

# The `mathcomp` package for using Text Companion fonts in math mode \*

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2001/01/07

## 1 Purpose

It always bothered me that I had to write the unit ‘ $\mu\text{m}$ ’ with an italic ‘ $\mu$ ’. There is a ‘ $\mu$ ’ in the Text Companion (TC) fonts, and it’s available in most of the font families, shapes and series. The `textcomp` package provides access to the TC fonts from L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>. But I wanted to use some of these fonts in math mode, so I decided to write a package to achieve this goal.

Most of the characters don’t make sense in math mode or they are already present in the standard math fonts. The useful ones are:

<code>\tcohm\$</code>	$\Omega$	<code>\tcpertousand\$</code>	$\%$
<code>\tccelsius\$</code>	$^{\circ}\text{C}$	<code>\tcpertenthousand\$</code>	$\%$
<code>\tcmu\$</code>	$\mu$	<code>\tcdegree\$</code>	$^{\circ}$
<code>\tcdigitoldstyle{0}\$</code>	0 ...	<code>\tcdigitoldstyle{9}\$</code>	9

The names for the symbols are the same as in the `textcomp` package except that you have to type `\tcsymbol-name` instead of `\textsymbol-name`. The oldstyle digits are defined in a different way, see section 2. `\tccelsius` is also available with the name `\tccentigrade`, for the sake of compatibility with earlier versions of the `textcomp` and `mathcomp` packages.

Additionally, the `mathcomp` package will redefine the macros `\dagger` and `\ddagger` so as to take their symbols from the text companion fonts, thus also making sure that the symbols produced by `\fnsymbol` will always match the text font family.

The extra math symbols are made available for math versions ‘normal’ and ‘bold’, provided that a ‘bold’ math version is actually defined.

The default behaviour of the `mathcomp` package is to use the text companion fonts from the font family CM Roman. Any other text font family can be specified as a package option; e.g., say `\usepackage[pp1]{mathcomp}` to make `mathcomp` use the Adobe Palatino (pp1) text companion fonts. The option `rmdefault` is special: It makes the `mathcomp` package load the particular font family which has been

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\*Preliminary version v0.1f

chosen as the default roman font family (`\rmdefault`) for the document, whatever it is.

The package is based on the `textcomp` package<sup>1</sup> by Sebastian Rahtz. This package is required because I didn't want to declare the font encoding `TS1` once again.

The `mathcomp` package is preliminary because both the `TS1` encoding and the `textcomp` package might change in the future.

## 2 The code

The code is quite simple, short and obvious so there is not much to say. The package is announced (but not too loudly).

```
1 \NeedsTeXFormat{LaTeX2e}[1995/12/01]
2 \ProvidesPackage{mathcomp}[\filedate\space\fileversion\space(TBo)]
```

The `textcomp` package is loaded to define the `TS1` encoding.

```
3 \RequirePackage{textcomp}
```

The new symbol font `TS1/cmr/m/n` is declared under the name `TC`. It is the default font for all math versions. For the math version 'bold' `TS1/cmr/bx/n` is defined if bold math is available<sup>2</sup>.

```
4 \DeclareSymbolFont{TC}{TS1}{cmr}{m}{n}
5 \ifx\mv@bold\@undefined\else
6   \SetSymbolFont{TC}{bold}{TS1}{cmr}{bx}{n}
7 \fi
```

The package option `rmdefault` overwrites these declarations with the document's roman font family.

```
8 \DeclareOption{rmdefault}{
9 \DeclareSymbolFont{TC}{TS1}{\rmdefault}{m}{n}
10 \ifx\mv@bold\@undefined\else
11   \SetSymbolFont{TC}{bold}{TS1}{\rmdefault}{bx}{n}
12 \fi
13 }
```

Any other package option overwrites the font declarations with the font family given.

```
14 \DeclareOption*{
15 \DeclareSymbolFont{TC}{TS1}{\CurrentOption}{m}{n}
16 \ifx\mv@bold\@undefined\else
17   \SetSymbolFont{TC}{bold}{TS1}{\CurrentOption}{bx}{n}
18 \fi
19 }
```

The symbol alphabet for the oldstyle digits is declared:

```
20 \DeclareSymbolFontAlphabet{\tcdigitoldstyle}{TC}
```

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<sup>1</sup>Ver. 1.4, 1995/12/11

<sup>2</sup>Thanks to Walter Schmidt for this fix and the other improvements in version 0.1f.

Finally, the extra symbols<sup>3</sup> are defined.

```
21 \DeclareMathSymbol{\tcohm}{\mathord}{TC}{'127}
22 \DeclareMathSymbol{\tcpertousand}{\mathord}{TC}{'207}
23 \DeclareMathSymbol{\tccelsius}{\mathord}{TC}{'211}
24 \let\tccentigrade=\tccelsius
25 \DeclareMathSymbol{\tcdegree}{\mathord}{TC}{176}
26 \DeclareMathSymbol{\tcpertenthousand}{\mathord}{TC}{'230}
27 \DeclareMathSymbol{\tcmu}{\mathord}{TC}{'265}
28 \DeclareMathSymbol{\dagger}{\mathbin}{TC}{132}
29 \DeclareMathSymbol{\ddagger}{\mathbin}{TC}{133}
30
```

And the package options are processed.

```
31 \ProcessOptions
```

## Change History

0.1a	General: first usable version . . . . . 1	0.1e	General: corrected <code>\mathalpha</code> to <code>\mathord</code> . . . . . 1
0.1b	General: documentation added . . . 1	0.1f	General: added <code>\tcdegree</code> and <code>\tccelsius</code> (WaS) . . . . . 1
0.1c	General: better documentation . . . 1		fixed <code>\dagger</code> and <code>\ddagger</code> (WaS) . . . . . 1
0.1d	General: added style options to change font family . . . . . 1		protected against bold mathversion being undefined (WaS) . . . 1

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<sup>3</sup>Thanks to D. Arsenau who found the error that was corrected in version 0.1e.