

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.

```
\textsuperscript abcdefghijklmnopqrstuvwxyz1234567890abcdefghijklmnopqrstuvwxyz1234567890
\textsubscript abcdefghijklmnopqrstuvwxyz1234567890abcdefghijklmnopqrstuvwxyz1234567890
```

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

```
\textsuperscript abcdefghijklmnopqrstuvwxyz1234567890abcdefghijklmnopqrstuvwxyz1234567890
\textsubscript abcdefghijklmnopqrstuvwxyz1234567890abcdefghijklmnopqrstuvwxyz1234567890
```

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

```
\textsuperscript* abcdefghijklmnopqrstuvwxyz1234567890
\textsubscript* abcdefghijklmnopqrstuvwxyz1234567890
```

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

```
\textsuperscript abcdefghijklmnopqrstuvwxyz1234567890
\textsubscript abcdefghijklmnopqrstuvwxyz1234567890
```

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 X_YTEX, because font slant information might be missing from the font. Therefore, we use L^AT_EX’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^AT_EX 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_EX</code> <code>X_ET_EX</code> <code>L^AT_EX</code> <code>X_EL^AT_EX</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_EX</code> <code>X_ET_EX</code> <code>L^AT_EX</code> <code>X_EL^AT_EX</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: `\-`

\LaTeX defines the macro `\-` to insert discretionary hyphenation points. However, it is hard-coded in \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: $\frac{123}{456}$
 ICU: $\frac{123}{456}$

`\fontspec{Hoefer Text}`
 AAT: `\vfrac{123}{456}\par`
`\fontspec{Warnock Pro}`
 ICU: `\vfrac{123}{456}`

(This can be achieved in regular \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 it.

2.7 Named glyphs

Along the way somewhere, \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_YTeX. 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 ^A T _E X 2 _ε sources.	IO
\fakesuperscript: Implemented.	II
\realsubscript: Implemented.	I2
\realsuperscript: Implemented.	I3
\TeX@logo@spacing: Implemented.	9
\textsuperscript*: Implemented.	II
\vfrac: Implemented.	I3

vo.2	
\@makefnmark: Footnotes patched to use new \textsuperscript.	13
\emph: Migrated from fontspec.	10
\namedglyph: Implemented.	14
\TeX@logo@spacing: \TeX@logo@spacing made “private” and added an arg for \XeLaTeX.	9
Added TFM font check.	9
\xtt@namedglyph@fallback: Implemented.	14
vo.3	
\@makefnmark: Footnote symbol put in an mbox.	13
General: Added no- package options to restrict functionality.	5
Added proper documentation.	5
\fakesubscript: Name change from \fakesubscript. Made robust.	11
\realsubscript: Fixes to catch up with fontspec. Name change.	12
\real superscript: Fixes to catch up with fontspec. Name change.	13
\showhyphens: Implemented.	14
\textsubscript: Adjusted, made robust (with friends ‘super’ and starred).	11
vo.3a	
\TeX@logo@spacing: Changed \setlength to \def. Silly me.	9
vo.3b	
General: Added hyperref logos. Thanks Ross.	9
vo.3c	
\realsubscript: Fixed crash when used with a TFM font.	12
\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 \XeTeX and \XeLaTeX 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 \XeTeX 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:

$\mathrm{T}_{\mathrm{E}}\mathrm{X}$	$\mathrm{X}_{\mathrm{E}}\mathrm{T}_{\mathrm{E}}\mathrm{X}$	$\mathrm{L}^{\mathrm{A}}\mathrm{T}_{\mathrm{E}}\mathrm{X}$	$\mathrm{X}_{\mathrm{E}}\mathrm{L}^{\mathrm{A}}\mathrm{T}_{\mathrm{E}}\mathrm{X}$	$\backslash\mathrm{TeX}@logo@spacing\{-0.12em\}\{-0.12em\}\%$
				$\{0.5ex\}\{-0.3em\}\{-0.12em\}\{-0.1em\}$
				$\backslash\mathrm{TeX}\backslash\backslash\mathrm{XeTeX}\backslash\backslash\mathrm{LaTeX}\backslash\backslash\mathrm{XeLaTeX}$

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 ε -T_EX functionality

Because it's just sensible, we load the package that actually allows L^AT_EX to access the extra registers, etc., provided by ε -T_EX.

```

98 \RequirePackage{etex}

```

5.1 Unicode footnote symbols

```

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

```

5.2 Emph

```

100 \unless\if@xxt@noemph@

```

$\backslash\mathrm{em}$ Redefinition of $\{\backslash\mathrm{em} \dots\}$ and $\backslash\mathrm{emph}\{\dots\}$ to use NFSS info to detect
 $\backslash\mathrm{emph}$ 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     \eminnershape
107   \else
108     \emshape
109   \fi}
110 \DeclareTextFontCommand{\emph}{\em}
111 \let\emshape\itshape
112 \let\eminnershape\upshape

113 \fi

```

5.3 \-

```

114 \unless\if@xxt@nohyphen@

```

\- This macro is courtesy of Frank Mittelbach and the $\text{\LaTeX 2}_{\varepsilon}$ 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@atsui
146 \zf@make@aat@feature@string{10}{2}%
147 \unless\ifx\@tempa\@empty
148 {\addfontfeature{VerticalPosition=Inferior}#1}%
149 \else
150 \fakesubscript{#1}%
151 \fi
152 \fi
153 \ifzf@icu
154 \zf@check@ot@feat{+subs}%
155 \if@tempswa
156 {\addfontfeature{VerticalPosition=Inferior}#1}%
157 \else
158 \zf@check@ot@feat{+sinf}%
```

```

159         \if@tempwa
160         {\addfontfeature{VerticalPosition=ScientificInferior}#1}%
161         \else
162         \fakesubscript{#1}%
163         \fi
164     \fi
165     \else
166     \fakesubscript{#1}%
167     \fi
168 \else
169     \fakesubscript{#1}%
170 \fi
171 \endgroup}

```

\realsuperscript Text superscripts:

```

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

```

```

195     \fi
196     \else
197         \fakesuperscript{#1}%
198     \fi
199 \endgroup}

```

Patching footnotes:

`\@makefnmark`

```

200 \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`.

```

201 \newcommand*\vfrac[2]{%
202     \begingroup
203     \c@zf@script 1818326126\relax
204     \font\zf@basefont="\csname zf@family@fontdef\@family\endcsname" at \f@size pt
205     \zf@set@font@type
206     \ifzf@atsui
207         {\addfontfeature{VerticalPosition=Superior}#1}%
208         \textfractionsolidus
209         {\addfontfeature{VerticalPosition=Inferior}#2}%
210     \fi
211     \ifzf@icu
212         {\addfontfeature{VerticalPosition=Numerator}#1}%
213         \textfractionsolidus
214         {\addfontfeature{VerticalPosition=Denominator}#2}%
215     \fi
216 \endgroup}

```

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

```

217 \newcommand\namedglyph[1]{%
218     \@tempcnta=\XeTeXglyphindex "#1"\relax
219     \ifnum\@tempcnta>0
220         \XeTeXglyph\@tempcnta

```

```

221 \else
222 \xxt@namedglyph@fallback{#1}%
223 \fi}

```

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

```

224 \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.

```

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

```

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