

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 options `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:

```
\usepackage[full]{textcomp} % to get the right copyright, etc.
\usepackage[lining,tabular]{fbf} % so math uses tabular lining figures
\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,bigdelims]{newtxmath}
\usepackage[cal=boondoxo,bb=boondox,frak=boondox]{mathalfa}
\useosf % change normal text to use oldstyle figures
\useproportional
```

% can also set option proportional (or p) for proportionally spaced figures

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*

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

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

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

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 \LaTeX text macros such as `\textsc` and `\textup`. Under normal \LaTeX , some text effects are combined, so that, for example, `\textbf{\textit{\textsc{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	¯ 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	0 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	⟨ ₆₀	— ₆₁	⟩ ₆₂	ı ₆₃	
´10x	ı ₆₄	ı ₆₅	ı ₆₆	ı ₆₇	ı ₆₈	ı ₆₉	ı ₇₀	ı ₇₁	ˆ4x
´1Ix	ı ₇₂	ı ₇₃	ı ₇₄	ı ₇₅	ı ₇₆	⊗ ₇₇	ı ₇₈	○ ₇₉	

'12x	80	81	82	83	84	85	86	Ω ₈₇	"5x
'13x	88	89	90	∏ ₉₁	92	∏ ₉₃	↑ ₉₄	↓ ₉₅	
'14x	` ₉₆	97	★ ₉₈	o o ₉₉	† ₁₀₀	101	102	103	"6x
'15x	104	105	106	107	⓪ ₁₀₈	∞ 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	Ⓔ ₁₄₄	P ₁₄₅	£ ₁₄₆	R ₁₄₇	! ₁₄₈	j ₁₄₉	d ₁₅₀	™ ₁₅₁	"9x
'23x	‰ ₁₅₂	¶ ₁₅₃	B ₁₅₄	N° 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	fi 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 \textquoteststraightbase
18 \textquoteststraightdblbase
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 ™.

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 *FBF* 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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