

The `fbf` package—a Bembo-like font

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I The Package

The `fbf` package offers a family of Bembo-like fonts derived from Cardo in the usual four styles. Text figures may be selected from four types:

- Proportional lining (LF), selected by options `lining`, `proportional` [or `p`]; [lining is the default figure style;]
- Tabular lining (TLF), selected by options `lining`, `tabular`; [tabular is the default figure alignment;]
- Proportional oldstyle (OsF), selected by option `oldstyle`, `proportional` [or `p`];
- Tabular oldstyle (TOsF), selected by options `oldstyle`, `tabular`.

The package also defines six macros that allow you use alternate figure styles locally:

```
\textlf{97} % print 97 in proportional lining figures
\texttlf{97} % print 97 in tabular lining figures
\textosf{97} % print 97 in proportional oldstyle figures
\texttosf{97} % print 97 in tabular oldstyle figures
\textsu{97} % print 97 in superior figures
\textin{97} % print 97 in inferior figures
```

Option `altP` changes the form of the letter capital P from its default closed shape, as used in almost all modern digital renderings of Bembo, to the more historically accurate open shape, P. See, for example, the reproduction of Pietro Bembo's *De Aetna* at <https://ia601405.us.archive.org/34/items/ita-bnc-ald-00000673-001/ita-bnc-ald-00000673-001.pdf>. (A higher resolution rendering of a two-page sample is available from https://upload.wikimedia.org/wikipedia/commons/8/89/De_Aetna_1495.jpg.)

Option `sup` changes the form of footnote markers to use `fbf`'s superior figures, unless you have redefined the meaning of `\thefootnote` prior to loading `fbf`. For more control over size, spacing and position of footnote markers, use the `superiors` package: E.g.,

```
\usepackage[supstfm=fbf-Regular-sup-t1]{superiors}
```

There is a scaled option (e.g., `scaled=.97`) that allow you to adjust the text size against, say, a math package. This text package works well with `newtxmath` with the `libertine` option, because the latter has italics of the same italic angle as `fbf` and of very similar xheight and weight. The suggested invocation is:

```
% load babel package and options here
\usepackage[full]{textcomp} % to get the right copyright, etc.
\usepackage[p,osf]{fbf} % osf in text, tabular lining figures in math
\usepackage[scaled=.95,type1]{cabin} % sans serif in style of Gill Sans
\usepackage[varqu,varl]{zi4}% inconsolata typewriter
\usepackage[T1]{fontenc} % LY1 also works
\usepackage[libertine]{newtxmath}
\usepackage[cal=boondoxo,bb=boondox,frak=boondox]{mathalfa}
```

Here is a short sample based on this preamble:

The typeset math below follows the ISO recommendations that only variables be set in italic. Note the use of upright shapes for d , e and π . (The first two are entered as `\mathrm{d}` and `\mathrm{e}`, and in fonts derived from `newtxmath` or `mtpro2`, the latter is entered as `\uppi`.)

Simplest form of the *Central Limit Theorem*: *Let X_1, X_2, \dots be a sequence of iid random variables with mean 0 and variance 1 on a probability space $(\Omega, \mathcal{F}, \mathbb{P})$. Then*

$$\mathbb{P}\left(\frac{X_1 + \dots + X_n}{\sqrt{n}} \leq y\right) \rightarrow \mathfrak{N}(y) := \int_{-\infty}^y \frac{e^{-t^2/2}}{\sqrt{2\pi}} dt \quad \text{as } n \rightarrow \infty,$$

or, equivalently, letting $S_n := \sum_1^n X_k$,

$$\mathbb{E}f(S_n/\sqrt{n}) \rightarrow \int_{-\infty}^{\infty} f(t) \frac{e^{-t^2/2}}{\sqrt{2\pi}} dt \quad \text{as } n \rightarrow \infty, \text{ for every } f \in \mathrm{bC}(\mathbb{R}).$$

2 Text effects under fontaxes

This package loads the `fontaxes` package in order to access italic small caps. You should pay attention to the fact that `fontaxes` modifies the behavior of some basic $\mathrm{\LaTeX}$ text macros such as `\textsc` and `\textup`. Under normal $\mathrm{\LaTeX}$, some text effects are combined, so that, for example, `\textbf{\textit{a}}` produces bold italic a, while other effects are not, eg, `\textsc{\textup{a}}` has the same effect as `\textup{a}`, producing the letter a in upright, not small cap, style. With `fontaxes`, `\textsc{\textup{a}}` produces instead upright small cap a. It offers a macro `\textulc` that undoes small caps, so that, eg, `\textsc{\textulc{a}}` produces a in non-small cap mode, with whatever other style choices were in force, such as bold or italics.

3 Glyphs in TS1 encoding

The layout of the TS1 encoded Text Companion font, which is fully rendered *in regular style only*, is as follows. See below for the macros that invoke these glyphs. Though shown in regular weight, upright shape only, a reduced set of glyphs are available in all other weights and shapes.

	´0	´1	´2	´3	´4	´5	´6	´7	
´00x	˘ ₀	˘ ₁	ˆ ₂	˜ ₃	¨ ₄	¨ ₅	° ₆	˘ ₇	ˆ0x
´01x	˘ ₈	ˉ ₉	˙ ₁₀	¸ ₁₁	€ ₁₂	ı ₁₃	ı ₁₄	ı ₁₅	
´02x	ı ₁₆	ı ₁₇	„ ₁₈	ı ₁₉	ı ₂₀	— ₂₁	— ₂₂	ı ₂₃	ˆ1x
´03x	← ₂₄	→ ₂₅	ˆ ₂₆	ˆ ₂₇	ˆ ₂₈	ˆ ₂₉	ı ₃₀	ı ₃₁	
´04x	¸ ₃₂	ı ₃₃	ı ₃₄	ı ₃₅	\$ ₃₆	ı ₃₇	ı ₃₈	' ₃₉	ˆ2x
´05x	ı ₄₀	ı ₄₁	* ₄₂	ı ₄₃	ı ₄₄	= ₄₅	• ₄₆	/ ₄₇	
´06x	O ₄₈	I ₄₉	2 ₅₀	3 ₅₁	4 ₅₂	5 ₅₃	6 ₅₄	7 ₅₅	ˆ3x
´07x	8 ₅₆	9 ₅₇	ı ₅₈	ı ₅₉	ı ₆₀	ı ₆₁	ı ₆₂	ı ₆₃	
´10x	ı ₆₄	ı ₆₅	ı ₆₆	ı ₆₇	ı ₆₈	ı ₆₉	ı ₇₀	ı ₇₁	ˆ4x
´11x	ı ₇₂	ı ₇₃	ı ₇₄	ı ₇₅	ı ₇₆	Œ ₇₇	ı ₇₈	○ ₇₉	
´12x	ı ₈₀	ı ₈₁	ı ₈₂	ı ₈₃	ı ₈₄	ı ₈₅	ı ₈₆	Ω ₈₇	ˆ5x
´13x	ı ₈₈	ı ₈₉	ı ₉₀	ı ₉₁	ı ₉₂	ı ₉₃	↑ ₉₄	↓ ₉₅	

'14x	` ₉₆	₉₇	★ ₉₈	o o ₉₉	† ₁₀₀	₁₀₁	₁₀₂	₁₀₃	"6x
'15x	₁₀₄	₁₀₅	₁₀₆	₁₀₇	 ₁₀₈	 ₁₀₉	 ₁₁₀	₁₁₁	
'16x	₁₁₂	₁₁₃	₁₁₄	₁₁₅	₁₁₆	₁₁₇	₁₁₈	₁₁₉	"7x
'17x	₁₂₀	₁₂₁	₁₂₂	₁₂₃	₁₂₄	₁₂₅	~ ₁₂₆	= ₁₂₇	
'20x	˘ ₁₂₈	˘ ₁₂₉	˝ ₁₃₀	˝ ₁₃₁	‡ ₁₃₂	‡ ₁₃₃	₁₃₄	% ₁₃₅	"8x
'21x	• ₁₃₆	°C ₁₃₇	\$ ₁₃₈	¢ ₁₃₉	f ₁₄₀	© ₁₄₁	W ₁₄₂	N ₁₄₃	
'22x	G ₁₄₄	P ₁₄₅	£ ₁₄₆	R ₁₄₇	! ₁₄₈	j ₁₄₉	d ₁₅₀	TM ₁₅₁	"9x
'23x	% ₁₅₂	¶ ₁₅₃	B ₁₅₄	N ^o ₁₅₅	/. ₁₅₆	e ₁₅₇	o ₁₅₈	SM ₁₅₉	
'24x	[₁₆₀] ₁₆₁	¢ ₁₆₂	£ ₁₆₃	⌘ ₁₆₄	¥ ₁₆₅	! ₁₆₆	§ ₁₆₇	"Ax
'25x	¨ ₁₆₈	© ₁₆₉	a ₁₇₀	© ₁₇₁	¬ ₁₇₂	® ₁₇₃	® ₁₇₄	¯ ₁₇₅	
'26x	° ₁₇₆	± ₁₇₇	2 ₁₇₈	3 ₁₇₉	' ₁₈₀	μ ₁₈₁	¶ ₁₈₂	· ₁₈₃	"Bx
'27x	※ ₁₈₄	1 ₁₈₅	° ₁₈₆	√ ₁₈₇	¼ ₁₈₈	½ ₁₈₉	¾ ₁₉₀	€ ₁₉₁	
'32x	₂₀₈	₂₀₉	₂₁₀	₂₁₁	₂₁₂	₂₁₃	× ₂₁₄	₂₁₅	"Dx
'33x	₂₁₆	₂₁₇	₂₁₈	₂₁₉	₂₂₀	₂₂₁	₂₂₂	₂₂₃	
'36x	₂₄₀	₂₄₁	₂₄₂	₂₄₃	₂₄₄	₂₄₅	÷ ₂₄₆	₂₄₇	"Fx
'37x	ff ₂₄₈	ff ₂₄₉	ff ₂₅₀	fl ₂₅₁	l ₂₅₂	fl ₂₅₃	i ₂₅₄	f ₂₅₅	
	"8	"9	"A	"B	"C	"D	"E	"F	

LIST OF MACROS TO ACCESS THE TS1 SYMBOLS IN TEXT MODE:

(Note that slots 0–12 and 26–29 are accents, used like \t{a} for a tie accent over the letter a. Slots 23 and 31 do not contain visible glyphs, but have heights indicated by their names.)

- 0 \capitalgrave
- 1 \capitalacute
- 2 \capitalcircumflex
- 3 \capitaltilde
- 4 \capitaldieresis
- 5 \capitalhungarumlaut
- 6 \capitalring
- 7 \capitalcaron
- 8 \capitalbreve
- 9 \capitalmacron
- 10 \capitaldotaccent
- 11 \capitalcedilla
- 12 \capitalogonek
- 13 \textquotestraightbase
- 18 \textquotestraightdblbase
- 21 \texttwelveudash
- 22 \textthreequartersemdash
- 23 \textcapitalcompwordmark
- 24 \textleftarrow
- 25 \textrightarrow
- 26 \t % tie accent, skewed right
- 27 \capitaltie % skewed right
- 28 \newtie % tie accent centered
- 29 \capitalnewtie % ditto
- 31 \textascendercompwordmark
- 32 \textblank
- 36 \textdollar
- 39 \textquotesingle
- 42 \textasteriskcentered

45 \textdblhyphen
 47 \textfractionsolidus
 48 \textzerooldstyle
 49 \textoneoldstyle
 50 \texttwooldstyle
 49 \textthreeoldstyle
 50 \textfouroldstyle
 51 \textfiveoldstyle
 52 \textsixoldstyle
 53 \textsevenoldstyle
 54 \texteightoldstyle
 55 \textnineoldstyle
 60 \textlangle
 61 \textminus
 62 \textrangle
 77 \textmho
 79 \textbigcircle
 87 \textohm
 91 \textlbrackdbl
 93 \textrbrackdbl
 94 \textuparrow
 95 \textdownarrow
 96 \textasciigrave
 98 \textborn
 99 \textdivorced
 100 \textdied
 108 \textleaf
 109 \textmarried
 110 \textmusicalnote
 126 \texttildebelow
 127 \textdblhyphenchar
 128 \textasciibreve
 129 \textasciicaron
 130 \textacutedbl
 131 \textgravedbl
 132 \textdagger
 133 \textdaggerdbl
 134 \textbardbl
 135 \textperthousand
 136 \textbullet
 137 \textcelsius
 138 \textdollaroldstyle
 139 \textcentoldstyle
 140 \textflorin
 141 \textcolonmonetary
 142 \textwon
 143 \textnaira
 144 \textguarani
 145 \textpeso
 146 \textlira
 147 \textrecipe
 148 \textinterrobang
 149 \textinterrobangdown
 150 \textdong

```

151 \texttrademark
152 \textpertenthousand
153 \textpilcrow
154 \textbaht
155 \textnumero
156 \textdiscount
157 \textestimated
158 \textopenbullet
159 \textservicemark
160 \textlquill
161 \textrquill
162 \textcent
163 \textsterling
164 \textcurrency
165 \textyen
166 \textbrokenbar
167 \textsection
168 \textasciidieresis
169 \textcopyright
170 \textordfeminine
171 \textcopyleft
172 \textlnot
173 \textcircledP
174 \textregistered
175 \textasciimacron
176 \textdegree
177 \textpm
178 \texttwosuperior
179 \textthreesuperior
180 \textasciiacute
181 \textmu
182 \textparagraph
183 \textperiodcentered
184 \textreferencemark
185 \textonesuperior
186 \textordmasculine
187 \textsurd
188 \textonequarter
189 \textonehalf
190 \textthreequarters
191 \texteuro
214 \texttimes
246 \textdiv

```

There is a macro `\textcircled` that may be used to construct a circled version of a single letter using `\textbigcircle`. The letter is always constructed from the small cap version, so, in effect, you can only construct circled uppercase letters: `\textcircled{M}` and `\textcircled{m}` have the same effect, namely \textcircled{M} .

4 Historical Background

Humanist scholar Pietro Bembo, a seminal figure in literature and music of the Italian Renaissance, who later became Cardinal Bembo, wrote an essay in the last decade of the 15th century about his travels to Mt. Aetna, which work was published by the Venetian printer Aldus Manutius (whose name gave us *Aldine*) using a new Roman

font designed by his punch-cutter, Francesco Griffo that improved on the earlier efforts of Jenson, another printer in Venice. That font seems to have played a similarly seminal rôle in typography. It was the direct progenitor of the many Garamond fonts, and has seen numerous modern revivals whose names make use of every known historical connection to the figures named above, such as Lucrezia Borgia who was for several years Bembo's lover.

The metal form of the Bembo font developed by Stanley Morison for English Monotype in the 1920's was widely used in book printing due to its handsome appearance and readability. Commercial digital versions have not had much love from critics until recently. Adobe's MinionPro and WarnockPro arguably deserve the prizes for the best modern revivals of oldstyle fonts not too distant from Bembo. (Both lack Bembo's tall ascenders and its characteristic overarching f.)

To my knowledge, there is currently only one free source for a Bembo-like font family, that being David Perry's *Cardo* (a contraction of *Cardinal Bembo*), which is not readily accessible to \LaTeX users and which lacks Bold Italic as well as a full range of Small Caps and figure styles.

This package is named for its Berry form *fbf*, with *f* denoting free (*i.e.*, public) and *bb* the Berry abbreviation for Bembo. It is derived from *Cardo*, with significant modifications. Where *Cardo* is intended primarily for scholars of ancient languages, those features are removed from *fbf* and issues of more modern concern are added. The package contains the usual four styles (regular, italic, bold, bold italic), each with small caps and figures in tabular lining, proportional lining, tabular oldstyle and proportional oldstyle, as well as superior and inferior figures. The f-ligatures have been revised/added so as to function better with \LaTeX , and other glyphs have been changed as necessary to suit the demands of *FontForge*. A kerning table was added to Regular upright weight—a serious omission in the original. The Bold Italic weight was created algorithmically from Italic, but the result required much intervention by human hand. Small Caps were created for all styles other than regular, which was already present in *Cardo*.

On screen and paper, *fbf* appears close in weight to *Libertine*, though of larger xheight and much larger ascender height, a bit softer and slightly less plain. The following two sentences are written in *fbf* and *Libertine* respectively. The third example sentence is written using *garamondx*, whose natural xheight is comparable to *Libertine*, but which should normally be scaled down to resemble more familiar Garamonds. Perhaps *fbf* will be prove to be more suitable for older eyes.

COMPARISON BETWEEN *FBB* AND *LIBERTINE*:

Both *fbf* and *Libertine* are highly readable fonts in their standard Roman forms, each has a wide range of figures and small caps, but *Libertine* has the advantage in the number of supported scripts and the variety of weights.

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SAME SENTENCE IN *GARAMONDX*:

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