Advantages of XeTeX over classic LaTeX, examples of configuration

Deutsche Version ebenfalls erhältlich.

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http://linuxlibertine.sf.net
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1 Advantages of XeTex

- Full Unicode-support. You can enter all Unicode-Glyphs directly into the source code.
- Simple usability of TrueType- and OTF-Fonts
- Full OpenType-support:
  - automatic substitution of standard activated OpenType-features, i.e. ligatures such as ff, fi, ch, ck, fl, ffi, flf, fb, fh, ...
  - shifting from Stylistic Sets, i.e. old style figures, proportional figures, ÄÖÜ as trema-letters, substitution of german ß with ss
  - true GPOS-kerning

2 Commands

The XeTex-interpreter is being invocated via \texttt{xelatex} instead of \texttt{latex} or \texttt{pdflatex}, example:

\texttt{xelatex Document.tex}

The output is a PDF-file, ergo analog to our example as Dokument.pdf
Because the interpreter needs to know which fonts to use and because XeTex needs some special packages, the document heading looks a little bit different from usual. Following commands should be entered into the heading:

\begin{verbatim}
\usepackage{xunicode}
\usepackage{fontspec}
\usepackage{xltxtra}
\end{verbatim}

In contrast, the definition of the input encoding (inputenc) is obsolete, because XeTex considers UTF-8. Some examples found in the internet begin with following META-information:

\begin{verbatim}
%!TEX TS-program = xetex
%!TEX encoding = UTF-8 Unicode
\end{verbatim}

though this doesn’t seem to be obligatory.
There are different possibilities to tell XeTex, which fonts to use locally or globally. We do this in the heading via:

\begin{verbatim}
\setromanfont[Mapping=tex-text]{Linux Libertine}
\setsansfont[Mapping=tex-text]{Myriad Pro}
\setmonofont[Mapping=tex-text]{Courier New}
\end{verbatim}

As a consequence we get Linux Libertine as main font and define Myriad Pro as sansserif (i.e. for titles) as well as Courier New as monospaced (i.e. for source-texts). The formation during the document can be done via \texttt{\setromanfont, \setsansfont} and \texttt{\setmonofont}. If you want to set certain options (which we list and describe later on) globally, you can do that by adding the definition to the one above. Example: You want to have Old Style Figures for the entire document and therefore define the following:

\begin{verbatim}
\setromanfont[Mapping=tex-text, Numbers=OldStyle]{Linux Libertine O}
\end{verbatim}
3 Choosing OpenType-features

3.1 Letters:
Small capitals as in „LIBERTINE“ can be activated via
{\addfontfeature{Letters=SmallCaps} Libertine}
As option can also be used: \textit{Uppercase} and \textit{UppercaseSmallCaps}.
Style-\textit{Sets} such as for „ÄÖÜ“ instead of ÄÖÜ can be activated via
{\addfontfeature{Variant=01} ÄÖÜ}
Further sets in Libertine are 02 for kalligraphite K und R as well as 03 for the substitution
of ß/ẞ with ss/SS.

3.2 Numbers/Figures:
Oldstyle or lowercase numbers such as 1234567890 can be activated via:
{\addfontfeature{Numbers=OldStyle}1234567890}
Further options are \textit{Monospaced} for table-numbers (default), \textit{Proportional} for proportional
figures (useful in ordinary text), \textit{Lowercase/OldStyle} as above, \textit{SlashedZero} resp. \textit{NoSlashedZero}
for a/no slashed zero.
Exponents with true Indices\footnote{as long as available in Libertine, i.e. here not for „L“}:
{\addfontfeature{VerticalPosition=Superior}1234567890 Libertine}
Inferiors with true Indices:
{\addfontfeature{VerticalPosition=ScientificInferior}1234567890 Libertine}
True fractures as $\frac{1}{3}$:
{\addfontfeature{Fractions=On} \frac{1}{3}}

3.3 Ligatures:
Standard ligatures are activated by default, i.e. ff, fi, Th, etc... Historical ligatures such as:
„ß“ und „é“ can be activated via
{\addfontfeature{Ligatures=Historical} „ß“ und „é“} With the option \textit{NoCommon} you can deactivate standard ligatures (what we do not recommend).
You’ll find the source code of this article in the appendix.

4 Links

Linux Libertine: \url{http://linuxlibertine.sf.net}
Xe\TeX-Homepage: \url{http://scripts.sil.org/xetex}
Xe\TeX-Tutorial (englisch): \url{http://xml.web.cern.ch/XML/lgc2/xetexmain.pdf}
Tex\-Live\-Distribution: \url{http://tug.org/texlive/}
5 Appendix

The Xe\TeX version is: 0.996

Source-code of this article as example:

Listing 1: Quelltext dieser Datei

\documentclass[a4paper,12pt]{scrartcl} % Koma-Script-Verwendung
\usepackage[utf8]{inputenc} % not needed by XeTex \rightarrow must be UTF8
\usepackage{xunicode} % for XeTeX!
\usepackage{fontspec} % for XeTeX!
\usepackage{parskip} % for XeTeX!
\usepackage{url} % for XeTeX to break long URLs at line ending
\usepackage{german} % choose your language here
\usepackage{multicol} % erlaubt es mit \begin und \end Teilbereiche mehrspaltig zu setzen
\usepackage{graphicx} % support of JPG, PNG und PDF-Grafics
\usepackage{wrapfig} % umflossene Grafiken im Fließtext
\usepackage{verbatim}
\usepackage{picinpar}
\usepackage{wide}{sidecap} % ermöglicht seitliche Beschriftung von Abbildungen und Tabellen
\usepackage{caption} % Anpassungsmöglichkeiten für Abbildungsbezeichnungen
\usepackage{capt-of}
\usepackage{colorlinks, linkcolor=blue}{hyperref} % references as links/URLs in the PDF
\usepackage{listings}
\usepackage{ragged2e}
\let\raggedright\RaggedRight
\usepackage{newcommands,newparameters}{ragged2e} % bessere Zeilenumbrüche bes. bei \caption
\setlength{\marginparwidth}{0cm}
\setlength{\oddsidemargin}{0cm}
\setlength{\evensidemargin}{0cm}
\setlength{\textwidth}{15cm}
\setlength{\textheight}{24cm}
\setlength{\topmargin}{-1cm}
\setlength{\parindent}{0pt}
\setlength{\parskip}{1ex}
\setlength{\baselineskip}{1.2ex}
\begin{document}
\begin{center}
\thispagestyle{empty}
\includegraphics[width=4cm]{Signet.pdf}
\end{center}
\vfil
\textsc{Manual for Linux Libertine} with \texttt{Xe\TeX} \newline
\begin{footnotesize}
\url{http://linuxlibertine.sf.net}\end{footnotesize}
\begin{center}
Berlin, den \texttt{today}
\end{center}
\newpage
\tableofcontents
\newpage

\section{Advantages of Xe\TeX}
\begin{itemize}
\item Full Unicode-support. You can enter all Unicode-Glyphs directly into the source code.
\item Simple usability of TrueType- and OTF-Fonts
\item Full OpenType-support:
  \begin{itemize}
    \item automatic substitution of standard activated OpenType-features, i.e. ligatures such as \texttt{ff}, \texttt{fi}, \texttt{ch}, \texttt{ck}, \texttt{fl}, \texttt{ffi}, \texttt{ffl}, \texttt{fb}, \texttt{fh}, ...
    \item shifting from \texttt{Stylistic Sets}, i.e. \texttt{old style figures}, \texttt{proportional figures}, \texttt{ÄÖÜ as trema-letters}, substitution of german ß with ss
\end{itemize}
\item true GPOS-kerning
\end{itemize}
\textit{itemize}

\section{Commands}

The XeTeX-interpreter is being invoked via \texttt{xelatex} instead of \texttt{latex} or \texttt{pdflatex}, example:

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The formation during the document can be done via \texttt{\verb|\setromanfont|}, \texttt{\verb|\setsansfont|} and \texttt{\verb|\setmonofont|}.

If you want to set certain options (which we list and describe later on) globaly, you can do that by adding the definition to the one above. Example: You want to have Old Style Figures for the entire document and therefore define the following.

\begin{verbatim}
\setromanfont[Mapping= tex-text, Numbers=OldStyle]{Linux Libertine O}
\end{verbatim}

\section{Choosing OpenType-features}

\subsection{Letters:}
Small capitals as in \{\addfontfeature{Letters=SmallCaps} \"Libertine}\}
can be activated via \verb\\{\addfontfeature{Letters=SmallCaps} \verb Libertine}\\
As option can also be used: \textit{Uppercase} and \textit{UppercaseSmallCaps}.

Style—Sets such as for \{\addfontfeature{Variant=01} \"AÖÜ}\} instead of
\verb AÖÜ can be activated via \verb\\{\addfontfeature{Variant=01} \verb AÖÜ}\\
Further sets in Libertine are \textit{02} for kalligraphite K und R as well as \textit{03} for the substitution of ßß/ with ss/SS.

\subsection{Numbers/Figures:}

Oldstyle or lowercase numbers such as \{\addfontfeature{Numbers=OldStyle} 1234567890\} can be activated via: \verb\\
\verb\\{\addfontfeature{Numbers=OldStyle} 1234567890 \verb Libertine}\\
Further options are \textit{Monospaced} for table—numbers (default),
\textit{Proportional} for proportional figures (useful in ordinary text ),
\textit{SlashedZero} resp. \textit{NoSlashedZero} for a/no slashed zero.

Exponents with true Indices\footnote{as long as available in Libertine, i.e. here not for \"L\}: \{\addfontfeature{VerticalPosition=Superior} 1234567890 Libertine}\\
\verb\\{\addfontfeature{VerticalPosition=Superior} 1234567890 Libertine}\\

Inferiors with true Indices:
\{\addfontfeature{VerticalPosition=ScientificInferior} 1234567890 Libertine}\\
\verb\\{\addfontfeature{VerticalPosition=ScientificInferior} 1234567890 Libertine}\\

True fractions as
\{\addfontfeature{Fractions=On} 1/3}: \verb\\
\verb\\{\addfontfeature{Fractions=On} 1/3}\\
\subsection{Ligatures:}

Standard ligatures are activated by default, i.e. ff, fi, Th, etc ...
Historical ligatures such as:
\{\addfontfeature{Ligatures=Historical,} \"st und \"ct\} can be activated
via \verb\\
\verb\\{\addfontfeature{Ligatures=Historical,} \"st und \"ct}\\
With the option \textit{NoCommon} you can deactivate standard ligatures
(what we do not recommend).’

You'll find the source code of this article in the appendix.

\section{Links}
The \texttt{XeTeX} version is: \texttt{\texttt{XeTeX}version}\texttt{\texttt{XeTeX}revision}

Source code of this article as example:

\begin{footnotesize}
\lstset{language=[LaTeX]TeX, commentstyle=\color{cyan}, lineweight=15cm, breaklines=true, extendedchars=true}
\lstinputlisting[label=Codebeispiel,caption=Quelltext dieser Datei]{Libertine−XeTeX−EN.tex}
\end{footnotesize}

%% End of document