

# LATEX FONTS



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# Chapter 1

## Introduction

This document demonstrates many Latin-based L<sup>A</sup>T<sub>E</sub>X fonts that can be found at [www.ctan.org/tex-archive/fonts](http://www.ctan.org/tex-archive/fonts). If you have your T<sub>E</sub>X system, many of the fonts are already installed on your computer machine. Note that some of the fonts in the CTAN's directory are commercial fonts! In this case CTAN only provides the font package without the commercial fonts. You need to purchase them to use the font package.

Some of the highlights of this document are:

- Quick overview and guide of the fonts
- Matching math (or text) font if any
- Additional fonts that can not be found in the '/fonts' directory
- Font selection guide
- Font index by subjects (e.g., math, monospaced, sans serif)

If you use the dvips/ps2pdf route, here are some comments that you'd better to know.

- Add “-P pdf -G0” or “-P outline -G0” option to dvips. The will embed Type1 fonts into the output pdf file when you use ps2pdf.
- You may also need “-j0” option if you cannot see some of your fonts in the PDF documents.

## Chapter 2

# Fonts in /fonts

### 2.1 LuxiMono

LuxiMono is a family of general-purpose monospaced (typewriter) Type 1 fonts. They are original designs by Kris Holmes and Charles Bigelow from Bigelow and Holmes Inc.

- Package load:

```
\usepackage[scaled=0.9]{luximono}    % 90% of the original size
\usepackage[T1]{fontenc}           % Only supports T1 and TS1
\usepackage{textcomp}
```

- Family name for local font selection: `ul9`  
*The quick brown fox jumps over the lazy dog. 1234567890.*  
*The quick brown fox jumps over the lazy dog. 1234567890.*
- Regular, italic, bold, and bold italic are supported.

### 2.2 MnSymbol

MnSymbol is a symbol font designed to be used in conjunction with *Adobe MinionPro*. The font is available in both MetaFont and Adobe Type 1 formats.<sup>1</sup>

- Package load:

```
\usepackage{MnSymbol}
```

- Most of your computer machine already have Adobe MinionPro fonts in the OpenType format, see Section 2.29 for more information.

### 2.3 antt

Antykwa Torunska (meaning just “Antiqua of Torun”) is a two-element typeface designed by Zygfryd Gardzielewski, a typographer from Toruń, Poland.

---

<sup>1</sup>We are not sure that all MetaFont files are available in Type 1 format.

- Package load:

```
\usepackage{anttor}
```

- Family name for local font selection: `antt`  
The quick brown fox jumps over the lazy dog. 1234567890.  
*The quick brown fox jumps over the lazy dog. 1234567890.*
- Family name for local font selection: `antt` (small caps)  
THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG. 1234567890.  
*THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG. 1234567890.*
- Light, light condensed, regular, condensed, semibold, semibold condensed, bold, bold condensed, bold extended. small caps and small caps italic are available.

## 2.4 augie

The augie handwriting font is designed by Walter A. Schmidt.

- Package load: N/A
- Family name for font selection: `augie`  
*The quick brown fox jumps over the lazy dog. 1234567890.*

## 2.5 belleek

The Belleek fonts (designed by Richard Kinch) are *free clones* of the commercial MathTime fonts from Y&Y (see Section 2.28).

You have to modify the MathTime font package (which is already in your T<sub>E</sub>X system) to substitute the Belleek fonts of the MathTime fonts, and the substitution procedure is extensively described here: <http://groups.google.com/groups?q=belleek+group:comp.text.tex&hl=en&lr=&ie=UTF-8&group=comp.text.tex&safe=off&selm=3D638B88.D364ECE3%40arcor.de&rnum=1>.

## 2.6 bera

Bera is a set of three PostScript Type 1 font families: *Bera Serif* (a slab-serif roman), *Bera Sans* (a Frutiger descendant), and *Bera Mono* (monospaced/typewriter). The fonts were originally designed by Bitstream in TrueType format under the name *Bitstream Vera*. These fonts are available from <http://ftp.gnome.org/pub/GNOME/sources/ttf-bitstream-vera/1.10/>.

This Bera font pack for L<sup>A</sup>T<sub>E</sub>X was developed by Malte Rosenau and Walter A. Schmidt.

- Package load:

```
\usepackage{bera}
```

- Family name for local font selection: `fve` for Bera Serif  
The quick brown fox jumps over the lazy dog. 1234567890.  
*The quick brown fox jumps over the lazy dog. 1234567890.*
- Family name for local font selection: `fvs` for Bera Sans  
The quick brown fox jumps over the lazy dog. 1234567890.  
*The quick brown fox jumps over the lazy dog. 1234567890.*

- Family name for local font selection: `fvm` for Bera Mono  
*The quick brown fox jumps over the lazy dog. 1234567890.*  
*The quick brown fox jumps over the lazy dog. 1234567890.*

## 2.7 brushscr

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

- Package load:

```
\usepackage[T1]{pbsi}
```

- Example: `\textbsi{The...}` → *The quick brown fox jumps over ...*

## 2.8 calligra

The `calligra` package is calligraphic font in the handwriting style of the author, Peter Vanroose.

- Package load:

```
\usepackage[T1]{fontenc}
\usepackage{calligra}           % MetaFont format only
```

- Family name for local font selection: `calligra`  
*The quick brown fox jumps over the lazy dog. 1234567890.*

## 2.9 charter

The `charter` package, a part of PSNFSS (Section 2.33.3), loads Charter fonts donated by Bitstream. Charter is a kind of slab serif font which is excellent for online documents.

- Package load:

```
\usepackage{charter}
```

- Family name for font selection: `bch`  
*The quick brown fox jumps over the lazy dog. 1234567890.*  
*The quick brown fox jumps over the lazy dog. 1234567890.*
- Matching math font: *Lucida New Math* and *MathDesign Charter* (see Section 2.25)

## 2.10 cm

Computer Modern fonts, designed by Donald E. Knuth, are the default fonts of L<sup>A</sup>T<sub>E</sub>X. They are available in MetaFont, Type1 (from BlueSky/Y&Y and from BaKoMa), and TrueType (from BaKoMa) formats.

- No special package is needed.
- Encoding: `OT1`.

- Family name for font selection: `cmr`:  
The quick brown fox jumps over the lazy dog. 1234567890.  
*The quick brown fox jumps over the lazy dog. 1234567890.*
- Family name for font selection: `cms`:  
The quick brown fox jumps over the lazy dog. 1234567890.  
*The quick brown fox jumps over the lazy dog. 1234567890.*
- Family name for font selection: `cmtt`:  
The quick brown fox jumps over the lazy dog. 1234567890.  
The quick brown fox jumps over the lazy dog. 1234567890.

If you load `\usepackage[T1]{fontenc}`, CM-Super fonts are used. Unfortunately, CM-Super is inferior to Computer Modern. Latin Modern font would generate better result (see Section 2.23).

## 2.11 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 original `cmbright` font comes in MetaFont format so you have to download Type1 version of `cmbright`, called `hfbright` by Herald Harders, from CTAN.

- Package load:  

```
\usepackage{cmbright} % Loads cmbright text + math
```
- Family name for local *roman* font selection: `cmb` (regular, italic, semibold, semibold italic, bold).  
The quick brown fox jumps over the lazy dog. 1234567890.  
**The quick brown fox jumps over the lazy dog. 1234567890.** (semibold)
- Family name for local *typewriter* font selection: `cmtl`  
The quick brown fox jumps over the lazy dog. 1234567890.

## 2.12 concmath

The `concmath` package provides access to the concrete math typefaces only in MetaFont<sup>2</sup>), which were derived from the concrete roman typefaces (see Section 2.13) designed by Donald E. Knuth. If you consider a printed version (e.g., poster and transparency) of your document, this collection can be an excellent alternative to Computer Modern.

- Package load:  

```
\usepackage[T1]{fontenc} % Load Type1 fonts
\usepackage{concmath} % Concrete text + math
```
- Matching math font: *Concmath* is automatically loaded.

---

<sup>2</sup>Now Adobe Reader v 6.x and later renders bitmap fonts very well.

## 2.13 concrete

The `concrete` package is for using *concrete* text font (designed by D.E. Knuth) and Euler math font (see in Section 2.15). Actually Knuth used these fonts for his book, *Concrete Mathematics*. Concrete is a slab serif font.

- Package load:

```
\usepackage{concrete}      % Concrete text + Euler math
\usepackage[T1]{fontenc}   % Load Type1 fonts
\renewcommand{\bfdefault}{b} % You may need this for section titles
```

If you do not add `\usepackage[T1]{fontenc}`, MetaFont will be used.

- Family name for local font selection: `ccr`  
*The quick brown fox jumps over the lazy dog. 1234567890.*  
*The quick brown fox jumps over the lazy dog. 1234567890.*
- Matching math font: *Euler-VM* is automatically loaded.

## 2.14 dingbat

The `dingbat` package provides various dingbats. Instead of using this package use the `pifont` package in Section 2.33.3.

## 2.15 eulervm

The `eulervm` package provides a setup for using the AMS Euler family of fonts for math in L<sup>A</sup>T<sub>E</sub>X documents. The AMS Euler family was designed by Hermann Zapf<sup>3</sup> (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.

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 T<sub>E</sub>X resources are consumed, the quality of various math symbols is improved, and a usable `\hs1ash` symbol can be provided.

- Package load:

```
\usepackage[small,euler-digits]{eulervm}
```

where `[small]`<sup>4</sup> is 95% of its regular size and `[euler-digits]` enables Euler digits and commas in body texts.

- Example:  $f(x) = \sum i = 1 \Delta i + \sin(x)$
- Matching *text* fonts: Concrete, Palatino, Aldus, Minion.

<sup>3</sup>His T<sub>E</sub>X-related fonts are Palatino, Zapf Dingbats, and Zapf Chancery as well as Euler fonts.

<sup>4</sup>Needed if you use Euler-VM with Aldus or Minion font.

## 2.16 fourier-GUT

Fourier-GUTenberg is a  $\LaTeX$  typesetting system which uses Adobe Utopia (see Section 2.39) as its standard base font. Fourier-GUTenberg provides all complementary typefaces needed to allow Utopia based TeX typesetting, *including an extensive mathematics set and several other symbols*. The system is absolutely stand-alone: apart from Utopia and fourier, no other typefaces are required.

- Package load:

```
\usepackage[options]{fourier}
```

For options refer to the original document of the Fourier-GUT package..

- There is another math font set, MathDesign (see Section 2.25), for Adobe Utopia.

## 2.17 fpl

The FPL Fonts provide a set of SC/OsF fonts for URW Palladio L which are compatible with respect to metrics with the Palatino SC/OsF fonts from Adobe.

They are part of mathpazo of PSNFSS 9.2 (see Section 2.26), which can be found on [CTAN:macros/latex/required/psnfss/](http://CTAN:macros/latex/required/psnfss/). Therefore, it is best to update your TeX distribution to a version which provides PSNFSS 9.2. The usage with  $\LaTeX$  is documented in `psnfss2e.pdf`.

- Package load:

```
\usepackage[T1]{fontenc}
\usepackage[sc,osf]{mathpazo}           % SC and OsF options
```

- Family name for local font selection: `pplx`

**THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG. 1234567890.**

Family name for local font selection: `pplj`

**THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG. 1234567890.**

- Do not use `ppl` with SC. This generates *fake* SC fonts.

**THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG. 1234567890.**

## 2.18 greek

### 2.18.1 kerkis

The packages `kerkis` and `kmath` provide Type 1 latin and greek glyphs (in experimental stage). The fonts are based on *URW Bookman* and *Avant Garde*, and provide serif, sans serif, teletype, and math fonts.

- Package load: You should get a new version of `kerkis` package from CTAN.

```
\usepackage{kerkis,kmath}
```

- Family name for local font selection: `mak` (serif)

**The quick brown fox jumps over the lazy dog. 1234567890.**

- Family name for local font selection: `maksf` (sans serif)

**The quick brown fox jumps over the lazy dog. 1234567890.**

- Matching math font: *kmath*. Currently this is a combination of `Kerkis` and `Computer Modern`.





## 2.19 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 **123.45**.

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

## 2.20 iwona

Iwona is a two-element sans-serif typeface with *complete math fonts*. It was created as an alternative version of the Kurier typeface (see Section 2.22), which was designed in 1975 for a diploma in typeface design at the Warsaw Academy of Fine Arts under the supervision of Roman Tomaszewski.

- Package load:

```
\usepackage[T1]{fontenc}
\usepackage[math]{iwona}           % Iwona math is loaded
```

- Family name for local font selection: `iwona`  
*The quick brown fox jumps over the lazy dog. 1234567890.*  
*The quick brown fox jumps over the lazy dog. 1234567890.*
- Family name for local font selection: `iwona` (small caps)  
*THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG. 1234567890.*  
*THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG. 1234567890.*
- Light, Light condensed, Regular, Condensed, Semibold, Semibold condensed, Bold, Bold condensed, and Bold extended are available. Also with SC/OsF and SC Italic.

## 2.21 jknappen

Jörg Knappen, the author of the `mathrsfs` package in Section 2.35, also designed several fonts. Among them is the `textcomp` package for text companion fonts for typesetting symbols.

- Package load:

```
\usepackage{textcomp}
```

- `\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 [URW Garamond No. 8 used in this document does not have many glyphs!].

## 2.22 kurier

Kurier is a two-element sans-serif typeface with *complete math fonts*. It was designed for a diploma in typeface design at the Warsaw Academy of Fine Arts under the supervision of Roman Tomaszewski.

- Package load:

```
\usepackage[T1]{fontenc}
\usepackage[math]{kurier}           % Kurier math is loaded
```

- Family name for local font selection: `kurier`  
*The quick brown fox jumps over the lazy dog. 1234567890.*  
*The quick brown fox jumps over the lazy dog. 1234567890.*
- Family name for local font selection: `kurier` (small caps)  
*THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG. 1234567890.*  
*THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG. 1234567890.*
- Light, Light condensed, Regular, Condensed, Semibold, Semibold condensed, Bold, Bold condensed, and Bold extended are available. Also with SC/OsF and SC Italic.

## 2.23 lm

Latin Modern family of fonts, based on the Computer Modern fonts released into public domain by AMS. The `lm` font set contains a lot of additional characters, mainly accented ones, but not exclusively. There is one set of fonts, available both in Adobe Type 1 format and in OpenType format.

- Package load:

```
\usepackage[T1]{fontenc}
\usepackage{lmodern}
```

## 2.24 mathabx

`mathabx` is a set of 3 mathematical symbols font series: `matha`, `mathb`, and `mathx`. They are defined by MetaFont code and should be of reasonable quality (bitmap output). Things change from time to time, so there is no claim of stability (encoding, metrics, design).

The Type1 version of `mathabx` can be obtained from <http://auemath.aichi-edu.ac.jp/.khotta/ghost/mathabx.html>. Even though the web page is written in Japanese, you won't miss the file, `abxtype1.zip`.

## 2.25 mathdesign

The Math Design project offers *free mathematical fonts* that fit with existing text fonts.

- Package load:

```
\usepackage[T1]{fontenc}
\usepackage[option]{mathdesign}
```

- Available options are:

- utopia that corresponds to Adobe Utopia text fonts (see Sections 2.16 and 2.39)
- garamond that corresponds to URW Garamond text fonts (see Section 2.38.2)
- charter that corresponds to Bitstream Charter text fonts (see Section 2.9)

## 2.26 mathpazo

The Pazo Math fonts are a family of PostScript fonts suitable for *typesetting math* in combination with the Palatino family of text fonts.

- Package load:

```
\usepackage[T1]{fontenc}
\usepackage[sc,osf]{mathpazo}
```

- Family name for local font selection: `pplx`

THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG. 1234567890.

Family name for local font selection: `pplj`

THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG. 1234567890.

## 2.27 mathpple

This is an *obsolete* package. Use mathpazo package in Section 2.26.

## 2.28 mathtime

The mathtime package, by Frank Mittelbach and David Carlisle, is 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 2.5.

## 2.29 minionpro

This Adobe MinionPro font package is a recently added entry to CTAN on Nov. 22, 2005. This package provides a wide range of encodings and variants, including greek, cyrillic, four figure versions, and math alphabets.

Even though this package supports up to Adobe MinionPro *Opticals*, you can still use this package with the basic font sets, Adobe MinionPro Bold, Bold italic, Regular, and Italic. These font sets come with Adobe Reader version 7.x.

## 2.30 mt11p

A package to use the MathTime and MathTimePLUS (“MathTime complete”) fonts in LaTeX2e. Everything is included, including (patched) font metrics, except, of course, the fonts themselves.

## 2.31 poetica

The fonts offer huge numbers of swashed and ligatured versions of glyphs, which are difficult for any software to control in a Type 1 font. This package (with some expenditure of effort in the user) will allow some really remarkable typeset effects.

## 2.32 ps-type1

### 2.32.1 yfonts

The macro package yfonts, by Walter Schmidt, provides a L<sup>A</sup>T<sub>E</sub>X interface to the blackletter (old German) fonts designed by Yannis Haralambous:

- Package load:

```
\usepackage{yfonts}[1998/10/03]
```

- Gotisch by \gothfamily or \textgoth{. . }  
Example: *The quick brown fox jumps over the lazy dog. 0123456789*
- Schwabacher by \swabfamily or \textswab{. . }  
Example: *The quick brown fox jumps over the lazy dog. 0123456789*
- Fraktur by \frakfamily or \textfrak{. . }  
Example: *The quick brown fox jumps over the lazy dog. 0123456789*
- Baroque style by \initfamily or \textinit{. . }  
Font selection is \usefont{U}{yinit}{m}{n}.

For *Baroque initials*, see the following example:

```
\yinipar{\color{blue}W}e are from a farming ...
```



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 “pork 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?

## 2.33 psfonts

### 2.33.1 Mathematica3.0

This virtual font package by Jens-Peer Kuska in September 1997 provides full support for Mathematica version 3.0 fonts. This package is obsolete!

You can download the [Mathematica version 4.2 fonts](#) from Wolfram for free, and its virtual font package can be found at Jens-Peer Kuska’s web site. The following preambles are for the version 4.2 fonts.

- Package load:


```
\usepackage[options]{wrisym}
%\boldmath          % Activate bold math
%\monomath           % Activate Courier or CMTT mono math
%\monoboldmath       % Activate Courier or CMTT mono bold math
```

where options for changing text (Default=times; garamond; janson) and math fonts (Default=times; monospacemath for Courier; cmtt for cmtt).

- One of our favorite combinations: Minion serif + Myriad sans serif + cmtt monoboldmath!

### 2.33.2 marvosym

This package, marvosym, provides lots of marvellous symbols in Type1 such as

- `{\Radioactivity}` produces ☢,
- `{\Biohazard}` produces ☣,
- `{\Football}` produces ⚽,
- `{\NoIroning}` produces 🚫,
- `{\EUR}` produces €, and
- `{\MartinVogel}` produces , the designer of this font, Martin Vogel.

You can also get the original TrueType version from <http://www.marvosym.de>.

### 2.33.3 psnfss

This folder contains basic Adobe PostScript fonts (Table 2.1) and X-consortium PostScript fonts (Charter and Utopia). These fonts are especially important when you create high quality and small size PDF from L<sup>A</sup>T<sub>E</sub>X.

Table 2.1: Basic Adobe PostScript fonts.

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

#### courier

Courier is generally used with Times or Palatino.

- Package load:

```
\usepackage{courier}
```

- Family name for local font selection: `pcr`

*The quick brown fox jumps over the lazy dog. 1234567890.*

*The quick brown fox jumps over the lazy dog. 1234567890. (cmtt)*

*The quick brown fox jumps over the lazy dog. 1234567890. (txtt)*

However, many people complain that Courier font does not go well with Times nor Palatino. If you feel so, you can use cmtt, computer modern teletype font or txtt, txfonts monospaced teletype font.

## helvet

One of the most popular sans serif fonts is Helvetica.

- Package load:

```
\usepackage{helvet} % Helvetica as \sfdefault
\usepackage[T1]{fontenc}
\usepackage{textcomp}
\renewcommand{\familydefault}{\sfdefault} % Required if you want to use
% Helvetica as body text font.
```

- Family name for local font selection: `phv`

*The quick brown fox jumps over the lazy dog. 1234567890.*

*The quick brown fox jumps over the lazy dog. 1234567890.*

## mathptmx

The mathptmx is for Times text and math fonts.

- Package load:

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

- Family name for local font selection: `ptm`

*The quick brown fox jumps over the lazy dog. 1234567890.*

*The quick brown fox jumps over the lazy dog. 1234567890.*

- Note that mathptmx has less number of math symbols than mathpazo.


## Other psnfss fonts

Family names and examples of the other PSNFSS fonts are shown below:

- bookman package for Bookman:

Family name for local font selection: `pbk`

*The quick brown fox jumps over the lazy dog. 1234567890.*

- newcent package for New Century School Book:  
Family name for local font selection: `pnc`  
*The quick brown fox jumps over the lazy dog. 1234567890.*
- avant package for Avant Garde:  
Family name for local font selection: `pag`  
*The quick brown fox jumps over the lazy dog. 1234567890.*
- pifont package for ZapfDingbats:  
Family name for local font selection: `pzd`  
Example: `\ding{48}`:   
Also provides `\Pisymbol`, `\Pifill`, and `\Piline` macros.
- chancery package for Zapf Chancery:  
Family name for local font selection: `pzc`  
*The quick brown fox jumps over the lazy dog. 1234567890.*

#### 2.33.4 w-a-schmidt

The material provided here serves to use various commercial PostScript Type1 font families with LaTeX. Notice that the actual font files are *not* distributed from CTAN; they need to be purchased (But a few *treasure* is hidden in his web site).

### 2.34 pxfonts

This font package designed by Young Ryu enables you to use Palatino text and math fonts. This pxfonts package has more symbols than mathpazo in Section 2.33.3 and also has its own monospaced typewriter font.

- Package load:

```
\usepackage{pxfonts}      % Also loads Helvetica and PXTT
\usepackage[T1]{fontenc}
\usepackage{textcomp}
```

- Family name for local font selection: `pxr`  
*The quick brown fox jumps over the lazy dog. 1234567890.*
- Family name for local typewriter font selection: `pxtt` (Actually this is `txtt`, a part of `txfonts`).  
*The quick brown fox jumps over the lazy dog. 1234567890.*
- It has all the advantages and disadvantages of `txfonts` in Section 2.37.

### 2.35 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`.

- Package load:

```
\usepackage{mathrsfs}
```

- Example:  $\mathscr{ABCD...}$  → *ABCDEFGHIJKLMNOP.*

## 2.36 truetypemetrics

There are many methods to use TrueType fonts with dvipdfmx/PDFL<sup>A</sup>T<sub>E</sub>X. The examples shown in this section are not the results from the font metrics from CTAN.

### 2.36.1 berling

The Truetype version of Monotype Berling contains a larger character set than earlier (Postscript) versions of the same font, including Greek and oldstyle figures.

It is available as part of Microsoft's free e-book reader (<http://www.microsoft.com/reader/downloads/default.asp>; this will install these fonts in your system's fonts folder, typically C:\Windows\fonts\).

- Package load:

```
\usepackage[T1]{fontenc}
\usepackage[lining or oldstyle]{berling}
```

### 2.36.2 frutiger

The Truetype version of Linotype Frutiger contains a larger character set than earlier (Postscript) versions of the same font, including Greek and oldstyle figures. It is available as part of Microsoft's free e-book reader (<http://www.microsoft.com/reader/downloads/default.asp>; this will install these fonts in your system's fonts folder, typically C:\Windows\fonts\).

- Package load:

```
\usepackage[T1]{fontenc}
\usepackage[lining or oldstyle]{frutiger}
```

### 2.36.3 palatinox

The Truetype version of Linotype Palatino contains a much larger character set than earlier (Postscript) versions of Palatino, including Greek, Cyrillic and small caps in all weights and shapes. It is distributed with Microsoft Windows 2000 and XP.

- Package load:

```
\usepackage[T1]{fontenc}
\usepackage[lining or oldstyle]{palatinox}
```

- Family name for local font selection: `lp1`

The quick brown fox jumps over the lazy dog. 1234567890.

The quick brown fox jumps over the lazy dog. 1234567890. (from fpl in Section ??)

## 2.37 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 MiK<sub>T</sub>E<sub>X</sub> full installation puts this directory under c:/texmf/doc/.



- Package load:

```
\usepackage[T1]{fontenc}
\usepackage{txfonts}      % Also loads Helvetica and TXTT
\usepackage{textcomp}
```

- Family name for local font selection: `txr`  
The quick brown fox jumps over the lazy dog. 1234567890.
- Family name for local typewriter font selection: `txtt`  
The quick brown fox jumps over the lazy dog. 1234567890.  
*The quick brown fox jumps over the lazy dog. 1234567890.*  
In my humble opinion, this TXTT font is far superior to Courier.

Several cautionary notes should be addressed.

- Since `txfonts` (and `pxfonts`) has full `amssymb` symbols, do not load `amssymb` package.
- Super- and subscripts are too close to the normal character. See the following example.  
(`txfonts`)  $tk$  vs.  $tk$  (`mathptmx`).
- One  $\TeX$  and font guru constantly argues that `mathptmx` is better.
- But remember that `mathptmx` is more or less a combination of Times and CM math symbols.

## 2.38 urw

This folder contains free URW font support including the base 35 Postscript fonts.

### 2.38.1 antiqua

The directory contains a copy of the Type 1 font “URW Antiqua 2051 Regular Condensed” for  $\LaTeX$ .

### 2.38.2 garamond

This bundle provides a set of URW Garamond No8 Postscript Type 1 fonts. The font used in this document is *URW Garamond No. 8*.

- Package load:

```
\usepackage[T1]{fontenc}
\renewcommand{\rmdefault}{ugm}      % URW Garamond No. 8
```

- Family name for local font selection: `ugm`  
The quick brown fox jumps over the lazy dog. 1234567890.  
*The quick brown fox jumps over the lazy dog. 1234567890.*
- Matching math font: *MathDesign* in Section 2.25

### 2.38.3 grotesq

The directory contains a copy of the Type 1 font “URW Grotesq 2031 Bold” for  $\LaTeX$ .

### 2.38.4 lettergothic

The Postscript font family letter gothic which URW has made available for free under the Aladdin Free Public License

- Package load:

```
\usepackage[T1]{fontenc}
\usepackage{ulgothic}
```

- Family name for local font selection: `ulg`  
*The quick brown fox jumps over the lazy dog. 1234567890.*  
*The quick brown fox jumps over the lazy dog. 1234567890.*

### 2.39 utopia

Adobe Utopia is a freely available font (but not a free font), and has two matching math fonts, fourier (Section 2.16) and math design (Section 2.25).

- Package load:

```
\usepackage[options]{fourier}           % Utopia + Fourier math
\usepackage[utopia]{mathdesign}         % Utopia + MathDesign math
```

- Family name for local font selection: `put`  
*The quick brown fox jumps over the lazy dog. 1234567890.*  
*The quick brown fox jumps over the lazy dog. 1234567890.*

### 2.40 webomints

A set of files for using the Galapagos Design Group's free Web-O-Mints font with L<sup>A</sup>T<sub>E</sub>X.

### 2.41 yhfont

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

- Usage: `\usepackage{yhmath}`

## Chapter 3

# Fonts from Other Sources

### 3.1 SliT<sub>E</sub>X CMSS Fonts

SliT<sub>E</sub>X, developed by Lamport and now superseded by slides class, has its own CMSS fonts. The Type1 fonts are in the `/texmf/fonts/type1/bluesky/cm` directory.

- CMSS Regular:  
Family name for local font selection: `lcmss`  
*The quick brown fox jumps over the lazy dog. 1234567890.*
- Italic and bold faces are also supported.

### 3.2 MyriadPro

Adobe Reader version 7.x also provides Adobe MyriadPro font sets (bold, bold italic, regular, and italic). The technique to generate Adobe MinionPro font package in Section 2.29 can be applied to produce a L<sub>A</sub>T<sub>E</sub>X font package for Adobe MyriadPro fonts.

As the font package is not available at CTAN, the following examples are from our in-house font package.

- Family name for local font selection: `Myriad-LF`  
*The quick brown fox jumps over the lazy dog. 1234567890.*  
Family name for local font selection: `Myriad-LF`  
*The quick brown fox jumps over the lazy dog. 1234567890.*
- Family name for local font selection: `Myriad-OsF`  
*The quick brown fox jumps over the lazy dog. 1234567890.*  
Family name for local font selection: `Myriad-OsF`  
*The quick brown fox jumps over the lazy dog. 1234567890.*

You can find our in-house font package from <http://faq.ktug.or.kr/mywiki/Daisyweb>. Even though the main language in this site is Hangul, you won't miss the installation package and the guide file. But remember that you have to convert OpenType fonts to Type1 PFB fonts using Font Forge or LCDF Type tools.

### 3.3 Math Script Fonts

Besides the `rsfs` package in Section 2.35, there are additional script-like math fonts.

- `\mathcal{ABCDEFGHJK}` creates  $ABCDEF GHIJK$  without any packages or with `eucal` package with `mathcal` option.
- `\mathbb{ABCDEFGHJK}` creates  $ABCDEF GHIJK$  with `amsmath` or `amssymb` package.
- `\mathfrak{ABCDEFGHJK}` creates  $\mathfrak{ABCDEF GHIJK}$  with `eufrak` package.

### 3.4 More Information

- `Sampler.pdf` in your `/texmf/doc/fonts/fontssampler` directory or <http://www.ctan.org/tex-archive/info/fontssampler/?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](http://www.pegasus.rutgers.edu/~elflord/font_howto/Font-HOWTO/html/Font-HOWTO/t1.html)).
- `Schriften für TeX` (<http://home.vr-web.de/was/fonts.html>) (in German). You can download many ready-made font packages for  $\text{\LaTeX}$ . Note that there are no AFM and PFB files (except one!)

# Chapter 4

## Font Selections

### 4.1 Default Font Attribute

Table 4.1 shows default font attribute. You can redefine all the variables. For example,

```
\renewcommand{\mddefault}{l} % To change medium default to Light
\renewcommand{\bfdefault}{m} % To change bold default to Medium
```

Table 4.1: Default font attribute.

variable	value	activated by
<code>\encodingdefault</code>	OT1	<code>\normalfont, \textnormal{}</code>
<code>\familydefault</code>	<code>\rmdefault</code>	<code>\normalfont, \textnormal{}</code>
<code>\rmdefault</code>	cmr	<code>\rmfamily, \textrm{}</code>
<code>\ttdefault</code>	cmtt	<code>\ttfamily, \texttt{}</code>
<code>\sfdefault</code>	cmss	<code>\sffamily, \textsf{}</code>
<code>\seriesdefault</code>	m	<code>\normalfont, \textnormal{}</code>
<code>\mddefault</code>	m	<code>\mdseries, \textmd{}</code>
<code>\bfdefault</code>	bx	<code>\bfseries, \textbf{}</code>
<code>\shapedefault</code>	n	<code>\normalfont, \textnormal{}</code>
<code>\updefault</code>	n	<code>\upshape, \textup{}</code>
<code>\itdefault</code>	it	<code>\itshape, \textit{}</code>
<code>\scdefault</code>	sc	<code>\scshape, \textsc{}</code>
<code>\sldefault</code>	sl	<code>\slshape, \textsl{}</code>

### 4.2 Global Change

Using Helvetica as default roman font is explained in Section 2.33.3. Another method is

```
\renewcommand\sfdefault{phv} % Load helvetica for sans serif
\renewcommand\familydefault{\sfdefault} % 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.

### 4.3 Local Change

There are several ways to change fonts locally.

- Use `{\fontfamily{family}\fontsize{size}{size}\selectfont ...}`.

See this example first.

```
This is URW garamond, {\fontfamily{pzc}\fontsize{12pt}{12pt}\selectfont
but this is Zapf Chancery!}
```

The typeset result is that “This is URW garamond, *but this is Zapf Chancery!*.” `\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.

- Use `\DeclareFixedFont{command}{encoding}{family}{series}{shape}{size}` in preamble. If you know the font file name, use `\font\command=file_name` at size. 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}`.

- Use `{\usefont{encoding}{family}{series}{shape} ..text..}` if you use the default text font size. For example,

```
{\usefont{T1}{bch}{b}{it} The brown fox jumps over the lazy dog.
0123456789}
```

typesets “*The brown fox jumps over the lazy dog. 0123456789*”.

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