The mathlmnt package for use with LaTeX 2_ε

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1 Overview and requirements

The macro package mathlmnt and the related virtual fonts provide a solution to typeset mathematics in a style that suits the Linotype Minion text fonts. The virtual fonts are based on Linotype's Minion fonts in Type1 format and on Y&Y's MathTime fonts. Using this package requires

- Linotype's Minion and Minion Expert fonts in Type1 format and the related TeX support files;
- Y&Y's MathTime and MathTime Plus fonts, and a working LaTeX support for these.

While the basic MathTime font set alone is not sufficient, not *all* of the 'Plus' collection is needed. Actually, the following fonts will be used by the mathlmnt package:

- from the MathTime collection: RMTMI, MTEX
- from the MathTime Plus collection: RMTMIB, MTSYN, MTSYB, MTGU, MTGUB

Notice that the free Belleek fonts (a MathTime substitute) are neither suitable nor sufficient to use the mathlmnt package!

The package is shipped in conjunction with a set of TeX support files for the Minion text fonts.

2 Usage

Loading the macro package mathlmnt

```
\usepackage[⟨options⟩]{mathlmnt}
```

changes the default roman font family to Linotype Minion and makes LaTeX use the virtual 'mathlmnt' fonts for math.

The following sections describe the particular features of the package and the additional options that control its behavior.

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2.1 Text fonts

By default, the package changes the default roman font family (`\rmdefault`) to `lmnx`, i.e. Linotype Minion with normal digits. In math mode, the same font family will be used for numbers, function names and the `\mathrm`, `\mathbf` and `\mathit` alphabets. By specifying the package option osf the font family `lmnj` can be selected instead, so that oldstyle digits are used – only in the text, but not in the formulas.

The font metrics that accompany the macro package support the Minion text fonts with T1 and TS1 (text companion) encoding only, so you should issue the additional commands

```
\usepackage[T1]{fontenc}
\usepackage{textcomp} .
```

The math alphabets `\mathsf` and `\mathtt` are mapped to the default sans serif and typewriter text font families by evaluating the macros `\sfdefault` and `\ttdefault` when mathlmnt gets loaded. Thus, if you redefine the default font families, this should be done *before* loading of mathlmnt.

All above-mentioned math alphabets will be used with T1 encoding.

2.2 Greek letters

With TeX or LaTeX uppercase Greek letters in math mode are usually typeset as upright, despite they are usually meant to designate variables. This violates clearly the International Standards ISO31-0:1992 to ISO31-13:1992. The mathlmnt package provides an option slantedGreek, which causes uppercase Greek to be typeset as slanted.

Besides, a full upright Greek alphabet is available, too. It is *always* upright, regardless of the option slantedGreek. The lower-case letters are accessible through the macros `\upalpha`, `\upbeta` etc, while the upper-case letter are named `\upGamma`, `\upDelta` and so on.

2.3 Math alphabets

Using additional math fonts, such as the AMS fonts, with Minion may be difficult, because they are likely to look too large in comparison to Minion. That's why two potentially useful math alphabets are declared in the package and can be activated optionally.

Blackboard Bold Loading the package with the option pazobb makes a 'blackboard bold' math alphabet `\mathbb` available. Upper-case letters and the digit 1 are taken from the Pazo math fonts and are scaled appropriately to match Minion.

Fraktur Loading the package with the option eufrak makes Euler Fraktur (scaled appropriately) available as a math alphabet named `\mathfrak`.

2.4 Additional and missing symbols

The mathlmnt package provides a few additional math symbols, which are not defined with standard LaTeX:

`\cupprod` and `\capprod` are similar to $\smile$ and $\frown$, but look more appropriate for the 'cup-product' and 'cap-product'. `\comp` is similar to `\circ`, but is less dark. `\setdif` is a sort of backslash, useful for the difference of sets. All these symbols are typeset as binary operators.

The mathlmnt virtual fonts include also a ready-made `\hslash`, i.e. a slashed *h*. Notice, however, that there is no corresponding `\hbar`.

3 Known bugs and problems

- The packages amsfonts or amssymb cannot be used with mathlmnt. The style of the symbols would not match Minion and MathTime, and the code would clash with mathlmnt. See section 2.3 how to use a doublestroke and a Fraktur alphabet.
- mathlmnt already uses Euler Script for `\mathcal`, so loading of the euscript package is pointless.
- LaTeX uses the dot from the text font for the macros `\ddots` and `\vdots`. Using Minion and MathTime, this dot symbol differs from the 'math' dot used for `\ldots` and `\cdots`. Loading the package mathdots improves the default definitions of the dots-generating macros and fixes this problem. Make sure to use version 0.4 or better of mathdots!

4 Option summary

This section lists all options of the mathlmnt package. Options that correspond to the default behavior of the package are marked by an asterisk and need normally not to be specified.

lf* Changes the default roman font family to `lmnx`.

osf Changes the default roman font family to `lmnj`.

uprightGreek* Makes upper-case Greek letters in math mode upright.

slantedGreek Makes upper-case Greek letters in math mode slanted.

nobb* No blackboard bold alphabet is declared.

pazobb Sets up Pazo as blackboard bold math alphabet `\mathbb`

nofrak* No Fraktur alphabet is declared

eufrak Sets up Euler Fraktur as calligraphic math alphabet `\mathfrak`.

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.

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

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

5 Credits

The fine-tuning of the virtual math fonts was adopted from Aloysius G. Helminck's fontinst script `fontmmtt.tex`.

The code of the macro package mathlmnt was – to a large part – adopted from the mathtime package (Frank Mittelbach, David Carlisle), because the encoding of the math fonts is almost identical.