# The unimath-plain-X<sub>3</sub>T<sub>E</sub>X package

### Zhang Tingxuan 2022/11/23 Version 0.0γ

#### **Abstract**

unimath-plain-X<sub>3</sub>T<sub>E</sub>X package provides OpenType math font support in *plain T<sub>E</sub>X* format. The unimath-plain-X<sub>3</sub>T<sub>E</sub>X package needs X<sub>4</sub>T<sub>E</sub>X.

### **Contents**

1	How to use this package?						1
2	Text font commands .						2
3	Math font commands .						3
4	Primes (')						4

### 1 How to use this package?

Please notice again that you're using *plain* format but not LareX format. If you are using LareX format, please use unicode-math package instead.

In your document, write

```
\input unimath-plain-xetex
```

Then compile your document with xetex, you can get OpenType math support in your document. The package will set the math font "Latin Modern Math" with "Latin Modern" text fonts in default. To change the font, you can define some names before loading the package. For example,

```
\def\mainfontname{TeX Gyre Termes}
\def\sansfontname{TeX Gyre Heros}
\def\monofontname{TeX Gyre Cursors}
\def\mathfontname{TeX Gyre Termes Math}
\input unimath-plain-xetex
```

Your text fonts will be set in the first 3 lines and your math font will be set in the fourth line.

Currently, the package supports only font family names to use, if you want to use the file names, you can revise the code in unimath-plain-xetex.tex.

### **2** Text font commands

The package provides text font commands in the format of

```
\langle pt\text{-}size \rangle \langle family \rangle \langle series \rangle \langle shape \rangle
```

such as  $\tensfbfit$ ,  $\tensf$ 

Take ten point as an example,

```
Serif
           Upright
                   Italic
 Medium
           \tenrm \tenit
 Bold
           \tenbf \tenbfit
             Sans
        Upright
                   Italic
Medium
        \tensf
                   \tensfit
Bold
        \tensfbf
                   \tensfbfit
        Typewritter
        Upright
                   Italic
Medium
        \tentt
                   \tenttit
Bold
        \tenttbf
                   \tenttbfit
```

The font commands can be used as those provided in plain.tex, for example, {\tenbfit ABC} yields *ABC*.

But if you would't like to remember that many commands, you can write

```
\makefontcmdcompatible{\langle pt-size \rangle}
```

after loading the package. For example, if you write

```
\makefontcmdcompatible{ten}
```

the  $\langle family \rangle$ - $\langle series \rangle$ - $\langle shape \rangle$  order of  $\backslash ten \langle some \rangle$  commands can be write randomly: writing  $\backslash tenbfsfit$  is the same as  $\backslash tensfbfit$ .

You can also get more text font commands through the  $\general$ genfontcmd command:

$$\genfontcmd\{\langle pt\text{-}size\rangle\}\{\langle dimension\rangle\}$$

For example,

```
\genfontcmd{fortyfour}{44pt}
\genfontcmd{verytiny}{2bp}
```

will make commands like \fortyfourrm and \verytinysfbfit available.

### **3** Math font commands

You can input math formulae just like using traditional plain  $T_EX$ . But Open-Type math font is loaded. For example,  $a\{\bf0\}=\{\bf0\}$  yields  $a\mathbf{0}=\mathbf{0}$ . Available math font commands are listed below:

The  $\langle family \rangle$ - $\langle series \rangle$ - $\langle shape \rangle$  order of these commands allows being random; cal can be replaced by scr.

This package uses unicode-math-symbols.tex to generate math symbol commands, the source file can be found in unicode-math package. To find all of the math symbol commands, you can execute

```
texdoc unimath-symbols
```

in Terminal.

You can also input Unicode math characters in your document's source file. For example,  $\int_a^b y \, dx$  and  $\int_a^b y \, dx$  and  $\int_a^b y \, dx$ .

$$\int_a^b y \, dx.$$

## 4 **Primes** (')

The package changed " $^{1}$ " command in math mode, which yields prime(s) in superscript. After loading this package, the primes produced by " $^{1}$ " will be turned into Unicode primes:

Input	yields	Unicode slot	
\$'\$	/	U+2032	
\$''\$	″	U+2033	
\$'''\$	///	U+2034	
\$'''\$	////	U+2057	
\$''''\$	////	(U+2032) × 5	
:	:	:	
$(') \times N$	$(') \times N$	$(U+2032) \times N$	(N > 4)

However, some OpenType math fonts don't contain some of the characters above. For example, there is no U+2032, U+2033 or U+2034 in Erewhon Math. When using such fonts, you can "turn off" the Unicode primes easily by inputing the following line *after* loading the package:

```
\unicodeprimesoff
```

Then when you input "1" n times you will get n primes, and each prime's Unicode character slot is U+2032, even when  $n \le 4$ .

If the primes contain more than one single prime encoded U+2032, a negative math skip will inserted between every two single primes. This math skip is defined as \betweenprimeskip and its default value is -2.7mu, which is proper for Latin Modern Math. To change the value of \betweenprimeskip is just like change any math skip, for example,

```
\betweenprimeskip=-1mu
```

This line should also be written *after* loading the package.