

The **mathastext** package

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The **mathastext** package changes the fonts which are used in math mode for letters, digits and a few other punctuation and symbol signs to replace them with the font as used for the document text. 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.

`'mathastext'` is a LaTeX package

```
\usepackage{mathastext}
```

The document will use in math mode the text font as configured at package loading time, for these characters:

```
abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
0123456789  
!?,.,;+==() [] /#%&<>|{} \
```

The command `\MTsetmathskips` allows to set up extra spacings around each given letter.

Use multiple `\Mathastext[name]`'s to define in the preamble various math versions using each a given text font, to be later activated in the document body via the command `\MTversion{name}`.

With the subdued option, **mathastext** will be active only inside such math versions distinct from the normal and bold.

Main options: `italic`, `defaultmathsizes`, `subdued`, `asterisk`, `LGRgreek`.

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1 Package history and installation instructions

1.1 Changes

See [section 4](#) for the detailed change log.

Changes for release 1.3o of 2016/05/03 • `mathastext` fixes an issue related to a feature of Lua \LaTeX and luaotfload that OpenType fonts are declared in one of two modes: `node` and `base`, and only the latter is functional in math mode. But by default text fonts are declared in mode `node`. Thus `mathastext` now intervenes to make it so that the font it declares in math mode will use mode `basic`. This fixes issues with for example old style figures being used while the text font used lining figures (or vice versa, depending on the font). But see the code comments for more.

Changes for release 1.3n of 2016/04/22 • at long last, `mathastext` takes care properly of annoying and perplexing amsmath’s `\newmcodes@`. The very recent change in `amsopn.sty` finally made it compatible with Unicode engines, but anyhow, `mathastext` must do its own patch to use the correct font. All of this taking into account the various options passed to the package. Lots of trouble for a tiny thing.

Changes for release 1.3l of 2016/01/29 • compatibility with fontspec’s switch from EU1/EU2 to TU common to both Unicode engines.

Changes for release 1.3j of 2016/01/15 • `\MTeverymathoff` (renamed) and added `\MTeverymathdefault`.

- `subdued` mode is a bit stronger: also the asterisk reverts to the default (if it was modified due to option `asterisk`), the added extra `\mskip`'s (useful with upright fonts) for $'$, \exists , and \forall are suppressed rather than re-configured to use `0mu`. Related new commands `\MTexistsdoesskip`, `\MTforalldoesskip`, `\MTprimedoesskip`, `\MTnormalexists`, `\MTnormalforall`, `\MTnormalprime`.
- the toggle for using mathematically active letters is only emitted once during package loading; the `\Mathastext` command does not do it anymore; the use in the preamble of `\MTmathstandardletters`, or `\MTnoicinmath` and related commands is not overruled by later use of `\Mathastext`.
- quite a few documentation improvements and rewrites, particularly in the description of commands (section 3.3.2) which are related to the modifications of mathcodes (mainly for math activation of characters or letters) as done by `mathastext` at `\everymath` or `\everydisplay`.

Changes for release 1.3i of 2016/01/06 • `\url` from `url.sty` as well as `\url` and `\nolinkurl` from `hyperref.sty` use math mode and (by default) the monospace text font. To avoid `mathastext` overwriting the special preparation done by `{url,hyperref}.sty` the commands `\url/\nolinkurl` are patched to do automatically `\MTactivemathoff` (now `\MTeverymathoff`) before entering math mode.

- the extra skips specified by `\MTsetmathskips` (see 2.5) are not inserted around letters if inside the arguments of math alphabet commands, or within operator names.
- the added explicit italic corrections (for non-oblique fonts; see 2.6) were disabled within math alphabet scopes, except `\mathnormal`; they are now disabled within all math alphabets, inclusive of `\mathnormal`.

Changes for release 1.3g of 2015/10/15 • following 2015/10/01 LaTeX release, removal of the "luatex" prefix from the names of LuaLaTeX math primitives. Compatibility maintained with older LaTeX formats.

Changes for release 1.3d of 2014/05/23 • new commands `\MTstandardgreek` and `\MTcustomgreek` in relation to the options `LGRgreek(s)`, `selfgreek(s)`, `eulergreek`, `symbolgreek`.

Changes for release 1.3c of 2013/12/14 • `\Mathastext` and `\MTDeclareVersion` both accept a final optional argument, a math version name whose settings regarding things not otherwise changed by `mathastext` (like most symbols and large symbols) will be inherited by the declared math version (first optional argument of `\Mathastext` or first mandatory argument of `\MTDeclareVersion`). Typical use will be with this final optional argument set to be `[bold]`.

- `\MTversion` has a starred variant which will not modify the document text fonts, but only the math fonts (for those characters treated by `mathastext`).

Changes for release 1.3a of 2013/09/04 • (see [subsection 2.5](#)) new command `\MTsetmathskips` allows to specify, on a letter by letter basis, extra spaces (expressed in terms of ‘mu’ units, or as `\thinmuskip` for example) to be inserted automatically in math mode around the specified letter.

Version 1.2f : addition of the “change log” at the end of this user manual, and some minor code improvements not changing neither features nor user interface.

Version 1.2e made additions: in this user manual to the section [2.11](#) describing the compatibility issues, and to the test files illustrating various package features. Important changes to the source code were done to fix compatibility problems with active characters dating back to the 1.2 version. Also, an oversight in the implementation of the italic correction features from 1.2b was corrected.

Version 1.2d introduced the [asterisk](#) option and addressed a problem of compatibility with `amsmath`.

The main new features in versions 1.2 and 1.2b were the [extended scope of the math alphabets](#) and, respectively, [added italic corrections in math mode](#). Both use mathematically active characters and some (thorny) technical problems related to globally active characters were finally solved to (almost) complete satisfaction (let’s hope) only in the current 1.2e version. These issues are commented upon in the [compatibility section](#), in the test file `mathastexttestalphabets.tex` and in the commented source code.

Earlier, version 1.15 introduced the concept of the [subdued math versions](#).

Initial release 1.0 was on 2011/01/25.

1.2 Installation

The fastest way is: `unzip -d <destfolder> mathastext.tds.zip`, where `<destfolder>` could be `~/texmf` or, on mac os x, `~/Library/texmf`.

Else, download `mathastext.dtx`, possibly also `mathastext.ins`, and follow these instructions:

* with `mathastext.ins`: run `tex` on `mathastext.ins` to generate the package style file `mathastext.sty` as well as `mathastext.tex` and some test files.

* without `mathastext.ins`: run `tex` on `mathastext.dtx` to generate the package style file `mathastext.sty` as well as `mathastext.tex` and some test files. (and also `mathastext.ins`)

Move the style file `mathastext.sty` to a location where TeX can find it.

In a TDS compliant hierarchy this will be
`<TDS>:tex/latex/mathastext/mathastext.sty`

`*documentation*`: run latex thrice on mathastext.tex then dvipdfmx. Or, run pdflatex thrice on mathastext.dtx. In the former case the documentation is with source code included, in the latter without. The file mathastext.tex can be customized to change the font size or set other options therein.

(One cannot use lualatex/xelatex to compile the documentation.)

`*test files*`: mathastexttestmathversions.tex
mathastexttestunicodemacs.tex
mathastexttestunicodelinux.tex
mathastexttestalphabets.tex

2 What **mathastext** does

2.1 Examples

mathastext's basic aim is to have the same font for text and mathematics. With hundreds of free text fonts packaged for L^AT_EX and only a handful of math ones, chances are your favorite text font does not mix so well with the available math ones; **mathastext** may then help. Note that **mathastext** was initially developed for the traditional T_EX fonts and engines, and that compatibility with Unicode engines and OpenType fonts is partial.

Here is an example with Latin Modern typewriter proportional:

Let (X, Y) be two functions of a variable a . If they obey the differential system $(VI_{\nu,n})$:

$$\begin{aligned} a \frac{d}{da} X &= \nu X - (1 - X^2) \frac{2na}{1 - a^2} \frac{aX + Y}{1 + aXY} \\ a \frac{d}{da} Y &= -(\nu + 1)Y + (1 - Y^2) \frac{2na}{1 - a^2} \frac{X + aY}{1 + aXY} \end{aligned}$$

then the quantity $q = a \frac{aX+Y}{X+aY}$ satisfies as function of $b = a^2$ the P_{VI} differential equation:

$$\begin{aligned} \frac{d^2 q}{db^2} &= \frac{1}{2} \left\{ \frac{1}{q} + \frac{1}{q-1} + \frac{1}{q-b} \right\} \left(\frac{dq}{db} \right)^2 - \left\{ \frac{1}{b} + \frac{1}{b-1} + \frac{1}{q-b} \right\} \frac{dq}{db} \\ &\quad + \frac{q(q-1)(q-b)}{b^2(b-1)^2} \left\{ \alpha + \frac{\beta b}{q^2} + \frac{\gamma(b-1)}{(q-1)^2} + \frac{\delta b(b-1)}{(q-b)^2} \right\} \end{aligned}$$

with parameters $(\alpha, \beta, \gamma, \delta) = (\frac{(\nu+n)^2}{2}, \frac{-(\nu+n+1)^2}{2}, \frac{n^2}{2}, \frac{1-n^2}{2})$.

Notice that the Latin (and Greek letters) are in upright shape. But perhaps we insist on obeying the standardized habits:

Let (X, Y) be two functions of a variable a . If they obey the differential system $(VI_{\nu,n})$:

$$\begin{aligned} a \frac{d}{da} X &= \nu X - (1 - X^2) \frac{2na}{1 - a^2} \frac{aX + Y}{1 + aXY} \\ a \frac{d}{da} Y &= -(\nu + 1)Y + (1 - Y^2) \frac{2na}{1 - a^2} \frac{X + aY}{1 + aXY} \end{aligned}$$

then the quantity $q = a \frac{aX+Y}{X+aY}$ satisfies as function of $b = a^2$ the P_{VI} differential equation:

$$\begin{aligned} \frac{d^2 q}{db^2} &= \frac{1}{2} \left\{ \frac{1}{q} + \frac{1}{q-1} + \frac{1}{q-b} \right\} \left(\frac{dq}{db} \right)^2 - \left\{ \frac{1}{b} + \frac{1}{b-1} + \frac{1}{q-b} \right\} \frac{dq}{db} \\ &\quad + \frac{q(q-1)(q-b)}{b^2(b-1)^2} \left\{ \alpha + \frac{\beta b}{q^2} + \frac{\gamma(b-1)}{(q-1)^2} + \frac{\delta b(b-1)}{(q-b)^2} \right\} \end{aligned}$$

with parameters $(\alpha, \beta, \gamma, \delta) = (\frac{(\nu+n)^2}{2}, \frac{-(\nu+n+1)^2}{2}, \frac{n^2}{2}, \frac{1-n^2}{2})$.

This was typeset using the Times font (available in any \TeX distribution). Let us now be a bit more original and have our mathematics with italic letters from the sans serif font Helvetica, while the letters in text use New Century Schoolbook.

Let (X, Y) be two functions of a variable a . If they obey the differential system $(VI_{\nu,n})$:

$$\begin{aligned} a \frac{d}{da} X &= \nu X - (1 - X^2) \frac{2na}{1 - a^2} \frac{aX + Y}{1 + aXY} \\ a \frac{d}{da} Y &= -(\nu + 1)Y + (1 - Y^2) \frac{2na}{1 - a^2} \frac{X + aY}{1 + aXY} \end{aligned}$$

then the quantity $q = a \frac{aX+Y}{X+aY}$ satisfies as function of $b = a^2$ the P_{VI} differential equation:

$$\begin{aligned} \frac{d^2 q}{db^2} &= \frac{1}{2} \left\{ \frac{1}{q} + \frac{1}{q-1} + \frac{1}{q-b} \right\} \left(\frac{dq}{db} \right)^2 - \left\{ \frac{1}{b} + \frac{1}{b-1} + \frac{1}{q-b} \right\} \frac{dq}{db} \\ &\quad + \frac{q(q-1)(q-b)}{b^2(b-1)^2} \left\{ \alpha + \frac{\beta b}{q^2} + \frac{\gamma(b-1)}{(q-1)^2} + \frac{\delta b(b-1)}{(q-b)^2} \right\} \end{aligned}$$

with parameters $(\alpha, \beta, \gamma, \delta) = (\frac{(\nu+n)^2}{2}, \frac{-(\nu+n+1)^2}{2}, \frac{n^2}{2}, \frac{1-n^2}{2})$.

And after all that, we may wish to return to the default math typesetting (let's shorten the extract here in case the reader makes an indigestion ...):

Let (X, Y) be two functions of a variable a . If they obey the differential system $(VI_{\nu,n})$:

$$\begin{aligned} a \frac{d}{da} X &= \nu X - (1 - X^2) \frac{2na}{1 - a^2} \frac{aX + Y}{1 + aXY} \\ a \frac{d}{da} Y &= -(\nu + 1)Y + (1 - Y^2) \frac{2na}{1 - a^2} \frac{X + aY}{1 + aXY} \end{aligned}$$

then the quantity $q = a \frac{aX+Y}{X+aY}$ satisfies as function of $b = a^2$ the P_{VI} differential equation with parameters $(\alpha, \beta, \gamma, \delta) = (\frac{(\nu+n)^2}{2}, \frac{-(\nu+n+1)^2}{2}, \frac{n^2}{2}, \frac{1-n^2}{2})$.

Notice that the Greek letters also changed according to the *math version*: **mathastext** has indeed some (limited) capabilities to this effect, with its **LGRgreek** option. This document uses the LGR encoded fonts **cmmt**, **cmss**, and **txr**, which are part of standard T_EX distributions.¹

2.2 Overview

2.2.1 Basic use

The initial ideology of **mathastext** was to produce mathematical texts with a very uniform look, not separating math from text as strongly as is usually done.

As soon as one tries out other fonts for text than the Computer Modern ones one realizes how extremely “thin” are the default T_EX fonts for mathematics: they definitely do not fit well visually with the majority of text fonts. With **mathastext** one can get one’s (simple... or not) mathematics typeset in a manner more compatible with the text, without having to look for an especially designed font.

Here is a minimal example of what may go into the preamble:

```
\usepackage[T1]{fontenc}
\usepackage{times}
\usepackage[italic]{mathastext}
```

The package records which font is set up for text, at the time it is loaded,² and then arranges things in order for this text font to be used in math mode as well. So, with the preamble as above all letters, digits, and punctuation signs inside math mode will then be typeset in Times.³ The exact list of characters concerned by **mathastext** is a subset of the basic ASCII set:

<p style="text-align: center;"> abcdefghijklmnpqrstuvwxyz ABCDEFGHIJKLMNPQRSTUVWXYZ 0123456789 ! ? * , . : ; + - = () [] / # \$ % & < > { } and \ </p>

¹The first two are available (with no need to load explicitly any package in the document) via the combination **cbfonts** (**cbgreek-complete**) & **babel**, and the LGR encoded **txr** font (again no package loading is necessary) is part of the files of the **txfontsb** package.

²alternatively it is possible to configure the text font after loading **mathastext**, and then the command **\Mathastext** will accomplish the necessary changes to the font for letters, digits and a few extra ascii symbols in math mode.

³let’s do as if we did not know the excellent **txfonts** package which employs Times for text and has a very complete math support, including many additional mathematical glyphs in comparison to the CM fonts.

As one can see, this is a very limited list! some possibilities are offered by `mathastext` for Greek letters and will be described later.

The text characters ' and - are not used, and the asterisk is done optionally:

- the derivative sign ' is left to its default as the text font glyph ' is not, as a rule, a satisfying alternative.⁴
- for the minus sign `mathastext` uses the endash character –, if available, and not the hyphen character -,
- the option `asterisk` is necessary for `mathastext` to replace the binary math operator * (and the equivalent control sequence `\ast`) with a version which uses the text asterisk * suitably lowered⁵ (and with the correct spaces around it as binary operator). The reason for making it optional is that after this $\$R^*\$$ or $\$R^{\ast}\$$ do not work and have to be written $\$R^{\{*\}}\$$ or $\$R^{\{\ast\}}\$$.

Nothing is changed to 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 `symbol misc` was used.

The left and right delimiters are taken from the text font only for the base size: any `\big`, `\bigl`, `\bigr`, etc...reverts to the original math symbols.

2.2.2 always load `mathastext` last

The “large” math symbols are not modified in any way by `mathastext`. Only loading some math font packages such as `fourier`, `kpfonts`, `mathabx`, `mathdesign`, `txfonts`, `newtxmath`, etc... will change them. Think of loading these packages before `mathastext`, else they might undo what `mathastext` did.

More generally any package (such as `amsmath`) dealing with math mode should be loaded *before* `mathastext`.

2.2.3 sans in math

The following set-up often gives esthetically pleasing results: it is to use the sans-serif member of the font family for math, and the serif for text.

```
\renewcommand\familydefault\sfdefault
\usepackage{mathastext}
\renewcommand\familydefault\rmdefault
\begin{document}
```

⁴v1.2 adds a customizable tiny space before ' to separate it from the previous letter, this is really needed when using upright letters in math mode with the CM derivative glyph. Compare f' with f' .

⁵the amount of lowering can be customized.

2.2.4 using `mathastext` with beamer

Starting with release 3.34 of `beamer`, `mathastext` is recognized as a “math font package”.

Only with **earlier** `beamer` versions is it necessary to issue `\usefonttheme{professionalfonts}` in the preamble. Example:

```
\documentclass{beamer}
%\usefonttheme{professionalfonts}% obsolete for mathastext since beamer 3.34
\usepackage{newcent}
\usepackage[scaled=.9]{helvet}
\renewcommand{\familydefault}{\rmdefault}
\usepackage[defaultmathsizes,symbolgreek]{mathastext}
\renewcommand{\familydefault}{\sfdefault}
\begin{document}
\begin{frame}
  This is some text and next comes some math:  $E=mc^2$ 
  \[
    E=mc^2=a^n+b^n-c^n=\alpha\beta\gamma
  \]
  \begin{align}
    E&=mc^2\\
    E&=h\nu
  \end{align}
  And again some text.
\end{frame}
\end{document}
```

2.2.5 option `LGRgreek`

There is the issue of Greek letters. Sometimes the text font has Greek glyphs, in LGR encoding (this will be mentioned in the documentation of the font package). Then option `LGRgreek` tells `mathastext` to pick up these Greek letters. And it is possible to specify whether the Greek letters should be upright, or “italic”.⁶

It is naturally possible to leave the responsibility to set up Greek letters to some other packages loaded previously to `mathastext`. And even if `mathastext` has been loaded with one of its Greek related options the command `\MTstandardgreek` will locally cancel its customization of Greek letters. See also `\MTcustomgreek`.

2.2.6 avoid OT1 encoding

We specified in our minimal working example a T1 encoding (LY1 would have been ok, too) because the default OT1 does not have the `<>|{}` and `\` glyphs. If

⁶a more detailed discussion comes next. Note that the default CM and its replacement Latin Modern for european languages are (transparently to the user) extended with LGR encoded fonts from the `cbfonts` (`cbgreek-complete`) package.

`mathastext` detects OT1 as the default encoding it will leave these characters to their defaults from the math fonts.⁷

If `mathastext` detects the obsolete OT1 encoding it does not do anything with `<`, `>`, `|`, `{`, and `}` which (except for monospace fonts) are not available in that encoding. To fully benefit from `mathastext` it is recommended to use some other encoding having these glyphs such as T1 or LY1.

2.3 Main options

2.3.1 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, and this was one of the design goals of `mathastext`.

Nevertheless, soon after I posted the initial version of the package to CTAN, I was overwhelmed by numerous⁸ questions⁹ on how to have the letters be in italic shape.

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 the Latin letters in math mode in italic shape.¹⁰ There is also an option `frenchmath` to make the uppercase letters nevertheless upright, because this is the way of traditional French mathematical typography.¹¹

2.3.2 The `defaultmathsizes` option

The default sizes give for subscripts of subscripts barely legible glyphs (author's opinion!). So `mathastext` makes more reasonable choices. It also redefines `\Huge` and defines a `\HUGE` size, copied from the `moresize` package. To cancel all of this use option `defaultmathsizes`.

2.3.3 The `subdued` option

This option was introduced in v1.15. It provides a manner to switch on the `mathastext-ification` only for limited portions of the document, with the help of the

⁷the `subdued` option, described next, acts a bit otherwise, it forces, contrarily to its usual low-key character, the replacement of OT1 by T1 for the fonts ultimately used with letters and digits in math mode.

⁸this means "more than one."

⁹I thank in particular TARIQ PERWEZ and KEVIN KLEMENT for their kind remarks (chronological order).

¹⁰more precisely stated, the value of `\itdefault` is used.

¹¹more precisely stated, the value of `\shapedefault` is used.

mechanism of math versions. Without the `subdued` option, the *mathastextification* applies by default to the whole of the document (and one may also define additional math versions in the preamble); with the `subdued` option the *mathastextification* is done only in *math versions* distinct from the standard and bold ones.

The previous description is in fact a bit optimistic: `mathastext` was not written initially in order to allow its action to be completely canceled, and achieving this would require a complete rewrite of large portions of the code.

To get the displayed math (almost) as if `mathastext` had not been loaded, one must also use the option `defaultmathsizes`. But this does not quite suffice, as, for example, the colon, the dot, and the minus sign belong in the default L^AT_EX math mode set-up to three distinct fonts whereas `mathastext` will pick (even subdued) the three of them in the same font, and although it will make a reasonable choice of this font, this is not a return to the previously prevailing situation. And then arbitrary packages could have done arbitrary things... so to be on the safe side one needs the `basic` option which limits the mathastextification to letters and digits (and should also be accompanied by `defaultimath` which prevents redefinition of the `\imath` macro, and `nohbar` which prevents redefinition of the `\hbar` macro...). And even then, in some circumstances, this will still not suffice; for example the *euler* package puts the digits in the same font as the Latin letters in math mode, but the subdued `mathastext` will pick them up in the same font as used in operator names, and in the case of the *euler* package, this is the main document font. So, even subdued, `mathastext` still kicks. But, as I think is illustrated by the examples given at the start of this document, the `subdued` option has its utility, and works reasonably well.

Starting with package version 1.3d, the `subdued` mode does extinguish in the normal and bold math versions the action of options `selfgreek`, `eulergreek`, and `symbolgreek` (previously only `LGRgreek` was subdue-able).

2.4 Math versions

L^AT_EX has the concept of *math versions*, but most font packages do not define any such version beyond the default normal and bold (that they possibly customize to use such or such math font). The package `unicode-math` for unicode engines fruitfully uses this concept. `mathastext` uses math versions in order to allow the math mode fonts (for letters, digits, punctuation and a few other ascii symbols) used in the different parts of the document to be kept in sync with the text fonts. However the other math symbols (sums, products, integrals, logical signs, etc...) will be the same throughout the document as it is not in `mathastext` power to modify them. There are some possibilities to use different sets of fonts for the Greek letters, though.

The present document illustrated the use of various fonts, here is its preamble (slightly stripped-down):

```

\usepackage{lmodern}
\usepackage[T1]{fontenc}
\usepackage[subdued,italic,defaultmathsizes]{mathastext}
\MTDeclareVersion[n]{lmttt}{T1}{lmttt}{m}{n}
\usepackage{newcent}
\Mathastext[newcent]
\usepackage{times}
\Mathastext[times]
\usepackage[scaled]{helvet}
\renewcommand\familydefault\sfdefault
\Mathastext[helvet]
\begin{document}\MTversion{normal}

```

Let us examine this code: it uses once the command `\MTDeclareVersion` and three times the command `\Mathastext`, thus defining four math versions¹²: `lmttt`, `newcent`, `times`, and `helvet`. The names can be taken arbitrarily (they only need to be suitable arguments to the L^AT_EX `\DeclareMathVersion` command which is invoked internally). Two additional math versions preexist: the `normal` and `bold`, which, because there was the `subdued` option, were left untouched by `mathastext`.

Once these math versions are defined, `\MTversion{name_of_version}`, or equivalently `\Mathastextversion{name_of_version}`, enacts the font switches in the body of the document. As is usual with L^AT_EX one can limit the scope to the inside of a group, or also switch back to the main set-up through issuing `\Mathastextversion{normal}`.

When `\Mathastext` is used in the preamble, it records the current font defaults and (except for the `normal` and `bold` versions under the `subdued` regime) sets up the math font to be used in that version to be the text font as found in `\familydefault`. But it is still possible for a `mathastext`-declared math version to have distinct fonts for text and math:

1. in the body of the T_EX source, an optional argument (the name of a `mathastext`-declared math version) to `\MTversion` is allowed, and for example we used in the source of this document `\MTversion[newcent]{helvet}` meaning “New Century Schoolbook for the text and Helvetica for the math.”
2. there are preamble-only commands `\MTencoding`, `\MTfamily`, `\MTseries`, `\MTshape`, `\MTlettershape` which tell `mathastext` what to do (for math *only*) in each math version declared *afterwards*, independently of the text fonts.

The native L^AT_EX command `\mathversion{<version_name>}` would change only the fonts used in math mode. It is recommended to use instead the package command `\MTversion` (or one of its synonyms `\mathastextversion`, `\Mathastextversion`, `\MTVersion`), with a mandatory argument `{<version_name>}`, which does additional actions:

¹²math versions are discussed in the document `fntguide.pdf` from your T_EX distribution.

- it sets the font for math mode (letters, math operator names, digits, punctuations, some other symbols) according to the version name given as mandatory argument,
- it resets the text font of the document and the `\(family,rm,sf,...)` defaults to their values as registered at the time of definition of the version. *Use the starred variant in case this is not desired.* It is possible to also specify within brackets an extra optional version name, and the text font will be set according to it,
- (see sections 2.5 and 2.6) it re-issues the command `\MTmathactiveletters` to let a to z, A to Z, be mathematically active in order to automatically insert the skips as defined by the user with `\MTsetmathskips`, and the italic corrections (if the font is not italic or slanted),
- (see section 2.7) it resets the extra spaces after the symbols \exists , \forall and before the derivative $'$ to the values as decided by the user in the preamble on a *per version* basis,
- (see section 2.8) it re-issues the commands `\MTmathoperatorsobeymathxx` and `\MTeasynonlettersobeymathxx` to let the math operator names and ('easy') non letter characters obey the math alphabets,
- in case of option `asterisk`, it re-issues `\MTactiveasterisk`,
- it does the additional set-up for Greek letters in case of the package received one of the Greek related options.

The scope is limited to the current L^AT_EX environment or group. When switching to the *normal* or *bold* math versions under option `subdued` most of the above is canceled.

It is sometimes not compatible with `mathastext` to load a font package after it, as the font package may contain instructions which will modify the math set-up. This may be a bit hidden to the user: for example the `epigrafica` package loads `pxfonts`. Hence it will interfere with `mathastext` if it is loaded after it.¹³ But one can use instead `\renewcommand{\rmdefault}{epigrafica}`,¹⁴ followed with `\Mathastext`, or also `\MTfamily{epigrafica}\Mathastext` which will only change the font in math.

To use `epigrafica` for Greek in math mode one can use the package option `LGRgreek` and the command `\MTgreekfont{epigrafica}\Mathastext`. Or `\usepackage{epigrafica}` followed with `\usepackage[LGRgreek]{mathastext}`.

¹³may typically give a 'too many math alphabets' error message.

¹⁴sometimes one needs to look in the `.sty` file of the font package to figure out the font name (it is rarely as `epigrafica`, the same as the package name), and, if one does not know the arcana of finding `.fd` files in one's T_EX distribution, one should look at the log file of a test document to see if for example T1 is available for that font; for `epigrafica` it is not, only OT1 and LGR are possible.

2.5 Extra spaces around letters

This is a new feature added with release 1.3: the command `\MTsetmathskips` allows the user to set up some spaces (more precisely, ‘mu glue’; but stretch and shrink are discarded) to be automatically inserted around the letters in math mode. Some (very) unrealistic uses:

```
% this may be anywhere in the document (also within a math group):
\MTsetmathskips{x}{20.33mu}{15.66mu}% 20.33mu before all x's and 15.66mu after.
\MTsetmathskips{y}{\thickmuskip}{\thickmuskip}%
\MTsetmathskips{z}{10mu}{5mu}% stretch and shrink are anyhow without effect.
\MTsetmathskips{A}{\muexpr \thickmuskip*2}{\muexpr \medmuskip-\thinmuskip/2}%
```

Here is what `$\wxytztz\wxytztz=BAC^{\{BAC\}}$` then gives using the Times font: $w \ x \ t \ y \ t \ z^w \ x \ t \ y \ t \ z = B \ A \ C^B \ A \ C$. Any T_EX group or L^AT_EX environment limits as usual the scope of this command. Furthermore the command `\MTunsetmathskips` cancels previous use of `\MTsetmathskips` for a given letter.

The implementation relies on the ‘mathematical activation’ of letters, which is done by default by the package since release 1.2b. Should this cause compatibility problems, the command `\MTmathstandardletters` cancels it entirely. To reactivate it, there is `\MTmathactiveletters`. Note that `\MTmathactiveletters` is done automatically by `mathastext` when loaded, and also each time the package enhanced math-version-switch command `\MTversion` is used, except for the normal and bold math versions under the `subdued` option.



The extra skips are set at natural width; they do not contribute to the overall stretchability or shrinkability of the math formula and do not create break points.

Changed with 1.3i: they are *not* applied within the scope of math alphabet commands.

2.6 Italic corrections

Note: this is somewhat technical discussion which may well be skipped in its entirety on first reading.

With the `italic` option the letters in math will be generally in italic shape (and, normally, upright in operator names).

For the built-in placement routines of T_EX in math mode to work as well as they usually do, the characters from the math italic font obviously should have their bounding boxes wide enough for the glyphs not to collide with other symbols. A letter from a text italic font such as *f* extends way out of its declared bounding box; let us compare the bounding boxes¹⁵ for the letter *f* in the math italic font to the one from the text italic font:  vs. .

¹⁵let’s be honest, we are lying here about what exactly the first of these is bounding; this is explained later!

This could make us think that attempting to use in math a text italic font will lead to disaster. Well, surprisingly the situation is not that bad. Sure $\mathbf{f}(x)$ is wider with the standard math italic $\overline{f}(x)$ (21.31474pt) than it is with the text italic font used in math:¹⁶ $\overline{f}(x)$ (19.74986pt) but we should be surprised that our text italic f did not end up even closer to the opening parenthesis. Why is it so?

The explanation is that T_EX uses in such a situation the *italic correction* for the letter f . The italic correction also exists and is used for the math italic font, it was inserted in \mathbf{f} without us having to ask anything. Its value is 1.17865pt for the math italic f and 1.8919pt for the text italic f .¹⁷ With the italic corrections included our bounding boxes are indeed more alike: \overline{f} vs \overline{f} .

Without the italic corrections¹⁸ it is \overline{f} vs \overline{f} . I said that \mathbf{f} included the italic correction automatically, but if we tell T_EX to use the text italic in math, and typeset the alphabet, we obtain something exactly identical to typing the letters in text, hence without any italic correction:

<i>abcdefghijklmnopqrstuvwxy</i>	text italic in text
<i>abcdefghijklmnopqrstuvwxy</i>	text italic in math
<i>abcdefghijklmnopqrstuvwxy</i>	math italic in math
<i>abcdefghijklmnopqrstuvwxy</i>	math italic in text

Where are our italic corrections gone? the last line was done with `\usefont{OML}{lmm}{m}{it}` and confirms that italic corrections have been used for the math italic in math.

Turning to the T_EXbook (and its Appendix G) we learn that in such circumstances, for the italic corrections to be put in from the font, one of its parameters, the interword space (aka `\fontdimen2`), should be zero. It is indeed zero for the math italic font, not for the text italic.

It is possible to make T_EX believe it is. Doing so, we obtain in math mode with the text italic:

<i>abcdefghijklmnopqrstuvwxy</i>	text italic in math
<i>abcdefghijklmnopqrstuvwxy</i>	math italic in math

We saw that the italic correction was taken into account automatically (independently of the value of the interword space font parameter) in expressions such as $\mathbf{f}(x)$. Another clever thing done by T_EX is to use it for the placement of superscripts; the next examples systematically use the text italic in math. We see that f^j is very different from \mathring{f}^j ... where the latter was coded with $\mathcal{H}\mathit{\hbox{\itshape f}}^j$. The inputs $\mathcal{H}\mathit{\hbox{\itshape f}}^j$ and $\mathcal{H}\mathit{f}^j$ give almost identical results: \overline{f}^j vs. \overline{f}^j . Close examination reveals that the horizontal spacing is exactly identical, however the exponent in the second case is a bit lower. Anyway, the point is that in the second case the italic correction for f was indeed used.

Subscripts are another matter: they do *not* take into account the italic cor-

¹⁶we used simply $\mathcal{H}\mathit{\hbox{\itshape f}}(x)$.

¹⁷these values are for the Latin Modern fonts of course.

¹⁸here we give correctly the bounding box for the math italic f ... without its italic correction!

rection. For example $\mathit{f_i}$ gives the same horizontal positions as $\mathit{\hbox{\itshape f}_i}$: f_i vs. f_i . Printing them one on another gives f_i and reveals (use the zoom of your viewer!) that only the vertical placement was affected, not the horizontal placement.

We learn in Appendix G of the \TeX book that the italic correction is used for the horizontal shift of the superscript with respect to the position of the subscript: f_i^j , or, going back now to the the standard math italics f_i^j . In the next paragraphs we use f_i^i for more accurate comparison of the positioning of the sub- and superscript.

If we try something like this: $\mathit{f\!/}_i^i$ we obtain f_i^i . Our overlapping game with $\mathit{\rlap{\mathit{f}_i^i}\mathit{f\!/}_i^i}$ gives f_i^i . We discover that the effect of the explicit italic correction has mainly been to translate the subscript horizontally to be positioned exactly below the superscript!¹⁹ We most probably do *not* want this to happen for our indices and exponents in math mode. So perhaps we can rejoice in how astute \TeX has been in judiciously using the italic correction data, and there seems to be no need into fiddling with this algorithm which seems to work well even when applied to a text italic font. Actually we may even be of the opinion that the text italic version f_i^i is a bit better-looking than the true math italic f_i^i . . .

But wait... **mathastext** was initially developed to easily use in math mode the document text font not in its italic variant, but as is, so, usually, upright. And upright \TeX fonts may also have italic correction data! And what I just said about the shift of the superscript with respect to the subscript apply equally well to such a font, if \TeX has been told to use it. Let's try Latin Modern Upright for letters in math: $\mathit{f_i^i}$ now gives²⁰ f_i^i . We see the italic correction in action for the positioning of the superscript! Compare with $\mathit{\mathrm{\hbox{f}_i^i}}$: f_i^i . Overlapping with $\mathit{\rlap{\mathit{\mathrm{f}_i^i}}\mathit{\mathrm{f\!/}_i^i}}$ gives f_i^i and shows that the upright f has an italic correction which was used to shift the superscript to the right (and it is now in a slightly lower position). Let's now do $\mathit{\mathrm{f\!/}_i^i}$: this gives f_i^i and the subscript is shifted to the right, and is now on the same vertical axis as the superscript. There are also some slight vertical displacements, $\mathit{\rlap{\mathit{\mathrm{f}_i^i}}\mathit{\mathrm{f\!/}_i^i}}$ gives f_i^i .

People will tell me crazy, but if we decide for using upright fonts in math, wouldn't it be satisfying to have the subscript and superscript positioned on the same vertical axis? the letter has no slant, why should the indices display one?

We end up in this strange situation that it is attractive to systematically incorporate the italic corrections after the upright Latin letters in math! But we don't want to do this inside the arguments to math alphabets as this would make impossible the formation of ligatures (the standard $\mathit{\mathrm{ff}}$, $\mathit{\mathrm{ff}}$, $\mathit{\mathrm{ff}}$, $\mathit{\mathrm{ff}}$, $\mathit{\mathrm{ff}}$, $\mathit{\mathrm{ff}}$ all give ligatures ff , ff , ff , and ff and we would like to preserve this behavior).

¹⁹there are also some tiny vertical displacements of the sub- and superscripts.

²⁰we just use $\mathit{\mathrm{f}_i^i}$.

Starting with version v1.2b, `mathastext` adds the italic correction automatically after each letter of the Latin alphabet in math mode, *except* when these letters are italic or slanted.²¹

These italic corrections are canceled inside the arguments to the math alphabet commands, to allow the formation of ligatures as is expected in the standard default T_EX font set-up in math.²²

The feature-implementing commands `\MTicinmath`, `\MTnoicinmath`, `\MTicalsoinmathxx` are described in section 3.3.3.

Note: from brief testing on 2012/12/28, X_YT_EX seems not to create fake italic corrections for OpenType fonts. Hence the T_EX placement algorithms for math mode described in this section do not work well when an OpenType (text) font is used for the letters in math mode, and the document is compiled with the X_YT_EX engine. On the other hand LuaL_AT_EX seems to implement the italic corrections when using OpenType fonts, but only with italic fonts (as far as I could tell). Try the following (which will use the OpenType Latin Modern font) on a recent T_EX installation and compare the output of both engines:

```
\documentclass{article}
\usepackage{fontspec}
\begin{document}
\Huge
$\mathit{f_i^i}$\par $\mathrm{f_i^i}$
\end{document}
```

Comment out the `fontspec` line and use pdfL_AT_EX. All three outputs are different on my T_EX installation. X_YT_EX does not have the italic corrections. LuaL_AT_EX does, but only for the italic font. pdfL_AT_EX has them for both the italic and the upright font.

2.7 Extra glue after `\exists`, `\forall`, and before the prime glyph

`\MTforallskip`, `\MTexistsskip`, and `\MTprimeskip` are three commands with each a mandatory argument like for example 3mu plus 1mu minus 1mu or just 2.5mu. They are especially useful when using an upright font in math mode. The mu is a unit length used in math mode (‘math unit’, 1/18th of the ‘quad’ value of the symbol font in the current style). Its value is relative to the current math style. Its use is **mandatory** in the commands described here.

²¹the situation is rather ironical! by the way, the warnings in section 2.8 with `$x^?$` or similar are less of an issue here, because the letter is only *followed* by `\/` and anyhow the whole is put by `mathastext` within group braces, so no surprises with `x^y` or `$_{\mathbin{x}}$`. Nevertheless it is still true that (in math mode only) the letters a–z, A–Z, expand to composite objects, something which could surprise other packages. The command `\MTmathstandardletters` cancels this mechanism.

²²Prior to 1.3i, italic corrections were added to the `\mathnormal` arguments.

Changed!

- compare $\forall B$ with $\forall B$, typeset after `\MTforallskip{2mu}`,
- compare $\exists N$ with $\exists N$, typeset after `\MTexistsskip{2mu}`,
- and finally compare f' with f' , typeset after `\MTprimeskip{2mu}`.

These three commands may be used throughout the document, or also in the preamble, in which case the declared math versions will record the then current values of the skips. `mathastext` applies the following (small) default skips: `0.6667mu` for the skip after \forall , `1mu` for the skip after \exists , and `0.5mu` for the skip before the prime. The examples above become $\forall B$, $\exists N$ and f' .²³

With the `italic` option the defaults are set to zero. Indeed $\forall B$, $\exists N$ and f' look fine without additional skips. If the document decides then to declare in the preamble a math version with an upright font it is thus recommended to use the commands in the preamble before the `\Mathastext[⟨version_name⟩]` (or `\MTDeclareVersion`) command defining the version. They will be remembered when this math version is entered in the document. The commands may also be used directly in the document body.

Under the `subdued` option, the *normal* math version (at the start of the document body, or after `\MTversion{normal}`) and the *bold* math version (either at the start of the document body after `\boldmath`, or after `\MTversion{bold}`) do not have any extra skip inserted (even one of zero width) after \forall , \exists , or before the $'$.²⁴

2.8 Extended scope of the math alphabets commands

Ever since the initial version of the package, some characters usually unaffected by the math alphabet commands `\mathbf`, `\mathtt`, `\mathsf`... are declared to be of ‘variable family type’, in order for them to obey these commands: for example the hash sign `#` gives $\#$ if input as `\mathbf{\#}` (`mathastext`, especially in its beginnings, wanted as many characters as possible to be picked up from the text font and to behave similarly to letters and digits).

So it was especially frustrating that mathematical characters such as $+$, $<$, or $]$ could not be declared of ‘variable family’ (in addition to being picked up in the text font) as this would, for reasons of the inner workings of \TeX , not be compatible with the automatically inserted spaces around them.

A revolutionary ;-) novelty is introduced with version 1.2 of the package:

1. the pre-declared or user-declared (using the `amsmath \DeclareMathOperator` or equivalent) operator names obey the math alphabet commands,²⁵

²³the derivative glyph from the `txfonts` math symbols adapts itself better to an upright letter, no skip seems to be needed then.

²⁴Prior to 1.3j skips of zero widths were inserted.

²⁵contrarily to the next feature, this one is not likely to create incompatibilities with other packages, so it is activated by default.

Changed!

2. and, *optionally*, all non alphabetical characters²⁶ treated by `mathastext`, *i.e.*, if not disabled by options, `!?, :; + - = () [] < > { }`, the asterisk `*`, and `./| \# $ % &`²⁷ will also obey the math alphabet commands (when not used as delimiters). The important thing is that the spaces added by $\text{T}_{\text{E}}\text{X}$ before and after are not modified.

Let us compare, for example, the new behavior of `\mathtt` and `\mathbf`

$$(\sin(\mathbf{n}) < \cos(\mathbf{m} - \mathbf{p}))? \quad [\sin(\mathbf{x} + \mathbf{y}) = \cos(\mathbf{z} - \mathbf{t})]$$

with the traditional default behavior:

$$(\sin(\mathbf{n}) < \cos(\mathbf{m} - \mathbf{p}))? \quad [\sin(\mathbf{x} + \mathbf{y}) = \cos(\mathbf{z} - \mathbf{t})]$$

The first feature is activated by default, except of course for the normal and bold math versions when the package was given the *subdued* option. The second feature is *off* by default for the characters listed first. It is *on* for the ‘easy’ cases `# $ % & . / | \` (activating the feature for them puts no constraint on the user input and should not be too upsetting to other packages), and also for `*` but only if this was required explicitly by the option `asterisk`, as the user then is supposed to know that `\mathbf{R}^*` is no valid input anymore and should be replaced by `\mathbf{R}^{\ast}`. The remaining ‘difficult’ cases create similar constraints, which will be commented more upon next. The relevant commands are

`\MTmathoperatorsdonotobeymathxx`
`\MTnonlettersdonotobeymathxx`
`\MTeasyonlettersdonotobeymathxx`

for deactivation and

`\MTmathoperatorsobeymathxx`
`\MTnonlettersobeymathxx`
`\MTeasyonlettersobeymathxx`

for activation.^{28 29}

²⁶of course some of them are input preceded by a backslash, and the backslash itself is input as `\backslash`.

²⁷`# $ % &` obey the math alphabets since the initial version of `mathastext`; the dot `.`, the slash `/`, the vertical bar `|` and the backslash `\` do not have specific spacings inserted by $\text{T}_{\text{E}}\text{X}$ around them, and the procedure is then not a devilish one, this is why it is made the default for these characters which are listed apart. The math symbols `\mid` (which is `|` with type `\mathrel`) and `\setminus` (with type `\mathbin`) are counted among the ‘difficult’ cases, not the ‘easy non-letters’.

²⁸these commands are to be used outside of math mode. Their scope is limited to the current $\text{L}_{\text{A}}\text{T}_{\text{E}}\text{X}$ environment or group. They use the `\everymath` and `\everydisplay` mechanism so if the document needs to modify these token lists it has to do so in a responsible manner, extending not annihilating their previous contents.

²⁹when in subdued mode, the math alphabets are the default ones, not the ones modified by `mathastext` to use the document text fonts. As a result, matters of font encodings may then give unexpected results, for example for `-`. On the present document page we switched to a math version to escape from the subdued mode and avoid the problem with `\mathbf{-}` giving in the normal (subdued) math version `˘`, when ‘non-letters’ are declared to obey math alphabets.

Important: the package does `\MTnonlettersdonotobeymathxx` by default. The reason is that activating the mechanism adds some constraints to the way things must be input, adding `\usepackage{mathastext}\MTnonlettersobeymathxx` to a pre-existing document might well create errors: all these characters treated by `mathastext`, such as `?`, `[`, `<` now represent (in math mode only!) *two* ‘tokens’ and this will utterly confuse \TeX if some precautions are not taken: `$x^?$`, `$R^+ $` or `$\mathopen{A\mathclose{}}` *must* now be coded as `$x^{?}$`, `R^{+}` and `$\mathopen{<A\mathclose{>}}$` (the rule is to do as if `?`, `+`, `<` or `>` were each really *two* characters).

Even if this rule is respected in the document source, it is still a possibility that incompatibilities with other packages will arise because `mathastext` does a *mathematical activation* of the characters which could be unexpected and unchecked for by other packages. This is precisely the case with the `amsmath` package, and the problem goes away by just making sure that `amsmath` is loaded before `mathastext` (generally speaking, `mathastext` should be loaded last after all packages dealing with math things).

The braces `\{` and `\}` remain unresponsive to the alphabet changing commands even after `\MTnonlettersobeymathxx`. One must issue also `\MTexplicitbrace sobeymathxx`, but it has the disadvantage that `\{` and `\}` become then unusable as variable-size delimiters: `\big\{` or `\big\}` create errors and one must make use of `\big\lbrace` and `\big\rbrace`. But one can now enjoy `\{a, a > b\}`, `\{a, a > b\}`, `\{a, a > b\}`, or even `\{a, a > b\}`.³⁰³¹

Even with `\MTnonlettersobeymathxx`, the parentheses-like symbols `(,)`, `[,]`, `<` and `>` and the slashes `/, \`, if used as left/right delimiters (i.e. with `\left/\right`) do not react to math alphabet commands. This is mainly explained by the fact that the text font will not contain suitable glyphs, hence no attempt was made to make the delimiters pick up their glyphs there.

But `mathastext` does try to pick up most of the ‘small variants’ of the delimiters from the text font: `$\left<x\right>$` gives `<x>` (but `$\left<b\right>$` gives ``.) Notice that this differs from standard \LaTeX for which `$\left< x\right>$` gives `<x>`. As it is perhaps a bit strange to have `<x>` next to `<X>` there is option `nosmalldelims`: with this option the small-sized variants of the delimiters are not modified by `mathastext` (option `nosmalldelims` has the side effect that, for the non-delimiter uses of `\{, \}` to be `mathastext`-ified it is necessary to issue `\MTnonlettersobeymathxx` and `\MTexplicitbracesobeymathxx`.)

At any rate, as said above, whether ‘small’ or not, delimiters are unresponsive to math alphabet commands, due to technical aspects of \TeX , and the way `mathastext` handles these things. Examples: `\mathbf{<a,b>}` gives `< a, b >`

³⁰this last example uses the `\mathnormalbold` additional alphabet defined by `mathastext`.

³¹Let me recall that braces will anyhow not be handled at all by `mathastext` if the document font encoding is OT1, except under option `alldelims`.

(no use of `\left/\right`, hence brackets do obey the math alphabets — as we issued `\MTnonlettersobeymathxx` a bit earlier), `\mathbf{\left<a,b\right>}` gives $\langle \mathbf{a}, \mathbf{b} \rangle$ (brackets used with `\left/\right` do not obey the math alphabets), `\mathbf{\mathopen{<}a,b\mathclose{>}}` gives $\langle \mathbf{a}, \mathbf{b} \rangle$ (no `\left/\right`, brackets do obey the math alphabets).

For comparison, the L^AT_EX standard behavior for

`\mathbf{\mathopen{<}a,b\mathclose{>}}`

is $\langle \mathbf{a}, \mathbf{b} \rangle$ (neither brackets nor the comma do respond).

2.9 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`:

no option: 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. Here is a list from a 2012 standard T_EX installation: the Computer Modern, Latin Modern, and the CM-LGC fonts; the Greek Font Society fonts (such as GFS Didot), the `epigrafica` and `kerkis` packages, the `txfontsb` package which extends the `txfonts` package with LGR-encoded Greek letters; the Droid fonts, the DejaVu fonts, the `Comfortaa` font, and the Open Sans font. The LGR encoded CM/LM fonts (in serif, sans-serif and typewriter family) give the nice Greek letters in upright shape from the `cbfonts` package. To get these letters in your `mathastext` math mode, you can do the following:

```
% instructions to load the document fonts:
\usepackage{nice_font}
% and then the following:
\renewcommand{\familydefault}{cmr} % or cmss or cmtt for sans resp. mono
\usepackage[LGRgreek]{mathastext}
\renewcommand{\familydefault}{\rmdefault}
\Mathastext % this re-initializes mathastext with the nice_font,
% without changing the LGR font cmr/cmss/cmtt used for Greek letters
% in math mode.
\begin{document}
```

If you use the `italic` option note that the italic Greek letters from the `cbfonts` are not the same glyphs as the default Greek letters from the OML encoded font `cmmi`.

eulergreek: the Greek letters will be taken from the Euler font (the document does not have to load the `eulervm` package, `mathastext` directly uses some file included in this package, 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 Postscript) Symbol font. A command is provided so that the user can scale the Symbol font to let it better fit with the text font. The letters are upright.

selfGreek: this option concerns only the eleven Greek capitals from the OT1-encoding. It does nothing for the lowercase Greek letters. The encoding used in the document does not have to be OT1.

There is also **LGRgreeks** which tells **mathastext** to pick up in each math version the letters from the LGR encoded font used in that version, and **selfGreeks** to tell **mathastext** to do as for **selfGreek** but separately in all math versions.

Under the **subdued** option the Greek letters in the normal and bold math versions are kept to their defaults as found at the time of loading the package.

The commands **\MTstandardgreek** allow at any point in the document to turn inactive any Greek related option passed to **mathastext**. And conversely **\MTcusetomgreek** reactivates it.

2.9.1 Shape of Greek letters

Classic T_EX 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 fonts 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:

no option: 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 T_EX 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 mentioned already the package allows to define various “math versions”. In the case of **eulergreek** or **symbolgreek** they apply to all these versions. In the case

of the options `LGRgreeks` or `selfGreeks` (notice the additional “s”), each math version is assumed to have its text font available in LGR (or OT1 encoding) and also the shapes will be local to the math version.

Finally version 1.15c of `mathastext` introduces new preamble-only commands to change the shapes, and even the font, used for Greek letters, in case of package options `LGRgreek`/`selfGreek`. They are `\MTitgreek`, `\MTupgreek`, `\MTitGreek`, `\MTupGreek`: these are used like the options and change only the shapes for the math versions which will be declared *next* in the preamble; and `\MTgreek font{name_of_font}` will tell the *next* math versions to use that font family. To use this command you need to know the (little) name of a suitable font family available in LGR encoding: for example `lmr`, `txr` (needs `txfonts` package on your system), `DejaVuSerif-TLF` (needs `dejavu` package on your system), etc. . .

2.10 Unicode engines

`mathastext` has been made minimally unicode-aware and can be used with \XeTeX or \LuaTeX .

With \XeTeX the user is strongly advised to first consider using the `mathspec` package, which is designed for Unicode, with a key-value interface. With both \XeTeX and \LuaTeX , `unicode-math` is recommended for OpenType math fonts.

Particularly in the latter case you probably don’t need, don’t want, and should not use `mathastext`: it is extremely far from being able to define a math font, as it applies basically only to a subset of the 32-127 ascii range, and in particular it does not know how to use a given Unicode font simultaneously for Latin and Greek letters. Again the user is strongly advised to look at `mathspec` and `unicode-math`.

Let me point out explicitly that `mathastext` has not been tested in any systematic manner under the Unicode engines; and that it is expected to be most definitely incompatible with `unicode-math`, although your mileage may vary and some features may appear to work.

When using `mathastext` with either \XeTeX or \LuaTeX it is recommended to use the `fontspec` package. Else, some of the encoding dependent things done by `mathastext` like using the en-dash character to get a minus sign in math mode will not work correctly. Furthermore, it is *necessary* to load `fontspec` with its `no-math` option, and this *must* happen before loading `mathastext`.

Use `fontspec` with its *no-math* option, and load it *prior* to `mathastext`. For example, when using `polyglossia` one should presumably say:

```
\PassOptionsToPackage{no-math}{fontspec}
```

before the `\usepackage{polyglossia}` as `fontspec` will then be loaded in a manner compatible with `mathastext`.

Starting with release 1.3 of `mathastext`, the `luatex` engine binary must be at least as recent as the one which was provided with the TL2013 distribution.

The `amsmath` package, if used, *must* be loaded *prior* to `mathastext`. Under `lualatex` engine, it is recommended to also load the package `lualatex-math`.

I already mentioned in the section 2.6 the fact that the italic corrections were not available for OpenType fonts under the \XeTeX engine and only partially available for the \LuaTeX engine, with the result that the spacings in math mode when using for the letters an upright text font will be less satisfying than with the standard `pdfetex` engine (the OpenType fonts not being usable with the latter engine, this is not a criterion of choice anyhow).

To specify math versions using unicode fonts, use the `fontspec \setmainfont` command (with arbitrary optional features). This command can be issued before loading `mathastext`, or after and then will be followed by a `\Mathastext` command with the name of the version in square brackets.

It is possible to mix unicode fonts and classical \TeX fonts. But this is definitely *not* recommended as `mathastext` decides once and for all what is the font slot of things such as the text endash (used for the minus sign) and this is encoding dependent. So it is best to have either only unicode fonts, or only old-fashioned \TeX fonts in a fixed encoding (T1, or LY1 for example).

The package was not extensively tested with unicode engines. I include here two examples which compiled successfully with \XeTeX and \LuaTeX , the first one on a Linux machine, the second one on a Mac OS X machine.³²

```
\documentclass{article}
\usepackage[hscale=0.8]{geometry}
\usepackage{multicol}
\usepackage[no-math]{fontspec}
\usepackage{lmodern}
\usepackage[subdued,italic]{mathastext}
\setmainfont[Color=999999]{Verdana} \Mathastext[Verdana]
\setmainfont[Color=0000FF]{Arial} \Mathastext[Arial]
\setmainfont[Color=00FF00]{DejaVu Serif} \Mathastext[DejaVu]
\MTDeclareVersion{times}{T1}{ptm}{m}{n}
\setmainfont[Color=FF0000]{Andale Mono} \Mathastext[Andale]
\begin{document}
\newcommand\TEST[1]{\MTversion{#1}%
\begin{multicols}{2}
\hbox to\columnwidth{\hbox to\columnwidth{\hfil
$abcdefghijklmnopqrstuvwxyz$\hfil}\kern-2.5em{#1}}
\centerline{ $ABCDEFGHIJKLMNQRSTUUVWXYZ$ }
\centerline{ $0123456789$ }

```

³²running `tex` (in a temporary repertory) on a copy of the file `mathastext.dtx` will extract extended versions of these examples as test files.


```

\centerline{ $!\,?\,\*\,,\,\.\,:,\,;\,\+\,-\,=\,(\,,)\,,[\,,]\,\,\/\,,\#\,,%
\$\,,\%\,,\&\,,<\,,>\,,|\,,\{\,,\}\,,\backslash\$ }
\columnbreak
\centerline{ abcdefghijklmnopqrstuvwxyz }
\centerline{ ABCDEFGHIJKLMNOPQRSTUVWXYZ }
\centerline{ 0123456789}
\centerline{ !\,?\,\*\,,\,\.\,:,\,;\,\+\,-\,=\,(\,,)\,,[\,,]\,\,\/\,,\#\,,%
\$\,,\%\,,\&\,,<\,,>\,,|\,,\{\,,\}\,,\backslash\char92 }
\end{multicols}}
\begin{multicols}{2}
\centerline{\textbf{math mode}}
\columnbreak
\centerline{\textbf{text} }
\end{multicols}
\TEST{DejaVu}\TEST{Verdana}\TEST{times}\TEST{Andale}
\TEST{Arial}\TEST{bold}\TEST{normal}
\end{document}

```

And now the same thing with fonts available on Mac OS X:

```

\documentclass{article}
\usepackage[hscale=0.8]{geometry}
\usepackage{multicol}
\usepackage[no-math]{fontspec}
\usepackage{lmodern}
\usepackage[subdued,italic]{mathastext}
\setmainfont[Color=FF0000]{Hoefler Text} \Mathastext[Hoefler]
\setmainfont[Color=336633]{American Typewriter}\Mathastext[Typewriter]
\setmainfont[Color=0000FF]{Herculanum} \Mathastext[Herculanum]
\setmainfont[Color=FF00FF]{Didot} \Mathastext[Didot]
\setmainfont[Color=999999]{Comic Sans MS} \Mathastext[Comic]
\begin{document}
--- copy here the code from the previous example ---
\TEST{Didot}\TEST{Comic}\TEST{normal}\TEST{Herculanum}
\TEST{Hoefler}\TEST{Typewriter}\TEST{bold}
\end{document}

```

2.11 Compatibility issues

Compatibility issues (or just questions of who decides last) are naturally to be expected with packages dealing with the math setting; the fix is simply to load **mathastext** last. And one should always load **amsmath** before **mathastext** (this is especially true when using Unicode engines but applies in general as well).

Any definition made in a package loaded before **mathastext** of the font to be used for letters or for the common characters in the **ascii** basic range will be overruled by the loading of **mathastext** (this includes the case when the earlier package had made the character ‘mathematically active’). Conversely most of the set-up done by **mathastext** may well be overruled by packages loaded later which do math related things.

In case of a ‘too many math alphabets’ message try the `defaultalphabets` option or one of its `defaultnormal`, `defaultttt`, etc. . . sub-options.

Starting with version 1.2, `mathastext` makes some characters ‘mathematically active’ to achieve certain effects: automatic insertion of the italic corrections when using an upright text font in math, extended scope of the math alphabet commands which now apply to non-letter symbols (and also to math operator names, but this is much easier to achieve). And the (already mathematically active) right quote is modified to have some extra space added before the derivative glyph ‘.

This is compatible with using `\label` and `\ref` in and outside of math mode. But a difficulty arises when some other package has made the character ‘globally active’ everywhere in the document. The action of `mathastext` is made anew at each mathematical inline or displayed formula. If it is detected that a character has been activated then nothing further will be done (so the `mathastext` feature³³ for that character is lost) *except* if it appears that this activation was done by the Babel system. In that case `mathastext` does not make the character mathematically active but it modifies in the appropriate manner the action of Babel for that character in math mode. Furthermore `mathastext` makes the character mathematically *inactive*.³⁴

Here is indeed some code that you should **not** try at home:

```
\documentclass{article}
\usepackage[french]{babel}
\usepackage{mathtools}\mathtoolsset{centercolon}
\begin{document}
$:$
\end{document}
```

DO NOT DO THIS AT HOME: it creates an infinite loop.³⁵ This is due to the fact that the colon is simultaneously active (this is made by `babel+frenchb` at begin document) and mathematically active (done by `mathtools` in the preamble). The interaction gives an infinite loop. Such a situation will be cured by `mathastext`, even loaded before `mathtools`, *if* use is made of `\MTnonlettersobeymathxx`. At each math formula `mathastext` will detect that Babel has activated the colon, and will cancel the mathematical activation (the precise definition done by `mathtools` was already lost at begin document due to overwriting by `babel` but the fact that the character was mathematically active remained true).

So far I have briefly described the problem of document active characters (see the test file `mathastexttestalphabets.tex` for more explanations and illustrations,

³³italic correction insertion for the latin letters, receptivity to the math alphabet action for the other characters.

³⁴only the characters `; , : ! ? + - = < > () [] *` mentioned in section 2.8 as ‘difficult non letters’ (and the right quote ‘) and the latin letters are concerned here; it seems highly improbable that a latin letter $\in \{a-z, A-Z\}$ will have been made globally active (only letters never being used in command names are possible candidates), but `mathastext` has been designed to cope with it, should it happen ...

³⁵This seems to still be the case with Babel 3.9f and frenchb.lfd 2.6e, as tested on Sep. 2, 2013. Again tested with up-to-date TL2015 Vendredi 15 janvier 2016 à 11:10:30, with same result.

and the commented source code of the package). Pure mathematical activation revealed an incompatibility of another type with `amsmath`. To fix it, `mathastext` now replaces an inner macro of `amsmath` (`\resetMathstrut@`) with its own version.

Always load `amsmath` before `mathastext`.

Actually this last commandment was already made necessary by the use of the text endash to represent the minus sign in math mode, and, especially for Unicode engines, some aspects of the `\DeclareMathOperator` macro from `amsmath`.

Important! As is mentioned in the section 2.8, after command `\MTnonlettersobeymathxx`, characters such as `?`, or `[`, now represent *two* ‘tokens’ and this will utterly confuse \TeX if some precautions are not taken. Examples: $0^+ \$$ or $x\mathrel{?}y \$$ or $R^* \$$ *must* be input now as $0^{\{+ \}} \$$ and, respectively, $x\mathrel{\{? \}}y \$$ or $R^{\{* \}} \$$. This is why the package does `\MTnonlettersdonotobeymathxx` by default.

One thing to take note of is that this mechanism uses the `\everymath` and `\everydisplay`, so if it is needed to add to these \TeX ‘token lists’ some additional things this should be done in a way preserving the former contents.

If one issues (after `\begin{document}`) `\everymath={}` and `\everydisplay={}` this annihilates not only all the `mathastext` (evil ?) doings with math active characters but also everything else some other package might have put in these token registers, so it is better, if the need arises to cancel the math activation of characters done by `mathastext` to use the command `\MTeverymathoff`, which does all of `\MTmathoperatorsdonotobeymathxx`, `\MTnonlettersdonotobeymathxx` (already default), `\MTmathstandardletters`, `\MTnormalprime`, and `\MTnormalasterisk`. This is supposed to be used in a group or environment (as there is no `\MTactivemathon`). It must be used prior to entering math mode.

New with 1.3i: the command `\url` of package `url`, and the commands `\url/\nolinkurl` of package `hyperref` use math mode and a monospace font (by default). `mathastext` patches these commands in order for them to do automatically `\MTeverymathoff`.

3 Package options and commands

3.1 Summary of main options

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

subdued: acts in a subdued way. The \LaTeX normal and bold math versions are left (quasi) unchanged. With version 1.15e of the package this statement applies

also to the math alphabets `\mathbf`, `\mathit`, `\mathsf`, and `\mathtt` (and not only to `\mathnormal` and `\mathrm` as in previous versions.)

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 other than letters and digits, are taken from the Symbol font. This option also makes a number of further glyphs available, such as some basic mathematical arrows, and 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** sets up bigger sizes for subscripts (it also copies code from the **moresize** package to redefine `\Huge` and define `\HUGE`). Use this option to prevent it from doing so.

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

3.2 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).

Changed!

amsmath: the behaviour of the `\DeclareMathOperator` command of **amsmath** is modified by **mathastext** for it to use the correct font. Additionally, release 1.3n of **mathastext** at long last also handles an extra operation done by **amsmath** for `'./-*` to be used in operator names without the extra math spacing.³⁶ This customization is suppressed in **subdued** mode for the **normal** and **bold** math versions.

hbar: the definition of `\hbar` inherited from default L^AT_EX will in our context make use of the **h** of the current math font (so for us, it is also the text font, perhaps

³⁶To the experts: there is a long story here that `\newmcodes@` hardcodes the font, that it was not compatible with Unicode engines, that during some time (2013-2016) **lualatex-math** fixed that and very recently **amsopn.sty** 2016/03/08 v2.02 also, so now **lualatex-math** 1.6 does nothing as it is already fixed “upstream” in **amsopn.sty**, but anyhow in both cases, this still hardcoded the font, so finally **mathastext** does the right thing from its point of view. See the code comments for more, there is an issue here with Lua^LA^TE_Xnot applying the curly right quote contrarily to X_YL^AT_EX.

in italic shape), but the bar across the `h` will come from the original default math font for letters (usually `cm-mi`), 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).

asterisk: versions of `mathastext` earlier than 1.2d [2013/01/02] did not do anything with the `\ast` control sequence but did pick the asterisk `*` in the document text font, and this often was a rather silly thing as the text asterisk is generally in a raised position. Furthermore, the `*` lost its status of a binary operator and was treated as an ‘ordinary’ symbol. An option `noasterisk` turned this feature off. Starting with 1.2d, the `noasterisk` option is deprecated and the new default is to do nothing. But when option `asterisk` is received by the package, then both `\ast` and `*` are simultaneously modified to use (as binary operators) the text asterisk, slightly lowered. The amount of lowering³⁷ is decided by the mandatory argument to the command `\MTlowerast{<dimen>}`. The package initially does `\MTlowerast{.3\height}`. Doing `\MTlowerast{.5ex}` is not a good idea as it does not scale properly in the script and scriptscript styles. With an argument given as a multiple of `\height`, the asterisk will behave as expected in subscripts and subscripts of subscripts. But `*` is now ‘mathematically active’³⁸ and `R^*` or `$R^{\ast}` *must* be input as `$R^{*}` and `$R^{\ast}`. Furthermore, they will obey the math alphabet commands.

X_YTeX and Lua^ATeX: for the en-dash and the dotless `i` and `j`, the package expects to detect either the EU1 encoding for X_YTeX or the EU2 encoding for Lua^ATeX (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 ^ATeX and Pdf^ATeX, there is no such limitation and all 8bit-encodings (containing these glyphs) should be ok.

³⁷with the option `symbolmisc`, the asterisk is picked from the Symbol font, and the amount of lowering is non-customizable; however if a math alphabet command is used, the asterisk is then again from a text font and the lowering will be as specified by `\MTlowerast`.

³⁸in a hopefully safe way, for example `$\label{eq*1}` is ok.

fontspec: one more note to users of X_YTeX/Lua^ATeX 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 **amssy** package). As it does not exist in the default L^ATeX math font set-up, this alphabet is *not* subjected to the subdued option action.

- 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).
- version 1.2 of **mathastext** has extended the scope of the math alphabets to apply to non-alphabetical characters and to operator names. This respects the automatic white spaces added by TeX around math symbols.

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 once by **mathastext** at the time it is loaded and are applied to all declared math versions. 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.

It is thus recommended that all declared **mathastext** math versions use the same font encoding.

3.3 Commands

A few preliminary comments, mainly destined to advanced users aware of some TeX innards (more extensive explanations are to be found in the code comments).

The timing for actions of `mathastext` falls into three cases:

1. things done during the loading of the package, or delayed to `\AtBeginDocument`,
2. things done as the result of user commands, either in the preamble or in the body of the document,
3. things done everytime math mode is entered.

The second category overlaps with the others, as the (preamble) use of some commands can have either immediate effect or only trigger some actions in `\AtBeginDocument` or perhaps only influence the things done later by `mathastext` each time math mode is entered.

The third category deserves some brief additional comments: it mainly (but not exclusively) regards the “math activation” of characters, and conversely all “math activations” fall into this category. The package re-checks each time math mode is entered if some characters have been made in-between catcode active, or math active, and takes appropriate decisions: one important aspect of this issue is that `babel`’s mechanism for activating character was not, last time I checked, very robust against math active characters. I now checked again (on January 15, 2016) that

```
\documentclass{article}
\usepackage[french]{babel}
\usepackage{mathtools}\mathtoolsset{centercolon}
\begin{document}
$:$
\end{document}
```

creates an infinite loop (see section 2.11 where this was mentioned already, some years ago). Thus `mathastext` has (since 1.2e 2013/01/10) a somewhat elaborate mechanism related to these issues (see the code comments), installed into the list of things done by `TEX` systematically each time it enters math mode. For some legacy reason the package also puts into this list a few other things which could arguably be done elsewhere once and for all. The command `\MTEverymathoff` cancels all such actions done by `mathastext` each time math mode is entered.

3.3.1 Preamble-only commands

These commands mainly facilitate the definition of math versions, in a `mathastext` extended sense. It is not necessary to use them to activate the package basic functionalities, as loading `mathastext` is enough (except with the `subdued` option).

- `\Mathastext` (or `\mathastext`) reinitializes `mathastext`: it sets the fonts used in math mode (in versions `normal` and `bold`) for letters, digits and a few ascii symbols to the *current* defaults of encoding, family, series and shape.³⁹ Both the normal and bold math version are modified by this action of `\Mathastext`.

³⁹`\Mathastext` updates also the font and shapes for the Greek letters (`LGRgreek` option), and the skips to be inserted after the symbols \forall and \exists , see *infra*.

- **math versions:** `\Mathastext` accepts an optional argument [*<name>*]. With this (within square brackets) argument, rather than redefining the fonts for math mode, `\Mathastext` declares a new *math version*, and it is this math version which will use the then current text font in math mode.⁴⁰
- **inheritance:** starting with version 1.3c a second optional argument [*<other_version>*] will transfer its set-up for things not affected by `mathastext` action, like large symbols, to the declared math version whose name was given as first optional argument. The main use will be with `[bold]` in order for the symbols and large symbols to be typeset as in the bold math version. For example, this document has in its preamble:

```
\usepackage{newcent}% this package makes New Century the roman font
\Mathastext[newcent]% this math version will use New Century
\MTseries{b}          % next \Mathastext will use a bold font
\Mathastext[boldnewcent][bold]% large symbols, etc., will be bold too
We can check that it does work:
```

`\MTversion{newcent}`: *abcde* $\oint \vee \cup \otimes \oplus$

`\MTversion{boldnewcent}`: ***abcde*** $\oint \vee \cup \otimes \oplus$

Naturally, for this one needs an initial math font setup with some nice bold fonts also for large symbols. This is the case with the excellent `txfonts` package of YOUNG RYU. As the present document must use many fonts and declares many math alphabets, we did not load the full package and fonts but only the `largesymbols`:

```
\DeclareSymbolFont{largesymbols}{OMX}{txex}{m}{n}
\SetSymbolFont{largesymbols}{bold}{OMX}{txex}{bx}{n}
\DeclareFontSubstitution{OMX}{txex}{m}{n}
```

- `\Mathastext` may be preceded optionally by one or more of⁴¹ `\MTencoding{<enc>}`, `\MTfamily{<fam>}`, `\MTseries{<ser>}`, `\MTshape{<sh>}`, and `\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. Once used their effect applies to all succeeding calls to `\Mathastext`, and can only be undone by using them again.
- `\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>`.

⁴⁰The allowed version names are as for the \LaTeX `\DeclareMathVersion` macro. *Do not use* `\Mathastext[foo]` with *foo* equal to “normal” or “bold”; this is already taken care of by the initial loading of the package or a later command `\Mathastext` without any optional argument.

⁴¹these commands exist also with long names: `\Mathastextencoding`, etc... The same applies to the other commands mentioned in this section.

- `\MTDeclareVersion` [*ltsh*] {*name*} {*enc*} {*fam*} {*ser*} {*sh*} [*other_version*]: declares that the document will have access to the font with the specified characteristics, under the math 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).⁴² When the initial optional argument is absent, and `mathastext` was loaded with the `italic` option, then the default letter shape will be `it`,⁴³ else letters will have the same shape as used for digits and operator-names.

Another optional argument may be used as last argument. Similarly as its use with `\Mathastext` this makes the declared math version inherit, for things not modified by `mathastext` like large symbols, the font set up of the math version whose name was passed as optional argument (typical use will be with `[bold]`).

- `\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*.
- `\MTitgreek`, `\MTupgreek`, `\MTitGreek`, `\MTupGreek`: optional commands, active only in the case of the `LGRgreek` option, to decide the shape of the Greek letters in the versions which will be declared next.
- `\MTgreekfont` {*fontfamily*}: optional command with a mandatory argument which specifies the font for Greek letters in all `mathastext` math versions declared afterwards via `\Mathastext` or `\MTDeclareVersion`. Only effective with `LGRgreek` option.

3.3.2 Commands usable only outside of math mode

They are usable only from outside math mode because they act via turning on or off the execution, each time math mode is entered, of certain macros added by `mathastext` to the `\everymath` and `\everydisplay` token list variables.

- `\MTmathactiveletters`: activates the ‘math activation’ of Latin letters. This is done by the package during loading, except under the `subdued` option.⁴⁴ It

⁴²I do not especially recommend to use this in real life!

⁴³more 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.

⁴⁴Prior to 1.3j, it was also executed from each `\Mathastext` in the preamble.

Changed!

is again executed in the body at each `\MTversion`, except under the `subdued` option when switching to the *normal* or *bold* math versions.

The letters are made mathematically active⁴⁵ to insert the extra skips as specified by `\MTsetmathskips` (see section 2.5), and also possibly the italic corrections when using upright fonts (see section 2.6).

- `\MTmathstandardletters`: cancels the ‘math activation’ of the letters. Must be re-issued after each `\MTversion`, but see `\MTeverymathdefault`.
- `\MTicinmath`: this command is executed by default by `mathastext` except in case of option `subdued` or if the user chosen letter shape is oblique (`it` or `sl`). It tells `mathastext` to add italic corrections after all letters in math mode, except within the scope of math alphabets.⁴⁶

This command and the next ones in this item can be used in the preamble as well as in the body of the document (in case of `subdued` option, using the commands from within the preamble will remain without effect, as the document body will start in the subdued normal math version anyhow.) But each `\MTversion` in the body will re-emit `\MTicinmath` (in case of non-oblique letter shape), except if the `subdued` option was used and the chosen math version is *normal* or *bold*.

The effect of this and the other commands of this item is local to the group or environment in which it has been issued.

It may theoretically be used from inside math mode, but the included `\MTmathactiveletters` will have an effect only if issued prior to entering math mode.

`\MTnoicinmath`: this command deactivates the package added italic corrections. It can be used inside as well as outside of math mode (or in the preamble of the document).

`\MTICinmath`, `\MTnoICinmath`: these commands activate the italic corrections only for the uppercase letters (but recall that `\MTicinmath` is done by default, thus this will typically have to follow `\MTnoicinmath`.)

`\MTicalsoinmathxx`: this command de-activates the de-activation of the italic corrections inside the arguments to the math alphabet commands. It can be issued inside as well as outside of math mode. Will be effective only if `\MTicinmath` or `\MTICinmath` is in force. To cancel its effect either enclose it in a group or environment or re-issue `\MTicinmath` after it.

- `\MTnormalasterisk`, `\MTactiveasterisk`: the latter will use for `*` and `\ast` the text font asterisk, suitably lowered; the former tells `mathastext` to not modify the L^AT_EX default. Both are no-op without option `asterisk`.
- `\MTeasynonlettersobeymathxx`, `\MTeasynonlettersdonotobeymathxx`: the former is done by default, it makes characters `.`, `/`, `!`, `\`, `#`, `$`, `%`, and `&` (if not excluded by package options) obey math alphabet commands. See also section 2.8. This functionality does **not** make the characters “math active” (but it does modify `\mathcode`’s, naturally).

⁴⁵the `mathcode`’s are only modified at the time of execution of `\everymath`, `\everydisplay`.

⁴⁶Prior to 1.3i, italic corrections were added to the (non-oblique) letters of `\mathnormal` arguments.

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- `\MTnonlettersobeymathxx`, `\MTnonlettersdonotobeymathxx`: the former will make (except if excluded by relevant package options) `!`, `?`, `,`, `:`, `;`, `+`, `-`, `=`, `(`, `)`, `[`, `]`, `<`, and `>` obey the math alphabet commands (when not used as delimiters). These characters are made “math active”, and each one now expands to two tokens. This makes for example `$a^!$` illegal input and it will have to be coded `$a^{\!}$`. Hence, by default, the package does `\MTnonlettersdonotobeymathxx`. `\MTexplicitbracesobeymathxx` extends an earlier `\MTnonlettersobeymathxx` to also treat `\{` and `\}`. But then `\left\{`, `\right\}` must be coded `\left\lbrace`, `\right\rbrace` rather. There is also `\MTexplicitbracesdonotobeymathxx`.
 - `\MTnormalprime`, `\MTprimedoesskip`: the latter (done by default if not `subdued`, New! (1.3j) and also on each use of `\MTversion` in the body of the document except for the `subdued` *normal* and *bold* math version) makes it so that `'` takes into account the math glue as specified by `\MTprimeskip`. The former is its opposite. In all cases the right quote `'` is a mathematically active character producing `'` as is the default in `TEX`, it is only its meaning which changes to include or not an extra skip. For some (legacy) reason, this change of meaning is done anew by `mathastext` each time math mode is entered. The commands of this item are thus no-op from inside math mode.
 - `\MTeverymathdefault`: this hook is executed by `\MTversion{\version_name}`, New! (1.3j) except under option `subdued` when switching to the *normal* or *bold* math versions. Its default meaning is:


```

\MTactiveasterisk % this has no effect without option asterisk
\MTprimedoesskip  % this makes prime glyph obey extra space
\MTeasynonlettersobeymathxx
\MTicinmath       % this does \MTmathactiveletters, hence also skips from
                  % \MTsetmathskips are obeyed.
\MTfixfonts       % only operant under LuaLaTeX.
```

Notice that under `subdued` option, switching to the *normal* or *bold* version does `\MTeverymathoff` which includes `\MTnonlettersdonotobeymathxx`. But the default `\MTeverymathdefault` which is issued when going back to a non-*normal* or *bold* math version doesn't do `\MTnonlettersobeymathxx`. It is up to the user to correct this if needed (no issue without `subdued` option).

Notice also that `\MTversion{\version_name}`, except for *normal* or *bold* if `subdued` does `\MTforalldoesskip` and `\MTexistsdoesskip`, which are not included in `\MTeverymathdefault` actions as they are not related to `\everymath` and `\everydisplay`.
 - `\MTeverymathoff`: does `\MTnormalasterisk`, `\MTnormalprime`, `\MTnonlettersdonotobeymathxx`, `\MTeasynonlettersdonotobeymathxx`, `\MTmathstandardletters` and `\MTdonotfixfonts`. New! (1.3j)
- The commands `\url/\nolinkurl` of package `hyperref` and `url` from `url.sty` (which use math mode under the hood) are patched by `mathastext` to do `\MTeverymathoff` automatically: this is needed because `mathastext` modifies anew some mathcodes *each time math mode is entered*, hence may overwrite to some extent the specific preparation done by `{url,hyperref}.sty`. New! (1.3i)
- Automatically done by `\MTversion` under option `subdued` if switching to the *normal* or *bold* math versions; and `\MTversion` then does also `\MTnormalexists` and `\MTnormalforall`.

- `\MTfixfonts`: this is a Lua \LaTeX only macro. It instructs `mathastext` when entering math mode to fix some issues with OpenType features such as Lining Figures not being applied in math mode when one uses text fonts there. Done automatically by the package (except in `subdued` mode for `normal` and `bold`). New! (1.3o)
- `\MTdonotfixfonts`: cancels the job of `\MTfixfonts`. Done automatically in `subdued` mode when in the `normal` or `bold` math version. Only operant in Lua \LaTeX . New! (1.3o)

3.3.3 Commands usable everywhere

- `\MTsetmathskips{\langle a-z/A-Z \rangle}{\langle mu glue_before \rangle}{\langle mu glue_after \rangle}`: is used to specify extra skips (or rather mu glue) to be inserted in math mode, before and after a letter. The rationale is that standard text fonts used in math mode may sometimes cause glyph (near-) collisions with math symbols, as \TeX has some implicit expectations on the design of fonts for math letters.

These extra skips around letters are set at their natural width and do not add any stretchability or shrinkability to the math formula as a whole, nor do they result in extra potential break points.

Random (silly) examples:

```
\MTsetmathskips{x}{\medmuskip}{\thickmuskip}
\MTsetmathskips{A}{.5mu}{2.3mu}
```

and the effect: $vw\ x\ yzA\ BC^{vw\ x\ yzA\ BC}$. The effect obeys the usual \LaTeX scoping rules.

The first argument of `\MTsetmathskips` may be any expandable code giving a letter; this facilitates use of `\MTsetmathskip` in `\@for` loops such as this one:

```
\makeatletter
\@for\@tempa:=a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s,t,u,v,w,x,y,z\do{%
    \MTsetmathskips{\@tempa}{2mu}{2mu}}%
\makeatother
```

Starting with v1.3i: the extra skips are *not* applied to the letters within the scope of math alphabet commands, or the letters from operator names (pre-defined or user declared).

Note that contrarily to the `\MTexistsskip`, `\MTforallskip`, and `\MTprimeskip` commands described next, these extra skips (which may be specified in the preamble) are not recorded in the definition of the math version (as defined via `\Mathastext` with its optional argument or via `\MTDeclareVersion`). The declared skips hold throughout the document until modified or canceled, independently of math versions (of course, `mathastext` cancels the skips in the normal and bold math versions if package option `subdued` was used).

- `\MTunsetmathskips{⟨a-z/A-Z⟩}`: cancels the skips for that letter (they are not set to 0mu but completely removed).

The argument may be a macro (or any expandable code) expanding to a letter.

- `\MTexistsskip{⟨math glue⟩}`: specifies the amount of skip or more generally glue to put after each \exists math symbol. Indeed, upright letters (or digits for that matter) often appear to be positioned a bit too close to the quantifier: $\exists B$. The package default is to add a 1mu skip (this default is set to zero in the case of *italic*): $\exists B$. One can change the default with the following syntax: `\MTexistsskip{2mu plus 1mu minus 1mu}`, which if used in the preamble and followed with a `\Mathastext` command (or `\MTDeclareVersion`), will be recorded in the definition of this math version (and subsequent ones). One may also use the command at any time in the document. In the case of the option `subdued`, the skip is canceled in the *normal* and *bold* math versions.⁴⁷ In the case of the option *italic*, the default skip is set to zero.
- `\MTnormalexists`, `\MTexistssdoesskip`: the latter (done by default if not `subdued`, and also on each use of `\MTversion` in the body of the document) makes it so that \exists takes into account the math glue as specified by `\MTexistsskip`. The former is its opposite. New! (1.3j)
- `\MTforallskip{⟨math glue⟩}`: the default is to add a .6667mu math skip after each \forall (except with the option *italic* for which the default skip is set to zero). Compare $\forall F$ (has the skip) with $\forall F$ (has no skip). Use this command in the preamble to set up the skip or glue to be used in the *next to be declared* math versions. In the case of the option `subdued`, the skip is canceled in the *normal* and *bold* math versions.⁴⁸ In the case of the option *italic*, the default skip is zero for all math versions. One may use the command at any location in the document.
- `\MTnormalforall`, `\MTforalldoesskip`: the latter (done by default if not `subdued`, and also on each use of `\MTversion` in the body of the document) makes it so that \forall takes into account the math glue as specified by `\MTforallskip`. The former is its opposite. New! (1.3j)
- `\MTprimeskip{⟨math glue⟩}`: the default is to add a 0.5mu skip before the derivative glyph, except for the *italic* option. In the case of the option `subdued`, the skip is canceled in the *normal* and *bold* math versions.⁴⁹
- `\MTlowerast{⟨dimen⟩}`: a `\raisebox` command is used to lower the text asterisk to produce a reasonable math asterisk. The package uses this command initially with argument `0.3\height`, this will have to be fine-tuned for each given text

Changed!
Changed!
Changed!

⁴⁷Prior to 1.3j, it was set to 0mu.

⁴⁸Prior to 1.3j, it was set to 0mu.

⁴⁹Prior to 1.3j, it was set to 0mu.

font but worked out ok with the fonts we tried. Note that the dimension argument will be used also in sub-scripts and sub-sub-scripts, so it is best not to use an absolute dimension.

- `\MTmathoperatorsobeymathxx`, `\MTmathoperatorsdonotobeymathxx`: the former is done by default, it makes operator names obey math alphabets. See also section 2.8. This functionality *does not rely* on “math active characters”. Automatically issued by each `\MTversion`, except under option `subdued` when switching to *normal* or *bold*.
- `\MTcustomgreek`: in case `mathastext` has been loaded with one of its Greek related options, this activates the corresponding customization of Greek letters in math mode. It is issued automatically by the package in the preamble (except if loaded with `subdued` option) and at each switch of math version via `\MTversion` or `\MTversion*` (except for the normal and bold math versions in subdued mode). Also available as `\Mathastextcustomgreek`. May be used even inside of math mode.
- `\MTstandardgreek`: in case `mathastext` was loaded with one of the Greek related options this command reverts the customization, it resets the Greek letters to their definitions in force at package loading time. Can be used in the preamble, but is mainly for the document body (may even be used inside math mode ...). Done automatically under the `subdued` option when switching to the normal or bold math version. Also available as `\Mathastextstandardgreek`.

3.3.4 Body-only commands

- `\MTversion[⟨nametext⟩]{⟨namemath⟩}`, `\MTversion*{⟨namemath⟩}`, also known as `\Mathastextversion` (and as `\MTVersion`, and `\mathastextversion`):
 - the non-starred version changes *both* the document text fonts and the math fonts (for those characters treated by `mathastext`): the mandatory argument is the math version to be used for math; the optional argument is the name of (another) `mathastext`-declared math version, the font which was chosen during its declaration will be set as document text font (and `\familydefault` etc...also are redefined). In the absence of the optional argument, the mandatory one is used. The versions *must* be either `normal`, or `bold`, or previously declared ones via `\Mathastext` or `\MTDeclareVersion`.
 - the starred variant does the math set-up, but changes *nothing* to the text fonts (see subsection 2.4 for a description of the math set-up, which summarizes what is done additionally to only using L^AT_EX’s `\mathversion`).

`\MTversion[⟨nametext⟩]{⟨namemath⟩}` does `\MTEverymathdefault` (except for `\MTversion{normal}` and `\MTversion{bold}` under package option `subdued`), which in particular activates the insertion of skips around letters specified by

`\MTsetmathskips` and also, if the font used is not oblique the insertion of italic corrections (for better positioning of subscripts; see the discussion in [subsection 2.6](#)). Under the `frenchmath` option the package checks separately the letter shape for lowercase and uppercase.

`\MTversion` also does `\MTexistsdoesskip`, `\MTforalldoesskip`, and also `\MTprimedoesskip`, `\MTmathoperatorsobeymathxx`, except under the `subdued` option for *normal* and *bold*, in which case it does the opposite actions. New! (1.3j)

All further commands are usable only inside math mode.

- `\hbar`: this is constructed (in a way compatible with the `italic` option) from the `h` letter and the `ˉ` 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` to use the `mathastextified` font. The underlying internal L^AT_EX structures related to the original commands are not overwritten, so the original commands can be saved under other names before `\usepackage{mathastext}`, to be used in case of necessity (this is what option `subdued` does.)
- `\mathnormalbold`: a bold version of `\mathnormal`. Differs from `\mathbf` when the `italic` option has been used, or when use has been made of `\MTlettershape` to specify a shape for letters distinct from the one for digits and operator names, or similarly when the math version has been declared via `\MTDeclareVersion` with its optional parameter for shape of letters.
- `\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.
- `\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 L^AT_EX 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.
- Miscellaneous mathematical symbols from the postscript Symbol font are made available (or replaced) by option `symbolmisc`.⁵⁰ They are `\prod` \prod `\sum` \sum `\implies` \Rightarrow `\impliedby` \Leftarrow `\iff` \iff `\shortiff` \Leftrightarrow `\to` \rightarrow `\longto` \longrightarrow `\mapsto` \mapsto `\longmapsto` \longmapsto `\aleph` \aleph `\infty` ∞ `\emptyset` \emptyset `\surd` \surd `\nabla` ∇ `\angle` \angle `\forall` \forall `\exists` \exists `\neg` \neg `\club` \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 `\propto` \propto `\mid` \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 `\angle` \angle `\langle` \langle `\rangle` \rangle . And a `\DotTriangle` \therefore is made available by option `symbolre` (which overwrites `\Re` and `\Im`: \Re , \Im). The `\infty` and `\propto` have these names to leave up to the user the choice to replace (or no) the original (larger) `\infty` and `\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; here we have the symbols from `txfonts`):

$$\prod \sum$$

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

3.4 Complete list of options

- `basic`: only mathastextify letters and digits.

⁵⁰option `asterisk` is also required to treat the `*`. Recall from subsection 2.8 that the asterisk in math mode (also when using the control sequence `\ast`) appears then to T_EX to be a composite object.

- **subdued**: do not change the default fonts or the math alphabets in math mode for the normal and bold math versions, turn on the **mathastext**-ification only after an explicit `\MTversion` (or `\mathastextversion`) command activating an additional math version as declared in the preamble. With option `subdued \MTversion{normal}` and `\MTversion{bold}` do `\MTmathoperators donotobeymathxx`, `\MTeasyonlettersdonotobeymathxx`, `\MTnonlettersdonotobeymathxx`, `\MTmathstandardletters`.
- **italic**: the letters default to italic shape in math mode.
- **frenchmath**: italic lowercase Latin letters, 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.
- **asterisk**: use the text font (or the Symbol font) asterisk in math mode.
- **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 `!?`, `,.:`, `+–=()`, `[]/#$%&` **mathastext** treats also `<>|{ }` and `\`. Use this option to let it not do it. This is the default in case of OT1-encoding.
- further excluding options: **noexclam** `!?`, **nopunctuation** `,.:`, **noplus**, **nominus**, **noplusnominus** `+–`, **noequal** `=`, **noparenthesis** `()[]/`, **nospecials** `#$%&` 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.
- **nosmalldelims**: this prevents **mathastext** from trying to pick up in the text font the ‘small variants’ of some math delimiters; it only affects what happens when a character such as a left parenthesis (or [is used as a delimiter, and in the event that T_EX has chosen the smallest sized variant. This has no impact on what happens when they are not used as delimiters: then, and if not disabled by the corresponding options, these characters are always picked up from the text font.⁵¹

⁵¹in this very special situation of option **nosmalldelims**, the braces are an exception to this rule and they require both of `\MTnonlettersobeymathxx` and `\MTexplicitbracesobeymathxx` for being picked up from the text font when not used as delimiters.

- `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 (`\cdot`).
- `symbolmisc`: takes quite a few glyphs, including logical arrows, product and sum signs from Symbol. They are listed *supra*. Doing `\renewcommand{\int}{\smallint}` will maximize even 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. It is possible to change the font per math version, via the use of the `\MTgreekfont` command in the preamble.
- `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.
- `defaultbf`, `defaultit`, `defaultsf`, `defaulttt`: do not set up, respectively, the `\mathbf`, `\mathit`, `\mathsf`, and `\mathtt` commands to use the mathastext-ified font. This also prevents `mathastext` to create internally `\Mathxx` alphabets (it never overwrites the original `\mathxx` things but let `\mathxx` point to `\Mathxx` instead), so one can use these options if one encounters a ‘too many math alphabets’ \LaTeX error.
- `defaulnormal`, `defaultrm`: do not identify the default `\mathnormal` (resp. `\mathrm`) with the newly created `\Mathnormal` (resp. `\Mathrm`) commands which use the mathastextified fonts in each math version.

- `defaultalphabets`: all the `defaultxx` options together, and additionally tells `mathastext` not to create the `\mathnormalbold` alphabet either.
- `defaultimath`: do not overwrite `\imath` and `\jmath`, do not extend `\i` and `\j` to math mode use.
- `defaultmathsizes`: do not change the L^AT_EX defaults for the sizes of exponents and subscripts.
- `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 sending bug reports and feature requests when the first version of the package was issued.

Numerous examples will be found there:

<http://jf.burnol.free.fr/mathastext.html>

<http://jf.burnol.free.fr/showcase.html>

4 Change log

1.3o [2016/05/03]

- * `mathastext` fixes an issue related to a feature of LuaLaTeX and luaotfload that OpenType fonts are declared in one of two modes: node and base, and only the latter is functional in math mode. But by default text fonts are declared in mode node. Thus `mathastext` now intervenes to make it so that the font it declares in math mode will use mode basic. This fixes issues with for example old style figures being used while the text font used lining figures (or vice versa, depending on the font). But see the code comments for more.

1.3n [2016/04/22]

- * at long last, `mathastext` takes care properly of annoying and perplexing `amsmath`'s `\newmcodes@`. The very recent change in `amsopn.sty` finally made it compatible with Unicode engines, but anyhow, `mathastext` must do its own patch to use the correct font. All of this taking into account the various options passed to the package. Lots of trouble for a tiny thing.

1.3m [2016/04/02]

- * minor code maintenance before annual TL freeze.

1.3l [2016/01/29]

- * compatibility with `fontspec`'s upcoming switch from EU1/EU2 to TU common to both Unicode engines.

1.3k [2016/01/24]

- * typos fixed in the documentation. In particular, the README link to the package homepage had remained broken from day one of the package releases: `mathastext.html` therein was misspelled as `mathsastext.html` ! (but the pdf documentation had the correct link; as well as the CTAN catalogue).

1.3j [2016/01/15]

- * renamed and modified recent 1.3i's `\MTactivemathoff` into `\MTeverymathoff`. Added `\MTeverymathdefault`.

- * subdued mode is a bit stronger: also the asterisk reverts to the default (if it was modified due to option `asterisk`), the added extra `\mskip`'s (useful with upright fonts) for `'`, `\exists`, and `\forall` are

suppressed rather than re-configured to use `0mu`. Related new commands `\MTexistsdoesskip`, `\MTforalldoesskip`, `\MTprimedoesskip`, `\MTnormalexists`, `\MTnormalforall`, `\MTnormalprime`.

- * the toggle for using mathematically active letters is only emitted once during package loading; the `\Mathastext` command does not do it anymore; the use in the preamble of `\MTmathstandardletters`, or `\MTnoicinmath` and related commands is not overruled by later use of `\Mathastext`.

- * quite a few documentation improvements and rewrites, particularly in the description of commands which are related to the modifications of `mathcodes` (mainly for math activation of characters or letters) as done by `mathastext` at `\everymath` or `\everydisplay`.

1.3i [2016/01/06]

- * `\url` from `url.sty` as well as `\url` and `\nolinkurl` from `hyperref.sty` use math mode and (by default) the monospace text font. To avoid `mathastext` overwriting the special preparation done by `{url,hyperref}.sty` the commands `\url/\nolinkurl` are patched to do automatically `\MTactivemathoff` (now `\MTeverymathoff`) before entering math mode.

- * the extra skips specified by `\MTsetmathskips` are not inserted around letters if inside the arguments of math alphabet commands, or within operator names.

- * the added explicit italic corrections (for non-oblique fonts) were disabled within math alphabet scopes, except `mathnormal`; they are now disabled within all math alphabets, inclusive of `mathnormal`.

1.3h [2015/10/31]

- * bugfixes: since 1.3d 2014/05/23 the option `symbolgreek` caused `\ell` to become undefined, and, similarly but far worse, options `selfGreek`, `selfGreeks` caused all lowercase Greek letters `\alpha`, `\beta`, etc.. to become undefined.

1.3g [2015/10/15]

- * following 2015/10/01 LaTeX release, removal of the "luatex" prefix from the names of the LuaLaTeX math primitives. Compatibility maintained with older LaTeX formats.

1.3f [2015/09/12]

- * the replacement of `amsmath's \resetMathstrut@`, when it is done, emits an Info rather than a Warning as this could be potentially stressful to some users.

- * the README self-extracts from the dtx source, as a text file README.md with Markdown syntax.

1.3e [2015/09/10]

- * bugfix: under option `nosmalldelims`, `\lbrace` and `\rbrace` were redefined as math symbols and could not be used as delimiters.

1.3d [2015/02/26]

- * the documentation mentions the improved compatibility of `mathastext` with the latest (3.34) beamer release: no more need for `\usefonttheme{professional}`.

1.3d [2014/05/23]

- * new commands `\MTstandardgreek` and `\MTcustomgreek`.

- * The Greek letters, in case of use of one of the package related options, are left to their defaults in the normal and bold math versions if the subdued option was also used (this was so far the case only with options `LGRgreek/LGRgreeks`).

- * `\newmcodes@` of `amsmath` is left untouched if package `lualatex-math` is detected.

1.3c [2013/12/14]

- * added a starred variant to `\MTversion` which tells `mathastext` to only do the math set-up and not modify the text fonts.

- * added second optional version name argument to `\Mathastext` and to `\MTDeclareVersion`, to transfer settings for things not otherwise changed by `mathastext` from a math version to the one declared. This is mainly for symbols and large symbols to be the bold ones when the user sets up the series of a `mathastextified` font to be bold in a `mathastext-declared` version.

- * renamed `\defaultprod` to `\MToriginalprod`, `\defaultsum` to `\MToriginalsum`, (this is in case of option `symbolmisc`).

- * changes to the dtx organization; options for generating the documentation can be customized in generated `mathastext.tex` file.

- * 1.2d code for `\#`, `\$`, `\%`, and `\&` modified erroneously the earlier correct 1.2c code and created a bug showing up with more than 16 math families (a possibility only with `lualatex` or `xelatex`).

1.3a [2013/09/04]

- * the somewhat silly `\string's` are removed from the `\MTsetmathskips` command of release 1.3, thus allowing its first argument to be a macro, or any expandable code, giving a letter.

- * the `amsmath \resetMathstrut@`, which is incompatible with a mathematically active parenthesis (is now modified only if necessary (i.e. only when `\MTnonlettersobeymathxx` is issued) and is restored to its original value if not needed anymore (i.e. after `\MTnonlettersdonotobeymathxx`, as for example when switching to the normal version under option `subdued`).

- * improved documentation.

1.3 [2013/09/02]

- * commands `\MTsetmathskips` and `\MTunsetmathskips` added.

- * commands `\MTmathactiveletters` and `\MTmathstandardletters` to govern the math activation of letters independently of its use for insertion of the italic corrections (`\MTicinmath` and `\MTnoicinmath` correspondingly modified).

- * the new `\luatexUmathcodenum` as available since TL2013 allows identical treatment by `mathastext` of `=` and `-` under both `LuaTeX` and `XeTeX`.

- * `\newmcodes@` of `amsmath` is left untouched in case of option `basic`.

- * a sentence containing `|` which was written to the log during the loading caused a problem if `|` was active (typically if `\MakeShortVerb{||}` was added to the preamble prior to the loading of `mathastext`).

- * some preemptive measures taken regarding things such as `\mid`, `\lbrace`, and `\rbrace`, as some packages define these things in manners which made the re-definitions done by `mathastext` issue errors.

1.2f [2013/01/21]

- * minor code improvements. Change log added to the user manual.

1.2e [2013/01/10]

This version should be the last one in the 1.2 series as it seems to correct most of the main prob-

lems which were introduced with the massive use of mathematically active characters in versions 1.2 and 1.2b.

- * It is indeed a thorny point when one wants to modify an active character in math mode only (without breaking usage in label's and ref's for example). The package now does that `_only_` if the activation originated in the Babel system as it is then possible to modify appropriately the Babel macros `\user@active<char>` and `\normal@char<char>`, at the time of entering math mode (mathastext does all its activation job at `\everymath` and `\everydisplay`).

The relevant issues are discussed in section 2.10 of the user manual, in the test file `mathastexttestalphabets.tex`, and in the source code comments for macro `\mst@mathactivate`. The inherent incompatibility of Babel with packages having made mathematically active the characters itself makes document active is circumvented by this interference of mathastext. A generally applicable Babel patch could be derived from the method used by mathastext.

For the non catcode active characters, mathematical activation is used. This is done at the entrance in math mode.

- * Sadly, the feature of added italic corrections introduced in version 1.2b did not behave as described in the user manual, due to forgotten group braces. Fixed.

- * The command `\MTlowerast` from the user manual of v1.2d was not the one implemented in the source code. Fixed.

- * The test files automatically extracted from a latex run on the dtx file have been revised and extended.

- * The code is better documented.

1.2d [2013/01/02]

- * an incompatibility with `amsmath` (its macro `\resetMathstrut@`), exists since version 1.2 of the package. This is fixed here.

- * various improvements in dealing with the asterisk and in the mechanism of letting non-letter symbols obey the math alphabet commands.

- * documentation extended and improved.

1.2c [2012/12/31]

- * mathastext now inserts automatically after all (latin) letters in math mode their italic corrections, if the font used is upright (sic). This

improves the spacings for the positioning of subscripts. The feature is de-activated inside the math alphabets commands (apart from `\mathnormal`), so as to not prohibit the formation of ligatures.

- * the documentation has been extended to explain in detail the issues which are relevant to the new feature of added italic corrections.

- * version 1.2 had some bad bugs when confronted to active characters. This is corrected and additionally `\MTnonlettersdonotobeymathxx` is made the default, as the user input is too much constrained in its absence.

- * a less fatal, but still annoying, typo had made the dot in 1.2 of type `\mathpunct` rather than `\mathord`.

- * the inner namespace has been rationalized a bit.

1.2 [2012/12/20]

- * a new command sets up the amount of space to be automatically inserted before the derivative glyph (useful when using an upright font).

- * the scope of the math alphabets has been extended to apply to the non-alphabetical characters, and also to operator names.

- * the format of the dtx file has changed. The package file is self-extracting from the dtx, and four additional test files are also produced during latex mathastext.dtx.

1.15f and 1.15g [2012/10/25]

- * `\$, \#, \&`, and `\%` had been re-defined by mathastext since its inception in a rather strange (but working) way, which could cause surprises to other packages. Fixed.

- * the subdued mechanism for the math alphabets is implemented in a simpler and more efficient manner than in 1.15e.

- * the defaultxx options act a bit differently, and are more useful in case of a too many math alphabets situation.

- * various improvements in the documentation.

- * general clean up and better commenting of the source code.

1.15e [2012/10/22]

- * new user commands to specify skip or glue to be inserted after the math symbols `\exists` and `\forall`

- * complete (user transparent) rewrite of the code implementing the subduced option; and its action has been extended to apply also to the `\mathbf`, `\mathit`, `\mathsf`, `\mathtt` alphabets and not only to `\mathrm` and `\mathnormal` as in the previous versions.

- * improvements in the documentation.

1.15d [2012/10/13]

- * the Unicode situation is now correctly treated, throughout the code (this had been left in a half-done way from version 1.14 of April 2011).

- * this includes an issue related to `amsmath` and its `DeclareMathOperator` macro which has been fixed,

- * and the code related to `\relbar` and `\Relbar` (and `\models`) has been revised.

1.15c [2012/10/05]

- * it is now possible to use distinct fonts in LGR encoding for the Greek letters according to the current math version.

- * improvements to the documentation.

1.15b

- * corrected a 'feature' of 1.15 which was backward-incompatible

- * improvements to the pdf documentation

1.15 [2012/09/26]

- * the subduced option allows the `mathastextif`ication to act only locally.

- * some measures taken to deal with `amsmath` related issues when using `xetex` or `luatex`.

1.14c

- * a bug is fixed: the `\Mathastext` macro reinitializes the fonts in the normal and bold math versions, but it also erroneously redeclared the math alphabet changing commands which could have been set up in previously defined math versions (via earlier calls to `\Mathastext\{version_name\}`).

1.14b [2011/04/03]

- * there was a bug with `\$`, `\#`, `\&`, `\%` in math mode which showed up when ten or more math families had been declared. This bug affected

also the minus sign under the same circumstances, when Unicode engines were used. Fixed.

- * the options `LGRgreek` and `selfGreek` act now a bit differently, and new options `LGRgreeks` and `selfGreeks` have been defined.

- * I also cleaned up a bit the code, for a more structured namespace.

1.14

- * `mathastext` now modifies also the math alphabets `\mathit`, `\mathsf` and `\mathtt`, thus making it a quite generic complete manner to adapt the math configuration to fonts provided with no math support.

1.13b

- * when the Symbol font is used for `\prod` and `\sum` this will be only for inline math; display math will use the default glyphs

1.13 [2011/03/11]

- * the `LGRgreek` option is added.

- * internal changes for better readability of the code.

1.12

- * various bugs have been corrected.

- * the `endash` and `alldelims` options are active by default.

- * the package is more Unicode aware.

- * the `\Mathastext` command has been improved to facilitate the mechanism of math versions also when using `XeTeX` or `LuaTeX` (with package `fontspec`.)

- * the `en-dash` and `dotless i` and `j` now work with all encodings, Unicode inclusive.

1.11 [2011/02/06]

- * optional argument to `\Mathastext` macro.

1.1 [2011/02/01]

- * options `italic` and `frenchmath`.

1.0 [2011/01/25]

- * Initial version.

5 Implementation

The usual catcode regime for letters and digits is assumed and some characters such as *, ‘, ", = are supposed to be of catcode other at the time of loading of `mathastext`. The source of `mathastext` takes precautions for some other characters such as the right quote ’, which may thus be active with no harm at the time of loading. By the way, I think L^AT_EX2e should have provided to authors a standard macro to be used at the beginning of a style file to make sure the catcodes are standard. Shorthands created by Babel should be mostly no problem as Babel does the activation only at the `\begin{document}`.

The comments have been accumulating through successive versions with only partial efforts to achieve some sort of coherence; as a result some are a bit strange or obsolete to various degrees. And the similar remark applies to some ancient parts of the code itself!

```
1 \NeedsTeXFormat{LaTeX2e}
2 \ProvidesPackage {mathastext}
3 [2016/05/03 v1.3o Use the text font in math mode (JFB)]
```

Testing for X_YL^AT_EX and LuaL^AT_EX.

1.3g 2015/10/15: update for the naming of primitives, the situation has evolved both on X_YL^AT_EX side and on the LuaL^AT_EX side (LaTeX base 2015/10/01): I was told "U" named math primitives were always available for LuaL^AT_EX. For X_YL^AT_EX, the XeTeX prefix got replaced by U prefix with 0.99.. a certain number of 9. I opted for rather simple approach of just trying the "modern" names and if they don't exist fall back on earlier (and in danger of being deprecated) names.

```
4 \let\mst@Umathcharnumdef\Umathcharnumdef
5 \let\mst@Umathcodenum \Umathcodenum
6 \let\mst@Umathcode \Umathcode
7 \let\mst@Umathchardef \Umathchardef
8 \newif\ifmst@XeTeX
9 \ifx\XeTeXinterchartoks\@undefined
10 \mst@XeTeXfalse
11 \else
12 \mst@XeTeXtrue
13 \ifx\mst@Umathcharnumdef\@undefined
14 \let\mst@Umathcharnumdef\XeTeXmathcharnumdef
15 \let\mst@Umathcodenum \XeTeXmathcodenum
16 \let\mst@Umathcode \XeTeXmathcode
17 \let\mst@Umathchardef \XeTeXmathchardef
18 \fi
19 \fi
20 \newif\ifmst@LuaTeX
21 \ifx\directlua\@undefined
22 \mst@LuaTeXfalse
23 \else
24 \mst@LuaTeXtrue
25 \ifx\mst@Umathcharnumdef\@undefined
26 \let\mst@Umathcharnumdef\luatexUmathcharnumdef
27 \let\mst@Umathcodenum \luatexUmathcodenum
28 \let\mst@Umathcode \luatexUmathcode
29 \let\mst@Umathchardef \luatexUmathchardef
```



```

30 \fi
31 \fi
32 \newif\ifmst@XeOrLua
33 \ifmst@LuaTeX\mst@XeOrLuatrue\fi
34 \ifmst@XeTeX \mst@XeOrLuatrue\fi

```

1.2: all inner macros of **mathastext** now starts with **\mst@** for a cleaner name-space.

1.31 2016/01/29: hmmm... at this late stage where nobody would expect me to still look at the code, I have found at least two macros which still didn't: **\do@the@endashstuff** and **\do@the@emdashstuff**.

Ok, doing something more serious: compatibility with upcoming TL2016 fontspec and its switch to 'TU' NFSS font encoding in replacement of 'EU1/EU2'. Anyhow, the code in **mathastext** has been common to the two Unicode engines for a while, hence it is not hard to adapt to the replacement of EU1/EU2 by TU, maintaining compatibility with legacy installations.

\mst@OneifUniEnc

```

35 \def\mst@oti{OT1}\def\mst@ti{T1}\def\mst@lyi{LY1}
36 \def\mst@eui{EU1}\def\mst@euii{EU2}\def\mst@tu{TU}
37 \def\mst@OneifUniEnc {%
38   \ifx \mst@tmp@enc\mst@tu 1\else
39   \ifx \mst@tmp@enc\mst@eui 1\else
40   \ifx \mst@tmp@enc\mst@euii 1\else 0\fi\fi\fi }
41 \newif\ifmst@goahead
42 \newif\ifmst@abort

```

\mst@enc Macros to store the font settings, each math version will store its own records.

```

\mst@fam 43 \def\mst@enc{\encodingdefault}
\mst@ser 44 \def\mst@fam{\familydefault}
\mst@opsh 45 \def\mst@ser{\seriesdefault}
\mst@bold 46 \def\mst@opsh{\shapedefault} %% will be default shape for operator names
\mst@ltsh 47 \def\mst@bold{\bfdefault}
48 \def\mst@ltsh{\shapedefault} %% will be default shape for letters

```

\mst@greekfont 1.15c: for use by the LGRgreek and selfGreek options. Defined as an **\edef** in order to be able to set-up once and for all the Greek at the time of **\usepackage**. Modifiable in the preamble via **\MTgreekfont{<font_name>}\Mathastext**.

```

49 \edef\mst@greekfont{\familydefault} %% v 1.15c

```

Package options 2011/03/09: 1.13 introduces the option LGRgreek and systematic use of **\if...** conditionals, for better readability (by myself) of the code.

```

50 \newif\ifmst@italic
51 \newif\ifmst@frenchmath
52 \DeclareOption{italic}{\mst@italictrue
53   \def\mst@ltsh{\itdefault}}
54 \DeclareOption{frenchmath}{\mst@frenchmathtrue\mst@italictrue
55   \def\mst@ltsh{\itdefault}}
56 %%
57 \newif\ifmst@endash\mst@endashtrue
58 \DeclareOption{endash}{\mst@endashtrue}
59 \DeclareOption{noendash}{\mst@endashfalse}

```

```

60 \newif\ifmst@emdash
61   \DeclareOption{emdash}{\mst@emdashtrue\mst@endashfalse}
62 %%
63 \newif\ifmst@alldelims
64 \edef\mst@tmp{\encodingdefault}\ifx\mst@oti\mst@tmp\else\mst@alldelimstrue\fi
65   \DeclareOption{alldelims}{\mst@alldelimstrue}
66   \DeclareOption{nolessnomore}{\mst@alldelimsfalse}
67 %% new with 1.2
68 \newif\ifmst@nosmalldelims
69   \DeclareOption{nosmalldelims}{\mst@nosmalldelimstrue}
70 %%
71 \newif\ifmst@noplus
72   \DeclareOption{noplus}{\mst@noplustrue}
73 \newif\ifmst@nominus
74   \DeclareOption{nominus}{\mst@nominustrue}
75 \DeclareOption{noplusnominus}{\ExecuteOptions{noplus,nominus}}
76 %%
77 \newif\ifmst@noparen
78   \DeclareOption{noparenthesis}{\mst@noparenttrue}
79 \newif\ifmst@nopunct
80   \DeclareOption{nopunctuation}{\mst@nopuncttrue}
81 \newif\ifmst@noequal
82   \DeclareOption{noequal}{\mst@noequaltrue}
83 \newif\ifmst@noexclam
84   \DeclareOption{noexclam}{\mst@noexclamtrue}
85 \newif\ifmst@asterisk
86   \DeclareOption{noasterisk}{\PackageWarningNoLine{mathastext}
87     {option 'noasterisk\string' is deprecated.^^J\space\space\space
88     Check the documentation}}
89   \DeclareOption{asterisk}{\mst@asterisktrue}
90 \newif\ifmst@nospecials
91   \DeclareOption{nospecials}{\mst@nospecialstrue}
92 \newif\ifmst@basic % 1.3 to avoid unnecessary patch of amsmath \newmcodes@
93 \DeclareOption{basic}{\mst@basictrue}
94   \ExecuteOptions{noparenthesis,nopunctuation,%
95     noplusnominus,noequal,noexclam,nospecials,nolessnomore}}
96 %%
97 \newif\ifmst@nohbar
98   \DeclareOption{nohbar}{\mst@nohbartrue}
99 \newif\ifmst@nodigits
100   \DeclareOption{nodigits}{\mst@nodigitstrue}
101 \newif\ifmst@defaultimath
102   \DeclareOption{defaultimath}{\mst@defaultimathtrue}
103 \newif\ifmst@mathaccents
104   \DeclareOption{mathaccents}{\mst@mathaccentstrue}
105 %%
106 \newif\ifmst@needsymbol
107 \newif\ifmst@symboldelimiters
108   \DeclareOption{symboldelimiters}{\mst@needsymboltrue\mst@symboldelimiterstrue}

```

```

109 \newif\ifmst@symboldigits
110   \DeclareOption{symboldigits}{\mst@needsymboltrue\mst@symboldigitstrue}
111 \newif\ifmst@symbolgreek
112 \newif\ifmst@customgreek %% new with 1.3d
113   \DeclareOption{symbolgreek}{\mst@needsymboltrue\mst@symbolgreektrue
114                               \mst@customgreektrue }
115 \newif\ifmst@symbolre
116   \DeclareOption{symbolre}{\mst@needsymboltrue\mst@symbolretrue}
117 \newif\ifmst@symbolmisc
118   \DeclareOption{symbolmisc}{\mst@needsymboltrue\mst@symbolmisctrue}
119 \DeclareOption{symbol}{\ExecuteOptions{symbolgreek,symbolmisc,symbolre}}
120 \DeclareOption{symbolmax}{\ExecuteOptions{symbol,symboldelimiters}}
121 %%
122 \newif\ifmst@needeuler
123 \newif\ifmst@eulerdigits
124   \DeclareOption{eulerdigits}{\mst@needeulertrue\mst@eulerdigitstrue}
125 \newif\ifmst@eulergreek
126   \DeclareOption{eulergreek}{\mst@needeulertrue\mst@eulergreektrue
127                               \mst@customgreektrue }
128 %%
129 \newif\ifmst@selfGreeK
130   \DeclareOption{selfGreeK}{\mst@selfGreeKtrue\mst@customgreektrue}
131 \newif\ifmst@selfGreeks
132   \DeclareOption{selfGreeks}{\mst@selfGreeKtrue\mst@selfGreeKtrue
133                               \mst@customgreektrue }
134 \newif\ifmst@LGRgreek
135   \DeclareOption{LGRgreek}{\mst@LGRgreektrue\mst@customgreektrue}
136 \newif\ifmst@LGRgreeks
137   \DeclareOption{LGRgreeks}{\mst@LGRgreektrue\mst@LGRgreektrue
138                               \mst@customgreektrue}
139 %%
140 \def\mst@greek@select{0}
141 \newif\ifmst@itgreek
142 \newif\ifmst@upgreek
143   \DeclareOption{itgreek}{\mst@itgreektrue}
144   \DeclareOption{upgreek}{\mst@upgreektrue}
145   \DeclareOption{itGreeK}{\def\mst@greek@select{1}}
146   \DeclareOption{upGreeK}{\def\mst@greek@select{2}}
147 %%

```

Starting with 1.15f the meaning of the ‘defaultxx’ options has changed. They now prevent `mathastext` from defining additional alphabets rather than prevent it from identifying the ‘mathxx’ with the new ‘Mathxx’. The ‘Mathnormal’ and ‘Mathrm’ alphabet commands are always created as they are SymbolFontAlphabets.

```

148 \newif\ifmst@defaultnormal
149   \DeclareOption{defaultnormal}{\mst@defaultnormaltrue}
150 \newif\ifmst@defaulttrm
151   \DeclareOption{defaulttrm}{\mst@defaulttrmtrue}
152 \newif\ifmst@defaultbf
153   \DeclareOption{defaultbf}{\mst@defaultbftrue}

```

```

154 \newif\ifmst@defaulttit
155     \DeclareOption{defaulttit}{\mst@defaulttittrue}
156 \newif\ifmst@defaultsf
157     \DeclareOption{defaultsf}{\mst@defaultsftrue}
158 \newif\ifmst@defaultttt
159     \DeclareOption{defaultttt}{\mst@defaultttttrue}
160 \newif\ifmst@nonnormalbold
161 \DeclareOption{defaultalphabets}{\ExecuteOptions{defaultnormal,defaultrm,%
162 defaultbf,defaultit,defaultsf,defaultttt}\mst@nonnormalboldtrue}

mathastext considers the default script and especially scriptscript sizes to be far too small, and
it will modify them. An option maintains the default.

163 \newif\ifmst@defaultsizes
164     \DeclareOption{defaultmathsizes}{\mst@defaultsizestrue}
165 \newif\ifmst@twelve
166     \DeclareOption{12pt}{\mst@twelvetrue}
167 \newif\ifmst@fouriervec
168     \DeclareOption{fouriervec}{\mst@fouriervectrue}

1.15: the subdued option.

169 \newif\ifmst@subdued
170     \DeclareOption{subdued}{\mst@subduedtrue}
171 \DeclareOption*{\PackageWarningNoLine{mathastext}
172     {Unknown option '\CurrentOption\string'}}

173 \ProcessOptions\relax

\exists 1.15e 2012/10/21: math skip/glue after \exists and \forall, this is useful with upright letters
\mst@exists@skip in math mode. Each math version has its own user defined values for the skips, stored as macros.
\forall The redefinitions of  $\exists$  and  $\forall$  are done only at the end of the package as the symbol option will
\mst@forall@skip also want to redefine these math symbols.
\MTnormalexists The subdued option (later and only for the normal and bold math version) and the italic
\MTexistsdoesskip option (here) set to zero the package default skips. With 1.2 the skips can be modified on the
\MTnormalforall fly in the document, they are not necessarily set in the preamble once and for all for each math
\MTforalldoesskip version.

1.3j adds \MTnormalexists, \MTexistsdoesskip, \MTnormalforall, \MTforalldoesskip.
Earlier to 1.3j, \let\mst@stdexists\exists was done at End of Package, now it is done at
Begin Document, and same for \forall. We pay attention that use of \MTnormalexists etc...
inside the preamble does not create self-let's.

Also subdued mode will do \MTnormalexists, \MTnormalforall (earlier than 1.3j, it only
set the muskips to 0mu.) Same when using \MTversion{normal}, if subdued.

For some (random, legacy) reason, the handling of  $\exists$  and  $\forall$  is part of the things (also \MTmath
operatorsobeymathxx not included inside \everymath/\everydisplay.

174 \newmuskip\mst@exists@musk % v 1.15e
175 \newmuskip\mst@forall@musk
176 \def\mst@exists@skip{1mu}
177 \def\mst@forall@skip{.6667mu}
178 \ifmst@italic\ifmst@frenchmath\else
179     \def\mst@exists@skip{0mu}
180     \def\mst@forall@skip{0mu}

```

```

181 \def\mst@prime@skip {0mu}
182 \fi\fi
183 \def\mst@exists{\mst@stdexists\mskip\mst@exists@muskip}
184 \def\mst@forall{\mst@stdforall\mskip\mst@forall@muskip}
185 \AtBeginDocument{%
186 \let\mst@stdexists\exists
187 \let\mst@stdforall\forall
188 \def\MTnormalexists {\let\exists\mst@stdexists }%
189 \def\MTexistsdoesskip {\let\exists\mst@exists }%
190 \def\MTnormalforall {\let\forall\mst@stdforall }%
191 \def\MTforalldoesskip {\let\forall\mst@forall }%

```

The document body starts in the normal math version, whether or not `\Mathastext` command as been used in the preamble (which either re-defines the normal/bold math version or defines another one in case of optional argument), and in case of `subdued` option should use the standard \forall and \exists .

```

192 \ifmst@subdued
193 \else
194 \MTexistsdoesskip
195 \MTforalldoesskip
196 \fi
197 }%
198 \newcommand*\MTnormalexists {\AtBeginDocument {\MTnormalexists }}
199 \newcommand*\MTexistsdoesskip {\AtBeginDocument {\MTexistsdoesskip }}
200 \newcommand*\MTnormalforall {\AtBeginDocument {\MTnormalforall }}
201 \newcommand*\MTforalldoesskip {\AtBeginDocument {\MTforalldoesskip }}

```

`\prime` 1.2 2012/12/17: math skip/glue *before* the `\prime` glyph. This is useful with the default CM `\mst@prime@skip` glyph and upright letters (in contrast the prime from `txfonts` works fine with upright letters). `\active@math@prime` For this we replace the L^AT_EX kernel `\active@math@prime` with our own skip-enhanced version `\mst@active@math@prime`. `\MTnormalprime` `\MTprimedoesskip` 1.2b 2012/12/31: doing

```
\catcode'\=' \active \global\let'\mst@active@math@prime}
```

is awfully wrong when the right quote is made active at begin document by some other package (as happens with `babel` for some languages). So `mathastext` treats now the right quote with the same method as applied to the other characters it makes mathematically active. This uses the macro `\mst@mathactivate` which is defined later in the package.

Babel does `\let\prim@s\bb@l@prim@s` when `'` is made active via its services (the czech and slovak languages also store the initial version of `\prim@s`, else the quote would not work correctly when being again of `catcode 12`), and it doesn't matter if `mathastext` is loaded before or after this happens, as the `\mst@mathactivate` does its job only as part of the `\everymath` and `\everydisplay` token lists.

1.2e being paranoid, we take precautions against a possibly catcode active right quote at the time of loading `mathastext`.

1.3i adds `\MTactiveprime`.

1.3j renames it to `\MTprimedoesskip`. Besides, it makes use in the preamble of `\MTnormalprime` or `\MTprimedoesskip`.

```

202 \newmuskip\mst@prime@muskip %% v 1.2
203 \def\mst@prime@skip{.5mu}
204 \ifmst@italic\ifmst@frenchmath\else\def\mst@prime@skip{0mu}\fi\fi

```

```

205 \def\mst@active@math@prime{\sp\bgroup\mskip\mst@prime@muskip\prim@s}
206 {\catcode'\'=12
207 \gdef\mst@@modifyprime{\mst@mathactivate'}{\mst@active@math@prime}}
208 \newcommand*{\MTnormalprime}{\let\mst@modifyprime\@empty}
209 \newcommand*{\MTprimedoesskip}{\let\mst@modifyprime\mst@@modifyprime}
210 \ifmst@subdued
211     \MTnormalprime
212 \else
213     \MTprimedoesskip
214 \fi
215 \AtBeginDocument{%
216     \everymath\expandafter
217         {\the\everymath \mst@modifyprime \MTnormalprime}%
218     \everydisplay\expandafter
219         {\the\everydisplay \mst@modifyprime \MTnormalprime}%
220 }

```

`\MTexistsskip` 1.15e: These user macros set up the amount of muglue after `\exists` or `\forall`. The normal and bold math versions inherit the same skips; these skips are set to zero in case of the subdued, or the italic option. Each command `\Mathastext[⟨version_name⟩]` stores the current values in the definition of the math version.

1.2: `\MTprimeskip` added, the silly `\@onlypreamble` are removed and the macros are modified to have immediate effect in the document, independently of their possible use in the preamble for the math versions to store values.

Note (september 2013): the names were badly chosen; `\MTsetprimeskip` for example would have been a better choice.

```

221 \newcommand*{\MTexistsskip[1]{\edef\mst@exists@skip{#1}%
222     \mst@exists@muskip\mst@exists@skip\relax}
223 \newcommand*{\MTforallskip[1]{\edef\mst@forall@skip{#1}%
224     \mst@forall@muskip\mst@forall@skip\relax}
225 \newcommand*{\MTprimeskip[1]{\edef\mst@prime@skip{#1}%
226     \mst@prime@muskip\mst@prime@skip\relax}
227 \let\Mathastextexistsskip\MTexistsskip
228 \let\Mathastextforallskip\MTforallskip
229 \let\Mathastextprimeskip\MTprimeskip
230 \let\mathastextexistsskip\MTexistsskip
231 \let\mathastextforallskip\MTforallskip
232 \let\mathastextprimeskip\MTprimeskip

```

`\resetMathstrut@` 2012/12/31: The `amsmath` macro `\resetMathstrut@` is not compatible with a mathematically active opening parenthesis: it does

```
\mathchardef\@tempa\mathcode'(\relax
```

and is made a part of the hook `\everymath@size` inside `\glb@settings`. This is called from `\check@mathfonts` which is done in particular in `\frozen@everymath`, hence *before* (but wait) what `mathastext` puts in `\everymath`. Also, `\glb@settings` is triggered by `\mathversion` which must be done outside of math mode.

Alas, with things such as `$. . . \hbox{. . . $. . . } . . . $` `mathastext` will have already made the parenthesis (mathematically) active. And `\boldsymbol` from `amsbsy` disables the `\@nomath` switch and executes `\mathversion{bold}` directly in math mode. So we have a problem with `\resetMathstrut@`.

lualatex-math replaces `\resetMathstrut@` with its own version (which also looks at `)`) and no error is signaled when `mathastext` has done `\mathcode'("8000`, but the `\Mathstrutbox@` created by `mathastext` is then wrong.

The replacement macro avoids a potentially math active `(`. It assumes that there is still some appropriate glyph in slot 40 of `operators` and it sets the height and depth of `\Mathstrutbox@` to be large enough to accomodate both this glyph and the one from the `mathastext` font (both in the current math version). If option `noparenthesis` was used, we leave everything untouched.

In 1.3a, 2013/09/04, the modification is done only at the time of `\MTnonlettersobeymathxx`. It is canceled by `\MTnonlettersdonotobeymathxx`. So the code has been moved to these macros and here we just store at the begin document the then meaning of `\resetMathstrut@`, and check also if `\MTnonlettersobeymathxx` has been invoked in the preamble.

1.3f 2015/09/12 issues only an Info message not a Warning, as I am becoming aware from another context (etoc) that Warnings are stressful to users, in some integrated environments for editing and compiling L^AT_EX source files.

```

233 \ifmst@noparen\else
234 \AtBeginDocument{%
235   \@ifundefined{resetMathstrut@}{% nothing to do, no amsmath
236   }{% amsmath loaded, and possibly patched by things such as lualatex-math
237   \let\mst@savdresetMathstrut@\resetMathstrut@
238   \PackageInfo{mathastext}{current meaning of amsmath
239   \string\resetMathstrut@\space saved}%
240   \ifx\mst@the\the % means that \MTnonlettersobeymathxx was used in preamble
241   \let\mst@the\@gobble\MTnonlettersobeymathxx
242   \fi}}
243 \fi

```

1.2 2012/12/20 does some rather daring *math* activation of `;`, `,`, `:`, `!`, `?`, `+`, `-`, `=`, `<`, `>`, `(`, `)`, `[`, `]` in math mode to achieve something I wanted to do since a long time: overcome the mutually excluding relation between the variable-family concept and the automatic spacing concept. After loading `mathastext`, these characters now obey the math alphabets commands but still have the automatic spacing. The use as delimiters for those concerned is also ok.

The activation is done via setting the `\mathcode` to "8000 through the macro `\mst@mathactivate` which in turn is put into the `\everymath` and `\everydisplay` token lists. No character is made active in the sense of the `\catcode` (the issues with `catcode` active characters at the entrance of the math mode are discussed later),

but the concerned characters will now expand in math mode to *two* tokens.

1.2c 2012/12/31: hence, this current implementation puts constraints on the input: `$x^?$` or `$x\mathrel?y$` now create errors. They must be input `$x^{?}$`, respectively `$x\mathrel{?}y$`.

The disactivating macro `\MTnonlettersdonotobeymathxx` is made the default.

The mechanism is (even more) off by default for `\{` and `\}` as this is not compatible with their use as delimiters (`\lbrace` and `\rbrace` should be used instead) but it can be activated for them too.

`\mst@mathactivate` 1.2b 2012/12/30: there were bad oversights in the 1.2 code for `\mst@mathactivate` related to the possibility for some characters to have been made active (in the sense of the `catcode`) elsewhere (something which often is done by language definition files of the `babel` system). The code from v1.2b tried to provide correct behavior using a prefix called `\mst@fork` (its definition and its use has since been modified) which let the active character expand to the `mathastext` re-definition *only* in math mode and *only* if `\protect` was `\@typeset@protect`. This indeed

took care of situations such as $\hbox{?}$ with an active `?` or $\label{eq:1}$ with an active `:` (assuming for the latter that things would have worked ok before the twiddling by `mathastext`).

1.2e 2013/01/09: alas $\ref{eq:1}$ still was a problem. Indeed in that case the `mathastext` prefix had no means to know it was inside a `\ref` so it made the character expand to its `mathastext` redefinition, which is not acceptable inside a `\csname...\endcsname`. What happens with Babel is that it patches things such as `\ref`, `\newlabel`,... we can test the `\if@safe@actives` flag to detect it in that case, but this is Babel specific. After having thought hard about this I see no general solution except patching all macros such as `\ref...` (in an imitation of what Babel does). So the final decision is to not do anything when the character is catcode active *except* it it seems that Babel is behind the scenes.

Incidentally, Babel and TikZ are buggy with characters which are mathcode actives. For example the combination of `[french]{babel}` and `mathtools` with its `centercolon` turns $\$:\$$ into an *infinite loop* !!

In the case of Babel the reason is that, generally (but not always, the right quote `'` is an exception), the `\normal@char<char>` fall-back is `\string<char>`. But this is wrong if the mathcode is 32768! The fall-back becomes the default if the user switches to a language where `<char>` is 'normal' and then an infinite loop arises.

As a further example (I am not familiar with other languages from the Babel system) with `frenchb` the active `!?::` expand in math mode to `\string!` or `?` or `;` or `..`. This creates an infinite loop if the mathcode is 32768.

For the special case of the right quote `'` when it is made active by Babel, its fall-back does not invoke `\string'` so being still of mathcode 32768 is not a problem.

I have posted on TeX StackExchange how Babel should possibly modify its definitions and I use this here. I simplify a bit my proposed replacement of `\normal@char<char>` as the check for `\protect` is superfluous, I think, having been done already at the level of the Babel prefix.

Replacing `\user@active<char>` is indeed not enough, and `\normal@char<char>` also must be changed, because when the user switches back to a language where the character is 'normal' it remains catcode active. The crucial thing is the test of `\if@safe@actives` in the replacement of the `\normal@char<char>`, besides of course the test for math mode in both replacements.

When the character is not catcode active, then `mathastext` uses the math activation method. As the mathcode is not looked at in `\edef`, `\write` or inside `\csname...\endcsname` nothing special needs to be done, I think, in terms of protection against premature expansion. (I did not know that initially).

So, to recapitulate, `mathastext` will use the mechanism of the active mathcode if the character is not catcode active, and in the opposite case will do something only in the context of Babel, modifying directly its `\user@active<char>` and its `\normal@char<char>` macros and it does NOT then set the mathcode to 32768!!, rather it makes *sure* the character is not mathematically active.

As 1.2e is a bit paranoid it takes precautions against the possibility of characters it treats being active at the time of its loading. Excepted from the scope of the paranoia are the latin letters (that would be crazy!) and also `*`, `"` and the left quote `'`.

1.2f 2013/01/21 with earlier versions (*) it was important not to do twice the business of `\mst@mathactivate` (think $\hbox{?}$?}$$), so I used (this was a bit wasteful) some sort of boolean macro for each character. But now that there are the `\mst@the...` prefixes, let's just use them! (don't know why I did not think of that earlier; perhaps I had in mind some more general character per character customization initially, which I just dropped.)

(*) it is still important to not do twice the thing when the character is active, in which case the `babel` macros are patched.

As an aside, $\hbox{\catcode'=\active }$?}$$ for an `'` which was unactive at the first $\$$

will just make `mathastext` overwrite the definition (assumed here to have been done earlier) of an active `?`, but the result is that the inner `?` can not be used in `\label` or `\ref`. So testing for active characters should be done always... many things should be done always... I leave as is.

1.3i 2016/01/06 removes a spurious end of line space in `\mst@mathactivate` (did not show as anyhow done in math mode).

`\mst@do@az` 1.2b 2012/12/28 now that we understand the great advantages of "8000 we do it also for all letters a-z and A-Z to insert automatically the italic corrections. See the [discussion](#) in the user manual. Ironically I wrote the code initially for the `italic` option only to realize later it was more suitable to using an *upright* text font in math mode! So this mathematical activation of the letters is not done if the font shape is detected to be `it` or `sl`; to bypass this the command `\MTicinmath` is provided.

1.2e 2013/01/10 corrects a bad oversight of 1.2b in `\mst@mathactivate` which made the reproduction of the user manual illustrations with `f_i^i` impossible. As `\mst@mathactivate` was originally used also to get the non-letters obey math alphabet while maintaining the T_EX spacings, it added no extra braces. The braces should however be added for expansion of math active letters, in order of things like x^y to work as expected. (the group braces do not prevent ligatures when the letters are arguments to the math alphabet commands, the added macros `\mst@itcorr` and `\mst@before<letter>` expanding to nothing).

Added note 2016/01/06: it should be explicitly said that the extra `{. .}` in `\mst@mathactivate` for letters end up creating `\hbox`'es around each letter with its extra skips and explicit italic correction, when present. These skips are thus set at natural width and do not add any break point.

`\MTmath-activeletters` 1.3 2013/09/02 extends the use of mathematically active letters to allow the user to specify muglue before and after the letter itself (see `\MTsetmathskips`, below). Mathematically active letters were previously used only to add the italic correction; the math activation has now been separated and put in `\MTmathactiveletters`. There is also `\MTmathactiveLetters` to allow math activation only for the uppercase letters. To cancel the (now default, even with option `italic`) math activation of letters, there is `\MTmathstandardletters`. Version 1.3a removes some silly `\string`'s from the code, which prevented to pass macros as first argument to the command.

`\MTnonletters-obeymathxx` These macros are modified in version 1.3a 2013/09/04 in order to cleverly adjust, or not, the `amsmath \resetMathstrut@`. When used in the preamble, they just modify `\mst@the`. And there is code at begin document to check the status there of `\mst@the` and if its meaning is `\the`, then `\MTnonlettersobeymathxx` is activated again to do the patch. When used in the body they adjust `\resetMathstrut@`.

Notice that the saved meaning is the one at begin document (thus, possibly patched by `lualatex-math` — not anymore since 1.5 of March 2016, as `amsmath.sty` now maintained by LaTeX team has modified `\resetMathStrut@` to make it compatible to Unicode engines) but modifications done after that would not be seen in `\mst@savereresetMathstrut@`.

The new version of `\resetMathStrut@` from LaTeX team release 2016/03/03 v2.15a of `amsmath.sty` is still not compatible with a math active opening parenthesis. Hence my patch here is still needed.

```
244 \newtoks\mst@do@nonletters
245 \newtoks\mst@do@easynonletters
246 \newtoks\mst@do@az
247 \newtoks\mst@do@AZ
248 \let\mst@the\@gobble
```

```

249 \newcommand*\MTnonlettersdonotobeymathxx{%
250     \ifx\mst@the@gobble
251     \else
252     \@ifundefined{mst@saveresetMathstrut@}{\}%
253     \PackageInfo{mathastext}{restoring (for this group or environment) ams
math \string\resetMathstrut@}%
254     \let\resetMathstrut@\mst@saveresetMathstrut@}%
255     \fi
256     \let\mst@the@gobble
257 }
258 \newcommand*\MTnonlettersobeymathxx{%
259     \ifx\mst@the\the
260     \else
261     \@ifundefined{mst@saveresetMathstrut@}{\}%
262     \ifmst@symboldelimiters
263     \def\resetMathstrut@{%
264         \setbox\z@\hbox{\the\textfont\symmtsymbol\char40
265             \the\textfont\symmtoperatorfont\char40
266             \the\textfont\symoperators\char40}%
267         \ht\Mathstrutbox@ \ht\z@ \dp\Mathstrutbox@ \dp\z@}%
268     \else
269     \def\resetMathstrut@{%
270         \setbox\z@\hbox{\the\textfont\symmtoperatorfont\char40
271             \the\textfont\symoperators\char40}%
272         \ht\Mathstrutbox@ \ht\z@ \dp\Mathstrutbox@ \dp\z@}%
273     \fi
274     \PackageInfo{mathastext}{\string\resetMathstrut@\space
275         from amsmath replaced (for this group or environment)}}%
276     \fi
277     \let\mst@the\the
278 }
279 \newcommand*\MTeasynonlettersdonotobeymathxx{\let\mst@theeasy@gobble}
280 \newcommand*\MTeasynonlettersobeymathxx{\let\mst@theeasy\the}
281 \MTeasynonlettersobeymathxx
282 \newcommand*\MTmathactiveletters{\let\mst@thef\the \let\mst@theF\the}
283 \ifmst@subdued\else\MTmathactiveletters\fi
284 \newcommand*\MTmathactiveLetters{\let\mst@theF\the}
285 \newcommand*\MTmathstandardletters{\let\mst@thef@gobble \let\mst@theF@gobble}

```

\MTicinmath \MTnoicinmath can also be used from inside math mode.
\MTIcinmath \MTicalsoinmathxx is destined to be used inside \mathnormalbold as I didn't want to add
\MTnoicinmath the complication of extracting the family number used inside \mathnormalbold (will perhaps
\MTicalsoinmathxx come back if I have time to spend on source2e). Added note 2016/01/06: this number is a priori
simply symmtletterfont+1.

\MTicinmath can also be used inside math mode, to revert an earlier \MTnoicinmath from
inside the same math group: the math mode had to be entered with the math activation of letters
allowed.

1.3i 2016/01/06: For some reason which I have now forgotten I did until now:

```

% \def\mst@itcorr{\ifnum\fam=\m@ne/\else\ifnum\fam=\symmtletterfont/\fi\fi}%

```

%

hence italic corrections were also applied inside `\mathnormal` (for upright fonts; `\mathnormal` bold math alphabet was not treated like `\mathnormal`). I now drop this to be more in sync with the handling of the extra skips around letters. Everything gets suppressed inside all math alphabets, allowing ligatures, even for `\mathnormal`.

```

286 \newcommand*\MTicinmath{%
287   \MTmathactiveletters
288   \def\mst@itcorr{\ifnum\fam=\m@ne\fi}%
289   \let\mst@ITcorr\mst@itcorr}
290 \newcommand*\MTICinmath{%
291   \MTmathactiveLetters
292   \def\mst@ITcorr{\ifnum\fam=\m@ne\fi}}
293 \newcommand*\MTnoicinmath{\let\mst@itcorr\empty\let\mst@ITcorr\empty}
294 \newcommand*\MTnoICinmath{\let\mst@ITcorr\empty}
295 \newcommand*\MTicalsoinmathxx{%
296   \ifx\mst@itcorr\empty\else\def\mst@itcorr{\fi}
297   \ifx\mst@ITcorr\empty\else\def\mst@ITcorr{\fi}
298 \AtEndOfPackage{\AtBeginDocument{%
299   \everymath\expandafter{\the\everymath
300     \mst@the\mst@do@nonletters \let\mst@the\@gobble
301     \mst@theeasy\mst@do@easynonletters \let\mst@theeasy\@gobble
302     \mst@thef\mst@do@az \let\mst@thef\@gobble
303     \mst@theF\mst@do@AZ \let\mst@theF\@gobble}}%
304 \everydisplay\expandafter{\the\everydisplay
305   \mst@the\mst@do@nonletters \let\mst@the\@gobble
306   \mst@theeasy\mst@do@easynonletters \let\mst@theeasy\@gobble
307   \mst@thef\mst@do@az \let\mst@thef\@gobble
308   \mst@theF\mst@do@AZ \let\mst@theF\@gobble}}%

```

1.3j: moved here to be executed at begin document (and not from inside `\Mathastext@`). The `\MTeverymathoff` does: `\MTnormalasterisk`, `\MTnormalprime`, `\MTnonlettersdonotobeymathxx`, `\MTeasynonlettersdonotobeymathxx`, `\MTmathstandardletters`.

1.3m: doing `\MTmathactiveletters` in subdued mode immediately after `\begin{document}` resulted in errors because `\mst@itcorr` had been left undefined. We thus add `\MTnoicinmath` to the subdued initialization.

Attention 1.3n needs here `\mst@originalnewmcodes@`, itself defined at begin document. Thus we have wrapped the whole thing in `\AtEndOfPackage`.

```

309 \ifmst@subdued
310   \MTeverymathoff
311   \MTresetnewmcodes
312   \MTnoicinmath
313   \MTmathoperatorsdonotobeymathxx
314 \else

```

1.3j: an earlier version of this code was earlier part of `\Mathastext@`. As we are now in `\AtBeginDocument` we try to be careful not to overwrite `\MTicinmath`, `\MTnoicinmath`, `\MTicalsoinmathxx`, ... if issued by the user in the preamble, though. And we do not execute `\MTmathactiveletters`, it is issued by the package at loading time in order to allow user to cancel it if desired from inside the preamble.

```

315 \ifx\mst@itcorr\@undefined
316 \def\mst@itcorr{\ifnum\fam=\m@ne\relax\fi}%
317 \@for\mst@tmp:=it,sl\do
318 {\ifx\mst@tmp\mst@ltshape@normal\let\mst@itcorr\@empty\fi}%
319 \fi
320 \ifx\mst@ITcorr\@undefined
321 \let\mst@ITcorr\mst@itcorr
322 \ifmst@frenchmath
323 \def\mst@ITcorr{\ifnum\fam=\m@ne\relax\fi}%
324 \@for\mst@tmp:=it,sl\do
325 {\ifx\mst@tmp\mst@shape@normal\let\mst@ITcorr\@empty\fi}%
326 \fi
327 \fi
328 \fi
329 }}

```

`\MTsetmathskips` 1.3 2013/09/02: user level command to specify extra spaces in math mode around the letters (only the 7bit a,b,...,z and A,B,...,Z). First parameter is the letter, second is the math skip to be inserted before, and third the skip to be inserted after; for example `\thickmuskip` or explicitly `0.1mu`.

For this, letters are made mathematically active. This is now the package default (version 1.2 did this only in the absence of option `italic`, or more precisely when the font used was not of shape `it` or `sl`). But if `\MTsetmathskips` has not been used for that letter, the only effect of the math activation is, as in 1.2, to add the italic correction automatically, except when the font shape is detected to be `it` or `sl`; in these latter cases, although mathematically active, the letter acts in the standard way.

The command `\MTmathstandardletters` turns off math activation and its effects for all letters.

Ligatures within the argument of a math alphabet command are impeached by skips; so `\MTunsetmathskips` is provided to cancel the skips for one specific letter (`f` for example).

1.3a 2013/09/04: I strangely had `\string#1` inside `\MTsetmathskips`. Phobic of catcode active letters... but with `\string` one needs some `\expandafter` to use `\MTsetmathskips` in an `\@for` loop for example. It is better to allow the first argument to be a macro or anything expanding to a letter, and to not be paranoid about improbable catcode active letters (the user just has to tame them at the time of the `\MTsetmathskip`) so I take out these `\string`'s.

1.3i 2016/01/06: the extra skips are suppressed for the arguments of math alphabet commands. This applies in particular for `amsmath`'s `\DeclareMathOperator`.

```

330 \newcommand*\MTsetmathskips[3]{%
331 \@namedef{mst@before#1}{\ifnum\fam=\m@ne\mskip#2\relax\fi}%
332 \@namedef{mst@after#1}{\ifnum\fam=\m@ne\mskip#3\relax\fi}%
333 }
334 \newcommand*\MTunsetmathskips[1]{%
335 \@namedef{mst@before#1}{}%
336 \@namedef{mst@after#1}{}%
337 }

```

`\mst@mathactivate` Added note 2016/01/06: Notice that the initially `\relax` tokens `\mst@[before|after]@<letter>` formed with `\csname...\endcsname` do not modify TeX's math layout: `{\relax f\relax}` is like `f` (also for ligatures inside `\mathrm` for example).

`\addtodo@nonletters`

`\addtodo@easynonletters`

`\mst@addtodo@az`

`\mst@addtodo@AZ`

```

338 \def\mst@magic@v #1#2#3#4#5{#1#3#4}
339 \def\mst@magic@vi #1#2#3#4#5#6{#1#2#4#5}
340 \def\mst@fork{\ifmmode\mst@magic@v\fi\@thirdofthree}
341 \def\mst@safefork{\ifmmode\if@safe@actives\else\mst@magic@vi\fi\fi\@thirdofthree}
342 \def\mst@do@activecase#1#2#3{% #1 is a category 11 or 12 character token
343   \@ifundefined{active@char#1}{\fi}{%
344     \ifcat #1a\mathcode'#1=#2\else
345       \ifx\relax #2\relax\mathcode'#1='#1 \else\mathcode'#1=#3\fi\fi
346     \expandafter\expandafter\expandafter\let\expandafter\expandafter
347       \csname mst@orig@user@active#1\endcsname
348       \csname user@active#1\endcsname
349     \expandafter\expandafter\expandafter\let\expandafter\expandafter
350       \csname mst@orig@normal@char#1\endcsname
351       \csname normal@char#1\endcsname
352   \ifcat #1a%
353     \expandafter\edef\csname user@active#1\endcsname
354       {\noexpand\mst@fork {{#2}\noexpand#3}}\fi\expandafter
355       \noexpand\csname mst@orig@user@active#1\endcsname
356     }%
357   \expandafter\edef\csname normal@char#1\endcsname
358     {\noexpand\mst@safefork {{#2}\noexpand#3}}\fi\expandafter
359     \noexpand\csname mst@orig@normal@char#1\endcsname
360   }%
361 \else
362   \expandafter\edef\csname user@active#1\endcsname
363     {\noexpand\mst@fork {{#2}\noexpand#3}\expandafter
364       \noexpand\csname mst@orig@user@active#1\endcsname
365     }%
366   \expandafter\edef\csname normal@char#1\endcsname
367     {\noexpand\mst@safefork {{#2}\noexpand#3}\expandafter
368       \noexpand\csname mst@orig@normal@char#1\endcsname
369     }%
370 \fi}}
371 \begingroup
372 \catcode'\~=\active
373 \def\x{\endgroup
374   \def\mst@mathactivate##1##2##3{% ##1 guaranteed of cat 11 or 12
375     \begingroup
376     \lccode'\~='##1
377     \lccode'##1='##1
378     \lowercase{\endgroup
379       \ifnum\catcode'##1=\active
380         \mst@do@activecase ##1{##2}##3%
381         % careful as ##2 is empty in the asterisk and
382         % prime case!
383       \else
384         \mathcode'##1="8000
385         % version 1.3 adds the possibility of extra skips around letters,
386         % (only if non catcode active at the time of use).

```

```

387         \ifcat##1a\edef~{% extra braces for a^b for example
388             {\expandafter\noexpand\csname mst@before##1\endcsname
389                 ##2\noexpand##3%
390                 \expandafter\noexpand\csname mst@after##1\endcsname}}%
391         \else\def~{##2##3}\fi
392     \fi}}}
393 \x
394 \def\mst@addtodo@nonletters#1#2#3{%
395     % #1 will be of cat 11 or 12.
396     % #2 is empty for asterisk and right quote
397     \mst@do@nonletters\expandafter
398         {\the\mst@do@nonletters \mst@mathactivate#1{#2}#3}%
399 }
400 \def\mst@addtodo@easynonletters#1#2{% #1 is a one char control sequence
401     \mst@do@easynonletters\expandafter{\the\mst@do@easynonletters\mathcode'#1=#2}%
402 }
403 \def\mst@addtodo@az#1#2{%
404     \mst@do@az\expandafter{\the\mst@do@az\mst@mathactivate#1#2\mst@itcorr}
405 }
406 \def\mst@addtodo@AZ#1#2{%
407     \mst@do@AZ\expandafter{\the\mst@do@AZ\mst@mathactivate#1#2\mst@ITcorr}%
408 }

```

`\newmcodes@` 1.15d: this `amsmath` macro causes an error in Unicode engines as soon someone assigns a Unicode
`\mst@newmcodes@` mathcode to the minus sign, and then makes a `\DeclareMathOperator` declaration. Furthermore
`\MTresetnewmcodes` it hard-codes the font family 0 as being the one to be used. Moreover just putting the concerned
`\customizenewmcodes` signs `-`, `:`, `.`, `\`, `'`, `*` inside braces emulates enough the behavior (although the tick will give a
prime).

1.3: now tests if ‘basic’ option was used.

1.3d: I should re-examine the situation with `\newmcodes@`. In the meantime its relaxification
will not be done if `lualatex-math` is loaded. And the whole thing is put at begin document.

1.3m: `lualatex-math` 1.5 n’a pas modifié son traitement de `\newmcodes@` mais par contre a
supprimé le patch de `\resetMathstrut@`. Mais la date de release est restée à 2015/09/22 (date
de 1.4a) au lieu de quelque chose comme 2016/03/13 (date pour l’annonce sur CTAN). Il faudra
suivre l’évolution future de `amsmath.sty` maintenant assurée par D.C.

1.3n 2016/04/22: there is no more a patch of `\newmcodes@` by `lualatex-math` 1.6 (2016/04/16),
as `amsmath` 2016/03/10 v2.15b has now a version compatible with `LuaATeX`.

My very radical `\let\newmcodes@\relax` was only a temporary measure I adopted for lack
of time on October 13, 2012, and apart from avoiding to do that in case `lualatex-math` was
detected, I never came back... finally I handle it myself for 1.3n. The remaining problem of this
macro (now that it does not anymore crash `lualatex` or vice versa) is that (also with `amsmath`
version 2016/03/10 v2.15b) it hardcodes the font used. The aim of the macro is to modify the
type of spacing affected to symbols `'`, `*`, `.`, `-`, `/`, `:`, in case they are used in operator names.

- As I don’t want to monopolize a count register only for computations, let’s just be mean
if ε -TeX not there.
- `mathastext` makes (or not, depending on commands issued by the user) these characters
math active (the right tick already is), which complicates recovery of former mathcode.

We have `mathchar` type *macros*, but then the complication is in diverging behaviours of the engines: `\numexpr\mst@varfam@minus\relax` works with `LuaTeX`, not with `XYTeX`.

- the `*` must presumably really be the non-lowered text glyph.
- for the `-` I hesitated but do use the hyphen in the end.
- seems I simply don't understand what the `amsmath` code does with `\std@minus`. It is used in `\relbar` and it escapes me why `\newmcodes@` would ever want to redefine it, and more importantly why on earth it tests the mathcode of `-` for that ? yes, `\std@minus` is defined (at begin document) using the mathcode of `-`, but what's the connexion to `\newmcodes@` ?? Any way `mathastext` defines `\relbar` with `\mst@minus@sign`. Thus I just drop this conditional.
- things are complicated by the options such as `nominus`, `noparenthesis`.
- the `\newmcodes@` macro is anyhow assuming that if a new math font is used it occupies math groups 0 and 1 !! very bad; fixing it in passing if the character has not been handled by `mathastext` could be envisioned, but that's not `mathastext`'s job.
- years go by, and I remain as baffled as ever about the story of “more than 16 math families”. I will not test again, but I am pretty sure that `\DeclareMathSymbol` does not work with more than 16 families, thus when I try to be a good boy and use `\Umathcode` syntax with `\symmoperatorfont` I am perhaps doing unnecessary efforts.
- I noticed that `LuaTeX` does not apply the “TeX Ligature” (bad name) regarding the right tick APOSTROPHE being transformed into RIGHT SINGLE QUOTATION MARK in math mode, but `XYTeX` does. From the point of view of `mathastext`, the behaviour of `XYTeX` is the coherent one. It appears that `LuaTeX` use in math mode of a text font does not obey set features, like this <http://tex.stackexchange.com/questions/208688/oldstylefigure-issue-with-lualatex-and-mathastext> perhaps illustrates. I opened a ticket at <https://github.com/wspr/fontspect/issues/238>, but as usual it is hard to figure out the best place where to report font matters.
- I make some effort not to require `\numexpr` in legacy engine... `wipet` should be happy if he ever reads these lines. Well no, too much pain as there is no immediate way to get hexadecimal digit. And `wipet` will not read this as this is a `LaTeX` package, and I don't see why I should bother making `wipet` happy.
- Some hesitation about what to do under option `symboldelimiters`. I temporarily used `\symmtpsymbol`, except for the right quote and for the hyphen, but finally I drop that and use `\symmoperatorfont` always. (after testing how it looked like).

All in all this is a great deal of trouble and I understand I postponed back in 2012! I spent some hours on this small thing, with consequent testing and for example this TeX Ligature issue with Unicode engines.

```

409 \ifmst@basic\else
410 \ifx\numexpr\undefined
411 \else
412   \ifmst@XeOrLua
413     \AtBeginDocument {%
414       \ifx\newmcodes@\undefined\else
415       \edef\mst@newmcodes@{%
416         \mst@Umathcode '\noexpand\' 0 \symmoperatorfont 39\relax

```

```

417 \ifmst@asterisk
418 \mst@Umathcode '\noexpand\* 0 \symmoperatorfont 42\relax
419 \else\mathcode'\noexpand\* 42
420 \fi
421 \ifmst@nopunct\mathcode '\noexpand\."613A \mathcode '\noexpand\: "603A
422 \else
423 \mst@Umathcode '\noexpand\. 6 \symmoperatorfont 46\relax
424 \mst@Umathcode '\noexpand\: 6 \symmoperatorfont 58\relax
425 \fi
426 \ifmst@nominus\mathcode'\noexpand\- 45
427 \else
428 \mst@Umathcode '\noexpand\- 0 \symmoperatorfont 45\relax
429 \fi
430 \ifmst@noparen\mathcode '\noexpand\/ 47
431 \else
432 \mst@Umathcode '\noexpand\/ 0 \symmoperatorfont 47\relax
433 \fi
434 }%
435 \let\mst@originalnewmcodes@\newmcodes@
436 \fi
437 }
438 \else
439 \AtBeginDocument {%
440 \ifx\newmcodes@\@undefined\else
441 \edef\mst@newmcodes@{%
442 \mathcode'\noexpand\' \the\numexpr\symmoperatorfont*\@cclvi+39\relax
443 \mathcode'\noexpand\*
444 \the\numexpr\ifmst@asterisk\symmoperatorfont*\@cclvi\fi+42\relax
445 \ifmst@nopunct\mathcode '\noexpand\."613A \mathcode '\noexpand\: "603A
446 \else
447 \mathcode'\noexpand\. \the\numexpr\mst@varfam@dot-"1000\relax
448 \mathcode'\noexpand\: \the\numexpr\mst@varfam@colon-"1000\relax
449 \fi
450 \mathcode'\noexpand\-
451 \the\numexpr\unless\ifmst@nominus\symmoperatorfont*\@cclvi\fi+45\relax
452 \mathcode'\noexpand\/
453 \the\numexpr\unless\ifmst@noparen\symmoperatorfont*\@cclvi\fi+47\relax\relax
454 }%
455 \let\mst@originalnewmcodes@\newmcodes@
456 \fi
457 }
458 \fi
459 \fi\fi
460 \newcommand*{\MTresetnewmcodes}{\ifx\mst@originalnewmcodes@\undefined\else
461 \let\newmcodes@\mst@originalnewmcodes@\fi}
462 \newcommand*{\MTcustomizenewmcodes}{\ifx\mst@originalnewmcodes@\undefined\else
463 \let\newmcodes@\mst@newmcodes@\fi}

```

subdued 1.15: The subdued code was initiated in May 2011. I returned to mathastext on Sep 24, 2012,

and decided to complete what I had started then, but in the mean time I had forgotten almost all of the little I knew about L^AT_EX macro programming.

The point was to extract the data about how are ‘letters’ and ‘operators’ in the normal and bold versions, through obtaining the math families of ‘a’ and ‘1’, respectively¹. Due to the reassignments done for characters by `mathastext` I also had decided in 2011 that the OT1 encoding, if detected, should be replaced by T1 ((1): but the *euler* package for example assigns the digits to the *letters* symbol font...)

1.15d: Oct 13, 2012. The `\mathcode` thing has to be used with care under Unicode engines. Unfortunately the `\luatexUmathcode` macro is helpless as it is not possible to know if it will return a legacy mathcode or a Unicode mathcode. On the other hand the much saner `\XeTeXmathcodenum` always return a Unicode mathcode.

UPDATE for `mathastext` 1.3 (2013/09/02): since the release of `lualatex` as included in TL2013, `\luatexUmathcodenum` behaves as `\XeTeXmathcodenum` so `mathastext` 1.3 treats identically under both unicode engines the equal and minus signs (and the vertical bar).

1.15e: Oct 22, 2012. I add the necessary things to also subdue the `\mathbf`, `\mathit`, `\mathsf` and `\mathtt` macros (previous version only took care of the symbol alphabets `\mathnormal` and `\mathrm`.) [update: 1.15f does that in a completely different and much simpler way] Notice that the package defines a `\mathnormalbold` macro, but it will not be subdued in the normal and bold math versions.

1.15f: Oct 23, 2012. The previous version of the code queried the math family of a, respectively 1, to guess and then extract the fonts to be reassigned to `mtletterfont` and `mtoperatorfont` (which is done at the end of this .sty file). The present code simply directly uses letters and operators (so `mathastext` could not subdue itself... if it was somehow cloned), but obtains indeed the corresponding font specifications in normal and bold in a cleaner manner. But it is so much shorter (and avoids the Lua^LA^TE^X problem with `\luatexUmathcode`). Anyhow, for example the *euler* package puts the digits in the letters math family! so the previous method was also error prone. In fact there is no way to do this subdued mechanism on the basis of the legacy code of `mathastext`. The only way is to rewrite entirely the package to query all mathcodes of things it changes in order to be able to revert these changes (and one would have to do even more hacking for `\mathversion{normal}` and not only `\MTversion{normal}` to work).

1.15f: and also I take this opportunity to do the subdued math alphabets things in a much much easier way, see below.

```

464 \ifmst@subdued
465   \def\mst@reserved#1\getanddefine@fonts\symletters#2#3\@nil{%
466     \def\mst@normalmv@letter{#2}}
467   \expandafter\mst@reserved\mv@normal\@nil
468   \def\mst@reserved#1\getanddefine@fonts\symletters#2#3\@nil{%
469     \def\mst@boldmv@letter{#2}}
470   \expandafter\mst@reserved\mv@bold\@nil
471   \def\mst@reserved#1\getanddefine@fonts\symoperators#2#3\@nil{%
472     \def\mst@normalmv@operator{#2}}
473   \expandafter\mst@reserved\mv@normal\@nil
474   \def\mst@reserved#1\getanddefine@fonts\symoperators#2#3\@nil{%
475     \def\mst@boldmv@operator{#2}}
476   \expandafter\mst@reserved\mv@bold\@nil
477 %%
478   \edef\mst@tmp{\encodingdefault}
479   \def\mst@reserved#1/#2/#3/#4/{\gdef\mst@debut{#1}\gdef\mst@reste{#2/#3/#4}}
480   \begingroup\escapechar\m@ne

```

```

481 \xdef\mst@funnyoti{\expandafter\string\csname OT1\endcsname}
482 \expandafter\expandafter\expandafter
483 \mst@reserved\expandafter\string\mst@normalmv@operator/
484 \endgroup
485 \ifx\mst@debut\mst@funnyoti\ifx\mst@tmp\mst@oti\def\mst@tmp{T1}\fi\fi
486 \edef\mst@normalmv@operator{\expandafter\noexpand\csname
487 \mst@tmp/\mst@reste\endcsname}
488 \begingroup\escapechar\m@ne
489 \expandafter\expandafter\expandafter
490 \mst@reserved\expandafter\string\mst@boldmv@operator/
491 \endgroup
492 \ifx\mst@debut\mst@funnyoti\ifx\mst@tmp\mst@oti\def\mst@tmp{T1}\fi\fi
493 \edef\mst@boldmv@operator{\expandafter\noexpand\csname
494 \mst@tmp/\mst@reste\endcsname}
495 \AtEndOfPackage{
496 \typeout{** ...entering subdued mode...}
497 \expandafter\SetSymbolFont@ \expandafter\mv@normal\mst@normalmv@letter\symmtletterfont
498 \expandafter\SetSymbolFont@ \expandafter\mv@bold\mst@boldmv@letter\symmtletterfont
499 \expandafter\SetSymbolFont@ \expandafter\mv@normal\mst@normalmv@operator\symmtooperatorfont
500 \expandafter\SetSymbolFont@ \expandafter\mv@bold\mst@boldmv@operator\symmtooperatorfont
501 \typeout{** ...done.}
502 }
503 \fi % fin de ce \ifmst@subdued

```

In the short-lived 1.15e I was doing the following for alphabets:

```

\def\mst@reservedc#1#2#3#4{\def\mst@normalmv@mathbf{#4#3}}
\def\mst@reserveda#1{%
\def\mst@reservedb##1\install@mathalphabet#1##2##3\@nil{\mst@reservedc##2}%
\expandafter\mst@reservedb\mv@normal\@nil}
\expandafter\mst@reserveda\csname mathbf\space\endcsname

```

and later in the code:

```

\expandafter\expandafter\expandafter\SetMathAlphabet@
\expandafter\expandafter\expandafter\mv@normal
\expandafter\mst@normalmv@mathbf\csname Mathbf\space \endcsname\Mathbf

```

It does work! but `\let\mst@original@bf\mathbf` is so much simpler. And also safer, because `\mathbf` could have been redefined using `\DeclareSymbolFontAlphabet...` (I could have provided the necessary check to the already bloated code...)

mtoperatorfont Declaration of the current default font as our math font. The characteristics of the used font can be changed by a user call to the macros `\Mathastext` or `\Mathastextwilluse`, which will be defined next. We will also make one internal call to `\Mathastext` to set up the normal and bold math versions, so we will also employ `\SetSymbolFont` later.

```

504 \DeclareSymbolFont{mtoperatorfont}{\mst@enc}{\mst@fam}{\mst@ser}{\mst@opsh}

```

\operator@font We modify this L^AT_EX internal variable in order for the predefined `\cos`, `\sin`, etc... to be typeset with the `mathastext` font. This will also work for things declared through the `amsmath` package command `\DeclareMathOperator`. The alternative would have been to redefine the ‘operators’ Math Symbol Font. Obviously people who expect that `\operator@font` will always refer to the ‘operators’ math font might be in for a surprise... well, we’ll see.

`\MTmathoperators-` 1.2: rather than just replacing `\symoperators` by `\symmoperatorfont` I add a modification
`obeymathxx` which makes the declared operator names sensitive to the math alphabets... ouh le vilain!

`\MTmathoperators-` 505 `\newcommand*{\MTmathoperatorsobeymathxx}`
`donot-` 506 `{\def\operator@font{\mathgroup\ifnum\fam=\m@ne\symoperatorfont\else\fam\fi}}`
`obeymathxx` 507 `\newcommand*{\MTmathoperatorsdonotobeymathxx}`
508 `{\def\operator@font{\mathgroup\symoperatorfont}}`
509 `\MTmathoperatorsobeymathxx`

`mtletterfont` In version 1.1, we add the possibility to mimick the standard behavior, that is to have italic letters and upright digits. Thanks to Tariq PERWEZ and Kevin KLEMENT who asked for such a feature.

510 `\DeclareSymbolFont{mtletterfont}{\mst@enc}{\mst@fam}{\mst@ser}{\mst@ltsh}`

`\mst@fixmathfonts` There is a long-standing issue <https://github.com/lualatex/luatfload/issues/204> on Lua \TeX not applying OpenType features in math mode (this impacts `\url` macro too, as it uses math mode.) Lua \TeX has two modes for handling of OpenType fonts, the default in text being to use the `node` mode, and this mode is non-working in math, thus `mathastext` needs to force use of `base` mode. Else one sees old style figures where one does not expect them, or the opposite, depending on the default font feature, see for example <http://tex.stackexchange.com/questions/208688/oldstylefigure-issue-with-lualatex-and-mathastext/277628>

Once we know the cause, the fix is relatively easy. I will go for the `\everymath` way, because I don't want to dwell at all with the details of \TeX 's handling of math fonts, of size changes, of math versions etc... perhaps in the future \TeX will fix the issue upstream by modifying `\DeclareSymbolFont` under Lua \TeX + `luatfload` regime, then the present patch by `mathastext` will be unneeded. Naturally, here we care only about the two maths fonts used by `mathastext`: `mtoperatorfont` and `mtletterfont`.

For the `\url` situation, I have posted a patch at: <http://tex.stackexchange.com/questions/264206/cant-get-oldstyle-figures-in-url-with-lualatex>.

Not all is resolved, as I comment at <http://tex.stackexchange.com/a/307585/4686> and at <https://github.com/lualatex/luatfload/issues/204#issuecomment-216465680> that with TeX Gyre Termes for example I can not get simultaneously Old Style and Tabular Figures to work in math mode, although the font name as constructed by my patch (which is like the code below, only simpler as we only have to consider `\textfont0`) is the correct one. Similarly with Vollkorn: I can then not get the two features `lnum` and `tnum` to work simultaneously when specified with `mode=base`. It does work with `mode=node` but this mode "does not work in math mode."

Done for 1.3o of 2016/05/03.

511 `\begingroup`
512 `\catcode'N 12`
513 `\catcode'O 12`
514 `\catcode'D 12`
515 `\catcode'E 12`
516 `\lowercase{\gdef\mst@fixmathfonts@ #1=NODE;#2#3\relax #4\@empty #5}%`
517 `{\ifx#2\empty\else\font\mst@mathfont=#1=base;#2#3\relax#5=\mst@mathfont\fi}`
518 `\lowercase{\gdef\mst@fixmathfonts`
519 `{\expandafter\mst@fixmathfonts@`
520 `\fontname\textfont\symoperatorfont\relax\relax=NODE;\empty\relax\@empty`
521 `{\textfont\symoperatorfont}}%`
522 `\expandafter\mst@fixmathfonts@`

```

523 \fontname\scriptfont\symmoperatorfont\relax\relax=NODE;\empty\relax\@empty
524 {\scriptfont\symmoperatorfont}%
525 \expandafter\mst@fixmathfonts@
526 \fontname\scriptscriptfont\symmoperatorfont\relax\relax=NODE;\empty\relax\@empty
527 {\scriptscriptfont\symmoperatorfont}%
528 \expandafter\mst@fixmathfonts@
529 \fontname\textfont\symmletterfont\relax\relax=NODE;\empty\relax\@empty
530 {\textfont\symmletterfont}%
531 \expandafter\mst@fixmathfonts@
532 \fontname\scriptfont\symmletterfont\relax\relax=NODE;\empty\relax\@empty
533 {\scriptfont\symmletterfont}%
534 \expandafter\mst@fixmathfonts@
535 \fontname\scriptscriptfont\symmletterfont\relax\relax=NODE;\empty\relax\@empty
536 {\scriptscriptfont\symmletterfont}%
537 }%
538 }%
539 \endgroup
540 \ifmst@LuaTeX
541 \everymath\expandafter{\the\everymath\mst@@fixmathfonts}%
542 \everydisplay\expandafter{\the\everydisplay\mst@@fixmathfonts}%
543 \fi
544 \newcommand*{\MTfixfonts}{\let\mst@@fixmathfonts\mst@fixmathfonts}%
545 \newcommand*{\MTdonotfixfonts}{\let\mst@@fixmathfonts\empty}%
546 \MTfixfonts

```

\Mathnormal We redefine the default normal, rm, bf, it, sf, and tt alphabets, but this will be done via **\Mathrm** **\renewcommand{\mathrm}{\Mathrm}** etc... and (1.15f) the previous status of the math alphabets is recorded for the sake of the subdued option.

\Mathbf We follow the standard L^AT_EX behavior for **\mathbf**, which is to pick up the bold series of the roman font (digits and operator names).

\Mathit We will access (if no option is passed for Greek) the **\omicron** via **\mathnormal**. But unfortunately the **fourier** package with the **upright** option does not have an upright omicron obtainable by simply typing **\mathnormal{o}**. So if **fourier** is loaded we use **\mathrm** and not **\mathnormal**.

\Mathsf

\Mathtt

\mathnormalbold

```

547 \let\mst@alph@omicron\mathnormal
548 \@ifpackageloaded{fourier}{\ifsloped\else\let\mst@alph@omicron\mathrm\fi}{\fi}
549 \DeclareSymbolFontAlphabet{\Mathnormal}{\mtletterfont}
550 \DeclareSymbolFontAlphabet{\Mathrm}{\mtoperatorfont}
551 \ifmst@nonormalbold\else
552 \DeclareMathAlphabet{\mathnormalbold}{\mst@enc}{\mst@fam}{\mst@bold}{\mst@ltsh}
553 \fi
554 \ifmst@defaultbf\else
555 \DeclareMathAlphabet{\Mathbf}{\mst@enc}{\mst@fam}{\mst@bold}{\mst@opsh}
556 \fi
557 \ifmst@defaultit\else
558 \DeclareMathAlphabet{\Mathit}{\mst@enc}{\mst@fam}{\mst@ser}{\itdefault}
559 \fi
560 \ifmst@defaultsf\else
561 \DeclareMathAlphabet{\Mathsf}{\mst@enc}{\sfdefault}{\mst@ser}{\mst@opsh}

```

```

562 \fi
563 \ifmst@defaultttt\else
564   \DeclareMathAlphabet{\Mathtt}{\mst@enc}{\ttdefault}{\mst@ser}{\mst@opsh}
565 \fi
566 \let\mst@original@normal\mathnormal
567 \let\mst@original@rm\mathrm
568 \let\mst@original@bf\mathbf
569 \let\mst@original@it\mathit
570 \let\mst@original@sf\mathsf
571 \let\mst@original@tt\mathtt
572 \def\mst@restorealphabets{% for subdued
573   \let\mathnormal\mst@original@normal
574   \let\mathrm\mst@original@rm
575   \let\mathbf\mst@original@bf
576   \let\mathit\mst@original@it
577   \let\mathsf\mst@original@sf
578   \let\mathtt\mst@original@tt}
579 \def\mst@setalphabets{%
580   \ifmst@defaultnormal\else\renewcommand{\mathnormal}{\Mathtext}\fi
581   \ifmst@defaultrm\else\renewcommand{\mathrm}{\Mathtext}\fi
582   \ifmst@defaultbf\else\renewcommand{\mathbf}{\Mathtext}\fi
583   \ifmst@defaultit\else\renewcommand{\mathit}{\Mathtext}\fi
584   \ifmst@defaultsf\else\renewcommand{\mathsf}{\Mathtext}\fi
585   \ifmst@defaultttt\else\renewcommand{\mathtt}{\Mathtext}\fi}
586 \ifmst@subdued\else\mst@setalphabets\fi

```

LGRgreek 1.14b: We can not move the `\DeclareSymbolFont` to the `\Mathastext` macro because it resets the font family in **all** math versions, and some could have been defined by the user with previous calls to `\Mathastext`. So we have to have them here. The problem is that at this stage it is impossible to know if we really need (in the case of LGRgreek) two separate shapes for upper and lowercase, and (in the case of selfGreek) a shape distinct from the one used in `mtoperatorfont`. So I opted in the end for declaring possibly one too many font. To achieve more economy the only way would be to keep cumulative track of all previously declared math versions and to redeclare appropriately the LGR or self greek fonts at each call to `\Mathastext` (with no optional argument): a bit painful, and as I am possibly the sole user in the world of this possibility of multiple math versions with this package. Also the advantage to systematically allocate a font for the selfGreek option is that we can force the use of the OT1 encoding.

First we establish the cumulative effect of the greek related options.

1.15c introduces some possibilities to change the shapes of Greek letters in each math versions, and even the Greek font (in LGR encoding). The commands `\MTitgreek` etc... will be used in-between calls to `\Mathastext` and re-adjust the shapes. And the command `\MTgreekfont` changes the Greek font family.

```

587 \def\mst@update@greeksh{
588   \def\mst@greek@lsh{\mst@ltsh} %% default behavior
589   \def\mst@greek@ush{\mst@opsh}
590   \ifmst@itgreek\def\mst@greek@lsh{\itdefault}
591     \def\mst@greek@ush{\itdefault}\fi
592   \ifmst@upgreek\def\mst@greek@lsh{\updefault}
593     \def\mst@greek@ush{\updefault}\fi

```

```

594 \ifmst@frenchmath
595 \ifmst@itgreek\else
596 \ifmst@upgreek\else
597 \def\mst@greek@lsh{\mst@opsh}
598 \def\mst@greek@ush{\mst@opsh}
599 \fi\fi
600 \fi
601 \ifcase\mst@greek@select
602 \or\def\mst@greek@ush{\itdefault}
603 \or\def\mst@greek@ush{\updefault}
604 \fi}
605 \mst@update@greeksh
606 \ifmst@LGRgreek
607 \DeclareFontEncoding{LGR}{-}{-}
608 \DeclareSymbolFont{mtlgrfontlower}{LGR}{\mst@fam}{\mst@ser}{\mst@greek@lsh}
609 \DeclareSymbolFont{mtlgrfontupper}{LGR}{\mst@fam}{\mst@ser}{\mst@greek@ush}
610 \else
611 \ifmst@selfGreek
612 \DeclareSymbolFont{mtselfGreekfont}{OT1}{\mst@fam}{\mst@ser}{\mst@greek@ush}
613 \fi\fi

```

```

mteulervm In case we need the Euler font, we declare it here. It will use uzeur.fd from the eulervm package
\MathEuler of Walter SCHMIDT
\MathEulerBold
614 \ifmst@needeuler\typeout{** will use Euler font; command \string\MTEulerScale}
615 \DeclareSymbolFont{mteulervm}{U}{zeur}{m}{n}
616 \DeclareSymbolFontAlphabet{\MathEuler}{mteulervm}
617 \DeclareMathAlphabet{\MathEulerBold}{U}{zeur}{\mst@bold}{n}
618 \fi
619 \newcommand*\MTEulerScale[1]{\edef\zeu@Scale{#1}}
620 \let\MathastextEulerScale\MTEulerScale

```

L^AT_EX 2_ε has a strange initial configuration where the capital Greek letters are of type `mathalpha`, but the lower Greek letters of type `mathord`, so that `\mathbf` does not act on them, although lowercase Greek letters and Latin letters are from the same font. This is because `\mathbf` is set up to be like a bold version of `\mathrm`, and `\mathrm` uses the ‘operators’ font, by default `cmr`, where there are NO lowercase greek letters. This set-up is ok for the Capital Greek letters which are together with the Latin letters in both `cmmi` and `cmr`.

The package `eulervm` sets the lowercase Greek letters to be of type `mathalpha`, the default `\mathbf` and `\mathrm` will act wierdly on them, but a `\mathbfbold` is defined which will use the bold series of the Euler roman font, it gives something coherent for Latin and Greek *lowercase* letters, and this is possible because the same font contains upright forms for them all.

Here in `mathastext`, Latin letters and Greek letters (lower and upper case) must be (generally) assumed to come from two different fonts, as a result the standard `\mathbf` (and `\mathrm`) will give weird results when used for Greek letters. We could coerce `\mathbf` to do something reasonable (cf <http://tug.org/pipermail/texhax/2011-January/016605.html>) but at this time 30-01-2011 09:42:27 CET I decided I would not try to implement it here. I prefer to respect the default things.

I followed the simpler idea of the `eulervm` package and defined `\MathEuler` and `\MathEulerBold` alphabet commands (the `eulervm` package does this only for the bold font).

```

mtpsymbol      In case we need the Symbol font, we declare it here. The macro \psy@scale will be used to scale
\MathPSymbol    the font (see at the very end of this file).

621 \ifmst@needsymbol\typeout{** will use Symbol font; command \string\MTSymbolScale}
622 \def\psy@scale{1}
623 \DeclareSymbolFont{mtpsymbol}{U}{psy}{m}{n}
624 \DeclareSymbolFontAlphabet{\MathPSymbol}{mtpsymbol}
625 \AtBeginDocument{%
626   \DeclareFontFamily{U}{psy}{}%
627   \DeclareFontShape{U}{psy}{m}{n}{<->s*[\psy@scale] psy}{}%
628 }
629 \fi
630 \newcommand*\MTSymbolScale[1]{\edef\psy@scale{#1}}
631 \let\MathastextSymbolScale\MTSymbolScale

I did not choose for name \MathSymbol as this may be defined somewhere for another thing. There
is no bold for the postscript Symbol font distributed with the LATEX 2ε psnffs core package.

\pmvec          Definition of a poor man version of the \vec accent
632 \DeclareRobustCommand*\pmvec[1]{\mathord{\stackrel{\raisebox{- .5ex}}{}}{#1}}
633 {\tiny\boldmath$\mathord{\rightarrow}$}\{\}\#1}}

\fouriervector The glyph is taken from the Fourier font of Michel BOVANI. Note: (oct 2012) I should not allocate
an entire symbol font just for one glyph! But I have not given any serious thought to what one
can do to simulate a math accent without doing such a wasteful thing.

634 \ifmst@fouriervector
635   \DeclareFontEncoding{FML}{}{}
636   \DeclareFontSubstitution{FML}{futm}{m}{it}
637   \DeclareSymbolFont{mathastextfourier}{FML}{futm}{m}{it}
638   \SetSymbolFont{mathastextfourier}{bold}{FML}{futm}{b}{it}
639   \DeclareMathAccent{\fouriervector}{\mathord}{mathastextfourier}{"7E}
640 \fi

\MTencoding      Some public macros to modify our private internals, and we will use them also ourself.
\MTfamily        In version 1.1 we add the possibility to have two distinct font shapes for letters and digits.
\MTseries        So in fact we could as well have two really unrelated fonts but this is really not the spirit of the
\MTshape         package.
\MTboldvariant   Note that using these macros in the preamble allows \Mathastext to set up math versions
\MTlettershape   with a given font for math mode, and at the same time not modifying the \familydefault or
\romandefault etc...

641 \newcommand*\MTencoding[1]{\def\mst@enc{#1}}
642 \newcommand*\MTfamily[1]{\def\mst@fam{#1}}
643 \newcommand*\MTseries[1]{\def\mst@ser{#1}}
644 \newcommand*\MTshape[1]{\def\mst@opsh{#1}}
645   \ifmst@italic\else\def\mst@ltsh{#1}\fi
646 \newcommand*\MTboldvariant[1]{\def\mst@bold{#1}}
647 \newcommand*\MTlettershape[1]{\def\mst@ltsh{#1}}
648 \let\Mathastextencoding\MTencoding
649 \let\Mathastextfamily\MTfamily
650 \let\Mathastextseries\MTseries
651 \let\Mathastextshape\MTshape

```

```

652 \let\Mathastextboldvariant\MTboldvariant
653 \let\Mathastextlettershape\MTlettershape

\MTitgreek 1.15c: These new macros can be used in-between calls to \Mathastext. They reset the shapes for
\MTupgreek Greek letters (applies to LGRgreek(s) and selfGreek(s) options). The \MTgreekfont presupposes
\MTitGreek either LGRgreek or selfGreek. \MTgreekfont{\familydefault} acts like turning on LGRgreek(s)
\MTupGreek or selfGreeks.
\MTgreekfont 654 \newcommand*\MTitgreek{%
655 \mst@itgreektrue\mst@upgreekfalse\def\mst@greek@select{0}}
656 \newcommand*\MTupgreek{%
657 \mst@upgreektrue\mst@itgreekfalse\def\mst@greek@select{0}}
658 \newcommand*\MTitGreek{\def\mst@greek@select{1}}
659 \newcommand*\MTupGreek{\def\mst@greek@select{2}}
660 \let\Mathastextitgreek\MTitgreek
661 \let\Mathastextupgreek\MTupgreek
662 \let\MathastextitGreek\MTitGreek
663 \let\MathastextupGreek\MTupGreek
664 \@onlypreamble\MTitgreek
665 \@onlypreamble\MTupgreek
666 \@onlypreamble\MTitGreek
667 \@onlypreamble\MTupGreek
668 \@onlypreamble\Mathastextitgreek
669 \@onlypreamble\Mathastextupgreek
670 \@onlypreamble\MathastextitGreek
671 \@onlypreamble\MathastextupGreek
672 \newcommand*\MTgreekfont[1]{\def\mst@greekfont{#1}}
673 \let\Mathastextgreekfont\MTgreekfont
674 \@onlypreamble\MTgreekfont
675 \@onlypreamble\Mathastextgreekfont

\MTWillUse This is a preamble-only command, which can be used more than once, only the latest one counts.
Sets up the math fonts in the normal and bold versions, as does \Mathastext.
676 \newcommand*\MTWillUse[5][{}]{
677 \MTencoding{#2}
678 \MTfamily{#3}
679 \MTseries{#4}
680 \MTshape{#5}
681 \ifmst@italic\MTlettershape{\itdefault}\fi % was missing in v 1.14 and prior
682 \edef\mst@tmp{#1}
683 \ifx\mst@tmp\empty\else\MTlettershape{#1}\fi
684 \Mathastext}
685 \let\MathastextWillUse\MTWillUse
686 \let\Mathastextwilluse\MTWillUse
687 \@onlypreamble\MTWillUse
688 \@onlypreamble\MathastextWillUse
689 \@onlypreamble\Mathastextwilluse

\Mathastext The command \Mathastext can be used anywhere in the preamble and any number of time, the
last one is the one that counts.

```


In version 1.1 we have two fonts: they only differ in shape. The `mtletterfont` is for letters, and the `mtoperatorfont` for digits and log-like operator names. The default is that both are upright.

Starting with version 1.12, an optional argument makes `\Mathastext` act as the declaration of a math version, to be later used in the document.

Versions 1.15x brought some adaptations related to the `subdued` option.

1.3c adds a second optional parameter to inherit previous settings from another version; mostly done to inherit the bold version fonts for symbols and large symbols. This is done in `\MTDeclareVersion`.

1.3j moves the code related to `\MTicinmath` from `\Mathastext@` to `\AtBeginDocument` (code depending on whether `subdued` option in use). But we omit for this from `\MTicinmath` the `\MTmathactiveletters` and issue the latter during loading of package, hence allowing `\MTmathstandardletters` to be effective in the preamble.

I forgot to document that under `subdued` option the `\Mathastext` command without optional parameter does not any `\SetSymbolFont` etc... has a few other tasks to complete nevertheless.

```

690 \def\Mathastext {\@ifnextchar [\Mathastext@declare\Mathastext@ }
691 \def\Mathastext@declare [#1]{%
692   \edef\mst@tmp{#1}%
693   \ifx\mst@tmp\empty
694     \expandafter\@firstoftwo
695   \else\expandafter\@secondoftwo
696   \fi
697   \Mathastext@
698   {\MTDeclareVersion[\mst@ltsh]{#1}{\mst@enc}{\mst@fam}{\mst@ser}{\mst@opsh}}%
699 }
700 \def\Mathastext@ {%
701   \mst@update@greeksh
702   \edef\mst@encoding@normal{\mst@enc}%
703   \edef\mst@family@normal{\mst@fam}%
704   \edef\mst@series@normal{\mst@ser}%
705   \edef\mst@shape@normal{\mst@opsh}%
706   \edef\mst@ltshape@normal{\mst@ltsh}%
707   \edef\mst@itdefault@normal{\itdefault}%
708   \edef\mst@rmdefault@normal{\rmdefault}%
709   \edef\mst@sfdefault@normal{\sfdefault}%
710   \edef\mst@ttdefault@normal{\ttdefault}%
711   \edef\mst@boldvariant@normal{\mst@bold}%
712   \edef\mst@exists@skip@normal{\mst@exists@skip}%
713   \edef\mst@forall@skip@normal{\mst@forall@skip}%
714   \edef\mst@prime@skip@normal{\mst@prime@skip}%
715   \edef\mst@encoding@bold{\mst@enc}%
716   \edef\mst@family@bold{\mst@fam}%
717   \edef\mst@series@bold{\mst@bold}%
718   \edef\mst@shape@bold{\mst@opsh}%
719   \edef\mst@ltshape@bold{\mst@ltsh}%
720   \edef\mst@boldvariant@bold{\mst@bold}%
721   \edef\mst@itdefault@bold{\itdefault}%
722   \edef\mst@rmdefault@bold{\rmdefault}%
723   \edef\mst@sfdefault@bold{\sfdefault}%

```

```

724 \edef\mst@ttdefault@bold{\ttdefault}%
725 \edef\mst@exists@skip@bold{\mst@exists@skip}%
726 \edef\mst@forall@skip@bold{\mst@forall@skip}%
727 \edef\mst@prime@skip@bold{\mst@prime@skip}%
728 \ifmst@subdued
    Since 1.3j this branch is actually almost superfluous, as entering normal or bold with \MTversion does \MTnormalexists, \MTnormalforall, and \MTnormalprime. But some default values are needed if the user insists on issuing \MTexistsdoeskip, etc... nevertheless.
729 \def\mst@exists@skip@normal{0mu}%
730 \def\mst@forall@skip@normal{0mu}%
731 \def\mst@prime@skip@normal{0mu}%
732 \def\mst@exists@skip@bold{0mu}%
733 \def\mst@forall@skip@bold{0mu}%
734 \def\mst@prime@skip@bold{0mu}%
735 \else % not subdued
736 \ifmst@italic
737 \ifmst@frenchmath
738 \mst@exists@muskip\mst@exists@skip\relax
739 \mst@forall@muskip\mst@forall@skip\relax
740 \mst@prime@muskip\mst@prime@skip\relax
741 \else
742 \def\mst@exists@skip@normal{0mu}%
743 \def\mst@forall@skip@normal{0mu}%
744 \def\mst@prime@skip@normal{0mu}%
745 \def\mst@exists@skip@bold{0mu}%
746 \def\mst@forall@skip@bold{0mu}%
747 \def\mst@prime@skip@bold{0mu}%
748 \fi
749 \else
750 \mst@exists@muskip\mst@exists@skip\relax
751 \mst@forall@muskip\mst@forall@skip\relax
752 \mst@prime@muskip\mst@prime@skip\relax
753 \fi
754 \fi
755 %% v1.15f
756 \ifmst@nonnormalbold\else
757 \SetMathAlphabet{\mathnormalbold}{normal}{\mst@encoding@normal}%
758 \mst@family@normal}%
759 \mst@boldvariant@normal}%
760 \mst@ltshape@normal}%
761 \SetMathAlphabet{\mathnormalbold}{bold}{\mst@encoding@bold}%
762 \mst@family@bold}%
763 \mst@boldvariant@bold}%
764 \mst@ltshape@bold}%
765 \fi
766 %% v1.15f adds \ifmst@default.. checks
767 \ifmst@subdued\else
768 \SetSymbolFont{mtletterfont}{normal}{\mst@encoding@normal}%
769 \mst@family@normal}%

```

```

770                                     {\mst@series@normal}%
771                                     {\mst@ltshape@normal}%
772 \SetSymbolFont{mtletterfont}{bold} {\mst@encoding@bold}%
773                                     {\mst@family@bold}%
774                                     {\mst@series@bold}%
775                                     {\mst@ltshape@bold}%
776 \SetSymbolFont{mtooperatorfont}{normal}{\mst@encoding@normal}%
777                                     {\mst@family@normal}%
778                                     {\mst@series@normal}%
779                                     {\mst@shape@normal}%
780 \SetSymbolFont{mtooperatorfont}{bold} {\mst@encoding@bold}%
781                                     {\mst@family@bold}%
782                                     {\mst@series@bold}%
783                                     {\mst@shape@bold}%
784 \ifmst@defaultbf\else
785   \SetMathAlphabet{\Mathbf}{normal}{\mst@encoding@normal}%
786                                     {\mst@family@normal}%
787                                     {\mst@series@bold}%
788                                     {\mst@shape@normal}%
789   \SetMathAlphabet{\Mathbf}{bold}{\mst@encoding@bold}%
790                                     {\mst@family@bold}%
791                                     {\mst@series@bold}%
792                                     {\mst@shape@bold}%
793 \fi
794 \ifmst@defaultit\else
795   \SetMathAlphabet{\Mathit}{normal}{\mst@encoding@normal}%
796                                     {\mst@family@normal}%
797                                     {\mst@series@normal}%
798                                     {\mst@itdefault@normal}%
799   \SetMathAlphabet{\Mathit}{bold}{\mst@encoding@bold}%
800                                     {\mst@family@bold}%
801                                     {\mst@series@bold}%
802                                     {\mst@itdefault@bold}%
803 \fi
804 \ifmst@defaultsf\else
805   \SetMathAlphabet{\Mathsf}{normal}{\mst@encoding@normal}%
806                                     {\mst@sfdefault@normal}%
807                                     {\mst@series@normal}%
808                                     {\mst@shape@normal}%
809   \SetMathAlphabet{\Mathsf}{bold}{\mst@encoding@bold}%
810                                     {\mst@sfdefault@bold}%
811                                     {\mst@series@bold}%
812                                     {\mst@shape@bold}%
813 \fi
814 \ifmst@defaultttt\else
815   \SetMathAlphabet{\Mathtt}{normal}{\mst@encoding@normal}%
816                                     {\mst@ttdefault@normal}%
817                                     {\mst@series@normal}%
818                                     {\mst@shape@normal}%

```

```

819 \SetMathAlphabet{\Mathtt}{bold}{\mst@encoding@bold}%
820 \mst@ttdefault@bold}%
821 {\mst@series@bold}%
822 {\mst@shape@bold}%
823 \fi
824 \fi % de \ifmst@subdued

\MathEulerBold 1.14c: We reset mteulervm and \MathEulerBold here as the variant for bold may have been
changed by the user via \Mathastextboldvariant{m}; and we should keep this local to math
versions.

825 \ifmst@needeuler
826 \SetSymbolFont{mteulervm}{bold}{U}{zeur}{\mst@boldvariant@normal}{n}%
827 \SetMathAlphabet{\MathEulerBold}{normal}%
828 {U}{zeur}{\mst@boldvariant@normal}{n}%
829 \SetMathAlphabet{\MathEulerBold}{bold}%
830 {U}{zeur}{\mst@boldvariant@normal}{n}%
831 \fi

832 \ifmst@needsymbol\SetSymbolFont{mtpsymbol}{bold}%
833 {U}{psy}{\mst@boldvariant@normal}{n}%
834 \fi

LGRgreek* LGRgreek, LGRgrees, selfGreek, and selfGreeks options.
selfGreek* 835 \ifmst@subdued\else
836 \ifmst@LGRgreek
837 \SetSymbolFont{mtlgrfontlower}{normal}{LGR}%
838 {\mst@greekfont}{\mst@series@normal}{\mst@greek@lsh}%
839 \SetSymbolFont{mtlgrfontlower}{bold}{LGR}%
840 {\mst@greekfont}{\mst@boldvariant@normal}{\mst@greek@lsh}%
841 \SetSymbolFont{mtlgrfontupper}{normal}{LGR}%
842 {\mst@greekfont}{\mst@series@normal}{\mst@greek@ush}%
843 \SetSymbolFont{mtlgrfontupper}{bold}{LGR}%
844 {\mst@greekfont}{\mst@boldvariant@bold}{\mst@greek@ush}%
845 \else
846 \ifmst@selfGreek
847 \SetSymbolFont{mtselfGreefont}{normal}{OT1}%
848 {\mst@greekfont}{\mst@series@normal}{\mst@greek@ush}%
849 \SetSymbolFont{mtselfGreefont}{bold}{OT1}%
850 {\mst@greekfont}{\mst@boldvariant@bold}{\mst@greek@ush}%
851 \fi
852 \fi
853 \fi

854 \ifmst@subdued
855 \typeout{** subdued mode will be activated for the normal and bold math ver
sions}%
856 \else
857 \typeout{** Latin letters in the normal (resp. bold) math versions are now^^J%
858 ** set up to use the fonts

```

```

859 \mst@encoding@normal/\mst@family@normal/\mst@series@normal%
860 (\mst@boldvariant@normal)/\mst@ltshape@normal}%
861 \ifmst@LGRgreek\typeout{** Greek letters (\mst@greek@lsh/\mst@greek@ush)
862 will use LGR/\mst@greekfont}%
863 \fi
864 \ifmst@nodigits\else
865 \typeout{** Other characters (digits, ...) and \protect\log-like names will be^^J%
866 ** typeset with the \mst@shape@normal\space shape.}%
867 \fi
868 \fi
869 }
870 \let\mathastext\Mathastext
871 \@onlypreamble\Mathastext
872 \@onlypreamble\mathastext

```

`\MTDeclareVersion` The `\MTDeclareVersion` command is to be used in the preamble to declare a math version. A more complicated variant would also specify a choice of series for the Euler and Symbol font: anyhow Symbol only has the medium series, and Euler has medium and bold, so what is lacking is the possibility to create a version with a bold Euler. There is already one such version: the default bold one. And there is always the possibility to add to the preamble `\SetSymbolFont{mteulervm}{versionname}{U}{zeur}{bx}{n}` if one wants to have a math version with bold Euler characters.

For version 1.1 we add an optional parameter specifying the shape to be used for letters.

Note: (2012/10/24) I really should check whether the user attempts to redefine the ‘normal’ and ‘bold’ versions and issue a warning in that case!

1.3c (2013/12/14) adds an extra optional parameter after all previous ones, to inherit the settings from another version. Typically to be used with [bold]. I take this opportunity to sanitize a bit some line endings to avoid generating (in the preamble, document macros were already careful of course) too many space tokens, at least inside macros. And I modify (correct? perhaps it was on purpose) the strange way I used `\@onlypreamble` in earlier version.

```

873 \newcommand*{\MTDeclareVersion}[6][]{%
874 \def\mst@declareversionargs{{#1}{#2}{#3}{#4}{#5}{#6}}%
875 \edef\mst@version{#2}%
876 \DeclareMathVersion{\mst@version}%
877 \MTDeclareVersion@
878 }
879 \newcommand*{\MTDeclareVersion@[1][]{%
880 \edef\mst@tmp{#1}%
881 \ifx\mst@tmp\empty\else
882 \global\expandafter\let\csname mv@\mst@version\expandafter\endcsname
883 \csname mv@#1\endcsname
884 \typeout{** Math version ‘\mst@version\string’ inherits from ‘#1\string’.}%
885 \fi
886 \expandafter\MTDeclareVersion@@\mst@declareversionargs
887 }
888 \newcommand*{\MTDeclareVersion@@}[6]{%
889 \edef\mst@tmp{#1}%
890 \expandafter\edef\csname mst@encoding@\mst@version\endcsname{#3}%
891 \expandafter\edef\csname mst@family@\mst@version\endcsname{#4}%

```

```

892 \expandafter\edef\csname mst@series@\mst@version\endcsname{#5}%
893 \expandafter\edef\csname mst@shape@\mst@version\endcsname{#6}%
894 \expandafter\edef\csname mst@boldvariant@\mst@version\endcsname{\mst@bold}%
895 \expandafter\edef\csname mst@itdefault@\mst@version\endcsname{\itdefault}%
896 \expandafter\edef\csname mst@rmdefault@\mst@version\endcsname{\rmdefault}%
897 \expandafter\edef\csname mst@sfdefault@\mst@version\endcsname{\sfdefault}%
898 \expandafter\edef\csname mst@ttdefault@\mst@version\endcsname{\ttdefault}%
899 \expandafter\edef\csname mst@exists@skip@\mst@version\endcsname
900     {\mst@exists@skip}%
901 \expandafter\edef\csname mst@forall@skip@\mst@version\endcsname
902     {\mst@forall@skip}%
903 \expandafter\edef\csname mst@prime@skip@\mst@version\endcsname
904     {\mst@prime@skip}%
905 \ifx\mst@tmp\empty
906     \ifmst@italic
907         \SetSymbolFont{mtletterfont}{#2}{#3}{#4}{#5}{\mst@ltsh}%
908         \typeout{** Latin letters in math version '#2\string' will use the font
909             #3/#4/#5/\mst@ltsh^^J%
910             ** Other characters (digits, ...) and \protect\log-like names
911             will be in #6 shape.}%
912         \expandafter\edef\csname mst@ltshape@\mst@version\endcsname{\mst@ltsh}%
913     \else
914         \SetSymbolFont{mtletterfont}{#2}{#3}{#4}{#5}{#6}%
915         \typeout{** Latin letters in math version '#2\string' will use the fonts
916             #3/#4/#5(\mst@bold)/#6}%
917         \expandafter\edef\csname mst@ltshape@\mst@version\endcsname{#6}%
918     \fi
919 \else
920     \SetSymbolFont{mtletterfont}{#2}{#3}{#4}{#5}{#1}%
921     \typeout{** Latin letters in math version '#2\string' will use the font
922         #3/#4/#5/#1^^J%
923         ** Other characters (digits, ...) and \protect\log-like
924         names will be in #6 shape.}%
925     \expandafter\edef\csname mst@ltshape@\mst@version\endcsname{#1}%
926 \fi
927 \ifmst@nonormalbold\else
928     \SetMathAlphabet{\mathnormalbold}{#2}{#3}{#4}{\mst@bold}%
929     {\csname mst@ltshape@\mst@version\endcsname}%
930 \fi
931 \SetSymbolFont{mtooperatorfont}{#2}{#3}{#4}{#5}{#6}%
932 \ifmst@defaultbf\else\SetMathAlphabet{\Mathbf}{#2}{#3}{#4}{\mst@bold}{#6}\fi
933 \ifmst@defaultit\else\SetMathAlphabet{\Mathit}{#2}{#3}{#4}{#5}{\itdefault}\fi
934 \ifmst@defaultsf\else\SetMathAlphabet{\Mathsf}{#2}{#3}{\sfdefault}{#5}{#6}\fi
935 \ifmst@defaulttt\else\SetMathAlphabet{\Mathtt}{#2}{#3}{\ttdefault}{#5}{#6}\fi
936 \ifmst@needeuler
937     \SetMathAlphabet{\MathEulerBold}{#2}{U}{zeur}{\mst@bold}{n}%
938 \fi

```

LGRgreekselfGreeks In the case of option LGRgreekselfGreeks (selfGreeks), it is expected that the fonts used in each math

versions exist in LGR (OT1) encoding. We first recalculate the shapes to be used for lowercase and uppercase Greek letters depending on the frenchmath and [it/up][g/G]reek options as well as on the (local to this version) shapes for letters and digits.

```

939 \def\mst@greek@lsh@loc{\csname mst@lshshape@\mst@version\endcsname}%
940 \def\mst@greek@ush@loc{\csname mst@shape@\mst@version\endcsname}%
941 \ifmst@itgreek\def\mst@greek@lsh@loc{\itdefault}%
942 \def\mst@greek@ush@loc{\itdefault}\fi
943 \ifmst@upgreek\def\mst@greek@lsh@loc{\updefault}%
944 \def\mst@greek@ush@loc{\updefault}\fi
945 \ifmst@frenchmath
946 \ifmst@itgreek\else
947 \ifmst@upgreek\else
948 \def\mst@greek@lsh@loc{\csname mst@shape@\mst@version\endcsname}%
949 \def\mst@greek@ush@loc{\csname mst@shape@\mst@version\endcsname}%
950 \fi\fi
951 \fi
952 \ifcase\mst@greek@select
953 \or\def\mst@greek@ush@loc{\itdefault}%
954 \or\def\mst@greek@ush@loc{\updefault}%
955 \fi
956 \ifmst@LGRgreek
957 \SetSymbolFont{mtlgfontlower}{#2}{LGR}{#4}{#5}{\mst@greek@lsh@loc}%
958 \SetSymbolFont{mtlgfontupper}{#2}{LGR}{#4}{#5}{\mst@greek@ush@loc}%
959 \typeout{** Greek letters (\mst@greek@lsh@loc/\mst@greek@ush@loc) will use
960 LGR font #4\ifmst@subdued ^^J** (in non subdued versions)\fi}%
961 \else
962 \ifmst@selfGreeks
963 \SetSymbolFont{mtselfGreefont}{#2}{OT1}{#4}{#5}{\mst@greek@ush@loc}%
964 \typeout{** Capital Greek letters (\mst@greek@lsh@loc/\mst@greek@ush@loc)
965 will use OT1 font #4\ifmst@subdued ^^J** (in non subdued versions)\fi}%
966 \else
967 \ifmst@LGRgreek
968 \SetSymbolFont{mtlgfontlower}{#2}{LGR}{\mst@greekfont}{#5}{\mst@greek@lsh@loc}%
969 \SetSymbolFont{mtlgfontupper}{#2}{LGR}{\mst@greekfont}{#5}{\mst@greek@ush@loc}%
970 \typeout{** Greek letters (\mst@greek@lsh@loc/\mst@greek@ush@loc) will use
971 LGR font \mst@greekfont\ifmst@subdued ^^J** (in non subdued ver
972 sions)\fi}%
972 \else
973 \ifmst@selfGreeks
974 \SetSymbolFont{mtselfGreefont}{#2}{OT1}{\mst@greekfont}{#5}{\mst@greek@ush@loc}%
975 \typeout{** Capital Greek letters (\mst@greek@lsh@loc/\mst@greek@ush@loc)
976 will use OT1 font \mst@greekfont\ifmst@subdued ^^J** (in non sub
977 dued versions)\fi}%
977 \fi
978 \fi
979 \fi
980 \fi
981 }

```

```

982 \let\MathastextDeclareVersion\MTDeclareVersion
983 \@onlypreamble\MTDeclareVersion
984 \@onlypreamble\MathastextDeclareVersion

```

`\MTversion` This is a wrapper around L^AT_EX's `\mathversion`: here we have an optional argument allowing a quick and easy change of the text fonts additionally to the math fonts. Present already in the initial version of the package (January 2011.)

`\MTversion@s` 1.15: some modifications for the subdued option vs LGRgreek and for the math muskips after `\exists` and `\forall`.

1.2: with the subdued option sets the math alphabets in the normal and bold math versions do not apply to operator names and non-alphabetical symbols. The switch for braces is left as it is.

1.2b: with the subdued option, the italic corrections are not added. Else, we check the shape of letters in this version. Also, there was a bug since 1.15: the values of the math skips were taken not from the settings for the math version (#2) but from those of the optional argument (#1), if present...

1.3: activation of italic corrections is now separated from actual math activation of letters.

1.3c: a starred variant is added which does not modify the text fonts, only the math set-up.

1.3d: replaced in `\MTversion@` things like `\edef\mst@encoding{...}` and `\renewcommand{\encodingdefault}` by `\edef\encodingdefault{...}` etc... All those `\mst@@...` things were useless. I also redefine `\seriesdefault` rather than `\mddefault`.

1.3d: mechanism of restoration of Greek in subdued normal and bold versions has been to all cases, and not only for the LGRgreek option.

```

985 \newcommand*{\MTversion} {\@ifstar\MTversion@s\MTversion@ }
986 \newcommand*{\MTversion@s} [1]{\mathversion{#1}\MTversion@@ {#1}}
987 \newcommand*{\MTversion@} [2] [] {%
988     \mathversion{#2}%
989     \edef\mst@tmpa{#1}%
990     \ifx\mst@tmpa\empty
991         \edef\mst@tmp{#2}%
992     \else
993         \let\mst@tmp\mst@tmpa
994     \fi
995     \edef\encodingdefault {\csname mst@encoding@\mst@tmp\endcsname}%
996     \edef\familydefault   {\csname mst@family@\mst@tmp\endcsname}%
997     \edef\seriesdefault   {\csname mst@series@\mst@tmp\endcsname}%
998     \edef\shapedefault    {\csname mst@shape@\mst@tmp\endcsname}%
999     \edef\bfdefault       {\csname mst@boldvariant@\mst@tmp\endcsname}%
1000    \edef\itdefault       {\csname mst@itdefault@\mst@tmp\endcsname}%
1001    \edef\rmdefault       {\csname mst@rmdefault@\mst@tmp\endcsname}%
1002    \edef\sfdefault       {\csname mst@sfdefault@\mst@tmp\endcsname}%
1003    \edef\ttdefault       {\csname mst@ttdefault@\mst@tmp\endcsname}%
1004    \usefont{\encodingdefault}{\familydefault}{\seriesdefault}{\shapedefault}%
1005    \MTversion@@ {#2}%
1006 }

```

1.3j has a stronger subdued which does `\MTnormalprime`, `\MTnormalexists`, `\MTnormalforall` rather than setting the skips to 0mu. Hence `\MTversion` by default should do `\MTprimedoesskip`, `\MTexistsdoesskip`, `\MTforalldoesskip`.

```

1007 \newcommand*{\MTversion@@} [1] {%

```



```

1008    \MTexistsdoesskip
1009    \MTforalldoesskip
1010    \MTprimedoesskip
1011    \edef\mst@tmp{#1}%
    v1.15e: muskips.
1012    \expandafter
1013    \mst@exists@muskip\csname mst@exists@skip@\mst@tmp\endcsname\relax
1014    \expandafter
1015    \mst@forall@muskip\csname mst@forall@skip@\mst@tmp\endcsname\relax
    v1.2: muskip for \prime.
1016    \expandafter
1017    \mst@prime@muskip\csname mst@prime@skip@\mst@tmp\endcsname\relax
    v1.2b: italic corrections except for italic/slanted (sic) letters, and of course except in the subdued
    normal and bold math versions.
    v1.3: by default, letters are made mathematically active, even if italic corrections are not
    used, to allow the action of \MTsetmathskips.
1018    \edef\mst@tmpa{\csname mst@ltshape@\mst@tmp\endcsname}%
1019    \edef\mst@tmpb{\csname mst@shape@\mst@tmp\endcsname}%
    v1.15c: extending subdued to LGRgreek.
    v1.15f: subduing math alphabets in a simpler way than in 1.15e.
    v1.2b: subduing the activation of characters in math mode.
    v1.2d: special treatment of the asterisk.
    v1.3d: extended LGRgreek mechanism of activation/restoration of Greek to all cases.
    v1.3j: use of \MTeverymathdefault, which includes \MTicinmath, but must be corrected
    then according to shape of letters and presence or absence of option frenchmath. We do only
    \def\mst@ITcorr{\ifnum\fam=\m@ne/\fi} and not \MTICinmath to not overwrite some user-
    defined \MTeverymathdefault. Code for italic corrections or not according to letter shape is
    executed after \MTeverymathdefault which limits a bit user customizing possibilities, but if I
    moved it later, I would possibly have to put inside the \MTicinmath the check for it ot sl.
    Similary the \MTcustomgreek always executed (if not subdued).
1020    \MTmathoperatorsobeymathxx
1021    \MTeverymathdefault
1022    \MTcustomizenewmcodes
1023    \@for\mst@tmpc:=it,sl\do{\ifx\mst@tmpc\mst@tmpa\MTnoicinmath\fi}%
1024    \ifmst@frenchmath
1025        \def\mst@ITcorr{\ifnum\fam=\m@ne/\fi}%
1026        \@for\mst@tmpc:=it,sl\do{\ifx\mst@tmpc\mst@tmpb\MTnoICinmath\fi}%
1027    \fi
    1.3j has a stronger subdued which does \MTnormalprime, \MTnormalexists, \MTnormalforall
    rather than simply setting the skips to 0mu. Note: \MTnormalprime is done as part of \MTevery
    mathoff.
1028    \ifmst@subdued
1029        \def\mst@tmpa{normal}%
1030        \ifx\mst@tmp\mst@tmpa
1031            \mst@restorealalphabets
1032            \MTstandardgreek
1033            \MTmathoperatorsdonotobeymathxx

```

```

1034      \MTnormalexists
1035      \MTnormalforall
1036      \MTeverymathoff
1037      \MTresetnewmcodes
1038      \else
1039      \def\mst@tmpa{bold}%
1040      \ifx\mst@tmp\mst@tmpa
1041      \mst@restorealalphabets
1042      \MTstandardgreek
1043      \MTmathoperatorsdonotobeymathxx
1044      \MTnormalexists
1045      \MTnormalforall
1046      \MTeverymathoff
1047      \MTresetnewmcodes
1048      \else
1049      \mst@setalphabets
1050      \MTcustomgreek
1051      \fi
1052      \fi
1053      \else
1054      \MTcustomgreek % new with 1.3d
1055      \fi
1056 }
1057 \let\MathastextVersion\MTversion
1058 \let\Mathastextversion\MTversion
1059 \let\MTVersion\MTversion
1060 \let\mathastextversion\MTversion

```

`\Mathastext` Initialization call:

```
1061 \Mathastext
```

Additional appropriate messages to the terminal and the log.

```

1062 \ifmst@eulergreek
1063 \typeout{** Greek letters will use the Euler font. Use \protect\MathastextEulerScale{
1064 font.}%
1065 \ifmst@subdued{\typeout{** (subdued mode: normal and bold math
1066 version with default Greek letters.)}}\fi
1067 \else
1068 \ifmst@symbolgreek
1069 \typeout{** Greek letters will use the PostScript Symbol font. Use ^^J%
1070 ** \protect\MathastextSymbolScale{<factor>} to scale the font.}%
1071 \ifmst@subdued{\typeout{** (subdued mode: normal and bold math
1072 version with default Greek letters.)}}\fi
1073 \fi\fi

```

At (long...) last we now change the font for the letters of the latin alphabet. In version 1.1, Latin letters have their own font (shape).

1.2b initiated the use of mathematically active letters to insert the italic corrections. With version 1.3 the use of math active letters is also for extra muglue added before and after the letters. Use of `\@for` to shorten the code initiated with release 1.3.

```

1074 \def\mst@DeclareMathLetter #1{%
1075     \DeclareMathSymbol {#1}{\mathalpha}{mtletterfont}{‘#1}%
1076     \expandafter
1077     \DeclareMathSymbol \csname mst@#1\endcsname{\mathalpha}{mtletterfont}{‘#1}%
1078     \expandafter\mst@addtodo@az\expandafter #1\csname mst@#1\endcsname
1079 }%
1080 \@for\mst@tmp:=a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s,t,u,v,w,x,y,z\do
1081     {\expandafter\mst@DeclareMathLetter\mst@tmp}%
1082 \ifmst@frenchmath \def\mst@font@tbu{moperatorfont}%
1083 \else \def\mst@font@tbu{mtletterfont}%
1084 \fi
1085 \def\mst@DeclareMathLetter #1{%
1086     \DeclareMathSymbol {#1}{\mathalpha}{\mst@font@tbu}{‘#1}%
1087     \expandafter
1088     \DeclareMathSymbol \csname mst@#1\endcsname{\mathalpha}{\mst@font@tbu}{‘#1}%
1089     \expandafter\mst@addtodo@AZ\expandafter #1\csname mst@#1\endcsname
1090 }%
1091 \@for\mst@tmp:=A,B,C,D,E,F,G,H,I,J,K,L,M,N,O,P,Q,R,S,T,U,V,W,X,Y,Z\do
1092     {\expandafter\mst@DeclareMathLetter\mst@tmp}%
1093 \let\mst@DeclareMathLetter\relax
1094 %%
1095 \ifmst@nodigits\else
1096 \def\mst@font@tbu{moperatorfont}%

```

In version 1.1, we have now separated digits from letters, so paradoxically it is less problematic to give them the mathalpha type.

```

1097 \ifmst@symboldigits \def\mst@font@tbu{mtpsymbol} \fi
1098 \ifmst@eulerdigits \def\mst@font@tbu{mteulervm} \fi
1099 \DeclareMathSymbol{0}{\mathalpha}{\mst@font@tbu}{‘0}%
1100 \DeclareMathSymbol{1}{\mathalpha}{\mst@font@tbu}{‘1}%
1101 \DeclareMathSymbol{2}{\mathalpha}{\mst@font@tbu}{‘2}%
1102 \DeclareMathSymbol{3}{\mathalpha}{\mst@font@tbu}{‘3}%
1103 \DeclareMathSymbol{4}{\mathalpha}{\mst@font@tbu}{‘4}%
1104 \DeclareMathSymbol{5}{\mathalpha}{\mst@font@tbu}{‘5}%
1105 \DeclareMathSymbol{6}{\mathalpha}{\mst@font@tbu}{‘6}%
1106 \DeclareMathSymbol{7}{\mathalpha}{\mst@font@tbu}{‘7}%
1107 \DeclareMathSymbol{8}{\mathalpha}{\mst@font@tbu}{‘8}%
1108 \DeclareMathSymbol{9}{\mathalpha}{\mst@font@tbu}{‘9}%
1109 \fi

```

When `symboldelimiters` is passed as an option, we use the Symbol font for the printable characters other than letters and digits.

```

1110 \ifmst@symboldelimiters
1111 \def\mst@font@tbu{mtpsymbol}%
1112 \mst@endashfalse
1113 \mst@emdashfalse
1114 \else
1115 \def\mst@font@tbu{moperatorfont}%
1116 \fi

```

1.2 adds the tricks to let non letters/digits obey math alphabets. We have to double the defini-


```

1150             {\raisebox{-\mst@lowerast}%
1151              {\the\scriptfont\symmoperatorfont\char42}}}%
1152             {\raisebox{-\mst@lowerast}%
1153              {\the\scriptscriptfont\symmoperatorfont\char42}}}}}%
1154 \fi
1155 \def\mst@varfam@ast{\ifnum\fam=\m@ne\mst@bin@ast\else
1156   \mathbin{\mathchoice{\raisebox{-\mst@lowerast}%
1157     {\the\textfont\fam\char42}}}%
1158     {\raisebox{-\mst@lowerast}%
1159      {\the\textfont\fam\char42}}}%
1160     {\raisebox{-\mst@lowerast}%
1161      {\the\scriptfont\fam\char42}}}%
1162     {\raisebox{-\mst@lowerast}%
1163      {\the\scriptscriptfont\fam\char42}}}\fi}%
1164 \MTactiveasterisk
1165 \DeclareRobustCommand*\mst@ast{\mst@bin@ast}
1166 \newcommand*\MTlowerast[1]{\def\mst@lowerast{#1}}
1167 \MTlowerast{.3\height}
1168 \mst@do@easynonletters\expandafter\expandafter\expandafter
1169   {\expandafter\the\expandafter\mst@do@easynonletters
1170   \expandafter\def\csname mst@ast \endcsname{\mst@varfam@ast}}
1171 \fi

```

(2011) I renounced to try to do things with all the various dots, they are defined in many different ways, and there is the amsmath also. Dealing with this issue would mean a lot a time for a minuscule result. Better to leave the user use the `mathdots` package and accept that we can not avoid the default fonts in that case. So here I just treat `.` (in the hope to really lessen by 1 the number of fonts embedded at the end in the PDF).

[(Dec. 2012) should I reexamine these definitive sounding remarks?]

```

1172 \ifmst@nopunct\else\typeout{** punctuation\string: \string. \string: \string; and
1173 \DeclareMathSymbol{,}{\mathpunct}{\mst@font@tbu}{"2C}
1174 \DeclareMathSymbol{\mst@varfam@comma}{\mathalpha}{\mst@font@tbu}{"2C}
1175 \expandafter\mst@addtodo@nonletters\string,\mathpunct\mst@varfam@comma
1176 \DeclareMathSymbol{.}{\mathord}{\mst@font@tbu}{"2E}
1177 \DeclareMathSymbol{\mst@varfam@dot}{\mathalpha}{\mst@font@tbu}{"2E}
1178 \mst@addtodo@easynonletters\.\mst@varfam@dot
1179 \DeclareMathSymbol{:}{\mathrel}{\mst@font@tbu}{"3A} % relation spacing
1180 \DeclareMathSymbol{\mst@varfam@colon}{\mathalpha}{\mst@font@tbu}{"3A}
1181 \expandafter\mst@addtodo@nonletters\string:\mathrel\mst@varfam@colon
1182 \@ifpackageloaded{amsmath}
1183 {} % \colon defined in amsmath.sty in terms of : with some enlarged explicit
1184   % spacing. No need to intervene.
1185 {% no amsmath, use standard punctuation spacing
1186 \let\colon\undefined
1187 % the reason is if some package has redefined \colon which then
1188 % can not be used in \cs{DeclareMathSymbol} anymore (we
1189 % shamelessly overwrite...)
1190 \DeclareMathSymbol{\colon}{\mathpunct}{\mst@font@tbu}{"3A}
1191 \mst@do@nonletters\expandafter{\the\mst@do@nonletters

```



```

1224 \DeclareMathSymbol{-}{\mathbin}{mtoperatorfont}{21}
1225 \DeclareMathSymbol{\mst@varfam@minus}{\mathalpha}{mtoperatorfont}{21}
1226 \else
1227 \ifx\mst@tmp@enc\mst@oti % OT1
1228 \DeclareMathSymbol{-}{\mathbin}{mtoperatorfont}{123}
1229 \DeclareMathSymbol{\mst@varfam@minus}{\mathalpha}{mtoperatorfont}{123}
1230 \else
1231 \ifx\mst@tmp@enc\mst@lyi % LY1
1232 \DeclareMathSymbol{-}{\mathbin}{mtoperatorfont}{150}
1233 \DeclareMathSymbol{\mst@varfam@minus}{\mathalpha}{mtoperatorfont}{150}
1234 \else % make sure we have neither xetex nor luatex
1235 \ifmst@XeOrLua\mst@aborttrue
1236 \else
1237 \DeclareMathSymbol{-}{\mathbin}{mtoperatorfont}
1238 \DeclareMathSymbol{\mst@varfam@minus}{\mathalpha}{mtoperatorfont}
1239 {\expandafter\the\expandafter\csname\mst@tmp@enc\string\textendash\endcsname}
1240 \fi
1241 \fi\fi\fi\fi}
1242 \def\mst@dothe@emdashstuff{\edef\mst@tmp@enc{\encodingdefault}
1243 \if1\mst@OneifUniEnc
1244 \AtBeginDocument{% Unicode engine and font
1245 \mst@Umathcode'\-2 \symmtoperatorfont "2014\relax
1246 \mst@Umathchardef\mst@varfam@minus=7 \symmtoperatorfont "2014\relax
1247 }
1248 \else
1249 \ifx\mst@tmp@enc\mst@ti % T1
1250 \DeclareMathSymbol{-}{\mathbin}{mtoperatorfont}{22}
1251 \DeclareMathSymbol{\mst@varfam@minus}{\mathalpha}{mtoperatorfont}{22}
1252 \else
1253 \ifx\mst@tmp@enc\mst@oti % OT1
1254 \DeclareMathSymbol{-}{\mathbin}{mtoperatorfont}{124}
1255 \DeclareMathSymbol{\mst@varfam@minus}{\mathalpha}{mtoperatorfont}{124}
1256 \else
1257 \ifx\mst@tmp@enc\mst@lyi % LY1
1258 \DeclareMathSymbol{-}{\mathbin}{mtoperatorfont}{151}
1259 \DeclareMathSymbol{\mst@varfam@minus}{\mathalpha}{mtoperatorfont}{151}
1260 \else % make sure we have neither xetex nor luatex
1261 \ifmst@XeOrLua\mst@aborttrue
1262 \else
1263 \DeclareMathSymbol{-}{\mathbin}{mtoperatorfont}
1264 \DeclareMathSymbol{\mst@varfam@minus}{\mathalpha}{mtoperatorfont}
1265 {\expandafter\the\expandafter\csname\mst@tmp@enc\string\textendash\endcsname}
1266 \fi
1267 \fi\fi\fi\fi}
1268 \ifmst@nominus\else\typeout{** minus as endash}
1269 \mst@abortfalse
1270 \ifmst@endash\mst@dothe@emdashstuff\else
1271 \ifmst@emdash\mst@dothe@emdashstuff\else
1272 \DeclareMathSymbol{-}{\mathbin}{\mst@font@tbu}{2D}

```


\nfss@catcodes 2012/12/18: Activating = (only in math mode actually) seems very bad but surprisingly works well. However I had a problem with `eu2lmtt.fd` which should not be loaded with an active =.

2012/12/25: Since then I had switched to only math activation. And in fact the problematic = from `eu2lmtt.fd` end up in `\csname...\endcsname` and I have learnt since that \TeX does not look at the `mathcode` inside a `\csname...\endcsname`. Example:

We need nevertheless to inactivate the `=`, for the following reason. Imagine someone did `\catcode'\active\def={\string=}`, or another definition which would not lead to a tragedy in a `\csmame...\endcsmame`. Then the `=` is active and the re-definition done by `mathastext` will not be compatible with loading `eu2lmtt.fd` (for the first time) from math mode, as this re-definition can not be expanded inside a `\csmame...\endcsmame`.

```

1313 \typeout{** adding \string= \string; and \string+ to \string\nfss@catcodes}
1314 \g@addto@macro\nfss@catcodes{%
1315   \@makeother\=%
1316   \@makeother\;%
1317   \@makeother\+%
1318 }
1319 \expandafter\mst@addtodo@nonletters\string=\mathrel\mst@varfam@equal
1320 \fi

```

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sequences `\lbrace` and `\rbrace`. Such control sequences can not be simultaneously math symbols and math delimiters, thus, this complicates things for the mathastextification.

```

1321 \ifmst@noparen\else\typeout{** parentheses \string( \string) \string[ \string] and slash \s
1322 \ifmst@nosmallldelims
1323     \DeclareMathSymbol{(\}{\mathopen}{\mst@font@tbu}{28}
1324     \DeclareMathSymbol{)\}{\mathclose}{\mst@font@tbu}{29}
1325     \DeclareMathSymbol{[\}{\mathopen}{\mst@font@tbu}{5B}
1326     \DeclareMathSymbol{]\}{\mathclose}{\mst@font@tbu}{5D}
1327     \DeclareMathSymbol{/}{\mathord}{\mst@font@tbu}{2F}
1328 \else
1329     \DeclareMathDelimiter{(\}{\mathopen}{\mst@font@tbu}{28}{largesymbols}{00}
1330     \DeclareMathDelimiter{)\}{\mathclose}{\mst@font@tbu}{29}{largesymbols}{01}
1331     \DeclareMathDelimiter{[\}{\mathopen}{\mst@font@tbu}{5B}{largesymbols}{02}
1332     \DeclareMathDelimiter{]\}{\mathclose}{\mst@font@tbu}{5D}{largesymbols}{03}
1333     \DeclareMathDelimiter{/}{\mathord}{\mst@font@tbu}{2F}{largesymbols}{0E}
1334 \fi
1335 \DeclareMathSymbol{\mst@varfam@lparen}{\mathalpha}{\mst@font@tbu}{40}
1336 \DeclareMathSymbol{\mst@varfam@rparen}{\mathalpha}{\mst@font@tbu}{41}
1337 \DeclareMathSymbol{\mst@varfam@lbrack}{\mathalpha}{\mst@font@tbu}{5B}
1338 \DeclareMathSymbol{\mst@varfam@rbrack}{\mathalpha}{\mst@font@tbu}{5D}
1339 \DeclareMathSymbol{\mst@varfam@slash}{\mathalpha}{\mst@font@tbu}{2F}
1340 \expandafter\mst@addtodo@nonletters\string(\mathopen\mst@varfam@lparen
1341 \expandafter\mst@addtodo@nonletters\string)\mathclose\mst@varfam@rparen
1342 \expandafter\mst@addtodo@nonletters\string[\mathopen\mst@varfam@lbrack
1343 \expandafter\mst@addtodo@nonletters\string]\mathclose\mst@varfam@rbrack
1344 \mst@addtodo@easynonletters\/\mst@varfam@slash
1345 \fi

```

alldelims

```

    <,>,\ 1346 \ifmst@alldelims\typeout{** alldelims: \string< \string>
\setminus 1347 \string\backslash\space\string\setminus\space\string|
\backslash 1348 \string\vert\space\string\mid\space\string{\space and \string\}}
1349 \ifmst@nosmallldelims

```

Dec 18, 2012. We then want `\let\backslash\mst@varfam@backslash` to do nothing when the `\backslash` is used as a delimiter. So here the original definition from `latex.ltx` is copied, generally speaking when people use other math symbol fonts they do respect the encoding of the CM symbols and `largesymbols`, so this is 90% safe. But in truth I should extract from the meaning of `\backslash` the `delcode`.

```

1350     \DeclareMathDelimiter{\mst@varfam@backslash}
1351         {\mathalpha}{symbols}{6E}{largesymbols}{0F}
1352 \else
1353     \DeclareMathDelimiter{<}{\mathopen}{\mst@font@tbu}{3C}{largesymbols}{0A}
1354     \DeclareMathDelimiter{>}{\mathclose}{\mst@font@tbu}{3E}{largesymbols}{0B}

```

There is no backslash in the Symbol font hence `mtooperatorfont` here.

```

1355     \DeclareMathDelimiter{\backslash}
1356         {\mathord}{mtooperatorfont}{5C}{largesymbols}{0F}
1357     \DeclareMathDelimiter{\mst@varfam@backslash}
1358         {\mathalpha}{mtooperatorfont}{5C}{largesymbols}{0F}

```



```

1396      {\mathclose}{\mst@font@tbu}{125}{largesymbols}{"09}
1397  \fi
1398 \DeclareMathSymbol{\mst@varfam@lbrace}{\mathalpha}{\mst@font@tbu}{123}
1399 \DeclareMathSymbol{\mst@varfam@rbrace}{\mathalpha}{\mst@font@tbu}{125}
1400 \DeclareRobustCommand*\mst@lbrace
1401      {\ifmmode\mathopen\mst@varfam@lbrace\else\textbraceleft\fi}
1402 \DeclareRobustCommand*\mst@rbrace
1403      {\ifmmode\mathclose\mst@varfam@rbrace\else\textbraceright\fi}
1404 \mst@do@nonletters\expandafter{\the\mst@do@nonletters
1405     \mst@dobraces{\let\{\mst@lbrace\let\}\mst@rbrace}}
1406 \fi % end of \ifmst@alldelims
1407 \newcommand*\MTexplicitbracesobeymathxx{\let\mst@dobraces\@firstofone}
1408 \newcommand*\MTexplicitbracesdonotobeymathxx{\let\mst@dobraces\@gobble}
1409 \MTexplicitbracesdonotobeymathxx

```

specials 1.14b 2011/04/02: the redefinitions of #, \$, % and & were buggy (this showed up when 10 or more math families had been created).

1.15f 2012/10/23: the code, although working, was perhaps a bit insane and had definitions which could surprise other packages. For example, it did:

```
\renewcommand{\%}{\ifmmode\mt@mmode@percent\else\char37\relax\fi}
```

But it seems this provokes a problem with `microtype`. Perhaps the problem was that the command was not declared robust? For the dollar \LaTeX itself does

```
\DeclareRobustCommand{\$}{\ifmmode\mathdollar\else\textdollar\fi}
```

So here I just modify `\mathdollar`. Then we have in `latex.ltx` the same definitions as in `plain.tex`: `\chardef\%='\'`, `\chardef\&='&`, and `\chardef\#='#`. It turns out that we can just adjust the mathcodes of these characters and achieve exactly what is wanted for the corresponding one char control sequences. In math mode the control sequence will use the specified mathcode. So here it is *not* a redefinition of the control sequences, purely an adjustment of mathcodes.

1.2d 2013/01/01: previous versions imposed the variable family type. I hereby make it possible to de-activate this feature with the macro `\MTeasynonlettersdonotobeymathxx`. Besides, I have absolutely no idea why I had different looking code depending on the engine X_{\TeX} , $\text{Lua}\TeX$ or default. Removed.

1.3c 2013/12/14: I have absolutely no idea why I removed the X_{\TeX} and $\text{Lua}\TeX$ code at the time of 1.2d! the code for $\text{tex}/\text{pdf}\text{tex}$ engine could not accomodate more than 16 math families. Code for X_{\TeX} and $\text{Lua}\TeX$ again added. (and since TL2013 no more problems with `\luatexUmathcode`.)

```

1410 \ifmst@nospecials
1411 \else
1412   \typeout{** \string\#\space\string\mathdollar\space
1413     \string\%\space\string\&\space}
1414   \ifmst@XeOrLua
1415     \mst@Umathcode'\#=0 \symmoperatorfont "23 \relax
1416     \mst@Umathchardef\mathdollar=0 \symmoperatorfont "24 \relax
1417     \mst@Umathcode'\%=0 \symmoperatorfont "25 \relax
1418     \mst@Umathcode'\&=0 \symmoperatorfont "26 \relax
1419     \mst@do@easynonletters\expandafter{\%
1420       \the\mst@do@easynonletters
1421       \mst@Umathcode'\#=7 \symmoperatorfont "23 \relax

```

```

1422 \mst@Umathchardef\mathdollar=7 \symmoperatorfont "24 \relax
1423 \mst@Umathcode'\%=7 \symmoperatorfont "25 \relax
1424 \mst@Umathcode'\&=7 \symmoperatorfont "26 \relax
1425 }
1426 \else
1427 \count@=\symmoperatorfont
1428 \multiply\count@ by \@cclvi
1429 \advance\count@ by 35
1430 \mathcode'\#\count@
1431 \advance\count@ by \@ne
1432 \mathchardef\mathdollar\count@
1433 \advance\count@ by \@ne
1434 \mathcode'\%\count@
1435 \advance\count@ by \@ne
1436 \mathcode'\&\count@
1437 \count@=\symmoperatorfont
1438 \multiply\count@ by \@cclvi
1439 \advance\count@ by 28707 % = "7023
1440 \mathchardef\mst@varfam@mathhash\count@
1441 \advance\count@ by \@ne
1442 \mathchardef\mst@varfam@mathdollar\count@
1443 \advance\count@ by \@ne
1444 \mathchardef\mst@varfam@mathpercent\count@
1445 \advance\count@ by \@ne
1446 \mathchardef\mst@varfam@mathampersand\count@
1447 \mst@do@easynonletters\expandafter{\the\mst@do@easynonletters
1448 \mathcode'\#=\mst@varfam@mathhash
1449 \let\mathdollar\mst@varfam@mathdollar
1450 \mathcode'\%=\mst@varfam@mathpercent
1451 \mathcode'\&=\mst@varfam@mathampersand}
1452 \fi
1453 \fi

```

symbolmisc We construct (with some effort) some long arrows from the Symbol glyphs, of almost the same lengths as the standard ones. By the way, I always found the `\iff` to be too wide, but I follow here the default. Also, although there is a `\longmapsto` in standard \LaTeX , if I am not mistaken, there is no `\longto`. So I define one here. I could not construct in the same manner `\Longrightarrow` etc... as the `=` sign from Symbol does not combine easily with the logical arrows, well, I could have done some box manipulations, but well, life is finite.

\prod 1.13b: I correct the brutal re-definitions of `\prod` and `\sum` from the earlier versions of the package; most of the time the Symbol glyphs do appear to be too small in display mode. The new redefinitions do have some defects: `\displaystyle\prod_1^2` changes the position of limits but not the glyph itself, and `\textstyle\prod_1^2` change the limits but switches to the CM inline math glyph. So I tried

```
\renewcommand{\prod}{\mathchoice{\mst@prod}{\prodpsy}{\prodpsy}{\prodpsy}}
```

but this did not go well with subscripts and exponents.

Note oct 2012: maybe I should re-examine what I did? 1.3c (2013/12/14) renames `\defaultprod` to `\MToriginalprod` and `\defaultsum` to `\MToriginalsum`.

```

1454 \ifmst@symbolmisc\typeout{** symbolmisc: miscellaneous math symbols from Symbol font}
1455 \let\mst@prod\prod
1456 \let\MToriginalprod\prod
1457 \DeclareMathSymbol{\prodpsy}{\mathop}{mtpsymbol}{213}
1458 \renewcommand*{\prod}{\ifinner\prodpsy\else\mst@prod\fi}
1459 \let\mst@sum\sum
1460 \let\MToriginalsum\sum
1461 \DeclareMathSymbol{\sumpsy}{\mathop}{mtpsymbol}{229}
1462 \renewcommand*{\sum}{\ifinner\sumpsy\else\mst@sum\fi}

1463 \DeclareMathSymbol{\mst@implies}{\mathrel}{mtpsymbol}{222}
1464 \DeclareRobustCommand*\implies{\;\;\;\mst@implies\;}
1465 \DeclareMathSymbol{\mst@impliedby}{\mathrel}{mtpsymbol}{220}
1466 \DeclareRobustCommand*\impliedby{\;\;\;\mst@impliedby\;}
1467 \DeclareRobustCommand*\iff{\;\;\;\mst@impliedby\mathrel{\mkern-3mu}\mst@implies\;}
1468 \DeclareMathSymbol{\mst@iff}{\mathrel}{mtpsymbol}{219}
1469 \DeclareRobustCommand*\shortiff{\;\;\;\mst@iff\;}
1470 \DeclareMathSymbol{\mst@to}{\mathrel}{mtpsymbol}{174}
1471 \DeclareMathSymbol{\mst@trait}{\mathrel}{mtpsymbol}{190}
1472 \DeclareRobustCommand*\to{\mst@to}
1473 \DeclareRobustCommand*\longto{\mkern2mu\mst@trait\mathrel{\mkern-10mu}\mst@to}
1474 \DeclareRobustCommand*\mapsto{\mapstochar\mathrel{\mkern0.2mu}\mst@to}
1475 \DeclareRobustCommand*\longmapsto{%
1476 \mapstochar\mathrel{\mkern2mu}\mst@trait\mathrel{\mkern-10mu}\mst@to}
1477 \DeclareMathSymbol{\aleph}{\mathord}{mtpsymbol}{192}
1478 \DeclareMathSymbol{\infty}{\mathord}{mtpsymbol}{165}
1479 \DeclareMathSymbol{\emptyset}{\mathord}{mtpsymbol}{198}
1480 \let\varnothing\emptyset
1481 \DeclareMathSymbol{\nabla}{\mathord}{mtpsymbol}{209}
1482 \DeclareMathSymbol{\surd}{\mathop}{mtpsymbol}{214}
1483 \let\angle\undefined
1484 \DeclareMathSymbol{\angle}{\mathord}{mtpsymbol}{208}
1485 \DeclareMathSymbol{\forall}{\mathord}{mtpsymbol}{34}
1486 \DeclareMathSymbol{\exists}{\mathord}{mtpsymbol}{36}
1487 \DeclareMathSymbol{\neg}{\mathord}{mtpsymbol}{216}
1488 \DeclareMathSymbol{\clubsuit}{\mathord}{mtpsymbol}{167}
1489 \DeclareMathSymbol{\diamondsuit}{\mathord}{mtpsymbol}{168}
1490 \DeclareMathSymbol{\heartsuit}{\mathord}{mtpsymbol}{169}
1491 \DeclareMathSymbol{\spadesuit}{\mathord}{mtpsymbol}{170}
1492 \DeclareMathSymbol{\smallint}{\mathop}{mtpsymbol}{242}
1493 \DeclareMathSymbol{\wedge}{\mathbin}{mtpsymbol}{217}
1494 \DeclareMathSymbol{\vee}{\mathbin}{mtpsymbol}{218}
1495 \DeclareMathSymbol{\cap}{\mathbin}{mtpsymbol}{199}
1496 \DeclareMathSymbol{\cup}{\mathbin}{mtpsymbol}{200}
1497 \DeclareMathSymbol{\bullet}{\mathbin}{mtpsymbol}{183}
1498 \DeclareMathSymbol{\div}{\mathbin}{mtpsymbol}{184}
1499 \DeclareMathSymbol{\otimes}{\mathbin}{mtpsymbol}{196}
1500 \DeclareMathSymbol{\oplus}{\mathbin}{mtpsymbol}{197}
1501 \DeclareMathSymbol{\pm}{\mathbin}{mtpsymbol}{177}

```

```

1502 \DeclareMathSymbol{\times}{\mathbin}{mtpsymbol}{180}
1503 \DeclareMathSymbol{\proptopsy}{\mathrel}{mtpsymbol}{181}
1504 \DeclareMathSymbol{\mid}{\mathrel}{mtpsymbol}{124}
1505 \DeclareMathSymbol{\leq}{\mathrel}{mtpsymbol}{163}
1506 \DeclareMathSymbol{\geq}{\mathrel}{mtpsymbol}{179}
1507 \DeclareMathSymbol{\approx}{\mathrel}{mtpsymbol}{187}
1508 \DeclareMathSymbol{\supset}{\mathrel}{mtpsymbol}{201}
1509 \DeclareMathSymbol{\subset}{\mathrel}{mtpsymbol}{204}
1510 \DeclareMathSymbol{\supseteq}{\mathrel}{mtpsymbol}{202}
1511 \DeclareMathSymbol{\subseteq}{\mathrel}{mtpsymbol}{205}
1512 \DeclareMathSymbol{\in}{\mathrel}{mtpsymbol}{206}
1513 \DeclareMathSymbol{\sim}{\mathrel}{mtpsymbol}{126}
1514 \let\cong\undefined
1515 \DeclareMathSymbol{\cong}{\mathrel}{mtpsymbol}{64}
1516 \DeclareMathSymbol{\perp}{\mathrel}{mtpsymbol}{94}
1517 \DeclareMathSymbol{\equiv}{\mathrel}{mtpsymbol}{186}
1518 \let\notin\undefined
1519 \DeclareMathSymbol{\notin}{\mathrel}{mtpsymbol}{207}
1520 \DeclareMathDelimiter{\rangle}
1521   {\mathclose}{mtpsymbol}{241}{largesymbols}{"0B}
1522 \DeclareMathDelimiter{\langle}
1523   {\mathopen}{mtpsymbol}{225}{largesymbols}{"0A}
1524 \fi

```

symbolre I like the `\Re` and `\Im` from `Symbol`, so I overwrite the CM ones.

```

1525 \ifmst@symbolre\typeout{** symbolre: \string\Re\space and \string\Im\space from Sym
bol font}
1526 \DeclareMathSymbol{\Re}{\mathord}{mtpsymbol}{C2}
1527 \DeclareMathSymbol{\Im}{\mathord}{mtpsymbol}{C1}
1528 \DeclareMathSymbol{\DotTriangle}{\mathord}{mtpsymbol}{92}
1529 \fi

```

Greek letters LGRgreek > selfGreek > eulergreek > symbolgreek

1.11 I correct some bugs on how eulergreek and symbolgreek interacted.

1.12b more bug fixes.

1.13

* Option LGRgreek.

* Also, a behavior has been changed: it regards the selfGreek case, the default shape is now the one for letters, not for operator-names and digits. This complies to the ISO standard.

* bugfix: version 1.12b did not define the `\omicron` in the case when no Greek-related option was passed to the package.

1.13d has new macros `\MTstandardgreek` and `\MTcustomgreek`. And in the subdued case `\MTstandardgreek` is done when switching to the normal or bold math versions (previously something like this was only done in case of LGRgreek option.)

```

1530 \let\mst@mathord\mathalpha
1531 \mst@goaheadtrue
1532 \ifmst@selfGreek
1533   \def\mst@font@tbu{mtselfGreekfont}
1534 \else

```

```

1535 \ifmst@eulergreek
1536 \def\mst@font@tbu{mteulervm}
1537 \else
1538 \ifmst@symbolgreek
1539 \def\mst@font@tbu{mtpsymbol}
1540 \let\mst@mathord\mathord
1541 \else
1542 \ifmst@LGRgreek
1543 \mst@goaheadfalse
1544 \else

```

The \omicron requires special treatment. By default we use the o from the (original) normal alphabet, if eulergreek or symbolgreek we adapt. There is also a special adjustment if the package `fourier` was loaded in its `upright` variant: we then take \omicron from the (original) `rm` alphabet.

```

1545 \mst@goaheadfalse
1546 \def\mst@omicron {\mst@alph@omicron{o}}
1547 \fi
1548 \fi
1549 \fi
1550 \fi
1551 \ifmst@goahead
1552 \DeclareMathSymbol{\mst@Alpha}{\mst@mathord}{\mst@font@tbu}{41}
1553 \DeclareMathSymbol{\mst@Beta}{\mst@mathord}{\mst@font@tbu}{42}
1554 \DeclareMathSymbol{\mst@Epsilon}{\mst@mathord}{\mst@font@tbu}{45}
1555 \DeclareMathSymbol{\mst@Zeta}{\mst@mathord}{\mst@font@tbu}{5A}
1556 \DeclareMathSymbol{\mst@Eta}{\mst@mathord}{\mst@font@tbu}{48}
1557 \DeclareMathSymbol{\mst@Iota}{\mst@mathord}{\mst@font@tbu}{49}
1558 \DeclareMathSymbol{\mst@Kappa}{\mst@mathord}{\mst@font@tbu}{4B}
1559 \DeclareMathSymbol{\mst@Mu}{\mst@mathord}{\mst@font@tbu}{4D}
1560 \DeclareMathSymbol{\mst@Nu}{\mst@mathord}{\mst@font@tbu}{4E}
1561 \DeclareMathSymbol{\mst@Omicron}{\mst@mathord}{\mst@font@tbu}{4F}
1562 \DeclareMathSymbol{\mst@Rho}{\mst@mathord}{\mst@font@tbu}{50}
1563 \DeclareMathSymbol{\mst@Tau}{\mst@mathord}{\mst@font@tbu}{54}
1564 \DeclareMathSymbol{\mst@Chi}{\mst@mathord}{\mst@font@tbu}{58}

```

When we in fact use `Symbol`, we have to correct ρ and χ . And \digamma is non-existent in fact (no `F` in `Symbol`, `F` codes a ϕ).

```

1565 \ifx\mst@mathord\mathord
    symbolgreek but neither eulergreek nor selfGreek
1566 %% attention le P de Symbol est un \Pi pas un \Rho
1567 \DeclareMathSymbol{\mst@Rho}{\mathord}{mtpsymbol}{52}
1568 %% attention le X de Symbol est un \Xi pas un \Chi
1569 \DeclareMathSymbol{\mst@Chi}{\mathord}{mtpsymbol}{43}
1570 %% attention le F de Symbol est un \Phi. Il n'y a pas de \Digamma
1571 \DeclareMathSymbol{\mst@Gamma}{\mathord}{mtpsymbol}{47}
1572 \DeclareMathSymbol{\mst@Delta}{\mathord}{mtpsymbol}{44}
1573 \DeclareMathSymbol{\mst@Theta}{\mathord}{mtpsymbol}{51}
1574 \DeclareMathSymbol{\mst@Lambda}{\mathord}{mtpsymbol}{4C}
1575 \DeclareMathSymbol{\mst@Xi}{\mathord}{mtpsymbol}{58}

```



```

1576 \DeclareMathSymbol{\mst@Pi}{\mathord}{\mtpsymbol}{50}
1577 \DeclareMathSymbol{\mst@Sigma}{\mathord}{\mtpsymbol}{53}
1578 \DeclareMathSymbol{\mst@Upsilon}{\mathord}{\mtpsymbol}{A1}
1579 \DeclareMathSymbol{\mst@Phi}{\mathord}{\mtpsymbol}{46}
1580 \DeclareMathSymbol{\mst@Psi}{\mathord}{\mtpsymbol}{59}
1581 \DeclareMathSymbol{\mst@Omega}{\mathord}{\mtpsymbol}{57}
1582 \else % de \mst@mathord=\mathord

```

not symbolgreek but eulergreek or selfGreek. Note 2015/10/31 : apparemment à un moment dans le passé je considérais eulergreek et selfGreek comme pouvant être utilisés simultanément car j'avais ici "or both". Mais je laisse tomber tout effort réel de m'en préoccuper.

```

1583 \DeclareMathSymbol\mst@Digamma {\mathalpha}{\mst@font@tbu}{46}
1584 \DeclareMathSymbol\mst@Gamma {\mathalpha}{\mst@font@tbu}{00}
1585 \DeclareMathSymbol\mst@Delta {\mathalpha}{\mst@font@tbu}{01}
1586 \DeclareMathSymbol\mst@Theta {\mathalpha}{\mst@font@tbu}{02}
1587 \DeclareMathSymbol\mst@Lambda {\mathalpha}{\mst@font@tbu}{03}
1588 \DeclareMathSymbol\mst@Xi {\mathalpha}{\mst@font@tbu}{04}
1589 \DeclareMathSymbol\mst@Pi {\mathalpha}{\mst@font@tbu}{05}
1590 \DeclareMathSymbol\mst@Sigma {\mathalpha}{\mst@font@tbu}{06}
1591 \DeclareMathSymbol\mst@Upsilon {\mathalpha}{\mst@font@tbu}{07}
1592 \DeclareMathSymbol\mst@Phi {\mathalpha}{\mst@font@tbu}{08}
1593 \DeclareMathSymbol\mst@Psi {\mathalpha}{\mst@font@tbu}{09}
1594 \DeclareMathSymbol\mst@Omega {\mathalpha}{\mst@font@tbu}{0A}
1595 \fi % de \mst@mathord=\mathord
1596 \fi % fin de goahead

```

There are differences regarding Euler and Symbol with respect to the available var-letters. We include one or two things like the `wp` and the `partial`.

The lower case Greek letters in default L^AT_EX are of type `mathord`. If we use the Euler font it is perhaps better to have them be of type `mathalpha`

```

1597 \ifmst@goahead
1598 \ifmst@eulergreek
1599 \DeclareMathSymbol{\mst@alpha} {\mathalpha}{\mteulervm}{0B}
1600 \DeclareMathSymbol{\mst@beta} {\mathalpha}{\mteulervm}{0C}
1601 \DeclareMathSymbol{\mst@gamma} {\mathalpha}{\mteulervm}{0D}
1602 \DeclareMathSymbol{\mst@delta} {\mathalpha}{\mteulervm}{0E}
1603 \DeclareMathSymbol{\mst@epsilon} {\mathalpha}{\mteulervm}{0F}
1604 \DeclareMathSymbol{\mst@zeta} {\mathalpha}{\mteulervm}{10}
1605 \DeclareMathSymbol{\mst@eta} {\mathalpha}{\mteulervm}{11}
1606 \DeclareMathSymbol{\mst@theta} {\mathalpha}{\mteulervm}{12}
1607 \DeclareMathSymbol{\mst@iota} {\mathalpha}{\mteulervm}{13}
1608 \DeclareMathSymbol{\mst@kappa} {\mathalpha}{\mteulervm}{14}
1609 \DeclareMathSymbol{\mst@lambda} {\mathalpha}{\mteulervm}{15}
1610 \DeclareMathSymbol{\mst@mu} {\mathalpha}{\mteulervm}{16}
1611 \DeclareMathSymbol{\mst@nu} {\mathalpha}{\mteulervm}{17}
1612 \DeclareMathSymbol{\mst@xi} {\mathalpha}{\mteulervm}{18}
1613 \DeclareMathSymbol{\mst@omicron} {\mathalpha}{\mteulervm}{6F}
1614 \DeclareMathSymbol{\mst@pi} {\mathalpha}{\mteulervm}{19}
1615 \DeclareMathSymbol{\mst@rho} {\mathalpha}{\mteulervm}{1A}
1616 \DeclareMathSymbol{\mst@sigma} {\mathalpha}{\mteulervm}{1B}

```

```

1617 \DeclareMathSymbol{\mst@tau} {\mathalpha}{mteulervm}{1C}
1618 \DeclareMathSymbol{\mst@upsilon}{\mathalpha}{mteulervm}{1D}
1619 \DeclareMathSymbol{\mst@phi} {\mathalpha}{mteulervm}{1E}
1620 \DeclareMathSymbol{\mst@chi} {\mathalpha}{mteulervm}{1F}
1621 \DeclareMathSymbol{\mst@psi} {\mathalpha}{mteulervm}{20}
1622 \DeclareMathSymbol{\mst@omega} {\mathalpha}{mteulervm}{21}
1623 %
1624 \DeclareMathSymbol{\mst@varepsilon}{\mathalpha}{mteulervm}{22}
1625 \DeclareMathSymbol{\mst@vartheta}{\mathalpha}{mteulervm}{23}
1626 \DeclareMathSymbol{\mst@varpi} {\mathalpha}{mteulervm}{24}
1627 \let\mst@varrho=\mst@rho
1628 \let\mst@varsigma=\mst@sigma
1629 \DeclareMathSymbol{\mst@varphi} {\mathalpha}{mteulervm}{27}
1630 %
1631 \DeclareMathSymbol{\mst@partial}{\mathalpha}{mteulervm}{40}
1632 \DeclareMathSymbol{\mst@wp}{\mathalpha}{mteulervm}{7D}
1633 \DeclareMathSymbol{\mst@ell}{\mathalpha}{mteulervm}{60}
1634 \else
1635 \ifmst@symbolgreek
1636 \DeclareMathSymbol{\mst@alpha}{\mathord}{mtpsymbol}{61}
1637 \DeclareMathSymbol{\mst@beta}{\mathord}{mtpsymbol}{62}
1638 \DeclareMathSymbol{\mst@gamma}{\mathord}{mtpsymbol}{67}
1639 \DeclareMathSymbol{\mst@delta}{\mathord}{mtpsymbol}{64}
1640 \DeclareMathSymbol{\mst@epsilon}{\mathord}{mtpsymbol}{65}
1641 \DeclareMathSymbol{\mst@zeta}{\mathord}{mtpsymbol}{7A}
1642 \DeclareMathSymbol{\mst@eta}{\mathord}{mtpsymbol}{68}
1643 \DeclareMathSymbol{\mst@theta}{\mathord}{mtpsymbol}{71}
1644 \DeclareMathSymbol{\mst@iota}{\mathord}{mtpsymbol}{69}
1645 \DeclareMathSymbol{\mst@kappa}{\mathord}{mtpsymbol}{6B}
1646 \DeclareMathSymbol{\mst@lambda}{\mathord}{mtpsymbol}{6C}
1647 \DeclareMathSymbol{\mst@mu}{\mathord}{mtpsymbol}{6D}
1648 \DeclareMathSymbol{\mst@nu}{\mathord}{mtpsymbol}{6E}
1649 \DeclareMathSymbol{\mst@xi}{\mathord}{mtpsymbol}{78}
1650 \DeclareMathSymbol{\mst@omicron}{\mathord}{mtpsymbol}{6F}
1651 \DeclareMathSymbol{\mst@pi}{\mathord}{mtpsymbol}{70}
1652 \DeclareMathSymbol{\mst@rho}{\mathord}{mtpsymbol}{72}
1653 \DeclareMathSymbol{\mst@sigma}{\mathord}{mtpsymbol}{73}
1654 \DeclareMathSymbol{\mst@tau}{\mathord}{mtpsymbol}{74}
1655 \DeclareMathSymbol{\mst@upsilon}{\mathord}{mtpsymbol}{75}
1656 \DeclareMathSymbol{\mst@phi}{\mathord}{mtpsymbol}{66}
1657 \DeclareMathSymbol{\mst@chi}{\mathord}{mtpsymbol}{63}
1658 \DeclareMathSymbol{\mst@psi}{\mathord}{mtpsymbol}{79}
1659 \DeclareMathSymbol{\mst@omega}{\mathord}{mtpsymbol}{77}
1660 \let\mst@varepsilon=\mst@epsilon
1661 \DeclareMathSymbol{\mst@vartheta}{\mathord}{mtpsymbol}{4A}
1662 \DeclareMathSymbol{\mst@varpi}{\mathord}{mtpsymbol}{76}
1663 \let\mst@varrho=\mst@rho
1664 \DeclareMathSymbol{\mst@varsigma}{\mathord}{mtpsymbol}{56}
1665 \DeclareMathSymbol{\mst@varphi}{\mathord}{mtpsymbol}{6A}

```

```

1666 \DeclareMathSymbol{\mst@partial}{\mathord}{\mtpsymbol}{B6}
1667 \DeclareMathSymbol{\mst@wp}{\mathord}{\mtpsymbol}{C3}
1668 \fi
1669 \fi
1670 \fi
1671 \ifmst@LGRgreek
1672 % cf http://milde.users.sourceforge.net/LGR/lgrxenc.def.html
1673 % et greek.ldf du package babel
1674 \DeclareMathSymbol{\mst@Alpha}{\mathalpha}{\mtlgrfontupper}{65}
1675 \DeclareMathSymbol{\mst@Beta}{\mathalpha}{\mtlgrfontupper}{66}
1676 \DeclareMathSymbol{\mst@Epsilon}{\mathalpha}{\mtlgrfontupper}{69}
1677 \DeclareMathSymbol{\mst@Zeta}{\mathalpha}{\mtlgrfontupper}{90}
1678 \DeclareMathSymbol{\mst@Eta}{\mathalpha}{\mtlgrfontupper}{72}
1679 \DeclareMathSymbol{\mst@Iota}{\mathalpha}{\mtlgrfontupper}{73}
1680 \DeclareMathSymbol{\mst@Kappa}{\mathalpha}{\mtlgrfontupper}{75}
1681 \DeclareMathSymbol{\mst@Mu}{\mathalpha}{\mtlgrfontupper}{77}
1682 \DeclareMathSymbol{\mst@Nu}{\mathalpha}{\mtlgrfontupper}{78}
1683 \DeclareMathSymbol{\mst@Omicron}{\mathalpha}{\mtlgrfontupper}{79}
1684 \DeclareMathSymbol{\mst@Rho}{\mathalpha}{\mtlgrfontupper}{82}
1685 \DeclareMathSymbol{\mst@Tau}{\mathalpha}{\mtlgrfontupper}{84}
1686 \DeclareMathSymbol{\mst@Chi}{\mathalpha}{\mtlgrfontupper}{81}
1687 %
1688 \DeclareMathSymbol{\mst@Digamma}{\mathalpha}{\mtlgrfontlower}{195}
1689 %
1690 \DeclareMathSymbol{\mst@Gamma}{\mathalpha}{\mtlgrfontupper}{71}
1691 \DeclareMathSymbol{\mst@Delta}{\mathalpha}{\mtlgrfontupper}{68}
1692 \DeclareMathSymbol{\mst@Theta}{\mathalpha}{\mtlgrfontupper}{74}
1693 \DeclareMathSymbol{\mst@Lambda}{\mathalpha}{\mtlgrfontupper}{76}
1694 \DeclareMathSymbol{\mst@Xi}{\mathalpha}{\mtlgrfontupper}{88}
1695 \DeclareMathSymbol{\mst@Pi}{\mathalpha}{\mtlgrfontupper}{80}
1696 \DeclareMathSymbol{\mst@Sigma}{\mathalpha}{\mtlgrfontupper}{83}
1697 \DeclareMathSymbol{\mst@Upsilon}{\mathalpha}{\mtlgrfontupper}{85}
1698 \DeclareMathSymbol{\mst@Phi}{\mathalpha}{\mtlgrfontupper}{70}
1699 \DeclareMathSymbol{\mst@Psi}{\mathalpha}{\mtlgrfontupper}{89}
1700 \DeclareMathSymbol{\mst@Omega}{\mathalpha}{\mtlgrfontupper}{87}
1701 %
1702 \DeclareMathSymbol{\mst@alpha}{\mathalpha}{\mtlgrfontlower}{97}
1703 \DeclareMathSymbol{\mst@beta}{\mathalpha}{\mtlgrfontlower}{98}
1704 \DeclareMathSymbol{\mst@gamma}{\mathalpha}{\mtlgrfontlower}{103}
1705 \DeclareMathSymbol{\mst@delta}{\mathalpha}{\mtlgrfontlower}{100}
1706 \DeclareMathSymbol{\mst@epsilon}{\mathalpha}{\mtlgrfontlower}{101}
1707 \DeclareMathSymbol{\mst@zeta}{\mathalpha}{\mtlgrfontlower}{122}
1708 \DeclareMathSymbol{\mst@eta}{\mathalpha}{\mtlgrfontlower}{104}
1709 \DeclareMathSymbol{\mst@theta}{\mathalpha}{\mtlgrfontlower}{106}
1710 \DeclareMathSymbol{\mst@iota}{\mathalpha}{\mtlgrfontlower}{105}
1711 \DeclareMathSymbol{\mst@kappa}{\mathalpha}{\mtlgrfontlower}{107}
1712 \DeclareMathSymbol{\mst@lambda}{\mathalpha}{\mtlgrfontlower}{108}
1713 \DeclareMathSymbol{\mst@mu}{\mathalpha}{\mtlgrfontlower}{109}
1714 \DeclareMathSymbol{\mst@nu}{\mathalpha}{\mtlgrfontlower}{110}

```

```

1715 \DeclareMathSymbol{\mst@xi}{\mathalpha}{mtlgrfontlower}{120}
1716 \DeclareMathSymbol{\mst@omicron}{\mathalpha}{mtlgrfontlower}{111}
1717 \DeclareMathSymbol{\mst@pi}{\mathalpha}{mtlgrfontlower}{112}
1718 \DeclareMathSymbol{\mst@rho}{\mathalpha}{mtlgrfontlower}{114}
1719 \DeclareMathSymbol{\mst@sigma}{\mathalpha}{mtlgrfontlower}{115}
1720 \DeclareMathSymbol{\mst@tau}{\mathalpha}{mtlgrfontlower}{116}
1721 \DeclareMathSymbol{\mst@upsilon}{\mathalpha}{mtlgrfontlower}{117}
1722 \DeclareMathSymbol{\mst@phi}{\mathalpha}{mtlgrfontlower}{102}
1723 \DeclareMathSymbol{\mst@chi}{\mathalpha}{mtlgrfontlower}{113}
1724 \DeclareMathSymbol{\mst@psi}{\mathalpha}{mtlgrfontlower}{121}
1725 \DeclareMathSymbol{\mst@omega}{\mathalpha}{mtlgrfontlower}{119}
1726 %
1727 \DeclareMathSymbol{\mst@digamma}{\mathalpha}{mtlgrfontlower}{147}
1728 % only varsigma defined (I should check this again)
1729 \DeclareMathSymbol{\mst@varsigma}{\mathalpha}{mtlgrfontlower}{99}
1730 \fi

```

`\MTstandardgreek` 1.3d 2014/05/23 defines the commands `\MTstandardgreek` and `\MTcustomgreek` for package
`\MTcustomgreek` and user. I leave `\MTrecordstandardgreek` undocumented as I don't want to encourage people
`recordstandardgreek` to load math packages after **mathastext**.

1.3h 2015/10/31: corrected `\MTcustomgreek` as it caused `\ell` to become undefined under
option `symbolgreek` and, much more catastrophic, caused `\alpha`, etc.. to become undefined
under option `selfGreek` !

```

1731 \newcommand*{\MTstandardgreek}{}
1732 \newcommand*{\MTcustomgreek}{}
1733 \newcommand*{\MTrecordstandardgreek}{}
1734 \ifmst@customgreek
1735 \renewcommand*{\MTrecordstandardgreek}{%
1736 \let\mst@origAlpha\Alpha
1737 \let\mst@origBeta\Beta
1738 \let\mst@origGamma\Gamma
1739 \let\mst@origDelta\Delta
1740 \let\mst@origEpsilon\Epsilon
1741 \let\mst@origZeta\Zeta
1742 \let\mst@origEta\Eta
1743 \let\mst@origTheta\Theta
1744 \let\mst@origIota\Iota
1745 \let\mst@origKappa\Kappa
1746 \let\mst@origLambda\Lambda
1747 \let\mst@origMu\Mu
1748 \let\mst@origNu\Nu
1749 \let\mst@origXi\Xi
1750 \let\mst@origOmicron\Omicron
1751 \let\mst@origPi\Pi
1752 \let\mst@origRho\Rho
1753 \let\mst@origSigma\Sigma
1754 \let\mst@origTau\Tau
1755 \let\mst@origUpsilon\Upsilon
1756 \let\mst@origPhi\Phi

```

```

1757 \let\mst@origChi\Chi
1758 \let\mst@origPsi\Psi
1759 \let\mst@origOmega\Omega
1760 %
1761 \let\mst@origalpha\alpha
1762 \let\mst@origbeta\beta
1763 \let\mst@origgamma\gamma
1764 \let\mst@origdelta\delta
1765 \let\mst@origepsilon\epsilon
1766 \let\mst@origvarepsilon\varepsilon
1767 \let\mst@origzeta\zeta
1768 \let\mst@origeta\eta
1769 \let\mst@origtheta\theta
1770 \let\mst@origvartheta\vartheta
1771 \let\mst@origiota\iota
1772 \let\mst@origkappa\kappa
1773 \let\mst@origlambda\lambda
1774 \let\mst@origmu\mu
1775 \let\mst@orignu\nu
1776 \let\mst@origxi\xi
1777 \let\mst@origomicron\omicron
1778 \let\mst@origpi\pi
1779 \let\mst@origvarpi\varpi
1780 \let\mst@origrho\rho
1781 \let\mst@origvarrho\varrho
1782 \let\mst@origsigma\sigma
1783 \let\mst@origvarsigma\varsigma
1784 \let\mst@origtau\tau
1785 \let\mst@origupsilon\upsilon
1786 \let\mst@origphi\phi
1787 \let\mst@origvarphi\varphi
1788 \let\mst@origchi\chi
1789 \let\mst@origpsi\psi
1790 \let\mst@origomega\omega
1791 \let\mst@origDigamma\Digamma
1792 \let\mst@origdigamma\digamma
1793 %
1794 \let\mst@origpartial\partial
1795 \let\mst@origwp\wp
1796 \let\mst@origell\ell }
1797 \MTrecordstandardgreek
1798 \renewcommand*{\MTstandardgreek}{%
1799 \let\Alpha\mst@origAlpha
1800 \let\Beta\mst@origBeta
1801 \let\Gamma\mst@origGamma
1802 \let\Delta\mst@origDelta
1803 \let\Epsilon\mst@origEpsilon
1804 \let\Zeta\mst@origZeta
1805 \let\Eta\mst@origEta

```

1806 \let\Theta\mst@origTheta
1807 \let\Iota\mst@origIota
1808 \let\Kappa\mst@origKappa
1809 \let\Lambda\mst@origLambda
1810 \let\Mu\mst@origMu
1811 \let\Nu\mst@origNu
1812 \let\Xi\mst@origXi
1813 \let\Omicron\mst@origOmicron
1814 \let\Pi\mst@origPi
1815 \let\Rho\mst@origRho
1816 \let\Sigma\mst@origSigma
1817 \let\Tau\mst@origTau
1818 \let\Upsilon\mst@origUpsilon
1819 \let\Phi\mst@origPhi
1820 \let\Chi\mst@origChi
1821 \let\Psi\mst@origPsi
1822 \let\Omega\mst@origOmega
1823 %
1824 \let\alpha\mst@origalpha
1825 \let\beta\mst@origbeta
1826 \let\gamma\mst@origgamma
1827 \let\delta\mst@origdelta
1828 \let\epsilon\mst@origepsilon
1829 \let\varepsilon\mst@origvarepsilon
1830 \let\zeta\mst@origzeta
1831 \let\eta\mst@origeta
1832 \let\theta\mst@origtheta
1833 \let\vartheta\mst@origvartheta
1834 \let\iota\mst@origiota
1835 \let\kappa\mst@origkappa
1836 \let\lambda\mst@origlambda
1837 \let\mu\mst@origmu
1838 \let\nu\mst@orignu
1839 \let\xi\mst@origxi
1840 \let\omicron\mst@origomicron
1841 \let\pi\mst@origpi
1842 \let\varpi\mst@origvarpi
1843 \let\rho\mst@origrho
1844 \let\varrho\mst@origvarrho
1845 \let\sigma\mst@origsigma
1846 \let\varsigma\mst@origvarsigma
1847 \let\tau\mst@origtau
1848 \let\upsilon\mst@origupsilon
1849 \let\phi\mst@origphi
1850 \let\varphi\mst@origvarphi
1851 \let\chi\mst@origchi
1852 \let\psi\mst@origpsi
1853 \let\omega\mst@origomega
1854 \let\Digamma\mst@origDigamma

```

1855 \let\digamma\mst@origdigamma
1856 %
1857 \let\partial\mst@origpartial
1858 \let\wp\mst@origwp
1859 \let\ell\mst@origell
1860 }
1861 \renewcommand*{\MTcustomgreek}{%
1862 \let\Alpha\mst@Alpha
1863 \let\Beta\mst@Beta
1864 \let\Epsilon\mst@Epsilon
1865 \let\Zeta\mst@Zeta
1866 \let\Eta\mst@Eta
1867 \let\Iota\mst@Iota
1868 \let\Kappa\mst@Kappa
1869 \let\Mu\mst@Mu
1870 \let\Nu\mst@Nu
1871 \let\Omicron\mst@Omicron
1872 \let\Rho\mst@Rho
1873 \let\Tau\mst@Tau
1874 \let\Chi\mst@Chi
1875 % 1.3h: \mst@Digamma not defined if symbolgreek option
1876 \ifmst@symbolgreek\else\let\Digamma\mst@Digamma\fi
1877 %
1878 \let\Gamma\mst@Gamma
1879 \let\Delta\mst@Delta
1880 \let\Theta\mst@Theta
1881 \let\Lambda\mst@Lambda
1882 \let\Xi\mst@Xi
1883 \let\Pi\mst@Pi
1884 \let\Sigma\mst@Sigma
1885 \let\Upsilon\mst@Upsilon
1886 \let\Phi\mst@Phi
1887 \let\Psi\mst@Psi
1888 \let\Omega\mst@Omega

1.3h 2015/10/31 adds this conditional to correct the bad bug in 1.3d 2014/05/23 which caused
\alpha etc... to become undefined under option selfGreek.
1889 \ifmst@selfGreek\else
1890 \let\alpha\mst@alpha
1891 \let\beta\mst@beta
1892 \let\gamma\mst@gamma
1893 \let\delta\mst@delta
1894 \let\epsilon\mst@epsilon
1895 \let\zeta\mst@zeta
1896 \let\eta\mst@eta
1897 \let\theta\mst@theta
1898 \let\iota\mst@iota
1899 \let\kappa\mst@kappa
1900 \let\lambda\mst@lambda
1901 \let\mu\mst@mu

```

```

1902 \let\nu\mst@nu
1903 \let\xi\mst@xi
1904 \let\omicron\mst@omicron
1905 \let\pi\mst@pi
1906 \let\rho\mst@rho
1907 \let\sigma\mst@sigma
1908 \let\tau\mst@tau
1909 \let\upsilon\mst@upsilon
1910 \let\phi\mst@phi
1911 \let\chi\mst@chi
1912 \let\psi\mst@psi
1913 \let\omega\mst@omega
1914 % 1.3h: digamma only defined with option LGRgreek:
1915 \ifmst@LGRgreek\let\digamma\mst@digamma\fi
1916 %
1917 \let\varsigma\mst@varsigma
1918 % conditional added 1.3h 2015/10/31
1919 \ifmst@LGRgreek\else
1920 \let\varepsilon\mst@varepsilon
1921 \let\vartheta\mst@vartheta
1922 \let\varpi\mst@varpi
1923 \let\varrho\mst@varrho
1924 \let\varphi\mst@varphi
1925 %
1926 \let\partial\mst@partial
1927 \let\wp\mst@wp
1928 % 1.3h: no \mst@ell if symbolgreek (bugfix 1.3h 2015/10/31)
1929 \ifmst@symbolgreek\else\let\ell\mst@ell\fi
1930 \fi
1931 \fi
1932 }
1933 \fi
1934 \let\Mathastextstandardgreek\MTstandardgreek
1935 \let\Mathastextcustomgreek\MTcustomgreek
1936 \ifmst@subdued\else\MTcustomgreek\fi

```

\inodot In 1.0, I had them of type mathord, here I choose mathalpha. If I used \i and \j from the text font the problem would be with the fontsize, if in scriptstyle. The amsmath \text would do the trick.

1.14b 2011/04/02: again this bug in the EU1/EU2 encoding part, as in the code redefining \$ etc in math mode (see above). Fixed.

1.31 2016/01/29: anticipating TL2016 fontspec's switch to TU.

```

1937 \edef\mst@tmp@enc{\encodingdefault}
1938 \mst@goaheadtrue
1939 \if1\mst@OneifUniEnc
1940 % Unicode engine and font
1941 \mst@Umathchardef\inodot="7 \symmtletterfont "0131 \relax
1942 \mst@Umathchardef\jnodot="7 \symmtletterfont "0237 \relax
1943 \else

```



```

1944 \ifx\mst@tmp@enc\mst@ti % T1
1945   \DeclareMathSymbol{\inodot}{\mathalpha}{mtletterfont}{25}
1946   \DeclareMathSymbol{\jnodot}{\mathalpha}{mtletterfont}{26}
1947 \else
1948 \ifx\mst@tmp@enc\mst@oti % OT1
1949   \DeclareMathSymbol{\inodot}{\mathalpha}{mtletterfont}{16}
1950   \DeclareMathSymbol{\jnodot}{\mathalpha}{mtletterfont}{17}
1951 \else
1952 \ifx\mst@tmp@enc\mst@lyi % LY1
1953   \DeclareMathSymbol{\inodot}{\mathalpha}{mtletterfont}{16}
1954   \DeclareMathSymbol{\jnodot}{\mathalpha}{mtletterfont}{17}
1955 \else
1956   \ifmst@XeOrLua\mst@goaheadfalse\else
1957     \DeclareMathSymbol{\inodot}{\mathalpha}{mtletterfont}
1958     {\expandafter\the\expandafter\csname\mst@tmp@enc\string\i\endcsname}
1959     \DeclareMathSymbol{\jnodot}{\mathalpha}{mtletterfont}
1960     {\expandafter\the\expandafter\csname\mst@tmp@enc\string\j\endcsname}
1961     \fi
1962 \fi\fi\fi\fi
1963 \ifmst@defaultimath\else\typeout{** \string\i\space and \string\j\space}
1964   \ifmst@goahead
1965     \renewcommand*{\imath}{\inodot}
1966     \renewcommand*{\jmath}{\jnodot}
1967     \let\mst@oldi\i \let\mst@oldj\j
1968     \DeclareRobustCommand*{\i}{\ifmmode\inodot\else\mst@oldi\fi}
1969     \DeclareRobustCommand*{\j}{\ifmmode\jnodot\else\mst@oldj\fi}
1970     \fi
1971 \fi

```

math accents I don't know how to get from the encoding to the slot positions of the accents (apart from going to look at all possible encodings definition files and putting this info here). In standard \LaTeX , the mathaccents are taken from the 'operators' font. So we do the same here. Of course there is the problem that the user can define math versions with different encodings. Here I take T1 if it was the default at the time of loading the package, else OT1. 1.12b: I add LY1 which is quasi like OT1

```

1972 \edef\mst@tmp@enc{\encodingdefault} %% rather one too many than sorry
1973 \ifmst@mathaccents\typeout{** math accents}
1974 \ifx\mst@ti\mst@tmp@enc
1975   \DeclareMathAccent{\acute}{\mathalpha}{mtooperatorfont}{1}
1976   \DeclareMathAccent{\grave}{\mathalpha}{mtooperatorfont}{0}
1977   \DeclareMathAccent{\ddot}{\mathalpha}{mtooperatorfont}{4}
1978   \DeclareMathAccent{\tilde}{\mathalpha}{mtooperatorfont}{3}
1979   \DeclareMathAccent{\bar}{\mathalpha}{mtooperatorfont}{9}
1980   \DeclareMathAccent{\breve}{\mathalpha}{mtooperatorfont}{8}
1981   \DeclareMathAccent{\check}{\mathalpha}{mtooperatorfont}{7}
1982   \DeclareMathAccent{\hat}{\mathalpha}{mtooperatorfont}{2}
1983   \DeclareMathAccent{\dot}{\mathalpha}{mtooperatorfont}{10}
1984   \DeclareMathAccent{\mathring}{\mathalpha}{mtooperatorfont}{6}
1985 \else

```

```

1986 \DeclareMathAccent{\acute}{\mathalpha}{mtoperatorfont}{19}
1987 \DeclareMathAccent{\grave}{\mathalpha}{mtoperatorfont}{18}
1988 \DeclareMathAccent{\ddot}{\mathalpha}{mtoperatorfont}{127}
1989 \DeclareMathAccent{\tilde}{\mathalpha}{mtoperatorfont}{126}
1990 \DeclareMathAccent{\bar}{\mathalpha}{mtoperatorfont}{22}
1991 \DeclareMathAccent{\breve}{\mathalpha}{mtoperatorfont}{21}
1992 \DeclareMathAccent{\check}{\mathalpha}{mtoperatorfont}{20}
1993 \DeclareMathAccent{\hat}{\mathalpha}{mtoperatorfont}{94}
1994 \DeclareMathAccent{\dot}{\mathalpha}{mtoperatorfont}{95}
1995 \DeclareMathAccent{\mathring}{\mathalpha}{mtoperatorfont}{23}
1996 \ifx\mst@lyi\mst@tmp@enc % LY1 encoding
1997 \DeclareMathAccent{\dot}{\mathalpha}{mtoperatorfont}{5}
1998 \else
1999 \ifx\mst@oti\mst@tmp@enc\else
2000 \typeout{** mathastext: math accents have been assumed to be^J%
2001 ** as in OT1 encoding.}
2002 \fi
2003 \fi
2004 \fi\fi

```

Math sizes I took the code for \Huge and \HUGE from the moresize package of Christian CORNELSEN

```

2005 \ifmst@defaultsizes\else
2006 \providecommand\@xxxpt{29.86}
2007 \providecommand\@xxxvpt{35.83}
2008 \ifmst@twelve
2009 \def\Huge{\@setfontsize\Huge\@xxxpt{36}}
2010 \def\HUGE{\@setfontsize\HUGE\@xxxvpt{43}}
2011 \typeout{** \protect\Huge\space and \protect\HUGE\space have been (re)-defined.}
2012 \else
2013 \def\HUGE{\@setfontsize\HUGE\@xxxpt{36}}
2014 \typeout{** \protect\HUGE\space has been (re)-defined.}
2015 \fi

```

I choose rather big subscripts.

```

2016 \def\defaultscriptratio{.8333}
2017 \def\defaultscriptscriptratio{.7}
2018 \DeclareMathSizes{9}{9}{7}{5}
2019 \DeclareMathSizes{\@xpt}{\@xpt}{8}{6}
2020 \DeclareMathSizes{\@xipt}{\@xipt}{9}{7}
2021 \DeclareMathSizes{\@xipt}{\@xipt}{10}{8}
2022 \DeclareMathSizes{\@xivpt}{\@xivpt}{\@xipt}{10}
2023 \DeclareMathSizes{\@xvipt}{\@xvipt}{\@xivpt}{\@xipt}
2024 \DeclareMathSizes{\@xxpt}{\@xxpt}{\@xvipt}{\@xivpt}
2025 \DeclareMathSizes{\@xxvpt}{\@xxvpt}{\@xxpt}{\@xvipt}
2026 \DeclareMathSizes{\@xxxpt}{\@xxxpt}{\@xxvpt}{\@xxpt}
2027 \DeclareMathSizes{\@xxxvpt}{\@xxxvpt}{\@xxxpt}{\@xxvpt}
2028 \typeout{** mathastext has declared larger sizes for subscripts.^J%
2029 ** To keep LaTeX defaults, use option 'defaultmathsizes\string'.}
2030 \fi

```

`\MTeverymathoff` 1.3i 2016/01/06 Compatibility patch with `\url` from `url.sty` and `\url/\nolinkurl` from `hyperref.sty`.

1.3j 2016/01/15 renamed the macro from `\MTactivemathoff` to `\MTeverymathoff`, as it is not exclusively a matter of math active characters due to `\MTeasynonlettersdonotobeymathxx`.

1.3o 2016/05/03 adds `\MTdonotfixfonts`. Lua^AT_EX only.

```

2031 \newcommand*\MTeverymathoff {%
2032     \MTnormalasterisk
2033     \MTnormalprime
2034     \MTnonlettersdonotobeymathxx
2035     \MTeasynonlettersdonotobeymathxx
2036     \MTmathstandardletters
2037     \MTdonotfixfonts
2038 }%
2039 \AtBeginDocument {%
2040     \@ifpackageloaded{hyperref}
2041     {\def\Hurl{\begingroup\MTeverymathoff\Url}}
2042     {\@ifpackageloaded{url}{\DeclareUrlCommand\url{\MTeverymathoff}}{}}%
2043 }%
```

`\MTeverymathdefault` 1.3j 2016/01/15 Customizable command which gets executed by `\MTversion` except when switching to normal/bold if option `subdued`. The included `\MTicinmath` does `\MTmathactiveletters` which will also activate the math skips around letters.

The `\MTeverymathdefault` does not include `\MTmathoperatorsobeymathxx` as the latter does not correspond to something done during execution of `\the\everymath`.

Should I put `\let\newmcodes@mst@newmcodes@` here too ? No, it is not done at `everymath`.

During the loading, the (non subdued) package does `\MTactiveasterisk` (if option `asterisk`), `\MTprimedoesskip`, `\MTeasynonlettersobeymathxx` and `\MTmathactiveletters`. There is some code at begin document for decisions about italic corrections, this code does not emit again `\MTmathactiveletters`, hence a `\MTmathstandardletters` in the preamble is not overruled. Furthermore the at begin document code will not overrule user emitted `\MTnoicinmath` etc... commands in the preamble.

And user can employ `\MTnormalexists`, etc..., from inside the preamble, it will not be overruled (as it is delayed at begin document to after `mathastext` dealings).

1.3o 2016/04/02 adds `\MTfixfonts`. Lua^AT_EX only.

```

2044 \newcommand*\MTeverymathdefault {%
2045     \MTactiveasterisk
2046     \MTprimedoesskip
2047     \MTeasynonlettersobeymathxx
2048     \MTicinmath
2049     \MTfixfonts
2050 }%
2051 \endinput
```