

作りましょう 0.11

パラメタ方式フォントファミリ  
校とプリティプリントのソース

Tsukurimashou 0.11

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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Volume VI

U+3000 to U+4DFF

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30

tsuku-31.mp

31

tsuku-32.mp

32

tsuku-34.mp

34

tsuku-35.mp

35

tsuku-4d.mp

4D



```

1 %
2 % Unicode page 30 (Kana) for Tsukurimashou
3 % Copyright (C) 2011, 2012, 2021 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31
32
33 beginfont
34
35 % AUTODEPS
36 input dakuten.mp;
37 input genjimon.mp;
38 input hiragana.mp;
39 input katakana.mp;
40 input punct.mp;
41
42 do_late_includes;
43
44
45

```

## Ideographic Symbols And Punctuation

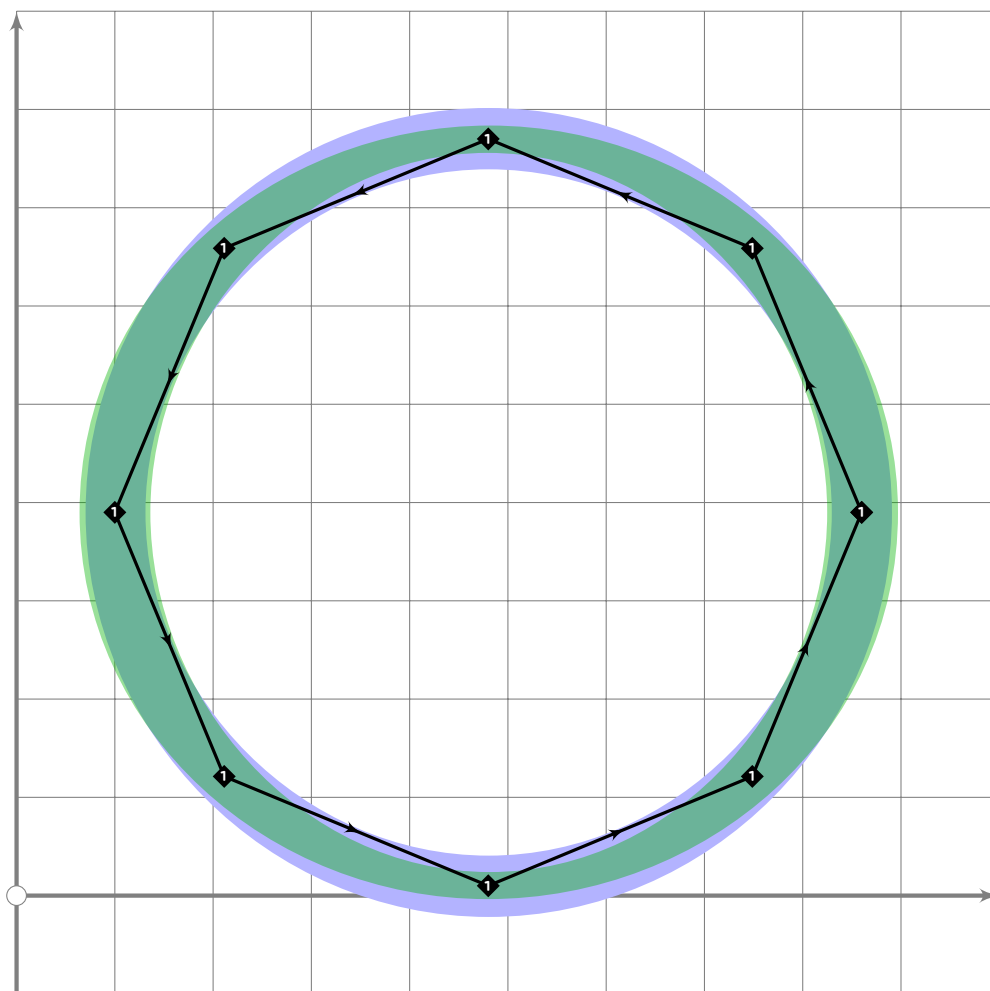
```

46 % IDEOGRAPHIC SYMBOLS AND PUNCTUATION
47
48 % ideographic comma
49 begintsuglyph("uni3001",1);
50     punct.hancomma;
51     tsu_render;
52 endtsuglyph;
53
54 % ideographic full stop
55 begintsuglyph("uni3002",2);
56     punct.full_stop;
57     tsu_render;
58 endtsuglyph;
59

```

[see page 391]

[see page 388]

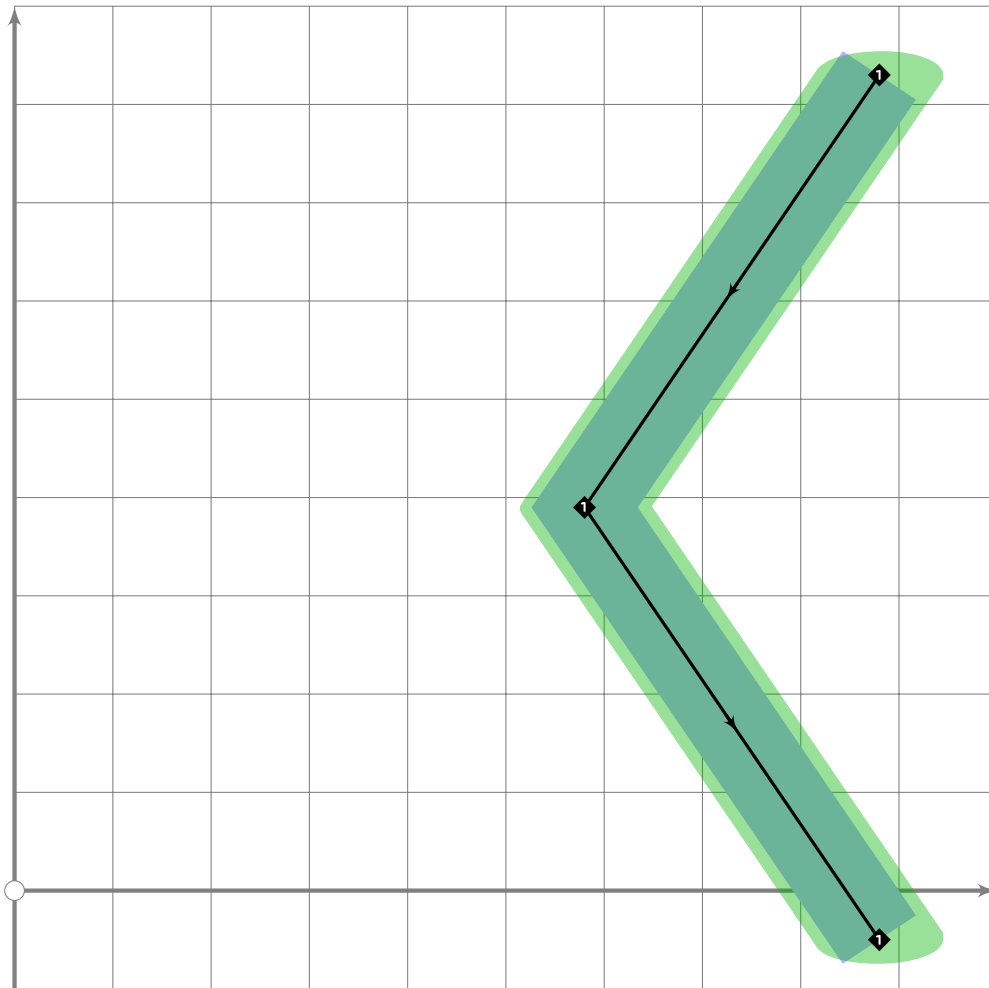


```

60 % kanji zero
61 begint Suglyph("uni3007";7);
62 % letter brush for this so it blends better with other kanji digits;
63 % let's drag the Japanese kicking and screaming into the Sixth Century!
64 push_stroke(fullcircle scaled 760 shifted (480,390),
65   (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-cycle);
66 set_bosize(0,90);
67 tsu_render;
68 endtsuglyph;
69
70 path bracket[];
71
72 % left and right single angle brackets
73 bracket1:=(880,830)-(580,390)-(880,-50);

```

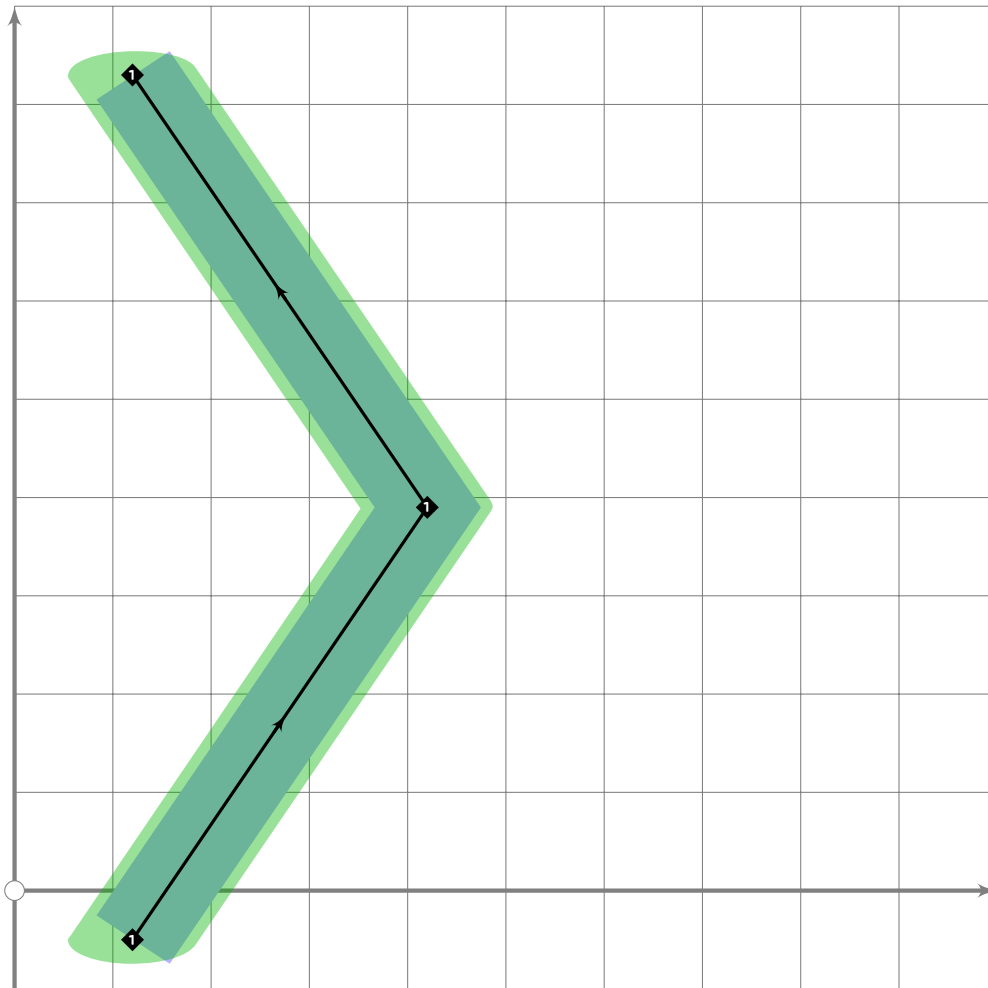




```

74 begint Suglyph("uni3008";8);
75   push_stroke((880,830)-(580,390)-(880,50),
76     (2,2)-(2,2)-(2,2));
77   set_bosize(0,120);
78   set_botip(0,1,1);
79   tsu_render;
80 endtsuglyph;

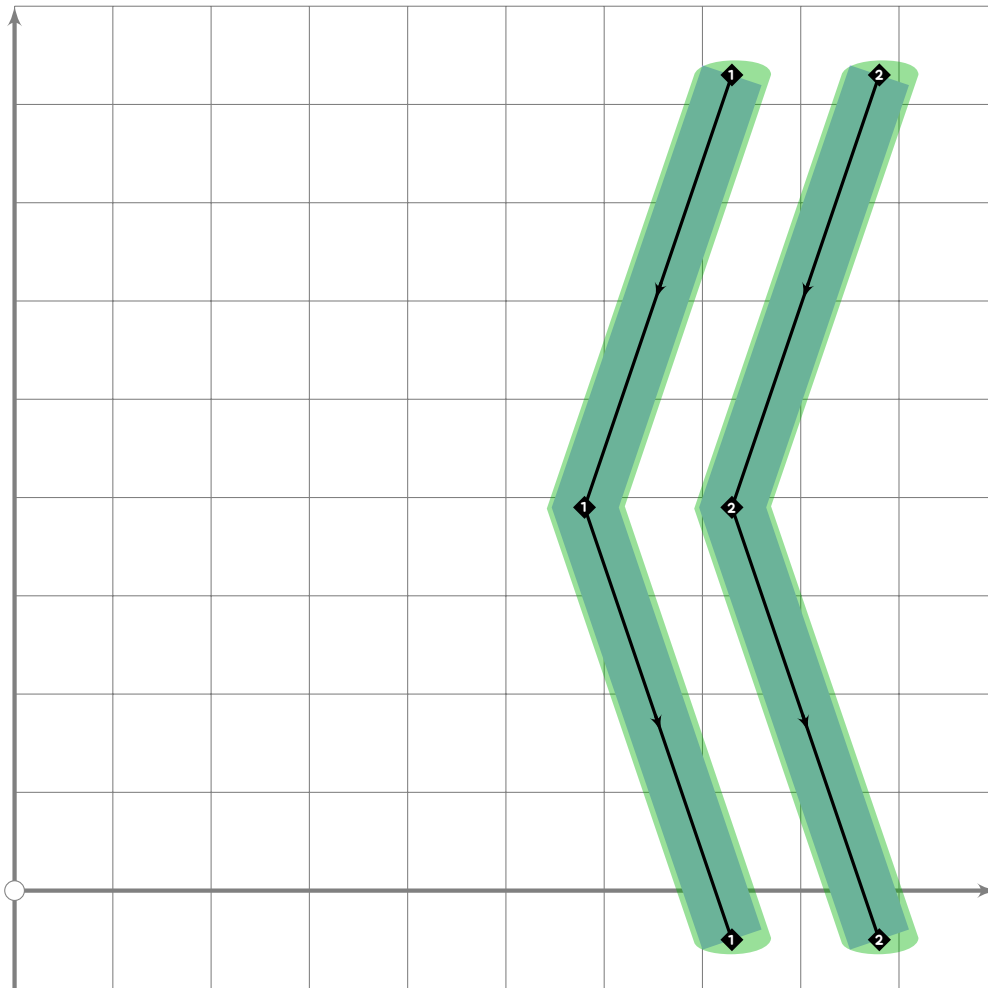
```



```

81 begint Suglyph('uni3009'9);
82   push_stroke(((880,830)-(580,390)-(880,-50))
83     rotatedaround (centre_pt,180),
84     (2,2)-(2,2)-(2,2));
85   set_bosize(0,120);
86   set_botip(0,1);
87   tsu_render;
88 endtsuglyph;
89
90 % left and right double angle brackets
91 bracket1:=(880-tsu_punct_size*3/2,830)-(580,390)
92   -(880-tsu_punct_size*3/2,-50);
93 bracket2:=(880,830)-(580+tsu_punct_size*3/2,390)-(880,-50);

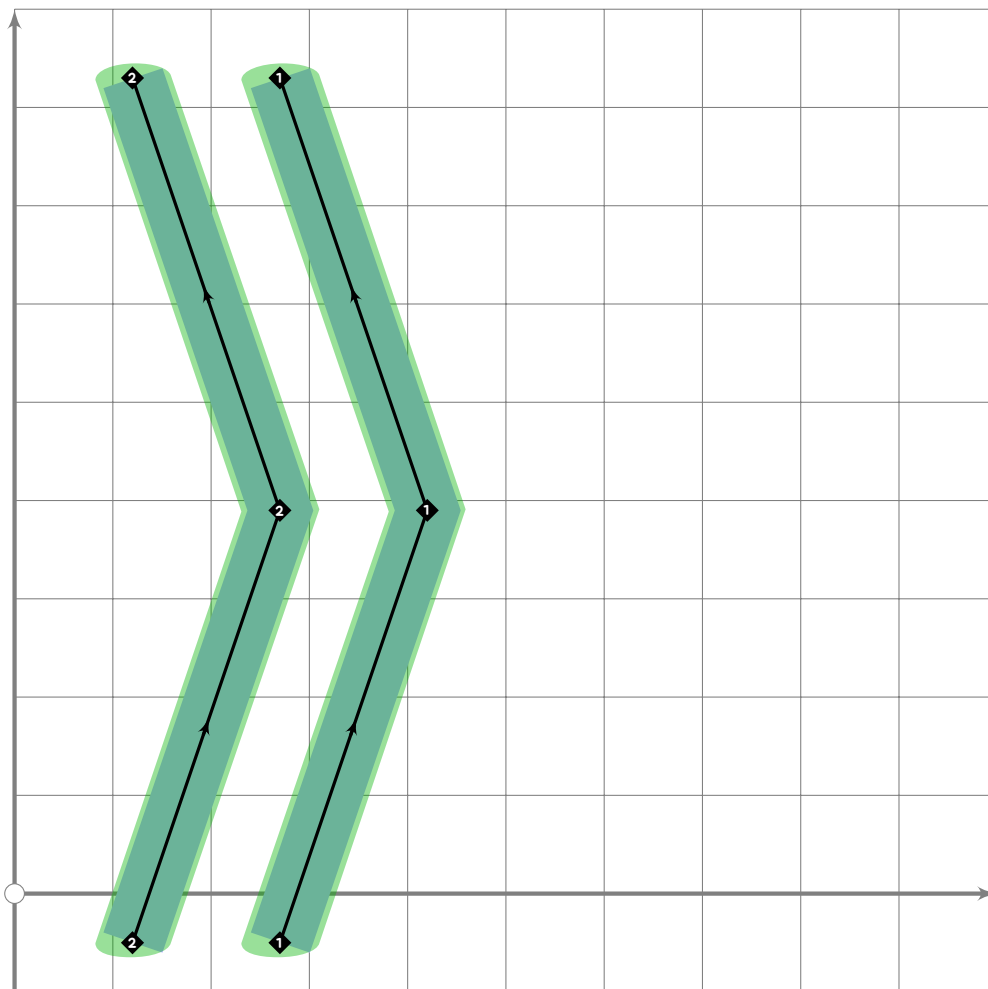
```



```

94 begint Suglyph("uni300A";10);
95   push_stroke(bracket1,
96     (1.7,1.7)-(1.7,1.7)-(1.7,1.7));
97   set_bosize(0,90);
98   set_botip(0,1,1);
99
100  push_stroke(bracket2,
101    (1.7,1.7)-(1.7,1.7)-(1.7,1.7));
102  set_bosize(0,90);
103  set_botip(0,1,1);
104
105  tsu__render;
106 endtsuglyph;

```



```

107 beginsuglyph('uni300B',11);
108   push_stroke(bracket1 rotatedaround (centre_pt,180),
109     (1.7,1.7)-(1.7,1.7)-(1.7,1.7));
110   set_bosize(0,90);
111   set_botip(0,1,1);
112
113   push_stroke(bracket2 rotatedaround (centre_pt,180),
114     (1.7,1.7)-(1.7,1.7)-(1.7,1.7));
115   set_bosize(0,90);
116   set_botip(0,1,1);
117
118   tsu_render;
119 endsuglyph;
120
121 % left and right corner brackets
122 beginsuglyph('uni300C',12);
123   punct.corner_left;
124   tsu_render;
125 endsuglyph;
126 beginsuglyph('uni300D',13);
127   punct.corner_right;

```

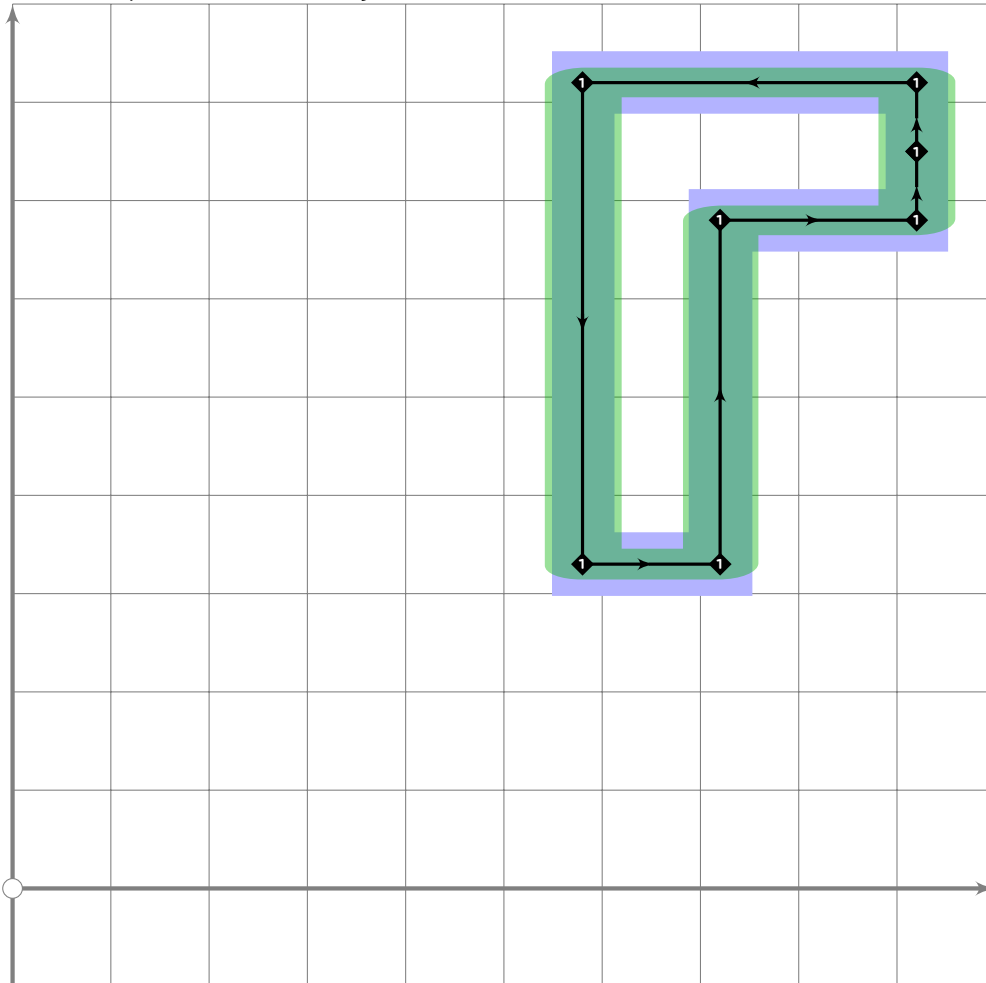
[see page 379]

[see page 380]

```

128 tsu_render;
129 endtsuglyph;
130
131 % left and right white corner brackets
132 bracket1:=(920,750)-
133   (920,750+tsu_punct_size*0.7)-
134   (650+tsu_punct_size*0.7,750+tsu_punct_size*0.7)-
135   (650+tsu_punct_size*0.7,400+tsu_punct_size*0.7)-
136   (650+tsu_punct_size*0.7,400+tsu_punct_size*0.7)-
137   (650+tsu_punct_size*0.7,750+tsu_punct_size*0.7)-
138   (920,750+tsu_punct_size*0.7)-cycle;

```



```

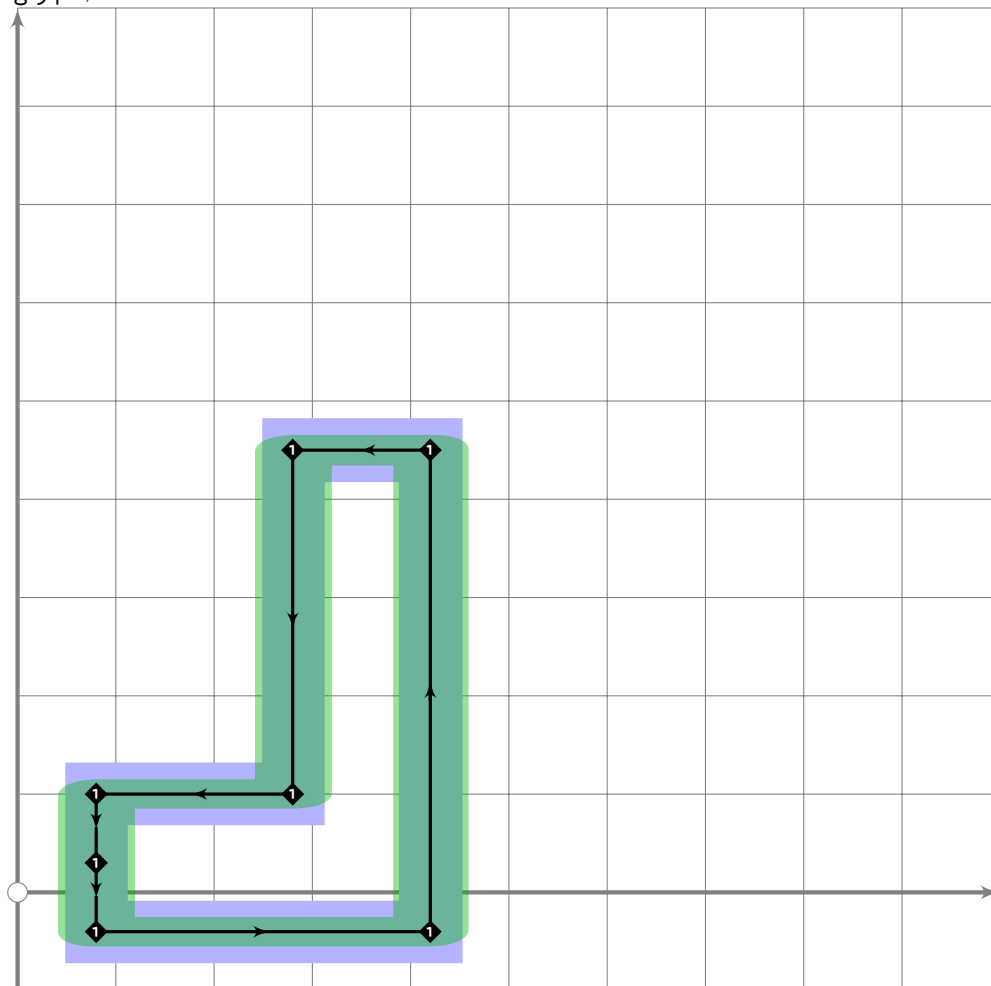
139 beginsuglyph("uni300E";14);
140 push_stroke(bracket1,
141   (1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-
142   (1.7,1.7)-(1.7,1.7)-cycle);
143 set_bosize(0,90);
144 set_botip(0,1,1);
145 set_botip(0,2,1);
146 set_botip(0,3,1);
147 set_botip(0,4,1);
148 set_botip(0,5,1);

```

U+300F  
tsuku.uni300F

30

```
149 set_botip(0,6,1);
150
151 tsu_render;
152 endtsuglyph;
```

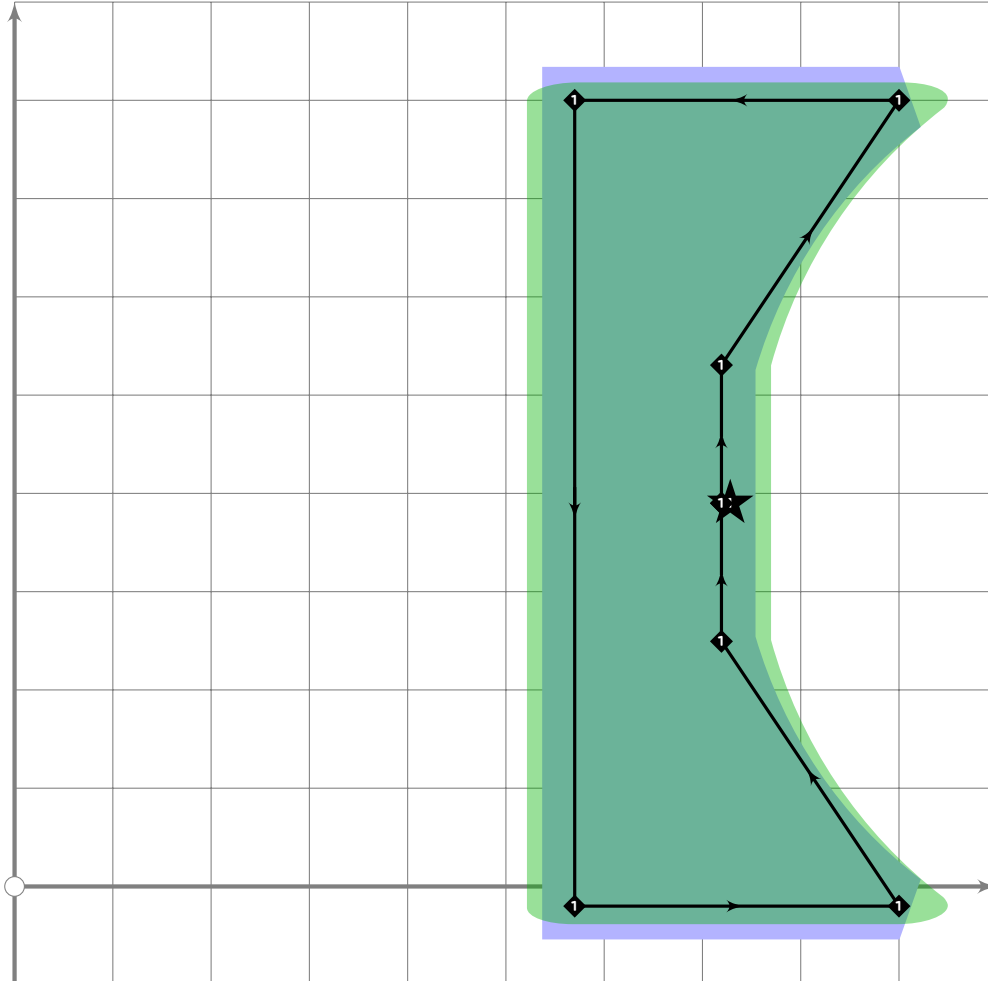


```
153 beginsuglyph("uni300F";15);
154 push_stroke(bracket1 rotatedaround (centre_pt,180),
155   (1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-
156   (1.7,1.7)-(1.7,1.7)-cycle);
157 set_bosize(0,90);
158 set_botip(0,1,1);
159 set_botip(0,2,1);
160 set_botip(0,3,1);
161 set_botip(0,4,1);
162 set_botip(0,5,1);
163 set_botip(0,6,1);
164
165 tsu_render;
166 endtsuglyph;
167
168 % left and right white and black lenticular brackets
169 % grouped here, out of Unicode sequence, to share the outline
```

```

170 bracket1:=(900-2*tsu_punct_size,390){up}..
171   (900,800)–(900-3.3*tsu_punct_size,800)–
172   (900-3.3*tsu_punct_size,20)–(900,20)..
173   {up}cycle;
174 bracket1:=(0.5[point 0.3 of bracket1,point 4.7 of bracket1])–
175   subpath (0.34.7) of bracket1-cycle;

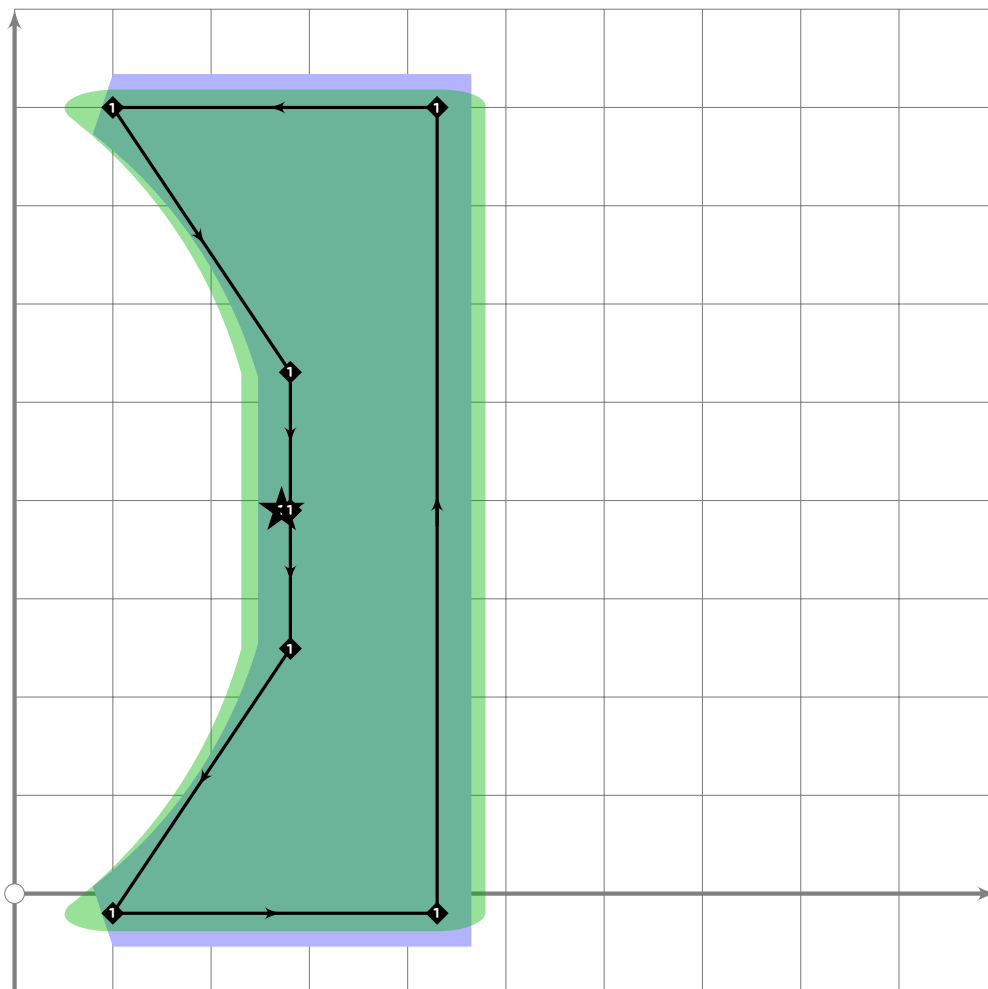
```



```

176 beginsuglyph("uni3010",16);
177   push_stroke(bracket1,
178     (2,2)–(2,2)–(2,2)–(2,2)–(2,2)–(2,2)–(2,2)–cycle);
179   set_bosize(0,90);
180   set_botip(0,1,1);
181   set_botip(0,2,0);
182   set_botip(0,3,1);
183   set_botip(0,4,1);
184   set_botip(0,5,0);
185   set_botip(0,6,1);
186   push_lcblob(get_stroke(0));
187
188   tsu_render;
189 endtsuglyph;

```

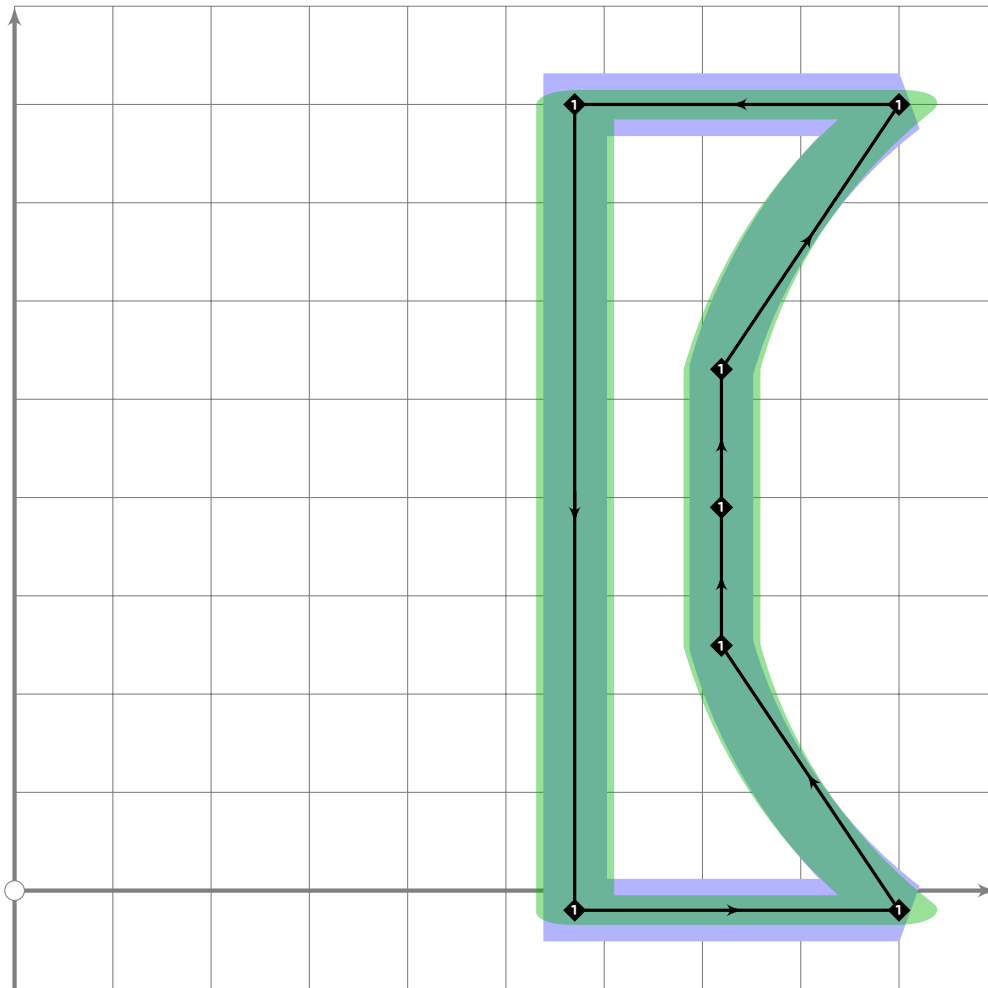


```

190 begintsuglyph("uni3011";17);
191     push_stroke(bracket1_rotatedaround (centre_pt,180),
192         (2,2)-(2,2)-(2,2)-(2,2)-(2,2)-(2,2)-(2,2)-cycle);
193     set_bosize(0,90);
194     set_botip(0,1,1);
195     set_botip(0,2,0);
196     set_botip(0,3,1);
197     set_botip(0,4,1);
198     set_botip(0,5,0);
199     set_botip(0,6,1);
200     push_lcblob(get_strokep(0));
201
202     tsu_render;
203 endtsuglyph;

```

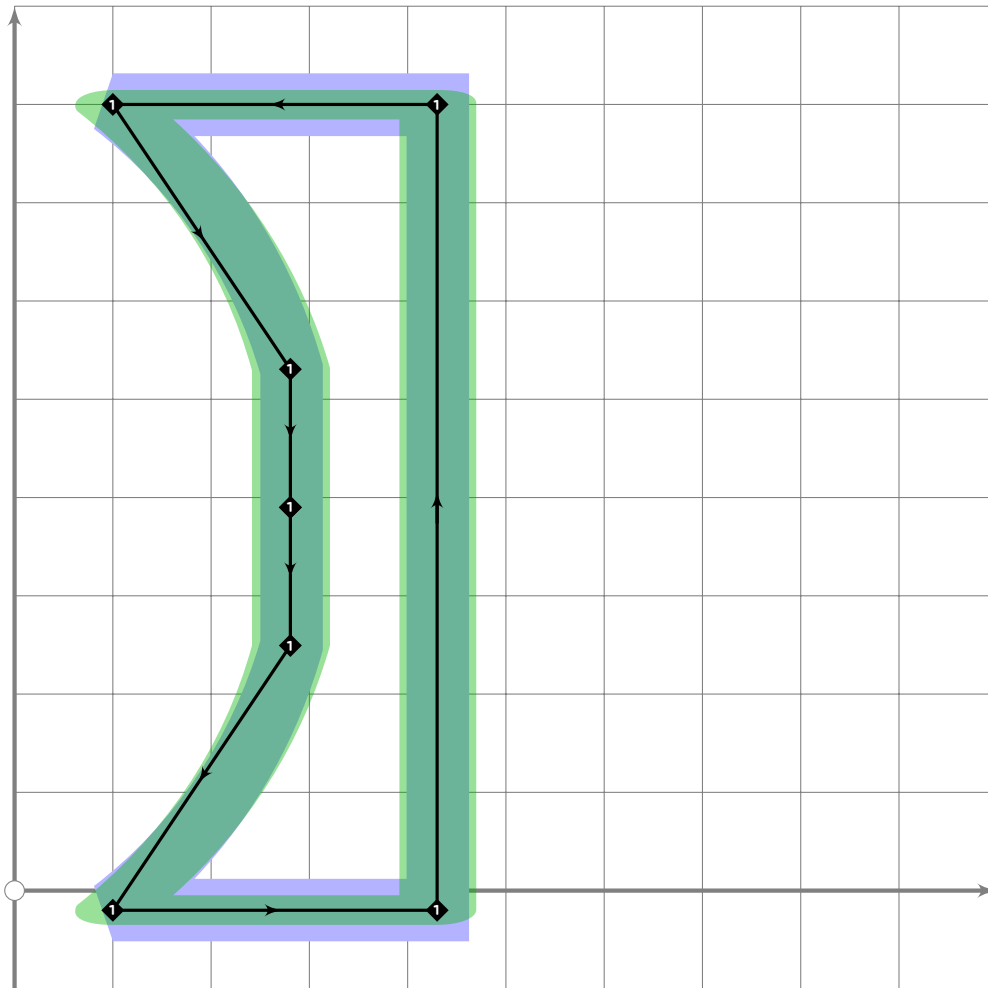




```

204 beginsuglyph("uni3016";22);
205   push_stroke(bracket1,
206     (1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-
207     (1.7,1.7)-(1.7,1.7)-cycle);
208   set_bosize(0,90);
209   set_botip(0,1,1);
210   set_botip(0,2,0);
211   set_botip(0,3,1);
212   set_botip(0,4,1);
213   set_botip(0,5,0);
214   set_botip(0,6,1);
215
216   tsu__render;
217 endtsuglyph;

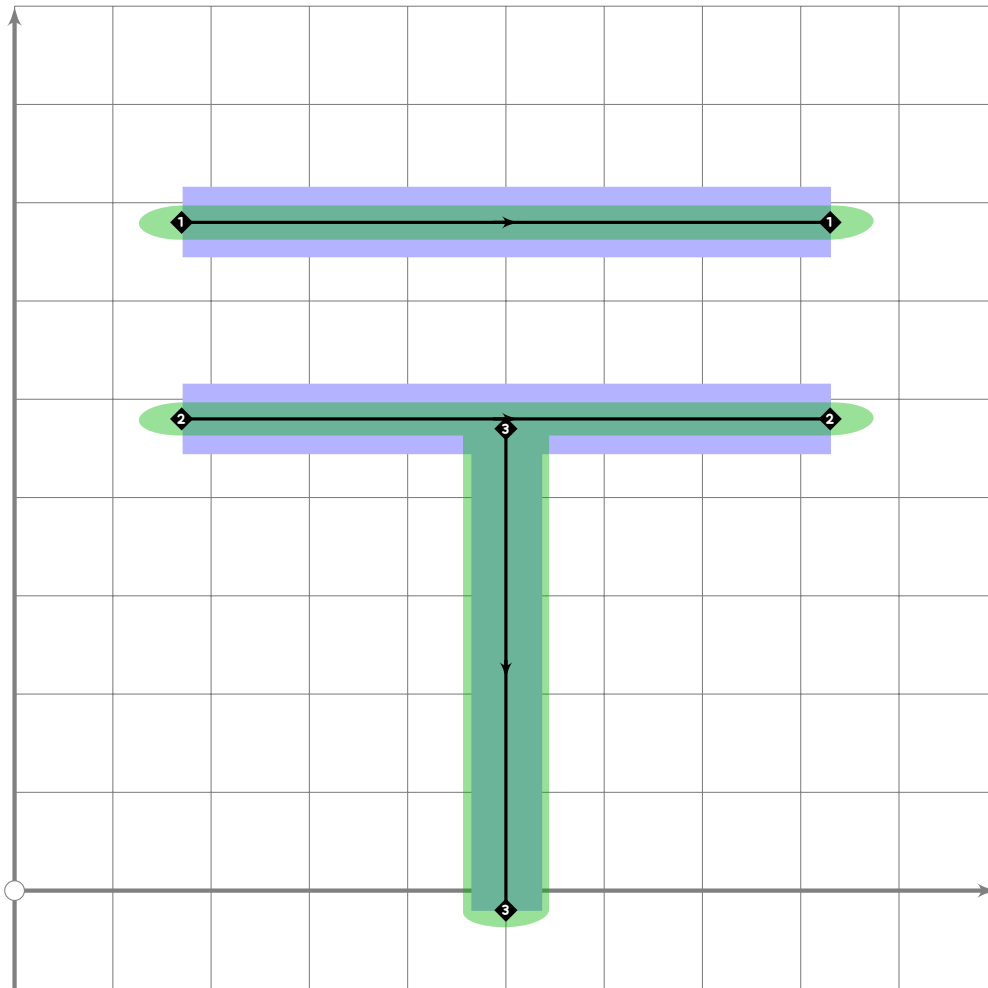
```



```

218 beginsuglyph("uni3017";23);
219   push_stroke(bracket1 rotatedaround (centre_pt,180),
220     (1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-
221     (1.7,1.7)-(1.7,1.7)-cycle);
222   set_bosize(0,90);
223   set_botip(0,1,1);
224   set_botip(0,2,0);
225   set_botip(0,3,1);
226   set_botip(0,4,1);
227   set_botip(0,5,0);
228   set_botip(0,6,1);
229
230   tsu_render;
231 endsuglyph;
232

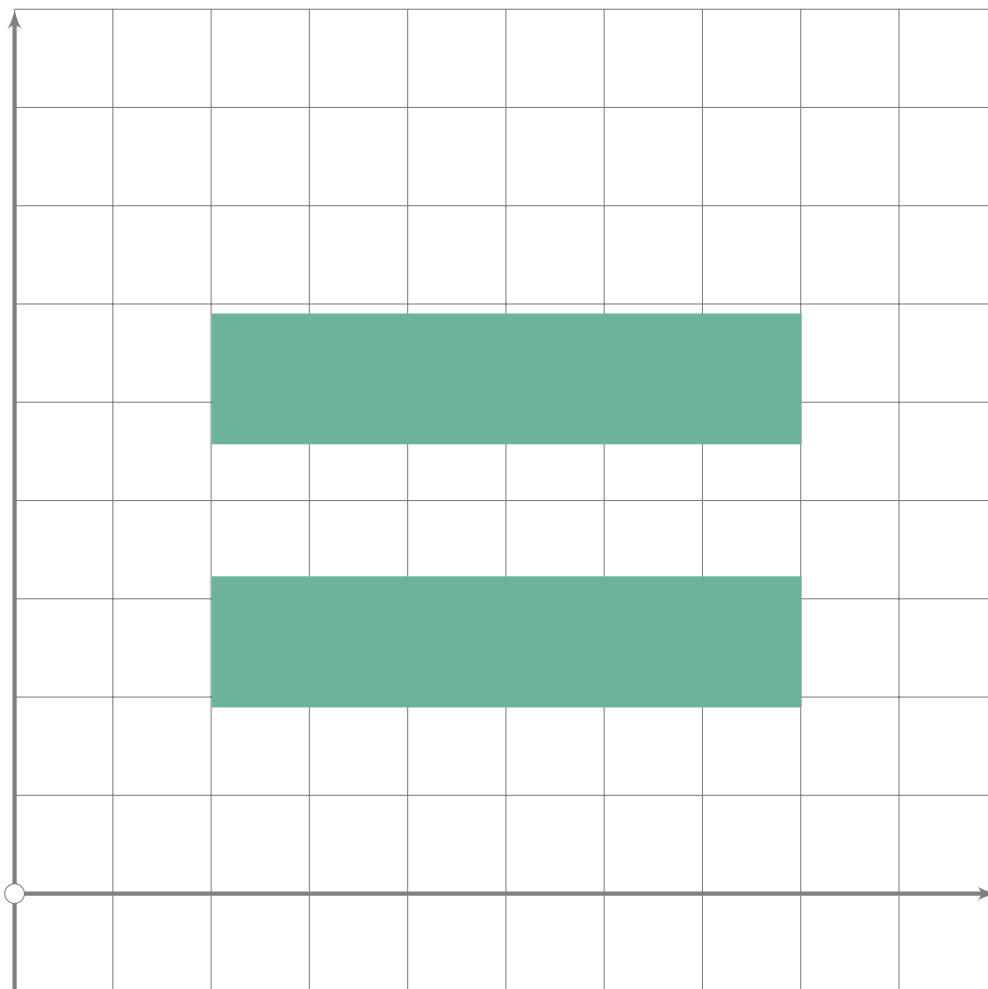
```



```

233 % Japanese postal mark
234 begintsuglyph("uni3012",18);
235   push_stroke((170,680)-(830,680),(1.7,1.7)-(1.7,1.7));
236
237   push_stroke((170,680-2*tsu_punct_size)-(830,680-2*tsu_punct_size),
238     (1.7,1.7)-(1.7,1.7));
239
240   push_stroke((500,720-2.5*tsu_punct_size)-(500,-20),
241     (1.7,1.7)-(1.7,1.7));
242
243   tsu_render;
244 endtsuglyph;
245

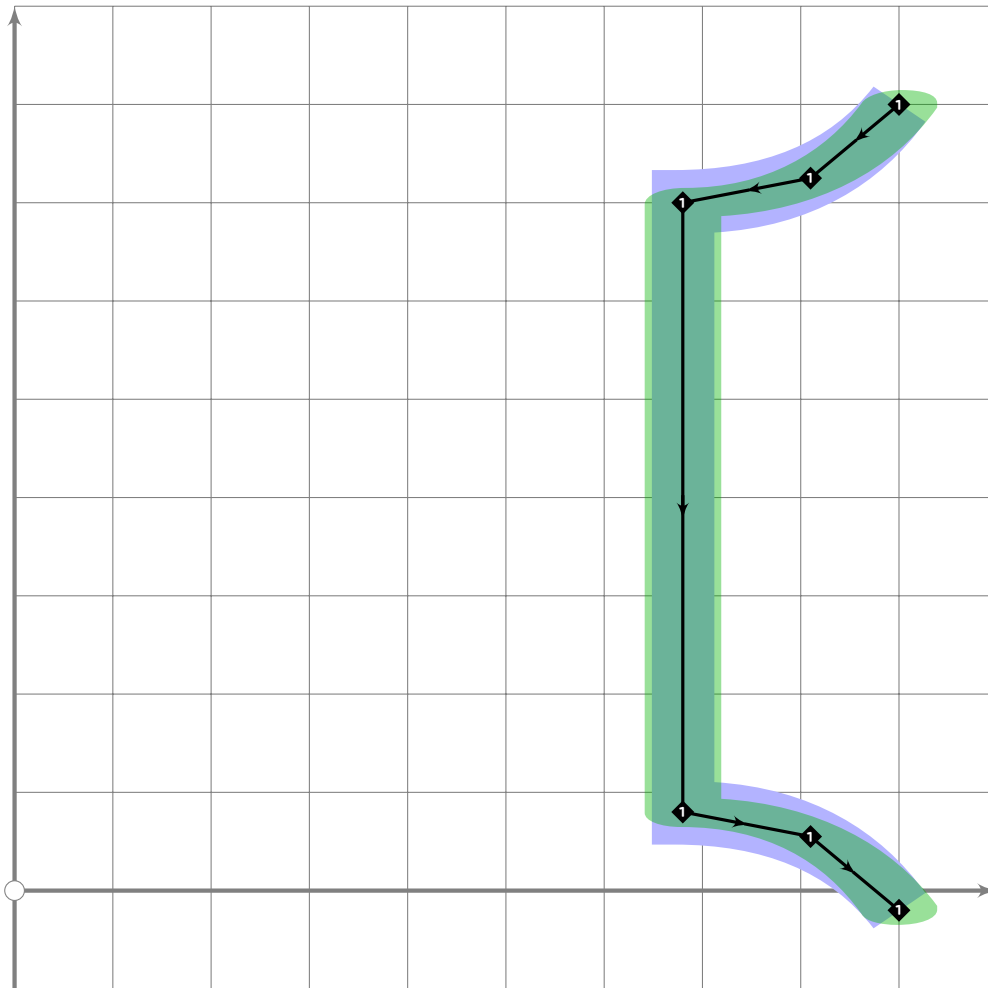
```



```

246 % "geta" or substitute mark
247 begint Suglyph("uni3013",19);
248   x2-x1=6*tsu_punct_size;
249   0.5[x1,x2]=500;
250   y4-y1=4*tsu_punct_size;
251   y2-y1=y3-y2=y4-y3;
252   0.5[y1,y4]=390;
253   dangerousFill
254     (x1,y4)-(x1,y3)-(x2,y3)-(x2,y4)-cycle,
255     (x1,y2)-(x1,y1)-(x2,y1)-(x2,y2)-cycle;
256 endtsuglyph;
257
258 % left and right plain and white tortoise shell brackets
259 % grouped here, out of Unicode sequence, to share the outline
260 bracket1:=(900,800)..
261   (900-tsu_punct_size*0.9,800-tsu_punct_size*3/4)..
262   {left}(900-2.2*tsu_punct_size,800-tsu_punct_size)-
263   (900-2.2*tsu_punct_size,20+tsu_punct_size){right}..
264   (900-tsu_punct_size*0.9,20+tsu_punct_size*3/4)..
265   (900,20);
266 bracket2:=(point 1 of bracket1)-(point 4 of bracket1);

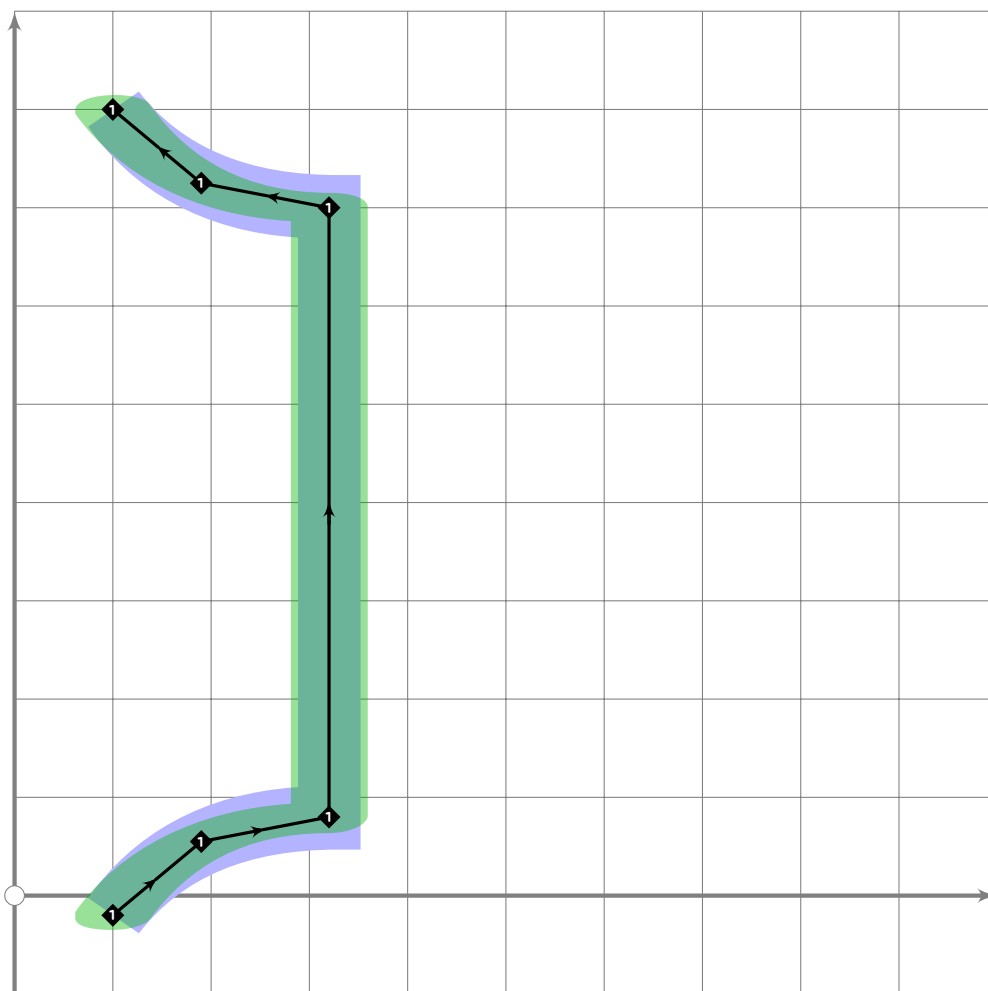
```



```

267 begint Suglyph("uni3014";20);
268   push_stroke(bracket1,
269     (1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7));
270   set_bosize(0,90);
271   set_botip(0,2,1);
272   set_botip(0,3,1);
273
274   tsu_render;
275 endtsuglyph;

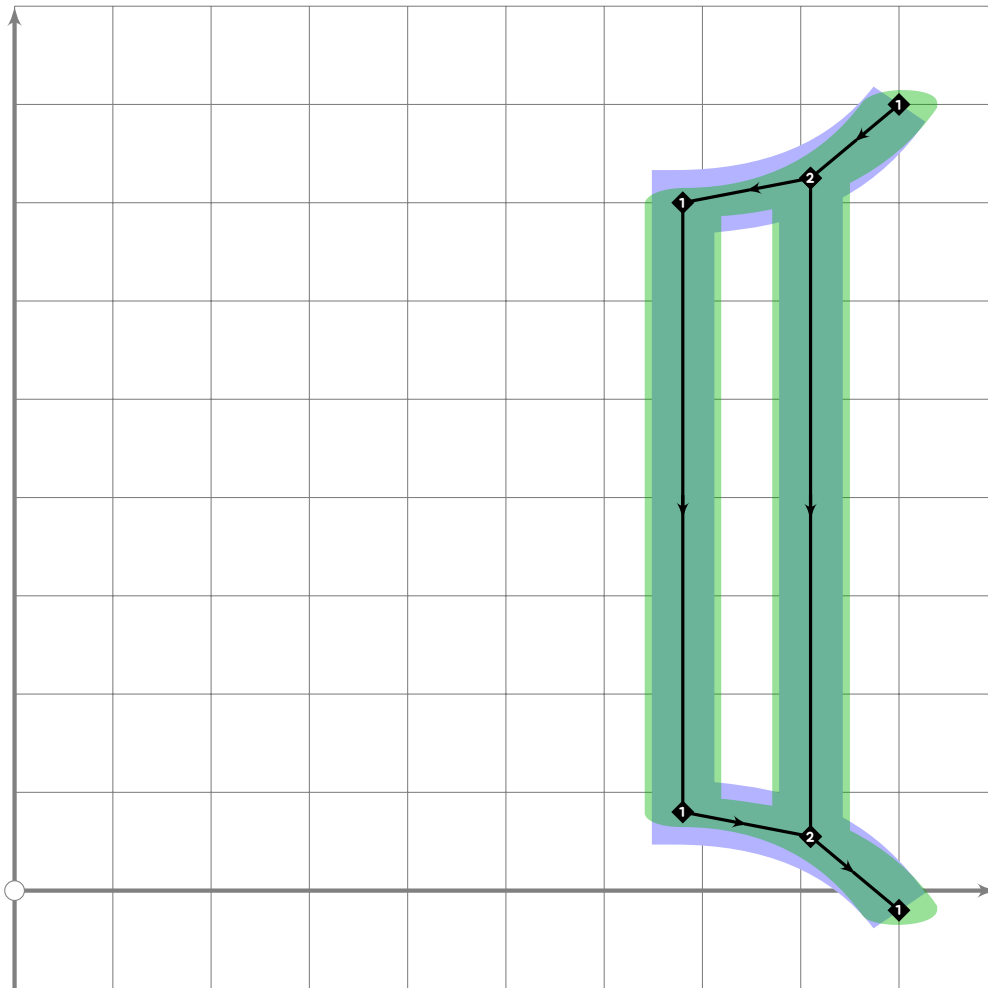
```



```

276 begint Suglyph("uni3015";21);
277   push_stroke(bracket1 rotatedaround (centre_pt,180),
278     (1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7));
279   set_bosize(0,90);
280   set_botip(0,2,1);
281   set_botip(0,3,1);
282
283   tsu_render;
284 endtsuglyph;

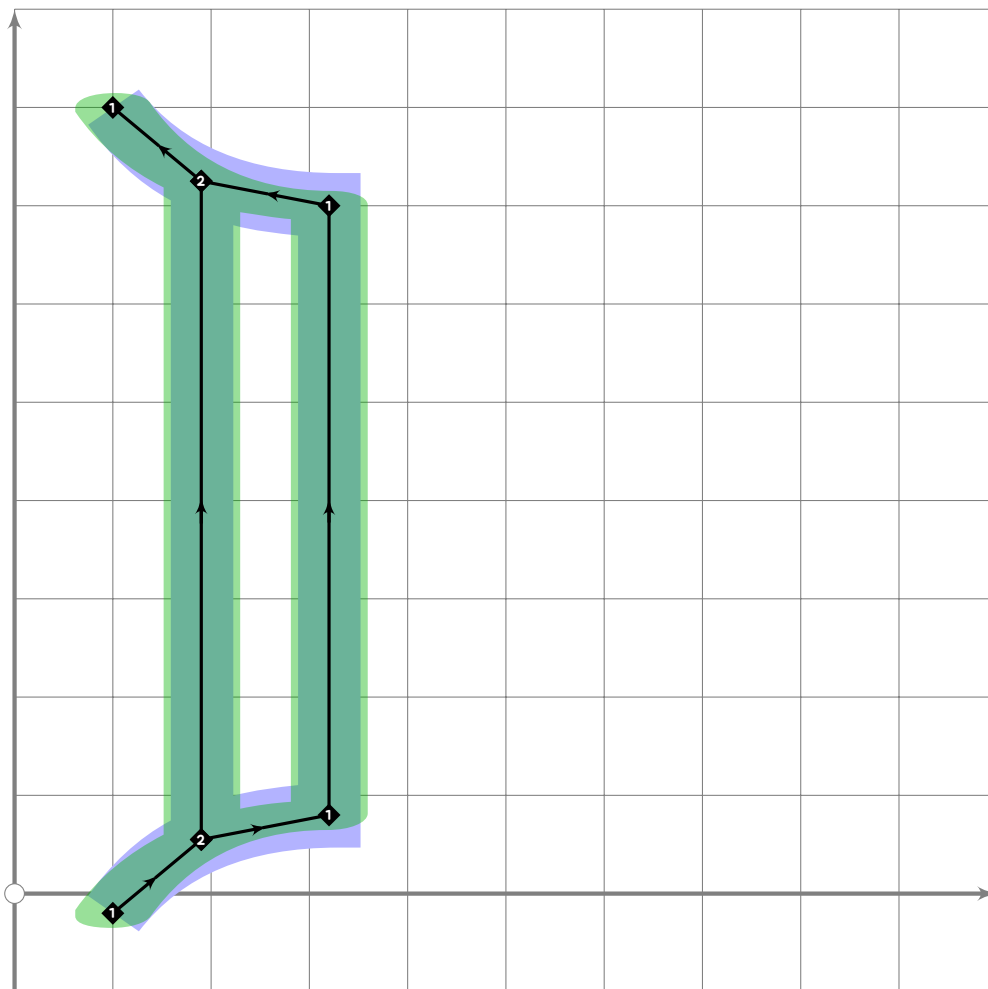
```



```

285 beginsuglyph("uni3018";24);
286 push_stroke(bracket1,
287   (1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7));
288 set_bosize(0,90);
289 set_botip(0,2,1);
290 set_botip(0,3,1);
291
292 push_stroke(bracket2,
293   (1.7,1.7)-(1.7,1.7));
294 set_bosize(0,90);
295
296 tsu_render;
297 endtsuglyph;

```

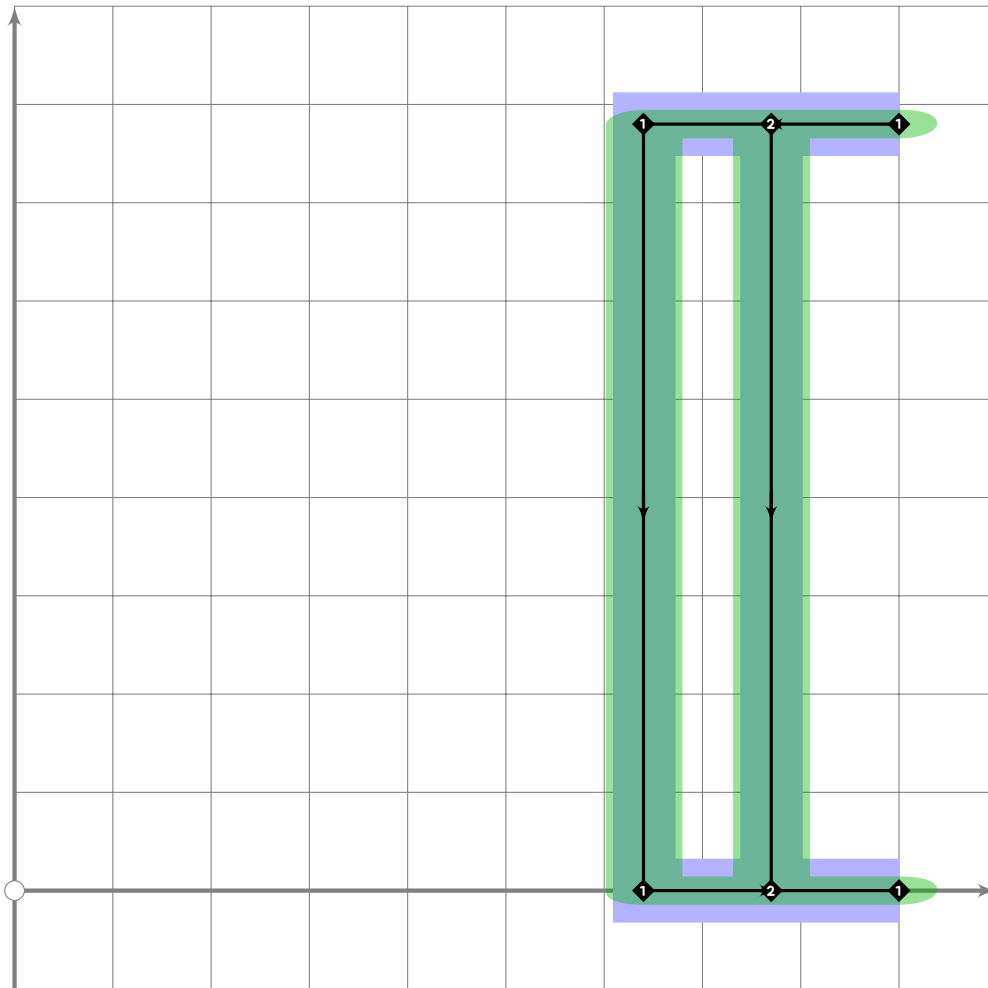


```

298 beginsuglyph('uni3019';25);
299 push_stroke(bracket1 rotatedaround (centre_pt,180),
300   (1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7));
301 set_bosize(0,90);
302 set_botip(0,2,1);
303 set_botip(0,3,1);
304
305 push_stroke(bracket2 rotatedaround (centre_pt,180),
306   (1.7,1.7)-(1.7,1.7));
307 set_bosize(0,90);
308
309 tsu_render;
310 endtsuglyph;
311
312 % left and right white square brackets
313 bracket1:=(900,780)-
314   (900-2.6*tsu_punct_size,780)-
315   (900-2.6*tsu_punct_size,0)-
316   (900,0);
317 bracket2:=(point 0.5 of bracket1)-(point 2.5 of bracket1);

```

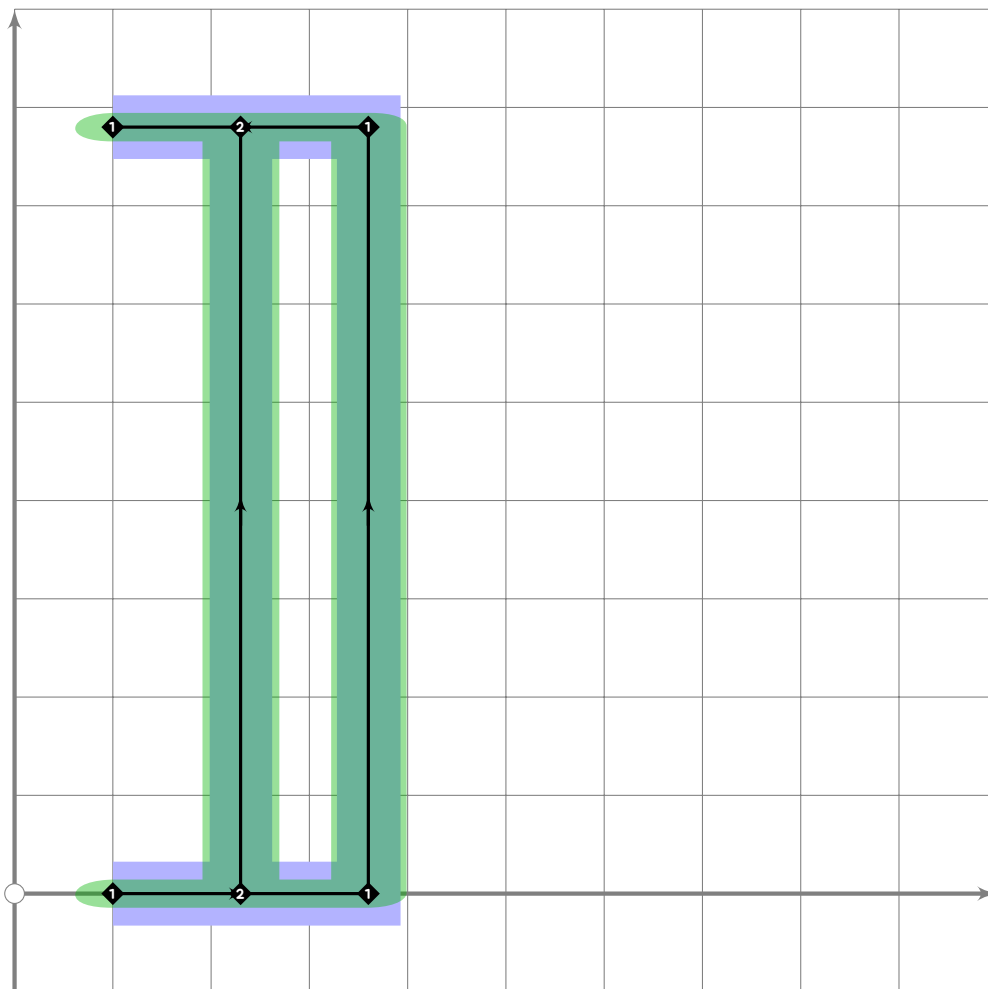




```

318 begintsuglyph("uni301A";26);
319   push_stroke(bracket1,
320     (1,7,1,7)-(1,7,1,7)-(1,7,1,7)-(1,7,1,7));
321   set_bosize(0,90);
322   set_botip(0,1,1);
323   set_botip(0,2,1);
324
325   push_stroke(bracket2,
326     (1,7,1,7)-(1,7,1,7));
327   set_bosize(0,90);
328
329   tsu_render;
330 endtsuglyph;

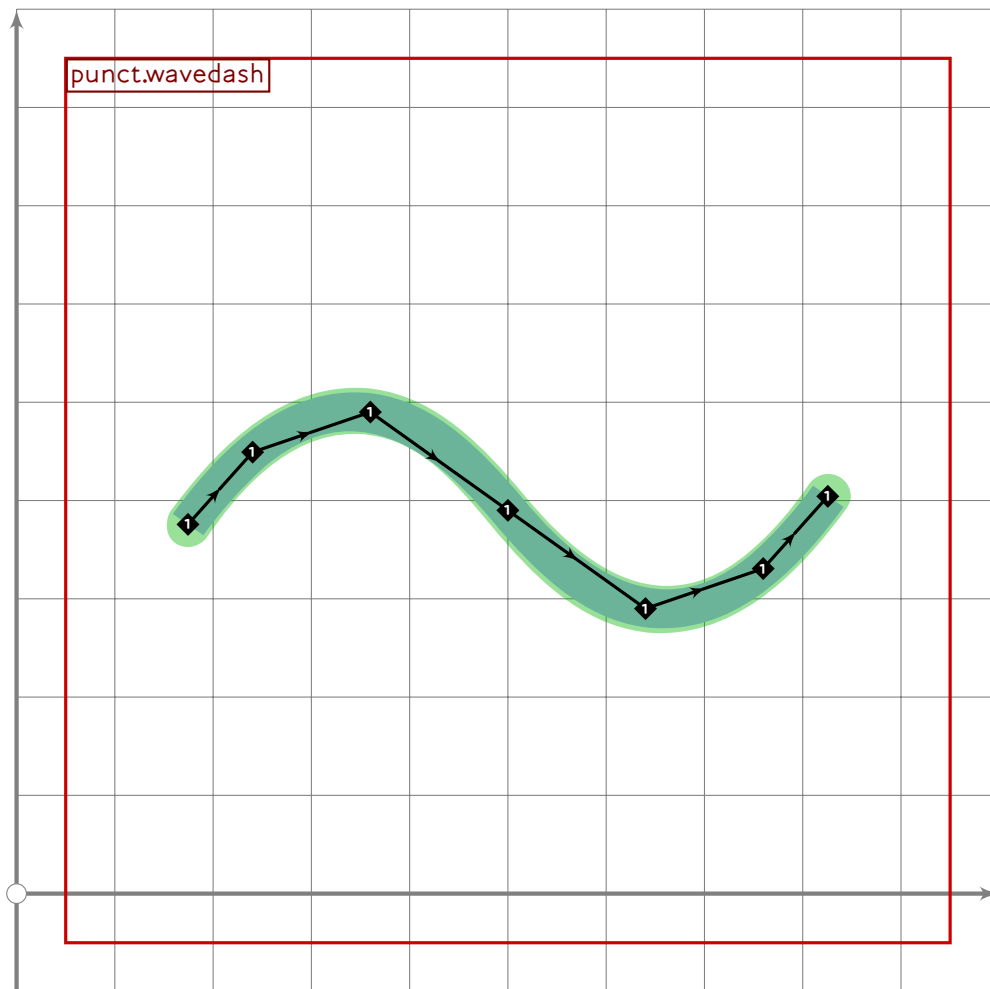
```



```

331 beginstuglyph("uni301B";27);
332   push_stroke(bracket1 rotatedaround (centre_pt,180),
333     (1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7));
334   set_bosize(0,90);
335   set_botip(0,1,1);
336   set_botip(0,2,1);
337
338   push_stroke(bracket2 rotatedaround (centre_pt,180),
339     (1.7,1.7)-(1.7,1.7));
340   set_bosize(0,90);
341
342   tsu_render;
343 endstuglyph;
344

```



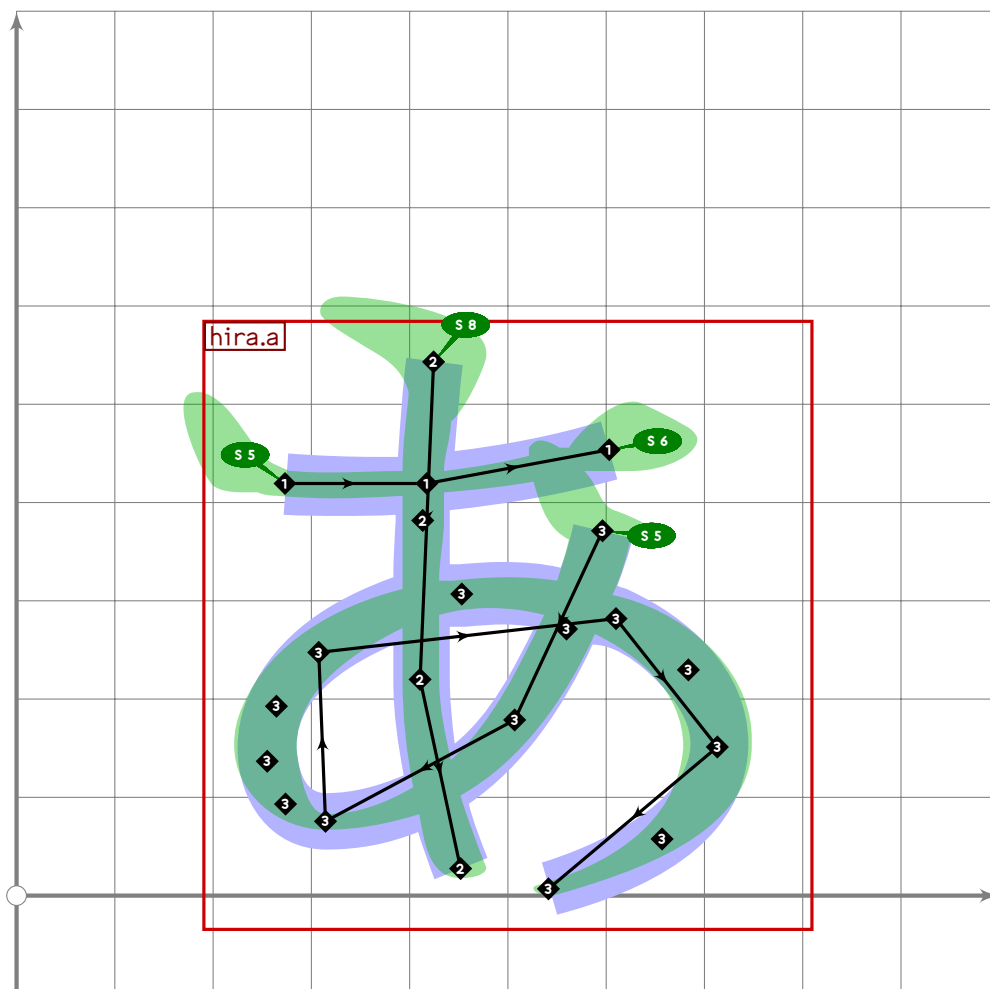
```

345 % "wave dash"
346 begintsuglyph("uni301C",28);
347   punct.wavedash;
348   bo_serif.a0:=5;
349   bo_serif.a6:=8;
350   tsu_render;
351 endtsuglyph;
352
353
354
```

Hiragana

```

355 % HIRAGANA
356
```

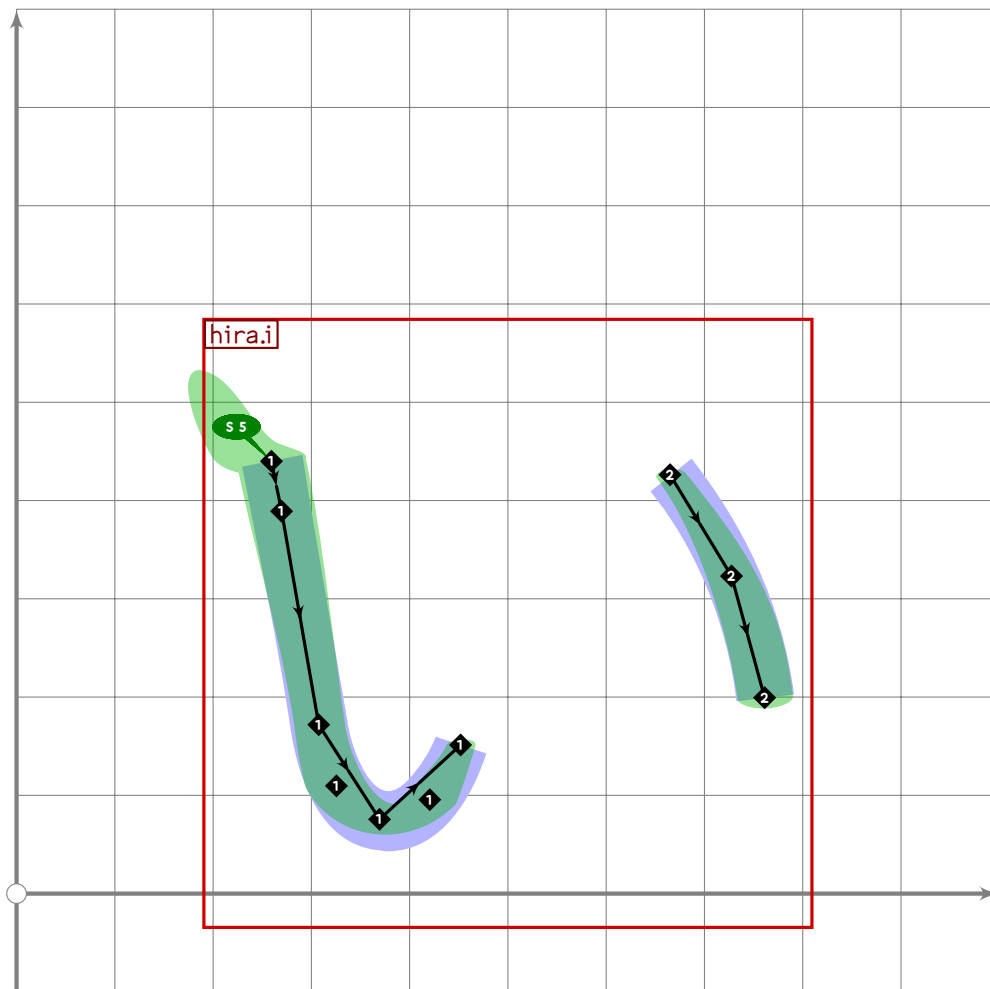


```

357 % hiragana "small a"
358 begintsuglyph("uni3041",65);
359   tsu_xform(tsu_xf.smallkana)(hira.a);
360   tsu_render;
361 endtsuglyph;
362
363 % hiragana "a"
364 begintsuglyph("uni3042",66);
365   hira.a;
366   tsu_render;
367 endtsuglyph;
368

```

[see page 153]



```

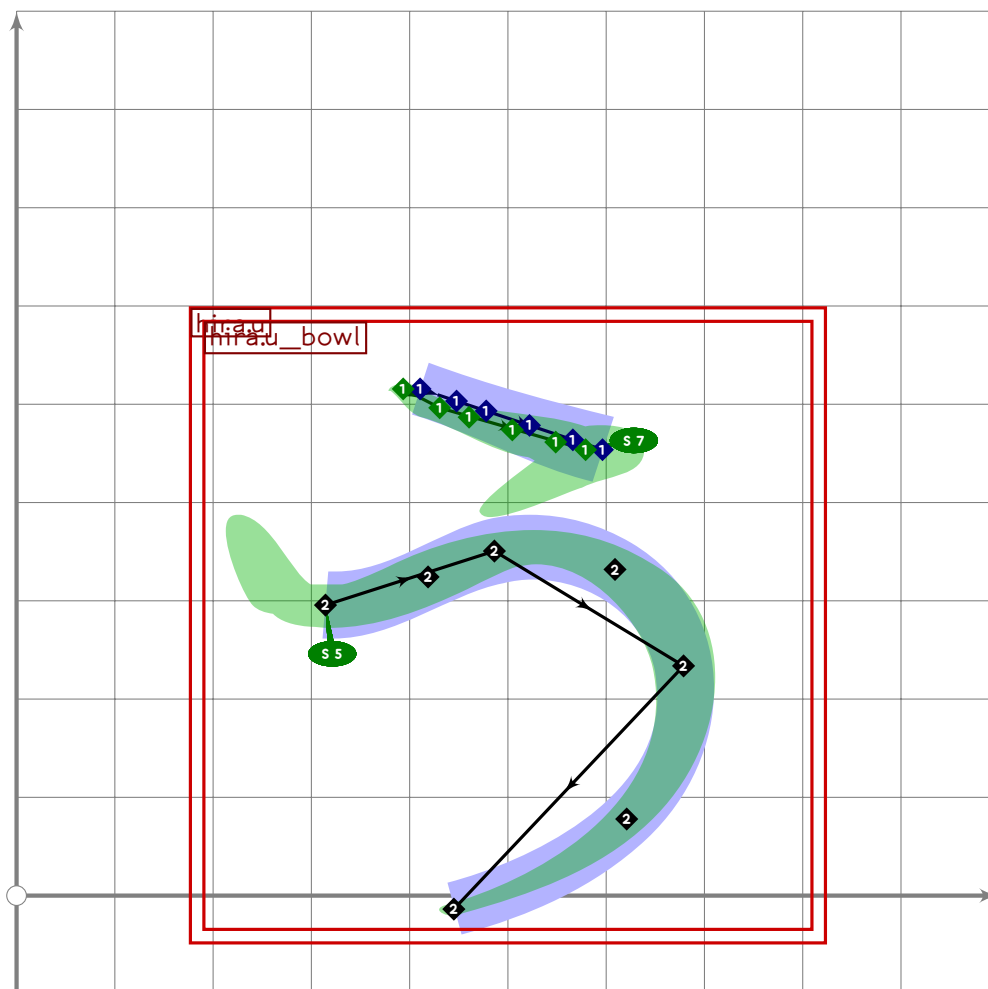
369 % hiragana "small i"
370 begintsuglyph("uni3043",67);
371   tsu_xform(tsu_xf.smallkana)(hira.i);
372   tsu_render;
373 endtsuglyph;
374
375 % hiragana "i"
376 begintsuglyph("uni3044",68);
377   hira.i;
378   tsu_render;
379 endtsuglyph;
380

```

[see page 154]

U+3045  
tsuku.uni3045

30

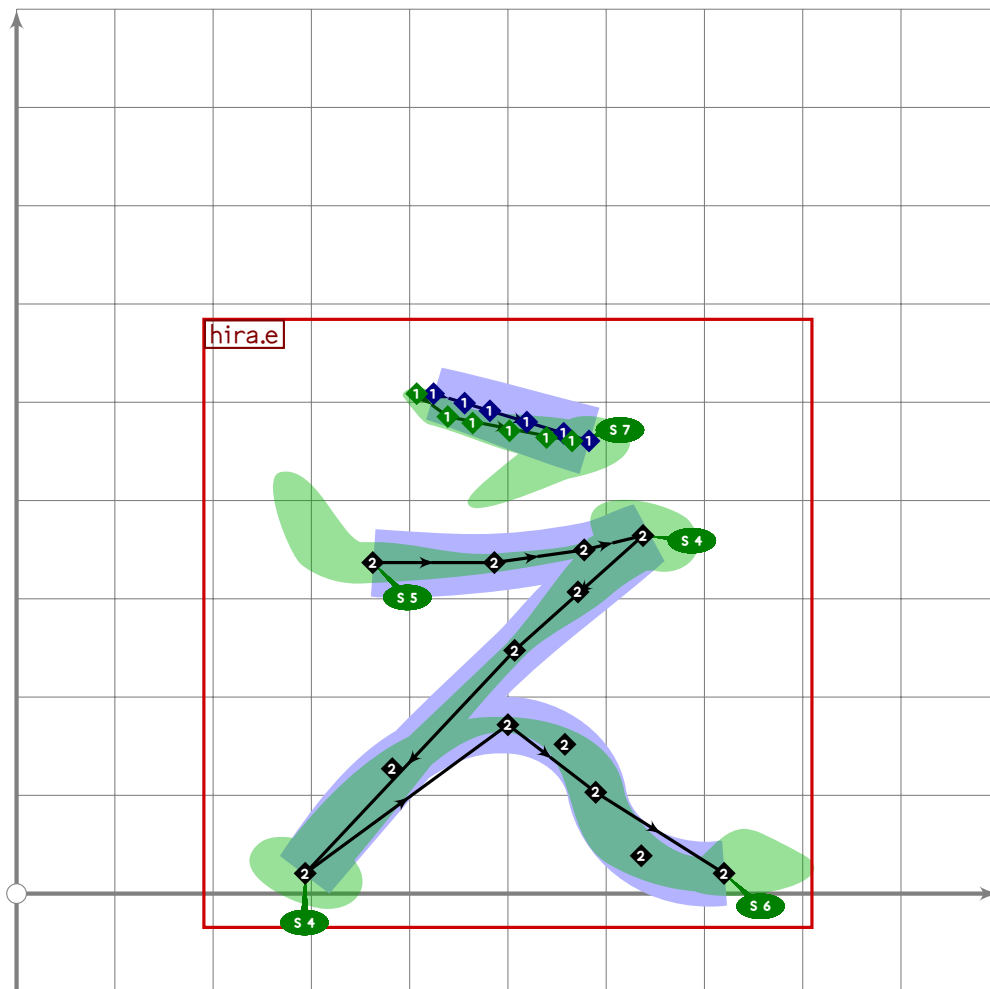


```

381 % hiragana "small u"
382 begint Suglyph("uni3045",69);
383   tsu_xform(tsu_xf.smallkana)(hira.u);
384   tsu_render;
385 endtsuglyph;
386
387 % hiragana "u"
388 begint Suglyph("uni3046",70);
389   hira.u;
390   tsu_render;
391 endtsuglyph;
392

```

[see page 155]

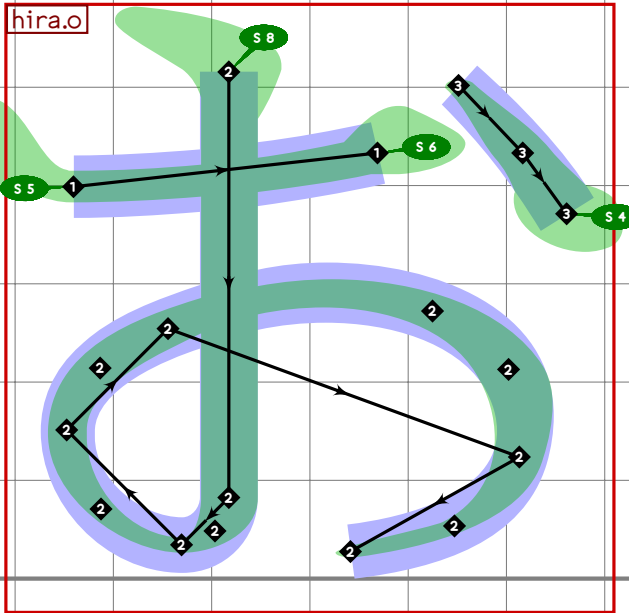


```

393 % hiragana "small e"
394 begintsuglyph("uni3047";71);
395   tsu_xform(tsu_xf.smallkana)(hira.e);
396   tsu_render;
397 endtsuglyph;
398
399 % hiragana "e"
400 begintsuglyph("uni3048";72);
401   hira.e;
402   tsu_render;
403 endtsuglyph;
404

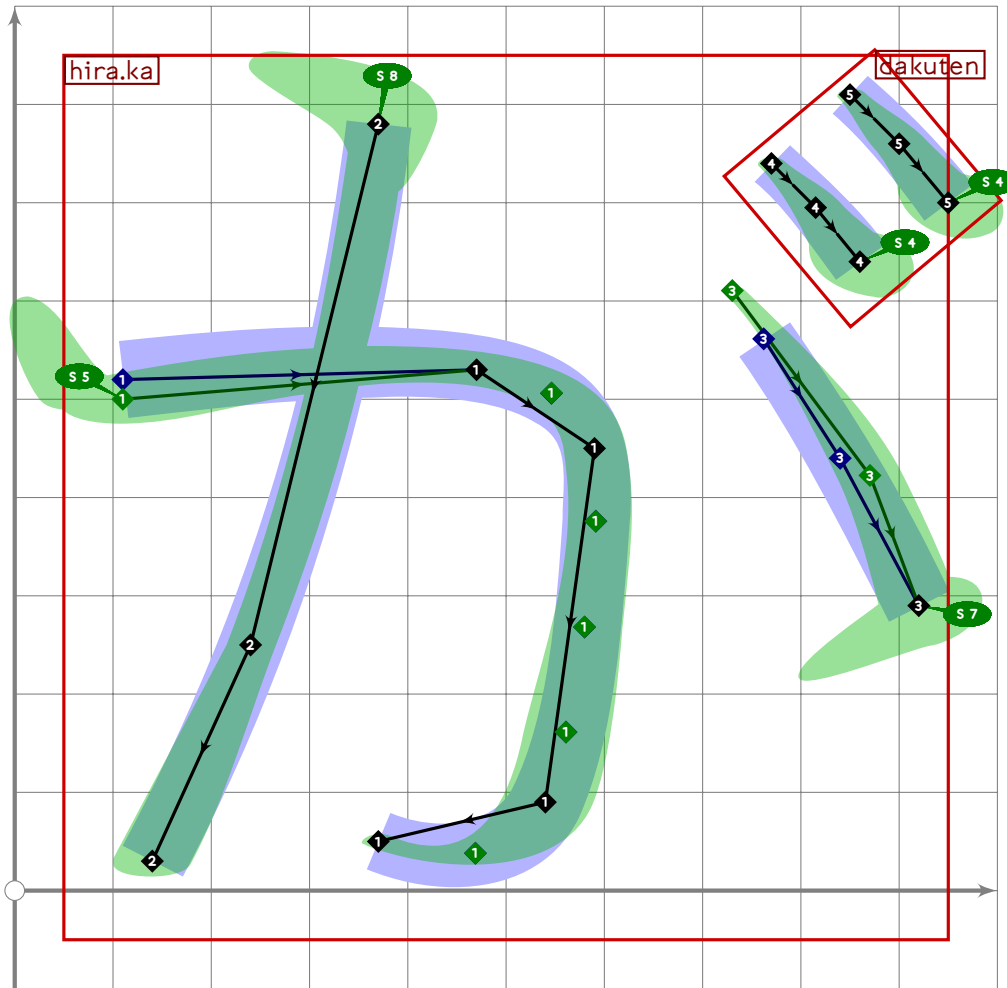
```

[see page 156]



[see page 158]



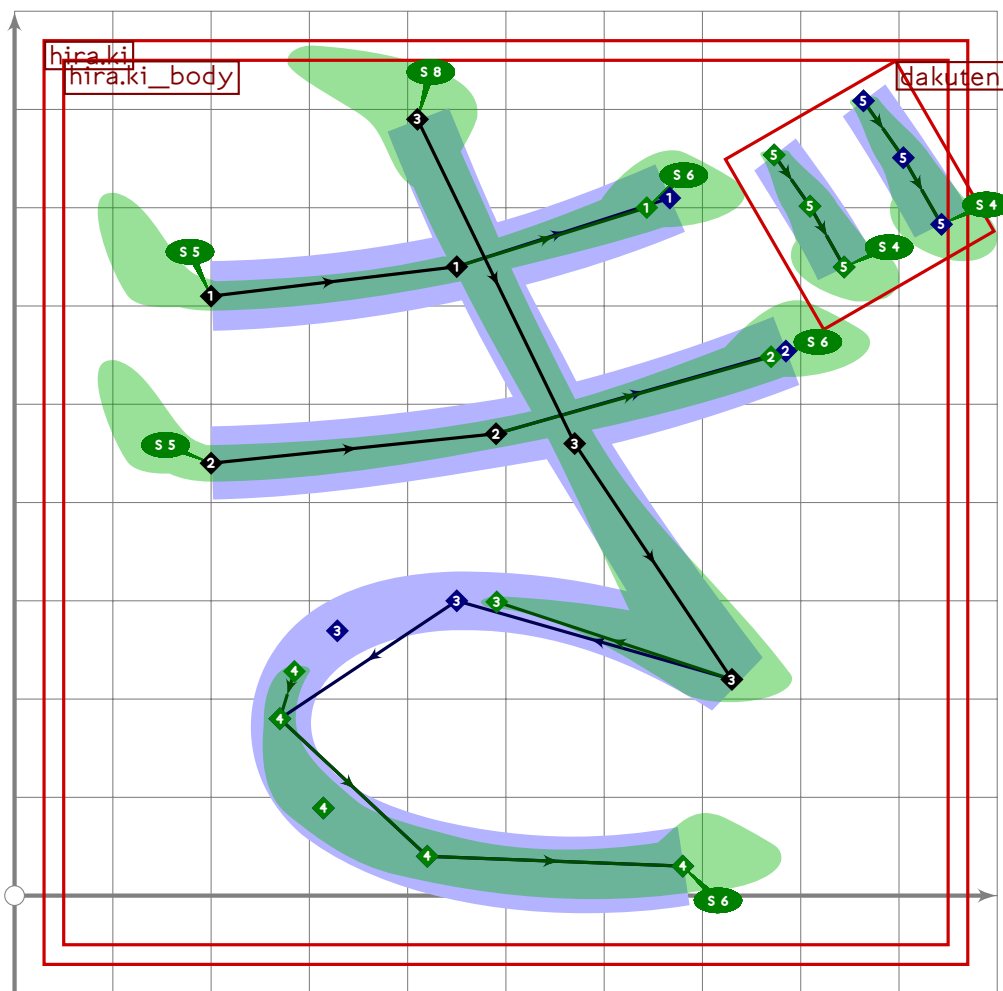


```

423 % hiragana "ga"
424 begintsuglyph("uni304C";76);
425   hira.ka;
426   dakuten(identity shifted (850,730));
427   tsu_render;
428 endtsuglyph;
429
430 % hiragana "ki"
431 begintsuglyph("uni304D";77);
432   hira.ki;
433   tsu_render;
434 endtsuglyph;
435

```

[see page 160]

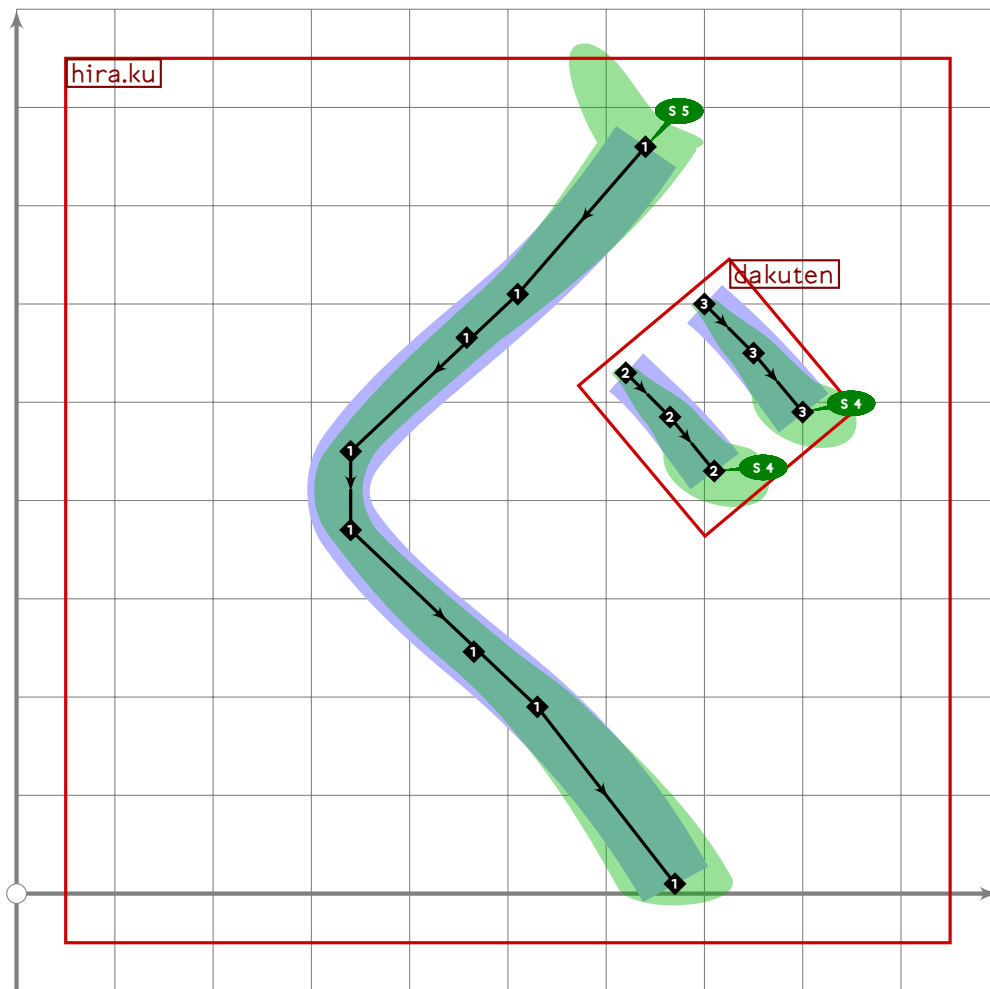


```

436 % hiragana "gi"
437 begintsuglyph("uni304E";78);
438 hira.ki;
439 replace_strokep(-2,subpath (0,19-0.1*mincho) of oldp);
440 replace_strokep(-1,subpath (0,195-0.05*mincho) of oldp);
441 dakuten(identity rotated -10 shifted (850,730));
442 tsu_render;
443 endtsuglyph;
444
445 % hiragana "ku"
446 begintsuglyph("uni304F";79);
447 hira.ku;
448 tsu_render;
449 endtsuglyph;
450

```

[see page 161]

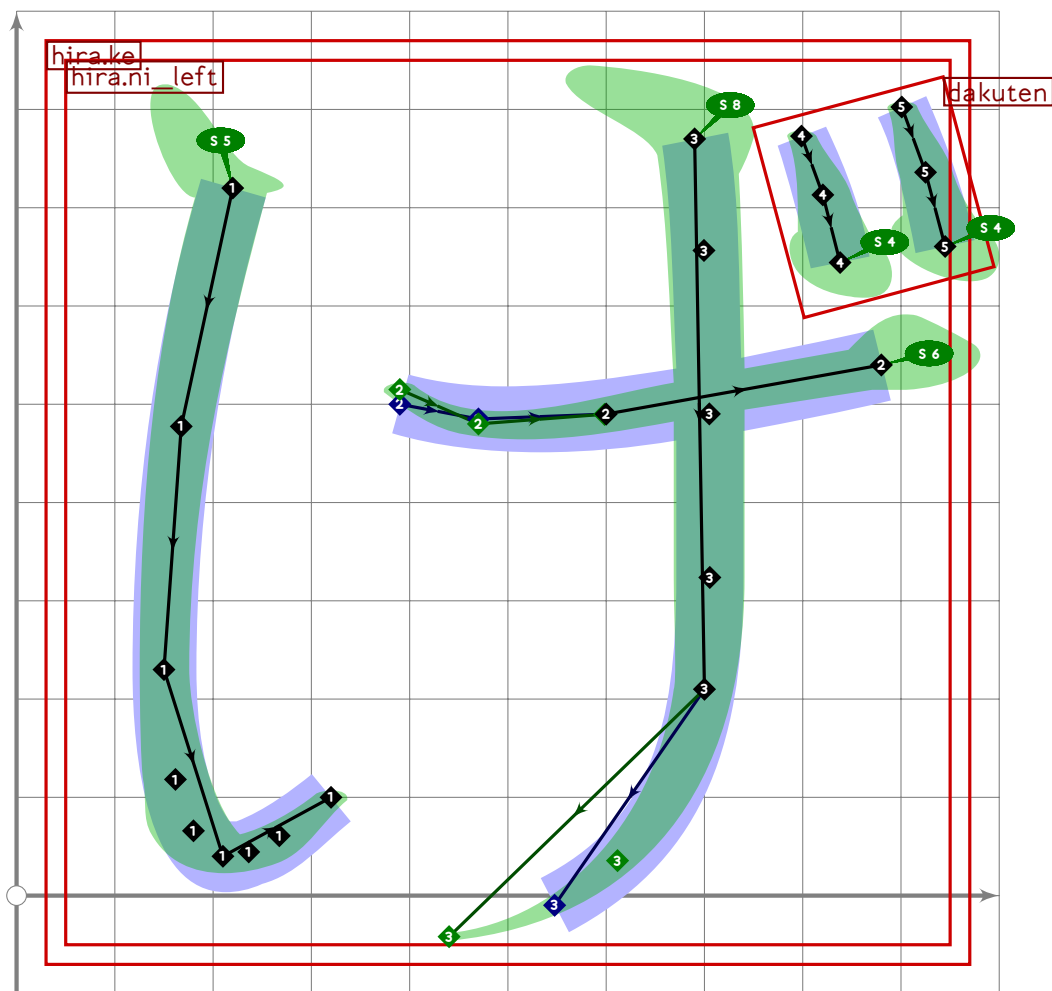


```

451 % hiragana "gu"
452 begintsuglyph("uni3050";80);
453 hira.ku;
454 dakuten(identity shifted (700,520));
455 tsu_render;
456 endtsuglyph;
457
458 % hiragana "ke"
459 begintsuglyph("uni3051";81);
460 hira.ke;
461 tsu_render;
462 endtsuglyph;
463

```

[see page 162]

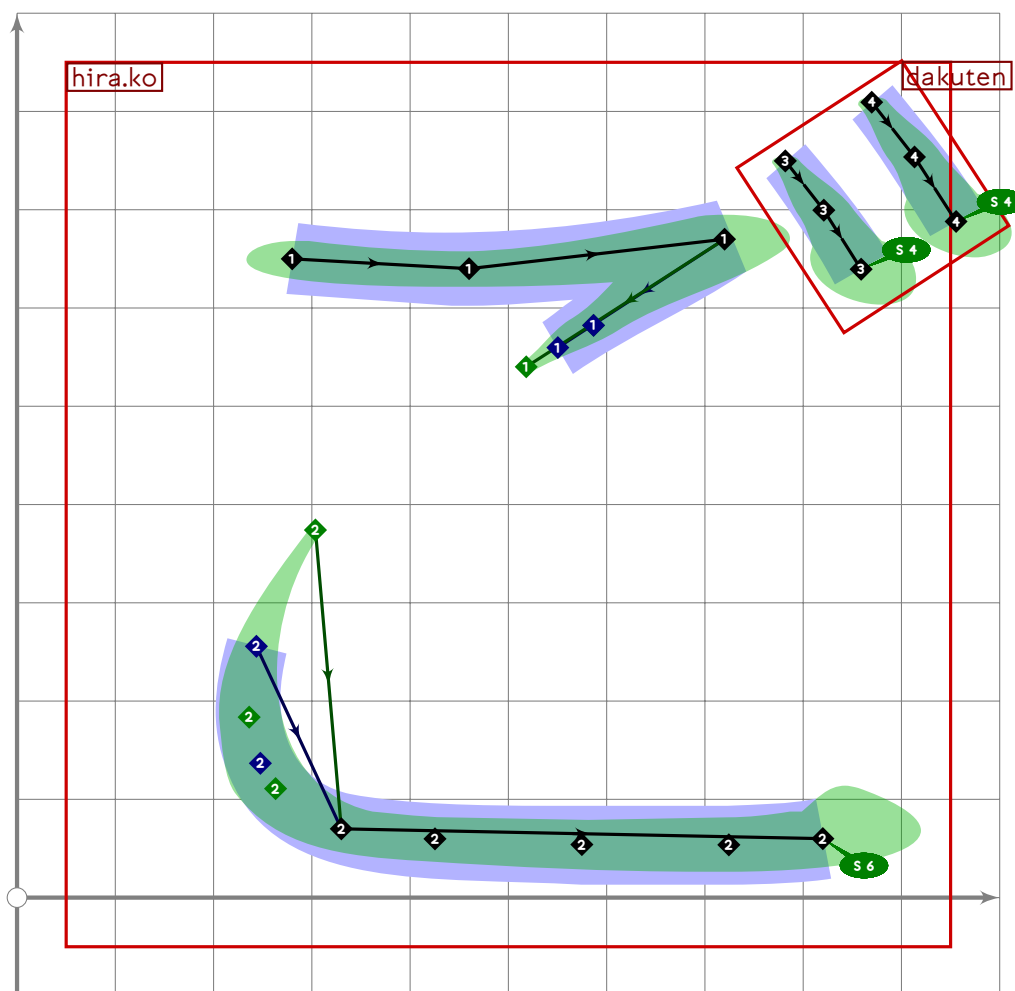


```

464 % hiragana "ge"
465 begintsuglyph("uni3052";82);
466   hira.ke;
467   dakuten(identity rotated -25 shifted (867,730));
468   tsu_render;
469 endtsuglyph;
470
471 % hiragana "ko"
472 begintsuglyph("uni3053";83);
473   hira.ko;
474   tsu_render;
475 endtsuglyph;
476

```

[see page 163]

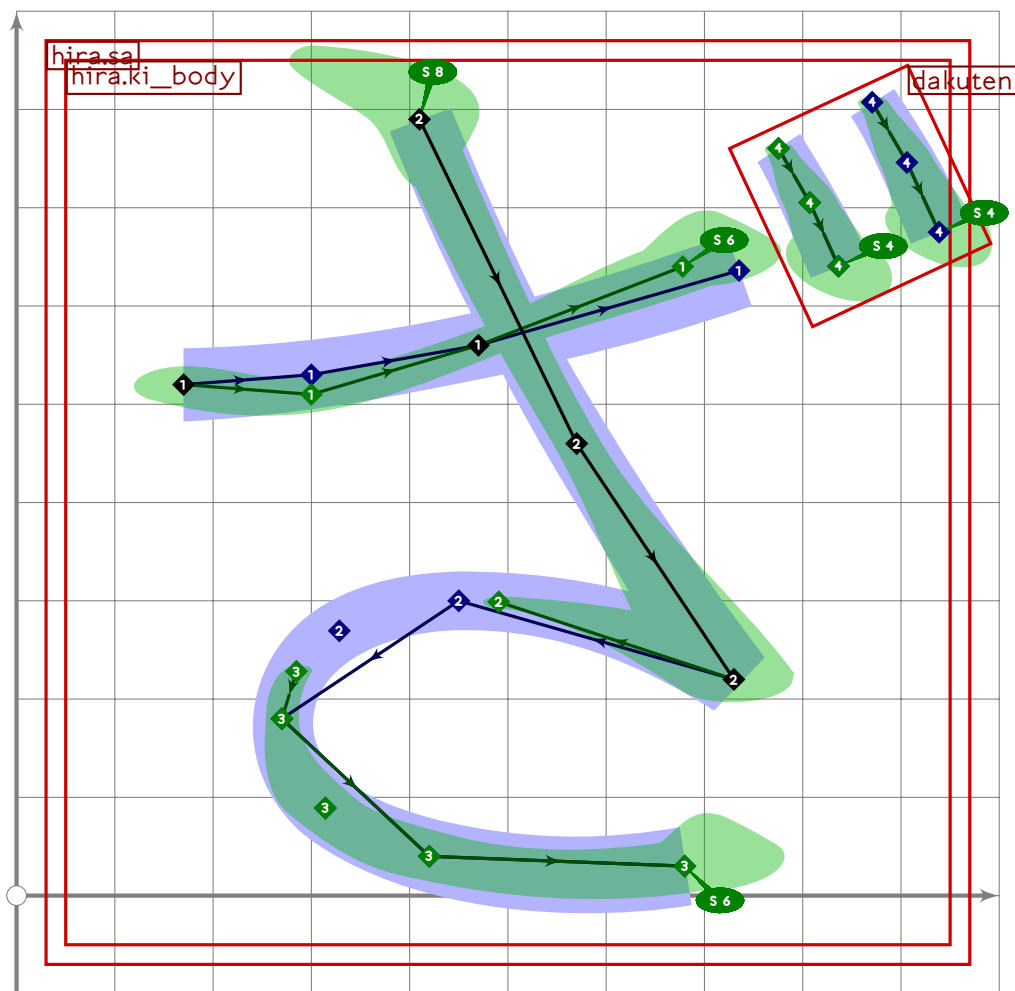


```

477 % hiragana "go"
478 begintsuglyph("uni3054",84);
479 hira.go;
480 dakuten(identity rotated -7 shifted (860,730));
481 tsu_render;
482 endtsuglyph;
483
484 % hiragana "sa"
485 begintsuglyph("uni3055",85);
486 hira.sa;
487 tsu_render;
488 endtsuglyph;
489

```

[see page 164]

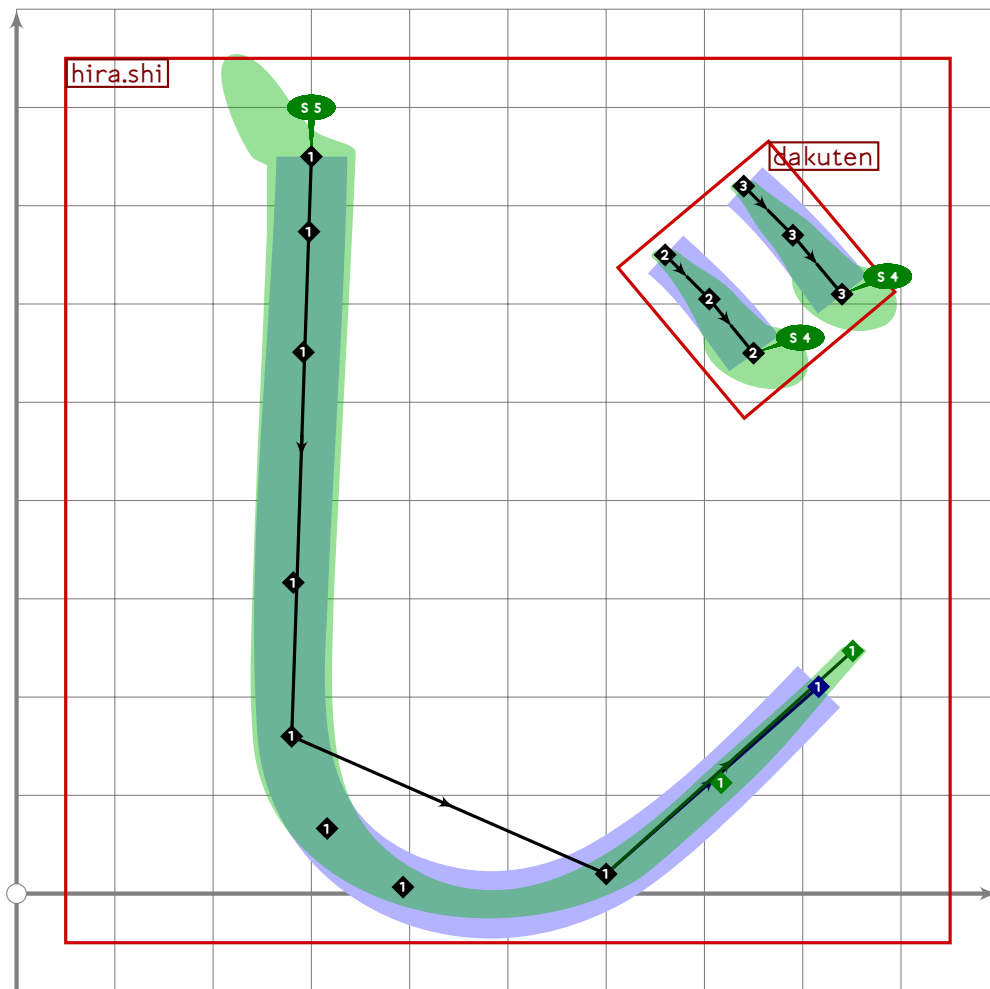


```

490 % hiragana "za"
491 begintsuglyph("uni3056";86);
492   hira.sa;
493   replace_strokep(-1,subpath (0,2.8) of oldp);
494   dakuten(identity rotated -15 shifted (850,730));
495   tsu_render;
496 endtsuglyph;
497
498 % hiragana "shi"
499 begintsuglyph("uni3057";87);
500   hira.shi;
501   tsu_render;
502 endtsuglyph;
503

```

[see page 165]

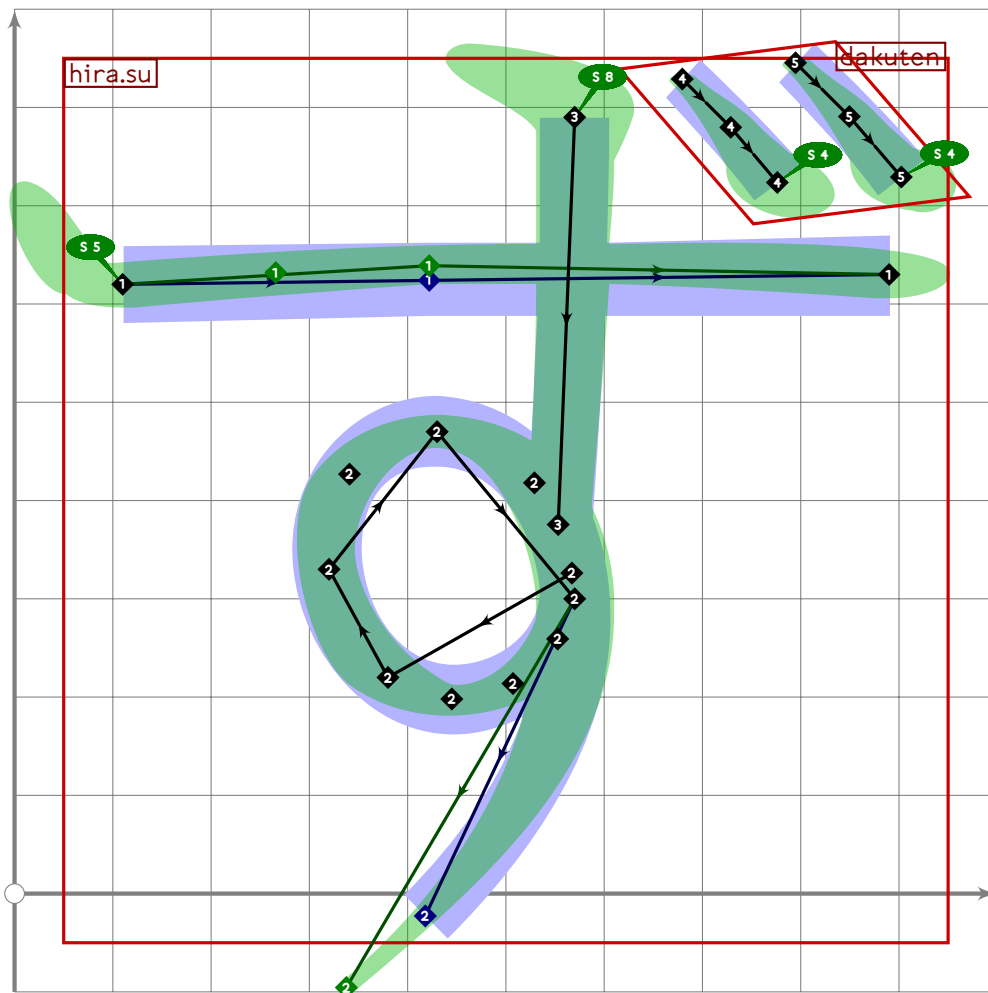


```

504 % hiragana "ji"
505 begintsuglyph("uni3058",88);
506   hira.shi;
507   dakuten(identity shifted (740,640));
508   tsu_render;
509 endtsuglyph;
510
511 % hiragana "su"
512 begintsuglyph("uni3059",89);
513   hira.su;
514   tsu_render;
515 endtsuglyph;
516

```

[see page 166]



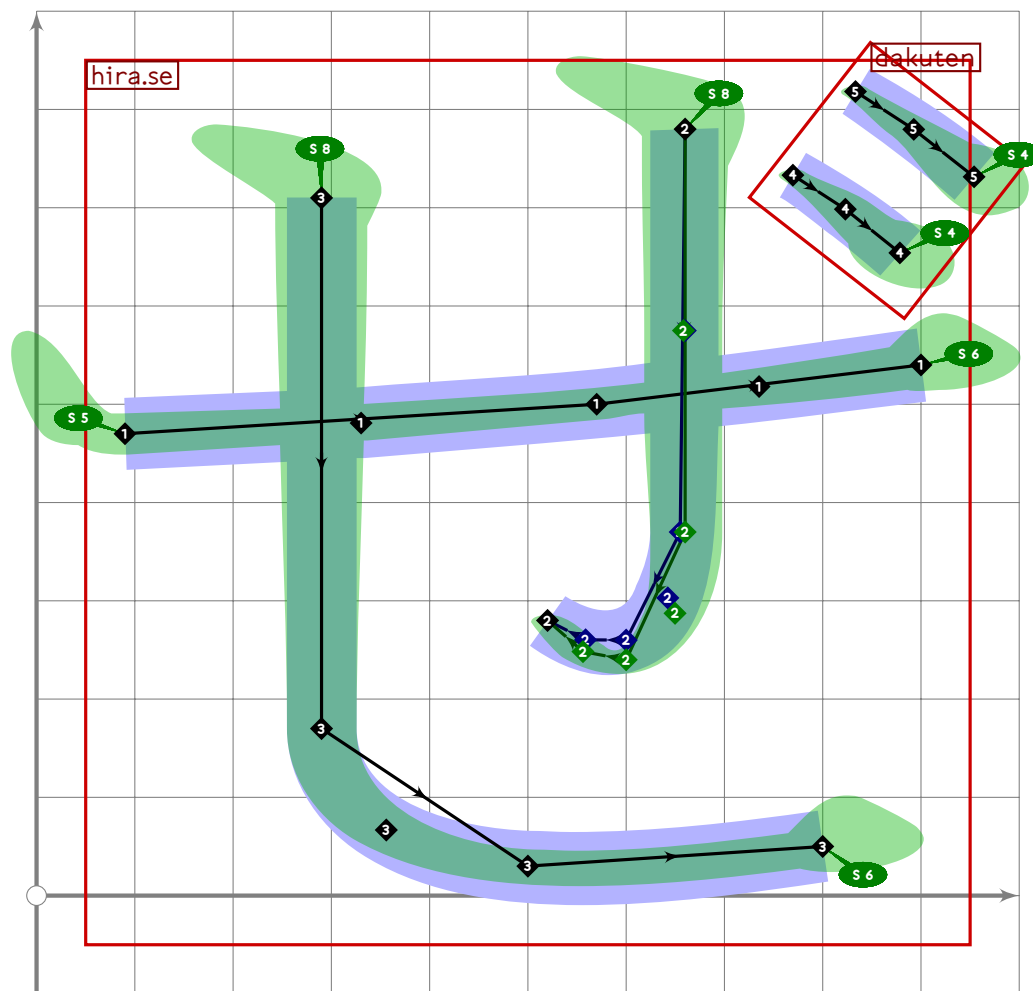
```

517 % hiragana "zu"
518 begint Suglyph("uni305A";90);
519   hira.su;
520   dakuten(identity rotated -30 slanted -0.4 xyscaled (1.2,0.8)
521     shifted (780,790));
522   tsu_render;
523 endtsuglyph;
524
525 % hiragana "se"
526 begint Suglyph("uni305B";91);
527   hira.se;
528   tsu_render;
529 endtsuglyph;
530

```

[see page 167]



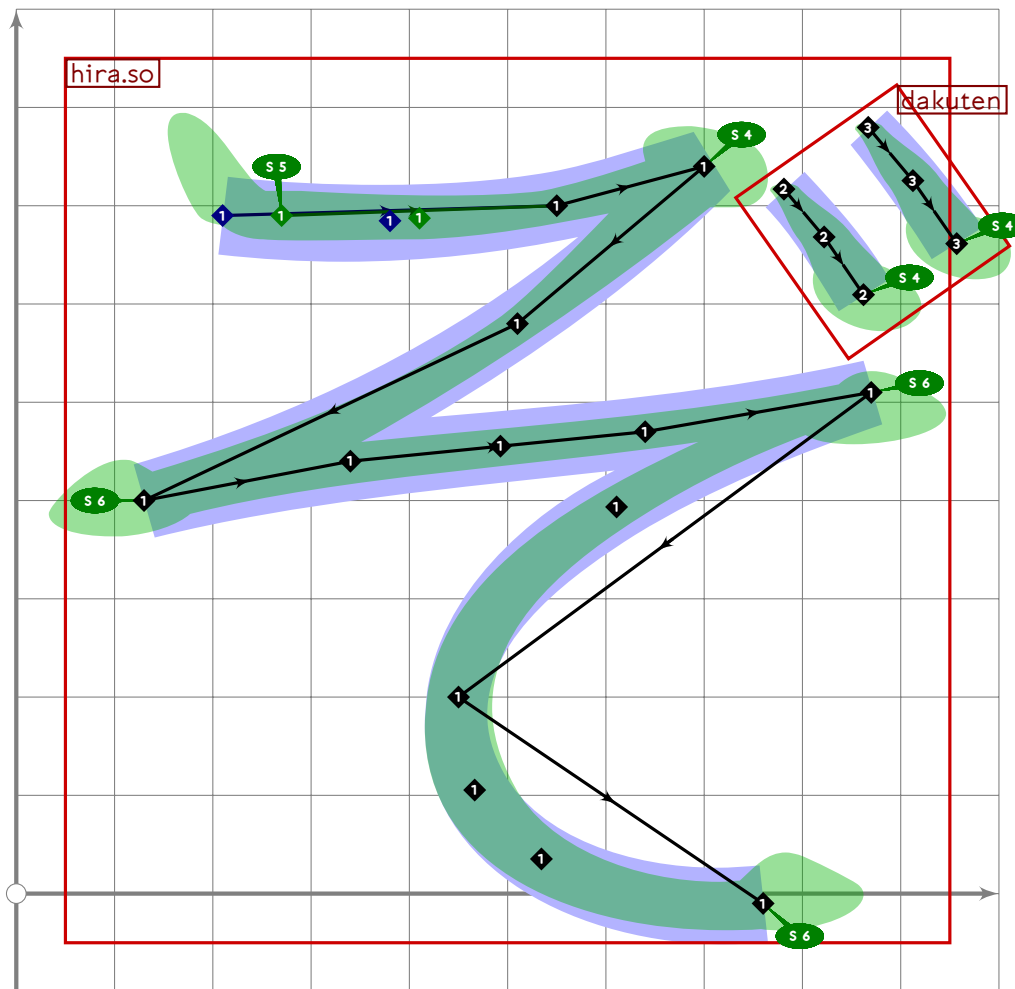


```

531 % hiragana "ze"
532 begintsuglyph("uni305C'92);
533   hira.se;
534   dakuten(identity rotated 12 shifted (850,740));
535   tsu_render;
536 endtsuglyph;
537
538 % hiragana "so"
539 begintsuglyph("uni305D'93);
540   hira.so;
541   tsu_render;
542 endtsuglyph;
543

```

[see page 168]

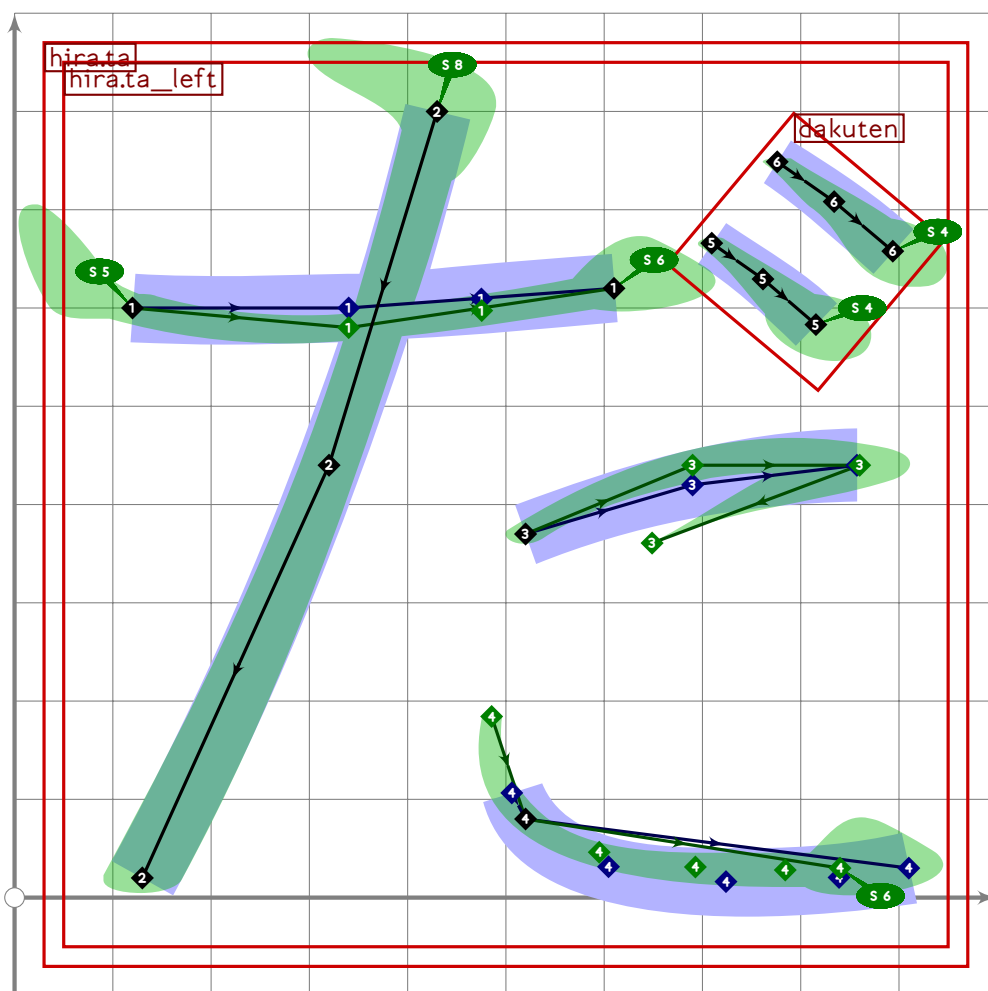


```

544 % hiragana "zo"
545 begintsuglyph("uni305E";94);
546   hira.so;
547   dakuten(identity rotated -5 shifted (860,700));
548   tsu_render;
549 endtsuglyph;
550
551 % hiragana "ta"
552 begintsuglyph("uni305F";95);
553   hira.ta;
554   tsu_render;
555 endtsuglyph;
556

```

[see page 170]

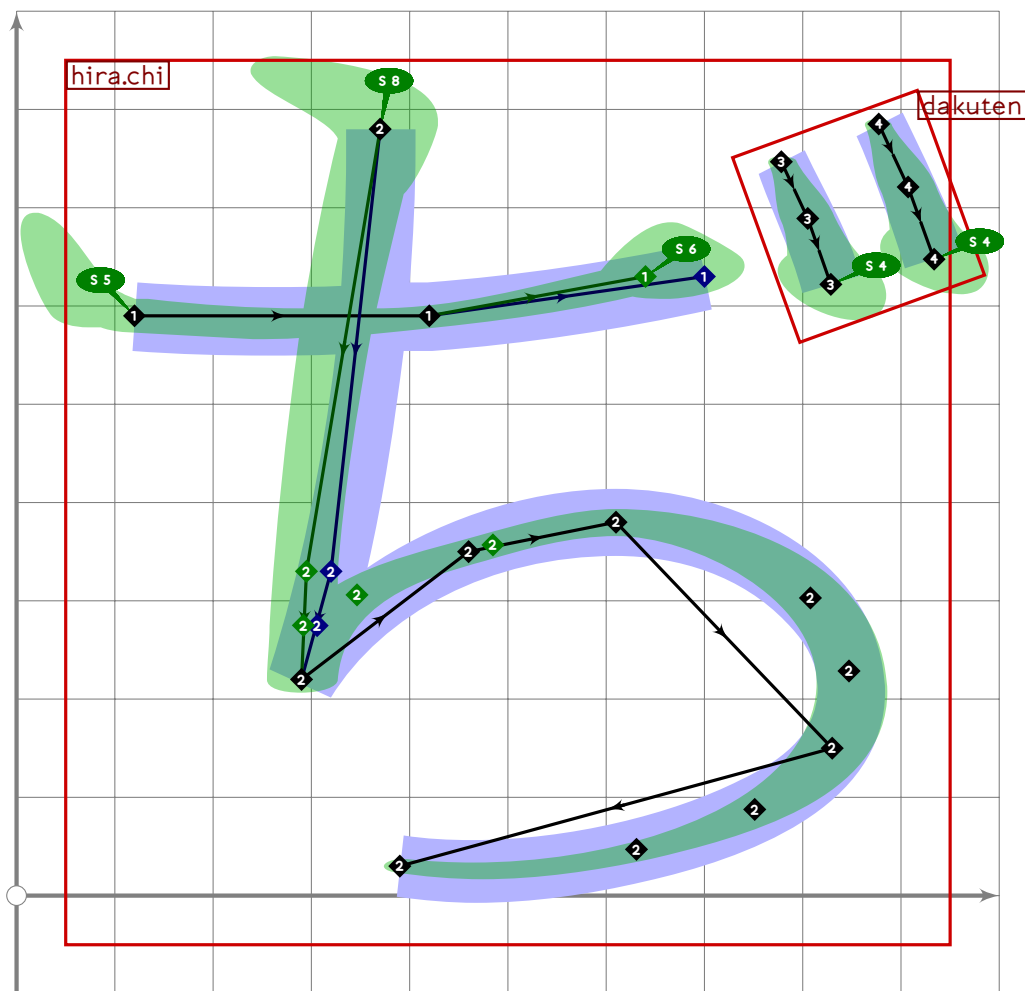


```

557 % hiragana "da"
558 begintsuglyph("uni3060";96);
559 hira.ta;
560 dakuten(identity rotated 10 shifted (790,670));
561 tsu_render;
562 endtsuglyph;
563
564 % hiragana "chi"
565 begintsuglyph("uni3061";97);
566 hira.chi;
567 tsu_render;
568 endtsuglyph;
569

```

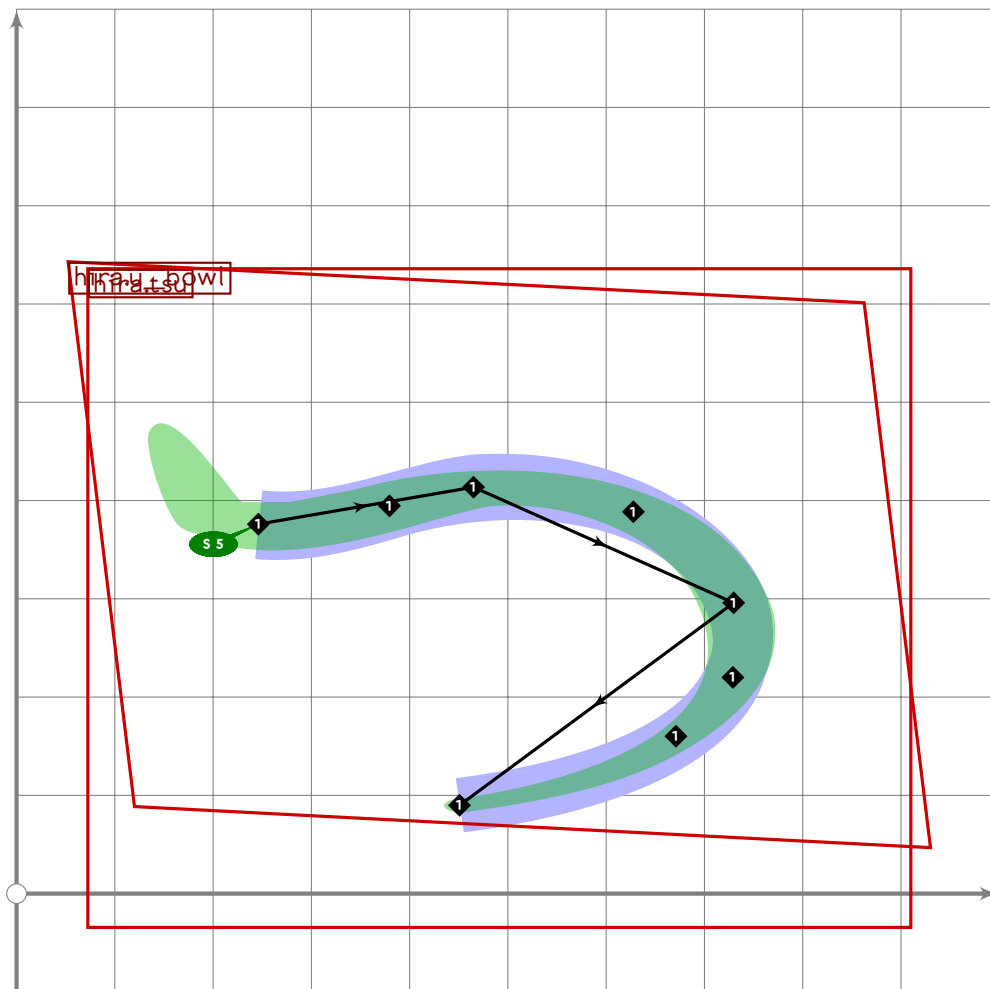
[see page 171]



```

570 % hiragna "dji"
571 begintsuglyph("uni3062",98);
572   hira.chi;
573   dakuten(identity rotated -20 shifted (850,710));
574   tsu_render;
575 endtsuglyph;
576

```



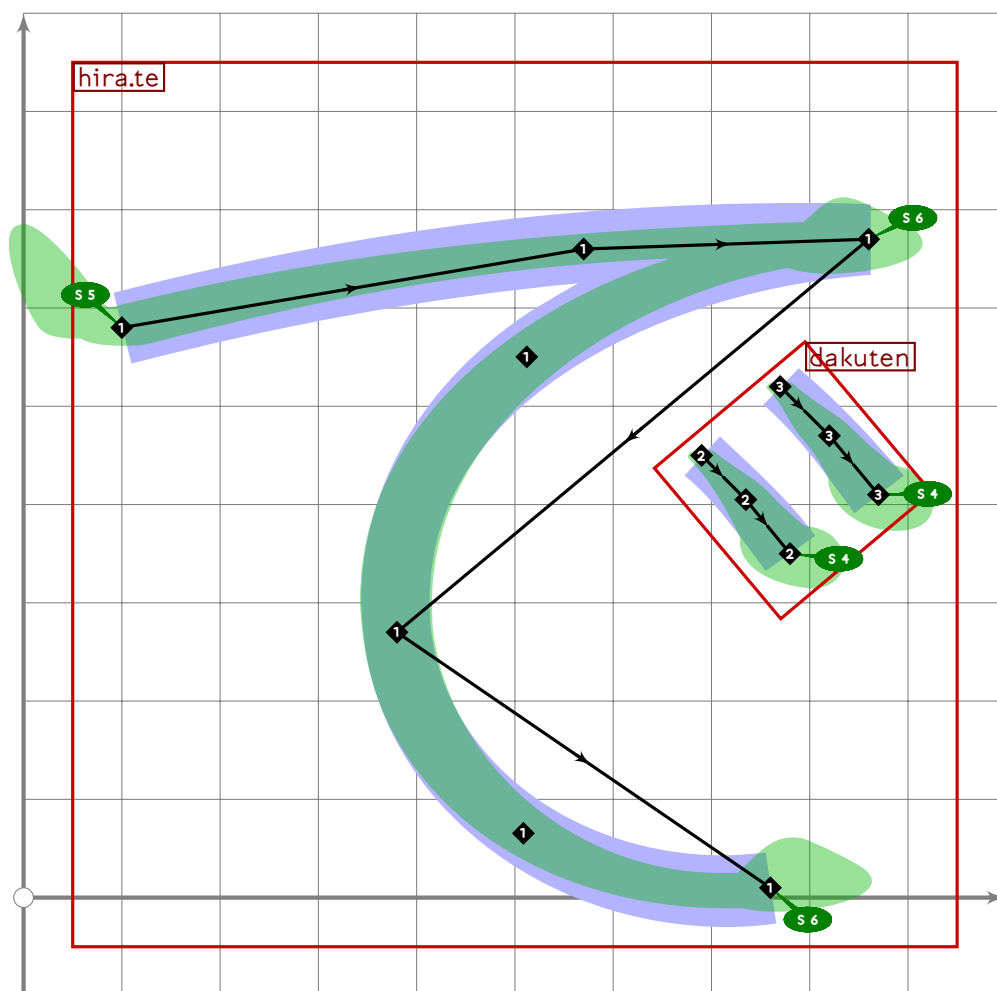
```

577 % hiragana "small tsu"
578 begintsuglyph("uni3063",99);
579   tsu_xform(tsu_xf.smallkana)(hira.tsu);
580   tsu_render;
581 endtsuglyph;
582
583 % hiragana "tsu"
584 begintsuglyph("uni3064",100);
585   hira.tsu;
586   tsu_render;
587 endtsuglyph;
588

```

[see page 172]

[see page 173]

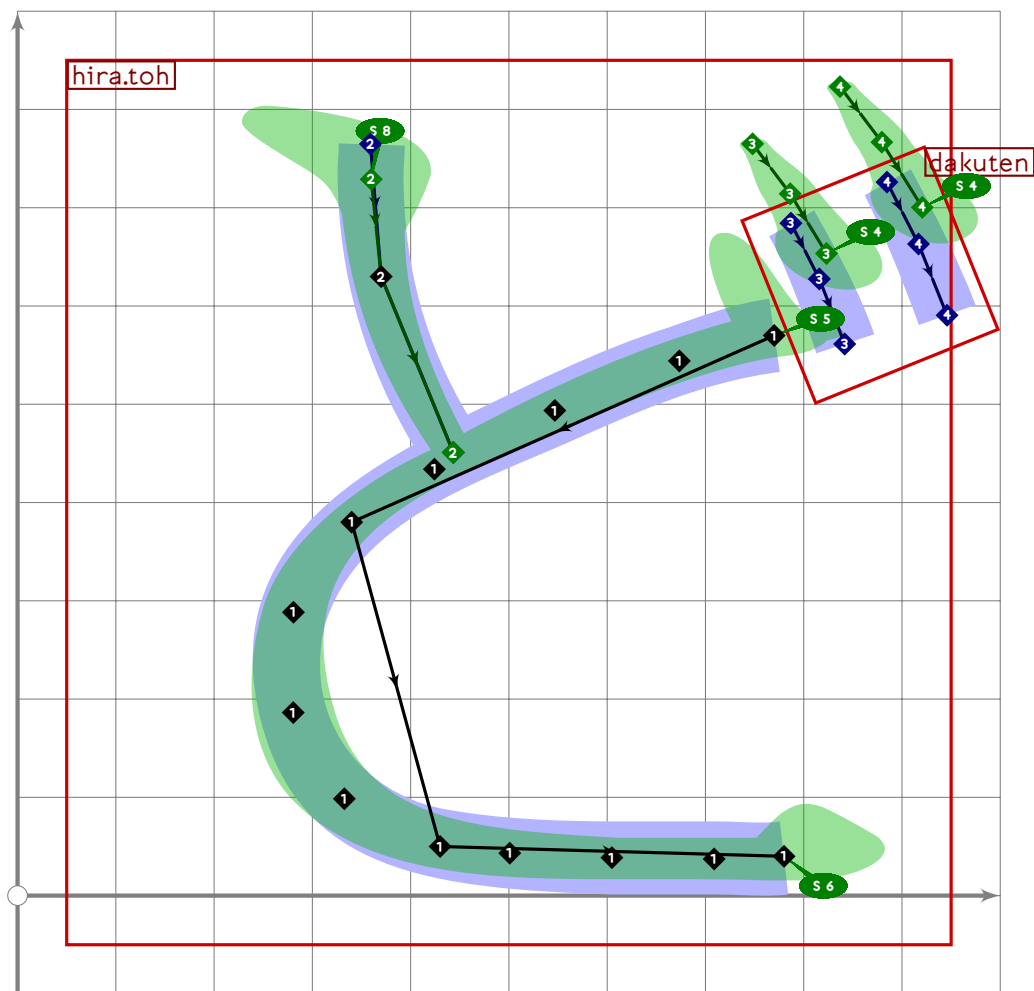


```

602 % hiragana "de"
603 begintsuglyph("uni3067",103);
604   hira.te;
605   dakuten(identity shifted (770,440));
606   tsu_render;
607 endtsuglyph;
608
609 % hiragana "to"
610 begintsuglyph("uni3068",104);
611   hira.toh;
612   tsu_render;
613 endtsuglyph;
614

```

[see page 174]



```

615 % hiragana "do"
616 begintsuglyph("uni3069",105);
617   hira.toh;
618   replace_strokep(0,subpath (0,1,infinity) of oldp);
619   dakuten(identity rotated (-18+10*mincho)
620     shifted ((860,650) shifted (100*mincho*(dir 110))));
621   tsu_render;
622 endtsuglyph;
623
624 % hiragana "na"
625 begintsuglyph("uni306A",106);
626   hira.na;
627   tsu_render;
628 endtsuglyph;
629
630 % hiragana "ni"
631 begintsuglyph("uni306B",107);
632   hira.ni;
633   tsu_render;
634 endtsuglyph;
635

```

[see page 175]

[see page 176]



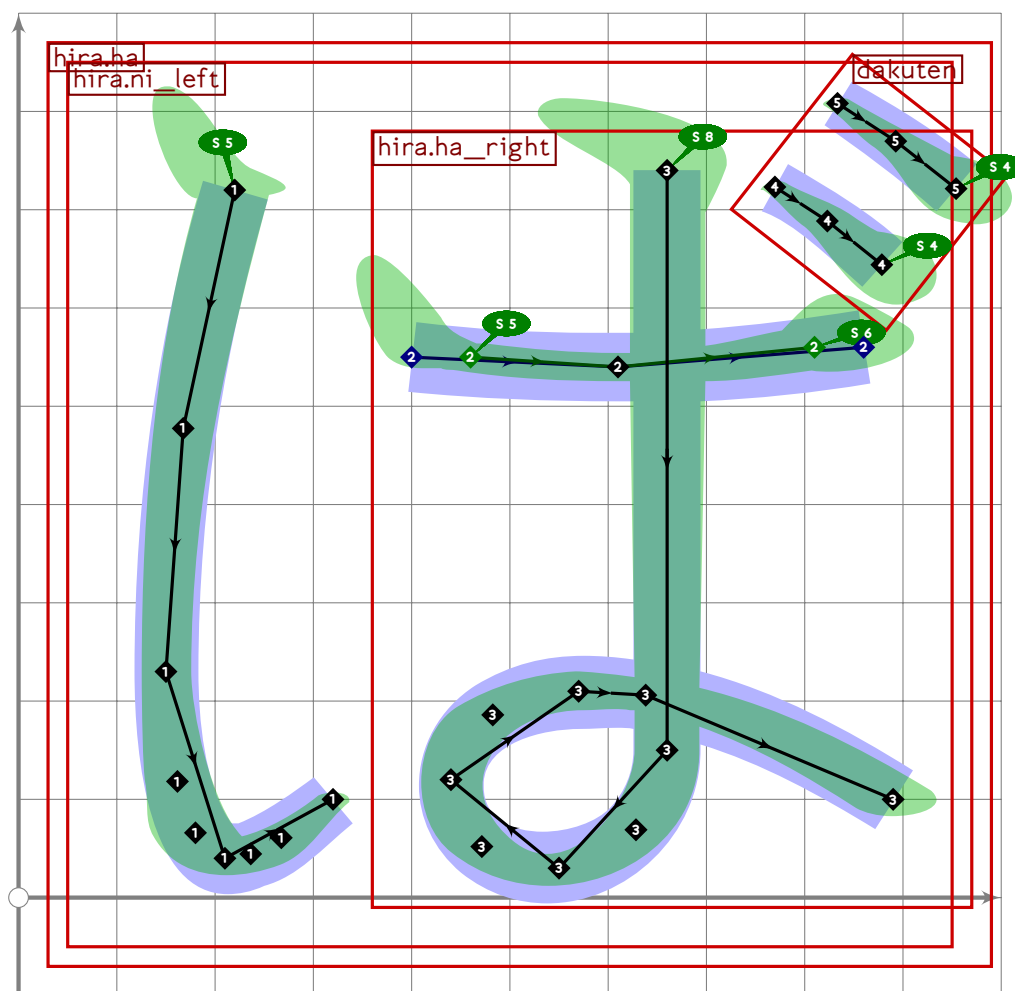
```
636 % hiragana "nu"
637 begintsuglyph("uni306C";108);
638 hira.nu;
639 tsu_render;
640 endtsuglyph;
641
642 % hiragana "ne"
643 begintsuglyph("uni306D";109);
644 hira.ne;
645 tsu_render;
646 endtsuglyph;
647
648 % hiragana "no"
649 begintsuglyph("uni306E";110);
650 hira.no;
651 tsu_render;
652 endtsuglyph;
653
654 % hiragana "ha"
655 begintsuglyph("uni306F";111);
656 hira.ha;
657 tsu_render;
658 endtsuglyph;
659
```

[see page 177]

[see page 178]

[see page 179]

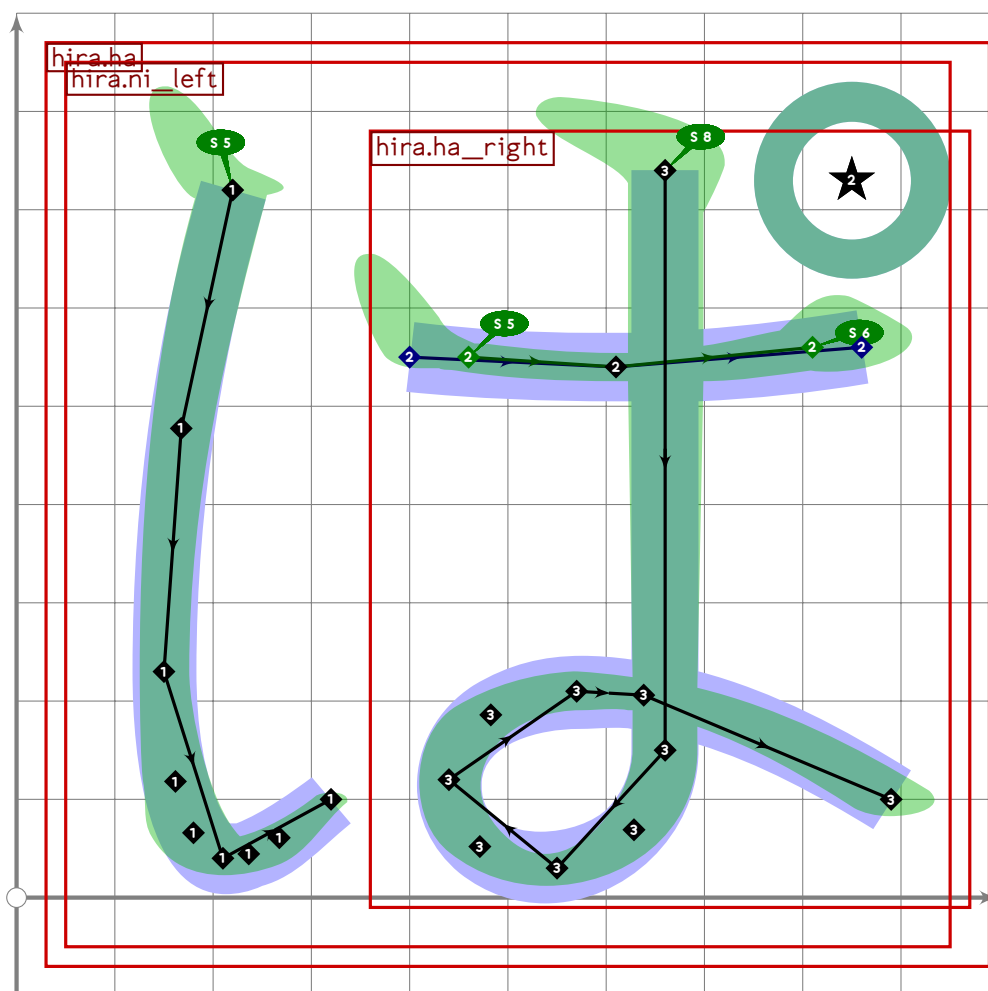
[see page 180]



```

660 % hiragana "ba"
661 begintsuglyph("uni3070",112);
662   hira.ha;
663   dakuten(identity rotated 12 shifted (850,730));
664   tsu_render;
665 endtsuglyph;
666

```

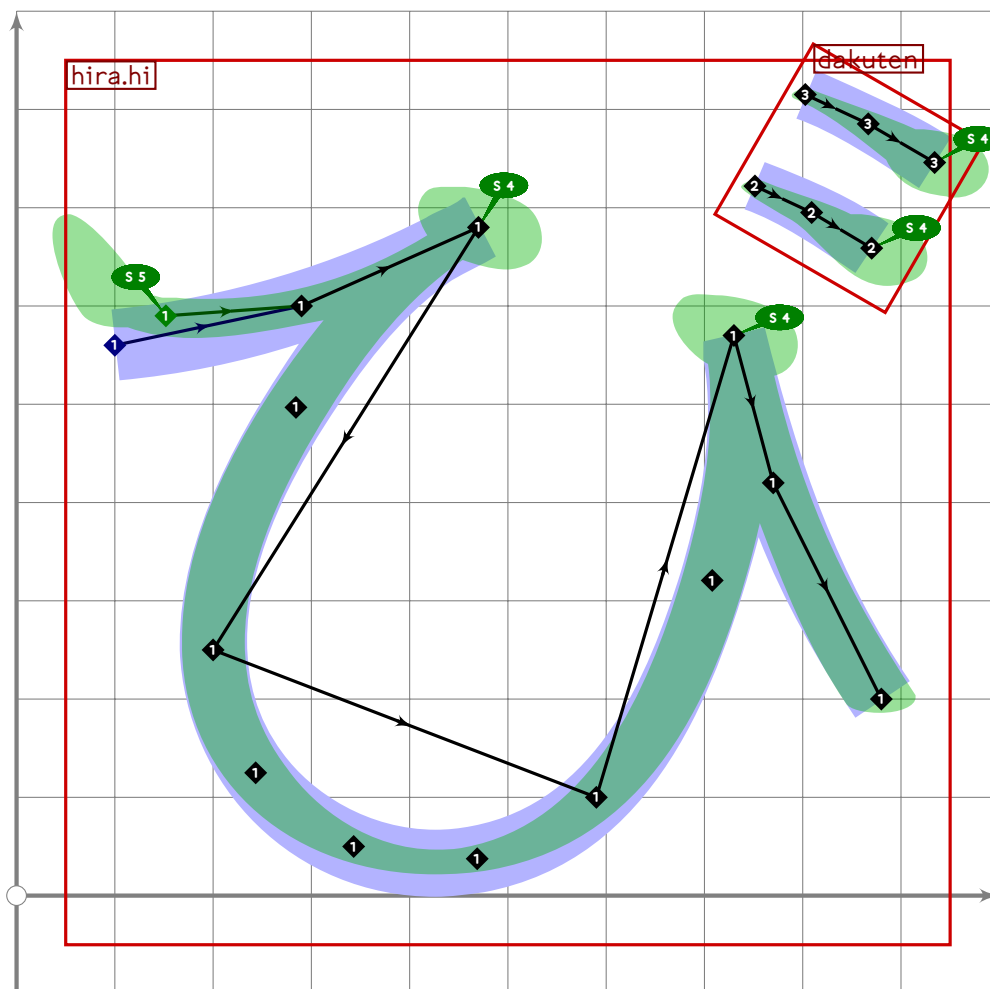


```

667 % hiragana "pa"
668 begintsuglyph("uni3071",113);
669   hira.ha;
670   handakuten((850,730));
671   tsu_render;
672 endtsuglyph;
673
674 % hiragana "hi"
675 begintsuglyph("uni3072",114);
676   hira.hi;
677   tsu_render;
678 endtsuglyph;
679

```

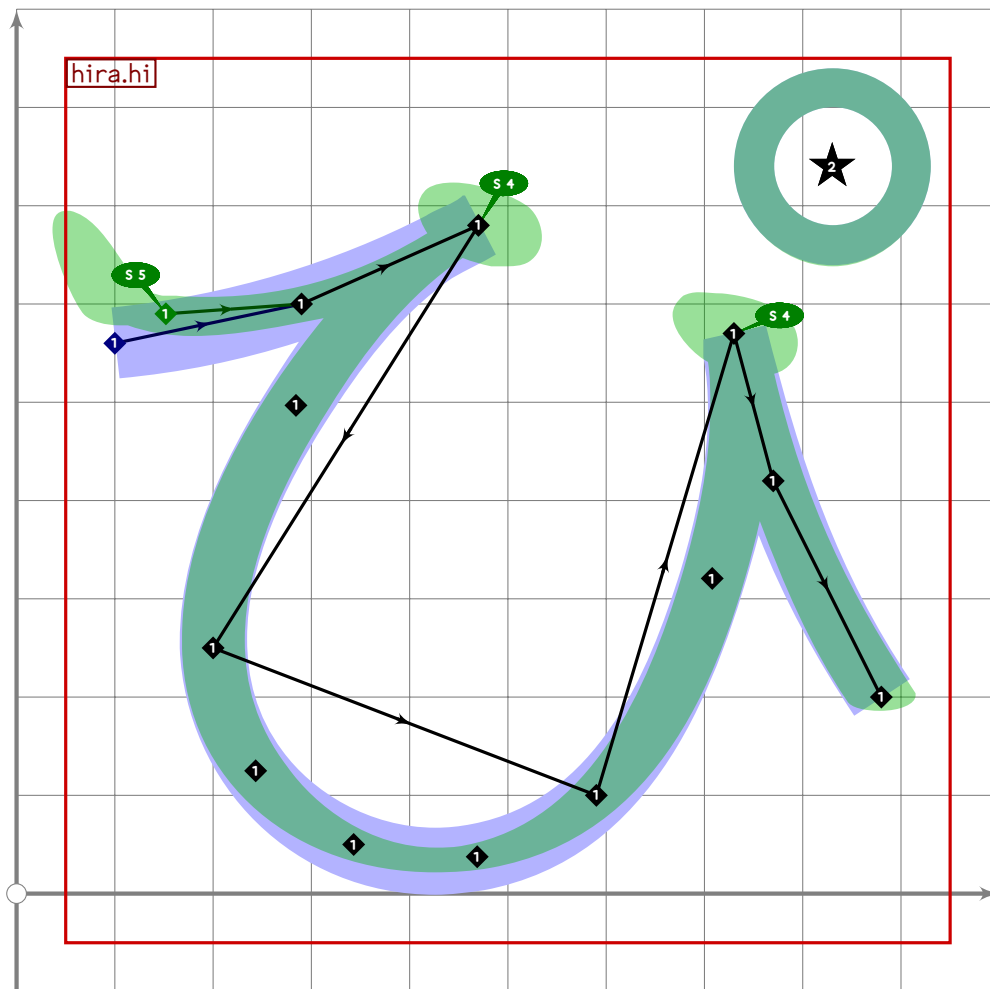
[see page 181]



```

680 % hiragana "bi"
681 begintsuglyph("uni3073",115);
682   hira.hi;
683   dakuten(identity rotated 20 shifted (830,740));
684   tsu_render;
685 endtsuglyph;
686

```

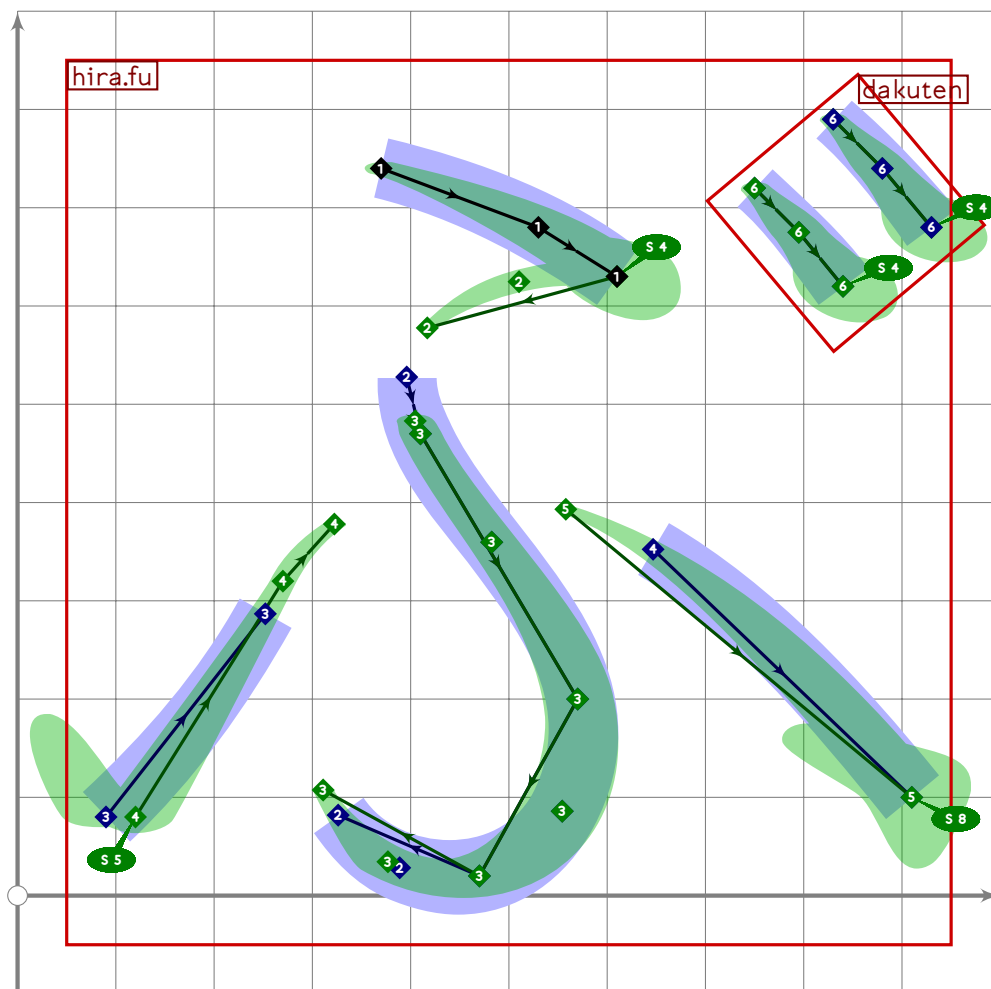


```

687 % hiragana "pi"
688 begintsuglyph("uni3074",116);
689   hira.hi;
690   handakuten((830,740));
691   tsu_render;
692 endtsuglyph;
693
694 % hiragana "fu"
695 begintsuglyph("uni3075",117);
696   hira.fu;
697   tsu_render;
698 endtsuglyph;
699

```

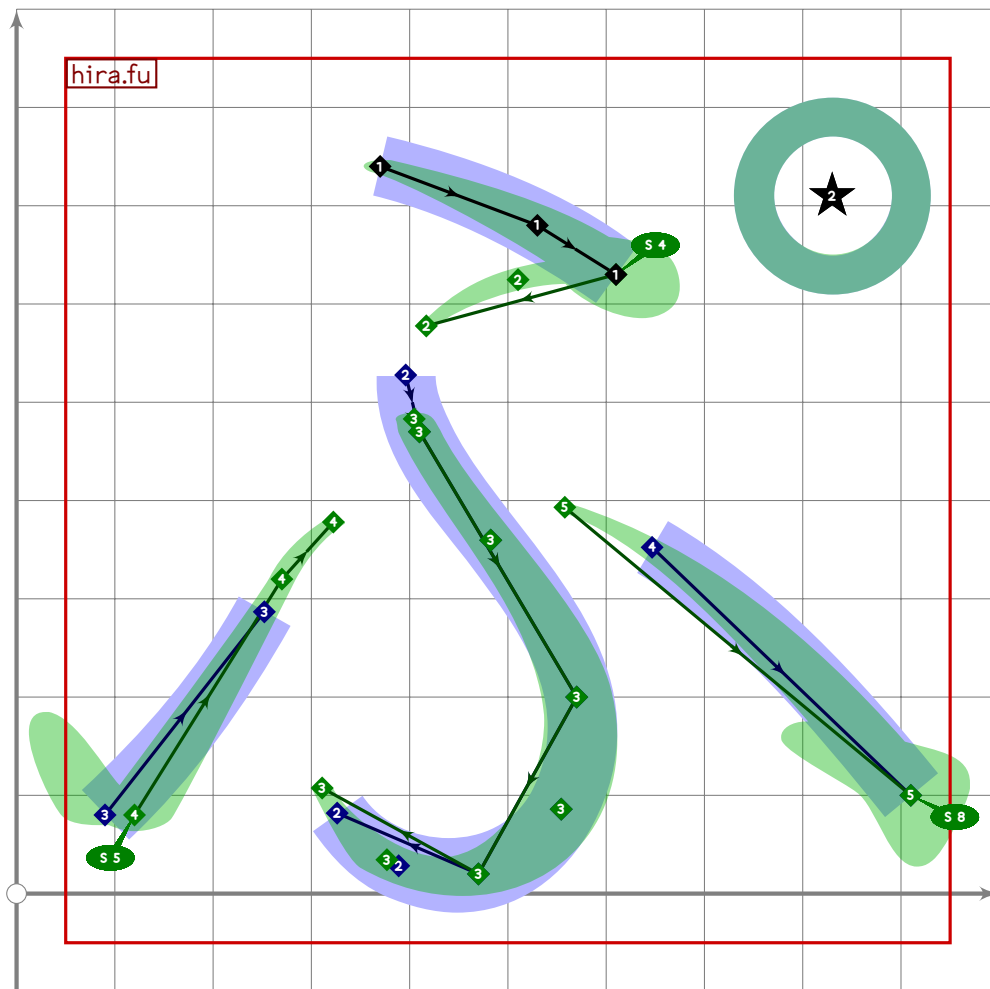
[see page 182]



```

700 % hiragana "bu"
701 begint Suglyph("uni3076",118);
702   hira.fu;
703   dakuten(identity shifted (830,710));
704   tsu_render;
705 endtsuglyph;
706

```

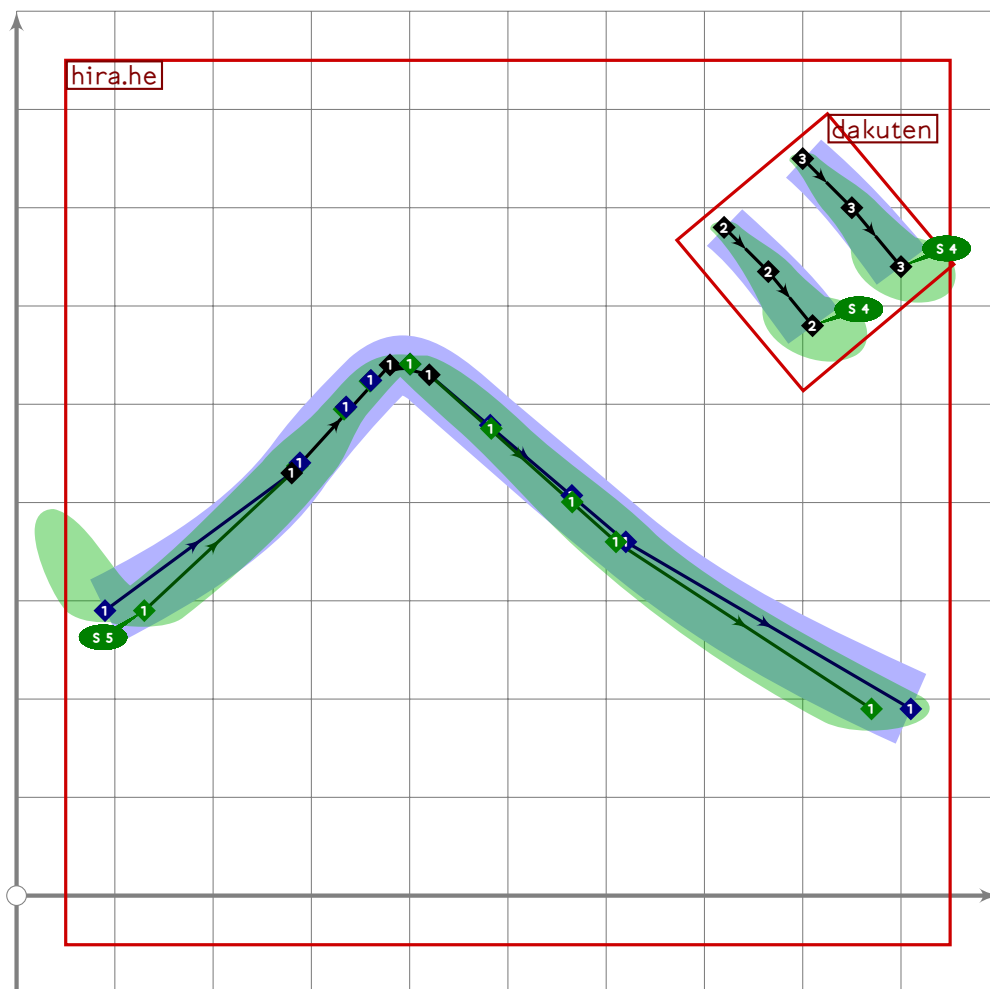


```

707 % hiragana "pu"
708 begintsuglyph("uni3077",119);
709 hira.fu;
710 handakuten((830,710));
711 tsu_render;
712 endtsuglyph;
713
714 % hiragana "he"
715 begintsuglyph("uni3078",120);
716 hira.he;
717 tsu_render;
718 endtsuglyph;
719

```

[see page 183]

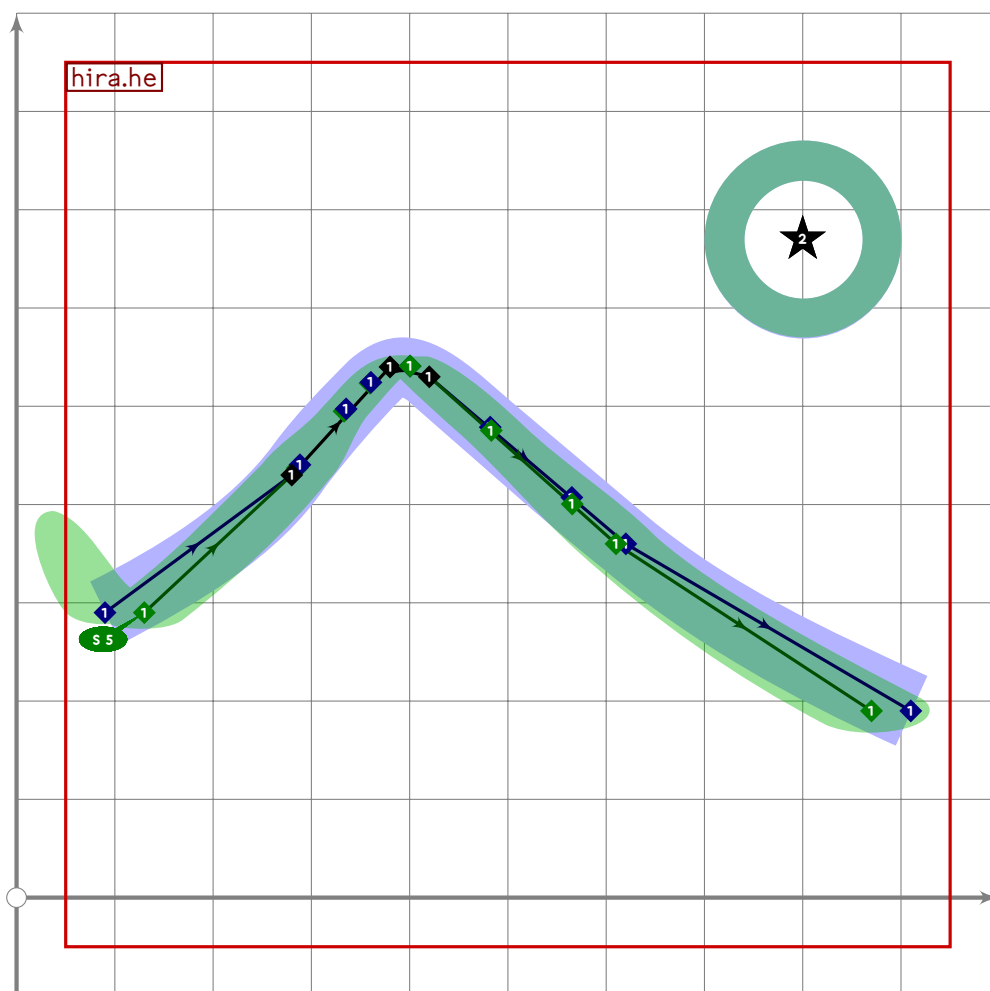


```

720 % hiragana "be"
721 begint Suglyph("uni3079",121);
722   hira.he;
723   dakuten(identity shifted (800,670));
724   tsu_render;
725 endtsuglyph;
726

```



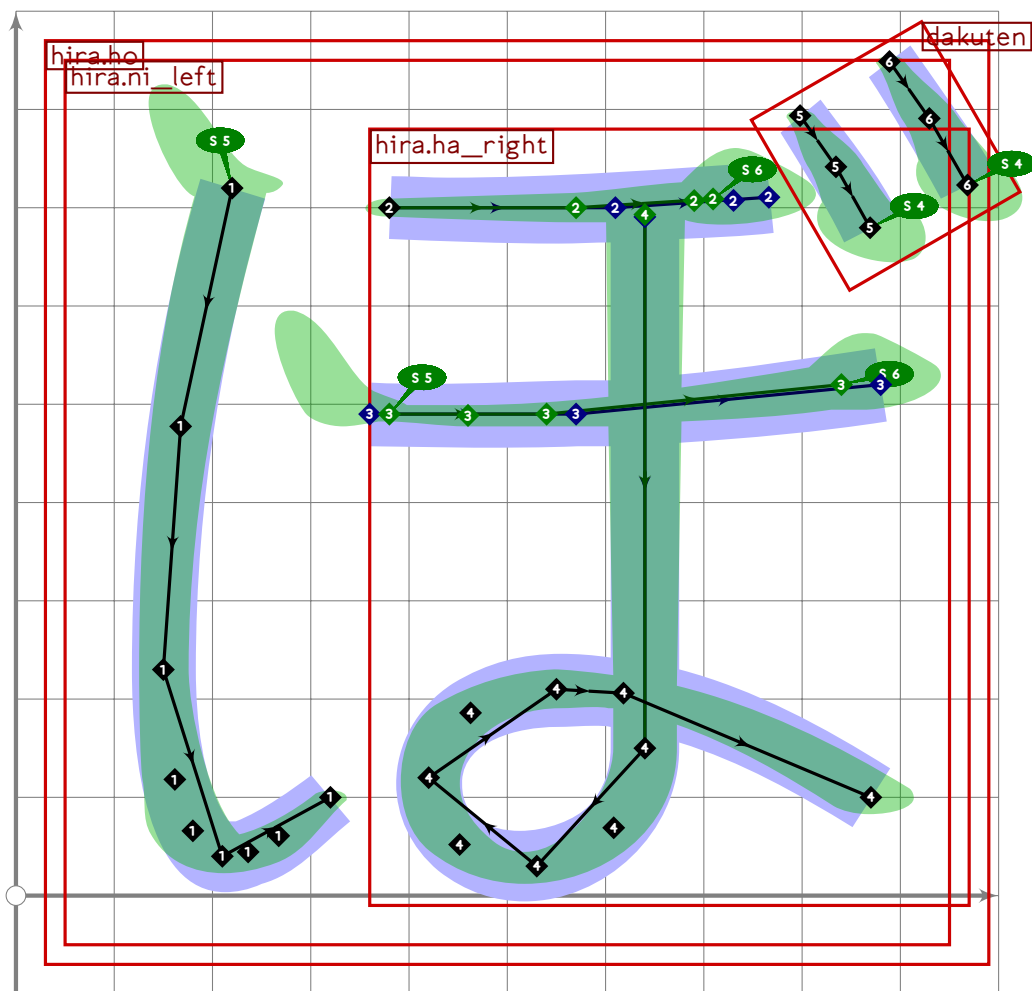


```

727 % hiragana "pe"
728 begintsuglyph("uni307A",122);
729 hira.he;
730 handakuten((800,670));
731 tsu_render;
732 endtsuglyph;
733
734 % hiragana "ho"
735 begintsuglyph("uni307B",123);
736 hira.ho;
737 tsu_render;
738 endtsuglyph;
739

```

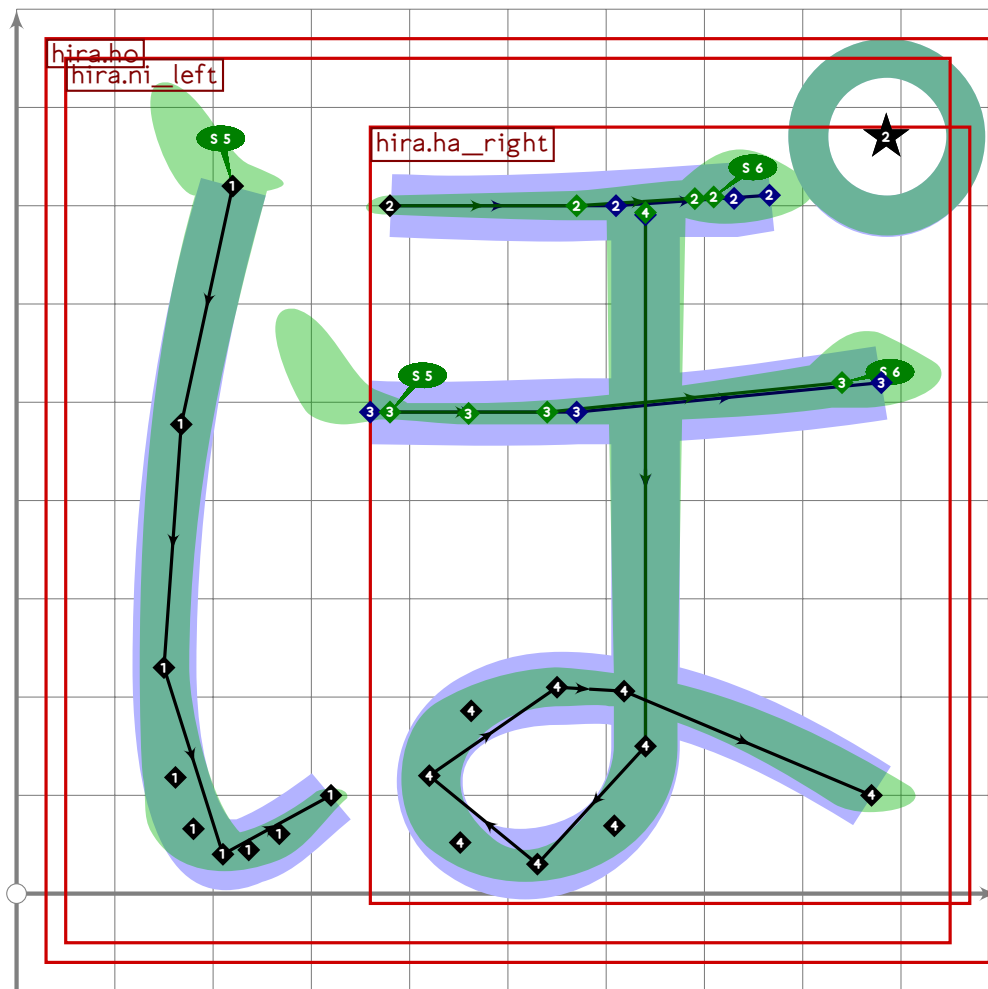
[see page 184]



```

740 % hiragana "bo"
741 begintsuglyph("uni307C";124);
742 hira.ho;
743 replace_stroke(-2,subpath (0,1.65-0.07*mincho) of oldp);
744 replace_stroke(0,oldp shifted (-20,0));
745 dakuten(identity rotated -10 shifted (875,770));
746 tsu_render;
747 endtsuglyph;
748

```



```

749 % hiragana "po"
750 begintsuglyph("uni307D";125);
751   hira.ho;
752   replace_stroke(-2,subpath (0,1.65-0.07*mincho) of oldp);
753   replace_stroke(0,oldp shifted (-20,0));
754   handakuten((885,770));
755   tsu__render;
756 endtsuglyph;
757
758 % hiragana "ma"
759 begintsuglyph("uni307E";126);
760   hira.ma;
761   tsu__render;
762 endtsuglyph;
763
764 % hiragana "mi"
765 begintsuglyph("uni307F";127);
766   hira.mi;
767   tsu__render;
768 endtsuglyph;
769

```

[see page 185]

[see page 187]

```

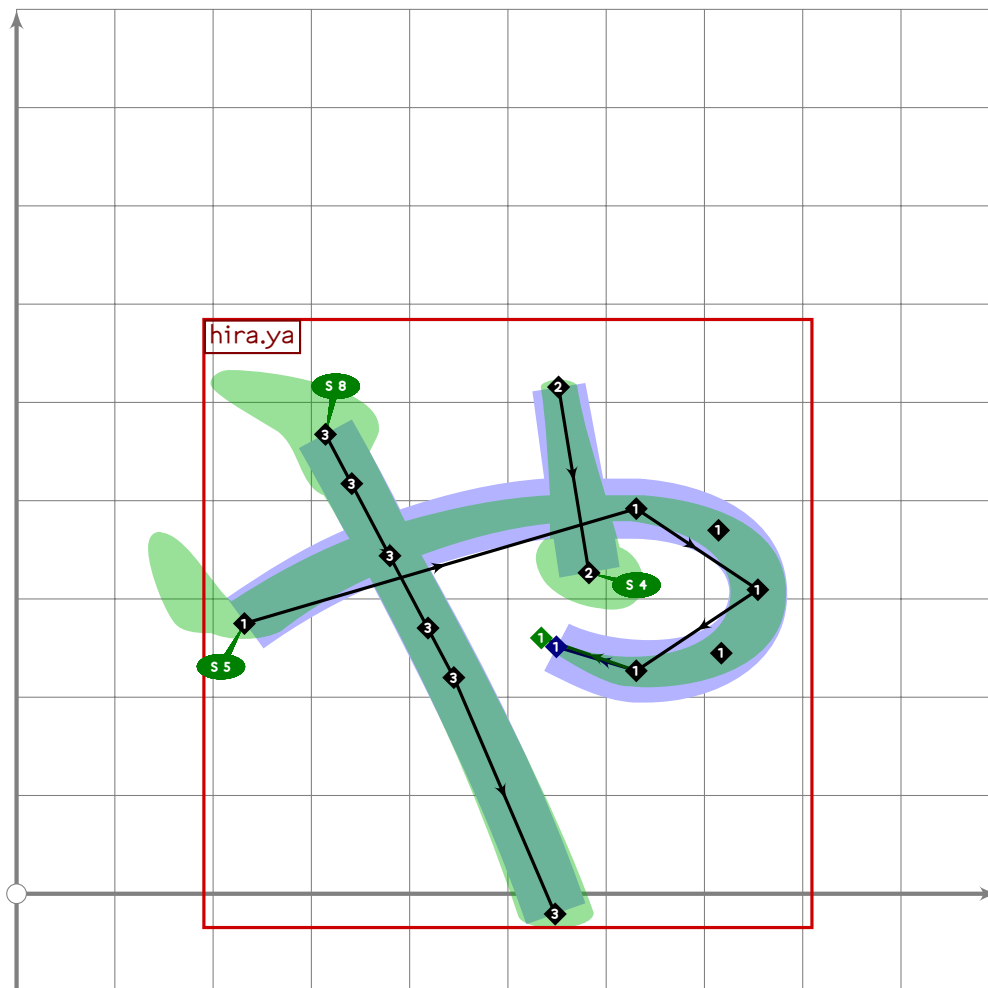
770 % hiragana "mu"
771 begintsuglyph("uni3080";128);
772 hira.mu;
773 tsu_render;
774 endtsuglyph;
775
776 % hiragana "me"
777 begintsuglyph("uni3081";129);
778 hira.me;
779 tsu_render;
780 endtsuglyph;
781
782 % hiragana "mo"
783 begintsuglyph("uni3082";130);
784 hira.mo;
785 tsu_render;
786 endtsuglyph;
787

```

[see page 188]

[see page 189]

[see page 190]



```

788 % hiragana "small ya"
789 begintsuglyph("uni3083";131);
790 tsu_xform(tsu_xf.smallkana)(hira.ya);

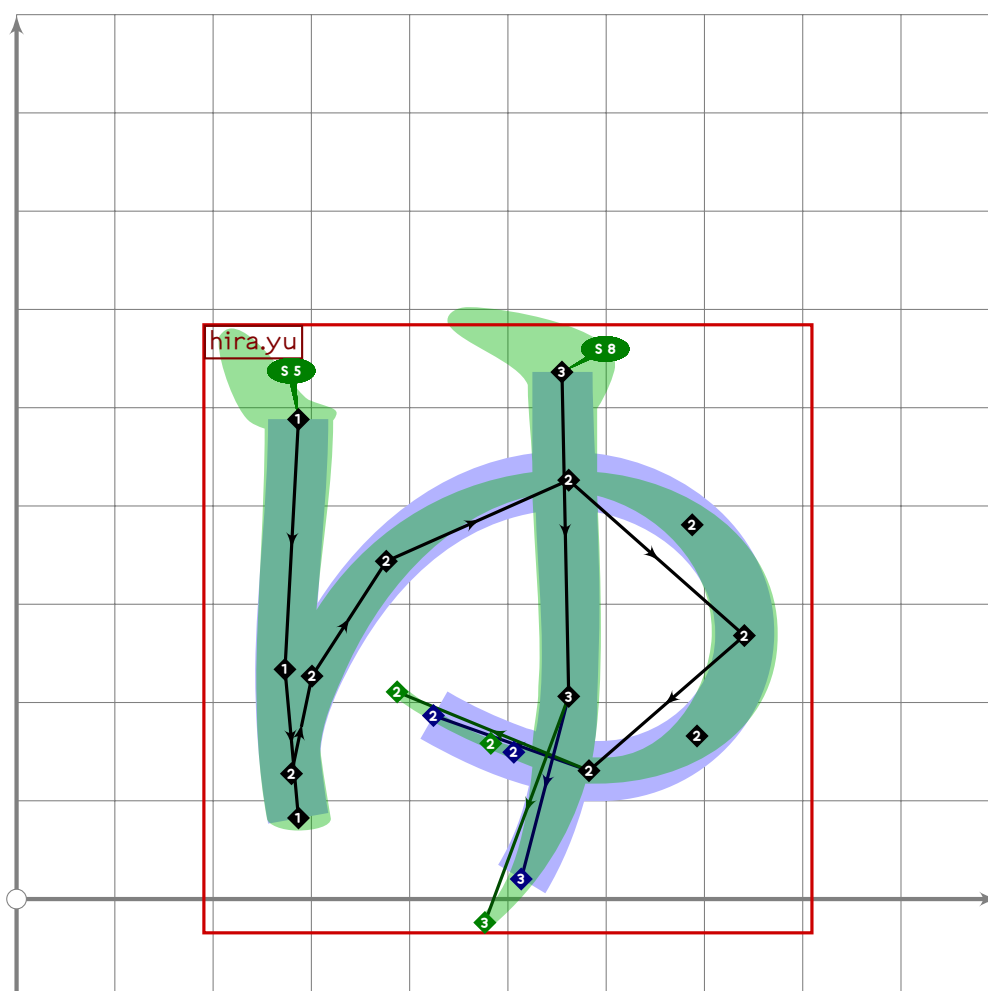
```

```

791 tsu_render;
792 endtsuglyph;
793
794 % hiragana "ya"
795 begintsuglyph("uni3084";132);
796 hira.ya;
797 tsu_render;
798 endtsuglyph;
799

```

[see page 191]

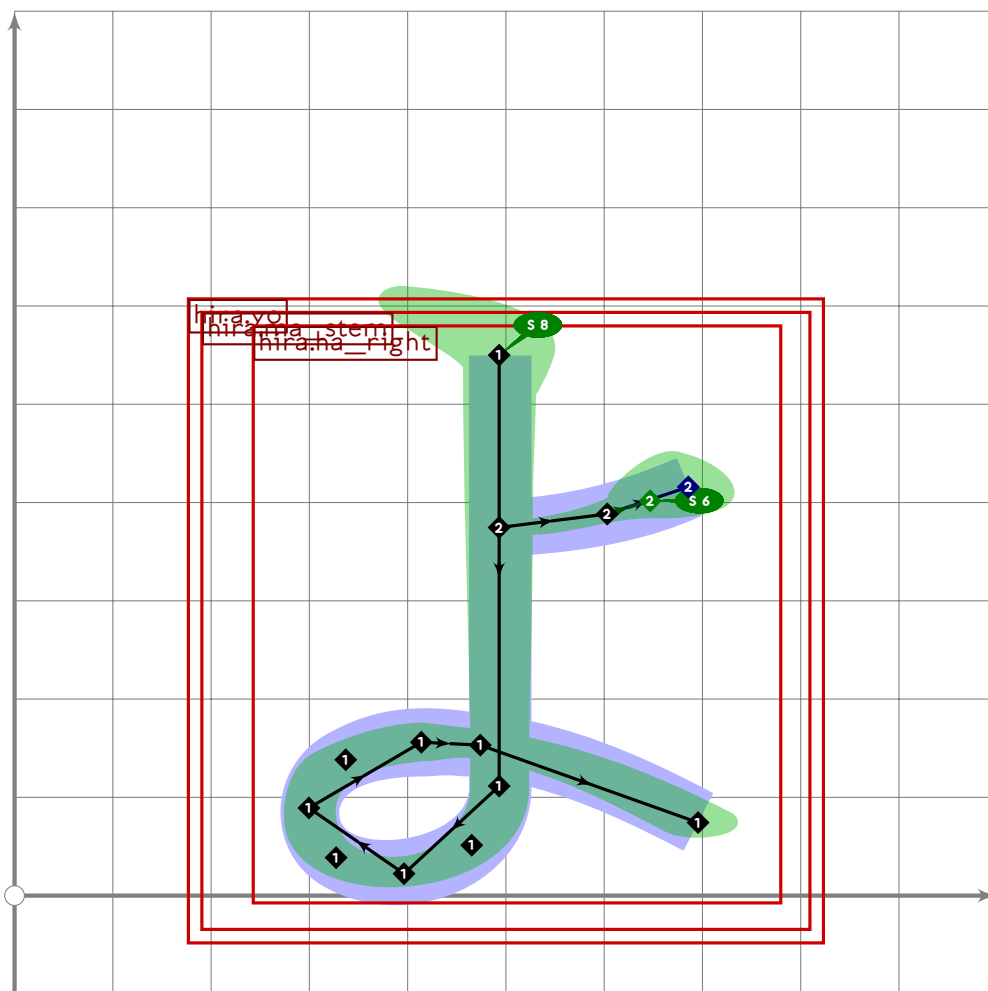


```

800 % hiragana "small yu"
801 begintsuglyph("uni3085";133);
802 tsu_xform(tsu_xf.smallkana)(hira.yu);
803 tsu_render;
804 endtsuglyph;
805
806 % hiragana "yu"
807 begintsuglyph("uni3086";134);
808 hira.yu;
809 tsu_render;
810 endtsuglyph;
811

```

[see page 192]



```

812 % hiragana "small yo"
813 beginsuglyph("uni3087";135);
814   tsu_xform(tsu_xf.smallkana)(hira.yo);
815   tsu_render;
816 endtsuglyph;
817
818 beginsuglyph("uni3088";136);
819   hira.yo;
820   tsu_render;
821 endtsuglyph;
822
823 % hiragana "ra"
824 beginsuglyph("uni3089";137);
825   hira.ra;
826   tsu_render;
827 endtsuglyph;
828
829 % hiragana "ri"
830 beginsuglyph("uni308A";138);
831   hira.ri;
832   tsu_render;

```

[see page 193]

[see page 194]

[see page 195]

```

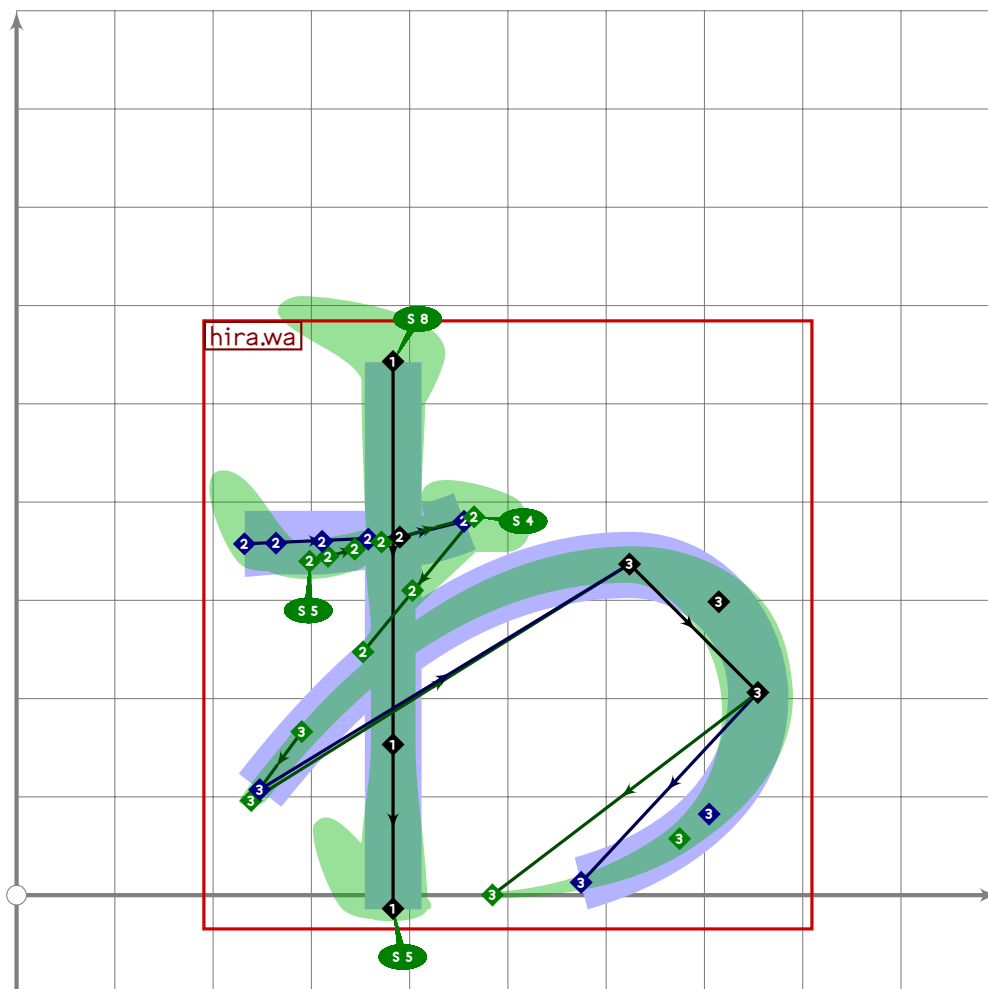
833 endtsuglyph;
834
835 % hiragana "ru"
836 begintsuglyph("uni308B";139);
837   hira.ru;
838   tsu_render;
839 endtsuglyph;
840
841 % hiragana "re"
842 begintsuglyph("uni308C";140);
843   hira.re;
844   tsu_render;
845 endtsuglyph;
846
847 % hiragana "ro"
848 begintsuglyph("uni308D";141);
849   hira.ro;
850   tsu_render;
851 endtsuglyph;
852

```

[see page 196]

[see page 197]

[see page 198]



```

853 % hiragana "small wa"

```

```

854 begintsuglyph("uni308E";142);
855     tsu_xform(tsu_xf.smallkana)(hira.wa);
856     tsu_render;
857 endtsuglyph;
858
859 % hiragana "wa"
860 begintsuglyph("uni308F";143);
861     hira.wa;
862     tsu_render;
863 endtsuglyph;
864
865 % obsolete hiragana "wi"
866 begintsuglyph("uni3090";144);
867     hirawi;
868     tsu_render;
869 endtsuglyph;
870
871 % obsolete hiragana "we"
872 begintsuglyph("uni3091";145);
873     hirawe;
874     tsu_render;
875 endtsuglyph;
876
877 % hiragana "wo"
878 begintsuglyph("uni3092";146);
879     hira.wo;
880     tsu_render;
881 endtsuglyph;
882
883 % hiragana "n"
884 begintsuglyph("uni3093";147);
885     hira.n;
886     tsu_render;
887 endtsuglyph;
888

```

[see page 199]

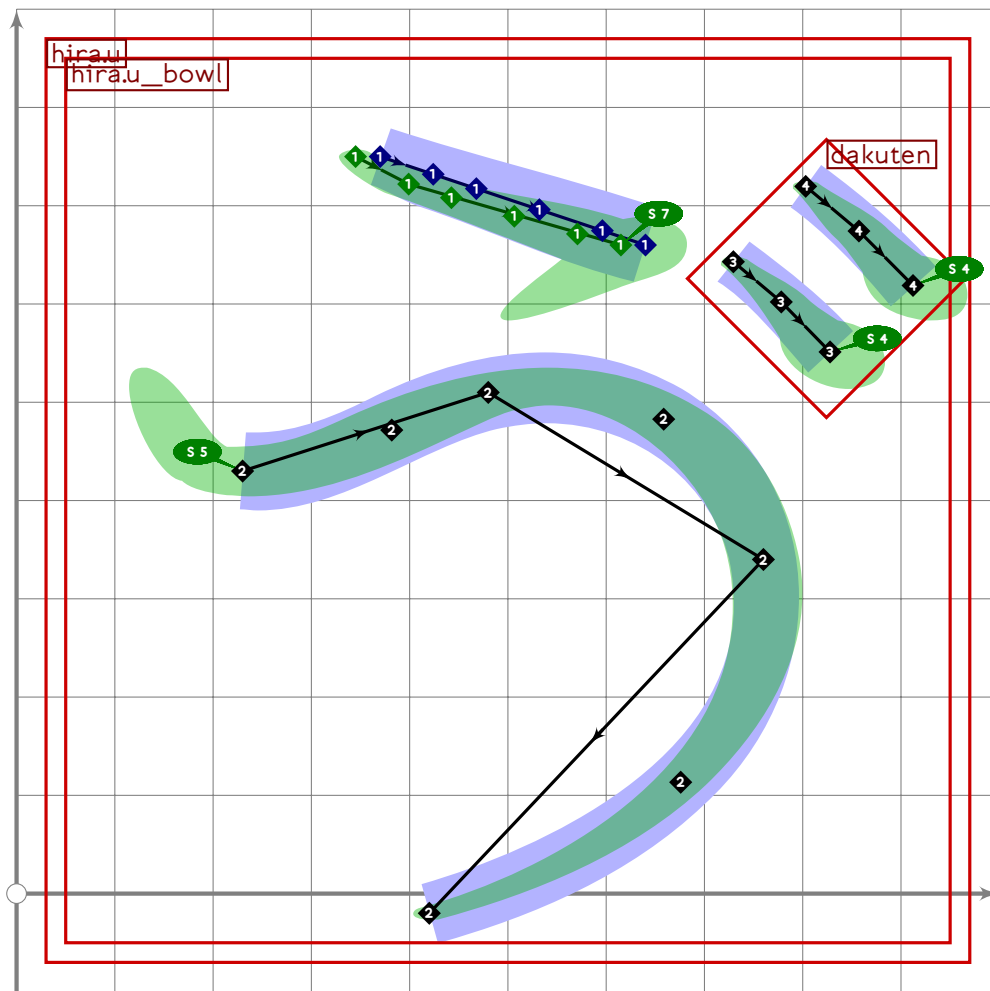
[see page 200]

[see page 201]

[see page 202]

[see page 203]

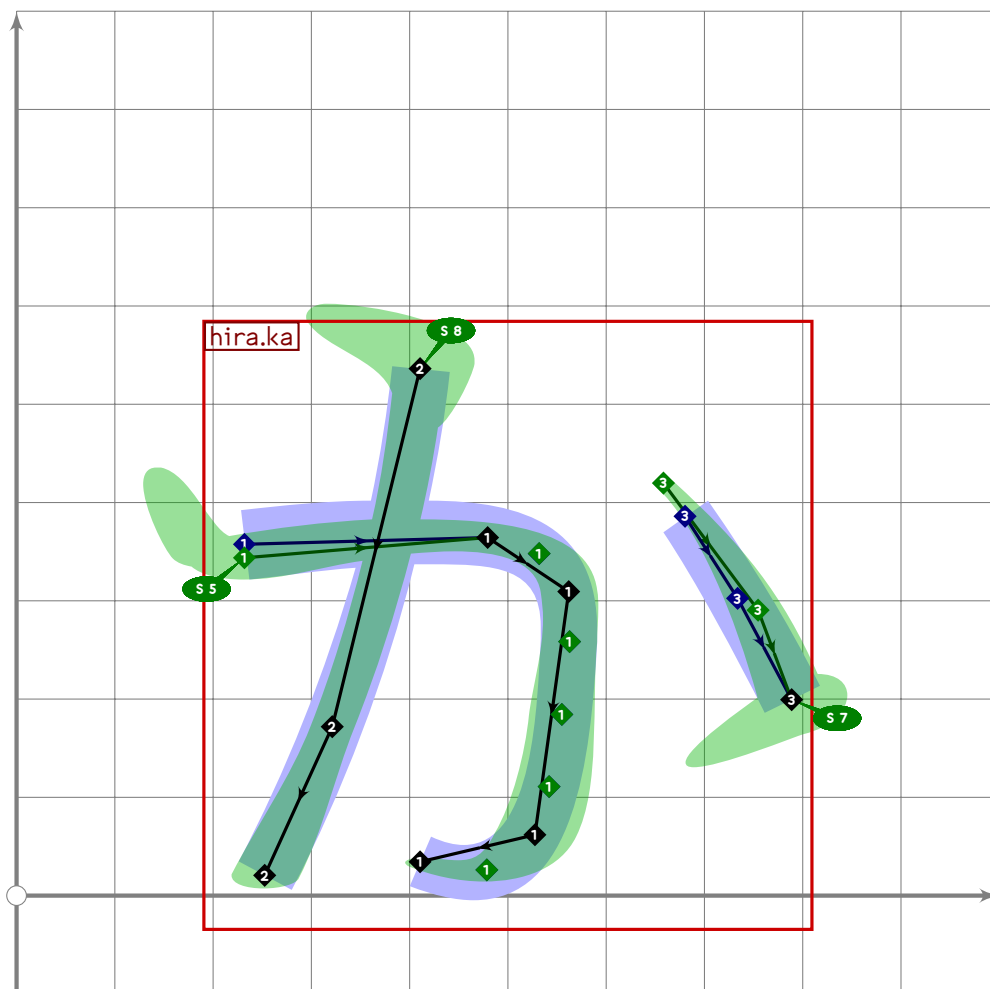




```

889 % hiragana "vu"
890 begint Suglyph("uni3094",148);
891   hira.u;
892   dakuten(identity rotated 5 shifted (810,640));
893   tsu_render;
894 endtsuglyph;
895

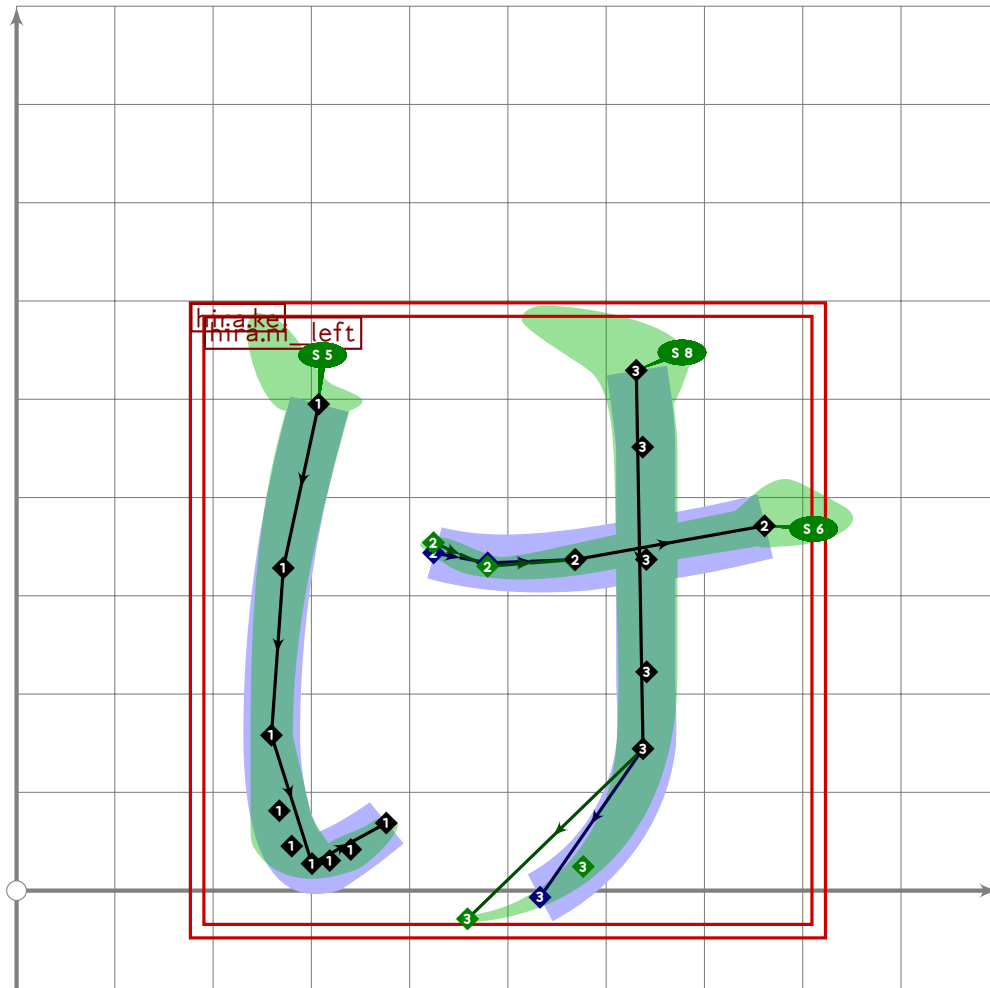
```



```

896 % hiragana "small ka"
897 begintsuglyph("uni3095",149);
898   tsu_xform(tsu_xf.smallkana)(hira.ka);
899   tsu_render;
900 endtsuglyph;
901

```



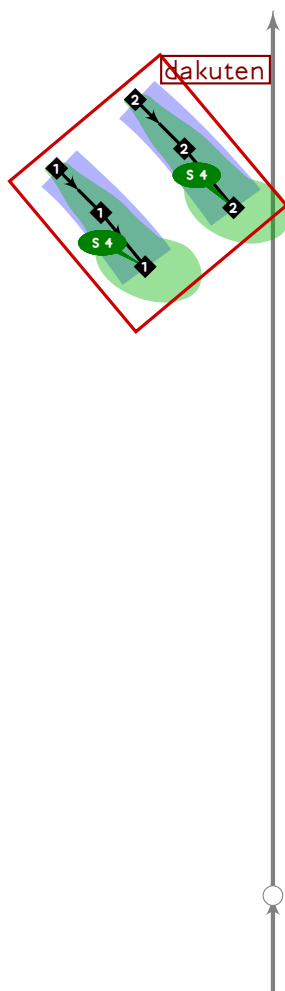
```

902 % hiragana "small ke"
903 begintsuglyph("uni3096",150);
904   tsu_xform(tsu_xf.smallkana)(hira.ke);
905   tsu_render;
906 endtsuglyph;
907
908 % WARNING changing rescale setting
909 tsu_rescale_native_zero;
910

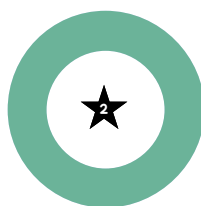
```

U+3099  
tsuku.uni3099

30



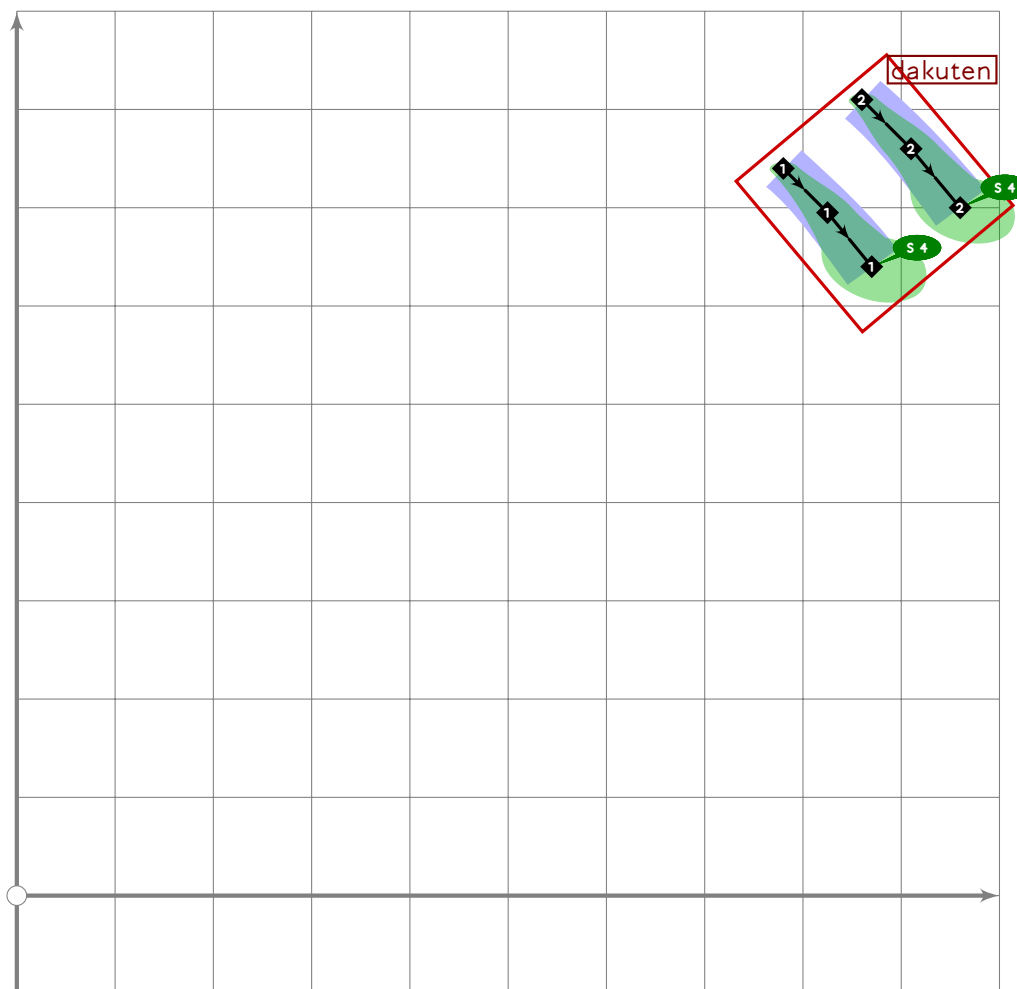
```
911 % combining dakuten
912 begintsuglyph("uni3099",153);
913   dakuten(identity shifted (-140,730));
914   tsu_render;
915 endsuglyph;
916
```



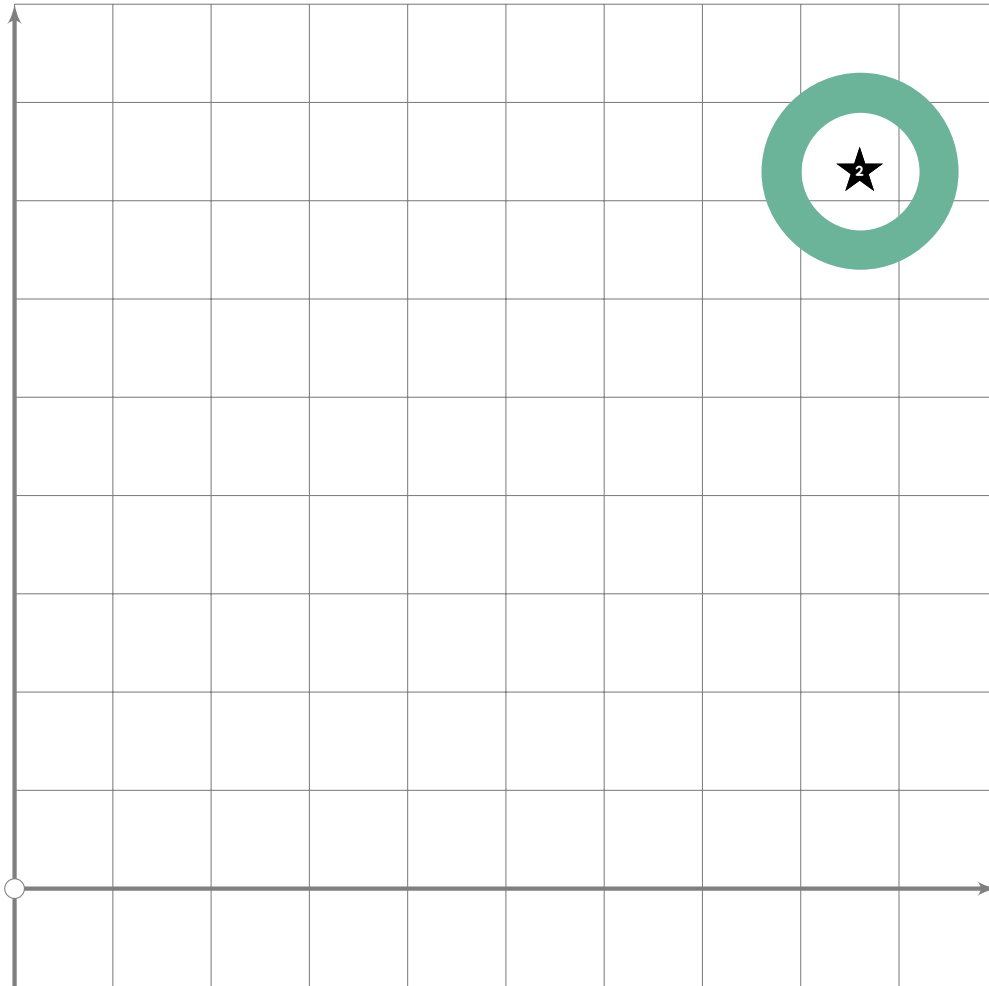
```
917 % combining handakuten
918 begintsuglyph("uni309A",154);
919   handakuten((-140,730));
920   tsu_render;
921 endtsuglyph;
922
923 % WARNING changing rescale setting
924 tsu_rescale_full;
925
```

U+309B  
tsuku.uni309B

30



```
926 % dakuten alone
927 begintsuglyph("uni309B",155);
928   dakuten(identity shifted (860,730));
929   tsu_render;
930 endtsuglyph;
931
```

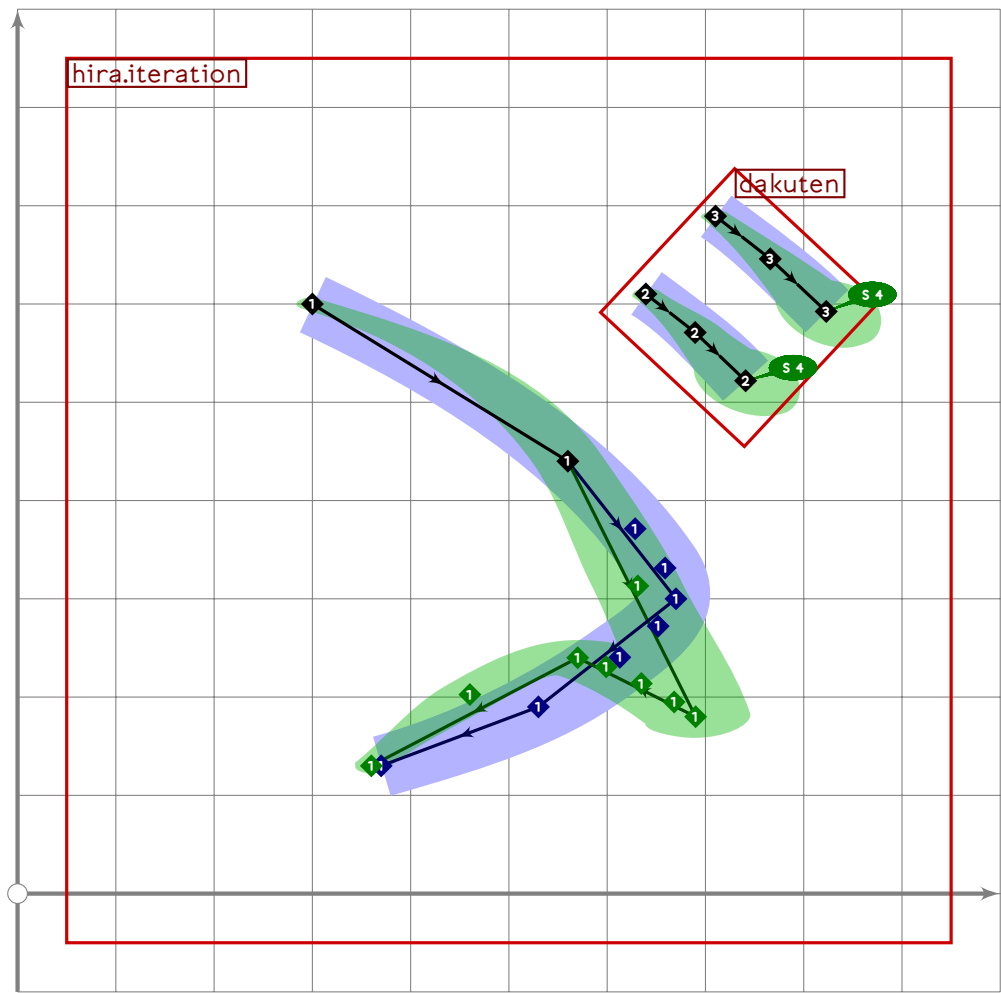


```

932 % handakuten alone
933 begintsuglyph("uni309C";156);
934   handakuten((860,730));
935   tsu_render;
936 endtsuglyph;
937
938 % hiragana "iteration mark"
939 begintsuglyph("uni309D";157);
940   hira.iteration;
941   tsu_render;
942 endtsuglyph;
943

```

[see page 204]



```
944 % hiragana "voiced iteration mark"
945 begintsuglyph("uni309E",158);
946   hira.iteration;
947   dakuten(identity rotated 7 shifted (720,610));
948   tsu_render;
949 endtsuglyph;
950
951 % hiragana "yori ligature"
952 begintsuglyph("uni309F",159);
953   hira.yori;
954   tsu_render;
955 endtsuglyph;
956
957
958
```

[see page 205]

Katakana

```
959 % KATAKANA
960
961 % katakana double hyphen
962 begintsuglyph("uni30A0",160);
```

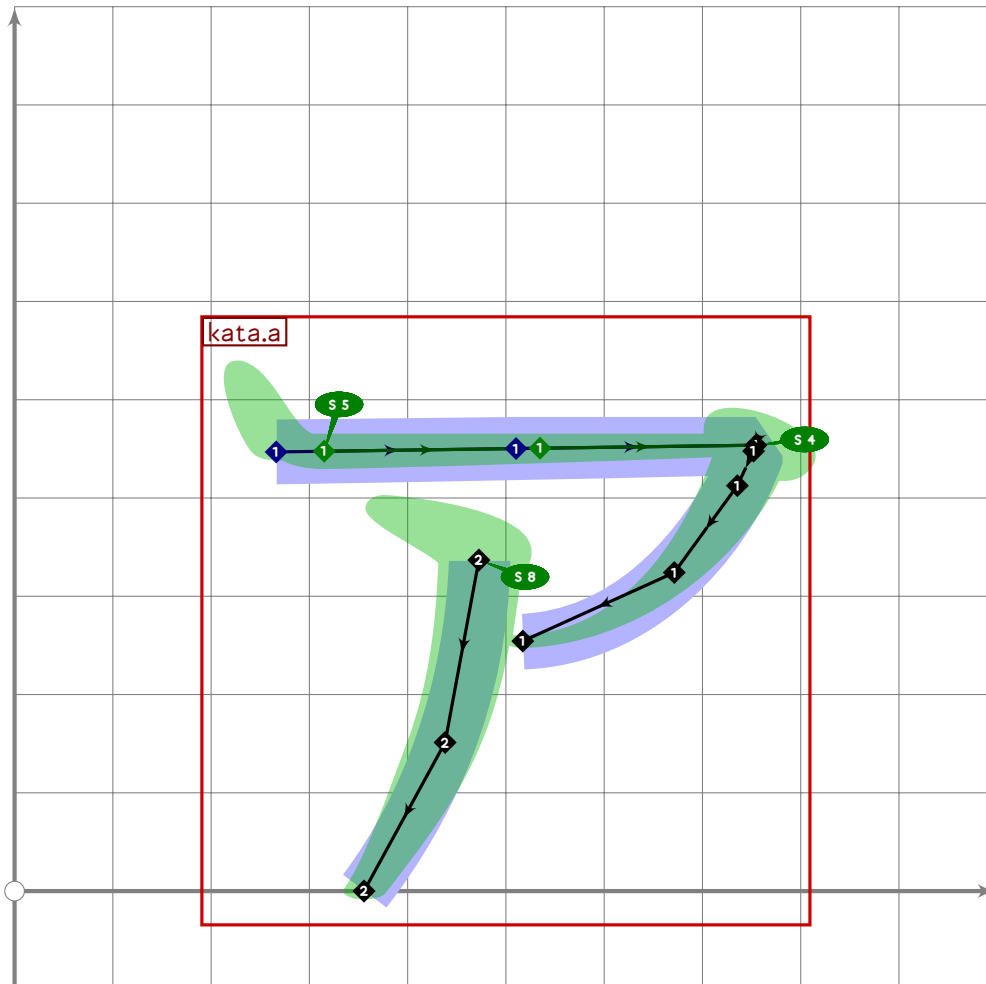
[see page 382]



```

963 punct.dash.double_hyphen;
964 tsu_render;
965 endtsuglyph;
966

```

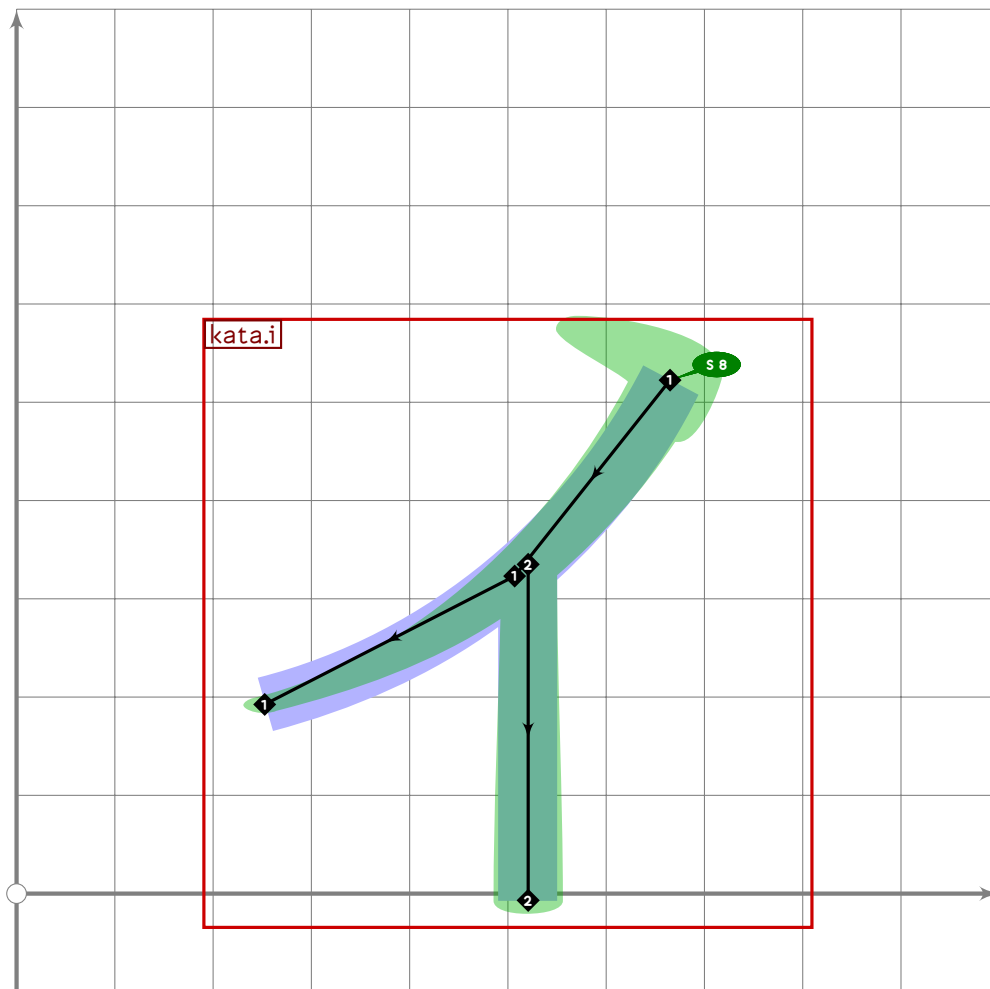


```

967 % katakana "small a"
968 begint Suglyph("uni30A1",161);
969 tsu_xform(tsu_xf.smallkana)(kata.a);
970 tsu_render;
971 endtsuglyph;
972
973 % katakana "a"
974 begint Suglyph("uni30A2",162);
975 kata.a;
976 tsu_render;
977 endtsuglyph;
978

```

[see page 209]

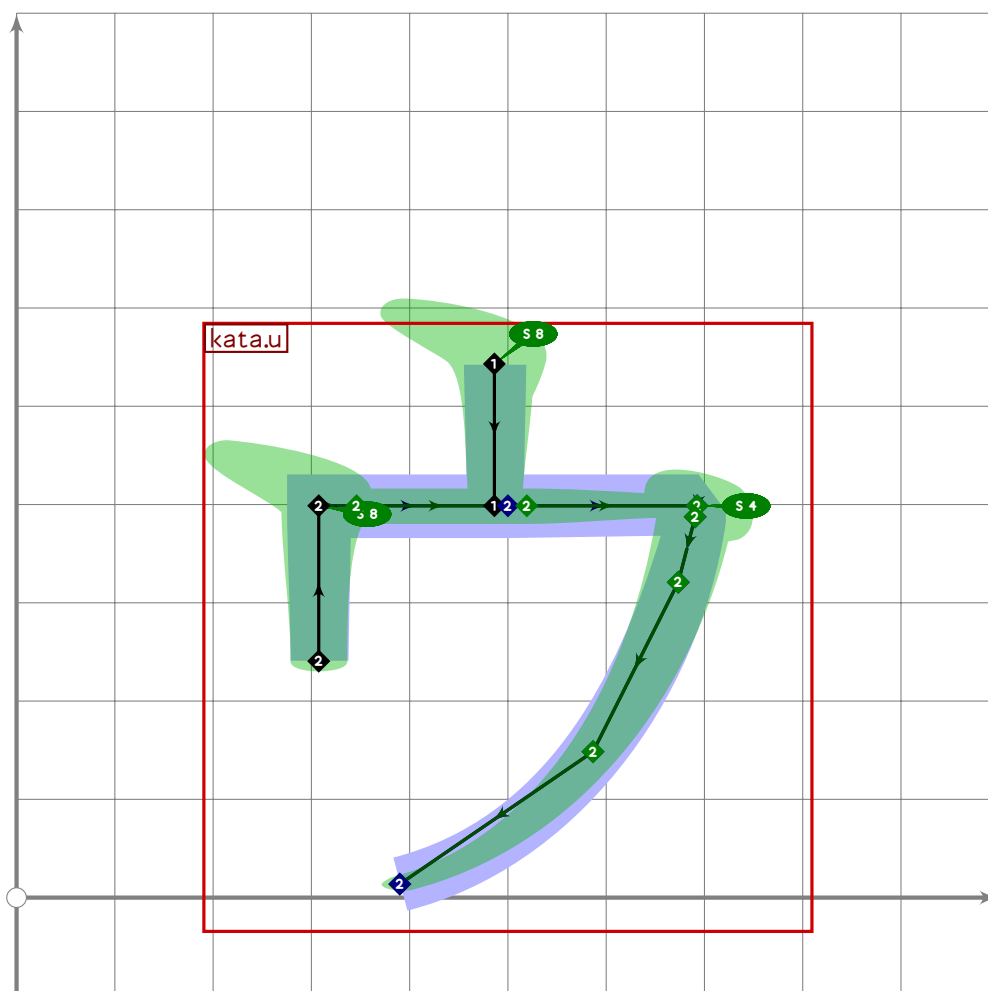


```

979 % katakana "small i"
980 beginsuglyph("uni30A3",163);
981   tsu_xform(tsu_xf.smallkana)(kata.i);
982   tsu_render;
983 endsuglyph;
984
985 % katakana "i"
986 beginsuglyph("uni30A4",164);
987   kata.i;
988   tsu_render;
989 endsuglyph;
990

```

[see page 210]

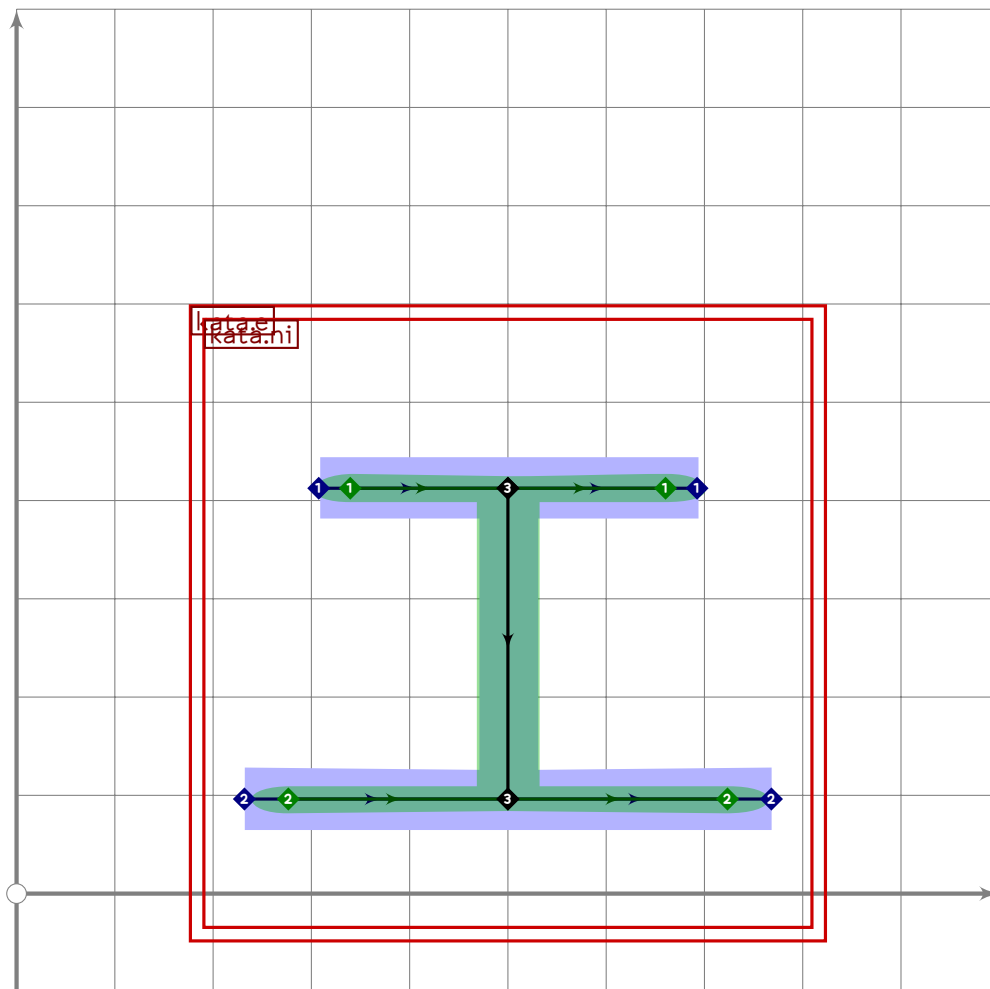


```

991 % katakana "small u"
992 begintsuglyph("uni30A5",165);
993   tsu_xform(tsu_xf.smallkana)(kata.u);
994   tsu_render;
995 endtsuglyph;
996
997 % katakana "u"
998 begintsuglyph("uni30A6",166);
999   kata.u;
1000   tsu_render;
1001 endtsuglyph;
1002

```

[see page 211]

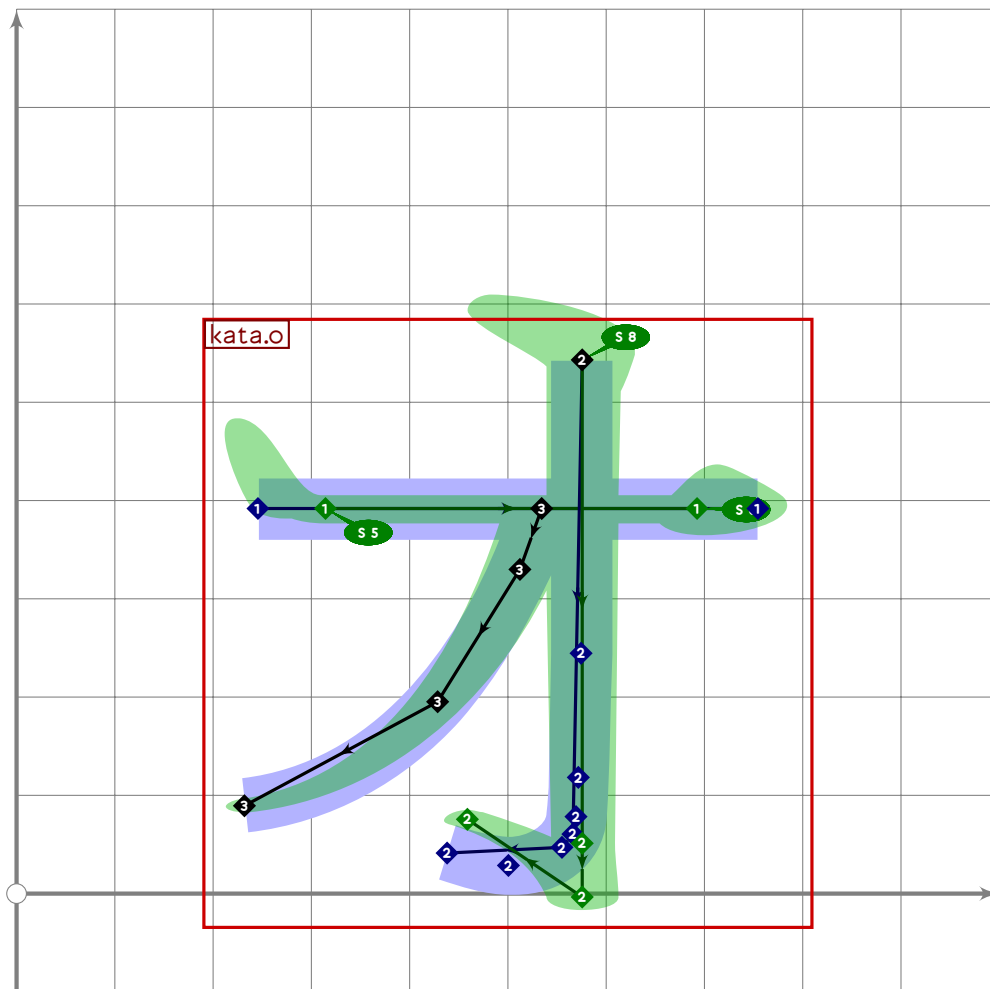


```

1003 % katakana "small e"
1004 begintsuglyph("uni30A7",167);
1005   tsu_xform(tsu_xf.smallkana)(kata.e);
1006   tsu_render;
1007 endtsuglyph;
1008
1009 % katakana "e"
1010 begintsuglyph("uni30A8",168);
1011   kata.e;
1012   tsu_render;
1013 endtsuglyph;
1014

```

[see page 212]



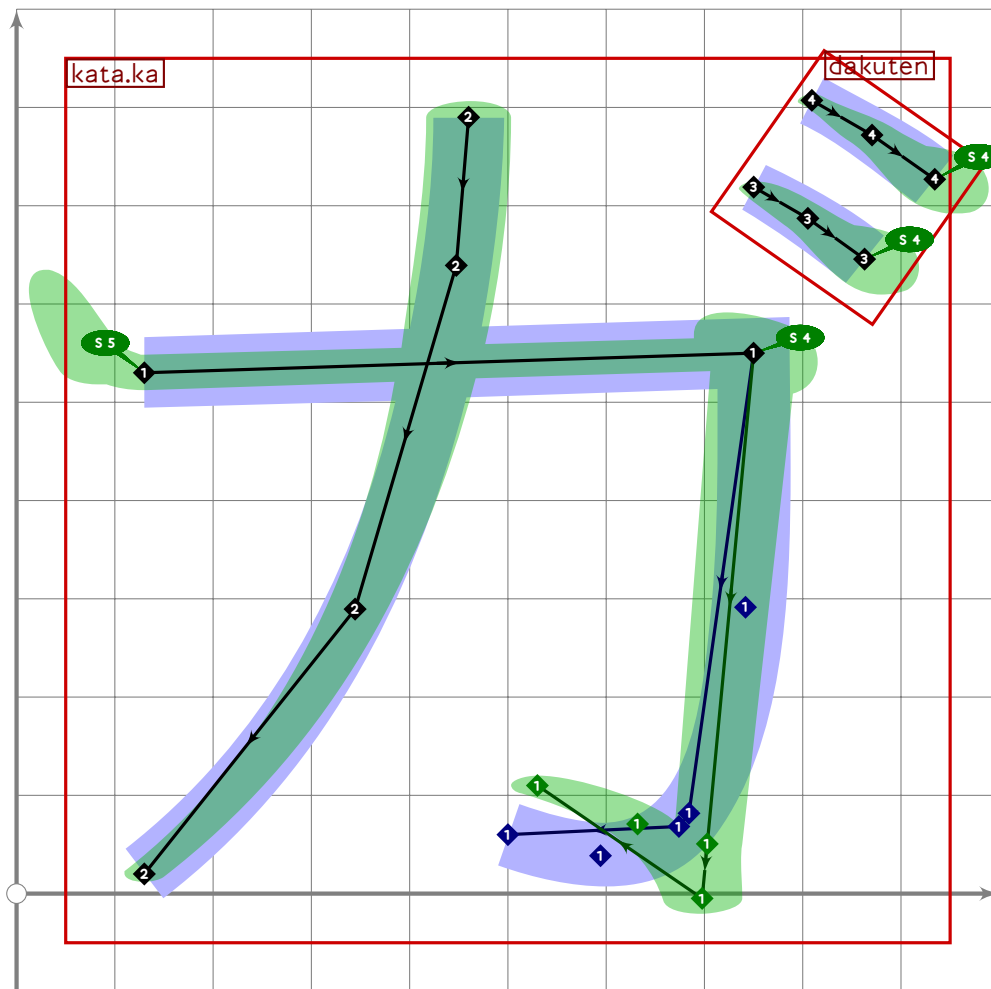
```

1015 % katakana "small o"
1016 begintsuglyph("uni30A9";169);
1017   tsu_xform(tsu_xf.smallkana)(kata.o);
1018   tsu_render;
1019 endtsuglyph;
1020
1021 % katakana "o"
1022 begintsuglyph("uni30AA";170);
1023   kata.o;
1024   tsu_render;
1025 endtsuglyph;
1026
1027 % katakana "ka"
1028 begintsuglyph("uni30AB";171);
1029   kata.ka;
1030   tsu_render;
1031 endtsuglyph;
1032

```

[see page 213]

[see page 214]

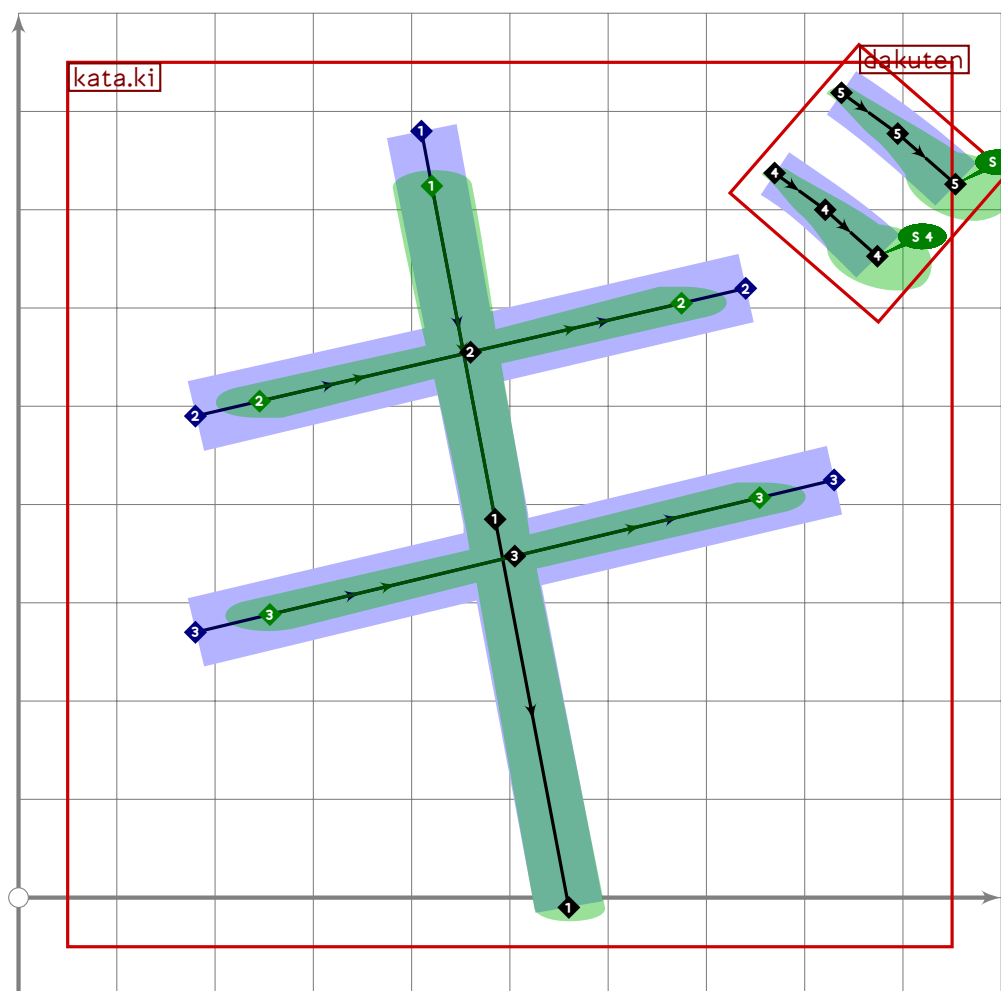


```

1033 % katakana "ga"
1034 begintsuglyph("uni30AC";172);
1035   kata.ka;
1036   dakuten(identity rotated 15 shifted (830,730));
1037   tsu_render;
1038 endtsuglyph;
1039
1040 % katakana "ki"
1041 begintsuglyph("uni30AD";173);
1042   kata.ki;
1043   tsu_render;
1044 endtsuglyph;
1045

```

[see page 215]

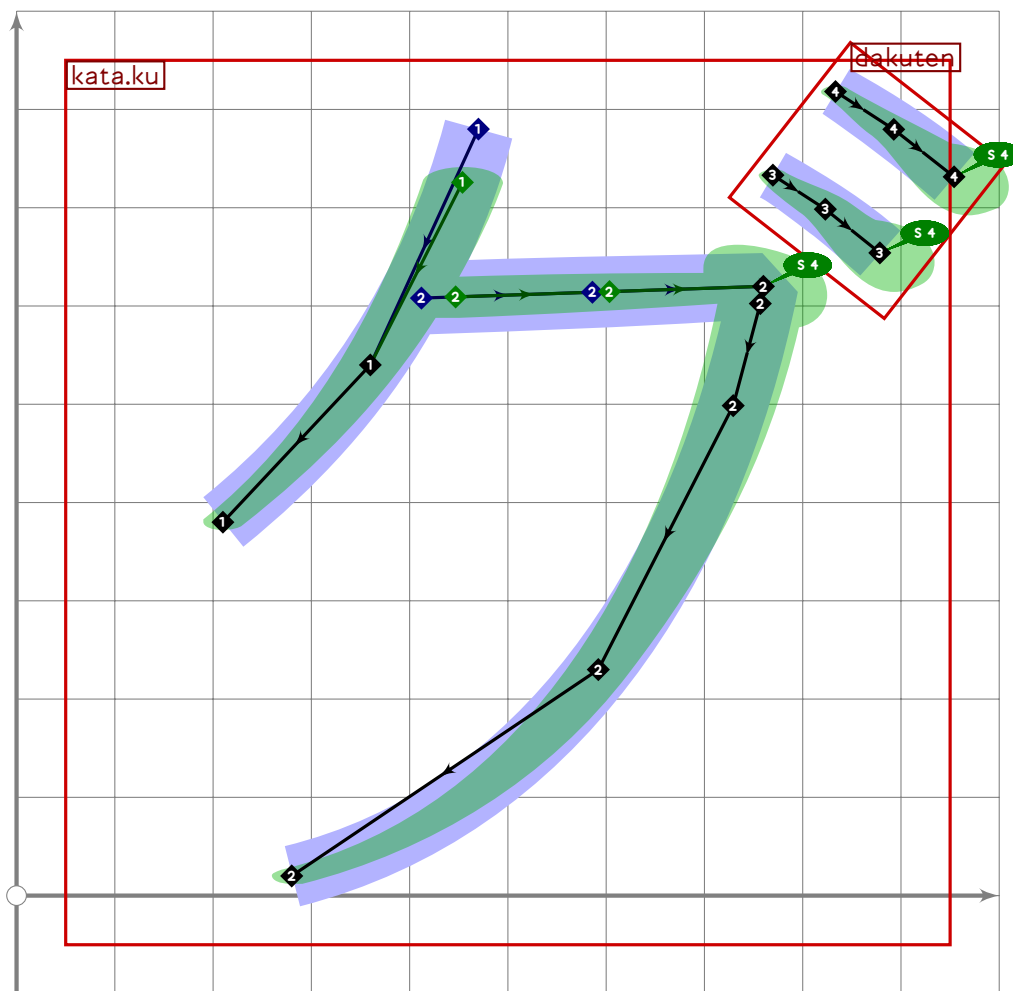


```

1046 % katakana "gi"
1047 begintsuglyph("uni30AE";174);
1048 kata.ki;
1049 dakuten(identity rotated 9 shifted (850,740));
1050 tsu_render;
1051 endtsuglyph;
1052
1053 % katakana "ku"
1054 begintsuglyph("uni30AF";175);
1055 kata.ku;
1056 tsu_render;
1057 endtsuglyph;
1058

```

[see page 216]



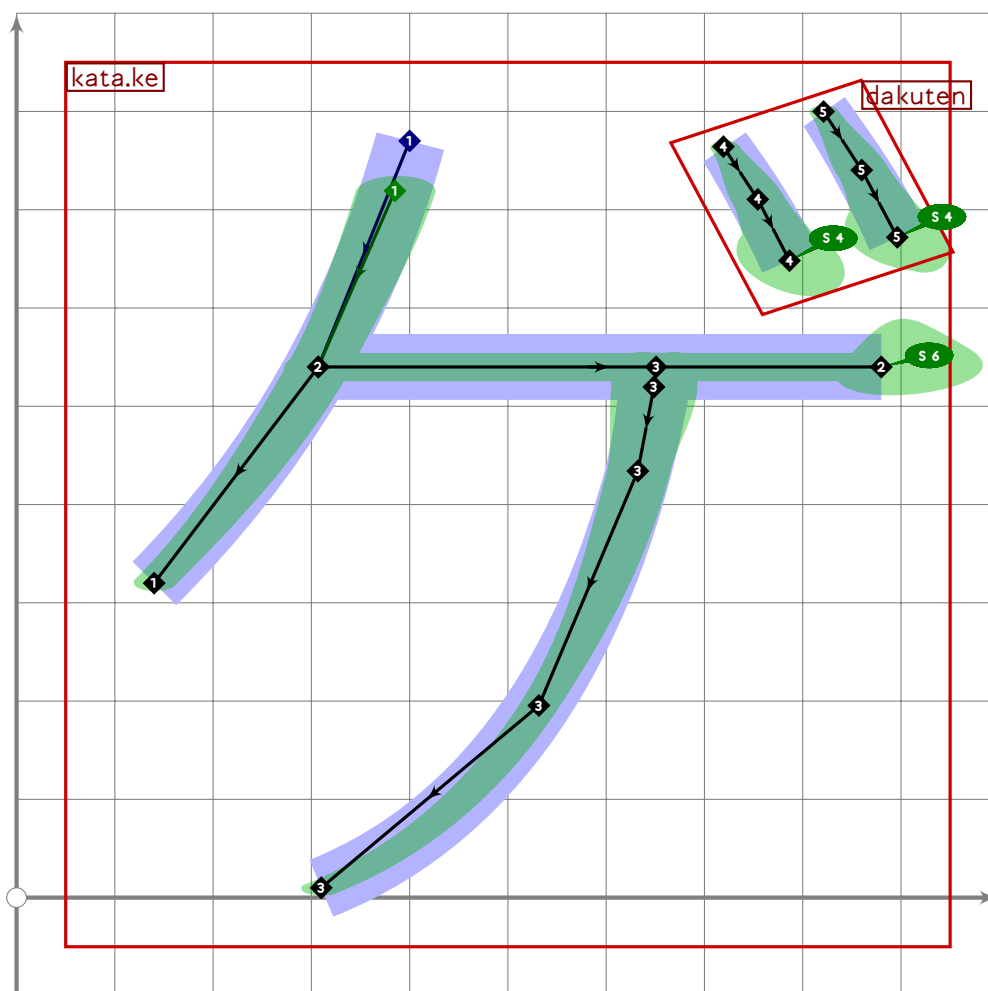
```

1059 % katakana "gu"
1060 begintsuglyph("uni30B0";176);
1061   kata.ku;
1062   dakuten(identity rotated 12 shifted (850,740));
1063   tsu_render;
1064 endtsuglyph;
1065
1066 % katakana "ke"
1067 begintsuglyph("uni30B1";177);
1068   kata.ke;
1069   tsu_render;
1070 endtsuglyph;
1071

```

[see page 217]



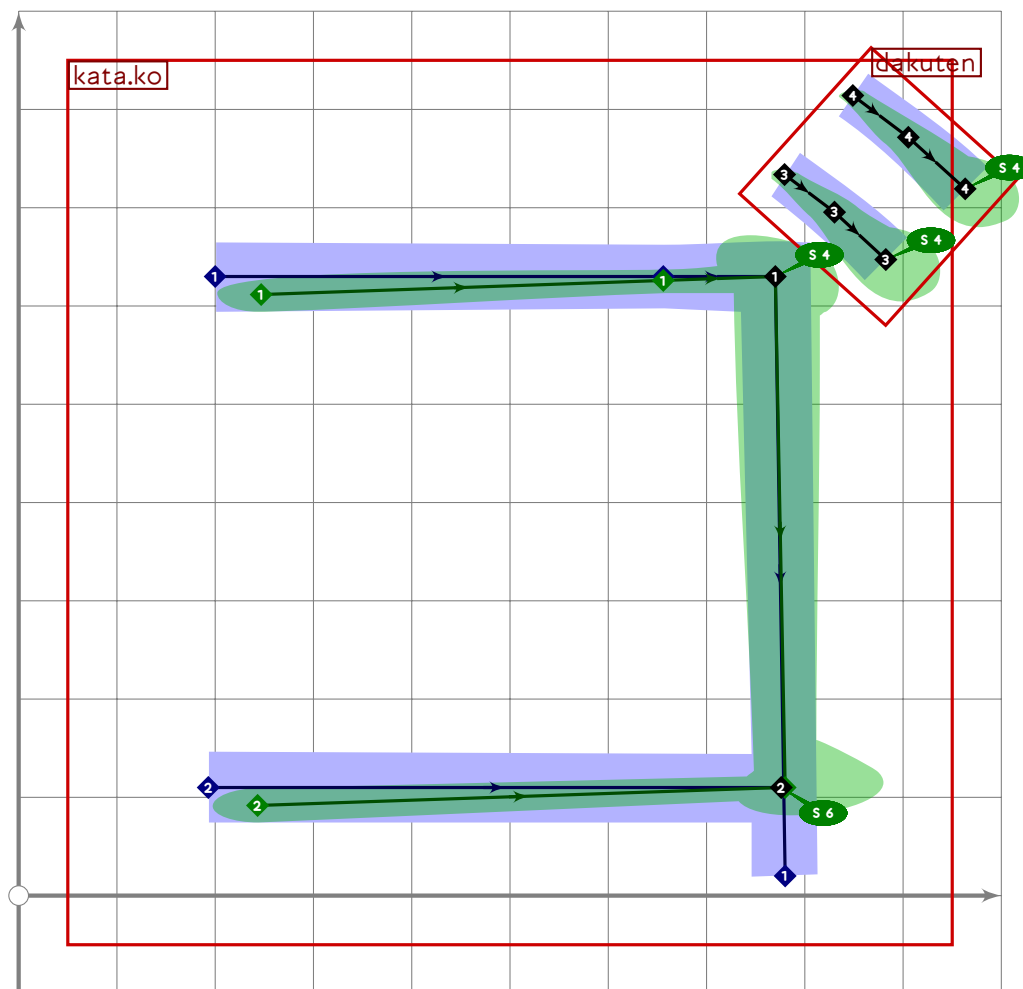


```

1072 % katakana "ge"
1073 begintsuglyph("uni30B2";178);
1074   kata.ke;
1075   dakuten(identity
1076     rotated -20 slanted -0.1 xyscaled (1.07,0.93) shifted (800,730));
1077   tsu_render;
1078 endtsuglyph;
1079
1080 % katakana "ko"
1081 begintsuglyph("uni30B3";179);
1082   kata.ko;
1083   tsu_render;
1084 endtsuglyph;
1085

```

[see page 218]

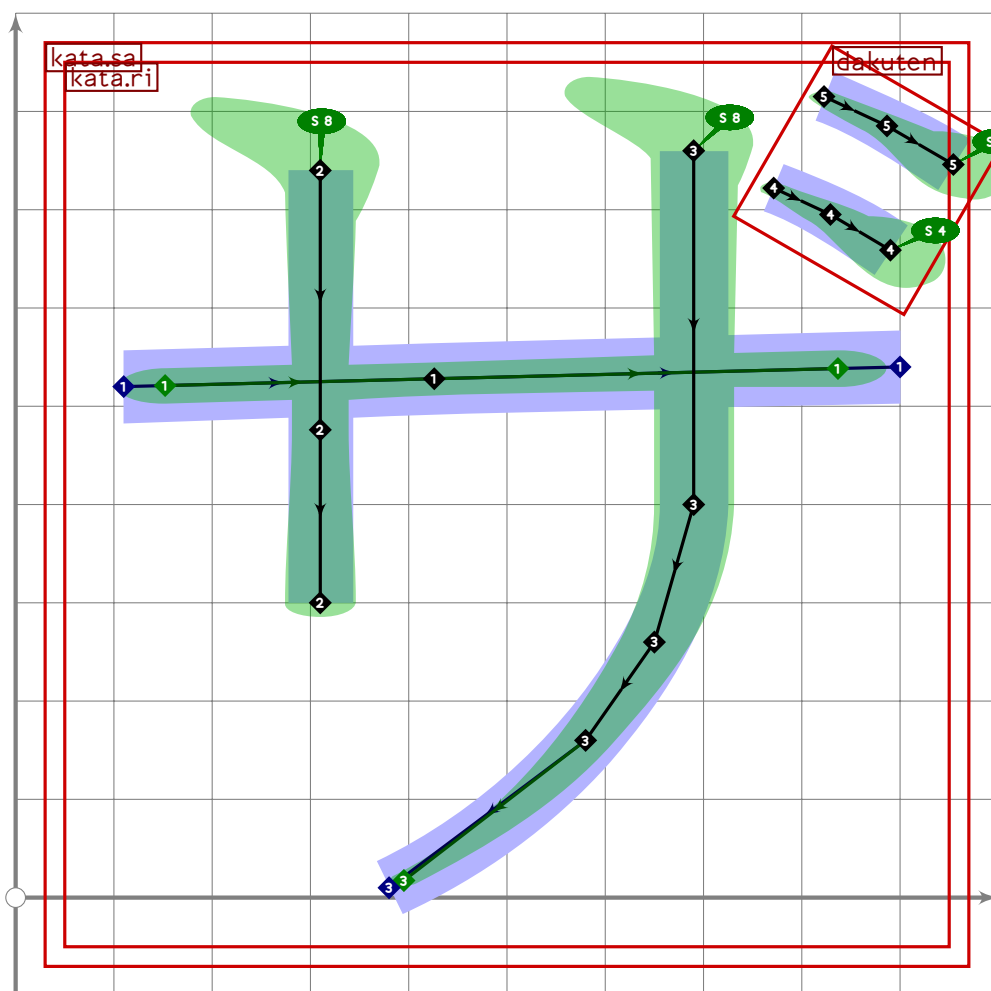


```

1086 % katakana "go"
1087 begintsuglyph("uni30B4",180);
1088 kata.ko;
1089 bo_tip1[1]:=0;
1090 dakuten(identity rotated 8 shifted (860,735));
1091 tsu_render;
1092 endtsuglyph;
1093
1094 % katakana "sa"
1095 begintsuglyph("uni30B5",181);
1096 kata.sa;
1097 tsu_render;
1098 endtsuglyph;
1099

```

[see page 219]

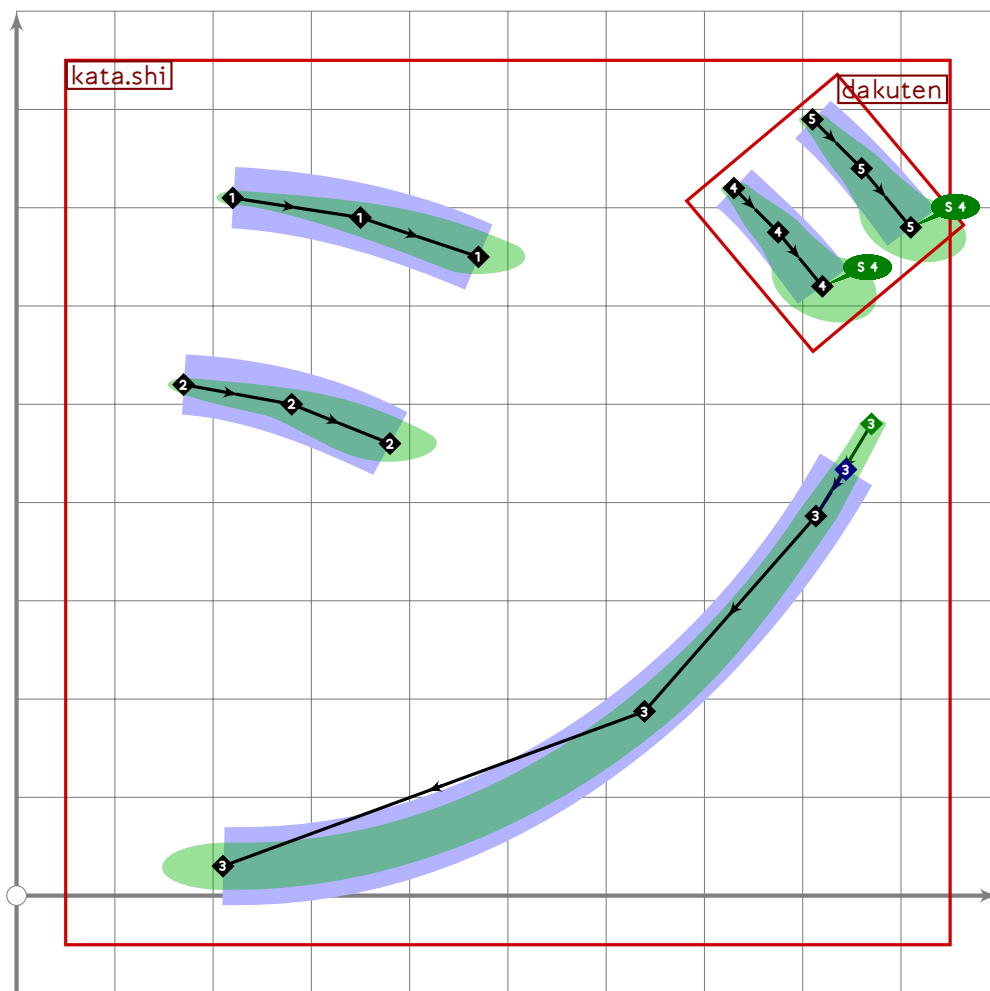


```

1100 % katakana "za"
1101 begintsuglyph("uni30B6",182);
1102   kata.sa;
1103   dakuten(identity rotated 20 shifted (850,740));
1104   tsu_render;
1105 endtsuglyph;
1106
1107 % katakana "shi"
1108 begintsuglyph("uni30B7",183);
1109   kata.shi;
1110   tsu_render;
1111 endtsuglyph;
1112

```

[see page 220]

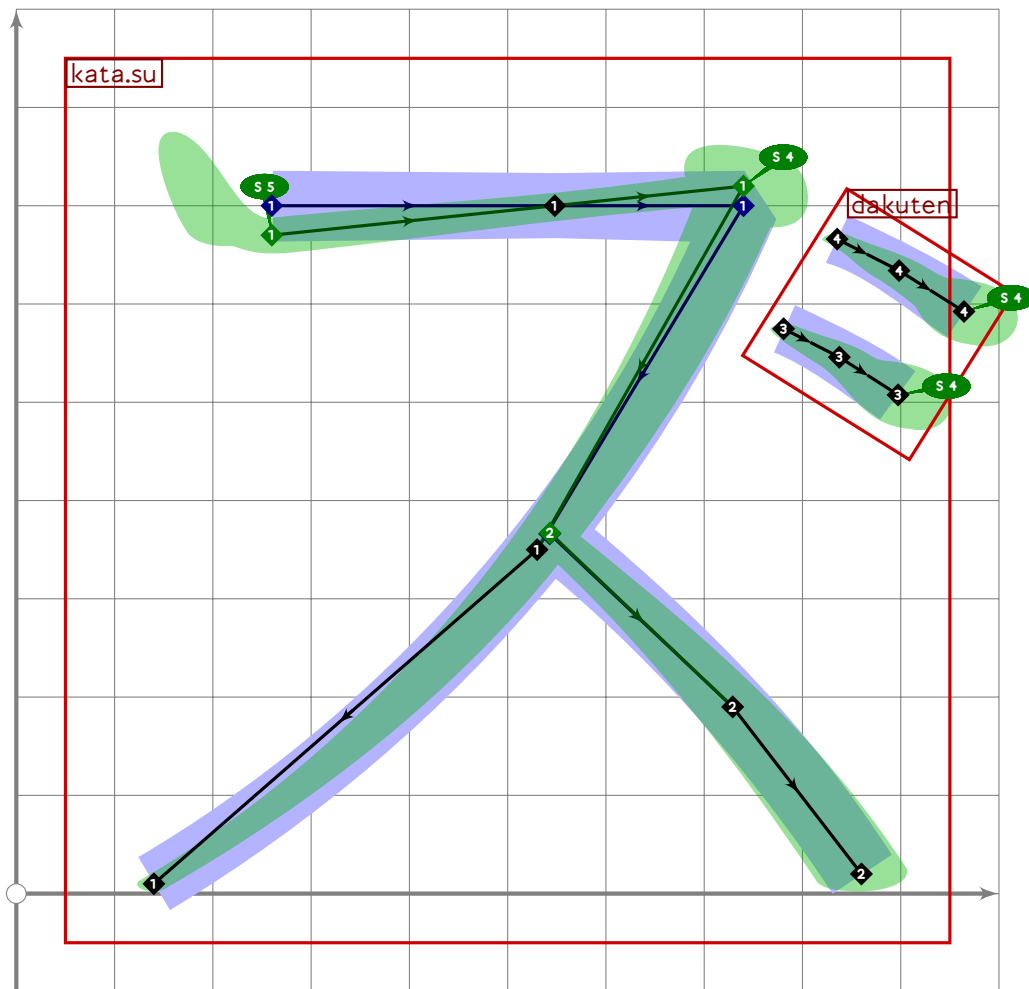


```

1113 % katakana "ji"
1114 begintsuglyph("uni30B8",184);
1115   kata.shi;
1116   dakuten(identity shifted (810,710));
1117   tsu_render;
1118 endtsuglyph;
1119
1120 % katakana "su"
1121 begintsuglyph("uni30B9",185);
1122   kata.su;
1123   tsu_render;
1124 endtsuglyph;
1125

```

[see page 221]

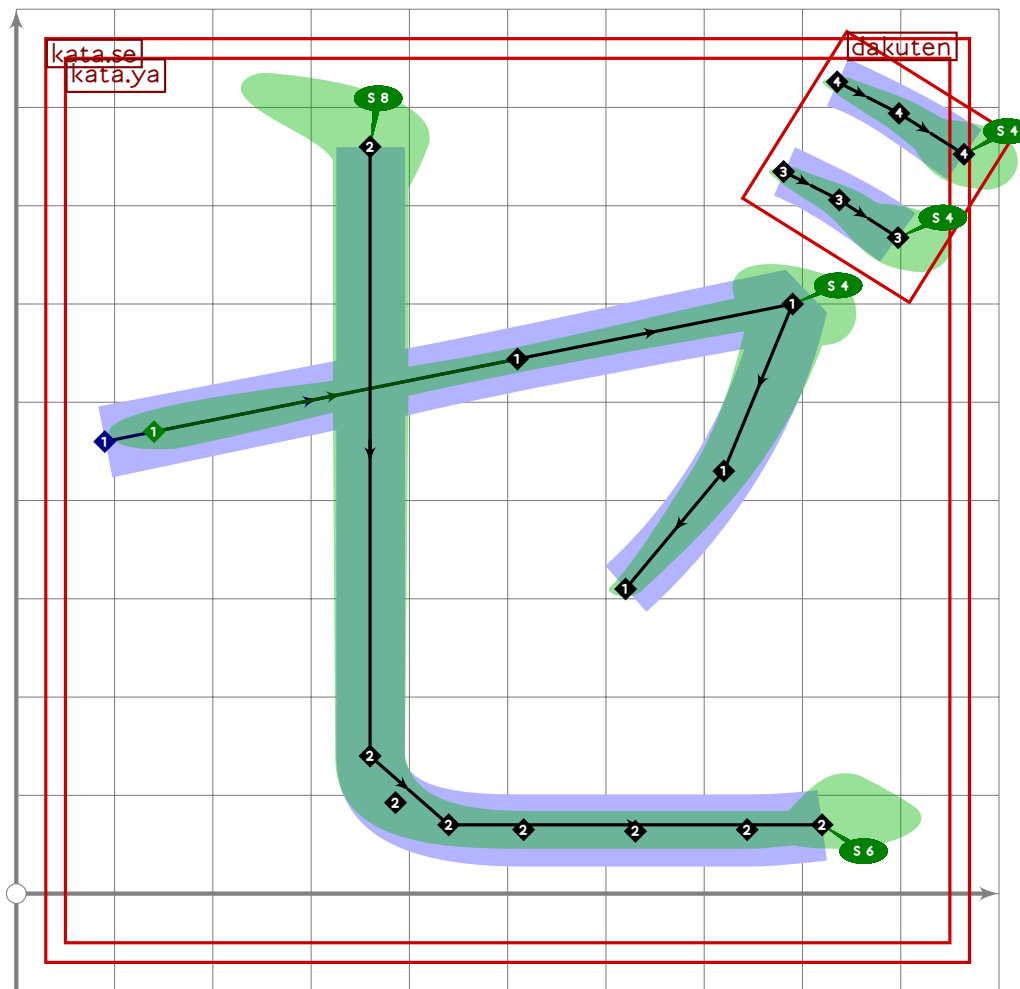


```

1126 % katakana "zu"
1127 begintsuglyph("uni30BA",186);
1128   kata.su;
1129   dakuten(identity rotated 18 shifted (860,590));
1130   tsu_render;
1131 endtsuglyph;
1132
1133 % katakana "se"
1134 begintsuglyph("uni30BB",187);
1135   kata.se;
1136   tsu_render;
1137 endtsuglyph;
1138

```

[see page 222]

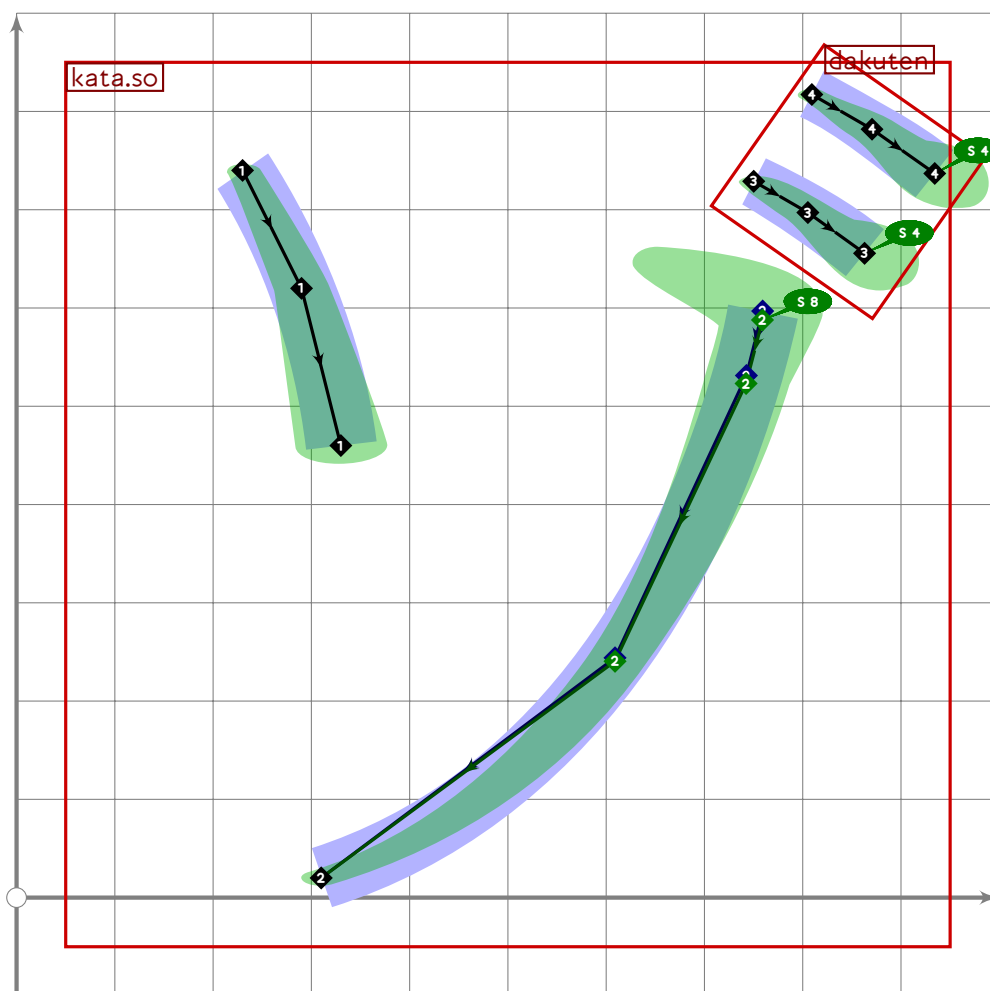


```

1139 % katakana "ze"
1140 begint Suglyph("uni30BC",188);
1141   kata.se;
1142   dakuten(identity rotated 18 shifted (860,750));
1143   tsu_render;
1144 endtsuglyph;
1145
1146 % katakana "so"
1147 begint Suglyph("uni30BD",189);
1148   kata.so;
1149   tsu_render;
1150 endtsuglyph;
1151

```

[see page 223]



```

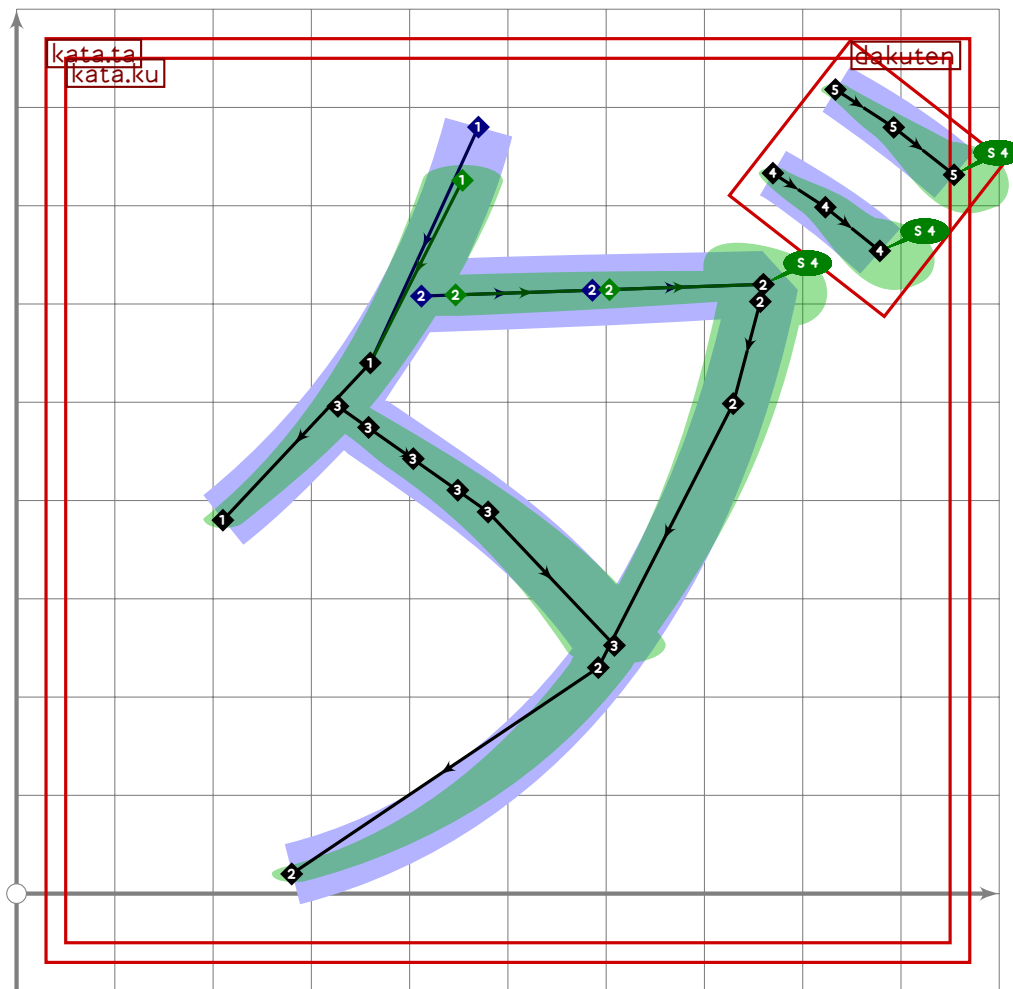
1152 % katakana "zo"
1153 begintsuglyph("uni30BE";190);
1154   kata.so;
1155   replace_strokep(0,subpath (0.5,infinity) of oldp);
1156   dakuten(identity rotated 15 shifted (830,740));
1157   tsu__render;
1158 endtsuglyph;
1159
1160 % katakana "ta"
1161 begintsuglyph("uni30BF";191);
1162   kata.ta;
1163   tsu__render;
1164 endtsuglyph;
1165

```

[see page 224]

U+30C0  
tsuku.uni30C0

30



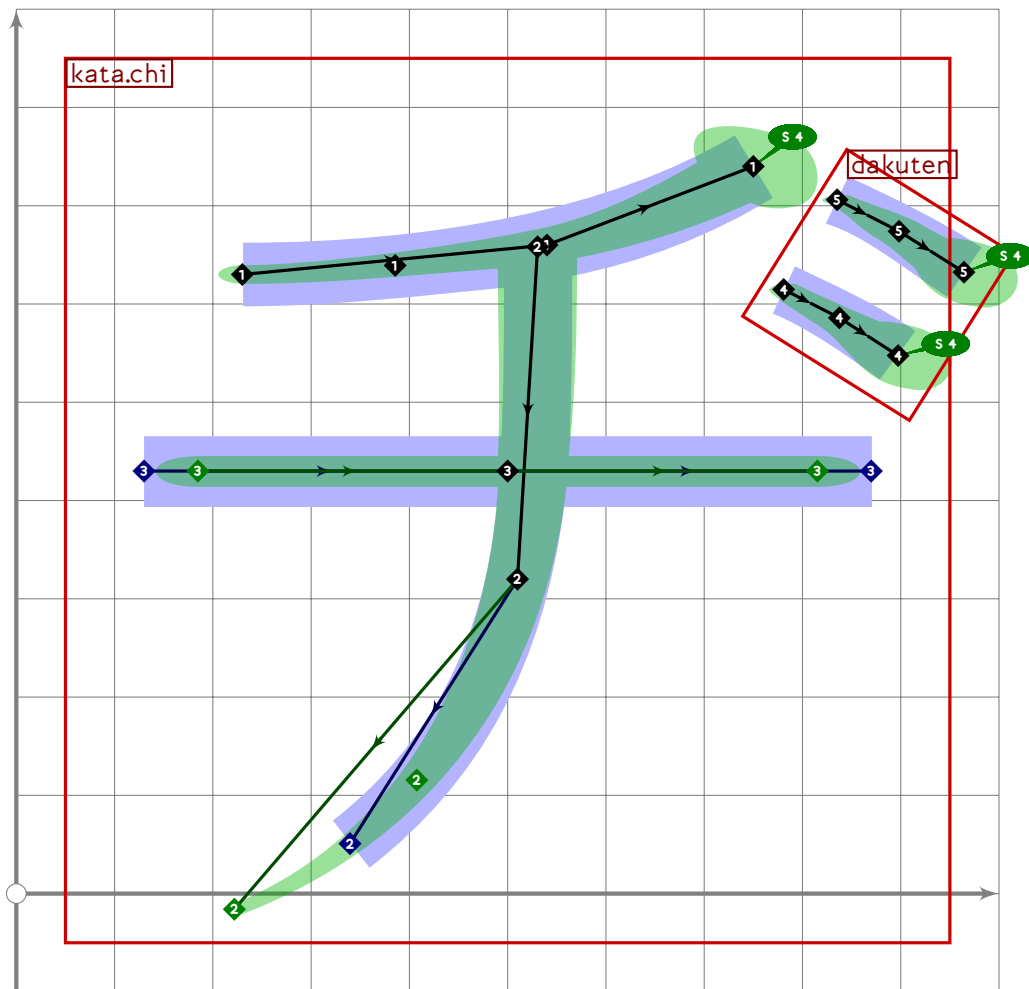
```

1166 % katakana "da"
1167 begintsuglyph("uni30C0",192);
1168 kata.ta;
1169 dakuten(identity rotated 12 shifted (850,740));
1170 tsu_render;
1171 endtsuglyph;
1172
1173 % katakana "chi"
1174 begintsuglyph("uni30C1",193);
1175 kata.chi;
1176 tsu_render;
1177 endtsuglyph;
1178

```

[see page 225]

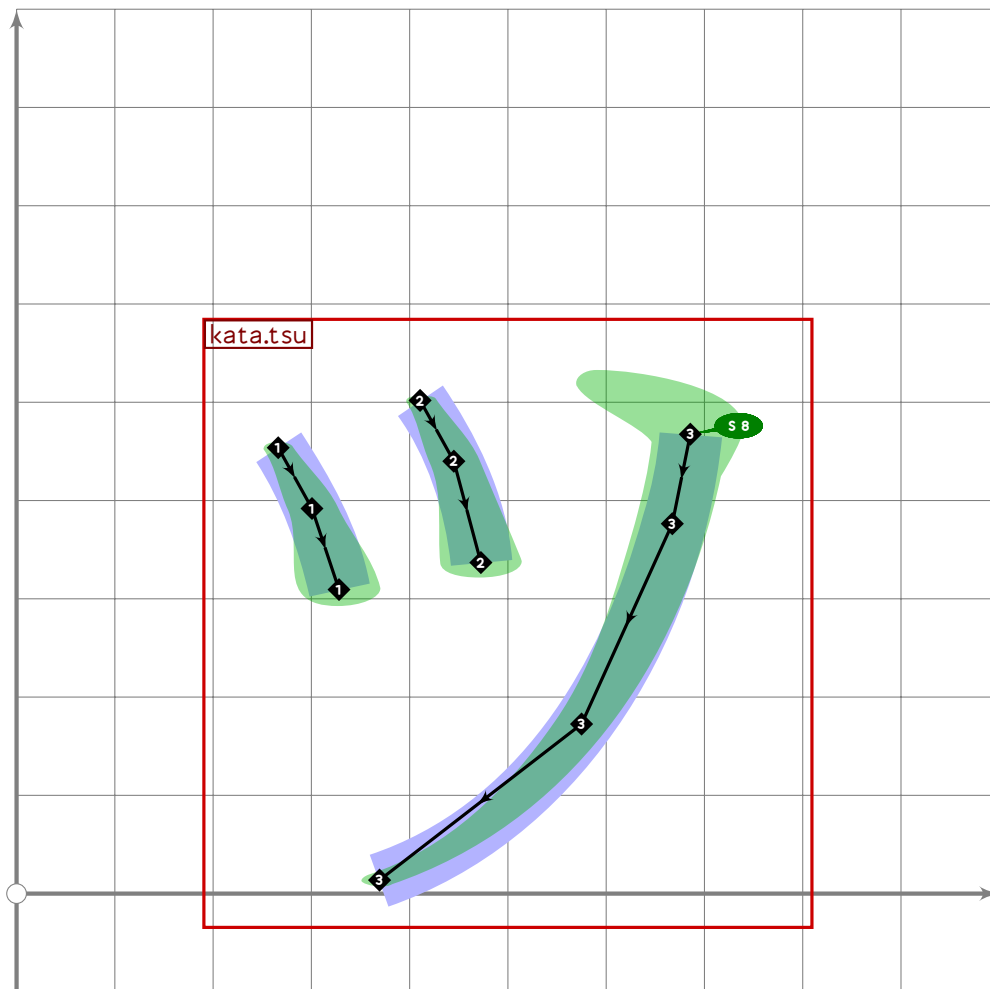




```

1179 % katakana "dji"
1180 begintsuglyph("uni30C2",194);
1181     kata.chi;
1182     dakuten(identity rotated 18 shifted (860,630));
1183     tsu_render;
1184 endtsuglyph;
1185

```

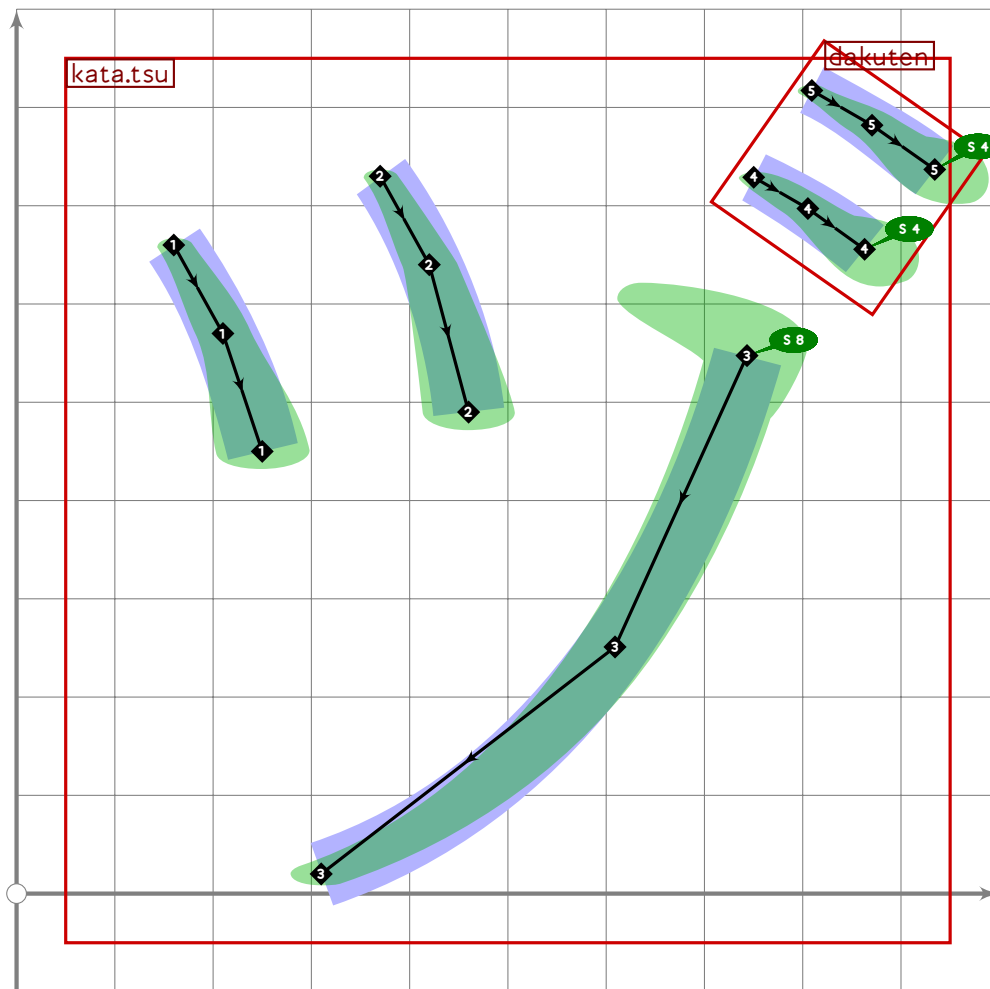


```

1186 % katakana "small tsu"
1187 begintsuglyph("uni30C3";195);
1188   tsu_xform(tsu_xf.smallkana)(kata.tsu);
1189   tsu_render;
1190 endtsuglyph;
1191
1192 % katakana "tsu"
1193 begintsuglyph("uni30C4";196);
1194   kata.tsu;
1195   tsu_render;
1196 endtsuglyph;
1197

```

[see page 226]

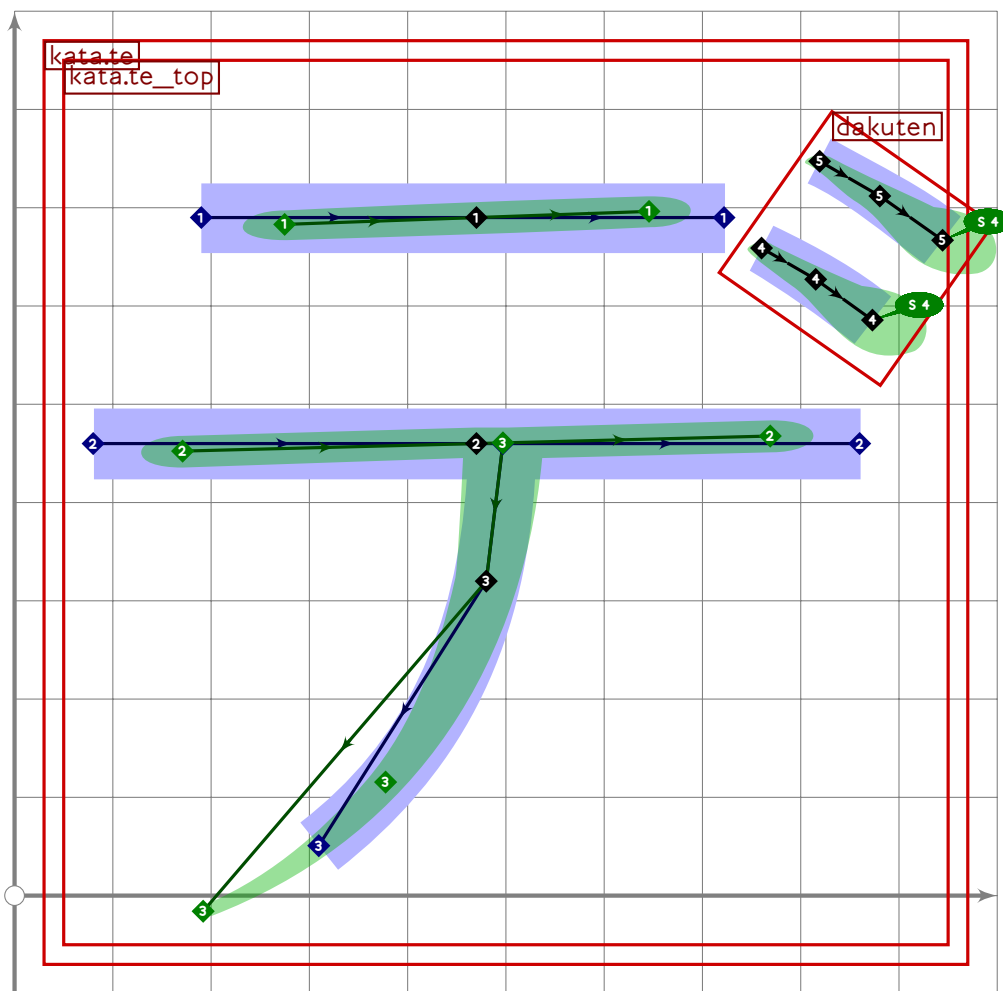


```

1198 % katakana "dzu"
1199 begintsuglyph("uni30C5";197);
1200 kata.tsu;
1201 replace_strokep(0,subpath (1,infinity) of oldp);
1202 dakuten(identity rotated 15 shifted (830,740));
1203 tsu__render;
1204 endtsuglyph;
1205
1206 % katakana "te"
1207 begintsuglyph("uni30C6";198);
1208 kata.te;
1209 tsu__render;
1210 endtsuglyph;
1211

```

[see page 227]

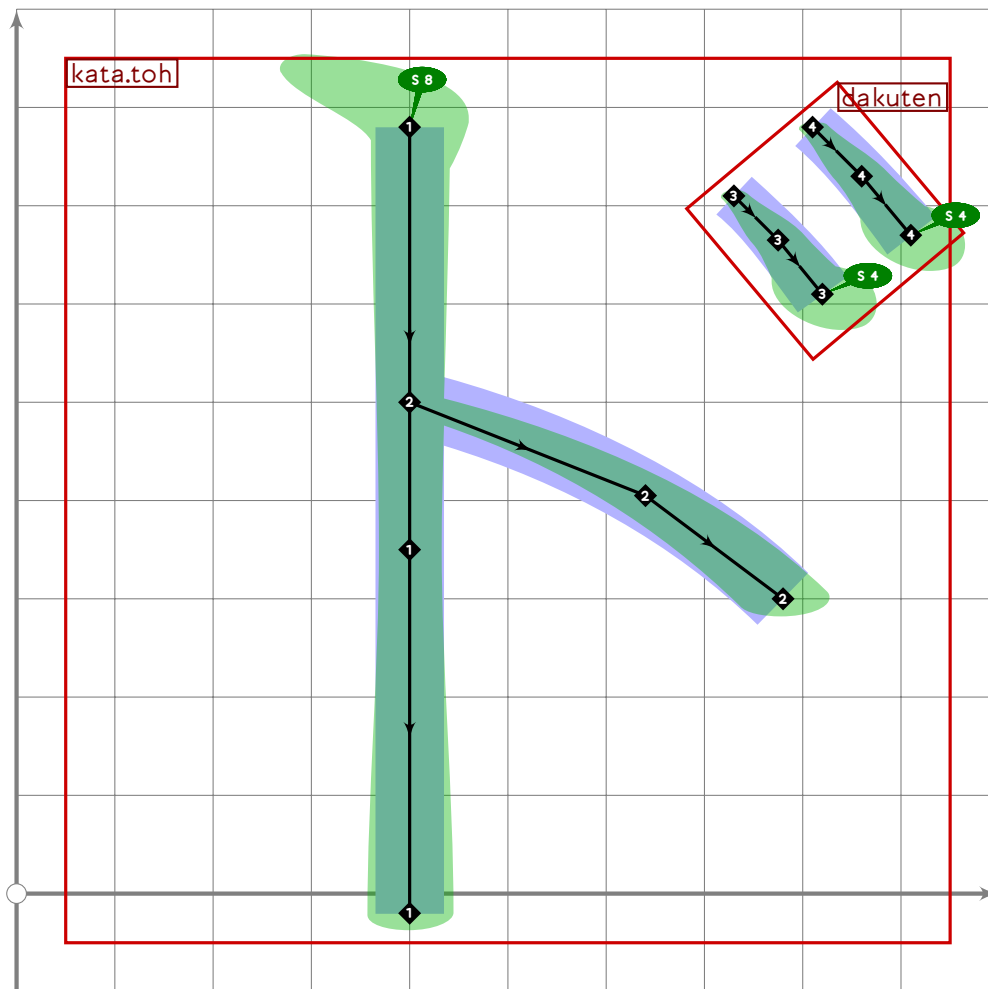


```

1212 % katakana "de"
1213 begintsuglyph("uni30C7";199);
1214   kata.te;
1215   replace_strokep(-2,(subpath (0,19) of oldp) shifted (-30,0));
1216   replace_strokep(-1,oldp shifted (-30,0));
1217   replace_strokep(0,oldp shifted (-30,0));
1218   dakuten(identity rotated 15 shifted (840,670));
1219   tsu_render;
1220 endtsuglyph;
1221
1222 % katakana "to"
1223 begintsuglyph("uni30C8";200);
1224   kata.toh;
1225   tsu_render;
1226 endtsuglyph;
1227

```

[see page 228]



```

1228 % katakana "do"
1229 begintsuglyph("uni30C9";201);
1230 kata.toh;
1231 dakuten(identity shifted (810,700));
1232 tsu_render;
1233 endtsuglyph;
1234
1235 % katakana "na"
1236 begintsuglyph("uni30CA";202);
1237 kata.na;
1238 tsu_render;
1239 endtsuglyph;
1240
1241 % katakana "ni"
1242 begintsuglyph("uni30CB";203);
1243 kata.ni;
1244 tsu_render;
1245 endtsuglyph;
1246
1247 % katakana "nu"
1248 begintsuglyph("uni30CC";204);

```

[see page 229]

[see page 230]

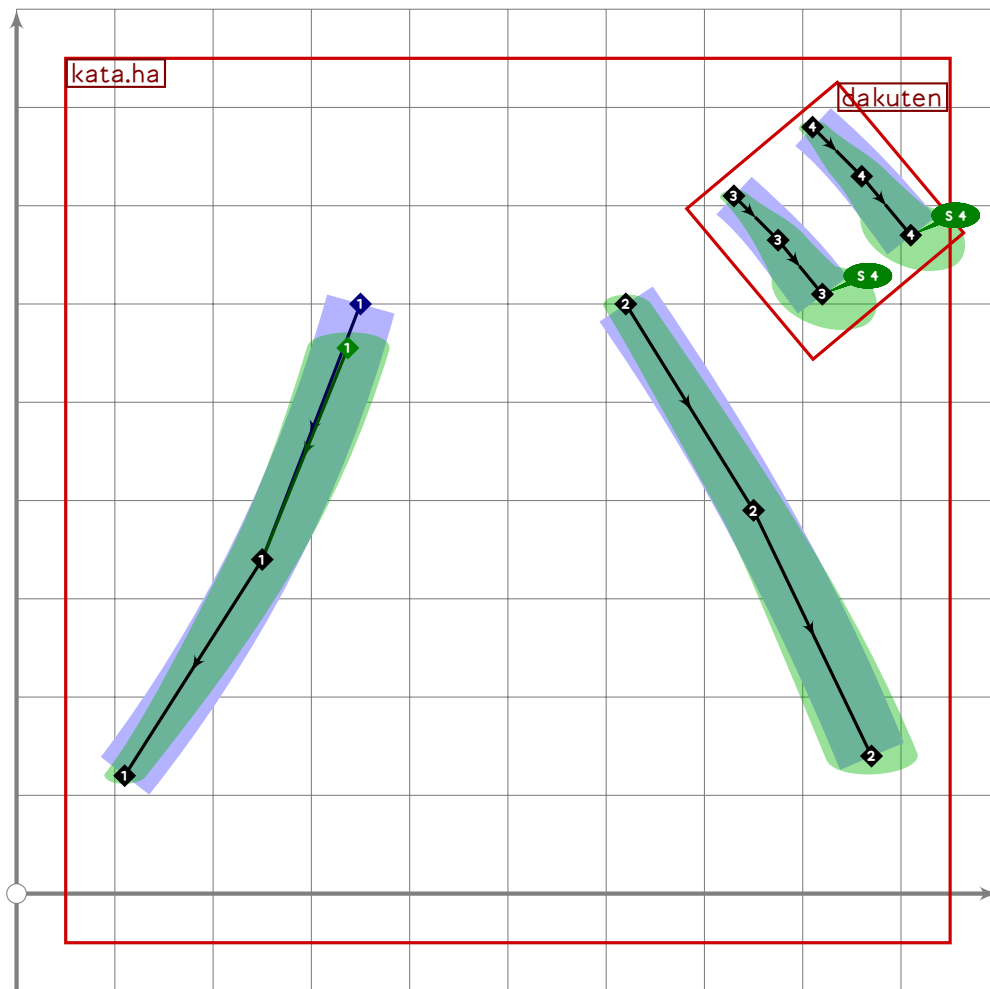
[see page 231]

```
1249 kata.nu;
1250 tsu_render;
1251 endtsuglyph;
1252
1253 % katakana "ne"
1254 begintsuglyph("uni30CD";205);
1255 kata.ne;
1256 tsu_render;
1257 endtsuglyph;
1258
1259 % katakana "no"
1260 begintsuglyph("uni30CE";206);
1261 kata.no;
1262 tsu_render;
1263 endtsuglyph;
1264
1265 % katakan "ha"
1266 begintsuglyph("uni30CF";207);
1267 kata.ha;
1268 tsu_render;
1269 endtsuglyph;
1270
```

[see page 232]

[see page 233]

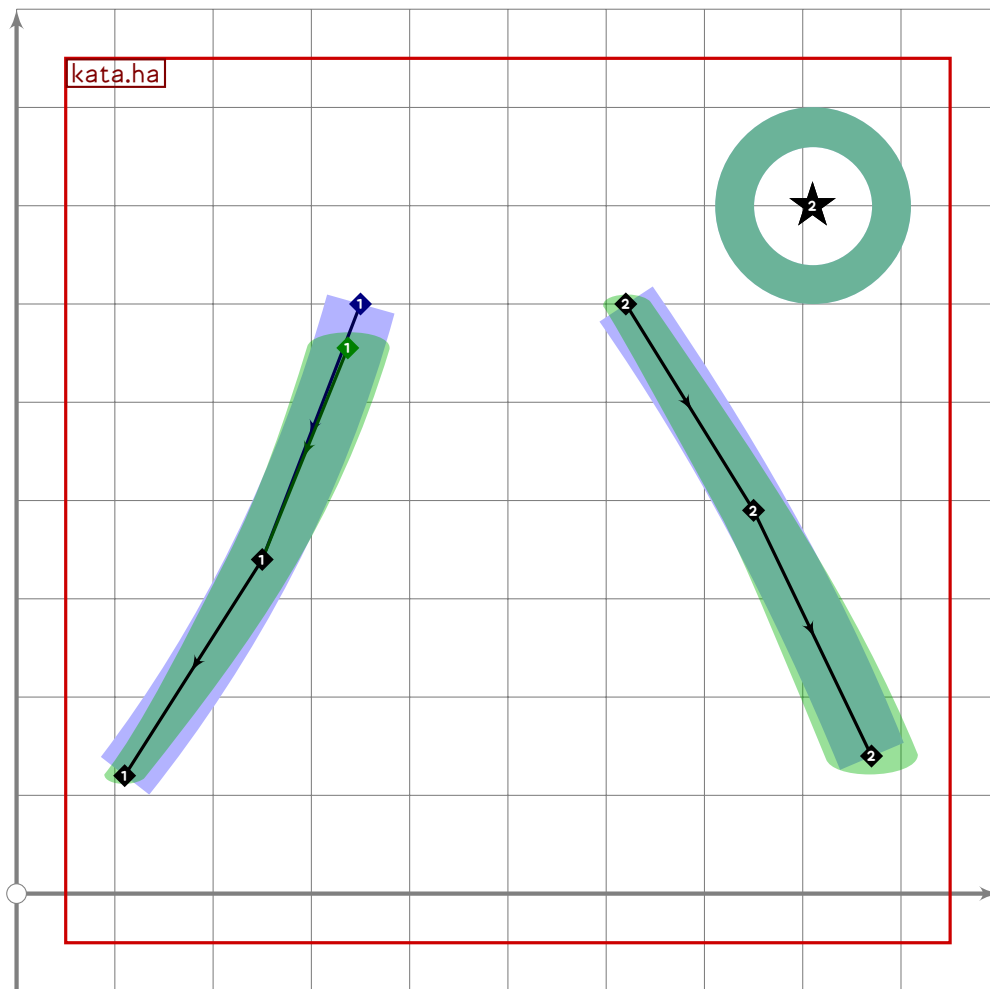
[see page 234]



```

1271 % katakan "ba"
1272 begintsuglyph("uni30D0",208);
1273   kata.ha;
1274   dakuten(identity shifted (810,700));
1275   tsu__render;
1276 endtsuglyph;
1277

```



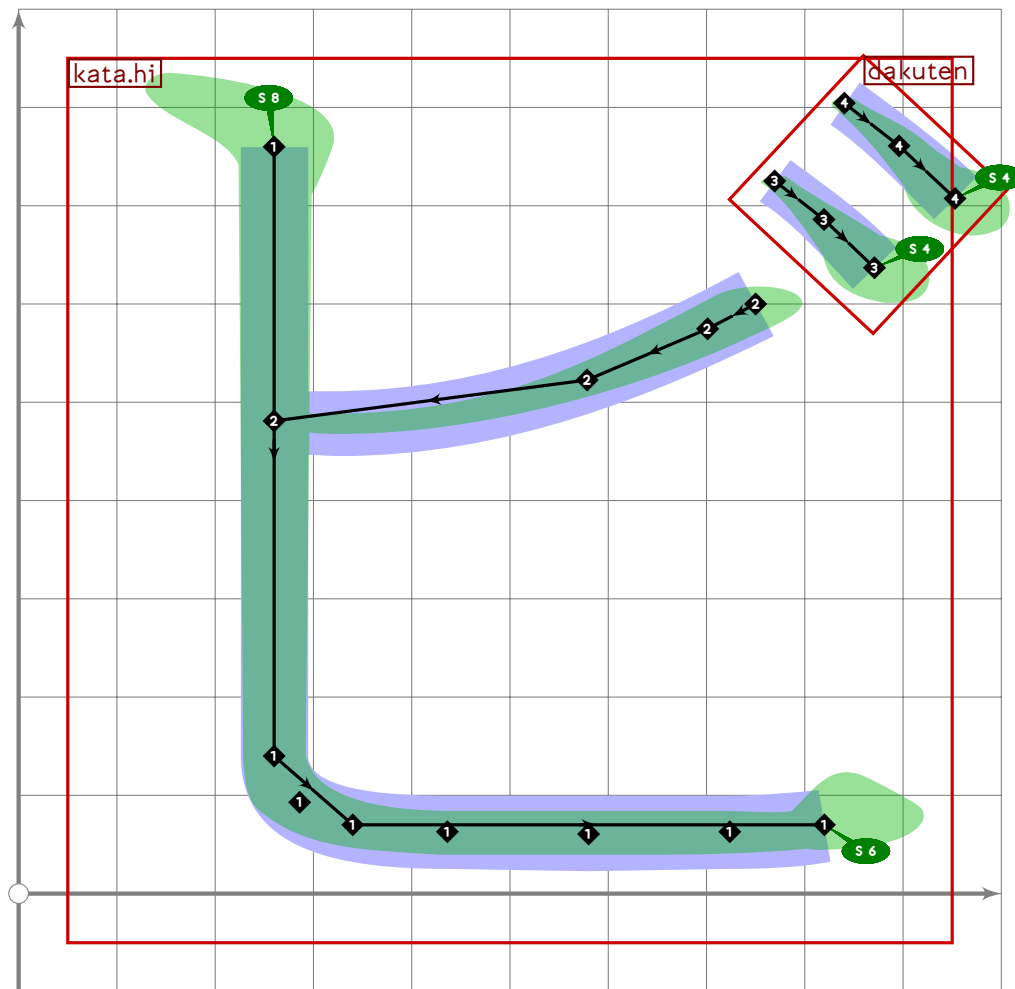
```

1278 % katakan "pa"
1279 begintsuglyph("uni30D1";209);
1280 kata.ha;
1281 handakuten((810,700));
1282 tsu_render;
1283 endtsuglyph;
1284
1285 % katakana "hi"
1286 begintsuglyph("uni30D2";210);
1287 kata.hi;
1288 tsu_render;
1289 endtsuglyph;
1290

```

[see page 235]

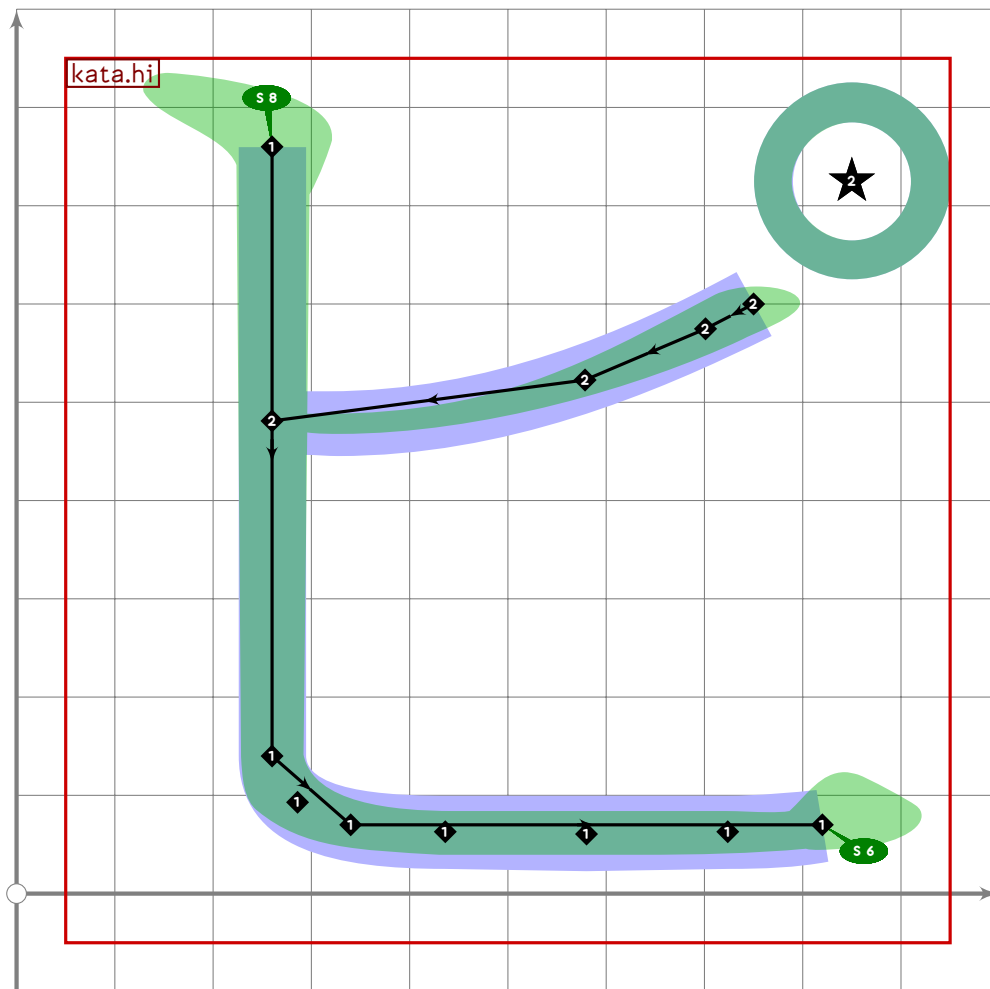




```

1291 % katakana "bi"
1292 begintsuglyph("uni30D3";211);
1293   kata.hi;
1294   dakuten(identity rotated 7 shifted (850,725));
1295   tsu_render;
1296 endtsuglyph;
1297

```

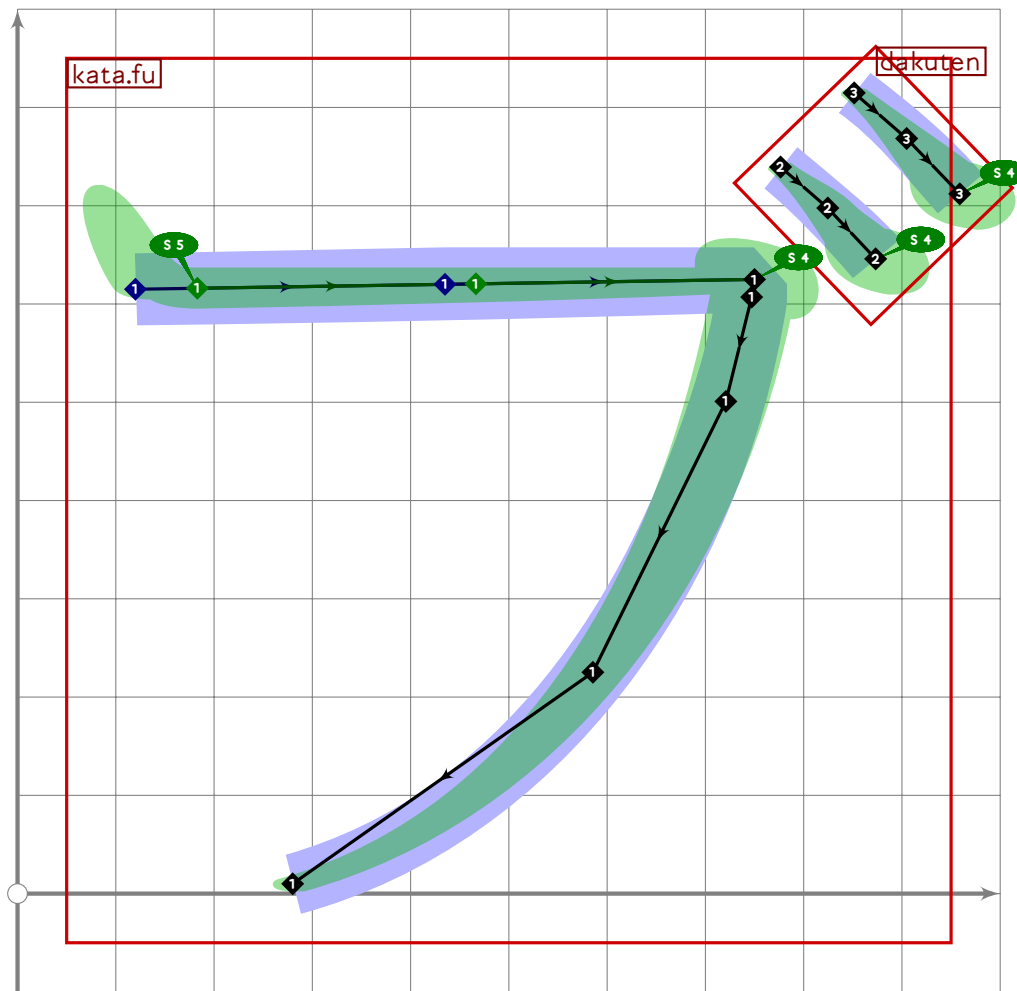


```

1298 % katakana "pi"
1299 begintsuglyph("uni30D4";212);
1300 kata.hi;
1301 handakuten((850,725));
1302 tsu_render;
1303 endtsuglyph;
1304
1305 % katakana "fu"
1306 begintsuglyph("uni30D5";213);
1307 kata.fu;
1308 tsu_render;
1309 endtsuglyph;
1310

```

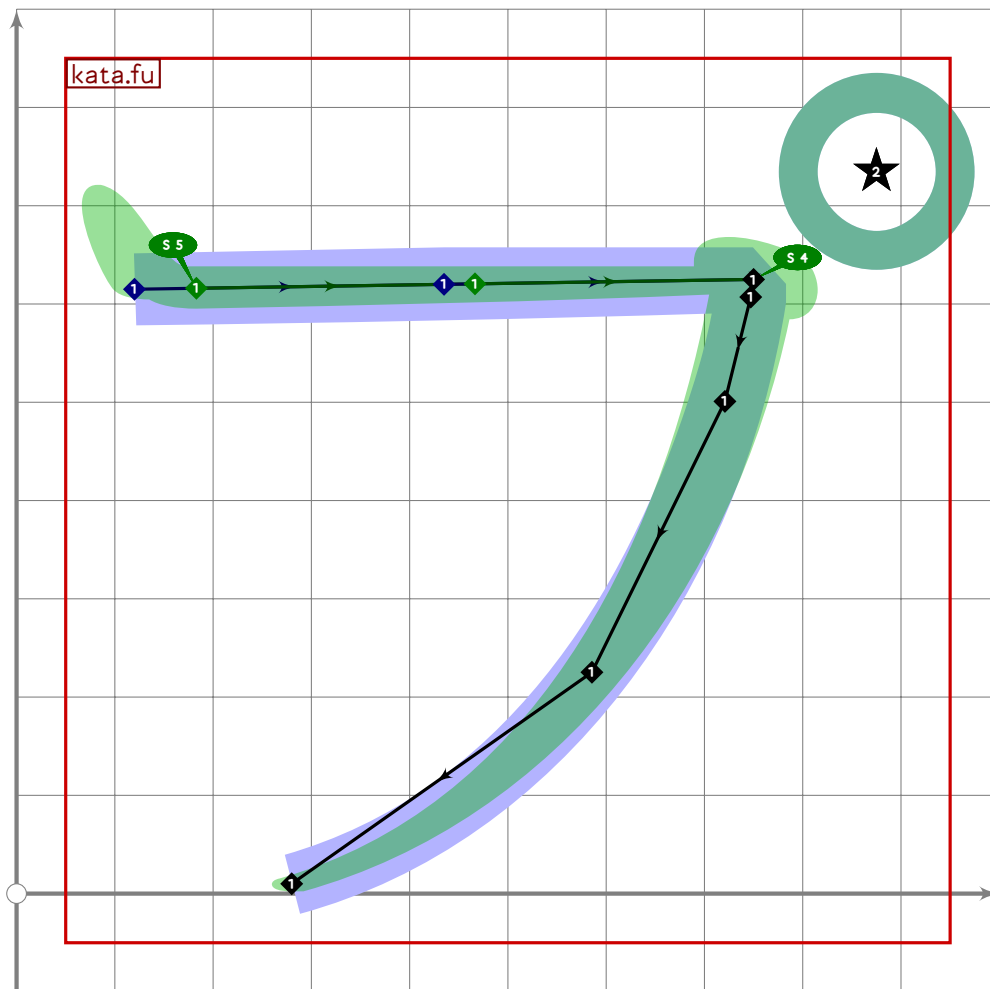
[see page 236]



```

1311 % katakana "bu"
1312 begintsuglyph("uni30D6";214);
1313   kata.fu;
1314   replace_strokep(0,oldp shifted (-40,-10));
1315   dakuten(identity rotated 4 shifted (857,35));
1316   tsu_render;
1317 endtsuglyph;
1318

```

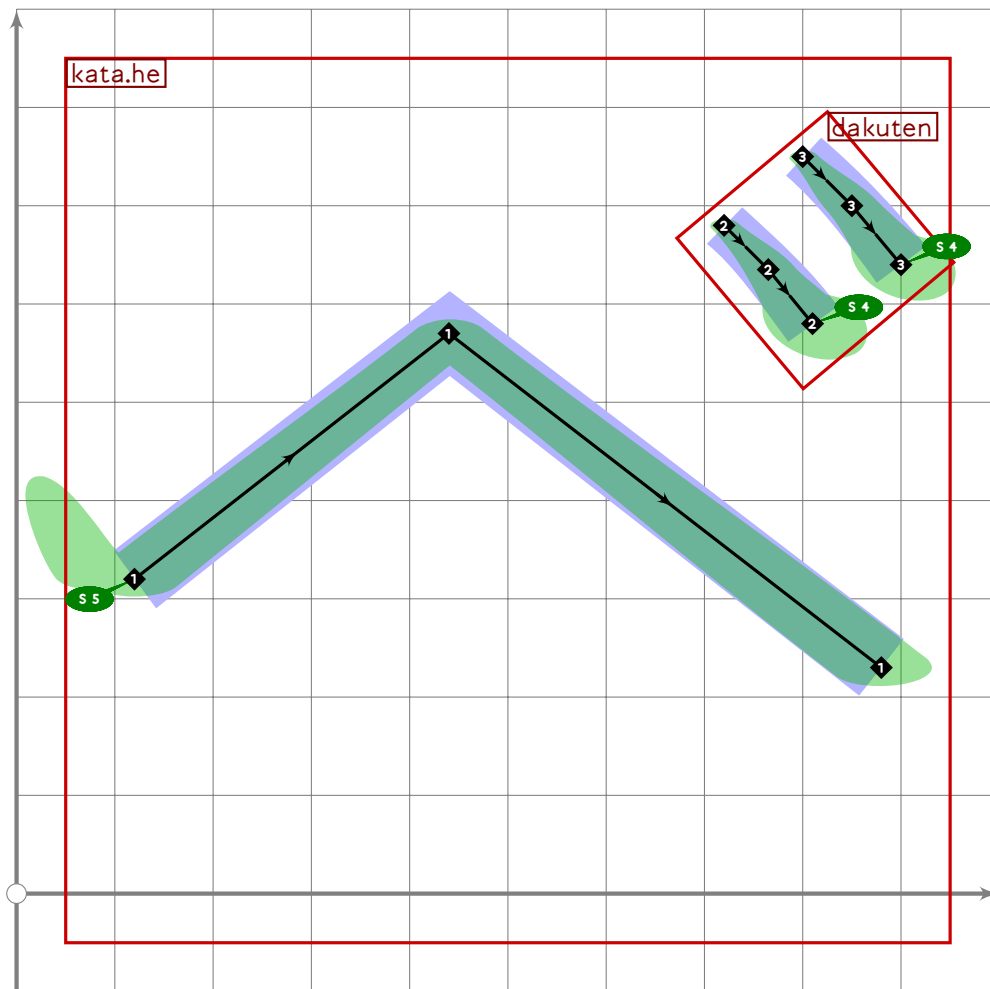


```

1319 % katakana "pu"
1320 begintsuglyph("uni30D7";215);
1321 kata.fu;
1322 replace_strokep(0,oldp shifted (-40,-10));
1323 handakuten((875,735));
1324 tsu_render;
1325 endtsuglyph;
1326
1327 % katakana "he"
1328 begintsuglyph("uni30D8";216);
1329 kata.he;
1330 tsu_render;
1331 endtsuglyph;
1332

```

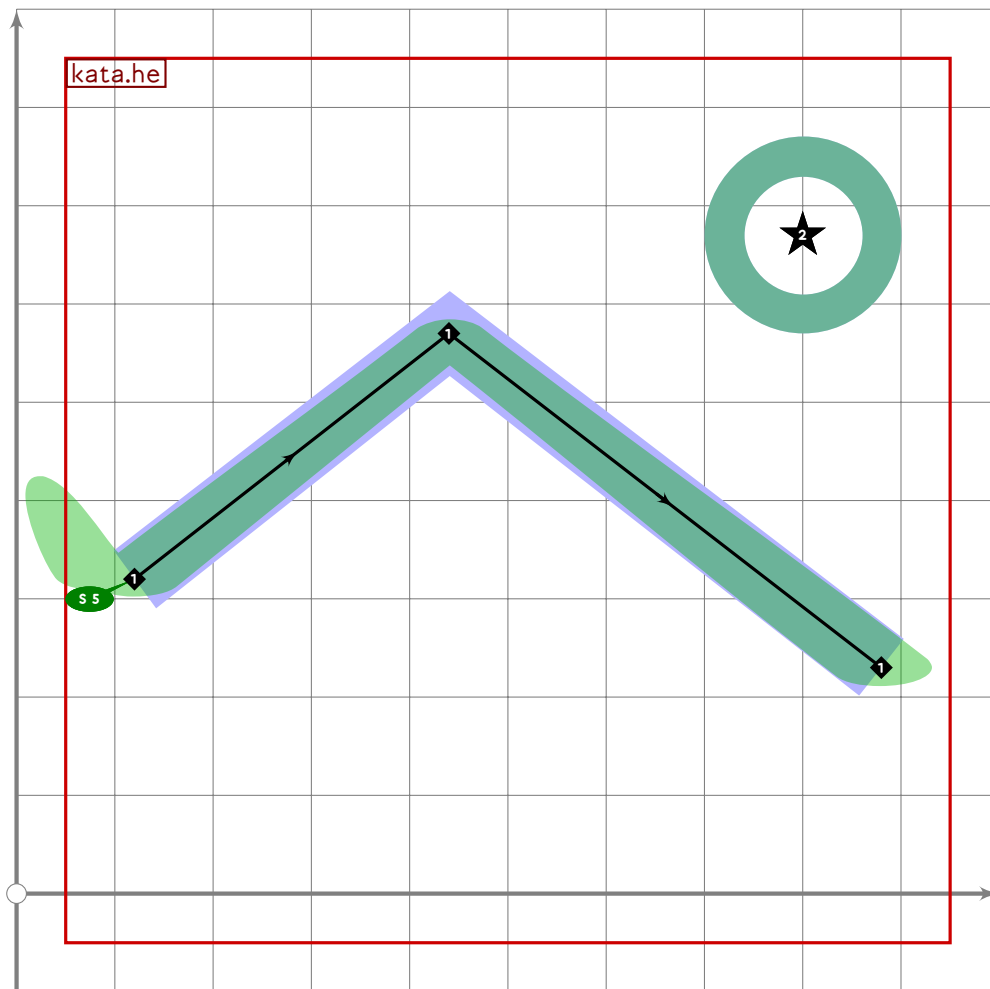
[see page 237]



```

1333 % katakana "be"
1334 begintsuglyph("uni30D9";217);
1335   kata.he;
1336   dakuten(identity shifted (800,670));
1337   tsu_render;
1338 endtsuglyph;
1339

```

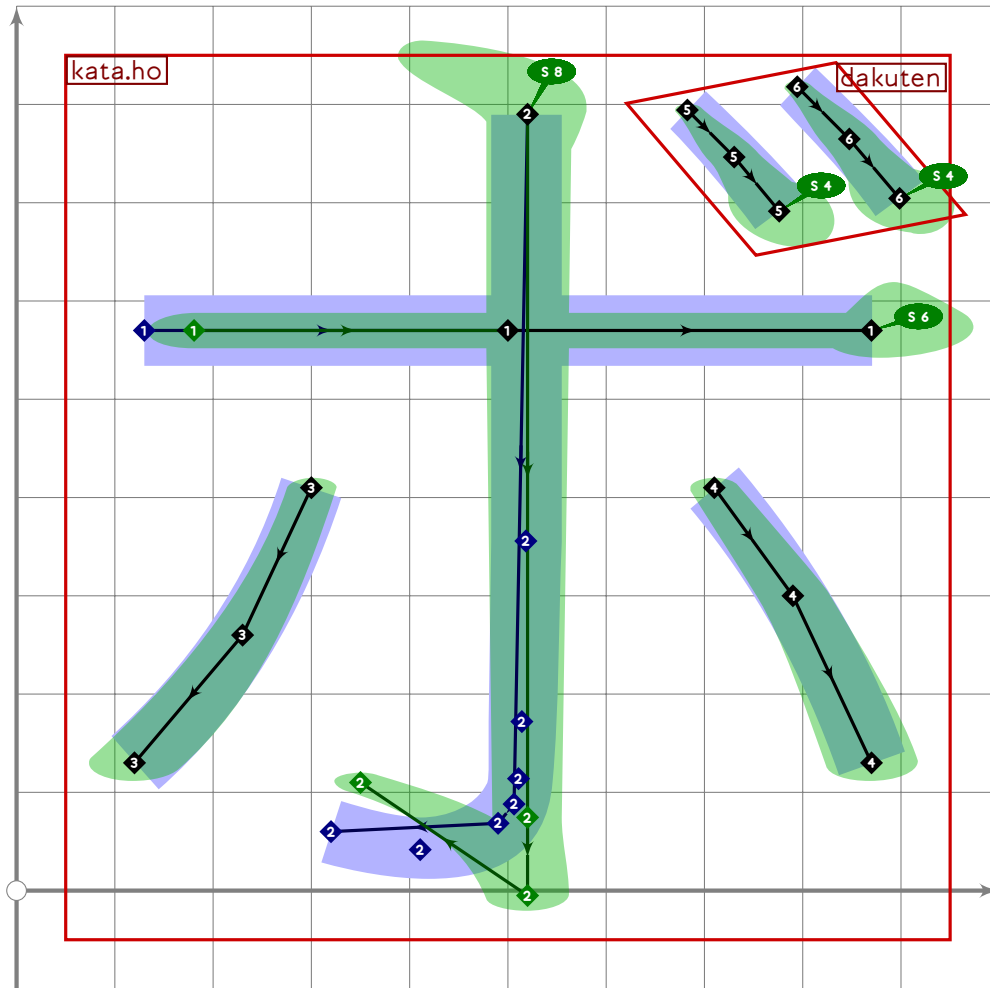


```

1340 % katakana "pe"
1341 begintsuglyph("uni30DA";218);
1342 kata.he;
1343 handakuten((800,670));
1344 tsu_render;
1345 endtsuglyph;
1346
1347 % katakana "ho"
1348 begintsuglyph("uni30DB";219);
1349 kata.ho;
1350 tsu_render;
1351 endtsuglyph;
1352

```

[see page 238]



```

1353 % katakana "bo"
1354 begintsuglyph("uni30DC";220);
1355   kata.ho;
1356   dakuten(identity
1357     rotated -25 slanted -0.3 xyscaled (1.2,0.8) shifted (780,760));
1358   tsu_render;
1359 endtsuglyph;
1360

```



[see page 241]



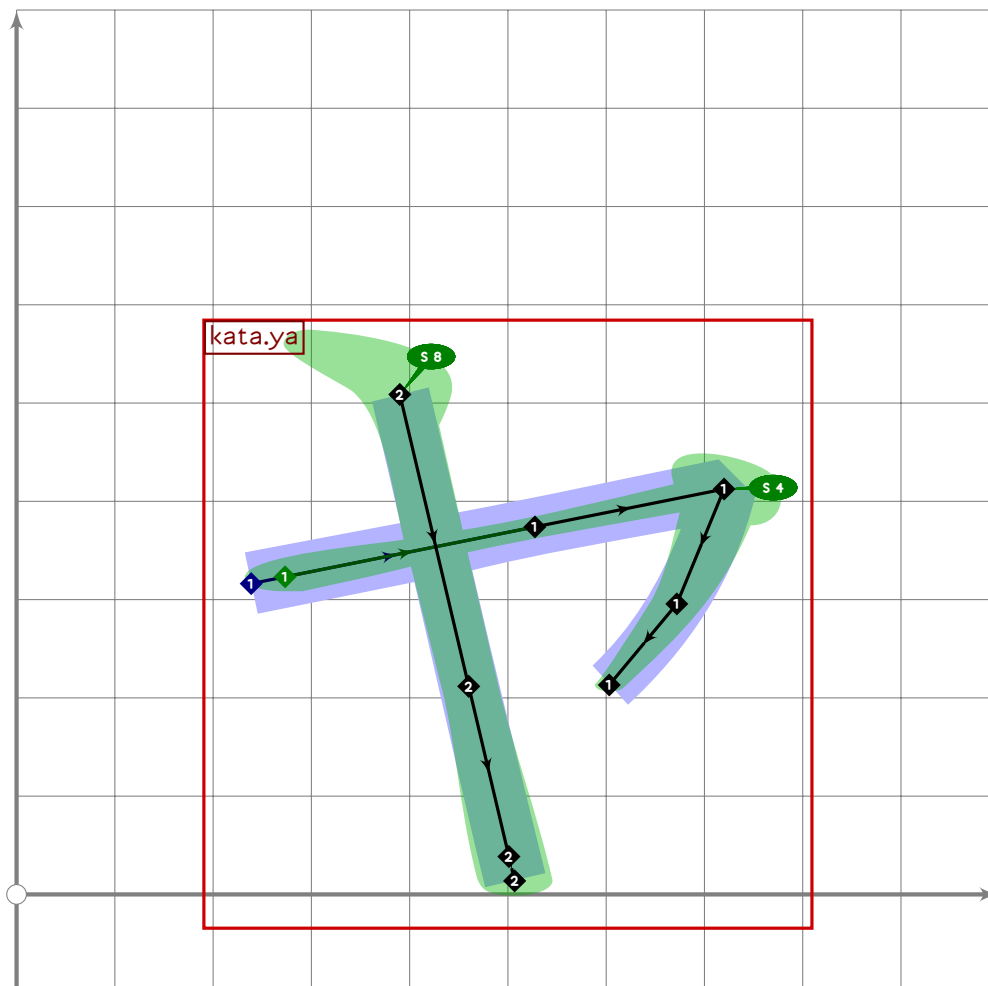
```

1382 kata.mu;
1383 tsu_render;
1384 endtsuglyph;
1385
1386 % katakana "me"
1387 begintsuglyph("uni30E1",225);
1388 kata.me;
1389 tsu_render;
1390 endtsuglyph;
1391
1392 % katakana "mo"
1393 begintsuglyph("uni30E2",226);
1394 kata.mo;
1395 tsu_render;
1396 endtsuglyph;
1397

```

[see page 242]

[see page 243]



```

1398 % katakana "small ya"
1399 begintsuglyph("uni30E3",227);
1400 tsu_xform(tsu_xf.smallkana)(kata.ya);
1401 tsu_render;
1402 endtsuglyph;

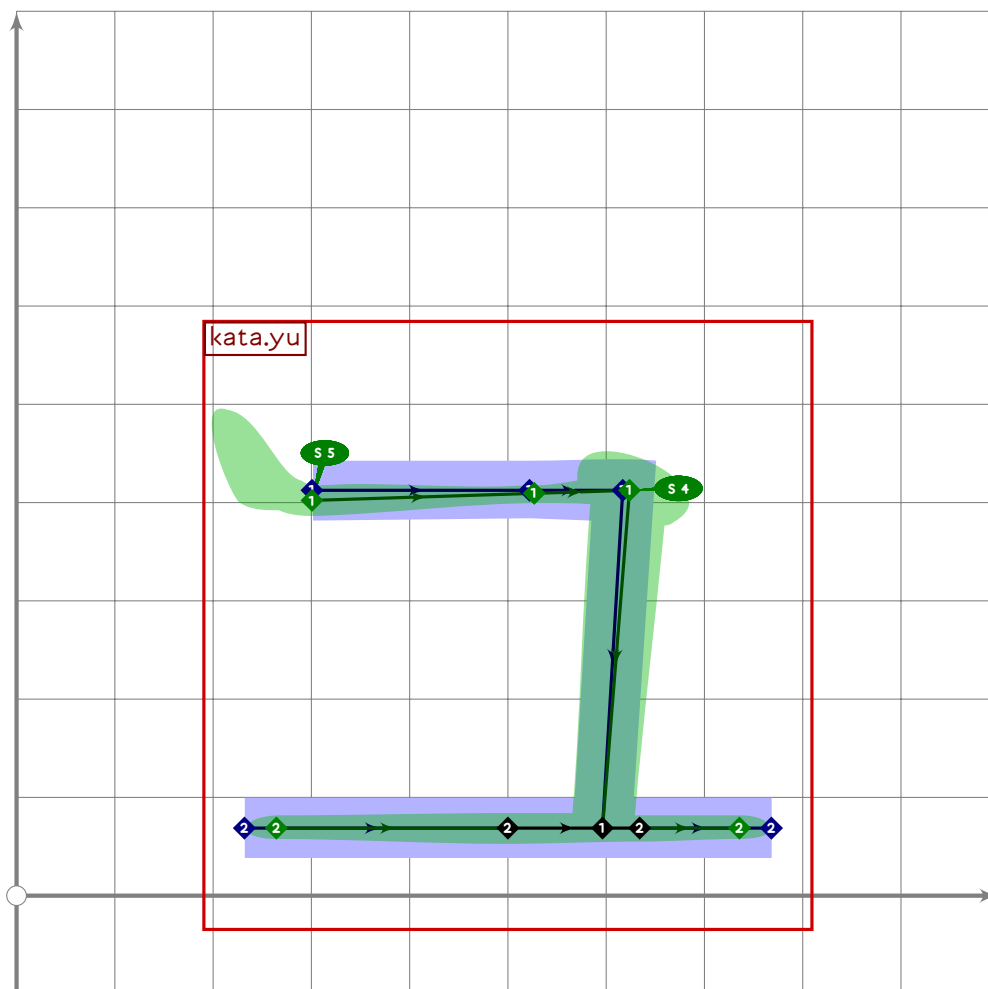
```

```

1403
1404 % katakana "ya"
1405 begintsuglyph("uni30E4",228);
1406   kata.ya;
1407   tsu_render;
1408 endtsuglyph;
1409

```

[see page 244]

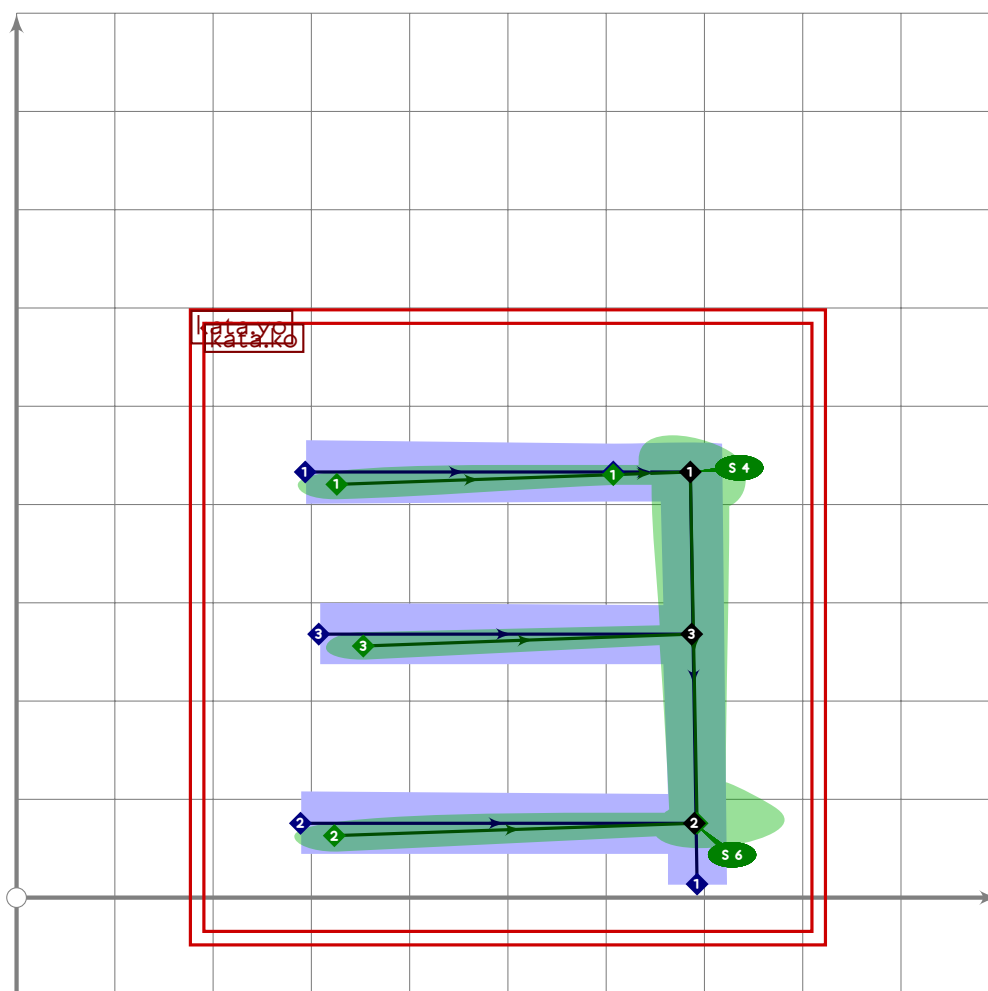


```

1410 % katakana "small yu"
1411 begintsuglyph("uni30E5",229);
1412   tsu_xform(tsu_xf.smallkana)(kata.yu);
1413   tsu_render;
1414 endtsuglyph;
1415
1416 % katakana "yu"
1417 begintsuglyph("uni30E6",230);
1418   kata.yu;
1419   tsu_render;
1420 endtsuglyph;
1421

```

[see page 245]



```

1422 % katakana "small yo"
1423 begintsuglyph("uni30E7";231);
1424 tsu_xform(tsu_xf.smallkana)(kata.yo);
1425 tsu_render;
1426 endtsuglyph;
1427
1428 % katakana "yo"
1429 begintsuglyph("uni30E8";232);
1430 kata.yo;
1431 tsu_render;
1432 endtsuglyph;
1433
1434 % katakana "ra"
1435 begintsuglyph("uni30E9";233);
1436 kata.ra;
1437 tsu_render;
1438 endtsuglyph;
1439
1440 % katakana "ri"
1441 begintsuglyph("uni30EA";234);
1442 kata.ri;

```

[see page 246]

[see page 247]

[see page 248]

```

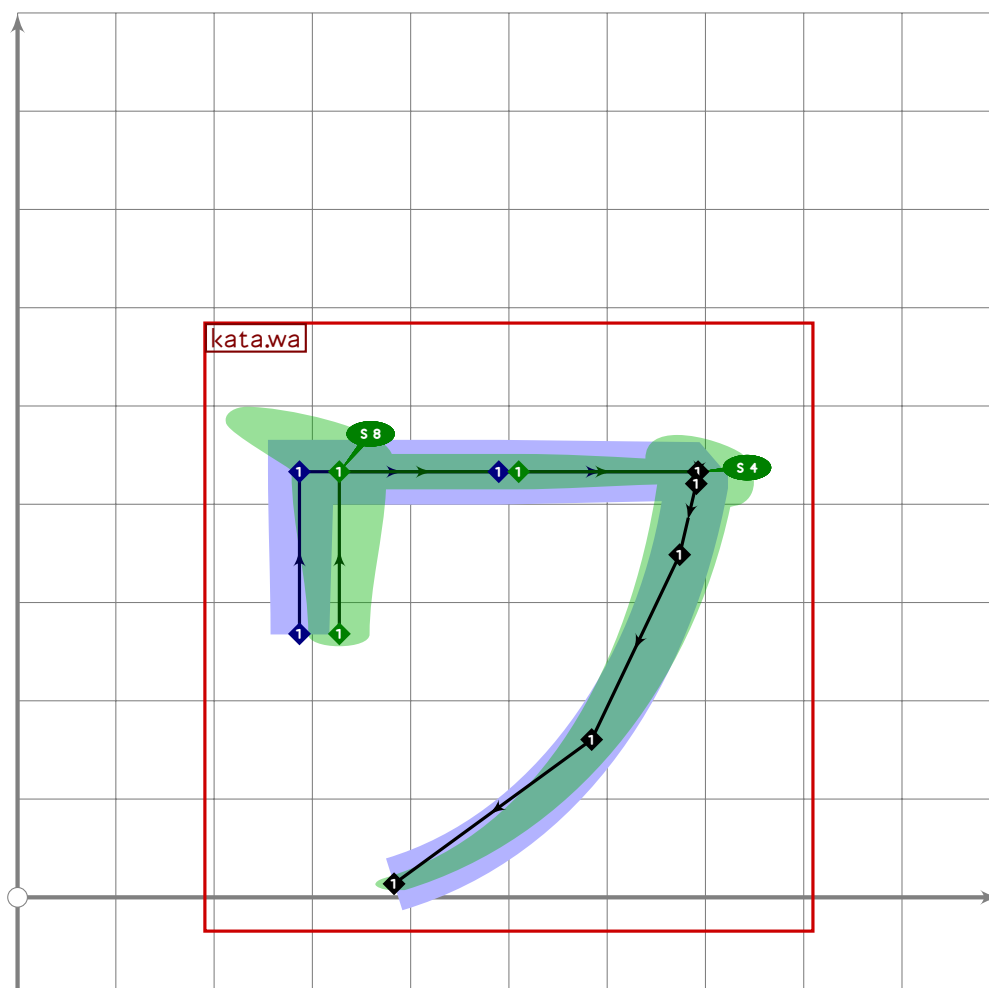
1443   tsu_render;
1444 endtsuglyph;
1445
1446 % katakana "ru"
1447 begintsuglyph("uni30EB";235);
1448   kata.ru;
1449   tsu_render;
1450 endtsuglyph;
1451
1452 % katakana "re"
1453 begintsuglyph("uni30EC";236);
1454   kata.re;
1455   tsu_render;
1456 endtsuglyph;
1457
1458 % katakana "ro"
1459 begintsuglyph("uni30ED";237);
1460   kata.ro;
1461   tsu_render;
1462 endtsuglyph;
1463

```

[see page 249]

[see page 250]

[see page 251]



```

1464 % katakana "small wa"
1465 begintsuglyph("uni30EE";238);
1466   tsu_xform(tsu_xf.smallkana)(kata.wa);
1467   tsu_render;
1468 endtsuglyph;
1469
1470 % katakana "wa"
1471 begintsuglyph("uni30EF";239);
1472   kata.wa;
1473   tsu_render;
1474 endtsuglyph;
1475
1476 % katakana "wi"
1477 begintsuglyph("uni30F0";240);
1478   kata.wi;
1479   tsu_render;
1480 endtsuglyph;
1481
1482 % katakana "we"
1483 begintsuglyph("uni30F1";241);
1484   kata.we;
1485   tsu_render;
1486 endtsuglyph;
1487
1488 % katakana "wo"
1489 begintsuglyph("uni30F2";242);
1490   kata.wo;
1491   tsu_render;
1492 endtsuglyph;
1493
1494 % katakana "n"
1495 begintsuglyph("uni30F3";243);
1496   kata.n;
1497   tsu_render;
1498 endtsuglyph;
1499

```

[see page 252]

[see page 253]

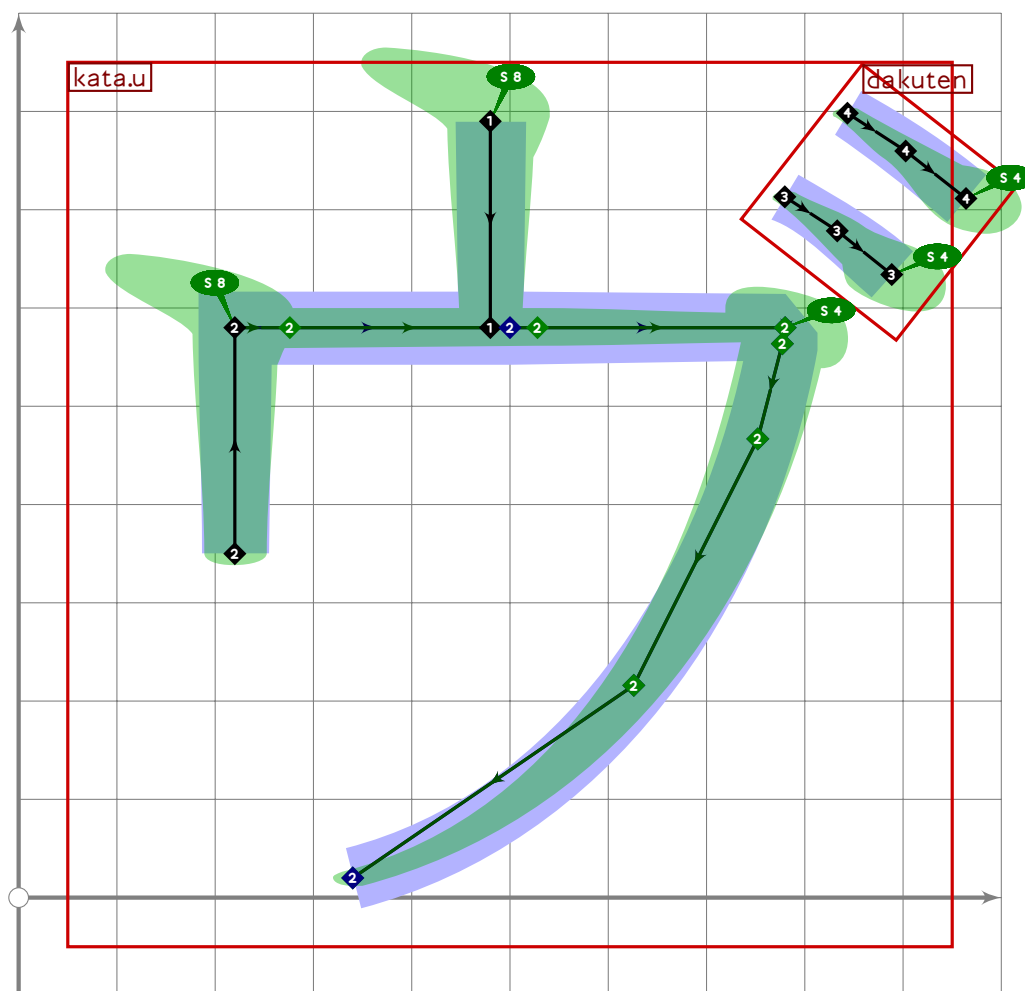
[see page 254]

[see page 255]

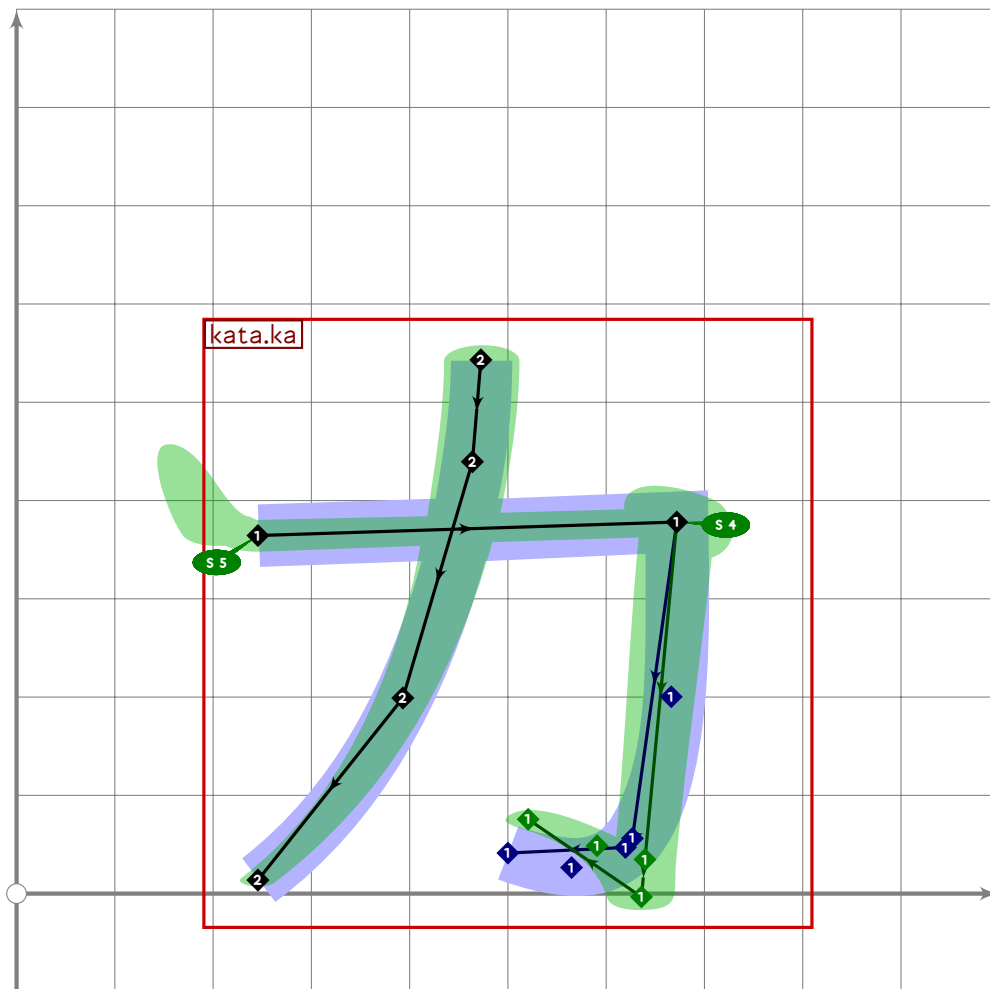
[see page 256]

U+30F4  
tsuku.uni30F4

30



```
1500 % katakana "vu"
1501 begintsuglyph("uni30F4",244);
1502   kata.u;
1503   dakuten(identity rotated 12 shifted (860,720));
1504   tsu_render;
1505 endtsuglyph;
1506
```



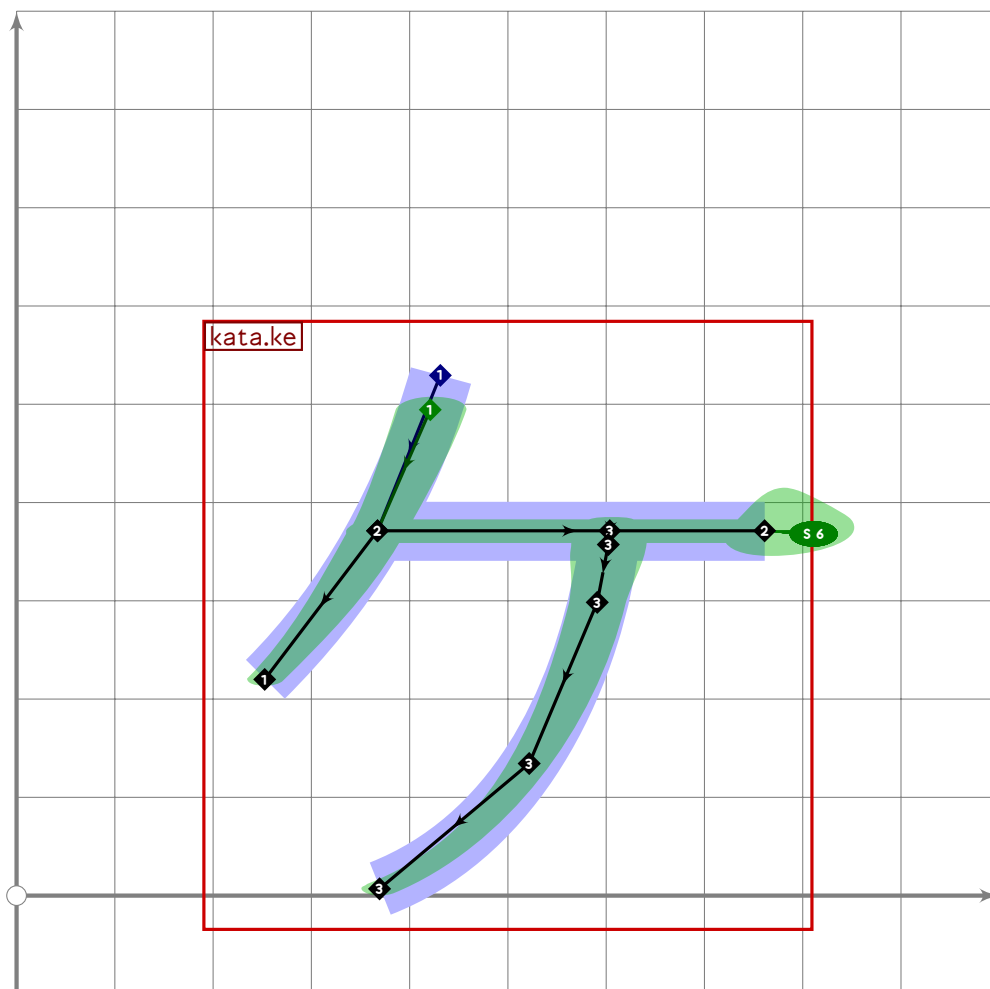
```

1507 % katakana "small ka"
1508 begint Suglyph("uni30F5",245);
1509   tsu_xform(tsu_xf.smallkana)(kata.ka);
1510   tsu_render;
1511 endtsuglyph;
1512

```

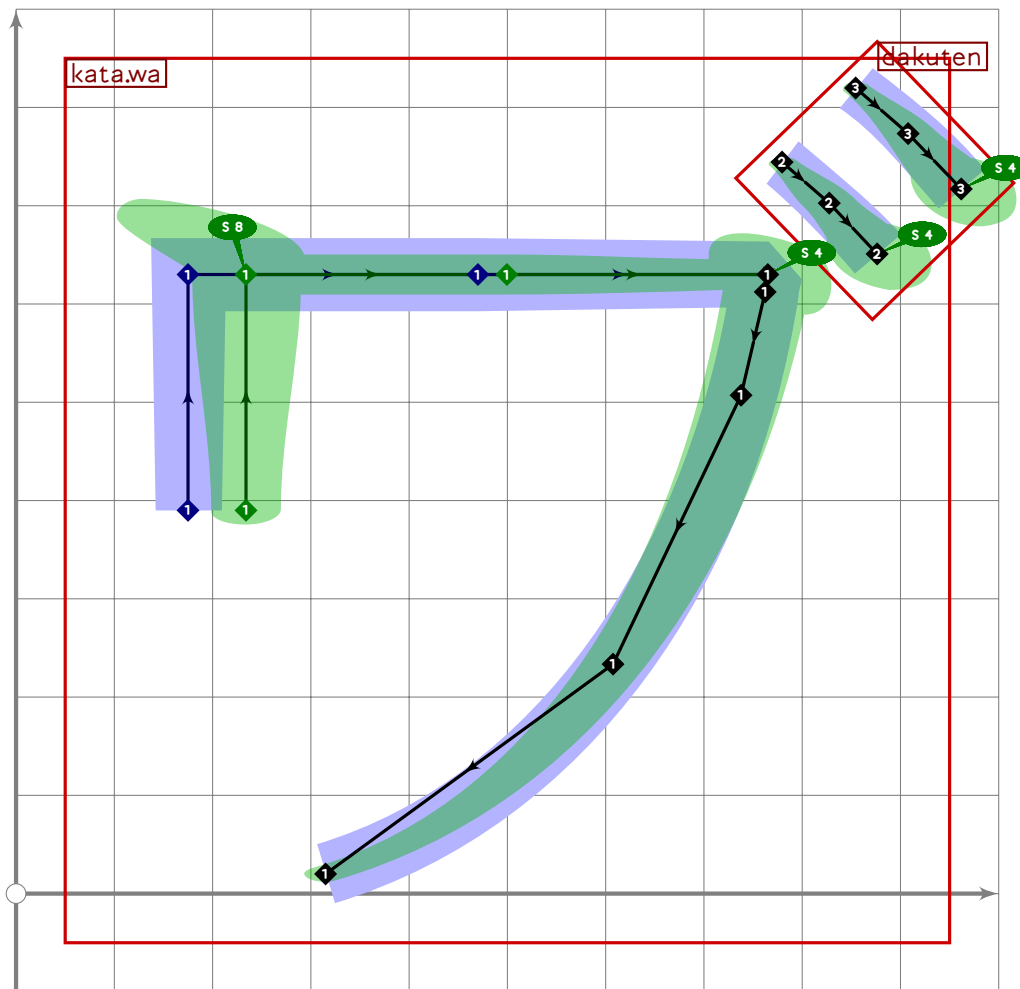
U+30F6  
tsuku.uni30F6

30



```
1513 % katakana "small ke"
1514 beginsuglyph("uni30F6";246);
1515   tsu_xform(tsu_xf.smallkana)(kata.ke);
1516   tsu_render;
1517 endsuglyph;
1518
```





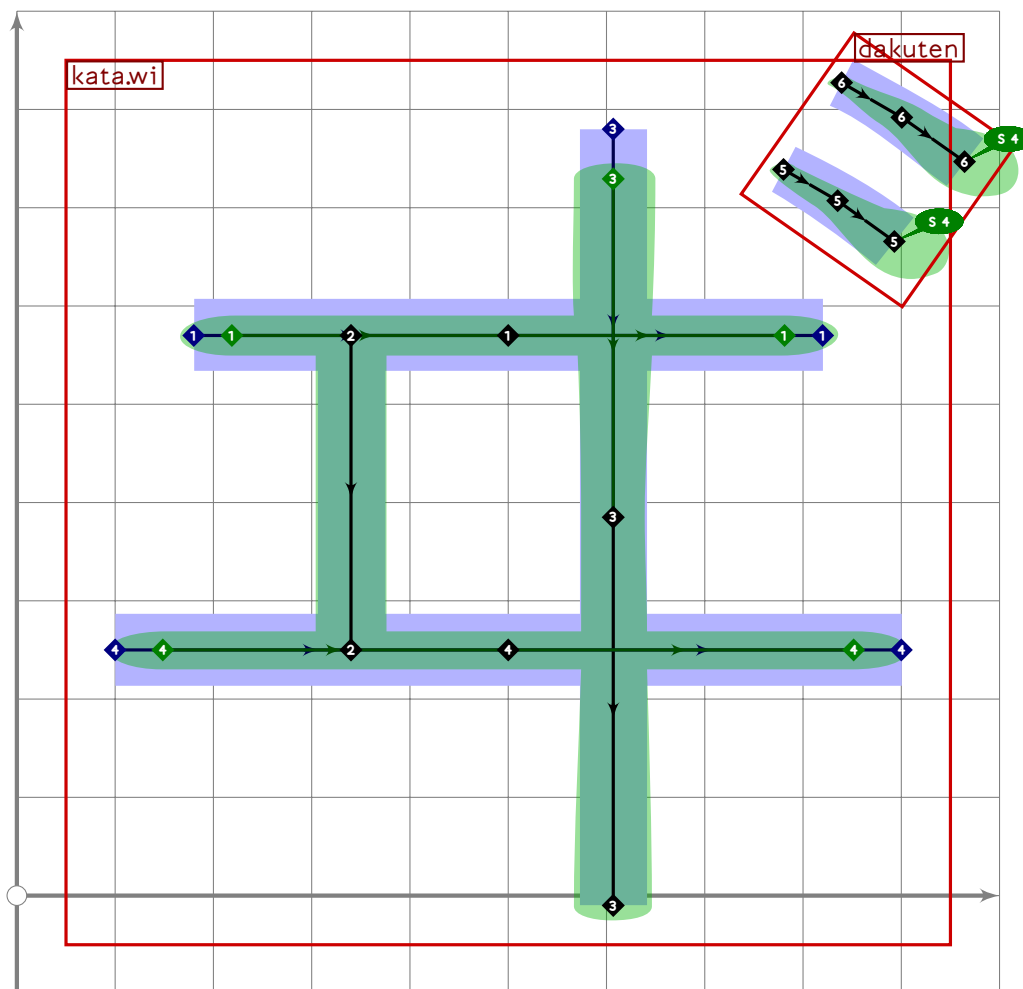
```

1519 % katakana "va"
1520 begintsuglyph("uni30F7";247);
1521   kata.wa;
1522   replace_strokep(0,oldp shifted (-15,0));
1523   dakuten(identity rotated 4 shifted (860,740));
1524   tsu_render;
1525 endtsuglyph;
1526

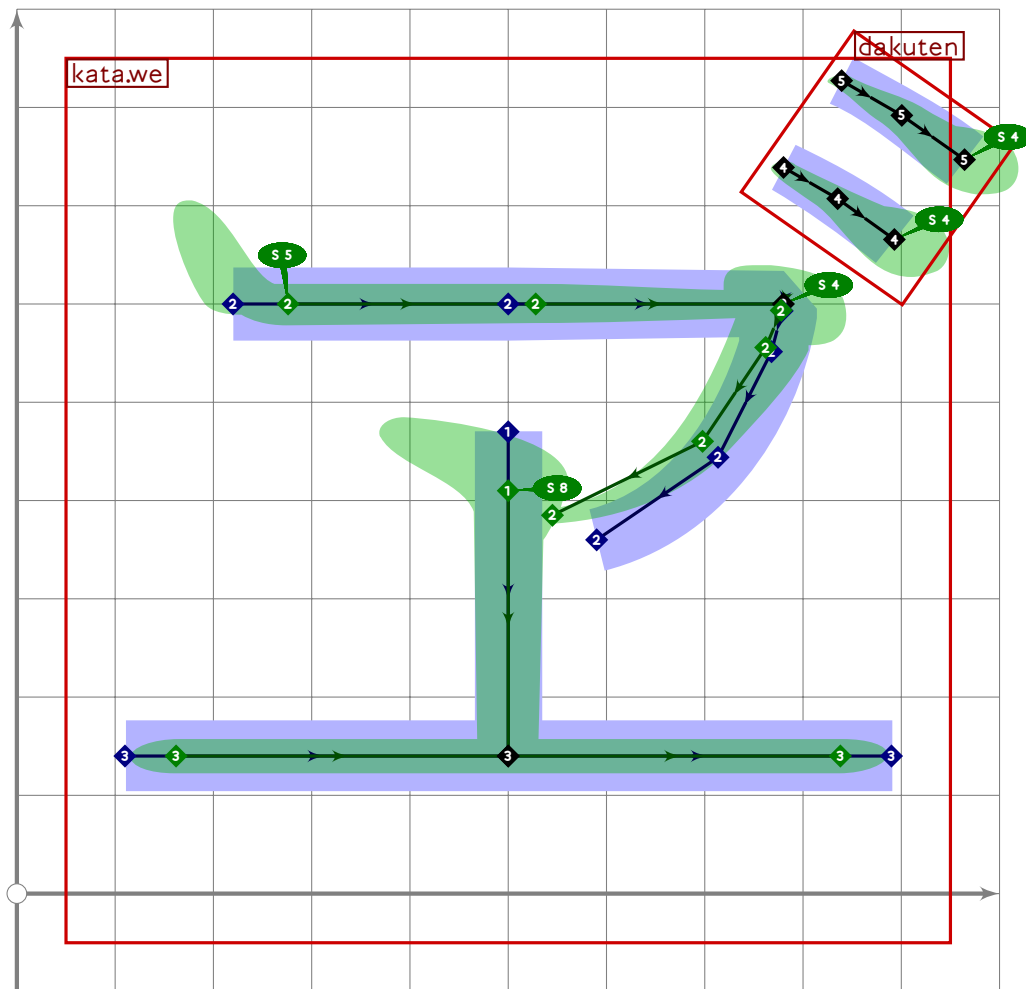
```

U+30F8  
tsuku.uni30F8

30



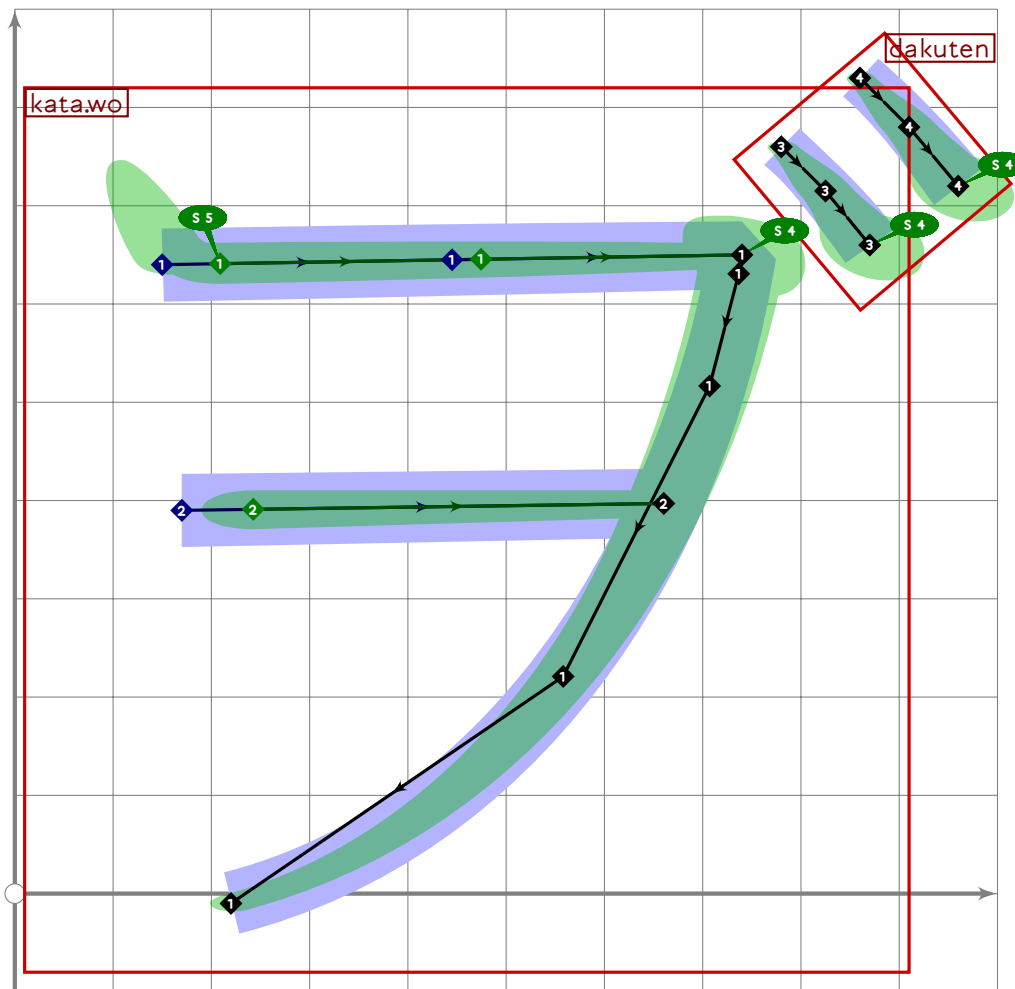
```
1527 % katakana "vi"  
1528 begintsuglyph("uni30F8",248);  
1529 kata.wi;  
1530 dakuten(identity rotated 15 shifted (860,750));  
1531 tsu_render;  
1532 endtsuglyph;  
1533
```



```

1534 % katakana "ve"
1535 begintsuglyph("uni30F9",249);
1536   kata.we;
1537   dakuten(identity rotated 15 shifted (860,750));
1538   tsu_render;
1539 endtsuglyph;
1540

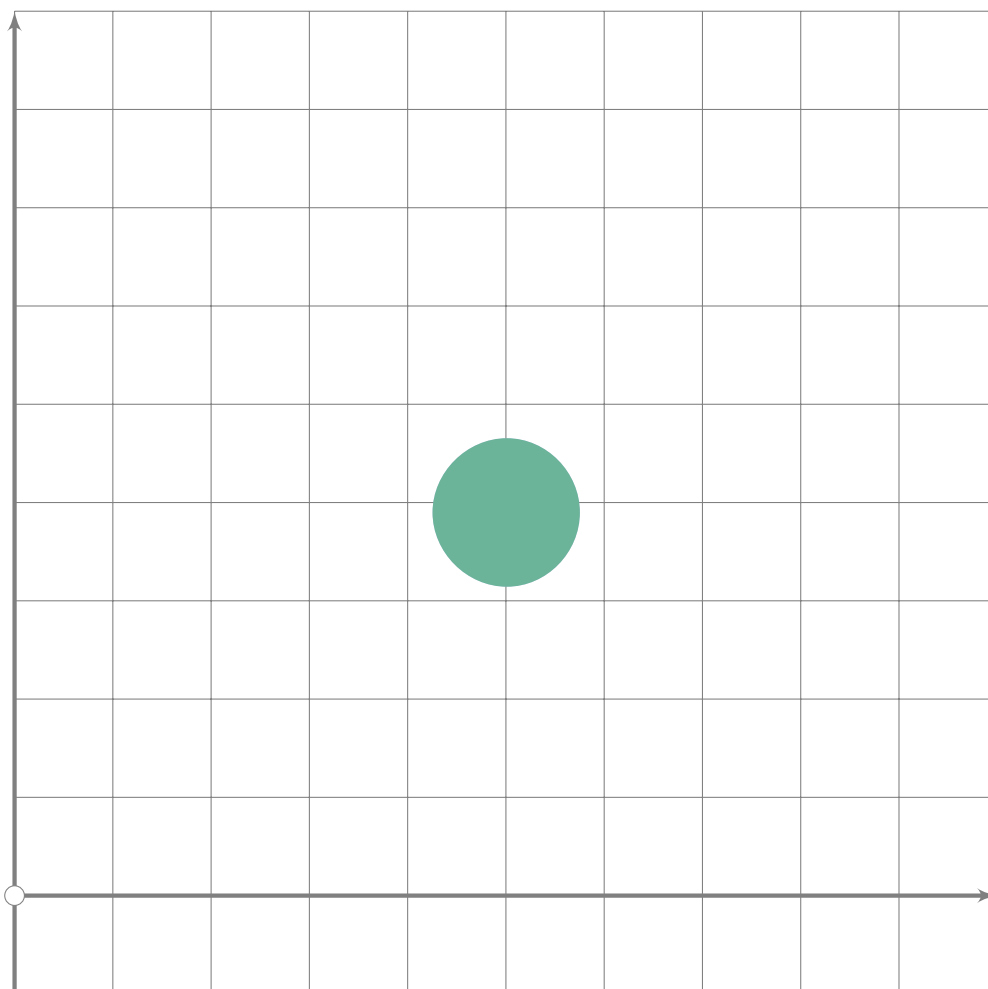
```



```

1541 % katakana "vo"
1542 begintsuglyph("uni30FA";250);
1543 tsu_xform(identity shifted (-40,30))(kata.wo);
1544 dakuten(identity shifted (860,750));
1545 tsu_render;
1546 endtsuglyph;
1547

```



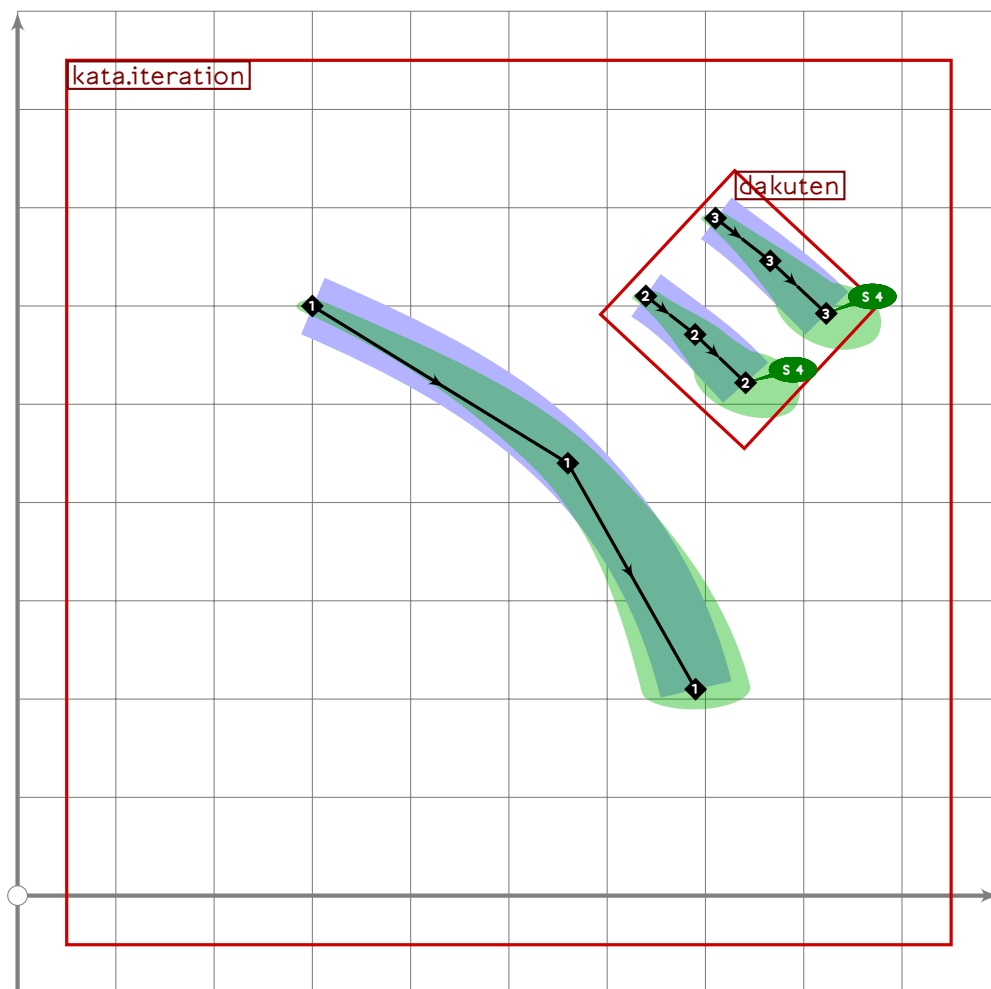
```

1548 % katakana middle dot
1549 beginsuglyph("uni30FB";251);
1550   Fill fullcircle scaled (200*tsu_brush_max) shifted centre_pt;
1551 endtsuglyph;
1552
1553 % hira/kata "prolonged sound mark"
1554 beginsuglyph("uni30FC";252);
1555   punct.psound;
1556   tsu_render;
1557 endtsuglyph;
1558
1559 % katakana "iteration mark"
1560 beginsuglyph("uni30FD";253);
1561   kata.iteration;
1562   tsu_render;
1563 endtsuglyph;
1564

```

[see page 402]

[see page 257]



```

1565 % katakana "voiced iteration mark"
1566 begintsuglyph("uni30FE",254);
1567   kata.iteration;
1568   dakuten(identity rotated 7 shifted (720,610));
1569   tsu_render;
1570 endtsuglyph;
1571
1572
1573
1574 endfont;
1575
1576

```

# tsuku-31.mp

31

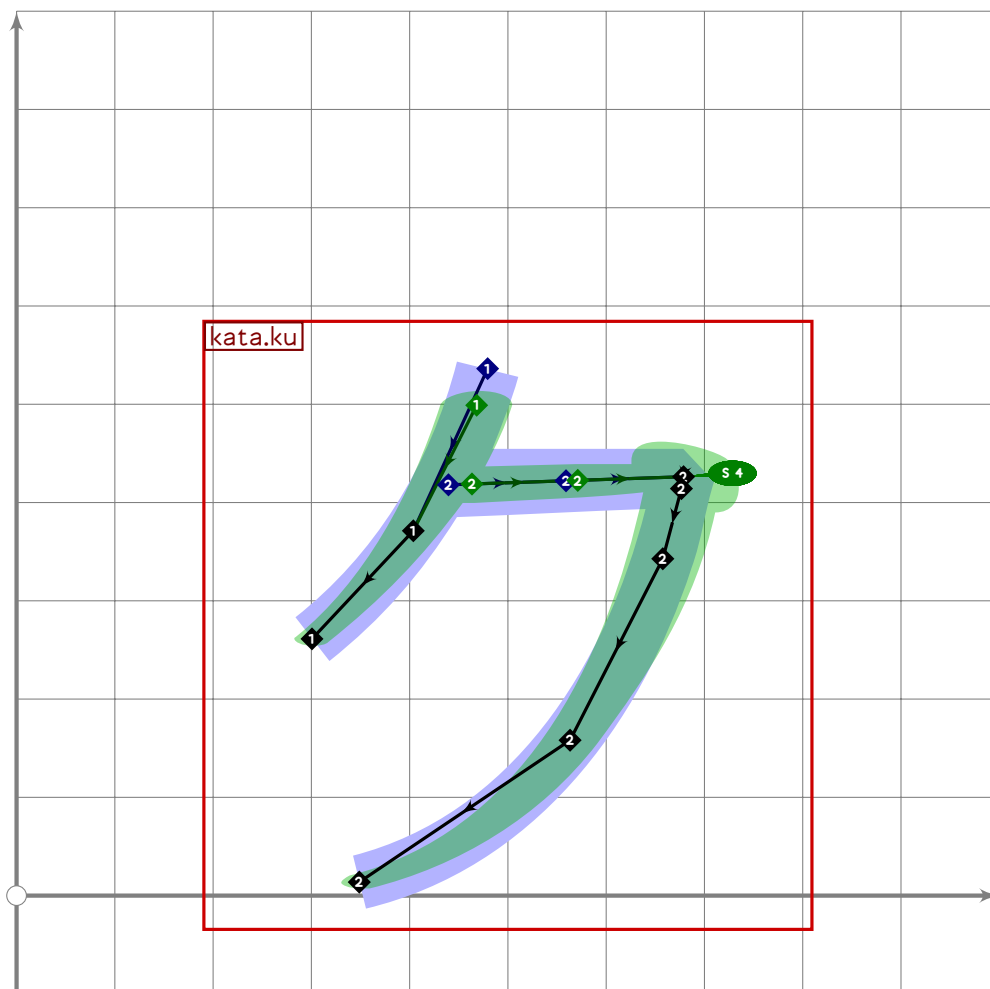
```
1 %
2 % Unicode page 31 (Katakana Phonetic Extensions) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 _____
32
33 beginfont
34
35 % AUTODEPS
36 input katakana.mp;
37
38 do_late_includes;
39
40 _____
41
```

## Phonetic Extensions For Ainu

```
42 % PHONETIC EXTENSIONS FOR AINU
43
```

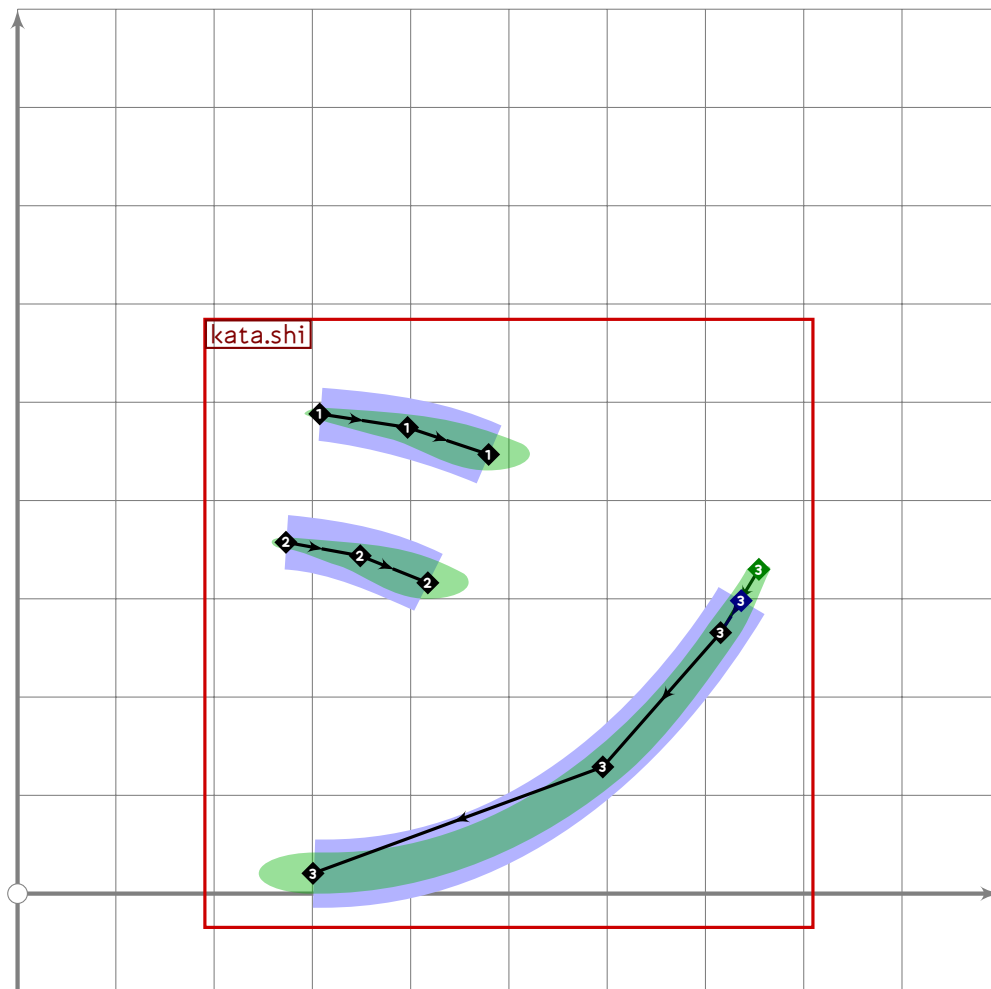
U+31F0  
tsuku.uni31F0

31



```
44 % katakana "ku"  
45 begintsuglyph("uni31F0";240);  
46 tsu_xform(tsu_xf.smallkana)(kata.ku);  
47 tsu_render;  
48 endtsuglyph;  
49
```





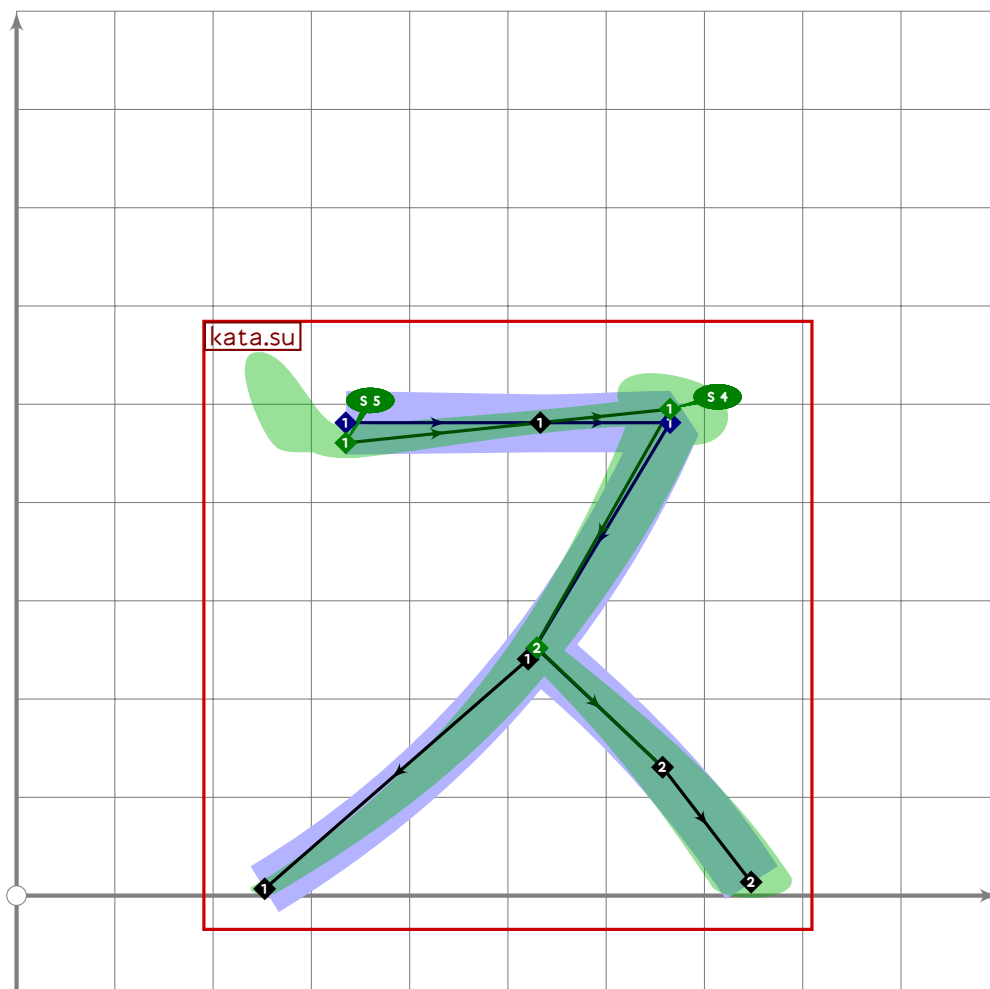
```

50 % katakana "shi"
51 begintsuglyph("uni31F1";241);
52   tsu_xform(tsu_xf.smallkana)(kata.shi);
53   tsu_render;
54 endtsuglyph;
55

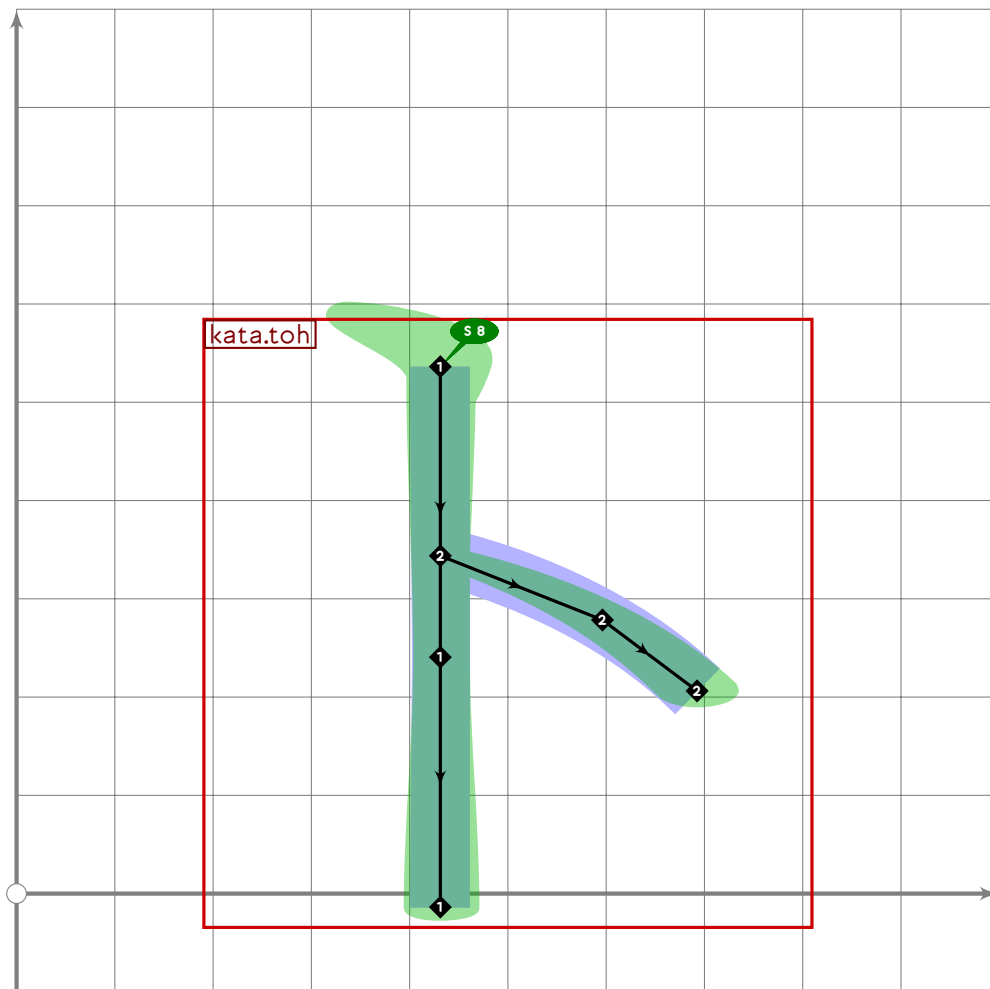
```

U+31F2  
tsuku.uni31F2

31



```
56 % katakana "su"
57 begintsuglyph("uni31F2";242);
58 tsu_xform(tsu_xf.smallkana)(kata.su);
59 tsu_render;
60 endtsuglyph;
61
```



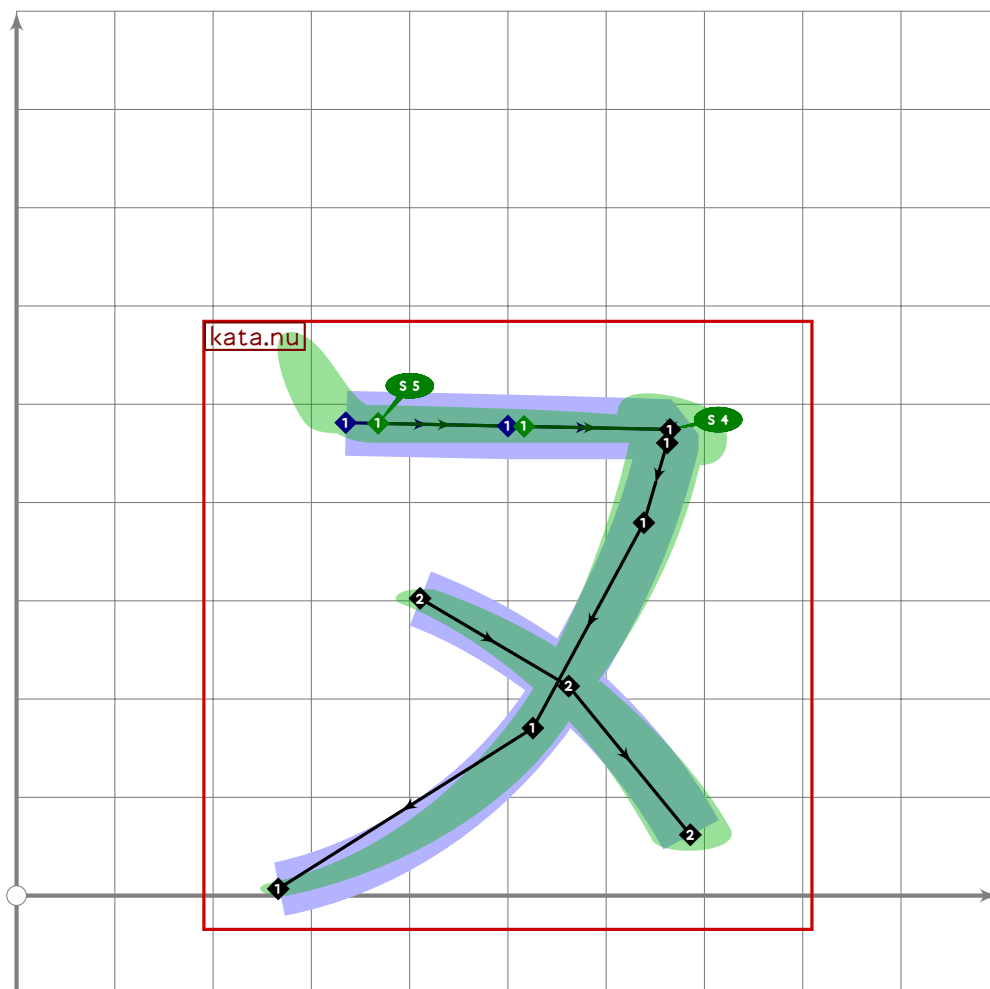
```

62 % katakana "to"
63 begintsuglyph("uni31F3";243);
64   tsu_xform(tsu_xf.smallkana)(kata.toh);
65   tsu_render;
66 endtsuglyph;
67

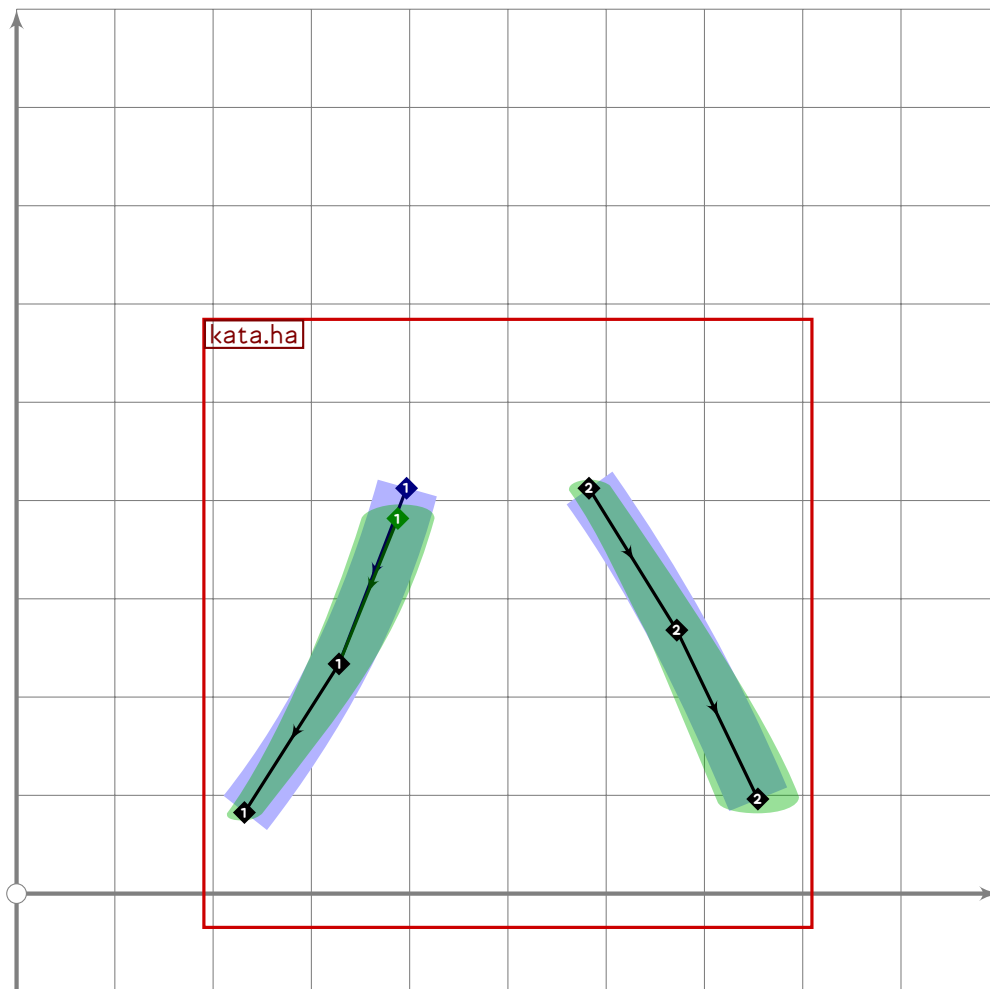
```

U+31F4  
tsuku.uni31F4

31



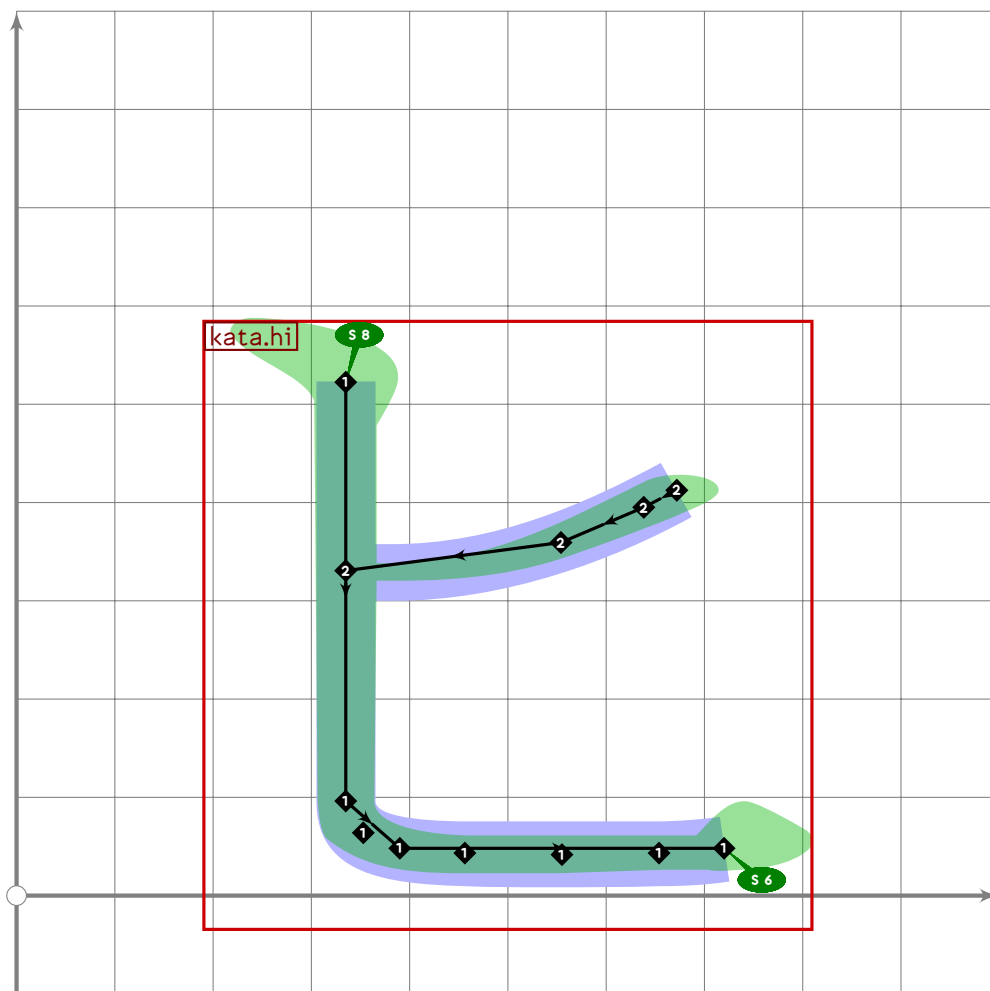
```
68 % katakana "nu"
69 begintsuglyph("uni31F4";244);
70 tsu_xform(tsu_xf.smallkana)(kata.nu);
71 tsu_render;
72 endtsuglyph;
73
```



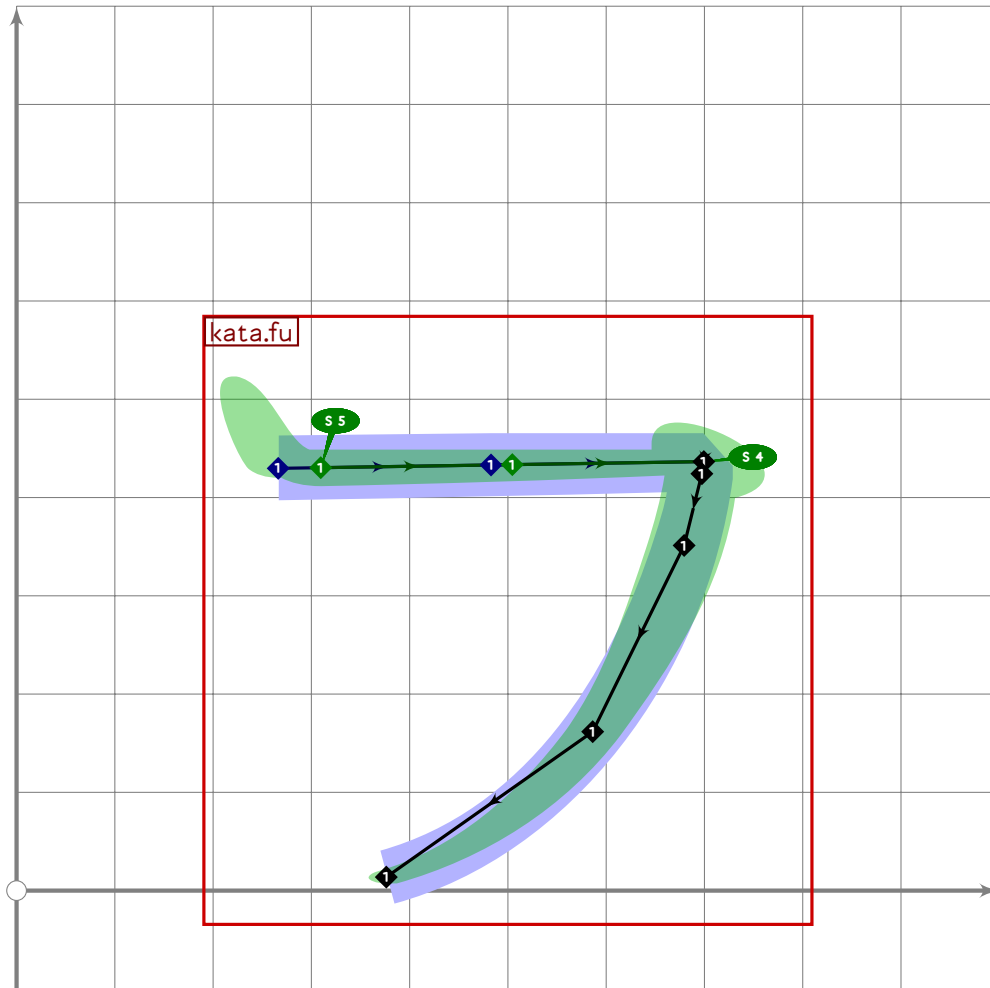
```
74 % katakan "ha"  
75 begint Suglyph("uni31F5";245);  
76   tsu_xform(tsu_xf.smallkana)(kata.ha);  
77   tsu_render;  
78 endtsuglyph;  
79
```

U+31F6  
tsuku.uni31F6

31



```
80 % hiragana "hi"  
81 begint Suglyph("uni31F6";246);  
82   tsu_xform(tsu_xf.smallkana)(kata.hi);  
83   tsu_render;  
84 endtsuglyph;  
85
```



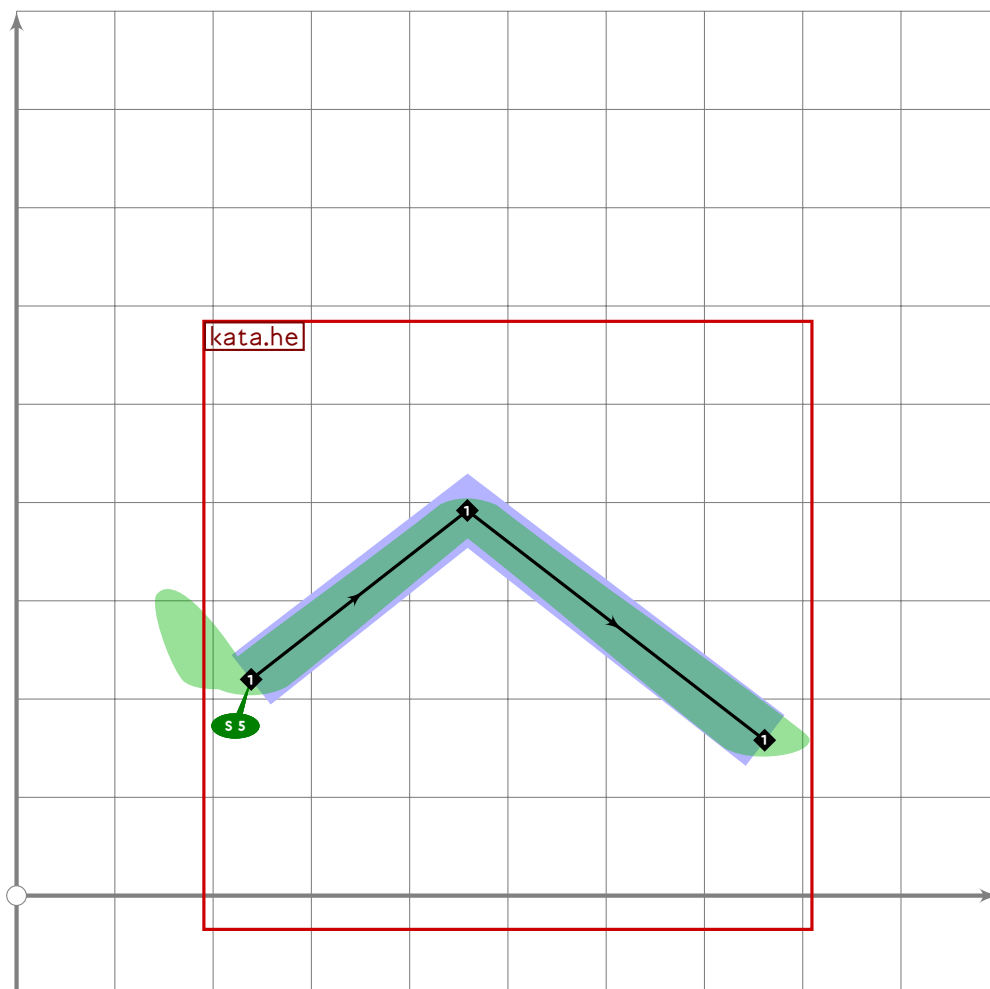
```

86 % katakana "fu"
87 begint Suglyph("uni31F7";247);
88   tsu_xform(tsu_xf.smallkana)(kata.fu);
89   tsu_render;
90 endtsuglyph;
91

```

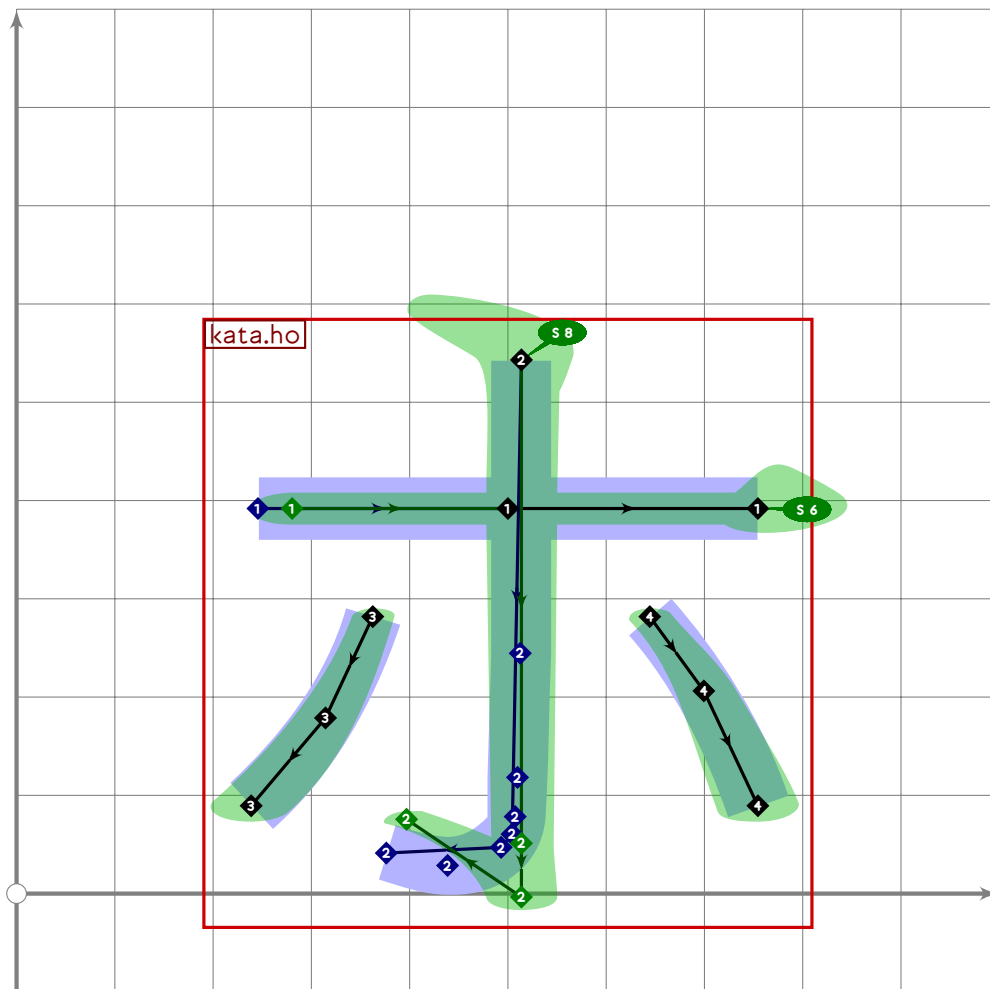
U+31F8  
tsuku.uni31F8

31



```
92 % katakana "he"  
93 beginsuglyph("uni31F8";248);  
94 tsu_xform(tsu_xf.smallkana)(kata.he);  
95 tsu_render;  
96 endtsuglyph;  
97
```





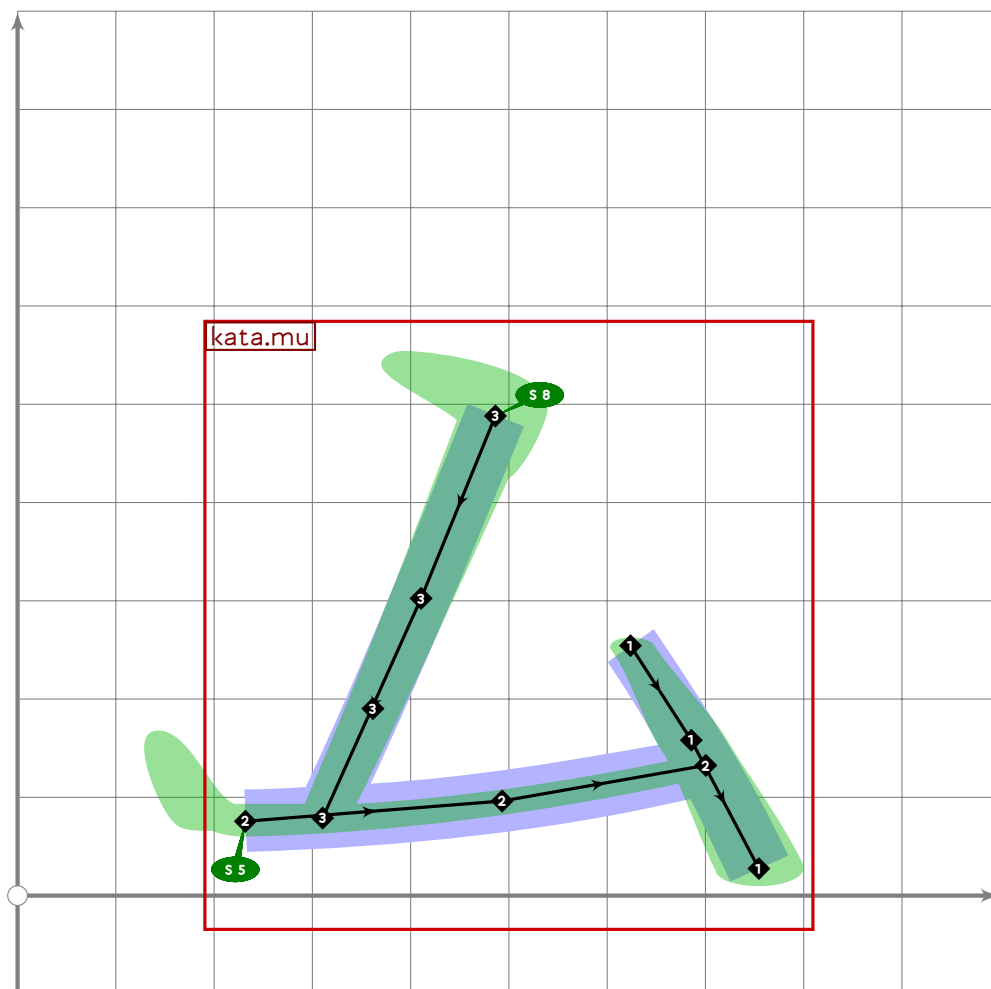
```

98 % katakana "ho"
99 begintsuglyph("uni31F9";249);
100 tsu_xform(tsu_xf.smallkana)(kata.ho);
101 tsu_render;
102 endsuglyph;
103

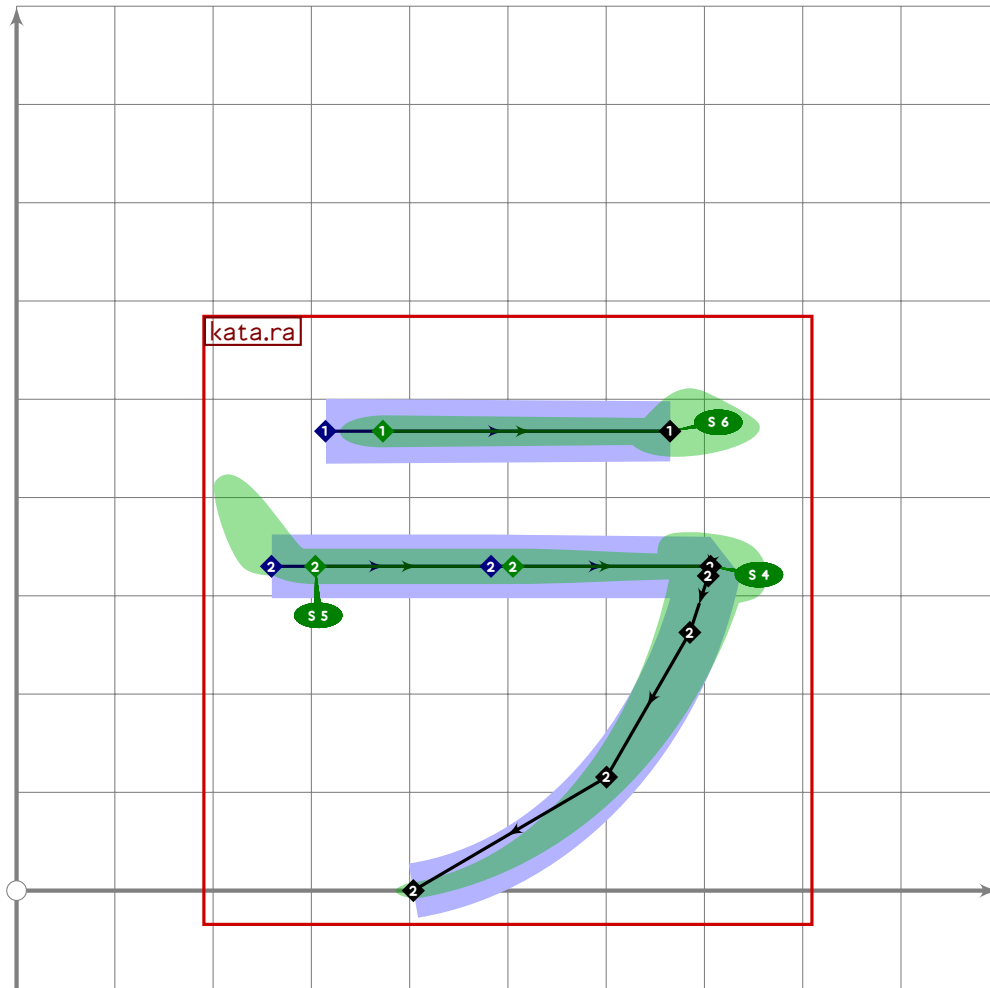
```

U+31FA  
tsuku.uni31FA

31



```
104 % katakana "mu"  
105 begintsuglyph("uni31FA";250);  
106 tsu_xform(tsu_xf.smallkana)(kata.mu);  
107 tsu_render;  
108 endtsuglyph;  
109
```



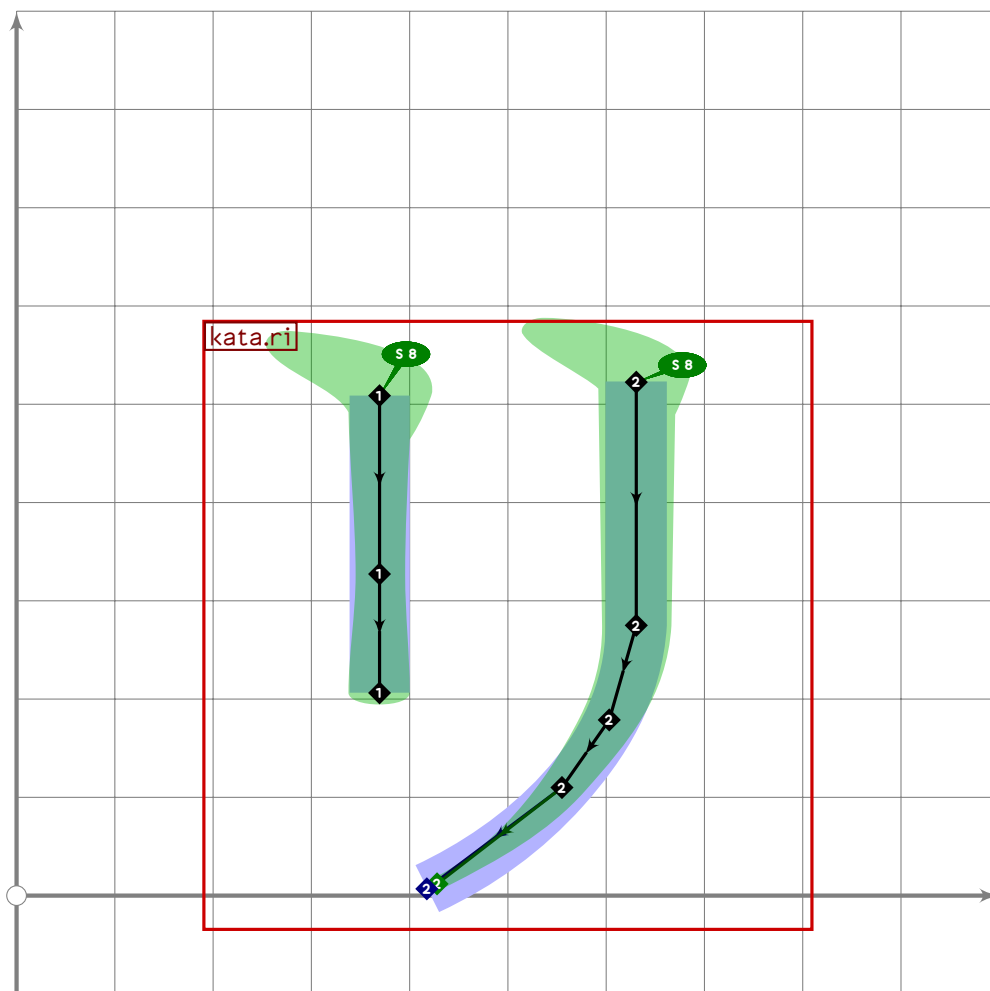
```

110 % katakana "ra"
111 begint Suglyph("uni31FB";251);
112   tsu_xform(tsu_xf.smallkana)(kata.ra);
113   tsu_render;
114 endtsuglyph;
115

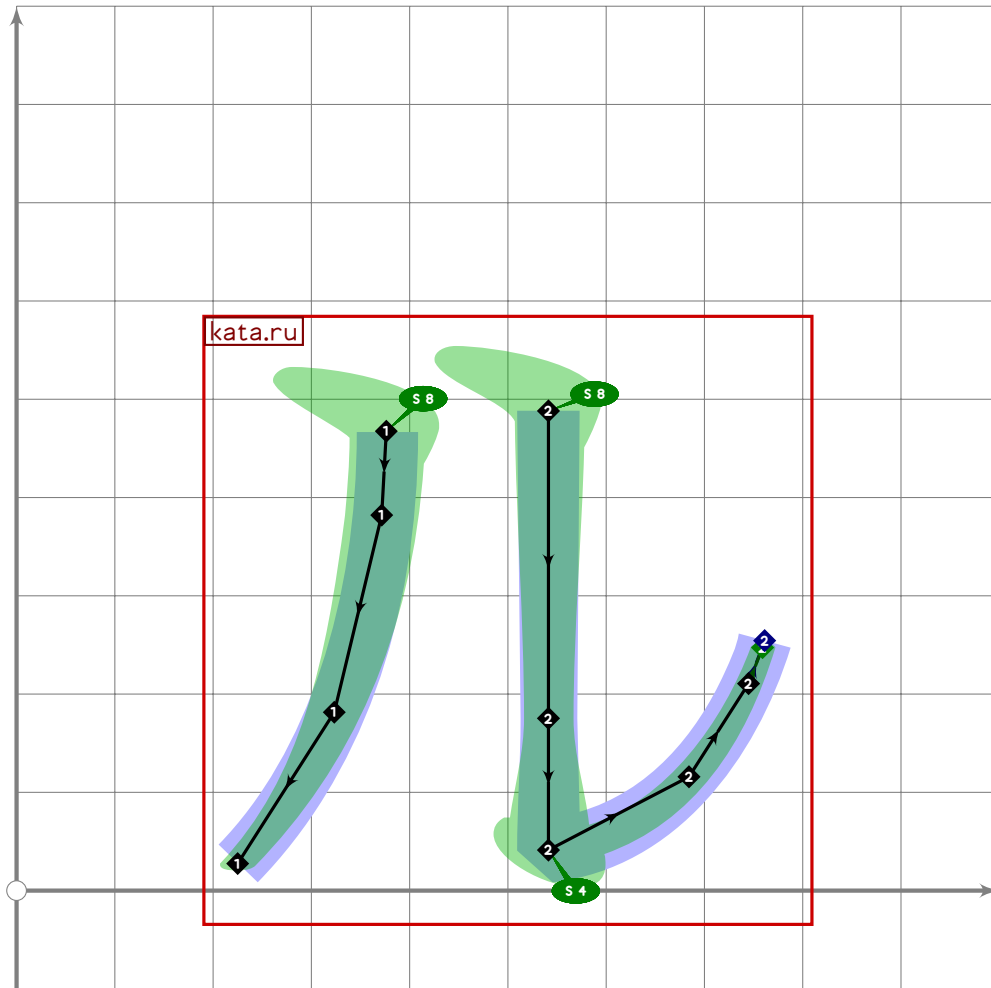
```

U+31FC  
tsuku.uni31FC

31



```
116 % katakana "ri"  
117 begintsuglyph("uni31FC";252);  
118 tsu_xform(tsu_xf.smallkana)(kata.ri);  
119 tsu_render;  
120 endtsuglyph;  
121
```



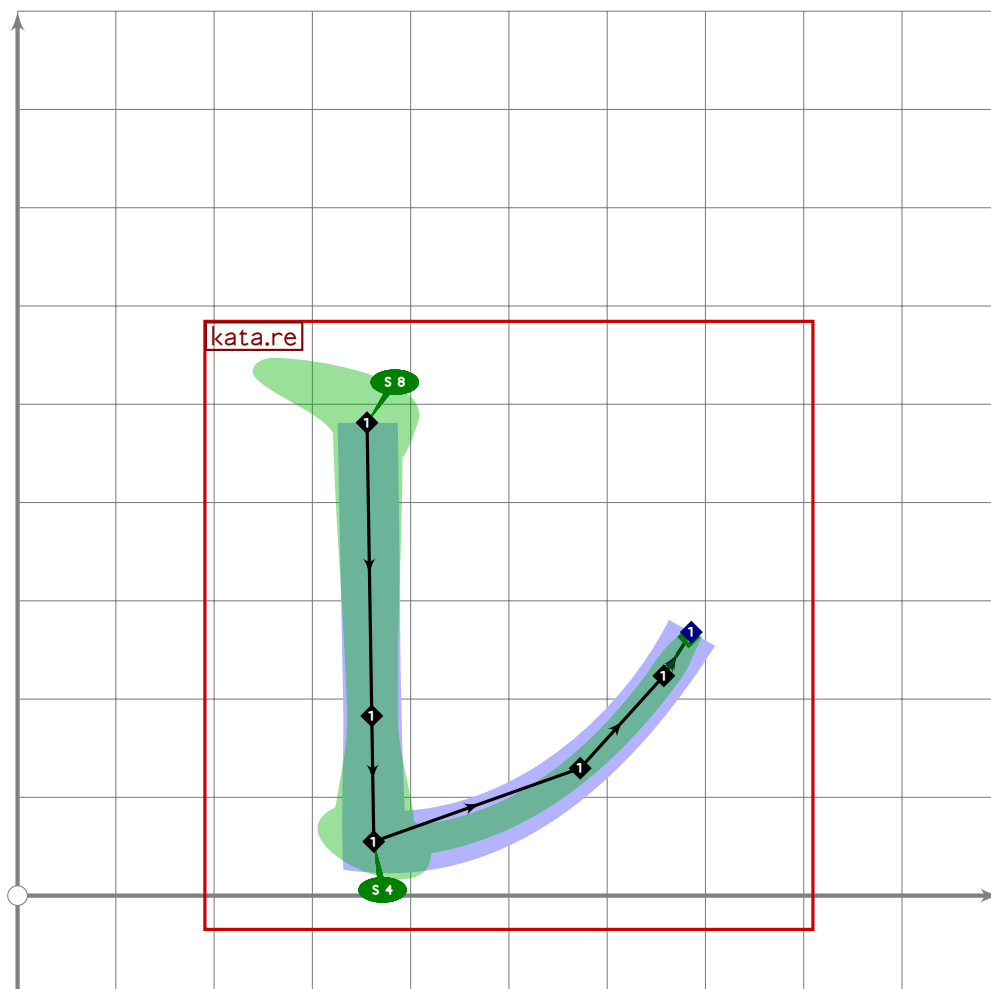
```

122 % katakana "ru"
123 begintsuglyph("uni31FD";253);
124   tsu_xform(tsu_xf.smallkana)(kata.ru);
125   tsu_render;
126 endtsuglyph;
127

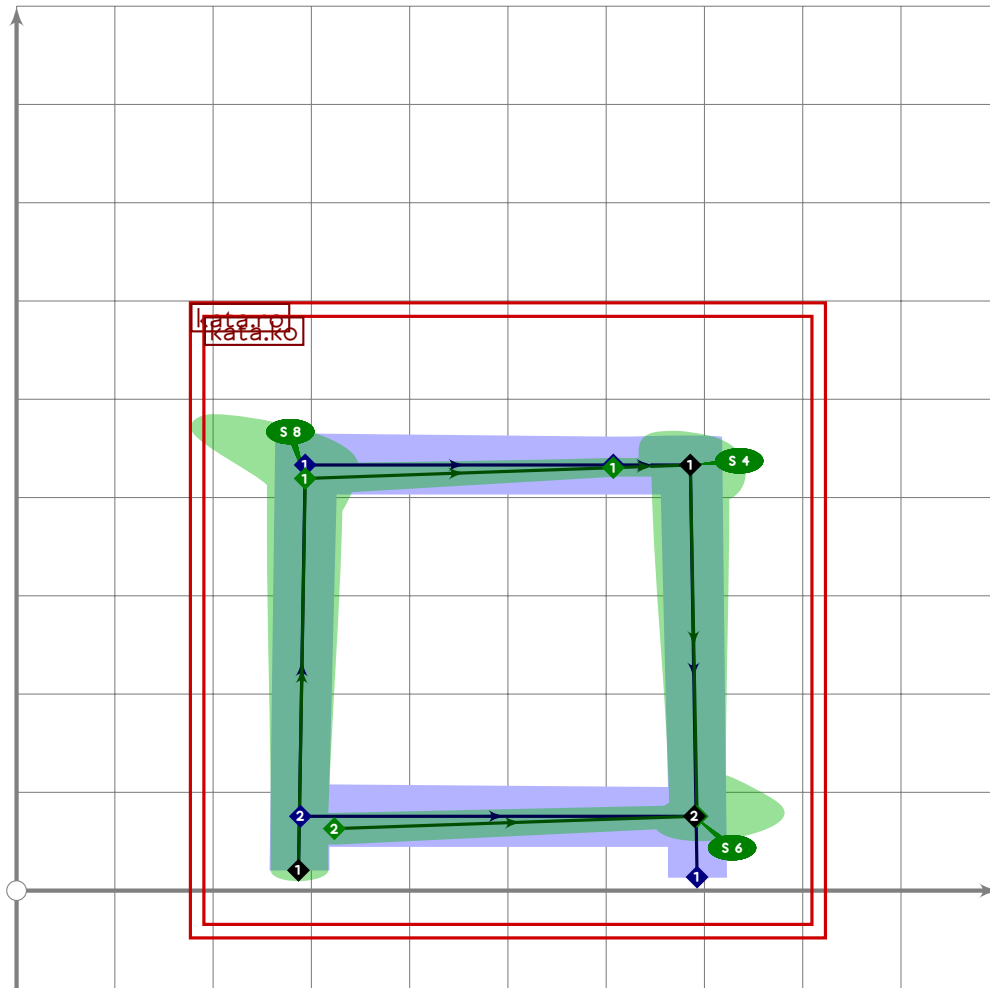
```

U+31FE  
tsuku.uni31FE

31



```
128 % katakana "re"  
129 beginsuglyph("uni31FE";254);  
130 tsu_xform(tsu_xf.smallkana)(kata.re);  
131 tsu_render;  
132 endsuglyph;  
133
```



```

134 % katakana "ro"
135 begintsuglyph("uni31FF";255);
136   tsu_xform(tsu_xf.smallkana)(kata.ro);
137   tsu_render;
138 endtsuglyph;
139
140
141
142 endfont;
143
144

```

# tsuku-32.mp

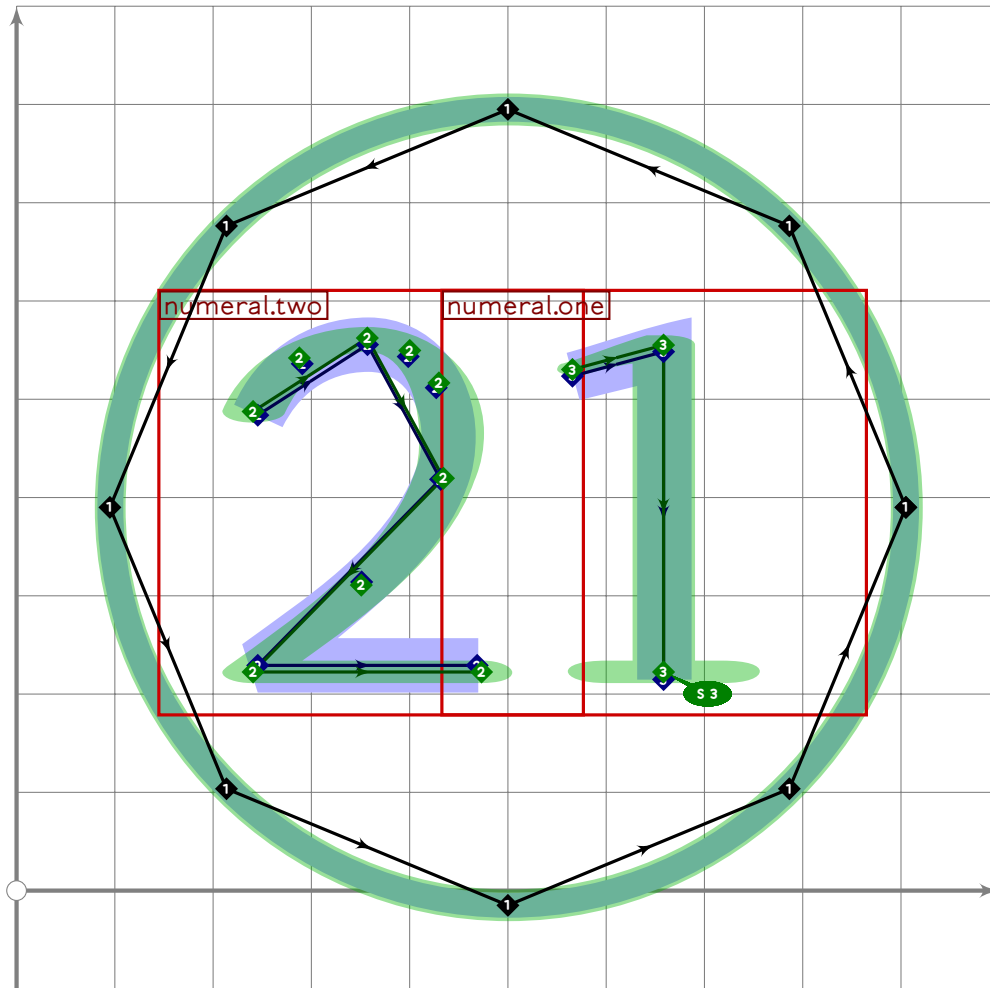
32

```
1 %
2 % Unicode page 32 (Enclosed Alpha and Katakana) for Tsukurimashou
3 % Copyright (C) 2011, 2012, 2021 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 do_late_includes;
43
44
45
```

## Circled Numerals

```
46 % CIRCLED NUMERALS
47
```

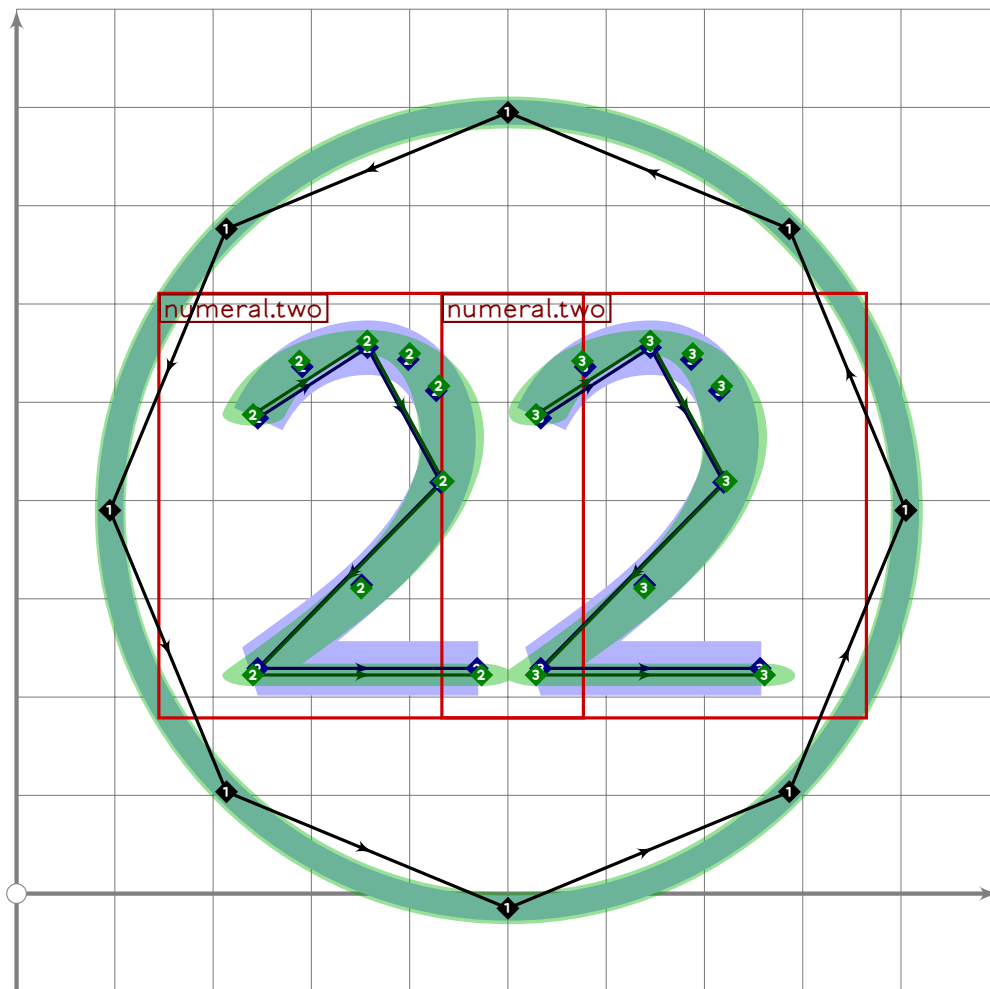




```

48 % 21
49 begintsuglyph("uni3251";81);
50 circle.single;
51 tsu_xform(tsu_xf.ctwo.left shifted tsu_xf.circ_slant_shift)(numeral.two);
52 numeric x[],y[];
53 tsu_xform(tsu_xf.ctwo.right shifted tsu_xf.circ_slant_shift)(numeral.one);
54 tsu_render;
55 endtsuglyph;
56

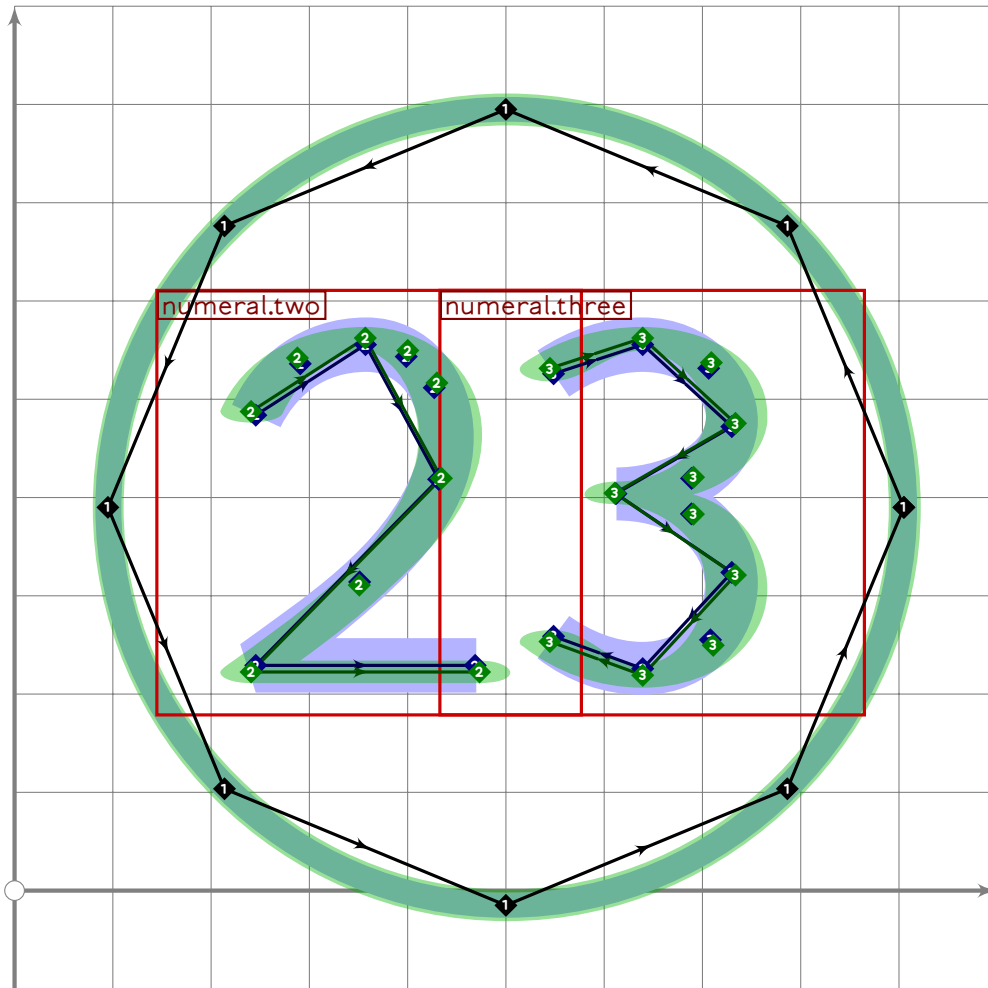
```



```

57 % 22
58 begintsuglyph("uni3252";82);
59 circle.single;
60 tsu_xform(tsu_xf.ctwo.left shifted tsu_xf.circ_slant_shift)(numeral.two);
61 numeric x[],y[];
62 tsu_xform(tsu_xf.ctwo.right shifted tsu_xf.circ_slant_shift)(numeral.two);
63 tsu_render;
64 endtsuglyph;
65

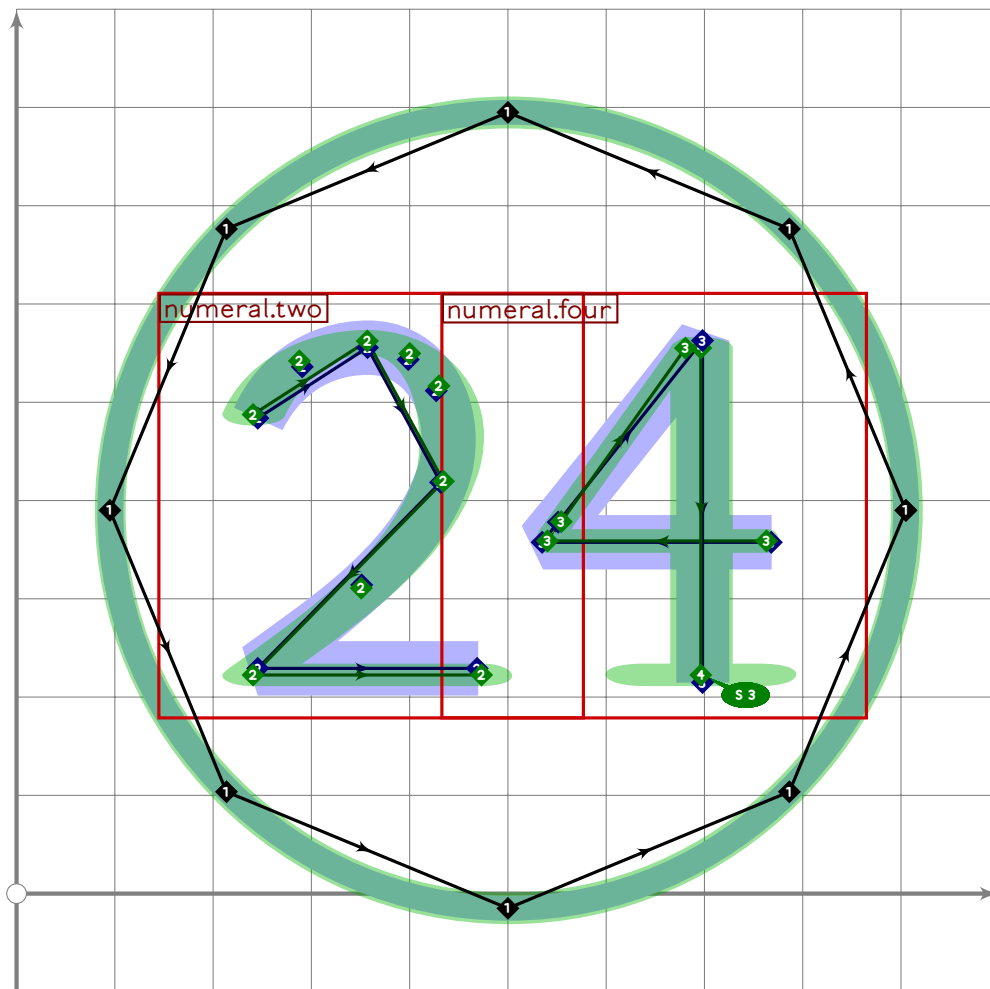
```



```

66 % 23
67 begintsuglyph("uni3253";83);
68 circle.single;
69 tsu_xform(tsu_xf.ctwo.left shifted tsu_xf.circ_slant_shift)(numeral.two);
70 numeric x[],y[];
71 tsu_xform(tsu_xf.ctwo.right shifted tsu_xf.circ_slant_shift)
72 (numeral.three);
73 tsu_render;
74 endtsuglyph;
75

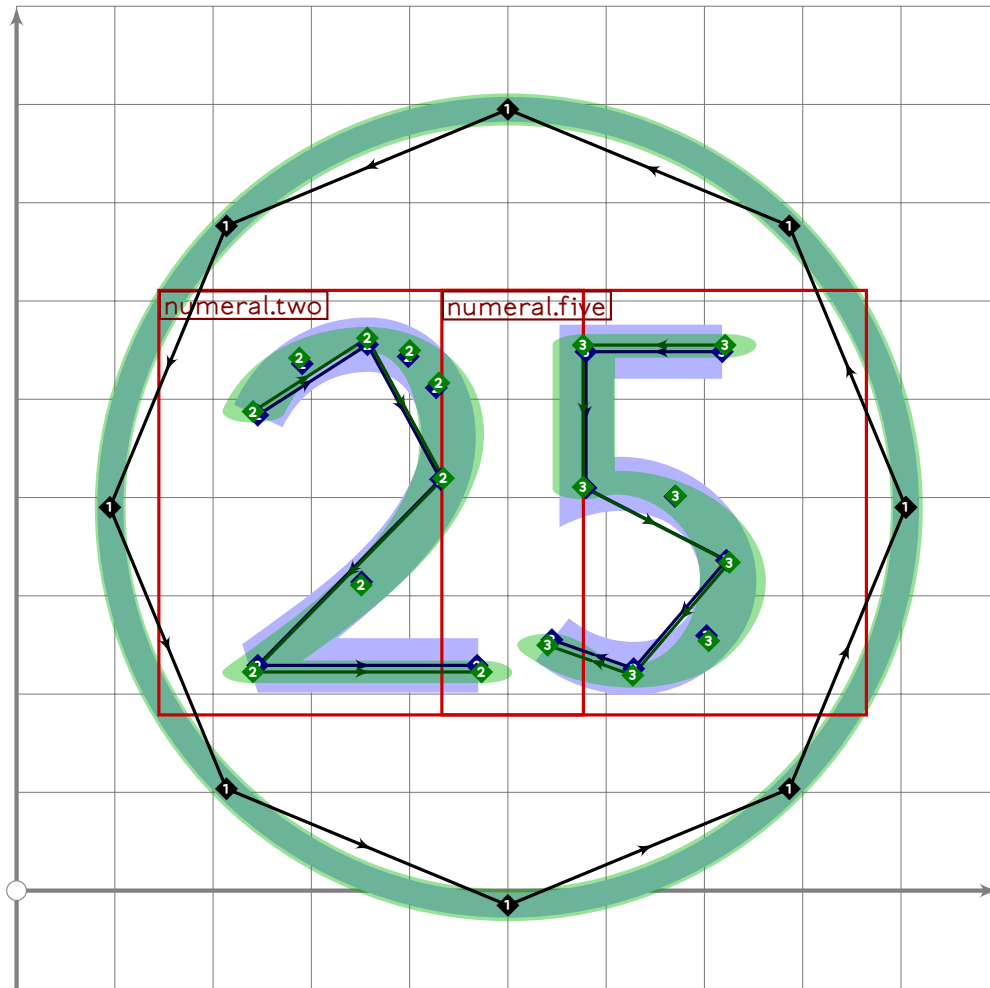
```



```

76 % 24
77 begintsuglyph("uni3254";84);
78   circle.single;
79   tsu_xform(tsu_xf.ctwo.left shifted tsu_xf.circ_slant_shift)(numeral.two);
80   numeric x[],y[];
81   tsu_xform(tsu_xf.ctwo.right shifted tsu_xf.circ_slant_shift)(numeral.four);
82   tsu_render;
83 endtsuglyph;
84

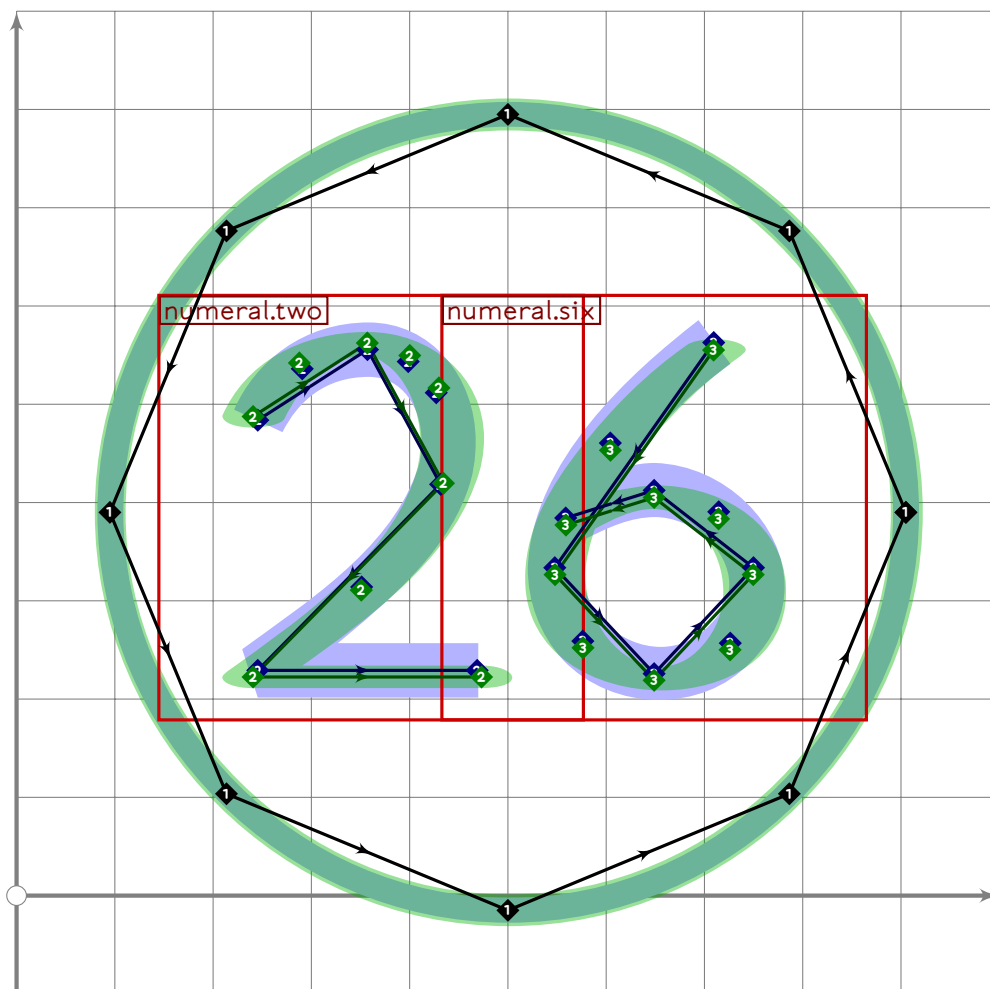
```



```

85 % 25
86 beginsuglyph("uni3255";85);
87   circle.single;
88   tsu_xform(tsu_xf.ctwo.left shifted tsu_xf.circ_slant_shift)(numeral.two);
89   numeric x[],y[];
90   tsu_xform(tsu_xf.ctwo.right shifted tsu_xf.circ_slant_shift)(numeral.five);
91   tsu_render;
92 endtsuglyph;
93

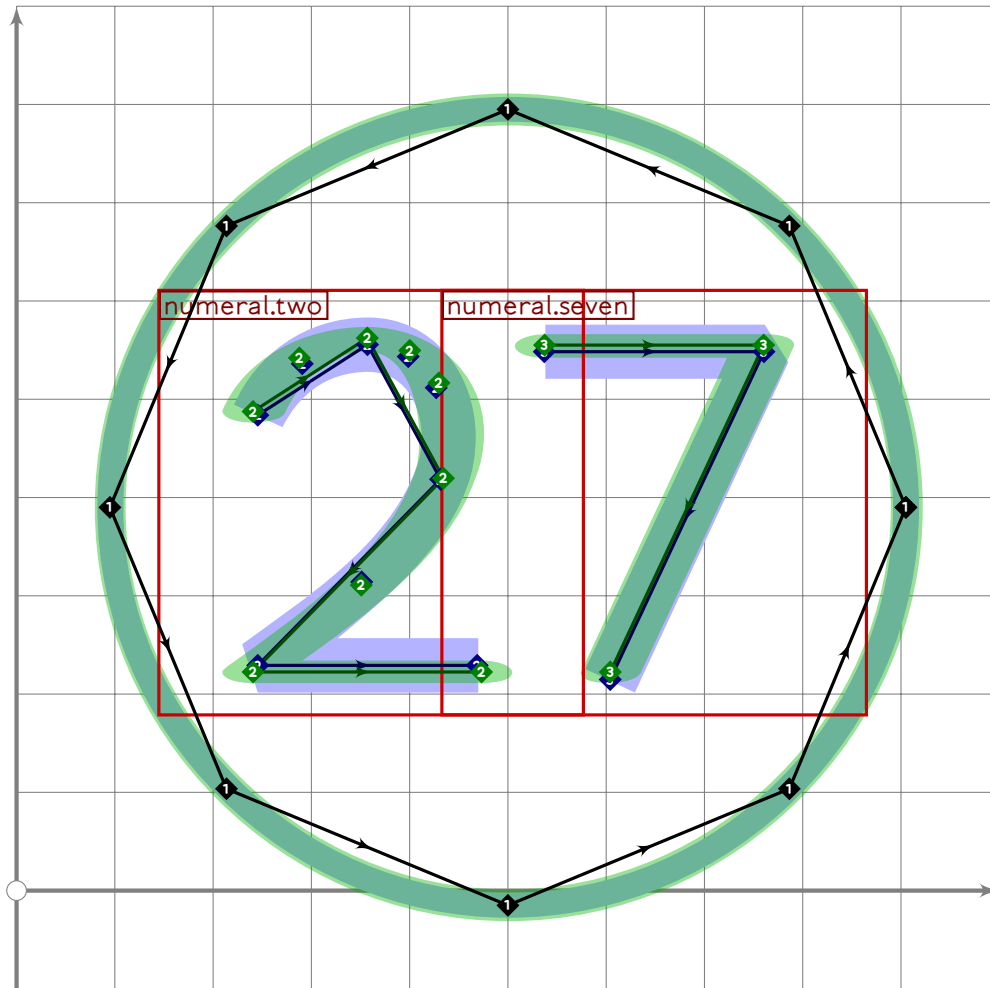
```



```

94 % 26
95 begintsuglyph("uni3256";86);
96 circle.single;
97 tsu_xform(tsu_xf.ctwo.left shifted tsu_xf.circ_slant_shift)(numeral.two);
98 numeric x[],y[];
99 tsu_xform(tsu_xf.ctwo.right shifted tsu_xf.circ_slant_shift)(numeral.six);
100 tsu_render;
101 endtsuglyph;
102

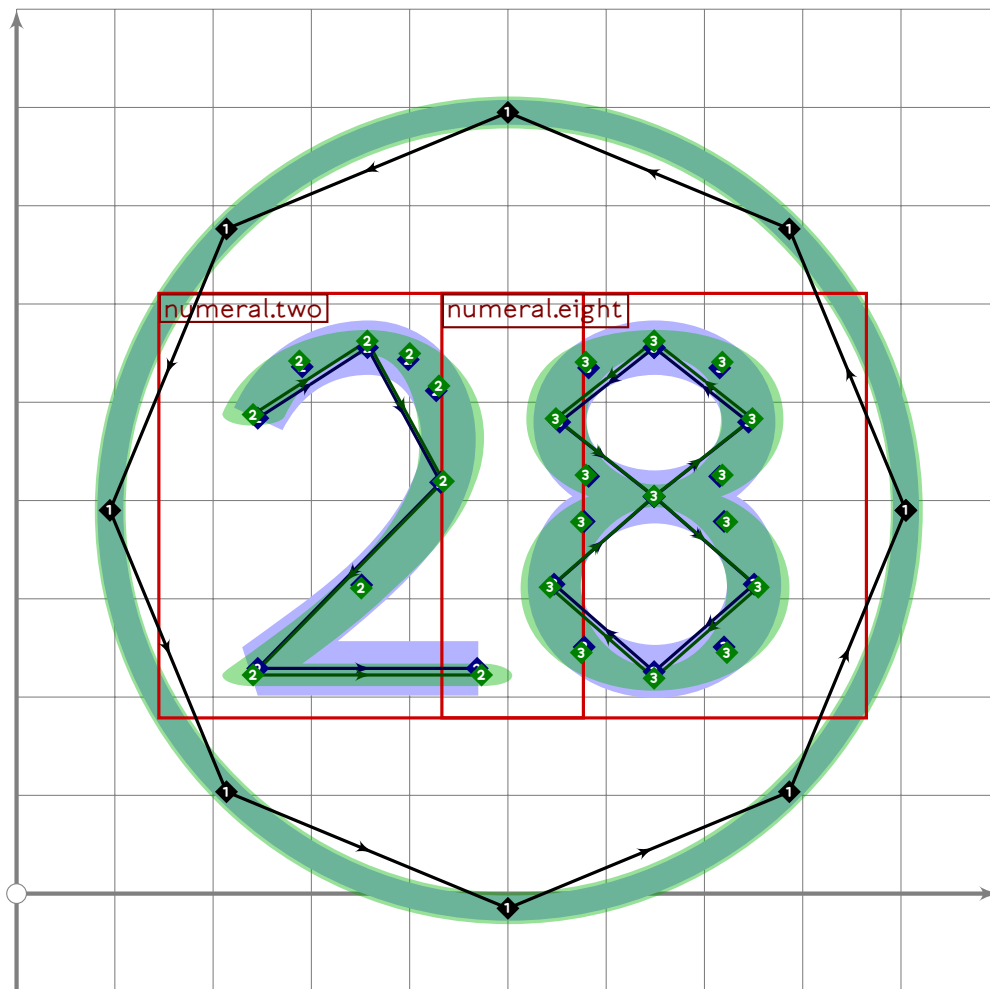
```



```

103 % 27
104 begintsuglyph("uni3257";87);
105   circle.single;
106   tsu_xform(tsu_xf.ctwo.left shifted tsu_xf.circ_slant_shift)(numeral.two);
107   numeric x[],y[];
108   tsu_xform(tsu_xf.ctwo.right shifted tsu_xf.circ_slant_shift)
109     (numeral.seven);
110   tsu_render;
111 endtsuglyph;
112

```

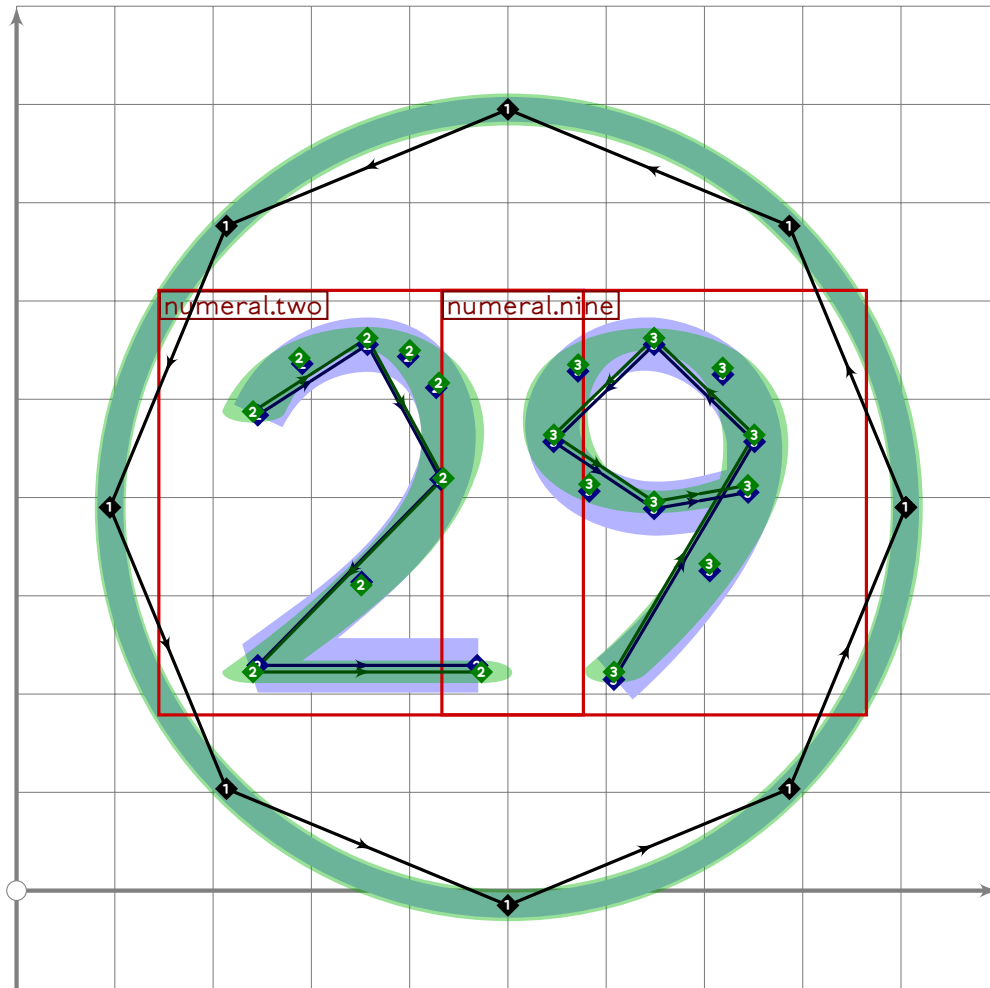


```

113 % 28
114 begintsuglyph("uni3258";88);
115   circle.single;
116   tsu_xform(tsu_xf.ctwo.left shifted tsu_xf.circ_slant_shift)(numeral.two);
117   numeric x[],y[];
118   tsu_xform(tsu_xf.ctwo.right shifted tsu_xf.circ_slant_shift)
119     (numeral.eight);
120   tsu_render;
121 endtsuglyph;
122

```

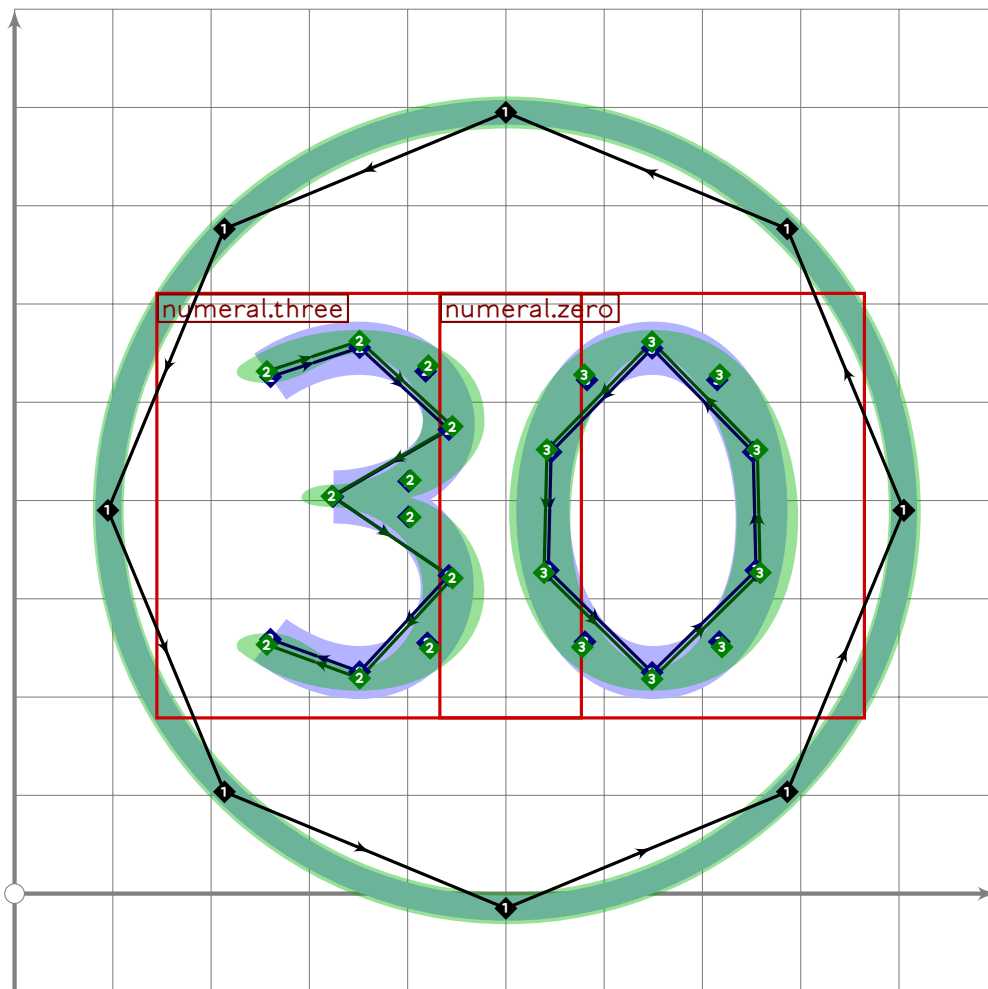




```

123 % 29
124 begintsuglyph("uni3259";89);
125   circle.single;
126   tsu_xform(tsu_xf.ctwo.left shifted tsu_xf.circ_slant_shift)(numeral.two);
127   numeric x[],y[];
128   tsu_xform(tsu_xf.ctwo.right shifted tsu_xf.circ_slant_shift)(numeral.nine);
129   tsu_render;
130 endtsuglyph;
131

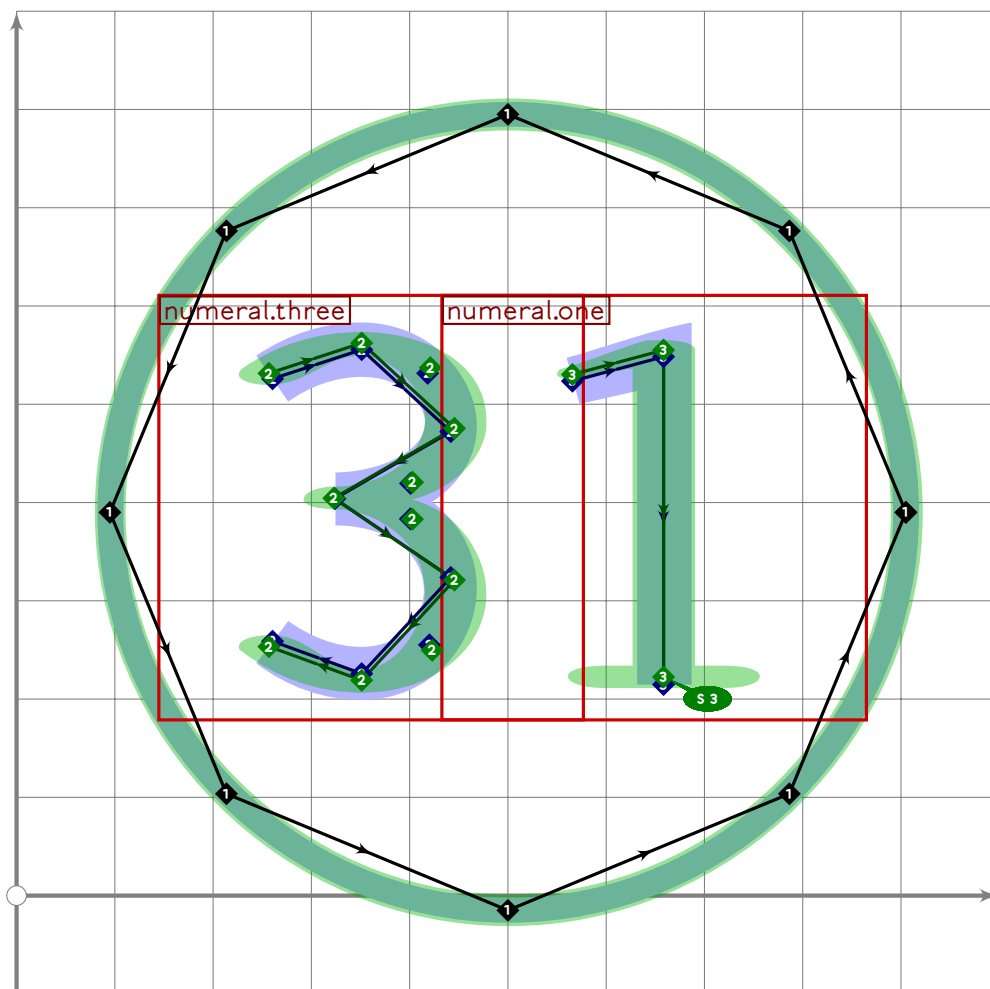
```



```

132 % 30
133 begintsuglyph("uni325A;90);
134 circle.single;
135 tsu_xform(tsu_xf.ctwo.left shifted tsu_xf.circ_slant_shift)(numeral.three);
136 numeric x[],y[];
137 tsu_xform(tsu_xf.ctwo.right shifted tsu_xf.circ_slant_shift)(numeral.zero);
138 tsu_render;
139 endtsuglyph;
140

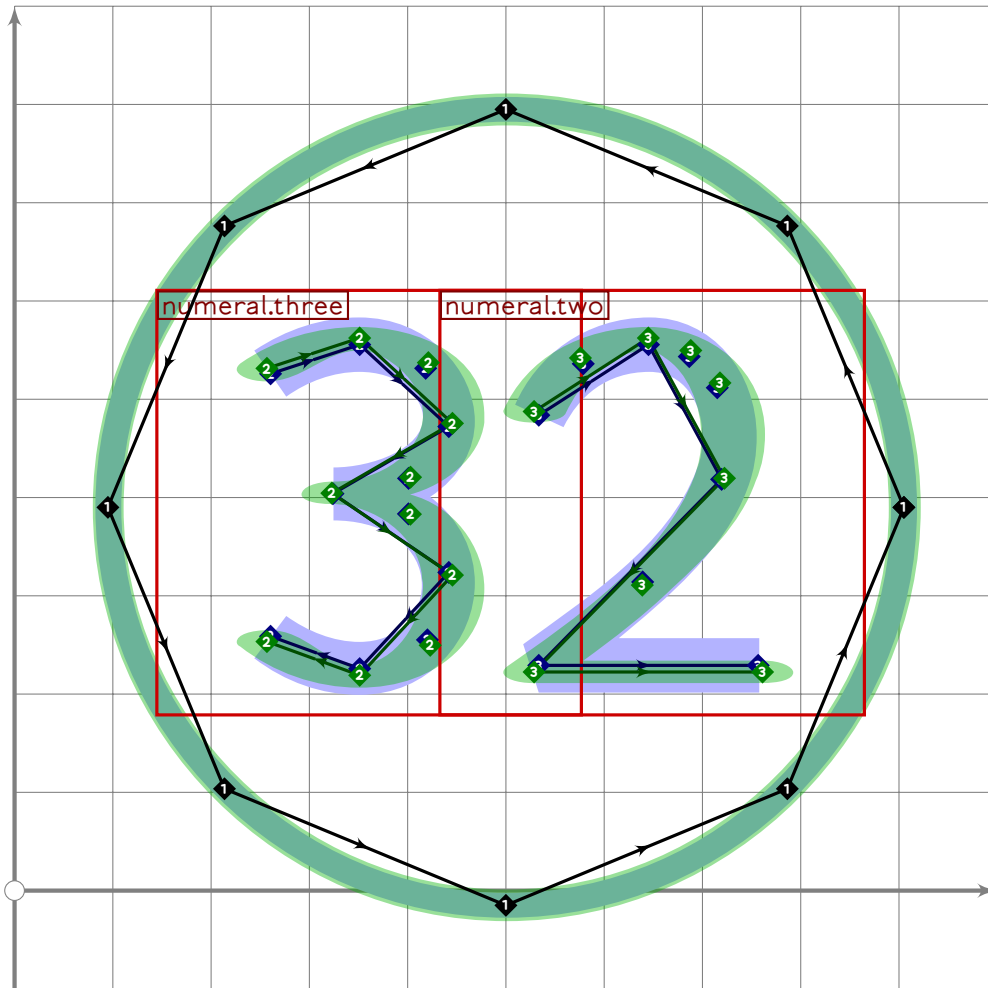
```



```

141 % 31
142 begintsuglyph("uni325B";91);
143   circle.single;
144   tsu_xform(tsu_xf.ctwo.left shifted tsu_xf.circ_slant_shift)(numeral.three);
145   numeric x[],y[];
146   tsu_xform(tsu_xf.ctwo.right shifted tsu_xf.circ_slant_shift)(numeral.one);
147   tsu_render;
148 endtsuglyph;
149

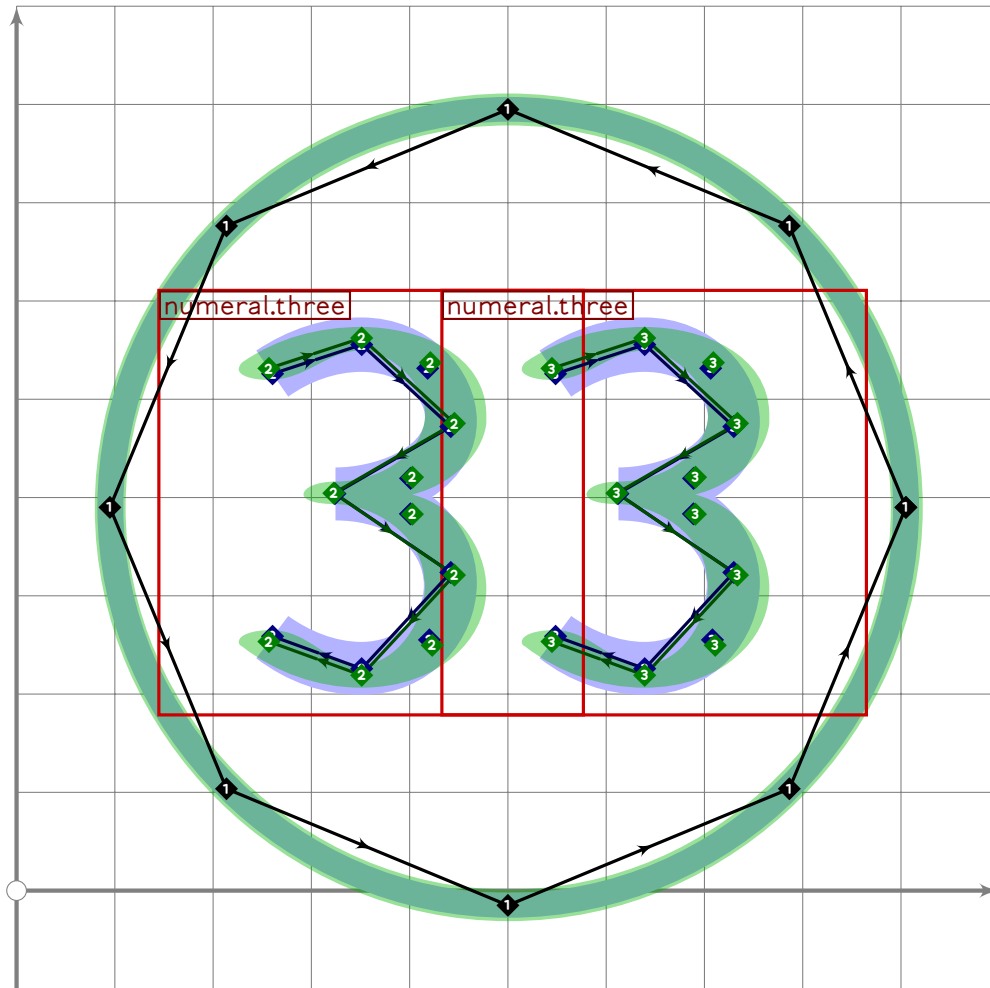
```



```

150 % 32
151 begintsuglyph("uni325C";92);
152   circle.single;
153   tsu_xform(tsu_xf.ctwo.left shifted tsu_xf.circ_slant_shift)(numeral.three);
154   numeric x[],y[];
155   tsu_xform(tsu_xf.ctwo.right shifted tsu_xf.circ_slant_shift)(numeral.two);
156   tsu_render;
157 endtsuglyph;
158

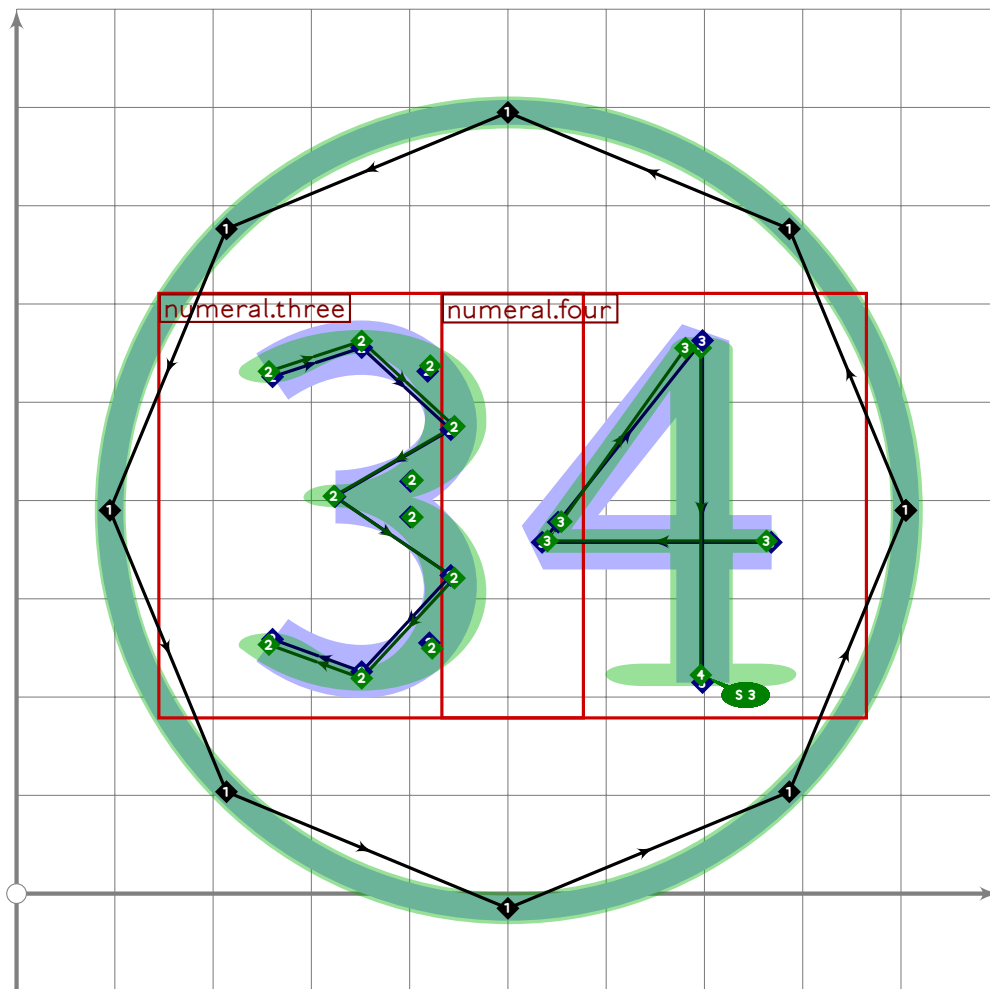
```



```

159 % 33
160 begintsuglyph("uni325D'93);
161   circle.single;
162   tsu_xform(tsu_xf.ctwo.left shifted tsu_xf.circ_slant_shift)(numeral.three);
163   numeric x[],y[];
164   tsu_xform(tsu_xf.ctwo.right shifted tsu_xf.circ_slant_shift)
165     (numeral.three);
166   tsu_render;
167 endtsuglyph;
168

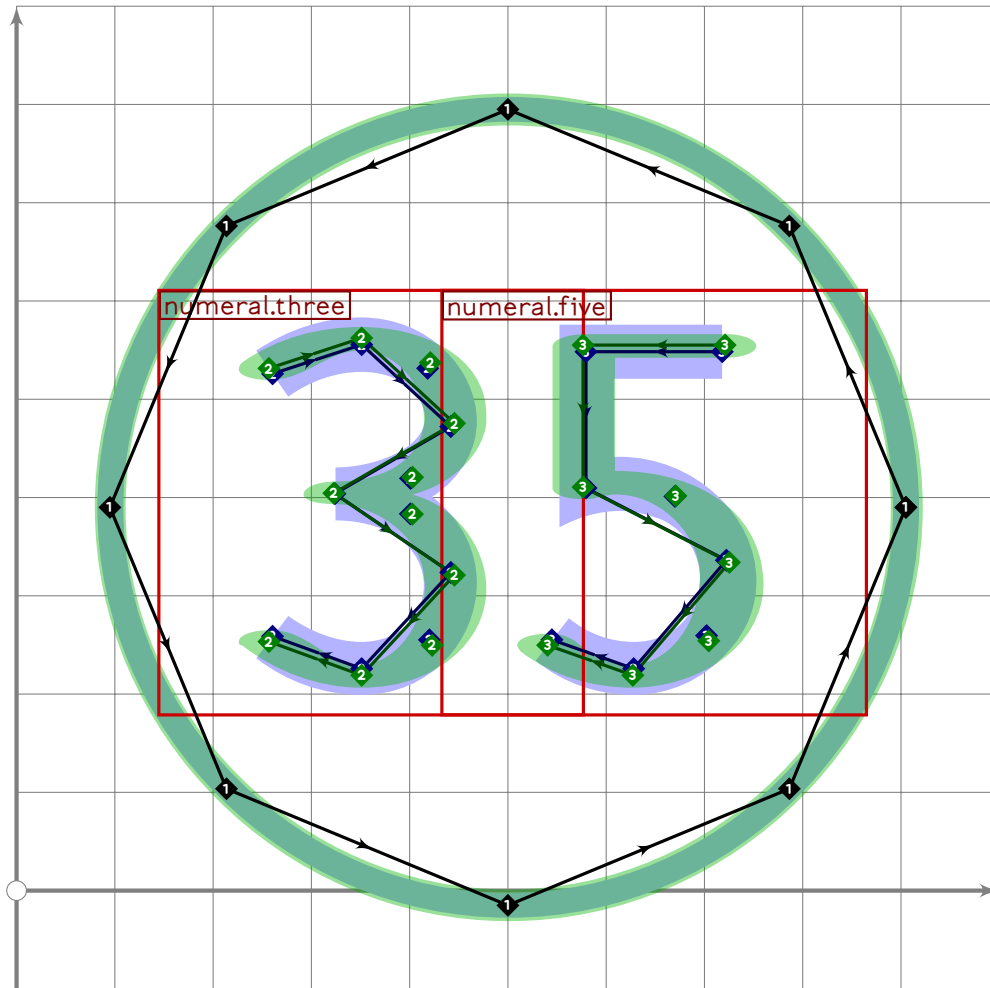
```



```

169 % 34
170 begintsuglyph("uni325E";94);
171 circle.single;
172 tsu_xform(tsu_xf.ctwo.left shifted tsu_xf.circ_slant_shift)(numeral.three);
173 numeric x[],y[];
174 tsu_xform(tsu_xf.ctwo.right shifted tsu_xf.circ_slant_shift)(numeral.four);
175 tsu_render;
176 endtsuglyph;
177

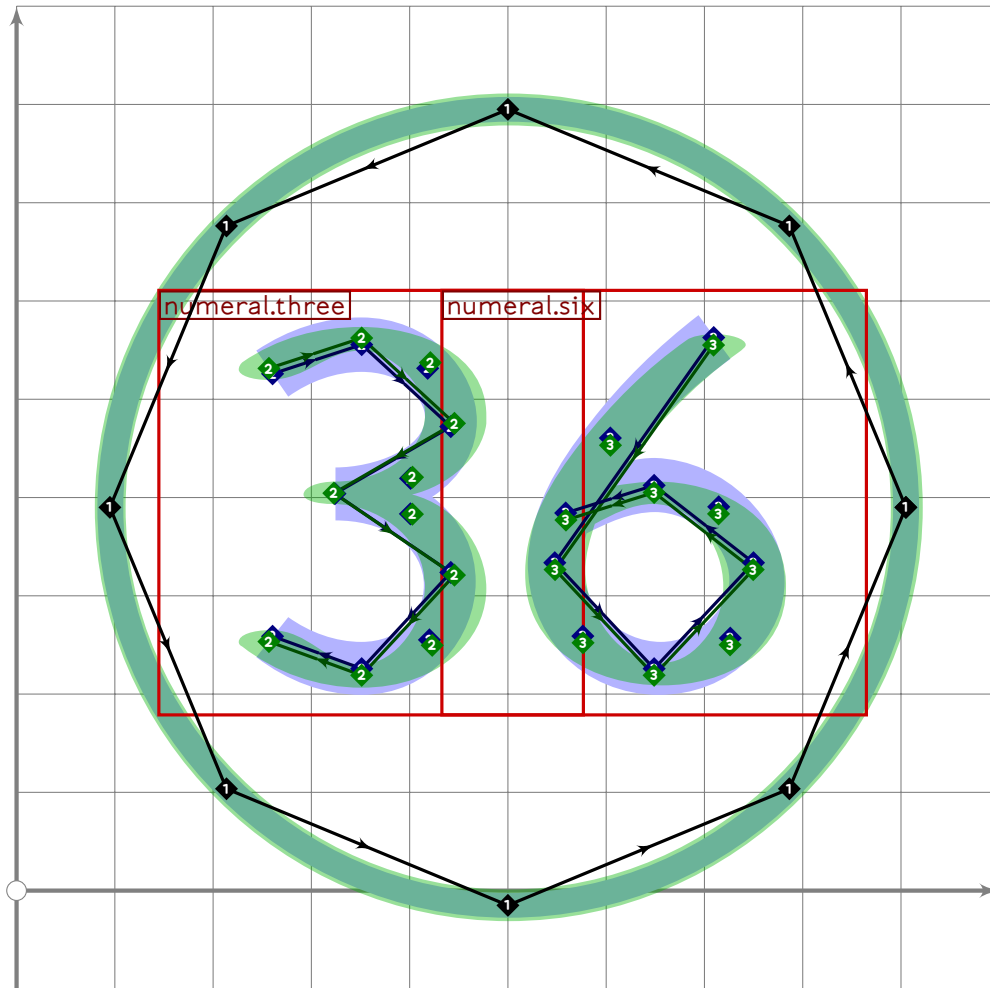
```



```

178 % 35
179 begint Suglyph("uni325F";95);
180 circle.single;
181 tsu_xform(tsu_xf.ctwo.left shifted tsu_xf.circ_slant_shift)(numeral.three);
182 numeric x[],y[];
183 tsu_xform(tsu_xf.ctwo.right shifted tsu_xf.circ_slant_shift)(numeral.five);
184 tsu_render;
185 endtsuglyph;
186
187 % WARNING discontinuous
188

```

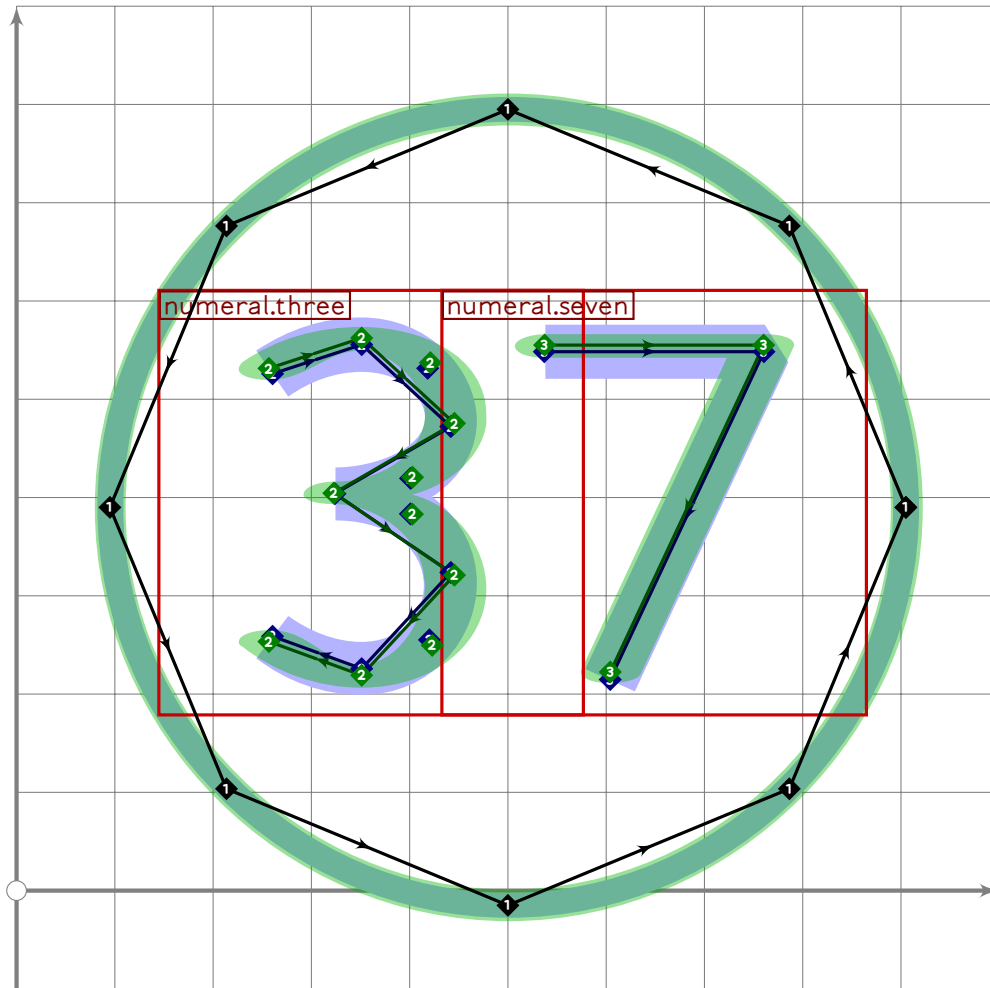


```

189 % 36
190 begintsuglyph("uni32B1",177);
191   circle.single;
192   tsu_xform(tsu_xf.ctwo.left shifted tsu_xf.circ_slant_shift)(numeral.three);
193   numeric x[],y[];
194   tsu_xform(tsu_xf.ctwo.right shifted tsu_xf.circ_slant_shift)(numeral.six);
195   tsu_render;
196 endtsuglyph;
197

```

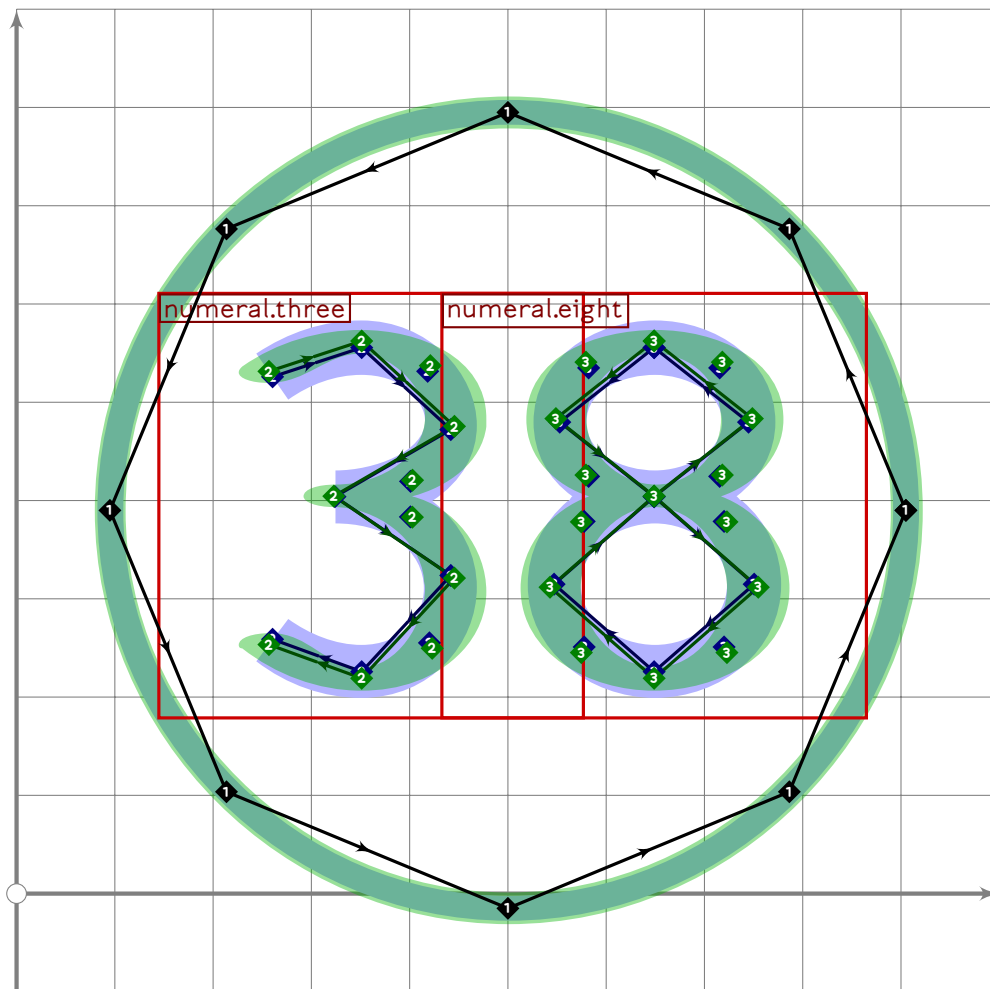




```

198 % 37
199 begintsuglyph("uni32B2",178);
200 circle.single;
201 tsu_xform(tsu_xf.ctwo.left shifted tsu_xf.circ_slant_shift)(numeral.three);
202 numeric x[],y[];
203 tsu_xform(tsu_xf.ctwo.right shifted tsu_xf.circ_slant_shift)
204   (numeral.seven);
205 tsu_render;
206 endtsuglyph;
207

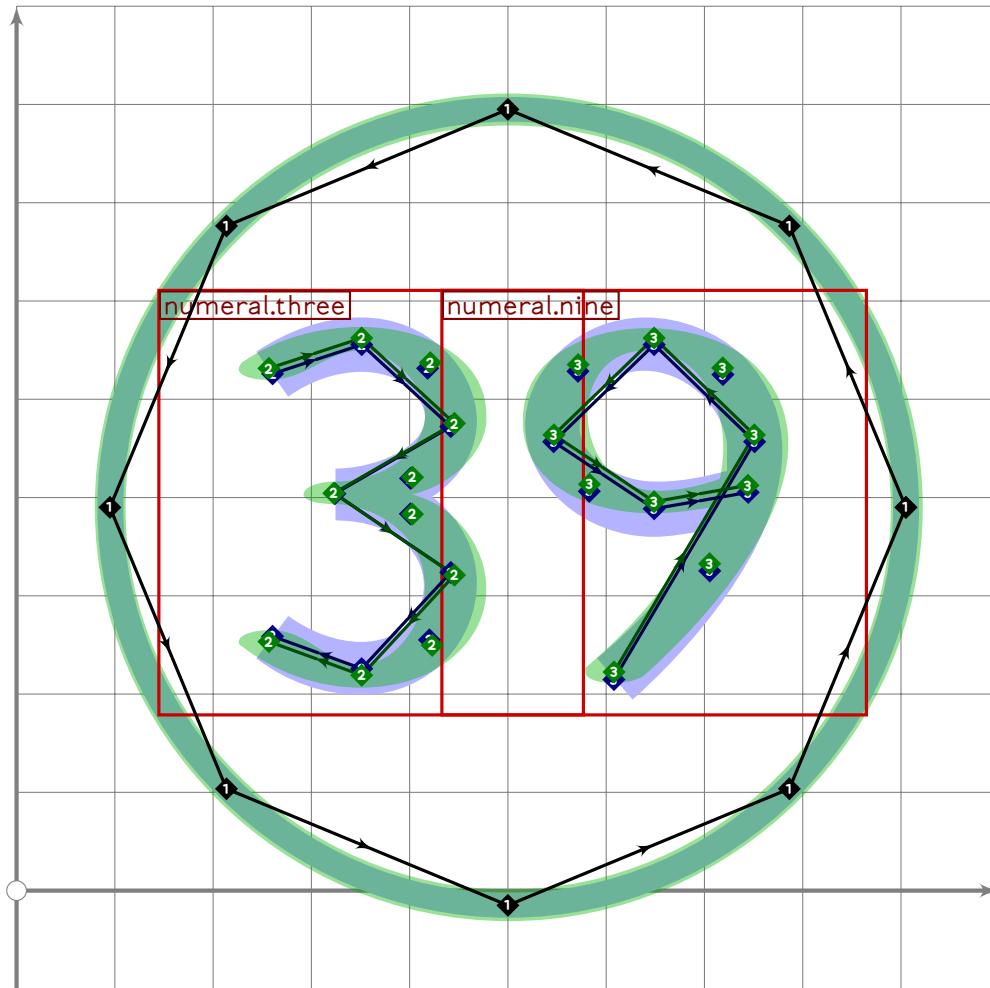
```



```

208 % 38
209 begintsuglyph("uni32B3",179);
210 circle.single;
211 tsu_xform(tsu_xf.ctwo.left shifted tsu_xf.circ_slant_shift)(numeral.three);
212 numeric x[],y[];
213 tsu_xform(tsu_xf.ctwo.right shifted tsu_xf.circ_slant_shift)
214 (numeral.eight);
215 tsu_render;
216 endtsuglyph;
217

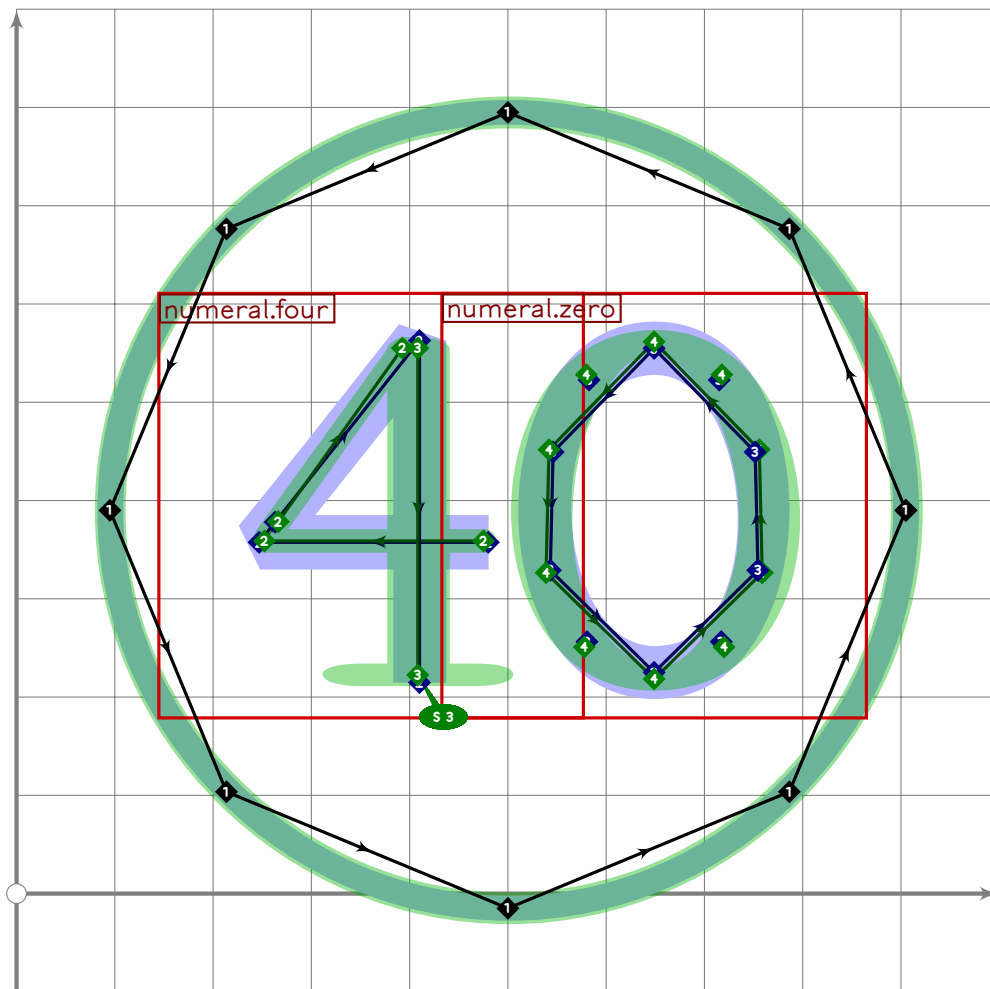
```



```

218 % 39
219 begintsuglyph("uni32B4",180);
220 circle.single;
221 tsu_xform(tsu_xf.ctwo.left shifted tsu_xf.circ_slant_shift)(numeral.three);
222 numeric x[],y[];
223 tsu_xform(tsu_xf.ctwo.right shifted tsu_xf.circ_slant_shift)(numeral.nine);
224 tsu_render;
225 endtsuglyph;
226

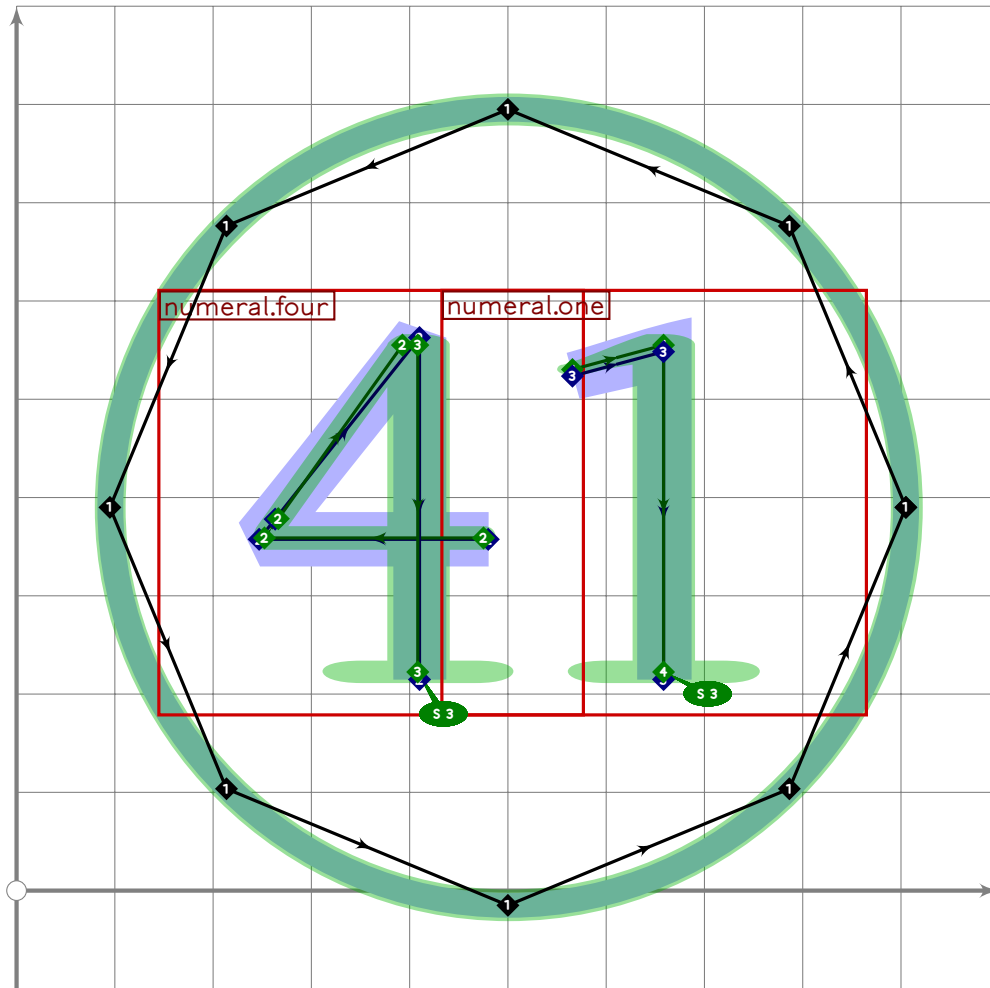
```



```

227 % 40
228 beginsuglyph("uni32B5",181);
229 circle.single;
230 tsu_xform(tsu_xf.ctwo.left shifted tsu_xf.circ_slant_shift)(numeral.four);
231 numeric x[],y[];
232 tsu_xform(tsu_xf.ctwo.right shifted tsu_xf.circ_slant_shift)(numeral.zero);
233 tsu_render;
234 endtsuglyph;
235

```



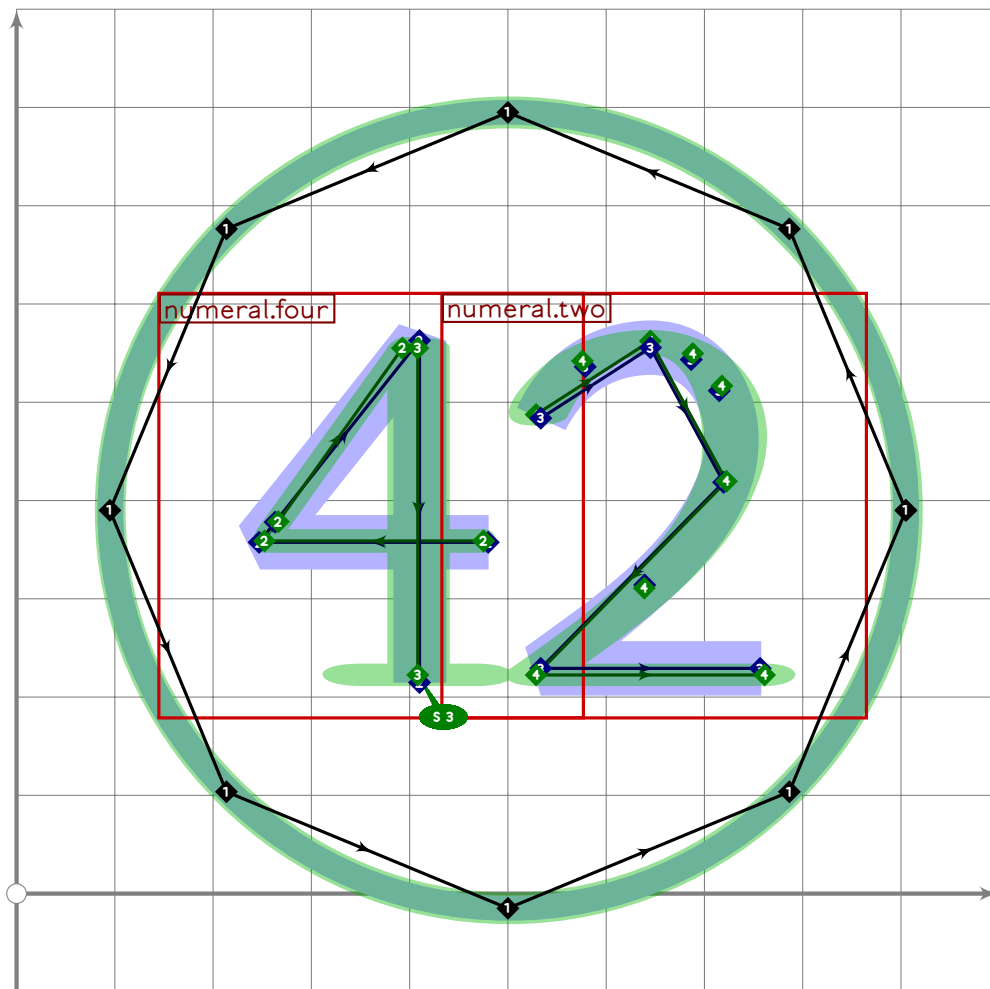
```

236 % 41
237 beginsuglyph("uni32B6",182);
238   circle.single;
239   tsu_xform(tsu_xf.ctwo.left shifted tsu_xf.circ_slant_shift)(numeral.four);
240   numeric x[],y[];
241   tsu_xform(tsu_xf.ctwo.right shifted tsu_xf.circ_slant_shift)(numeral.one);
242   tsu_render;
243 endtsuglyph;
244

```

U+32B7  
tsuku.uni32B7

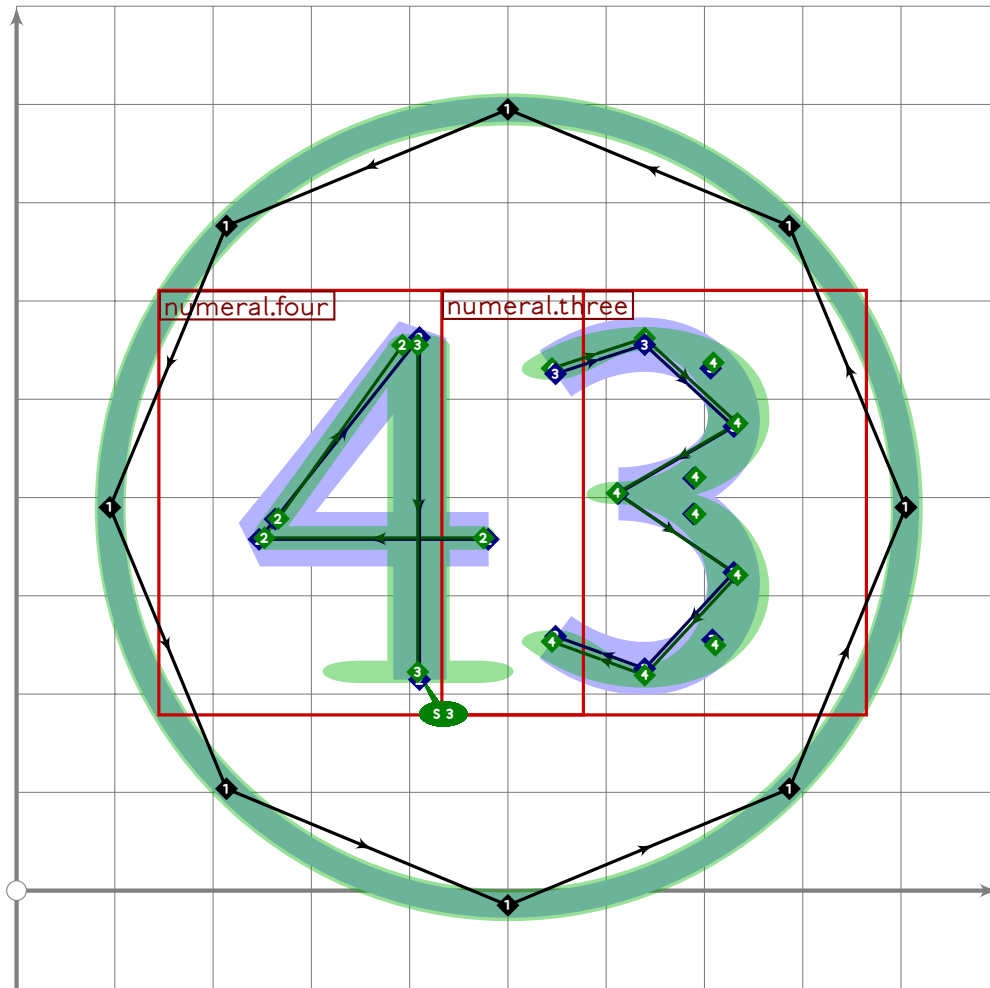
32



```

245 % 42
246 beginsuglyph("uni32B7",183);
247   circle.single;
248   tsu_xform(tsu_xf.ctwo.left shifted tsu_xf.circ_slant_shift)(numeral.four);
249   numeric x[],y[];
250   tsu_xform(tsu_xf.ctwo.right shifted tsu_xf.circ_slant_shift)(numeral.two);
251   tsu_render;
252 endsuglyph;
253

```



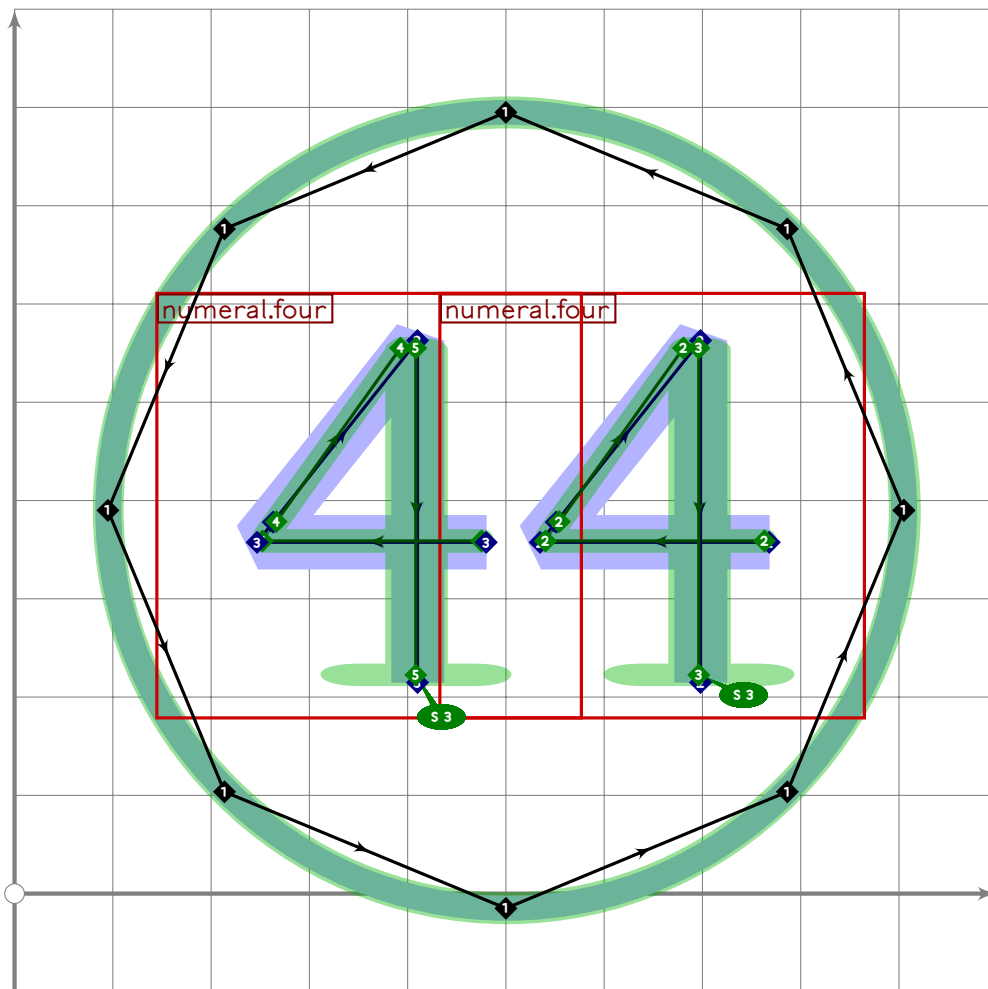
```

254 % 43
255 begintsuglyph("uni32B8",184);
256   circle.single;
257   tsu_xform(tsu_xf.ctwo.left shifted tsu_xf.circ_slant_shift)(numeral.four);
258   numeric x[],y[];
259   tsu_xform(tsu_xf.ctwo.right shifted tsu_xf.circ_slant_shift)
260     (numeral.three);
261   tsu_render;
262 endtsuglyph;
263

```

U+32B9  
tsuku.uni32B9

32

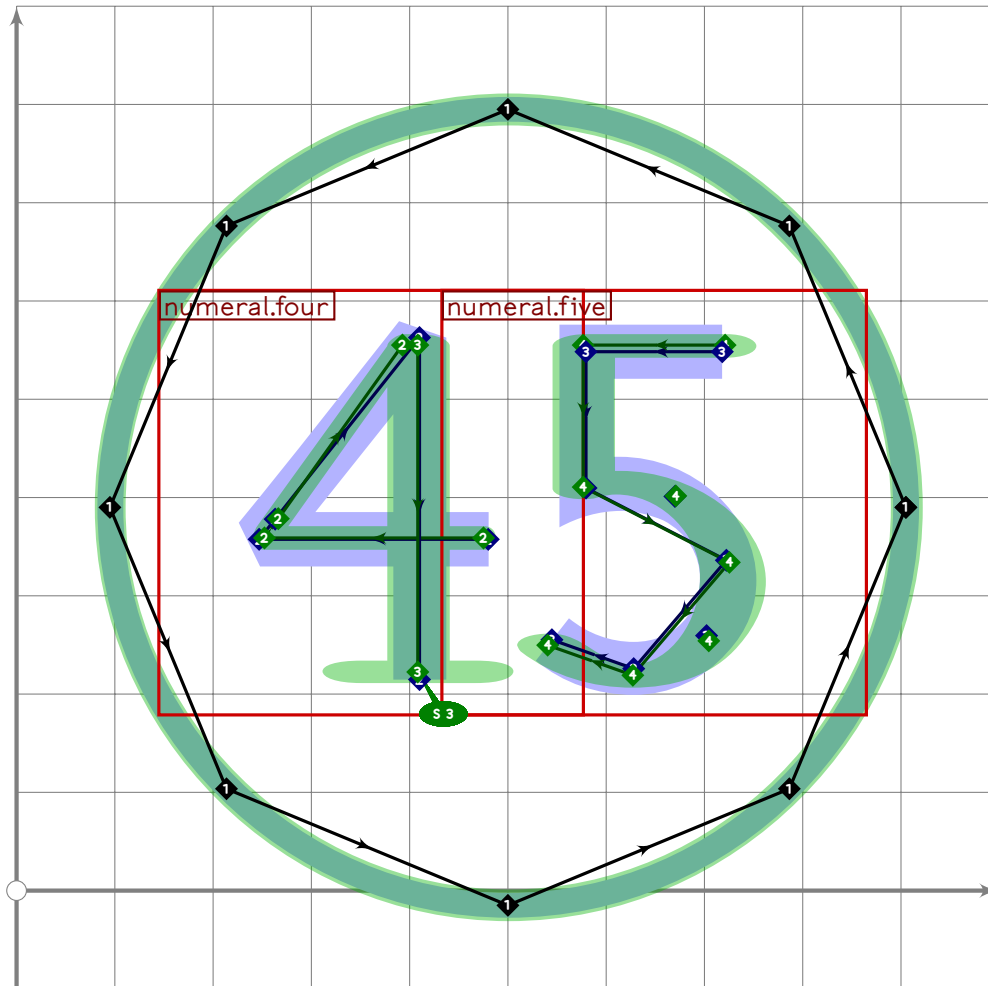


```

264 % 44
265 beginsuglyph("uni32B9",185);
266   circle.single;
267   tsu_xform(tsu_xf.ctwo.right shifted tsu_xf.circ_slant_shift)(numeral.four);
268   numeric x[],y[];
269   tsu_xform(tsu_xf.ctwo.left shifted tsu_xf.circ_slant_shift)(numeral.four);
270   tsu_render;
271 endtsuglyph;
272

```

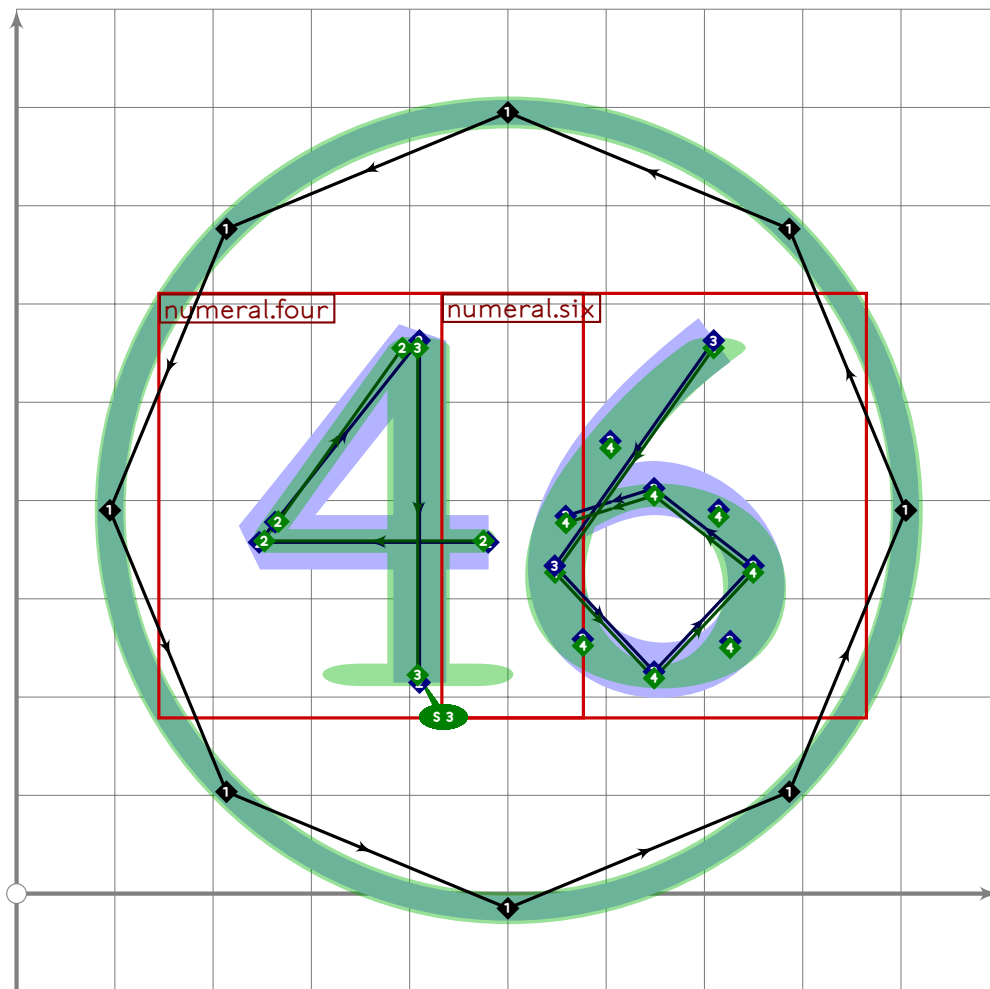




```

273 % 45
274 begintsuglyph("uni32BA",186);
275   circle.single;
276   tsu_xform(tsu_xf.ctwo.left shifted tsu_xf.circ_slant_shift)(numeral.four);
277   numeric x[],y[];
278   tsu_xform(tsu_xf.ctwo.right shifted tsu_xf.circ_slant_shift)(numeral.five);
279   tsu_render;
280 endtsuglyph;
281

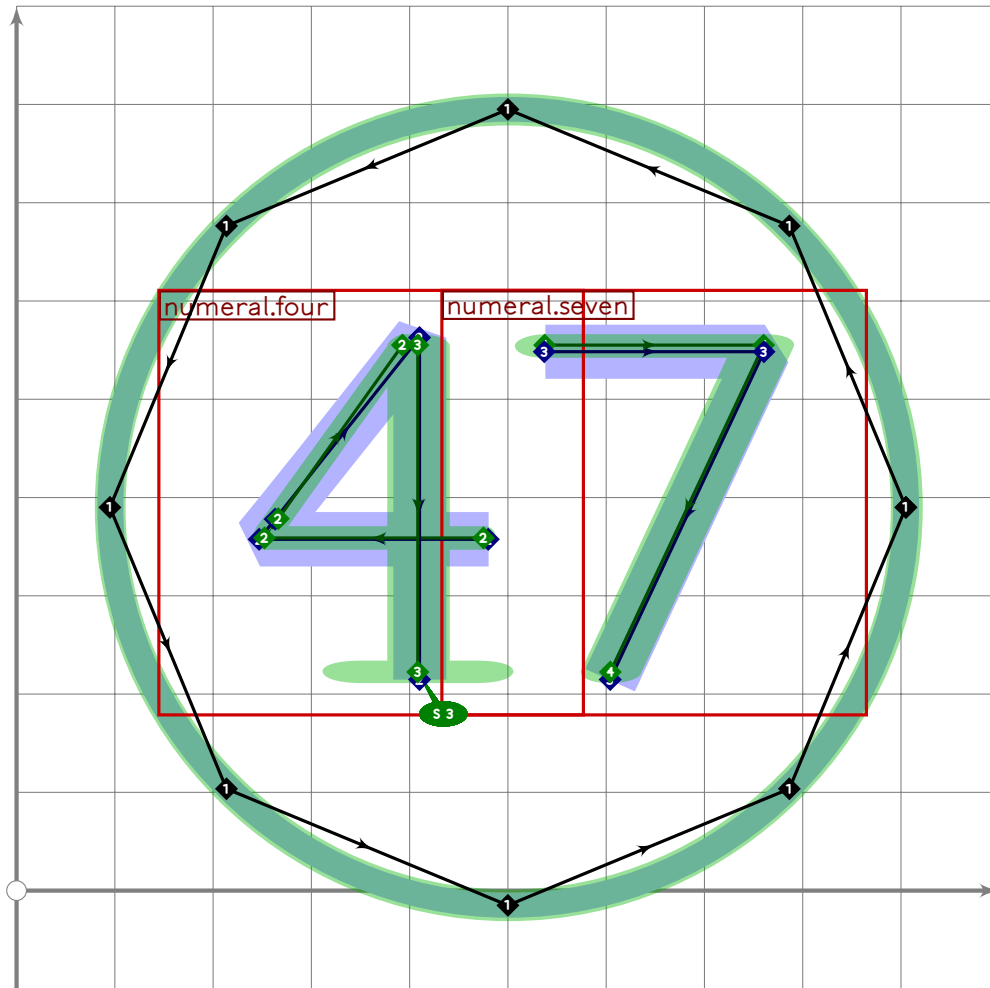
```



```

282 % 46
283 beginsuglyph("uni32BB",187);
284   circle.single;
285   tsu_xform(tsu_xf.ctwo.left shifted tsu_xf.circ_slant_shift)(numeral.four);
286   numeric x[],y[];
287   tsu_xform(tsu_xf.ctwo.right shifted tsu_xf.circ_slant_shift)(numeral.six);
288   tsu_render;
289 endtsuglyph;
290

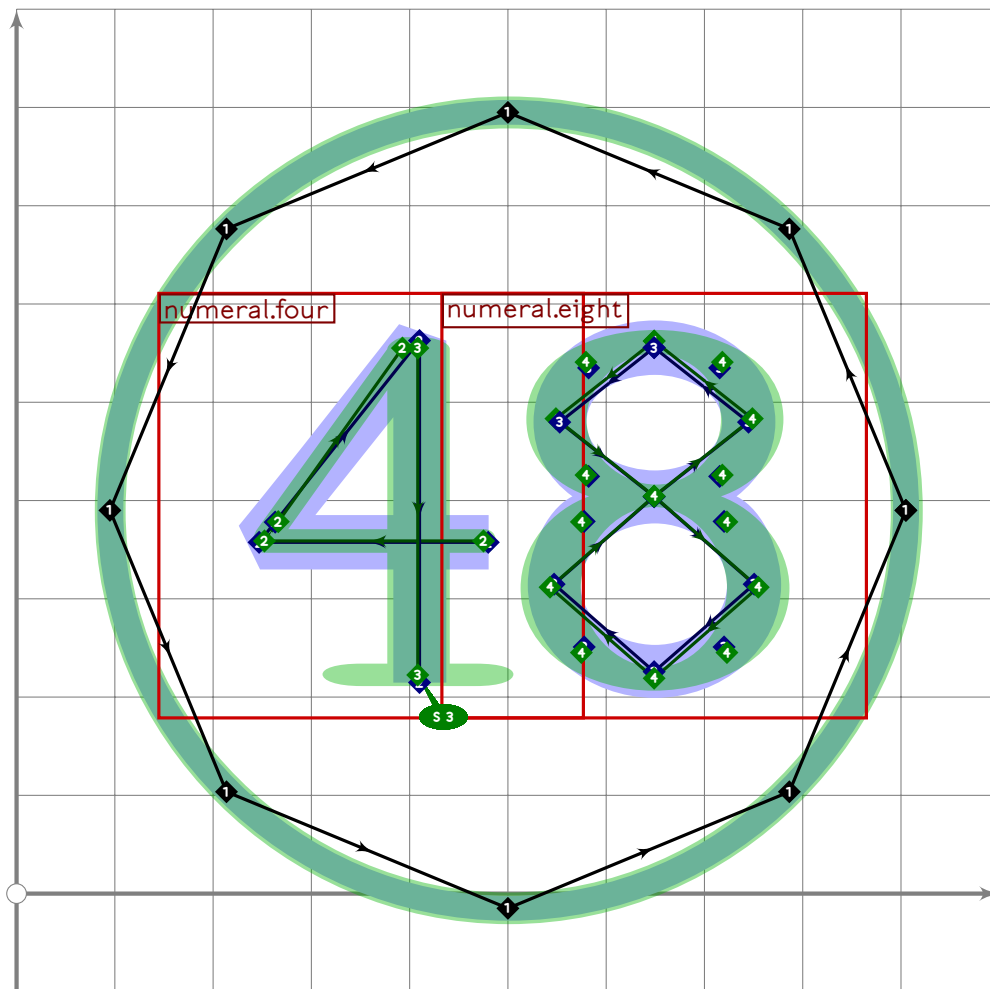
```



```

291 % 47
292 begintsuglyph("uni32BC",188);
293   circle.single;
294   tsu_xform(tsu_xf.ctwo.left shifted tsu_xf.circ_slant_shift)(numeral.four);
295   numeric x[],y[];
296   tsu_xform(tsu_xf.ctwo.right shifted tsu_xf.circ_slant_shift)
297     (numeral.seven);
298   tsu_render;
299 endtsuglyph;
300

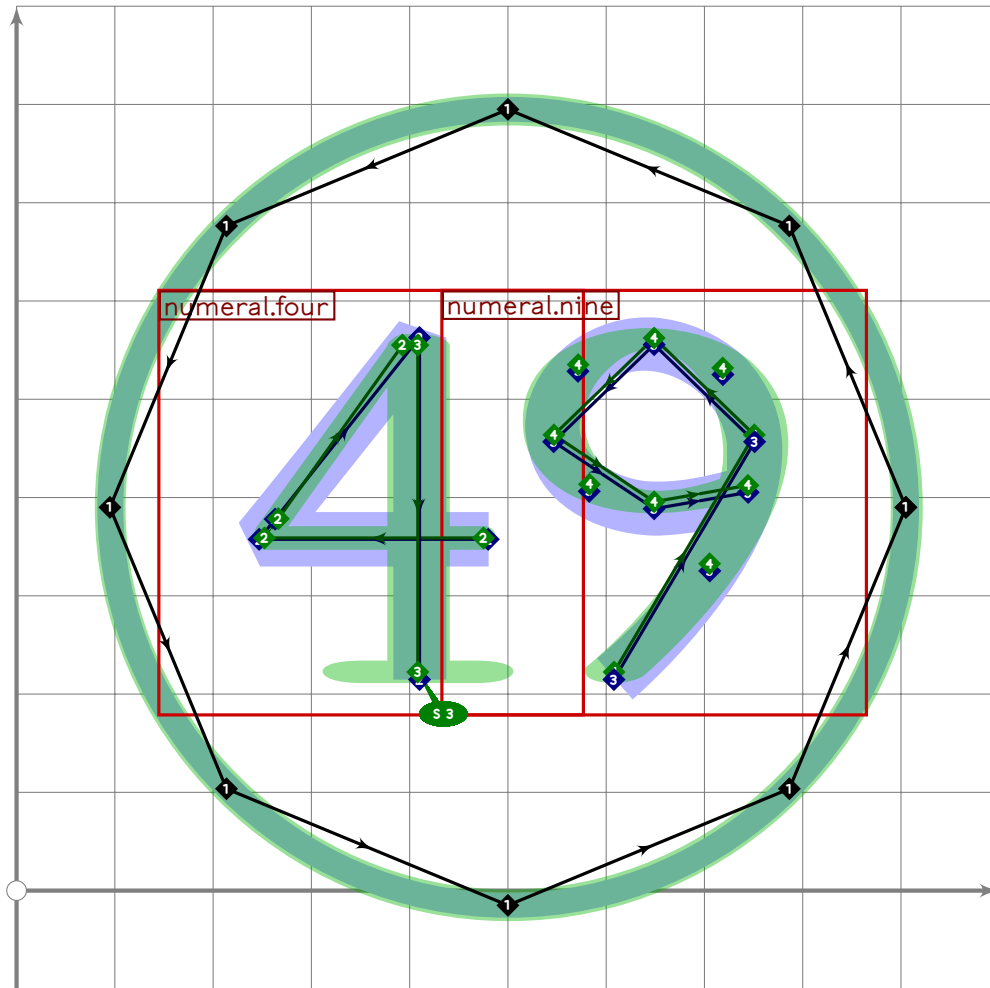
```



```

301 % 48
302 begintsuglyph("uni32BD";189);
303   circle.single;
304   tsu_xform(tsu_xf.ctwo.left shifted tsu_xf.circ_slant_shift)(numeral.four);
305   numeric x[],y[];
306   tsu_xform(tsu_xf.ctwo.right shifted tsu_xf.circ_slant_shift)
307     (numeral.eight);
308   tsu_render;
309 endtsuglyph;
310

```



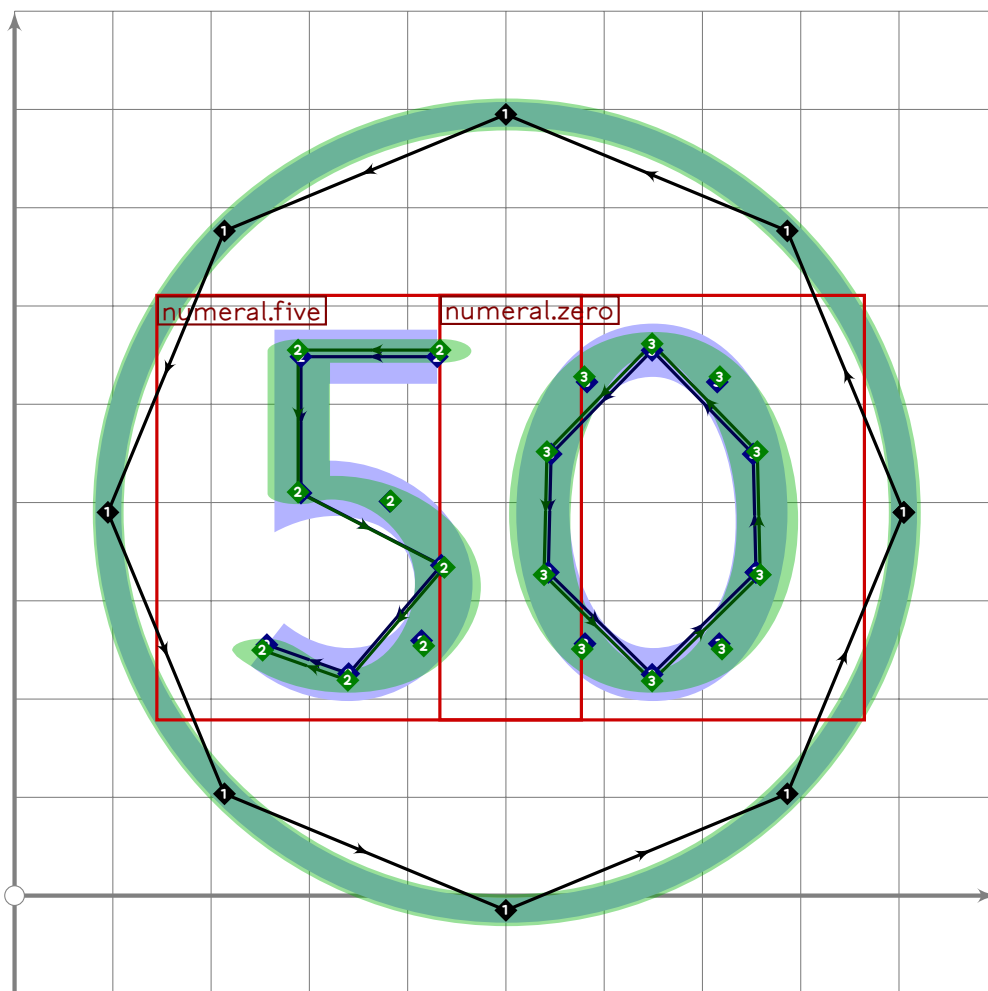
```

311 % 49
312 begint Suglyph("uni32BE",190);
313   circle.single;
314   tsu_xform(tsu_xf.ctwo.left shifted tsu_xf.circ_slant_shift)(numeral.four);
315   numeric x[],y[];
316   tsu_xform(tsu_xf.ctwo.right shifted tsu_xf.circ_slant_shift)(numeral.nine);
317   tsu_render;
318 endtsuglyph;
319

```

U+32BF  
tsuku.uni32BF

32



```

320 % 50
321 begintsuglyph("uni32BF",191);
322   circle.single;
323   tsu_xform(tsu_xf.ctwo.left shifted tsu_xf.circ_slant_shift)(numeral.five);
324   numeric x[],y[];
325   tsu_xform(tsu_xf.ctwo.right shifted tsu_xf.circ_slant_shift)(numeral.zero);
326   tsu_render;
327 endtsuglyph;
328
329
330

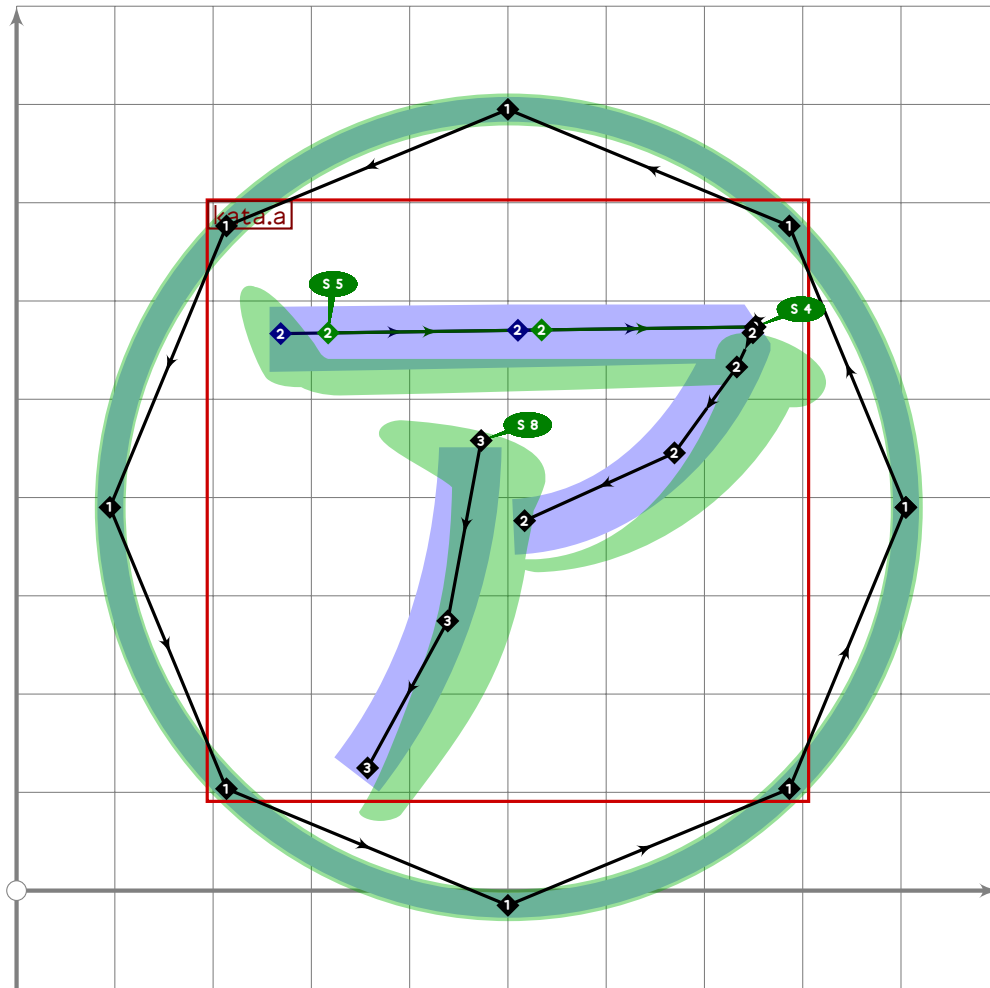
```

## Circled Katakana

```

331 % CIRCLED KATAKANA
332
333 rescale_slant:=0;
334

```



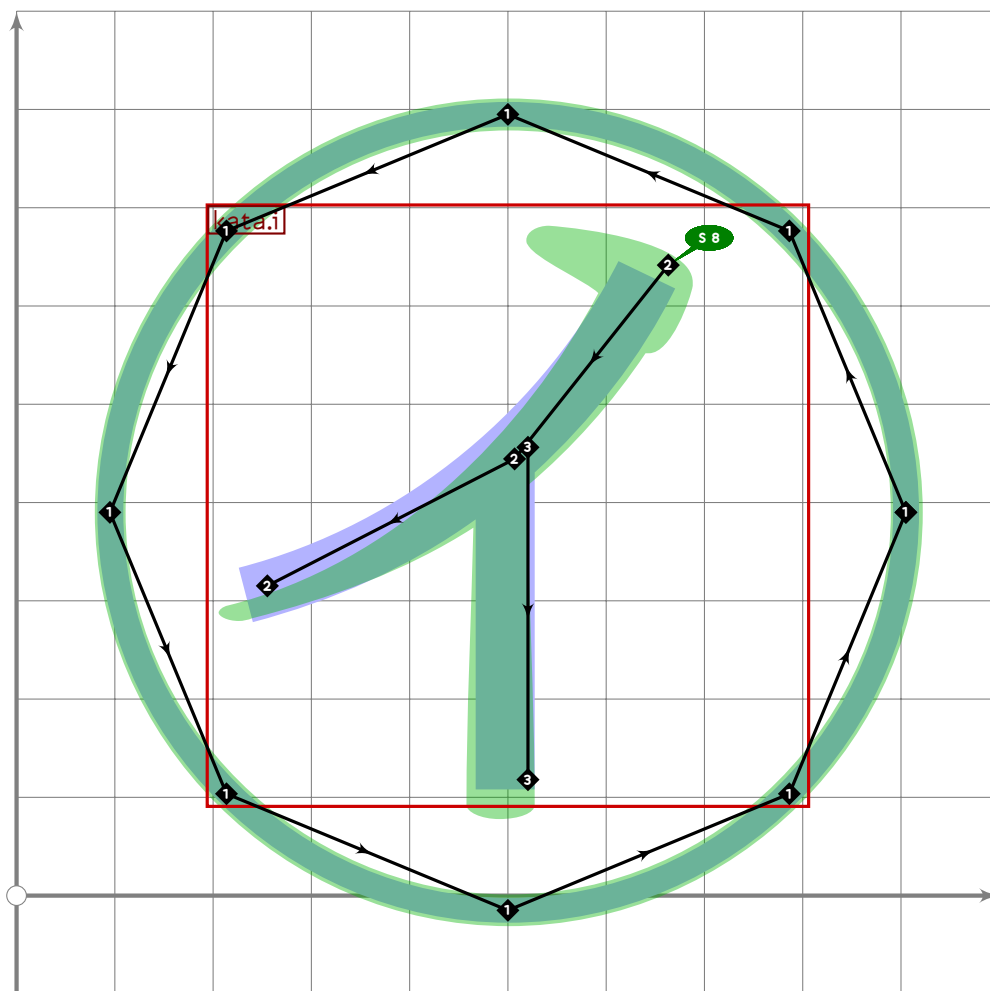
```

335 % circled "a"
336 begintsuglyph("uni32D0";208);
337   circle.single;
338   tsu_xform(tsu_xf.circled)(kata.a);
339   tsu_render_in_circle(tsu_xf.cbound);
340 endtsuglyph;
341

```

U+32D1  
tsuku.uni32D1

32

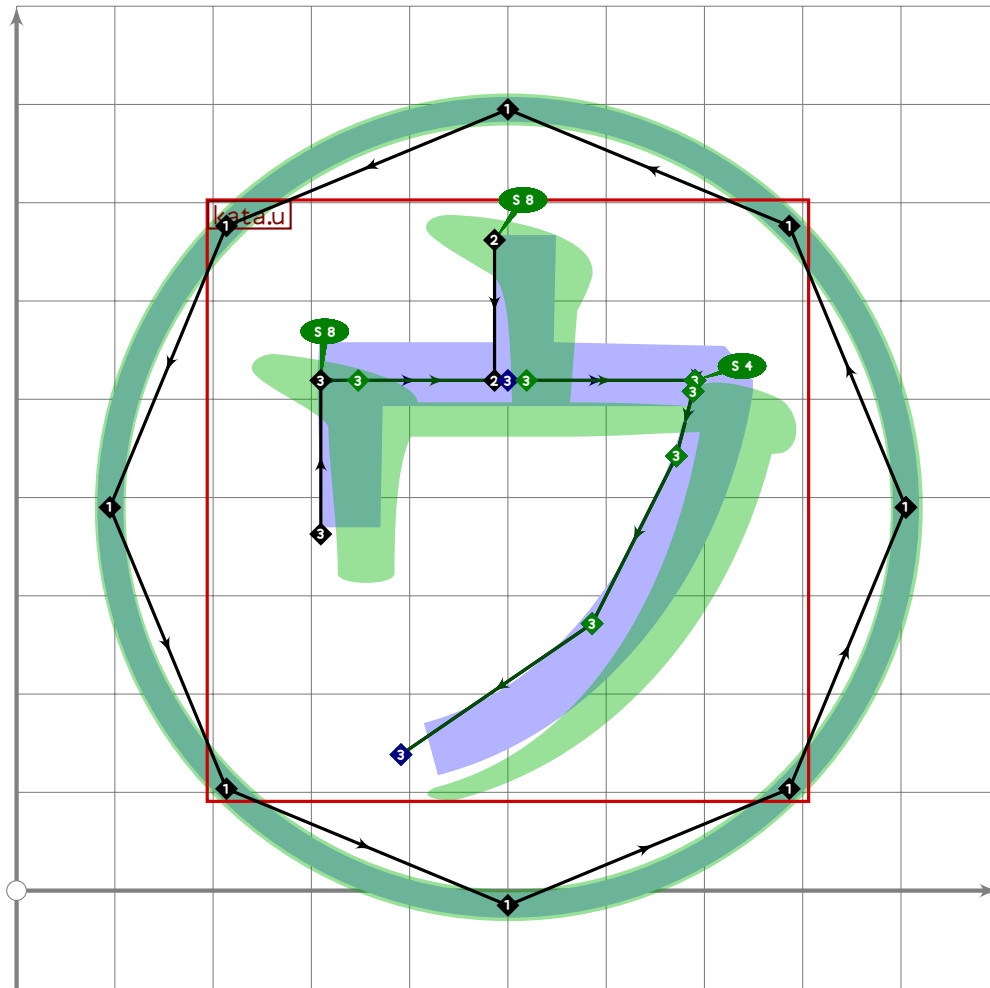


```

342 % circled "i"
343 begintsuglyph("uni32D1";209);
344   circle.single;
345   tsu_xform(tsu_xf.circled)(kata.i);
346   tsu_render_in_circle(tsu_xf.cbound);
347 endtsuglyph;
348

```





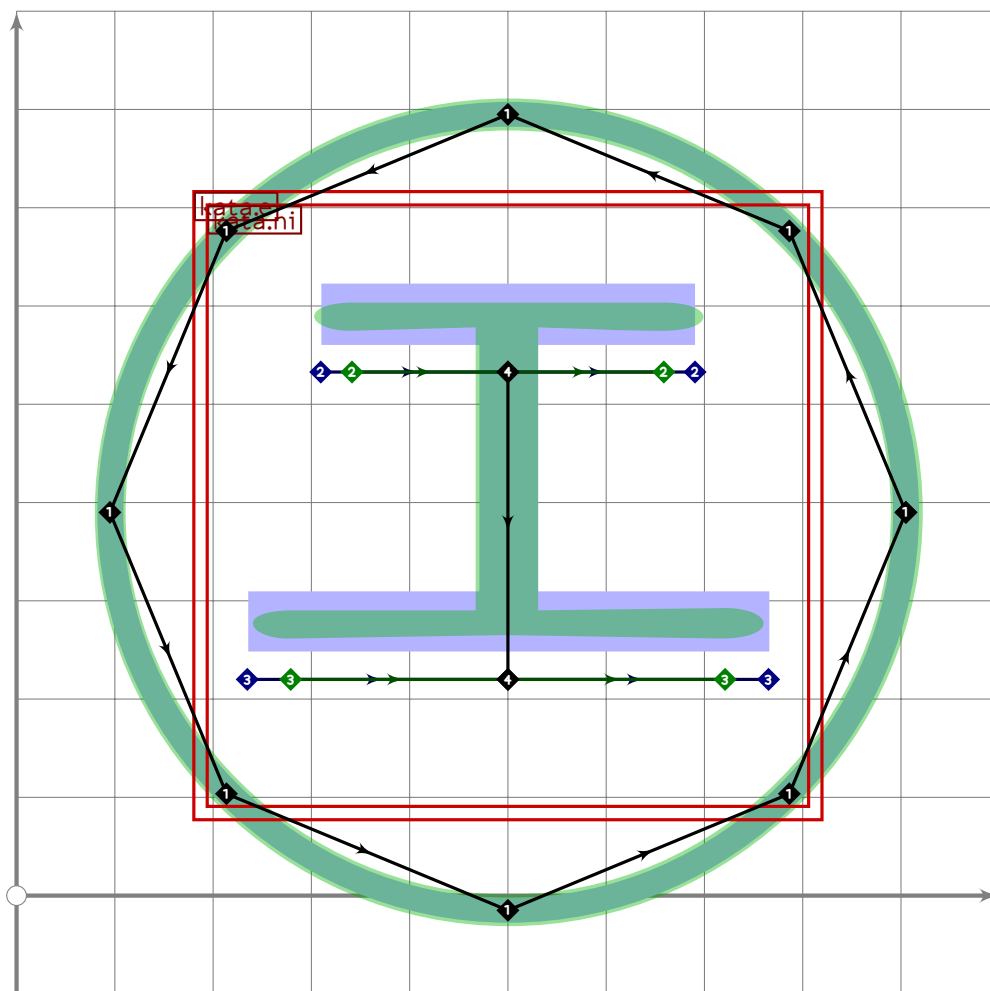
```

349 % circled "u"
350 begintsuglyph("uni32D2";210);
351   circle.single;
352   tsu_xform(tsu_xf.circled)(kata.u);
353   tsu_render_in_circle(tsu_xf.cbound);
354 endtsuglyph;
355

```

U+32D3  
tsuku.uni32D3

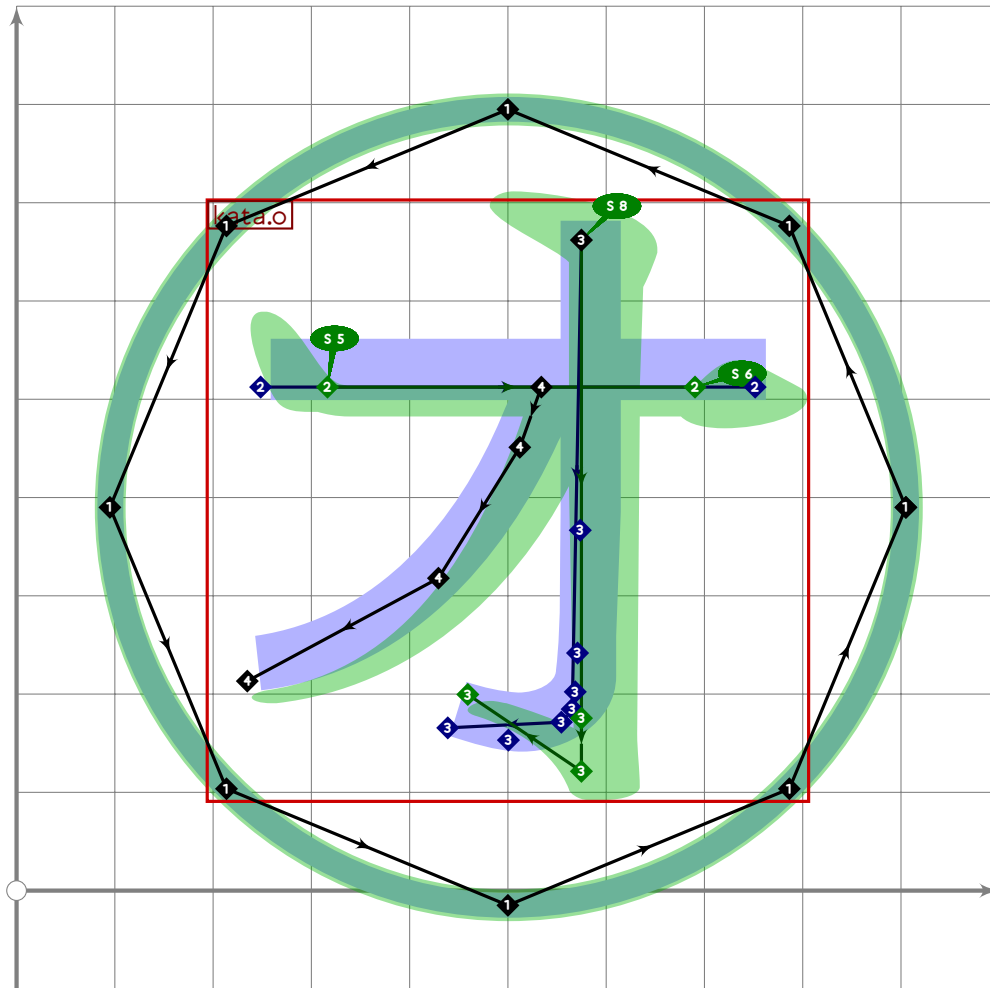
32



```

356 % circled "e"
357 begintsuglyph("uni32D3",211);
358   circle.single;
359   tsu_xform(tsu_xf.circled)(kata.e);
360   tsu_render_in_circle(tsu_xf.cbound);
361 endtsuglyph;
362

```



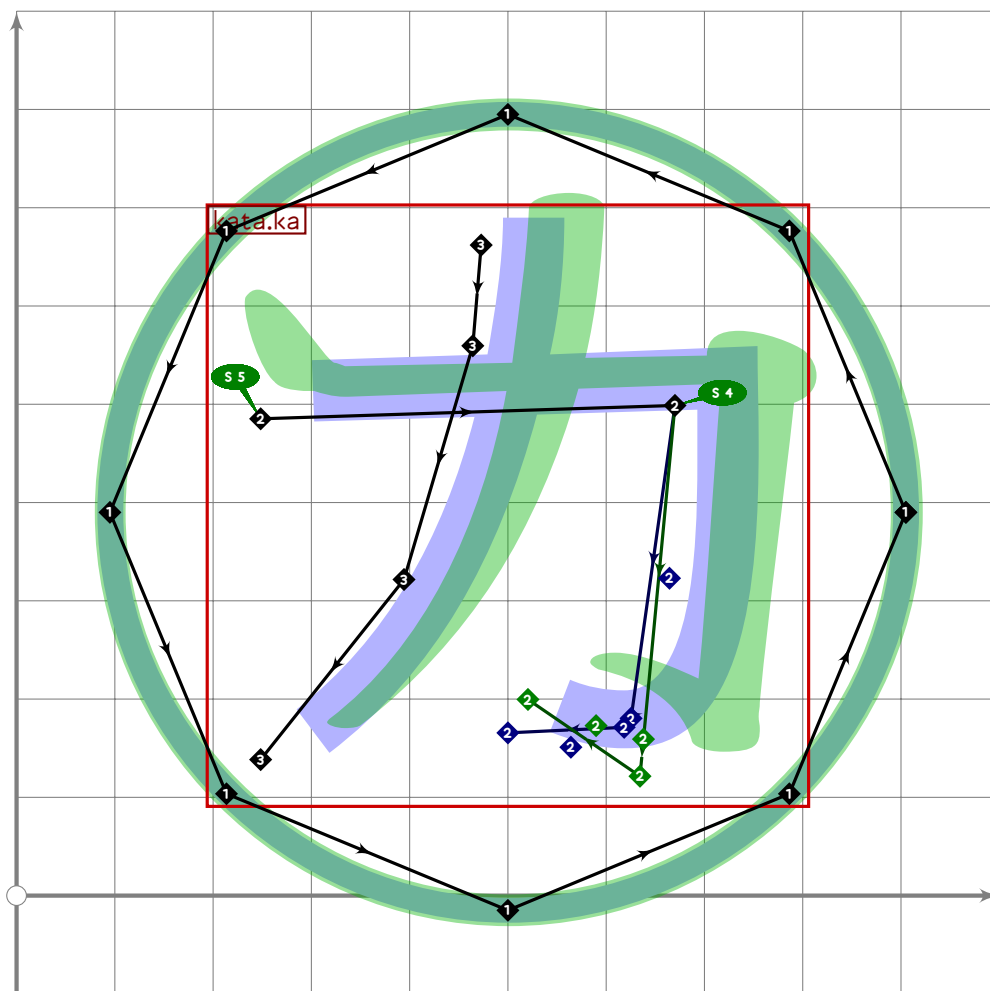
```

363 % circled "o"
364 begintsuglyph("uni32D4";212);
365   circle.single;
366   tsu_xform(tsu_xf.circled)(kata.o);
367   tsu_render_in_circle(tsu_xf.cbound);
368 endtsuglyph;
369

```

U+32D5  
tsuku.uni32D5

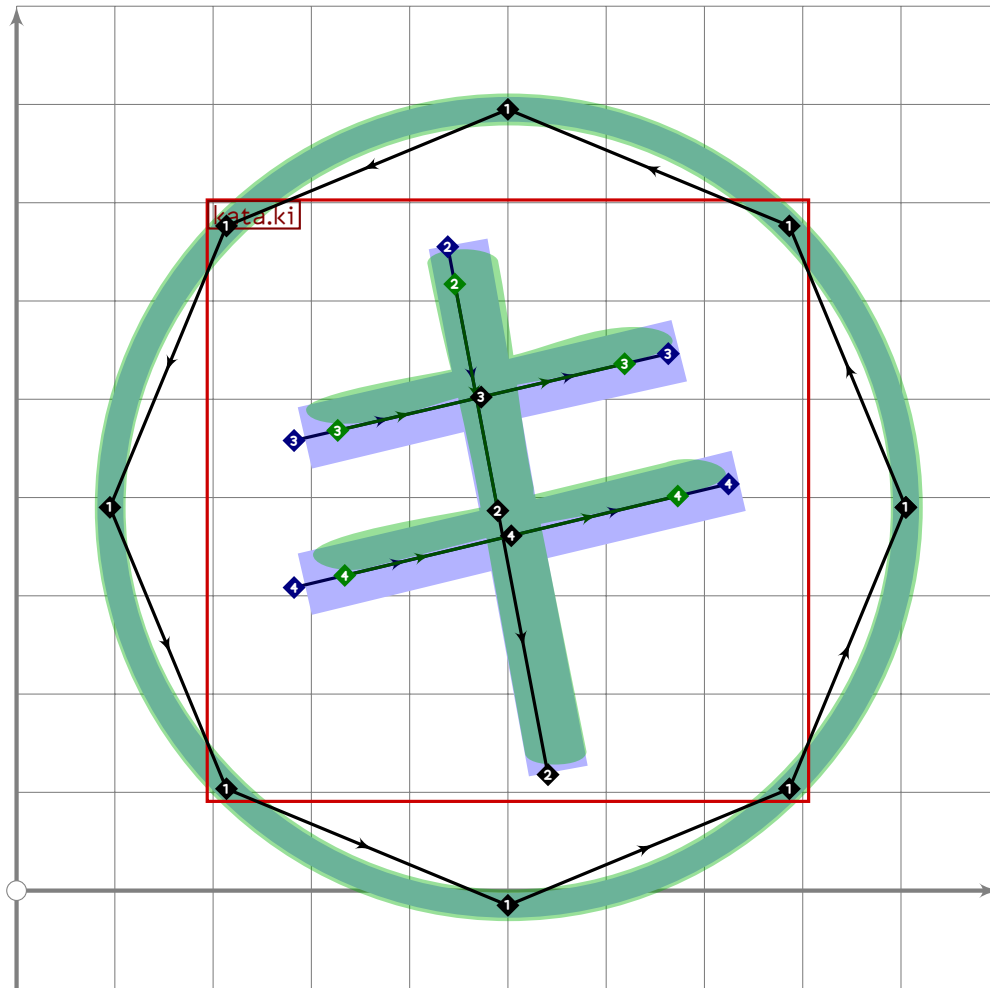
32



```

370 % circled "ka"
371 begintsuglyph("uni32D5",213);
372   circle.single;
373   tsu_xform(tsu_xf.circled)(kata.ka);
374   tsu_render_in_circle(tsu_xf.cbound);
375 endtsuglyph;
376

```



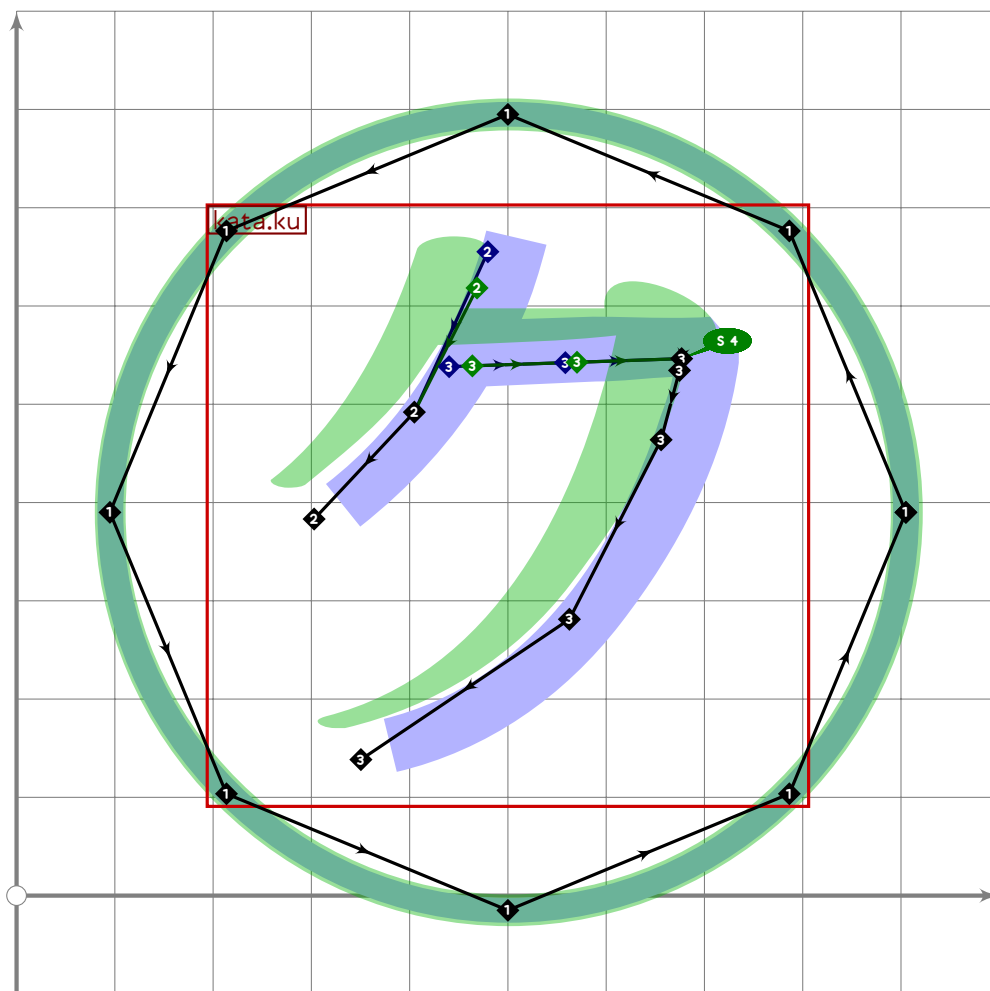
```

377 % circled "ki"
378 begintsuglyph("uni32D6";214);
379   circle.single;
380   tsu_xform(tsu_xf.circled)(kata.ki);
381   tsu_render_in_circle(tsu_xf.cbound);
382 endtsuglyph;
383

```

U+32D7  
tsuku.uni32D7

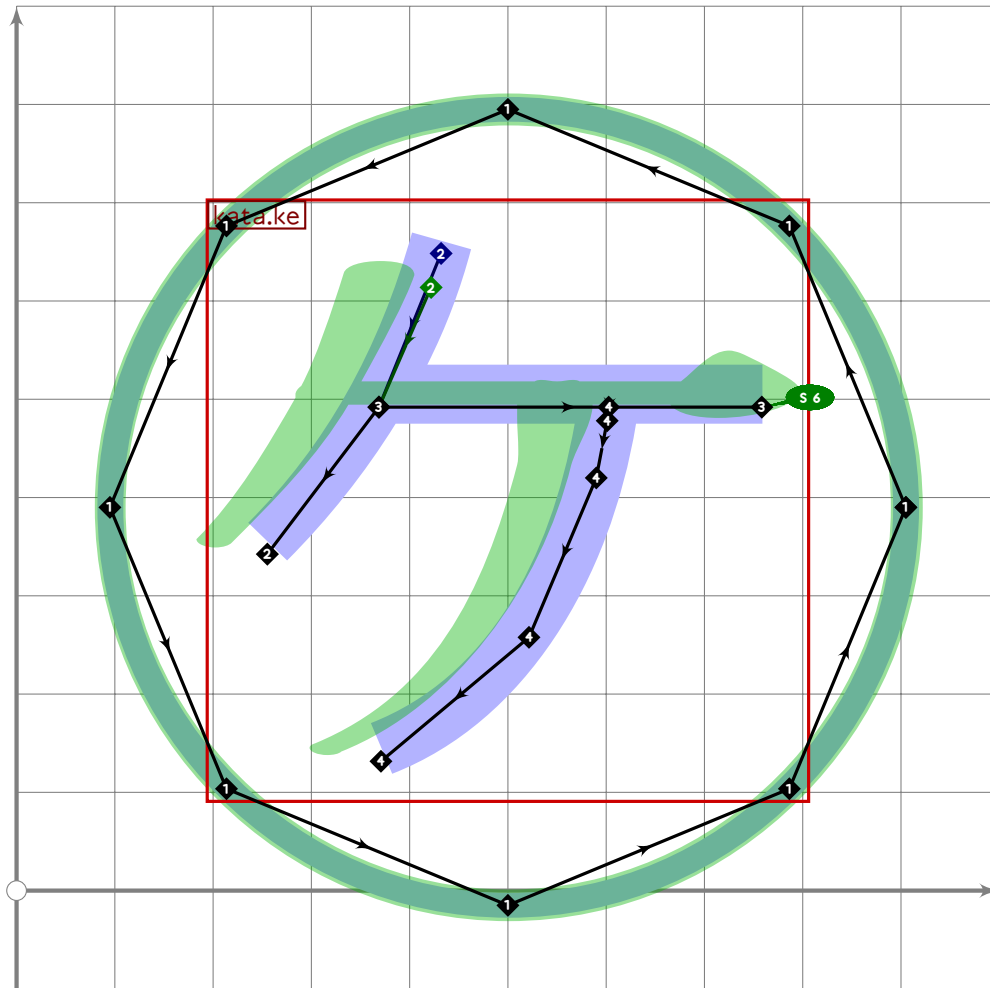
32



```

384 % circled "ku"
385 begintsuglyph("uni32D7";215);
386   circle.single;
387   tsu_xform(tsu_xf.circled)(kata.ku);
388   tsu_render_in_circle(tsu_xf.cbound);
389 endtsuglyph;
390

```



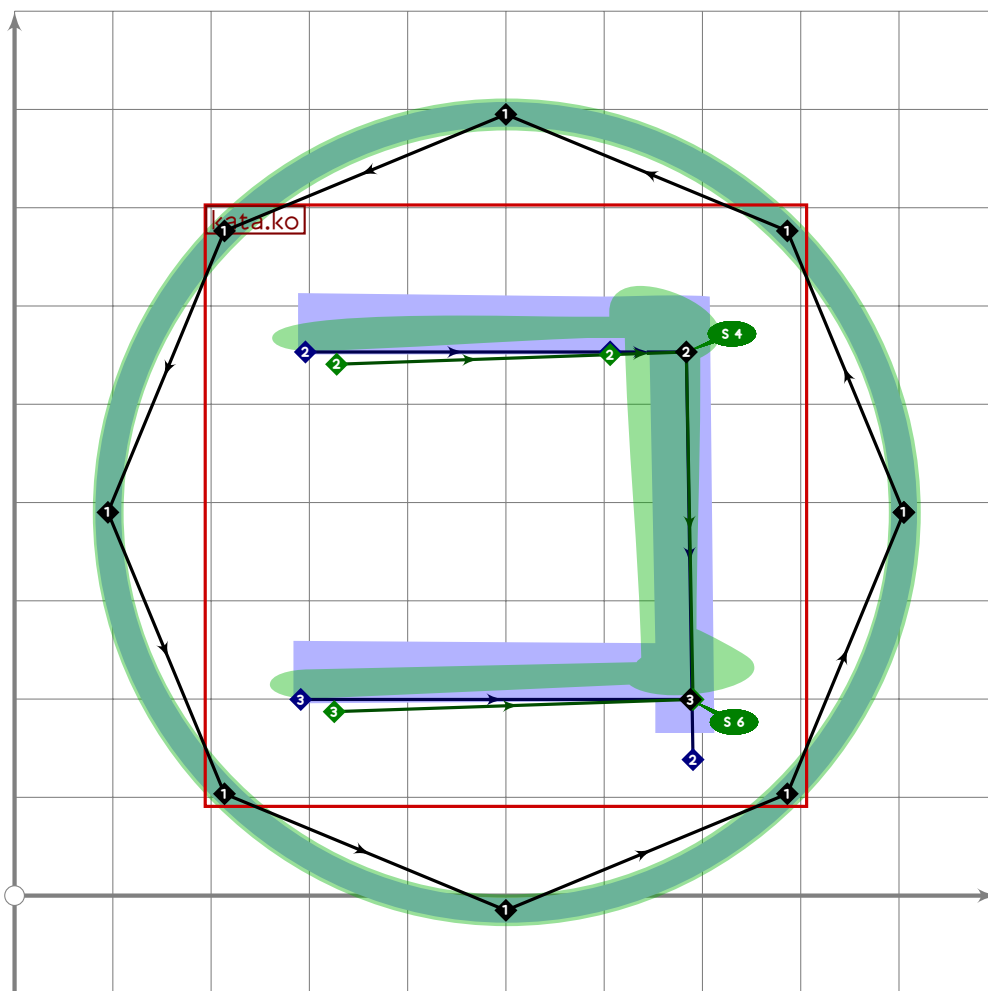
```

391 % circled "ke"
392 begintsuglyph("uni32D8";216);
393   circle.single;
394   tsu_xform(tsu_xf.circled)(kata.ke);
395   tsu_render_in_circle(tsu_xf.cbound);
396 endtsuglyph;
397

```

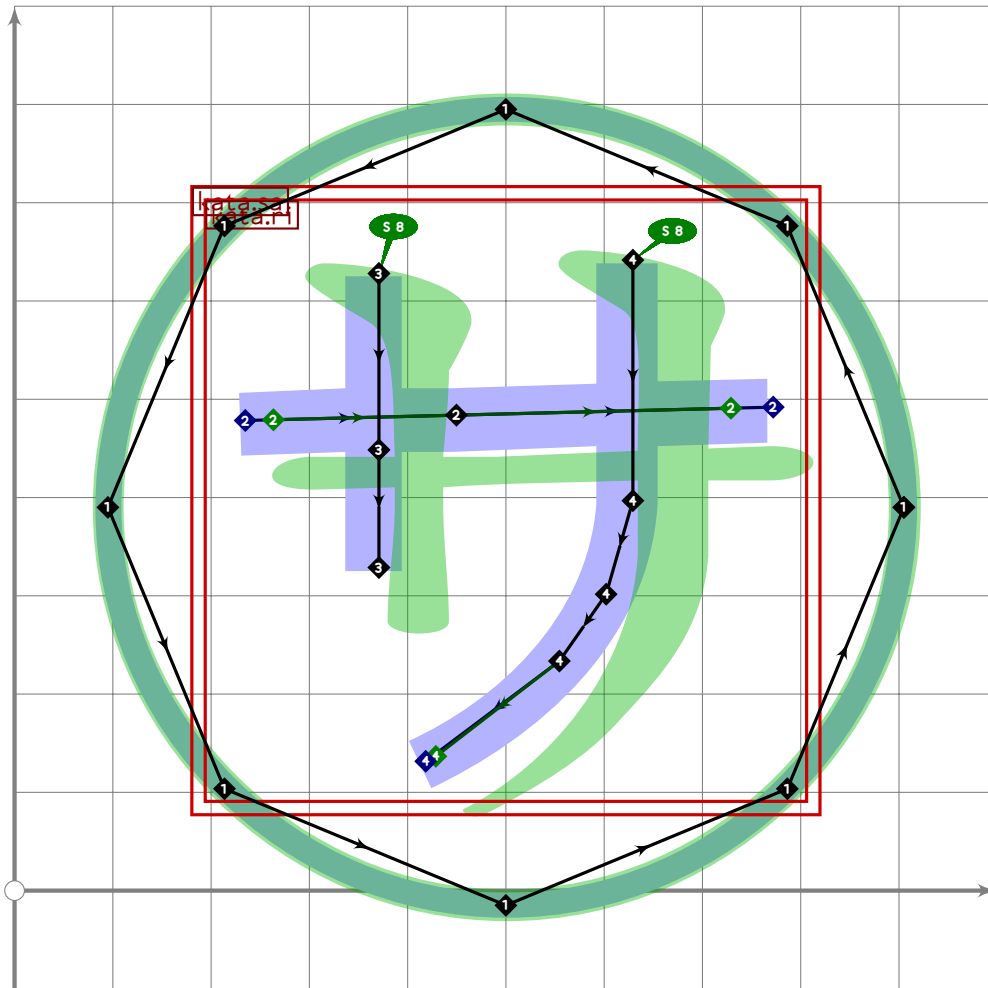
U+32D9  
tsuku.uni32D9

32



```
398 % circled "ko"
399 begintsuglyph("uni32D9";217);
400 circle.single;
401 tsu_xform(tsu_xf.circled)(kata.ko);
402 tsu_render_in_circle(tsu_xf.cbound);
403 endtsuglyph;
404
```

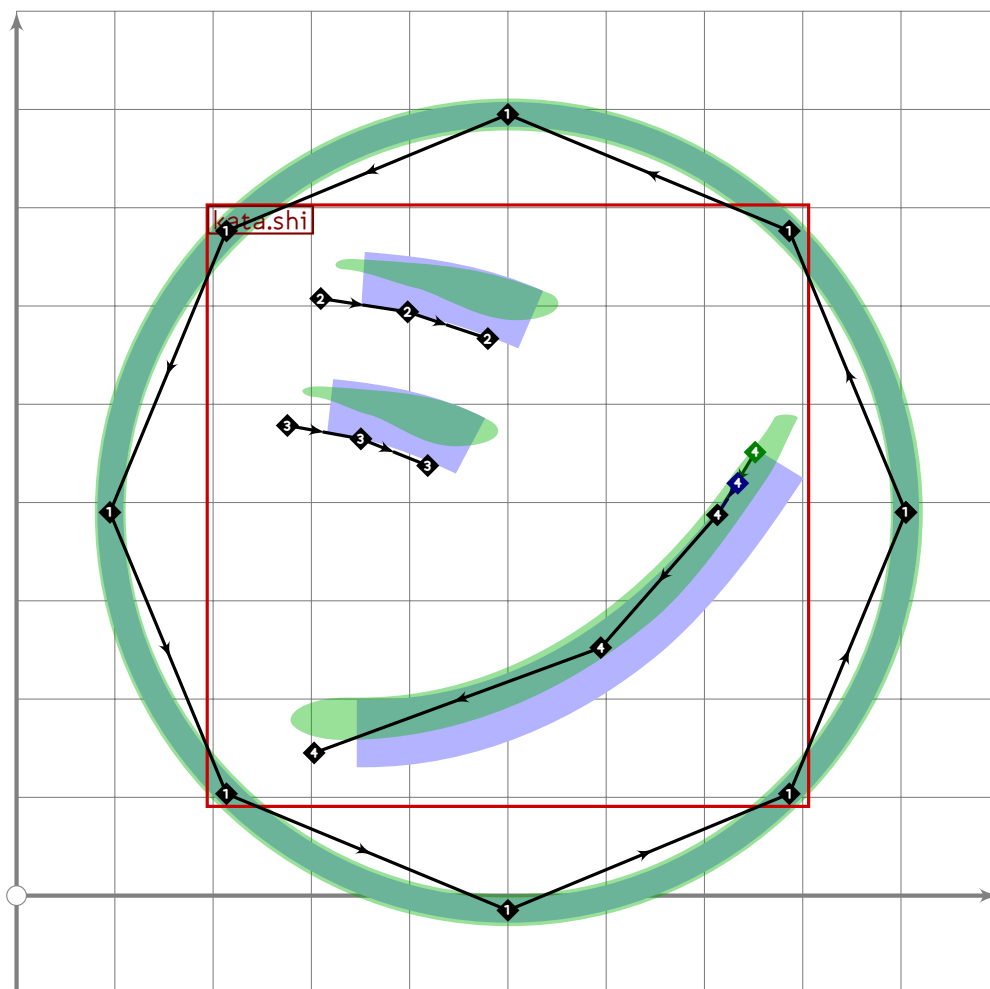




```

405 % circled "sa"
406 begintsuglyph("uni32DA";218);
407   circle.single;
408   tsu_xform(tsu_xf.circled)(kata.sa);
409   tsu_render_in_circle(tsu_xf.cbound);
410 endtsuglyph;
411

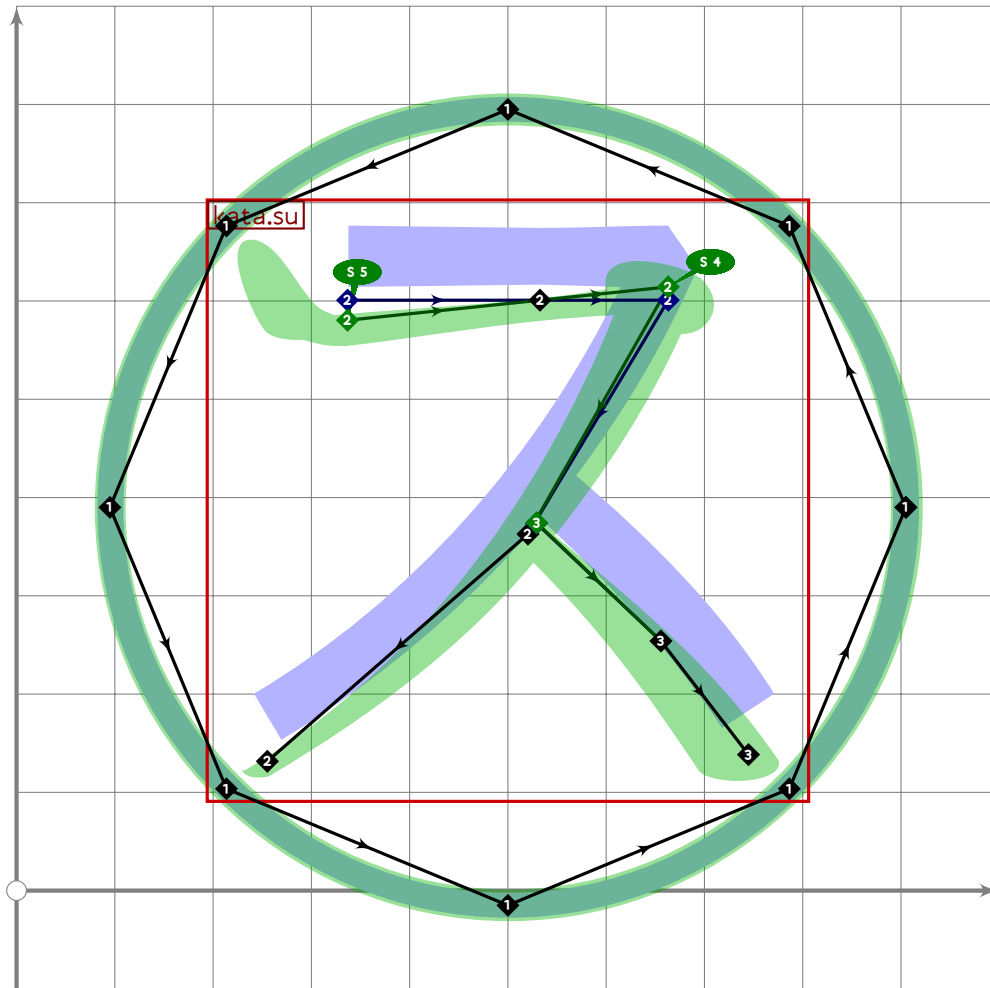
```



```

412 % circled "shi"
413 begintsuglyph("uni32DB";219);
414   circle.single;
415   tsu_xform(tsu_xf.circled)(kata.shi);
416   tsu_render_in_circle(tsu_xf.cbound);
417 endtsuglyph;
418

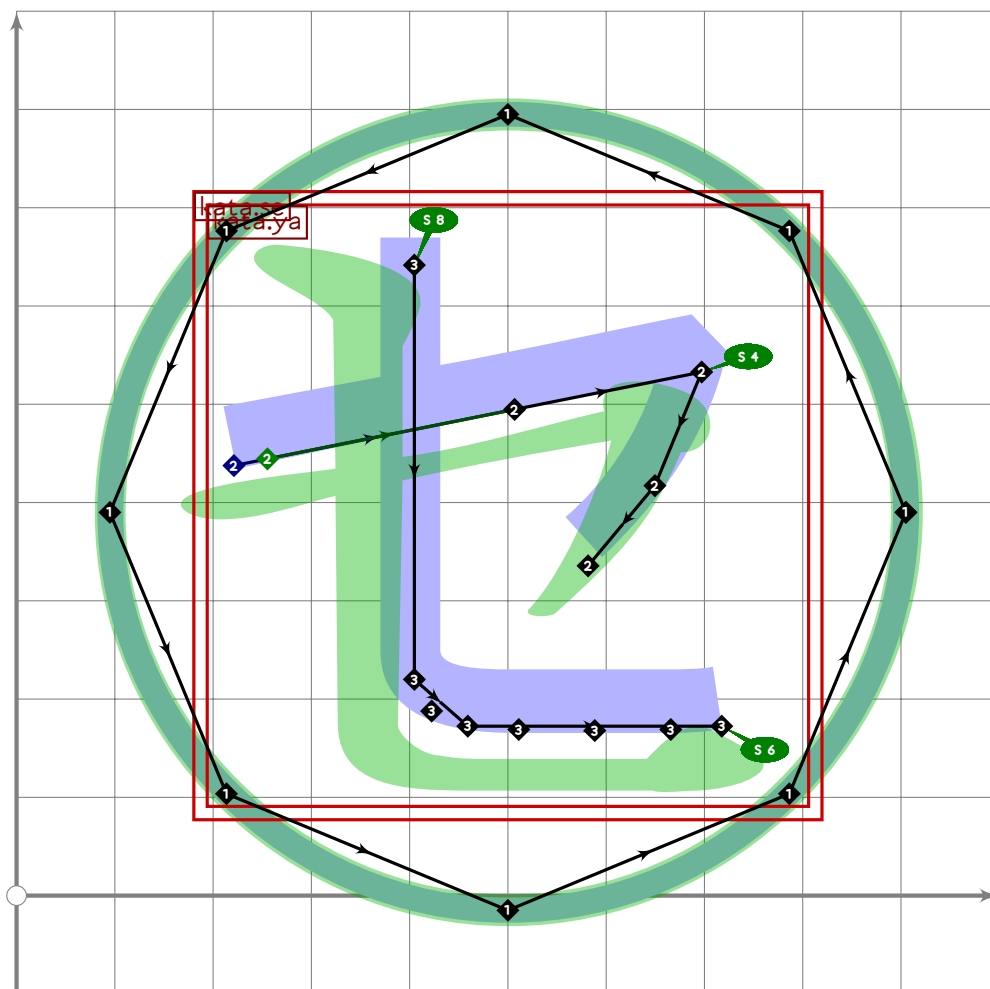
```



```

419 % circled "su"
420 begintsuglyph("uni32DC";220);
421   circle.single;
422   tsu_xform(tsu_xf.circled)(kata.su);
423   tsu_render_in_circle(tsu_xf.cbound);
424 endtsuglyph;
425

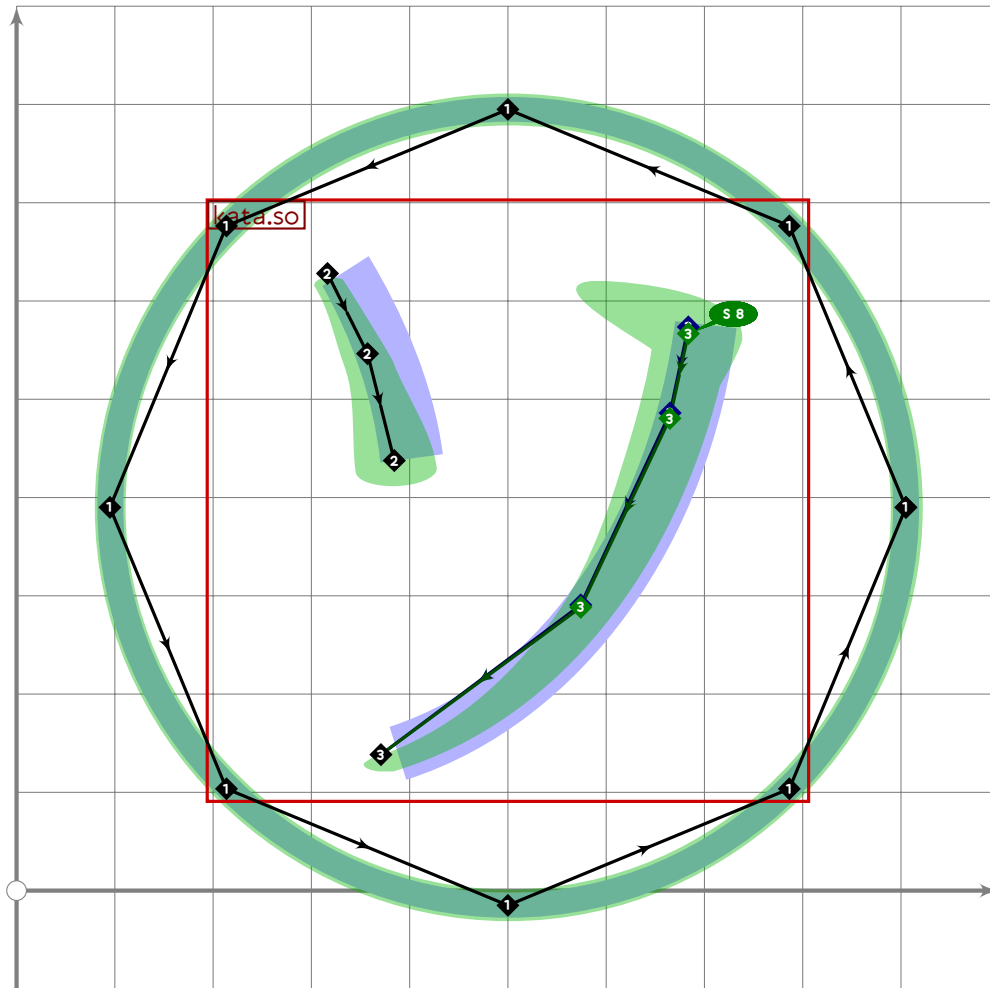
```



```

426 % circled "se"
427 begintsuglyph("uni32DD";221);
428   circle.single;
429   tsu_xform(tsu_xf.circled)(kata.se);
430   tsu_render_in_circle(tsu_xf.cbound);
431 endtsuglyph;
432

```



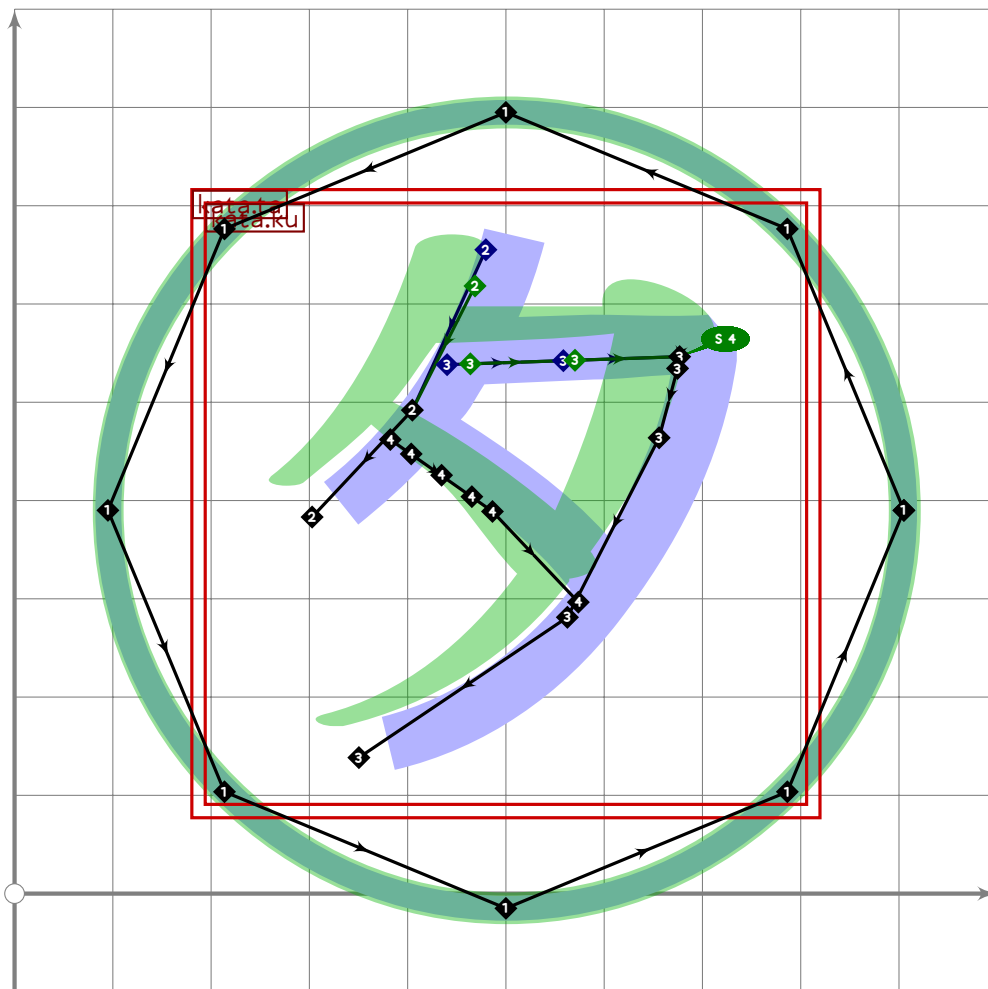
```

433 % circled "so"
434 begintsuglyph("uni32DE";222);
435   circle.single;
436   tsu_xform(tsu_xf.circled)(kata.so);
437   tsu_render_in_circle(tsu_xf.cbound);
438 endtsuglyph;
439

```

U+32DF  
tsuku.uni32DF

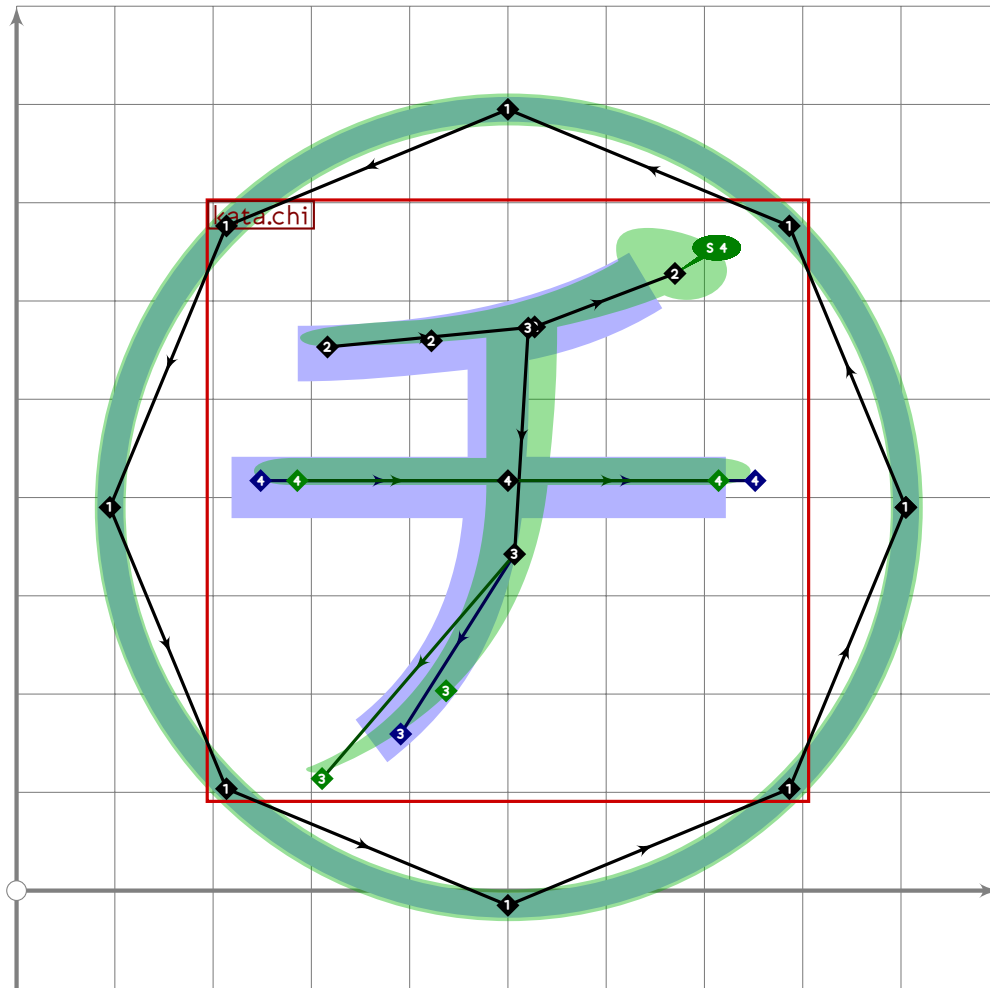
32



```

440 % circled "ta"
441 begintsuglyph("uni32DF";223);
442   circle.single;
443   tsu_xform(tsu_xf.circled)(kata.ta);
444   tsu_render_in_circle(tsu_xf.cbound);
445 endtsuglyph;
446

```



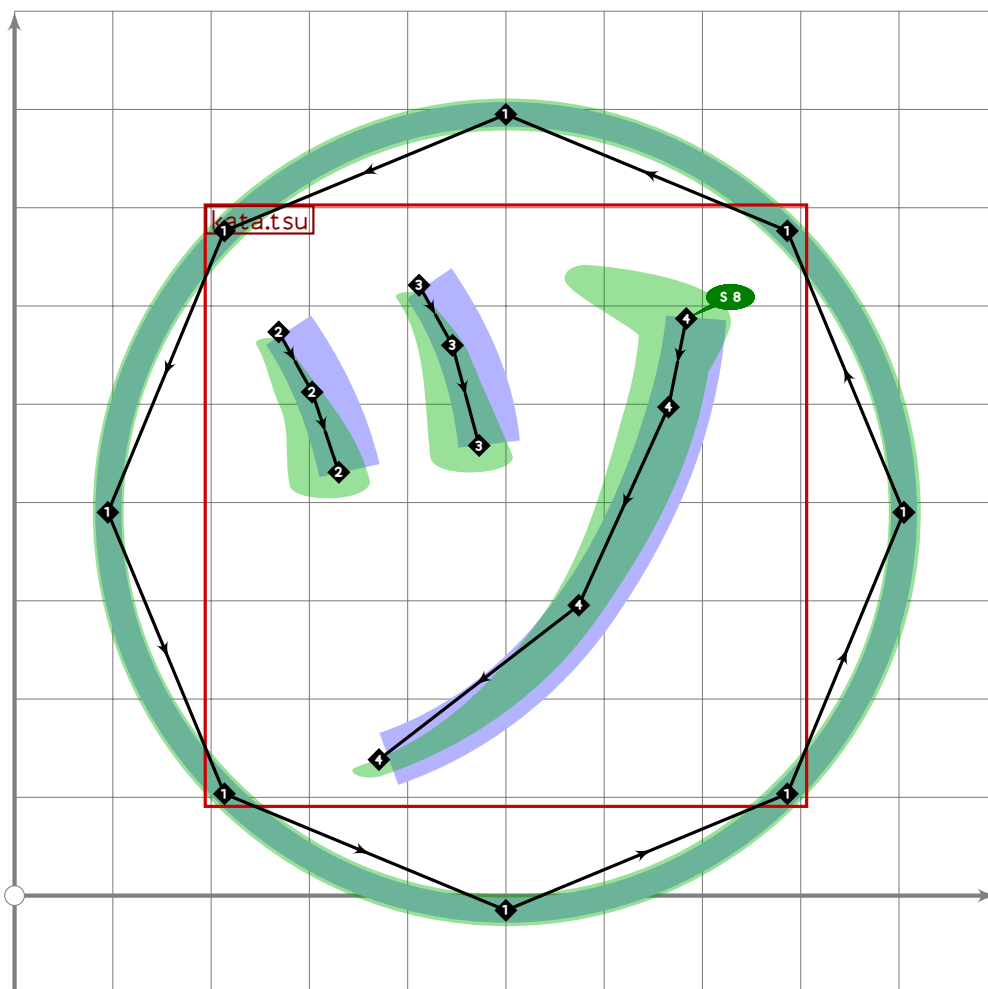
```

447 % circled "chi"
448 begintsuglyph("uni32E0",224);
449   circle.single;
450   tsu_xform(tsu_xf.circled)(kata.chi);
451   tsu_render_in_circle(tsu_xf.cbound);
452 endtsuglyph;
453

```

U+32E1  
tsuku.uni32E1

32

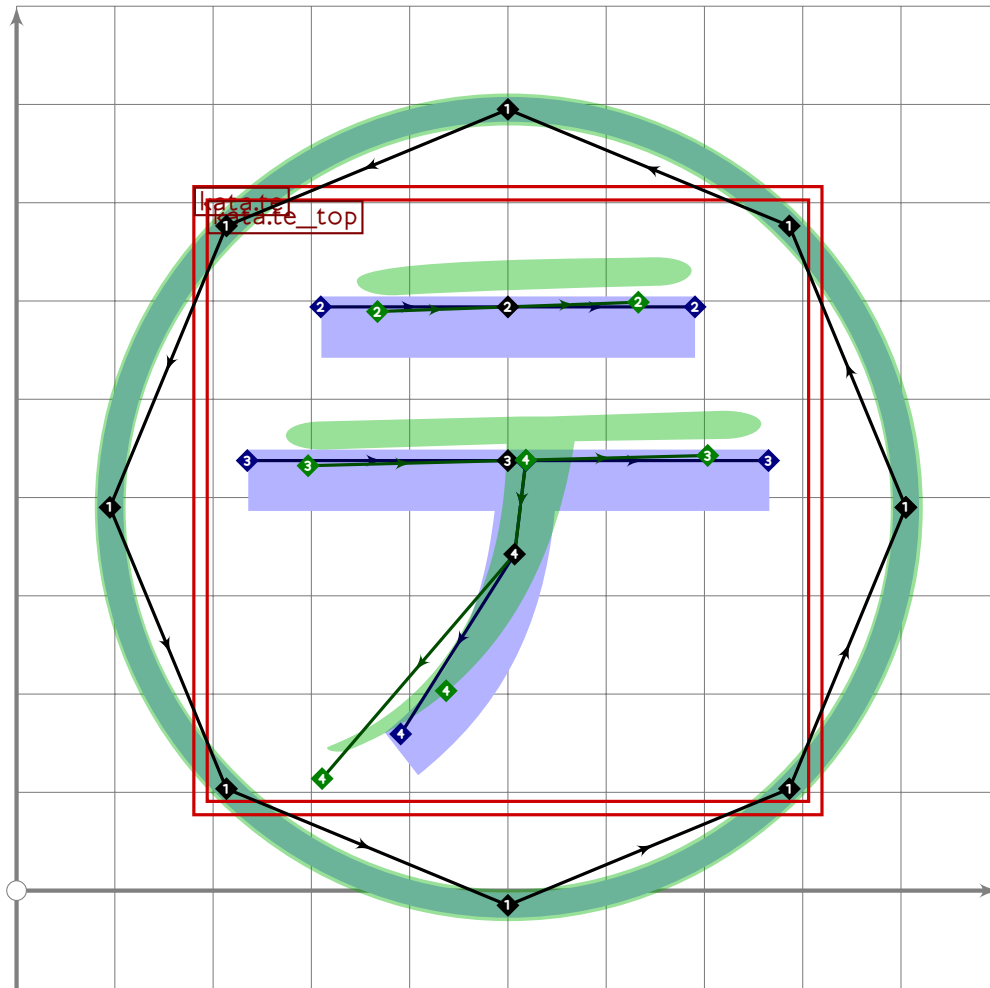


```

454 % circled "tsu"
455 begintsuglyph("uni32E1";225);
456   circle.single;
457   tsu_xform(tsu_xf.circled)(kata.tsu);
458   tsu_render_in_circle(tsu_xf.cbound);
459 endtsuglyph;
460

```





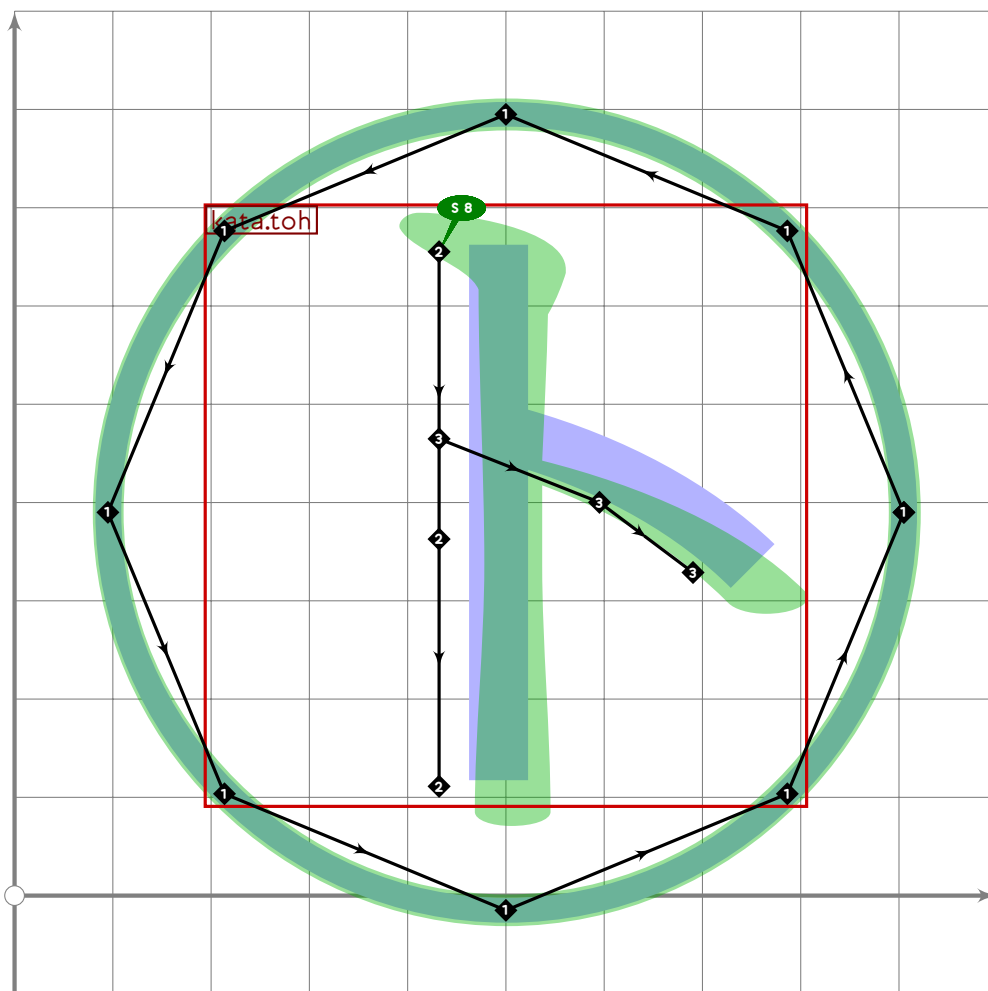
```

461 % circled "tē"
462 begintsuglyph("uni32E2",226);
463   circle.single;
464   tsu_xform(tsu_xf.circled)(kata.te);
465   tsu_render_in_circle(tsu_xf.cbound);
466 endtsuglyph;
467

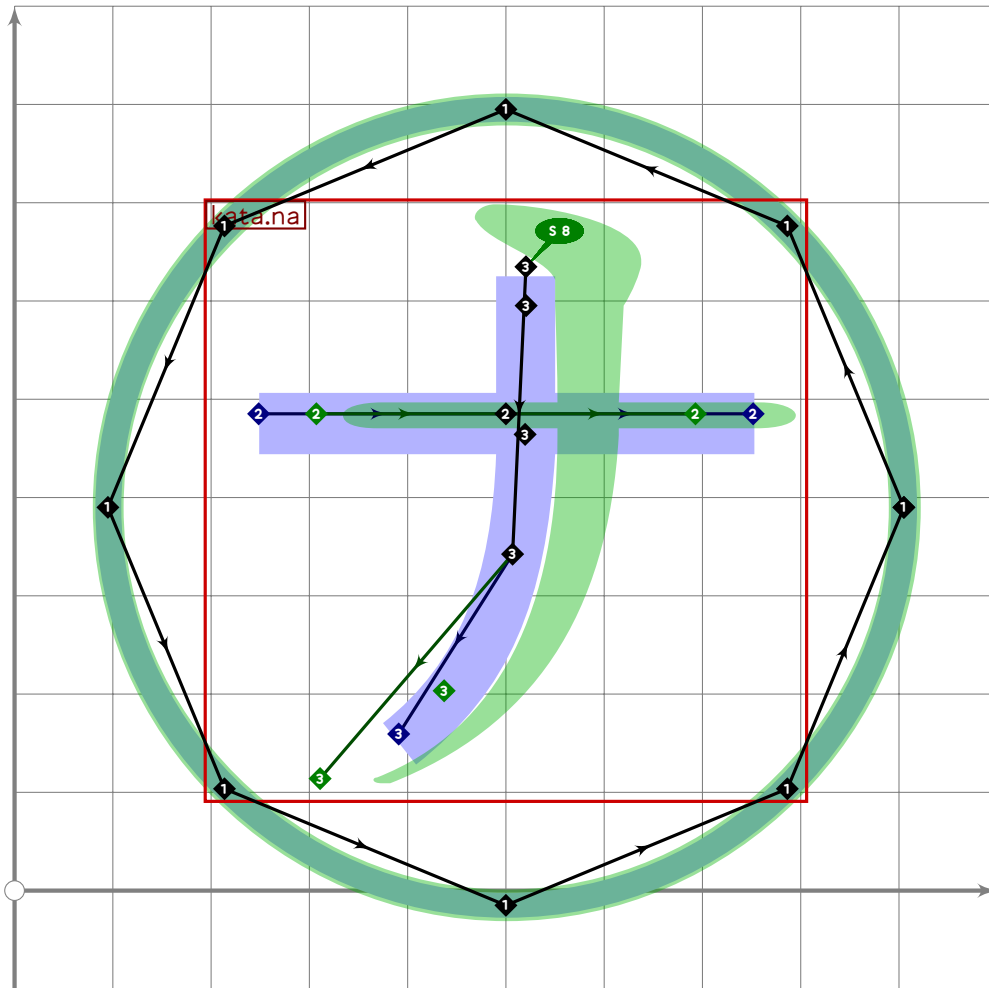
```

U+32E3  
tsuku.uni32E3

32



```
468 % circled "to"
469 begintsuglyph("uni32E3",227);
470   circle.single;
471   tsu_xform(tsu_xf.circled)(kata.toh);
472   tsu_render_in_circle(tsu_xf.cbound);
473 endtsuglyph;
474
```

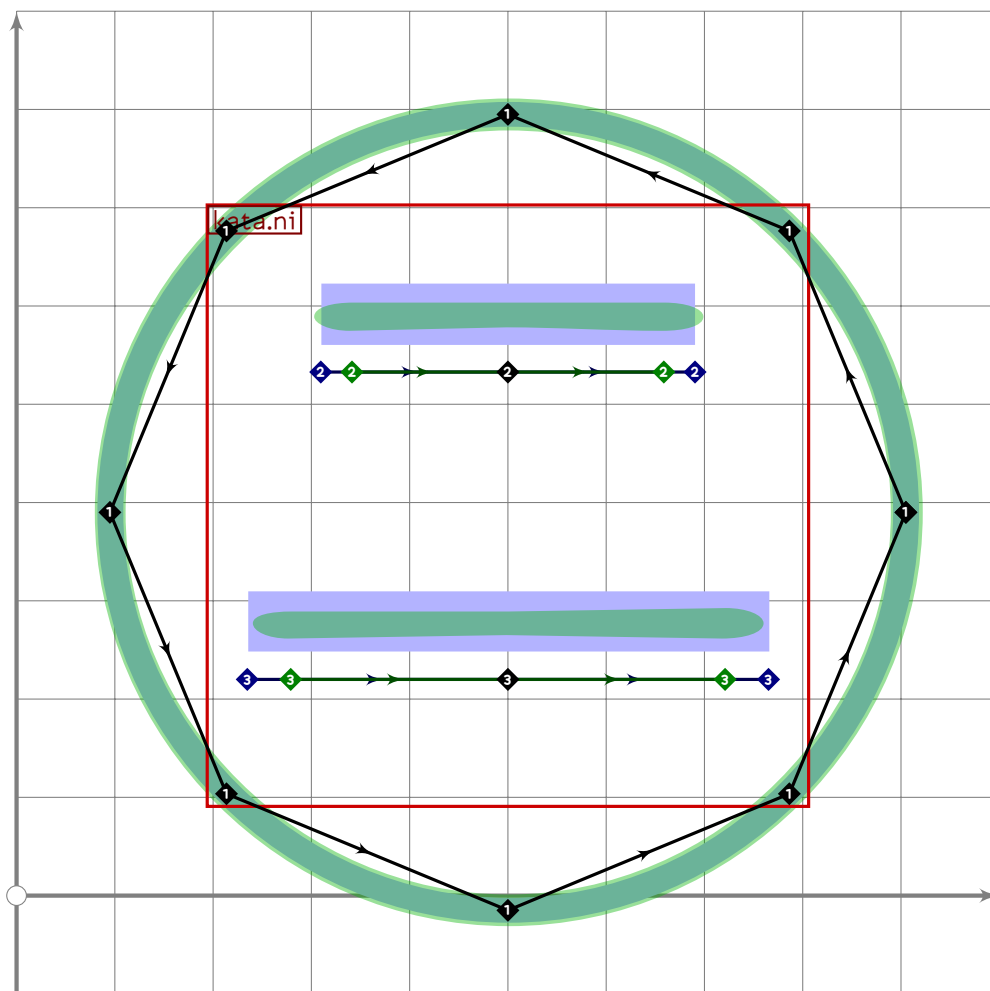


```

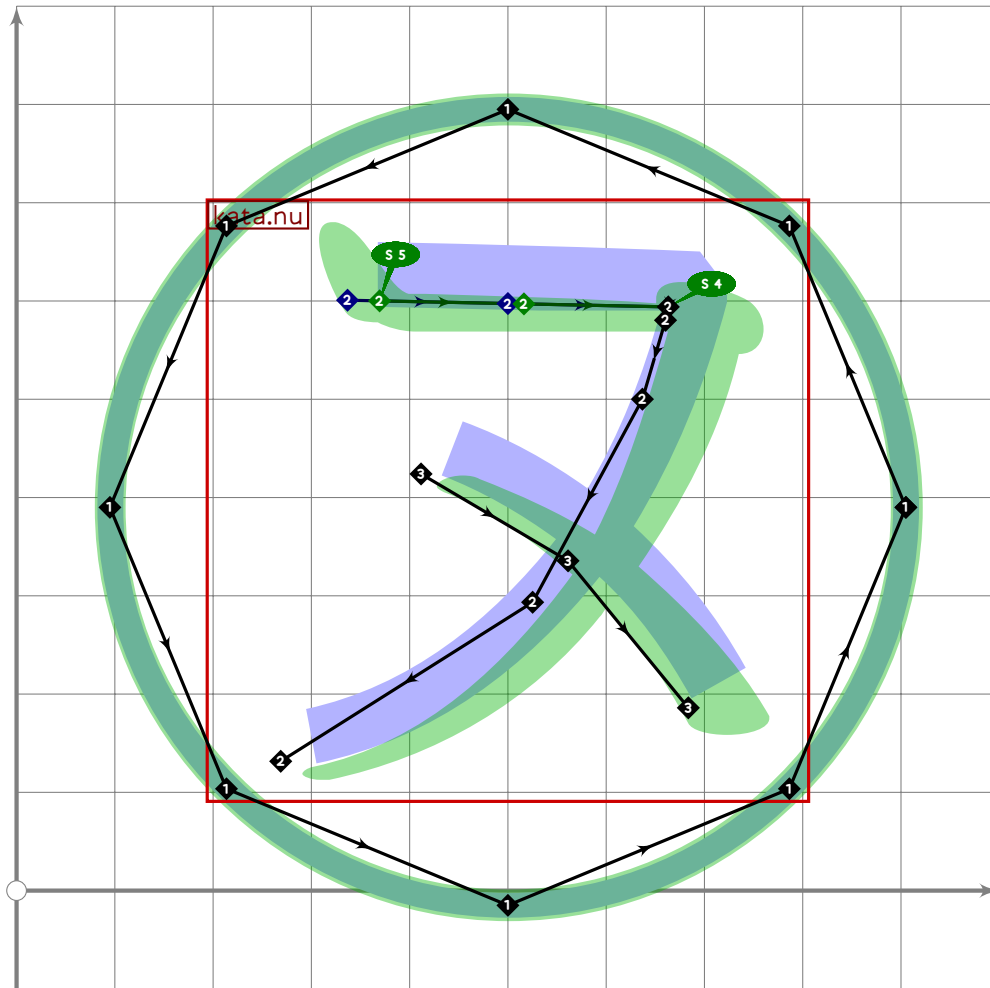
475 % circled "na"
476 begintsuglyph("uni32E4",228);
477   circle.single;
478   tsu_xform(tsu_xf.circled)(kata.na);
479   tsu_render_in_circle(tsu_xf.cbound);
480 endtsuglyph;
481

```

32



1934



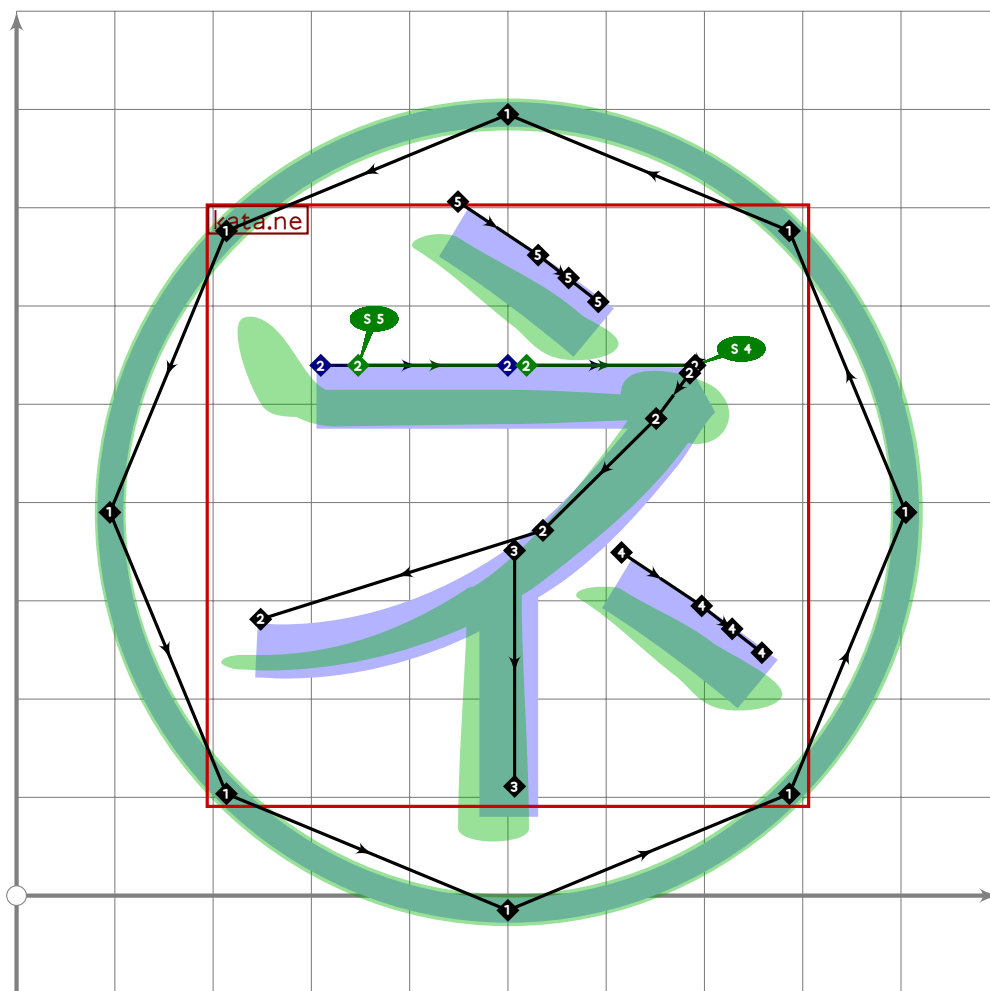
```

489 % circled "nu"
490 begintsuglyph("uni32E6";230);
491   circle.single;
492   tsu_xform(tsu_xf.circled)(kata.nu);
493   tsu_render_in_circle(tsu_xf.cbound);
494 endtsuglyph;
495

```

U+32E7  
tsuku.uni32E7

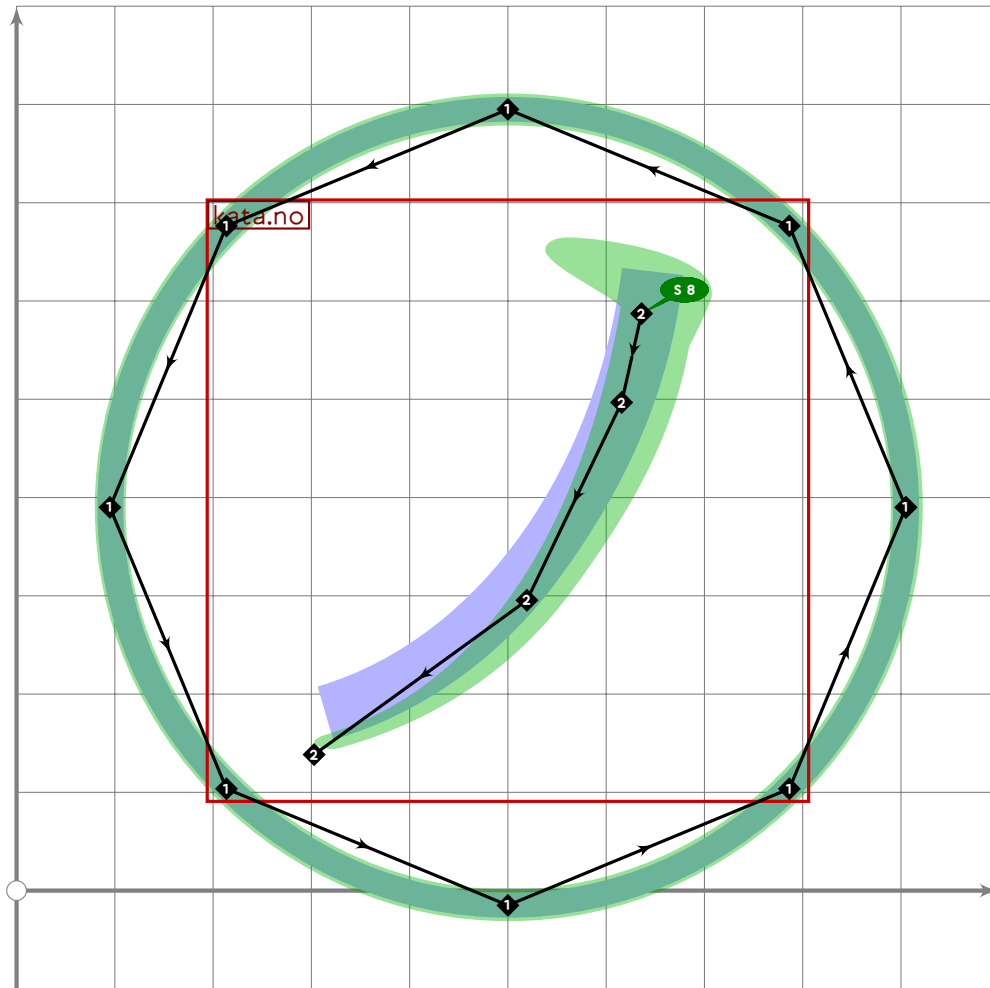
32



```

496 % circled "ne"
497 begintsuglyph("uni32E7",231);
498   circle.single;
499   tsu_xform(tsu_xf.circled)(kata.ne);
500   tsu_render_in_circle(tsu_xf.cbound);
501 endtsuglyph;
502

```



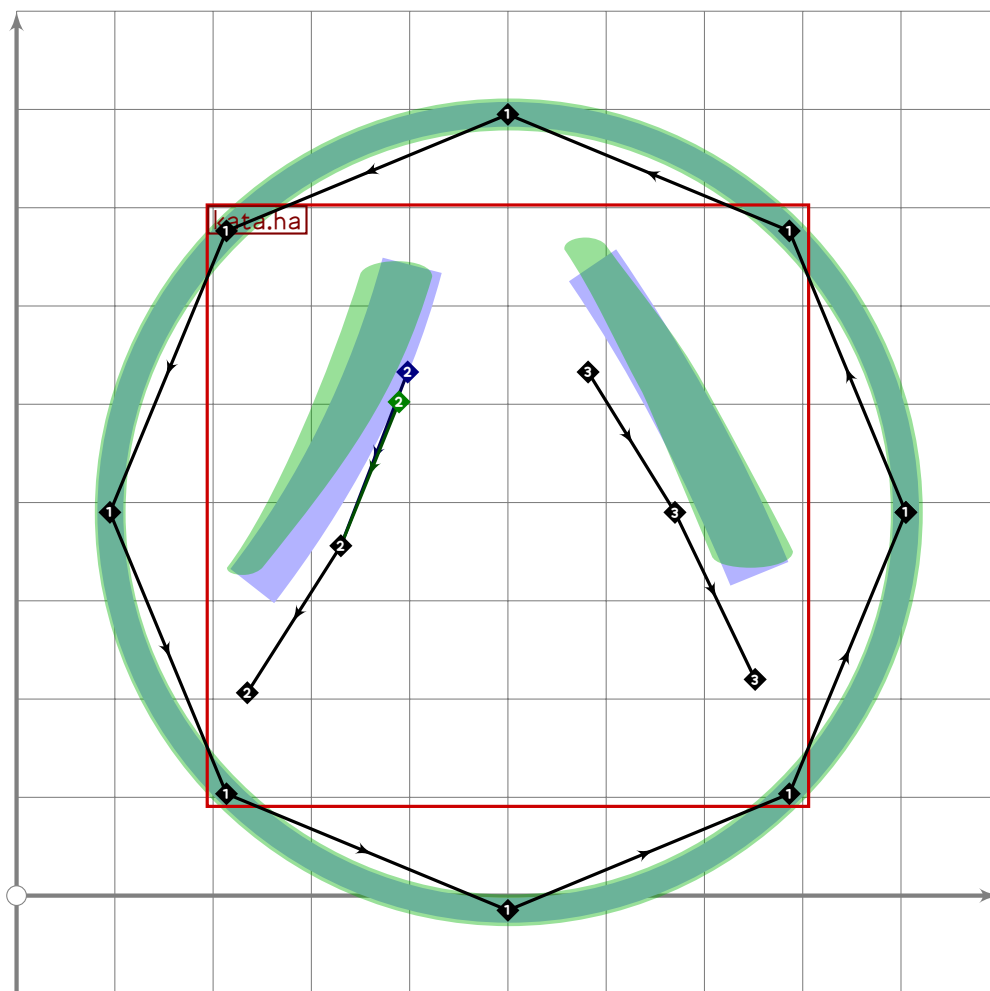
```

503 % circled "no"
504 begint Suglyph("uni32E8",232);
505   circle.single;
506   tsu_xform(tsu_xf.circled)(kata.no);
507   tsu_render_in_circle(tsu_xf.cbound);
508 endtsuglyph;
509

```

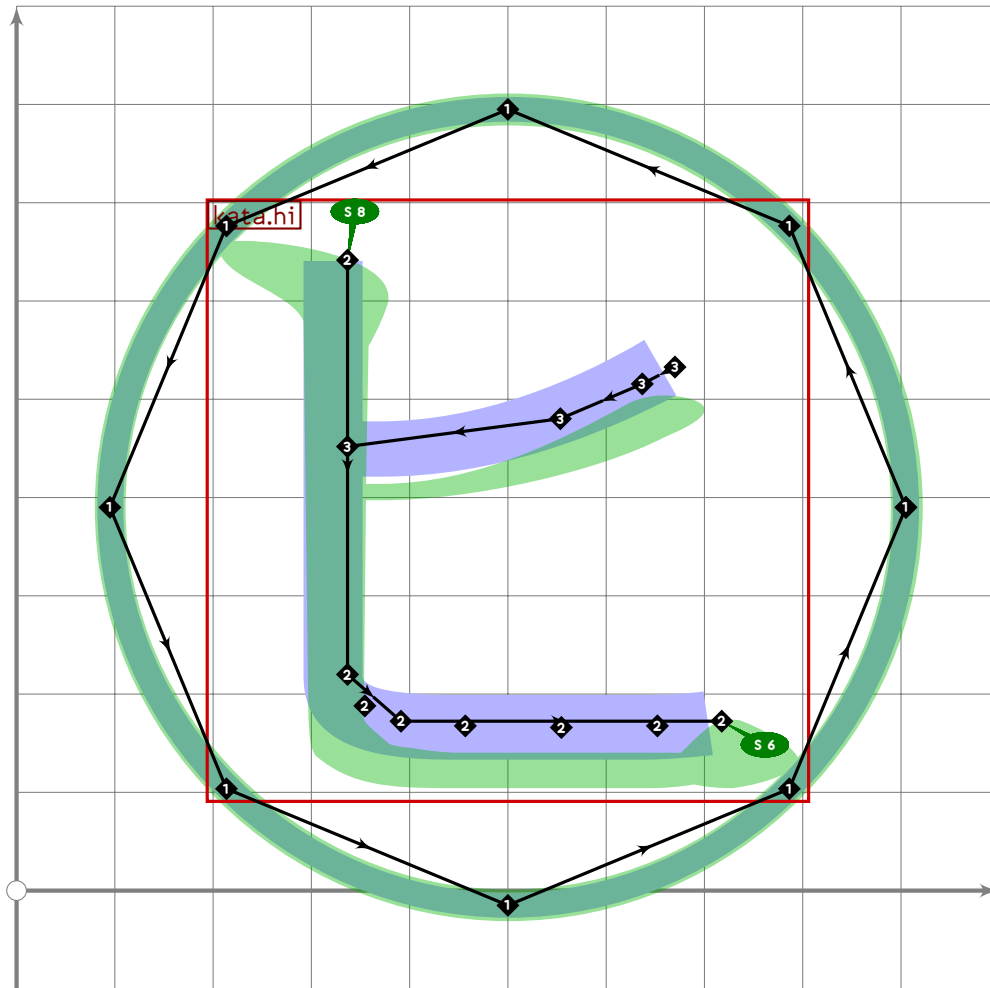
U+32E9  
tsuku.uni32E9

32



```
510 % circled "ha"  
511 begint Suglyph("uni32E9";233);  
512   circle.single;  
513   tsu_xform(tsu_xf.circled)(kata.ha);  
514   tsu_render_in_circle(tsu_xf.cbound);  
515 endtsuglyph;  
516
```





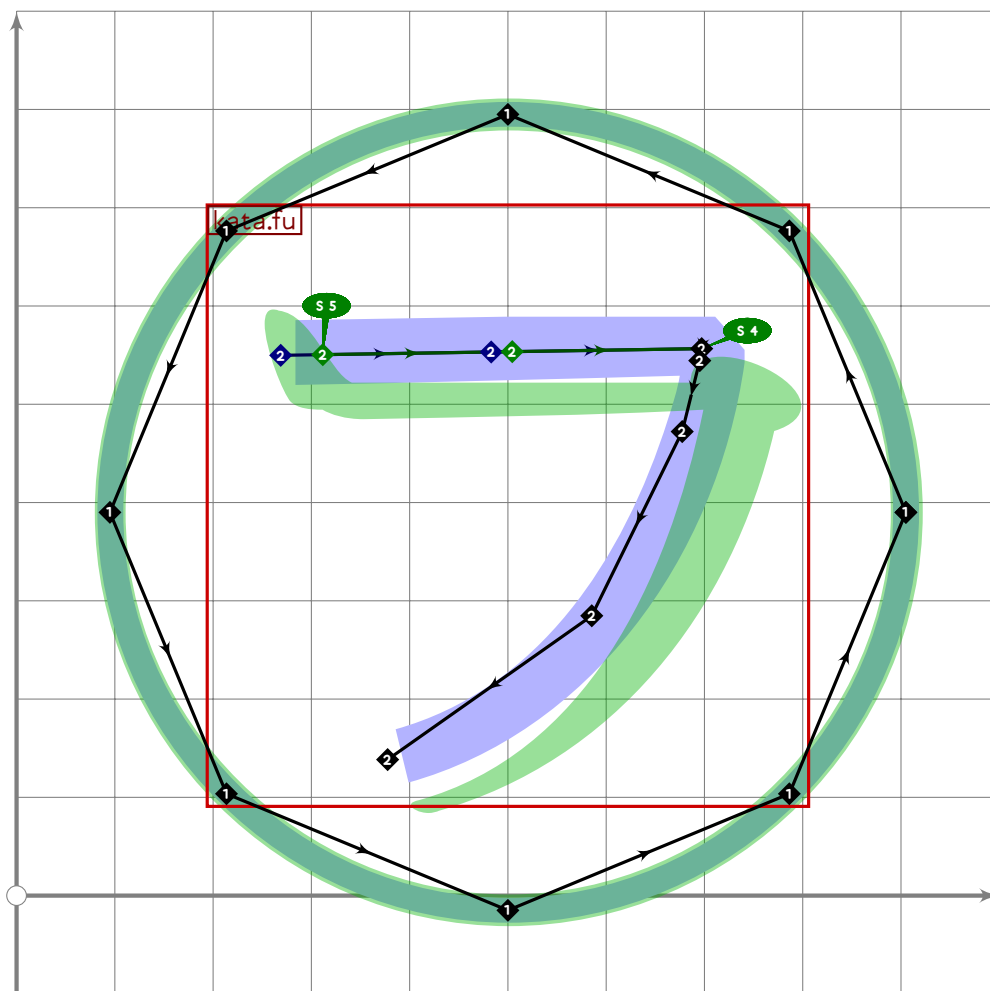
```

517 % circled "hi"
518 begintsuglyph("uni32EA",234);
519   circle.single;
520   tsu_xform(tsu_xf.circled)(kata.hi);
521   tsu_render_in_circle(tsu_xf.cbound);
522 endtsuglyph;
523

```

U+32EB  
tsuku.uni32EB

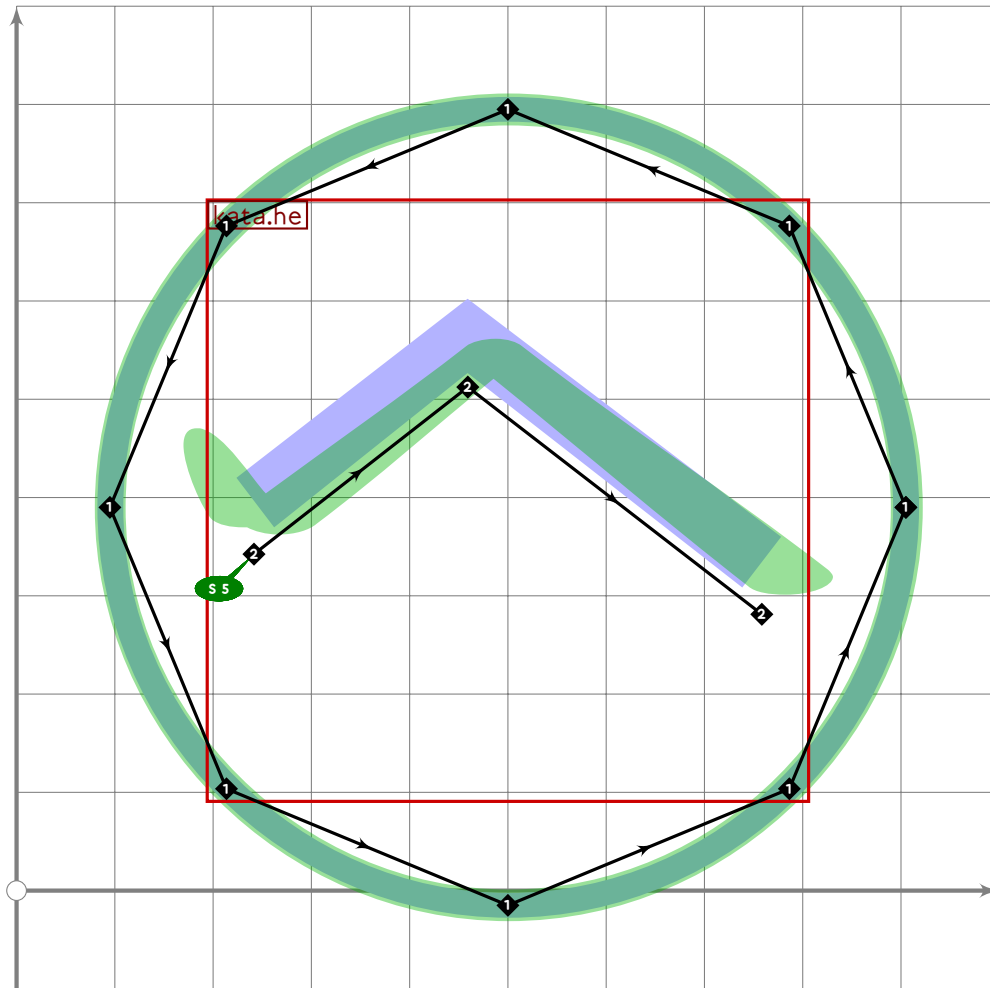
32



```

524 % circled "fu"
525 begintsuglyph("uni32EB",235);
526   circle.single;
527   tsu_xform(tsu_xf.circled)(kata.fu);
528   tsu_render_in_circle(tsu_xf.cbound);
529 endtsuglyph;
530

```



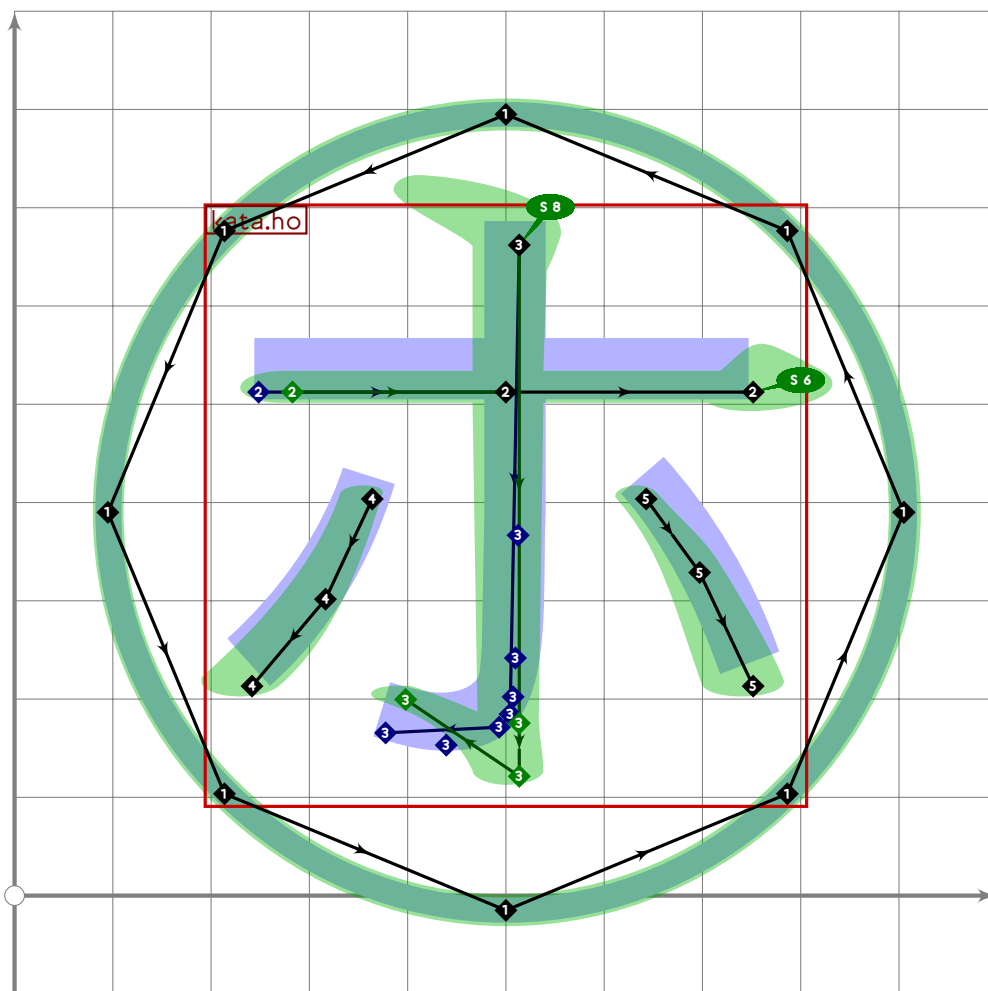
```

531 % circled "he"
532 begint Suglyph("uni32EC";236);
533   circle.single;
534   tsu_xform(tsu_xf.circled)(kata.he);
535   tsu_render_in_circle(tsu_xf.cbound);
536 endtsuglyph;
537

```

U+32ED  
tsuku.uni32ED

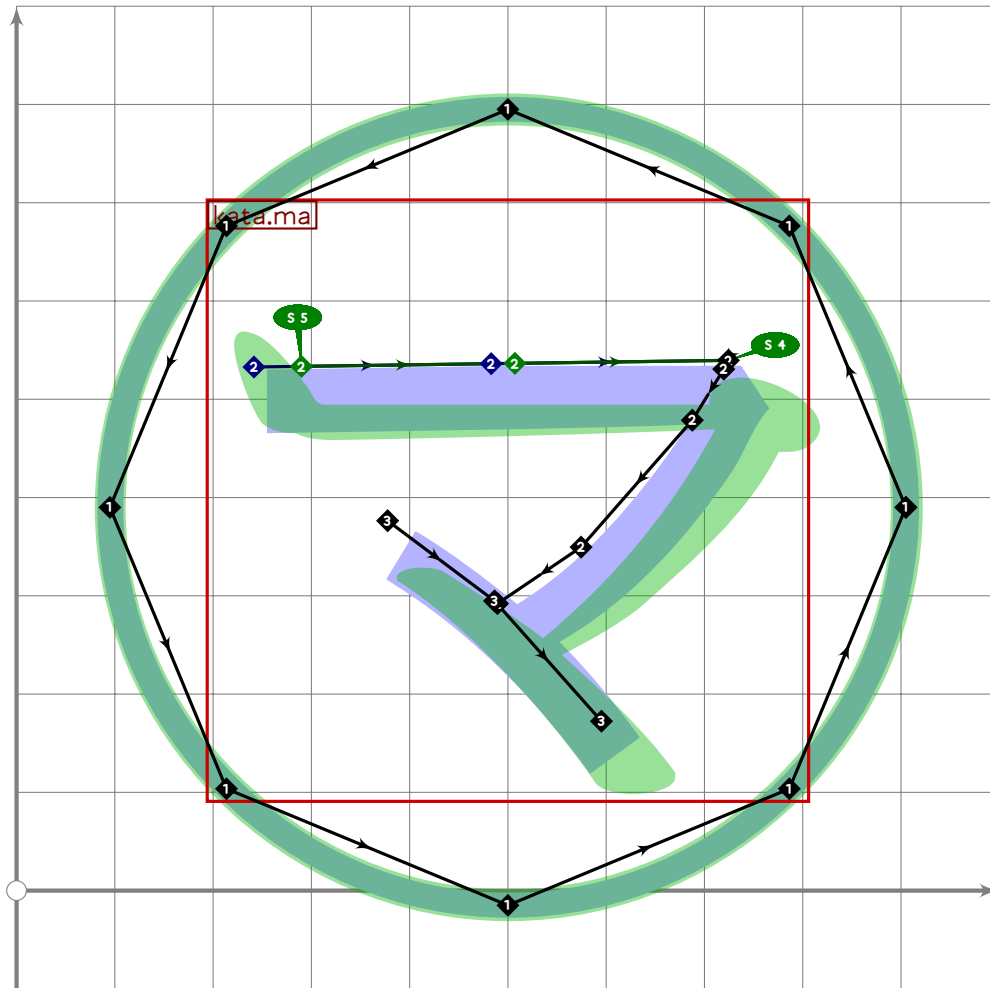
32



```

538 % circled "ho"
539 begintsuglyph("uni32ED";237);
540   circle.single;
541   tsu_xform(tsu_xf.circled)(kata.ho);
542   tsu_render_in_circle(tsu_xf.cbound);
543 endtsuglyph;
544

```



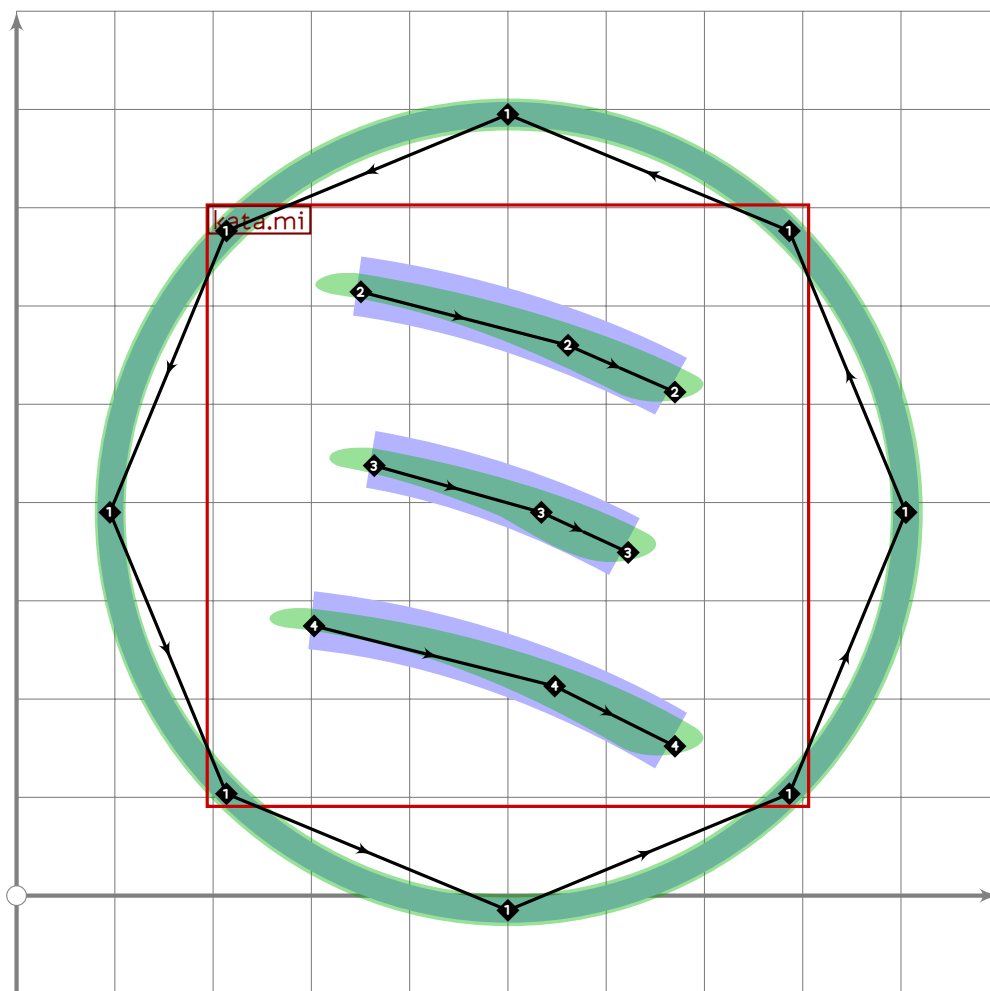
```

545 % circled "ma"
546 begintsuglyph("uni32EE",238);
547   circle.single;
548   tsu_xform(tsu_xf.circled)(kata.ma);
549   tsu_render_in_circle(tsu_xf.cbound);
550 endtsuglyph;
551

```

U+32EF  
tsuku.uni32EF

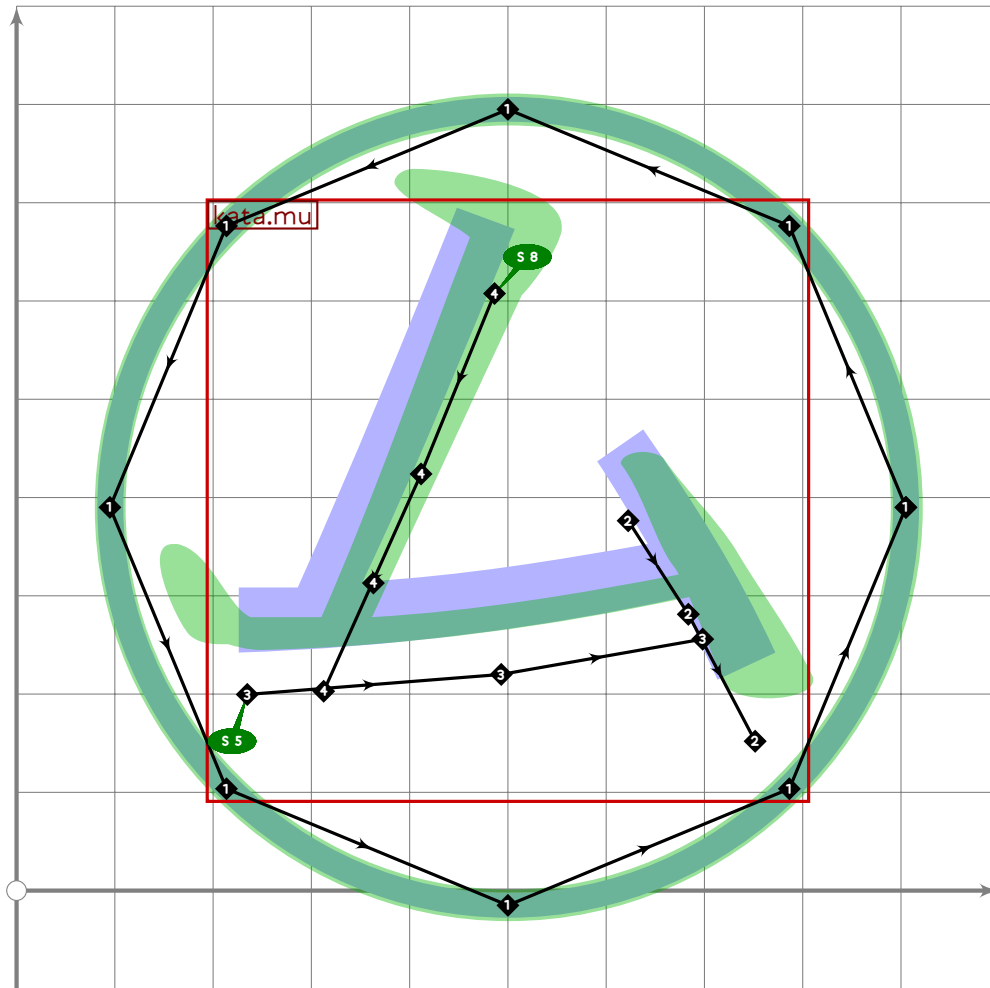
32



```

552 % circled "mi"
553 begint Suglyph("uni32EF",239);
554   circle.single;
555   tsu_xform(tsu_xf.circled)(kata.mi);
556   tsu_render_in_circle(tsu_xf.cbound);
557 endtsuglyph;
558

```



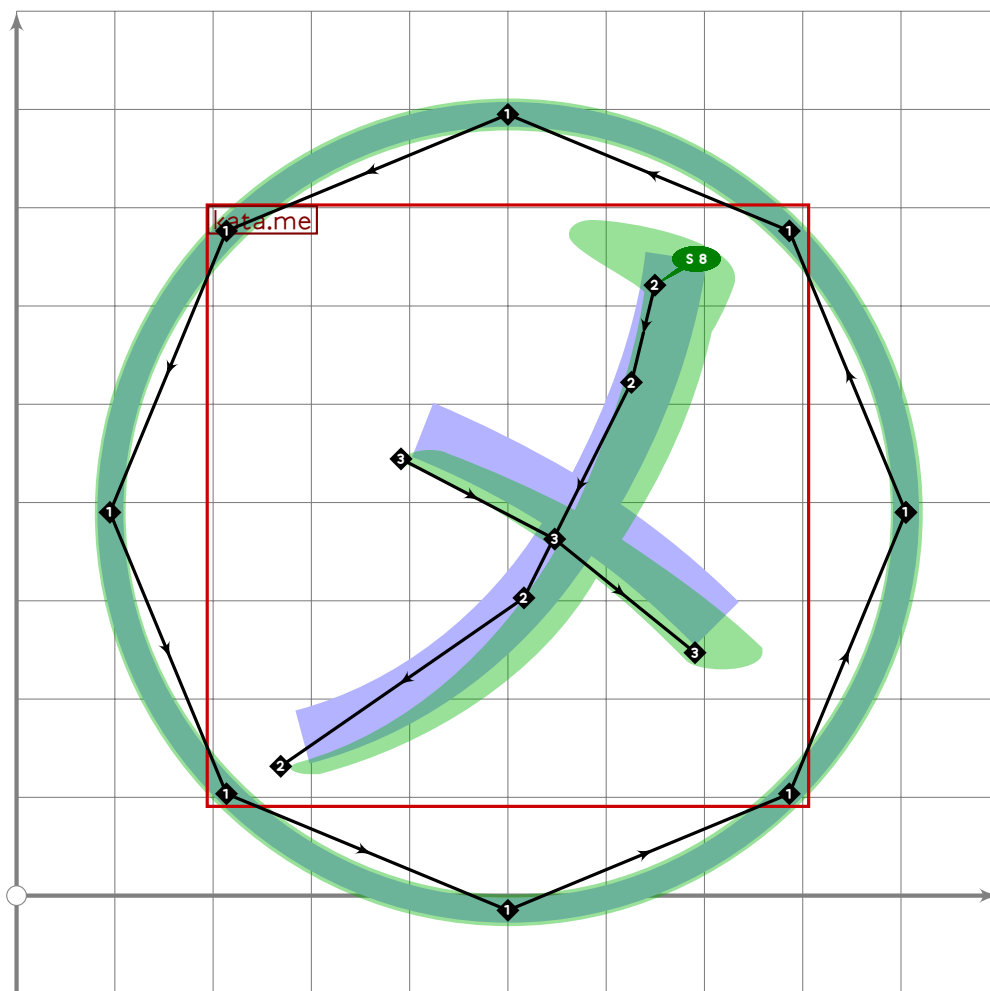
```

559 % circled "mu"
560 begint Suglyph("uni32F0",240);
561   circle.single;
562   tsu_xform(tsu_xf.circled)(kata.mu);
563   tsu_render_in_circle(tsu_xf.cbound);
564 endtsuglyph;
565

```

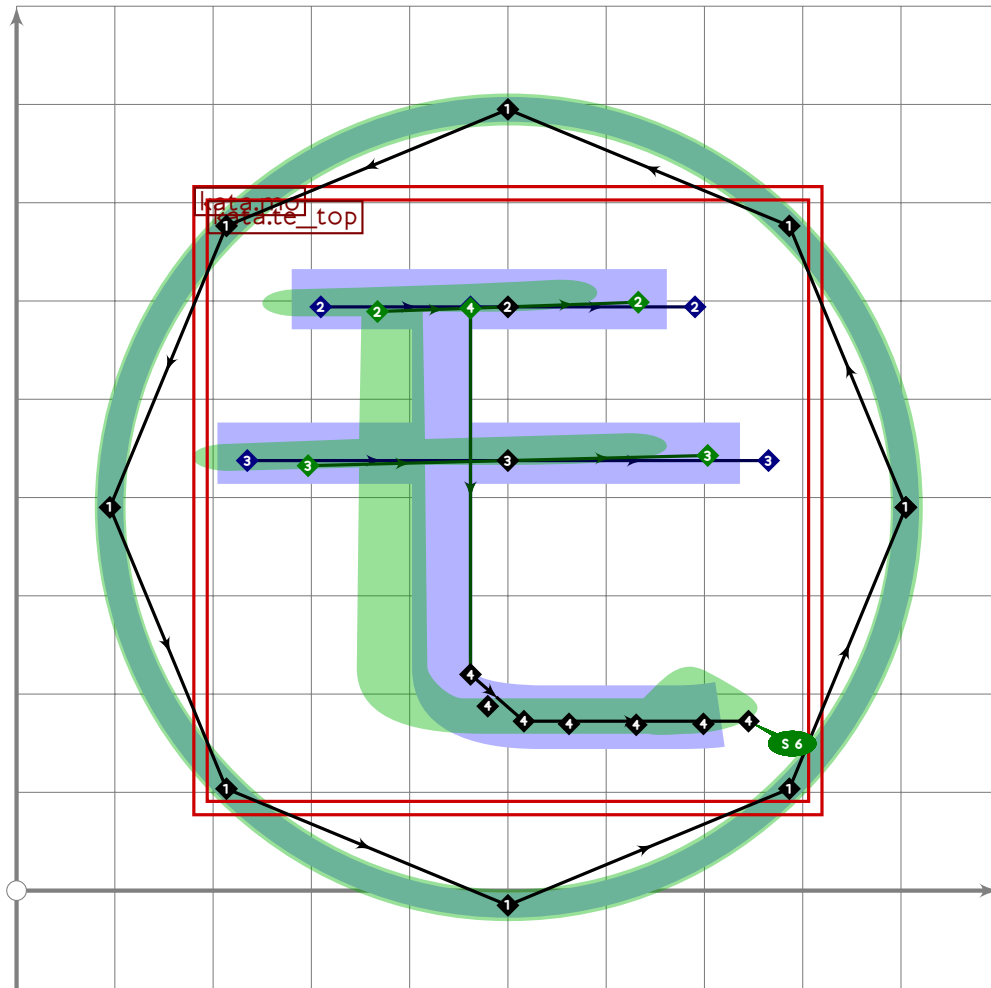
U+32F1  
tsuku.uni32F1

32



```
566 % circled "me"
567 begintsuglyph("uni32F1";241);
568   circle.single;
569   tsu_xform(tsu_xf.circled)(kata.me);
570   tsu_render_in_circle(tsu_xf.cbound);
571 endtsuglyph;
572
```





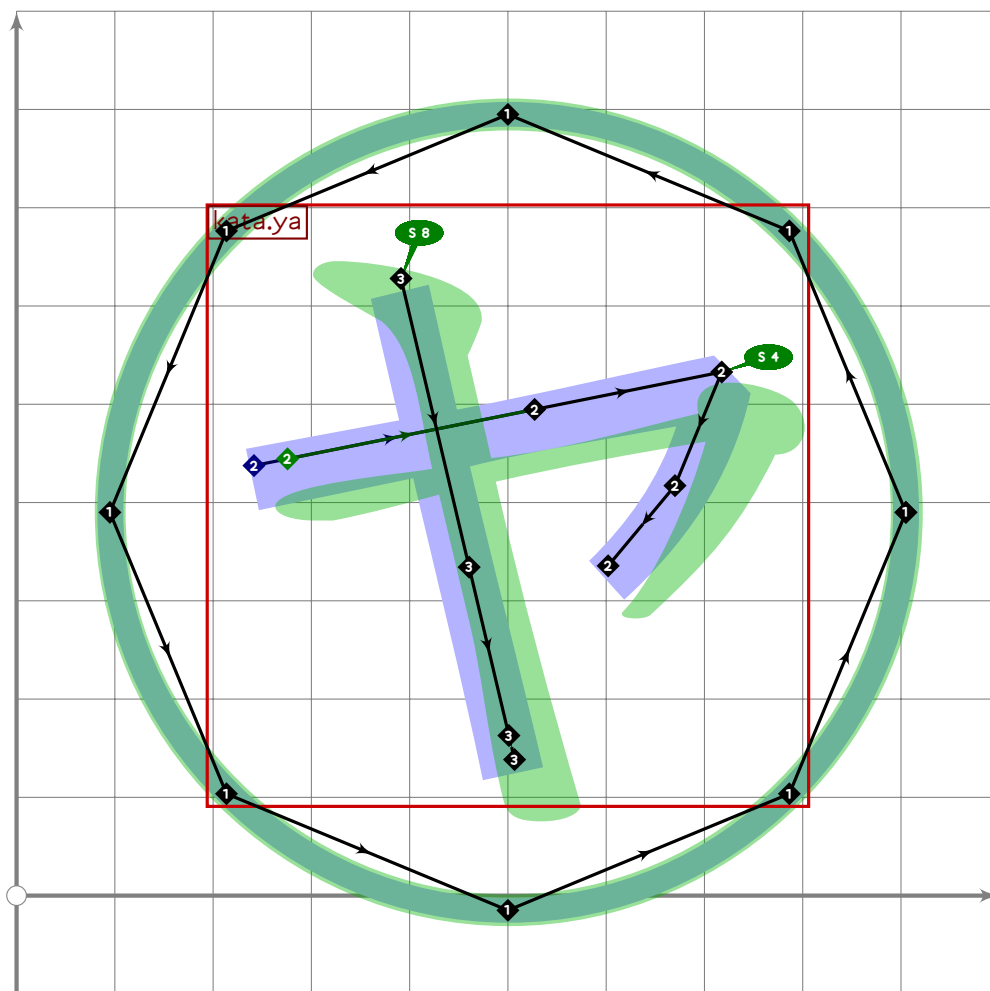
```

573 % circled "mo"
574 begintsuglyph("uni32F2",242);
575   circle.single;
576   tsu_xform(tsu_xf.circled)(kata.mo);
577   tsu_render_in_circle(tsu_xf.cbound);
578 endtsuglyph;
579

```

U+32F3  
tsuku.uni32F3

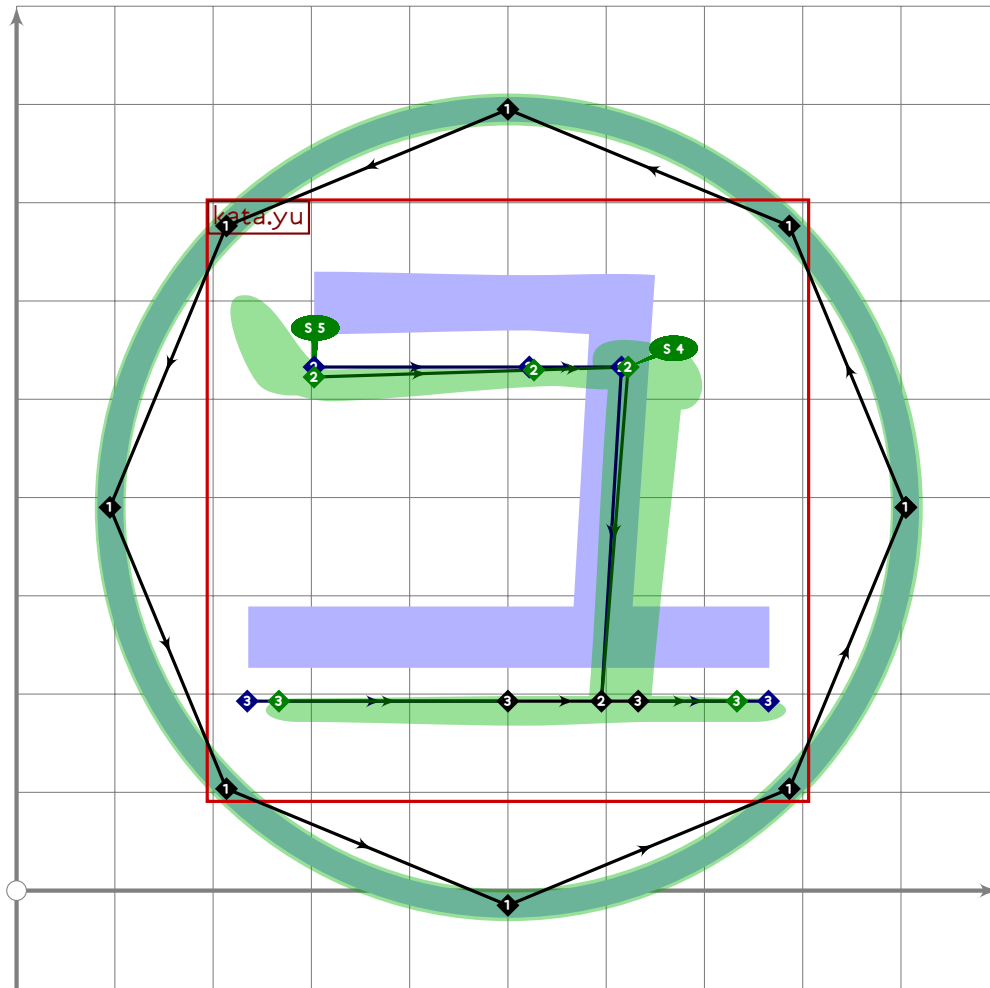
32



```

580 % circled "ya"
581 begintsuglyph("uni32F3";243);
582   circle.single;
583   tsu_xform(tsu_xf.circled)(kata.ya);
584   tsu_render_in_circle(tsu_xf.cbound);
585 endtsuglyph;
586

```



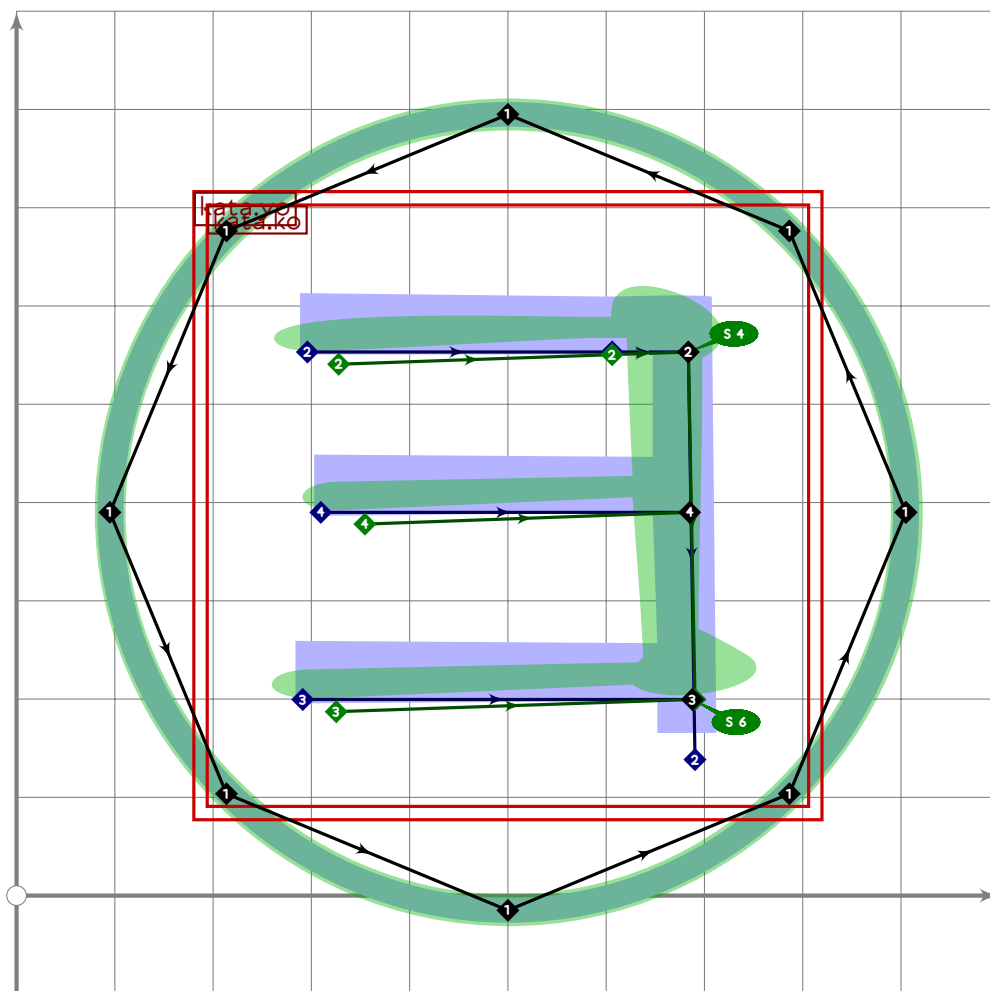
```

587 % circled "yu"
588 begintsuglyph("uni32F4";244);
589   circle.single;
590   tsu_xform(tsu_xf.circled)(kata.yu);
591   tsu_render_in_circle(tsu_xf.cbound);
592 endtsuglyph;
593

```

U+32F5  
tsuku.uni32F5

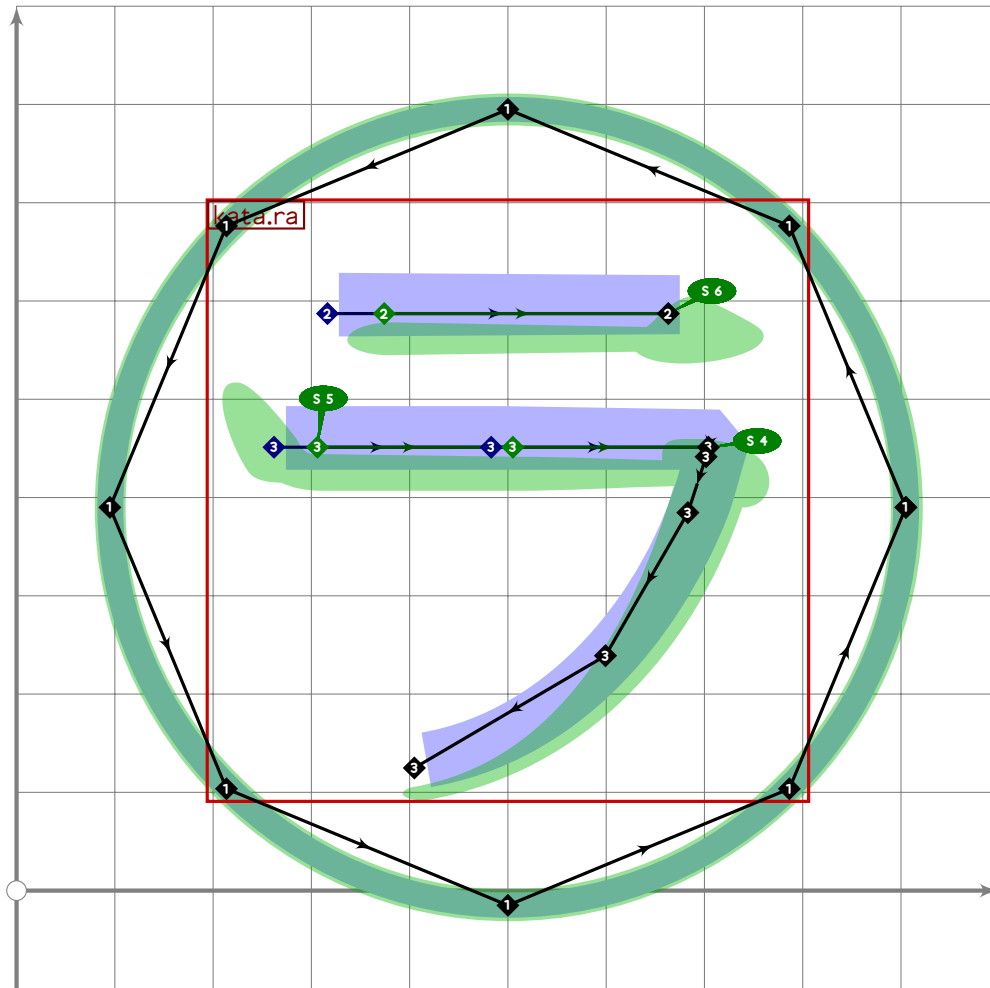
32



```

594 % circled "yo"
595 begint Suglyph("uni32F5";245);
596   circle.single;
597   tsu_xform(tsu_xf.circled)(kata.yo);
598   tsu_render_in_circle(tsu_xf.cbound);
599 endtsuglyph;
600

```



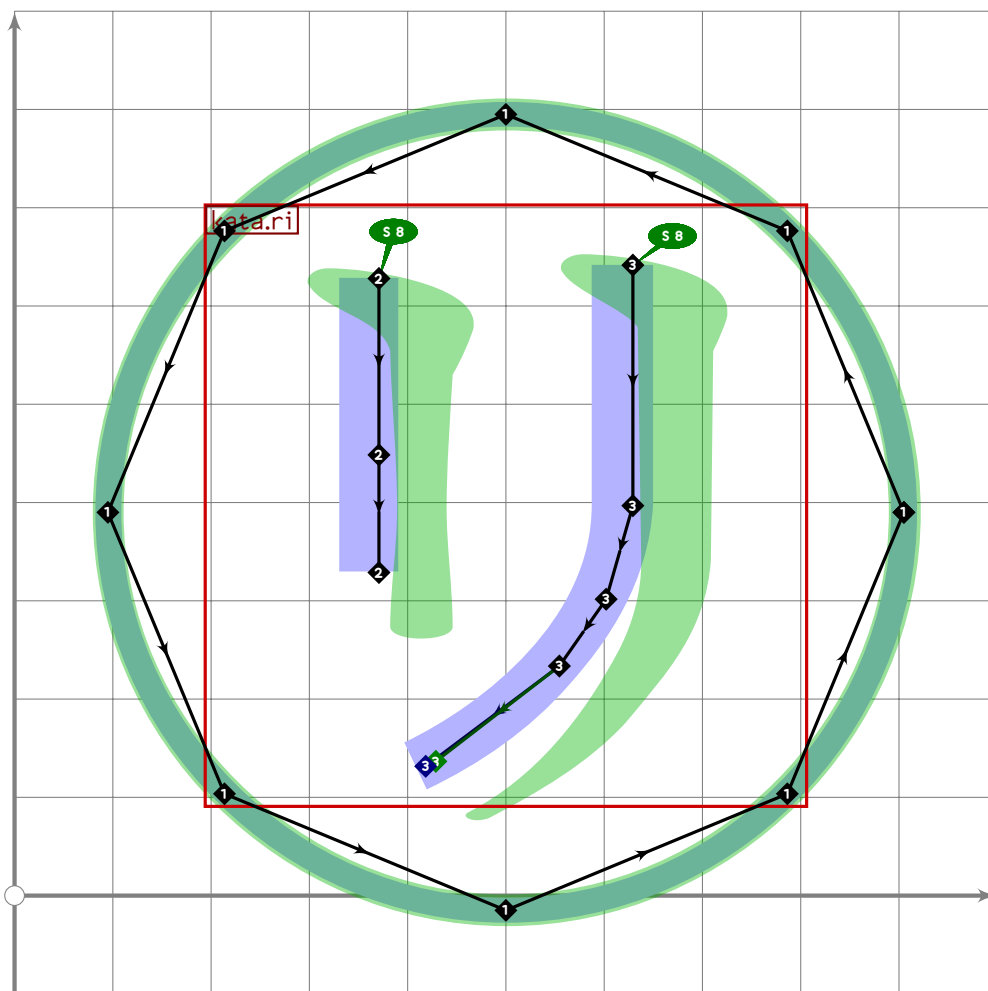
```

601 % circled "ra"
602 begintsuglyph("uni32F6";246);
603   circle.single;
604   tsu_xform(tsu_xf.circled)(kata.ra);
605   tsu_render_in_circle(tsu_xf.cbound);
606 endtsuglyph;
607

```

U+32F7  
tsuku.uni32F7

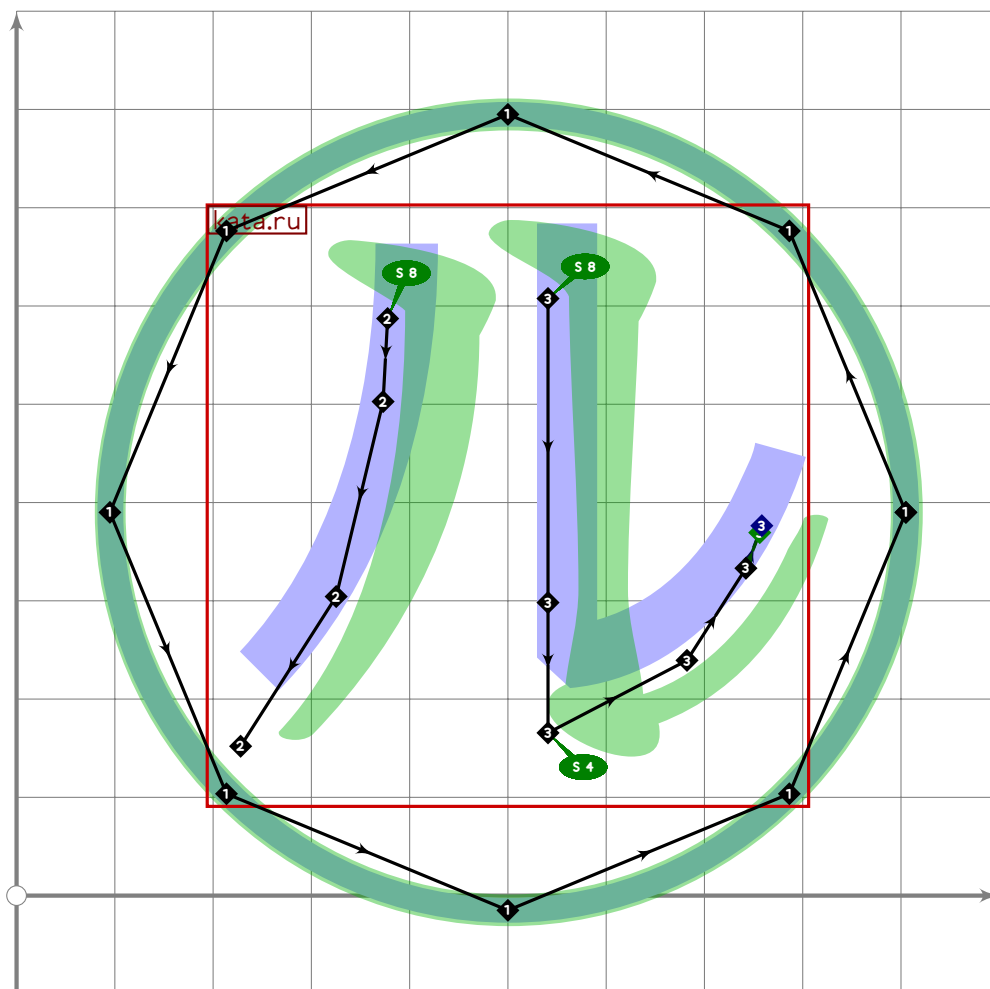
32



```

608 % circled "ri"
609 begintsuglyph("uni32F7",247);
610   circle.single;
611   tsu_xform(tsu_xf.circled)(kata.ri);
612   tsu_render_in_circle(tsu_xf.cbound);
613 endtsuglyph;
614

```



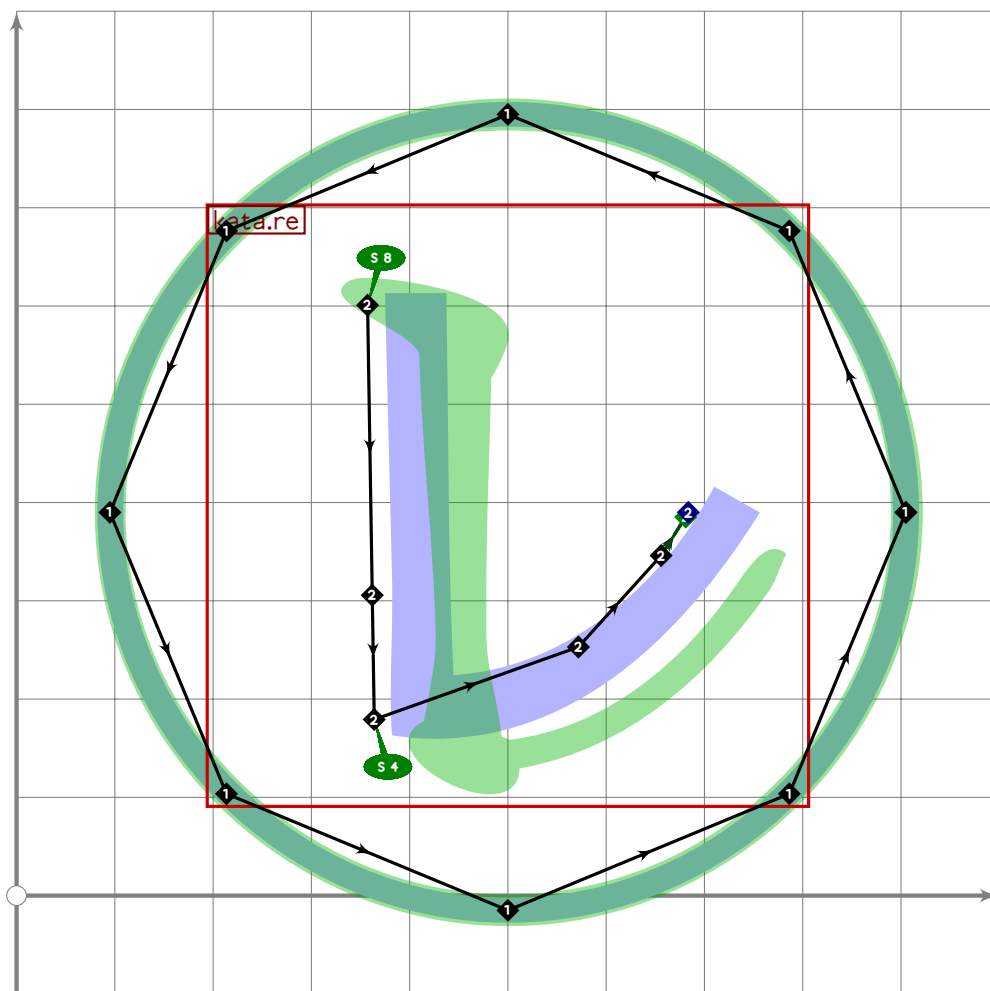
```

615 % circled "ru"
616 begintsuglyph("uni32F8",248);
617   circle.single;
618   tsu_xform(tsu_xf.circled)(kata.ru);
619   tsu_render_in_circle(tsu_xf.cbound);
620 endtsuglyph;
621

```

U+32F9  
tsuku.uni32F9

32

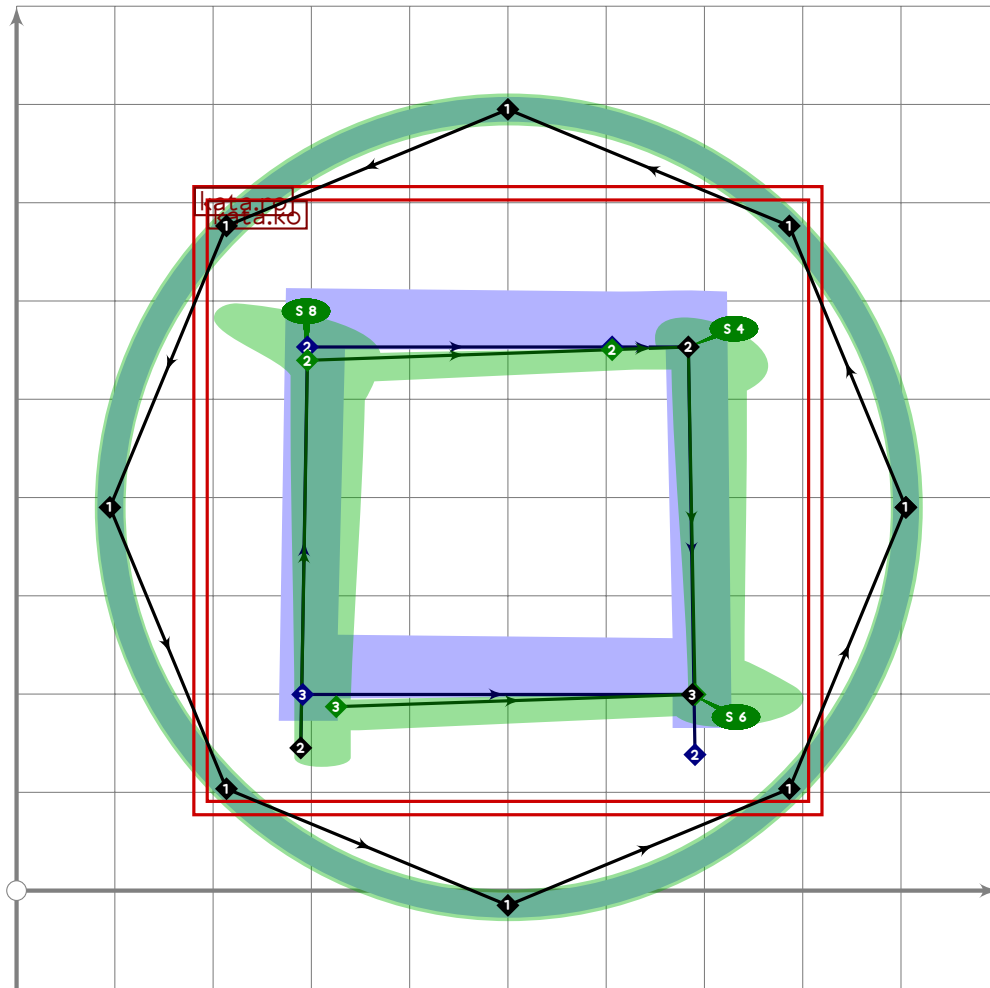


```

622 % circled "re"
623 begintsuglyph("uni32F9";249);
624   circle.single;
625   tsu_xform(tsu_xf.circled)(kata.re);
626   tsu_render_in_circle(tsu_xf.cbound);
627 endtsuglyph;
628

```





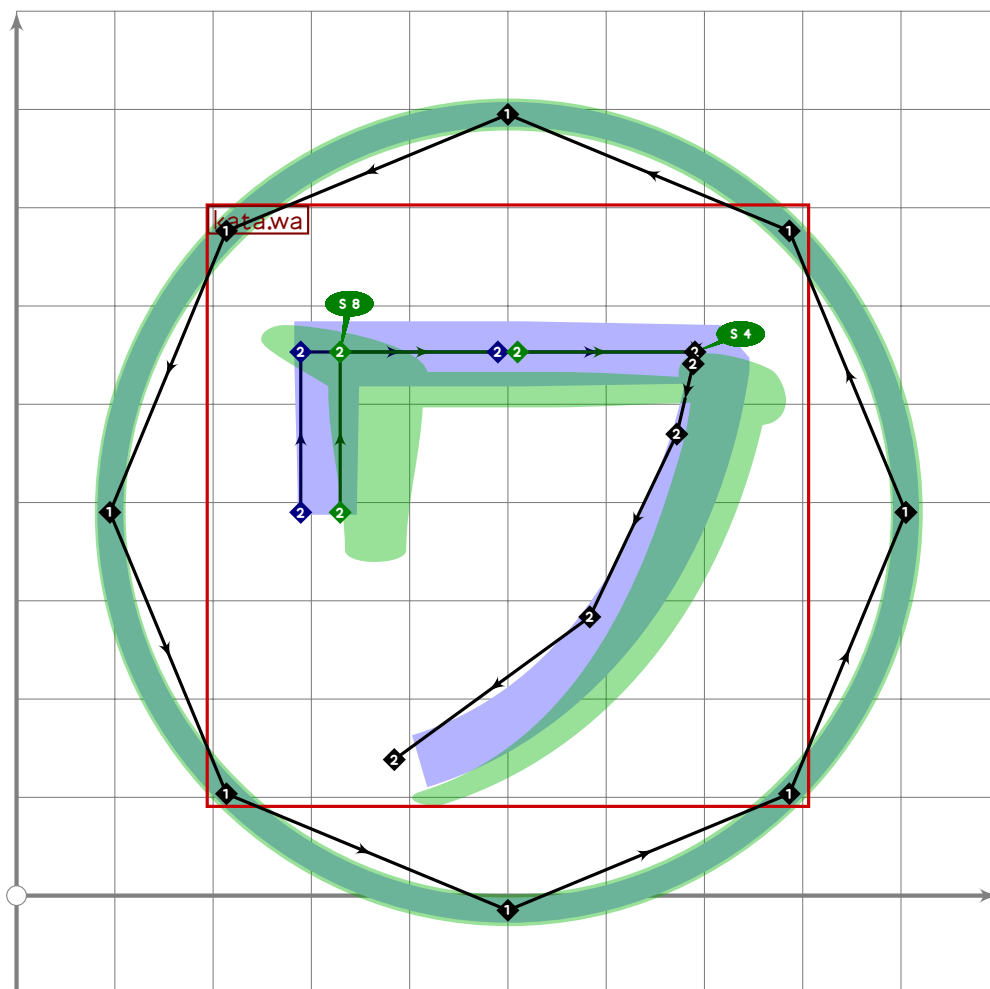
```

629 % circled "ro"
630 begintsuglyph("uni32FA";250);
631   circle.single;
632   tsu_xform(tsu_xf.circled)(kata.ro);
633   tsu_render_in_circle(tsu_xf.cbound);
634 endtsuglyph;
635

```

U+32FB  
tsuku.uni32FB

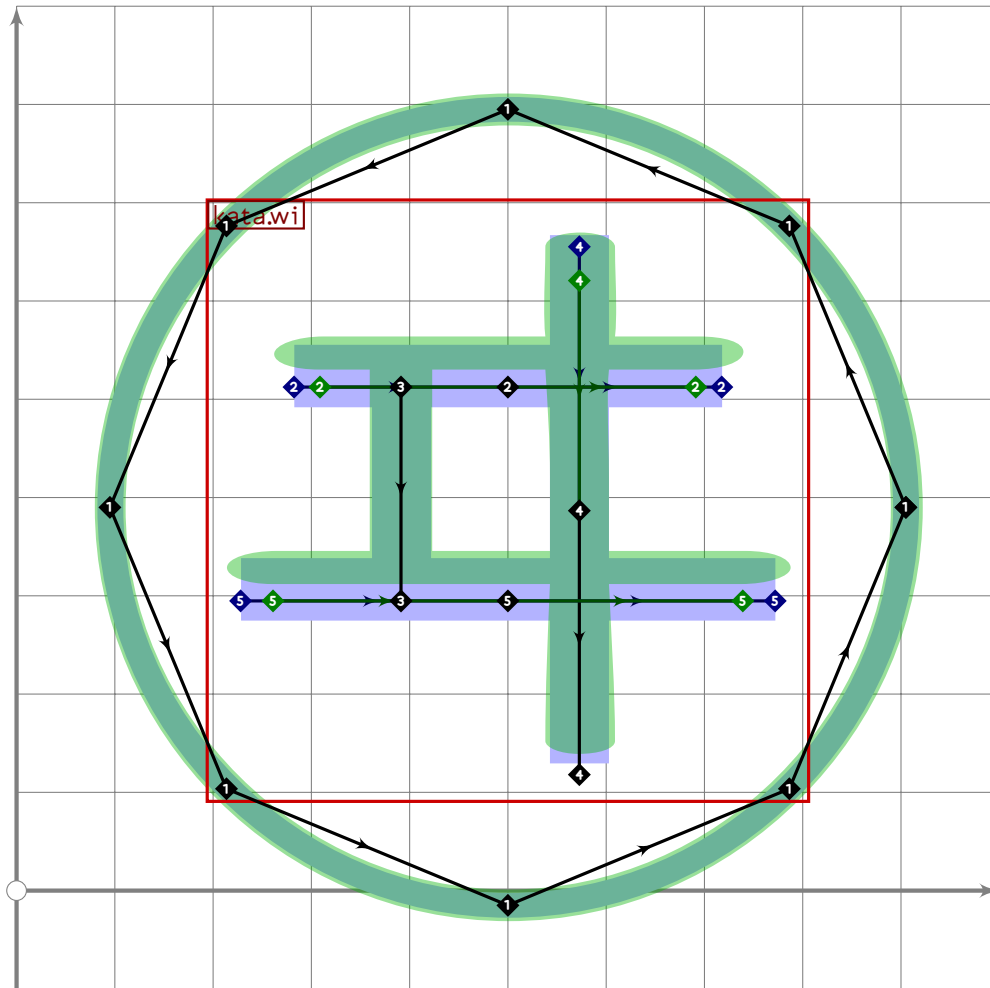
32



```

636 % circled "wa"
637 begintsuglyph("uni32FB",251);
638   circle.single;
639   tsu_xform(tsu_xf.circled)(kata.wa);
640   tsu_render_in_circle(tsu_xf.cbound);
641 endtsuglyph;
642

```



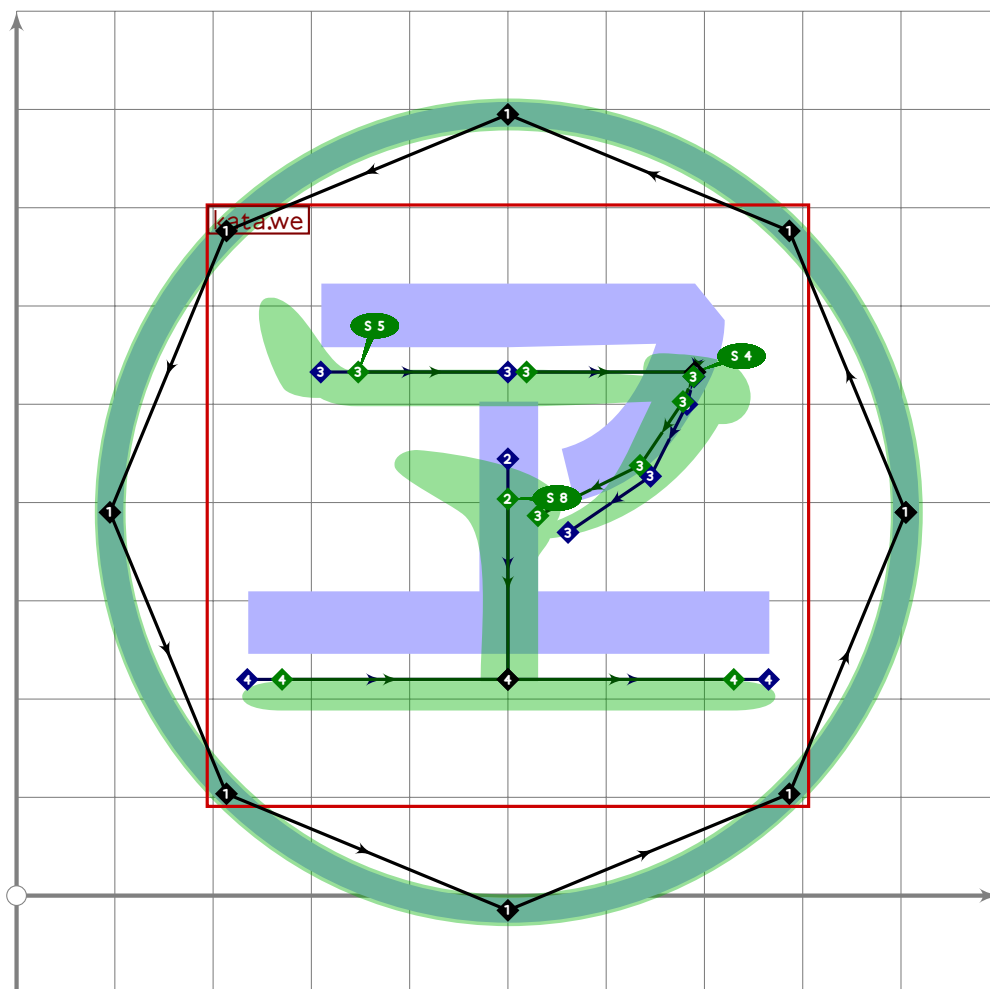
```

643 % circled "wi"
644 begintsuglyph("uni32FC",252);
645   circle.single;
646   tsu_xform(tsu_xf.circled)(kata.wi);
647   tsu_render_in_circle(tsu_xf.cbound);
648 endtsuglyph;
649

```

U+32FD  
tsuku.uni32FD

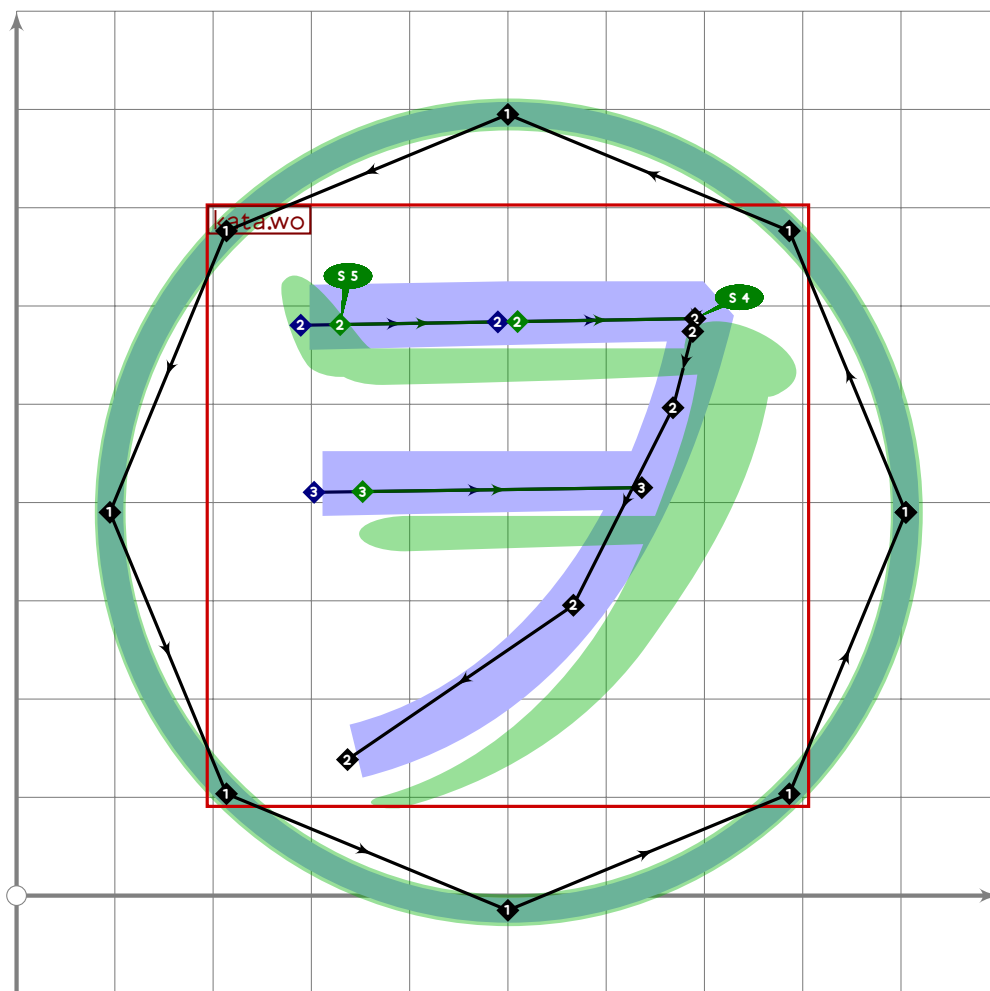
32



```

650 % circled "we"
651 begint Suglyph("uni32FD";253);
652   circle.single;
653   tsu_xform(tsu_xf.circled)(kata.we);
654   tsu_render_in_circle(tsu_xf.cbound);
655 endtsuglyph;
656

```



```

657 % circled "wo"
658 begint Suglyph("uni32FE",254);
659   circle.single;
660   tsu_xform(tsu_xf.circled)(kata.wo);
661   tsu_render_in_circle(tsu_xf.cbound);
662 endtsuglyph;
663
664
665
666 endfont;
667
668

```

## tsuku-34.mp

```
1 %
2 % Unicode page 34 (Kanji) for Tsukurimashou
3 % Copyright (C) 2012, 2013, 2021 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 radical.mp;
39 input rare.mp;
40 input toprad.mp;
41
42 do_late_includes;
43
44 

---


45
46 % used in many other things
47 begintsuglyph("uni3405";5); [see page 869]
48   kanji.radical.cut_the_grass;
49   tsu_render;
50 endtsuglyph;
51
52 % extra "uncultivated"
53 begintsuglyph("uni342C";44); [see page 1103]
54   kanji.rare.uncultivated;
55   tsu_render;
56 endtsuglyph;
57
58 % extra "obey"
59 begintsuglyph("uni34B8";184); [see page 1080]
60   kanji.rare.obey;
61   tsu_render;
62 endtsuglyph;
63
64 

---


65
66 endfont;
67
68 

---


```

## tsuku-35.mp

```
1 %
2 % Unicode page 35 (Kanji) for Tsukurimashou
3 % Copyright (C) 2017 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input radical.mp;
38
39 do_late_includes;
40
41 

---


42
43 % needed for U+72AF
44 begintsuglyph("uni353E",62); [see page 860]
45   kanji.radical.ancient_seal;
46   tsu_render;
47 endtsuglyph;
48
49 

---


50
51 endfont;
52
53 

---


```

## tsuku-4d.mp

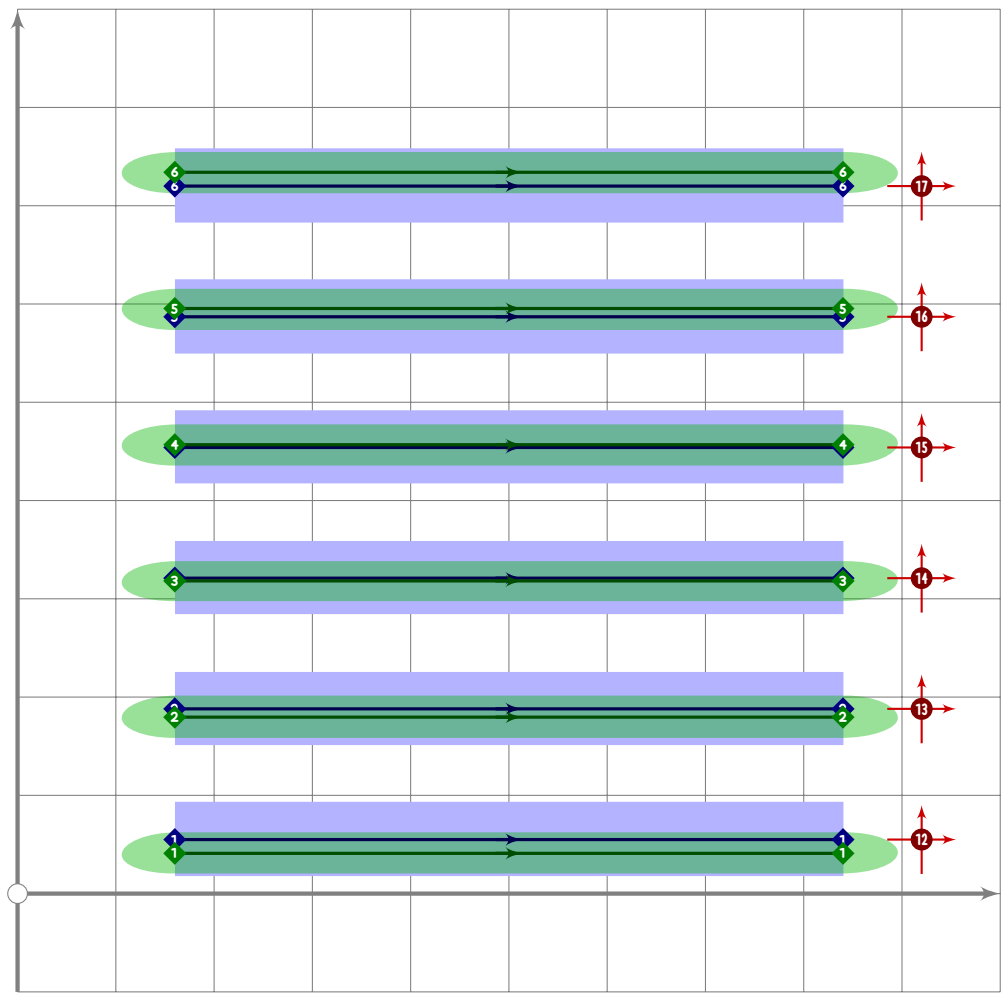
```
1 %
2 % Unicode page 4D (I Ching/Yijing) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 _____
32
33 beginfont
34
35 input latin-intro.mp;
36
37 % AUTODEPS
38 input iching.mp;
39
40 do_late_includes;
41
42 _____
43
```

4D

## I Ching

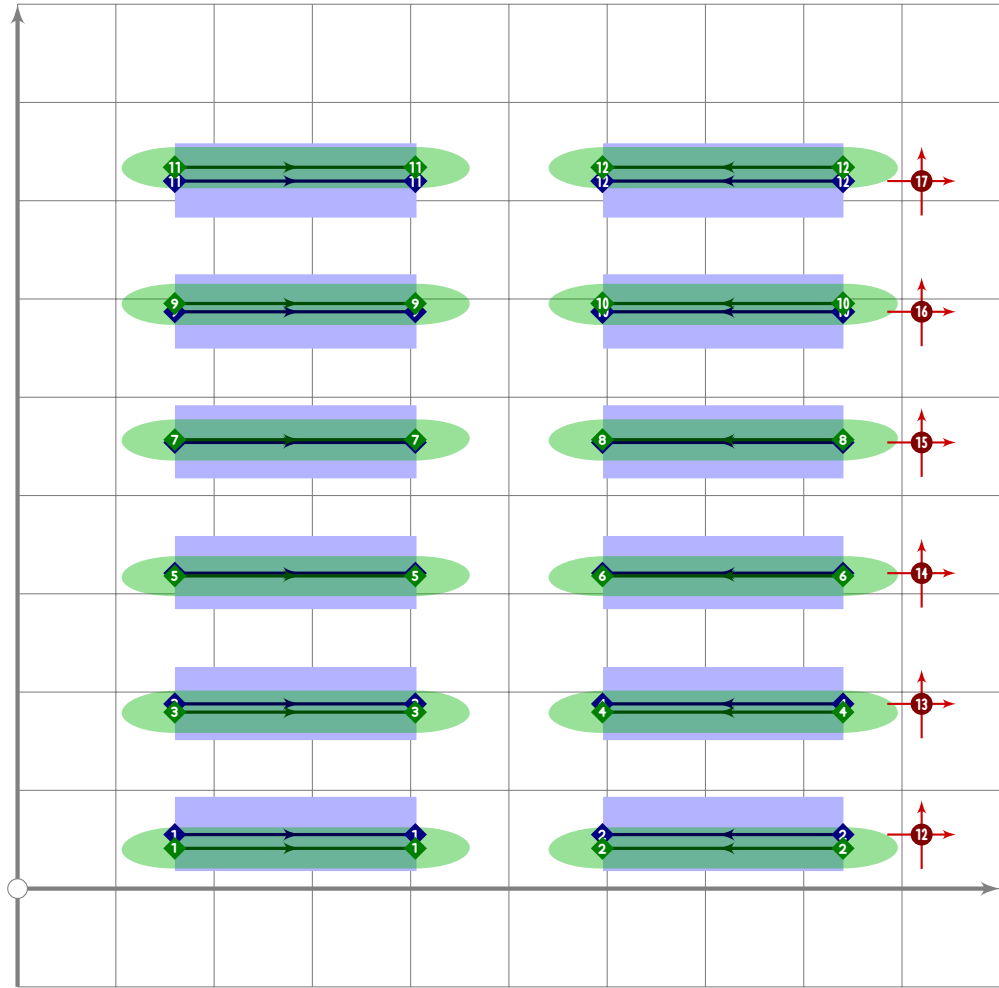
```
44 % I CHING
45
46 vardef make_hexagram(expr i,la,lb,lc,ld,le,lf) =
47   string hexname;
48   hexname:=if i<10: "iching0" else: "iching" fi & decimal i;
49   begintsuglyph(hexname,i+191);
50   iching.line(1,6,la);
51   iching.line(2,6,lb);
52   iching.line(3,6,lc);
53   iching.line(4,6,ld);
54   iching.line(5,6,le);
55   iching.line(6,6,lf);
56   tsu_render;
57   endtsuglyph;
58 enddef;
```





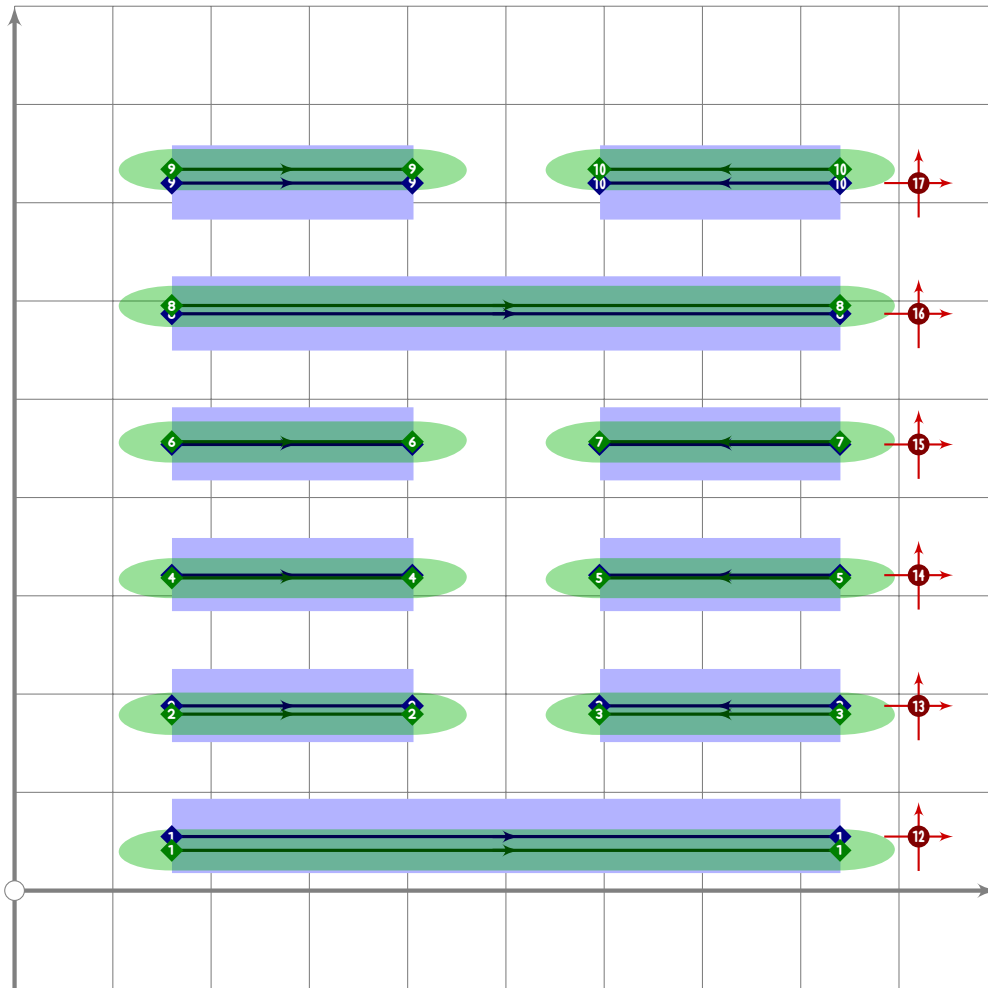
59  
60 make\_hexagram(1, 1,1,1,1,1);

4D



61 make\_hexagram(2, 0,0,0,0,0);

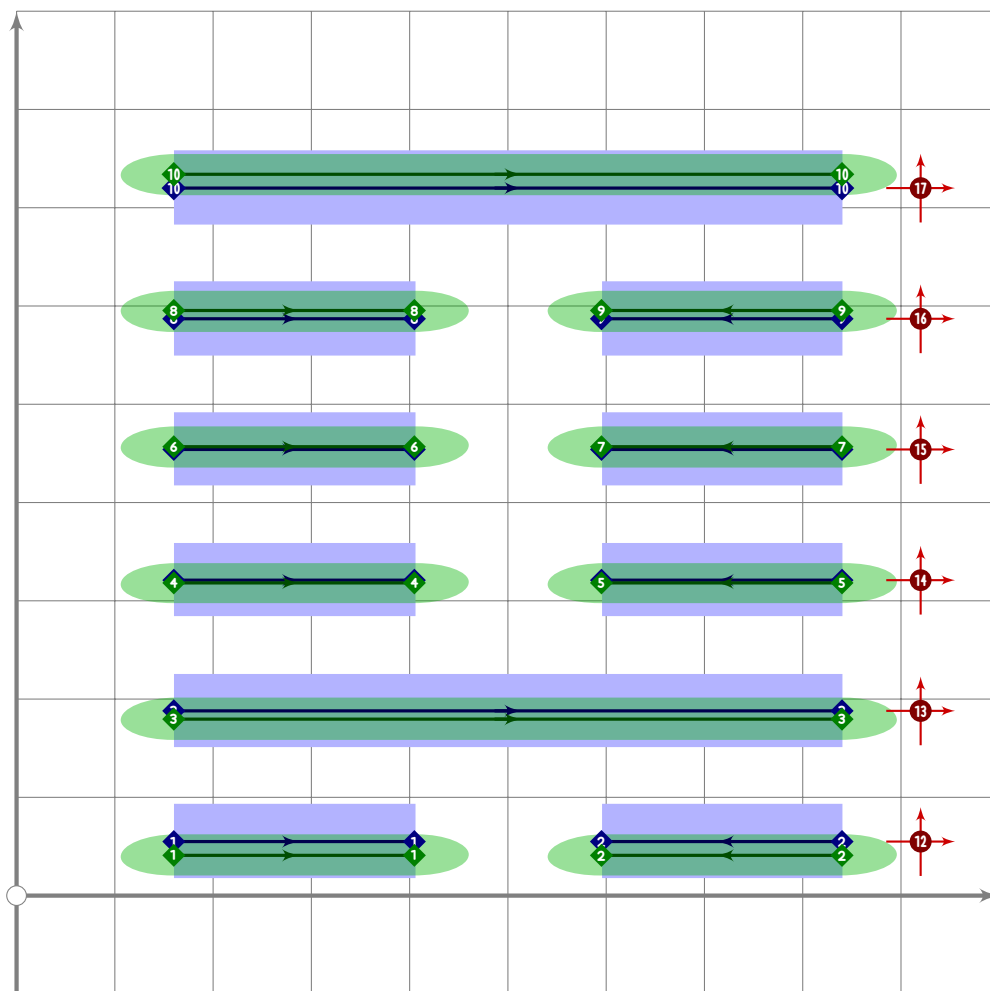
4D



62 make\_hexagram(3, 1,0,0,0,1,0);

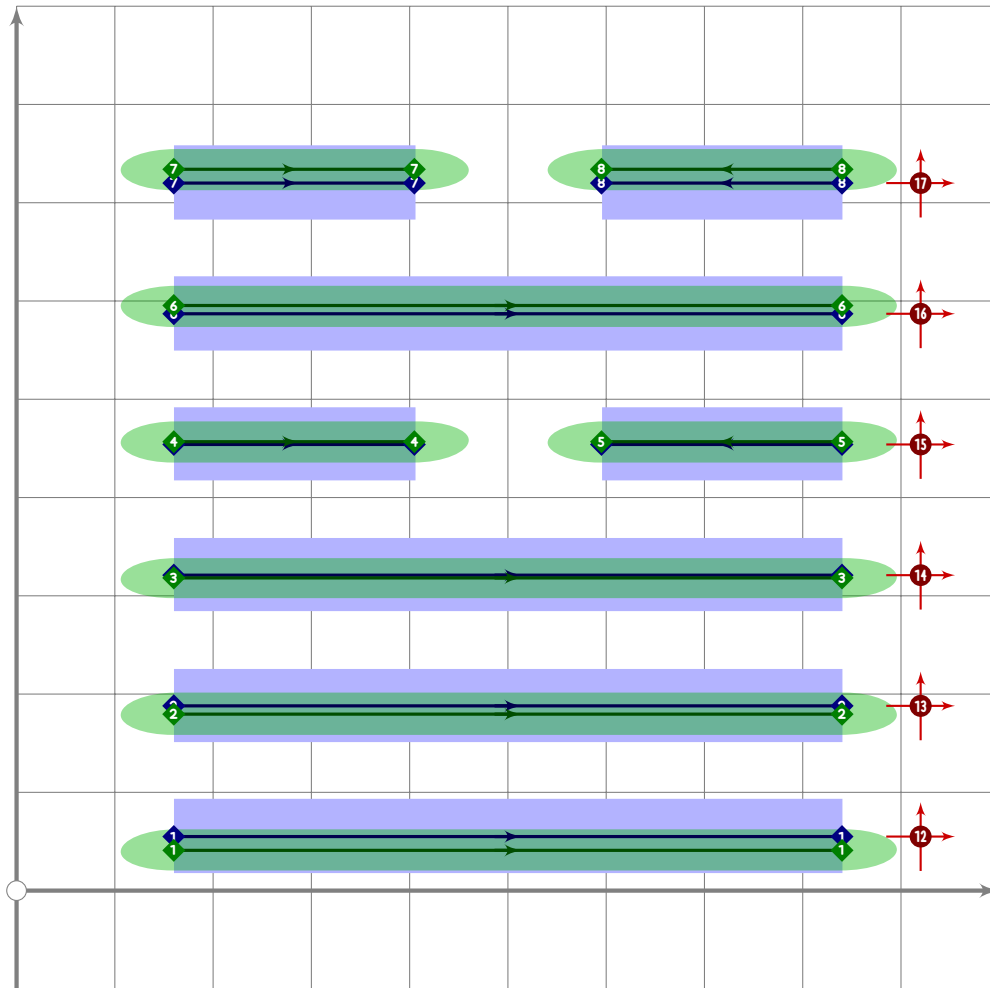
4D

U+4DC3  
tsuku.iching04



```
63 make_hexagram(4, 0,1,0,0,0,1);
```

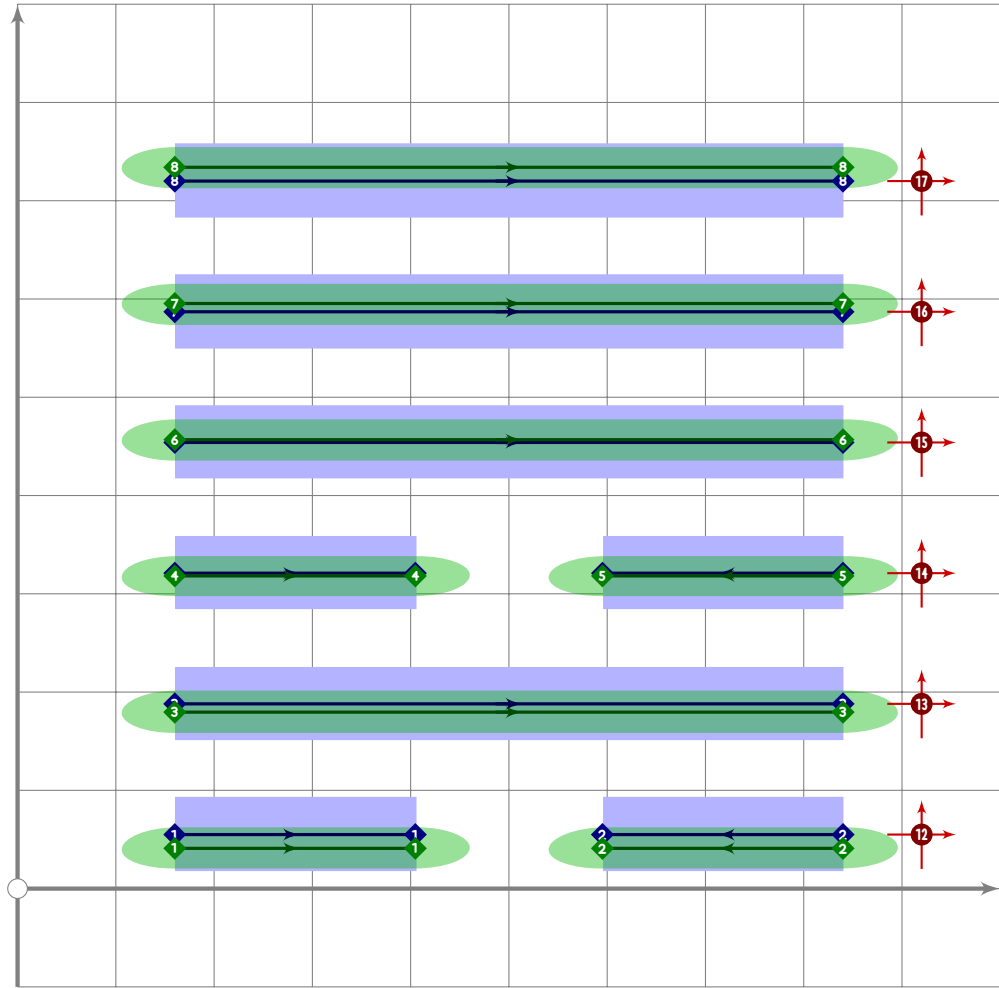
4D



64 make\_hexagram(5, 1,1,0,1,0);

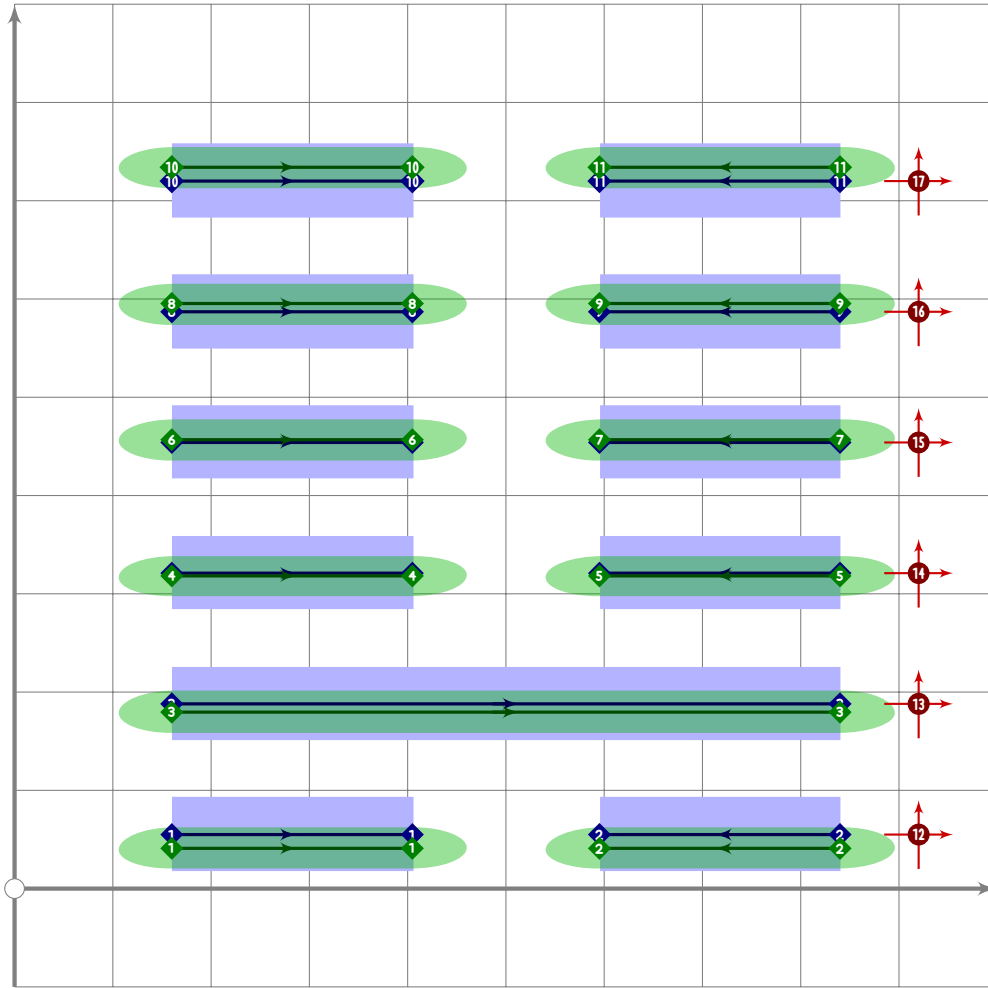
4D

U+4DC5  
tsuku.iching06



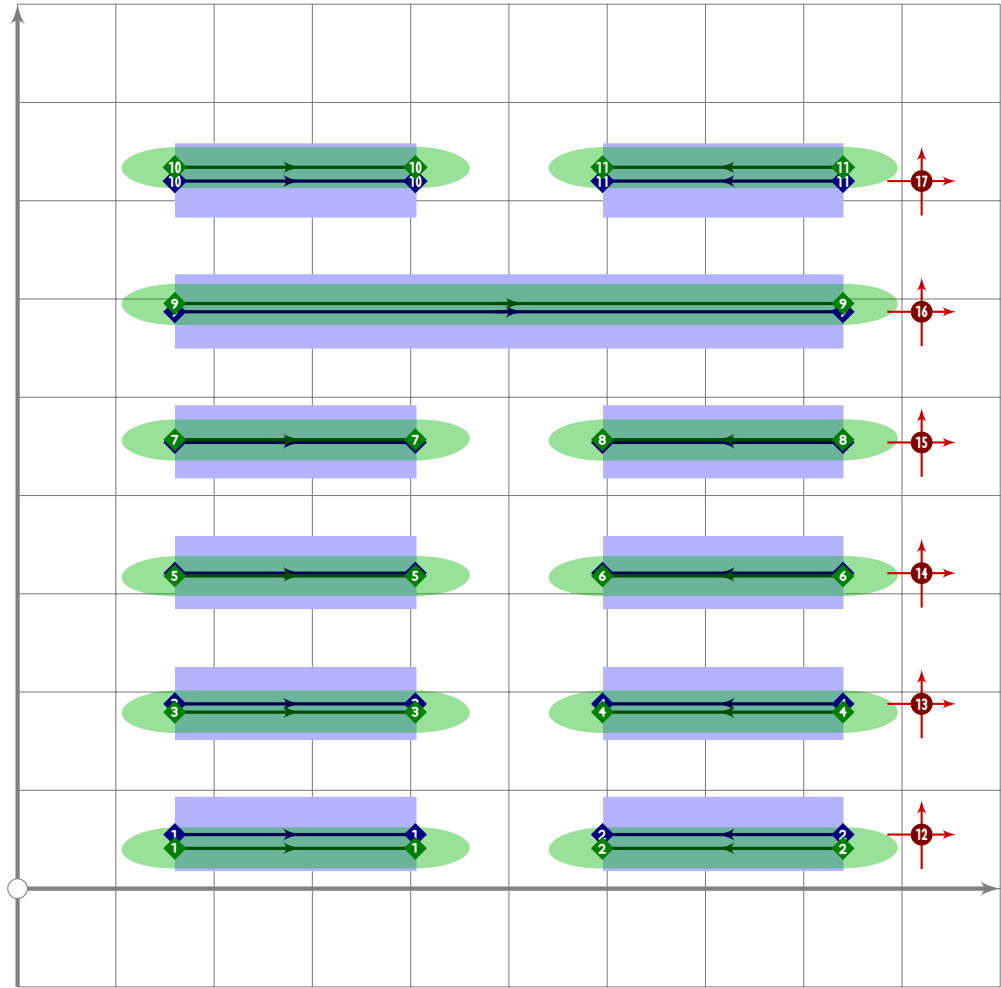
65 make\_hexagram(6, 0,1,0,1,1,1);

4D



66 make\_hexagram(7, 0,1,0,0,0,0);

4D



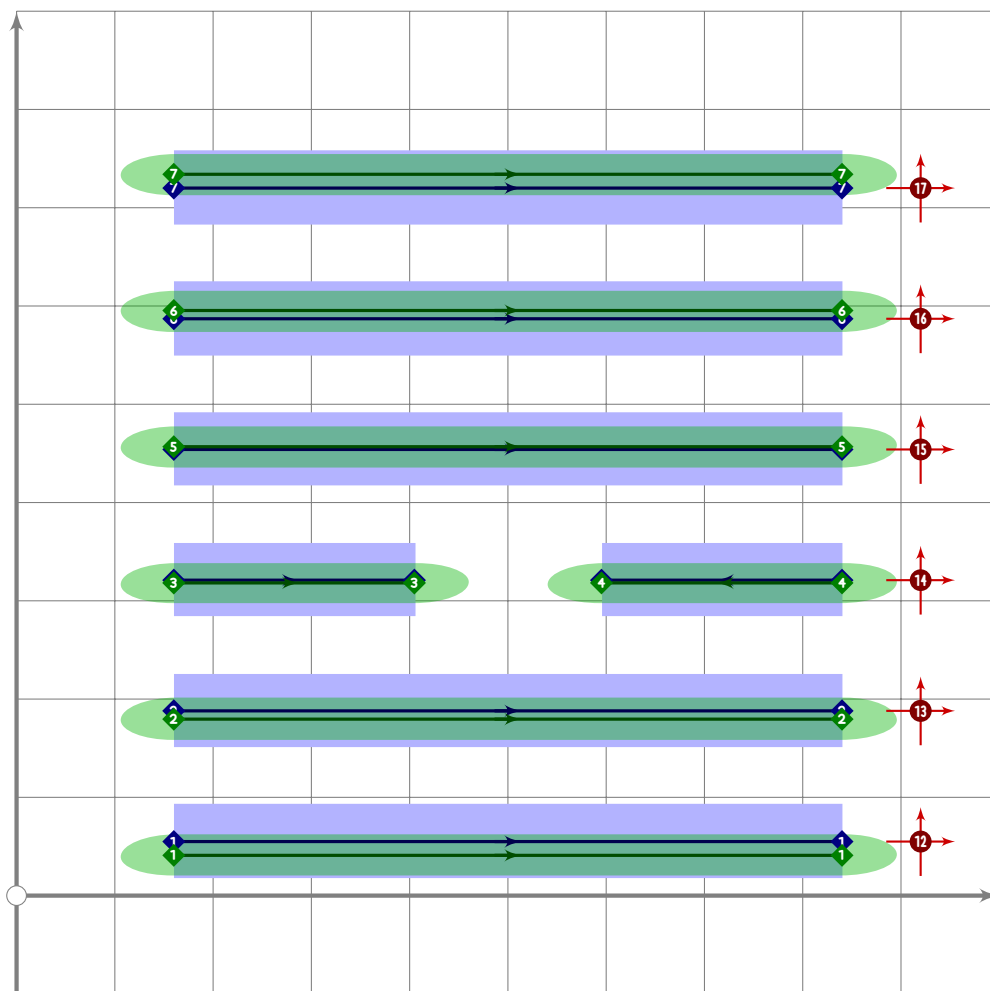
67 make\_hexagram(8, 0,0,0,0,1,0);

4D



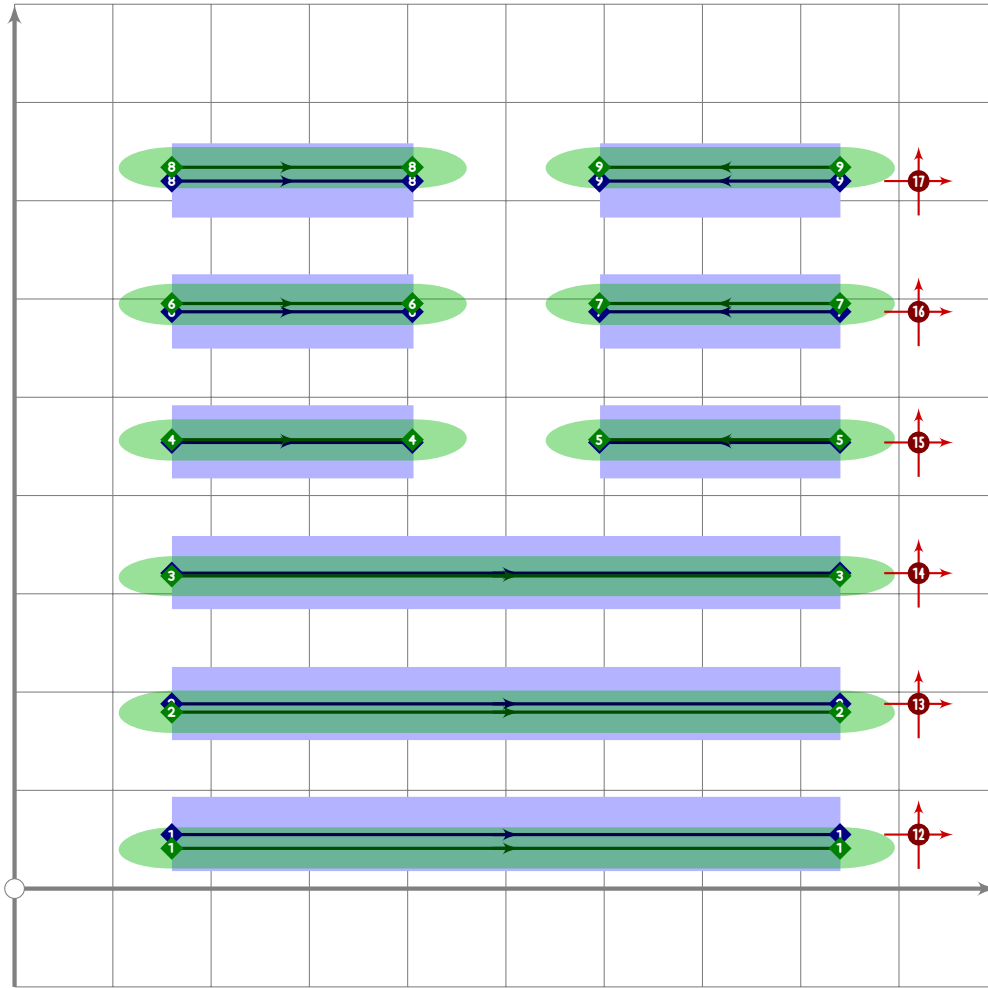


U+4DC9  
tsuku.iching10



```
69 make_hexagram(10,1,0,1,1);
```

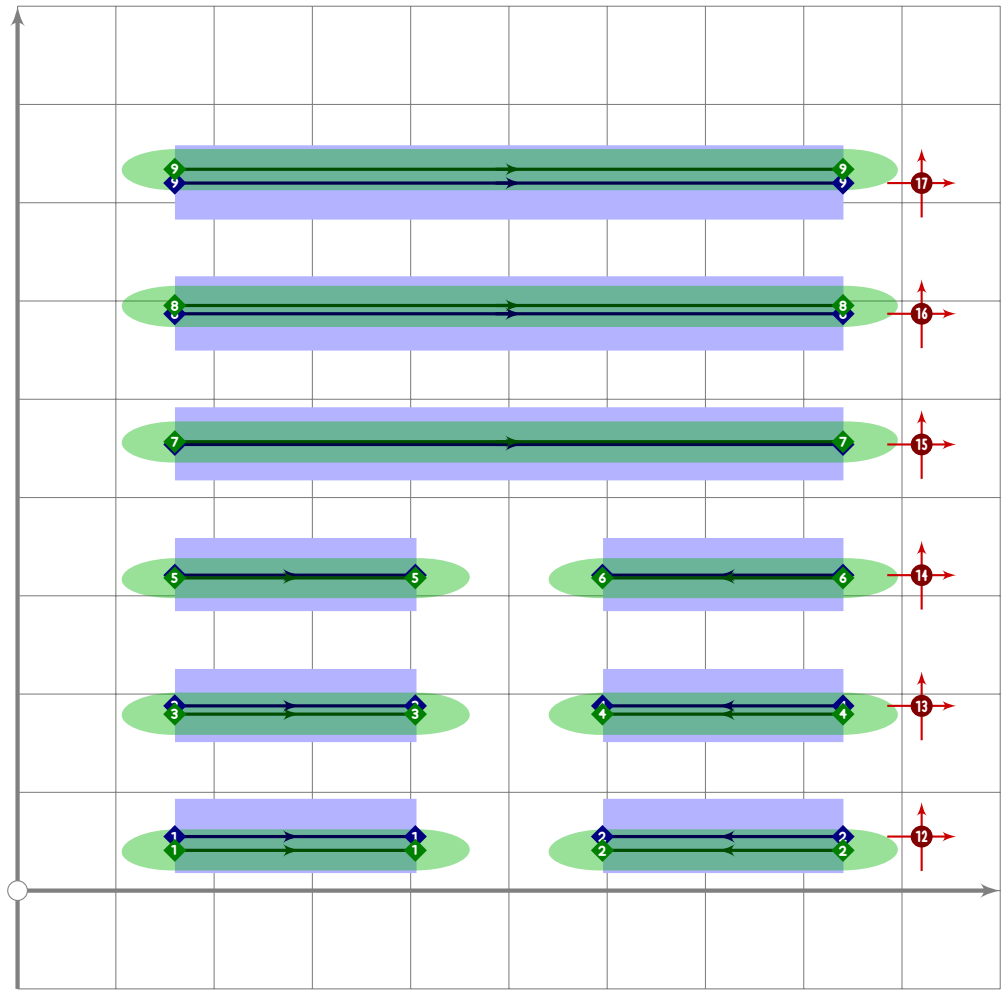
4D



70 make\_hexagram(11,1,1,1,0,0,0);

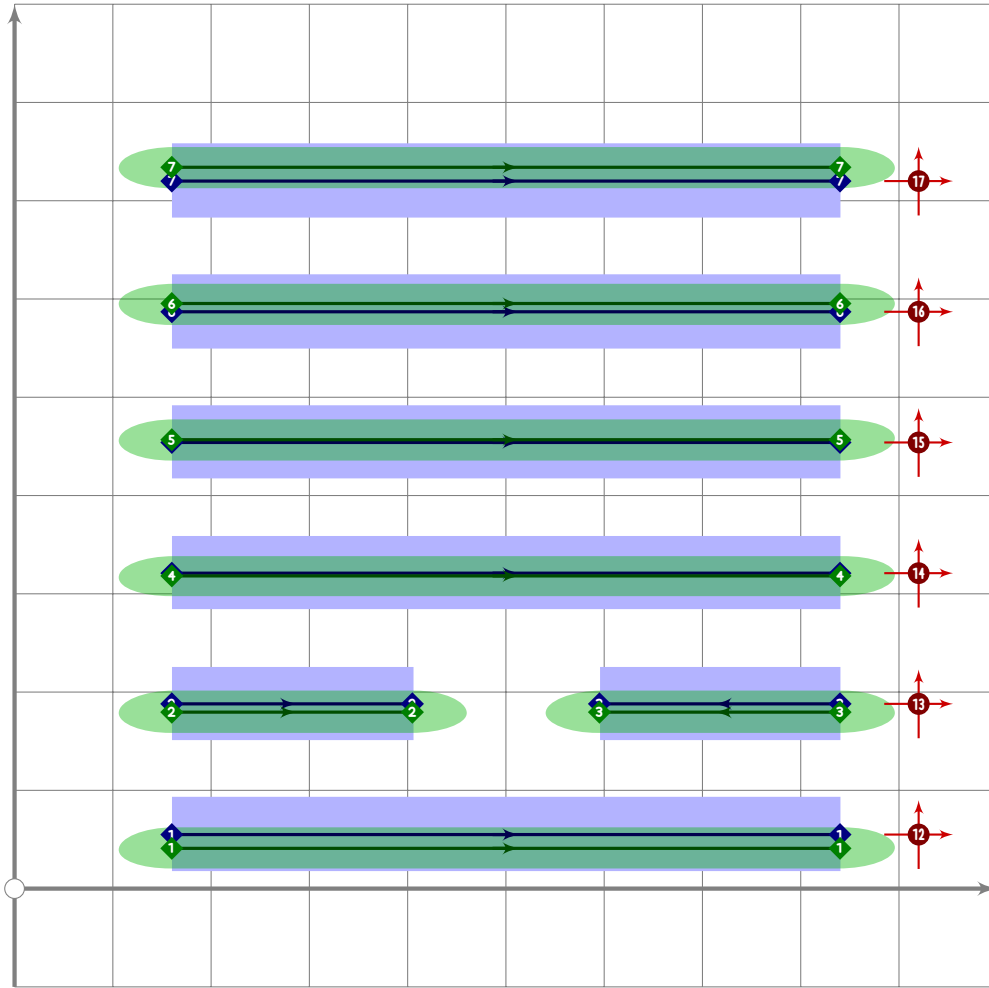
4D

U+4DCB  
tsuku.iching12



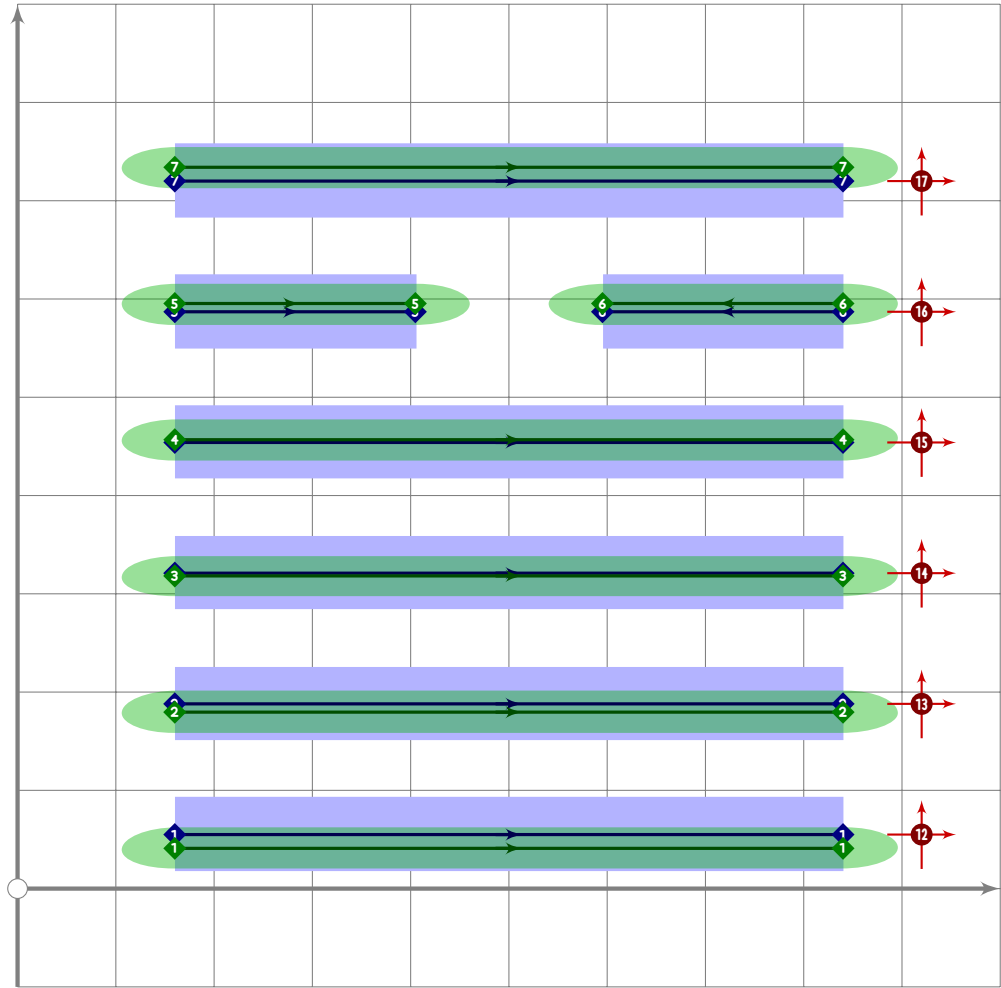
71 make\_hexagram(12,0,0,0,1,1,1);

4D



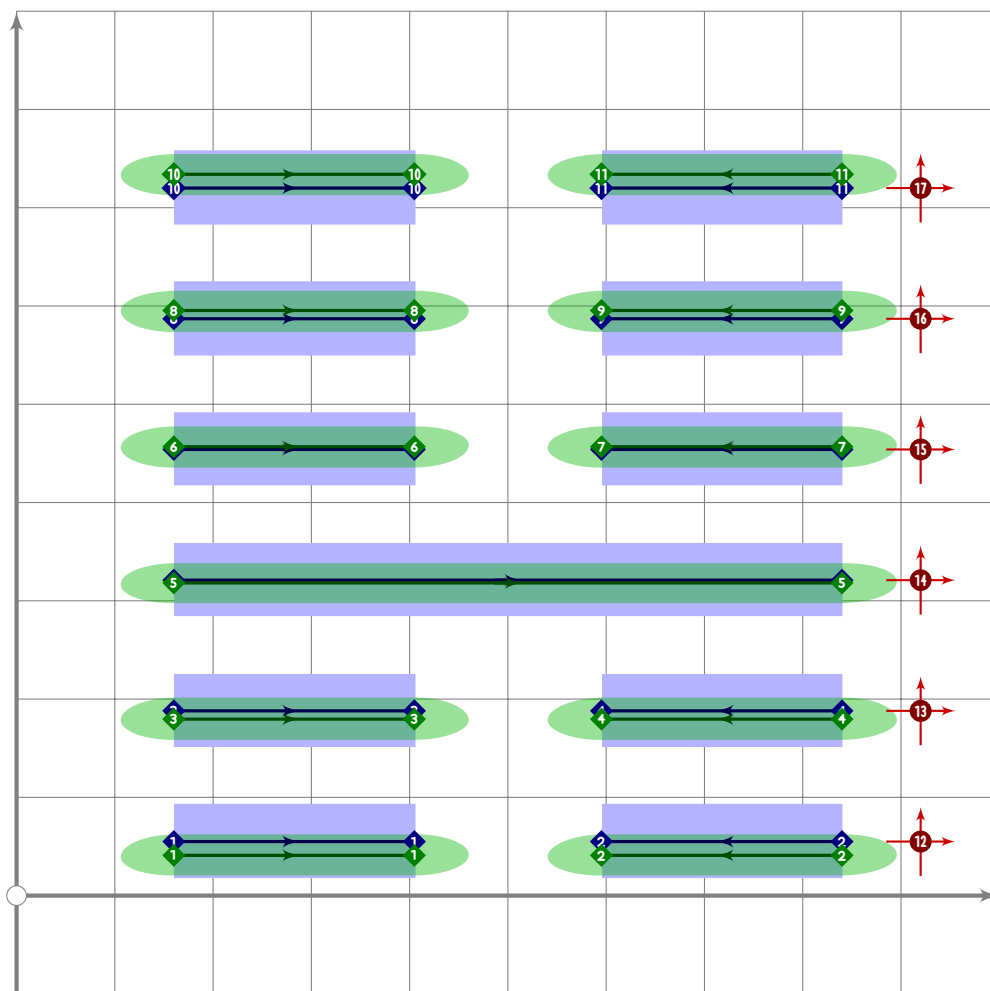
72 make\_hexagram(13,1,0,1,1,1);

4D



73 make\_hexagram(14,1,1,1,1,0,1);

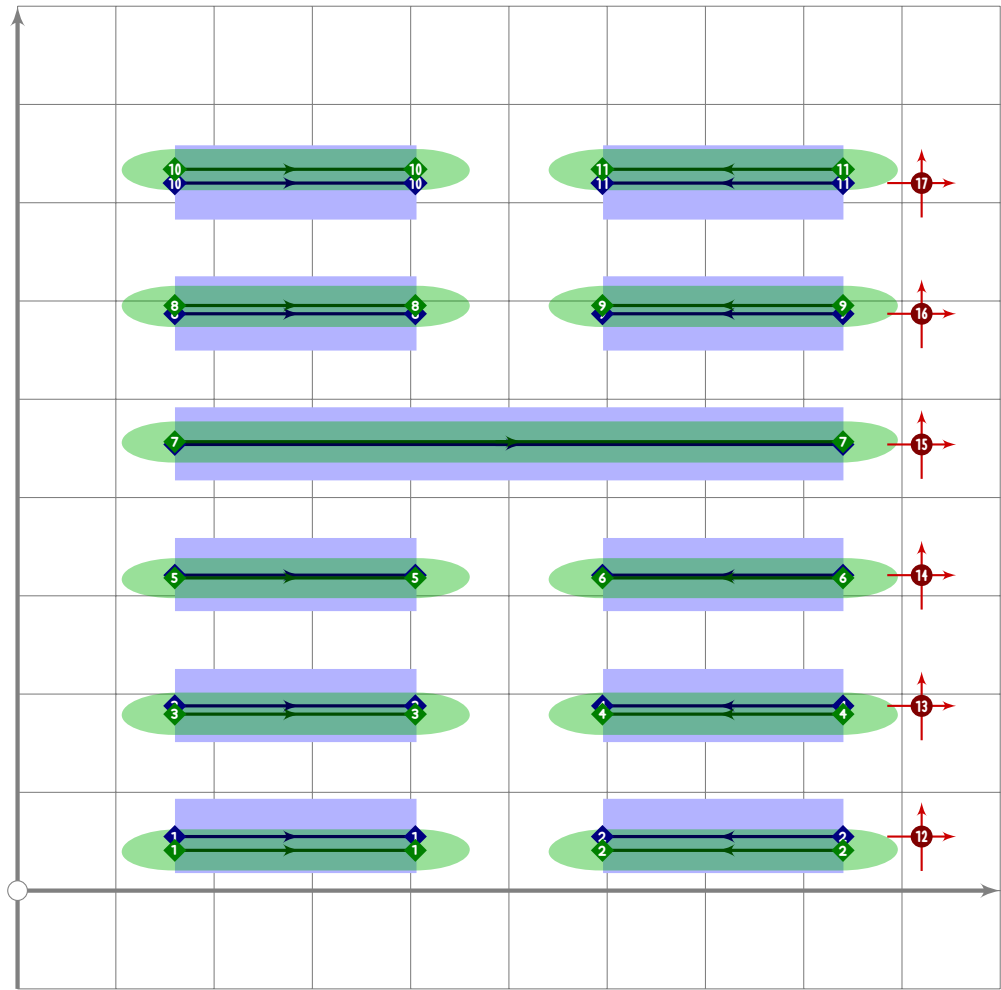
4D



```
74 make_hexagram(15,0,0,1,0,0,0);
```

4D

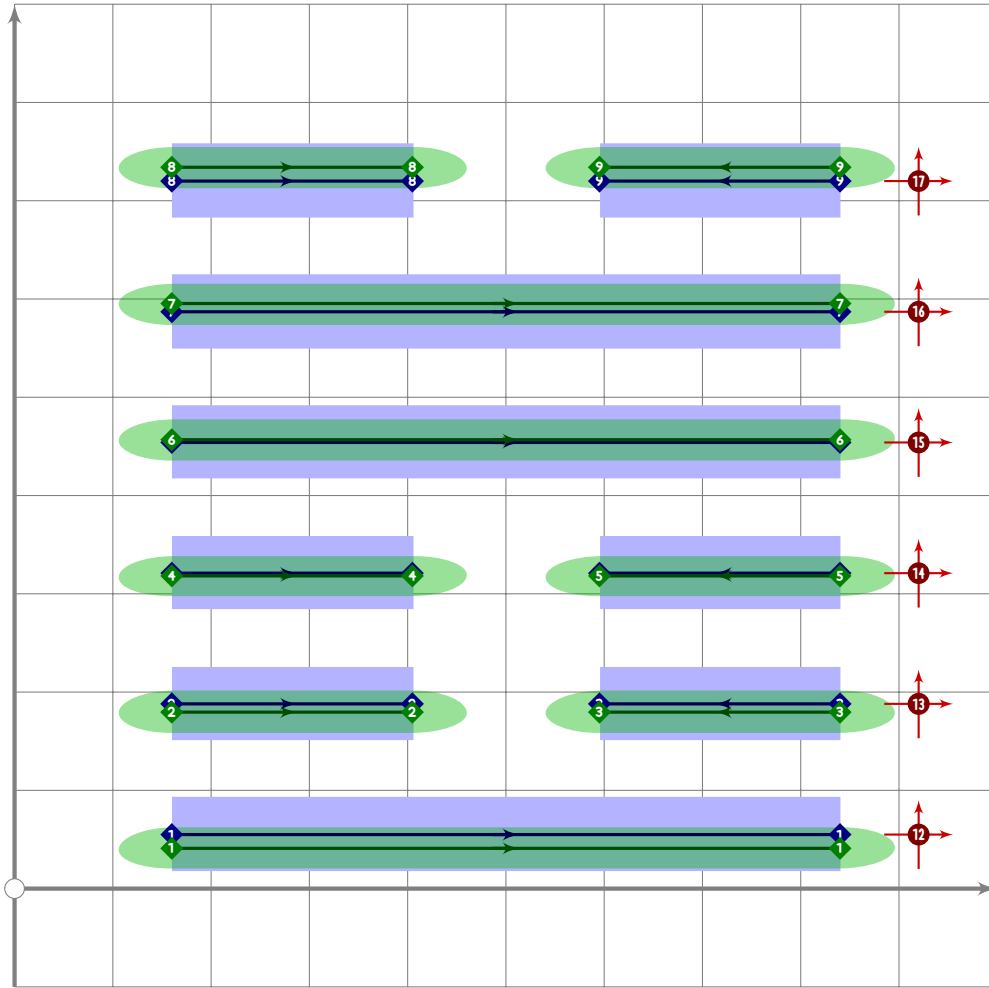
U+4DCF  
tsuku.iching16



75 make\_hexagram(16,0,0,0,1,0,0);

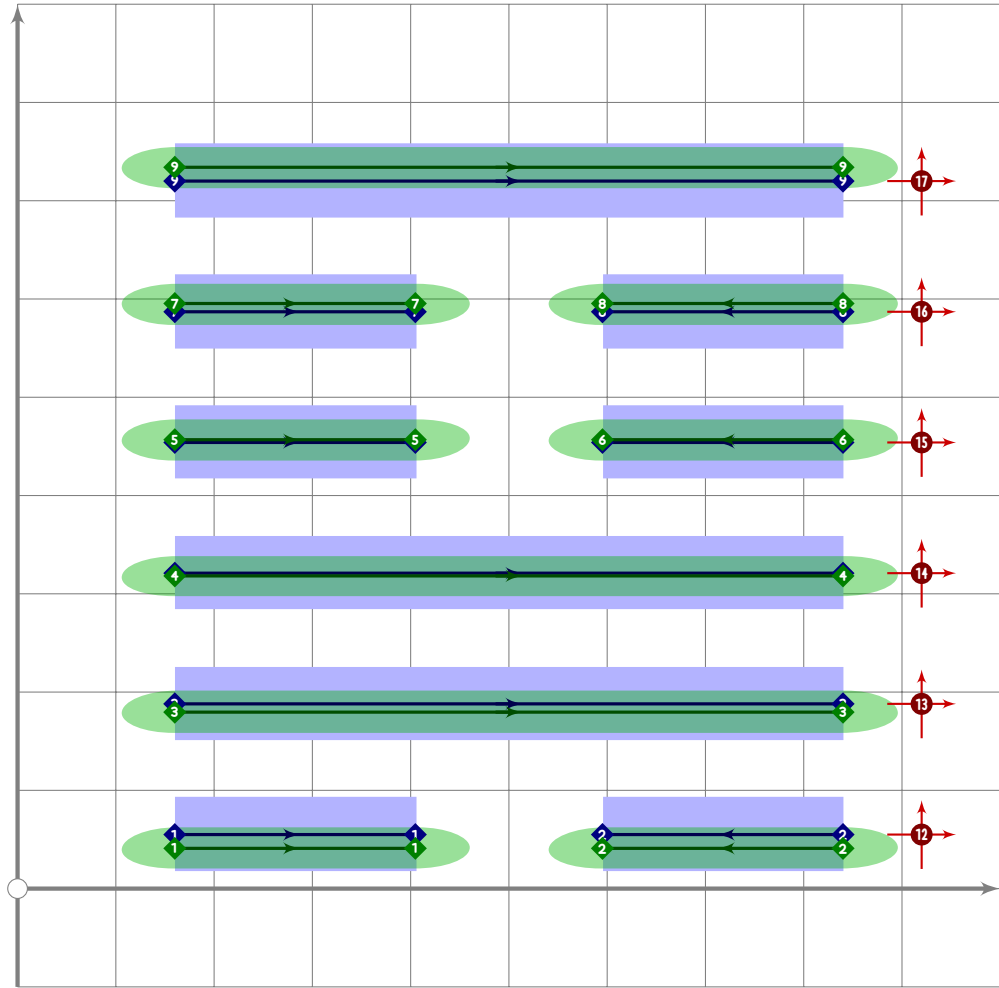
4D





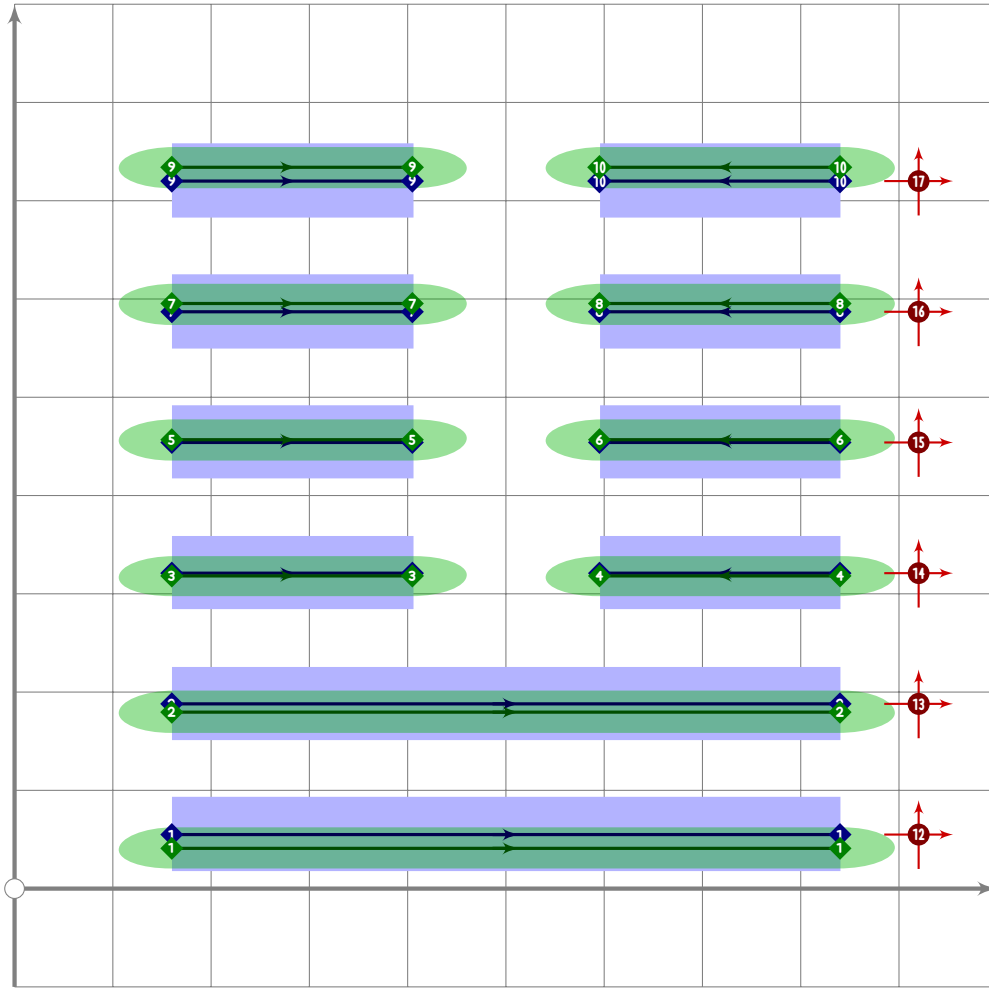
76  
77 make\_hexagram(17,1,0,0,1,1,0);

U+4DD1  
tsuku.iching18



78 make\_hexagram(18,0,1,1,0,0,1);

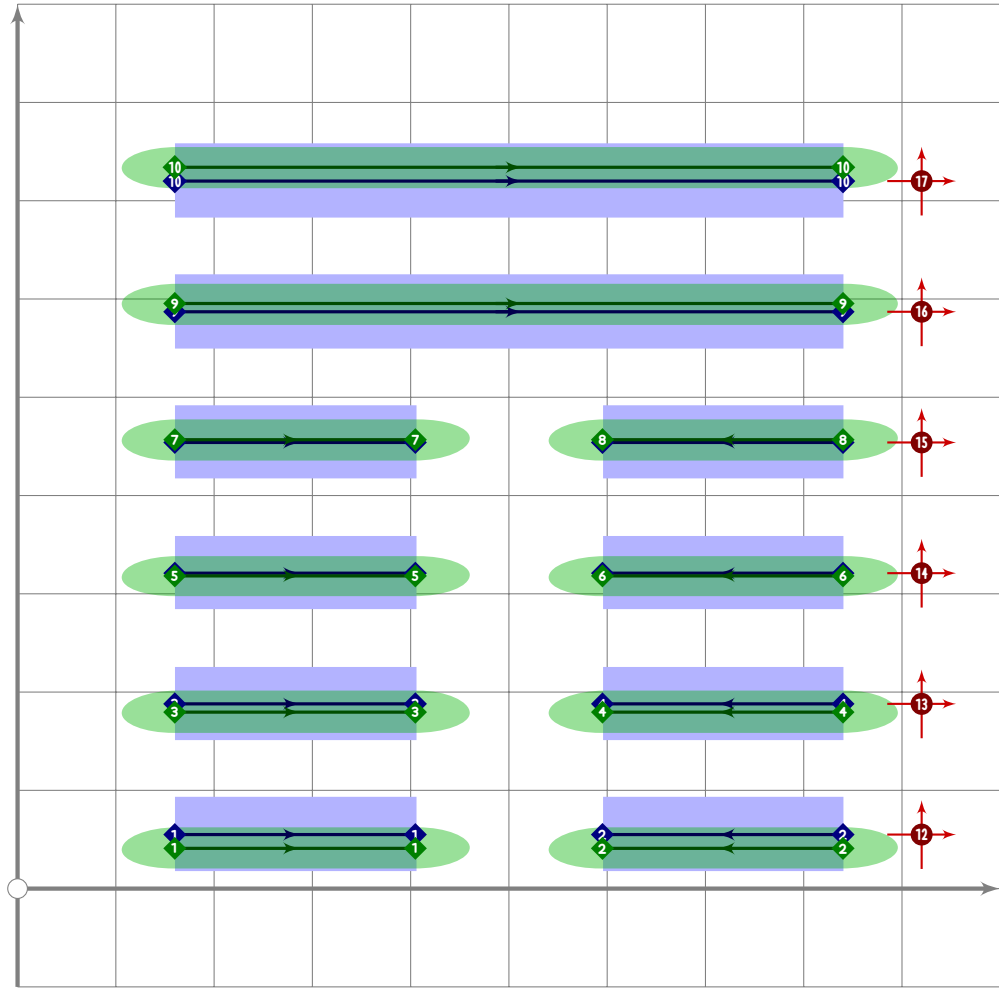
4D



79 make\_hexagram(19,1,0,0,0,0);

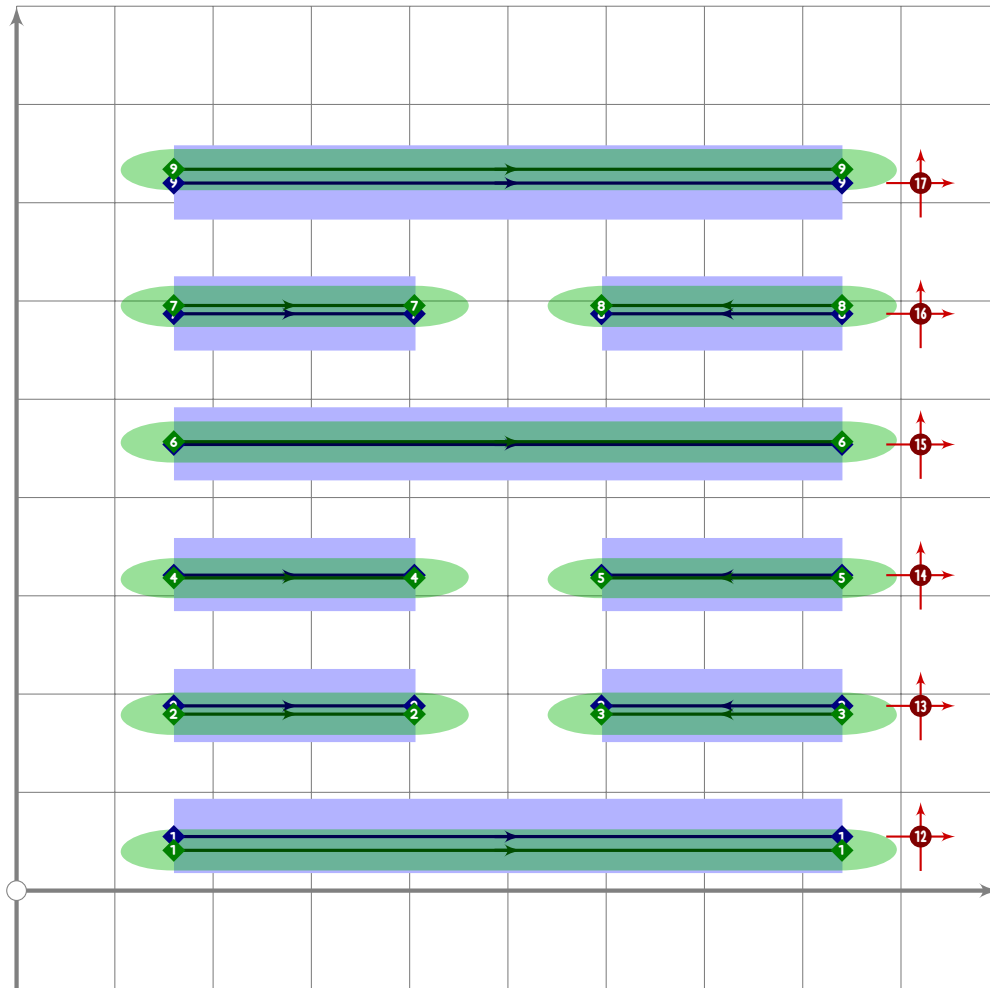
4D

U+4DD3  
tsuku.iching20



80 make\_hexagram(20,0,0,0,0,1,1);

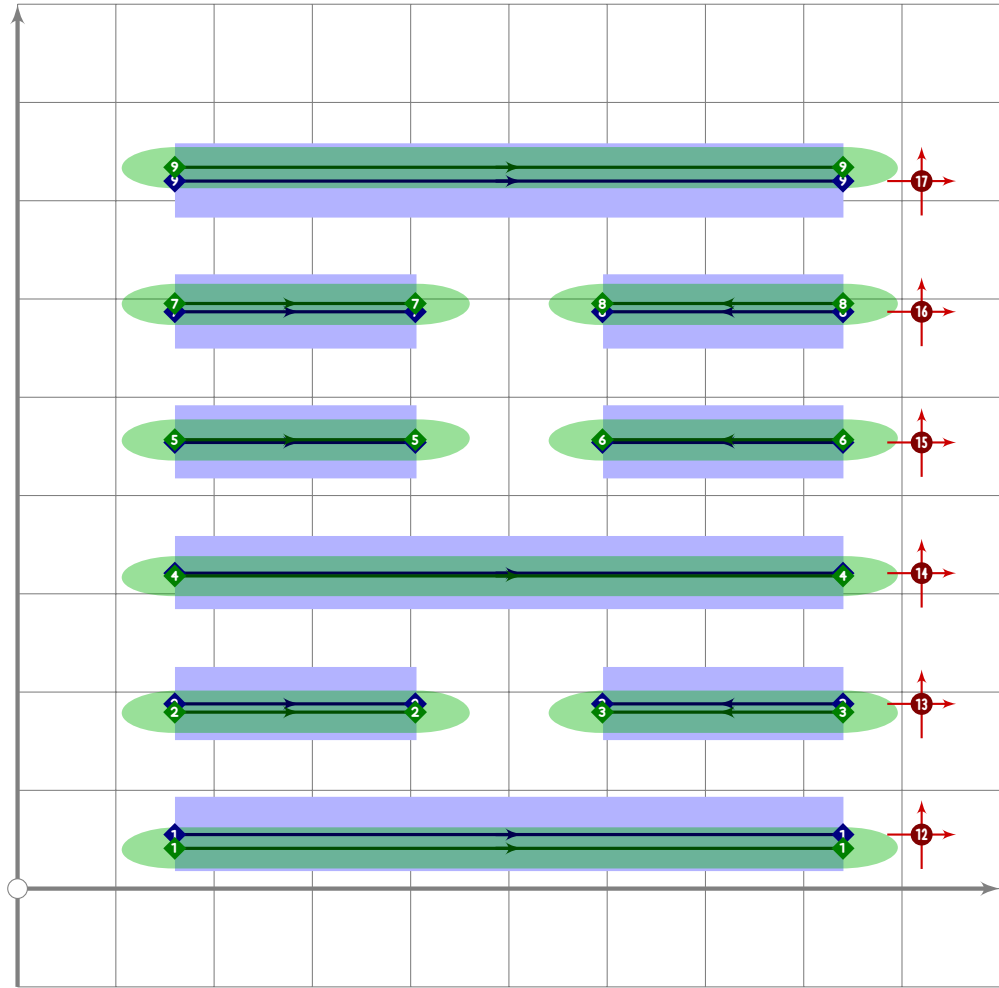
4D



```
81 make_hexagram(21,1,0,0,1,0,1);
```

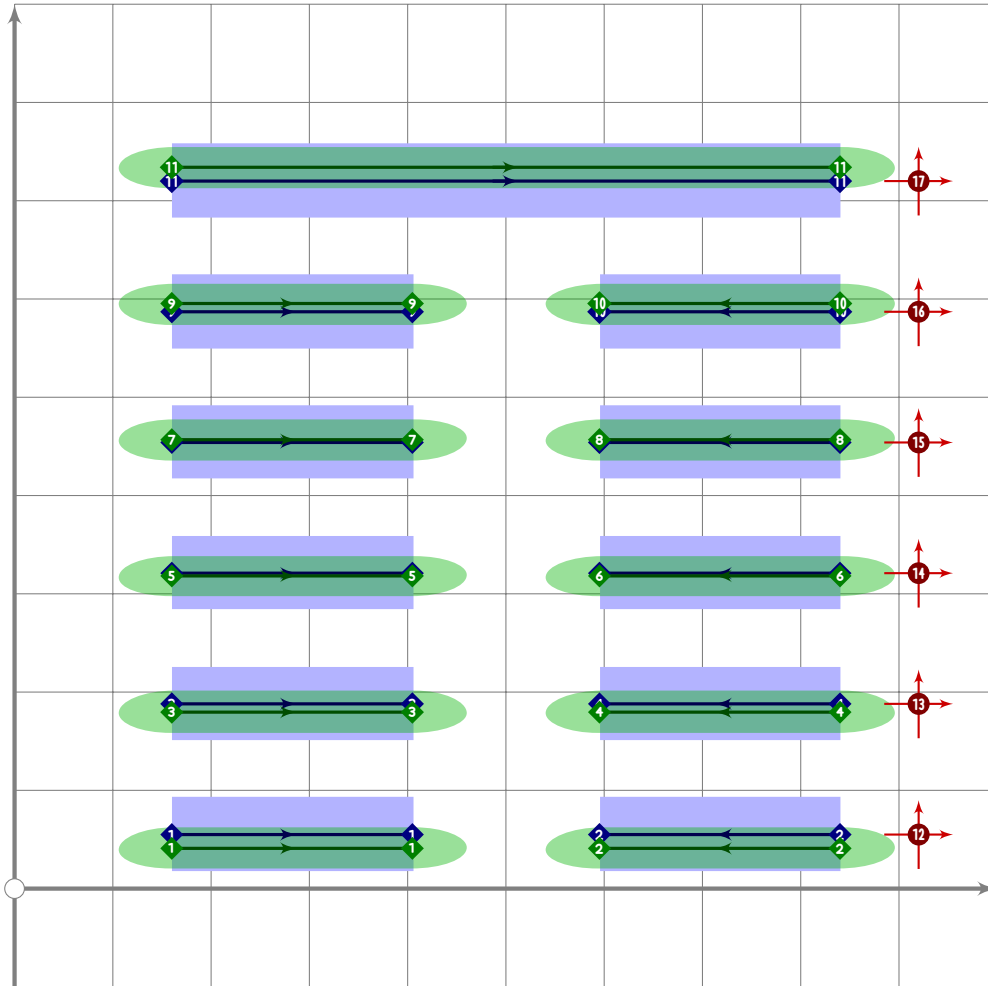
4D

U+4DD5  
tsuku.iching22



```
82 make_hexagram(22,1,0,1,0,0,1);
```

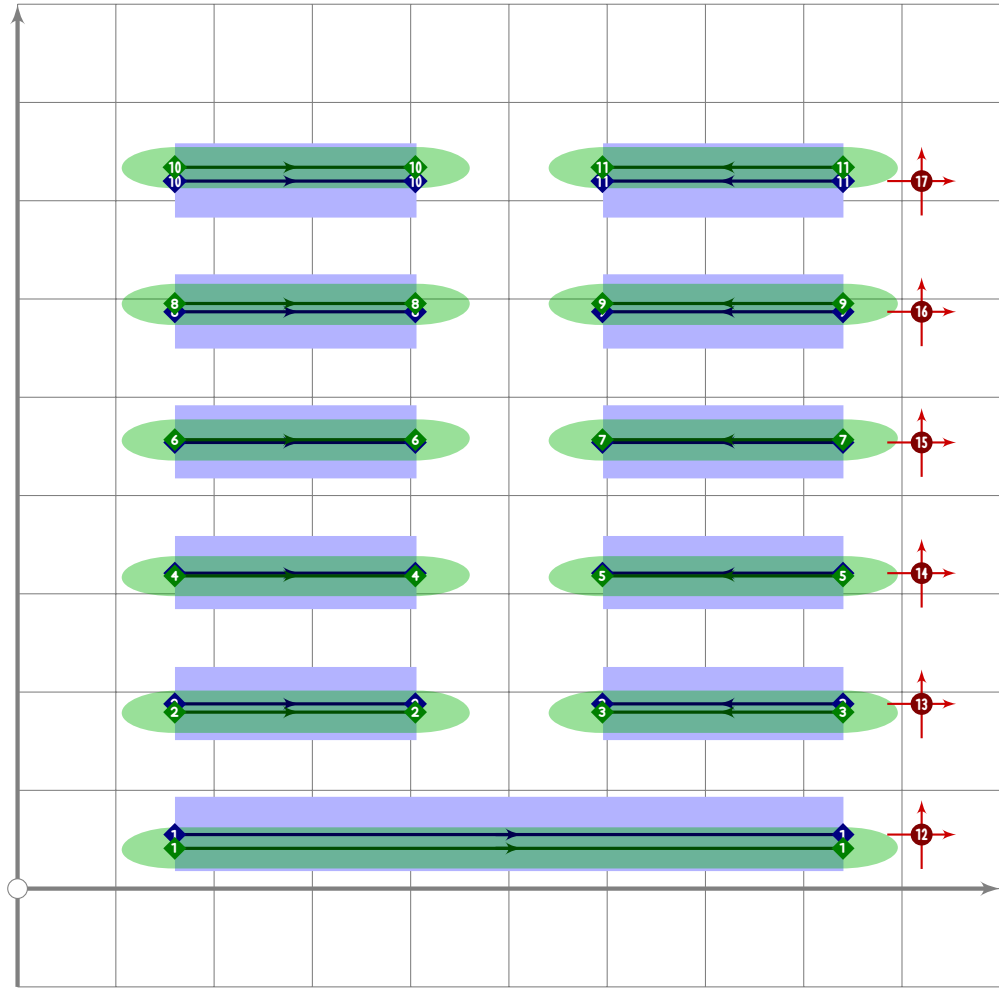
4D



83 make\_hexagram(23,0,0,0,0,0,1);

4D

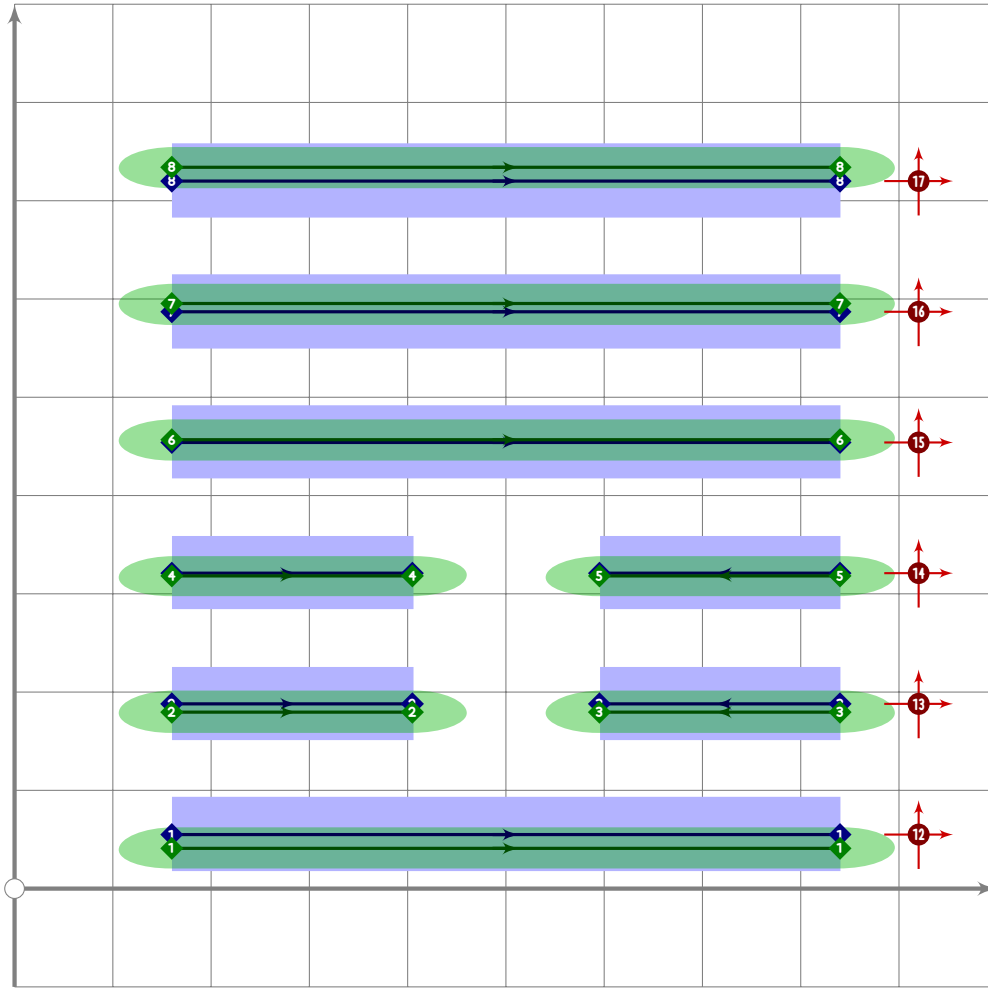
U+4DD7  
tsuku.iching24



84 make\_hexagram(24,1,0,0,0,0);

4D

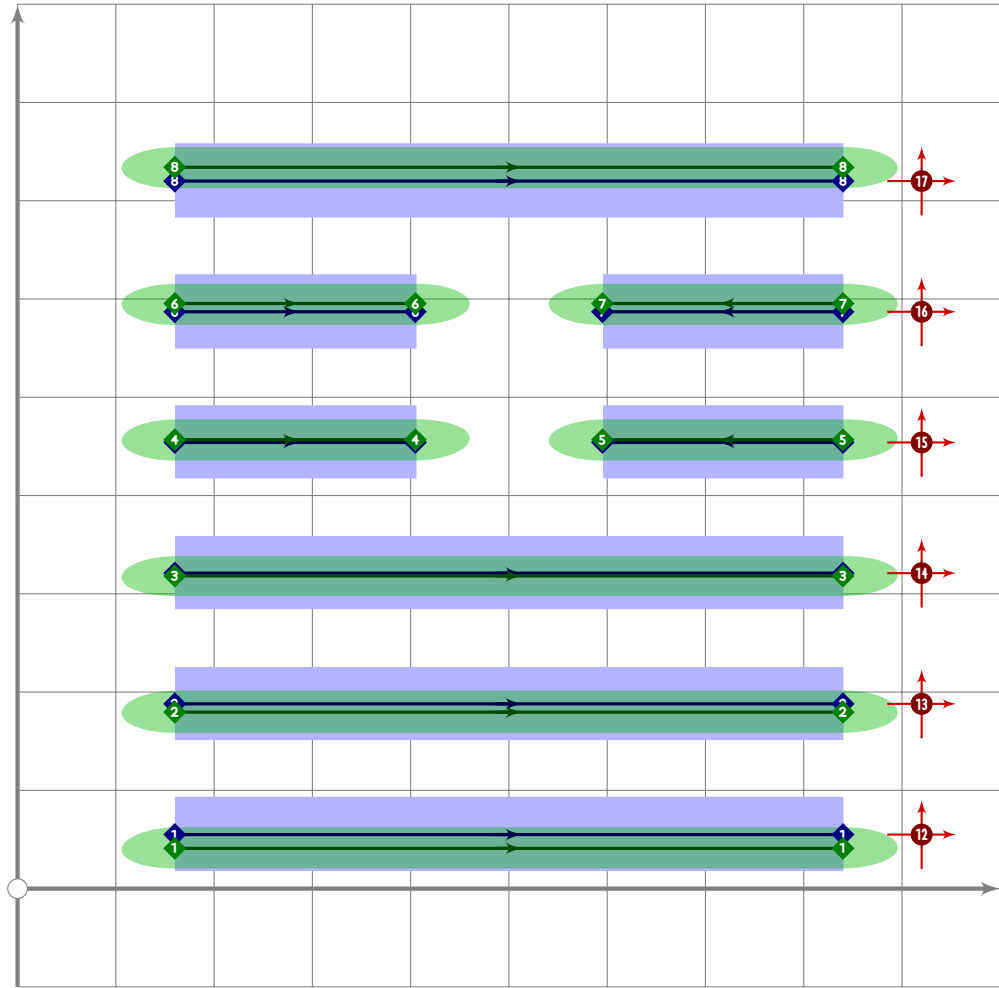




85 make\_hexagram(25,1,0,0,1,1,1);

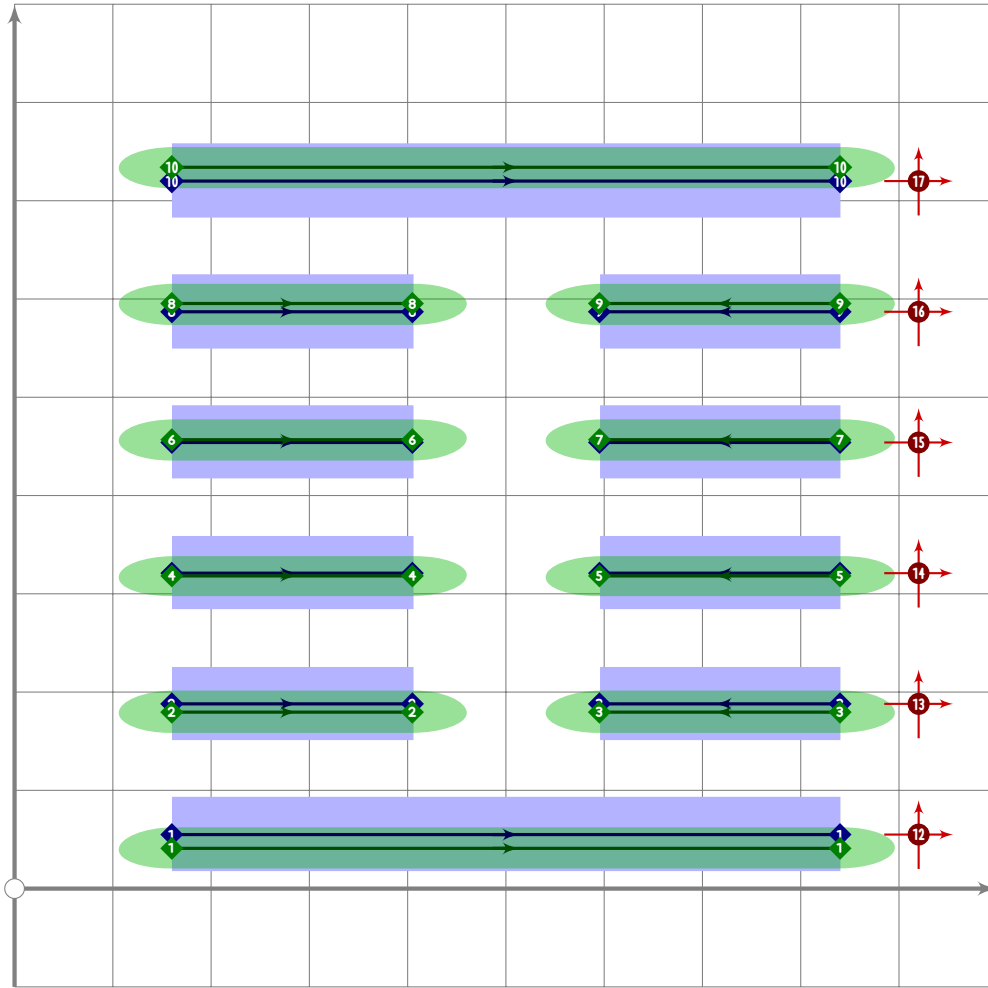
4D

U+4DD9  
tsuku.iching26



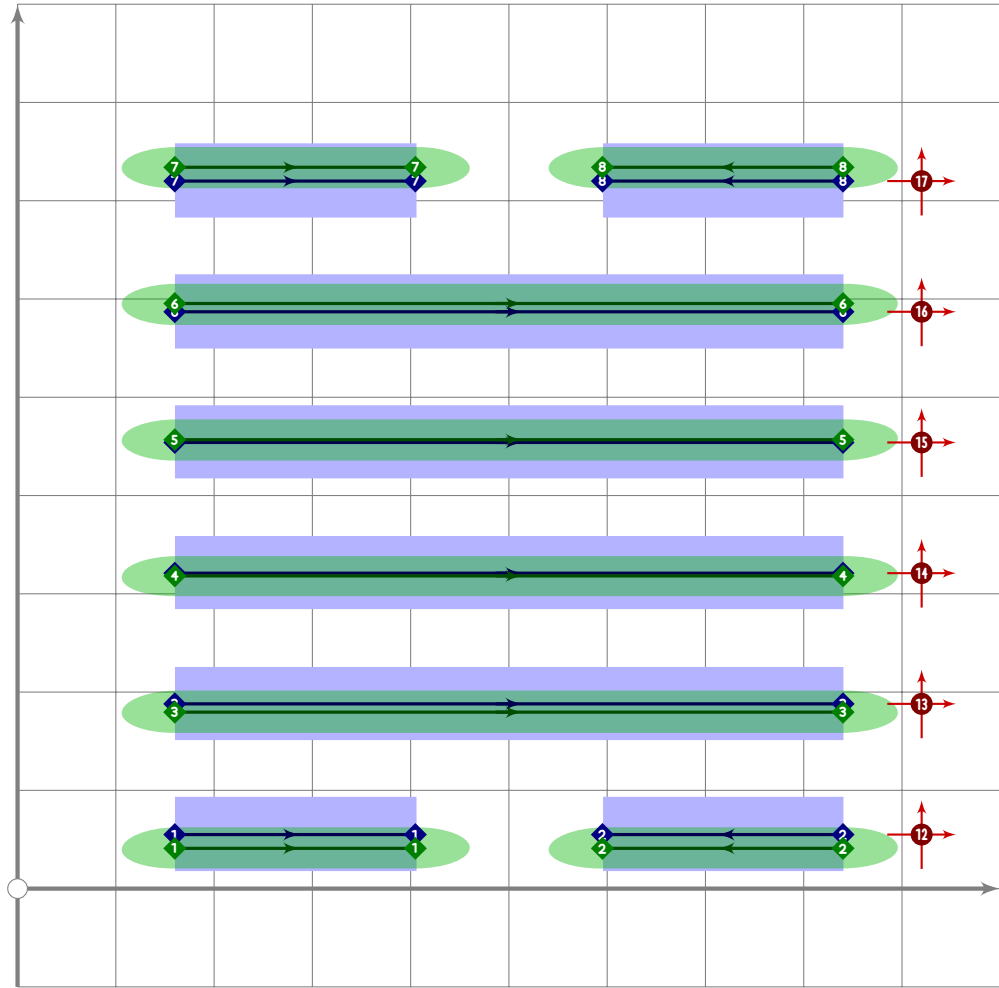
```
86 make_hexagram(26,1,1,1,0,0,1);
```

4D



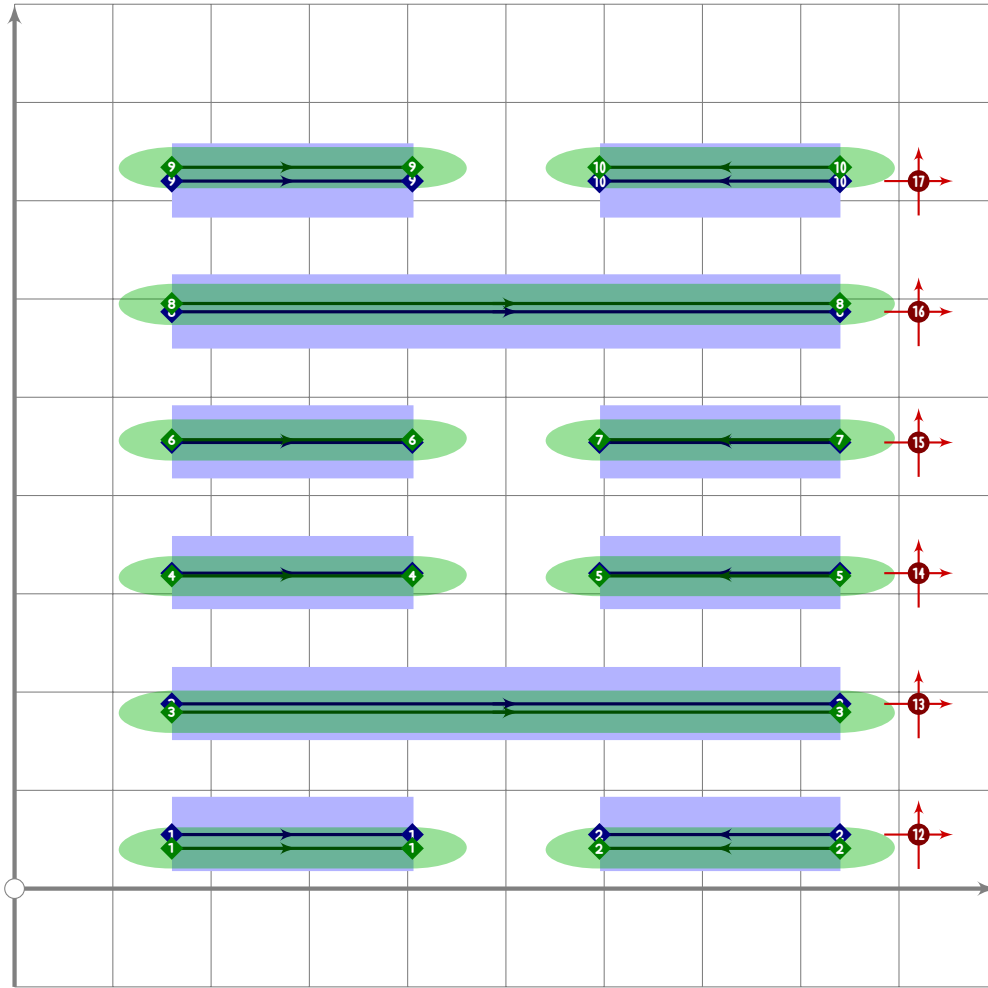
87 make\_hexagram(27,1,0,0,0,1);

U+4DDB  
tsuku.iching28



88 make\_hexagram(28,0,1,1,1,0);

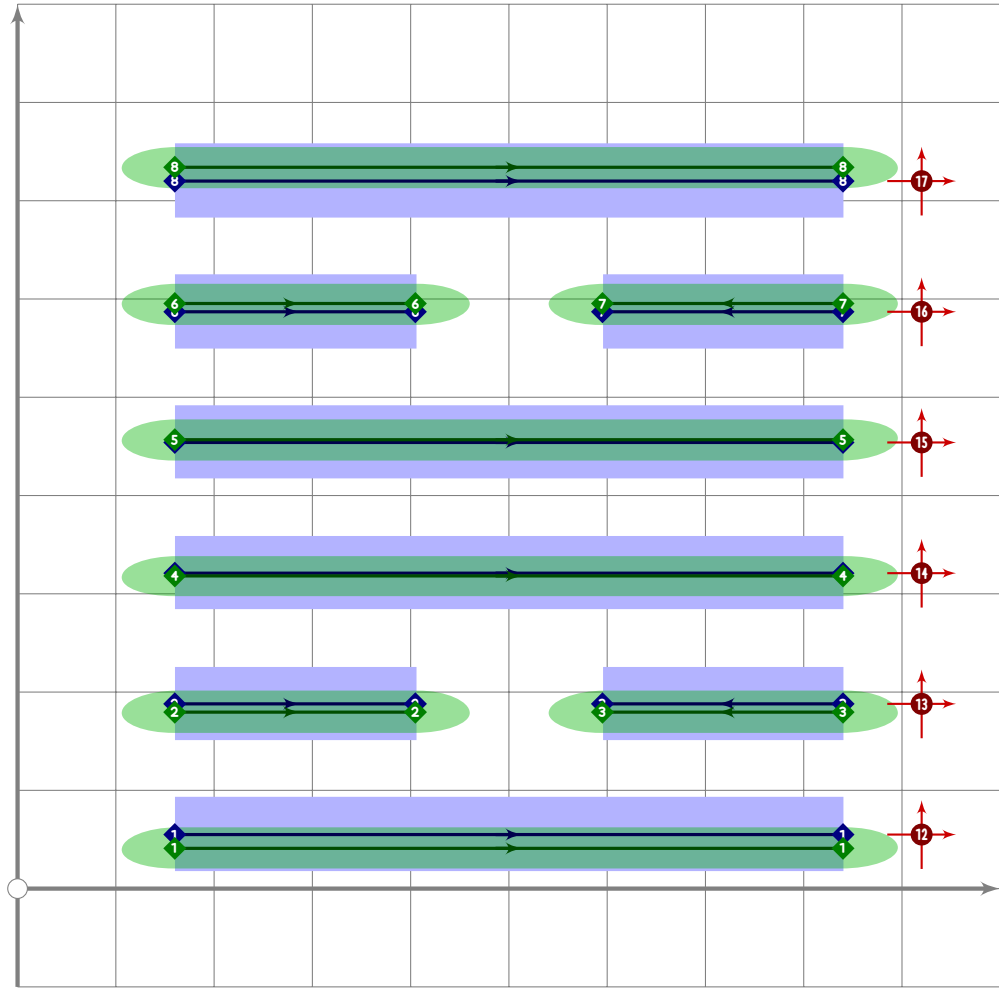
4D



89 make\_hexagram(29,0,1,0,0,1,0);

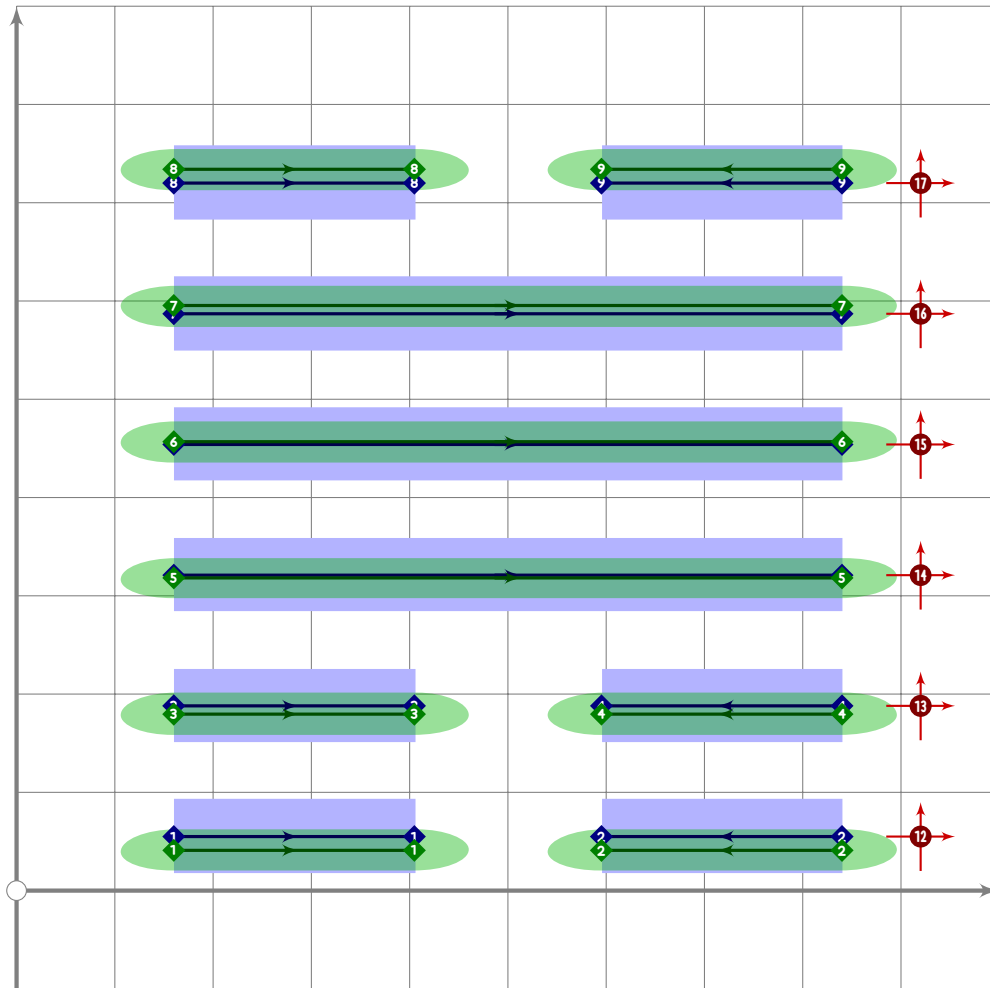
4D

U+4DDD  
tsuku.iching30



90 make\_hexagram(30,1,0,1,1,0,1);

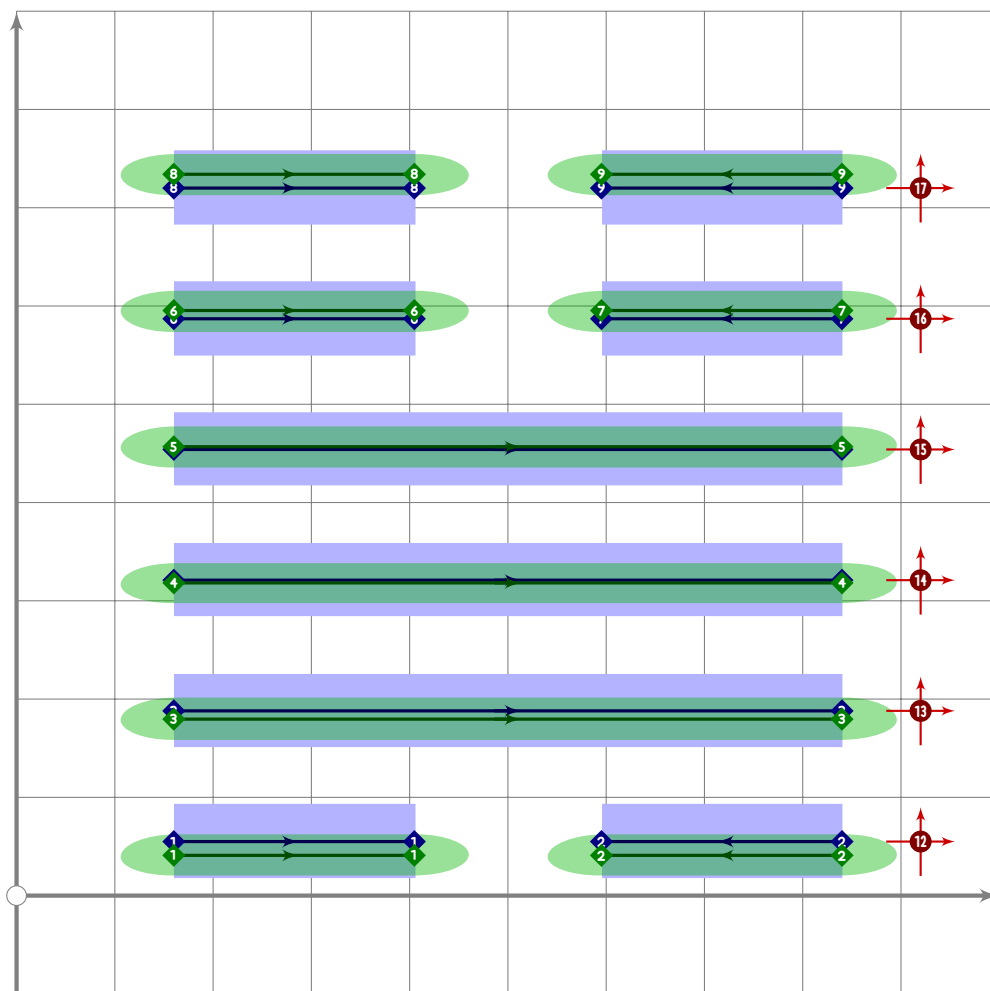
4D



```
91 make_hexagram(31,0,0,1,1,0);
```

4D

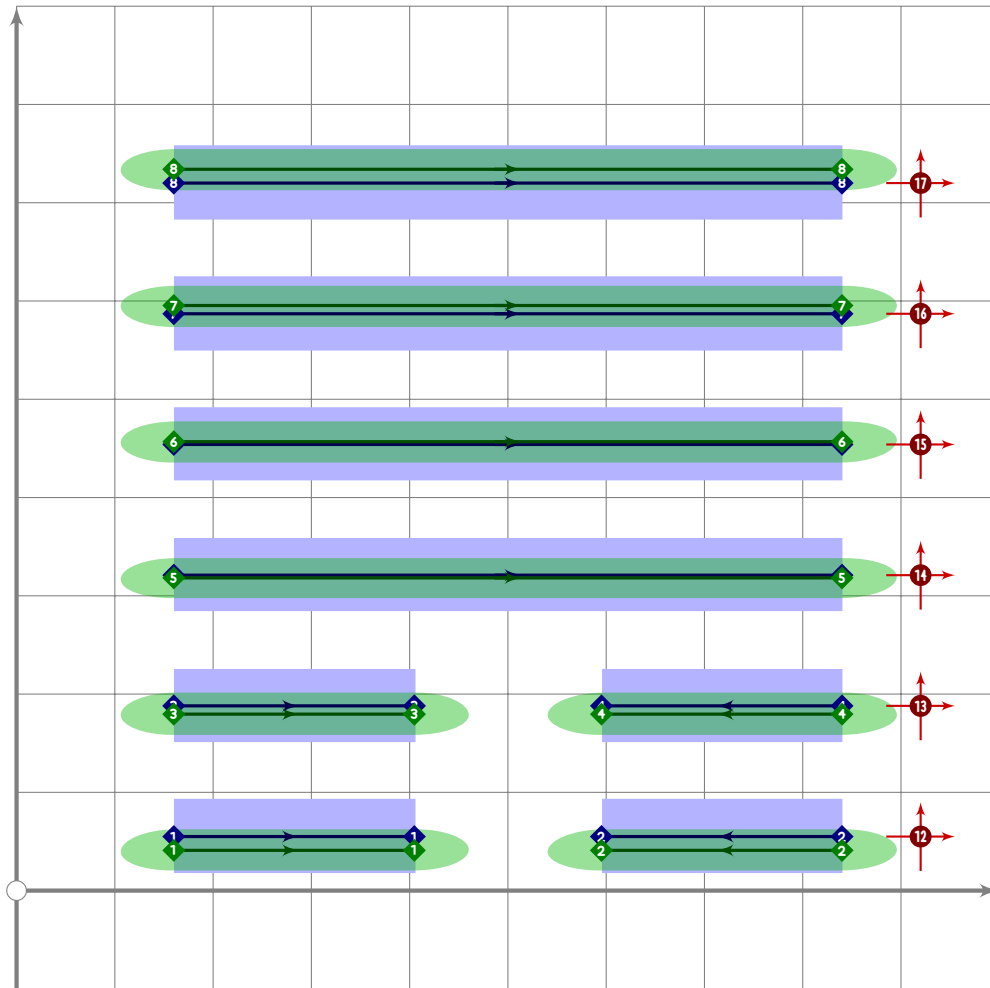
U+4DDF  
tsuku.iching32



```
92 make_hexagram(32,0,1,1,0,0);
```

4D

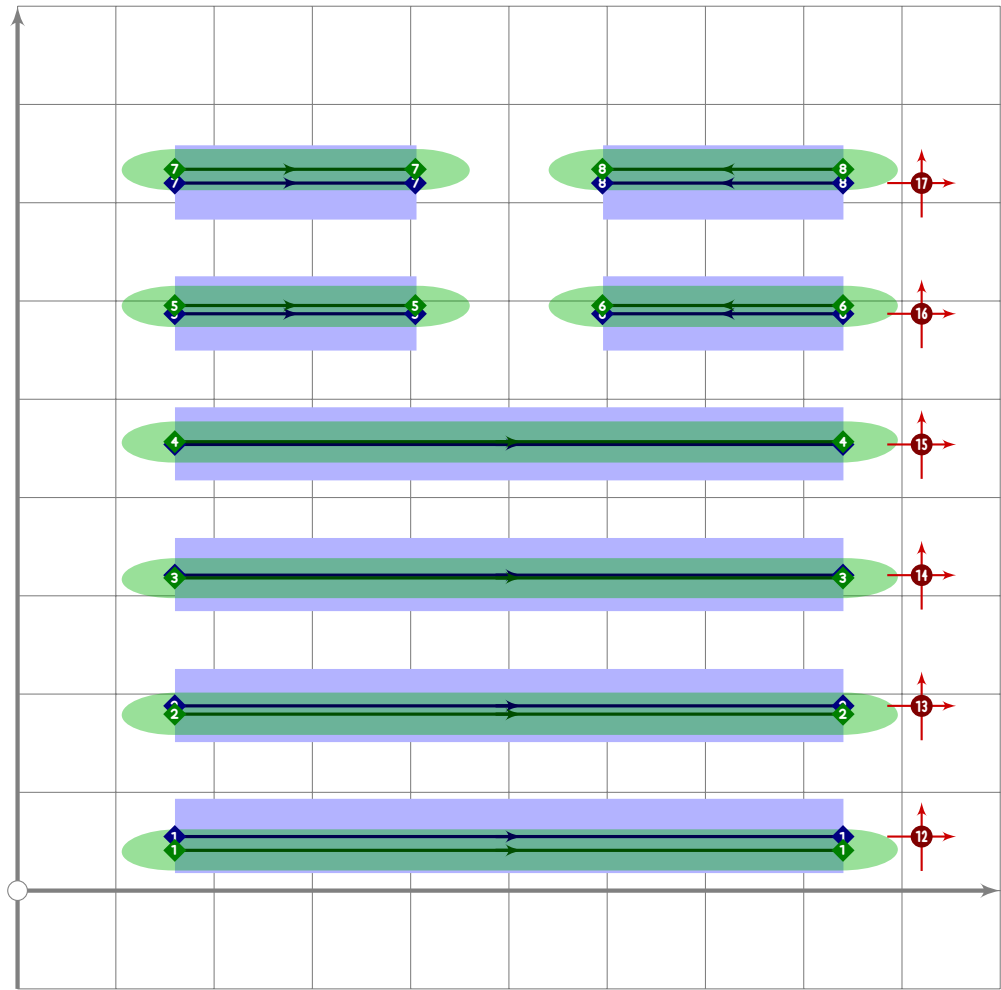




93  
94 make\_hexagram(33,0,0,1,1,1);

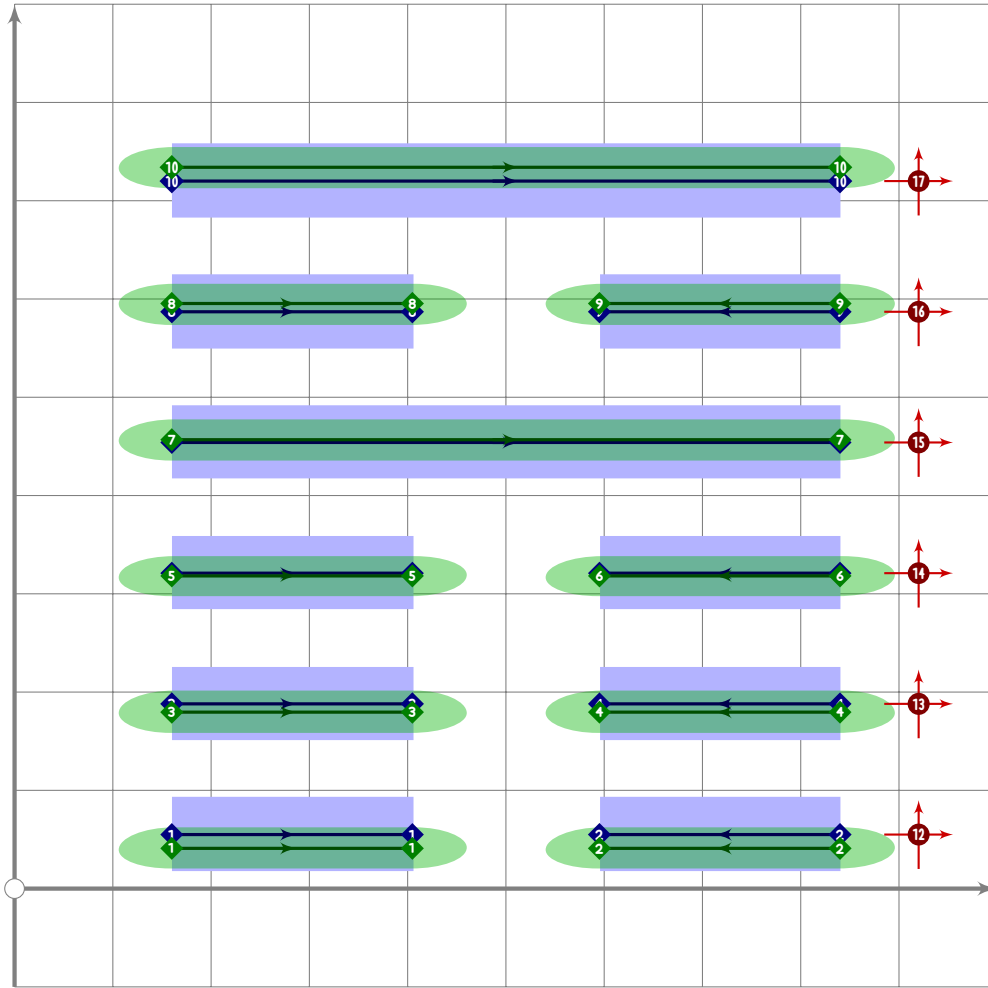
4D

U+4DE1  
tsuku.iching34



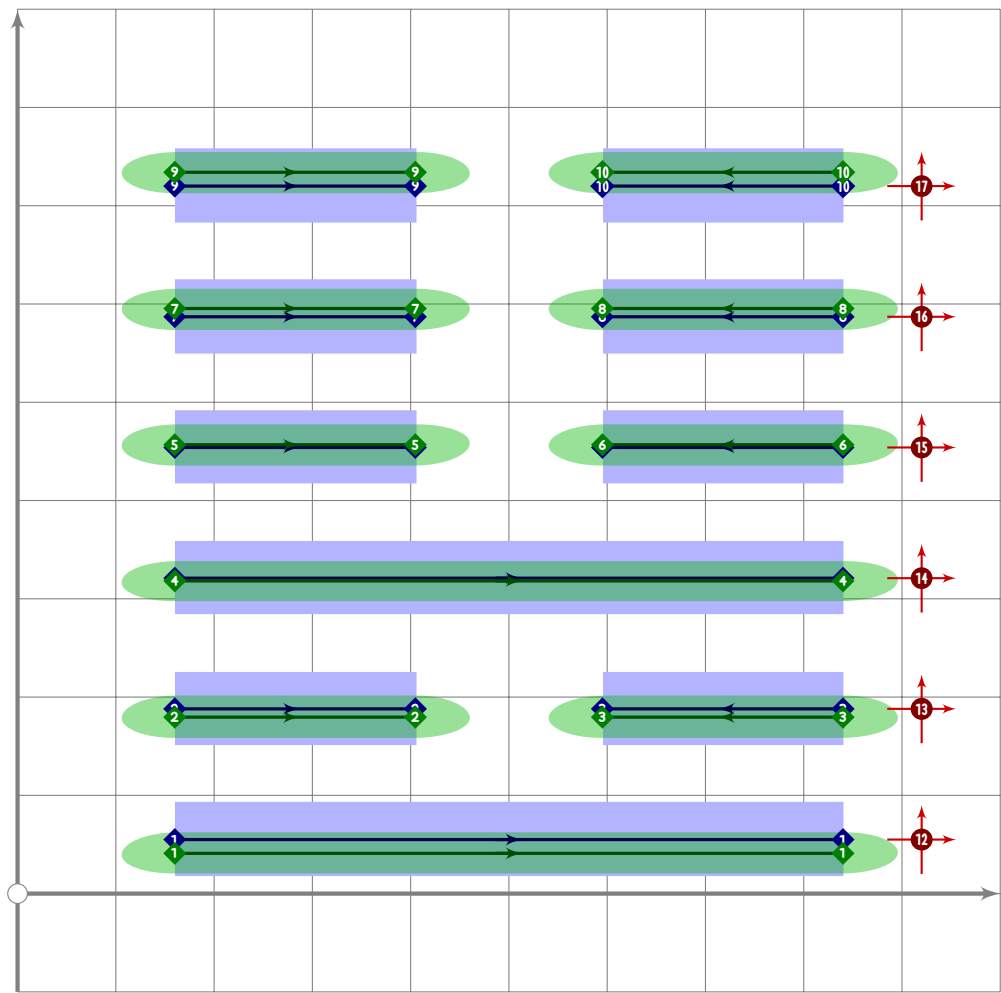
95 make\_hexagram(34,1,1,1,0,0);

4D



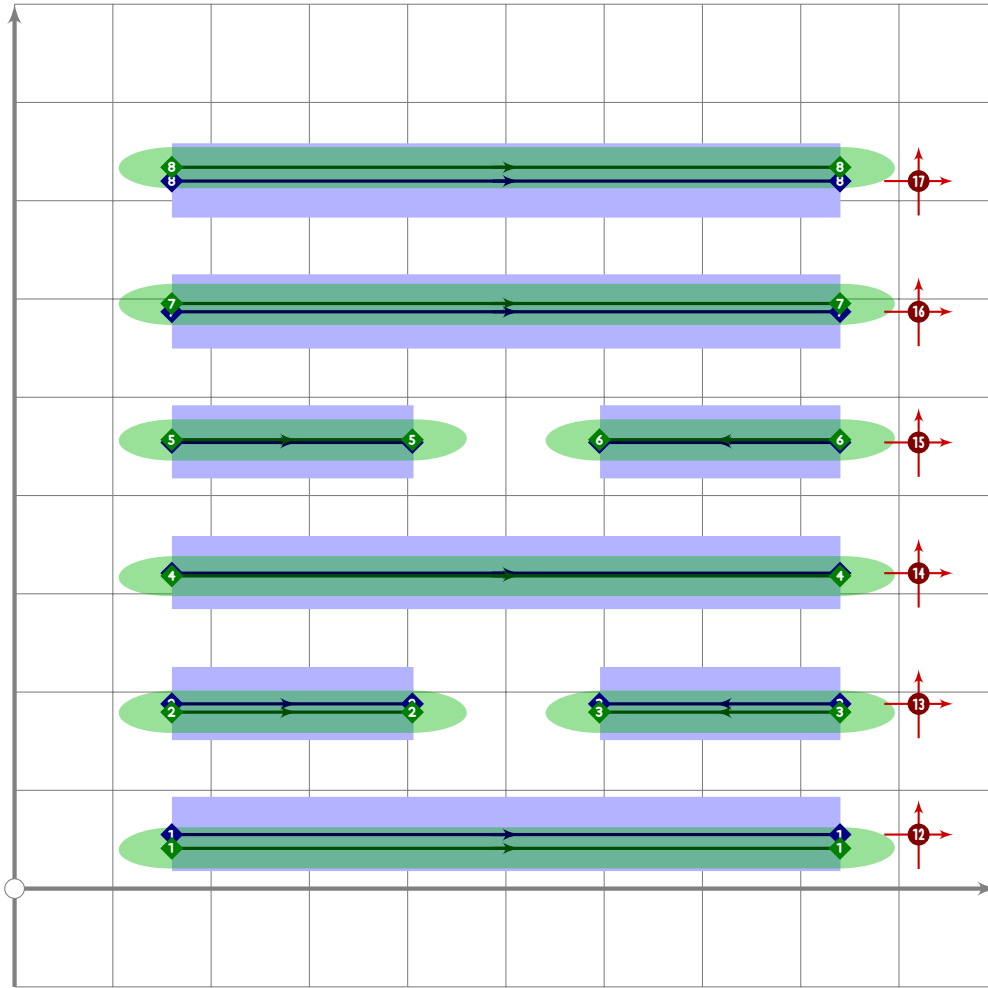
% make\_hexagram(35,0,0,0,1,0,1);

U+4DE3  
tsuku.iching36



97 make\_hexagram(36,1,0,1,0,0,0);

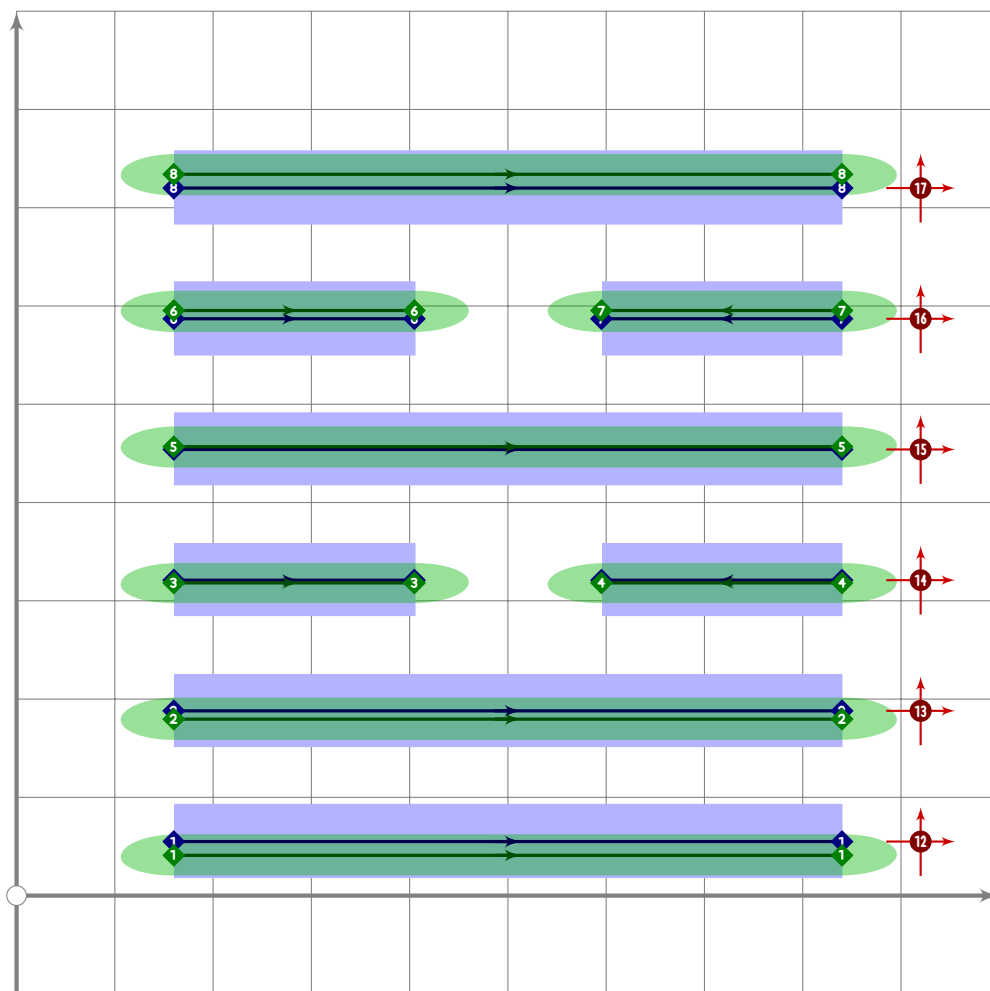
4D



98 make\_hexagram(37,1,0,1,0,1,1);

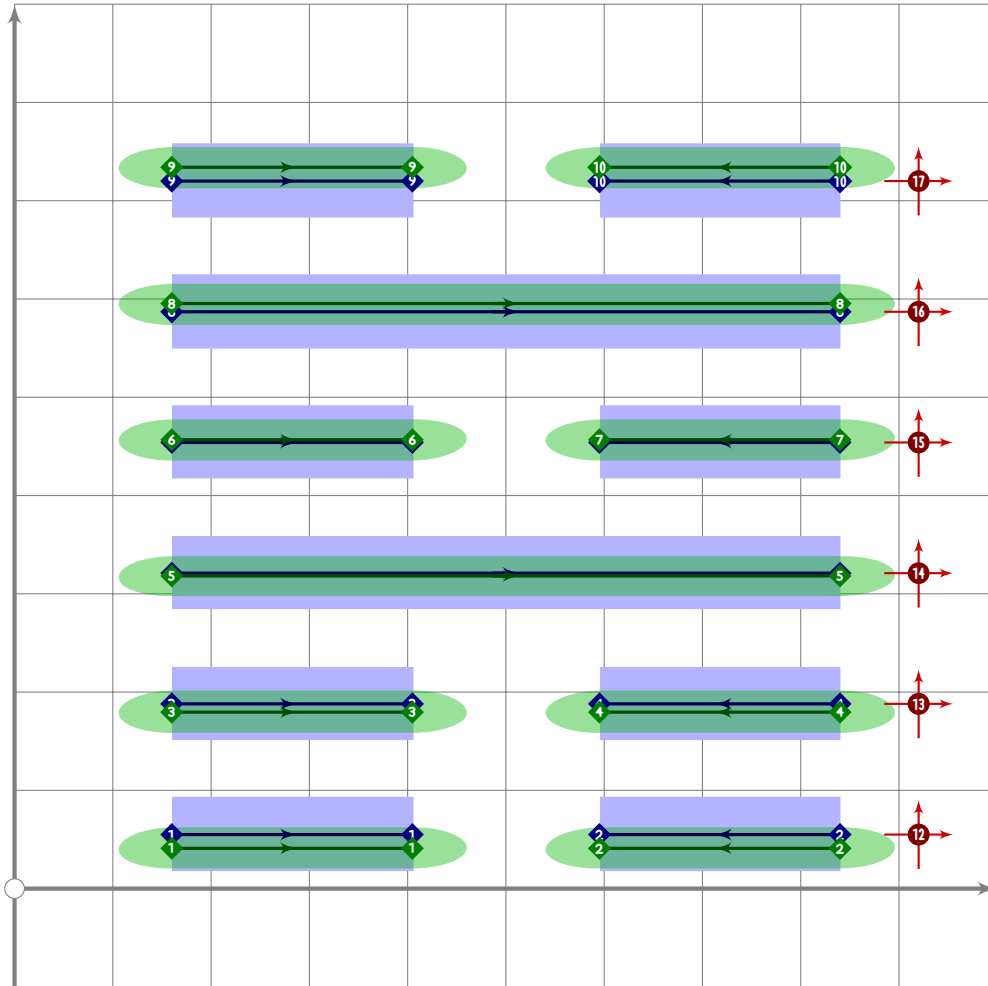
4D

U+4DE5  
tsuku.iching38



```
99 make_hexagram(38,1,1,0,1,0,1);
```

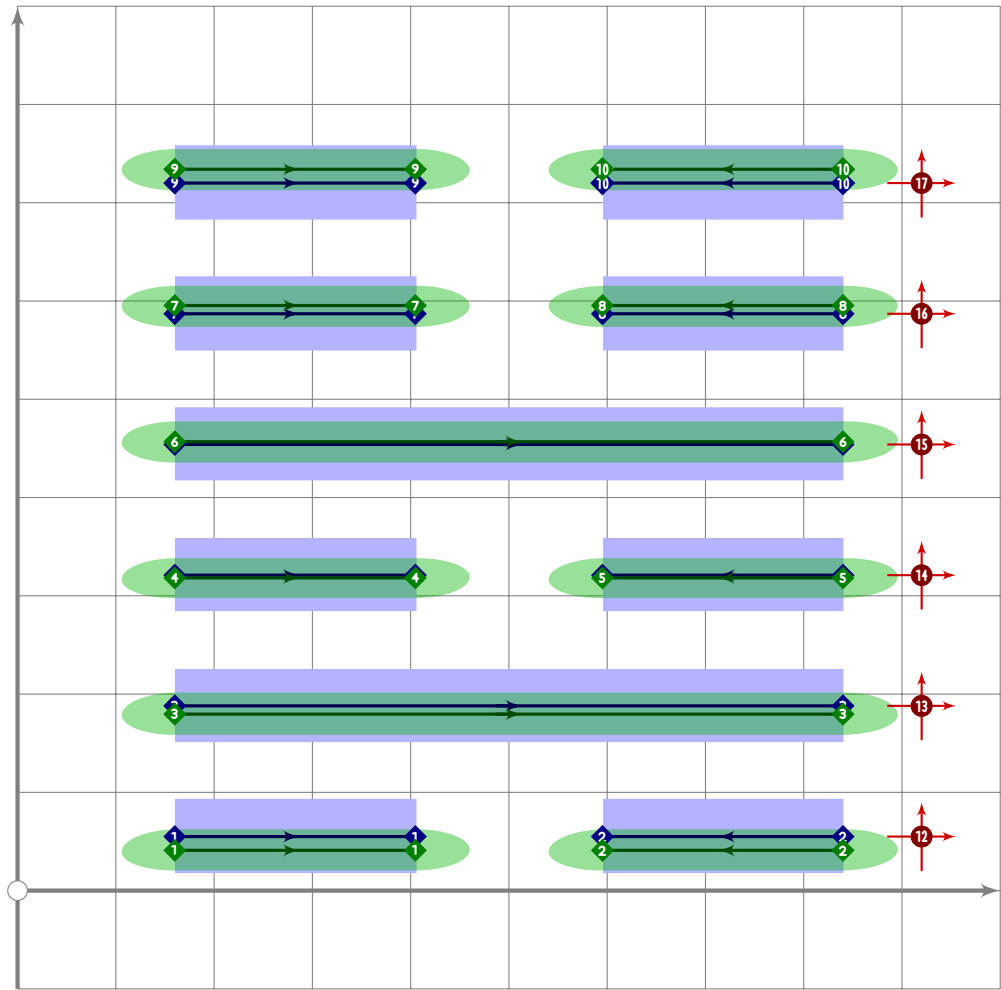
4D



100 make\_hexagram(39,0,0,1,0,1,0);

4D

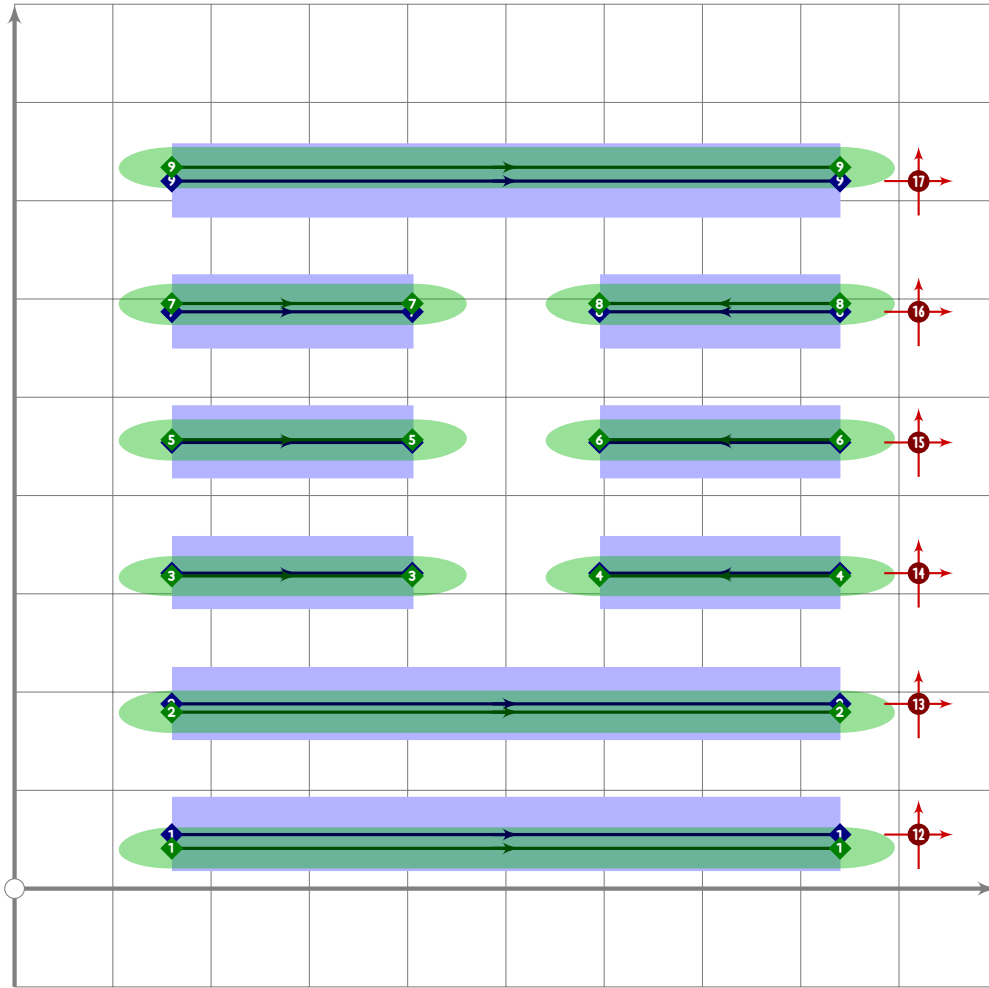
U+4DE7  
tsuku.iching40



101 make\_hexagram(40,0,1,0,1,0,0);

4D

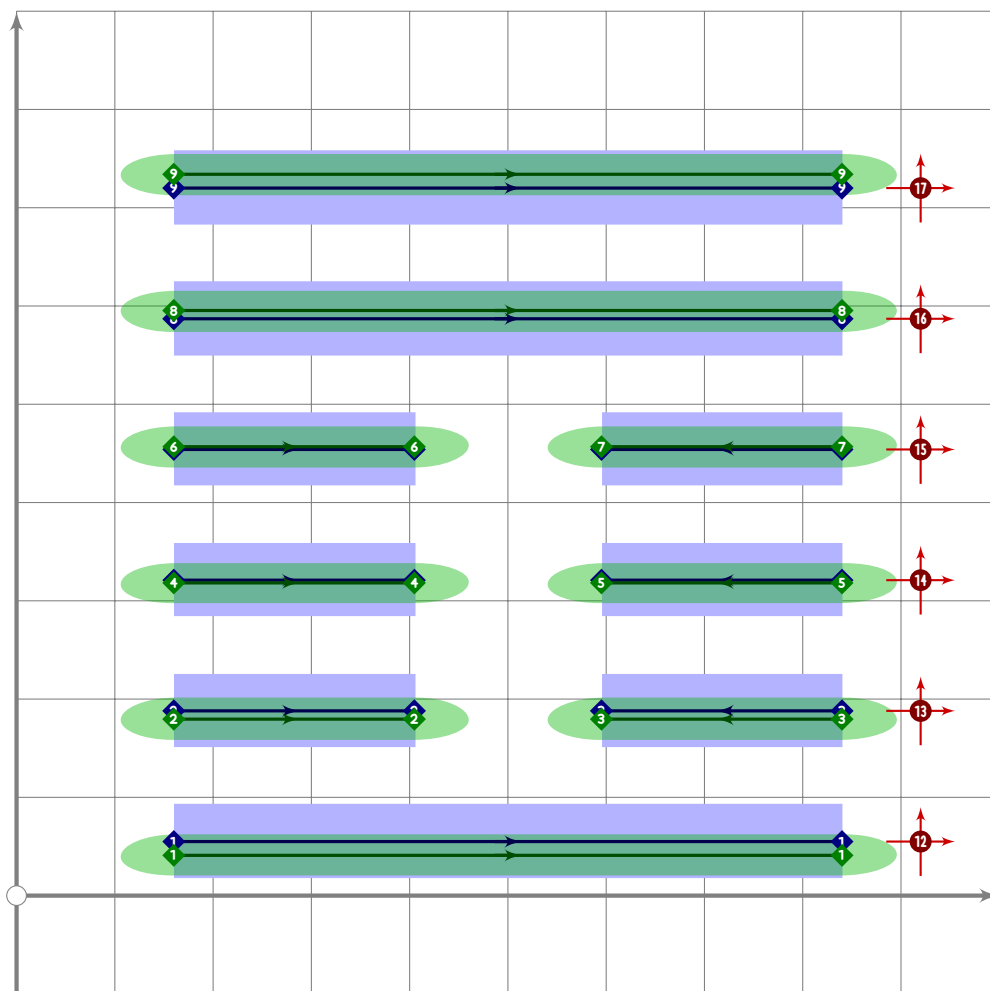




102 make\_hexagram(41,1,1,0,0,1);

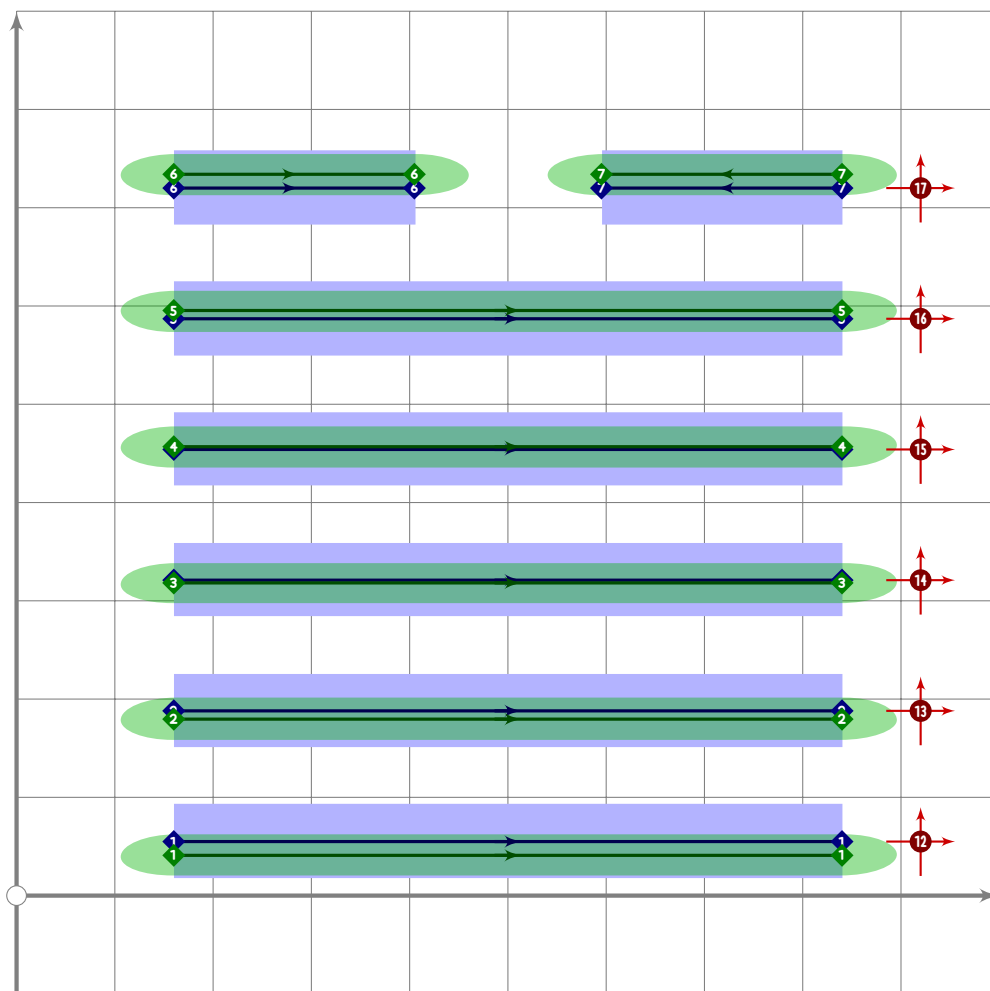
4D

U+4DE9  
tsuku.iching42



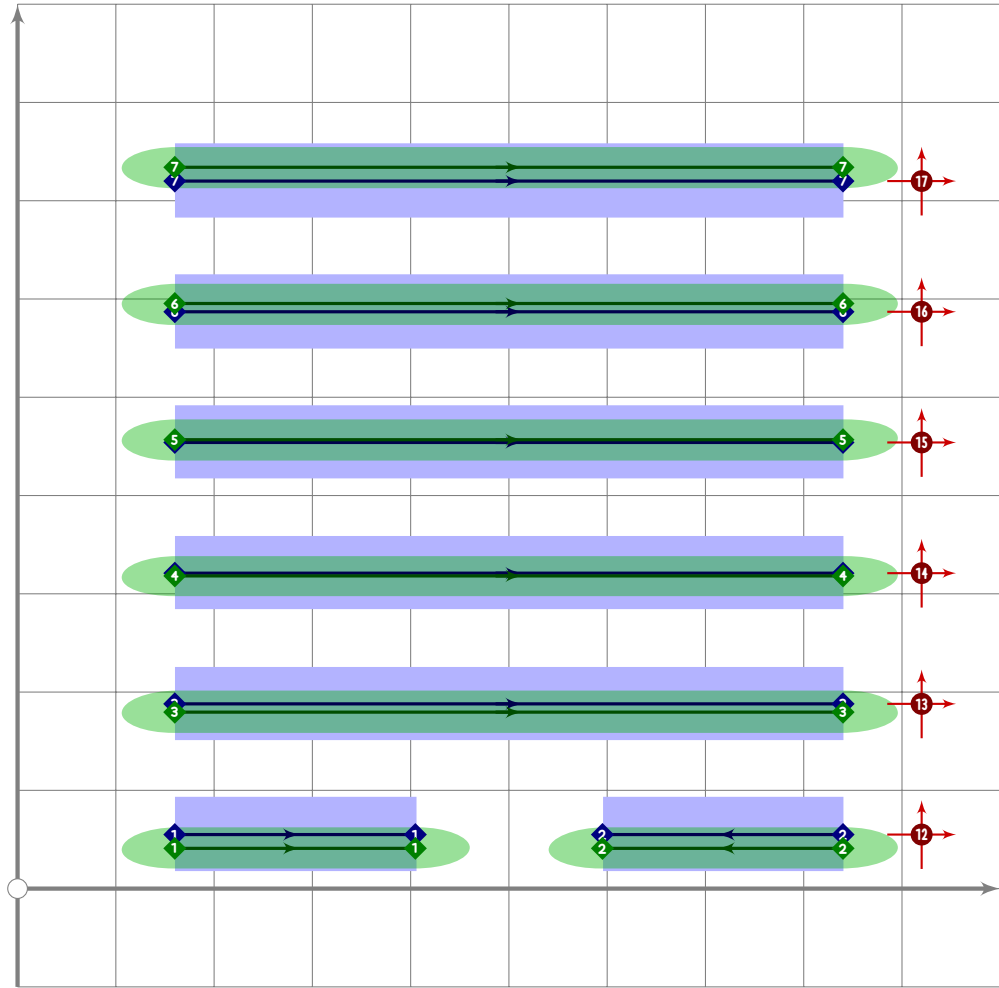
103 make\_hexagram(42,1,0,0,1,1);

4D

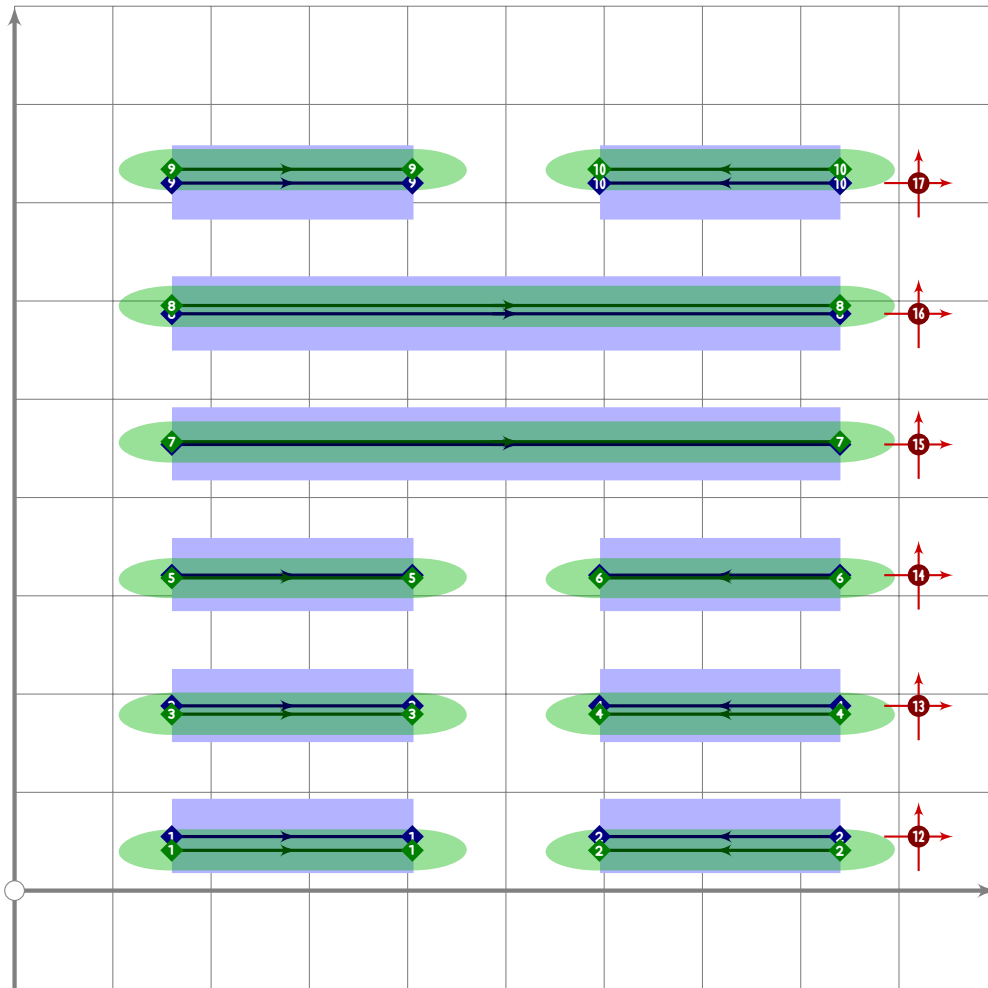


104 make\_hexagram(43,1,1,1,1,0);

4D



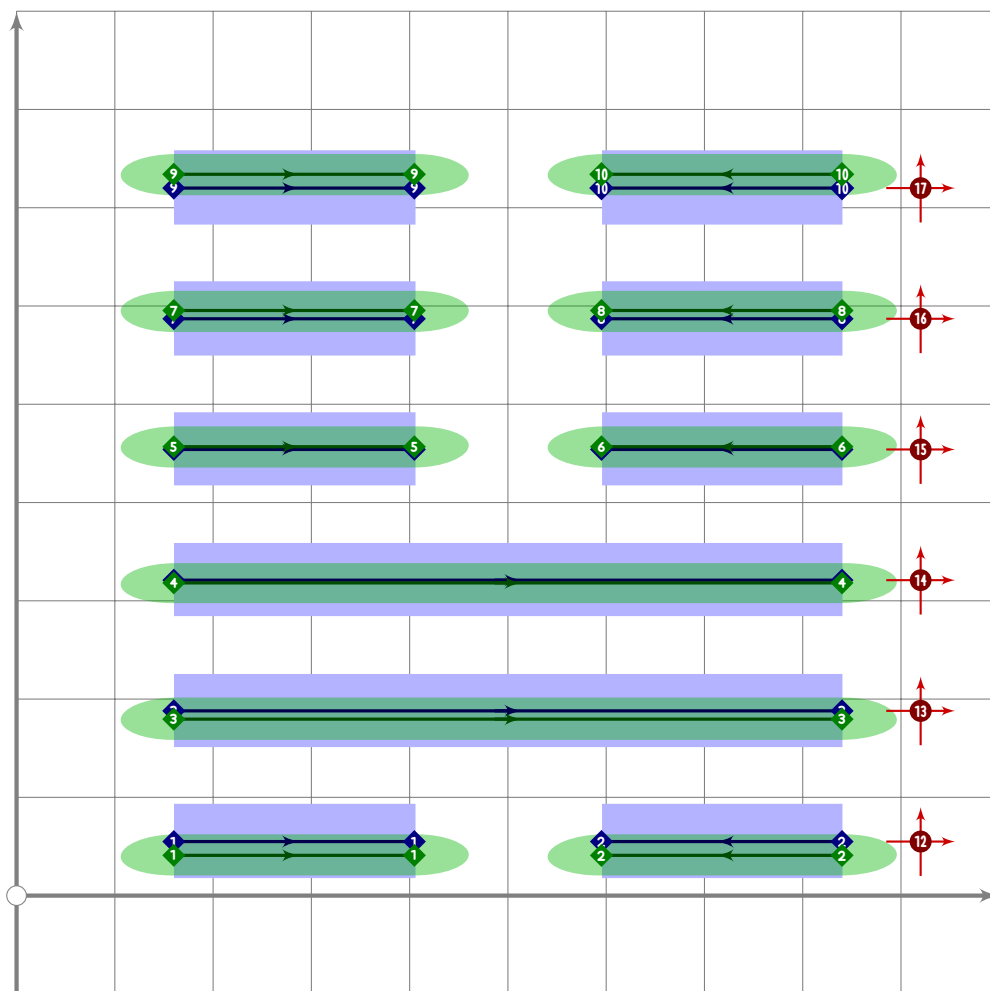
105 make\_hexagram(44,0,1,1,1,1);



106 make\_hexagram(45,0,0,0,1,1,0);

4D

U+4DED  
tsuku.iching46

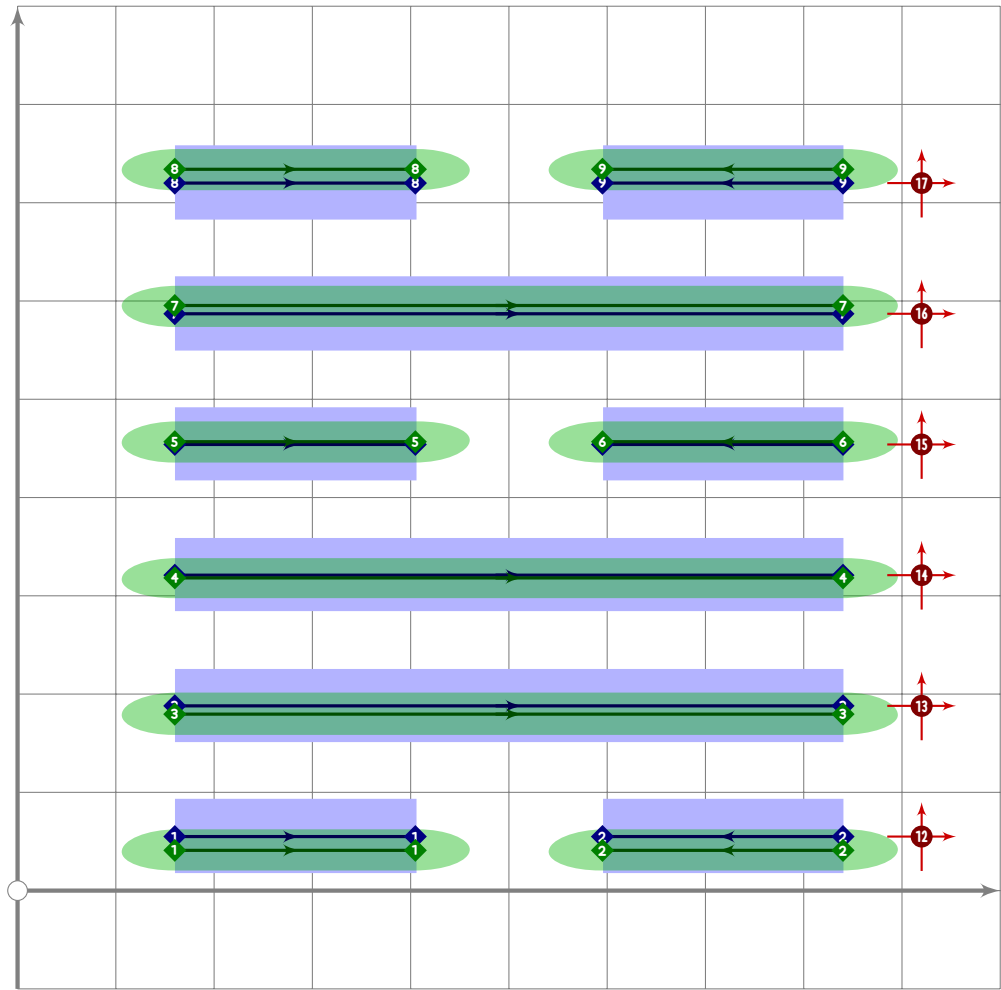


107 make\_hexagram(46,0,1,1,0,0,0);

4D



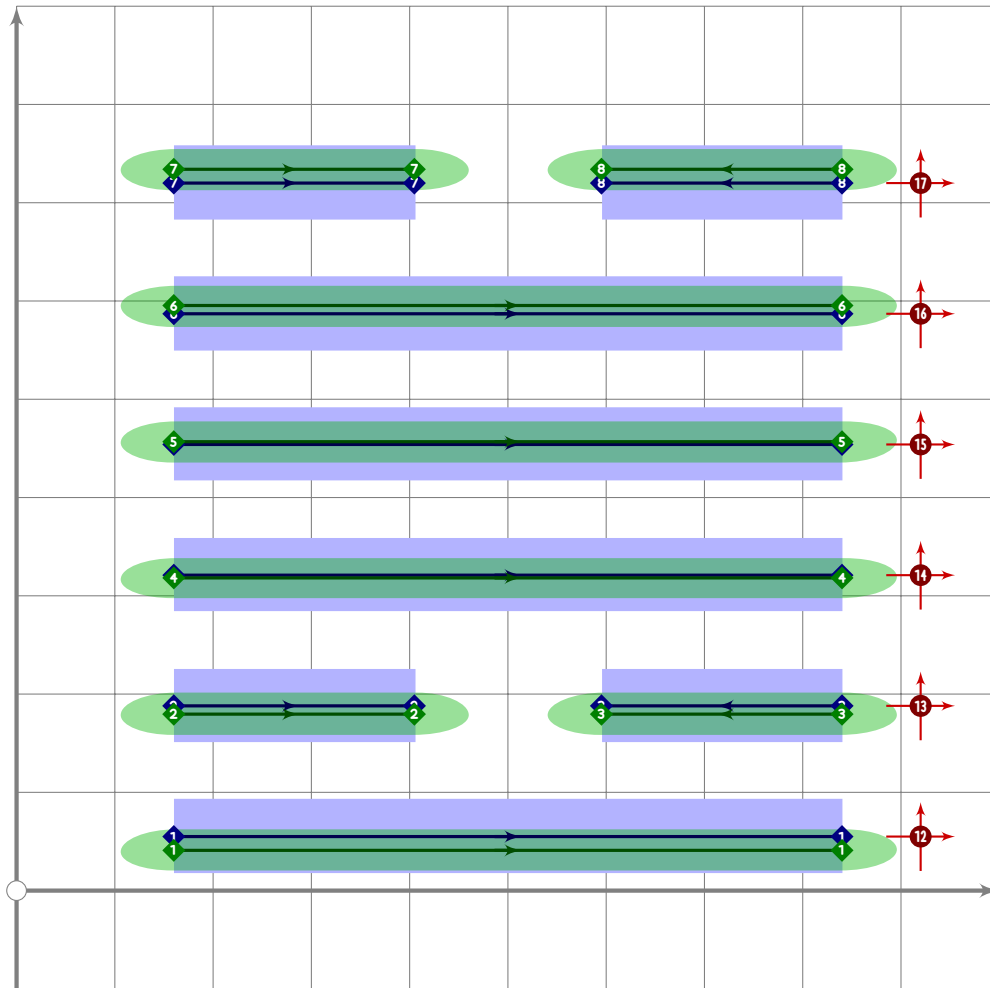
U+4DEF  
tsuku.iching48



109 make\_hexagram(48,0,1,1,0,1,0);

4D



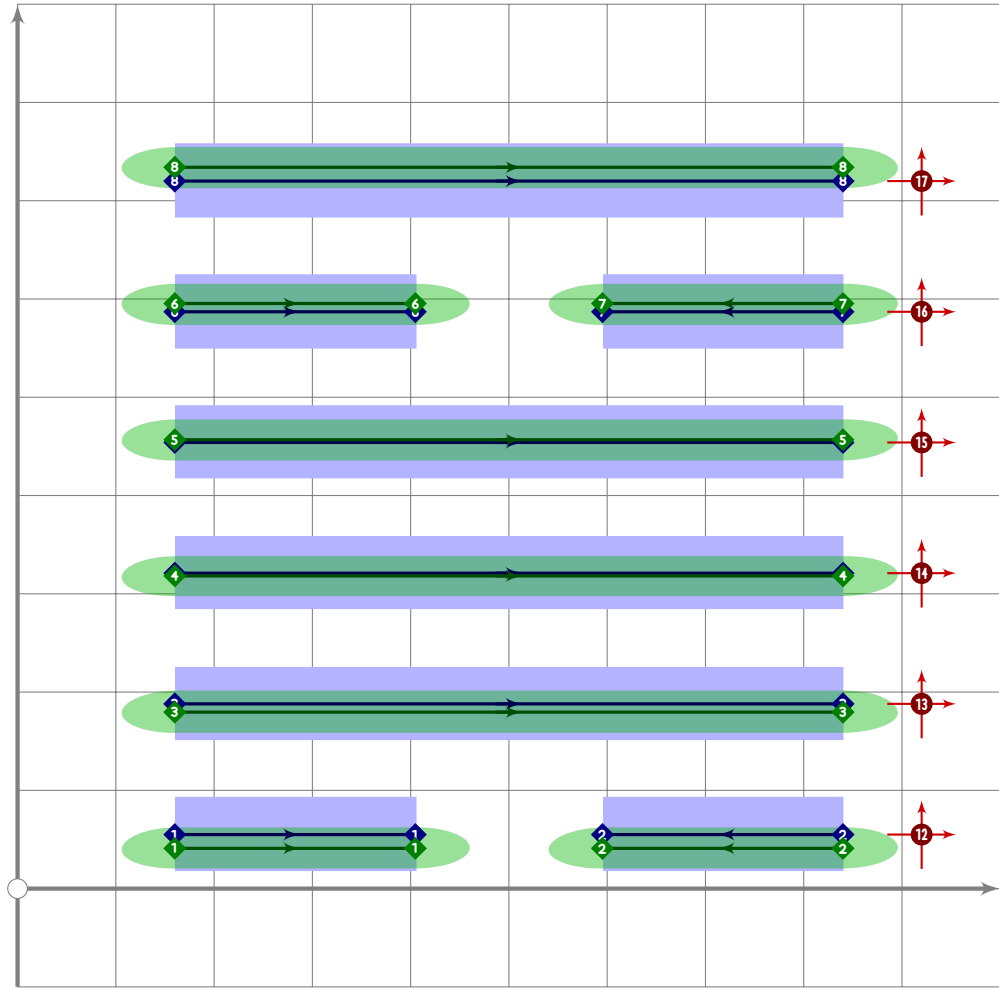


110

111 make\_hexagram(49,1,0,1,1,0);

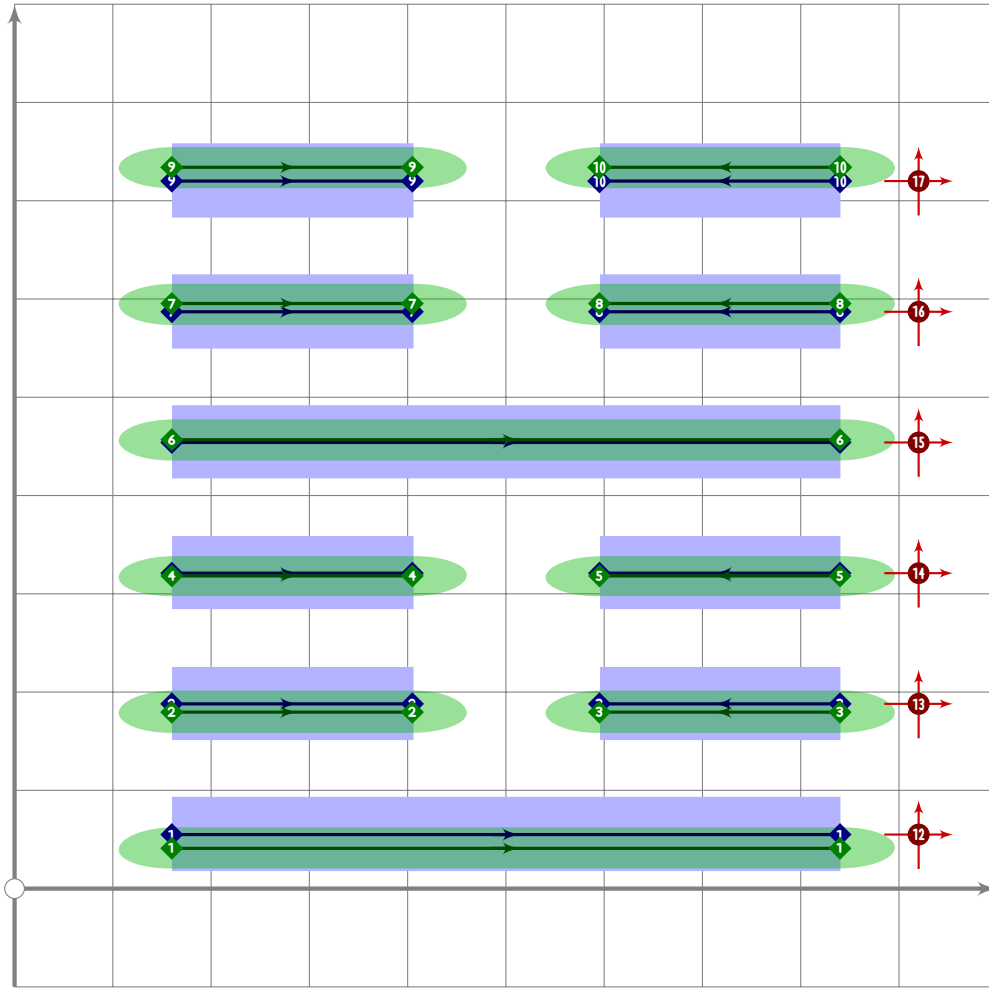
4D

U+4DF1  
tsuku.iching50



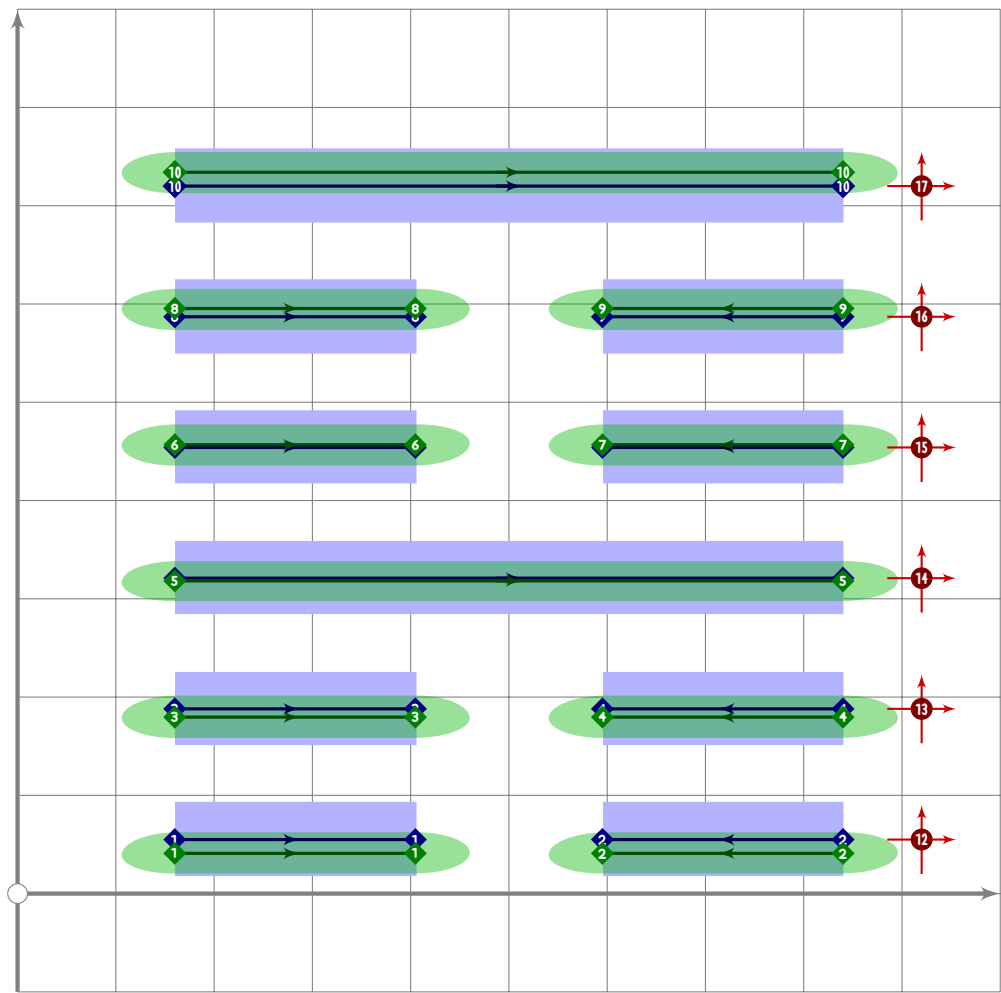
112 make\_hexagram(50,0,1,1,1,0,1);

4D



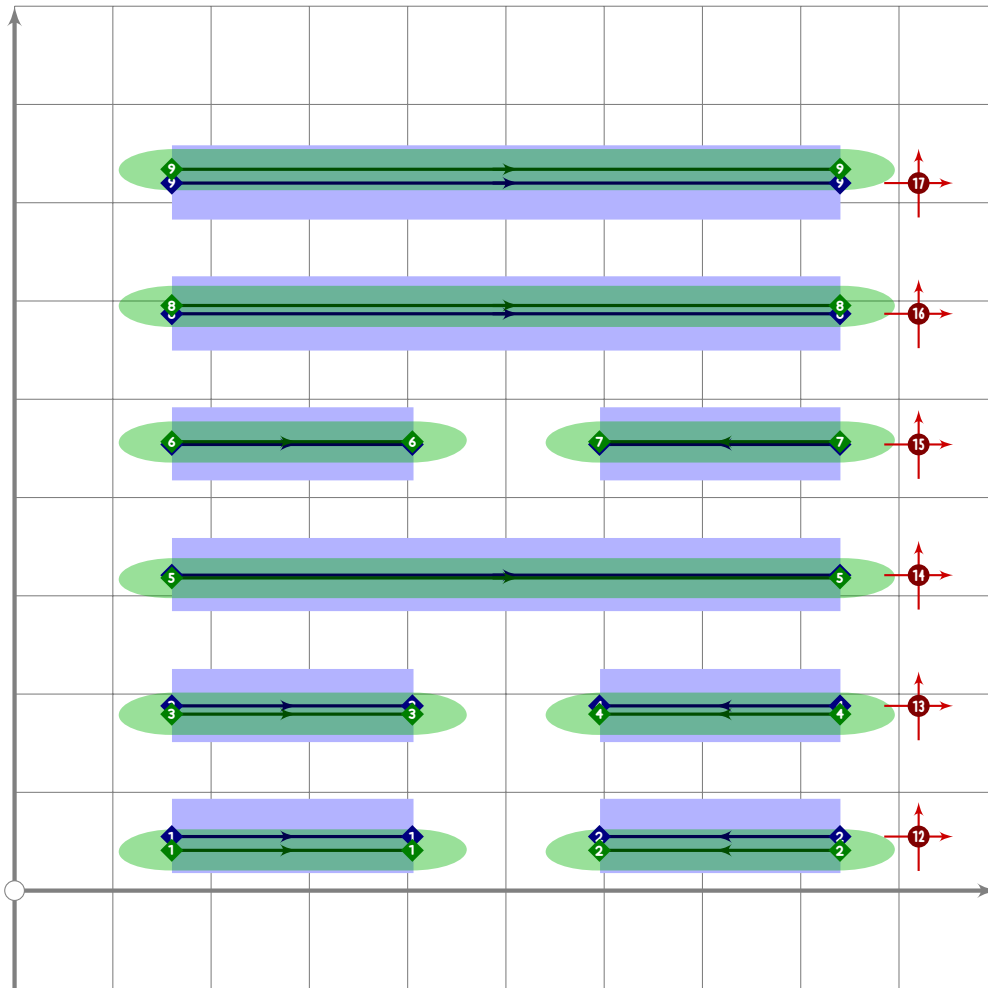
113 make\_hexagram(51,1,0,0,1,0,0);

U+4DF3  
tsuku.iching52



114 make\_hexagram(52,0,0,1,0,0,1);

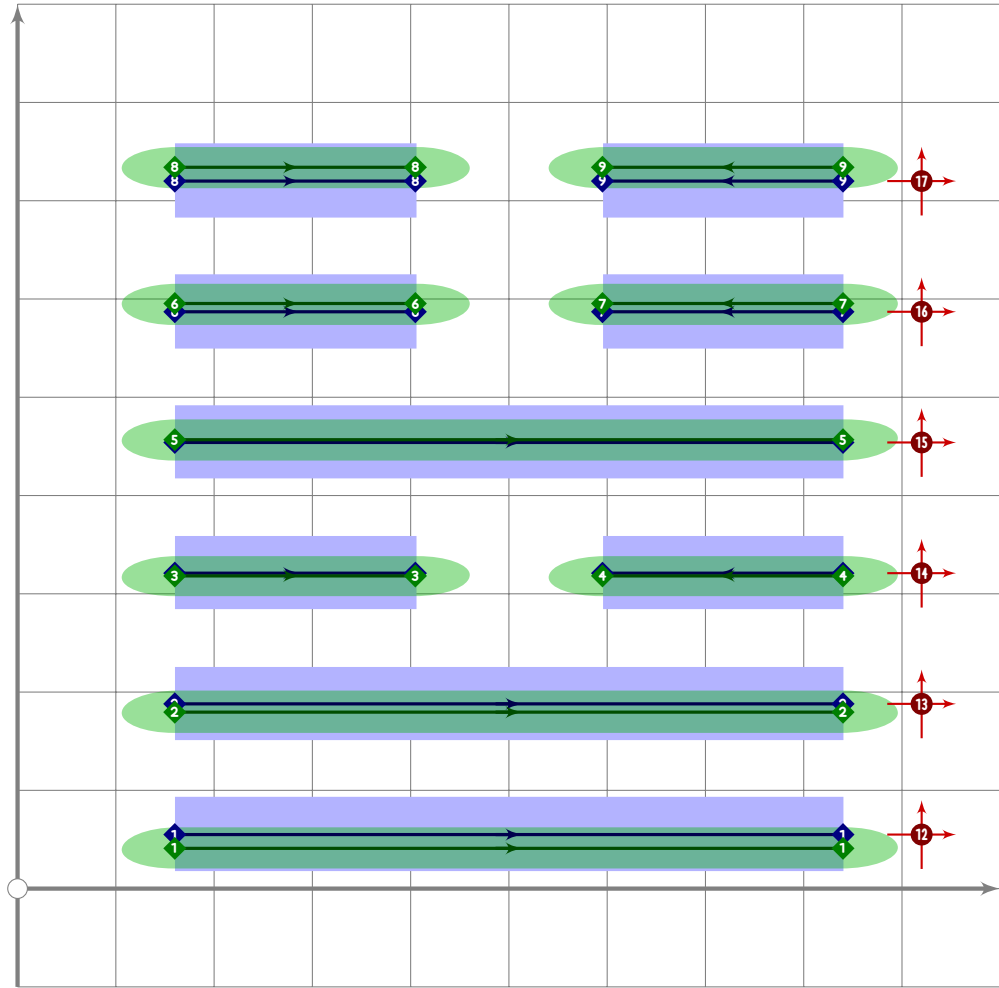
4D



115 make\_hexagram(53,0,0,1,0,1,1);

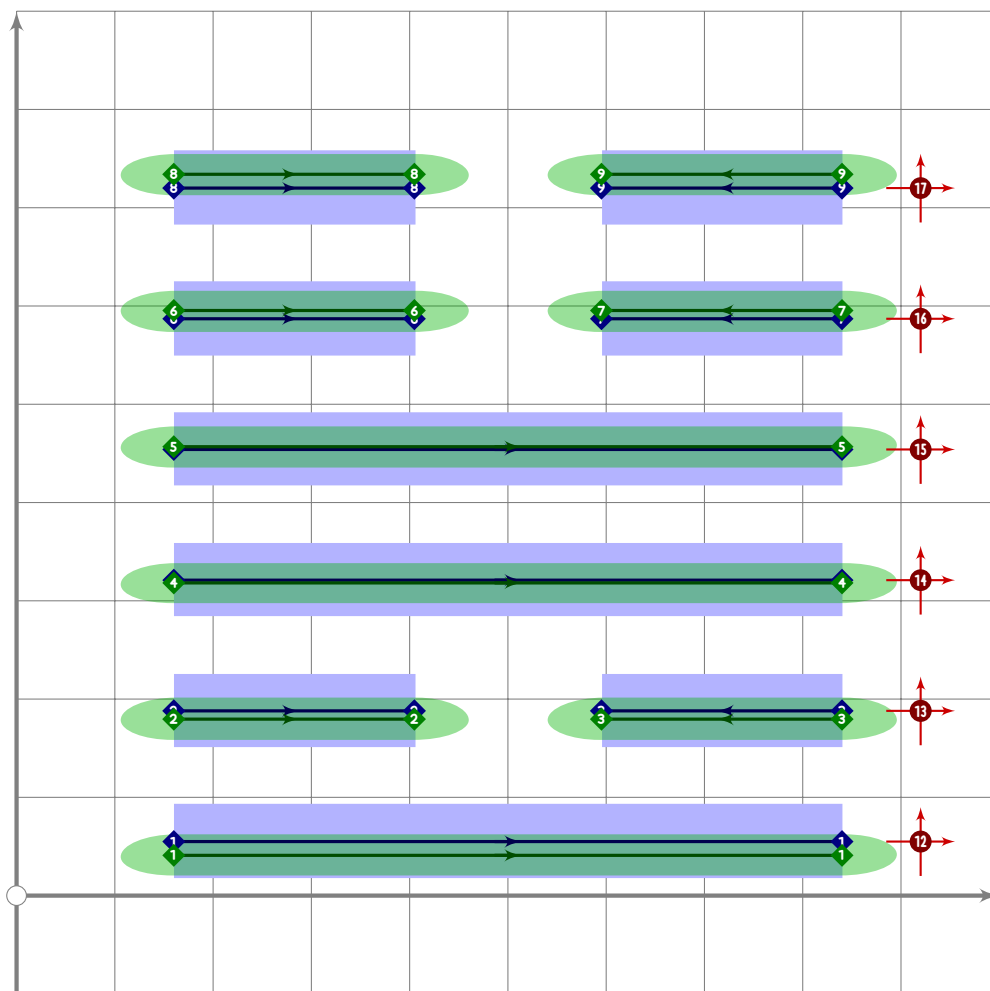
4D

U+4DF5  
tsuku.iching54



```
116 make_hexagram(54,1,1,0,1,0,0);
```

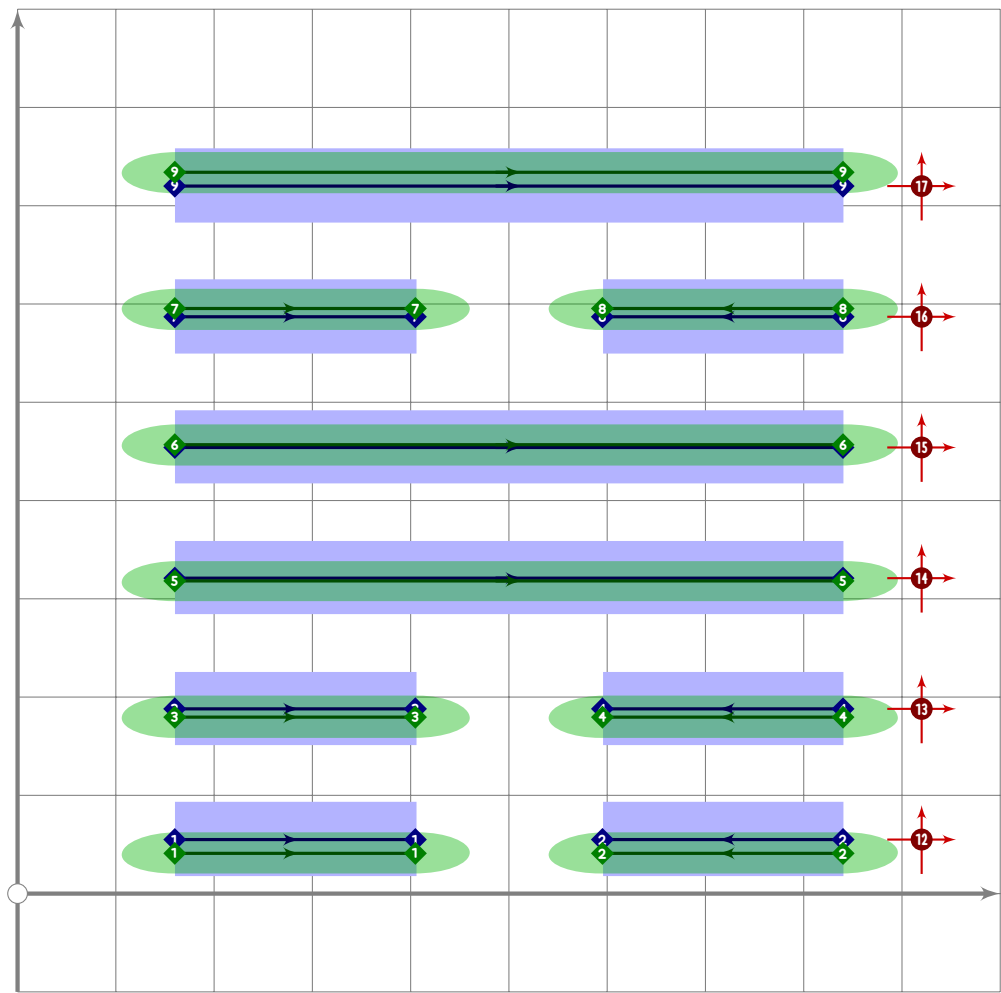
4D



```
117 make_hexagram(55,1,0,1,1,0,0);
```

4D

U+4DF7  
tsuku.iching56



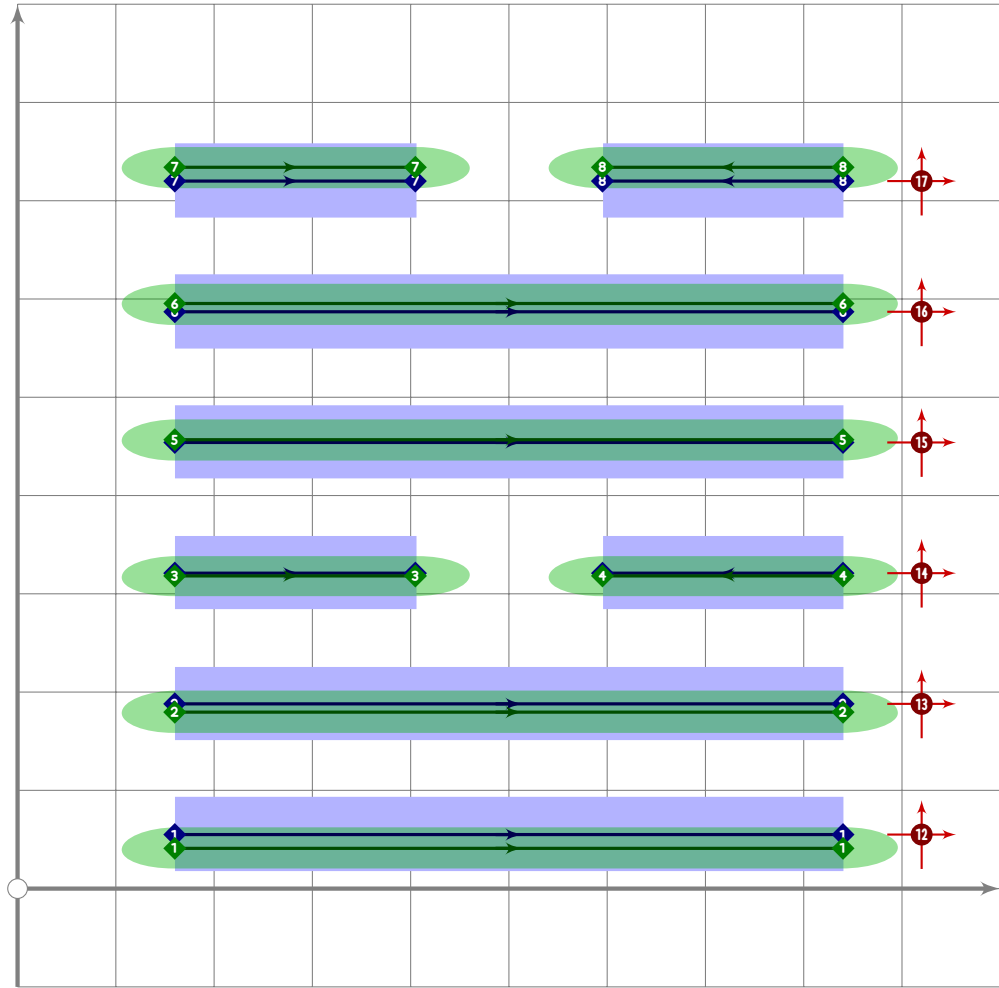
118 make\_hexagram(56,0,0,1,1,0,1);

4D



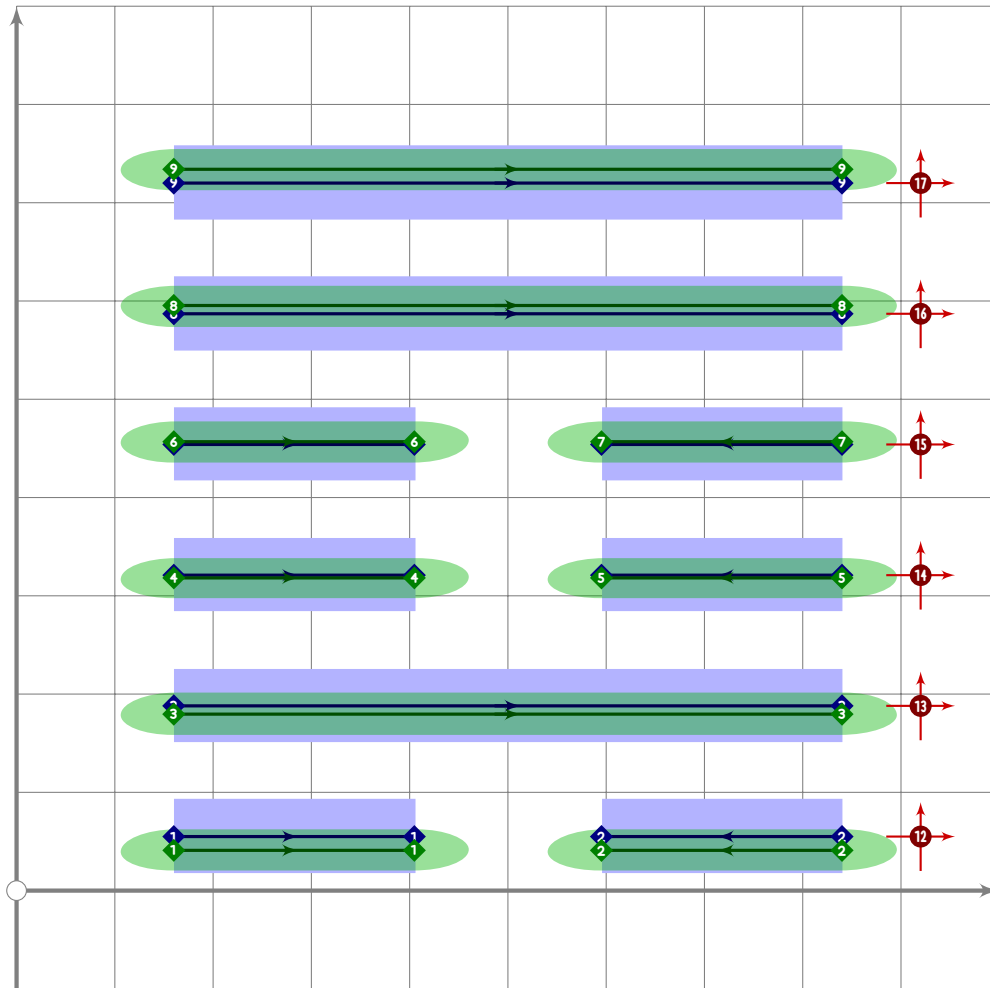


U+4DF9  
tsuku.iching58



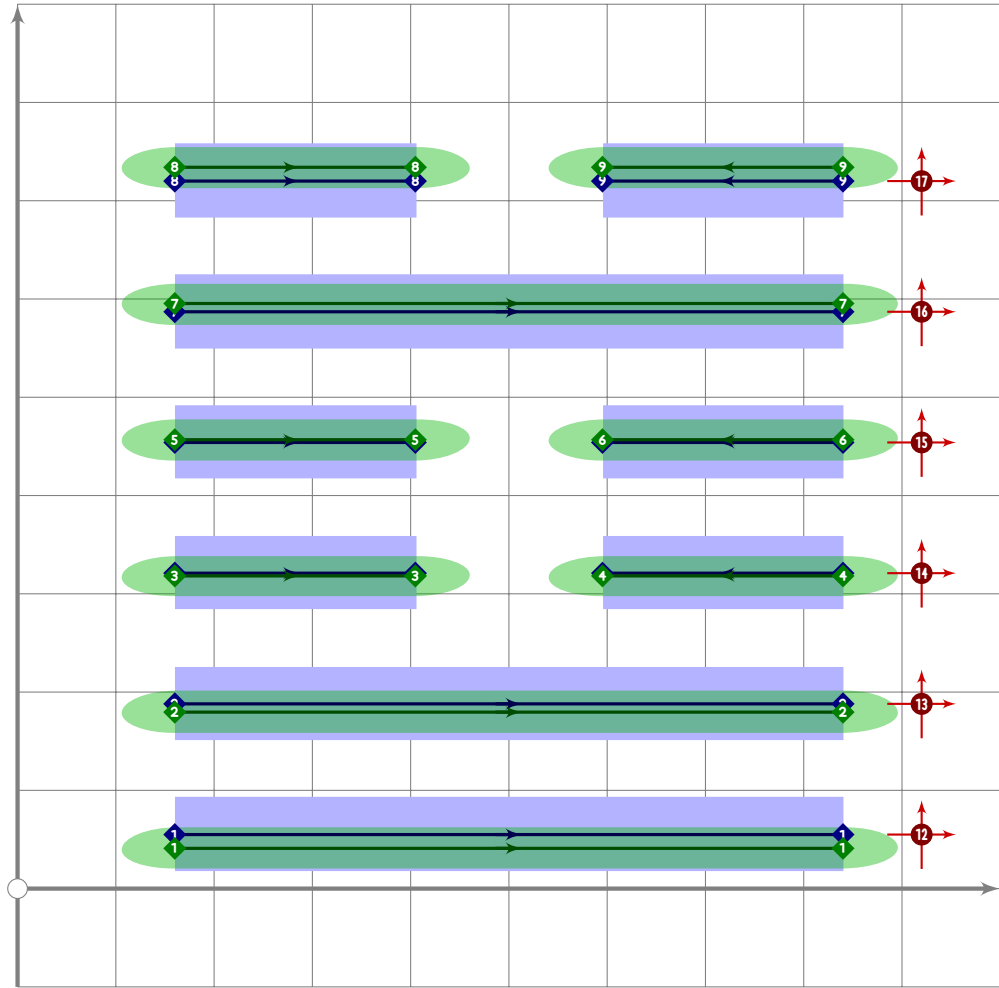
120 make\_hexagram(58,1,1,0,1,1,0);

4D



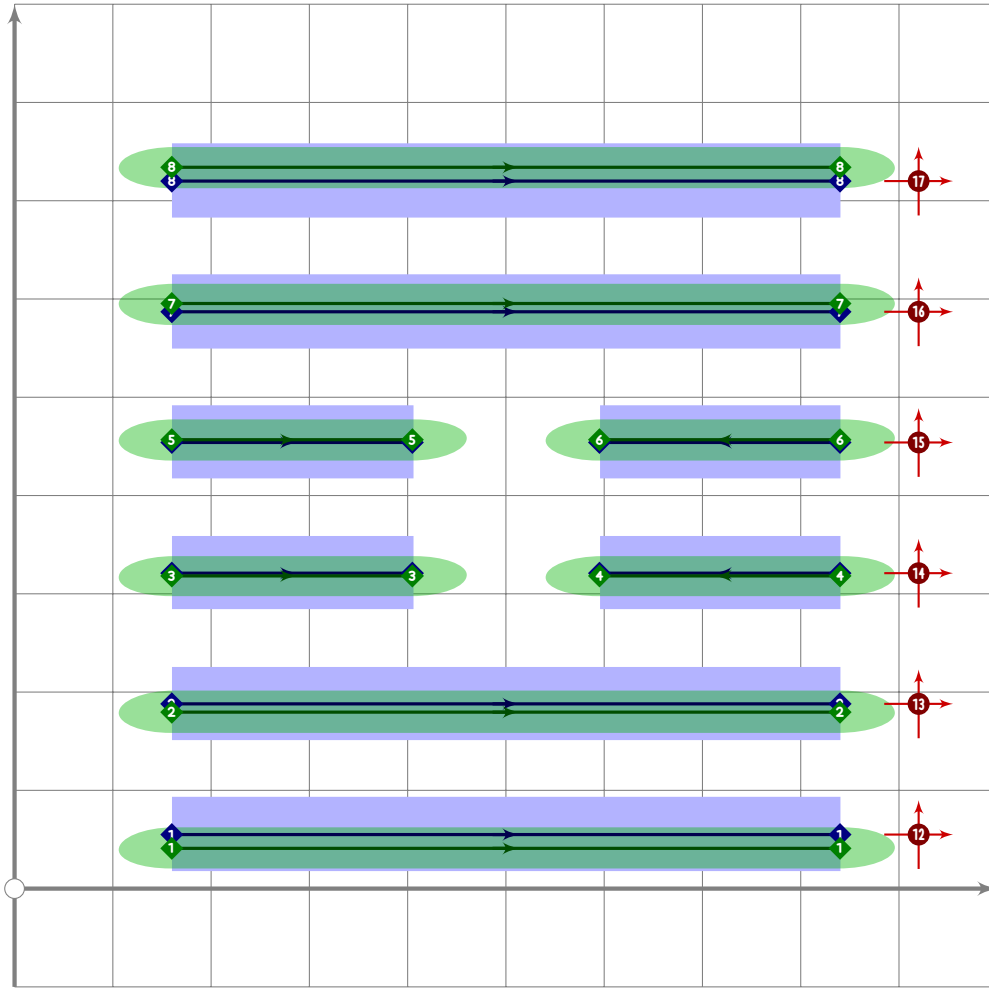
121 make\_hexagram(59,0,1,0,0,1,1);

U+4DFB  
tsuku.iching60

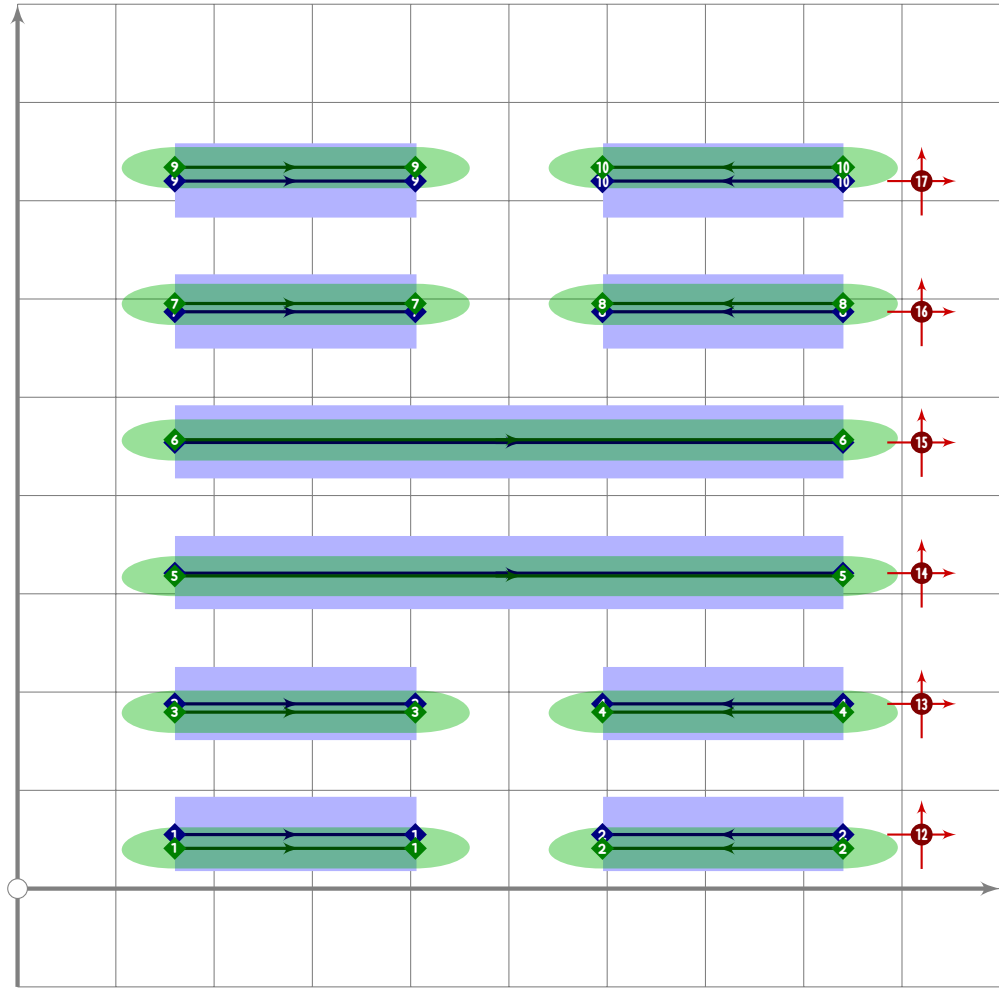


122 make\_hexagram(60,1,1,0,0,1,0);

4D

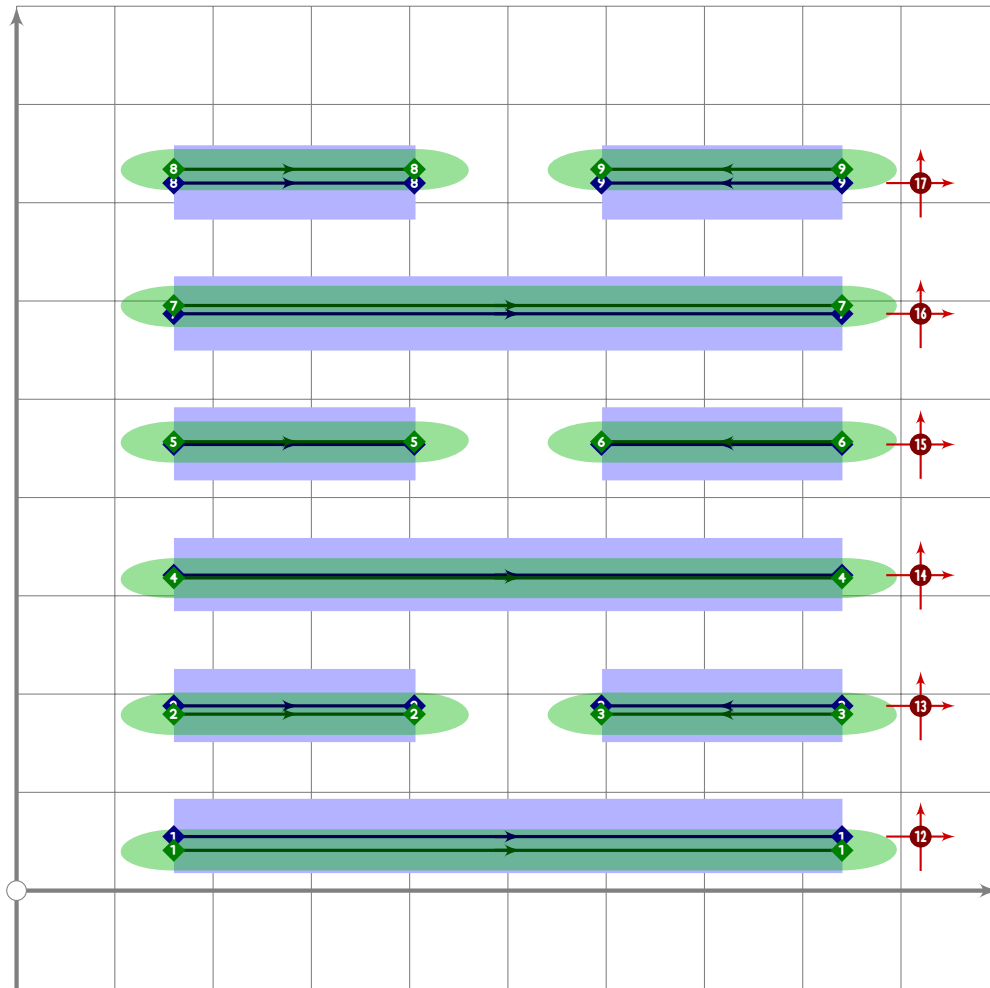


123 make\_hexagram(61,1,1,0,0,1,1);

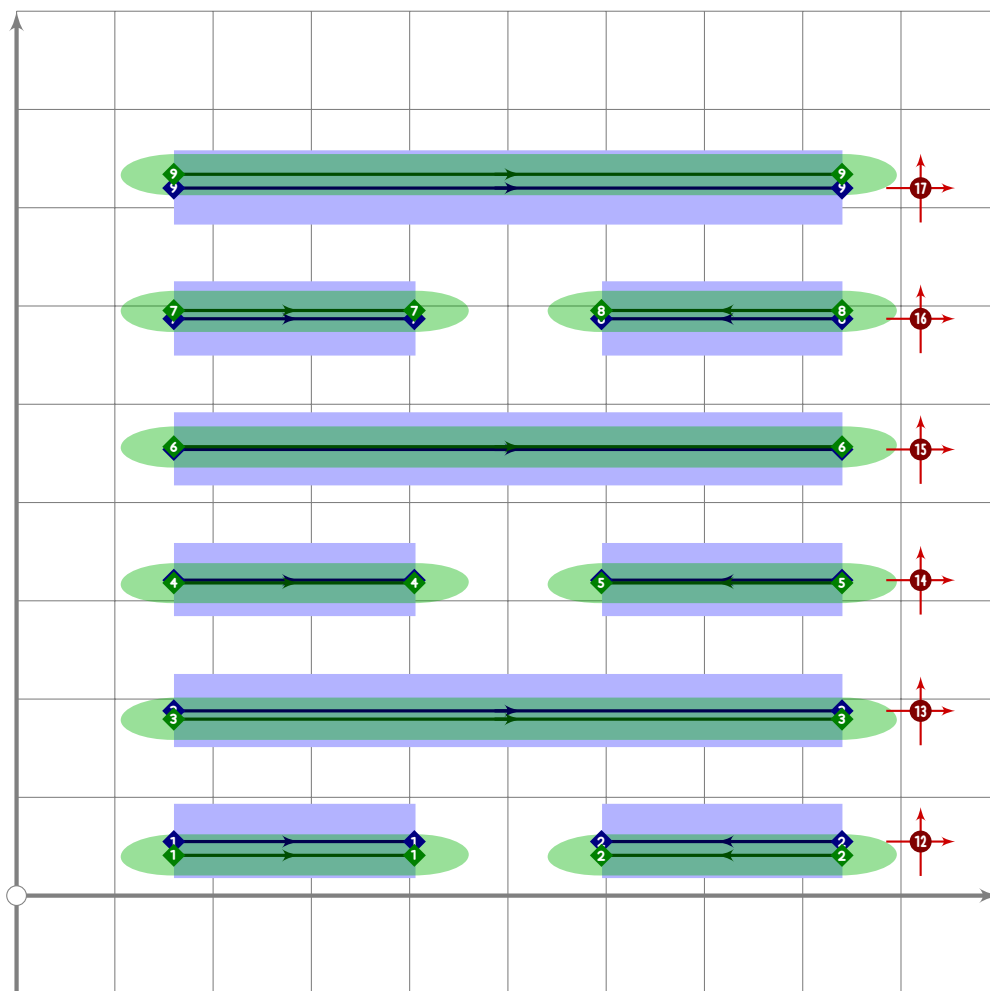


124 make\_hexagram(62,0,0,1,1,0,0);

4D



125 make\_hexagram(63,1,0,1,0,1,0);

U+4DFF  
tsuku.iching64

```
126 make_hexagram(64,0,1,0,1,0,1);
```

127

128

129

```
130 endfont;
```

131

132

4D