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

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1 Purpose

It always bothered me that I had to write the unit ‘μm’ with an italic ‘µ’. There is a ‘µ’ 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 \LaTeX}. 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:

\[
\begin{align*}
\texttt{tcohm} & \quad \Omega & \texttt{tcperthousand} & \quad \% \\
\texttt{tccelsius} & \quad ^\circ C & \texttt{tcpertenthousand} & \quad \%_0 \\
\texttt{tcmu} & \quad \mu & \texttt{tcdegree} & \\
\texttt{tcdigitoldstyle(0)} & \quad 0 & \texttt{tcdigitoldstyle(9)} & \quad 9
\end{align*}
\]

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

Additionally, the **mathcomp** package will redefine the macros \texttt{dagger} and \texttt{ddagger} so as to take their symbols from the text companion fonts, thus also making sure that the symbols produced by \texttt{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 \texttt{\usepackage[ppl]{mathcomp}} to make **mathcomp** use the Adobe Palatino (ppl) 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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chosen as the default roman font family (\texttt{\rmdefault}) for the document, whatever it is.

The package is based on the \texttt{textcomp} package\footnote{1} by Sebastian Rahtz. This package is required because I didn’t want to declare the font encoding \texttt{TS1} once again.

The \texttt{mathcomp} package is preliminary because both the \texttt{TS1} encoding and the \texttt{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).

\begin{verbatim}
\NeedsTeXFormat{LaTeX2e}[1995/12/01]
\ProvidesPackage{mathcomp}[\filedate\space\fileversion\space(TBo)]
\end{verbatim}

The \texttt{textcomp} package is loaded to define the \texttt{TS1} encoding.

\begin{verbatim}
\RequirePackage{textcomp}
\end{verbatim}

The new symbol font \texttt{TS1/cmr/m/n} is declared under the name \texttt{TC}. It is the default font for all math versions. For the math version ‘bold’ \texttt{TS1/cmr/bx/n} is defined if bold math is available\footnote{2}.

\begin{verbatim}
\DeclareSymbolFont{TC}{TS1}{cmr}{m}{n}
\ifx\mv@bold\@undefined\else
\SetSymbolFont{TC}{bold}{TS1}{cmr}{bx}{n}
\fi
\end{verbatim}

The package option \texttt{\rmdefault} overwrites these declarations with the document’s roman font family.

\begin{verbatim}
\DeclareOption{\rmdefault}{
\DeclareSymbolFont{TC}{TS1}{\rmdefault}{m}{n}
\ifx\mv@bold\@undefined\else
\SetSymbolFont{TC}{bold}{TS1}{\rmdefault}{bx}{n}
\fi
}\end{verbatim}

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

\begin{verbatim}
\DeclareOption*{
\DeclareSymbolFont{TC}{TS1}{\CurrentOption}{m}{n}
\ifx\mv@bold\@undefined\else
\SetSymbolFont{TC}{bold}{TS1}{\CurrentOption}{bx}{n}
\fi
}\end{verbatim}

The symbol alphabet for the oldstyle digits is declared:

\begin{verbatim}
\DeclareSymbolFontAlphabet{\tcdigitoldstyle}{TC}
\end{verbatim}

\footnote{1}{Ver. 1.4, 1995/12/11}
\footnote{2}{Thanks to Walter Schmidt for this fix and the other improvements in version 0.1f.}
Finally, the extra symbols\(^3\) are defined.

\begin{verbatim}
21 \DeclareMathSymbol{\tcohm}{\mathord}{TC}{'127}
22 \DeclareMathSymbol{\tcperthousand}{\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.
\end{verbatim}

\textbf{Change History}

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

\footnote{\textsuperscript{3}Thanks to D. Arsenau who found the error that was corrected in version 0.1e.}