

The **mathastext** package

JEAN-FRANÇOIS BURNOL
jfbu (at) free (dot) fr
Package version: 1.3j (2016/01/15)

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`.

Contents

Package history and installation instructions	1, p. 2	Extended scope of the math alphabets commands	2.8, p. 18
Changes	1.1, p. 2	Greek letters	2.9, p. 21
Installation	1.2, p. 5	Shape of Greek letters.	
What <code>mathastext</code> does	2, p. 5	Unicode engines	2.10, p. 23
Examples	2.1, p. 5	Compatibility issues	2.11, p. 26
Overview	2.2, p. 7	Package options and commands	3, p. 28
Basic use—always load <code>mathastext</code> last—sans in math—using <code>mathastext</code> with beamer—option LGRgreek—avoid OT1 encoding.		Summary of main options	3.1, p. 28
Main options	2.3, p. 10	Miscellaneous	3.2, p. 29
The italic option—The defaultmathsizes option—The subdued option.		Commands	3.3, p. 31
Math versions	2.4, p. 11	Preamble-only commands—Commands usable only outside of math mode—Commands usable everywhere—Body-only commands.	
Extra spaces around letters	2.5, p. 14	Complete list of options	3.4, p. 41
Italic corrections	2.6, p. 14	Change log	4, p. 44
Other extra glue in math mode	2.7, p. 18	Implementation	5, p. 48

1 Package history and installation instructions

1.1 Changes

Changes for release 1.3j of 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 (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 monotype 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 1.3h of 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.

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 1.3f of 2015/09/12 • if the package needs to replace `amsmath`'s `\resetmathstrut` it only emits an Info rather than a Warning.
 • a README.md file with Markdown syntax now self-extracts from the dtx source (`tex mathastext.dtx`).

Changes for release 1.3e of 2015/09/10 • bugfix: the option `nosmalldelims` badly redefined `\lbrace` and `\rbrace` causing an error if `\{` or `\}` were used as math delimiters.

Changes for release 1.3d of 2014/05/23 1. if one of the Greek related options (`LGRgreek(s)`, `selfgreek(s)`, `eulergreek`, `symbolgreek`) has been passed to the package, its action may be turned off and again on using `\MTstandardgreek` and `\MTcustomgreek` at any location in the document body.
 2. in the `subdued` normal and bold math versions, the Greek letters in math mode are the default ones, even if the package was loaded with one of the Greek related options (previously, this was the case only for `LGRgreek` and `LGRgreeks`).

Changes for release 1.3c of 2013/12/14 1. `\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]`.
 2. `\MTversion` has a starred variant which will not modify the document text fonts, but only the math fonts (for those characters treated by `mathastext`).

3. in case of option `symbolmisc`: `\defaultprod` and `\defaultsum` have been renamed to, respectively, `\MToriginalprod` and `\MToriginalsum`.

Changes for release 1.3a of 2013/09/04

1. (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. This is provided for text fonts whose use in math mode creates glyph collisions or excessive crampedness,
2. use of the latest version of `\luatexUmathcodenum` now allows equal treatment of `=` and `-` by `mathastext` under both unicode engines Lua \TeX and Xe \TeX . So `mathastext` version 1.3 under Lua \TeX *requires* the version of `lualatex` (binaries and format) as included for example in the TeXLive 2013 distribution, or later,
3. a few minor changes and code improvements for better compatibility in various contexts,
4. blue keywords in the documentation are now (mostly) hyperlinked to their more detailed descriptions,
5. various other documentation improvements.

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`
`mathastexttestunicodemacos.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 $(VI_{v,n})$:

$$a \frac{d}{da} X = vX - (1 - X^2) \frac{2na}{1 - a^2} \frac{aX + Y}{1 + aXY}$$

$$a \frac{d}{da} Y = -(v+1)Y + (1-Y^2) \frac{2na}{1-a^2} \frac{X+aY}{1+aXY}$$

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

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

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

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 $(VI_{v,n})$:

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

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

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

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

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 $(VI_{v,n})$:

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

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

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

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 **cmmtt**, **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

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.

mode will then be typeset in Times.³ The exact list of characters concerned by `mathastext` is a subset of the basic ASCII set:

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

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^{\text{*}}` or `$R^{\text{\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`.

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.

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.

2.2.3 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}
```

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

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.

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 `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

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 then 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.

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 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 subdued-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.”

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

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:

- 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 `\MTeasyonlettersobeymathxx` 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 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

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

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}`.

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 `$wxytz^{\wxytz}=BAC^{\{BAC\}}$` 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.

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.

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 \TeX 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: f vs. f .

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 $f(x)$ (21.31474pt) than it is with the text italic font used in math:¹⁶ $f(x)$ (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 \TeX 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: f vs. f .

Without the italic corrections¹⁸ it is f vs. f . I said that \mathbf{f} included the italic correction automatically, but if we tell \TeX 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:

$abcdefghijklmnopqrstuvwxy$	text italic in text
$abcdefghijklmnopqrstuvwxy$	text italic in math
$abcdefghijklmnopqrstuvwxy$	math italic in math
$abcdefghijklmnopqrstuvwxy$	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 \TeX book (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 \TeX believe it is. Doing so, we obtain in math mode with the text italic:

$abcdefghijklmnopqrstuvwxy$	text italic in math
$abcdefghijklmnopqrstuvwxy$	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

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

¹⁶we used simply `\mathit{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!

$\mathbf{f(x)}$. 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 $f^{\textit{j}}$... where the latter was coded with $\mathbf{\mathit{\hbox{\itshape f}}^{\textit{j}}}$. The inputs $\mathbf{\mathit{\hbox{\itshape f}}^{\textit{j}}}$ and $\mathbf{\mathit{f}^{\textit{j}}}$ give almost identical results: $f^{\textit{j}}$ vs. $f^{\textit{j}}$. 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 correction. For example $\mathbf{\mathit{f}_i}$ gives the same horizontal positions as $\mathbf{\mathit{\hbox{\itshape f}}_i}$: 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 T_EXbook 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: $\mathbf{\mathit{f\!/}_i^i}$ we obtain f_i^i . Our overlapping game with $\mathbf{\rlap{\mathit{f}_i^i}\mathit{f\!/}_i^i}$ 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 T_EX 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 T_EX 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 T_EX has been told to use it. Let's try Latin Modern Upright for letters in math: $\mathbf{\mathit{f}_i^i}$ now gives²⁰ f_i^i . We see the italic correction in action for the positioning of the superscript! Compare with $\mathbf{\mathit{\hbox{\itshape f}}_i^i}$: f_i^i . Overlapping with $\mathbf{\rlap{\mathit{\hbox{\itshape f}}_i^i}\mathit{\hbox{\itshape f}}_i^i}$ 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 $\mathbf{\mathit{f\!/}_i^i}$: 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, $\mathbf{\rlap{\mathit{f}_i^i}\mathit{f\!/}_i^i}$ 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

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

²⁰we just use $\mathbf{\mathit{\hbox{\itshape f}}_i^i}$.

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 ff , ff , \mathbf{ff} , and ff all give ligatures ff , ff , \mathbf{ff} , and ff and we would like to preserve this behavior).

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 $\mathrm{T}_{\mathrm{E}}\mathrm{X}$ 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, $\mathrm{X}_{\mathrm{Y}}\mathrm{T}_{\mathrm{E}}\mathrm{X}$ seems not to create fake italic corrections for OpenType fonts. Hence the $\mathrm{T}_{\mathrm{E}}\mathrm{X}$ 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 $\mathrm{X}_{\mathrm{Y}}\mathrm{T}_{\mathrm{E}}\mathrm{X}$ engine. On the other hand $\mathrm{L}_{\mathrm{u}}\mathrm{a}\mathrm{T}_{\mathrm{E}}\mathrm{X}$ 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 $\mathrm{T}_{\mathrm{E}}\mathrm{X}$ installation and compare the output of both engines:

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

Comment out the `fontspec` line and use $\mathrm{p}_{\mathrm{d}}\mathrm{f}\mathrm{L}_{\mathrm{A}}\mathrm{T}_{\mathrm{E}}\mathrm{X}$. All three outputs are different on my $\mathrm{T}_{\mathrm{E}}\mathrm{X}$ installation. $\mathrm{X}_{\mathrm{Y}}\mathrm{T}_{\mathrm{E}}\mathrm{X}$ does not have the italic corrections. $\mathrm{L}_{\mathrm{u}}\mathrm{a}\mathrm{T}_{\mathrm{E}}\mathrm{X}$ does, but only for the italic font. $\mathrm{p}_{\mathrm{d}}\mathrm{f}\mathrm{L}_{\mathrm{A}}\mathrm{T}_{\mathrm{E}}\mathrm{X}$ has them for both the italic and the upright font.

²¹the situation is rather ironical! by the way, the warnings in section 2.8 with $\mathrm{x}^?$ or similar are less of an issue here, because the letter is only *followed* by \backslash 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!

2.7 Other extra glue in math mode

`\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.

- 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.

Also, when the `subdued` option has been used, the normal and bold math versions have by default zero length skips. There is no `\MTversion{normal}`²⁴ done implicitly by the package when the document body starts (*i.e.* at the level of `\begin{document}`), even when the `subdued` option is in force. As a result the last use in the preamble of the `\MT...skip` commands decides the skips which will be initially used; this is canceled if `\begin{document}` is followed with `\MTversion{normal}`, in which case the skips used are the ones in force at the latest `\Mathastext` (without optional argument) preamble use, or just zero skips under the `subdued` regime.

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

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

²⁴or even `\MTversion*{normal}`.

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 $<$, 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 `\DeclareMathOperator` or equivalent) operator names obey the math alphabet commands,²⁵
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 \TeX 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}^*\mathbf{x}` is no valid input anymore and should be replaced by `\mathbf{R}^{\ast}\mathbf{x}`. The remaining ‘difficult’ cases create similar constraints, which will be commented more upon next. The relevant commands are

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

for deactivation and

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

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 \TeX 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’.

`\MTmathoperatorsobeymathxx`
`\MTnonlettersobeymathxx`
`\MTeasynonlettersobeymathxx`
 for activation.^{28 29}

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 $\{a, a > b\}$.^{30 31}

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.

²⁸these commands are to be used outside of math mode. Their scope is limited to the current \LaTeX 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.

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`.

But `mathastext` does try to pick up most of the ‘small variants’ of the delimiters from the text font: `\left<x\right>` gives $\langle x \rangle$ (but `\left<b\right>` gives $\langle b \rangle$.) Notice that this differs from standard L^AT_EX for which `\left< x\right>` gives $\langle x \rangle$. As it is perhaps a bit strange to have $\langle x \rangle$ next to $\langle X \rangle$ 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 T_EX, and the way `mathastext` handles these things. Examples: `\mathbf{<a,b>}` gives $\langle \mathbf{a}, \mathbf{b} \rangle$ (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 `\MTcustomgreek` 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 **txfontsb** 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 X_YT_EX or Lua_AT_EX.

With X_YT_EX the user is strongly advised to first consider using the **mathspec** package, which is designed for Unicode, with a key-value interface. With both X_YT_EX and Lua_AT_EX, **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 X_YT_EX or Lua_AT_EX 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}
```

³²running `tex` (in a temporary repertory) on a copy of the file `mathastext.dtx` will extract extended versions of these examples as test files. Notice that the `Color=` specifications are not recognized anymore under the current version of \LuaTeX , they used to be in earlier versions.

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}
```

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 ...

`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, 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 T_EX 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 T_EX ‘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.

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.

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

Regarding \exists and \forall : the old definitions could be saved before loading the package but just `\MTexistsskip{0mu}` and `\MTforallskip{0mu}` should be sufficient, except if it is important that the `\exists` and `\forall` control sequences always expand to only one token each.

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 L^AT_EX 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).

amsmath: the behavior of the `\DeclareMathOperator` command of `amsmath` is slightly modified by `mathastext`. This command initially allows crazy things like `\DeclareMathOperator\crazy{m.ch-in'tr/u:c}` and then the ., -, ', / and : will be typeset in the roman font. But the font number was hardcoded in the macro and furthermore the code of `amsmath` would cause an error with Unicode engine as soon as some Unicode code is assigned to the minus character.³⁶³⁷ This specific issue will perhaps be fixed by some hypothetical future release of `amsmath`, or by other packages providing patches, but I decided for a preemptive strike. As a result the declaration above will not cause an error when `\crazy` is used with a Unicode engine, but there are now some spacings around the punctuation characters. To avoid this use (also with `LATEX`):

`\DeclareMathOperator\crazy{m{.}ch{-}in{'}tr{/}u{:}c}`

Note though that the quote ' will be typeset as a derivative sign '.

hbar: the definition of `\hbar` inherited from default `LATEX` will in our context make use of the `h` of the current math font (so for us, it is also the text font, perhaps in italic shape), but the bar accross the `h` will come from the original default math font for letters (usually `cmml`), 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).

³⁶To the experts: the `sin`, `cos`, ... operator names are *not* defined by `amsmath` with the help of the `\DeclareMathOperator` macro, hence are not the cause of an error in `XYLATEX`/`LuaALATEX`. What `mathastext` does is to let to relax the `\newmcodes@` macro, so it is possible to save it before loading `mathastext` and re-establish later, if really really this is what you want.

³⁷new with 1.3d: if `mathastext` detects the `lualatex-math` package which fixes this `amsmath` issue, it does not change `\newmcodes@`.

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 lowering³⁸ 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’³⁹ 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_YTeX: for the en-dash and the dotless i and j, the package expects to detect either the EU1 encoding for XeTeX or the EU2 encoding for Lua_YTeX (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 _YTeX and Pdf_YTeX, there is no such limitation and all 8bit-encodings (containing these glyphs) should be ok.

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

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

math alphabets: • We define a new math alphabet command `\mathnormalbold` which gives direct access to the bold version of the `\mathnormal` alphabet (rather than using either the `\bm` command from the `bm` package or the `\boldsymbol` command from the `amsbsy` package). As it does not exist

³⁸with 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`.

³⁹in a hopefully safe way, for example $\$ \backslash label{eq*1} \$$ is ok.

in the default L^AT_EX 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 T_EX 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 T_EX 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 1.2b 2012/12/30) a somewhat elaborate mechanism related to these issues (see the code comments), installed into the list of things done by T_EX 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.⁴⁰ Both the normal and bold math version are modified by this action of **\Mathastext**.
 - **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.⁴¹
 - **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

⁴⁰**\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*.

⁴¹The allowed version names are as for the L^AT_EX **\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.

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* $\oint \bigvee \bigcup \bigotimes \bigoplus$

`\MTversion{boldnewcent}`: ***abcde*** $\oint \bigvee \bigcup \bigotimes \bigoplus$

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 of⁴² `\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>`.
- `\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).⁴³ When the initial optional argument is absent, and `mathastext` was loaded with the `italic` option, then the default

⁴²these commands exist also with long names: `\Mathastextencoding`, etc. . . The same applies to the other commands mentioned in this section.

⁴³I do not especially recommend to use this in real life!

letter shape will be `it`,⁴⁴ 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.⁴⁵ It 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 active⁴⁶ 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`.

⁴⁴more 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.

⁴⁵Prior to 1.3j, it was also executed from each `\Mathastext` in the preamble.

⁴⁶the `mathcode`'s are only modified at the time of execution of `\everymath`, `\everydisplay`.

Changed!

- `\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.⁴⁷

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 `.`, `/`, `|`, `\`, `#`, `$`, `%`, and `&` (if not excluded by package options) obey math alphabet commands. See also section 2.8. This functionality does **not** make the characters “math active” (but it does modify `\mathcode`’s, naturally).
- `\MTnonlettersobeymathxx`, `\MTnonlettersdonotobeymathxx`: the former will make (except if excluded by relevant package options) `!`, `?`, `..`, `:`, `;`, `+`, `-`, `=`, `(`, `)`, `[`, `]`, `<`, and `>` obey the math alphabet commands (when not used as delimiters). These characters are made “math active”, and each one now expands to two tokens. This makes for example `$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`.

Changed!

⁴⁷Prior to 1.3i, italic corrections were added to the (non-oblique) letters of `\mathnormal` arguments.

- `\MTnormalprime`, `\MTprimedoesskip`: the latter (done by default if not `subdued`, 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. New! (1.3j)

- `\MTeverymathdefault`: this hook is executed by `\MTversion{\langle version_name \rangle}`, except under option `subdued` when switching to the *normal* or *bold* math versions. Its default meaning is: New! (1.3j)

```
\MTactiveasterisk % no effect without option asterisk
\MTprimedoesskip  % extra space before prime glyph
\MTeasynonlettersobeymathxx
\MTicinmath       % includes \MTmathactiveletters, hence skips from
                  % \MTsetmathskips are obeyed.
```

Notice that under `subdued` option, switching to the *normal* or *bold* version does `\MTeverymath off` 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).

- `\MTeverymathoff`: does `\MTnormalasterisk`, `\MTnormalprime`, `\MTnonlettersdonotobeymathxx`, `\MTeasynonlettersdonotobeymathxx` and `\MTmathstandardletters`. 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` when switching to the *normal* or *bold* math versions.

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: $vw\ x\ yz\ A\ BC^{vw\ x\ yz\ A\ BC}$. The effect obeys the usual L^AT_EX 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.⁴⁸ 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)

Changed!

⁴⁸Prior to 1.3j, it was set to 0mu.

- `\MTforallskip`{ $\langle math glue \rangle$ }: 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.⁴⁹ 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`{ $\langle math glue \rangle$ }: 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.⁵⁰
- `\MTlowerast`{ $\langle dimen \rangle$ }: 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 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 ...).

Changed!
Changed!

⁴⁹Prior to 1.3j, it was set to `0mu`.

⁵⁰Prior to 1.3j, it was set to `0mu`.

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 \LaTeX 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 \LaTeX sources to add to the preamble `\let\varphi=\phi`, `\let\varepsilon=\epsilon`, etc..., in case only the ‘variant’ form of the letter was used in the documents.
- Miscellaneous mathematical symbols from the postscript Symbol font are made available (or replaced) by option `symbolmisc`.⁵¹ They are `\prod` `\sum` `\implies` `\impliedby` `\iff` `\iffiff` `\shortiff` `\to` `\longrightarrow` `\mapsto` `\longmapsto` `\aleph` `\infty` `\emptyset` `\surd` `\nabla` `\angle` `\forall` `\exists` `\neg` `\clubsuit` `\diamondsuit` `\heartsuit` `\spadesuit` `\smallint` `\wedge` `\vee` `\cap` `\cup` `\bullet` `\div` `\otimes` `\oplus` `\pm` `\ast`

⁵¹option `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 \TeX to be a composite object.

`\times` \times `\proptopsy` \propto `\mid` $|$ `\leq` \leq `\geq` \geq `\approx` \approx `\supset` \supset `\subset` \subset `\supseteq` \supseteq `\subseteq` \subseteq `\in` \in `\sim` \sim `\cong` \cong `\perp` \perp `\equiv` \equiv `\notin` \notin `\angle` \angle `\langle` \langle `\rangle` \rangle . And a `\DotTriangle` \therefore is made available by option `symbolre` (which overwrites `\Re` and `\Im`: \Re, \Im). The `\inftypsy` and `\proptopsy` have these names to leave up to the user the choice to replace (or no) the original (larger) `\infty` ∞ and `\propto` \propto .

Regarding the `\prod` and `\sum` commands: they will use the Symbol glyphs \prod Σ 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`):

$$\prod \Sigma$$

The package provides `\prodpsy` and `\sumpsy`: if one really wants in all situations the Symbol glyphs, one can do `\let\prod\prodpsy` and `\let\sum\sumpsy`. Also `\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.
- `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`, `\MTeasynonlettersdonotobeymathxx`, `\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.⁵²
- `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 (`\dot{\triangleright}`).
- `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.
- `LGRgrees`: each declared math version will be supposed to be with a font which is also available in LGR-encoding.

⁵²in 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.

- `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 L^AT_EX, 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`, `defaultttt`: 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’ L^AT_EX error.
- `defaultnormal`, `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.
- `fouriervector`: provides a `\fouriervector` command. The user can then add in the preamble `\let\vector=\fouriervector`. There is also always available a “poor man” vector accent `\pmvector` 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

1.3j [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`s, and `\forall` are suppressed rather than re-configured to use `0mu`. Related new commands `\MTexistsdoesskip`, `\MTforalldoesskip`, `\MTprimedoesskip`, `\MTnormallexists`, `\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 monotype 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`, `self-Greeks` 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{professionalfonts}`.

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 problems 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 only in math mode how an active character acts, without breaking things. The package now does that /only/ if the activation appears to originate in the Babel system, as it is then possible to modify appropriately the Babel macros `\user@active<char>` and `\normal@char<char>`. 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 to the 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`.

- * The technique of mathematical activation is maintained only for the characters which are not catcode active (at the entrance in math mode, as `mathastext` does all its activation job at `everymath` and `everydisplay`).

- * 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 subdued 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 subdued option allows the `mathastextification` 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_EX₂ε 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 [2016/01/15 v1.3j Use the text font in math mode (jfB)]
```

Testing for XeTeX and LuaLaTeX. I should load some package for this code which I copied somewhere (perhaps from the `iftex` package? or some post on `comp.text.tex`). 2013/01/01: at least the code now does not overwrite previous `\ifXeTeX` or `\ifLuaTeX`...

1.3g 2015/10/15: update for the naming of primitives, the situation has evolved both on XeTeX side and on the LuaLaTeX side (LaTeX base 2015/10/01): I was told "U" named math primitives were always available for LuaLaTeX. For XeTeX, 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 \begingroup\expandafter\expandafter\expandafter\endgroup
10 \expandafter\ifx\csname XeTeXinterchartoks\endcsname\relax
11 \mst@XeTeXfalse
12 \else
13 \mst@XeTeXtrue
14 \ifx\mst@Umathcharnumdef\undefined
15 \let\mst@Umathcharnumdef\XeTeXmathcharnumdef
16 \let\mst@Umathcodenum \XeTeXmathcodenum
17 \let\mst@Umathcode \XeTeXmathcode
18 \let\mst@Umathchardef \XeTeXmathchardef
19 \fi
20 \fi
21 \newif\ifmst@LuaTeX
22 \begingroup\expandafter\expandafter\expandafter\endgroup
23 \expandafter\ifx\csname directlua\endcsname\relax
24 \mst@LuaTeXfalse
25 \else
26 \mst@LuaTeXtrue
27 \ifx\mst@Umathcharnumdef\undefined
```



```

28 \let\mst@Umathcharnumdef\luatexUmathcharnumdef
29 \let\mst@Umathcodenum \luatexUmathcodenum
30 \let\mst@Umathcode \luatexUmathcode
31 \let\mst@Umathchardef \luatexUmathchardef
32 \fi
33 \fi
34 \newif\ifmst@XeOrLua
35 \ifmst@LuaTeX\mst@XeOrLuatrue\fi
36 \ifmst@XeTeX \mst@XeOrLuatrue\fi
1.2: all inner macros of mathastext now starts with \mst@ for a cleaner name-space.
37 \def\mst@oti{OT1}\def\mst@ti{T1}\def\mst@lyi{LY1}
38 \def\mst@eui{EU1}\def\mst@euii{EU2}
39 \newif\ifmst@goahead
40 \newif\ifmst@abort

```

```

\mst@enc Macros to store the font settings, each math version will store its own records.
\mst@fam 41 \def\mst@enc{\encodingdefault}
\mst@ser 42 \def\mst@fam{\familydefault}
\mst@opsh 43 \def\mst@ser{\seriesdefault}
\mst@bold 44 \def\mst@opsh{\shapedefault} %% will be default shape for operator names
\mst@ltsh 45 \def\mst@bold{\bfdefault}
46 \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.
47 \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.

```

48 \newif\ifmst@italic
49 \newif\ifmst@frenchmath
50 \DeclareOption{italic}{\mst@italictrue}
51 \def\mst@ltsh{\itdefault}
52 \DeclareOption{frenchmath}{\mst@frenchmathtrue\mst@italictrue}
53 \def\mst@ltsh{\itdefault}
54 %%
55 \newif\ifmst@endash\mst@endashtrue
56 \DeclareOption{endash}{\mst@endashtrue}
57 \DeclareOption{noendash}{\mst@endashfalse}
58 \newif\ifmst@emdash
59 \DeclareOption{emdash}{\mst@emdashtrue\mst@endashfalse}
60 %%
61 \newif\ifmst@alldelims
62 \edef\mst@tmp{\encodingdefault}\ifx\mst@oti\mst@tmp\else\mst@alldelimstrue\fi
63 \DeclareOption{alldelims}{\mst@alldelimstrue}
64 \DeclareOption{nolessnomore}{\mst@alldelimsfalse}
65 %% new with 1.2
66 \newif\ifmst@nosmalldelims

```

```

67 \DeclareOption{nosmallldelims}{\mst@nosmallldelimstrue}
68 %%
69 \newif\ifmst@noplus
70 \DeclareOption{noplus}{\mst@noplustrue}
71 \newif\ifmst@nominus
72 \DeclareOption{nominus}{\mst@nominustrue}
73 \DeclareOption{noplusnominus}{\ExecuteOptions{noplus,nominus}}
74 %%
75 \newif\ifmst@noparen
76 \DeclareOption{noparenthesis}{\mst@noparenttrue}
77 \newif\ifmst@nopunct
78 \DeclareOption{nopunctuation}{\mst@nopuncttrue}
79 \newif\ifmst@noequal
80 \DeclareOption{noequal}{\mst@noequaltrue}
81 \newif\ifmst@noexclam
82 \DeclareOption{noexclam}{\mst@noexclamtrue}
83 \newif\ifmst@asterisk
84 \DeclareOption{noasterisk}{\PackageWarningNoLine{mathastext}
85 {option 'noasterisk\string' is deprecated.^^J\space\space\space
86 Check the documentation}}
87 \DeclareOption{asterisk}{\mst@asterisktrue}
88 \newif\ifmst@nospecials
89 \DeclareOption{nospecials}{\mst@nospecialstrue}
90 \newif\ifmst@basic % 1.3 to avoid unnecessary patch of amsmath \newmcodes@
91 \DeclareOption{basic}{\mst@basictrue}
92 \ExecuteOptions{noparenthesis,nopunctuation,%
93 noplusnominus,noequal,noexclam,nospecials,nolessnomore}}
94 %%
95 \newif\ifmst@nohbar
96 \DeclareOption{nohbar}{\mst@nohbartrue}
97 \newif\ifmst@nodigits
98 \DeclareOption{nodigits}{\mst@nodigitstrue}
99 \newif\ifmst@defaultimath
100 \DeclareOption{defaultimath}{\mst@defaultimathtrue}
101 \newif\ifmst@mathaccents
102 \DeclareOption{mathaccents}{\mst@mathaccentstrue}
103 %%
104 \newif\ifmst@needsymbol
105 \newif\ifmst@symboldelimiters
106 \DeclareOption{symboldelimiters}{\mst@needsymboltrue\mst@symboldelimitertrue}
107 \newif\ifmst@symboldigits
108 \DeclareOption{symboldigits}{\mst@needsymboltrue\mst@symboldigittrue}
109 \newif\ifmst@symbolgreek
110 \newif\ifmst@customgreek %% new with 1.3d
111 \DeclareOption{symbolgreek}{\mst@needsymboltrue\mst@symbolgreektrue
112 \mst@customgreektrue }
113 \newif\ifmst@symbolre
114 \DeclareOption{symbolre}{\mst@needsymboltrue\mst@symbolretrue}
115 \newif\ifmst@symbolmisc

```

```

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

```

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.

```

146 \newif\ifmst@defaultnormal
147 \DeclareOption{defaultnormal}{\mst@defaultnormaltrue}
148 \newif\ifmst@defaulttrm
149 \DeclareOption{defaulttrm}{\mst@defaulttrmtrue}
150 \newif\ifmst@defaultbf
151 \DeclareOption{defaultbf}{\mst@defaultbftrue}
152 \newif\ifmst@defaulttit
153 \DeclareOption{defaulttit}{\mst@defaulttittrue}
154 \newif\ifmst@defaultsf
155 \DeclareOption{defaultsf}{\mst@defaultsftrue}
156 \newif\ifmst@defaultttt
157 \DeclareOption{defaultttt}{\mst@defaultttttrue}
158 \newif\ifmst@nonnormalbold
159 \DeclareOption{defaultalphabets}{\ExecuteOptions{defaultnormal,defaulttrm,%
160 defaultbf,defaulttit,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.

```

161 \newif\ifmst@defaultsizes
162   \DeclareOption{defaultmathsizes}{\mst@defaultsizetrue}
163 \newif\ifmst@twelve
164   \DeclareOption{12pt}{\mst@twelvetrue}
165 \newif\ifmst@fouriervec
166   \DeclareOption{fouriervec}{\mst@fouriervectrue}
167
168   1.15: the subdued option.
167 \newif\ifmst@subdued
168   \DeclareOption{subdued}{\mst@subduedtrue}
169 \DeclareOption*{\PackageWarningNoLine{mathastext}
170   {Unknown option '\CurrentOption\string'}}
171 \ProcessOptions\relax

```

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

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`).

```

172 \newmuskip\mst@exists@muskip %% v 1.15e
173 \newmuskip\mst@forall@muskip
174 \def\mst@exists@skip{1mu}
175 \def\mst@forall@skip{.6667mu}
176 \ifmst@italic\ifmst@frenchmath\else
177   \def\mst@exists@skip{0mu}
178   \def\mst@forall@skip{0mu}
179   \def\mst@prime@skip{0mu}
180 \fi\fi
181 \def\mst@exists{\mst@stdexists\mskip\mst@exists@muskip}
182 \def\mst@forall{\mst@stdforall\mskip\mst@forall@muskip}
183 \AtBeginDocument{%
184   \let\mst@stdexists\exists
185   \let\mst@stdforall\forall
186   \def\MTnormalexists {\let\exists\mst@stdexists }%
187   \def\MTexistsdoesskip {\let\exists\mst@exists }%
188   \def\MTnormalforall {\let\forall\mst@stdforall }%

```

```

189 \def\MTforalldoesskip {\let\forall\mst@forall }%
190 \ifmst@subdued
191 \else
192 \MTexistsdoesskip
193 \MTforalldoesskip
194 \fi
195 }%
196 \newcommand*{\MTnormalexists {\AtBeginDocument {\MTnormalexists }}
197 \newcommand*{\MTexistsdoesskip {\AtBeginDocument {\MTexistsdoesskip }}
198 \newcommand*{\MTnormalforall {\AtBeginDocument {\MTnormalforall }}
199 \newcommand*{\MTforalldoesskip {\AtBeginDocument {\MTforalldoesskip }}

```

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

`\MTnormalprime` 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\bb1@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`.

```

200 \newmuskip\mst@prime@muskip %% v 1.2
201 \def\mst@prime@skip{.5mu}
202 \ifmst@italic\ifmst@frenchmath\else\def\mst@prime@skip{0mu}\fi\fi
203 \def\mst@active@math@prime{\sp\bgroup\mskip\mst@prime@muskip\prim@s}
204 {\catcode'\'=12
205 \gdef\mst@@modifyprime{\mst@mathactivate'}\mst@active@math@prime}}
206 \newcommand*{\MTnormalprime{\let\mst@modifyprime\@empty }
207 \newcommand*{\MTprimedoesskip {\let\mst@modifyprime\mst@@modifyprime}
208 \ifmst@subdued
209 \MTnormalprime
210 \else
211 \MTprimedoesskip
212 \fi
213 \AtBeginDocument{%
214 \everymath\expandafter
215 {\the\everymath \mst@modifyprime \MTnormalprime}%
216 \everydisplay\expandafter

```

```

217      {\the\everydisplay \mst@modifyprime \MTnormalprime}%
218 }

```

`\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.

```

219 \newcommand*{\MTexistsskip}[1]{\edef\mst@exists@skip{#1}%
220   \mst@exists@muskip\mst@exists@skip\relax}
221 \newcommand*{\MTforallskip}[1]{\edef\mst@forall@skip{#1}%
222   \mst@forall@muskip\mst@forall@skip\relax}
223 \newcommand*{\MTprimeskip}[1]{\edef\mst@prime@skip{#1}%
224   \mst@prime@muskip\mst@prime@skip\relax}
225 \let\Mathastextexistsskip\MTexistsskip
226 \let\Mathastextforallskip\MTforallskip
227 \let\Mathastextprimeskip\MTprimeskip
228 \let\mathastextexistsskip\MTexistsskip
229 \let\mathastextforallskip\MTforallskip
230 \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 `\every@math@size` inside `\glb@settings`. This is called from `\check@mathfont` 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 `\operator`s 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.

```

231 \ifmst@noparen\else
232 \AtBeginDocument{%
233   \@ifundefined{resetMathstrut}{% nothing to do, no amsmath
234   }{% amsmath loaded, and possibly patched by things such as lualatex-math
235   \let\mst@savereresetMathstrut\resetMathstrut@
236   \PackageInfo{mathastext}{current meaning of amsmath
237   \string\resetMathstrut@\space saved}%
238   \ifx\mst@the\the % means that \MTnonlettersobeymathxx was used in preamble
239   \let\mst@the@gobble\MTnonlettersobeymathxx
240   \fi}}
241 \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: $x^?y$ or $x\mathrel{?}y$ now create errors. They must be input $x^{?}y$, 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).

<code>\mst@do@az</code> <code>\mst@do@AZ</code> <code>\mst@addtodo@az</code> <code>\mst@addtodo@AZ</code> <code>\mst@the</code>	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 <code>italic</code> option only to realize later it was more suitable to using an <i>upright</i> text font in math mode! So this mathematical activation of the letters is not done if the font shape is detected to be <code>it</code> or <code>sl</code> ; to bypass this the command <code>\MTicinmath</code> 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`) but modifications done after that would not be seen in `\mst@saveresetMathstrut@`.

```

242 \newtoks\mst@do@nonletters
243 \newtoks\mst@do@easynonletters
244 \newtoks\mst@do@az
245 \newtoks\mst@do@AZ
246 \let\mst@the\@gobble
247 \newcommand*\MTnonlettersdonotobeymathxx{%
248   \ifx\mst@the\@gobble
249   \else
250     \@ifundefined{mst@saveresetMathstrut@}{-}{%
251       \PackageInfo{mathastext}{restoring (for this group or environment) ams
math \string\resetMathstrut@}%
252       \let\resetMathstrut@\mst@saveresetMathstrut@}%
253     \fi
254     \let\mst@the\@gobble
255 }
256 \newcommand*\MTnonlettersobeymathxx{%
257   \ifx\mst@the\the
258   \else
259     \@ifundefined{mst@saveresetMathstrut@}{-}{%
260       \ifmst@symboldelimiters
261       \def\resetMathstrut@{%
262         \setbox\z@\hbox{\the\textfont\symmptpsymbol\char40

```

```

263             \the\textfont\symmoperatorfont\char40
264             \the\textfont\symoperators\char40}%
265         \ht\Mathstrutbox@ht\z@ \dp\Mathstrutbox@dp\z@}%
266     \else
267         \def\resetMathstrut@{%
268             \setbox\z@\hbox{\the\textfont\symmoperatorfont\char40
269                 \the\textfont\symoperators\char40}%
270             \ht\Mathstrutbox@ht\z@ \dp\Mathstrutbox@dp\z@}%
271     \fi
272     \PackageInfo{mathastext}{\string\resetMathstrut@\space
273 from amsmath replaced (for this group or environment)}}%
274 \fi
275 \let\mst@the\the
276 }
277 \newcommand*{\MTeasyonlettersdonotobeymathxx}{\let\mst@theeasy\@gobble}
278 \newcommand*{\MTeasyonlettersobeymathxx}{\let\mst@theeasy\the}
279 \MTeasyonlettersobeymathxx
280 \newcommand*{\MTmathactiveletters}{\let\mst@thef\the \let\mst@theF\the}
281 \ifmst@subdued\else\MTmathactiveletters\fi
282 \newcommand*{\MTmathactiveLetters}{\let\mst@theF\the}
283 \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 the complication of extracting the family number used inside `\mathnormalbold` (will perhaps 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}%
%

```

hence italic corrections were also applied inside `\mathnormal` (for upright fonts; `\mathnormalbold` 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`.

```

284 \newcommand*{\MTicinmath}{%
285     \MTmathactiveletters
286     \def\mst@itcorr{\ifnum\fam=\m@ne\fi}%
287     \let\mst@ITcorr\mst@itcorr}
288 \newcommand*{\MTICinmath}{%
289     \MTmathactiveLetters
290     \def\mst@ITcorr{\ifnum\fam=\m@ne\fi}}
291 \newcommand*{\MTnoicinmath}{\let\mst@itcorr\empty\let\mst@ITcorr\empty}
292 \newcommand*{\MTnoICinmath}{\let\mst@ITcorr\empty}
293 \newcommand*{\MTicalsoinmathxx}{%
294     \ifx\mst@itcorr\empty\else\def\mst@itcorr{\fi}

```

```

295 \ifx\mst@ITcorr\@empty\else\def\mst@ITcorr{\}\fi}
296 \AtBeginDocument{%
297 \everymath\expandafter{\the\everymath
298 \mst@the\mst@do@nonletters \let\mst@the\@gobble
299 \mst@theeasy\mst@do@easynonletters \let\mst@theeasy\@gobble
300 \mst@thef\mst@do@az \let\mst@thef\@gobble
301 \mst@theF\mst@do@AZ \let\mst@theF\@gobble}%
302 \everydisplay\expandafter{\the\everydisplay
303 \mst@the\mst@do@nonletters \let\mst@the\@gobble
304 \mst@theeasy\mst@do@easynonletters \let\mst@theeasy\@gobble
305 \mst@thef\mst@do@az \let\mst@thef\@gobble
306 \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`.

```

307 \ifmst@subdued
308 \MTeverymathoff
309 \MTmathoperatorsdonotobeymathxx
310 \else

```

1.3j: an earlier version of this code was until now in `\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 `\MTmathactivateletters`, it is issued by the package at loading time in order to allow user to cancel it if desired from inside the preamble.

```

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

```

`\MTsetmathskips` 1.3 [2013/09/02]: user level command to specify extra spaces in math mode around the letters
`\MTunsetmathskips` (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`.

```

326 \newcommand*{\MTsetmathskips}[3]{%
327   \@namedef{mst@before#1}{\ifnum\fam=\m@ne\mskip#2\relax\fi }%
328   \@namedef{mst@after#1}{\ifnum\fam=\m@ne\mskip#3\relax\fi }%
329 }
330 \newcommand*{\MTunsetmathskips}[1]{%
331   \@namedef{mst@before#1}{}%
332   \@namedef{mst@after#1}{}%
333 }

\mst@mathactivate Added note [2016/01/06]: Notice that the initially \relax tokens \mst@[before|after]@<letter>
\addtodo@nonletters formed with \csname...\endcsname do not modify TeX's math layout: {\relax f\relax} is
\do@easy@nonletters like f (also for ligatures inside \mathrm for example).
\mst@addtodo@az
\mst@addtodo@AZ
334 \def\mst@magic@v #1#2#3#4#5{#1#3#4}
335 \def\mst@magic@vi #1#2#3#4#5#6{#1#2#4#5}
336 \def\mst@fork{\ifmmode\mst@magic@v\fi\@thirdofthree}
337 \def\mst@safefork{\ifmmode\if@safe@actives\else\mst@magic@vi\fi\fi\@thirdofthree}
338 \def\mst@do@activecase#1#2#3{% #1 is a category 11 or 12 character token
339   \@ifundefined{active@char#1}{}%
340   \ifcat #1a\mathcode'#1=#2\else
341     \ifx\relax #2\relax\mathcode'#1='#1 \else\mathcode'#1=#3\fi\fi
342   \expandafter\expandafter\expandafter\let\expandafter\expandafter
343     \csname mst@orig@user@active#1\endcsname
344     \csname user@active#1\endcsname
345   \expandafter\expandafter\expandafter\let\expandafter\expandafter
346     \csname mst@orig@normal@char#1\endcsname
347     \csname normal@char#1\endcsname
348   \ifcat #1a%
349     \expandafter\edef\csname user@active#1\endcsname
350       {\noexpand\mst@fork {{#2\noexpand#3}}}\expandafter
351       \noexpand\csname mst@orig@user@active#1\endcsname
352     }%
353   \expandafter\edef\csname normal@char#1\endcsname
354     {\noexpand\mst@safefork {{#2\noexpand#3}}}\expandafter
355     \noexpand\csname mst@orig@normal@char#1\endcsname
356   }%
357   \else

```

```

358     \expandafter\edef\csname user@active#1\endcsname
359         {\noexpand\mst@fork {#2}\noexpand#3\expandafter
360          \noexpand\csname mst@orig@user@active#1\endcsname
361          }%
362     \expandafter\edef\csname normal@char#1\endcsname
363         {\noexpand\mst@safefork {#2}\noexpand#3\expandafter
364          \noexpand\csname mst@orig@normal@char#1\endcsname
365          }%
366     \fi}}
367 \begingroup
368     \catcode'\~=\active
369     \def\x{\endgroup
370     \def\mst@mathactivate##1##2##3{% ##1 guaranteed of cat 11 or 12
371         \begingroup
372         \lccode'\~='##1
373         \lccode'##1='##1
374         \lowercase{\endgroup
375             \ifnum\catcode'##1=\active
376                 \mst@do@activecase ##1{##2}##3%
377                 % careful as ##2 is empty in the asterisk and
378                 % prime case!
379             \else
380                 \mathcode'##1="8000
381                 % version 1.3 adds the possibility of extra skips around letters,
382                 % (only if non catcode active at the time of use).
383                 \ifcat##1a\edef~{% extra braces for a~b for example
384                     {\expandafter\noexpand\csname mst@before##1\endcsname
385                      ##2\noexpand##3%
386                      \expandafter\noexpand\csname mst@after##1\endcsname}}%
387                 \else\def~{##2##3}\fi
388             \fi}}
389 \x
390 \def\mst@addtodo@nonletters#1#2#3{%
391     % #1 will be of cat 11 or 12.
392     % #2 is empty for asterisk and right quote
393     \mst@do@nonletters\expandafter
394         {\the\mst@do@nonletters \mst@mathactivate#1{#2}#3}%
395 }
396 \def\mst@addtodo@easynonletters#1#2{% #1 is a one char control sequence
397     \mst@do@easynonletters\expandafter{\the\mst@do@easynonletters\mathcode'#1=#2}%
398 }
399 \def\mst@addtodo@az#1#2{%
400     \mst@do@az\expandafter{\the\mst@do@az\mst@mathactivate#1#2\mst@itcorr}
401 }
402 \def\mst@addtodo@AZ#1#2{%
403     \mst@do@AZ\expandafter{\the\mst@do@AZ\mst@mathactivate#1#2\mst@ITcorr}%
404 }

```

\newmcodes@ 1.15d: this amsmath macro causes an error in Unicode engines as soon someone assigns a Unicode

mathcode to the minus sign, and then makes a `\DeclareMathOperator` declaration. Furthermore it hard-codes the font family 0 as being the one to be used. Moreover just putting the concerned 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.

```
405 \ifmst@basic\else
406 \AtBeginDocument {%
407   \ifpackageloaded{amsmath}
408   {\ifpackageloaded{lualatex-math}
409     {\ifpackagelater{lualatex-math}{2013/08/03}{\let\newmcodes@relax}}
410     {\let\newmcodes@relax}}
411   {}}
412 \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 LuaL^AT_EX 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.

```
413 \ifmst@subdued
```

```

414 \def\mst@reserved#1\getanddefine@fonts\symletters#2#3\@nil{%
415     \def\mst@normalmv@letter{#2}}
416 \expandafter\mst@reserved\mv@normal\@nil
417 \def\mst@reserved#1\getanddefine@fonts\symletters#2#3\@nil{%
418     \def\mst@boldmv@letter{#2}}
419 \expandafter\mst@reserved\mv@bold\@nil
420 \def\mst@reserved#1\getanddefine@fonts\symoperators#2#3\@nil{%
421     \def\mst@normalmv@operator{#2}}
422 \expandafter\mst@reserved\mv@normal\@nil
423 \def\mst@reserved#1\getanddefine@fonts\symoperators#2#3\@nil{%
424     \def\mst@boldmv@operator{#2}}
425 \expandafter\mst@reserved\mv@bold\@nil
426 %%
427 \edef\mst@tmp{\encodingdefault}
428 \def\mst@reserved#1/#2/#3/#4/{\gdef\mst@debut{#1}\gdef\mst@reste{#2/#3/#4}}
429 \begingroup\escapechar\m@ne
430     \xdef\mst@funnyoti{\expandafter\string\csname OT1\endcsname}
431     \expandafter\expandafter\expandafter
432         \mst@reserved\expandafter\string\mst@normalmv@operator/
433 \endgroup
434 \ifx\mst@debut\mst@funnyoti\ifx\mst@tmp\mst@oti\def\mst@tmp{T1}\fi\fi
435 \edef\mst@normalmv@operator{\expandafter\noexpand\csname
436     \mst@tmp/\mst@reste\endcsname}
437 \begingroup\escapechar\m@ne
438     \expandafter\expandafter\expandafter
439         \mst@reserved\expandafter\string\mst@boldmv@operator/
440 \endgroup
441 \ifx\mst@debut\mst@funnyoti\ifx\mst@tmp\mst@oti\def\mst@tmp{T1}\fi\fi
442 \edef\mst@boldmv@operator{\expandafter\noexpand\csname
443     \mst@tmp/\mst@reste\endcsname}
444 \AtEndOfPackage{
445 \typeout{** ...entering subdued mode...}
446 \expandafter\SetSymbolFont@ \expandafter\mv@normal\mst@normalmv@letter\symmtletterfont
447 \expandafter\SetSymbolFont@ \expandafter\mv@bold\mst@boldmv@letter\symmtletterfont
448 \expandafter\SetSymbolFont@ \expandafter\mv@normal\mst@normalmv@operator\symmtoperatorfont
449 \expandafter\SetSymbolFont@ \expandafter\mv@bold\mst@boldmv@operator\symmtoperatorfont
450 \typeout{** ...done.}
451 }
452 \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.

```
453 \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 `\symmtoperatorfont` I add a modification
obeymathxx which makes the declared operator names sensitive to the math alphabets... ouh le vilain!

```
\MTmathoperators- 454 \newcommand*{\MTmathoperatorsobeymathxx}
  donot- 455 {\def\operator@font{\mathgroup\ifnum\fam=\m@ne\symmtoperatorfont\else\fam\fi}}
obeymathxx 456 \newcommand*{\MTmathoperatorsdonotobeymathxx}
457 {\def\operator@font{\mathgroup\symmtoperatorfont}}
458 \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.

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

\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 alpha-
\Mathbf bets is recorded for the sake of the subdued option.

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

\Mathtt We will access (if no option is passed for Greek) the `\omicron` via `\mathnormal`. But un-
\mathnormalbold fortunately 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`.

```
460 \let\mst@alph@omicron\mathnormal
461 \@ifpackageloaded{fourier}{\ifslowed\else\let\mst@alph@omicron\mathrm\fi}{}
462 \DeclareSymbolFontAlphabet{\Mathnormal}{mtletterfont}
463 \DeclareSymbolFontAlphabet{\Mathrm}{mtoperatorfont}
464 \ifmst@nonormalbold\else
465   \DeclareMathAlphabet{\mathnormalbold}{\mst@enc}{\mst@fam}{\mst@bold}{\mst@ltsh}
466 \fi
467 \ifmst@defaultbf\else
468   \DeclareMathAlphabet{\Mathbf}{\mst@enc}{\mst@fam}{\mst@bold}{\mst@opsh}
469 \fi
470 \ifmst@defaultit\else
```



```

471 \DeclareMathAlphabet{\Mathit}{\mst@enc}{\mst@fam}{\mst@ser}{\itdefault}
472 \fi
473 \ifmst@defaultsf\else
474 \DeclareMathAlphabet{\Mathsf}{\mst@enc}{\sfdefault}{\mst@ser}{\mst@opsh}
475 \fi
476 \ifmst@defaultttt\else
477 \DeclareMathAlphabet{\Mathtt}{\mst@enc}{\ttdefault}{\mst@ser}{\mst@opsh}
478 \fi
479 \let\mst@original@normal\mathnormal
480 \let\mst@original@rm\mathrm
481 \let\mst@original@bf\mathbf
482 \let\mst@original@it\mathit
483 \let\mst@original@sf\mathsf
484 \let\mst@original@tt\mathtt
485 \def\mst@restorealphabets{% for subdued
486 \let\mathnormal\mst@original@normal
487 \let\mathrm\mst@original@rm
488 \let\mathbf\mst@original@bf
489 \let\mathit\mst@original@it
490 \let\mathsf\mst@original@sf
491 \let\mathtt\mst@original@tt}
492 \def\mst@setalphabets{%
493 \ifmst@defaultnormal\else\renewcommand{\mathnormal}{\Mathnormal}\fi
494 \ifmst@defaultrm\else\renewcommand{\mathrm}{\Mathrm}\fi
495 \ifmst@defaultbf\else\renewcommand{\mathbf}{\Mathbf}\fi
496 \ifmst@defaultit\else\renewcommand{\mathit}{\Mathit}\fi
497 \ifmst@defaultsf\else\renewcommand{\mathsf}{\Mathsf}\fi
498 \ifmst@defaultttt\else\renewcommand{\mathtt}{\Mathtt}\fi}
499 \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.

```

500 \def\mst@update@greeksh{
501 \def\mst@greek@lsh{\mst@ltsh} %% default behavior
502 \def\mst@greek@ush{\mst@opsh}

```

```

503 \ifmst@itgreek\def\mst@greek@lsh{\itdefault}
504 \def\mst@greek@ush{\itdefault}\fi
505 \ifmst@upgreek\def\mst@greek@lsh{\updefault}
506 \def\mst@greek@ush{\updefault}\fi
507 \ifmst@frenchmath
508 \ifmst@itgreek\else
509 \ifmst@upgreek\else
510 \def\mst@greek@lsh{\mst@opsh}
511 \def\mst@greek@ush{\mst@opsh}
512 \fi\fi
513 \fi
514 \ifcase\mst@greek@select
515 \or\def\mst@greek@ush{\itdefault}
516 \or\def\mst@greek@ush{\updefault}
517 \fi}
518 \mst@update@greeksh
519 \ifmst@LGRgreek
520 \DeclareFontEncoding{LGR}{-}{-}
521 \DeclareSymbolFont{mtlgrfontlower}{LGR}{\mst@fam}{\mst@ser}{\mst@greek@lsh}
522 \DeclareSymbolFont{mtlgrfontupper}{LGR}{\mst@fam}{\mst@ser}{\mst@greek@ush}
523 \else
524 \ifmst@selfGreek
525 \DeclareSymbolFont{mtselfGreekfont}{OT1}{\mst@fam}{\mst@ser}{\mst@greek@ush}
526 \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 527 \ifmst@needeuler\typeout{** will use Euler font; command \string\MTEulerScale}
528 \DeclareSymbolFont{mteulervm}{U}{zeur}{m}{n}
529 \DeclareSymbolFontAlphabet{\MathEuler}{mteulervm}
530 \DeclareMathAlphabet{\MathEulerBold}{U}{zeur}{\mst@bold}{n}
531 \fi
532 \newcommand*\MTEulerScale[1]{\edef\zeu@Scale{#1}}
533 \let\MathastextEulerScale\MTEulerScale

```

$\text{\LaTeX 2}_{\varepsilon}$ 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 `\MathEuler` Bold 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).

```
534 \ifmst@needsymbol\typeout{** will use Symbol font; command \string\MTSymbolScale}
535 \def\psy@scale{1}
536 \DeclareSymbolFont{mtpsymbol}{U}{psy}{m}{n}
537 \DeclareSymbolFontAlphabet{\MathPSymbol}{mtpsymbol}
538 \AtBeginDocument{%
539   \DeclareFontFamily{U}{psy}{}%
540   \DeclareFontShape{U}{psy}{m}{n}{<->s*[\psy@scale] psy}{}%
541 }
542 \fi
543 \newcommand*{\MTSymbolScale}[1]{\edef\psy@scale{#1}}
544 \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 L^AT_EX 2_ε `psnffs` core package.

`\pmvec` Definition of a poor man version of the `\vec` accent

```
545 \DeclareRobustCommand*\pmvec[1]{\mathord{\stackrel{\raisebox{-.5ex}}{\tiny\boldmath$\mathord{\rightarrow}$}}{#1}}}
```

`\fouriervec` 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.

```
547 \ifmst@fouriervec
548   \DeclareFontEncoding{FML}{}{}
549   \DeclareFontSubstitution{FML}{futm}{m}{it}
550   \DeclareSymbolFont{mathastextfourier}{FML}{futm}{m}{it}
551   \SetSymbolFont{mathastextfourier}{bold}{FML}{futm}{b}{it}
552   \DeclareMathAccent{\fouriervec}{\mathord}{mathastextfourier}{"7E}
553 \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 package.

`\MTshape` Note that using these macros in the preamble allows `\Mathastext` to set up math versions with a given font for math mode, and at the same time not modifying the `\familydefault` or `\romandefault` etc...

```
554 \newcommand*\MTencoding[1]{\def\mst@enc{#1}}
555 \newcommand*\MTfamily[1]{\def\mst@fam{#1}}
556 \newcommand*\MTseries[1]{\def\mst@ser{#1}}
557 \newcommand*\MTshape[1]{\def\mst@opsh{#1}}
558 \ifmst@italic\else\def\mst@ltsh{#1}\fi
559 \newcommand*\MTboldvariant[1]{\def\mst@bold{#1}}
560 \newcommand*\MTlettershape[1]{\def\mst@ltsh{#1}}
```

```

561 \let\Mathastextencoding\MTencoding
562 \let\Mathastextfamily\MTfamily
563 \let\Mathastextseries\MTseries
564 \let\Mathastextshape\MTshape
565 \let\Mathastextboldvariant\MTboldvariant
566 \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
\MTupGreek or selfGreeks.
\MTgreekfont 567 \newcommand*\MTitgreek{%
568 \mst@itgreektrue\mst@upgreekfalse\def\mst@greek@select{0}}
569 \newcommand*\MTupgreek{%
570 \mst@upgreektrue\mst@itgreekfalse\def\mst@greek@select{0}}
571 \newcommand*\MTitGreek{\def\mst@greek@select{1}}
572 \newcommand*\MTupGreek{\def\mst@greek@select{2}}
573 \let\Mathastextitgreek\MTitgreek
574 \let\Mathastextupgreek\MTupgreek
575 \let\MathastextitGreek\MTitGreek
576 \let\MathastextupGreek\MTupGreek
577 \@onlypreamble\MTitgreek
578 \@onlypreamble\MTupgreek
579 \@onlypreamble\MTitGreek
580 \@onlypreamble\MTitGreek
581 \@onlypreamble\Mathastextitgreek
582 \@onlypreamble\Mathastextupgreek
583 \@onlypreamble\MathastextitGreek
584 \@onlypreamble\MathastextitGreek
585 \newcommand*\MTgreekfont[1]{\def\mst@greekfont{#1}}
586 \let\Mathastextgreekfont\MTgreekfont
587 \@onlypreamble\MTgreekfont
588 \@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.
589 \newcommand*\MTWillUse[5][{}]{
590 \MTencoding{#2}
591 \MTfamily{#3}
592 \MTseries{#4}
593 \MTshape{#5}
594 \ifmst@italic\MTlettershape{\itdefault}\fi % was missing in v 1.14 and prior
595 \edef\mst@tmp{#1}
596 \ifx\mst@tmp\empty\else\MTlettershape{#1}\fi
597 \Mathastext}
598 \let\MathastextWillUse\MTWillUse
599 \let\Mathastextwilluse\MTWillUse
600 \@onlypreamble\MTWillUse
601 \@onlypreamble\MathastextWillUse

```

602 \@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.

```

603 \def\Mathastext {\@ifnextchar [\Mathastext@declare\Mathastext@ }
604 \def\Mathastext@declare [#1]{%
605   \edef\mst@tmp{#1}%
606   \ifx\mst@tmp\empty
607     \expandafter\@firstoftwo
608   \else\expandafter\@secondoftwo
609   \fi
610   \Mathastext@
611   {\MTDeclareVersion[\mst@ltsh]{#1}{\mst@enc}{\mst@fam}{\mst@ser}{\mst@opsh}}%
612 }
613 \def\Mathastext@ {%
614   \mst@update@greeksh
615   \edef\mst@encoding@normal{\mst@enc}%
616   \edef\mst@family@normal{\mst@fam}%
617   \edef\mst@series@normal{\mst@ser}%
618   \edef\mst@shape@normal{\mst@opsh}%
619   \edef\mst@ltshape@normal{\mst@ltsh}%
620   \edef\mst@itdefault@normal{\itdefault}%
621   \edef\mst@rmdefault@normal{\rmdefault}%
622   \edef\mst@sfdefault@normal{\sfdefault}%
623   \edef\mst@ttdefault@normal{\ttdefault}%
624   \edef\mst@boldvariant@normal{\mst@bold}%
625   \edef\mst@exists@skip@normal{\mst@exists@skip}%
626   \edef\mst@forall@skip@normal{\mst@forall@skip}%
627   \edef\mst@prime@skip@normal{\mst@prime@skip}%
628   \edef\mst@encoding@bold{\mst@enc}%
629   \edef\mst@family@bold{\mst@fam}%
630   \edef\mst@series@bold{\mst@bold}%
631   \edef\mst@shape@bold{\mst@opsh}%
632   \edef\mst@ltshape@bold{\mst@ltsh}%
633   \edef\mst@boldvariant@bold{\mst@bold}%
634   \edef\mst@itdefault@bold{\itdefault}%

```

```

635 \edef\mst@rmdefault@bold{\rmdefault}%
636 \edef\mst@sfdefault@bold{\sfdefault}%
637 \edef\mst@ttdefault@bold{\ttdefault}%
638 \edef\mst@exists@skip@bold{\mst@exists@skip}%
639 \edef\mst@forall@skip@bold{\mst@forall@skip}%
640 \edef\mst@prime@skip@bold{\mst@prime@skip}%
641 \ifmst@subdued
642   \def\mst@exists@skip@normal{0mu}%
643   \def\mst@forall@skip@normal{0mu}%
644   \def\mst@prime@skip@normal{0mu}%
645   \def\mst@exists@skip@bold{0mu}%
646   \def\mst@forall@skip@bold{0mu}%
647   \def\mst@prime@skip@bold{0mu}%
648 \else % not subdued
649   \ifmst@italic
650     \ifmst@frenchmath
651       \mst@exists@muskip\mst@exists@skip\relax
652       \mst@forall@muskip\mst@forall@skip\relax
653       \mst@prime@muskip\mst@prime@skip\relax
654     \else
655       \def\mst@exists@skip@normal{0mu}%
656       \def\mst@forall@skip@normal{0mu}%
657       \def\mst@prime@skip@normal{0mu}%
658       \def\mst@exists@skip@bold{0mu}%
659       \def\mst@forall@skip@bold{0mu}%
660       \def\mst@prime@skip@bold{0mu}%
661     \fi
662   \else
663     \mst@exists@muskip\mst@exists@skip\relax
664     \mst@forall@muskip\mst@forall@skip\relax
665     \mst@prime@muskip\mst@prime@skip\relax
666   \fi
667 \fi
668 %% v1.15f
669 \ifmst@nonormalbold\else
670   \SetMathAlphabet{\mathnormalbold}{normal}{\mst@encoding@normal}%
671     {\mst@family@normal}%
672     {\mst@boldvariant@normal}%
673     {\mst@ltshape@normal}%
674   \SetMathAlphabet{\mathnormalbold}{bold}{\mst@encoding@bold}%
675     {\mst@family@bold}%
676     {\mst@boldvariant@bold}%
677     {\mst@ltshape@bold}%
678 \fi
679 %% v1.15f adds \ifmst@default.. checks
680 \ifmst@subdued\else
681   \SetSymbolFont{mtletterfont}{normal}{\mst@encoding@normal}%
682     {\mst@family@normal}%
683     {\mst@series@normal}%

```

```

684                                     {\mst@ltshape@normal}%
685 \SetSymbolFont{mtletterfont}{bold} {\mst@encoding@bold}%
686                                     {\mst@family@bold}%
687                                     {\mst@series@bold}%
688                                     {\mst@ltshape@bold}%
689 \SetSymbolFont{mtooperatorfont}{normal}{\mst@encoding@normal}%
690                                     {\mst@family@normal}%
691                                     {\mst@series@normal}%
692                                     {\mst@shape@normal}%
693 \SetSymbolFont{mtooperatorfont}{bold} {\mst@encoding@bold}%
694                                     {\mst@family@bold}%
695                                     {\mst@series@bold}%
696                                     {\mst@shape@bold}%
697 \ifmst@defaultbf\else
698   \SetMathAlphabet{\Mathbf}{normal}{\mst@encoding@normal}%
699                                     {\mst@family@normal}%
700                                     {\mst@series@bold}%
701                                     {\mst@shape@normal}%
702   \SetMathAlphabet{\Mathbf}{bold}{\mst@encoding@bold}%
703                                     {\mst@family@bold}%
704                                     {\mst@series@bold}%
705                                     {\mst@shape@bold}%
706 \fi
707 \ifmst@defaultit\else
708   \SetMathAlphabet{\Mathit}{normal}{\mst@encoding@normal}%
709                                     {\mst@family@normal}%
710                                     {\mst@series@normal}%
711                                     {\mst@itdefault@normal}%
712   \SetMathAlphabet{\Mathit}{bold}{\mst@encoding@bold}%
713                                     {\mst@family@bold}%
714                                     {\mst@series@bold}%
715                                     {\mst@itdefault@bold}%
716 \fi
717 \ifmst@defaultsf\else
718   \SetMathAlphabet{\Mathsf}{normal}{\mst@encoding@normal}%
719                                     {\mst@sfdefault@normal}%
720                                     {\mst@series@normal}%
721                                     {\mst@shape@normal}%
722   \SetMathAlphabet{\Mathsf}{bold}{\mst@encoding@bold}%
723                                     {\mst@sfdefault@bold}%
724                                     {\mst@series@bold}%
725                                     {\mst@shape@bold}%
726 \fi
727 \ifmst@defaulttt\else
728   \SetMathAlphabet{\Mathtt}{normal}{\mst@encoding@normal}%
729                                     {\mst@ttdefault@normal}%
730                                     {\mst@series@normal}%
731                                     {\mst@shape@normal}%
732   \SetMathAlphabet{\Mathtt}{bold}{\mst@encoding@bold}%

```

```

733             {\mst@ttdefault@bold}%
734             {\mst@series@bold}%
735             {\mst@shape@bold}%
736     \fi
737     \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.

738     \ifmst@needeuler
739         \SetSymbolFont{mteulervm}{bold}{U}{zeur}{\mst@boldvariant@normal}{n}%
740         \SetMathAlphabet{\MathEulerBold}{normal}%
741             {U}{zeur}{\mst@boldvariant@normal}{n}%
742         \SetMathAlphabet{\MathEulerBold}{bold}%
743             {U}{zeur}{\mst@boldvariant@normal}{n}%
744     \fi

745     \ifmst@needsymbol\SetSymbolFont{mtpsymbol}{bold}%
746         {U}{psy}{\mst@boldvariant@normal}{n}%
747     \fi

LGRgreek* LGRgreek, LGRgrees, selfGreek, and selfGreeks options.
selfGreek*
748     \ifmst@subdued\else
749         \ifmst@LGRgreek
750             \SetSymbolFont{mtlgrfontlower}{normal}{LGR}%
751                 {\mst@greekfont}{\mst@series@normal}{\mst@greek@lsh}%
752             \SetSymbolFont{mtlgrfontlower}{bold}{LGR}%
753                 {\mst@greekfont}{\mst@boldvariant@normal}{\mst@greek@lsh}%
754             \SetSymbolFont{mtlgrfontupper}{normal}{LGR}%
755                 {\mst@greekfont}{\mst@series@normal}{\mst@greek@ush}%
756             \SetSymbolFont{mtlgrfontupper}{bold}{LGR}%
757                 {\mst@greekfont}{\mst@boldvariant@bold}{\mst@greek@ush}%
758         \else
759             \ifmst@selfGreek
760                 \SetSymbolFont{mtselfGreekgfont}{normal}{OT1}%
761                     {\mst@greekfont}{\mst@series@normal}{\mst@greek@ush}%
762                 \SetSymbolFont{mtselfGreekgfont}{bold}{OT1}%
763                     {\mst@greekfont}{\mst@boldvariant@bold}{\mst@greek@ush}%
764             \fi
765         \fi
766     \fi

767     \ifmst@subdued
768         \typeout{** subdued mode will be activated for the normal and bold math ver
sions}%
769     \else
770         \typeout{** Latin letters in the normal (resp. bold) math versions are now^^J%
771             ** set up to use the fonts
772         \mst@encoding@normal/\mst@family@normal/\mst@series@normal%

```



```

773      (\mst@boldvariant@normal)/\mst@ltshape@normal}%
774 \ifmst@LGRgreek\typeout{** Greek letters (\mst@greek@lsh/\mst@greek@ush)
775                        will use LGR/\mst@greekfont}%
776 \fi
777 \ifmst@nodigits\else
778   \typeout{** Other characters (digits, ...) and \protect\log-like names will be^^J%
779           ** typeset with the \mst@shape@normal\space shape.}%
780 \fi
781 \fi
782 }
783 \let\mathastext\Mathastext
784 \@onlypreamble\Mathastext
785 \@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.

```

786 \newcommand*{\MTDeclareVersion[6] []}{%
787   \def\mst@declareversionargs{{#1}{#2}{#3}{#4}{#5}{#6}}%
788   \edef\mst@version{#2}%
789   \DeclareMathVersion{\mst@version}%
790   \MTDeclareVersion@
791 }
792 \newcommand*{\MTDeclareVersion@[1] []}{%
793   \edef\mst@tmp{#1}%
794   \ifx\mst@tmp\empty\else
795     \global\expandafter\let\csname mv@\mst@version\expandafter\endcsname
796                     \csname mv@#1\endcsname
797     \typeout{** Math version ‘\mst@version\string’ inherits from ‘#1\string’.}%
798   \fi
799   \expandafter\MTDeclareVersion@@\mst@declareversionargs
800 }
801 \newcommand*{\MTDeclareVersion@@[6] [%
802   \edef\mst@tmp{#1}%
803   \expandafter\edef\csname mst@encoding@\mst@version\endcsname{#3}%
804   \expandafter\edef\csname mst@family@\mst@version\endcsname{#4}%
805   \expandafter\edef\csname mst@series@\mst@version\endcsname{#5}%

```

```

806 \expandafter\edef\csname mst@shape@\mst@version\endcsname{#6}%
807 \expandafter\edef\csname mst@boldvariant@\mst@version\endcsname{\mst@bold}%
808 \expandafter\edef\csname mst@itdefault@\mst@version\endcsname{\itdefault}%
809 \expandafter\edef\csname mst@rmdefault@\mst@version\endcsname{\rmdefault}%
810 \expandafter\edef\csname mst@sfdefault@\mst@version\endcsname{\sfdefault}%
811 \expandafter\edef\csname mst@ttdefault@\mst@version\endcsname{\ttdefault}%
812 \expandafter\edef\csname mst@exists@skip@\mst@version\endcsname
813     {\mst@exists@skip}%
814 \expandafter\edef\csname mst@forall@skip@\mst@version\endcsname
815     {\mst@forall@skip}%
816 \expandafter\edef\csname mst@prime@skip@\mst@version\endcsname
817     {\mst@prime@skip}%
818 \ifx\mst@tmp\empty
819     \ifmst@italic
820         \SetSymbolFont{mtletterfont}{#2}{#3}{#4}{#5}{\mst@ltsh}%
821         \typeout{** Latin letters in math version '#2\string' will use the font
822             #3/#4/#5/\mst@ltsh^^J%
823             ** Other characters (digits, ...) and \protect\log-like names
824             will be in #6 shape.}%
825         \expandafter\edef\csname mst@ltshape@\mst@version\endcsname{\mst@ltsh}%
826     \else
827         \SetSymbolFont{mtletterfont}{#2}{#3}{#4}{#5}{#6}%
828         \typeout{** Latin letters in math version '#2\string' will use the fonts
829             #3/#4/#5(\mst@bold)/#6}%
830         \expandafter\edef\csname mst@ltshape@\mst@version\endcsname{#6}%
831     \fi
832 \else
833     \SetSymbolFont{mtletterfont}{#2}{#3}{#4}{#5}{#1}%
834     \typeout{** Latin letters in math version '#2\string' will use the font
835         #3/#4/#5/#1^^J%
836         ** Other characters (digits, ...) and \protect\log-like
837         names will be in #6 shape.}%
838     \expandafter\edef\csname mst@ltshape@\mst@version\endcsname{#1}%
839 \fi
840 \ifmst@nonormalbold\else
841     \SetMathAlphabet{\mathnormalbold}{#2}{#3}{#4}{\mst@bold}%
842     {\csname mst@ltshape@\mst@version\endcsname}%
843 \fi
844 \SetSymbolFont{mtooperatorfont}{#2}{#3}{#4}{#5}{#6}%
845 \ifmst@defaultbf\else\SetMathAlphabet{\Mathbf}{#2}{#3}{#4}{\mst@bold}{#6}\fi
846 \ifmst@defaultit\else\SetMathAlphabet{\Mathit}{#2}{#3}{#4}{#5}{\itdefault}\fi
847 \ifmst@defaultsf\else\SetMathAlphabet{\Mathsf}{#2}{#3}{\sfdefault}{#5}{#6}\fi
848 \ifmst@defaulttt\else\SetMathAlphabet{\Mathtt}{#2}{#3}{\ttdefault}{#5}{#6}\fi
849 \ifmst@needeuler
850     \SetMathAlphabet{\MathEulerBold}{#2}{U}{zeur}{\mst@bold}{n}%
851 \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.

```

852 \def\mst@greek@lsh@loc{\csname mst@ltshape@\mst@version\endcsname}%
853 \def\mst@greek@ush@loc{\csname mst@shape@\mst@version\endcsname}%
854 \ifmst@itgreek\def\mst@greek@lsh@loc{\itdefault}%
855 \def\mst@greek@ush@loc{\itdefault}\fi
856 \ifmst@upgreek\def\mst@greek@lsh@loc{\updefault}%
857 \def\mst@greek@ush@loc{\updefault}\fi
858 \ifmst@frenchmath
859 \ifmst@itgreek\else
860 \ifmst@upgreek\else
861 \def\mst@greek@lsh@loc{\csname mst@shape@\mst@version\endcsname}%
862 \def\mst@greek@ush@loc{\csname mst@shape@\mst@version\endcsname}%
863 \fi\fi
864 \fi
865 \ifcase\mst@greek@select
866 \or\def\mst@greek@ush@loc{\itdefault}%
867 \or\def\mst@greek@ush@loc{\updefault}%
868 \fi
869 \ifmst@LGRgreeks
870 \SetSymbolFont{mtlgrfontlower}{#2}{LGR}{#4}{#5}{\mst@greek@lsh@loc}%
871 \SetSymbolFont{mtlgrfontupper}{#2}{LGR}{#4}{#5}{\mst@greek@ush@loc}%
872 \typeout{** Greek letters (\mst@greek@lsh@loc/\mst@greek@ush@loc) will use
873 LGR font #4\ifmst@subdued ^^J** (in non subdued versions)\fi}%
874 \else
875 \ifmst@selfGreeks
876 \SetSymbolFont{mtselfGreefont}{#2}{OT1}{#4}{#5}{\mst@greek@ush@loc}%
877 \typeout{** Capital Greek letters (\mst@greek@lsh@loc/\mst@greek@ush@loc)
878 will use OT1 font #4\ifmst@subdued ^^J** (in non subdued versions)\fi}%
879 \else
880 \ifmst@LGRgreek
881 \SetSymbolFont{mtlgrfontlower}{#2}{LGR}{\mst@greekfont}{#5}{\mst@greek@lsh@loc}%
882 \SetSymbolFont{mtlgrfontupper}{#2}{LGR}{\mst@greekfont}{#5}{\mst@greek@ush@loc}%
883 \typeout{** Greek letters (\mst@greek@lsh@loc/\mst@greek@ush@loc) will use
884 LGR font \mst@greekfont\ifmst@subdued ^^J** (in non subdued ver
sions)\fi}%
885 \else
886 \ifmst@selfGreek
887 \SetSymbolFont{mtselfGreefont}{#2}{OT1}{\mst@greekfont}{#5}{\mst@greek@ush@loc}%
888 \typeout{** Capital Greek letters (\mst@greek@lsh@loc/\mst@greek@ush@loc)
889 will use OT1 font \mst@greekfont\ifmst@subdued ^^J** (in non sub
dued versions)\fi}%
890 \fi
891 \fi
892 \fi
893 \fi
894 }

895 \let\MathastextDeclareVersion\MTDeclareVersion

```

```

896 \@onlypreamble\MTDeclareVersion
897 \@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.

```

898 \newcommand*\MTversion {\@ifstar\MTversion@s\MTversion@ }
899 \newcommand*\MTversion@s [1]{\mathversion{#1}\MTversion@@ {#1}}
900 \newcommand*\MTversion@ [2] [] {%
901   \mathversion{#2}%
902   \edef\mst@tmpa{#1}%
903   \ifx\mst@tmpa\empty
904     \edef\mst@tmp{#2}%
905   \else
906     \let\mst@tmp\mst@tmpa
907   \fi
908   \edef\encodingdefault {\csname mst@encoding@\mst@tmp\endcsname}%
909   \edef\familydefault   {\csname mst@family@\mst@tmp\endcsname}%
910   \edef\seriesdefault   {\csname mst@series@\mst@tmp\endcsname}%
911   \edef\shapedefault     {\csname mst@shape@\mst@tmp\endcsname}%
912   \edef\bfdefault       {\csname mst@boldvariant@\mst@tmp\endcsname}%
913   \edef\itdefault       {\csname mst@itdefault@\mst@tmp\endcsname}%
914   \edef\rmdefault       {\csname mst@rmdefault@\mst@tmp\endcsname}%
915   \edef\sfddefault      {\csname mst@sfddefault@\mst@tmp\endcsname}%
916   \edef\ttdefault       {\csname mst@ttdefault@\mst@tmp\endcsname}%
917   \usefont{\encodingdefault}{\familydefault}{\seriesdefault}{\shapedefault}%
918   \MTversion@@ {#2}%
919 }

```

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`.

```

920 \newcommand*\MTversion@@ [1] {%
921   \MTexistsdoesskip

```

```

922 \MTforalldoesskip
923 \MTprimedoesskip
924 \edef\mst@tmp{#1}%
v1.15e: muskips.
925 \expandafter
926 \mst@exists@muskip\csname mst@exists@skip@\mst@tmp\endcsname\relax
927 \expandafter
928 \mst@forall@muskip\csname mst@forall@skip@\mst@tmp\endcsname\relax
v1.2: muskip for \prime.
929 \expandafter
930 \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.
931 \edef\mst@tmpa{\csname mst@ltshape@\mst@tmp\endcsname}%
932 \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).
933 \MTmathoperatorsobeymathxx
934 \MTEverymathdefault
935 \@for\mst@tmpc:=it,sl\do{\ifx\mst@tmpc\mst@tmpa\MTnoicinmath\fi}%
936 \ifmst@frenchmath
937 \def\mst@ITcorr{\ifnum\fam=\m@ne\/\fi}%
938 \@for\mst@tmpc:=it,sl\do{\ifx\mst@tmpc\mst@tmpb\MTnoICinmath\fi}%
939 \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.
940 \ifmst@subdued
941 \def\mst@tmpa{normal}%
942 \ifx\mst@tmp\mst@tmpa
943 \mst@restorealalphabets
944 \MTstandardgreek
945 \MTmathoperatorsdonotobeymathxx
946 \MTnormalexists
947 \MTnormalforall

```

```

948      \MTeverymathoff
949      \else
950      \def\mst@tmpa{bold}%
951      \ifx\mst@tmp\mst@tmpa
952      \mst@restorealalphabets
953      \MTstandardgreek
954      \MTmathoperatorsdonotobeymathxx
955      \MTnormalexists
956      \MTnormalforall
957      \MTeverymathoff
958      \else
959      \mst@setalphabets
960      \MTcustomgreek
961      \fi
962      \fi
963      \else
964      \MTcustomgreek % new with 1.3d
965      \fi
966 }
967 \let\MathastextVersion\MTversion
968 \let\Mathastextversion\MTversion
969 \let\MTVersion\MTversion
970 \let\mathastextversion\MTversion

```

\Mathastext Initialization call:

```

971 \Mathastext

```

Additional appropriate messages to the terminal and the log.

```

972 \ifmst@eulergreek
973     \typeout{** Greek letters will use the Euler font. Use \protect\MathastextEulerScale{
974         font.}%
975     \ifmst@subdued{\typeout{** (subdued mode: normal and bold math
976         version with default Greek letters.)}}\fi
977 \else
978 \ifmst@symbolgreek
979     \typeout{** Greek letters will use the PostScript Symbol font. Use ^J%
980         ** \protect\MathastextSymbolScale{<factor>} to scale the font.}%
981     \ifmst@subdued{\typeout{** (subdued mode: normal and bold math
982         version with default Greek letters.)}}\fi
983 \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.

```

984 \def\mst@DeclareMathLetter #1{%
985     \DeclareMathSymbol {#1}{\mathalpha}{mtletterfont}{‘#1}%
986     \expandafter
987     \DeclareMathSymbol \csname mst@#1\endcsname{\mathalpha}{mtletterfont}{‘#1}%

```

```

988 \expandafter\mst@addtodo@az\expandafter #1\csname mst@#1\endcsname
989 }%
990 \@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
991 {\expandafter\mst@DeclareMathLetter\mst@tmp}%
992 \ifmst@frenchmath \def\mst@font@tbu{mtoperatorfont}%
993 \else \def\mst@font@tbu{mtletterfont}%
994 \fi
995 \def\mst@DeclareMathLetter #1{%
996 \DeclareMathSymbol {#1}{\mathalpha}{\mst@font@tbu}{‘#1}%
997 \expandafter
998 \DeclareMathSymbol \csname mst@#1\endcsname{\mathalpha}{\mst@font@tbu}{‘#1}%
999 \expandafter\mst@addtodo@AZ\expandafter #1\csname mst@#1\endcsname
1000 }%
1001 \@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
1002 {\expandafter\mst@DeclareMathLetter\mst@tmp}%
1003 \let\mst@DeclareMathLetter\relax
1004 %%
1005 \ifmst@nodigits\else
1006 \def\mst@font@tbu{mtoperatorfont}%

```

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

```

1007 \ifmst@symboldigits \def\mst@font@tbu{mtpsymbol} \fi
1008 \ifmst@eulerdigits \def\mst@font@tbu{mteulervm} \fi
1009 \DeclareMathSymbol{0}{\mathalpha}{\mst@font@tbu}{‘0}%
1010 \DeclareMathSymbol{1}{\mathalpha}{\mst@font@tbu}{‘1}%
1011 \DeclareMathSymbol{2}{\mathalpha}{\mst@font@tbu}{‘2}%
1012 \DeclareMathSymbol{3}{\mathalpha}{\mst@font@tbu}{‘3}%
1013 \DeclareMathSymbol{4}{\mathalpha}{\mst@font@tbu}{‘4}%
1014 \DeclareMathSymbol{5}{\mathalpha}{\mst@font@tbu}{‘5}%
1015 \DeclareMathSymbol{6}{\mathalpha}{\mst@font@tbu}{‘6}%
1016 \DeclareMathSymbol{7}{\mathalpha}{\mst@font@tbu}{‘7}%
1017 \DeclareMathSymbol{8}{\mathalpha}{\mst@font@tbu}{‘8}%
1018 \DeclareMathSymbol{9}{\mathalpha}{\mst@font@tbu}{‘9}%
1019 \fi

```

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

```

1020 \ifmst@symboldelimiters
1021 \def\mst@font@tbu{mtpsymbol}%
1022 \mst@endashfalse
1023 \mst@emdashfalse
1024 \else
1025 \def\mst@font@tbu{mtoperatorfont}%
1026 \fi

```

1.2 adds the tricks to let non letters/digits obey math alphabets. We have to double the definitions for easy switch on-off of the mechanism, via a token list which is put into `\everymath` and `\everydisplay`.

```

1027 \ifmst@noexclam\else\typeout{** \string! and \string?}%
1028 \DeclareMathSymbol{!}{\mathclose}{\mst@font@tbu}{"21}%

```

```

1029 \DeclareMathSymbol{\mst@varfam@exclam}{\mathalpha}{\mst@font@tbu}{21}%
1030 \expandafter\mst@addtodo@nonletters\string!\mathclose\mst@varfam@exclam
1031 \DeclareMathSymbol{?}{\mathclose}{\mst@font@tbu}{3F}%
1032 \DeclareMathSymbol{\mst@varfam@question}{\mathalpha}{\mst@font@tbu}{3F}%
1033 \expandafter\mst@addtodo@nonletters\string?\mathclose\mst@varfam@question
1034 \fi

```

`\MTlowerast` 1.12d The `\ast` or `*` is defined in `fontmath.ltx` as a binary operator from the `symbols` font. Usually the asterisk from the text font is in a raised position. Previous versions of `mathastext` did nothing with `\ast` but strangely defined `*` to be the one from the text font, with type `\mathalpha`.
`\mst@doasterisk` The package now leaves by default both `*` and `\ast` untouched, and if passed option `asterisk` replaces both of them with a lowered text asterisk (or the one from the Symbol font), and of type `\mathbin`. A trick is used to optionally get both `*` and `\ast` obey the math alphabets.
`\mst@@doasterisk`
`\MTnormalasterisk`
`\MTactiveasterisk`

The user macro `\MTlowerast` sets the amount of lowering to be applied to the text asterisk.

1.12e Somehow there was a big omission in 1.12d, the command `\MTlowerast` as described in the manual was missing!

nota bene: it is assumed that `*` is of type `other` when `mathastext` is loaded... it should neither be active, nor of type `letter`!

1.3i adds `\MTnormalasterisk` and `\MTactiveasterisk`. They do nothing without option `asterisk`.

```

1035 \def\mst@@doasterisk{\let\ast\mst@ast\mst@mathactivate*{}\mst@ast}%
1036 \newcommand*{\MTnormalasterisk}{\let\mst@doasterisk\relax}
1037 \newcommand*{\MTactiveasterisk}{\let\mst@doasterisk\mst@@doasterisk}
1038 \ifmst@asterisk\typeout{** asterisk: \string\ast\space and *}
1039 \AtBeginDocument{%
1040 \everymath\expandafter
1041 {\the\everymath \mst@doasterisk \MTnormalasterisk}%
1042 \everydisplay\expandafter
1043 {\the\everydisplay\mst@doasterisk \MTnormalasterisk}%
1044 \ifmst@symbolmisc
1045 \def\mst@bin@ast{%
1046 \mathbin{\mathchoice{\raisebox{-.1\height}%
1047 {\the\textfont\symmtpsymbol\char42}}%
1048 {\raisebox{-.1\height}%
1049 {\the\textfont\symmtpsymbol\char42}}%
1050 {\raisebox{-.1\height}%
1051 {\the\scriptfont\symmtpsymbol\char42}}%
1052 {\raisebox{-.1\height}%
1053 {\the\scriptscriptfont\symmtpsymbol\char42}}}%
1054 \else
1055 \def\mst@bin@ast{%
1056 \mathbin{\mathchoice{\raisebox{-.1\mst@lowerast}%
1057 {\the\textfont\symmtooperatorfont\char42}}%
1058 {\raisebox{-.1\mst@lowerast}%
1059 {\the\textfont\symmtooperatorfont\char42}}%
1060 {\raisebox{-.1\mst@lowerast}%
1061 {\the\scriptfont\symmtooperatorfont\char42}}%
1062 {\raisebox{-.1\mst@lowerast}%
1063 {\the\scriptscriptfont\symmtooperatorfont\char42}}}%

```



```

1064 \fi
1065 \def\mst@varfam@ast{\ifnum\fam=\m@ne\mst@bin@ast\else
1066   \mathbin{\mathchoice{\raisebox{-\mst@lowerast}%
1067     {\the\textfont\fam\char42}}%
1068     {\raisebox{-\mst@lowerast}%
1069       {\the\textfont\fam\char42}}%
1070     {\raisebox{-\mst@lowerast}%
1071       {\the\scriptfont\fam\char42}}%
1072     {\raisebox{-\mst@lowerast}%
1073       {\the\scriptscriptfont\fam\char42}}}\fi}%
1074 \MTactiveasterisk
1075 \DeclareRobustCommand*\mst@ast{\mst@bin@ast}
1076 \newcommand*{\MTlowerast}[1]{\def\mst@lowerast{#1}}
1077 \MTlowerast{.3\height}
1078 \mst@do@easynonletters\expandafter\expandafter\expandafter
1079   {\expandafter\the\expandafter\mst@do@easynonletters
1080   \expandafter\def\csname mst@ast \endcsname{\mst@varfam@ast}}
1081 \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?]

```

1082 \ifmst@nopunct\else\typeout{** punctuation\string: \string, \string. \string: \string; and
1083 \DeclareMathSymbol{,}{\mathpunct}{\mst@font@tbu}{"2C}
1084 \DeclareMathSymbol{\mst@varfam@comma}{\mathalpha}{\mst@font@tbu}{"2C}
1085 \expandafter\mst@addtodo@nonletters\string,\mathpunct\mst@varfam@comma
1086 \DeclareMathSymbol{.}{\mathord}{\mst@font@tbu}{"2E}
1087 \DeclareMathSymbol{\mst@varfam@dot}{\mathalpha}{\mst@font@tbu}{"2E}
1088 \mst@addtodo@easynonletters\.\mst@varfam@dot
1089 \DeclareMathSymbol{:}{\mathrel}{\mst@font@tbu}{"3A} % relation spacing
1090 \DeclareMathSymbol{\mst@varfam@colon}{\mathalpha}{\mst@font@tbu}{"3A}
1091 \expandafter\mst@addtodo@nonletters\string:\mathrel\mst@varfam@colon
1092 \@ifpackageloaded{amsmath}
1093 {} % \colon defined in amsmath.sty in terms of : with some enlarged explicit
1094   % spacing. No need to intervene.
1095 {% no amsmath, use standard punctuation spacing
1096 \let\colon\undefined
1097 % the reason is if some package has redefined \colon which then
1098 % can not be used in \cs{DeclareMathSymbol} anymore (we
1099 % shamelessly overwrite...)
1100 \DeclareMathSymbol{\colon}{\mathpunct}{\mst@font@tbu}{"3A}
1101 \mst@do@nonletters\expandafter{\the\mst@do@nonletters
1102   \def\colon{\mathpunct{\mst@varfam@colon}}}}
1103 \DeclareMathSymbol{;}{\mathpunct}{\mst@font@tbu}{"3B}
1104 \DeclareMathSymbol{\mst@varfam@pointvirgule}{\mathalpha}{\mst@font@tbu}{"3B}
1105 \expandafter\mst@addtodo@nonletters\string;\mathpunct\mst@varfam@pointvirgule

```

1106 \fi

\relbar Due to the way = and - are used by L^AT_EX in arrows, we will have to redefine \Relbar and \relbar in order for them to preserve their original meanings.

1.15d: Oct 13, 2012. Belated amendment of the code to be compatible with Unicode engines in case someone changed the mathcode of -. However, for the time being I can do it in an easy way only for XeTeX, not for LuaLatex. Also I do my modifications to \relbar in a manner testing for the presence of amsmath.

```
1107 \ifmst@nominus
1108 \else
1109   \ifmst@XeOrLua
1110     \mst@Umathcharnumdef\mst@minus@sign=\mst@Umathcodenum'\-\relax
1111 %% I used this prior to the new \luatexUmathcodenum, as available with TL2013:
1112 %% \mathchardef\mst@minus@sign=8704\relax % "2200
1113   \else
1114     \mathchardef\mst@minus@sign=\mathcode'\-\relax
1115   \fi
1116 \@ifpackageloaded{amsmath}
1117 {\def\relbar{\mathrel{\mathpalette\mathsm@sh\mst@minus@sign}}}
1118 {\DeclareRobustCommand\relbar{\mathrel{\smash\mst@minus@sign}}}
1119 \def\rightarrowfill{${\m@th\mathord{\relbar}}\mkern-7mu%
1120   \cleaders\hbox{${\mkern-2mu\relbar}\mkern-2mu$}\hfill
1121   \mkern-7mu\mathord{\rightarrow}$}
1122 \def\leftarrowfill{${\m@th\mathord{\leftarrow}}\mkern-7mu%
1123   \cleaders\hbox{${\mkern-2mu\relbar}\mkern-2mu$}\hfill
1124   \mkern-7mu\mathord{\relbar}$}
1125 \fi
```

endash 2011/01/29, 1.1: Producing this next piece of code was not a piece of cake for a novice like myself!

2011/02/05, 1.11: Compatibility with Unicode (via use of fontspec encodings EU1 and EU2)

2011/02/07, 1.12: Improved dealing of Unicode possibility.

2011/04/02, 1.14b: Corrected some very irresponsible bug in the Unicode part which caused a problem when 10 or more math families have been allocated.

2012/09/24, 1.15: Added AtBeginDocument to circumvent some amsmath problem with unicode engines.

```
1126 \def\do@the@endashstuff{\edef\mst@tmp@enc{\encodingdefault}
1127   \ifx\mst@tmp@enc\mst@eui % xetex+fontspec
1128   \AtBeginDocument{%
1129     \mst@Umathcode'\-=2 \symmoperatorfont "2013\relax
1130     \mst@Umathchardef\mst@varfam@minus=7 \symmoperatorfont "2013\relax
1131   }
1132 \else
1133   \ifx\mst@tmp@enc\mst@euii % luatex+fontspec
1134   \AtBeginDocument{%
1135     \mst@Umathcode'\-=2 \symmoperatorfont "2013\relax
1136     \mst@Umathchardef\mst@varfam@minus=7 \symmoperatorfont "2013\relax
1137   }
1138 \else
```

```

1139 \ifx\mst@tmp@enc\mst@ti % T1
1140 \DeclareMathSymbol{-}{\mathbin}{moperatorfont}{21}
1141 \DeclareMathSymbol{\mst@varfam@minus}{\mathalpha}{moperatorfont}{21}
1142 \else
1143 \ifx\mst@tmp@enc\mst@oti % OT1
1144 \DeclareMathSymbol{-}{\mathbin}{moperatorfont}{123}
1145 \DeclareMathSymbol{\mst@varfam@minus}{\mathalpha}{moperatorfont}{123}
1146 \else
1147 \ifx\mst@tmp@enc\mst@lyi % LY1
1148 \DeclareMathSymbol{-}{\mathbin}{moperatorfont}{150}
1149 \DeclareMathSymbol{\mst@varfam@minus}{\mathalpha}{moperatorfont}{150}
1150 \else % make sure we have neither xetex nor luatex
1151 \ifmst@XeOrLua\mst@aborttrue\else
1152 \DeclareMathSymbol{-}{\mathbin}{moperatorfont}
1153 \DeclareMathSymbol{\mst@varfam@minus}{\mathalpha}{moperatorfont}
1154 {\expandafter\the\expandafter\csname\mst@tmp@enc\string\textendash\endcsname}
1155 \fi
1156 \fi\fi\fi\fi\fi}
1157 \def\do@the@emdashstuff{\edef\mst@tmp@enc{\encodingdefault}
1158 \ifx\mst@tmp@enc\mst@eui % xetex+fontspec
1159 \AtBeginDocument{%
1160 \mst@Umathcode'\--2 \symmoperatorfont "2014\relax
1161 \mst@Umathchardef\mst@varfam@minus=7 \symmoperatorfont "2014\relax
1162 }
1163 \else
1164 \ifx\mst@tmp@enc\mst@euii % luatex+fontspec
1165 \AtBeginDocument{%
1166 \mst@Umathcode'\--2 \symmoperatorfont "2014\relax
1167 \mst@Umathchardef\mst@varfam@minus=7 \symmoperatorfont "2014\relax
1168 }
1169 \else
1170 \ifx\mst@tmp@enc\mst@ti % T1
1171 \DeclareMathSymbol{-}{\mathbin}{moperatorfont}{22}
1172 \DeclareMathSymbol{\mst@varfam@minus}{\mathalpha}{moperatorfont}{22}
1173 \else
1174 \ifx\mst@tmp@enc\mst@oti % OT1
1175 \DeclareMathSymbol{-}{\mathbin}{moperatorfont}{124}
1176 \DeclareMathSymbol{\mst@varfam@minus}{\mathalpha}{moperatorfont}{124}
1177 \else
1178 \ifx\mst@tmp@enc\mst@lyi % LY1
1179 \DeclareMathSymbol{-}{\mathbin}{moperatorfont}{151}
1180 \DeclareMathSymbol{\mst@varfam@minus}{\mathalpha}{moperatorfont}{151}
1181 \else % make sure we have neither xetex nor luatex
1182 \ifmst@XeOrLua\mst@aborttrue\else
1183 \DeclareMathSymbol{-}{\mathbin}{moperatorfont}
1184 \DeclareMathSymbol{\mst@varfam@minus}{\mathalpha}{moperatorfont}
1185 {\expandafter\the\expandafter\csname\mst@tmp@enc\string\textendash\endcsname}
1186 \fi
1187 \fi\fi\fi\fi\fi}

```

```

1188 \ifmst@nominus\else\typeout{** minus as endash}
1189 \mst@abortfalse
1190 \ifmst@endash\do@the@endashstuff\else
1191 \ifmst@emdash\do@the@emdashstuff\else
1192     \DeclareMathSymbol{-}{\mathbin}{\mst@font@tbu}{"2D}
1193     \DeclareMathSymbol{\mst@varfam@minus}{\mathalpha}{\mst@font@tbu}{"2D}
1194 \fi\fi
1195 \ifmst@abort
1196     \DeclareMathSymbol{-}{\mathbin}{\mst@font@tbu}{"2D}
1197     \DeclareMathSymbol{\mst@varfam@minus}{\mathalpha}{\mst@font@tbu}{"2D}
1198 \fi
1199 \expandafter\mst@addtodo@nonletters\string-\mathbin\mst@varfam@minus
1200 \fi

```

```
\mst@ltbar 1201 %%\def\hbar{{\mathchar'26\mkern-9muh}} % (original definition from latex.ltx)
```

```

1202 %
1203 \def\mst@mathrlap{\mathpalette\mst@mathrlapinternal}
1204 \def\mst@mathrlapinternal#1#2{\rlap{$\mathsurround=0pt#1{#2}$}}
1205 \def\do@the@hbarstuff{\edef\mst@tmp@enc{\encodingdefault}
1206 \ifx\mst@tmp@enc\mst@eui % xetex and unicode font
1207     \mst@Umathchardef\hbar="7 \symmtletterfont "0127 \relax
1208 \else
1209 \ifx\mst@tmp@enc\mst@euii % luatex and unicode font
1210     \mst@Umathchardef\hbar="7 \symmtletterfont "0127 \relax %% or 210F?
1211 \else % I must leave open the T1, OT1 possibility also for XeTeX or LuaTeX
1212     \ifx\mst@ti\mst@tmp@enc
1213         \DeclareMathAccent{\mst@ltbar}{\mathalpha}{mtletterfont}{9}
1214         \else %% assume OT1. Bad idea? Should not provoke an error anyhow
1215         \DeclareMathAccent{\mst@ltbar}{\mathalpha}{mtletterfont}{22}
1216         \fi
1217         \def\hbar{\mst@mathrlap{\mst@ltbar{\ }h}}
1218 \fi\fi}
1219 \ifmst@nohbar\else\typeout{** \string\hbar}\do@the@hbarstuff\fi

```

construction gives an acceptable result for some of the fonts I have tested, whether upright or in italics.

1.15d: Oct 13, 2012. The `\mathcode` thing with `=` is (belatedly, sorry!) made Unicode compatible.

`+,=\,\Relbar`

```

1220 \ifmst@noplus\else\typeout{** \string+ and \string=}
1221 \DeclareMathSymbol{+}{\mathbin}{\mst@font@tbu}{"2B}
1222 \DeclareMathSymbol{\mst@varfam@plus}{\mathalpha}{\mst@font@tbu}{"2B}
1223 \expandafter\mst@addtodo@nonletters\string+\mathbin\mst@varfam@plus
1224 \fi
1225 \ifmst@noequal\else
1226 \ifmst@XeOrLua
1227     \mst@Umathcharnumdef\mst@equal@sign=\mst@Umathcodenum'\=\relax
1228 \else
1229     \mathchardef\mst@equal@sign=\mathcode'\=\relax
1230 \fi
1231 \@ifpackageloaded{amsmath}
1232 {\def\Relbar{\mathrel\mst@equal@sign}}
1233 {\DeclareRobustCommand\Relbar{\mathrel{\mst@equal@sign}}}
1234 \DeclareMathSymbol{=}{\mathrel}{\mst@font@tbu}{"3D}
1235 \DeclareMathSymbol{\mst@varfam@equal}{\mathalpha}{\mst@font@tbu}{"3D}

```

`\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:

```

% \mathcode'x="8000
% \begingroup
% \catcode'x=\active
% \global\everymath{\defx{Hello}}
% \endgroup
% \def\foox{World!}
% $x \csname foom\endcsname$
%

```

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 `\csname...\endcsname`. 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 `\csname...\endcsname`.

2012/12/28: to be on the safe side, I add also `;` and `+` and do it without discriminating between engines

```

1236 \typeout{** adding \string= \string; and \string+ to \string\nfss@catcodes}
1237 \g@addto@macro\nfss@catcodes{%
1238     \@makeother\=%
1239     \@makeother\;%
1240     \@makeother\+%

```

```

1241 }
1242 \expandafter\mst@addtodo@nonletters\string=\mathrel\mst@varfam@equal
1243 \fi

noparenthesis \lbrack and \rbrack are defined in latex.ltx by \def\lbrack{[}\def\rbrack{]} so this fits
(,),[,],/ well with what we do here. \lparen and \rparen are similarly defined in mathtools. On the
other hand in latex.ltx with \{ and \} are defined (in math mode) in terms of the control
sequences \lbrace and \rbrace. Such control sequences can not be simultaneously math symbols
and math delimiters, thus, this complicates things for the mathastextification.

1244 \ifmst@noparen\else\typeout{** parentheses \string( \string) \string[ \string] and slash \s
1245 \ifmst@nosmallldelims
1246 \DeclareMathSymbol{(\mathopen}{\mst@font@tbu}{28}
1247 \DeclareMathSymbol{)}\mathclose}{\mst@font@tbu}{29}
1248 \DeclareMathSymbol{[\mathopen}{\mst@font@tbu}{5B}
1249 \DeclareMathSymbol{]}\mathclose}{\mst@font@tbu}{5D}
1250 \DeclareMathSymbol{/}\mathord}{\mst@font@tbu}{2F}
1251 \else
1252 \DeclareMathDelimiter{(\mathopen}{\mst@font@tbu}{28}{largesymbols}{00}
1253 \DeclareMathDelimiter{)}\mathclose}{\mst@font@tbu}{29}{largesymbols}{01}
1254 \DeclareMathDelimiter{[\mathopen}{\mst@font@tbu}{5B}{largesymbols}{02}
1255 \DeclareMathDelimiter{]}\mathclose}{\mst@font@tbu}{5D}{largesymbols}{03}
1256 \DeclareMathDelimiter{/}\mathord}{\mst@font@tbu}{2F}{largesymbols}{0E}
1257 \fi
1258 \DeclareMathSymbol{\mst@varfam@lparen}{\mathalpha}{\mst@font@tbu}{40}
1259 \DeclareMathSymbol{\mst@varfam@rparen}{\mathalpha}{\mst@font@tbu}{41}
1260 \DeclareMathSymbol{\mst@varfam@lbrack}{\mathalpha}{\mst@font@tbu}{5B}
1261 \DeclareMathSymbol{\mst@varfam@rbrack}{\mathalpha}{\mst@font@tbu}{5D}
1262 \DeclareMathSymbol{\mst@varfam@slash}{\mathalpha}{\mst@font@tbu}{2F}
1263 \expandafter\mst@addtodo@nonletters\string(\mathopen\mst@varfam@lparen
1264 \expandafter\mst@addtodo@nonletters\string)\mathclose\mst@varfam@rparen
1265 \expandafter\mst@addtodo@nonletters\string[\mathopen\mst@varfam@lbrack
1266 \expandafter\mst@addtodo@nonletters\string]\mathclose\mst@varfam@rbrack
1267 \mst@addtodo@easynonletters\mst@varfam@slash
1268 \fi

alldelims
<,>,\ 1269 \ifmst@alldelims\typeout{** alldelims: \string< \string>
\setminus 1270 \string\backslash\space\string\setminus\space\string|
\backslash 1271 \string\vert\space\string\mid\space\string\{\space and \string\}}
1272 \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.

1273 \DeclareMathDelimiter{\mst@varfam@backslash}
1274 {\mathalpha}{symbols}{6E}{largesymbols}{0F}
1275 \else
1276 \DeclareMathDelimiter{<}\mathopen}{\mst@font@tbu}{3C}{largesymbols}{0A}

```

```

1277 \DeclareMathDelimiter{>}{\mathclose}{\mst@font@tbu}{3E}{largesymbols}{0B}
    There is no backslash in the Symbol font hence mtoperatorfont here.
1278 \DeclareMathDelimiter{\backslash}
1279     {\mathord}{\mtoperatorfont}{5C}{largesymbols}{0F}
1280 \DeclareMathDelimiter{\mst@varfam@backslash}
1281     {\mathalpha}{\mtoperatorfont}{5C}{largesymbols}{0F}
1282 \fi
1283 \DeclareMathSymbol{<}{\mathrel}{\mst@font@tbu}{3C}
1284 \DeclareMathSymbol{>}{\mathrel}{\mst@font@tbu}{3E}
1285 \DeclareMathSymbol{\mst@varfam@less}{\mathalpha}{\mst@font@tbu}{3C}
1286 \DeclareMathSymbol{\mst@varfam@more}{\mathalpha}{\mst@font@tbu}{3E}
1287 \expandafter\mst@addtodo@nonletters\string<\mathrel\mst@varfam@less
1288 \expandafter\mst@addtodo@nonletters\string>\mathrel\mst@varfam@more
1289 \mst@do@easynonletters\expandafter{\the\mst@do@easynonletters
1290     \let\backslash\mst@varfam@backslash}
1291 \DeclareMathSymbol{\setminus}{\mathbin}{\mtoperatorfont}{5C}
1292 \DeclareMathSymbol{\mst@varfam@setminus}{\mathalpha}{\mtoperatorfont}{5C}
1293 \mst@do@nonletters\expandafter{\the\mst@do@nonletters
1294     \def\setminus{\mathbin{\mst@varfam@setminus}}}

```

`\models` 1.15d: 13 oct 2012. Before modifying | we must preserve `\models`.

```

1295 \ifmst@XeOrLua
1296     \mst@Umathcharnumdef\mst@vert@bar=\mst@Umathcodenum'\|\relax
1297 \else
1298     \mathchardef\mst@vert@bar=\mathcode'\|\relax
1299 \fi
1300 \DeclareRobustCommand\models{\mathrel{\mst@vert@bar}\joinrel\Relbar}

```

`|`, `\mid`, `\vert` (2011) I did not do anything then to try to emulate `\Vert` with the vertical bar from the text font... and now (2012) `mathastext` is not as radical as it used to be anyhow, so it is too late.

```

1301 \ifmst@nosmalldelims
1302     \DeclareMathSymbol{||}{\mathord}{\mst@font@tbu}{124}
1303 \else
1304     \DeclareMathDelimiter{||}{\mathord}{\mst@font@tbu}{124}{largesymbols}{0C}
1305 \fi
1306 \def\vert{||}
1307 \DeclareMathSymbol{\mst@varfam@vbar}{\mathalpha}{\mst@font@tbu}{124}
1308 \mst@addtodo@easynonletters\|\mst@varfam@vbar
1309 \let\mid\undefined % 1.3: to avoid problems with some packages
1310 \DeclareMathSymbol{\mid}{\mathrel}{\mst@font@tbu}{124}
1311 \mst@do@nonletters\expandafter{\the\mst@do@nonletters
1312     \def\mid{\mathrel\mst@varfam@vbar}}

```

`\MTeXplicitbraces-` Braces. With version 1.2, `\{` and `\}` will not be acceptable as delimiters anymore if the redefinitions below in `\mst@dobraces` are enacted. But they will obey math alphabets. Improvements
`obeymathxx` in 1.2a, to preserve robustness.

`\MTeXplicitbraces-` For 1.3 I make `\lbrace` and `\rbrace` undefined first, else problems may arise with some
`donotobeymathxx` packages. 1.3e suppresses under option `nosmalldelims` the definitions of `\lbrace` and `\rbrace` as math symbols as this bug made `\left\lbrace` cause an error, naturally.

```

1313 \ifmst@nosmallldelims
1314 \else
1315 \let\lbrace\undefined \let\rbrace\undefined
1316 \DeclareMathDelimiter{\lbrace}
1317 {\mathopen}{\mst@font@tbu}{123}{largesymbols}{"08}
1318 \DeclareMathDelimiter{\rbrace}
1319 {\mathclose}{\mst@font@tbu}{125}{largesymbols}{"09}
1320 \fi
1321 \DeclareMathSymbol{\mst@varfam@lbrace}{\mathalpha}{\mst@font@tbu}{123}
1322 \DeclareMathSymbol{\mst@varfam@rbrace}{\mathalpha}{\mst@font@tbu}{125}
1323 \DeclareRobustCommand*\mst@lbrace
1324 {\ifmmode\mathopen\mst@varfam@lbrace\else\textbraceleft\fi}
1325 \DeclareRobustCommand*\mst@rbrace
1326 {\ifmmode\mathclose\mst@varfam@rbrace\else\textbraceright\fi}
1327 \mst@do@nonletters\expandafter{\the\mst@do@nonletters
1328 \mst@dobraces{\let\{\mst@lbrace\let\}\mst@rbrace}}
1329 \fi % end of \ifmst@alldelims
1330 \newcommand*\MTexplicitbracesobeymathxx{\let\mst@dobraces\@firstofone}
1331 \newcommand*\MTexplicitbracesdonotobeymathxx{\let\mst@dobraces\@gobble}
1332 \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 XeTeX, LuaTeX or default. Removed.

1.3c [2013/12/14]: I have absolutely no idea why I removed the XeTeX and LuaTeX code at the time of 1.2d! the code for tex/pdftex engine could not accomodate more than 16 math families. Code for XeTeX and LuaTeX again added. (and since TL2013 no more problems with `\luatexUmathcode`.)

```

1333 \ifmst@nospecials
1334 \else
1335 \typeout{** \string\#\space\string\mathdollar\space
1336 \string\%\space\string\&\space}
1337 \ifmst@XeOrLua
1338 \mst@Umathcode'\#0 \symmtooperatorfont "23 \relax

```



```

1339 \mst@Umathchardef\mathdollar=0 \symmoperatorfont "24 \relax
1340 \mst@Umathcode'\%=0 \symmoperatorfont "25 \relax
1341 \mst@Umathcode'\&=0 \symmoperatorfont "26 \relax
1342 \mst@do@easynonletters\expandafter{%
1343   \the\mst@do@easynonletters
1344   \mst@Umathcode'\#=7 \symmoperatorfont "23 \relax
1345   \mst@Umathchardef\mathdollar=7 \symmoperatorfont "24 \relax
1346   \mst@Umathcode'\%=7 \symmoperatorfont "25 \relax
1347   \mst@Umathcode'\&=7 \symmoperatorfont "26 \relax
1348 }
1349 \else
1350 \count255=\symmoperatorfont
1351 \multiply\count255 by 256
1352 \advance\count255 by 35
1353 \mathcode'\#\count255
1354 \advance\count255 by \@ne
1355 \mathchardef\mathdollar\count255
1356 \advance\count255 by \@ne
1357 \mathcode'\%\count255
1358 \advance\count255 by \@ne
1359 \mathcode'\&\count255
1360 \count255=\symmoperatorfont
1361 \multiply\count255 by 256
1362 \advance\count255 by 28707 % = "7023
1363 \mathchardef\mst@varfam@mathhash\count255
1364 \advance\count255 by \@ne
1365 \mathchardef\mst@varfam@mathdollar\count255
1366 \advance\count255 by \@ne
1367 \mathchardef\mst@varfam@mathpercent\count255
1368 \advance\count255 by \@ne
1369 \mathchardef\mst@varfam@mathampersand\count255
1370 \mst@do@easynonletters\expandafter{\the\mst@do@easynonletters
1371   \mathcode'\#=\mst@varfam@mathhash
1372   \let\mathdollar\mst@varfam@mathdollar
1373   \mathcode'\%=\mst@varfam@mathpercent
1374   \mathcode'\&=\mst@varfam@mathampersand}
1375 \fi
1376 \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 L^AT_EX, 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`.

```
1377 \ifmst@symbolmisc\typeout{** symbolmisc: miscellaneous math symbols from Symbol font}
1378 \let\mst@prod\prod
1379 \let\MToriginalprod\prod
1380 \DeclareMathSymbol{\prodpsy}{\mathop}{mtpsymbol}{213}
1381 \renewcommand*{\prod}{\ifinner\prodpsy\else\mst@prod\fi}
1382 \let\mst@sum\sum
1383 \let\MToriginalsum\sum
1384 \DeclareMathSymbol{\sumpsy}{\mathop}{mtpsymbol}{229}
1385 \renewcommand*{\sum}{\ifinner\sumpsy\else\mst@sum\fi}

1386 \DeclareMathSymbol{\mst@implies}{\mathrel}{mtpsymbol}{222}
1387 \DeclareRobustCommand*{\implies}{\;\mst@implies\;}
1388 \DeclareMathSymbol{\mst@impliedby}{\mathrel}{mtpsymbol}{220}
1389 \DeclareRobustCommand*{\impliedby}{\;\mst@impliedby\;}
1390 \DeclareRobustCommand*{\iff}{\;\mst@impliedby\mathrel{\mkern-3mu}\mst@implies\;}
1391 \DeclareMathSymbol{\mst@iff}{\mathrel}{mtpsymbol}{219}
1392 \DeclareRobustCommand*{\shortiff}{\;\mst@iff\;}
1393 \DeclareMathSymbol{\mst@to}{\mathrel}{mtpsymbol}{174}
1394 \DeclareMathSymbol{\mst@trait}{\mathrel}{mtpsymbol}{190}
1395 \DeclareRobustCommand*{\to}{\mst@to}
1396 \DeclareRobustCommand*{\longto}{\mkern2mu\mst@trait\mathrel{\mkern-10mu}\mst@to}
1397 \DeclareRobustCommand*{\mapsto}{\mapstochar\mathrel{\mkern0.2mu}\mst@to}
1398 \DeclareRobustCommand*{\longmapsto}{%
1399 \mapstochar\mathrel{\mkern2mu}\mst@trait\mathrel{\mkern-10mu}\mst@to}
1400 \DeclareMathSymbol{\aleph}{\mathord}{mtpsymbol}{192}
1401 \DeclareMathSymbol{\infty}{\mathord}{mtpsymbol}{165}
1402 \DeclareMathSymbol{\emptyset}{\mathord}{mtpsymbol}{198}
1403 \let\varnothing\emptyset
1404 \DeclareMathSymbol{\nabla}{\mathord}{mtpsymbol}{209}
1405 \DeclareMathSymbol{\surd}{\mathop}{mtpsymbol}{214}
1406 \let\angle\undefined
1407 \DeclareMathSymbol{\angle}{\mathord}{mtpsymbol}{208}
1408 \DeclareMathSymbol{\forall}{\mathord}{mtpsymbol}{34}
1409 \DeclareMathSymbol{\exists}{\mathord}{mtpsymbol}{36}
1410 \DeclareMathSymbol{\neg}{\mathord}{mtpsymbol}{216}
1411 \DeclareMathSymbol{\clubsuit}{\mathord}{mtpsymbol}{167}
1412 \DeclareMathSymbol{\diamondsuit}{\mathord}{mtpsymbol}{168}
1413 \DeclareMathSymbol{\heartsuit}{\mathord}{mtpsymbol}{169}
1414 \DeclareMathSymbol{\spadesuit}{\mathord}{mtpsymbol}{170}
1415 \DeclareMathSymbol{\smallint}{\mathop}{mtpsymbol}{242}
1416 \DeclareMathSymbol{\wedge}{\mathbin}{mtpsymbol}{217}
1417 \DeclareMathSymbol{\vee}{\mathbin}{mtpsymbol}{218}
1418 \DeclareMathSymbol{\cap}{\mathbin}{mtpsymbol}{199}
1419 \DeclareMathSymbol{\cup}{\mathbin}{mtpsymbol}{200}
```

```

1420 \DeclareMathSymbol{\bullet}{\mathbin}{mtpsymbol}{183}
1421 \DeclareMathSymbol{\div}{\mathbin}{mtpsymbol}{184}
1422 \DeclareMathSymbol{\otimes}{\mathbin}{mtpsymbol}{196}
1423 \DeclareMathSymbol{\oplus}{\mathbin}{mtpsymbol}{197}
1424 \DeclareMathSymbol{\pm}{\mathbin}{mtpsymbol}{177}
1425 \DeclareMathSymbol{\times}{\mathbin}{mtpsymbol}{180}
1426 \DeclareMathSymbol{\propto}{\mathrel}{mtpsymbol}{181}
1427 \DeclareMathSymbol{\mid}{\mathrel}{mtpsymbol}{124}
1428 \DeclareMathSymbol{\leq}{\mathrel}{mtpsymbol}{163}
1429 \DeclareMathSymbol{\geq}{\mathrel}{mtpsymbol}{179}
1430 \DeclareMathSymbol{\approx}{\mathrel}{mtpsymbol}{187}
1431 \DeclareMathSymbol{\supset}{\mathrel}{mtpsymbol}{201}
1432 \DeclareMathSymbol{\subset}{\mathrel}{mtpsymbol}{204}
1433 \DeclareMathSymbol{\supseteq}{\mathrel}{mtpsymbol}{202}
1434 \DeclareMathSymbol{\subseteq}{\mathrel}{mtpsymbol}{205}
1435 \DeclareMathSymbol{\in}{\mathrel}{mtpsymbol}{206}
1436 \DeclareMathSymbol{\sim}{\mathrel}{mtpsymbol}{126}
1437 \let\cong\undefined
1438 \DeclareMathSymbol{\cong}{\mathrel}{mtpsymbol}{64}
1439 \DeclareMathSymbol{\perp}{\mathrel}{mtpsymbol}{94}
1440 \DeclareMathSymbol{\equiv}{\mathrel}{mtpsymbol}{186}
1441 \let\notin\undefined
1442 \DeclareMathSymbol{\notin}{\mathrel}{mtpsymbol}{207}
1443 \DeclareMathDelimiter{\rangle}
1444   {\mathclose}{mtpsymbol}{241}{largesymbols}{"0B}
1445 \DeclareMathDelimiter{\langle}
1446   {\mathopen}{mtpsymbol}{225}{largesymbols}{"0A}
1447 \fi

```

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

```

1448 \ifmst@symbolre\typeout{** symbolre: \string\Re\space and \string\Im\space from Sym
bol font}
1449 \DeclareMathSymbol{\Re}{\mathord}{mtpsymbol}{C2}
1450 \DeclareMathSymbol{\Im}{\mathord}{mtpsymbol}{C1}
1451 \DeclareMathSymbol{\DotTriangle}{\mathord}{mtpsymbol}{92}
1452 \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.)

```

1453 \let\mst@mathord\mathalpha
1454 \mst@goaheadtrue
1455 \ifmst@selfGreek
1456   \def\mst@font@tbu{mtselfGreekfont}
1457 \else
1458   \ifmst@eulergreek
1459     \def\mst@font@tbu{mteulervm}
1460   \else
1461     \ifmst@symbolgreek
1462       \def\mst@font@tbu{mtpsymbol}
1463     \let\mst@mathord\mathord
1464   \else
1465     \ifmst@LGRgreek
1466       \mst@goaheadfalse
1467     \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.

```

1468       \mst@goaheadfalse
1469       \def\mst@omicron {\mst@alph@omicron{o}}
1470     \fi
1471   \fi
1472 \fi
1473 \fi
1474 \ifmst@goahead
1475   \DeclareMathSymbol{\mst@Alpha}{\mst@mathord}{\mst@font@tbu}{41}
1476   \DeclareMathSymbol{\mst@Beta}{\mst@mathord}{\mst@font@tbu}{42}
1477   \DeclareMathSymbol{\mst@Epsilon}{\mst@mathord}{\mst@font@tbu}{45}
1478   \DeclareMathSymbol{\mst@Zeta}{\mst@mathord}{\mst@font@tbu}{5A}
1479   \DeclareMathSymbol{\mst@Eta}{\mst@mathord}{\mst@font@tbu}{48}
1480   \DeclareMathSymbol{\mst@Iota}{\mst@mathord}{\mst@font@tbu}{49}
1481   \DeclareMathSymbol{\mst@Kappa}{\mst@mathord}{\mst@font@tbu}{4B}
1482   \DeclareMathSymbol{\mst@Mu}{\mst@mathord}{\mst@font@tbu}{4D}
1483   \DeclareMathSymbol{\mst@Nu}{\mst@mathord}{\mst@font@tbu}{4E}
1484   \DeclareMathSymbol{\mst@Omicron}{\mst@mathord}{\mst@font@tbu}{4F}
1485   \DeclareMathSymbol{\mst@Rho}{\mst@mathord}{\mst@font@tbu}{50}
1486   \DeclareMathSymbol{\mst@Tau}{\mst@mathord}{\mst@font@tbu}{54}
1487   \DeclareMathSymbol{\mst@Chi}{\mst@mathord}{\mst@font@tbu}{58}

```

When we in fact use `Symbol`, we have to correct `\Rho` and `\Chi`. And `\Digamma` is non-existent in fact (no `F` in `Symbol`, `F` codes a `\Phi`).

```

1488   \ifx\mst@mathord\mathord
1489     symbolgreek but neither eulergreek nor selfGreek
1489 %% attention le P de Symbol est un \Pi pas un \Rho
1490   \DeclareMathSymbol{\mst@Rho}{\mathord}{mtpsymbol}{52}
1491 %% attention le X de Symbol est un \Xi pas un \Chi
1492   \DeclareMathSymbol{\mst@Chi}{\mathord}{mtpsymbol}{43}
1493 %% attention le F de Symbol est un \Phi. Il n'y a pas de \Digamma

```

```

1494 \DeclareMathSymbol{\mst@Gamma}{\mathord}{mtpsymbol}{47}
1495 \DeclareMathSymbol{\mst@Delta}{\mathord}{mtpsymbol}{44}
1496 \DeclareMathSymbol{\mst@Theta}{\mathord}{mtpsymbol}{51}
1497 \DeclareMathSymbol{\mst@Lambda}{\mathord}{mtpsymbol}{4C}
1498 \DeclareMathSymbol{\mst@Xi}{\mathord}{mtpsymbol}{58}
1499 \DeclareMathSymbol{\mst@Pi}{\mathord}{mtpsymbol}{50}
1500 \DeclareMathSymbol{\mst@Sigma}{\mathord}{mtpsymbol}{53}
1501 \DeclareMathSymbol{\mst@Upsilon}{\mathord}{mtpsymbol}{A1}
1502 \DeclareMathSymbol{\mst@Phi}{\mathord}{mtpsymbol}{46}
1503 \DeclareMathSymbol{\mst@Psi}{\mathord}{mtpsymbol}{59}
1504 \DeclareMathSymbol{\mst@Omega}{\mathord}{mtpsymbol}{57}
1505 \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.

```

1506 \DeclareMathSymbol\mst@Digamma {\mathalpha}{\mst@font@tbu}{46}
1507 \DeclareMathSymbol\mst@Gamma {\mathalpha}{\mst@font@tbu}{00}
1508 \DeclareMathSymbol\mst@Delta {\mathalpha}{\mst@font@tbu}{01}
1509 \DeclareMathSymbol\mst@Theta {\mathalpha}{\mst@font@tbu}{02}
1510 \DeclareMathSymbol\mst@Lambda {\mathalpha}{\mst@font@tbu}{03}
1511 \DeclareMathSymbol\mst@Xi {\mathalpha}{\mst@font@tbu}{04}
1512 \DeclareMathSymbol\mst@Pi {\mathalpha}{\mst@font@tbu}{05}
1513 \DeclareMathSymbol\mst@Sigma {\mathalpha}{\mst@font@tbu}{06}
1514 \DeclareMathSymbol\mst@Upsilon {\mathalpha}{\mst@font@tbu}{07}
1515 \DeclareMathSymbol\mst@Phi {\mathalpha}{\mst@font@tbu}{08}
1516 \DeclareMathSymbol\mst@Psi {\mathalpha}{\mst@font@tbu}{09}
1517 \DeclareMathSymbol\mst@Omega {\mathalpha}{\mst@font@tbu}{0A}
1518 \fi % de \mst@mathord=\mathord
1519 \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**

```

1520 \ifmst@goahead
1521 \ifmst@eulergreek
1522 \DeclareMathSymbol{\mst@alpha} {\mathalpha}{mteulervm}{0B}
1523 \DeclareMathSymbol{\mst@beta} {\mathalpha}{mteulervm}{0C}
1524 \DeclareMathSymbol{\mst@gamma} {\mathalpha}{mteulervm}{0D}
1525 \DeclareMathSymbol{\mst@delta} {\mathalpha}{mteulervm}{0E}
1526 \DeclareMathSymbol{\mst@epsilon} {\mathalpha}{mteulervm}{0F}
1527 \DeclareMathSymbol{\mst@zeta} {\mathalpha}{mteulervm}{10}
1528 \DeclareMathSymbol{\mst@eta} {\mathalpha}{mteulervm}{11}
1529 \DeclareMathSymbol{\mst@theta} {\mathalpha}{mteulervm}{12}
1530 \DeclareMathSymbol{\mst@iota} {\mathalpha}{mteulervm}{13}
1531 \DeclareMathSymbol{\mst@kappa} {\mathalpha}{mteulervm}{14}
1532 \DeclareMathSymbol{\mst@lambda} {\mathalpha}{mteulervm}{15}
1533 \DeclareMathSymbol{\mst@mu} {\mathalpha}{mteulervm}{16}
1534 \DeclareMathSymbol{\mst@nu} {\mathalpha}{mteulervm}{17}

```

```

1535 \DeclareMathSymbol{\mst@xi} {\mathalpha}{mteulervm}{18}
1536 \DeclareMathSymbol{\mst@omicron}{\mathalpha}{mteulervm}{6F}
1537 \DeclareMathSymbol{\mst@pi} {\mathalpha}{mteulervm}{19}
1538 \DeclareMathSymbol{\mst@rho} {\mathalpha}{mteulervm}{1A}
1539 \DeclareMathSymbol{\mst@sigma} {\mathalpha}{mteulervm}{1B}
1540 \DeclareMathSymbol{\mst@tau} {\mathalpha}{mteulervm}{1C}
1541 \DeclareMathSymbol{\mst@upsilon}{\mathalpha}{mteulervm}{1D}
1542 \DeclareMathSymbol{\mst@phi} {\mathalpha}{mteulervm}{1E}
1543 \DeclareMathSymbol{\mst@chi} {\mathalpha}{mteulervm}{1F}
1544 \DeclareMathSymbol{\mst@psi} {\mathalpha}{mteulervm}{20}
1545 \DeclareMathSymbol{\mst@omega} {\mathalpha}{mteulervm}{21}
1546 %
1547 \DeclareMathSymbol{\mst@varepsilon}{\mathalpha}{mteulervm}{22}
1548 \DeclareMathSymbol{\mst@vartheta}{\mathalpha}{mteulervm}{23}
1549 \DeclareMathSymbol{\mst@varpi} {\mathalpha}{mteulervm}{24}
1550 \let\mst@varrho=\mst@rho
1551 \let\mst@varsigma=\mst@sigma
1552 \DeclareMathSymbol{\mst@varphi} {\mathalpha}{mteulervm}{27}
1553 %
1554 \DeclareMathSymbol{\mst@partial}{\mathalpha}{mteulervm}{40}
1555 \DeclareMathSymbol{\mst@wp}{\mathalpha}{mteulervm}{7D}
1556 \DeclareMathSymbol{\mst@ell}{\mathalpha}{mteulervm}{60}
1557 \else
1558 \ifmst@symbolgreek
1559 \DeclareMathSymbol{\mst@alpha}{\mathord}{mtpsymbol}{61}
1560 \DeclareMathSymbol{\mst@beta}{\mathord}{mtpsymbol}{62}
1561 \DeclareMathSymbol{\mst@gamma}{\mathord}{mtpsymbol}{67}
1562 \DeclareMathSymbol{\mst@delta}{\mathord}{mtpsymbol}{64}
1563 \DeclareMathSymbol{\mst@epsilon}{\mathord}{mtpsymbol}{65}
1564 \DeclareMathSymbol{\mst@zeta}{\mathord}{mtpsymbol}{7A}
1565 \DeclareMathSymbol{\mst@eta}{\mathord}{mtpsymbol}{68}
1566 \DeclareMathSymbol{\mst@theta}{\mathord}{mtpsymbol}{71}
1567 \DeclareMathSymbol{\mst@iota}{\mathord}{mtpsymbol}{69}
1568 \DeclareMathSymbol{\mst@kappa}{\mathord}{mtpsymbol}{6B}
1569 \DeclareMathSymbol{\mst@lambda}{\mathord}{mtpsymbol}{6C}
1570 \DeclareMathSymbol{\mst@mu}{\mathord}{mtpsymbol}{6D}
1571 \DeclareMathSymbol{\mst@nu}{\mathord}{mtpsymbol}{6E}
1572 \DeclareMathSymbol{\mst@xi}{\mathord}{mtpsymbol}{78}
1573 \DeclareMathSymbol{\mst@omicron}{\mathord}{mtpsymbol}{6F}
1574 \DeclareMathSymbol{\mst@pi}{\mathord}{mtpsymbol}{70}
1575 \DeclareMathSymbol{\mst@rho}{\mathord}{mtpsymbol}{72}
1576 \DeclareMathSymbol{\mst@sigma}{\mathord}{mtpsymbol}{73}
1577 \DeclareMathSymbol{\mst@tau}{\mathord}{mtpsymbol}{74}
1578 \DeclareMathSymbol{\mst@upsilon}{\mathord}{mtpsymbol}{75}
1579 \DeclareMathSymbol{\mst@phi}{\mathord}{mtpsymbol}{66}
1580 \DeclareMathSymbol{\mst@chi}{\mathord}{mtpsymbol}{63}
1581 \DeclareMathSymbol{\mst@psi}{\mathord}{mtpsymbol}{79}
1582 \DeclareMathSymbol{\mst@omega}{\mathord}{mtpsymbol}{77}
1583 \let\mst@varepsilon=\mst@epsilon

```

```

1584 \DeclareMathSymbol{\mst@vartheta}{\mathord}{\mtpsymbol}{4A}
1585 \DeclareMathSymbol{\mst@varpi}{\mathord}{\mtpsymbol}{76}
1586 \let\mst@varrho=\mst@rho
1587 \DeclareMathSymbol{\mst@varsigma}{\mathord}{\mtpsymbol}{56}
1588 \DeclareMathSymbol{\mst@varphi}{\mathord}{\mtpsymbol}{6A}
1589 \DeclareMathSymbol{\mst@partial}{\mathord}{\mtpsymbol}{B6}
1590 \DeclareMathSymbol{\mst@wp}{\mathord}{\mtpsymbol}{C3}
1591 \fi
1592 \fi
1593 \fi
1594 \ifmst@LGRgreek
1595 % cf http://milde.users.sourceforge.net/LGR/lgrxenc.def.html
1596 % et greek.ldf du package babel
1597 \DeclareMathSymbol{\mst@Alpha}{\mathalpha}{\mtlgrfontupper}{65}
1598 \DeclareMathSymbol{\mst@Beta}{\mathalpha}{\mtlgrfontupper}{66}
1599 \DeclareMathSymbol{\mst@Epsilon}{\mathalpha}{\mtlgrfontupper}{69}
1600 \DeclareMathSymbol{\mst@Zeta}{\mathalpha}{\mtlgrfontupper}{90}
1601 \DeclareMathSymbol{\mst@Eta}{\mathalpha}{\mtlgrfontupper}{72}
1602 \DeclareMathSymbol{\mst@Iota}{\mathalpha}{\mtlgrfontupper}{73}
1603 \DeclareMathSymbol{\mst@Kappa}{\mathalpha}{\mtlgrfontupper}{75}
1604 \DeclareMathSymbol{\mst@Mu}{\mathalpha}{\mtlgrfontupper}{77}
1605 \DeclareMathSymbol{\mst@Nu}{\mathalpha}{\mtlgrfontupper}{78}
1606 \DeclareMathSymbol{\mst@Omicron}{\mathalpha}{\mtlgrfontupper}{79}
1607 \DeclareMathSymbol{\mst@Rho}{\mathalpha}{\mtlgrfontupper}{82}
1608 \DeclareMathSymbol{\mst@Tau}{\mathalpha}{\mtlgrfontupper}{84}
1609 \DeclareMathSymbol{\mst@Chi}{\mathalpha}{\mtlgrfontupper}{81}
1610 %
1611 \DeclareMathSymbol{\mst@Digamma}{\mathalpha}{\mtlgrfontlower}{195}
1612 %
1613 \DeclareMathSymbol{\mst@Gamma}{\mathalpha}{\mtlgrfontupper}{71}
1614 \DeclareMathSymbol{\mst@Delta}{\mathalpha}{\mtlgrfontupper}{68}
1615 \DeclareMathSymbol{\mst@Theta}{\mathalpha}{\mtlgrfontupper}{74}
1616 \DeclareMathSymbol{\mst@Lambda}{\mathalpha}{\mtlgrfontupper}{76}
1617 \DeclareMathSymbol{\mst@Xi}{\mathalpha}{\mtlgrfontupper}{88}
1618 \DeclareMathSymbol{\mst@Pi}{\mathalpha}{\mtlgrfontupper}{80}
1619 \DeclareMathSymbol{\mst@Sigma}{\mathalpha}{\mtlgrfontupper}{83}
1620 \DeclareMathSymbol{\mst@Upsilon}{\mathalpha}{\mtlgrfontupper}{85}
1621 \DeclareMathSymbol{\mst@Phi}{\mathalpha}{\mtlgrfontupper}{70}
1622 \DeclareMathSymbol{\mst@Psi}{\mathalpha}{\mtlgrfontupper}{89}
1623 \DeclareMathSymbol{\mst@Omega}{\mathalpha}{\mtlgrfontupper}{87}
1624 %
1625 \DeclareMathSymbol{\mst@alpha}{\mathalpha}{\mtlgrfontlower}{97}
1626 \DeclareMathSymbol{\mst@beta}{\mathalpha}{\mtlgrfontlower}{98}
1627 \DeclareMathSymbol{\mst@gamma}{\mathalpha}{\mtlgrfontlower}{103}
1628 \DeclareMathSymbol{\mst@delta}{\mathalpha}{\mtlgrfontlower}{100}
1629 \DeclareMathSymbol{\mst@epsilon}{\mathalpha}{\mtlgrfontlower}{101}
1630 \DeclareMathSymbol{\mst@zeta}{\mathalpha}{\mtlgrfontlower}{122}
1631 \DeclareMathSymbol{\mst@eta}{\mathalpha}{\mtlgrfontlower}{104}
1632 \DeclareMathSymbol{\mst@theta}{\mathalpha}{\mtlgrfontlower}{106}

```

```

1633 \DeclareMathSymbol{\mst@iota}{\mathalpha}{mtlgrfontlower}{105}
1634 \DeclareMathSymbol{\mst@kappa}{\mathalpha}{mtlgrfontlower}{107}
1635 \DeclareMathSymbol{\mst@lambda}{\mathalpha}{mtlgrfontlower}{108}
1636 \DeclareMathSymbol{\mst@mu}{\mathalpha}{mtlgrfontlower}{109}
1637 \DeclareMathSymbol{\mst@nu}{\mathalpha}{mtlgrfontlower}{110}
1638 \DeclareMathSymbol{\mst@xi}{\mathalpha}{mtlgrfontlower}{120}
1639 \DeclareMathSymbol{\mst@omicron}{\mathalpha}{mtlgrfontlower}{111}
1640 \DeclareMathSymbol{\mst@pi}{\mathalpha}{mtlgrfontlower}{112}
1641 \DeclareMathSymbol{\mst@rho}{\mathalpha}{mtlgrfontlower}{114}
1642 \DeclareMathSymbol{\mst@sigma}{\mathalpha}{mtlgrfontlower}{115}
1643 \DeclareMathSymbol{\mst@tau}{\mathalpha}{mtlgrfontlower}{116}
1644 \DeclareMathSymbol{\mst@upsilon}{\mathalpha}{mtlgrfontlower}{117}
1645 \DeclareMathSymbol{\mst@phi}{\mathalpha}{mtlgrfontlower}{102}
1646 \DeclareMathSymbol{\mst@chi}{\mathalpha}{mtlgrfontlower}{113}
1647 \DeclareMathSymbol{\mst@psi}{\mathalpha}{mtlgrfontlower}{121}
1648 \DeclareMathSymbol{\mst@omega}{\mathalpha}{mtlgrfontlower}{119}
1649 %
1650 \DeclareMathSymbol{\mst@digamma}{\mathalpha}{mtlgrfontlower}{147}
1651 % only varsigma defined (I should check this again)
1652 \DeclareMathSymbol{\mst@varsigma}{\mathalpha}{mtlgrfontlower}{99}
1653 \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
`\MTrecordstandardgreek` 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` !

```

1654 \newcommand*{\MTstandardgreek}{}
1655 \newcommand*{\MTcustomgreek}{}
1656 \newcommand*{\MTrecordstandardgreek}{}
1657 \ifmst@customgreek
1658 \renewcommand*{\MTrecordstandardgreek}{%
1659 \let\mst@origAlpha\Alpha
1660 \let\mst@origBeta\Beta
1661 \let\mst@origGamma\Gamma
1662 \let\mst@origDelta\Delta
1663 \let\mst@origEpsilon\Epsilon
1664 \let\mst@origZeta\Zeta
1665 \let\mst@origEta\Eta
1666 \let\mst@origTheta\Theta
1667 \let\mst@origIota\Iota
1668 \let\mst@origKappa\Kappa
1669 \let\mst@origLambda\Lambda
1670 \let\mst@origMu\Mu
1671 \let\mst@origNu\Nu
1672 \let\mst@origXi\Xi
1673 \let\mst@origOmicron\Omicron
1674 \let\mst@origPi\Pi

```



```

1675 \let\mst@origRho\Rho
1676 \let\mst@origSigma\Sigma
1677 \let\mst@origTau\Tau
1678 \let\mst@origUpsilon\Upsilon
1679 \let\mst@origPhi\Phi
1680 \let\mst@origChi\Chi
1681 \let\mst@origPsi\Psi
1682 \let\mst@origOmega\Omega
1683 %
1684 \let\mst@origalpha\alpha
1685 \let\mst@origbeta\beta
1686 \let\mst@origgamma\gamma
1687 \let\mst@origdelta\delta
1688 \let\mst@origepsilon\epsilon
1689 \let\mst@origvarepsilon\varepsilon
1690 \let\mst@origzeta\zeta
1691 \let\mst@origeta\eta
1692 \let\mst@origtheta\theta
1693 \let\mst@origvartheta\vartheta
1694 \let\mst@origiota\iota
1695 \let\mst@origkappa\kappa
1696 \let\mst@origlambda\lambda
1697 \let\mst@origmu\mu
1698 \let\mst@orignu\nu
1699 \let\mst@origxi\xi
1700 \let\mst@origomicron\omicron
1701 \let\mst@origpi\pi
1702 \let\mst@origvarpi\varpi
1703 \let\mst@origrho\rho
1704 \let\mst@origvarrho\varrho
1705 \let\mst@origsigma\sigma
1706 \let\mst@origvarsigma\varsigma
1707 \let\mst@origtau\tau
1708 \let\mst@origupsilon\upsilon
1709 \let\mst@origphi\phi
1710 \let\mst@origvarphi\varphi
1711 \let\mst@origchi\chi
1712 \let\mst@origpsi\psi
1713 \let\mst@origomega\omega
1714 \let\mst@origDigamma\Digamma
1715 \let\mst@origdigamma\digamma
1716 %
1717 \let\mst@origpartial\partial
1718 \let\mst@origwp\wp
1719 \let\mst@origell\ell }
1720 \MTrecordstandardgreek
1721 \renewcommand*{\MTstandardgreek}{%
1722 \let\Alpha\mst@origAlpha
1723 \let\Beta\mst@origBeta

```

1724 \let\Gamma\mst@origGamma
1725 \let\Delta\mst@origDelta
1726 \let\Epsilon\mst@origEpsilon
1727 \let\Zeta\mst@origZeta
1728 \let\Eta\mst@origEta
1729 \let\Theta\mst@origTheta
1730 \let\Iota\mst@origIota
1731 \let\Kappa\mst@origKappa
1732 \let\Lambda\mst@origLambda
1733 \let\Mu\mst@origMu
1734 \let\Nu\mst@origNu
1735 \let\Xi\mst@origXi
1736 \let\Omicron\mst@origOmicron
1737 \let\Pi\mst@origPi
1738 \let\Rho\mst@origRho
1739 \let\Sigma\mst@origSigma
1740 \let\Tau\mst@origTau
1741 \let\Upsilon\mst@origUpsilon
1742 \let\Phi\mst@origPhi
1743 \let\Chi\mst@origChi
1744 \let\Psi\mst@origPsi
1745 \let\Omega\mst@origOmega
1746 %
1747 \let\alpha\mst@origalpha
1748 \let\beta\mst@origbeta
1749 \let\gamma\mst@origgamma
1750 \let\delta\mst@origdelta
1751 \let\epsilon\mst@origepsilon
1752 \let\varepsilon\mst@origvarepsilon
1753 \let\zeta\mst@origzeta
1754 \let\eta\mst@origeta
1755 \let\theta\mst@origtheta
1756 \let\vartheta\mst@origvartheta
1757 \let\iota\mst@origiota
1758 \let\kappa\mst@origkappa
1759 \let\lambda\mst@origlambda
1760 \let\mu\mst@origmu
1761 \let\nu\mst@orignu
1762 \let\xi\mst@origxi
1763 \let\omicron\mst@origomicron
1764 \let\pi\mst@origpi
1765 \let\varpi\mst@origvarpi
1766 \let\rho\mst@origrho
1767 \let\varrho\mst@origvarrho
1768 \let\sigma\mst@origsigma
1769 \let\varsigma\mst@origvarsigma
1770 \let\tau\mst@origtau
1771 \let\upsilon\mst@origupsilon
1772 \let\phi\mst@origphi

```

1773 \let\varphi\mst@origvarphi
1774 \let\chi\mst@origchi
1775 \let\psi\mst@origpsi
1776 \let\omega\mst@origomega
1777 \let\Digamma\mst@origDigamma
1778 \let\digamma\mst@origdigamma
1779 %
1780 \let\partial\mst@origpartial
1781 \let\wp\mst@origwp
1782 \let\ell\mst@origell
1783 }
1784 \renewcommand*{\MTcustomgreek}{%
1785 \let\Alpha\mst@Alpha
1786 \let\Beta\mst@Beta
1787 \let\Epsilon\mst@Epsilon
1788 \let\Zeta\mst@Zeta
1789 \let\Eta\mst@Eta
1790 \let\Iota\mst@Iota
1791 \let\Kappa\mst@Kappa
1792 \let\Mu\mst@Mu
1793 \let\Nu\mst@Nu
1794 \let\Omicron\mst@Omicron
1795 \let\Rho\mst@Rho
1796 \let\Tau\mst@Tau
1797 \let\Chi\mst@Chi
1798 % 1.3h: \mst@Digamma not defined if symbolgreek option
1799 \ifmst@symbolgreek\else\let\Digamma\mst@Digamma\fi
1800 %
1801 \let\Gamma\mst@Gamma
1802 \let\Delta\mst@Delta
1803 \let\Theta\mst@Theta
1804 \let\Lambda\mst@Lambda
1805 \let\Xi\mst@Xi
1806 \let\Pi\mst@Pi
1807 \let\Sigma\mst@Sigma
1808 \let\Upsilon\mst@Upsilon
1809 \let\Phi\mst@Phi
1810 \let\Psi\mst@Psi
1811 \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.
1812 \ifmst@selfGreek\else
1813 \let\alpha\mst@alpha
1814 \let\beta\mst@beta
1815 \let\gamma\mst@gamma
1816 \let\delta\mst@delta
1817 \let\epsilon\mst@epsilon
1818 \let\zeta\mst@zeta
1819 \let\eta\mst@eta

```

```

1820 \let\theta\mst@theta
1821 \let\iota\mst@iota
1822 \let\kappa\mst@kappa
1823 \let\lambda\mst@lambda
1824 \let\mu\mst@mu
1825 \let\nu\mst@nu
1826 \let\xi\mst@xi
1827 \let\omicron\mst@omicron
1828 \let\pi\mst@pi
1829 \let\rho\mst@rho
1830 \let\sigma\mst@sigma
1831 \let\tau\mst@tau
1832 \let\upsilon\mst@upsilon
1833 \let\phi\mst@phi
1834 \let\chi\mst@chi
1835 \let\psi\mst@psi
1836 \let\omega\mst@omega
1837 % 1.3h: digamma only defined with option LGRgreek:
1838 \ifmst@LGRgreek\let\digamma\mst@digamma\fi
1839 %
1840 \let\varsigma\mst@varsigma
1841 % conditional added 1.3h 2015/10/31
1842 \ifmst@LGRgreek\else
1843 \let\varepsilon\mst@varepsilon
1844 \let\vartheta\mst@vartheta
1845 \let\varpi\mst@varpi
1846 \let\varrho\mst@varrho
1847 \let\varphi\mst@varphi
1848 %
1849 \let\partial\mst@partial
1850 \let\wp\mst@wp
1851 % 1.3h: no \mst@ell if symbolgreek (bugfix 1.3h 2015/10/31)
1852 \ifmst@symbolgreek\else\let\ell\mst@ell\fi
1853 \fi
1854 \fi
1855 }
1856 \fi
1857 \let\Mathastextstandardgreek\MTstandardgreek
1858 \let\Mathastextcustomgreek\MTcustomgreek
1859 \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.

```

1860 \edef\mst@tmp@enc{\encodingdefault}
1861 \mst@goaheadtrue
1862 \ifx\mst@tmp@enc\mst@eui % xetex and unicode font

```

```

1863 \mst@Umathchardef\inodot="7 \symmtletterfont "0131 \relax
1864 \mst@Umathchardef\jnodot="7 \symmtletterfont "0237 \relax
1865 \else
1866 \ifx\mst@tmp@enc\mst@euui % luatex and unicode font
1867 \mst@Umathchardef\inodot="7 \symmtletterfont "0131 \relax
1868 \mst@Umathchardef\jnodot="7 \symmtletterfont "0237 \relax
1869 \else
1870 \ifx\mst@tmp@enc\mst@ti % T1
1871 \DeclareMathSymbol{\inodot}{\mathalpha}{mtletterfont}{25}
1872 \DeclareMathSymbol{\jnodot}{\mathalpha}{mtletterfont}{26}
1873 \else
1874 \ifx\mst@tmp@enc\mst@oti % OT1
1875 \DeclareMathSymbol{\inodot}{\mathalpha}{mtletterfont}{16}
1876 \DeclareMathSymbol{\jnodot}{\mathalpha}{mtletterfont}{17}
1877 \else
1878 \ifx\mst@tmp@enc\mst@lyi % LY1
1879 \DeclareMathSymbol{\inodot}{\mathalpha}{mtletterfont}{16}
1880 \DeclareMathSymbol{\jnodot}{\mathalpha}{mtletterfont}{17}
1881 \else
1882 \ifmst@XeOrLua\mst@goaheadfalse\else
1883 \DeclareMathSymbol{\inodot}{\mathalpha}{mtletterfont}
1884 {\expandafter\the\expandafter\csname\mst@tmp@enc\string\i\endcsname}
1885 \DeclareMathSymbol{\jnodot}{\mathalpha}{mtletterfont}
1886 {\expandafter\the\expandafter\csname\mst@tmp@enc\string\j\endcsname}
1887 \fi
1888 \fi\fi\fi\fi\fi
1889 \ifmst@defaultimath\else\typeout{** \string\i\space and \string\j\space}
1890 \ifmst@goahead
1891 \renewcommand*{\imath}{\inodot}
1892 \renewcommand*{\jmath}{\jnodot}
1893 \let\mst@oldi\i \let\mst@oldj\j
1894 \DeclareRobustCommand*{\i}{\ifmmode\inodot\else\mst@oldi\fi}
1895 \DeclareRobustCommand*{\j}{\ifmmode\jnodot\else\mst@oldj\fi}
1896 \fi
1897 \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 L^AT_EX, 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

```

1898 \edef\mst@tmp@enc{\encodingdefault} %% rather one too many than sorry
1899 \ifmst@mathaccents\typeout{** math accents}
1900 \ifx\mst@ti\mst@tmp@enc
1901 \DeclareMathAccent{\acute}{\mathalpha}{mtooperatorfont}{1}
1902 \DeclareMathAccent{\grave}{\mathalpha}{mtooperatorfont}{0}
1903 \DeclareMathAccent{\ddot}{\mathalpha}{mtooperatorfont}{4}
1904 \DeclareMathAccent{\tilde}{\mathalpha}{mtooperatorfont}{3}

```

```

1905 \DeclareMathAccent{\bar}{\mathalpha}{mtoperatorfont}{9}
1906 \DeclareMathAccent{\breve}{\mathalpha}{mtoperatorfont}{8}
1907 \DeclareMathAccent{\check}{\mathalpha}{mtoperatorfont}{7}
1908 \DeclareMathAccent{\hat}{\mathalpha}{mtoperatorfont}{2}
1909 \DeclareMathAccent{\dot}{\mathalpha}{mtoperatorfont}{10}
1910 \DeclareMathAccent{\mathring}{\mathalpha}{mtoperatorfont}{6}
1911 \else
1912 \DeclareMathAccent{\acute}{\mathalpha}{mtoperatorfont}{19}
1913 \DeclareMathAccent{\grave}{\mathalpha}{mtoperatorfont}{18}
1914 \DeclareMathAccent{\ddot}{\mathalpha}{mtoperatorfont}{127}
1915 \DeclareMathAccent{\tilde}{\mathalpha}{mtoperatorfont}{126}
1916 \DeclareMathAccent{\bar}{\mathalpha}{mtoperatorfont}{22}
1917 \DeclareMathAccent{\breve}{\mathalpha}{mtoperatorfont}{21}
1918 \DeclareMathAccent{\check}{\mathalpha}{mtoperatorfont}{20}
1919 \DeclareMathAccent{\hat}{\mathalpha}{mtoperatorfont}{94}
1920 \DeclareMathAccent{\dot}{\mathalpha}{mtoperatorfont}{95}
1921 \DeclareMathAccent{\mathring}{\mathalpha}{mtoperatorfont}{23}
1922 \ifx\mst@lyi\mst@tmp@enc % LY1 encoding
1923 \DeclareMathAccent{\dot}{\mathalpha}{mtoperatorfont}{5}
1924 \else
1925 \ifx\mst@oti\mst@tmp@enc\else
1926 \typeout{** mathastext: math accents have been assumed to be~J%
1927 ** as in OT1 encoding.}
1928 \fi
1929 \fi
1930 \fi\fi

```

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

```

1931 \ifmst@defaultsizes\else
1932 \providecommand\@xxxpt{29.86}
1933 \providecommand\@xxxvpt{35.83}
1934 \ifmst@twelve
1935 \def\Huge{\@setfontsize\Huge\@xxxpt{36}}
1936 \def\HUGE{\@setfontsize\HUGE\@xxxvpt{43}}
1937 \typeout{** \protect\Huge\space and \protect\HUGE\space have been (re)-defined.}
1938 \else
1939 \def\HUGE{\@setfontsize\HUGE\@xxxpt{36}}
1940 \typeout{** \protect\HUGE\space has been (re)-defined.}
1941 \fi

```

I choose rather big subscripts.

```

1942 \def\defaultscriptratio{.8333}
1943 \def\defaultscriptscriptratio{.7}
1944 \DeclareMathSizes{9}{9}{7}{5}
1945 \DeclareMathSizes{\@xpt}{\@xpt}{8}{6}
1946 \DeclareMathSizes{\@xipt}{\@xipt}{9}{7}
1947 \DeclareMathSizes{\@xipt}{\@xipt}{10}{8}
1948 \DeclareMathSizes{\@xivpt}{\@xivpt}{\@xipt}{10}
1949 \DeclareMathSizes{\@xvipt}{\@xvipt}{\@xivpt}{\@xipt}
1950 \DeclareMathSizes{\@xxpt}{\@xxpt}{\@xvipt}{\@xivpt}

```

```

1951 \DeclareMathSizes{\@xxvpt}{\@xxvpt}{\@xxpt}{\@xvipt}
1952 \DeclareMathSizes{\@xxxpt}{\@xxxpt}{\@xxvpt}{\@xxpt}
1953 \DeclareMathSizes{\@xxxvpt}{\@xxxvpt}{\@xxxpt}{\@xxvpt}
1954 \typeout{** mathastext has declared larger sizes for subscripts.^^J%
1955 ** To keep LaTeX defaults, use option 'defaultmathsizes\string'.}
1956 \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`.

```

1957 \newcommand*\MTeverymathoff {%
1958     \MTnormalasterisk
1959     \MTnormalprime
1960     \MTnonlettersdonotobeymathxx
1961     \MTeasynonlettersdonotobeymathxx
1962     \MTmathstandardletters
1963 }%
1964 \AtBeginDocument {%
1965     \@ifpackageloaded{hyperref}
1966     {\def\Hurl{\begingroup\MTeverymathoff\Url}}
1967     {\@ifpackageloaded{url}{\DeclareUrlCommand\url{\MTeverymathoff}}{}}%
1968 }%

```

`\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`.

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).

```

1969 \newcommand*\MTeverymathdefault {%
1970     \MTactiveasterisk
1971     \MTprimedoesskip
1972     \MTeasynonlettersobeymathxx
1973     \MTicinmath
1974 }%

```