

MiKTeX 2.3 Font Test

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1 Introduction

This document shows some of the text, math, and symbol fonts described in `c:\texmf\doc\fonts` and `c:\texmf\doc\latex` directories of MiKTeX 2.3 full installation.

Note: If you use `dvips/ps2pdf`, you have to add “`-P pdf -G0`” or “`-P outline -G0`” option to `dvips`. The will embed Type1 fonts when you use `ps2pdf`.

2 Fonts in texmf/doc/fonts Directory

2.1 bellek

The Belleek fonts (designed by Richard Kinch) are free clones of the normal MathTime fonts (see Section 3.8). The Belleek fonts do not come with any font package files (e.g., `afm`, `tfm`, `fd`, `sty`, ..) as the MathTime font package (except the `pfb` files) is already in MiKTeX. Unfortunately, you have to modify the MathTime font package to substitute the Belleek fonts of the MathTime fonts.

2.2 charter

The charter packages loads Charter Type1 fonts contributed by Bitstream.

- Usage: `\usepackage{charter}`
- Family name for local font selection: `bch`
- Example: The quick brown fox jumps over the lazy dog.

2.3 cm-super

The CM-Super package contains Type1 fonts converted from Computer Modern and Computer Modern Concrete METAFONT fonts.

There is no specific style file to use CM-Super package. Use the default (Computer Modern) or Computer Modern Concrete font families with any encoding(s) supported by the CM-Super font package (T1, TS1, T2A, T2B, T2C, and X2). Then your `pdflatex`, `dvips`, or `dvipdfm` will use outline Type1 fonts .

2.4 concrete

The `concrete` package is for using *concrete* text font (designed by D.E. Knuth) with the Euler math font (see in Section 3.4).



- `\usepackage{concrete}` loads concrete font family in METAFONT format.
- Adding `\usepackage[T1]{fontenc}` loads *Type1* concrete font family. Currently `dvipdfm` and `pdflatex` work with this *Type1* font.
- Family name for local font selection: `ocr`
- Example: **The quick brown fox jumps over the lazy dog.**

2.5 ifsym

Metafont dingbats by Ingo Klöckl provides lots of text symbols by means of options:

```
\usepackage[option]{ifsym}
```

Possible options are:

- ‘clock’ defines clocks (e.g., `\showclock{9}{30}` produces .
- ‘weather’ defines meteorological symbols (e.g., `\RainCloud` produces .
- ‘misc’ defines diverse symbols.
- ‘alpine’ defines mountain-related symbols.
- ‘geometry’ defines geometric symbols.
- ‘electronic’ defines electronic circuit symbols.

In addition the package provides `\textifsym{}` macro where `{}` may have some numbers for LCD display or some alphabets for chemistry apparatus. `\textifsym{123.45}` produces **12345**.

The official documentation is `/texmf/doc/fonts/ifsym/ifsym.ps`. Even though it is in German, there is no problem to see the macros.




Caution: MiKTeX 2.2 full installation puts this font in your texmf tree. But there is one more thing you have to do. Open the `/texmf/fontname/special.map` file and add the following lines at the end:


```
ifsym public ifsym
ifgeo public ifsym
ifwea public ifsym
ifclk public ifsym
ifblk public ifsym
```

if the related Metafont files are in `/texmf/fonts/source/public/ifsym`.

2.6 marvosym

This package can create lots of marvellous symbols in *Type1* such as

- `{\Radioactivity}` produces ,
- `{\Biohazard}` produces ,
- `{\Football}` produces ,

- `\NoIroning` produces \mathbb{A} ,
- `\EUR` produces €, and
- `\MartinVogel` produces , the designer of this font, Martin Vogel.

2.7 mathpazo

This font by the PSNFSS team enables you to use Palatino text and math font. For more information, see Section 3.9.

2.8 pxfonts

This font designed by Young Ryu also enables you to use Palatino text and math font. This font has more symbols than mathpazo in Section 3.9

- Usage: `\usepackage{pxfonts}`.
- Example: The quick brown fox jumps over the lazy dog.

2.9 rsfs

The `mathrsfs` package, developed by Jörg Knappen, creates mathematical script letters as traditionally used in physics for writing such as Lagrangian (\mathcal{L}) and Hamiltonian (\mathcal{H}). This package also redefines `\mathcal` to `\mathscr`.

- Usage: `\usepackage{mathrsfs}`.
- Example: `\mathscr{ABCD}` → *ABC \mathcal{D}* .

2.10 txfonts

The author of `pxfonts` has also developed `txfonts` for Times text and math. But you cannot find this directory under `c:/texmf/doc/fonts` as MiKTeX full installation puts this directory under `c:/texmf/doc/`.

- Usage: `\usepackage{txfonts}`.
- Example: The text used in this document is txfonts.

3 Fonts in texmf/doc/latex Directory

3.1 brushscr

The `pbsi` package designed by Maurizio Loreti is to write Brush-Script-Italic font.

- Usage: `\usepackage[T1]{pbsi}`
- Example: `\textbsi{The...}` → *The quick brown fox jumps over the lazy dog.*

3.2 cmbright

If you want to use sans serif font in both text and math, the `cmbright` package, by Walter Schmidt, can be your solution. The one problem is that CM Bright font is METAFONT font, but you can download Type1 version of `cmbright`, `hfbright` by Harald Harders. If you use `dvips/ps2pdf`, add `-P hfbright -P pdf -G0` option to `dvips`.

- Usage: `\usepackage{cmbright}`
- Family name for local *roman* font selection: `cmbx`
Example: The quick brown fox jumps over the lazy dog.
- Family name for local *typewriter* font selection: `cmtl`
Example: The quick brown fox jumps over the lazy dog.

3.3 dingbat

Package `dingbat` can provide dingbats. Use `pifont` in Section 3.9.

3.4 euler

The `euler` package provides a setup for using the AMS Euler family of fonts for math in \LaTeX documents. The AMS Euler family was designed by Hermann Zapf (one of the premier font designers of this century), commissioned by the American Mathematical Society. The underlying philosophy of Zapf's Euler design was to capture the flavor of mathematics as it might be written by a mathematician with excellent handwriting.

- Usage: `\usepackage{euler}`

3.5 eulervm

The well-known Euler math fonts are suitable for math typesetting in conjunction with a variety of text fonts which do not provide math character sets of their own.

Euler-VM is a set of *virtual* math fonts based on Euler and CM. This approach has several advantages over immediately using the *real* Euler fonts: Most noticeably, less \TeX resources are consumed, the quality of various math symbols is improved, and a usable `\hslash` symbol can be provided.

- Usage: `\usepackage{eulervm}`
- Example: $f(x) = \sum_{i=1} \Delta_i + \sin(x)$

3.6 hvmath

Package `hvmaths` typesets text and math using Helvetica PostScript fonts. A free bitmapped (demo) version is also available from CTAN: `fonts/micropress/hvmath/`.

3.7 jknappen

Jörg Knappen, the author of the `mathrsfs` package in Section 2.9, also designed several fonts. Among them is the `textcomp` package for text companion fonts for typesetting symbols.

- `\usepackage{textcomp}` to load this package.
- `\textwon` produces Korean currency, Won (₩).
- `\texttrademark` produces trade mark (™).
- `\textleaf` produces a leaf (♻).

The `textcomp` package that provides access to all the glyphs in TS1 encoding has a severe problem that with most Postscript fonts half of the symbols are not available. Worse, this problem doesn't show up during the latex run but only when printing with, say, `dvips` one gets a warning that a certain symbol is missing. Thus the main text font in this document is changed from Utopia to `txfonts`.

3.8 mathtime

The `mathtime` package, by Frank Mittelbach David Carlisle, for accessing MathTime fonts developed by Y&Y Inc. You need Type1 fonts (pfb files) from Y&Y Inc. A free clone of the normal MathTime fonts is already explained in Section ??.

3.9 psnfss

This folder contains basic Adobe PostScript fonts (Table 1) and X-consortium PostScript fonts (Charter and Utopia). These fonts are especially important when you create high quality and small size PDF from L^AT_EX.

Table 1: Basic Adobe PostScript fonts.

Package	Text	Sans Serif	Typewriter	Math
(none)	CM Roman	CM Sans Serif	CM Typewriter	CM Math
<code>mathptmx</code>	Times	Helvetica	Courier	Times Math
<code>mathpazo</code>	Palatino	Helvetica	Courier	Palatino Math
<code>helvet</code>		Helvetica		
<code>bookman</code>	Bookman	Avant Garde	Courier	
<code>newcent</code>	New Century Schoolbook	Avant Garde	Courier	
<code>avant</code>		Avant Garde		
<code>courier</code>		Courier		

You can use Times or Palatino font in your math. For Times text and math, you can use `mathptmx`¹ package with the following recommended loading:

```
\usepackage{mathptmx, courier, pifont}
\usepackage[scaled=0.92]{helvet} % 92% is suitable with Times
\usepackage[T1]{fontenc}
\usepackage{textcomp}
```

For Palatino text and math, you can use `mathpazo`² package, instead of `mathptmx`. In this case you'd better use 95% scale of the Helvetica font.

If you want to use Helvetica as your default text font,

¹The packages, `times` and `mathptm`, are obsolete now.

²The packages, `palatino` and `mathppl`, are obsolete now.

```
\usepackage{helvet,courier,pifont}
\usepackage[T1]{fontenc}
\usepackage{textcomp}
\renewcommand{\familydefault}{\sfdefault} % Should be added!
```

Of course, there is another approach to use Helvetica in Section 6.1.

Additional font packages in psnfss are:

- ✎ pifont for ZapfDingbats designed by Hermann Zapf. This font is used to create item symbol here. Personally this pifont package is better than the dingbat package described in Section 3.3 (Font family name = pzd).
- ✎ chancery for *Zapf Chancery* font designed by Hermann Zapf (Font family name = pzc).
- ✎ utopia for Utopia font that is an Adobe-donated font to X consortium (Font family name = put).
- ✎ charter for Charter font (see Section 2.2) (Font family name = bch).

3.10 yfonts

The macro package yfonts, by Walter Schmidt, provides a L^AT_EX interface to the blackletter (old German) fonts designed by Yannis Haralambous: Gotisch, Schwabacher, Fraktur and the baroque initials.

The following example is written with `frakfamily`. In preamble put `\usepackage{yfonts}[1998/10/03]`, and type like this:

```
\begin{minipage}{\textwidth}
\parindent=1cm % watch it being ignored!
\frakfamily\Large\fraklines \yinipar{W}e are ...
\end{minipage}
```

to get



e are from a farming community that grows a lot of corn. Ethanol and corn production are both heavily subsidized. My thinking is that they both are „port barrel“ projects. Doesn't it take as much or more fossil fuel energy to produce a given amount of ethanol energy? Maybe the ethanol lobbyists and producers aren't telling us the full story?

3.11 yhfont

The yhfont package designed by Yannis Haralambous provides a set of big delimiters and very wide accents. These symbols can substitute of the original `cmex10`.

- Usage: `\usepackage{yhmath}`

4 Fonts in Other Locations

4.1 qpxmath

The qpxmath, quasi-Palatino math, is in `/texmf/tex/generic/qpx` directory. This package just borrows Palatino math from `pfonts` and aims to use this math font with other text font. To use this package,

```
\usepackage{charter}      % charter text font
\usepackage{qpxmath}     % qpxmath math font
```

But you can do the same thing with `pxfonts` (but the package order is important!):

```
\usepackage{pxfonts}
\usepackage{charter}     % charter overwrites palatino text font
```

4.2 qtxmath

The `qtxmath`, quasi-Times math, is in `/texmf/tex/generic/qtx` directory. This package just borrows Times math from `txfonts` and aims to use this math font with other text font. For use this package,

```
\usepackage{charter}     % charter text font
\usepackage{qtxmath}     % qtxmath math font
```

Similarly you can do the same thing with `txfonts`.

5 More Math

5.1 Math Script Fonts

Besides `rsfs` in Section 2.9, there are additional script-like math fonts.

- `\mathcal{ABCDEFGHJK}` creates $\mathcal{A}\mathcal{B}\mathcal{C}\mathcal{D}\mathcal{E}\mathcal{F}\mathcal{G}\mathcal{H}\mathcal{I}\mathcal{J}\mathcal{K}$ without any packages or with `eucal` package with `mathcal` option.
- `\mathbb{ABCDEFGHJK}` creates $\mathbb{A}\mathbb{B}\mathbb{C}\mathbb{D}\mathbb{E}\mathbb{F}\mathbb{G}\mathbb{H}\mathbb{I}\mathbb{J}\mathbb{K}$ with `amsfonts` or `amssymb` package.
- `\mathfrak{ABCDEFGHJK}` creates $\mathfrak{A}\mathfrak{B}\mathfrak{C}\mathfrak{D}\mathfrak{E}\mathfrak{F}\mathfrak{G}\mathfrak{H}\mathfrak{I}\mathfrak{J}\mathfrak{K}$ with `eufrak` package.

5.2 San Math

The `cmbright` package in Section 3.2 can typeset `cmbright` sans serif both in text and math in full extent.

If you want to use computer modern sans serif (CMSS) for both text and math, use the `sansmath` package as shown below.

```
\renewcommand{\familydefault}{\sfdefault}
\usepackage{sansmath}
\sansmath
```

Note that this package does not have actual CMSS math fonts but just replace CMSS text fonts in math if applicable.

5.3 Matching Text and Math Fonts

For beautiful combination of text and math fonts, you can use one of the following packages for free.

Text/Math Package(s)	Text Font	Math Font	Remark
(none)	CM	CM	Computer Modern (Default)
cmbright	cmbright	cmbright	Sans serif text and math
concrete	Concrete	Euler	
–/ eulervm	–	Euler	Any text font can be used with Euler math font.
fourier	Utopia	Fourier	Fourier is not in MikTeX, but can be found at CTAN
mathptmx	Times	Times	
txfonts	Times	Times	
mathpazo	Palatino	Palatino	
pxfonts	Palatino	Palatino	

As explained the package `eulervm` generally goes well with other text fonts that do not have their own math fonts. All the fonts except *Fourier* are already described in this document. *Fourier* font is based on Adobe’s Utopia font and is freely available from CTAN:fonts/fourier.

6 Font Selections

6.1 Global Change

Using Helvetica as default roman font is explained in Section 3.9. Another method is

```
\renewcommand\sfddefault{phv} % Use helvetica for sans serif
\renewcommand\familydefault{\sfddefault} % Use sans serif by default
```

For different font family names (e.g., `phv`), refer the `psnfss2e.pdf` file in your `c:\texmf\doc\latex\psnfss` directory.

6.2 Local Change

Under given font packages you can change fonts locally. See this example first.

```
This is txfonts, {\fontfamily{pfr}\fontsize{12pt}{12pt}\selectfont
but this is Adobe Frutiger!}
```

The typeset result is that “This is txfonts, but this is Adobe Frutiger!” `\fontsize{size}{skip}` sets the actual font size and baseline skip. A rule of thumb value of skip is 1.2 times of the size. You can also add `\fontseries{}` and `\fontshape{}`. All font changes will not be active *until* `\selectfont` is called.

You can also define a macro for your local font selection. For example,

```
\DeclareFixedFont{\myzc}{T1}{pzc}{b}{n}{1.3cm} <or>
\font\myzc=pzcb at 1.3cm
```

creates a 1.3cm-sized bold normal Zapf Chancery font like *Hello* by calling `{\myzc Hello}`.

7 More Information

- `Sampler.pdf` in your `/texmf/doc/fonts/fontsampler` directory or <http://www.ctan.org/tex-archive/info/fontsampler?action=/tex-archive/info/>.
- `symbols-a4.pdf` in the `/texmf/doc/guides/symbols` directory.
- Font HOWTO (http://www.pegasus.rutgers.edu/~elflord/font_howto/Font-HOWTO/html/Font-HOWTO/t1.html).