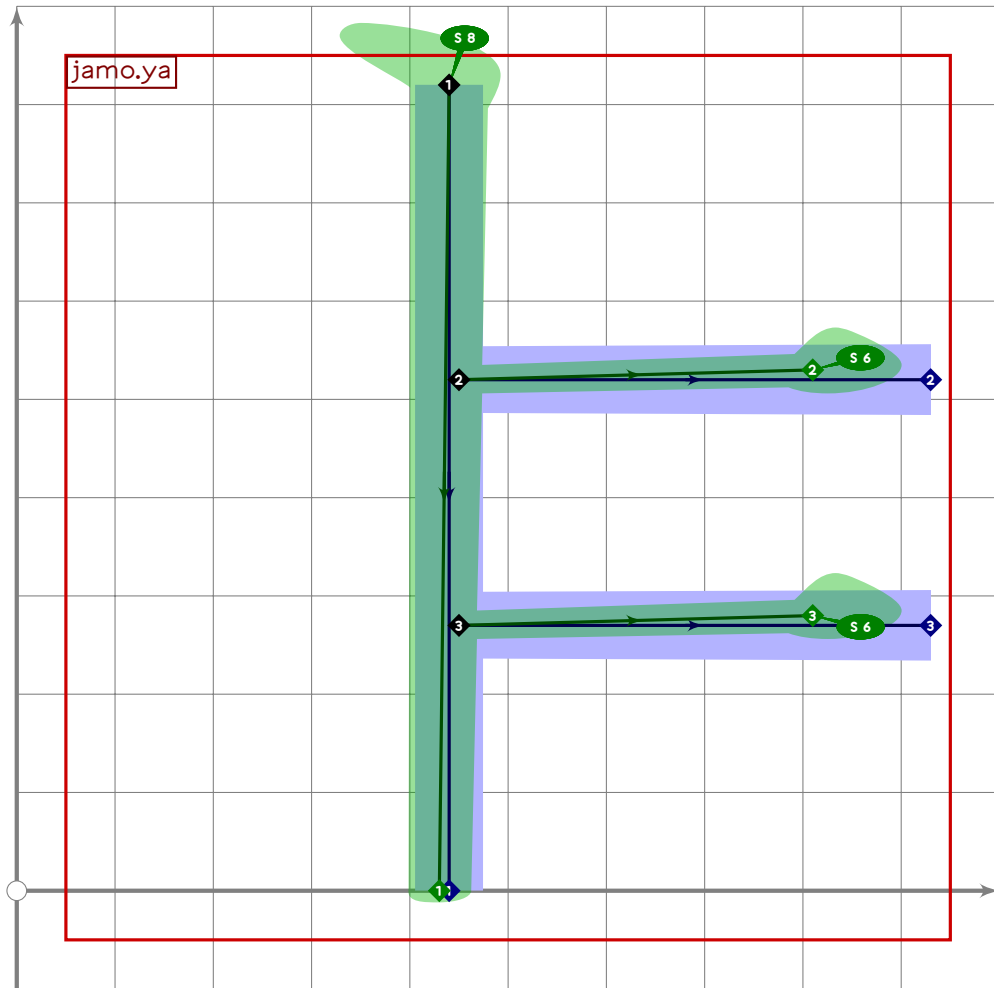
```



```

230 % hangul ae
231 begint Suglyph("uni3150";80);
232 hangul.combine.lr(300,320)(whatever,identity,identity);
233 tsu_render;
234 endtsuglyph;
235

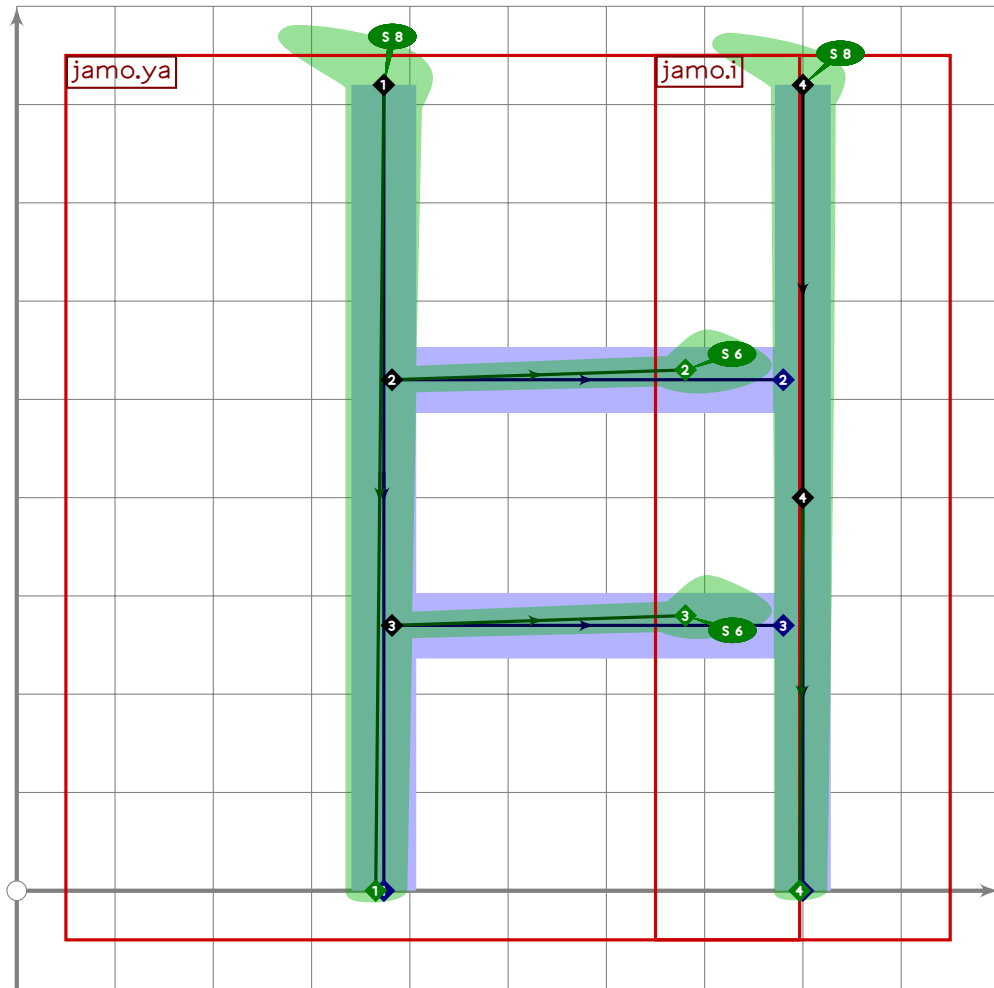
```



```

236 % hangul ya
237 begint Suglyph("uni3151",81);
238 hangul.jamo.ya(whatever,identity,identity);
239 tsu_render;
240 endtsuglyph;
241

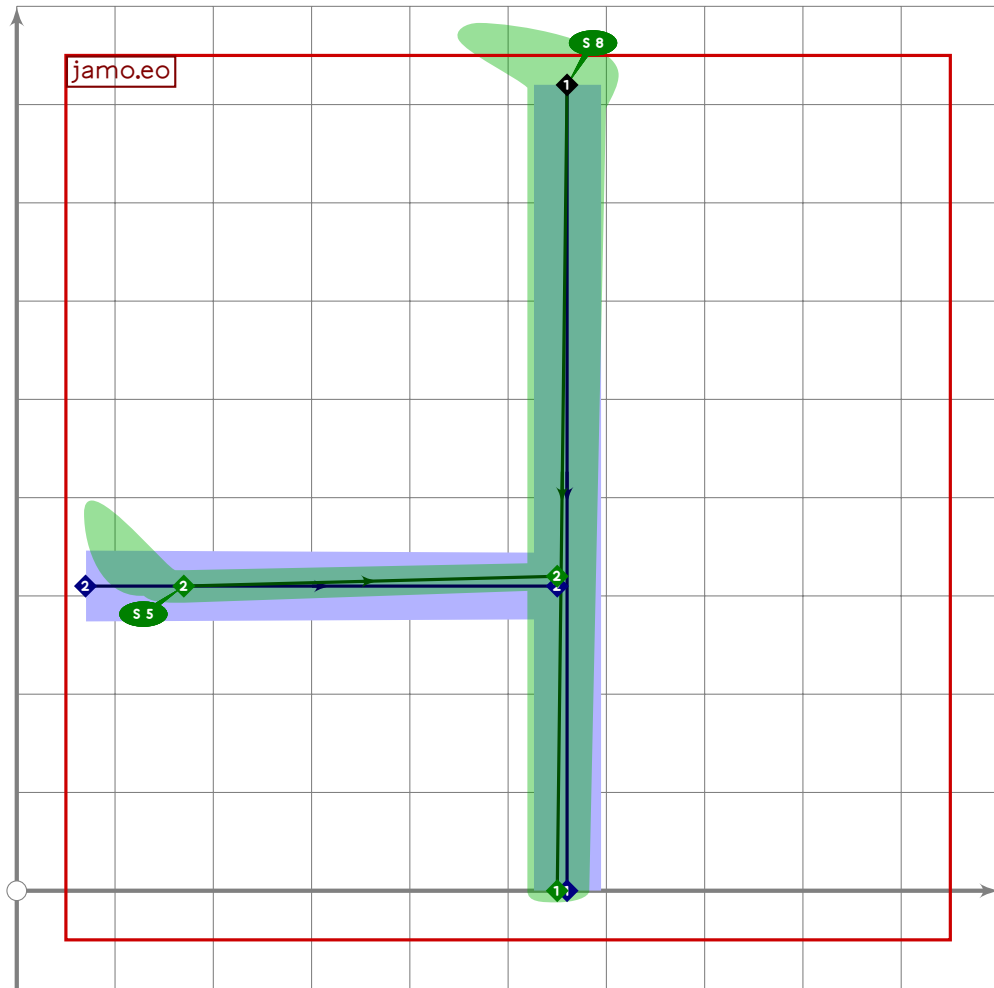
```



```

242 % hangul yae
243 begint Suglyph("uni3152",82);
244 hangul.combine.lr(302,320)(whatever,identity,identity);
245 tsu_render;
246 endtsuglyph;
247

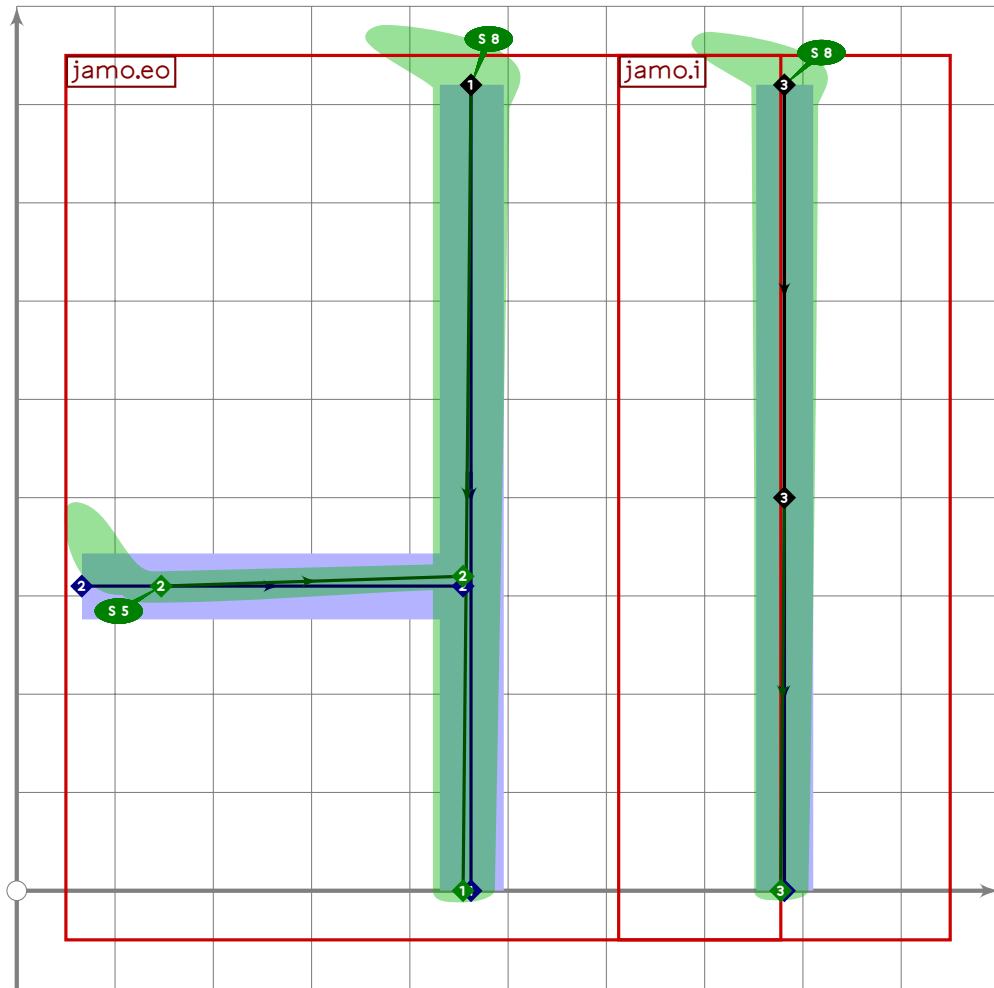
```



```

248 % hangul eo
249 begint Suglyph("uni3153",83);
250 hangul.jamo.eo(whatever,identity,identity);
251 tsu_render;
252 endsuglyph;
253

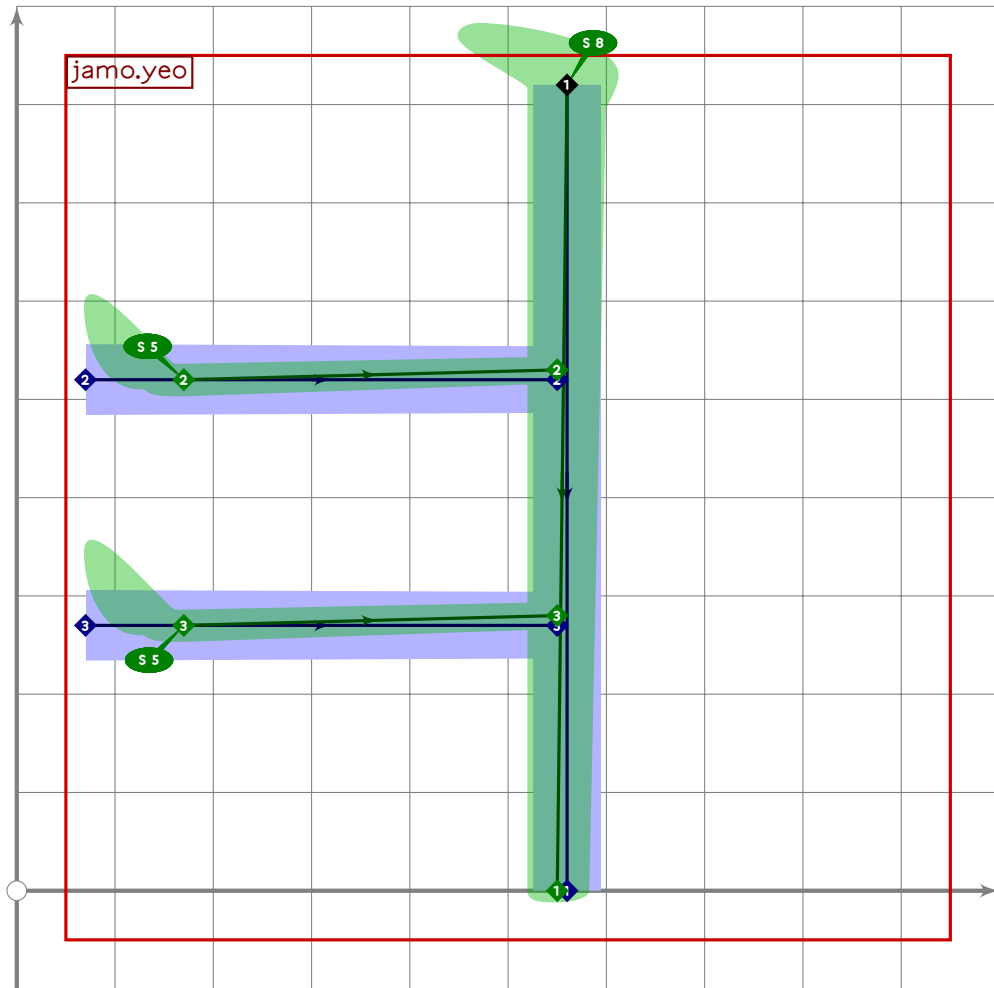
```



```

254 % hangul e
255 begintsuglyph("uni3154",84);
256 hangul.combine.lr(304,320)(whatever,identity,identity);
257 tsu_render;
258 endsuglyph;
259

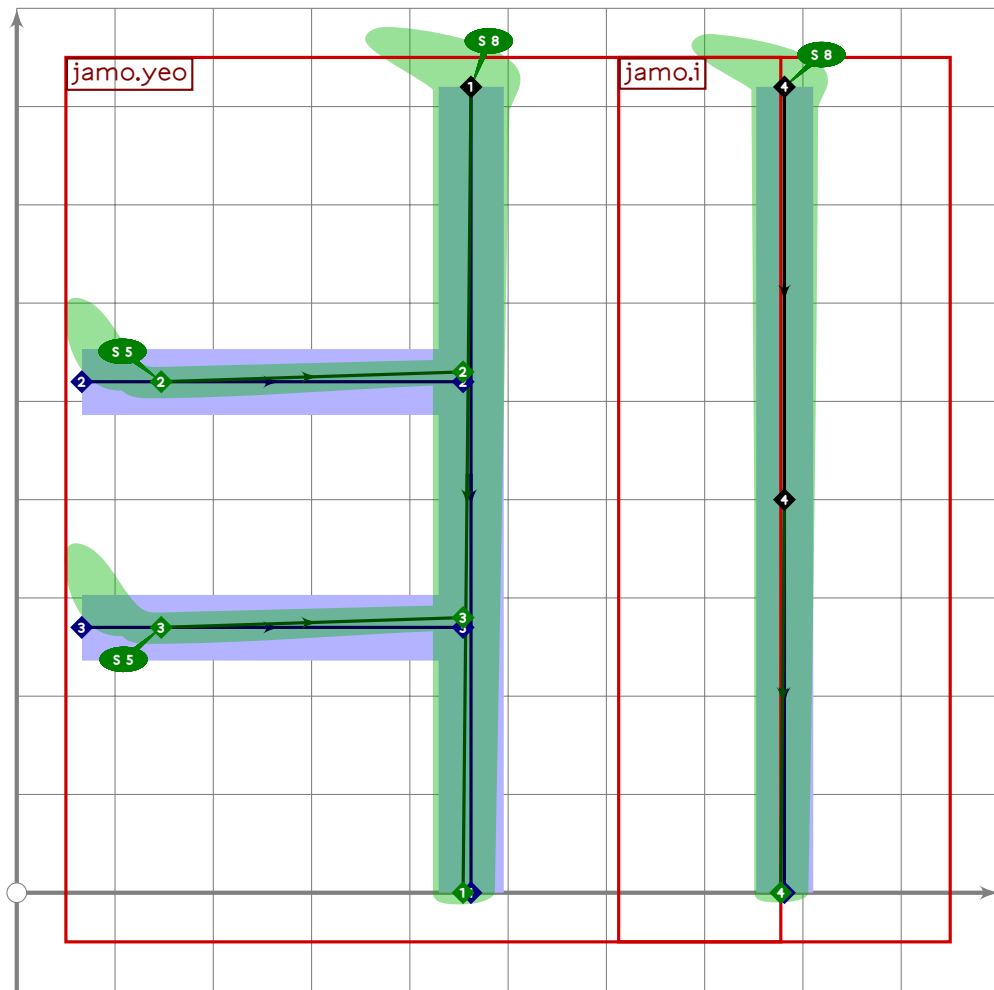
```



```

260 % hangul yeo
261 begint Suglyph("uni3155",85);
262 hangul.jamo.yeo(whatever,identity,identity);
263 tsu_render;
264 endsuglyph;
265

```

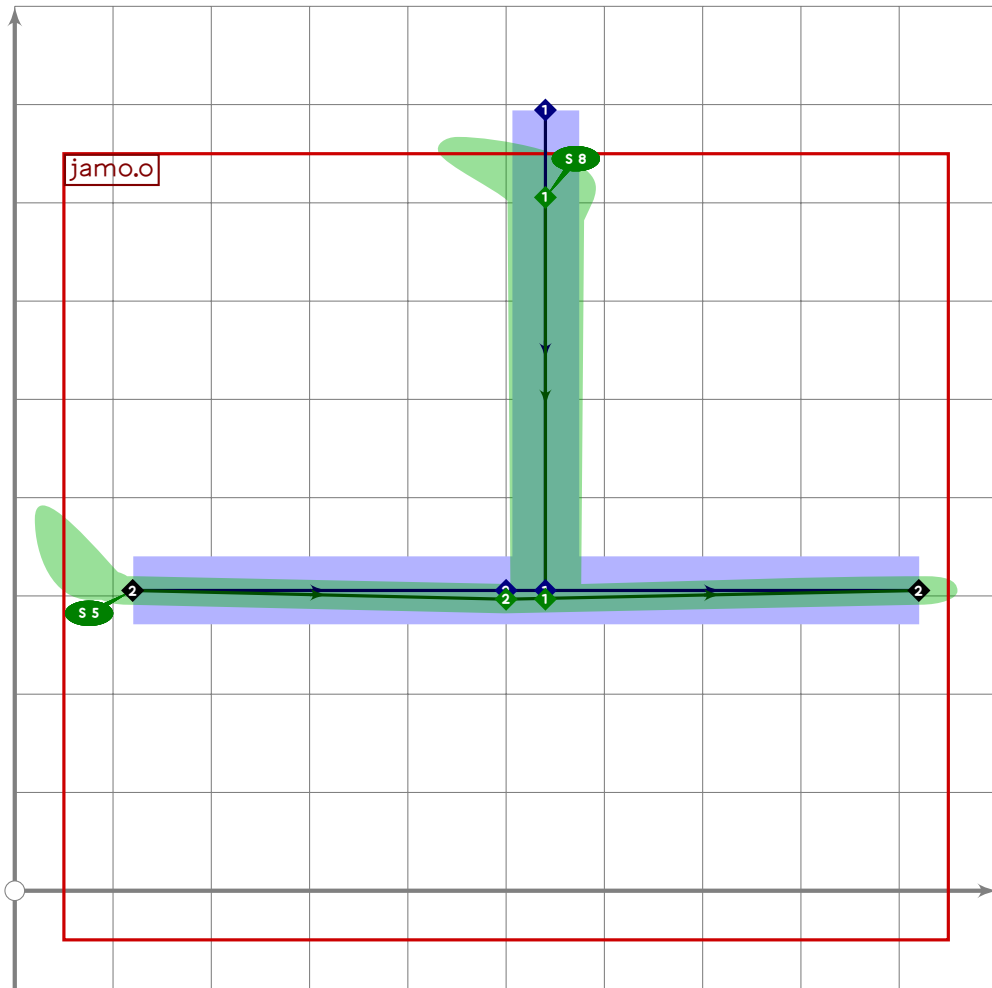


```

266 % hangul yeo
267 begintsuglyph("uni3156",86);
268 hangul.combine.lr(306,320)(whatever,identity,identity);
269 tsu_render;
270 endsuglyph;
271

```

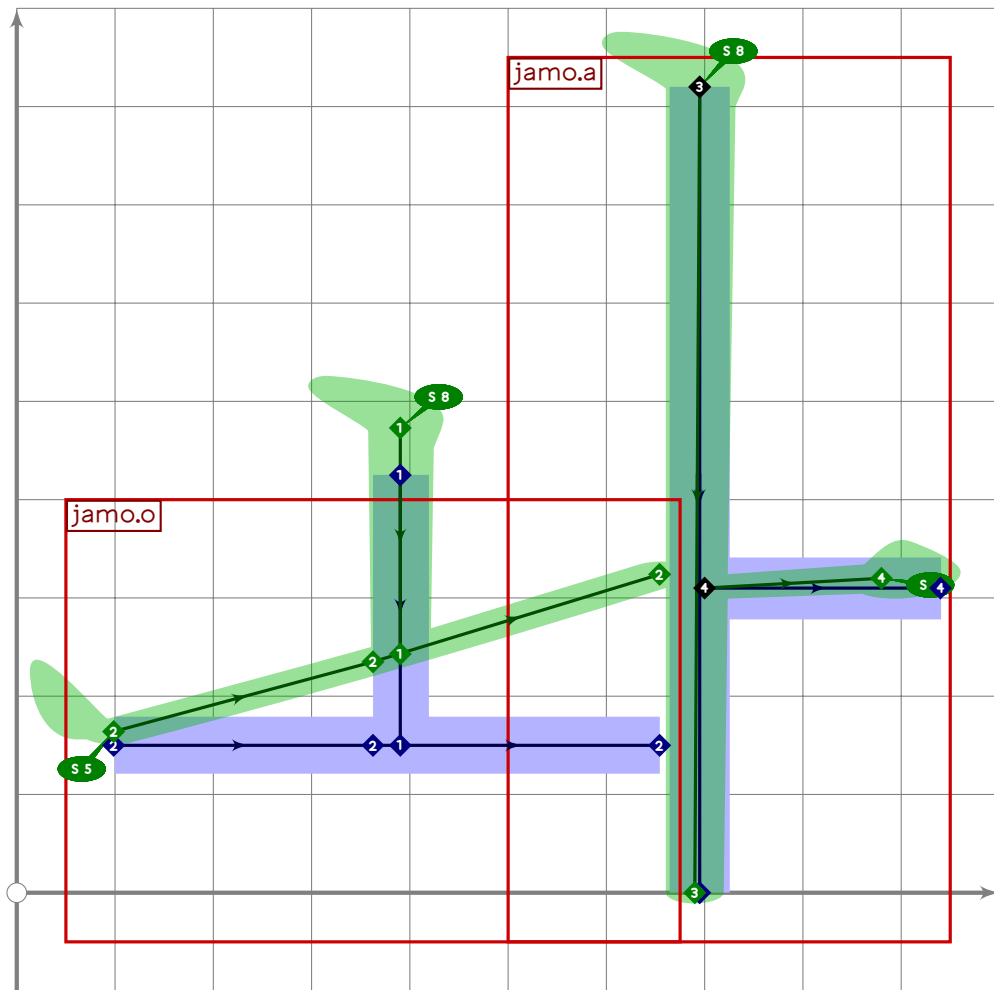




```

272 % hangul o
273 begint Suglyph("uni3157",87);
274 hangul.jamo.o(whatever,identity,identity);
275 tsu_render;
276 endsuglyph;
277

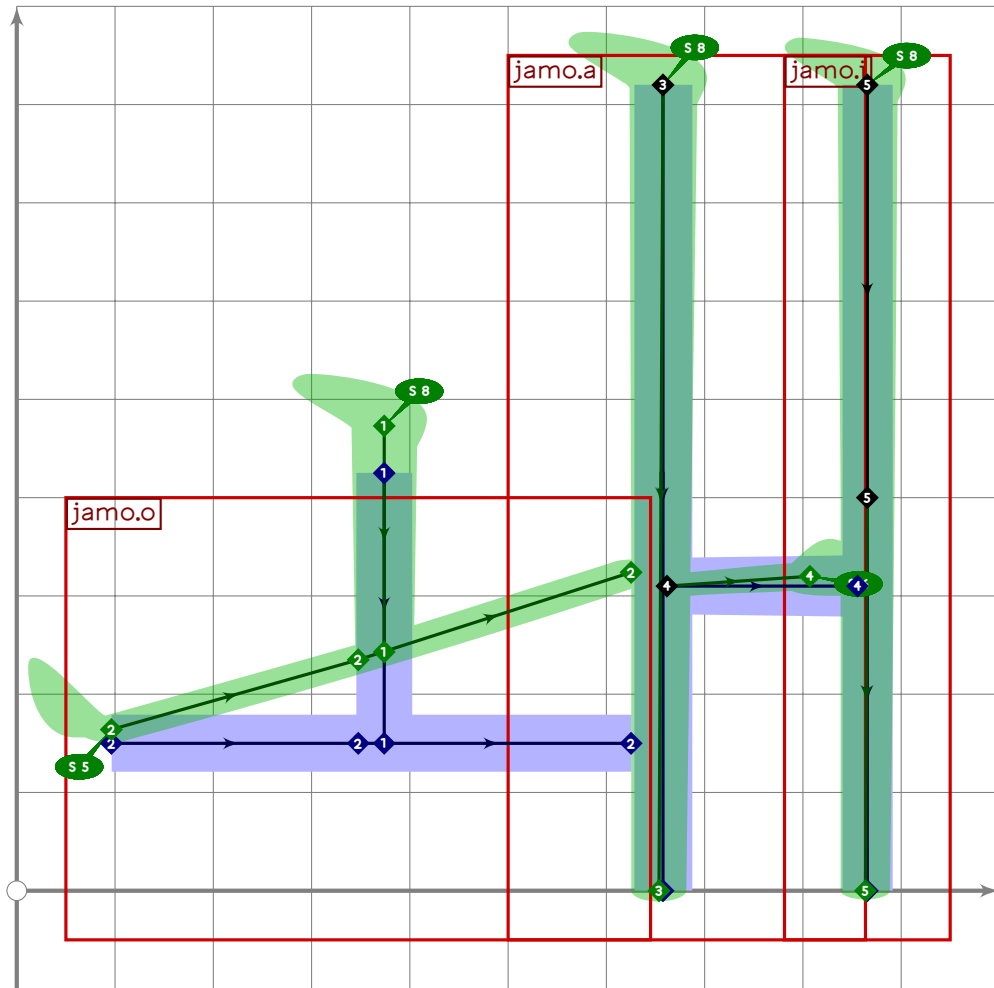
```



```

278 % hangul wa
279 begint Suglyph("uni3158";88);
280 hangul.combine.lr(308,300)(309,hxf((500,400),(950,-50)),identity);
281 tsu_render;
282 endsuglyph;
283

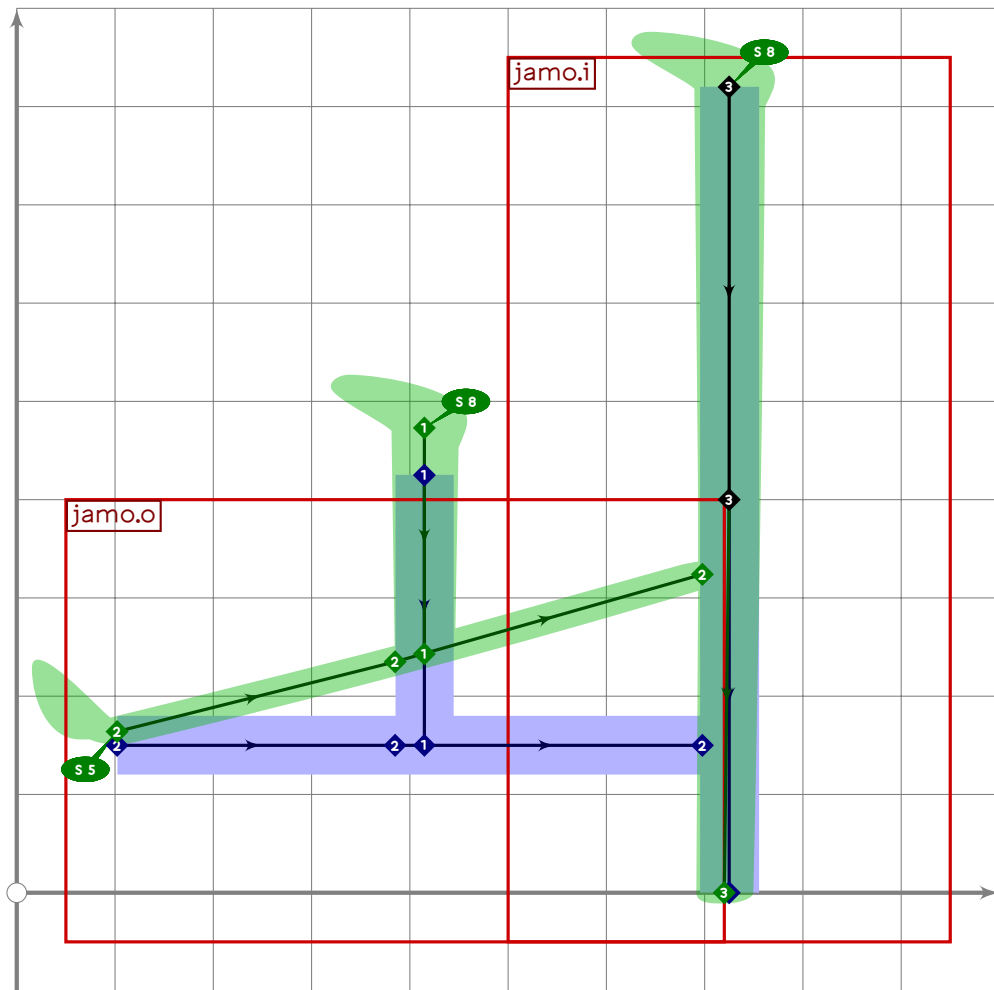
```



```

284 % hangul wae
285 begint Suglyph("uni3159",89);
286 hangul.combine.lr(308,301)(310,hxf((500,400),(950,-50)),identity);
287 tsu_render;
288 endsuglyph;
289

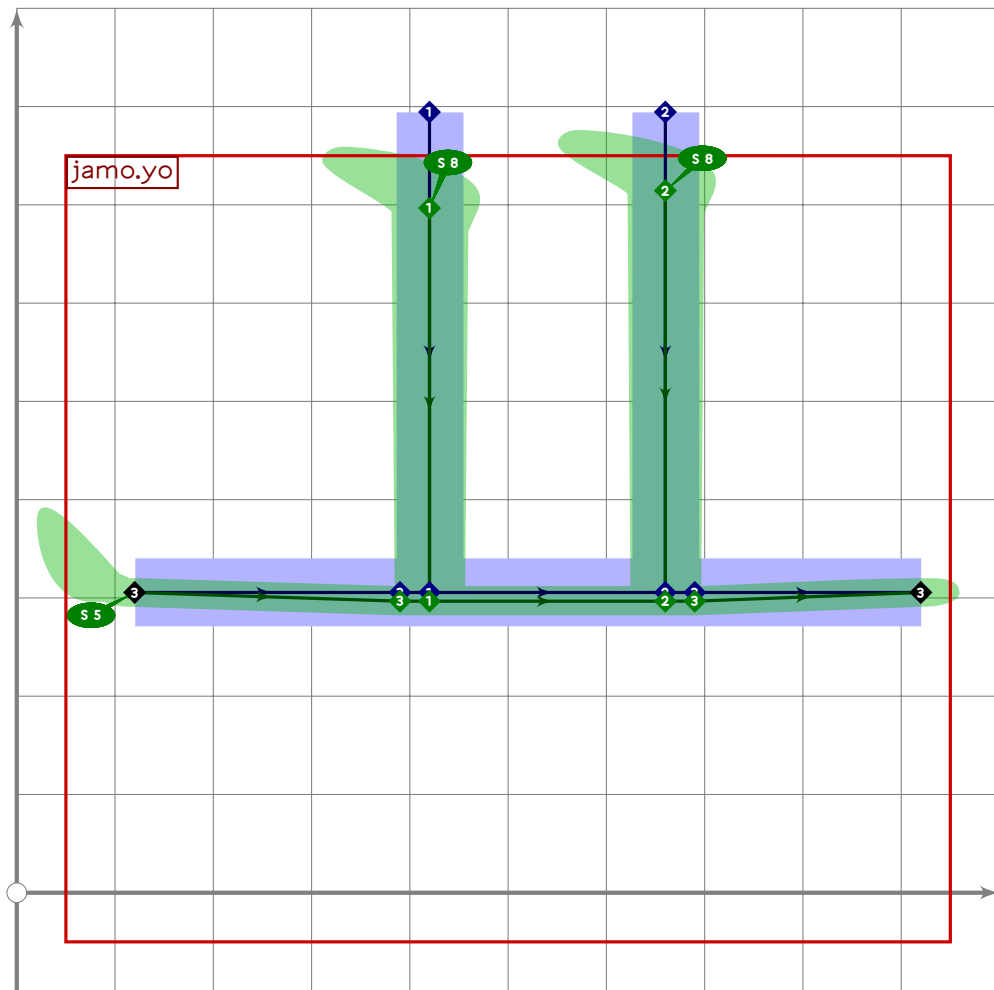
```



```

290 % hangul oe
291 begint Suglyph("uni315A",90);
292 hangul.combine.lr(308,320)(311,hxf((500,400),(950,-50)),identity);
293 tsu_render;
294 endsuglyph;
295

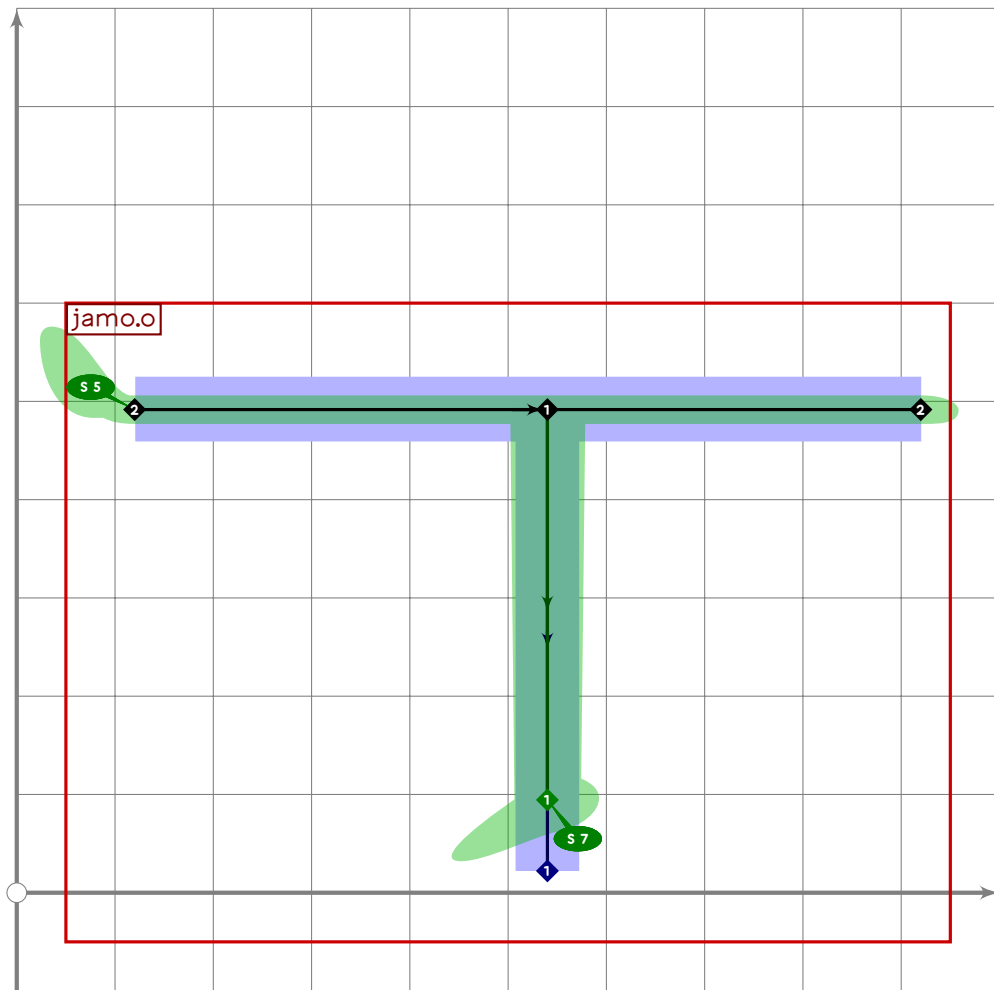
```



```

296 % hangul yo
297 begint Suglyph("uni315B";91);
298 hangul.jamo.yo(whatever;identity,identity);
299 tsu_render;
300 endsuglyph;
301

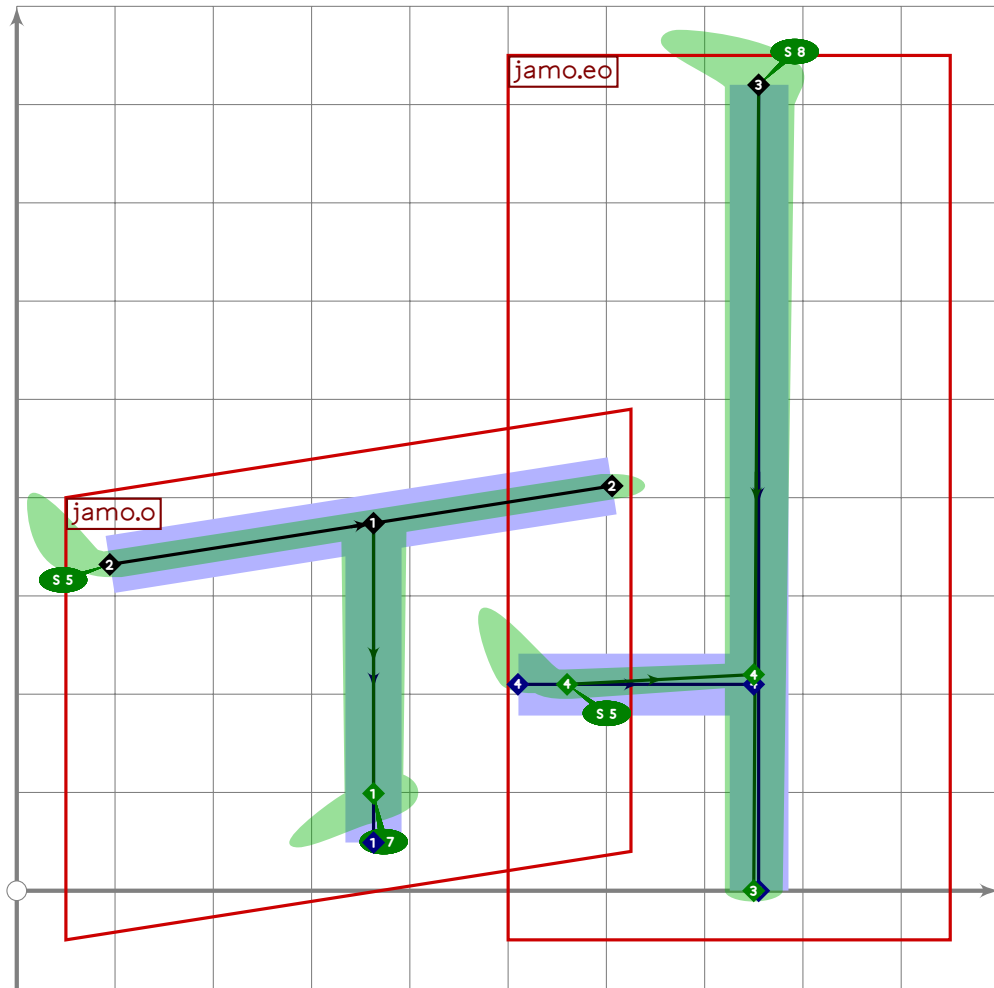
```



```

302 % hangul u
303 begint Suglyph("uni315C";92);
304 hangul.jamo.u(whatever,identity,identity);
305 tsu_render;
306 endtsuglyph;
307

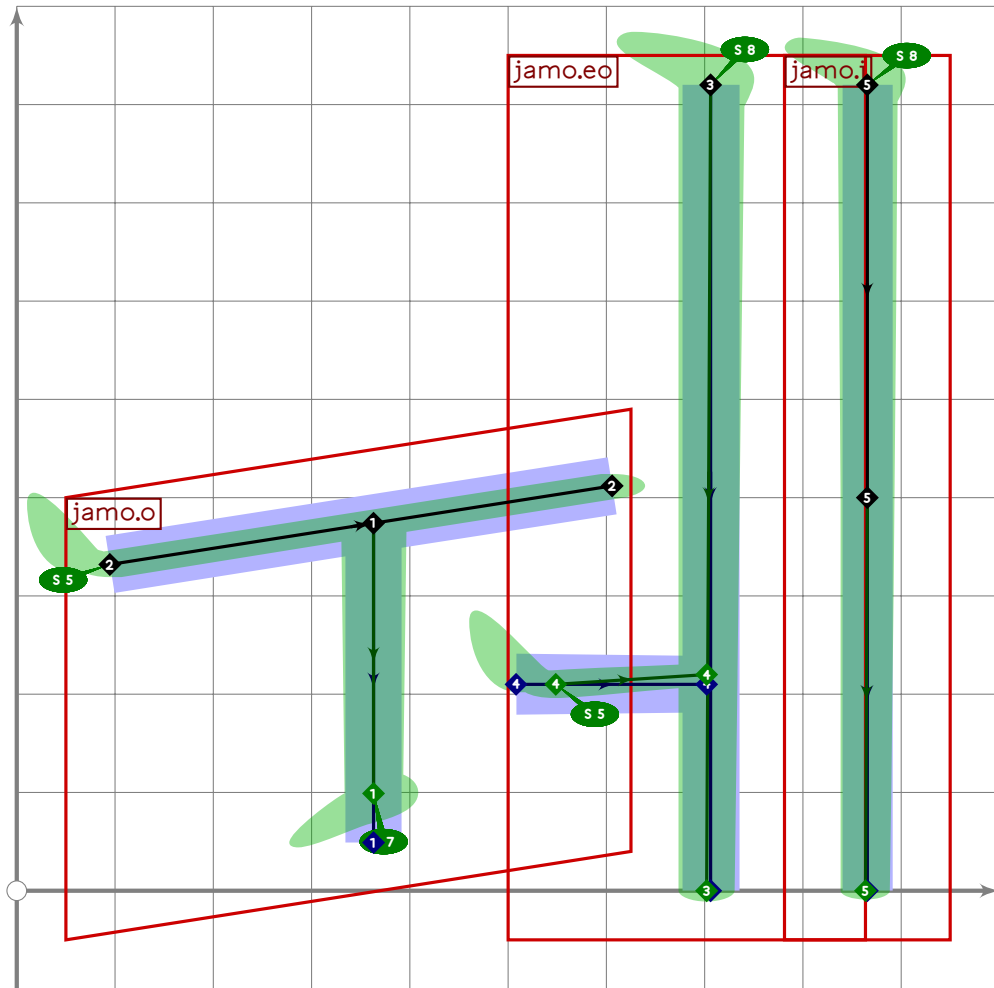
```



```

308 % hangul weo
309 begint Suglyph("uni315D";93);
310 hangul.combine.lr(313,304)(314,hxf((500,400),(950,-50)),identity);
311 tsu_render;
312 endsuglyph;
313

```

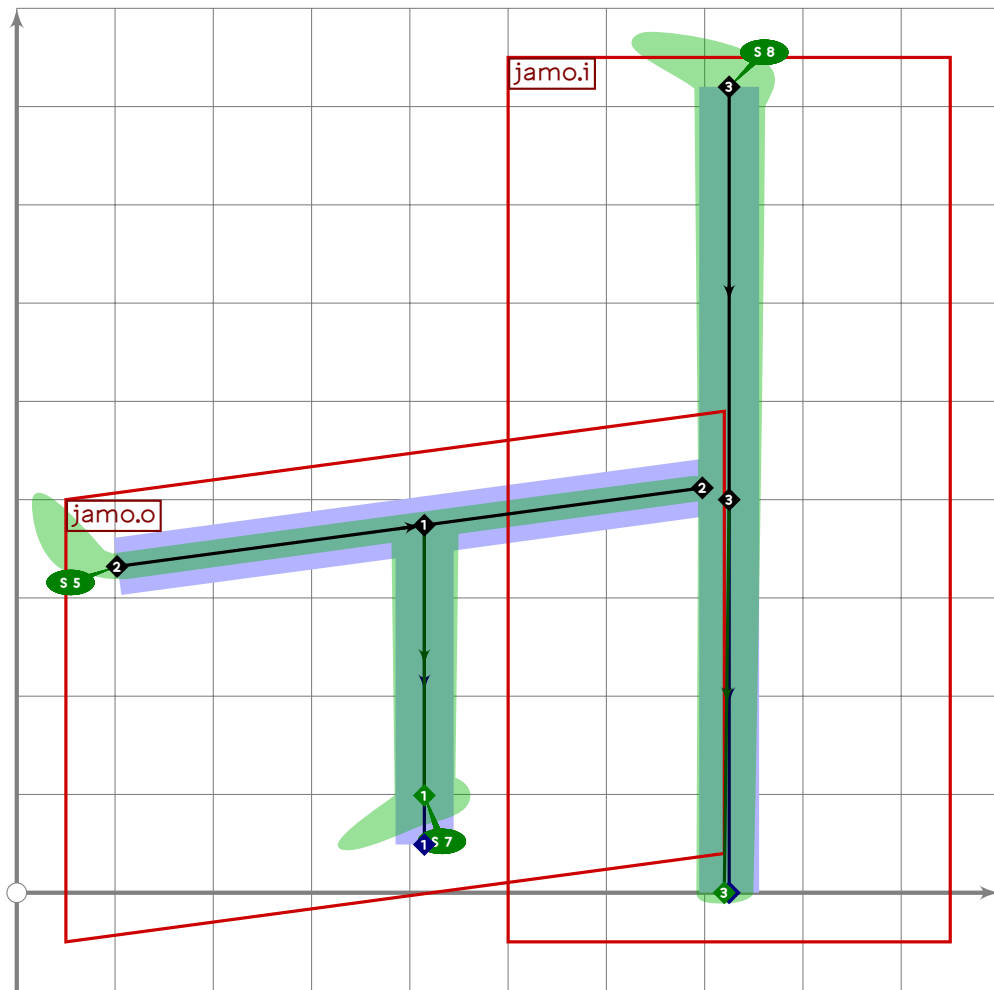


```

314 % hangul we
315 begint Suglyph("uni315E",94);
316 hangul.combine.lr(313,305)(315,hxf((500,400),(950,-50)),identity);
317 tsu_render;
318 endsuglyph;
319

```

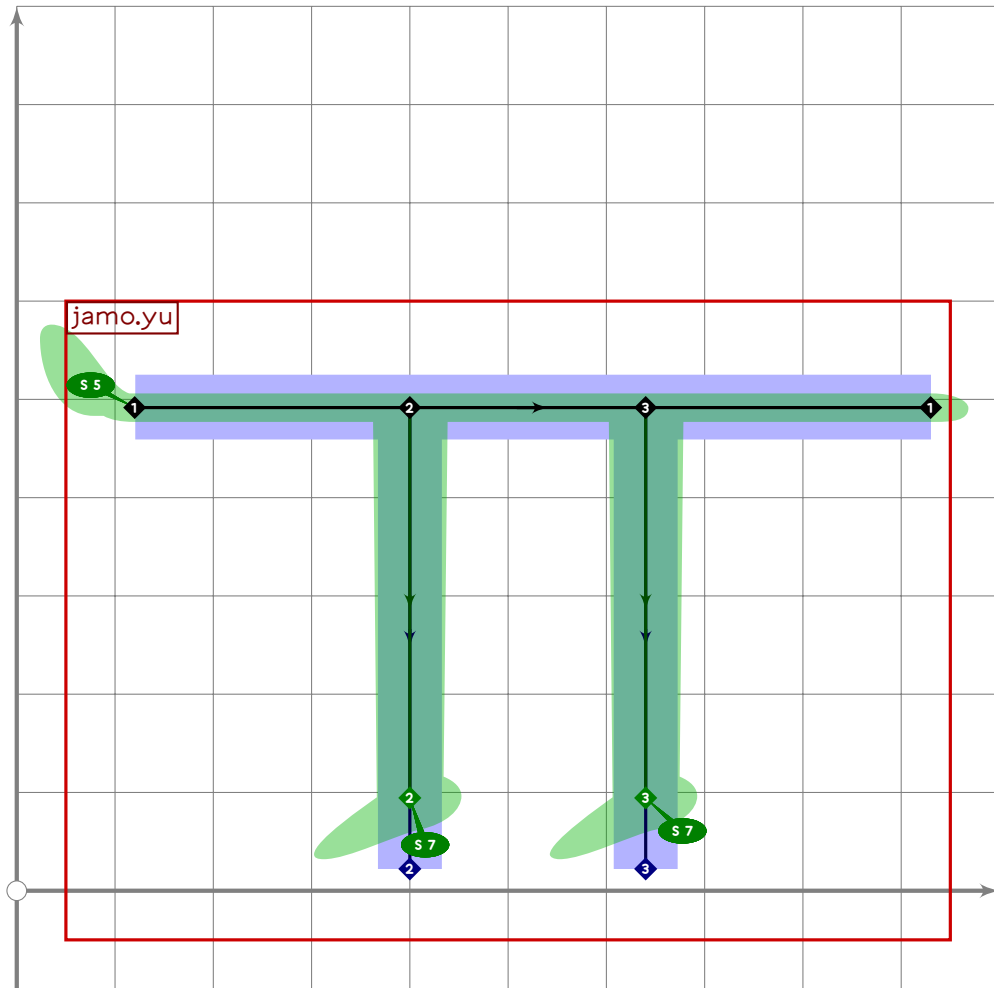




```

320 % hangul wi
321 begint Suglyph("uni315F";95);
322 hangul.combine.lr(313,320)(316,hxf((500,400),(950,-50)),identity);
323 tsu_render;
324 endtsuglyph;
325

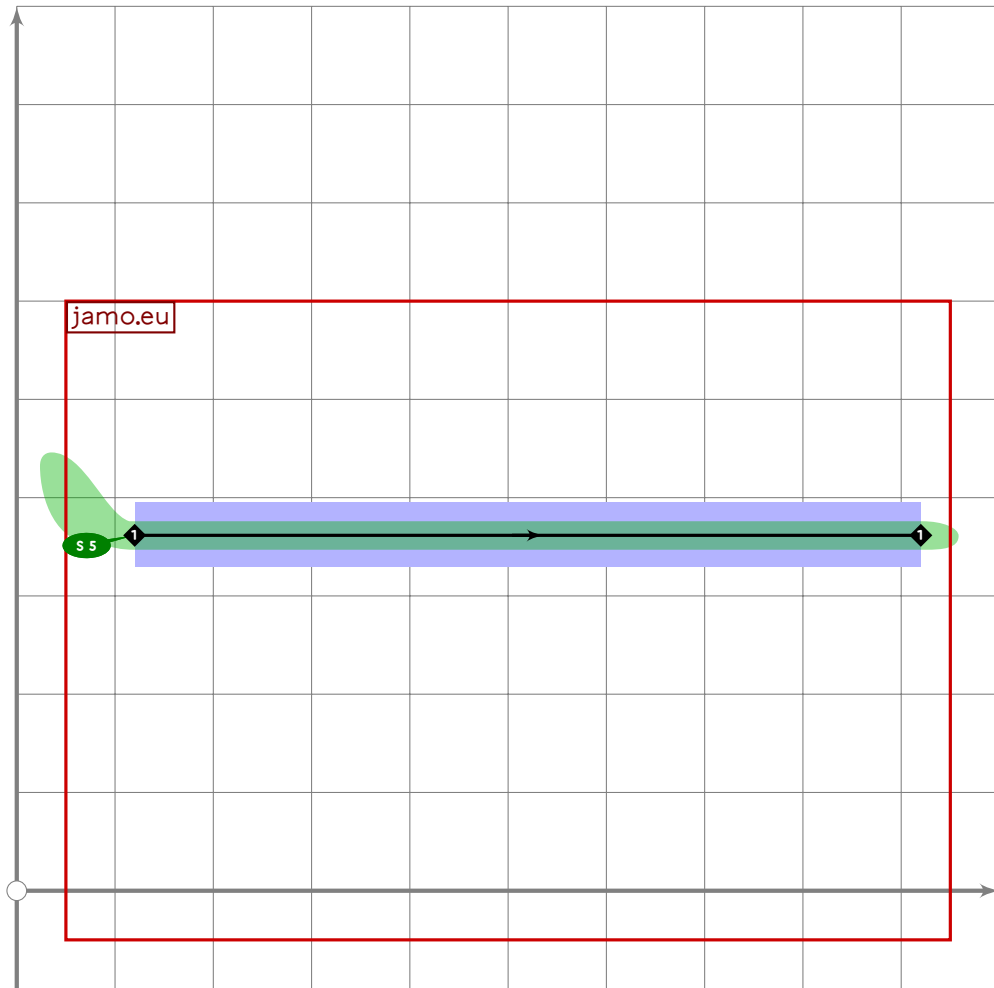
```



```

326 % hangul yu
327 begint Suglyph("uni3160";96);
328 hangul.jamo.yu(whatever;identity,identity);
329 tsu_render;
330 endtsuglyph;
331

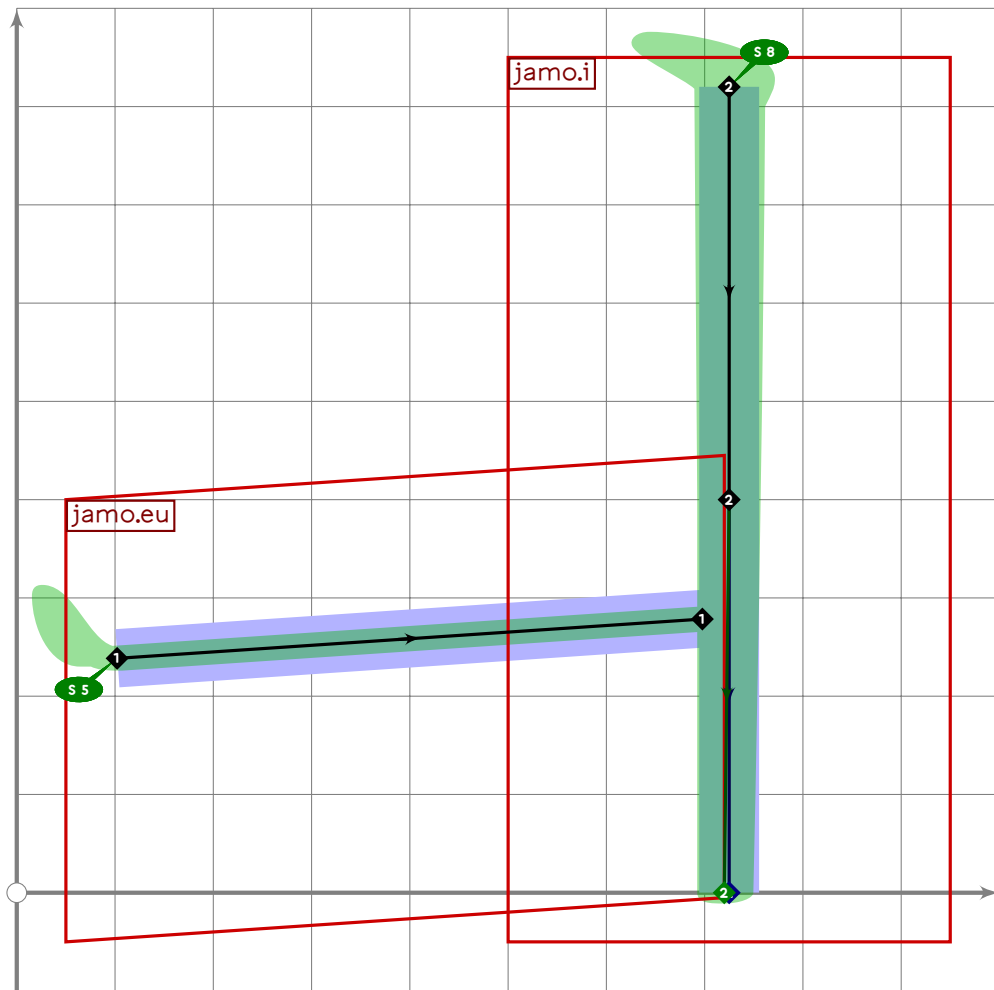
```



```

332 % hangul eu
333 begint Suglyph("uni3161";97);
334 hangul.jamo.eu(whatever,identity,identity);
335 tsu_render;
336 endsuglyph;
337

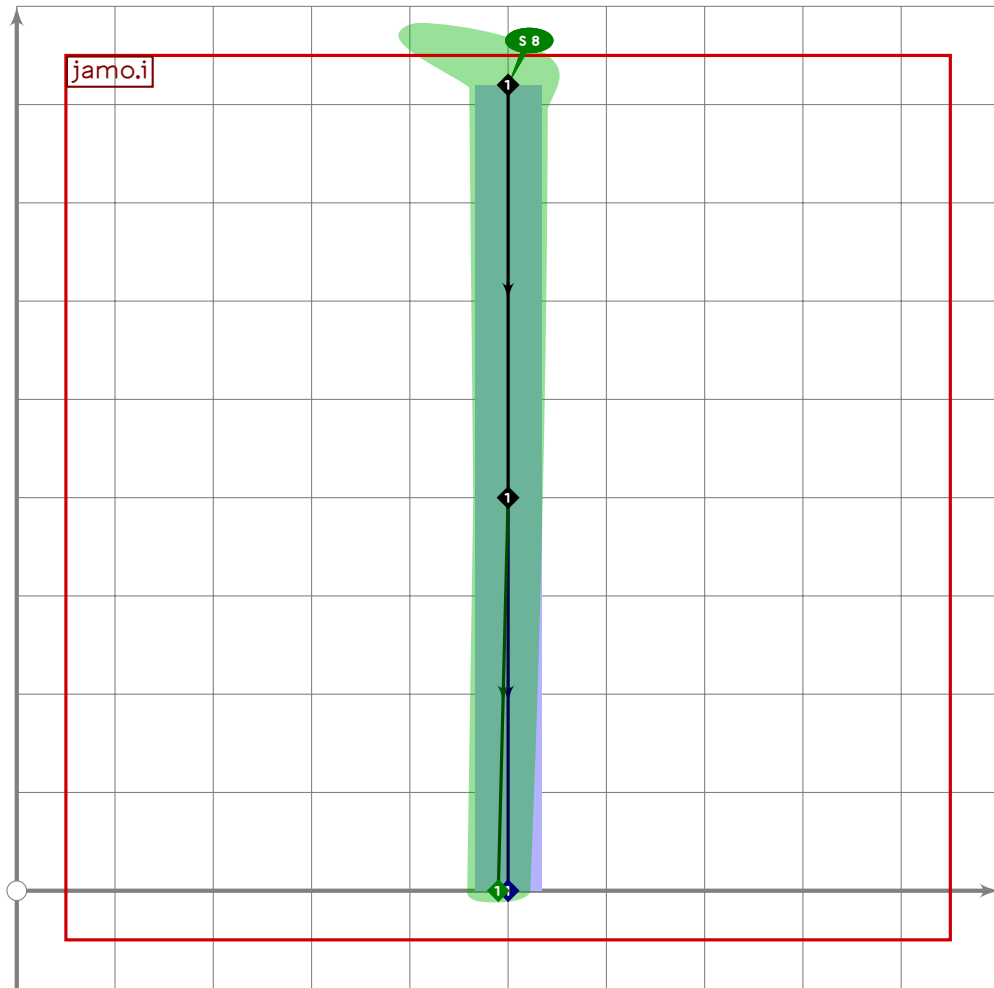
```



```

338 % hangul yi
339 begint Suglyph("uni3162";98);
340 hangul.combine.lr(318,320)(319,hxf((500,400),(950,-50)),identity);
341 tsu_render;
342 endsuglyph;
343

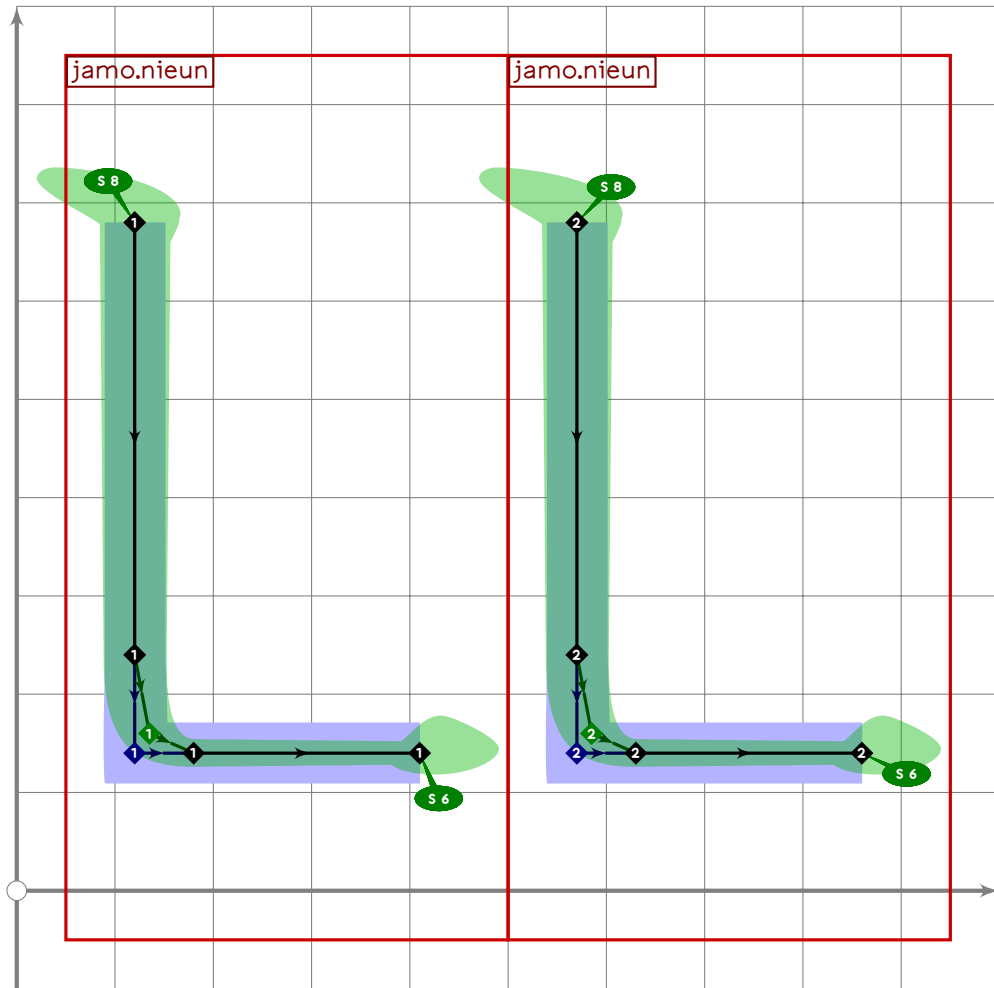
```



```

344 % hangul i
345 begint Suglyph("uni3163";99);
346 hangul.jamo.i(whatever,identity,identity);
347 tsu_render;
348 endsuglyph;
349
350 % uni3164 is "hangul filler," a full-width space created by external script
351

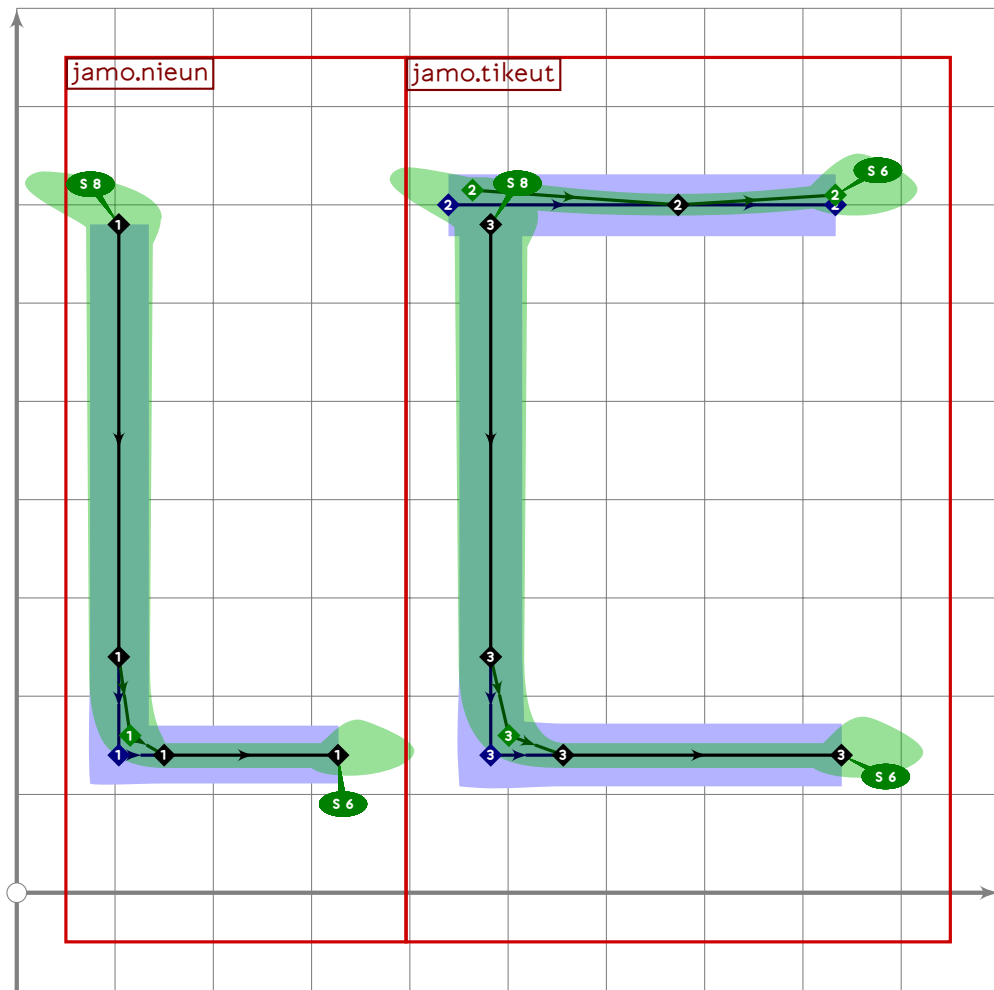
```



```

352 % hangul ssangnieun
353 begintsuglyph("uni3165",101);
354 hangul.combine.lr(102,102)(whatever,identity,identity);
355 tsu_render;
356 endsuglyph;
357

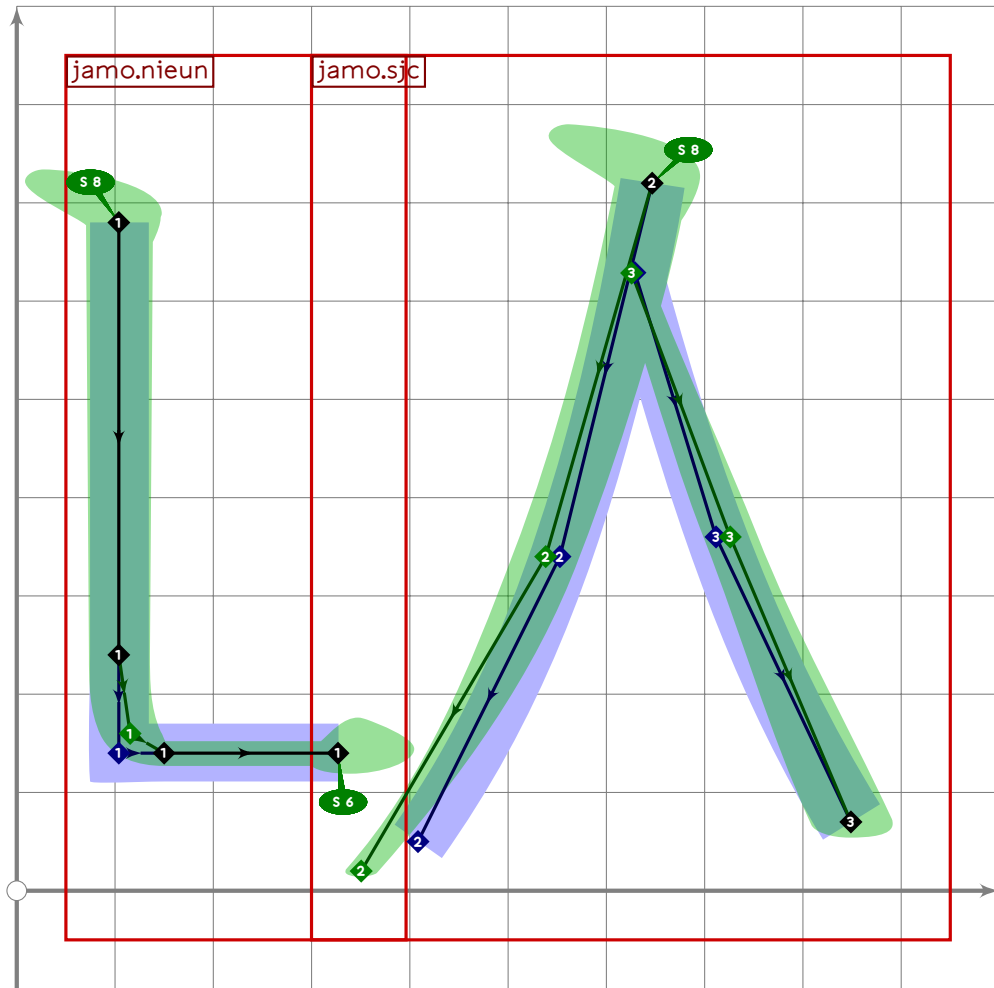
```



```

358 % hangul nieun-tikeut
359 beginsuglyph("uni3166";102);
360 hangul.combine.lr(102,103)(whatever,identity,identity);
361 tsu_render;
362 endsuglyph;
363

```

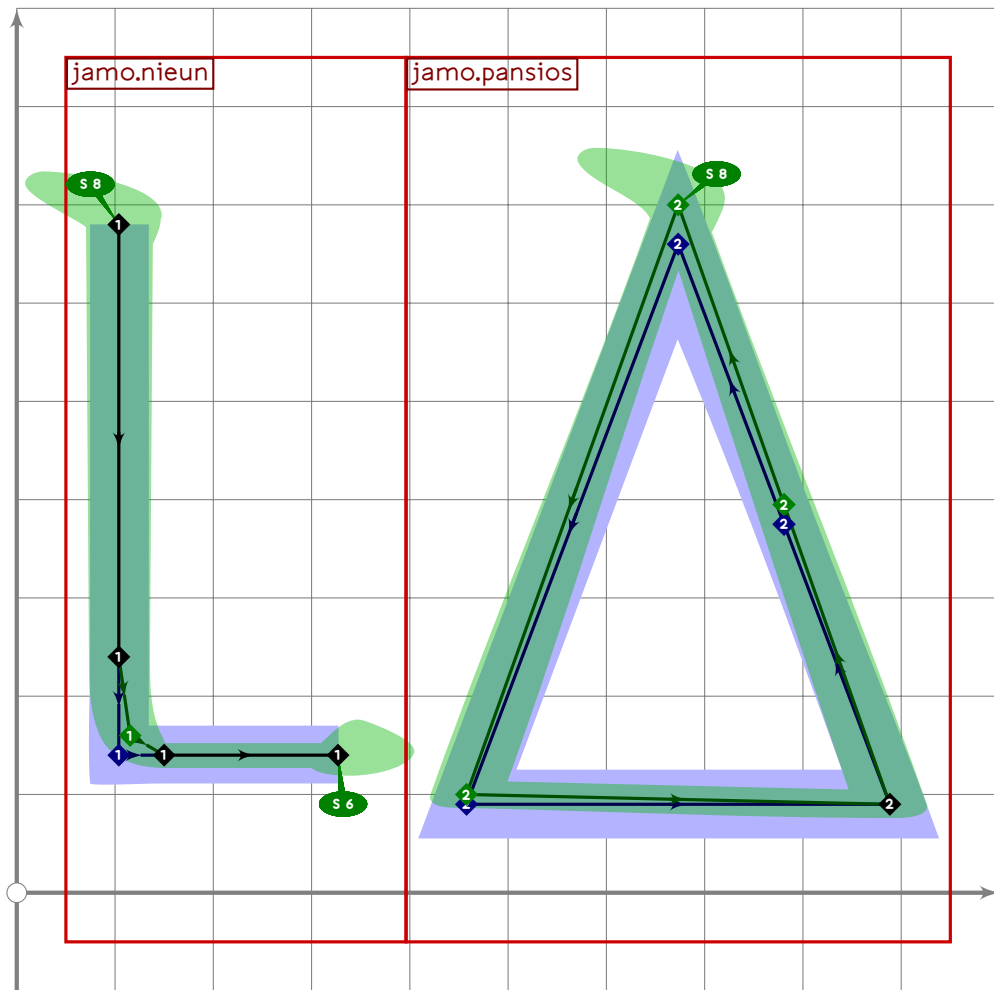


```

364 % hangul nieun-sios
365 begint Suglyph("uni3167";103);
366 hangul.combine.lr(102,109)(whatever,identity,identity);
367 tsu_render;
368 endtsuglyph;
369

```

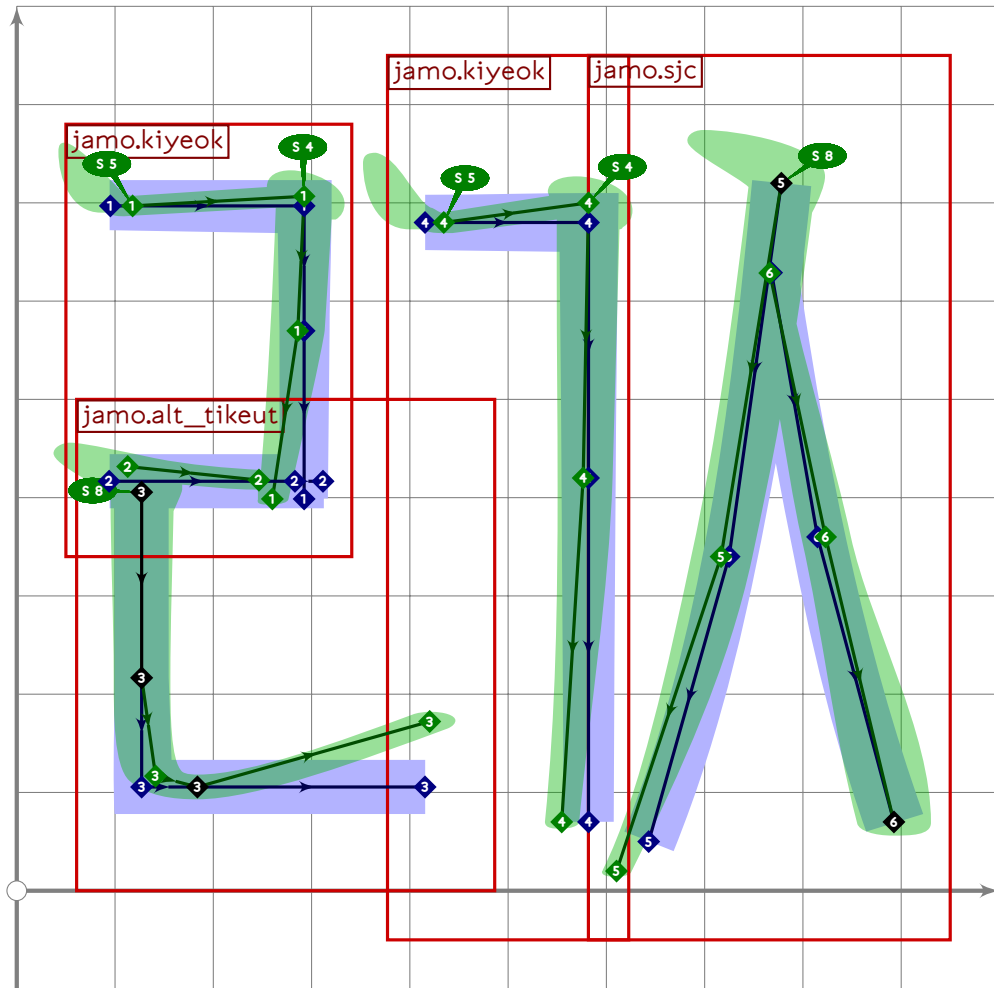




```

370 % hangul nieun-pansios
371 beginsuglyph("uni3168";104);
372 hangul.combine.lr(102,219)(whatever,identity,identity);
373 tsu_render;
374 endsuglyph;
375

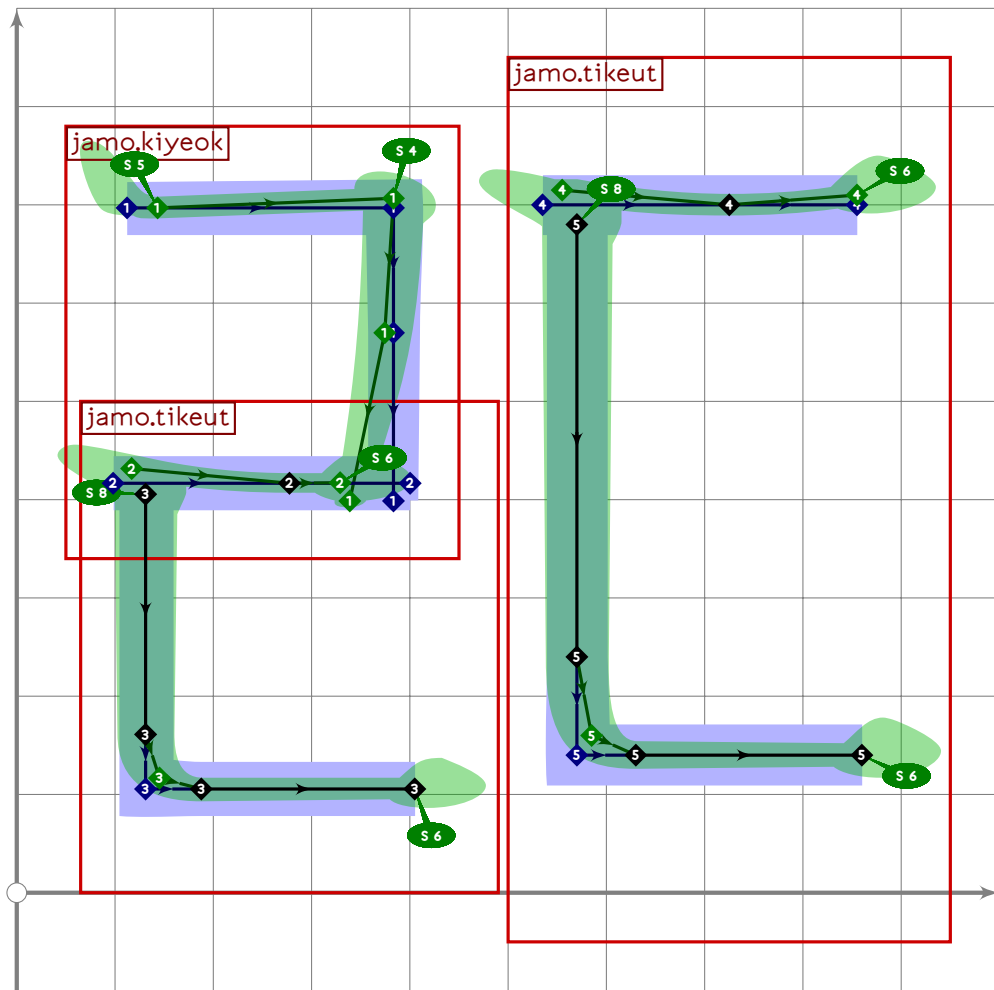
```



```

376 % hangul rioul-kiyeok-sios
377 begint Suglyph("uni3169",105);
378 hangul.combine.lcr(205,100,109)(whatever,identity,identity);
379 tsu_render;
380 endsuglyph;
381

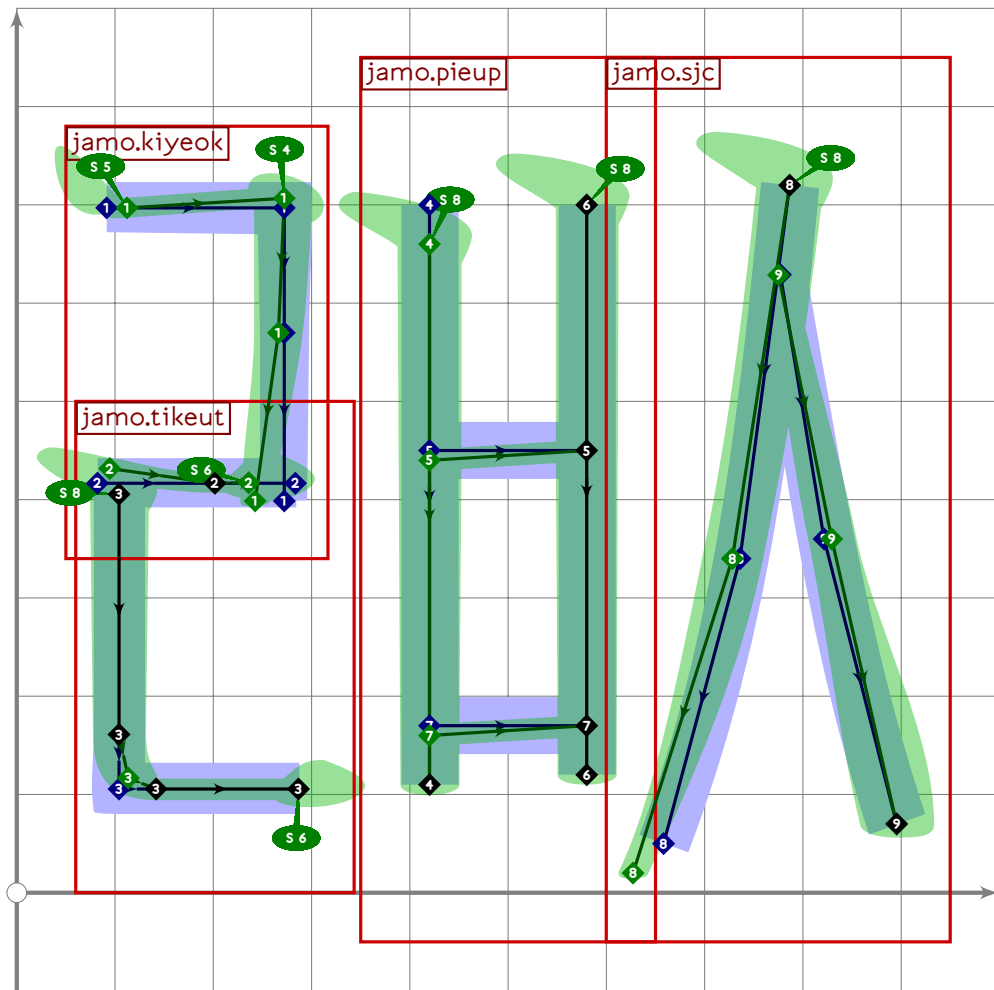
```



```

382 % hangul rioul-tikeut
383 begint Suglyph("uni316A";106);
384 hangul.combine.lr(105,103)(whatever;identity;identity);
385 tsu_render;
386 endsuglyph;
387

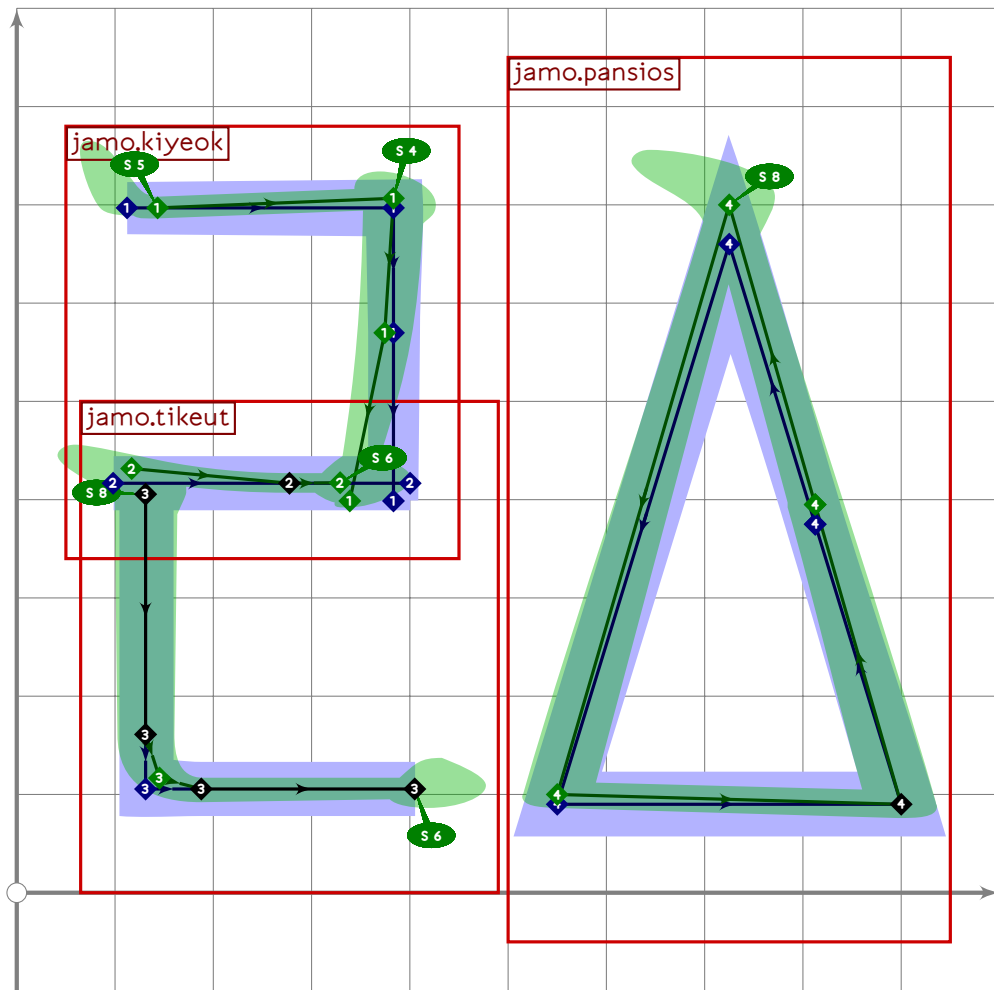
```



```

388 % hangul rieul-pieup-sios
389 begint Suglyph("uni316B";107);
390 hangul.combine.lcr(105,107,109)(whatever;identity;identity);
391 tsu_render;
392 endsuglyph;
393

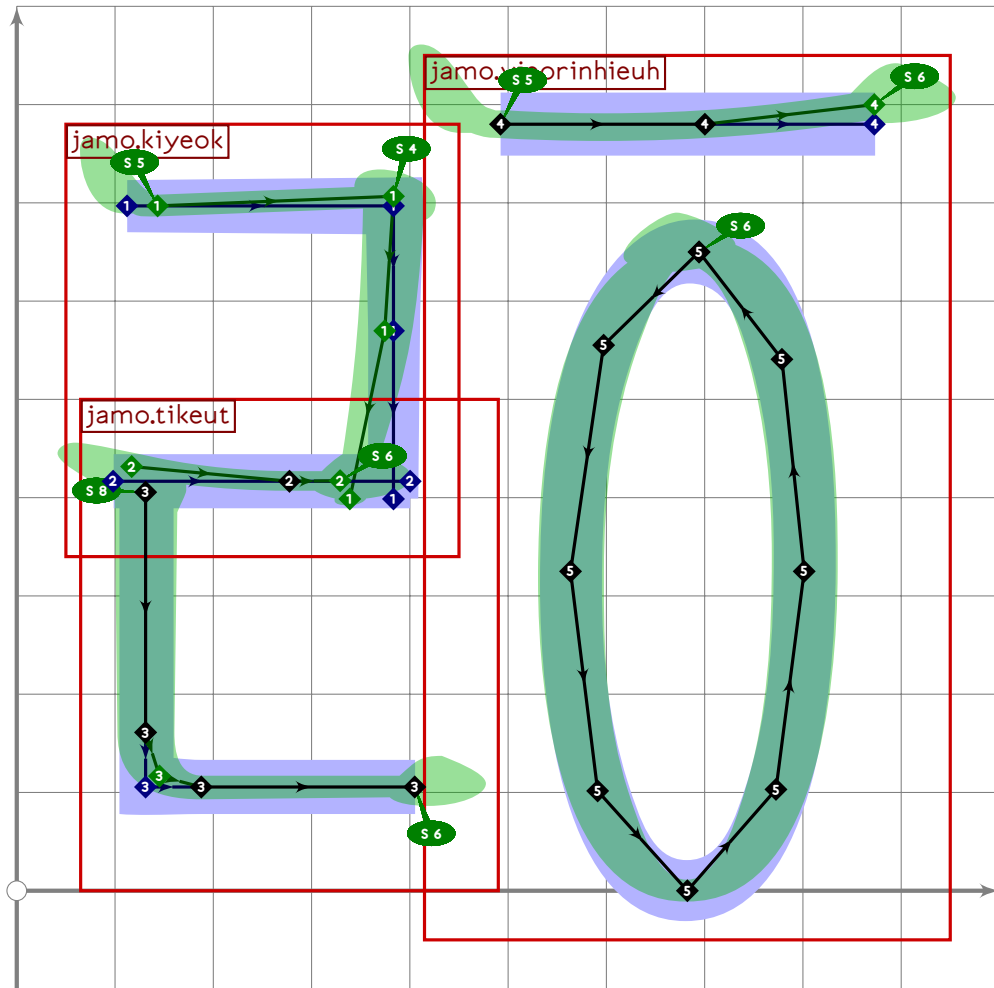
```



```

394 % hangul rioul-pansios
395 begint Suglyph("uni316C";108);
396 hangul.combine.lr(105,219)(whatever;identity;identity);
397 tsu_render;
398 endtsuglyph;
399

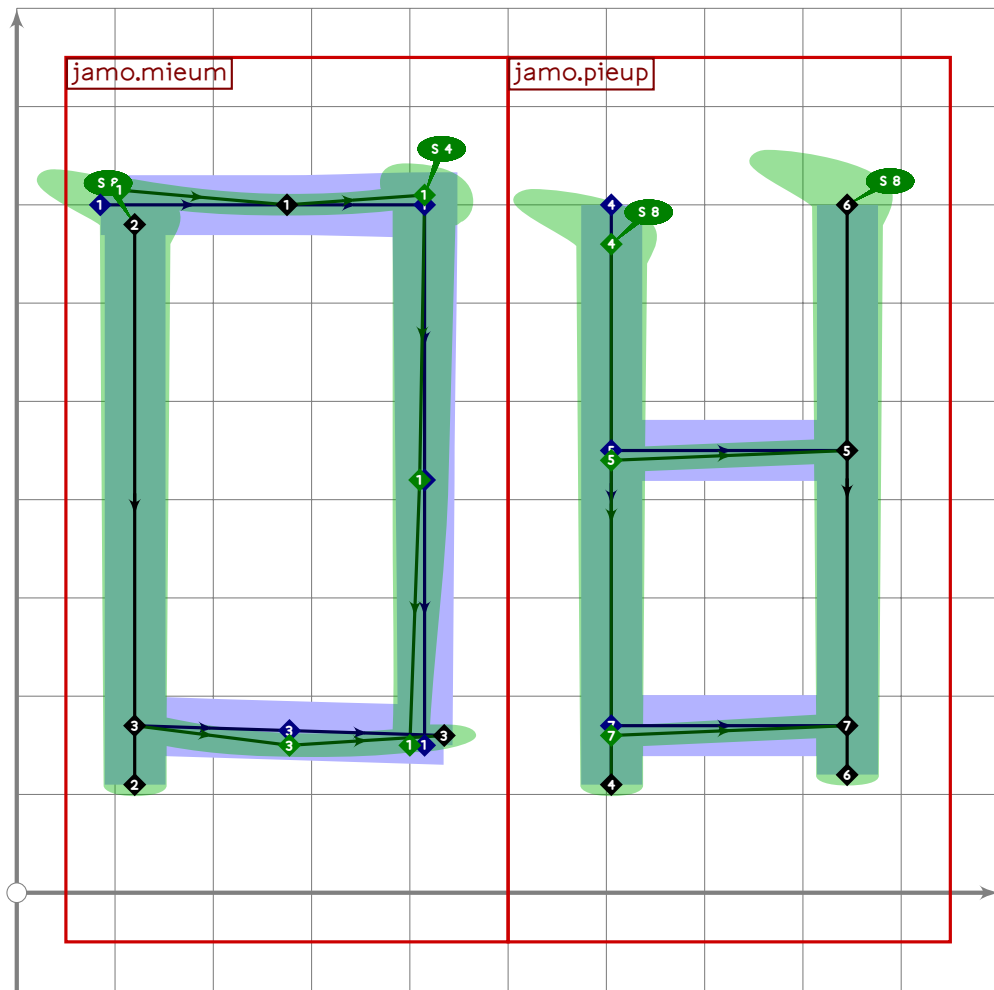
```



```

400 % hangul rieul-yeorinhieuh
401 begint Suglyph("uni316D";109);
402 hangul.combine.lr(105,221)(whatever,identity,identity);
403 tsu_render;
404 endtsuglyph;
405

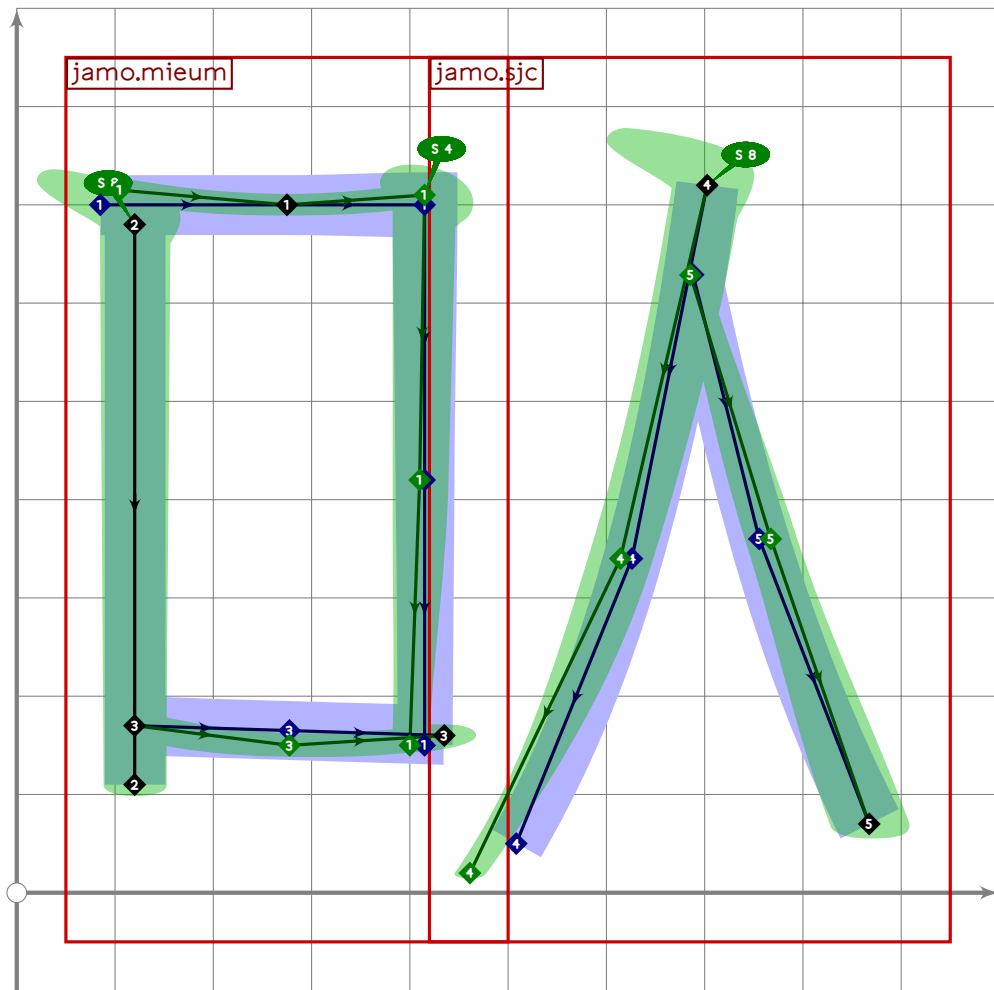
```



```

406 % hangul mieum-pieup
407 begint Suglyph("uni316E";110);
408 hangul.combine.lr(106,107)(whatever,identity,identity);
409 tsu_render;
410 endsuglyph;
411

```

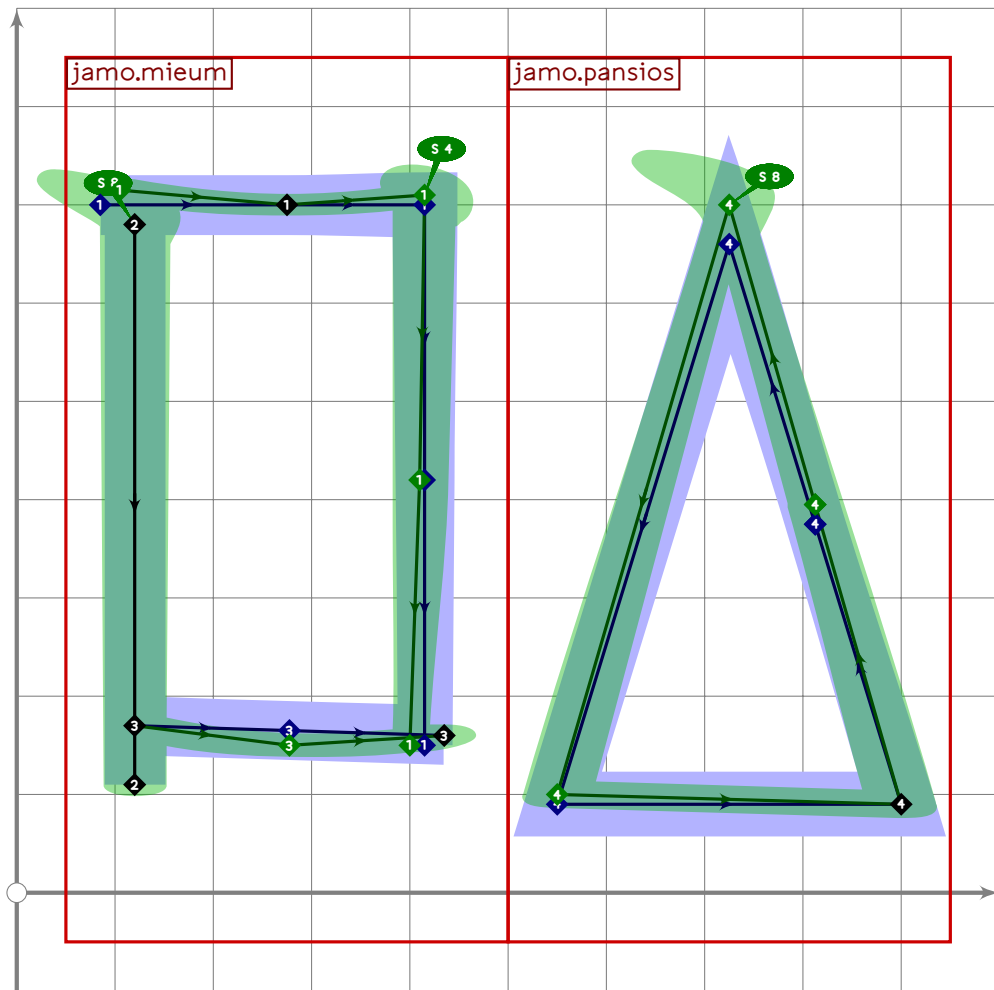


```

412 % hangul mieum-sios
413 begintsuglyph("uni316F";111);
414 hangul.combine.lr(106,109)(whatever,identity,identity);
415 tsu_render;
416 endsuglyph;
417

```

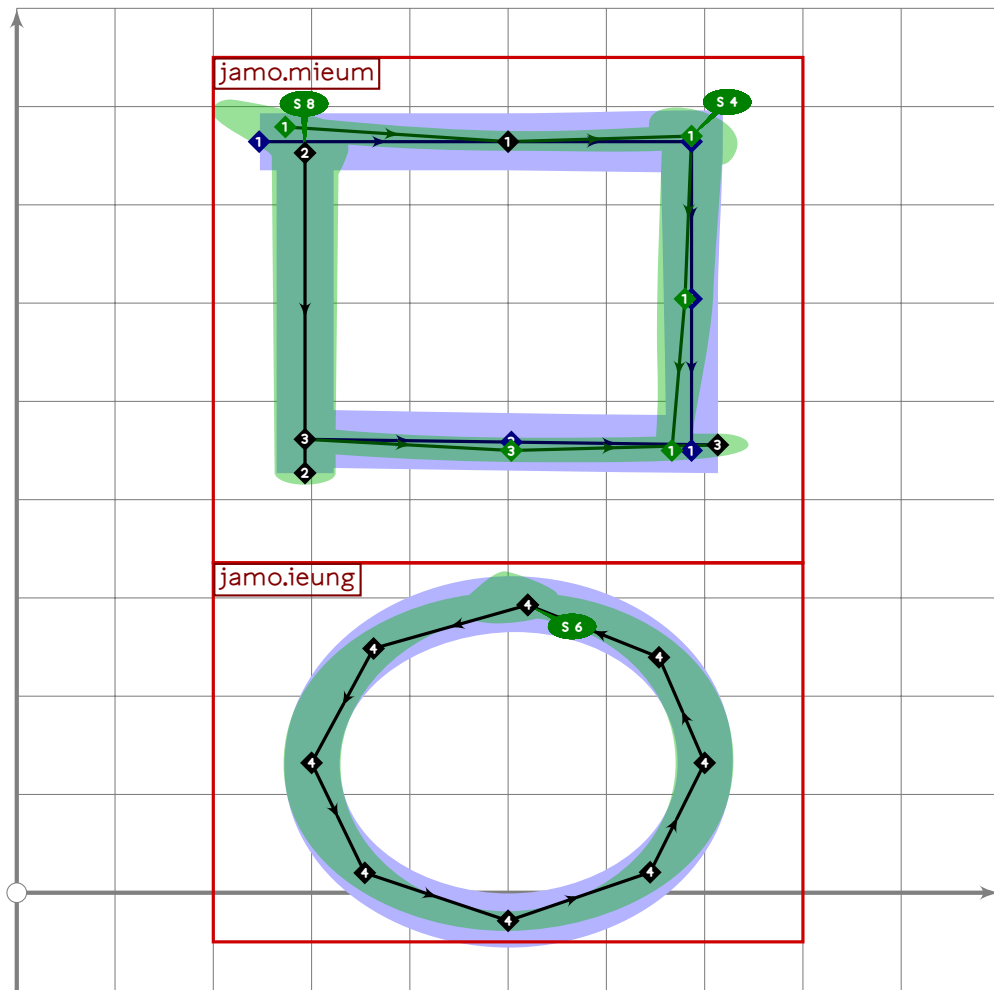




```

418 % hangul mieum-pansios
419 begint Suglyph("uni3170";112);
420 hangul.combine.lr(106,219)(whatever,identity,identity);
421 tsu_render;
422 endsuglyph;
423

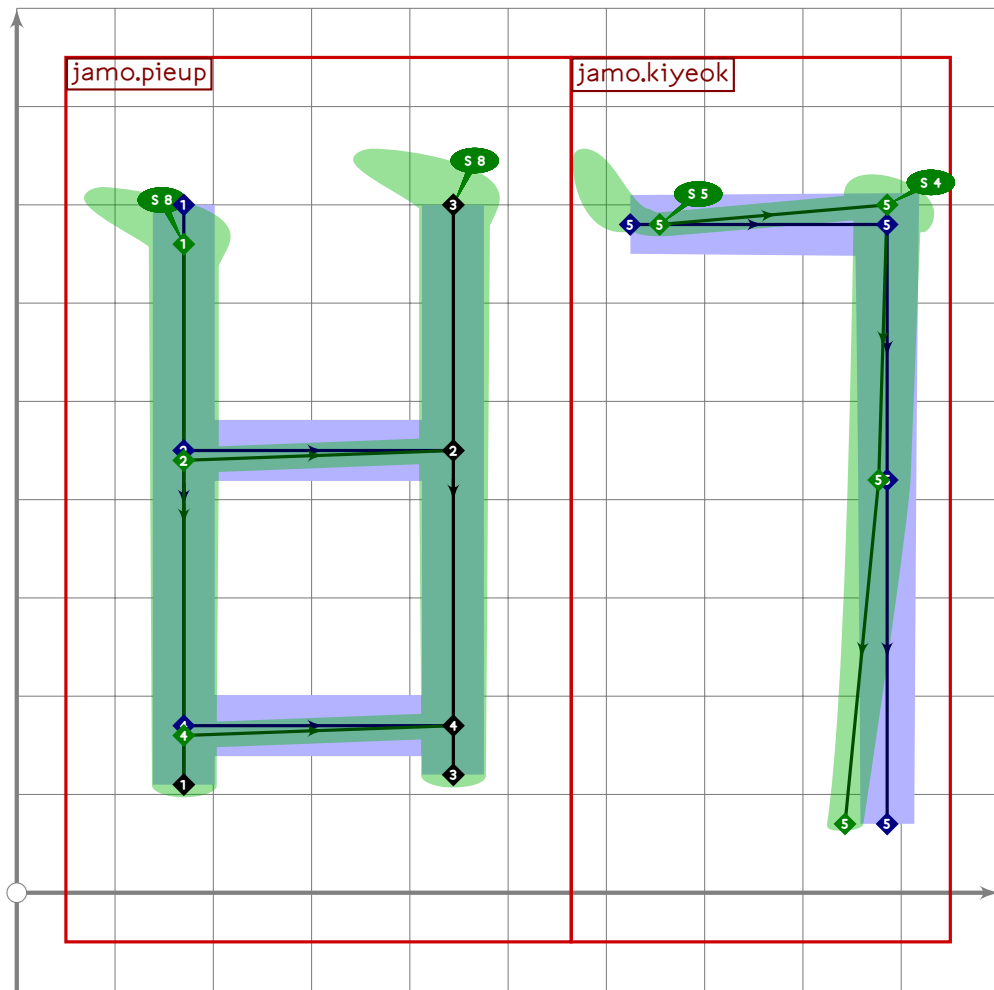
```



```

424 % hangul kapyeounmieum
425 begint Suglyph("uni3171",113);
426 hangul.combine.tb(106,521)(whatever,hxf((200,850),(800,-50)),identity);
427 tsu_render;
428 endsuglyph;
429

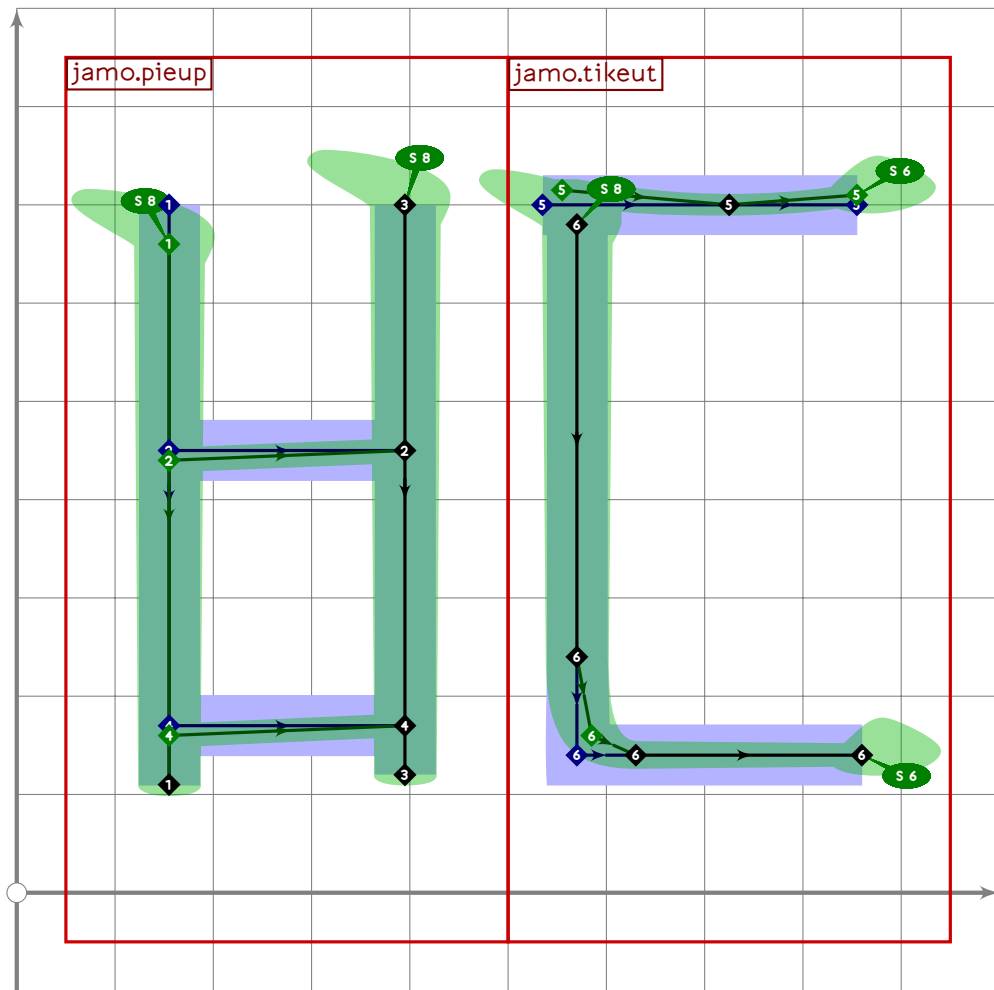
```



```

430 % hangul pieup-kiyeok
431 begint Suglyph("uni3172",114);
432 hangul.combine.lr(107,100)(whatever,identity,identity);
433 tsu_render;
434 endsuglyph;
435

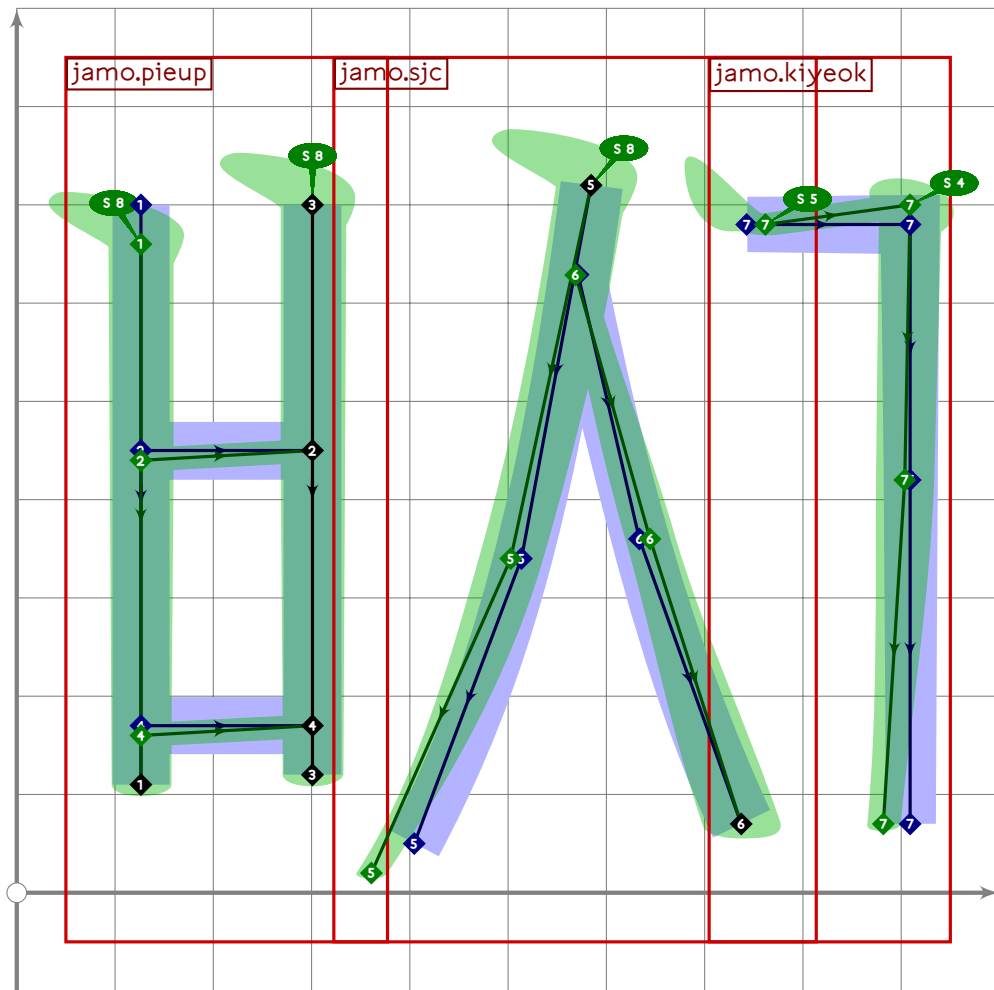
```



```

436 % hangul pieup-tikeut
437 begint Suglyph("uni3173",115);
438 hangul.combine.lr(107,103)(whatever,identity,identity);
439 tsu_render;
440 endsuglyph;
441

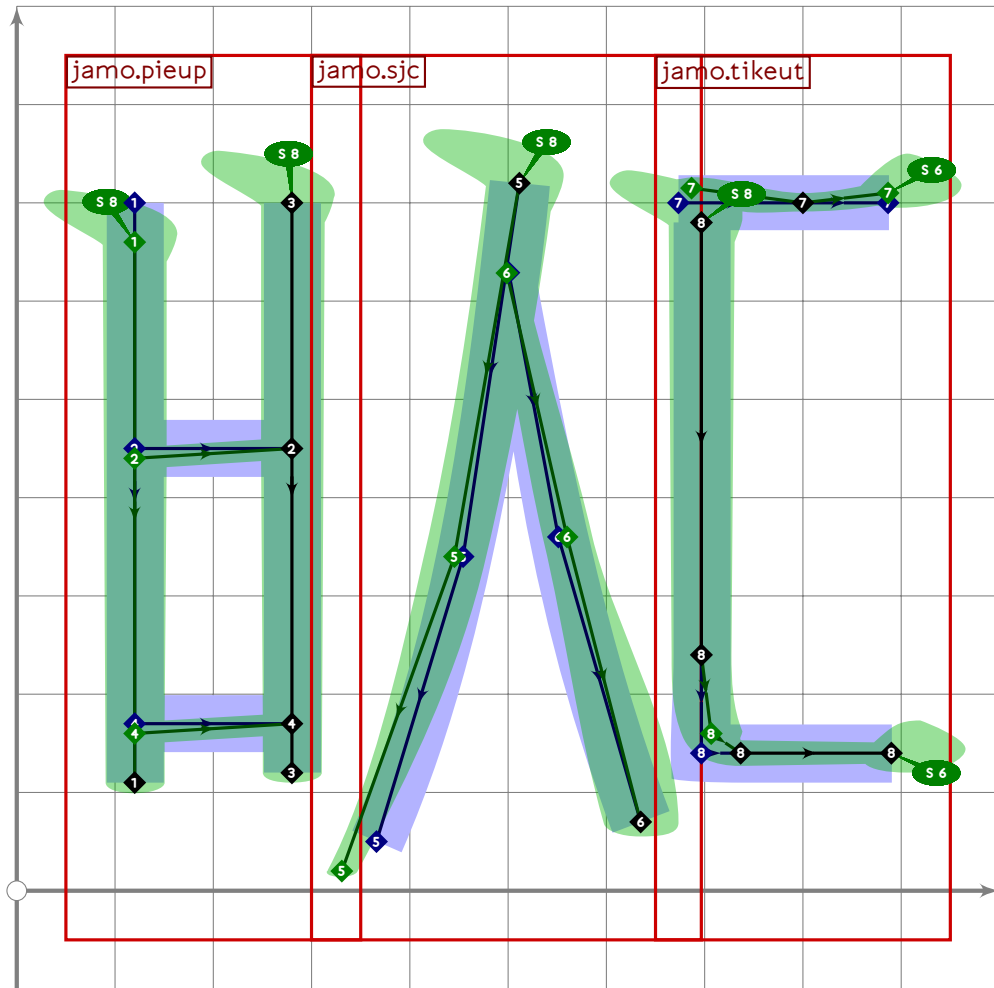
```



```

442 % hangul pieup-sios-kiyeok
443 begint Suglyph("uni3174",116);
444 hangul.combine.lcr(107,109,100)(whatever,identity,identity);
445 tsu_render;
446 endtsuglyph;
447

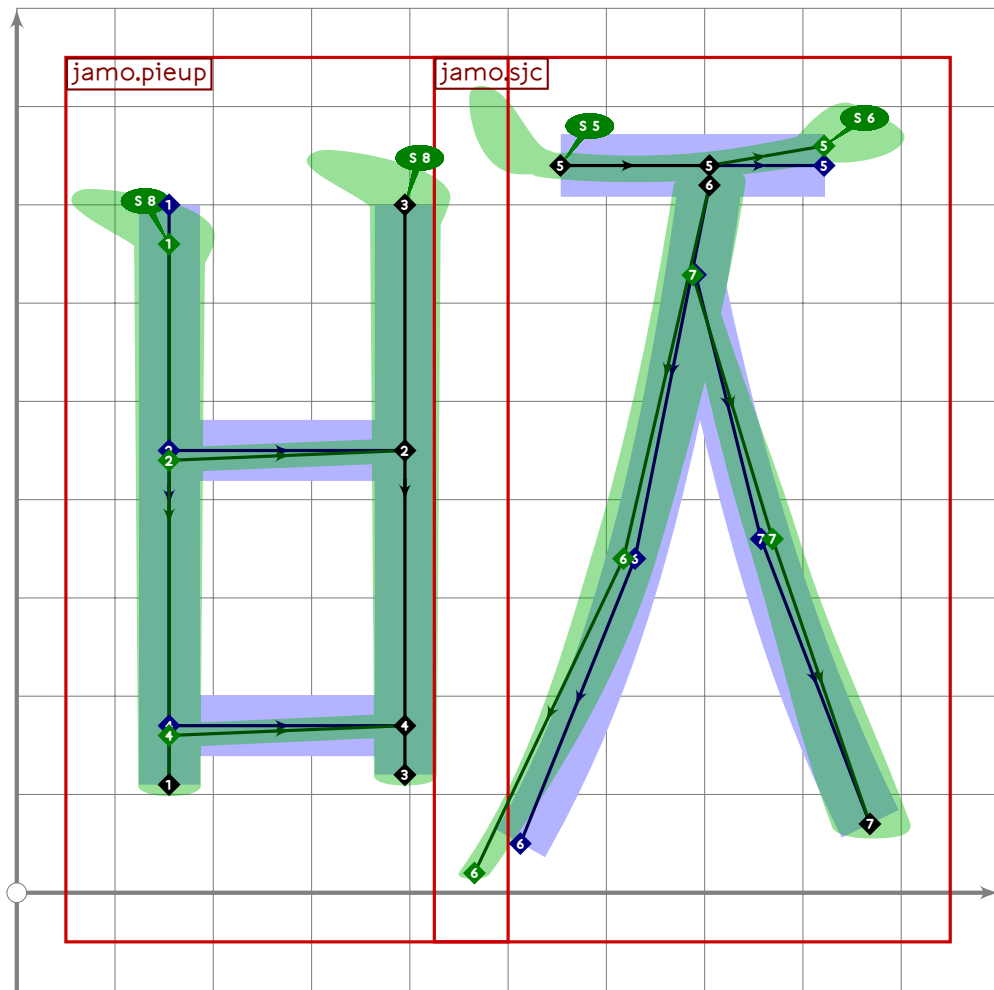
```



```

448 % hangul pieup-sios-tikeut
449 begint Suglyph("uni3175",117);
450 hangul.combine.lcr(107,109,103)(whatever,identity,identity);
451 tsu_render;
452 endsuglyph;
453

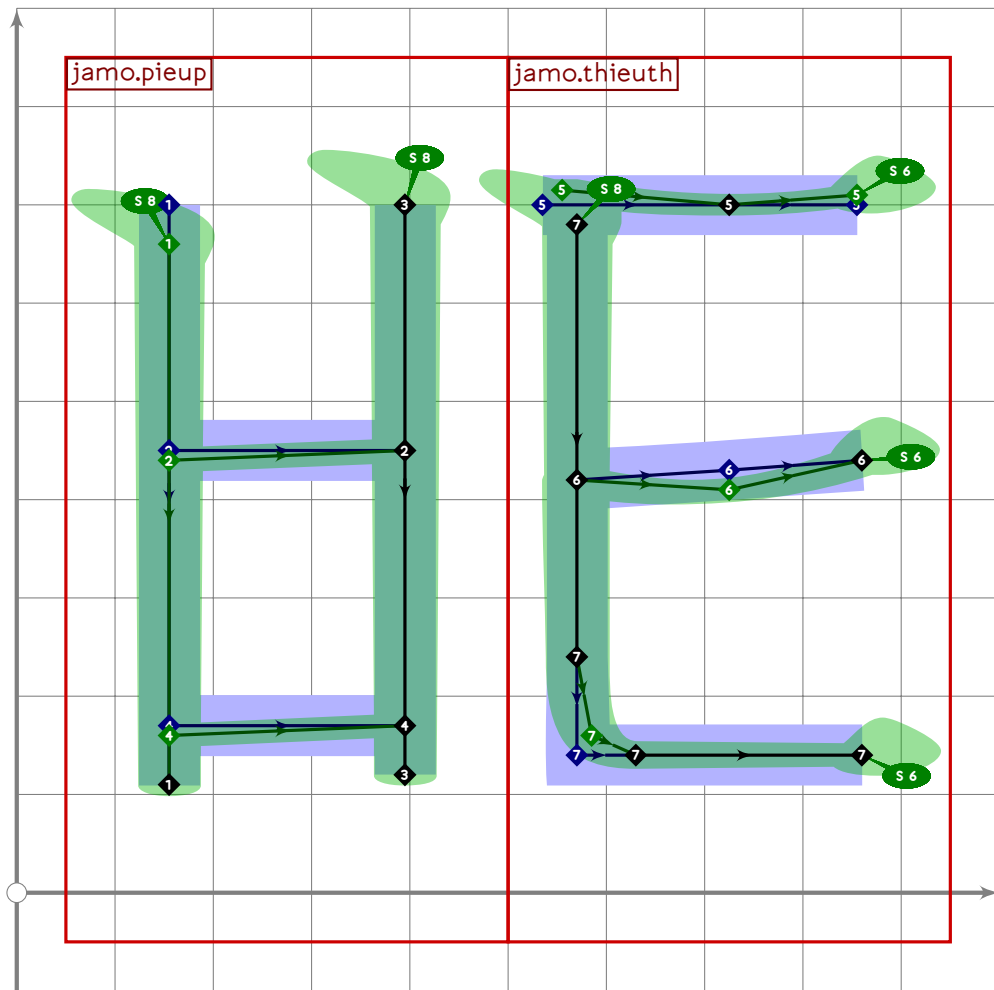
```



```

454 % hangul pieup-cieuc
455 begint Suglyph("uni3176",118);
456 hangul.combine.lr(107,112)(whatever,identity,identity);
457 tsu_render;
458 endsuglyph;
459

```

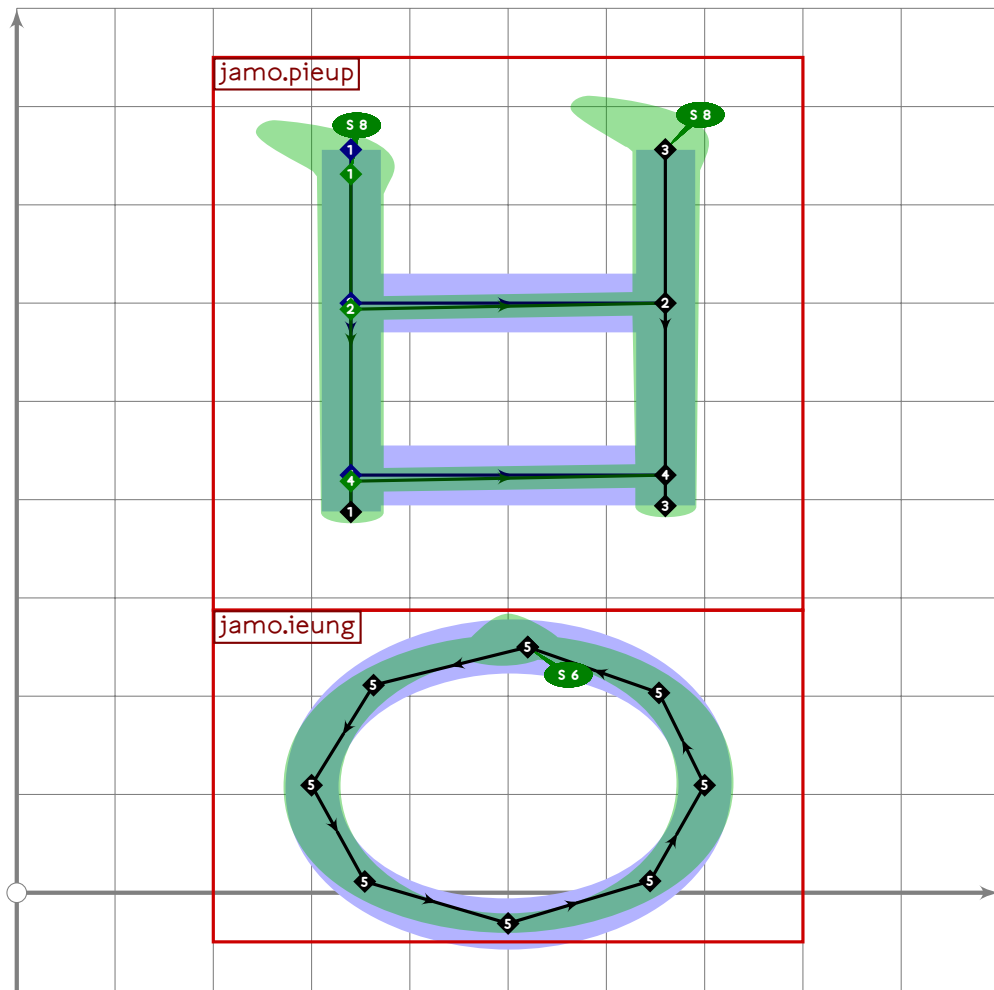


```

460 % hangul pieup-thieuth
461 begint Suglyph("uni3177";119);
462 hangul.combine.lr(107,116)(whatever;identity,identity);
463 tsu_render;
464 endsuglyph;
465

```

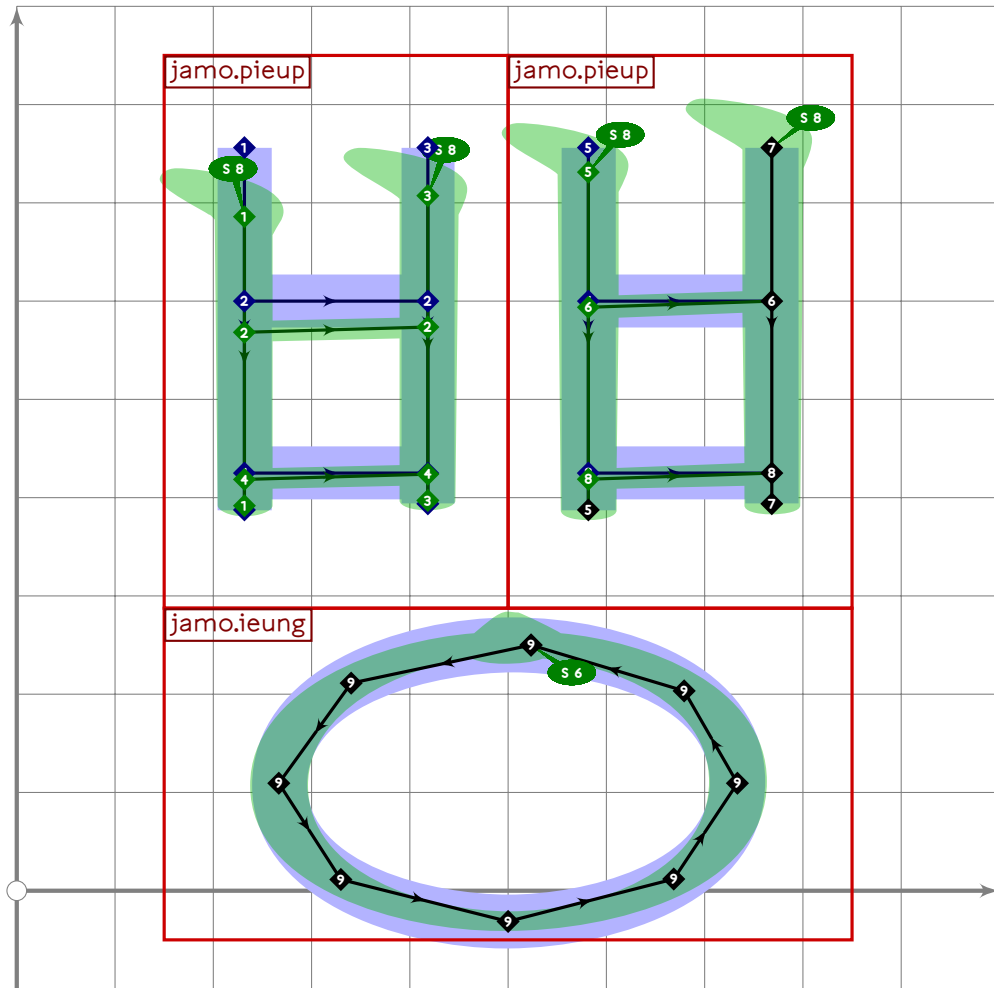




```

466 % hangul kapyeounpieup
467 begint Suglyph("uni3178";120);
468 hangul.combine.tb(107,521)(whatever,hxf((200,850),(800,-50)),identity);
469 tsu_render;
470 endtsuglyph;
471

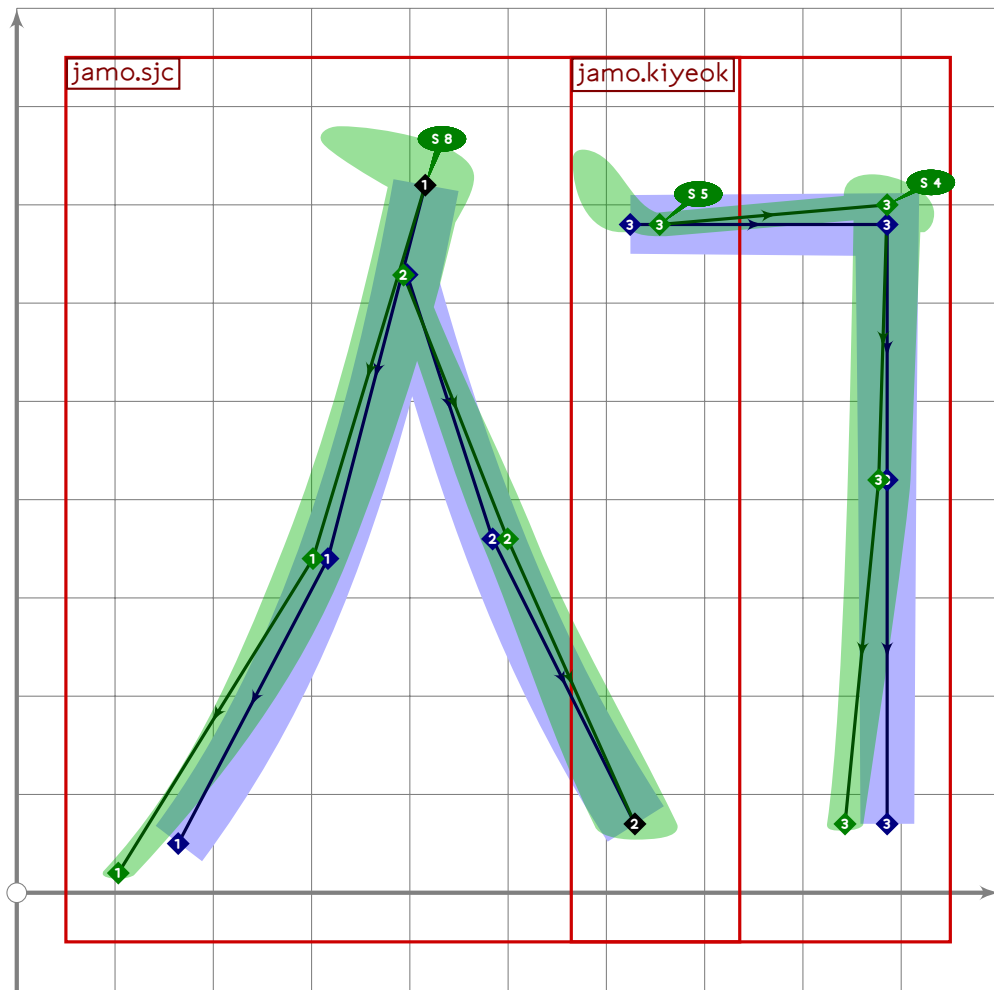
```



```

472 % hangul kapyeounssangpieup
473 begint Suglyph("uni3179";121);
474 hangul.combine.tb(108,521)(whatever,hxf((150,850),(850,-50)),identity);
475 tsu_render;
476 endsuglyph;
477

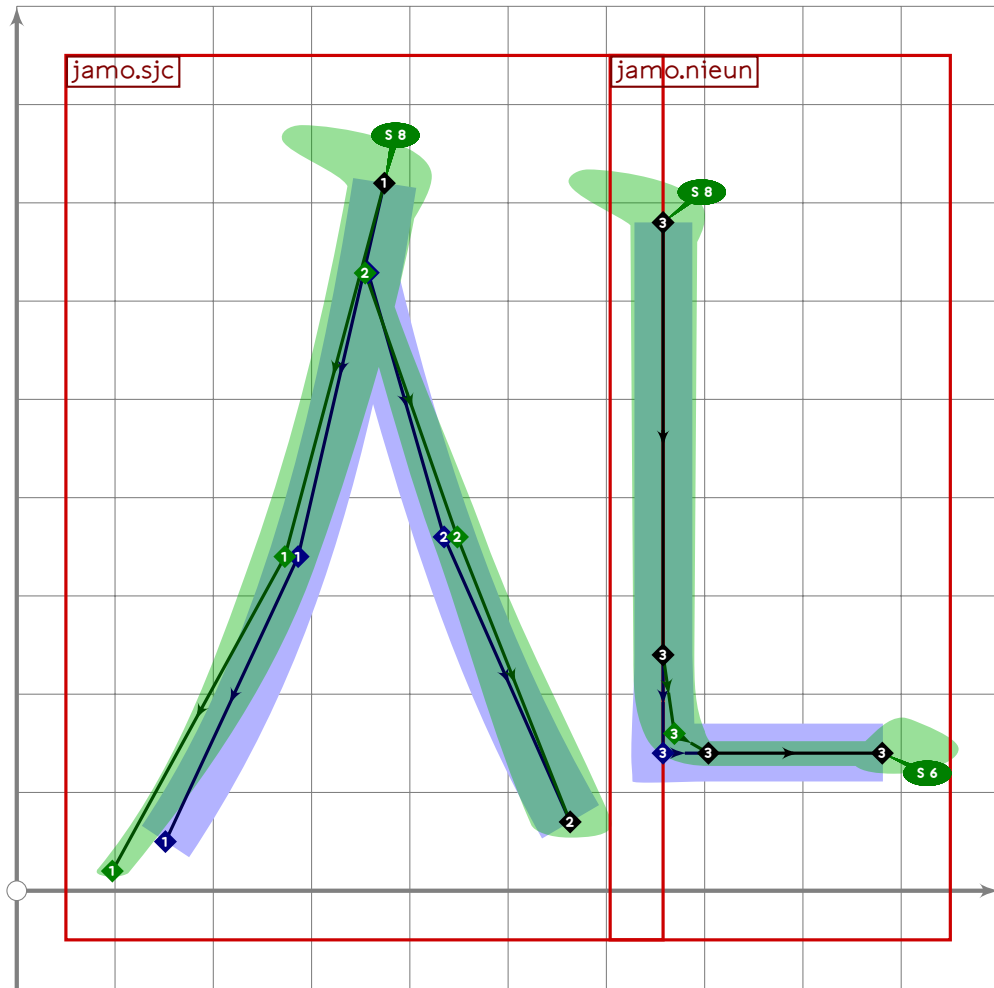
```



```

478 % hangul sios-kiyeok
479 begintsuglyph("uni317A",122);
480 hangul.combine.lr(109,100)(whatever,identity,identity);
481 tsu_render;
482 endsuglyph;
483

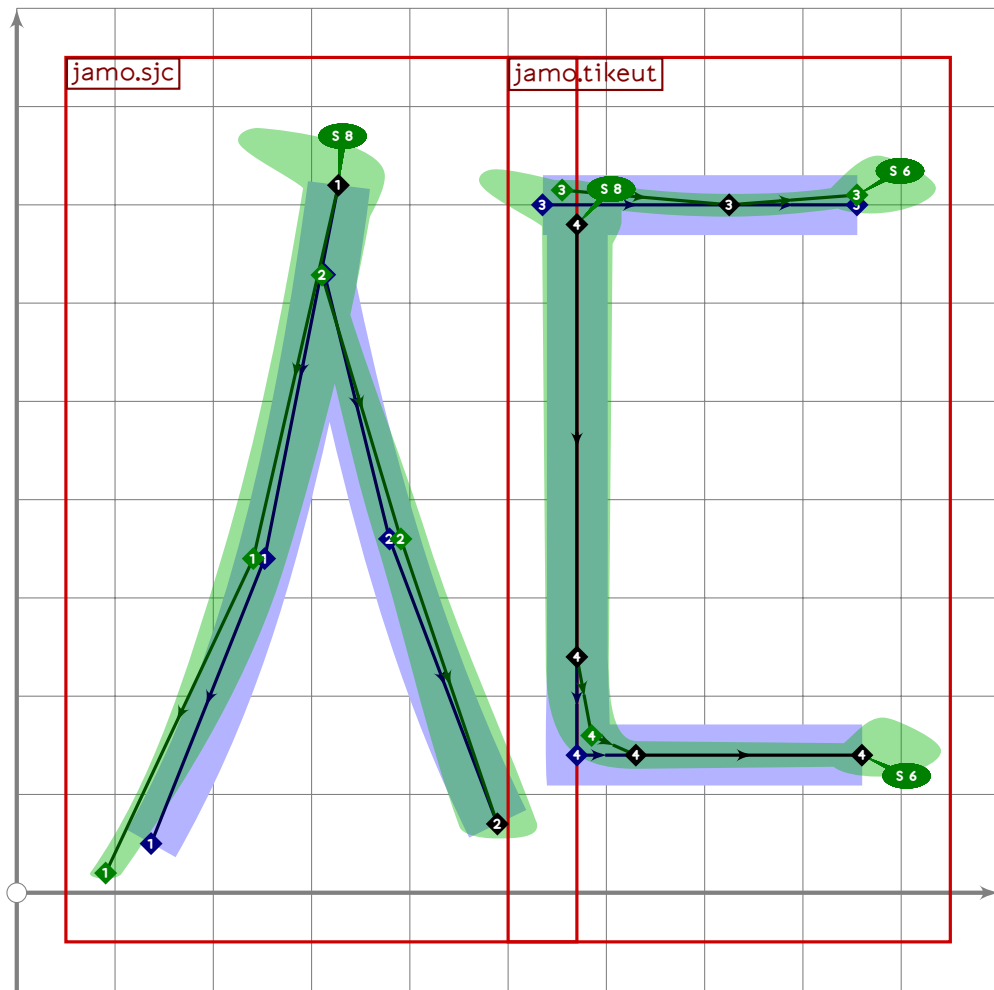
```



```

484 % hangul sios-nieun
485 \begin{suglyph}{"uni317B";123};
486 \hangul.combine.lr(109,102)(whatever,identity,identity);
487 \tsu_render;
488 \end{suglyph};
489

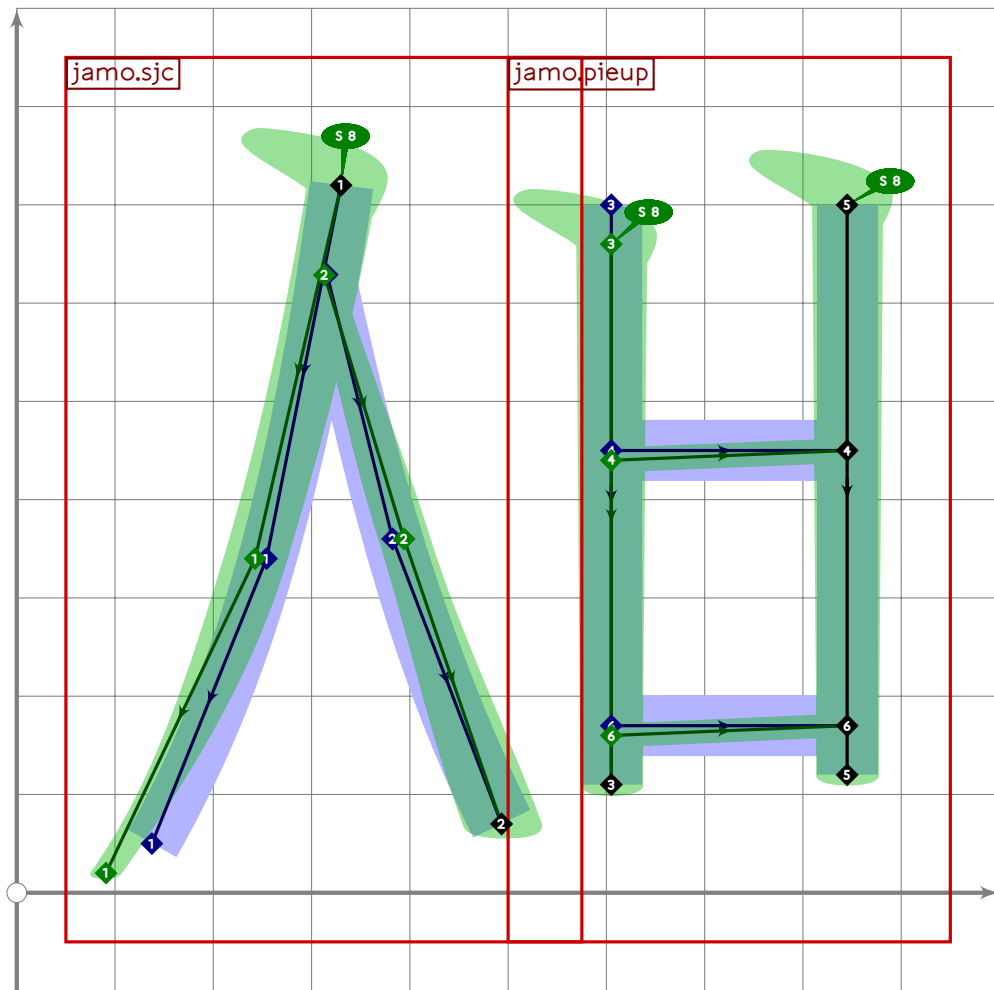
```



```

490 % hangul sios-tikeut
491 begint Suglyph("uni317C";124);
492 hangul.combine.lr(109,103)(whatever,identity,identity);
493 tsu_render;
494 endsuglyph;
495

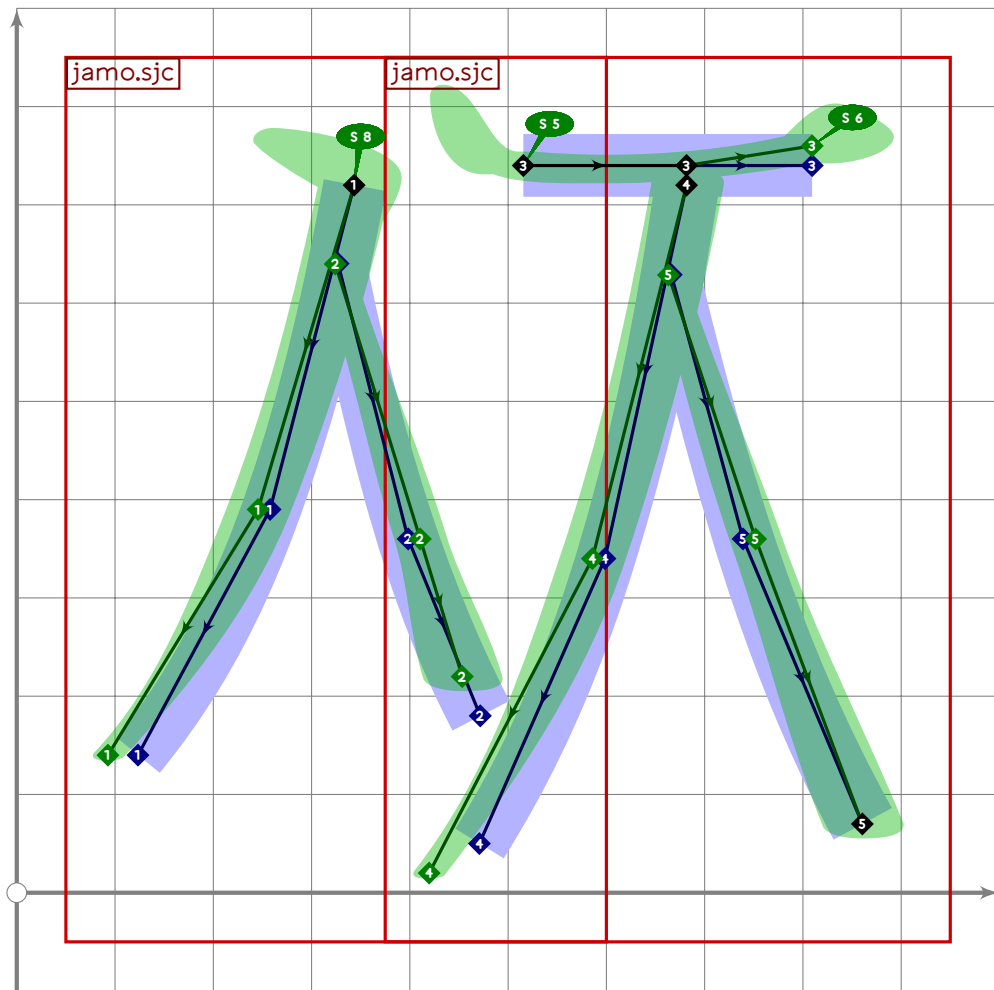
```



```

496 % hangul sios-pieup
497 begint Suglyph("uni317D";125);
498 hangul.combine.lr(109,107)(whatever,identity,identity);
499 tsu_render;
500 endsuglyph;
501

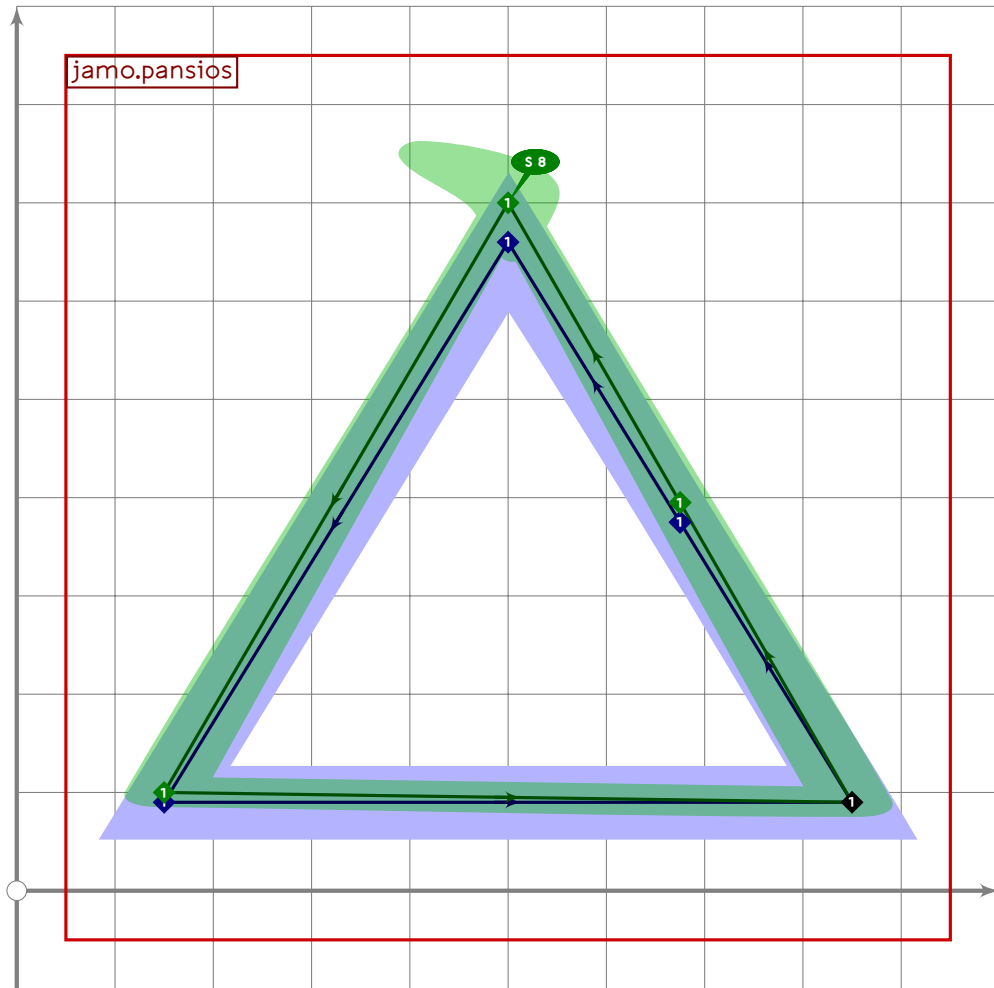
```



```

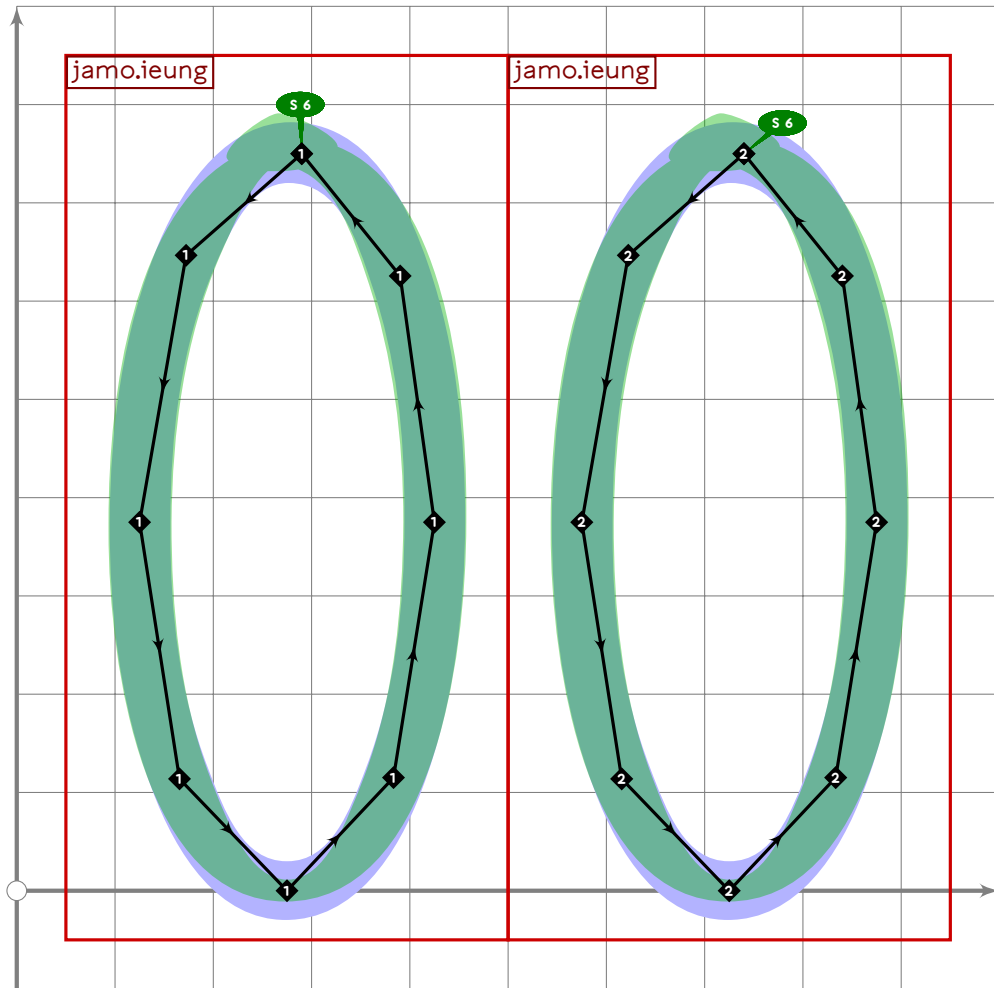
502 % hangu sios-cieuc
503 begint Suglyph("uni317E",126);
504 hangu.combine.lr(209,112)(whatever,identity,identity);
505 tsu_render;
506 endsuglyph;
507

```



```
508 % hangul pansios
509 begint Suglyph("uni317F";127);
510 hangul.jamo.pansios(whatever,identity,identity);
511 tsu_render;
512 endsuglyph;
513
```

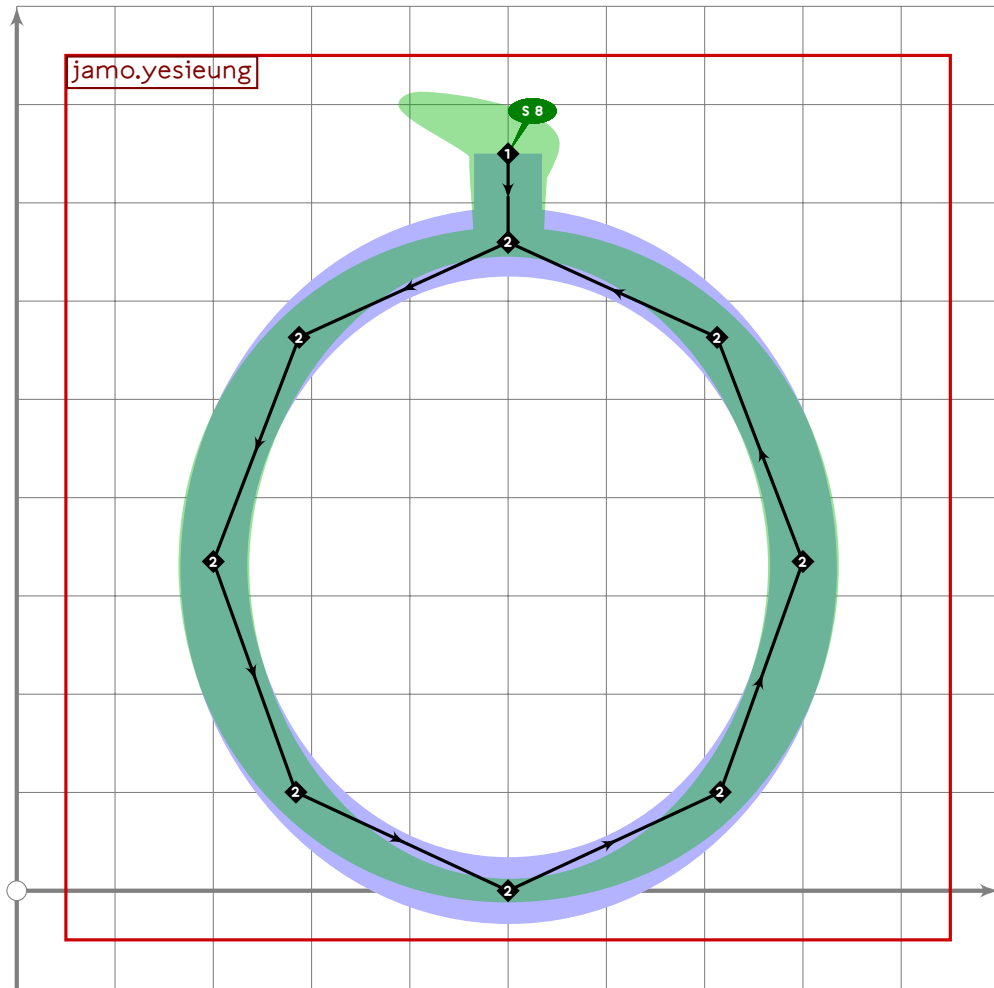




```

514 % hangul ssangieung
515 begintsuglyph("uni3180";128);
516 hangul.combine.lr(111,111)(whatever;identity,identity);
517 tsu_render;
518 endsuglyph;
519

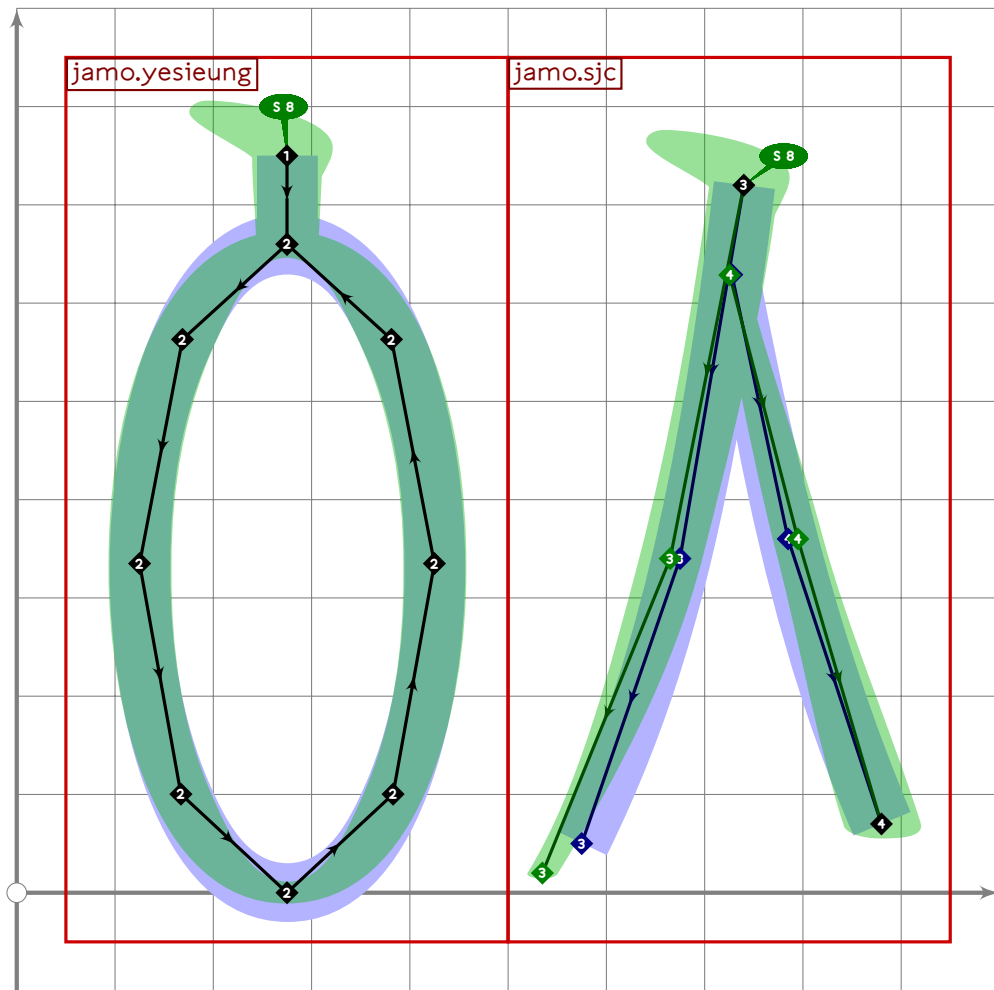
```



```

520 % hangul yesieung
521 begint Suglyph("uni3181",129);
522 hangul.jamo.yesieung(whatever;identity,identity);
523 tsu_render;
524 endsuglyph;
525

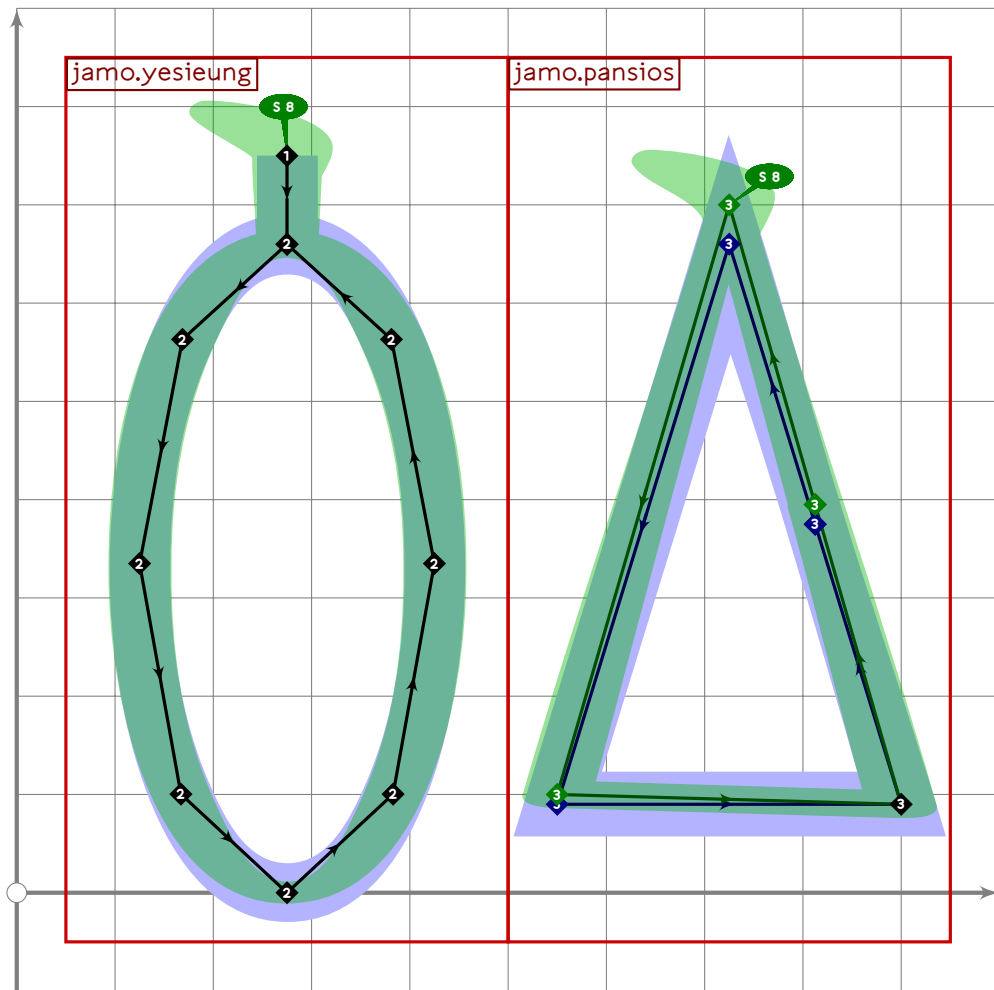
```



```

526 % hangul yesieung-sios
527 begint Suglyph("uni3182";130);
528 hangul.combine.lr(220,109)(whatever;identity;identity);
529 tsu_render;
530 endsuglyph;
531

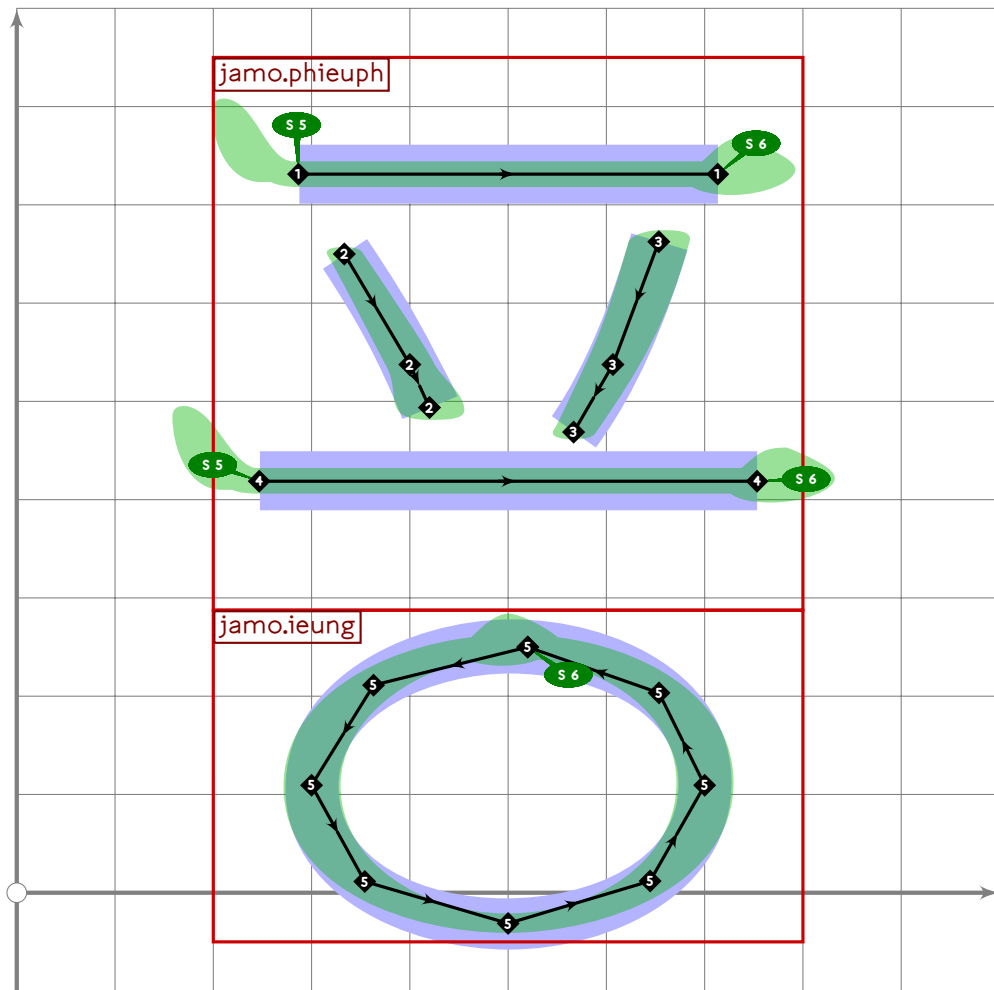
```



```

532 % hangul yesieung-pansios
533 beginsuglyph("uni3183";131);
534 hangul.combine.lr(220,219)(whatever;identity;identity);
535 tsu_render;
536 endsuglyph;
537

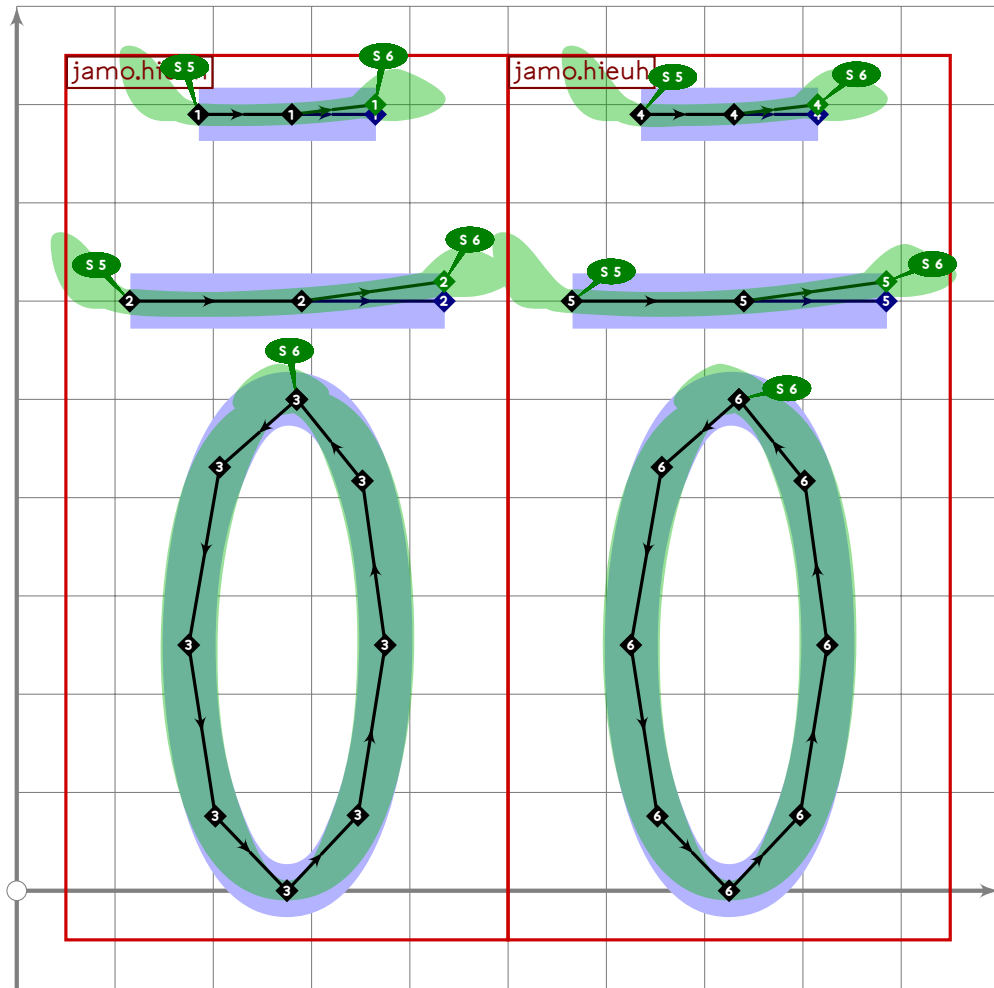
```



```

538 % hangul kapyeounphieuph
539 begint Suglyph("uni3184",132);
540 hangul.combine.tb(117,521)(whatever,hxf((200,850),(800,-50)),identity);
541 tsu_render;
542 endtsuglyph;
543

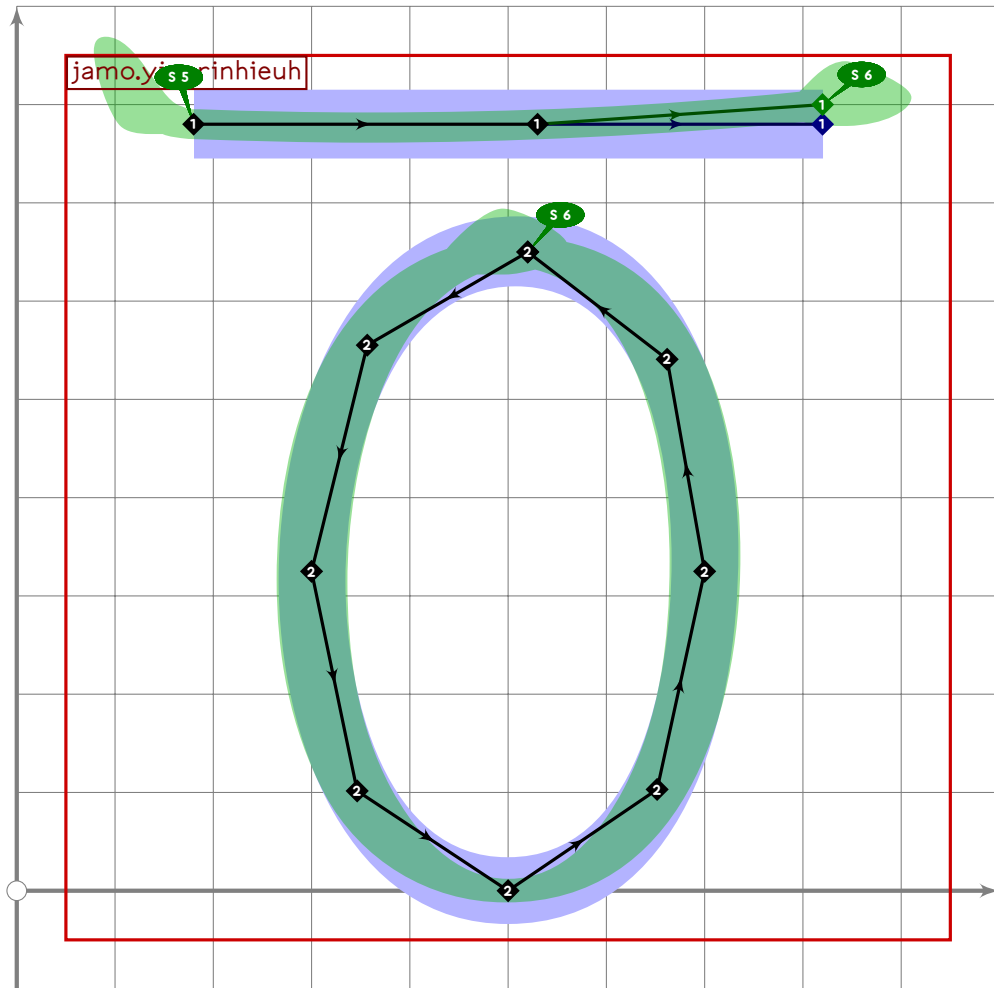
```



```

544 % hangul ssanghieuh
545 begint Suglyph("uni3185",133);
546 hangul.combine.lcr(118,230,118)(whatever,identity,identity);
547 tsu_render;
548 endsuglyph;
549

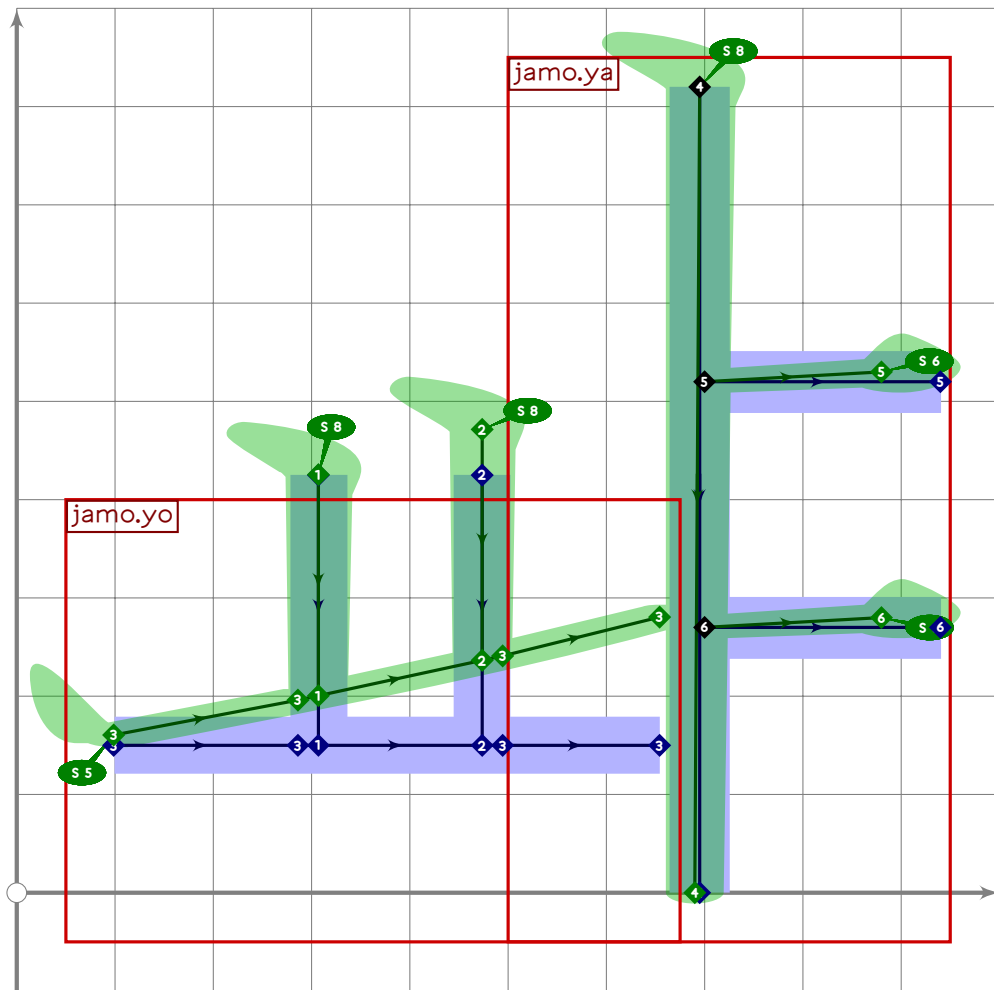
```



```

550 % hangul yeorinhieuh
551 begint Suglyph("uni3186";134);
552 hangul.jamo.yeorinhieuh(whatever;identity;identity);
553 tsu_render;
554 endsuglyph;
555

```

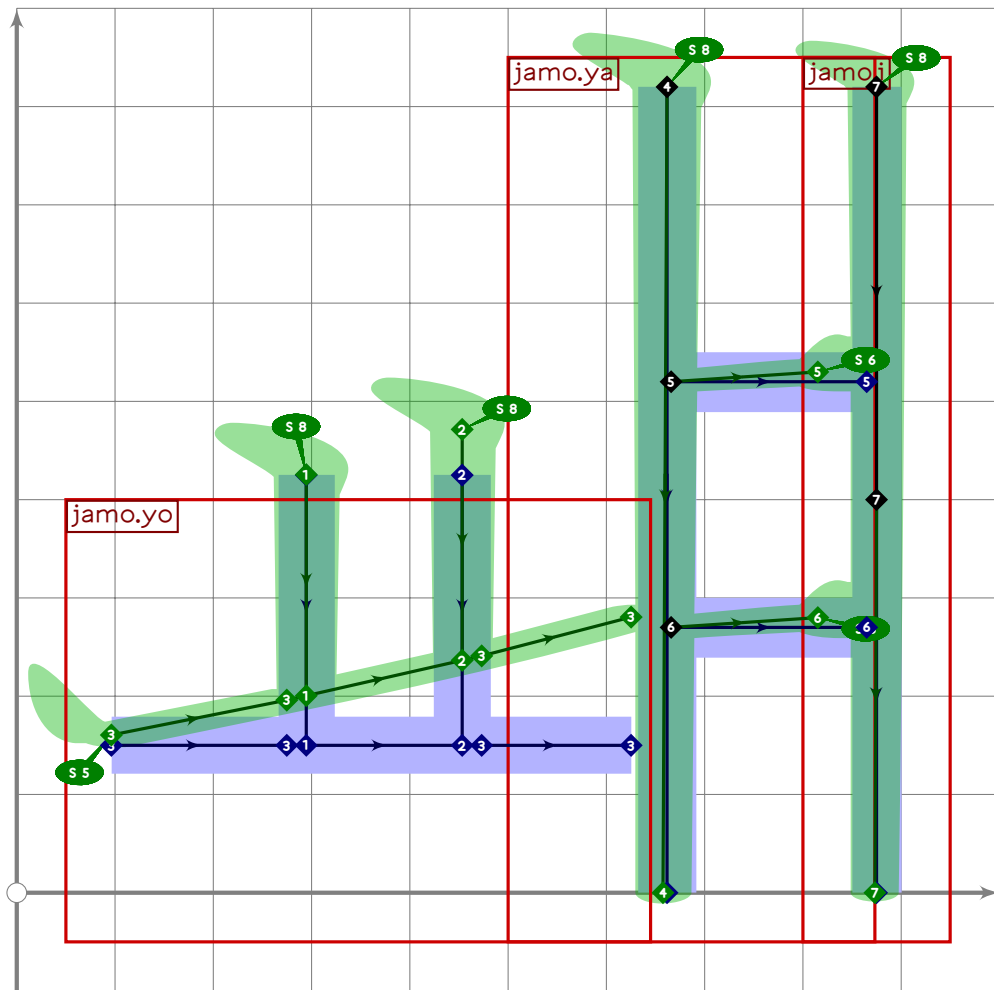


```

556 % hangul yo-ya
557 begint Suglyph("uni3187";135);
558 hangul.combine.lr(312,302)(421,hxf((500,400),(950,-50)),identity);
559 tsu_render;
560 endsuglyph;
561

```

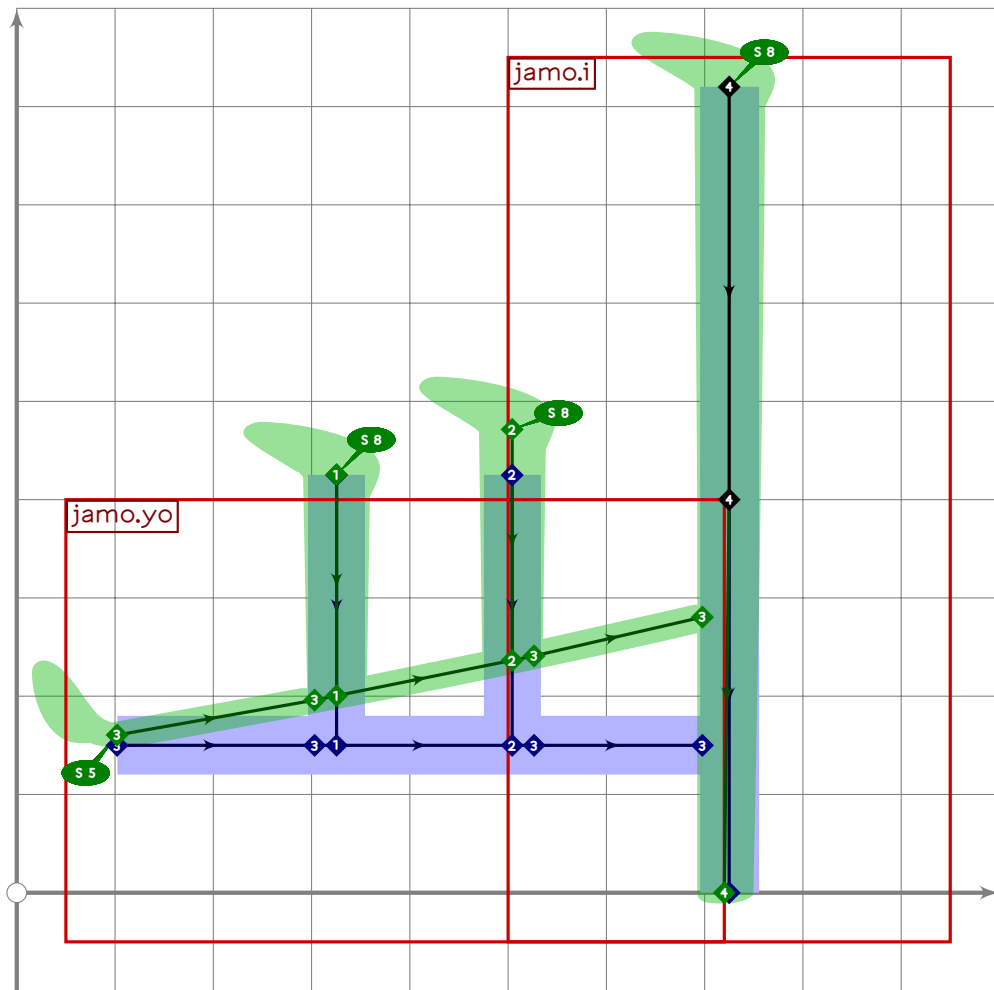




```

562 % hangul yo-yae
563 begint Suglyph("uni3188";136);
564 hangul.combine.lr(312,303)(422,hxf((500,400),(950,-50)),identity);
565 tsu_render;
566 endsuglyph;
567

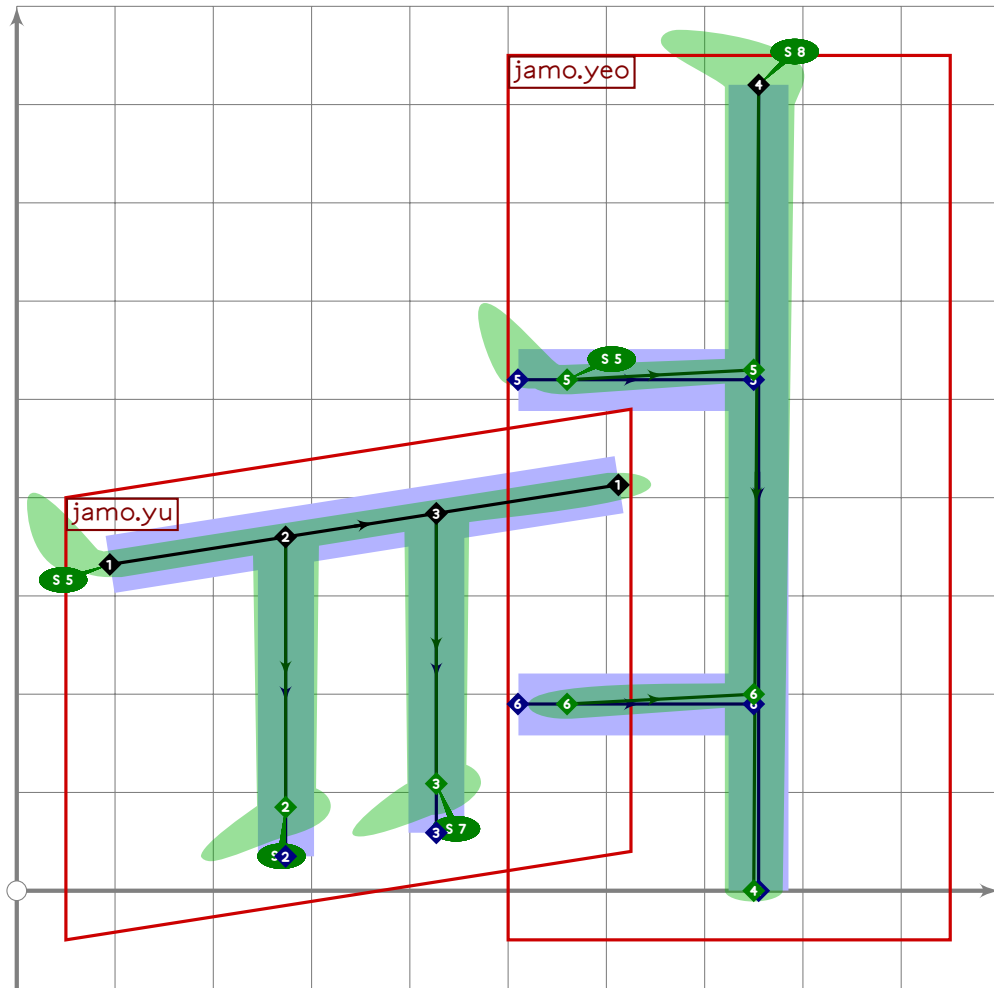
```



```

568 % hangul yo-i
569 begint Suglyph("uni3189";137);
570 hangul.combine.lr(312,320)(423,hxf((500,400),(950,-50)),identity);
571 tsu_render;
572 endtsuglyph;
573

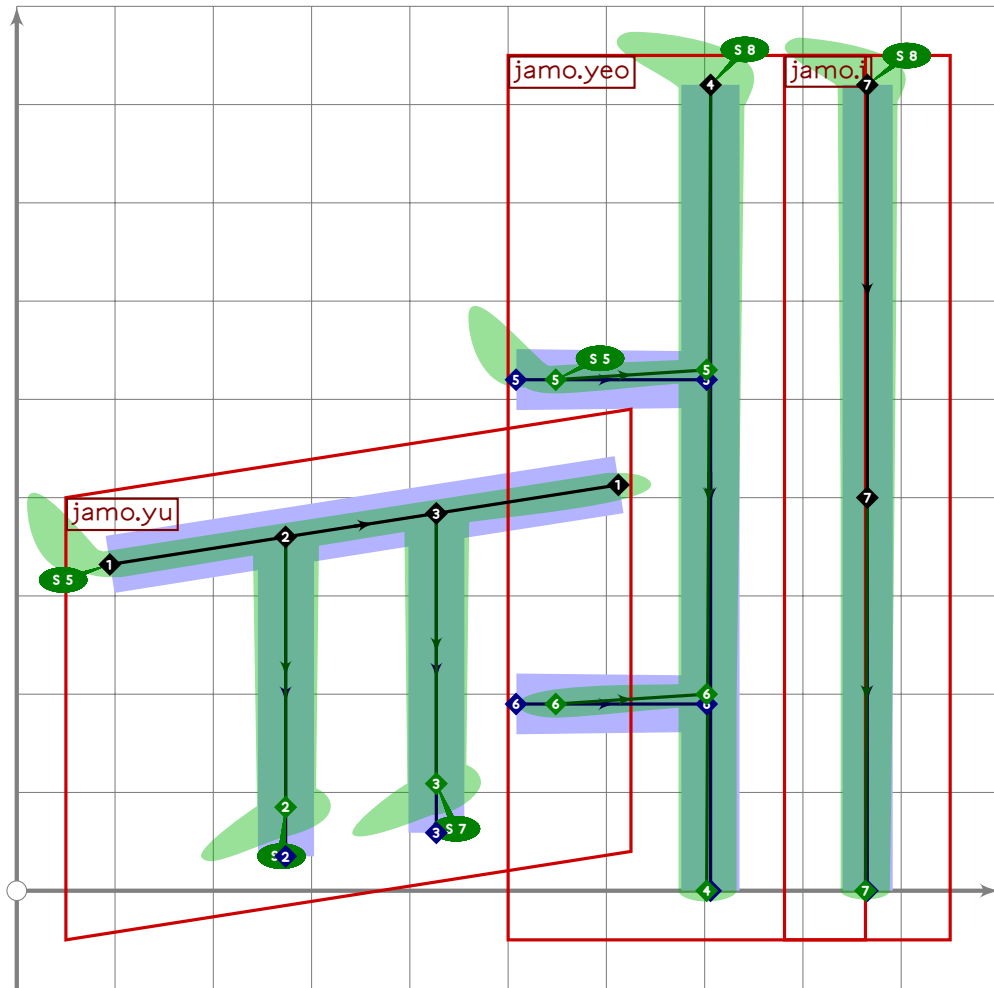
```



```

574 % hangul yu-yeo
575 begint Suglyph("uni318A";138);
576 hangul.combine.lr(317,306)(424,hxf((500,400),(950,-50)),identity);
577 tsu_render;
578 endtsuglyph;
579

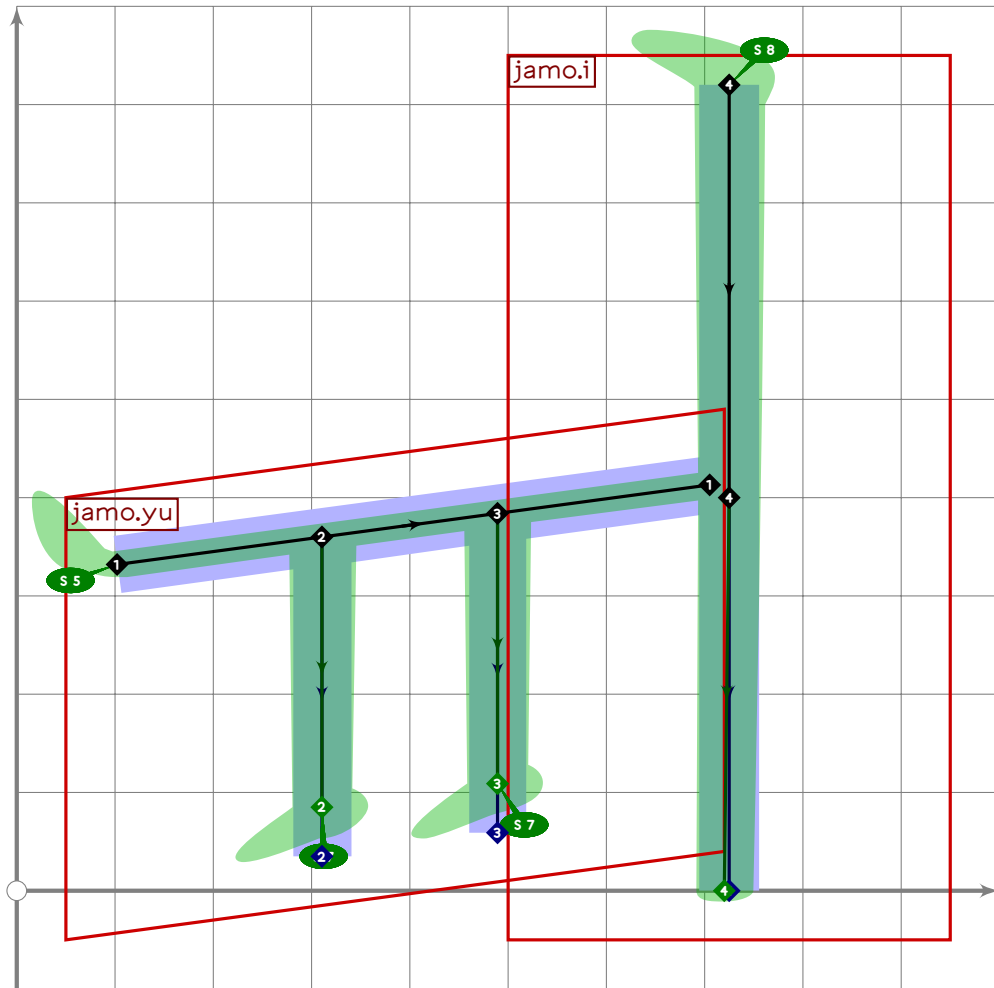
```



```

580 % hangul yu-ye
581 begint Suglyph("uni318B";139);
582 hangul.combine.lr(317,307)(425,hxf((500,400),(950,-50)),identity);
583 tsu_render;
584 endsuglyph;
585

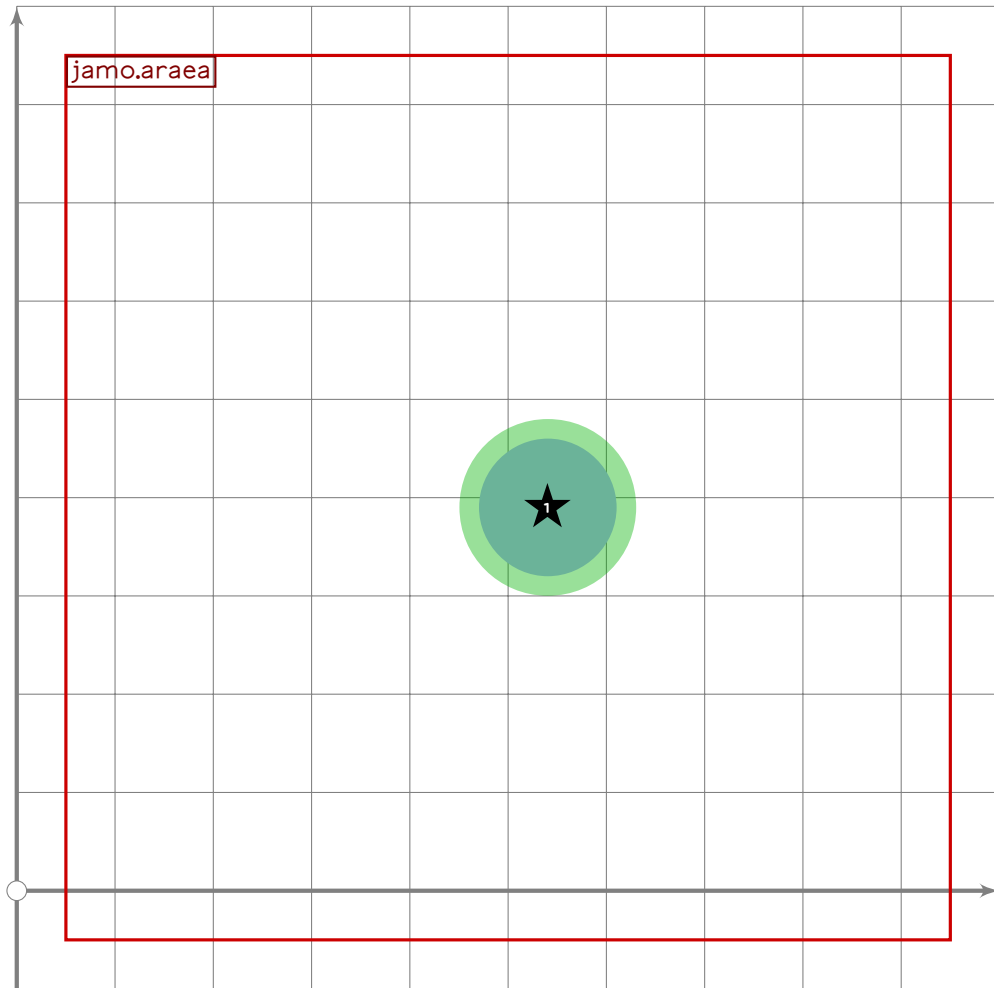
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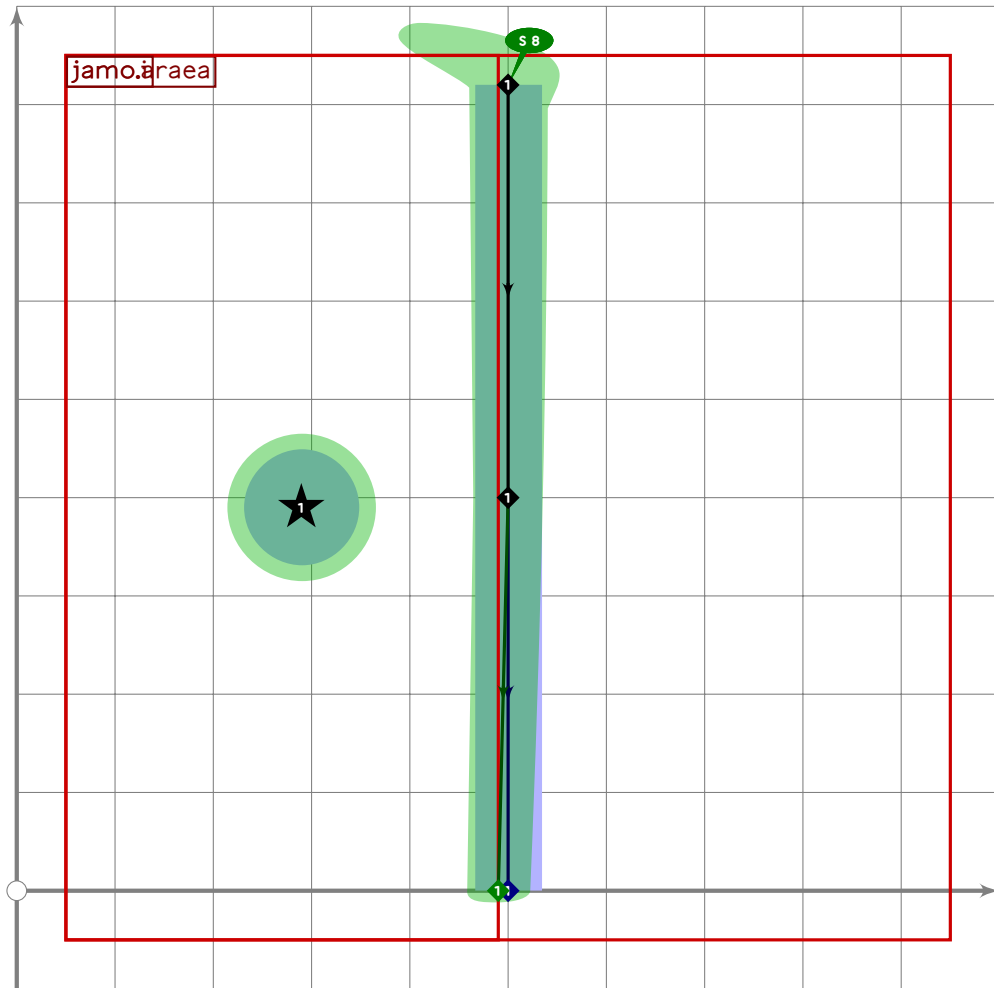
```

586 % hangul yu-i
587 begint Suglyph("uni318C",140);
588 hangul.combine.lr(317,320)(426,hxf((500,400),(950,-50)),identity);
589 tsu_render;
590 endsuglyph;
591

```



```
592 % hangul araea
593 begintuglyph("uni318D";141);
594 hangul.jamo.araea(428,identity,identity);
595 tsu_render;
596 endtuglyph;
597
```



```

598 % hangul araeae
599 begint Suglyph("uni318E";142);
600 hangul.combine.lr(428,320)(427,identity,identity);
601 tsu_render;
602 endsuglyph;
603
604 _____
605
606 endfont;
607
608 _____

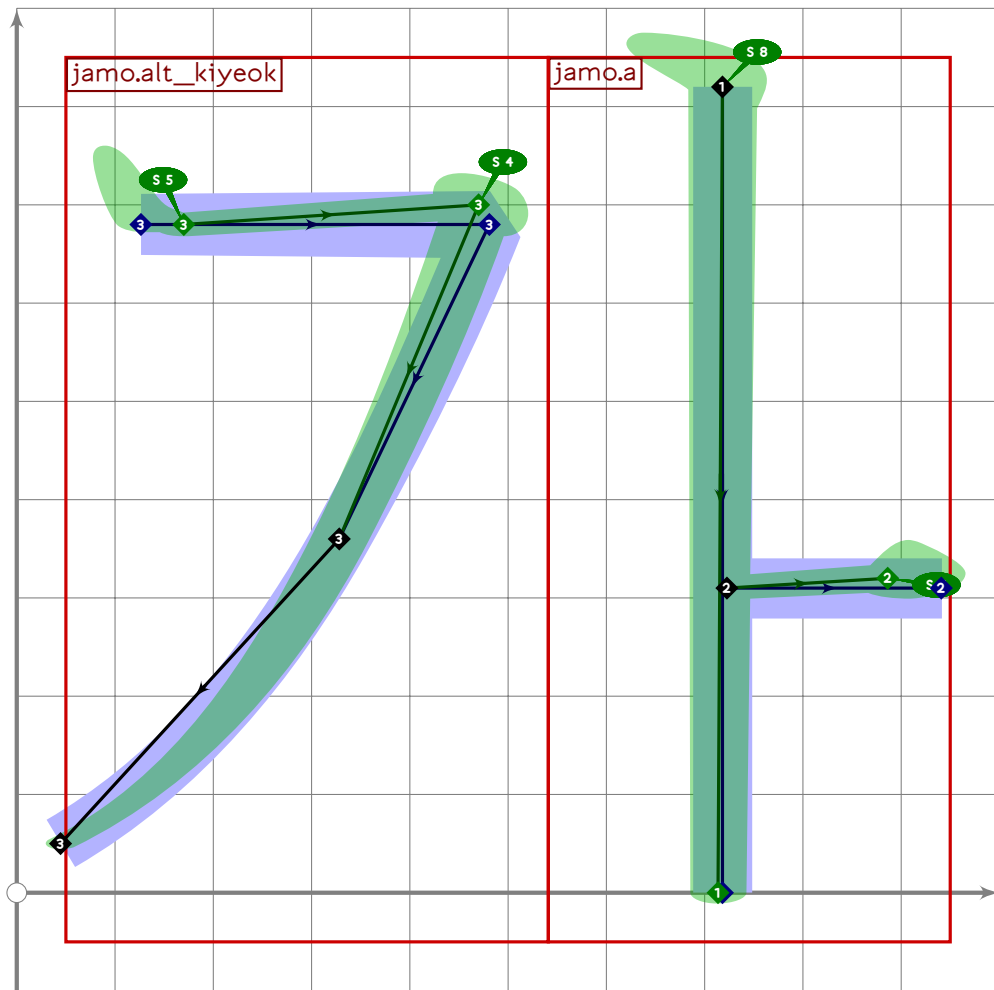
```

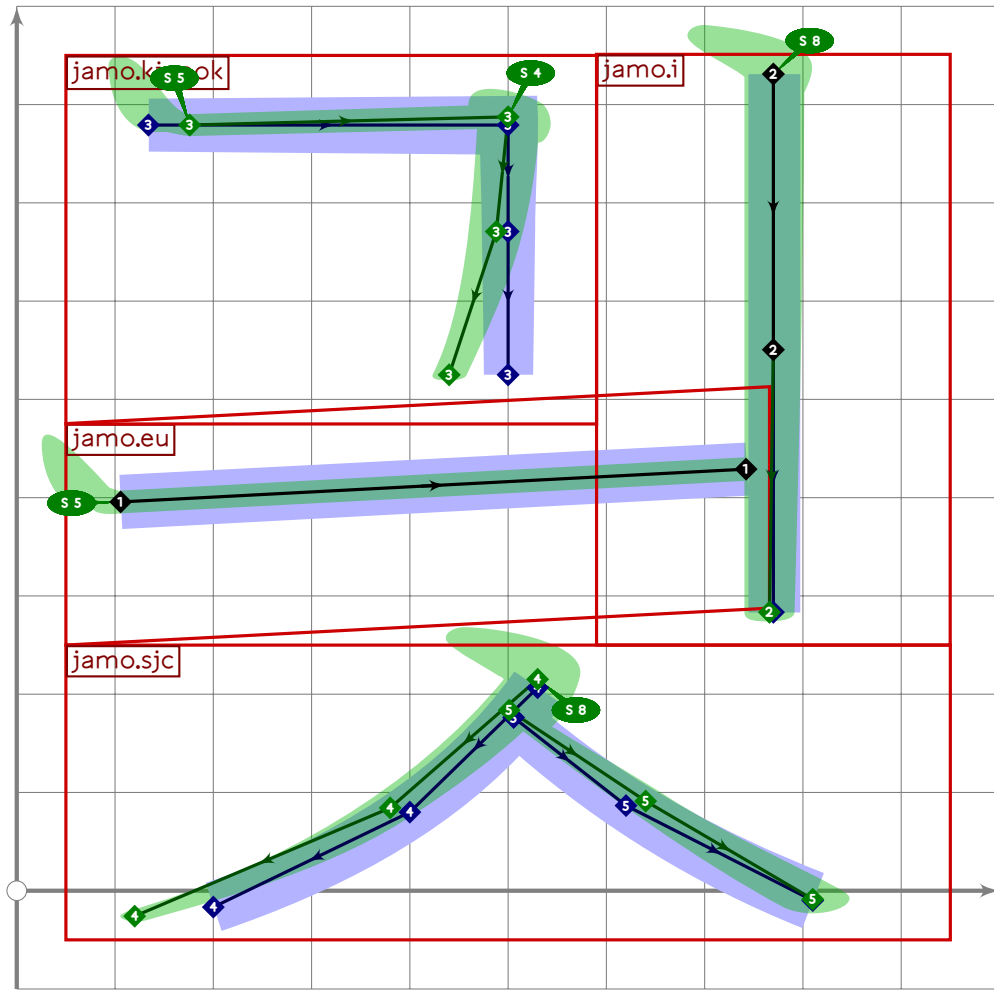
## jieub-ac.mp

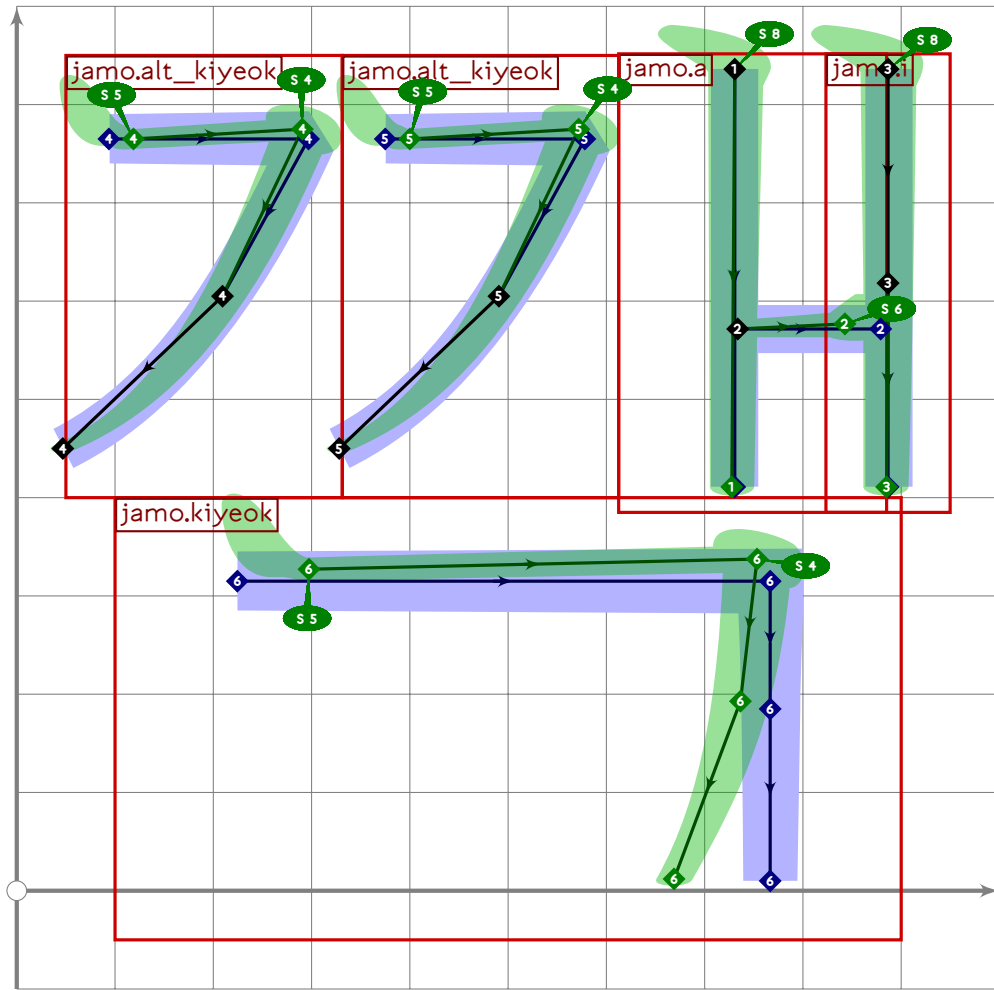
```
1 % GENERATED FILE - edit the source in make-hglpages instead!  
2  
3 string hgls_page; hgls_page="AC";  
4 hgls_lead=0;  
5 hgls_vowel=0;  
6 hgls_tail=0;  
7  
8 input hglpage.mp;
```

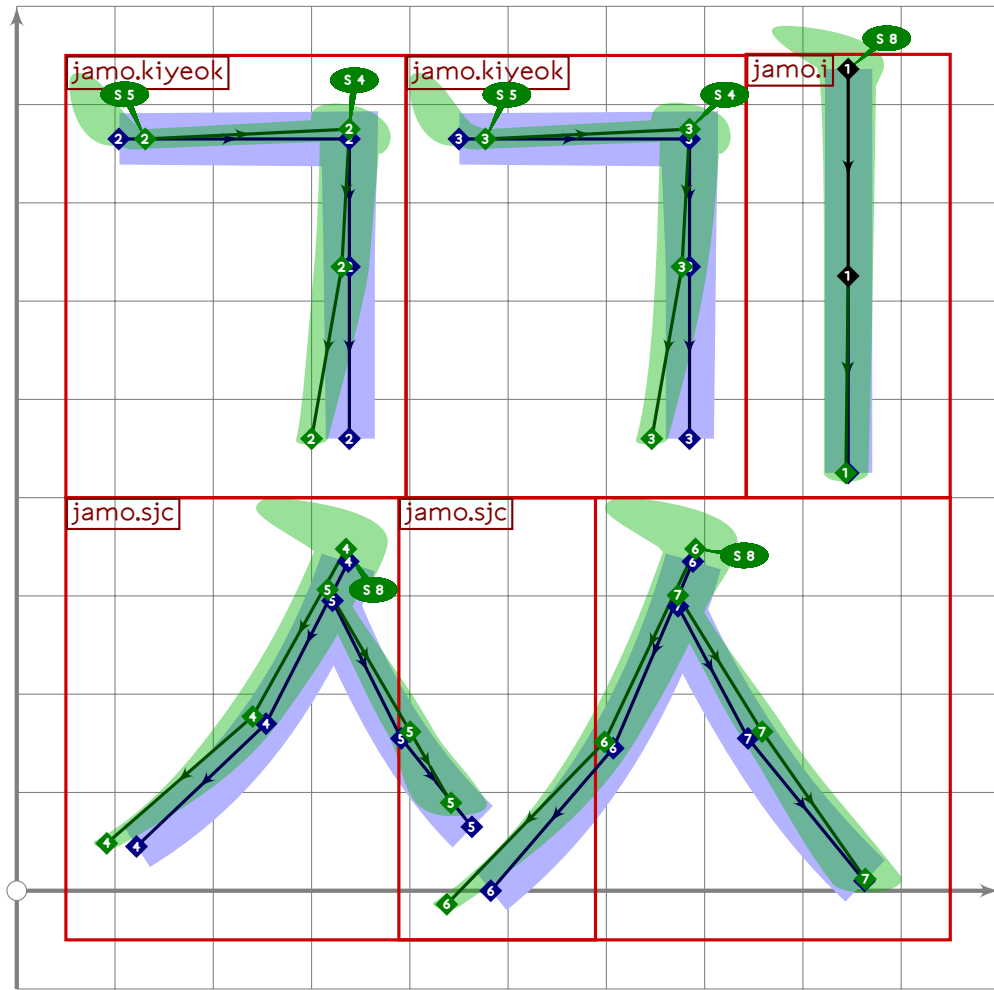
PLEASE NOTE: The files jieub-ac.mp through jieub-d7.mp are algorithmically generated, and identical except for the four variable assignments defining the start of each file's coverage range. They define a total of 11172 glyphs for precomposed hangul syllables, which all consist of the same few jamo in systematically varying arrangements. It seems that generating a proof page for every one of these files and glyphs would not be a good use of resources. Instead, we give an example of one MetaPost file above, and on the following pages, detailed proofs for 28 syllable glyphs covering at least one example of every lead, vowel, and tail jamo. After that is a table of all the precomposed syllables printed 480 per page.

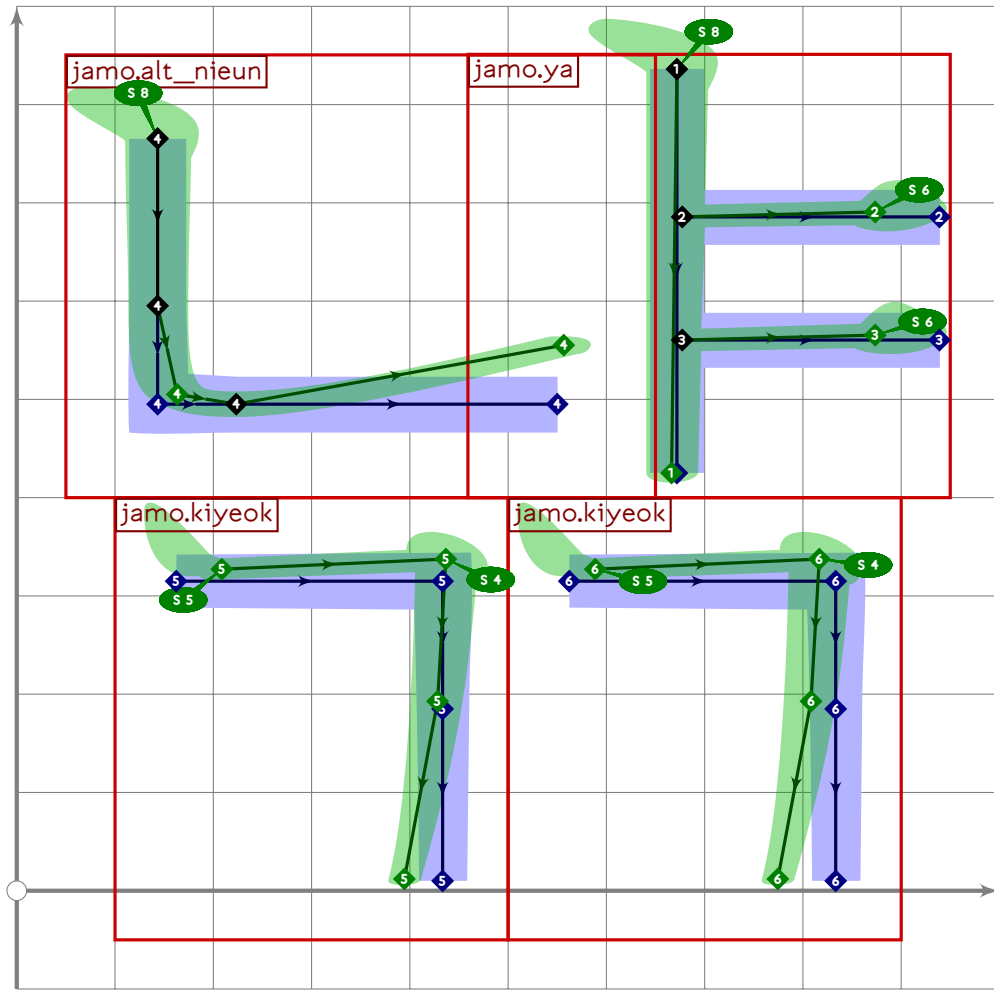


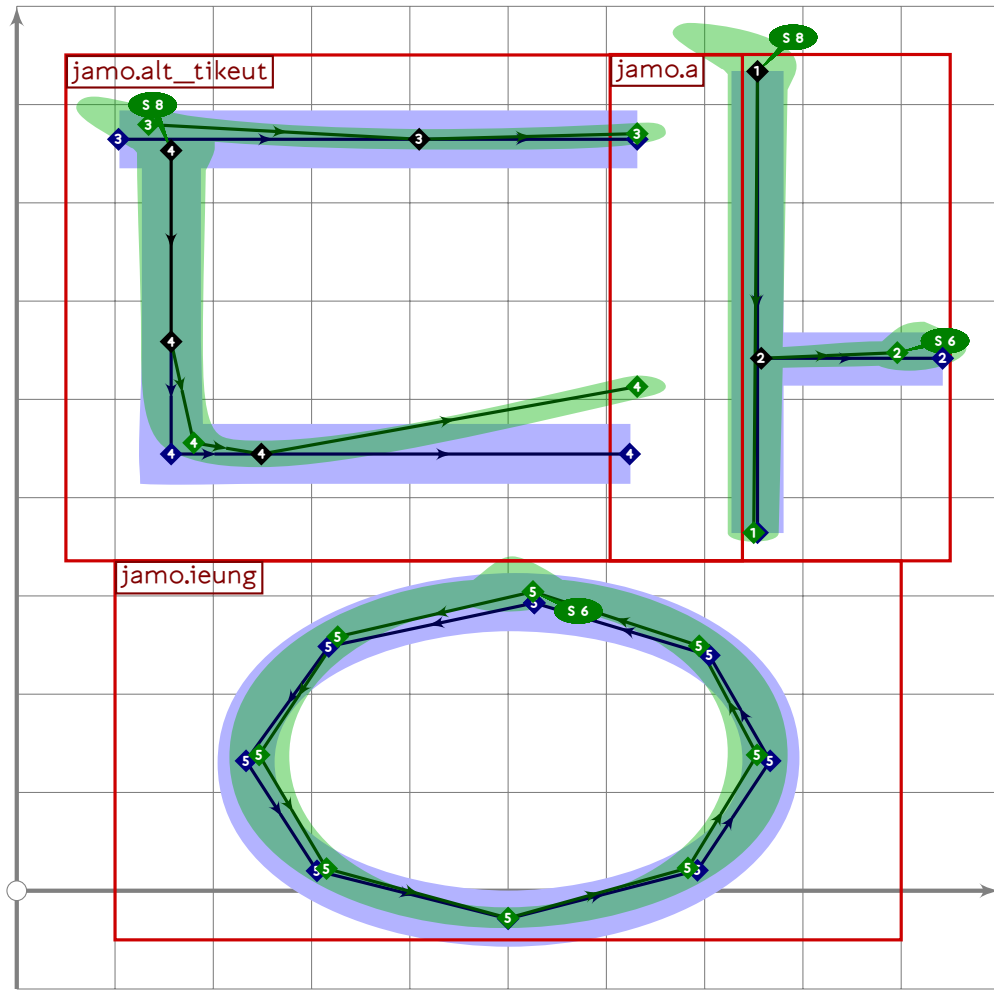


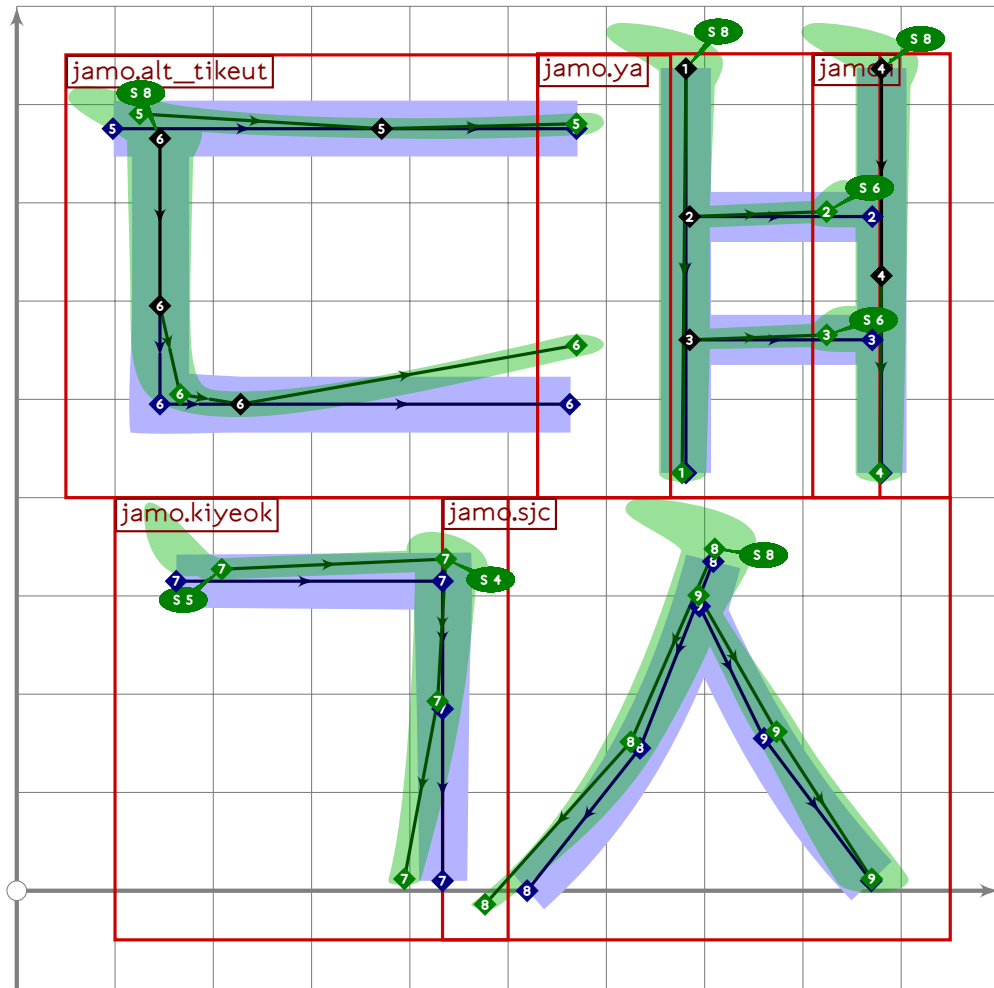


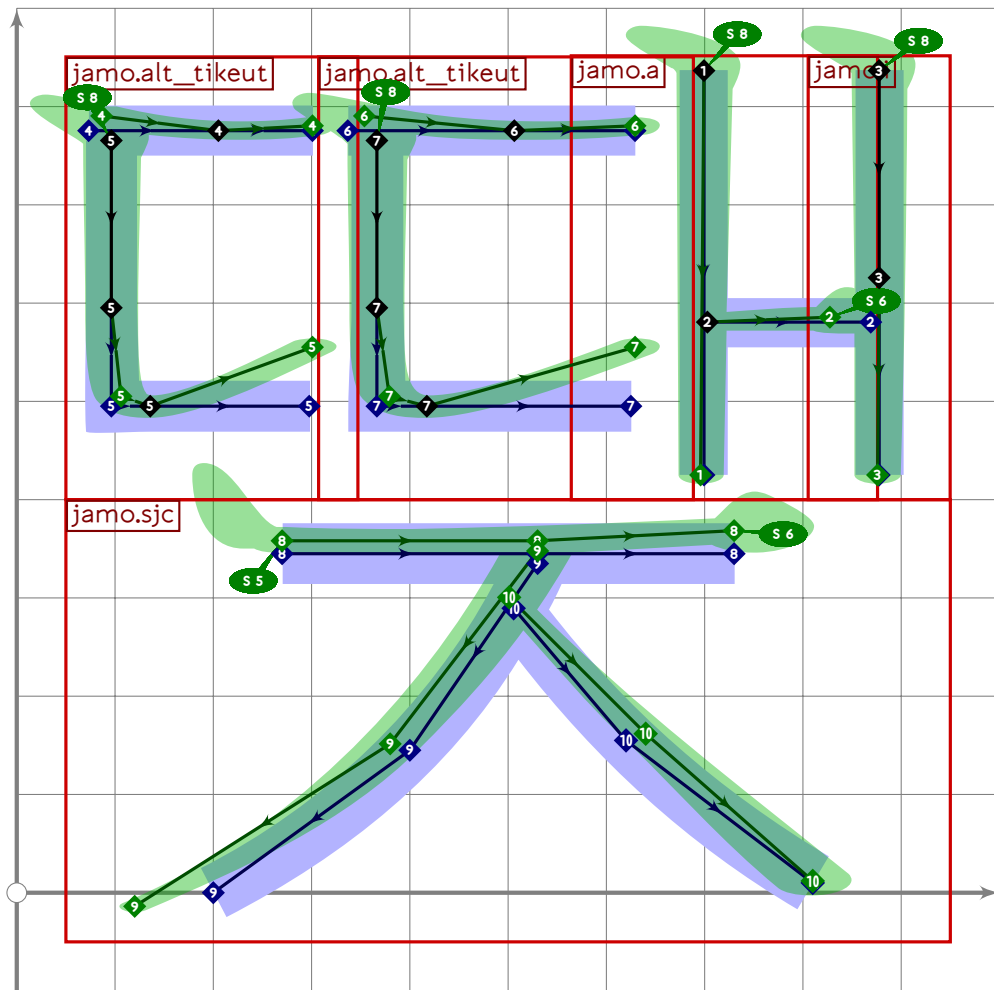




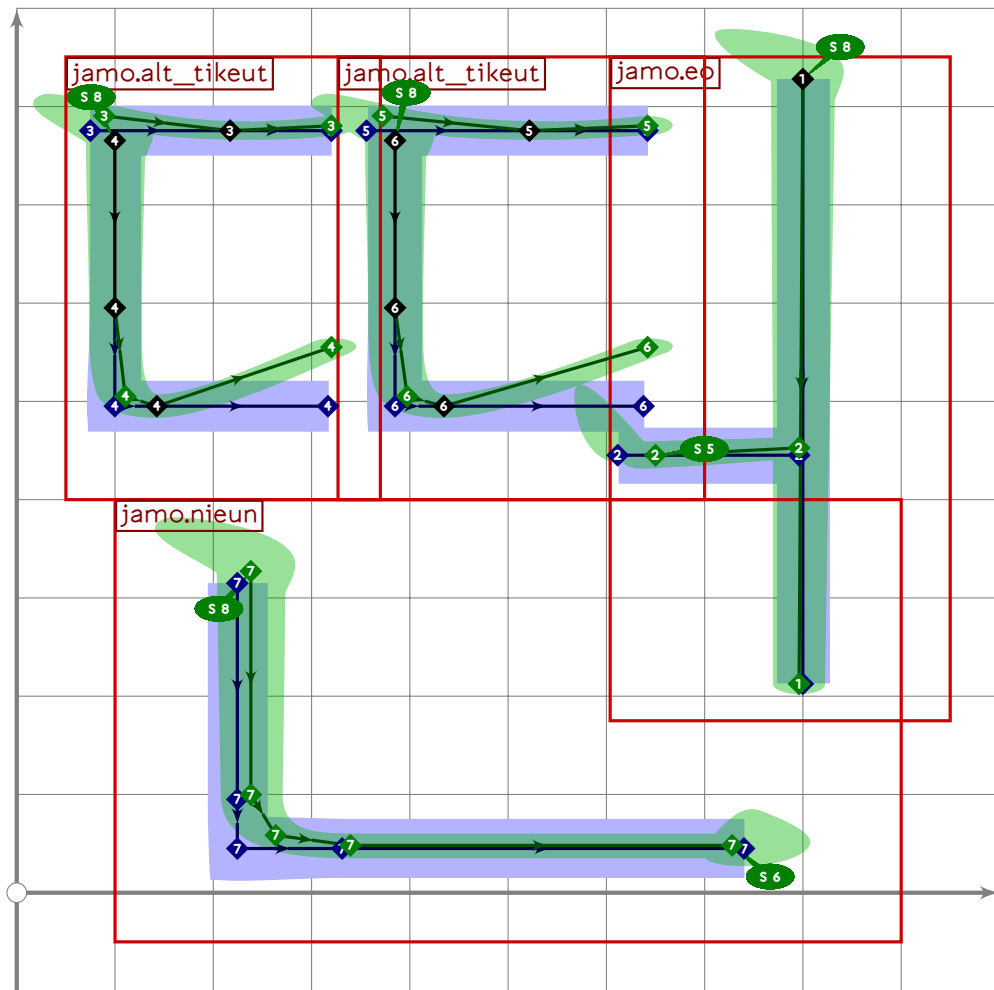


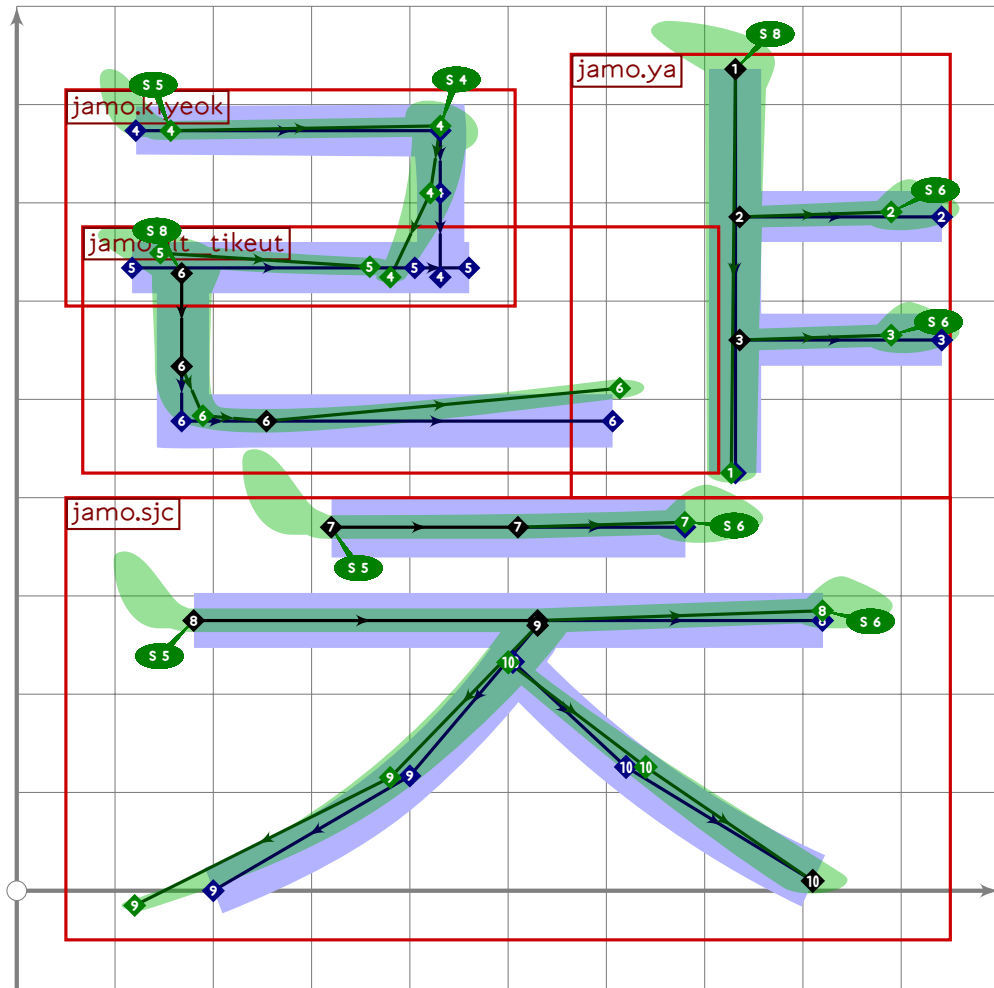


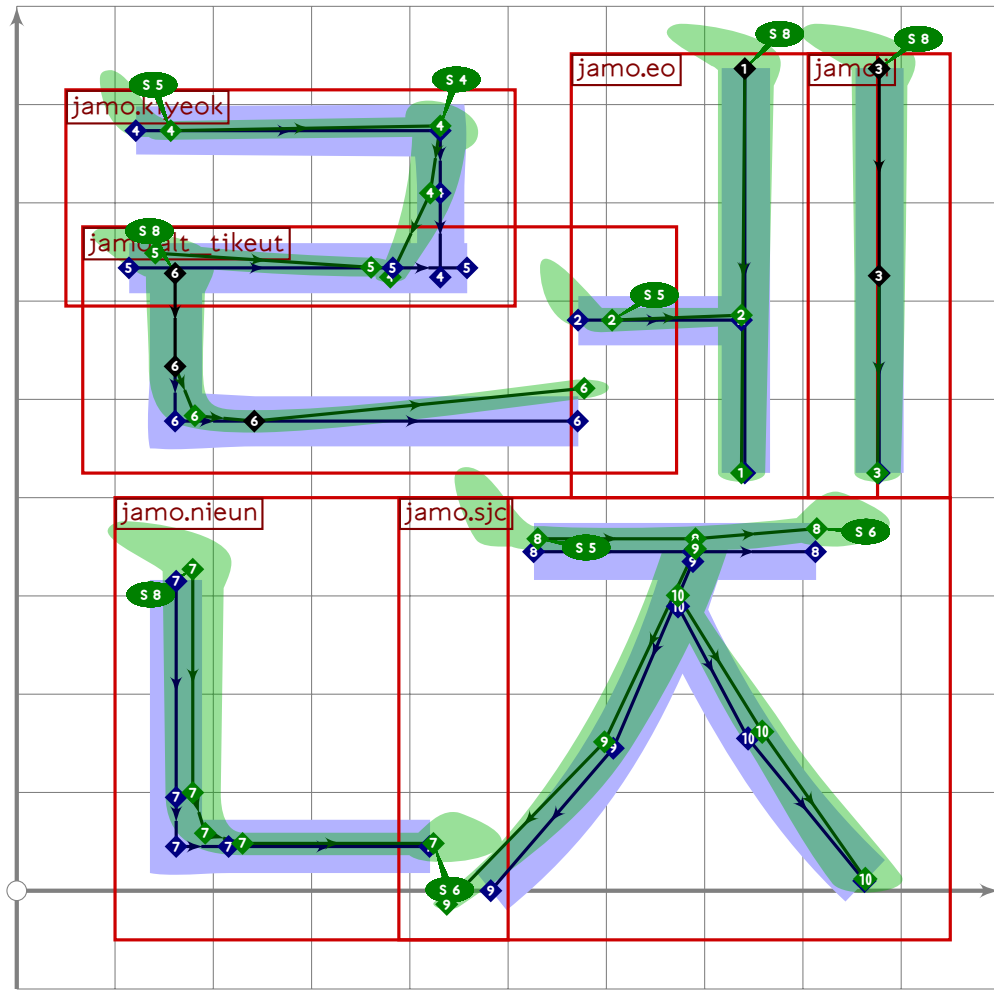


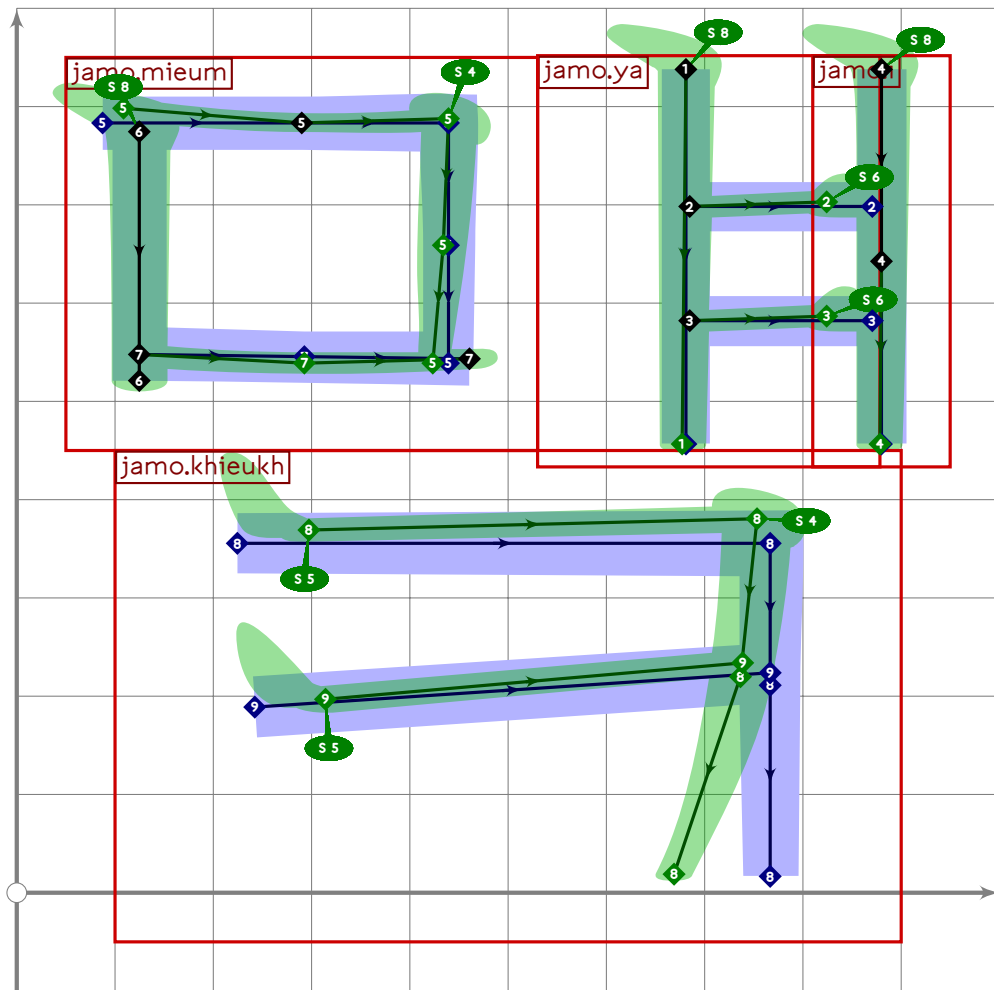


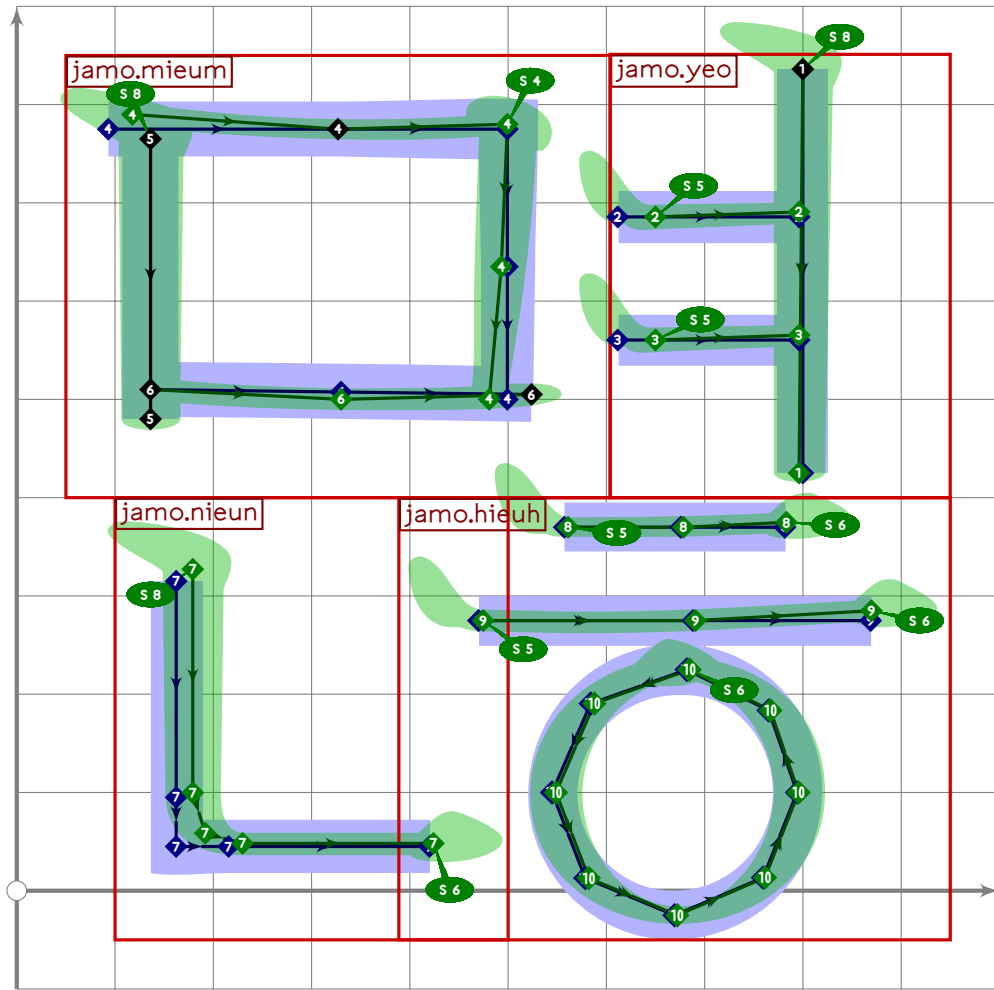


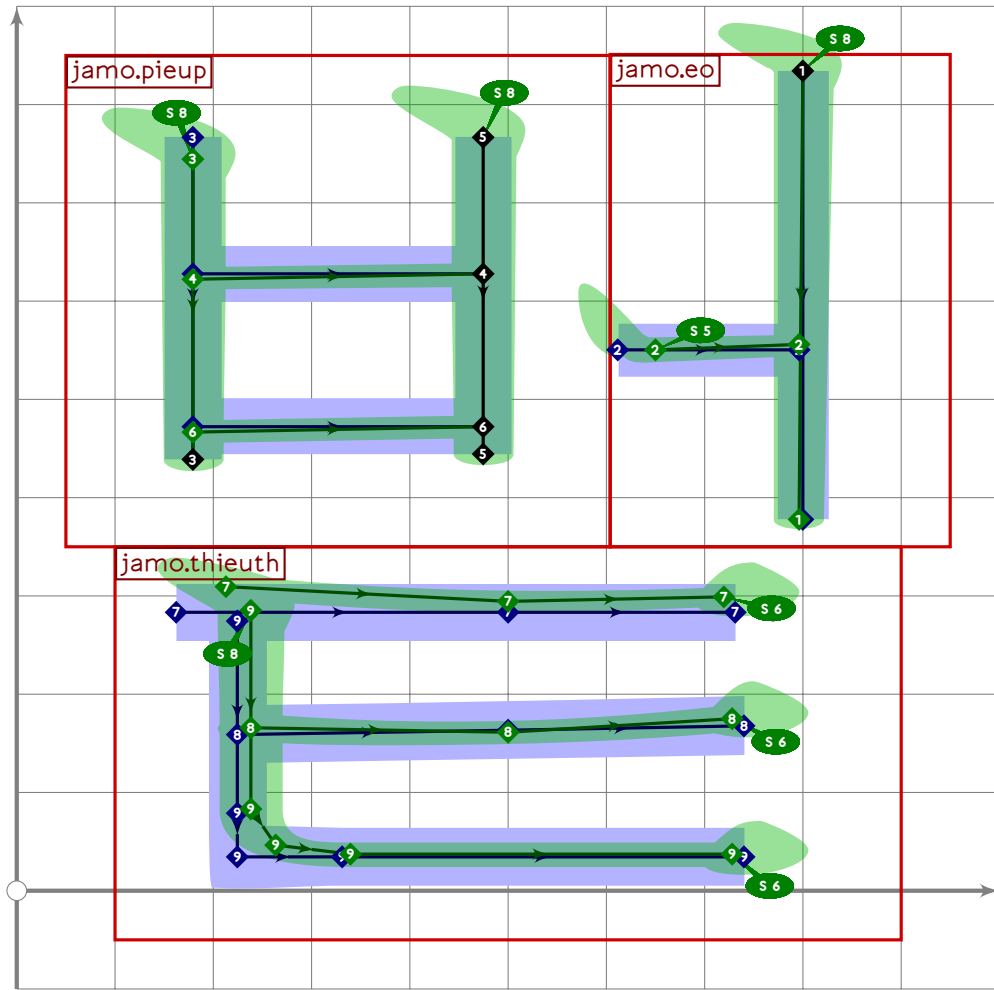


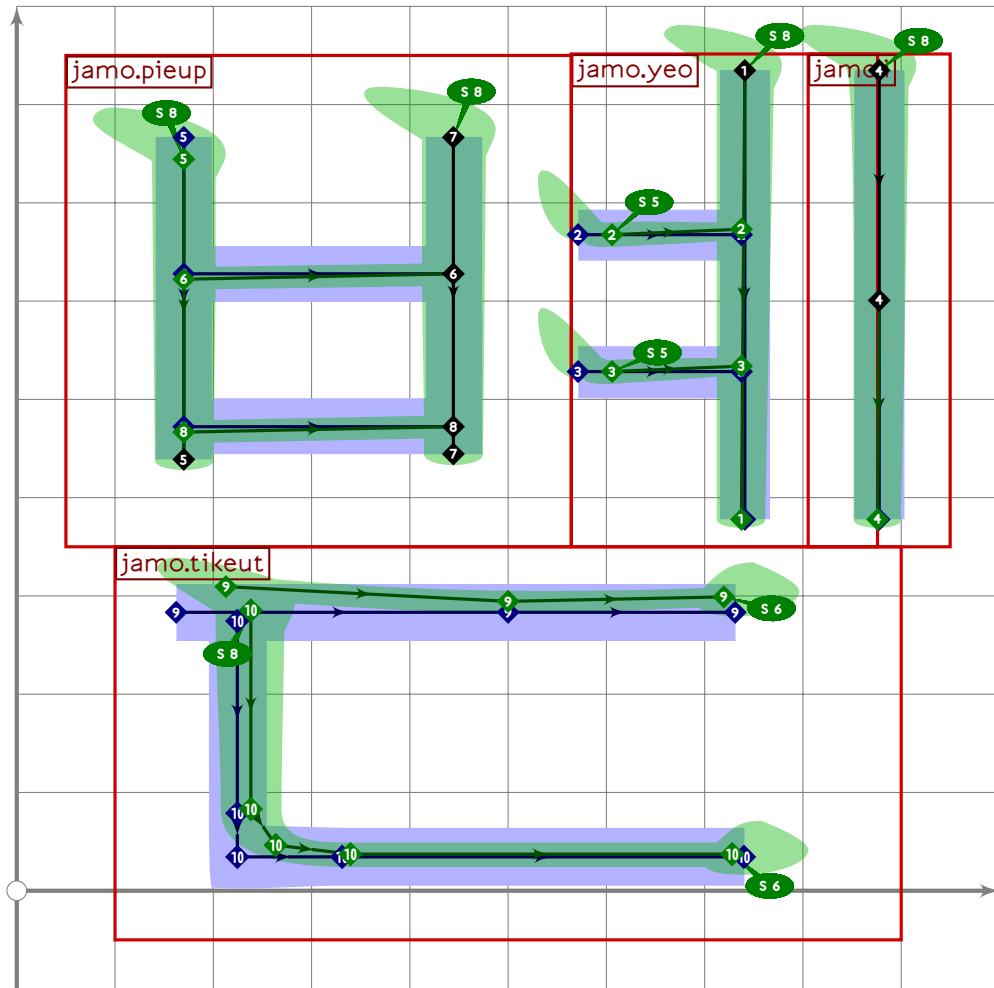


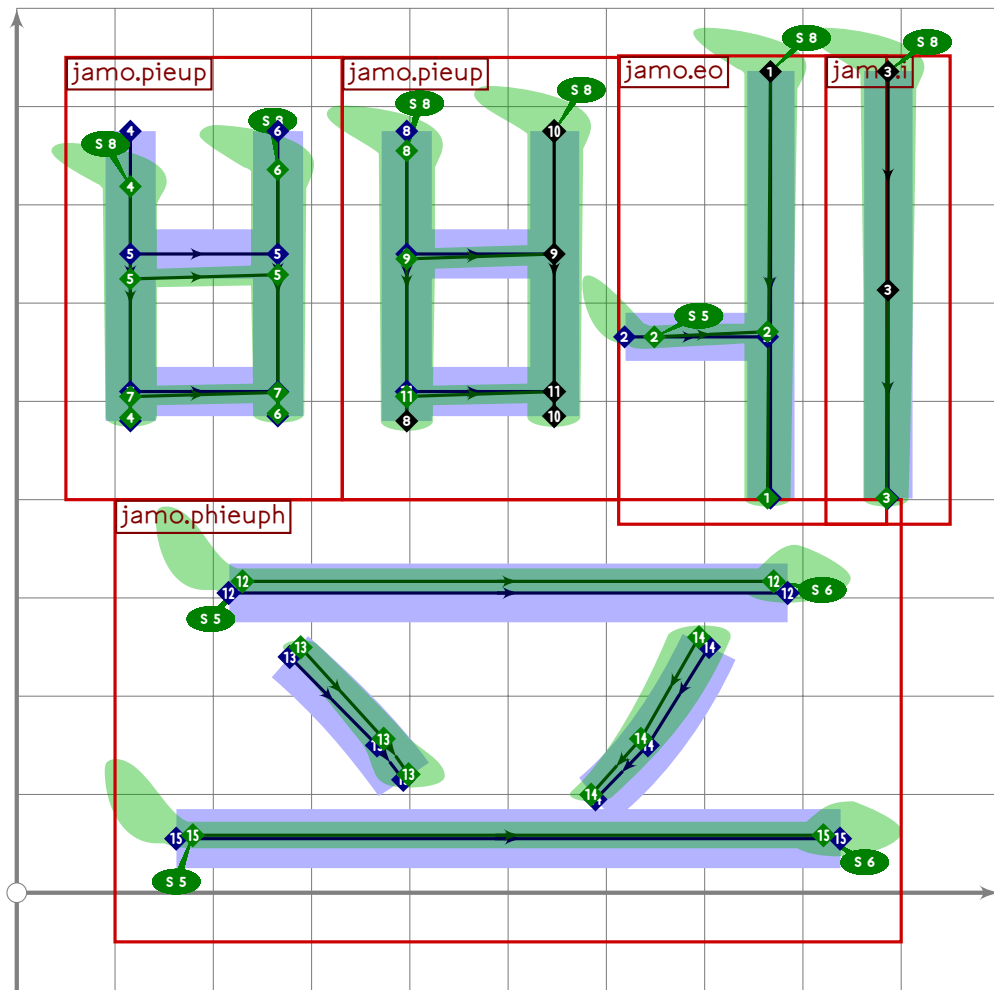




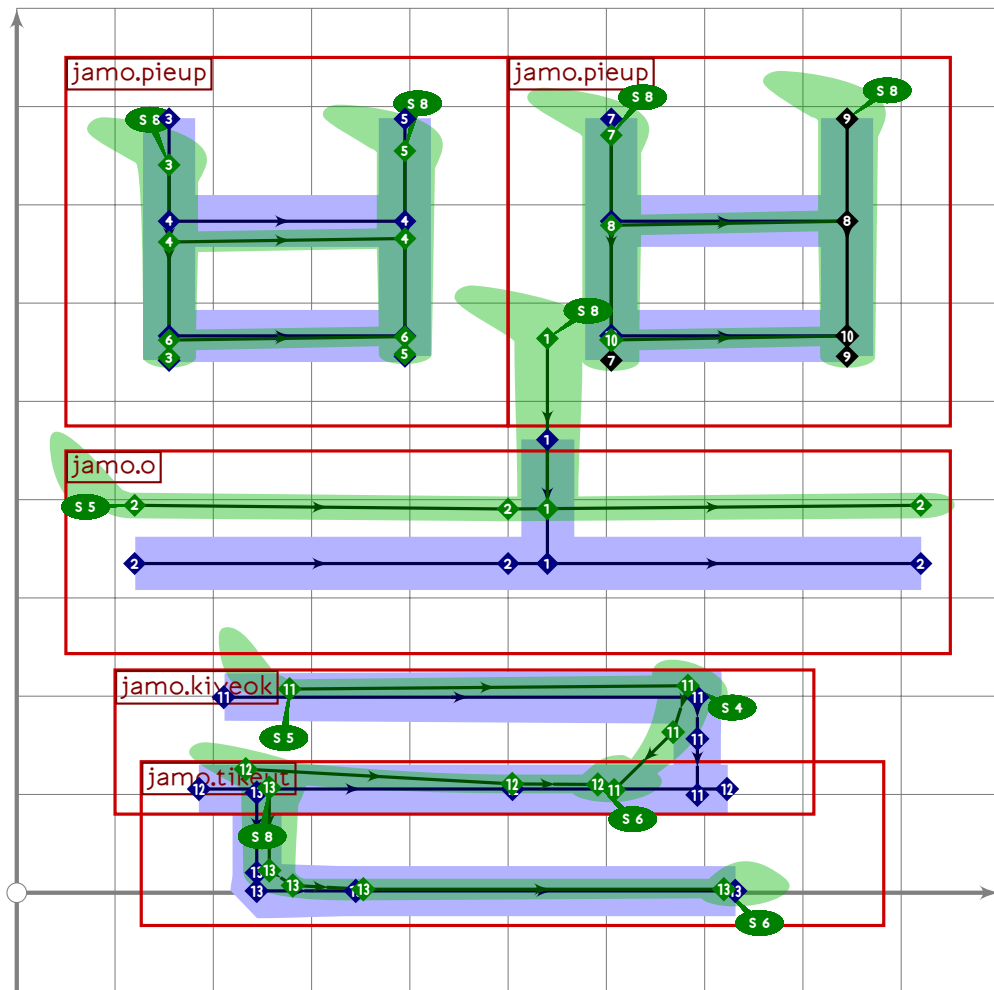


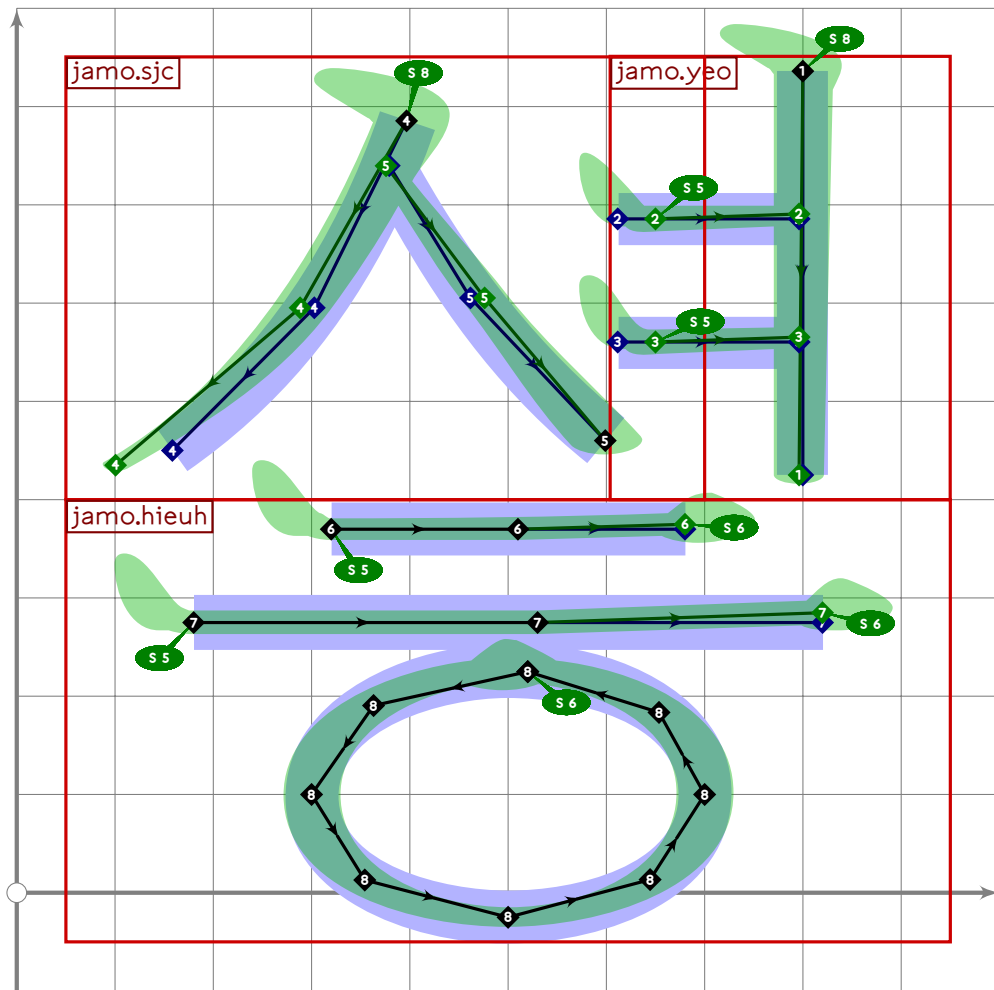


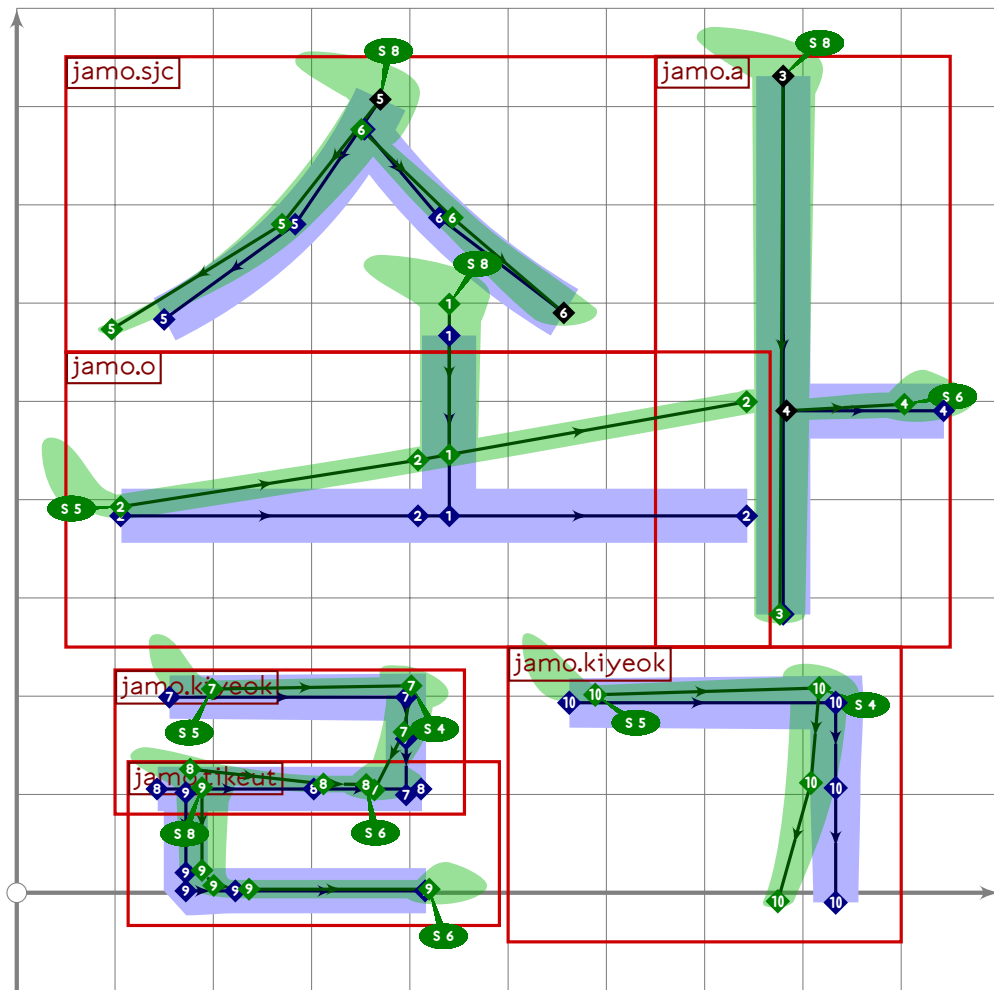


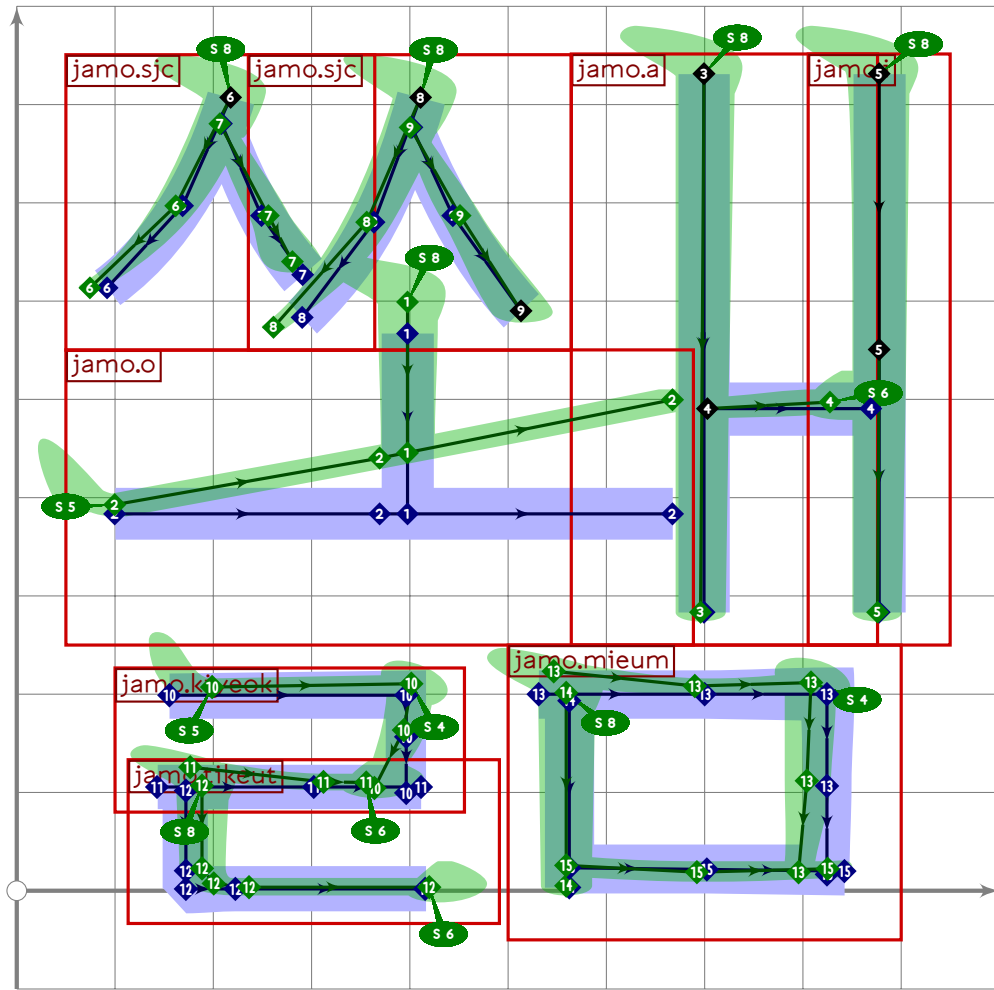


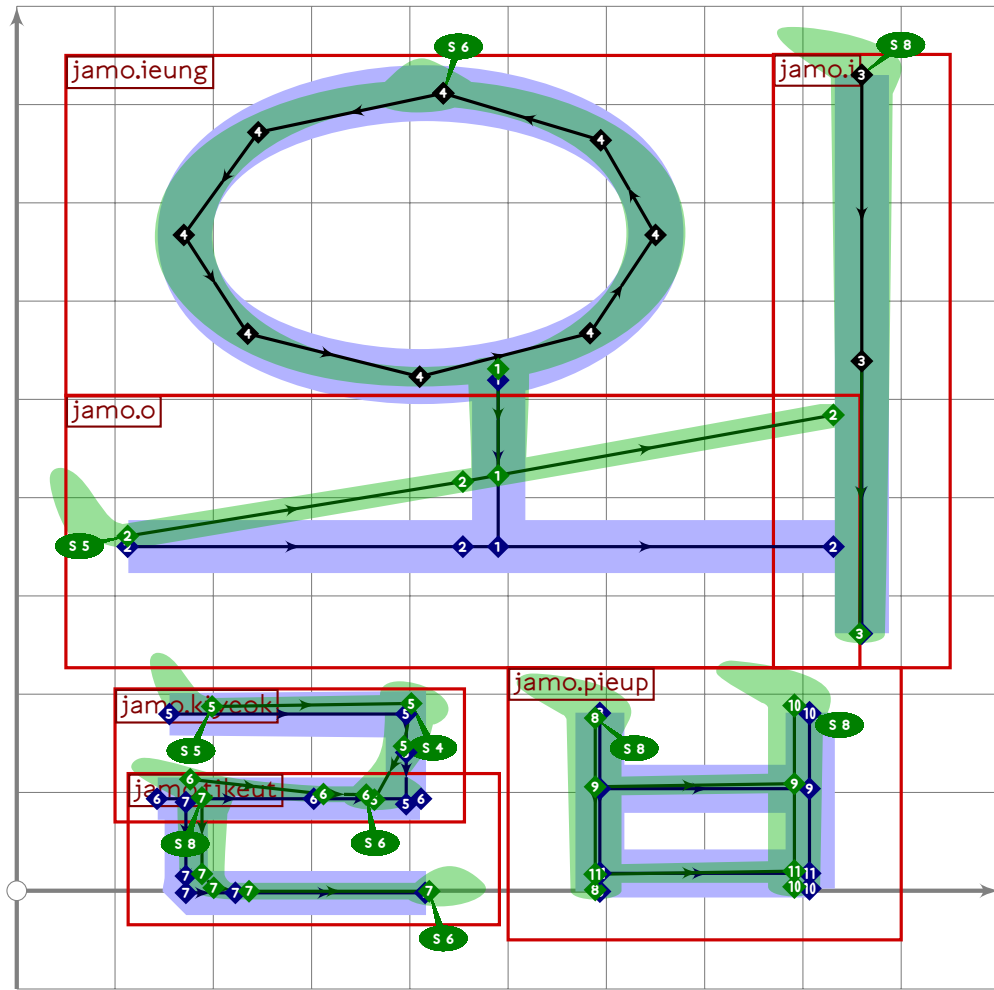


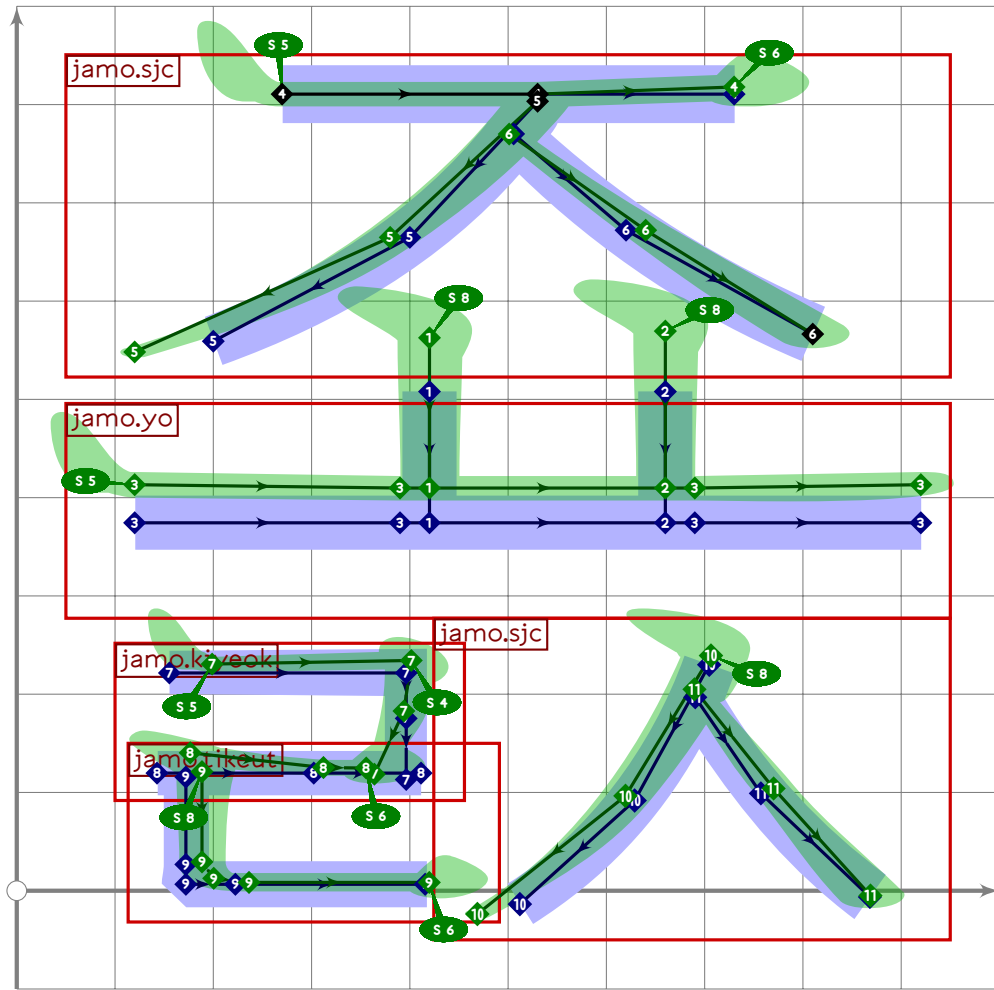


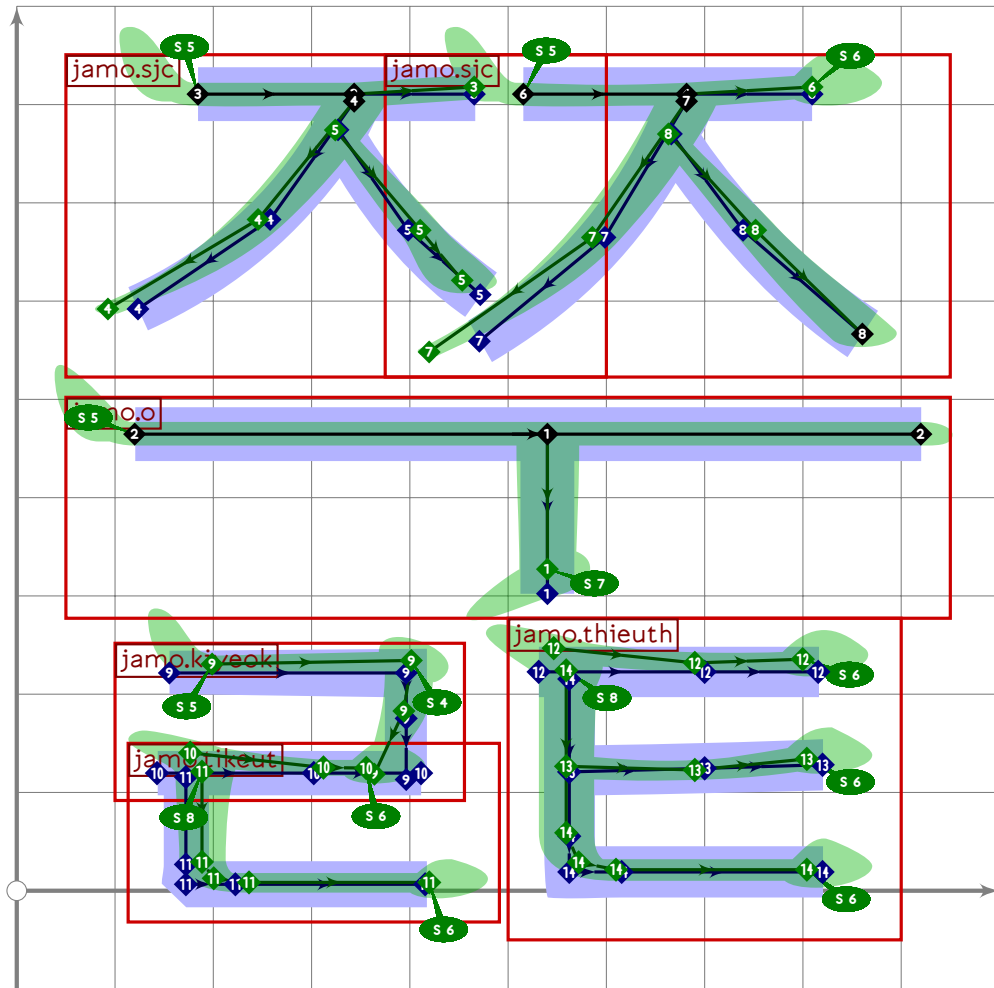


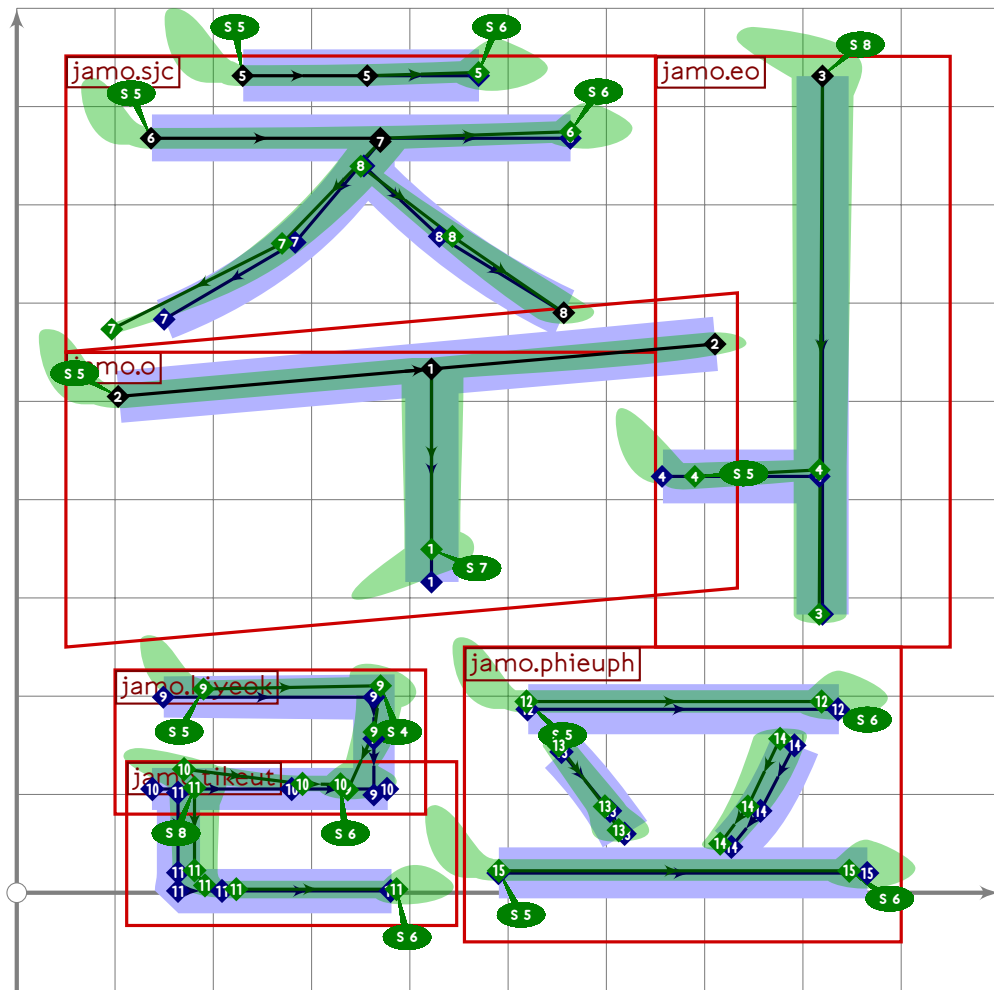




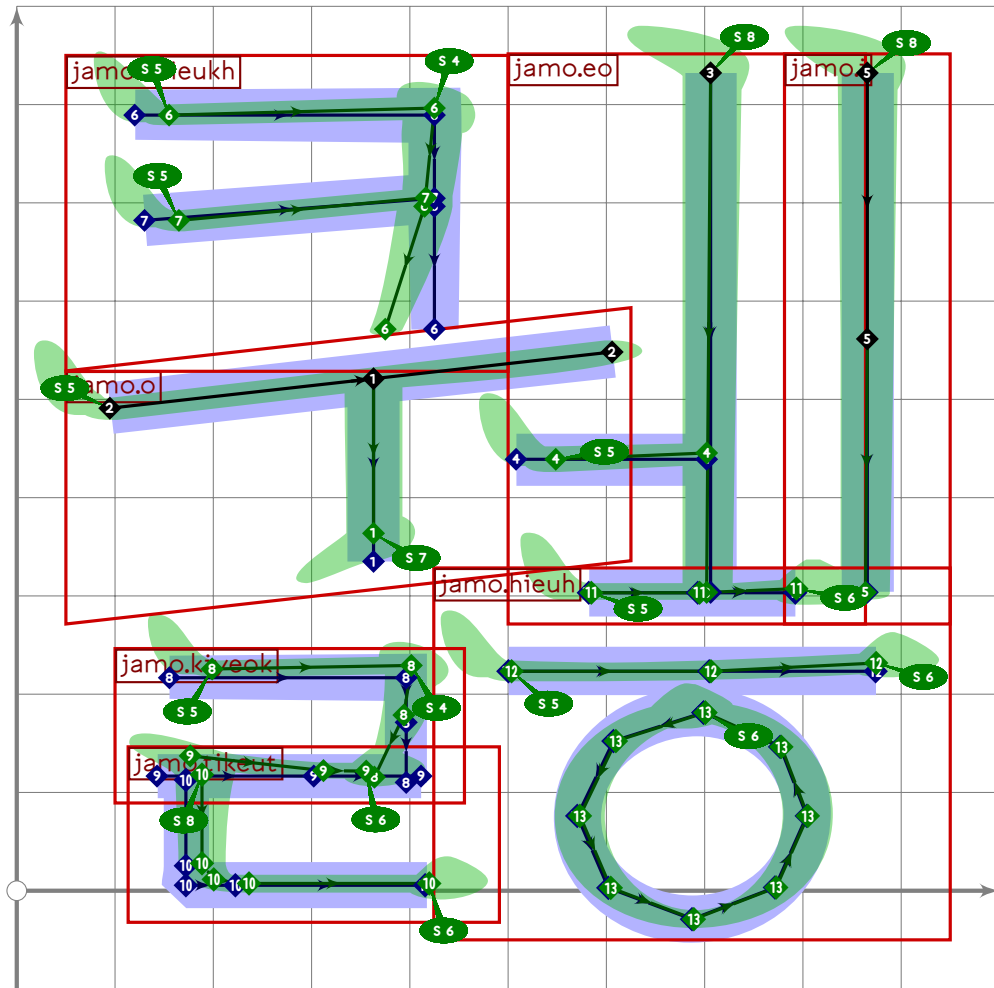


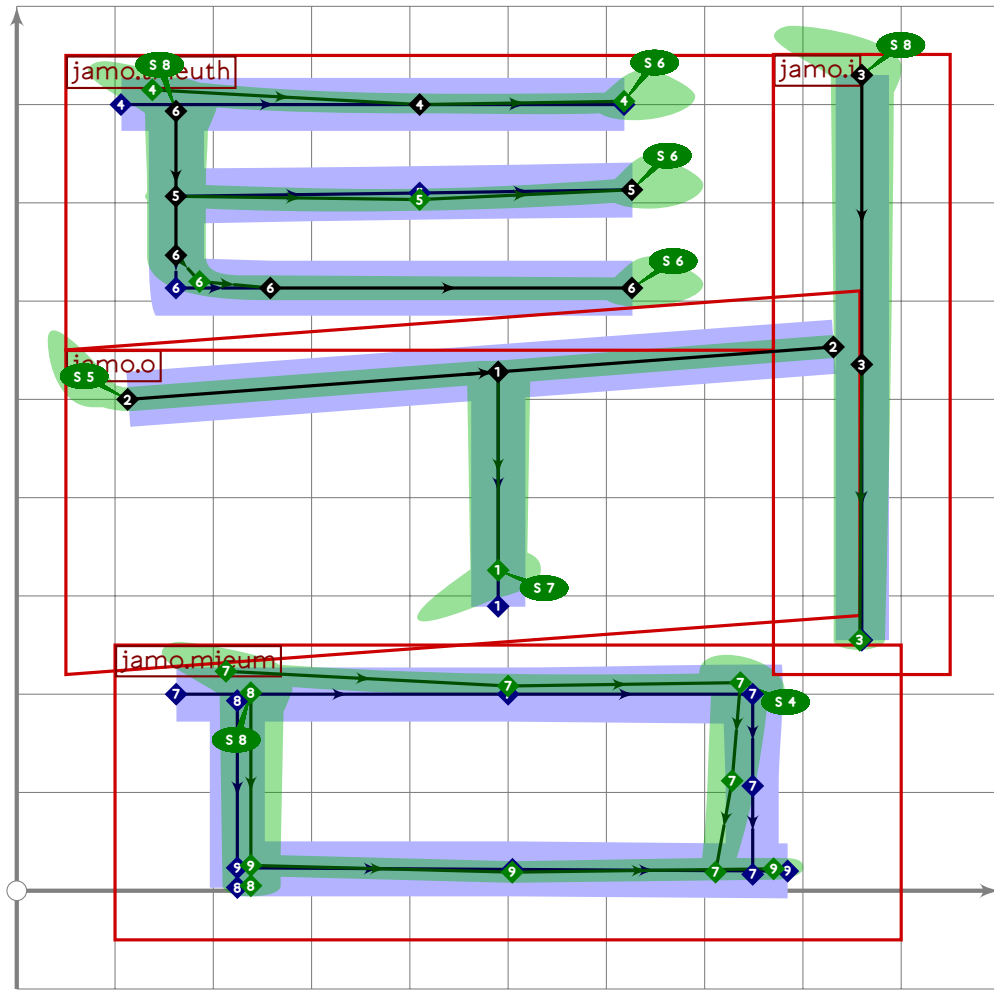


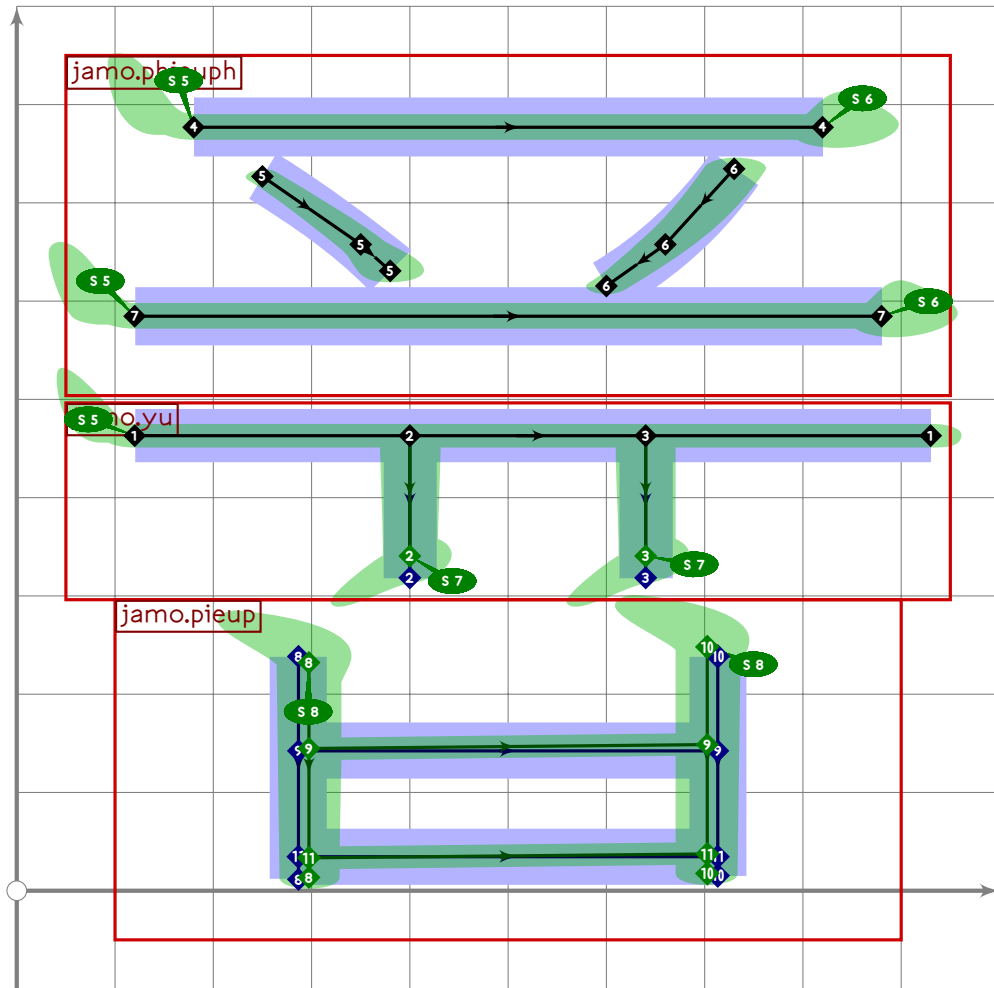


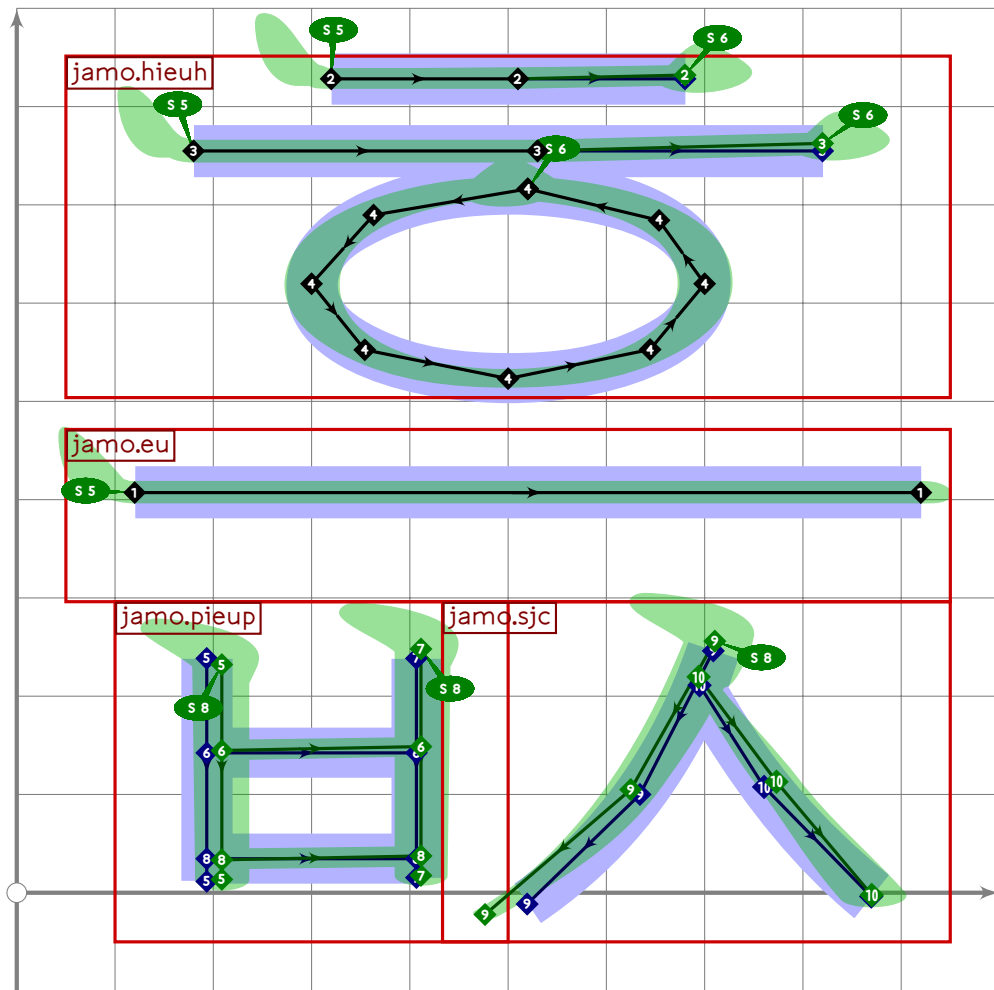












	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
AC00	가	각	갉	갉	간	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉
AC10	감	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉
AC20	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉
AC30	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉
AC40	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉
AC50	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉
AC60	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉
AC70	기	기	기	기	기	기	기	기	기	기	기	기	기	기	기	기
AC80	김	기	기	기	기	기	기	기	기	기	기	기	기	기	기	기
AC90	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉
ACA0	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉
ACB0	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉
ACC0	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉
ACD0	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉	갉
ACE0	고	고	고	고	고	고	고	고	고	고	고	고	고	고	고	고
ACF0	고	고	고	고	고	고	고	고	고	고	고	고	고	고	고	고
AD00	관	관	관	관	관	관	관	관	관	관	관	관	관	관	관	관
AD10	관	관	관	관	관	관	관	관	관	관	관	관	관	관	관	관
AD20	관	관	관	관	관	관	관	관	관	관	관	관	관	관	관	관
AD30	관	관	관	관	관	관	관	관	관	관	관	관	관	관	관	관
AD40	관	관	관	관	관	관	관	관	관	관	관	관	관	관	관	관
AD50	교	교	교	교	교	교	교	교	교	교	교	교	교	교	교	교
AD60	교	교	교	교	교	교	교	교	교	교	교	교	교	교	교	교
AD70	교	교	교	교	교	교	교	교	교	교	교	교	교	교	교	교
AD80	교	교	교	교	교	교	교	교	교	교	교	교	교	교	교	교
AD90	권	권	권	권	권	권	권	권	권	권	권	권	권	권	권	권
ADA0	권	권	권	권	권	권	권	권	권	권	권	권	권	권	권	권
ADB0	권	권	권	권	권	권	권	권	권	권	권	권	권	권	권	권
ADC0	권	권	권	권	권	권	권	권	권	권	권	권	권	권	권	권
ADD0	권	권	권	권	권	권	권	권	권	권	권	권	권	권	권	권

























	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
COA0	뵠	뵡	뵢	뵣	뵤	뵥	뵦	뵧	뵨	뵩	뵪	뵫	뵬	사	삭	삭
COB0	산	샐	샑	샒	샓	샔	샕	샖	샗	샘	샙	샚	샛	삼	삽	삽
COC0	생	샞	샟	샠	샡	샢	샣	샤	샥	샦	샧	샨	샩	생	샫	샬
COD0	샭	샭	샭	샭	샭	샭	샭	샭	샭	샭	샭	샭	샭	샭	샭	샭
COE0	샭	샭	샭	샭	샭	샭	샭	샭	샭	샭	샭	샭	샭	샭	샭	샭
COF0	샭	샭	샭	샭	샭	샭	샭	샭	샭	샭	샭	샭	샭	샭	샭	샭
C100	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새
C110	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새
C120	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새
C130	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새
C140	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새
C150	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새
C160	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새
C170	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새
C180	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새
C190	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새
C1A0	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새
C1B0	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새
C1C0	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새
C1D0	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새
C1E0	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새
C1F0	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새
C200	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새
C210	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새
C220	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새
C230	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새
C240	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새
C250	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새
C260	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새
C270	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새



























	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
D360	패	팩	패	패	패	패	패	패	패	패	패	패	패	패	패	패
D370	팜	팜	팜	팜	팜	팜	팜	팜	팜	팜	팜	팜	팜	팜	팜	팜
D380	핀	핀	핀	핀	핀	핀	핀	핀	핀	핀	핀	핀	핀	핀	핀	핀
D390	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼
D3A0	펠	펠	펠	펠	펠	펠	펠	펠	펠	펠	펠	펠	펠	펠	펠	펠
D3B0	펄	펄	펄	펄	펄	펄	펄	펄	펄	펄	펄	펄	펄	펄	펄	펄
D3C0	펄	펄	펄	펄	펄	펄	펄	펄	펄	펄	펄	펄	펄	펄	펄	펄
D3D0	페	페	페	페	페	페	페	페	페	페	페	페	페	페	페	페
D3E0	팜	팜	팜	팜	팜	팜	팜	팜	팜	팜	팜	팜	팜	팜	팜	팜
D3F0	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰
D400	포	포	포	포	포	포	포	포	포	포	포	포	포	포	포	포
D410	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플
D420	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플
D430	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플
D440	핀	핀	핀	핀	핀	핀	핀	핀	핀	핀	핀	핀	핀	핀	핀	핀
D450	폼	폼	폼	폼	폼	폼	폼	폼	폼	폼	폼	폼	폼	폼	폼	폼
D460	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰
D470	포	포	포	포	포	포	포	포	포	포	포	포	포	포	포	포
D480	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플
D490	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플
D4A0	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼
D4B0	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼
D4C0	펄	펄	펄	펄	펄	펄	펄	펄	펄	펄	펄	펄	펄	펄	펄	펄
D4D0	페	페	페	페	페	페	페	페	페	페	페	페	페	페	페	페
D4E0	팜	팜	팜	팜	팜	팜	팜	팜	팜	팜	팜	팜	팜	팜	팜	팜
D4F0	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰
D500	포	포	포	포	포	포	포	포	포	포	포	포	포	포	포	포
D510	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플
D520	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플
D530	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼



	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
D720	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후
D730	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후
D740	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후
D750	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후
D760	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후
D770	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후
D780	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후
D790	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후
D7A0	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후

Part X

Jieubsida alternates



# jieub-ff2.mp

```
1 %
2 % Unicode page FF2 (alternate glyphs for vowel jamo) for Jieubsida
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input hangul.mp;
37 input jamo-basic.mp;
38 input jamo-extra.mp;
39
40 

---

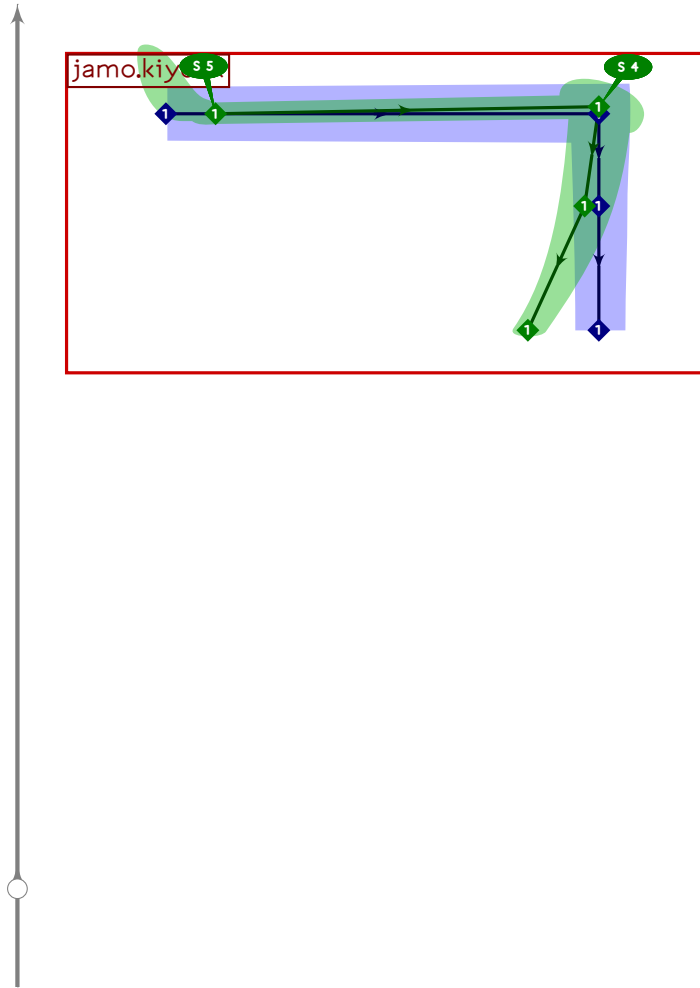

41
42 % This file is supposed to cover vowels only, for the "empty tail" layouts
43 % (layouts 3, 4, and 5). But for the moment, it also contains a set of
44 % lead jamo for layout 0, duplicating the ones on the U+11xx page, in
45 % order to work around XeTeX's apparent inability to process "ignore sub"
46 % feature rules.
47
48 transform lixf,loxf,vixf,tvixf,voxf;
49
50 lixf=loxf=hexf((50,850),(700,525));
51 vixf=hexf((700,275),(950,-50));
52 tvixf=hexf((700,335),(950,-50));
53 voxf=identity;
54
55 

---


56
```

## Hangul Choseong (Lead) Jamo

```
57 % HANGUL CHOSEONG (LEAD) JAMO
58
59 tsu_rescale_native_zero;
60
```

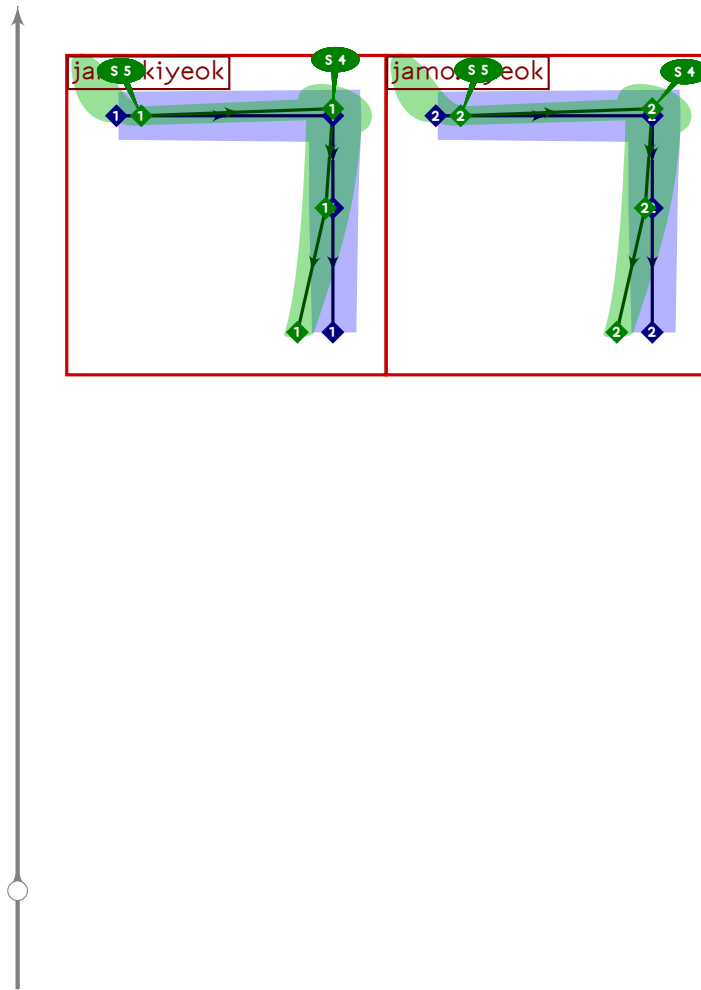


```

61 % hangul lead kiyook
62 begintsuglyph("uni1100.bug",0);
63 hangul.jamo.kiyeok(whatever,lixf,loxf);
64 tsu_render;
65 endsuglyph;
66

```

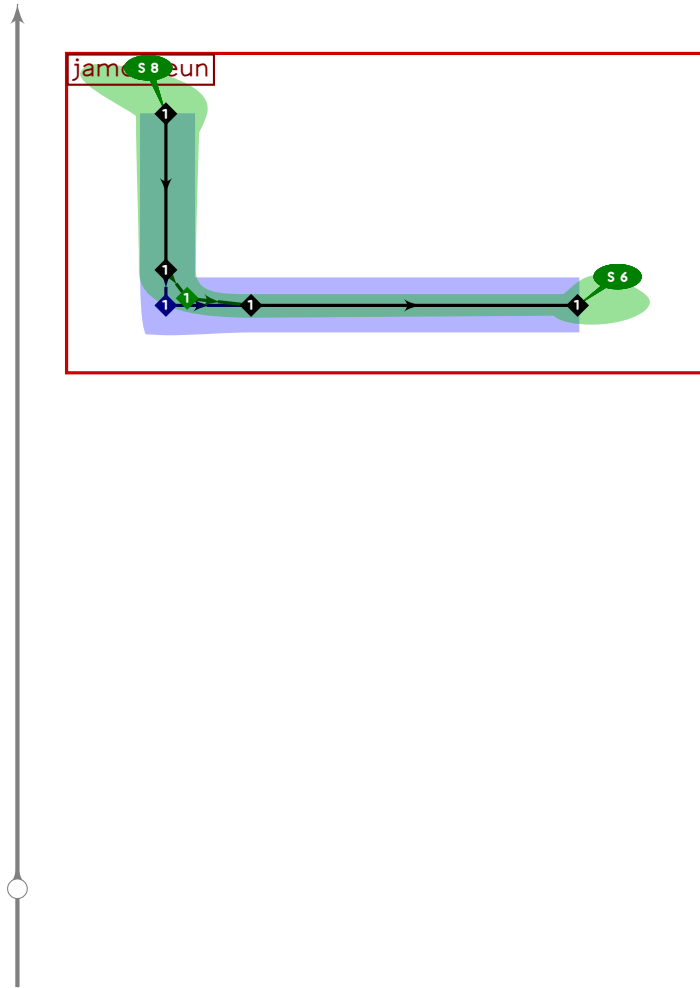




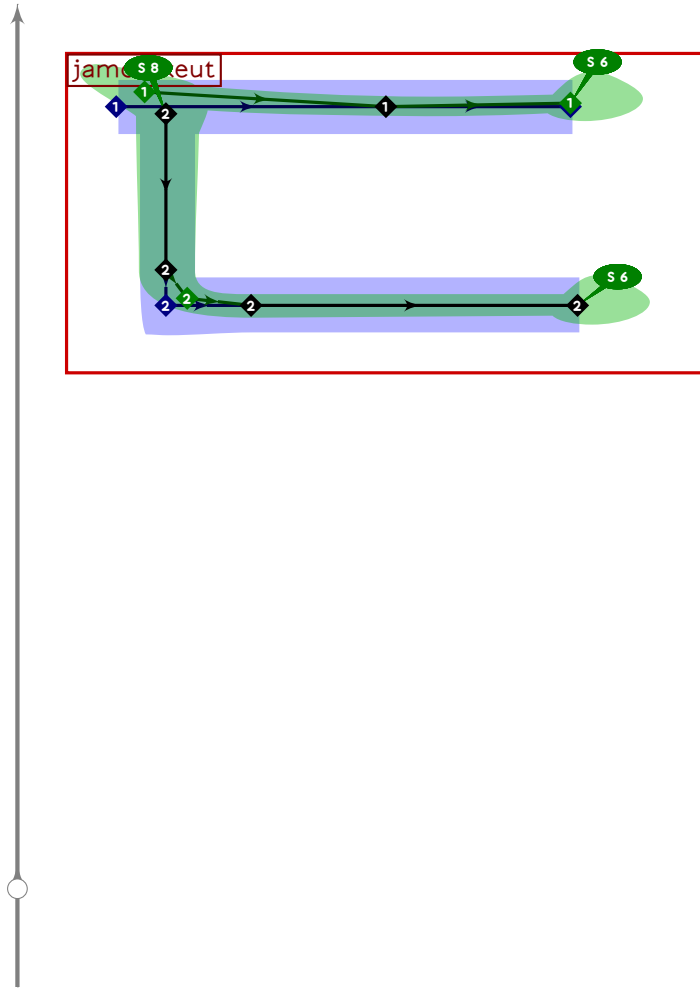
```

67 % hangul lead ssangkiyeok
68 begintsuglyph("uni1101.bug",1);
69 hangul.combine.lr(100,100)(whatever,lixf,loxf);
70 tsu_render;
71 endtsuglyph;
72

```



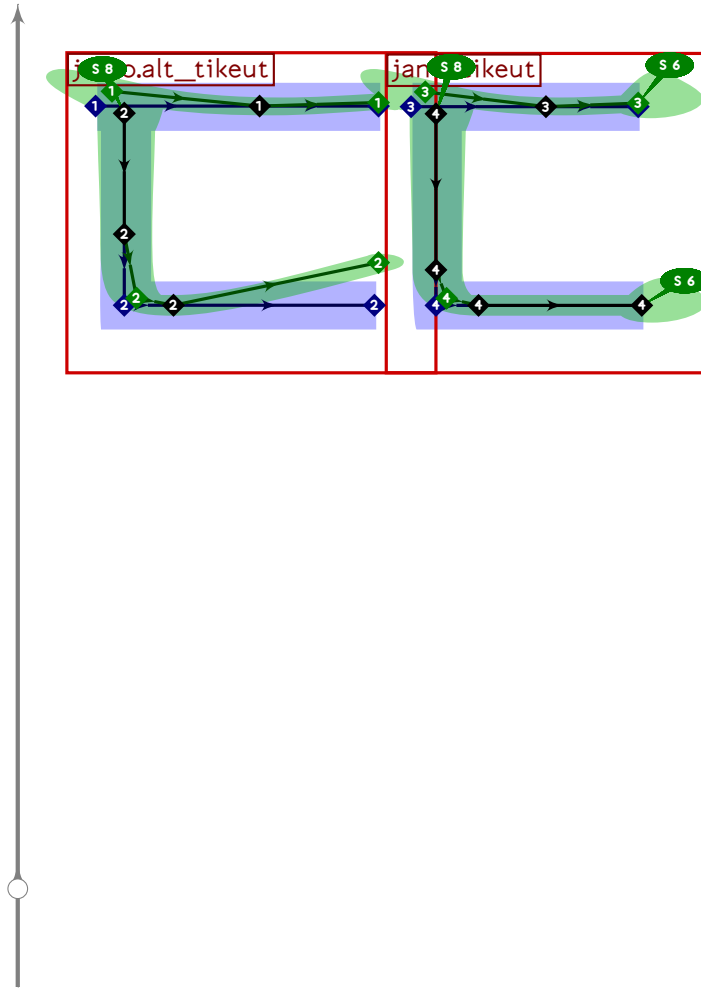
```
73 % hangul lead nieun
74 begintsuglyph("uni1102.bug",2);
75 hangul.jamo.nieun(whatever,lixf,loxf);
76 tsu_render;
77 endsuglyph;
78
```



```

79 % hangul lead tikeut
80 begint Suglyph("uni1103.bug",3);
81 hangul.jamo.tikeut(whatever,lixf,loxf);
82 tsu_render;
83 endtsuglyph;
84

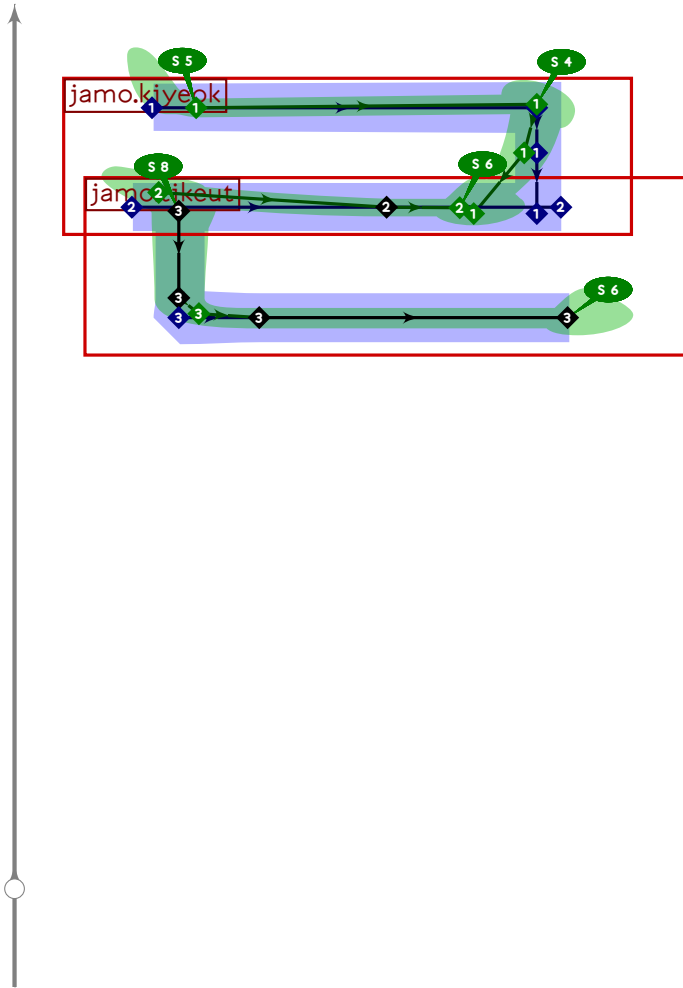
```



```

85 % hangul lead ssangtikeut
86 begintsuglyph("uni1104.bug";4);
87 hangul.combine.lr(203,103)(whatever,lixf,loxf);
88 tsu_render;
89 endtsuglyph;
90

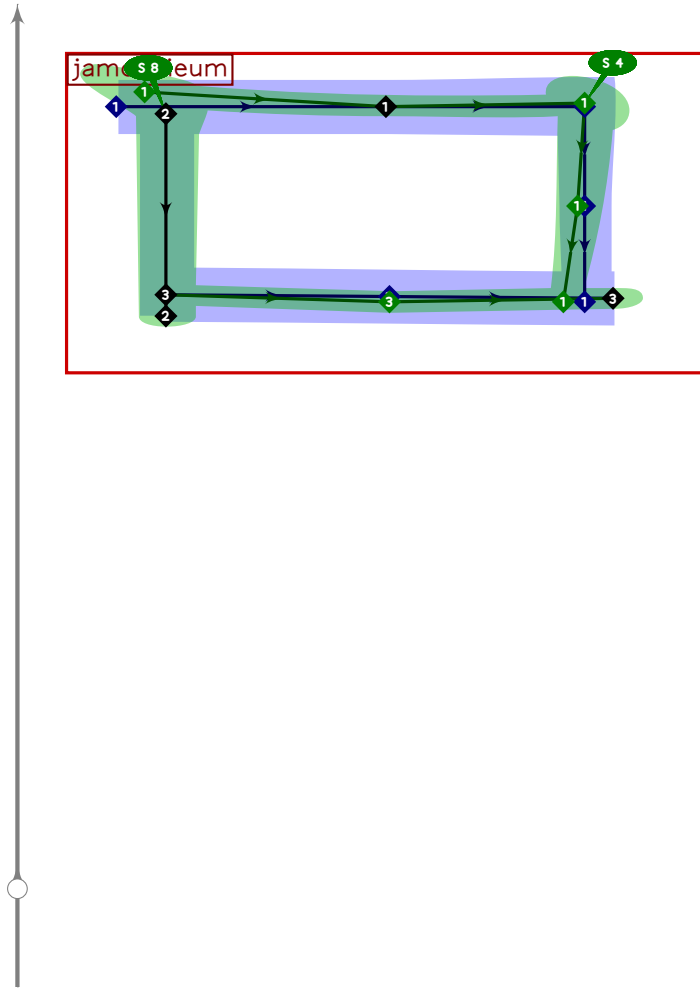
```



```

91 % hangul lead rieuI
92 begint Suglyph("uni1105.bug",5);
93 hangul.jamo.rieuI(whatever,lixf,loxf);
94 tsu_render;
95 endsuglyph;
96

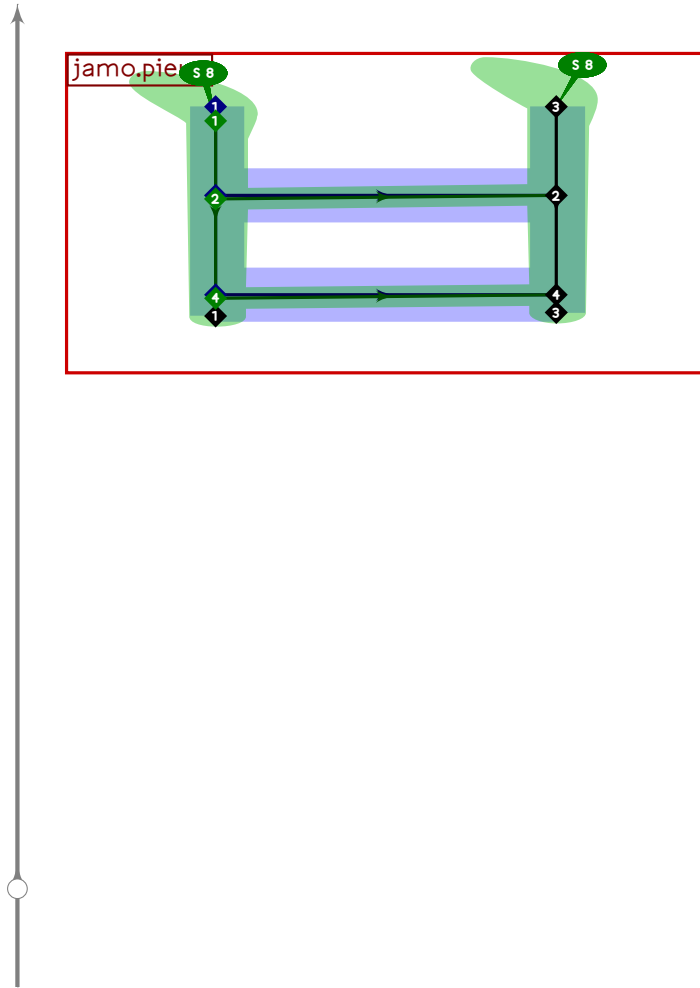
```



```

97 % hangul lead mieum
98 begintsuglyph("uni1106.bug",6);
99 hangul.jamo.mieum(whatever,lixf,loxf);
100 tsu_render;
101 endsuglyph;
102

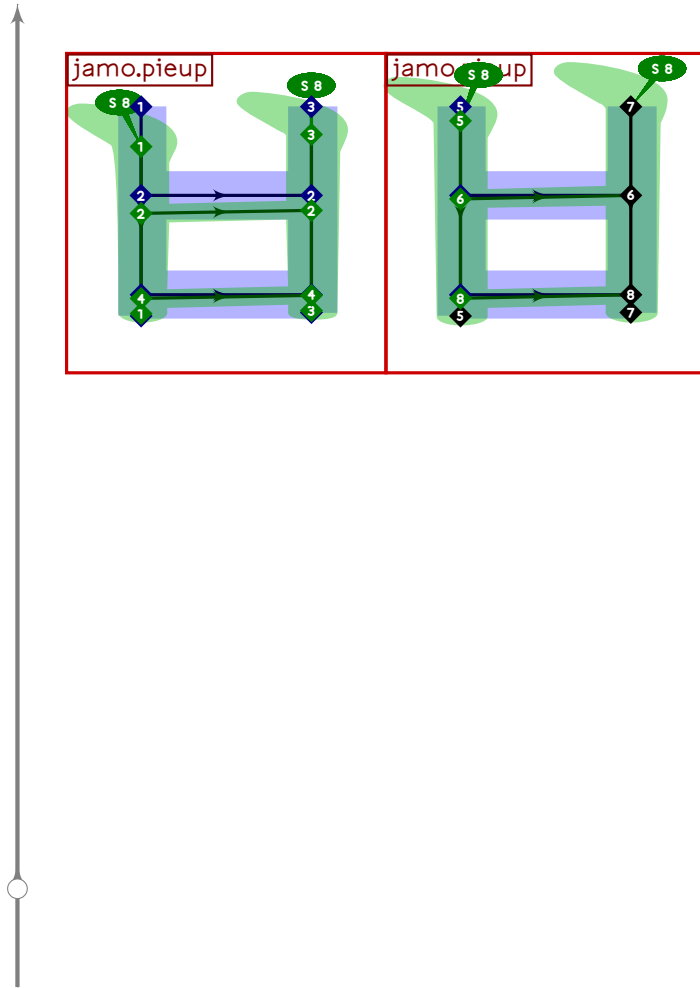
```



```

103 % hangul lead pieup
104 begintsuglyph("uni1107.bug",7);
105 hangul.jamo.pieup(whatever,lixf,loxf);
106 tsu_render;
107 endtsuglyph;
108

```

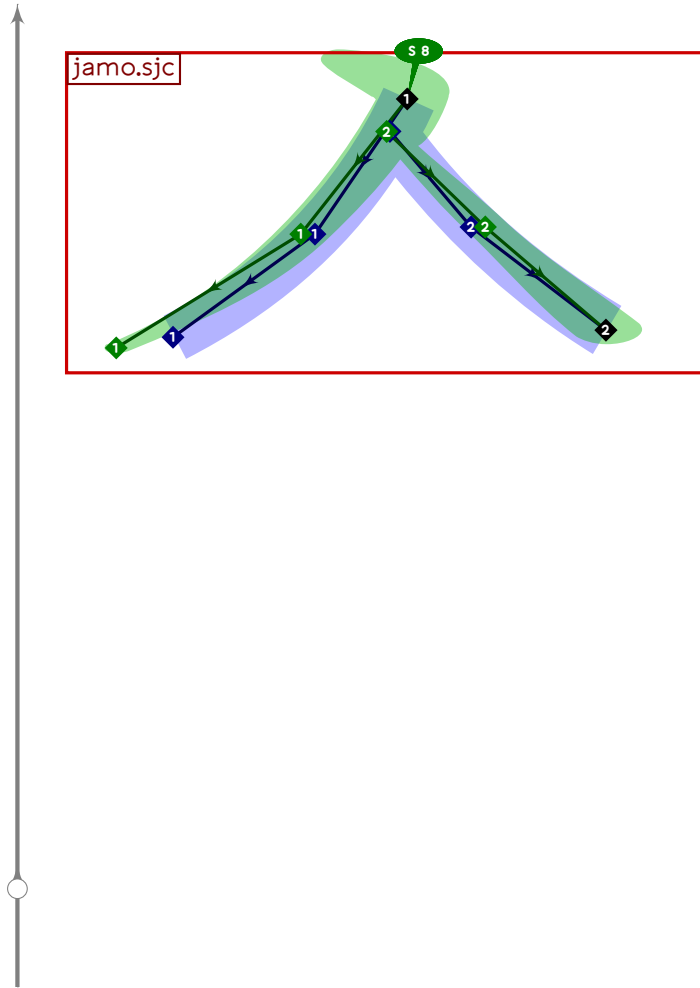


```

109 % hangul lead ssangpieup
110 begintsuglyph("uni1108.bug";8);
111 hangul.combine.lr(207,107)(whatever,lixf,loxf);
112 tsu_render;
113 endsuglyph;
114

```

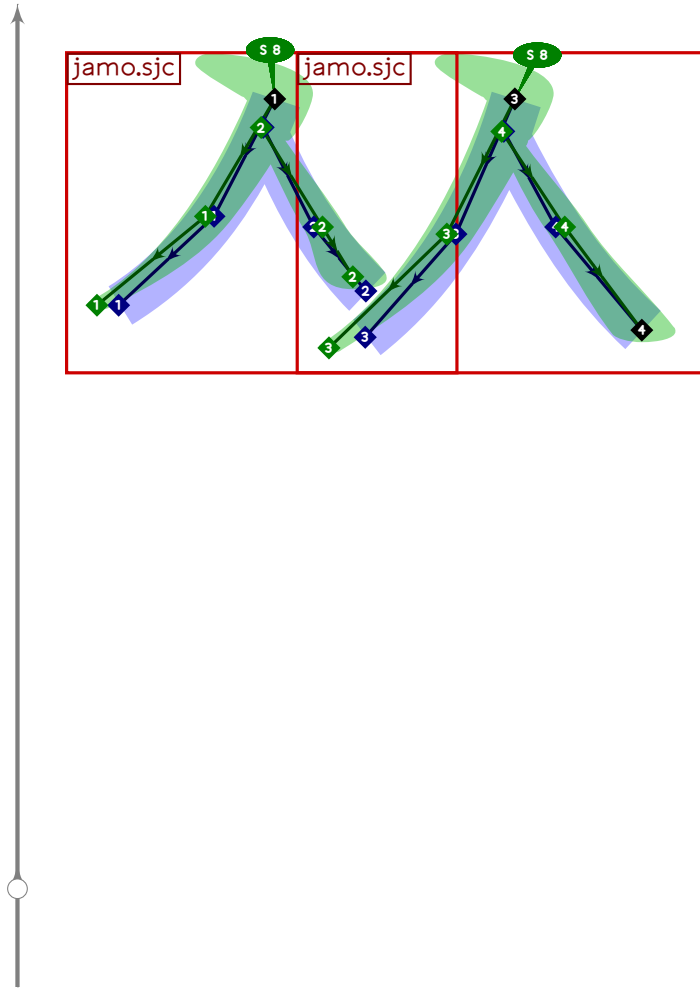




```

115 % hangul lead sios
116 begint Suglyph("uni1109.bug";9);
117 hangul.jamo.sjc(0,0,false)(whatever,lixf,loxf);
118 tsu_render;
119 endtsuglyph;
120

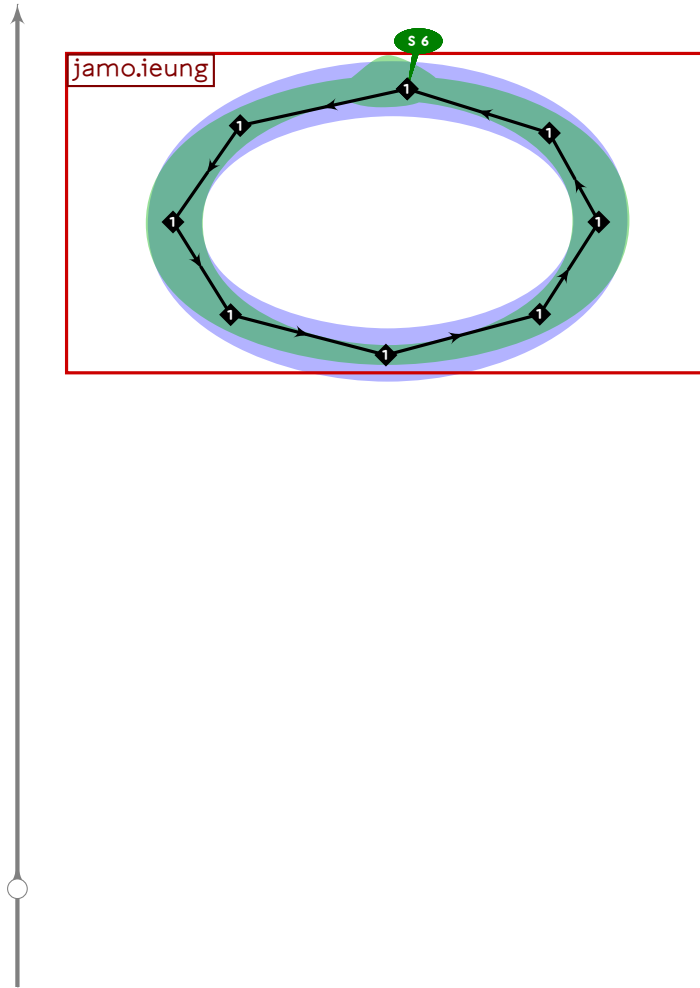
```



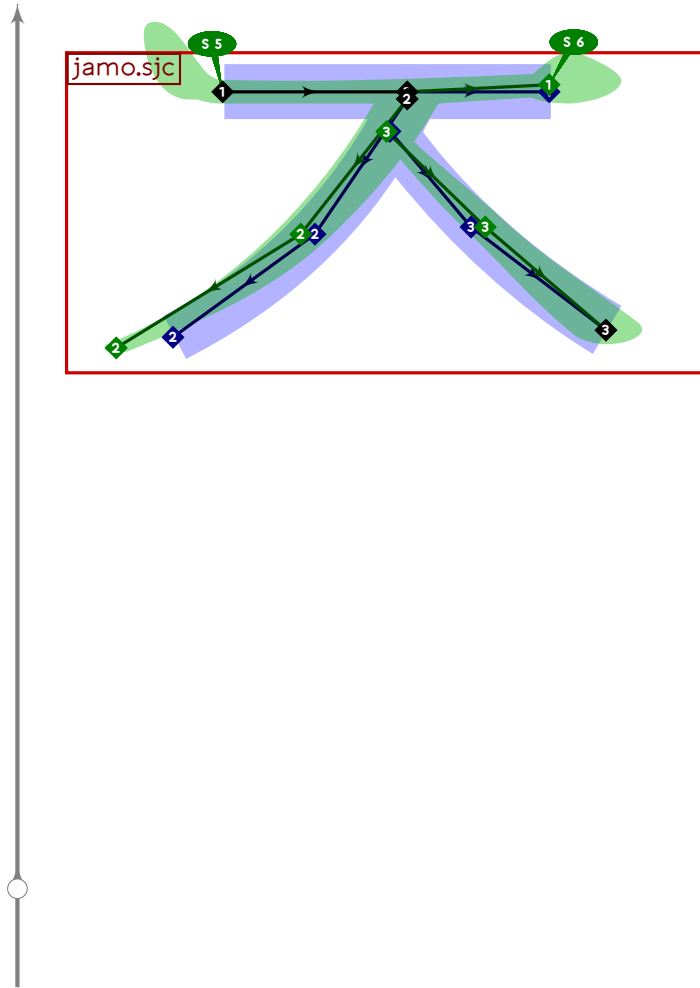
```

121 % hangul lead ssangsi
122 begintsuglyph("uni110A.bug";10);
123 hangul.combine.lr(209,109)(whatever,lixf,loxf);
124 tsu_render;
125 endtsuglyph;
126

```



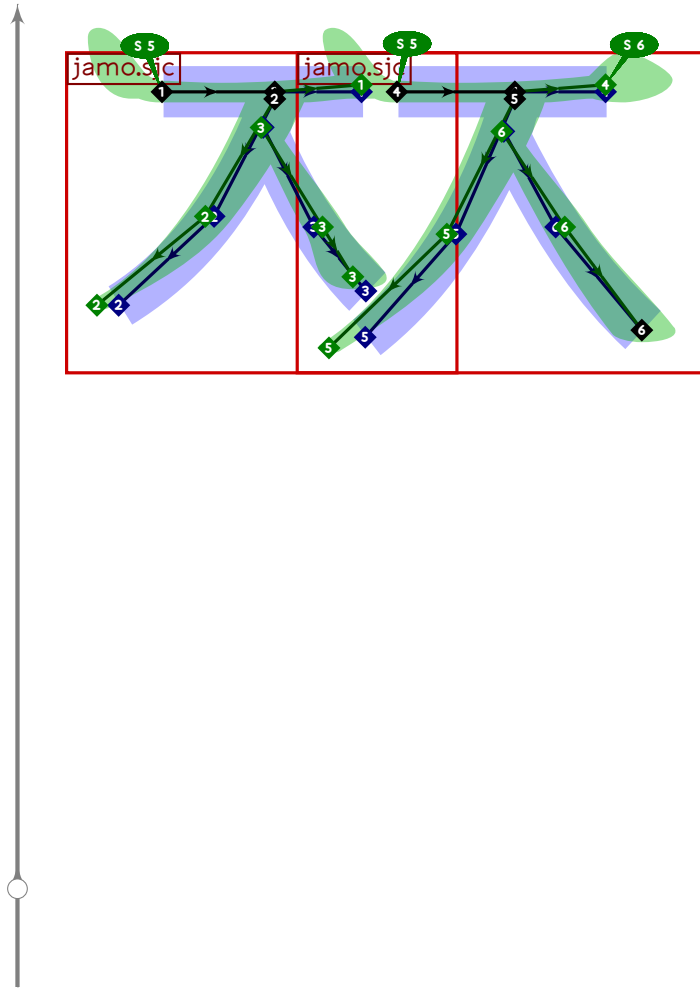
```
127 % hangul lead ieung
128 begintsuglyph("uni110B.bug";11);
129 hangul.jamo.ieung(whatever,lixf,loxf);
130 tsu_render;
131 endtsuglyph;
132
```



```

133 % hangul lead cieuc
134 begint Suglyph("uni110C.bug";12);
135 hangul.jamo.sjc(1,0,false)(whatever,lixf,loxf);
136 tsu_render;
137 endtsuglyph;
138

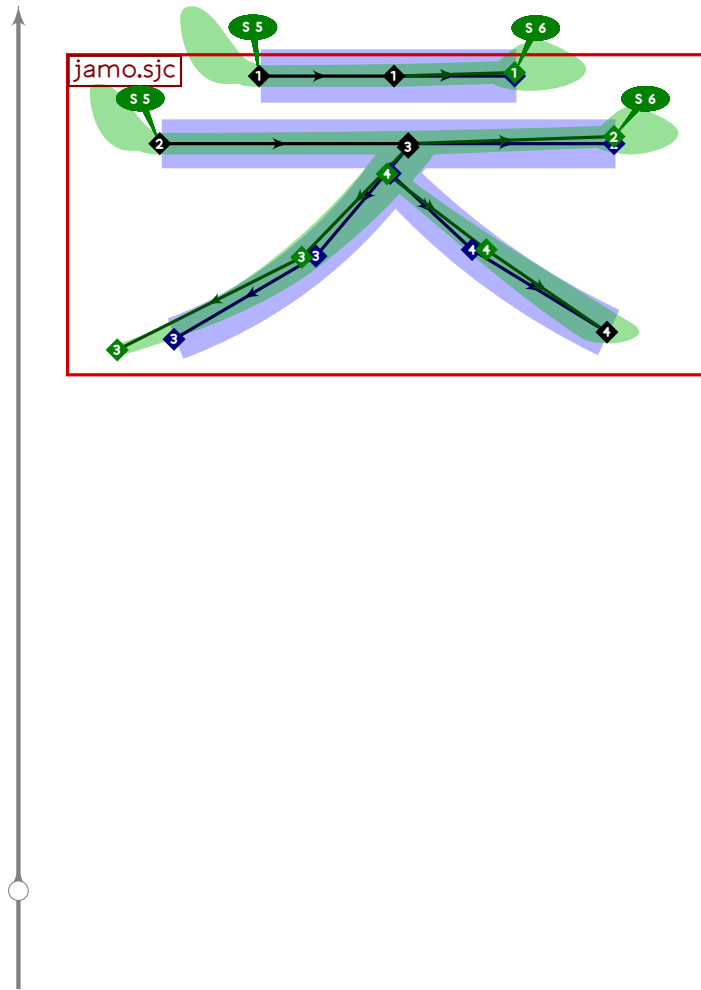
```



```

139 % hangul lead ssangcieuc
140 begintsuglyph("uni110D.bug";13);
141 hangul.combine.lr(212,112)(whatever,lixf,loxf);
142 tsu_render;
143 endtsuglyph;
144

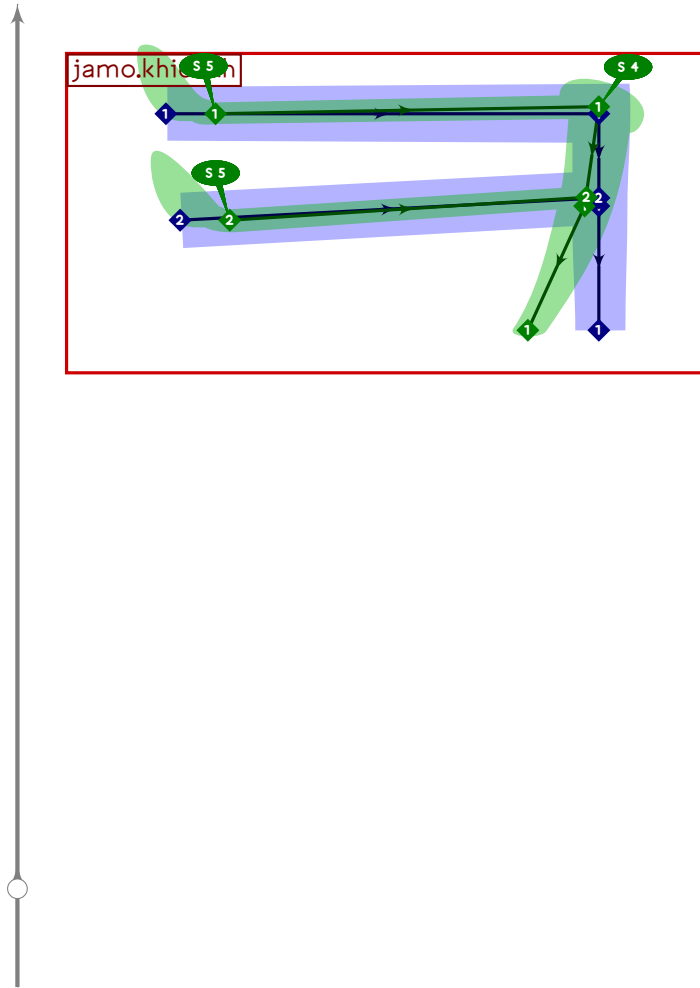
```



```

145 % hangul lead chieuch
146 begintsuglyph("uni110E.bug";14);
147 hangul.jamo.sjc(2,0,false)(whatever,lixf,loxf);
148 tsu_render;
149 endsuglyph;
150

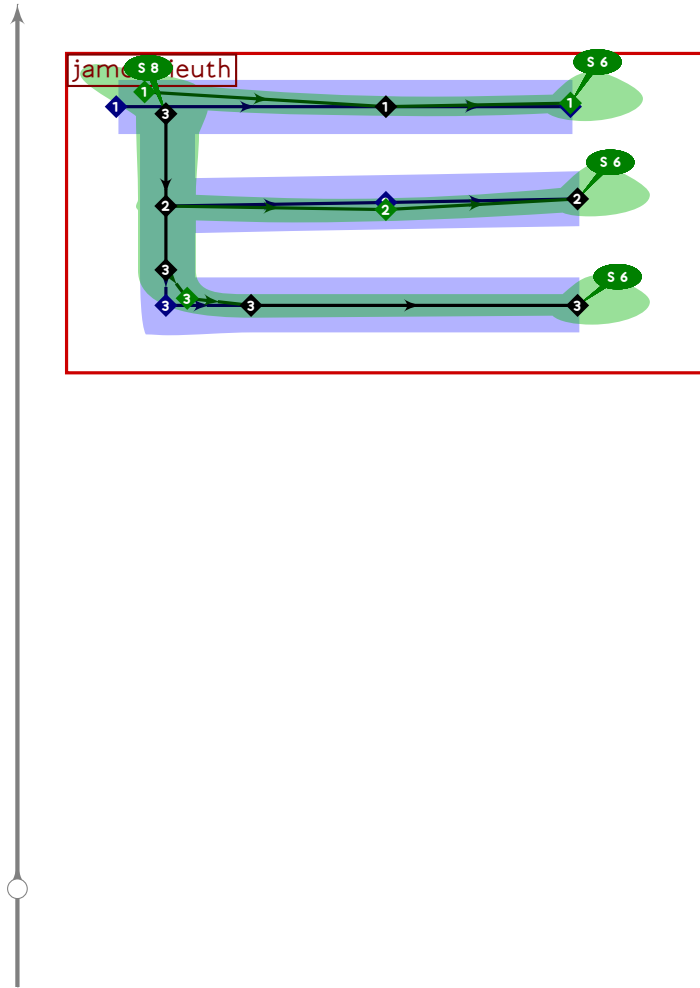
```



```

151 % hangul lead khieukh
152 begint Suglyph("uni110F.bug",15);
153   hangul.jamo.khieukh(whatever,lixf,loxf);
154   tsu_render;
155   endtsuglyph;
156

```

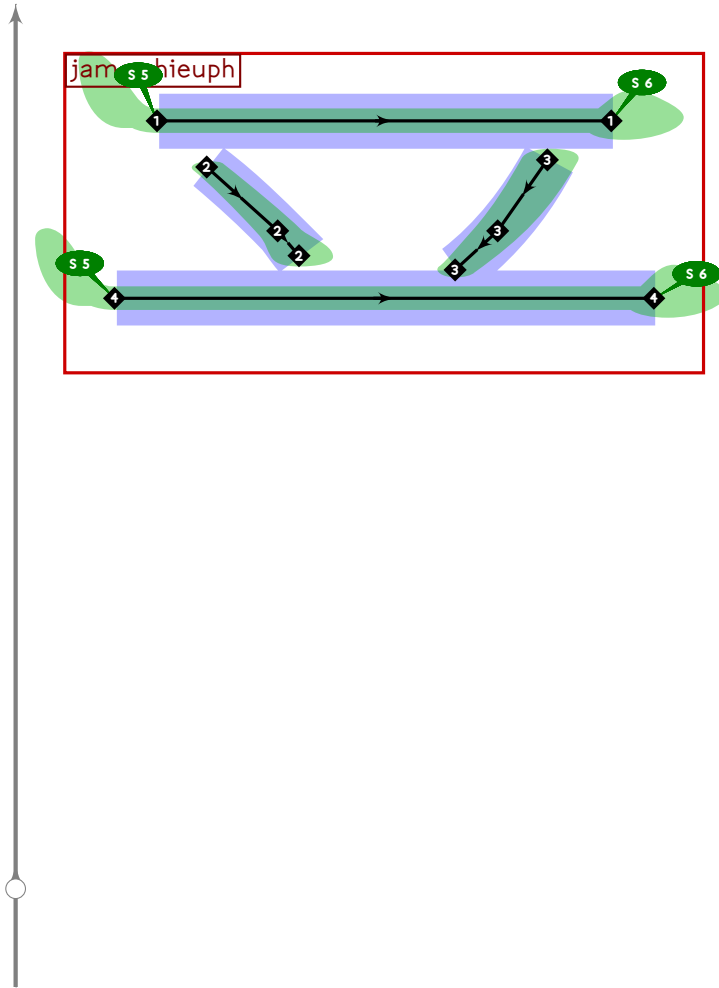


```

157 % hangul lead thieuth
158 begintsuglyph("uni1110.bug",16);
159 hangul.jamo.thieuth(whatever,lixf,loxf);
160 tsu_render;
161 endtsuglyph;
162

```

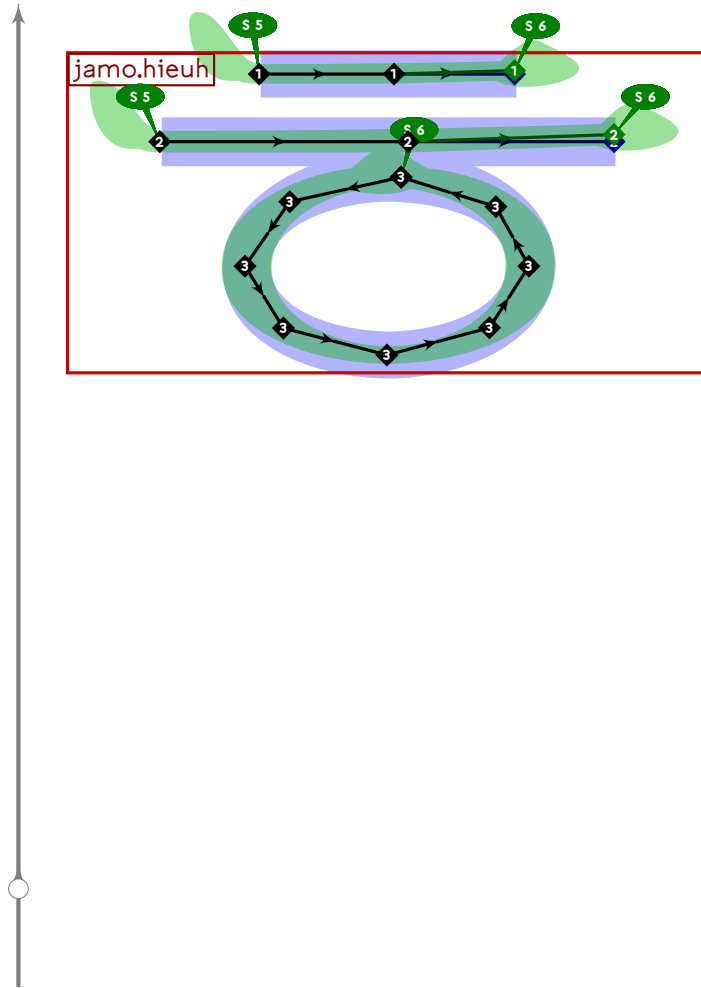




```

163 % hangul lead phieup
164 begintsuglyph("uni1111.bug";17);
165 hangul.jamo.phieup(whatever,lixf,loxf);
166 tsu_render;
167 endsuglyph;
168

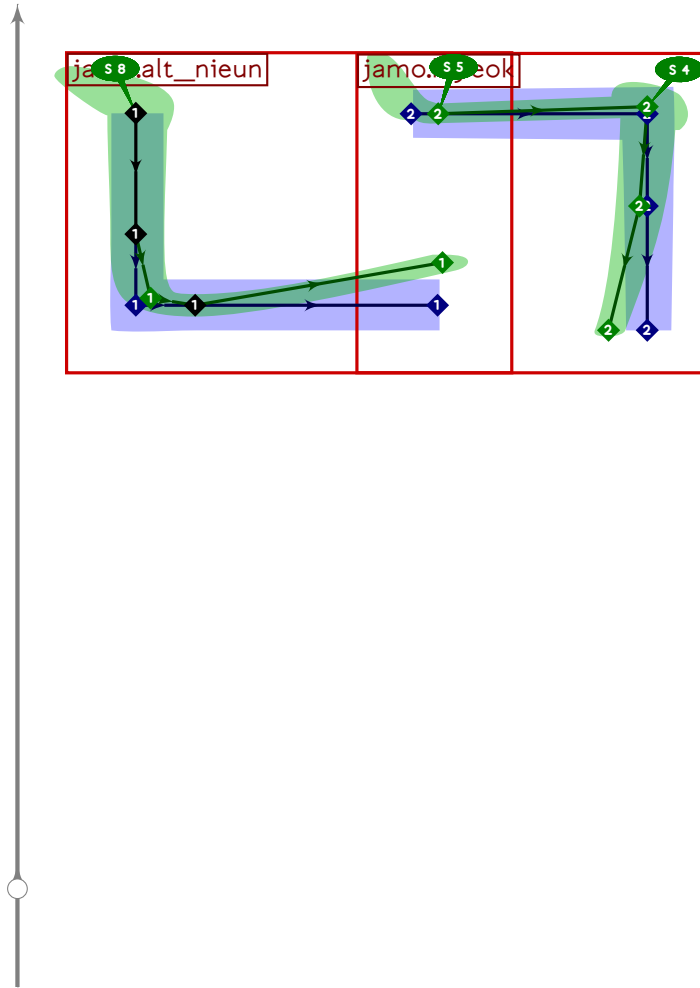
```



```

169 % hangul lead hieuh
170 begintsuglyph("uni1112.bug",18);
171 hangul.jamohieuh(whatever,lixf,loxf);
172 tsu_render;
173 endsuglyph;
174

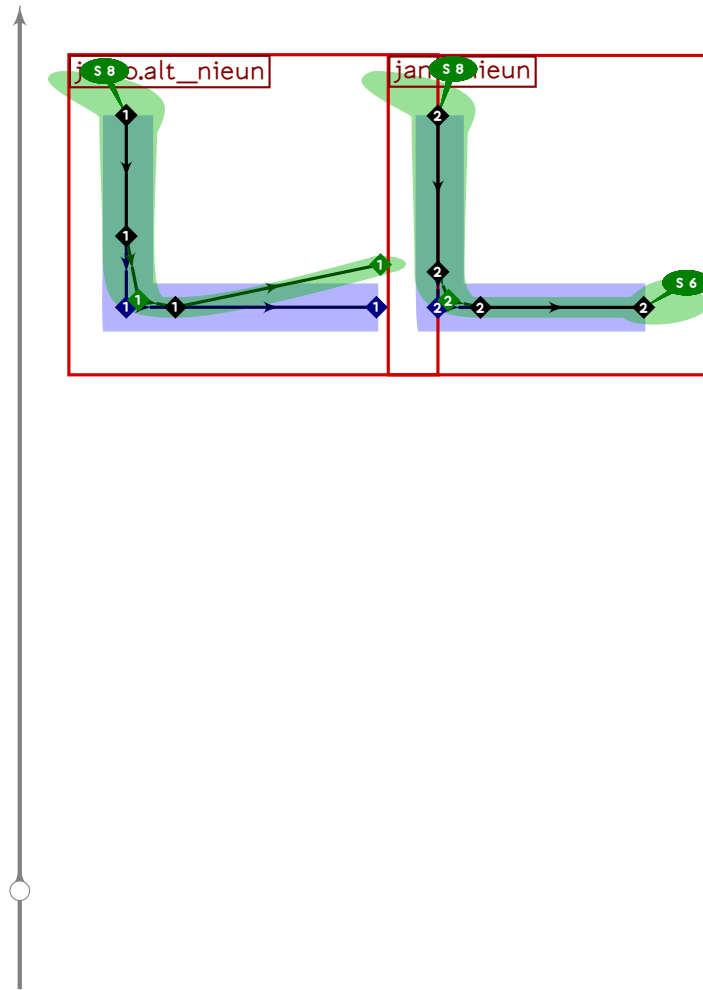
```



```

175 % hangul lead nieun-kiyeok
176 begintsuglyph("uni1113.bug",19);
177 hangul.combine.lr(202,100)(whatever,lixf,loxf);
178 tsu_render;
179 endsuglyph;
180

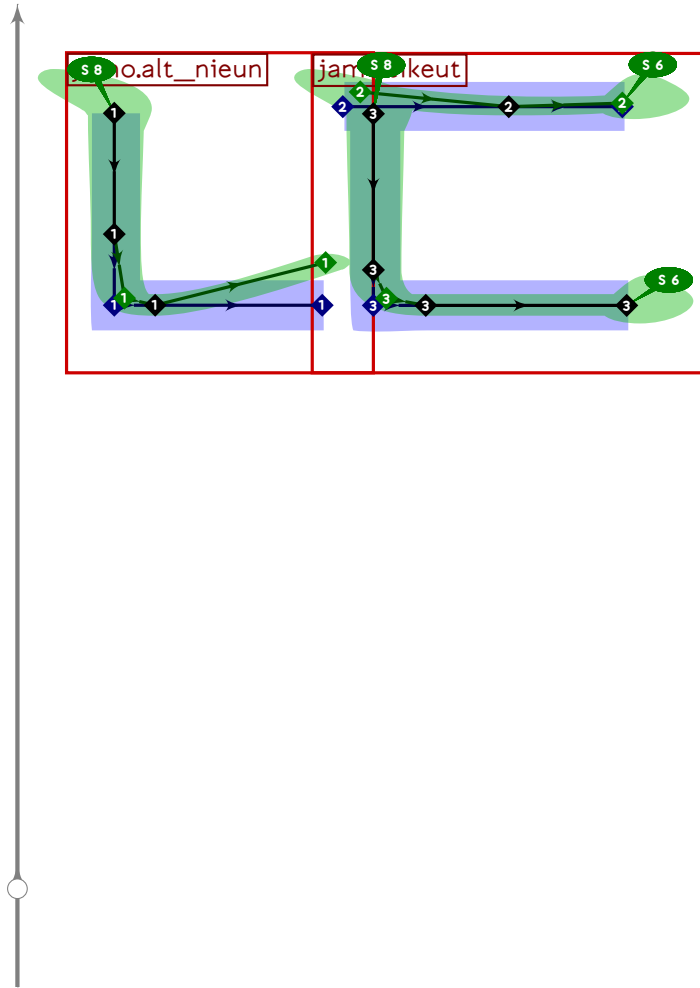
```



```

181 % hangul lead ssangnieun
182 begintsuglyph("uni1114.bug",20);
183 hangul.combine.lr(202,102)(whatever,lixf,loxf);
184 tsu_render;
185 endsuglyph;
186

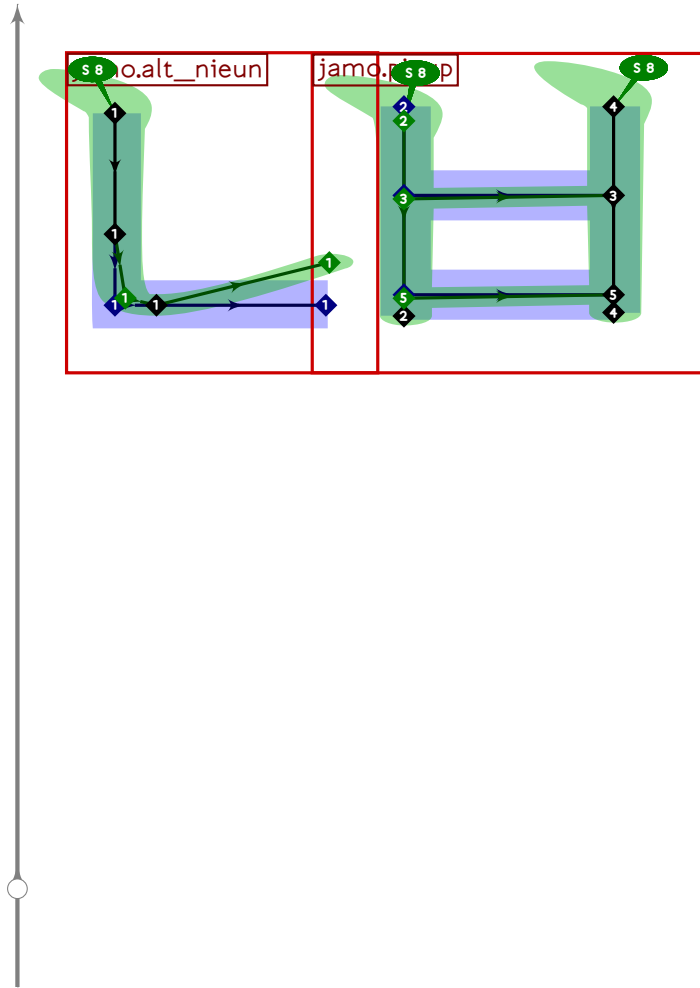
```



```

187 % hangul lead nieun-tikeut
188 begintsuglyph("uni1115.bug",21);
189 hangul.combine.lr(202,103)(whatever,lixf,loxf);
190 tsu_render;
191 endsuglyph;
192

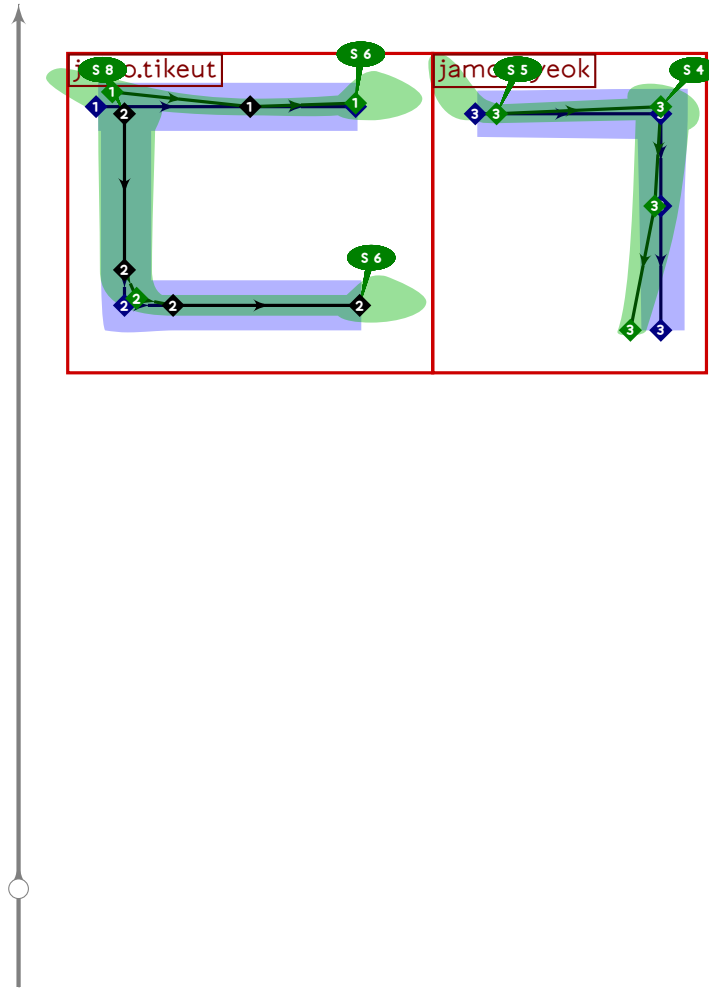
```



```

193 % hangul lead nieun-pieup
194 begintsuglyph("uni1116.bug",22);
195 hangul.combine.lr(202,107)(whatever,lixf,loxf);
196 tsu_render;
197 endsuglyph;
198

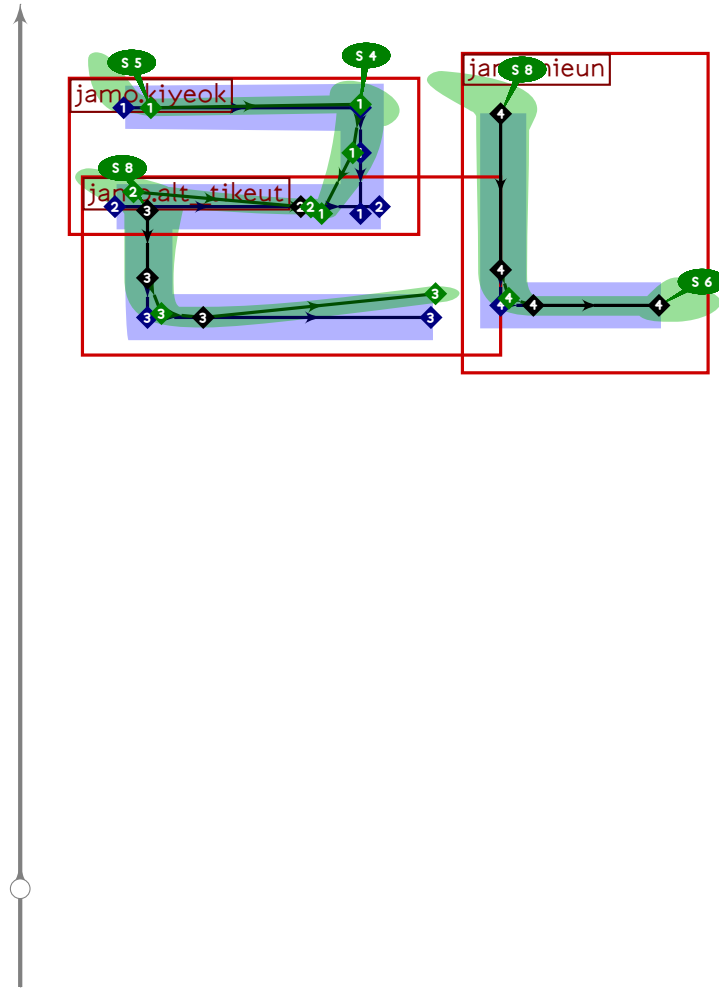
```



```

199 % hangul lead tikeut-kiyeok
200 begintsuglyph("uni1117.bug";23);
201 hangul.combine.lr(103,100)(whatever,lixf,loxf);
202 tsu_render;
203 endtsuglyph;
204

```

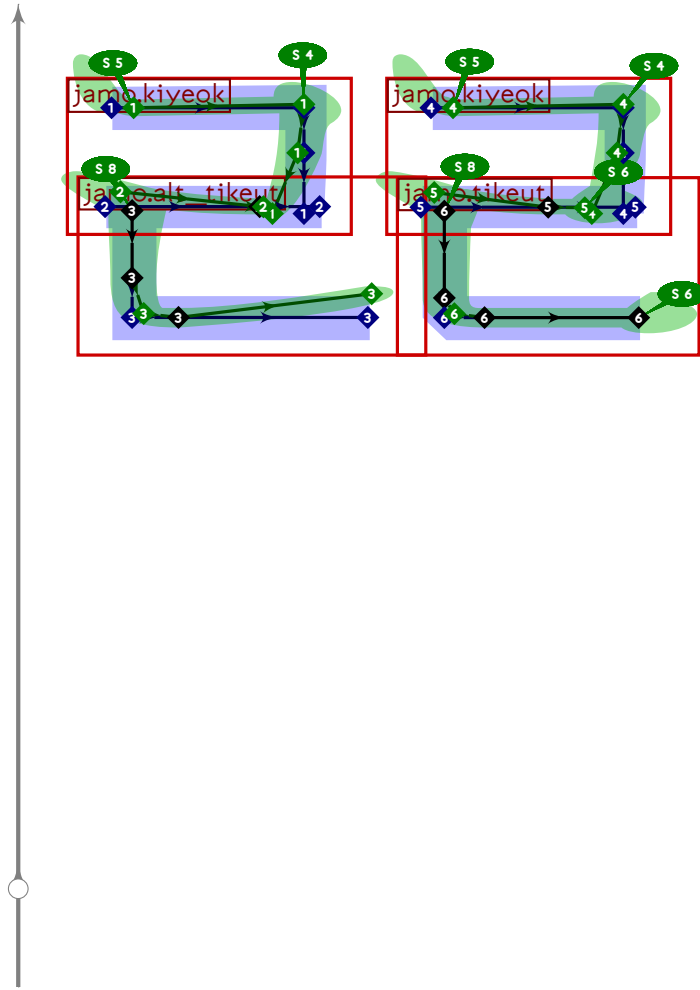


```

205 % hangul lead riul-nieun
206 begintsuglyph("uni1118.bug",24);
207 hangul.combine.lr(205,102)(whatever,lixf,loxf);
208 tsu_render;
209 endsuglyph;
210

```

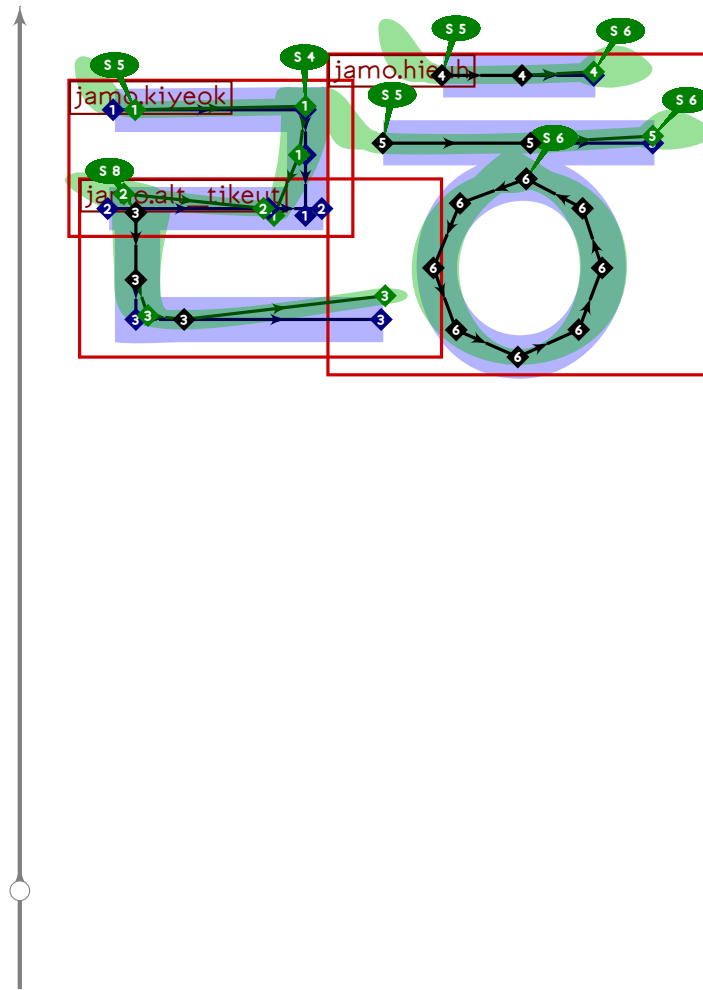




```

211 % hangul lead ssangrieul
212 begintsuglyph("uni1119.bug",25);
213 hangul.combine.lr(205,105)(whatever,lixf,loxf);
214 tsu_render;
215 endtsuglyph;
216

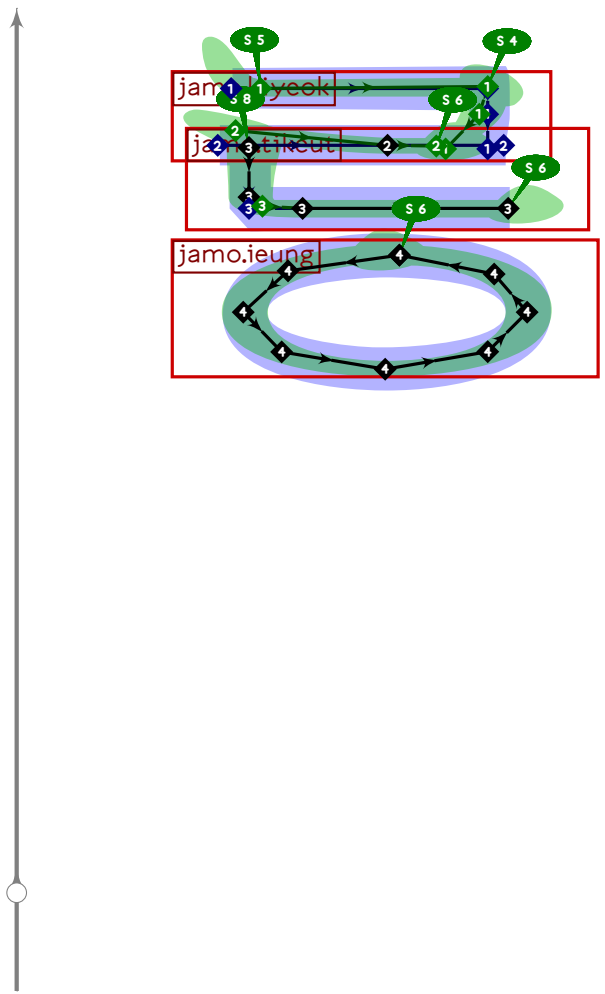
```



```

217 % hangul lead rieul-hieuh
218 begintsuglyph("uni111A.bug",26);
219 hangul.combine.lr(205,118)(whatever,lixf,loxf);
220 tsu_render;
221 endtsuglyph;
222

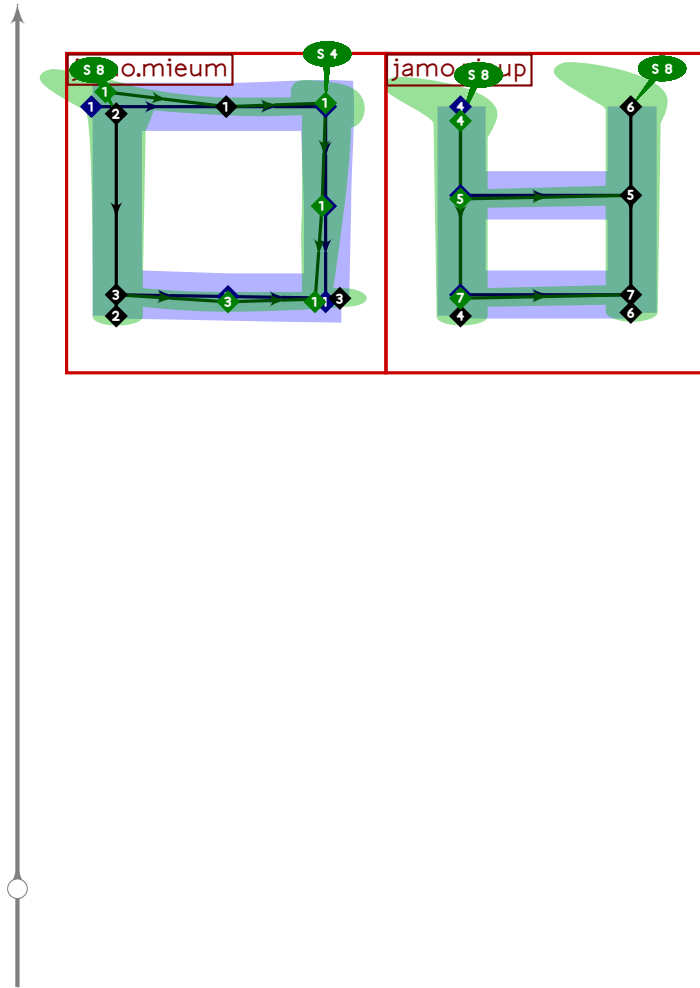
```



```

223 % hangul lead kapyeounrieul
224 beginsuglyph("uni111B.bug",27);
225 hangul.combine.tb(105,521)(whatever,
226   hxf((200,850),(800,-50)) transformed lixf,loxf);
227 tsu_render;
228 endsuglyph;
229

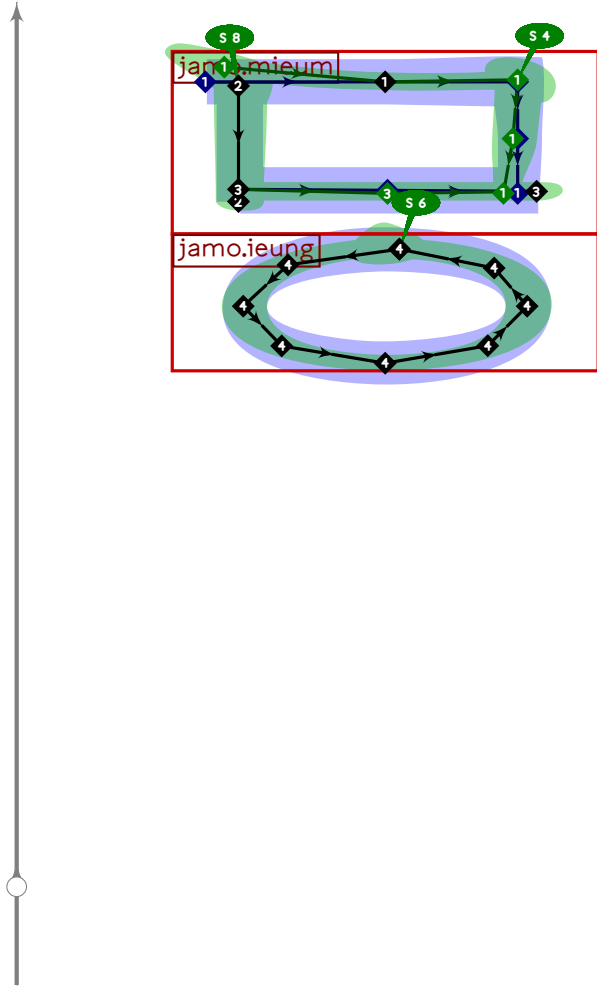
```



```

230 % hangul lead mieum-pieup
231 begintsuglyph("uni111C.bug",28);
232 hangul.combine.lr(106,107)(whatever,lixf,loxf);
233 tsu_render;
234 endsuglyph;
235

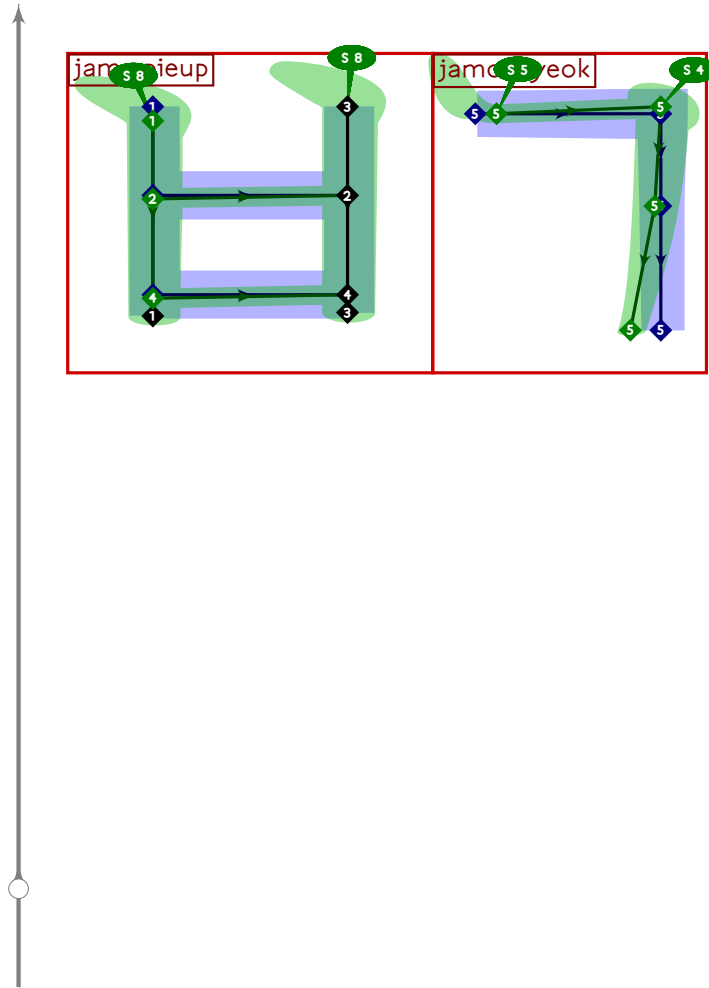
```



```

236 % hangul lead kapyeounmieum
237 begint Suglyph("uni111D.bug",29);
238 hangul.combine.tb(106,521)(whatever,
239   hxf((200,850),(800,-50)) transformed lixf,loxf);
240 tsu_render;
241 endsuglyph;
242

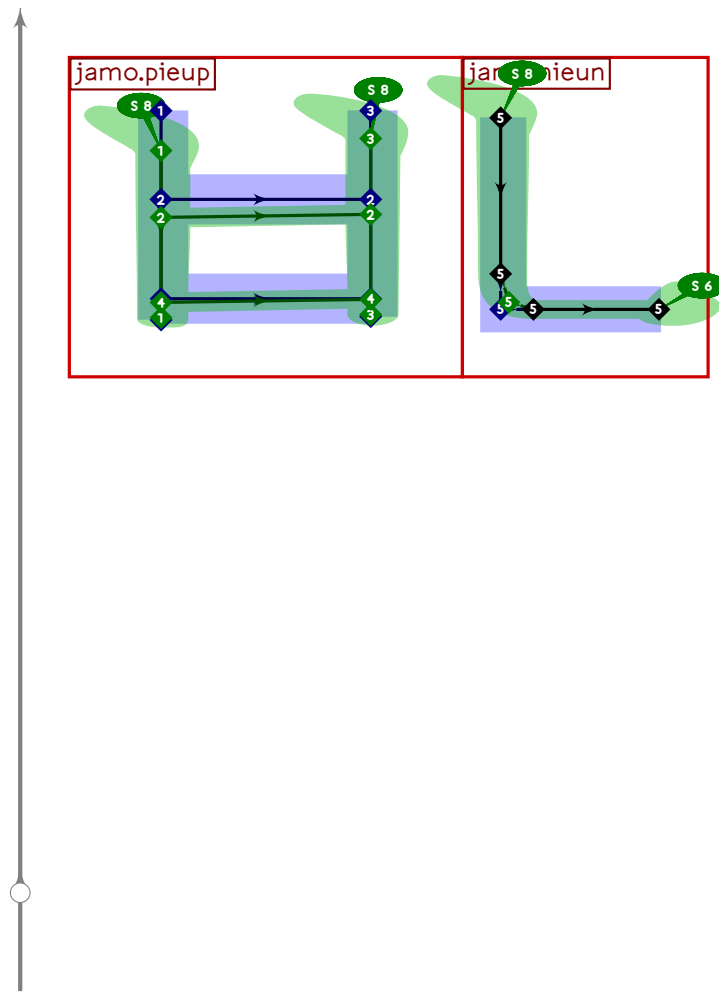
```



```

243 % hangul lead pieup-kiyeok
244 begintsuglyph("uni111E.bug",30);
245 hangul.combine.lr(107,100)(whatever,lixf,loxf);
246 tsu_render;
247 endtsuglyph;
248

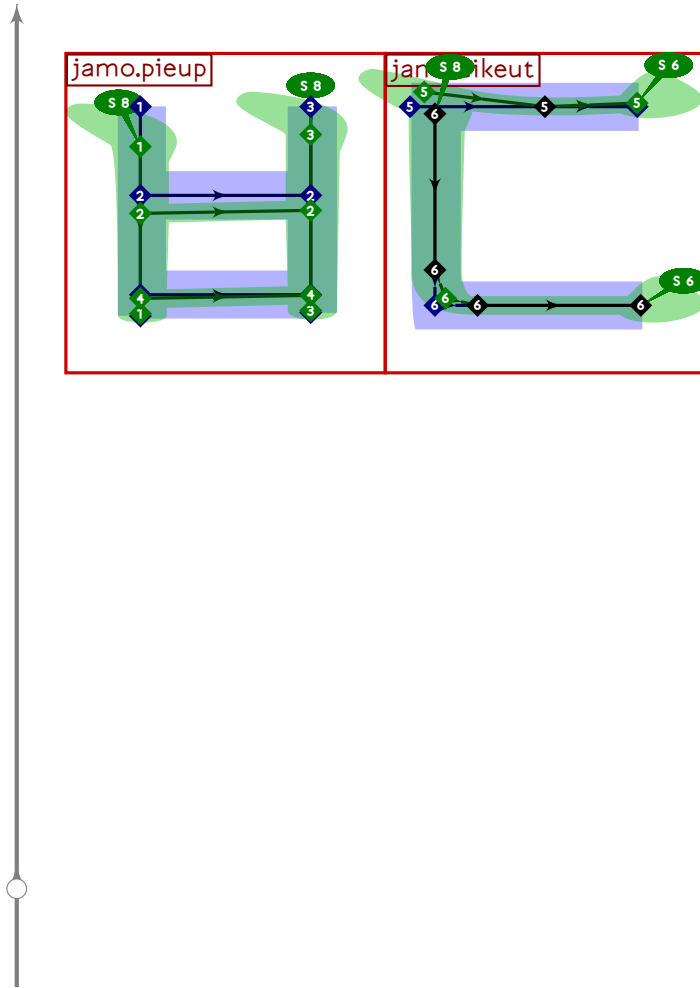
```



```

249 % hangul lead pieup-nieun
250 begintsuglyph("uni111F.bug";31);
251 hangul.combine.lr(207,102)(whatever,lixf,loxf);
252 tsu_render;
253 endtsuglyph;
254

```

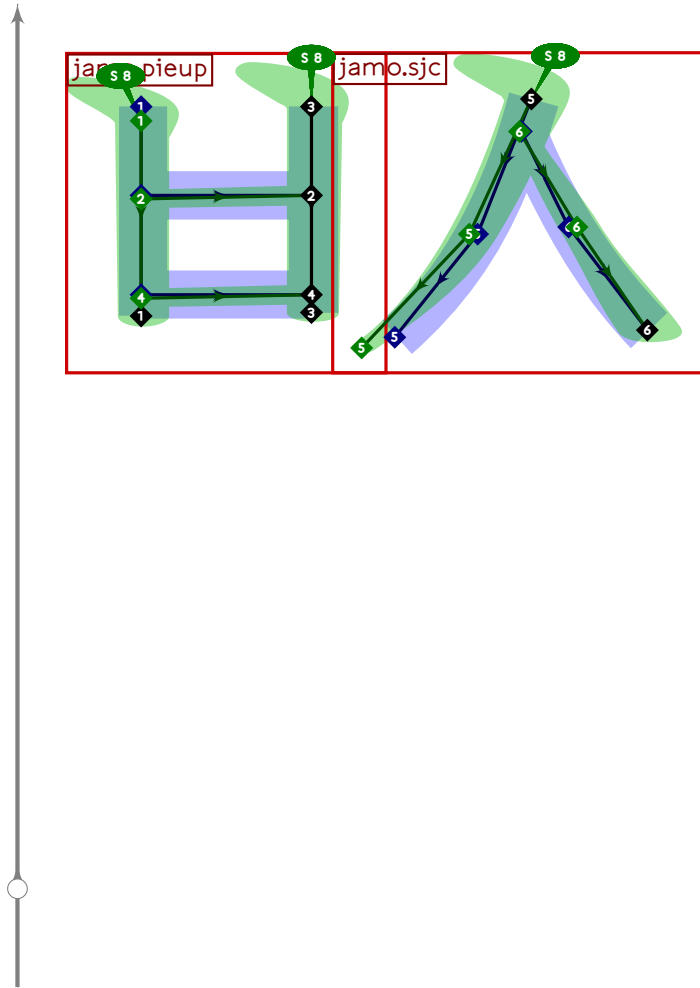


```

255 % hangul lead pieup-tikeut
256 begintsuglyph("uni1120.bug",32);
257 hangul.combine.lr(207,103)(whatever,lixf,loxf);
258 tsu_render;
259 endsuglyph;
260

```

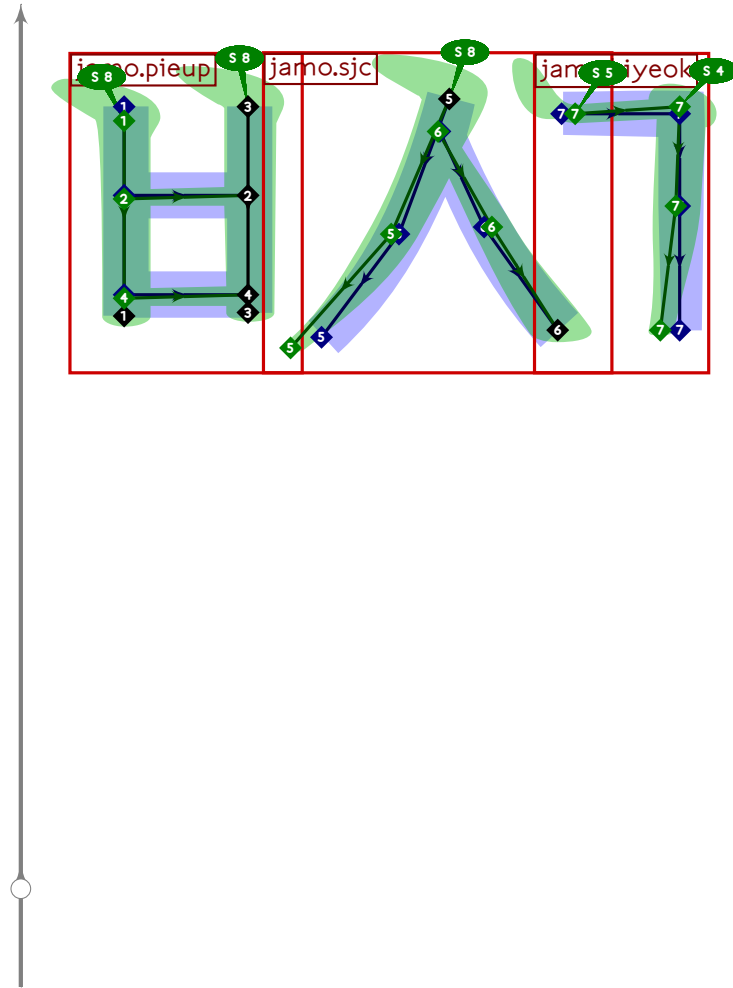




```

261 % hangul lead pieup-sios
262 begintsuglyph("uni1121.bug",33);
263 hangul.combine.lr(107,109)(whatever,lixf,loxf);
264 tsu_render;
265 endtsuglyph;
266

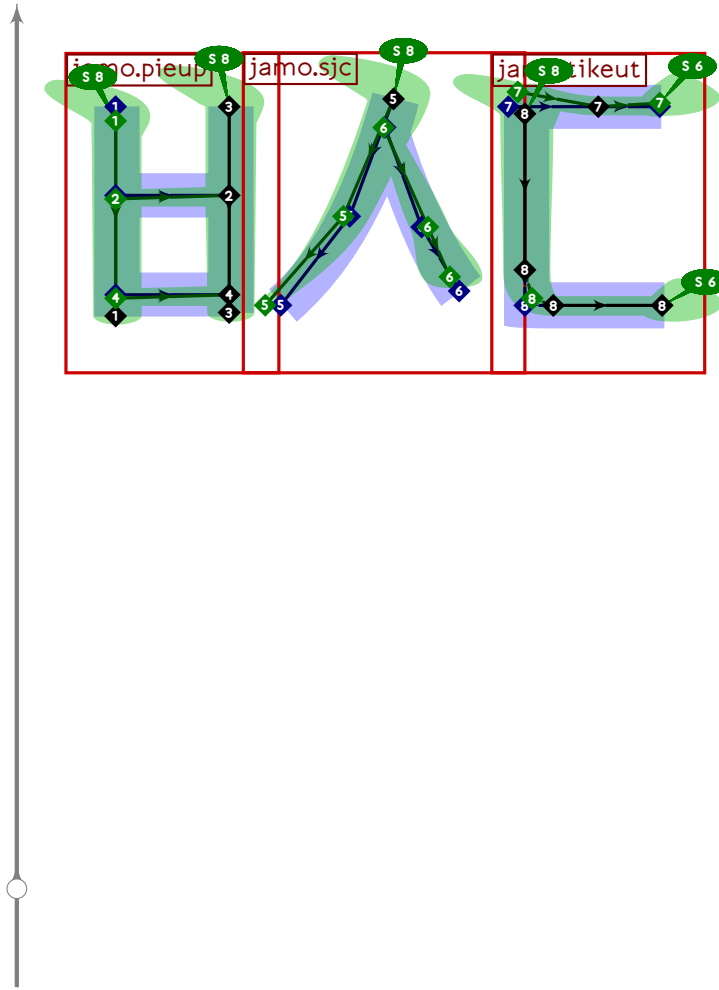
```



```

267 % hangul lead pieup-sios-kiyeok
268 begintsuglyph("uni1122.bug",34);
269 hangul.combine.lcr(107,109,100)(whatever,lixf,loxf);
270 tsu_render;
271 endsuglyph;
272

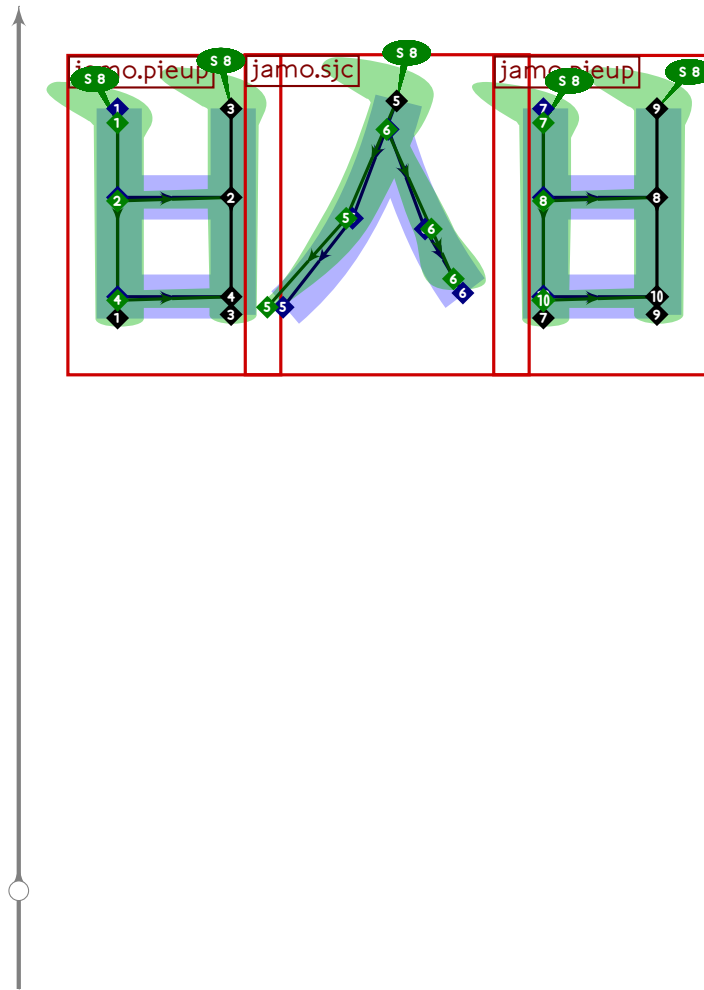
```



```

273 % hangul lead pieup-sios-tikeut
274 begintsuglyph("uni1123.bug",35);
275 hangul.combine.lcr(107,209,103)(whatever,lixf,loxf);
276 tsu_render;
277 endtsuglyph;
278

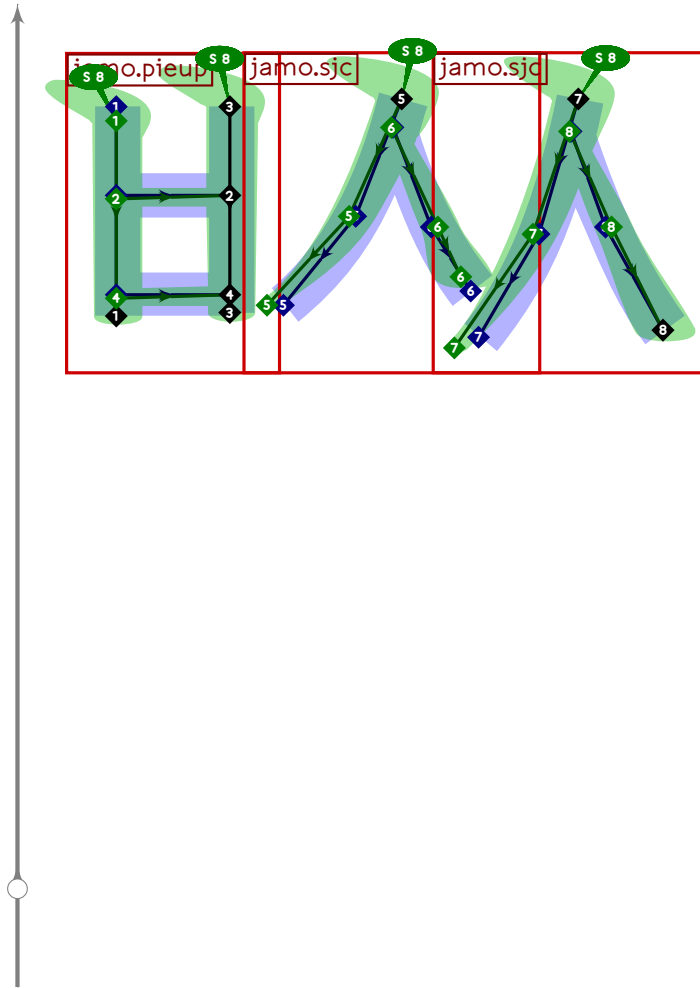
```



```

279 % hangul lead pieup-sios-pieup
280 begintsuglyph("uni1124.bug",36);
281 hangul.combine.lcr(107,209,107)(whatever,lixf,loxf);
282 tsu_render;
283 endsuglyph;
284

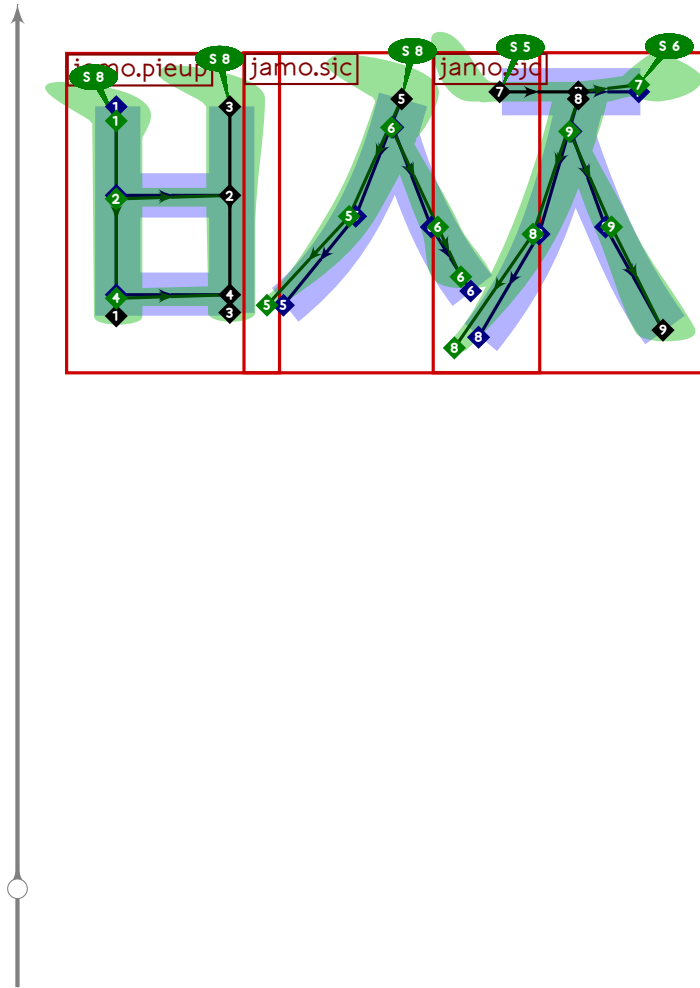
```



```

285 % hangul lead pieup-ssangsios
286 begintsuglyph("uni1125.bug",37);
287 hangul.combine.lcr(107,209,109)(whatever,lixf,loxf);
288 tsu_render;
289 endsuglyph;
290

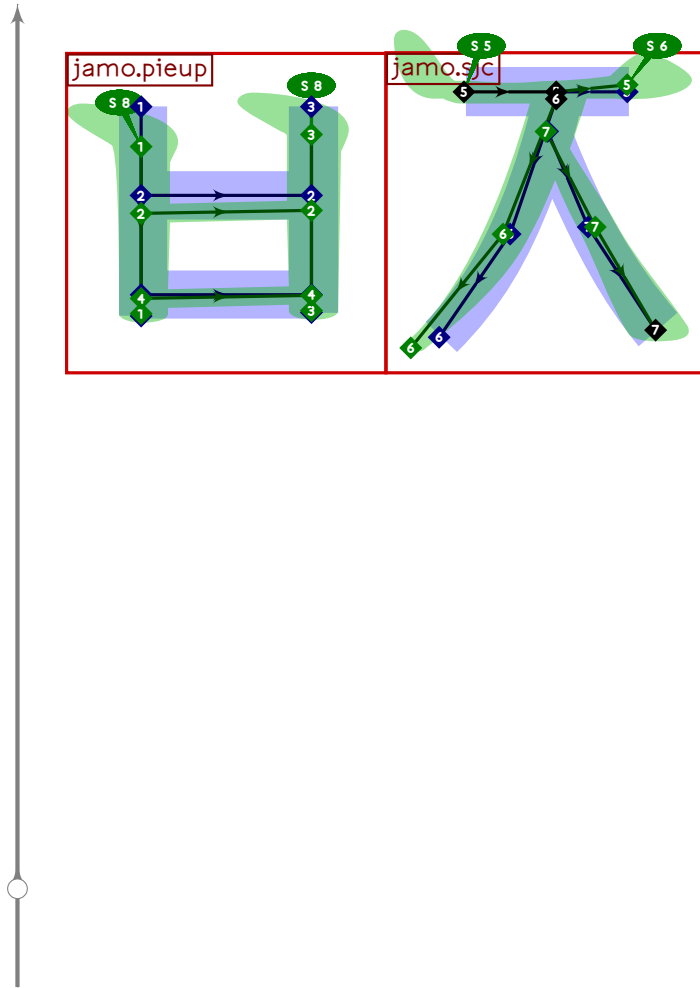
```



```

291 % hangul lead pieup-sios-cieuc
292 begint Suglyph("uni1126.bug",38);
293 hangul.combine.lcr(107,209,112)(whatever,lixf,loxf);
294 tsu_render;
295 endtsuglyph;
296

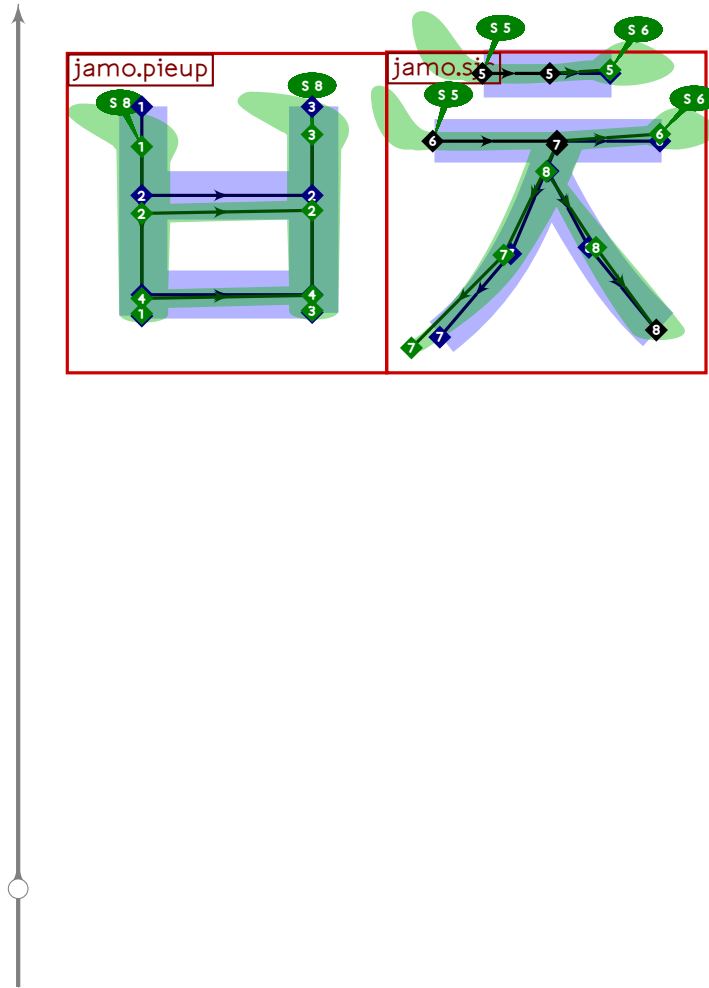
```



```

297 % hangul lead pieup-cieuc
298 begintsuglyph("uni1127.bug",39);
299 hangul.combine.lr(207,112)(whatever,lixf,loxf);
300 tsu_render;
301 endtsuglyph;
302

```

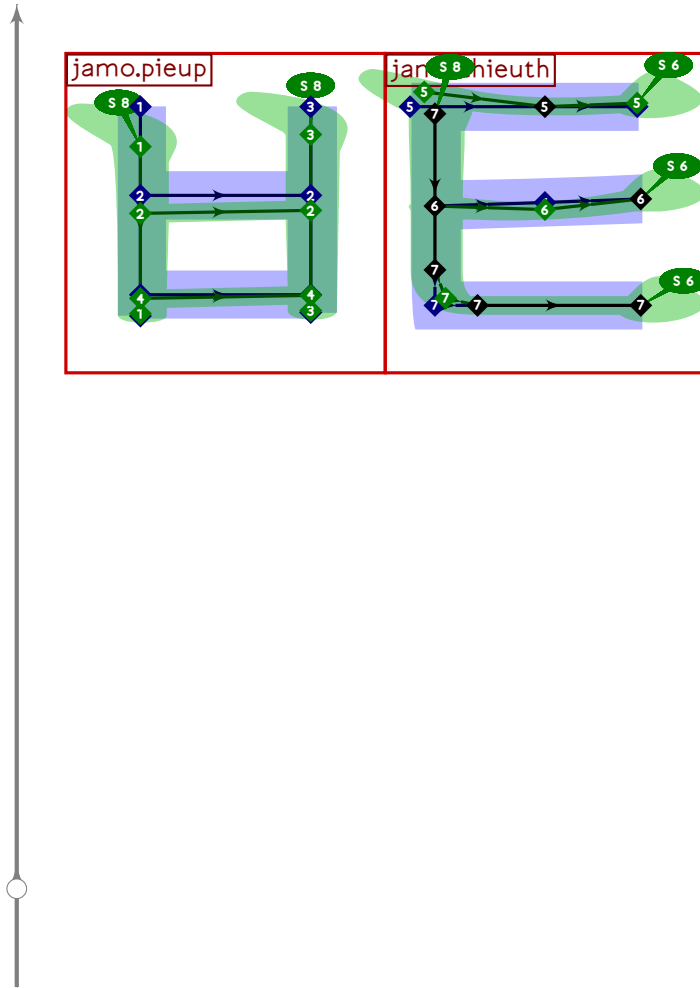


```

303 % hangul lead pieup-chieuch
304 begintsuglyph("uni1128.bug";40);
305 hangul.combine.lr(207,114)(whatever,lixf,loxf);
306 tsu_render;
307 endtsuglyph;
308

```

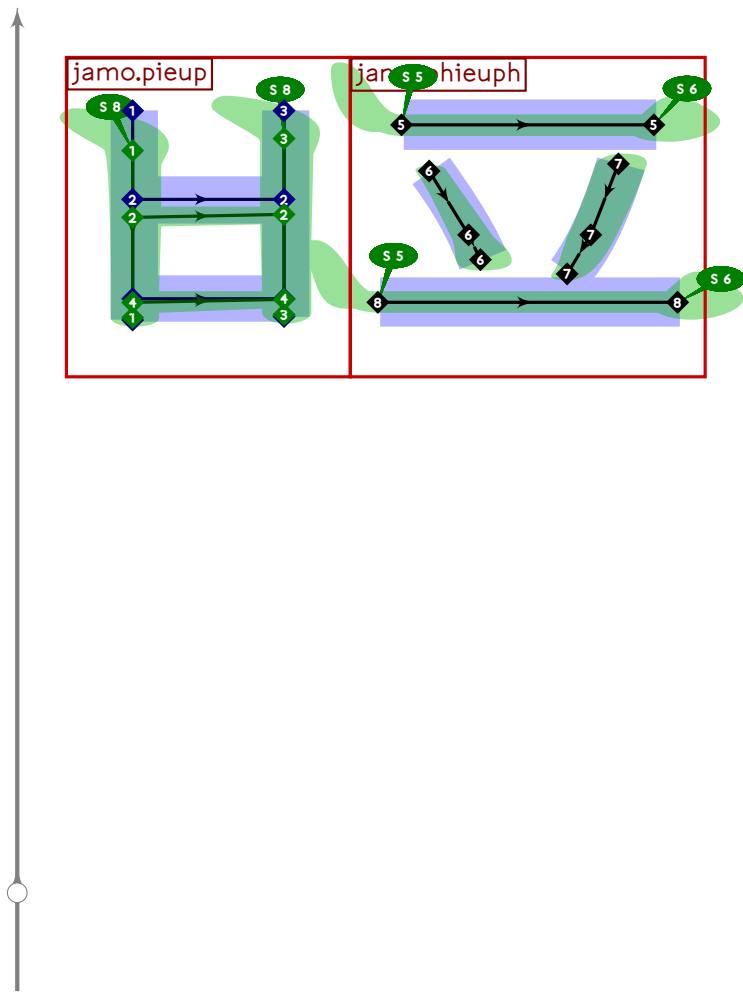




```

309 % hangul lead pieup-thieuth
310 begintsuglyph("uni1129.bug",41);
311 hangul.combine.lr(207,116)(whatever,lixf,loxf);
312 tsu_render;
313 endsuglyph;
314

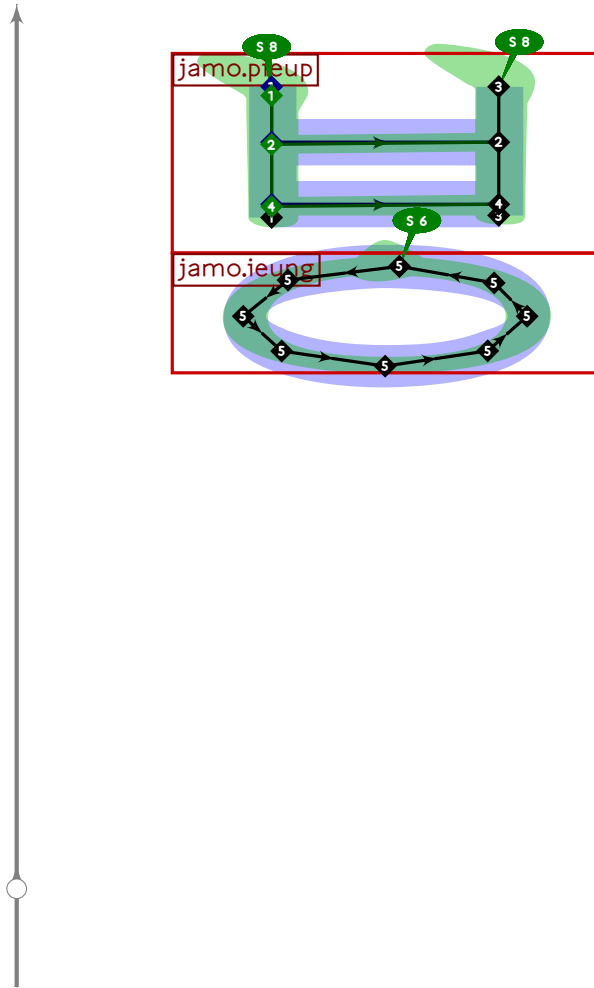
```



```

315 % hangul lead pieup-phieup
316 begintsuglyph("uni112A.bug";42);
317 hangul.combine.lr(207,117)(whatever,lixf,loxf);
318 tsu_render;
319 endtsuglyph;
320

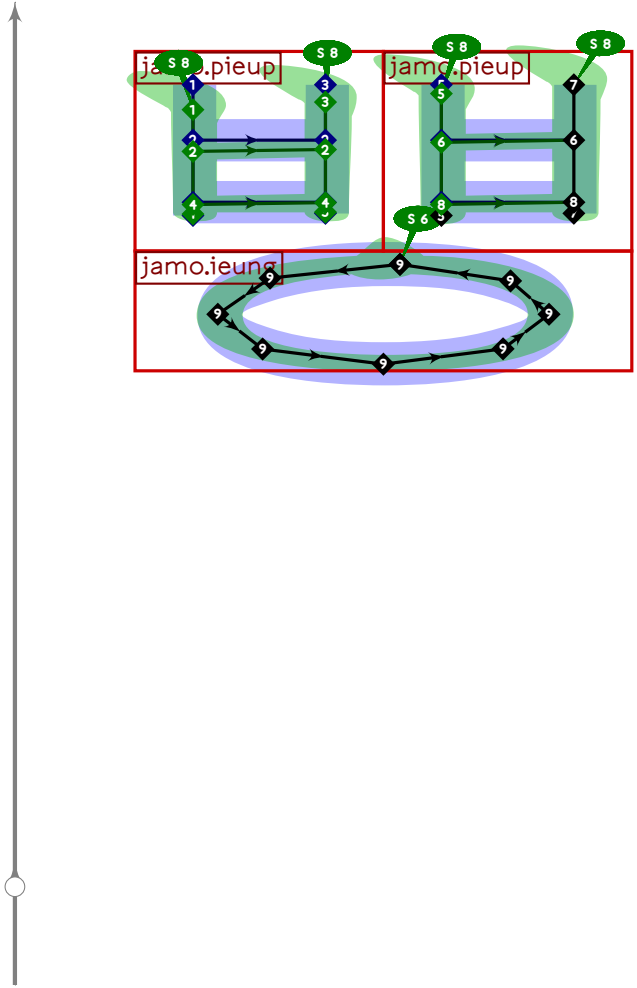
```



```

321 % hangul lead kapyeounpieup
322 begint Suglyph("uni112B. bug";43);
323 hangul.combine.tb(107,521)(whatever,
324   hxf((200,850),(800,-50)) transformed lixf,loxf);
325 tsu_render;
326 endsuglyph;
327

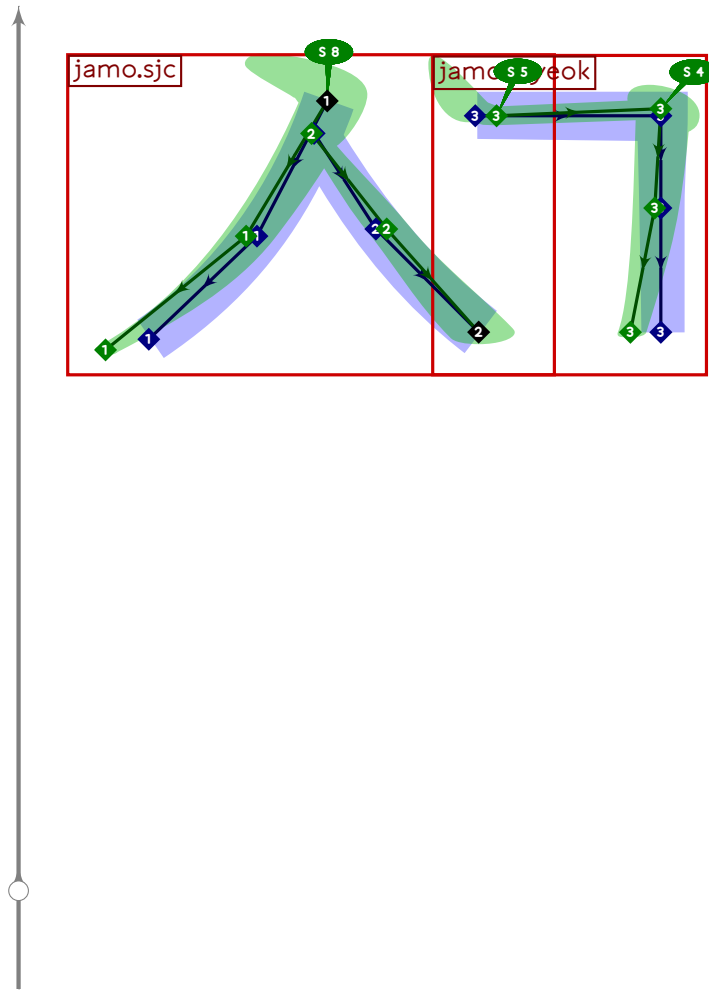
```



```

328 % hangul lead kapyeounssangpieup
329 begint Suglyph("uni112C.bug",44);
330 hangul.combine.tb(108,521)(whatever,
331   hxf((150,850),(850,-50)) transformed lixf,loxf);
332 tsu_render;
333 endsuglyph;
334

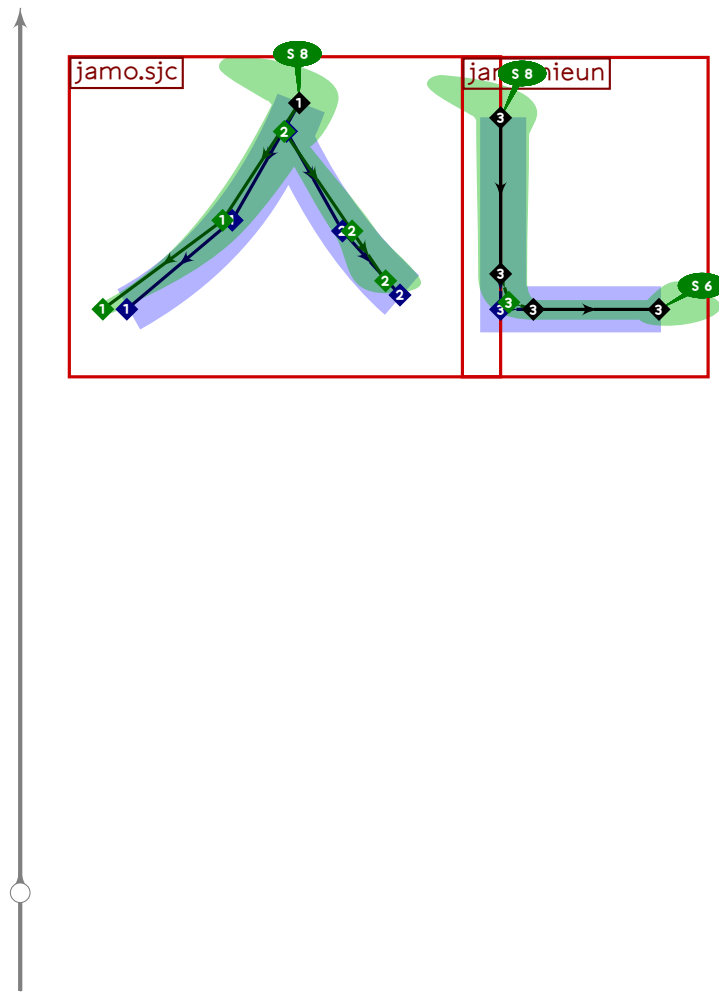
```



```

335 % hangul lead sios-kiyeok
336 begintsuglyph("uni112D.bug";45);
337 hangul.combine.lr(109,100)(whatever,lixf,loxf);
338 tsu_render;
339 endsuglyph;
340

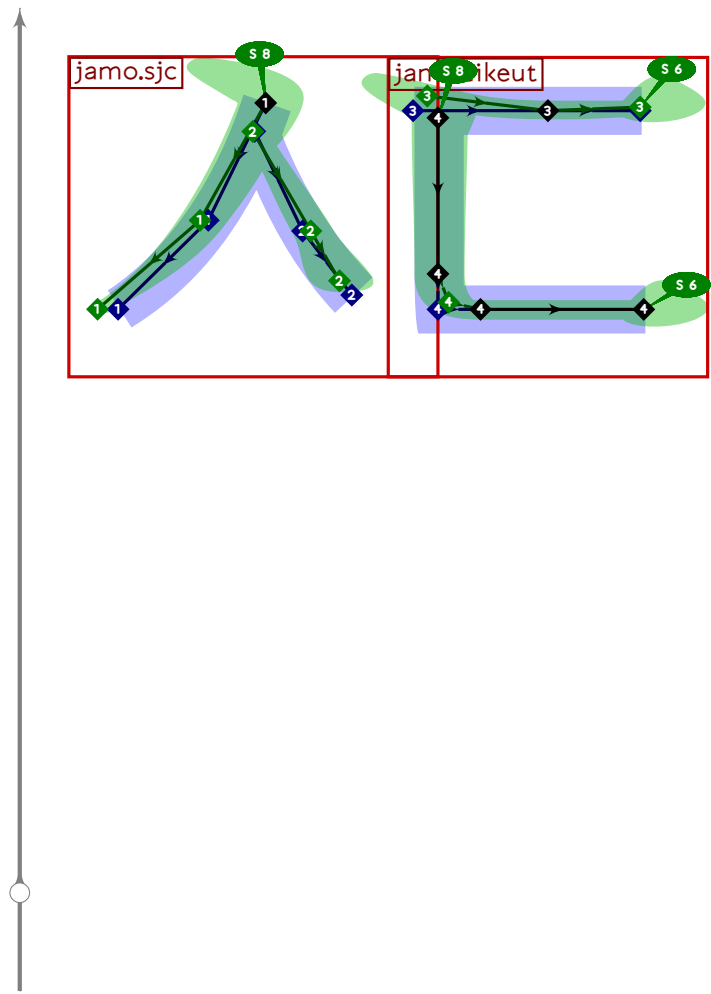
```



```

341 % hangul lead sios-nieun
342 begint Suglyph("uni112E.bug";46);
343 hangul.combine.lr(209,102)(whatever,lixf,loxf);
344 tsu_render;
345 endtsuglyph;
346

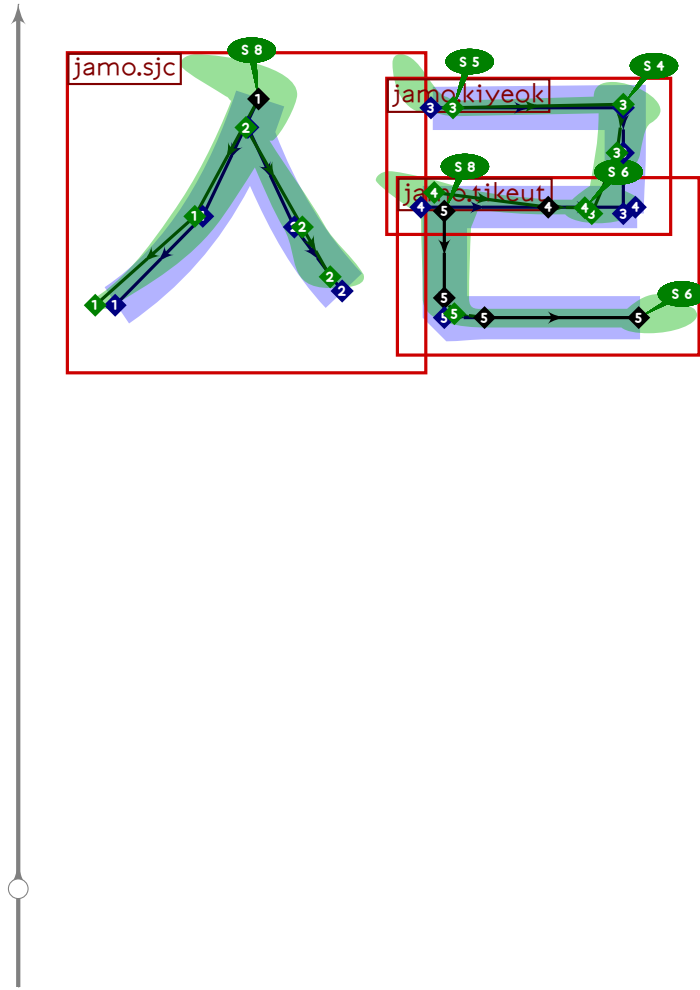
```



```

347 % hangul lead sios-tikeut
348 begintsuglyph("uni112F.bug",47);
349 hangul.combine.lr(209,103)(whatever,lixf,loxf);
350 tsu_render;
351 endtsuglyph;
352

```

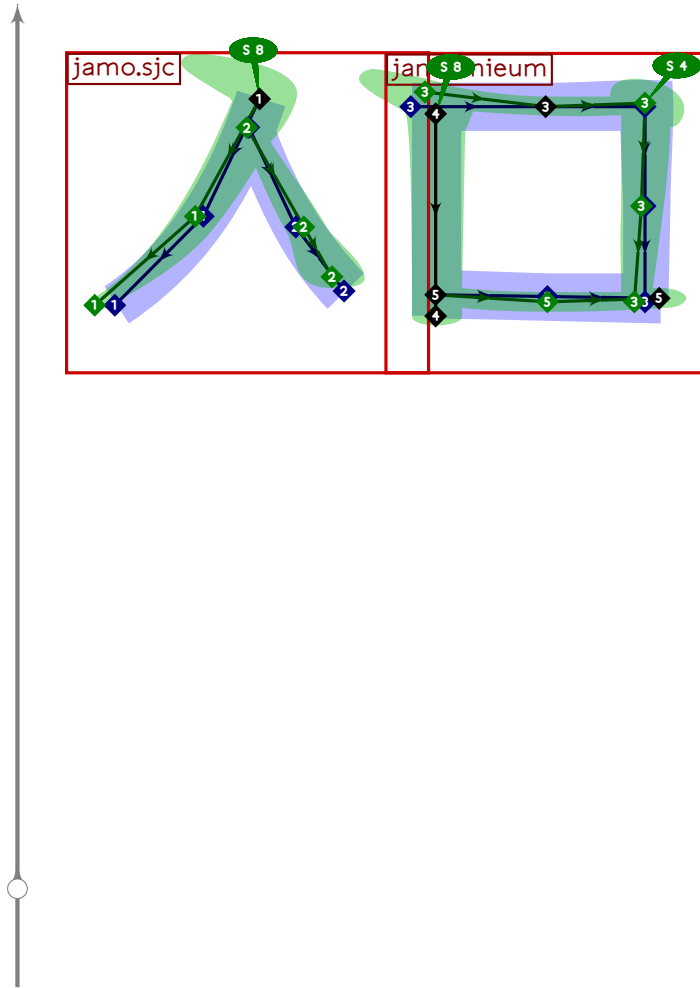


```

353 % hangul lead sios-rieul
354 begintsuglyph("uni1130.bug";48);
355 hangul.combine.lr(209,105)(whatever,lixf,loxf);
356 tsu_render;
357 endtsuglyph;
358

```

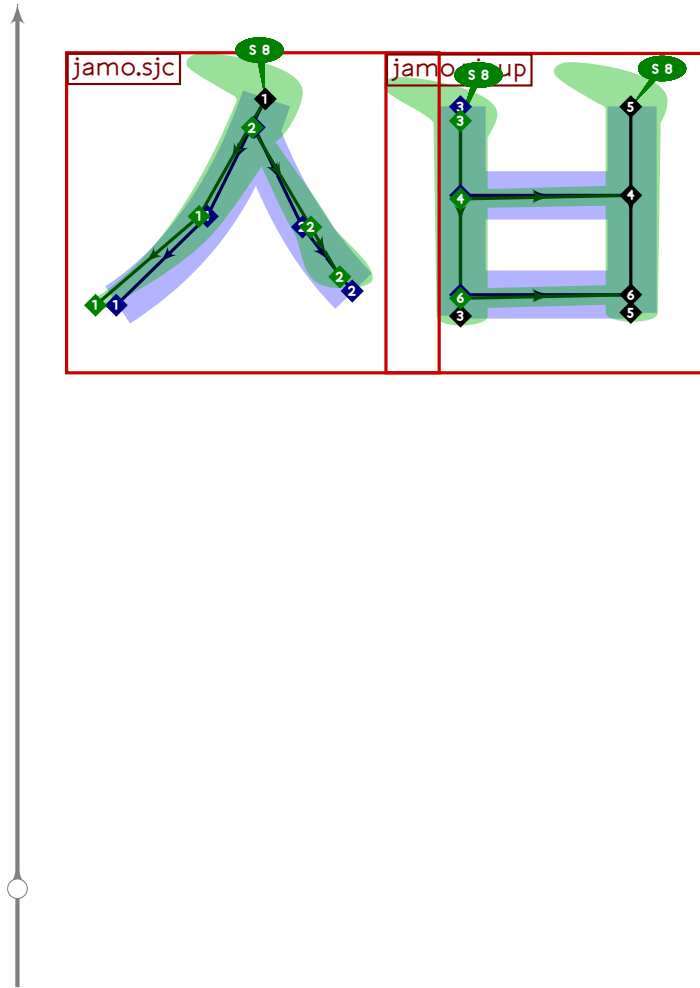




```

359 % hangul lead sios-mieum
360 begintsuglyph("uni1131.bug",49);
361 hangul.combine.lr(209,106)(whatever,lixf,loxf);
362 tsu_render;
363 endsuglyph;
364

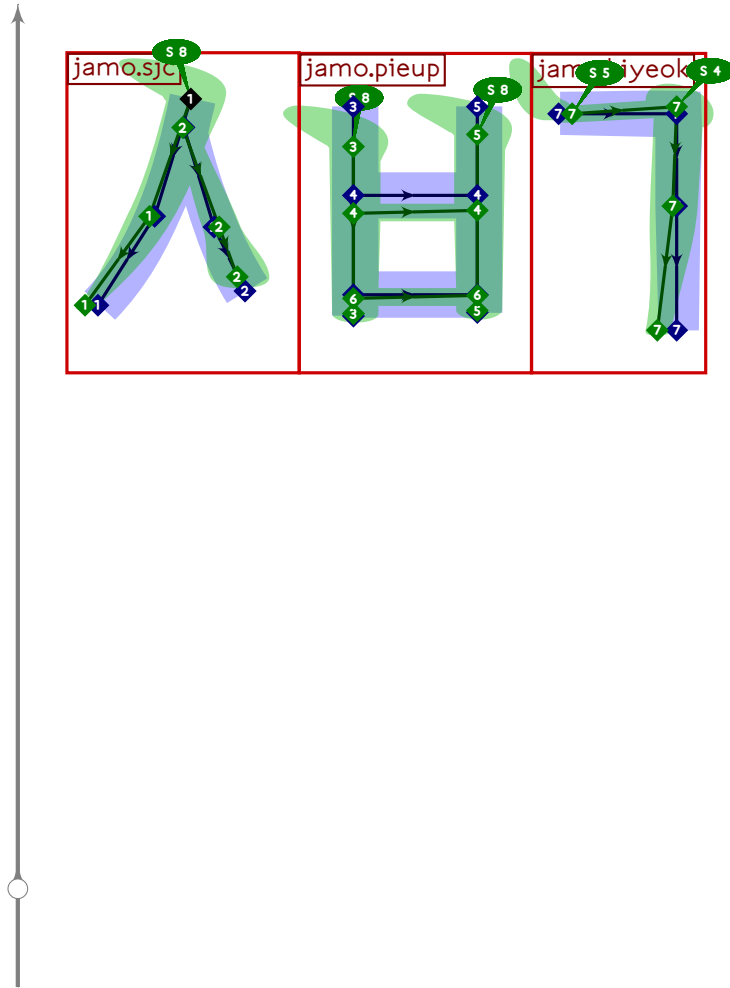
```



```

365 % hangul lead sios-pieup
366 begintsuglyph("uni1132.bug",50);
367 hangul.combine.lr(209,107)(whatever,lixf,loxf);
368 tsu_render;
369 endsuglyph;
370

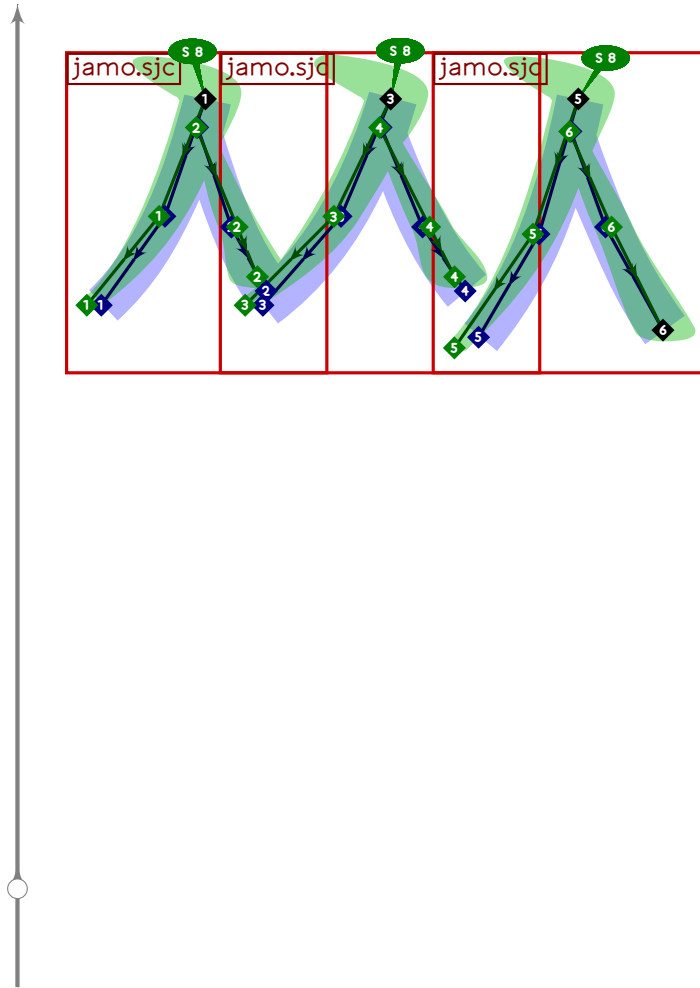
```



```

371 % hangul lead sios-pieup-kiyeok
372 begintsuglyph("uni1133.bug",51);
373 hangul.combine.lcr(209,207,100)(whatever,lixf,loxf);
374 tsu_render;
375 endsuglyph;
376

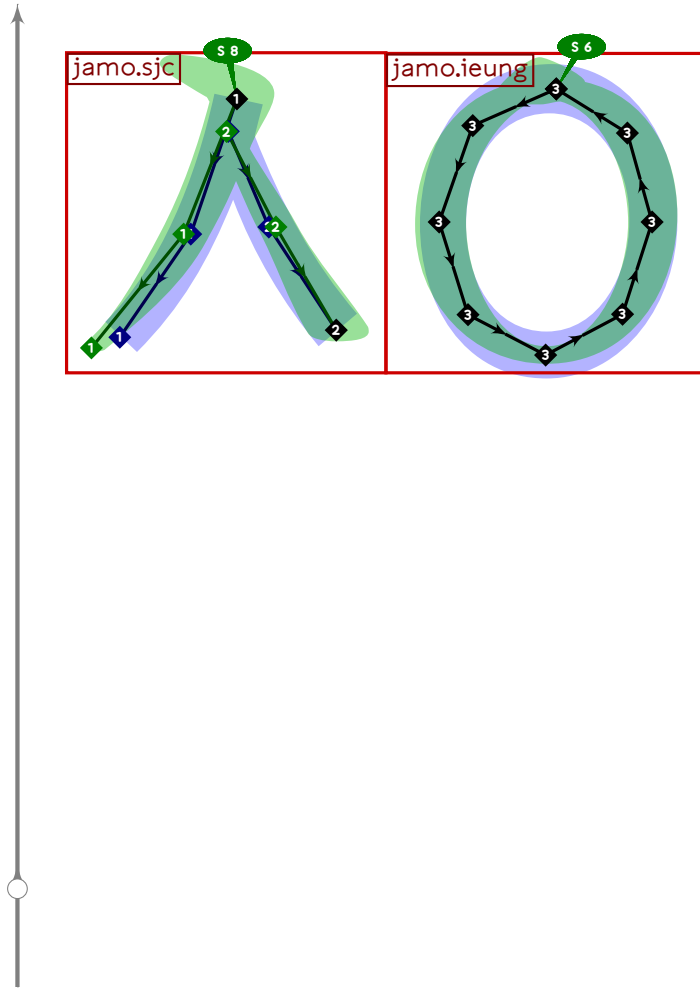
```



```

377 % hangul lead sios-sios-sios
378 begintsuglyph("uni1134.bug",52);
379 hangul.combine.lcr(209,209,109)(whatever,lixf,loxf);
380 tsu_render;
381 endsuglyph;
382

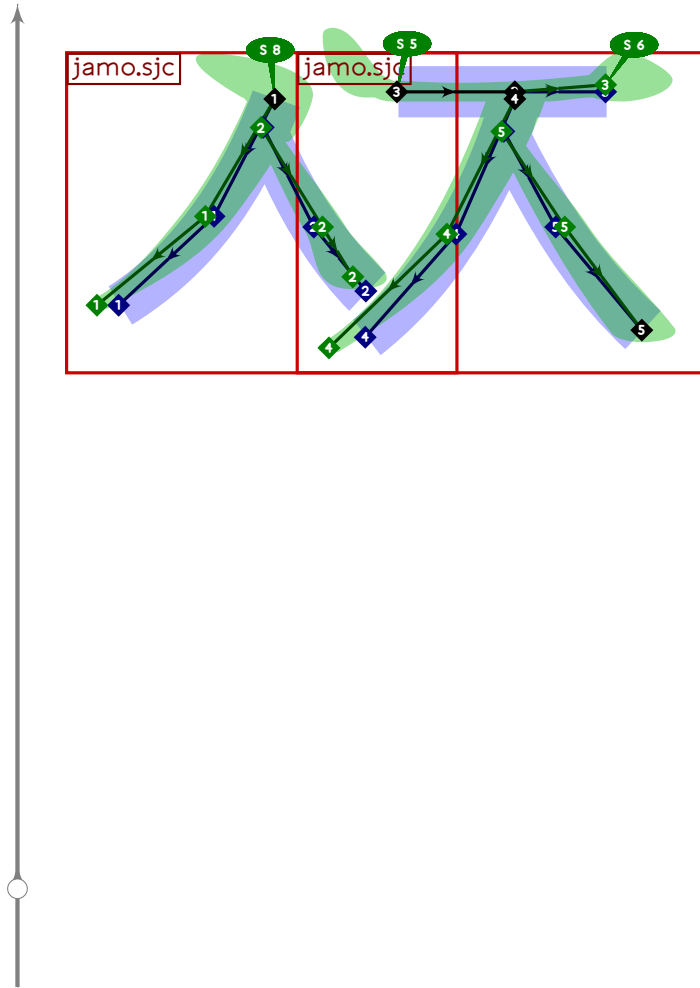
```



```

383 % hangul lead sio-ieung
384 begintsuglyph("uni1135.bug",53);
385 hangul.combine.lr(109,111)(whatever,lixf,loxf);
386 tsu_render;
387 endsuglyph;
388

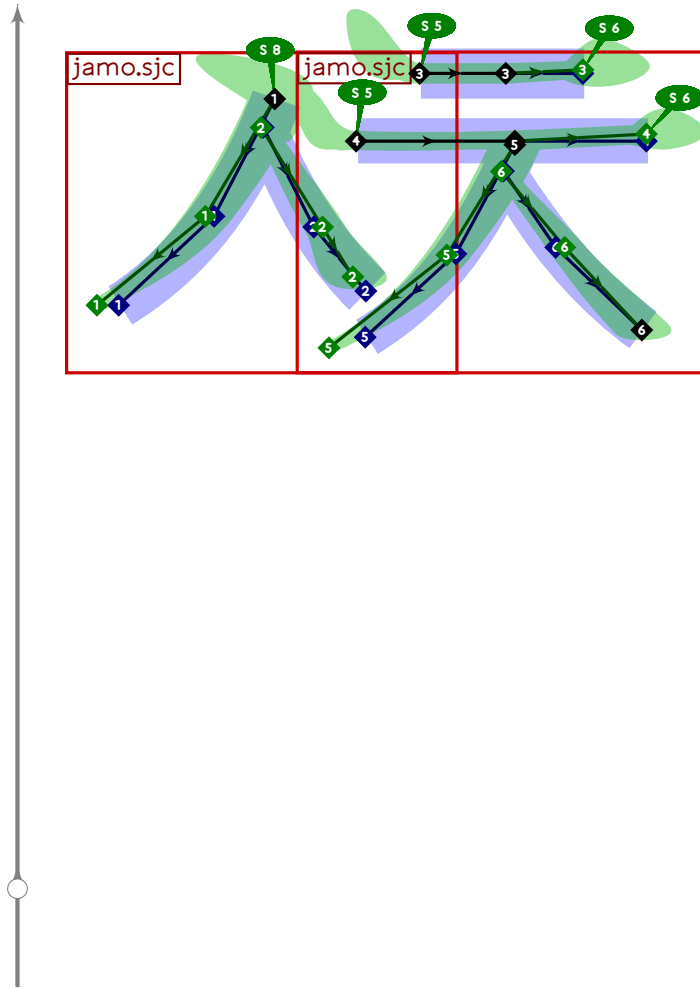
```



```

389 % hangul lead sios-cieuc
390 begintsuglyph("uni1136.bug",54);
391 hangul.combine.lr(209,112)(whatever,lixf,loxf);
392 tsu_render;
393 endtsuglyph;
394

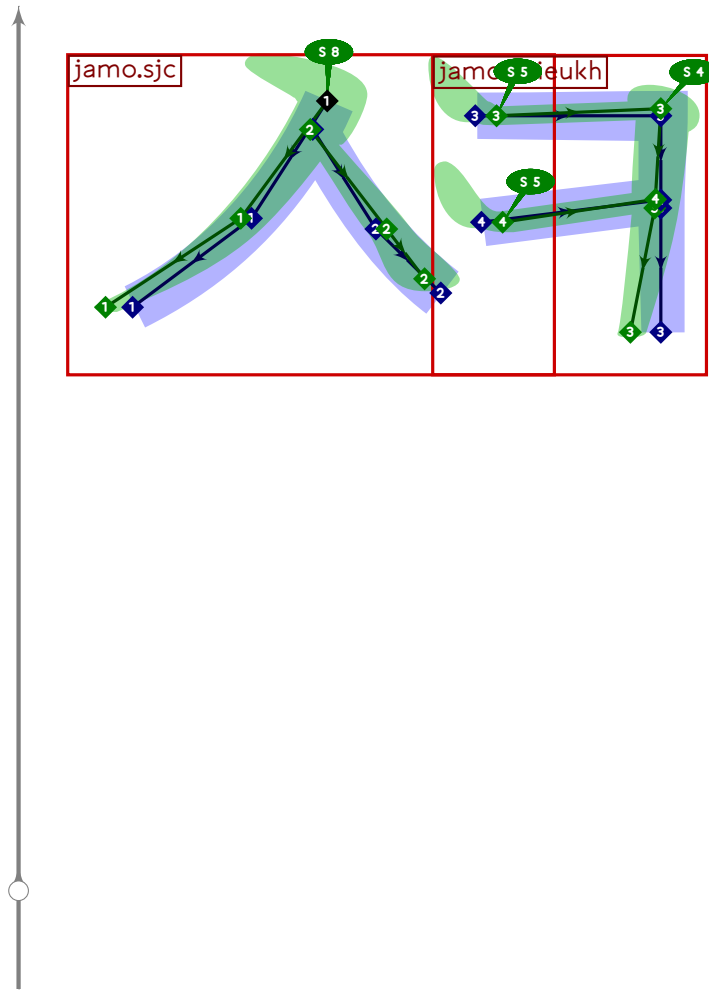
```



```

395 % hangul lead sios-chieuch
396 begintsuglyph("uni1137.bug",55);
397 hangul.combine.lr(209,114)(whatever,lixf,loxf);
398 tsu_render;
399 endtsuglyph;
400

```

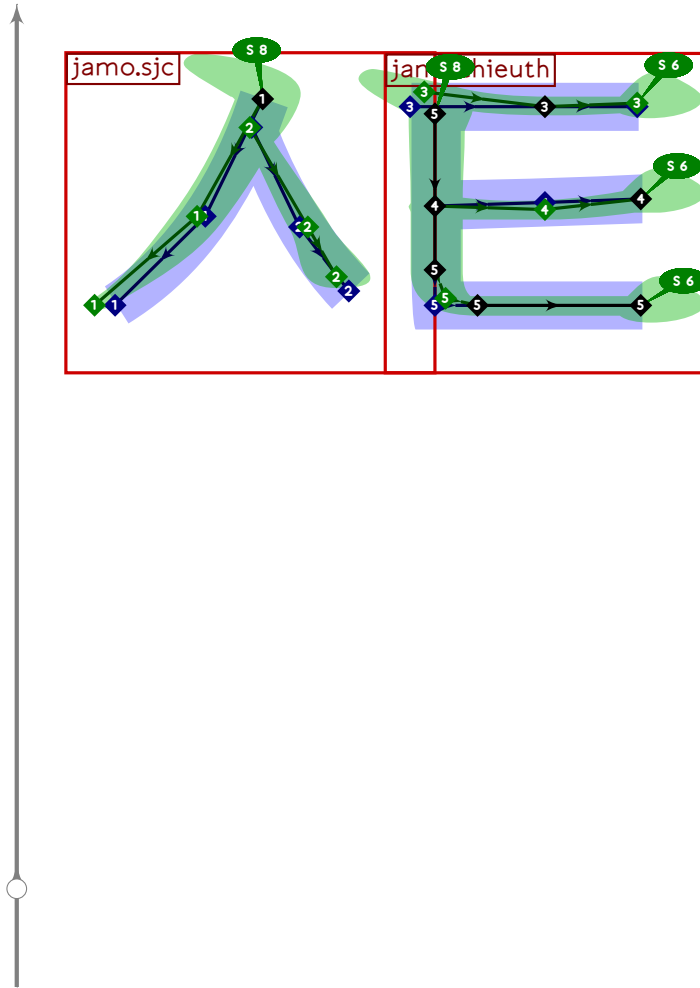


```

401 % hangul lead sio-khieukh
402 begintsuglyph("uni1138.bug",56);
403 hangul.combine.lr(209,115)(whatever,lixf,loxf);
404 tsu_render;
405 endtsuglyph;
406

```

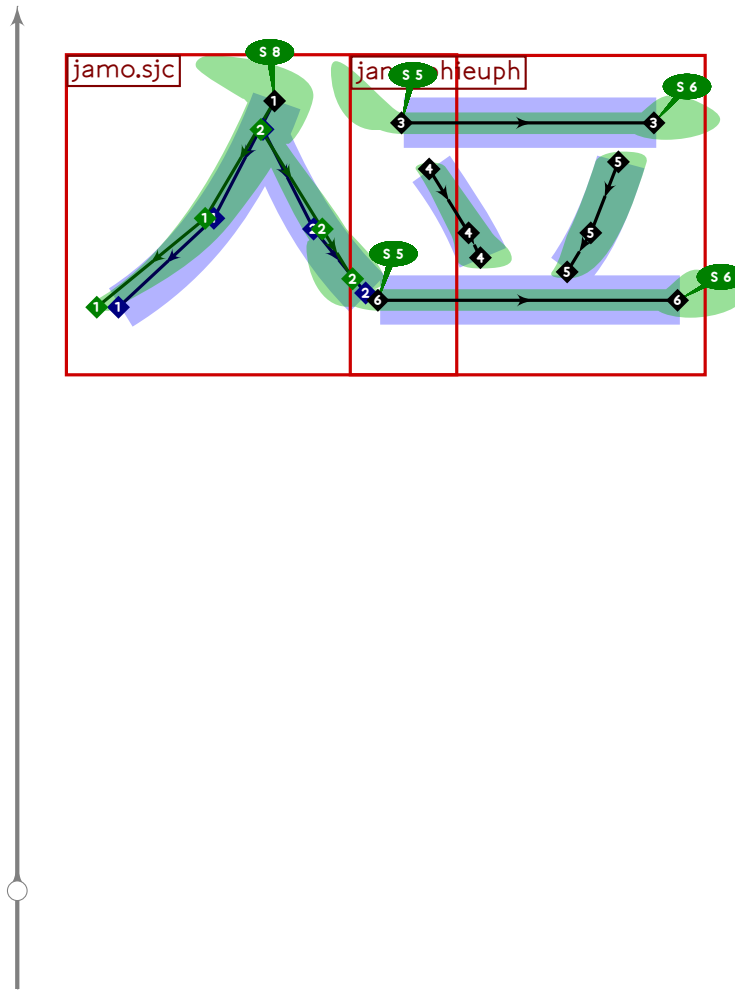




```

407 % hangul lead sios-thieuth
408 begintsuglyph("uni1139.bug",57);
409 hangul.combine.lr(209,116)(whatever,lixf,loxf);
410 tsu_render;
411 endtsuglyph;
412

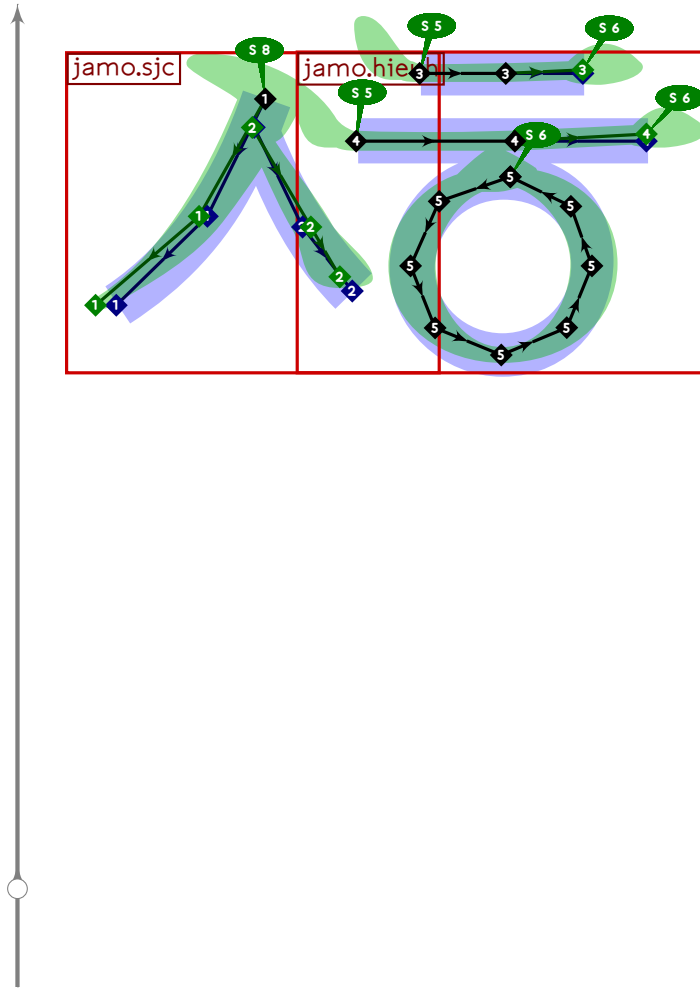
```



```

413 % hangul lead sios-phieuph
414 begintsuglyph("uni113A.bug";58);
415 hangul.combine.lr(209,117)(whatever,lixf,loxf);
416 tsu_render;
417 endtsuglyph;
418

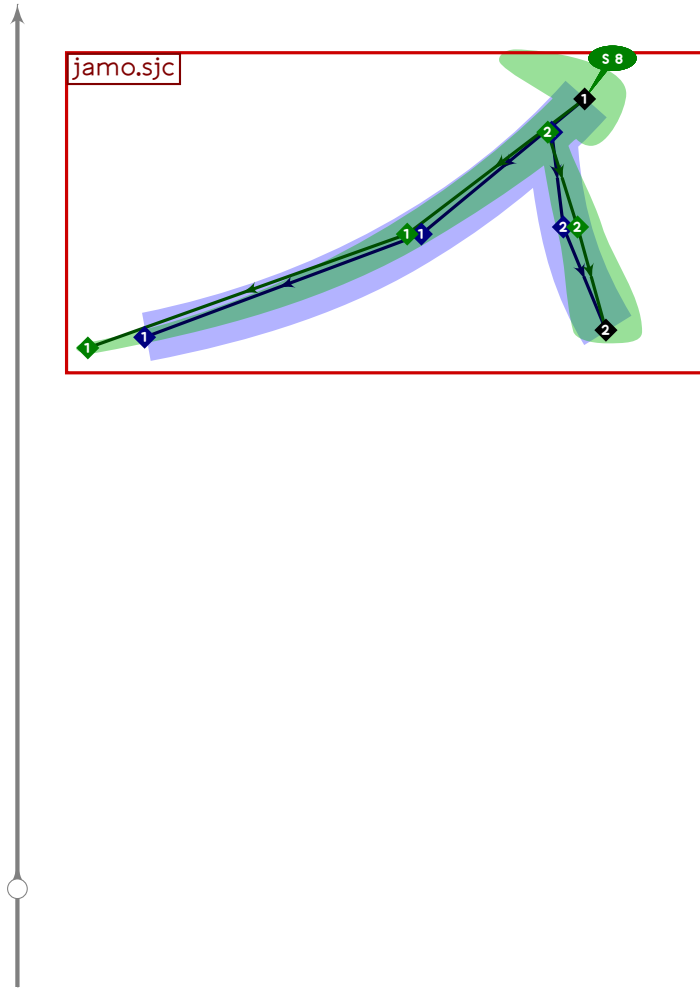
```



```

419 % hangul lead sios-hieuh
420 begintsuglyph("uni113B.bug",59);
421 hangul.combine.lr(209,118)(whatever,lixf,loxf);
422 tsu_render;
423 endsuglyph;
424

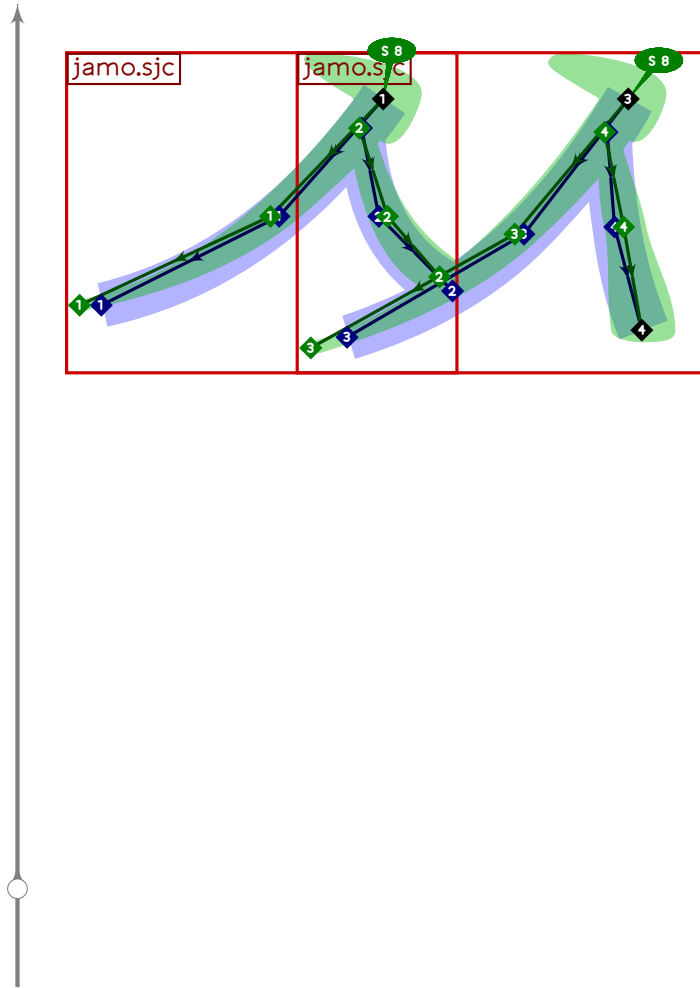
```



```

425 % hangul lead chitueumsios
426 begint Suglyph("uni113C.bug",60);
427 hangul.jamo.sjc(0,1,false)(whatever,lixf,loxf);
428 tsu_render;
429 endtsuglyph;
430

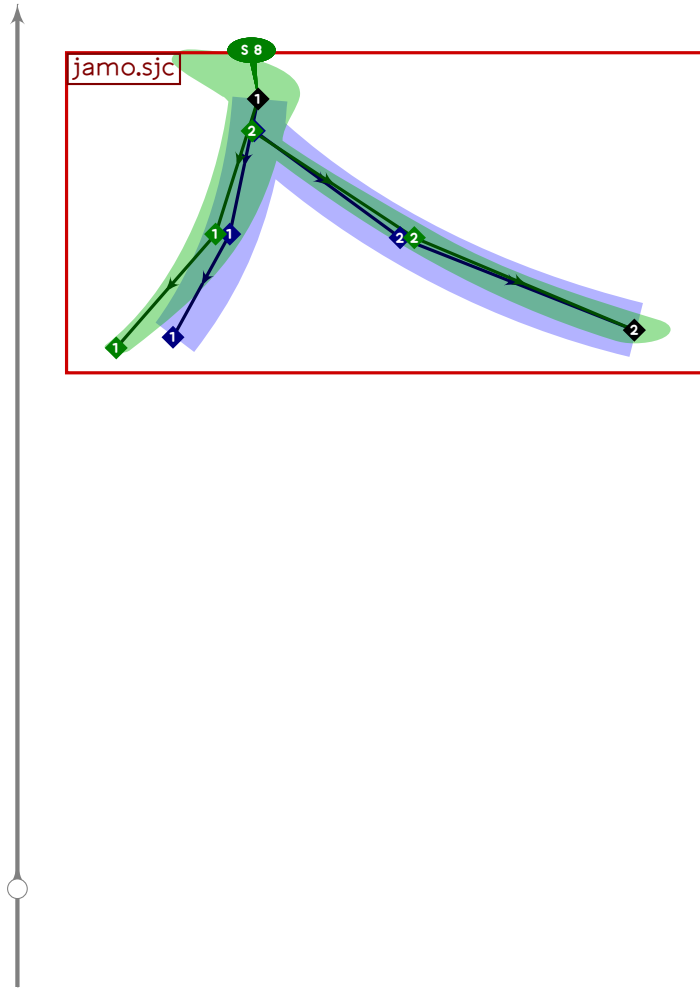
```



```

431 % hangul lead chitueumssangsios
432 begintsuglyph("uni113D.bug",61);
433 hangul.combine.lr(223,222)(whatever,lixf,loxf);
434 tsu_render;
435 endsuglyph;
436

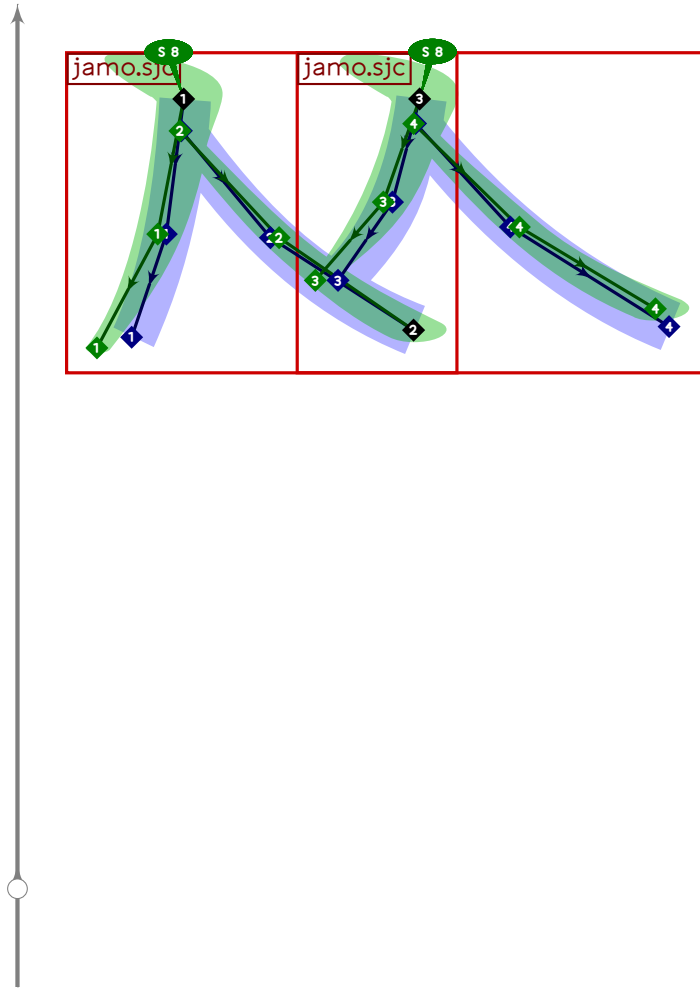
```



```

437 % hangul lead ceongchieumsios
438 begintsuglyph("uni113E.bug",62);
439 hangul.jamo.sjc(0,-1,false)(whatever,lixf,loxf);
440 tsu_render;
441 endtsuglyph;
442

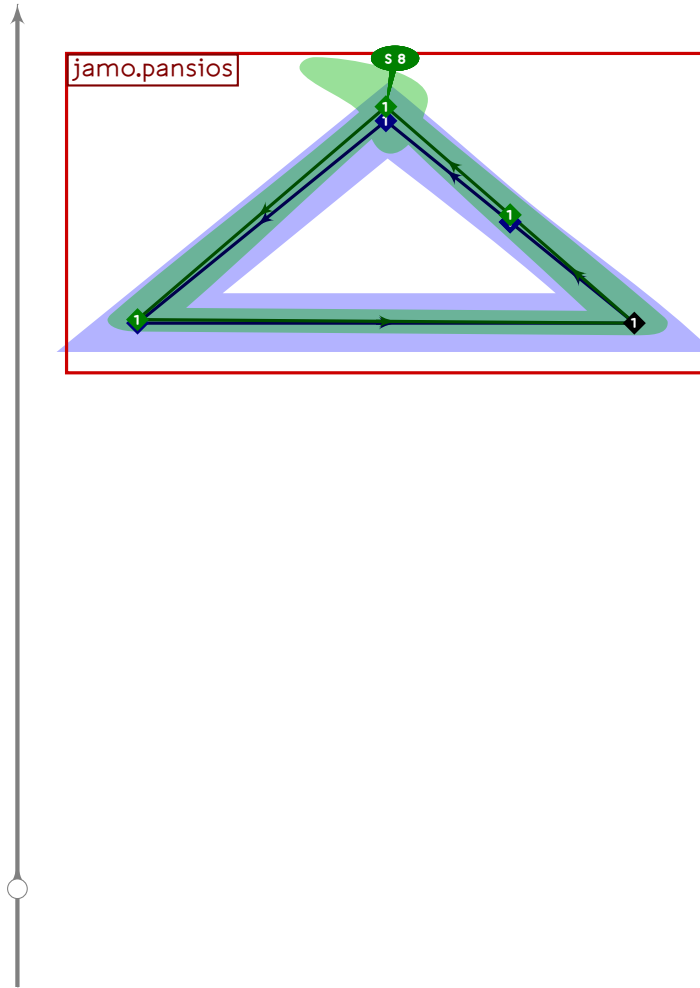
```



```

443 % hangul lead ceongchieumssangsios
444 begintsuglyph("uni113F.bug",63);
445 hangul.combine.lr(224,225)(whatever,lixf,loxf);
446 tsu_render;
447 endsuglyph;
448

```

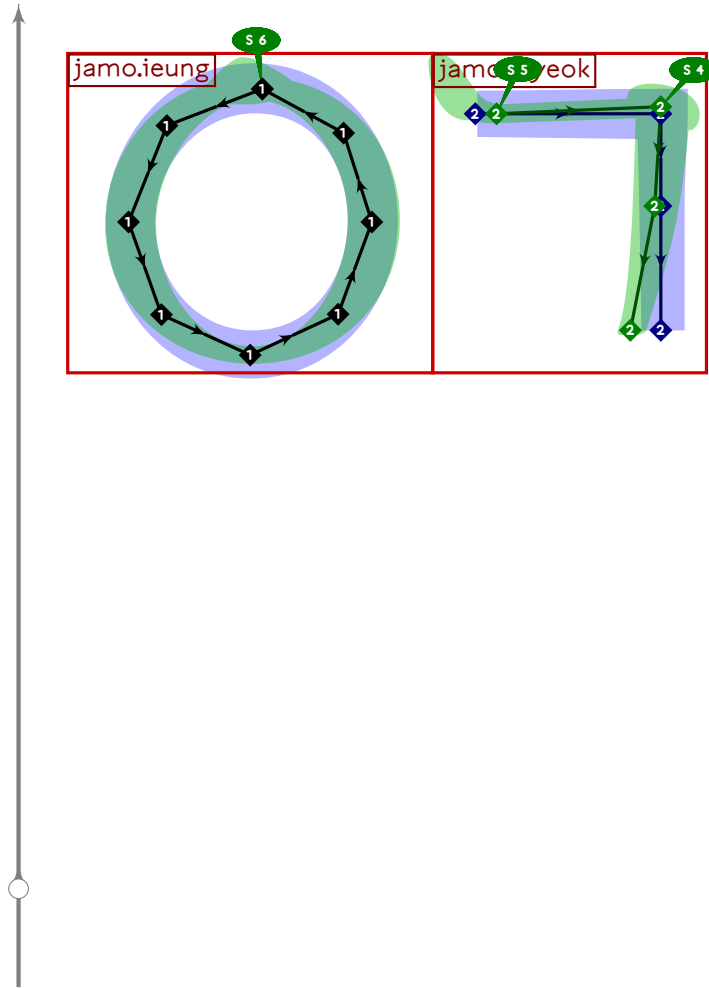


```

449 % hangul lead pansios
450 begintsuglyph("uni1140.bug",64);
451 hangul.jamo.pansios(whatever,lixf,loxf);
452 tsu_render;
453 endtsuglyph;
454

```

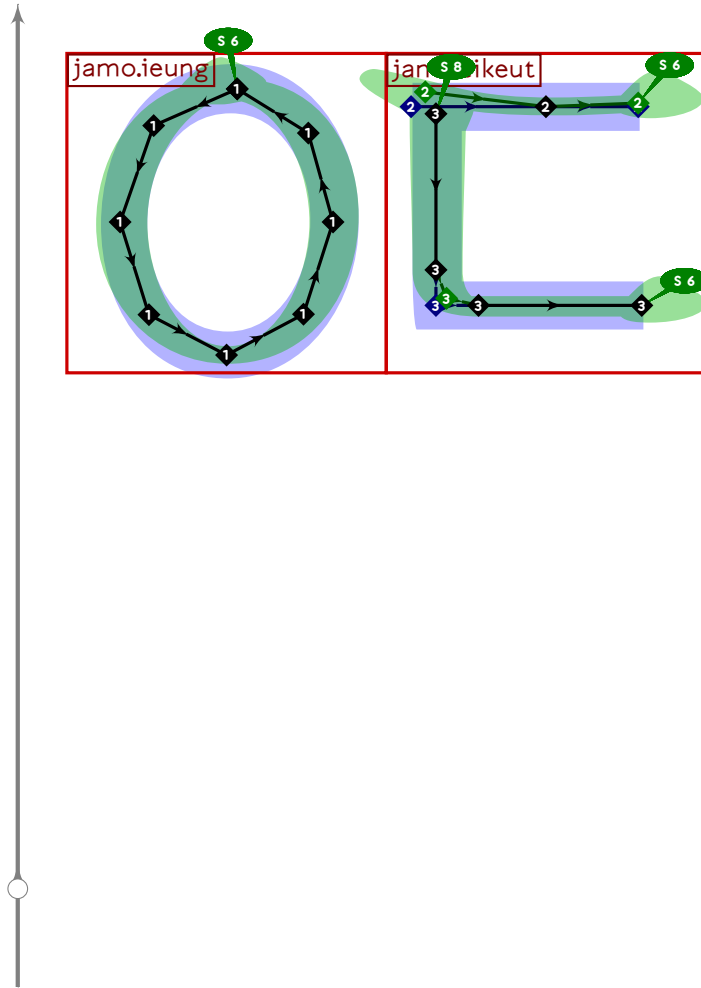




```

455 % hangul lead ieung-kiyeok
456 begintsuglyph("uni1141.bug",65);
457 hangul.combine.lr(111,100)(whatever,lixf,loxf);
458 tsu_render;
459 endsuglyph;
460

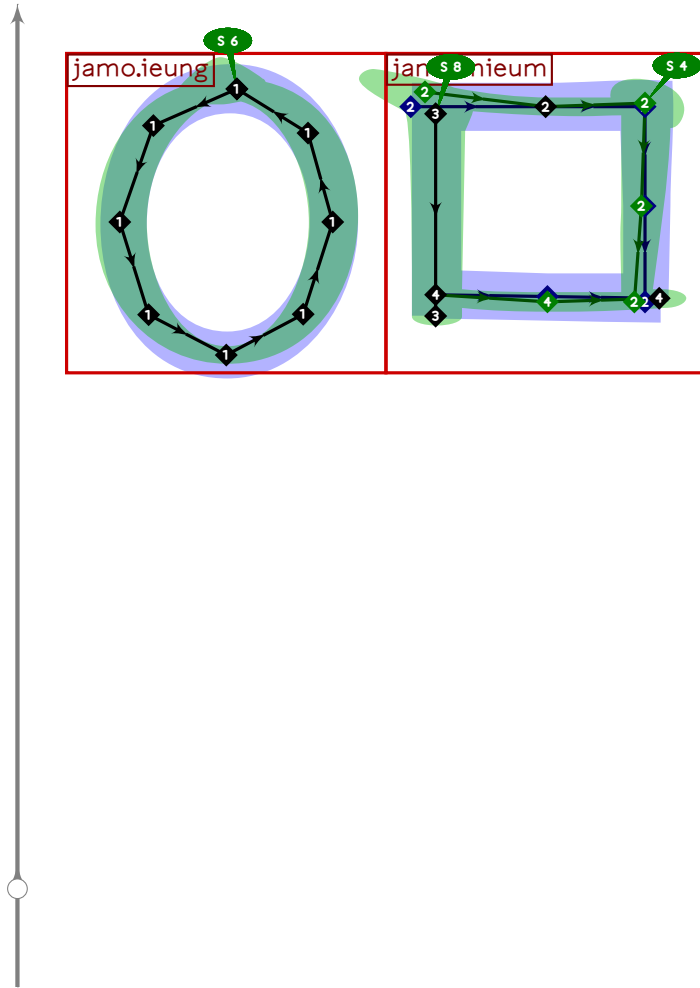
```



```

461 % hangul lead ieung-tikeut
462 begintsuglyph("uni1142.bug",66);
463 hangul.combine.lr(111,103)(whatever,lixf,loxf);
464 tsu_render;
465 endsuglyph;
466

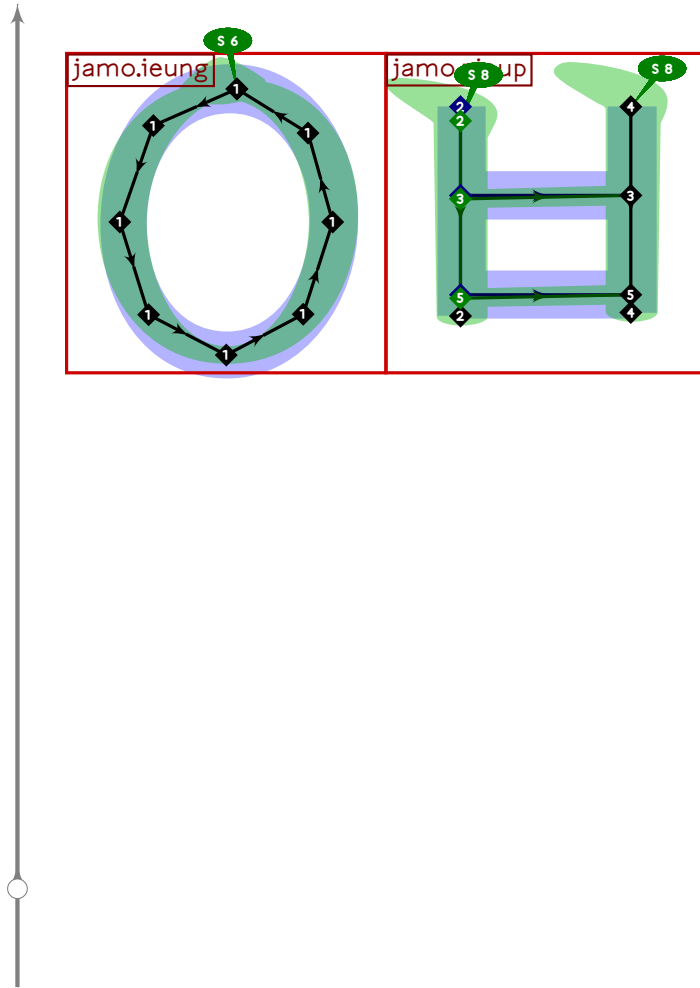
```



```

467 % hangul lead ieung-mieum
468 begintsuglyph("uni1143.bug",67);
469 hangul.combine.lr(111,106)(whatever,lixf,loxf);
470 tsu_render;
471 endsuglyph;
472

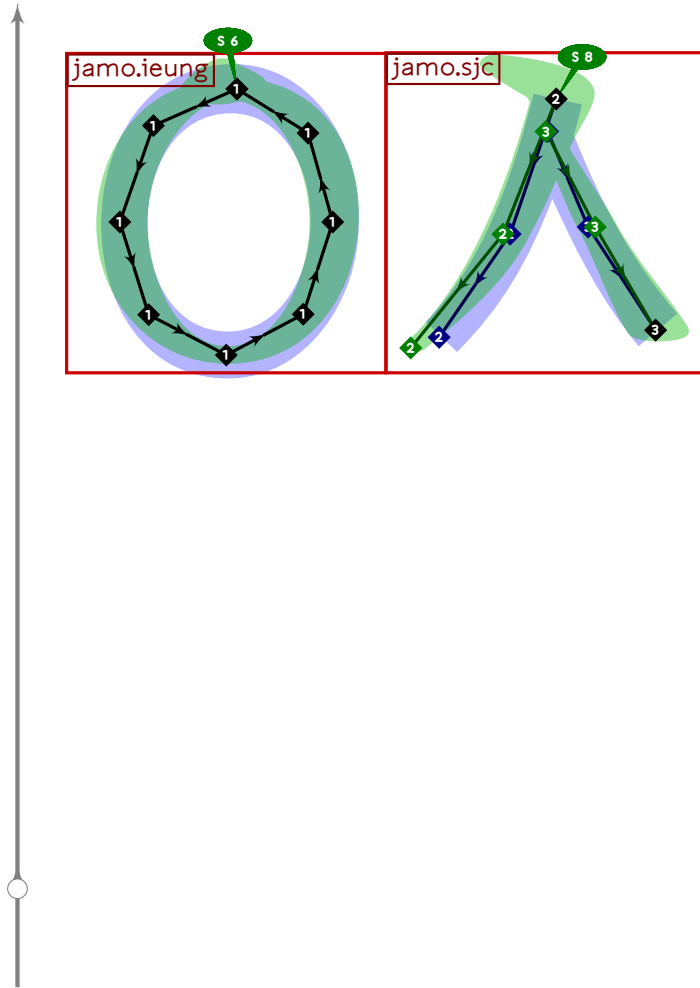
```



```

473 % hangul lead ieung-pieup
474 begintsuglyph("uni1144.bug",68);
475 hangul.combine.lr(111,107)(whatever,lixf,loxf);
476 tsu_render;
477 endsuglyph;
478

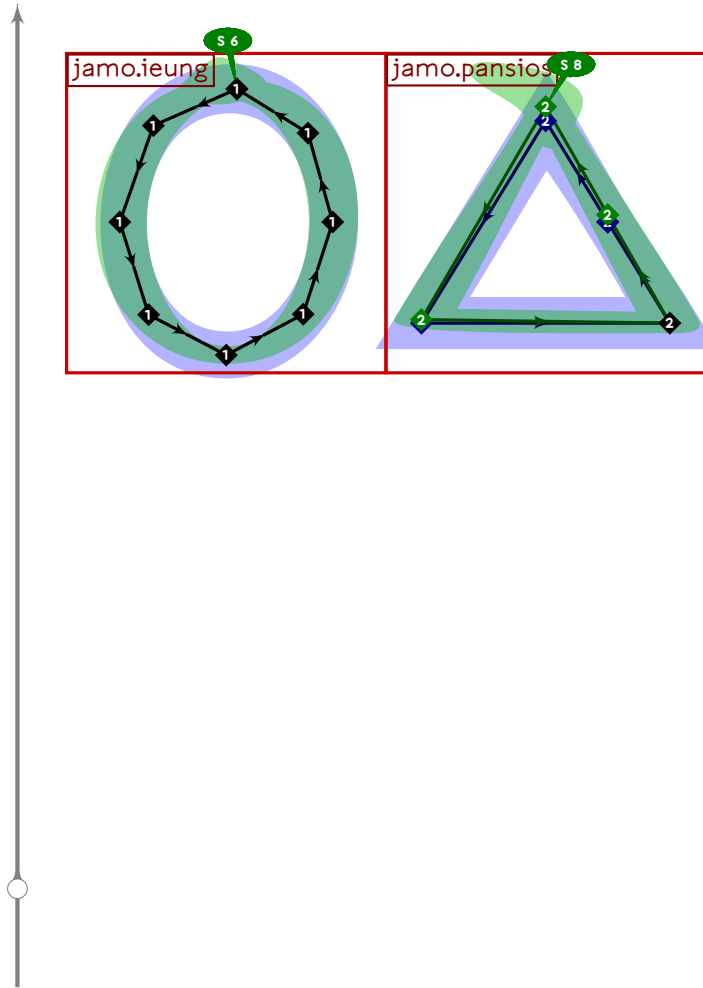
```



```

479 % hangul lead ieung-sios
480 begintsuglyph("uni1145.bug",69);
481 hangul.combine.lr(111,109)(whatever,lixf,loxf);
482 tsu_render;
483 endsuglyph;
484

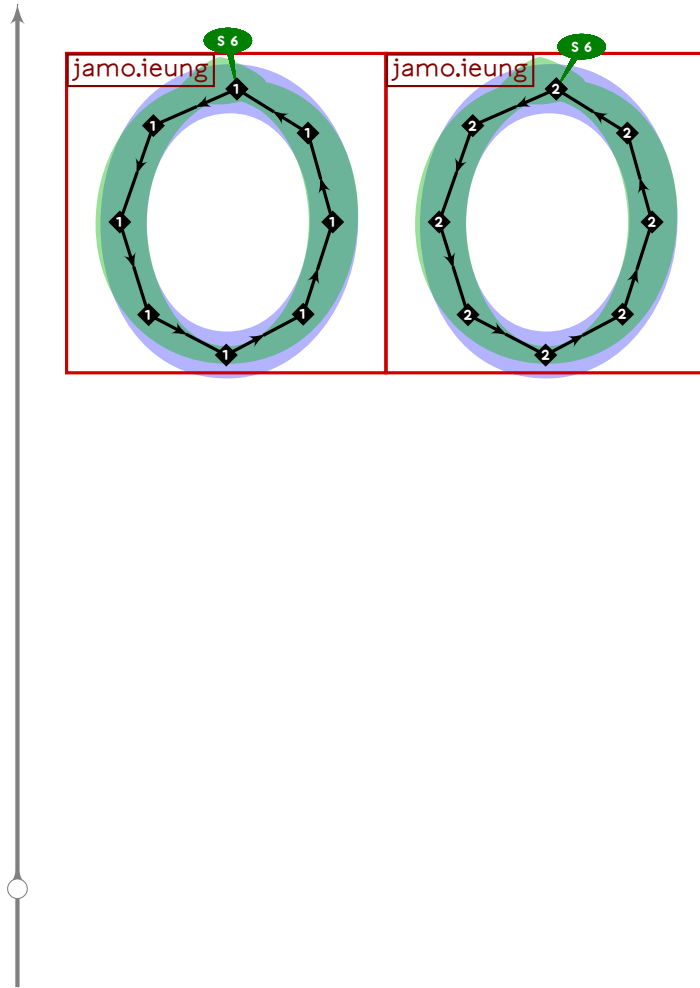
```



```

485 % hangul lead ieung-pansios
486 begintsuglyph("uni1146.bug",70);
487 hangul.combine.lr(111,219)(whatever,lixf,loxf);
488 tsu_render;
489 endsuglyph;
490

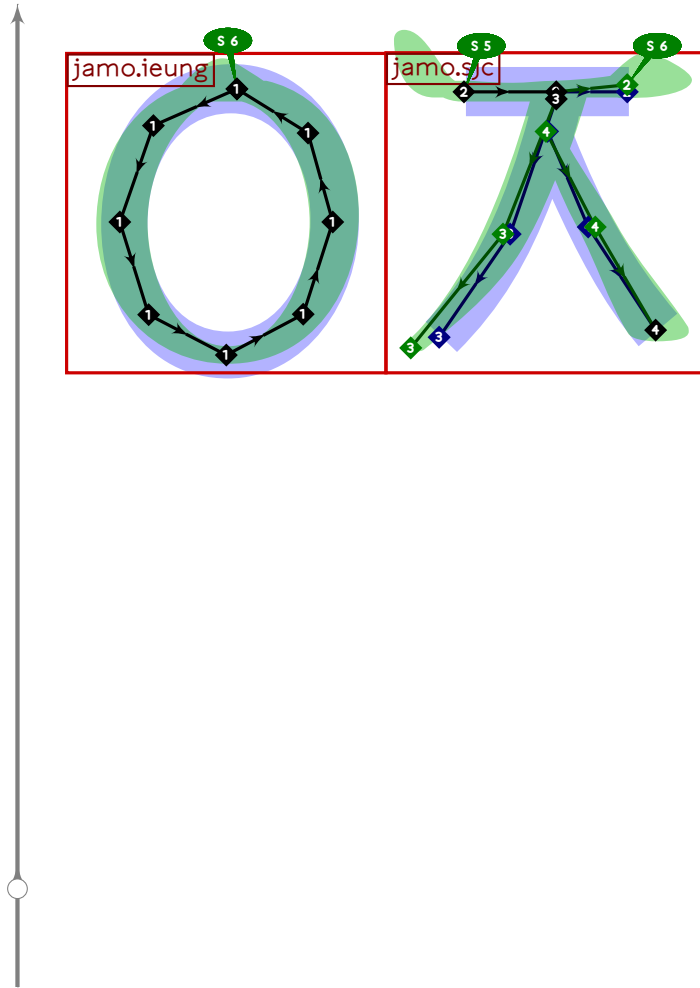
```



```

491 % hangul lead ssangieung
492 begintsuglyph("uni1147.bug";71);
493 hangul.combine.lr(111,111)(whatever,lixf,loxf);
494 tsu_render;
495 endsuglyph;
496

```

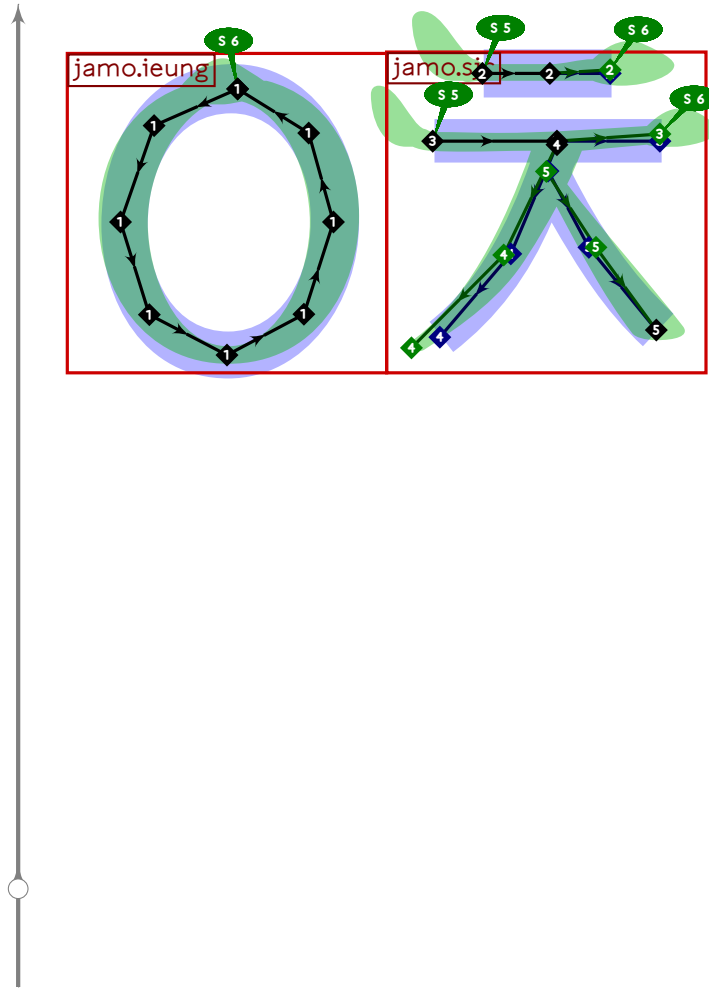


```

497 % hangul lead ieung-cieuc
498 beginsuglyph("uni1148.bug";72);
499 hangul.combine.lr(111,112)(whatever,lixf,loxf);
500 tsu_render;
501 endsuglyph;
502

```

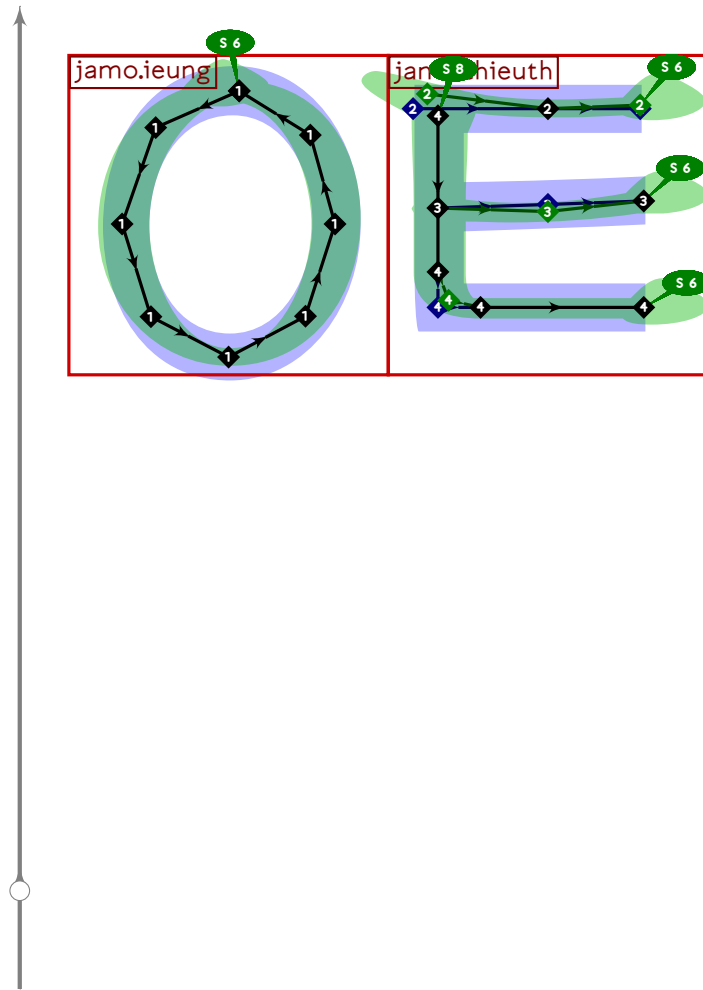




```

503 % hangul lead ieung-chieuch
504 begintsuglyph("uni1149.bug",73);
505 hangul.combine.lr(111,114)(whatever,lixf,loxf);
506 tsu_render;
507 endsuglyph;
508

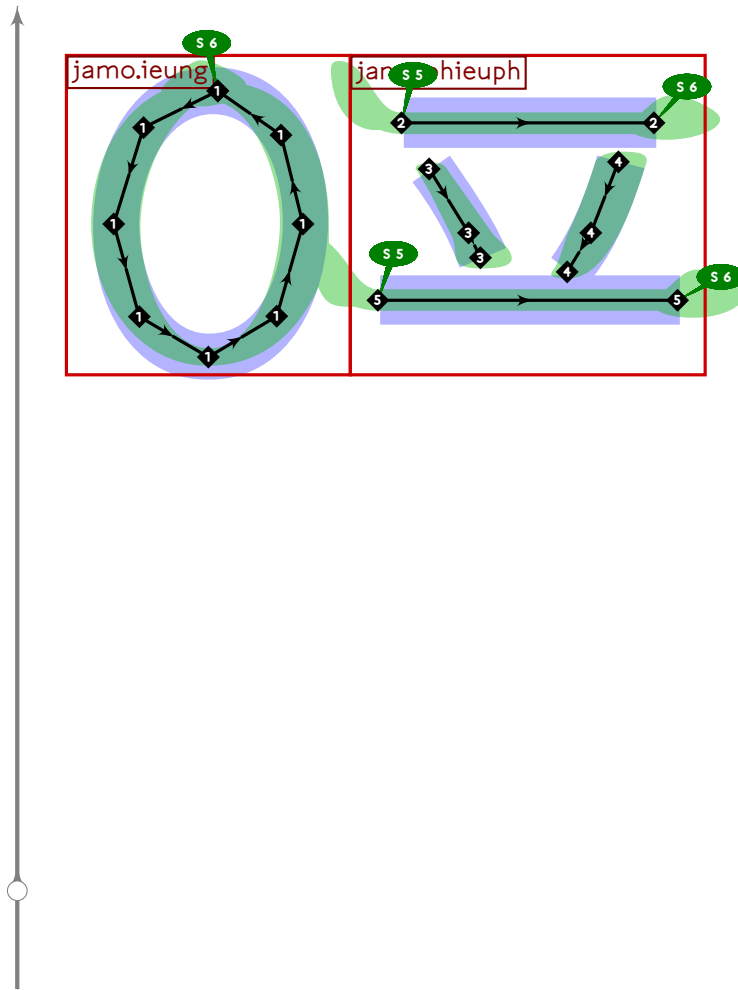
```



```

509 % hangul lead ieung-theiuth
510 begintsuglyph("uni114A.bug";74);
511 hangul.combine.lr(111,116)(whatever,lixf,loxf);
512 tsu_render;
513 endsuglyph;
514

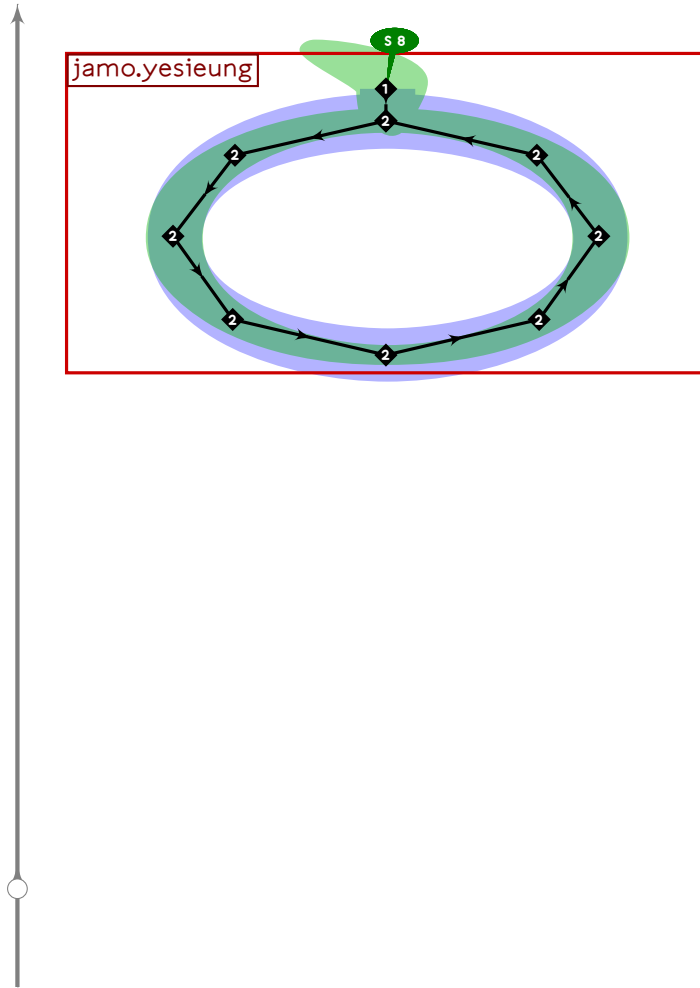
```



```

515 % hangul lead ieung-phieuph
516 begintsuglyph("uni114B.bug",75);
517 hangul.combine.lr(111,117)(whatever,lixf,loxf);
518 tsu_render;
519 endsuglyph;
520

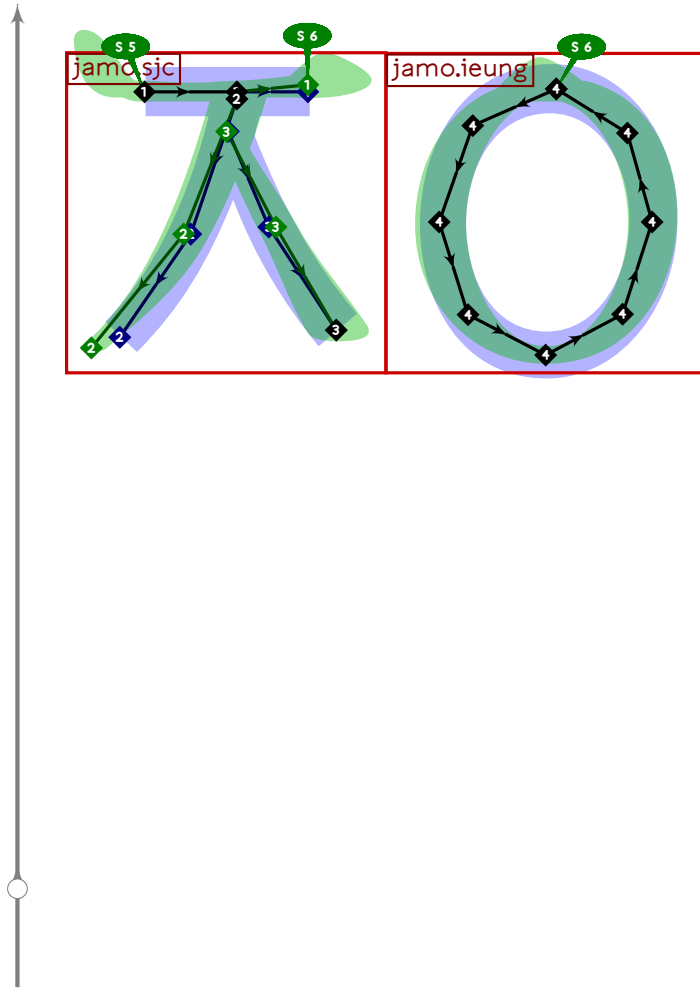
```



```

521 % hangul lead yesieung
522 begintsuglyph("uni114C.bug";76);
523 hangul.jamo.yesieung(whatever,lixf,loxf);
524 tsu_render;
525 endsuglyph;
526

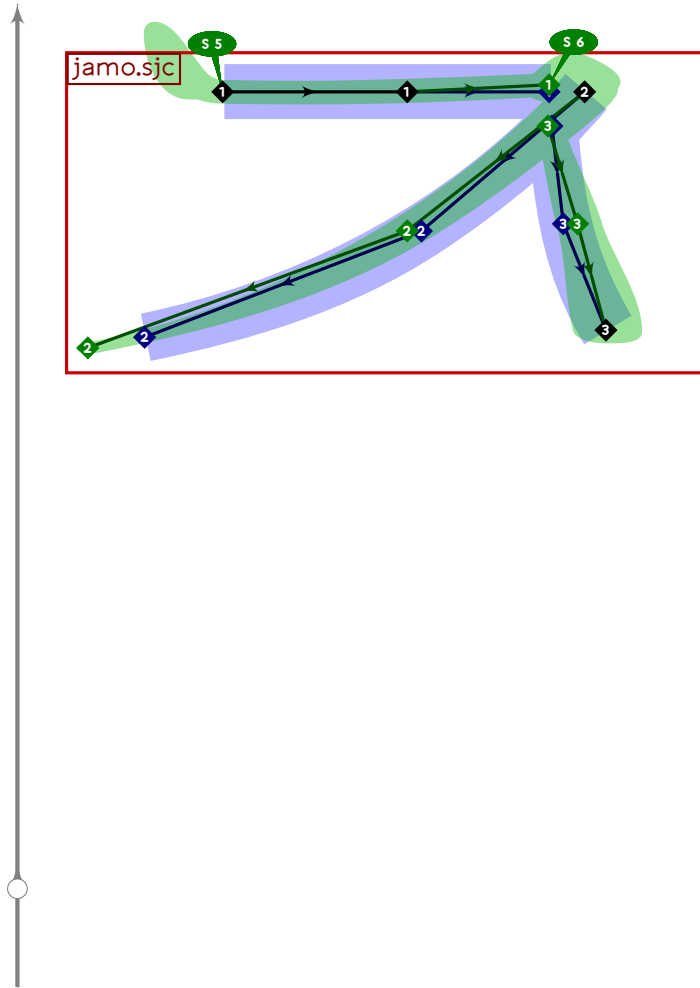
```



```

527 % hangul lead cieuc-ieung
528 begintsuglyph("uni114D.bug";77);
529 hangul.combine.lr(112,111)(whatever,lixf,loxf);
530 tsu_render;
531 endsuglyph;
532

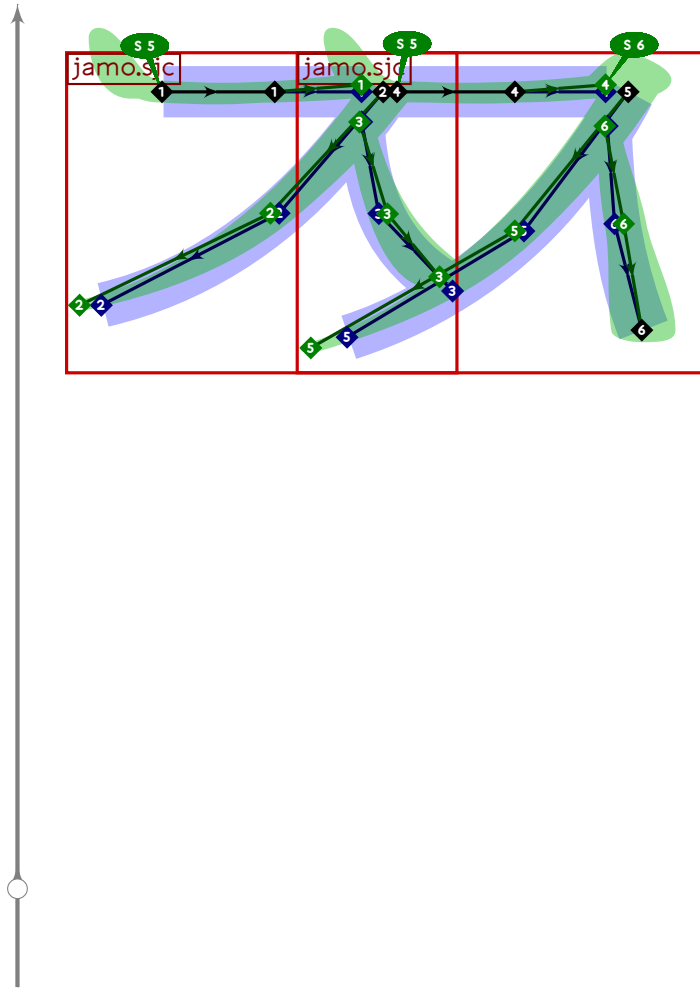
```



```

533 % hangul lead chitueumcieuc
534 begintsuglyph("uni114E.bug",78);
535 hangul.jamo.sjc(1,1,false)(whatever,lixf,loxf);
536 tsu_render;
537 endtsuglyph;
538

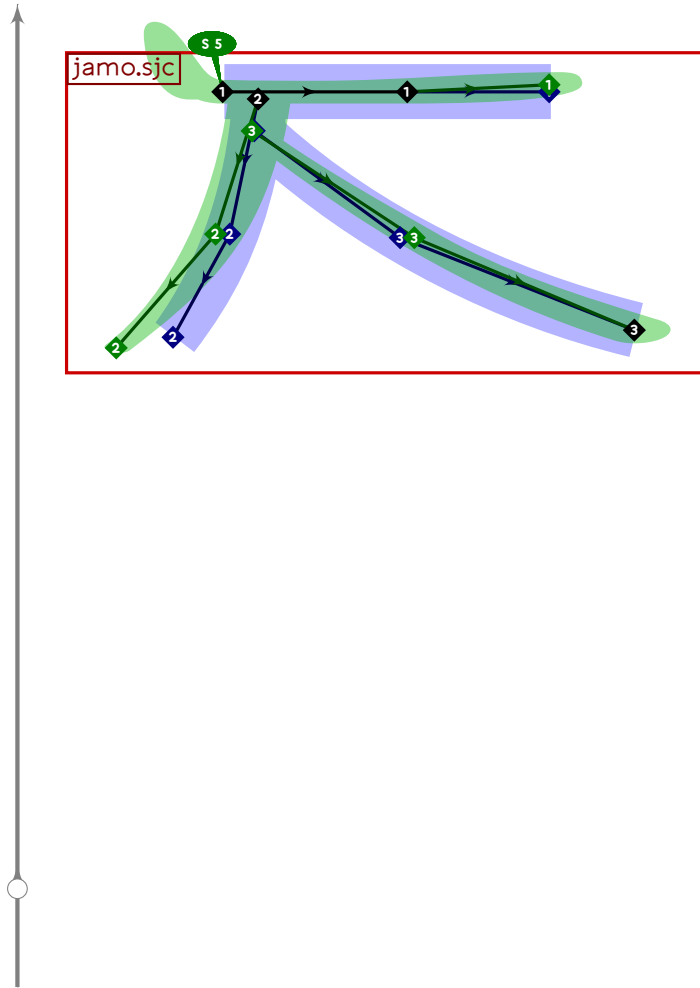
```



```

539 % hangul lead chitueumssangcieuc
540 begintsuglyph("uni114F.bug",79);
541 hangul.combine.lr(227,226)(whatever,lixf,loxf);
542 tsu_render;
543 endtsuglyph;
544

```

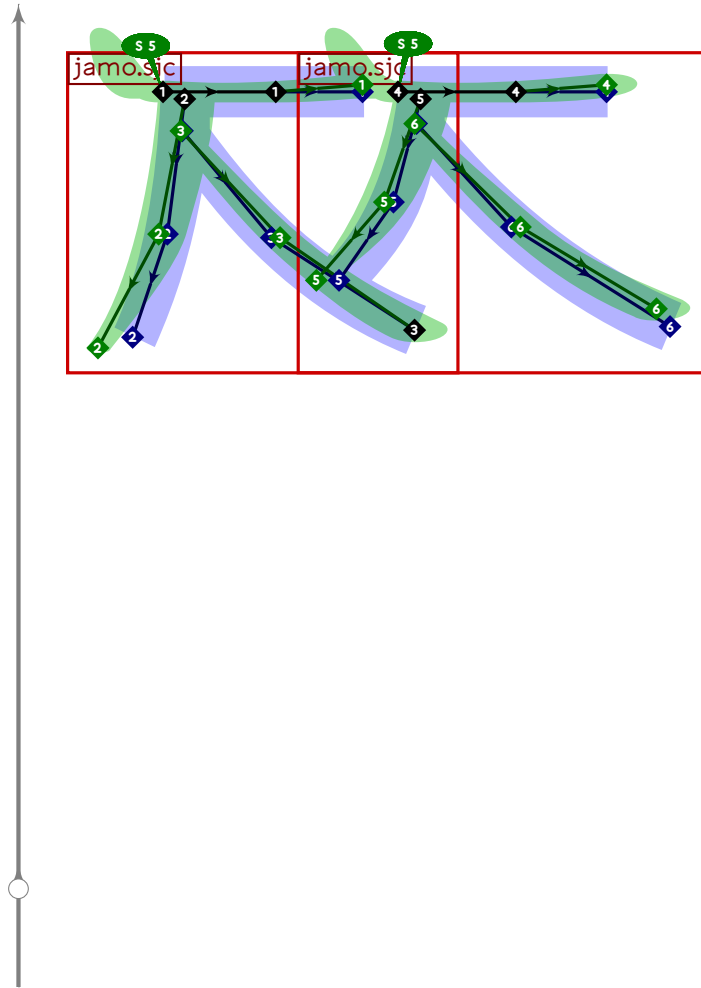


```

545 % hangul lead ceongchieumcieuc
546 begint Suglyph("uni1150.bug",80);
547 hangul.jamo.sjc(1,-1,false)(whatever,lixf,loxf);
548 tsu_render;
549 endsuglyph;
550

```

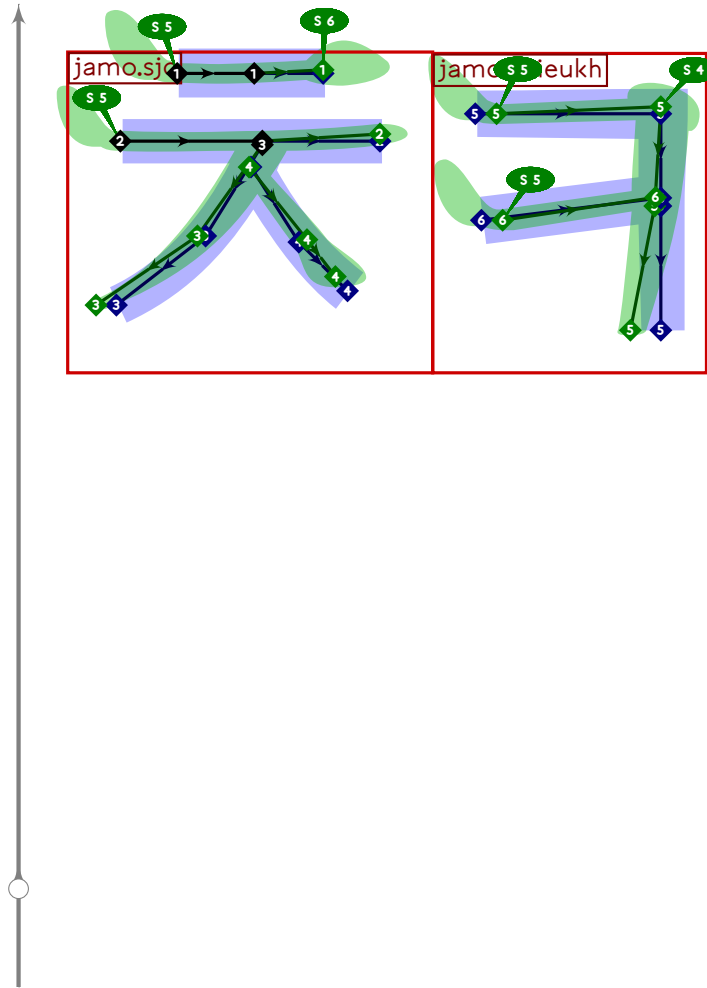




```

551 % hangul lead ceongchieumssangcieuc
552 begintsuglyph("uni1151.bug",81);
553 hangul.combine.lr(228,229)(whatever,lixf,loxf);
554 tsu_render;
555 endsuglyph;
556

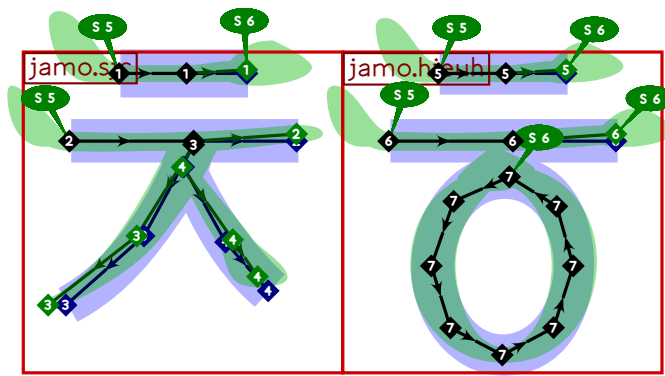
```



```

557 % hangul lead chieuch-khieukh
558 begintsuglyph("uni1152.bug",82);
559 hangul.combine.lcr(214,230,115)(whatever,lixf,loxf);
560 tsu_render;
561 endsuglyph;
562

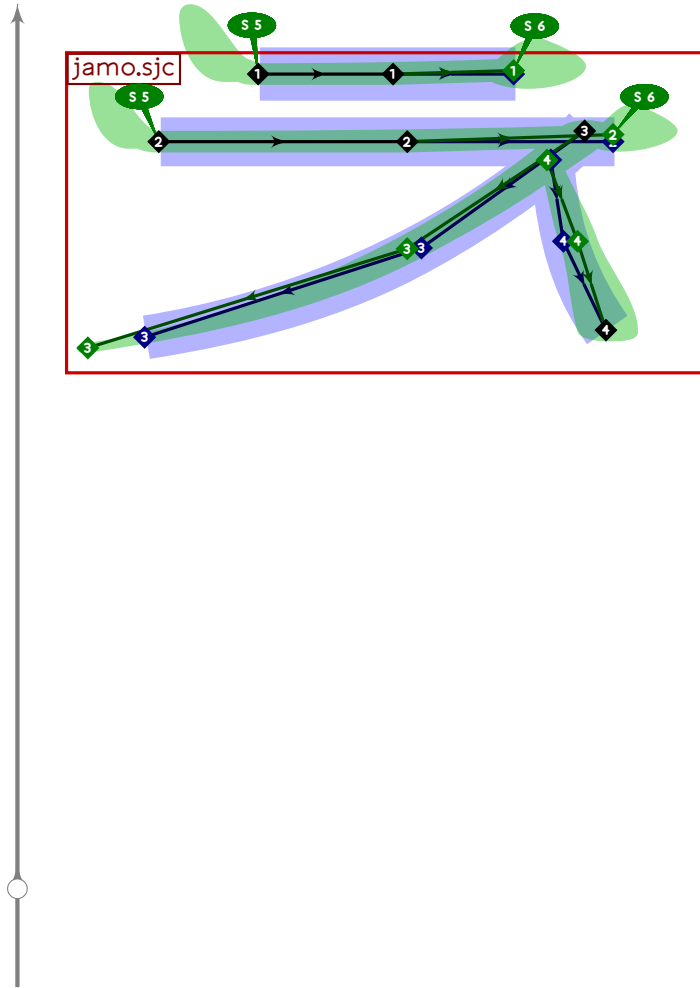
```



```

563 % hangul lead chieuch-hieuh
564 begintsuglyph("uni1153.bug",83);
565 hangul.combine.lcr(214,230,118)(whatever,lixf,loxf);
566 tsu_render;
567 endsuglyph;
568

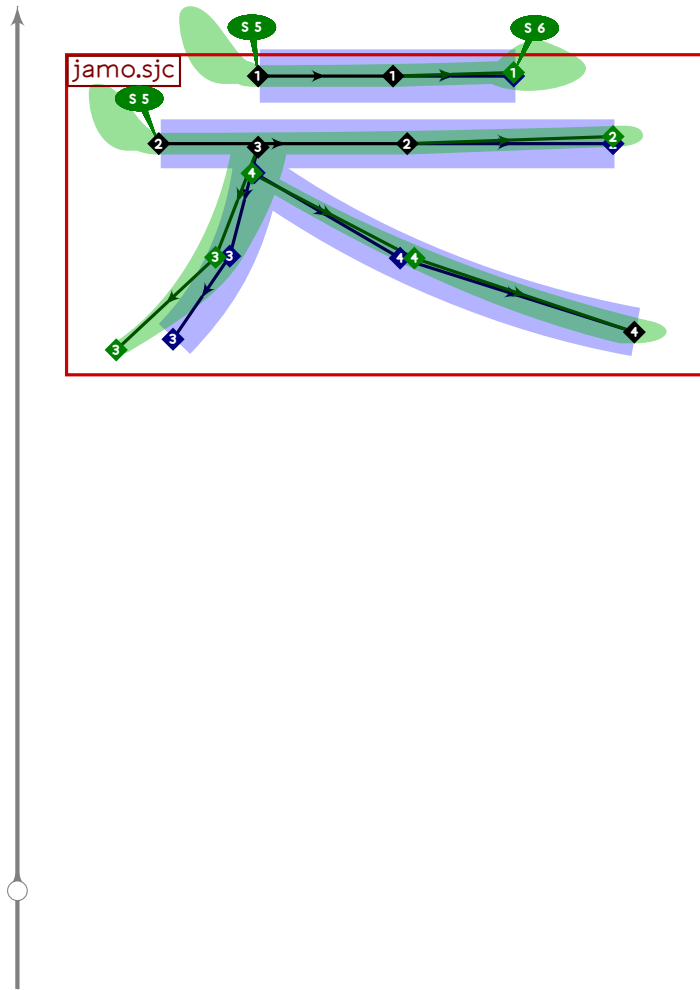
```



```

569 % hangul lead chitueumcieuc
570 begintsuglyph("uni1154.bug",84);
571 hangul.jamo.sjc(2,1,false)(whatever,lixf,loxf);
572 tsu_render;
573 endsuglyph;
574

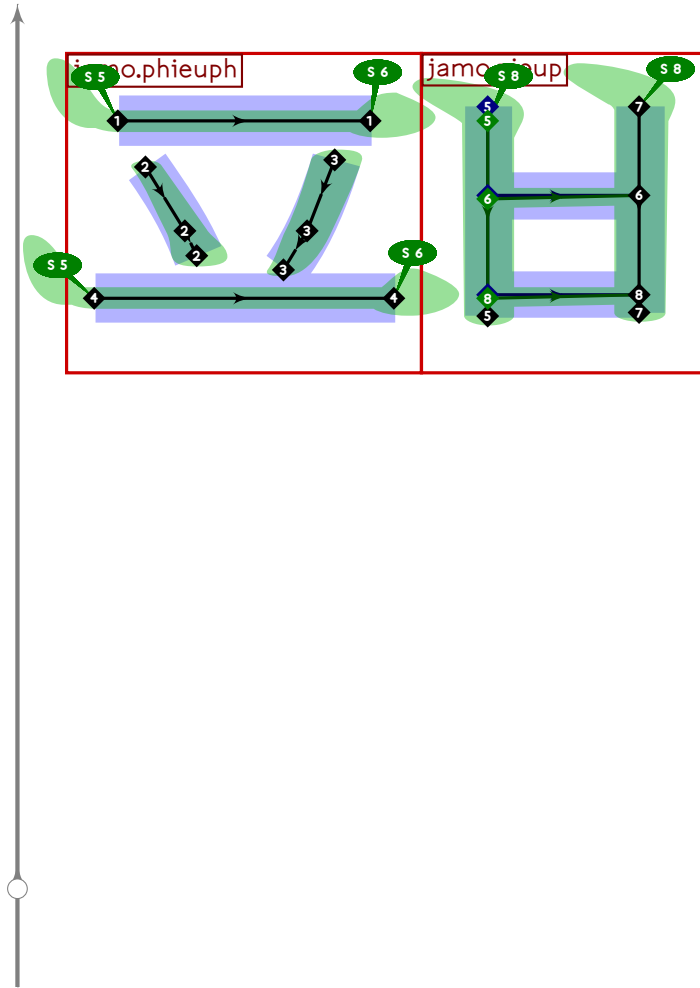
```



```

575 % hangul lead ceongchieumcieuc
576 begintsuglyph("uni1155.bug",85);
577 hangul.jamo.sjc(2,-1,false)(whatever,lixf,loxf);
578 tsu_render;
579 endsuglyph;
580

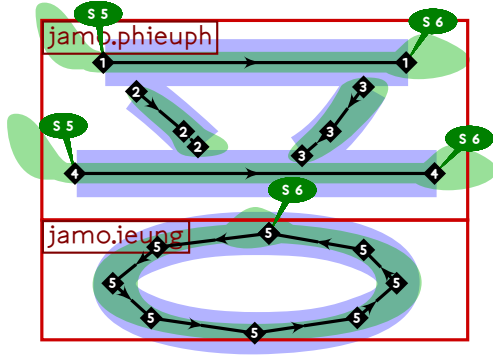
```



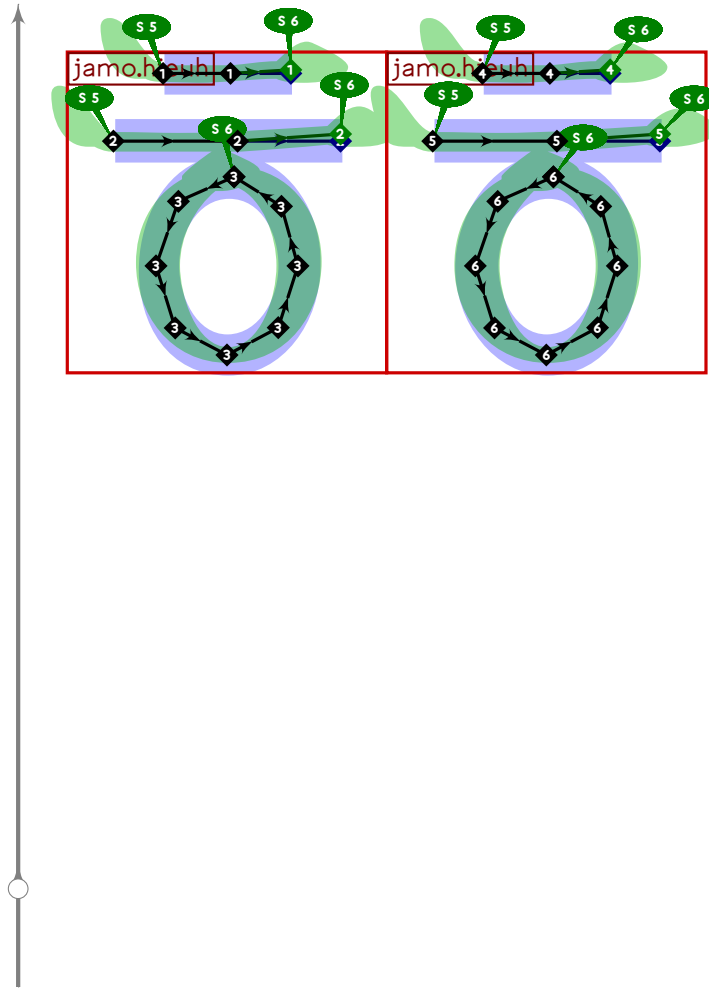
```

581 % hangul lead phieuph-pieup
582 begintsuglyph("uni1156.bug",86);
583 hangul.combine.lr(117,107)(whatever,lixf,loxf);
584 tsu_render;
585 endtsuglyph;
586

```



```
587 % hangul lead kapyeounphieuph
588 begint Suglyph("uni1157.bug",87);
589 hangul.combine.tb(117,521)(whatever,
590   hxf((250,850),(850,-50)) transformed lixf,loxf);
591 tsu_render;
592 endsuglyph;
593
```



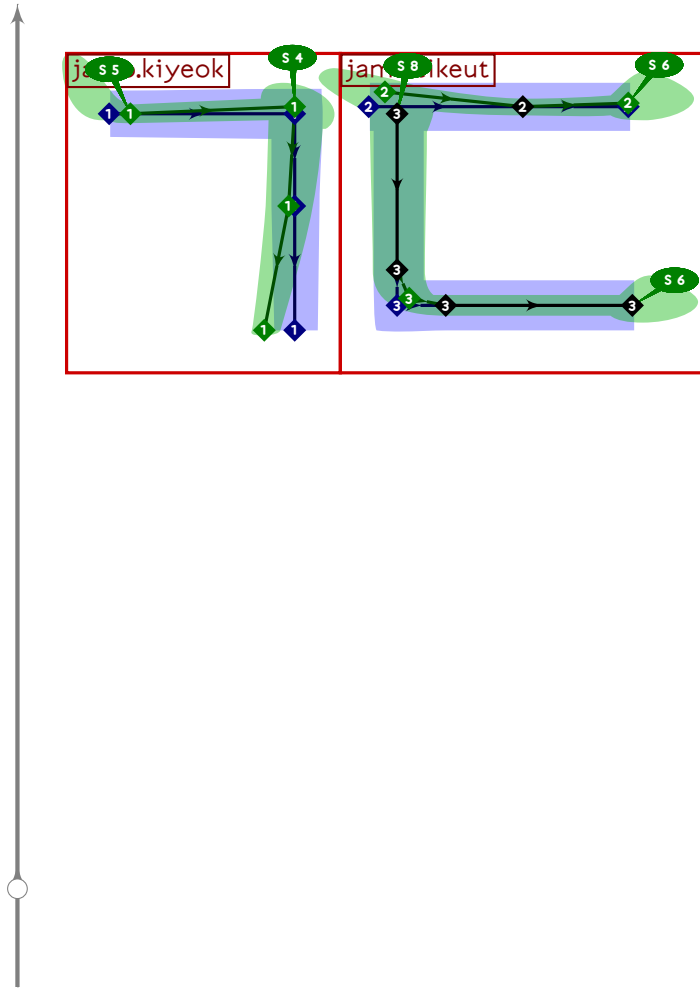
```

594 % hangul lead ssanghieuh
595 begintsuglyph("uni1158.bug",88);
596 hangul.combine.lcr(118,230,118)(whatever,lixf,loxf);
597 tsu_render;
598 endsuglyph;
599

```





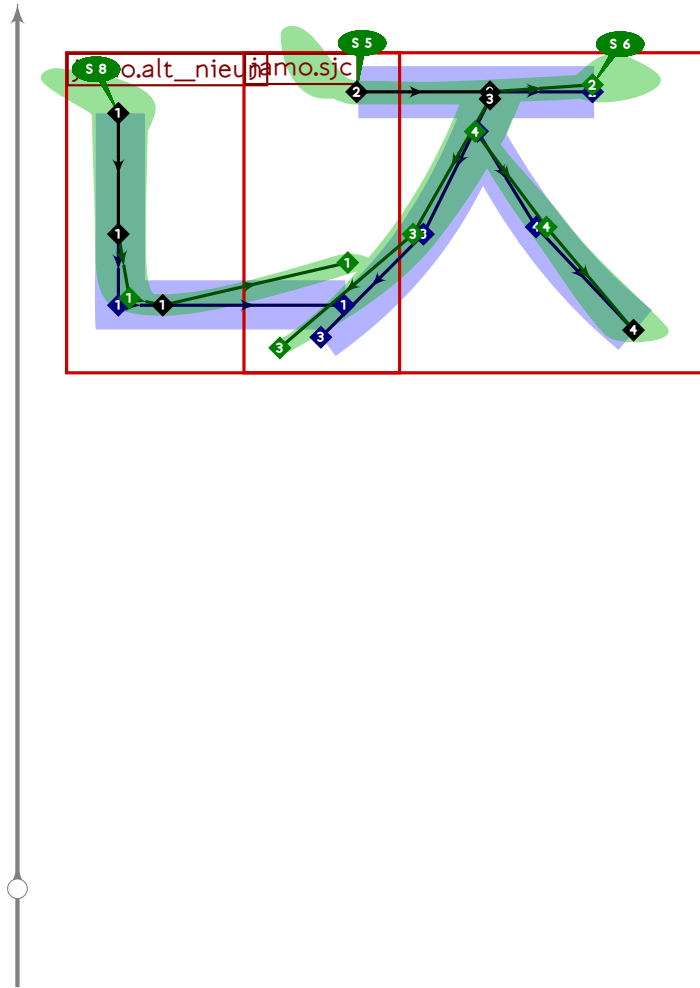


```

606 % hangul lead kiyeok-tikeut
607 begintsuglyph("uni115A.bug";90);
608 hangul.combine.lr(100,103)(whatever,lixf,loxf);
609 tsu_render;
610 endsuglyph;
611

```

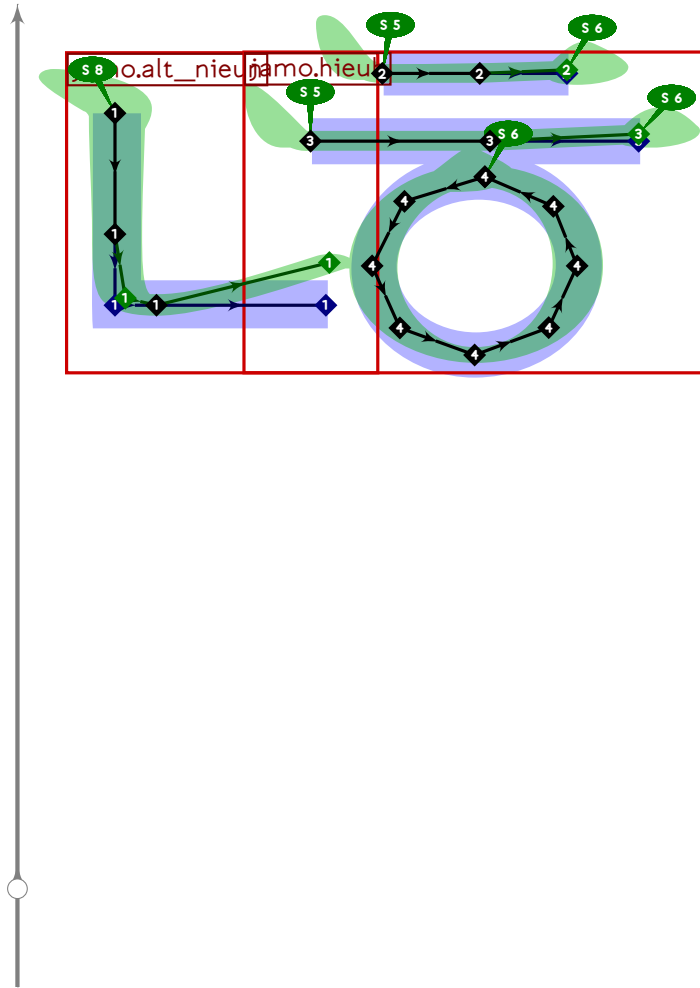




```

618 % hangul lead nieun-cieuc
619 beginsuglyph("uni115C.bug";92);
620 hangul.combine.lr(202,112)(whatever,lixf,loxf);
621 tsu_render;
622 endsuglyph;
623

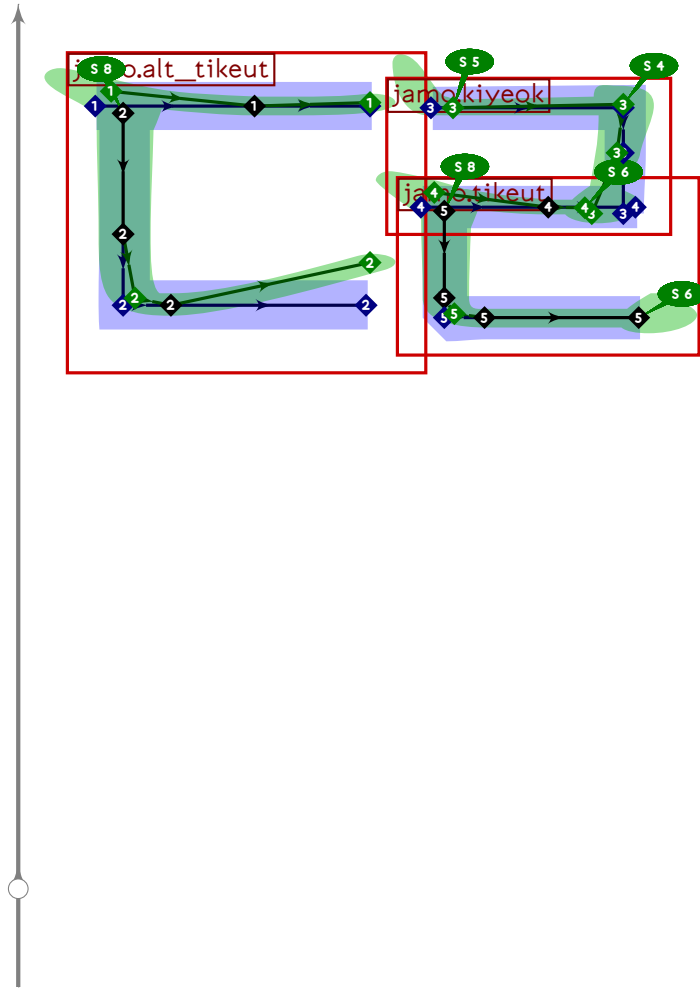
```



```

624 % hangul lead nieun-hieuh
625 begintsuglyph("uni115D.bug";93);
626 hangul.combine.lr(202,118)(whatever,lixf,loxf);
627 tsu_render;
628 endsuglyph;
629

```



```

630 % hangul lead tikeut-rieul
631 begint Suglyph("uni115E.bug";94);
632 hangul.combine.lr(203,105)(whatever,lixf,loxf);
633 tsu_render;
634 endtsuglyph;
635
636 _____
637

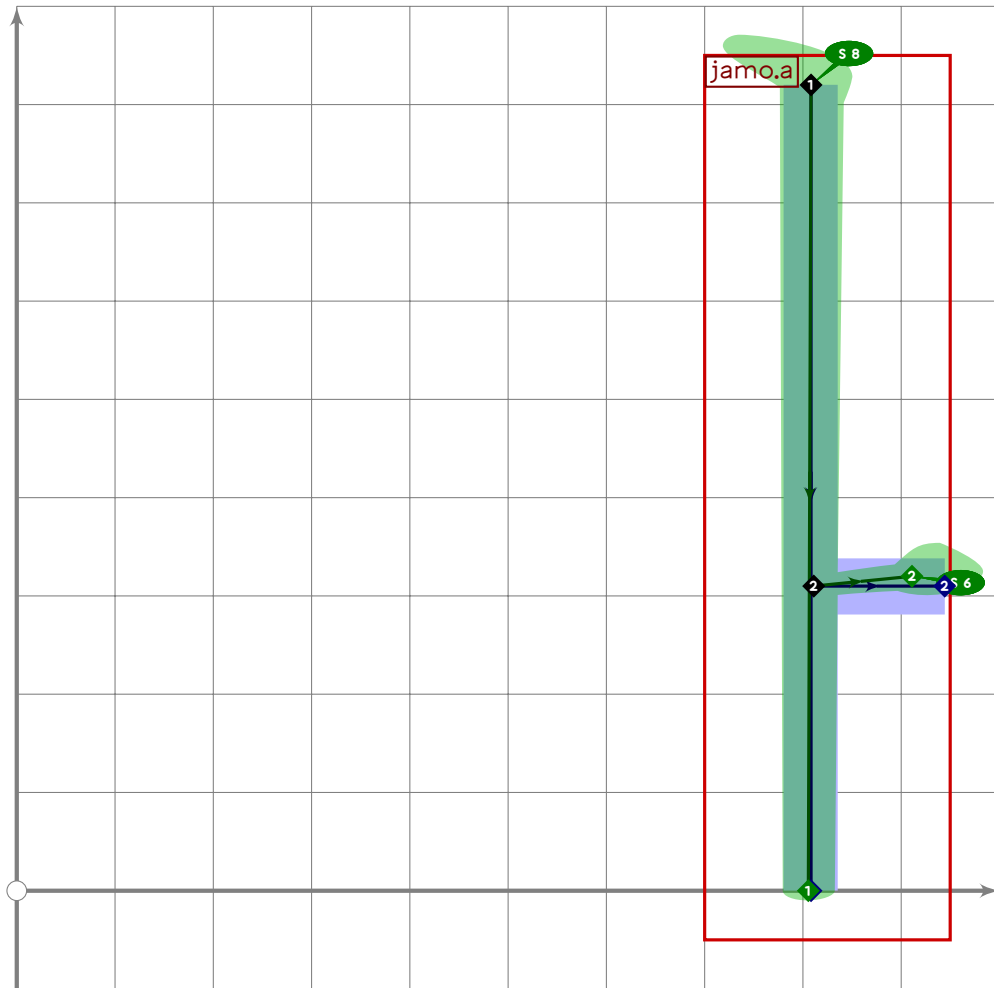
```

### Hangul Jungseong (Vowel) Jamo

```

638 % HANGUL JUNGSEONG (VOWEL) JAMO
639
640 tsu_rescale_full;
641

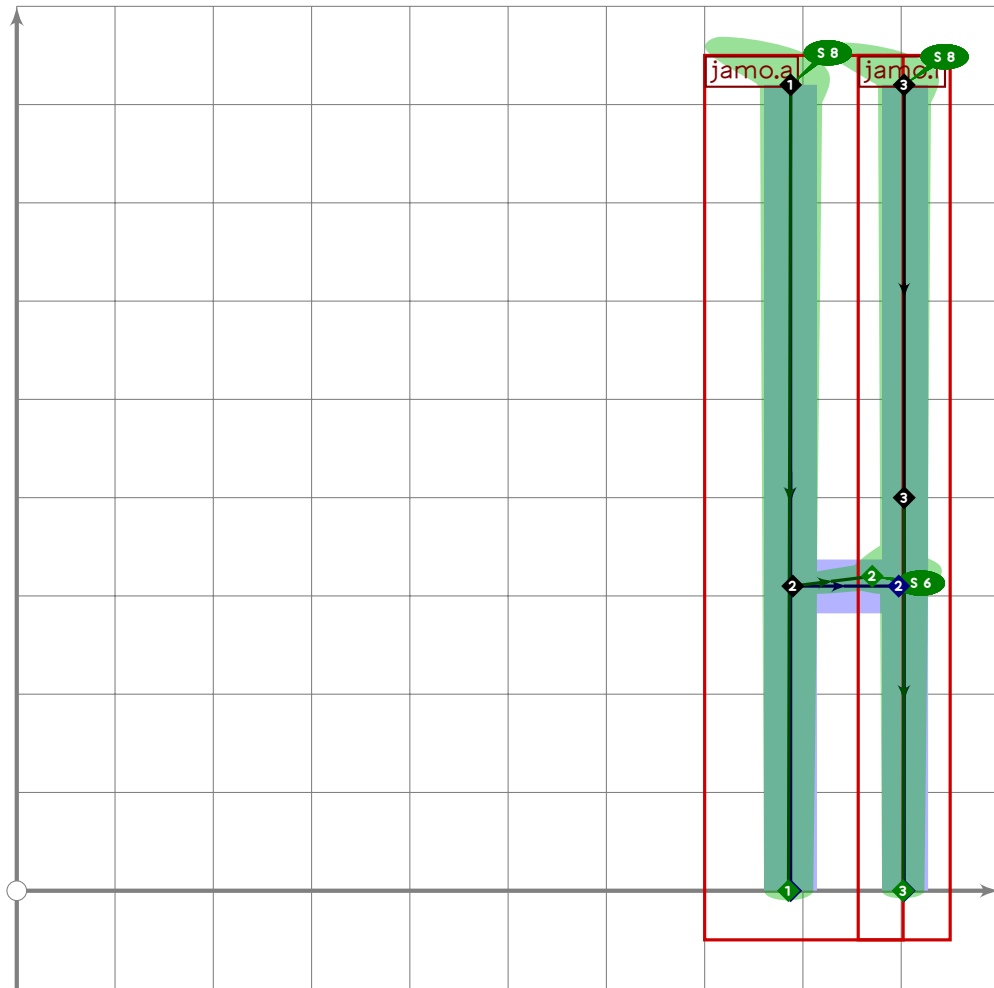
```



```

642 % hangul vowel a
643 begint Suglyph("uni1161.nt";97);
644 hangul.jamo.a(300,vixf,voxf);
645 tsu_render;
646 endtsuglyph;
647

```

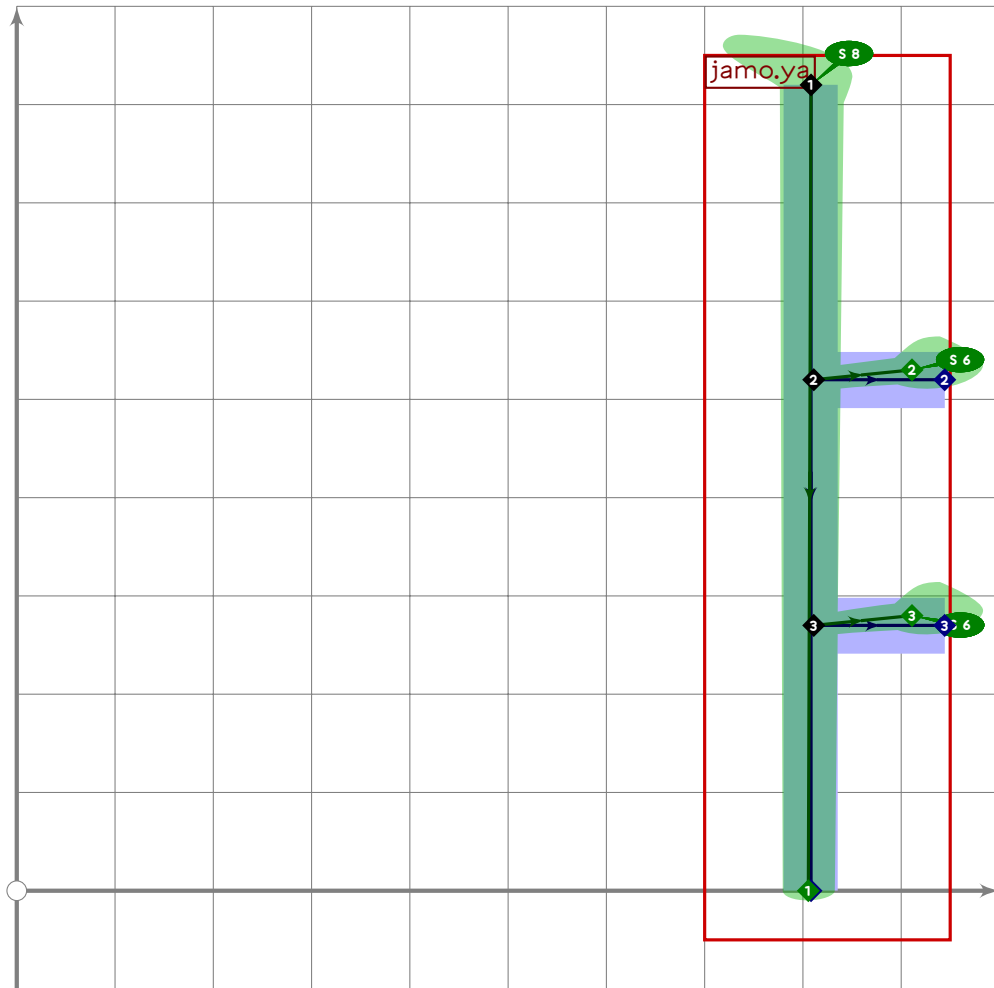


```

648 % hangul vowel ae
649 begint Suglyph("uni1162.nt",98);
650 hangul.combine.lr(300,320)(301,vixf,voxf);
651 tsu_render;
652 endtsuglyph;
653

```

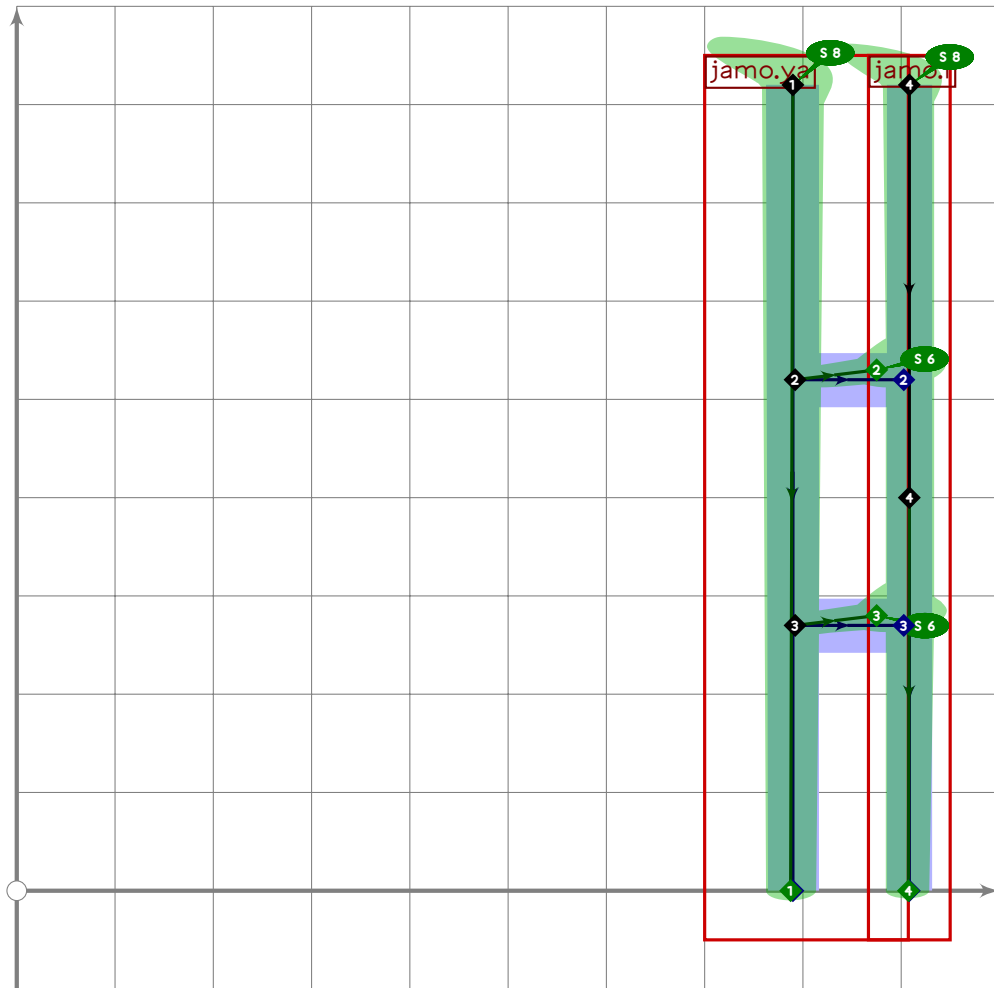




```

654 % hangul vowel ya
655 begint Suglyph("uni1163.nt";99);
656 hangul.jamo.ya(302,vixf,voxf);
657 tsu_render;
658 endtsuglyph;
659

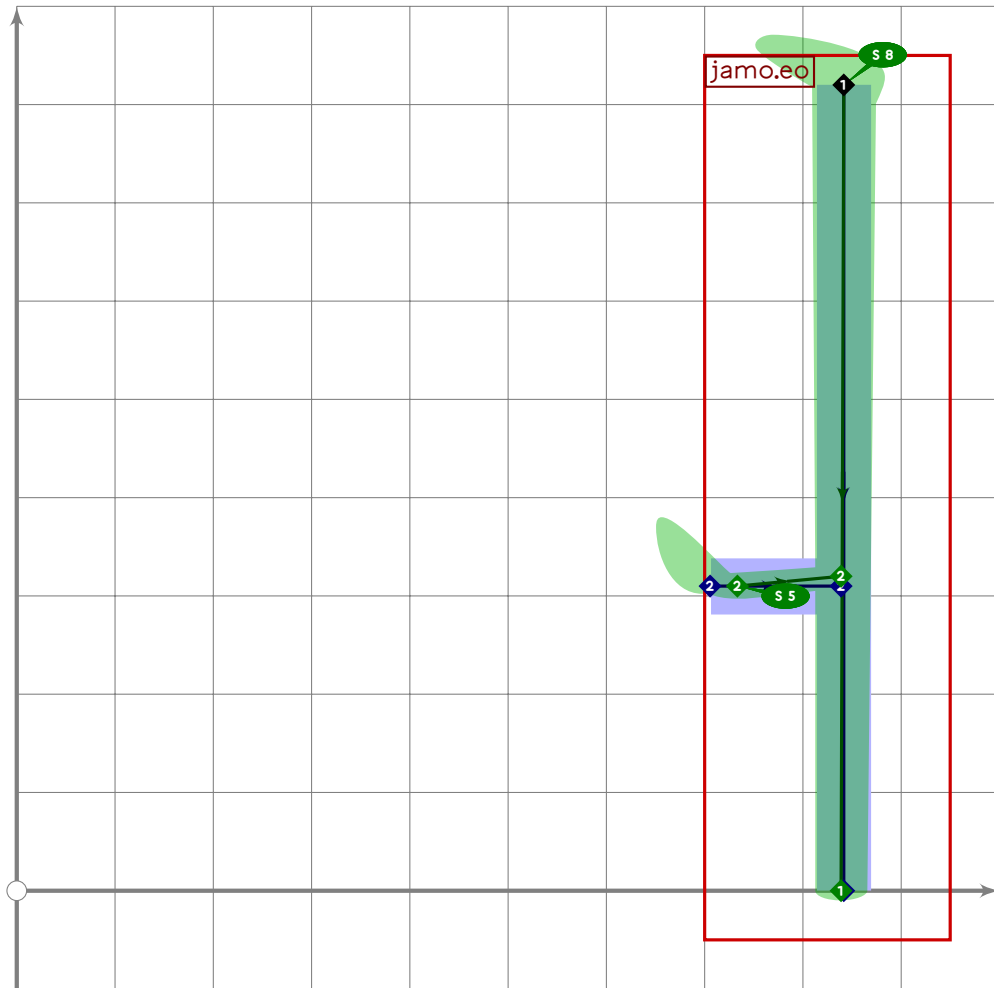
```



```

660 % hangul vowel yae
661 begint Suglyph("uni1164.nt",100);
662 hangul.combine.lr(302,320)(303,vixf,voxf);
663 tsu_render;
664 endtsuglyph;
665

```

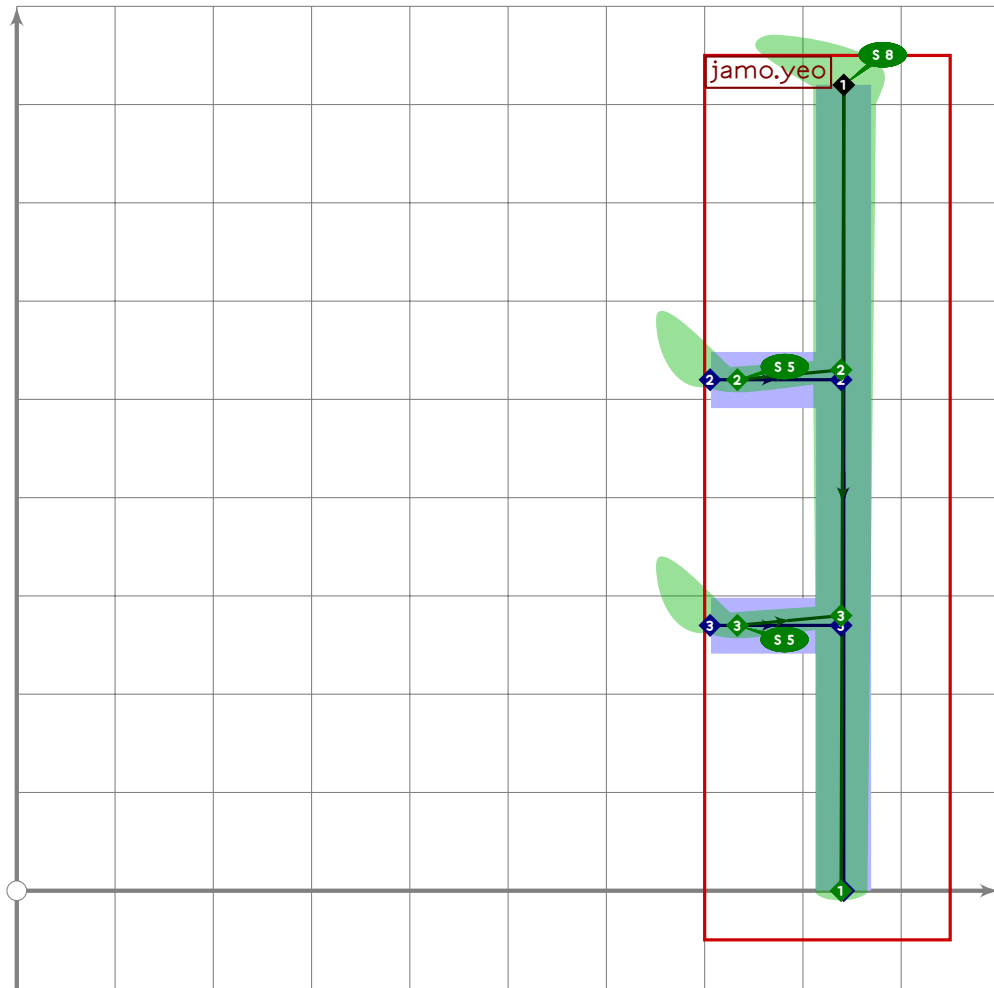


```

666 % hangul vowel eo
667 begint Suglyph("uni1165.nt",101);
668 hangul.jamo.eo(304,vixf,voxf);
669 tsu_render;
670 endtsuglyph;
671

```

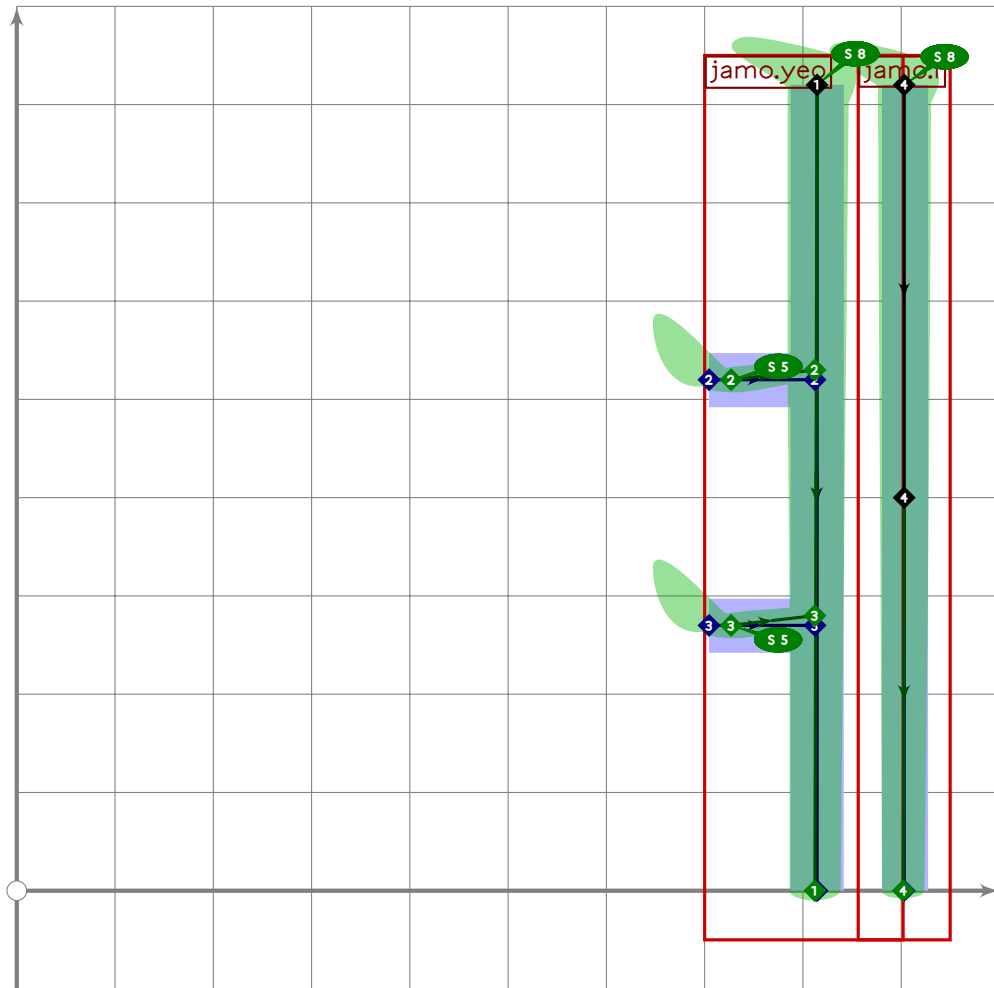




```

678 % hangul vowel yeo
679 begint Suglyph("uni1167.nt",103);
680 hangul.jamo.yeo(306,vixf,voxf);
681 tsu_render;
682 endtsuglyph;
683

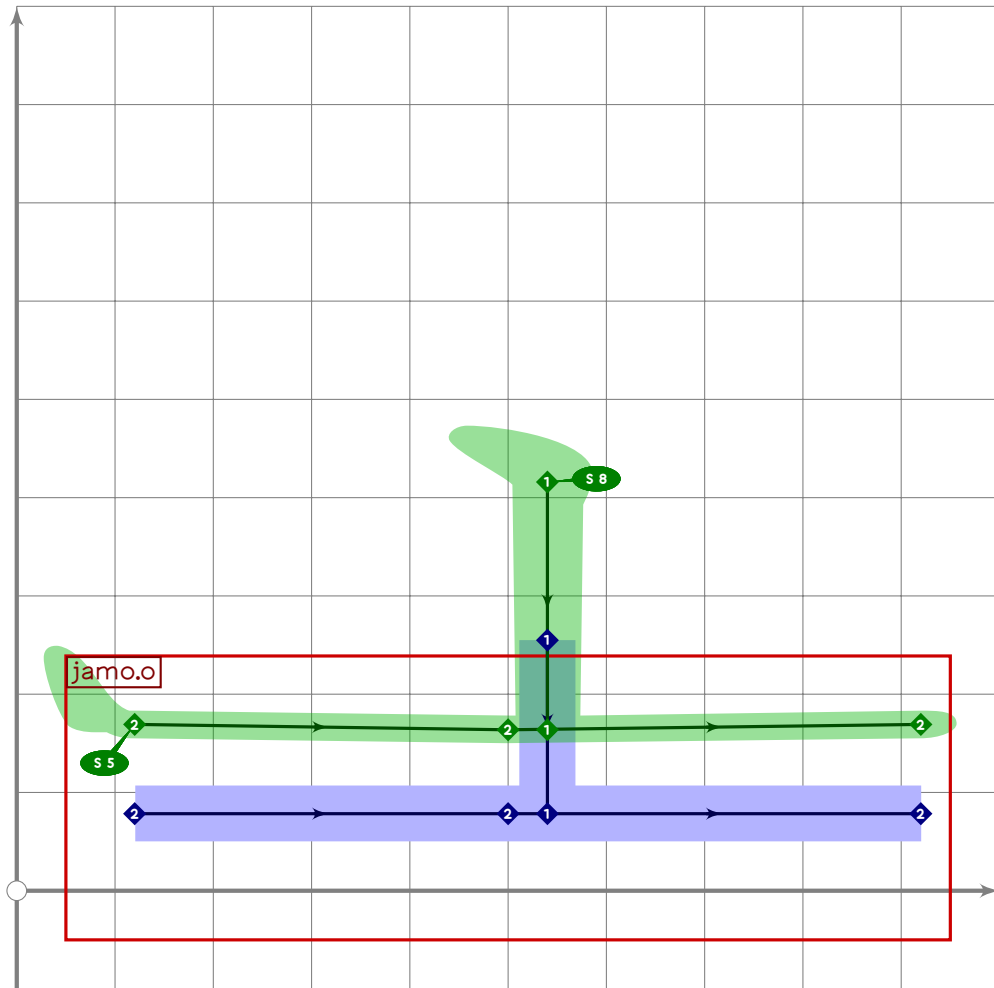
```



```

684 % hangul vowel ye
685 begint Suglyph("uni1168.nt",104);
686 hangul.combine.lr(306,320)(307,vixf,voxf);
687 tsu_render;
688 endsuglyph;
689

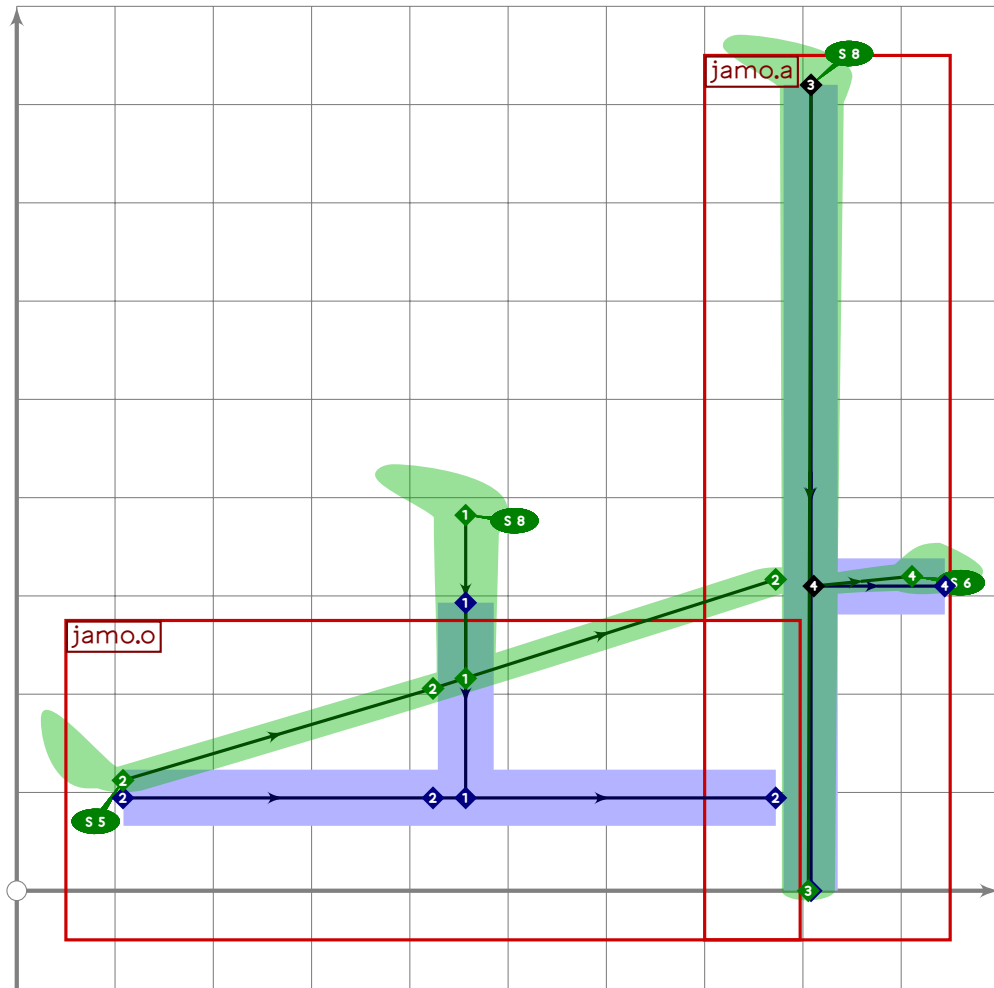
```



```

690 % hangul vowel o
691 begint Suglyph("uni1169.nt",105);
692 hangul.jamo.o(308,vixf,voxf);
693 tsu_render;
694 endsuglyph;
695

```

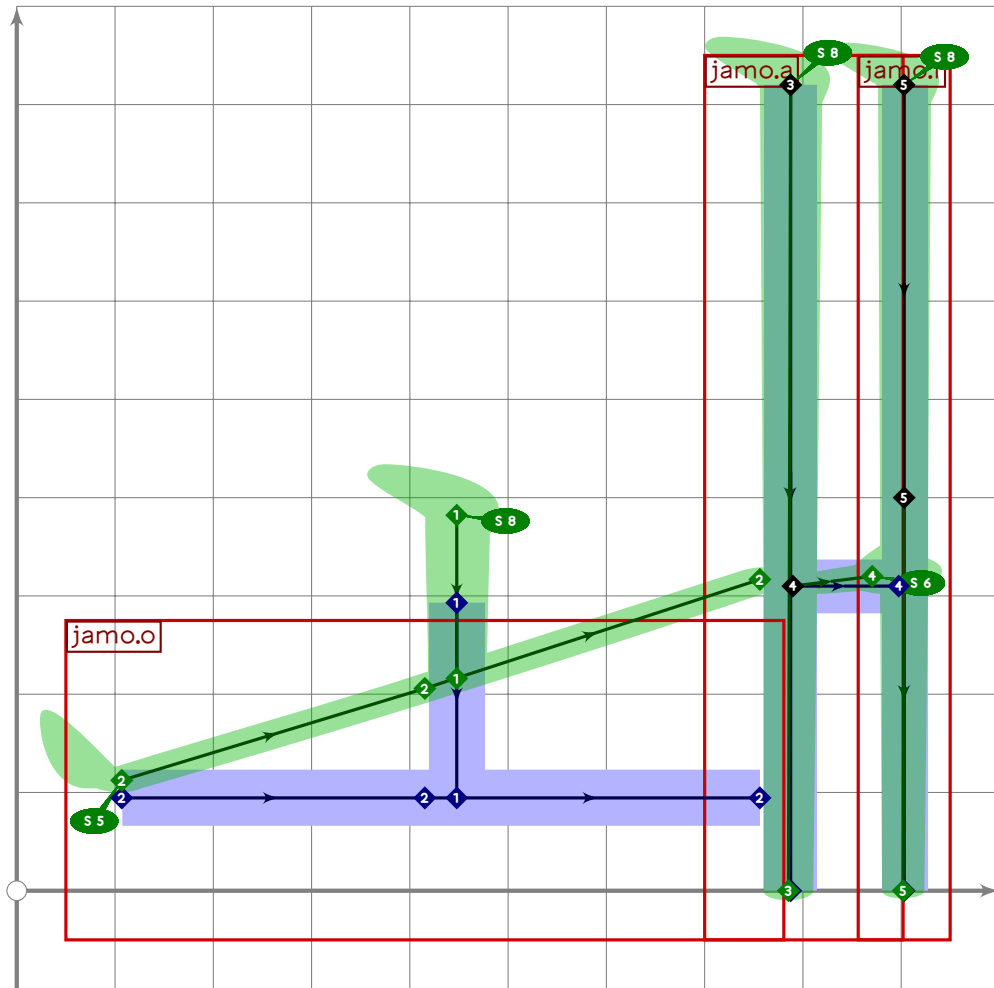


```

696 % hangul vowel wa
697 begint Suglyph("uni116A.nt",106);
698 hangul.combine.lr(308,300)(309,vixf,voxf);
699 tsu_render;
700 endsuglyph;
701

```

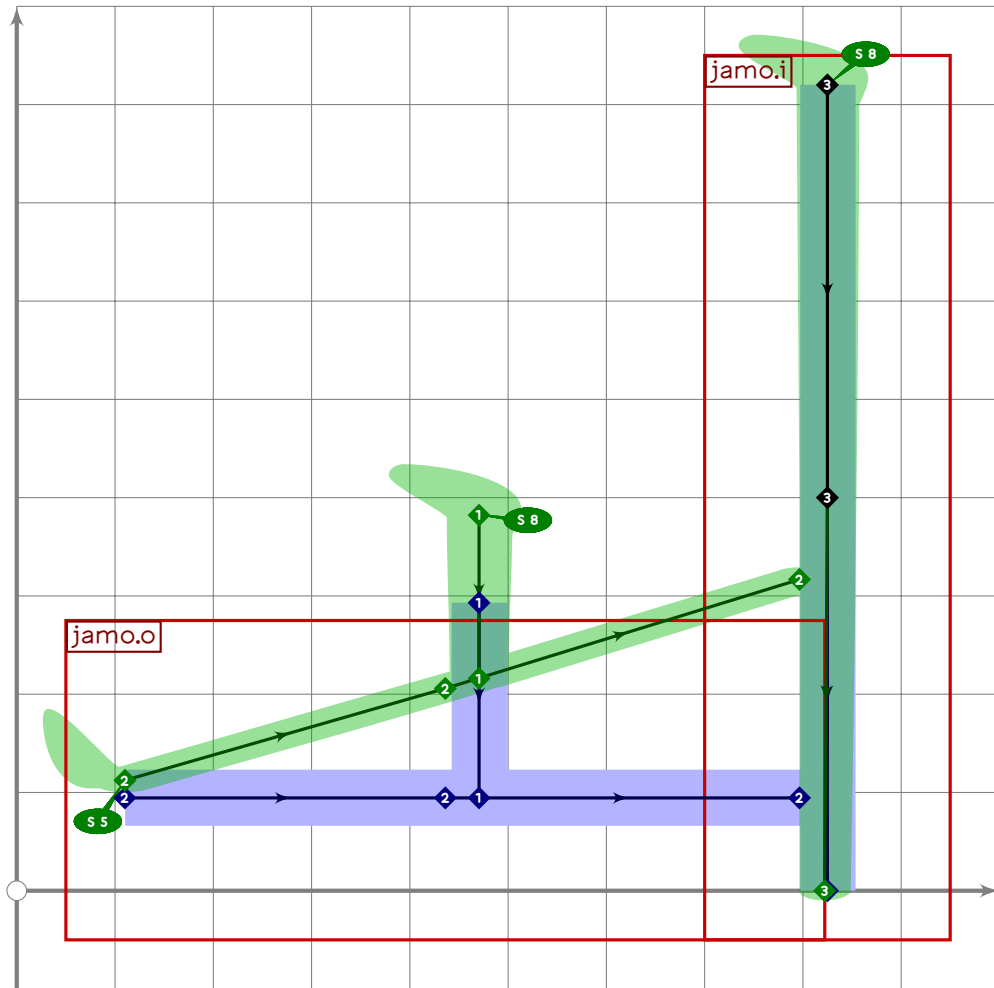




```

702 % hangul vowel wae
703 begint Suglyph("uni116B.nt",107);
704 hangul.combine.lr(308,301)(310,vixf,voxf);
705 tsu_render;
706 endsuglyph;
707

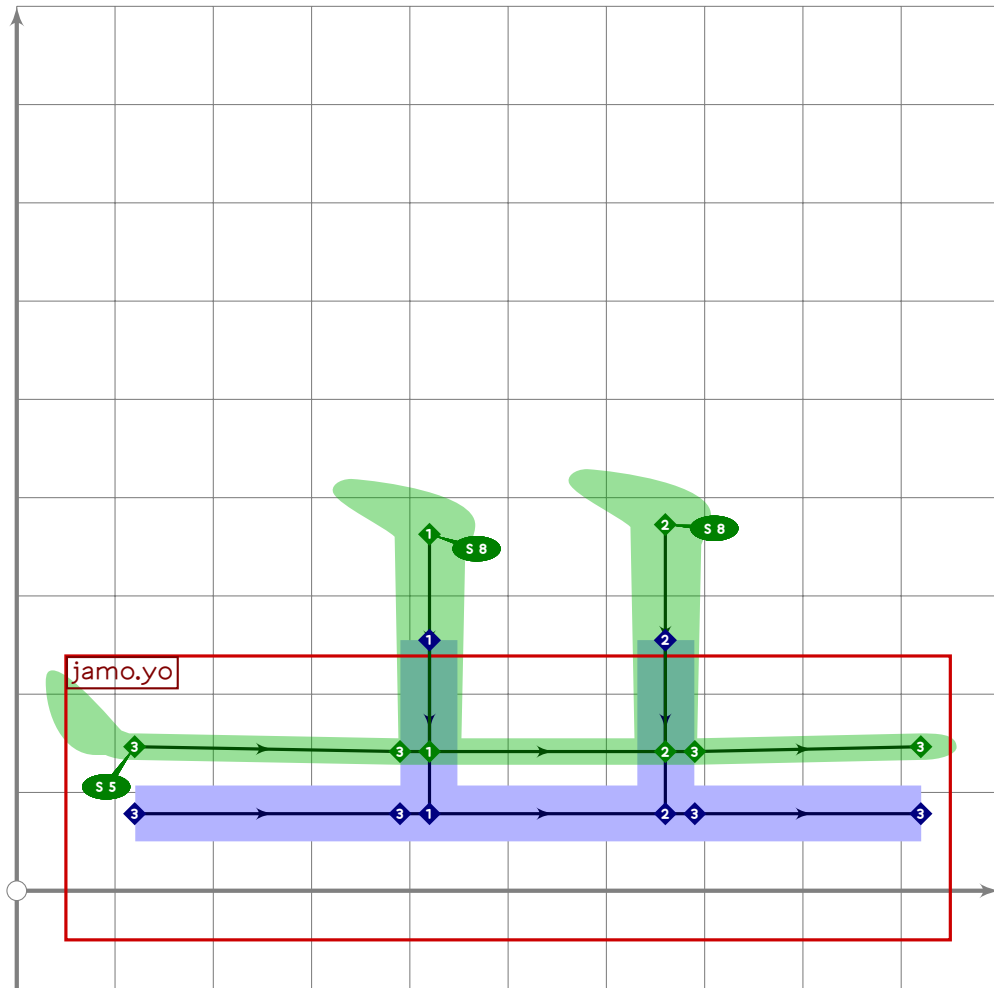
```



```

708 % hangul vowel oe
709 begint Suglyph("uni116C.nt",108);
710 hangul.combine.lr(308,320)(311,vixf,voxf);
711 tsu_render;
712 endsuglyph;
713

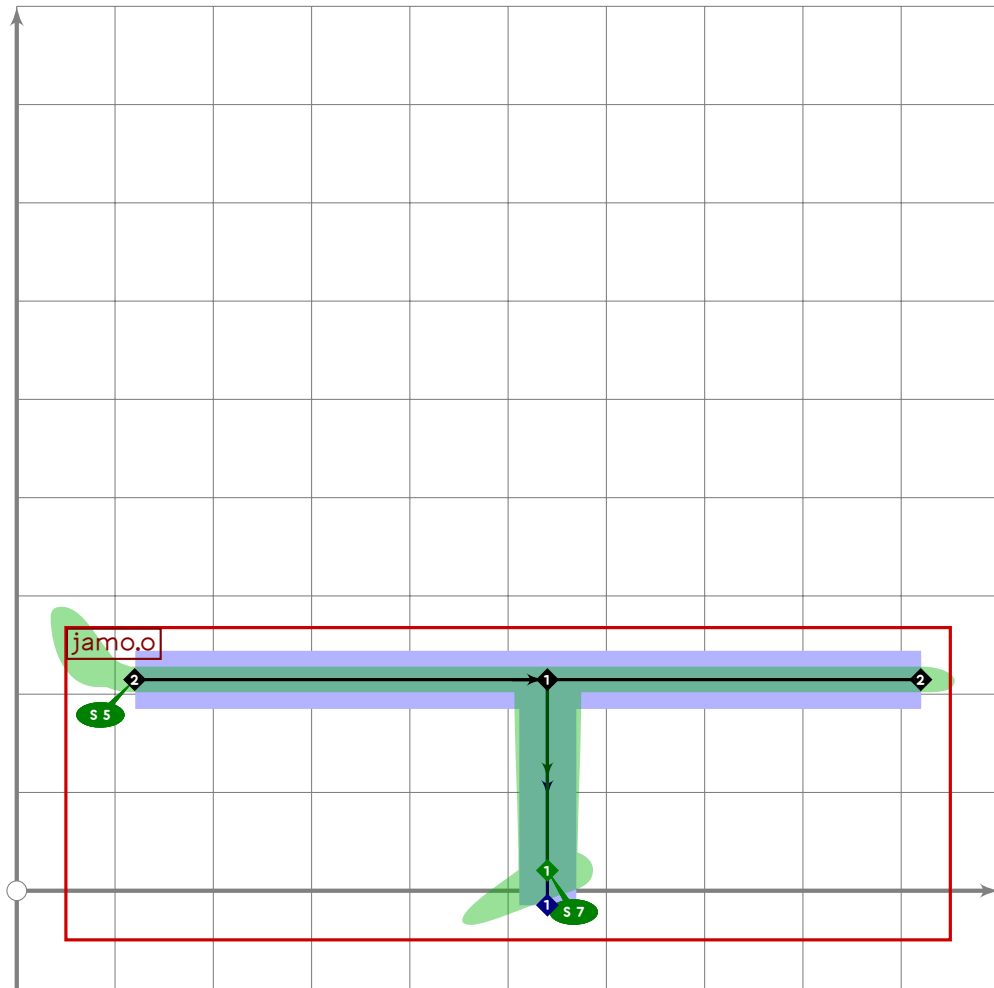
```



```

714 % hangul vowel yo
715 begintsuglyph("uni116D.nt";109);
716 hangul.jamo.yo(312,vixf,voxf);
717 tsu_render;
718 endsuglyph;
719

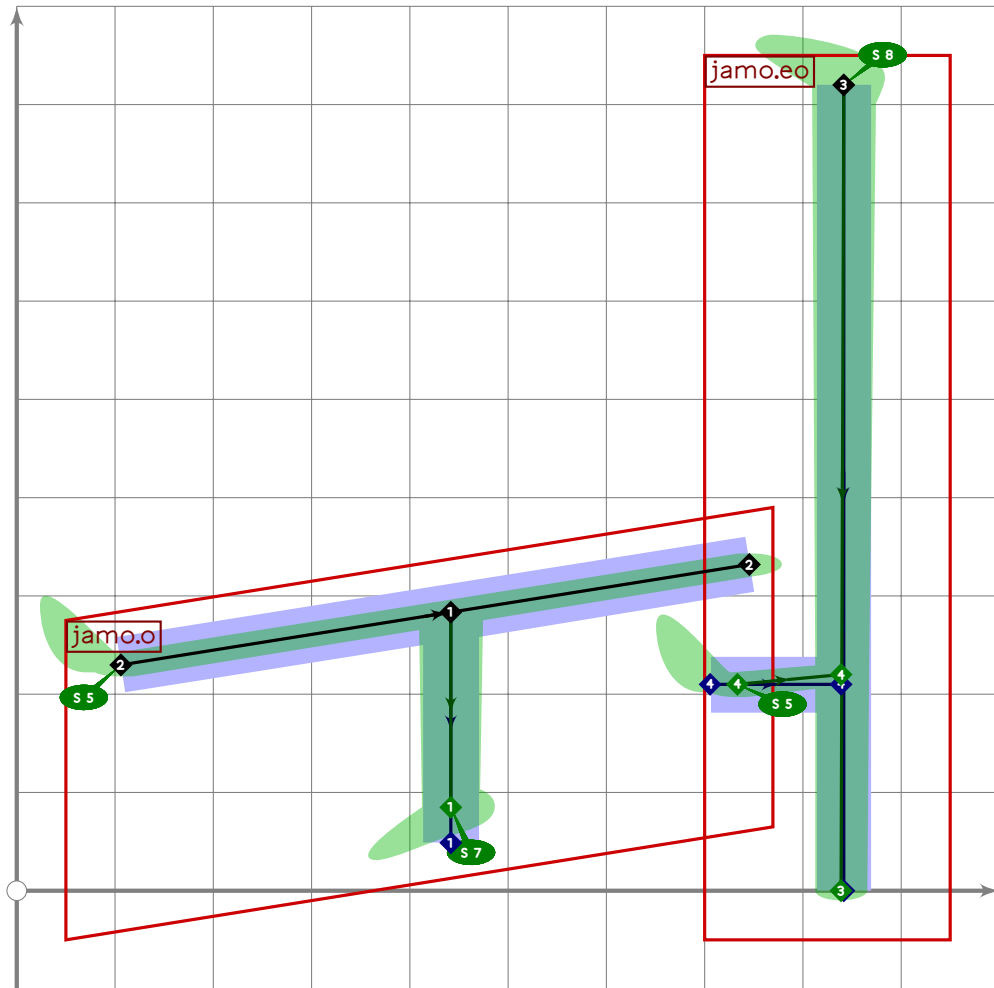
```



```

720 % hangul vowel u
721 begint Suglyph("uni116E.nt",110);
722 hangul.jamo.u(313,vixf,voxf);
723 tsu_render;
724 endtsuglyph;
725

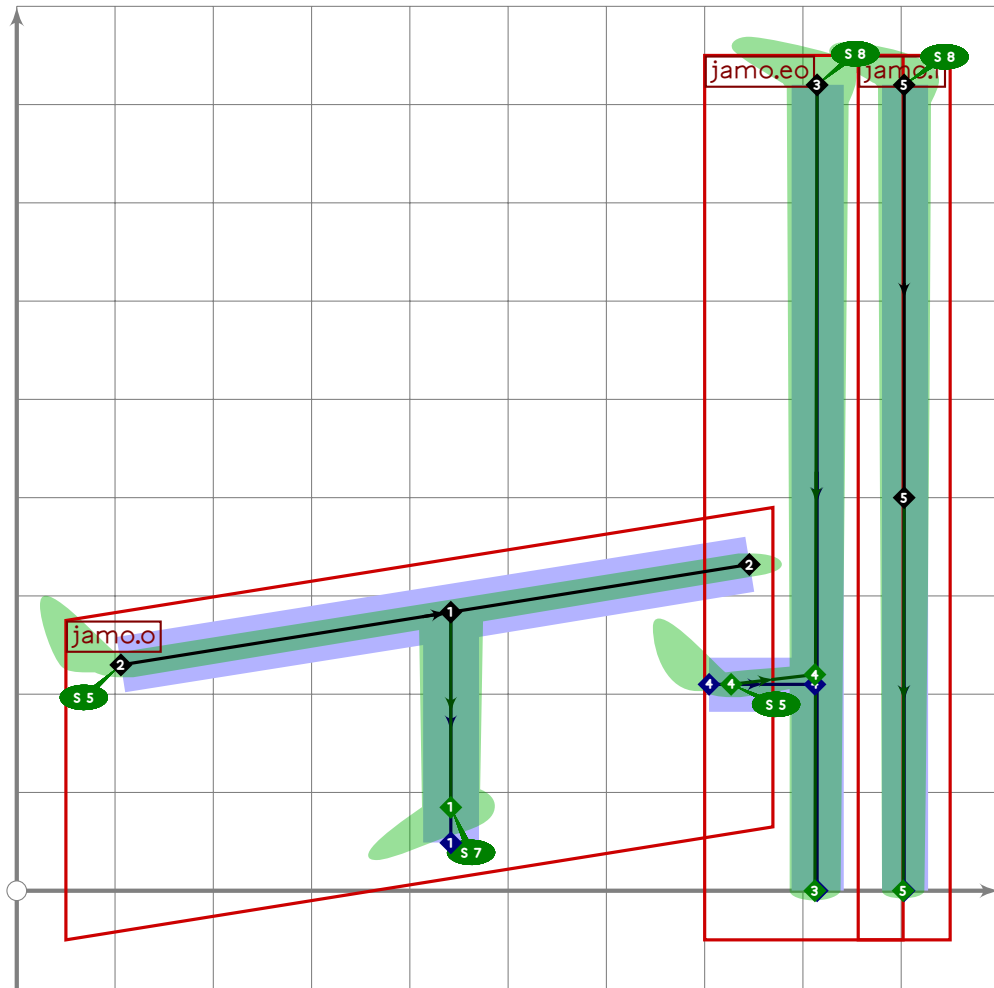
```



```

726 % hangul vowel weo
727 begint Suglyph("uni116F.nt",111);
728 hangul.combine.lr(313,304)(314,vixf,voxf);
729 tsu_render;
730 endsuglyph;
731

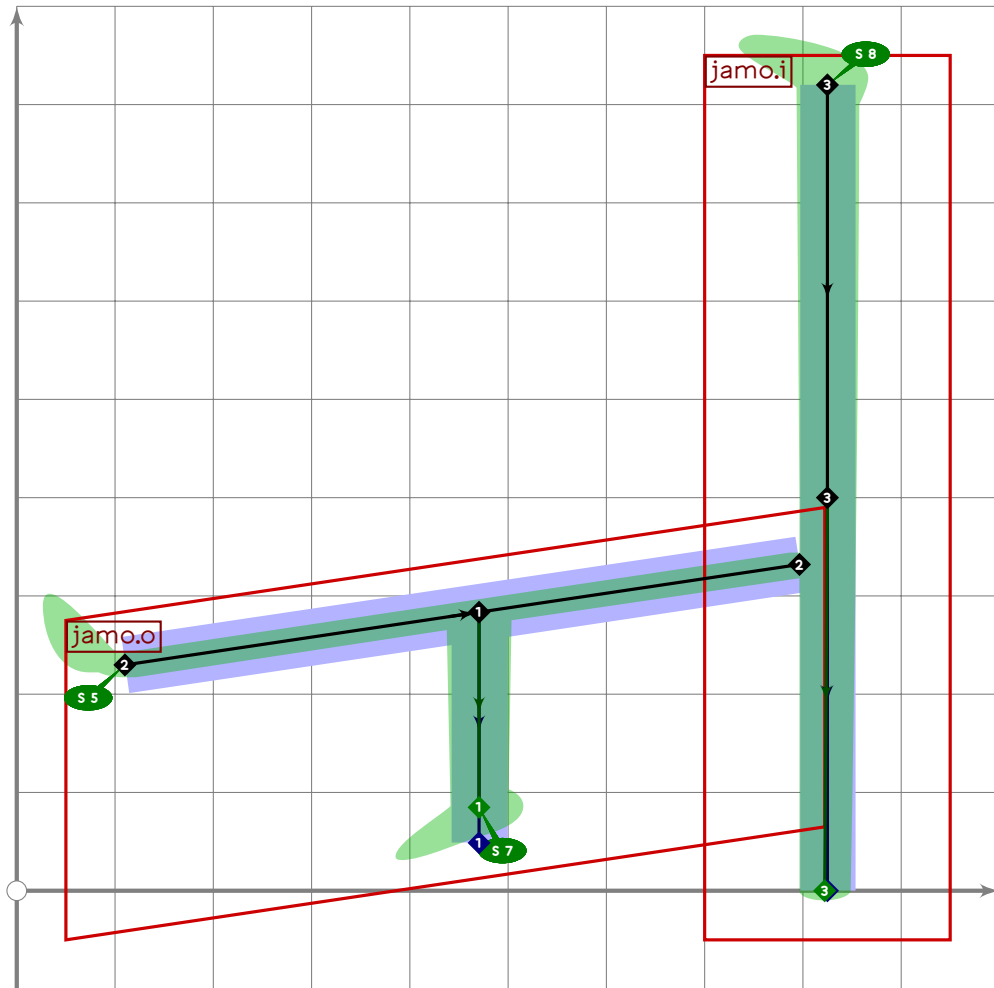
```



```

732 % hangul vowel we
733 begint Suglyph("uni1170.nt",112);
734 hangul.combine.lr(313,305)(315,vixf,voxf);
735 tsu_render;
736 endtsuglyph;
737

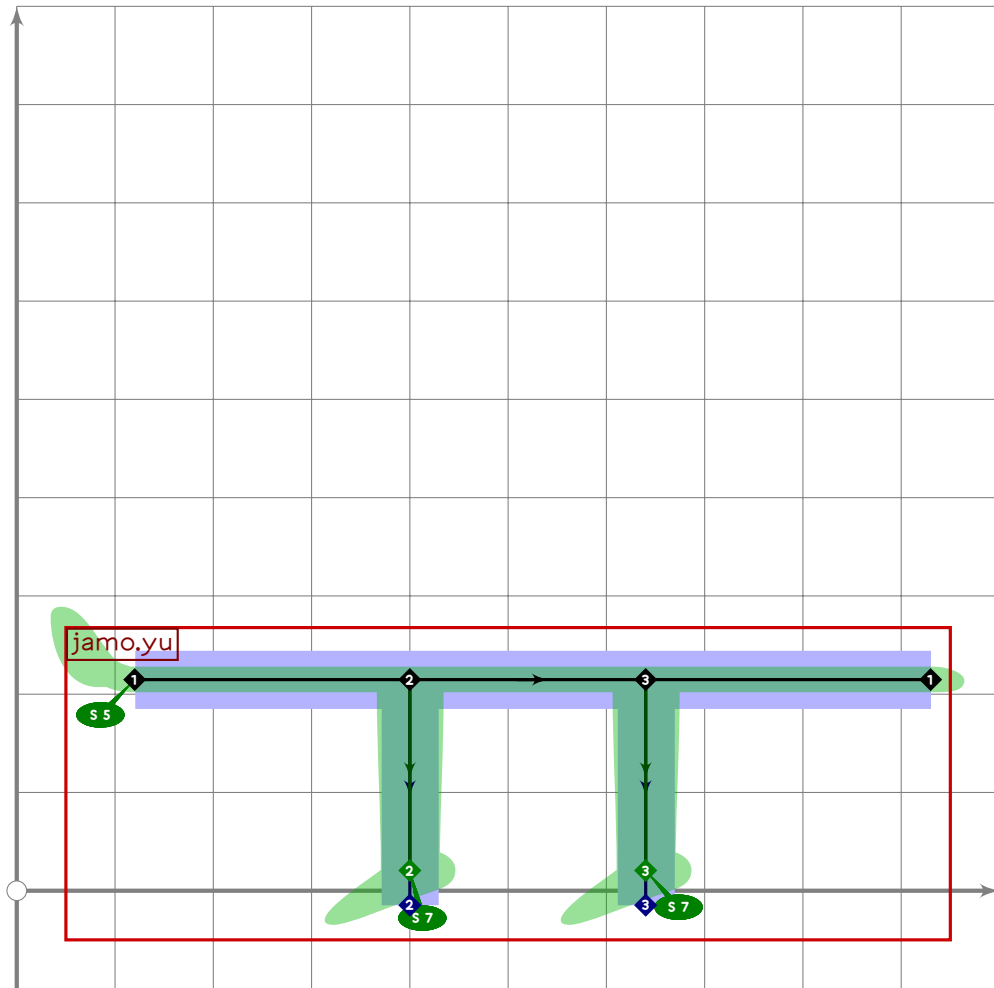
```



```

738 % hangul vowel wi
739 begint Suglyph("uni1171.nt";113);
740 hangul.combine.lr(313,320)(316,vixf,voxf);
741 tsu_render;
742 endtsuglyph;
743

```

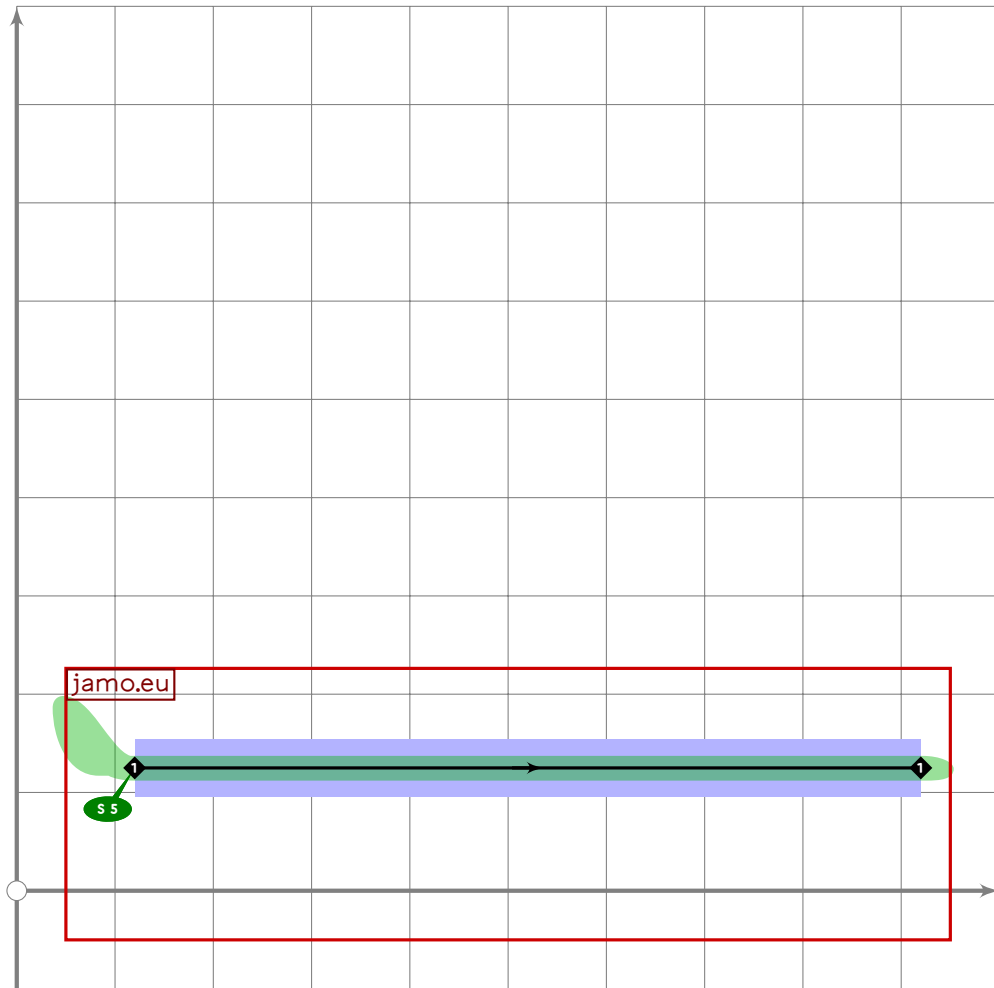


```

744 % hangul vowel yu
745 begint Suglyph("uni1172.nt",114);
746 hangul.jamo.yu(317,vixf,voxf);
747 tsu_render;
748 endtsuglyph;
749

```

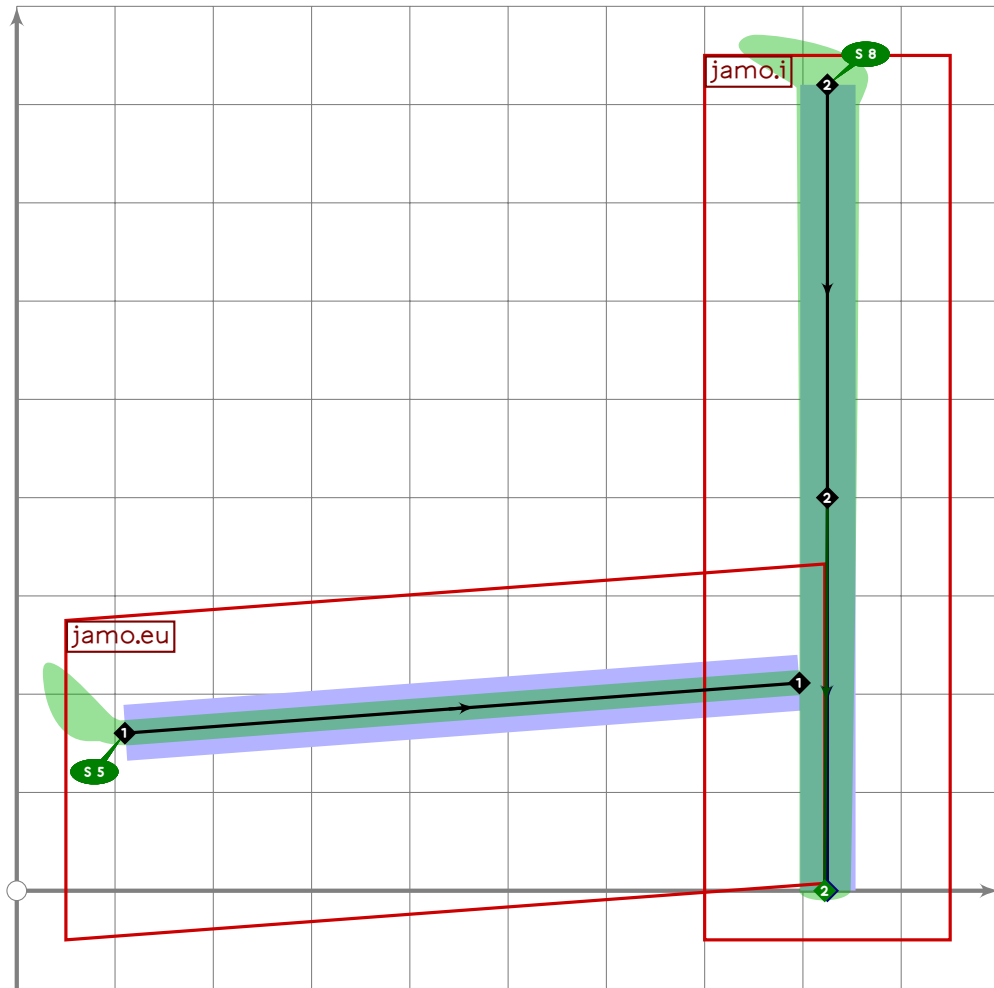




```

750 % hangul vowel eu
751 beginsuglyph("uni1173.nt",115);
752 hangul.jamo.eu(318,vixf,voxf);
753 tsu_render;
754 endsuglyph;
755

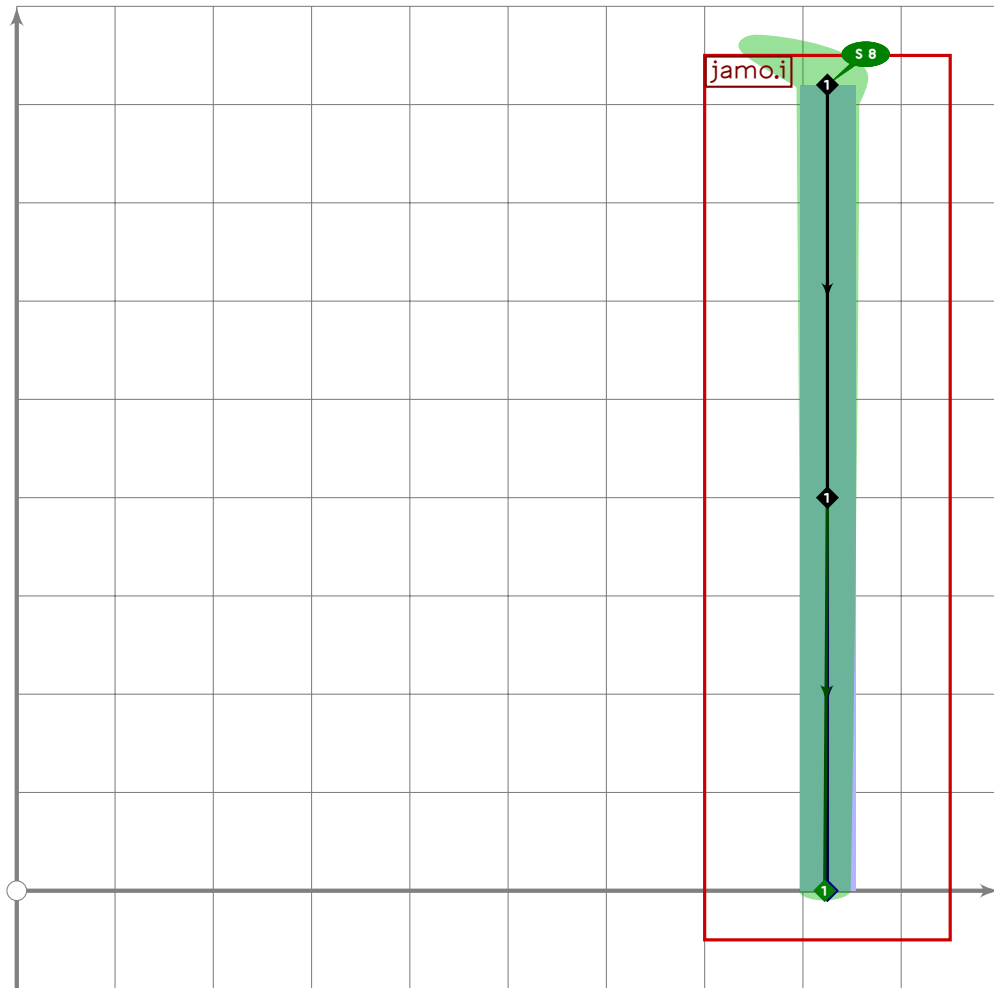
```



```

756 % hangul vowel yi
757 begintsuglyph("uni1174.nt",116);
758 hangul.combine.lr(318,320)(319,vixf,voxf);
759 tsu_render;
760 endsuglyph;
761

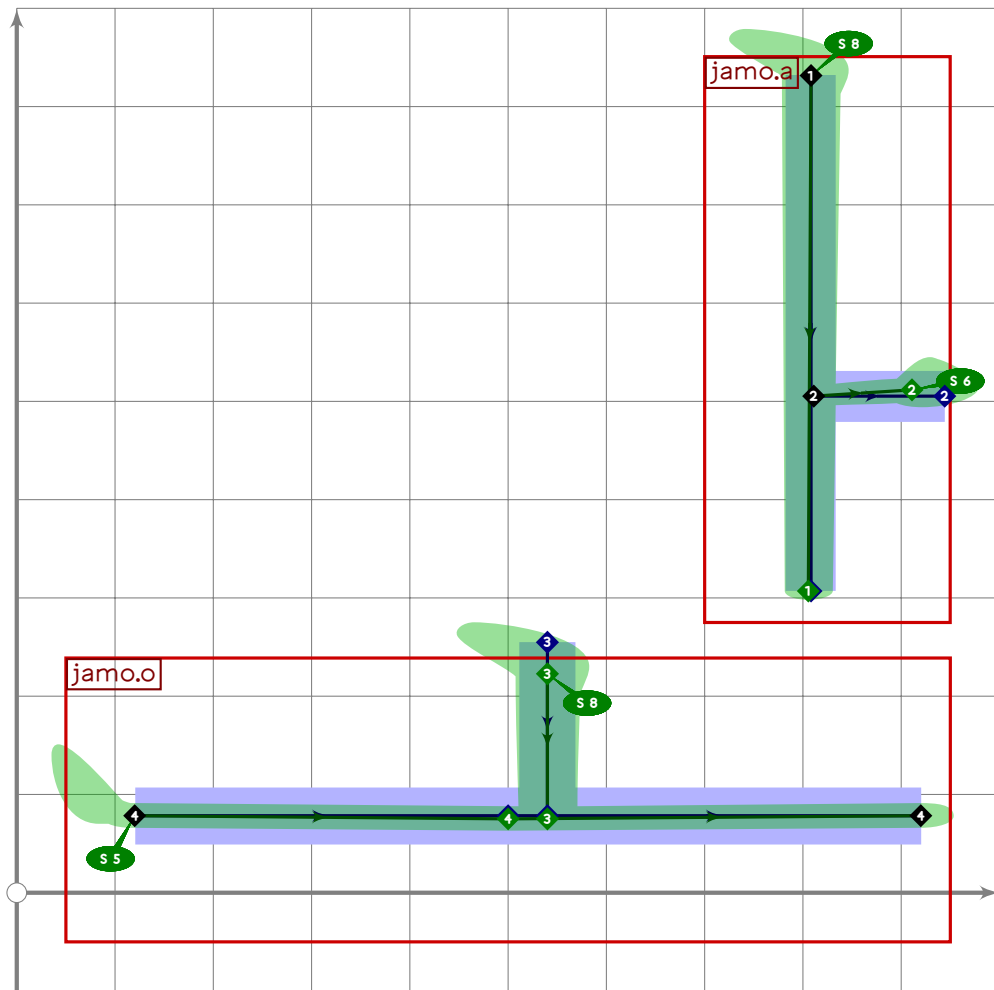
```



```

762 % hangul vowel i
763 begintsuglyph("uni1175.nt",117);
764 hangul.jamo.i(320,vixf,voxf);
765 tsu_render;
766 endsuglyph;
767

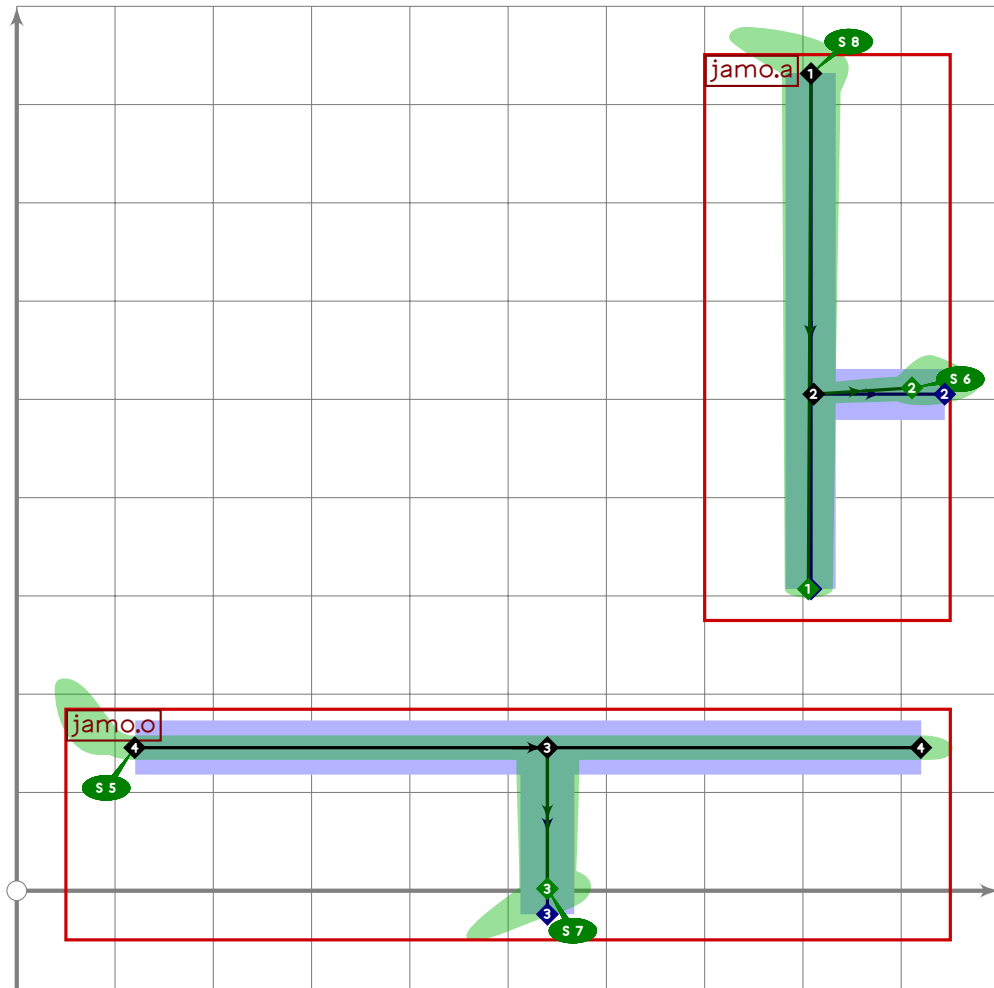
```



```

768 % hangul vowel a-o
769 begintsuglyph("uni1176.nt",118);
770 hangul.combine.tb(300,308)(whatever,vixf,voxf);
771 tsu_render;
772 endsuglyph;
773

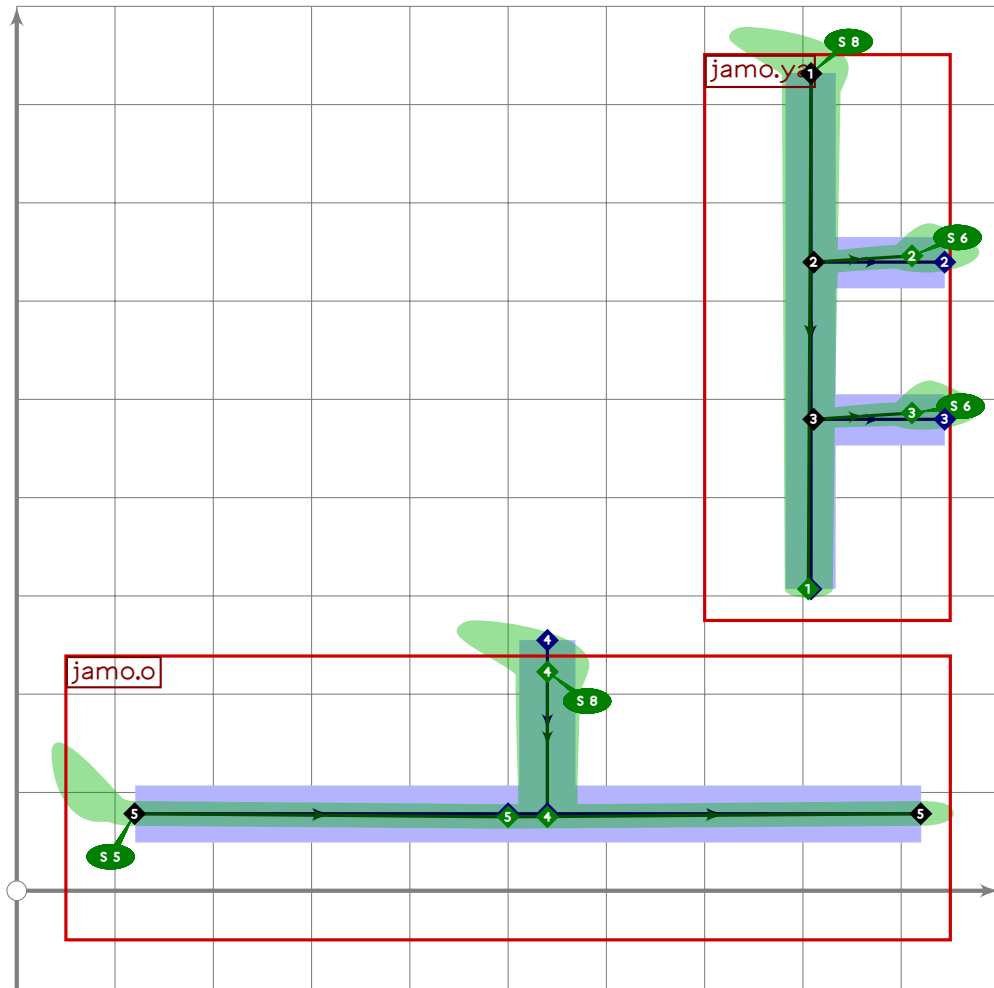
```



```

774 % hangul vowel a-u
775 begint Suglyph("uni1177.nt",119);
776 hangul.combine.tb(300,313)(whatever,vixf,vox);
777 tsu_render;
778 endsuglyph;
779

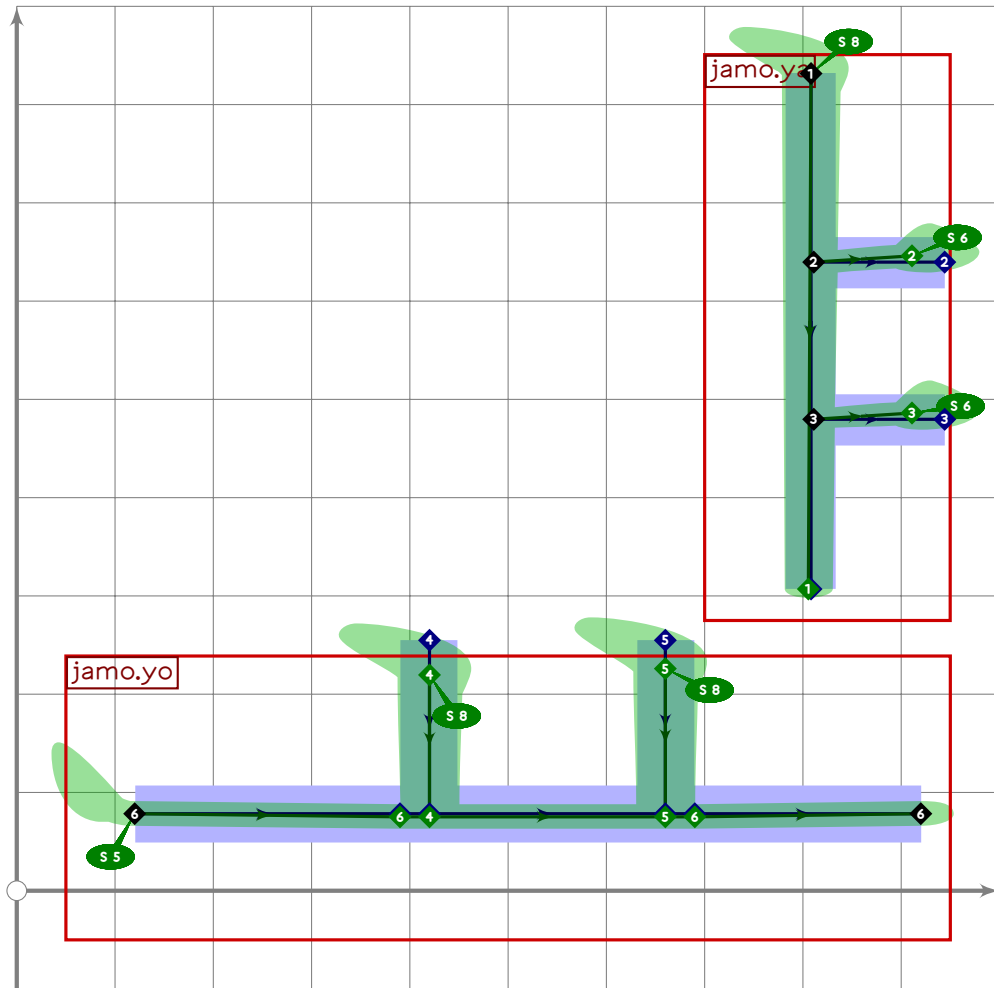
```



```

780 % hangul vowel ya-o
781 begint Suglyph("uni1178.nt",120);
782 hangul.combine.tb(302,308)(whatever,vixf,voxf);
783 tsu_render;
784 endtsuglyph;
785

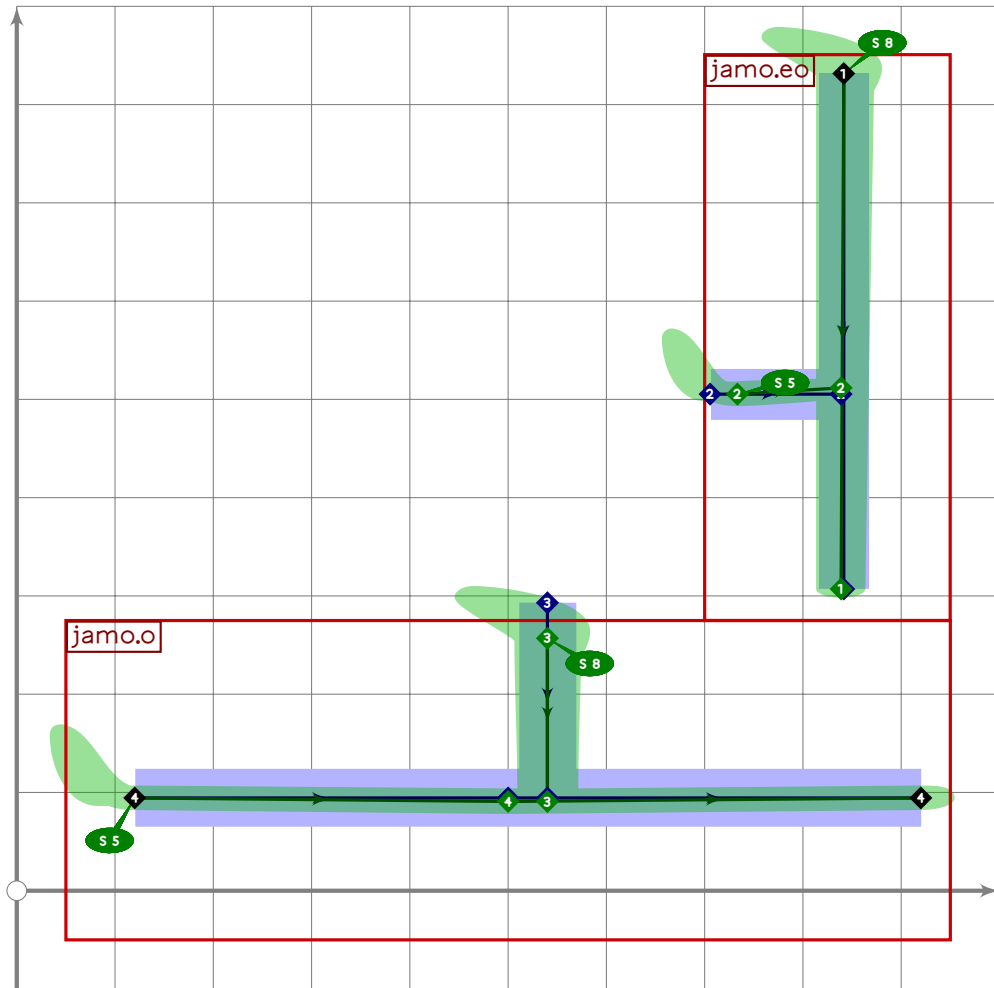
```



```

786 % hangul vowel ya-yo
787 begint Suglyph("uni1179.nt",121);
788 hangul.combine.tb(302,312)(whatever,vixf,vox);
789 tsu_render;
790 endsuglyph;
791

```

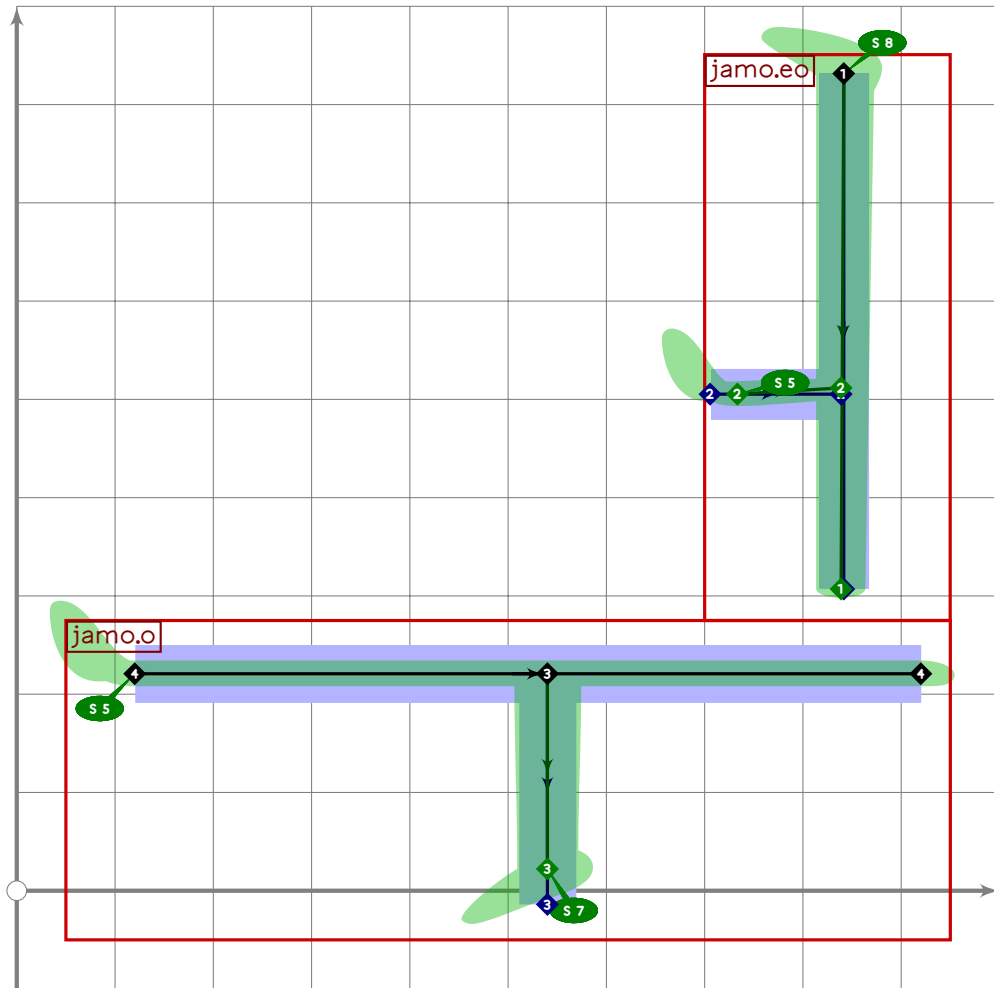


```

792 % hangul vowel eo-o
793 begint Suglyph("uni117A.nt",122);
794 hangul.combine.tb(304,308)(whatever,vixf,voxf);
795 tsu_render;
796 endtsuglyph;
797

```

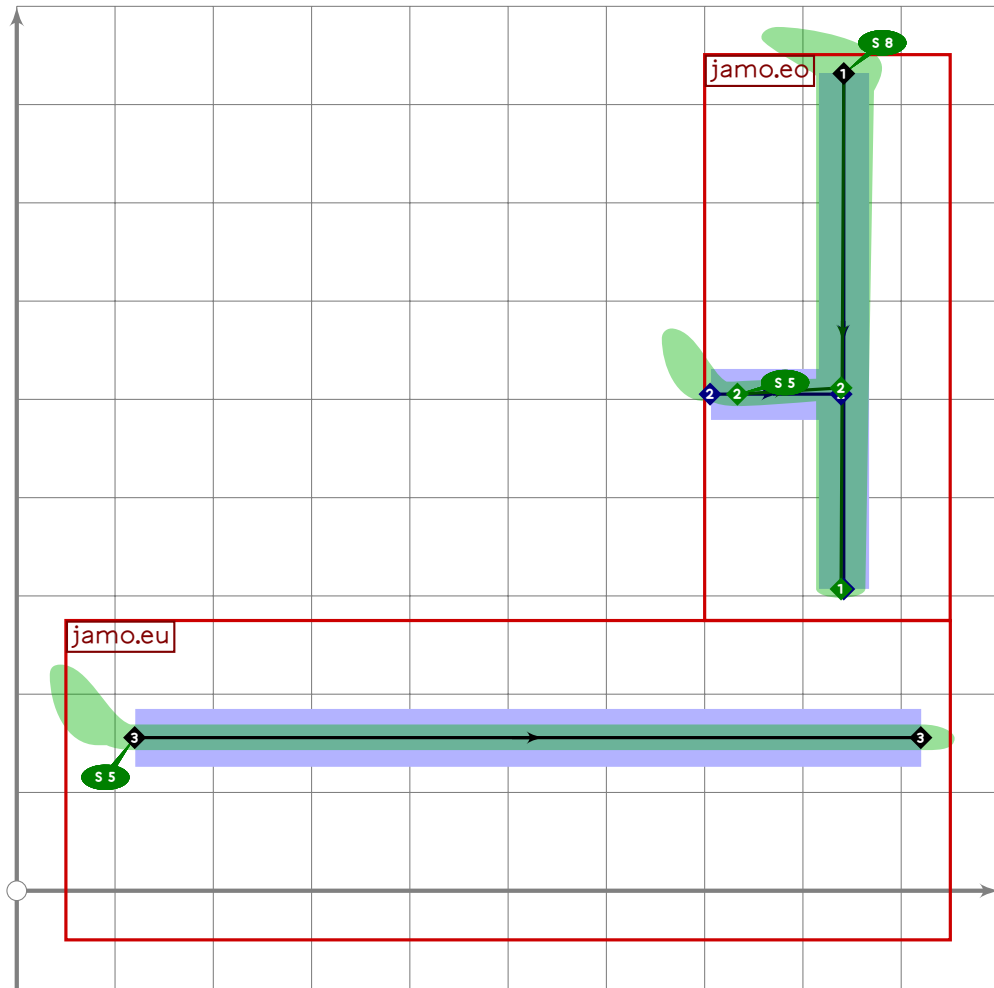




```

798 % hangul vowel eo-u
799 begint Suglyph("uni117B.nt",123);
800 hangul.combine.tb(304,313)(whatever,vixf,voxf);
801 tsu_render;
802 endtsuglyph;
803

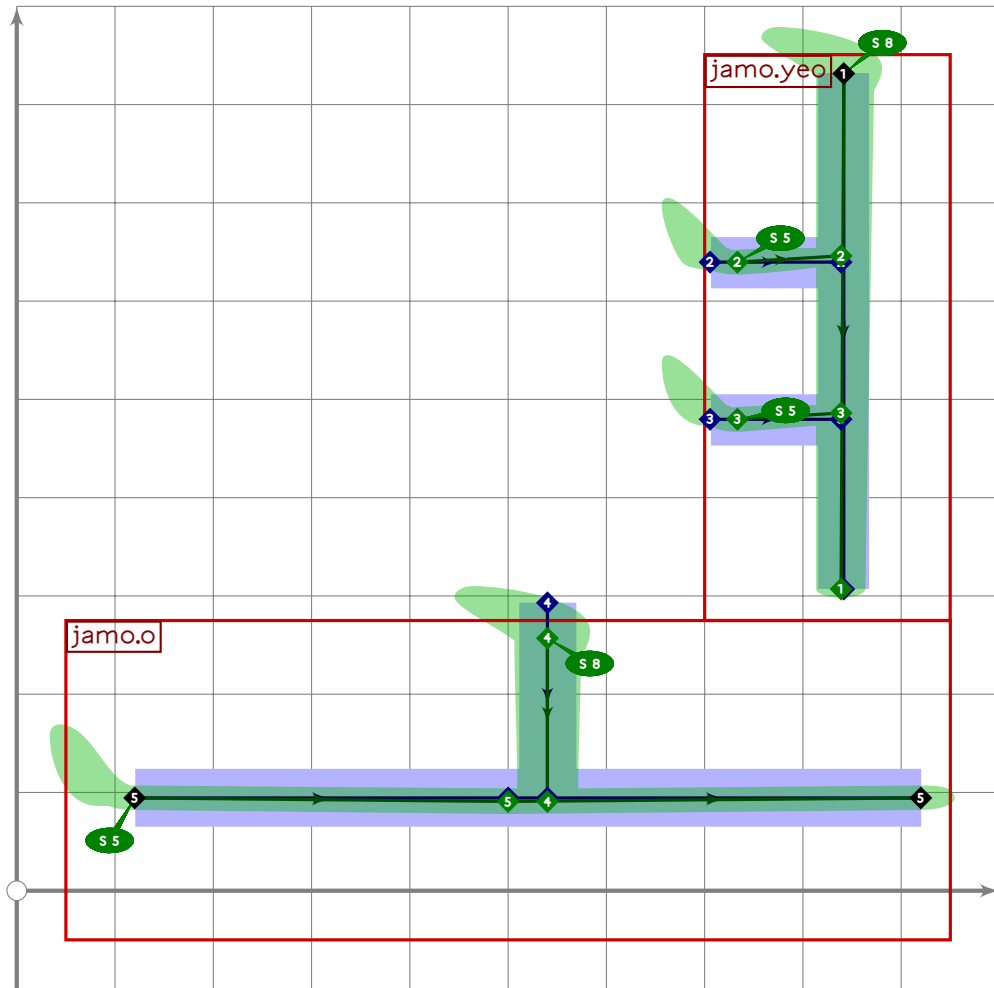
```



```

804 % hangul vowel eo-eu
805 begint Suglyph("uni117C.nt",124);
806 hangul.combine.tb(304,318)(whatever,vixf,vox);
807 tsu_render;
808 endtsuglyph;
809

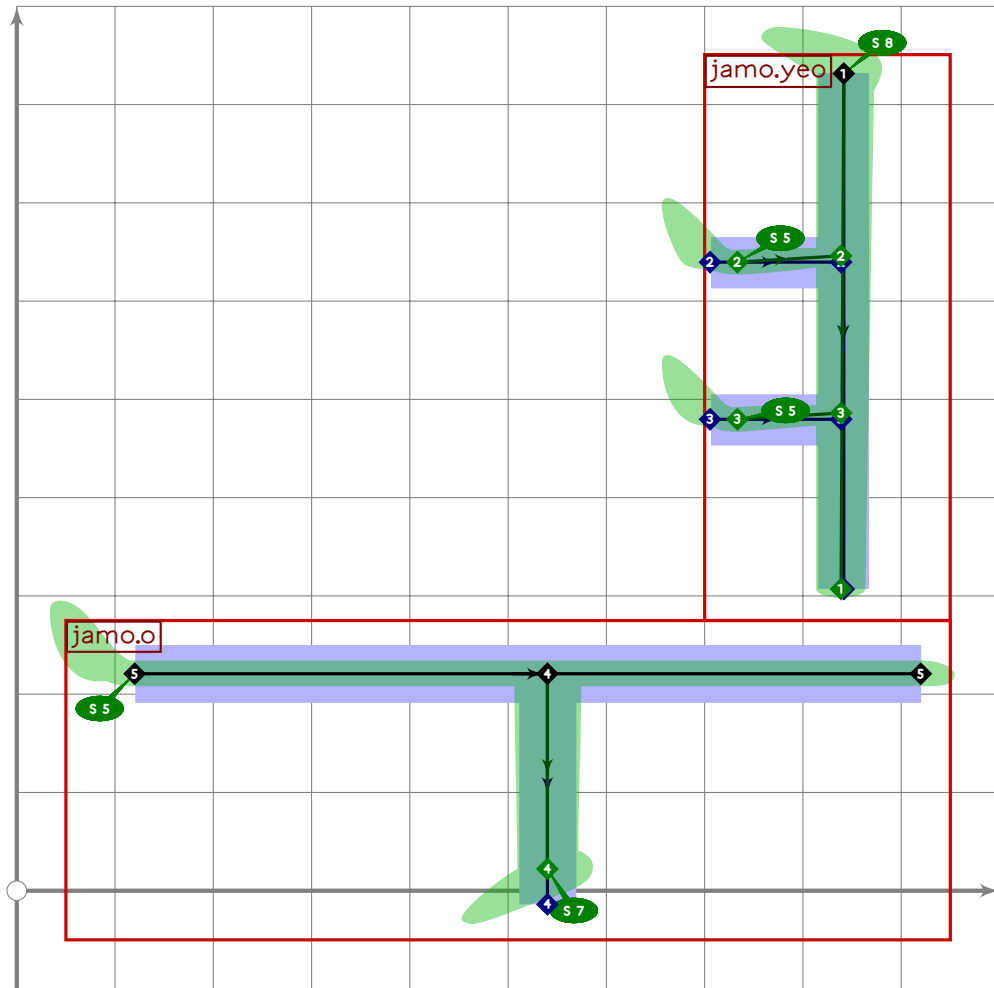
```



```

810 % hangul vowel yeo-o
811 begint Suglyph("uni117D.nt",125);
812 hangul.combine.tb(306,308)(whatever,vixf,voxf);
813 tsu_render;
814 endtsuglyph;
815

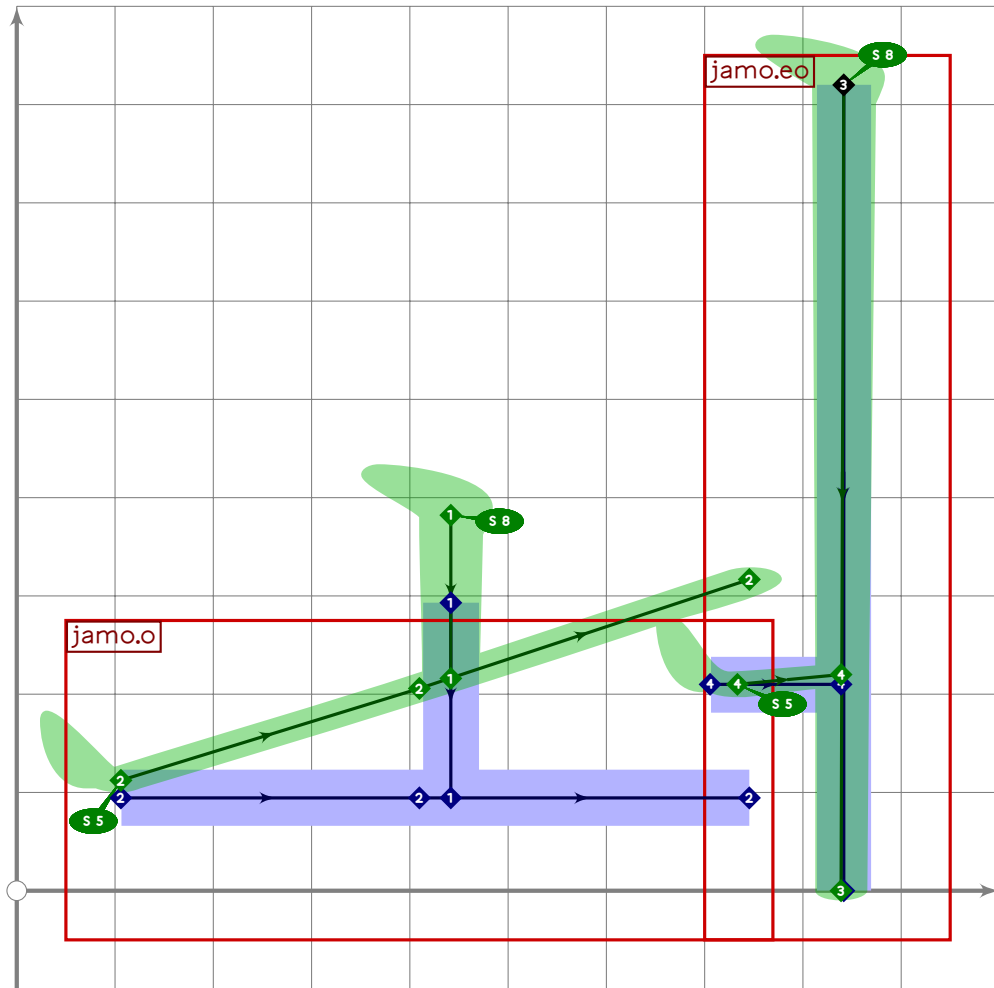
```



```

816 % hangul vowel yeo-u
817 begintuglyph("uni117E.nt",126);
818 hangul.combine.tb(306,313)(whatever,vixf,voxf);
819 tsu_render;
820 endtuglyph;
821

```

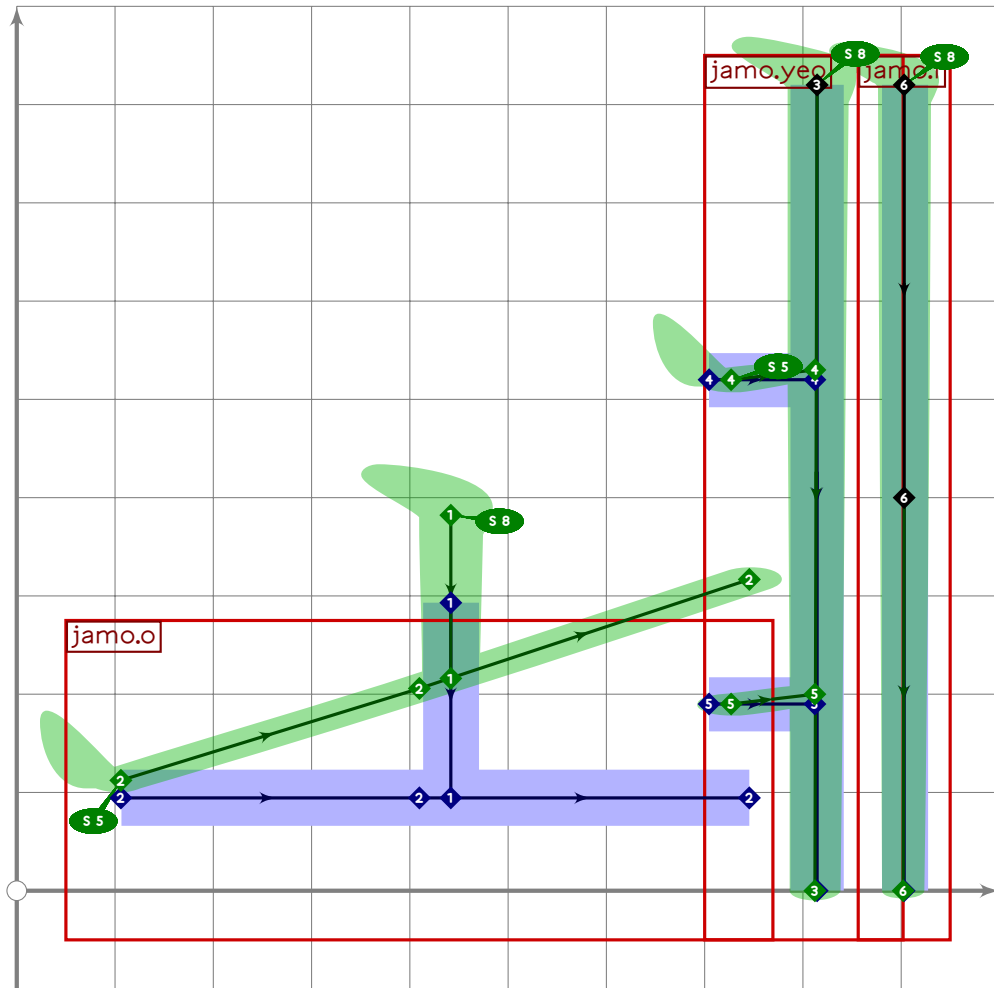


```

822 % hangul vowel o-eo
823 begint Suglyph("uni117F.nt",127);
824 hangul.combine.lr(308,304)(429,vixf,voxf);
825 tsu_render;
826 endtsuglyph;
827

```

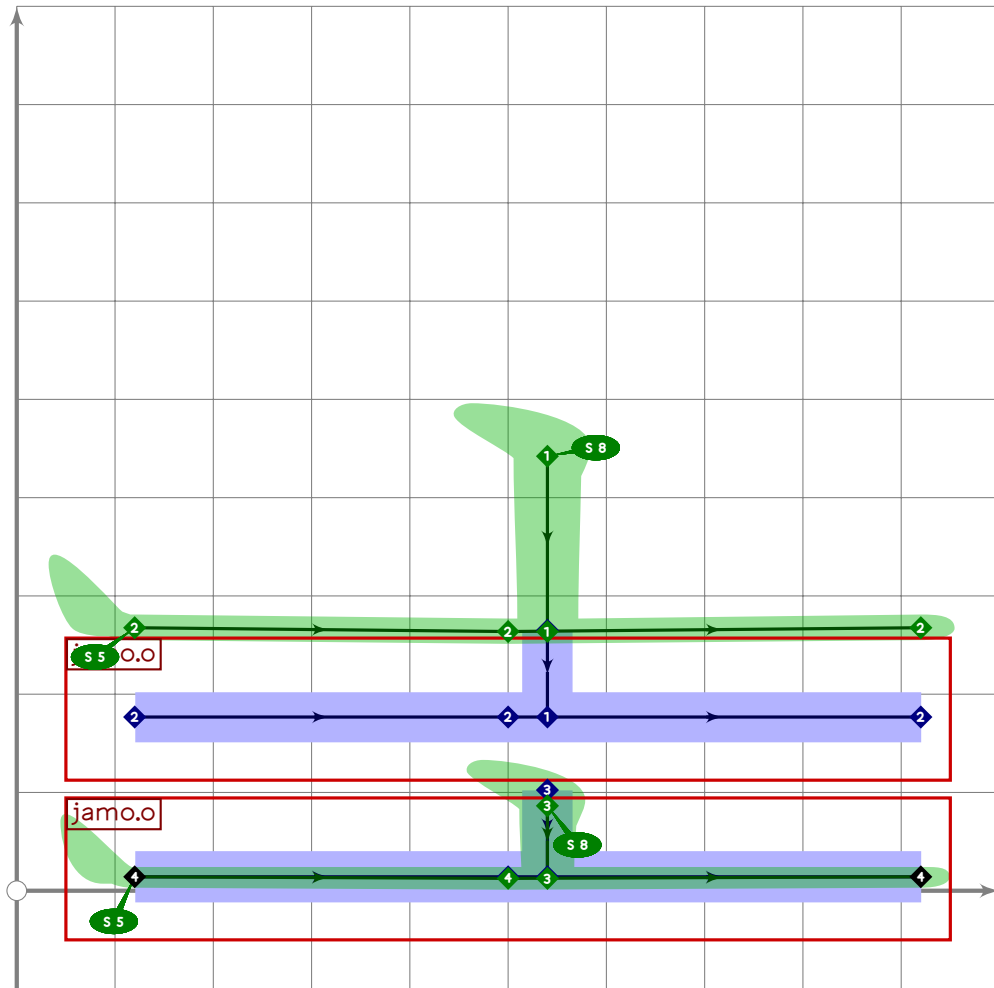




```

834 % hangul vowel o-ye
835 begintsuglyph("uni1181.nt";129);
836 hangul.combine.lr(308,307)(431,vixf,voxof);
837 tsu_render;
838 endsuglyph;
839

```

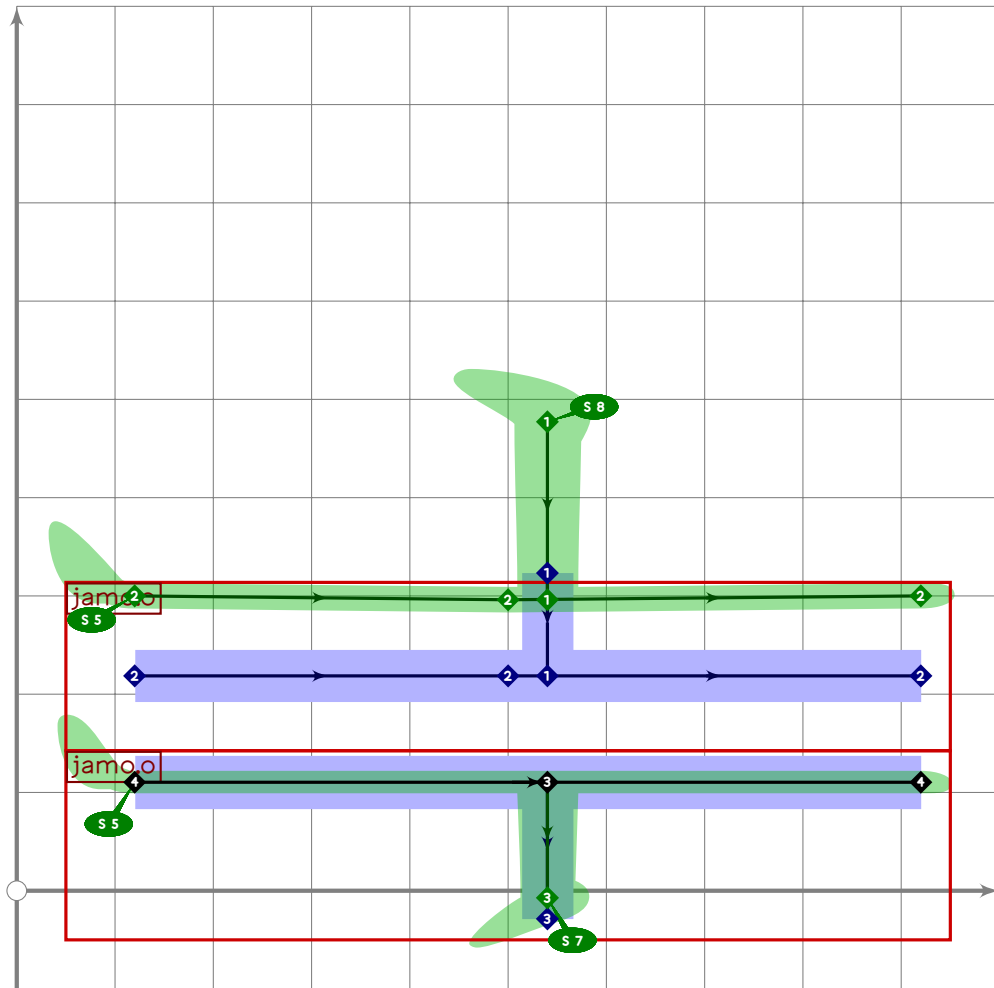


```

840 % hangul vowel o-o
841 begint Suglyph("uni1182.nt",130);
842 hangul.combine.tb(308,308)(whatever,vixf,voxf);
843 tsu_render;
844 endtsuglyph;
845

```

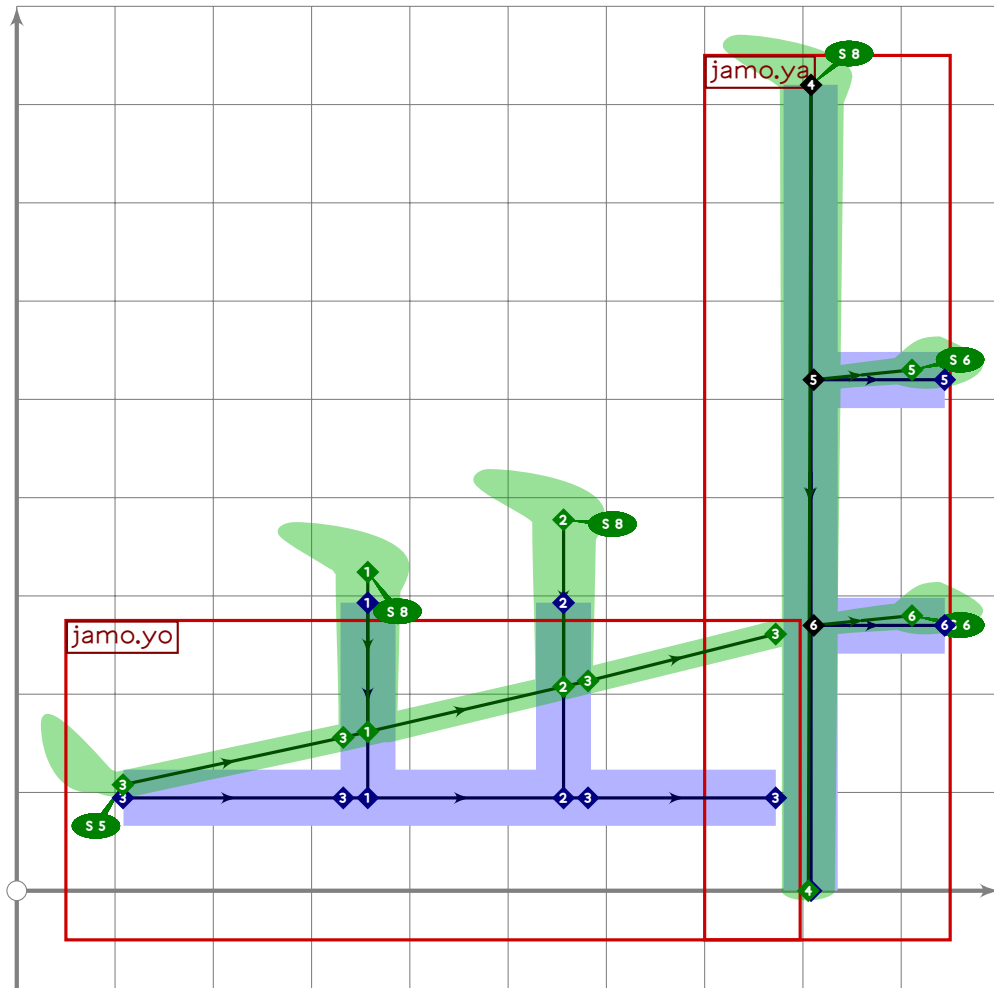




```

846 % hangul vowel o-u
847 begint Suglyph("uni1183.nt",131);
848 hangul.combine.tb(308,313)(whatever,tvixf,voxf);
849 tsu_render;
850 endsuglyph;
851

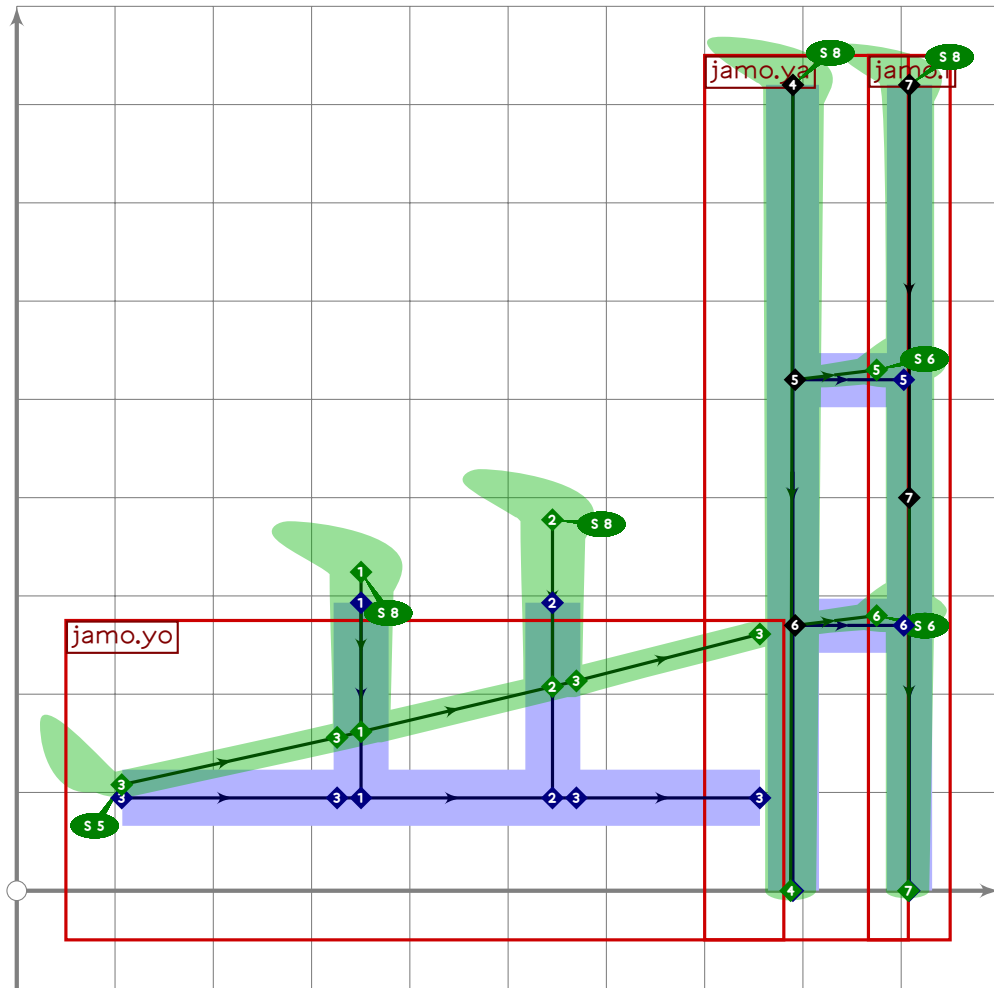
```



```

852 % hangul vowel yo-ya
853 begintsuglyph("uni1184.nt",132);
854 hangul.combine.lr(312,302)(421,vixf,voxf);
855 tsu_render;
856 endsuglyph;
857

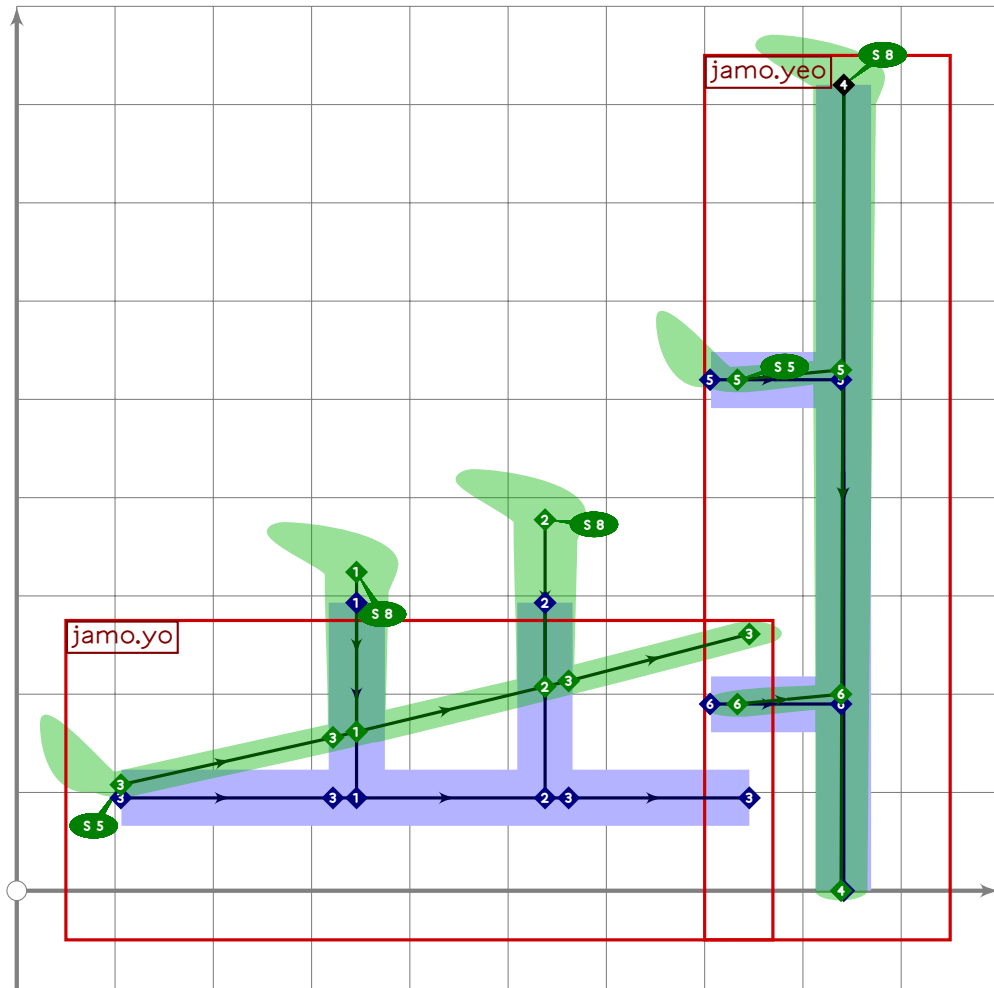
```



```

858 % hangul vowel yo-yae
859 begintsuglyph("uni1185.nt",133);
860 hangul.combine.lr(312,303)(422,vixf,voxf);
861 tsu_render;
862 endsuglyph;
863

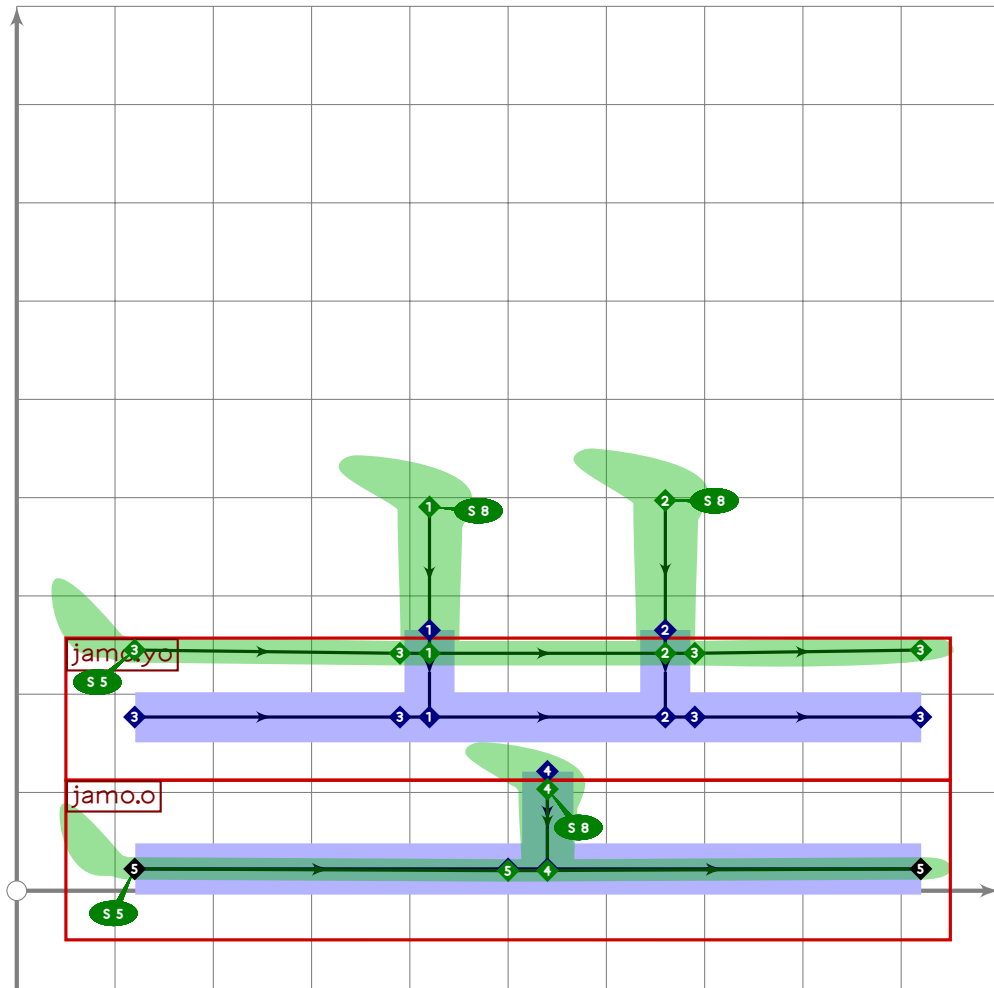
```



```

864 % hangul vowel yo-yeo
865 begintsuglyph("uni1186.nt",134);
866 hangul.combine.lr(312,306)(432,vixf,voxf);
867 tsu_render;
868 endsuglyph;
869

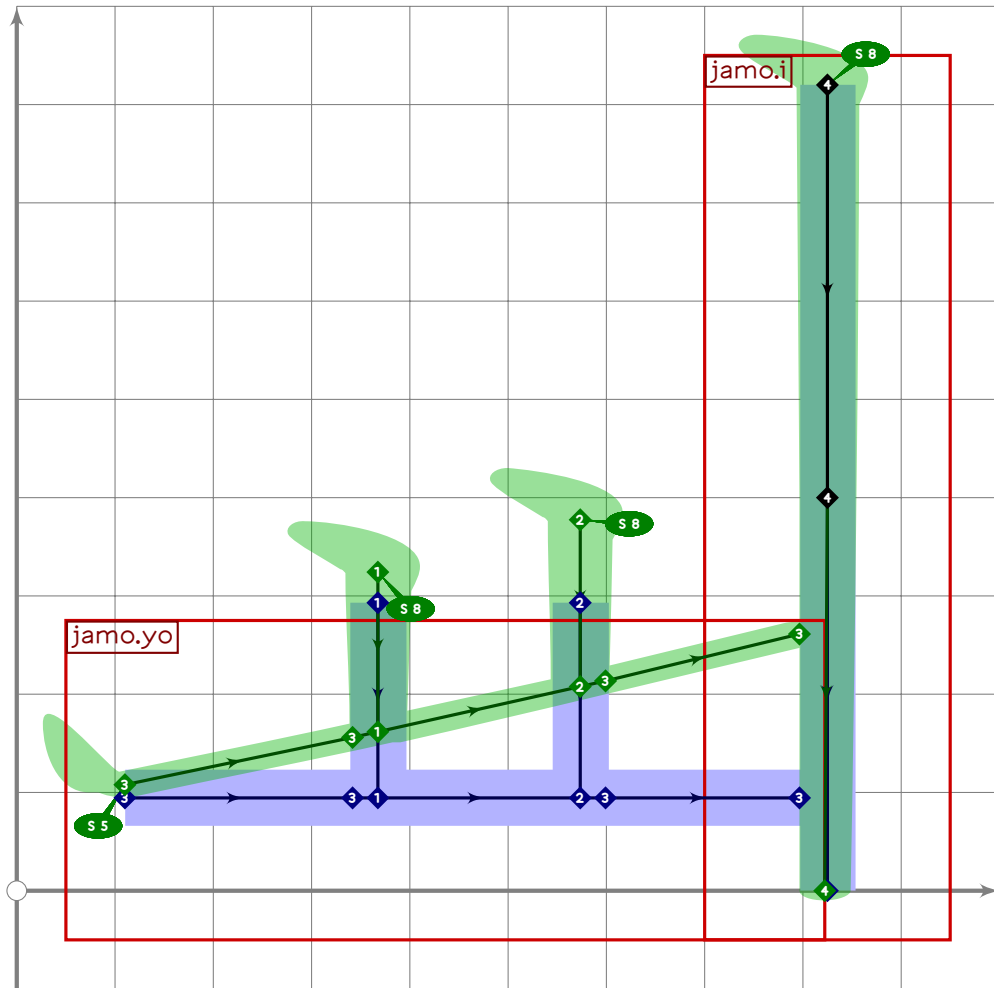
```



```

870 % hangul vowel yo-o
871 begint Suglyph("uni1187.nt",135);
872 hangul.combine.tb(312,308)(whatever,vixf,vox);
873 tsu_render;
874 endtsuglyph;
875

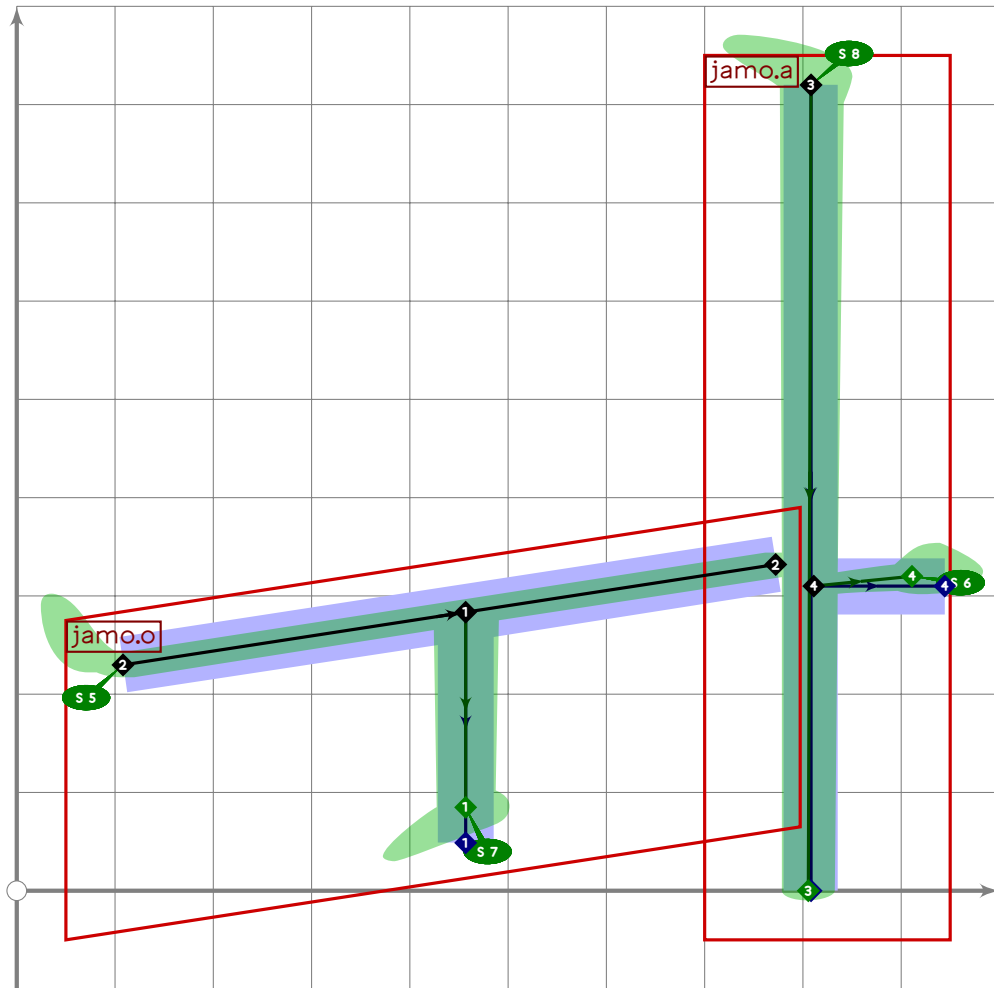
```



```

876 % hangul vowel yo-i
877 begint Suglyph("uni1188.nt",136);
878 hangul.combine.lr(312,320)(423,vixf,voxf);
879 tsu_render;
880 endtsuglyph;
881

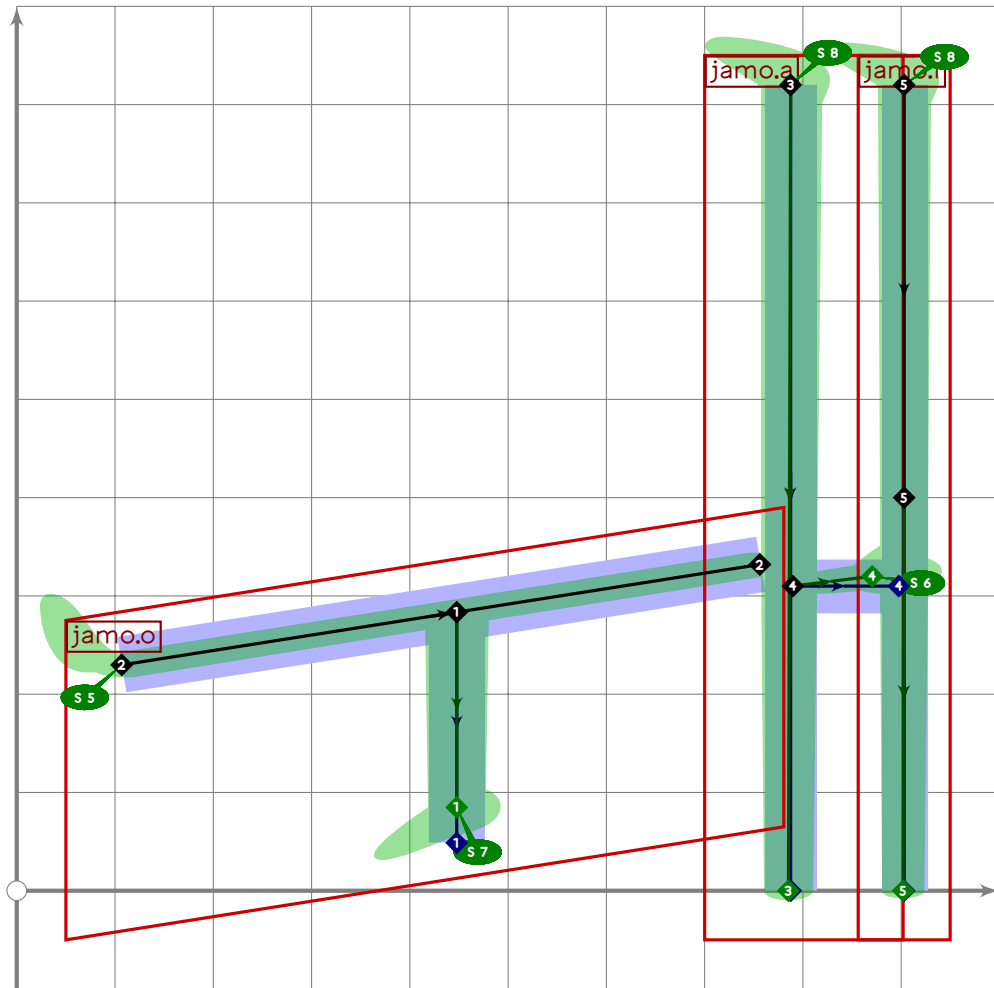
```



```

882 % hangul vowel u-a
883 begint Suglyph("uni1189.nt",137);
884 hangul.combine.lr(313,300)(433,vixf,voxf);
885 tsu_render;
886 endsuglyph;
887

```

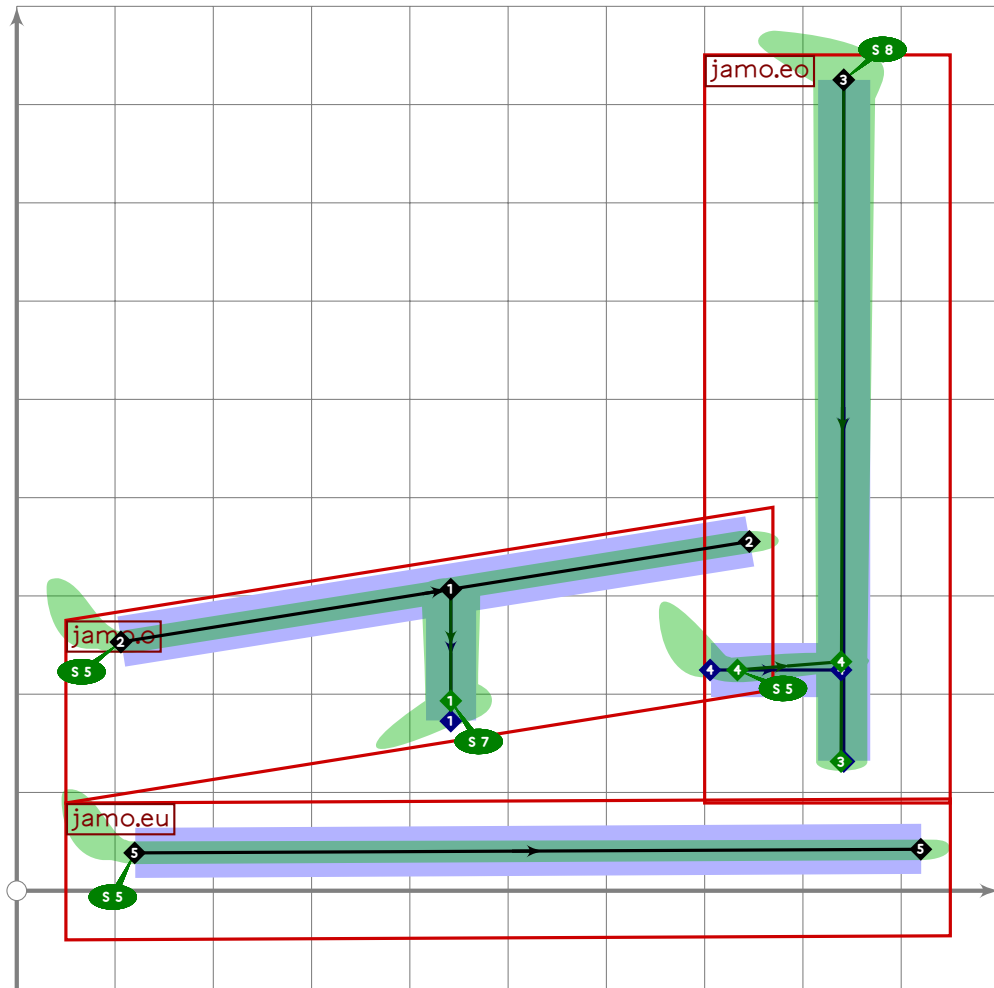


```

888 % hangul vowel u-ae
889 begint Suglyph("uni118A.nt",138);
890 hangul.combine.lr(313,301)(434,vixf,voxf);
891 tsu_render;
892 endsuglyph;
893

```

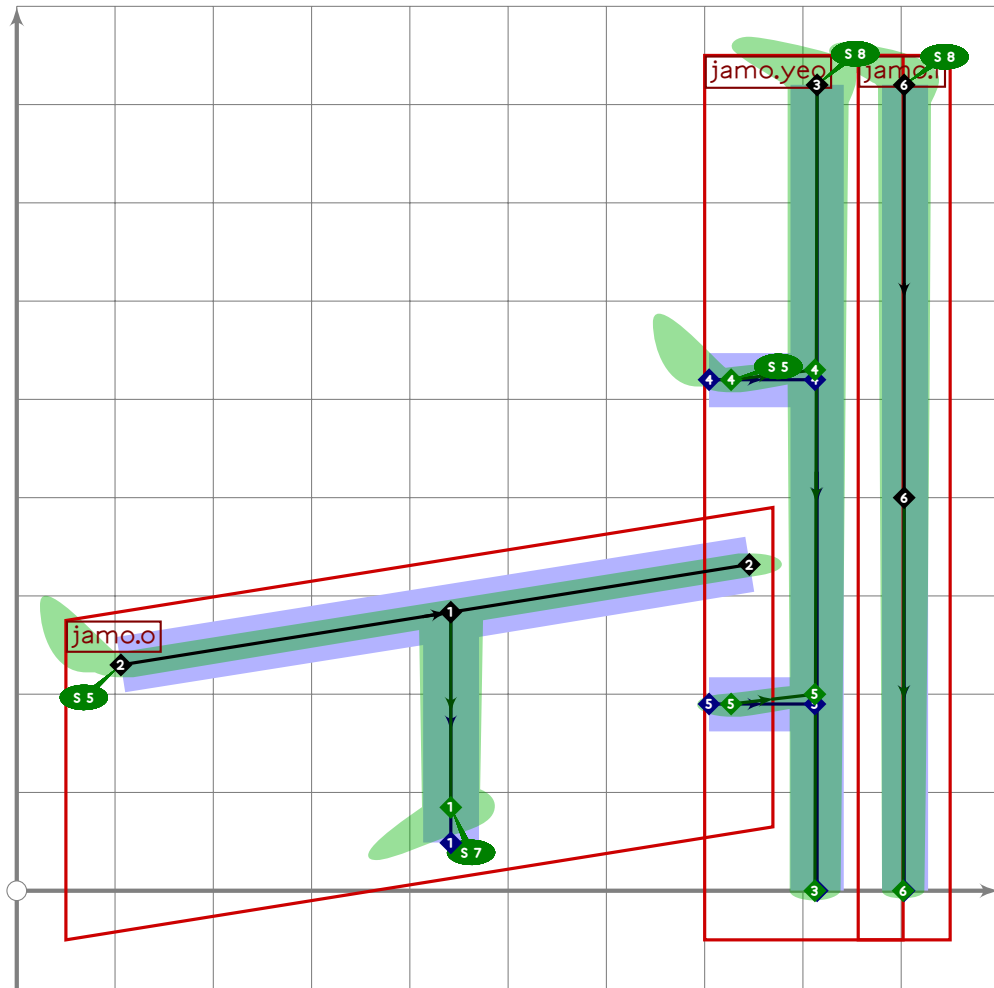




```

894 % hangul vowel u-eo-eu
895 begint Suglyph("uni118B.nt",139);
896 hangul.combine.tb(314,318)(435,vixf,voxf);
897 tsu_render;
898 endtsuglyph;
899

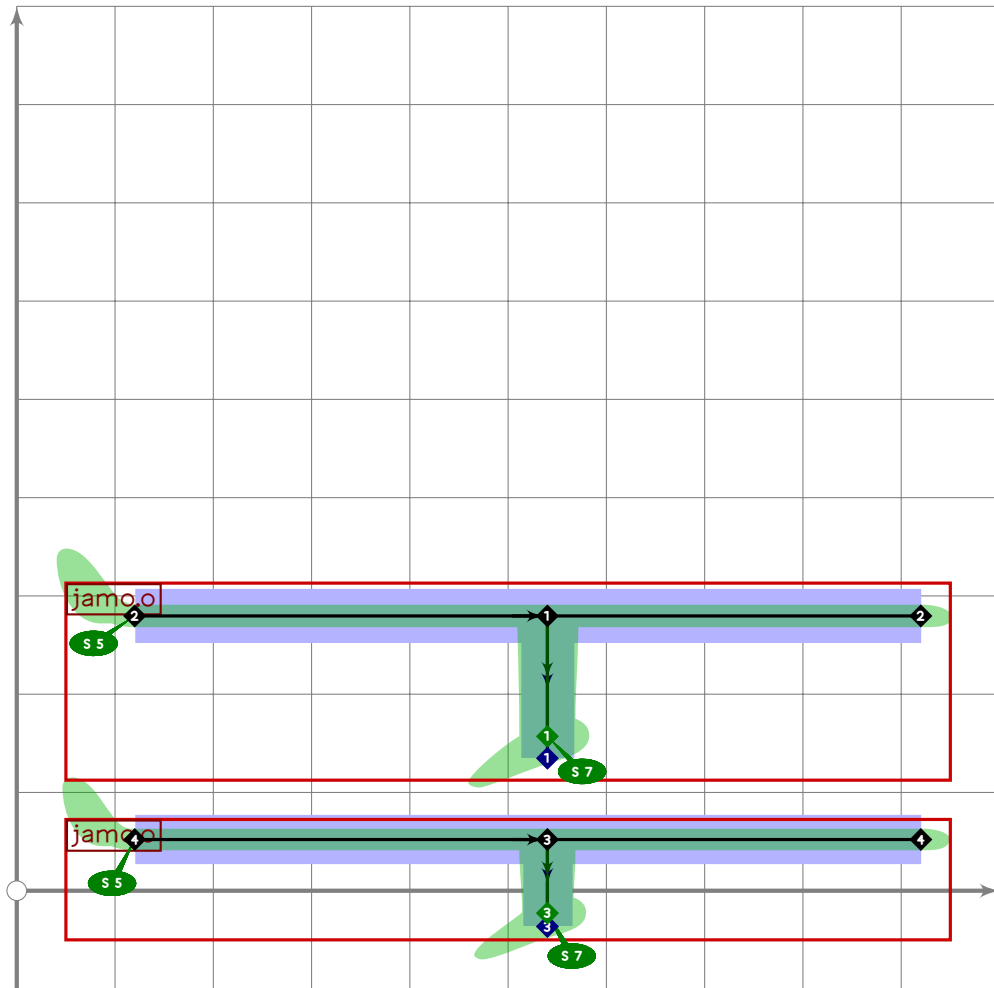
```



```

900 % hangul vowel u-ye
901 begintsuglyph("uni118C.nt",140);
902 hangul.combine.lr(313,307)(436,vixf,voxf);
903 tsu_render;
904 endsuglyph;
905

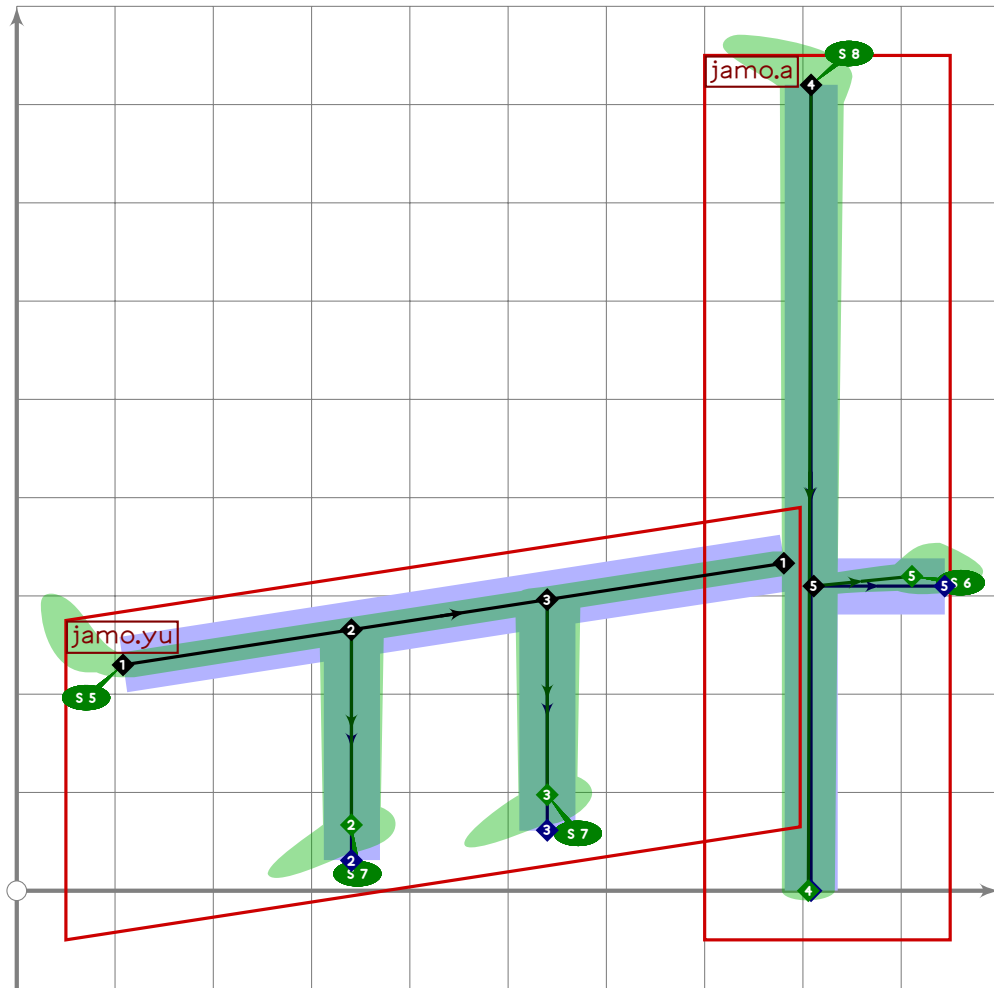
```



```

906 % hangul vowel u-u
907 begint Suglyph("uni118D.nt";141);
908 hangul.combine.tb(313,313)(whatever,vixf,voxf);
909 tsu_render;
910 endsuglyph;
911

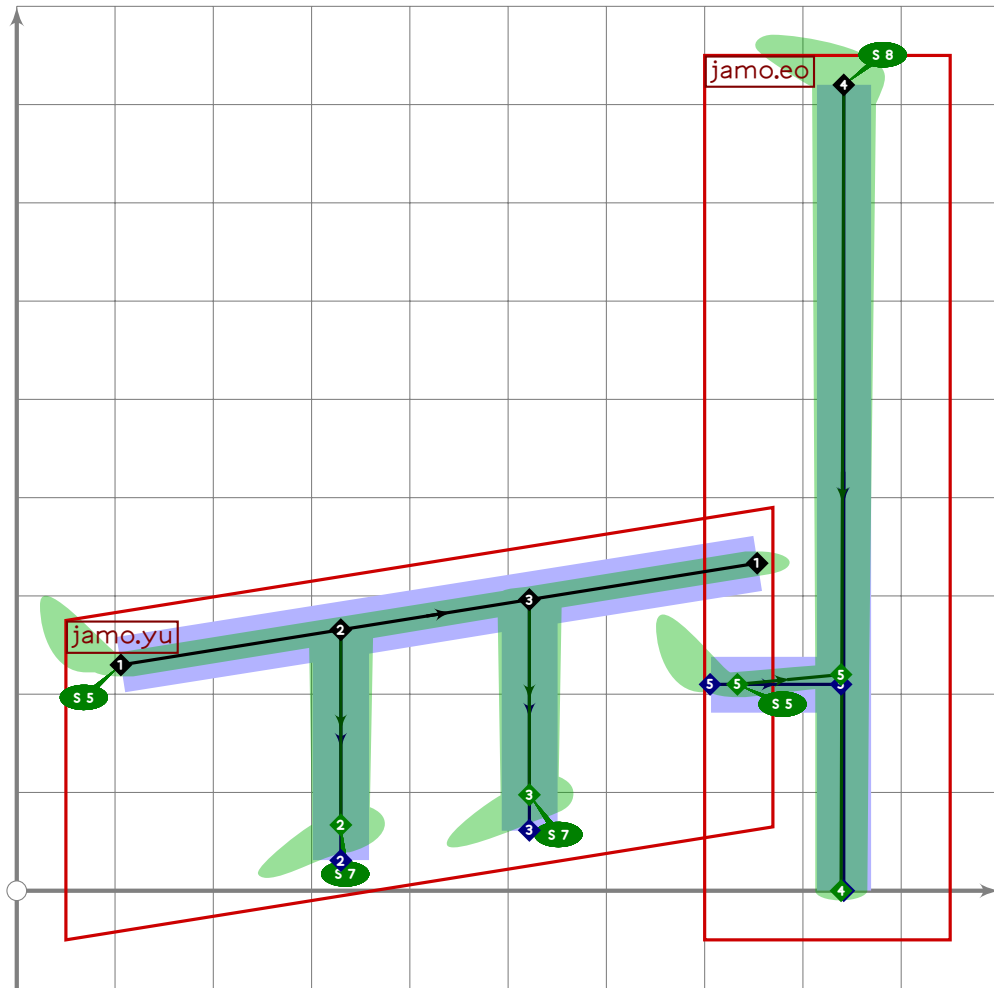
```



```

912 % hangul vowel yu-a
913 begint Suglyph("uni118E.nt",142);
914 hangul.combine.lr(317,300)(437,vixf,voxf);
915 tsu_render;
916 endtsuglyph;
917

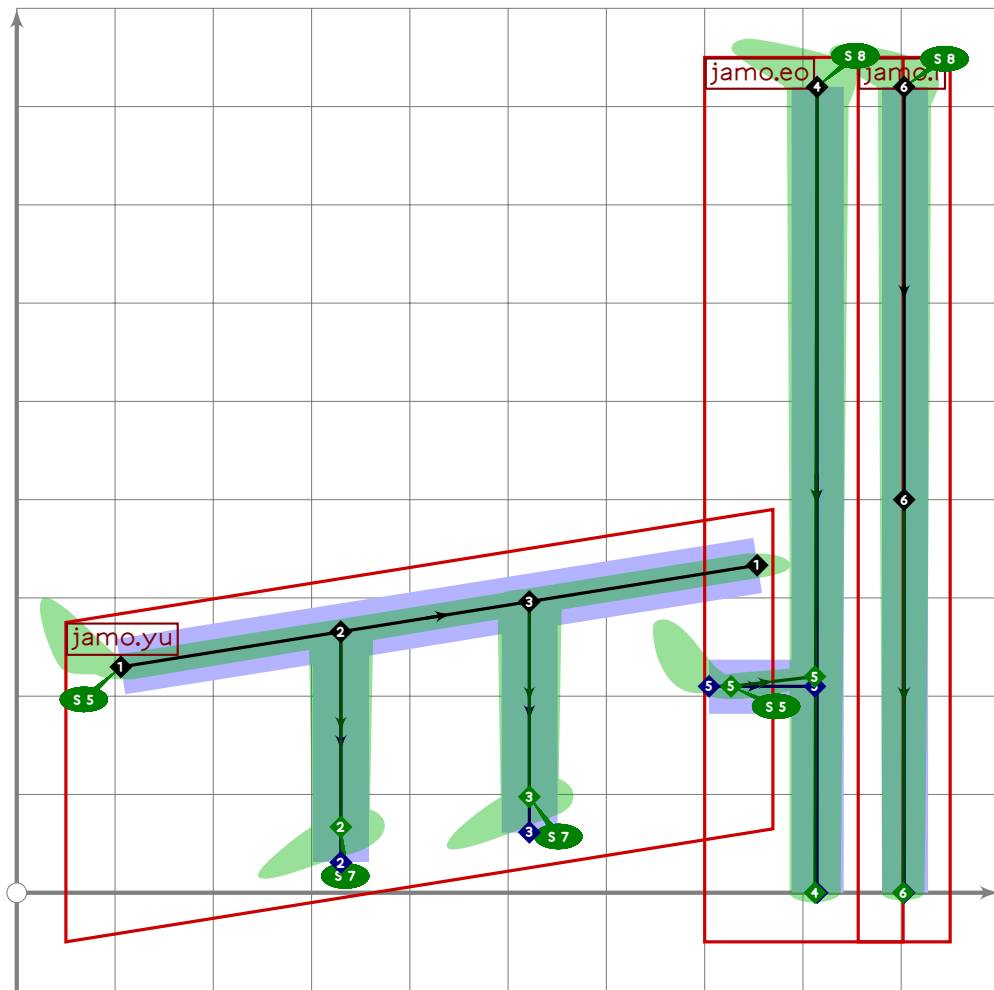
```



```

918 % hangul vowel yu-eo
919 begintsuglyph("uni118F.nt",143);
920 hangul.combine.lr(317,304)(438,vixf,voxf);
921 tsu_render;
922 endsuglyph;
923

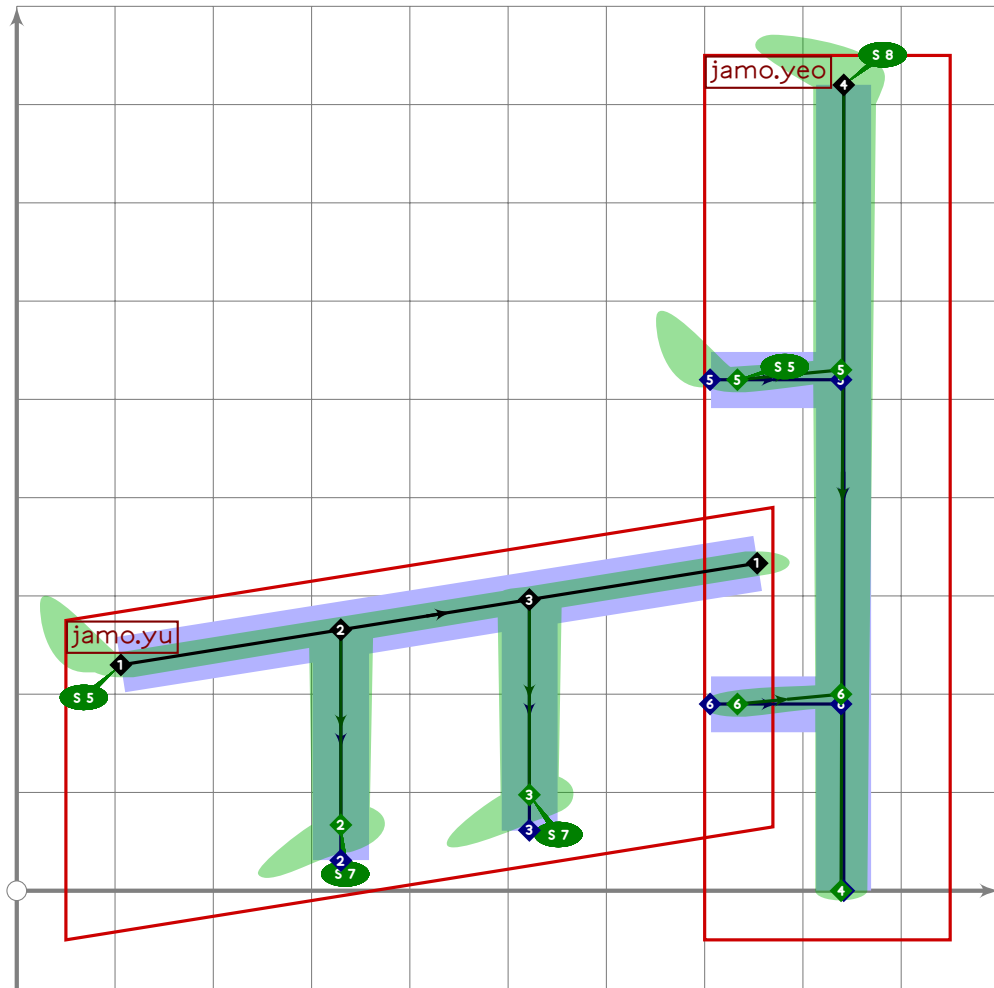
```



```

924 % hangul vowel yu-e
925 begint Suglyph("uni1190.nt",144);
926 hangul.combine.lr(317,305)(439,vixf,voxf);
927 tsu_render;
928 endtsuglyph;
929

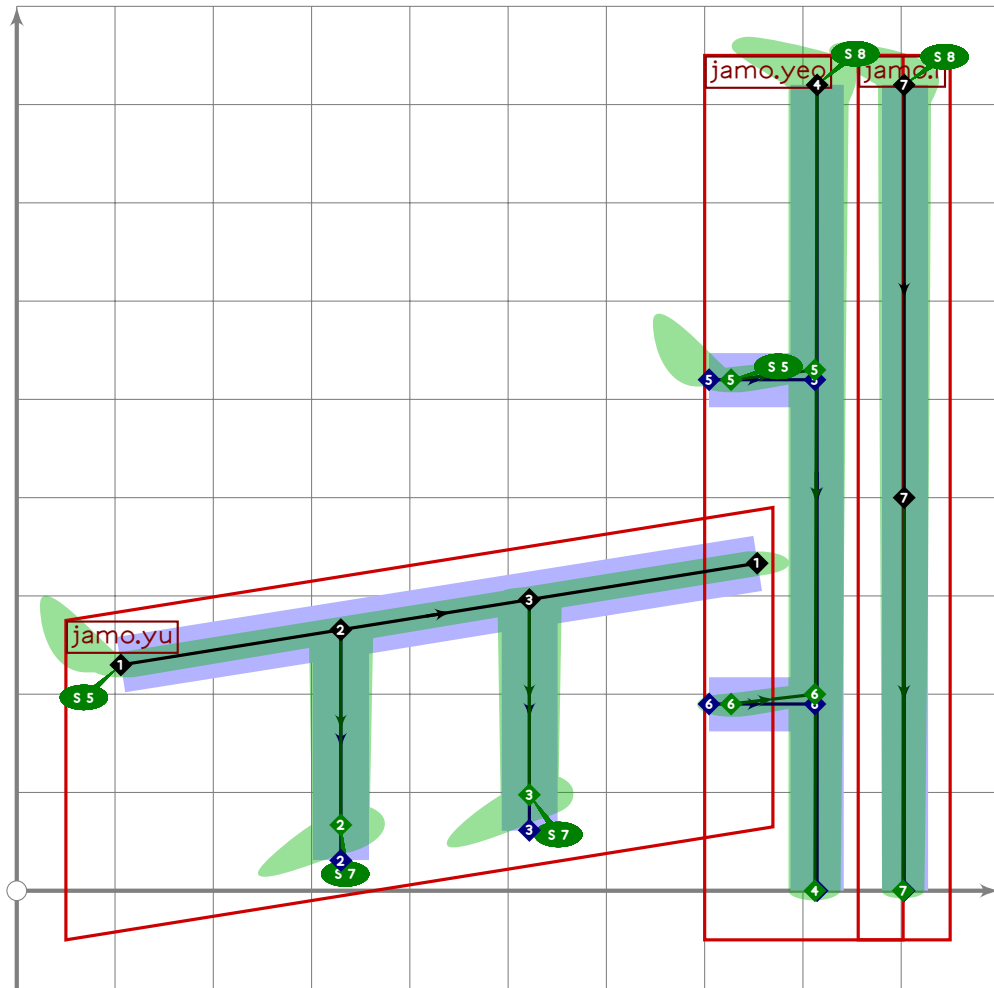
```



```

930 % hangul vowel yu-yeo
931 begint Suglyph("uni1191.nt";145);
932 hangul.combine.lr(317,306)(424,vixf,voxf);
933 tsu_render;
934 endtsuglyph;
935

```

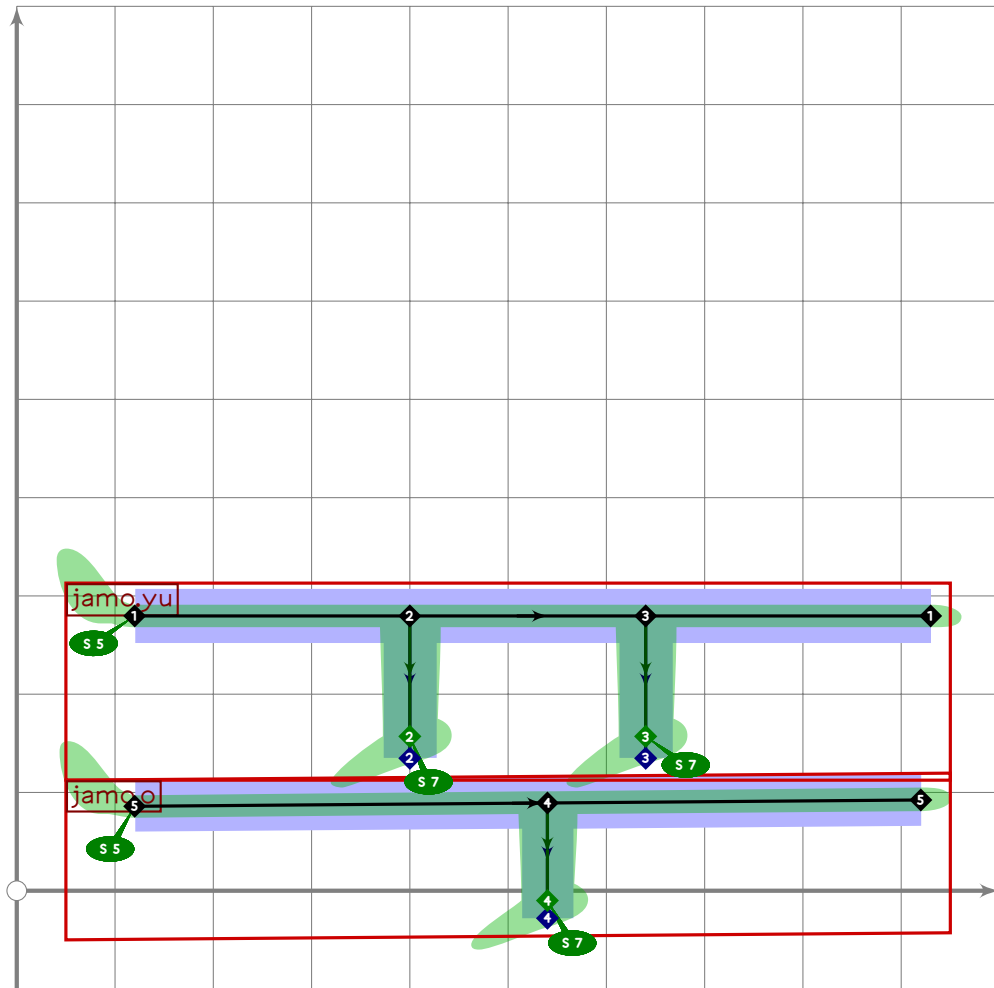


```

936 % hangul vowel yu-ye
937 begint Suglyph("uni1192.nt",146);
938 hangul.combine.lr(317,307)(425,vixf,voxf);
939 tsu_render;
940 endtsuglyph;
941

```

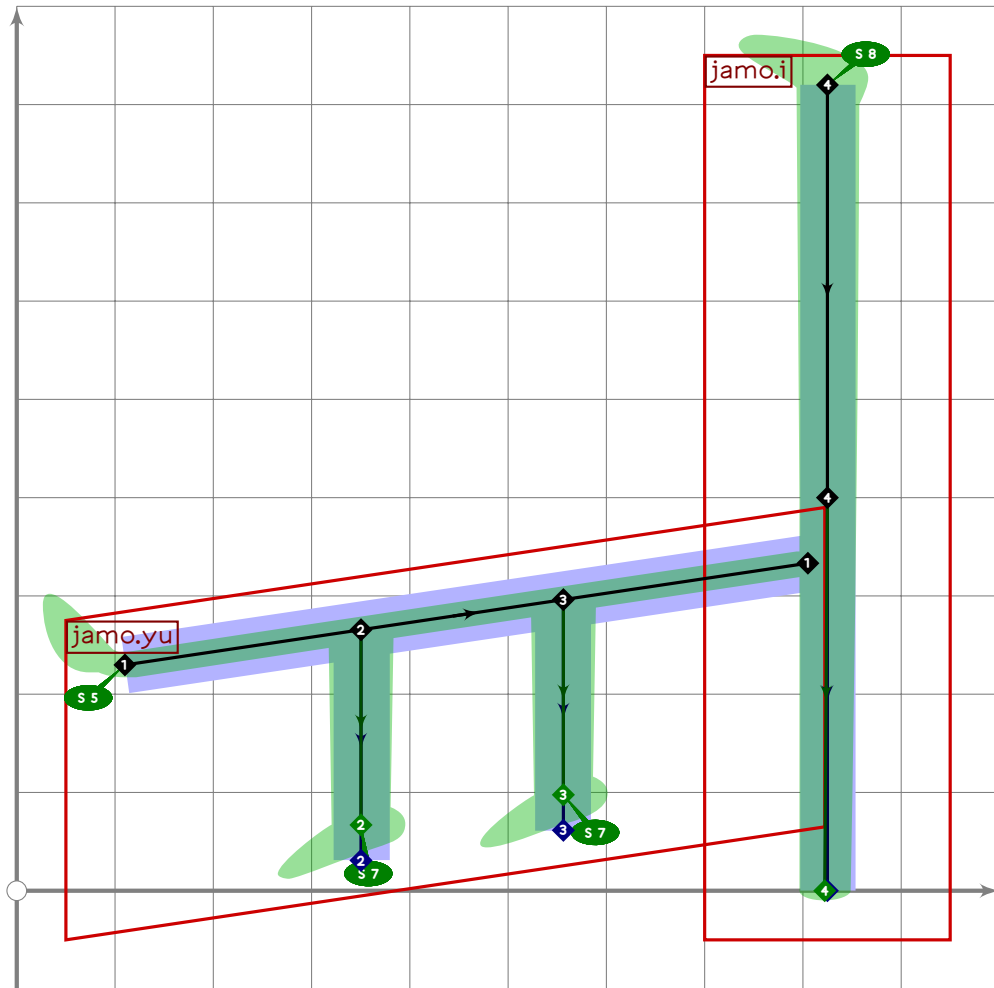




```

942 % hangul vowel yu-u
943 begint Suglyph("uni1193.nt",147);
944 hangul.combine.tb(317,313)(whatever,vixf,voxf);
945 tsu_render;
946 endtsuglyph;
947

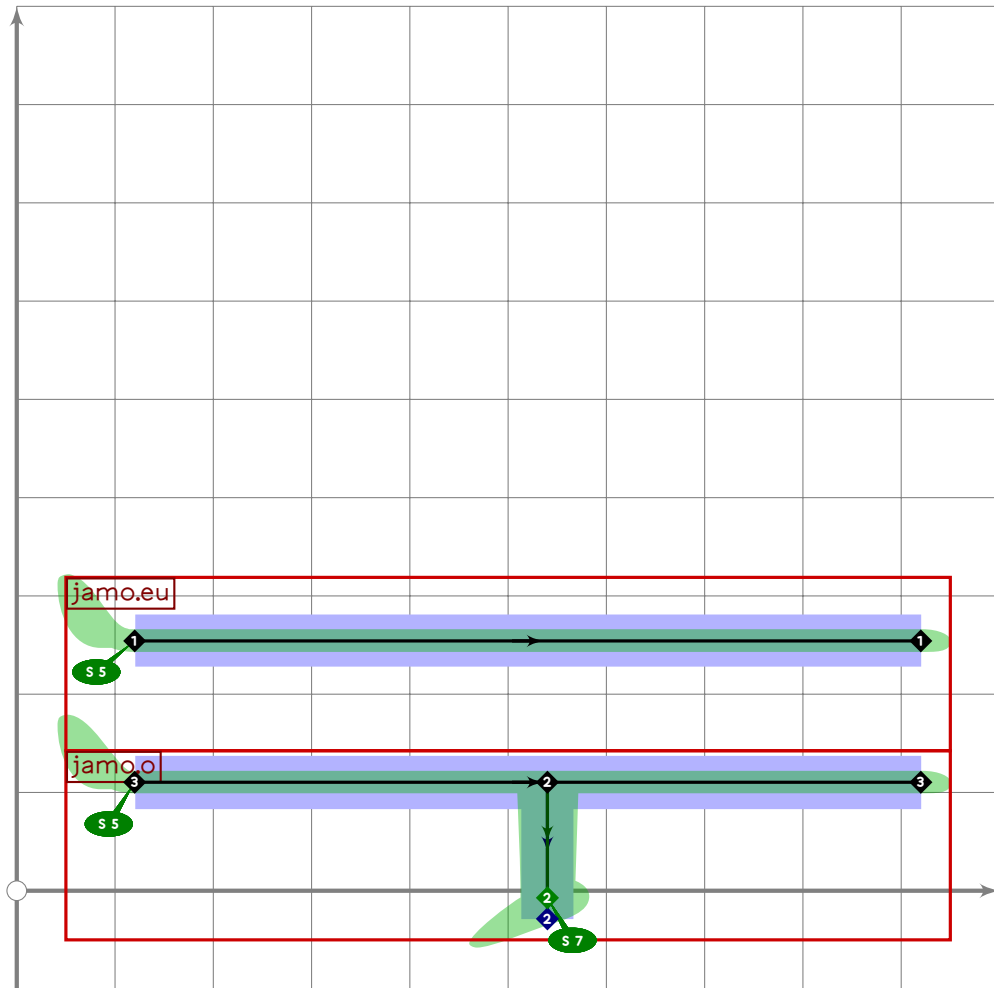
```



```

948 % hangul vowel yu-i
949 begint Suglyph("uni1194.nt",148);
950 hangul.combine.lr(317,320)(426,vixf,voxf);
951 tsu_render;
952 endsuglyph;
953

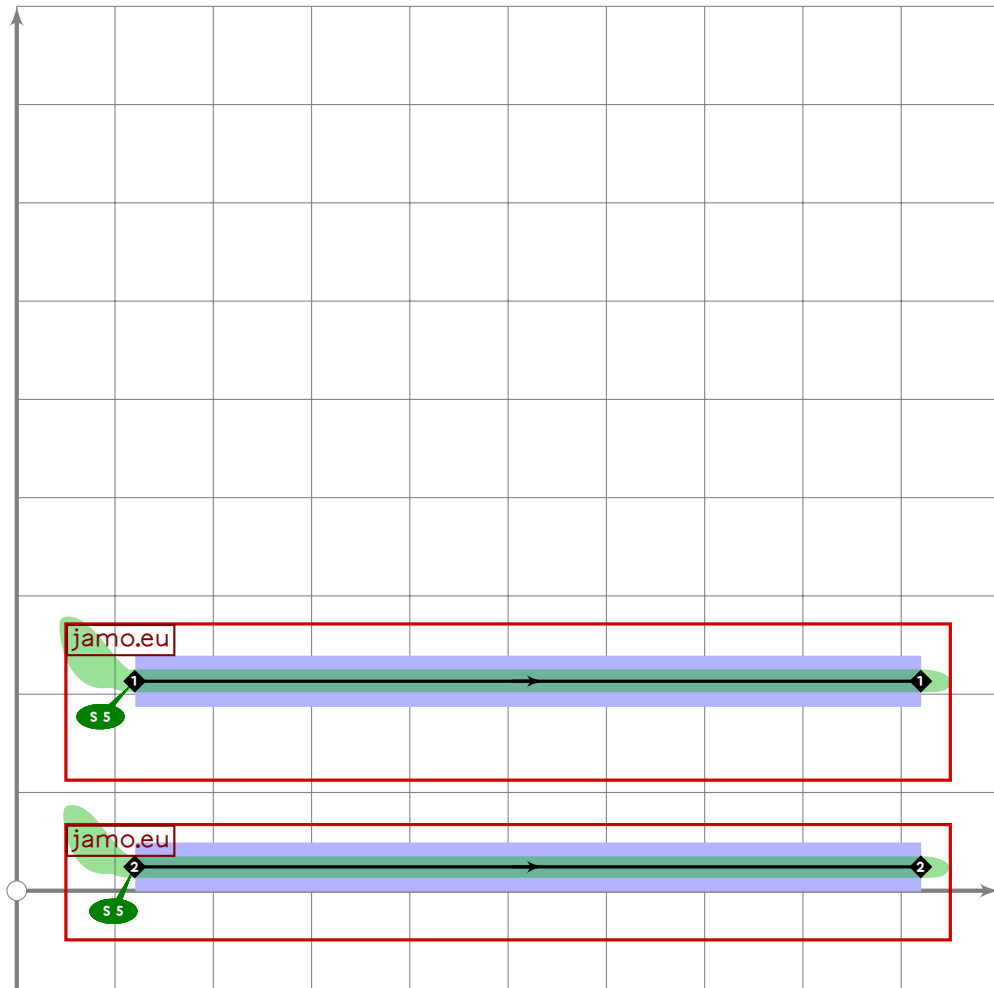
```



```

954 % hangul vowel eu-u
955 begint Suglyph("uni1195.nt",149);
956 hangul.combine.tb(318,313)(whatever,tvixf,voxf);
957 tsu_render;
958 endtsuglyph;
959

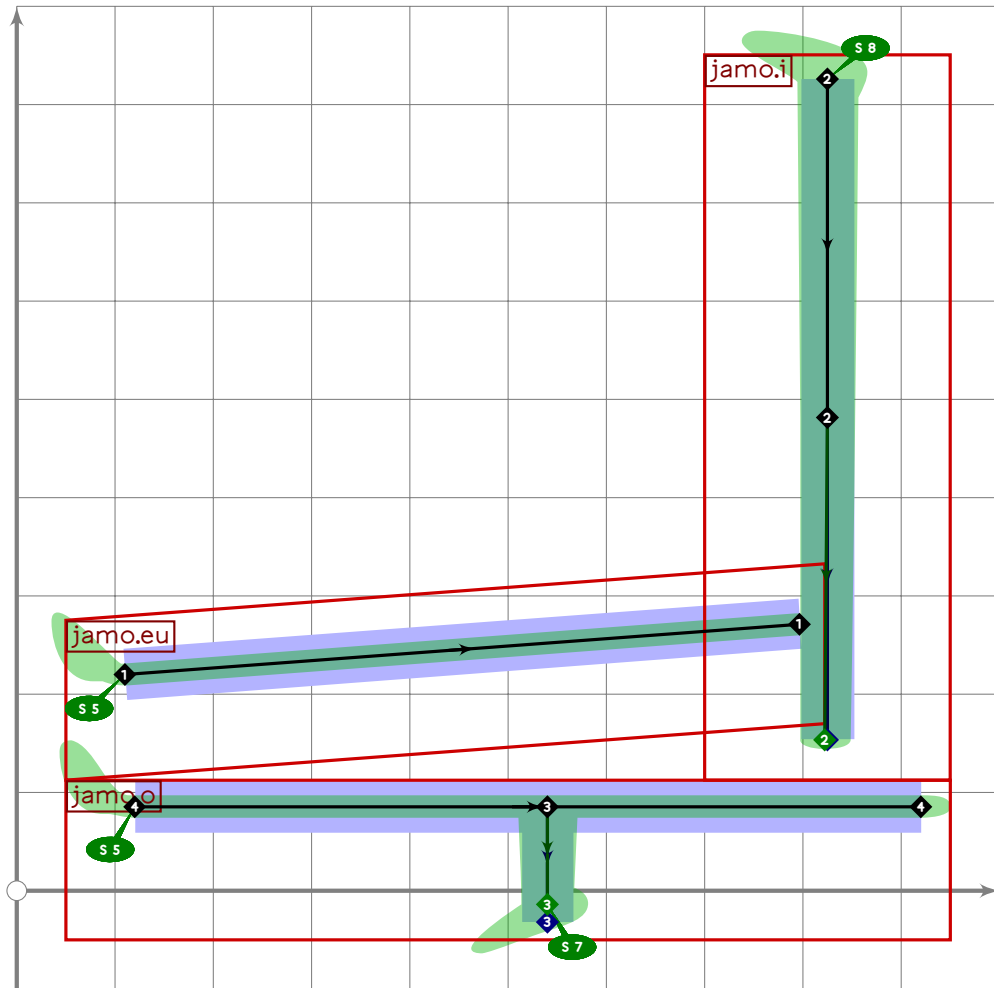
```



```

960 % hangul vowel eu-eu
961 begint Suglyph("uni1196.nt",150);
962 hangul.combine.tb(318,318)(whatever,vixf,voxf);
963 tsu_render;
964 endtsuglyph;
965

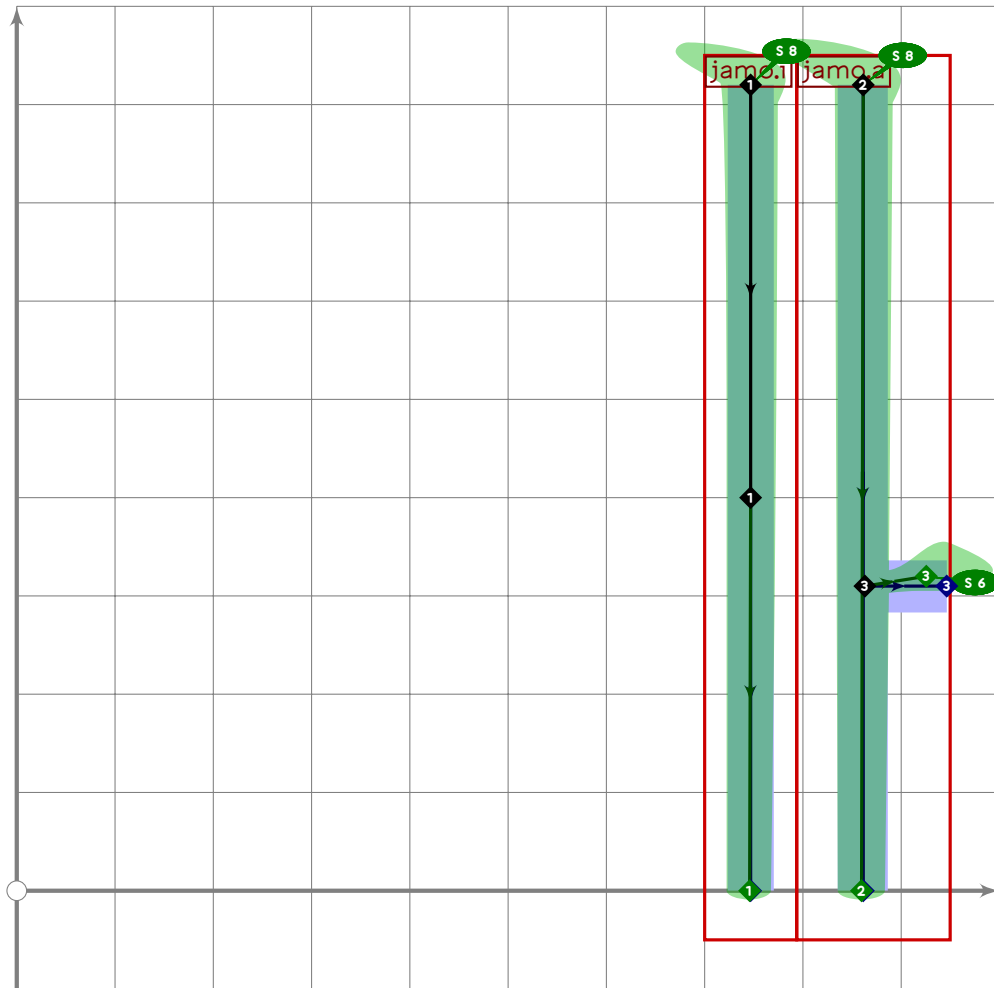
```



```

966 % hangul vowel yi-u
967 begint Suglyph("uni1197.nt",151);
968 hangul.combine.tb(319,313)(440,vixf,voxf);
969 tsu_render;
970 endtsuglyph;
971

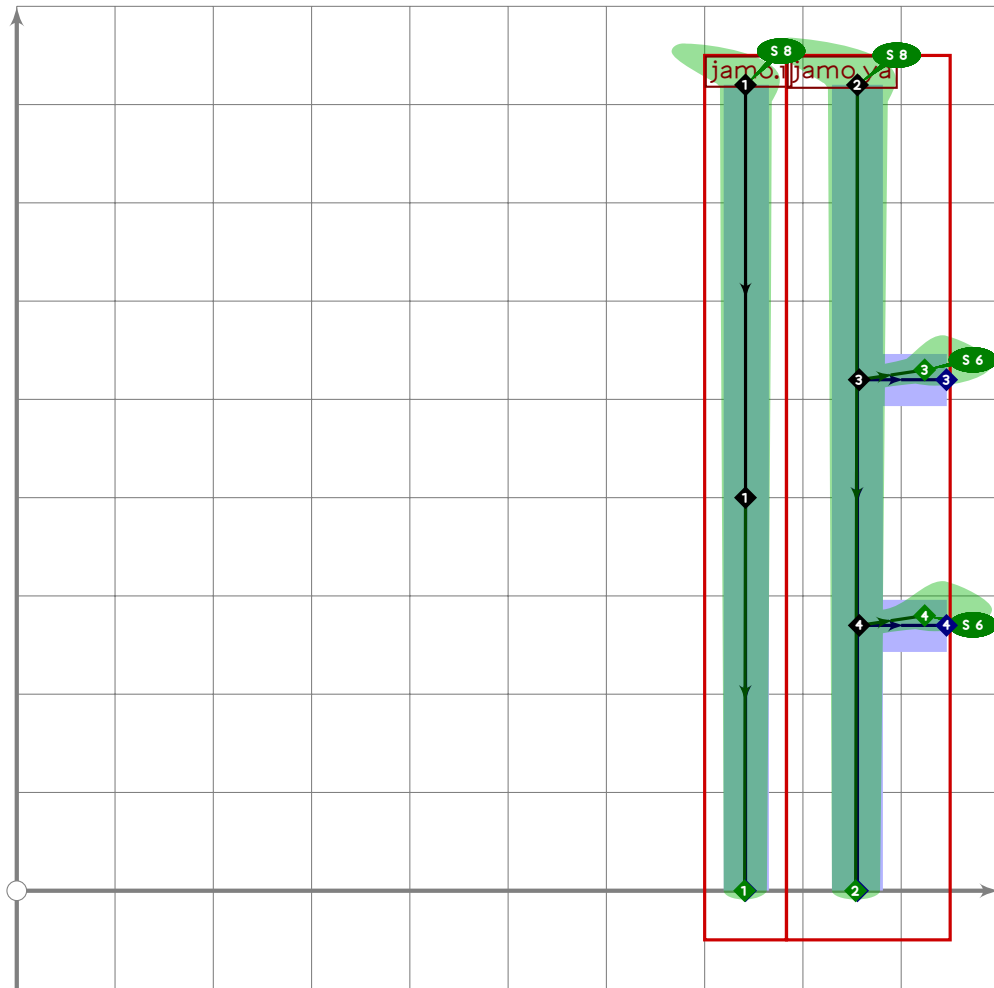
```



```

972 % hangul vowel i-a
973 begintsuglyph("uni1198.nt",152);
974 hangul.combine.lr(320,300)(whatever,vixf,voxf);
975 tsu_render;
976 endsuglyph;
977

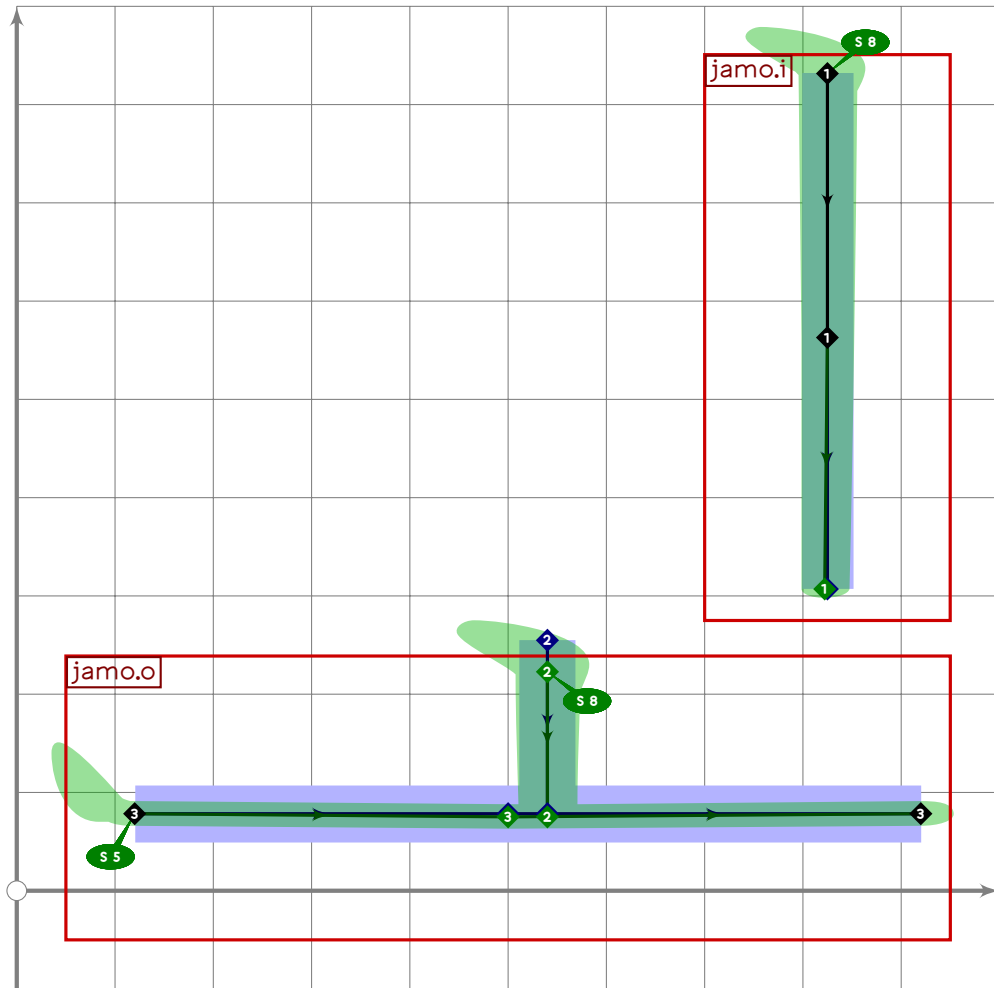
```



```

978 % hangul vowel i-ya
979 begintsuglyph("uni1199.nt",153);
980 hangul.combine.lr(320,302)(whatever,vixf,voxf);
981 tsu_render;
982 endsuglyph;
983

```

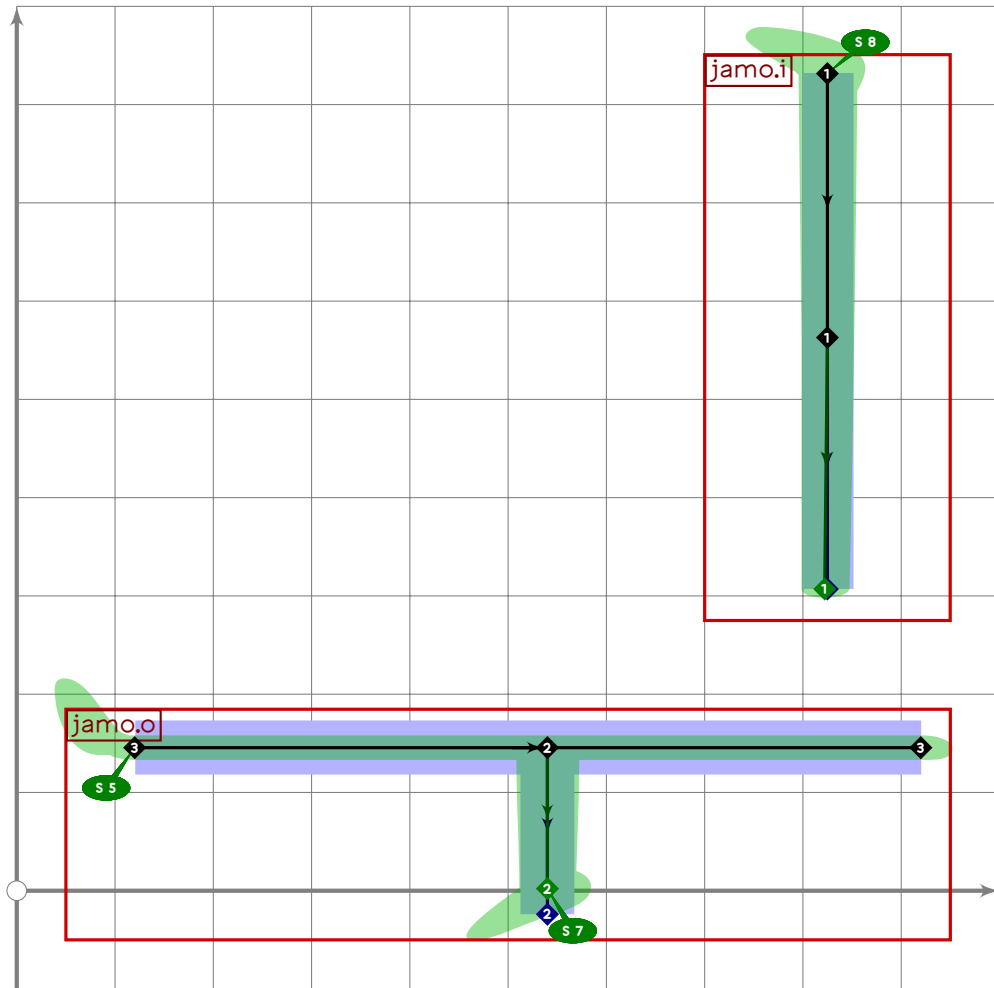


```

984 % hangul vowel i-o
985 begint Suglyph("uni119A.nt",154);
986 hangul.combine.tb(320,308)(whatever,vixf,voxf);
987 tsu_render;
988 endtsuglyph;
989

```

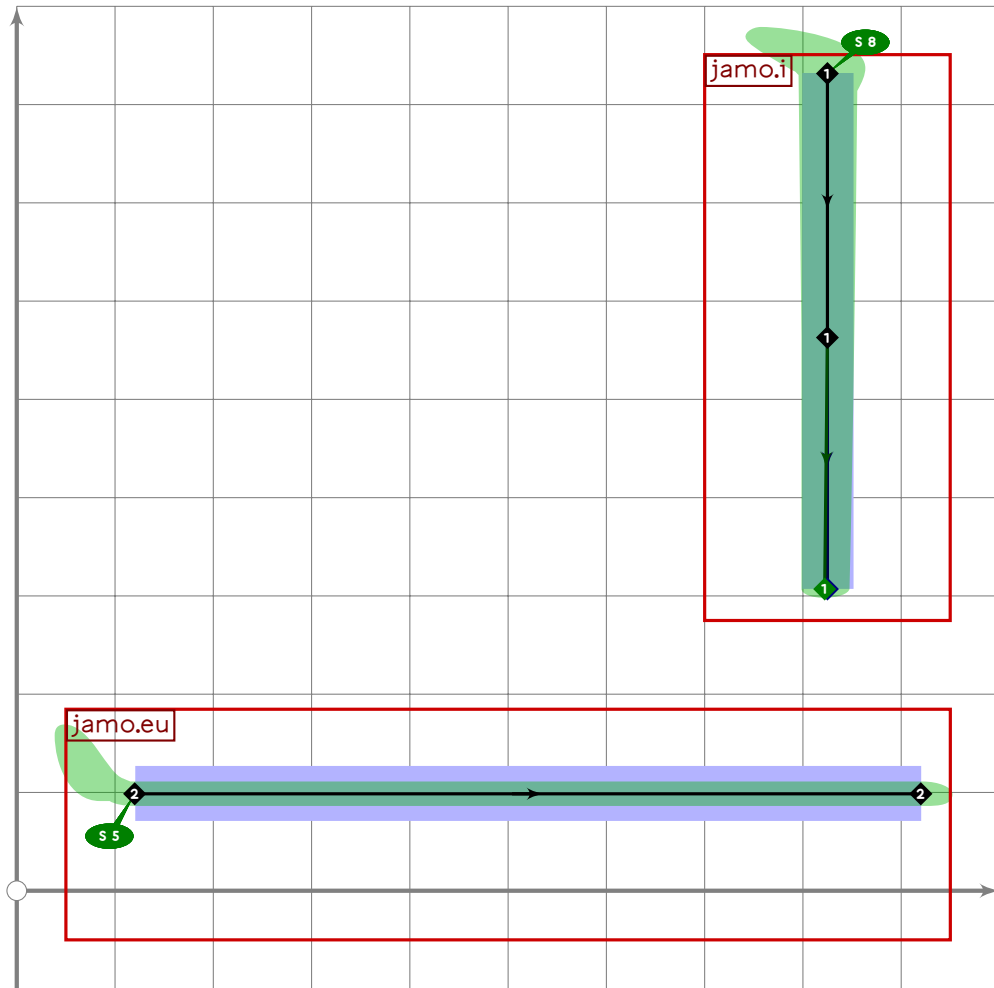




```

990 % hangul vowel i-u
991 begint Suglyph("uni119B.nt",155);
992 hangul.combine.tb(320,313)(whatever,vixf,voxf);
993 tsu_render;
994 endsuglyph;
995

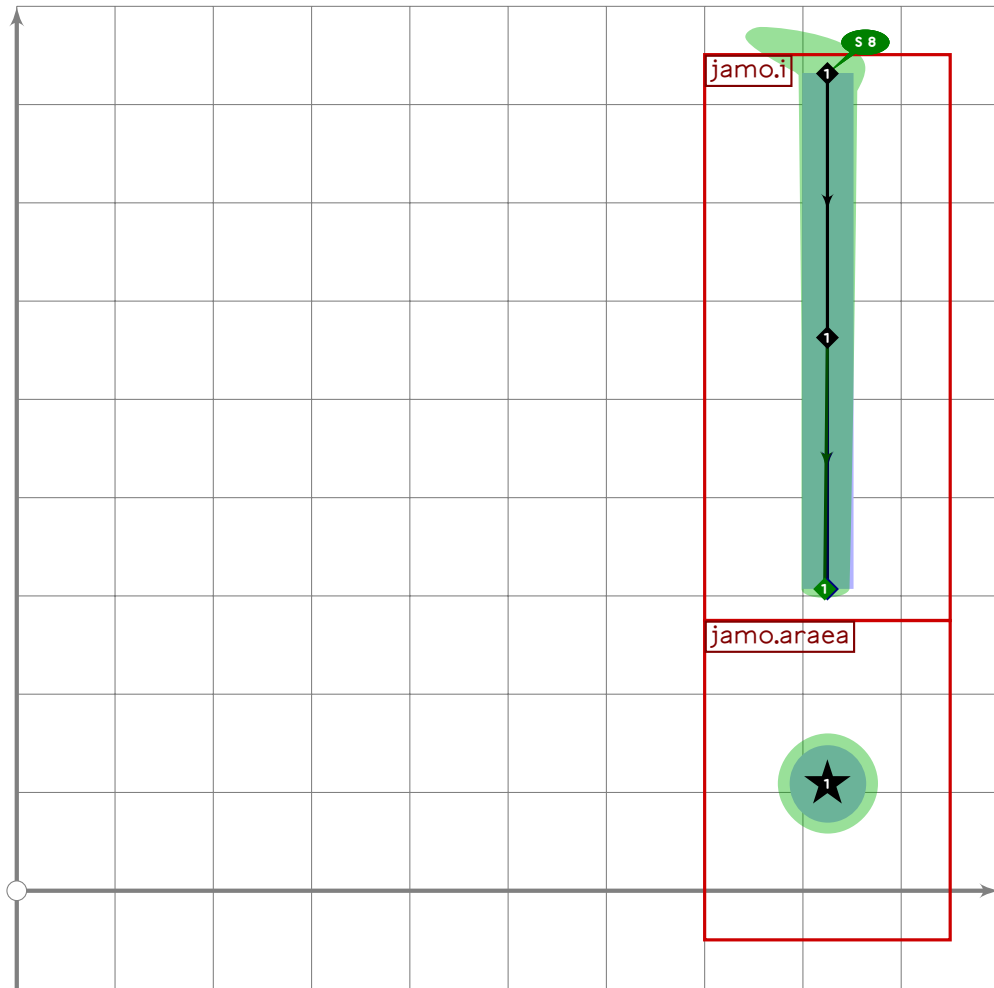
```



```

996 % hangul vowel i-eu
997 begint Suglyph("uni119C.nt",156);
998 hangul.combine.tb(320,318)(whatever,vixf,voxf);
999 tsu_render;
1000 endsuglyph;
1001

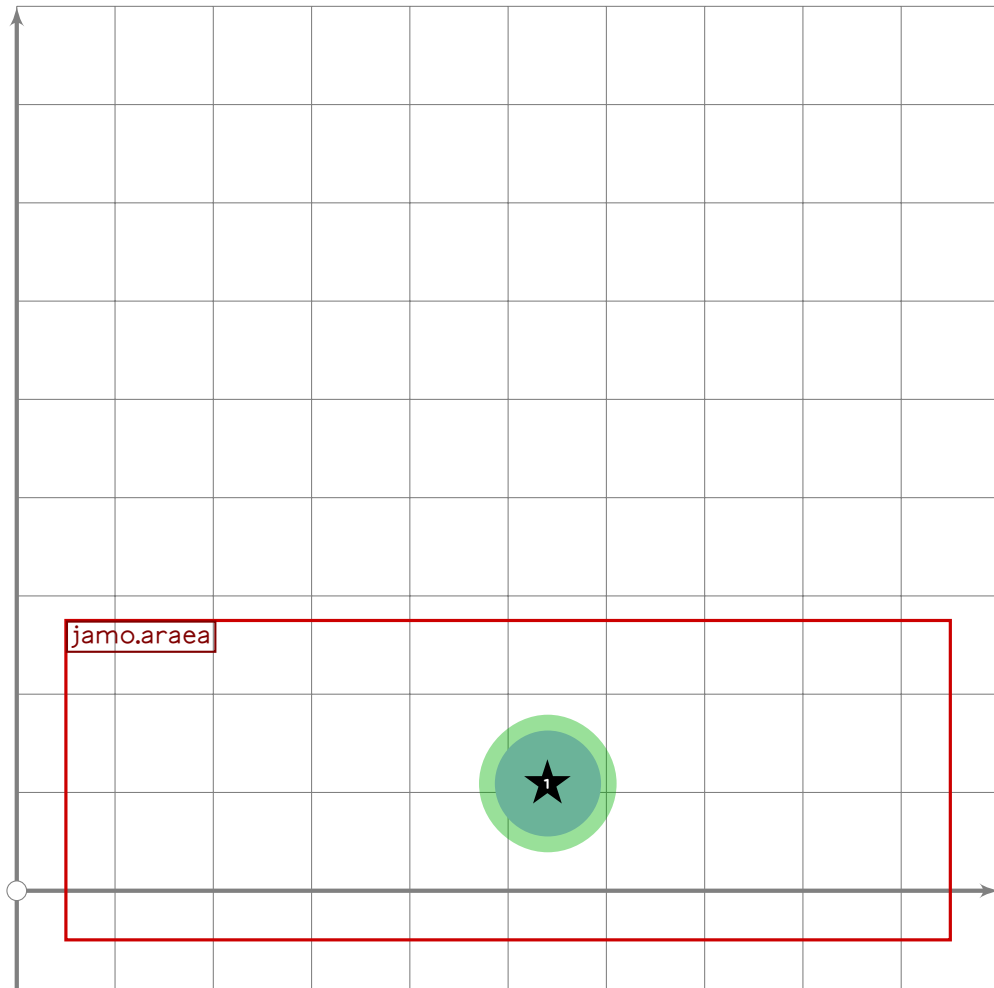
```



```

1002 % hangul vowel i-araea
1003 begintsuglyph("uni119D.nt",157);
1004 hangul.combine.tb(320,428)(441,vixf,voxf);
1005 tsu_render;
1006 endsuglyph;
1007

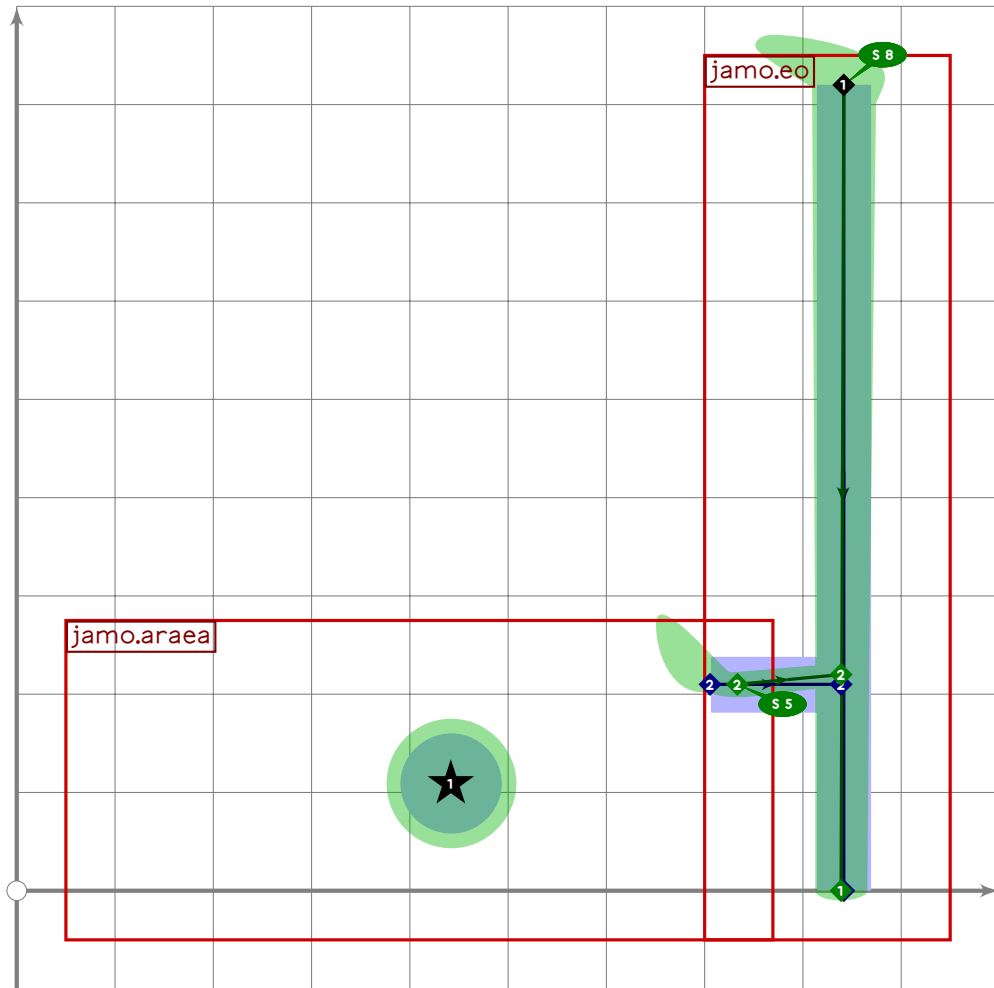
```



```

1008 % hangul vowel araea
1009 begint Suglyph("uni119E.nt",158);
1010 hangul.jamo.araea(428,vixf,voxf);
1011 tsu_render;
1012 endtsuglyph;
1013

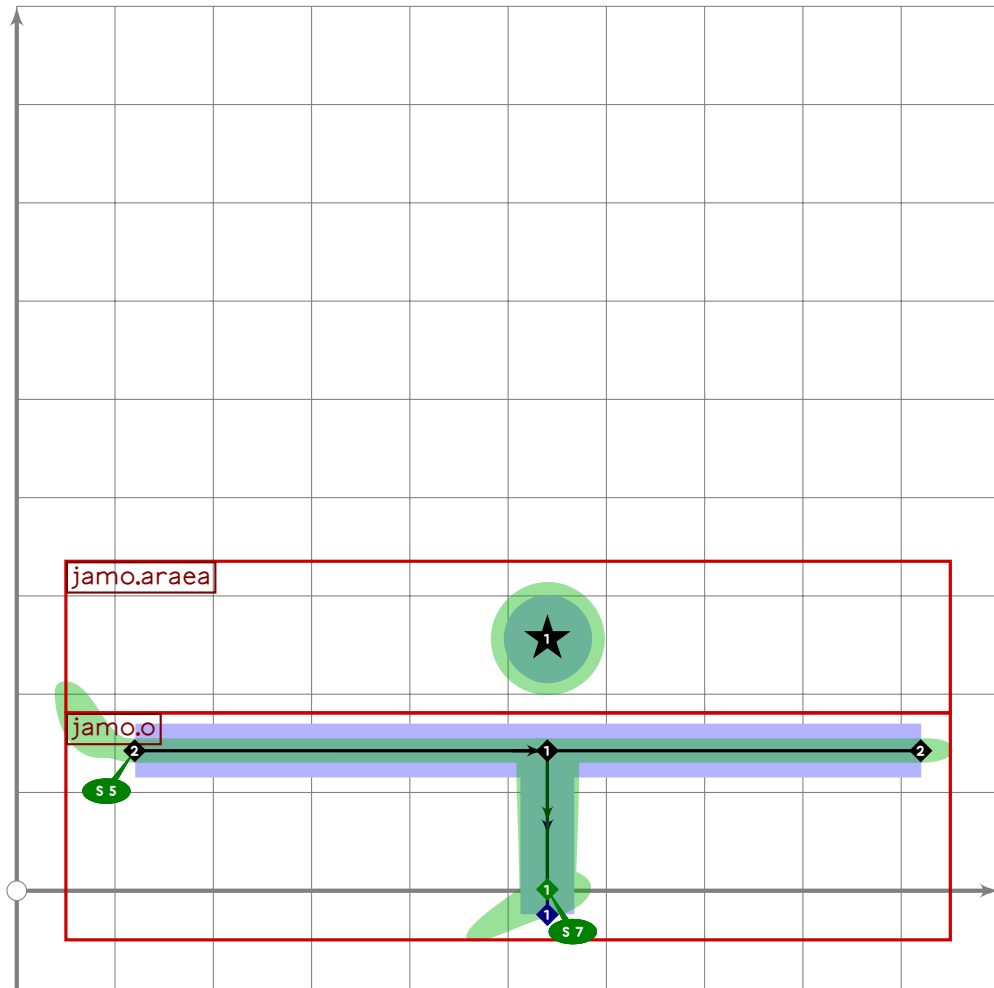
```



```

1014 % hangul vowel araea-eo
1015 begint Suglyph("uni119F.nt",159);
1016 hangul.combine.lr(428,304)(whatever,vixf,voxf);
1017 tsu_render;
1018 endtsuglyph;
1019

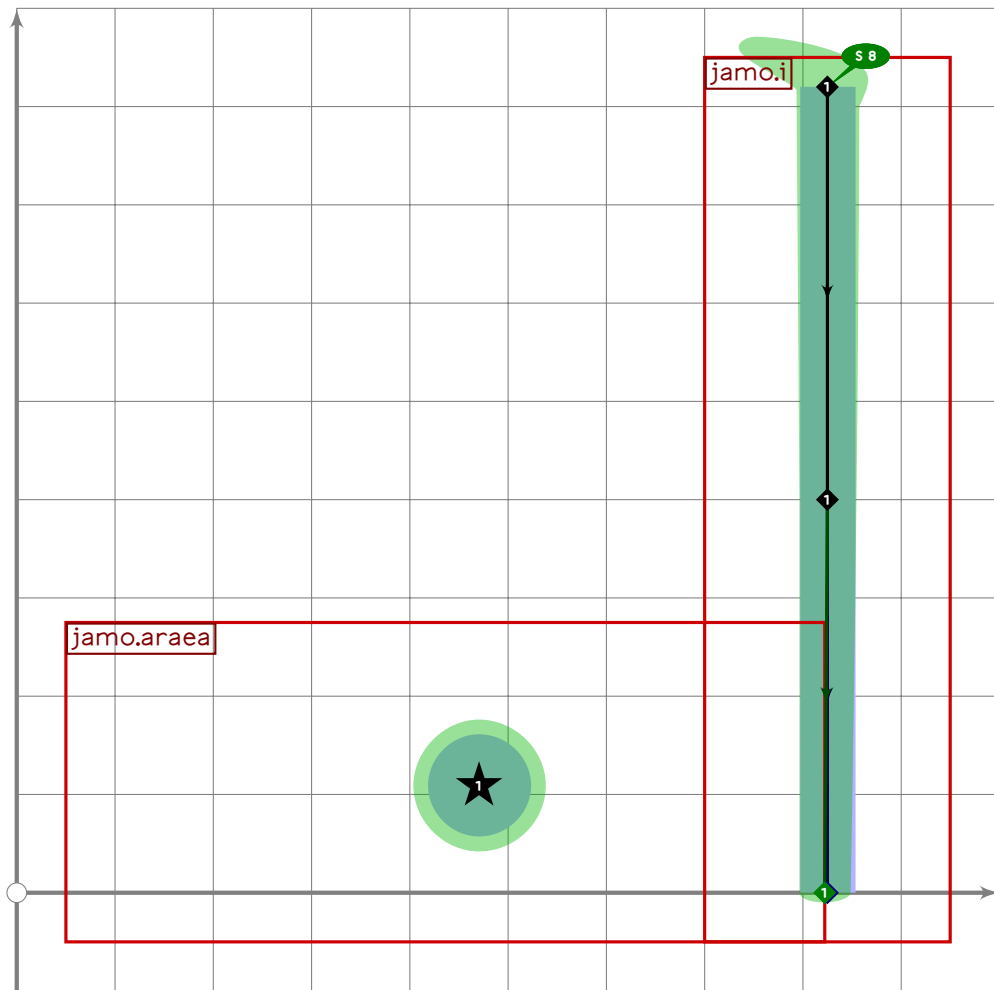
```



```

1020 % hangul vowel araea-u
1021 begint Suglyph("uni11A0.nt",160);
1022 hangul.combine.tb(428,313)(whatever,tvixf,voxf);
1023 tsu_render;
1024 endtsuglyph;
1025

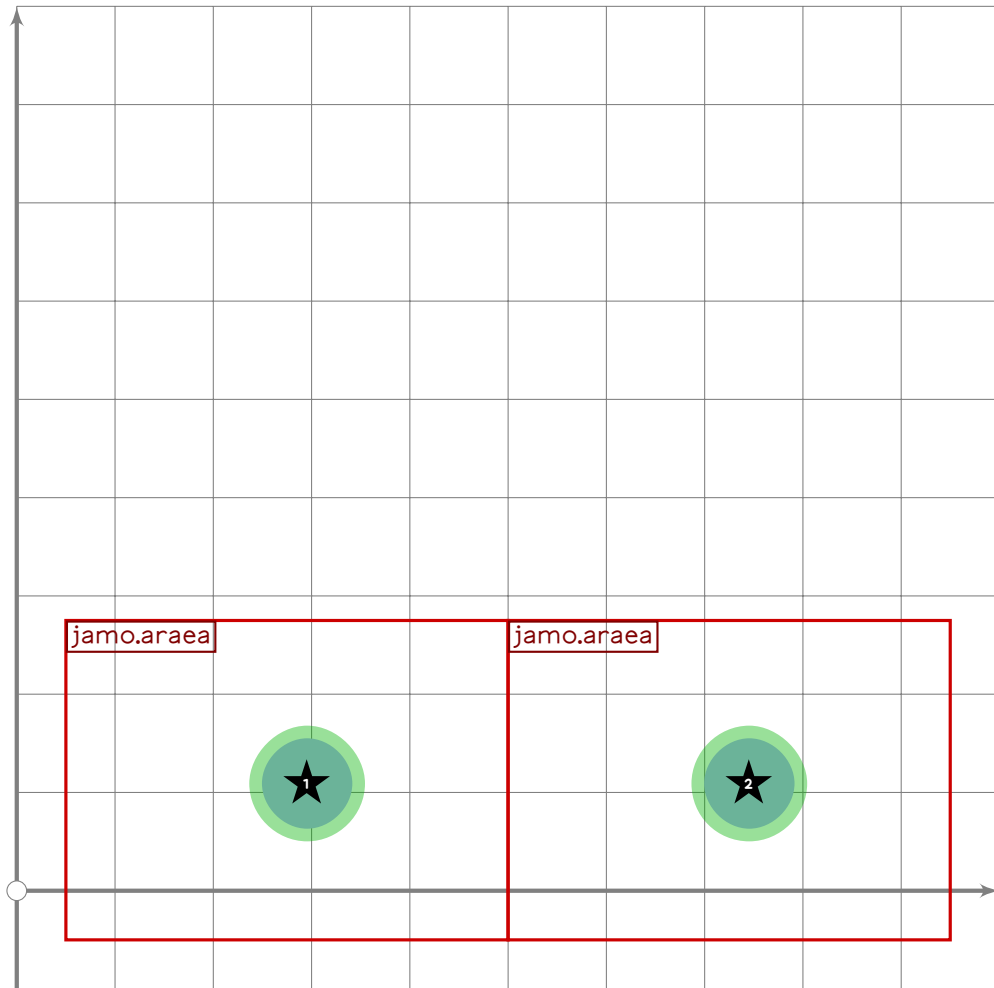
```



```

1026 % hangul vowel araea-i
1027 begintsuglyph("uni11A1.nt",161);
1028 hangul.combine.lr(428,320)(427,vixf,voxf);
1029 tsu_render;
1030 endsuglyph;
1031

```

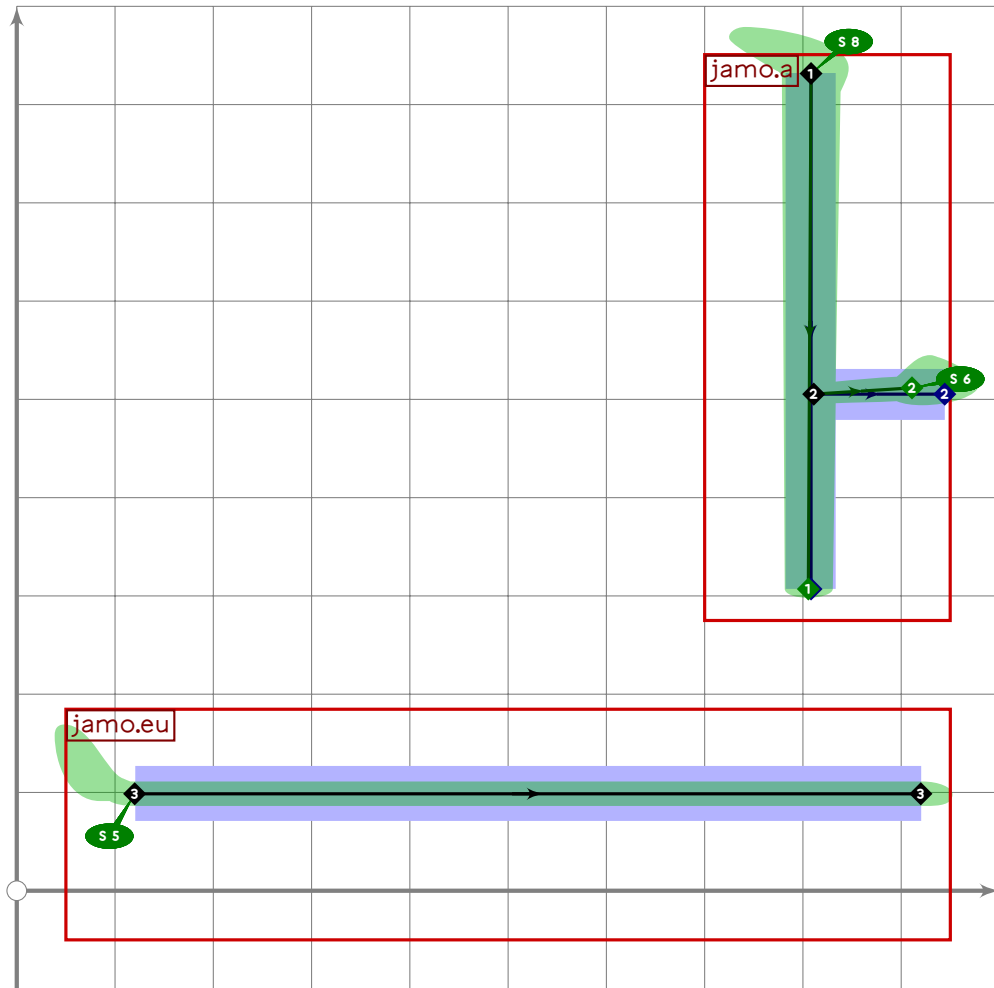


```

1032 % hangul vowel ssangaraea
1033 begintsuglyph("uni11A2.nt",162);
1034 hangul.combine.lr(428,428)(whatever,
1035   hxf_inout(5,vixf,voxf),voxf);
1036 tsu_render;
1037 endsuglyph;
1038

```

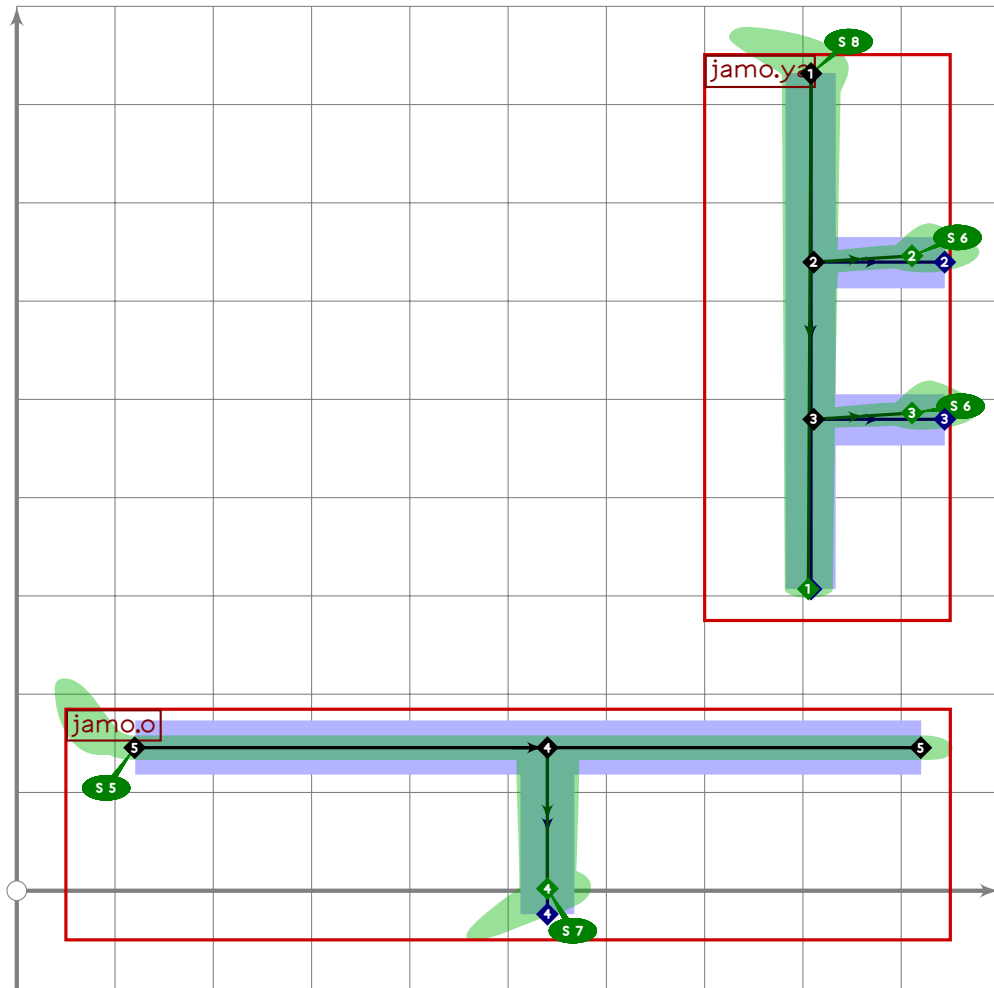




```

1039 % hangul vowel a-eu
1040 begint Suglyph("uni11A3.nt",163);
1041 hangul.combine.tb(300,318)(whatever,vixf,vox);
1042 tsu_render;
1043 endtsuglyph;
1044

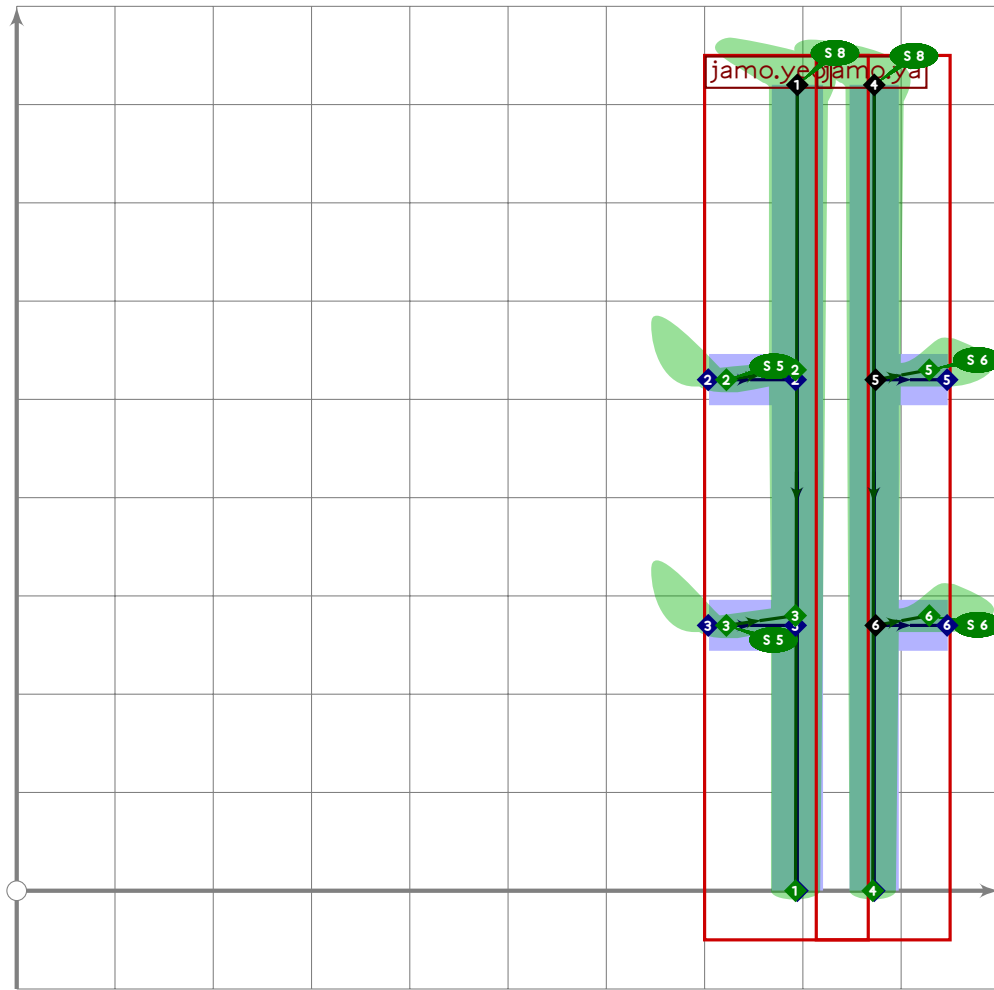
```



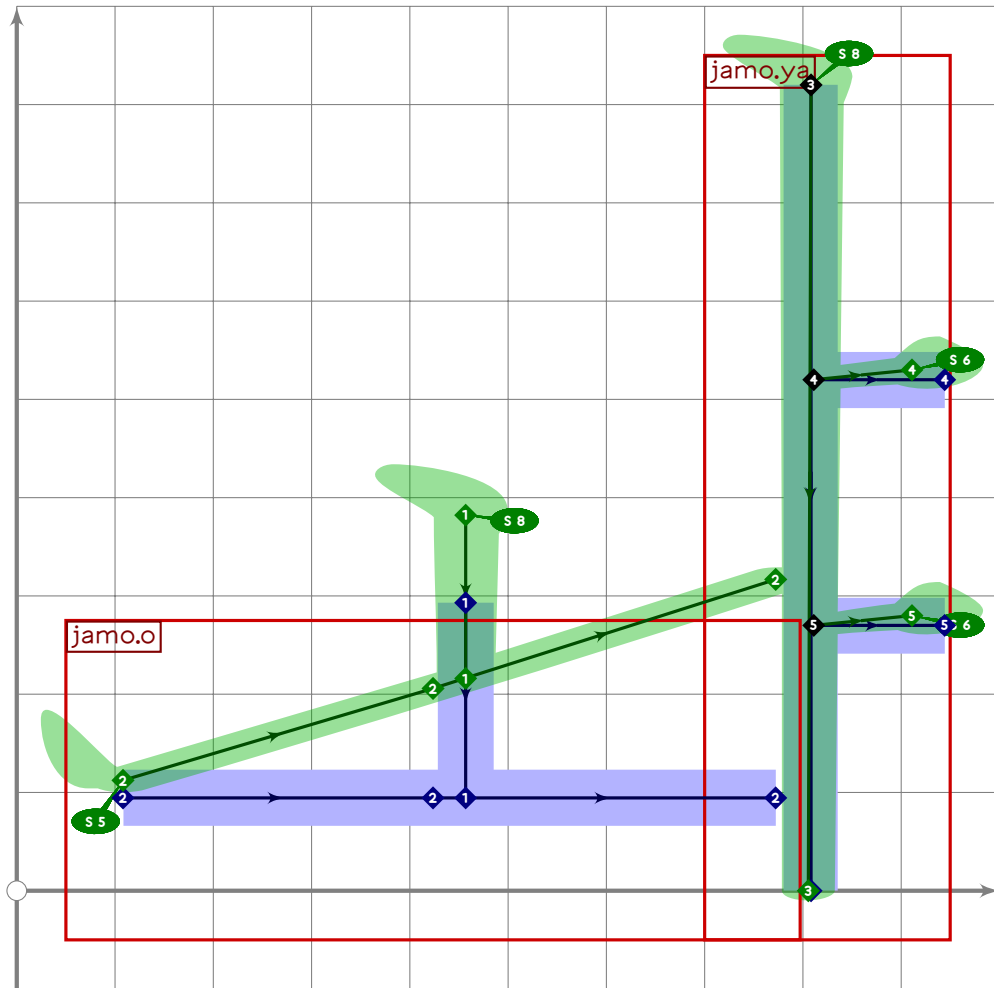
```

1045 % hangul vowel ya-u
1046 begintuglyph("uni11A4.nt",164);
1047 hangul.combine.tb(302,313)(whatever,vixf,voxf);
1048 tsu_render;
1049 endtuglyph;
1050

```



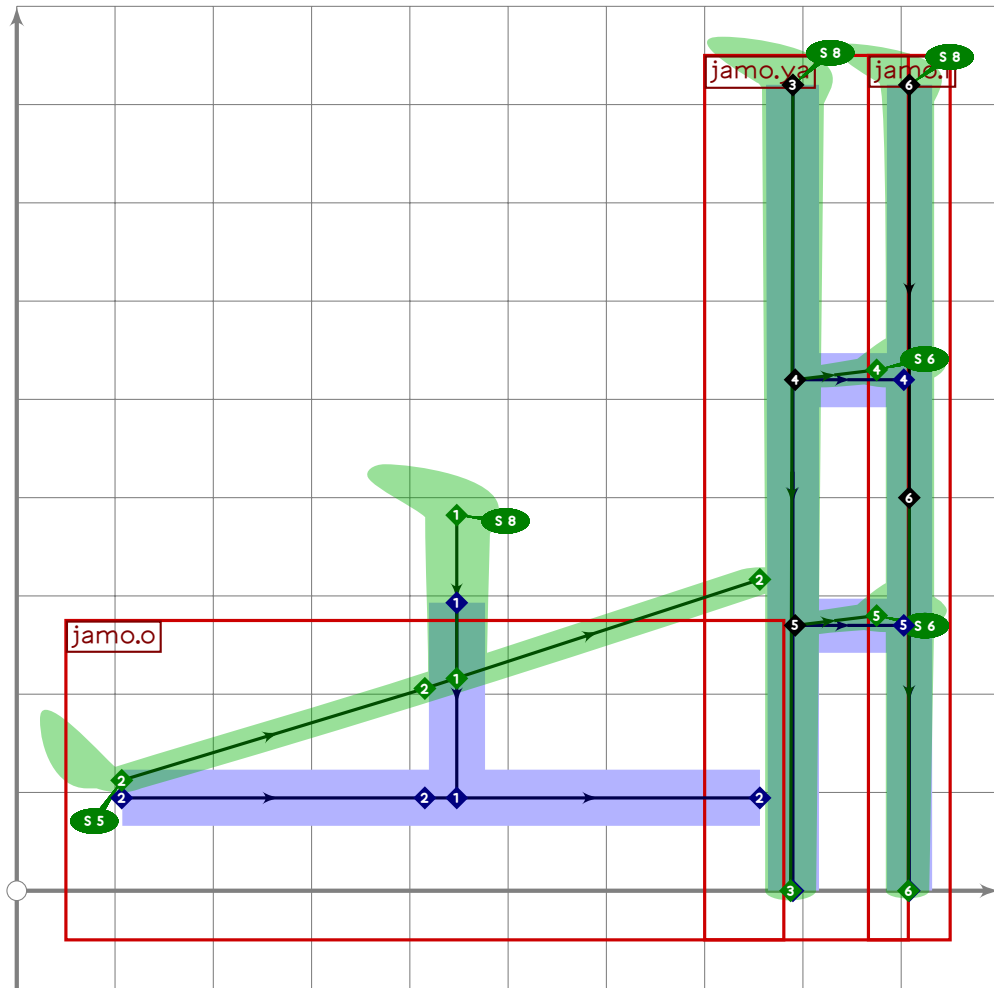
```
1051 % hangul vowel yeo-ya  
1052 begintsuglyph("uni11A5.nt",165);  
1053 hangul.combine.lr(306,302)(whatever,vixf,vox);  
1054 tsu_render;  
1055 endsuglyph;  
1056
```



```

1057 % hangul vowel o-ya
1058 begintsuglyph("uni11A6.nt",166);
1059 hangul.combine.lr(308,302)(442,vixf,voxf);
1060 tsu_render;
1061 endtsuglyph;
1062

```



```

1063 % hangul vowel o-yae
1064 begintsuglyph("uni11A7.nt",167);
1065 hangul.combine.lr(308,303)(443,vixf,voxf);
1066 tsu_render;
1067 endtsuglyph;
1068
1069 _____
1070
1071 endfont;
1072
1073 _____

```

# jieub-ff3.mp

```
1 %
2 % Unicode page FF3 (alternate lead jamo) for Jieubsida
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input hangul.mp;
37 input jamo-basic.mp;
38 input jamo-extra.mp;
39
40 

---

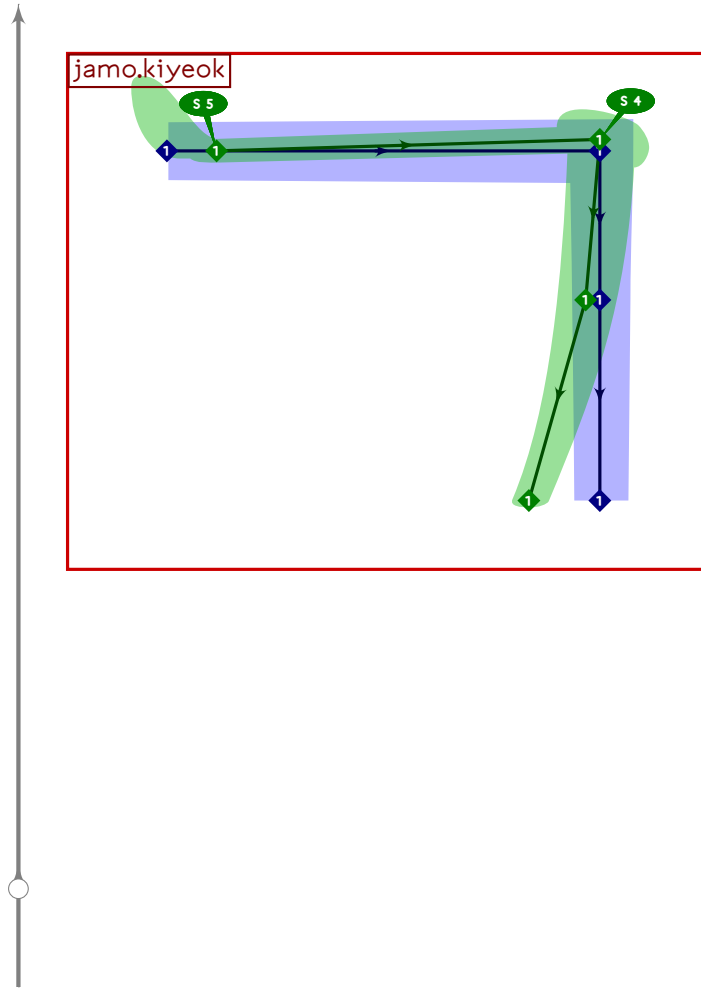

41
42 % This file contains leads for layouts 1 and 3: vertical vowel and nonempty
43 % tail, or vertical and horizontal vowel with empty tail.
44
45 transform lixf,loxf;
46
47 lixf=loxf=hxf((50,850),(700,325));
48
49 

---


50
```

## Hangul Choseong (Lead) Jamo

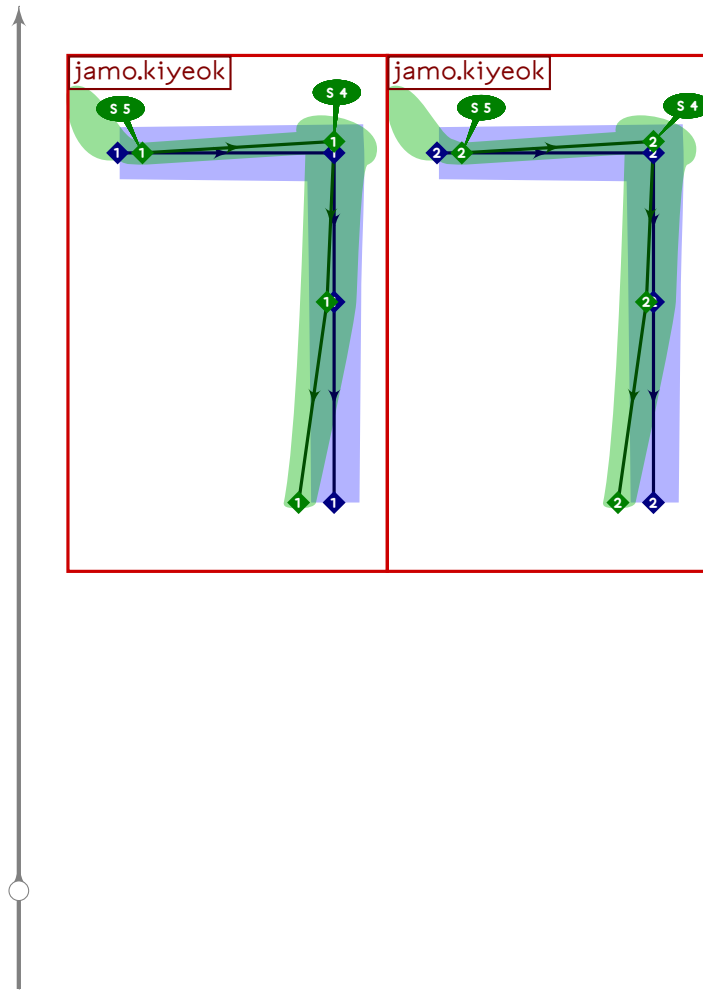
```
51 % HANGUL CHOSEONG (LEAD) JAMO
52
53 tsu_rescale_native_zero;
54
```



```

55 % hangul lead kiyook
56 begintsuglyph("uni1100.l1";0);
57 hangul.jamo.kiyook(whatever,lixf,loxf);
58 tsu_render;
59 endtsuglyph;
60

```

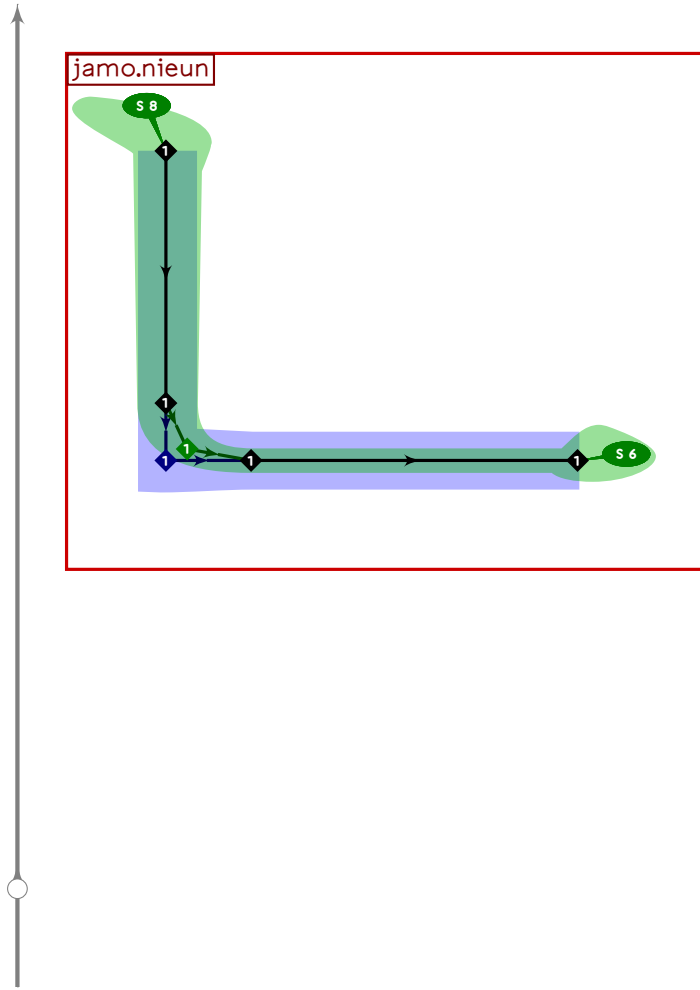


```

61 % hangul lead ssangkiyeok
62 begint Suglyph("uni1101.l1",1);
63 hangul.combine.lr(100,100)(whatever,lixf,loxf);
64 tsu_render;
65 endtsuglyph;
66

```

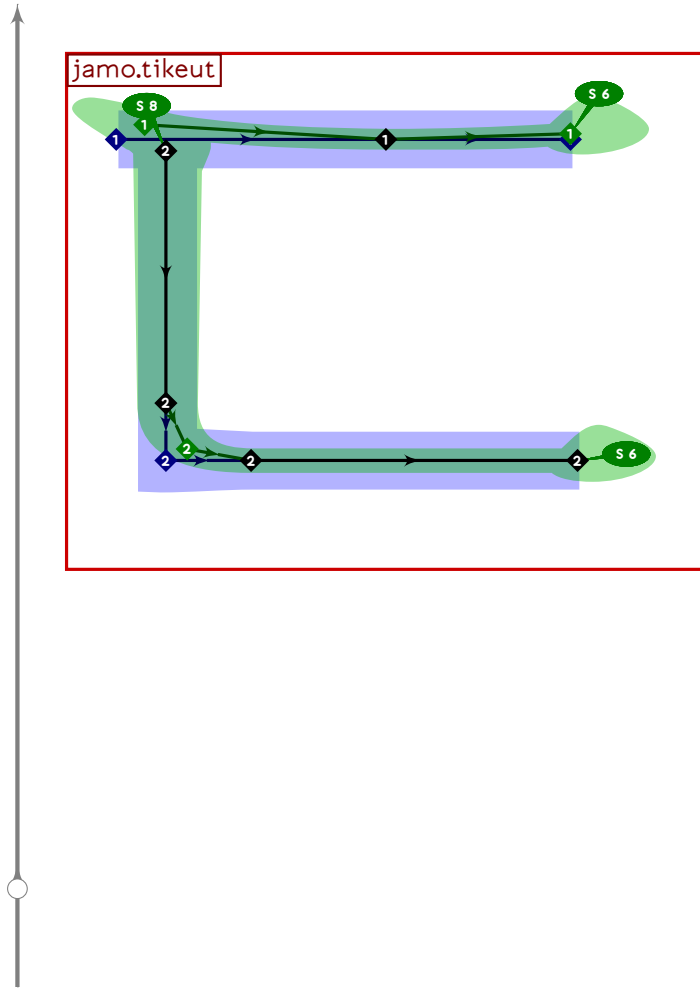




```

67 % hangul lead nieun
68 begint Suglyph("uni1102.l1",2);
69 hangul.jam.o.nieun(whatever,lixf,loxf);
70 tsu_render;
71 endtsuglyph;
72

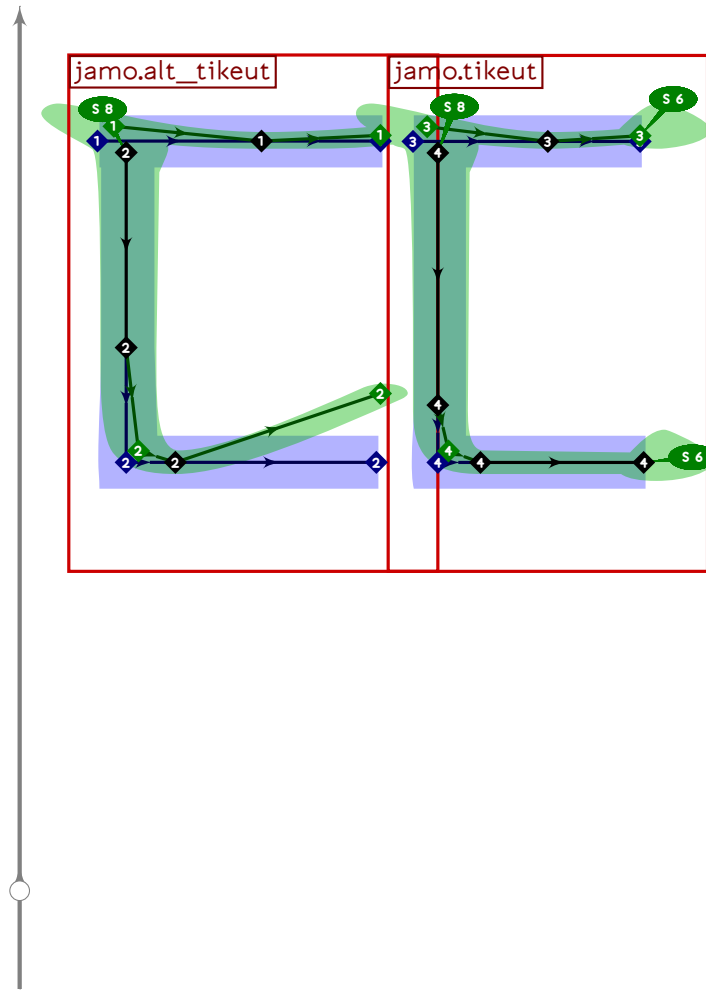
```



```

73 % hangul lead tikeut
74 begintsuglyph("uni1103.l1",3);
75 hangul.jamo.tikeut(whatever,lixf,loxf);
76 tsu_render;
77 endsuglyph;
78

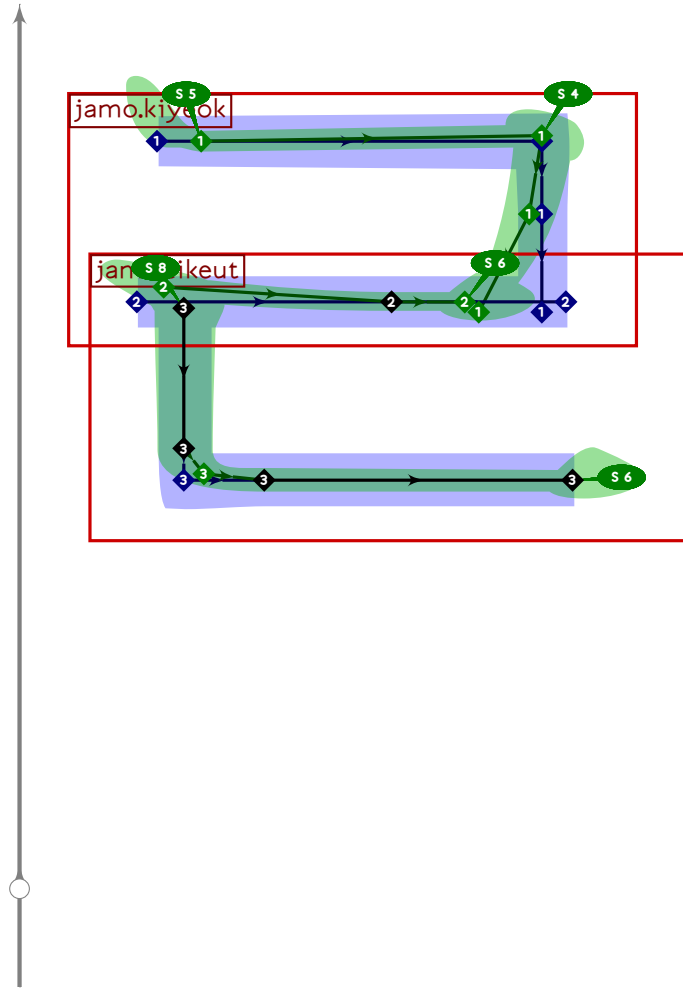
```



```

79 % hangul lead ssangtikeut
80 begintsuglyph("uni1104.l1";4);
81 hangul.combine.lr(203,103)(whatever,lixf,loxf);
82 tsu_render;
83 endtsuglyph;
84

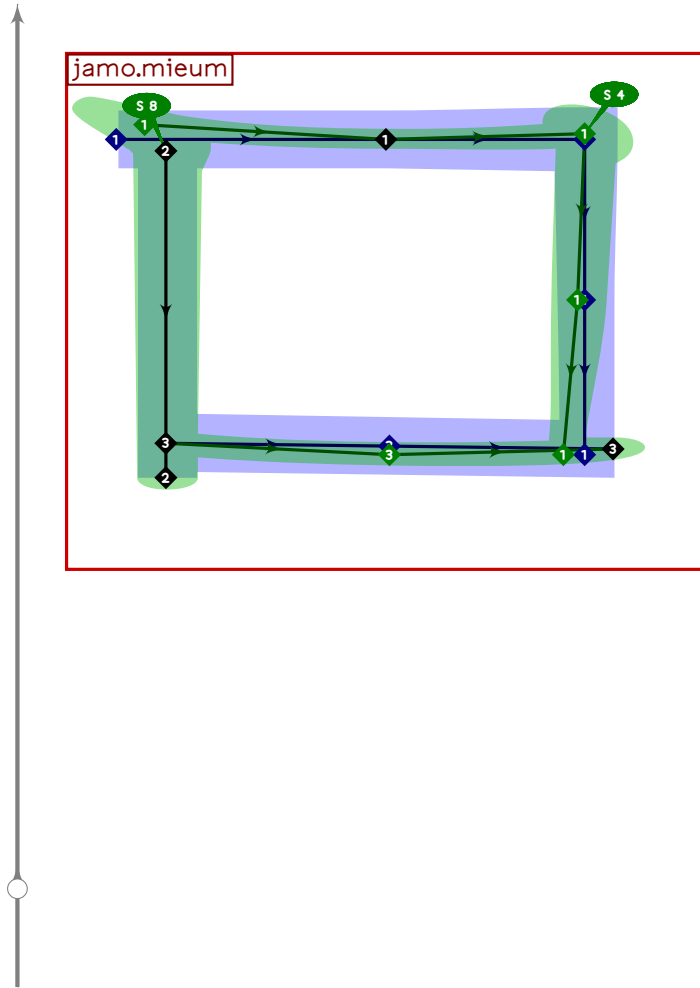
```



```

85 % hangul lead rieu
86 begintuglyph("uni1105.l1",5);
87 hangul.jamo.rieu(whatever,lixf,loxf);
88 tsu_render;
89 endtuglyph;
90

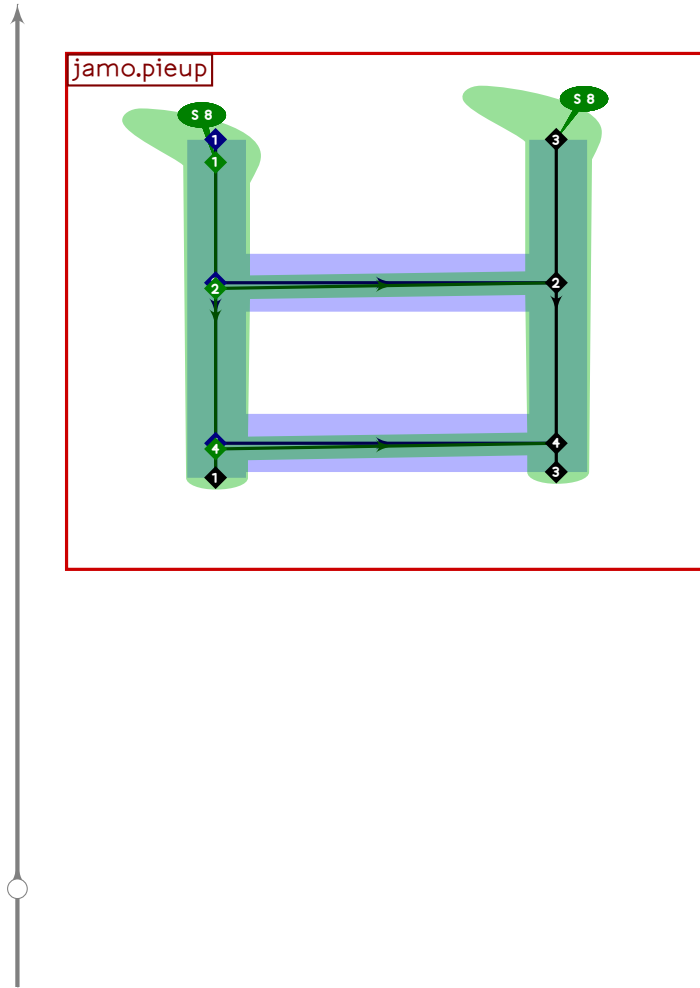
```



```

91 % hangul lead mieum
92 begint Suglyph("uni1106.l1",6);
93 hangul.jamo.mieum(whatever,lixf,loxf);
94 tsu_render;
95 endtsuglyph;
96

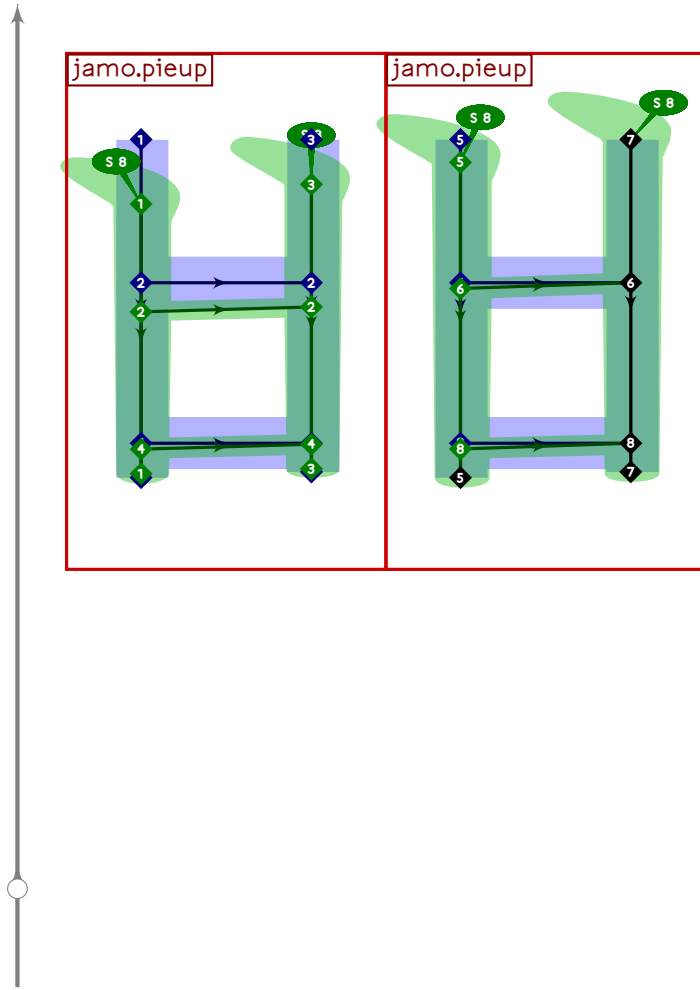
```



```

97 % hangul lead pieup
98 begintsuglyph("uni1107.l1";7);
99 hangul.jamo.pieup(whatever,lixf,loxf);
100 tsu_render;
101 endtsuglyph;
102

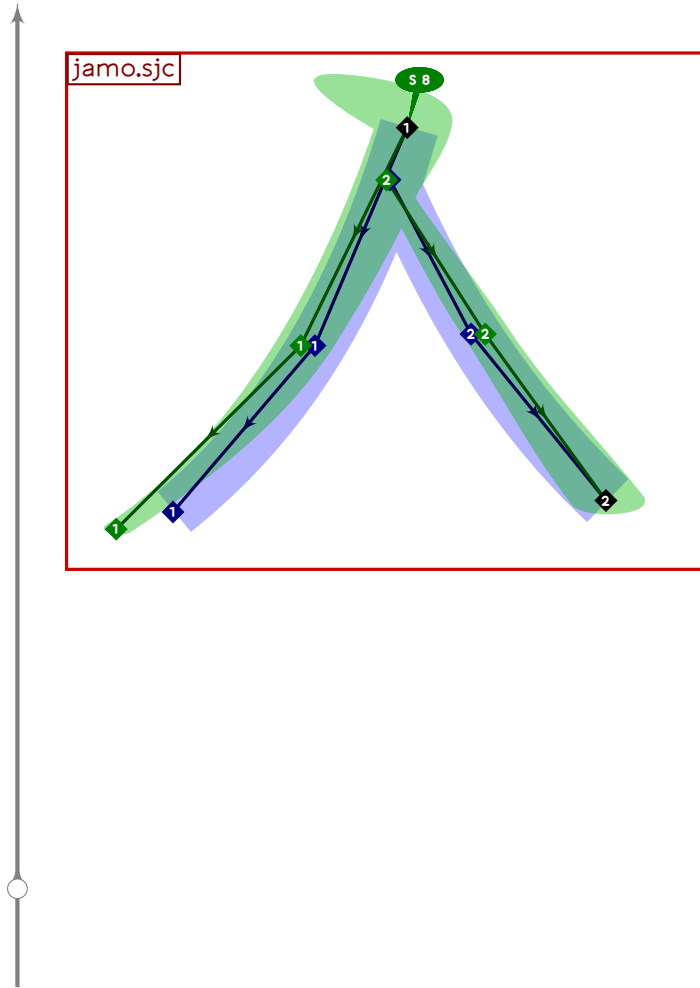
```



```

103 % hangul lead ssangpieup
104 begintsuglyph("uni1108.l1";8);
105 hangul.combine.lr(207,107)(whatever,lixf,loxf);
106 tsu_render;
107 endsuglyph;
108

```

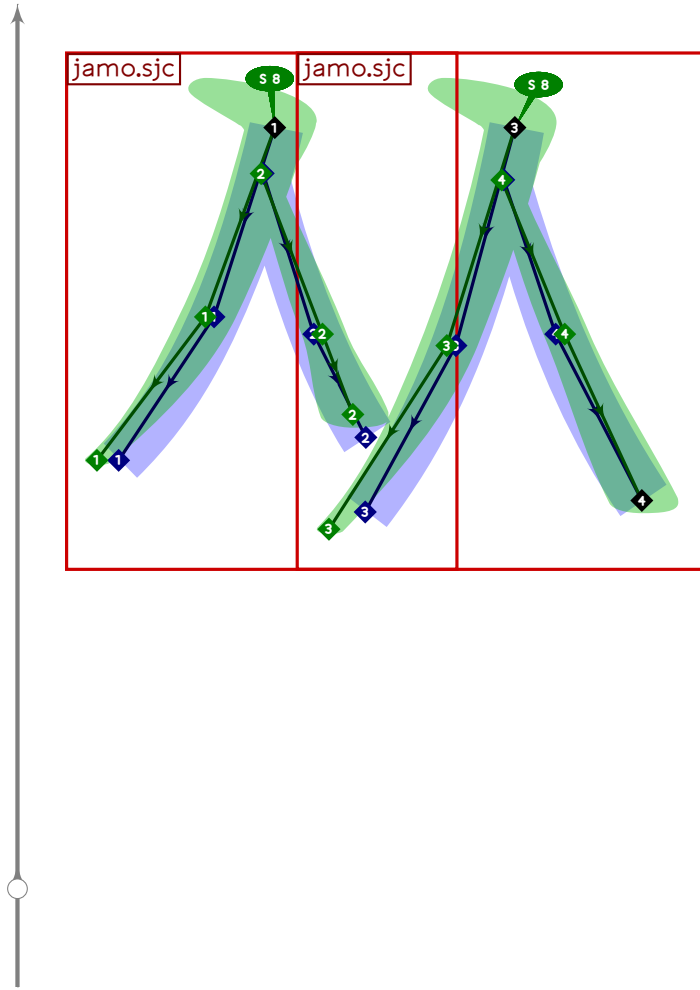


```

109 % hangul lead sios
110 begintsuglyph("uni1109.l1"9);
111 hangul.jamo.sjc(0,0,false)(whatever,lixf,loxf);
112 tsu_render;
113 endtsuglyph;
114

```

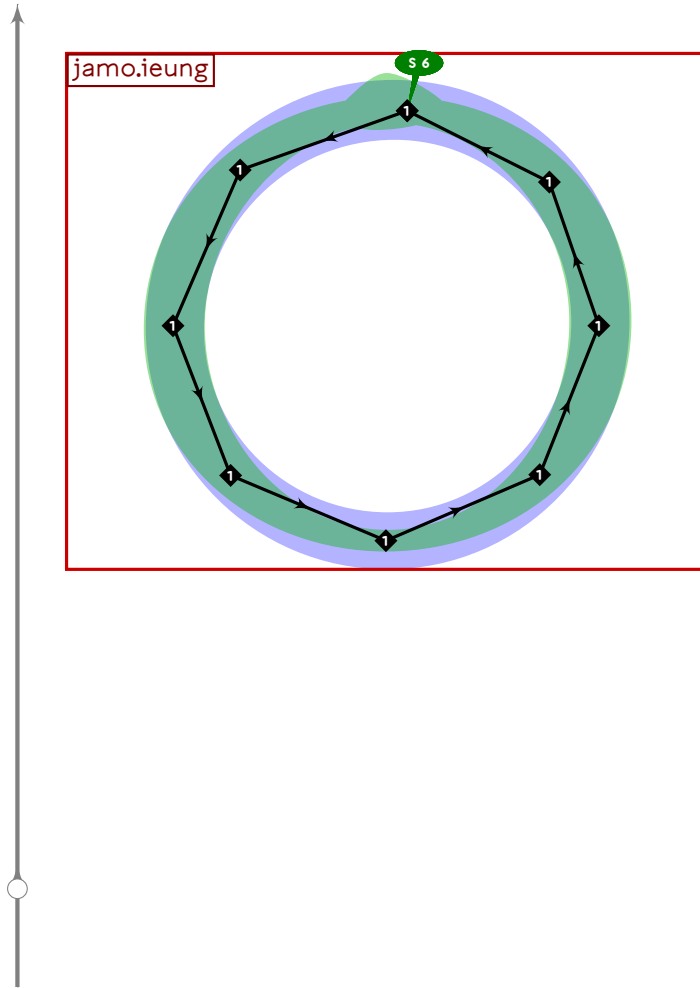




```

115 % hangul lead ssangsios
116 begint Suglyph("uni110A.l1",10);
117 hangul.combine.lr(209,109)(whatever,lixf,loxf);
118 tsu_render;
119 endtsuglyph;
120

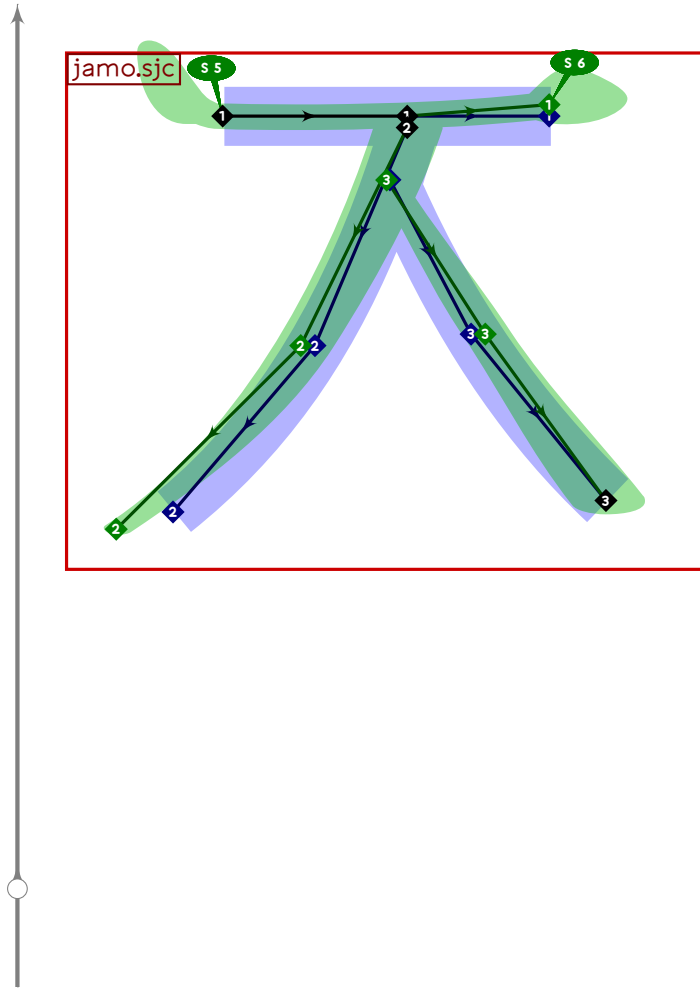
```



```

121 % hangul lead ieung
122 begintsuglyph("uni110B.l1";11);
123 hangul.jamo.ieung(whatever,lixf,loxf);
124 tsu_render;
125 endsuglyph;
126

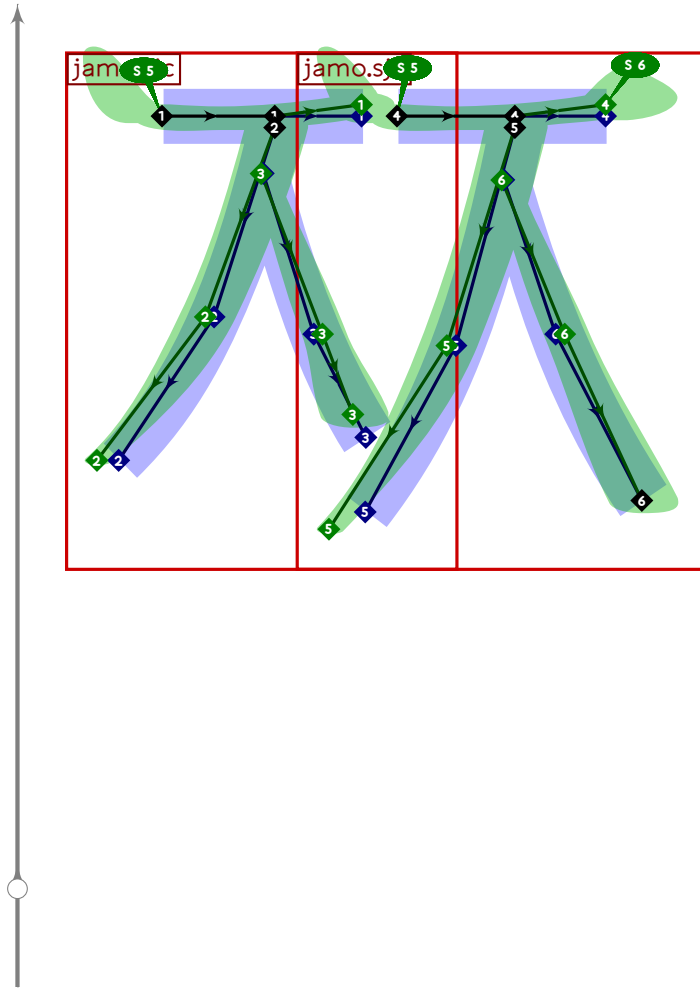
```



```

127 % hangul lead cieuc
128 begint Suglyph("uni110C.l1",12);
129 hangul.jamo.sjc(1,0,false)(whatever,lixf,loxf);
130 tsu_render;
131 endtsuglyph;
132

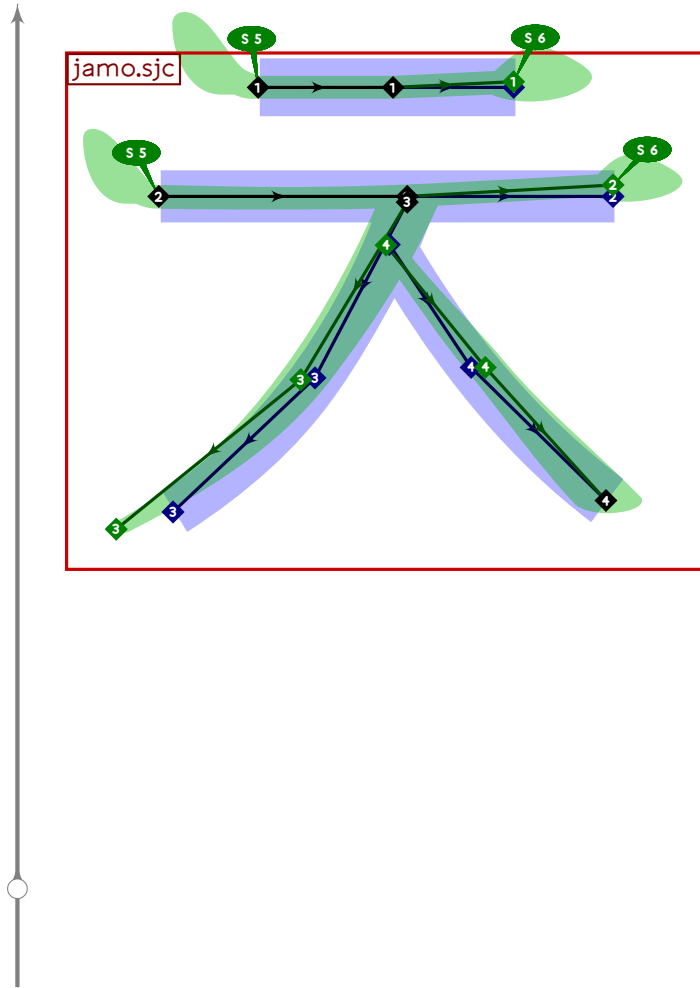
```



```

133 % hangul lead ssangcieuc
134 begintsuglyph("uni110D.l1",13);
135 hangul.combine.lr(212,112)(whatever,lixf,loxf);
136 tsu_render;
137 endsuglyph;
138

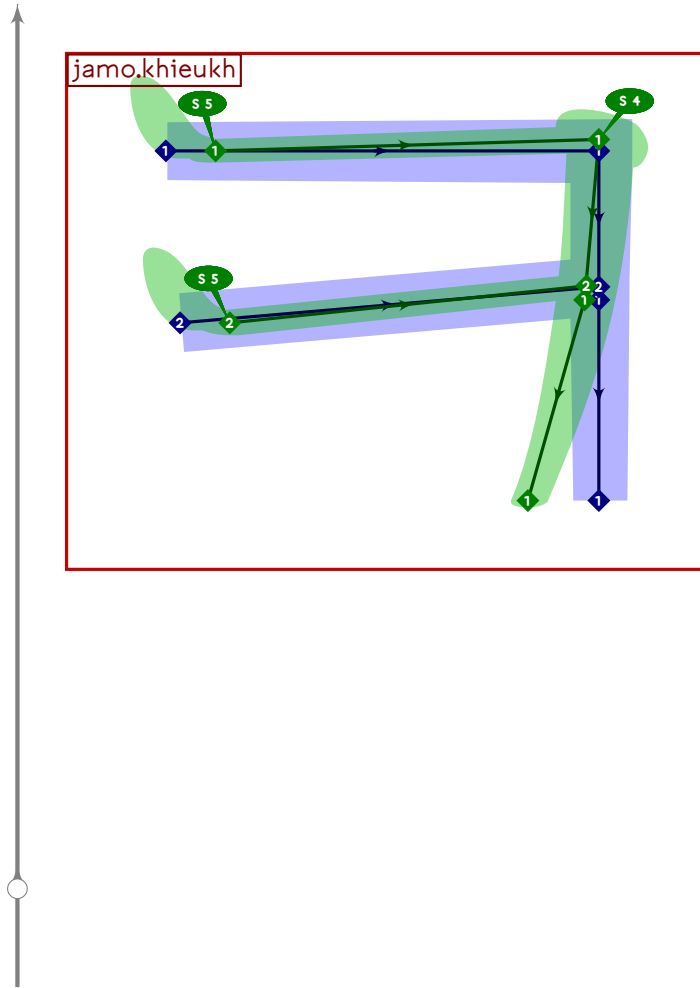
```



```

139 % hangul lead chieuch
140 begint Suglyph("uni110E.l1";14);
141 hangul.jamo.sjc(2,0,false)(whatever,lixf,loxf);
142 tsu_render;
143 endtsuglyph;
144

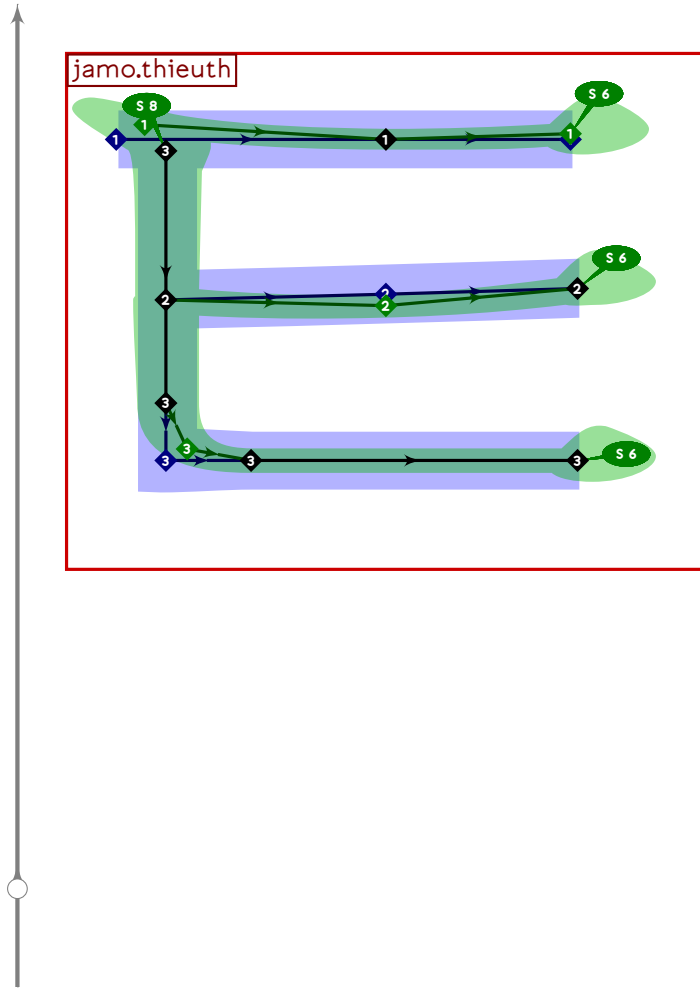
```



```

145 % hangul lead khieukh
146 begint Suglyph("uni110F.l1";15);
147 hangul.jamo.khieukh(whatever,lixf,loxf);
148 tsu_render;
149 endtsuglyph;
150

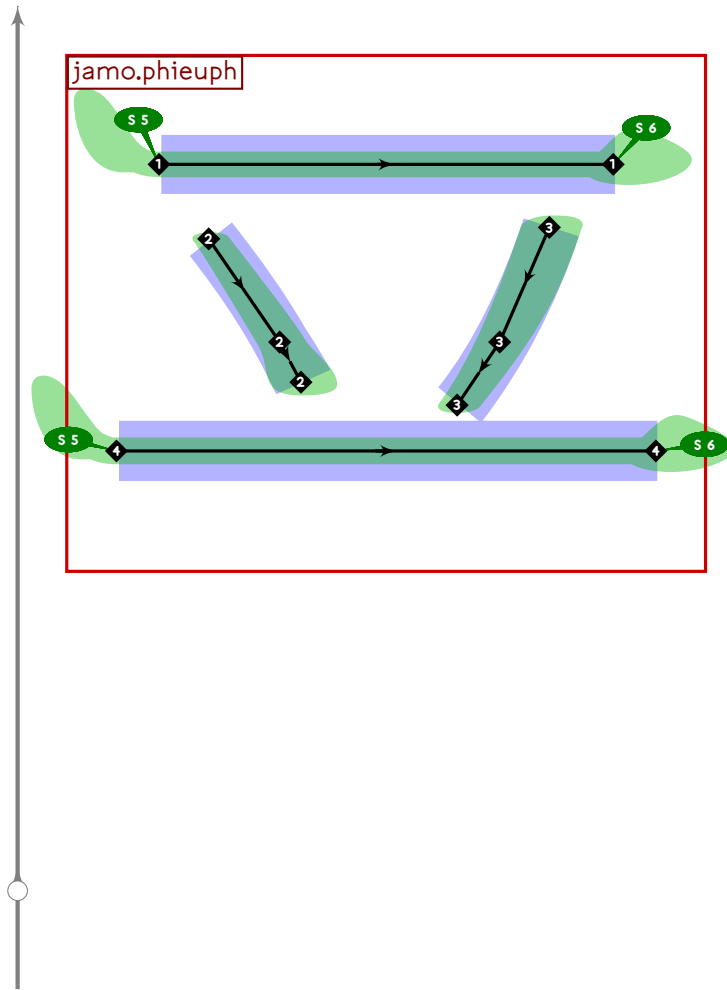
```



```

151 % hangul lead thieuth
152 begint Suglyph("uni1110.l1",16);
153 hangul.jamo.thieuth(whatever,lixf,loxf);
154 tsu_render;
155 endtsuglyph;
156

```

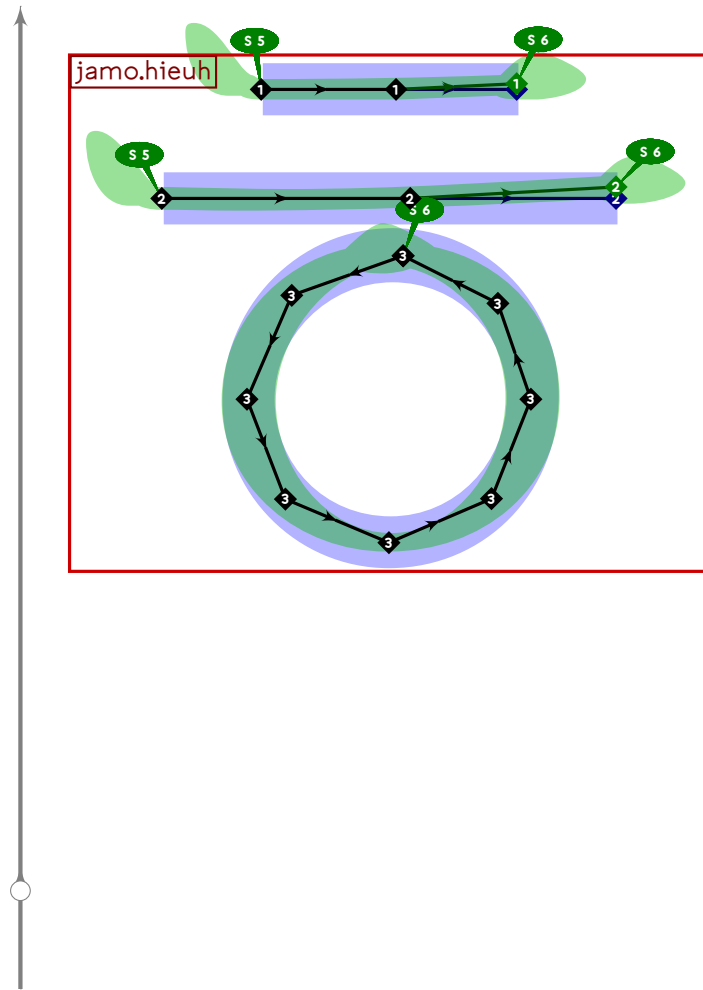


```

157 % hangul lead phieuph
158 begintsuglyph("uni1111.11";17);
159 hangul.jamo.phieuph(whatever,lixf,loxf);
160 tsu_render;
161 endtsuglyph;
162

```

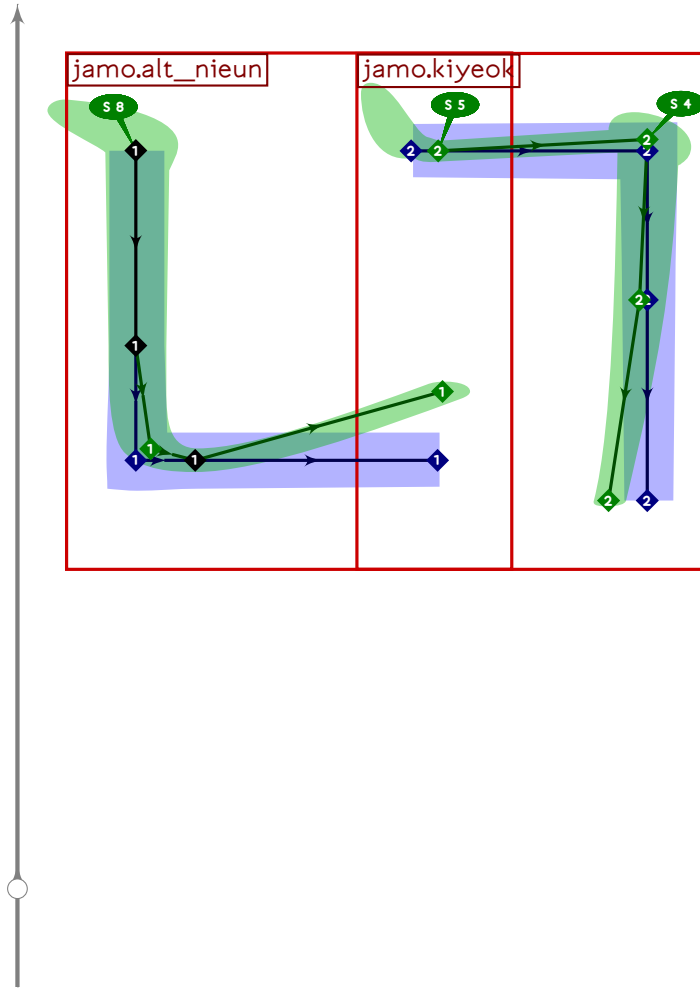




```

163 % hangul lead hieuh
164 begintsuglyph("uni1112.l1",18);
165 hangul.jamo.hieuh(whatever,lixf,loxf);
166 tsu_render;
167 endsuglyph;
168

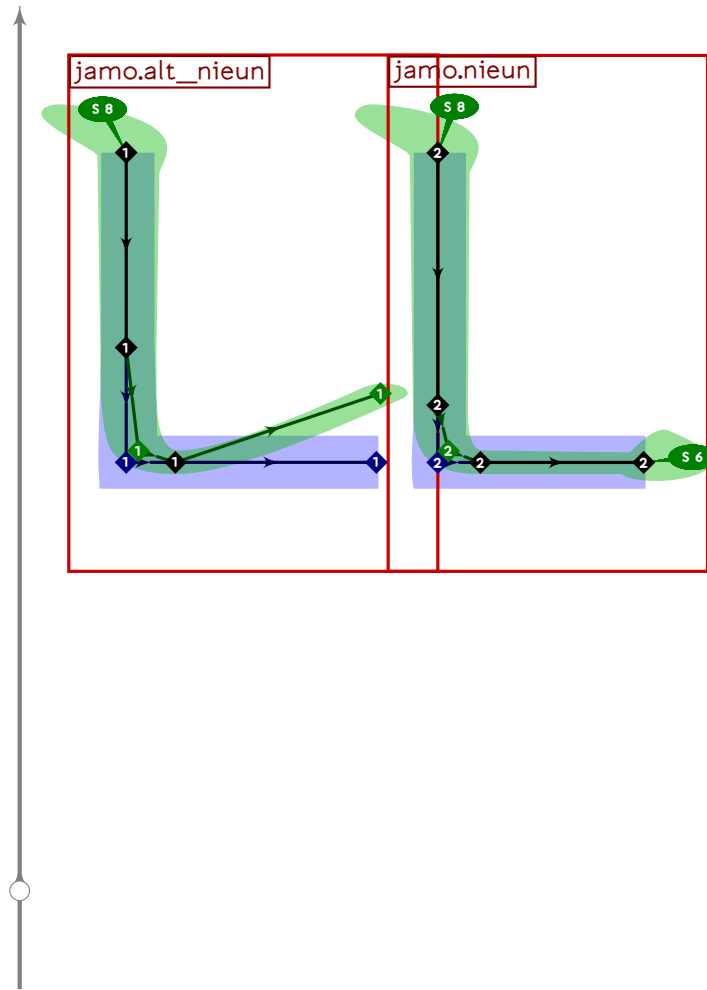
```



```

169 % hangul lead nieun-kiyeok
170 begintsuglyph("uni1113.l1",19);
171 hangul.combine.lr(202,100)(whatever,lixf,loxf);
172 tsu_render;
173 endsuglyph;
174

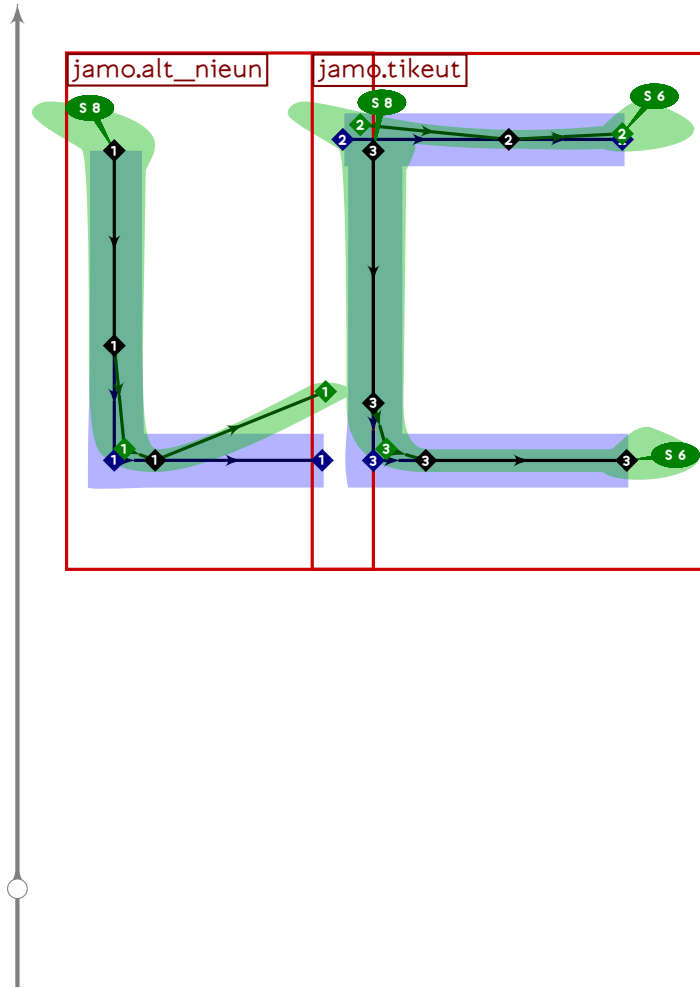
```



```

175 % hangul lead ssangnieun
176 begintsuglyph("uni1114.l1",20);
177 hangul.combine.lr(202,102)(whatever,lixf,loxf);
178 tsu_render;
179 endsuglyph;
180

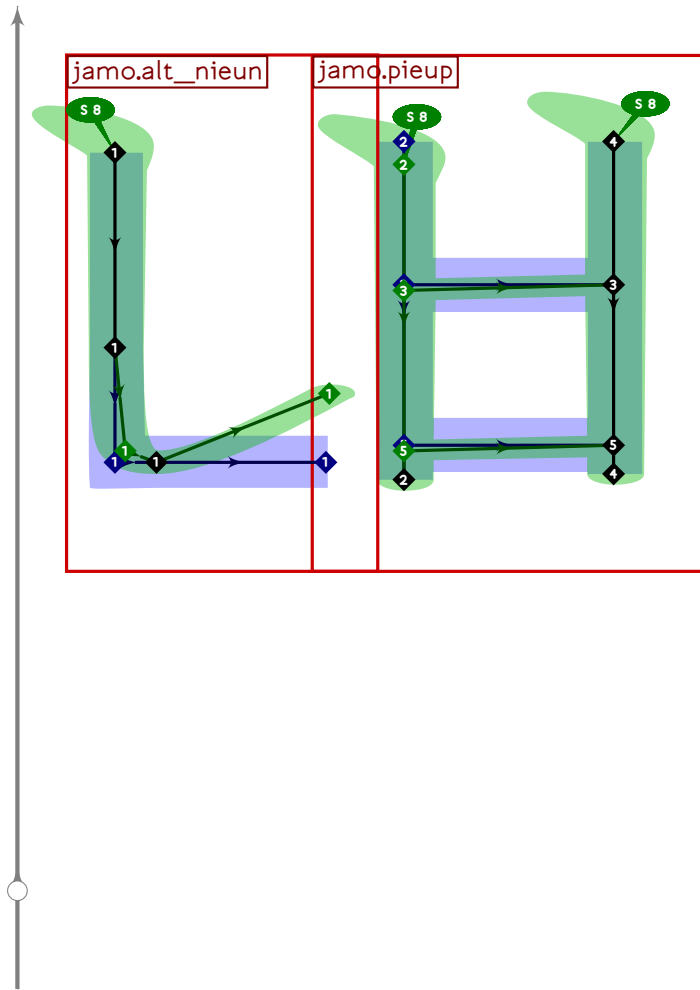
```



```

181 % hangul lead nieun-tikeut
182 begintsuglyph("uni1115.l1",21);
183 hangul.combine.lr(202,103)(whatever,lixf,loxf);
184 tsu_render;
185 endsuglyph;
186

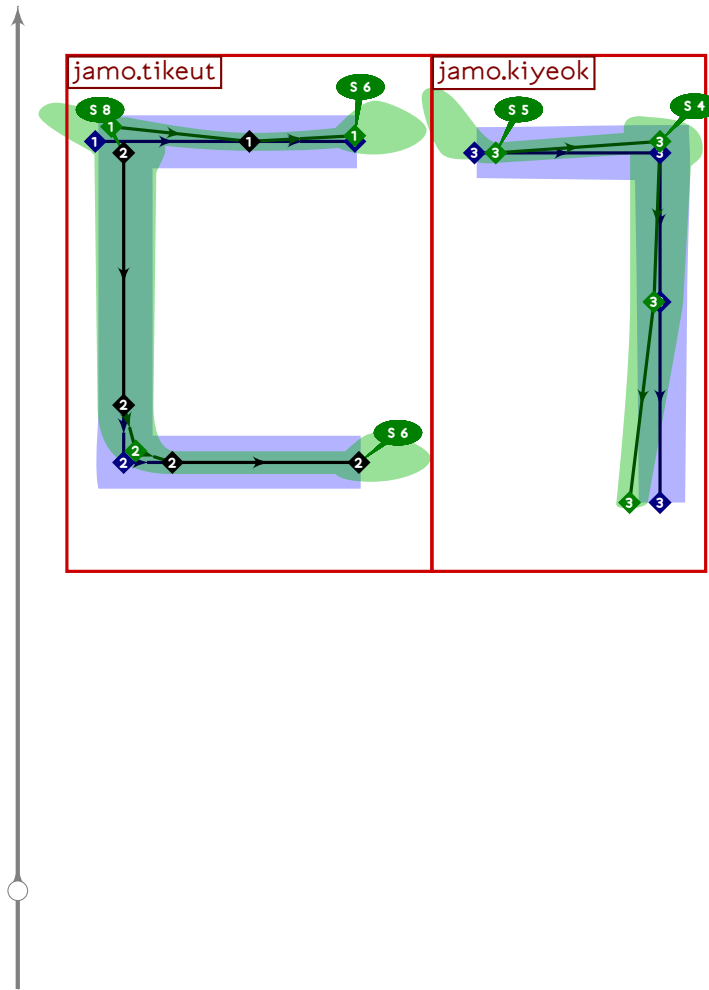
```



```

187 % hangul lead nieun-pieup
188 begintsuglyph("uni1116.l1",22);
189 hangul.combine.lr(202,107)(whatever,lixf,loxf);
190 tsu_render;
191 endsuglyph;
192

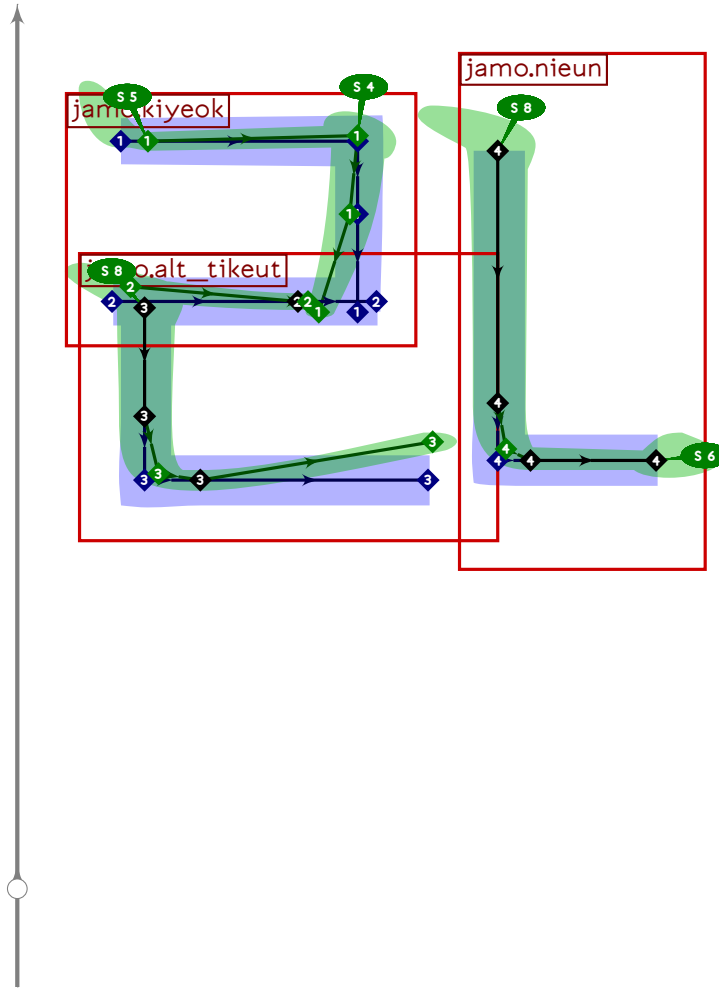
```



```

193 % hangul lead tikeut-kiyeok
194 begintsuglyph("uni1117.l1",23);
195 hangul.combine.lr(103,100)(whatever,lixf,loxf);
196 tsu_render;
197 endsuglyph;
198

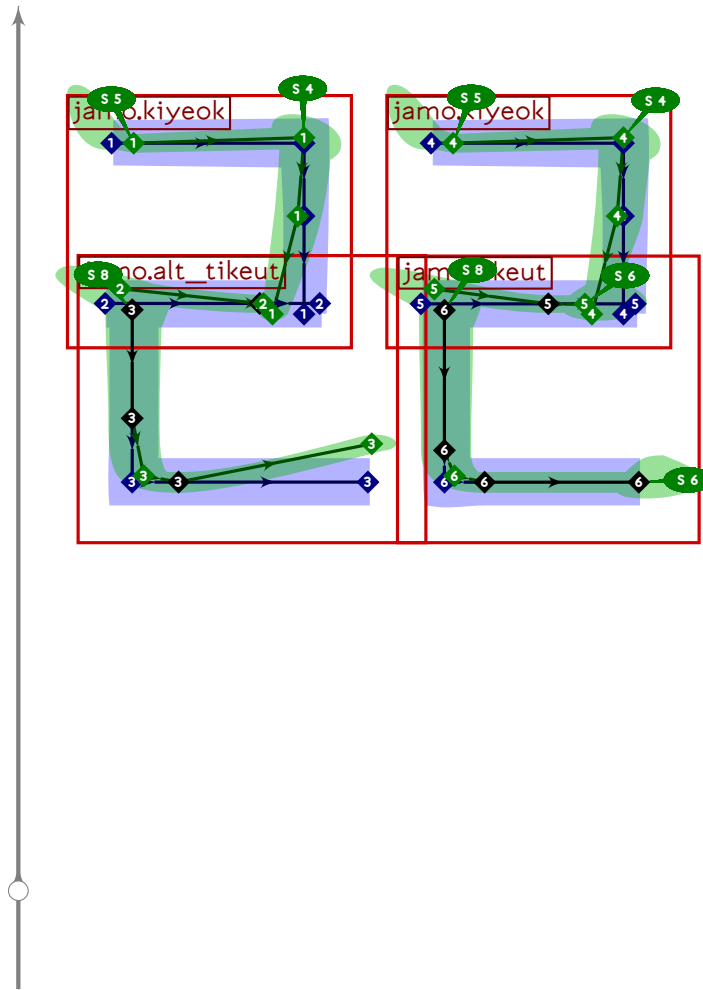
```



```

199 % hangul lead rioul-nieun
200 beginsuglyph("uni1118.l1",24);
201 hangul.combine.lr(205,102)(whatever,lixf,loxf);
202 tsu_render;
203 endsuglyph;
204

```

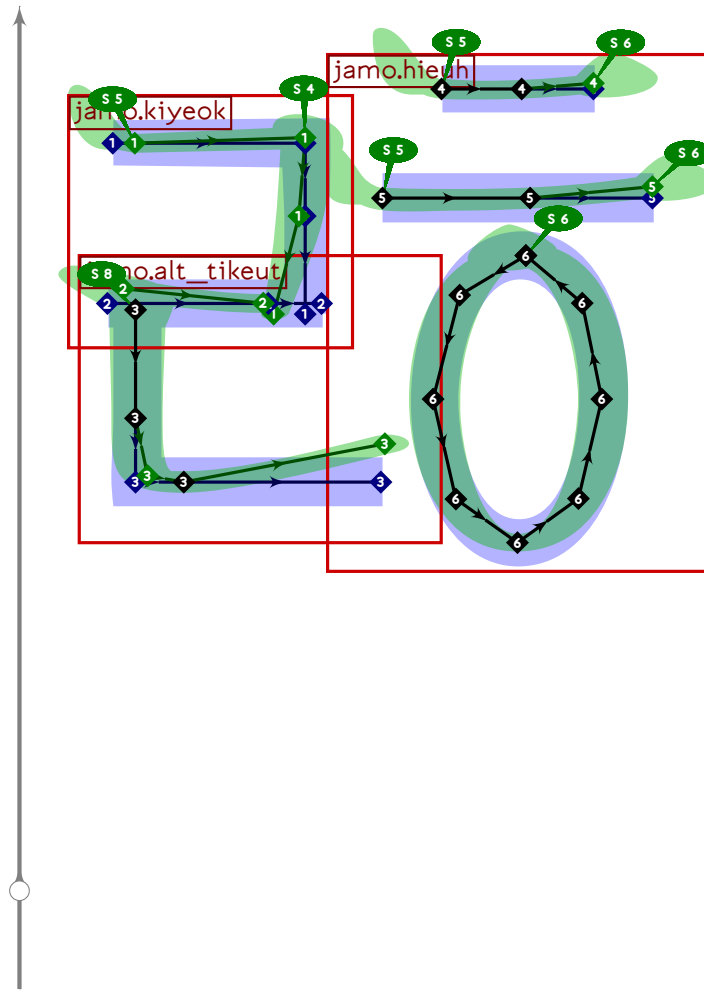


```

205 % hangul lead ssangrieul
206 \begin{suglyph}{"uni1119.11",25};
207 \hangul.combine.lr(205,105)(whatever,lxf,loxf);
208 \tsu_render;
209 \end{suglyph};
210

```

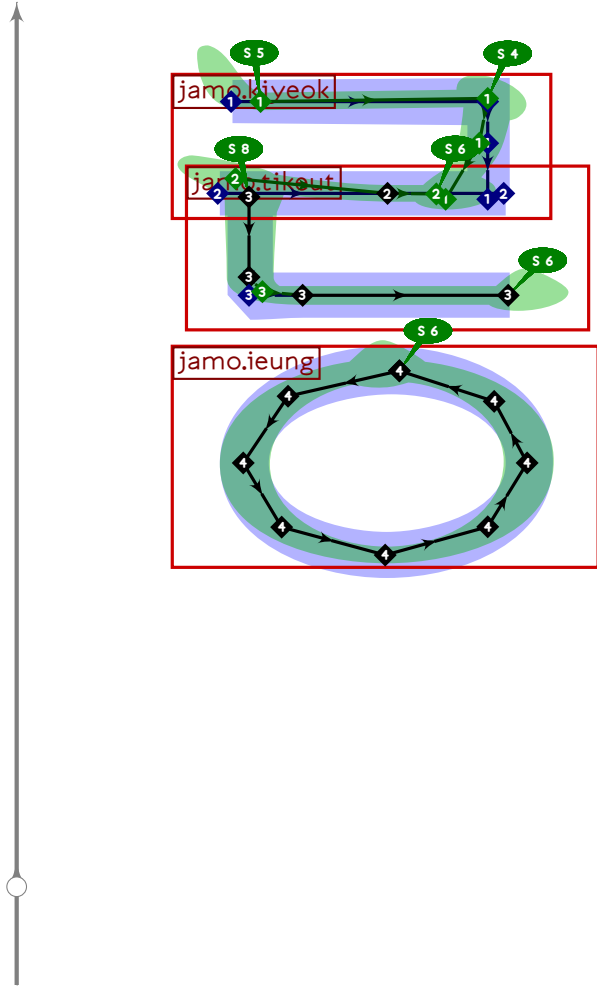




```

211 % hangul lead rieul-hieuh
212 begint Suglyph("uni111A.l",26);
213 hangul.combine.lr(205,118)(whatever,lixf,loxf);
214 tsu_render;
215 endtsuglyph;
216

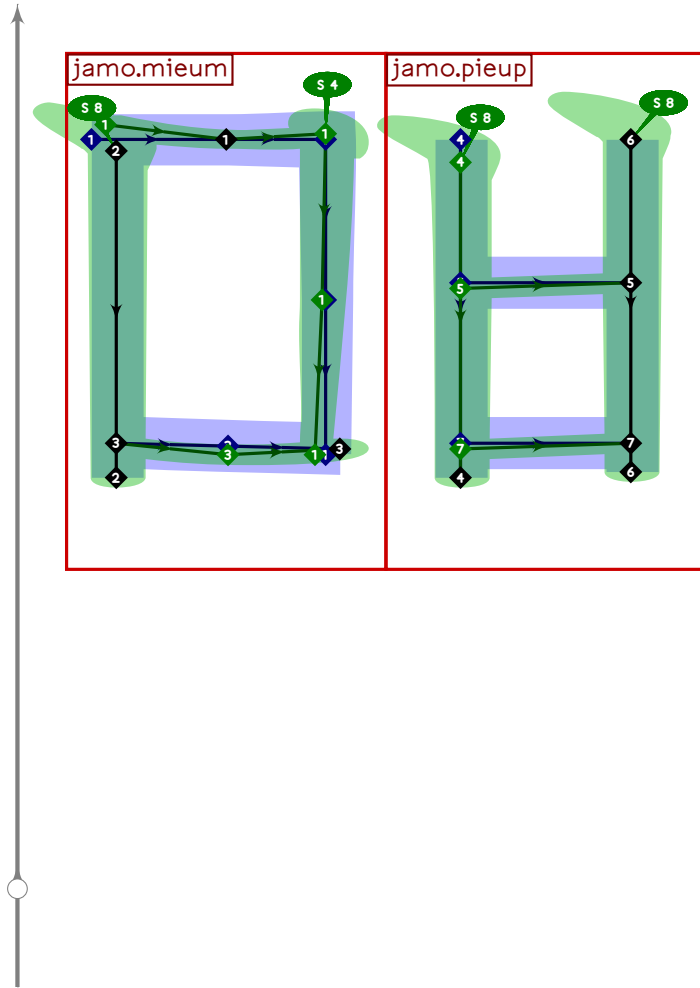
```



```

217 % hangul lead kopyeonrieul
218 beginsuglyph("uni111B.l1",27);
219 hangul.combine.tb(105,521)(whatever,
220   hxf((200,850),(800,-50)) transformed lixf,loxf);
221 tsu_render;
222 endsuglyph;
223

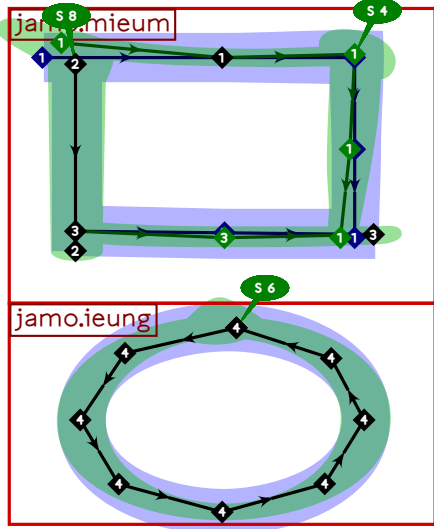
```



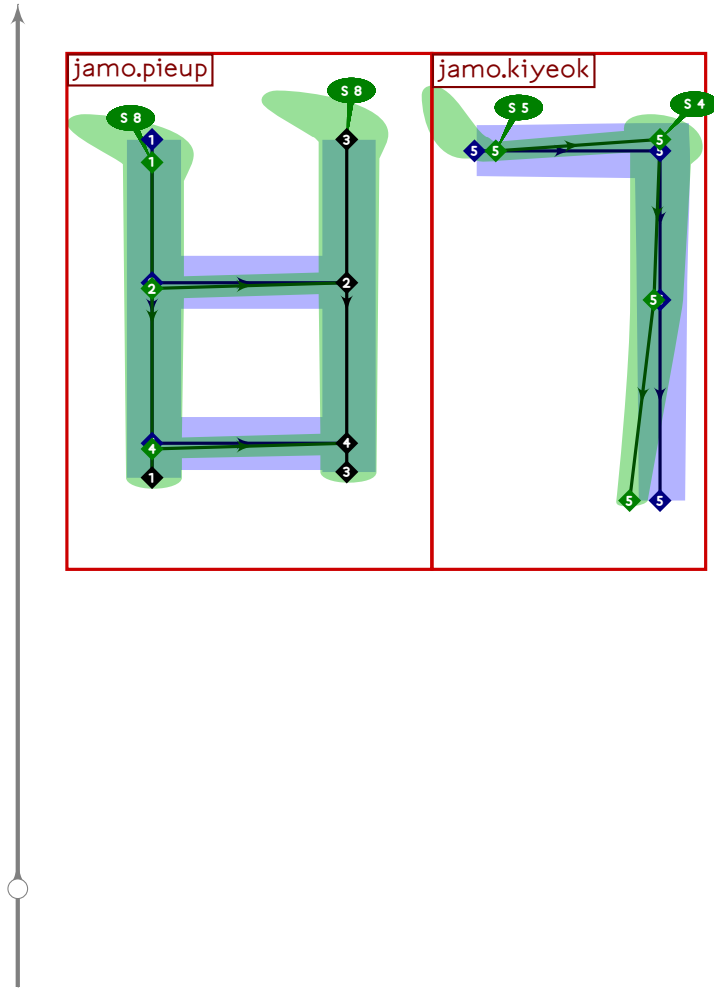
```

224 % hangul lead mieum-pieup
225 begintsuglyph("uni111C.l",28);
226 hangul.combine.lr(106,107)(whatever,lixf,loxf);
227 tsu_render;
228 endsuglyph;
229

```



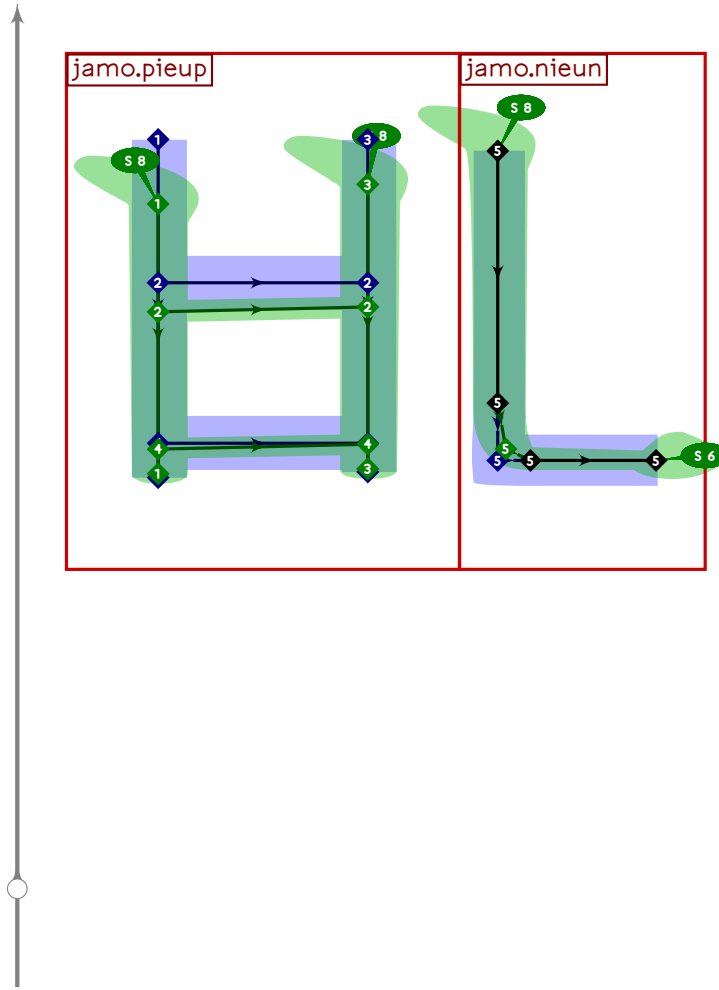
```
230 % hangul lead kapyeounmieum
231 begint Suglyph("uni111D.l1",29);
232 hangul.combine.tb(106,521)(whatever,
233   hxf((200,850),(800,-50)) transformed lixf,loxf);
234 tsu_render;
235 endsuglyph;
236
```



```

237 % hangul lead pieup-kiyeok
238 begintsuglyph("uni111E.l1",30);
239 hangul.combine.lr(107,100)(whatever,lixf,loxf);
240 tsu_render;
241 endtsuglyph;
242

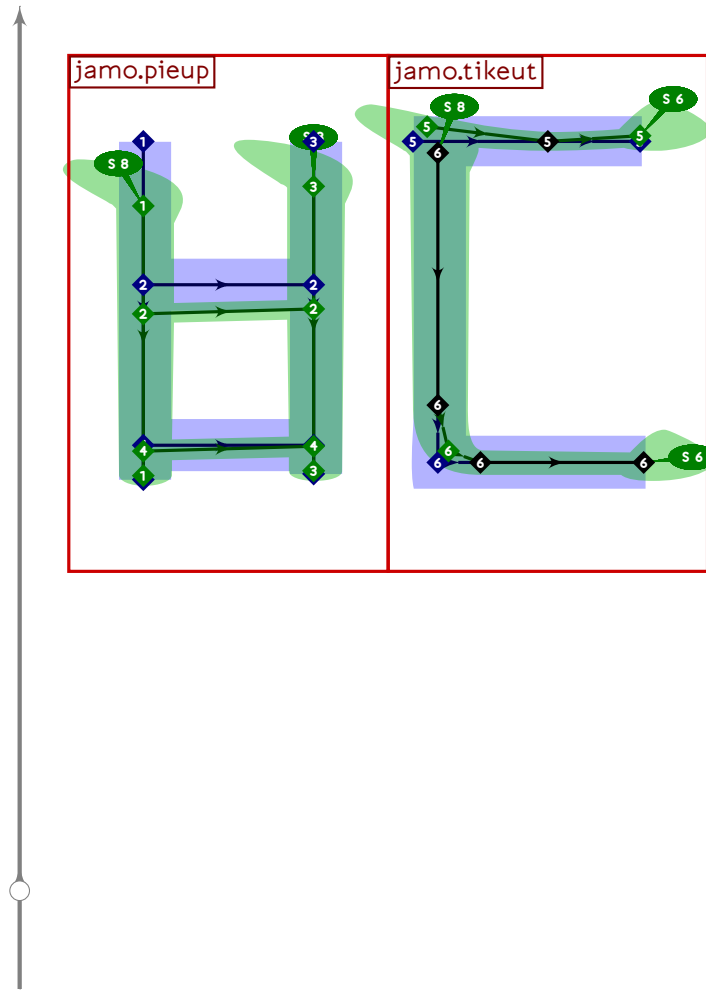
```



```

243 % hangul lead pieup-nieun
244 begintsuglyph("uni111F.l1",31);
245 hangul.combine.lr(207,102)(whatever,lixf,loxf);
246 tsu_render;
247 endtsuglyph;
248

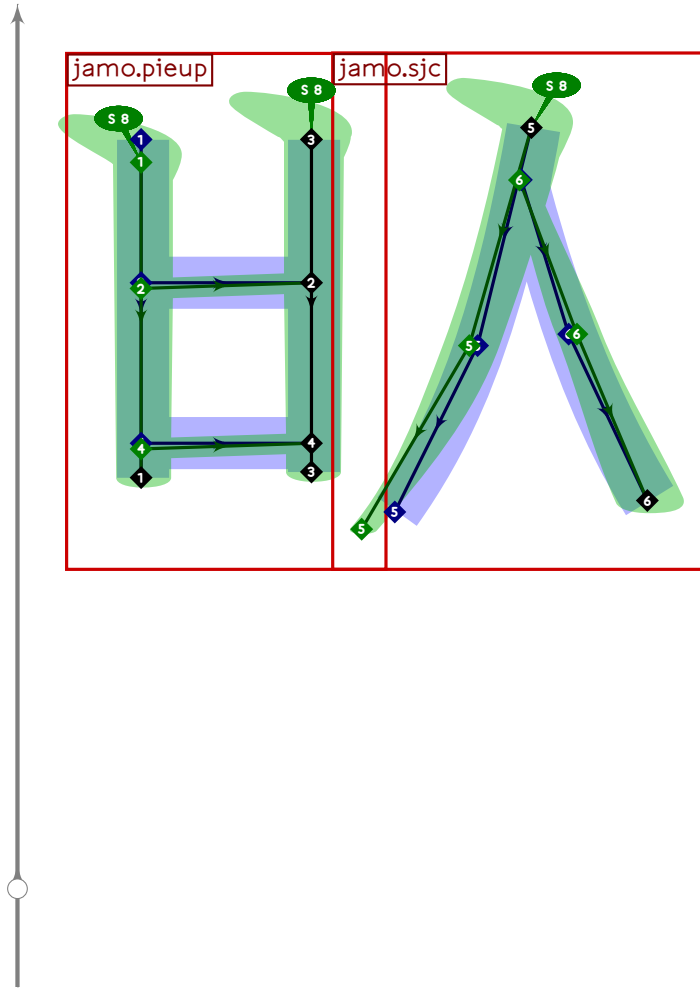
```



```

249 % hangul lead pieup-tikeut
250 begintsuglyph("uni1120.l1",32);
251 hangul.combine.lr(207,103)(whatever,lixf,loxf);
252 tsu_render;
253 endsuglyph;
254

```

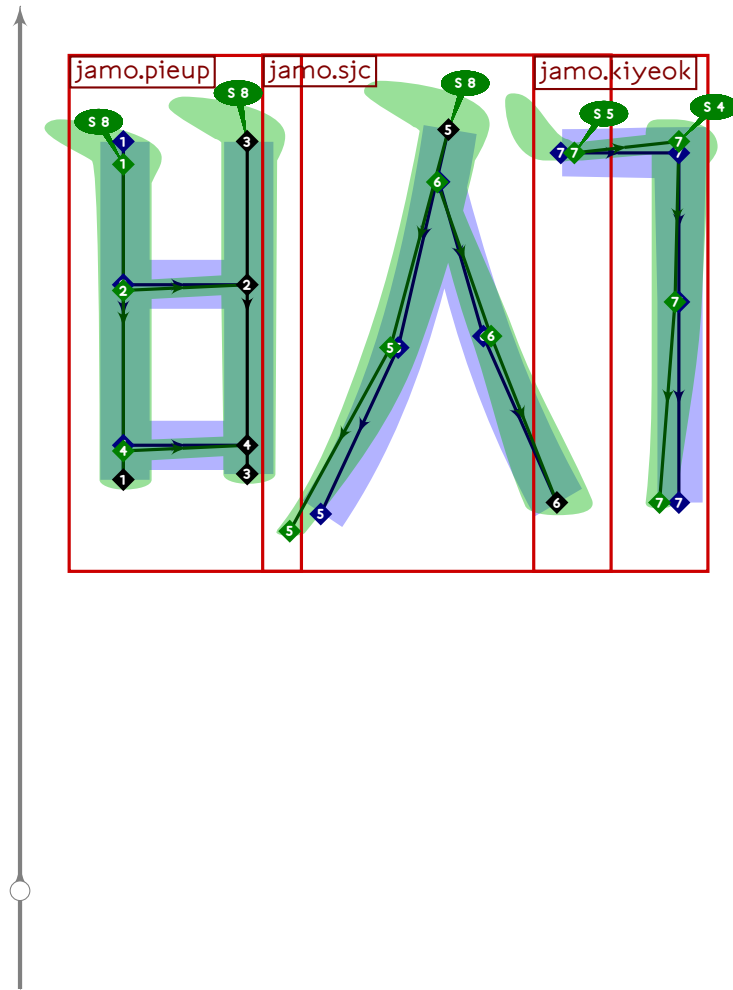


```

255 % hangul lead pieup-sios
256 begintsuglyph("uni1121.l1",33);
257 hangul.combine.lr(107,109)(whatever,lixf,loxf);
258 tsu_render;
259 endsuglyph;
260

```

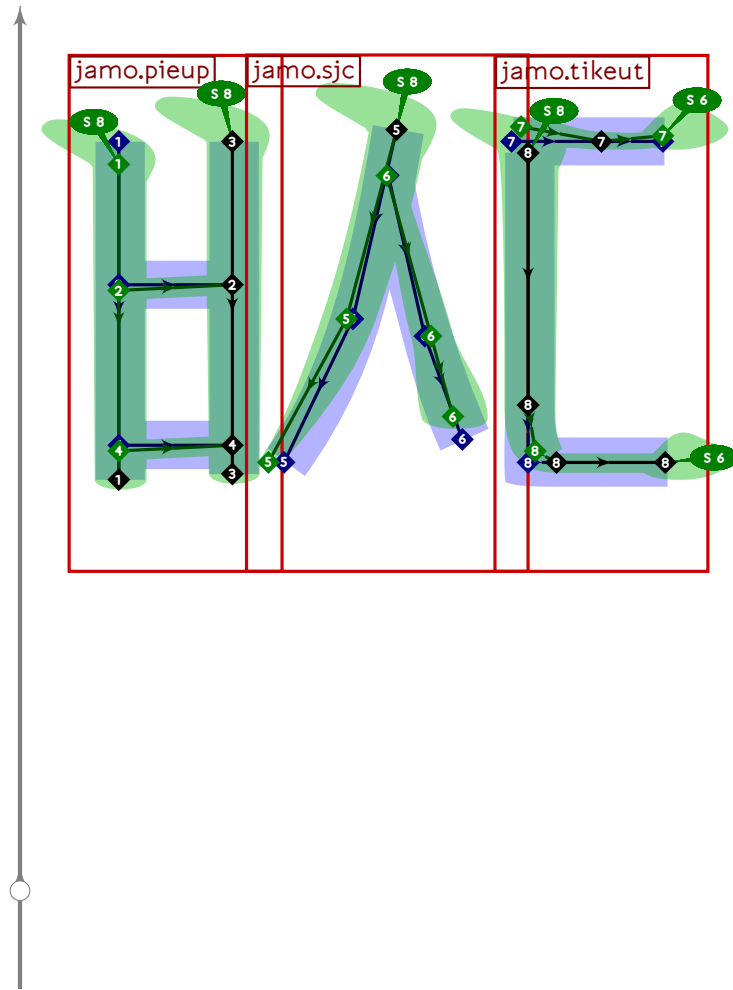




```

261 % hangul lead pieup-sios-kiyeok
262 begintsuglyph("uni1122.l1",34);
263 hangul.combine.lcr(107,109,100)(whatever,lixf,loxf);
264 tsu_render;
265 endtsuglyph;
266

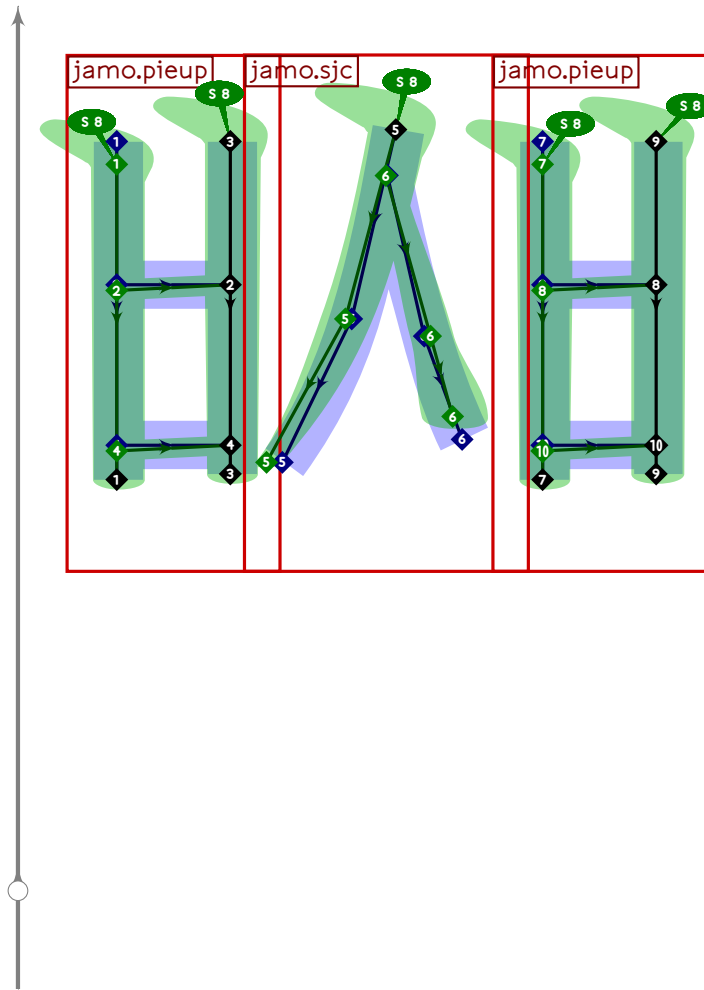
```



```

267 % hangul lead pieup-sios-tikeut
268 begintsuglyph("uni1123.l1",35);
269 hangul.combine.lcr(107,209,103)(whatever,lixf,loxf);
270 tsu_render;
271 endtsuglyph;
272

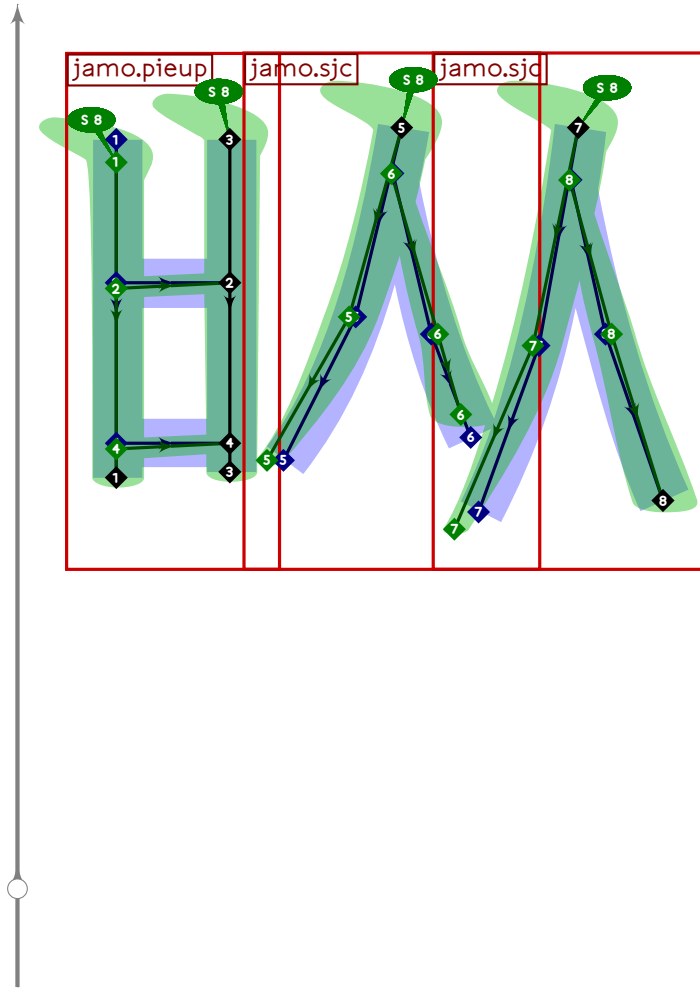
```



```

273 % hangul lead pieup-sios-pieup
274 begintsuglyph("uni1124.l1",36);
275 hangul.combine.lcr(107,209,107)(whatever,lixf,loxf);
276 tsu_render;
277 endsuglyph;
278

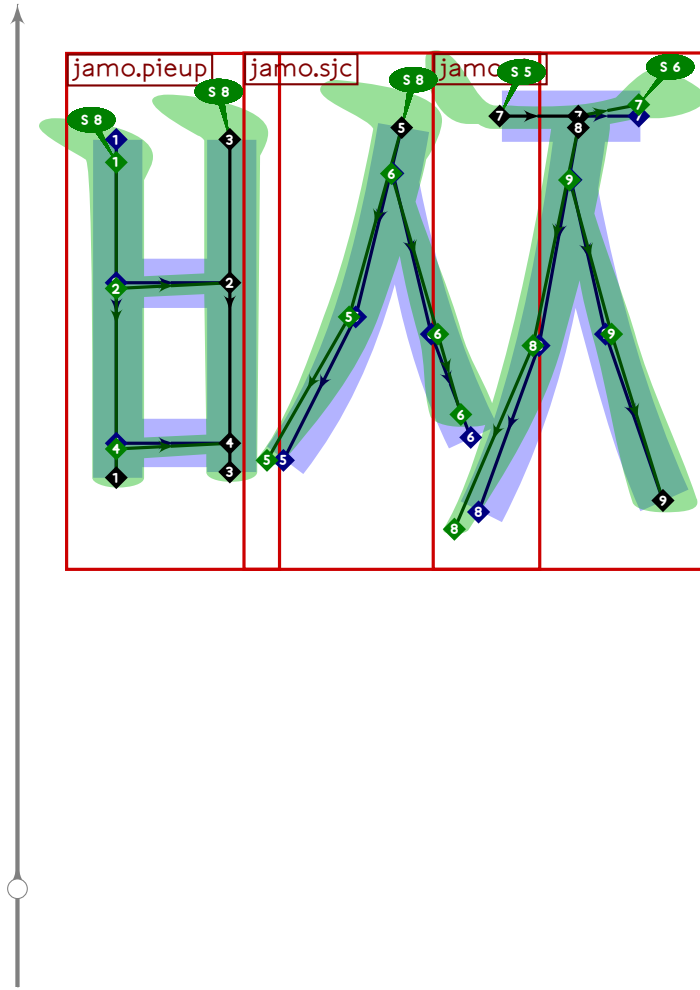
```



```

279 % hangul lead pieup-ssangsios
280 begint Suglyph("uni1125.l1",37);
281 hangul.combine.lcr(107,209,109)(whatever,lixf,loxf);
282 tsu_render;
283 endtsuglyph;
284

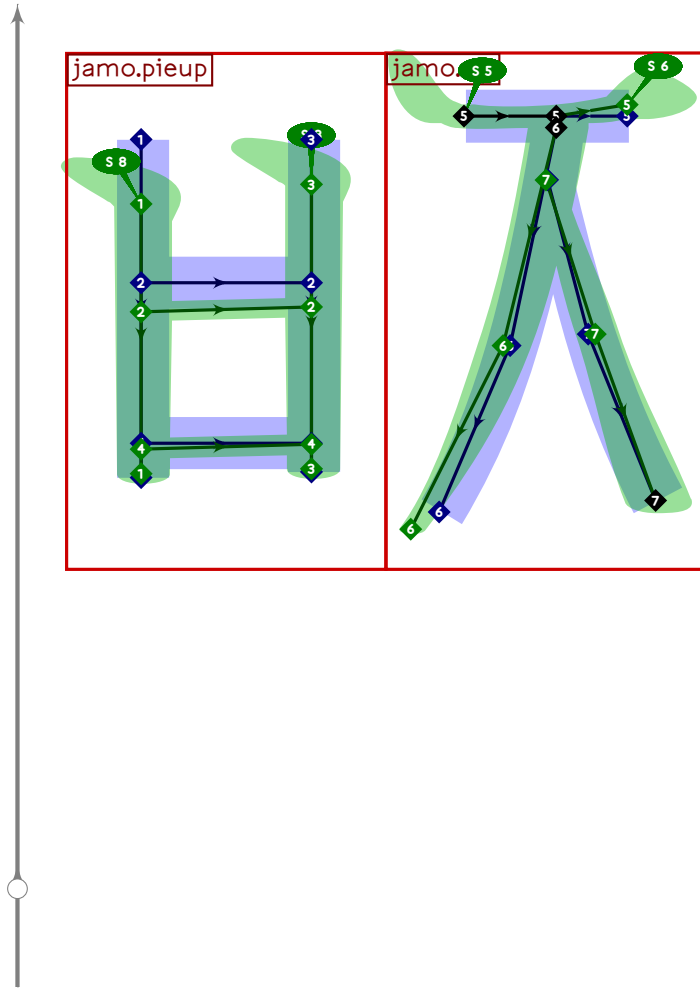
```



```

285 % hangul lead pieup-sios-cieuc
286 begintsuglyph("uni1126.l1",38);
287 hangul.combine.lcr(107,209,112)(whatever,lif,loxf);
288 tsu_render;
289 endsuglyph;
290

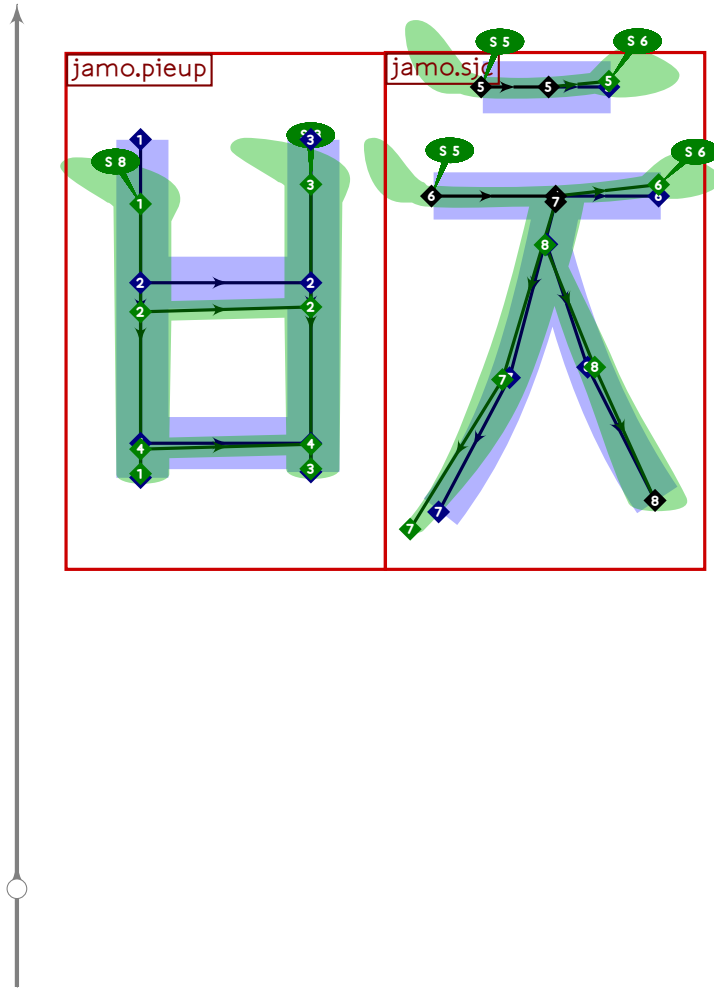
```



```

291 % hangul lead pieup-cieuc
292 beginsuglyph("uni1127.l1",39);
293 hangul.combine.lr(207,112)(whatever,lixf,loxf);
294 tsu_render;
295 endsuglyph;
296

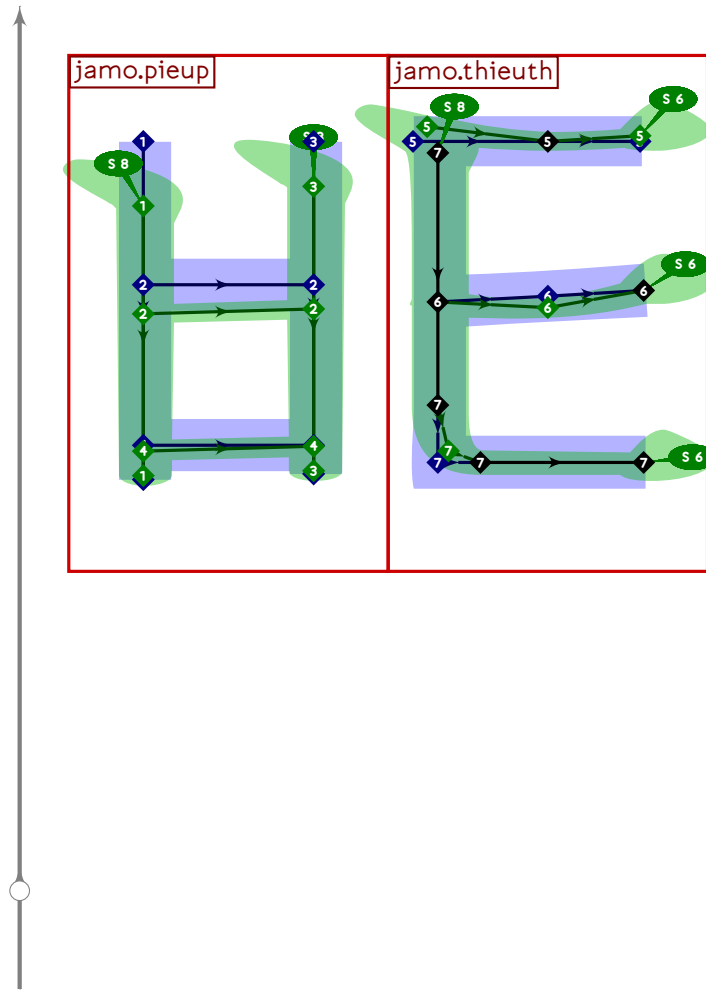
```



```

297 % hangul lead pieup-chieuch
298 begintsuglyph("uni1128.l1",40);
299 hangul.combine.lr(207,114)(whatever,lixf,loxf);
300 tsu_render;
301 endsuglyph;
302

```

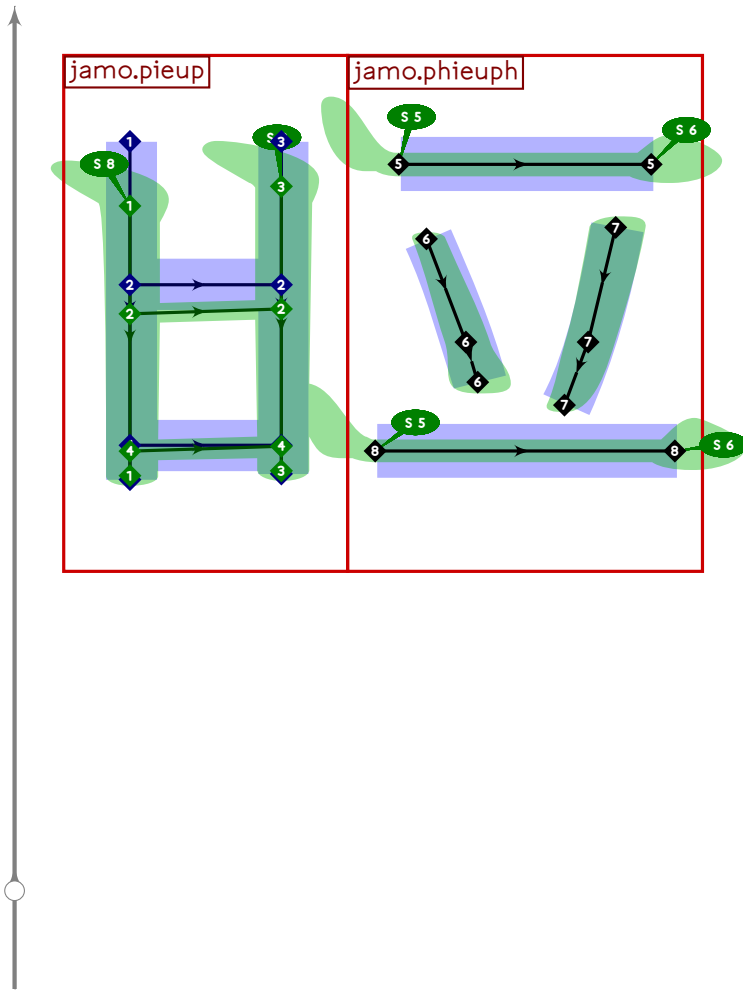


```

303 % hangul lead pieup-thieuth
304 begintsuglyph("uni1129.l1",41);
305 hangul.combine.lr(207,116)(whatever,lixf,loxf);
306 tsu_render;
307 endtsuglyph;
308

```

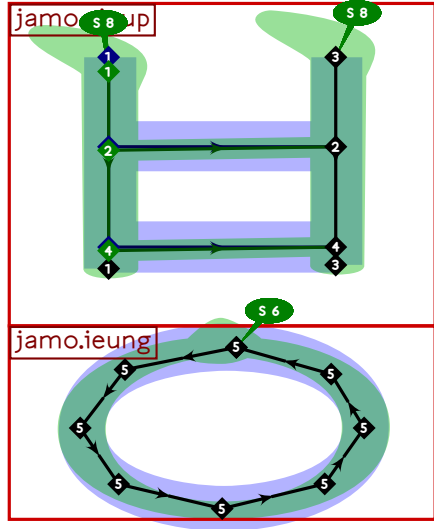




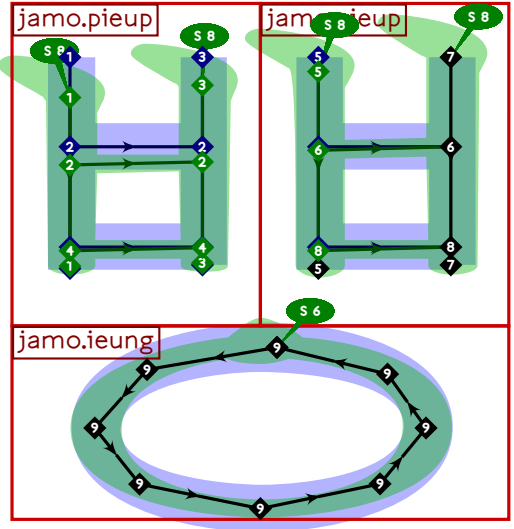
```

309 % hangul lead pieup-phieuph
310 begintsuglyph("uni112A.l1",42);
311 hangul.combine.lr(207,117)(whatever,lixf,loxf);
312 tsu_render;
313 endtsuglyph;
314

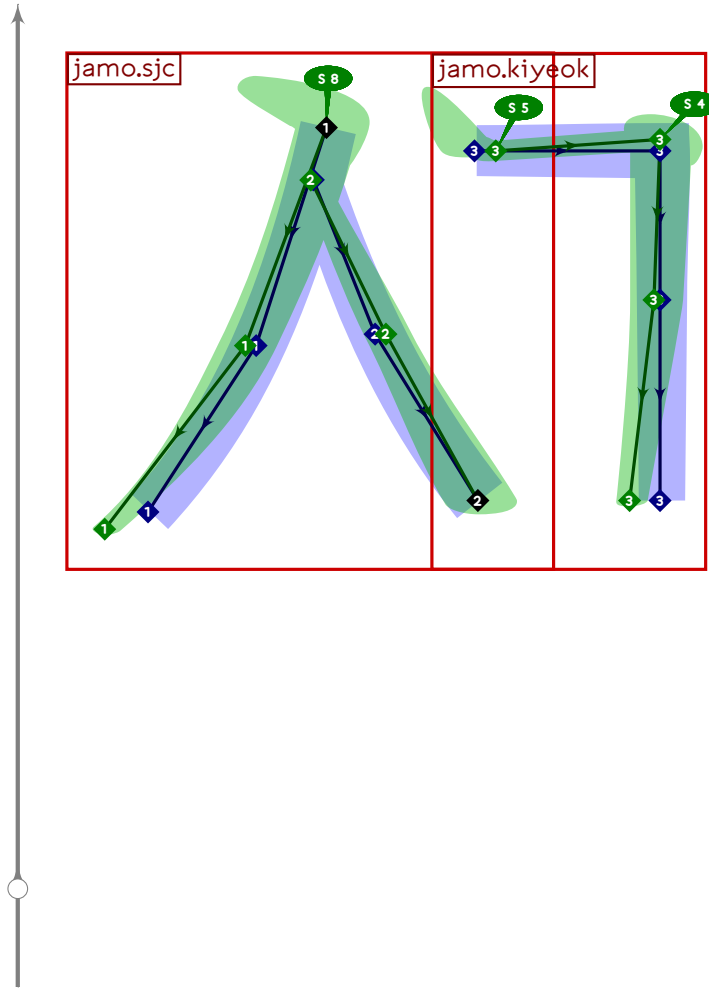
```



```
315 % hangul lead kapyeounpieup
316 begint Suglyph("uni112B.l1",43);
317 hangul.combine.tb(107,521)(whatever,
318   hxf((200,850),(800,-50)) transformed lixf,loxf);
319 tsu_render;
320 endsuglyph;
321
```



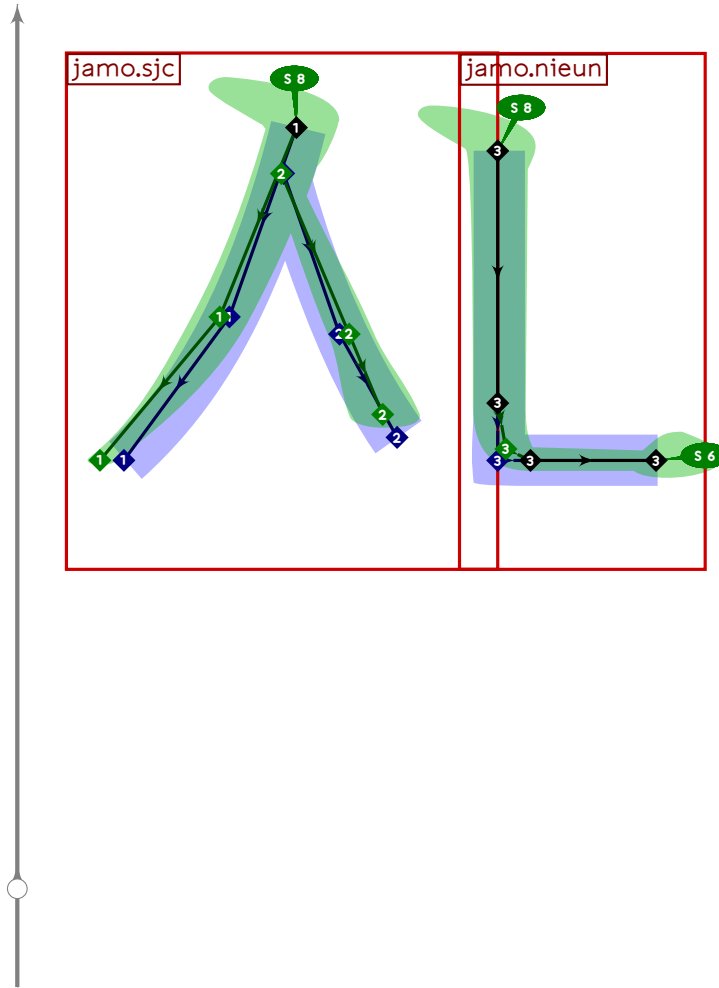
```
322 % hangul lead kapyeounssangpieup
323 begint Suglyph("uni112C.11";44);
324 hangul.combine.tb(108,521)(whatever,
325   hxf((150,850),(850,-50)) transformed lixf,loxf);
326 tsu_render;
327 endsuglyph;
328
```



```

329 % hangul lead sios-kiyeok
330 begintsuglyph("uni112D.l1",45);
331 hangul.combine.lr(109,100)(whatever,lixf,loxf);
332 tsu_render;
333 endsuglyph;
334

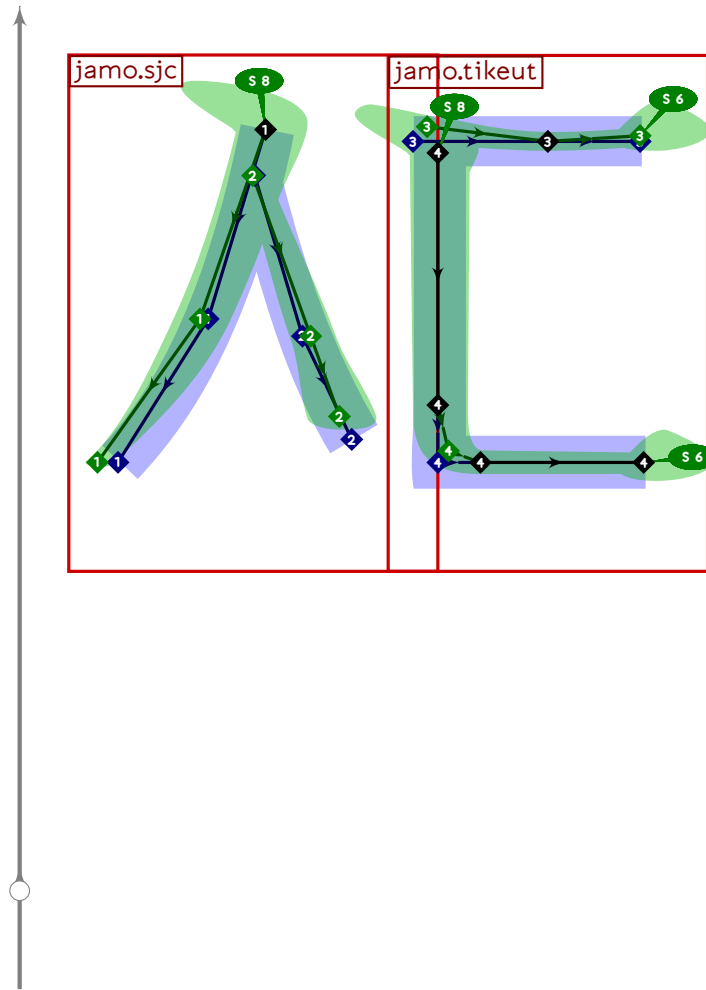
```



```

335 % hangul lead sios-nieun
336 begintsuglyph("uni112E.l1",46);
337 hangul.combine.lr(209,102)(whatever,lixf,loxf);
338 tsu_render;
339 endsuglyph;
340

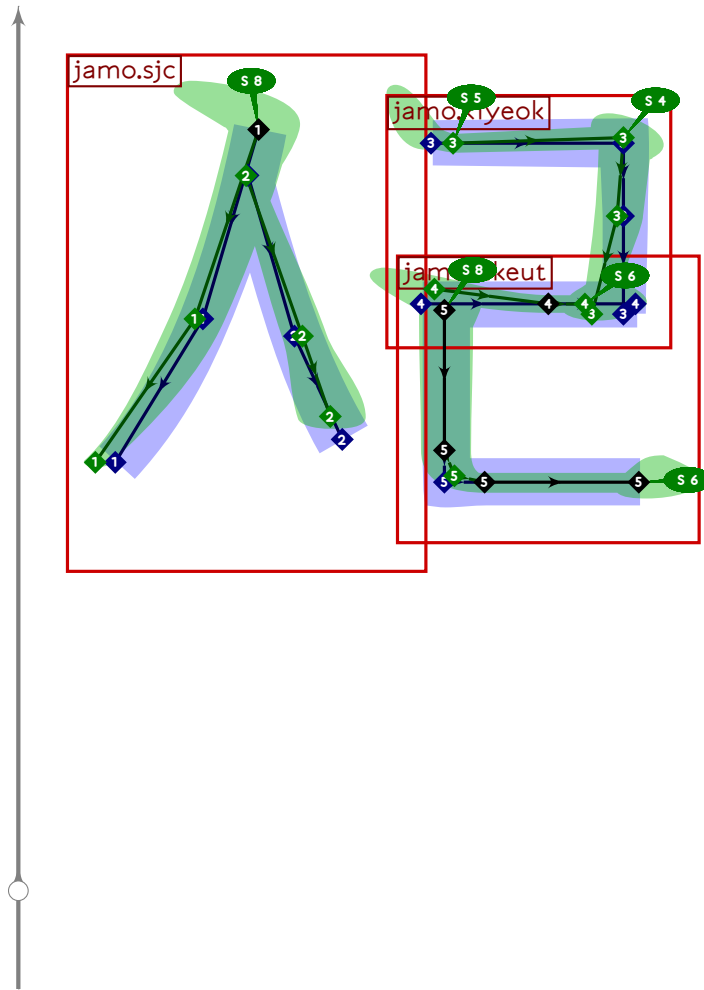
```



```

341 % hangul lead sios-tikeut
342 begintsuglyph("uni112F.l1";47);
343 hangul.combine.lr(209,103)(whatever,lixf,loxf);
344 tsu_render;
345 endtsuglyph;
346

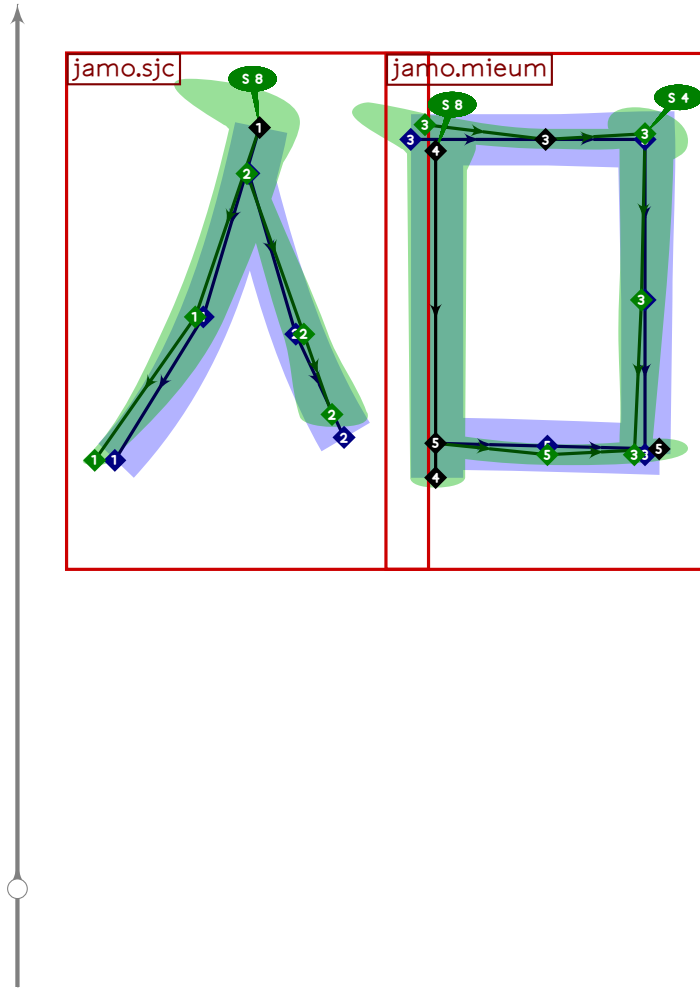
```



```

347 % hangul lead sios-rieul
348 begint Suglyph("uni1130.l1",48);
349 hangul.combine.lr(209,105)(whatever,lixf,loxf);
350 tsu_render;
351 endtsuglyph;
352

```

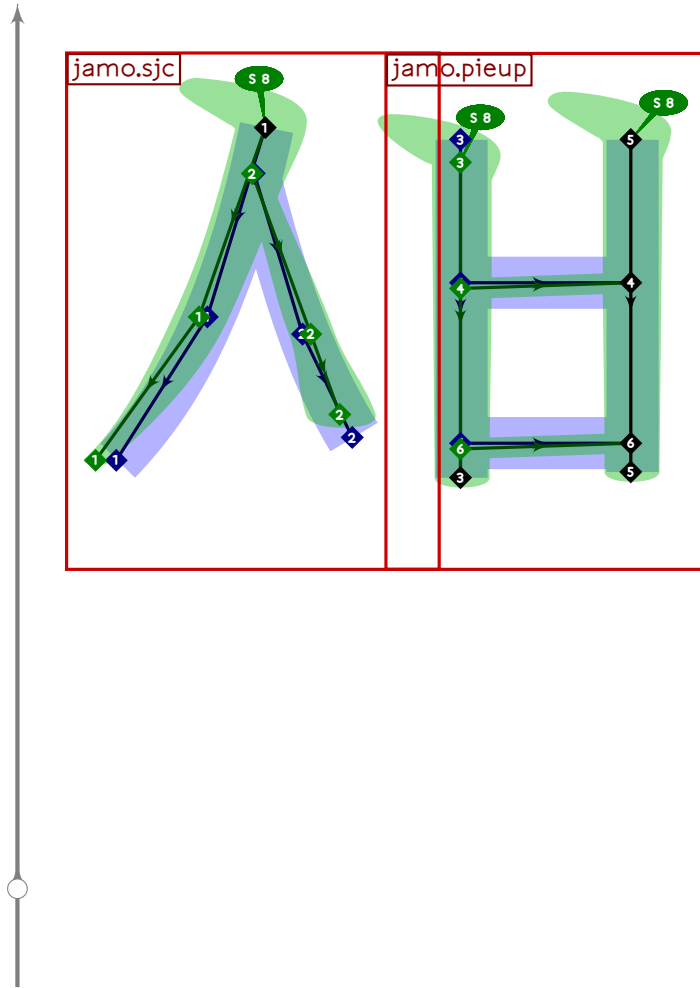


```

353 % hangul lead sios-mieum
354 begintsuglyph("uni1131.l1",49);
355 hangul.combine.lr(209,106)(whatever,lixf,loxf);
356 tsu_render;
357 endsuglyph;
358

```

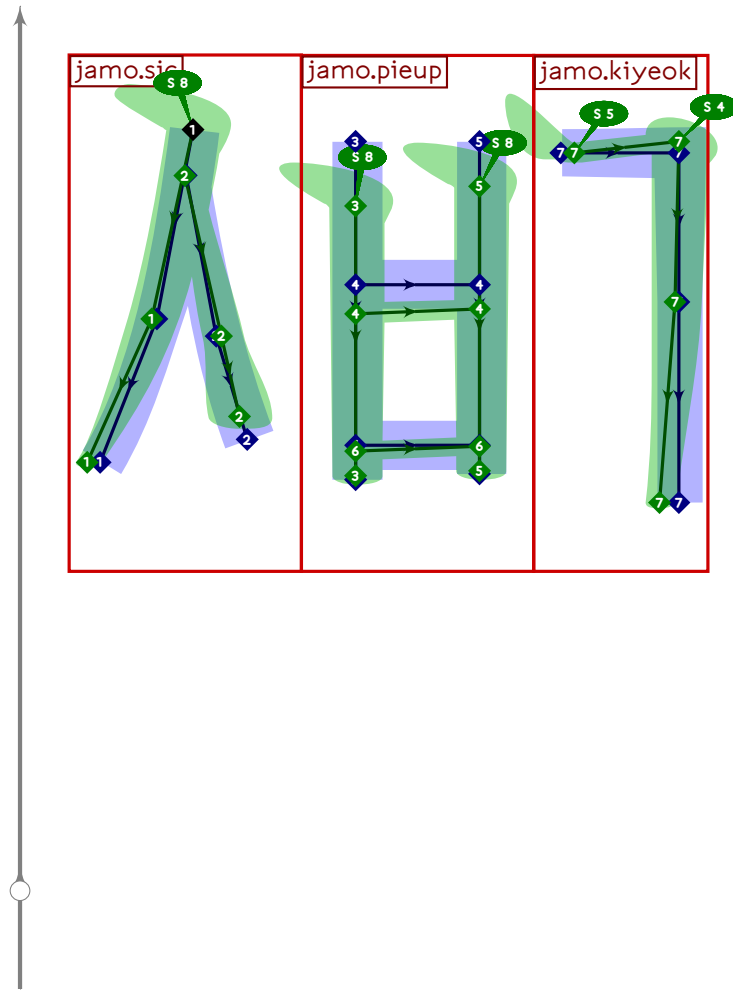




```

359 % hangul lead sios-pieup
360 begint Suglyph("uni1132.l1",50);
361 hangul.combine.lr(209,107)(whatever,lixf,loxf);
362 tsu_render;
363 endtsuglyph;
364

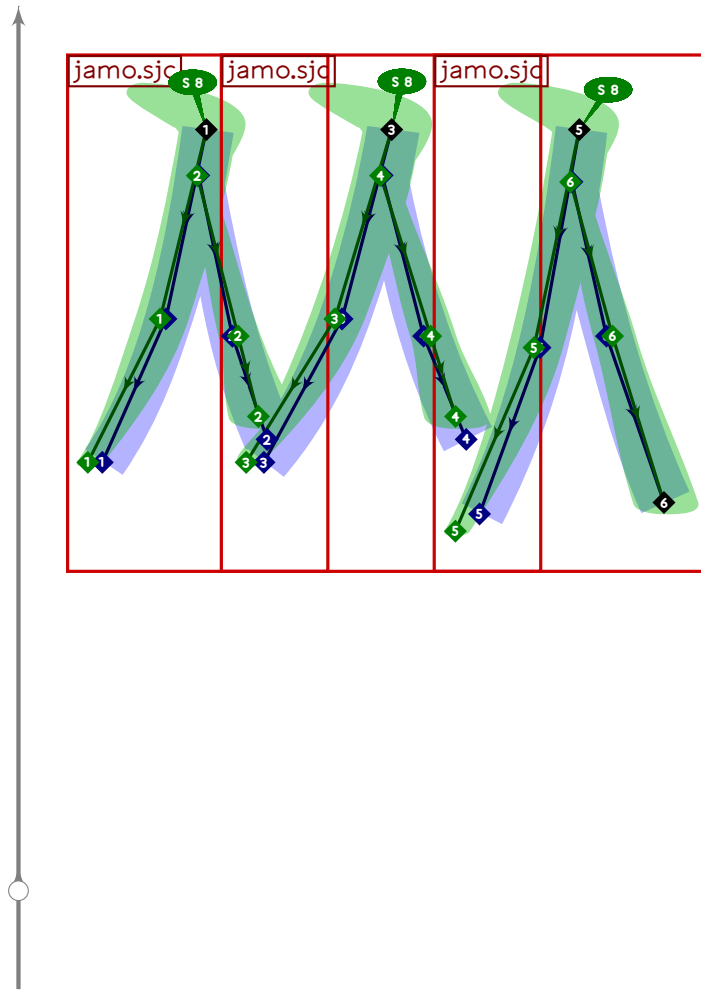
```



```

365 % hangul lead sios-pieup-kiyeok
366 begintsuglyph("uni1133.l1",51);
367 hangul.combine.lcr(209,207,100)(whatever,lixf,loxf);
368 tsu_render;
369 endsuglyph;
370

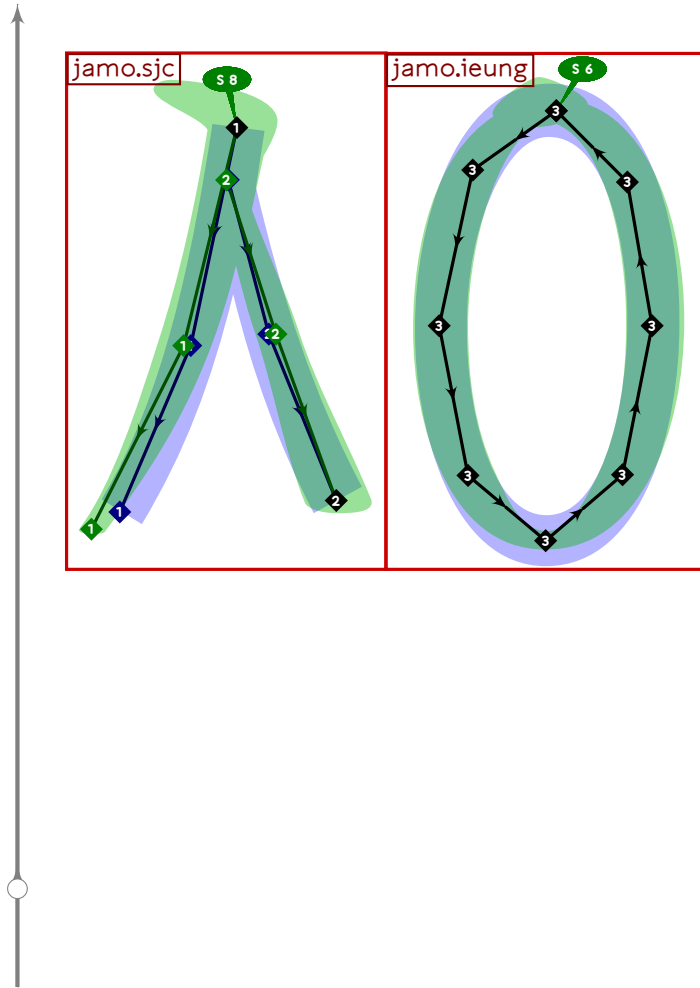
```



```

371 % hangul lead sios-sios-sios
372 begint Suglyph("uni1134.l1",52);
373 hangul.combine.lcr(209,209,109)(whatever,lixf,loxf);
374 tsu_render;
375 endtsuglyph;
376

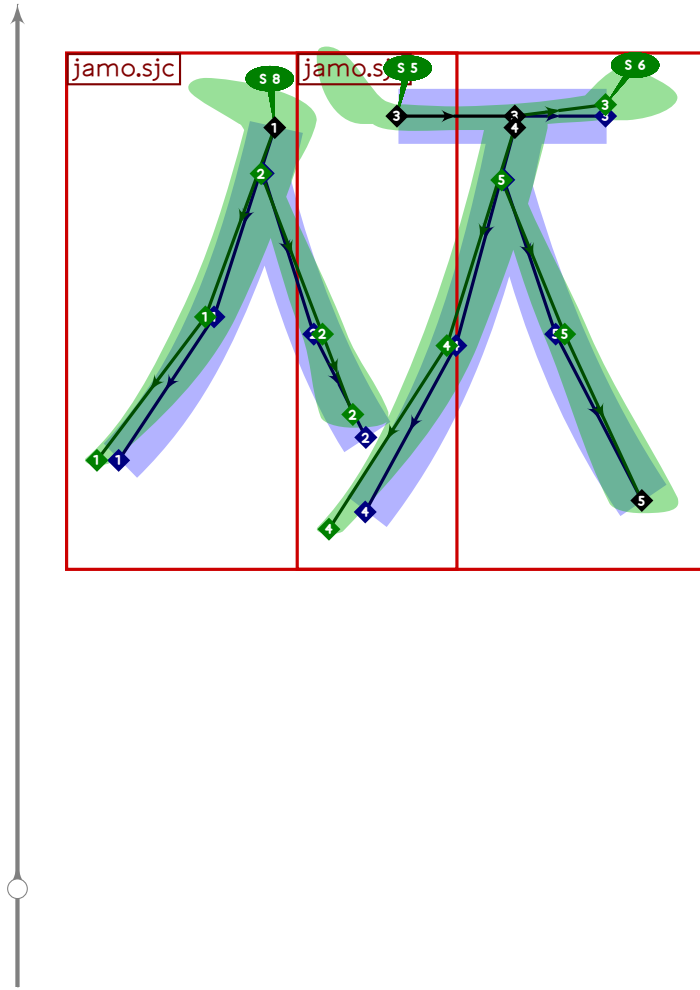
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```

377 % hangul lead sios-ieung
378 beginsuglyph("uni1135.l1",53);
379 hangul.combine.lr(109,111)(whatever,lixf,loxf);
380 tsu_render;
381 endsuglyph;
382

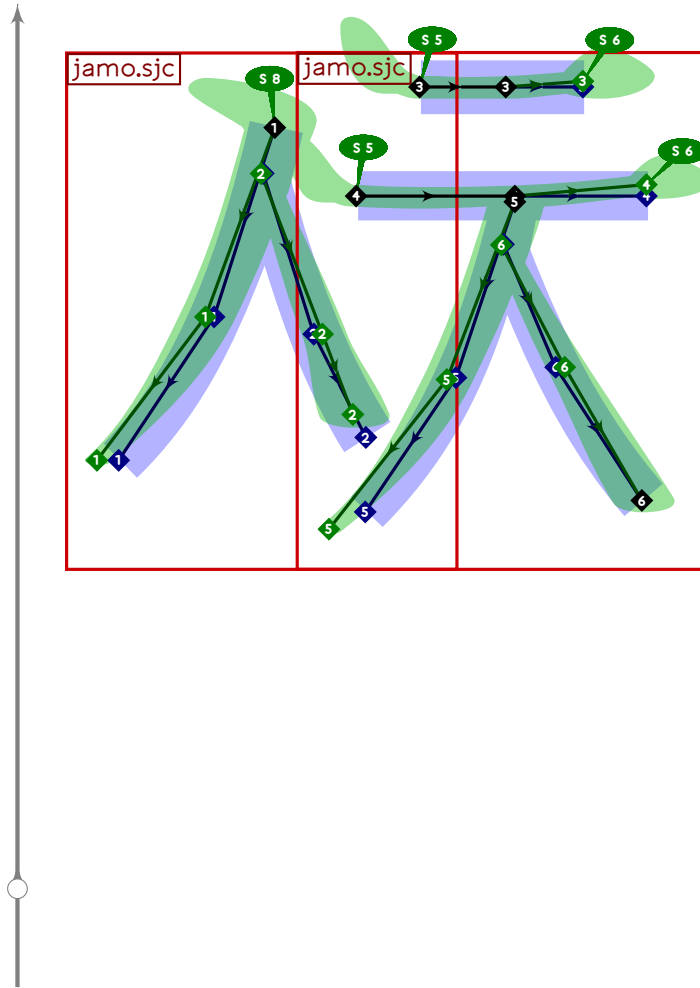
```



```

383 % hangul lead sios-cieuc
384 begintsuglyph("uni1136.l1",54);
385 hangul.combine.lr(209,112)(whatever,lixf,loxf);
386 tsu_render;
387 endsuglyph;
388

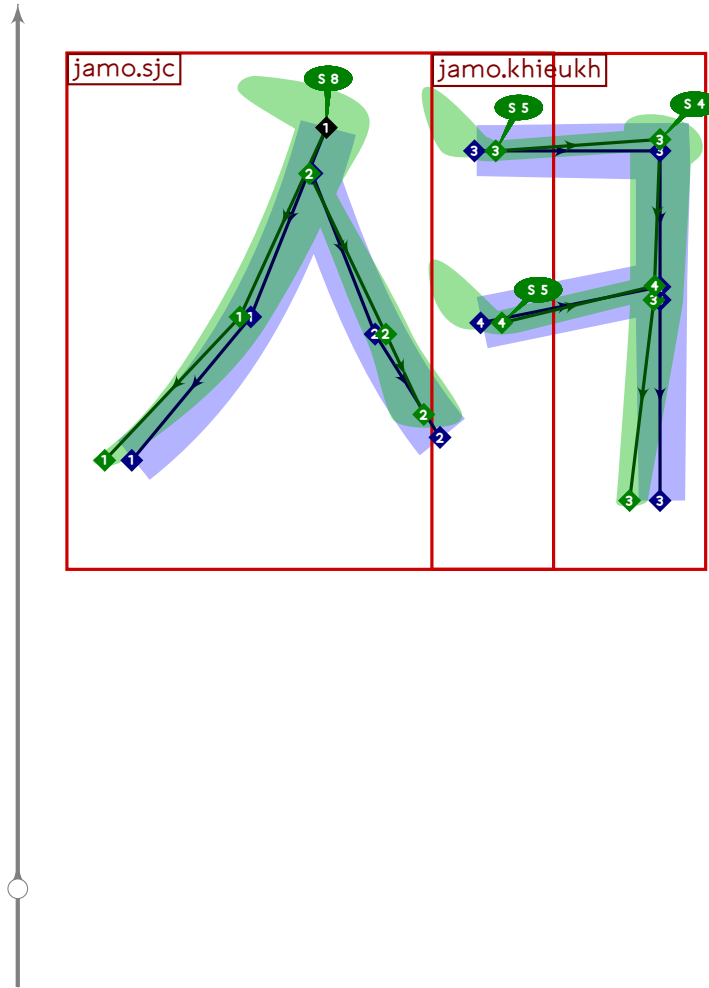
```



```

389 % hangul lead sios-chieuch
390 begintsuglyph("uni1137.l1",55);
391 hangul.combine.lr(209,114)(whatever,lixf,loxf);
392 tsu_render;
393 endtsuglyph;
394

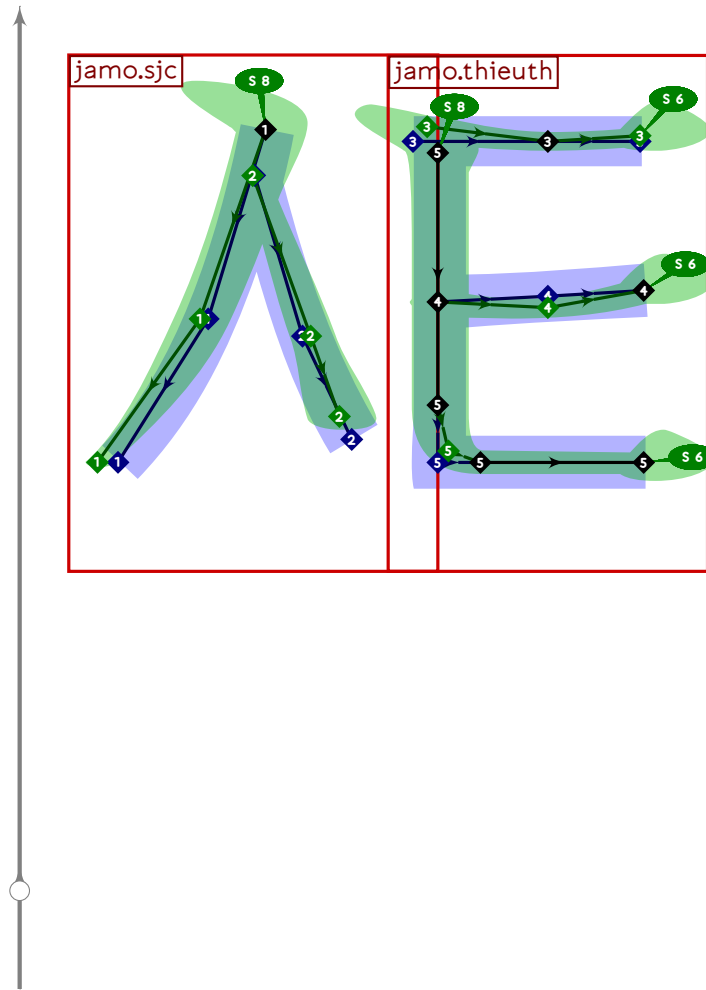
```



```

395 % hangul lead sios-khieukh
396 begintsuglyph("uni1138.l1",56);
397 hangul.combine.lr(209,115)(whatever,lixf,loxf);
398 tsu_render;
399 endsuglyph;
400

```

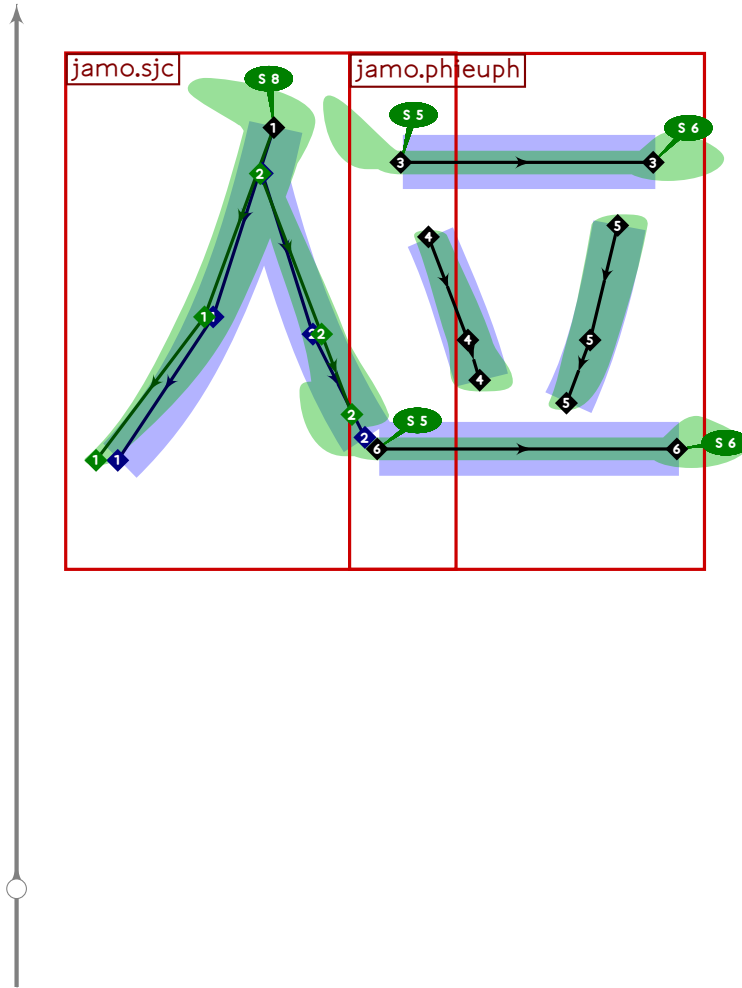


```

401 % hangul lead sios-thieuth
402 begint Suglyph("uni1139.l1",57);
403 hangul.combine.lr(209,116)(whatever,lixf,loxf);
404 tsu_render;
405 endtsuglyph;
406

```

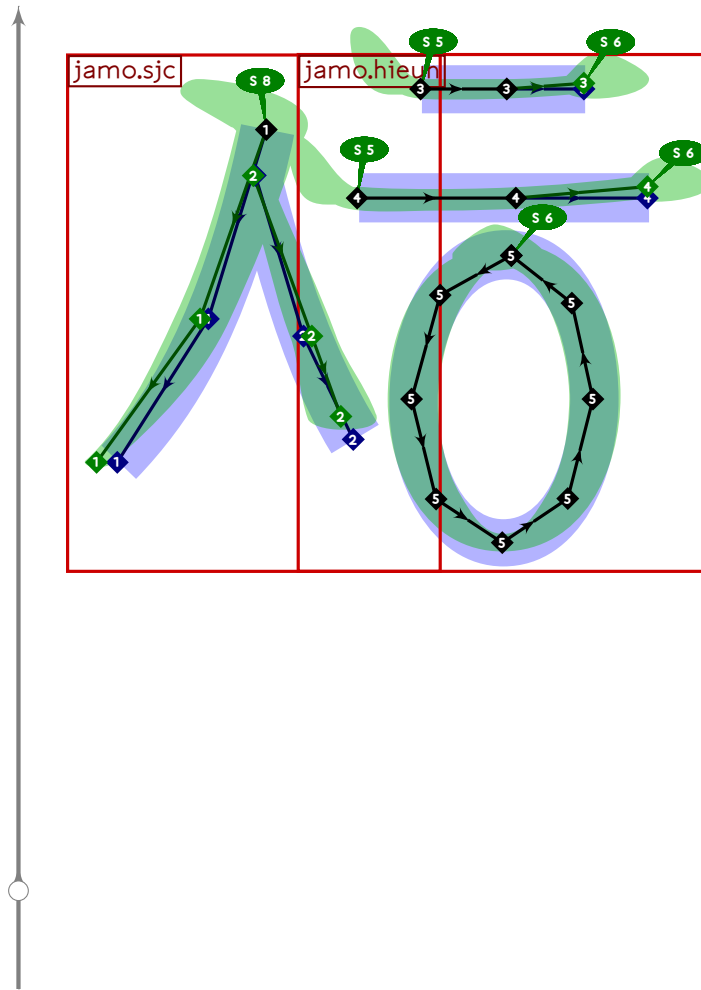




```

407 % hangul lead sios-phieuph
408 begintsuglyph("uni113A.l1",58);
409 hangul.combine.lr(209,117)(whatever,lixf,loxf);
410 tsu_render;
411 endtsuglyph;
412

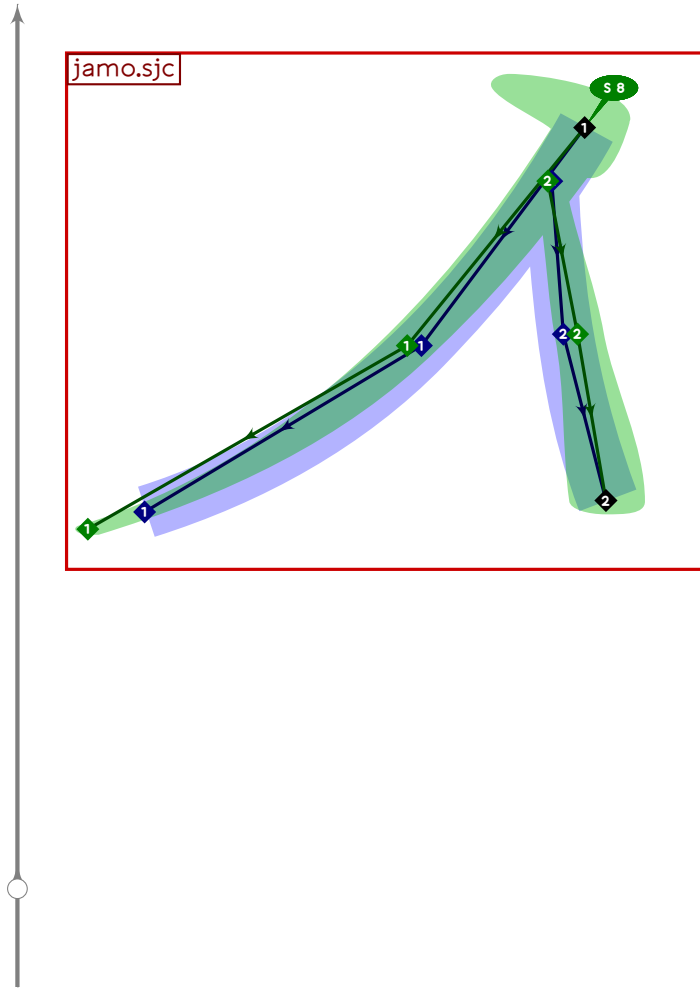
```



```

413 % hangul lead sio-hieuh
414 begintsuglyph("uni113B.l1",59);
415 hangul.combine.lr(209,118)(whatever,lixf,loxf);
416 tsu_render;
417 endtsuglyph;
418

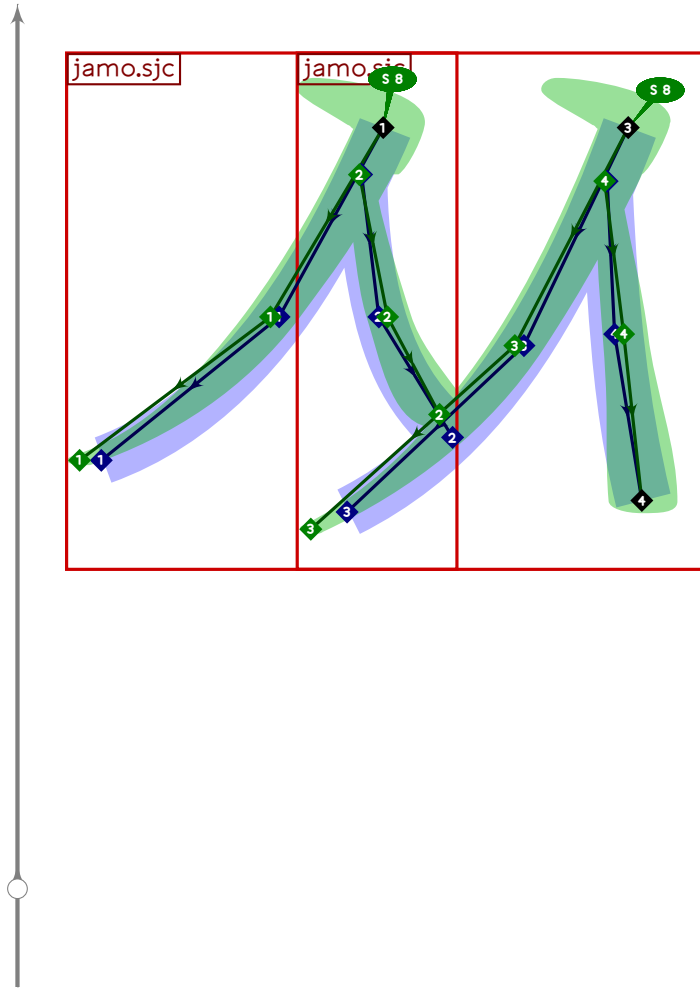
```



```

419 % hangul lead chitueumsios
420 begint Suglyph("uni113C.l1";60);
421 hangul.jamo.sjc(0,1,false)(whatever,lixf,loxf);
422 tsu_render;
423 endtsuglyph;
424

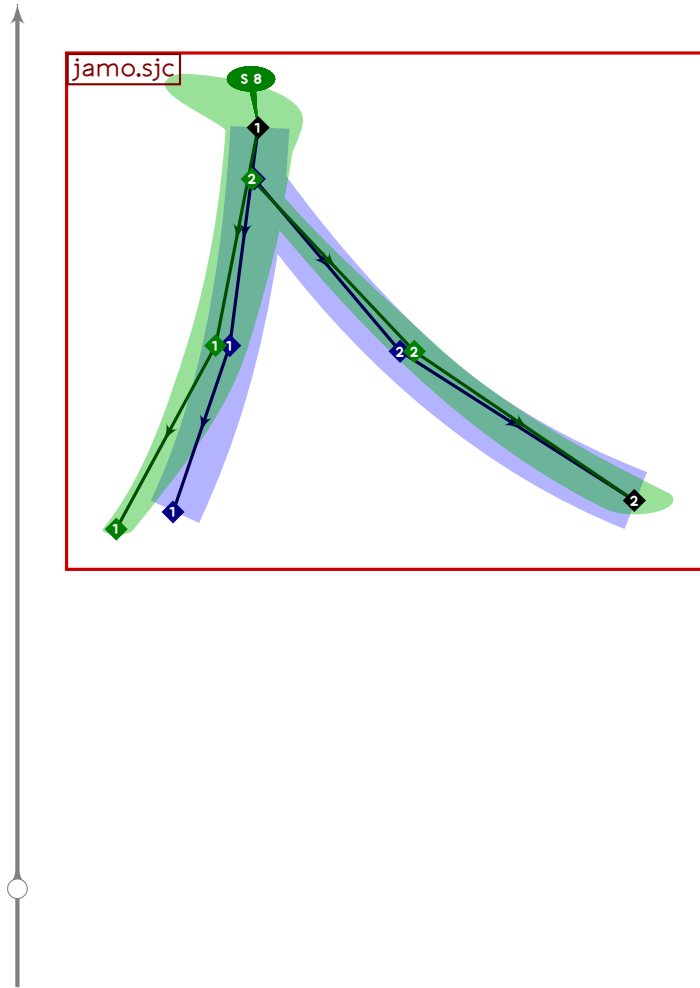
```



```

425 % hangul lead chitueumssangsios
426 begintsuglyph("uni113D.l1";61);
427 hangul.combine.lr(223,222)(whatever,lixf,loxf);
428 tsu_render;
429 endsuglyph;
430

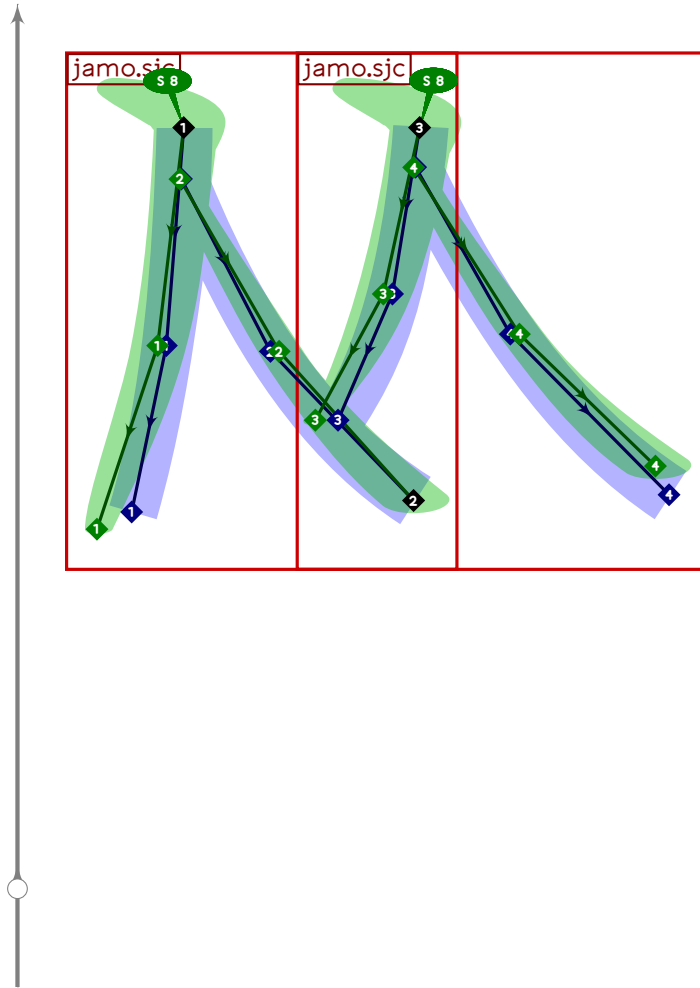
```



```

431 % hangul lead ceongchieumsios
432 begint Suglyph("uni113E.l1",62);
433 hangul.jamo.sjc(0,-1,false)(whatever,lixf,loxf);
434 tsu_render;
435 endtsuglyph;
436

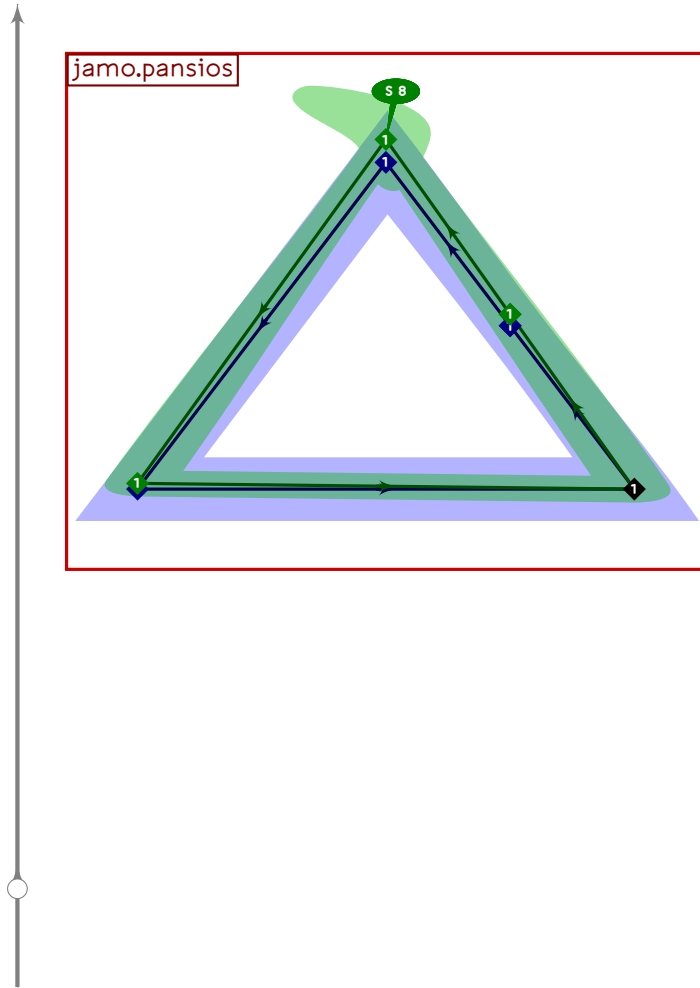
```



```

437 % hangul lead ceongchieumssangsios
438 begintsuglyph("uni113F.l1",63);
439 hangul.combine.lr(224,225)(whatever,lixf,loxf);
440 tsu_render;
441 endtsuglyph;
442

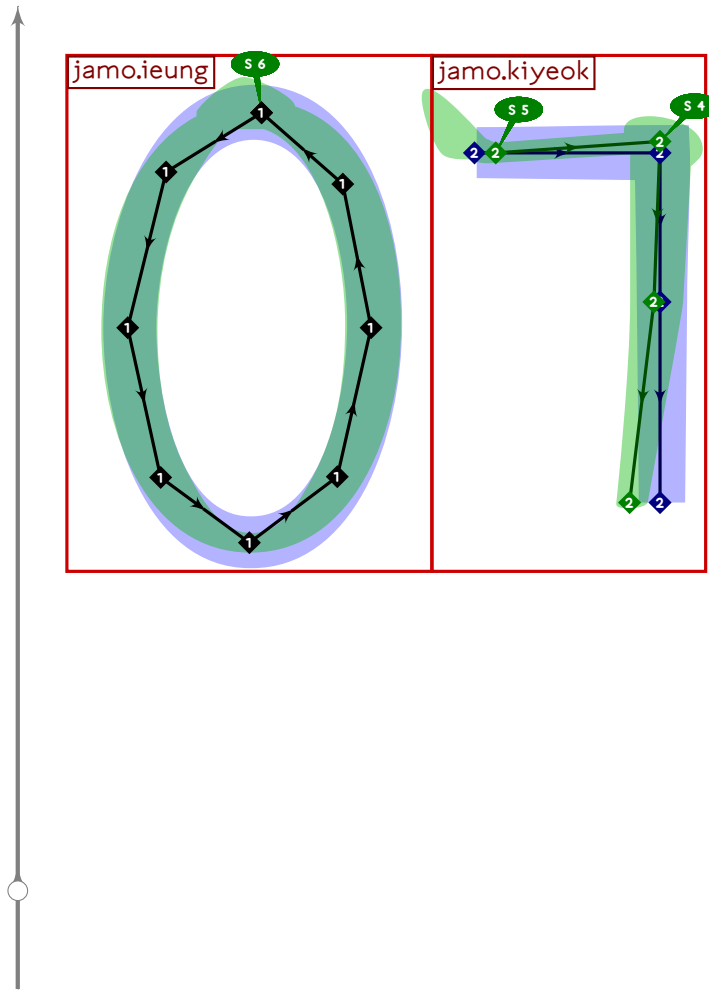
```



```

443 % hangul lead pansios
444 begintsuglyph("uni1140.l1",64);
445 hangul.jamo.pansios(whatever,lixf,loxf);
446 tsu_render;
447 endtsuglyph;
448

```

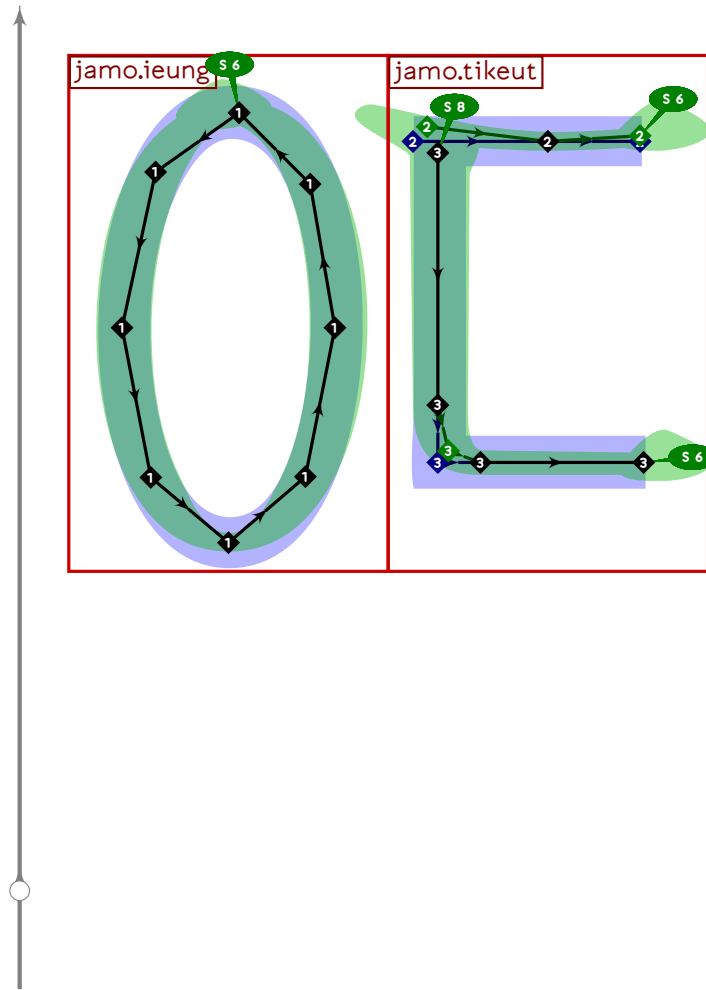


```

449 % hangul lead ieung-kiyeok
450 begintsuglyph("uni1141.l1",65);
451 hangul.combine.lr(111,100)(whatever,lixf,loxf);
452 tsu_render;
453 endsuglyph;
454

```

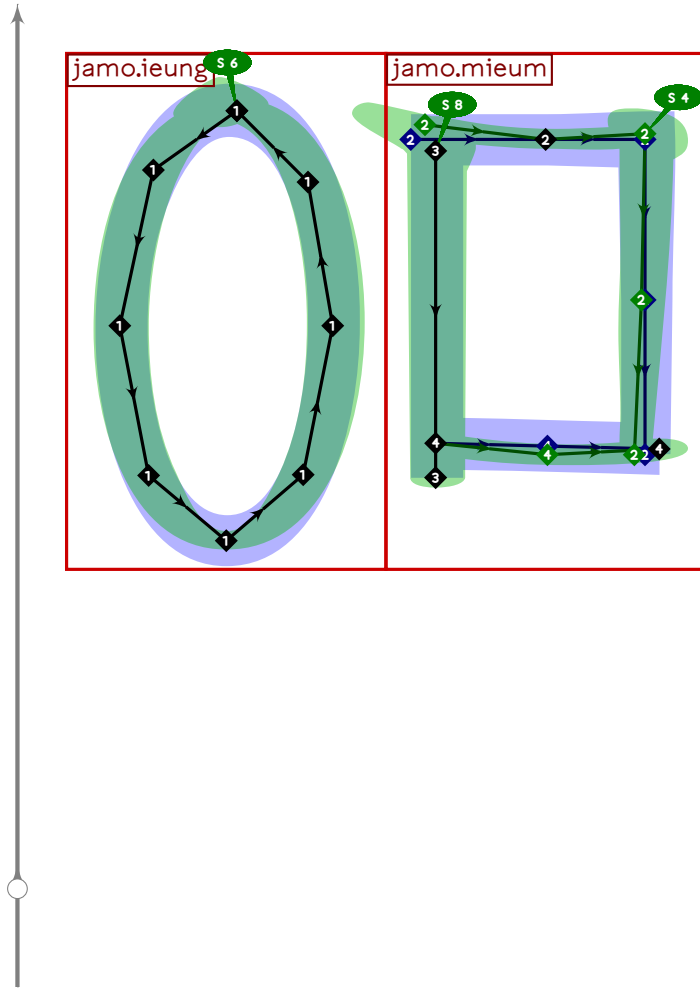




```

455 % hangul lead ieung-tikeut
456 begintsuglyph("uni1142.l1",66);
457 hangul.combine.lr(111,103)(whatever,lixf,loxf);
458 tsu_render;
459 endsuglyph;
460

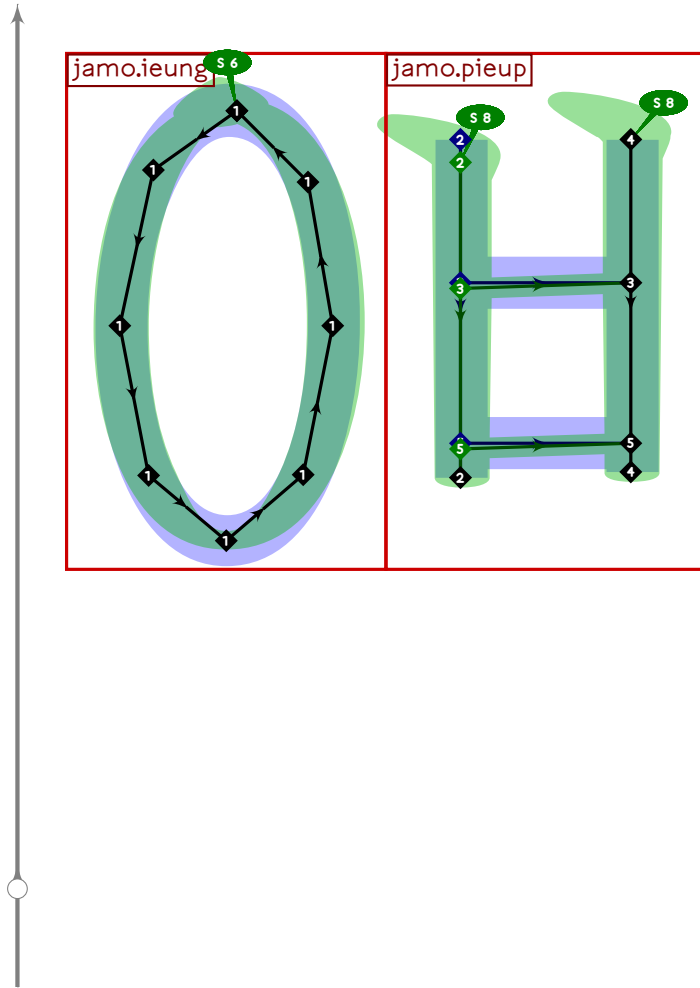
```



```

461 % hangul lead ieung-mieum
462 begintsuglyph("uni1143.l1",67);
463 hangul.combine.lr(111,106)(whatever,lixf,loxf);
464 tsu_render;
465 endsuglyph;
466

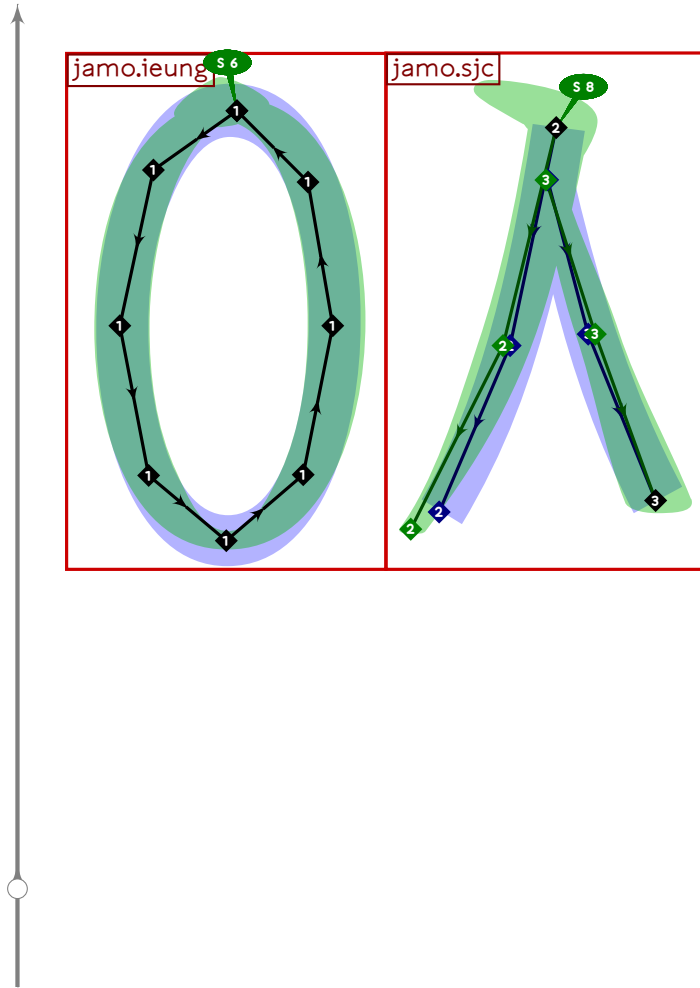
```



```

467 % hangul lead ieung-pieup
468 begintsuglyph("uni1144.l1",68);
469 hangul.combine.lr(111,107)(whatever,lixf,loxf);
470 tsu_render;
471 endtsuglyph;
472

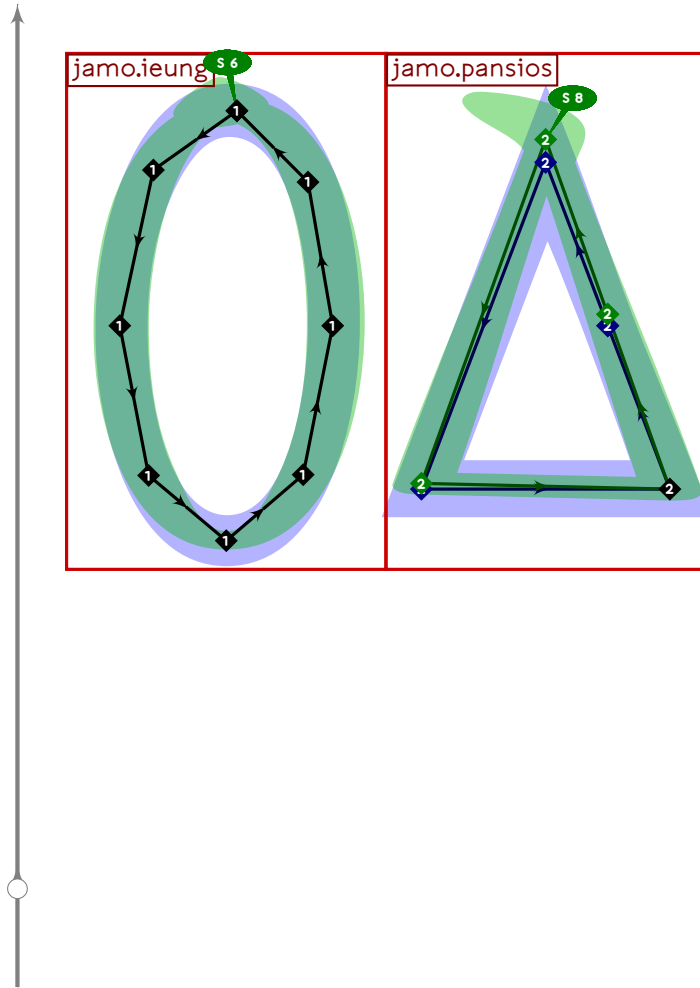
```



```

473 % hangul lead ieung-sios
474 begintsuglyph("uni1145.l1",69);
475 hangul.combine.lr(111,109)(whatever,lixf,loxf);
476 tsu_render;
477 endsuglyph;
478

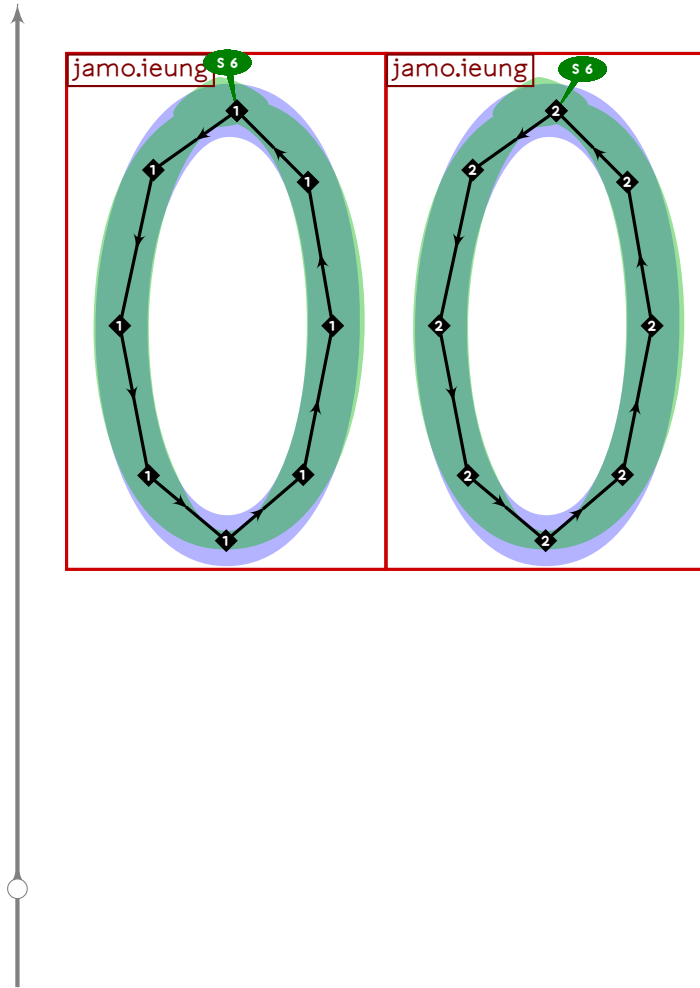
```



```

479 % hangul lead ieung-pansios
480 begintsuglyph("uni1146.l1";70);
481 hangul.combine.lr(111,219)(whatever,lixf,loxf);
482 tsu_render;
483 endsuglyph;
484

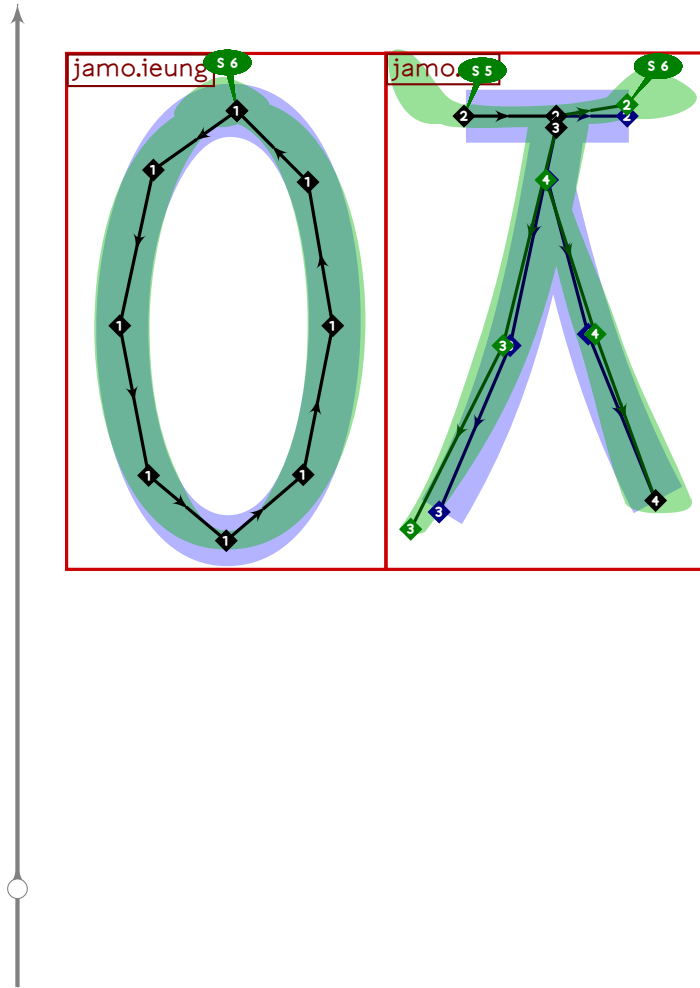
```



```

485 % hangul lead ssangieung
486 begintsuglyph("uni1147.l1";71);
487 hangul.combine.lr(111,111)(whatever,lixf,loxf);
488 tsu_render;
489 endsuglyph;
490

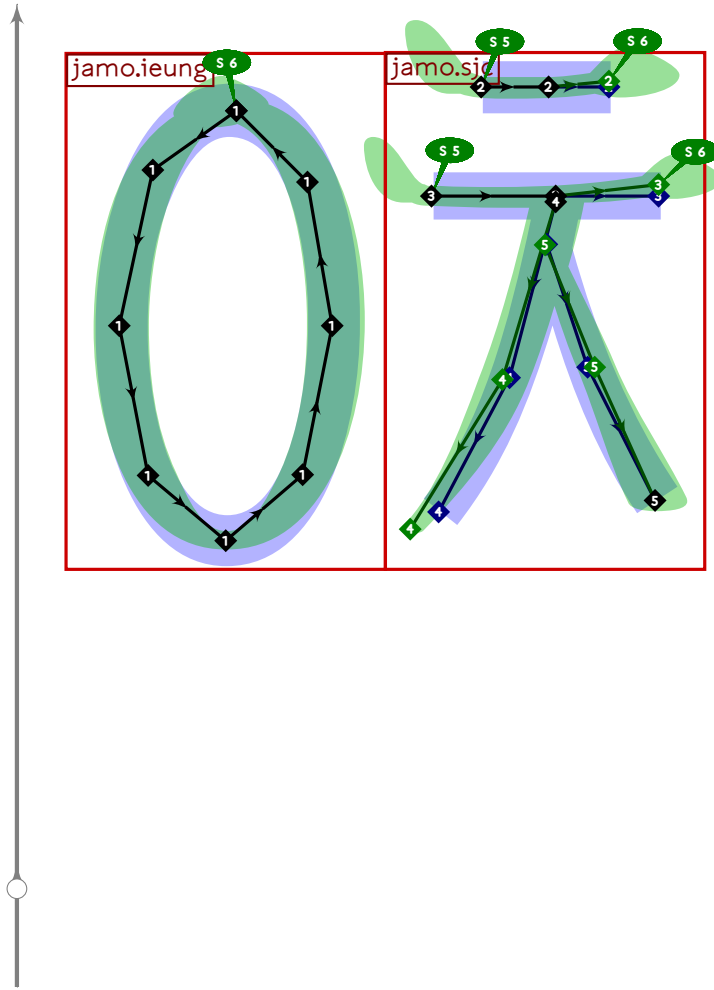
```



```

491 % hangul lead ieung-cieuc
492 beginsuglyph("uni1148.l1";72);
493 hangul.combine.lr(111,112)(whatever,lixf,loxf);
494 tsu_render;
495 endsuglyph;
496

```

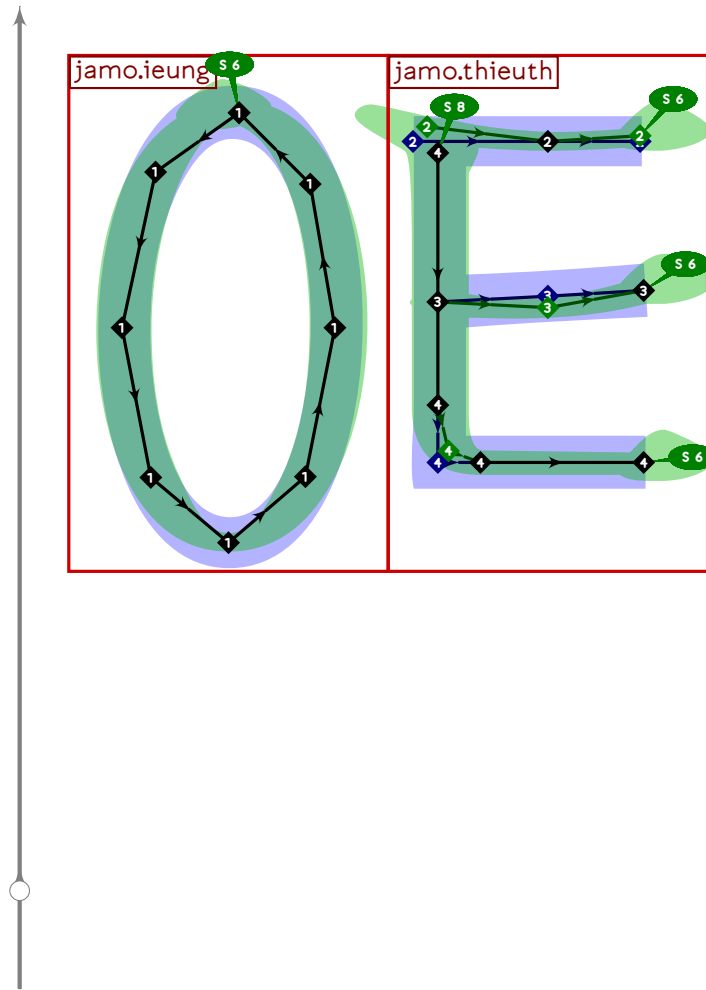


```

497 % hangul lead ieung-chieuch
498 begintsuglyph("uni1149.l1";73);
499 hangul.combine.lr(111,114)(whatever,lixf,loxf);
500 tsu_render;
501 endsuglyph;
502

```

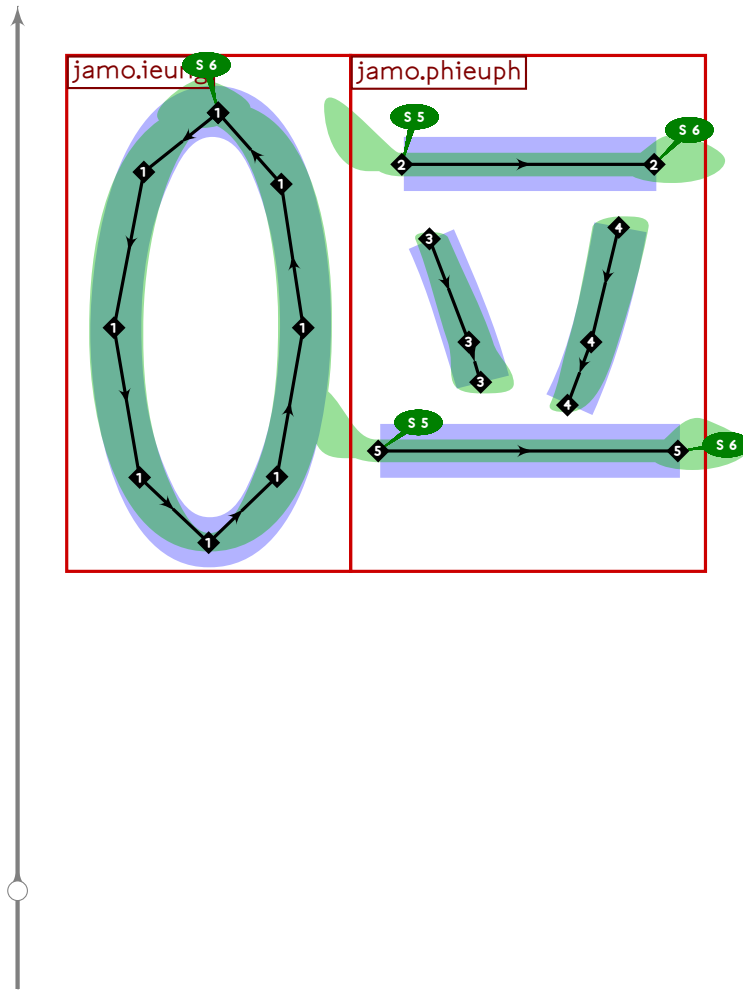




```

503 % hangul lead ieung-theiuth
504 begintsuglyph("uni114A.l1";74);
505 hangul.combine.lr(111,116)(whatever,lixf,loxf);
506 tsu_render;
507 endsuglyph;
508

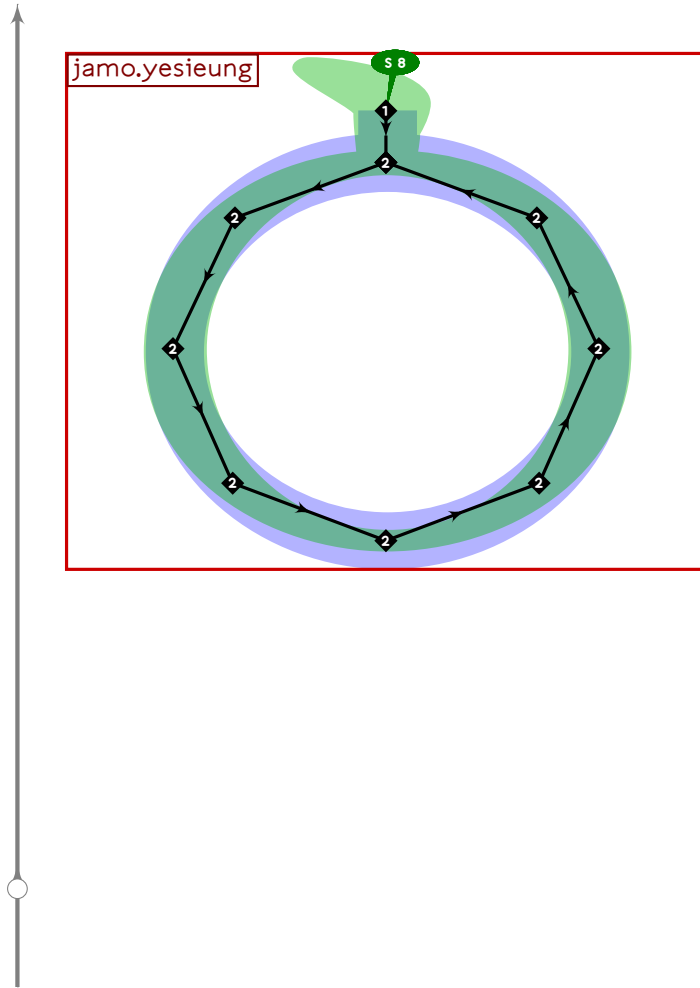
```



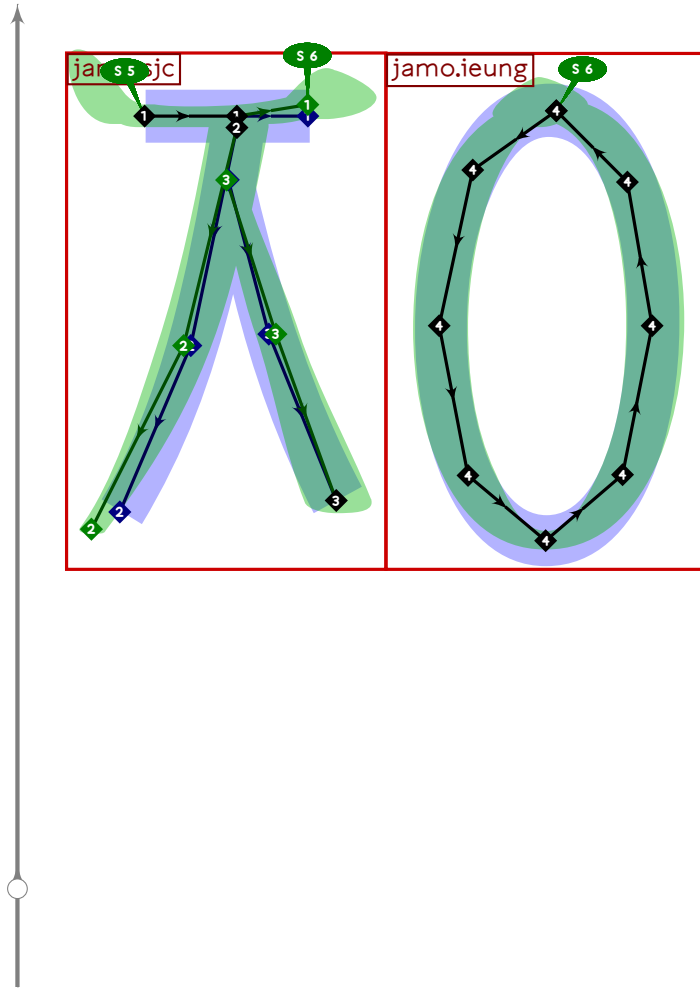
```

509 % hangul lead ieung-phieuph
510 begintsuglyph("uni114B.l1";75);
511 hangul.combine.lr(111,117)(whatever,lixf,loxf);
512 tsu_render;
513 endsuglyph;
514

```



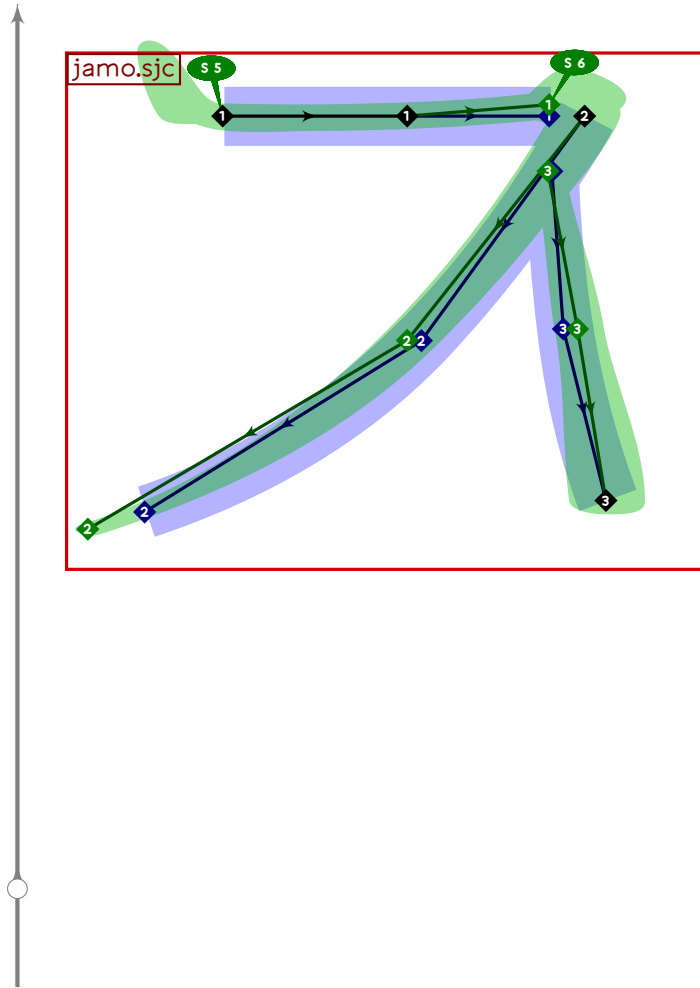
```
515 % hangul lead yesieung
516 begintsuglyph("uni114C.l1";76);
517 hangul.jamo.yesieung(whatever,lixf,loxf);
518 tsu_render;
519 endsuglyph;
520
```



```

521 % hangul lead cieuc-ieung
522 begintsuglyph("uni114D.l1";77);
523 hangul.combine.lr(112,111)(whatever,lixf,loxf);
524 tsu_render;
525 endsuglyph;
526

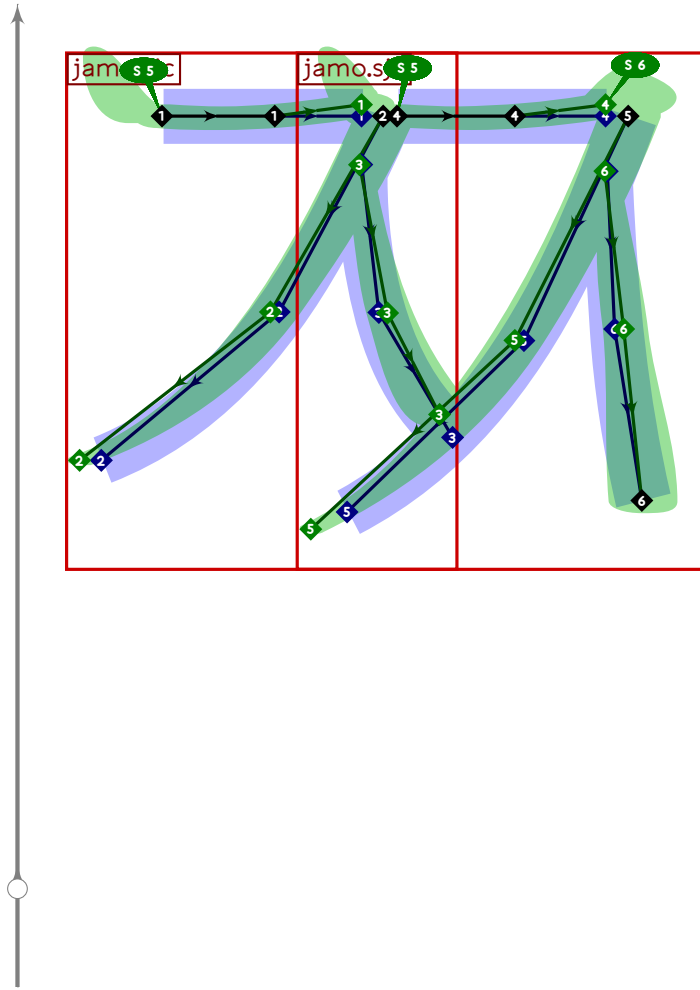
```



```

527 % hangul lead chitueumcieuc
528 begintsuglyph("uni114E.l1";78);
529 hangul.jamo.sjc(1,1,false)(whatever,lixf,loxf);
530 tsu_render;
531 endtsuglyph;
532

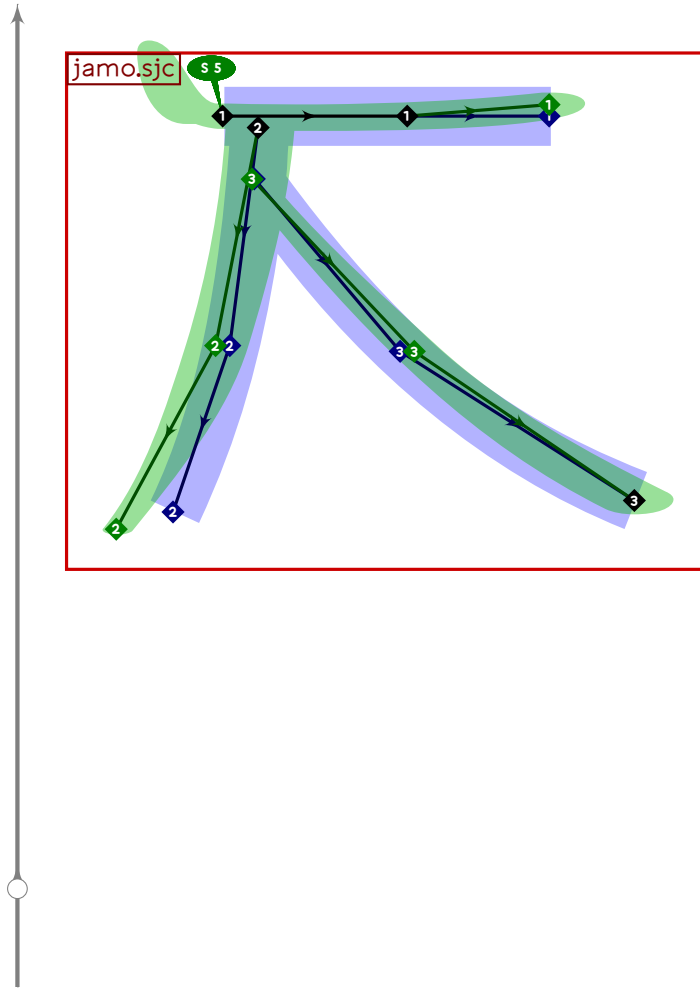
```



```

533 % hangul lead chitueumssangcieuc
534 begintsuglyph("uni114F.l1";79);
535 hangul.combine.lr(227,226)(whatever,lixf,loxf);
536 tsu_render;
537 endsuglyph;
538

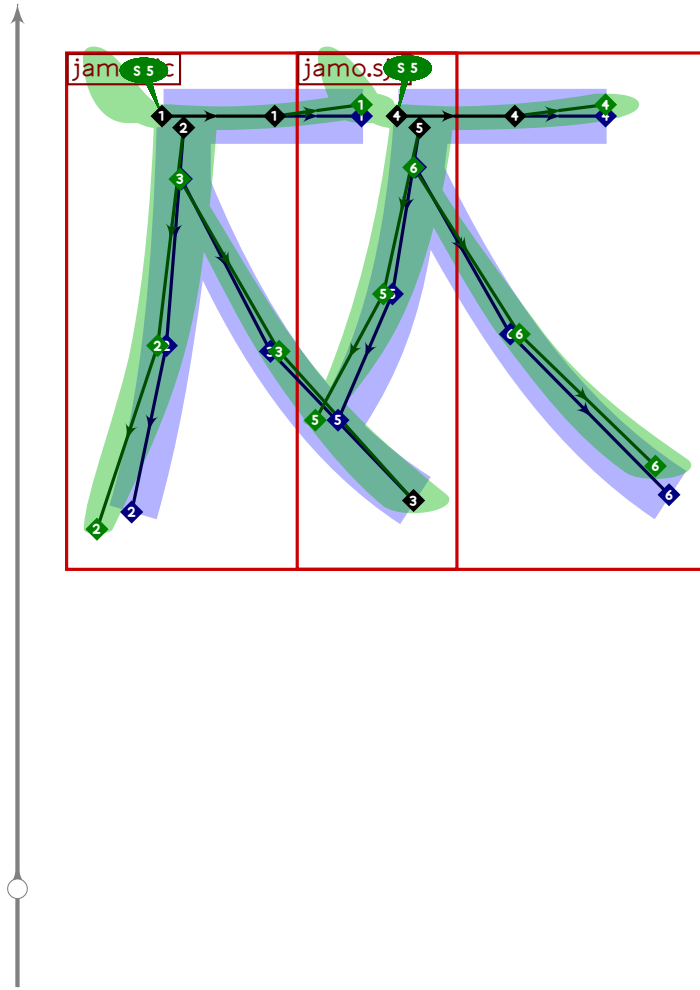
```



```

539 % hangul lead ceongchieumcieuc
540 begint Suglyph("uni1150.l1";80);
541 hangul.jamo.sjc(1,-1,false)(whatever,lixf,loxf);
542 tsu_render;
543 endtsuglyph;
544

```

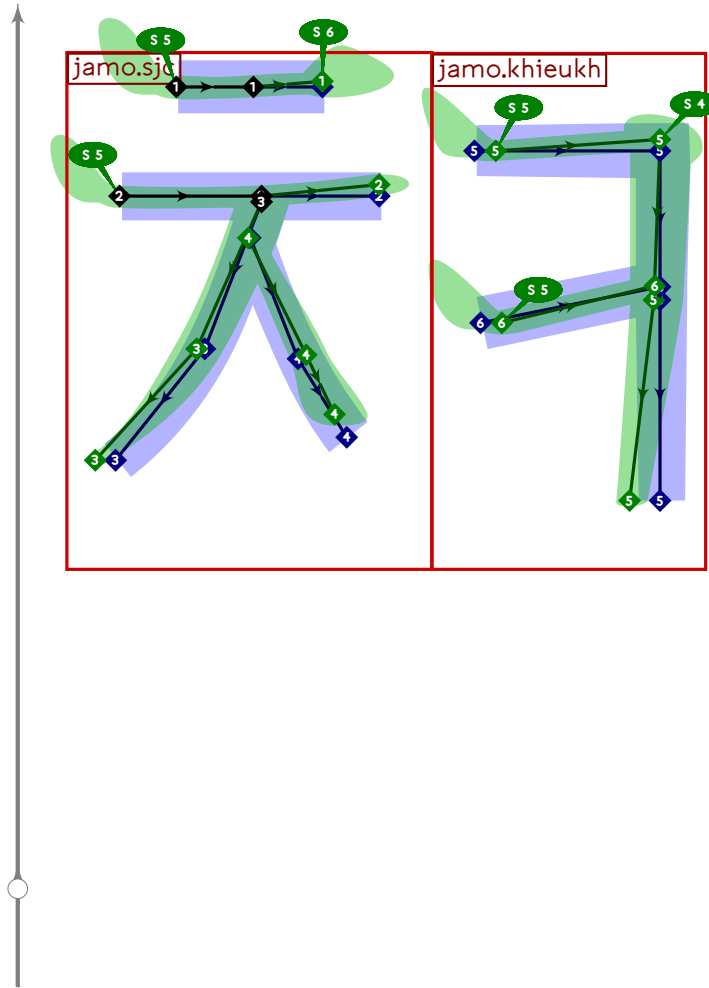


```

545 % hangul lead ceongchieumssangcieuc
546 beginsuglyph("uni1151.11",81);
547 hangul.combine.lr(228,229)(whatever,lixf,loxf);
548 tsu_render;
549 endsuglyph;
550

```

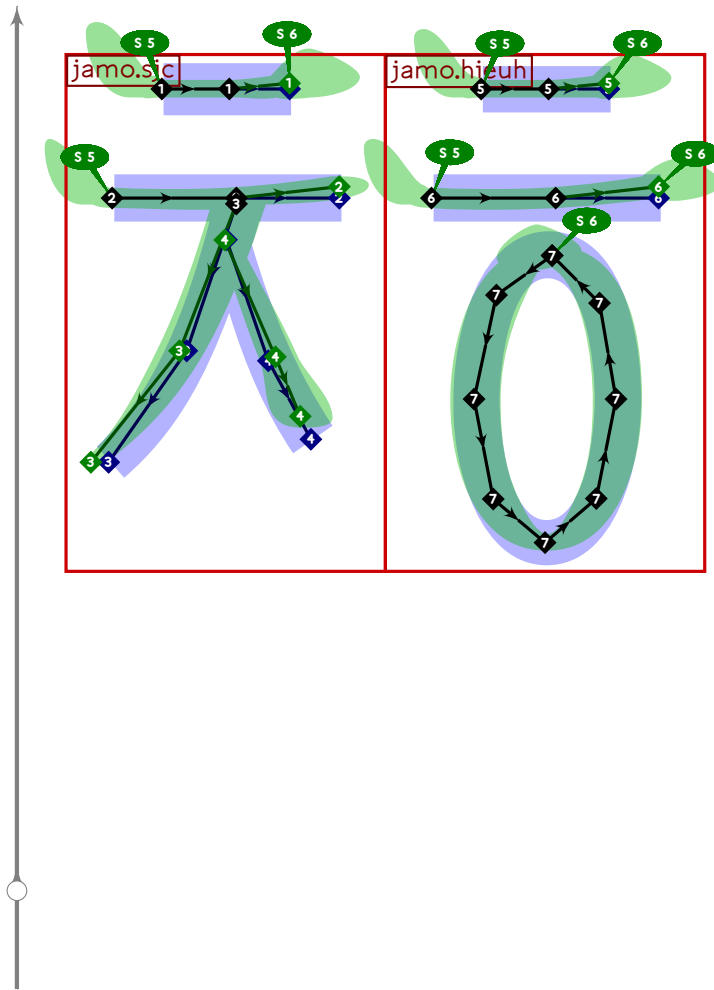




```

551 % hangul lead chieuch-khieukh
552 begintsuglyph("uni1152.l1",82);
553 hangul.combine.lcr(214,230,115)(whatever,lixf,loxf);
554 tsu_render;
555 endsuglyph;
556

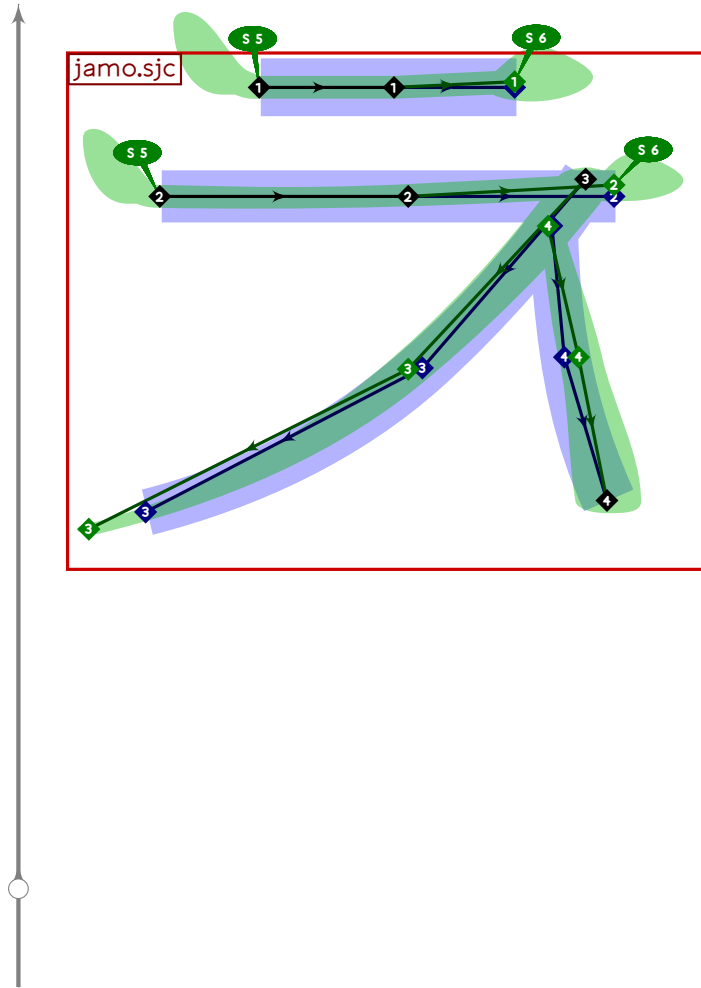
```



```

557 % hangul lead chieuch-hieuh
558 begintsuglyph("uni1153.l1",83);
559 hangul.combine.lcr(214,230,118)(whatever,lixf,loxf);
560 tsu_render;
561 endtsuglyph;
562

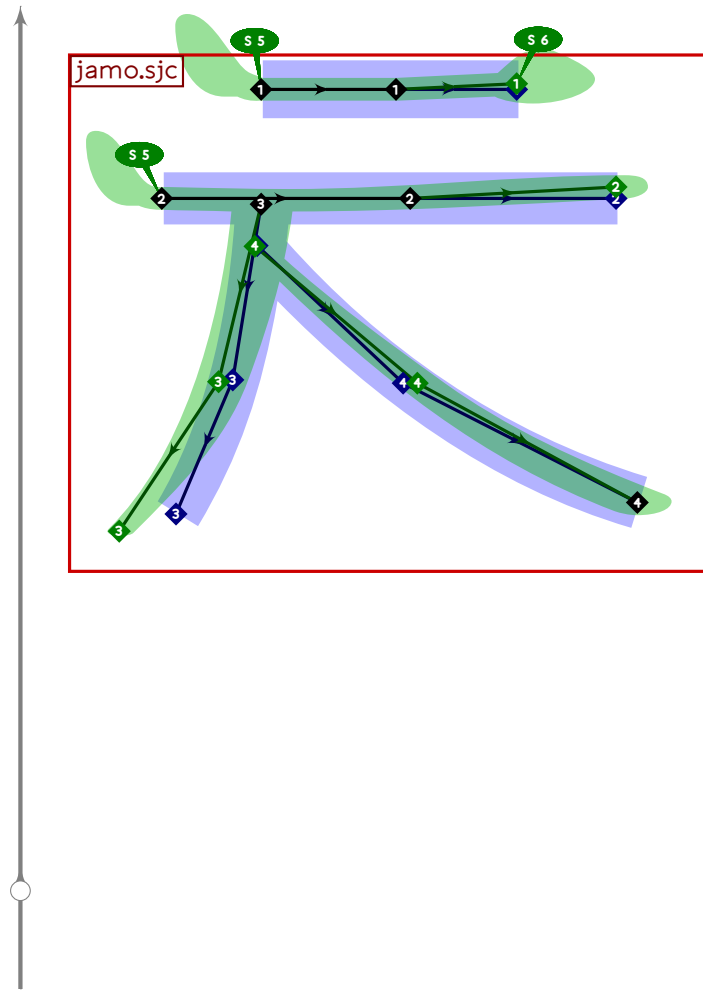
```



```

563 % hangul lead chitueumcieuc
564 begintsuglyph("uni1154.l1",84);
565 hangul.jamo.sjc(2,1,false)(whatever,lixf,loxf);
566 tsu_render;
567 endtsuglyph;
568

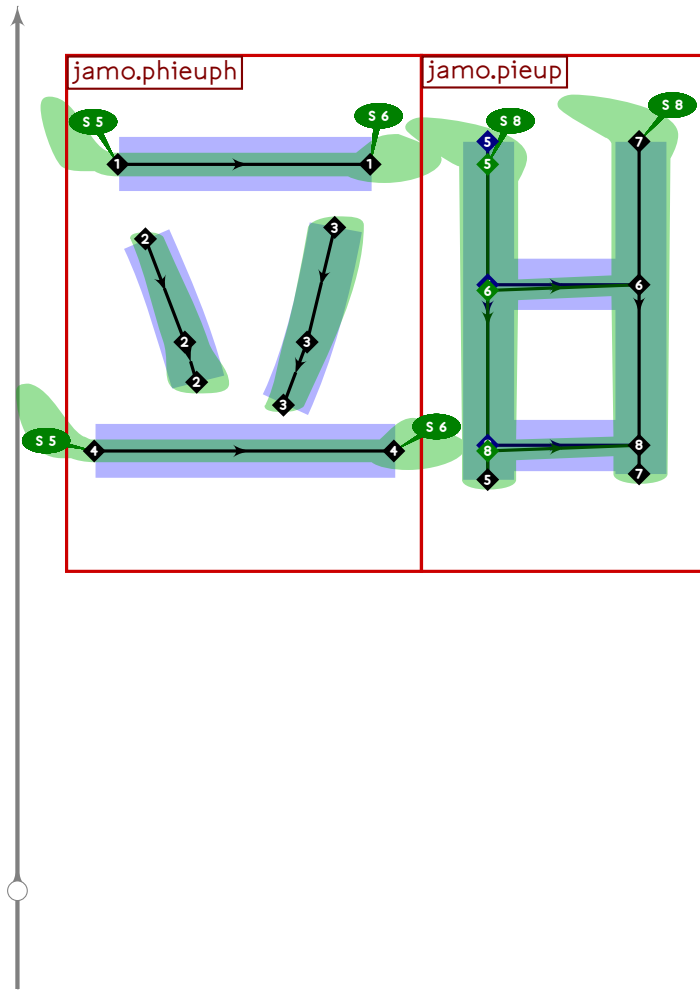
```



```

569 % hangul lead ceongchieumcieuc
570 begintsuglyph("uni1155.l1",85);
571 hangul.jamo.sjc(2,-1,false)(whatever,lixf,loxf);
572 tsu_render;
573 endsuglyph;
574

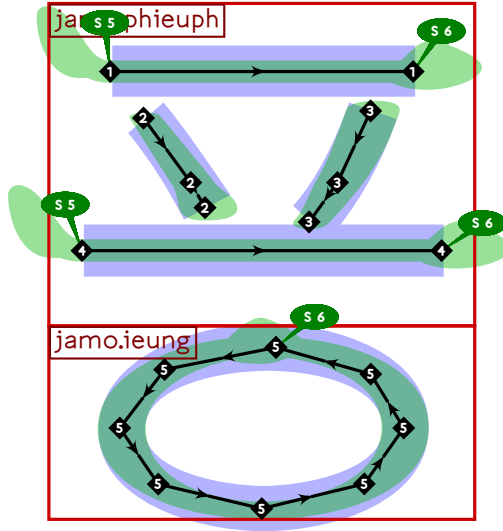
```



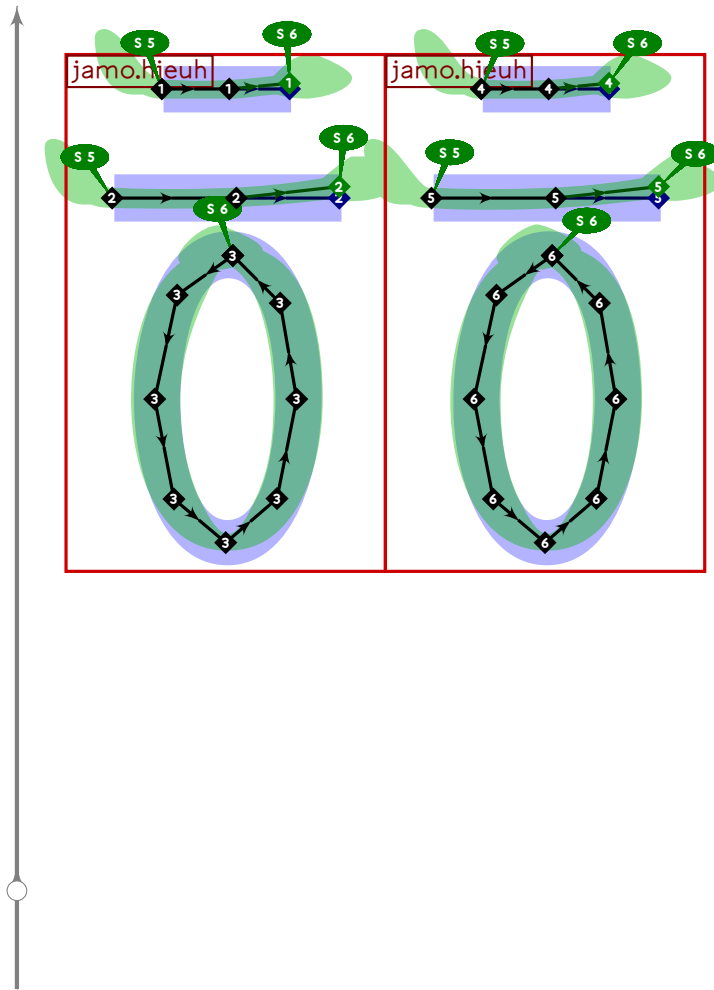
```

575 % hangul lead phieuph-pieup
576 begintsuglyph("uni1156.l1",86);
577 hangul.combine.lr(117,107)(whatever,lixf,loxf);
578 tsu_render;
579 endsuglyph;
580

```



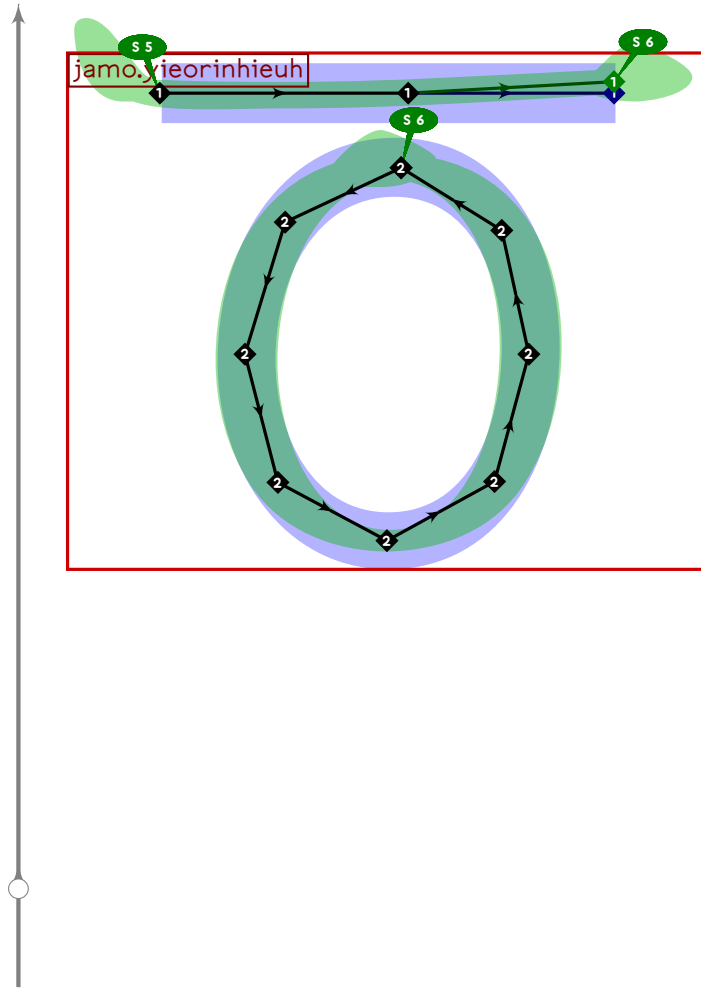
```
581 % hangul lead kapyeounphieuph
582 begint Suglyph("uni1157.l1",87);
583 hangul.combine.tb(117,521)(whatever,
584   hxf((250,850),(850,-50)) transformed lixf,loxf);
585 tsu_render;
586 endsuglyph;
587
```



```

588 % hangul lead ssanghieuh
589 begintsuglyph("uni1158.l1",88);
590 hangul.combine.lcr(118,230,118)(whatever,lixf,loxf);
591 tsu_render;
592 endsuglyph;
593

```

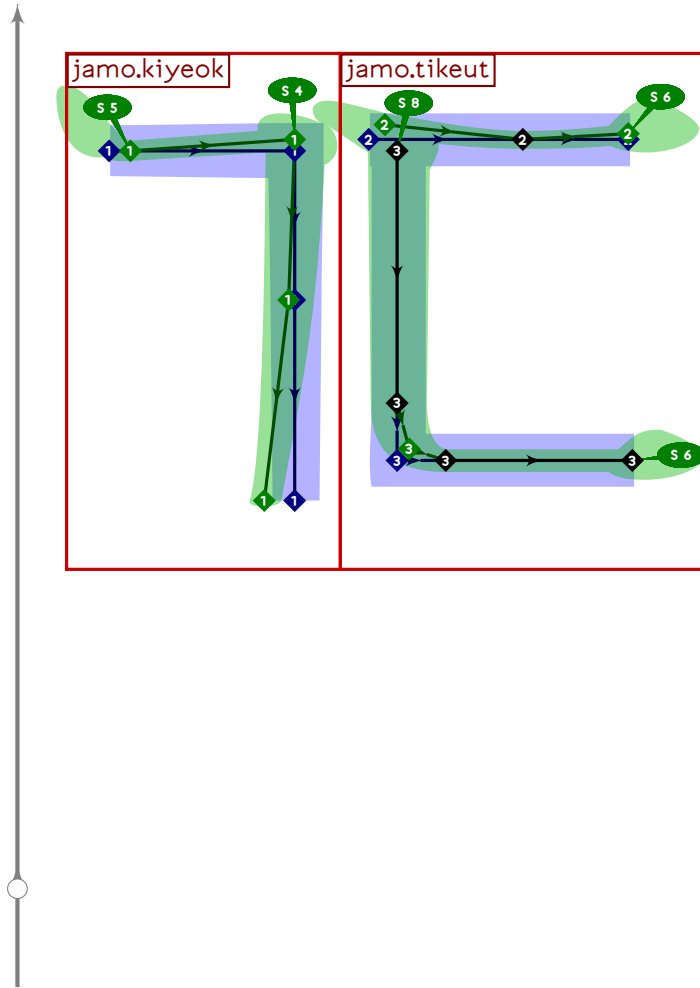


```

594 % hangul lead yeorinhieuh
595 begintsuglyph("uni1159.l1",89);
596 hangul.jamo.yeorinhieuh(whatever,lixf,loxf);
597 tsu_render;
598 endtsuglyph;
599

```

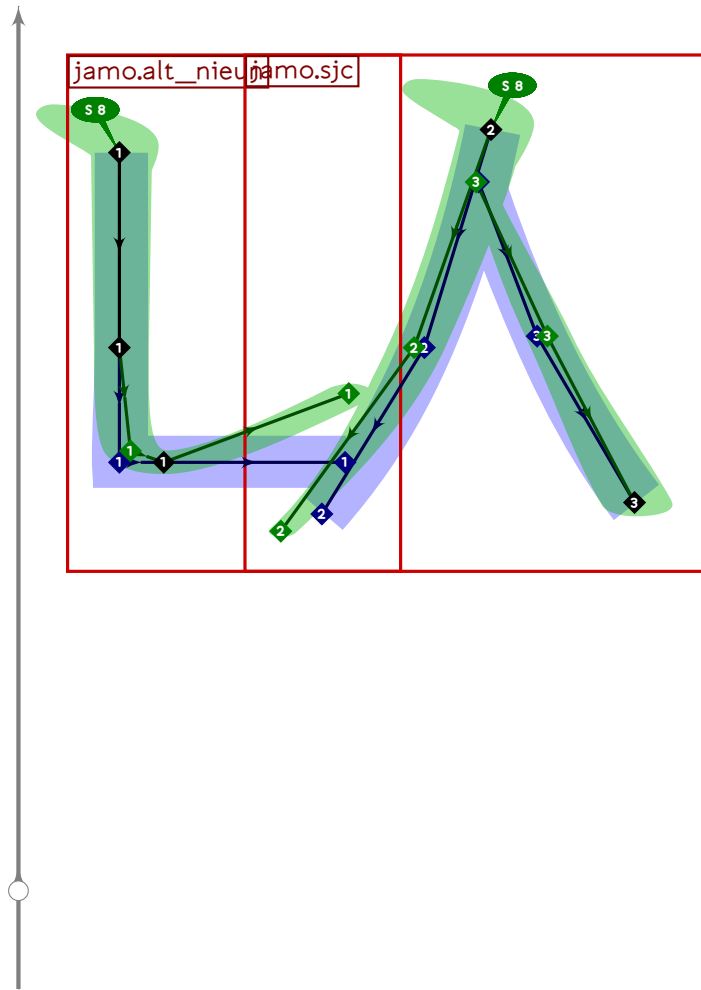




```

600 % hangul lead kiyeok-tikeut
601 begintsuglyph("uni115A.l1";90);
602 hangul.combine.lr(100,103)(whatever,lixf,loxf);
603 tsu_render;
604 endsuglyph;
605

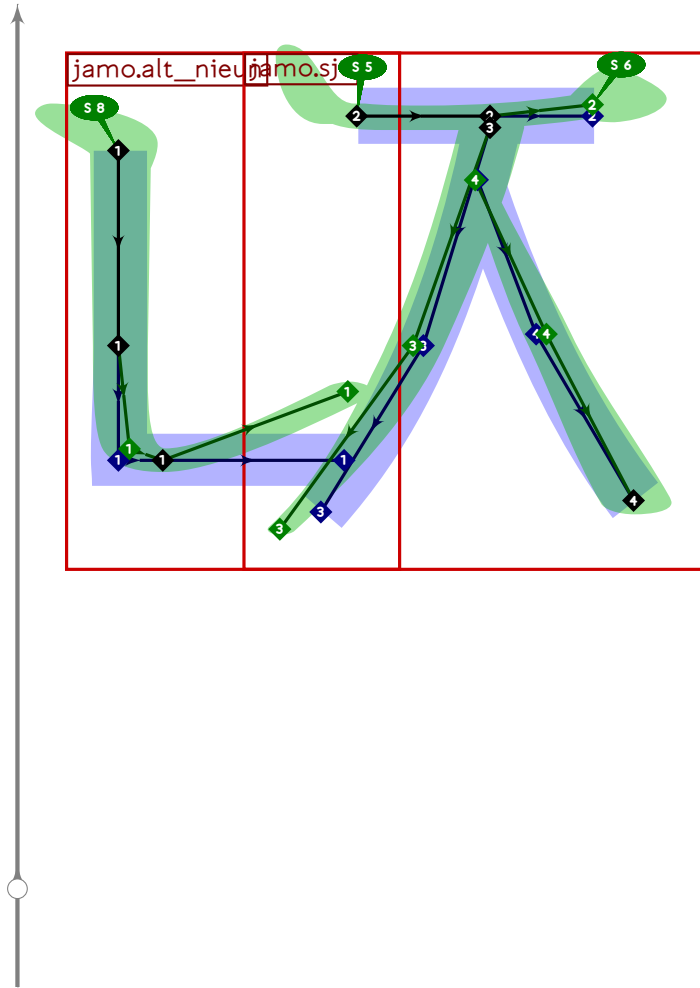
```



```

606 % hangul lead nieun-sios
607 begintsuglyph("uni115B.l1"91);
608 hangul.combine.lr(202,109)(whatever,lixf,loxf);
609 tsu_render;
610 endsuglyph;
611

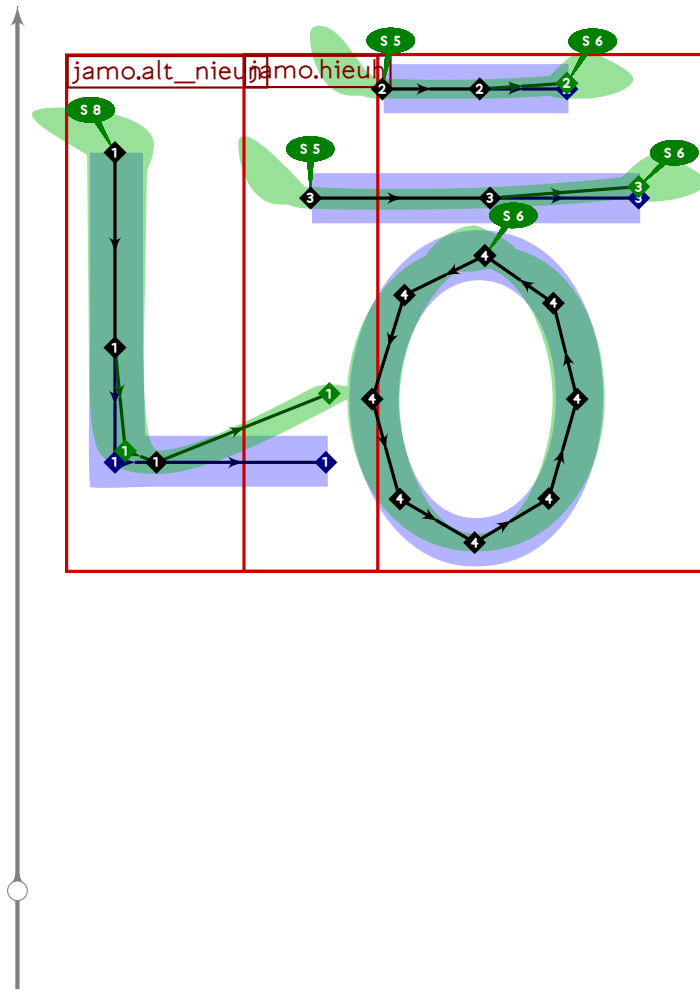
```



```

612 % hangul lead nieun-cieuc
613 begintsuglyph("uni115C.l1";92);
614 hangul.combine.lr(202,112)(whatever,lixf,loxf);
615 tsu_render;
616 endsuglyph;
617

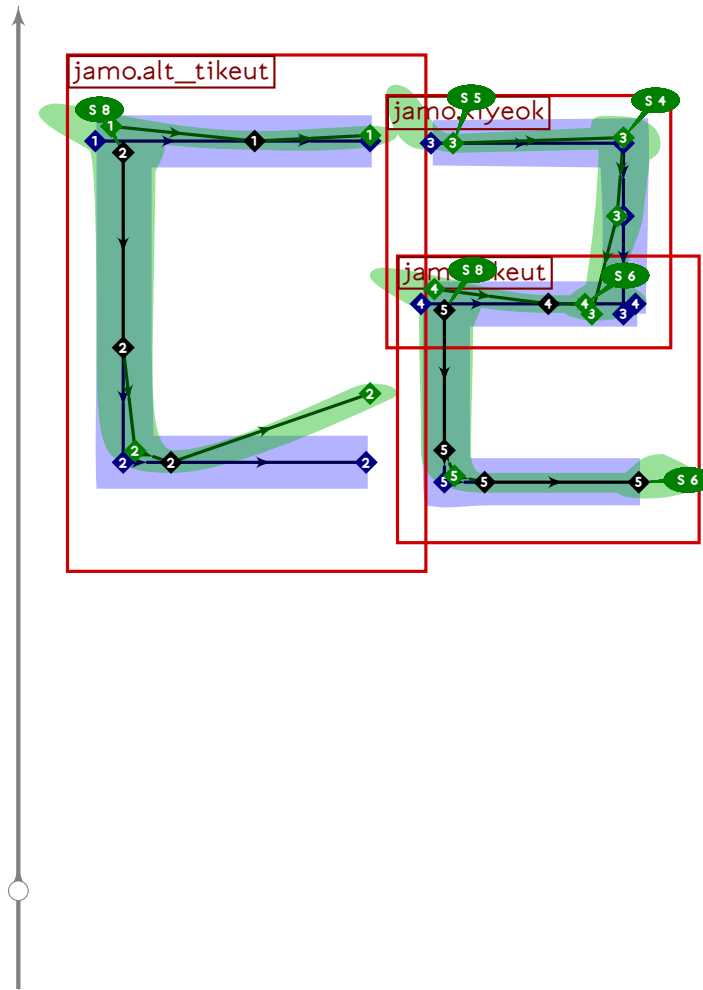
```



```

618 % hangul lead nieun-hieuh
619 begintsuglyph("uni115D.l1";93);
620 hangul.combine.lr(202,118)(whatever,lixf,loxf);
621 tsu_render;
622 endsuglyph;
623

```



```

624 % hangul lead tikeut-rieul
625 begint Suglyph("uni115E.l1"94);
626 hangul.combine.lr(203,105)(whatever,lixf,loxf);
627 tsu_render;
628 endtsuglyph;
629
630 _____
631
632 endfont;
633
634 _____

```

# jieub-ff4.mp

```
1 %
2 % Unicode page FF4 (alternate lead jamo) for Jieubsida
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input hangul.mp;
37 input jamo-basic.mp;
38 input jamo-extra.mp;
39
40 

---

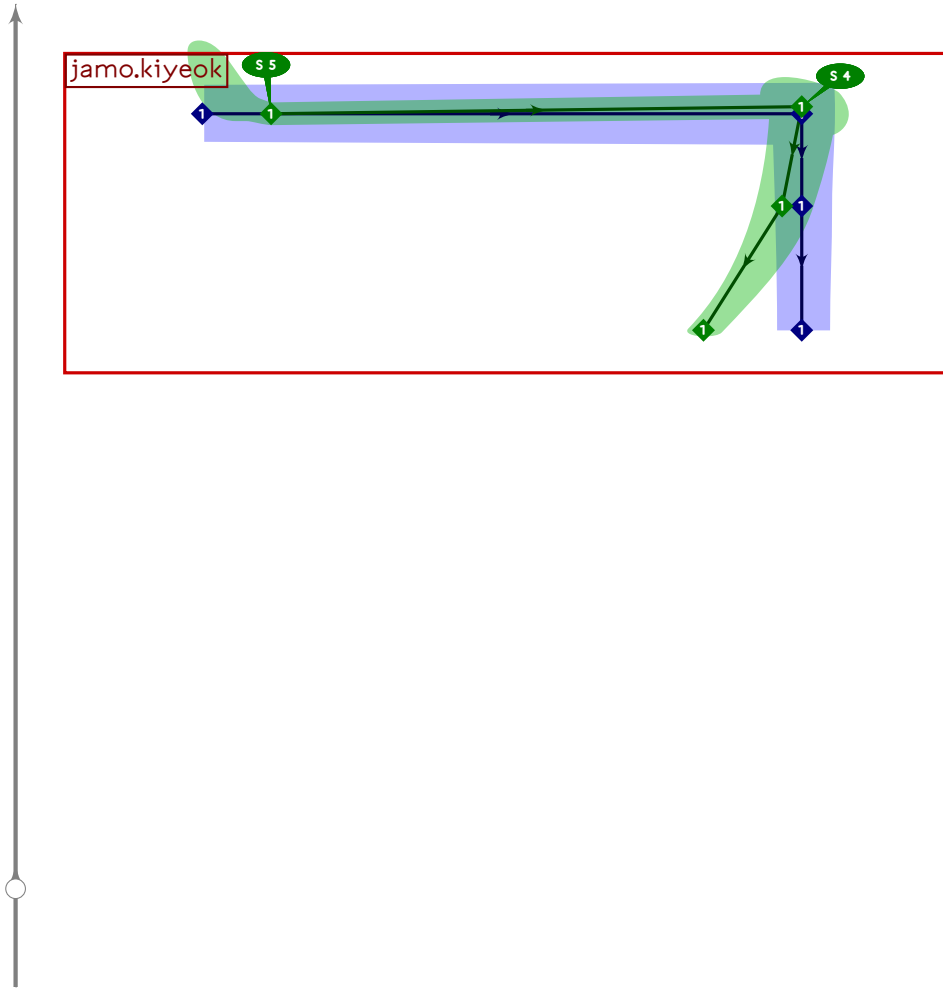

41
42 % This file contains leads for layout 2: horizontal vowel and nonempty tail.
43
44 transform lixf,loxf;
45
46 lixf=loxf=hxf((50,850),(950,525));
47
48 

---


49
```

## Hangul Choseong (Lead) Jamo

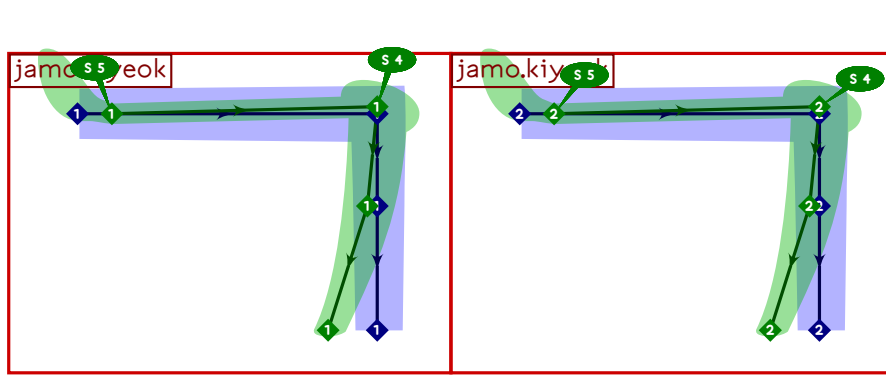
```
50 % HANGUL CHOSEONG (LEAD) JAMO
51
52 tsu_rescale_native_zero;
53
```



```

54 % hangul lead kiyeok
55 begintsuglyph("uni1100.l2",0);
56 hangul.jamo.kiyeok(whatever,lixf,loxf);
57 tsu_render;
58 endsuglyph;
59

```

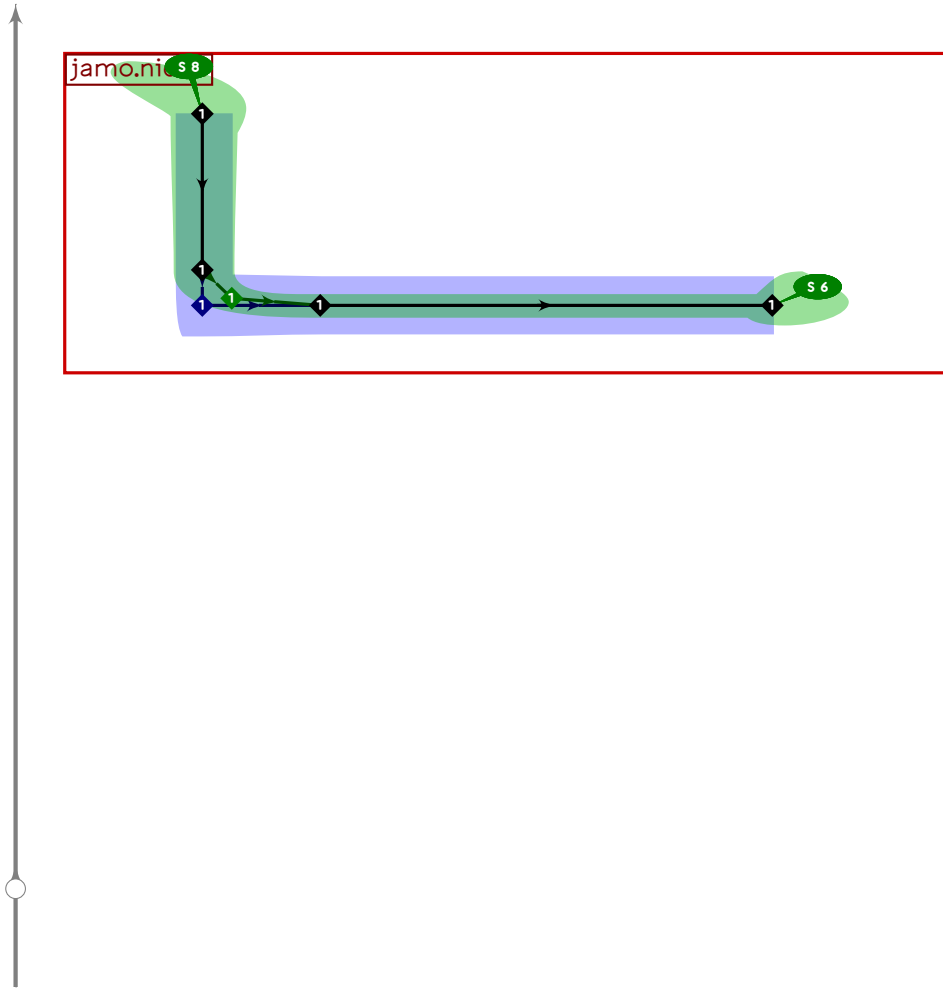


```

60 % hangul lead ssangkiyeok
61 begintsuglyph("uni1101.l2"1);
62 hangul.combine.lr(100,100)(whatever,lif,loxf);
63 tsu_render;
64 endtsuglyph;
65

```

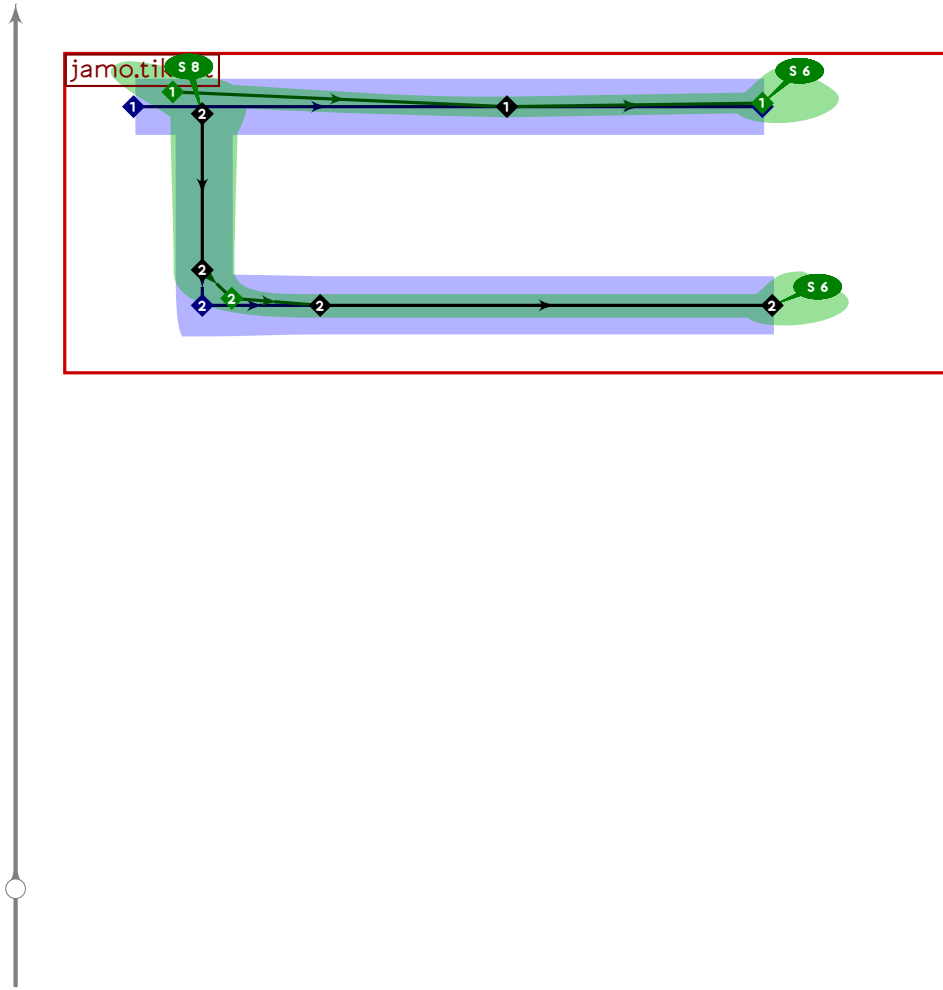




```

66 % hangul lead nieun
67 begint Suglyph("uni1102.l2",2);
68 hangul.jamo.nieun(whatever,lixf,loxf);
69 tsu_render;
70 endtsuglyph;
71

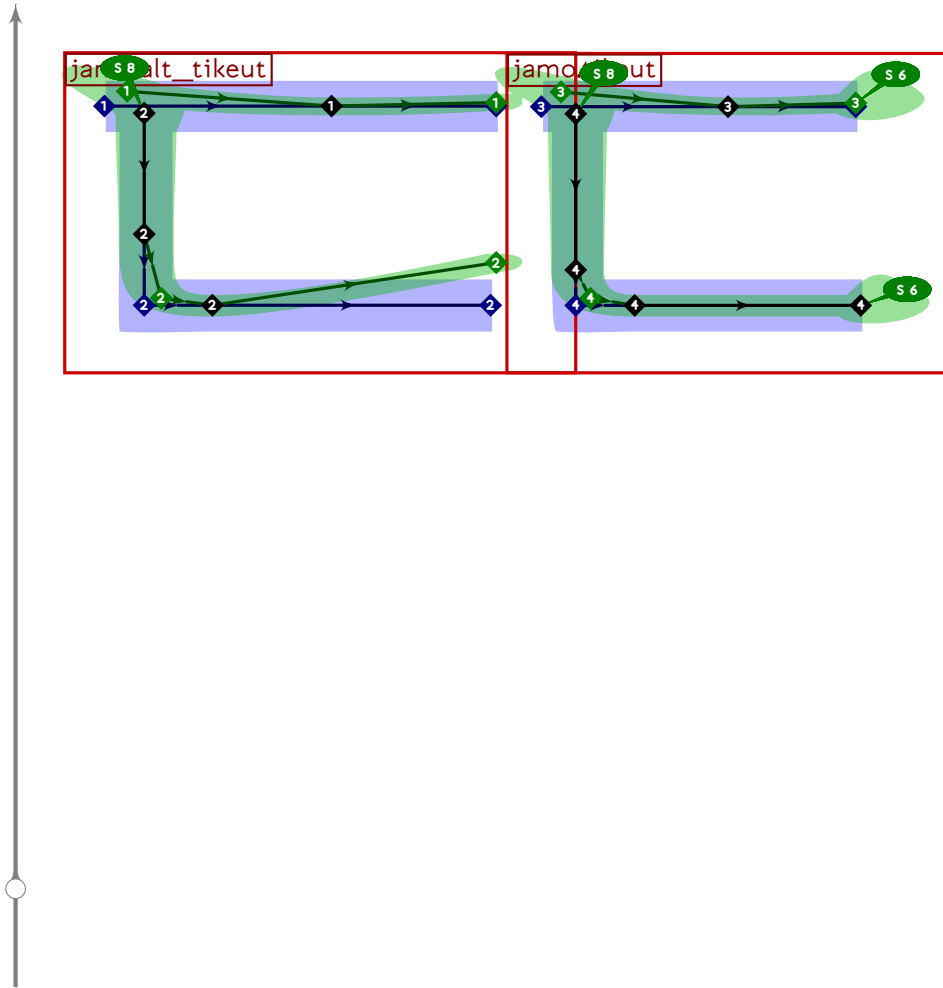
```



```

72 % hangul lead tikeut
73 begintsuglyph("uni1103.l2",3);
74 hangul.jamo.tikeut(whatever,lixf,loxf);
75 tsu_render;
76 endsuglyph;
77

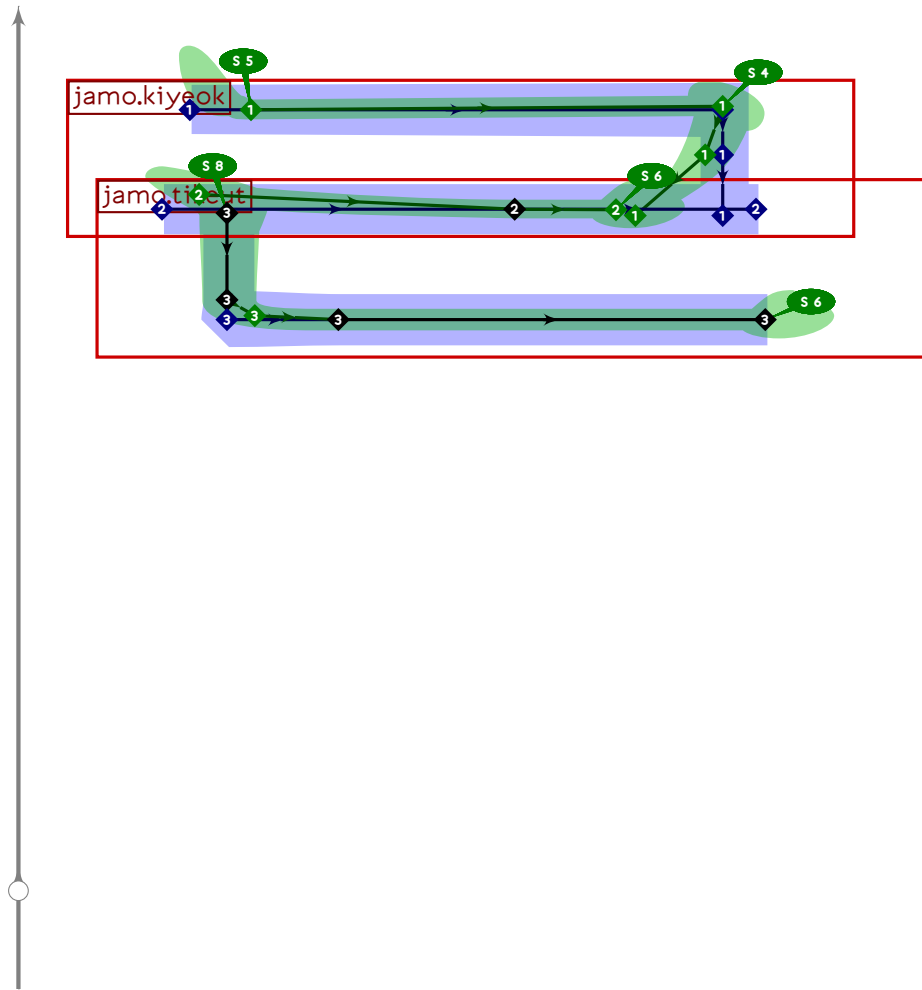
```



```

78 % hangul lead ssangtikeut
79 begintsuglyph("uni1104.12",4);
80 hangul.combine.lr(203,103)(whatever,lixf,loxf);
81 tsu_render;
82 endsuglyph;
83

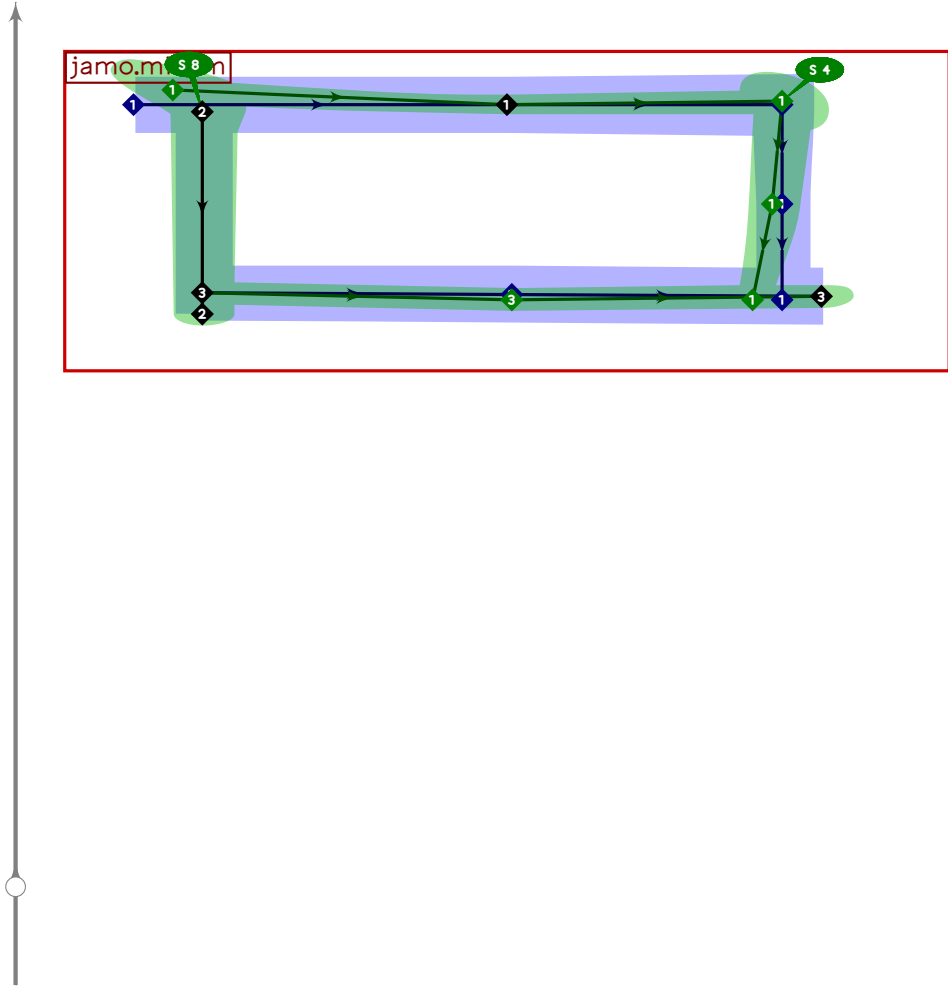
```



```

84 % hangul lead rieur
85 begint Suglyph("uni1105.l2",5);
86 hangul.jamo.rieur(whatever,lixf,loxf);
87 tsu_render;
88 endtsuglyph;
89

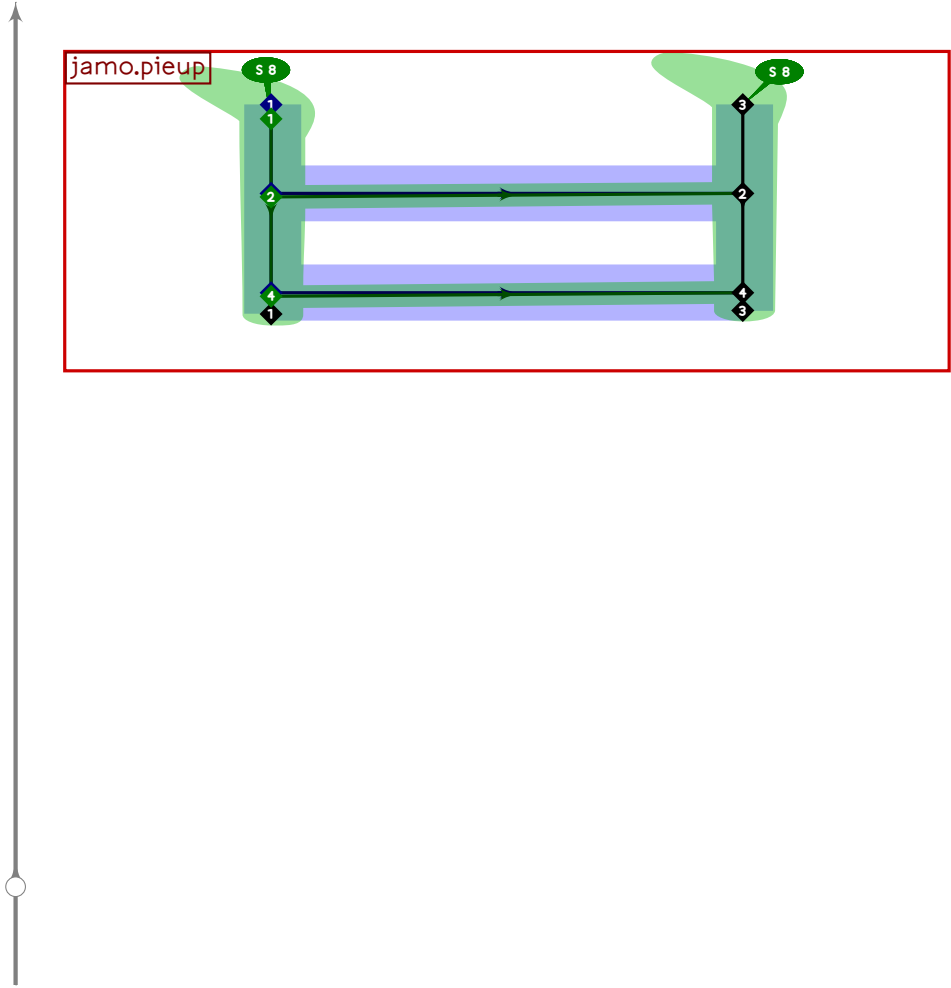
```



```

90 % hangul lead mieum
91 begintsuglyph("uni1106.l2",6);
92 hangul.jamo.mieum(whatever,lixf,loxf);
93 tsu_render;
94 endsuglyph;
95

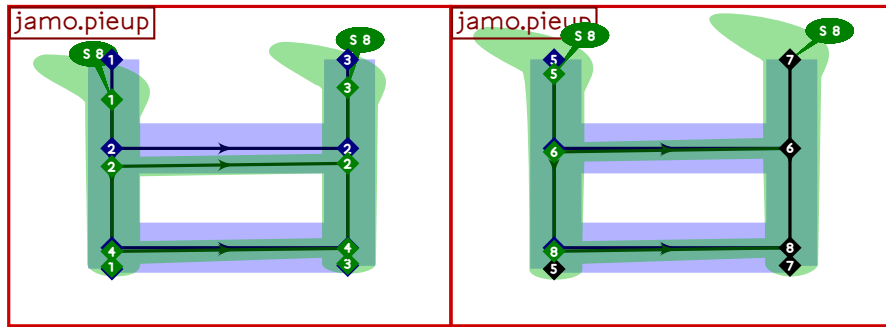
```



```

96 % hangul lead pieup
97 begint Suglyph("uni1107.12",7);
98 hangul.jamo.pieup(whatever,lixf,loxf);
99 tsu_render;
100 endtsuglyph;
101

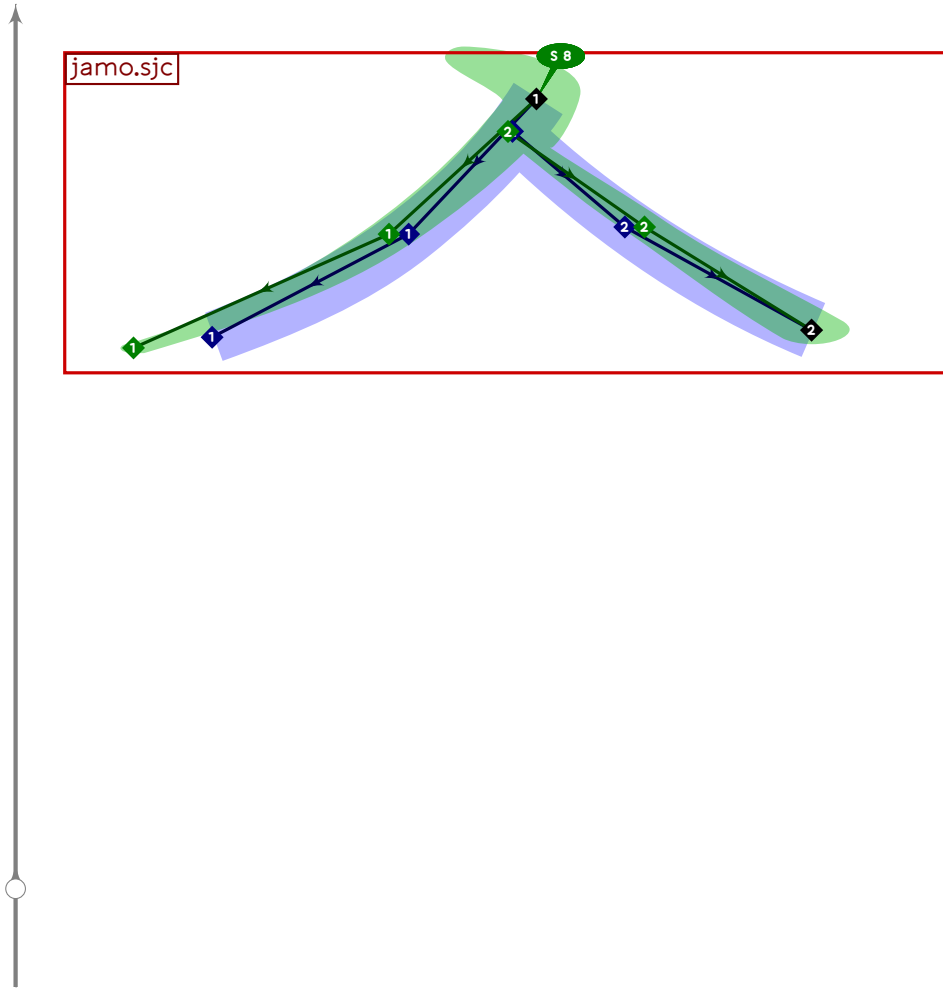
```



```

102 % hangul lead ssangpieup
103 begintsuglyph("uni1108.12",8);
104 hangul.combine.lr(207,107)(whatever,lixf,loxf);
105 tsu_render;
106 endtsuglyph;
107

```

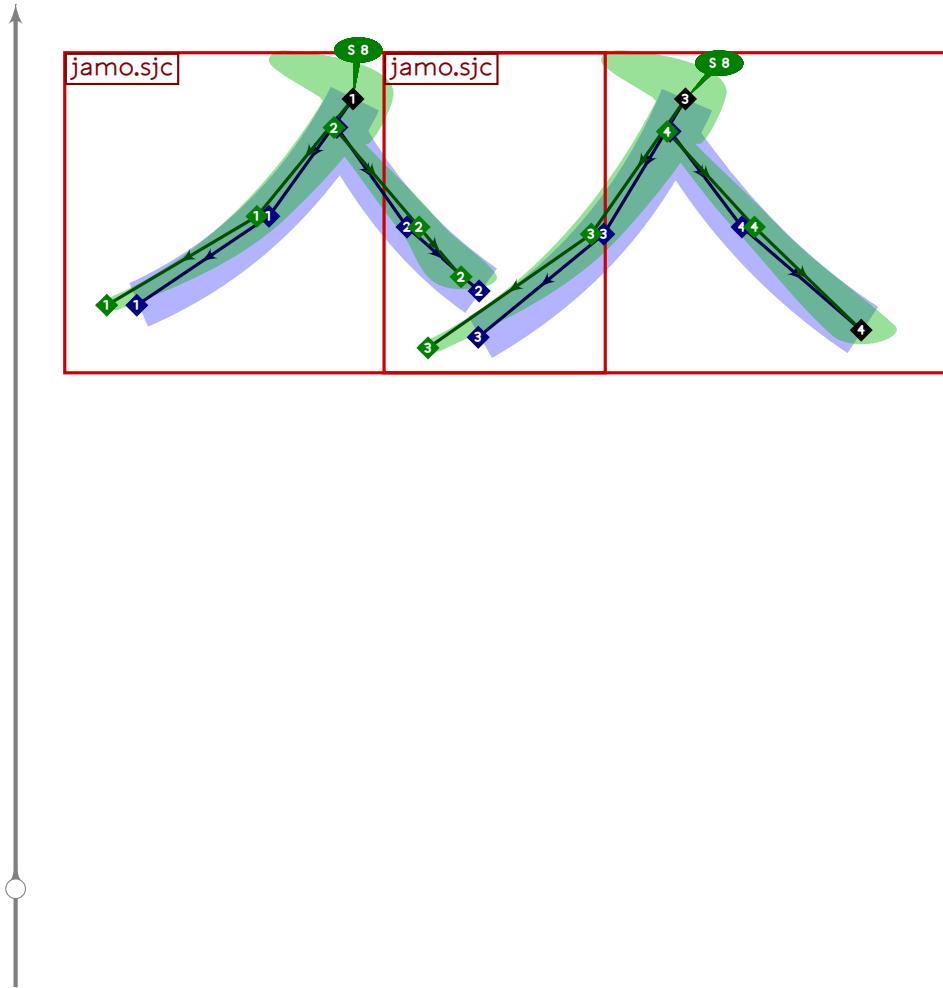


```

108 % hangul lead sios
109 beginsuglyph("uni1109.l2"9);
110 hangul.jamo.sjc(0,0,false)(whatever,lixf,loxf);
111 tsu_render;
112 endtsuglyph;
113

```

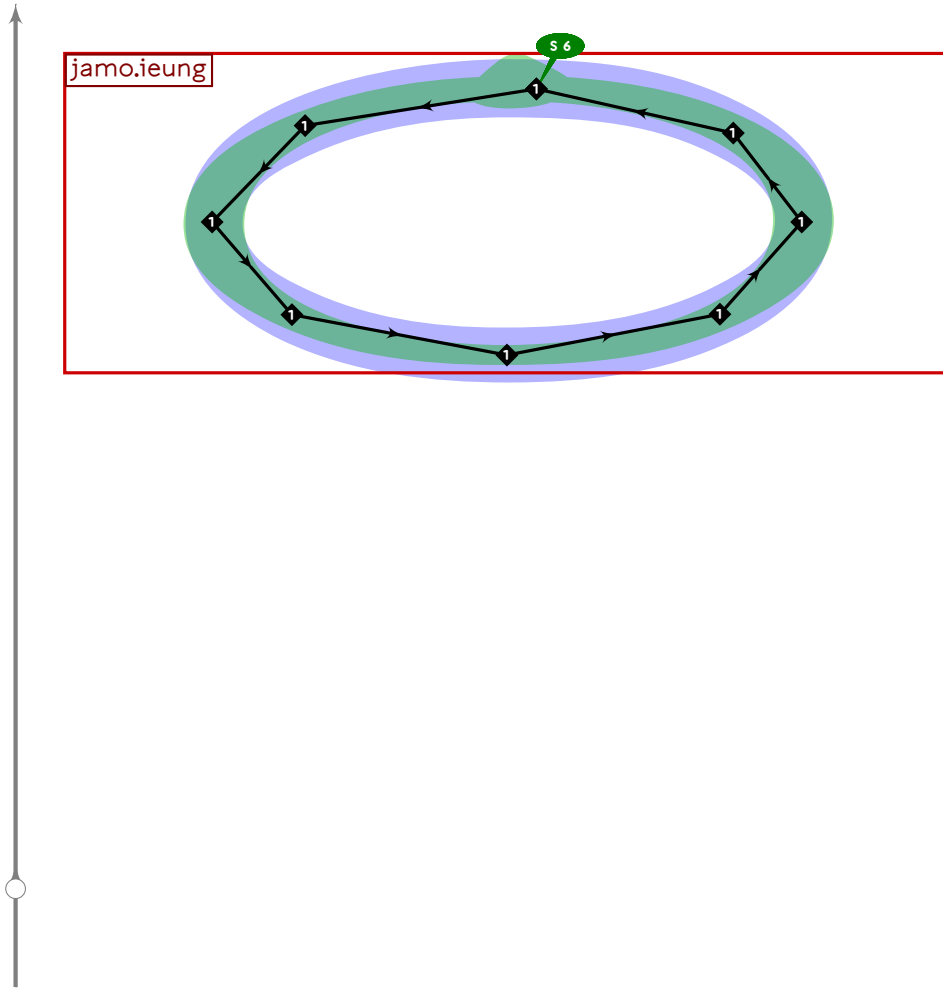




```

114 % hangul lead ssangsios
115 begint Suglyph("uni110A.l2",10);
116 hangul.combine.lr(209,109)(whatever,lixf,loxf);
117 tsu_render;
118 endtsuglyph;
119

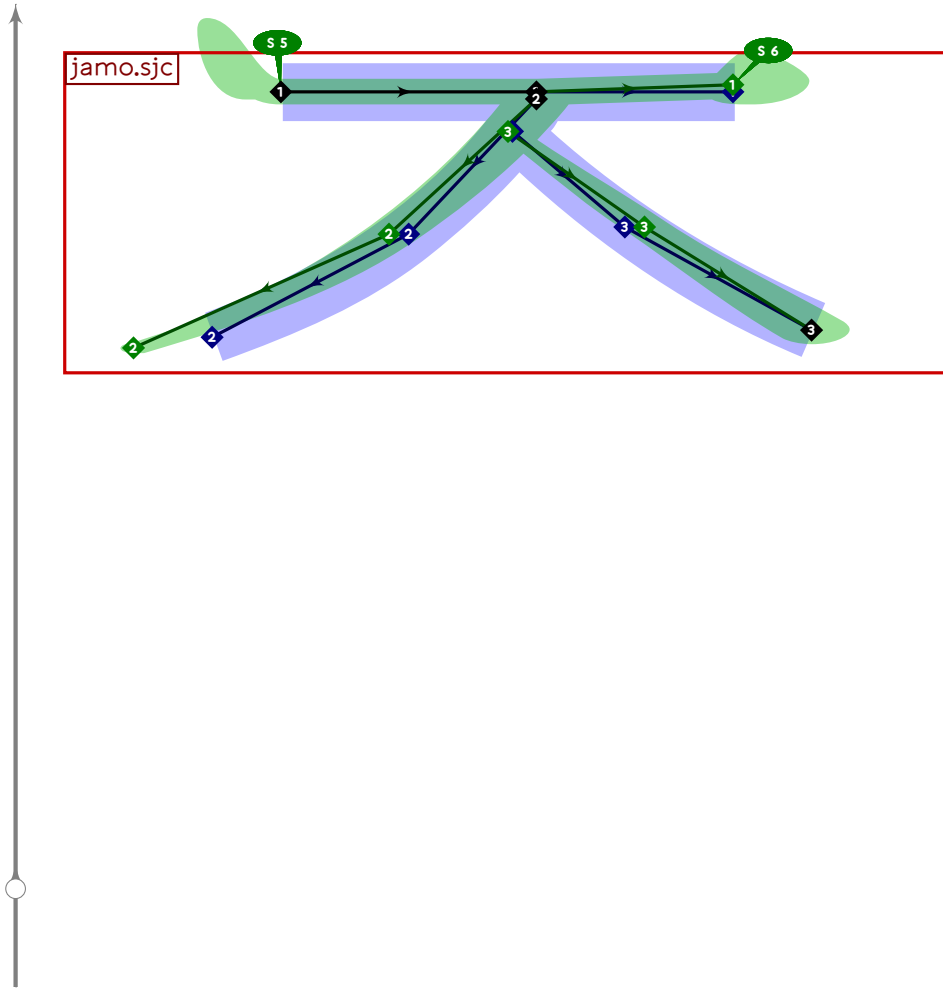
```



```

120 % hangul lead ieung
121 begintsuglyph("uni110B.l2",11);
122 hangul.jamo.ieung(whatever,lif,loxf);
123 tsu_render;
124 endsuglyph;
125

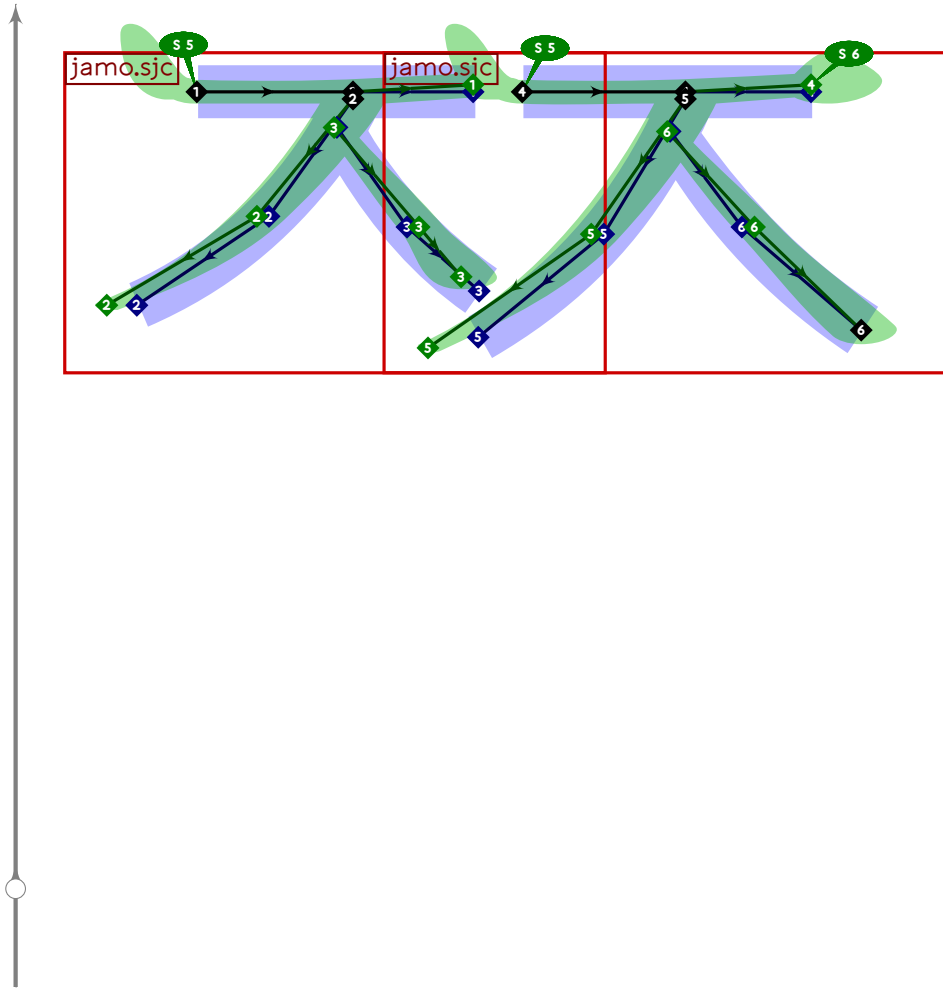
```



```

126 % hangul lead cieuc
127 begint Suglyph("uni110C.12",12);
128 hangul.jamo.sjc(1,0,false)(whatever,lixf,loxf);
129 tsu_render;
130 endtsuglyph;
131

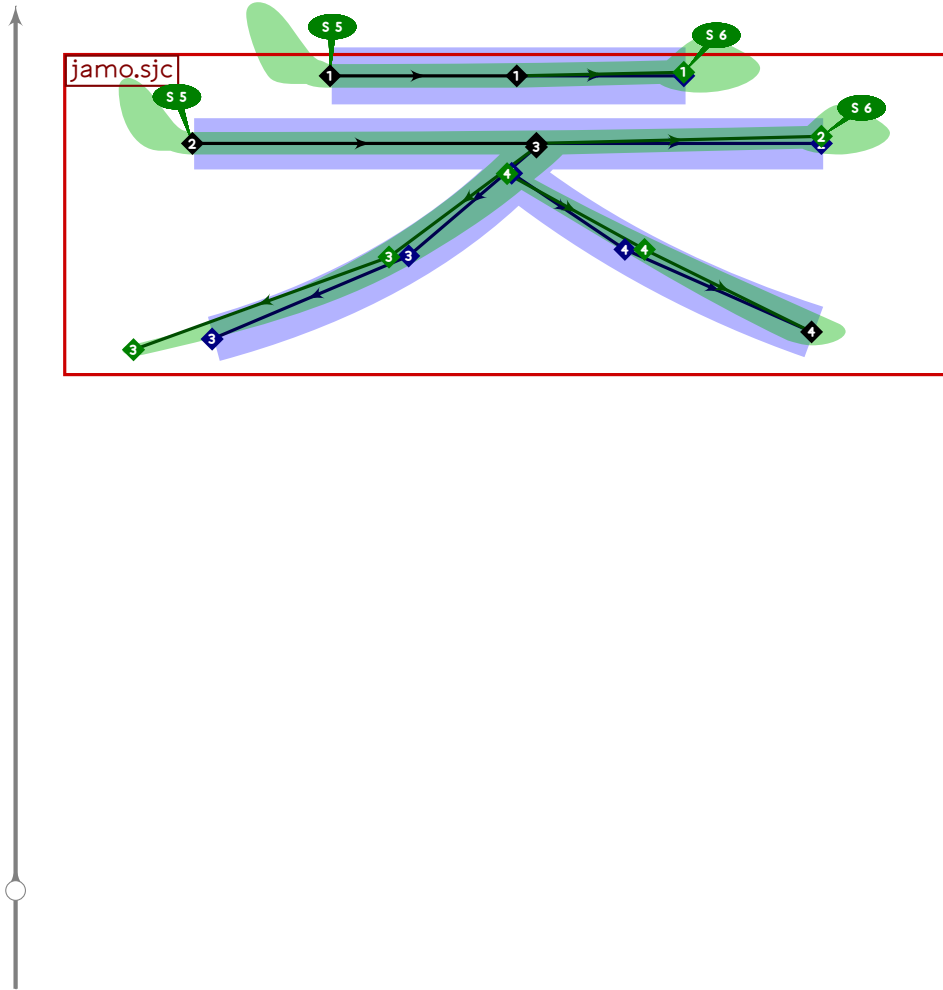
```



```

132 % hangul lead ssangcieuc
133 begintuglyph("uni110D.l2",13);
134 hangul.combine.lr(212,112)(whatever,lixf,loxf);
135 tsu_render;
136 endtuglyph;
137

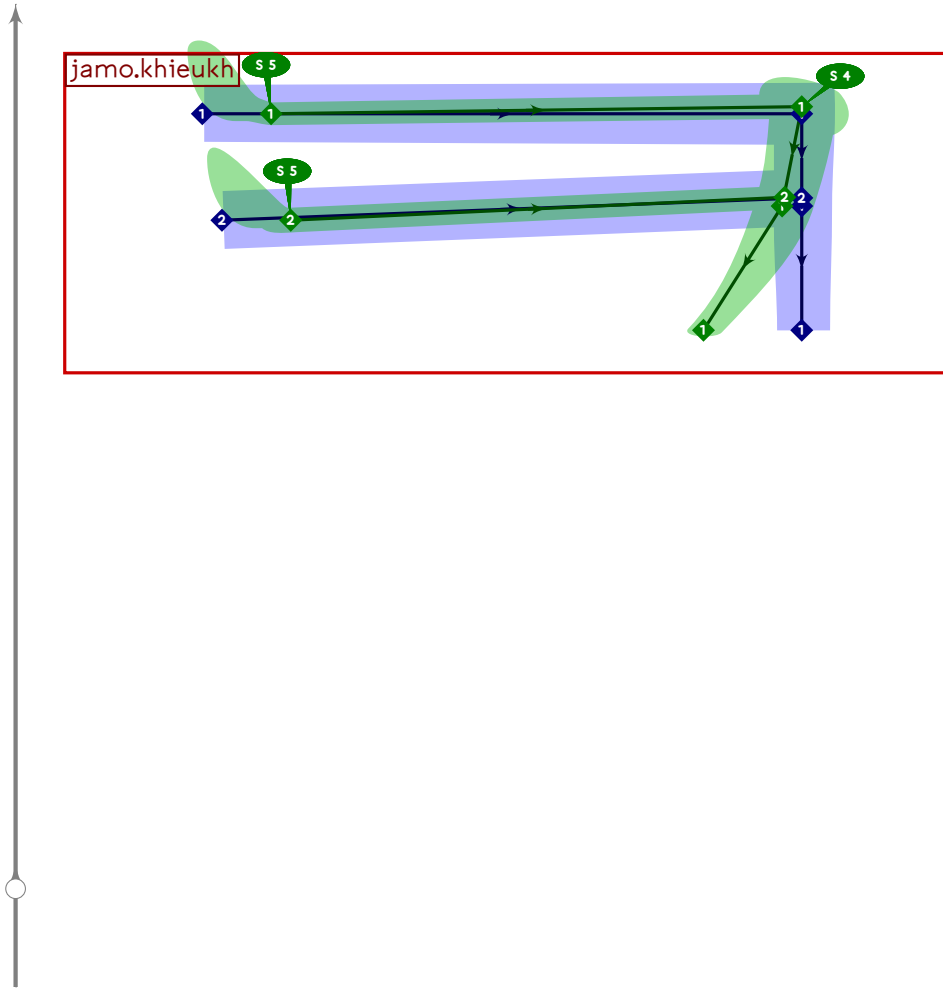
```



```

138 % hangul lead chieuch
139 begint Suglyph("uni110E.l2",14);
140 hangul.jamo.sjc(2,0,false)(whatever,lixf,loxf);
141 tsu_render;
142 endsuglyph;
143

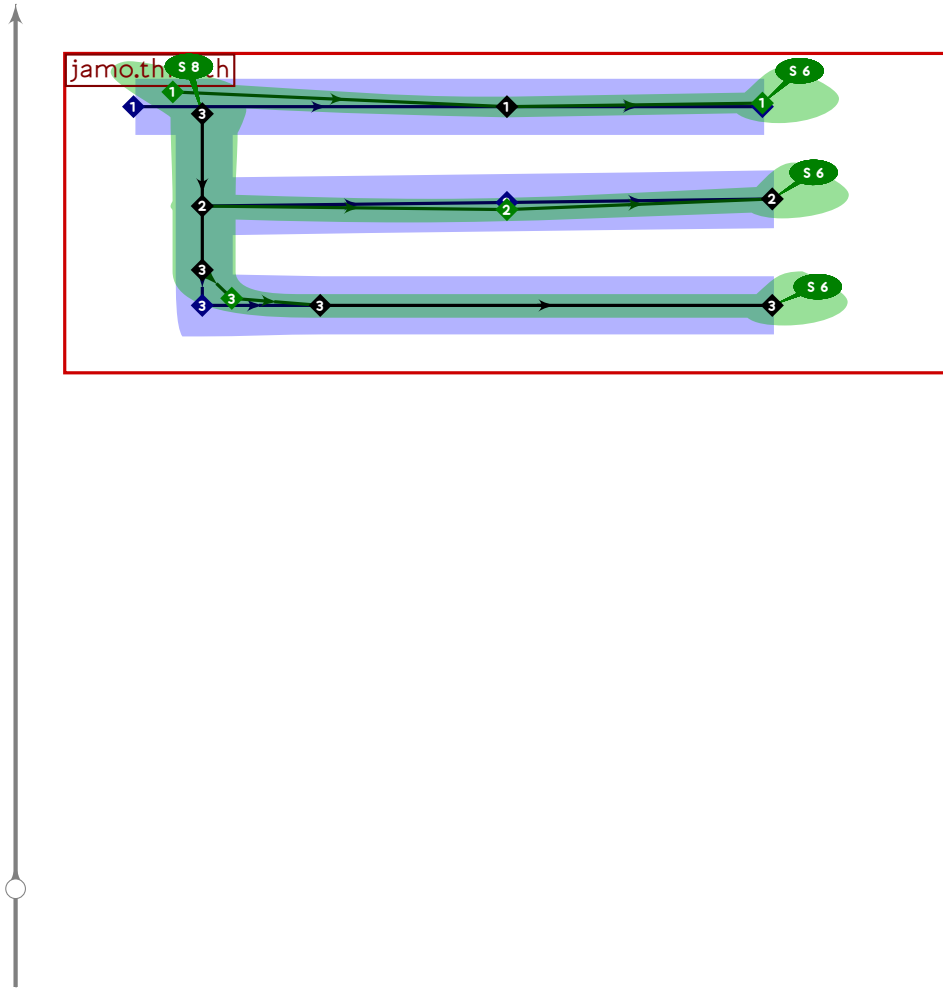
```



```

144 % hangul lead khieukh
145 begint Suglyph("uni110F.12",15);
146 hangul.jamo.khieukh(whatever,lixf,loxf);
147 tsu_render;
148 endtsuglyph;
149

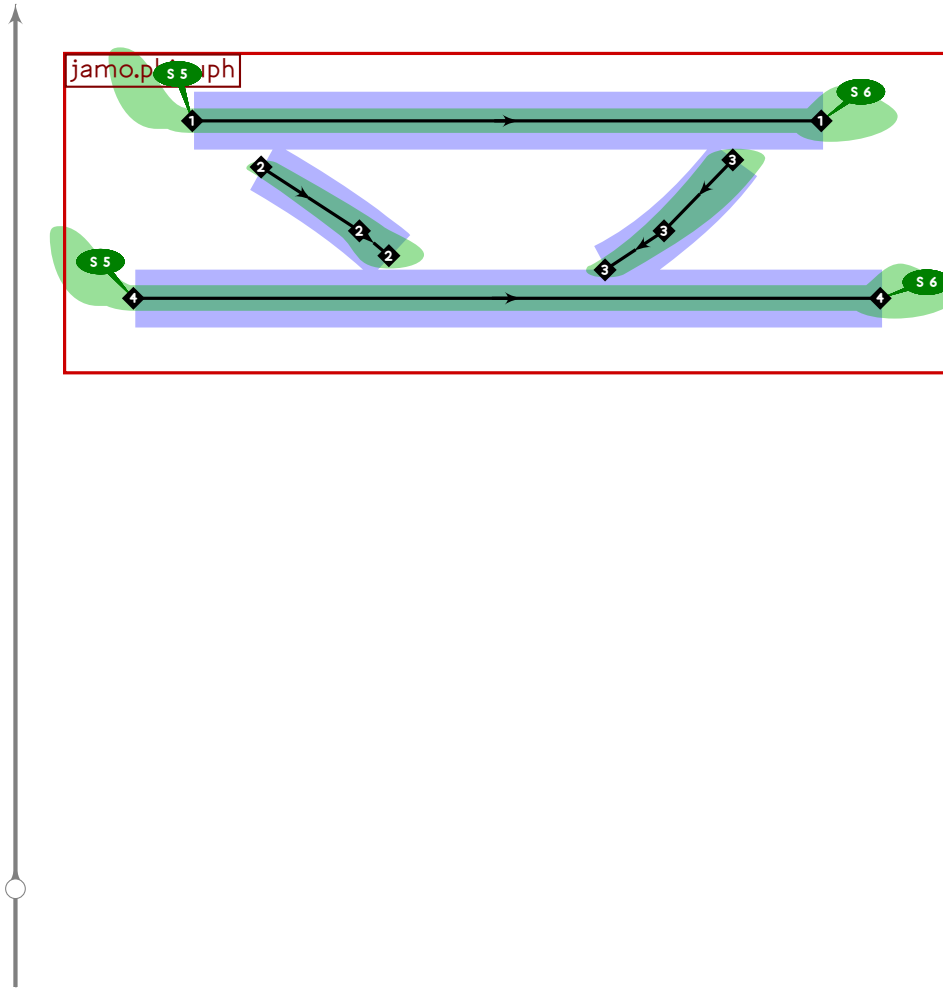
```



```

150 % hangul lead thieuth
151 begint Suglyph("uni1110.l2";16);
152 hangul.jamo.thieuth(whatever,lixf,loxf);
153 tsu_render;
154 endsuglyph;
155

```

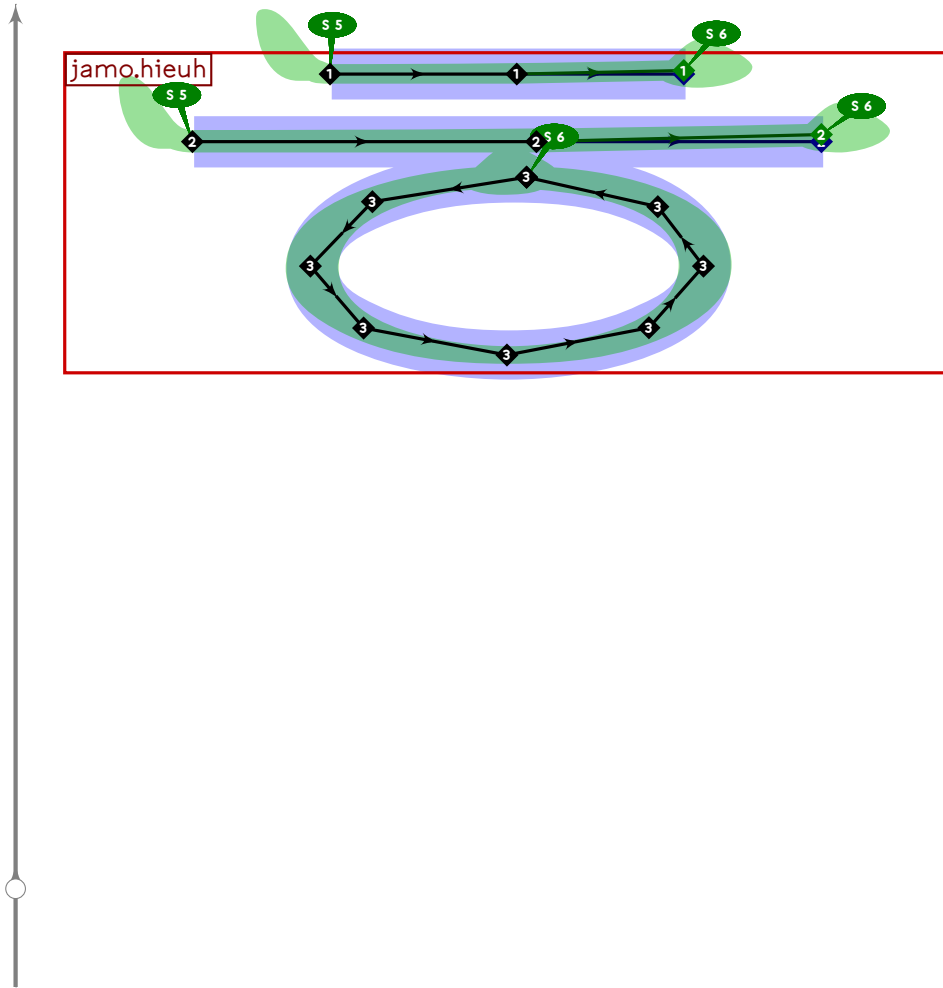


```

156 % hangul lead phieuph
157 begint Suglyph("uni1111.12";17);
158 hangul.jamo.phieuph(whatever,lixf,loxf);
159 tsu_render;
160 endtsuglyph;
161

```

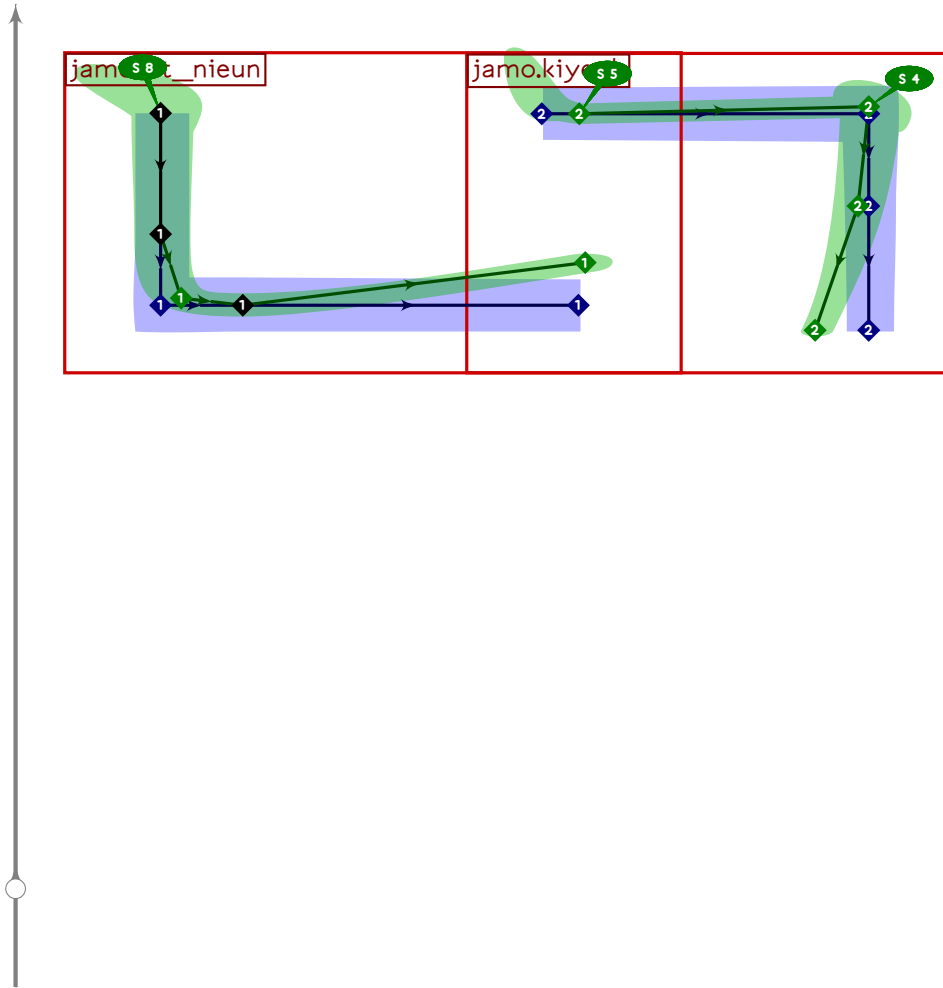




```

162 % hangul lead hieuh
163 begintsuglyph("uni1112.l2";18);
164 hangul.jamo.hieuh(whatever,lixf,loxf);
165 tsu_render;
166 endsuglyph;
167

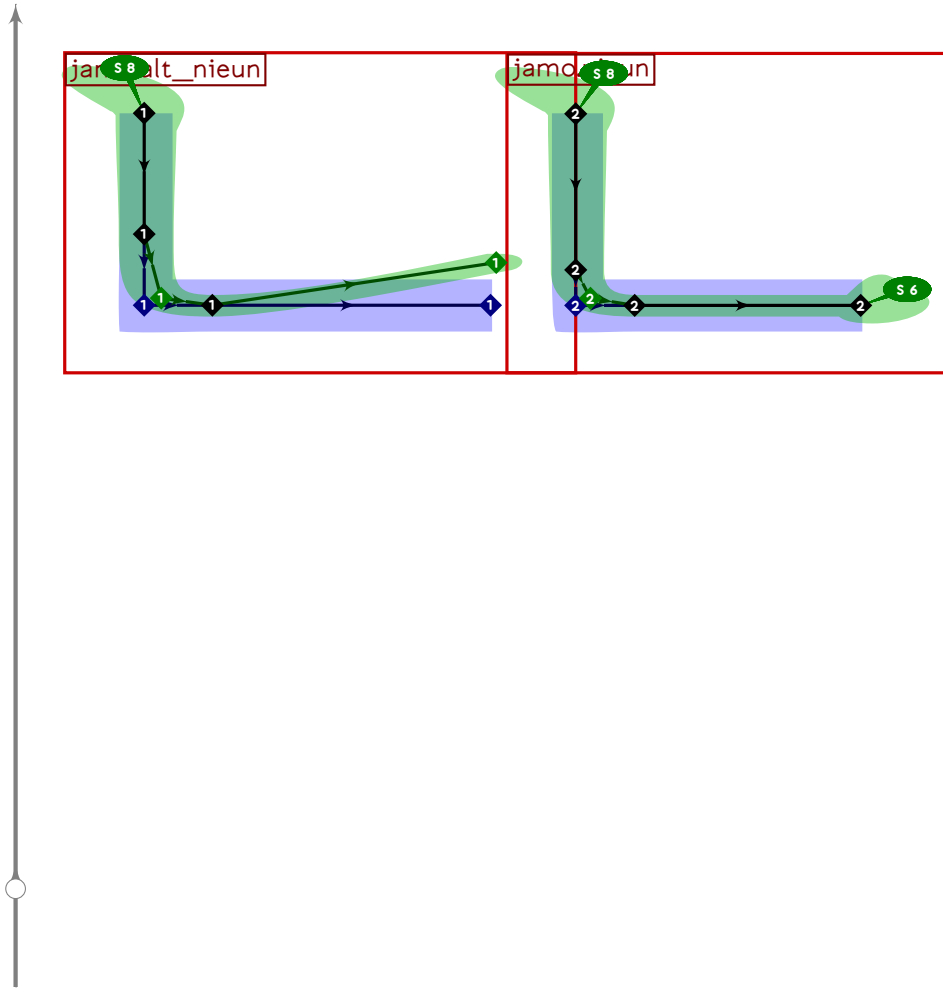
```



```

168 % hangul lead nieun-kiyeok
169 begintsuglyph("uni1113.l2",19);
170 hangul.combine.lr(202,100)(whatever,lixf,loxf);
171 tsu_render;
172 endsuglyph;
173

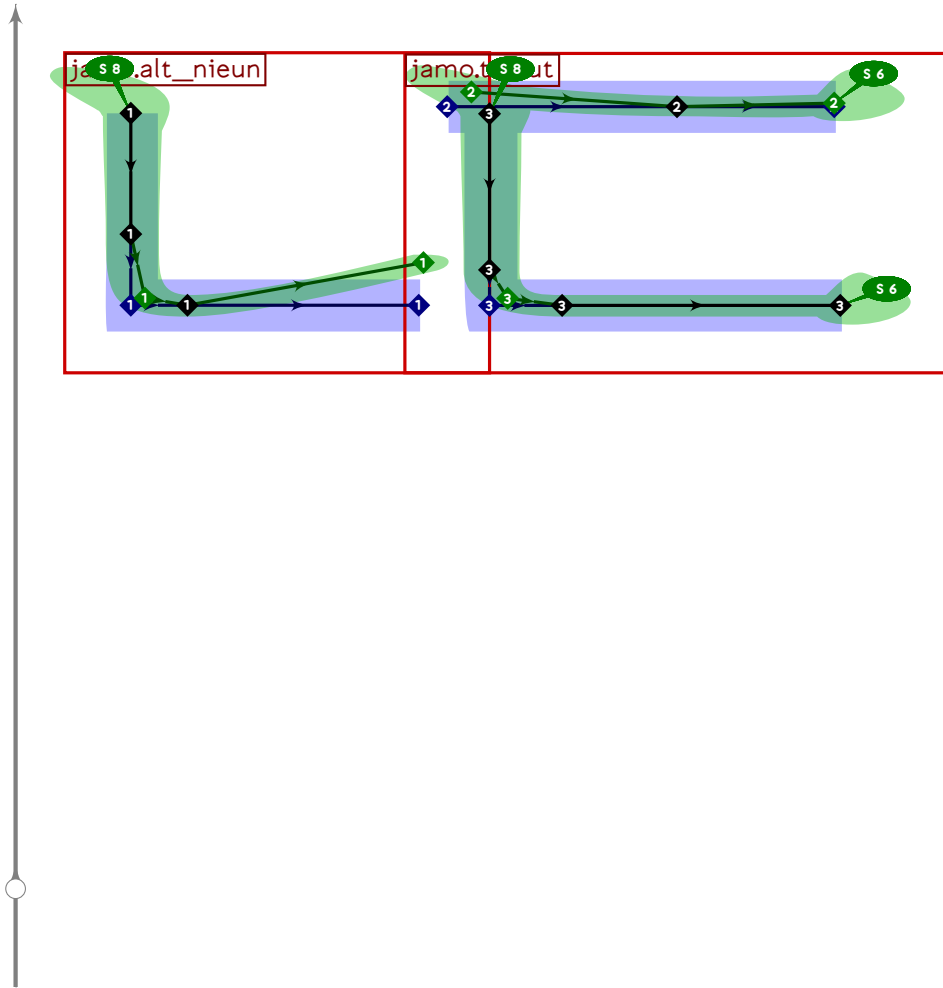
```



```

174 % hangul lead ssangnieun
175 begint Suglyph("uni1114.l2";20);
176 hangul.combine.lr(202,102)(whatever,lixf,loxf);
177 tsu_render;
178 endtsuglyph;
179

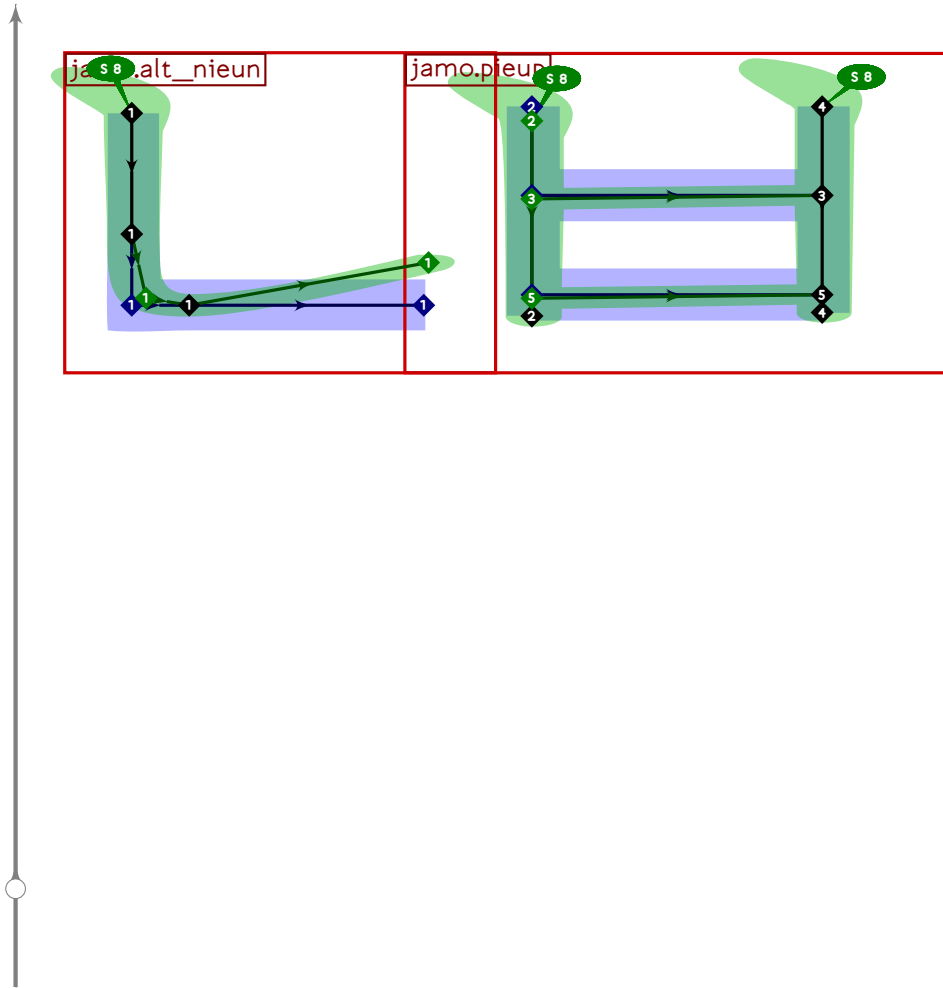
```



```

180 % hangul lead nieun-tikeut
181 begint Suglyph("uni1115.l2",21);
182 hangul.combine.lr(202,103)(whatever,lif,loxf);
183 tsu_render;
184 endsuglyph;
185

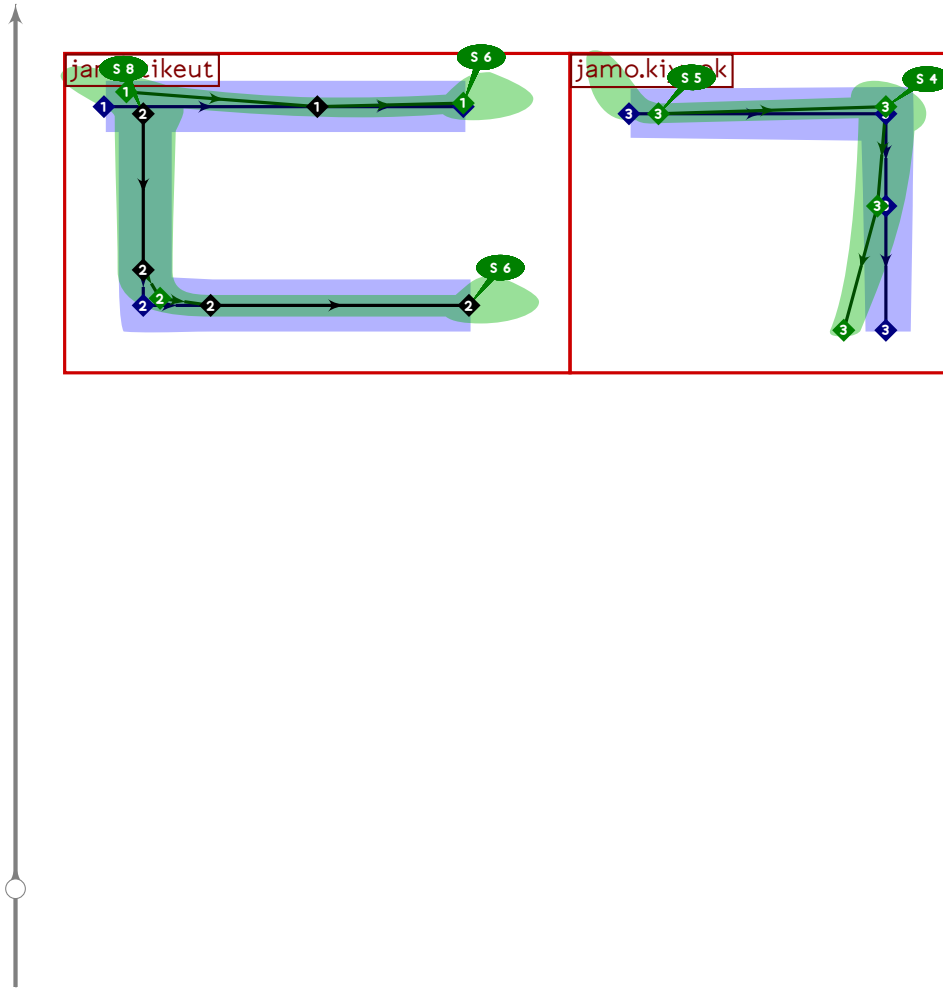
```



```

186 % hangul lead nieun-pieup
187 begintsuglyph("uni1116.l2",22);
188 hangul.combine.lr(202,107)(whatever,lixf,loxf);
189 tsu_render;
190 endsuglyph;
191

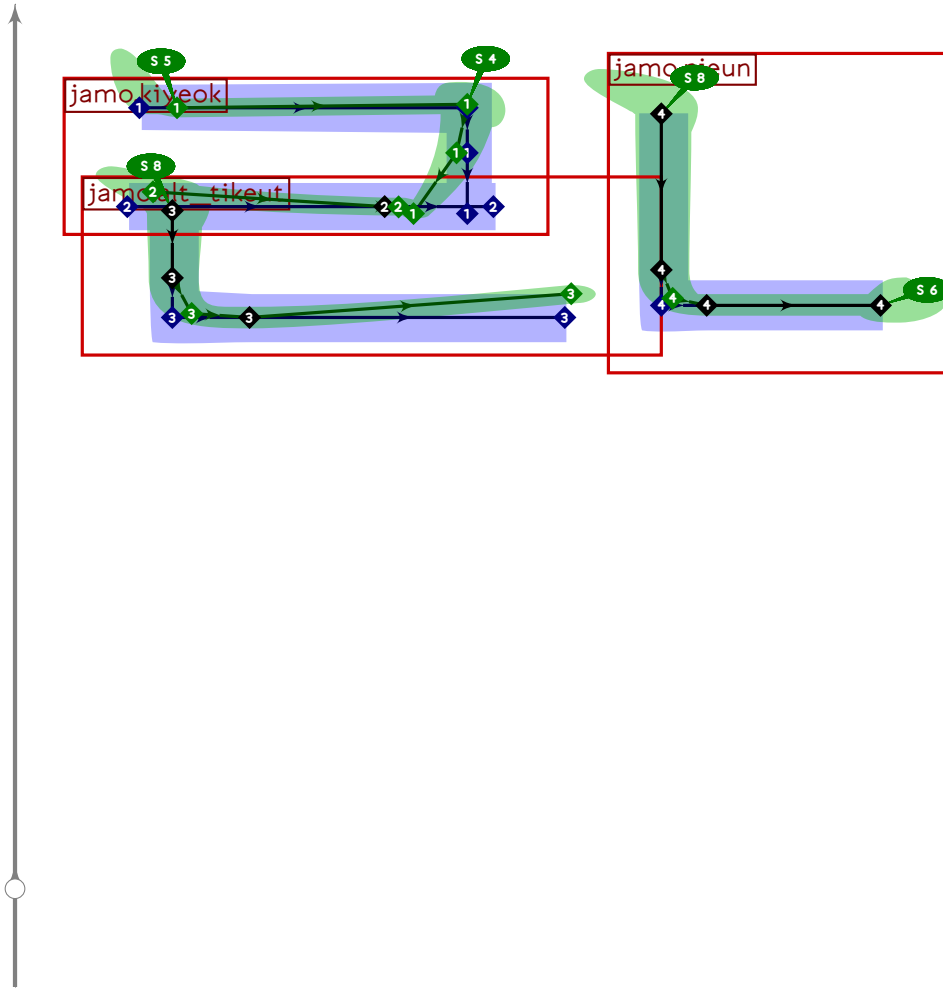
```



```

192 % hangul lead tikeut-kiyeok
193 begintsuglyph("uni1117.l2",23);
194 hangul.combine.lr(103,100)(whatever,lixf,loxf);
195 tsu_render;
196 endsuglyph;
197

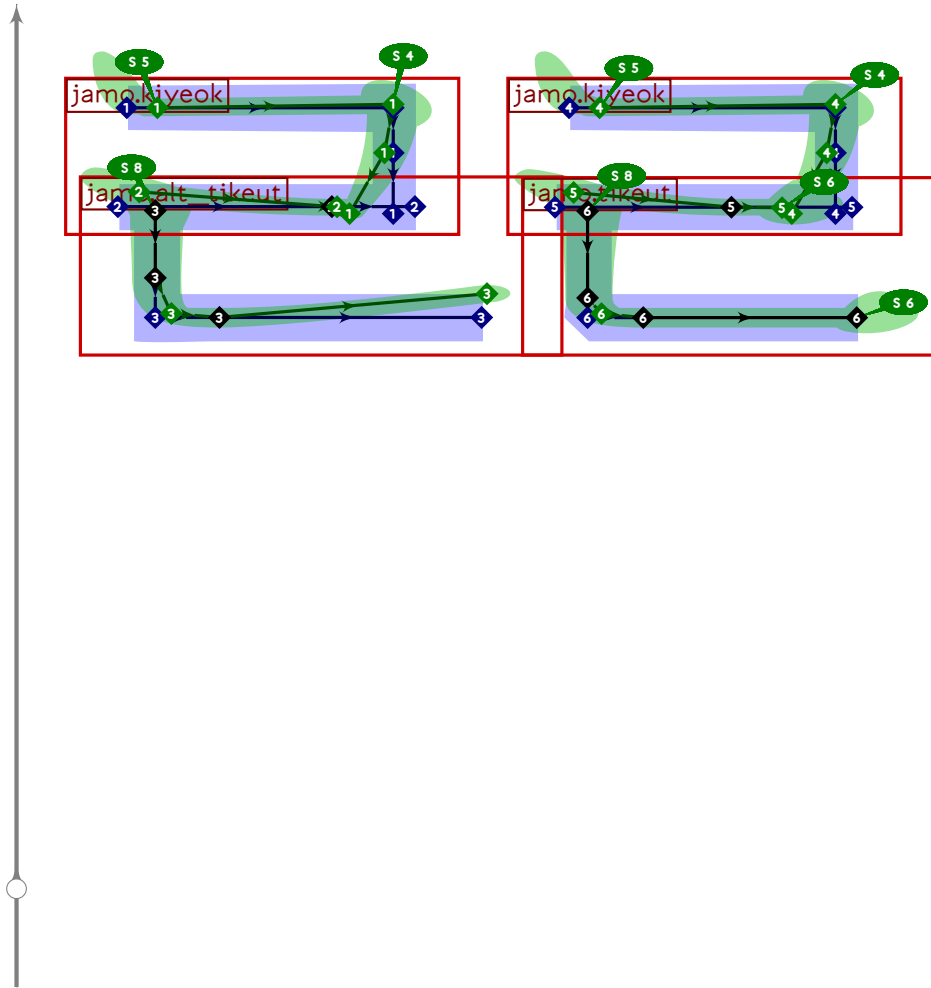
```



```

198 % hangul lead rioul-nieun
199 begintsuglyph("uni1118.l2",24);
200 hangul.combine.lr(205,102)(whatever,lixf,loxf);
201 tsu_render;
202 endsuglyph;
203

```

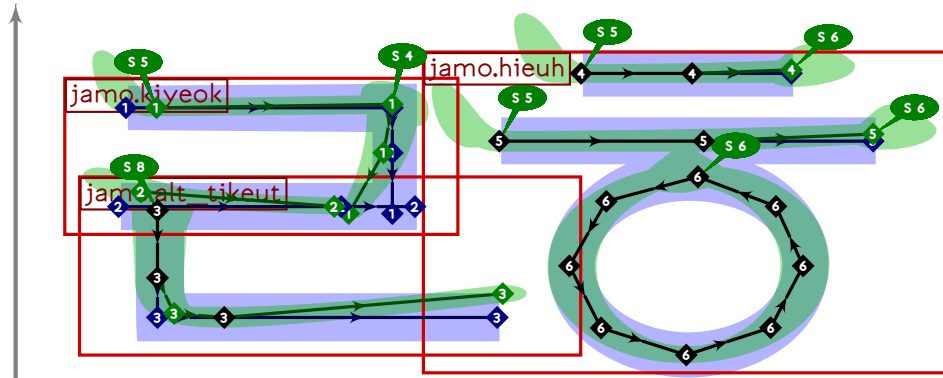


```

204 % hangul lead ssangrieul
205 begintsuglyph("uni1119.l2",25);
206 hangul.combine.lr(205,105)(whatever,lixf,loxf);
207 tsu_render;
208 endsuglyph;
209

```

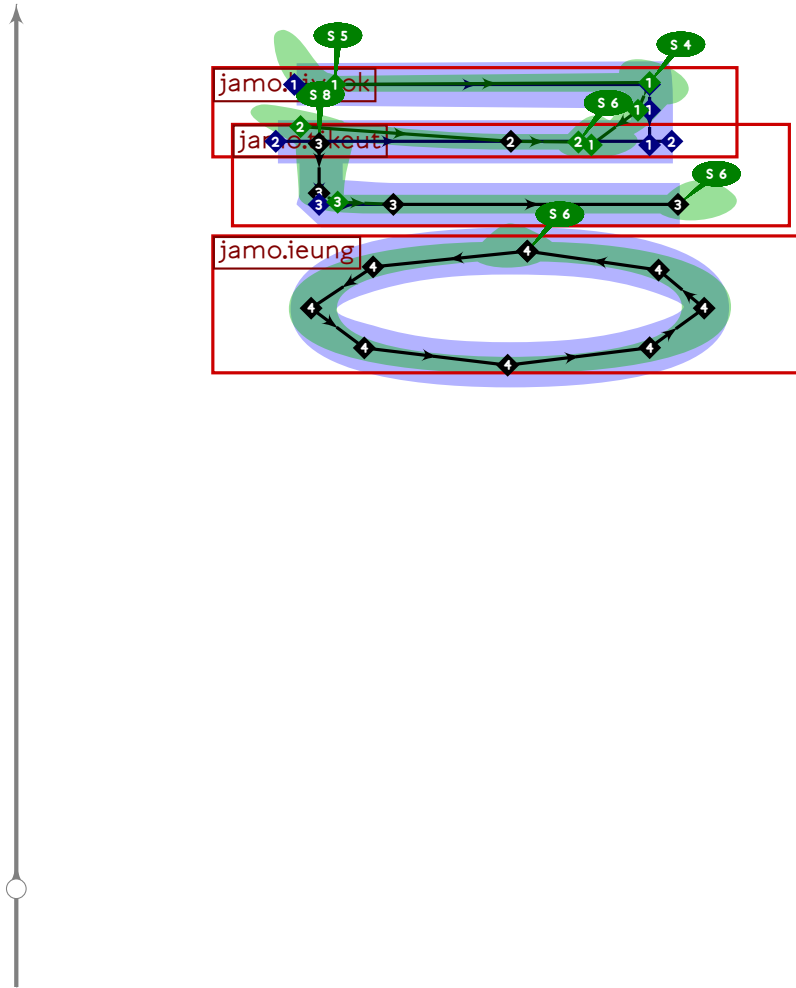




```

210 % hangul lead rioul-hieuh
211 begint Suglyph("uni111A.12",26);
212 hangul.combine.lr(205,118)(whatever,lixf,loxf);
213 tsu_render;
214 endtsuglyph;
215

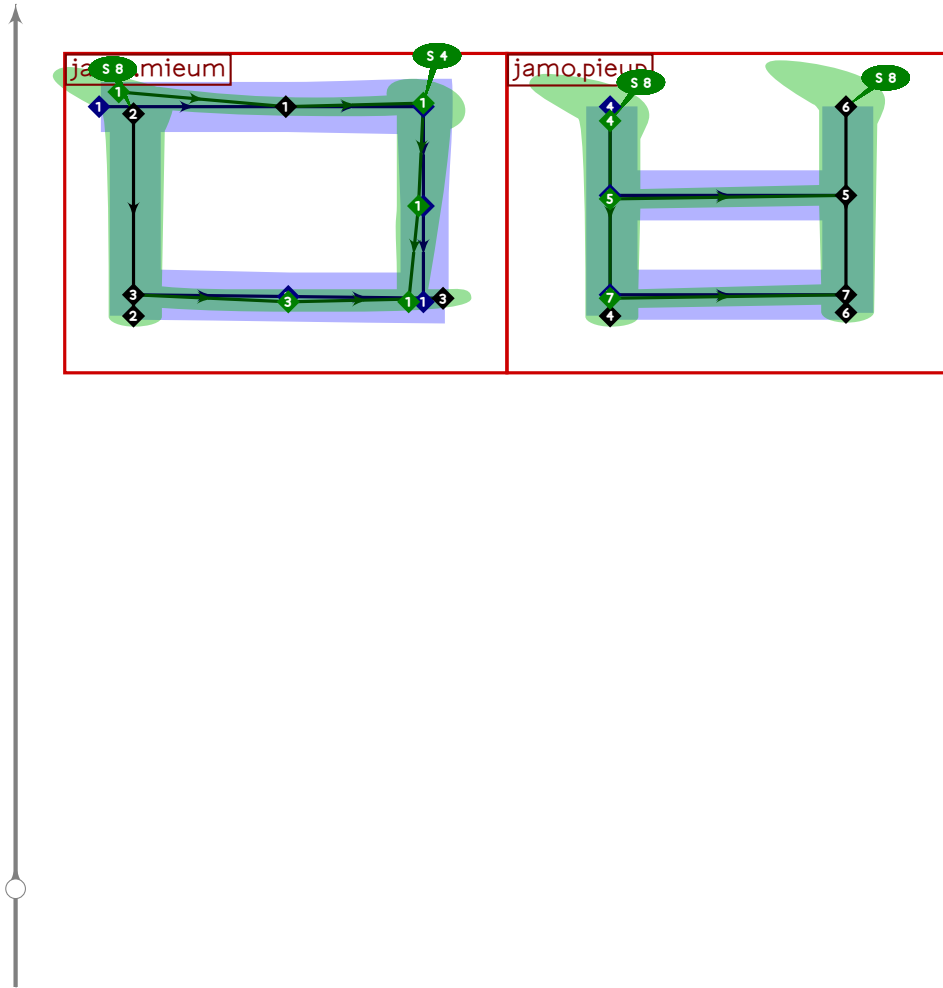
```



```

216 % hangul lead kapyeounrieul
217 begint Suglyph("uni111B.l2",27);
218 hangul.combine.tb(105,521)(whatever,
219   hxf((200,850),(800,-50)) transformed lixf,loxf);
220 tsu_render;
221 endsuglyph;
222

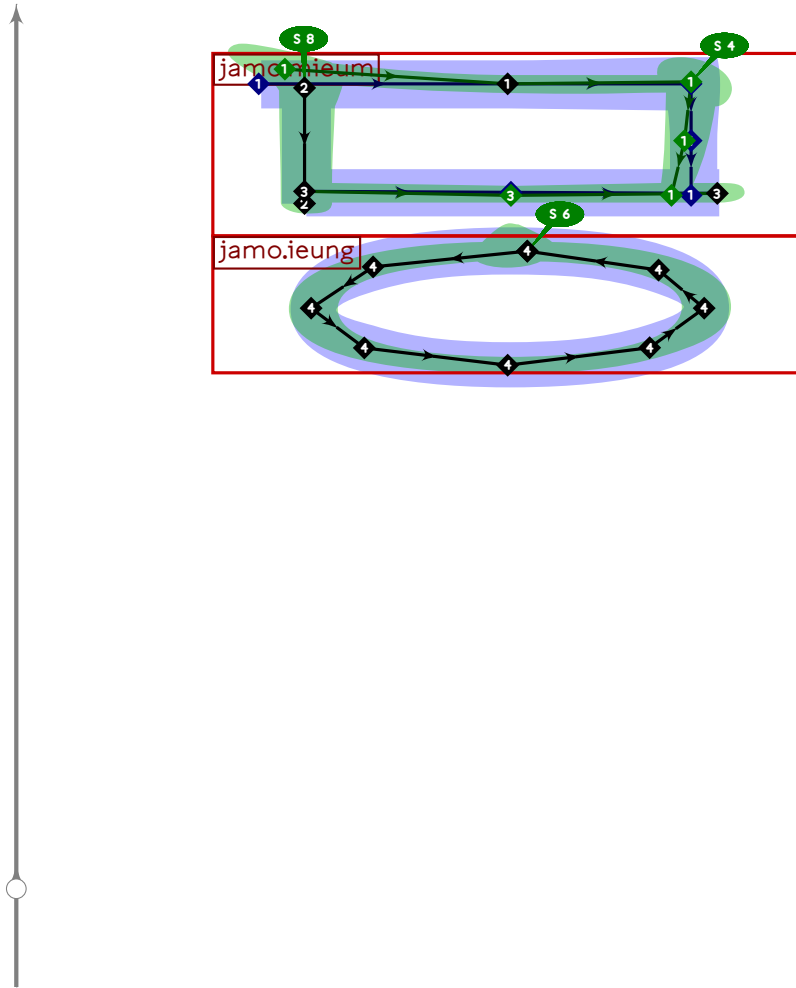
```



```

223 % hangul lead mieum-pieup
224 begintsuglyph("uni111C.12",28);
225 hangul.combine.lr(106,107)(whatever,lixf,loxf);
226 tsu_render;
227 endsuglyph;
228

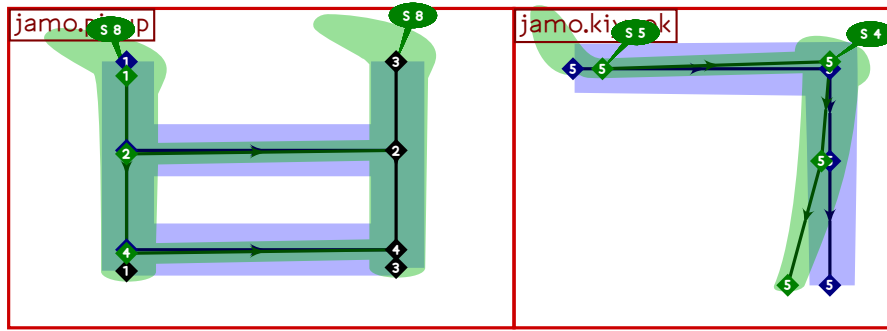
```



```

229 % hangul lead kapyounmieum
230 begint Suglyph("uni111D.l2",29);
231 hangul.combine.tb(106,521)(whatever,
232   hxf((200,850),(800,-50)) transformed lixf,loxf);
233 tsu_render;
234 endsuglyph;
235

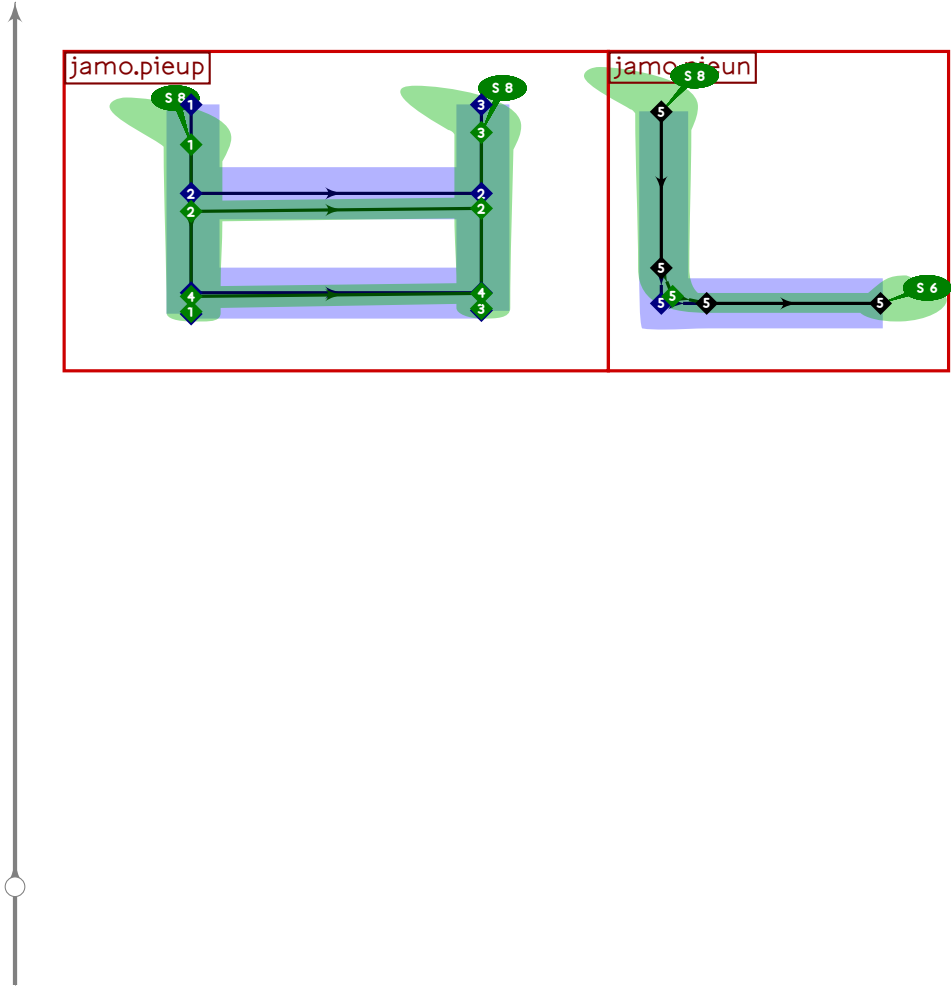
```



```

236 % hangul lead pieup-kiyeok
237 begintsuglyph("uni111E.l2",30);
238 hangul.combine.lr(107,100)(whatever,lixf,loxf);
239 tsu_render;
240 endsuglyph;
241

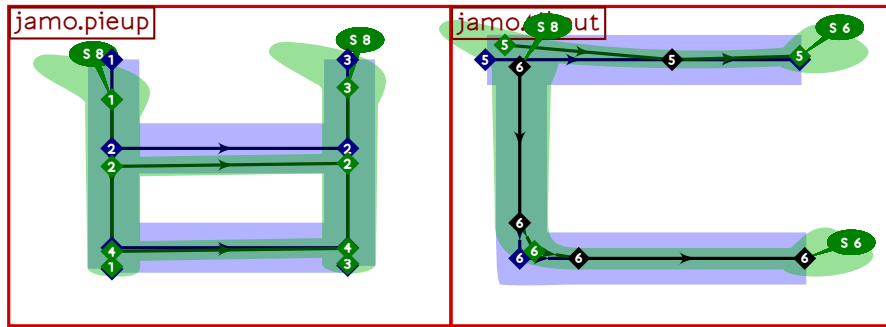
```



```

242 % hangul lead pieup-nieun
243 begintsuglyph("uni111F.l2",31);
244 hangul.combine.lr(207,102)(whatever,lixf,loxf);
245 tsu_render;
246 endsuglyph;
247

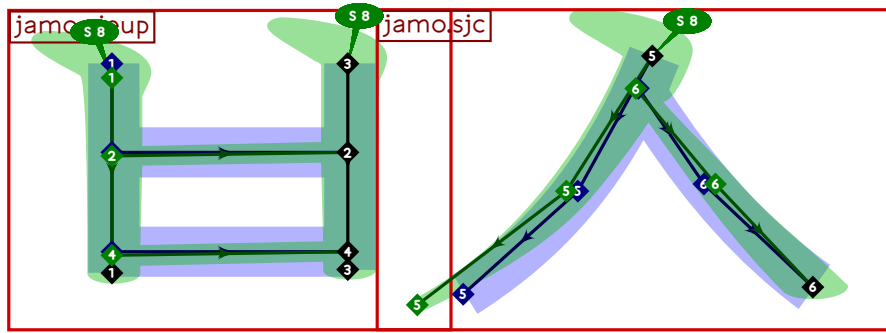
```



```

248 % hangul lead pieup-tikeut
249 begintsuglyph("uni1120.12",32);
250 hangul.combine.lr(207,103)(whatever,lixf,loxf);
251 tsu_render;
252 endsuglyph;
253

```

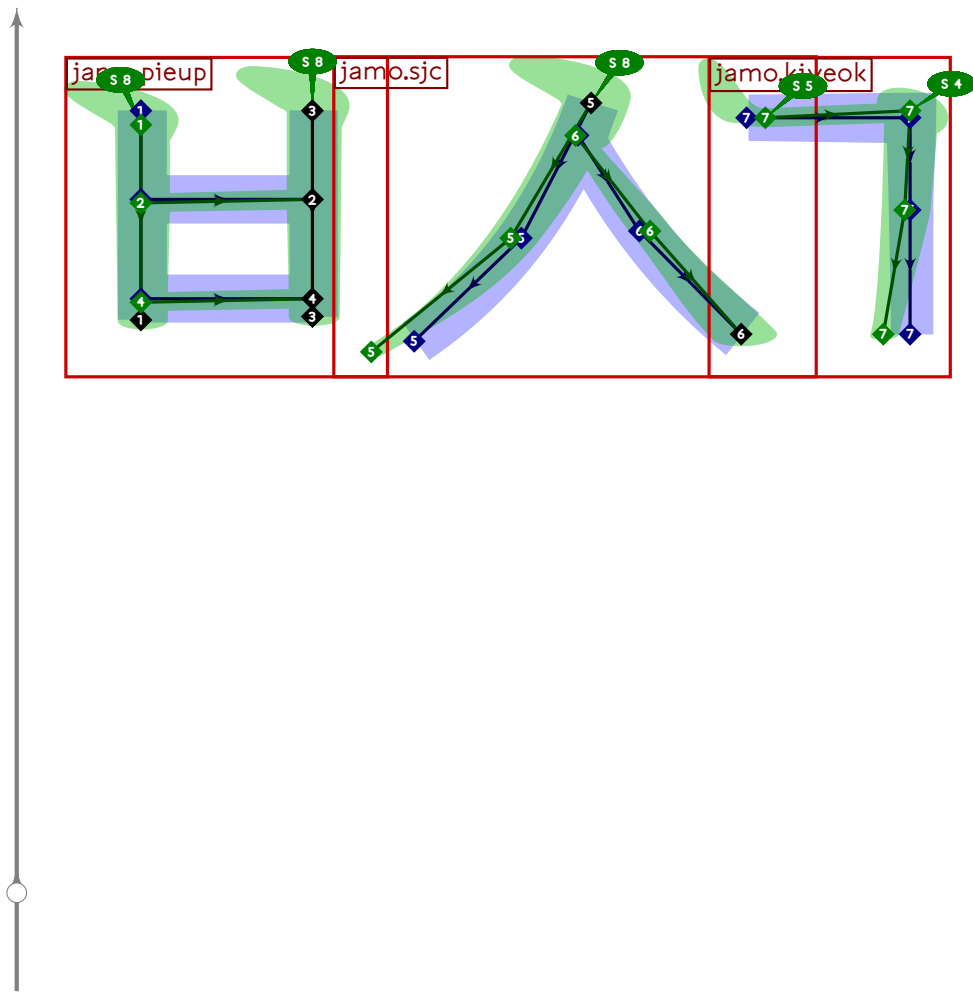


```

254 % hangul lead pieup-sios
255 begintsuglyph("uni1121.l2",33);
256 hangul.combine.lr(107,109)(whatever,lixf,loxf);
257 tsu_render;
258 endsuglyph;
259

```

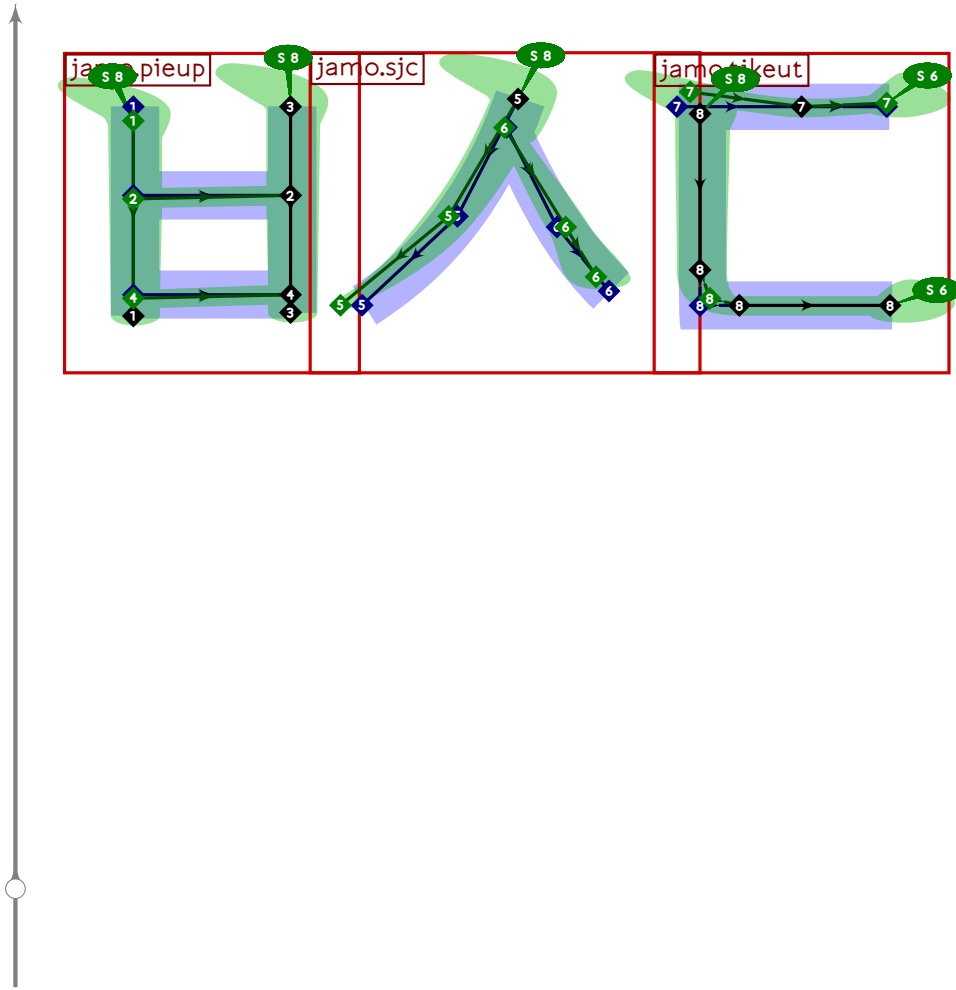




```

260 % hangul lead pieup-sios-kiyeok
261 begint Suglyph("uni1122.12",34);
262 hangul.combine.lcr(107,109,100)(whatever,lixf,loxf);
263 tsu_render;
264 endtsuglyph;
265

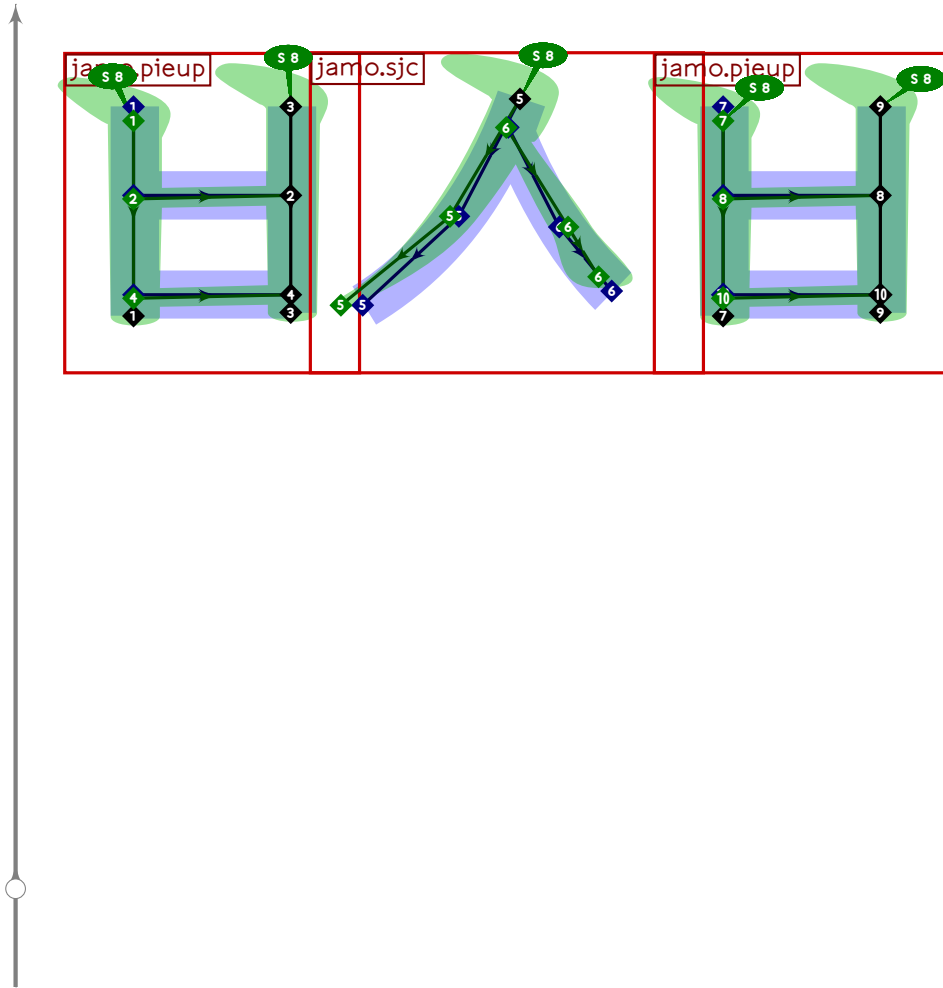
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```

266 % hangul lead pieup-sios-tikeut
267 begintsuglyph("uni1123.12",35);
268 hangul.combine.lcr(107,209,103)(whatever,lixf,loxf);
269 tsu_render;
270 endsuglyph;
271

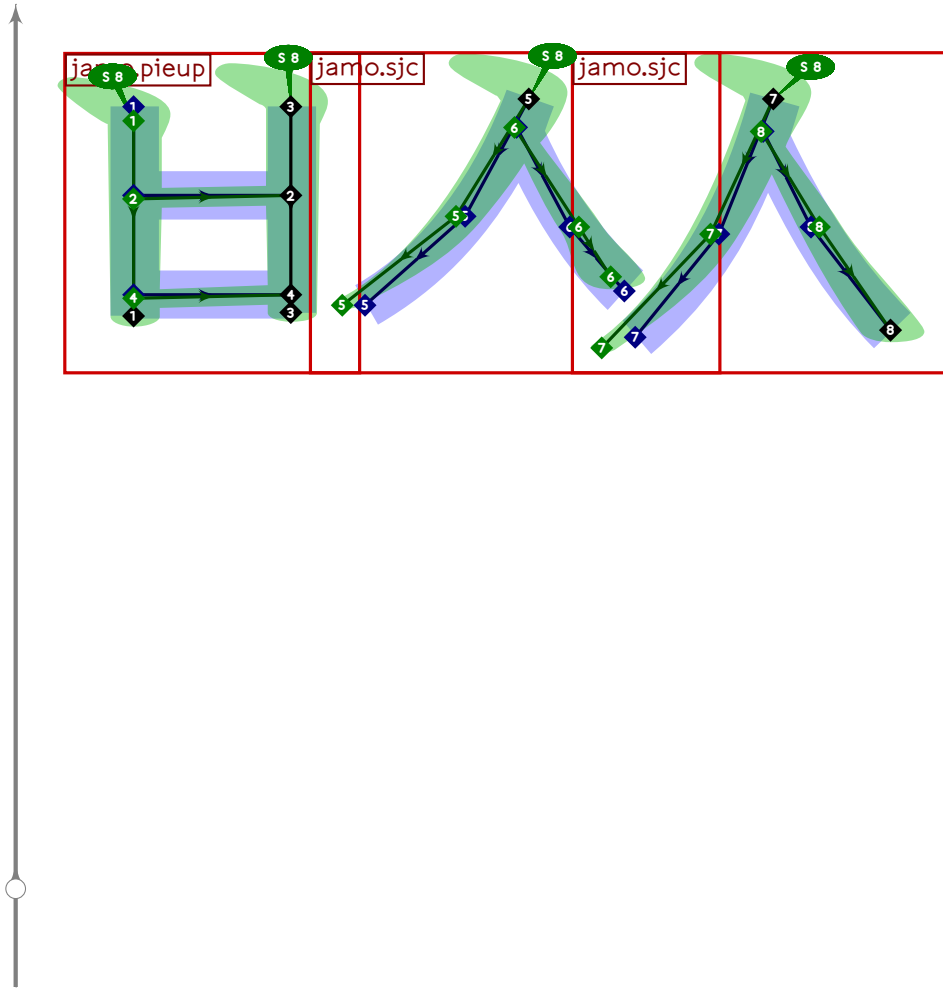
```



```

272 % hangul lead pieup-sios-pieup
273 begintsuglyph("uni1124.12",36);
274 hangul.combine.lcr(107,209,107)(whatever,lixf,loxf);
275 tsu_render;
276 endsuglyph;
277

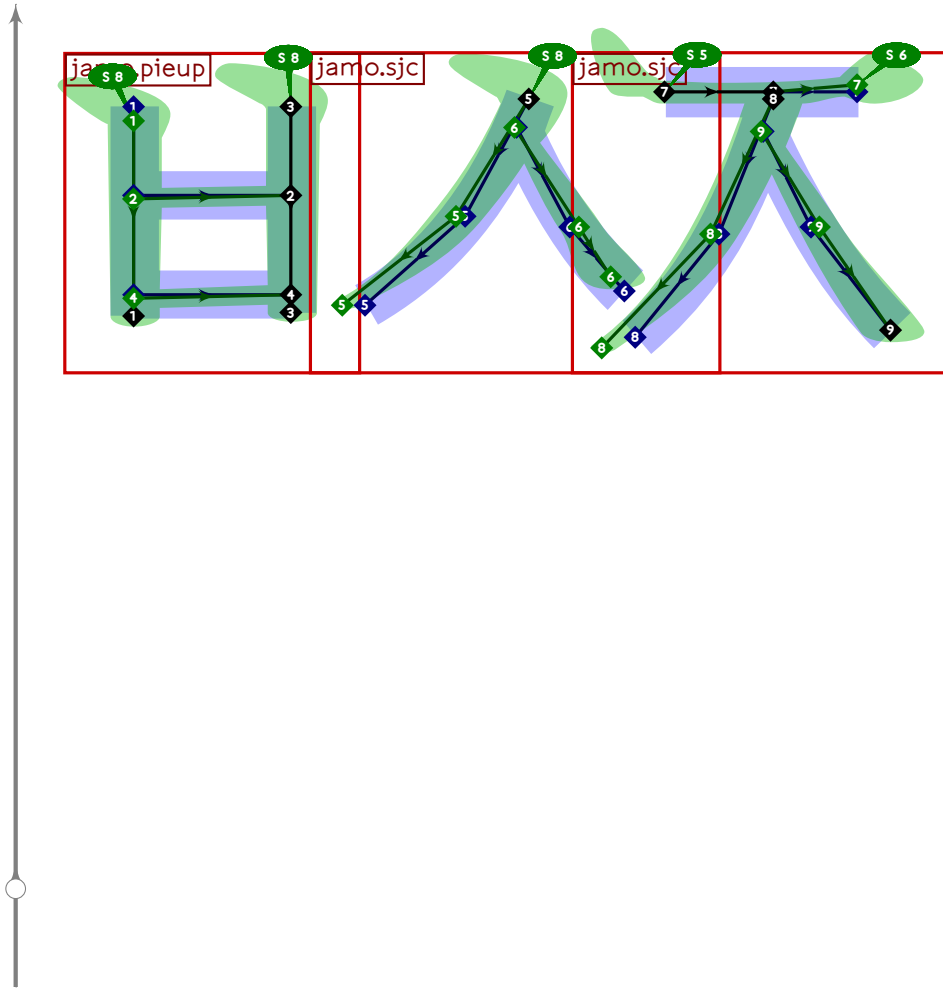
```



```

278 % hangul lead pieup-ssangsios
279 begintuglyph("uni1125.l2",37);
280 hangul.combine.lcr(107,209,109)(whatever,lixf,loxf);
281 tsu_render;
282 endtuglyph;
283

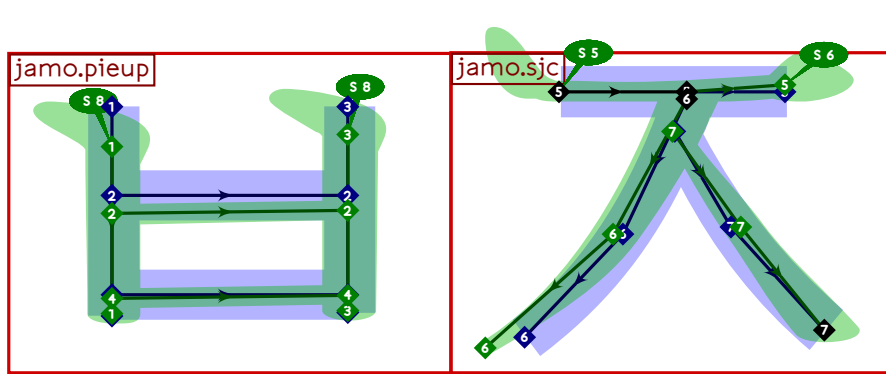
```



```

284 % hangul lead pieup-sios-cieuc
285 begintsuglyph("uni1126.l2",38);
286 hangul.combine.lcr(107,209,112)(whatever,lixf,loxf);
287 tsu_render;
288 endsuglyph;
289

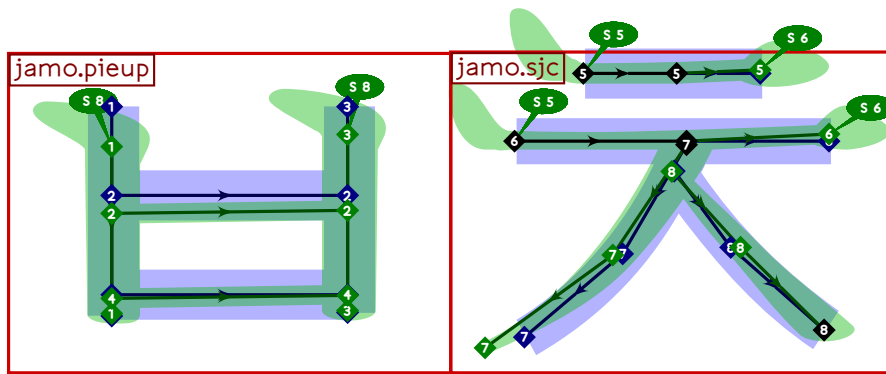
```



```

290 % hangul lead pieup-cieuc
291 begintsuglyph("uni1127.12";39);
292 hangul.combine.lr(207,112)(whatever,lixf,loxf);
293 tsu_render;
294 endsuglyph;
295

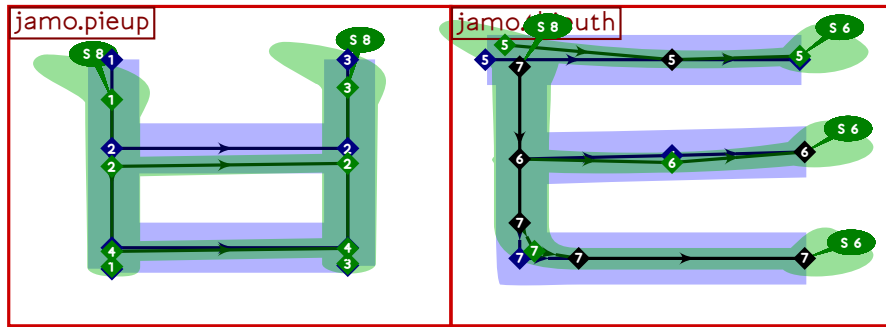
```



```

296 % hangul lead pieup-chieuch
297 begint Suglyph("uni1128.l2",40);
298 hangul.combine.lr(207,114)(whatever,lixf,loxf);
299 tsu_render;
300 endtsuglyph;
301

```

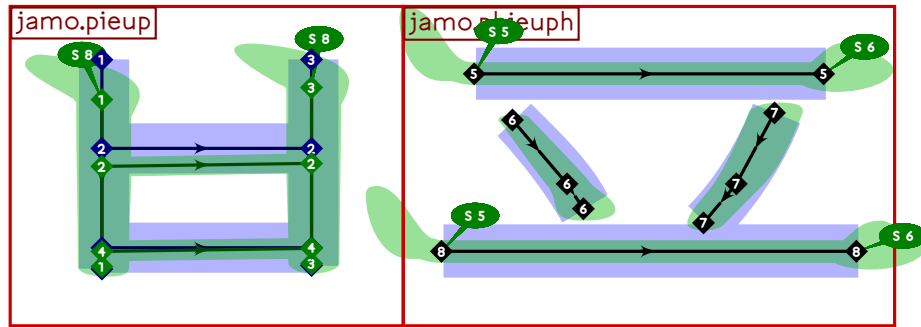


```

302 % hangul lead pieup-thieuth
303 begintsuglyph("uni1129.12",41);
304 hangul.combine.lr(207,116)(whatever,lixf,loxf);
305 tsu_render;
306 endsuglyph;
307

```

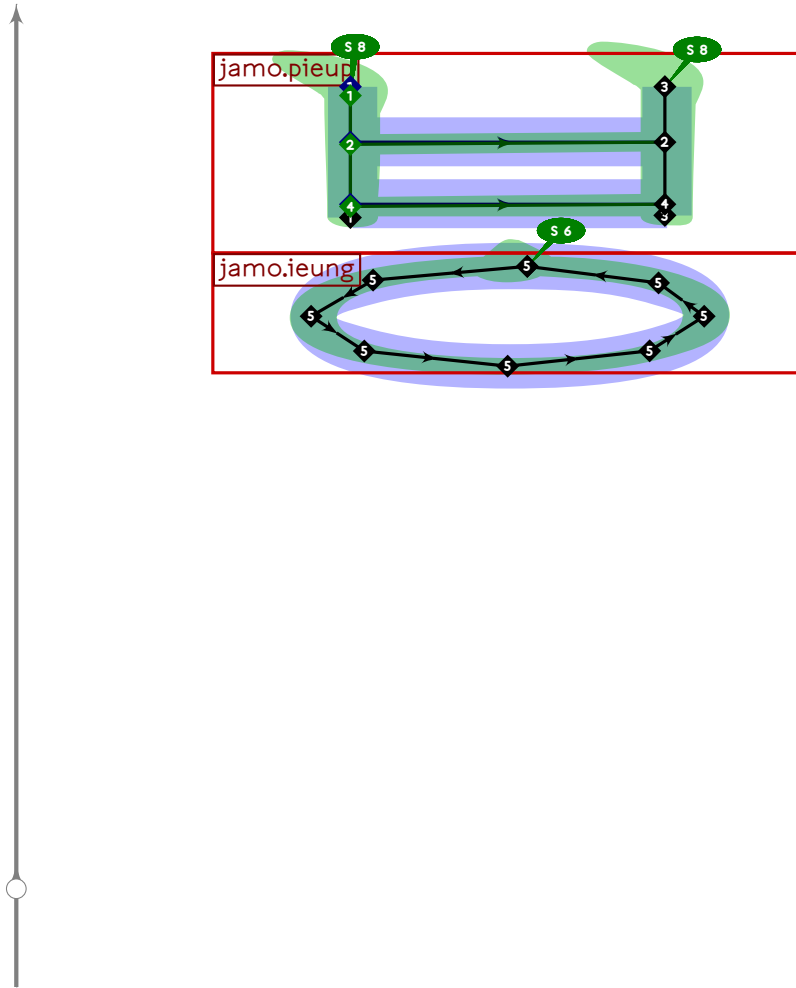




```

308 % hangul lead pieup-phieup
309 begint Suglyph("uni112A.l2",42);
310 hangul.combine.lr(207,117)(whatever,lixf,loxf);
311 tsu_render;
312 endsuglyph;
313

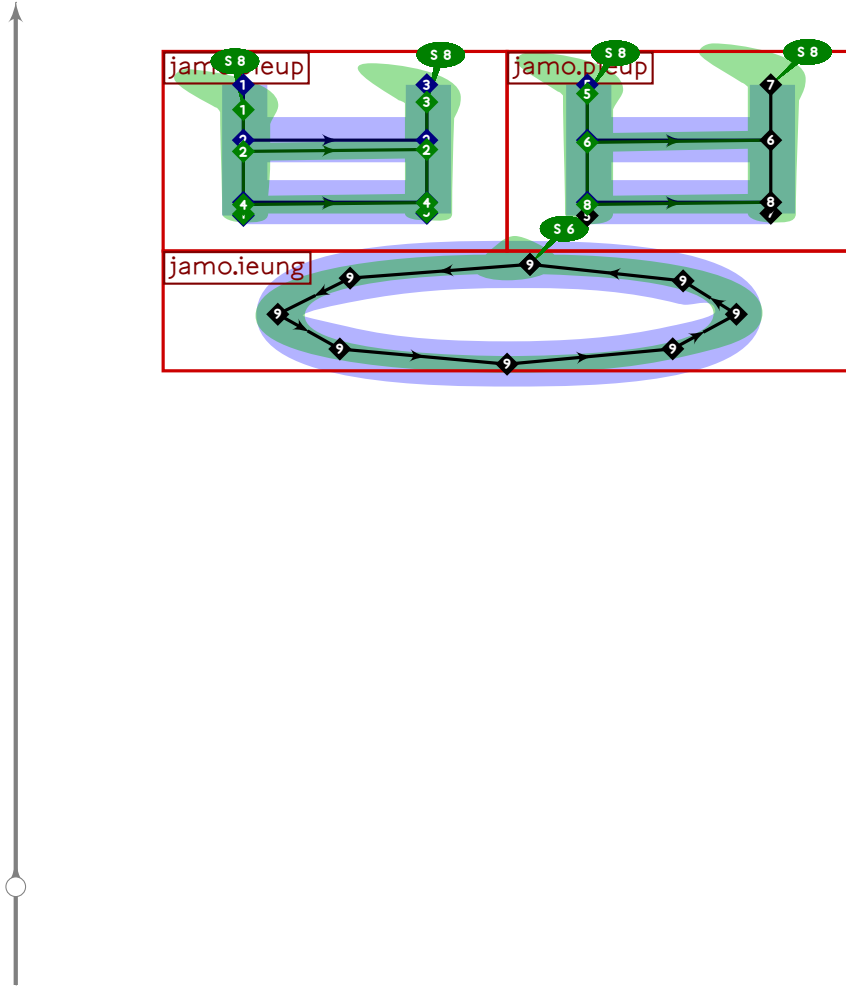
```



```

314 % hangul lead kapyeounpieup
315 begintsuglyph("uni112B.12",43);
316 hangul.combine.tb(107,521)(whatever,
317   hxf((200,850),(800,-50)) transformed lixf,loxf);
318 tsu_render;
319 endsuglyph;
320

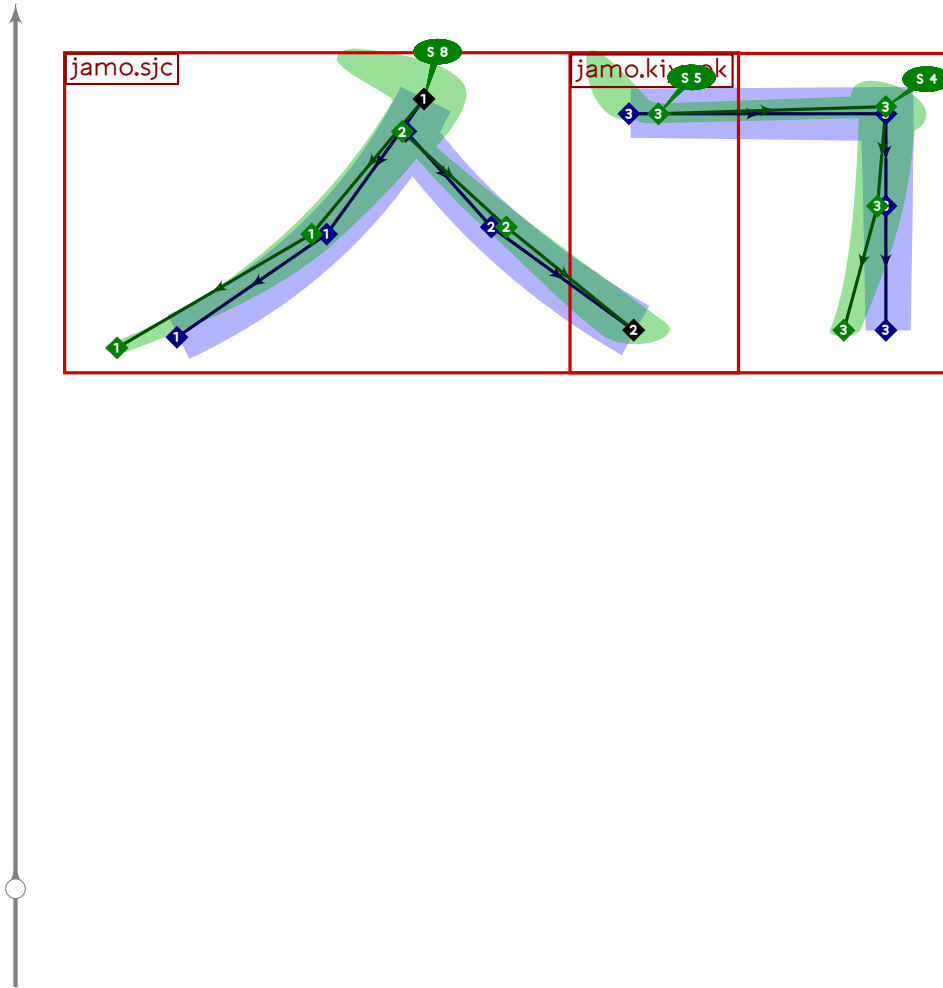
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```

321 % hangul lead kapyeounssangpieup
322 begint Suglyph("uni112C.12",44);
323 hangul.combine.tb(108,521)(whatever,
324   hxf((150,850),(850,-50)) transformed lixf,loxf);
325 tsu_render;
326 endsuglyph;
327

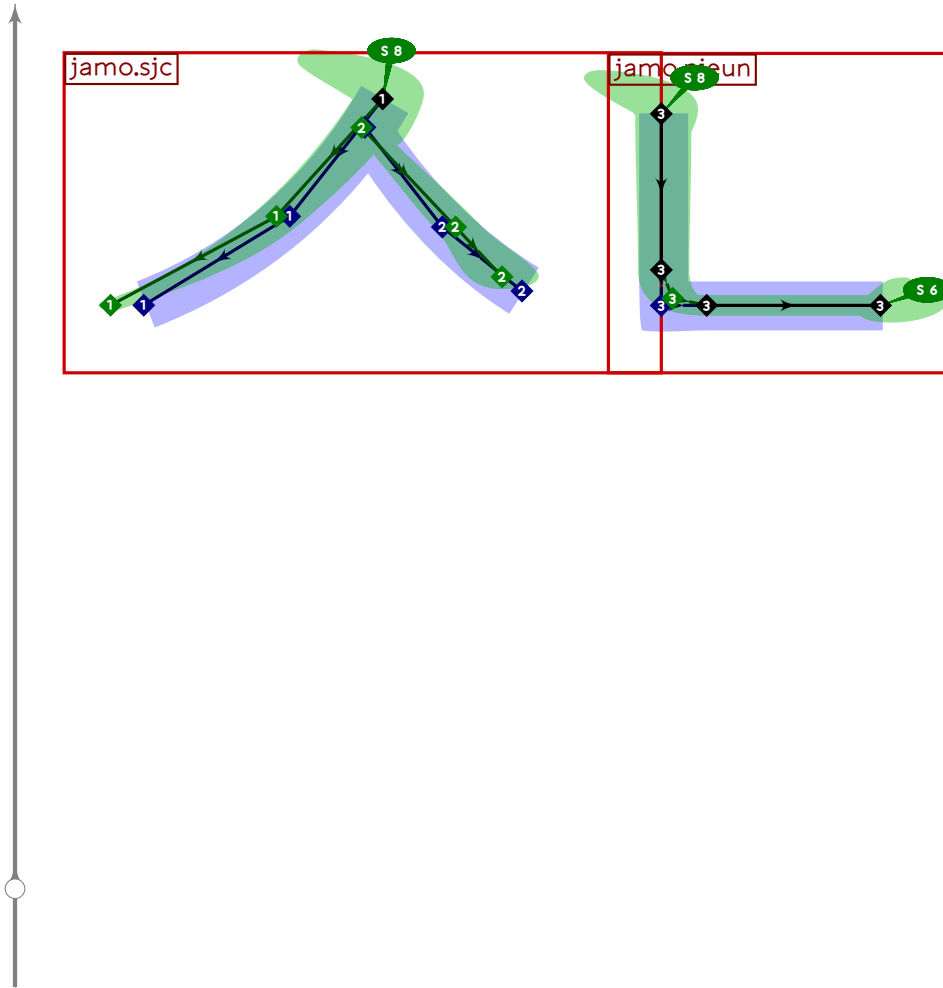
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```

328 % hangul lead sios-kiyeok
329 begintuglyph("uni112D.12",45);
330 hangul.combine.lr(109,100)(whatever,lixf,loxf);
331 tsu_render;
332 endtuglyph;
333

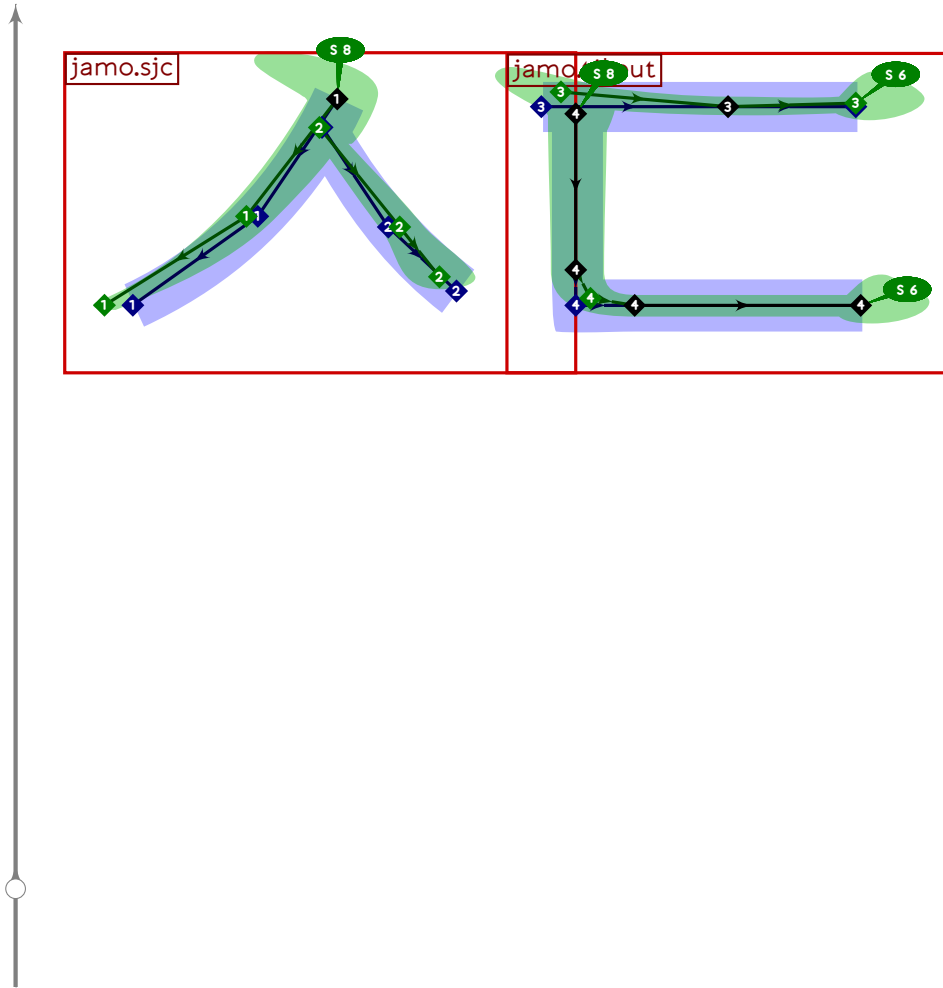
```



```

334 % hangul lead sios-nieun
335 begint Suglyph("uni112E.12",46);
336 hangul.combine.lr(209,102)(whatever,lixf,loxf);
337 tsu_render;
338 endtsuglyph;
339

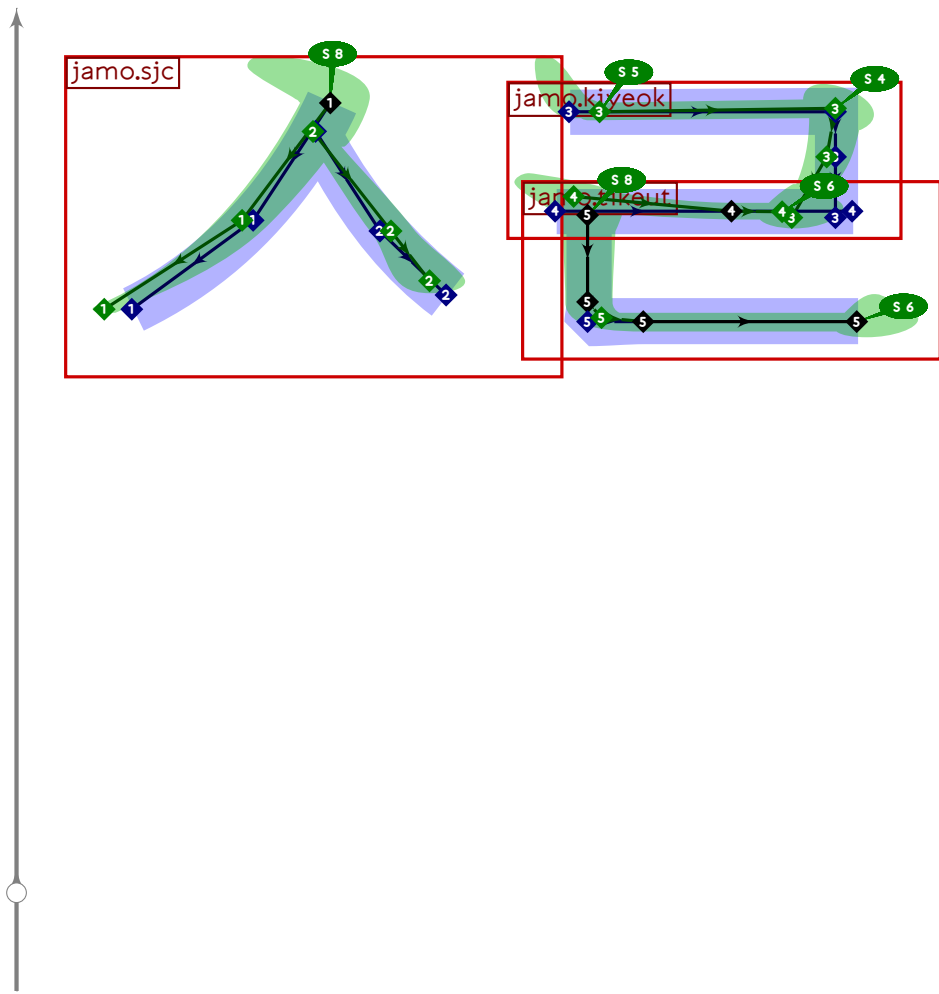
```



```

340 % hangul lead sios-tikeut
341 begint Suglyph("uni112F.12";47);
342 hangul.combine.lr(209,103)(whatever,lixf,loxf);
343 tsu_render;
344 endtsuglyph;
345

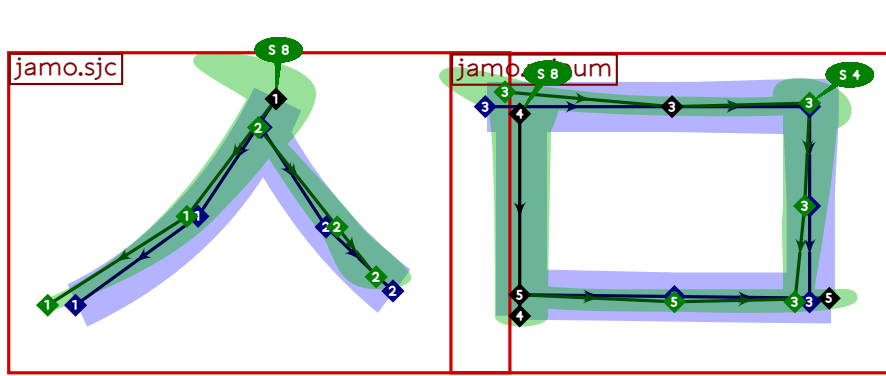
```



```

346 % hangul lead sios-rieul
347 begint Suglyph("uni1130.l2",48);
348 hangul.combine.lr(209,105)(whatever,lixf,loxf);
349 tsu_render;
350 endtsuglyph;
351

```

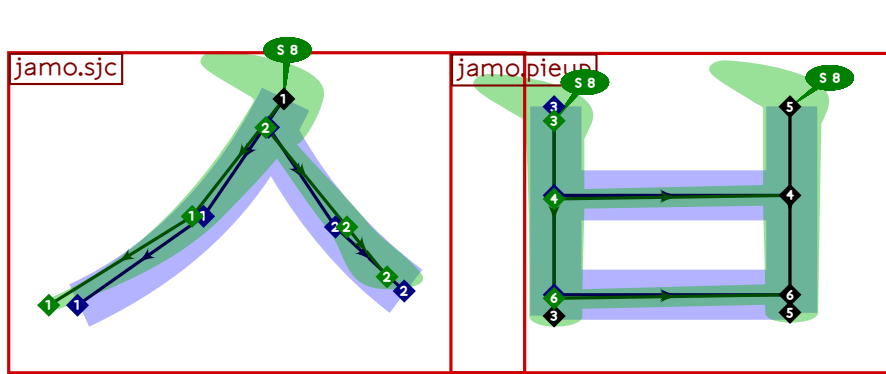


```

352 % hangul lead sios-mieum
353 begintsuglyph("uni1131.l2",49);
354 hangul.combine.lr(209,106)(whatever,lixf,loxf);
355 tsu_render;
356 endsuglyph;
357

```

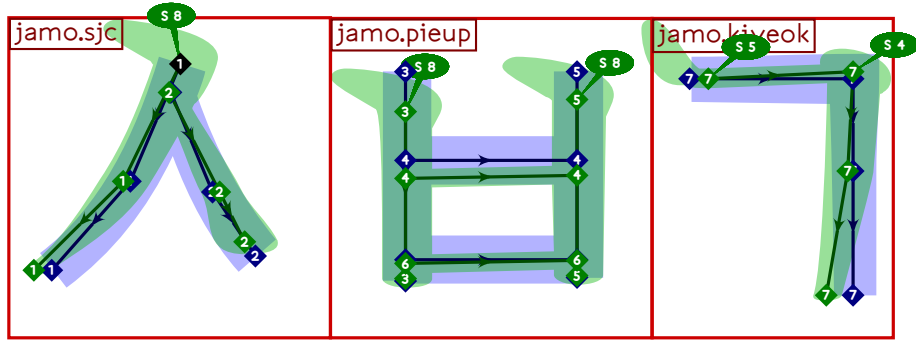




```

358 % hangul lead sios-pieup
359 begintsuglyph("uni1132.12",50);
360 hangul.combine.lr(209,107)(whatever,lixf,loxf);
361 tsu_render;
362 endtsuglyph;
363

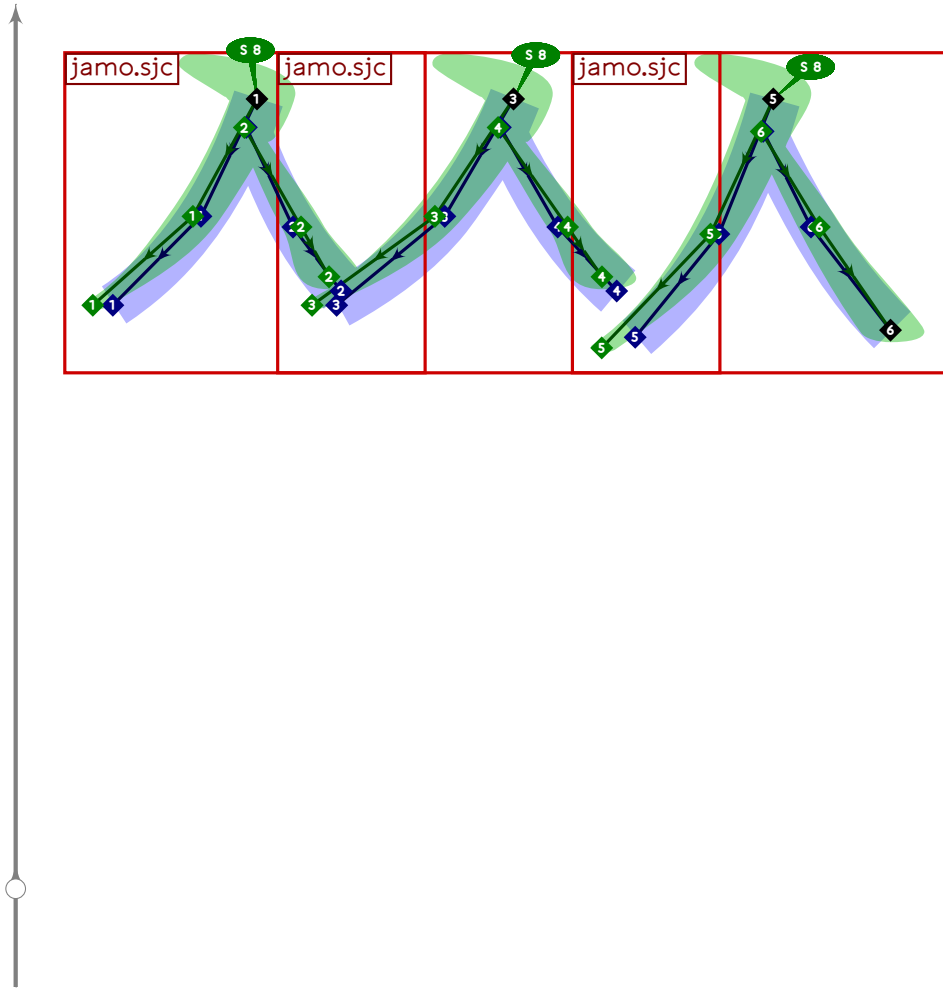
```



```

364 % hangul lead sios-pieup-kiyeok
365 begintsuglyph("uni1133.12",51);
366 hangul.combine.lcr(209,207,100)(whatever,lixf,loxf);
367 tsu_render;
368 endsuglyph;
369

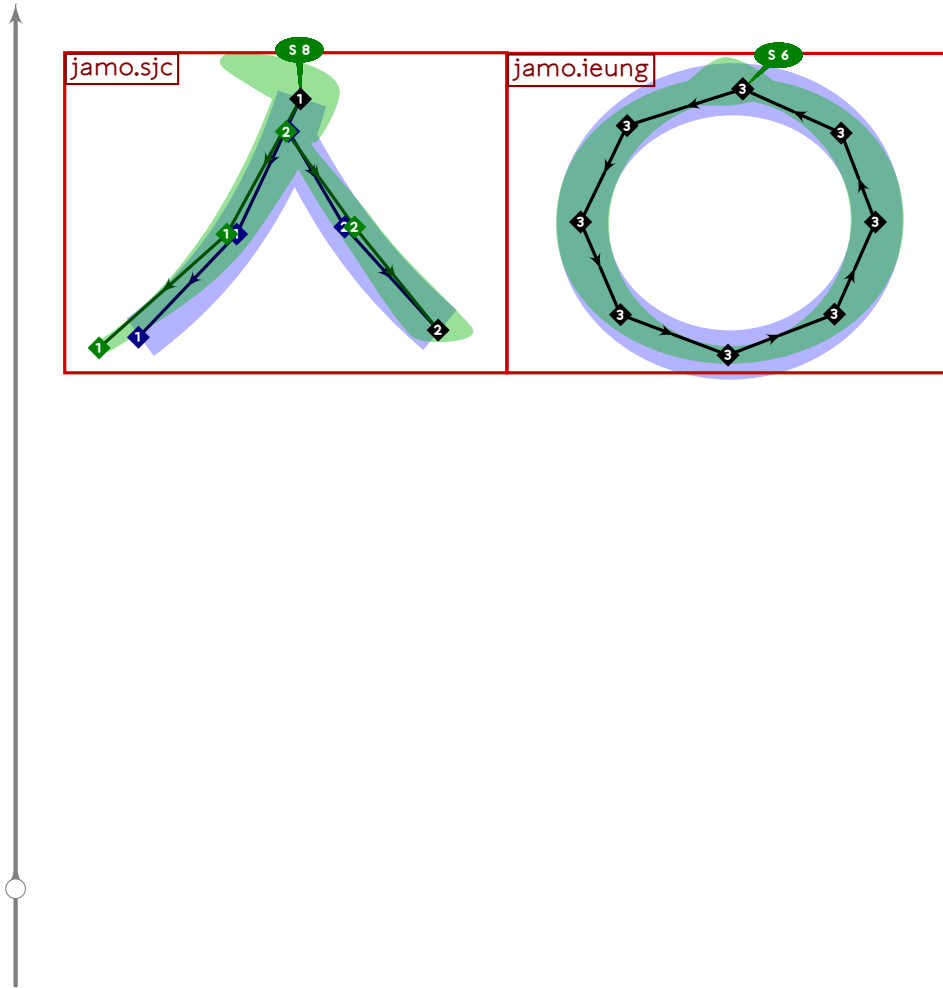
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```

370 % hangul lead sios-sios-sios
371 begintsuglyph("uni1134.12",52);
372 hangul.combine.lcr(209,209,109)(whatever,lixf,loxf);
373 tsu_render;
374 endsuglyph;
375

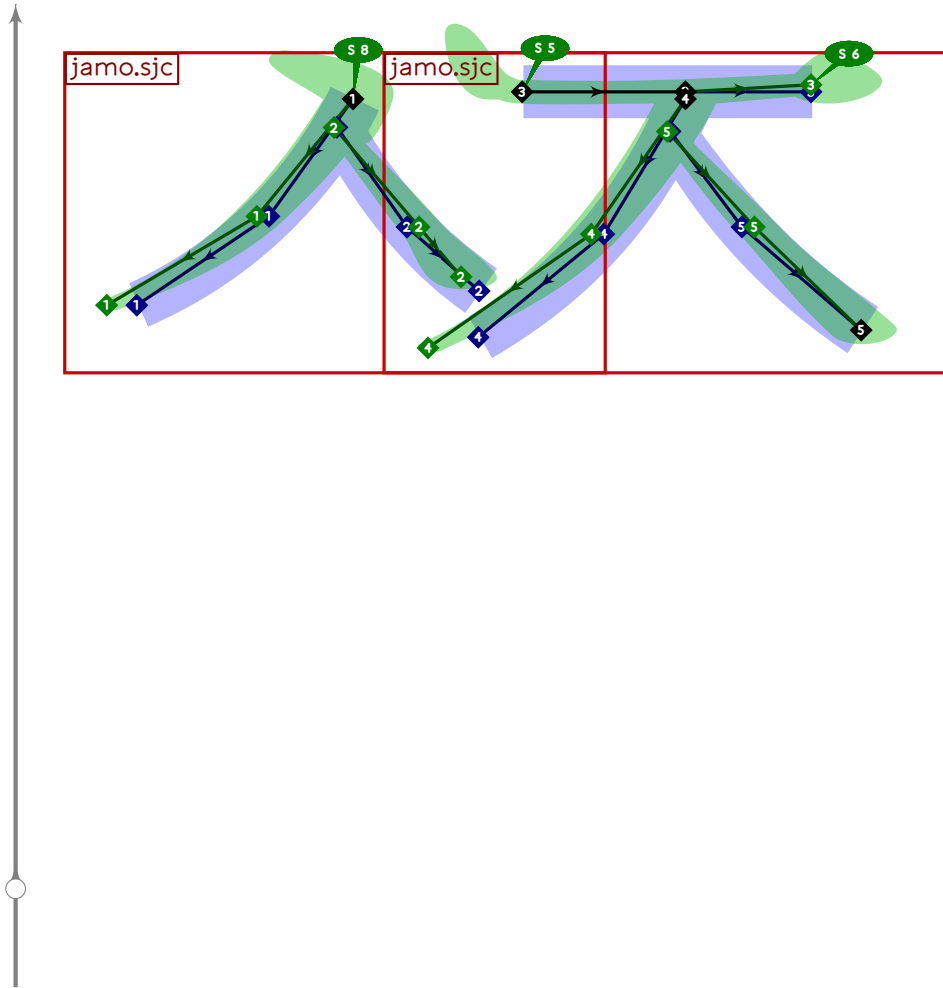
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```

376 % hangul lead sios-ieung
377 begintsuglyph("uni1135.12";53);
378 hangul.combine.lr(109,111)(whatever,lixf,loxf);
379 tsu_render;
380 endsuglyph;
381

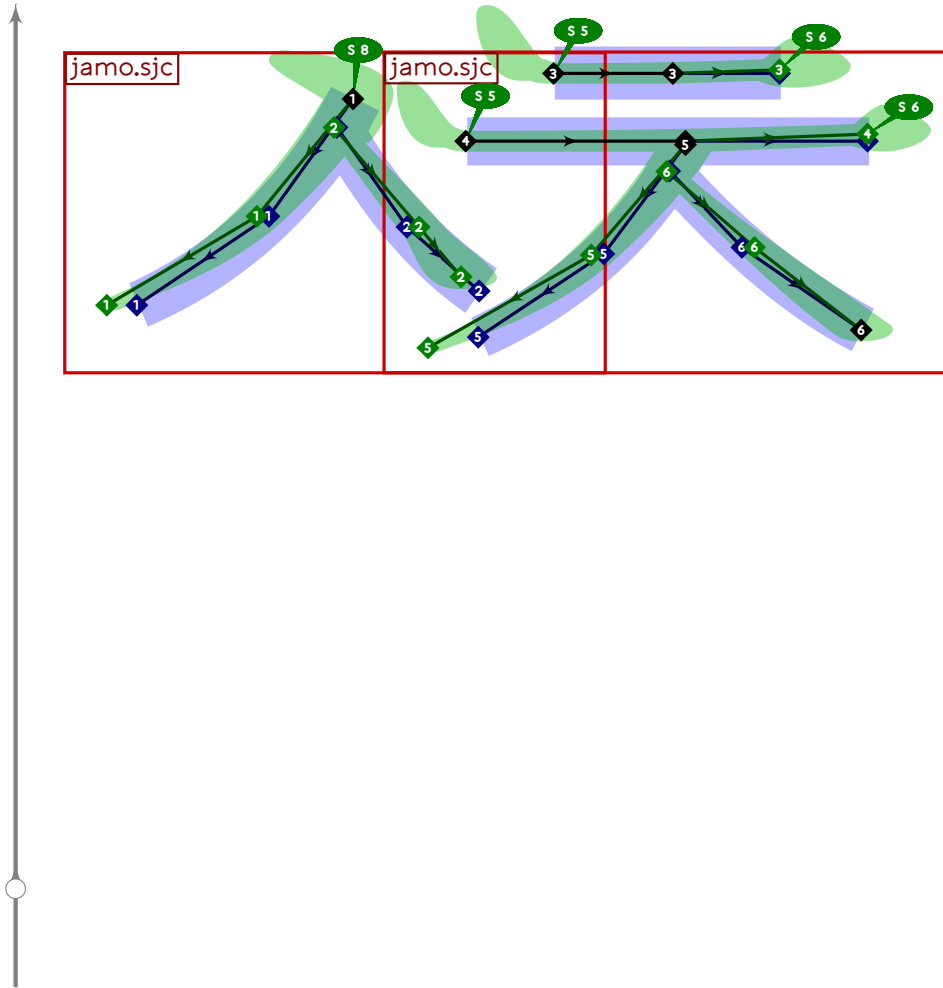
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```

382 % hangul lead sios-cieuc
383 begint Suglyph("uni1136.l2",54);
384 hangul.combine.lr(209,112)(whatever,lixf,loxf);
385 tsu_render;
386 endtsuglyph;
387

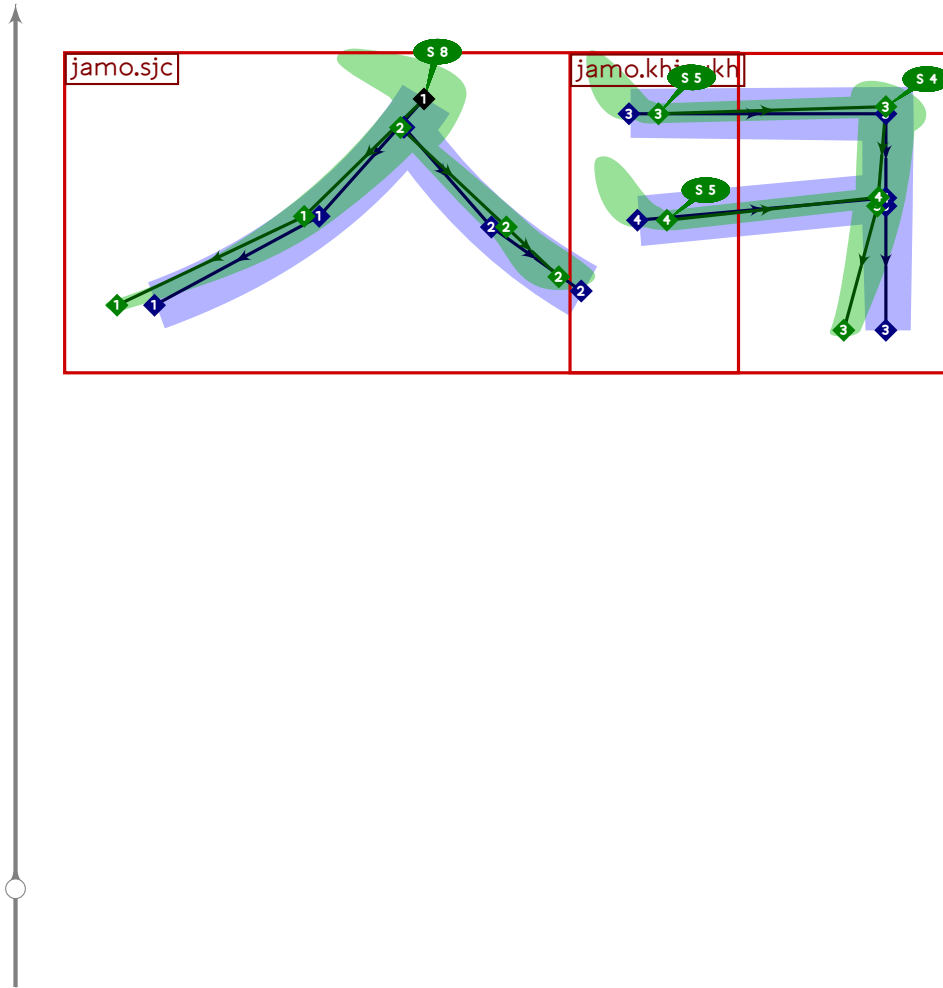
```



```

388 % hangul lead sios-chieuch
389 begint Suglyph("uni1137.l2";55);
390 hangul.combine.lr(209,114)(whatever,lixf,loxf);
391 tsu_render;
392 endtsuglyph;
393

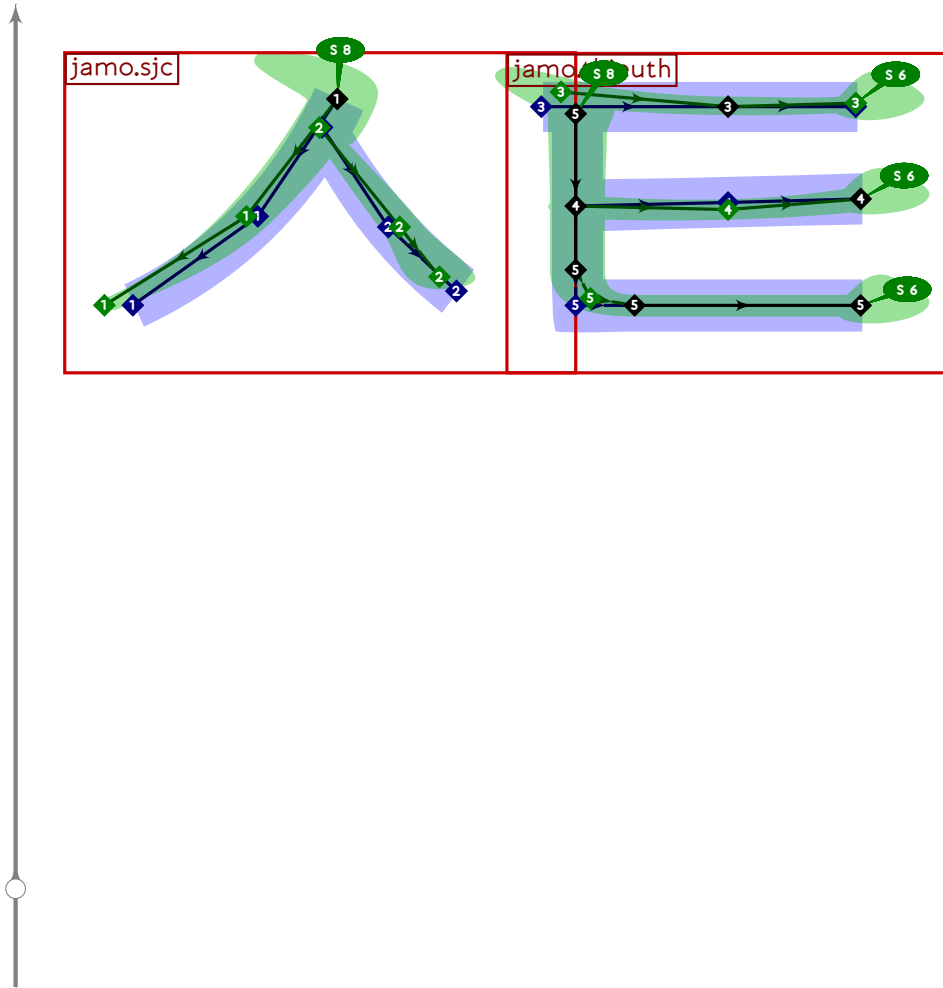
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```

394 % hangul lead sios-khieukh
395 begint Suglyph("uni1138.l2",56);
396 hangul.combine.lr(209,115)(whatever,lixf,loxf);
397 tsu_render;
398 endtsuglyph;
399

```



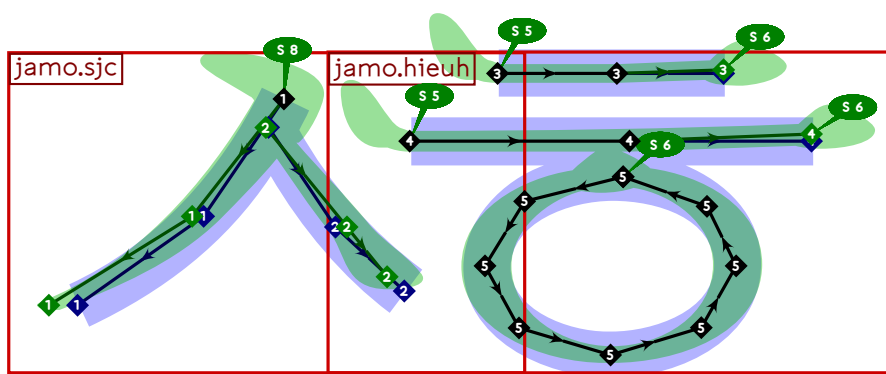
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400 % hangul lead sios-thieuth
401 begint Suglyph("uni1139.12";57);
402 hangul.combine.lr(209,116)(whatever,lixf,loxf);
403 tsu_render;
404 endtsuglyph;
405

```



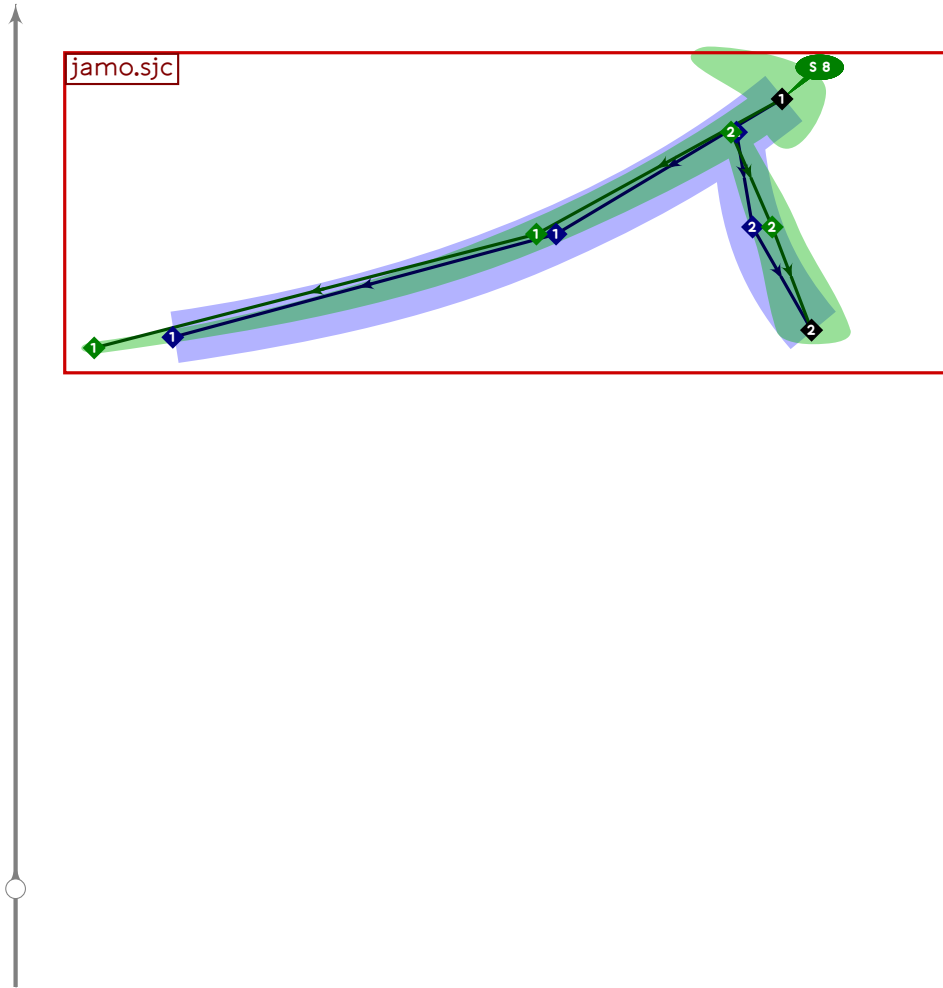




```

412 % hangul lead sios-hieuh
413 begint Suglyph("uni113B.l2",59);
414 hangul.combine.lr(209,118)(whatever,lixf,loxf);
415 tsu_render;
416 endtsuglyph;
417

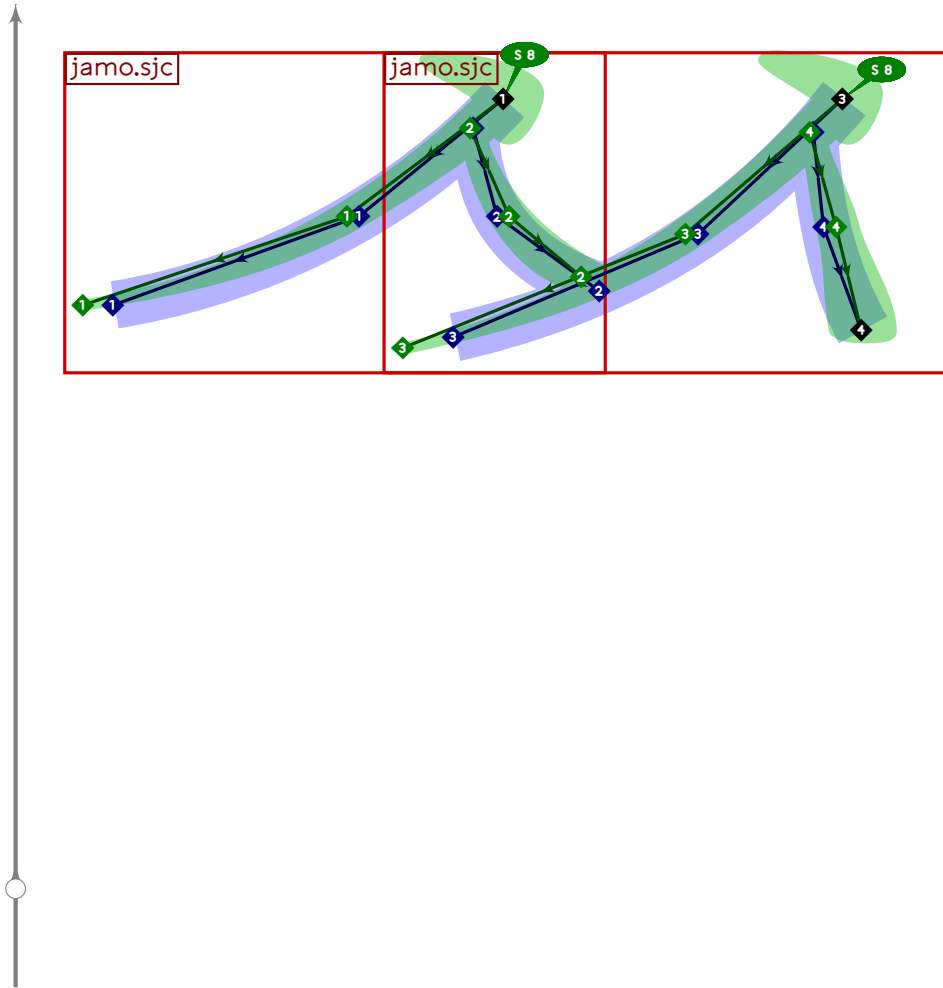
```



```

418 % hangul lead chitueumsios
419 begint Suglyph("uni113C.12",60);
420 hangul.jamo.sjc(0,1,false)(whatever,lixf,loxf);
421 tsu_render;
422 endtsuglyph;
423

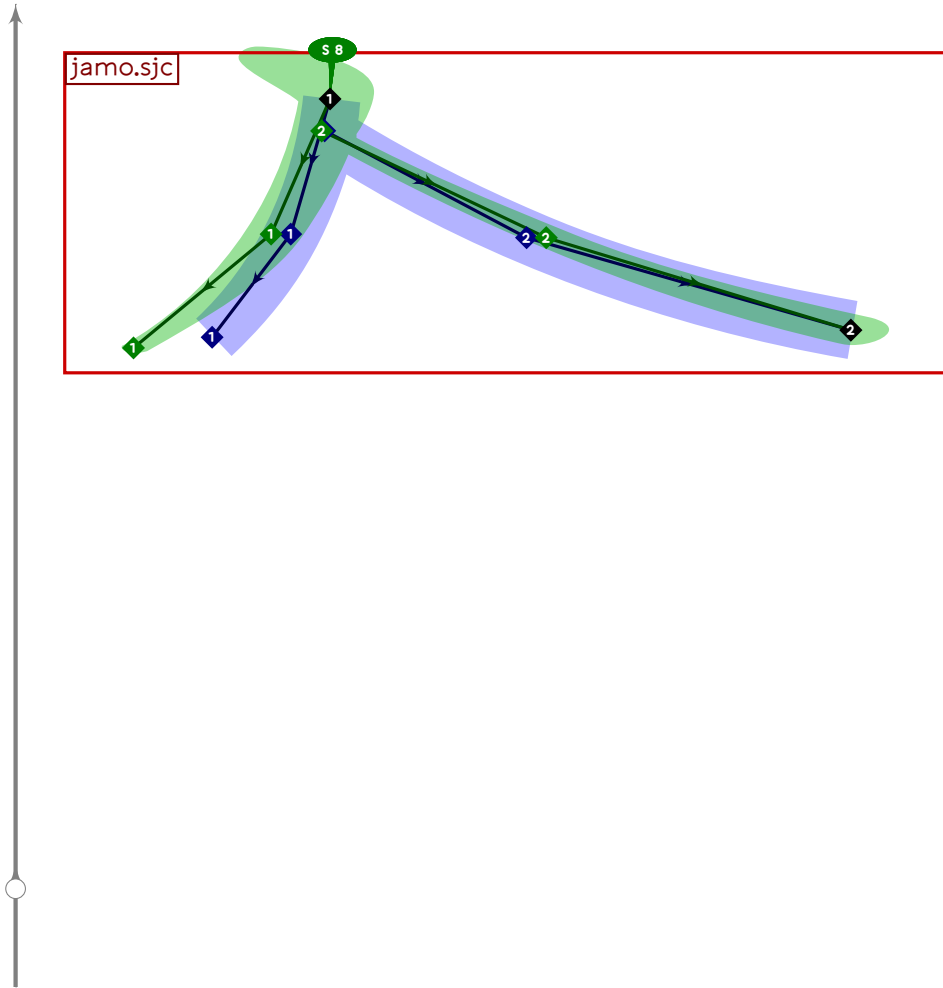
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```

424 % hangul lead chitueumssangsios
425 begint Suglyph("uni113D.l2",61);
426 hangul.combine.lr(223,222)(whatever,lixf,loxf);
427 tsu_render;
428 endtsuglyph;
429

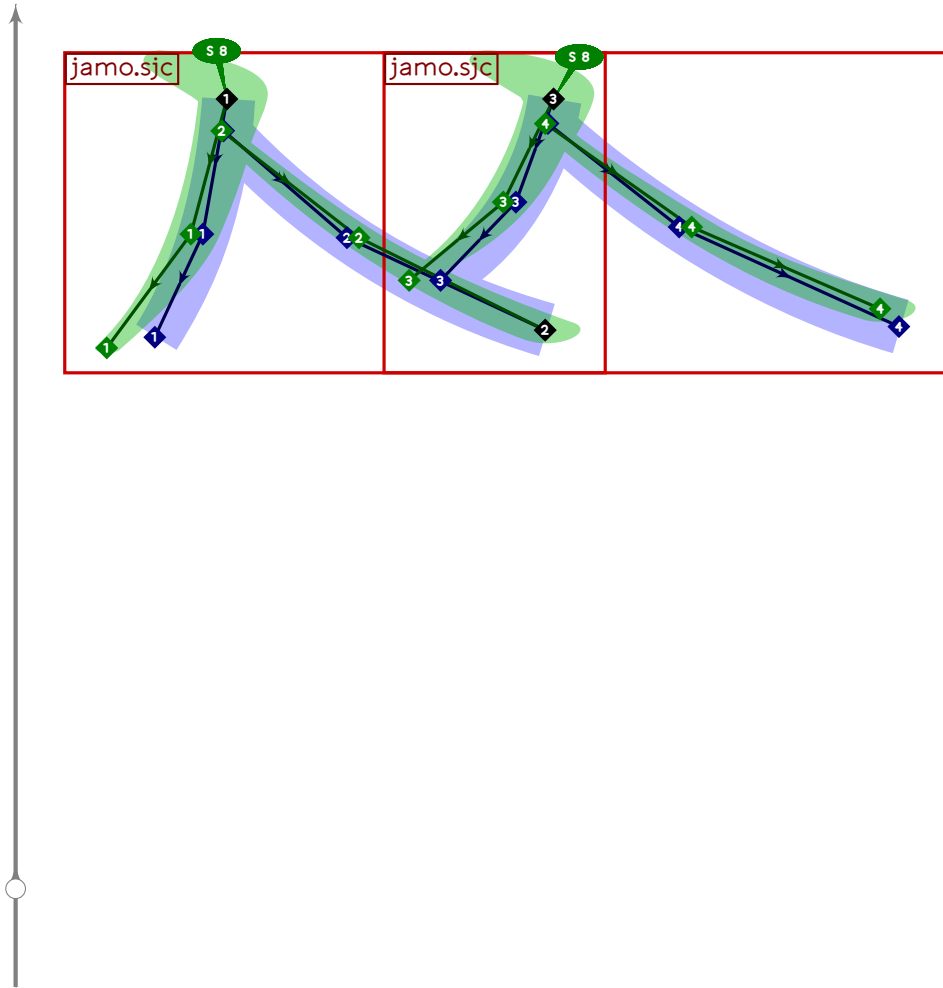
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```

430 % hangul lead ceongchieumsios
431 begint Suglyph("uni113E.12",62);
432 hangul.jamo.sjc(0,-1,false)(whatever,lixf,loxf);
433 tsu_render;
434 endtsuglyph;
435

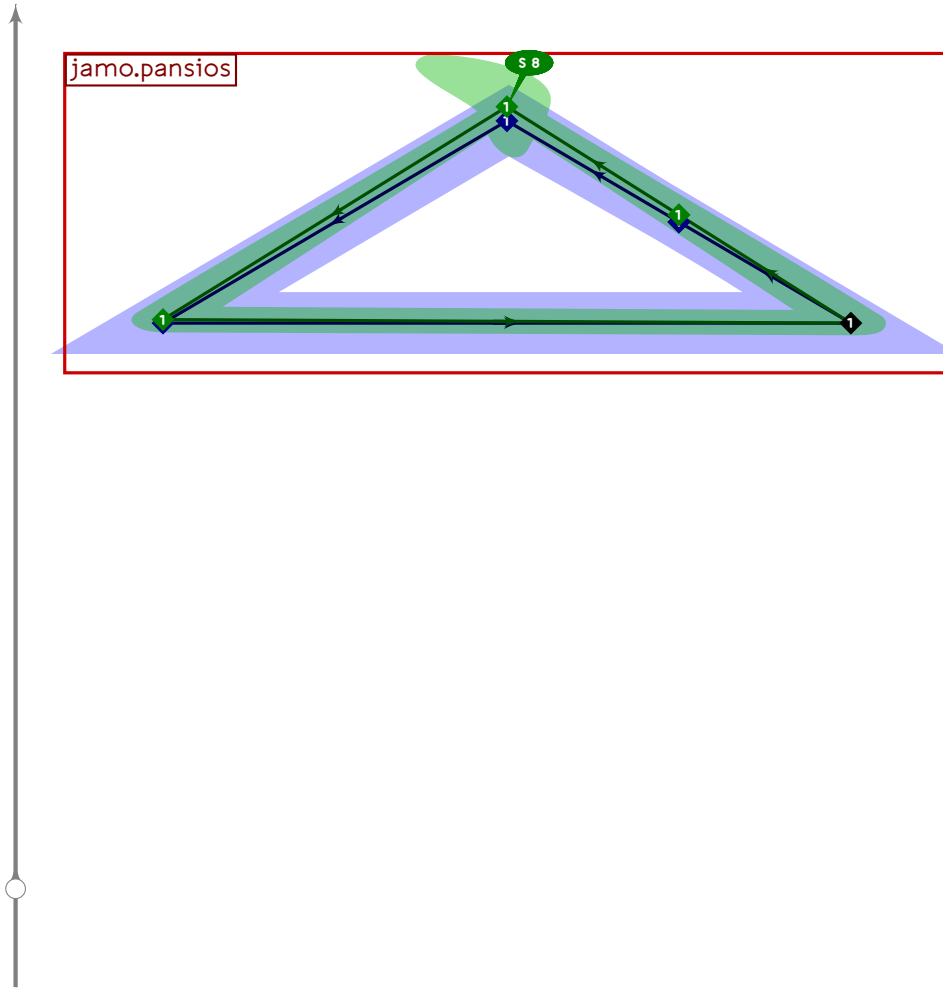
```



```

436 % hangul lead ceongchieumssangsios
437 begint Suglyph("uni113F.l2";63);
438 hangul.combine.lr(224,225)(whatever,lixf,loxf);
439 tsu_render;
440 endtsuglyph;
441

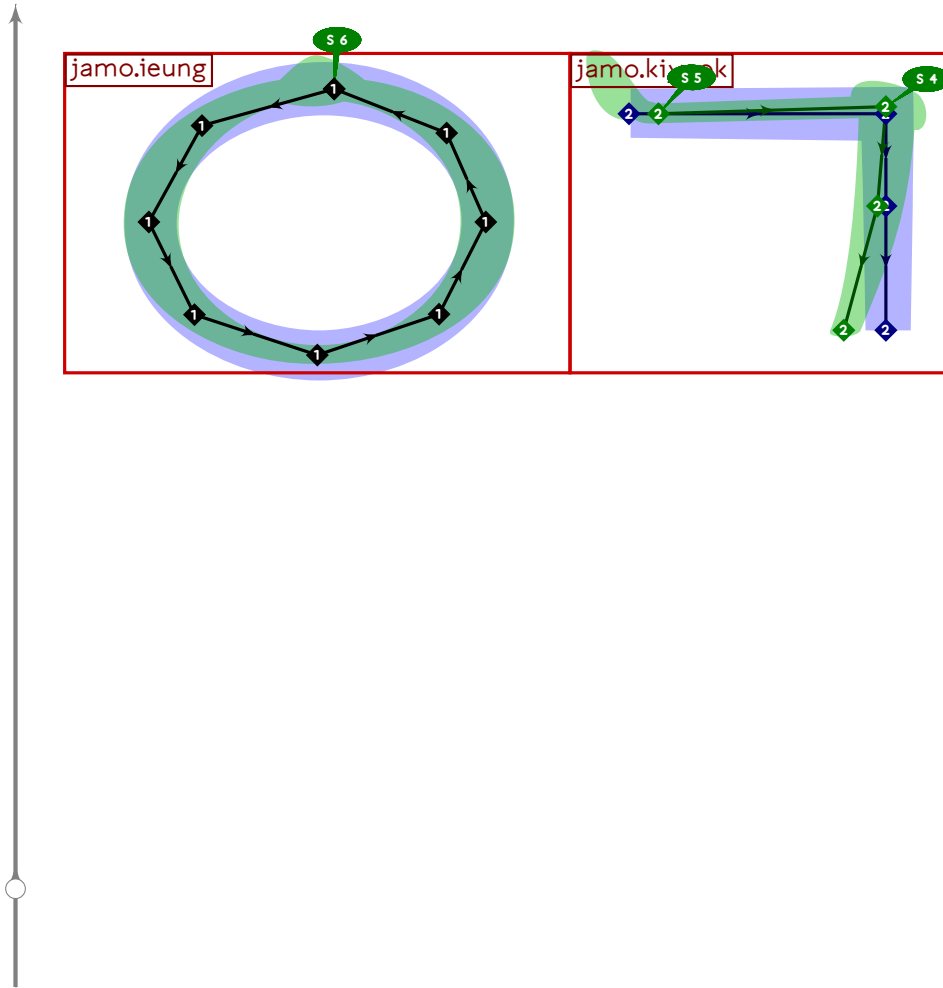
```



```

442 % hangul lead pansios
443 begintsuglyph("uni1140.l2",64);
444 hangul.jamo.pansios(whatever,lixf,loxf);
445 tsu_render;
446 endtsuglyph;
447

```

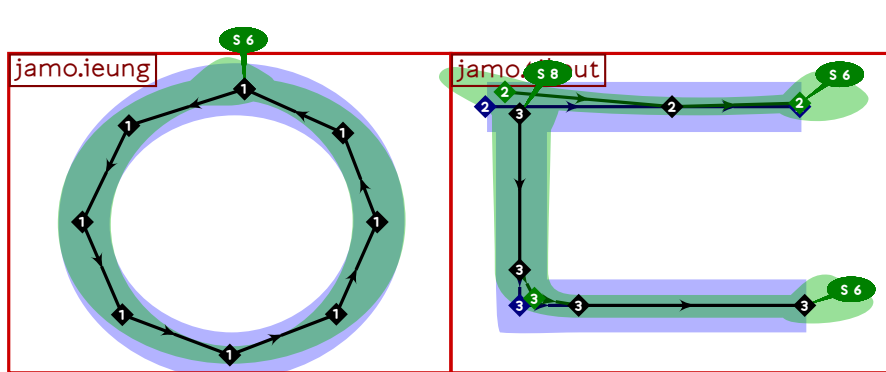


```

448 % hangul lead ieung-kiyeok
449 beginsuglyph("uni1141.l2",65);
450 hangul.combine.lr(111,100)(whatever,lixf,loxf);
451 tsu_render;
452 endsuglyph;
453

```

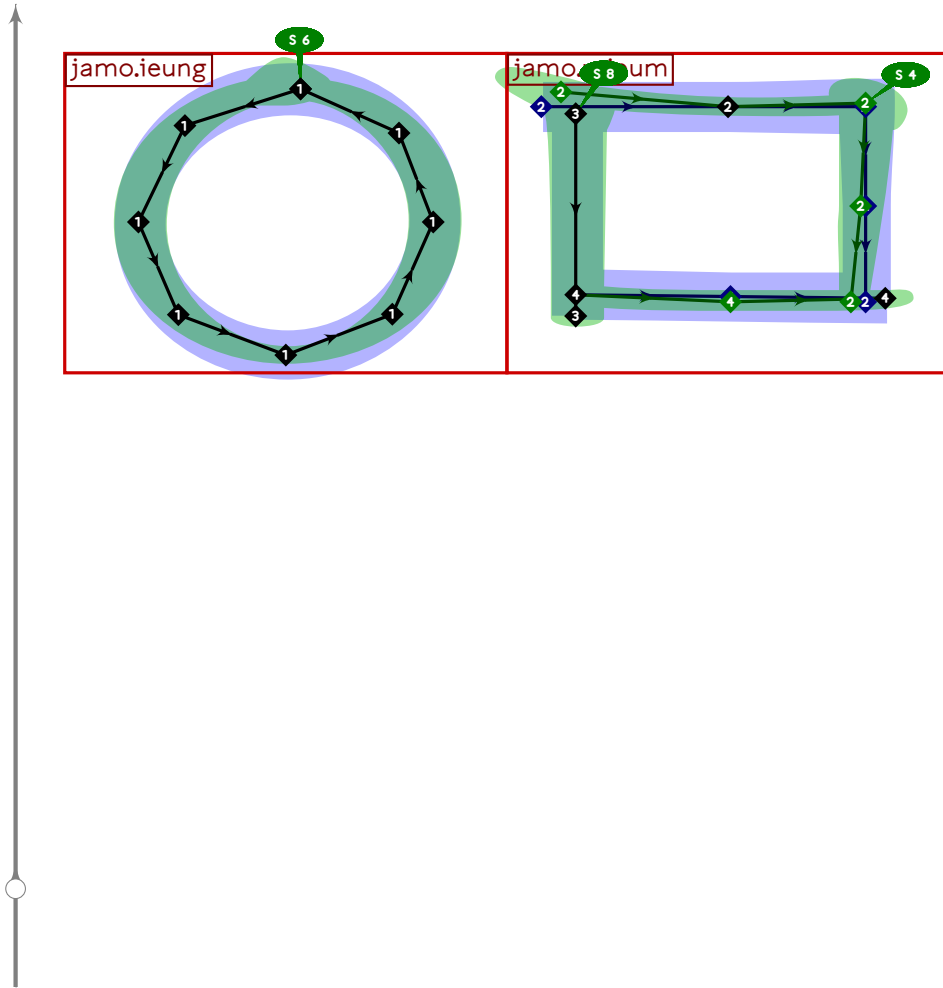




```

454 % hangul lead ieung-tikeut
455 begintsuglyph("uni1142.12",66);
456 hangul.combine.lr(111,103)(whatever,lixf,loxf);
457 tsu_render;
458 endsuglyph;
459

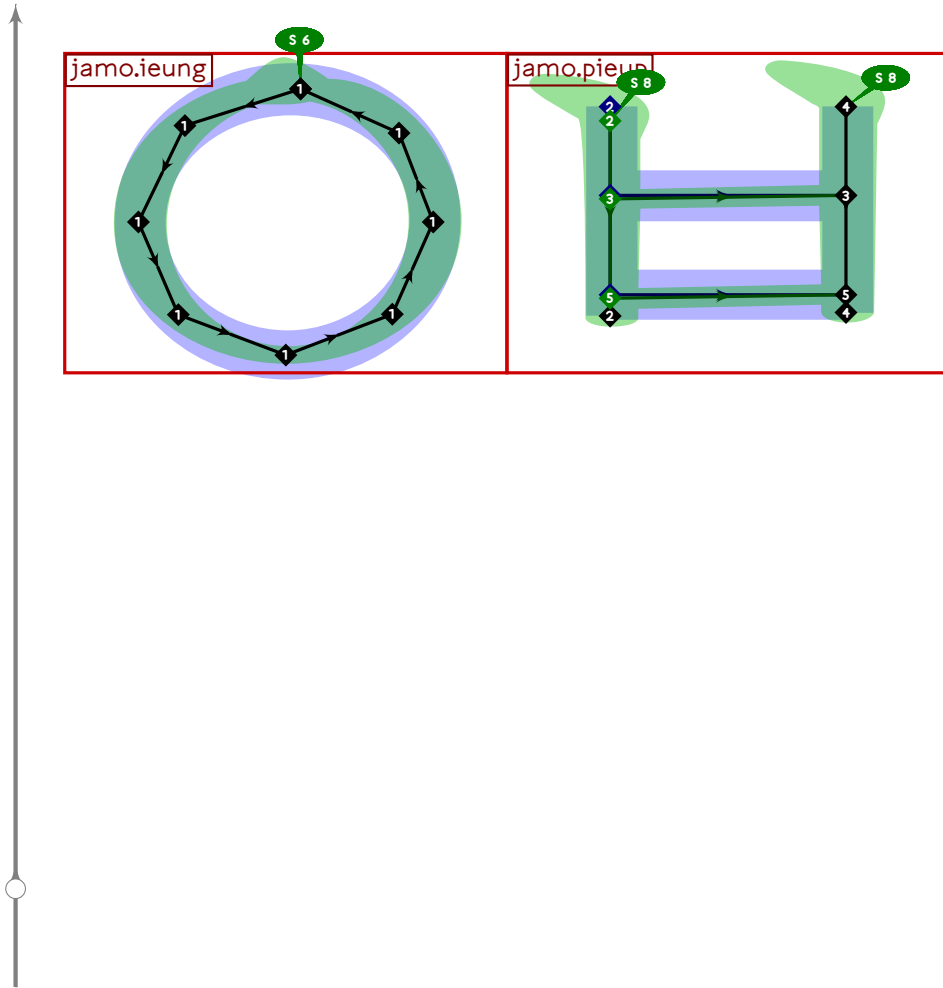
```



```

460 % hangul lead ieung-mieum
461 begintsuglyph("uni1143.12";67);
462 hangul.combine.lr(111,106)(whatever,lixf,loxf);
463 tsu_render;
464 endsuglyph;
465

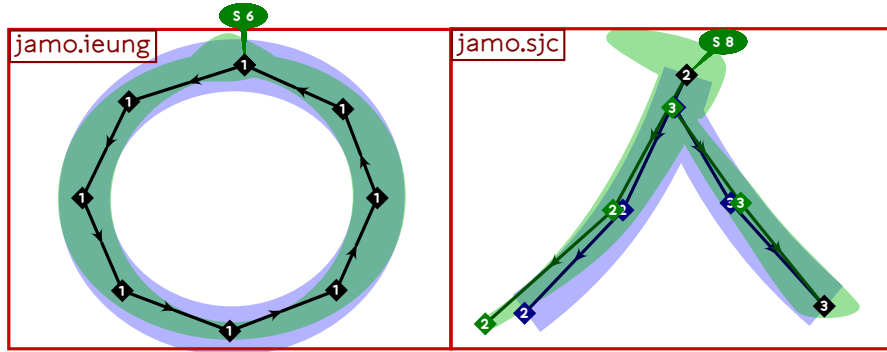
```



```

466 % hangul lead ieung-pieup
467 begintsuglyph("uni1144.12",68);
468 hangul.combine.lr(111,107)(whatever,lixf,loxf);
469 tsu_render;
470 endsuglyph;
471

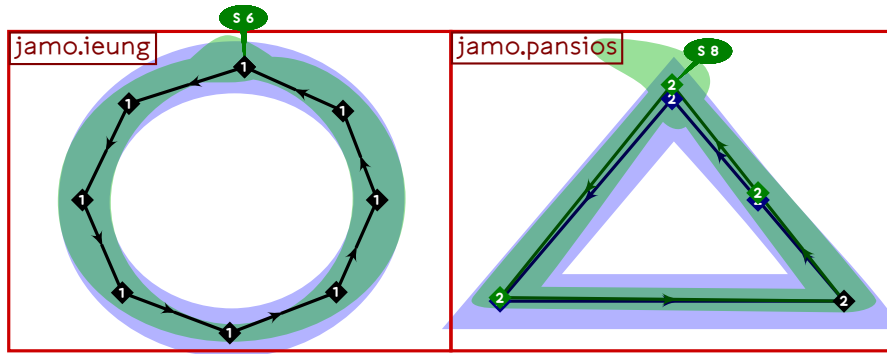
```



```

472 % hangul lead ieung-sios
473 begintsuglyph("uni1145.12";69);
474 hangul.combine.lr(111,109)(whatever,lixf,loxf);
475 tsu_render;
476 endsuglyph;
477

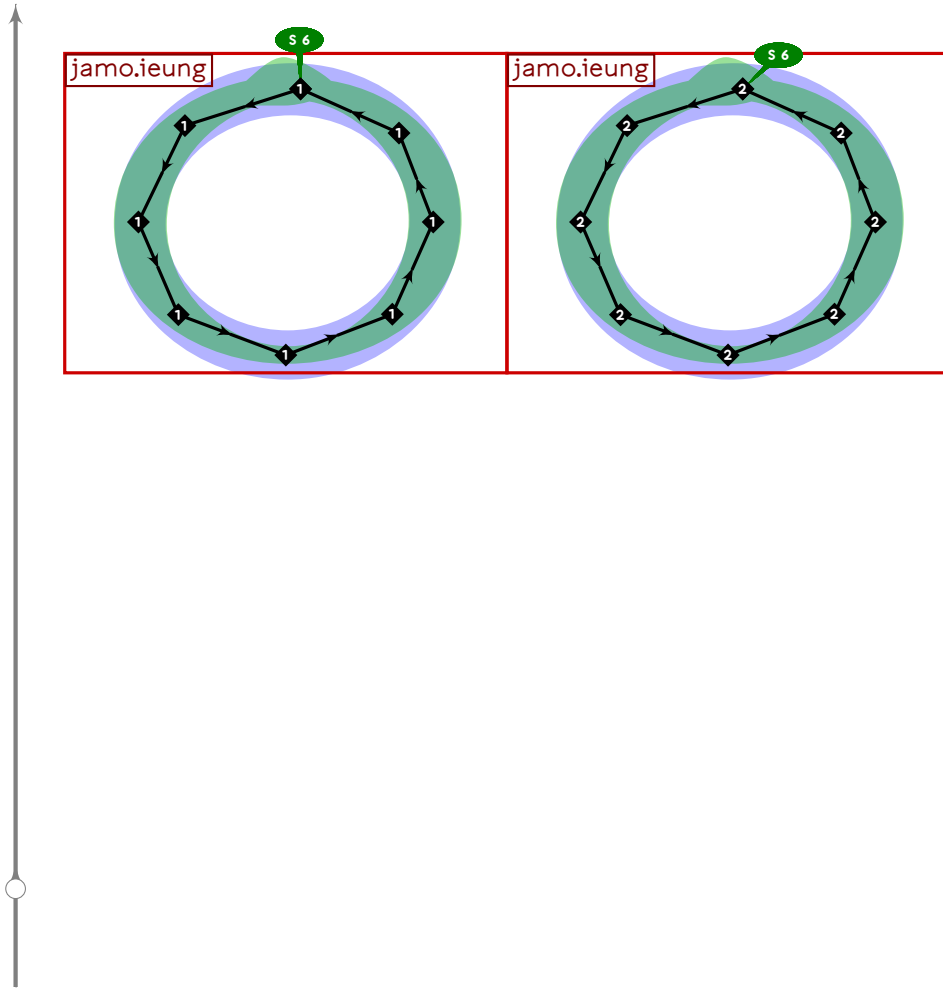
```



```

478 % hangul lead ieung-pansios
479 begintsuglyph("uni1146.l2",70);
480 hangul.combine.lr(111,219)(whatever,lixf,loxf);
481 tsu_render;
482 endsuglyph;
483

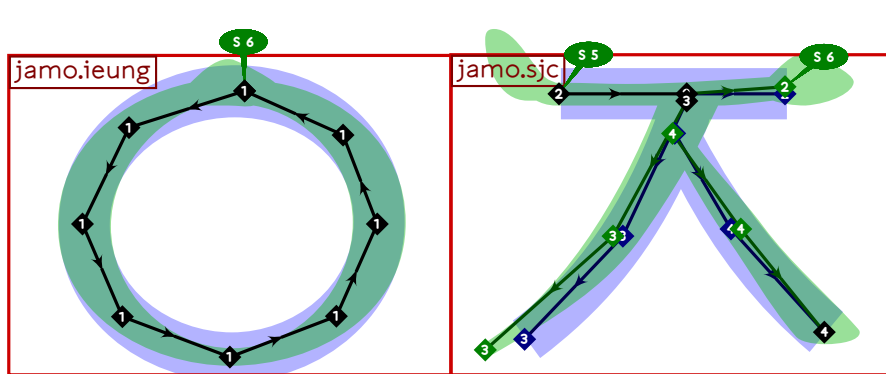
```



```

484 % hangul lead ssangieung
485 begintsuglyph("uni1147.l2";71);
486 hangul.combine.lr(111,111)(whatever,lixf,loxf);
487 tsu_render;
488 endsuglyph;
489

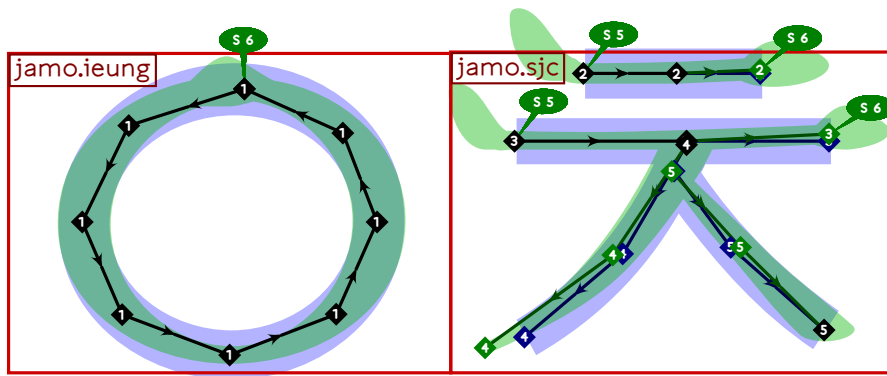
```



```

490 % hangul lead ieung-cieuc
491 begintsuglyph("uni1148.l2",72);
492 hangul.combine.lr(111,112)(whatever,lixf,loxf);
493 tsu_render;
494 endsuglyph;
495

```

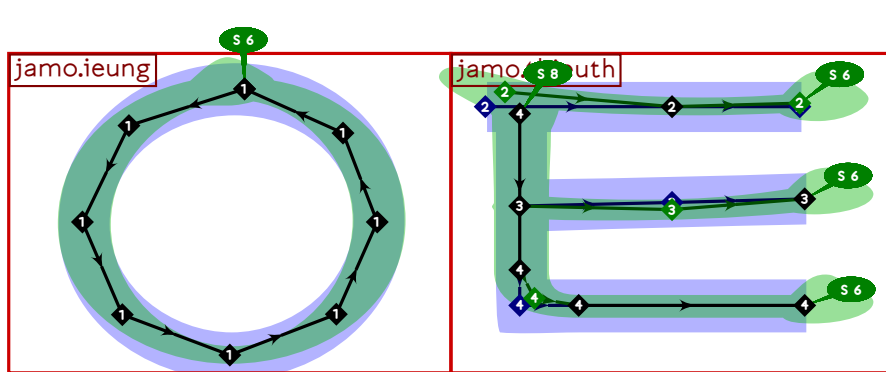


```

496 % hangul lead ieung-chieuch
497 begintsuglyph("uni1149.l2";73);
498 hangul.combine.lr(111,114)(whatever,lixf,loxf);
499 tsu_render;
500 endsuglyph;
501

```

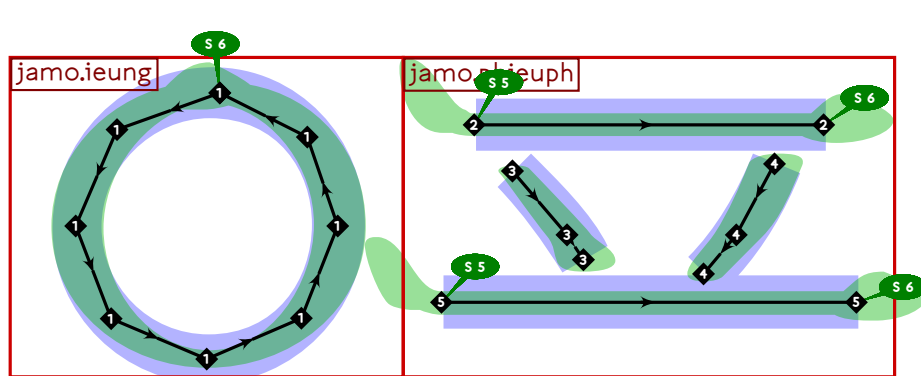




```

502 % hangul lead ieung-theiuth
503 begintsuglyph("uni114A.12";74);
504 hangul.combine.lr(111,116)(whatever,lixf,loxf);
505 tsu_render;
506 endtsuglyph;
507

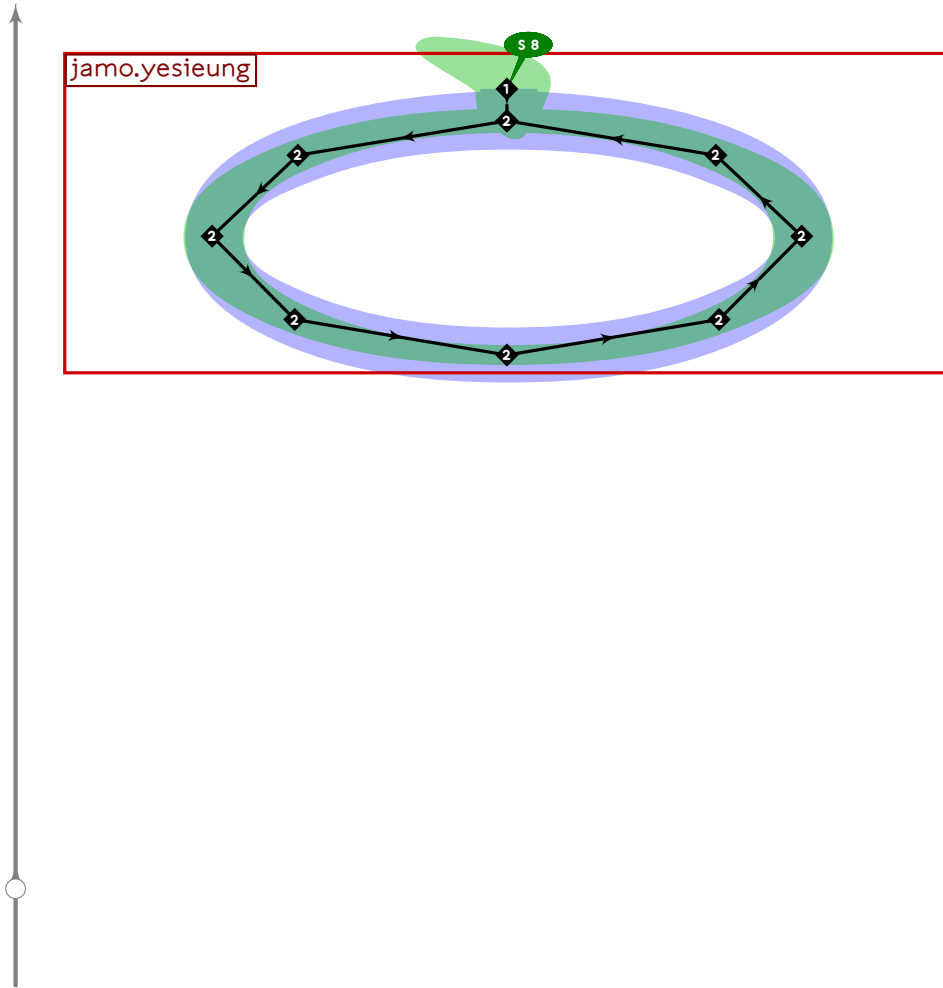
```



```

508 % hangul lead ieung-phieuph
509 begintsuglyph("uni114B.l2",75);
510 hangul.combine.lr(111,117)(whatever,lixf,loxf);
511 tsu_render;
512 endsuglyph;
513

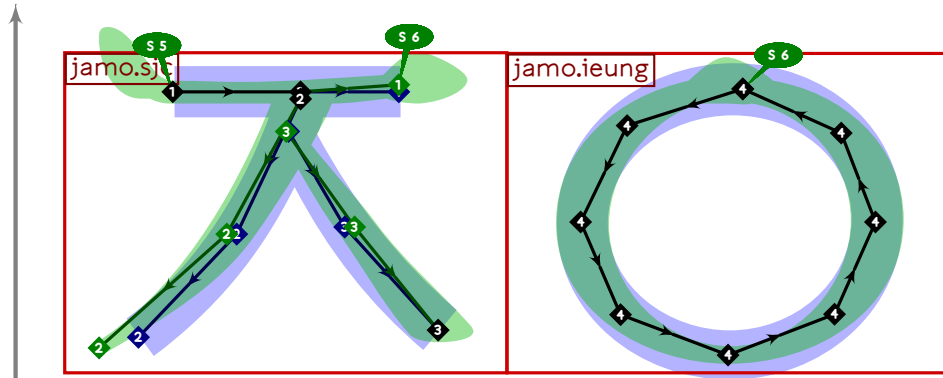
```



```

514 % hangul lead yesieung
515 begintsuglyph("uni114C.12";76);
516 hangul.jamo.yesieung(whatever,lixf,loxf);
517 tsu_render;
518 endsuglyph;
519

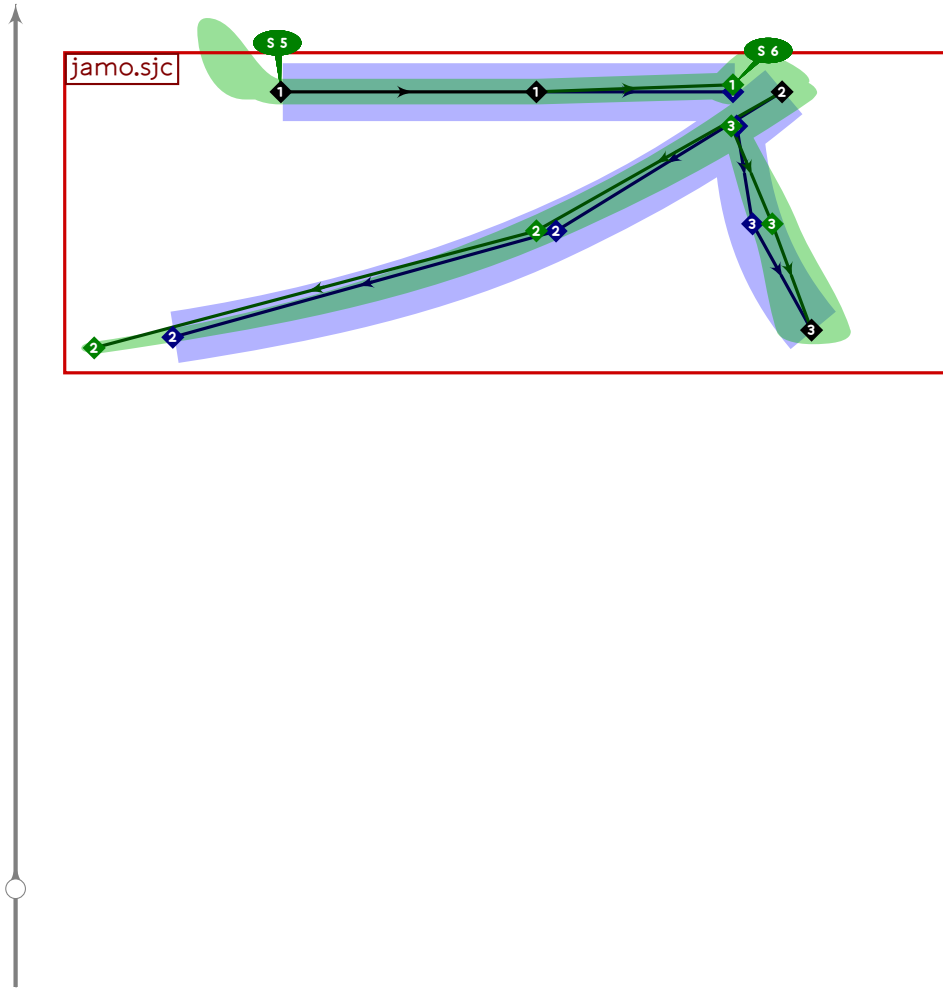
```



```

520 % hangul lead cieuc-ieung
521 begint Suglyph("uni114D.l2";77);
522 hangul.combine.lr(112,111)(whatever,lixf,loxf);
523 tsu_render;
524 endtsuglyph;
525

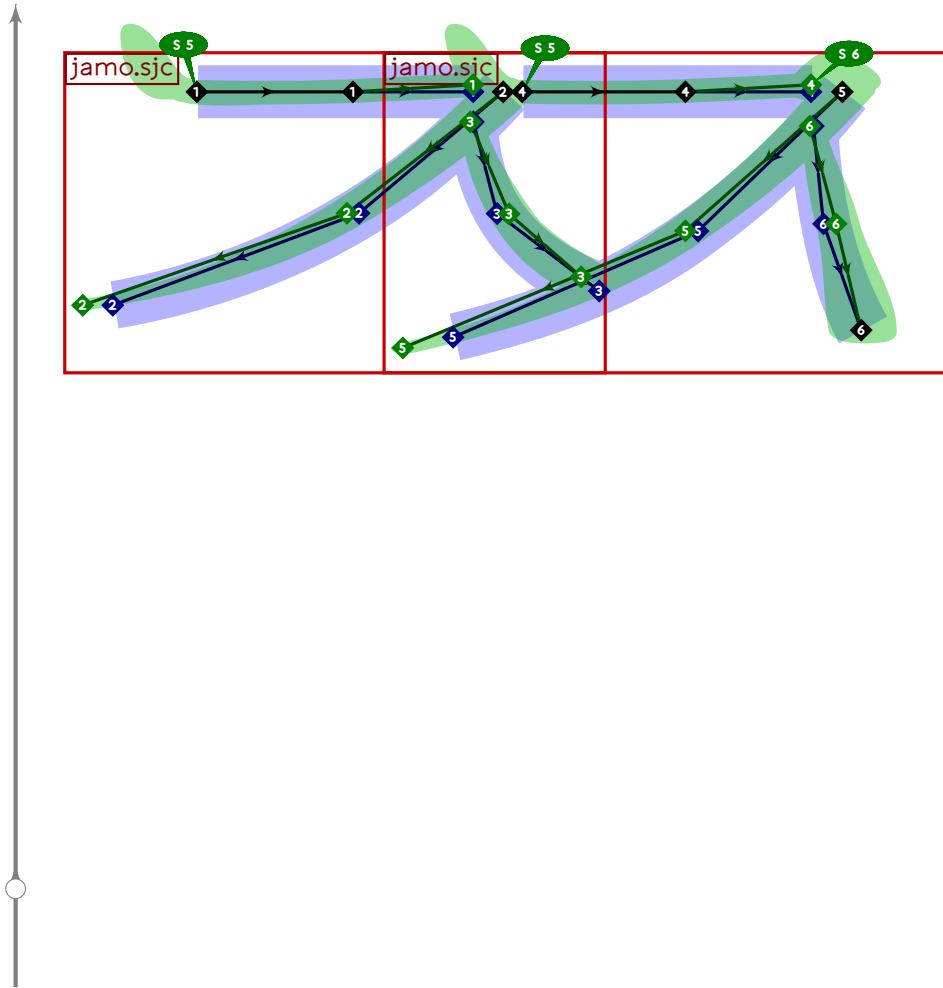
```



```

526 % hangul lead chitueumcieuc
527 begintsuglyph("uni114E.l2",78);
528 hangul.jamo.sjc(1,1,false)(whatever,lixf,loxf);
529 tsu_render;
530 endsuglyph;
531

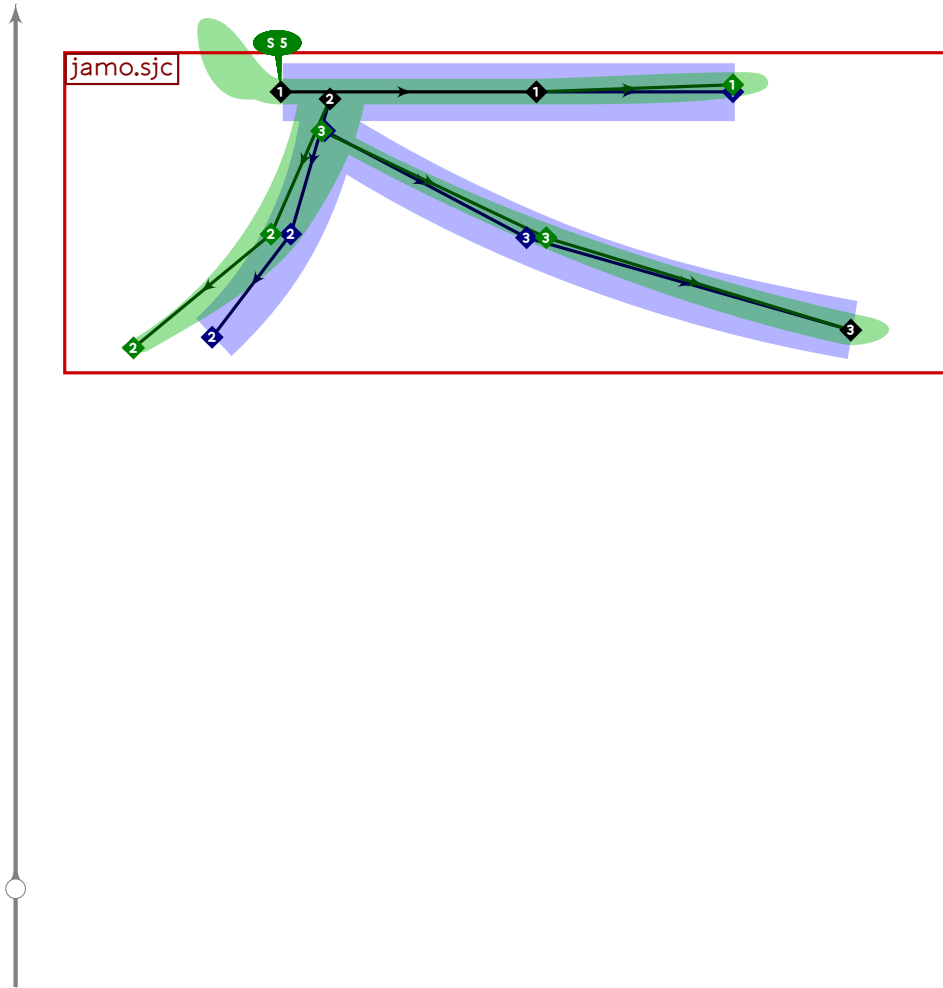
```



```

532 % hangul lead chitueumssangcieuc
533 begintsuglyph("uni114F.l2";79);
534 hangul.combine.lr(227,226)(whatever,lixf,loxf);
535 tsu_render;
536 endsuglyph;
537

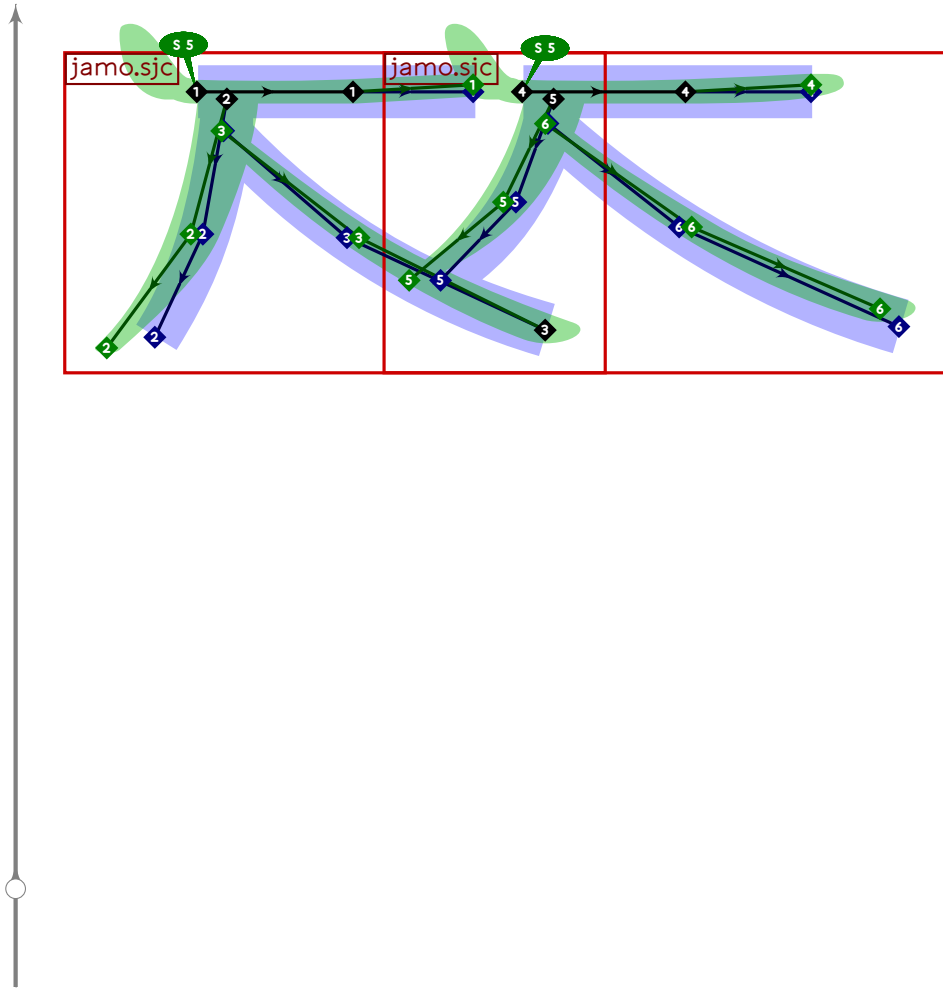
```



```

538 % hangul lead ceongchieumcieuc
539 begintsuglyph("uni1150.l2",80);
540 hangul.jamo.sjc(1,-1,false)(whatever,lixf,loxf);
541 tsu_render;
542 endsuglyph;
543

```

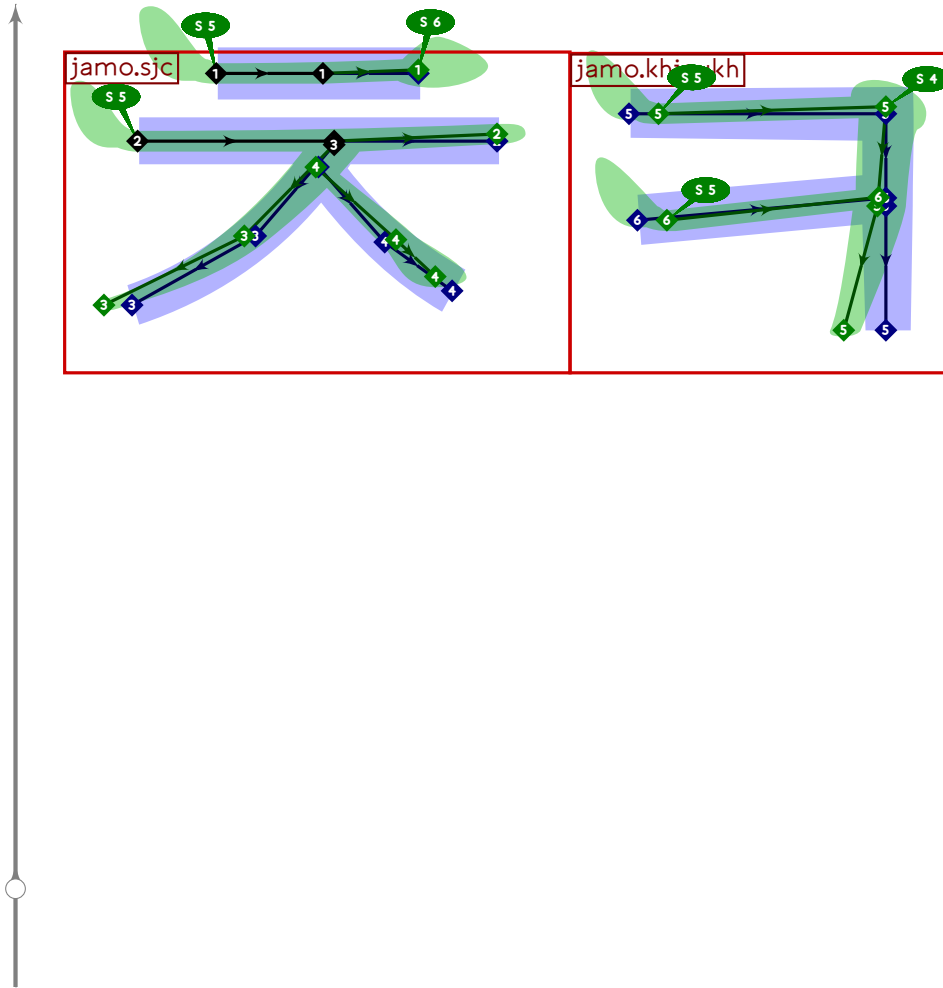


```

544 % hangul lead ceongchieumssangcieuc
545 begint Suglyph("uni1151.l2",81);
546 hangul.combine.lr(228,229)(whatever,lixf,loxf);
547 tsu_render;
548 endsuglyph;
549

```

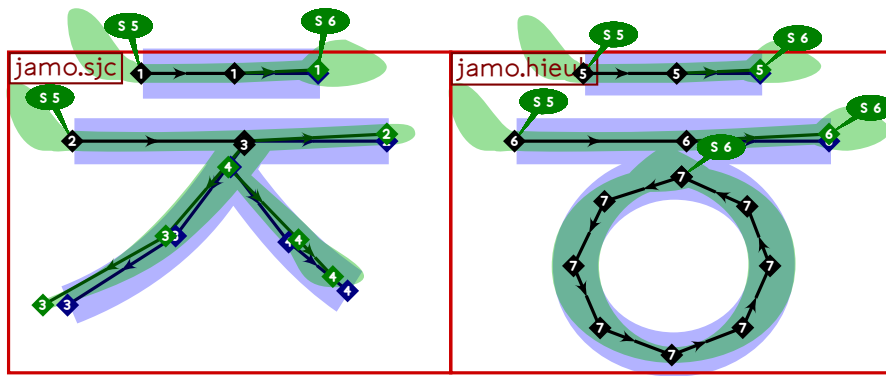




```

550 % hangul lead chieuch-khieukh
551 begintsuglyph("uni1152.12",82);
552 hangul.combine.lcr(214,230,115)(whatever,lixf,loxf);
553 tsu_render;
554 endsuglyph;
555

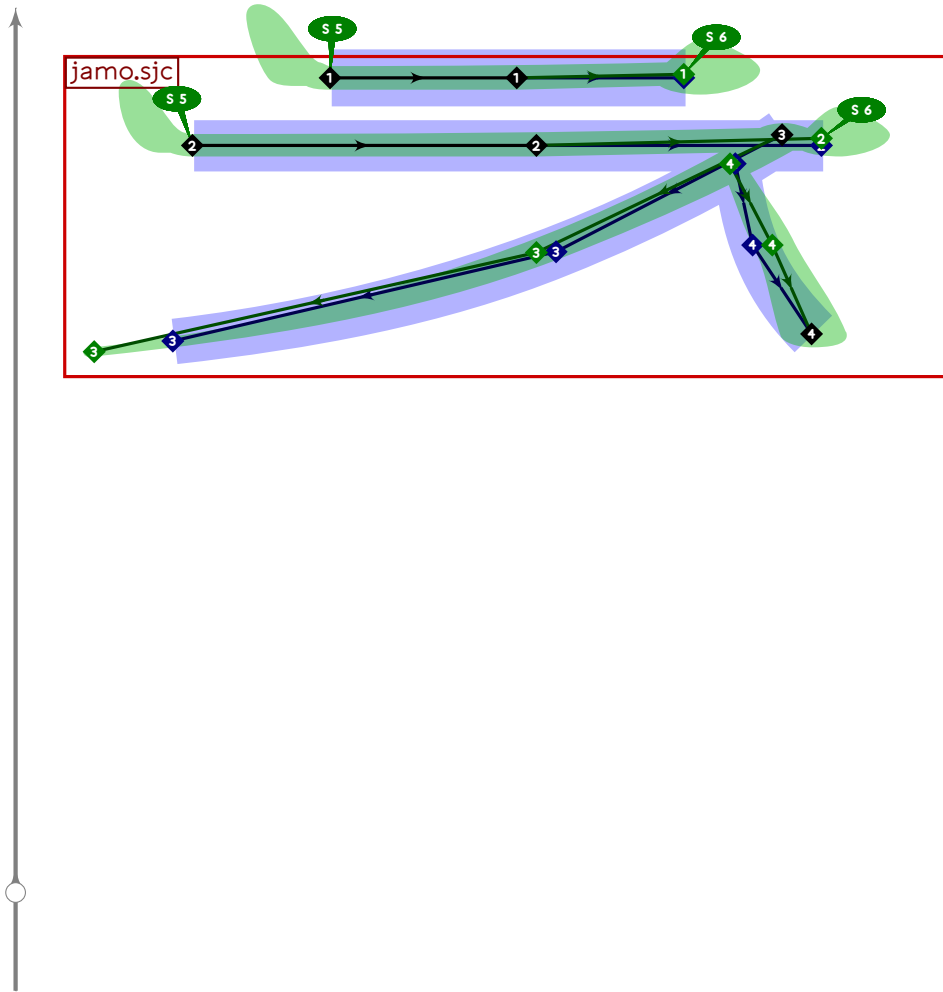
```



```

556 % hangul lead chieuch-hieuh
557 begintsuglyph("uni1153.12";83);
558 hangul.combine.lcr(214,230,118)(whatever,lixf,loxf);
559 tsu_render;
560 endsuglyph;
561

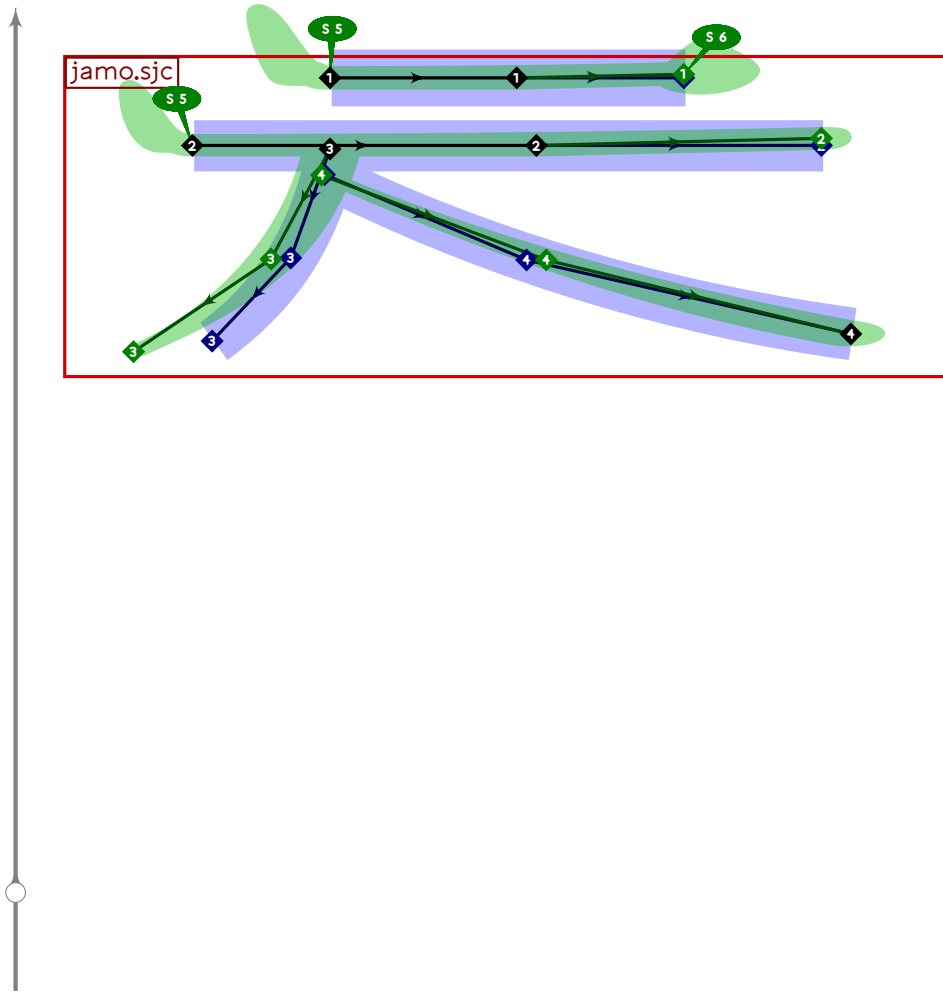
```



```

562 % hangul lead chitueumcieuc
563 begint Suglyph("uni1154.12";84);
564 hangul.jamo.sjc(2,1,false)(whatever,lixf,loxf);
565 tsu_render;
566 endsuglyph;
567

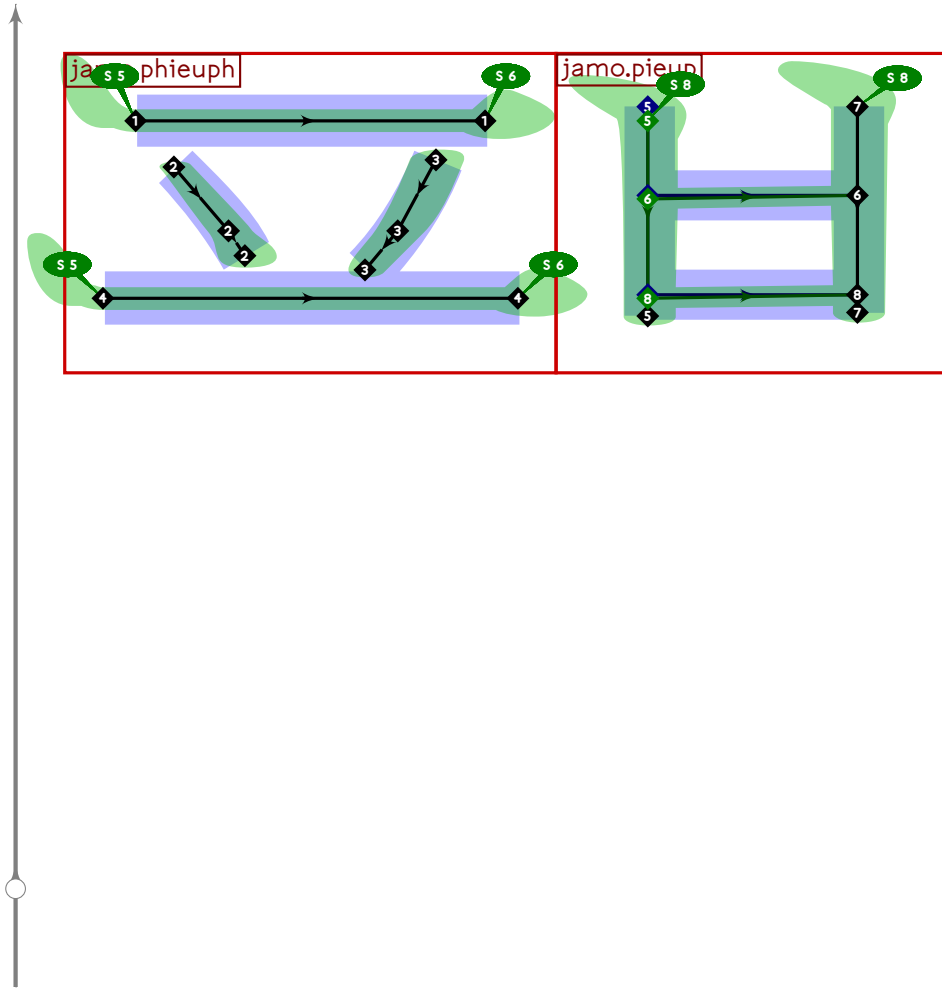
```



```

568 % hangul lead ceongchieumcieuc
569 begint Suglyph("uni1155.12";85);
570 hangul.jamo.sjc(2,-1,false)(whatever,lixf,loxf);
571 tsu_render;
572 endsuglyph;
573

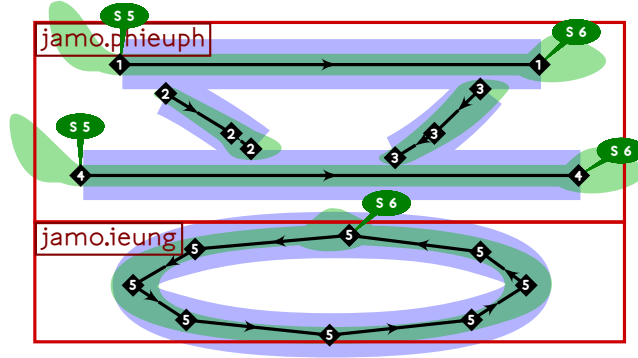
```



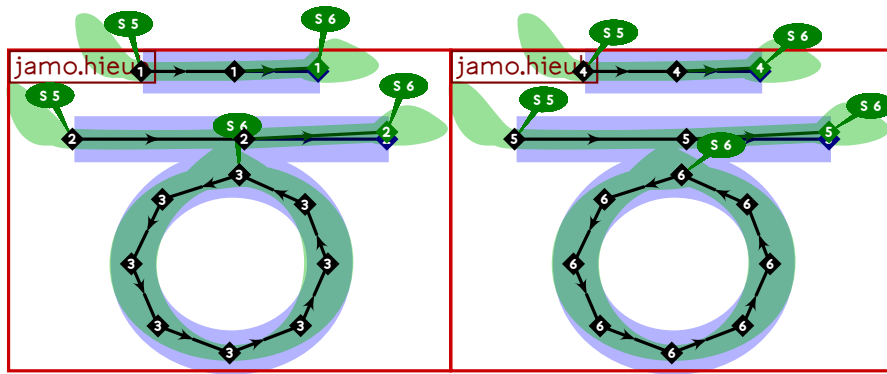
```

574 % hangul lead phieuph-pieup
575 begintsuglyph("uni1156.l2",86);
576 hangul.combine.lr(117,107)(whatever,lixf,loxf);
577 tsu_render;
578 endsuglyph;
579

```



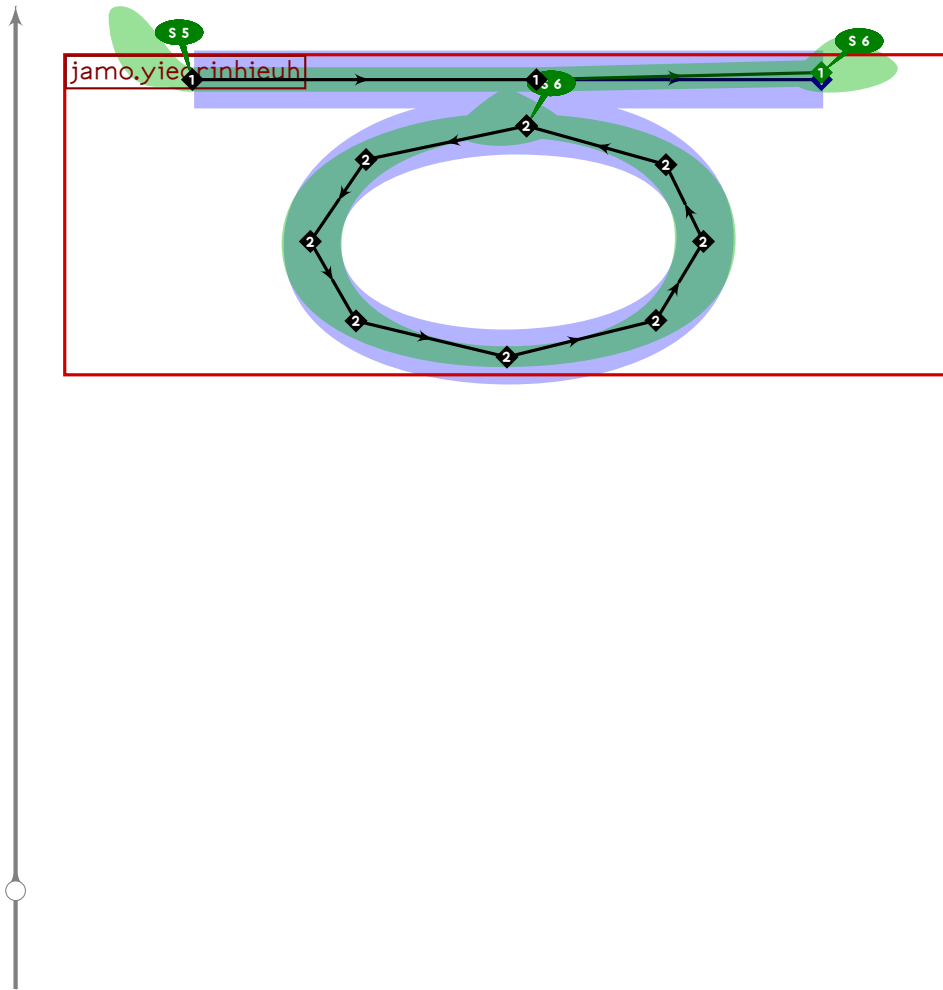
```
580 % hangul lead kapyeounphieuph
581 begint Suglyph("uni1157.l2",87);
582 hangul.combine.tb(117,521)(whatever,
583   hxf((250,850),(850,-50)) transformed lixf,loxf);
584 tsu_render;
585 endsuglyph;
586
```



```

587 % hangul lead ssanghieu
588 begint Suglyph("uni1158.l2",88);
589 hangul.combine.lcr(118,230,118)(whatever,lixf,loxf);
590 tsu_render;
591 endtsuglyph;
592

```

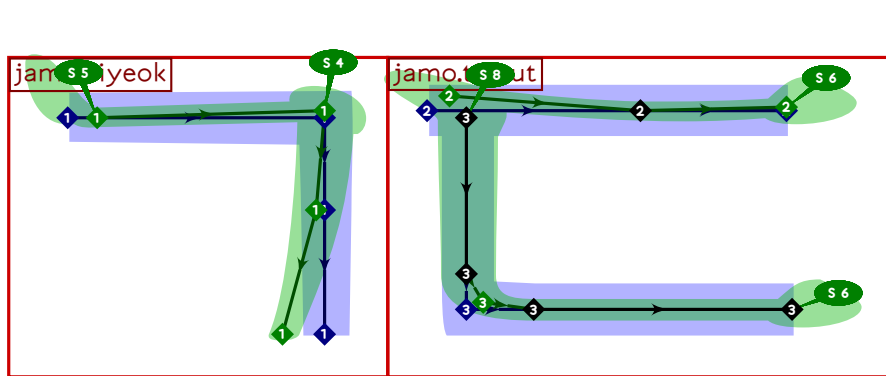


```

593 % hangul lead yeorinhieuh
594 begintsuglyph("uni1159.l2",89);
595 hangul.jamo.yeorinhieuh(whatever,lixf,loxf);
596 tsu_render;
597 endtsuglyph;
598

```

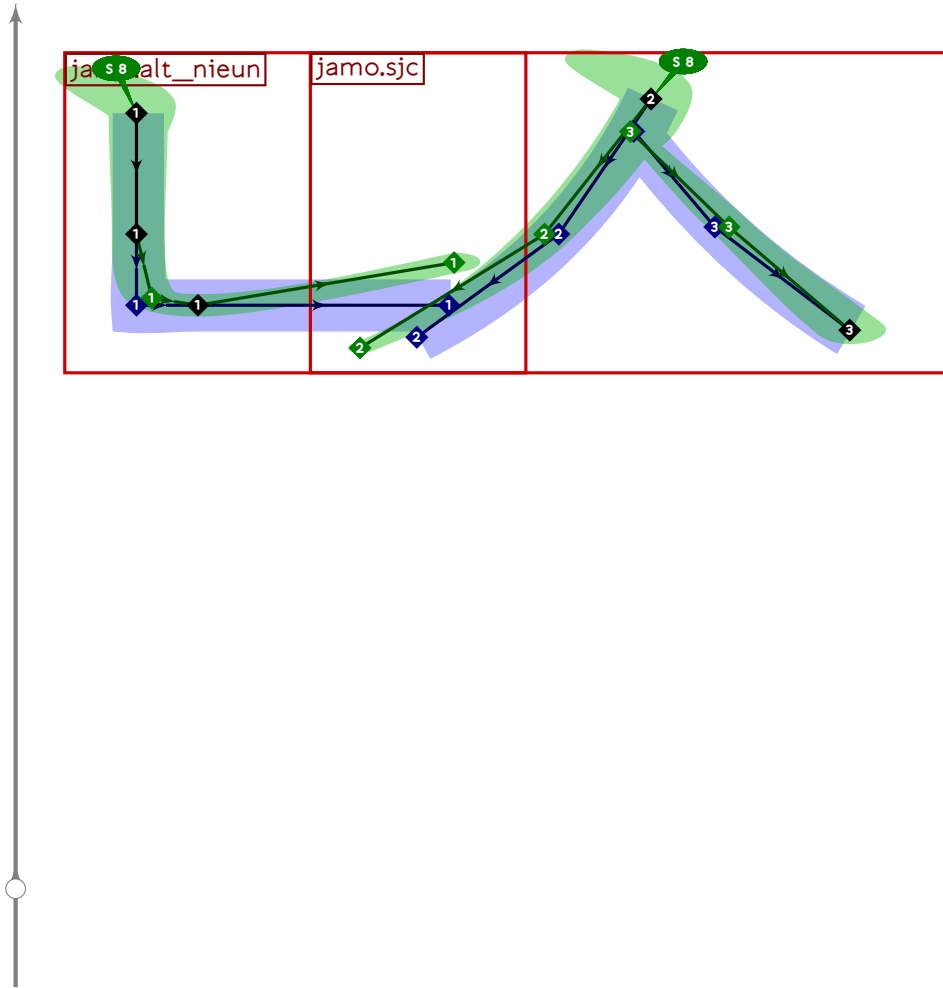




```

599 % hangul lead kiyeok-tikeut
600 begint Suglyph("uni115A.12";90);
601 hangul.combine.lr(100,103)(whatever,lixf,loxf);
602 tsu_render;
603 endsuglyph;
604

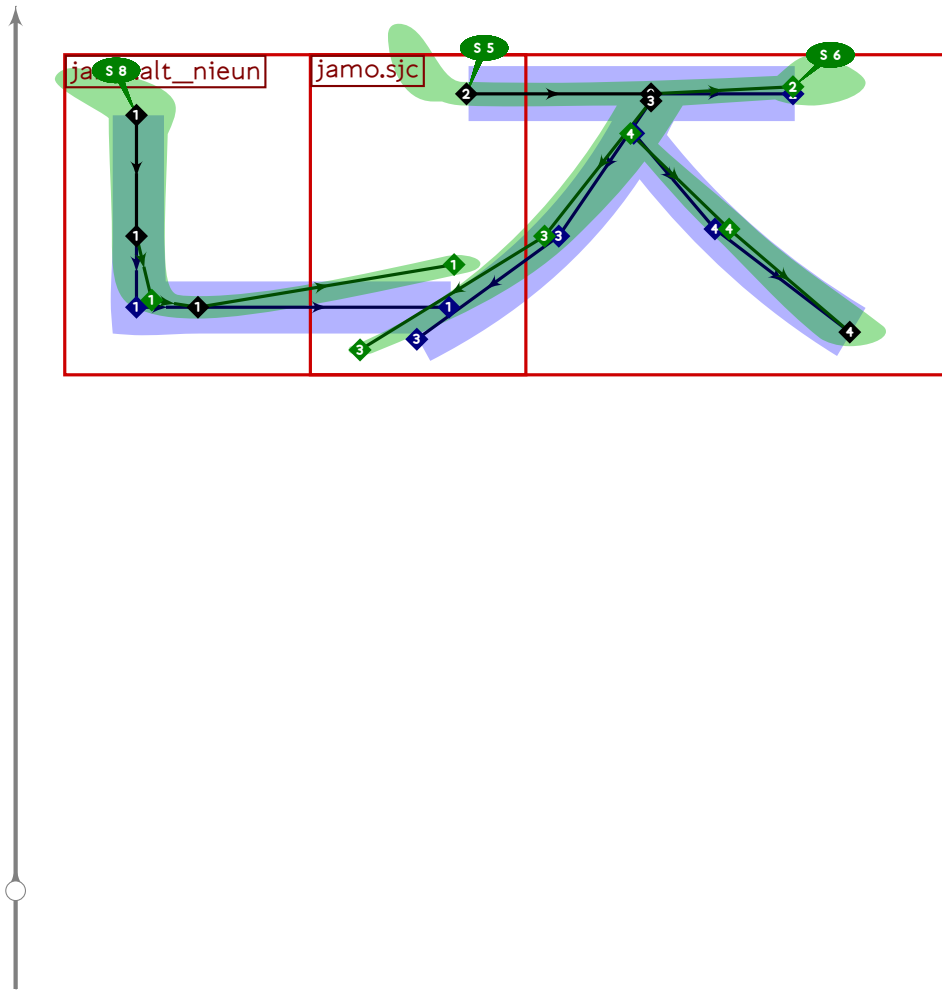
```



```

605 % hangul lead nieun-sios
606 begintsuglyph("uni115B.l2";91);
607 hangul.combine.lr(202,109)(whatever,lixf,loxf);
608 tsu_render;
609 endsuglyph;
610

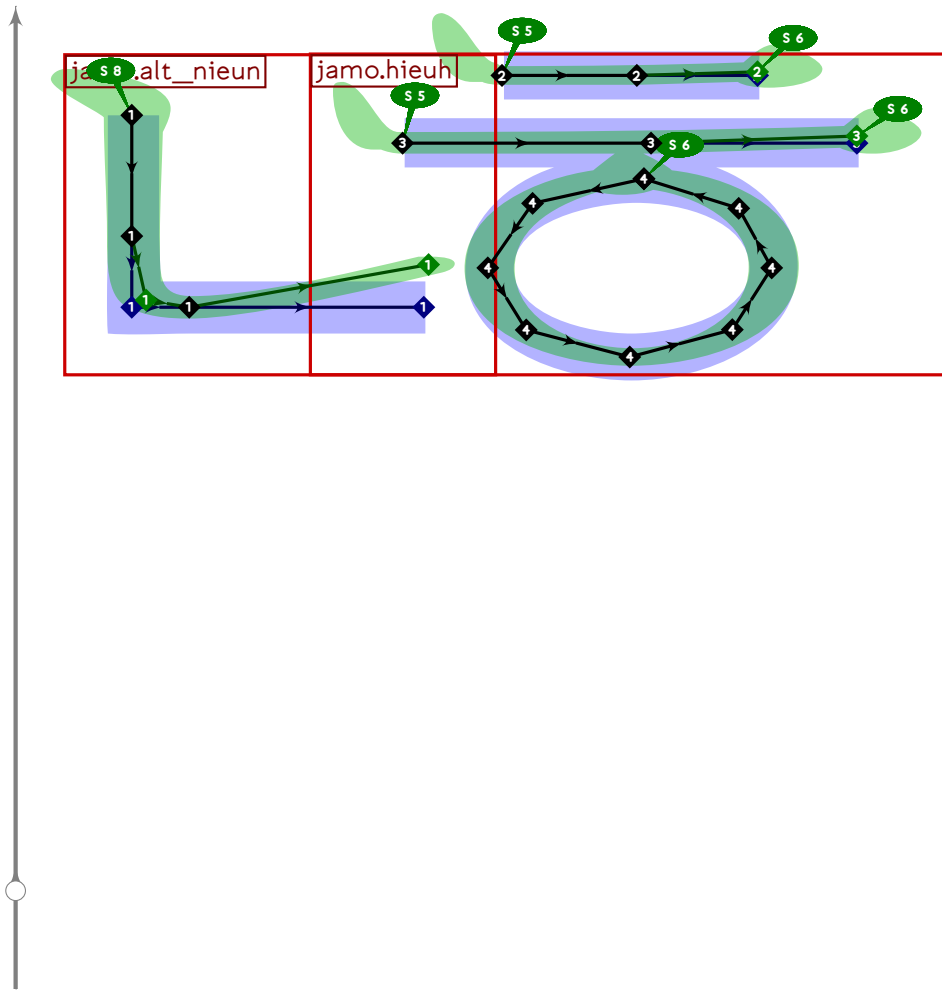
```



```

611 % hangul lead nieun-cieuc
612 begint Suglyph("uni115C.12";92);
613 hangul.combine.lr(202,112)(whatever,lixf,loxf);
614 tsu_render;
615 endtsuglyph;
616

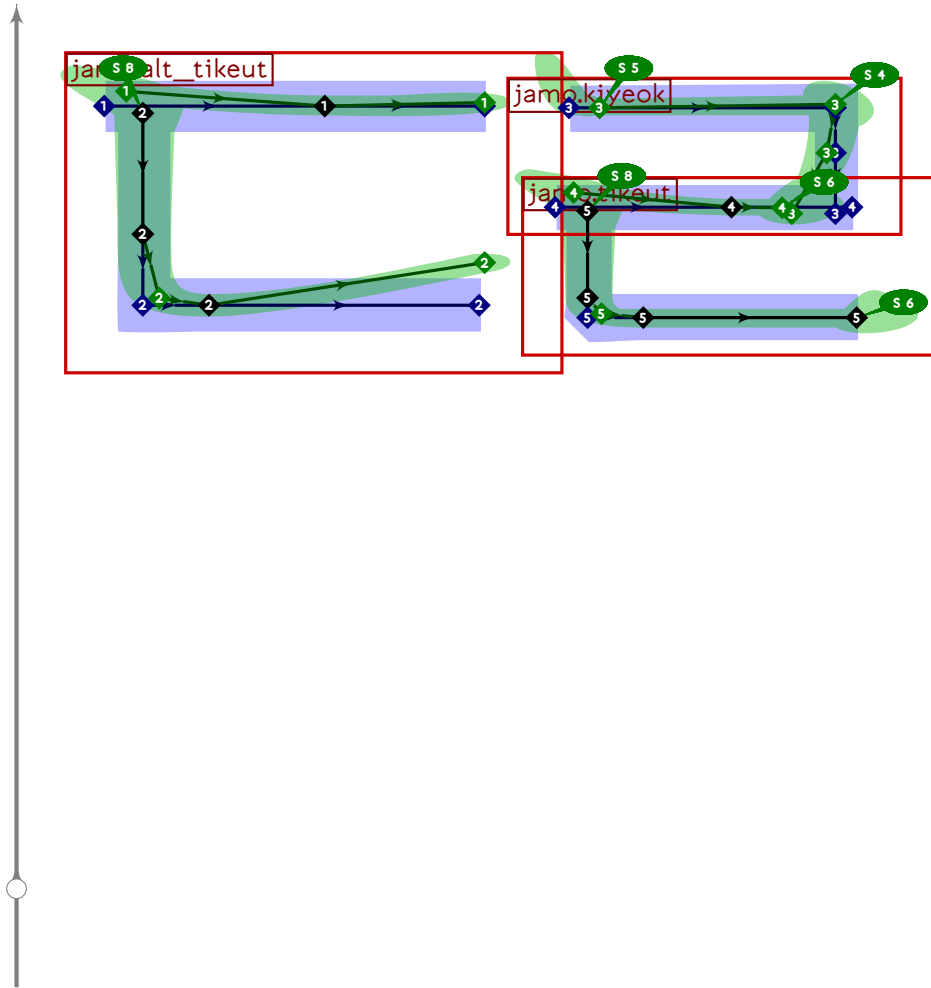
```



```

617 % hangul lead nieun-hieuh
618 begintsuglyph("uni115D.12";93);
619 hangul.combine.lr(202,118)(whatever,lixf,loxf);
620 tsu_render;
621 endsuglyph;
622

```



```

623 % hangul lead tikeut-rieul
624 \begin{suglyph}{"uni115E.12";94);
625 \hangul.combine.lr(203,105)(whatever,lixf,loxf);
626 \tsu_render;
627 \end{suglyph};
628
629 _____
630
631 \endfont;
632
633 _____

```

# jieub-ff5.mp

```
1 %
2 % Unicode page FF5 (alternate lead jamo) for Jieubsida
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input hangul.mp;
37 input jamo-basic.mp;
38 input jamo-extra.mp;
39
40 

---

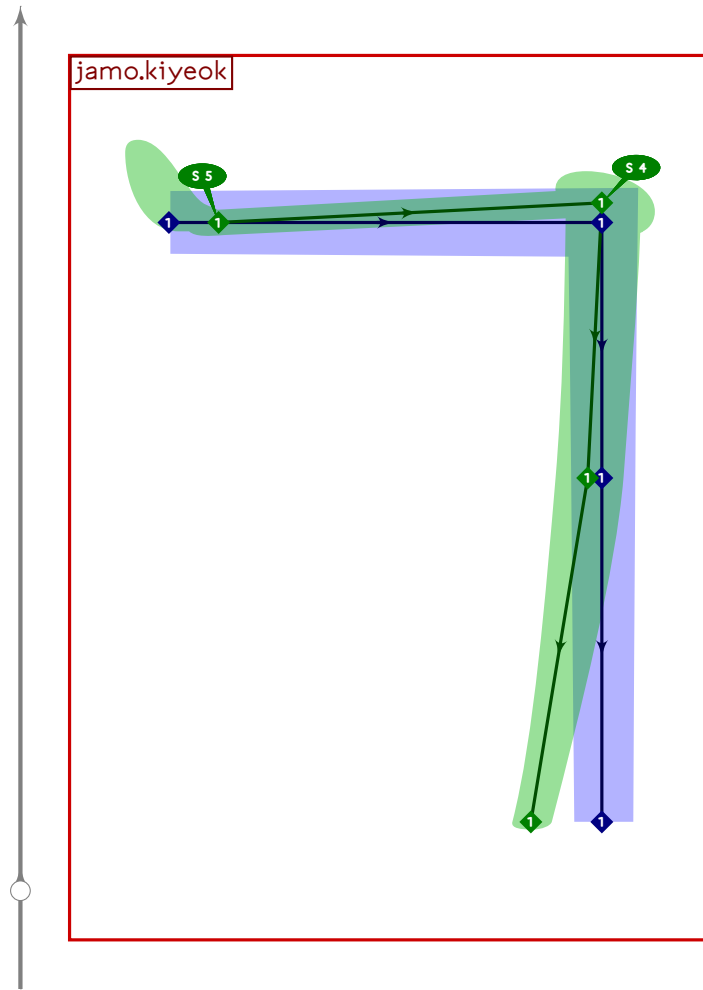

41
42 % This file contains leads for layout 4: vertical vowel and empty tail
43
44 transform lixf,loxf;
45
46 lixf=loxf=hxf((50,850),(700,-50));
47
48 

---


49
```

## Hangul Choseong (Lead) Jamo

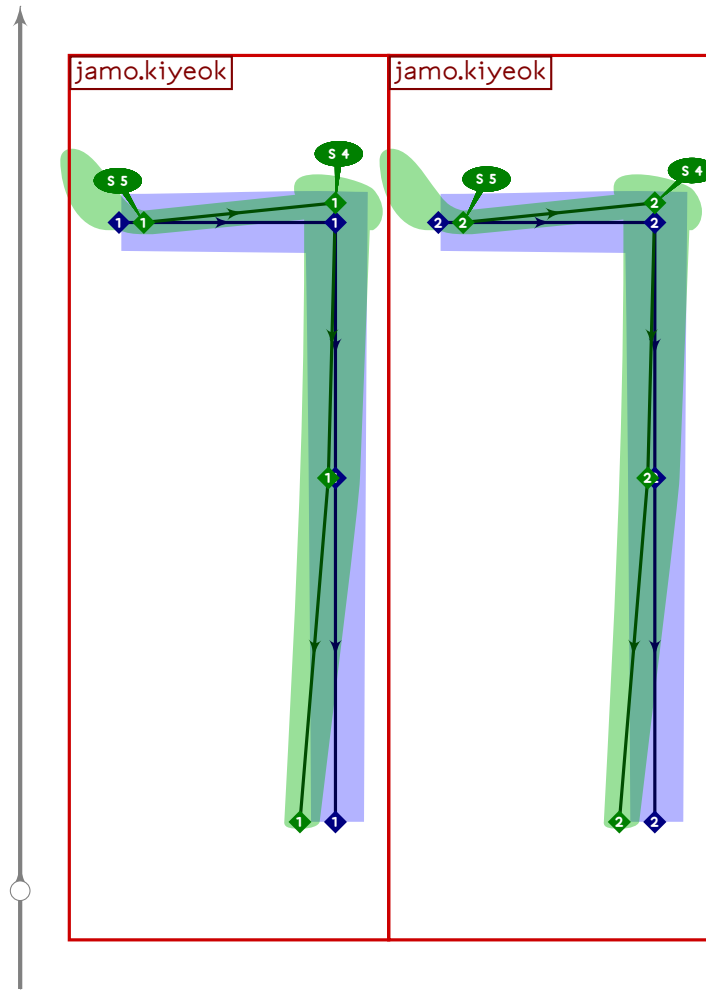
```
50 % HANGUL CHOSEONG (LEAD) JAMO
51
52 tsu_rescale_native_zero;
53
```



```

54 % hangul lead kiyook
55 begintsuglyph("uni1100.l4",0);
56 hangul.jamo.kiyeok(whatever,lixf,loxf);
57 tsu_render;
58 endsuglyph;
59

```

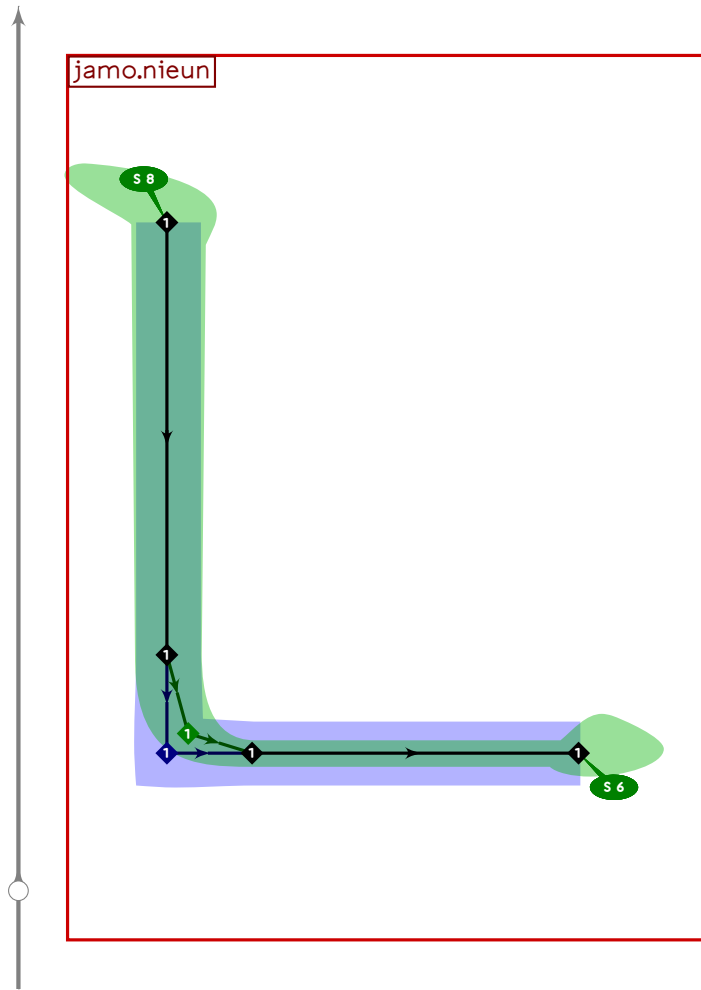


```

60 % hangul lead ssangkiyeok
61 begintsuglyph("uni1101.14";1);
62 hangul.combine.lr(100,100)(whatever,lixf,loxf);
63 tsu_render;
64 endsuglyph;
65

```

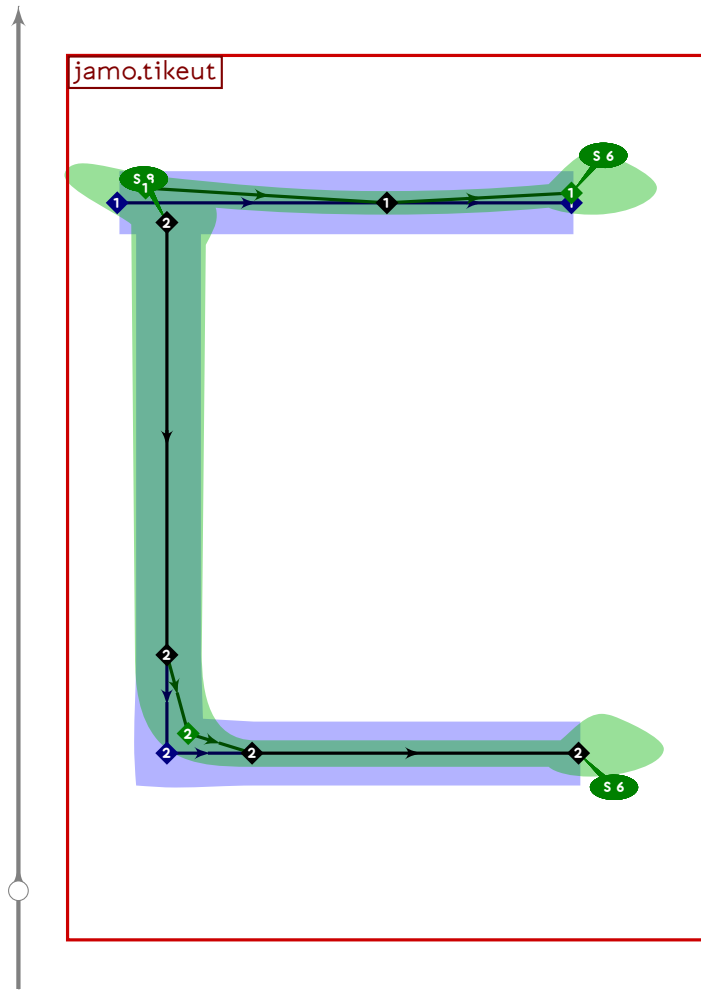




```

66 % hangul lead nieun
67 begint Suglyph("uni1102.l4",2);
68 hangul.jamo.nieun(whatever,lixf,loxf);
69 tsu_render;
70 endtsuglyph;
71

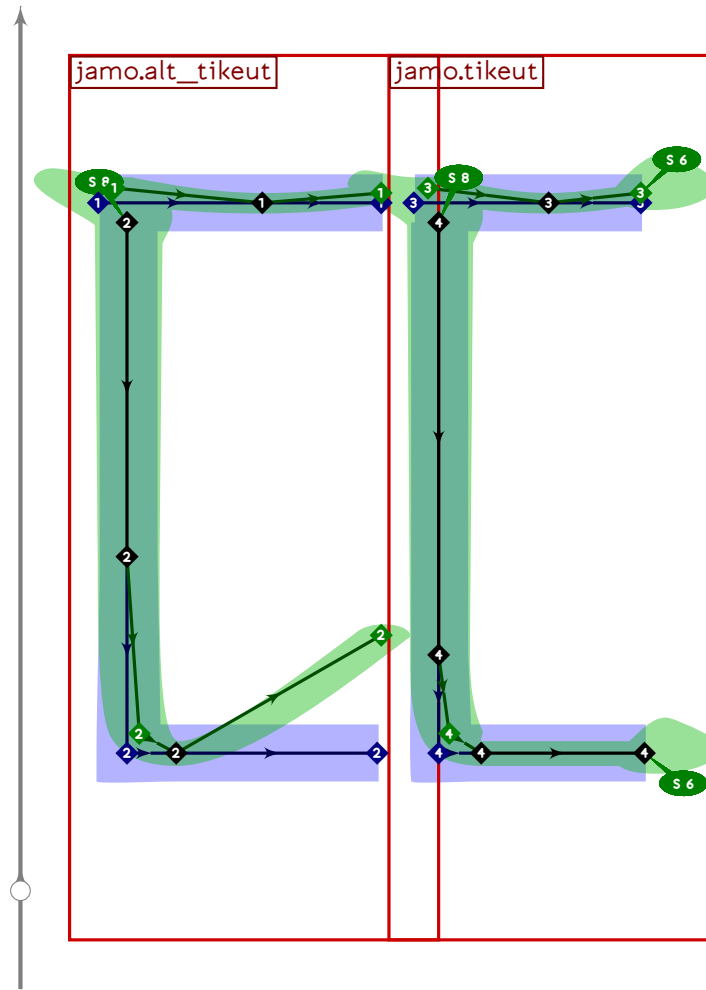
```



```

72 % hangul lead tikeut
73 begintsuglyph("uni1103.l4",3);
74 hangul.jamo.tikeut(whatever,lixf,loxf);
75 tsu_render;
76 endtsuglyph;
77

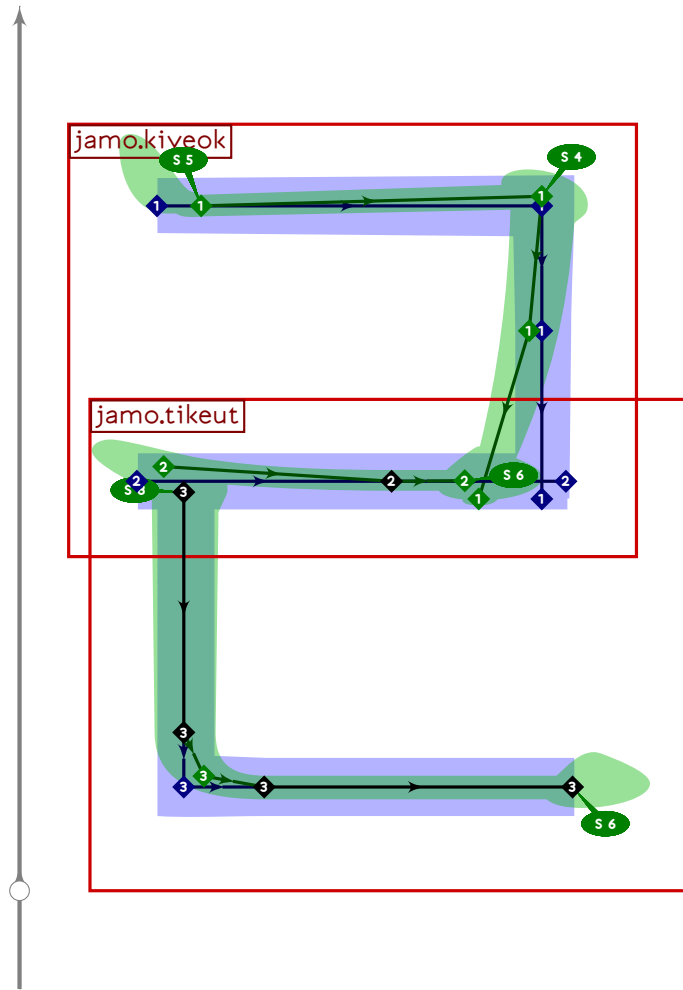
```



```

78 % hangul lead ssangtikeut
79 beginsuglyph("uni1104.l4",4);
80 hangul.combine.lr(203,103)(whatever,lixf,loxf);
81 tsu_render;
82 endsuglyph;
83

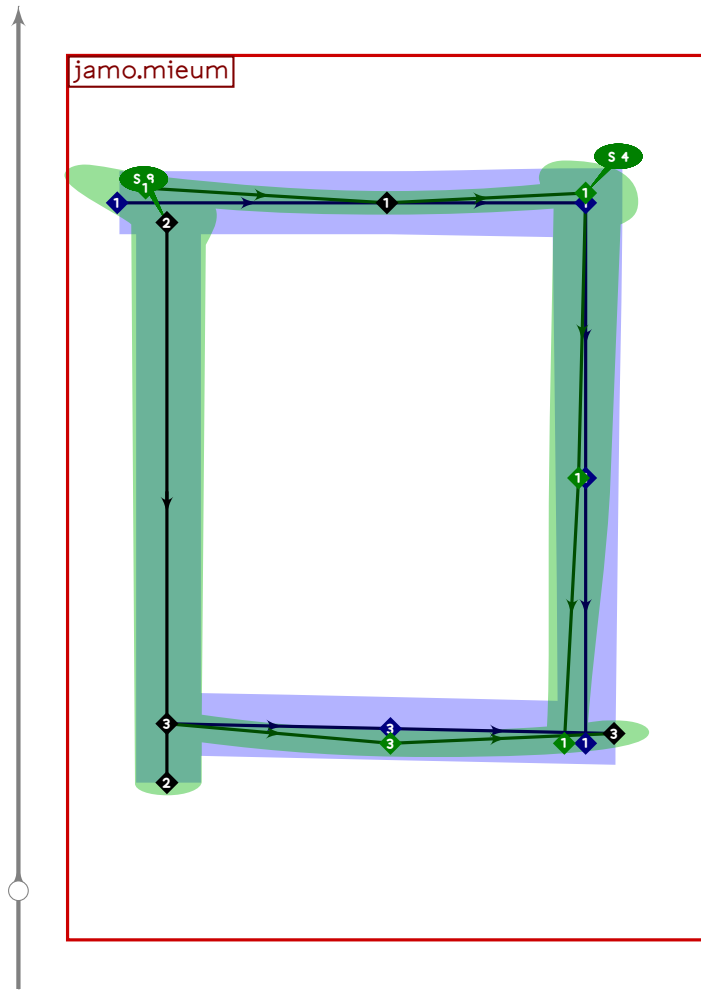
```



```

84 % hangul lead rieul
85 beginsuglyph("uni1105.l4",5);
86 hangul.jamo.rieul(whatever,lix,loxf);
87 tsu_render;
88 endsuglyph;
89

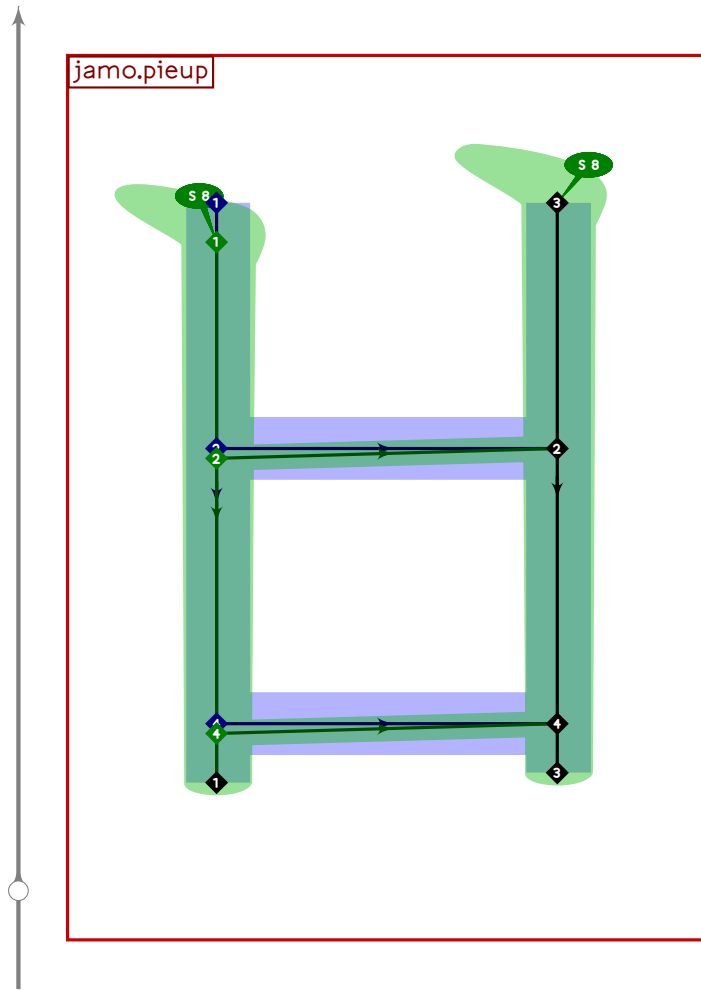
```



```

90 % hangul lead mieum
91 begintsuglyph("uni1106.l4",6);
92 hangul.jamo.mieum(whatever,lixf,loxf);
93 tsu_render;
94 endsuglyph;
95

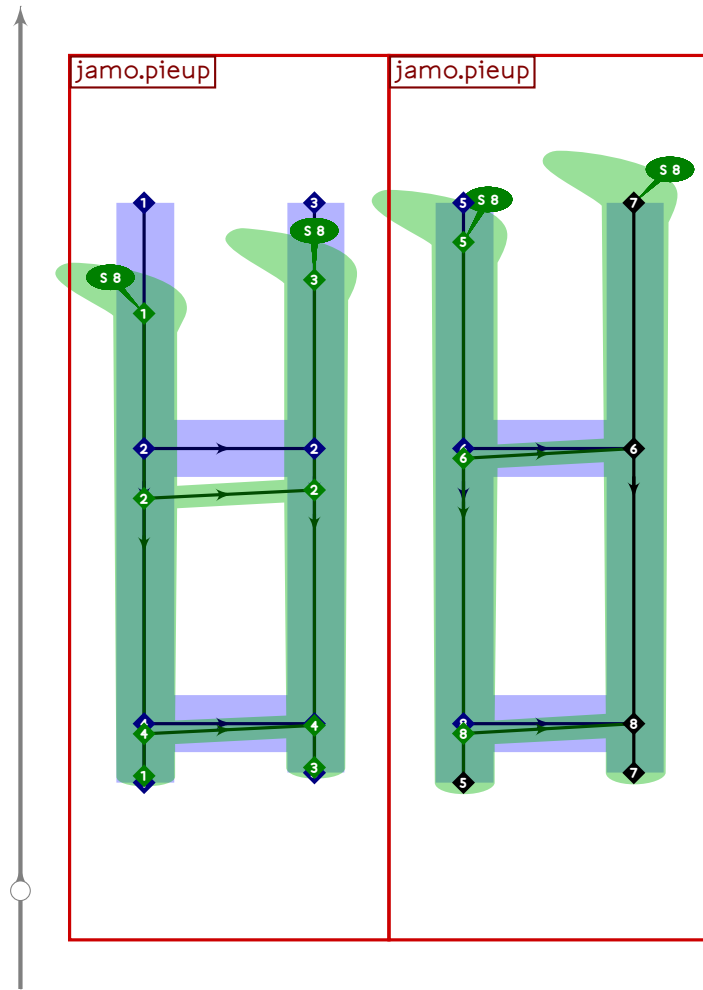
```



```

96 % hangul lead pieup
97 begintsuglyph("uni1107.l4";7);
98 hangul.jamo.pieup(whatever,lixf,loxf);
99 tsu_render;
100 endtsuglyph;
101

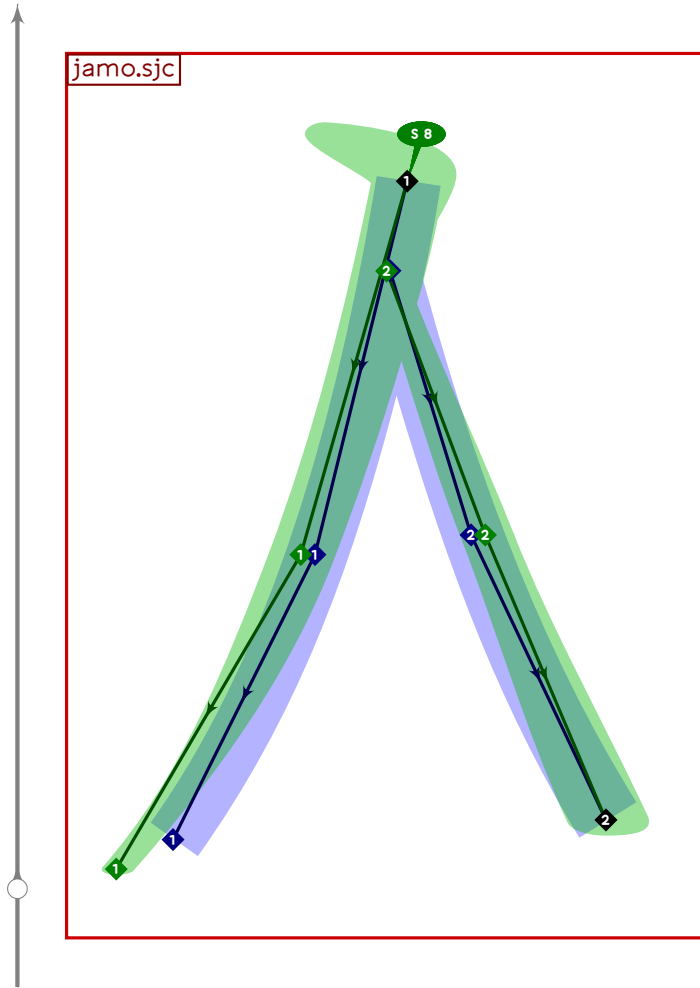
```



```

102 % hangul lead ssangpieup
103 begint Suglyph("uni1108.l4",8);
104 hangul.combine.lr(207,107)(whatever,lixf,loxf);
105 tsu_render;
106 endtsuglyph;
107

```

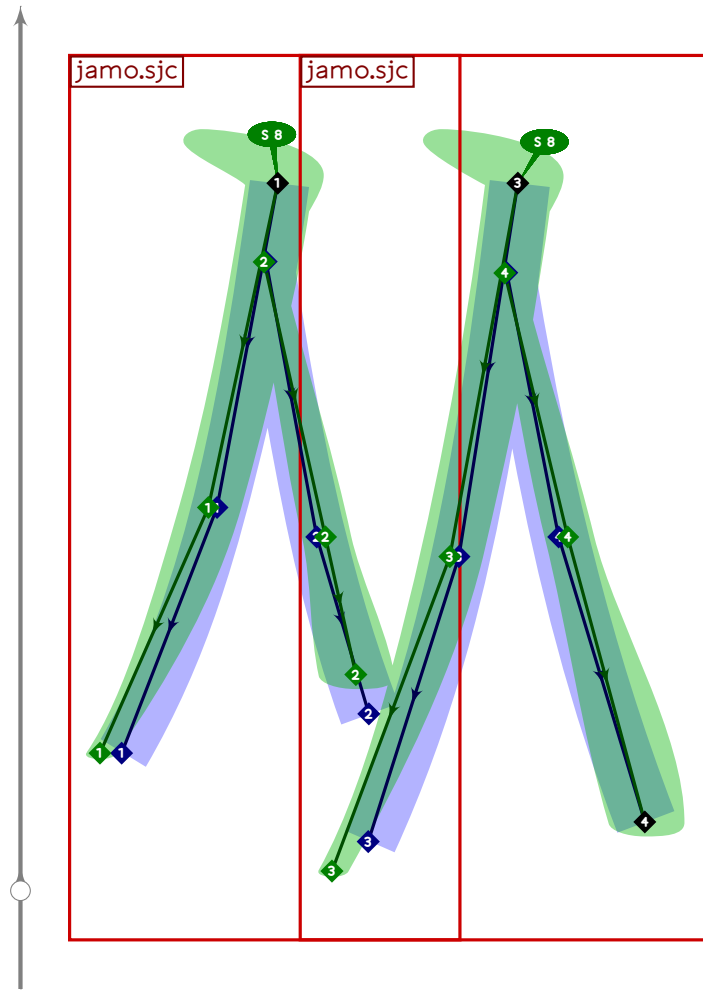


```

108 % hangul lead sios
109 begintsuglyph("uni1109.l4";9);
110 hangul.jamo.sjc(0,0,false)(whatever,lixf,loxf);
111 tsu_render;
112 endtsuglyph;
113

```

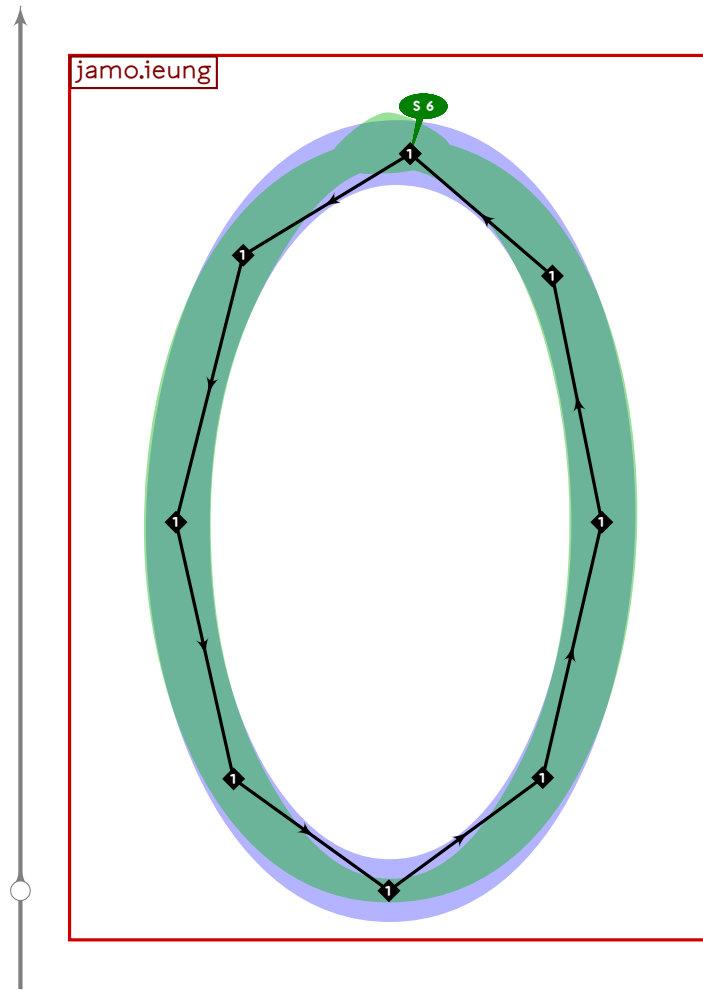




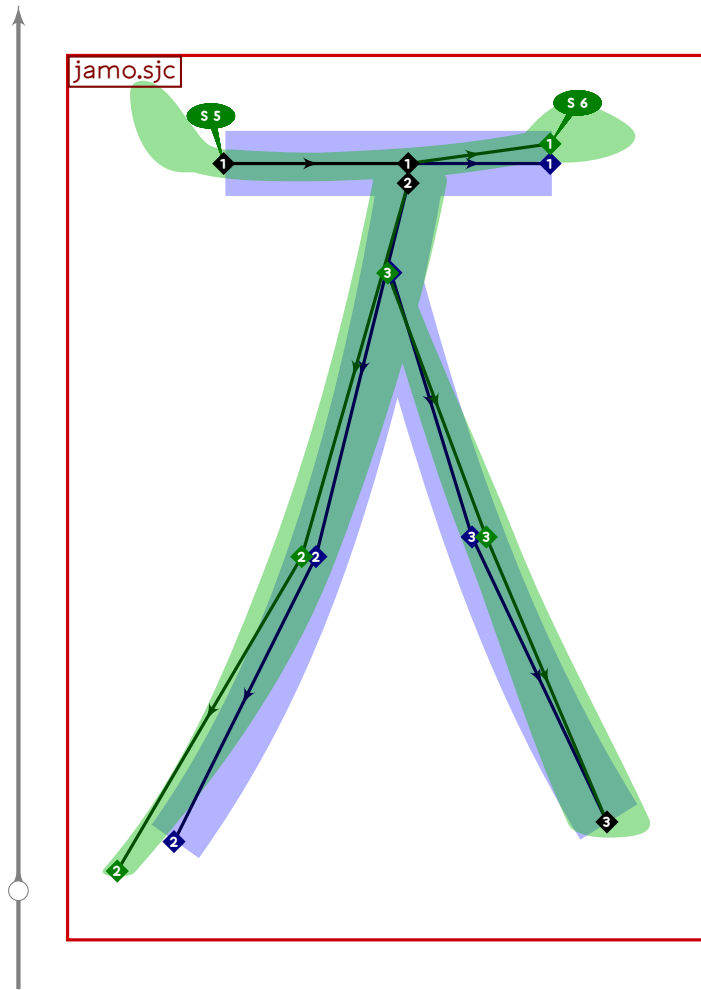
```

114 % hangul lead ssangsios
115 begintsuglyph("uni110A.l4",10);
116 hangul.combine.lr(209,109)(whatever,lixf,loxf);
117 tsu_render;
118 endsuglyph;
119

```



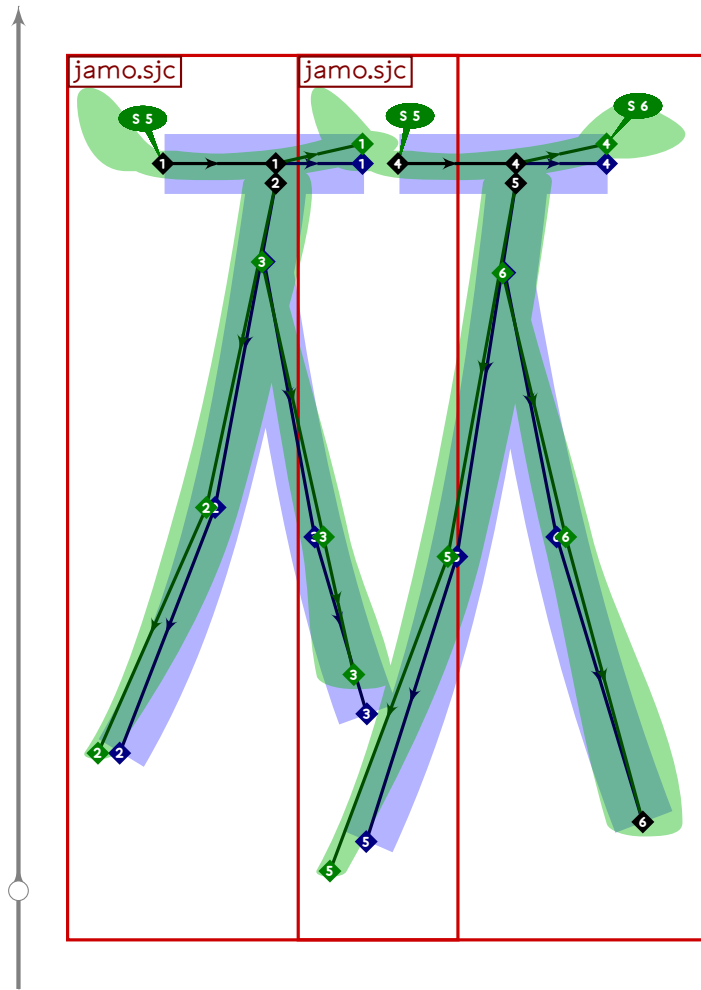
```
120 % hangul lead ieung
121 begintsuglyph("uni110B.l4",11);
122 hangul.jamo.ieung(whatever,lixf,loxf);
123 tsu_render;
124 endtsuglyph;
125
```



```

126 % hangul lead cieuc
127 begint Suglyph("uni110C.l4",12);
128 hangul.jamo.sjc(1,0,false)(whatever,lixf,loxf);
129 tsu_render;
130 endtsuglyph;
131

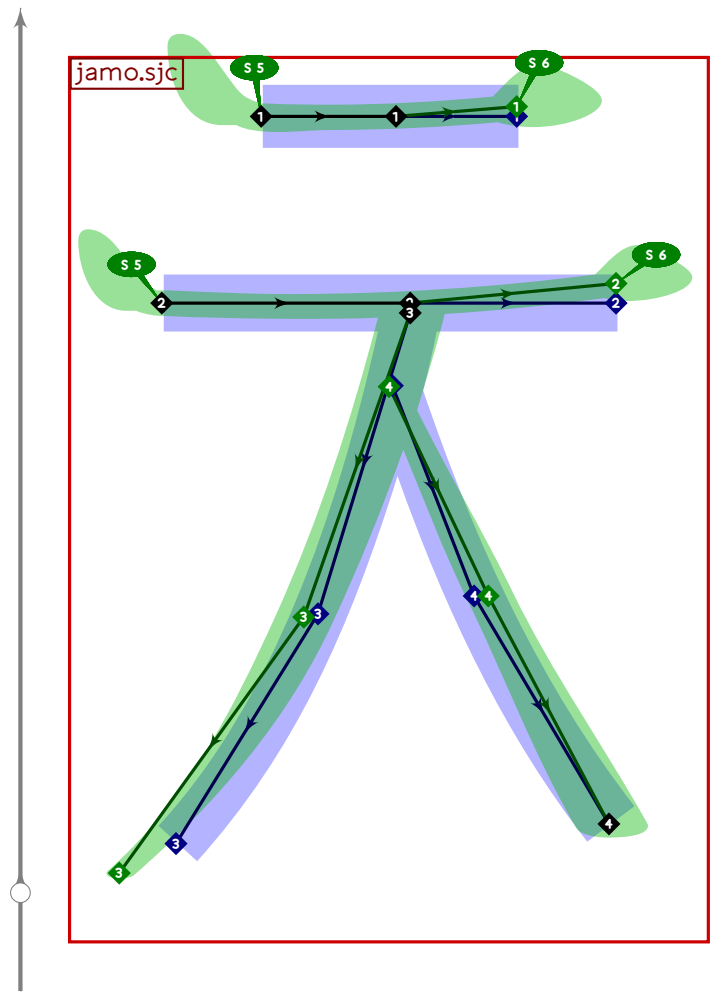
```



```

132 % hangul lead ssangcieuc
133 begint Suglyph("uni110D.l4",13);
134 hangul.combine.lr(212,112)(whatever,lixf,loxf);
135 tsu_render;
136 endtsuglyph;
137

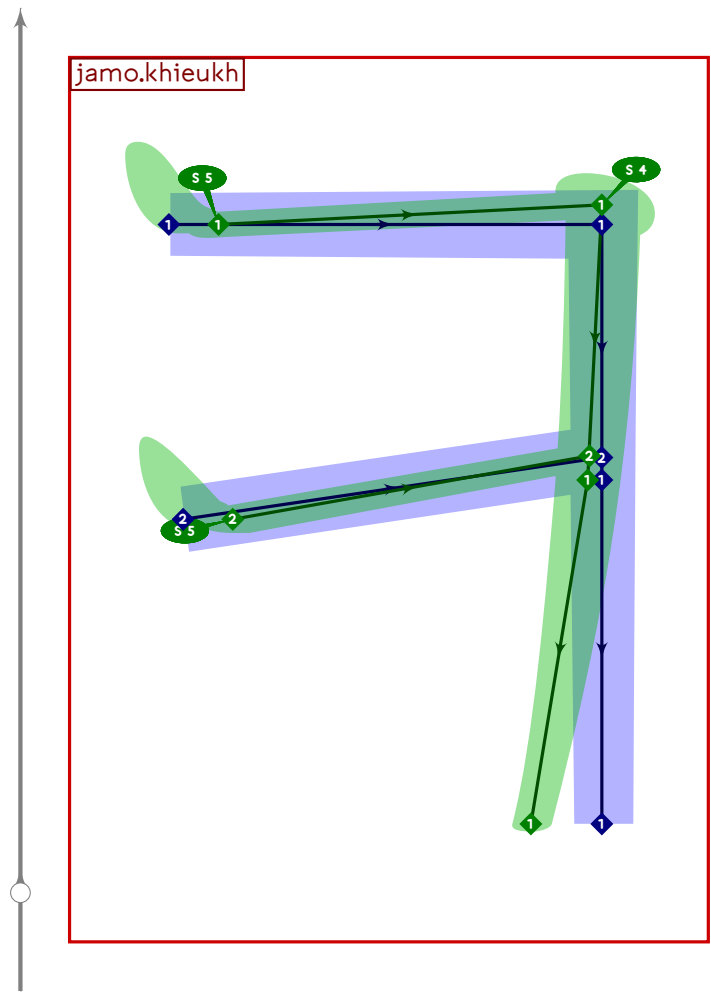
```



```

138 % hangul lead chieuch
139 begint Suglyph("uni110E.l4",14);
140 hangul.jamo.sjc(2,0,false)(whatever,lixf,loxf);
141 tsu_render;
142 endtsuglyph;
143

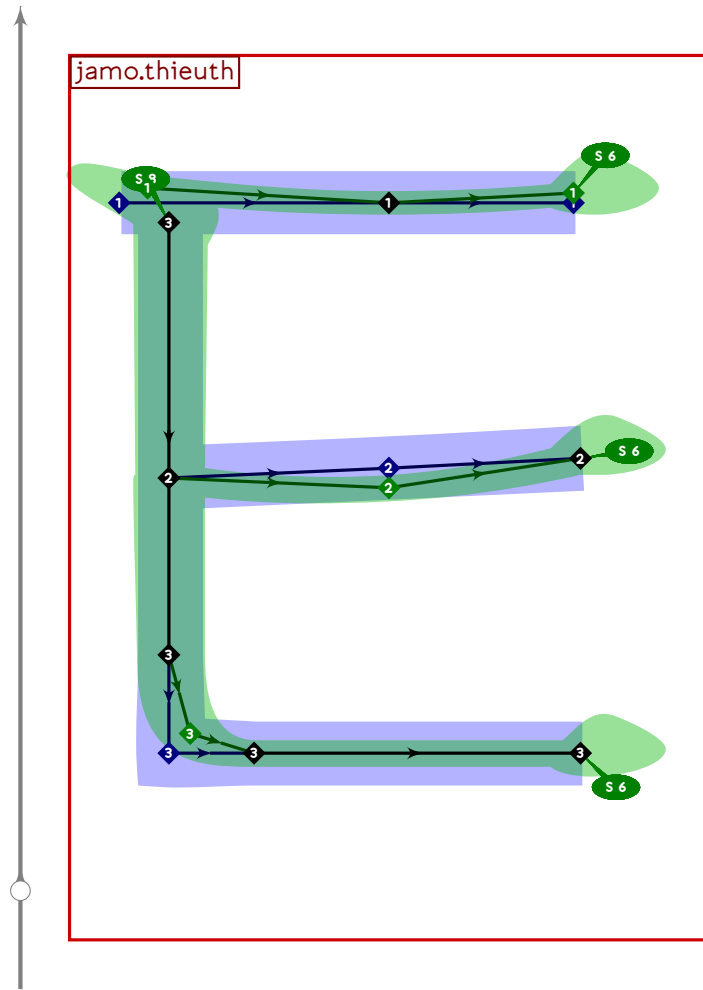
```



```

144 % hangul lead khieukh
145 begint Suglyph("uni110F.l4";15);
146 hangul.jamo.khieukh(whatever,lixf,loxf);
147 tsu_render;
148 endtsuglyph;
149

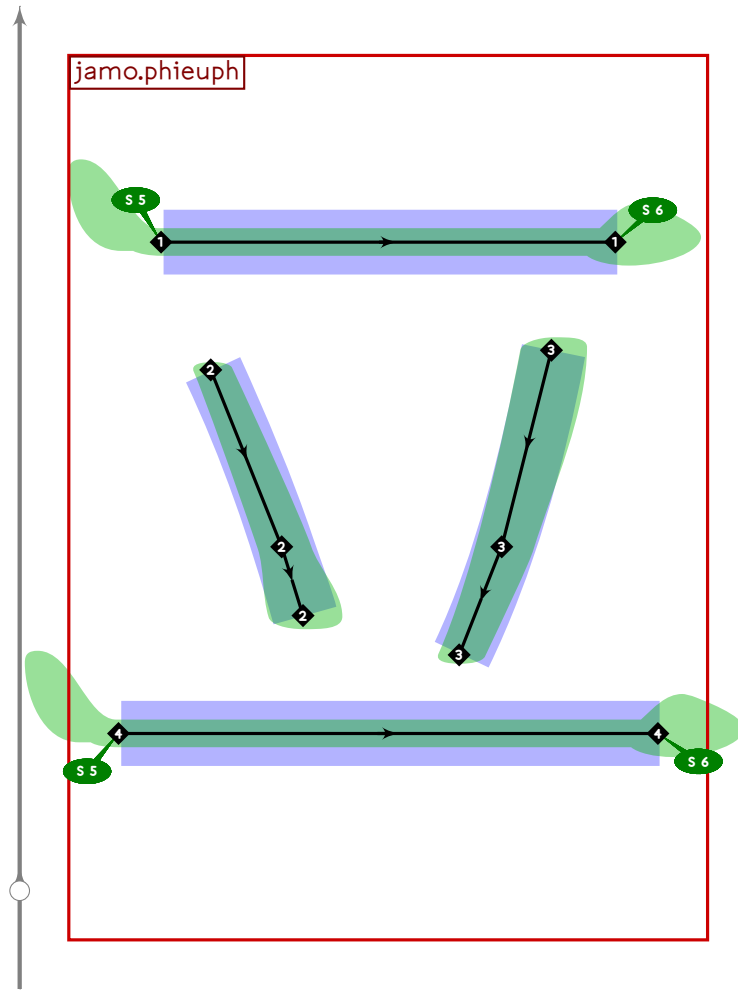
```



```

150 % hangul lead thieuth
151 begintsuglyph("uni1110.l4";16);
152 hangul.jamo.thieuth(whatever,lixf,loxf);
153 tsu_render;
154 endsuglyph;
155

```

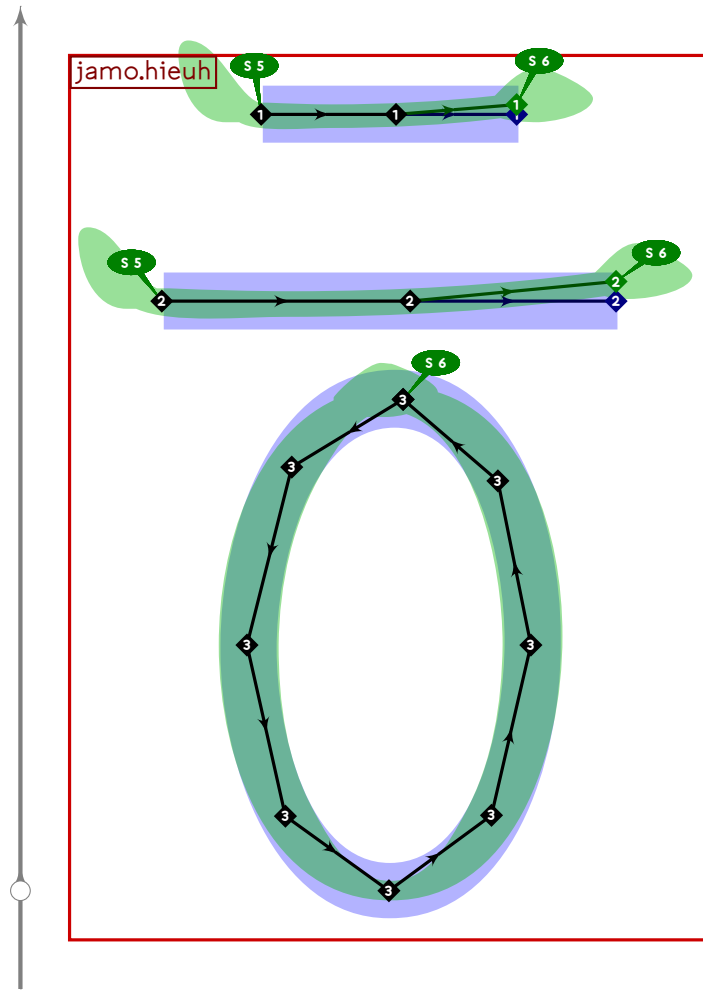


```

156 % hangul lead phieuph
157 begint Suglyph("uni1111.l4",17);
158 hangul.jamo.phieuph(whatever,lixf,loxf);
159 tsu_render;
160 endtsuglyph;
161

```

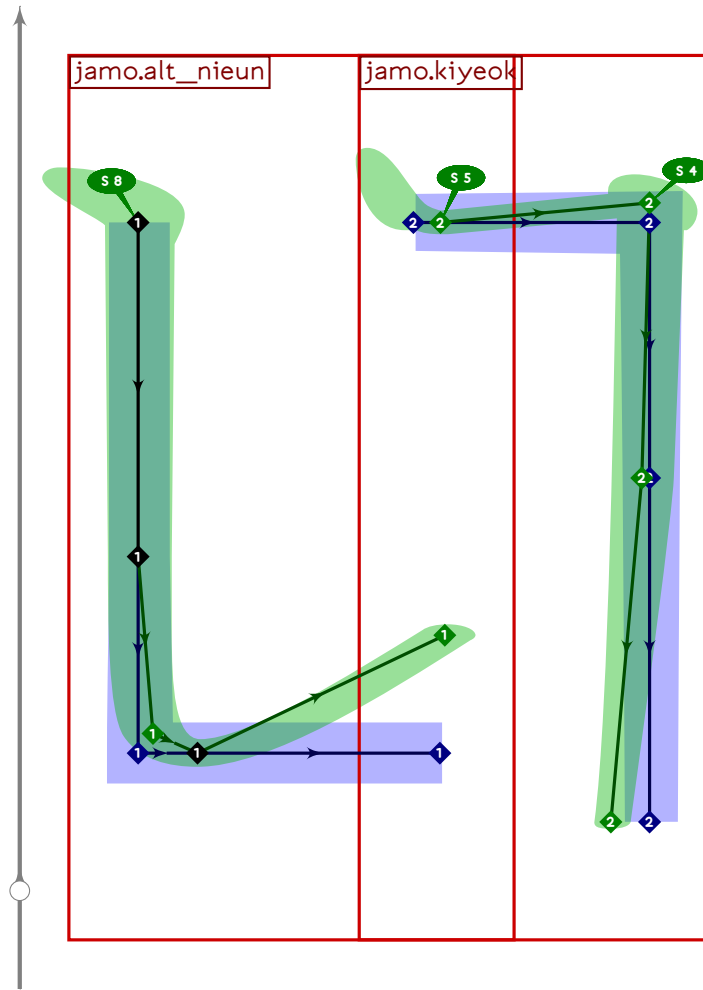




```

162 % hangul lead hieuh
163 begintsuglyph("uni1112.l4",18);
164 hangul.jamo.hieuh(whatever,lixf,loxf);
165 tsu_render;
166 endsuglyph;
167

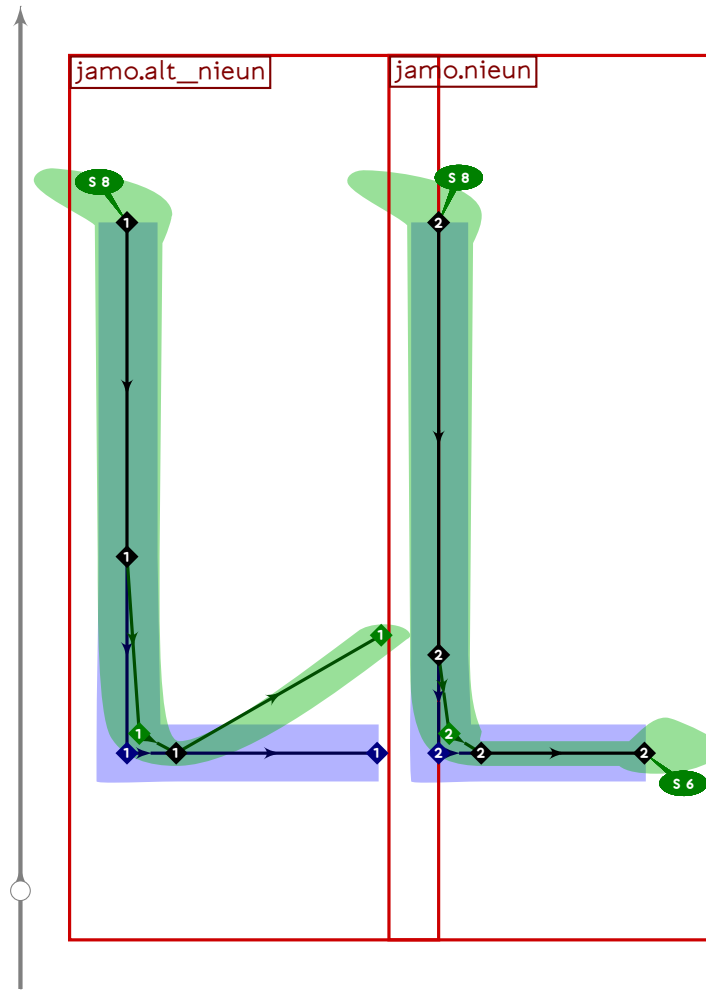
```



```

168 % hangul lead nieun-kiyeok
169 begintsuglyph("uni1113.l4",19);
170 hangul.combine.lr(202,100)(whatever,lixf,loxf);
171 tsu_render;
172 endsuglyph;
173

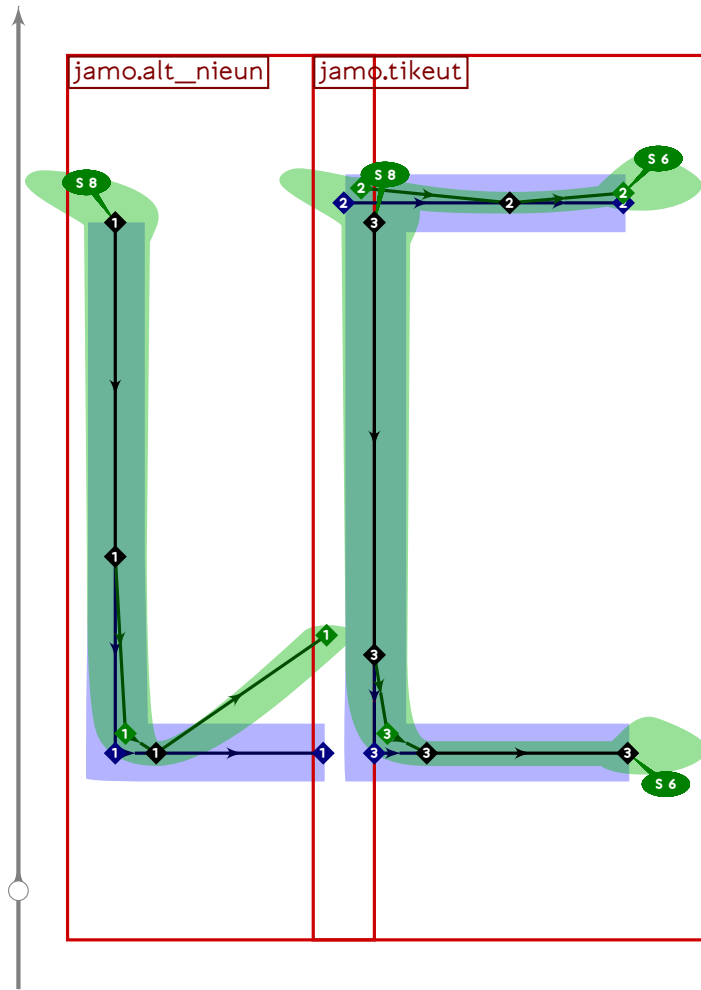
```



```

174 % hangul lead ssangnieun
175 begintsuglyph("uni1114.l4",20);
176 hangul.combine.lr(202,102)(whatever,lixf,loxf);
177 tsu_render;
178 endsuglyph;
179

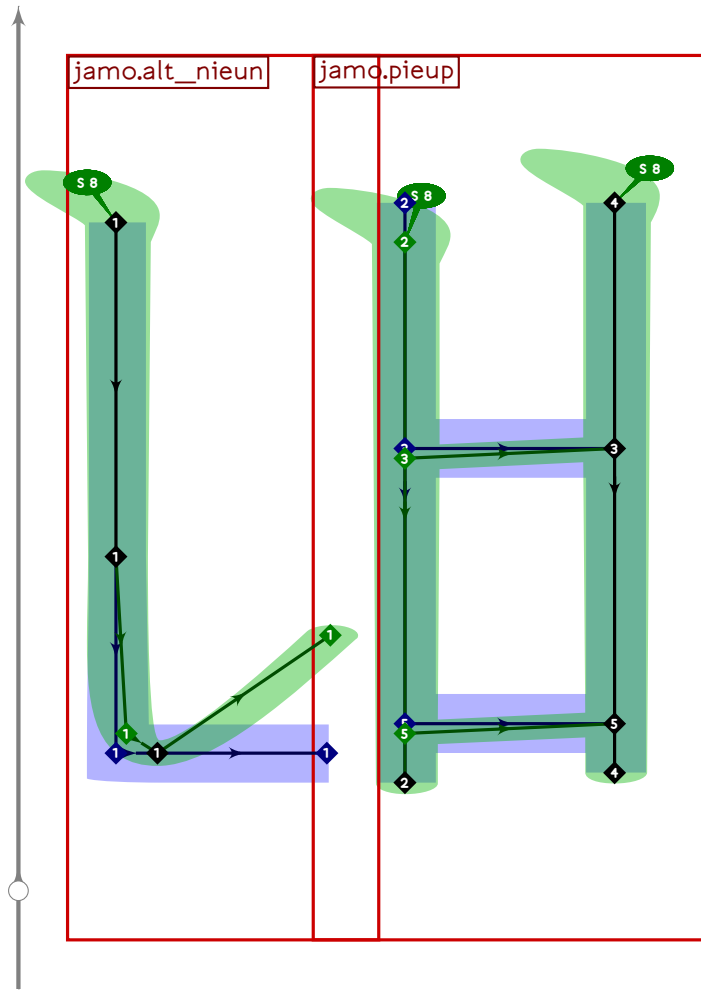
```



```

180 % hangul lead nieun-tikeut
181 begintsuglyph("uni1115.l4",21);
182 hangul.combine.lr(202,103)(whatever,lixf,loxf);
183 tsu_render;
184 endsuglyph;
185

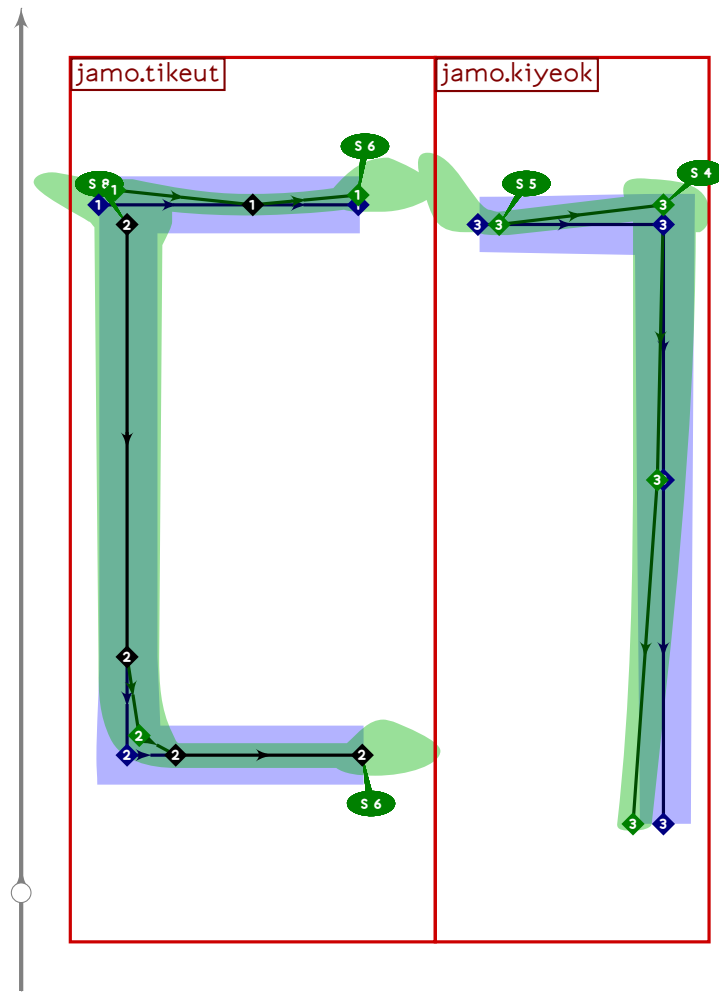
```



```

186 % hangul lead nieun-pieup
187 begint Suglyph("uni1116.l4",22);
188 hangul.combine.lr(202,107)(whatever,lixf,loxf);
189 tsu_render;
190 endsuglyph;
191

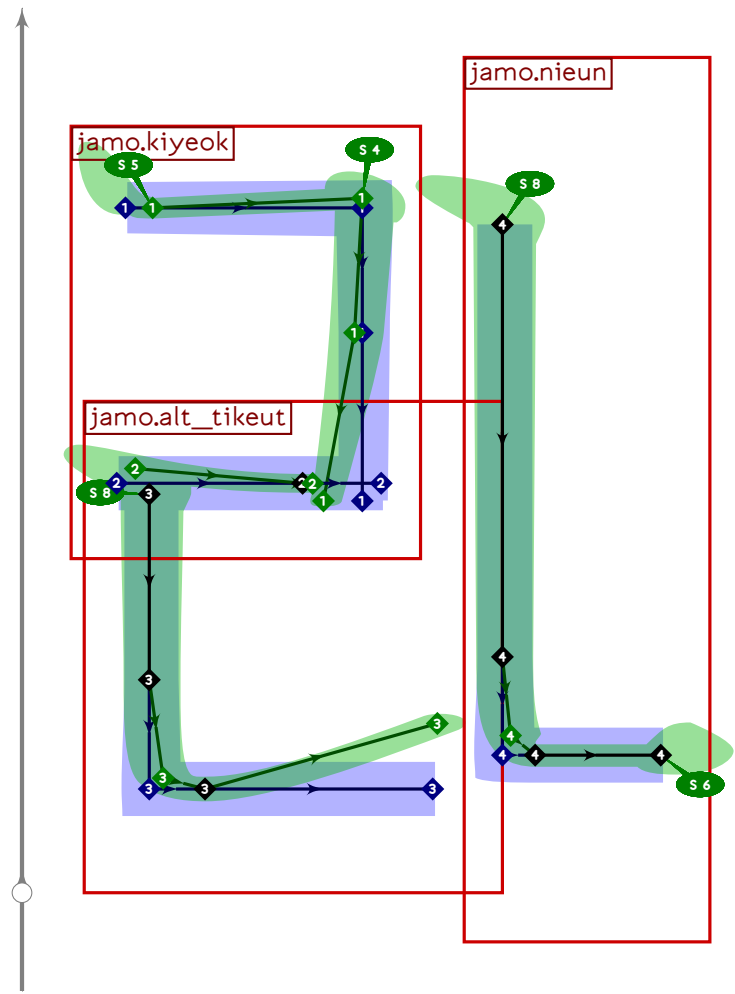
```



```

192 % hangul lead tikeut-kiyeok
193 begintsuglyph("uni1117.l4",23);
194 hangul.combine.lr(103,100)(whatever,lixf,loxf);
195 tsu_render;
196 endsuglyph;
197

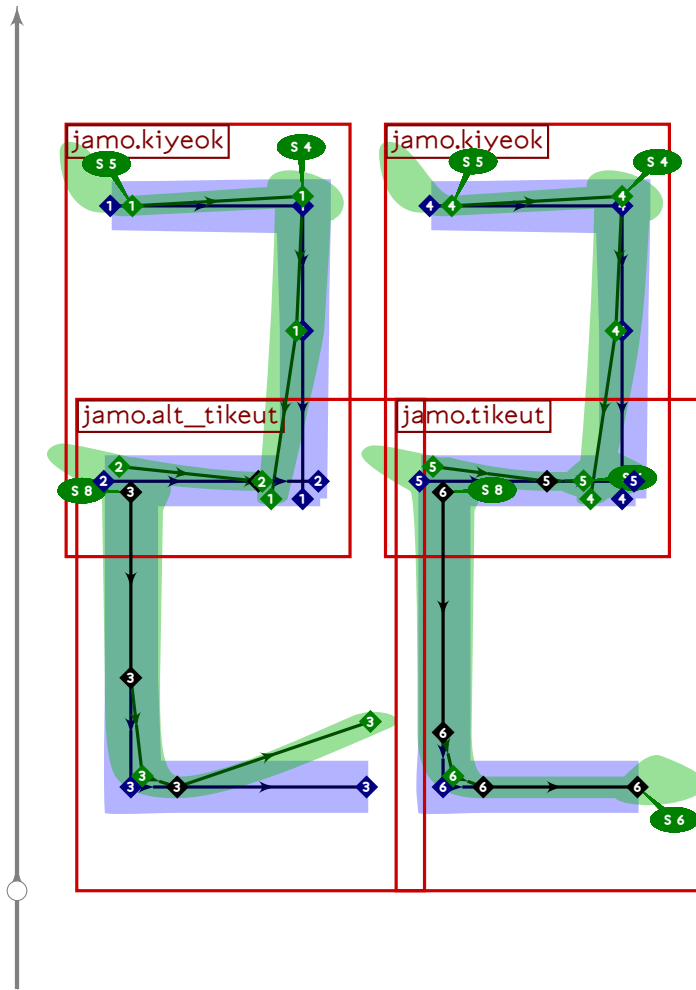
```



```

198 % hangul lead riul-nieun
199 begintsuglyph("uni1118.l4",24);
200 hangul.combine.lr(205,102)(whatever,lif,lxf);
201 tsu_render;
202 endsuglyph;
203

```

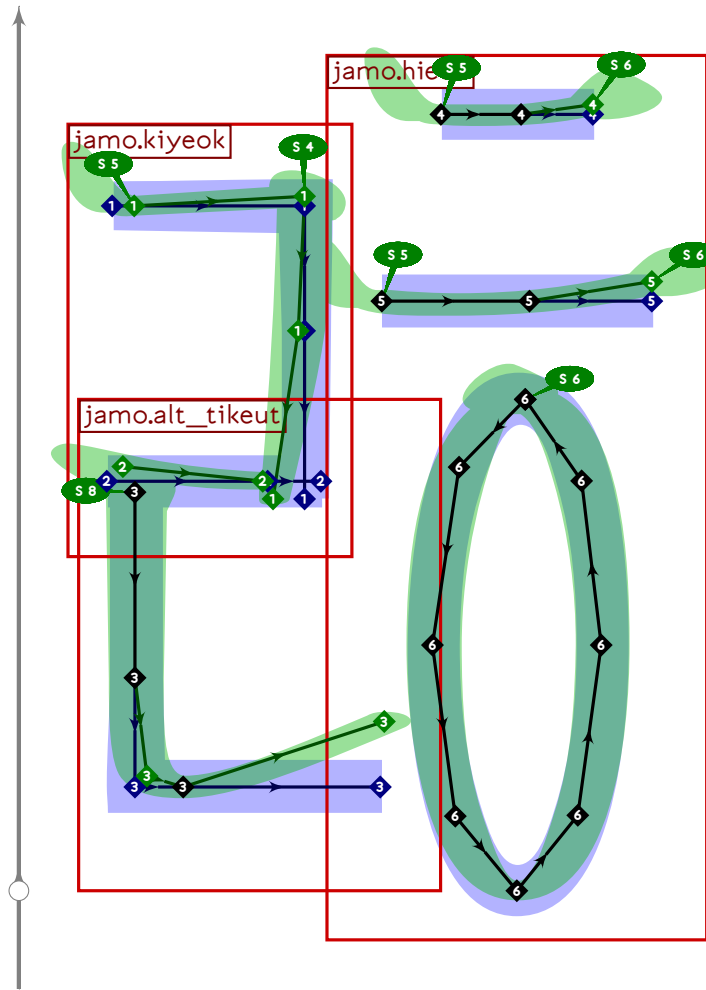


```

204 % hangul lead ssangrieul
205 begintsuglyph("uni1119.l4",25);
206 hangul.combine.lr(205,105)(whatever,lixf,loxf);
207 tsu_render;
208 endsuglyph;
209

```

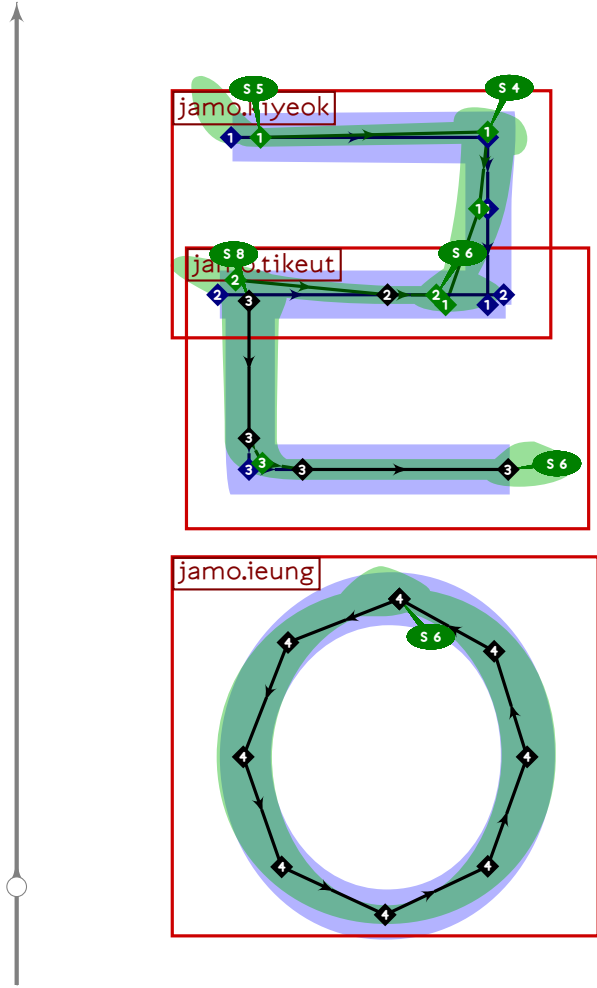




```

210 % hangul lead riul-hieuh
211 begintsuglyph("uni111A.l4",26);
212 hangul.combine.lr(205,118)(whatever,lixf,loxf);
213 tsu_render;
214 endsuglyph;
215

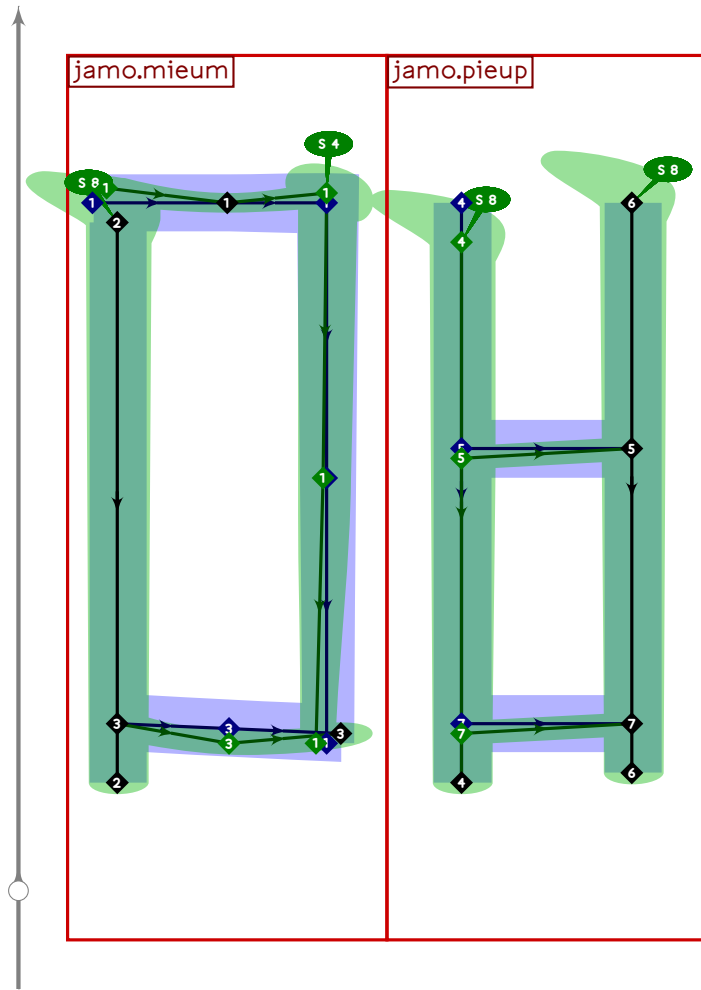
```



```

216 % hangul lead kapyeounrieul
217 beginsuglyph("uni111B.l4";27);
218 hangul.combine.tb(105,521)(whatever,
219   hxf((200,850),(800,-50)) transformed lixf,loxf);
220 tsu_render;
221 endsuglyph;
222

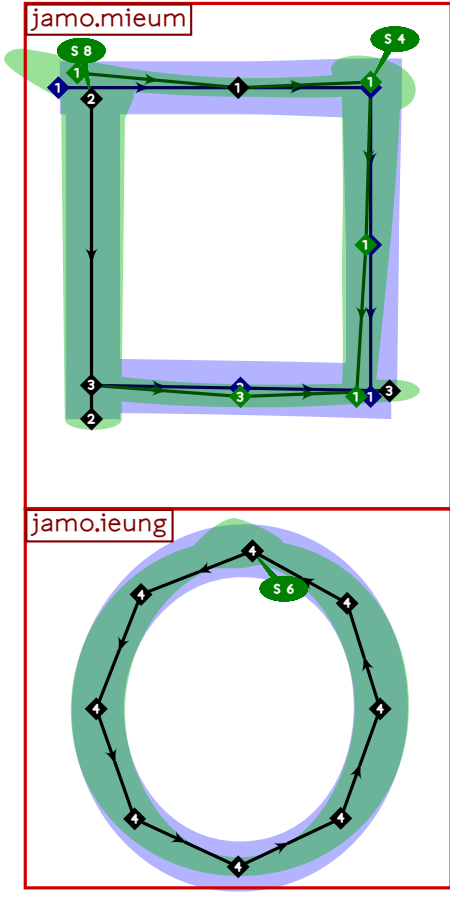
```



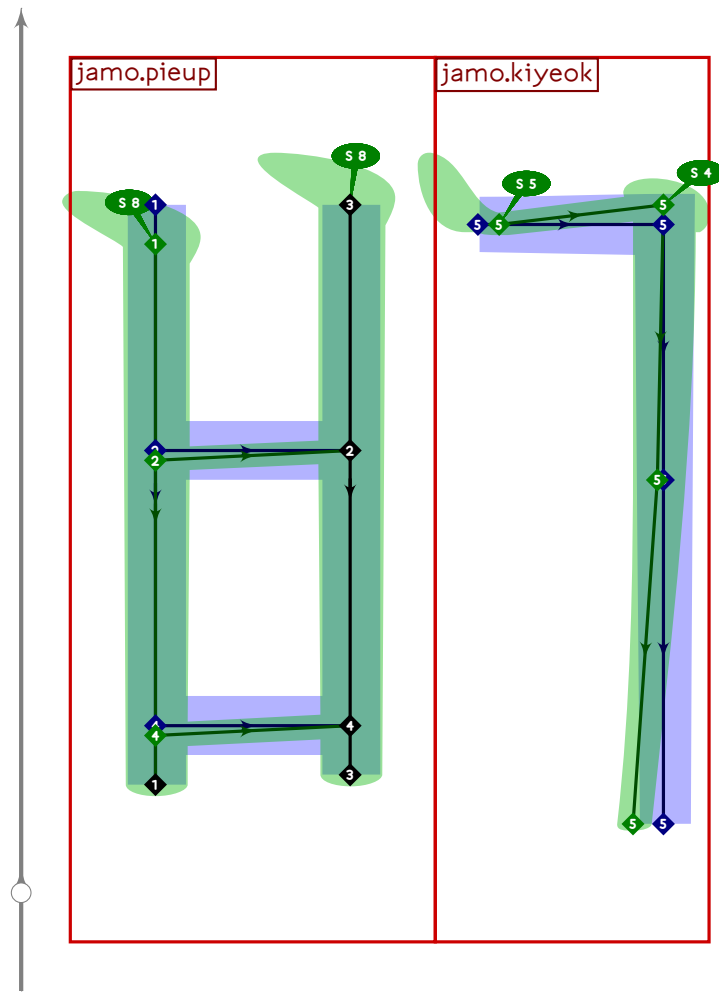
```

223 % hangul lead mieum-pieup
224 begintsuglyph("uni111C.l4",28);
225 hangul.combine.lr(106,107)(whatever,lixf,loxf);
226 tsu_render;
227 endsuglyph;
228

```



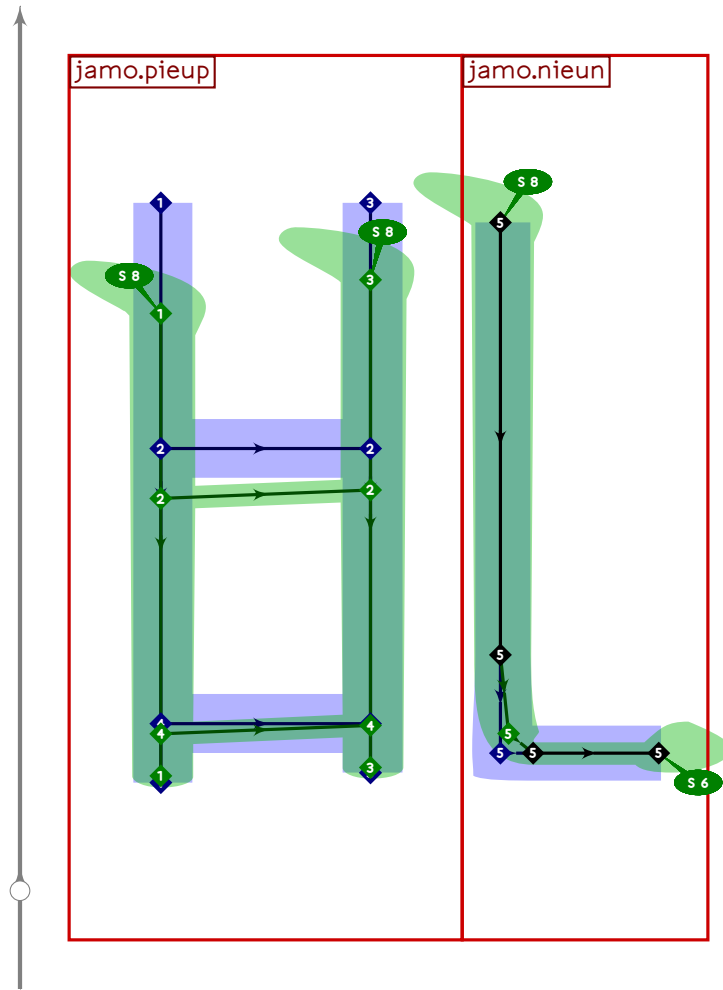
```
229 % hangul lead kapyeounmieum
230 begintsuglyph("uni111D.l4";29);
231 hangul.combine.tb(106,521)(whatever,
232   hxf((200,850),(800,-50)) transformed lixf,loxf);
233 tsu_render;
234 endsuglyph;
235
```



```

236 % hangul lead pieup-kiyeok
237 begint Suglyph("uni111E.l4",30);
238 hangul.combine.lr(107,100)(whatever,lixf,loxf);
239 tsu_render;
240 endsuglyph;
241

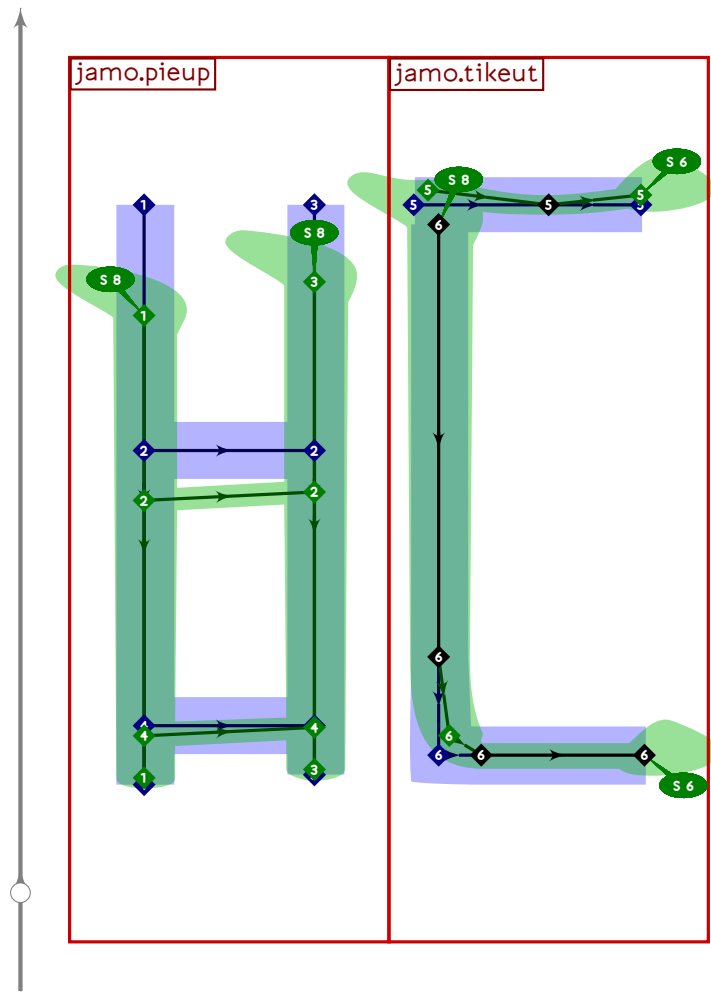
```



```

242 % hangul lead pieup-nieun
243 begintsuglyph("uni111F.l4",31);
244 hangul.combine.lr(207,102)(whatever,lixf,loxf);
245 tsu_render;
246 endsuglyph;
247

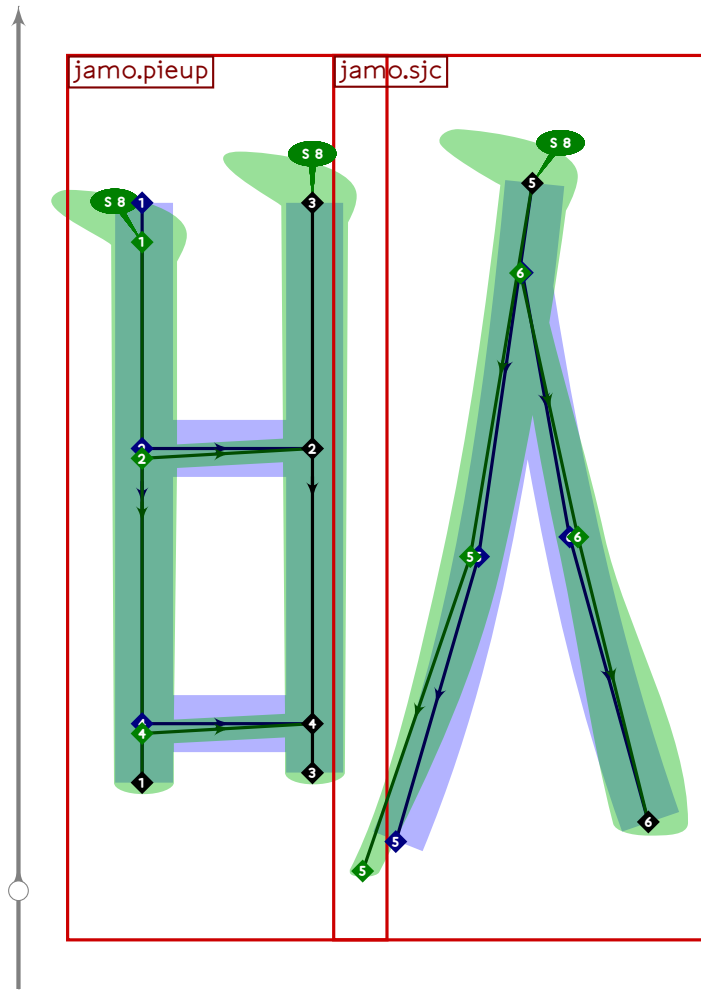
```



```

248 % hangul lead pieup-tikeut
249 begintsuglyph("uni1120.l4",32);
250 hangul.combine.lr(207,103)(whatever,lixf,loxf);
251 tsu_render;
252 endsuglyph;
253

```

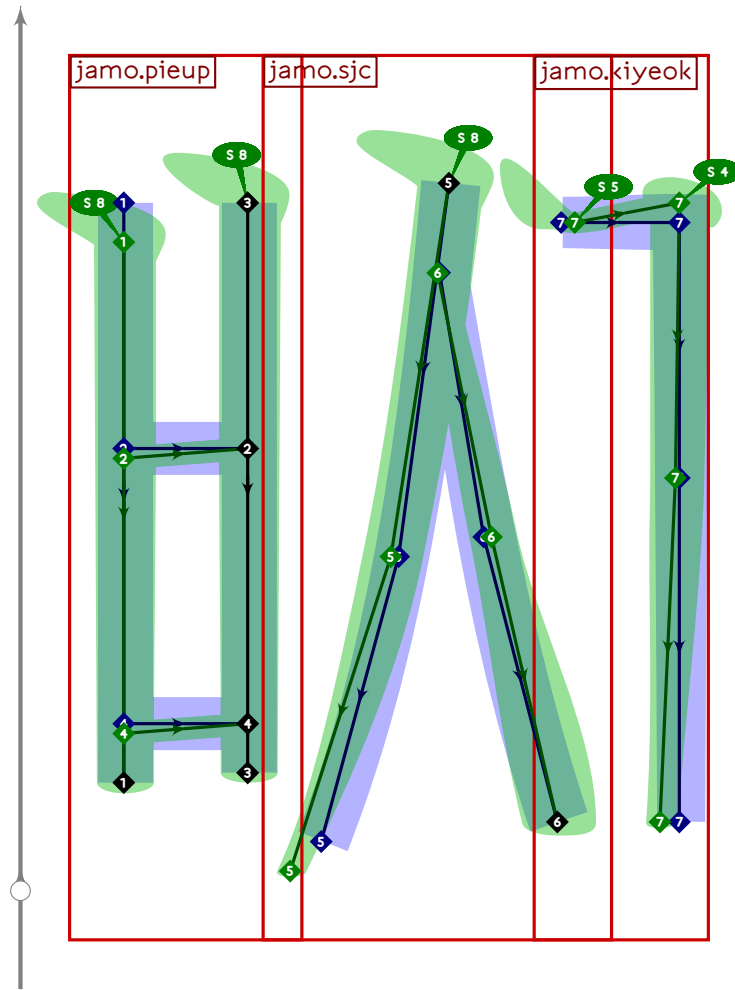


```

254 % hangul lead pieup-sios
255 begintsuglyph("uni1121.l4",33);
256 hangul.combine.lr(107,109)(whatever,lixf,loxf);
257 tsu_render;
258 endsuglyph;
259

```

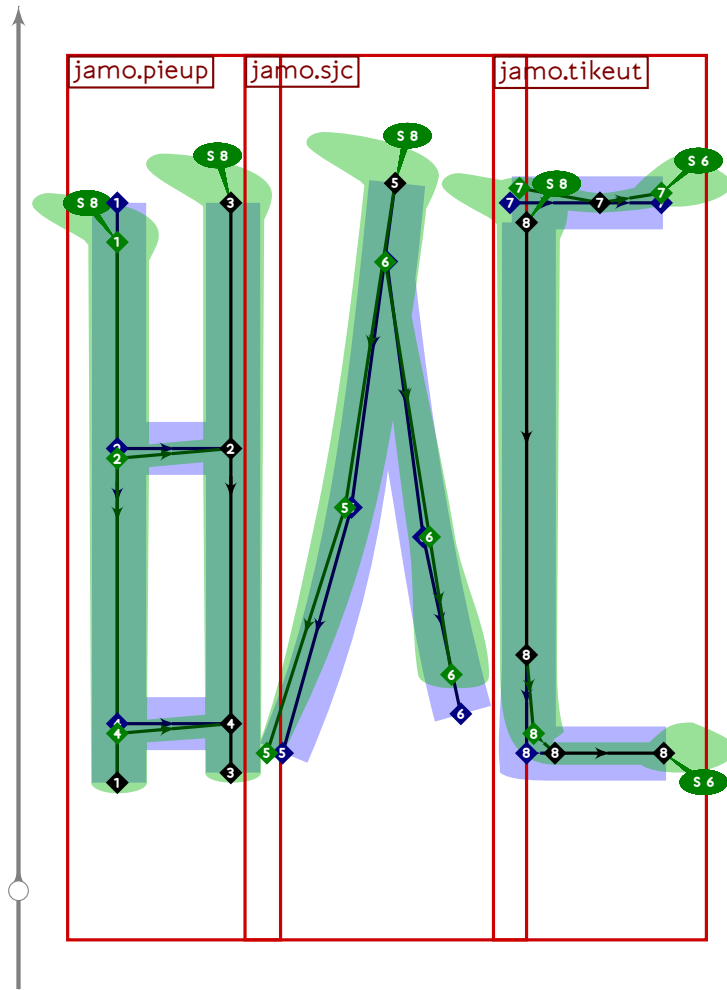




```

260 % hangul lead pieup-sios-kiyeok
261 begintsuglyph("uni1122.l4",34);
262 hangul.combine.lcr(107,109,100)(whatever,lixf,loxf);
263 tsu_render;
264 endsuglyph;
265

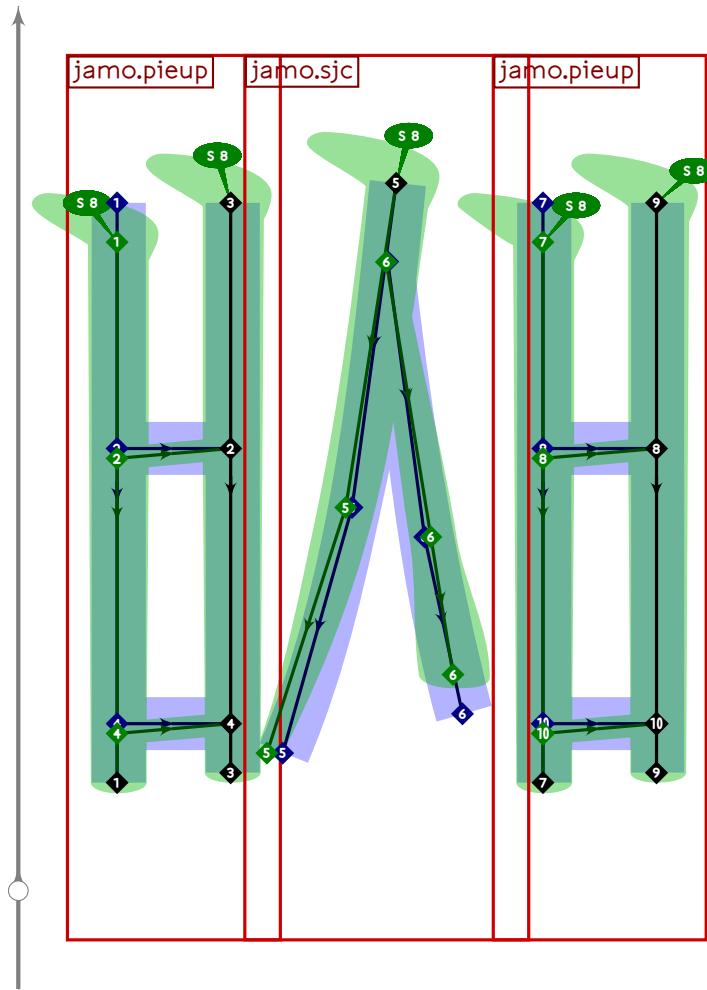
```



```

266 % hangul lead pieup-sios-tikeut
267 begintsuglyph("uni1123.l4",35);
268 hangul.combine.lcr(107,209,103)(whatever,lixf,loxf);
269 tsu_render;
270 endsuglyph;
271

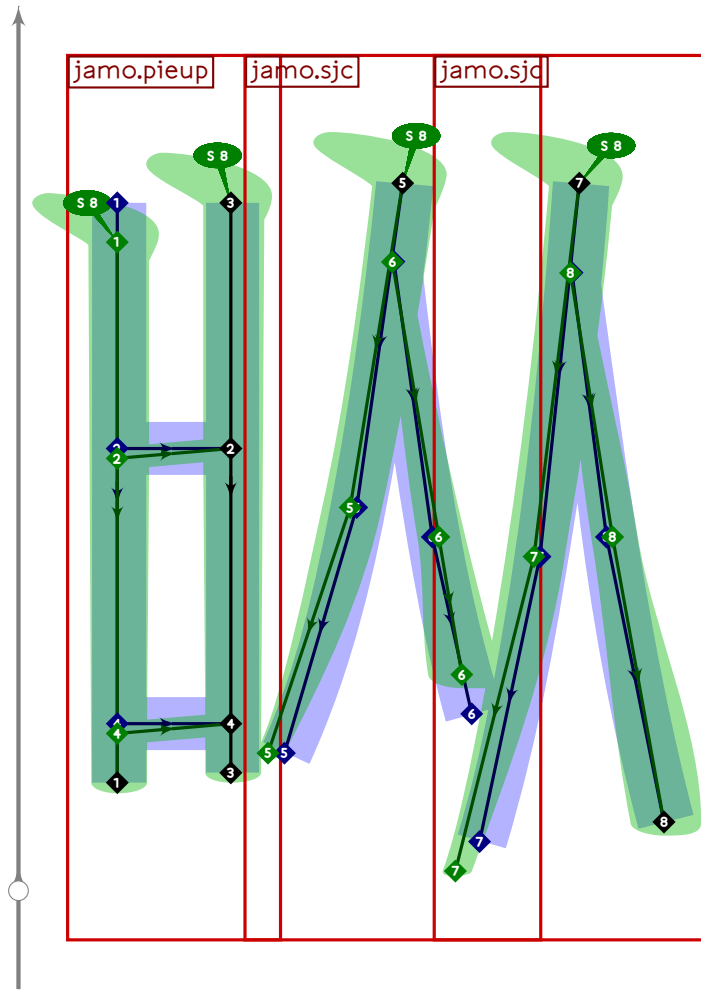
```



```

272 % hangul lead pieup-sios-pieup
273 begintsuglyph("uni1124.l4",36);
274 hangul.combine.lcr(107,209,107)(whatever,lixf,loxf);
275 tsu_render;
276 endsuglyph;
277

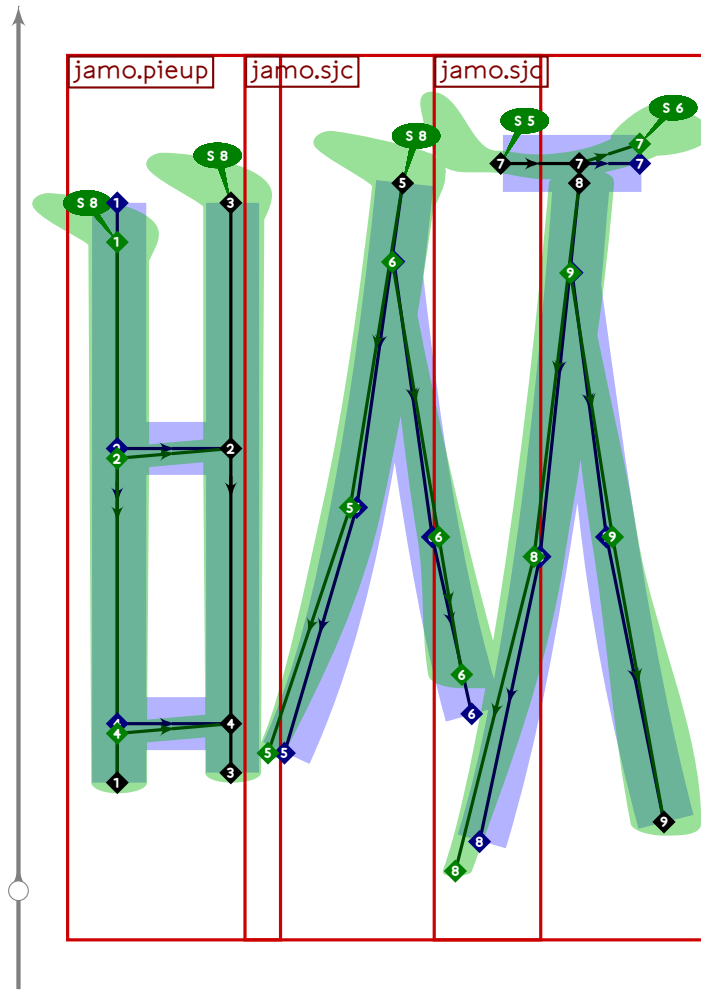
```



```

278 % hangul lead pieup-ssangsios
279 begintsuglyph("uni1125.l4",37);
280 hangul.combine.lcr(107,209,109)(whatever,lixf,loxf);
281 tsu_render;
282 endsuglyph;
283

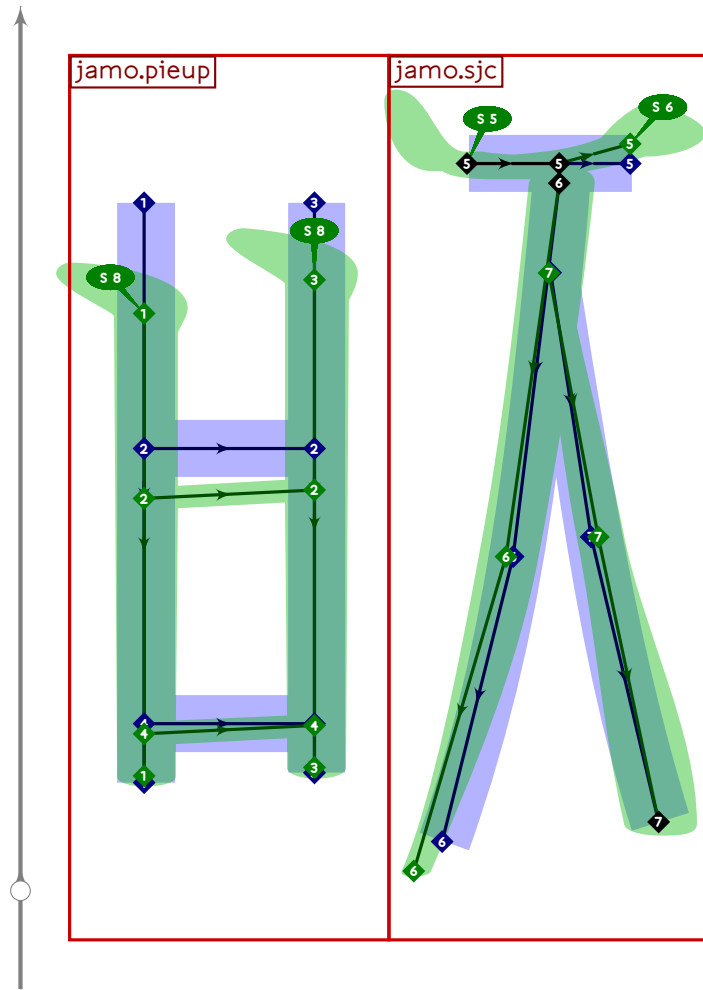
```



```

284 % hangul lead pieup-sios-cieuc
285 begintsuglyph("uni1126.l4",38);
286 hangul.combine.lcr(107,209,112)(whatever,lif,loxf);
287 tsu_render;
288 endsuglyph;
289

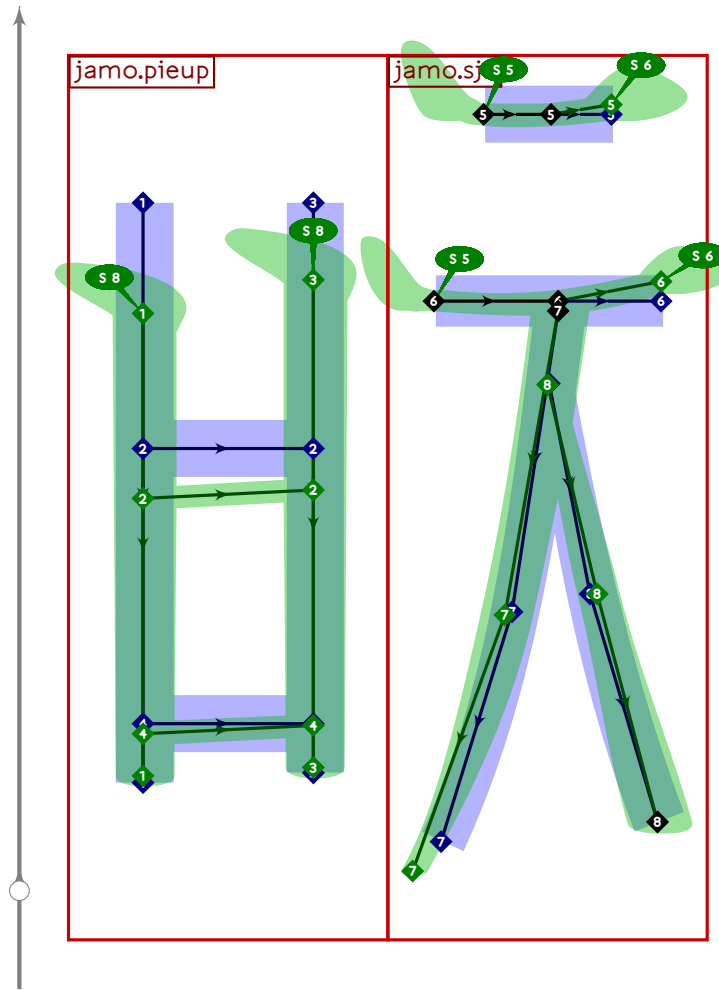
```



```

290 % hangul lead pieup-cieuc
291 begintsuglyph("uni1127.14";39);
292 hangul.combine.lr(207,112)(whatever,lixf,loxf);
293 tsu_render;
294 endsuglyph;
295

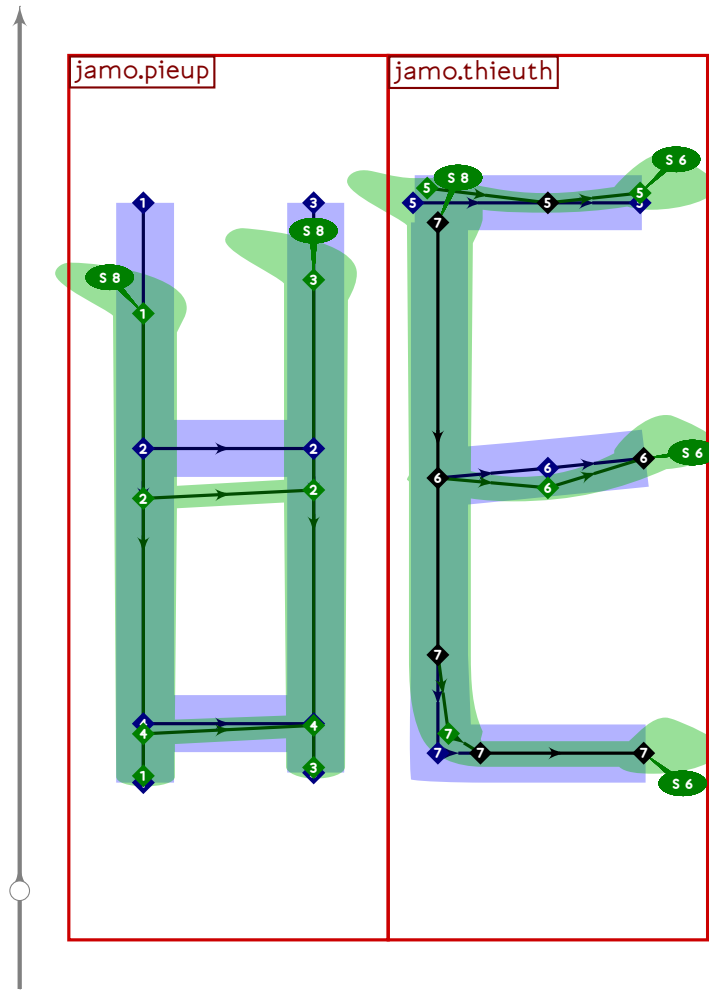
```



```

296 % hangul lead pieup-chieuch
297 begintsuglyph("uni1128.l4",40);
298 hangul.combine.lr(207,114)(whatever,lixf,loxf);
299 tsu_render;
300 endsuglyph;
301

```

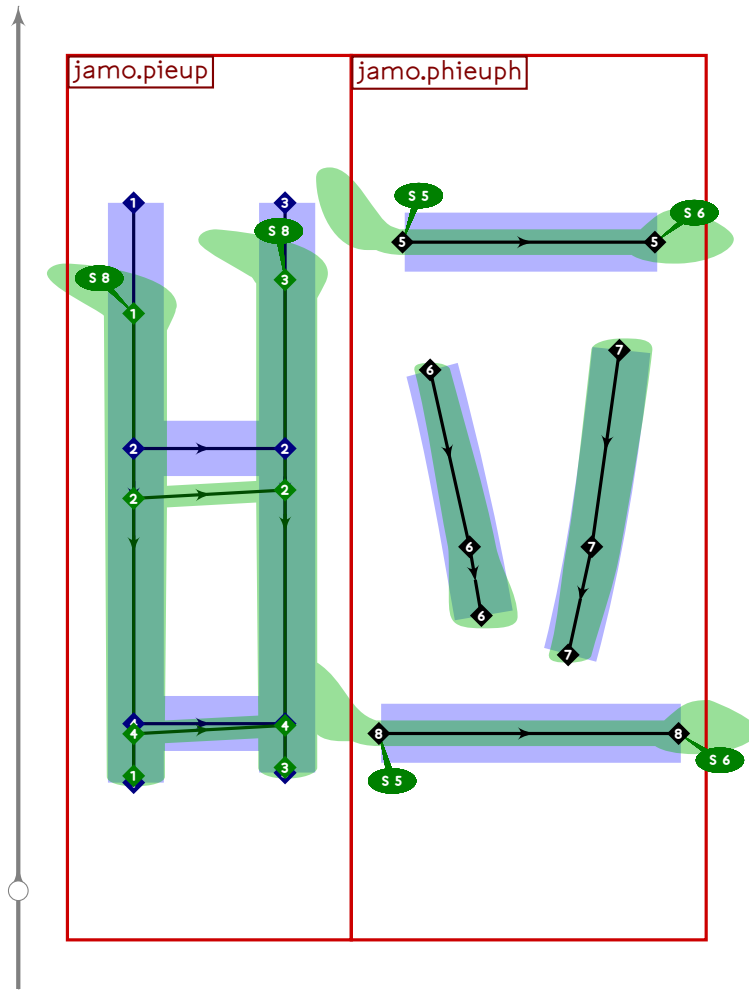


```

302 % hangul lead pieup-thieuth
303 begintsuglyph("uni1129.l4";41);
304 hangul.combine.lr(207,116)(whatever,lixf,loxf);
305 tsu_render;
306 endsuglyph;
307

```

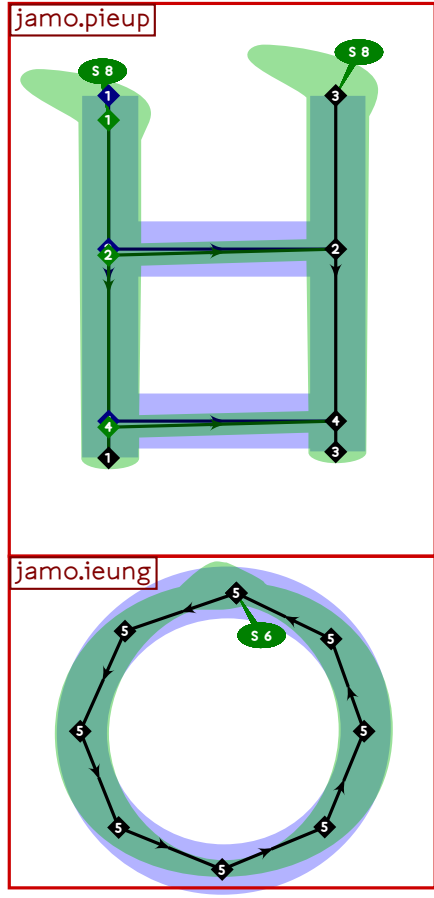




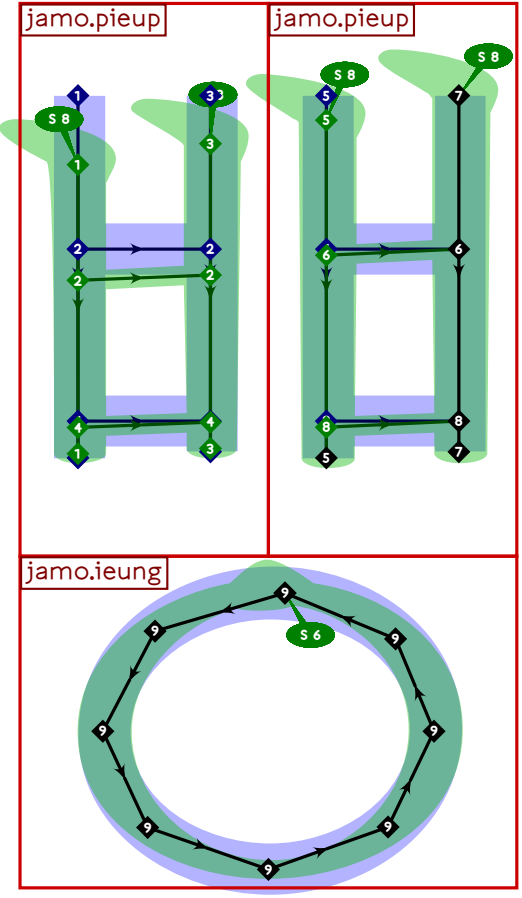
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308 % hangul lead pieup-phieup
309 begintsuglyph("uni112A.l4",42);
310 hangul.combine.lr(207,117)(whatever,lixf,loxf);
311 tsu_render;
312 endsuglyph;
313

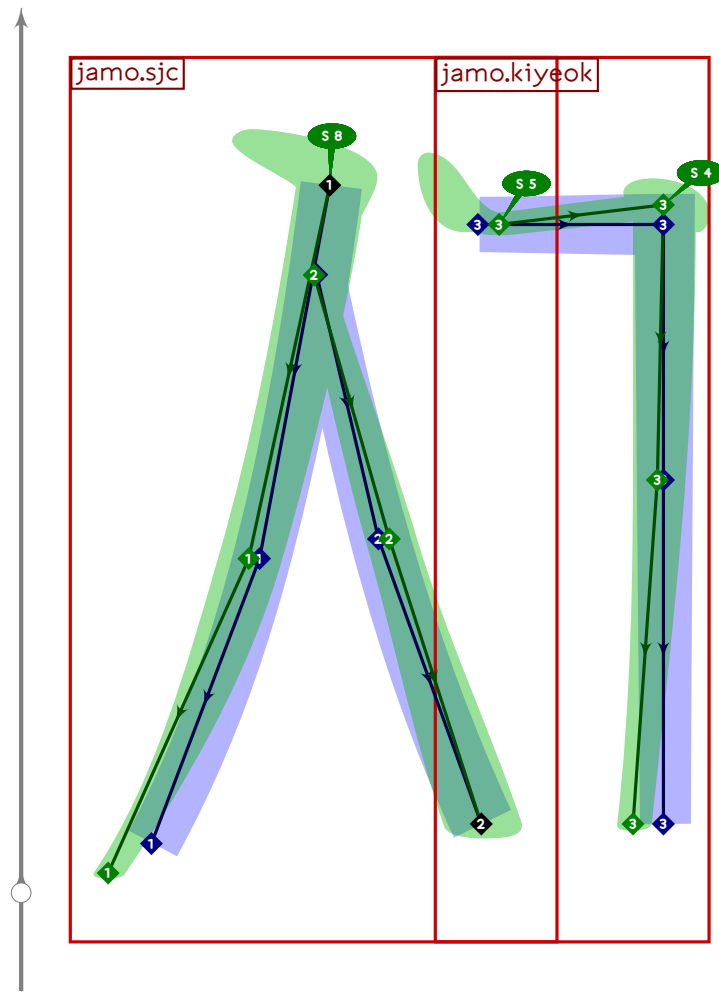
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```
314 % hangul lead kapyeounpieup
315 begint Suglyph("uni112B.l4",43);
316 hangul.combine.tb(107,521)(whatever,
317   hxf((200,850),(800,-50)) transformed lixf,loxf);
318 tsu_render;
319 endsuglyph;
320
```



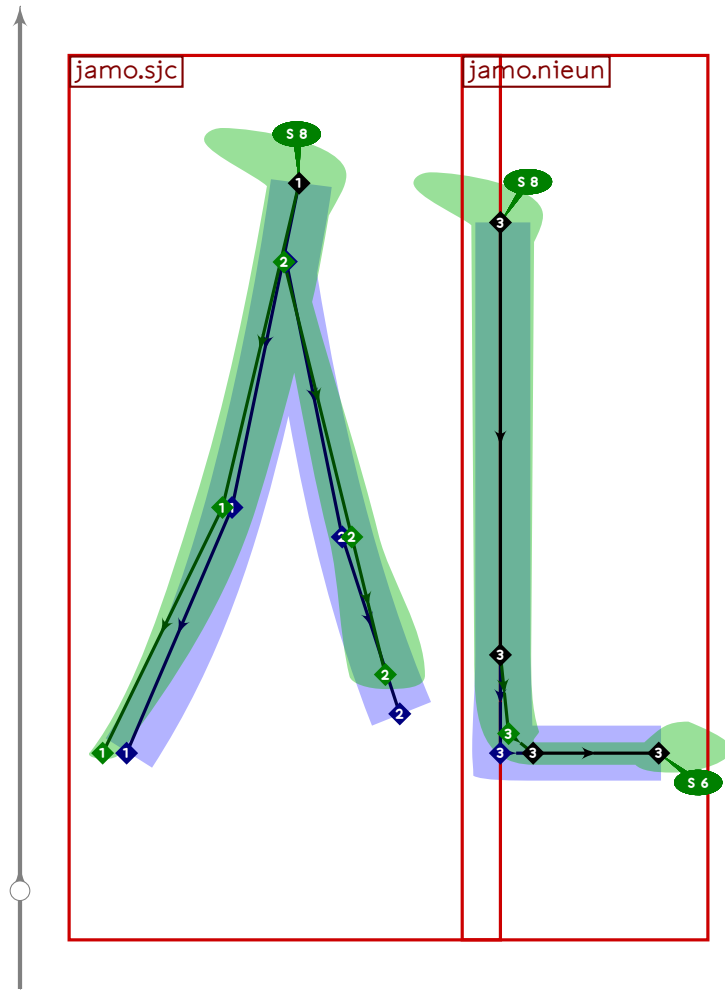
```
321 % hangul lead kapyeounssangpieup
322 begintsuglyph("uni112C.14",44);
323 hangul.combine.tb(108,521)(whatever,
324   hxf((150,850),(850,-50)) transformed lixf,loxf);
325 tsu_render;
326 endsuglyph;
327
```



```

328 % hangul lead sios-kiyeok
329 begintsuglyph("uni112D.l4",45);
330 hangul.combine.lr(109,100)(whatever,lixf,loxf);
331 tsu_render;
332 endsuglyph;
333

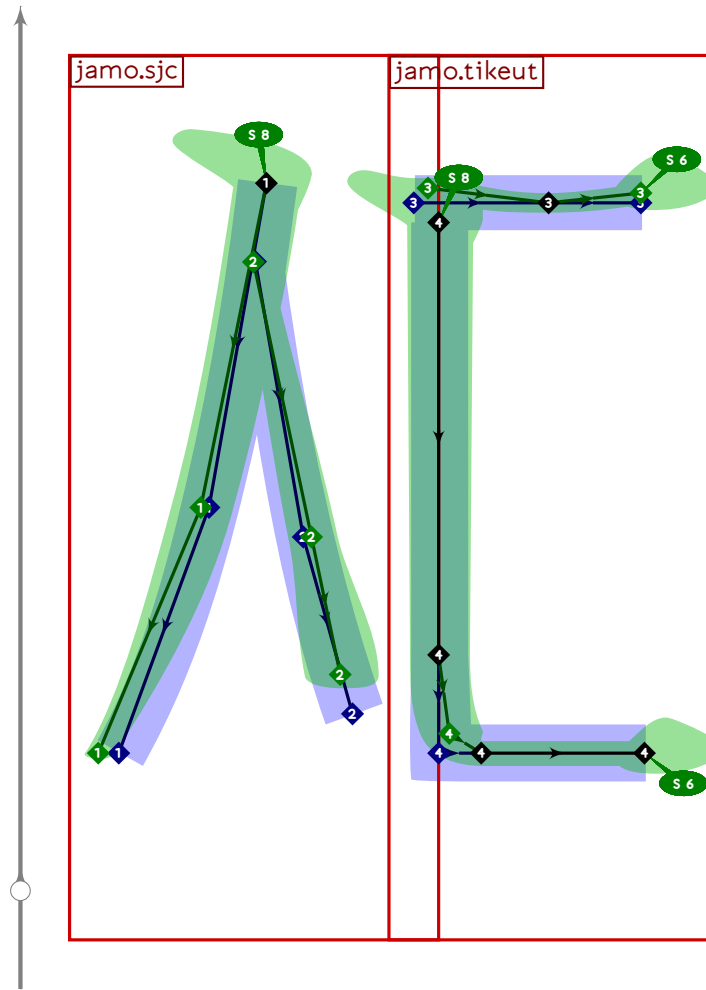
```



```

334 % hangul lead sios-nieun
335 begintsuglyph("uni112E.l4",46);
336 hangul.combine.lr(209,102)(whatever,lixf,loxf);
337 tsu_render;
338 endsuglyph;
339

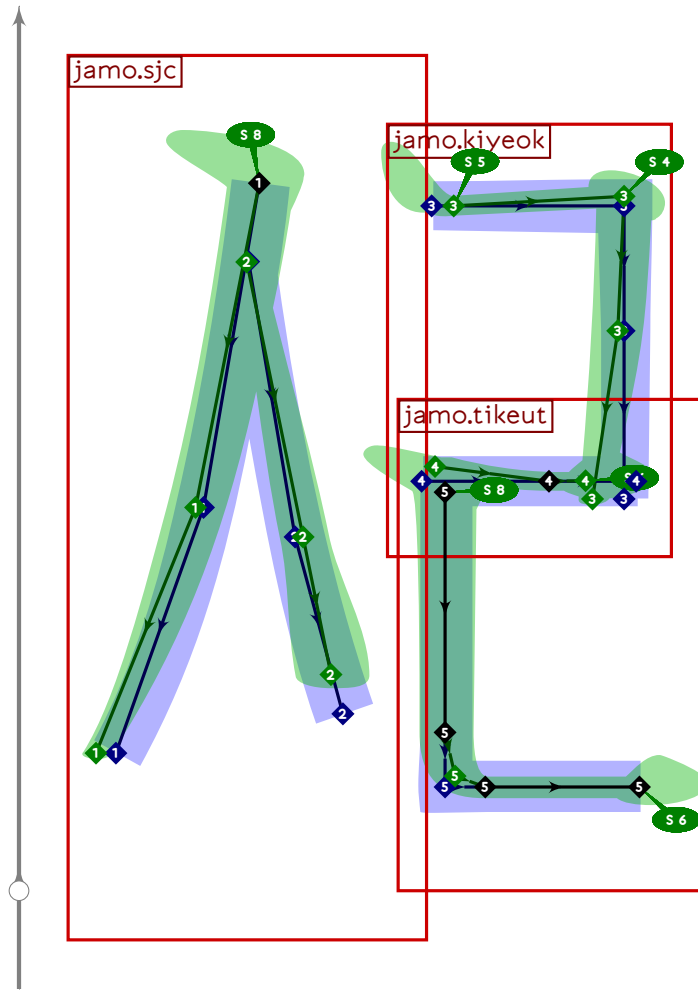
```



```

340 % hangul lead sios-tikeut
341 begint Suglyph("uni112F.14";47);
342 hangul.combine.lr(209,103)(whatever,lixf,loxf);
343 tsu_render;
344 endsuglyph;
345

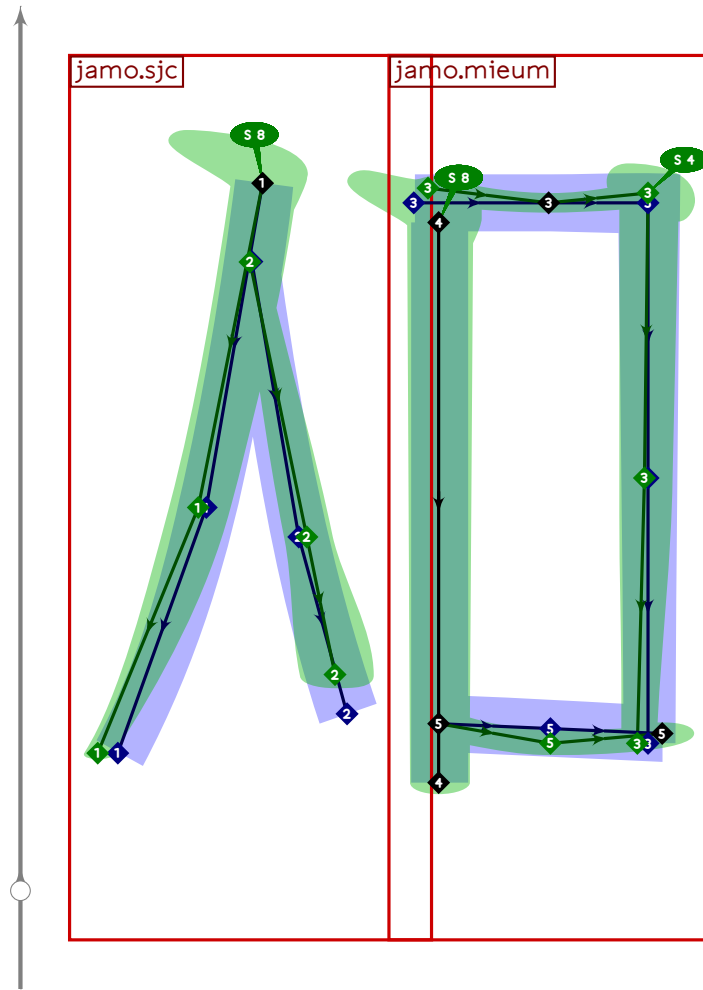
```



```

346 % hangul lead sios-rieul
347 begint Suglyph("uni1130.l4",48);
348 hangul.combine.lr(209,105)(whatever,lixf,loxf);
349 tsu_render;
350 endtsuglyph;
351

```

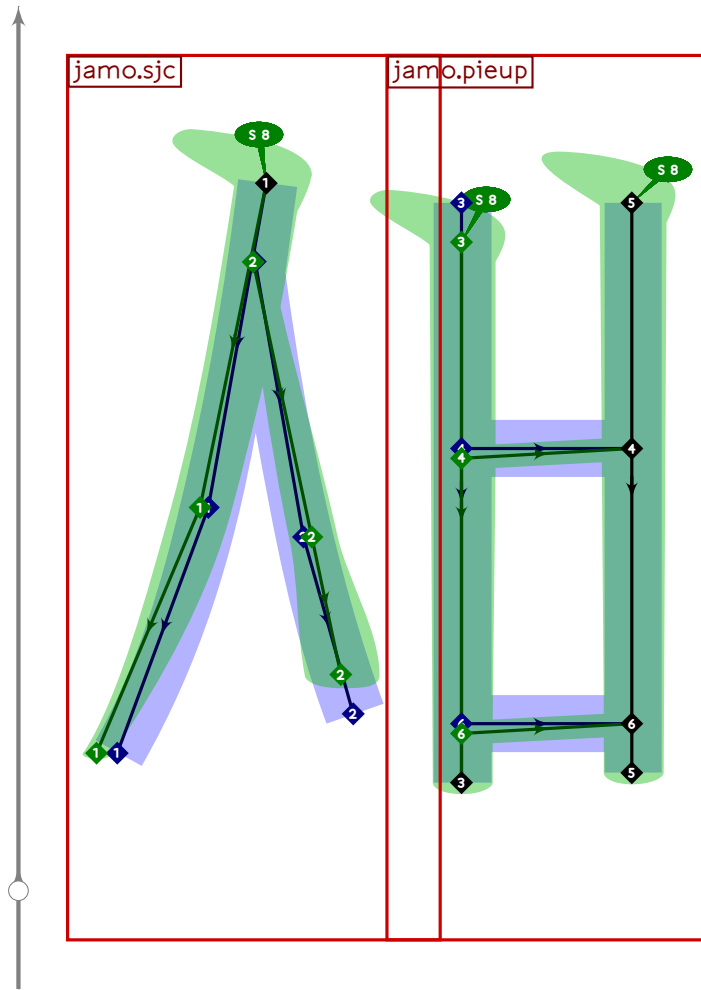


```

352 % hangul lead sios-mieum
353 begintsuglyph("uni1131.l4";49);
354 hangul.combine.lr(209,106)(whatever,lixf,loxf);
355 tsu_render;
356 endsuglyph;
357

```

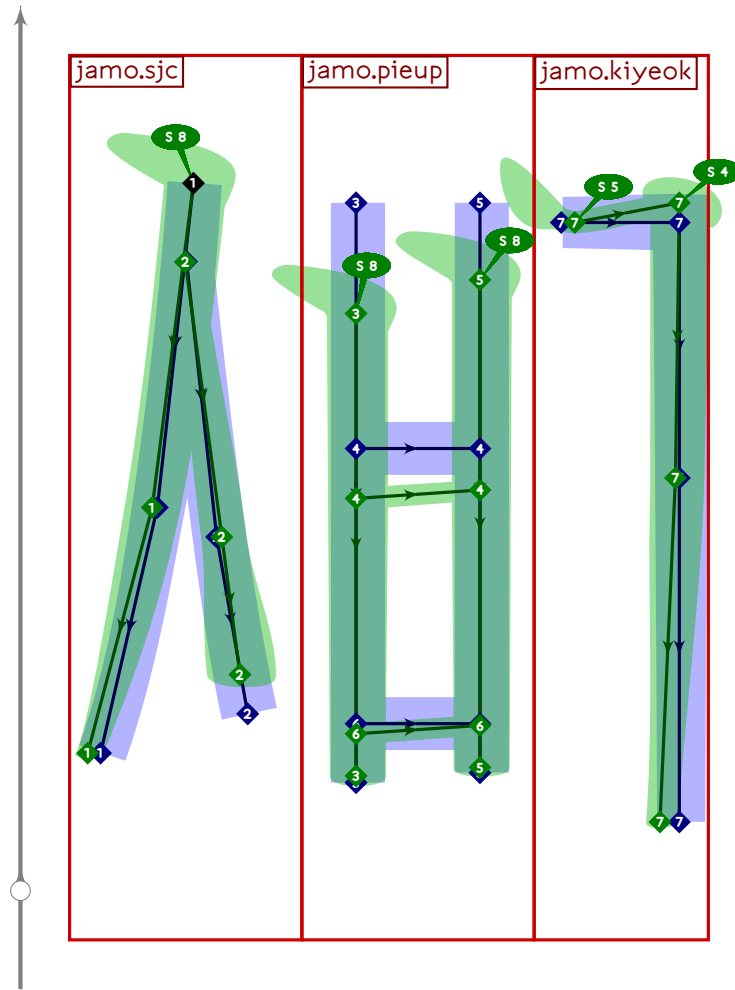




```

358 % hangul lead sios-pieup
359 begint Suglyph("uni1132.l4";50);
360 hangul.combine.lr(209,107)(whatever,lixf,loxf);
361 tsu_render;
362 endtsuglyph;
363

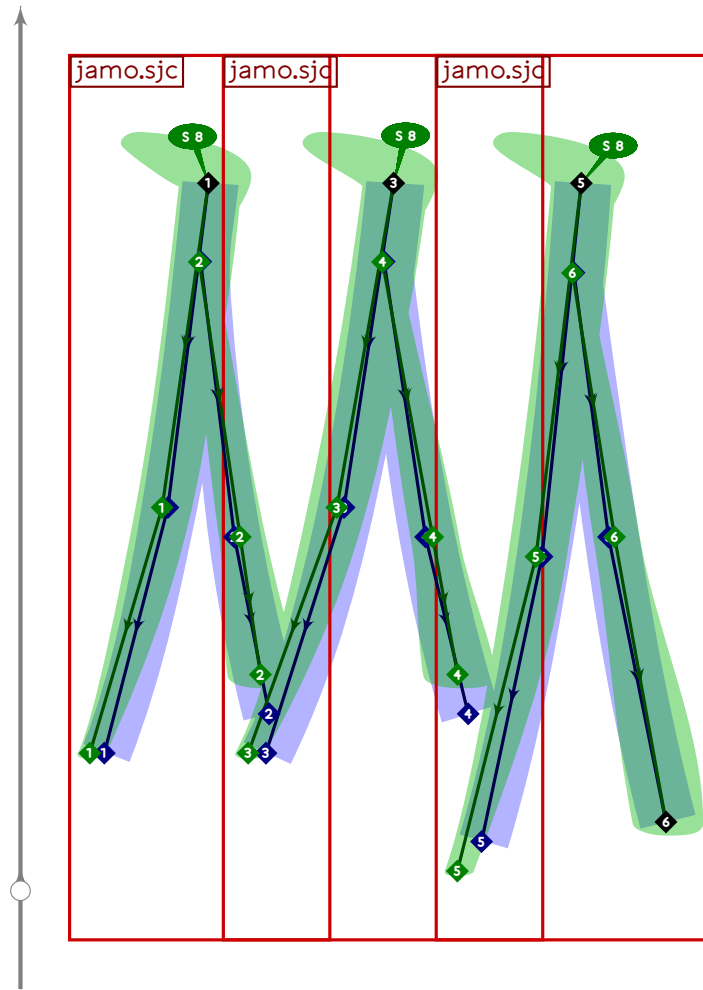
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```

364 % hangul lead sios-pieup-kiyeok
365 begintsuglyph("uni1133.14";51);
366 hangul.combine.lcr(209,207,100)(whatever,lixf,loxf);
367 tsu_render;
368 endsuglyph;
369

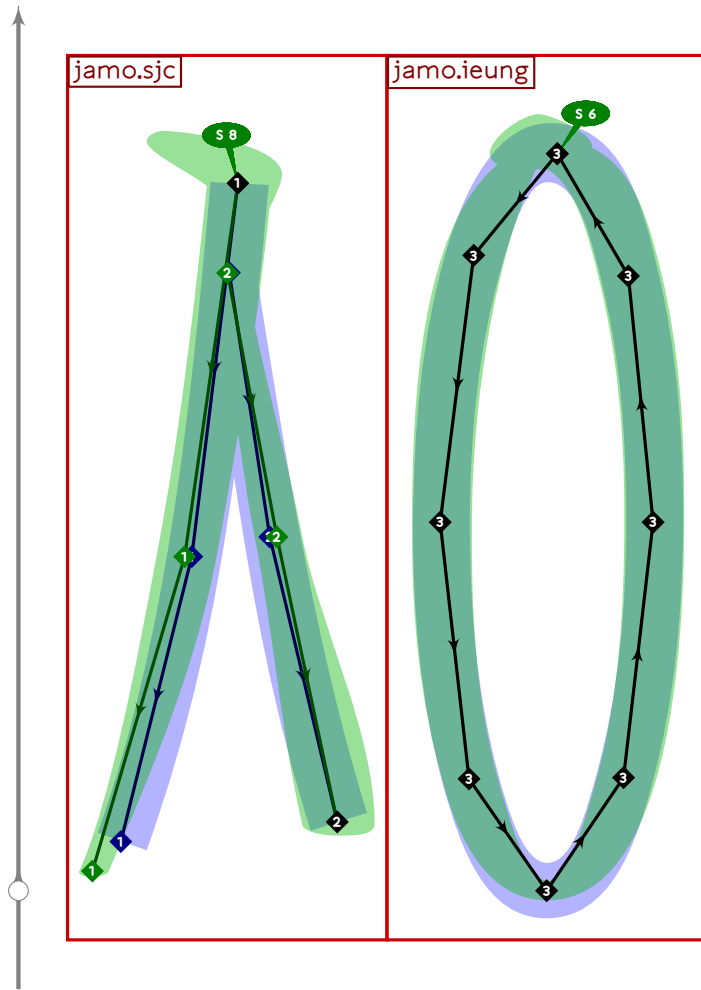
```



```

370 % hangul lead sios-sios-sios
371 begintsuglyph("uni1134.l4";52);
372 hangul.combine.lcr(209,209,109)(whatever,lixf,loxf);
373 tsu_render;
374 endtsuglyph;
375

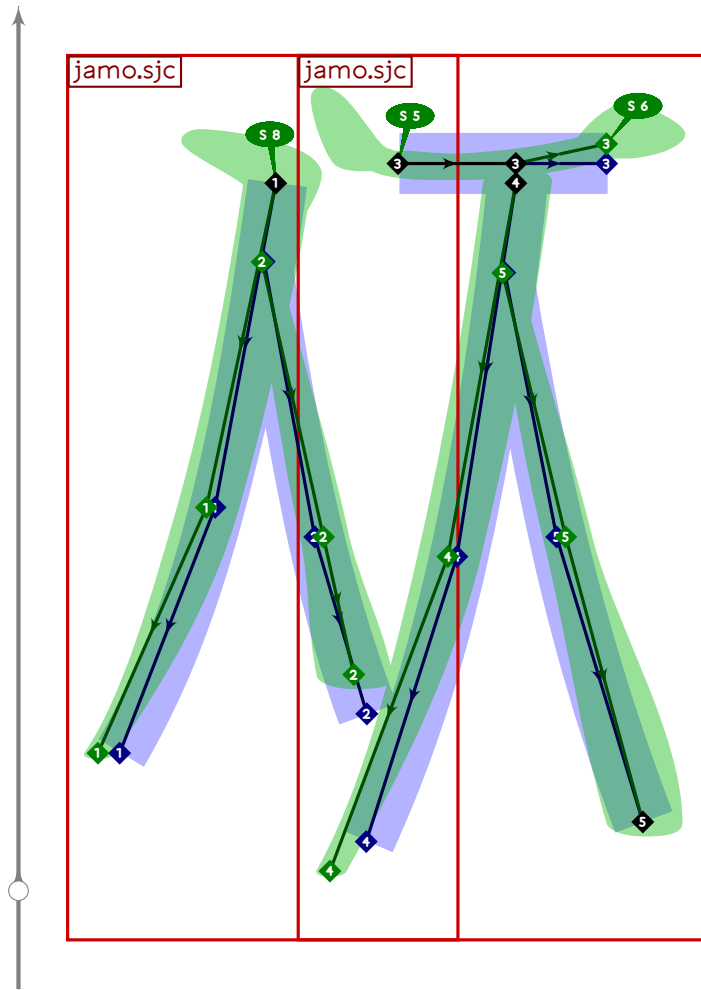
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```

376 % hangul lead sios-ieung
377 begint Suglyph("uni1135.14";53);
378 hangul.combine.lr(109,111)(whatever,lixf,loxf);
379 tsu_render;
380 endtsuglyph;
381

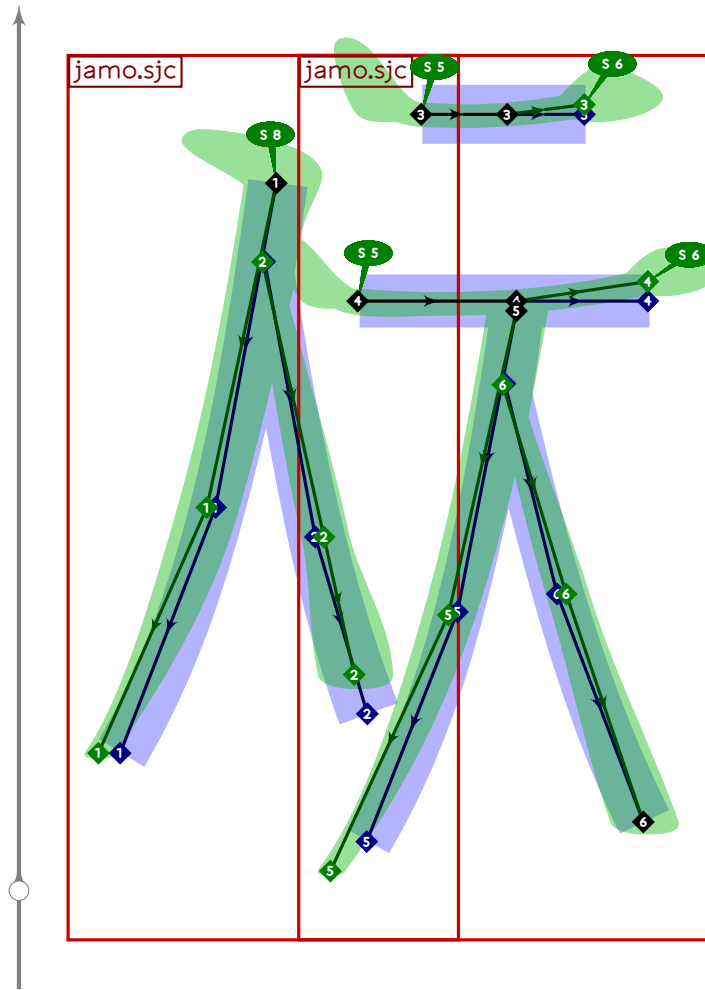
```



```

382 % hangul lead sios-cieuc
383 begintsuglyph("uni1136.l4",54);
384 hangul.combine.lr(209,112)(whatever,lixf,loxf);
385 tsu_render;
386 endsuglyph;
387

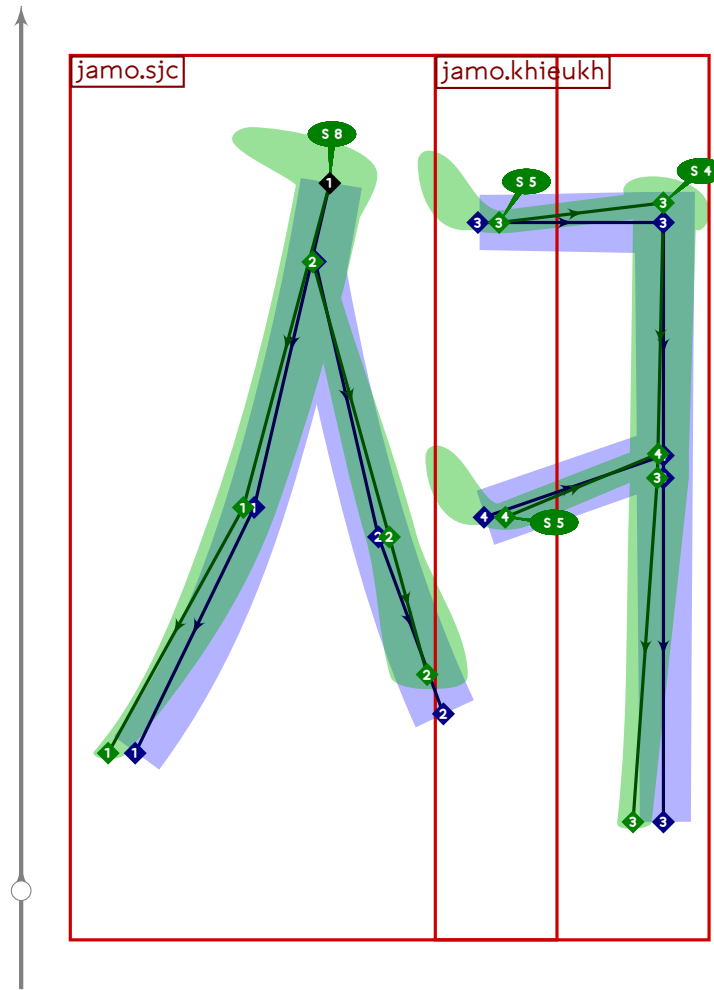
```



```

388 % hangul lead sios-chieuch
389 begint Suglyph("uni1137.14",55);
390 hangul.combine.lr(209,114)(whatever,lixf,loxf);
391 tsu_render;
392 endtsuglyph;
393

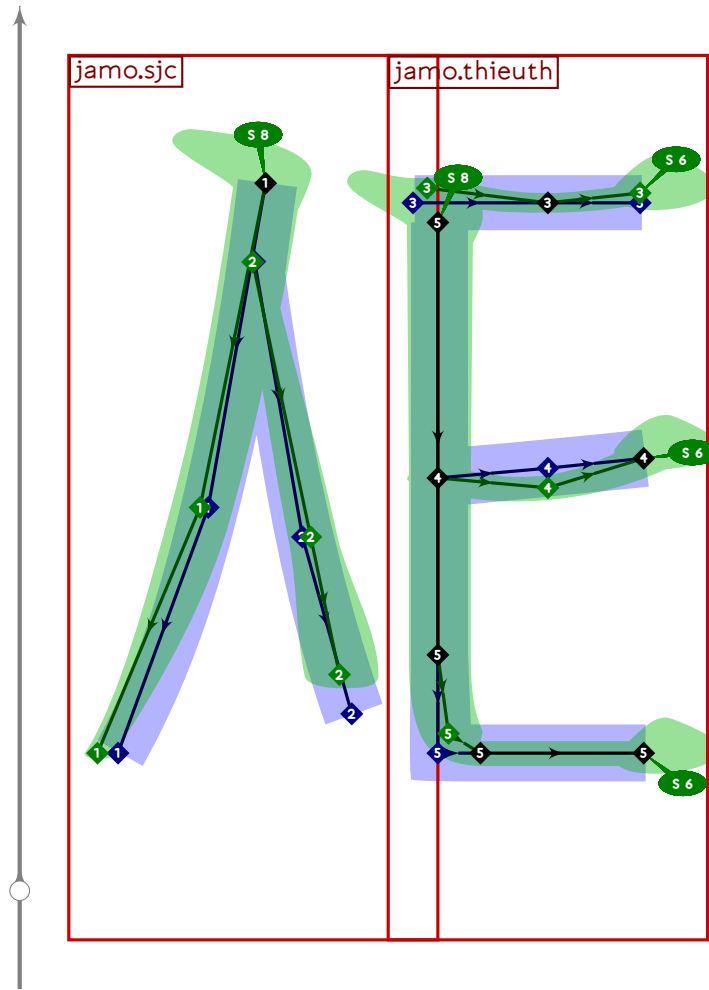
```



```

394 % hangul lead sios-khieukh
395 begintsuglyph("uni1138.l4",56);
396 hangul.combine.lr(209,115)(whatever,lixf,loxf);
397 tsu_render;
398 endsuglyph;
399

```

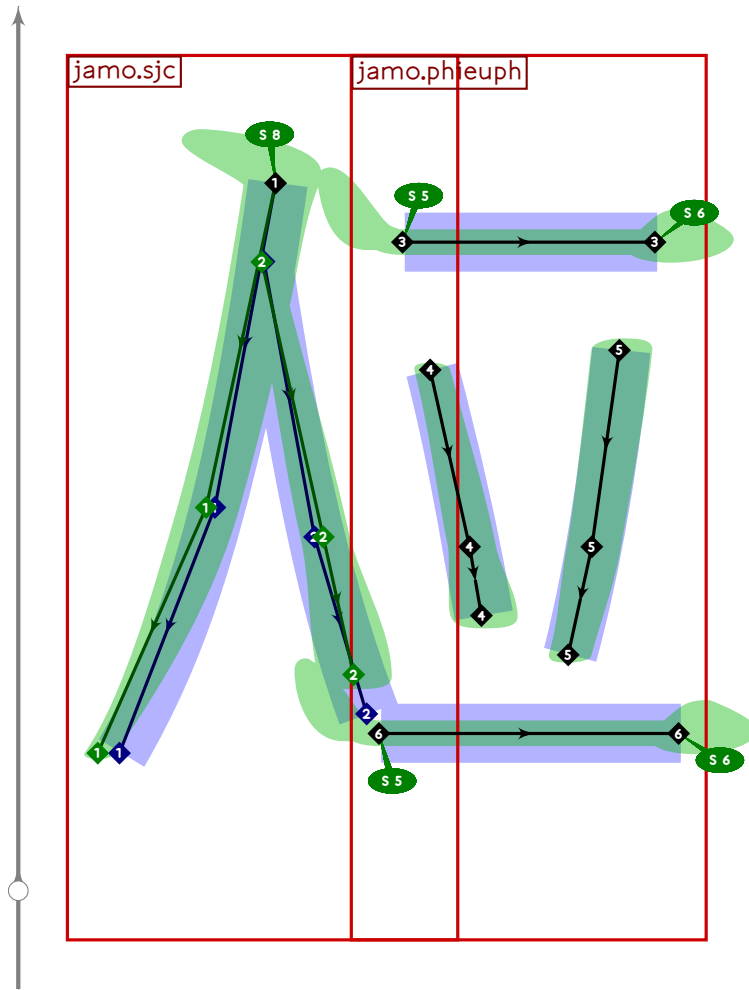


```

400 % hangul lead sios-thieuth
401 begintsuglyph("uni1139.l4";57);
402 hangul.combine.lr(209,116)(whatever,lixf,loxf);
403 tsu_render;
404 endsuglyph;
405

```

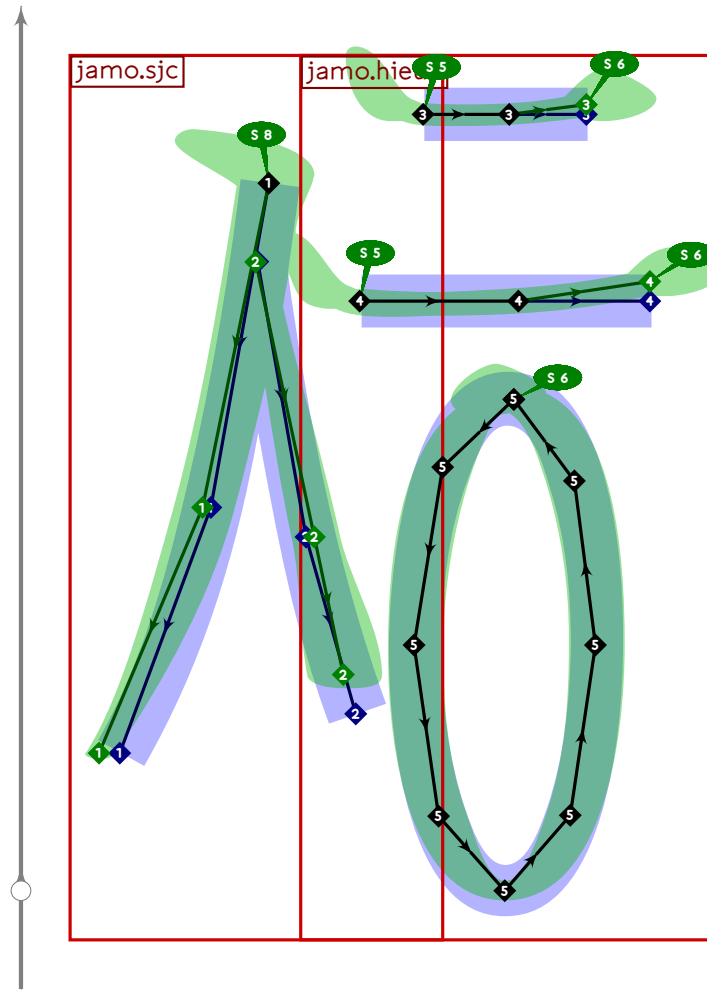




```

406 % hangul lead sios-phiaeph
407 begintsuglyph("uni113A.l4",58);
408 hangul.combine.lr(209,117)(whatever,lixf,loxf);
409 tsu_render;
410 endsuglyph;
411

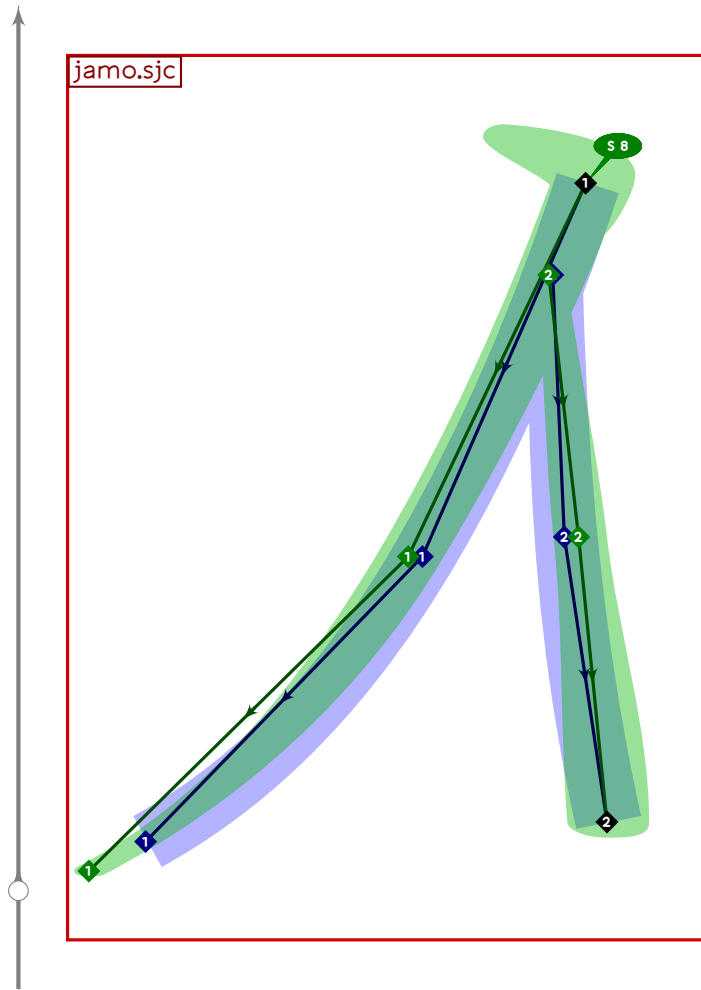
```



```

412 % hangul lead sios-hieuh
413 begint Suglyph("uni113B.l4",59);
414 hangul.combine.lr(209,118)(whatever,lixf,loxf);
415 tsu_render;
416 endtsuglyph;
417

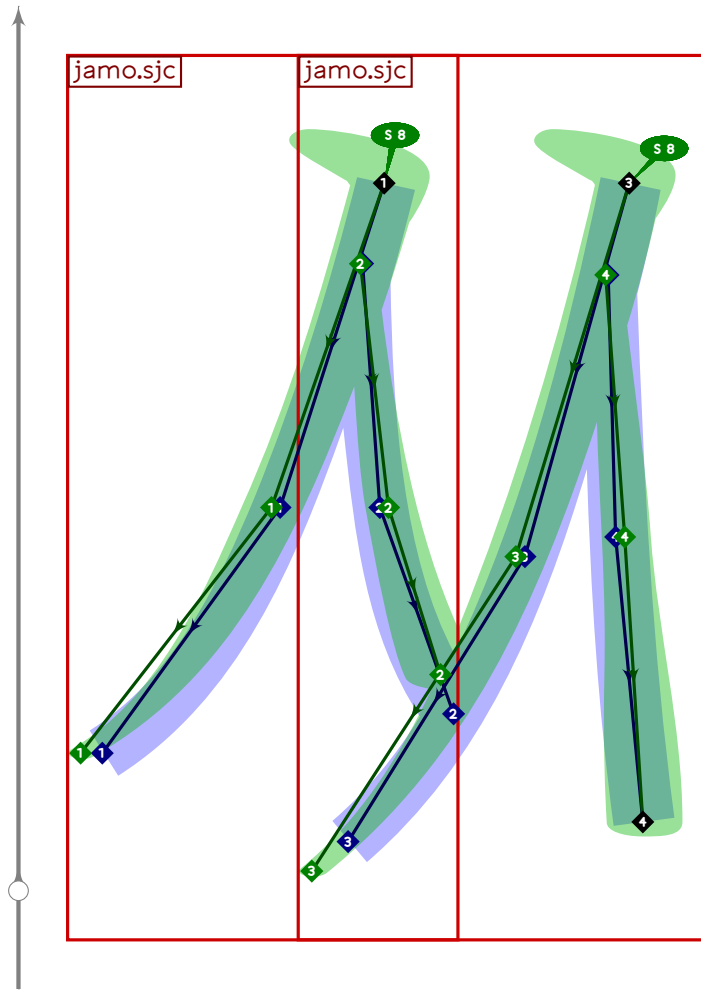
```



```

418 % hangul lead chitueumsios
419 begint Suglyph("uni113C.l4",60);
420 hangul.jamo.sjc(0,1,false)(whatever,lixf,loxf);
421 tsu_render;
422 endtsuglyph;
423

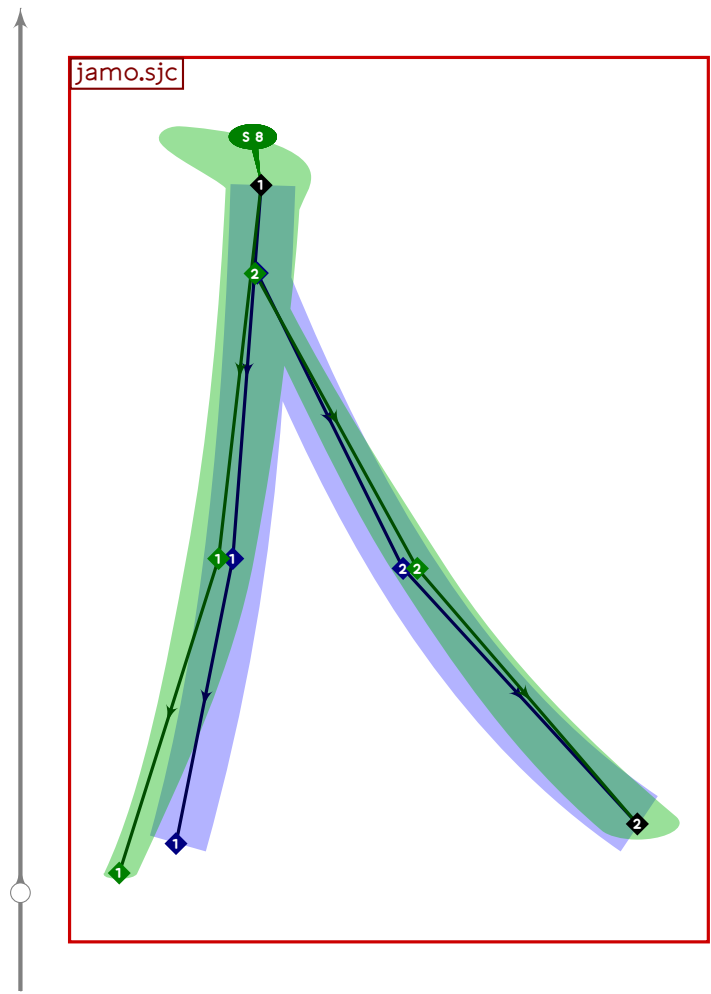
```



```

424 % hangul lead chitueumssangsios
425 begint Suglyph("uni113D.l4",61);
426 hangul.combine.lr(223,222)(whatever,lixf,loxf);
427 tsu_render;
428 endsuglyph;
429

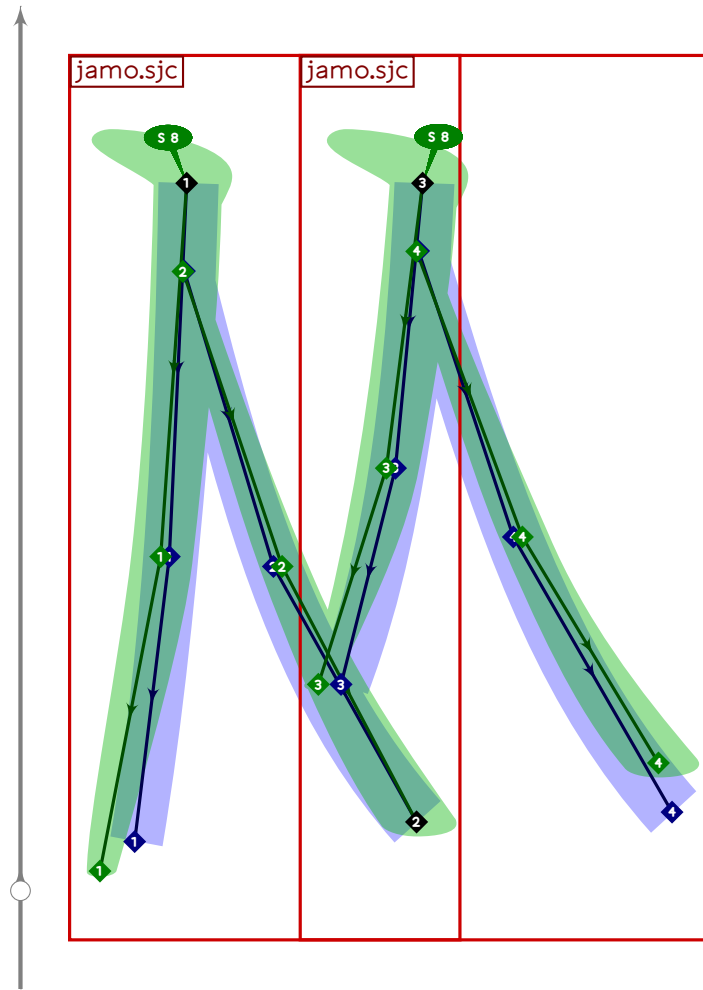
```



```

430 % hangul lead ceongchieumsios
431 begint Suglyph("uni113E.l4",62);
432 hangul.jamo.sjc(0,-1,false)(whatever,lixf,loxf);
433 tsu_render;
434 endtsuglyph;
435

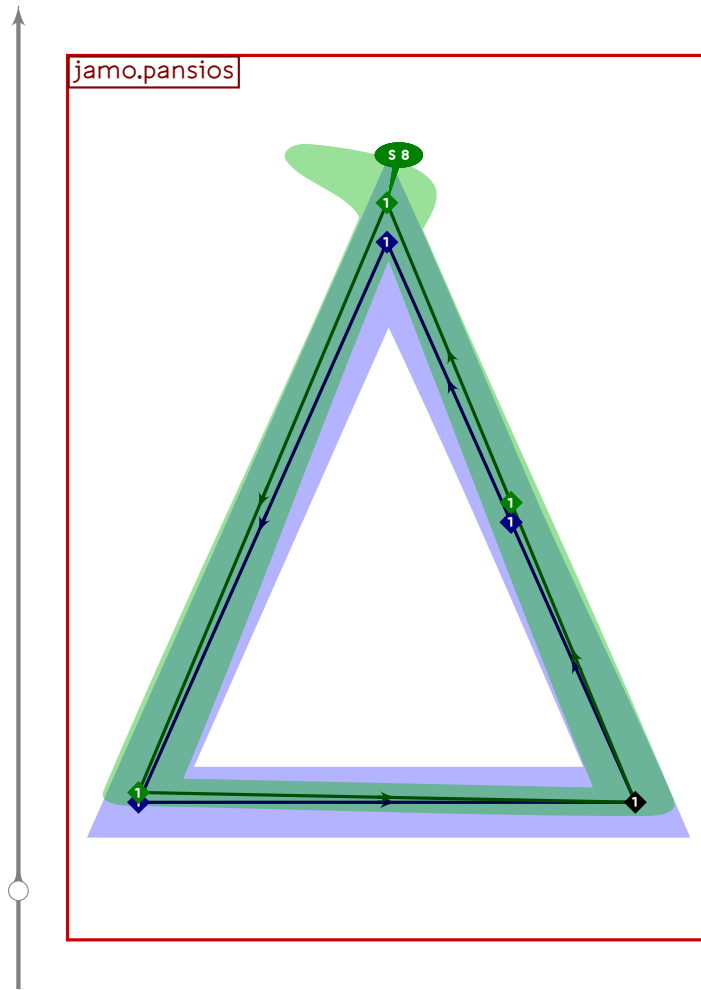
```



```

436 % hangul lead ceongchieumssangsios
437 begint Suglyph("uni113F.14",63);
438 hangul.combine.lr(224,225)(whatever,lixf,loxf);
439 tsu_render;
440 endsuglyph;
441

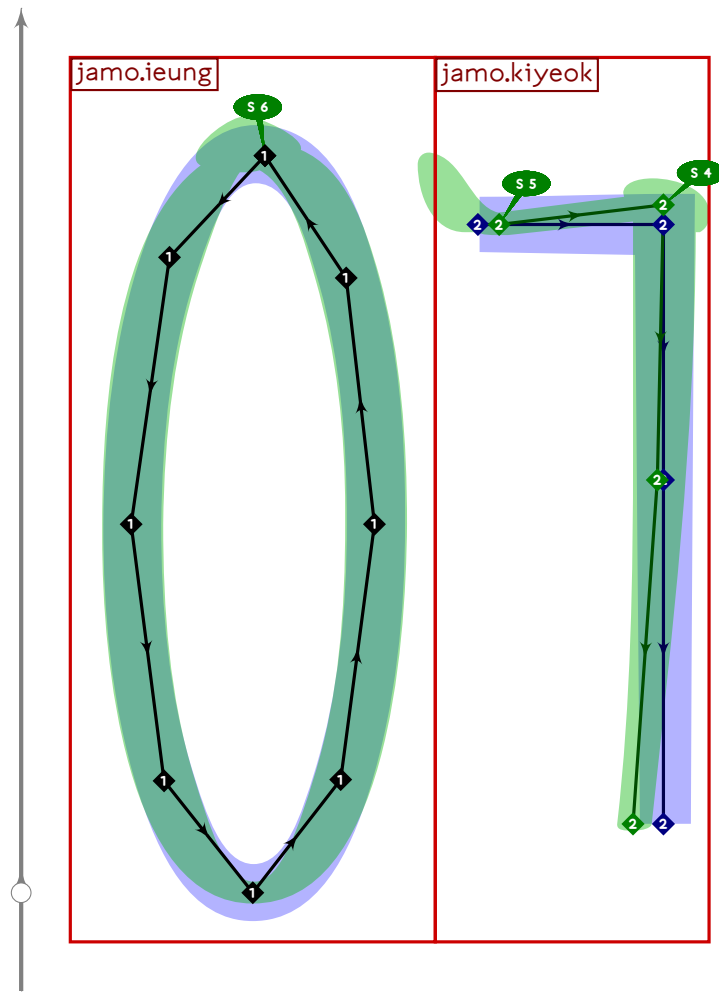
```



```

442 % hangul lead pansios
443 begint Suglyph("uni1140.l4",64);
444 hangul.jamo.pansios(whatever,lixf,loxf);
445 tsu_render;
446 endtsuglyph;
447

```

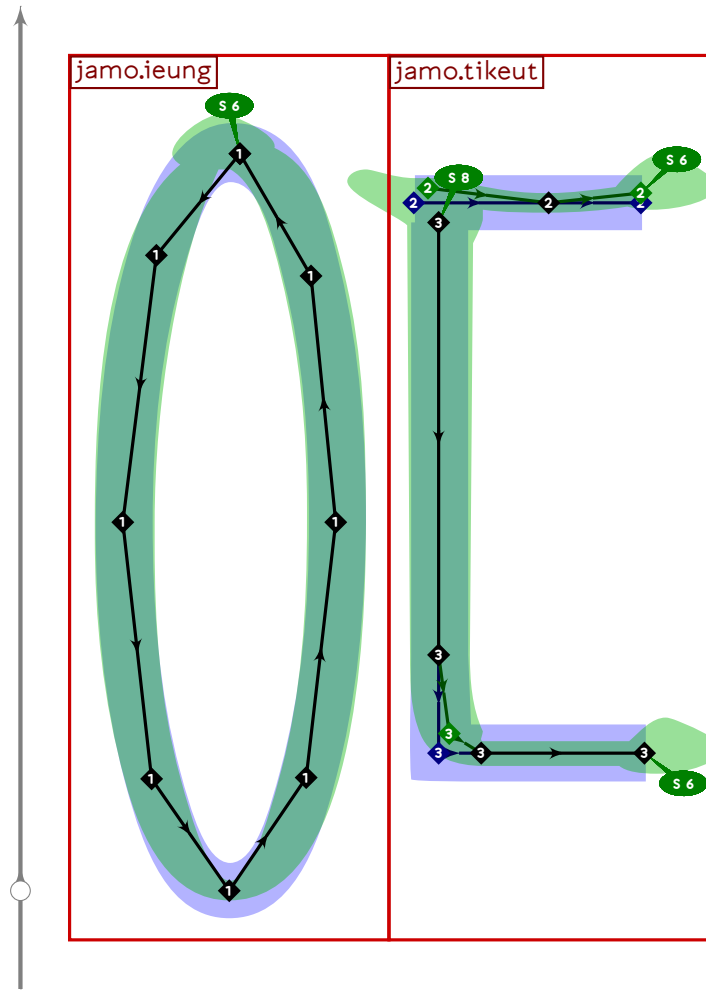


```

448 % hangul lead ieung-kiyeok
449 begintsuglyph("uni1141.l4",65);
450 hangul.combine.lr(111,100)(whatever,lixf,loxf);
451 tsu_render;
452 endsuglyph;
453

```

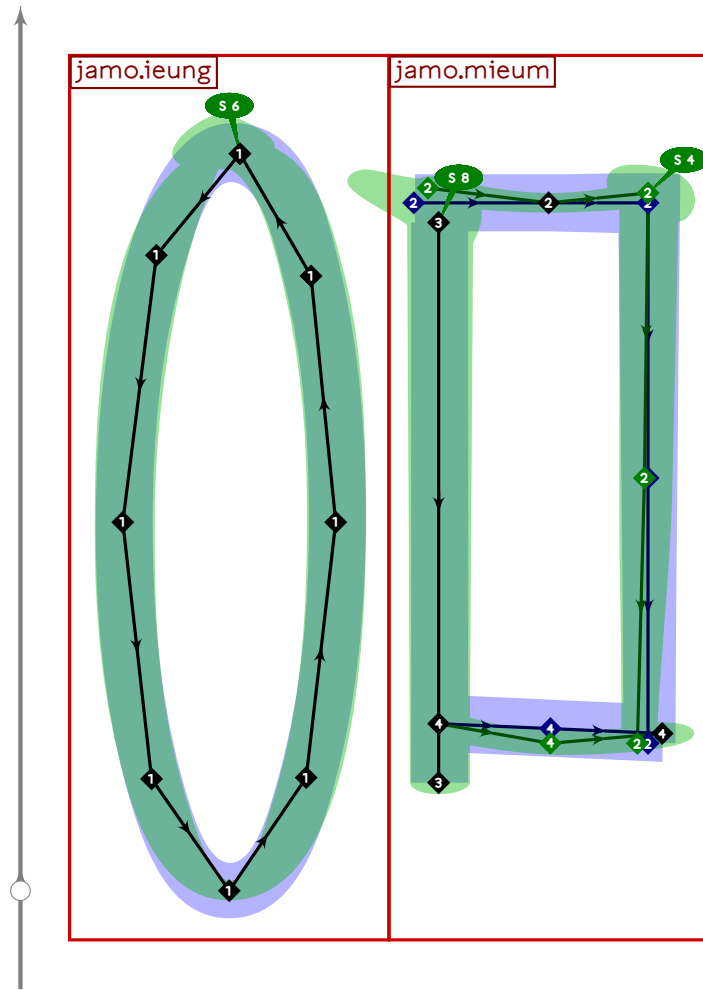




```

454 % hangul lead ieung-tikeut
455 begintsuglyph("uni1142.l4";66);
456 hangul.combine.lr(111,103)(whatever,lixf,loxf);
457 tsu_render;
458 endsuglyph;
459

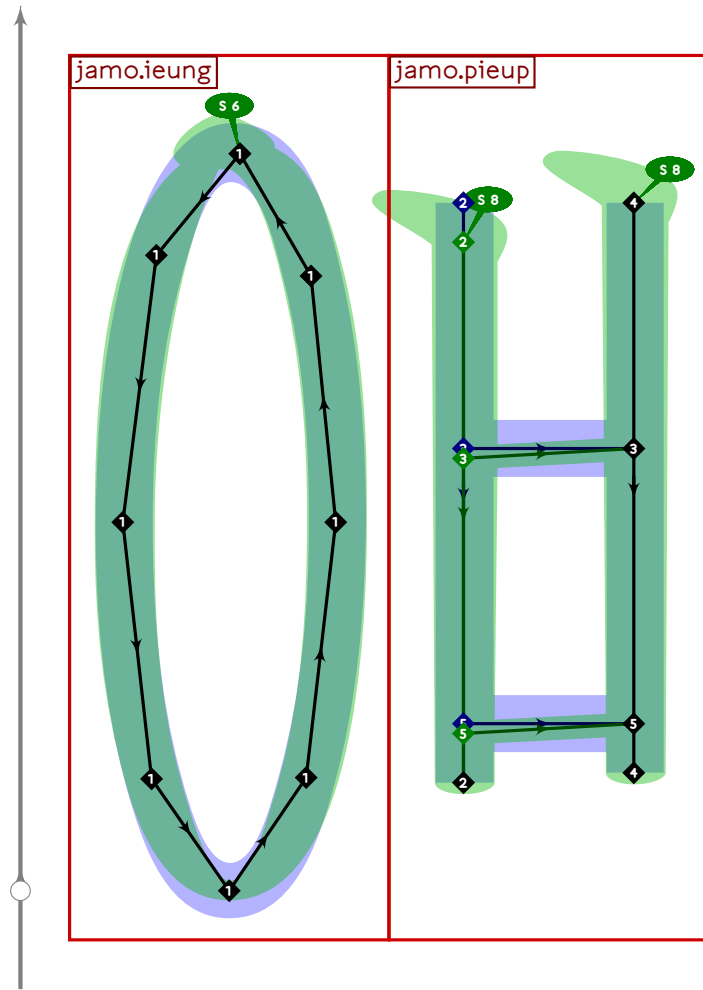
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```

460 % hangul lead ieung-mieum
461 begintsuglyph("uni1143.l4";67);
462 hangul.combine.lr(111,106)(whatever,lixf,loxf);
463 tsu_render;
464 endsuglyph;
465

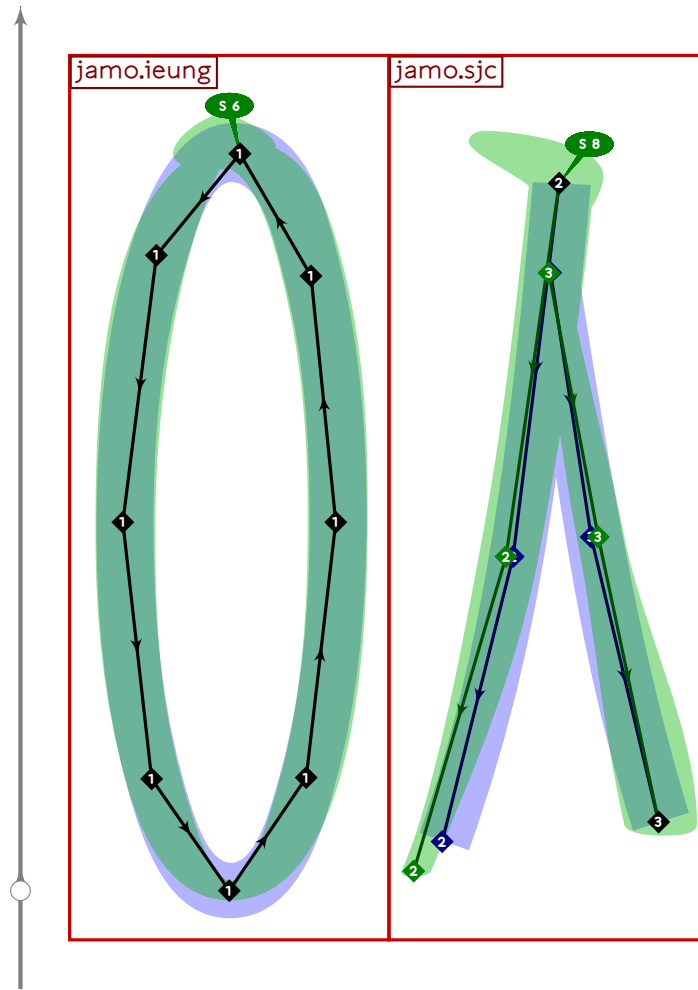
```



```

466 % hangul lead ieung-pieup
467 begintsuglyph("uni1144.l4";68);
468 hangul.combine.lr(111,107)(whatever,lixf,loxf);
469 tsu_render;
470 endsuglyph;
471

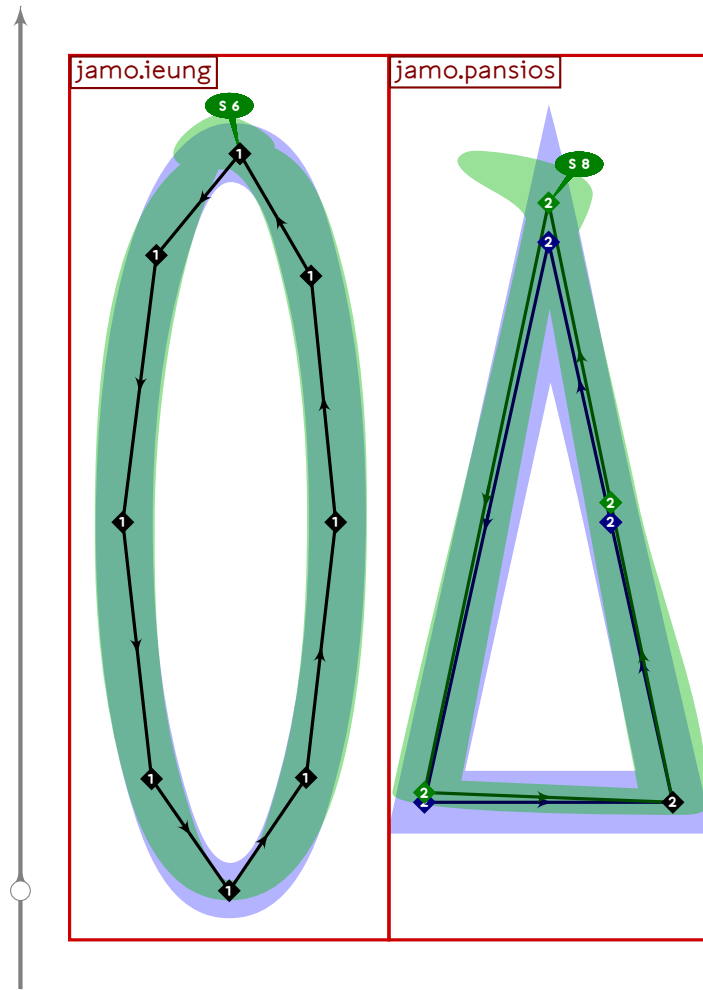
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```

472 % hangul lead ieung-sios
473 begintsuglyph("uni1145.14";69);
474 hangul.combine.lr(111,109)(whatever,lixf,loxf);
475 tsu_render;
476 endsuglyph;
477

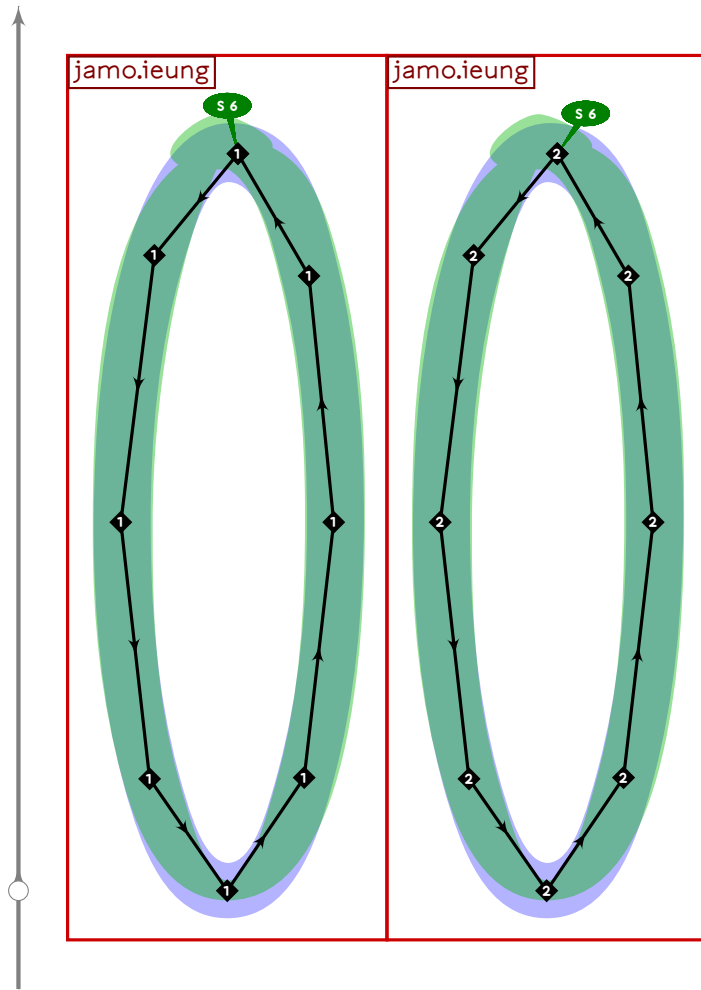
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```

478 % hangul lead ieung-pansios
479 begintsuglyph("uni1146.l4",70);
480 hangul.combine.lr(111,219)(whatever,lixf,loxf);
481 tsu_render;
482 endtsuglyph;
483

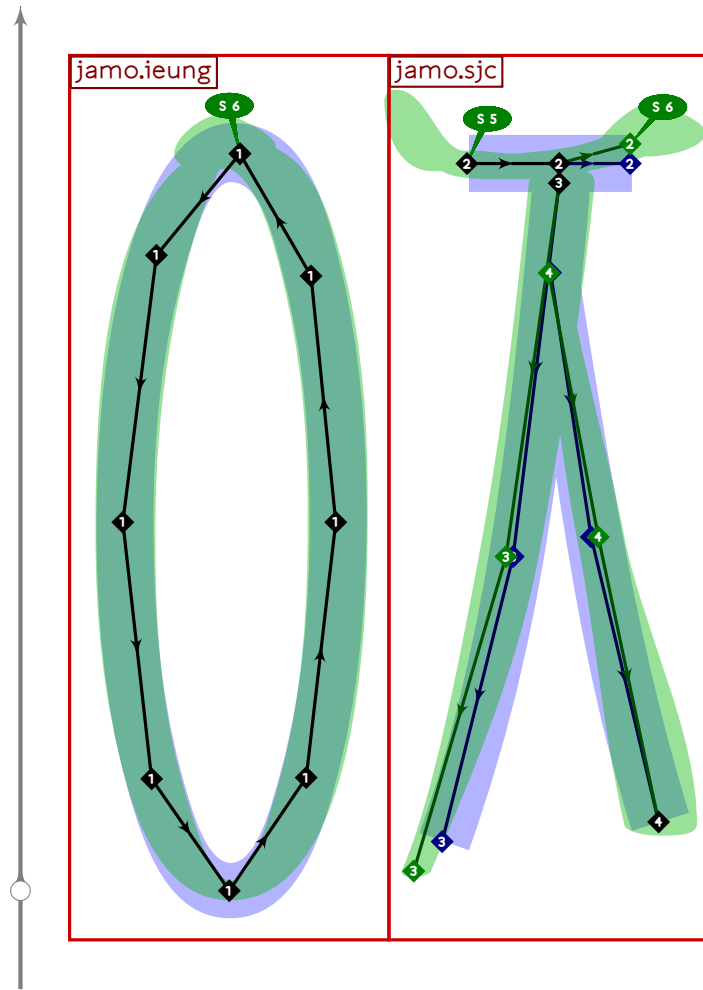
```



```

484 % hangul lead ssangieung
485 begintsuglyph("uni1147.l4";71);
486 hangul.combine.lr(111,111)(whatever,lixf,loxf);
487 tsu_render;
488 endsuglyph;
489

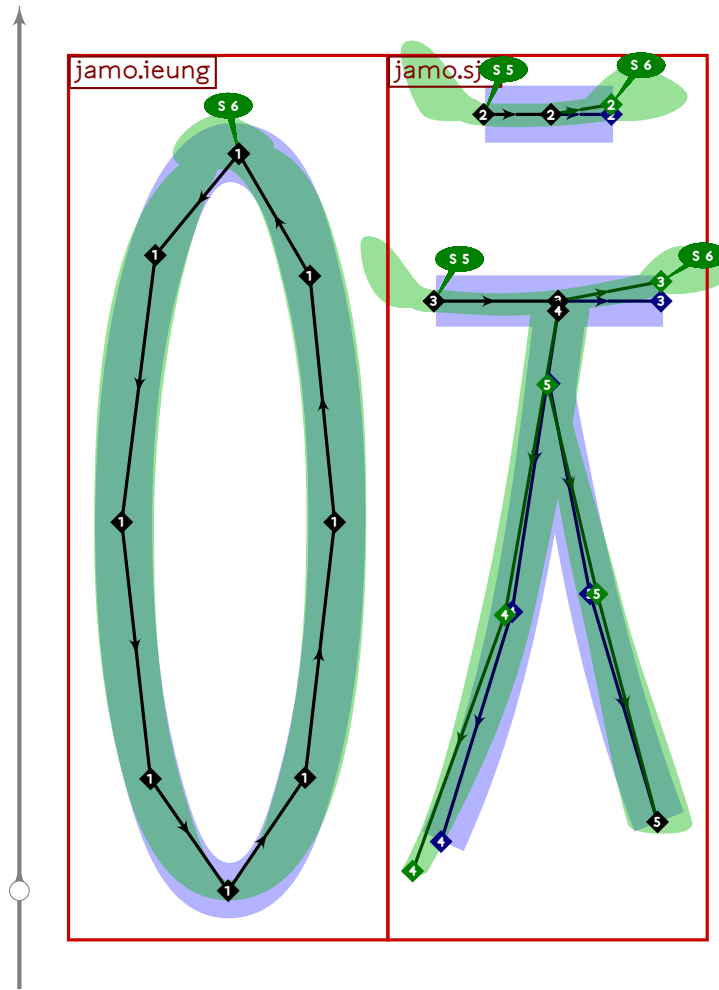
```



```

490 % hangul lead ieung-cieuc
491 begintsuglyph("uni1148.l4",72);
492 hangul.combine.lr(111,112)(whatever,lixf,loxf);
493 tsu_render;
494 endsuglyph;
495

```

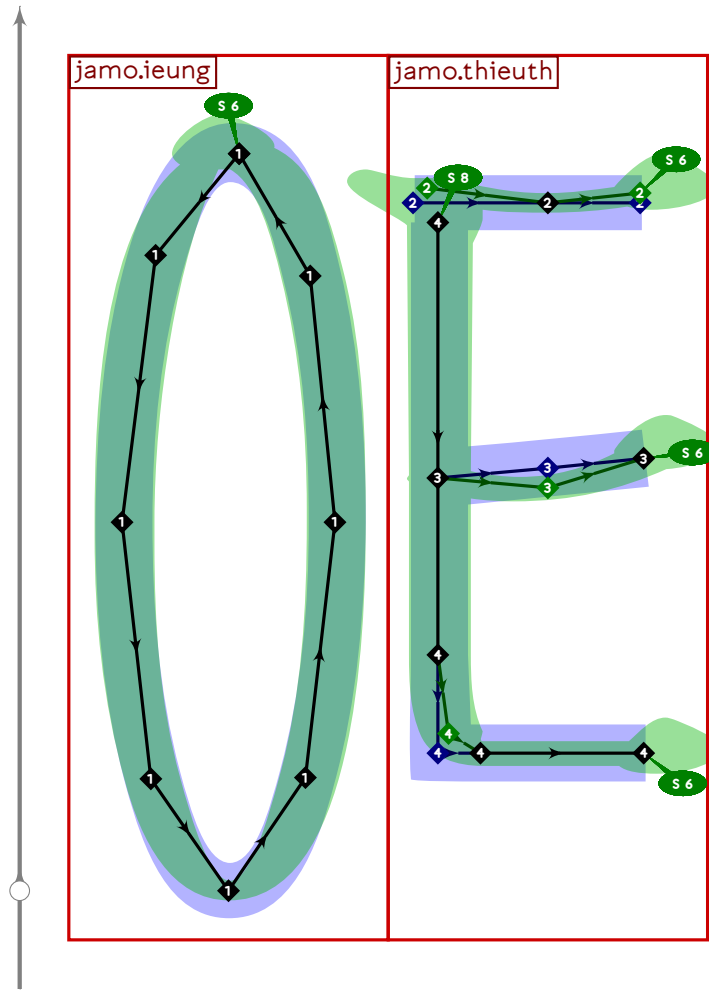


```

496 % hangul lead ieung-chieuch
497 begint Suglyph("uni1149.l4";73);
498 hangul.combine.lr(111,114)(whatever,lixf,loxf);
499 tsu_render;
500 endtsuglyph;
501

```

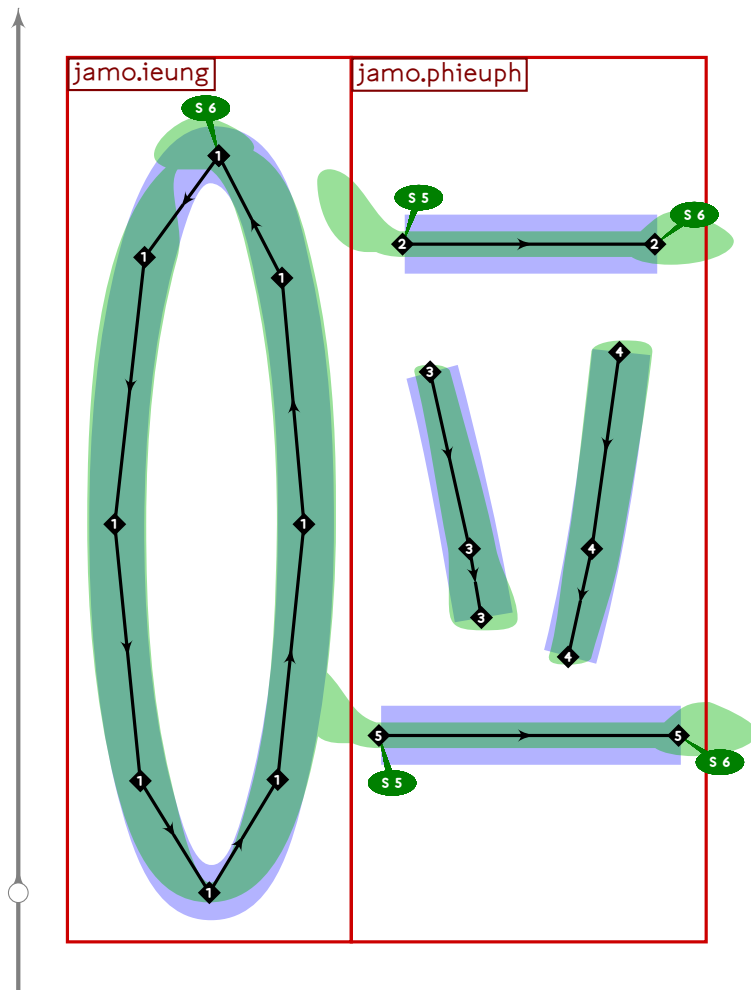




```

502 % hangul lead ieung-theiuth
503 begintsuglyph("uni114A.l4",74);
504 hangul.combine.lr(111,116)(whatever,lixf,loxf);
505 tsu_render;
506 endsuglyph;
507

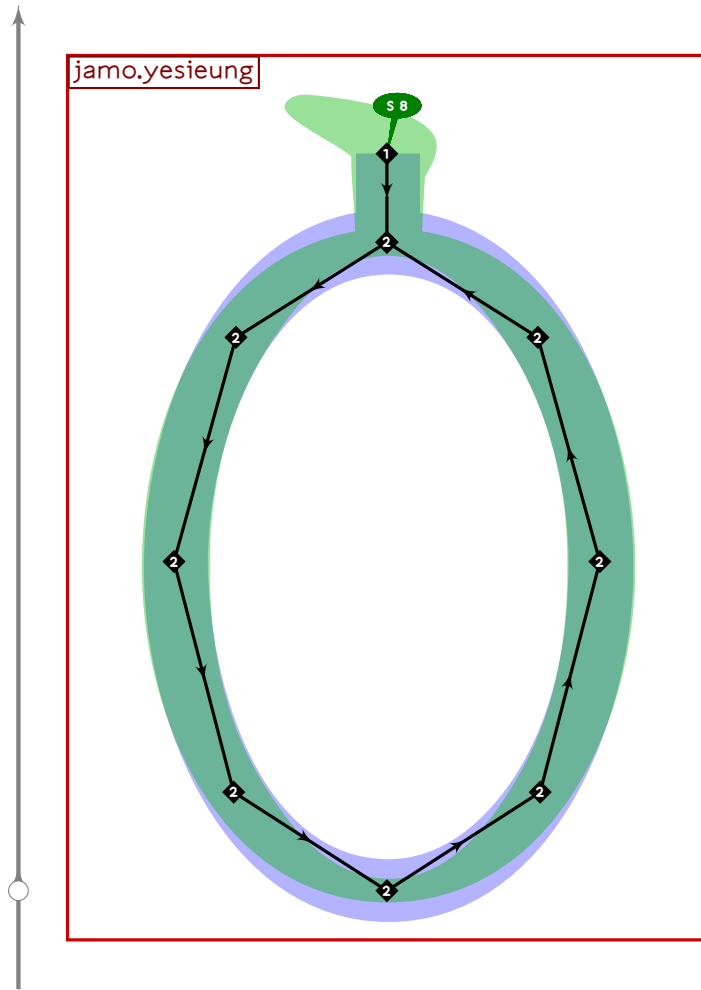
```



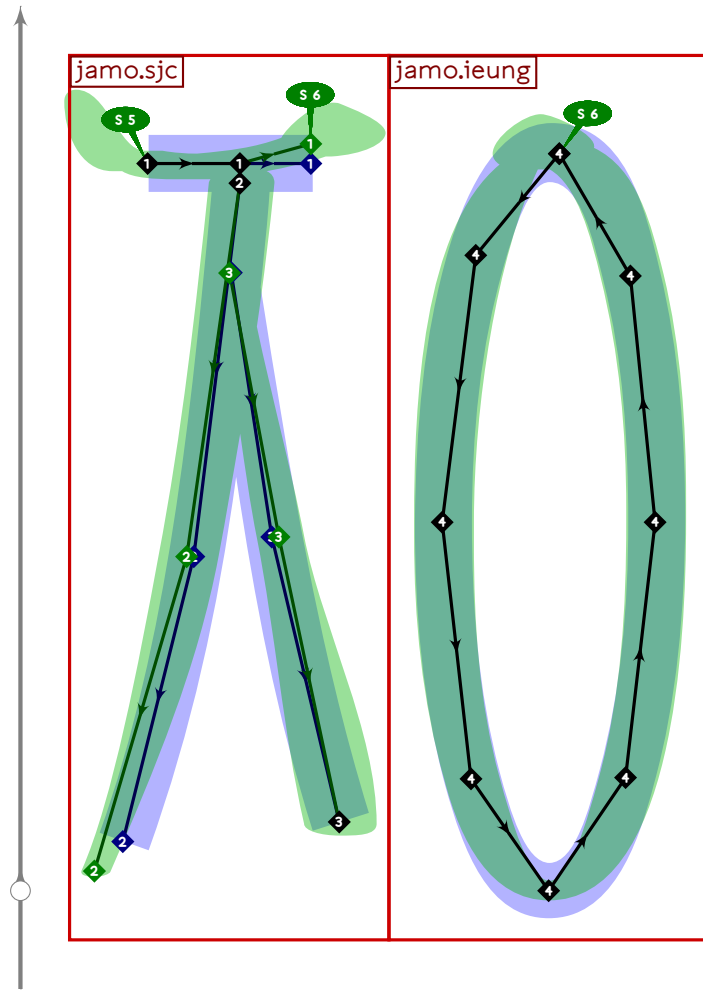
```

508 % hangul lead ieung-phieuph
509 begintsuglyph("uni114B.l4",75);
510 hangul.combine.lr(111,117)(whatever,lixf,loxf);
511 tsu_render;
512 endsuglyph;
513

```



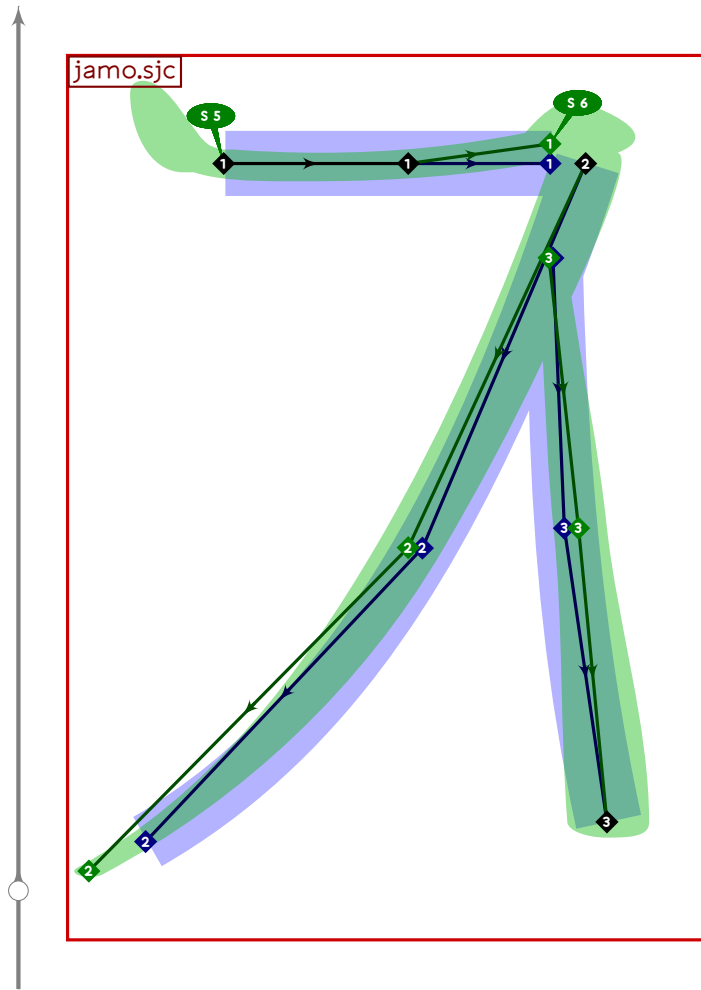
```
514 % hangul lead yesieung
515 begintsuglyph("uni114C.l4",76);
516 hangul.jamo.yesieung(whatever,lixf,loxf);
517 tsu_render;
518 endsuglyph;
519
```



```

520 % hangul lead cieuc-ieung
521 begint Suglyph("uni114D.l4";77);
522 hangul.combine.lr(112,111)(whatever,lixf,loxf);
523 tsu_render;
524 endtsuglyph;
525

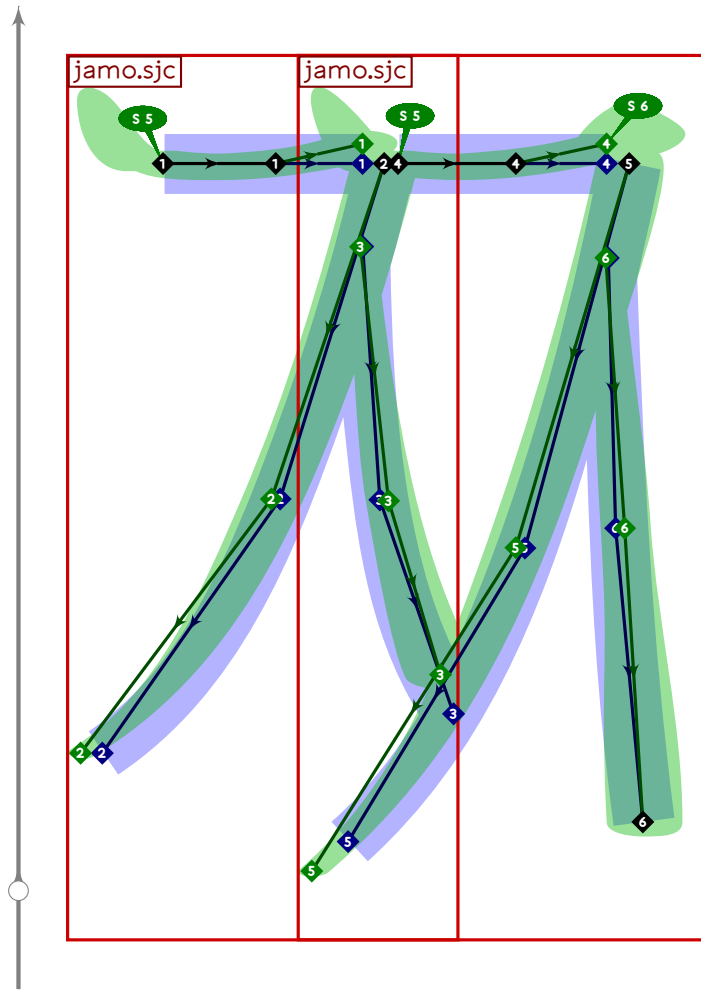
```



```

526 % hangul lead chitueumcieuc
527 begint Suglyph("uni114E.l4";78);
528 hangul.jamo.sjc(1,1,false)(whatever,lixf,loxf);
529 tsu_render;
530 endtsuglyph;
531

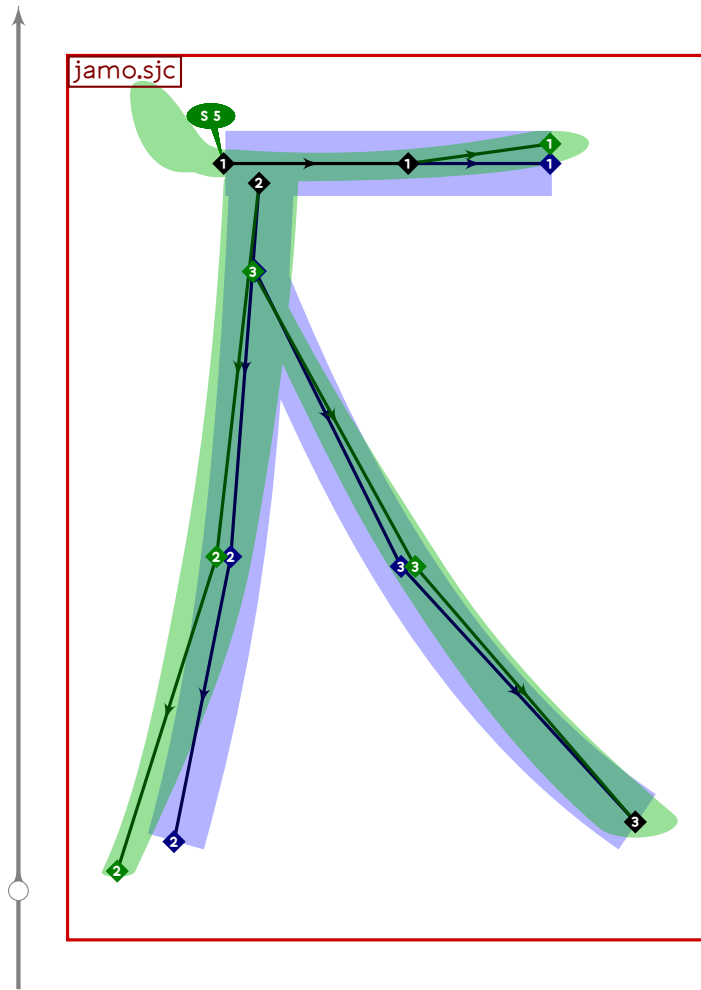
```



```

532 % hangul lead chitueumssangcieuc
533 begintsuglyph("uni114F.l4";79);
534 hangul.combine.lr(227,226)(whatever,lixf,loxf);
535 tsu_render;
536 endsuglyph;
537

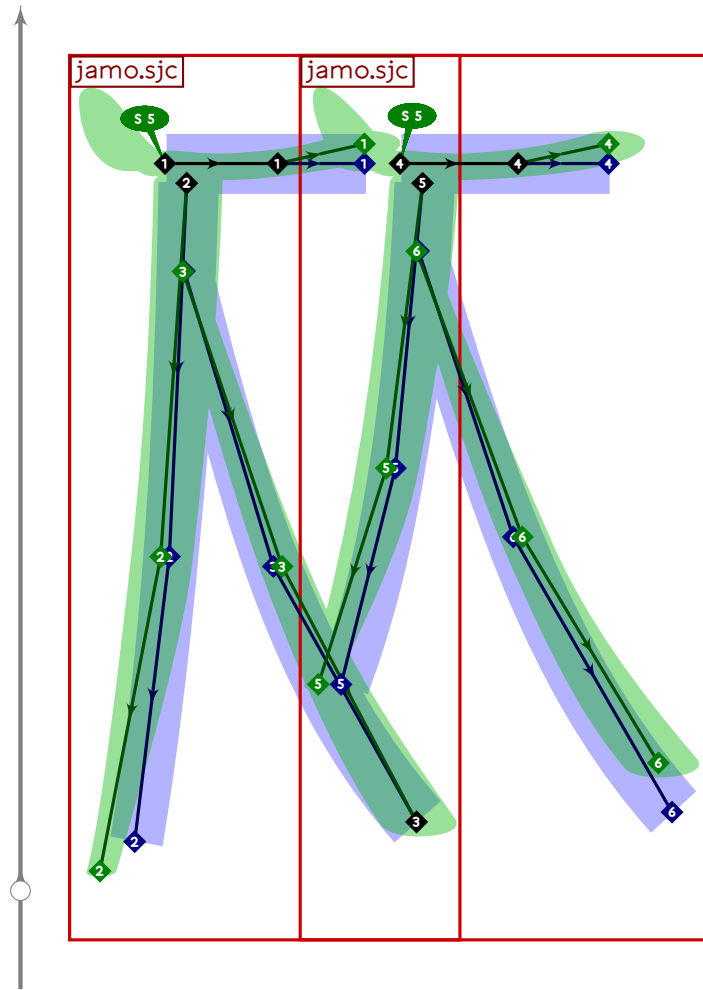
```



```

538 % hangul lead ceongchieumcieuc
539 begint Suglyph("uni1150.l4",80);
540 hangul.jamo.sjc(1,-1,false)(whatever,lixf,loxf);
541 tsu_render;
542 endtsuglyph;
543

```

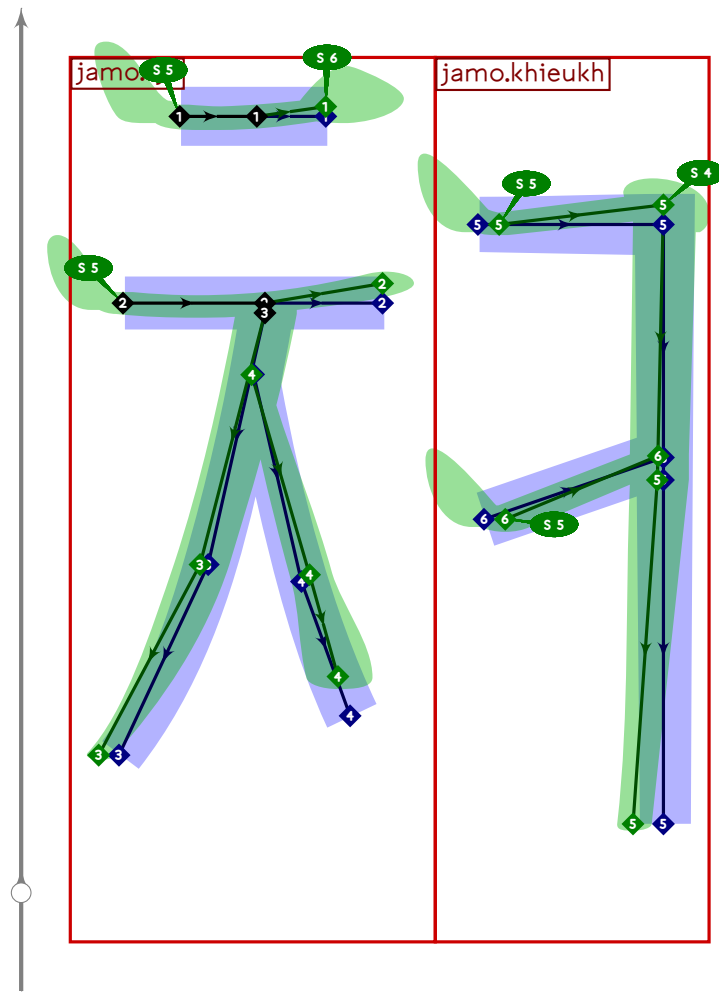


```

544 % hangul lead ceongchieumssangcieuc
545 begintsuglyph("uni1151.l4",81);
546 hangul.combine.lr(228,229)(whatever,lixf,loxf);
547 tsu_render;
548 endsuglyph;
549

```

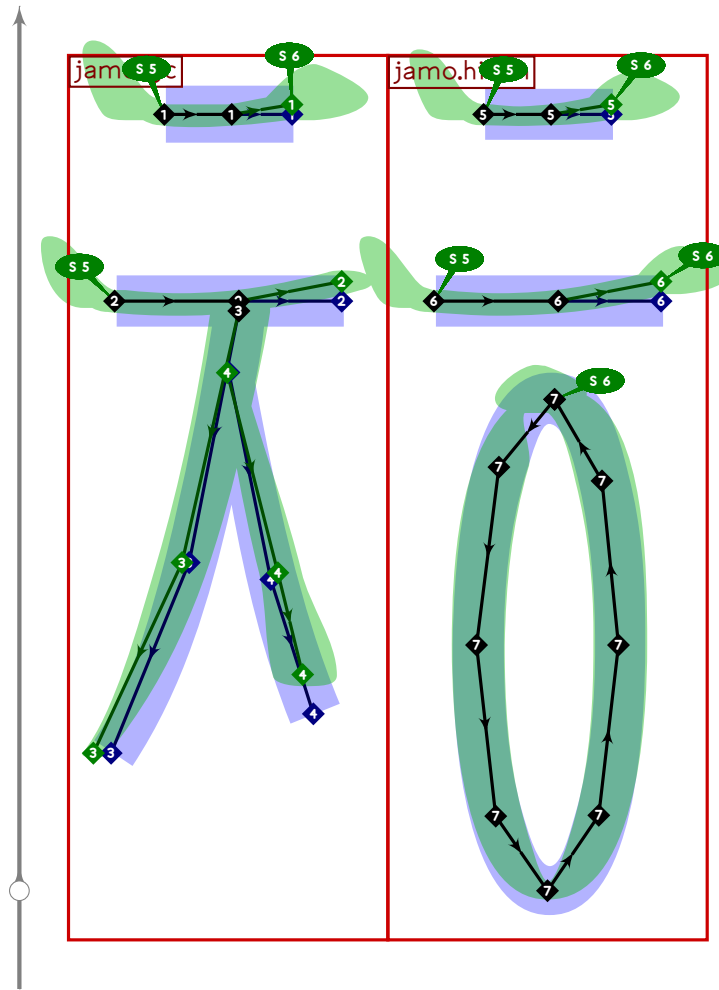




```

550 % hangul lead chieuch-khieukh
551 begintsuglyph("uni1152.l4";82);
552 hangul.combine.lcr(214,230,115)(whatever,lixf,loxf);
553 tsu_render;
554 endsuglyph;
555

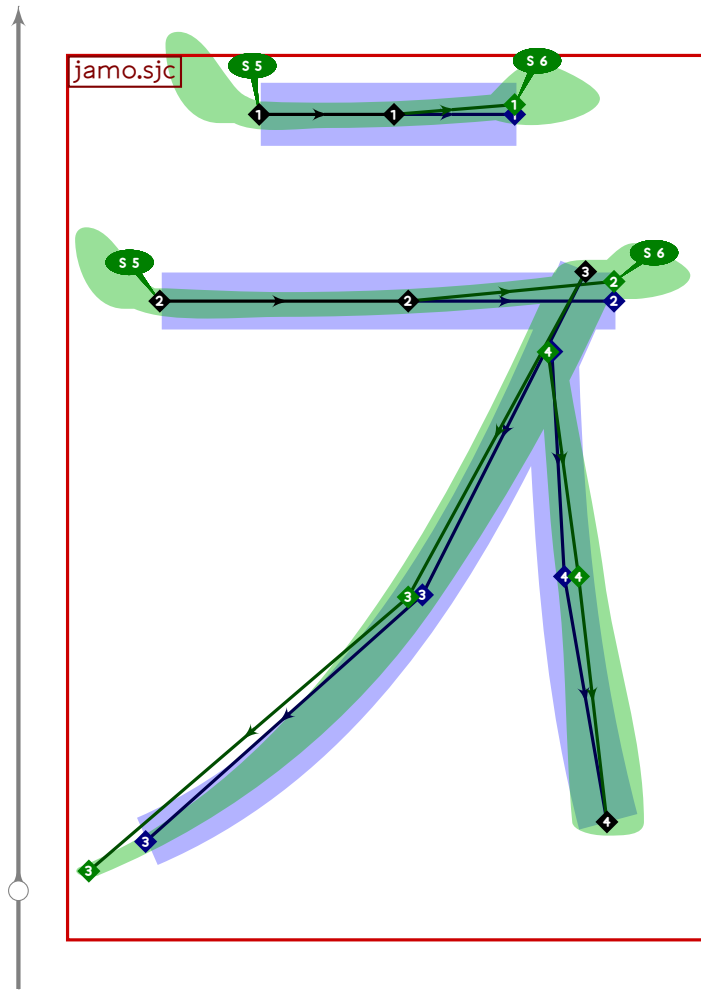
```



```

556 % hangul lead chieuch-hieuh
557 begint Suglyph("uni1153.l4";83);
558 hangul.combine.lcr(214,230,118)(whatever,lixf,loxf);
559 tsu_render;
560 endtsuglyph;
561

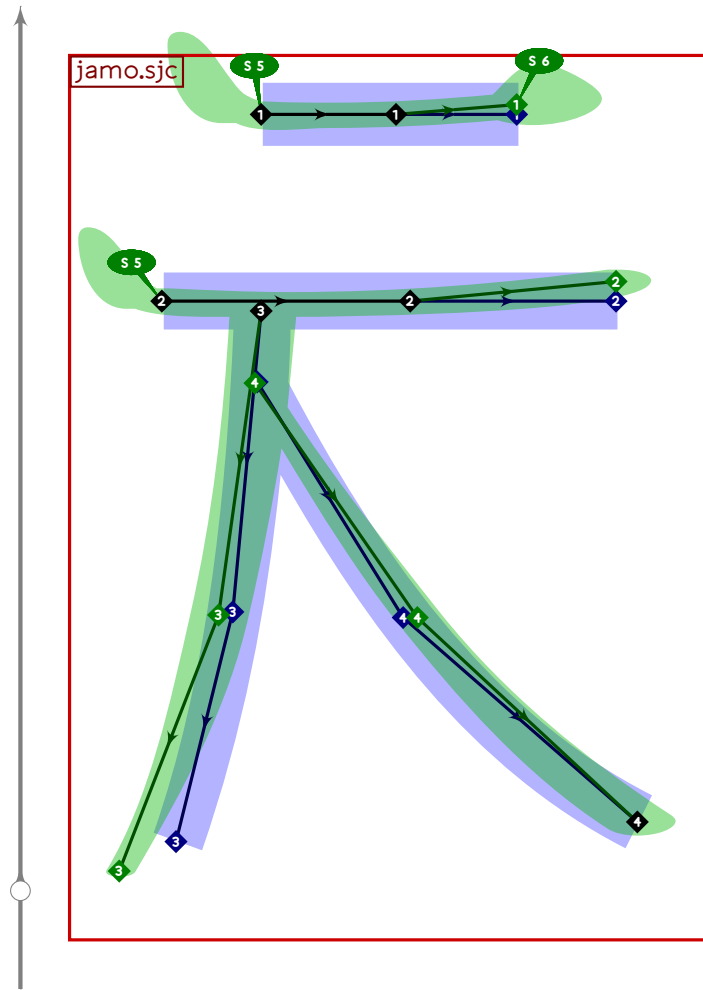
```



```

562 % hangul lead chitueumcieuc
563 begint Suglyph("uni1154.l4",84);
564 hangul.jamo.sjc(2,1,false)(whatever,lixf,loxf);
565 tsu_render;
566 endtsuglyph;
567

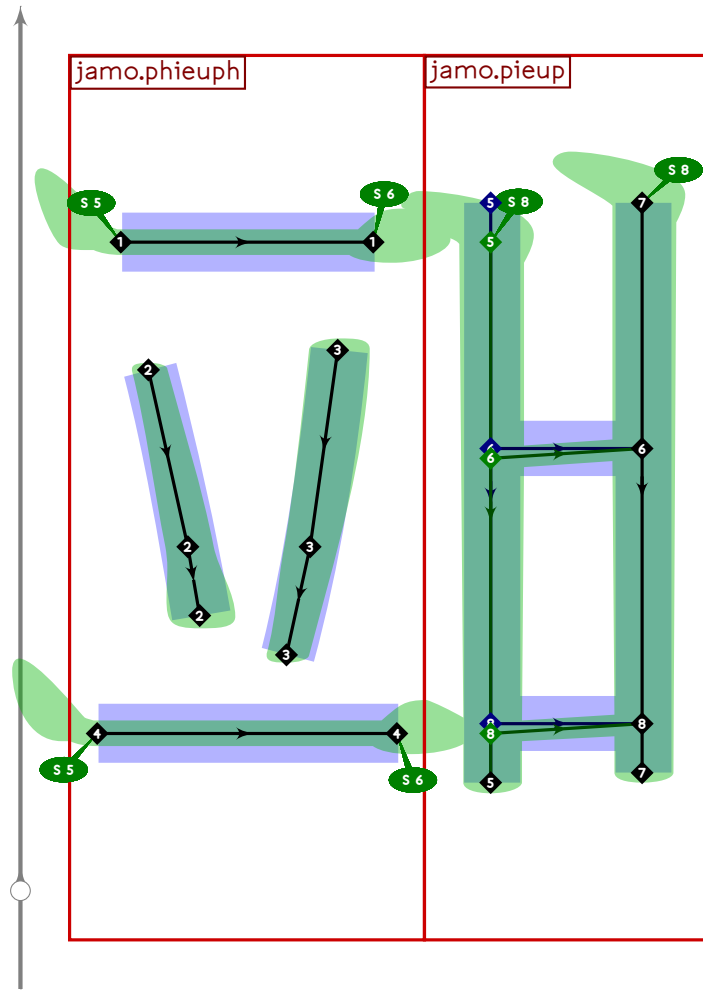
```



```

568 % hangul lead ceongchieumcieuc
569 begintsuglyph("uni1155.14";85);
570 hangul.jamo.sjc(2,-1,false)(whatever,lixf,loxf);
571 tsu_render;
572 endtsuglyph;
573

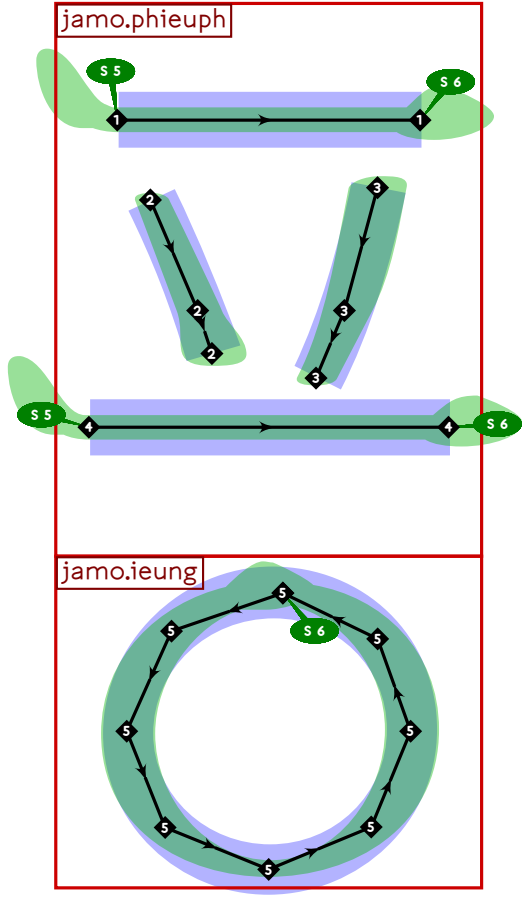
```



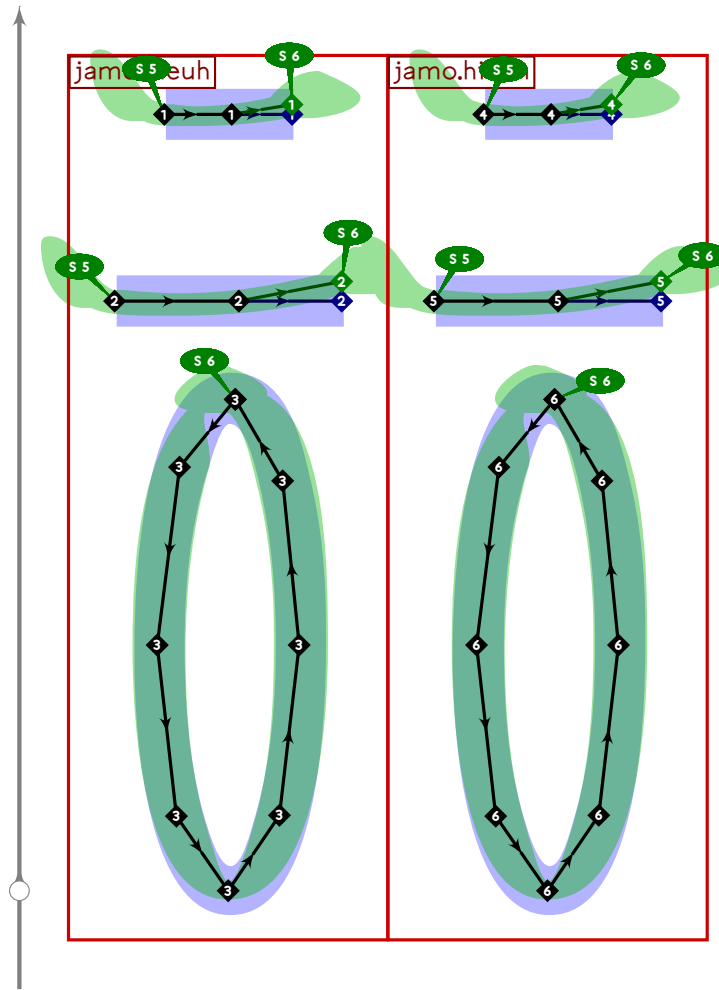
```

574 % hangul lead phieuph-pieup
575 begintsuglyph("uni1156.l4";86);
576 hangul.combine.lr(117,107)(whatever,lixf,loxf);
577 tsu_render;
578 endsuglyph;
579

```



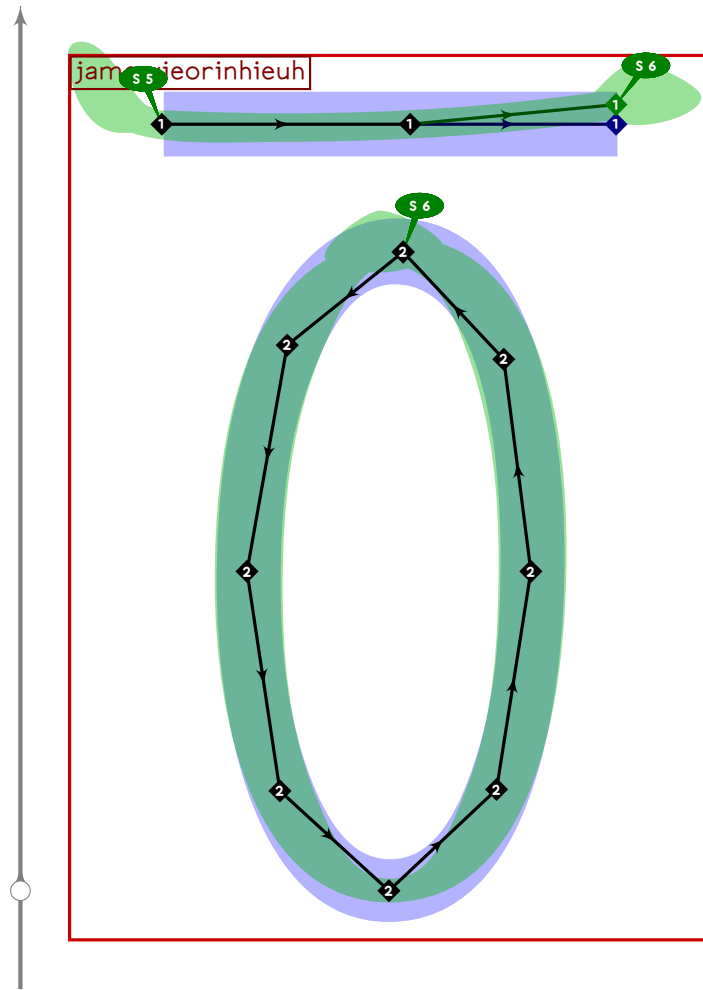
```
580 % hangul lead kapyeounphieuph
581 begint Suglyph("uni1157.l4";87);
582 hangul.combine.tb(117,521)(whatever,
583   hxf((250,850),(850,-50)) transformed lixf,loxf);
584 tsu_render;
585 endsuglyph;
586
```



```

587 % hangul lead ssanghieuh
588 begintsuglyph("uni1158.l4",88);
589 hangul.combine.lcr(118,230,118)(whatever,lixf,loxf);
590 tsu_render;
591 endtsuglyph;
592

```

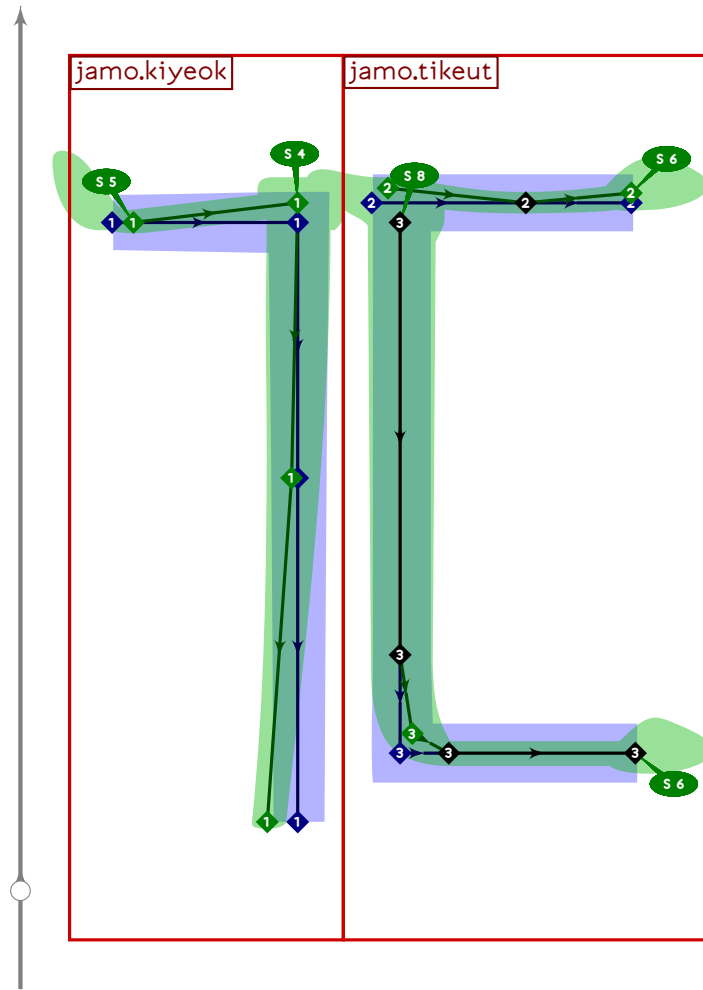


```

593 % hangul lead yeorinhieuh
594 begintsuglyph("uni1159.l4",89);
595 hangul.jamo.yeorinhieuh(whatever,lixf,loxf);
596 tsu_render;
597 endsuglyph;
598

```

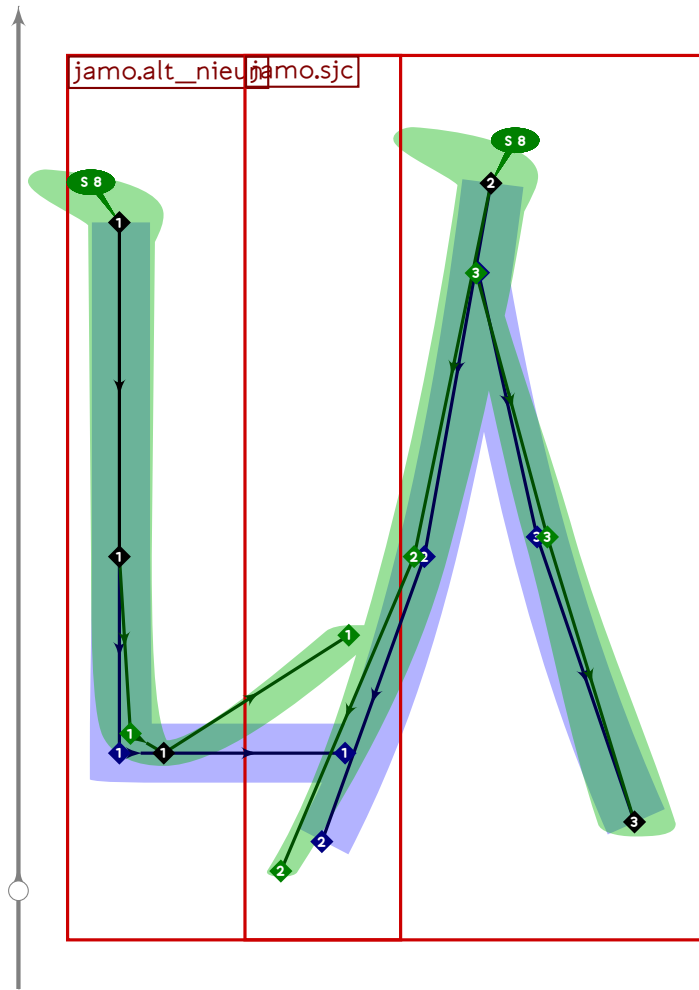




```

599 % hangul lead kiyeok-tikeut
600 begintsuglyph("uni115A.l4";90);
601 hangul.combine.lr(100,103)(whatever,lixf,loxf);
602 tsu_render;
603 endsuglyph;
604

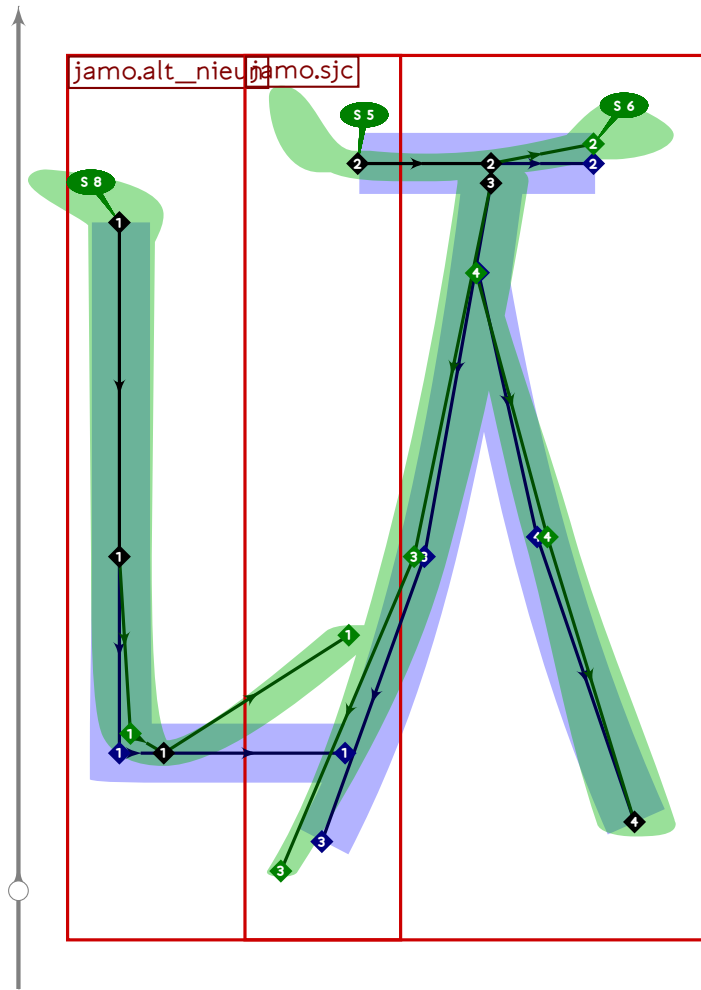
```



```

605 % hangul lead nieun-sios
606 begintsuglyph("uni115B.l4";91);
607 hangul.combine.lr(202,109)(whatever,lixf,loxf);
608 tsu_render;
609 endsuglyph;
610

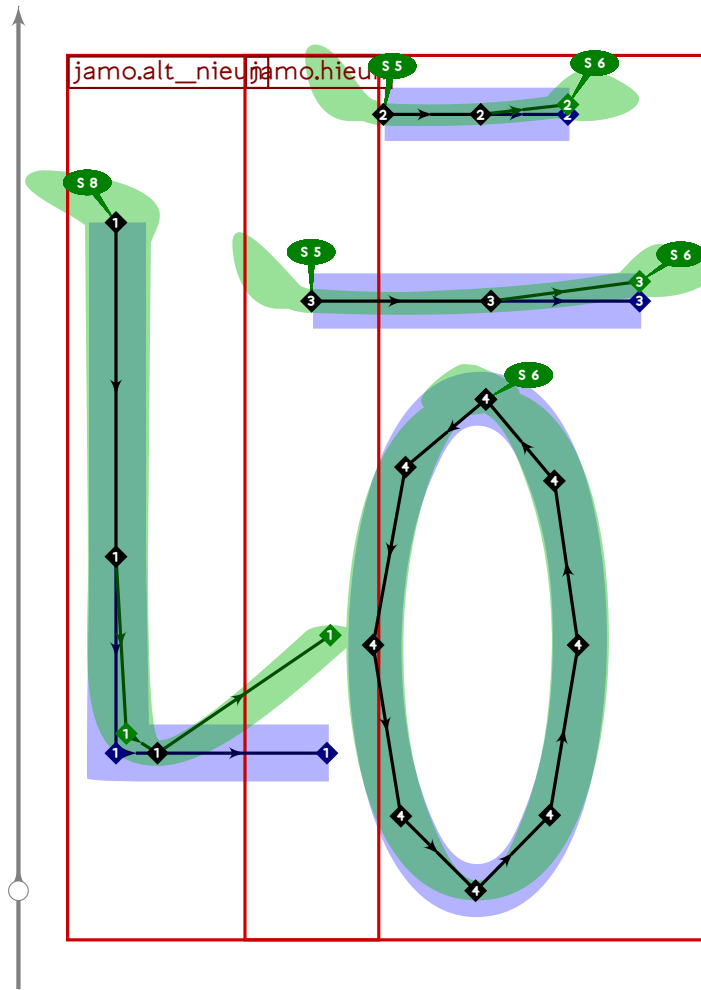
```



```

611 % hangul lead nieun-cieuc
612 begintsuglyph("uni115C.l4";92);
613 hangul.combine.lr(202,112)(whatever,lixf,loxf);
614 tsu_render;
615 endsuglyph;
616

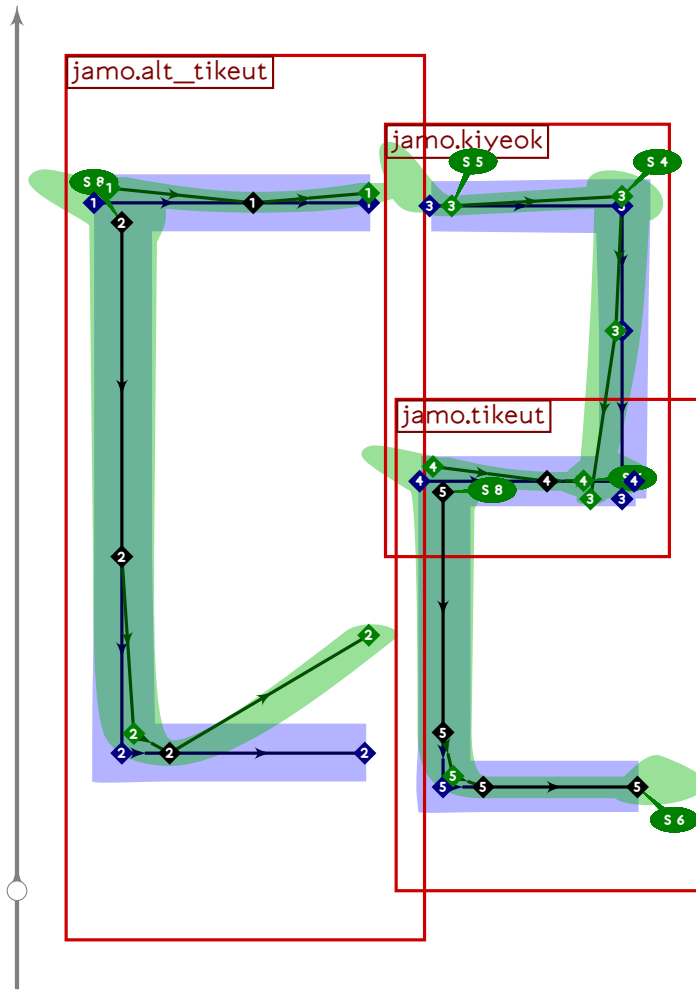
```



```

617 % hangul lead nieun-hieuh
618 begintsuglyph("uni115D.l4";93);
619 hangul.combine.lr(202,118)(whatever,lixf,loxf);
620 tsu_render;
621 endsuglyph;
622

```



```

623 % hangul lead tikeut-rieul
624 begintsuglyph("uni115E.l4";94);
625 hangul.combine.lr(203,105)(whatever,lixf,loxf);
626 tsu_render;
627 endsuglyph;
628
629 _____
630
631 endfont;
632
633 _____

```

# jieub-ff6.mp

```
1 %
2 % Unicode page FF6 (alternate lead jamo) for Jieubsida
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input hangul.mp;
37 input jamo-basic.mp;
38 input jamo-extra.mp;
39
40 

---

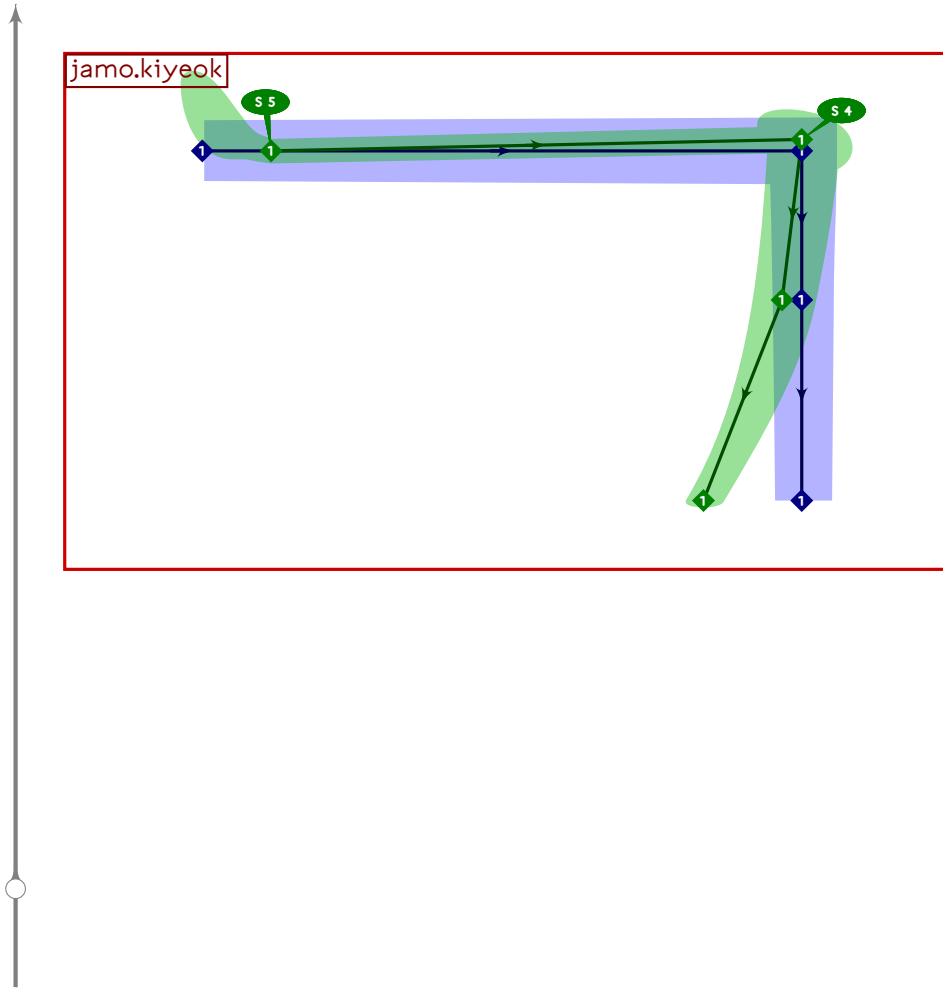

41
42 % This file contains leads for layout 5: horizontal vowel and empty tail.
43
44 transform lixf,loxf;
45
46 lixf=loxf=hxf((50,850),(950,325));
47
48 

---


49
```

## Hangul Choseong (Lead) Jamo

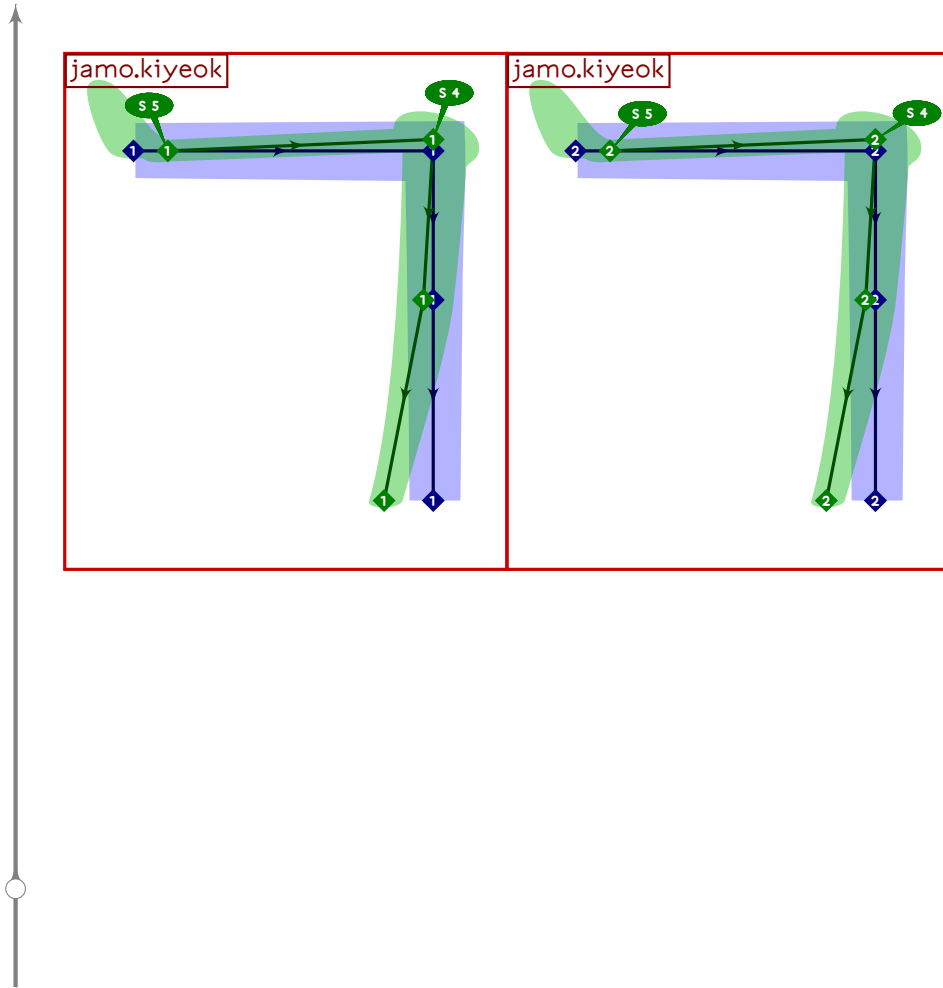
```
50 % HANGUL CHOSEONG (LEAD) JAMO
51
52 tsu_rescale_native_zero;
53
```



```

54 % hangul lead kiyeok
55 begintsuglyph("uni1100.15",0);
56 hangul.jamo.kiyeok(whatever,lixf,loxf);
57 tsu_render;
58 endsuglyph;
59

```

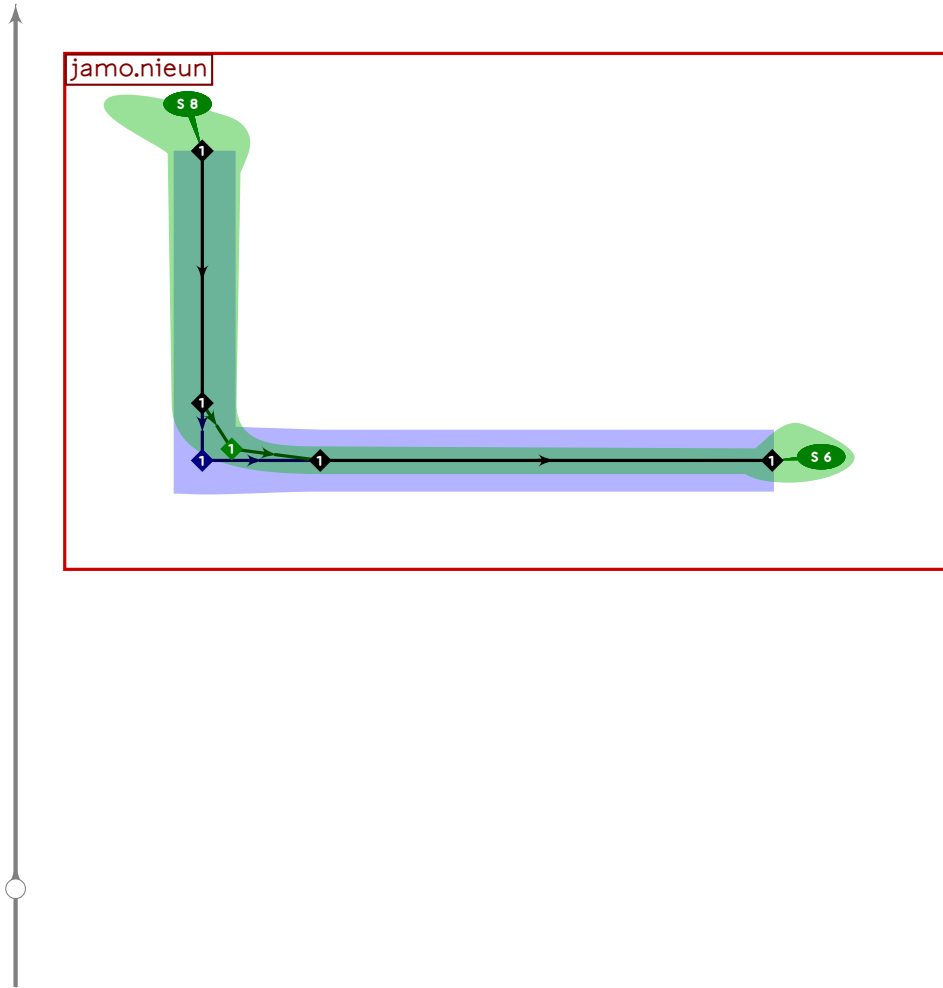


```

60 % hangul lead ssangkiyeok
61 begintsuglyph("uni1101.15";1);
62 hangul.combine.lr(100,100)(whatever,lixf,loxf);
63 tsu_render;
64 endsuglyph;
65

```

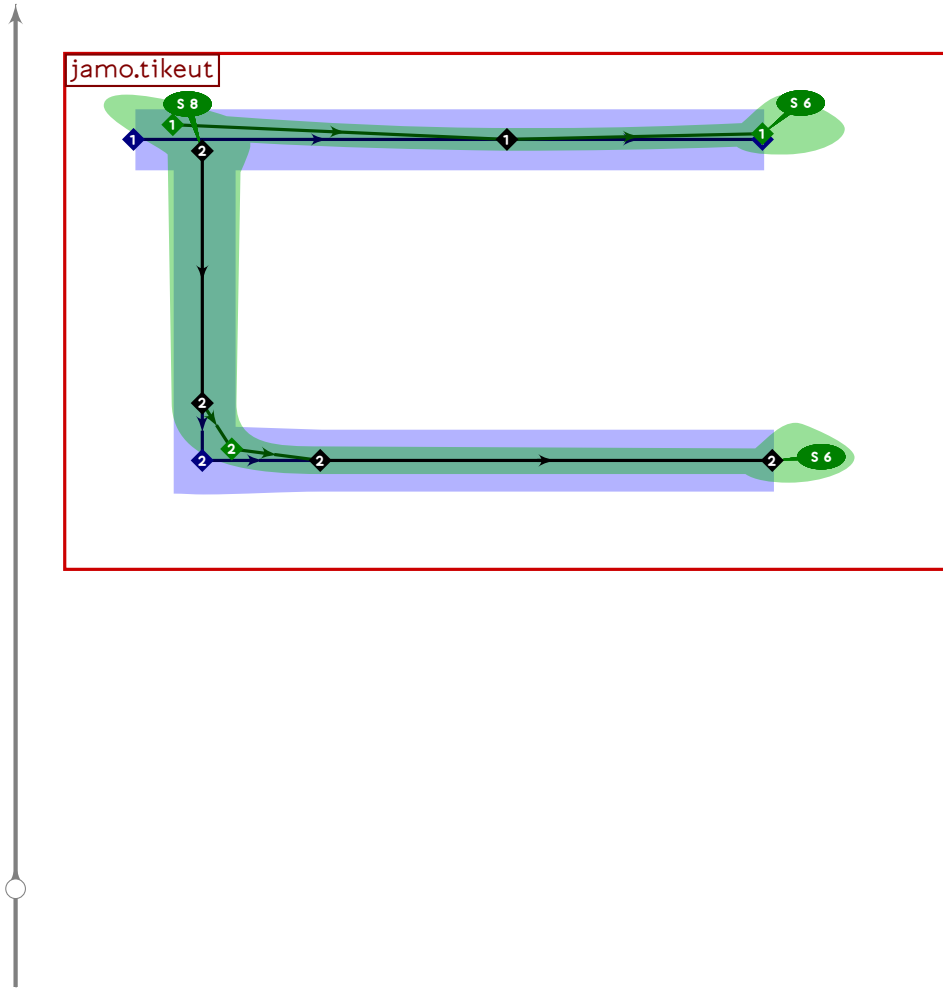




```

66 % hangul lead nieun
67 begint Suglyph("uni1102.15",2);
68 hangul.jamo.nieun(whatever,lixf,loxf);
69 tsu_render;
70 endtsuglyph;
71

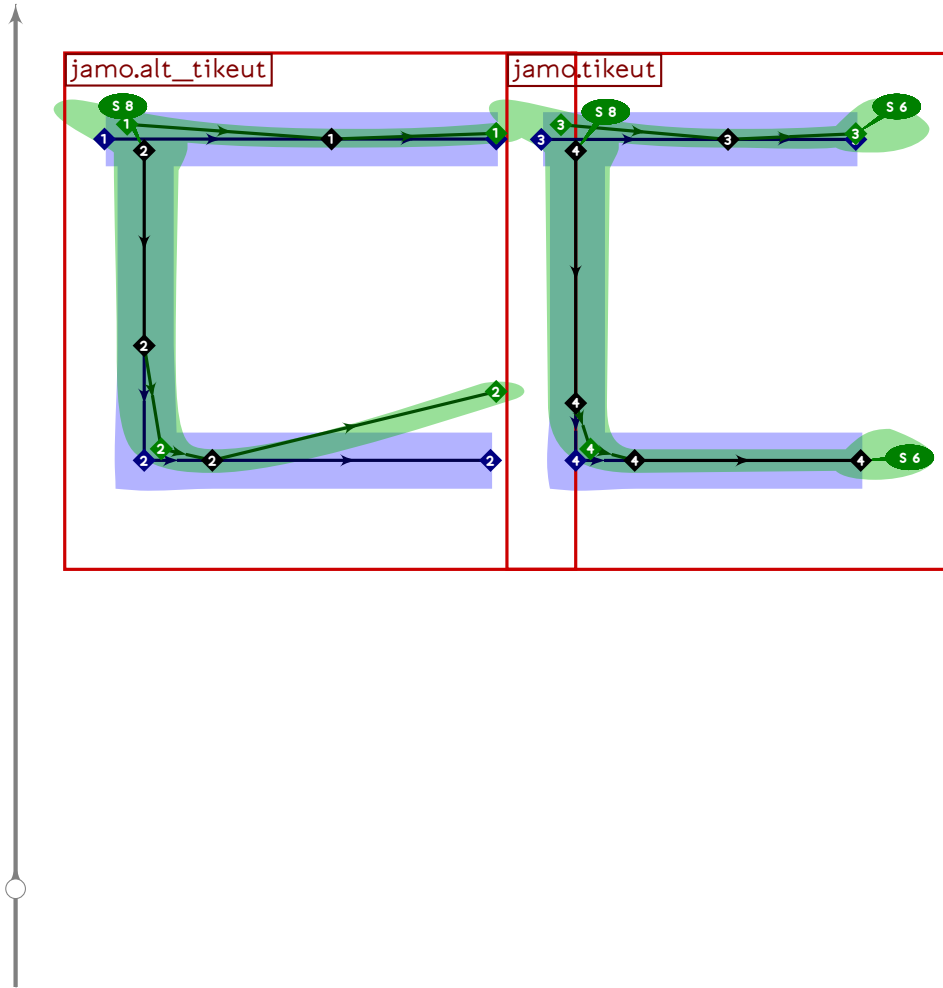
```



```

72 % hangul lead tikeut
73 begint Suglyph("uni1103.15";3);
74 hangul.jamo.tikeut(whatever,lixf,loxf);
75 tsu_render;
76 endtsuglyph;
77

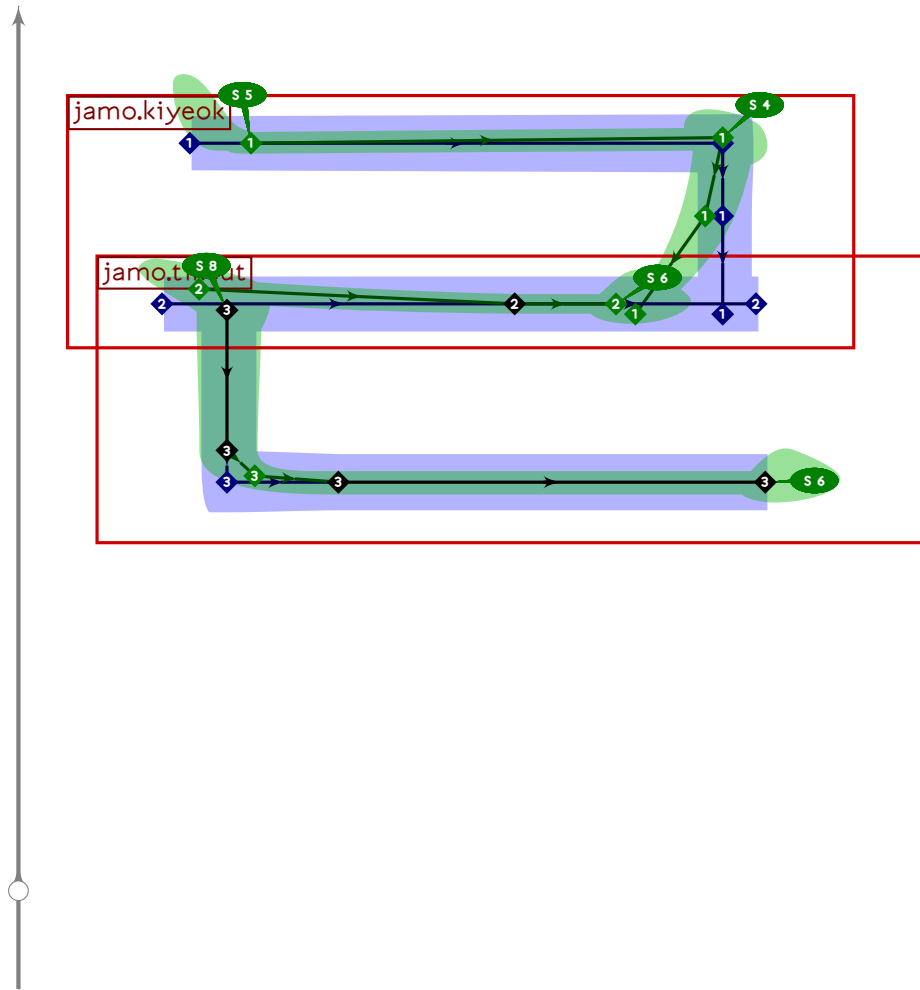
```



```

78 % hangul lead ssangtikeut
79 begintsuglyph("uni1104.15",4);
80 hangul.combine.lr(203,103)(whatever,lixf,loxf);
81 tsu_render;
82 endtsuglyph;
83

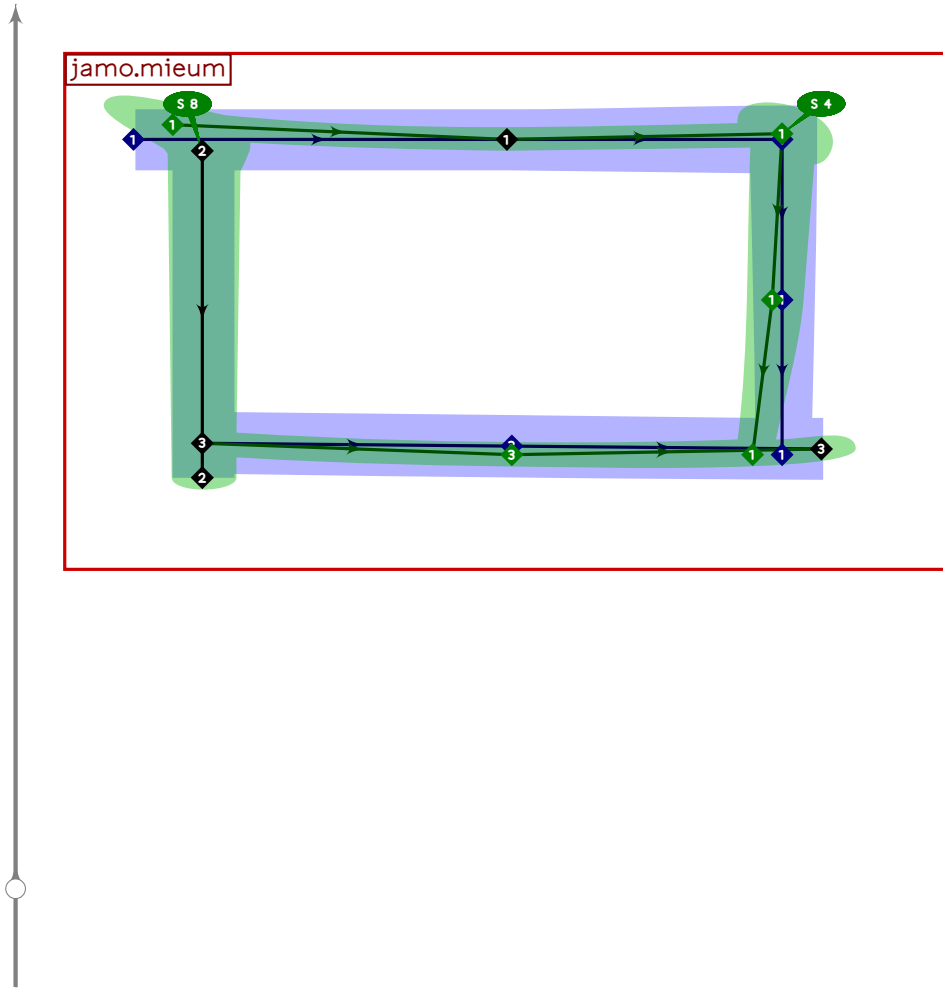
```



```

84 % hangul lead rieul
85 begint Suglyph("uni1105.l5",5);
86 hangul.jamo.rieul(whatever,lixf,loxf);
87 tsu_render;
88 endsuglyph;
89

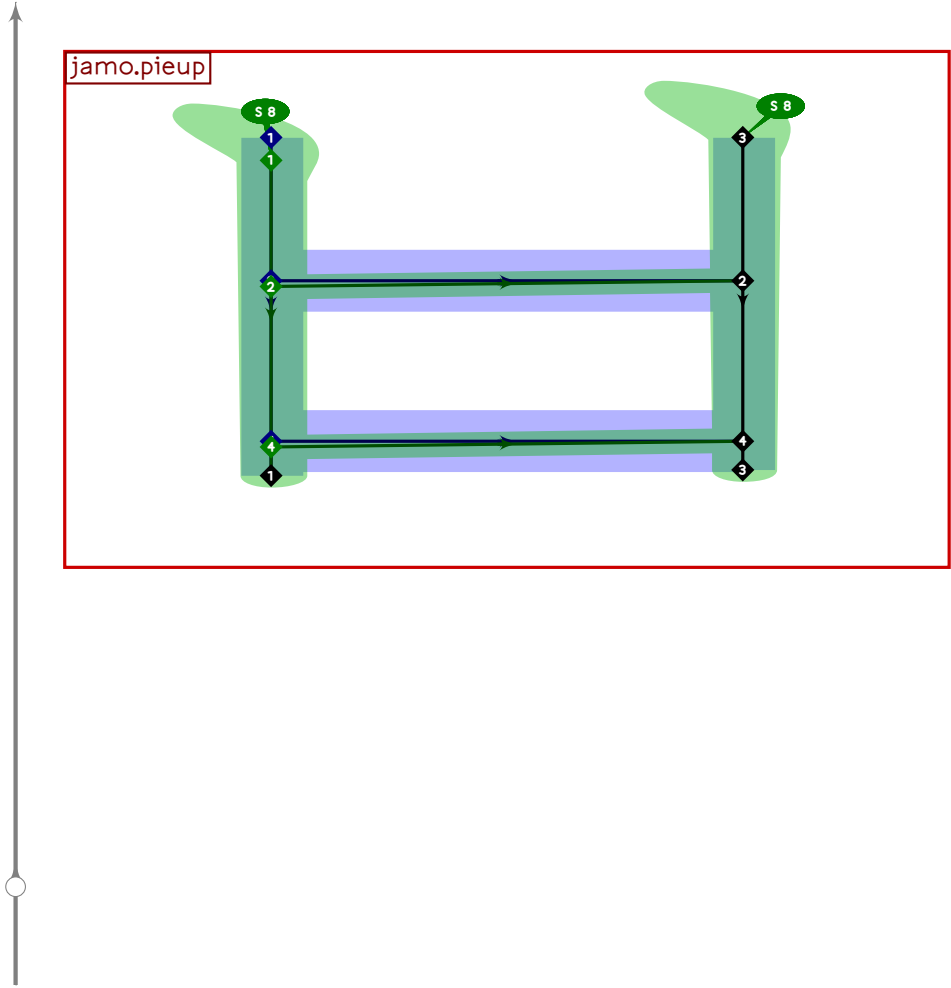
```



```

90 % hangul lead mieum
91 beginsuglyph("uni1106.15",6);
92 hangul.jamo.mieum(whatever,lixf,loxf);
93 tsu_render;
94 endsuglyph;
95

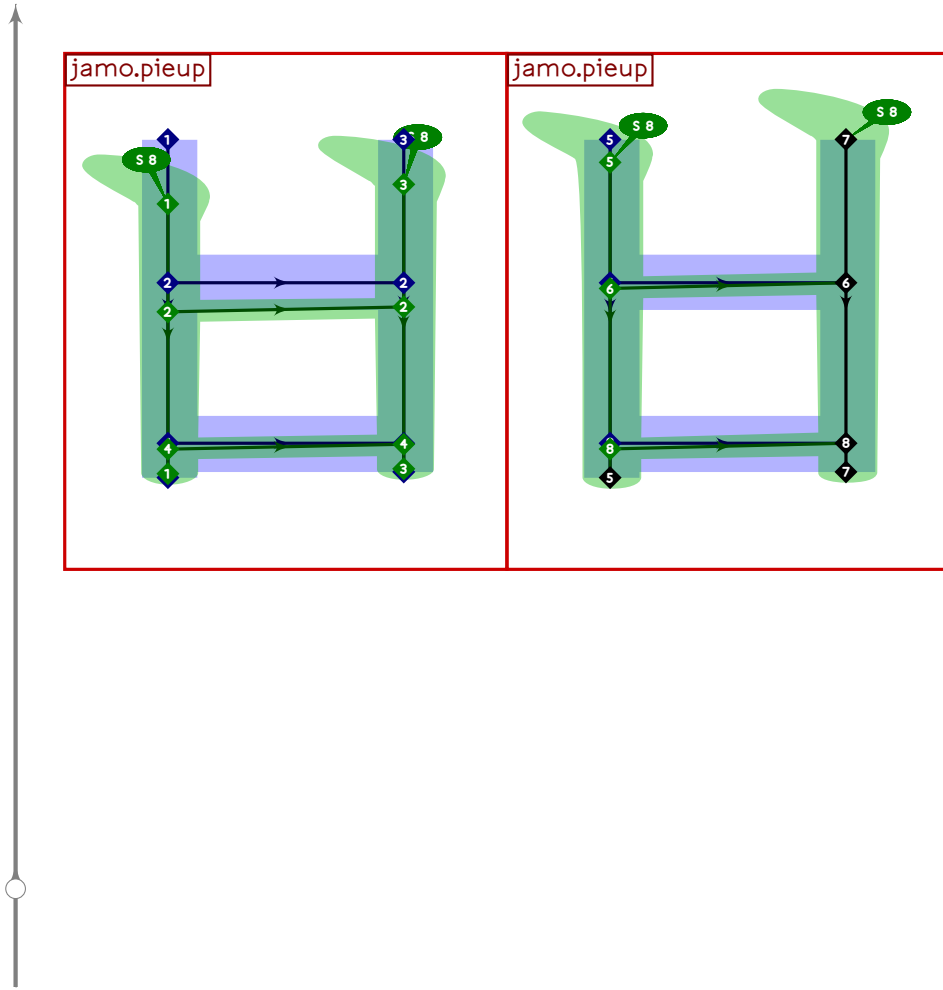
```



```

96 % hangul lead pieup
97 begintsuglyph("uni1107.15";7);
98 hangul.jamo.pieup(whatever,lixf,loxf);
99 tsu_render;
100 endtsuglyph;
101

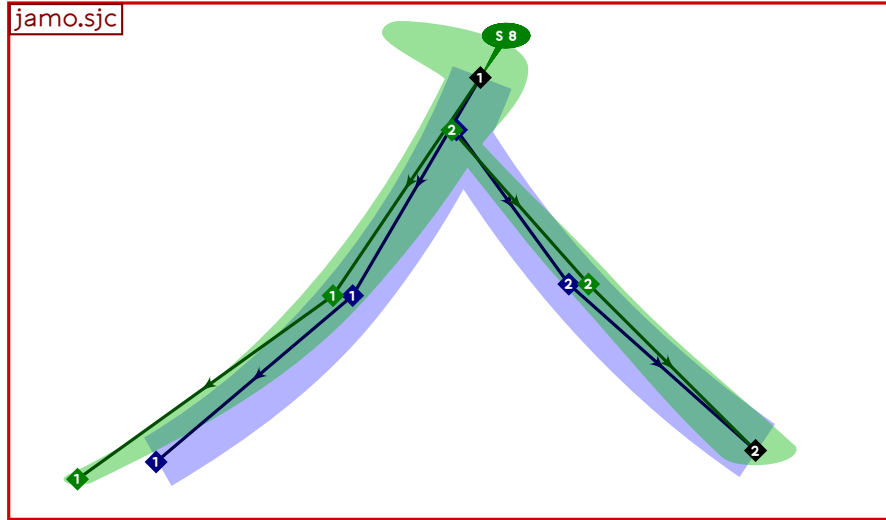
```



```

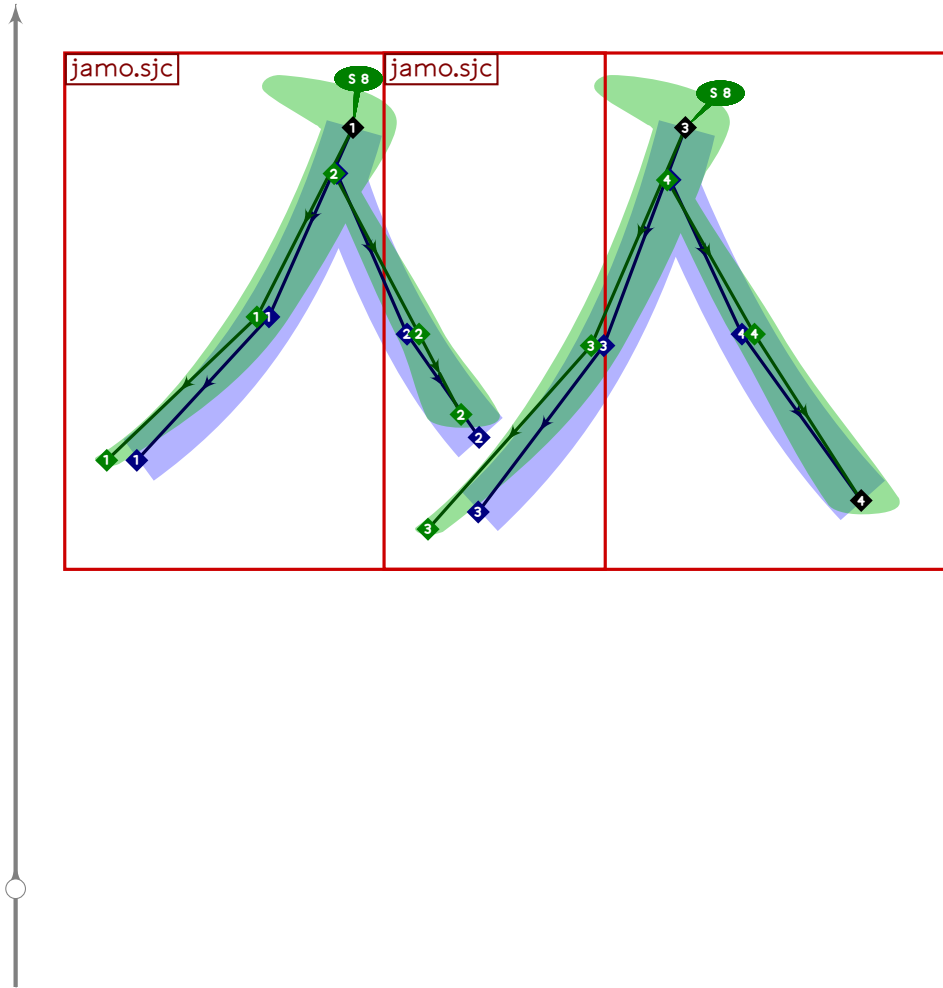
102 % hangul lead ssangpieup
103 begint Suglyph("uni1108.15",8);
104 hangul.combine.lr(207,107)(whatever,lixf,loxf);
105 tsu_render;
106 endtsuglyph;
107

```



```
108 % hangul lead sios
109 begintsuglyph("uni1109.15";9);
110 hangul.jamo.sjc(0,0,false)(whatever,lixf,loxf);
111 tsu_render;
112 endtsuglyph;
113
```

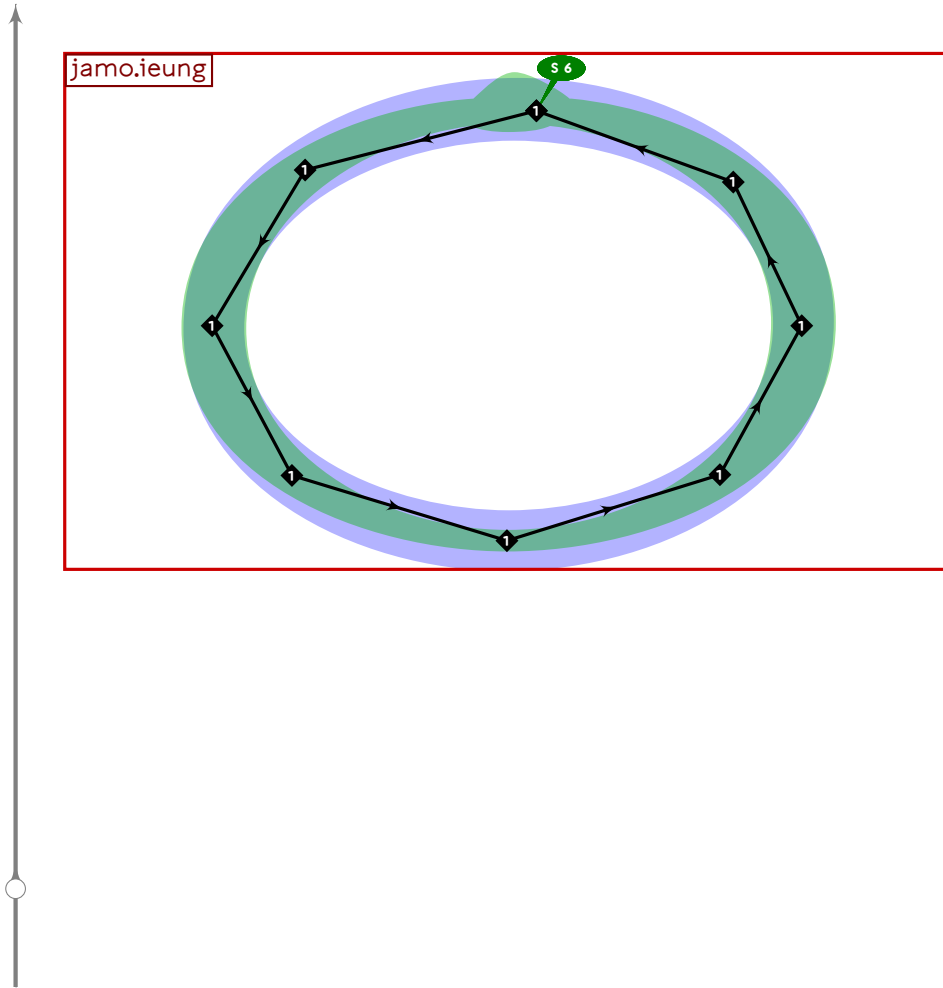




```

114 % hangul lead ssangsios
115 begint Suglyph("uni110A.I5";10);
116 hangul.combine.lr(209,109)(whatever,lixf,loxf);
117 tsu_render;
118 endtsuglyph;
119

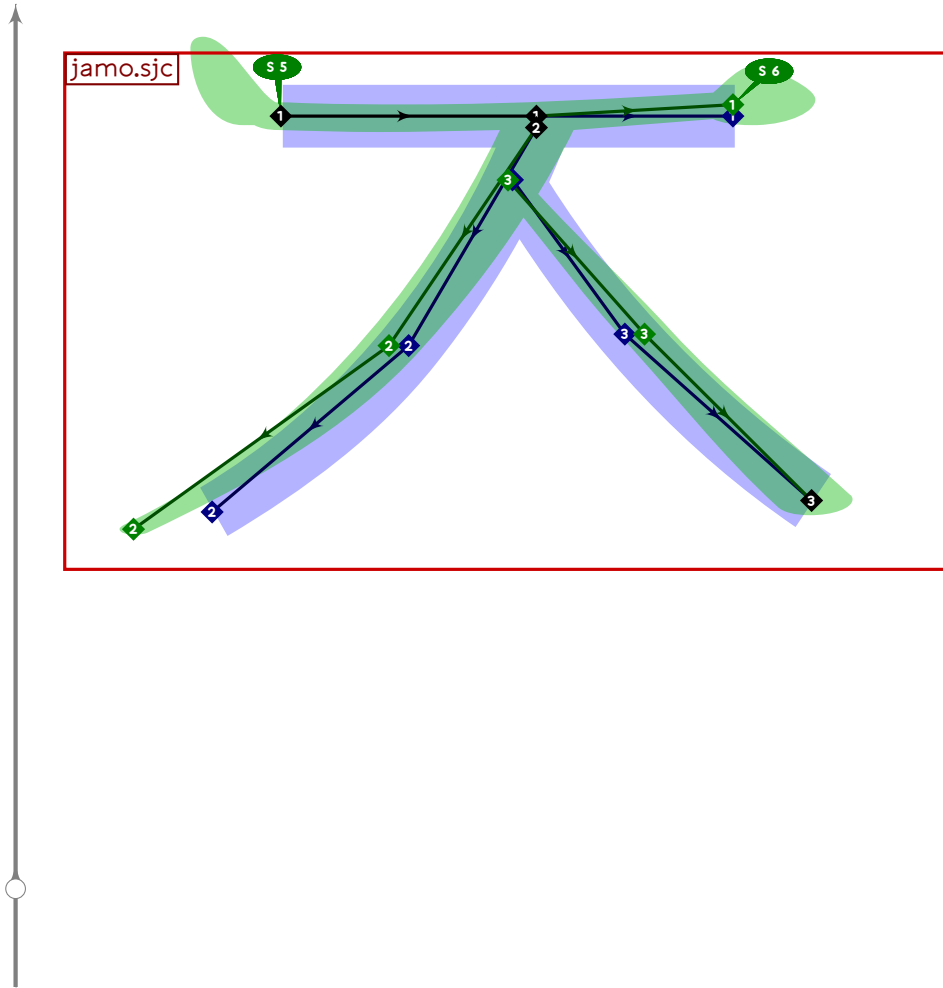
```



```

120 % hangul lead ieung
121 begintsuglyph("uni110B.I5",11);
122 hangul.jamo.ieung(whatever,lixf,loxf);
123 tsu_render;
124 endsuglyph;
125

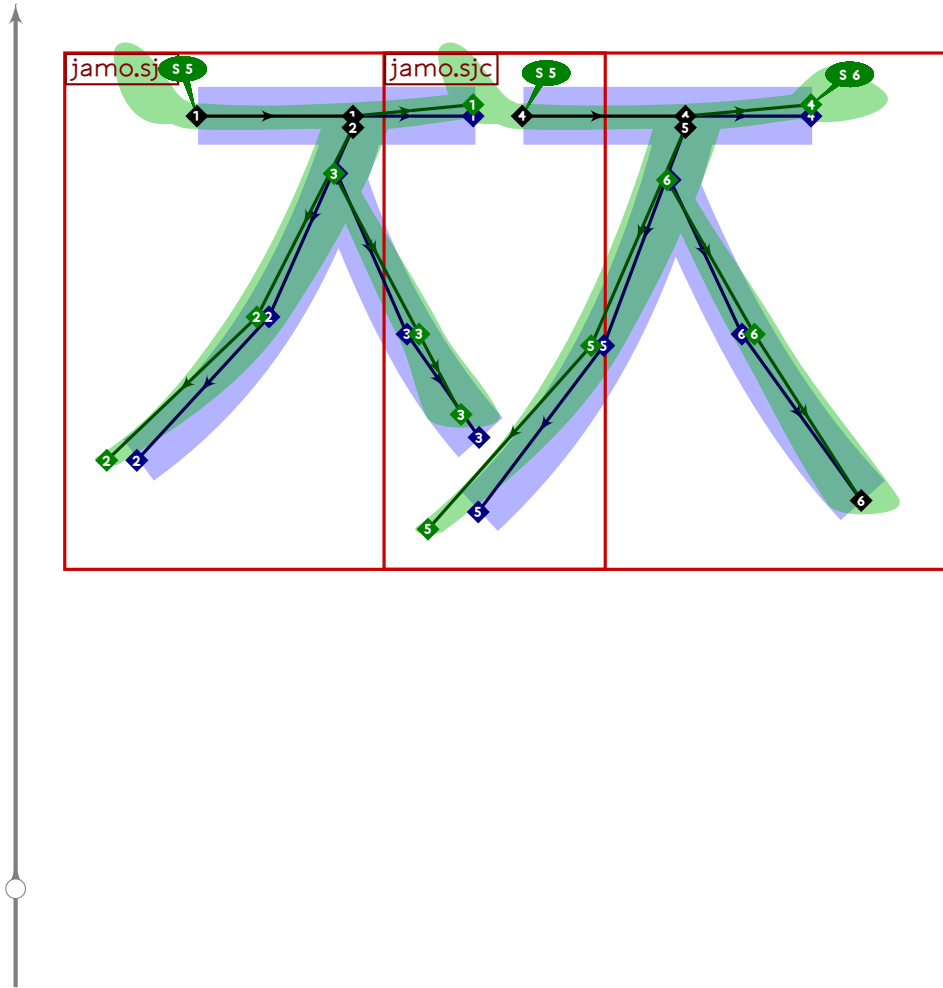
```



```

126 % hangul lead cieuc
127 begint Suglyph("uni110C.I5",12);
128 hangul.jamo.sjc(1,0,false)(whatever,lixf,loxf);
129 tsu_render;
130 endtsuglyph;
131

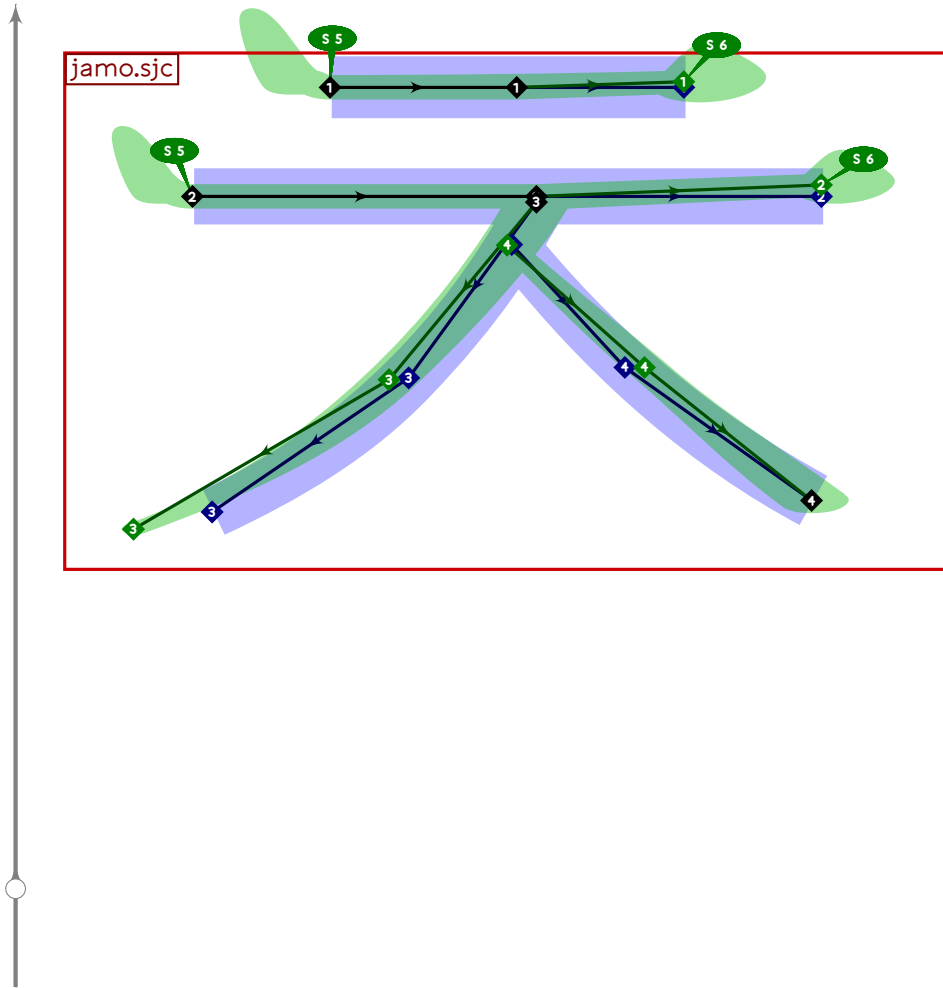
```



```

132 % hangul lead ssangcieuc
133 begintuglyph("uni110D.I5",13);
134 hangul.combine.lr(212,112)(whatever,lixf,loxf);
135 tsu_render;
136 endtuglyph;
137

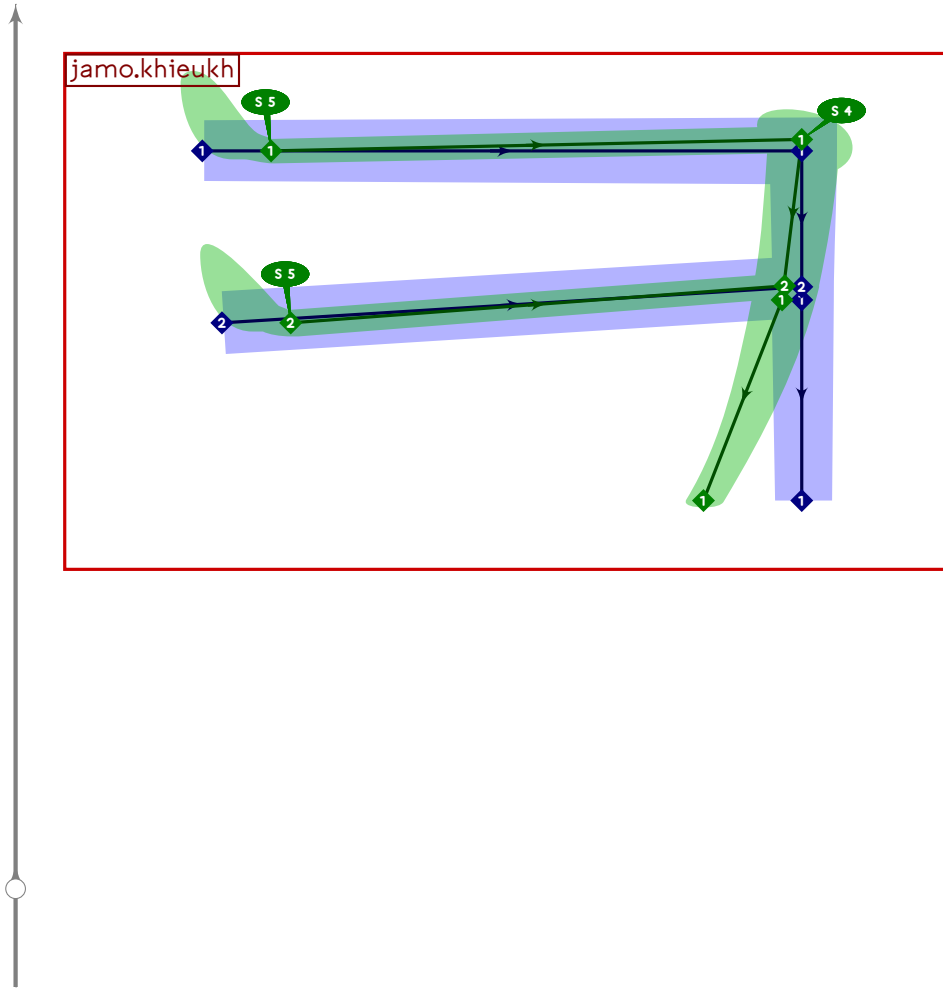
```



```

138 % hangul lead chieuch
139 begintuglyph("uni110E.15",14);
140 hangul.jamo.sjc(2,0,false)(whatever,lixf,loxf);
141 tsu_render;
142 endtuglyph;
143

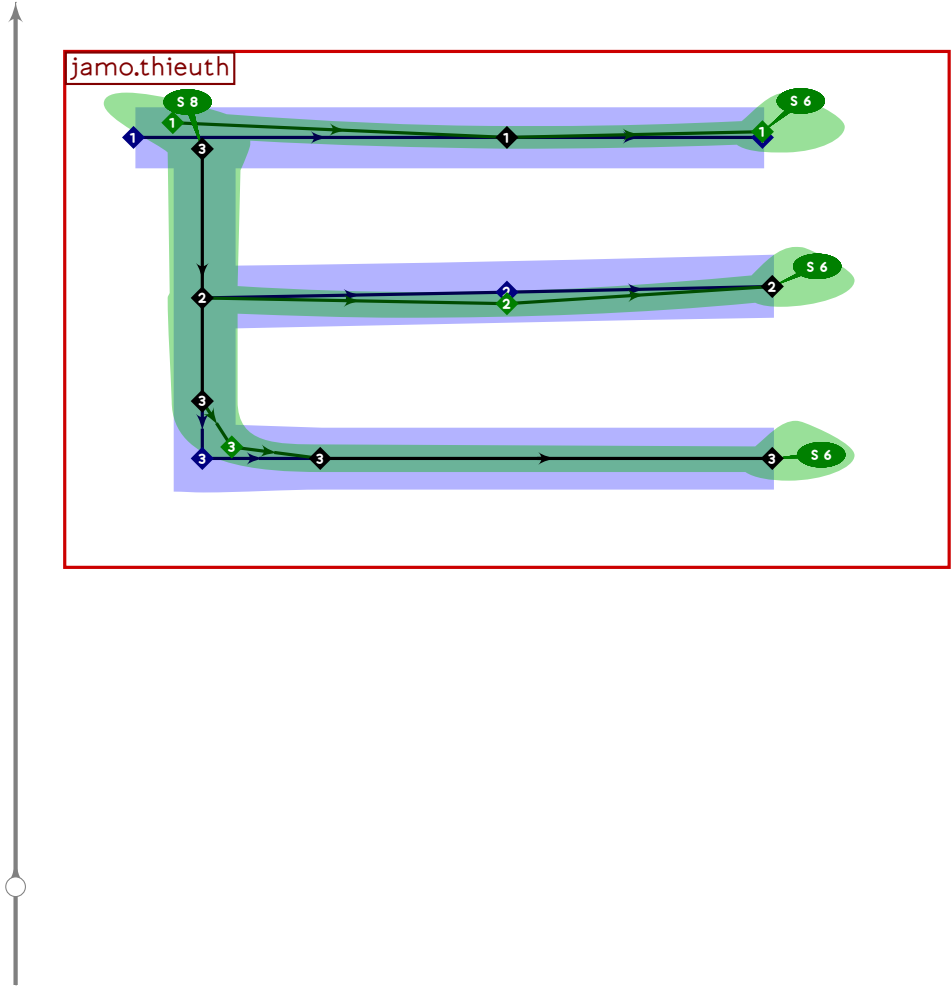
```



```

144 % hangul lead khieukh
145 begint Suglyph("uni110F.15";15);
146 hangul.jamo.khieukh(whatever,lixf,loxf);
147 tsu_render;
148 endtsuglyph;
149

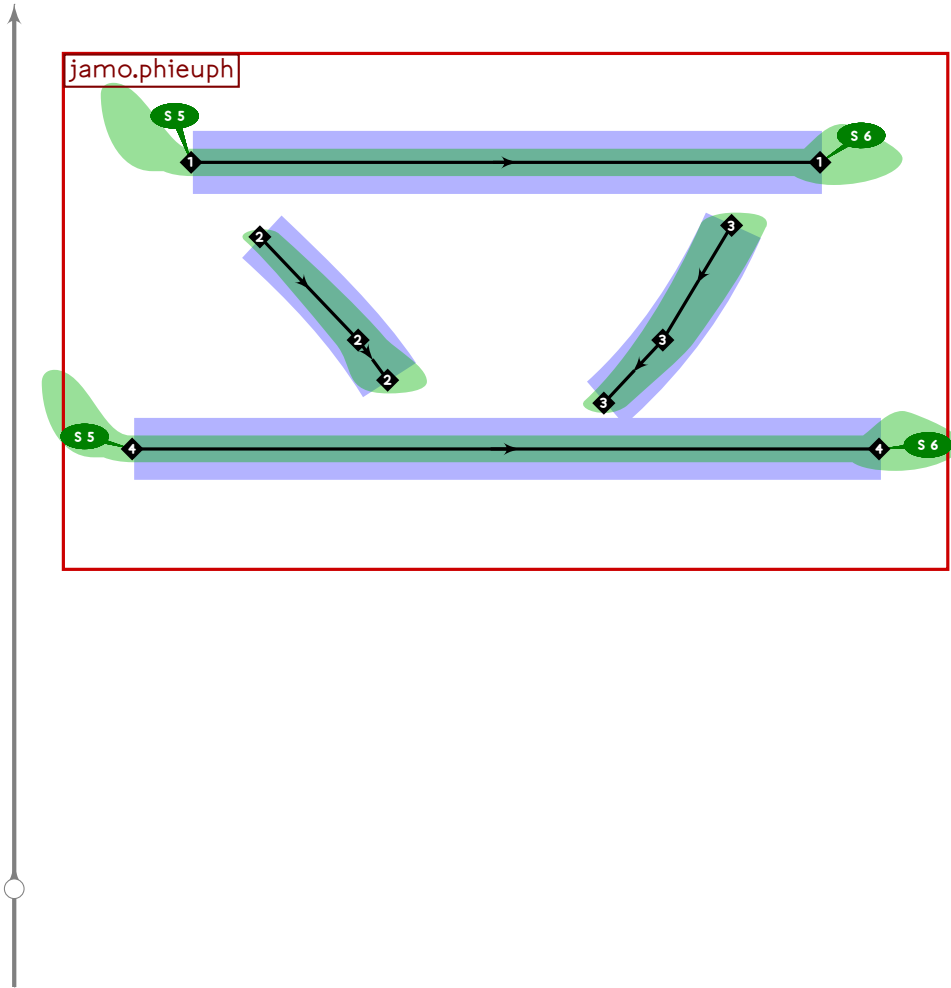
```



```

150 % hangul lead thieuth
151 begint Suglyph("uni1110.15";16);
152 hangul.jamo.thieuth(whatever,lixf,loxf);
153 tsu_render;
154 endtsuglyph;
155

```

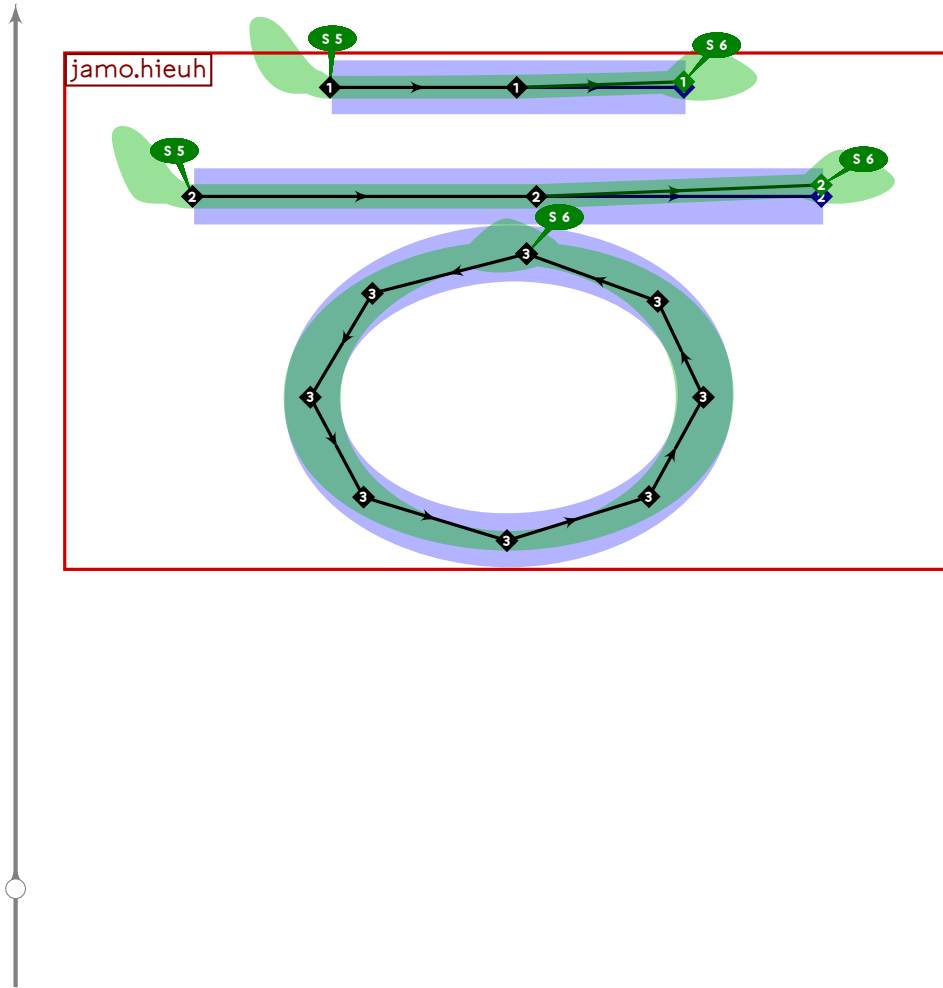


```

156 % hangul lead phieuph
157 begint Suglyph("uni1111.15";17);
158 hangul.jamo.phieuph(whatever,lixf,loxf);
159 tsu_render;
160 endtsuglyph;
161

```

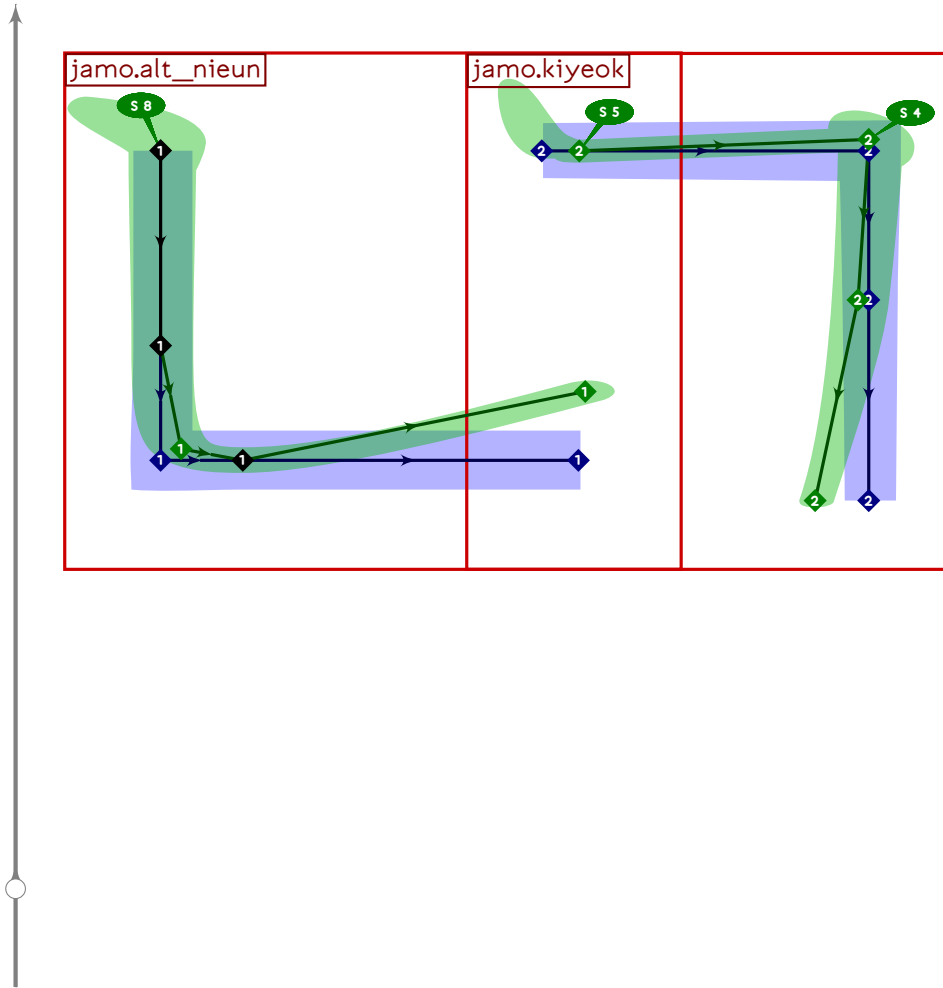




```

162 % hangeul lead hieuh
163 begint Suglyph("uni1112.15",18);
164 hangeul.jamohieuh(whatever,lixf,loxf);
165 tsu_render;
166 endtsuglyph;
167

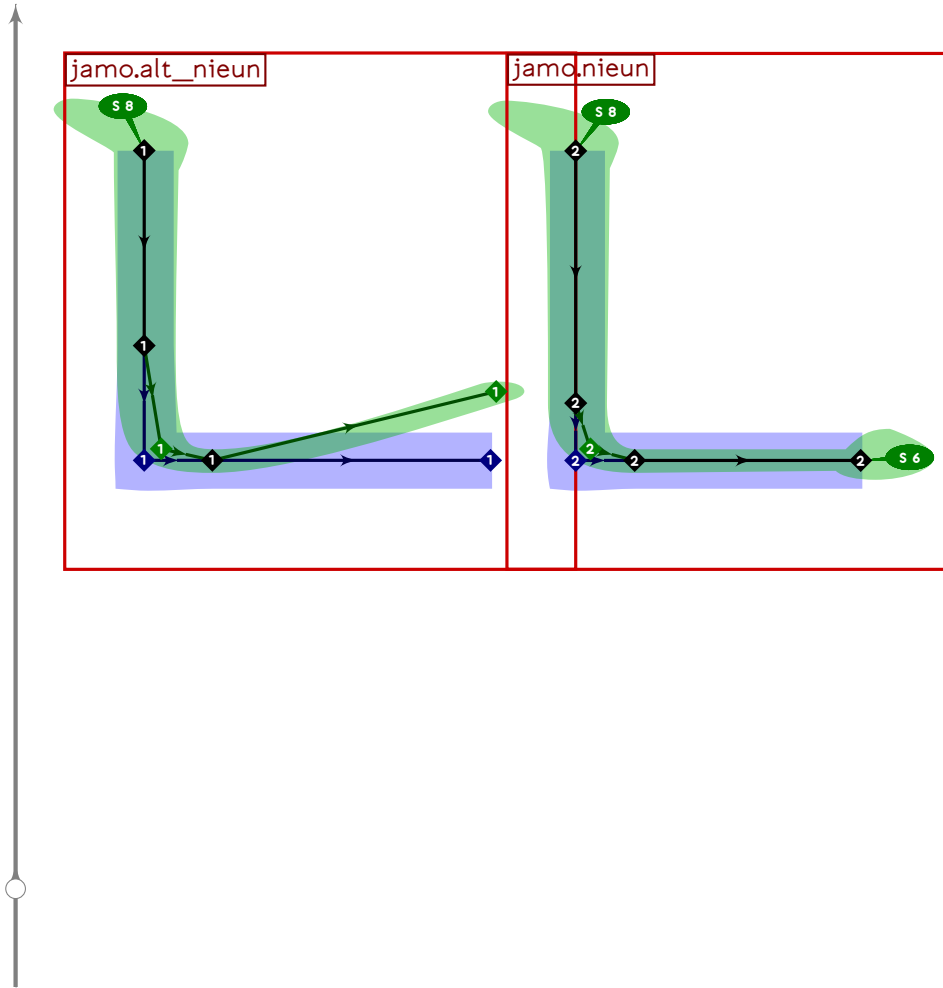
```



```

168 % hangul lead nieun-kiyeok
169 begintsuglyph("uni1113.l5",19);
170 hangul.combine.lr(202,100)(whatever,lixf,loxf);
171 tsu_render;
172 endsuglyph;
173

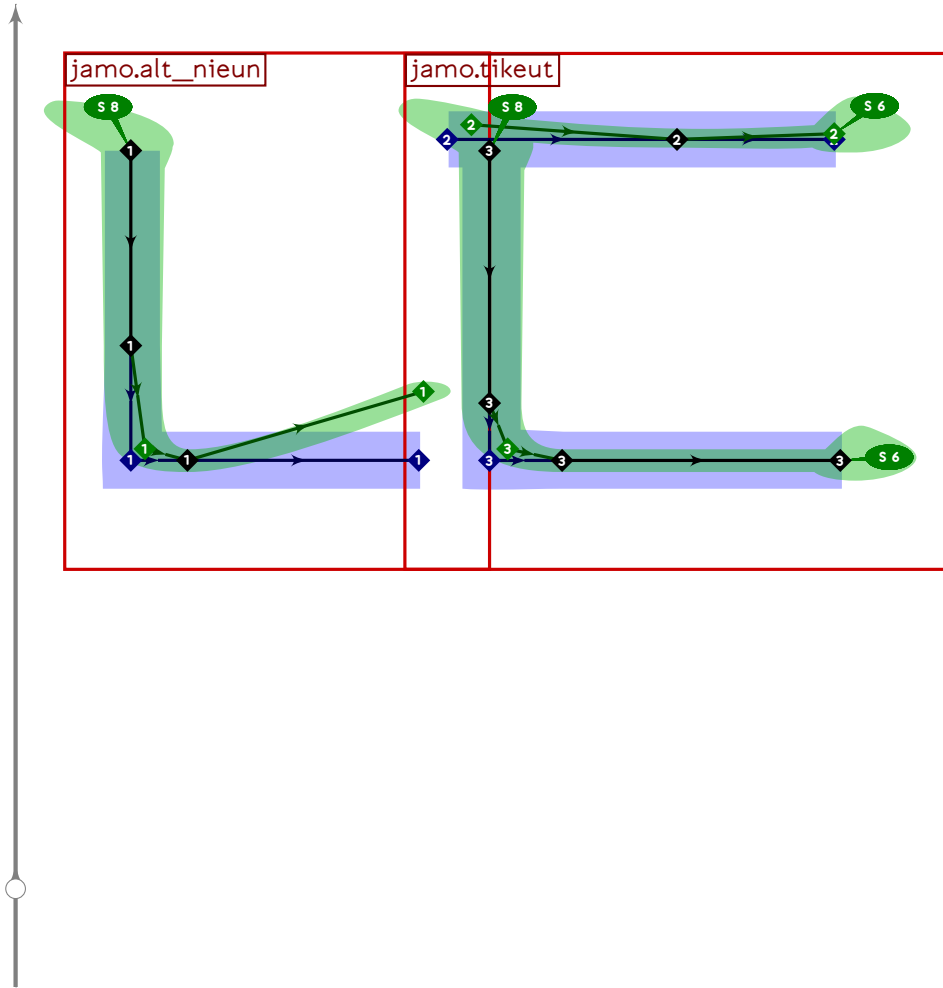
```



```

174 % hangul lead ssangnieun
175 begint Suglyph("uni1114.I5",20);
176 hangul.combine.lr(202,102)(whatever,lixf,loxf);
177 tsu_render;
178 endtsuglyph;
179

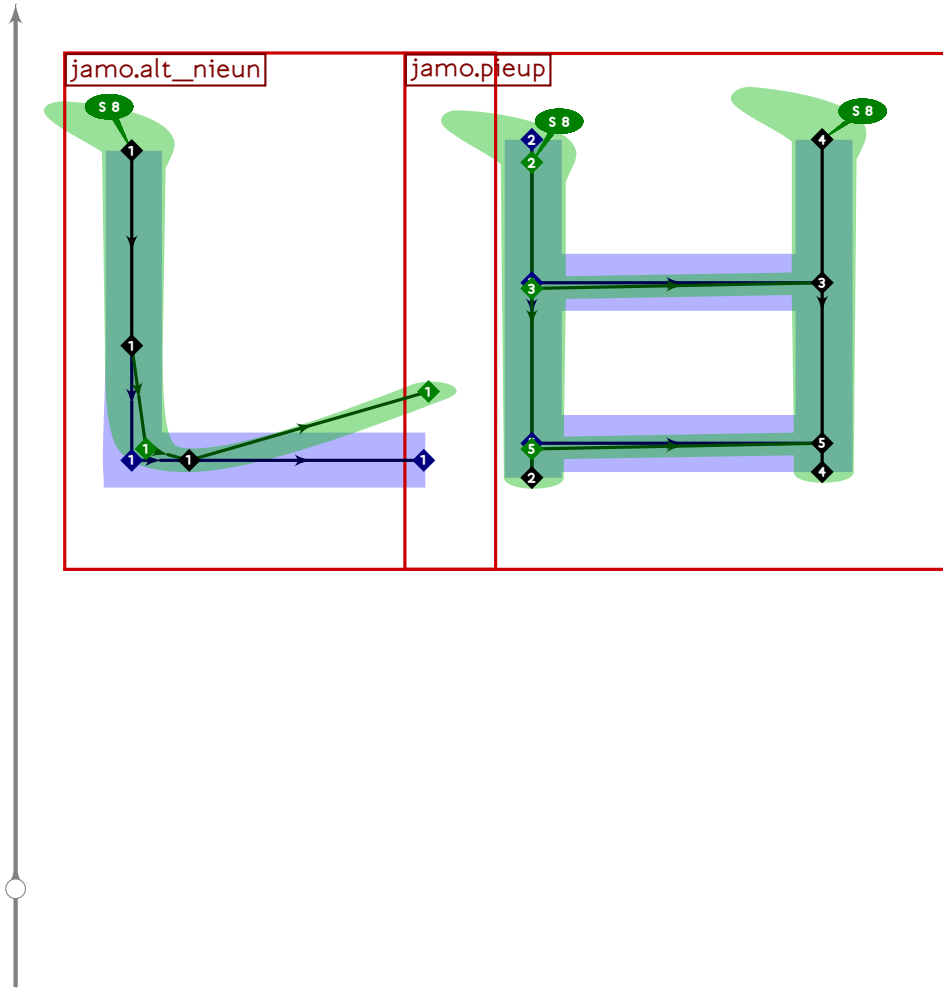
```



```

180 % hangul lead nieun-tikeut
181 begintsuglyph("uni1115.l5",21);
182 hangul.combine.lr(202,103)(whatever,lixf,loxf);
183 tsu_render;
184 endsuglyph;
185

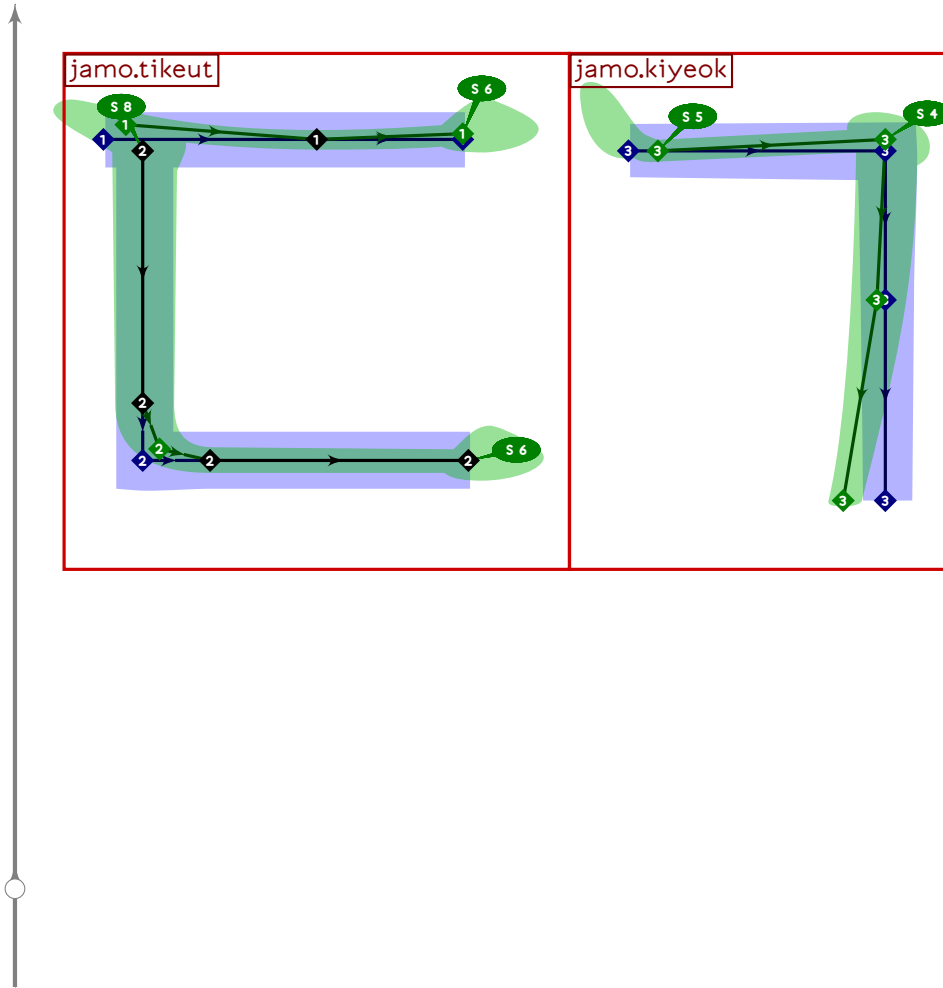
```



```

186 % hangul lead nieun-pieup
187 begintsuglyph("uni1116.l5",22);
188 hangul.combine.lr(202,107)(whatever,lixf,loxf);
189 tsu_render;
190 endsuglyph;
191

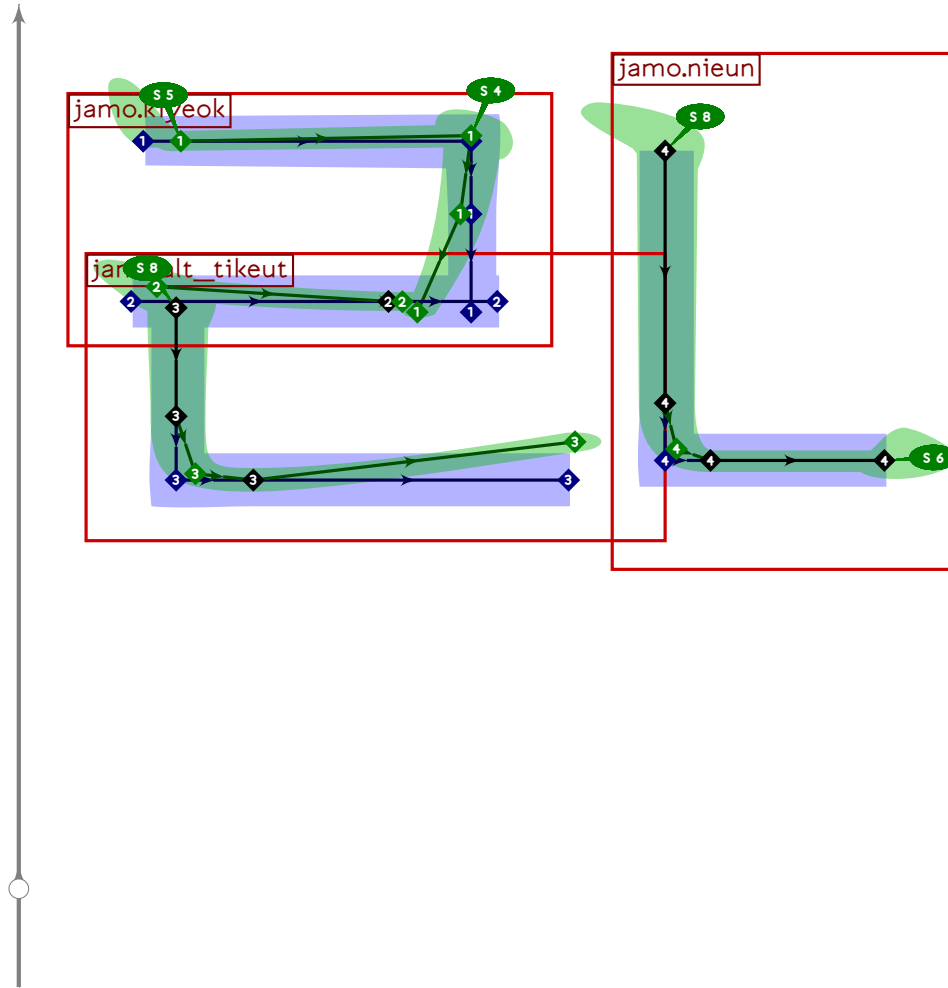
```



```

192 % hangul lead tikeut-kiyeok
193 begintsuglyph("uni1117.l5",23);
194 hangul.combine.lr(103,100)(whatever,lixf,loxf);
195 tsu_render;
196 endsuglyph;
197

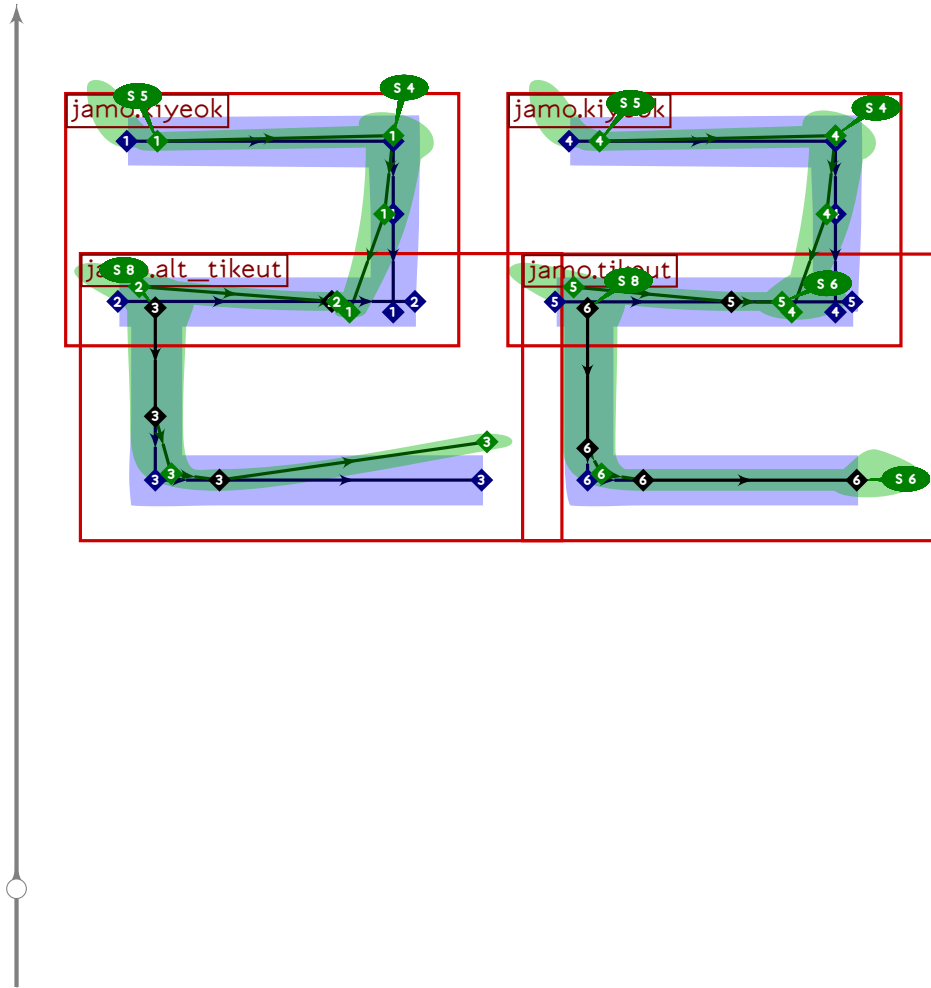
```



```

198 % hangul lead rioul-nieun
199 begintsuglyph("uni1118.15",24);
200 hangul.combine.lr(205,102)(whatever,lixf,loxf);
201 tsu_render;
202 endsuglyph;
203

```

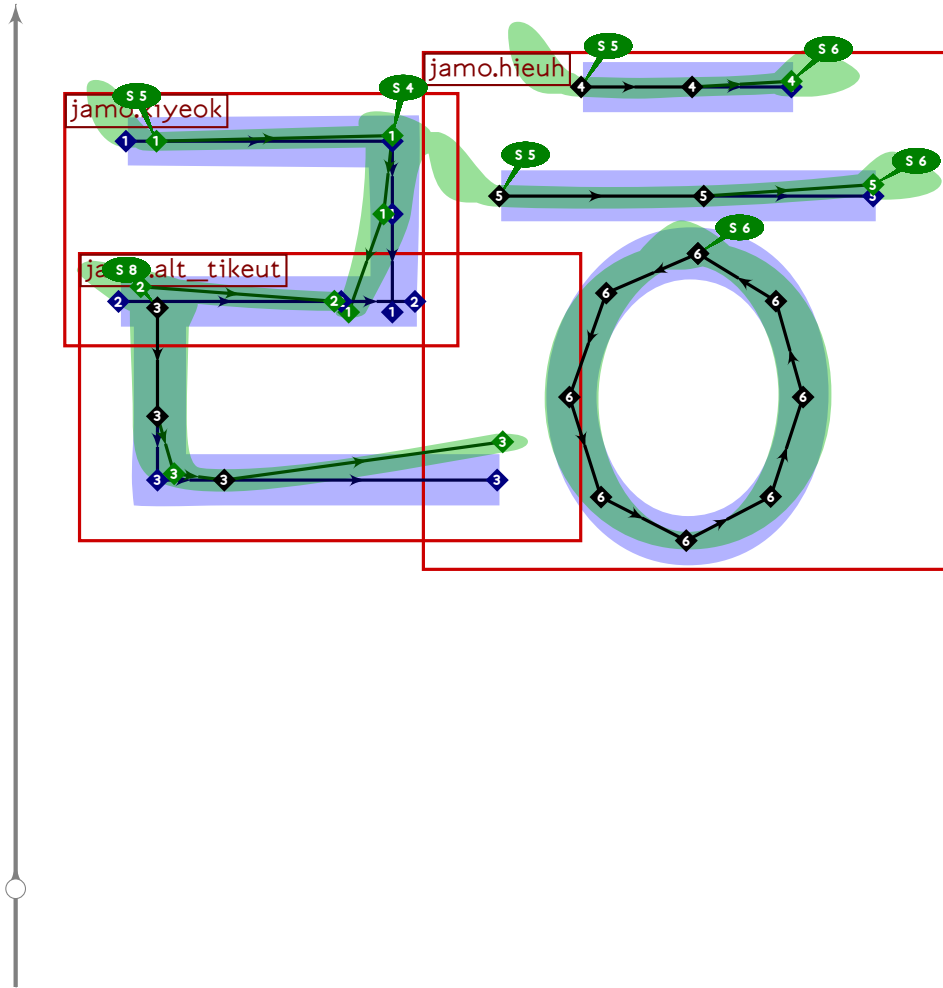


```

204 % hangul lead ssangrieul
205 beginsuglyph("uni1119.l5",25);
206 hangul.combine.lr(205,105)(whatever,lixf,loxf);
207 tsu_render;
208 endsuglyph;
209

```

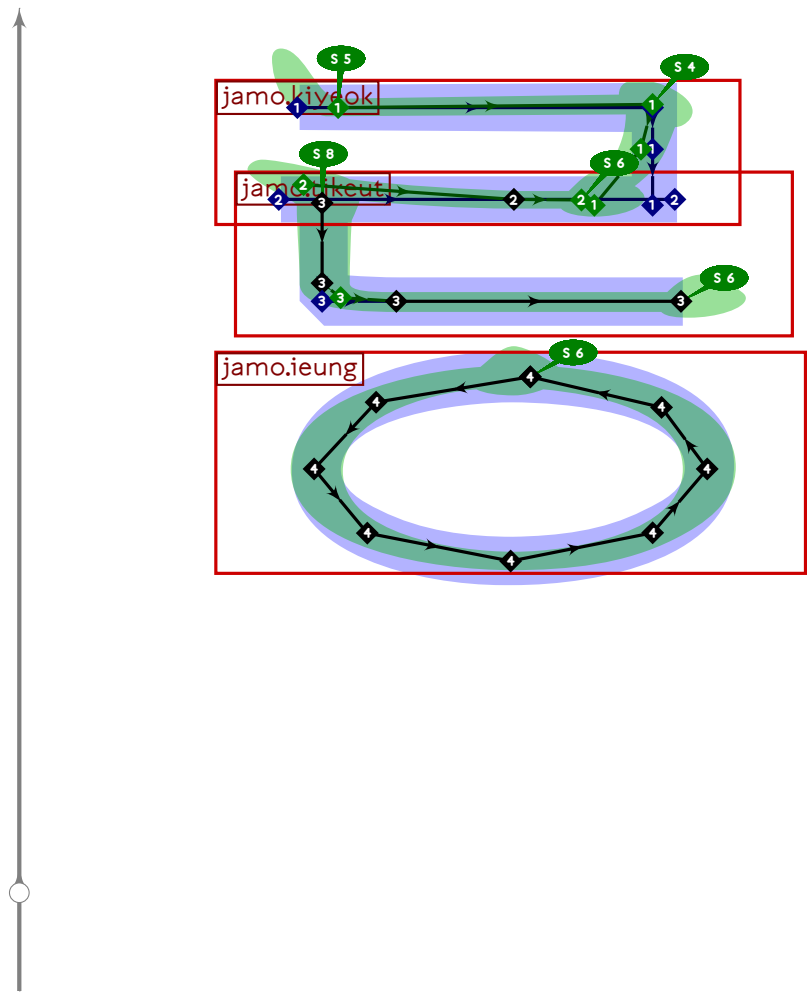




```

210 % hangul lead rioul-hieuh
211 begint Suglyph("uni111A.15";26);
212 hangul.combine.lr(205,118)(whatever,lixf,loxf);
213 tsu_render;
214 endsuglyph;
215

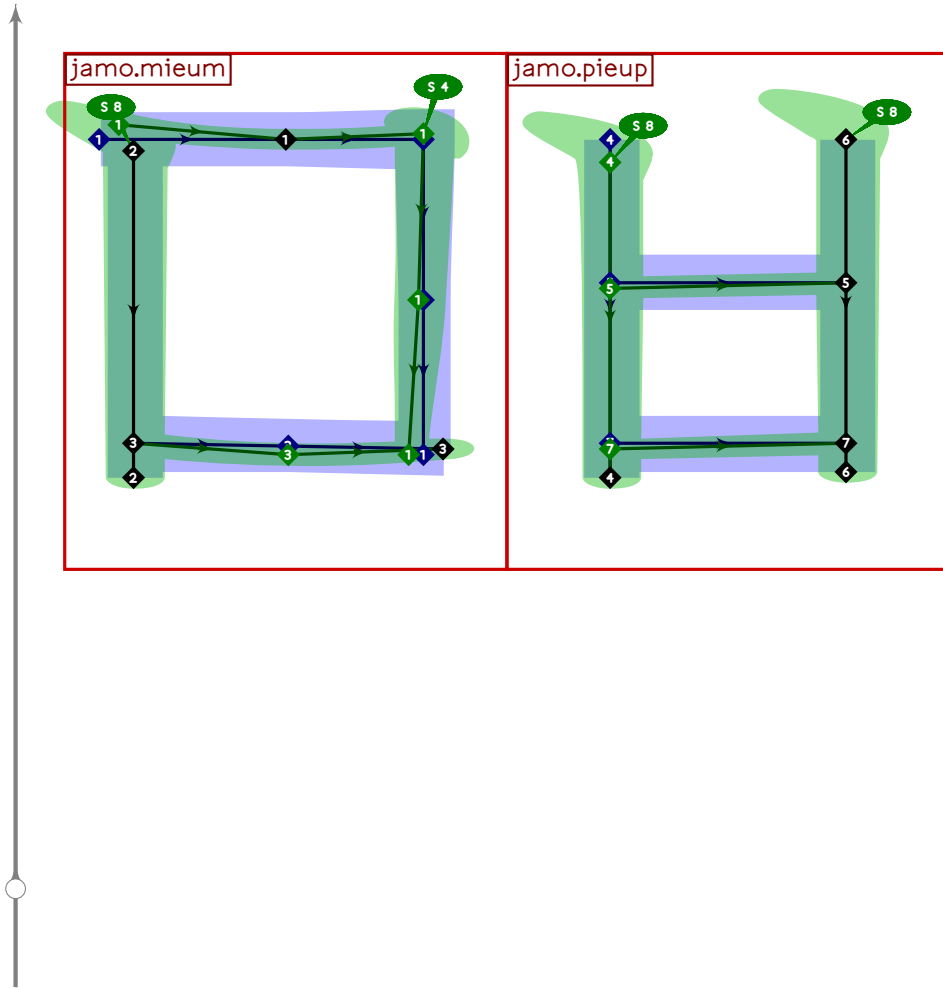
```



```

216 % hangul lead kapyeounrieul
217 begint Suglyph("uni111B.l5";27);
218 hangul.combine.tb(105,521)(whatever,
219   hxf((200,850),(800,-50)) transformed lixf,loxf);
220 tsu_render;
221 endsuglyph;
222

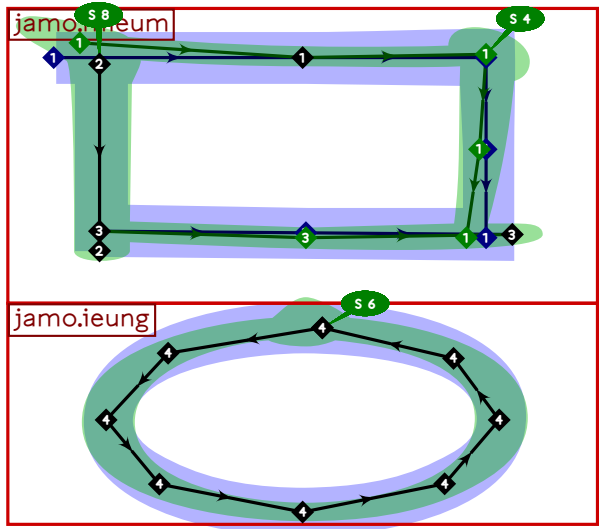
```



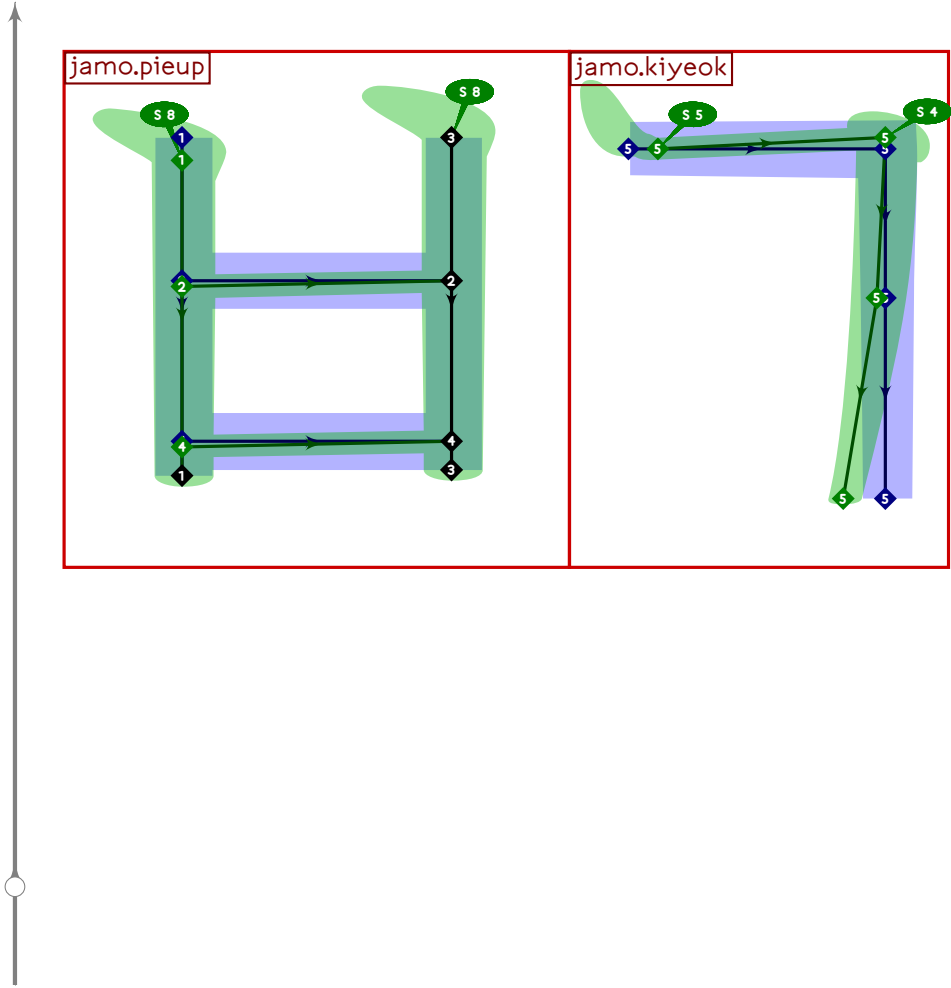
```

223 % hangul lead mieum-pieup
224 begintsuglyph("uni111C.15";28);
225 hangul.combine.lr(106,107)(whatever,lixf,loxf);
226 tsu_render;
227 endsuglyph;
228

```



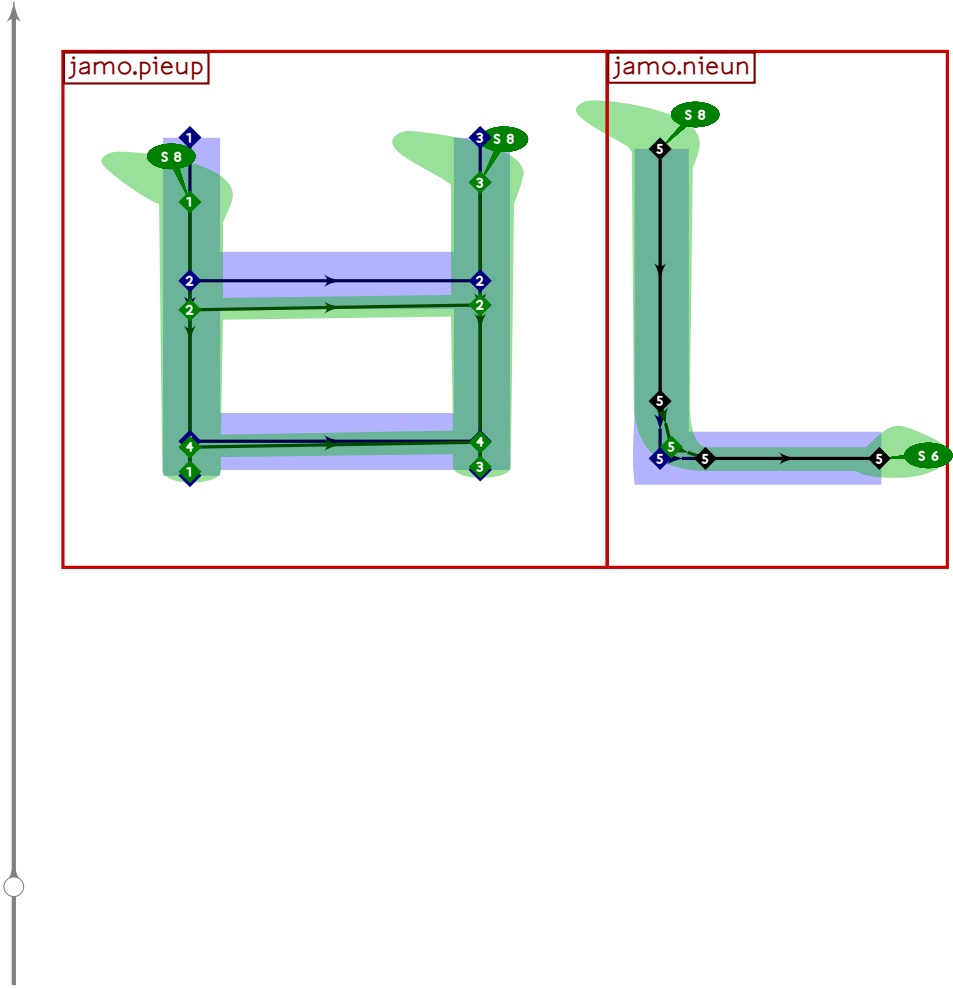
```
229 % hangul lead kapyeounmieum
230 begint Suglyph("uni111D.15";29);
231 hangul.combine.tb(106,521)(whatever,
232   hxf((200,850),(800,-50)) transformed lixf,loxf);
233 tsu_render;
234 endsuglyph;
235
```



```

236 % hangul lead pieup-kiyeok
237 begintsuglyph("uni111E.l5",30);
238 hangul.combine.lr(107,100)(whatever,lixf,loxf);
239 tsu_render;
240 endsuglyph;
241

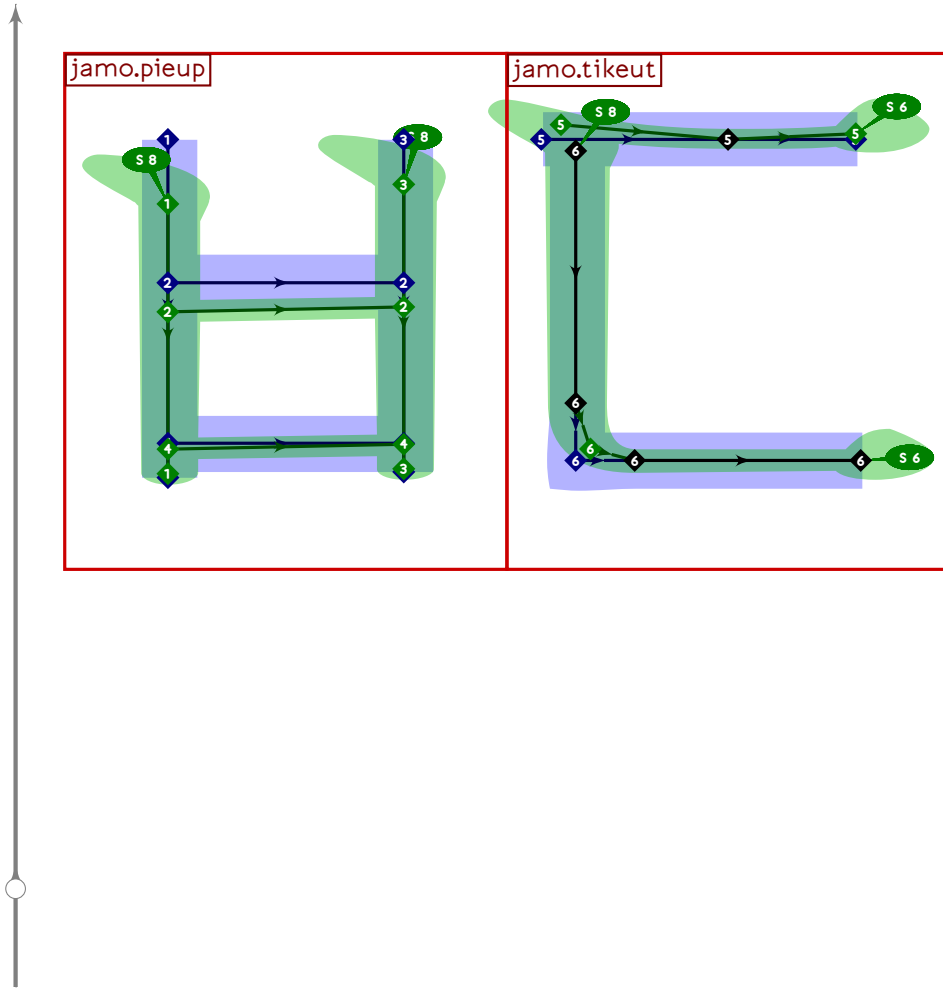
```



```

242 % hangul lead pieup-nieun
243 begintsuglyph("uni111F.I5",31);
244 hangul.combine.lr(207,102)(whatever,lixf,loxf);
245 tsu_render;
246 endtsuglyph;
247

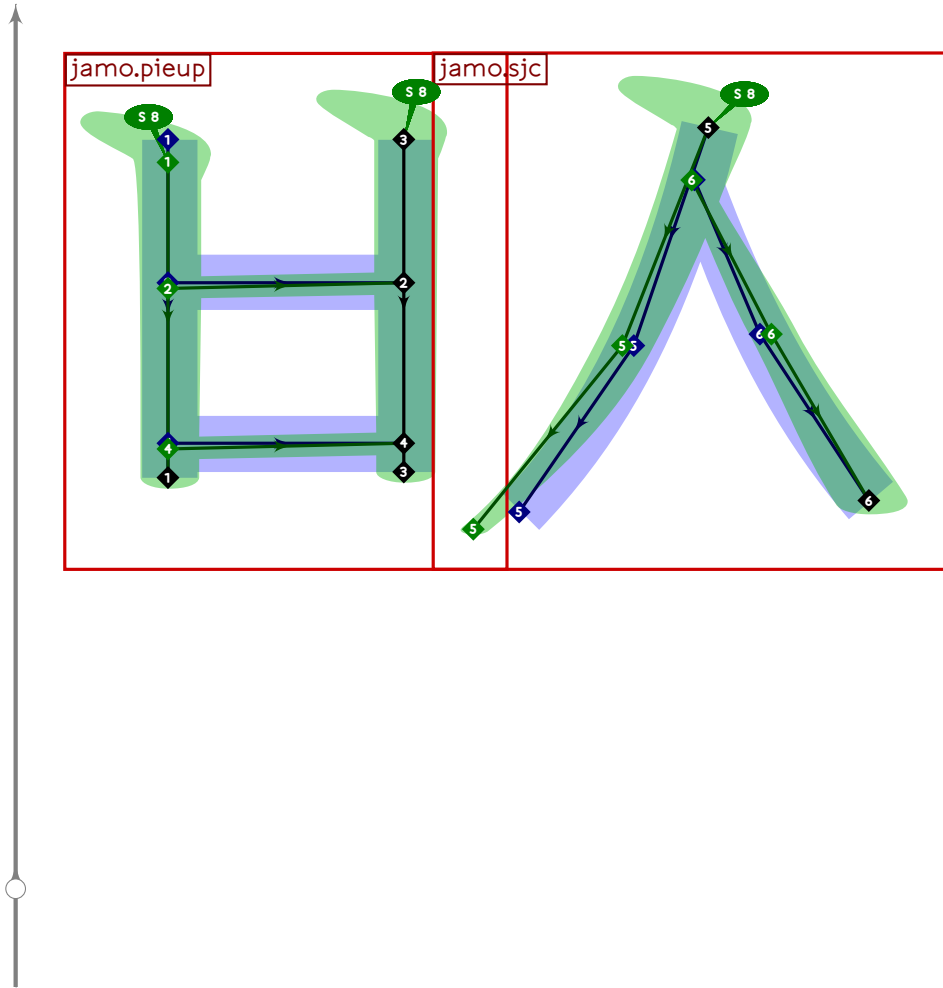
```



```

248 % hangul lead pieup-tikeut
249 begint Suglyph("uni1120.15",32);
250 hangul.combine.lr(207,103)(whatever,lixf,loxf);
251 tsu_render;
252 endtsuglyph;
253

```

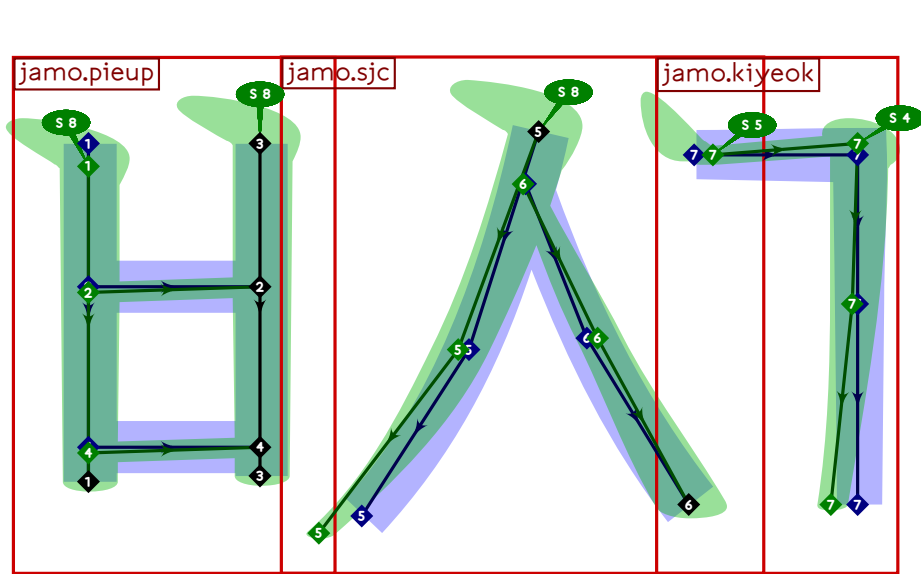


```

254 % hangul lead pieup-sios
255 begintsuglyph("uni1121.15",33);
256 hangul.combine.lr(107,109)(whatever,lixf,loxf);
257 tsu_render;
258 endsuglyph;
259

```

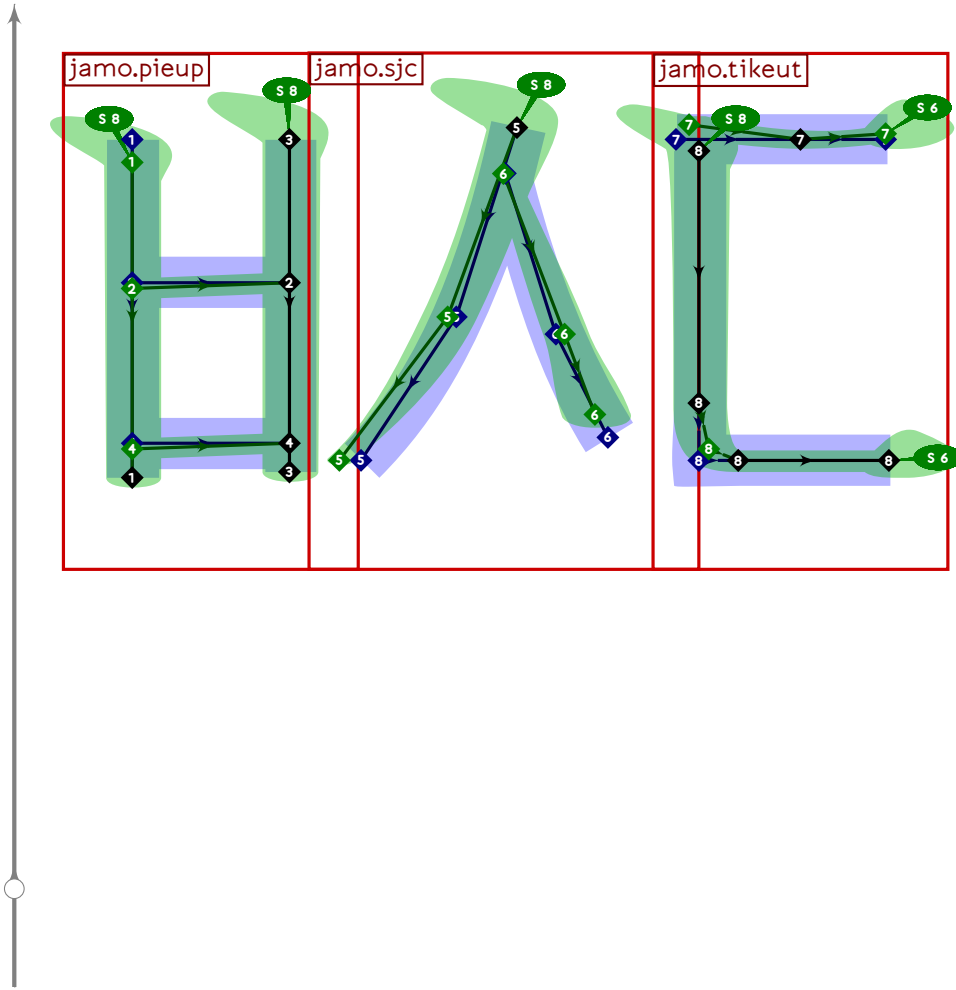




```

260 % hangul lead pieup-sios-kiyeok
261 begint Suglyph("uni1122.15",34);
262 hangul.combine.lcr(107,109,100)(whatever,lixf,loxf);
263 tsu_render;
264 endtsuglyph;
265

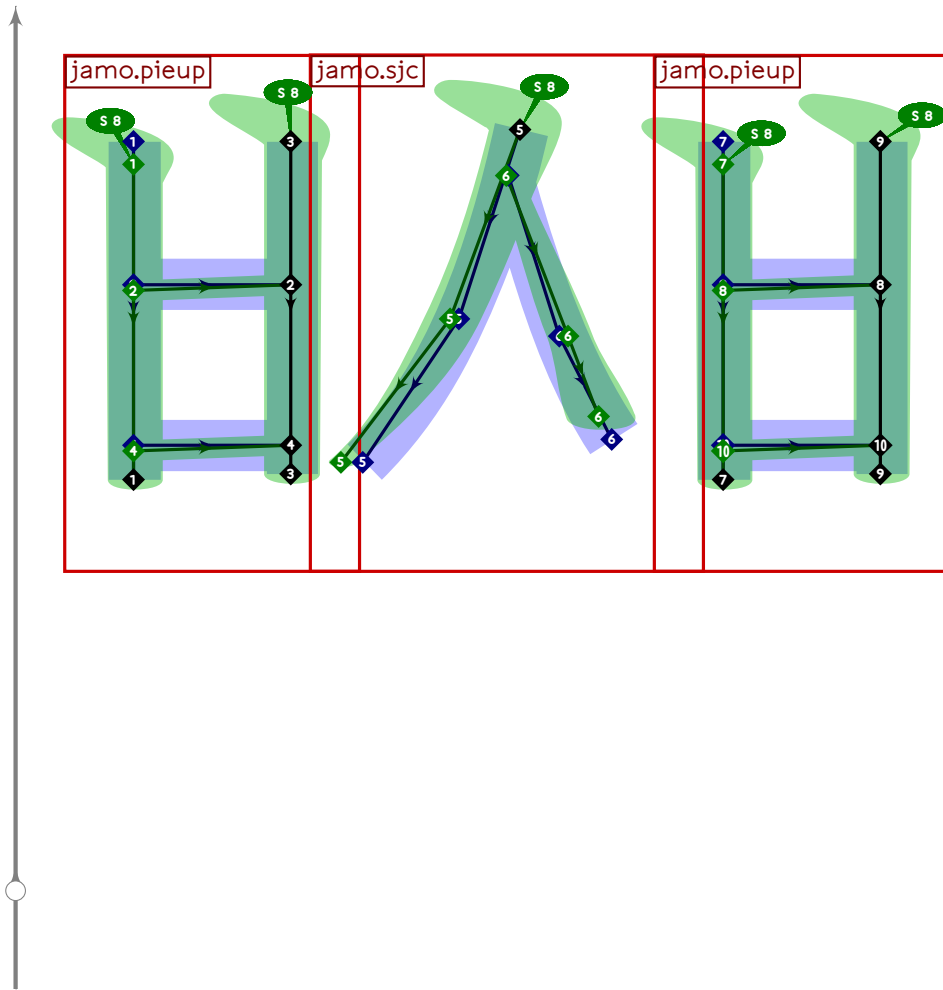
```



```

266 % hangul lead pieup-sios-tikeut
267 begintsuglyph("uni1123.15";35);
268 hangul.combine.lcr(107,209,103)(whatever,lixf,loxf);
269 tsu_render;
270 endsuglyph;
271

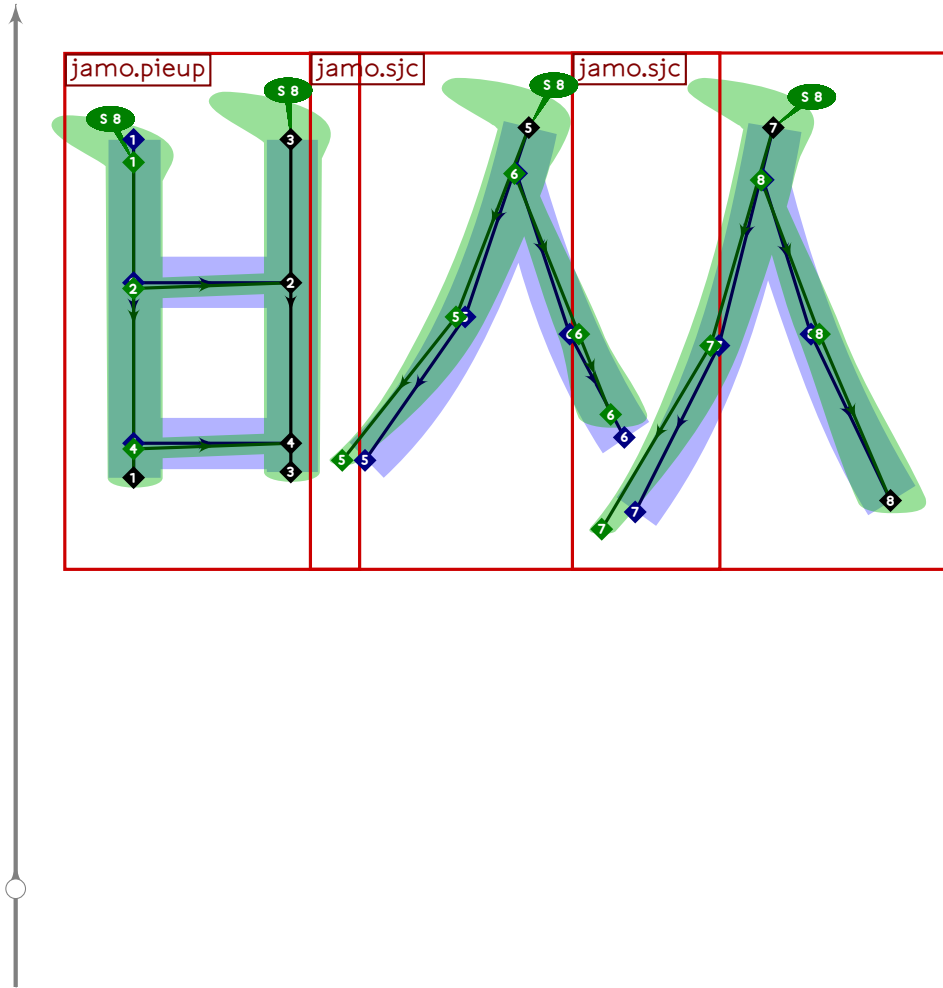
```



```

272 % hangul lead pieup-sios-pieup
273 begintsuglyph("uni1124.15";36);
274 hangul.combine.lcr(107,209,107)(whatever,lixf,loxf);
275 tsu_render;
276 endsuglyph;
277

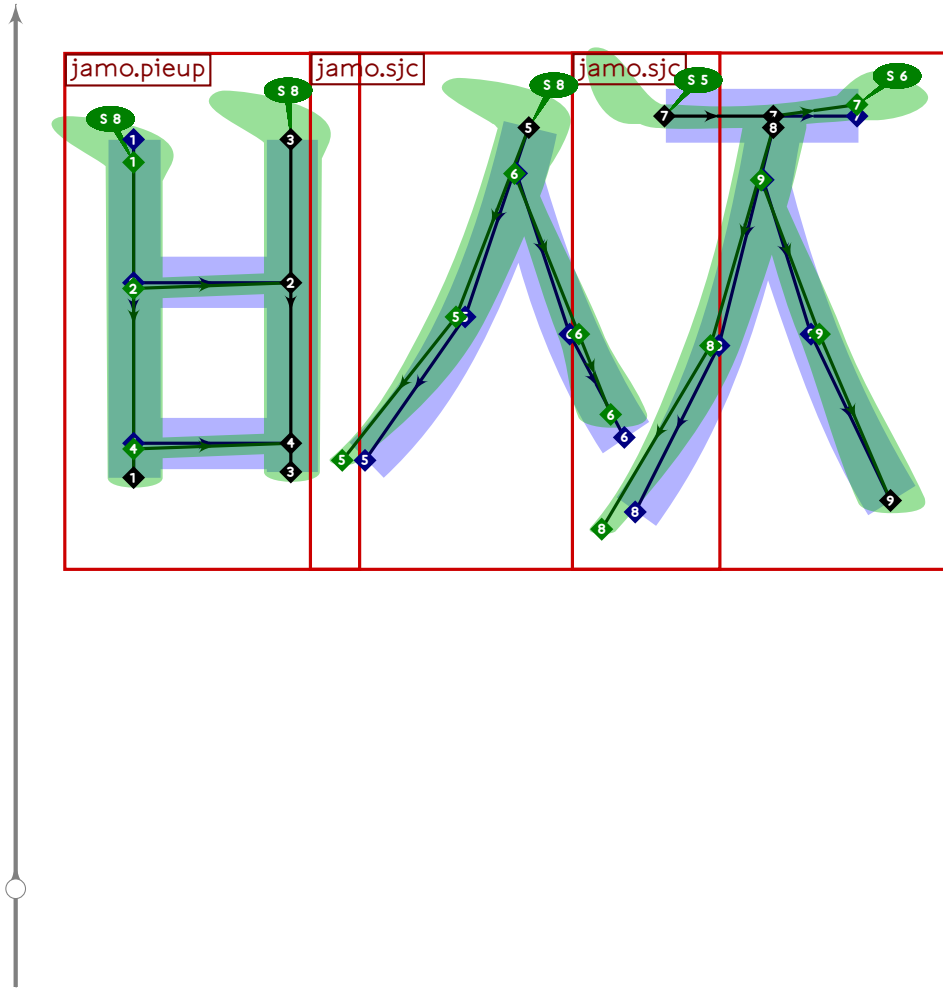
```



```

278 % hangul lead pieup-ssangsios
279 begint Suglyph("uni1125.15";37);
280 hangul.combine.lcr(107,209,109)(whatever,lixf,loxf);
281 tsu_render;
282 endtsuglyph;
283

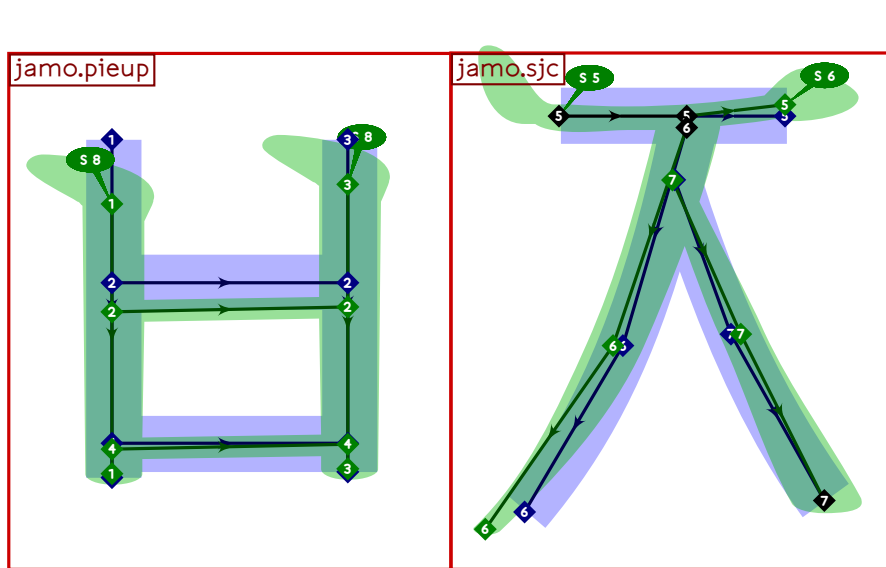
```



```

284 % hangul lead pieup-sios-cieuc
285 begintsuglyph("uni1126.15";38);
286 hangul.combine.lcr(107,209,112)(whatever,lixf,loxf);
287 tsu_render;
288 endsuglyph;
289

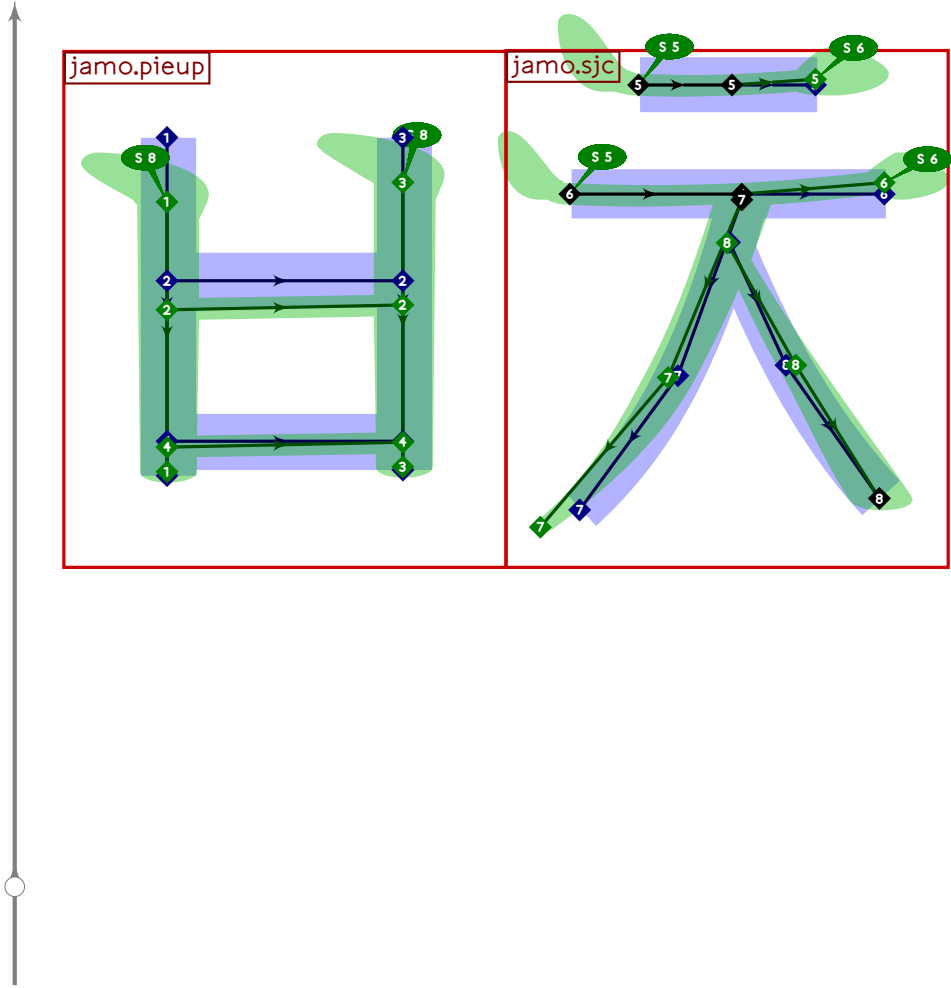
```



```

290 % hangul lead pieup-cieuc
291 begintsuglyph("uni1127.15",39);
292 hangul.combine.lr(207,112)(whatever,lixf,loxf);
293 tsu_render;
294 endsuglyph;
295

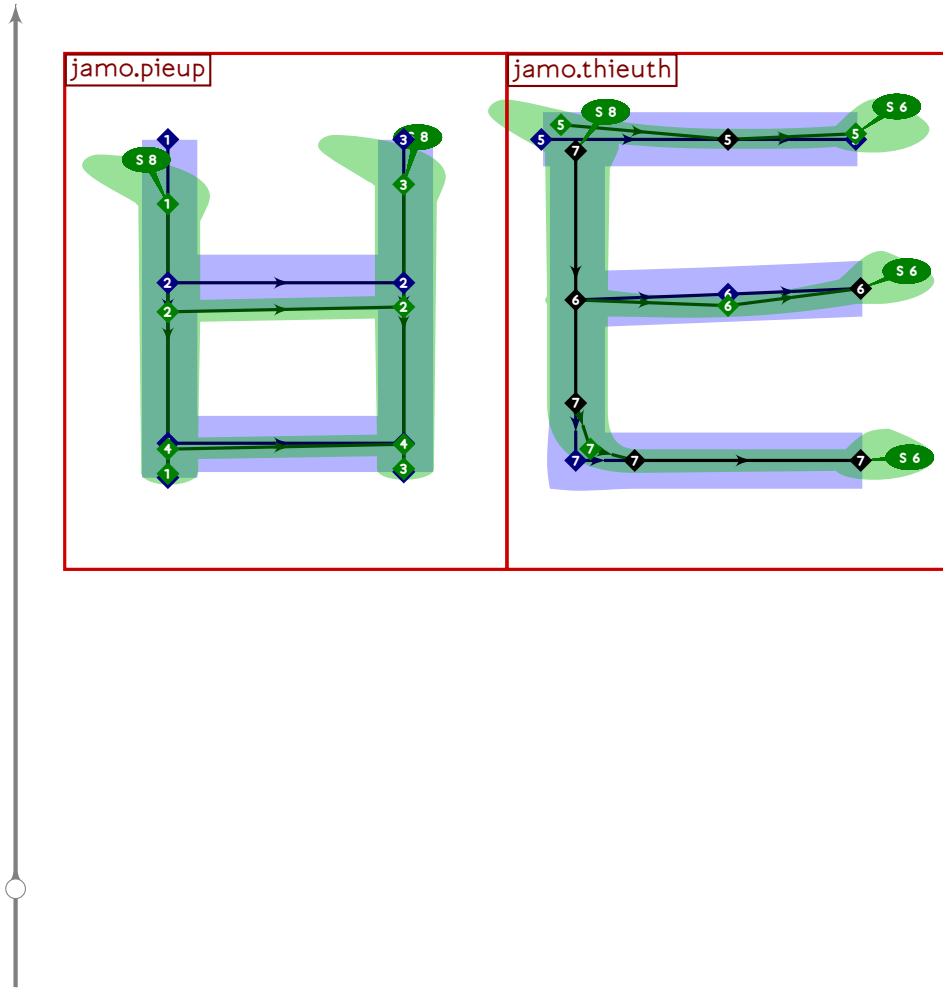
```



```

296 % hangul lead pieup-chieuch
297 begintsuglyph("uni1128.l5",40);
298 hangul.combine.lr(207,114)(whatever,lixf,loxf);
299 tsu_render;
300 endsuglyph;
301

```

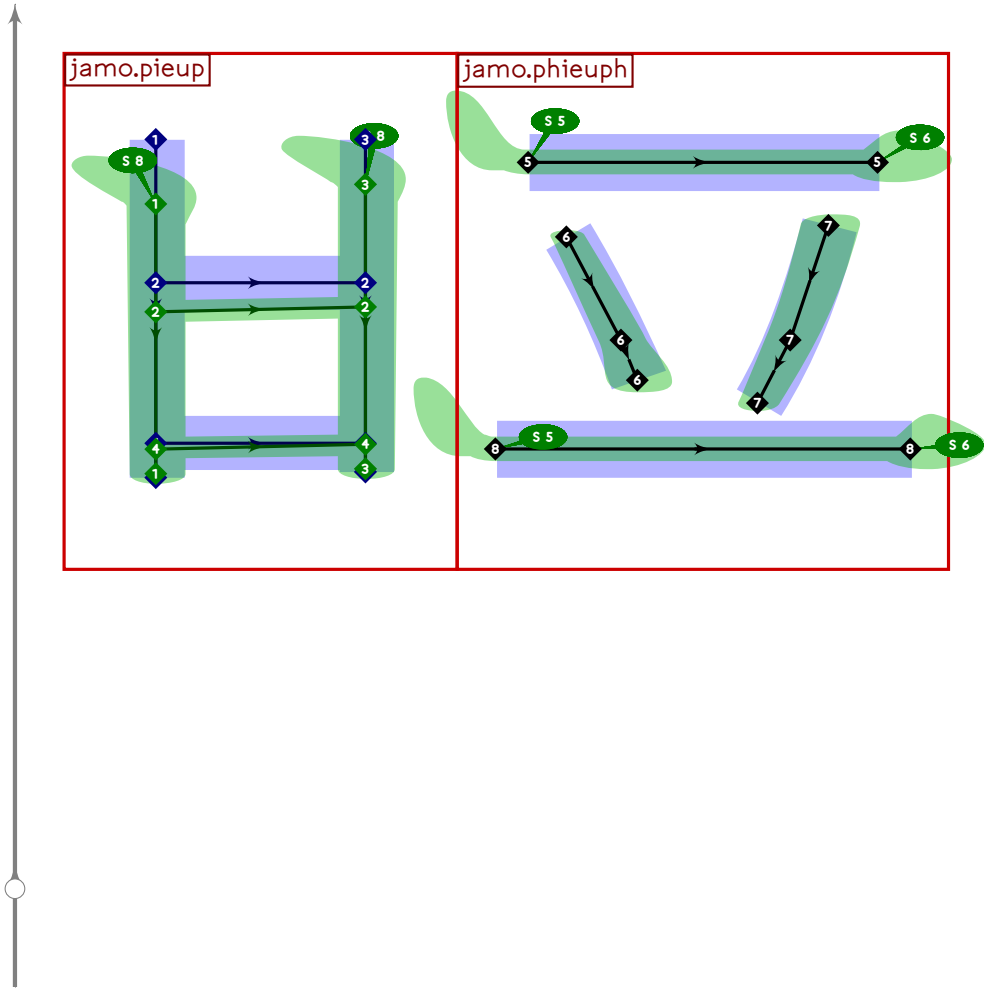


```

302 % hangul lead pieup-thieuth
303 begintsuglyph("uni1129.15";41);
304 hangul.combine.lr(207,116)(whatever,lixf,loxf);
305 tsu_render;
306 endsuglyph;
307

```

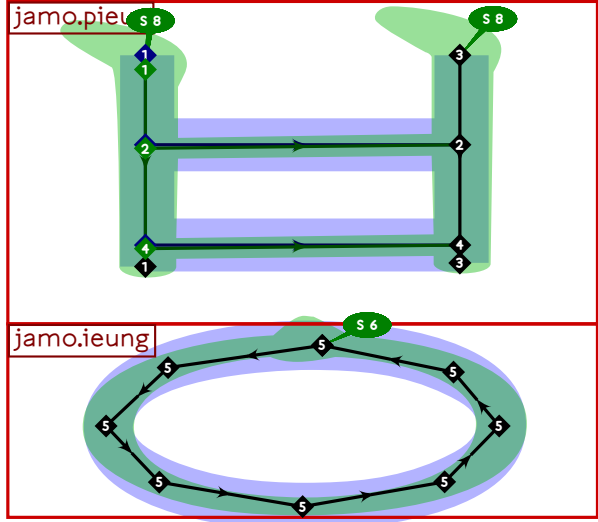




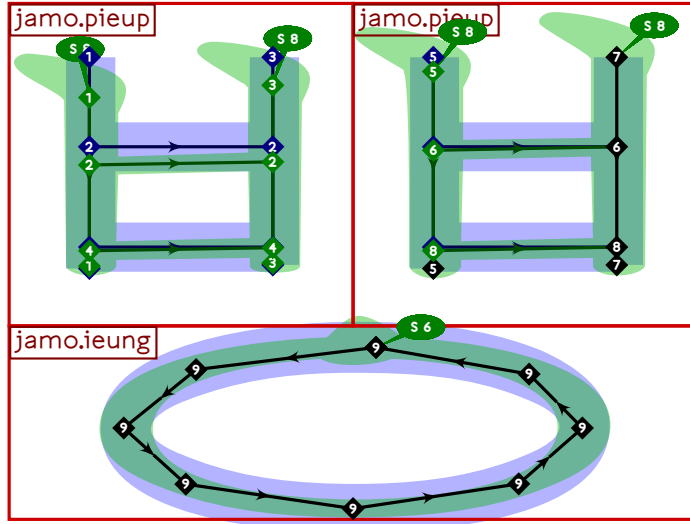
```

308 % hangul lead pieup-phieup
309 begintsuglyph("uni112A.I5",42);
310 hangul.combine.lr(207,117)(whatever,lixf,loxf);
311 tsu_render;
312 endsuglyph;
313

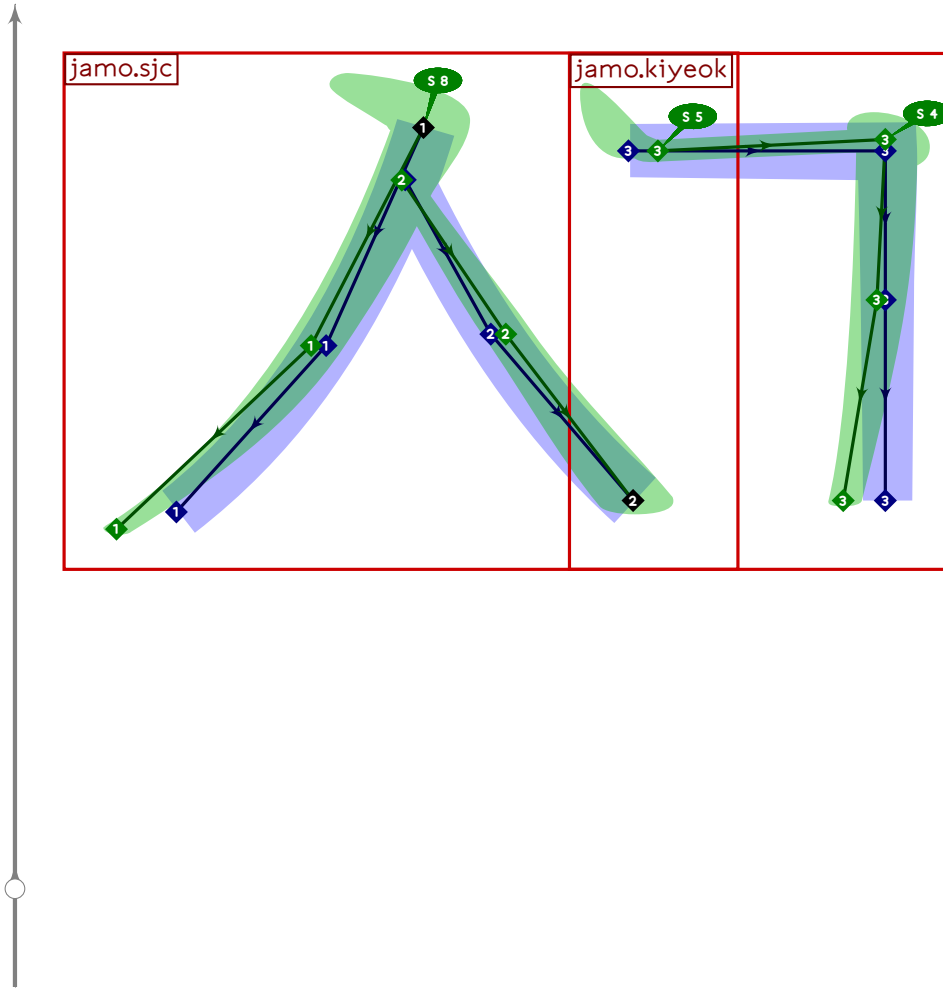
```



```
314 % hangul lead kapyeounpieup
315 begintsuglyph("uni112B.15",43);
316 hangul.combine.tb(107,521)(whatever,
317 hxf((200,850),(800,-50)) transformed lixf,loxf);
318 tsu_render;
319 endsuglyph;
320
```



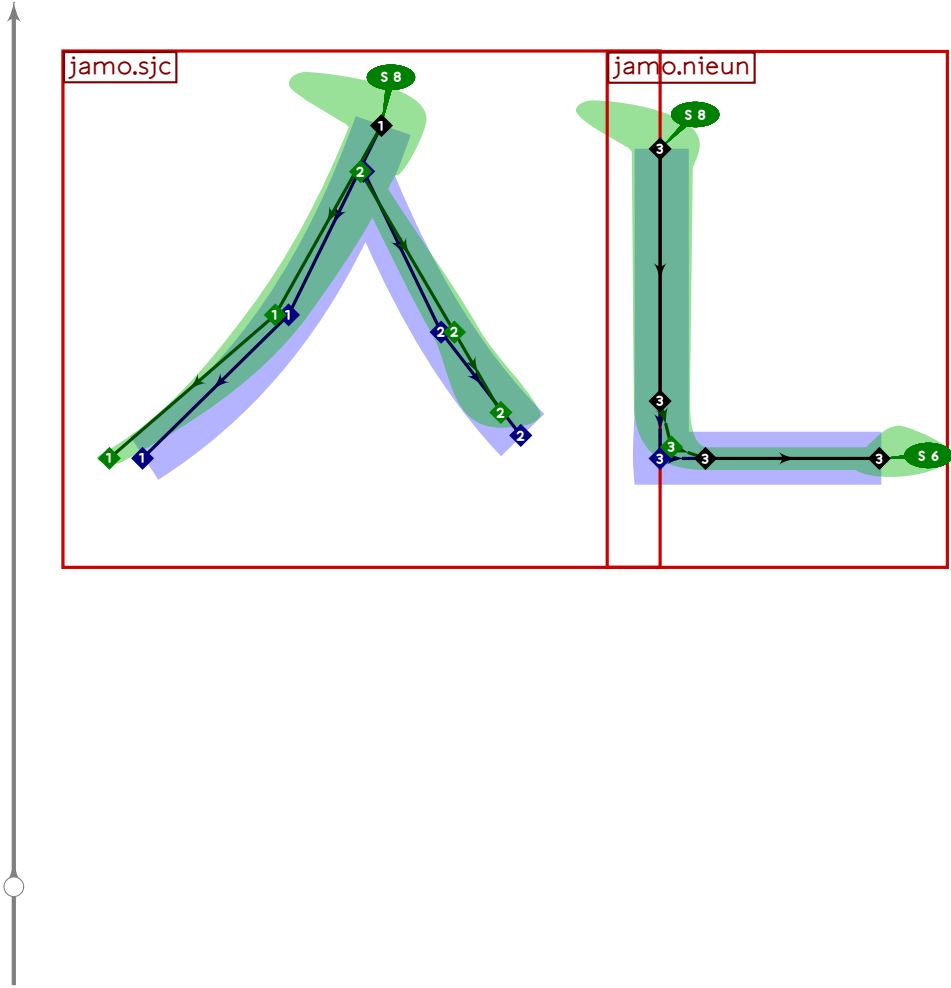
```
321 % hangul lead kapyeounssangpieup
322 begint Suglyph("uni112C.15",44);
323 hangul.combine.tb(108,521)(whatever,
324   hxf((150,850),(850,-50)) transformed lixf,loxf);
325 tsu_render;
326 endsuglyph;
327
```



```

328 % hangul lead sios-kiyeok
329 begintsuglyph("uni112D.15",45);
330 hangul.combine.lr(109,100)(whatever,lixf,loxf);
331 tsu_render;
332 endsuglyph;
333

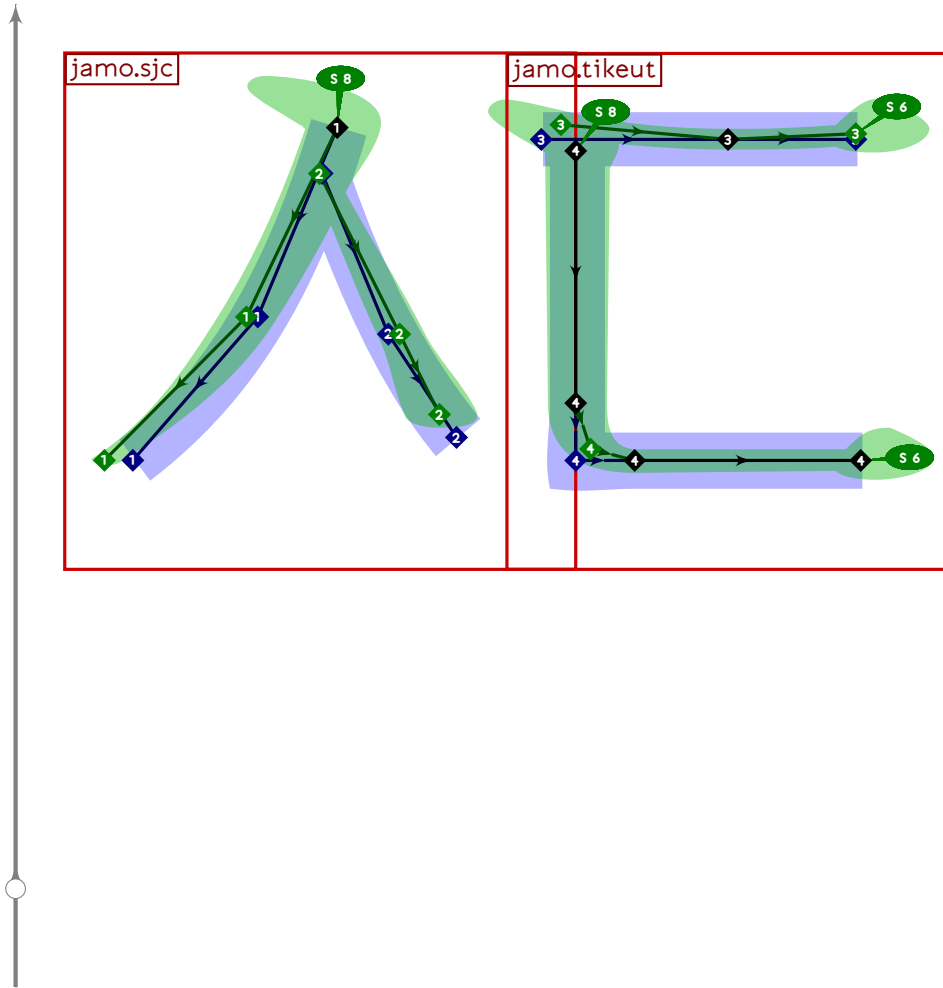
```



```

334 % hangul lead sios-nieun
335 begint Suglyph("uni112E.15",46);
336 hangul.combine.lr(209,102)(whatever,lixf,loxf);
337 tsu_render;
338 endtsuglyph;
339

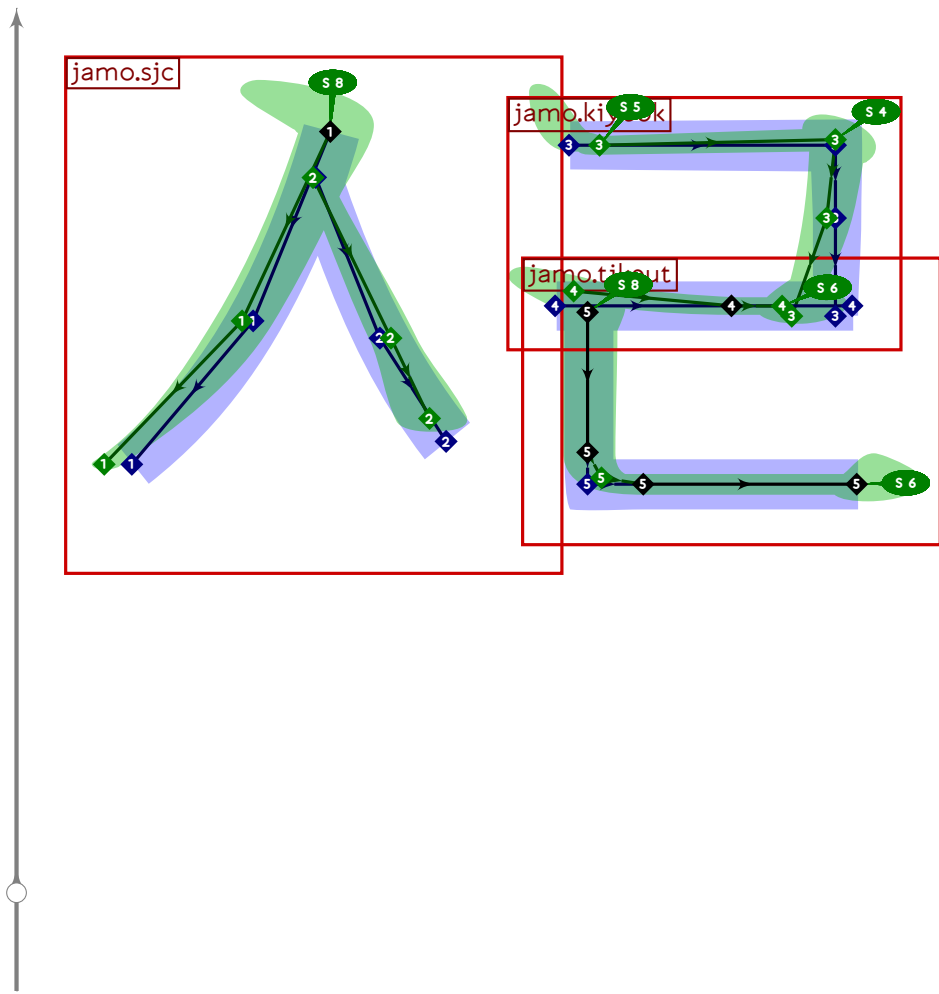
```



```

340 % hangul lead sios-tikeut
341 begint Suglyph("uni112F.15";47);
342 hangul.combine.lr(209,103)(whatever,lixf,loxf);
343 tsu_render;
344 endtsuglyph;
345

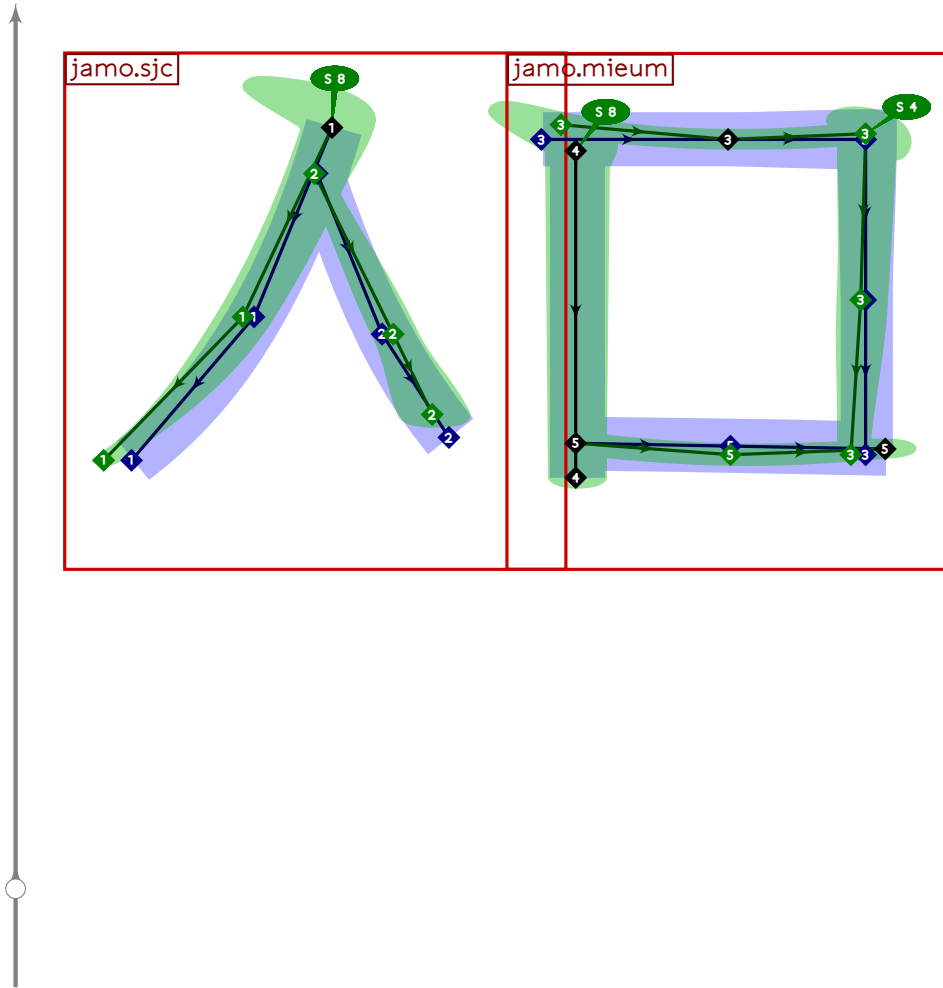
```



```

346 % hangul lead sios-rieul
347 begint Suglyph("uni1130.15",48);
348 hangul.combine.lr(209,105)(whatever,lixf,loxf);
349 tsu_render;
350 endtsuglyph;
351

```

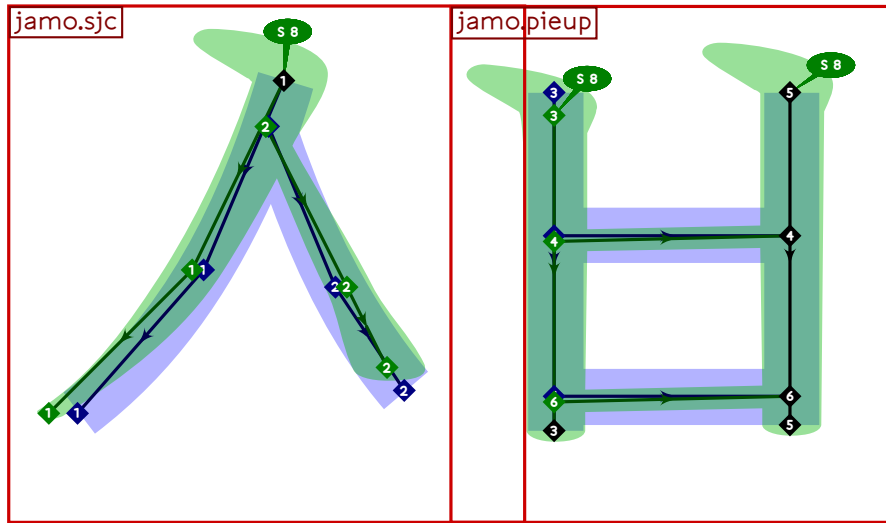


```

352 % hangul lead sios-mieum
353 begintsuglyph("uni1131.l5";49);
354 hangul.combine.lr(209,106)(whatever,lixf,loxf);
355 tsu_render;
356 endtsuglyph;
357

```

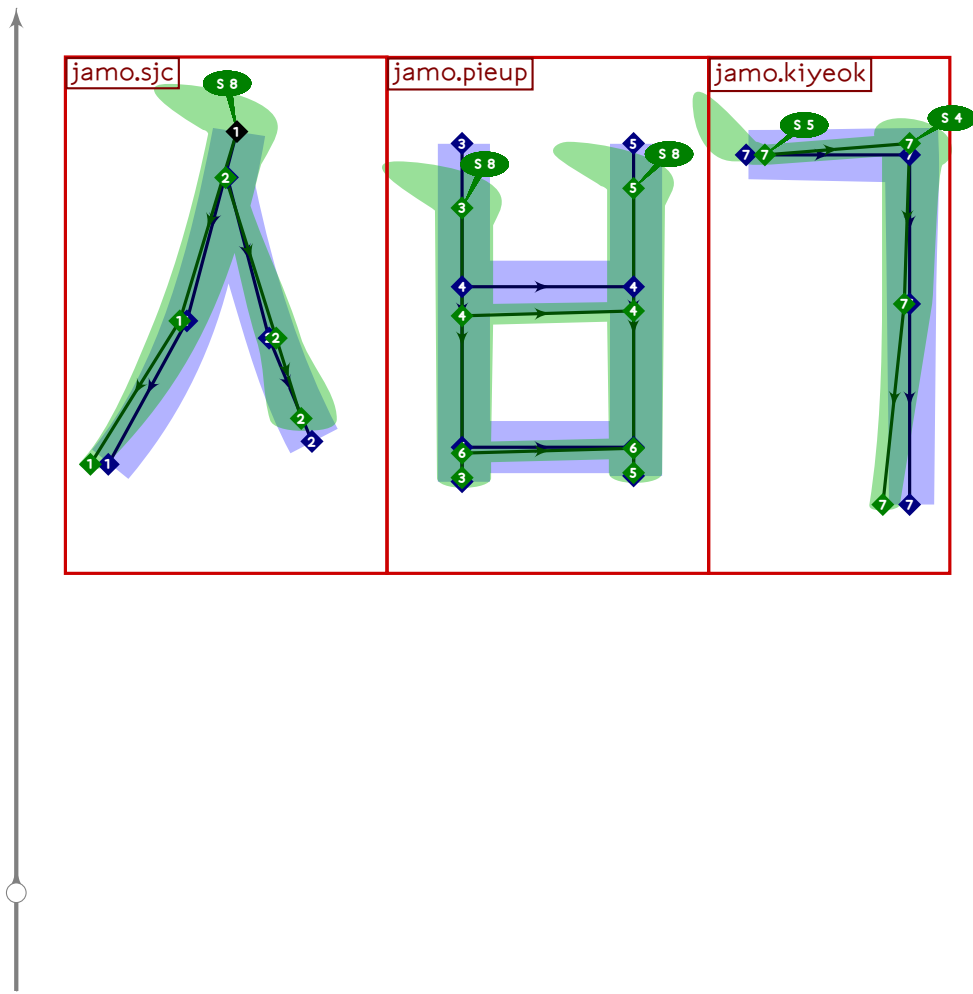




```

358 % hangul lead sios-pieup
359 begint Suglyph("uni1132.15";50);
360 hangul.combine.lr(209,107)(whatever,lixf,loxf);
361 tsu_render;
362 endtsuglyph;
363

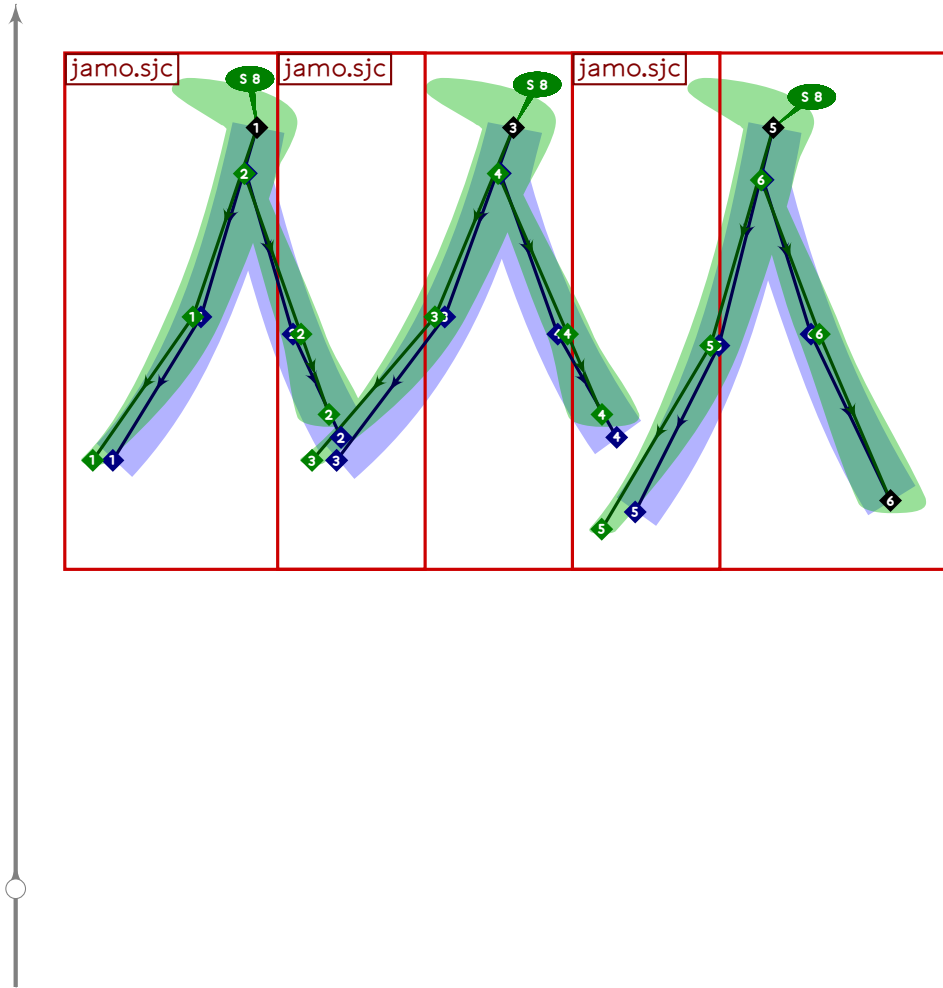
```



```

364 % hangul lead sios-pieup-kiyeok
365 begintsuglyph("uni1133.15",51);
366 hangul.combine.lcr(209,207,100)(whatever,lixf,loxf);
367 tsu_render;
368 endsuglyph;
369

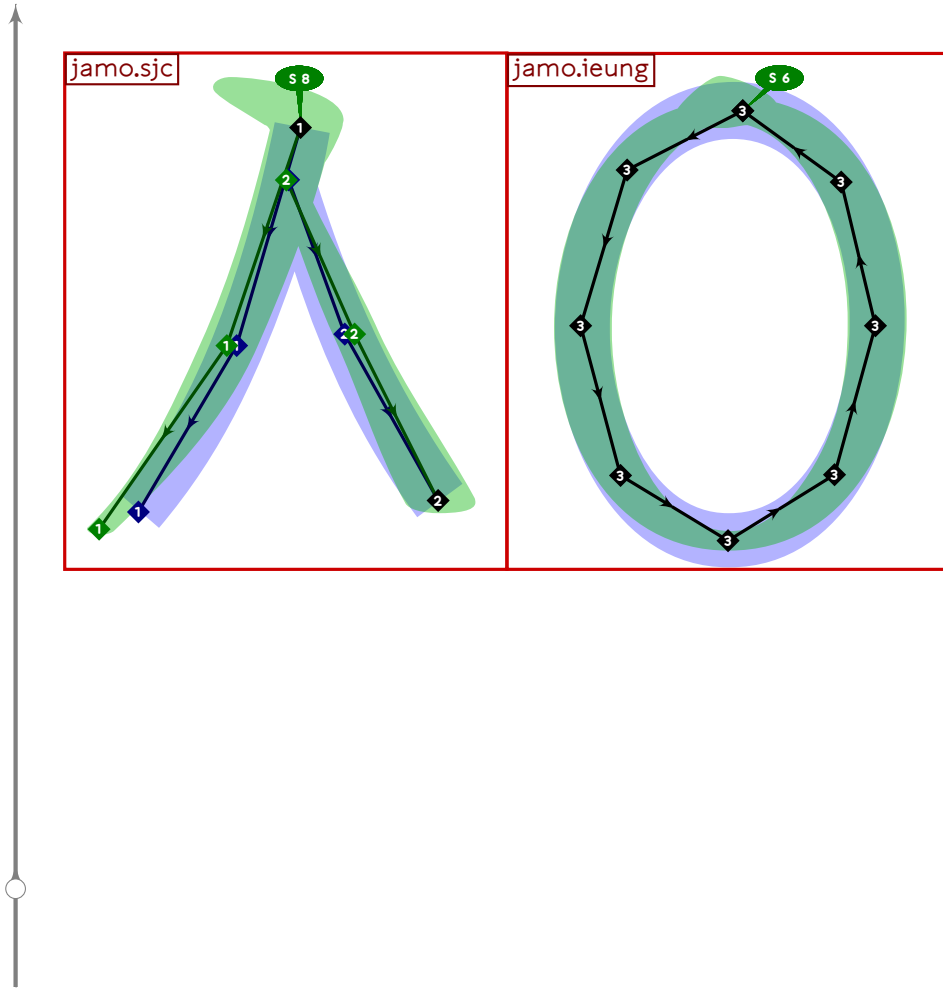
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```

370 % hangu lead sios-sios-sios
371 begintsuglyph("uni1134.15";52);
372 hangu.combine.lcr(209,209,109)(whatever,lixf,loxf);
373 tsu_render;
374 endtsuglyph;
375

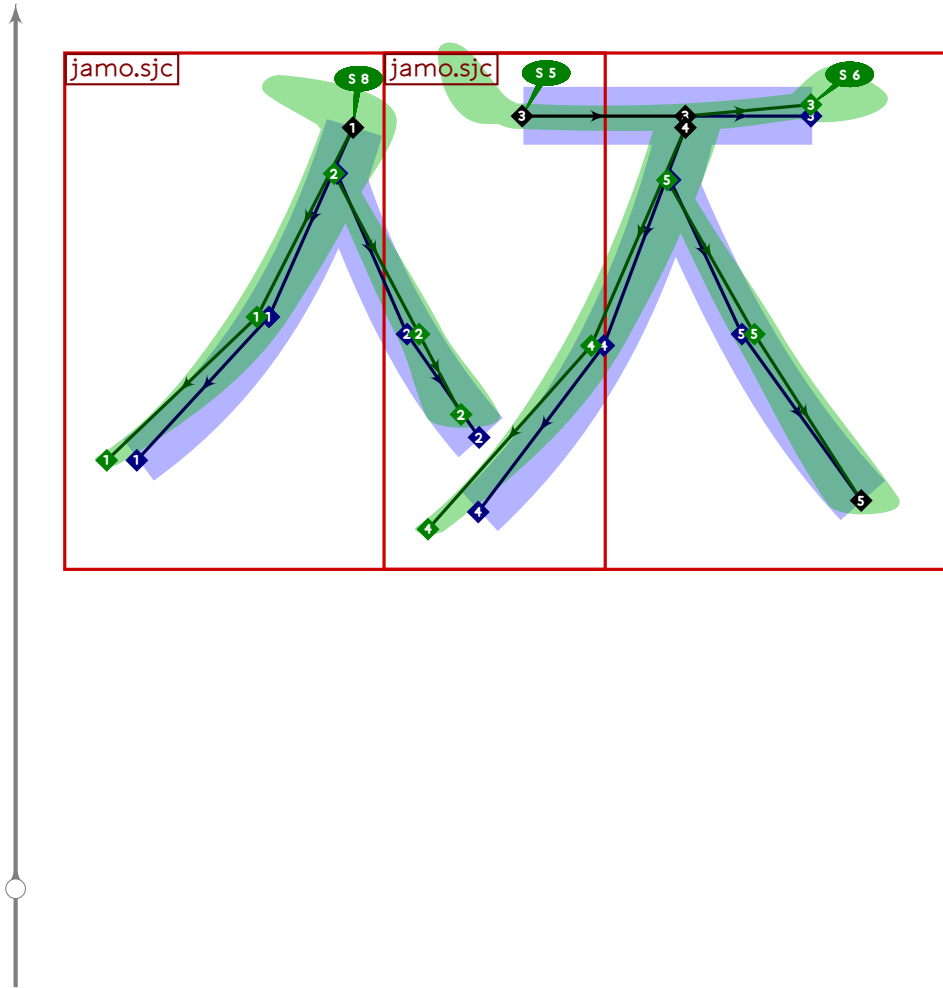
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```

376 % hangul lead sios-ieung
377 begint Suglyph("uni1135.15";53);
378 hangul.combine.lr(109,111)(whatever,lixf,loxf);
379 tsu_render;
380 endtsuglyph;
381

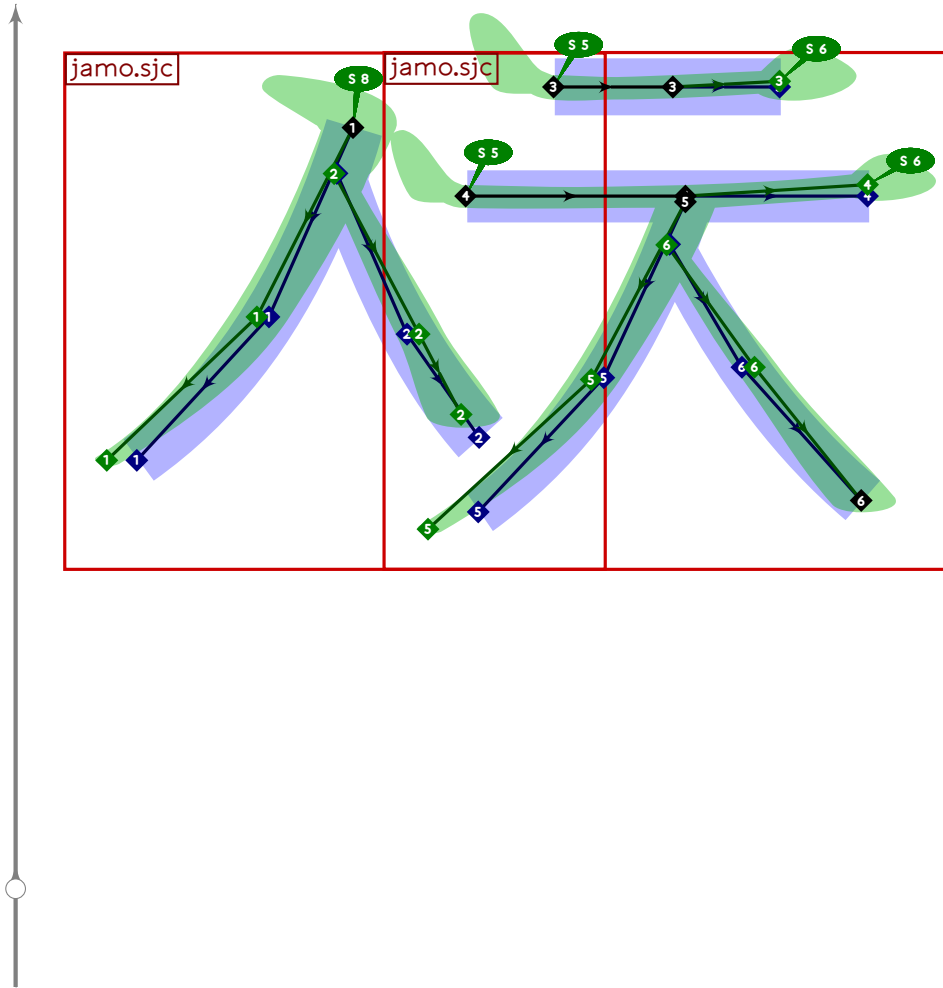
```



```

382 % hangul lead sios-cieuc
383 begint Suglyph("uni1136.15";54);
384 hangul.combine.lr(209,112)(whatever,lixf,loxf);
385 tsu_render;
386 endtsuglyph;
387

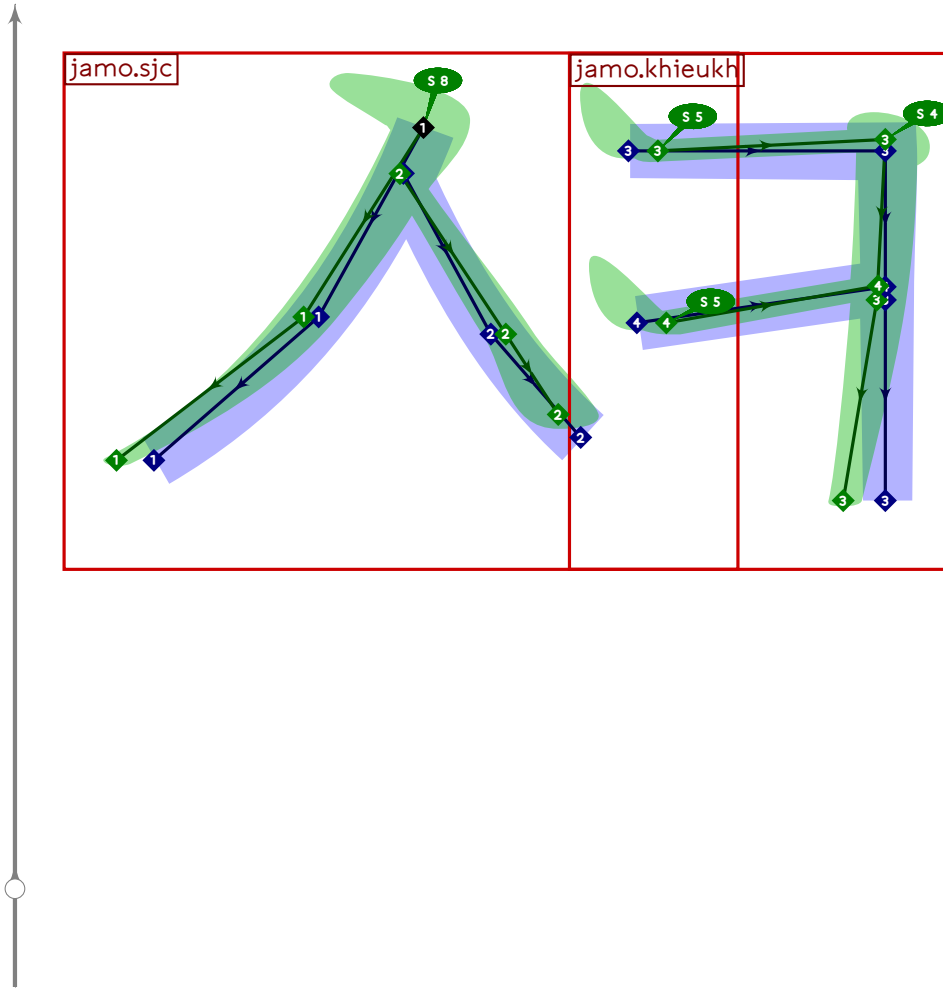
```



```

388 % hangul lead sios-chieuch
389 begintsuglyph("uni1137.15";55);
390 hangul.combine.lr(209,114)(whatever,lixf,loxf);
391 tsu_render;
392 endsuglyph;
393

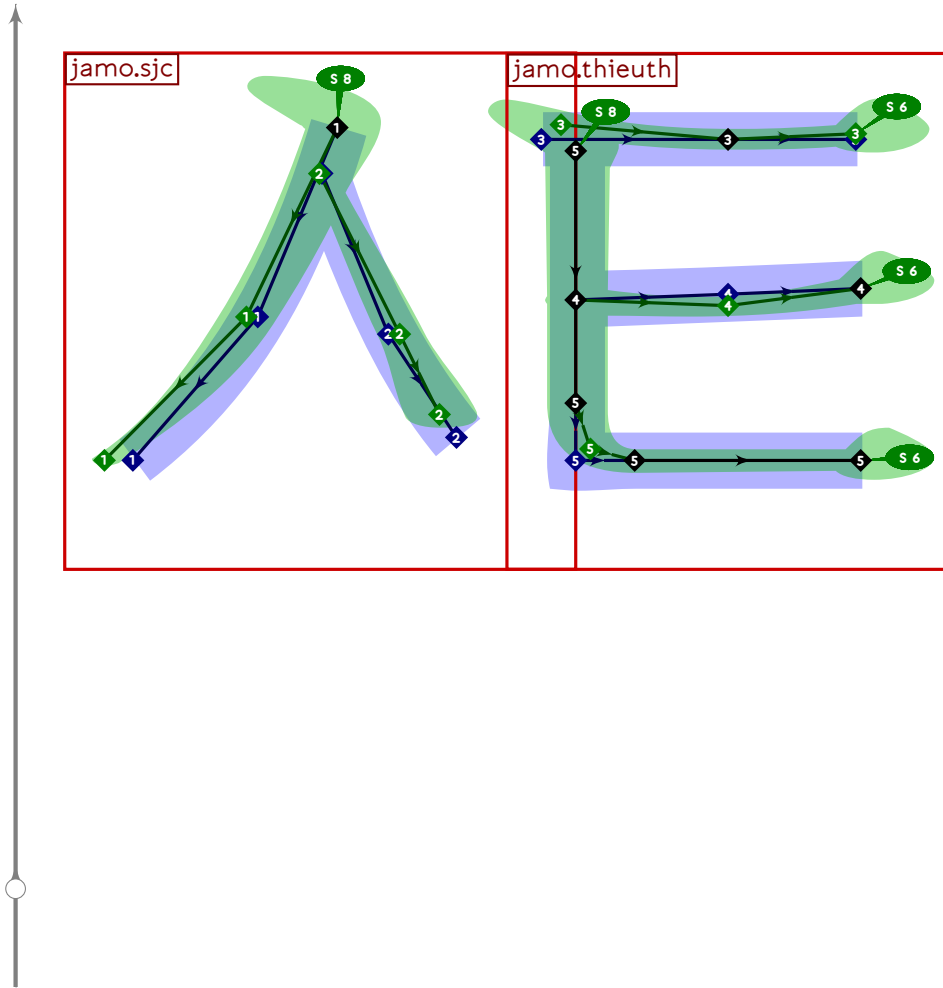
```



```

394 % hangul lead sios-khieukh
395 begint Suglyph("uni1138.15";56);
396 hangul.combine.lr(209,115)(whatever,lixf,loxf);
397 tsu_render;
398 endsuglyph;
399

```

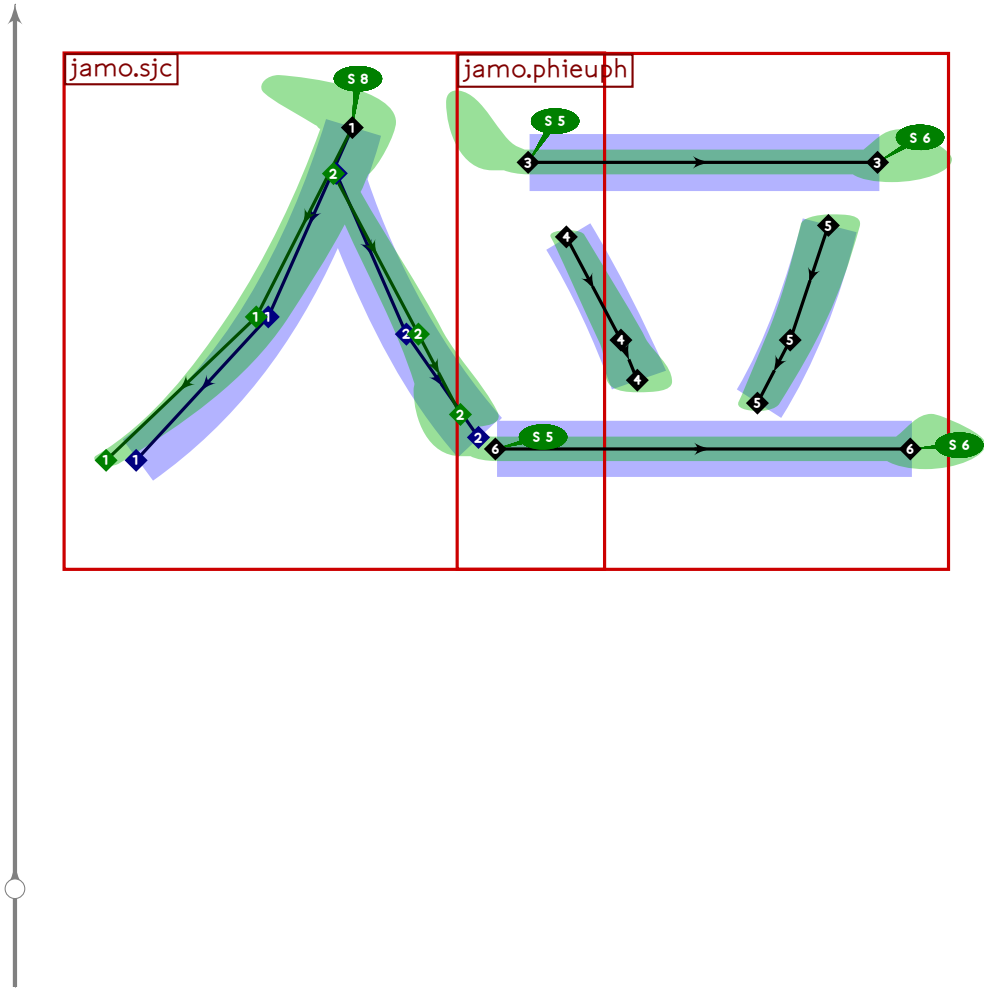


```

400 % hangul lead sios-thieuth
401 begint Suglyph("uni1139.15";57);
402 hangul.combine.lr(209,116)(whatever,lixf,loxf);
403 tsu_render;
404 endtsuglyph;
405

```

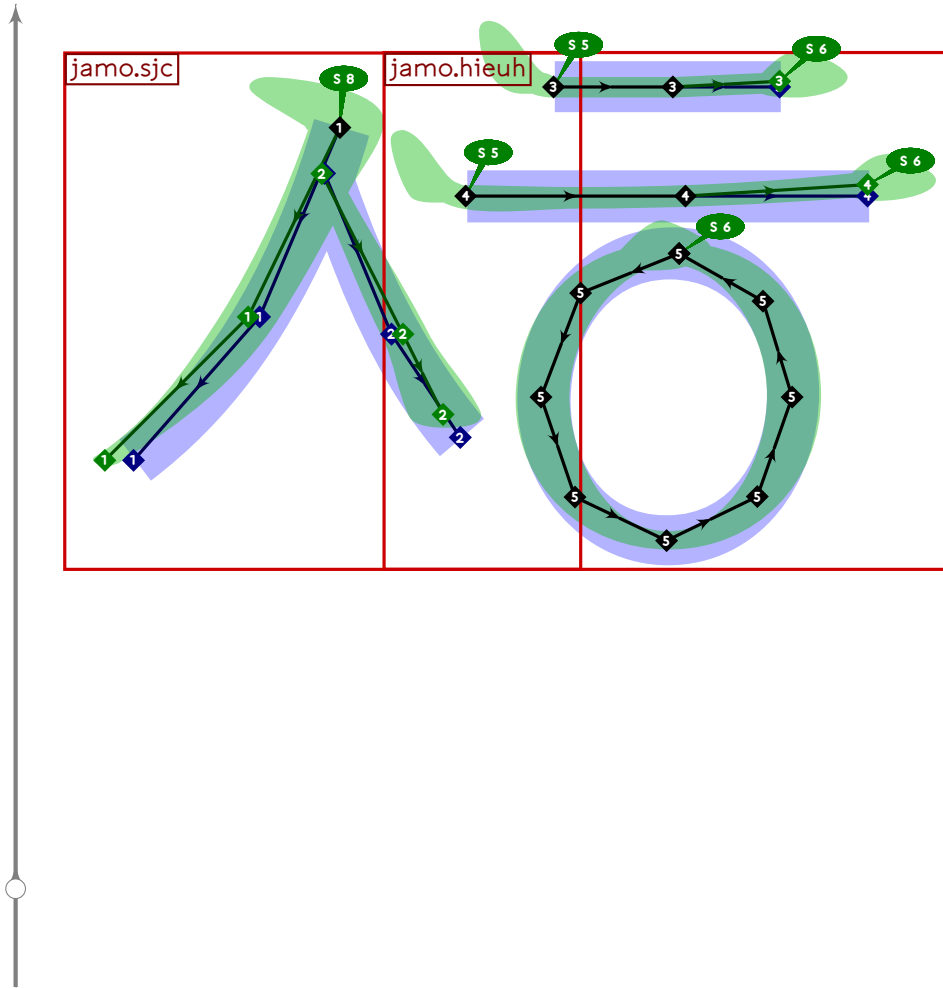




```

406 % hangul lead sios-phieuph
407 begintsuglyph("uni113A.I5",58);
408 hangul.combine.lr(209,117)(whatever,lixf,loxf);
409 tsu_render;
410 endtsuglyph;
411

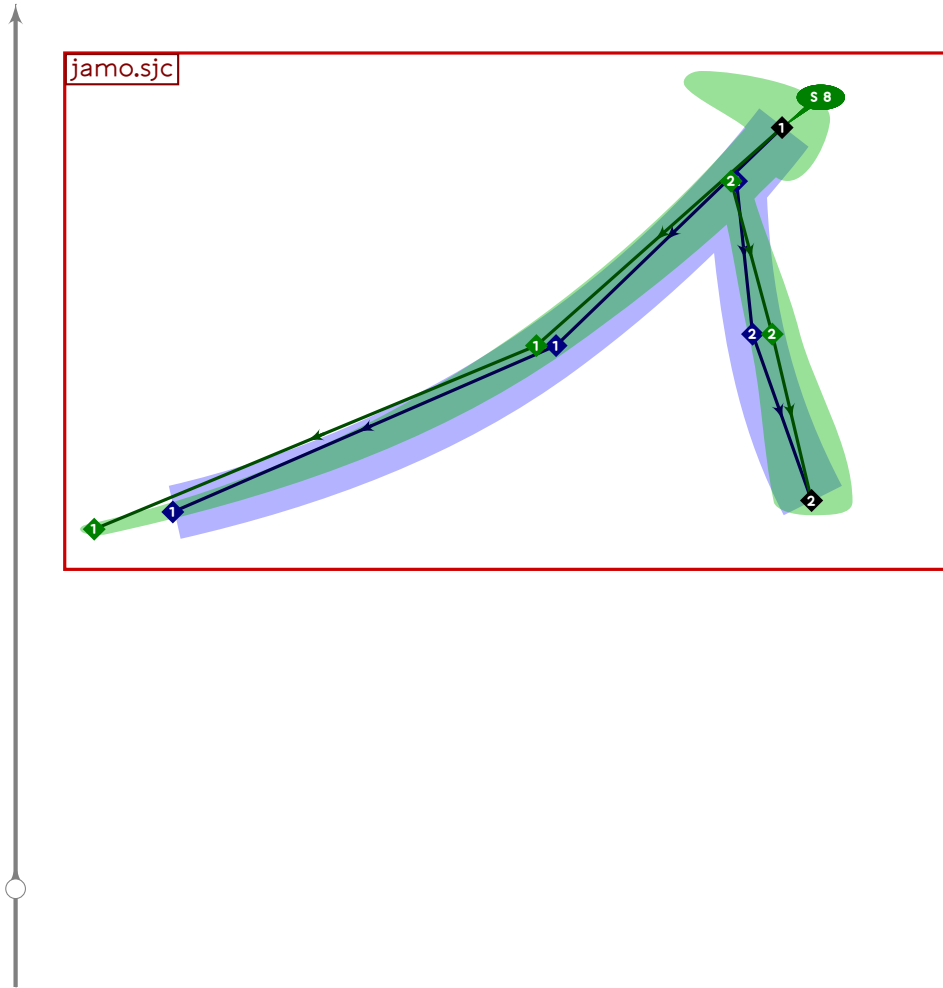
```



```

412 % hangul lead sios-hieuh
413 begint Suglyph("uni113B.15",59);
414 hangul.combine.lr(209,118)(whatever,lixf,loxf);
415 tsu_render;
416 endtsuglyph;
417

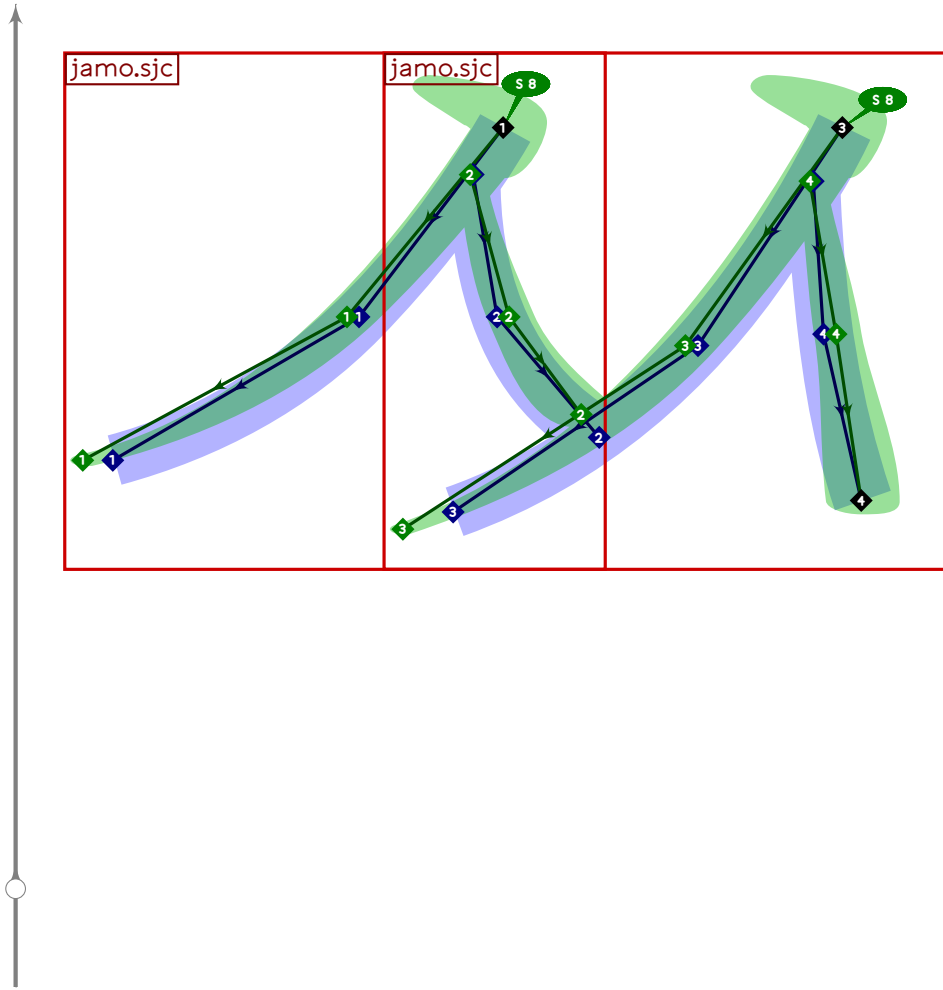
```



```

418 % hangul lead chitueumsios
419 begint Suglyph("uni113C.15",60);
420 hangul.jamo.sjc(0,1,false)(whatever,lixf,loxf);
421 tsu_render;
422 endtsuglyph;
423

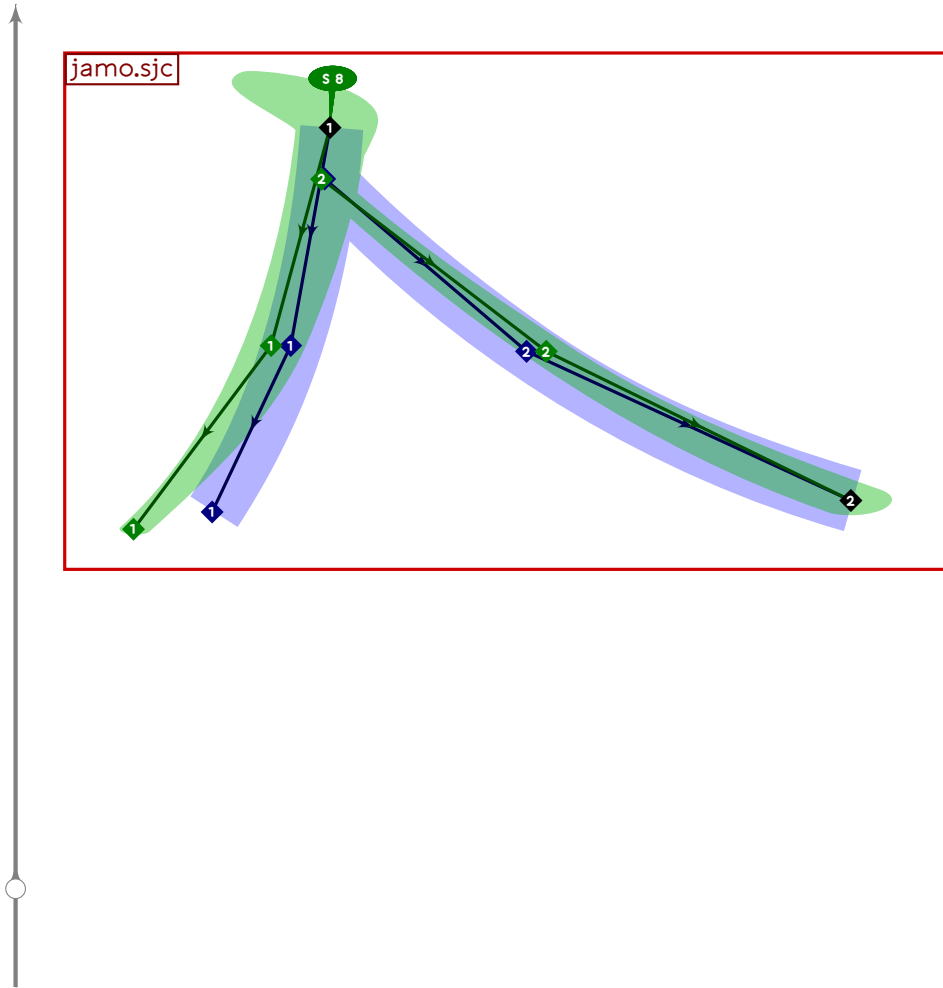
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```

424 % hangul lead chitueumssangsios
425 begintsuglyph("uni113D.I5",61);
426 hangul.combine.lr(223,222)(whatever,lixf,loxf);
427 tsu_render;
428 endsuglyph;
429

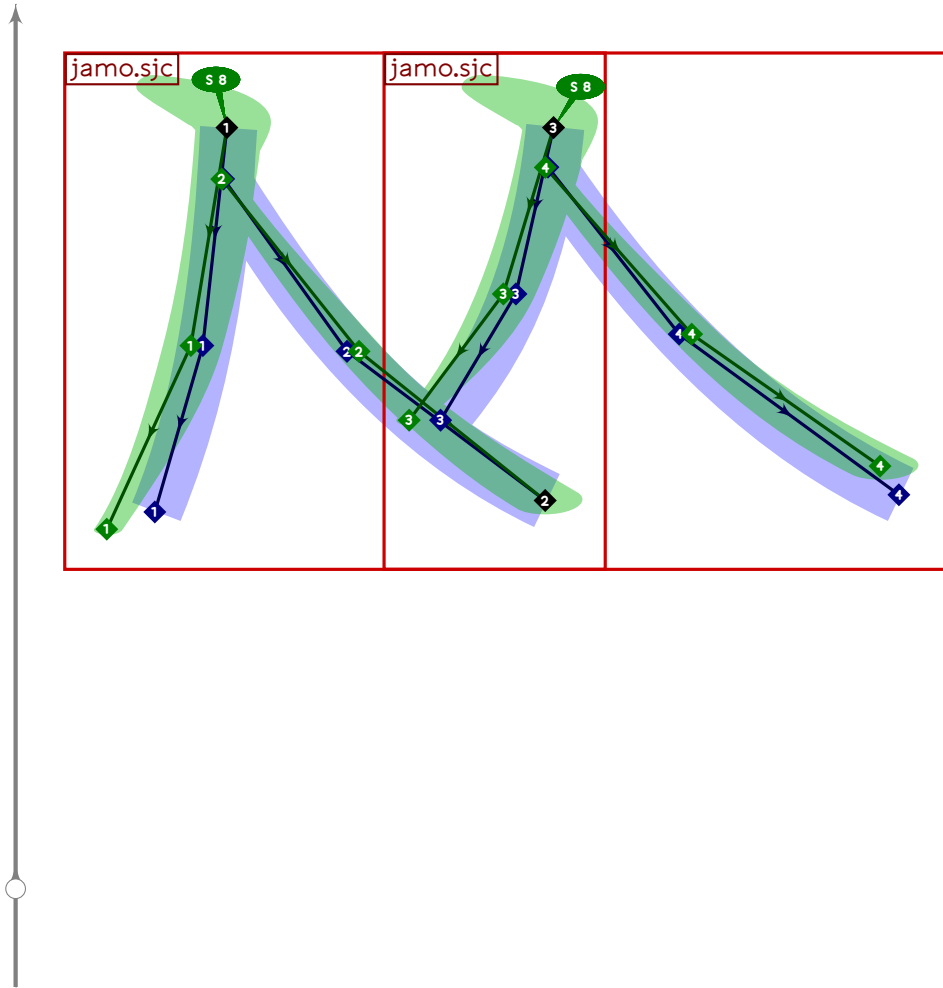
```



```

430 % hangul lead ceongchieumsios
431 begint Suglyph("uni113E.15";62);
432 hangul.jamo.sjc(0,-1,false)(whatever,lixf,loxf);
433 tsu_render;
434 endtsuglyph;
435

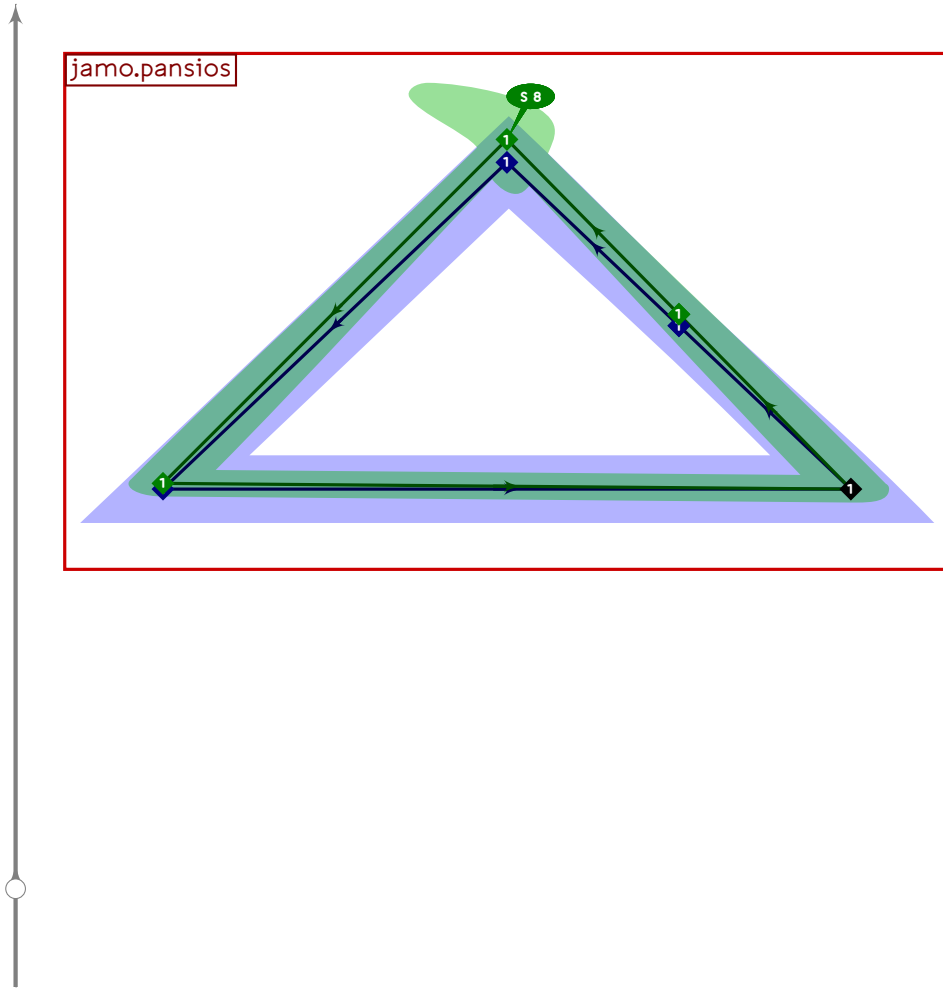
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```

436 % hangul lead ceongchieumssangsios
437 begint Suglyph("uni113F.15",63);
438 hangul.combine.lr(224,225)(whatever,lixf,loxf);
439 tsu_render;
440 endsuglyph;
441

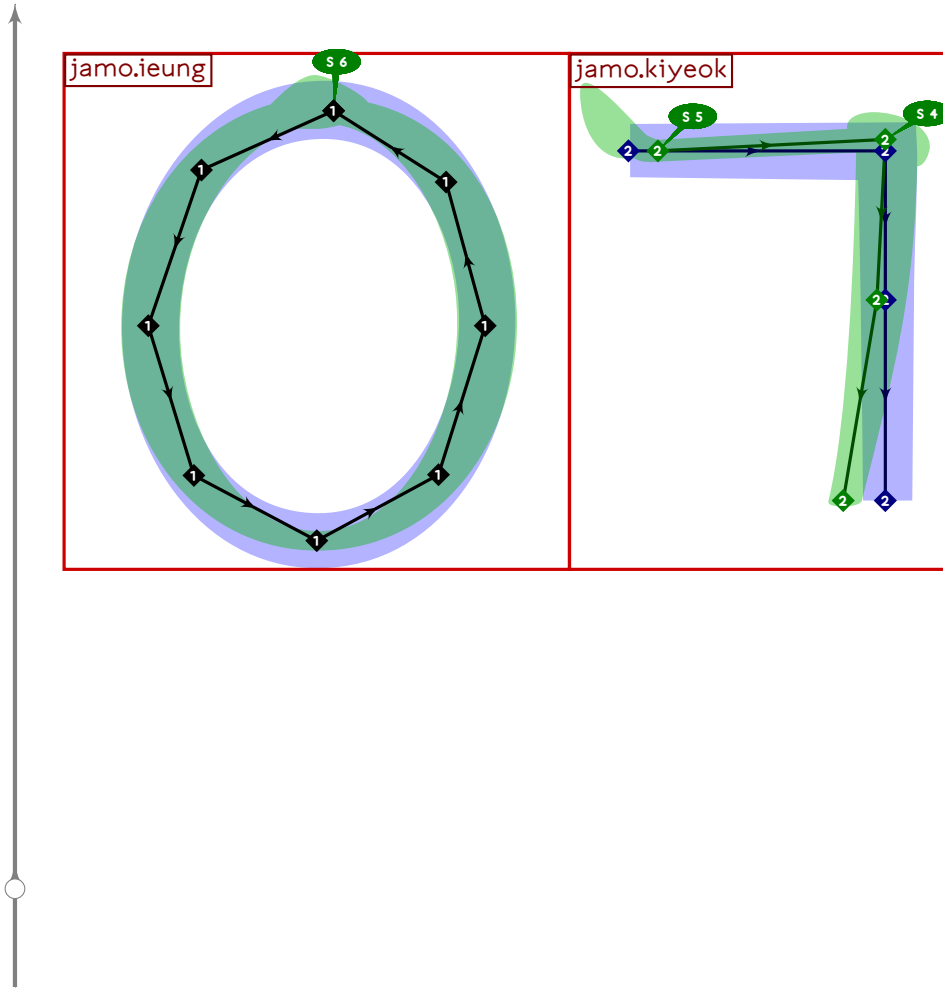
```



```

442 % hangul lead pansios
443 begintsuglyph("uni1140.15",64);
444 hangul.jamo.pansios(whatever,lixf,loxf);
445 tsu_render;
446 endsuglyph;
447

```

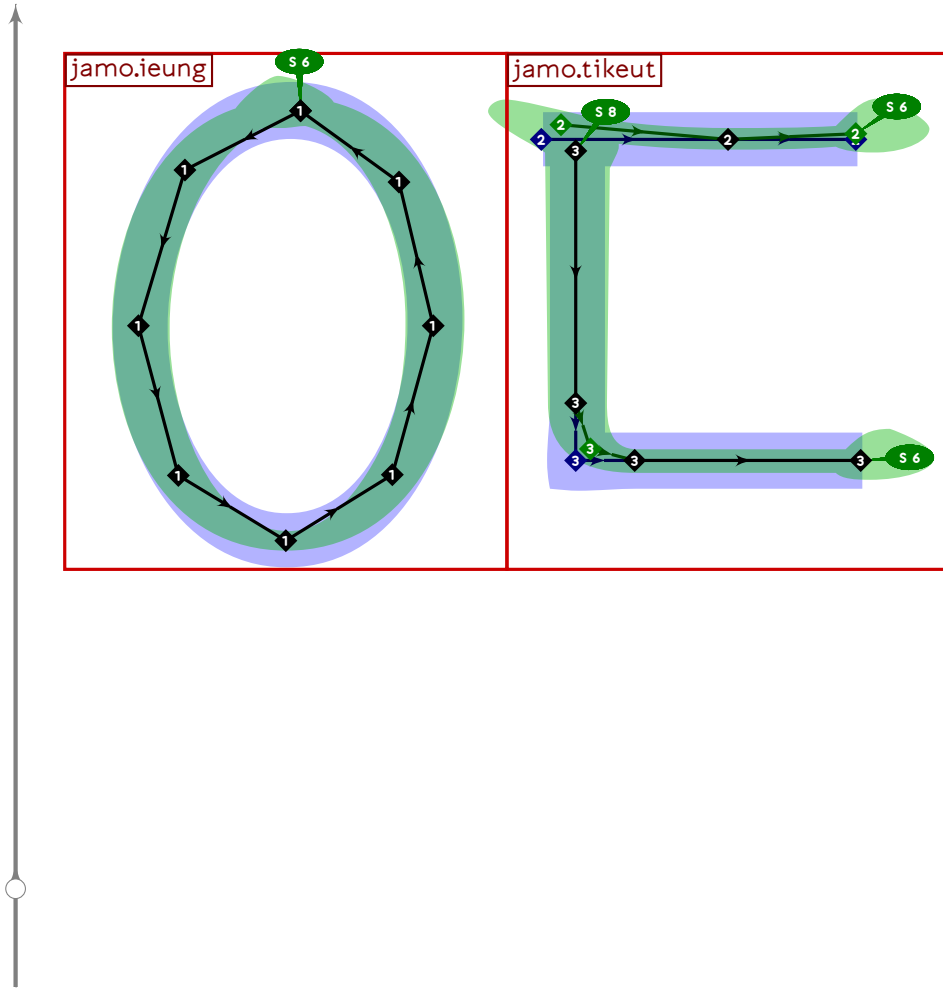


```

448 % hangul lead ieung-kiyeok
449 begintsuglyph("uni1141.15",65);
450 hangul.combine.lr(111,100)(whatever,lixf,loxf);
451 tsu_render;
452 endsuglyph;
453

```

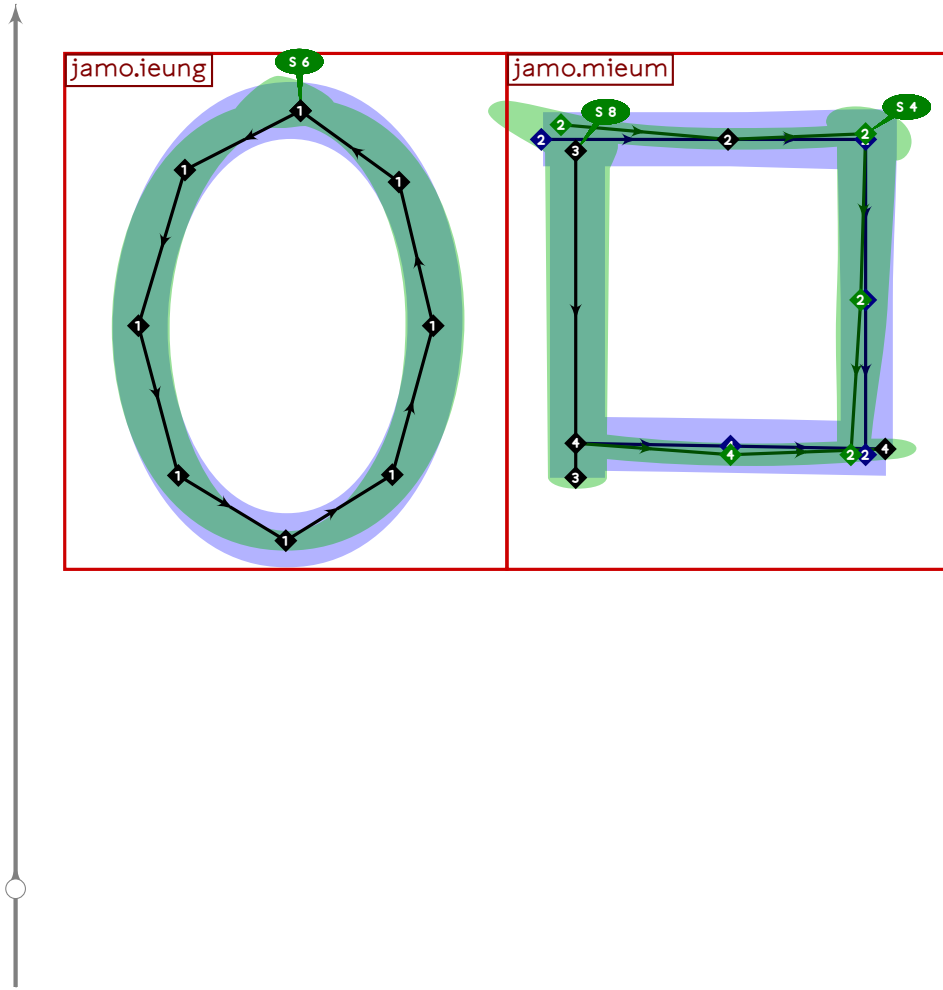




```

454 % hangul lead ieung-tikeut
455 begintsuglyph("uni1142.15";66);
456 hangul.combine.lr(111,103)(whatever,lixf,loxf);
457 tsu_render;
458 endsuglyph;
459

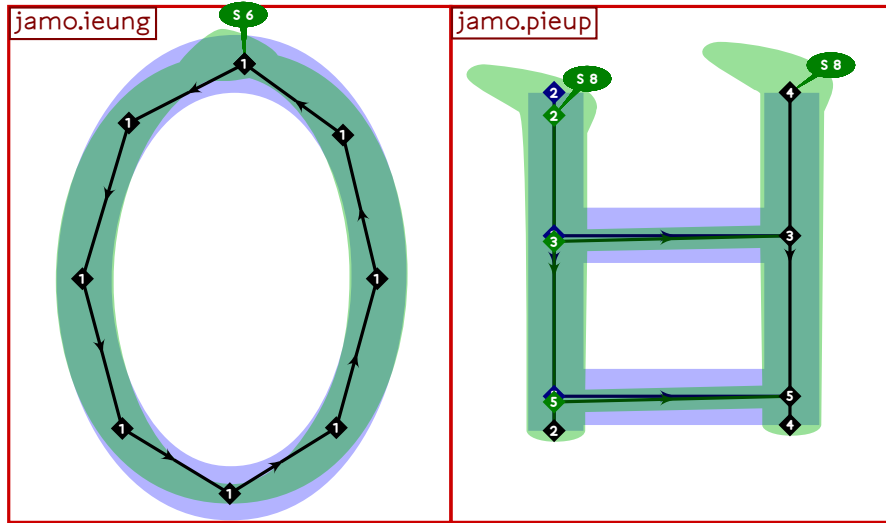
```



```

460 % hangul lead ieung-mieum
461 begintsuglyph("uni1143.15";67);
462 hangul.combine.lr(111,106)(whatever,lixf,loxf);
463 tsu_render;
464 endsuglyph;
465

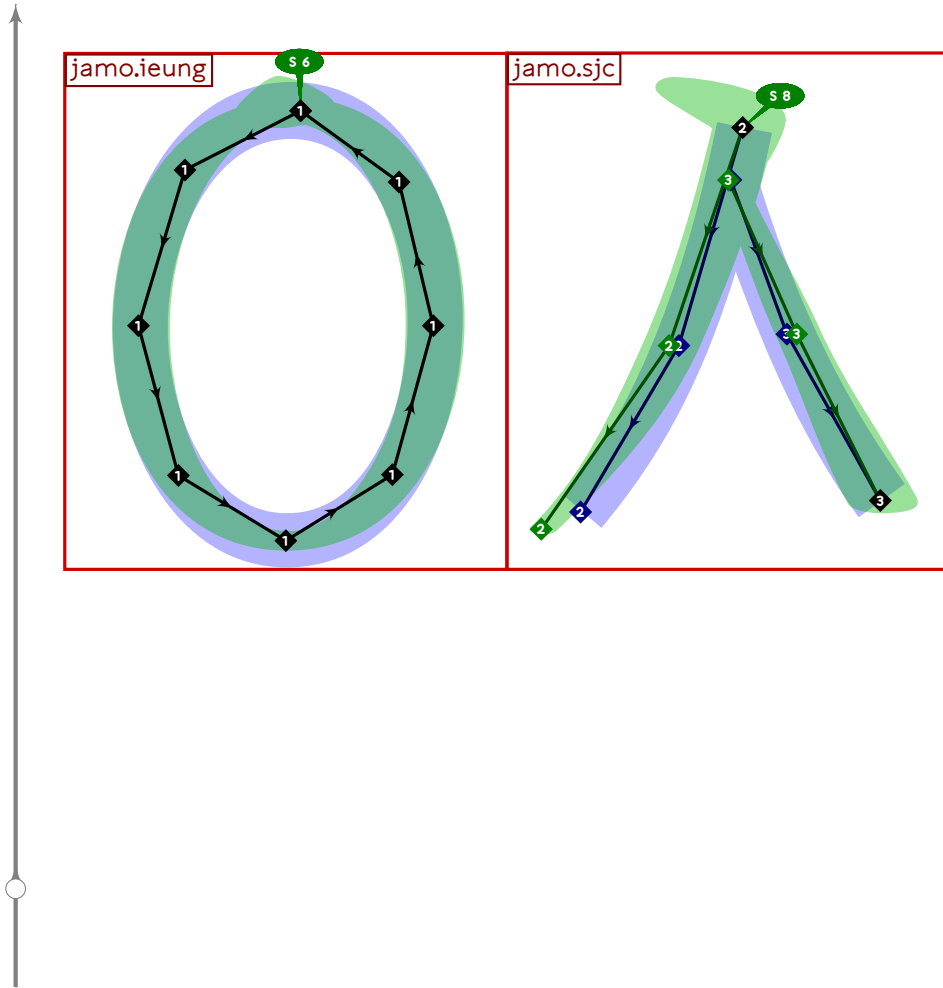
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```

466 % hangul lead ieung-pieup
467 beginsuglyph("uni1144.15";68);
468 hangul.combine.lr(111,107)(whatever,lixf,loxf);
469 tsu_render;
470 endsuglyph;
471

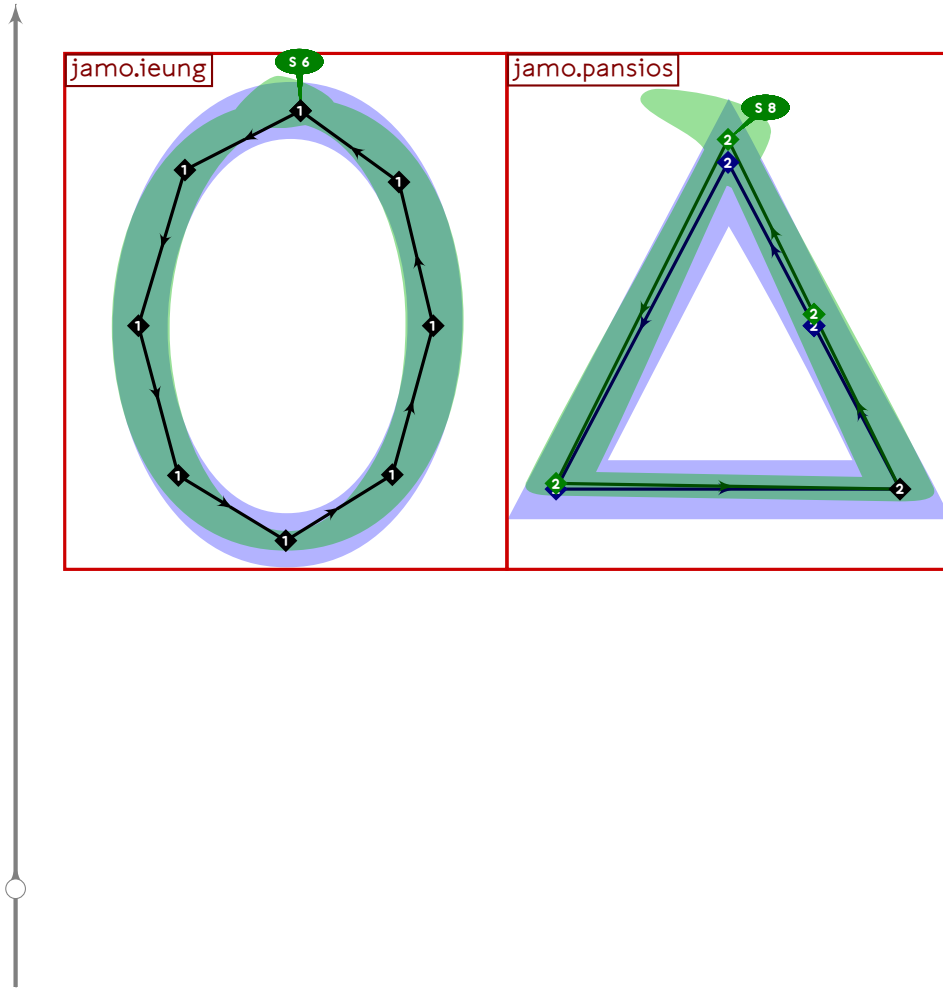
```



```

472 % hangul lead ieung-sios
473 begintsuglyph("uni1145.15";69);
474 hangul.combine.lr(111,109)(whatever,lixf,loxf);
475 tsu_render;
476 endsuglyph;
477

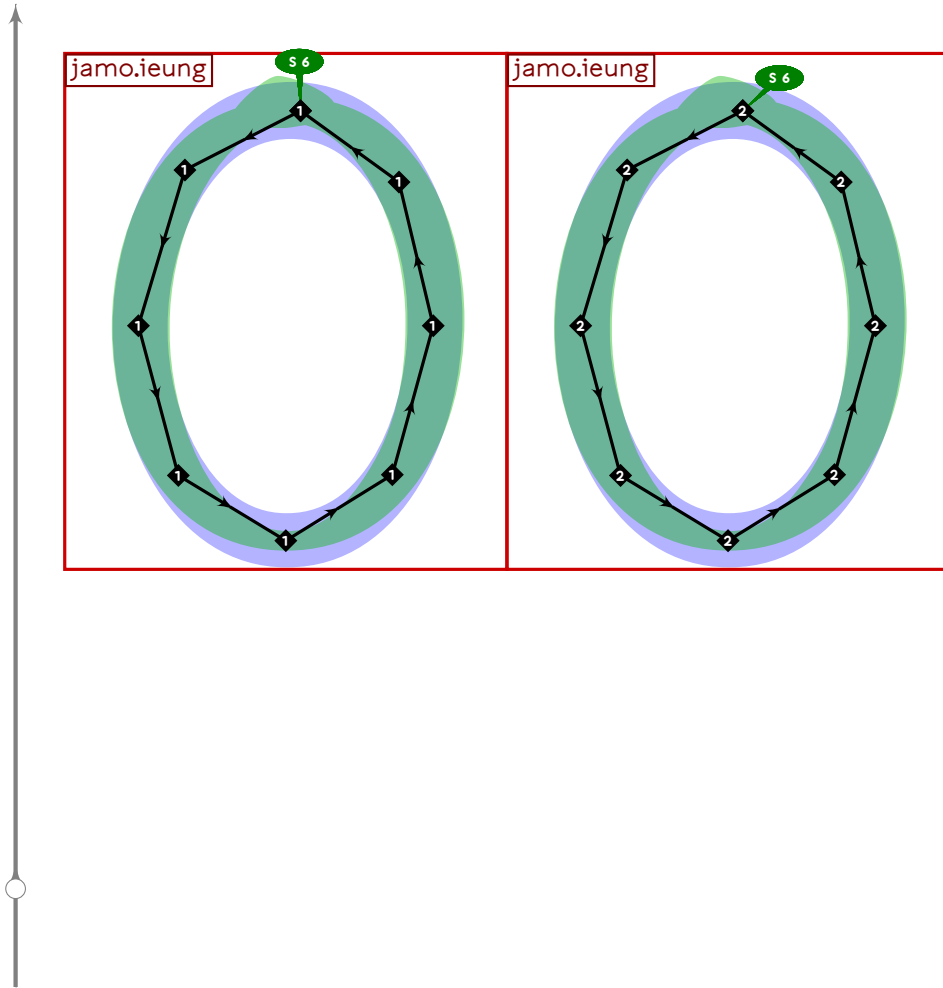
```



```

478 % hangul lead ieung-pansios
479 begintsuglyph("uni1146.l5";70);
480 hangul.combine.lr(111,219)(whatever,lixf,loxf);
481 tsu_render;
482 endsuglyph;
483

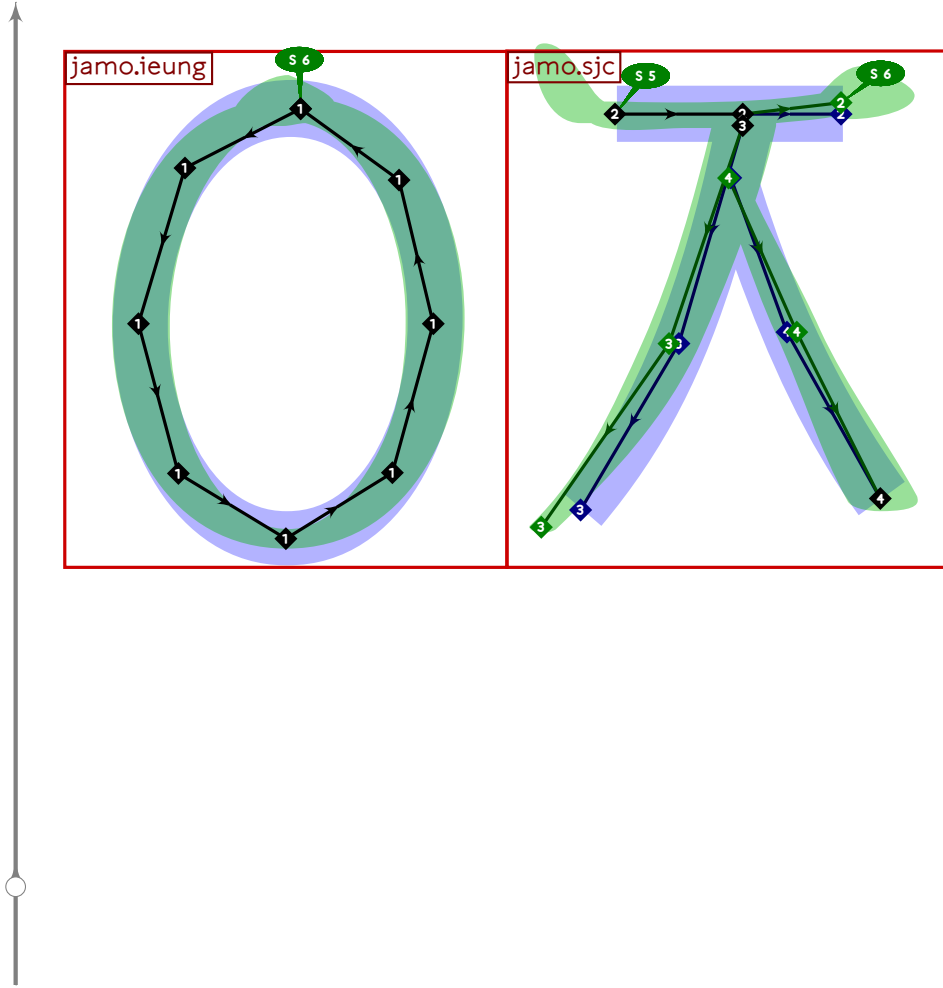
```



```

484 % hangul lead ssangieung
485 begintsuglyph("uni1147.15";71);
486 hangul.combine.lr(111,111)(whatever,lixf,loxf);
487 tsu_render;
488 endsuglyph;
489

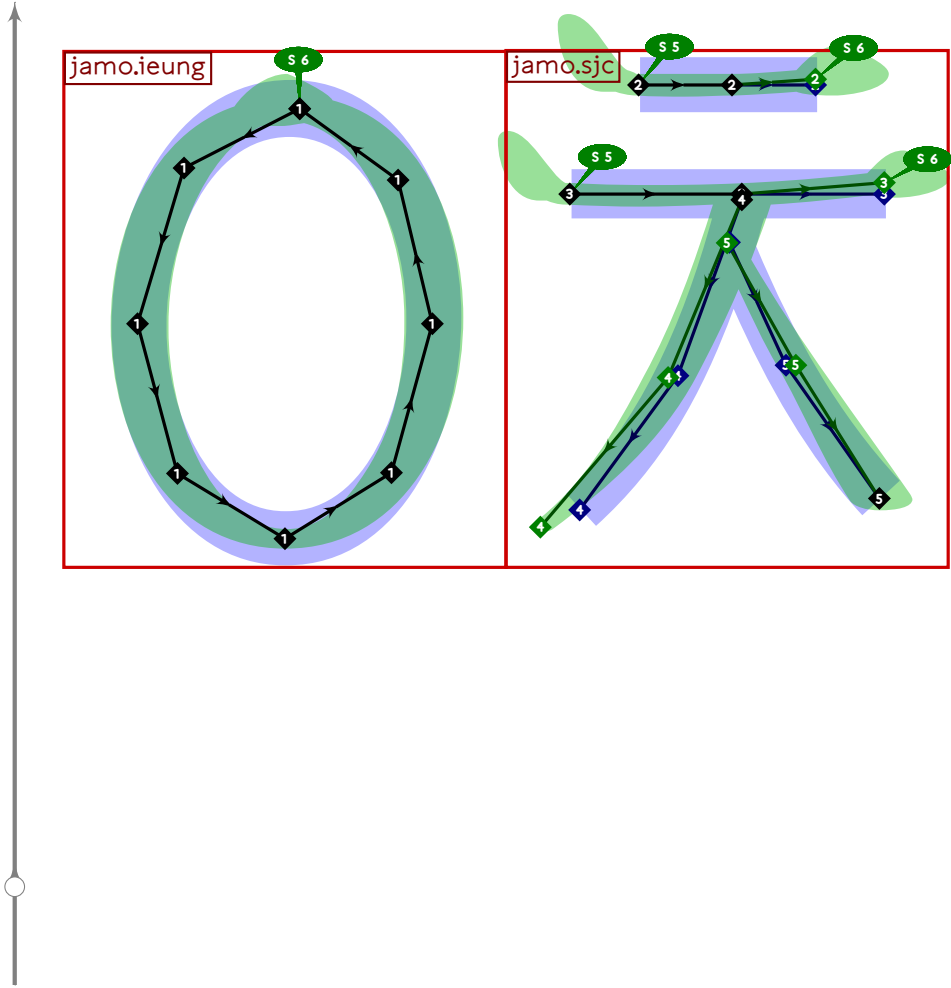
```



```

490 % hangul lead ieung-cieuc
491 begintsuglyph("uni1148.i5";72);
492 hangul.combine.lr(111,112)(whatever,lixf,loxf);
493 tsu_render;
494 endsuglyph;
495

```

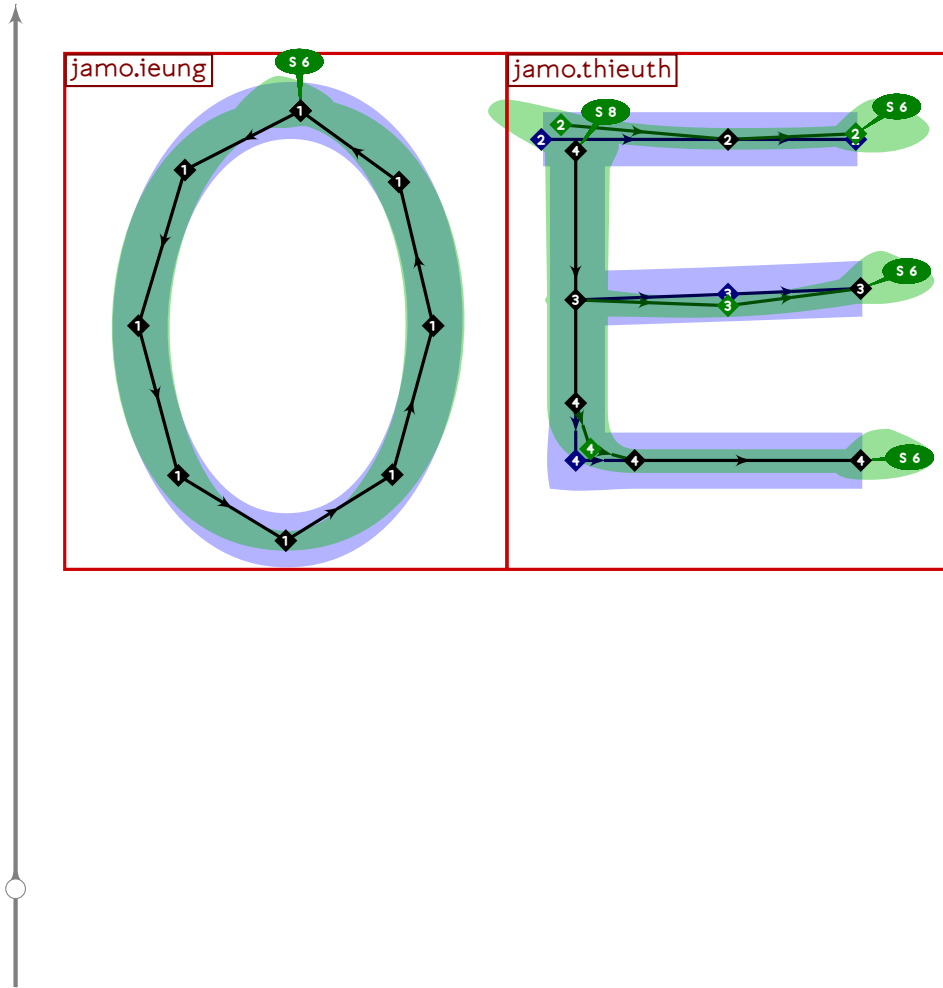


```

496 % hangul lead ieung-chieuch
497 begintsuglyph("uni1149.15";73);
498 hangul.combine.lr(111,114)(whatever,lixf,loxf);
499 tsu_render;
500 endsuglyph;
501

```

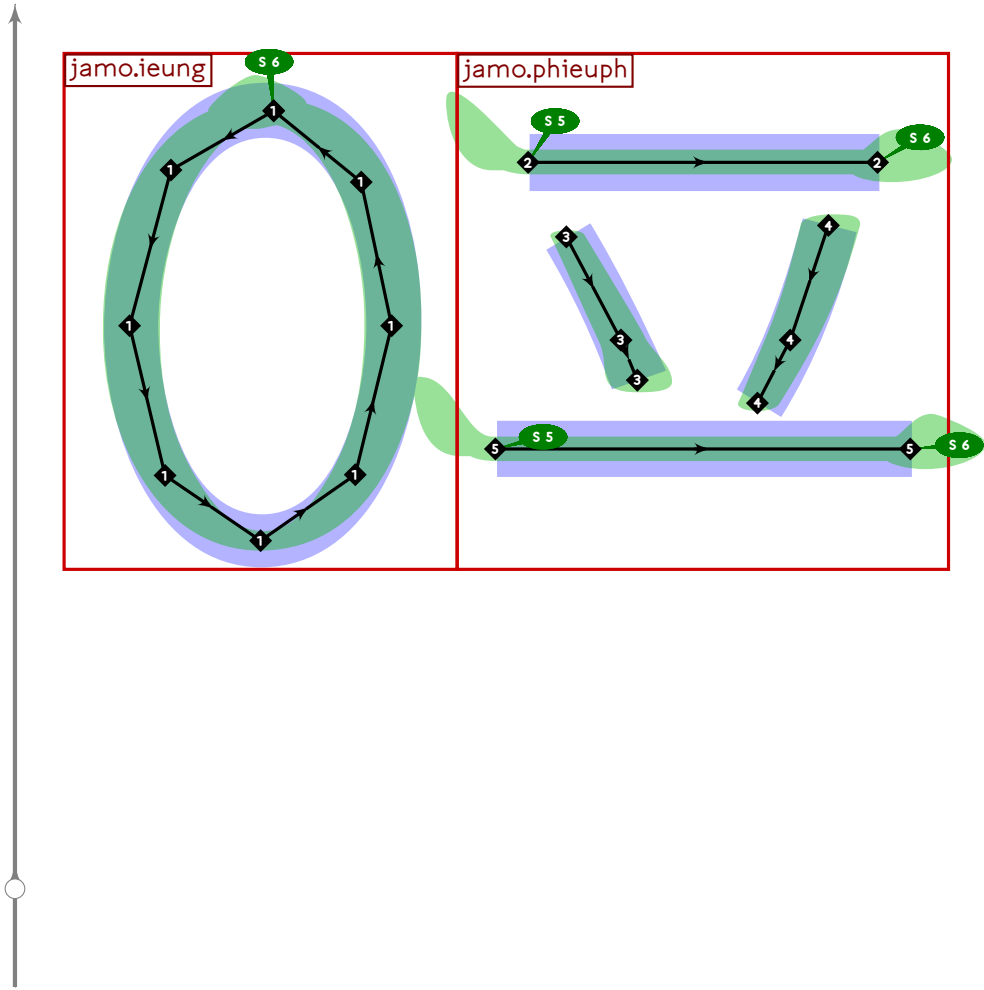




```

502 % hangul lead ieung-theiuth
503 begint Suglyph("uni114A.I5";74);
504 hangul.combine.lr(111,116)(whatever,lixf,loxf);
505 tsu_render;
506 endtsuglyph;
507

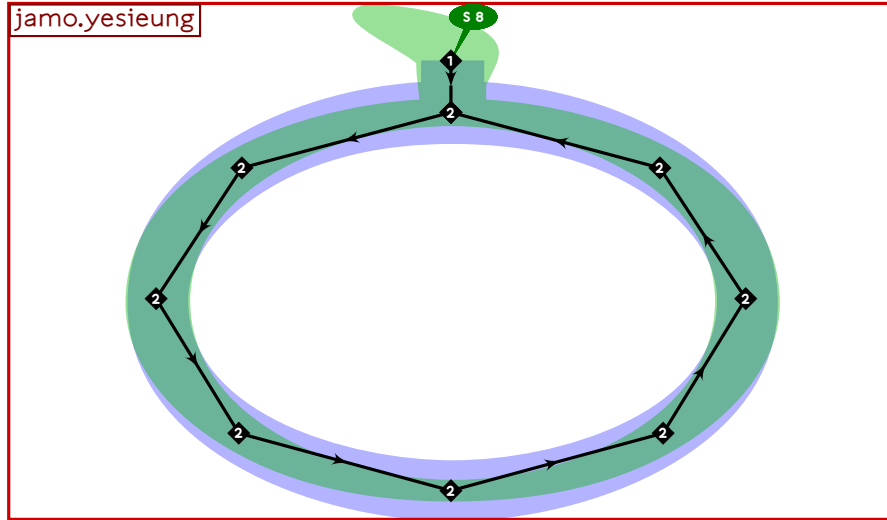
```



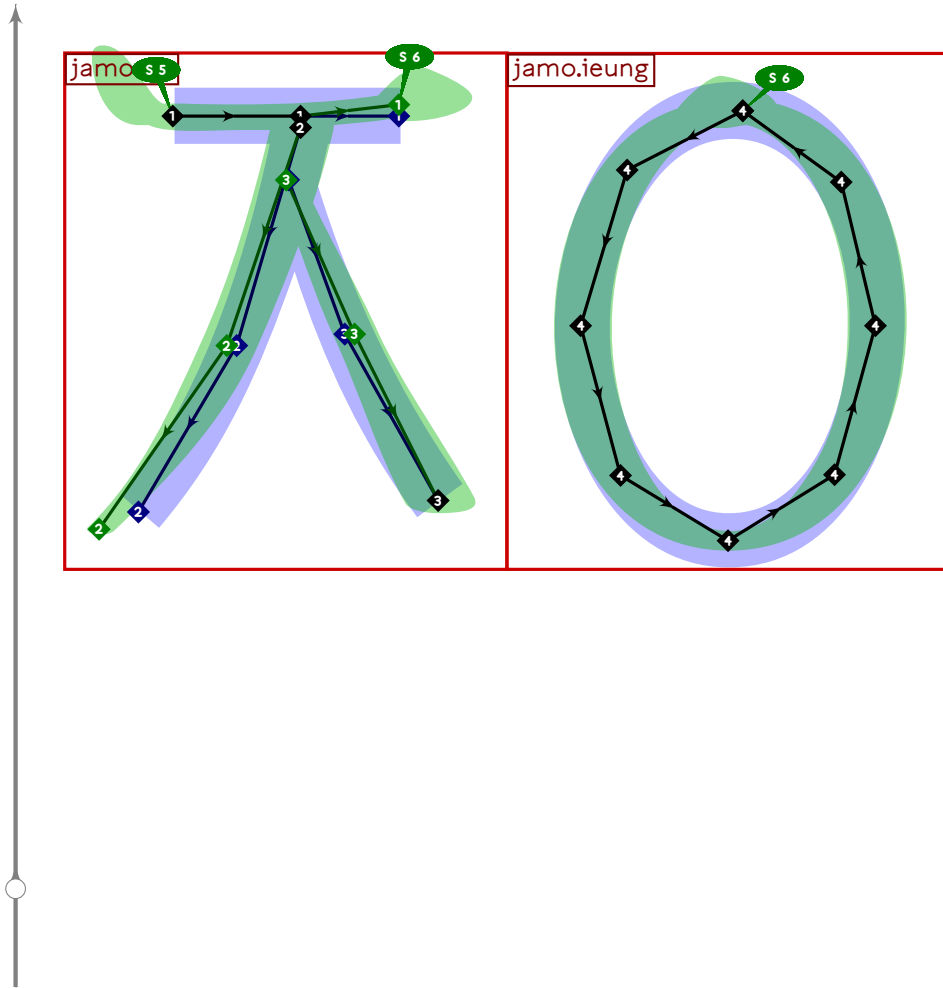
```

508 % hangul lead ieung-phieup
509 begintsuglyph("uni114B.15";75);
510 hangul.combine.lr(111,117)(whatever,lixf,loxf);
511 tsu_render;
512 endsuglyph;
513

```



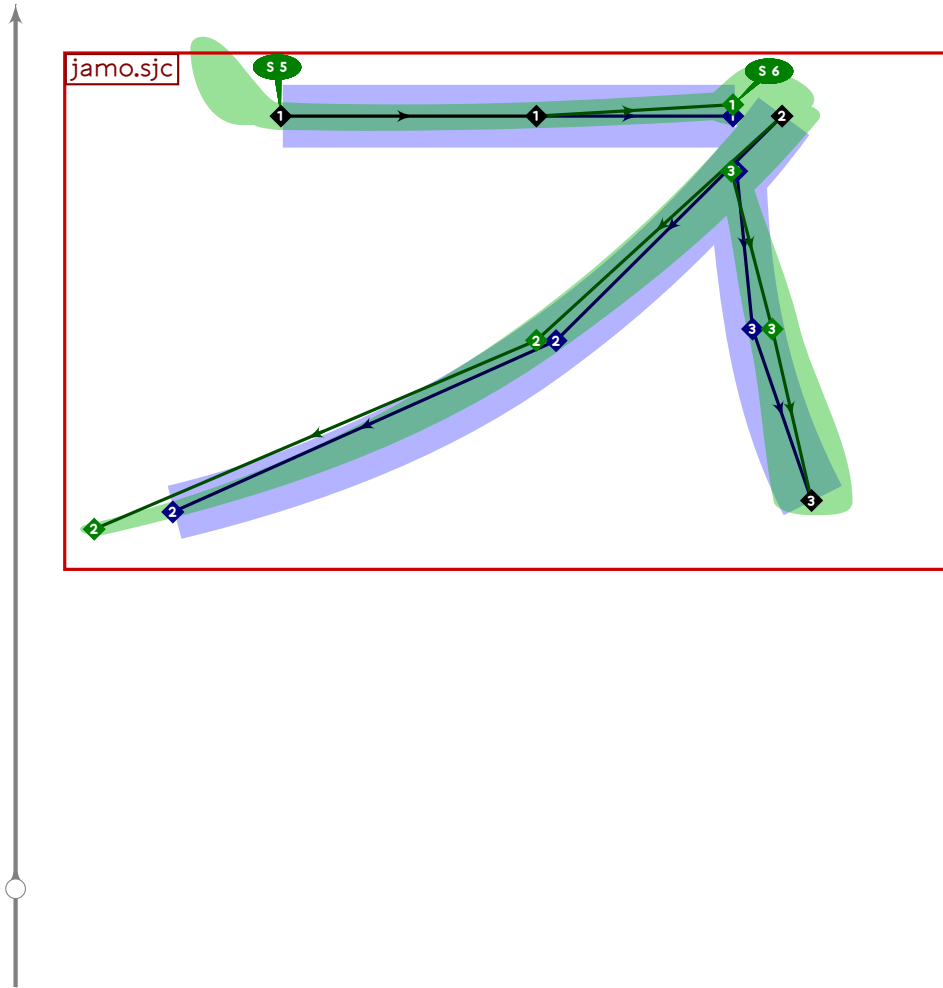
```
514 % hangul lead yesieung
515 begintsuglyph("uni114C.I5",76);
516 hangul.jamo.yesieung(whatever,lixf,loxf);
517 tsu_render;
518 endsuglyph;
519
```



```

520 % hangul lead cieuc-ieuung
521 begint Suglyph("uni114D.15";77);
522 hangul.combine.lr(112,111)(whatever,lixf,loxf);
523 tsu_render;
524 endtsuglyph;
525

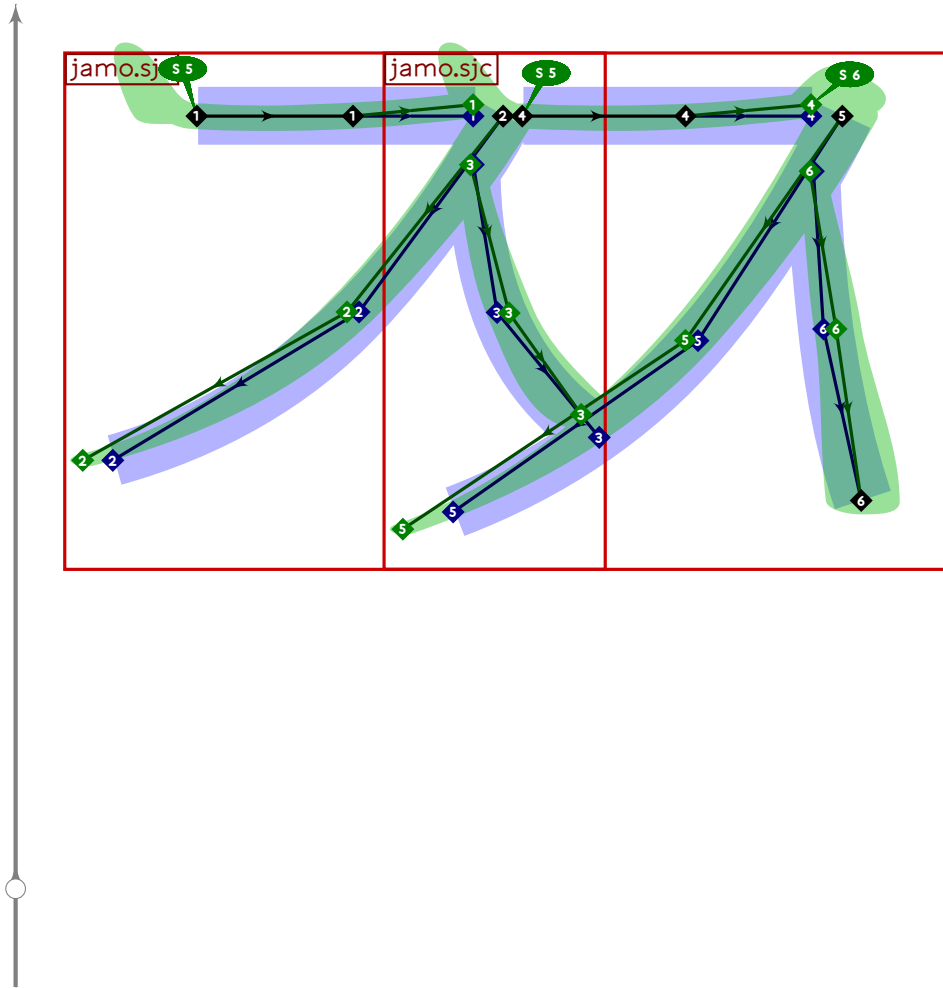
```



```

526 % hangul lead chitueumcieuc
527 begint Suglyph("uni114E.15";78);
528 hangul.jamo.sjc(1,1,false)(whatever,lixf,loxf);
529 tsu_render;
530 endtsuglyph;
531

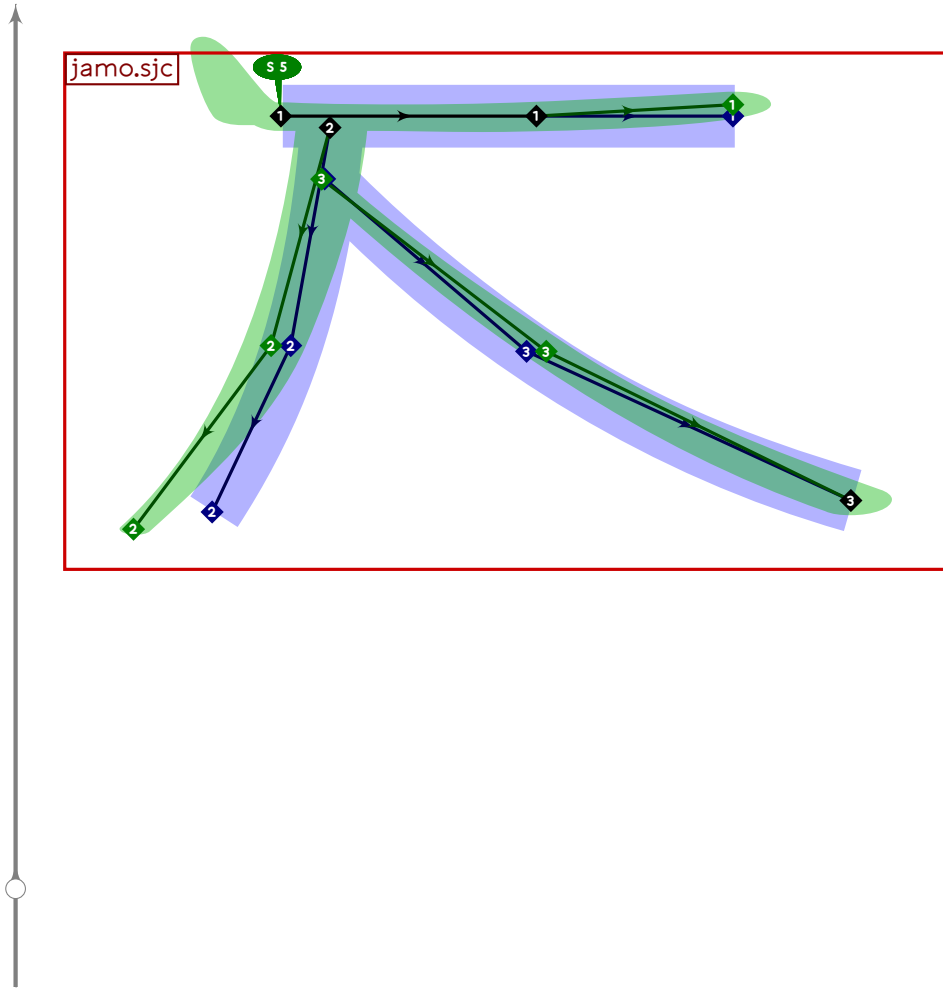
```



```

532 % hangul lead chitueumssangcieuc
533 begintsuglyph("uni114F.15";79);
534 hangul.combine.lr(227,226)(whatever,lixf,loxf);
535 tsu_render;
536 endsuglyph;
537

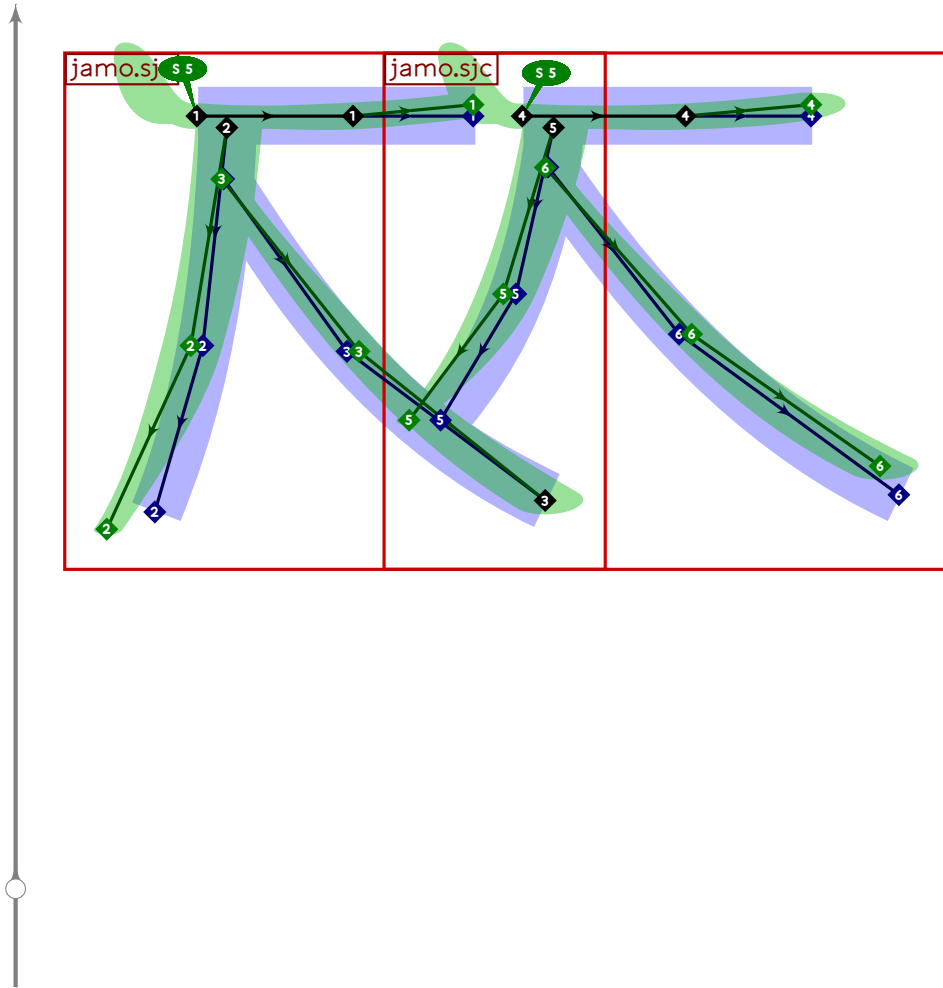
```



```

538 % hangul lead ceongchieumcieuc
539 begint Suglyph("uni1150.15";80);
540 hangul.jamo.sjc(1,-1,false)(whatever,lixf,loxf);
541 tsu_render;
542 endtsuglyph;
543

```

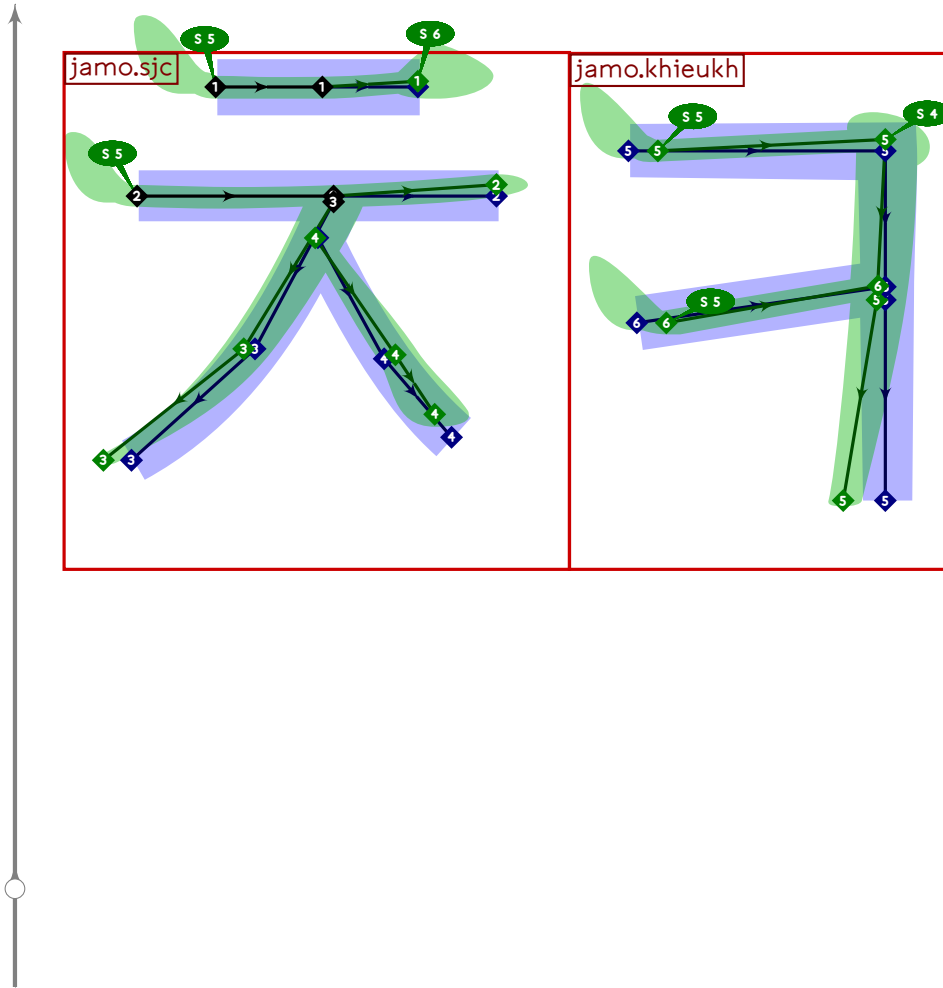


```

544 % hangul lead ceongchieumssangcieuc
545 begintsuglyph("uni1151.l5",81);
546 hangul.combine.lr(228,229)(whatever,lixf,loxf);
547 tsu_render;
548 endsuglyph;
549

```

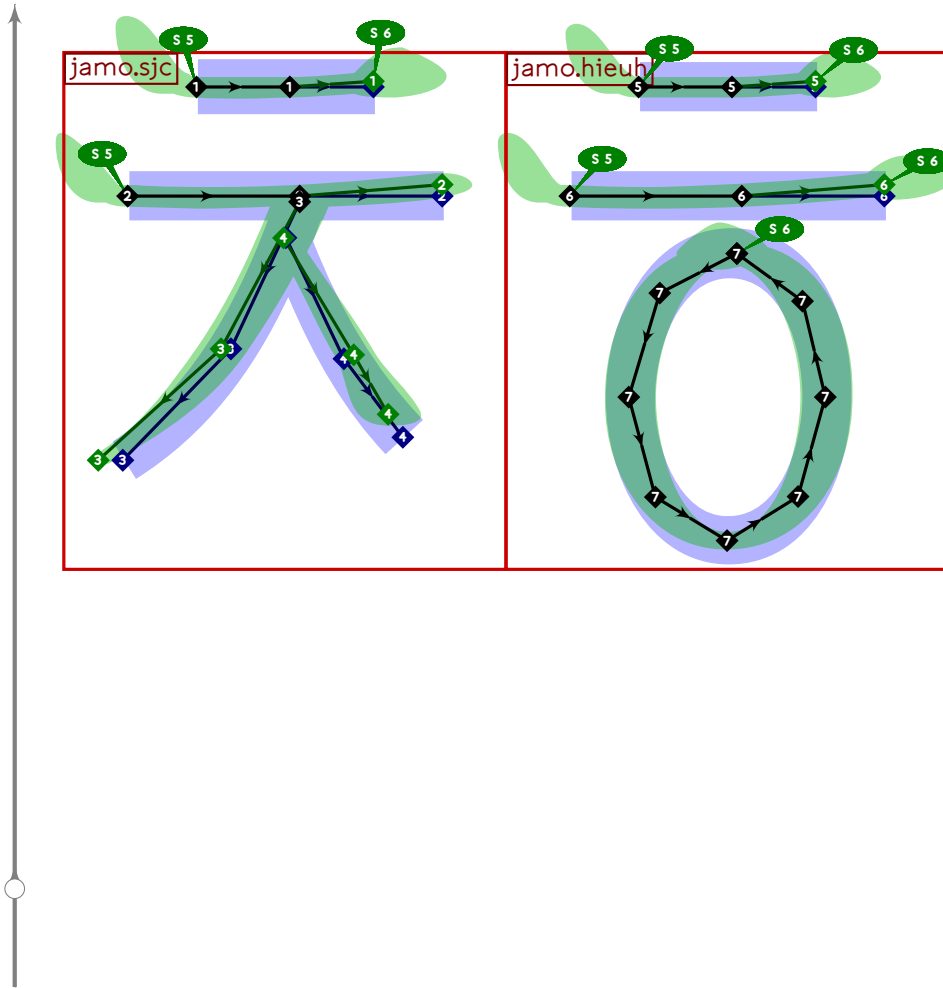




```

550 % hangul lead chieuch-khieukh
551 begintsuglyph("uni1152.15";82);
552 hangul.combine.lcr(214,230,115)(whatever,lixf,loxf);
553 tsu_render;
554 endsuglyph;
555

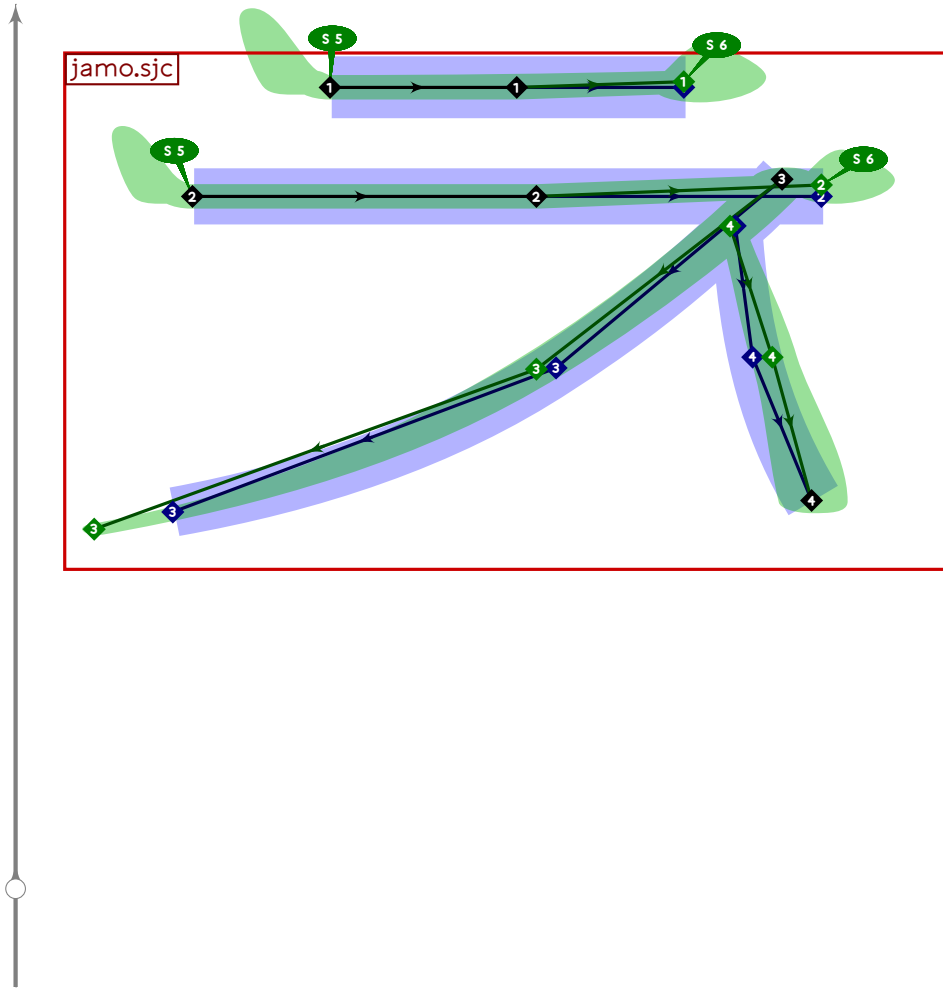
```



```

556 % hangul lead chieuch-hieuh
557 begint Suglyph("uni1153.15",83);
558 hangul.combine.lcr(214,230,118)(whatever,lixf,loxf);
559 tsu_render;
560 endtsuglyph;
561

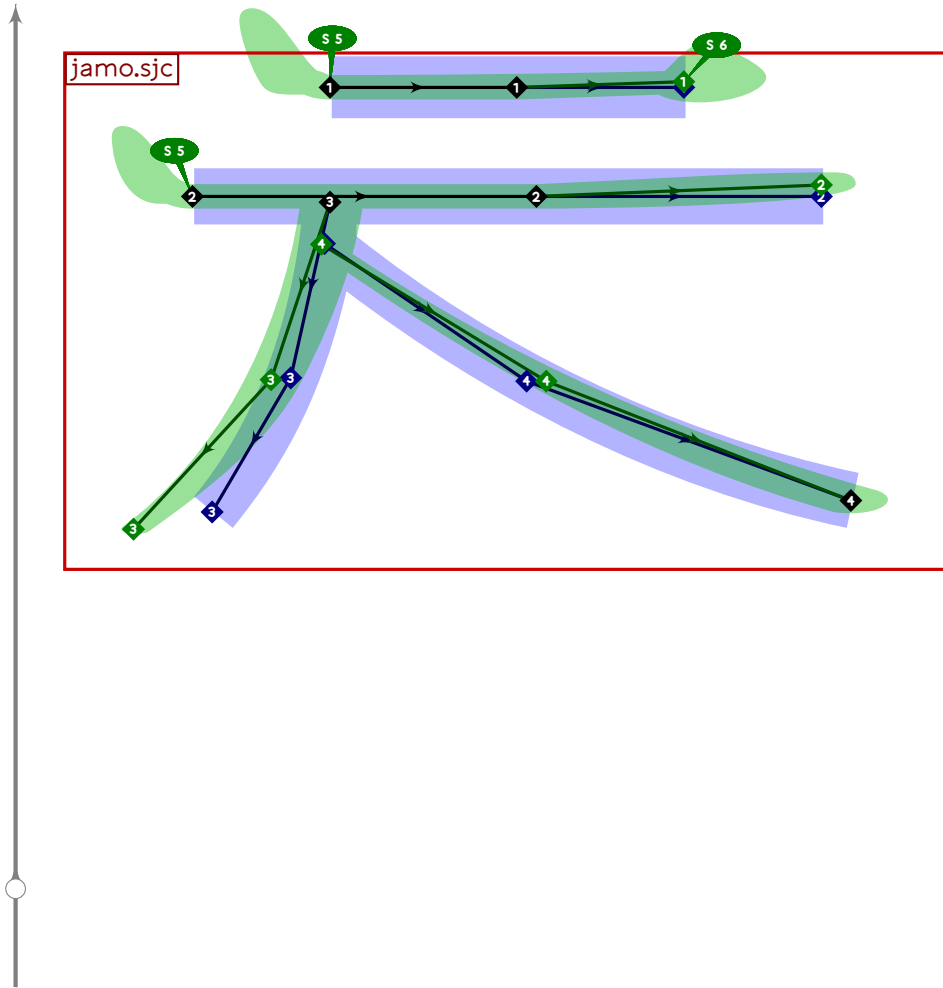
```



```

562 % hangul lead chitueumcieuc
563 begint Suglyph("uni1154.15";84);
564 hangul.jamo.sjc(2,1,false)(whatever,lixf,loxf);
565 tsu_render;
566 endtsuglyph;
567

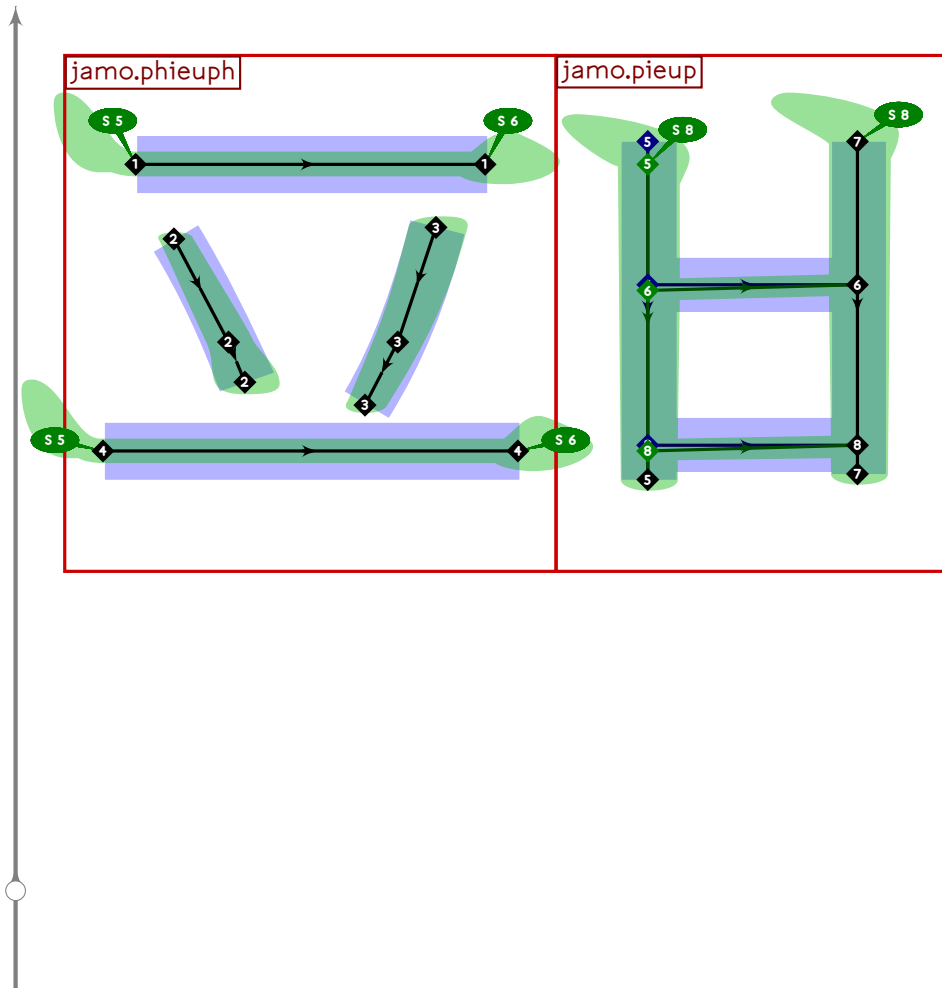
```



```

568 % hangul lead ceongchieumcieuc
569 begint Suglyph("uni1155.15";85);
570 hangul.jamo.sjc(2,-1,false)(whatever,lixf,loxf);
571 tsu_render;
572 endtsuglyph;
573

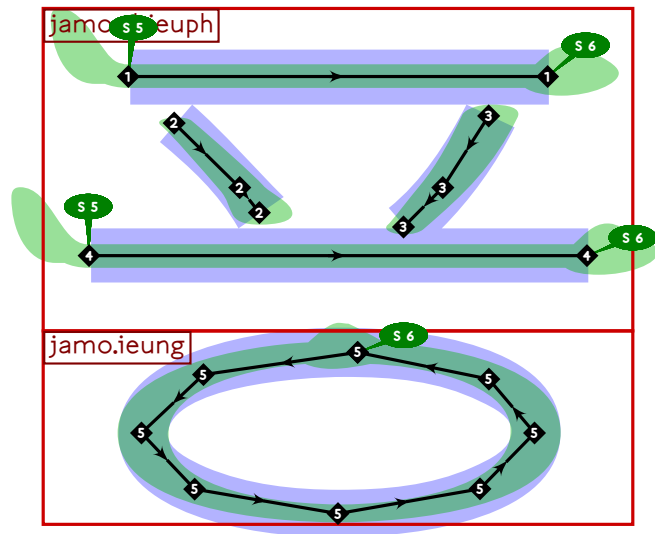
```



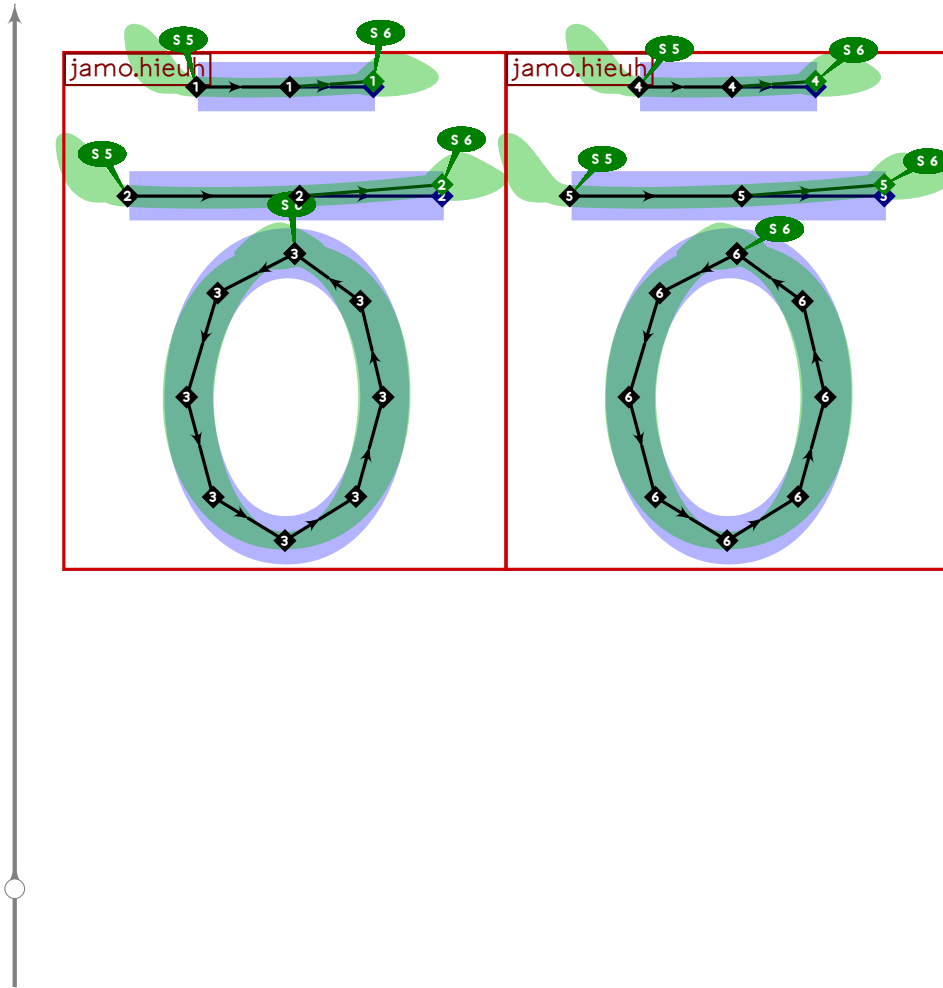
```

574 % hangul lead phieuph-pieup
575 begint Suglyph("uni1156.15";86);
576 hangul.combine.lr(117,107)(whatever,lixf,loxf);
577 tsu_render;
578 endtsuglyph;
579

```



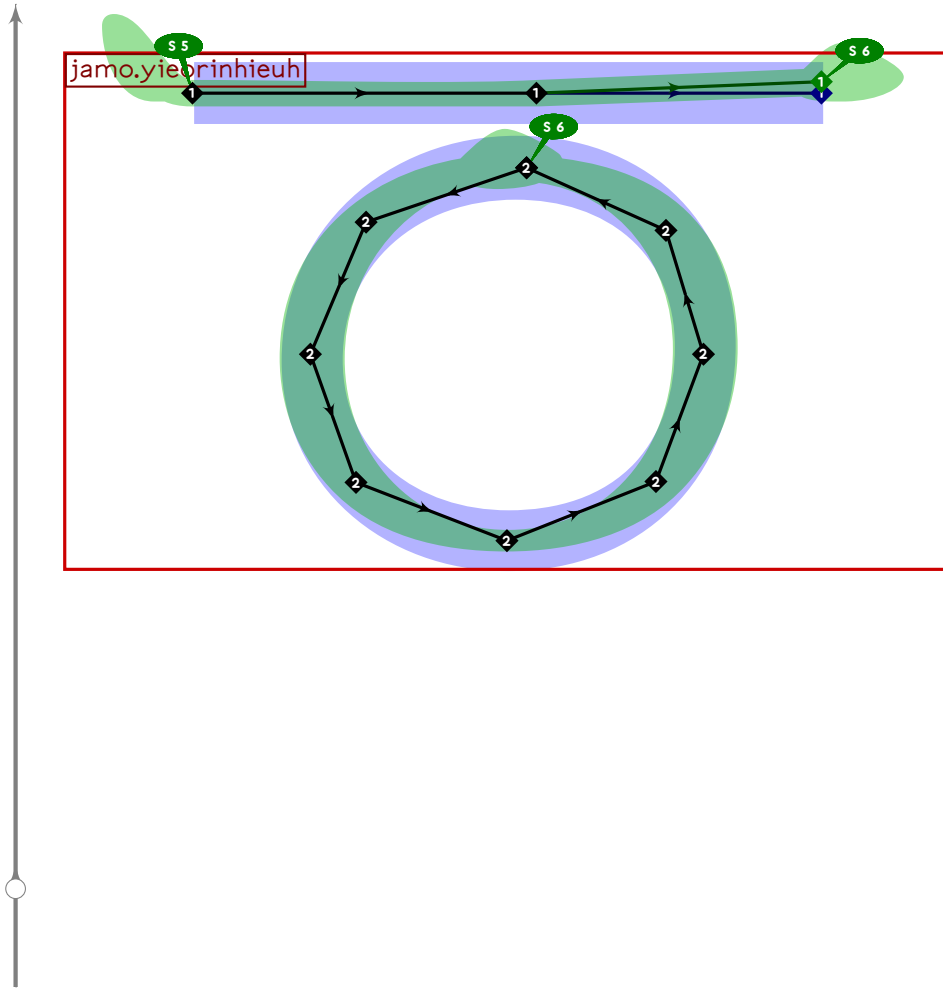
```
580 % hangul lead kapyeounphieuph
581 begint Suglyph("uni1157.15";87);
582 hangul.combine.tb(117,521)(whatever,
583   hxf((250,850),(850,-50)) transformed lixf,loxf);
584 tsu_render;
585 endsuglyph;
586
```



```

587 % hangul lead ssanghieuh
588 begintsuglyph("uni1158.15";88);
589 hangul.combine.lcr(118,230,118)(whatever,lixf,loxf);
590 tsu_render;
591 endsuglyph;
592

```

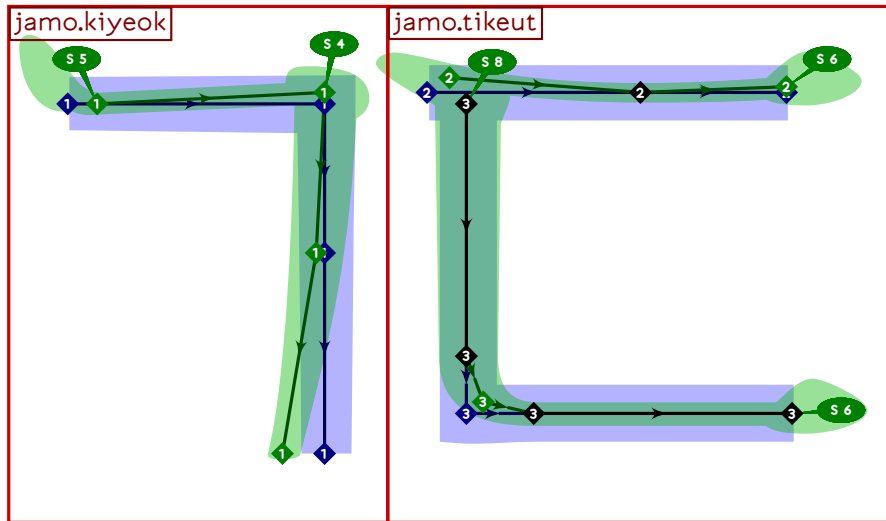


```

593 % hangul lead yeorinhieuh
594 begintsuglyph("uni1159.15";89);
595 hangul.jamo.yeorinhieuh(whatever,lixf,loxf);
596 tsu_render;
597 endtsuglyph;
598

```

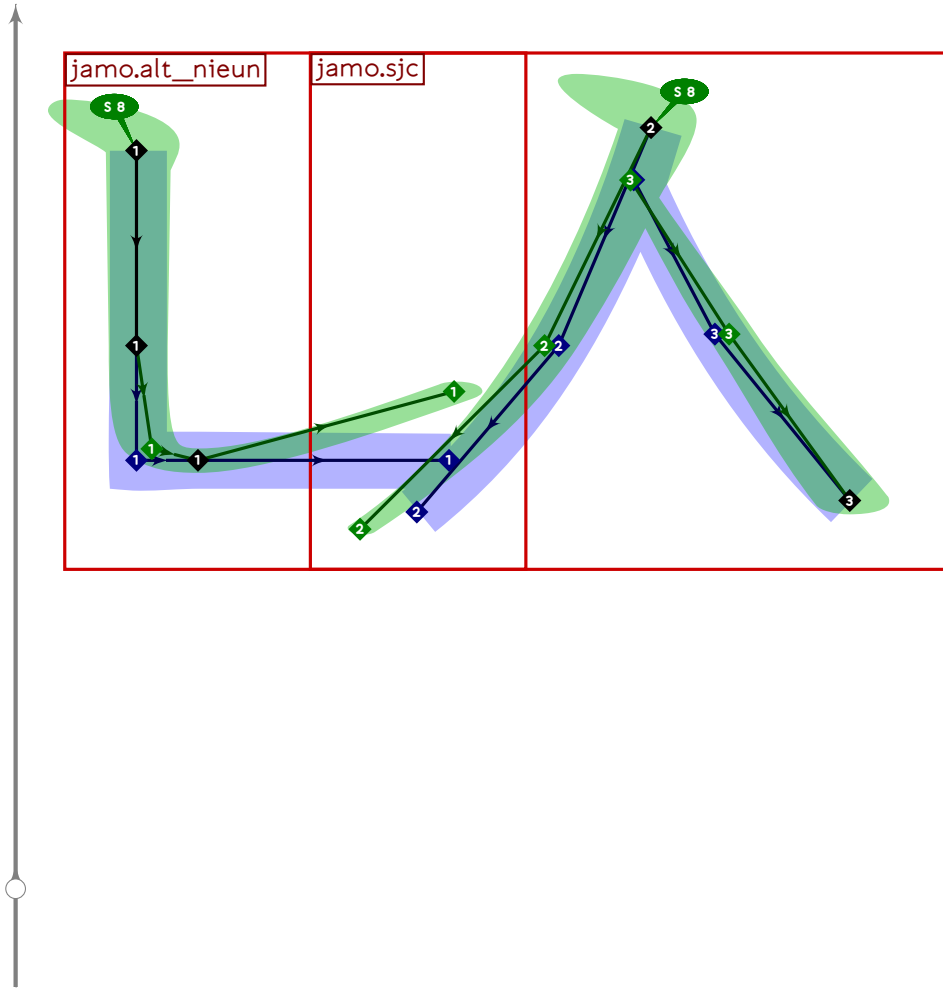




```

599 % hangul lead kiyeok-tikeut
600 begintsuglyph("uni115A.15";90);
601 hangul.combine.lr(100,103)(whatever,lixf,loxf);
602 tsu_render;
603 endsuglyph;
604

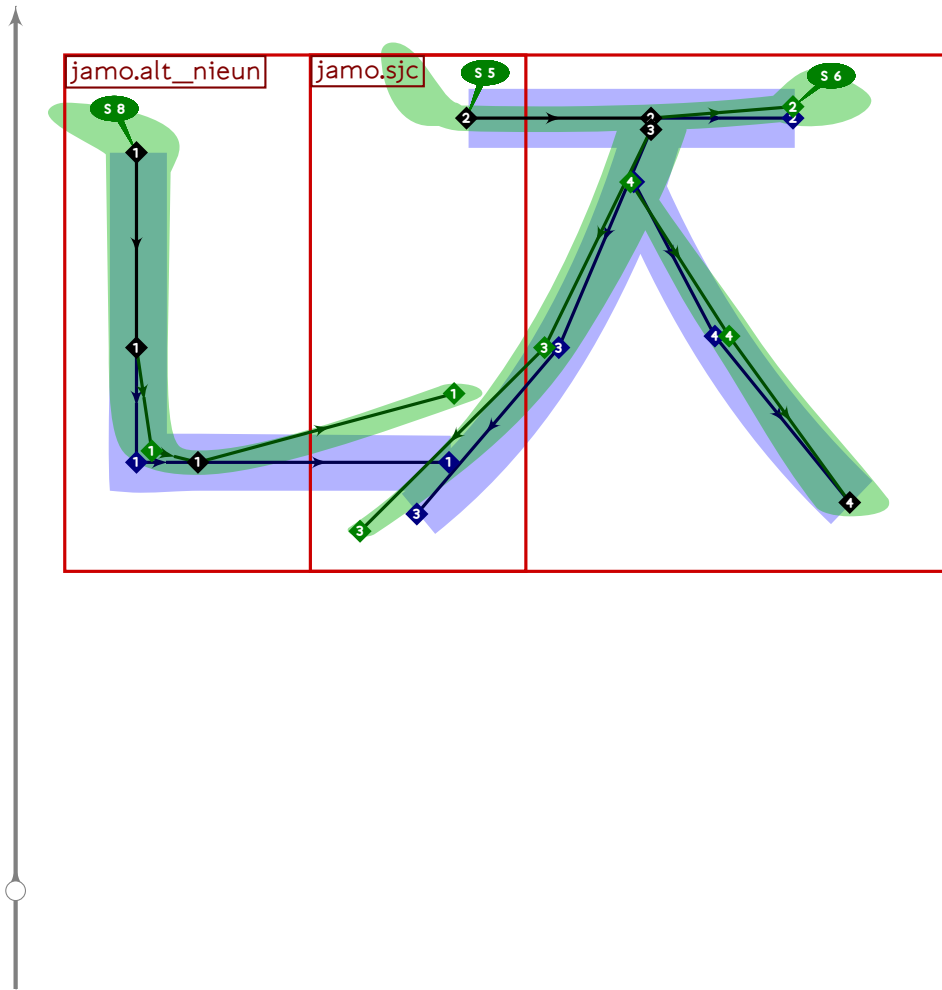
```



```

605 % hangul lead nieun-sios
606 begint Suglyph("uni115B.15";91);
607 hangul.combine.lr(202,109)(whatever,lixf,loxf);
608 tsu_render;
609 endtsuglyph;
610

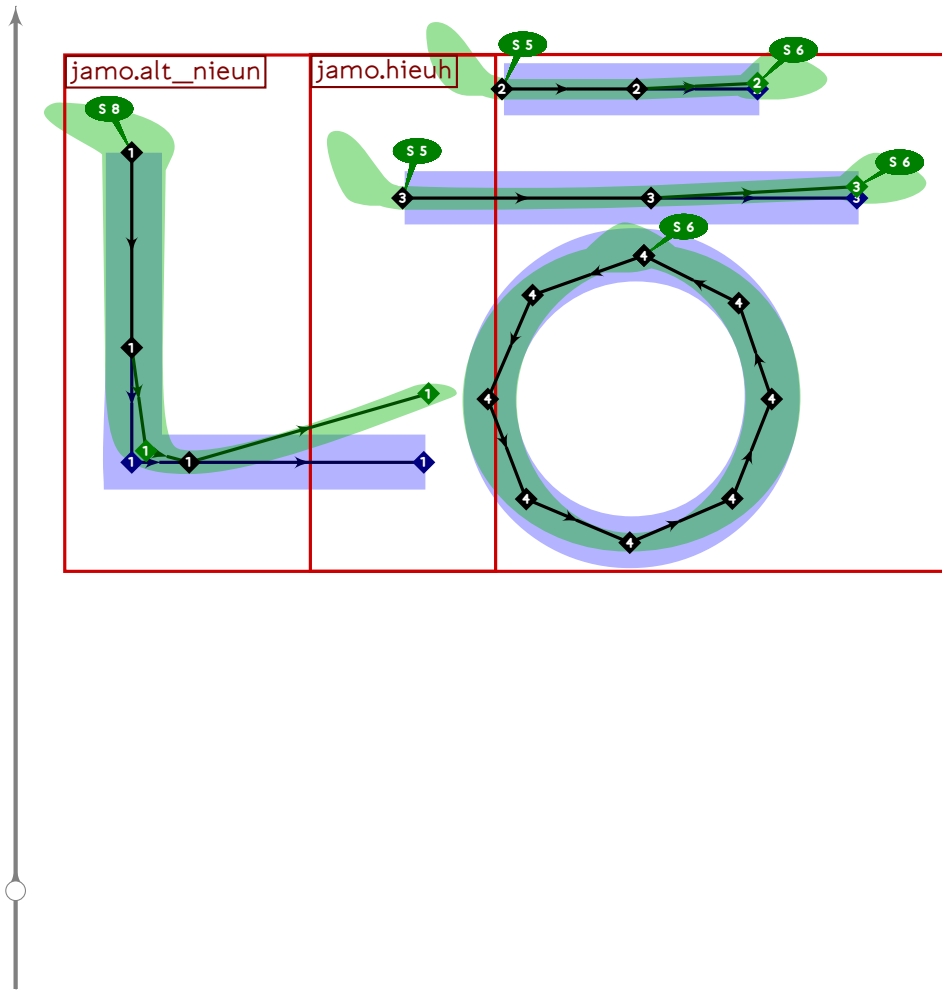
```



```

611 % hangul lead nieun-cieuc
612 begintsuglyph("uni115C.I5";92);
613 hangul.combine.lr(202,112)(whatever,lixf,loxf);
614 tsu_render;
615 endsuglyph;
616

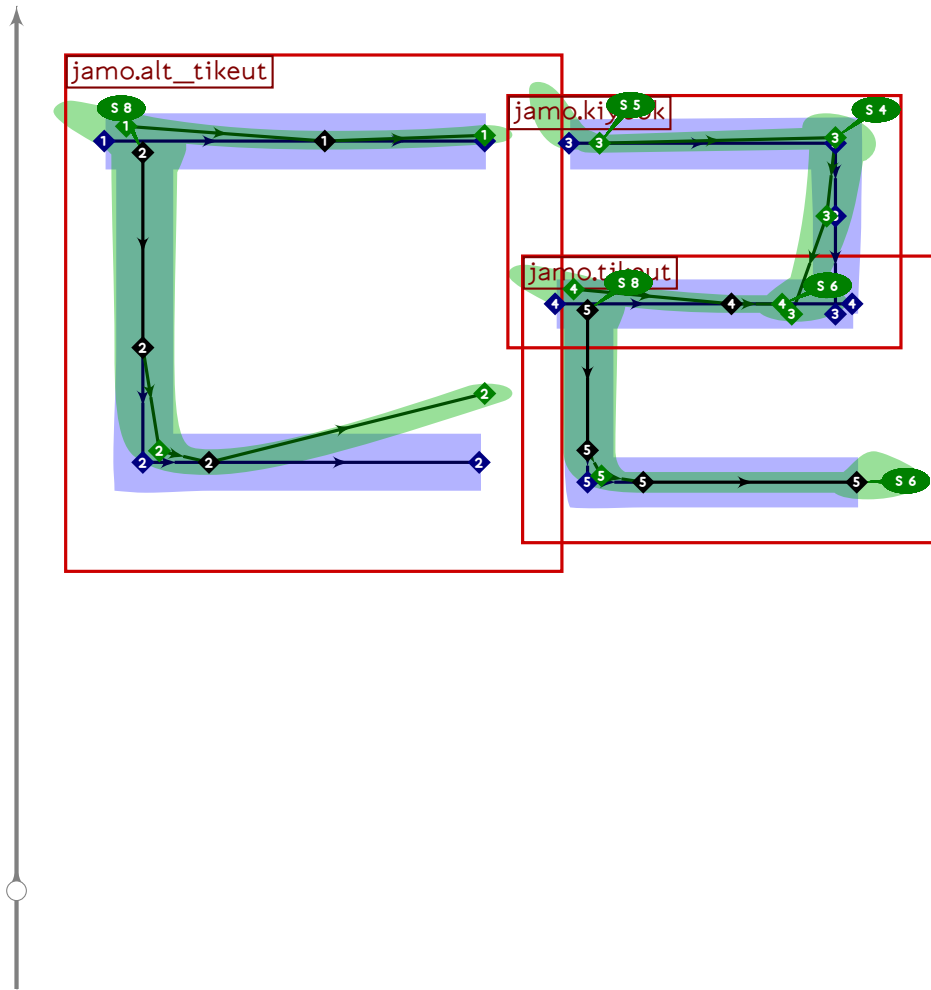
```



```

617 % hangul lead nieun-hieuh
618 begintsuglyph("uni115D.I5";93);
619 hangul.combine.lr(202,118)(whatever,lixf,loxf);
620 tsu_render;
621 endsuglyph;
622

```



```

623 % hangul lead tikeut-rieul
624 begint Suglyph("uni115E.I5";94);
625 hangul.combine.lr(203,105)(whatever,lixf,loxf);
626 tsu_render;
627 endtsuglyph;
628
629 _____
630
631 endfont;
632
633 _____

```



Part XI

# Blackletter Lolita





# bl.mp

```
1 %
2 % Blackletter Lolita overrides for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 is_blackletter:=true;
34
35 

---


36
37 pair bl_stroke_dir[];
38 numeric bl_stroke_width[];
39
40 bl_stroke_dir[0]:=dir 0;
41 bl_stroke_dir[1]:=dir 45;
42 bl_stroke_dir[2]:=dir 90;
43 bl_stroke_dir[3]:=dir 135;
44 bl_stroke_dir[4]:=dir 180;
45 bl_stroke_dir[5]:=dir 225;
46 bl_stroke_dir[6]:=dir 270;
47 bl_stroke_dir[7]:=dir 315;
48 num_bl_strokes:=8;
49
50 bl_stroke_width[0]:=0.4;
51 bl_stroke_width[1]:=0.6;
52 bl_stroke_width[2]:=1.6;
53 bl_stroke_width[3]:=0.8;
54 bl_stroke_width[4]:=0.4;
55 bl_stroke_width[5]:=0.6;
56 bl_stroke_width[6]:=1.6;
57 bl_stroke_width[7]:=0.8;
58
59 for state:=0 upto num_bl_strokes-1:
60   bl_stroke_dir[state]:=bl_stroke_dir[state]/abs(bl_stroke_dir[state]);
61 endfor;
62
63 

---


64
65 vardef tsu_render_segment(expr i,p,q) =
66   begingroup
67     save lp,glyph,pcorner,pdir,k,ta,tz,dl,dr,dp,sl,sr,goodness,best,dtl,dtr,
68     itl,itr;
69     path lp,glyph;
70     numeric pdir[],k,ta,tz,sl,sr,goodness,best,dtl,dtr,itl,itr;
```

```

71 pair pcorner[],dl,dr,dp;
72
73 % for debugging - dot the path to be approximated
74 if false:
75   for j:=0 step 0.25 until length p:
76     glstk[ngls]:=fullcircle scaled 25 shifted point j of p;
77     ngls:=ngls+1;
78   endfor;
79 fi;
80
81 pcorner[0]:=point 0 of p;
82 pdir[0]=-1;
83 k:=0;
84 ta:=0;
85 forever:
86   k:=k+1;
87
88   if ta=floor(ta):
89     dp:=(postcontrol ta of p)-(point ta of p);
90   else:
91     dp:=direction ta of p;
92   fi;
93   dp:=dp/abs(dp);
94
95   tz:=floor(ta+1);
96   forever:
97     exitif tz=length p;
98     dr:=(point tz of p)-(precontrol tz of p);
99     exitif (dr dotprod dp)<=0;
100    dl:=(postcontrol tz of p)-(point tz of p);
101    dl:=dl/abs(dl);
102    dr:=dr/abs(dr);
103    exitif (dl dotprod dr)<0.95;
104    tz:=tz+1;
105  endfor;
106
107  dr:=(point tz of p)-(point ta of p);
108  dr:=dr/abs(dr);
109  dp:=(dp+0.05*dr)/abs(dp+0.05*dr);
110
111  dl:=bl_stroke_dir[0];
112  dr:=bl_stroke_dir[num_bl_strokes-1];
113  sl:=0;
114  sr:=num_bl_strokes-1;
115  best:=(dl dotprod dp)+(dr dotprod dp);
116
117  for j:=0 upto num_bl_strokes-2:
118    goodness:=(bl_stroke_dir[j] dotprod dp)

```

```

119             +(bl_stroke_dir[j+1] dotprod dp);
120         if goodness>best:
121             best:=goodness;
122             dr:=bl_stroke_dir[j];
123             dl:=bl_stroke_dir[j+1];
124             sr:=j;
125             sl:=j+1;
126         fi;
127     endfor;
128 % message "ta "&(decimal ta)&
129 % " tz "&(decimal tz)&
130 % " sl "&(decimal sl)&
131 % " sr "&(decimal sr);
132
133     if (((point tz of p)-(point ta of p)) dotprod dl>=
134         abs((point tz of p)-(point ta of p))*0.999)
135         and (tz-ta<3):
136         pdir[k]:=sl;
137     elseif (((point tz of p)-(point ta of p)) dotprod dr>=
138         abs((point tz of p)-(point ta of p))*0.999)
139         and (tz-ta<3):
140         pdir[k]:=sr;
141     else:
142         itl:=xpart (p intersectiontimes
143             ((dl*10)+point ta of p)-((dl*1000)+point ta of p));
144         itr:=xpart (p intersectiontimes
145             ((dr*10)+point ta of p)-((dr*1000)+point ta of p));
146         if (itl<ta+0.01) or (itl>tz):
147             itl:=-1;
148         fi;
149         if (itr<ta+0.01) or (itr>tz):
150             itr:=-1;
151         fi;
152         dtl:=directiontime dl of p;
153         dtr:=directiontime dr of p;
154         if (dtl<ta+0.01) or (dtl>tz):
155             dtl:=-1;
156         fi;
157         if (dtr<ta+0.01) or (dtr>tz):
158             dtr:=-1;
159         fi;
160         if (itl>ta) and ((itl<=itr) or (itr<ta)):
161             tz:=itl;
162             pdir[k]:=sl;
163         elseif itr>ta:
164             tz:=itr;
165             pdir[k]:=sr;
166         elseif (dtl>ta) and ((dtl<dtr) or (dtr<ta)):

```

```

167         tz:=dtl;
168         pdir[k]:=sr;
169         pcorner[k]:=(whatever*dr)+point ta of p;
170         pcorner[k]:=(whatever*d1)+point tz of p;
171         if k>1:
172             if pdir[k]=pdir[k-1]:
173                 pcorner[k-1]:=pcorner[k];
174                 k:=k-1;
175             fi;
176         fi;
177         k:=k+1;
178         pdir[k]:=sl;
179     elseif dtr>ta:
180         tz:=dtr;
181         pdir[k]:=sl;
182         pcorner[k]:=(whatever*d1)+point ta of p;
183         pcorner[k]:=(whatever*dr)+point tz of p;
184         if k>1:
185             if pdir[k]=pdir[k-1]:
186                 pcorner[k-1]:=pcorner[k];
187                 k:=k-1;
188             fi;
189         fi;
190         k:=k+1;
191         pdir[k]:=sr;
192     elseif false and (pdir[k-1]=sr):
193         pcorner[k-1]:=whatever*dr+point ta of p;
194         pcorner[k-1]:=whatever*d1+point tz of p;
195         pdir[k]:=sl;
196     elseif false and (pdir[k-1]=sl):
197         pcorner[k-1]:=whatever*d1+point ta of p;
198         pcorner[k-1]:=whatever*dr+point tz of p;
199         pdir[k]:=sr;
200     elseif abs(ypart d1)>abs(ypart dr):
201         pdir[k]:=sr;
202         pcorner[k]:=whatever*dr+point ta of p;
203         pcorner[k]:=whatever*d1+point tz of p;
204         k:=k+1;
205         pdir[k]:=sl;
206     else:
207         pdir[k]:=sl;
208         pcorner[k]:=whatever*d1+point ta of p;
209         pcorner[k]:=whatever*dr+point tz of p;
210         k:=k+1;
211         pdir[k]:=sr;
212     fi;
213 fi;
214 pcorner[k]:=point tz of p;

```

```

215
216     if k>1:
217         if pdir[k]=pdir[k-1]:
218             pcorner[k-1]:=pcorner[k];
219             k:=k-1;
220         fi;
221     fi;
222
223     exitif tz>=length p;
224     ta:=tz;
225 endfor;
226
227 for j:=1 upto k:
228     if (abs(pcorner[j-1]-pcorner[j])>10) and (pdir[j]>=0):
229         lp:=subpath (0.01,0.99) of (pcorner[j-1]-pcorner[j]);
230         default_nib:=fix_nib(obstackna.bosize[i]*tsu_brush_max
231             *bl_stroke_width[pdir[j]],
232             obstackna.bosize[i]*tsu_brush_max*tsu_brush_shape
233             *bl_stroke_width[pdir[j]],
234             tsu_brush_angle);
235         pen_stroke()(lp)(glyph);
236         glstk[ngls]:=regenerate(glyph);
237         ngls:=ngls+1;
238     fi;
239 endfor;
240 endgroup;
241 enddef;

```

# bll-co.mp

```
1 %
2 % Blackletter Lolita Cosette
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
```

## Bll Cosette

```
31 % BLL COSETTE
32
33 input preintro.mp;
34
35 stylename:="Cosette";
36
37 (0,4) transformed tsu_brush_xf = (4,0.75);
38 (1,1) transformed tsu_brush_xf = (1,0.62);
39 (4,0) transformed tsu_brush_xf = (0,0.75);
40
41 tsu_brush_min:=0.62;
42 tsu_brush_max:=0.75;
43
44 def tsu_brush_opt(expr n,l) = cut(n,rel 90)(l) enddef;
45 sharp_corners:=true;
46
47 input intro.mp;
48 input bll.mp;
```

# pentacross.mp

```
1 %
2 % Pentagrams and crosses for Blackletter Lolita
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
```

```
30
31 inclusion_lock(pentacross);
32
33
34
```

---

## Utilities For Pentagrams And Crosses

```
35 % UTILITIES FOR PENTAGRAMS AND CROSSES
36
37 path my_nib,my_path;
38
39 % Golden Ratio
40 phi:=(1+sqrt(5))/2;
41
42 % lw - line width
43 % ct - corner type, use -1 for rounded, 0 for bevelled, 1 for mitred
44 % dp - path to draw
45 vardef draw_stroked(expr lw,ct)(expr dp) =
46   default_nib:=fix_nib(lw,lw,0);
47   if ct<0:
48     draw_stroked_opts()(dp);
49   else:
50     draw_stroked_opts(tip(ct)(0 for i:=1 upto length dp: ,i endfor))(dp);
51   fi;
52 enddef;
53
54 vardef draw_stroked_opts(text myopts)(expr dp) =
55   begingroup
56     save glyph;
57     path glyph;
58     pen_stroke(myopts)(dp)(glyph);
59     if cycle dp:
60       glyph.r:=regenerate(glyph.r);
61       glyph.l:=regenerate(glyph.l);
62       dangerousFill glyph.r;
63       dangerousFill glyph.l;
64     else:
65       glyph:=regenerate(glyph);
66       dangerousFill glyph;
67     fi;
68   endgroup;
```

```

69 enddef;
70
71 path pentagram;
72 pentagram:=
73 ((dir 0)--(dir 144)--(dir 288)--(dir 72)--(dir 216)--cycle)
74 rotated 90 scaled 0.5;
75
76 % "tip isolated" pentagram, used to de-emphasize corners
77 path tipentagram;
78 tipentagram:=insert_nodes(pentagram)
79 (0.15,0.85,1.15,1.85,2.15,2.85,3.15,3.85,4.15,4.85);
80
81 vardef cross_path(expr hwid) =
82 begingroup
83 save x,y;
84 numeric x,y;
85 z1=(0,0.5); % spectacles
86 z2=(0,-0.5); % testicles
87 z3=(y3-y1,(phi-1)[y2,y1]); % wallet
88 z4=(y1-y3,y3); % watch
89 x5=x12=x13=x16=x1-hwid;
90 x6=x7=x10=x11=x1+hwid;
91 x8=x9=x4;
92 x14=x15=x3;
93 y5=y6=y1;
94 y7=y8=y15=y16=y3+hwid;
95 y9=y10=y13=y14=y3-hwid;
96 y11=y12=y2;
97 z5-z6-z7-z8-z9-z10-z11-z12-z13-z14-z15-z16--cycle
98 endgroup
99 enddef;

```



# bll-f5c.mp

```
1 %  
2 % Unicode page F5C (pentagrams and crosses) for Blackletter Lolita  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 

---

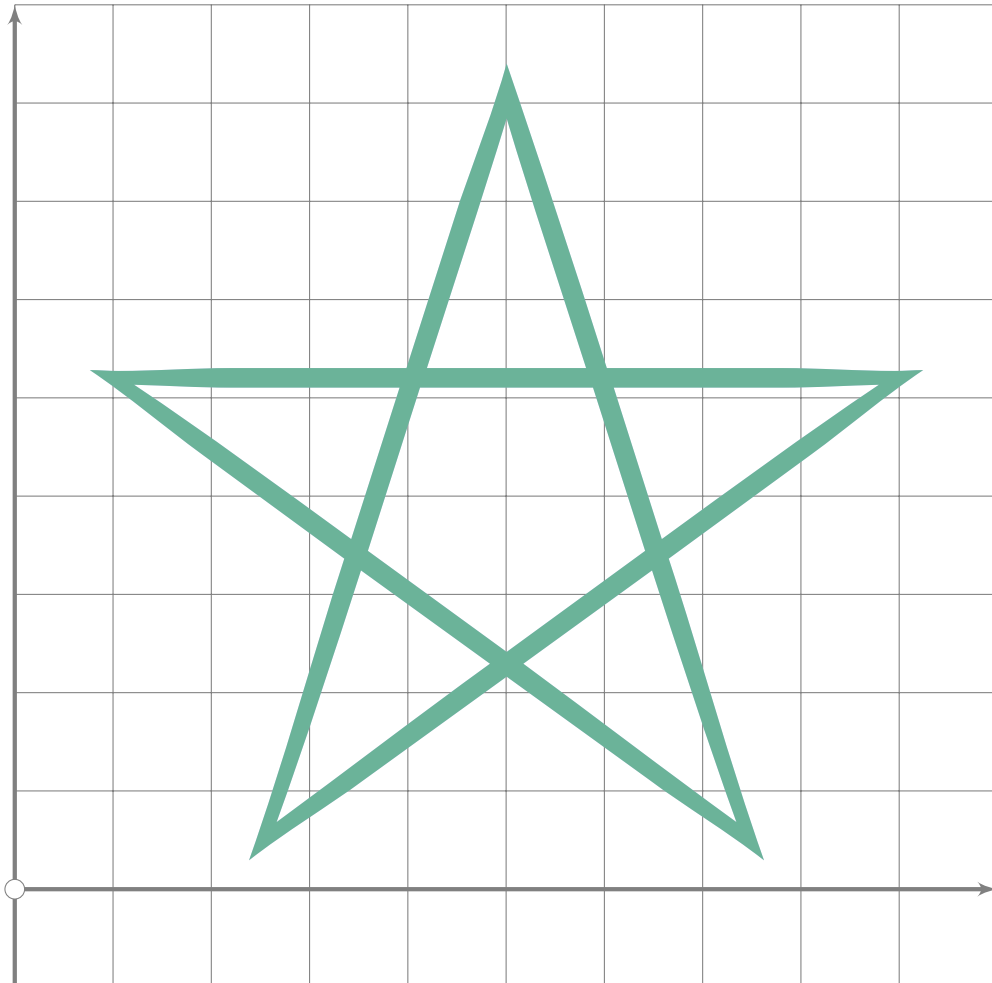
  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input pentacross.mp;  
37  
38 

---

  
39
```

## Pentagrams

40 % PENTAGRAMS

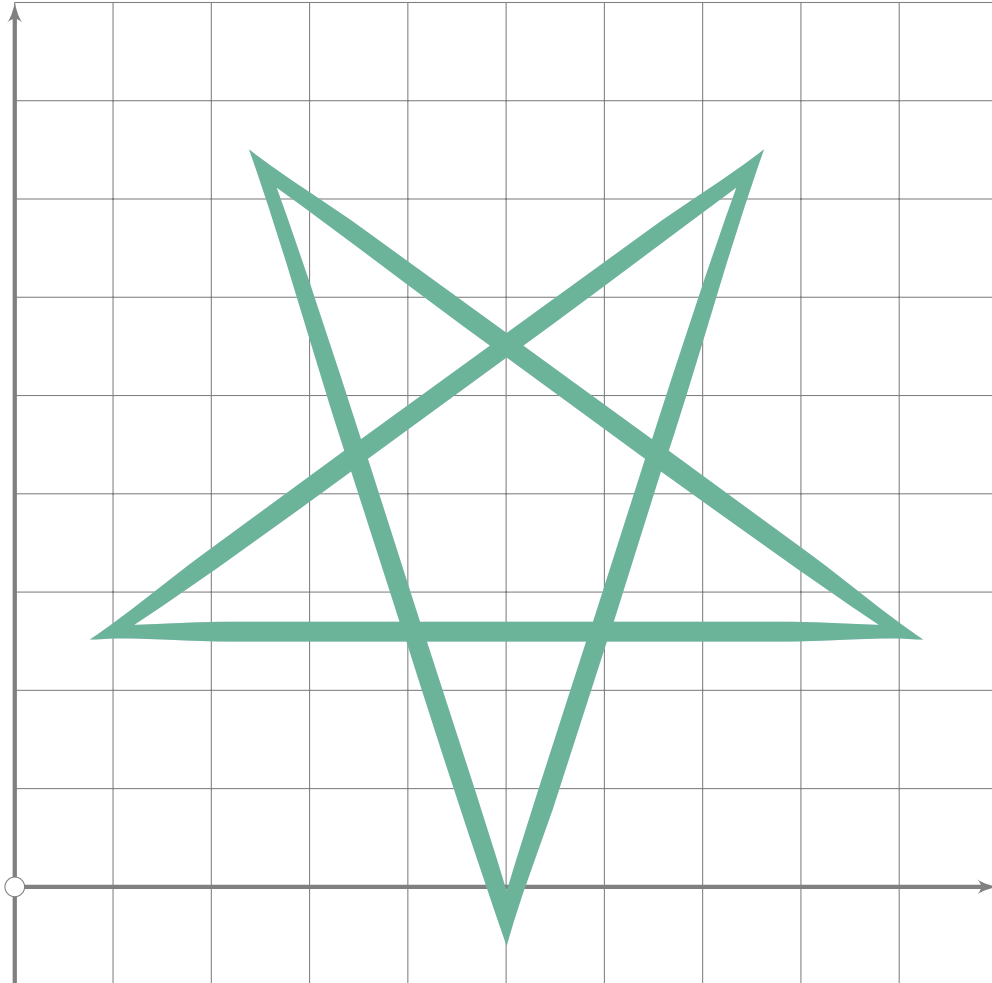


41

```

42 begintsuglyph("pentagram01";1);
43 default_nib:=fix_nib(20,20,0);
44 my_nib:=fix_nib(14,14,0);
45 draw_stroked_opts(tip(my_nib,1,1)(0,3,6,9,12,15))
46   (tipentagram scaled 844 shifted centre_pt);
47 endsuglyph;

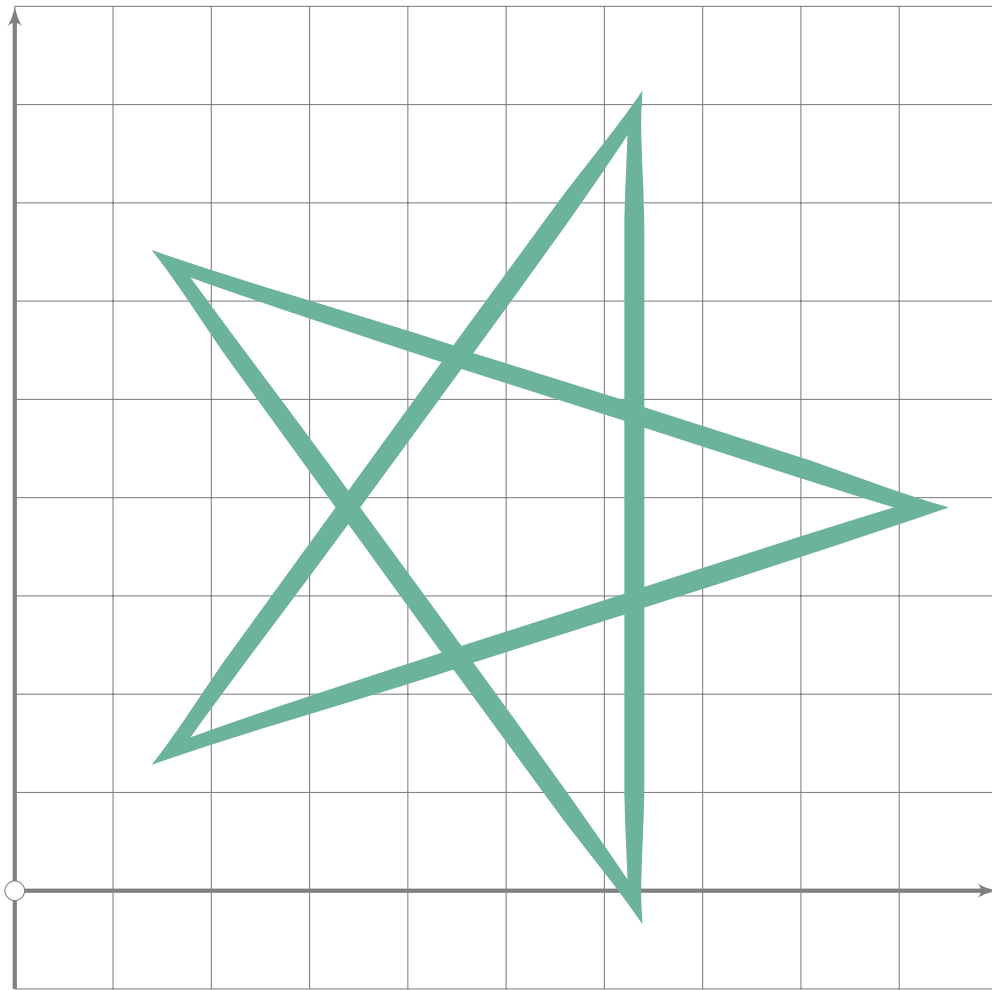
```



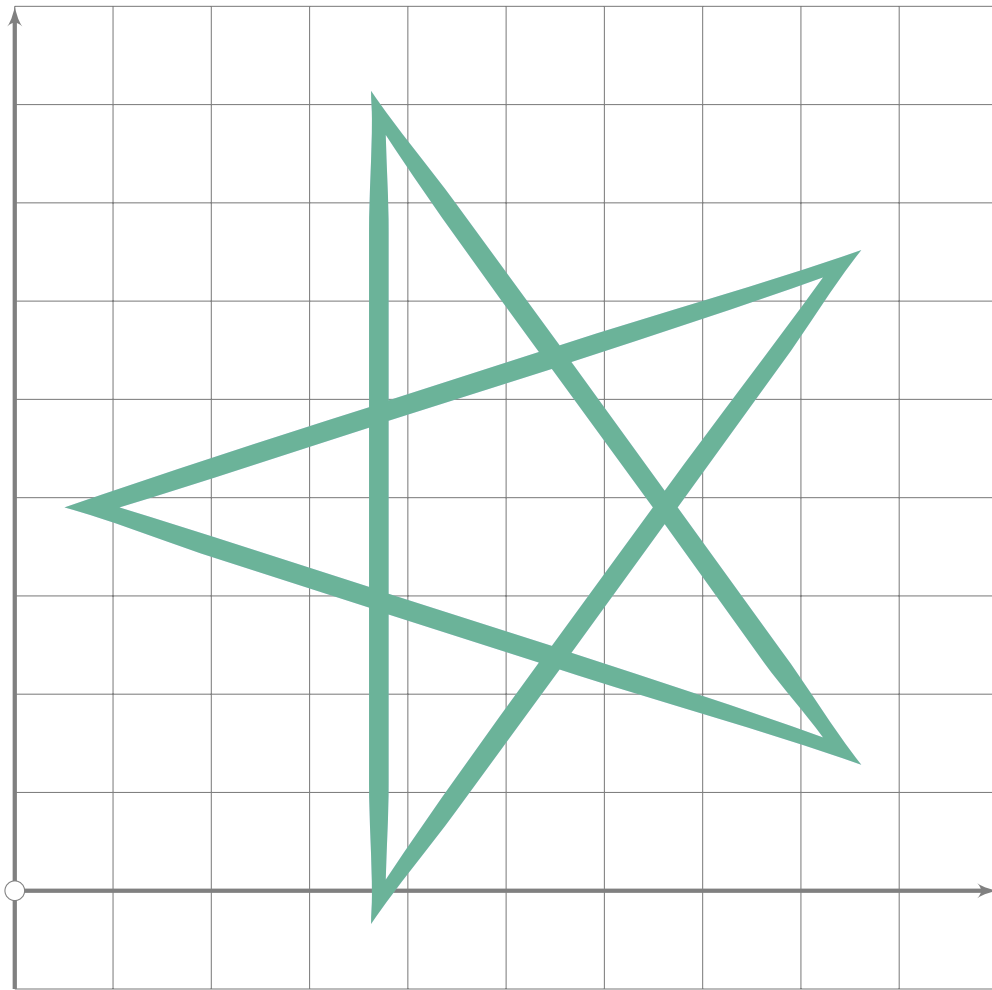
```

48
49 begintsuglyph("pentagram02";2);
50 default_nib:=fix_nib(20,20,0);
51 my_nib:=fix_nib(14,14,0);
52 draw_stroked_opts(tip(my_nib,1,1)(0,3,6,9,12,15))
53   (tipentagram rotated 180 scaled 844 shifted centre_pt);
54 endsuglyph;

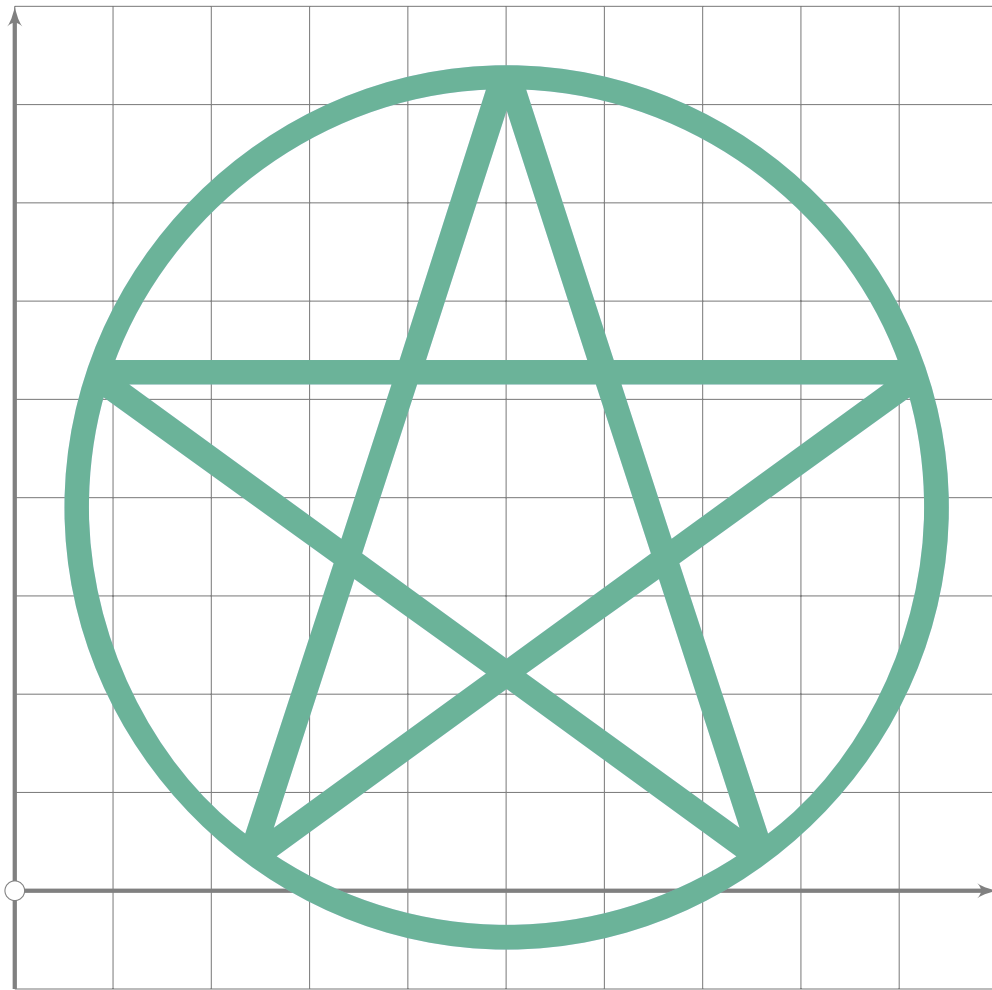
```



```
55  
56 begintsuglyph("pentagram03",3);  
57 default_nib:=fix_nib(20,20,0);  
58 my_nib:=fix_nib(14,14,0);  
59 draw_stroked_opts(tip(my_nib,1,1)(0,3,6,9,12,15))  
60 (tipentagram rotated 270 scaled 844 shifted centre_pt);  
61 endsuglyph;
```



```
62  
63 begintsuglyph("pentagram04",4);  
64 default_nib=fix_nib(20,20,0);  
65 my_nib=fix_nib(14,14,0);  
66 draw_stroked_opts(tip(my_nib,1)(0,3,6,9,12,15))  
67   (tipentagram rotated 90 scaled 844 shifted centre_pt);  
68 endsuglyph;
```



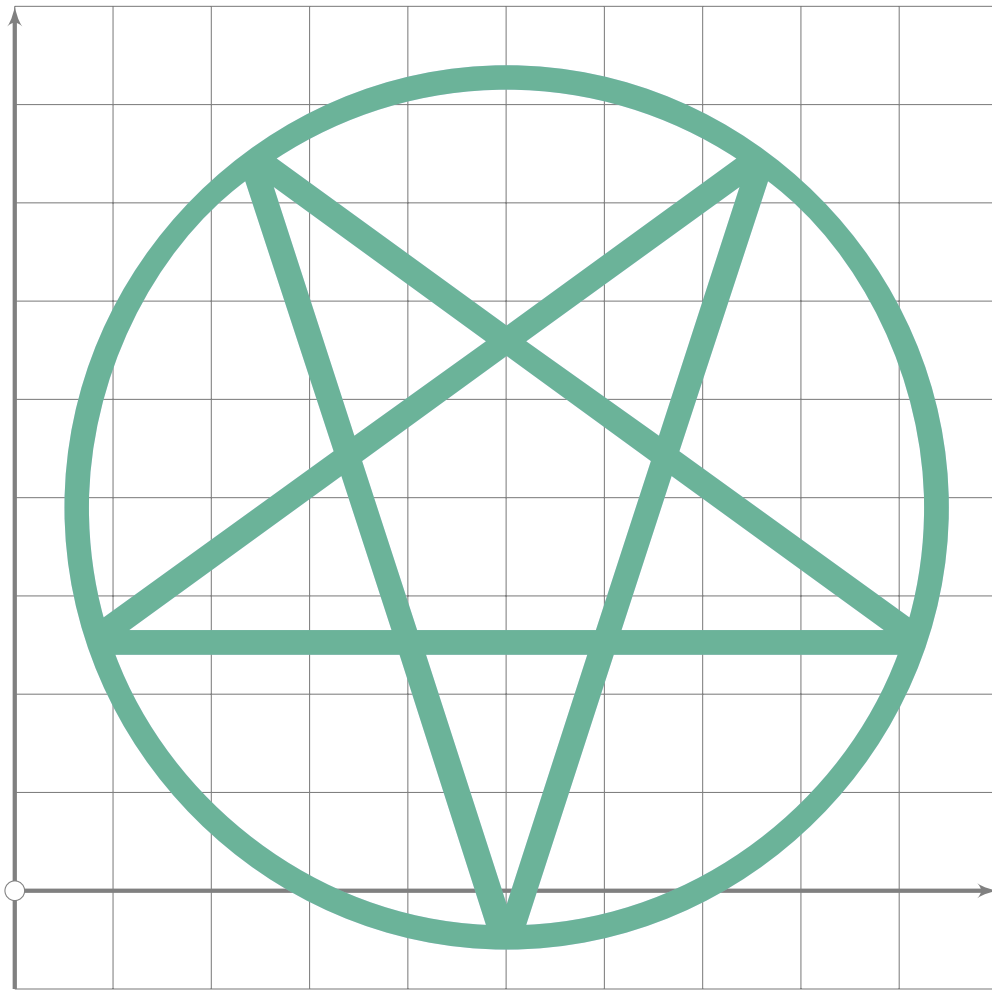
69

```
70 begintsuglyph("pentagram05",5);
```

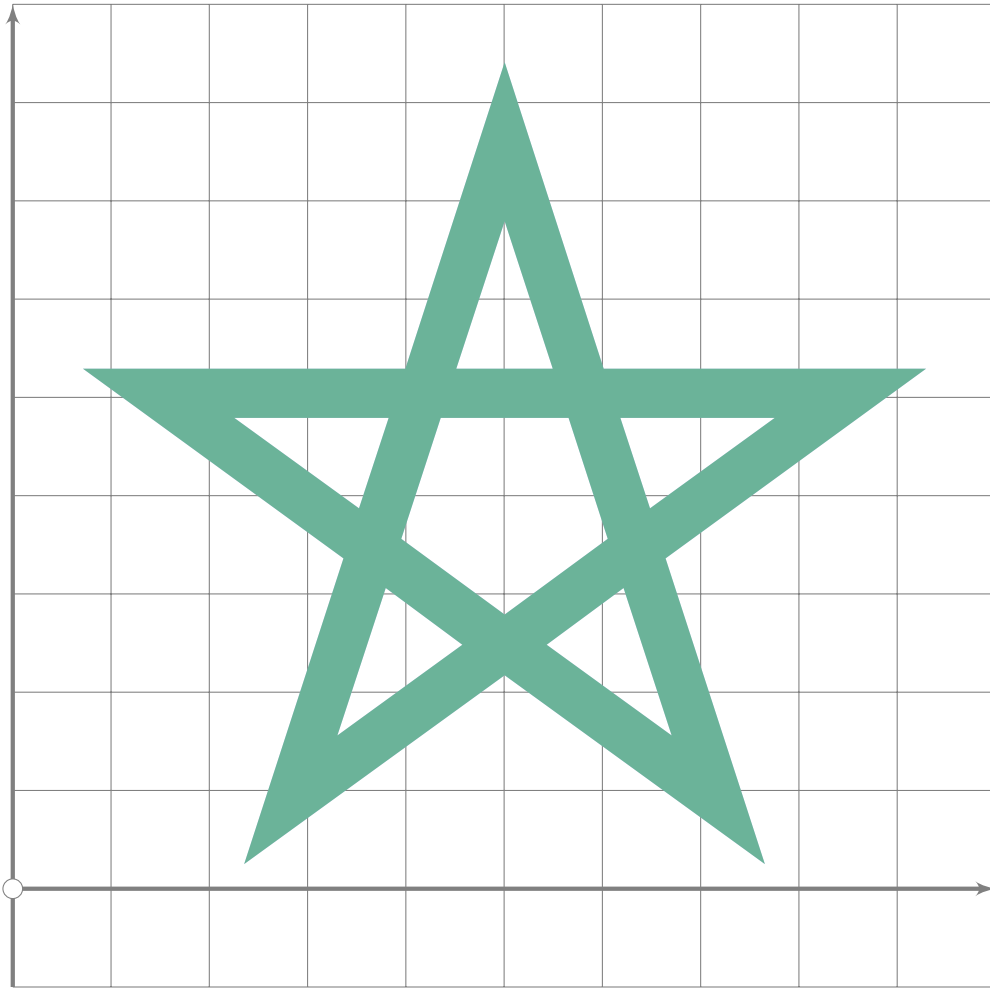
```
71 draw_stroked(25,0)(pentagram scaled 888 shifted centre_pt);
```

```
72 draw_stroked(25,-1)(fullcircle scaled 875 shifted centre_pt);
```

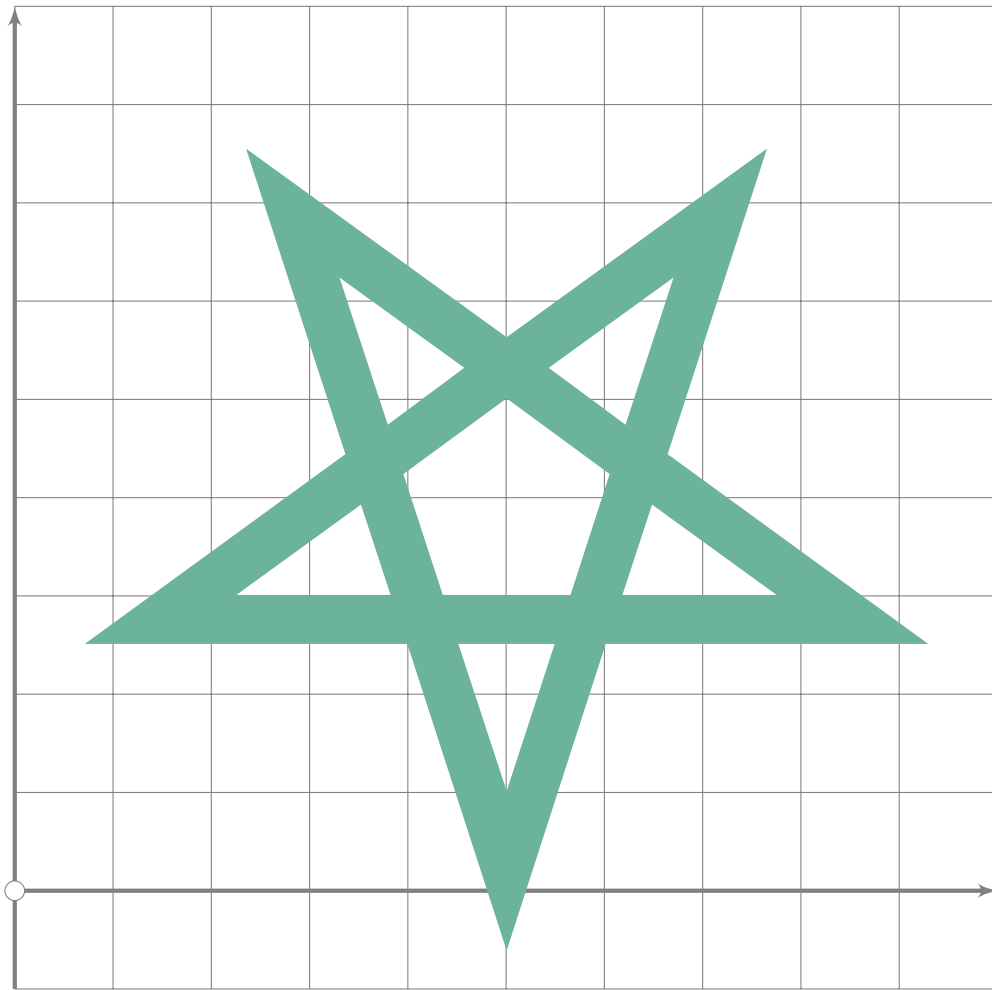
```
73 endsuglyph;
```



```
74  
75 begintsuglyph("pentagram06",6);  
76 draw_stroked(25,0)(pentagram rotated 180 scaled 888 shifted centre_pt);  
77 draw_stroked(25,-1)(fullcircle scaled 875 shifted centre_pt);  
78 endsuglyph;
```



```
79  
80 begintsuglyph("pentagram07",7);  
81 draw_stroked(50,1)(pentagram scaled 740 shifted centre_pt);  
82 endsuglyph;
```

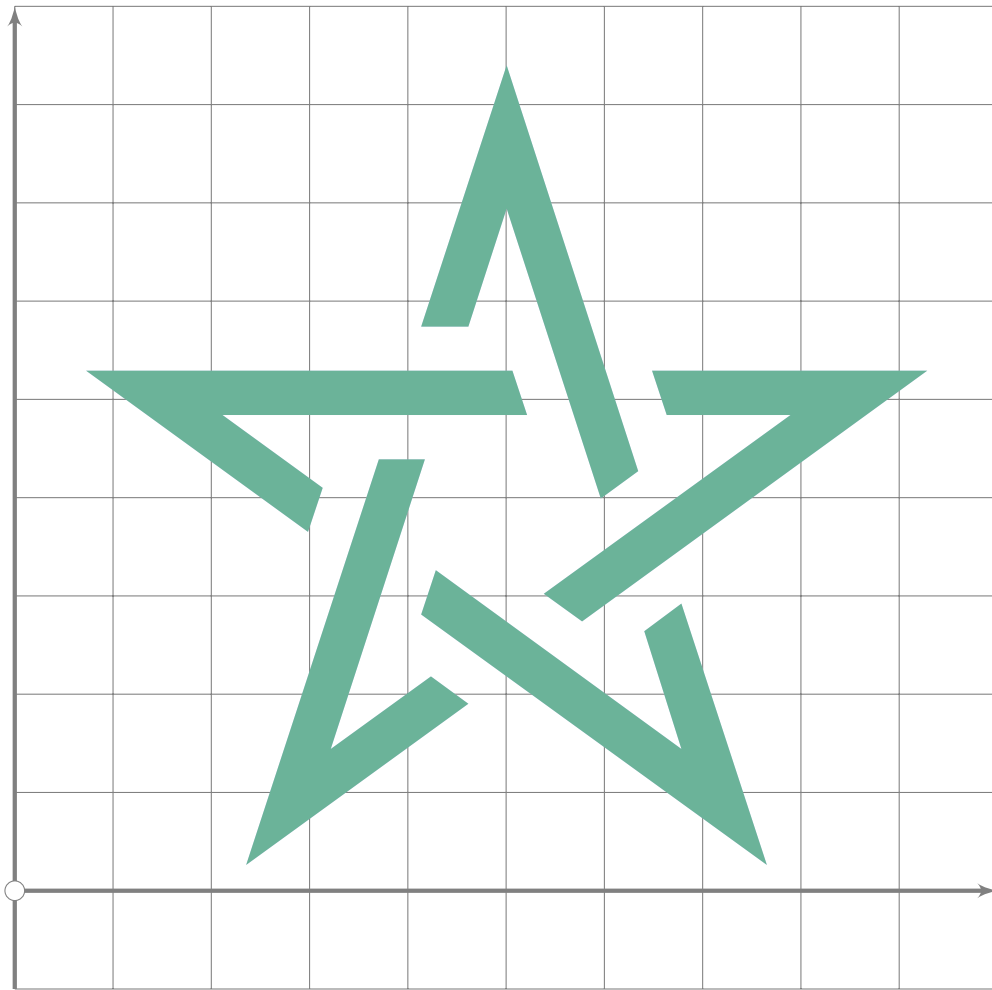


```

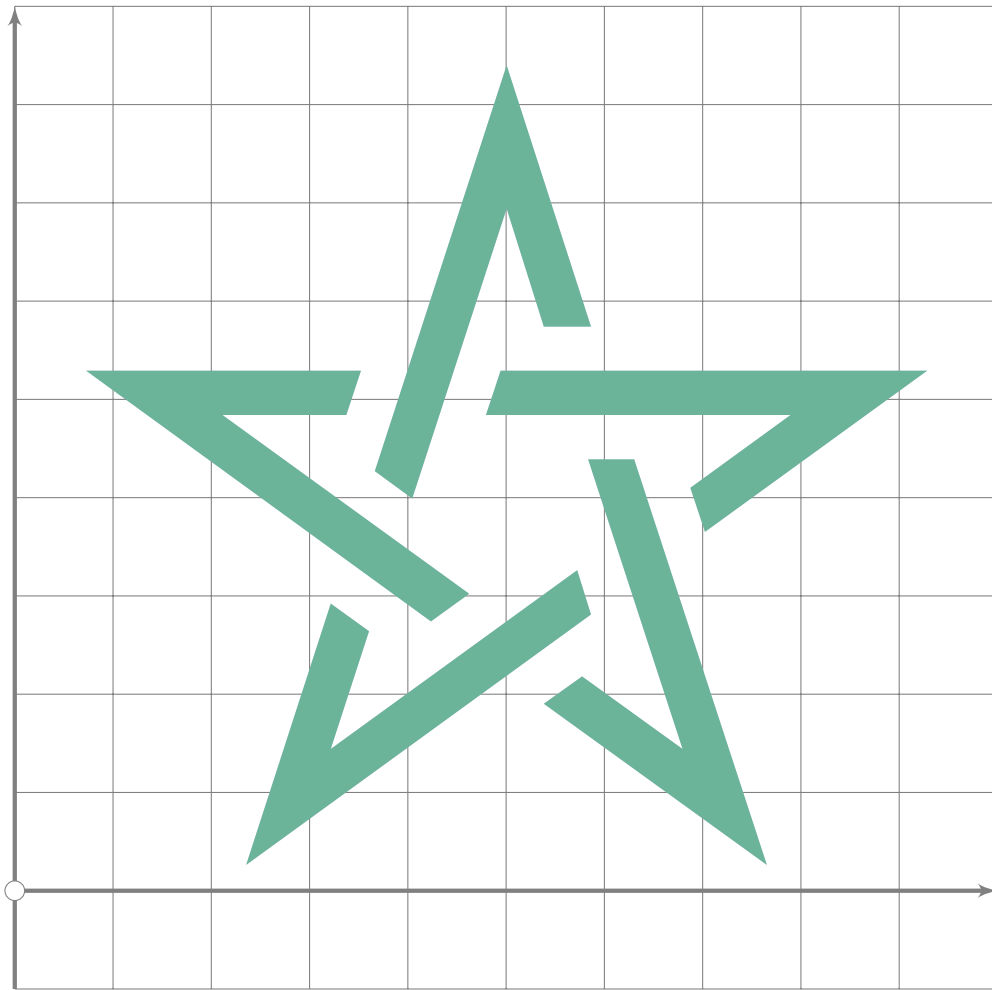
83
84 begintsuglyph("pentagram08",8);
85 draw_stroked(50,1)(pentagram rotated 180 scaled 740 shifted centre_pt);
86 endsuglyph;
87
88 vardef penta_ell(expr lw,loff) =
89   begingroup
90     save myl;
91     path myl[];
92     myl1:=(dir 90)-(dir 234);
93     myl2:=((dir 162)-(dir 18)) shifted (loff*dir 90);
94     myl3:=myl1 shifted (lw*dir 342);
95     myl6:=(dir 90)-(dir 306);
96     myl4:=myl6 shifted (lw*dir 198);
97     myl5:=((dir 18)-(dir 234)) shifted ((loff+lw)*dir 126);
98     (dir 90)-(myl6 intersectionpoint myl5)-
99     (myl5 intersectionpoint myl4)-(myl4 intersectionpoint myl3)-
100    (myl3 intersectionpoint myl2)-(myl2 intersectionpoint myl1)-cycle
101   endgroup
102 enddef;

```

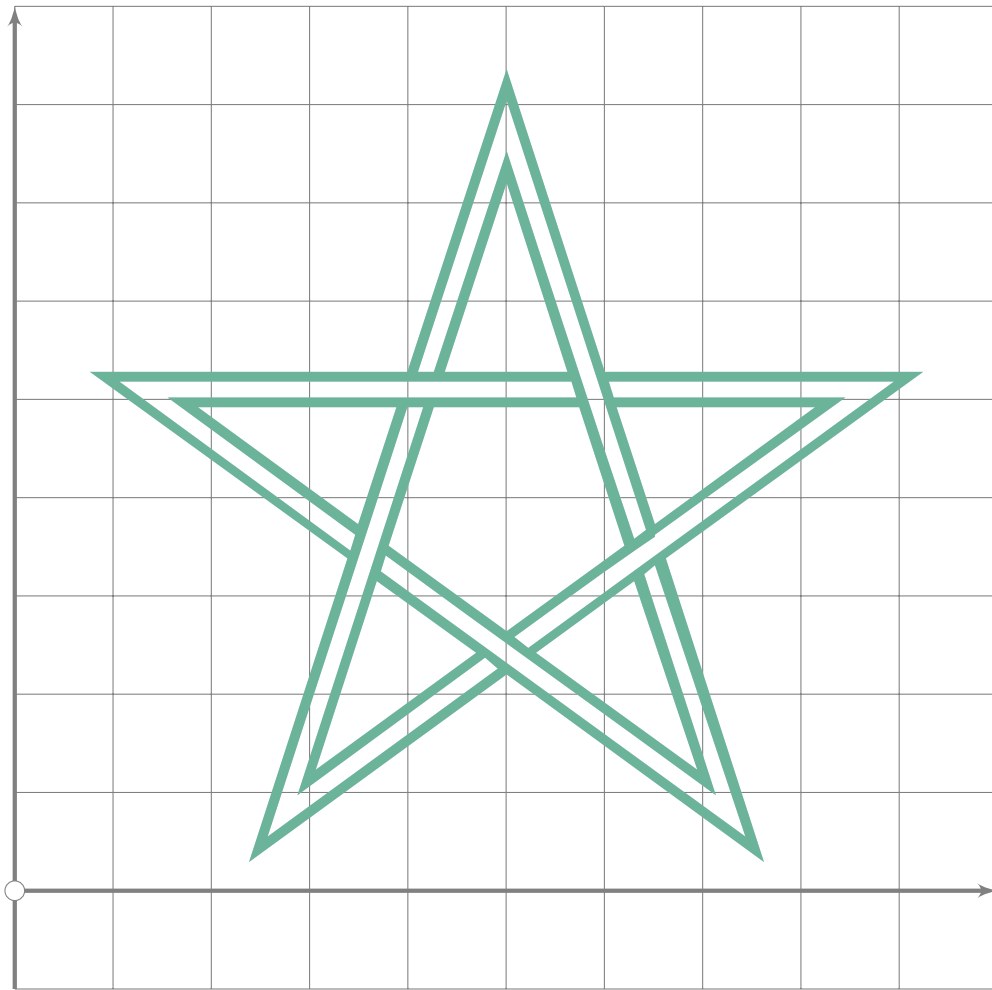




```
103  
104 begintsuglyph("pentagram09";9);  
105 my_path:=penta_ell(0.1,0.1);  
106 for i:=0 upto 4:  
107   dangerousFill my_path rotated (i*72) scaled 450 shifted centre_pt;  
108 endfor;  
109 endsuglyph;
```



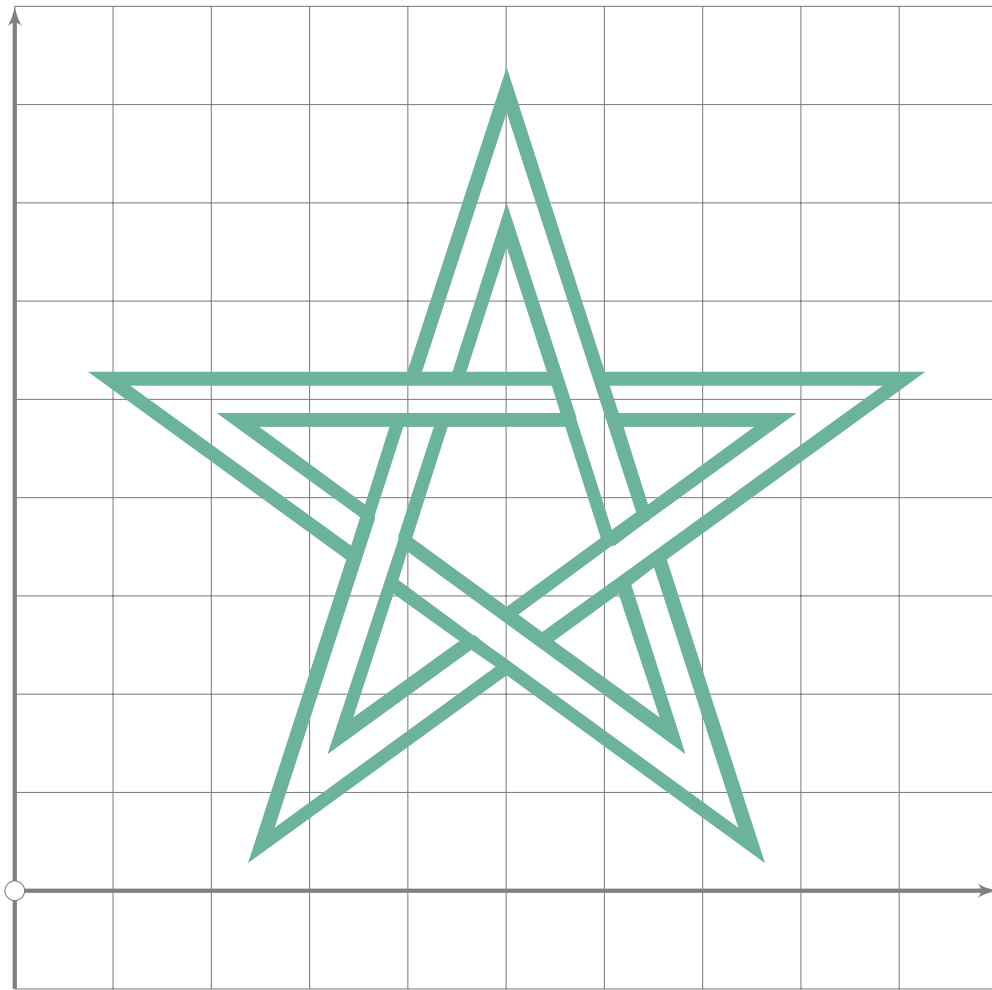
```
110
111 begintsuglyph("pentagram10";10);
112 my_path:=penta_ell(0,1,0,1);
113 for i:=0 upto 4:
114     dangerousFill my_path
115         reflectedabout (down,up) rotated (i*72) scaled 450 shifted centre_pt;
116 endfor;
117 endtsuglyph;
```



```

118
119 begintsuglyph("pentagram1",11);
120 begingroup
121   save lp;
122   path lp[];
123   my_path:=penta_ell(0.06,0);
124   lp1:=subpath (5,7) of my_path;
125   lp2:=subpath (2,4) of my_path;
126   default_nib:=fix_nib(10,10,0);
127   pen_stroke(tip(1)(1))(lp1 scaled 430 shifted centre_pt)(lp3);
128   pen_stroke(tip(1)(1))(lp2 scaled 430 shifted centre_pt)(lp4);
129   lp3:=regenerate(lp3);
130   lp4:=regenerate(lp4);
131   for i:=0 upto 4:
132     dangerousFill lp3 rotatedaround (centre_pt,i*72);
133     dangerousFill lp4 rotatedaround (centre_pt,i*72);
134   endfor;
135 endgroup;
136 endtsuglyph;

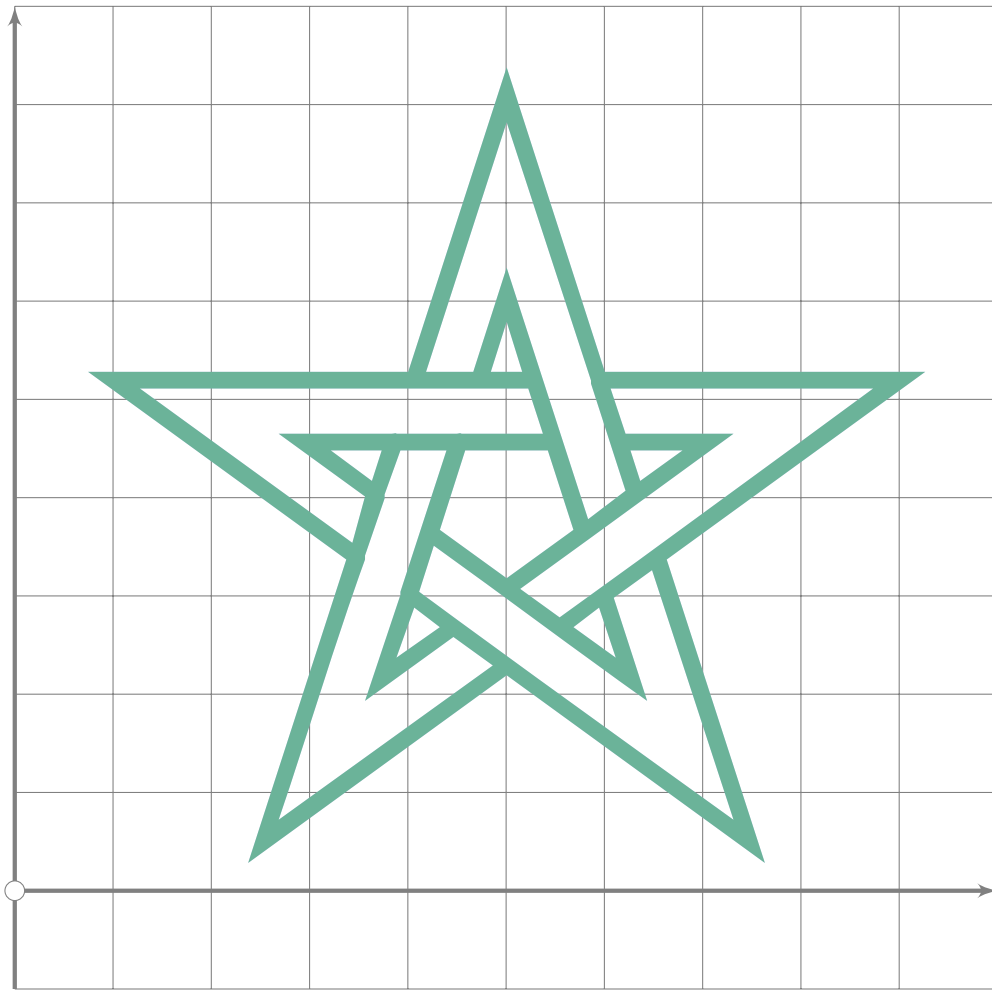
```



```

137
138 begintsuglyph("pentagram12";12);
139 begingroup
140   save lp;
141   path lp[];
142   my_path:=penta_ell(0.10,0);
143   lp1:=subpath (5,7) of my_path;
144   lp2:=subpath (2,4) of my_path;
145   default_nib:=fix_nib(14,14,0);
146   pen_stroke(tip(1)(1))(lp1 scaled 425 shifted centre_pt)(lp3);
147   pen_stroke(tip(1)(1))(lp2 scaled 425 shifted centre_pt)(lp4);
148   lp3:=regenerate(lp3);
149   lp4:=regenerate(lp4);
150   for i:=0 upto 4:
151     dangerousFill lp3 rotatedaround (centre_pt,i*72);
152     dangerousFill lp4 rotatedaround (centre_pt,i*72);
153   endfor;
154 endgroup;
155 endtsuglyph;

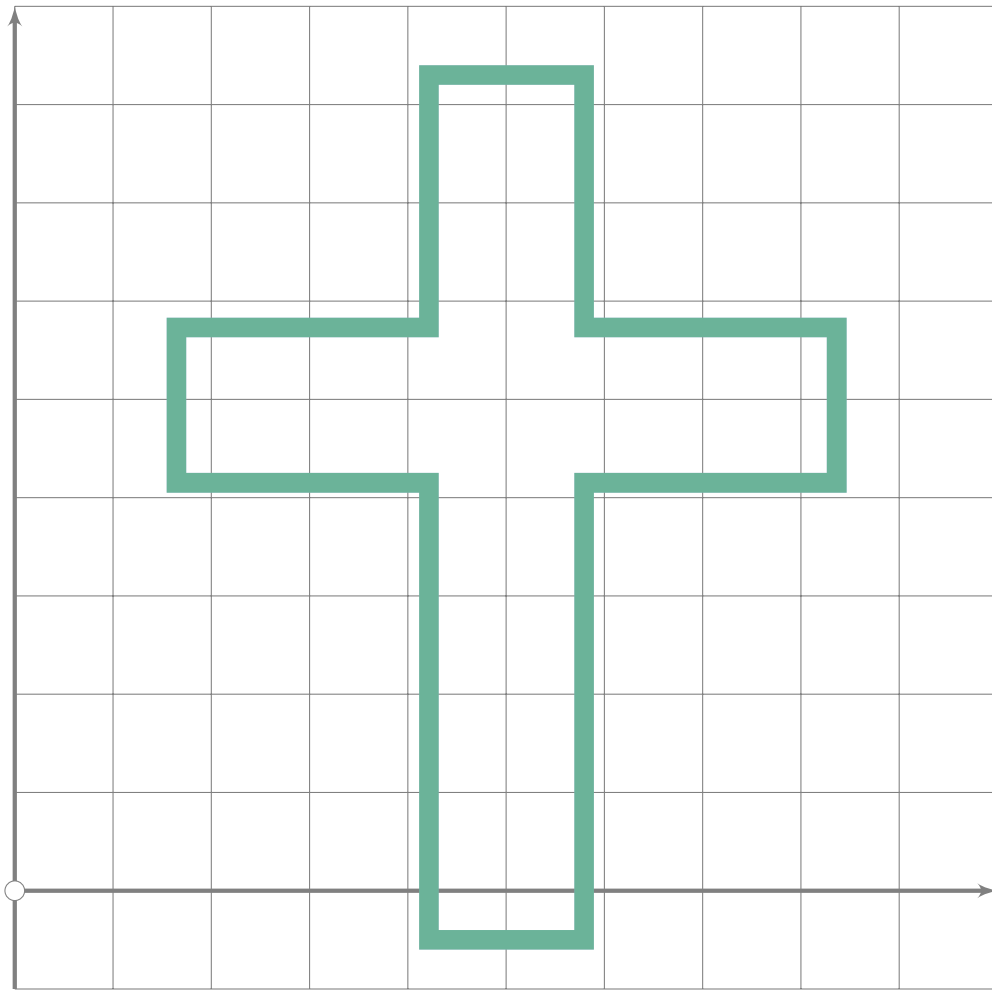
```



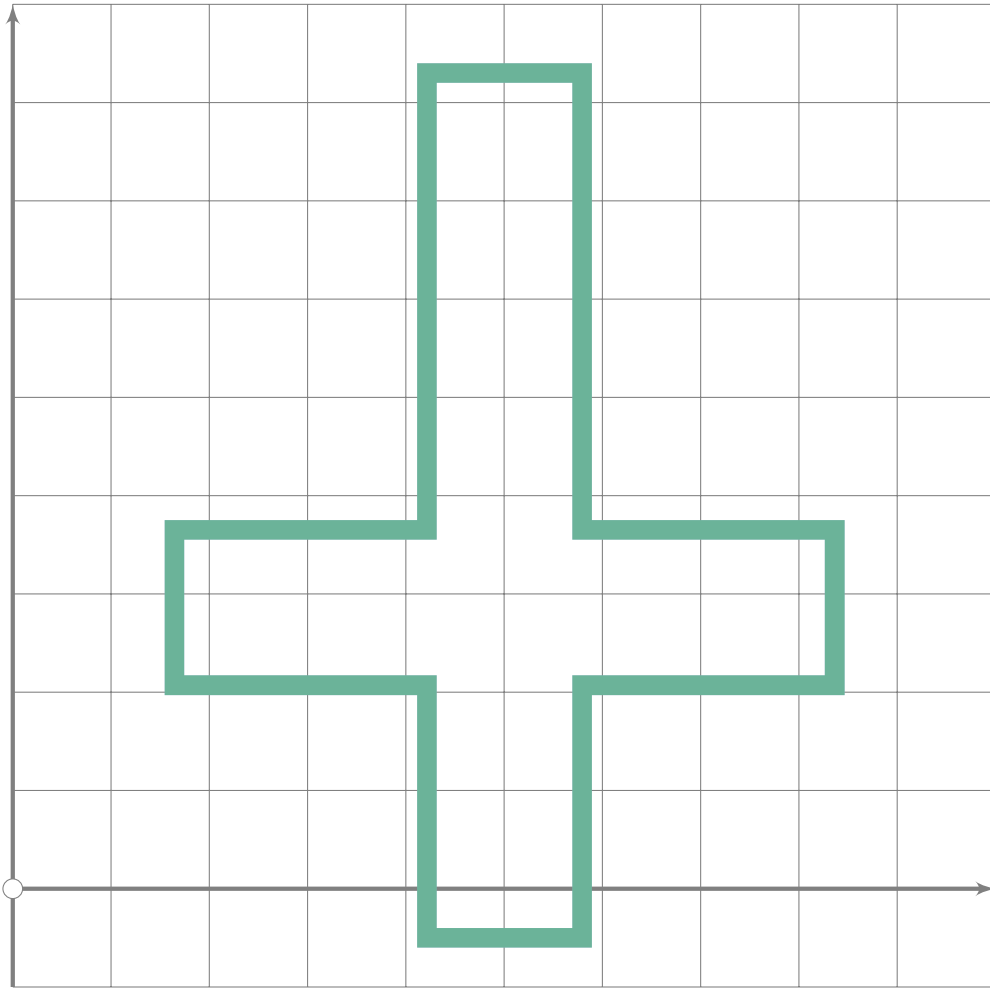
```

156
157 begintsuglyph("pentagram13";13);
158   begingroup
159     save lp;
160     path lp[];
161     my_path:=penta_ell(0.15,0);
162     lp1:=subpath (5,7) of my_path;
163     lp2:=subpath (2,4) of my_path;
164     default_nib:=fix_nib(17,17,0);
165     pen_stroke(tip(1)(1))(lp1 scaled 420 shifted centre_pt)(lp3);
166     pen_stroke(tip(1)(1))(lp2 scaled 420 shifted centre_pt)(lp4);
167     lp3:=regenerate(lp3);
168     lp4:=regenerate(lp4);
169     for i:=0 upto 4:
170       dangerousFill lp3 rotatedaround (centre_pt,i*72);
171       dangerousFill lp4 rotatedaround (centre_pt,i*72);
172     endfor;
173   endgroup;
174 endtsuglyph;
175
176

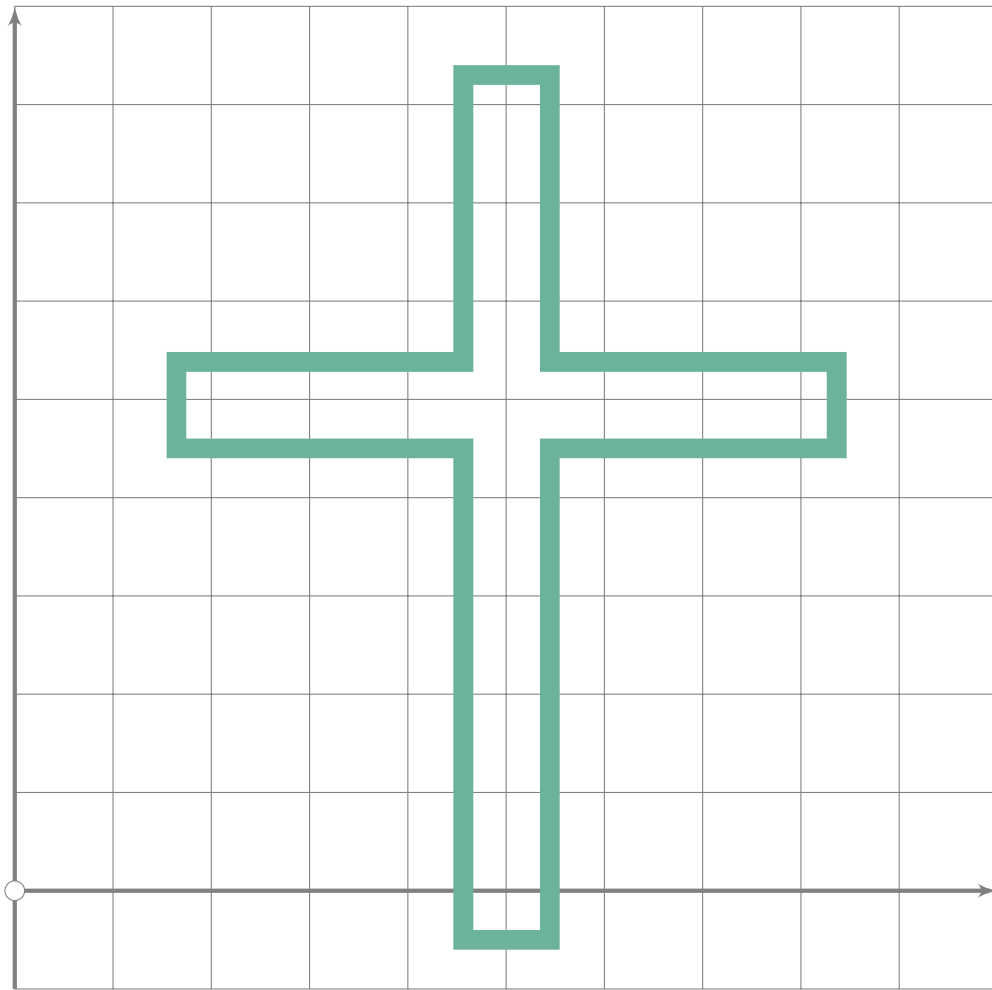
```



```
177  
178 begintsuglyph("cross01";129);  
179 draw_stroked(20,1)(cross_path(0.09) scaled 880 shifted centre_pt);  
180 endsuglyph;
```

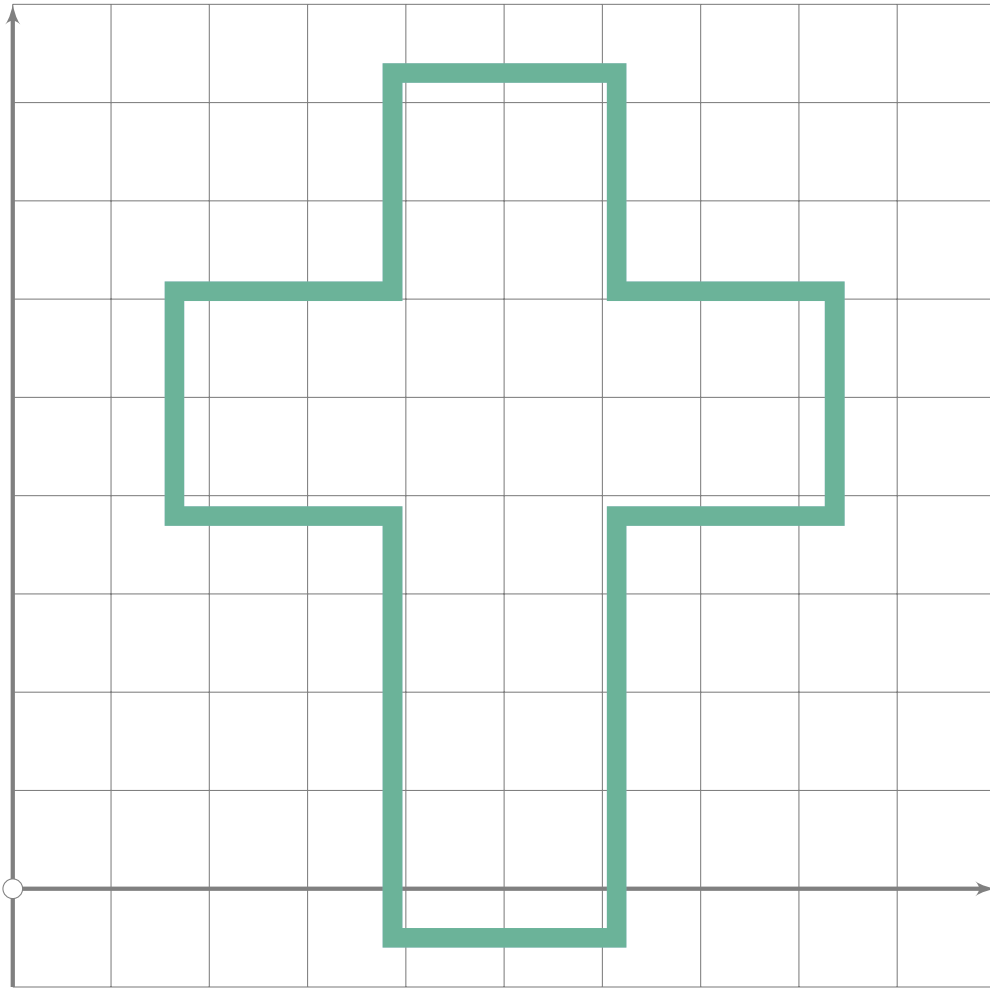


```
181  
182 begintsuglyph("cross02";130);  
183   draw_stroked(20,1)(cross_path(0.09)  
184     rotated 180 scaled 880 shifted centre_pt);  
185 endsuglyph;
```

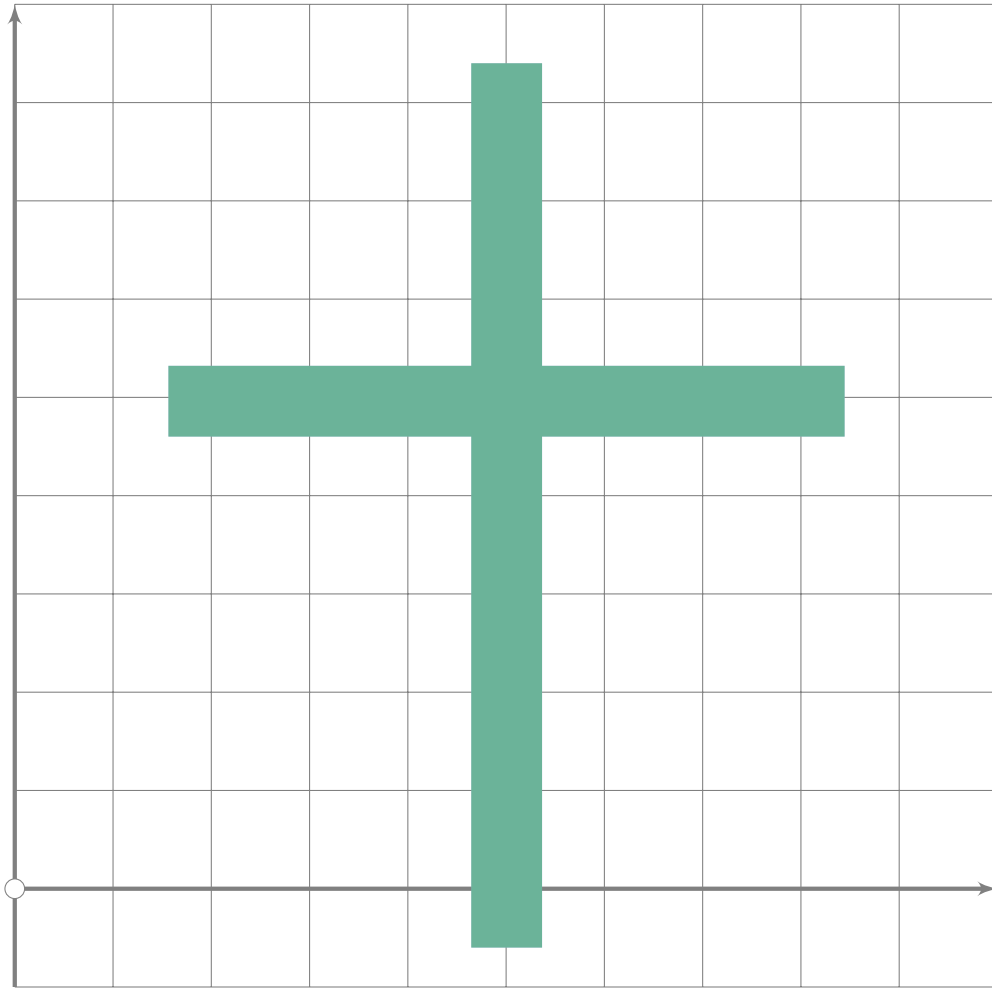


```
186  
187 begintsuglyph("cross03";131);  
188 draw_stroked(20,1)(cross_path(0.05) scaled 880 shifted centre_pt);  
189 endsuglyph;
```

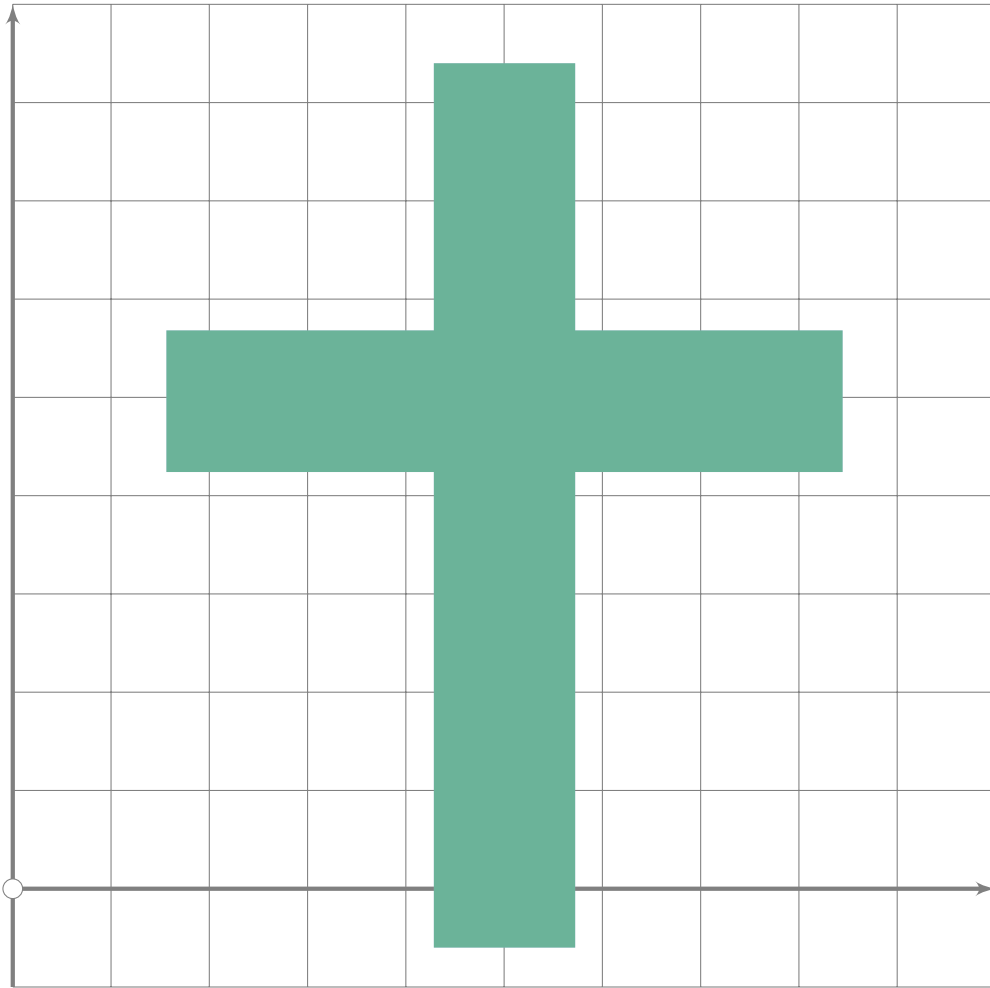




```
190  
191 begintsuglyph("cross04";132);  
192 draw_stroked(20,1)(cross_path(0,13) scaled 880 shifted centre_pt);  
193 endsuglyph;
```



```
194  
195 begintsuglyph("cross05";133);  
196 dangerousFill cross_path(0.04) scaled 900 shifted centre_pt;  
197 endsuglyph;
```



```
198  
199 begintsuglyph("cross06";134);  
200 dangerousFill cross_path(0.08) scaled 900 shifted centre_pt;  
201 endsuglyph;  
202  
203 

---

  
204  
205 endfont;  
206  
207 

---


```