

# The xltextra package

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## I Introduction

This document describes the `xltextra` package. It implements some odds-and-ends features and improved functionality for broken or sub-standard  $\LaTeX$  methods when using the  $\XeTeX$  format.

### I.1 Usage

Easy: `\usepackage{xltextra}`. This package automatically loads the following packages: `fixltx2e`, `etex`, `xunicode`, `fontspec`.

There are some package options to disable various functionality that could clash with other things:

`no-sscript` Swaps the definitions of `\textsubscript` and `\textsuperscript` with their respective starred versions, as described in section §2.1.

`no-emph` Disables the redefinition of `\emph` and `\em` described in section §2.2.

`no-logos` Disables the redefinition of `\TeX`, etc. described in section §2.4, but *does* still define the `\XeTeX` and `\XeLaTeX` logo commands.

`no-hyphen` Disables the redefinition of `\-` (probably harmless anyway) described in section §2.5.

## 2 Features

### 2.1 `\textsuperscript` and `\textsubscript`

These two macros have been redefined to take advantage, if possible, of actual superior or inferior glyphs in the main document font. This is very important for high-quality typesetting — compare this first example to the third; yes, they are the same font.

<code>\textsuperscript</code>	abcdefghijklmnopqrstuvwxyz1234567890
<code>\textsubscript</code>	abcdefghijklmnopqrstuvwxyz1234567890

But will fall back on ‘faked’ ones if they don’t exist: (this is Didot)

<code>\textsuperscript</code>	abcdefghijklmnopqrstuvwxyz1234567890
<code>\textsubscript</code>	abcdefghijklmnopqrstuvwxyz1234567890

The original definitions are available in starred versions of the commands:

<code>\textsuperscript*</code>	abcdefghijklmnopqrstuvwxyz1234567890
<code>\textsubscript*</code>	abcdefghijklmnopqrstuvwxyz1234567890

But beware fonts lacking the full repertoire: (this is Adobe Jenson Pro)

<code>\textsuperscript</code>	abcdefghijklmnopqrstuvwxyz <sup>1234567890</sup>
<code>\textsubscript</code>	abcdefghijklmnopqrstuvwxyz <sub>1234567890</sub>

The `[no-sscript]` package option will swap the definitions of the starred and non-starred versions of the commands described above if the new definitions are undesirable.

The macros `\realsubscript`, `\realsuperscript`, `\fakesubscript`, and `\fakesuperscript` may be used to access the ‘new’ and ‘old’ functionalities regardless of the `[no-sscript]` package option.

### 2.2 Inner emphasis

`fixltx2e`’s method for checking for “inner” emphasis is a little fragile in `XYTEX`, because font slant information might be missing from the font. Therefore, we use `LATEX`’s `NFSS` information, which is more likely to be correct.

---

	<code>\renewcommand\eminnershape{\scshape}</code>
	<code>\fontspec{Didot}</code>
Nested <i>emphasis</i> is now <i>fixed</i> .	Nested {\em emphasis is
	\emph{now} fixed.}

---

The [no-emph] package option will disable this redefinition.

## 2.3 Unicode footnote symbols

By default L<sup>A</sup>T<sub>E</sub>X defines symbolic footnote characters in terms of commands that don't resolve well; better results can be achieved by using specific unicode characters or proper LICRs with the xunicode package.

This problem has been solved by loading the fixltx2e and xunicode packages in xltextra.

## 2.4 Logos

This part of the package essentially exists to define the \XeTeX and \XeLaTeX logos. Here're some examples. The default:

---

<code>T<sub>E</sub>X</code> <code>X<sub>E</sub>T<sub>E</sub>X</code> <code>L<sup>A</sup>T<sub>E</sub>X</code> <code>X<sub>E</sub>L<sup>A</sup>T<sub>E</sub>X</code>	<code>\TeX\</code> <code>\XeTeX\</code> <code>\LaTeX\</code> <code>\XeLaTeX</code>
---	--

---

Notice it's a bit tight compared to not using Computer Modern, for which the logos were designed:

---

<code>T<sub>E</sub>X</code> <code>X<sub>E</sub>T<sub>E</sub>X</code> <code>L<sup>A</sup>T<sub>E</sub>X</code> <code>X<sub>E</sub>L<sup>A</sup>T<sub>E</sub>X</code>	<code>\usefont{OT1}{cmr}{m}{n}</code>
	<code>\TeX\</code> <code>\XeTeX\</code> <code>\LaTeX\</code> <code>\XeLaTeX</code>

---

Look in the implementation corresponding to this section to see how to customise the spacings in these logos, but be warned it's fairly crude and may change in the future.

The [no-logos] package option will not redefine `\TeX` or `\LaTeX` but will still define `\XeTeX` and `\XeLaTeX`. (The only advantage for not doing this is more consistency when customising the spacing, which isn't really recommended anyway...)

If the `hyperref` package is loaded, these logos will be set up to behave properly in PDF bookmarks and so on.

## 2.5 Discretionary hyphenation: `\-`

$\text{\LaTeX}$  defines the macro `\-` to insert discretionary hyphenation points. However, it is hard-coded in  $\text{\LaTeX}$  to use the hyphen - character. Since `fontspec` makes it easy to change the hyphenation character on a per font basis, it would be nice if `\-` adjusted automatically — and now it does.

## 2.6 Vulgar fractions

The `\vfrac` command for setting ‘vulgar’ fractions based on AAT or OpenType font features. Not really recommended for many purposes, depending on your text, but it's a good example of how to program such things using `fontspec`.

---

AAT: $\frac{123}{456}$	<code>\fontspec{Skia}</code>
ICU: $\frac{123}{456}$	AAT: <code>\vfrac{123}{456}\</code>
	<code>\fontspec{Warnock Pro}</code>
	ICU: <code>\vfrac{123}{456}</code>

---

(This can be achieved in regular  $\text{\LaTeX}$  with the `nicefrac` package, but don't believe its name: these fractions aren't nice!)

Only use it when you know it will work; no warnings are given if the font doesn't support the necessary features.

## 2.7 Named glyphs

Along the way somewhere,  $\text{\XeTeX}$  added support for selecting glyphs from a TrueType-based OpenType font based on their internal glyph

name. Jonathan Kew posted the following definition as a nice interface to it.

---

¥ [smile]	<pre>\fontspec{Charis SIL} \namedglyph{yen} \namedglyph{smile}</pre>
-----------	--

---

## 2.8 The \showhyphens command

The default definition doesn't work in Xe<sub>ƒ</sub>TeX. A new version, written by Jonathan Kew, is included in this package that *does* work. Minor differences with the original: the showing of hyphens in the console output will be marked with explanatory text. Also, multiple words, separated by commas, will end up in separate instances of 'showing hyphens'.

## File I

# The xltextra package

This is the package implementation.

```
1 \ProvidesPackage{xltextra}
2 [2008/03/11 v0.3c Improvements for the "XeLaTeX" format]
```

## Change History

vo.i	
\-: Implemented; from the L <sup>A</sup> T <sub>E</sub> X 2 <sub>ε</sub> sources.	II
\fakesuperscript: Implemented.	I2
\realsubscript: Implemented.	I3
\realsuperscript: Implemented.	I3
\TeX@logo@spacing: Implemented.	IO
\textsuperscript*: Implemented.	I2
\vfrac: Implemented.	I4

vo.2	
\@makefnmark: Footnotes patched to use new \textsuperscript.	14
\emph: Migrated from fontspec.	11
\namedglyph: Implemented.	14
\TeX@logo@spacing: \TeX@logo@spacing made “private” and added an arg for \XeLaTeX.	10
Added TFM font check.	10
\xtt@namedglyph@fallback: Implemented.	14
vo.3	
\@makefnmark: Footnote symbol put in an mbox.	14
General: Added no- package options to restrict functionality.	5
Added proper documentation.	5
\fakesubscript: Name change from \fakesubscript. Made robust.	12
\realsubscript: Fixes to catch up with fontspec. Name change.	13
\real superscript: Fixes to catch up with fontspec. Name change.	13
\showhyphens: Implemented.	15
\textsubscript: Adjusted, made robust (with friends ‘super’ and starred).	12
vo.3a	
\TeX@logo@spacing: Changed \setlength to \def. Silly me.	10
vo.3b	
General: Added hyperref logos. Thanks Ross.	10
vo.3c	
\realsubscript: Fixed crash when used with a TFM font.	13
\real superscript: Fixed crash when used with a TFM font.	13

## Option processing

```

3 \newif\if@xxt@noscript@
4 \newif\if@xxt@nologos@
5 \newif\if@xxt@nohyphen@
6 \newif\if@xxt@noemph@
7 \DeclareOption{no-sscript}{\@xxt@noscript@true}
8 \DeclareOption{no-logos}{\@xxt@nologos@true}
9 \DeclareOption{no-hyphen}{\@xxt@nohyphen@true}
10 \DeclareOption{no-emph}{\@xxt@noemph@true}
11 \ProcessOptions*

```

## Required packages

```
12 \RequirePackage{ifxetex}
13 \RequireXeTeX
14 \RequirePackage{graphicx}
15 \RequirePackage{fontspec}
16 \RequirePackage{xunicode}
```

## 3 Programmming bits and pieces

## 4 Logos

`\XeTeX` The  $\TeX$ -related logos people insist upon using need to be tuned on a  
`\XeLaTeX` per-font basis. This package will (might!) eventually allow this, but for  
now, it's baby steps. The  $\text{X}\!\!\text{E}\!\!\text{L}\!\!\text{A}\!\!\text{T}\!\!\text{E}\!\!\text{X}$  and  $\text{X}\!\!\text{E}\!\!\text{L}\!\!\text{A}\!\!\text{T}\!\!\text{E}\!\!\text{X}$  logos are provided.

The various  $\TeX$ -like logos that extend outside the regular vertical alphabetic bounds of running text have the unfortunate side-effects in  $\text{X}\!\!\text{E}\!\!\text{L}\!\!\text{A}\!\!\text{T}\!\!\text{E}\!\!\text{X}$  of often overrunning the `\baselineskip`. Putting the logos in zero-height boxes prevents this problem. Actually, this problem doesn't happen anymore.

To do:

- adapt `\LaTeX` to use small caps if available...
- ...otherwise, need a scaling factor, and maybe a vertical nudge factor
- add other logos
- per-font parameters, with some defaults for common fonts
- add 'low contrast' small caps versions, et al.
- probably break out the whole thing into its own package, if it works

`\TeX@logo@spacing` #1: Kern between T & eX  
#2: Kern between Te & X  
#3: Lowering amount for E in TeX  
#4: Kerning between L & aTeX  
#5: Kerning between La & TeX  
#6: Kerning between Xe & LaTeX

This macro defines new `\TeX` and `\XeTeX` logos. Parameters must be

tuned on a per-font basis:

---

$\mathrm{T}\mathrm{E}\mathrm{X}$	$\mathrm{X}\mathrm{E}\mathrm{T}\mathrm{E}\mathrm{X}$	$\mathrm{L}\mathrm{A}\mathrm{T}\mathrm{E}\mathrm{X}$	$\mathrm{X}\mathrm{E}\mathrm{L}\mathrm{A}\mathrm{T}\mathrm{E}\mathrm{X}$	$\backslash\mathrm{T}\mathrm{e}\mathrm{X}@logo@spacing\{-0.12em\}\{-0.12em\}\%$
				$\{0.5ex\}\{-0.3em\}\{-0.12em\}\{-0.1em\}$
				$\backslash\mathrm{T}\mathrm{e}\mathrm{X}\backslash\backslash\mathrm{X}\mathrm{e}\mathrm{T}\mathrm{e}\mathrm{X}\backslash\backslash\mathrm{L}\mathrm{a}\mathrm{T}\mathrm{e}\mathrm{X}\backslash\backslash\mathrm{X}\mathrm{e}\mathrm{L}\mathrm{a}\mathrm{T}\mathrm{e}\mathrm{X}$

---

*Warning!* This macro will **almost definitely** change in the future. If you care about backwards compatibility in your documents, copy+paste the definitions below rather than using `\TeX@logo@spacing`.

```

17 \newcommand*\TeX@logo@spacing[6]{%
18   \def\xxt@kern@Te{#1}%
19   \def\xxt@kern@eX{#2}%
20   \def\xxt@lower@e{#3}%
21   \def\xxt@kern@La{#4}%
22   \def\xxt@kern@aT{#5}%
23   \def\xxt@kern@eL{#6}%
24 }
25 \unless\if@xxt@nologos@
26 \DeclareRobustCommand\TeX{%
27   \leavevmode
28   \smash{%
29     T\kern\xxt@kern@Te
30     \lower\xxt@lower@e\hbox{E}\kern\xxt@kern@eX X}%
31   \spacefactor1000\relax}
32 \DeclareRobustCommand{\LaTeX}{%
33   \leavevmode
34   \smash{%
35     L\kern\xxt@kern@La
36     {\sbox\z@ T%
37       \vbox to\ht\z@{\hbox{\check@mathfonts
38         \fontsize\sf@size\z@
39         \math@fontsfalse\selectfont
40         A}%
41       \vss}%
42     }%
43     \kern\xxt@kern@aT
44     \TeX}}
45 \fi

```



```

46 \DeclareRobustCommand\XeTeX{%
47   \leavevmode
48   \smash{%
49     X\lower\xtt@lower@e
50     \hbox{\kern\xtt@kern@eX
51       \ifnum\XeTeXfonttype\font>0
52         \ifnum\XeTeXcharglyph"018E>0
53           \char"018E\relax
54         \else
55           \ifdim\fontdimen1\font=0pt
56             \reflectbox{E}%
57           \else
58             \XeTeXuseglyphmetrics=1%
59             \setbox0=\hbox{E}\dimen0=\ht0\advance\dimen0by\dp0%
60             \raise\dimen0\hbox{\rotatebox{180}{\box0}}%
61           \fi
62         \fi
63       \else
64         \setbox0=\hbox{E}\dimen0=\ht0\advance\dimen0by\dp0%
65         \raise\dimen0\hbox{\rotatebox{180}{\box0}}%
66       \fi
67     }\kern\xtt@kern@Te\TeX}}%
68 \DeclareRobustCommand\XeLaTeX{%
69   \leavevmode
70   \smash{%
71     X\lower\xtt@lower@e
72     \hbox{\kern\xtt@kern@eX
73       \ifnum\XeTeXfonttype\font>0\relax
74       \ifnum\XeTeXcharglyph"018E>0\relax
75       \char"018E\relax
76     \else
77       \ifdim\fontdimen1\font=0pt\relax
78       \reflectbox{E}%
79     \else
80       \XeTeXuseglyphmetrics=1\relax
81       \setbox0=\hbox{E}\dimen0=\ht0\advance\dimen0by\dp0\relax
82       \raise\dimen0\hbox{\rotatebox{180}{\box0}}%
83     \fi

```

```

84         \fi
85     \else
86         \setbox0=\hbox{E}\dimen0=\ht0\advance\dimen0by\dp0\relax
87         \raise\dimen0\hbox{\rotatebox{180}{\box0}}%
88     \fi}\kern\xxt@kern@eL\LaTeX}}
89 \TeX@logo@spacing{-0.15em}{-0.15em}{0.5ex}{-0.36em}{-0.15em}{-0.1em}

```

hyperref-safe versions of the logos:

```

90 \@ifpackageloaded{hyperref}{%
91     \pdfstringdefDisableCommands{%
92         \def\TeX{\TeX}%
93         \def\XeTeX{\XeTeX}%
94         \def\LaTeX{\LaTeX}%
95         \def\LaTeXe{\LaTeX2e}%
96         \def\XeLaTeX{\XeLaTeX}%
97     }}{}

```

## 5 $\varepsilon$ -T<sub>E</sub>X functionality

Because it's just sensible, we load the package that actually allows L<sup>A</sup>T<sub>E</sub>X to access the extra registers, etc., provided by  $\varepsilon$ -T<sub>E</sub>X.

```

98 \RequirePackage{etex}

```

### 5.1 Unicode footnote symbols

```

99 \RequirePackage{fixltx2e}[2006/03/24]

```

### 5.2 Emph

```

100 \unless\if@xxt@noemph@

```

$\backslash$ em    Redefinition of  $\backslash$ em ... and  $\backslash$ emph{...} to use NFSS info to detect  
 $\backslash$ emph   when the inner shape should be used.

```

101 \DeclareRobustCommand\em
102     {\@nomath\em
103     \edef\@tempa{\f@shape}%
104     \edef\@tempb{\itdefault}%
105     \ifx\@tempa\@tempb

```

```

106     \emminnershape
107   \else
108     \emshape
109   \fi}
110 \DeclareTextFontCommand{\emph}{\em}
111 \let\emshape\itshape
112 \let\emminnershape\upshape

113 \fi

```

### 5.3 \-

```

114 \unless\if@xxt@nohyphen@

```

\- This macro is courtesy of Frank Mittelbach and the  $\text{\LaTeX 2}_{\epsilon}$  source code.

```

115 \DeclareRobustCommand{\-}{%
116   \discretionary{%
117     \char\ifnum\hyphenchar\font<\z@
118       \xlx@defaultthyphenchar
119     \else
120       \hyphenchar\font
121     \fi}{\-}{}
122 \def\xlx@defaultthyphenchar{\-}

123 \fi

```

### 5.4 Subscript and superscript

For OpenType fonts, the subscript feature (subs) is used, but if that doesn't exist then the scientific inferior feature (sinf) is used on the assumption that something's better than nothing. This matches current trends in OpenType font design.

Footnotes are patched to use this better `\textsuperscript`.

```

\fakesubscript  The old ('fake') methods:
\fakesuperscript
124 \DeclareRobustCommand*\fakesubscript[1]{%
125   \@textsubscript{\selectfont#1}}
126 \DeclareRobustCommand*\fakesuperscript[1]{%

```

```
127 \textsuperscript{\selectfont#1}}
```

`\textsubscript` These commands are either defined to create fake or real sub-/super-  
`\textsubscript*` scripts if they are starred or not, respectively. This swaps if the [no-  
`\textsuperscript` ssript] package option is in effect. Text subscripts:  
`\textsuperscript*`

```
128 \if@xxt@nosscript@
129 \DeclareRobustCommand*\textsubscript{%
130 \ifstar{\realsubscript}{\fakesubscript}}
131 \DeclareRobustCommand*\textsuperscript{%
132 \ifstar{\realsuperscript}{\fakesuperscript}}
133 \else
134 \DeclareRobustCommand*\textsubscript{%
135 \ifstar{\fakesubscript}{\realsubscript}}
136 \DeclareRobustCommand*\textsuperscript{%
137 \ifstar{\fakesuperscript}{\realsuperscript}}
138 \fi
```

`\realsubscript`

```
139 \DeclareRobustCommand*\realsubscript[1]{%
140 \begingroup
141 \ifcsname zf@family@fontdef\f@family\endcsname
142 \c@zf@script 1818326126\relax
143 \font\zf@basefont="\csname zf@family@fontdef\f@family\endcsname" at \f@size pt
144 \zf@set@font@type
145 \ifzf@icu
146 \zf@check@ot@feat{+subs}%
147 \if@tempswa
148 {\addfontfeature{VerticalPosition=Inferior}#1}%
149 \else
150 \zf@check@ot@feat{+sinf}%
151 \if@tempswa
152 {\addfontfeature{VerticalPosition=ScientificInferior}#1}%
153 \else
154 \fakesubscript{#1}%
155 \fi
156 \fi
157 \else\ifzf@atsui
158 \zf@make@aat@feature@string{10}{2}%
```

```

159         \unless\ifx\@tempa\@empty
160             {\addfontfeature{VerticalPosition=Inferior}#1}%
161         \else
162             \fakesubscript{#1}%
163         \fi
164     \fi\fi
165 \else
166     \fakesubscript{#1}%
167 \fi
168 \endgroup}

```

`\realsuperscript` Text superscripts:

```

169 \DeclareRobustCommand*\realsuperscript[1]{%
170     \begingroup
171     \ifcsname zf@family@fontdef\fontfamily\endcsname
172         \c@zf@script 1818326126\relax
173     \font\zf@basefont="\csname zf@family@fontdef\fontfamily\endcsname" at \fontsize pt
174     \zf@set@font@type
175     \ifzf@icu
176         \zf@check@ot@feat{+sups}%
177     \if@tempswa
178         {\addfontfeature{VerticalPosition=Superior}#1}%
179     \else
180         \fakesuperscript{#1}%
181     \fi
182 \else\ifzf@atsui
183     \zf@make@aat@feature@string{10}{1}%
184     \unless\ifx\@tempa\@empty
185         {\addfontfeature{VerticalPosition=Superior}#1}%
186     \else
187         \fakesuperscript{#1}%
188     \fi
189 \fi\fi
190 \else
191     \fakesuperscript{#1}%
192 \fi
193 \endgroup}

```

Patching footnotes:

`\@makefnmark`

```
194 \def\@makefnmark{\mbox{\normalfont\textsuperscript{\@thefnmark}}}
```

`\vfrac` #1: Numerator

#2: Denominator

No error checking is done to ensure that the font actually has the necessary features. Requires the xunicode package for `\textfraction-solidus`.

```
195 \newcommand*\vfrac[2]{%
196   \begingroup
197     \c@zf@script 1818326126\relax
198     \font\zf@basefont="\csname zf@family@fontdef\fontfamily\endcsname" at \f@size pt
199     \zf@set@font@type
200     \ifzf@icu
201       {\addfontfeature{VerticalPosition=Numerator}#1}%
202       \textfractionsolidus
203       {\addfontfeature{VerticalPosition=Denominator}#2}%
204     \else\ifzf@atsui
205       {\addfontfeature{VerticalPosition=Superior}#1}%
206       \textfractionsolidus
207       {\addfontfeature{VerticalPosition=Inferior}#2}%
208     \fi\fi
209   \endgroup}
```

`\namedglyph` #1: Name of the font glyph to be typeset

```
210 \newcommand\namedglyph[1]{%
211   \@tempcnta=\XeTeXglyphindex "#1"\relax
212   \ifnum\@tempcnta>0
213     \XeTeXglyph\@tempcnta
214   \else
215     \xxt@namedglyph@fallback{#1}%
216   \fi}
```

`\xxt@namedglyph@fallback` Redefine this macro to change how glyph names that aren't found get typeset.

```
217 \newcommand\xxt@namedglyph@fallback[1]{[#1]}
```

\showhyphens This macro is entirely due to Jonathan Kew. I wish I knew how to write these sorts of things.

```

218 \newbox\xxt@tempbox
219 \def\showhyphens#1{%
220   \typeout{^^J*****}
221   \string\showhyphens:
222   *****}%
223   \@for\@ii:=#1\do{\xxt@showhyphens{\@ii}}%
224   \typeout{^^J*****%
225   *****%
226   *****^^J}}
227 \def\xxt@showhyphens#1{%
228   \setbox\@tempboxa=\vbox{%
229     \hsize1sp \hbadness10000 \hfuzz\maxdimen
230     \everypar={} \leftskip\z@ \rightskip\leftskip
231     \pretolerance\m@ne \noindent \hskip\z@ #1\par
232     \global\setbox\xxt@tempbox=\hbox{}\xxt@sh@cat}%
233   \setbox\@tempboxa=\hbox to \maxdimen{\unhbox\xxt@tempbox}}
234 \def\xxt@sh@cat{\unskip\unpenalty
235   \setbox\@tempboxa=\lastbox
236   \unless\ifvoid\@tempboxa
237     \global\setbox\xxt@tempbox=\hbox{%
238       \unhbox\@tempboxa
239       \unskip\unskip
240       \unhbox\xxt@tempbox}%
241     \expandafter\xxt@sh@cat
242   \fi}

```

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