Recent Additions to TEX's Font Repertoire

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Garalde Family

The first 150 years of the printing industry, beginning with Gutenberg in 1450, bear a striking resemblance to the early years of the personal computer industry. Both were intensely commercial enterprises, though with some high-toned gloss—Bibles then, scientific computing now. However, the real money driving the printers of the late 15th century was to a considerable extent *indulgences*—big money-makers for the Church as well as printers. As I learned from the fascinating books of Andrew Pettegree [2, 3], some monasteries were ordering from printers and selling to sinners hundreds of thousands of generic indulgences as soon as the technology to do so became available. The closest modern analogue may be the claim that pornographic movies drove the rapid growth of VCR and, later, DVD players.

The Lutheran Revolt of the early 16th century against the excesses of the Church did not hurt printers, as they worked overtime to print the voluminous tracts generated by the religious conflict. (One must bear in mind that the first newspaper did not appear until 1605.)

Given the importance of printed media in that period, it should not be surprising that much talent coalesced around the technology, and the fonts developed during that brilliant advance are, in my opinion, some of the most appealing ever created. They are referred to now as "old-style" or *Garalde* in honor of Aldus Manutius and Garamont.

Following Gutenberg, who worked with fonts we now call **Blackletter**, which remained the dominant ones in Germany through the first part of the 20th century, the first Roman font was developed by Nicolas Jenson of Venice, then the dominant commercial center of Europe, in the 1470's. Twenty years later, there appeared one of the great figures in publishing history—Aldus Manutius, also of Venice. Among other innovations, his company, the Aldine Press, invented the pocket book, italic type, greatly reduced the cost of books, standardized punctuation (introducing the semicolon), redefined book layout, and, through its "punchcutter" Francesco Griffo, whom we would now call a type designer, made a beautiful Roman font for the short book *De Aetna* by the poet Pietro Bembo, who became a major literary figure in the Italian Renaissance—lover of Lucrezia Borgia, major influence in standardizing the Italian language, creator of the *madrigal* form, and later, Cardinal of the Church. (The love letters between him and Lucrezia Borgia were considered by Lord Byron to be among the "prettiest" ever penned.) Modern renditions of the font used for *De Aetna* usually involve the name *Bembo*, though the basic free version is called *Cardo*, an obvious contraction of *Cardinal Bembo*. The fairly recent `fbb` package is based on Cardo, but with many changes—the ancient glyphs were stripped out, a kerning table was constructed for the Roman font, there being none in Cardo, and a Bold-Italic variant was created. Glyphs were added in all variants so that `fbb` has a full slate of `textcomp` characters and figures are available in proportional lining and oldstyle as well as tabular lining and oldstyle. Small Caps are provided in all variants. (Cardo had small caps only in Roman, regular weight.)

Sample showing `fbb`:

This is fbb, a free font package similar to Bembo. It has Small Caps, a very fine *Italic*, and a choice of number styles such as tabular oldstyle 0123456789.

Fifty years later, in Paris, Claude Garamont [Garamond] introduced and repeatedly refined his Roman and Italic fonts, based initially on the *De Aetna* font. Among the notable changes was the taming of *De Aetna*, reducing its ascenders and its over-arching "f", planing off some of its more prickly features and designing capital letters that looked less like the work of a scribe. The remarkable account of Garamont's fonts, their origins and influences, by Beatrice Warde [1] is highly recommended. The short version is that most Garamond fonts created in the early twentieth century were in fact based on later fonts by Jannon, not Garamont. Stempel Garamond (1925) is an exception, being based on a copy of the Egenolff-Berner specimen (see [1]) from 1592, owned by their foundry. The most recent Garamonds (URW++ Garamond No 8, Garamond Premier Pro, EBGaramond) have followed the same path. LaTeX now has a choice of two Garamonds:

- `garamondx` is an extension of Garamond No 8, adding small caps and oldstyle figures in both weights and both shapes. Because of the license, which is rather permissive but does not allow charging a fee, so cannot be distributed as part of TeXLive, though it can by MikTeX. Navigate to the URL `https://www.tug.org/fonts/getnonfreefonts` for a script you can download that will install garamondx on UNIX-like systems.
- `ebgaramond` (regular and italic only, no bold weights yet) is a very fine realization of Garamond that was recently added given TeX support.

Sample showing `ebgaramond`:

This is ebgaramond, a new realization of Garamond based on the Ebenolff-Berner specimen. It has very nice Small Caps, a very fine *Italic*, and a choice of number styles such as tabular oldstyle 0123456789.

Other Serifed Roman Families

Palatino:

Named for Italian writing master Giambattista Palatino, and inspired by Italian Renaissance fonts, Palatino has a larger xheight than typical old-style fonts and is more readable on-screen. It was one of the earliest fonts outside the Computer Modern family to gain TEX support, and remains of best-represented fonts for TEX.

- OpenType: TeX Gyre Pagella. Math available through Asana Math or TeX Gyre Pagella Math.
- PostScript: newpxtext + newpxmath, TeX Gyre Pagella + newpxmath, or mathpazo (text and math.) Can also use eulervm math for a more informal look.
- Kpfonts (complete text and math) are based on URW++ Palatino clone, but have their own distinctive, light appearance.

Times:

Many choices are now available.

- OpenType:
  - STIX (text + math);
  - TeX Gyre Termes + STIX math;
  - TeX Gyre Termes + TeX Gyre Termes Math;
- PostScript:
  - newtxtext + newtxmath/STIX;
  - TeX Gyre Termes + newtxmath/STIX;
  - STIX (text and math.)
- Mathtime (commercial but reasonably priced) is still a worthwhile Times-based math package, symbols lighter than STIX.
- Older choices such as mathptmx have now outlived their usefulness.

Baskerville:

A "transitional" font (c 1760), as was Plantin, the Times precursor. Baskerville ("the English Manutius"), was a master of fine detail, having been in the furniture finishing business (japanning) for a number of years. He set out to improve on Caslon, the then dominant font throughout England and its colonies. Baskerville's font was a favorite of Benjamin Franklin. Many commercial versions are available, most notably Storm Baskerville Pro. Free versions include:

- Baskervald (BaskervaldADF) was not designed with TEX in mind, and requires modifications to its ligature side bearings, its basic math character heights, and its kerning tables.
- (OpenType):
  Baskervaldx.otf, derived from BaskervaldADF, works OK with TEX.
- (PostScript):
  Baskervaldx + [baskervaldx]newtxmath works OK. Baskervald[x] lacks the high contrast that makes Baskerville stand out, and when scaled up to an xheight that matches the italic, it becomes a rather heavy Roman font.
- GFSBaskerville—for Greek, not Roman use.
- LibreBaskerville—lacks Bold Italic, and is designed as a web font, with larger xheight, larger counters and wider spacing than fonts intended for print output.

Sample showing `Baskervaldx`:

This is Baskervaldx, a font similar to Baskerville. It has Small Caps, *Italic*, and a choice of number styles such as tabular oldstyle 0123456789.

Utopia:

Utopia's design goals seem to have been to avoid any trace of old-style influence, and in this it has been very successful. The font looks quite austere, with tightly packed letters and, in my opinion, overly small inter-word spacing.

Adobe donated the four basic PostScript fonts to the X Consortium in 1992, though the terms of the license were not clear. In 2006, it was rereleased to the TEX User Group under clarified terms which allow modification and redistribution provided no name trademarked by Adobe is used.

- Fourier (Utopia text, fourier math) will make use of full (expert, Adobe) Utopia, if available.
- MathDesign [utopia] (Utopia text, MathDesign math) can also use expert fonts from Adobe.
- The ADF Venturis fonts are based on Utopia.
- An extension of the (free, basic part of) Utopia by Andrey Panov, dubbed Heuristica (Evristika), is available now from CTAN, TeXLive and MikTeX along with LaTeX support files. It has added ligatures, oldstyle and superior figures and Roman small caps, which seem too light for my taste, and can be used with matching math via [utopia]newtxmath. (Fourier and MathDesign cannot currently use the Heuristica extensions, being tied to Adobe's organization of Utopia Expert.)
- The LATEX support files for Heuristica now contain an option to set the factor by which to

multiply the interword spacing, `\fontdimen2`. The default value is 1, and the value 1.2 is suggested as a starting point.

Sample showing `Heuristica`:

This is Heuristica, an extension of Utopia. It has Small Caps, *Italic*, and a choice of number styles such as tabular oldstyle 0123456789.

Charter:

Bitstream contributed their four basic Charter fonts to the X Consortium under a very liberal license, and have been available in TEX for many years. Their low contrasts, high x-heights and use of piecewise linear outlines where possible may make them interesting again as fonts that will render well on small devices and perhaps projected slides. (Its worth noting that their designer, Matthew Carter, provided Georgia for Microsoft. It is widely considered to be one of the clearest serifed fonts for viewing on screen, and bears a number of similarities to Charter, though the latter is heavier.)

The XCharter fonts add oldstyle figures (proportionally spaced only), superior figures and small caps in all styles.

Sample showing `XCharter`:

This is XCharter, an extension of Charter. It has Small Caps, *Italic*, and a choice of number styles such as proportional oldstyle 0123456789.

Typewriter Fonts

The `courier` font that has long been available on CTAN is too light and too spread out for any use I can imagine in TEX, except to generate examples of what not to use. There are now several choices that are more attractive than you might expect for a monospaced font. Most are not new, but have been renovated recently so may appear new to you.

Serifed Typewriter Fonts:

- The `zlmtt` package provides access to all features of TeX Gyre Latin Modern Typewriter, a very substantial extension of cmtt. Best suited to lighter Roman fonts, though it can be scaled to be a better match up for some heavier Roman faces. The fonts themselves have been described thoroughly by Will Robertson in [4]. Its `Small Caps` are I think unique for a Typewriter font. The font does have a bold variant, but the boldness is almost imperceptible. The individual pieces are inconvenient to access through the `lmodern` package.
  `A sample of text using lmtt and its bold variant.`
- The `newtxtt` package is built on an enhanced version of the typewriter fonts contained in the `txfonts` package, with the addition of several choices of forms for 'zero'. The fonts are of the same width as `cmtt`, but are heavier and taller, matching Times weight and size. The newest version of the package has an option to reduce the interword space, so that, while it is no longer monospaced, it looks better for blocks of text that do not need to be aligned letter by letter.
  `A sample of text using newtxtt and its bold variant.`

Sans Serif Typewriter Fonts:

Two good packages are now available:

- Inconsolata–zi4 is an extension of Karl Berry's Inconsolata package, offering regular and bold weights, a choice of styles for 'zero', 'l' and quotes. It is based on an extension of Raph Levien's fine *Inconsolata* fonts, which are not dissimilar to Microsoft's *Consolas*.
  `A sample of text using inconsolata and its bold variant.`
- The `beramono` package is based on Bitstream's Vera Sans Mono. All glyphs are unmistakable. It is available only in T1 and TS1 encodings. The more recent DejaVu Sans package is a further extension with many more encodings and accented glyphs.
  `A sample of text using beramono and its bold variant.`

Sans Serif Fonts

There are now several choices of (proportionally spaced) sans serif fonts available to TEX users, among the more recent being cabin (similar to Gill Sans), raleway and SourceSansPro. As fonts of this type are frequently made available in a multiplicity of weights, their support files can profit from use of the `mweights` package that allows you to choose which weight will be called "regular" and which will be "bold", independent of Roman and Typewriter choices.

If you make use of a sans serif font in text, you may find it problematic to distinguish it from a sans serif Typewriter face. (If you use sans serif only for headings, as in German typographic usage, and only for headings, this does not apply.) Note one peculiarity of cabin if you use it for person@gmail.com. That white-on-black `@` is unfortunate and would benefit from an alternate, black-on-white, symbol.

References

[1] Beatrice Warde, (Paul Beaujon). The "Garamond" types, sixteenth and seventeenth century sources reconsidered, `http://www.garamond.culture.fr/kcfinder/`

`files/3_3_4_article_beatrice_warde.pdf`. *The Fleuron*, pages 131–179, 1926.

[2] Andrew Pettegree. *The Invention of News: How the World Came to Know About Itself.* Yale University Press, New Haven, CT, 2011.

[3] Andrew Pettegree. *The Book in the Renaissance.* Yale University Press, New Haven, CT, 2014.

[4] Will Robertson. An exploration of the Latin Modern fonts. *The PracTEX Journal*, (1), 2006.