LaTeX Support for Linux Libertine and Biolinum Fonts

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Contents

1 Introduction

This package provides support for use of the Linux Libertine and Linux Biolinum families of fonts in LaTeX. Most features are usable with LaTeX and `dvips`, pdfLaTeX, xeLaTeX and luaLaTeX; the features in Section 5 are only usable with xeLaTeX or luaLaTeX. This package compatibly replaces several earlier packages (`libertine-type1`, `biolinum-type1`, `libertine`) and should provide partial compatibility with the obsolete `libertineotf` and `libertine-legacy` packages.

2 Installation

To install this package on a TDS-compliant TeX system, download the file

`tex-archive/install/fonts/libertine.tds.zip`

and unzip at the root of an appropriate `texmf` tree, likely a personal or local tree. If necessary, update the file-name database (e.g., `texhash texmf`). Update the font-map files by enabling the Map file `libertine.map`.

3 Basic Usage

For most purposes, simply add

```
\usepackage{libertine}
```

to the preamble of your document. This will activate Libertine as the main (seriffed) text font, Biolinum as the sans font, and (from January 2013) LibertineMono as the monospaced font. It is recommended that the font encoding be set to `T1` or `LY1` but the default `OT1` encoding is also supported. Available shapes in all series (except `tt`, which only has `it`) include:

`it`	italic
`sc`	small caps
`scit`	italic small caps

Slanted variants are not supported; the designed italic variants will be automatically substituted. The exceptions are the monospaced font and the bold series of Biolinum, for which designed italics are not currently available. Artificially slanted variants have been generated and treated as if they were italic.

To activate Libertine (without Biolinum), use the `libertine` (or `rm`) option. Similarly, to activate Biolinum (without Libertine) use the `biolinum` (or `sf` or `ss`) option. To use Biolinum as the main text font (as well as the sans font), use the option `sfdefault`. Use the `mono=false` (or `tt=false`) option to suppress activating LibertineMono. To activate single font families, use one or more of

```
\usepackage{libertineRoman}

\usepackage{libertineMono}

\usepackage{biolinum}
```

4 Advanced Usage

LuaLaTeX and xeLaTeX users who might prefer to use Type 1 fonts or who wish to avoid `fontspec` may use the `type1` (or `nofontspec`) option. The `libertine-type1.sty`, `biolinum-type1.sty` and `libertineMono-type1.sty` packages provide compatibility with older packages. For legacy documents that use only basic facilities of `libertineotf`, a wrapper package `libertineotf.sty` is provided. The following features of the original `libertine` or `libertineotf` packages are *not* supported:

- font-features such as `Ligatures` or `Scale` as option parameters
- the Outline or Shadow fonts
- commands `\Lnnum`, `\Lpnum`, `\Lcnum`, etc.
- environments `Ltable` and `libertineenumerate`

If your documents use any of the features listed above, you may have to continue to use the `libertineotf` package (which is still available from CTAN) or access the OpenType fonts directly using `fontspec`.

The following options are available in all styles (except monospaced):

`oldstyle` (`osf`)	old-style figures
`lining` (`nf`, `lf`)	lining figures
`proportional` (`p`)	varying-width figures
`tabular` (`t`)	fixed-width figures

The defaults (from January 2013) are `lining` and `tabular`. These apply to both Libertine and Biolinum; to change the default figure style of just the Biolinum (sans) fonts, use options

`sflining` (`sflf`) or `sfoldstyle` (`sfosf`, `osfss`)

`sftabular` (`sft`) or `sfproportional` (`sfp`)

The `semibold` (`sb`) option will enable use of the semi-bold series of Libertine; this has no effect on the Biolinum fonts, for which there is no semi-bold variant. The options `scale=`<*number*> (or `scaled=`<*number*>) will scale the Biolinum fonts but have no effect on the Libertine fonts. Similarly, the options `llscale=`<*number*> (or `llscaled=`<*number*>) and `ttscale=`<*number*> (or `ttscaled=`<*number*>) will scale the LinuxLibertine and LibertineMono fonts, respectively. Any of the "Boolean" options, such as `osf`, may also be used in the form `osf=true` or `osf=false`.

The option `defaultfeatures=...` allows the user to add default OpenType features; for example, `defaultfeatures={Variant=01}` will force use of the Stylistic Set 1 variant glyphs.

Commands `\oldstylenums{...}` and `\oldstylenumsf{...}` are defined to allow for local use of old-style figures in Libertine and Biolinum, respectively, if lining figures is the default, and similarly `\liningnums{...}` and `\liningnumsf{...}`.

Similarly, commands `\tabularnums{...}` and `\tabularnumsf{...}` are defined to allow local use of monospaced figures in Libertine or Biolinum, respectively, if proportional figures is the default, and similarly `\proportionalnums{...}` and `\proportionalnumsf{...}`.

Superior numbers (for footnote markers) are available using `\sufigures` or `\textsu{...}`.

Command `\useosf` switches the default figure style for Libertine and Biolinum to oldstyle figures; this is primarily for use *after* calling a math package (such as `newtxmath` with the `libertine` option) with lining figures as the default.

The following macros select the font family indicated:

`\libertine`	Libertine
`\libertineSB`	Libertine with semibold
`\libertineOsF`	Libertine with oldstyle figures
`\libertineLF`	Libertine with lining figures
`\libertineDisplay`	Libertine Display
`\libmono`	Libertine Monospaced
`\libertineInitial`	Libertine Initials
`\biolinum`	Biolinum
`\biolinumOsF`	Biolinum with oldstyle figures
`\biolinumLF`	Biolinum with lining figures

Macro `\libertineInitialGlyph{...}` produces a glyph in the Libertine Initial font; Appendix C has a table of some of the glyphs.

5 OpenType Fonts

The features in this section are only available to xeLaTeX and luaLaTeX users.

Macros `\libertineGlyph{...}` and `\biolinumGlyph{...}` produce the glyph named in the argument in the Libertine or Biolinum font, respectively; for example, in regular-weight and upright-shape, `\libertineGlyph{seven.cap}` and `\libertineGlyph{uniE10F}` both produce a lining 7 that matches the height of capital letters, as in

K7L 3N6

Similarly, `\biolinumKeyGlyph{...}` produces the named glyph in the Biolinum Keyboard font; for example: `\biolinumKeyGlyph{seven}` produces 7. A large number of macros of the form `\LKey`...or `\LMouse`...are provided to simplify production of glyphs in the Biolinum Keyboard font; see Appendix A. Appendix B has a table of the entire Linux Biolinum Keyboard font, with corresponding glyph name and codepoint.

The directory `/fonts/opentype/public/libertine` has the fonts used for these features, as follows:

File name	Internal name	Description
LinBiolinum_RBO.otf	LinBiolinumOBO	sans serif bold italic (oblique)
LinBiolinum_RB.otf	LinBiolinumOB	sans serif bold
LinBiolinum_RI.otf	LinBiolinumOI	sans serif italic
LinBiolinum_R.otf	LinBiolinumO	sans serif regular
LinLibertine_RBI.otf	LinLibertineOBI	bold italic
LinLibertine_RB.otf	LinLibertineOB	bold
LinLibertine_RI.otf	LinLibertineOI	italic
LinLibertine_R.otf	LinLibertineO	regular
LinLibertine_RZI.otf	LinLibertineOZI	semibold italic
LinLibertine_RZ.otf	LinLibertineOZ	semibold
LinLibertine_MBO.otf	LinLibertineMOBO	mono bold italic (oblique)
LinLibertine_MB.otf	LinLibertineMOB	mono bold
LinLibertine_MO.otf	LinLibertineMOO	mono italic (oblique)
LinLibertine_M.otf	LinLibertineMO	mono
LinBiolinum_K.otf	LinBiolinumOKb	keyboard
LinLibertine_I.otf	LinLibertineIO	decorative capitals
LinLibertine_DR.otf	LinLibertineDisplayO	a display (titling) font

6 Concluding Remarks

For compatible mathematics, it is recommended to use

```
\usepackage[libertine]{newtxmath}
```

with pdfLaTeX and

```
\usepackage{unicode-math}
\setmathfont[Scale=MatchUppercase]{libertinusmath-regular.otf}
```

with xeLaTeX or luaLaTeX.

The original OpenType fonts were created by Philipp H. Poll (gillian@linuxlibertine.org) and are licensed under the terms of the GNU General Public License (Version 2, with font exception) and under the terms of the Open Font License. For details look into the doc directory of the distribution or at

http://www.linuxlibertine.org/

The Glyph and KeyCap support was adapted from the original libertine package by Michael Niedermair.

Three of the Libertine fonts were modified by Michael Sharpe (msharpe@ucsd.edu) using fontforge to correct minor problems, including adding three missing ligatures (***fl***, ***ffl***, ***ffi***) to the bold-italic font.

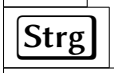
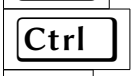
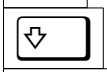
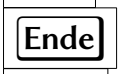
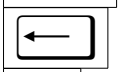
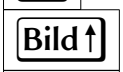
The Type 1 fonts were created using cfftot1 or fontforge. The internal font-family names of the Type 1 fonts have been changed to Linux Libertine T and Linux Biolinum T to avoid interfering with xeLaTeX users who access system fonts.

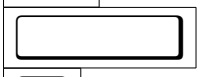
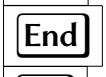
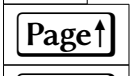
The support files were created using autoinst. The support files are licensed under the terms of the LaTeX Project Public License. See Appendix D for more detailed discussion of the implementation.

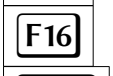
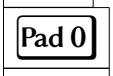
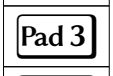
Thanks to Herbert Voss, Patrick Gundlach, Silke Hofstra, Marc Penninga, Michael Sharpe, Denis Bitouzé, and Khaled Hosny for their assistance. The maintainer of this package is Bob Tennent (rdt@cs.queensu.ca)

A Biolinum KeyCap Macros

A.1 Special Keys

Tux	\LKeyTux	
Win	\LKeyWin	
Menu	\LKeyMenu	
Strg	\LKeyStrg	
Ctrl	\LKeyCtrl	
Alt	\LKeyAlt	
AltGr	\LKeyAltGr	
Shift	\LKeyShift	
Enter	\LKeyEnter	
Tab	\LKeyTab	
CapsLock	\LKeyCapsLock	
Pos	\LKeyPos	
Entf	\LKeyEntf	
Einf	\LKeyEinf	
Leer	\LKeyLeer	
Esc	\LKeyEsc	
Ende	\LKeyEnde	
Back	\LKeyBack	
Up	\LKeyUp	
Dwon	\LKeyDown	
Left	\LKeyLeft	
Right	\LKeyRight	
PgUp	\LKeyPgUp	
PgDown	\LKeyPgDown	

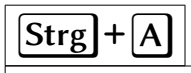
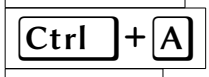
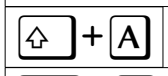
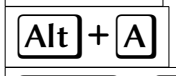
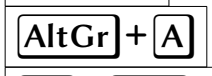
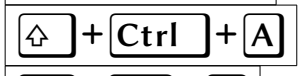
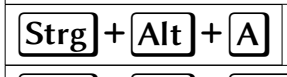
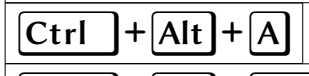
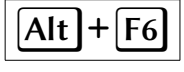
At	\LKeyAt	
Fn	\LKeyFn	
Home	\LKeyHome	
Del	\LKeyDel	
Space	\LKeySpace	
ScreenUp	\LKeyScreenUp	
ScreenDown	\LKeyScreenDown	
Ins	\LKeyIns	
End	\LKeyEnd	
GNU	\LKeyGNU	
PageUp	\LKeyPageUp	
PageDown	\LKeyPageDown	
Command	\LKeyCommand	
OptionKey	\LKeyOptionKey	
F1	\LKeyF{1}	
F2	\LKeyF{2}	
F3	\LKeyF{3}	
F4	\LKeyF{4}	
F5	\LKeyF{5}	
F6	\LKeyF{6}	
F7	\LKeyF{7}	
F8	\LKeyF{8}	
F9	\LKeyF{9}	
F10	\LKeyF{10}	
F11	\LKeyF{11}	
F12	\LKeyF{12}	
F13	\LKeyF{13}	

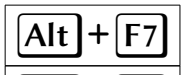
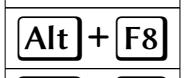
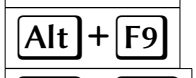
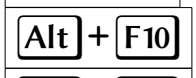
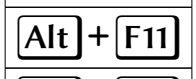
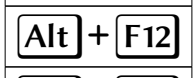
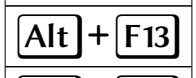
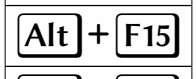
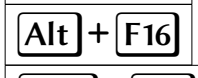
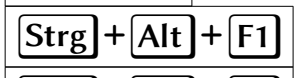
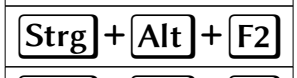
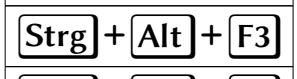
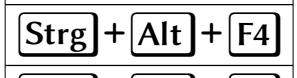
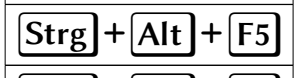
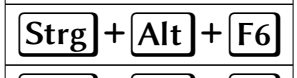
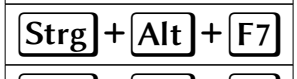
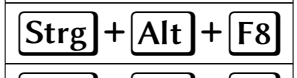
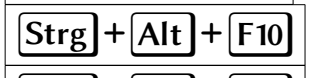
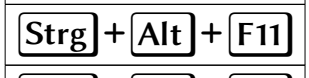
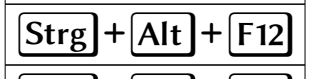
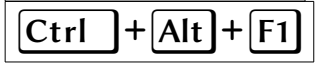
F14	\LKeyF{14}	
F15	\LKeyF{15}	
F16	\LKeyF{16}	
PAD0	\LKeyPad{1}	
PAD1	\LKeyPad{1}	
PAD2	\LKeyPad{2}	
PAD3	\LKeyPad{3}	
PAD4	\LKeyPad{4}	
PAD5	\LKeyPad{5}	
PAD6	\LKeyPad{6}	
PAD7	\LKeyPad{7}	
PAD8	\LKeyPad{8}	
PAD9	\LKeyPad{9}	
PAD10	\LKeyPad{10}	
PAD11	\LKeyPad{11}	
PAD12	\LKeyPad{12}	
PAD13	\LKeyPad{13}	
PAD14	\LKeyPad{14}	

A.2 General Keyboard

0	`\LKey{zero},\LKey{0}`	
9	`\LKey{nine},\LKey{9}`	
A	`\LKey{A}`	
Z	`\LKey{Z}`	

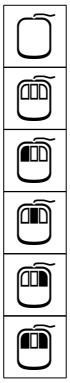
A.3 Keyboard Shortcuts

Strg-A	`\LKeyStrgX{A}`	
Ctrl-A	`\LKeyCtrlX{A}`	
Shift-A	`\LKeyShiftX{A}`	
Alt-A	`\LKeyAltX{A}`	
AltGr-A	`\LKeyAltGrX{A}`	
Shift-Strg-A	`\LKeyShiftStrgX{A}`	
Shift-Ctrl-A	`\LKeyShiftCtrlX{A}`	
Shift-Alt-A	`\LKeyShiftAltX{A}`	
Shift-AltGr-A	`\LKeyShiftAltGrX{A}`	
Strg-Alt-A	`\LKeyStrgAltX{A}`	
Strg-Alt-Entf	`\LKeyStrgAltEnt`	
Strg-Alt-Entf	`\LKeyReset`	
Ctrl-Alt-A	`\LKeyCtrlAltX{A}`	
Ctrl-Alt-Entf	`\LKeyCtrlAltEnt`	
Alt-F1	`\LKeyAltF{1}`	
Alt-F2	`\LKeyAltF{2}`	
Alt-F3	`\LKeyAltF{3}`	
Alt-F4	`\LKeyAltF{4}`	
Alt-F5	`\LKeyAltF{5}`	
Alt-F6	`\LKeyAltF{6}`	

Alt-F7	\LKeyAltF{7}	
Alt-F8	\LKeyAltF{8}	
Alt-F9	\LKeyAltF{9}	
Alt-F10	\LKeyAltF{10}	
Alt-F11	\LKeyAltF{11}	
Alt-F12	\LKeyAltF{12}	
Alt-F13	\LKeyAltF{13}	
Alt-F14	\LKeyAltF{14}	
Alt-F15	\LKeyAltF{15}	
Alt-F16	\LKeyAltF{16}	
Strg-Alt-F1	\LKeyStrgAltF{1}	
Strg-Alt-F2	\LKeyStrgAltF{2}	
Strg-Alt-F3	\LKeyStrgAltF{3}	
Strg-Alt-F4	\LKeyStrgAltF{4}	
Strg-Alt-F5	\LKeyStrgAltF{5}	
Strg-Alt-F6	\LKeyStrgAltF{6}	
Strg-Alt-F7	\LKeyStrgAltF{7}	
Strg-Alt-F8	\LKeyStrgAltF{8}	
Strg-Alt-F9	\LKeyStrgAltF{9}	
Strg-Alt-F10	\LKeyStrgAltF{10}	
Strg-Alt-F11	\LKeyStrgAltF{11}	
Strg-Alt-F12	\LKeyStrgAltF{12}	
Strg-Alt-F13	\LKeyStrgAltF{13}	
Strg-Alt-F14	\LKeyStrgAltF{14}	
Strg-Alt-F15	\LKeyStrgAltF{15}	
Strg-Alt-F16	\LKeyStrgAltF{16}	
Ctrl-Alt-F1	\LKeyCtrlAltF{1}	

Ctrl-Alt-F2	\LKeyCtrlAltF{2}	Ctrl + Alt + F2
Ctrl-Alt-F3	\LKeyCtrlAltF{3}	Ctrl + Alt + F3
Ctrl-Alt-F4	\LKeyCtrlAltF{4}	Ctrl + Alt + F4
Ctrl-Alt-F5	\LKeyCtrlAltF{5}	Ctrl + Alt + F5
Ctrl-Alt-F6	\LKeyCtrlAltF{6}	Ctrl + Alt + F6
Ctrl-Alt-F7	\LKeyCtrlAltF{7}	Ctrl + Alt + F7
Ctrl-Alt-F8	\LKeyCtrlAltF{8}	Ctrl + Alt + F8
Ctrl-Alt-F9	\LKeyCtrlAltF{9}	Ctrl + Alt + F9
Ctrl-Alt-F10	\LKeyCtrlAltF{10}	Ctrl + Alt + F10
Ctrl-Alt-F11	\LKeyCtrlAltF{11}	Ctrl + Alt + F11
Ctrl-Alt-F12	\LKeyCtrlAltF{12}	Ctrl + Alt + F12
Ctrl-Alt-F13	\LKeyCtrlAltF{13}	Ctrl + Alt + F13
Ctrl-Alt-F14	\LKeyCtrlAltF{14}	Ctrl + Alt + F14
Ctrl-Alt-F15	\LKeyCtrlAltF{15}	Ctrl + Alt + F15
Ctrl-Alt-F16	\LKeyCtrlAltF{16}	Ctrl + Alt + F16

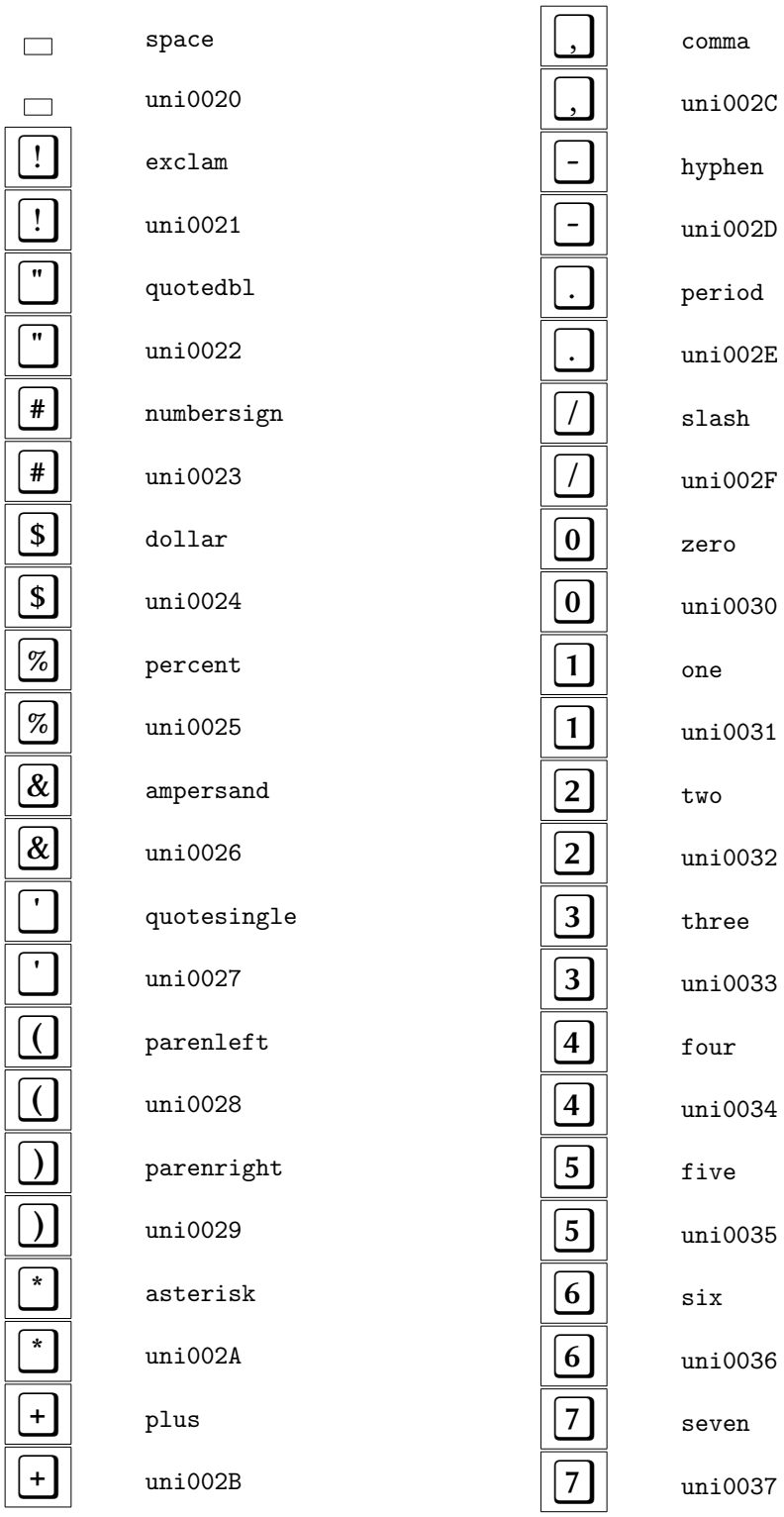
A.4 Mouse Buttons (Three-Button Mice)

Empty	\LMouseEmpty	
No	\LMouseN	
Left	\LMouseL	
Middle	\LMouseM	
Right	\LMouseR	
LeftRight	\LMouseLR	

A.5 Mouse Buttons (Two-Button Mice)

Empty	\LMouseIIEmpty	
No	\LMouseIIN	
Left	\LMouseIIL	
Right	\LMouseIIR	
LeftRight	\LMouseIILR	

B Linux Biolinum Keyboard Glyphs



8	eight
8	uni0038
9	nine
9	uni0039
:	colon
:	uni003A
;	semicolon
;	uni003B
<	less
<	uni003C
=	equal
=	uni003D
>	greater
>	uni003E
?	question
?	uni003F
@	at
@	uni0040
A	A
A	uni0041
B	B
B	uni0042
C	C
C	uni0043
D	D
D	uni0044
E	E
E	uni0045
F	F
F	uni0046
G	G
G	uni0047
H	H
H	uni0048
I	I
I	uni0049
J	J
J	uni004A
K	K
K	uni004B
L	L
L	uni004C
M	M
M	uni004D
N	N
N	uni004E
O	O
O	uni004F
P	P
P	uni0050

	Q
	uni0051
	R
	uni0052
	S
	uni0053
	T
	uni0054
	U
	uni0055
	V
	uni0056
	W
	uni0057
	X
	uni0058
	Y
	uni0059
	Z
	uni005A
	bracketleft
	uni005B
	backslash
	uni005C
	bracketright

	uni005D
	asciicircum
	uni005E
	underscore
	uni005F
	grave
	uni0060
	a
	uni0061
	b
	uni0062
	c
	uni0063
	d
	uni0064
	e
	uni0065
	f
	uni0066
	g
	uni0067
	h
	uni0068
	i
	uni0069

	j
	uni006A
	k
	uni006B
	l
	uni006C
	m
	uni006D
	n
	uni006E
	o
	uni006F
	p
	uni0070
	q
	uni0071
	r
	uni0072
	s
	uni0073
	t
	uni0074
	u
	uni0075
	v

	uni0076
	w
	uni0077
	x
	uni0078
	y
	uni0079
	z
	uni007A
	braceleft
	uni007B
	bar
	uni007C
	braceright
	uni007D
	asciitilde
	uni007E
	exclamdown
	uni00A1
	cent
	uni00A2
	sterling
	uni00A3
	currency
	uni00A4


yen


uni00A5


brokenbar


uni00A6


section


uni00A7


dieresis


uni00A8


guillemotleft


uni00AB


uni00AD


degree


uni00B0


plusminus


uni00B1


acute


uni00B4


uni00B5


periodcentered


uni00B7


cedilla


uni00B8


guillemotright


uni00BB


Agrave


uni00C0


Aacute


uni00C1


Acircumflex


uni00C2


Atilde


uni00C3


Adieresis


uni00C4


Aring


uni00C5


Ccedilla


uni00C7


Egrave


uni00C8

Eacute

uni00C9

Ecircumflex

uni00CA

Edieresis

uni00CB

Igrave

uni00CC

Iacute

uni00CD

Icircumflex

	uni00CE		Ucircumflex
	Idieresis		uni00DB
	uni00CF		Udieresis
	Eth		uni00DC
	uni00D0		Yacute
	Ntilde		uni00DD
	uni00D1		Thorn
	Ograve		uni00DE
	uni00D2		germandbls
	Oacute		uni00DF
	uni00D3		agrave
	Ocircumflex		uni00E0
	uni00D4		aacute
	Otilde		uni00E1
	uni00D5		acircumflex
	Odieresis		uni00E2
	uni00D6		atilde
	multiply		uni00E3
	uni00D7		adieresis
	Oslash		uni00E4
	uni00D8		aring
	Ugrave		uni00E5
	uni00D9		ae
	Uacute		uni00E6
	uni00DA		ccedilla

	uni00E7
	egrave
	uni00E8
	eacute
	uni00E9
	ecircumflex
	uni00EA
	edieresis
	uni00EB
	igrave
	uni00EC
	iacute
	uni00ED
	icircumflex
	uni00EE
	idieresis
	uni00EF
	eth
	uni00F0
	ntilde
	uni00F1
	ograve
	uni00F2
	oacute
	uni00F3

	ocircumflex
	uni00F4
	otilde
	uni00F5
	odieresis
	uni00F6
	divide
	uni00F7
	oslash
	uni00F8
	ugrave
	uni00F9
	uacute
	uni00FA
	ucircumflex
	uni00FB
	udieresis
	uni00FC
	yacute
	uni00FD
	thorn
	uni00FE
	ydieresis
	uni00FF
	Amacron

	uni0100
	amacron
	uni0101
	Abreve
	uni0102
	abreve
	uni0103
	Aogonek
	uni0104
	aogonek
	uni0105
	Cacute
	uni0106
	cacute
	uni0107
	Ccircumflex
	uni0108
	ccircumflex
	uni0109
	Cdotaccent
	uni010A
	cdotaccent
	uni010B
	Ccaron
	uni010C
	ccaron
	uni010D
	Dcaron
	uni010E
	dcaron
	uni010F
	Dcroat
	uni0110
	dcroat
	uni0111
	Emacron
	uni0112
	emacron
	uni0113
	Ebreve
	uni0114
	ebreve
	uni0115
	Edotaccent
	uni0116
	edotaccent
	uni0117
	Eogonek
	uni0118
	eogonek

	uni0119		Hbar
	Ecaron		uni0126
	uni011A		hbar
	ecaron		uni0127
	uni011B		Itilde
	Gcircumflex		uni0128
	uni011C		itilde
	gcircumflex		uni0129
	uni011D		Imacron
	Gbreve		uni012A
	uni011E		imacron
	gbreve		uni012B
	uni011F		Ibreve
	Gdotaccent		uni012C
	uni0120		ibreve
	gdotaccent		uni012D
	uni0121		Iogonek
	Gcommaaccent		uni012E
	uni0122		iogonek
	gcommaaccent		uni012F
	uni0123		Idotaccent
	Hcircumflex		uni0130
	uni0124		dotlessi
	hcircumflex		uni0131
	uni0125		IJ

	uni0132
	ij
	uni0133
	Jcircumflex
	uni0134
	jcircumflex
	uni0135
	Kcommaaccent
	uni0136
	kcommaaccent
	uni0137
	kgreenlandic
	uni0138
	Lacute
	uni0139
	lacute
	uni013A
	Lcommaaccent
	uni013B
	lcommaaccent
	uni013C
	Lcaron
	uni013D
	lcaron
	uni013E

	Ldot
	uni013F
	ldot
	uni0140
	Lslash
	uni0141
	lslash
	uni0142
	Nacute
	uni0143
	nacute
	uni0144
	Ncommaaccent
	uni0145
	ncommaaccent
	uni0146
	Ncaron
	uni0147
	ncaron
	uni0148
	napostrophe
	uni0149
	Omacron
	uni014C
	omacron

	uni014D		Scircumflex
	Obreve		uni015C
	uni014E		scircumflex
	obreve		uni015D
	uni014F		Scedilla
	Ohungarumlaut		uni015E
	uni0150		scedilla
	ohungarumlaut		uni015F
	uni0151		Scaron
	Racute		uni0160
	uni0154		scaron
	racute		uni0161
	uni0155		Tcedilla
	Rcommaaccent		uni0162
	uni0156		tcedilla
	rcommaaccent		uni0163
	uni0157		Tcaron
	Rcaron		uni0164
	uni0158		tcaron
	rcaron		uni0165
	uni0159		Tbar
	Sacute		uni0166
	uni015A		tbar
	sacute		uni0167
	uni015B		Utilde


uni0168


utilde


uni0169


Umacron


uni016A


umacron


uni016B


Ubreve


uni016C


ubreve


uni016D


Uring


uni016E


uring


uni016F


Uhungarumlaut


uni0170


uhungarumlaut


uni0171


Uogonek


uni0172


uogonek


uni0173


Wcircumflex


uni0174


wcircumflex


uni0175


Ycircumflex


uni0176


ycircumflex


uni0177


Ydieresis


uni0178


Zacute


uni0179


zacute


uni017A


Zdotaccent


uni017B


zdotaccent

uni017C

Zcaron

uni017D

zcaron

uni017E

h.superior

uni02B0

hhook.superior

uni02B1

j.superior

uni02B2


r.superior


uni02B3


rturned.superior


uni02B4


rhookturned.superior


uni02B5


Rsmallinverted.superior


uni02B6


w.superior


uni02B7


y.superior


uni02B8


uni02B9


uni02BA


uni02BB


afii57929


uni02BC


afii64937


uni02BD


uni02BE


uni02BF


uni02C0


uni02C1


uni02C2


uni02C3


uni02C4


uni02C5


circumflex


uni02C6


caron


uni02C7


uni02C8


uni02C9


uni02CA


uni02CB


uni02CC


uni02CD


uni02CE


uni02CF


uni02D0

uni02D1

uni02D2

uni02D3

uni02D4

uni02D5

uni02D6

uni02D7

breve

uni02D8

dotaccent

uni02D9

ring


uni02DA


ogonek


uni02DB


tilde


uni02DC


hungarumlaut


uni02DD


uni02DE


uni02DF


gammalatin.superior


uni02E0


l.superior


uni02E1


s.superior


uni02E2


x.superior


uni02E3


glottalstopreversed.superior


uni02E4


uni02EC


uni02ED


uni02EE


gravecomb


uni0300


acutecomb


uni0301


uni0302


tildecomb


uni0303


uni0304


uni0305


uni0306


uni0307


uni0308


hookabovecomb


uni0309


uni030A


uni030B


uni030C


uni030D

uni030E

uni030F

uni0310

uni0311

uni0312

uni0313

uni0314

uni0315

uni0316

uni0317

uni0318

uni0319

 uni031A

 uni031B

 uni031C

 uni031D

 uni031E

 uni031F

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 uni0321

 uni0322

 dotbelowcomb

 uni0323

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 uni0326

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 uni0329

 uni032A

 uni032B

 uni032C

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 uni032E

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	uni2190
	arrowup
	uni2191
	arrowright
	uni2192
	arrowdown
	uni2193
	arrowboth
	uni2194
	arrowupdn


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uni2196


uni2197


uni2198


uni2199


uni219A


uni219B


uni21A5


uni21A7


uni21BC


uni21BD


uni21C0


uni21C1


arrowdblleft


uni21D0


arrowdblup


uni21D1


arrowdblright


uni21D2


arrowdbldown


uni21D3


arrowdblboth


uni21D4


uni21D5


Nwarrow


uni21D6


Nearrow


uni21D7


Searrow


uni21D8


Swarrow


uni21D9


uni2318


uni2325


uni2326


uni2327


uni232B


uni237D


uni2380


uni2423

filledbox

uni25A0

H22073

uni25A1

triagup

uni25B2

uni25B3

uni25B6

uni25B7

triagdn

uni25BC

uni25BD

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	uni25C7
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	uni25CA
	circle
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	uni25D6
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 uni2698

 uni26A2

 uni26A3

 uni26A4

 uni26A5

 uni26AD

 uni2767

 uni2776

 uni2777

 uni2778

 uni2779

 uni277A

 uni277B

 uni277C

 uni277D

 uni277E

 uni277F

 T_u_x

 uniE000

 uniE104

 uniE128

 uniE129

 uniE12A

 uniE130

 uniE131

 uniE132

 uniE133

 uniE134

 uniE135

 uniE138

 uniE139

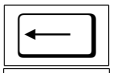
 uniE13A

 uniE13C

 uniE13D

 uniE168

 B_a_c_k



uniE16E

S_t_r_g

uniE170

A_l_t

uniE171

A_l_t_G_r

uniE172

C_t_r_l

uniE173

S_h_i_f_t

uniE174

T_a_b

uniE175

E_n_t_e_r

uniE176

C_a_p_s_l_o_c_k

uniE177

F_1

uniE178

F_2

uniE179

F_3

uniE17A

F_4

uniE17B

F_5

uniE17C

F_6

uniE17D

F_7

uniE17E

F_8

uniE17F

F_9

uniE180

F_1_0

uniE181

F_1_1

uniE182

F_1_2

uniE183

F_1_3

uniE184

F_1_4

uniE185

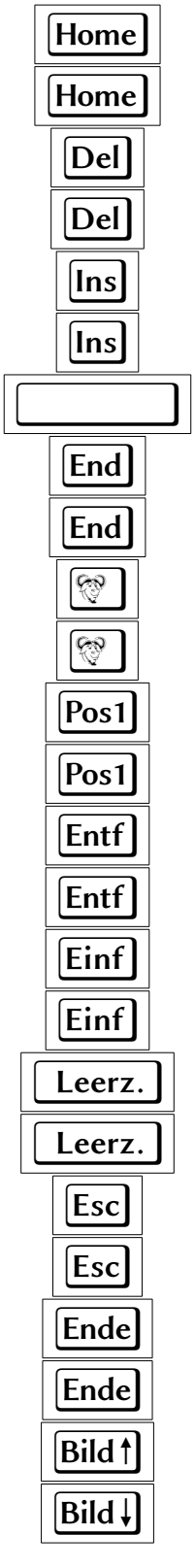
F_1_5

uniE186

F_1_6

uniE187

uniE188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D_e_l
Del
uniE18A
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I_n_s
Ins
uniE18B
uniE18C
End
E_n_d
End
uniE18E
G_N_U
uniE190
Pos1
P_o_s_1
Pos1
uniE191
Entf
E_n_t_f
Entf
uniE192
Einf
E_i_n_f
Einf
uniE193
Leerz.
L_e_e_r
Leerz.
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Esc
E_s_c
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Bild
uniE198
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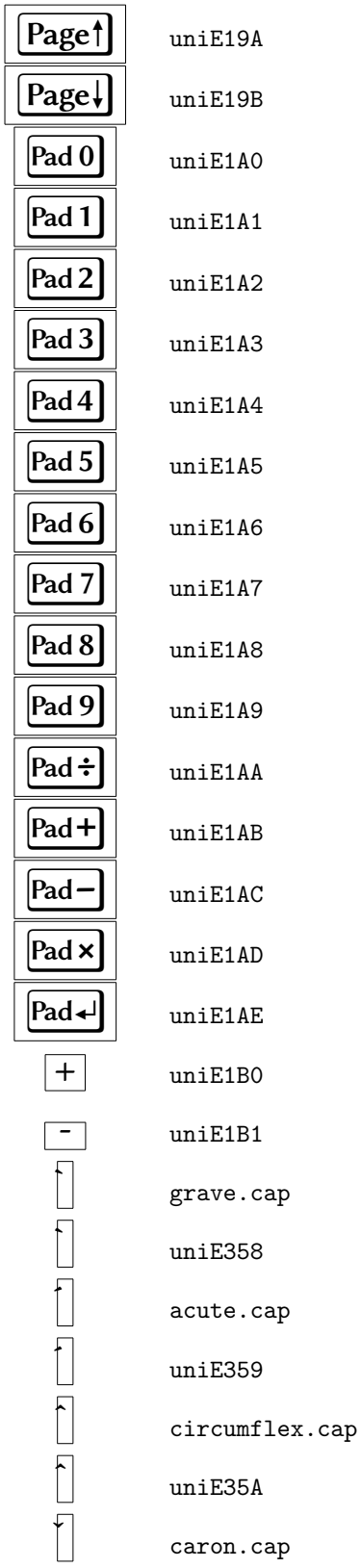
uniE199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uniE19A
Page
uniE19B
Pad 0
uniE1A0
Pad 1
uniE1A1
Pad 2
uniE1A2
Pad 3
uniE1A3
Pad 4
uniE1A4
Pad 5
uniE1A5
Pad 6
uniE1A6
Pad 7
uniE1A7
Pad 8
uniE1A8
Pad 9
uniE1A9
Pad ÷
uniE1AA
Pad +
uniE1AB
Pad −
uniE1AC
Pad ×
uniE1AD
Pad
uniE1AE
+
uniE1B0
-
uniE1B1
grave.cap
uniE358
acute.cap
uniE359
circumflex.cap
uniE35A
caron.cap


uniE35B


breve.cap


uniE35C


hungarumlaut.cap


uniE35D


space_uni030F.cap


uniE35E


breveinvertedcmb.cap


uniE35F


breve.cyrcap


uniE360


breve.cyr


uniE361


dieresis.cap

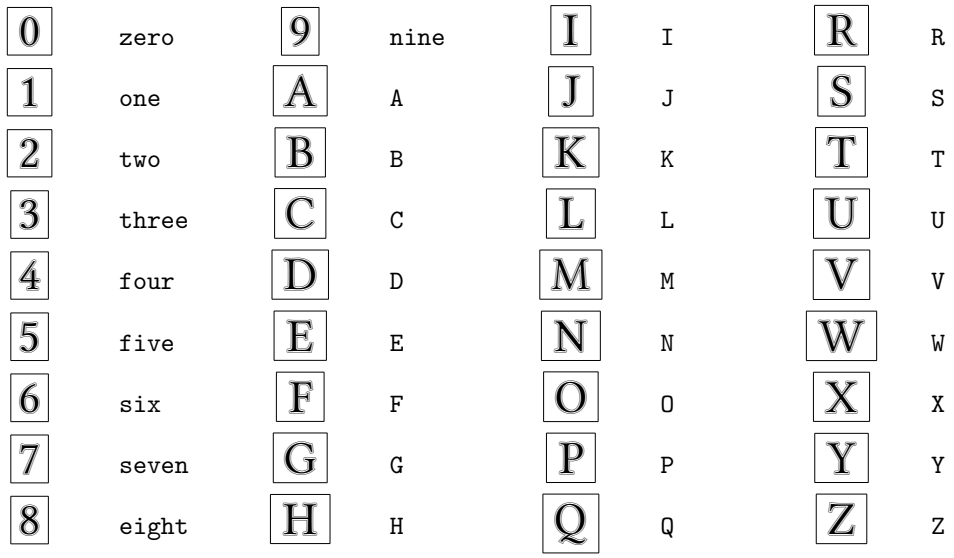

uniE362


hookabovecomb.cap


uniE363


uniFFFD

C Selected Libertine Initials



D Implementation Notes

D.1 Aims

Modern OpenType and TrueType fonts are not directly usable with traditional typesetting engines such as LaTeX or pdfLaTeX. On the other hand, many documents that use traditional font-selection mechanisms cannot be processed by emerging new technologies such as xeLaTeX and luaLaTeX. The primary aim of the `libertine` package is, as much as possible, to allow documents to use Linux Libertine and Biolinum fonts compatibly with *all* current LaTeX engines. Another aim is maintainability: it should be possible to update the package easily when updated fonts become available.

D.2 The Fonts

OpenType Linux Libertine and Biolinum fonts (with `otf` extensions) may be downloaded from `http://sourceforge.net/projects/linuxlibertine/files/linuxlibertine/`. There are a few problems with the current versions of the fonts (5.3.0).

- Currently, there is no bold-italic variant of the Biolinum family; an *ad hoc* solution is to use `fontforge` to generate an artificially slanted version of the bold variant. Note that the most recent version of `fontforge` must be used on Biolinum fonts; an earlier version will generate fonts with incorrect ex-height.
- Slanted (oblique) variants are not available from the upstream site. These could be generated easily but we have decided not to attempt to support slanted variants for the fonts; the italic (or fake-italic) variants will be silently substituted.
- The bold-italic variant of the Libertine family is missing several ligatures; the ligatures would be taken from the regular-weight italic variant, which is unacceptable. Michael Sharpe (`msharpe@ucsd.edu`) has generated the missing glyphs (***fl, ffl, ffi***) and added them to the `otf` file.
- Currently, Libertine Monospaced does not have bold, italic or bold-italic variants; `fontforge` has been used to generate artificially emboldened and/or slanted variants.
- When several of the fonts are opened in `fontforge`, warning messages are generated about errors in the glyph programs. Some of these are sufficient to cause failures or even crashes when conversion to Type 1 format is attempted using `cfftot1`. Michael Sharpe has corrected the most serious of these. In some cases, `fontforge` has been used to convert the format, as it is less sensitive than `cfftot1` to faulty glyph programs.

In some TeX distributions, the OpenType and Type 1 fonts are installed as system fonts, and xeLaTeX or luaLaTeX users may attempt to select the OpenType fonts directly by their Postscript FontName. If Type 1 versions with the *same* FontName have been installed, the latter may be selected by the system font-selection mechanism. To avoid this, it is appropriate to modify the FontNames of the `otf` fonts before converting to Type 1 format (but not *distribute* these re-named `otf` fonts). The Type 1 Libertine and Biolinum fonts distributed in this package have had the `O` (for Opentype) in their FontNames replaced by `T` (for Type 1) using `fontforge`. This font-renaming must be done *before* generating the LaTeX-support files, or else `dvi2ps` will fail.

D.3 Generation of Support Files

The `otftotfm` tool of the `lcdftypetools` package and the `autoinst` script of the `fontools` package are convenient tools for generating LaTeX support files for OpenType families. To generate

a texmf tree for the libertine package on a Unix-like system, one puts all the otf files to be supported for LaTeX or pdfLaTeX[1] into a directory, creates a texmf sub-directory and executes

```
autoinst -target=./texmf -encoding=OT1,T1,LY1,TS1 \
  -vendor=public -typeface=libertine -noupdmap    \
  -noswash -notitling -noornaments                \
  *.otf
```

Then move to the texmf directory and do

```
rm -rf fonts/pl fonts/vpl fonts/truetype fonts/type42
mv fonts/enc/dvips/public fonts/enc/dvips/libertine
mv fonts/map/dvips/public fonts/map/dvips/libertine
```

to delete irrelevant sub-directories and re-name directories as required by TeXLive.

A few additional steps are needed.

D.3.1 Renaming of the Encoding Files

otftotfm generates encoding files with filenames of the form a_xxxxxx; to avoid filename conflicts with other packages, the files have been re-named to have a distinctive prefix using the command

```
rename_enc libertine lbtn
```

executed in the texmf directory, where rename_enc is a PERL script in

```
doc/fonts/libertine
```

Then in fonts/map/dvips/libertine, the map files can be concatenated into a single file libertine.map and all instances of a_ changed to lbtn_; the original map files have been deleted.

D.3.2 Installation of the Fonts

The otf files after corrections (but before re-naming) are installed into the texmf tree in the following sub-directory:

```
fonts/OpenType/public/libertine/
```

The autoinst script will normally use cfftot1 to create pfb files with appropriate internal names and filenames; but if more than one font family has been processed or if cfftot1 runs into trouble, this may not happen. In that case, one must do the conversion font-by-font using either cfftot1 or fontforge; the appropriate internal names and filenames are as specified in libertine.map. The pfb files are installed into the texmf tree in the following sub-directory:

```
fonts/type1/public/libertine/
```

D.3.3 The fd Files

The autoinst script generates a large number of files with .fd extensions in the tex/latex/libertine/ directory. Recent versions will generate "silent substitution" rules for mapping sl to it and bx to b; if not, these have to be added by hand.

[1] Currently, all of the OpenType fonts except the Keyboard font are supported for LaTeX and pdfLaTeX.

D.3.4 The `sty` Files

The `autoinst` script generates files with `.sty` extensions in the `tex/latex/libertine/` directory for each of the font families; but these are useless for xeLaTeX and luaLaTeX users and have been deleted. A `libertine.sty` file has been generated "by hand" and is discussed in Section D.4.

D.4 `libertine.sty`

This file implements the support for both Type 1 and OpenType usage; the choice is initially determined by the processing engine, but as some xeLaTeX and luaLaTeX users may prefer to avoid `fontspec`, a `type1` (or `nofontspec`) option is provided to change this.

The `...@scale` commands are invoked in the `fd` files or when specifying fonts with `fontspec`; only the scale factors for Biolinum and Libertine Mono are adjustable using option parameters.

If the `sfdefault` option has been used, the `\familydefault` is set to the *current* value of `\sfdefault` (with no change to `\rmdefault`).

The use of `\newfontfamily` rather than `\addfontfeatures` avoids problems in the implementation of the latter for some fonts (including, unfortunately, Libertine).

For the Mono and Keyboard font families, the Ligature and SmallCap features must be turned off.

Commands to switch locally to oldstyle/lining/proportional/tabular numbers are defined; the definitions of `\oldstylenums` must deal with possible pre-existing definitions.

To implement the `\...Glyph` commands, it is necessary to, essentially, iterate through all the *defined* glyphs in the relevant OpenType font. This is implemented by creating files `LinLibertine_R.tex`, `\LinBiolinum_R.tex`, `LinBiolinum_K.tex` and `LinLibertine_I.tex` which declare the glyph name (when available), unicode code point, and glyph index for every defined glyph. These files are created by using `fontforge` to generate a "glyph map" file (extension `.g2n`) for the relevant font and then the small `C` program `doc/fonts/libertine/g2ntotex.c` will convert this into the required `.tex` file.

The final step in `libertine.sty` is to remove all default font features in `fontspec` in case other fonts will be activated by the user.

D.5 Additional `sty` Files

The `tex/latex/libertine/` directory also contains three "front-end" files `libertineotf.sty`, `libertine-type1.sty`, and `biolinum-type1.sty`, which provide partial compatibility with obsolete packages, primarily for legacy documents.