

Genjimon fonts, v0.3pre

Matthew Skala

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Genjimon

The *Genjimon* (lit. “Genji crests”) are a set of 54 abstract visual designs associated with Japanese culture. They are used as chapter numbers in the Heien Period classic *The Tale of Genji*, which dates from the turn of the 11th Century; they are also used in an incense-appreciation game that was popular in that era. Much later, Edo Period “floating world” (*ukiyo-e*) woodblock prints (from the 18th and 19th Centuries) were sometimes produced in series corresponding to the Genji chapters; the actual subject matter of the prints might be only remotely connected to the book. The Genjimon often appeared on the prints, and collectors use them to identify the prints within the series.

In the incense game,* players experience five samples of incense, some of which might be the same, and must guess which of the samples go together. They indicate their guesses in writing using Genjimon. In the crest, the vertical bars represent the five incense samples; bars joined horizontally or in T-shapes are the same incense, but bars crossing each other are not. For instance, this crest



means that (reading from the left) the first, third, and fourth samples are the same as each other, but are different from the second and fifth, which are the same as each other.

These kinds of patterns, formed by putting n distinguishable things into n indistinguishable bins, have some mathematical interest. The number of such patterns for n things is called the n -th Bell number; in the case $n = 5$, it is 52. As well as incense patterns, Bell numbers correspond to the possible rhyme schemes for an n -line poem. The pictures themselves are called “Murasaki diagrams” in mathematics, after the author of the *Tale of Genji*. Another interesting question is the number of *non-crossing* Murasaki diagrams for n things. Not every pattern of incense can be expressed without the

*I am describing a form that may be more recent than the Heien Period.

lines crossing each other; the number that can, for n samples, turns out to be equal to the n -th Catalan number.

Readers may have noticed that I said there are 54 glyphs, but I also said only 52 different patterns are possible. In fact, there are two duplicated patterns, each represented by two different but combinatorially equivalent glyphs in the traditional set. One of the duplicate pairs is easy to recognize; the other is much harder.

Is there any structure in the chapter sequence of crests? Is there any connection or similarity to the sequence of hexagrams of the I Ching?

What’s new?

New in version 0.2:

- Autotools build system, integrated with the Tsukurimashou build.
- Bundled METATYPE1 derivative, making it easier to build on a system that just has a standard \TeX installation (no `mtypel3` needed anymore).
- Two new “round” font styles.

About the fonts

This package contains six TrueType fonts (illustrated on the following pages) for printing the Genjimon in six different styles. The glyphs are mapped, in Genji chapter order, to ASCII codes 65 to 91 (A to Z followed by `[]`), and 97 to 123 (a to z plus `{}`). The intention is to make them easy to type. As far as I know, there is no standard encoding for the Genjimon; in the Tsukurimashou Project, from which this package descends, Genjimon glyphs are mapped into the Unicode Private Use Area at code points U+F17C1 to U+F17F6, but if they’re going to be in a font by themselves, it makes sense to me to map them into the ASCII range.

The fonts are written in the METAFONT language, intended to be processed by Tsukurimashou’s customized version of METATYPE1 to create Postscript files and then by FontForge to further clean up the Postscript and generate TrueType

output (which seems to be what the largest number of nonprofessional users want). If you actually want Postscript or OpenType as the final form, it should be easy to edit the FontForge script to produce that; but don't just skip FontForge, because the output of METATYPE1 is *not* well-behaved; the clean-up steps are necessary.

As of version 0.2, these fonts are packaged as a “parasite” of the Tsukurimashou Project. See the Web site at <http://tsukurimashou.osdn.jp/> for more information. All bug and support requests should be filed in the Tsukurimashou Project's ticket tracker, using the “Parasite font packages” component selection.

When distributed as an independent package, Genjimon comes with a standard GNU Autotools build system. Type “./configure” to set it up, and “make” to build it. The “make install” target is supported, but because font installation is often quite system-specific, that target may not really do what you want, and you might be better served by just copying the font files out of the build directory after running plain “make.” There is also a “make check” target, which runs FontForge's fontlint program on all the installable fonts. How well it works, however, may be questionable, because fontlint sometimes flags harmless conditions as errors.

These are released under the GNU General Public License, version 3, with font-embedding clarification. See the file named COPYING and note the following addition:

As a special exception, if you create a document which uses this font, and embed this font or unaltered portions of this font into the document, this font does not by itself cause the resulting document to be covered by the GNU General Public License. This exception does not however invalidate any other reasons why the document might be covered by the GNU General Public License. If you modify this font, you may extend this exception to your version of the font, but you are not obligated to do so. If you do not wish to do so, delete this exception statement from your version.

The license means (and this paragraph is a general summary, not overriding the binding terms of the license) that you may use the fonts at no charge; you may modify them; you may distribute them

with or without modifications; but if you distribute them in binary form, you must make the source code available. Furthermore (this is where font-embedding becomes relevant) embedding the font, for instance in a PDF file, does not automatically trigger the source-distribution requirement.

I would like to emphasize that I do take the source-distribution requirement seriously. I am particularly concerned about the large number of “free” font Web sites that *sell* fonts of dubious legality (some free, some shareware, some simply pirated commercial) in large collections without credit to the original authors, representing themselves as the source of the fonts and never mentioning any possibility that users might end up owing shareware fees on top of the money they already paid for the “free” TrueType files. I don't care about making money from these fonts, but I do want credit for my work, and I don't want others to make money from these fonts without giving me credit, nor do I want to support the general corrupt business of the free-fonts Web sites. Hence the choice of the GPL. The not-really-free Web sites I object to are not set up to distribute source code, so this license means that if they file off the serial numbers and distribute my work as bare TrueType files, it will be very clear that they are acting illegally, and I can sue them. However, it'll still be possible for good-faith actors to share the fonts without needing further licensing arrangements.

I'd love to hear from users of these fonts, especially if you think of something interesting or unusual to do with them.

Matthew Skala

<http://ansuz.sooke.bc.ca/>

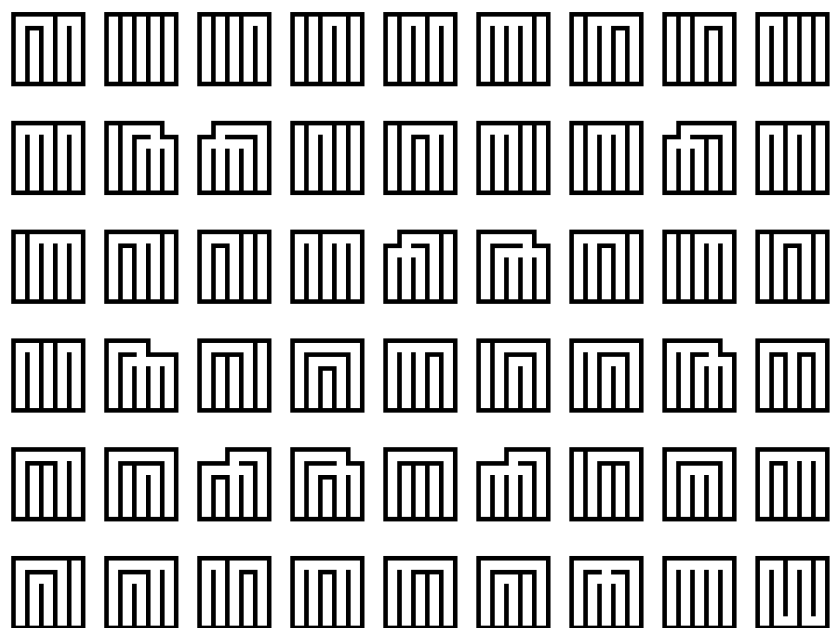
<mailto:mkskala@ansuz.sooke.bc.ca>

October 2, 2012

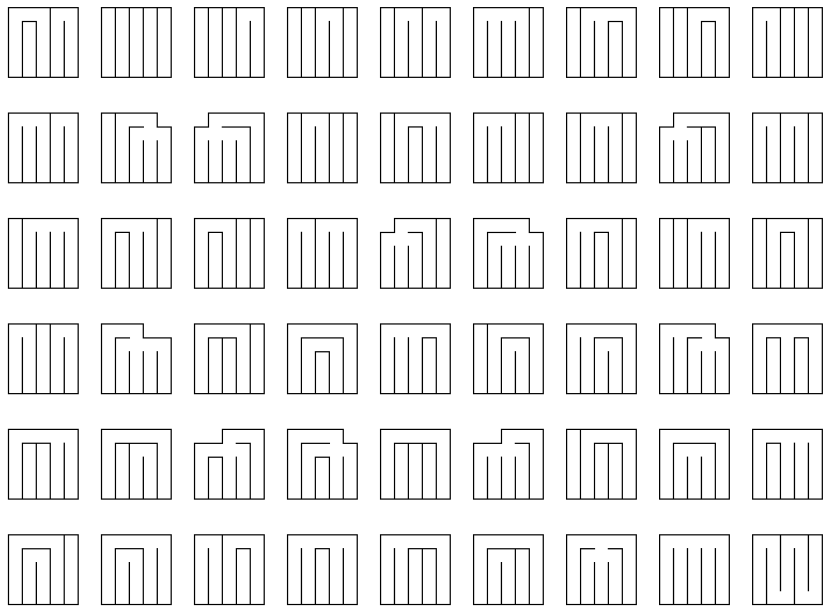
Genjimon Medium ---

nn ||| ||| ||| ||| ||| ||| ||| |||
nn |h |h ||| ||| ||| ||| |h |||
												h	h								
			h																h		
						h	h				h										
																		h			

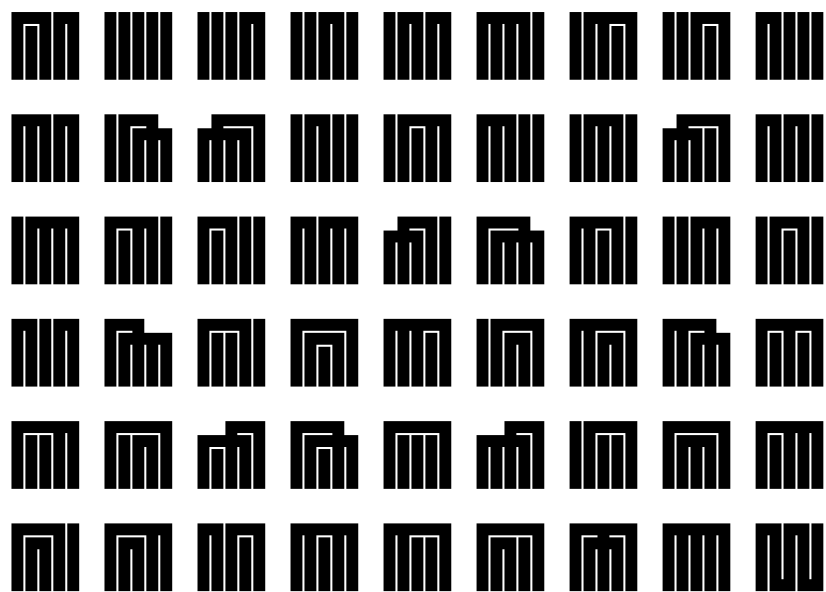
Genjimon Reverse _____



Genjimon White



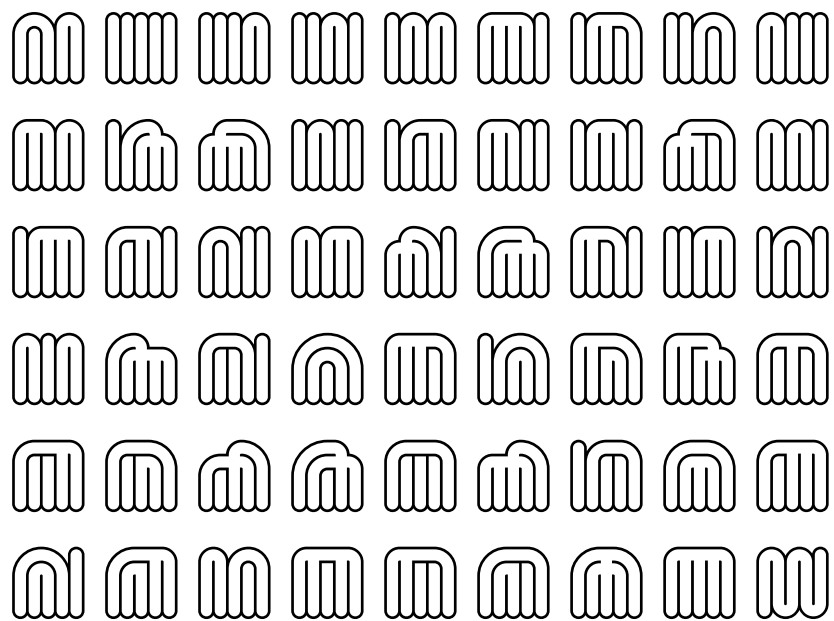
Genjimon Black _____



Genjimon Round _____

nn |||| ||| |||| | ||| ||| ||| ||| |||
nn |n nn ||| |n ||| ||| nn |||
												n	n								
			n				n				n				n						
						n	n				n				n						
n													n								

Genjimon Round Outline_____



Encoding table

dec	hex	key	mon	chapter	dec	hex	key	mon	chapter
65	41	A	𐄀	1 Kiritsubo	97	61	a	𐄀	28 Nowaki
66	42	B	𐄁	2 Hahakigi	98	62	b	𐄁	29 Miyuki
67	43	C	𐄂	3 Utsusemi	99	63	c	𐄂	30 Fujibakama
68	44	D	𐄃	4 Yuugao	100	64	d	𐄃	31 Makibashira
69	45	E	𐄄	5 Wakamurasaki	101	65	e	𐄄	32 Umegae
70	46	F	𐄅	6 Suetsumuhana	102	66	f	𐄅	33 Fuji no Uraba
71	47	G	𐄆	7 Momiji no Ga	103	67	g	𐄆	34 Wakana no Jou
72	48	H	𐄇	8 Hana no En	104	68	h	𐄇	35 Wakana no Ge
73	49	I	𐄈	9 Aoi	105	69	i	𐄈	36 Kashiwagi
74	4a	J	𐄉	10 Sakaki	106	6a	j	𐄉	37 Yokobue
75	4b	K	𐄊	11 Hana Chiru Sato	107	6b	k	𐄊	38 Suzumushi
76	4c	L	𐄋	12 Suma	108	6c	l	𐄋	39 Yuugiri
77	4d	M	𐄌	13 Akashi	109	6d	m	𐄌	40 Minori
78	4e	N	𐄍	14 Miotsukushi	110	6e	n	𐄍	41 Maboroshi
79	4f	O	𐄎	15 Yomogyuu	111	6f	o	𐄎	42 Ninounomiya
80	50	P	𐄏	16 Sekiya	112	70	p	𐄏	43 Koubai
81	51	Q	𐄐	17 Eawase	113	71	q	𐄏	44 Takegawa
82	52	R	𐄑	18 Matsukaze	114	72	r	𐄐	45 Hashihime
83	53	S	𐄒	19 Usugumo	115	73	s	𐄑	46 Shii ga Moto
84	54	T	𐄓	20 Asagao	116	74	t	𐄑	47 Agemaki
85	55	U	𐄔	21 Otome	117	75	u	𐄒	48 Sawarabi
86	56	V	𐄕	22 Tamakazura	118	76	v	𐄒	49 Yadorigi
87	57	W	𐄖	23 Hatsune	119	77	w	𐄒	50 Azumaya
88	58	X	𐄗	24 Kochou	120	78	x	𐄓	51 Ukifune
89	59	Y	𐄘	25 Hotaru	121	79	y	𐄓	52 Kagerou
90	5a	Z	𐄙	26 Tokonatsu	122	7a	z	𐄓	53 Tenarai
91	5b	[𐄚	27 Kagaribi	123	7b	{	𐄔	54 Yume no Ukihashi