The `mathastext` package

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Abstract

The `mathastext` package[1] propagates the document *text* font to *mathematical* mode, for the letters and digits of the Latin alphabet and a few further characters. Various possibilities are provided for Greek letters, including picking them up in the font itself, if it is available in LGR-encoding. Thus, the package makes it possible to use a quite arbitrary font without worrying too much that it does not have specially designed accompanying math fonts. Also, `mathastext` provides a simple mechanism in order to use more than one math-as-text font in the same document (not that we recommend it!). A final aspect is that it helps sometimes produce smaller PDF files.

Numerous examples are available here:
http://jf.burnol.free.fr/mathastext.html

1 Description of what the package does

1.1 Motivation and main features

The initial idea was to produce handouts or research papers with a less book-like typography than what is typical of standard TEX-LATEX with the Computer Modern fonts, but equipped with a very uniform look. Indeed, `mathastext` was conceived as a result of frustration of distributing to students TEX-crafted mathematical handouts with a subsequent realization that not much had made it to a semi-permanent brain location. So, I forced LATEX to produce material as if written on a primitive typewriter, a little bit like the good old seminar notes of the Cartan and Grothendieck days. The hope was to coerce the reader into concentrating more onto the contents ;-). Don't ask me if this helped, I have long since opted for a positive attitude in life.

The current version of the package has evolved into a kind of generic manner of providing math support to text fonts lacking therefrom. But its scope only covers the following characters:

$$abcdefghijklmnopqrstuvwxyz$$
$$ABCDEFGHIJKLMNOPQRSTUVWXYZ$$
$$0123456789$$
$$! \, ? \, * \, , . : ; + - = (\,) \, [\,] \, / \, \# \ \$ \, \% \, \& < > | \, \{ \, \} \text{ and } \backslash$$

Note: if the package detects OT1 as default encoding it will take out from the list $< > | \{ \}$ and $\backslash$ as they are not available in OT1, except for the typewriter fonts; the option `alldelims` forces re-integration in this case.

The package tells the math alphabet commands `\mathnormal`, `\mathrm`, `\mathbf`, `\mathit`, `\mathsf` and `\mathtt` to refer to the document text fonts, not to the Computer Modern ones.

The en-dash (–) is used for the minus sign, rather than the hyphen (-) character. Additionally, some further glyphs will also be picked up in the text font: the dotless i and j, the hbar and the math accents. Version `1.12` brought a better compatibility with a Unicode setting (assuming that `fontspec` is made use of), but the scope

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[1] This document describes `mathastext` v1.14c (2011/04/04).

of `mathastext` does not include letters with diacritics such as é, à, ö in math mode. Users of Unicode engines and fonts are advised to look at the `mathspec` and `unicode-math` packages which have a much wider scope than `mathastext`.

Even when typesetting simple mathematics, some glyphs (almost) must be taken from the default math fonts: in particular the prime ′ for derivatives, as the text font ' is not, as a rule, a satisfying alternative. Also, the package does nothing regarding the large math symbols (except for $\prod$ and $\sum$ in inline math which, like here: $\prod\sum$, will be taken from the Symbol Font if option `symbolmisc` is passed to the package).

1.2 The italic option

In the initial version `1.0`, the Latin letters in mathematical mode assumed the exact same shape as in text mode, and this meant, generally speaking, that they would turn up upright. Doing this gives a very uniform look to the document, so that one has to make an effort and read it with attention, I explained above why I did this on purpose.

Nevertheless, soon after I posted the initial version of the package to CTAN, I was overwhelmed by numerous[2] questions[3] on how to have the letters be in italic shape.

Starting with version `1.1` the default is still, as in version `1.0`, for everything to be in upright shape, but it suffices to pass to the package the option `italic` to have italic Latin letters in math mode.[4] There is also an option `frenchmath`[5] to make the uppercase letters nevertheless upright, because this is the way of traditional French mathematical typography.[6]

1.3 Greek letters

The Computer Modern fonts are very light and thin in comparison to many text fonts, and as a result rarely mix well with them (particularly if the Latin letters in math mode are upright). The following options are provided by `mathastext`:

<—>: nothing is done by the package, Greek letters are the default Computer Modern ones or have been set-up by other packages; for example by the `fourier` package with option 'upright', which gives upright Greek letters.

LGRgreek: this is for fonts which additionally to Latin letters also provide Greek letters in LGR encoding.[7]

eulergreek: the Greek letters will be taken from the Euler font which is included in all LaTeX distributions (although no package loading is necessary for the user, nor done by `mathastext`, the file `uzeur.fd` from the `eulervm` package must

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[2]this means "more then one."

[3]I thank in particular Tariq PERWEZ and Kevin KLEMENT for their kind remarks (chronological order).

[4]more precisely stated, the value of `\itdefault` is used.

[5]in versions of the package prior to `1.13`, it was necessary to also pass the option `italic` to enable `frenchmath`. This is now superfluous.

[6]more precisely stated, the shape will be the one used for digits and operator names, thus by default `\shapedefault`.

[7]among examples known to the author are the Comfortaa and the Droid (serif and sans) fonts, and of course the Greek Font Society fonts such as GFS Didot.

be accessible to LaTeX as it provides a mechanism to scale by an arbitrary factor the Euler font.) The letters are upright.

symbolgreek: the Greek letters will be taken from the (Adobe) Symbol font. A command is provided so that the user can scale the Symbol font to let it better mix with the text font. The letters are upright.

selfGreek: this option is in case the text font is available in OT1-encoding and does contain the glyphs for the eleven capital Greek letters of default TeX. It does nothing for the lowercase Greek letters. The encoding used in the document does not have to be OT1.[8]

1.3.1   Shape of Greek letters

Classic TeX uses in math mode italic lowercase and upright uppercase Greek letters. French typography uses upright shape for both lowercase and uppercase. And the ISO standard is to use italic shape for both lowercase and uppercase.

The Euler and Symbol font not being available in other than their default upright shape, this question of shapes for Greek letters raises issues only in the case of the options `LGRgreek` and `selfGreek`.

The options `frenchmath`, `itgreek`, `upgreek`, `itGreek` and `upGreek` modify the Greek letter shapes according to the following rules, listed from the lowest to the highest priority:

default: the lowercase Greek letters are in the same shape as Latin letters, and the uppercase in the same shape as applied to digits and operator names,

frenchmath: both lowercase and uppercase are in the same shape as the digits and operator names (most of the time this means "upright shape", but it can be otherwise),

itgreek,upgreek: both lowercase and uppercase are in the `\itdefault`, respectively the `\updefault` shape (at the time of loading the package or at the time of a subsequent call to `\Mathastext` or `\MathastextWillUse`),

itGreek,upGreek: same as above, but only for the uppercase letters.

So, the default gives the classic TeX behavior when option `italic` was passed. Each call to `\Mathastext` (or `\MathastextWillUse`) macros (described in a later section) reinitializes the computation of the shapes.

As described in the next section the package allows to define various "math versions". The fonts used for the Greek letters, and their shapes, are the same accross all math versions, except when options `LGRgreeks` or `selfGreeks` are passed to the package (Note the additional "s"). It is then expected that all math versions will use fonts available in LGR encoding (or, OT1 encoding for the capital Greek letters), and the shapes will then also be local to the math version.

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[8]contrarily to the previous versions of the package, `v1.14c` will not assume that the encoding is OT1-compatible, it will directly load the OT1-encoded version of the font.

1.4 Advanced use: math versions

It is not infrequent to use two different text fonts in the same document. In the context of the `mathastext` design goals it was thus necessary to find a way to let changes of the text font also propagate to math mode. For this the package extends the L^ATEX mechanism of math versions. However this is only for Latin letters, digits, and the other characters mentioned above, but not for Greek letters: the fonts for the Greek letters will be the same accross all math versions.[9] It is not possible (in the current version of the package) to have one part of the document use the Euler font for Greek letters and another part use the Symbol font (it is possible to use both fonts simultaneously but Symbol will then be employed for various mathematical symbols, not for Greek, see option `symbolmax`).

Let us now see a small document using four math versions:

```
\documentclass{minimal}
\usepackage[T1]{fontenc}
\usepackage{mathastext}
%    declares Latin Modern Typewriter Proportional:
\MTDeclareVersion{lmvtt}{T1}{lmvtt}{m}{n}
%    declares Baskervald, italic letters in math:
\MTDeclareVersion[it]{baskervald}{T1}{ybv}{m}{n}
%    declares Helvetica-Bold-Slanted, but upright
%    letters in math mode:
\MTDeclareVersion[n]{helvetica}{T1}{phv}{b}{sl}
\begin{document}
\MTVersion{helvetica}
Bold-slanted Helvetica in text,
$bold\ upright\ Helvetica\ in\ math$.\\
\MTVersion[lmvtt]{baskervald}
Text in lmvtt but $math\ in\ Baskervald-Italic$.\\
\MTVersion{normal}
The normal version uses the default text font at
the time of loading mathastext, $in\ math\ also\ of\ course$.
\end{document}
```

The encodings of the various `mathastext`-defined versions can be arbitrary; but as `mathastext` decides at the time when it is loaded where to look for things like the en-dash, or the dotless i and j, or the math accents, which are encoding-dependent, there are obviously some limitations to the use of these things in more than one math version.

The package provides various macros to interface with its 'math versions' functionalities. These commands are detailed in a later section. As an example, here is an equivalent manner to set up our small document:

```
\documentclass{minimal}
\usepackage[T1]{fontenc}
\usepackage{mathastext}
\renewcommand{\rmdefault}{lmvtt}
\Mathastext[lmvtt]  % Declares the 'lmvtt' version
\renewcommand{\rmdefault}{ybv}
\MTlettershape{it}
```

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[9]except for the `LGRgreeks` and `selfGreeks` options.

```
\Mathastext[baskervald] % Declares the 'baskervald' version
\renewcommand{\shapedefault}{sl}
\renewcommand{\rmdefault}{phv}
\renewcommand{\mddefault}{b}
\MTlettershape{n}
\Mathastext[helvetica] % Declares the 'helvetica' version
\begin{document}
\MTVersion{helvetica} % use 'helvetica' both in text and math
Bold-slanted Helvetica in text, $bold\ upright\ Helvetica\ in\ math$.\\
\MTVersion[lmvtt]{baskervald}
Text in lmvtt but $math\ in\ Baskervald-Italic$.\\
\MTVersion{normal}
The normal version uses the default text font at
the time of loading mathastext, $in\ math\ also\ of\ course$.
\end{document}
```

The math versions defined by `mathastext` memorize the text font defaults at the time they are defined by `mathastext`. This is illustrated by this example, which also exemplifies the use of math alphabets:

```
\documentclass{article}
\usepackage{bookman} % Bookman/Avant Garde/Courier
\let\oldrm\rmdefault
\let\oldtt\ttdefault
\let\oldsf\sfdefault
\usepackage[italic]{mathastext}
\renewcommand{\rmdefault}{pnc}
\renewcommand{\sfdefault}{phv}
\renewcommand{\ttdefault}{txtt}
\Mathastext[schoolhelvtx] % Schoolbook/Helvetica/TX typewriter
\renewcommand{\sfdefault}\oldsf
\renewcommand{\rmdefault}{bch}
\Mathastext[charteravanttx] % Charter/Avant Garde/TX typewriter
\renewcommand{\rmdefault}\oldrm
\renewcommand{\ttdefault}\oldtt
\renewcommand{\sfdefault}\oldsf
\parindent0pt\def\HugeSample{{\Huge ar}}\linespread{1.44}
\begin{document}
Normalement je suis en Bookman. \HugeSample

{\sffamily Et moi je suis en Avant Garde. \HugeSample}

{\ttfamily Et moi je suis en Courier. \HugeSample}

$\mathnormal{mathnormal123}\ \mathrm{mathrm123}\ %
\mathbf{mathbf123}\ \mathit{mathit123}\ %
\mathsf{mathsf123}\ \mathtt{mathtt123}$

\bigskip
\MTversion{schoolhelvtx}

Normalement je suis en New Century Schoolbook. \HugeSample
```

```
{\sffamily Et moi je suis en Helvetica. \HugeSample}

{\ttfamily Et moi je suis en TX Typewriter \HugeSample}

$\mathnormal{mathnormal123}\ \mathrm{mathrm123}\ %
\mathbf{mathbf123}\ \mathit{mathit123}\ %
\mathsf{mathsf123}\ \mathtt{mathtt123}$

\bigskip
\MTversion{charteravanttx}

Normalement je suis en Charter. \HugeSample

{\sffamily Et moi je suis en Avant Garde. \HugeSample}

{\ttfamily Et moi je suis en TX typewriter. \HugeSample}

$\mathnormal{mathnormal123}\ \mathrm{mathrm123}\ %
\mathbf{mathbf123}\ \mathit{mathit123}\ %
\mathsf{mathsf123}\ \mathtt{mathtt123}$

\bigskip
\MTversion{normal}

Normalement je suis en Bookman. \HugeSample

{\sffamily Et moi je suis en Avant Garde. \HugeSample}

{\ttfamily Et moi je suis en Courier. \HugeSample}

$\mathnormal{mathnormal123}\ \mathrm{mathrm123}\ %
\mathbf{mathbf123}\ \mathit{mathit123}\ %
\mathsf{mathsf123}\ \mathtt{mathtt123}$
\end{document}
```

Unicode TeX engines and fonts can also be accomodated. It is recommended to load the package `fontspec`. Of course `mathastext` is extremely far from really defining a math font, as it applies basically only to a subset of the 32-127 ascii range. And it does not know how to use a given Unicode font simultaneously for Latin and Greek letters: interested people are advised to look at packages `mathspec` and `unicode-math`. Here is an example (a bit schizophrenic) of a document with mathastext-versions for a XeTeX or LuaLaTeX user:

```
\documentclass{minimal}
\usepackage[no-math]{fontspec}
\setmainfont{comfortaa}
\usepackage{mathastext}  % the normal version uses Comfortaa
\setmainfont{TeX Gyre Pagella}
\Mathastext[pagella]     % the pagella version uses
                         % TeX Gyre Pagella
\MTDeclareVersion{times}{T1}{ptm}{m}{n}
        %  this is a T1-encoded URW Times.
        %  Do not use this interface for a Unicode font,
```

```
            %  use rather as above the \setmainfont
            %  command of |fontspec|, followed by \Mathastext
\setmainfont{TeX Gyre Schola}
\Mathastext[schola] % and the schola version uses
                    % unicode TeX Gyre Schola
\begin{document}
\MTVersion{pagella}
This is in TeX Gyre Pagella $and\ this\ also$ (unicode font).
\MTVersion{times}
Now we are in URW Times, $here\ also$ (T1 encoded font).
\MTVersion[normal]{schola}
Text in Unicode Comfortaa and $math\ in\ Unicode\ Schola$.
\end{document}
```

1.5   Main options

`italic, frenchmath`: italic letters in math, upright uppercase if `frenchmath`.

`LGRgreek, eulergreek, symbolgreek`: the Greek letters will be taken, respectively from the text font itself (in LGR encoding), or from the Euler font, or from the Postscript Symbol font.

`symbolmax`: all characters listed supra, other than letters and digits, are taken from the Symbol font. This option also makes a number of further glyphs available, including some basic mathematical arrows, as well as the sum and product signs. For documents with very simple needs in mathematical symbols, `mathastext` with option `symbolmax` may give in the end a PDF file quite smaller than the one one would get without the package.

`defaultmathsizes`: `mathastext` opts for bigger subscripts (and, copied from the `moresize` package, redefines `\Huge` and defines `\HUGE`). Use this option to prevent it from doing so.

`defaultalphabets`: by default, `mathastext` redeclares the math alphabets `\mathrm`, `\mathit`, etc... (but not `\mathcal`) to refer to the current document text fonts (at the time of loading the package). Use this option to prevent it from doing so (each alphabet also has its own disabling option).

1.6   Miscellaneous

the en-dash as minus sign: Very often the - character from the text font does not give a good minus sign. So by default, the package uses the en-dash sign –. Use `noendash` to deactivate it. Starting with version `1.12` of the package this 'en-dash as minus' should work in all encodings, including Unicode (if `fontspec` has been loaded).

hbar: The definition of `\hbar` inherited from default LaTeX will in our context make use of the `h` of the current math font (so for us, it is also the text font, perhaps in italic shape), but the bar accross the `h` will come from the original default math font for letters (usually `cmmi`), and furthermore its placement on the `h` can be odd-looking. So we redefine `\hbar` to use only the text

font (and this will be aware of the `italic` option). Our construction does not always give an optimal result (and its scope is limited to the OT1, LY1 and T1 encodings), so an option `nohbar` deactivates it. There is no `\hslash` provided by the package, though. The version `1.12` of the package when dealing with a Unicode font tries to get the `\hbar` directly as a glyph from the font.

dotless i and j: By default the package redefines `\i` and `\j` to give the dotless i and j (if it exists at all), *also in math mode,* in the text font. Will overwrite the default commands `\imath` and `\jmath`. In version `1.12` of the package this should work in all encodings, including Unicode (it is then assumed that `fontspec` has been loaded, and of course that the glyphs are indeed in the font).

XeTₑX and LuaLATₑX: for the en-dash and the dotless i and j, the package expects to detect either the EU1 encoding for XeTeX or the EU2 encoding for LuaLATₑX (this will be true if `fontspec` was loaded), or one of OT1, LY1 or T1, else it will renounce and not attempt to access the en-dash or the dotless i and j glyphs. With LATₑX and PdfLATₑX, there is no such limitation and all 8bit-encodings (containing these glyphs) should be ok.

fontspec: one more note to users of XeTₑX/LuaLATₑX with `fontspec`: it has to be loaded *with the option* `no-math`, *and before* `mathastext`.

vec accent: The default `\vec` accent is not appropriate for upright letters, so `mathastext` provides a `\fouriervec` which takes its glyph in a Fourier font, and an Ersatz `\pmvec` which is reasonably good looking on upright letters and works with the `\rightarrow` glyph. Contrarily to version `1.0`, the default `\vec` is not overwritten with `\fouriervec`. And contrarily to version `1.1`, one now needs to pass the option `fouriervec` to have the math accent `\fouriervec` defined by the package.

math alphabets: • We define a new math alphabet command `\mathnormalbold` which gives direct access to the bold version of the `\mathnormal` alphabet (rather than using either the `\bm` command from the `bm` package or the `\boldsymbol` command from the `amsbsy` package).

  • The other math alphabet changing commands defined by the package are `\MathEulerBold`, `\MathEuler` and `\MathPSymbol`.

  • `\mathnormal`, `\mathrm`, `\mathbf`, `\mathit`, `\mathsf` and `\mathtt` are modified to make reference to the document text fonts (this can be disabled by suitable package options).

Note though that it is not possible to use too many of such commands in the same document, due to some limitations of LATₑX. Declaring them does not seem to be a problem, and I will welcome any information by knowledgeable people.

math accents: an option `mathaccents` is provided to pick up the accents in math mode from the text font, but the package knows only T1, LY1 or OT1-compatible encodings.

Regarding the encoding-dependent glyphs: the en-dash, the dotless i and j, the math accents, the hbar, are encoding dependent and the relevant decisions are made by `mathastext` at the time it is loaded. So you can use math versions with different encodings but, regarding these characters only those with the same encoding as the normal math version will display them correctly.

2 Commands

2.1 Preamble-only commands

Nothing is necessary besides loading `mathastext`, possibly with some customizing options. The following commands provide enhancements to the basic use of the package.

- `\Mathastext`: reinitializes `mathastext` according to the current defaults of encoding, family, series and shape.

  - It can also be preceded optionally by one or more of[10] `\MTencoding{⟨enc⟩}`, `\MTfamily{⟨fam⟩}`, `\MTseries{⟨ser⟩}`, `\MTshape{⟨sh⟩}`, and, new with version 1.1, `\MTlettershape{⟨sh⟩}`. For example valid values are, respectively, ⟨T1⟩, ⟨phv⟩, ⟨m⟩, ⟨n⟩, and ⟨it⟩: this is the Helvetica font in T1-encoding, regular (medium) series, upright shape, and the letters will be in italic shape.

  - starting with version 1.12 `\Mathastext` accepts an optional argument, which will serve as a name to designate the corresponding math version. Without optional argument `\Mathastext` redefines the default normal and bold versions. This argument, being optional, must be enclosed within square brackets.[11]

- `\MTWillUse[⟨ltsh⟩]{⟨enc⟩}{⟨fam⟩}{⟨ser⟩}{⟨sh⟩}`: tells `mathastext` to use the font with the specified encoding, family, series, and shape for the letters and digits (and all other afflicted characters) in math mode. The optional argument ⟨ltsh⟩ specifies a shape for the letters, for example `\itdefault`, or directly ⟨it⟩ or ⟨sc⟩.

- `\MTDeclareVersion[⟨ltsh⟩]{⟨name⟩}{⟨enc⟩}{⟨fam⟩}{⟨ser⟩}{⟨sh⟩}`: declares that the document will have access to the font with the specified characteristics, under the version name ⟨name⟩. For example:

  `\MTDeclareVersion[sc]{palatino}{T1}{ppl}{b}{sl}`

  declares under the name `palatino` a version where mathematics will be typeset using the Palatino font in T1-encoding, bold, slanted, and the letters will in fact be in caps and small caps (and bold).[12] When the optional argument

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[10]these commands exist also with long names: `\Mathastextencoding`, etc... The same applies to the other commands mentioned in this section.

[11]The allowed version names are as for the LaTeX `\DeclareMathVersion` macro. Do not use "normal" or "bold"; this is already taken care of by a call to `\Mathastext` without optional argument.

[12]I do not especially recommend to use this in real life!

is absent, and `mathastext` was loaded with the `italic` option, then the default letter shape will be `it`,[13] else letters will have the same shape as used for digits and operator-names.

- `\MTboldvariant{⟨var⟩}`: when used before `\Mathastext`, specifies which bold (`b`,`sb`,`bx`,…) to be used by `\mathbf` (and `\boldmath`). Default is the `\bfdefault` at the time of loading `mathastext`. When used before the declaration of a version, decides the way `\mathbf` will act in this version.

- `\MTEulerScale{⟨factor⟩}`: scales the Euler font by ⟨*factor*⟩.

- `\MTSymbolScale{⟨factor⟩}`: scales the Symbol font by ⟨*factor*⟩.

2.2   Body Text and Math commands

- `\MTVersion[⟨nametext⟩]{⟨namemath⟩}`:[14] in the absence of the optional argument changes simultaneously the text and the math fonts to be the fonts corresponding to the version ⟨*namemath*⟩. If there is an optional argument then the text fonts will use ⟨*nametext*⟩ and the math mode will use ⟨*namemath*⟩. To change only the math fonts, use the LaTeX command `\mathversion`.

All further commands are for math mode only.

- `\hbar`: this is constructed (in a way compatible with the `italic` option) from the `h` letter and the ¯ accent from the `mathastext` font. Note that `\mathrm{\hbar}` and `\mathbf{\hbar}` should work and that `\hbar` does scale in subscripts and exponents. Only for T1 and OT1 (or LY1) encodings.

- `\fouriervec`: this is a `\vec` accent taken from the Fourier font; the `fourier` package need not be loaded. Active only if option `fouriervec`.

- `\pmvec`: this provides a poor man `\vec` accent command, for upright letters. It uses the right arrow. Does not change size in subscripts and exponents.

- `\Mathnormal, \Mathrm, \Mathbf, \Mathit, \Mathsf, \Mathtt`: modifications of the original `\mathnormal, \mathrm, \mathbf, \mathit, \mathsf, \mathtt`. By default, the originals are overwritten with the new commands.

- `\mathnormalbold`: a bold version of `\mathnormal`.

- `\inodot, \jnodot`: the corresponding glyphs in the chosen font for math mode. By default, will overwrite `\imath` and `\jmath`. With version `1.12` by default `\i` and `\j` work also in math mode and give then `\inodot`, resp. `\jnodot`. This should work for all 8bit-encodings having these glyphs, and also in Unicode.

- `\MathEuler, \MathEulerBold`: math alphabets to access all the glyphs of the Euler font, if option `eulergreek` (or `eulerdigits`) was passed to the package.

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[13]more precisely, the shape is the latest value passed in one of the previously used package commands to specify the shape of letters, or the `\itdefault` of the time of loading the package.
[14]`\MTVersion` is also available as `\MTversion`.

- `\MathPSymbol`: math alphabet to access the Symbol font.

- when one of the options `symbolgreek`, `eulergreek`, or `selfGreek` is passed to the package the capital Greek letters which look like their Latin counterparts acquire names: `\Digamma`, `\Alpha`, `\Beta`, `\Epsilon`, `\Zeta`, `\Eta`, `\Iota`, `\Kappa`, `\Mu`, `\Nu`, `\Omicron`, `\Rho`, `\Tau`, `\Chi` (no `\Digamma` for Symbol). Also an `\omicron` control sequence is provided.

- LGR Greek and 'var'-letters: only the `\varsigma` is available in this encoding, so using for example `\varphi` will load the previous default math font. It might thus be suitable when recompiling already written LaTeX sources to add to the preamble `\let\varphi=\phi`, `\let\varepsilon=\epsilon`, etc..., in case only the 'variant' form of the letter was used in the documents.

- Miscelleneous mathematical symbols from the postscript Symbol font are made available (or replaced) when option `symbolmisc` is passed. They are `\prod` $\prod$ `\sum` $\sum$ `\implies` $\Rightarrow$ `\impliedby` $\Leftarrow$ `\iff` $\Longleftrightarrow$, `\shortiff` $\Leftrightarrow$ `\to` $\to$ `\longto` $\longrightarrow$ `\mapsto` $\mapsto$ `\longmapsto` $\longmapsto$, `\aleph` $\aleph$ `\inftypsy` ∞ `\emptyset` $\varnothing$ `\surd` $\surd$ `\nabla` ∇, `\angle` $\angle$ `\forall` $\forall$ `\exists` $\exists$ `\neg` $\neg$ `\clubsuit` $\clubsuit$, `\diamondsuit` $\diamondsuit$ `\heartsuit` $\heartsuit$ `\spadesuit` $\spadesuit$ `\smallint` $\int$, `\wedge` $\wedge$ `\vee` $\vee$ `\cap` $\cap$ `\cup` $\cup$ `\bullet` $\bullet$ `\div` $\div$, `\otimes` $\otimes$ `\oplus` $\oplus$ `\pm` $\pm$ `\ast` $\ast$ `\times` $\times$ `\proptopsy` $\propto$, `\mid` $|$ `\leq` $\leq$ `\geq` $\geq$ `\approx` $\approx$ `\supset` $\supset$ `\subset` $\subset$, `\supseteq` $\supseteq$ `\subseteq` $\subseteq$ `\in` $\in$ `\sim` $\sim$ `\cong` $\cong$ `\perp` $\perp$ `\equiv` $\equiv$ `\notin` $\notin$ `\langle` $\langle$ `\rangle` $\rangle$. And a `\DotTriangle` $\therefore$ is made available by option `symbolre` (which overwrites `\Re` and `\Im`: $\Re, \Im$). The `\inftypsy` and `\proptopsy` have these names to leave up to the user the choice to replace (or no) the original (larger) `\infty` ∞ and `\propto` $\propto$.

  Regarding the `\prod` and `\sum` commands: they will use the Symbol glyphs $\prod \sum$ in inline math, and in display math the Computer Modern ones (or whatever is set up by other packages) :

$$\prod\sum$$

  The package provides `\prodpsy` and `\sumpsy`: if one really wants in all situations the Symbol glyphs, one can do `\let\prod\prodpsy` and `\let\sum\sumpsy`. Also `\defaultprod` and `\defaultsum` will refer to the `\prod` and `\sum` before redefinition by the package: this is to allow constructs such as `$\displaystyle\defaultprod$` or `\[\textstyle\defaultprod\]`, because they would not work with the `\prod` and `\sum` as re-defined by the package.

3 Complete list of options

- `basic`: only mathastextify letters and digits.

- `italic`: the letters will default to italic shape in math mode.

- `frenchmath`: `italic`, but uppercase Latin letters in the same font as for digits and operator names. In general this means that they will be upright. In case of the `LGRgreek` option, `frenchmath` influences also the shape of the Greek letters.

- `endash`, `emdash`: use the text font en-dash (–) or even the em-dash (—, but this seems crazy) for the minus sign rather than -. `endash` option is default for the package.

- `noendash`: the minus sign will be the - from the text font, not the en-dash –.

- `nohbar`: prevents `mathastext` from defining its own `\hbar`.

- `nolessnomore`: besides ! ? *, . : ; + - = ( ) [ ] / # $ % & `mathastext` treats also < > | { } and \. Use this option to not do it. The option `nolessnomore` is activated by default in case of OT1-encoding.

- further excluding options: `noexclam` ! ? `noasterisk` * `nopunctuation` , . : ; `noplus`, `nominus`, `noplusnominus` + − `noequal` = `noparenthesis` ( ) [ ] / `nospecials` # $ % & and `nodigits`.

- `alldelims`: true by default, means that the characters excluded by `nolessnomore` are treated. Use this option in case of a mono-width OT1-encoded font.

- `symbolgreek`, `symboldigits`: to let Greek letters (digits) use the Symbol font.

- `symbolre`: replaces `\Re` and `\Im` by the Symbol glyphs $\Re, \Im$ and defines a `\DotTriangle` command ($\therefore$).

- `symbolmisc`: takes quite a few glyphs, including logical arrows, product and sum signs from Symbol. They are listed *supra.*. You may also consider `\renewcommand{\int}{\smallint}` to maximize still more the use of the Symbol font.

- `symboldelimiters`: the characters apart from letters and digits will be taken from the Symbol font.

- `symbol`: combines `symbolgreek`, `symbolre`, and `symbolmisc`.

- `symbolmax`: combines `symbol` and `symboldelimiters`.

- `eulergreek`, `eulerdigits`: to let Greek letters (digits) use the Euler font.

- `LGRgreek`: this is for a font which is also available in LGR-encoding.

- `LGRgreeks`: each declared math version will be supposed to be with a font which is also available in LGR-encoding.

- `selfGreek`: this is for a font which is also available in OT1-encoding and contains the glyphs for the default eleven capital Greek letters.

- `selfGreeks`: each declared math version will be supposed to be with a font with the eleven capital Greek letters in its OT1-encoded version.

- `upgreek`, `itgreek`, `upGreek`, `itGreek`: options to tell to use `\itdefault` or `\updefault` for the lowercase and uppercase (or only the uppercase) Greek letters. Only operant in the case of the `LGRgreek(s)` and `selfGreek(s)` options.

- `mathaccents`: use the text font also for the math accents. As in vanilla LaTeX, they are taken from the font for the digits and `\log`-like names. Obey the alphabet changing commands. Will work only for T1, LY1, or OT1-compatible encodings.

- `defaultrm`, `defaultbf`, `defaulnormal`, `defaultit`, `defaultsf`, `defaultt`, `defaultalphabets`: do not overwrite (respectively) `\mathrm`, `\mathbf`, `\mathnormal`, `\mathit`, `\mathsf`, and `\mathtt`, or all.

- `defaultimath`: do not overwrite `\imath` and `\jmath`, do not extend `\i` and `\j` to math mode use.

- `defaultmathsizes`: do not change the LaTeX defaults.

- `fouriervec`: provides a `\fouriervec` command. The user can then add in the preamble `\let\vec=\fouriervec`. There is also always available a "poor man" vec accent `\pmvec` for upright letters.

Thanks to Kevin KLEMENT, Tariq PERWEZ and Ricard TORRES for bug reports and feature requests.