

# 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 (TLF), selected by option `lining`;
- Tabular lining (LF), selected by options `lining`, `tabular`;
- Proportional oldstyle (OsF), selected by option `oldstyle`;
- Tabular oldstyle (TOsF), selected by options `oldstyle`, `tabular`.

The package also defines five 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
```

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: Eg,

```
\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 proportional oldstyle figures
%\usetosf would provide tabular oldstyle figures in text
```

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  $\pi$ . (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  $S_n := \sum_1^n X_k$ ,

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

## 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 L<sup>A</sup>T<sub>E</sub>X text macros such as `\textsc` and `\textup`. Under normal L<sup>A</sup>T<sub>E</sub>X, 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	˘ <sub>0</sub>	˘ <sub>1</sub>	˘ <sub>2</sub>	˘ <sub>3</sub>	˘˘ <sub>4</sub>	˘˘ <sub>5</sub>	˘ <sub>6</sub>	˘ <sub>7</sub>	˘0x
´01x	˘ <sub>8</sub>	˘ <sub>9</sub>	˘ <sub>10</sub>	˘ <sub>11</sub>	˘ <sub>12</sub>	˘ <sub>13</sub>	˘ <sub>14</sub>	˘ <sub>15</sub>	
´02x	˘ <sub>16</sub>	˘ <sub>17</sub>	˘ <sub>18</sub>	˘ <sub>19</sub>	˘ <sub>20</sub>	˘ <sub>21</sub>	˘ <sub>22</sub>	˘ <sub>23</sub>	˘1x
´03x	˘ <sub>24</sub>	˘ <sub>25</sub>	˘ <sub>26</sub>	˘ <sub>27</sub>	˘ <sub>28</sub>	˘ <sub>29</sub>	˘ <sub>30</sub>	˘ <sub>31</sub>	
´04x	˘ <sub>32</sub>	˘ <sub>33</sub>	˘ <sub>34</sub>	˘ <sub>35</sub>	˘ <sub>36</sub>	˘ <sub>37</sub>	˘ <sub>38</sub>	˘ <sub>39</sub>	˘2x
´05x	˘ <sub>40</sub>	˘ <sub>41</sub>	˘ <sub>42</sub>	˘ <sub>43</sub>	˘ <sub>44</sub>	˘ <sub>45</sub>	˘ <sub>46</sub>	˘ <sub>47</sub>	
´06x	˘ <sub>48</sub>	˘ <sub>49</sub>	˘ <sub>50</sub>	˘ <sub>51</sub>	˘ <sub>52</sub>	˘ <sub>53</sub>	˘ <sub>54</sub>	˘ <sub>55</sub>	˘3x
´07x	˘ <sub>56</sub>	˘ <sub>57</sub>	˘ <sub>58</sub>	˘ <sub>59</sub>	˘ <sub>60</sub>	˘ <sub>61</sub>	˘ <sub>62</sub>	˘ <sub>63</sub>	
´10x	˘ <sub>64</sub>	˘ <sub>65</sub>	˘ <sub>66</sub>	˘ <sub>67</sub>	˘ <sub>68</sub>	˘ <sub>69</sub>	˘ <sub>70</sub>	˘ <sub>71</sub>	˘4x
´11x	˘ <sub>72</sub>	˘ <sub>73</sub>	˘ <sub>74</sub>	˘ <sub>75</sub>	˘ <sub>76</sub>	˘ <sub>77</sub>	˘ <sub>78</sub>	˘ <sub>79</sub>	
´12x	˘ <sub>80</sub>	˘ <sub>81</sub>	˘ <sub>82</sub>	˘ <sub>83</sub>	˘ <sub>84</sub>	˘ <sub>85</sub>	˘ <sub>86</sub>	˘ <sub>87</sub>	˘5x
´13x	˘ <sub>88</sub>	˘ <sub>89</sub>	˘ <sub>90</sub>	˘ <sub>91</sub>	˘ <sub>92</sub>	˘ <sub>93</sub>	˘ <sub>94</sub>	˘ <sub>95</sub>	
´14x	˘ <sub>96</sub>	˘ <sub>97</sub>	˘ <sub>98</sub>	˘ <sub>99</sub>	˘ <sub>100</sub>	˘ <sub>101</sub>	˘ <sub>102</sub>	˘ <sub>103</sub>	˘6x
´15x	˘ <sub>104</sub>	˘ <sub>105</sub>	˘ <sub>106</sub>	˘ <sub>107</sub>	˘ <sub>108</sub>	˘ <sub>109</sub>	˘ <sub>110</sub>	˘ <sub>111</sub>	
´16x	˘ <sub>112</sub>	˘ <sub>113</sub>	˘ <sub>114</sub>	˘ <sub>115</sub>	˘ <sub>116</sub>	˘ <sub>117</sub>	˘ <sub>118</sub>	˘ <sub>119</sub>	˘7x
´17x	˘ <sub>120</sub>	˘ <sub>121</sub>	˘ <sub>122</sub>	˘ <sub>123</sub>	˘ <sub>124</sub>	˘ <sub>125</sub>	˘ <sub>126</sub>	˘ <sub>127</sub>	

'20x	˘ <sup>128</sup>	˘ <sup>129</sup>	˘ <sup>130</sup>	˘ <sup>131</sup>	† <sup>132</sup>	‡ <sup>133</sup>	‖ <sup>134</sup>	‰ <sup>135</sup>	"8x
'21x	• <sup>136</sup>	° <sup>137</sup>	\$ <sup>138</sup>	¢ <sup>139</sup>	f <sup>140</sup>	© <sup>141</sup>	® <sup>142</sup>	™ <sup>143</sup>	
'22x	Ⓔ <sup>144</sup>	Ⓕ <sup>145</sup>	£ <sup>146</sup>	℞ <sup>147</sup>	ℙ <sup>148</sup>	Ⓙ <sup>149</sup>	Ⓚ <sup>150</sup>	™ <sup>151</sup>	"9x
'23x	‰ <sup>152</sup>	¶ <sup>153</sup>	ℬ <sup>154</sup>	№ <sup>155</sup>	‰ <sup>156</sup>	€ <sup>157</sup>	◊ <sup>158</sup>	SM <sup>159</sup>	
'24x	[ <sup>160</sup>	] <sup>161</sup>	¢ <sup>162</sup>	£ <sup>163</sup>	¤ <sup>164</sup>	¥ <sup>165</sup>	¦ <sup>166</sup>	§ <sup>167</sup>	"Ax
'25x	¨ <sup>168</sup>	© <sup>169</sup>	ª <sup>170</sup>	© <sup>171</sup>	¬ <sup>172</sup>	® <sup>173</sup>	® <sup>174</sup>	¯ <sup>175</sup>	
'26x	° <sup>176</sup>	± <sup>177</sup>	² <sup>178</sup>	³ <sup>179</sup>	´ <sup>180</sup>	μ <sup>181</sup>	¶ <sup>182</sup>	· <sup>183</sup>	"Bx
'27x	※ <sup>184</sup>	¹ <sup>185</sup>	º <sup>186</sup>	√ <sup>187</sup>	¼ <sup>188</sup>	½ <sup>189</sup>	¾ <sup>190</sup>	€ <sup>191</sup>	
'32x	<sup>208</sup>	<sup>209</sup>	<sup>210</sup>	<sup>211</sup>	<sup>212</sup>	<sup>213</sup>	× <sup>214</sup>	<sup>215</sup>	"Dx
'33x	<sup>216</sup>	<sup>217</sup>	<sup>218</sup>	<sup>219</sup>	<sup>220</sup>	<sup>221</sup>	<sup>222</sup>	<sup>223</sup>	
'36x	<sup>240</sup>	<sup>241</sup>	<sup>242</sup>	<sup>243</sup>	<sup>244</sup>	<sup>245</sup>	÷ <sup>246</sup>	<sup>247</sup>	"Fx
'37x	ff <sup>248</sup>	ff <sup>249</sup>	ff <sup>250</sup>	ff <sup>251</sup>	l <sup>252</sup>	ff <sup>253</sup>	i <sup>254</sup>	f <sup>255</sup>	
	"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 .

## 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 those of Bembo's lover for a time, Lucrezia Borgia.

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  $\text{\LaTeX}$  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  $\text{\LaTeX}$ , 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, 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*:

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.