Typographers' Inn

Peter Flynn

Fonts and faces and families

I suppose we've all but given up the unequal struggle to distinguish between a family, a face, and a font. I still use the terms separately, out of force of habit, but some work we were doing recently (see 'XƎLᴬTEX' below) allowed me to identify many good examples. One family I installed recently (following its announcement on `comp.text.tex`) was IBM Plex, which is composed of these faces:

1. Plex Serif
2. Plex Serif ExtraLight
3. Plex Serif Light
4. Plex Serif Medium
5. Plex Serif SemiBold
6. Plex Serif Text
7. Plex Serif Thin
8. Plex Sans
9. Plex Sans ExtraLight
10. Plex Sans Light
11. Plex Sans Medium
12. Plex Sans SemiBold
13. Plex Sans Text
14. Plex Sans Thin
15. Plex Mono
16. Plex Mono ExtraLight
17. Plex Mono Light
18. Plex Mono Medium
19. Plex Mono SemiBold
20. Plex Mono Text
21. Plex Mono Thin

I numbered them on a slide for a training course so that the students could see the seven serif, seven sans, and seven monospace components — and with luck, understand the distinction — before explaining that each one came in the four standard font variants: regular, bold, italic, and bold-italic; making 84 in all.

(Incidentally, Plex looks likely to be an excellent choice for documentation, as it is relatively compact for its large x-height, only about 10% wider than CM. Its overall colour is much darker due to the less marked difference between thick and thin strokes (Figure 1), which improves readability, although in long measures it needs a little more leading.)

What I was trying to convey was that, bearing in mind that there are many larger font families such as Univers or Gotham, picking 'a font' is a much more demanding task than it appears. I have mentioned elsewhere [3, p 95] John Lewis' story about designing examples illustrating the choice of typefaces; delicate little script fonts for cosmetic adverts, classical, formal, respectable roman faces for banks, big chunky sans-serif fonts for engineering, and so on; only to discover after a while that he could 'change the typefaces around at will and with ever increasing effect' [4, p 52].

In display material such as advertising or publicity, pretty much anything goes, because the important thing is the visual impact. But in the three classic document classes (books, articles, re-

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1. IBM Plex Serif
2. IBM Plex Serif ExtraLight

Figure 1: IBM Plex in action

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ports... maybe four if we include theses) it's usually much more important that the choice of typeface remains unnoticed. It's not that the choice is unimportant, but that it's more subtle than just choosing a 'font' that you like the look of, although that is obviously part of the decision.

In the days of metal type, even the largest printers would have had only a tiny fraction of the typefaces available to the average computer user today: a designer specifying a face not on hand would have had to cost-justify the rental of the matrices needed to cast it, or (in smaller houses) buying sorts in cases cast to order. Nowadays the choice is vast, and there are hundreds of websites providing a range of methodologies for choosing suitable typefaces for different applications.

Commercial typefaces remain expensive — last time I checked, a full set of Gotham was about €600 per user — but the range and quality of free typefaces grows daily, as the selection available with TEX shows. Even the phrase 'available with TEX' is now becoming less significant as XƎLᴬTEX lets you use all your existing TrueType and OpenType font files as I showed in an earlier column [1]. Perhaps what we need now is a font-selection methodology adaptable to the kind of documents TEX users typically create.

XƎLᴬTEX

Moving our own workflows into XƎLᴬTEX raised a number of questions, as I mentioned above. As with most platform changes, there are pros and cons, but the decision was made on the basis of the 'normal' documents we process — that is, continuous text with the traditional document features I mentioned in the last column [2].

We don't specialize in mathematical work, so we don't have the restrictions of math font choice. What does come up regularly, though, is checking the availability of all the accented letters for Latin-alphabet languages, the range of publishers' symbols, and how closely a given (often free) typeface resembles one (often commercial) selected by a client's previous designer.

Overlock

Oct	'0	'1	'2	'3	'4	'5	'6	'7	Hex
'00x									"0x
'01x									
'02x									"1x
'03x		!	"	#	$	%	&	'	
'04x	(	)	*	+	,	-	.	/	"2x
'05x	0	1	2	3	4	5	6	7	
'06x	8	9	:	;	<	=	>	?	"3x
'07x	@	A	B	C	D	E	F	G	
'10x	H	I	J	K	L	M	N	O	"4x
'11x	P	Q	R	S	T	U	V	W	
'12x	X	Y	Z	[	\	]	^	_	"5x
'13x	`	a	b	c	d	e	f	g	
'14x	h	i	j	k	l	m	n	o	"6x
'15x	p	q	r	s	t	u	v	w	
'16x	x	y	z	{	|	}	~		"7x
'17x									
'20x									"8x
'21x									
'22x									"9x
'23x		¡	¢	£		¥	¦	§	
'24x	¨	©	ª	«	¬		®	¯	"Ax
'25x	°	±	²	³	´	µ	¶	·	
'26x	¸	¹	º	»	¼	½	¾	¿	"Bx
'27x	À	Á	Â	Ã	Ä	Å	Æ	Ç	
'30x	È	É	Ê	Ë	Ì	Í	Î	Ï	"Cx
'31x	Ð	Ñ	Ò	Ó	Ô	Õ	Ö	×	
'32x	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß	"Dx
'33x	à	á	â	ã	ä	å	æ	ç	
'34x	è	é	ê	ë	ì	í	î	ï	"Ex
'35x	ð	ñ	ò	ó	ô	õ	ö	÷	
'36x	ø	ù	ú	û	ü	ý	þ	ÿ	"Fx
'37x									
	"8	"9	"A	"B	"C	"D	"E	"F	

Typographia ars artium omnium conservatrix

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Figure 2: Revised table output for 256-character font display

Many years ago there was a file called `allfnt8.tex` which created an 8×16 grid to display all 128 possible character positions in a font file (at the time). This was later expanded to show a 32-line table for 256 character positions. I still have a copy but I have failed to find it anywhere else, even on CTAN, and it's for Plain TeX only.

Fairly obviously, an upgrade to LaTeX code and XƎLaTeX compatibility was needed, so we have a new version which is being cast as a document class called `fontable`. It does the same thing as `allfnt8.tex` but it takes the full font name or the `.ttf`/`.otf` file name which XƎLaTeX uses. It labels the output with the font name, hex and octal character numbers, the sample sentence as shown in Figure 2, and the date,

so that users referencing the output can know when it was last tested.

The last step was to remake the font cache as described earlier [1], and then extract all the font names in a form suitable for automating the production of the grids on demand. That revealed a number of things: the size of font families mentioned earlier; the villainous state of the metadata in the font files; and the amount of duplication, at least on our font server.

The duplication was easy to fix, if tedious. We really didn't need six identical copies of Nimbus Mono or Lobster Two — and TeX is by no means the only application to install lots of font files. The metadata is a mess, though: inconsistently-abbreviated font names, with or without spaces, with or without hyphens, sometimes capitalized, sometimes all lowercase or all uppercase, and sometimes even camelCase — and who thought it would be good to name their font `Vietnamese\\040Computer\\040Modern`. The font variants are better: Regular, Medium, Bold, and Italic are fine, but others suffer the same problems as the font names.

It would of course be possible to edit the font binaries and fix the problems, but at the cost of potential incompatibility with code that has been hard-wired to expect or reference the broken strings. It's just something we need to live with: the benefits of using XƎLaTeX far outweigh the costs.

Afterthought

Has anyone written a web application using the Fontconfig tools, so that users (and clients) can view resident font libraries?

References

[1] Peter Flynn. Typographers' Inn — XƎLaTeX. *TUGboat*, 37(3):266, Dec 2016. http://tug.org/TUGboat/tb37-3/tb117inn.pdf.

[2] Peter Flynn. Typographers' Inn — Layouts. *TUGboat*, 38(1):17, Jan 2017. http://tug.org/TUGboat/tb38-1/tb118inn.pdf.

[3] Peter Flynn. Digital Typography. In Kent Norman and Jurek Kirakowski, editors, *Handbook of Human-Computer Interaction*, pages 89–108. Wiley, Hoboken, NJ, Jan 2018.

[4] John Lewis. *Typography: Basic principles: Influences and trends since the 19th century*. Studio Books, London, Jan 1963.

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