The mathtime and mathpi packages*†

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1 The mathtime package

The mathtime package contains the code to support the Math Time fonts.

1.1 Usage and options

To load support for the Math Time fonts add the following declaration to the preamble of your LaTeX document:

`\usepackage[`⟨*options*⟩`]{mathtime}`

This package supports several options:

nobold default.

cmbold use cm bold fonts (not recommended, the bold fonts will then be encoded differently to the normal weight ones, and no account of this will be taken).

mtbold This provides bold and heavy math versions coming with the Math Time Plus fonts.

heavybold Also requires the Math Time Plus font set, just define bold math version (not heavy) but use the heavy fonts where available.

In all cases the user level command `\heavymath` is defined to be `\boldmath` if the heavy math version is not defined.

slantedgreek Make the lowercase greek letters slanted (by default). Note that the uppercase greek letters are always upright.

uprightgreek Make the lowercase greek letters upright.

subscriptcorrection Redefine `_` so that it automatically adds negative kerns in subscripts if they start with either `j`, `p`, or `f`. This option might generate problems if other packages are loaded as well.

The subscript correction also be be turned on and off within the document using the commands:
`\enablesubscriptcorrection` and `\disablesubscriptcorrection`.

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nosubscriptcorrection Disable the the subscript correction (default).

cmcal This option uses the Computer Modern calligraphic alphabet for `\mathcal` — a bad choice, but what do you do if nothing else is at your disposal. We make this the default as we know that it is always around.

lucidacal This options sets up `\mathcal` to load the Lucida calligraphic font as a math alphabet. It also defines `\mathbcal` to always refer to the bold series of this alphabet.

lucidascr Like `lucidacal` but puts the font into `\mathscr`. This might be useful if for some reason `\mathcal` already contains some special calligraphic alphabet.

mtplusscr This options sets up `\mathscr` to load the Math Time Plus script font as a math alphabet. It also defines `\mathbscr` to always refer to the bold series of this alphabet.

mtpluscal Like `mtplusscr` but puts the font into the `\mathcal` alphabet.

noTS1 The use of the mathtime fonts with text fonts encoded in the standard OT1 or T1 encodings leaves a few symbols (section and paragraph marks, and dagger symbols) undefined. By default the TS1 'text companion encoding' will be used to access these symbols, but this option suppresses that. If the LY1 option (below) is used this option will be implied and dagger etc will be drawn from the operators font.

OT1 Use OT1 encoing for the operators font. This is the normal behaviour, but in this package the default behaviour is to use the default text encoding for the operators font.

T1 Use T1 encoding for the operators font.

LY1 Use LY1 (Y&Y's 'locally' defined texnansi encoding) In the operators font. This option implies the noTS1 option. Dagger etc will be drawn from the operators font in this case.

Not all options can be used together, e.g., one can at most select one of the options setting up `\mathcal`, if both options are given `mtpluscal` will win over `luciadcal` and in case of `\mathscr`, `lucidascr` will be the winner over `mtplusscr`.

This package makes a lot of font re-assignments. Normally these generate warning messages on the terminal, however getting so many messages would be distracting, so a further three options control the font tracing. Even more control may be obtained by loading the tracefnt package.

errorshow Only show font *errors* on the terminal. Warnings are just sent to the log file. This is the default for this package.

warningshow Show font warnings on the terminal. This corresponds to the usual LaTeX behaviour.

nofontinfo Suppress all font warnings, even from the log file.

1.2 Text fonts

The package sets up Times, Helvetica, and Courier as the default text fonts (selected through `\textrm`, `\textsf`, and `\texttt`) unless the text fonts have been explicitly set, e.g., by loading a package like `newcent` before loading the `mathtime` package. More exactly the package checks if `\rmdefault` refers to `cmr` and in that case changes all three defaults.

To support a few symbols not available in the Math Time fonts (but normally available with LaTeX) the `mathtime` package has to load the the symbol companion font for Times (i.e., the TS1 encoded font). To preserve space we do not load the corresponding package (`texcomp`) but only declare those characters we do need. If you do want all symbols from this font available in your text load the `textcomp` package in the preamble. Conversely you may suppress the declaration of these symbols from the TS1 encoded fonts by use of the `nots1` package option, in which case the default definitions refering to the standard TeX encodings and hence possibly the Computer Modern fonts will be used.

1.3 Provided math alphabets

The package provides be default the five standard math alphabets `\mathrm`, `\mathbf`, `\mathit`, `\mathsf` and `\mathtt` pointing to the document text fonts, the first three to the roman font in normal, bold, and italic, the others to the sans serif and the typewriter font.

The `\mathcal` and `\mathbcal` defaults to the Computer Modern calligraphic alphabet but can be modified with options as decribed above.

Script alphabets with `\mathscr` and `\mathbscr` are only available if explicitly selected by an option.

Alternatively one can select other fonts for `\mathscr` and `\mathcal`, for example, by loading the `mathpi` package described below. An alternative (although not blending very well) would be the the Euler Script fonts from the AMS font collection which can be loaded as either `\mathcal` or `\mathscr` using the `eucal` package.

A Fraktur alphabet (`\mathfrak`) can be loaded with the `mathpi` fonts (a good match) or by loading the `eufrak` package from the AMS font collection.

1.4 Additional or changed symbols

The Math Time fonts contain a small number of additional symbols which are made available by the `mathtime` package. See the general documentation of the Math Time fonts.

1.5 Font sizes

LaTeX is set up in a way that the user normally uses commands that hide font sizes rather than specifying font sizes explicitly, e.g., instead of `\fontsize{17pt}{19pt}\selectfont` a command like `\LARGE` is used (which does in fact a bit more than just setting the font size).

It is the task of a document class and not that task of a support package like this one to decide about the absolute sizes used in a document. The task of a package like `mathtime` is to provide sensible values for math sizes given some text size.

The default ratio for script fonts is 0.76 and for scriptscript fonts 0.6.

2 The mathpi package

The mathpi package provides support for the Adobe math pi fonts by declaring a number of math alphabets. It can be used independly of the mathtime package. At least one option has to be given, otherwise loading this package will have no effect.

mathfrak Defines `\mathfrak` to refer to the fraktur alphabet from the Math Pi Two font.

mathscr Defines `\mathscr` to refer to the script alphabet from the Math Pi Two font. This needs the font especially encoded, see `mtfonts.fdd` for details.

mathcal Defines the script alphabet under the math alphabet command usually used for a calligraphic font, otherwise like `mathscr`.

mathbb Defines `\mathbb` to refer to the blackboard bold math alphabet from Math Pi Six.