The HEP-FONT package*

Latin modern extended by computer modern

Jan Hajer†

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Abstract

The HEP-FONT package loads standard font packages and extends the usual latin modern implementations by replacing missing fonts with computer modern counterparts.

The package is loaded using `\usepackage{hep-font}`.

`size` The `size=`⟨*size*⟩ option loads the specified font size. The possible ⟨*sizes*⟩ are: `8pt`, `9pt`, `10pt`, `11pt`, `12pt`, `14pt`, `17pt`, `20pt` and `default` deactivates this switch. The default value is 11 pt.

`sans` The `sans` option switches to sans-serif font instead of serif font.

`oldstyle` The `oldstyle` option switches to oldstyle numerals such as 123 in text mode instead of lining numerals such as 123.

The FONTENC package [1] with `T1` and `TU` font encoding is loaded for pdfTEX and LuaTEX, respectively.

Some restrictions of computer modern (CM) fonts are lifted with the FIXCM package [2].

The MICROTYPE [3] optimizations are activated.

The LATEX new font selection scheme (NFSS) is extended with the NFSSEXT-CFR package [4].

The latin modern (LM) font is loaded using the CFR-LM [5] and LMODERN [6] packages for pdfTEX and LuaTEX, respectively.

The text companion fonts are loaded [7].

`\textsc` Bold **Small Caps** and a sans serif Small Caps based on the CM font [8] is provided, the latter using the SANSMATHFONTS [9] and HFOLDSTY [10] packages.

`\textui` A sans-serif upright italic font is provided using the SANSMATHFONTS package [9].

Finally the INPUTENC package [11] with the `utf8` option is loaded.

A Implementation

<*package>

Define a hepfont namespace for the options using the KVOPTIONS package [12].

```
\RequirePackage{kvoptions}
\SetupKeyvalOptions{
```

*This document corresponds to HEP-FONT v1.3.

†jan.hajer@tecnico.ulisboa.pt

```
  family=hepfont,
  prefix=hepfont@
}
```

`size` Define the `size` option switching taking the font size as an argument.

```
\DeclareStringOption[11pt]{size}
```

`sans` Define the `sans` option switching to sans serif font.

```
\DeclareBoolOption[false]{sans}
\DeclareComplementaryOption{serif}{sans}
```

`lining` Define the `lining` option deactivating the use of text figures in text mode.

```
\DeclareBoolOption[true]{lining}
\DeclareComplementaryOption{oldstyle}{lining}
```

Process options.

```
\ProcessKeyvalOptions*
```

Read font argument from class call.

```
\def\hepfont@get@class#1.cls#2\relax{\def\hepfont@class{#1}}
\def\hepfont@getclass{\expandafter\hepfont@get@class\@filelist\relax}
\hepfont@getclass
\@ifclasswith{\hepfont@class}{10pt}{\setkeys{hepfont}{size=10pt}}{}
\@ifclasswith{\hepfont@class}{11pt}{\setkeys{hepfont}{size=11pt}}{}
\@ifclasswith{\hepfont@class}{12pt}{\setkeys{hepfont}{size=12pt}}{}
\@ifpackageloaded{jheppub}{\setkeys{hepfont}{size=default}}{}
```

`\ifxetexorluatex` Load the IFLUATEX [13] and IFXETEX [14] packages. Define the `\ifxetexorluatex` conditional checking if the package is executed by LuaLaTeX or XeLaTeX.

```
\RequirePackage{ifluatex}
\RequirePackage{ifxetex}
\newif\ifxetexorluatex
\ifxetex\xetexorluatextrue
\else\ifluatex\xetexorluatextrue
  \else\xetexorluatexfalse\fi
\fi
```

Pick the correct font encoding depending on the engine used and load the FONTENC package [1] with this encoding. For details of the font encoding see [15].

```
\def\hepfont@encoding{T\ifxetexorluatex U\else 1\fi}
\PassOptionsToPackage{\hepfont@encoding}{fontenc}
\RequirePackage{fontenc}
```

Switch document to sans-serif font if requested using the PDFTEXCMDS package [16].

```
\RequirePackage{pdftexcmds}
```

```
\ifnum\pdf@strcmp{\hepfont@size}{default}=0\else
  \def\hepfont@remove@pt#1pt{#1}
  \edef\hepfont@pt@size{\expandafter\hepfont@remove@pt\hepfont@size}
  \let\small\relax
  \let\footnotesize\relax
  \let\scriptsize\relax
  \let\tiny\relax
  \let\large\relax
  \let\Large\relax
  \let\LARGE\relax
  \let\huge\relax
  \let\Huge\relax
  \input{size\hepfont@pt@size.clo}
\fi
```

Switch document to sans-serif font if requested.

```
\ifhepfont@sans
  \renewcommand{\familydefault}{\sfdefault}
\fi
```

Fix the remaining CM [8] fonts using the FIX-CM package [2] and load the MICROTYPE font optimizations [3].

```
\RequirePackage{fix-cm}
\RequirePackage{microtype}
```

Switch to the LM font using the CFR-LM [5] or LMODERN [6] packages depending on the TEX engine. In both cases the NFSS is extended using the NFSSEXT-CFR [4] package.

```
\ifxetexorluatex
  \RequirePackage{nfssext-cfr}
  \RequirePackage{lmodern}
\else
  \ifhepfont@lining
    \PassOptionsToPackage{rm={lining},sf={lining},tt={lining}}{cfr-lm}
  \fi
  \RequirePackage{cfr-lm}
\fi
```

Ensure that the table of contest uses tabular figures using the XPATCH package [17].

```
\RequirePackage{xpatch}
\xpretocmd{\@dottedtocline}{\tstyle}{}{}
\xpatchcmd{\@dottedtocline}{\normalfont}{\normalfont\tstyle}{}{}
\xpretocmd{\l@section}{\tstyle}{}{}
\xpretocmd{\l@chapter}{\tstyle}{}{}
\xpretocmd{\l@part}{\tstyle}{}{}
```

Ensure that the `verbatim` environment uses proportional font and provide an inline `\code` macro. Work around a bug in NFSSEXT-CFR which defines a global `\set` macro and breaks other macros of the same name.

```
\newcommand{\codestyle}{\tmstyle\lstyle}
\let\verbatim@font\codestyle
\RequirePackage{xparse}
\ProvideDocumentCommand{\code}{v}{{\codestyle #1}}
```

Adjust the figures according to the `lining` option and ensure that tables always use lining.

```
\g@addto@macro\@floatboxreset{\tlstyle}
% \g@addto@macro\@subfloatboxreset{\tlstyle}
```

Adjust the equation such that the number is always table style.

```
\pretocmd{\theequation}{\tstyle}{}{}
```

Load the TEXTCOMP extension [7] and define helper functions.

```
\RequirePackage{textcomp}
\newcommand{\hepfont@sf@shape}[3]{%
  \DeclareFontShape{\hepfont@encoding}{\sfdefault}{#1}{#2}{#3}{}%
}
\newcommand{\hepfont@rm@shape}[3]{%
  \DeclareFontShape{\hepfont@encoding}{\rmdefault}{#1}{#2}{#3}{}%
}
```

For modern TEX engines define the bold and sans serif small caps font shapes using the FONTSPEC package [18].

```
\ifxetexorluatex
  \RequirePackage{fontspec}
  \setmainfont{Latin Modern Roman}[
    UprightFeatures={SmallCapsFont={[lmromancaps10-regular.otf]}},
    BoldFeatures={
      SmallCapsFeatures={Letters=SmallCaps},
      SmallCapsFont={[cmunbx.otf]}
    }
  ]
  \hepfont@sf@shape{bx}{sc}{<->cmssbxcsc10}{}
  \hepfont@sf@shape{b}{sc}{<->cmssbxcsc10}{}
  \hepfont@sf@shape{m}{scit}{<->cmsscsci10}{}
  \hepfont@sf@shape{m}{sc}{%
    <-9>cmsscsc8<9-10>cmsscsc9<10->cmsscsc10%
  }{}
```

If pdfLATEX

```
\else
```

For serif fonts

```
  \rmfamily
```

`\textsc` For lining numerals add CM roman small caps (italic and bold) from the SLANTSC package [19].

```
  \ifhepfont@lining
```

```
    \RequirePackage{slantsc}
    \hepfont@rm@shape{b}{sc}{<->ssub*cmr/bx/sc}{}
    \hepfont@rm@shape{bx}{sc}{<->ssub*cmr/bx/sc}{}
    \hepfont@rm@shape{b}{scsl}{<->ssub*cmr/bx/scsl}{}
    \hepfont@rm@shape{bx}{scsl}{<->ssub*cmr/bx/scit}{}
    \hepfont@rm@shape{b}{scit}{<->ssub*cmr/bx/scsl}{}
    \hepfont@rm@shape{bx}{scit}{<->ssub*cmr/bx/scit}{}
```

`\textsc` For oldstyle numerals use the fonts from the HFOLDSTY package [10].

```
  \else
    \DeclareFontFamily{\hepfont@encoding}{hfor}{}
    \DeclareFontShape{\hepfont@encoding}{hfor}{bx}{sc}{
      <-6>hfoxc0500<6-7>hfoxc0600<7-8>hfoxc0700<8-9>hfoxc0800
      <9-10>hfoxc0900<10-12>hfoxc1000<12-17>hfoxc1200<17->hfoxc1728
    }{}
    \DeclareFontShape{\hepfont@encoding}{hfor}{bx}{scsl}{
      <-6>hfooc0500<6-7>hfooc0600<7-8>hfooc0700<8-9>hfooc0800
      <9-10>hfooc0900<10-12>hfooc1000<12-17>hfooc1200<17->hfooc1728
    }{}
    \hepfont@rm@shape{b}{sc}{<->ssub*hfor/bx/sc}{}
    \hepfont@rm@shape{bx}{sc}{<->ssub*hfor/bx/sc}{}
    \hepfont@rm@shape{bx}{scsl}{<->ssub*hfor/bx/scsl}{}
    \hepfont@rm@shape{b}{scit}{<->ssub*hfor/bx/scsl}{}
    \hepfont@rm@shape{bx}{scit}{<->ssub*hfor/bx/scsl}{}
    \hepfont@rm@shape{b}{scsl}{<->ssub*hfor/bx/scsl}{}
  \fi
```

`\textsc` Provide the sans serif small caps font shape using the extended CM from the SANSMATHFONTS package [9].

```
  \sffamily
  \hepfont@sf@shape{m}{sc}{<->ssub*xcmss/m/sc}{}
  \hepfont@sf@shape{b}{sc}{<->ssub*xcmss/bx/sc}{}
  \hepfont@sf@shape{bx}{sc}{<->ssub*xcmss/bx/sc}{}
  \hepfont@sf@shape{m}{scit}{<->ssub*xcmss/m/scit}{}
  \hepfont@sf@shape{b}{scit}{<->ssub*xcmss/bx/scit}{}
  \hepfont@sf@shape{bx}{scit}{<->ssub*xcmss/bx/scit}{}
  \hepfont@sf@shape{m}{scsl}{<->ssub*xcmss/m/scit}{}
  \hepfont@sf@shape{b}{scsl}{<->ssub*xcmss/bx/scit}{}
  \hepfont@sf@shape{bx}{scsl}{<->ssub*xcmss/bx/scit}{}
```

`\textui` Provide a sans upright italic font.

```
  \hepfont@sf@shape{m}{ui}{<->cmssu10}{}
\fi
```

Load the INPUTENC package [11] whe using pdfLaTeX.

```
\ifxetexorluatex\else
  \PassOptionsToPackage{utf8}{inputenc}
```

```
  \RequirePackage{inputenc}
\fi
```

\unit Patch the \unit and \unitfrac macros to work with lining numerals using the XPATCH package [17] if the UNITS package [20] is loaded. TODO implement patch without actually loading the package.

```
\ifhepfont@lining\else
% \AtBeginDocument{
%   \@ifpackageloaded{units}{
    \RequirePackage{units}
    \RequirePackage{xpatch}
    \xpatchcmd{\unit}{\else#1}{%
      \else\ifthenelse{\boolean{mmode}}{#1}{\textl{#1}}%
    }{}{}
    \xpatchcmd{\unitfrac}{\else#1}{%
      \else\ifthenelse{\boolean{mmode}}{#1}{\textl{#1}}%
    }{}{}
%   }{}
% }
\fi
```

</package>

B Test

<*test>

```
\documentclass[a4paper]{article}

\usepackage[oldstyle]{hep-font}
%% \usepackage[oldstyle]{hep-paper}

\usepackage[cm]{fullpage}

\usepackage{fancyvrb}\DefineShortVerb{\|}
\newenvironment{vrb}{\begin{tabular}{@{}p{5.4cm}ll@{}}}{\end{tabular}}

\begin{document}

\subsection*{Roman}

\rmfamily
\begin{vrb}
|\rmfamily| & {Latin Modern Roman 123} \\
|  \sbweight| & {\sbweight Latin Modern Roman Semi Bold 123} \\
|  \bfseries| & {\bfseries Latin Modern Roman Bold Extended 123} \\
|\slshape| & {\slshape Latin Modern Roman Oblique 123} \\
|  \sbweight| & {\sbweight\slshape Latin Modern Roman Semi Bold Oblique 123} \\
|  \bfseries| & {\bfseries\slshape Latin Modern Roman Bold Oblique Extended 123} \\
|\itshape| & {\itshape Latin Modern Roman Italic 123} \\
```

```
|  \bfseries| & {\bfseries\itshape Latin Modern Roman Bold Italic Extended 123} \\
|\uishape| & {\uishape Latin Modern Roman Upright Italic 123} \\
|\scshape| & {\scshape Latin Modern Roman Small Caps 123} \\
|  \bfseries| & {\bfseries\scshape Computer Modern Roman Bold Small Caps 123} \\
|  \sishape| & {\scshape\slshape Latin Modern Roman Oblique Small Caps 123} \\
|    \bfseries| & {\slshape\bfseries\scshape Computer Modern Roman Bold Small Caps 123} \\
\end{vrb}

\subsubsection*{Dunhill}

\tistyle
\begin{vrb}
|\tistyle | & {Latin Modern Dunhill 123} \\
|  \slshape| & {\slshape Latin Modern Dunhill Oblique 123} \\
\end{vrb}

\subsubsection*{Funny}

\fontfamily{cmfr}\selectfont
\begin{vrb}
|\fontfamily{cmfr}\selectfont | & {Computer Modern Funny 123} \\
|  \itshape| & {\itshape Computer Modern Funny Oblique 123} \\
\end{vrb}

\subsubsection*{Fib}

\fontfamily{cmfib}\selectfont
\begin{vrb}
|\fontfamily{cmfib}\selectfont | & {Computer Modern Fibonacci 123} \\
|  \slshape| & {\slshape Computer Modern Fibonacci Oblique 123} \\
\end{vrb}

\subsection*{Sans}

\sffamily
\begin{vrb}
|\sffamily| & {Latin Modern Sans 123} \\
|  \fontseries{sbc}\selectfont| & {\fontseries{sbc}\selectfont Latin Modern Sans Demi Cond
|  \bfseries| & {\bfseries Latin Modern Sans Bold 123} \\
|\slshape| & {\slshape Latin Modern Sans Oblique 123} \\
|  \fontseries{sbc}\selectfont| & {\fontseries{sbc}\selectfont\slshape Latin Modern Sans D
|  \bfseries| & {\bfseries\slshape Latin Modern Sans Bold Oblique 123} \\
|\uishape| & {\uishape Computer Modern Sans Upright Italic 123} \\
|\scshape| & {\scshape Computer Modern Sans Small Caps 123} \\
|  \bfseries| & {\bfseries\scshape Computer Modern Sans Bold Small Caps 123} \\
|  \itshape| & {\itshape\scshape Computer Modern Sans Italic Small Caps 123} \\
|    \bfseries| & {\itshape\bfseries\scshape Computer Modern Sans Italic Bold Small Caps 1
\end{vrb}

\subsubsection*{Quotation}
```

```
223
224 \qtstyle
225 \begin{vrb}
226 |\qtstyle | & {Latin Modern Sans Extended 123} \\
227 |  \bfseries | & {\bfseries Latin Modern Sans Bold Extended 123} \\
228 |\slshape | & {\slshape Latin Modern Sans Extended Oblique 123} \\
229 |  \bfseries | & {\bfseries\slshape Latin Modern Sans Bold Extended Oblique 123} \\
230 \end{vrb}
231
232 \subsection*{Typewriter}
233
234 \ttfamily
235 \tvstyle
236 \begin{vrb}
237 |\ttfamily\tvstyle | & {Latin Modern Typewriter Proportional 123} \\
238 |  \bfseries | & {\bfseries Latin Modern Typewriter Proportional Dark 123} \\
239 |  \lgweight | & {\lgweight Latin Modern Typewriter Proportional Light 123} \\
240 |\slshape | & {\slshape Latin Modern Typewriter Proportional Oblique 123} \\
241 |  \bfseries | & {\bfseries\slshape Latin Modern Typewriter Proportional Dark Oblique 123}
242 |  \lgweight | & {\lgweight Latin Modern Typewriter Proportional Light Oblique 123} \\
243 \end{vrb}
244
245 \subsubsection*{Fixed-width}
246
247 \tmstyle
248 \begin{vrb}
249 |\ttfamily\tmstyle | & {Latin Modern Typewriter 123} \\
250 |  \lgweight | & {\lgweight Latin Modern Typewriter Light 123} \\
251 |  \bfseries | & {\bfseries Latin Modern Typewriter Dark 123} \\
252 |  \fontseries{lc}\selectfont | & {\fontseries{lc}\selectfont Latin Modern Typewriter Ligh
253 |\slshape | & {\slshape Latin Modern Typewriter Oblique 123} \\
254 |  \lgweight | & {\lgweight\slshape Latin Modern Typewriter Light Oblique 123} \\
255 |  \bfseries | & {\bfseries\slshape Latin Modern Typewriter Dark Oblique 123} \\
256 |  \fontseries{lc} | & {\fontseries{lc}\slshape Latin Modern Typewriter Light Condensed Ob
257 |\itshape | & {\itshape Latin Modern Typewriter Italic 123} \\
258 |\scshape | & {\scshape Latin Modern Typewriter Small Caps 123} \\
259 |  \slshape | & {\scshape\slshape Latin Modern Typewriter Oblique Small Caps 123} \\
260 \end{vrb}
261
262 \end{document}
```

</test>

C Readme

<*readme>

```
263 # The ‘hep-font‘ package
264
265 Latin modern extended by computer modern.
266
```

```
## Introduction

The ‘hep-font‘ package loads standard font packages and extends the usual
Latin Modern implementations by replacing missing fonts with Computer
Modern counterparts.

The package is loaded with ‘\usepackage{hep-font}‘.

## Author

Jan Hajer

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in ‘http://www.latex-project.org/lppl.txt‘ and version 1.3c or later is
part of all distributions of LaTeX version 2005/12/01 or later.
```

</readme>

References

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