

MdSymbol: A Math Symbol Font

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1 Introduction

MdSymbol is a font of mathematical symbols designed as a companion to Adobe Myriad Pro, but it might also fit well to other contemporary typefaces. To use this font in a \LaTeX

document, add the command

```
\usepackage[{options}]{mdsymbol}
```

to the preamble of your document. With default settings, it redefines most of the standard mathematical symbols and makes available many new ones (see Section 5). With the `onlysansmath` option, the symbols are only defined for two new math versions, `sans` and `sansbold`. This allows to easily use two distinct math fonts in one document. For details and the other available options see section 3.1.

Acknowledgements

The MdSymbol font is heavily based on FdSymbol¹, another math symbol font, designed by Michael Ummels. All supporting scripts (to e.g. convert the MetaFont sources to Type 1 fonts) were written by him. I got a lot of help in `comp.text.tex` so basically the main code implementing the `onlysansmath` functionality is written by Bruno Le Floch, Enrico Gregorio, Lars Madsen and Heiko Oberdiek; the ugly parts and bugs by me.

2 Interferences with other packages

The `mdsymbol` package is incompatible with the `amssymb` and `amsfonts` packages. It automatically loads the `amsmath` and `textcomp` packages. If you want to pass options to these packages, you can either load these packages before `mdsymbol` or you can include the options in the `\documentclass` command.

3 Options

3.1 Font selection

MdSymbol comes in four weights, which are (in increasing order) Light, Regular, Semibold and Bold. Of these, Light and Regular are suitable for normal math typesetting, while Semibold and Bold can be used for bold math typesetting. Using the options **`normalweight`** and **`boldweight`**, you can select which weights are used. For example, to use the Light weight as the normal weight in math, add `normalweight=Light` to the package options. Analogously, to use the Bold weight with `\boldmath` or `\boldsymbol`, add `boldweight=Bold` to the package options. By default, Regular and Semibold are used. Additionally, it is possible to use a suitable weight automatically depending on the font size. By selecting `autolight` or `autoregular` for `normalweight`, Light or Regular weight, respectively, is used for font sizes larger than

¹<http://www.ctan.org/pkg/fdsymbol/>

6pt and Regular or Semibold, respectively, for smaller sizes. Similarly, `autosemibold` for `boldweight` selects Semibold for bold symbols larger than 6pt and Bold below 6pt.

3.2 Math Symbols only in sans serif math

With the **`onlysansmath`** option, `mdsymbol` does not change already defined math symbols but declares two new math versions, `sans` and `sansbold`, and defines its symbols to be only used within these math versions. Use the command `\mathversion{sans}` or `\mathversion{sansbold}` to switch to this math version. Also single input character symbols (e.g. `+`, `-`, `(`, `)`) adapt to the math version except when used with a delimiter size increasing command like `\big`.² As a workaround, use the corresponding full command instead (`\big\lparen`).

3.3 Miscellaneous

`mdsymbol` uses and combines some symbols of the text font (section 5.7). The option **`retainmissing`** prevents this.

In order to use `MdSymbol` with different text fonts, it is possible to scale the fonts by an arbitrary factor. This can be achieved with the option **`scale`**. For example, to use the fonts at 90 % of their original size, you can add `scale=0.9` to the package options. Finally, it is possible to increase the height of delimiters slightly (by 20 % in text size and by 25 % in `\big` size). This can be achieved by activating the option **`largedelims`**. Use this option if you want to combine `MdSymbol` with a text font that has rather tall delimiters.

The following table summarises all options (keys) that can be used with the `mdsymbol` package. Values that correspond to the default behaviour of the package are marked by an asterisk.

| Key | Values |
|----------------------------|--|
| <code>normalweight</code> | Light, Regular*, <code>autolight</code> , <code>autoregular</code> |
| <code>boldweight</code> | Semibold*, Bold, <code>autosemibold</code> |
| <code>onlysansmath</code> | true, false* |
| <code>retainmissing</code> | true, false* |
| <code>scale</code> | $\langle factor \rangle$ |
| <code>largedelims</code> | true, false* |

²Any help to solve this problem is highly welcome!

4 Version history

Version 0.1: First version

Version 0.1a: Always declare `sansmathtabular` and `sansmathboldtabular` if `onlysansmath` option is given

Version 0.2: Internal bugfixes

Version 0.2a:

- Bugfixes of bugfixes
- Issue error when using a symbol in non-sans math versions which has not been declared before loading `mdsymbol` with `onlysansmath` option

Version 0.3: Rename package to lower-case `mdsymbol` for CTAN upload

5 Symbols

The `mdsymbol` package provides the following symbols.

5.1 Ordinary symbols

| | | | |
|-----|---|---|--|
| ... | <code>\hdots</code> | ◊ | <code>\smalllozenge,</code> |
| : | <code>\vdots</code> | | <code>\smwhtlozenge</code> |
| ⋯ | <code>\udots, \adots</code> | ◆ | <code>\smallblacklozenge,</code> |
| ⋱ | <code>\ddots</code> | | <code>\smbklozenge</code> |
| ∴ | <code>\righttherefore</code> | ◊ | <code>\medlozenge, \lozenge,</code> |
| ∵ | <code>\uptherefore, \therefore</code> | | <code>\mdlghwhtlozenge,</code> |
| ∴ | <code>\lefttherefore</code> | | <code>\mdwhtlozenge</code> |
| ∵ | <code>\downtherefore, \because</code> | ◆ | <code>\medblacklozenge,</code> |
| ∴ | <code>\squaredots</code> | | <code>\blacklozenge,</code> |
| ¬ | <code>\neg, \lnot</code> | | <code>\mdlghbklozenge,</code> |
| ⊖ | <code>\backneg, \invnot, \invneg</code> | | <code>\mdblklozenge</code> |
| ⌢ | <code>\turnedneg, \turnednot</code> | ◊ | <code>\lozengeminus</code> |
| ⌣ | <code>\turnedbackneg</code> | ☆ | <code>\largewhitestar</code> |
| △ | <code>\largetriangleup</code> | ★ | <code>\largeblackstar, \bigstar</code> |
| ▽ | <code>\largetriangleup</code> | ∞ | <code>\infty</code> |
| ∅ | <code>\emptyset, \diameter,</code> | ∠ | <code>\angle</code> |
| | <code>\varnothing</code> | ∟ | <code>\revangle</code> |
| ∅ | <code>\reemptyset</code> | ⌢ | <code>\measuredangle</code> |
| ○ | <code>\largecircle, \lgwhtcircle</code> | ⌣ | <code>\revmeasuredangle,</code> |
| ● | <code>\largeblackcircle</code> | | <code>\measuredangleleft</code> |
| □ | <code>\largesquare, \lgwhtsquare</code> | ∠ | <code>\sphericalangle</code> |
| ■ | <code>\largeblacksquare,</code> | ∠ | <code>\sphericalangleup</code> |
| | <code>\lgblksquare</code> | ∠ | <code>\sphericalangleleft,</code> |

| | | | |
|--------------------------|--------------------------------------|-----------------|---------------------------------------|
| \angle | <code>\revsphericalangle,</code> | \forall | <code>\forallforall</code> |
| \angle | <code>\gtlpar</code> | \exists | <code>\existsexists</code> |
| \sphericalangle | <code>\sphericalangledown</code> | \nexists | <code>\nexists</code> |
| \rightangle | <code>\rightangle</code> | \Finv | <code>\Finv</code> |
| \measuredrightangle | <code>\measuredrightangle</code> | \Game | <code>\Game</code> |
| \rightanglesquare | <code>\rightanglesquare,</code> | \complement | <code>\complement</code> |
| \rightanglesqr | <code>\rightanglesqr</code> | \flat | <code>\flat</code> |
| \measuredrightangledot | <code>\measuredrightangledot,</code> | \natural | <code>\natural</code> |
| \rightangledot | <code>\rightangledot</code> | \sharp | <code>\sharp</code> |
| \prime | <code>\prime</code> | \aleph | <code>\aleph</code> |
| \backprime | <code>\backprime</code> | \beth | <code>\beth</code> |
| \checkmark | <code>\checkmark</code> | \gimel | <code>\gimel</code> |
| \lightning | <code>\lightning,</code> | \daleth | <code>\daleth</code> |
| \downzigzagarrow | <code>\downzigzagarrow</code> | \wp | <code>\wp</code> |
| \diamondsuit | <code>\diamondsuit</code> | ∇ | <code>\nabla</code> |
| \vardiamondsuit | <code>\vardiamondsuit</code> | \top | <code>\top</code> |
| \heartsuit | <code>\heartsuit</code> | \bot | <code>\bot</code> |
| \varheartsuit | <code>\varheartsuit</code> | $\mathord{/}$ | <code>\mathord{/}, \mathord{/}</code> |
| \spadesuit | <code>\spadesuit</code> | \backslash | <code>\backslash</code> |
| \clubsuit | <code>\clubsuit</code> | $\mathord{ }$ | <code>\mathord{ }, \mathord{ }</code> |
| \maltese | <code>\maltese</code> | $\mathord{ }$ | <code>\mathord{ }</code> |
| \starofdavid | <code>\starofdavid</code> | $\mathord{ }$ | <code>\mathord{ }</code> |
| \sector | <code>\sector</code> | | |

5.2 Binary operators

| | | | |
|---------------------------------|--|-----------|----------------------|
| \cdot | <code>\cdot</code> | $\dot{-}$ | <code>\dot{-}</code> |
| \centerdot | <code>\centerdot</code> | \div | <code>\div</code> |
| \hdotdot | <code>\hdotdot</code> | \pm | <code>\pm</code> |
| \vdotdot | <code>\vdotdot</code> | \mp | <code>\mp</code> |
| \udotdot | <code>\udotdot</code> | $\dot{+}$ | <code>\dot{+}</code> |
| \ddotdotdot | <code>\ddotdotdot</code> | $\dot{+}$ | <code>\dot{+}</code> |
| $-$ | <code>-, \minus</code> | \times | <code>\times</code> |
| $\medslash, \smalldivslash$ | <code>\medslash, \smalldivslash</code> | \times | <code>\times</code> |
| $\medbackslash, \smallsetminus$ | <code>\medbackslash, \smallsetminus</code> | \div | <code>\div</code> |
| $+$ | <code>+, \plus</code> | \int | <code>\int</code> |
| \times | <code>\times</code> | \int | <code>\int</code> |
| $\dot{-}$ | <code>\dot{-}</code> | \times | <code>\times</code> |
| $\dot{-}$ | <code>\dot{-}</code> | \times | <code>\times</code> |
| \div | <code>\div</code> | \times | <code>\times</code> |

| | | | |
|-----------------------|--------------------------------------|-----------------------|--|
| \times | <code>\utimes, \ttimes</code> | ∇ | <code>\smalltriangledown</code> |
| \ltimes | <code>\ltimes</code> | \blacktriangleright | <code>\smallblacktriangleright</code> |
| \rtimes | <code>\rtimes</code> | \blacktriangleup | <code>\smallblacktriangleup</code> |
| \bowtie | <code>\upbowtie, \hourglass</code> | \blacktriangleleft | <code>\smallblacktriangleleft</code> |
| \succ | <code>\rightY</code> | \blacktriangledown | <code>\smallblacktriangledown</code> |
| \upharpoonright | <code>\upY</code> | \triangleright | <code>\medtriangleright, \triangleright</code> |
| \leftarrow | <code>\leftY</code> | \triangle | <code>\medtriangleup, \triangle, \vartriangle</code> |
| \downarrow | <code>\downY</code> | \triangleleft | <code>\medtriangleleft, \triangleleft</code> |
| \wedge | <code>\wedge, \land</code> | \triangledown | <code>\medtriangledown, \triangledown</code> |
| \vee | <code>\vee, \lor</code> | \blacktriangleright | <code>\medblacktriangleright, \blacktriangleright</code> |
| \wedgedot | <code>\wedgedot</code> | \blacktriangleup | <code>\medblacktriangleup, \blacktriangleup</code> |
| \veedot | <code>\veedot</code> | \blacktriangleleft | <code>\medblacktriangleleft, \blacktriangleleft</code> |
| \wedgedge | <code>\doublewedge, \wedgedge</code> | \blacktriangledown | <code>\medblacktriangledown, \blacktriangledown</code> |
| \veedee | <code>\doublevee, \veedee</code> | \bigtriangleup | <code>\bigtriangleup</code> |
| \curlywedge | <code>\curlywedge</code> | \bigtriangledown | <code>\bigtriangledown</code> |
| \curlyvee | <code>\curlyvee</code> | \circ | <code>\smallcircle, \circ, \smwhtcircle</code> |
| $\bar{\wedge}$ | <code>\barwedge</code> | \bullet | <code>\smallblackcircle, \bullet, \smbkcircle</code> |
| $\bar{\vee}$ | <code>\veebar</code> | \bigcirc | <code>\medcircle, \mdlgwhtcircle, \mdwhtcircle</code> |
| $\bar{\wedge}$ | <code>\doublebarwedge</code> | \bullet | <code>\medblackcircle, \mdlgblkcircle, \mdblkcircle</code> |
| $\bar{\vee}$ | <code>\veedoublebar</code> | \ominus | <code>\ominus</code> |
| \cup | <code>\cup</code> | \oplus | <code>\oplus</code> |
| \cap | <code>\cap</code> | \otimes | <code>\otimes</code> |
| \cup | <code>\doublecup, \Cup</code> | \odot | <code>\odot</code> |
| \cap | <code>\doublecap, \Cap</code> | \odot | <code>\ocirc, \circledcirc</code> |
| \cup | <code>\cupdot</code> | \otimes | <code>\oast, \circledast</code> |
| \cap | <code>\capdot</code> | | |
| \cup | <code>\cupplus, \uplus</code> | | |
| \cap | <code>\capplus</code> | | |
| \sqcup | <code>\sqcup</code> | | |
| \sqcap | <code>\sqcap</code> | | |
| \sqcup | <code>\doublesqcup, \Sqcup</code> | | |
| \sqcap | <code>\doublesqcap, \Sqcap</code> | | |
| \sqcup | <code>\sqcupdot</code> | | |
| \sqcap | <code>\sqcapdot</code> | | |
| \sqcup | <code>\sqcupplus</code> | | |
| \sqcap | <code>\sqcapplus</code> | | |
| \lrcorner | <code>\pullback</code> | | |
| \rsh | <code>\pushout</code> | | |
| \blacktriangleright | <code>\smalltriangleright</code> | | |
| \blacktriangleup | <code>\smalltriangleup</code> | | |
| \blacktriangleleft | <code>\smalltriangleleft</code> | | |

| | | | |
|-----------------|--|---------------------|---|
| \odot | <code>\odash, \circleddash</code> | \blacklozenge | <code>\medblackdiamond,</code> <code>\mdlgblkdiamond,</code> <code>\mdblkdiamond</code> |
| \circledcirc | <code>\oequal, \circledequal</code> | \diamondminus | <code>\diamondminus</code> |
| \bigcirc | <code>\bigcirc</code> | \diamondup | <code>\diamondvert</code> |
| \square | <code>\smallsquare, \smwhtsquare</code> | \diamondslash | <code>\diamondslash</code> |
| \blacksquare | <code>\smallblacksquare,</code> <code>\smbblksquare</code> | \diamondbackslash | <code>\diamondbackslash,</code> <code>\diamondbslash</code> |
| \square | <code>\medsquare, \square, \Box,</code> <code>\mdlgwhtsquare,</code> <code>\mdwhtsquare</code> | \diamondplus | <code>\diamondplus</code> |
| \blacksquare | <code>\medblacksquare,</code> <code>\mdlgblksquare,</code> <code>\mdblksquare</code> | \diamondtimes | <code>\diamondtimes</code> |
| \boxminus | <code>\boxminus</code> | \diamonddot | <code>\diamondddot, \diamondcdot</code> |
| \boxdot | <code>\boxdot</code> | \diamondstar | <code>\diamondstar</code> |
| \boxplus | <code>\boxplus</code> | \smallstar | <code>\smallwhitestar,</code> <code>\smwhitestar</code> |
| \boxtimes | <code>\boxtimes</code> | \star | <code>\smallblackstar, \star</code> |
| \boxdot | <code>\boxdot</code> | \star | <code>\medwhitestar</code> |
| \boxbox | <code>\boxbox</code> | \star | <code>\medblackstar, \medstar</code> |
| \diamond | <code>\smalldiamond, \diamond,</code> <code>\smwhtdiamond</code> | $*$ | <code>*, \ast</code> |
| \blacklozenge | <code>\smallblackdiamond,</code> <code>\blackdiamond,</code> <code>\smbldiamond</code> | \intercal | <code>\intercal</code> |
| \diamond | <code>\meddiamond, \Diamond,</code> <code>\mdlgwhtdiamond,</code> <code>\mdwhtdiamond</code> | \wr | <code>\wreath, \wr</code> |
| | | \amalg | <code>\amalg</code> |
| | | \lhd | <code>\lhd</code> |
| | | \rhd | <code>\rhd</code> |
| | | \unlhd | <code>\unlhd</code> |
| | | \unrhd | <code>\unrhd</code> |
| | | $/$ | <code>\divslash</code> |
| | | \setminus | <code>\setminus</code> |

5.3 Relations

| | | | |
|--------------|---------------------------------|------------------|-----------------------------|
| $=$ | <code>=, \equal, \Relbar</code> | \cong | <code>\backcong</code> |
| \equiv | <code>\equiv</code> | $\dot{\cong}$ | <code>\dotcong</code> |
| \sim | <code>\sim</code> | \approx | <code>\approx</code> |
| \backsimeq | <code>\backsimeq</code> | \bumpeq | <code>\bumpeq</code> |
| \approx | <code>\approx</code> | \bumpeq | <code>\bumpeq</code> |
| \approx | <code>\approx</code> | \Bumpeq | <code>\Bumpeq</code> |
| \approx | <code>\approx</code> | \doteq | <code>\doteq</code> |
| \approx | <code>\approx</code> | \eqdot | <code>\eqdot</code> |
| \approx | <code>\approx</code> | \Doteq | <code>\Doteq</code> |
| \approx | <code>\approx</code> | \fallingdotseq | <code>\fallingdotseq</code> |

| | | | |
|-------------------|---|--------------------|---|
| $\dot{=}$ | <code>\risingdotseq</code> | \triangleleft | <code>\lessclosed,</code> |
| \coloneqq | <code>\coloneq,\coloneqq</code> | | <code>\vartriangleleftleft</code> |
| \eqcolon | <code>\eqcolon,\eqqcolon</code> | \triangleright | <code>\gtrclosed,</code> |
| \smile | <code>\smile,\smallsmile</code> | | <code>\vartrianglerightright</code> |
| \frown | <code>\frown,\smallfrown</code> | \trianglelefteq | <code>\leqclosed,\trianglelefteq</code> |
| \asymp | <code>\smilefrown,\asymp</code> | \trianglerighteq | <code>\geqclosed,</code> |
| \circ | <code>\frownsmile,\closure</code> | | <code>\trianglerightrighteq</code> |
| \smileeq | <code>\smileeq</code> | \triangleleft | <code>\lesscc,\ltcc</code> |
| \frowneq | <code>\frowneq,\arceq</code> | \triangleright | <code>\gtrcc,\gtcc</code> |
| \eqcirc | <code>\eqcirc</code> | \trianglelefteq | <code>\leqslcc,\lescc</code> |
| \circeq | <code>\circeq</code> | \trianglerighteq | <code>\geqslcc,\gescc</code> |
| \wedgedeq | <code>\wedgedeq,\hateq</code> | \sqsubset | <code>\sqsubset</code> |
| \veeeq | <code>\veeeq</code> | \sqsupset | <code>\sqsupset</code> |
| \stareq | <code>\stareq</code> | \sqsubseteq | <code>\sqsubseteqeq</code> |
| \triangleleeq | <code>\triangleleeq,\triangleleq</code> | \sqsupseteq | <code>\sqsupseteqeq</code> |
| \in | <code>\in</code> | \sqsubseteqeq | <code>\sqsubseteqeqq</code> |
| \owns | <code>\owns,\ni</code> | \sqsupseteqeq | <code>\sqsupseteqeqq</code> |
| $<$ | <code><,\less</code> | \sqsubset | <code>\Sqsubset</code> |
| $>$ | <code>>,\gtr</code> | \sqsupset | <code>\Sqsupset</code> |
| \leq | <code>\leq,\le</code> | \subset | <code>\subset</code> |
| \geq | <code>\geq,\ge</code> | \supset | <code>\supset</code> |
| \leqslant | <code>\leqslant</code> | \subseteq | <code>\subseteqeq</code> |
| \geqslant | <code>\geqslant</code> | \supseteq | <code>\supseteqeq</code> |
| \leqq | <code>\leqq</code> | \subseteqeq | <code>\subseteqeqq</code> |
| \geqq | <code>\geqq</code> | \supseteqeq | <code>\supseteqeqq</code> |
| \lessssim | <code>\lessssim</code> | \Subset | <code>\Subset</code> |
| \gtrsim | <code>\gtrsim</code> | \Supset | <code>\Supset</code> |
| \lessapprox | <code>\lessapprox</code> | $<$ | <code>\prec</code> |
| \gtrapprox | <code>\gtrapprox</code> | $>$ | <code>\succ</code> |
| \lessgtr | <code>\lessgtr</code> | \preceq | <code>\preceq</code> |
| \gtrless | <code>\gtrless</code> | \succeq | <code>\succeq</code> |
| \lesseqgtr | <code>\lesseqgtr</code> | \preccurlyeq | <code>\preccurlyeq</code> |
| \gtreqless | <code>\gtreqless</code> | \succcurlyeq | <code>\succcurlyeq</code> |
| \lesseqqgtr | <code>\lesseqqgtr</code> | \preceqq | <code>\preceqq</code> |
| \gtreqqless | <code>\gtreqqless</code> | \succeqq | <code>\succeqq</code> |
| \lesseqslantgtr | <code>\lesseqslantgtr,\lesq</code> | \precsim | <code>\precsim</code> |
| \gtreqslantless | <code>\gtreqslantless,\gesl</code> | \succsim | <code>\succsim</code> |
| \ll | <code>\ll</code> | \precapprox | <code>\precapprox</code> |
| \gg | <code>\gg</code> | \succapprox | <code>\succapprox</code> |
| \lll | <code>\lll,\llless</code> | $<$ | <code>\lessdot</code> |
| \ggg | <code>\ggg,\gggtr</code> | $>$ | <code>\gtrdot</code> |

| | | | |
|-----------------------|------------------------------------|----------------------|------------------------------------|
| \leqdot | <code>\leqdot</code> | \twoheadrightarrow | <code>\twoheadsearrow</code> |
| \geqdot | <code>\geqdot</code> | \rightarrowtail | <code>\rightarrowtail</code> |
| \leqslantdot | <code>\leqslantdot, \lesdot</code> | \uparrowtail | <code>\uparrowtail</code> |
| \geqslantdot | <code>\geqslantdot, \gesdot</code> | \leftarrowtail | <code>\leftarrowtail</code> |
| \leslant | <code>\eqslantless</code> | \downdownarrows | <code>\downarrowtail</code> |
| \eqslantgtr | <code>\eqslantgtr</code> | \nearrowtail | <code>\nearrowtail</code> |
| \curlyeqprec | <code>\curlyeqprec</code> | \nwarrowtail | <code>\nwarrowtail</code> |
| \curlyeqsucc | <code>\curlyeqsucc</code> | \swarrowtail | <code>\swarrowtail</code> |
| \thicksim | <code>\thicksim</code> | \searrowtail | <code>\searrowtail</code> |
| \thickapprox | <code>\thickapprox</code> | \mapsto | <code>\rightmapsto, \mapsto</code> |
| \rightarrow | <code>\rightarrow, \to</code> | \upmapsto | <code>\upmapsto, \mapsto</code> |
| \uparrow | <code>\uparrow</code> | \leftmapsto | <code>\leftmapsto, \mapsto</code> |
| \leftarrow | <code>\leftarrow, \gets</code> | \downmapsto | <code>\downmapsto, \mapsto</code> |
| \downarrow | <code>\downarrow</code> | \Rrightarrow | <code>\Rightmapsto, \Mapsto</code> |
| \nearrow | <code>\nearrow</code> | \Uparrow | <code>\Upmapsto, \Mapsto</code> |
| \nwarrow | <code>\nwarrow</code> | \Lleftarrow | <code>\Leftmapsto, \Mapsto</code> |
| \swarrow | <code>\swarrow</code> | \Downarrow | <code>\Downmapsto, \Mapsto</code> |
| \searrow | <code>\searrow</code> | \hookrightarrow | <code>\hookrightarrow</code> |
| \Rightarrow | <code>\Rightarrow</code> | \hookrightarrow | <code>\hookrightarrow</code> |
| \Uparrow | <code>\Uparrow</code> | \hookrightarrow | <code>\hookrightarrow</code> |
| \Leftarrow | <code>\Leftarrow</code> | \hookrightarrow | <code>\hookrightarrow</code> |
| \Downarrow | <code>\Downarrow</code> | \hookrightarrow | <code>\hookrightarrow</code> |
| \Nearrow | <code>\Nearrow</code> | \hookrightarrow | <code>\hookrightarrow</code> |
| \Nwarrow | <code>\Nwarrow</code> | \hookrightarrow | <code>\hookrightarrow</code> |
| \Swarrow | <code>\Swarrow</code> | \hookrightarrow | <code>\hookrightarrow</code> |
| \Searrow | <code>\Searrow</code> | \hookrightarrow | <code>\hookrightarrow</code> |
| \leftrightharpoonup | <code>\leftrightharpoonup</code> | \hookrightarrow | <code>\hookrightarrow</code> |
| \updownarrow | <code>\updownarrow</code> | \hookrightarrow | <code>\hookrightarrow</code> |
| \neswarrow | <code>\neswarrow</code> | \hookrightarrow | <code>\hookrightarrow</code> |
| \nwsearrow | <code>\nwsearrow</code> | \hookrightarrow | <code>\hookrightarrow</code> |
| \Leftrightarrow | <code>\Leftrightarrow</code> | \hookrightarrow | <code>\hookrightarrow</code> |
| \Updownarrow | <code>\Updownarrow</code> | \hookrightarrow | <code>\hookrightarrow</code> |
| \Neswarrow | <code>\Neswarrow</code> | \hookrightarrow | <code>\hookrightarrow</code> |
| \Nwsearrow | <code>\Nwsearrow</code> | \hookrightarrow | <code>\hookrightarrow</code> |
| \twoheadrightarrow | <code>\twoheadrightarrow</code> | \hookrightarrow | <code>\hookrightarrow</code> |
| \twoheaduparrow | <code>\twoheaduparrow</code> | \hookrightarrow | <code>\hookrightarrow</code> |
| \twoheadleftarrow | <code>\twoheadleftarrow</code> | \hookrightarrow | <code>\hookrightarrow</code> |
| \twoheaddownarrow | <code>\twoheaddownarrow</code> | \hookrightarrow | <code>\hookrightarrow</code> |
| \twoheadnearrow | <code>\twoheadnearrow</code> | \hookrightarrow | <code>\hookrightarrow</code> |
| \twoheadnwarrow | <code>\twoheadnwarrow</code> | \hookrightarrow | <code>\hookrightarrow</code> |
| \twoheadswarrow | <code>\twoheadswarrow</code> | \hookrightarrow | <code>\hookrightarrow</code> |

| | | | |
|--------------------|---|----------------------|--|
| \rightarrow | <code>\rightharpoondown</code> | \downarrow | <code>\downspoon, \midcir</code> |
| \uparrow | <code>\upharpoonright,</code> <code>\restriction</code> | \rightarrow | <code>\rightblackspoon</code> |
| \leftarrow | <code>\leftharpoonup</code> | \uparrow | <code>\upblackspoon</code> |
| \downarrow | <code>\downharpoonleft</code> | \leftarrow | <code>\leftblackspoon</code> |
| \nearrow | <code>\neharpoonse</code> | \downarrow | <code>\downblackspoon</code> |
| \nwarrow | <code>\nwharpoonne</code> | $\circ\rightarrow$ | <code>\leftrightspoon, \dualmap</code> |
| \swarrow | <code>\swharpoonnw</code> | $\bullet\rightarrow$ | <code>\leftrightblackspoon</code> |
| \searrow | <code>\seharpoonsw</code> | $\bullet\circ$ | <code>\blackwhitespoon, \imageof</code> |
| \leftrightarrow | <code>\leftrightharpoonupdown</code> | $\circ\bullet$ | <code>\whiteblackspoon, \origof</code> |
| \updownarrow | <code>\updownharpoonleftright</code> | \Rightarrow | <code>\rightpitchfork</code> |
| \nearrow | <code>\neswharpoonnwse</code> | \pitchfork | <code>\uppitchfork, \pitchfork</code> |
| \nwarrow | <code>\nwseharpoonnesw</code> | \leftarrow | <code>\leftpitchfork</code> |
| \leftrightarrow | <code>\leftrightharpoondownup</code> | Ψ | <code>\downpitchfork</code> |
| \downarrow | <code>\updownharpoonrightleft</code> | \Rightarrow | <code>\rightrightarrows</code> |
| \nearrow | <code>\neswharpoonsenw</code> | \Uparrow | <code>\upuparrows</code> |
| \nwarrow | <code>\nwseharpoonswne</code> | \Leftarrow | <code>\leftleftarrows</code> |
| \Rightarrow | <code>\rightleftharpoons</code> | \Downarrow | <code>\downdownarrows</code> |
| \updownarrow | <code>\updownharpoons,</code> <code>\updownharpoonsleftright</code> | \nearrow | <code>\nenearrows</code> |
| \nearrow | <code>\neswharpoons</code> | \nwarrow | <code>\nwnwarrows</code> |
| \searrow | <code>\senwharpoons</code> | \swarrow | <code>\swswarrows</code> |
| \Leftarrow | <code>\leftrightharpoons</code> | \searrow | <code>\sesearrows</code> |
| \updownarrow | <code>\downupharpoons,</code> <code>\downupharpoonsleftright</code> | \Rightarrow | <code>\rightleftarrows</code> |
| \swarrow | <code>\swneharpoons</code> | \Updownarrow | <code>\updownarrows</code> |
| \searrow | <code>\nwseharpoons</code> | \nearrow | <code>\neswarrows</code> |
| \rightarrow | <code>\rightbkarrow,</code> <code>\dashrightarrow,</code> <code>\dasharrow</code> | \nwarrow | <code>\nwsearrows</code> |
| \uparrow | <code>\upbkarrow</code> | \Leftarrow | <code>\leftrightharrows</code> |
| \leftarrow | <code>\leftbkarrow,</code> <code>\dashleftarrow</code> | \Updownarrow | <code>\downuparrows</code> |
| \downarrow | <code>\downbkarrow</code> | \swarrow | <code>\swnearrows</code> |
| \nearrow | <code>\nebkarrow</code> | \searrow | <code>\senwarrows</code> |
| \nwarrow | <code>\nwbkarrow</code> | \rightsquigarrow | <code>\rightwavedarrow, \leadsto,</code> <code>\rightsquigarrow,</code> <code>\rightcurvedarrow</code> |
| \swarrow | <code>\swbkarrow</code> | \uparrow | <code>\varupwavedarrow</code> |
| \searrow | <code>\sebkarrow</code> | \leftarrow | <code>\varleftwavedarrow</code> |
| $\circ\rightarrow$ | <code>\rightspoon, \multimap</code> | \downarrow | <code>\downwavedarrow</code> |
| \uparrow | <code>\upspoon, \cirmid</code> | \rightsquigarrow | <code>\varrightwavedarrow</code> |
| $\circ\leftarrow$ | <code>\leftspoon, \multimapinv</code> | \uparrow | <code>\upwavedarrow</code> |
| | | \leftarrow | <code>\leftwavedarrow,</code> <code>\leftsquigarrow,</code> <code>\leftcurvedarrow</code> |
| | | \downarrow | <code>\vardownwavedarrow</code> |

| | | | |
|------------------------|--------------------------------------|---------------------|--|
| \Leftrightarrow | <code>\leftrighthwarrow</code> | \circlearrowleft | <code>\acwcirculararrowup</code> |
| \leftrightsquigarrow | <code>\leftrightsquigarrow</code> | \circlearrowleft | <code>\acwcirculararrowleft,</code> |
| \Updownarrow | <code>\updownwavyarrow</code> | | <code>\circlearrowleft,</code> |
| \varLeftrightarrow | <code>\varleftrighthwavyarrow</code> | | <code>\acwopencirculararrow</code> |
| \Updownarrow | <code>\varupdownwavyarrow</code> | \circlearrowdown | <code>\acwcirculararrowdown,</code> |
| \curvearrowright | <code>\cwoverarcarrow,</code> | | <code>\acwgapcirculararrow</code> |
| | <code>\curvearrowright</code> | \circlearrowright | <code>\acwcirculararrowright</code> |
| \curvearrowleft | <code>\cwleftarcarrow</code> | \circlearrowdown | <code>\cwcirculararrowdown,</code> |
| \curvearrowright | <code>\cwunderarcarrow</code> | | <code>\cwgapcirculararrow</code> |
| \curvearrowright | <code>\cwrightarcarrow</code> | \circlearrowright | <code>\cwcirculararrowright,</code> |
| \curvearrowright | <code>\cwnwarcarrow,</code> | | <code>\circlearrowright,</code> |
| | <code>\rightupcurvedarrow</code> | | <code>\cwopencirculararrow</code> |
| \curvearrowright | <code>\cswarcarrow,</code> | \circlearrowup | <code>\cwcirculararrowup</code> |
| | <code>\upleftcurvedarrow</code> | \circlearrowleft | <code>\cwcirculararrowleft</code> |
| \curvearrowright | <code>\cwsearcarrow,</code> | \Rightarrow | <code>\Rightarrow</code> |
| | <code>\leftdowncurvedarrow</code> | \Uparrow | <code>\Uparrow</code> |
| \curvearrowright | <code>\cwnearcarrow,</code> | \Leftarrow | <code>\Lleftarrow</code> |
| | <code>\downrightcurvedarrow</code> | \Downarrow | <code>\Ddownarrow</code> |
| \curvearrowright | <code>\acwunderarcarrow</code> | \rightarrow | <code>\longrightarrow</code> |
| \curvearrowright | <code>\acwrightarcarrow</code> | \leftarrow | <code>\longleftarrow</code> |
| \curvearrowright | <code>\acwoverarcarrow,</code> | \Rightarrow | <code>\Longrightarrow</code> |
| | <code>\curvearrowleft</code> | \Leftarrow | <code>\Longleftarrow</code> |
| \curvearrowright | <code>\acwleftarcarrow</code> | \leftrightarrow | <code>\longleftrightarrow</code> |
| \curvearrowright | <code>\acwsearcarrow,</code> | \Leftrightarrow | <code>\Longleftrightarrow</code> |
| | <code>\uprightcurvedarrow</code> | \mapsto | <code>\longmapsto</code> |
| \curvearrowright | <code>\acwnearcarrow,</code> | \longleftarrow | <code>\longmapsfrom</code> |
| | <code>\leftupcurvedarrow</code> | \Rightarrow | <code>\Longmapsto</code> |
| \curvearrowright | <code>\acwnwarcarrow,</code> | \Leftarrow | <code>\Longmapsfrom</code> |
| | <code>\downleftcurvedarrow</code> | \rightsquigarrow | <code>\longrightarrowwavyarrow,</code> |
| \curvearrowright | <code>\acswarcarrow,</code> | | <code>\longleadsto,</code> |
| | <code>\rightdowncurvedarrow</code> | | <code>\longrightsquigarrow</code> |
| \curvearrowright | <code>\bdoverarcarrow</code> | \rightsquigarrow | <code>\longleftwavyarrow,</code> |
| \curvearrowright | <code>\bdleftarcarrow</code> | | <code>\longleftsquigarrow</code> |
| \curvearrowright | <code>\bdunderarcarrow</code> | \longleftarrow | <code>\longleftfootline,</code> |
| \curvearrowright | <code>\bdrigharcarrow</code> | | <code>\vlongdash</code> |
| \curvearrowright | <code>\bdnwarcarrow</code> | \longrightarrow | <code>\longrightarrowfootline,</code> |
| \curvearrowright | <code>\bdswarcarrow</code> | | <code>\longdashv</code> |
| \curvearrowright | <code>\bdsearcarrow</code> | \hookleftarrow | <code>\Lsh</code> |
| \curvearrowright | <code>\bdnearcarrow</code> | \hookrightarrow | <code>\Rsh</code> |
| \dashleftarrow | <code>\leftfootline</code> | \dashleftarrow | <code>\Ldsh</code> |
| \dashrightarrow | <code>\rightfootline</code> | \dashrightarrow | <code>\Rdsh</code> |

| | | | |
|-------------------|--|---------------------------|--------------------------------------|
| \looparrowright | <code>\looparrowright</code> | \nsimeq | <code>\nsimeq</code> |
| \looparrowleft | <code>\looparrowleft</code> | \nbacksimeq | <code>\nbacksimeq</code> |
| \vdash | <code>\rightvdash, \vdash</code> | \neqsim | <code>\neqsim</code> |
| \perp | <code>\upvdash, \perp</code> | \ncong | <code>\ncong</code> |
| \dashv | <code>\leftvdash, \dashv</code> | \nbackcong | <code>\nbackcong</code> |
| \dashv | <code>\downvdash</code> | \napproxeq | <code>\napproxeq</code> |
| \vdash | <code>\rightassert, \assert,</code> <code>\shortrightttack</code> | \nbumpeq | <code>\nbumpeq</code> |
| \vdash | <code>\upassert, \shortuptack</code> | \nbumpeqq | <code>\nbumpeqq</code> |
| \vdash | <code>\leftassert, \shortleftttack</code> | \nBumpeq | <code>\nBumpeq</code> |
| \dashv | <code>\downassert, \shortdowntack</code> | \ndoteq | <code>\ndoteq</code> |
| \models | <code>\rightvDash, \vDash</code> | \neqdot | <code>\neqdot</code> |
| \models | <code>\upvDash, \Vbar</code> | \nDoteq | <code>\nDoteq</code> |
| \models | <code>\leftvDash, \Dashv</code> | \nfallingdotseq | <code>\nfallingdotseq</code> |
| \models | <code>\downvDash, \bar{V}</code> | \nrisingdotseq | <code>\nrisingdotseq</code> |
| \models | <code>\rightmodels, \models</code> | \nsmile | <code>\nsmile</code> |
| \models | <code>\upmodels</code> | \nfrown | <code>\nfrown</code> |
| \models | <code>\leftmodels</code> | \nsmilefrown, \nasymp | <code>\nsmilefrown, \nasymp</code> |
| \models | <code>\downmodels</code> | \nfrownsmile, \nclosure | <code>\nfrownsmile, \nclosure</code> |
| \models | <code>\rightVdash, \Vdash</code> | \nsmileeq | <code>\nsmileeq</code> |
| \models | <code>\upVdash</code> | \nfrowneq, \narceq | <code>\nfrowneq, \narceq</code> |
| \models | <code>\leftVdash, \dashV</code> | \neqcirc | <code>\neqcirc</code> |
| \models | <code>\downVdash</code> | \ncirceq | <code>\ncirceq</code> |
| \models | <code>\rightAssert, \Assert</code> | \nwedgeq, \nhateq | <code>\nwedgeq, \nhateq</code> |
| \models | <code>\upAssert, \vBar</code> | \nveeeq | <code>\nveeeq</code> |
| \models | <code>\leftAssert</code> | \nstareq | <code>\nstareq</code> |
| \models | <code>\downAssert, \Barv</code> | \ntriangleeq | <code>\ntriangleeq</code> |
| \models | <code>\rightVDash, \VDash</code> | \nin, \notin | <code>\nin, \notin</code> |
| \models | <code>\upVDash</code> | \nowns, \nni | <code>\nowns, \nni</code> |
| \models | <code>\leftVDash, \DashV</code> | \nless | <code>\nless</code> |
| \models | <code>\downVDash</code> | \ngtr | <code>\ngtr</code> |
| \models | <code>\Vvdash</code> | \nleq | <code>\nleq</code> |
| \models | <code>\dashVv</code> | \ngeq | <code>\ngeq</code> |
| \models | <code>\vDdash</code> | \nleqslant | <code>\nleqslant</code> |
| \models | <code>\Ddashv</code> | \ngeqslant | <code>\ngeqslant</code> |
| \neq | <code>\nequal, \neq, \ne</code> | \nleqq | <code>\nleqq</code> |
| \neq | <code>\nequiv</code> | \ngeqq | <code>\ngeqq</code> |
| \sim | <code>\nsim</code> | \nlesssim | <code>\nlesssim</code> |
| \sim | <code>\nbacksim</code> | \ngtrsim | <code>\ngtrsim</code> |
| \approx | <code>\napprox</code> | \nlessapprox | <code>\nlessapprox</code> |
| \approx | <code>\ntriplesim, \napproxident</code> | \ngtrapprox | <code>\ngtrapprox</code> |
| | | \nlessgtr | <code>\nlessgtr</code> |

| | |
|---------------------------------------|-------------------------------|
| \nlessgtr | \nprec |
| \nlesseqgtr | \nsucceq |
| \ngtreqless | $\nprec\curlyeqeq$ |
| \nlesseqqgtr | $\nsucc\curlyeqeq$ |
| \ngtreqqlless | \npreceqq |
| \nlesseqslantgtr, \nlesg | \nsucceqq |
| \ngtreqslantless, \ngesl | $\nprec\sim$ |
| \nll | $\nsucc\sim$ |
| \ngg | $\nprec\approx$ |
| \nlll | $\nsucc\approx$ |
| \nggg | \nlessdot |
| $\nlessclosed,$ \ntriangleleft | \ngtrdot |
| $\ngtrclosed,$ \ntriangleright | \nleqdot |
| $\nleqclosed,$ \ntrianglelefteq | \ngeqdot |
| $\ngeqclosed,$ \ntrianglerighteq | \nleqslantdot, \nlesdot |
| \nlesscc, \nltcc | \ngeqslantdot, \ngesdot |
| \ngtrcc, \ngtcc | \neqslantless |
| \nleqslcc, \nlescc | \neqslantgtr |
| \ngeqslcc, \ngescc | \ncurlyeqprec |
| \nsubset | \ncurlyeqsucc |
| \nsupset | \simneqq |
| \nsubseteq | \backsimneqq |
| \nsupseteq | \lneq |
| \nsubseteqq | \gneq |
| \nsupseteqq | \lneqq, \lvertneqq |
| \nsubseteqeqq | \gneqq, \gvertneqq |
| \nsupseteqq | \lnsim |
| \nSsubset | \gnsim |
| \nSsupset | \lnapprox |
| \nsubset | \gnapprox |
| \nsupset | \sqsubsetneq |
| \nsubseteq | \sqsupsetneq |
| \nsupseteq | \sqsubsetneqq |
| \nsubseteqq | \sqsupsetneqq |
| \nsupseteqq | $\subsetneq, \varsubsetneq$ |
| \nSubset | $\supsetneq, \varsupsetneq$ |
| \nSupset | $\subsetneqq, \varsubsetneqq$ |
| \nprec | $\supsetneqq, \varsupsetneqq$ |
| \nsucc | \precneq |
| | \succneq |
| | \precneqq |

| | | | |
|-------------------|----------------------------------|-------------------|--|
| \Rightarrow | <code>\succneqq</code> | \nearrow | <code>\nnearrowtail</code> |
| \prec | <code>\precnsim</code> | \nwarrow | <code>\nnwarrowtail</code> |
| \succ | <code>\succnsim</code> | \searrow | <code>\nswarrowtail</code> |
| \preccurlyeq | <code>\precnapprox</code> | \searrow | <code>\nsearrowtail</code> |
| \succcurlyeq | <code>\succnapprox</code> | \mapsto | <code>\nrightmapsto, \nmapsto</code> |
| \rightarrow | <code>\nrightarrow, \nto</code> | \Uparrow | <code>\nupmapsto, \nmapsup</code> |
| \uparrow | <code>\nuparrow</code> | \Leftarrow | <code>\nleftmapsto, \nmapsfrom</code> |
| \leftarrow | <code>\nleftarrow, \ngets</code> | \Downarrow | <code>\ndownmapsto, \nmapsdown</code> |
| \downarrow | <code>\ndownarrow</code> | \Rrightarrow | <code>\nRightmapsto, \nMapsto</code> |
| \nearrow | <code>\nnearrow</code> | \Upmapsto | <code>\nUpmapsto, \nMapsup</code> |
| \nwarrow | <code>\nnwarrow</code> | \Leftarrow | <code>\nLeftmapsto, \nMapsfrom</code> |
| \searrow | <code>\nswarrow</code> | \Downarrow | <code>\nDownmapsto, \nMapsdown</code> |
| \searrow | <code>\nsearrow</code> | \hookrightarrow | <code>\nhookrightarrow</code> |
| \Rrightarrow | <code>\nRightarrow</code> | \hookrightarrow | <code>\nhookuparrow</code> |
| \Uparrow | <code>\nUparrow</code> | \Leftarrow | <code>\nvarhookleftarrow</code> |
| \Leftarrow | <code>\nLeftarrow</code> | \downarrow | <code>\nvarhookdownarrow</code> |
| \Downarrow | <code>\nDownarrow</code> | \nearrow | <code>\nvarhooknearrow</code> |
| \nearrow | <code>\nNearrow</code> | \nwarrow | <code>\nhooknwarrow, \nhknwarrow</code> |
| \nwarrow | <code>\nNwarrow</code> | \searrow | <code>\nvarhookswarrow</code> |
| \searrow | <code>\nSwarrow</code> | \searrow | <code>\nhooksearrow, \nhksearrow</code> |
| \searrow | <code>\nSearrow</code> | \hookrightarrow | <code>\nvarhookrightarrow</code> |
| \leftrightarrow | <code>\nleftrightharrow</code> | \hookrightarrow | <code>\nvarhookuparrow</code> |
| \Downarrow | <code>\nupdownarrow</code> | \Leftarrow | <code>\nhookleftarrow</code> |
| \nearrow | <code>\nneswarrow</code> | \downarrow | <code>\nhookdownarrow</code> |
| \nwarrow | <code>\nnwsearrow</code> | \nearrow | <code>\nhooknearrow, \nhknearrow</code> |
| \leftrightarrow | <code>\nLeftrightharrow</code> | \nwarrow | <code>\nvarhooknwarrow</code> |
| \Updownarrow | <code>\nUpdownarrow</code> | \searrow | <code>\nhookswarrow, \nhkswarrow</code> |
| \nearrow | <code>\nNeswarrow</code> | \searrow | <code>\nvarhooksearrow</code> |
| \nwarrow | <code>\nNwsearrow</code> | \nearrow | <code>\nrightharpoonup</code> |
| \Rightarrow | <code>\ntwoheadrightarrow</code> | \leftarrow | <code>\nupharpoonleft</code> |
| \Uparrow | <code>\ntwoheaduparrow</code> | \nearrow | <code>\nleftharpoondown</code> |
| \Leftarrow | <code>\ntwoheadleftarrow</code> | \downarrow | <code>\ndownharpoonright</code> |
| \Downarrow | <code>\ntwoheaddownarrow</code> | \nearrow | <code>\nneharpoonnw</code> |
| \nearrow | <code>\ntwoheadnearrow</code> | \nwarrow | <code>\nnwharpoonsw</code> |
| \nwarrow | <code>\ntwoheadnwarrow</code> | \searrow | <code>\nswharpoonse</code> |
| \searrow | <code>\ntwoheadswarrow</code> | \searrow | <code>\nseharpoonse</code> |
| \searrow | <code>\ntwoheadsearrow</code> | \nearrow | <code>\nrightharpoondown</code> |
| \Rightarrow | <code>\nrightarrowtail</code> | \leftarrow | <code>\nupharpoonright,</code> <code>\nrestriction</code> |
| \Uparrow | <code>\nuparrowtail</code> | \nearrow | <code>\nleftharpoonup</code> |
| \Leftarrow | <code>\nleftarrowtail</code> | \downarrow | <code>\ndownharpoonleft</code> |
| \Downarrow | <code>\ndownarrowtail</code> | | |

| | | | |
|------------------------|--|--------------------|--|
| \nearrow | <code>\nneharpoonse</code> | \leftrightspoon | <code>\leftrightspoon, \ndualmap</code> |
| \nwarrow | <code>\nnwharpoonne</code> | \blackspoon | <code>\leftrightblackspoon</code> |
| \nearrow | <code>\nswharpoonnw</code> | \blackspoon | <code>\nblackwhitespoon,</code> |
| \searrow | <code>\nseharpoonsw</code> | | <code>\nimageof</code> |
| \updownarrow | <code>\nleftrightharpoonupdown</code> | \whiteblackspoon | <code>\nwhiteblackspoon, \norigof</code> |
| \leftrightsquigarrow | <code>\nupdownharpoonleftright</code> | \pitchfork | <code>\nrightpitchfork</code> |
| \nwarrow | <code>\nneswharpoonnwse</code> | \pitchfork | <code>\nuppitchfork, \npitchfork</code> |
| \nwarrow | <code>\nnwseharpoonsesw</code> | \pitchfork | <code>\nleftpitchfork</code> |
| \updownarrow | <code>\nleftrightharpoondownup</code> | \pitchfork | <code>\ndownpitchfork</code> |
| \leftrightsquigarrow | <code>\nupdownharpoonrightleft</code> | \rightarrow | <code>\nrightrightarrows</code> |
| \nearrow | <code>\nneswharpoonsenw</code> | \rightarrow | <code>\nupuparrows</code> |
| \searrow | <code>\nnwseharpoonswne</code> | \rightarrow | <code>\nleftleftarrows</code> |
| \leftrightsquigarrow | <code>\nrightrightarrows</code> | \rightarrow | <code>\ndowndownarrows</code> |
| \leftrightsquigarrow | <code>\nupdownharpoons, \nupdown-</code> | \rightarrow | <code>\nnenearrows</code> |
| | <code>harpoonsleftright</code> | \rightarrow | <code>\nnwnwarrows</code> |
| \nwarrow | <code>\nneswharpoons</code> | \rightarrow | <code>\nswswarrows</code> |
| \nwarrow | <code>\nsenwharpoons</code> | \rightarrow | <code>\nsesearrows</code> |
| \leftrightsquigarrow | <code>\nleftrightharpoons</code> | \rightarrow | <code>\nrightrightarrows</code> |
| \leftrightsquigarrow | <code>\ndownupharpoons,</code> | \rightarrow | <code>\nupdownarrows</code> |
| | <code>\ndownupharpoonsleft-</code> | \rightarrow | <code>\nneswarrows</code> |
| | <code>right</code> | \rightarrow | <code>\nnwsearrows</code> |
| \nwarrow | <code>\nswneharpoons</code> | \rightarrow | <code>\nleftrightrightarrows</code> |
| \nwarrow | <code>\nnwseharpoons</code> | \rightarrow | <code>\ndownuparrows</code> |
| \rightarrow | <code>\nrightrightarrow, \ndasharrow,</code> | \rightarrow | <code>\nswnearrows</code> |
| | <code>\ndashrightarrow</code> | \rightarrow | <code>\nsenwarrows</code> |
| \rightarrow | <code>\nupbkarrow</code> | \rightarrow | <code>\nrightrightarrow, \nleadsto,</code> |
| \leftarrow | <code>\nleftbkarrow,</code> | | <code>\nrightrightarrow,</code> |
| | <code>\ndashleftarrow</code> | | <code>\nrightrightarrow</code> |
| \rightarrow | <code>\ndownbkarrow</code> | \rightarrow | <code>\nvarupwavedarrow</code> |
| \rightarrow | <code>\nnebkarrow</code> | \rightarrow | <code>\nvarleftwavedarrow</code> |
| \rightarrow | <code>\nnwbkarrow</code> | \rightarrow | <code>\ndownwavedarrow</code> |
| \rightarrow | <code>\nswbkarrow</code> | \rightarrow | <code>\nvarrightwavedarrow</code> |
| \rightarrow | <code>\nsebkarrow</code> | \rightarrow | <code>\nupwavedarrow</code> |
| \rightarrow | <code>\nrightrightarrow, \nmultimap</code> | \rightarrow | <code>\nleftwavedarrow,</code> |
| \rightarrow | <code>\nupspoon, \ncirmid</code> | | <code>\nleftsquigarrow,</code> |
| \rightarrow | <code>\nleftspoon, \nmultimapinv</code> | | <code>\nleftcurvedarrow</code> |
| \rightarrow | <code>\ndownspoon, \nmidcir</code> | \rightarrow | <code>\nvardownwavedarrow</code> |
| \rightarrow | <code>\nrightrightarrow</code> | \rightarrow | <code>\nleftrightrightarrow,</code> |
| \rightarrow | <code>\nupblackspoon</code> | | <code>\nleftrightrightarrow</code> |
| \rightarrow | <code>\nleftblackspoon</code> | \rightarrow | <code>\nupdownwavedarrow</code> |
| \rightarrow | <code>\ndownblackspoon</code> | \rightarrow | <code>\nvarleftrightrightarrow</code> |

| | | | |
|----------------------------|--|-----------------------------|--|
| \S | <code>\nvarupdownwavearrow</code> | $\textcircled{\downarrow}$ | <code>\nacwcirculararrowdown,</code> <code>\nacwgapcirculararrow</code> |
| \curvearrowright | <code>\ncwoverarcarrow,</code> <code>\ncurvearrowright</code> | $\textcircled{\rightarrow}$ | <code>\nacwcirculararrowright</code> |
| \curvearrowleft | <code>\ncwleftarcarrow</code> | $\textcircled{\downarrow}$ | <code>\ncwcirculararrowdown,</code> <code>\ncwgapcirculararrow</code> |
| \curvearrowright | <code>\ncwunderarcarrow</code> | $\textcircled{\rightarrow}$ | <code>\ncwcirculararrowright,</code> <code>\ncirculararrowright,</code> <code>\ncwopencirculararrow</code> |
| \curvearrowright | <code>\ncwrightarcarrow</code> | | |
| \curvearrowright | <code>\ncwnwarcarrow,</code> <code>\nrightupcurvedarrow</code> | | |
| \curvearrowright | <code>\ncwswarcarrow,</code> <code>\nupleftcurvedarrow</code> | $\textcircled{\uparrow}$ | <code>\ncwcirculararrowup</code> |
| \curvearrowright | <code>\ncwsearcarrow,</code> <code>\nleftdowncurvedarrow</code> | $\textcircled{\leftarrow}$ | <code>\ncwcirculararrowleft</code> |
| \curvearrowright | <code>\ncwnearcarrow,</code> <code>\ndownrightcurvedarrow</code> | \Rightarrow | <code>\nRrightarrow</code> |
| \curvearrowright | <code>\nacwunderarcarrow</code> | \Uparrow | <code>\nUparrow</code> |
| \curvearrowright | <code>\nacwrightarcarrow</code> | \Leftarrow | <code>\nLleftarrow</code> |
| \curvearrowright | <code>\nacwoverarcarrow,</code> <code>\ncurvearrowleft</code> | \Downarrow | <code>\nDdownarrow</code> |
| \curvearrowright | <code>\nacwleftarcarrow</code> | \rightarrow | <code>\nlongrightarrow</code> |
| \curvearrowright | <code>\nacwsearcarrow,</code> <code>\nuprightcurvearrow</code> | \leftarrow | <code>\nlongleftarrow</code> |
| \curvearrowright | <code>\nacwnearcarrow,</code> <code>\nleftupcurvedarrow</code> | \Rightarrow | <code>\nLongrightarrow</code> |
| \curvearrowright | <code>\nacwnwarcarrow,</code> <code>\ndownleftcurvedarrow</code> | \Leftarrow | <code>\nLongleftarrow</code> |
| \curvearrowright | <code>\nacwswarcarrow,</code> <code>\nrightdowncurvedarrow</code> | \leftrightarrow | <code>\nlongleftrightrightarrow</code> |
| \curvearrowright | <code>\nbdoverarcarrow</code> | \mapsto | <code>\nlongmapsto</code> |
| \curvearrowright | <code>\nbdleftarcarrow</code> | \mapsto | <code>\nlongmapsfrom</code> |
| \curvearrowright | <code>\nbdunderarcarrow</code> | \Rightarrow | <code>\nLongmapsto</code> |
| \curvearrowright | <code>\nbdrightarcarrow</code> | \Leftarrow | <code>\nLongmapsfrom</code> |
| \curvearrowright | <code>\nbdnwarcarrow</code> | \rightsquigarrow | <code>\nlongrightwvearrow,</code> <code>\nlongleadsto,</code> <code>\nlongrightsquigarrow</code> |
| \curvearrowright | <code>\nbdswarcarrow</code> | \rightsquigarrow | <code>\nlongleftwvearrow,</code> <code>\nlongleftsquigarrow</code> |
| \curvearrowright | <code>\nbdsearcarrow</code> | \dashrightarrow | <code>\nlongleftfootline,</code> <code>\nlongdash</code> |
| \curvearrowright | <code>\nbdnearcarrow</code> | \dashrightarrow | <code>\nlongrightfootline,</code> <code>\nlongdashv</code> |
| \dashrightarrow | <code>\nleftfootline</code> | \vdash | <code>\nrightvdash,\nvdash</code> |
| \dashrightarrow | <code>\nrightfootline</code> | \perp | <code>\nupvdash,\nperp</code> |
| $\textcircled{\uparrow}$ | <code>\nacwcirculararrowup</code> | \dashleftarrow | <code>\nleftvdash,\ndashv</code> |
| $\textcircled{\leftarrow}$ | <code>\nacwcirculararrowleft,</code> <code>\ncirculararrowleft,</code> <code>\nacwopencirculararrow</code> | \dashrightarrow | <code>\ndownvdash</code> |
| | | $\#$ | <code>\nrightassert,\nassert,</code> <code>\nshortrighttack</code> |
| | | \perp | <code>\nupassert,\nshortuptack</code> |

| | | | |
|---|------------------------|----|-----------------------|
| # | \nleftassert, | # | \nVvdash |
| | \nshortleftttack | # | \ndashVv |
| ⌞ | \ndownassert, | ≡ | \nvDdash |
| | \nshortdowntack | ≡ | \nDdashv |
| # | \nrightvDash,\nvDash | : | :\,\mathratio |
| ⌞ | \nupvDash,\nVbar | :: | \Colon |
| # | \nleftvDash,\nDashv | — | \relbar |
| ⌞ | \ndownvDash,\nbarV | ⋮ | \dotsminusdots |
| # | \nrightmodels,\nmodels | ⋈ | \rJoin |
| ⌞ | \nupmodels | ⋈ | \lJoin |
| # | \nleftmodels | ⋈ | \bowtie,\Join |
| ⌞ | \ndownmodels | ∝ | \propto,\varpropto |
| # | \nrightVdash,\nVdash | ∞ | \backpropto,\propfrom |
| ⌞ | \nupVdash | × | \crossing |
| # | \nleftVdash,\ndashV | ∅ | \between |
| ⌞ | \ndownVdash | | \shortmid |
| # | \nrightAssert,\nAssert | | \mid,\divides |
| ⌞ | \nupAssert,\nvBar | ⋈ | \nshortmid |
| # | \nleftAssert | ⋈ | \nmid,\ndivides |
| ⌞ | \ndownAssert,\nBarv | | \shortparallel |
| # | \nrightVDash,\nVDash | | \parallel |
| ⌞ | \nupVDash | ⋈ | \nshortparallel |
| # | \nleftVDash,\nDashV | ⋈ | \nparallel |
| ⌞ | \ndownVDash | | |

5.4 Punctuation symbols

| | | | |
|---|--------|---|-------------------|
| · | \cdotp | : | \colon,\mathcolon |
|---|--------|---|-------------------|





































5.5 Large operators





| | | | | | |
|---|---|------------------|---|---|----------------|
| + | + | \bigplus | | | \disjquant |
| × | × | \bigtimes | ⋈ | ⋈ | \bigcurlywedge |
| ∧ | ∧ | \bigwedge | Υ | Υ | \bigcurlyvee |
| ∨ | ∨ | \bigvee | ⊃ | ⊃ | \bigcap |
| ⋈ | ⋈ | \bigwedgedot | ⊃ | ⊃ | \bigcup |
| ⋈ | ⋈ | \bigveedot | ⊃ | ⊃ | \bigcapdot |
| ⋈ | ⋈ | \bigdoublewedge, | ⊃ | ⊃ | \bigcupdot |
| | | \conjquant | ⊃ | ⊃ | \bigcapplus |
| ⋈ | ⋈ | \bigdoublevee, | | | |

| | | | | | |
|------------------|------------------|-------------------------------------|----------------------|----------------------|------------------------------------|
| \bigcup^+ | \bigcup^+ | <code>\bigcupplus, \biguplus</code> | | | <code>\intclockwise</code> |
| \bigsqcap | \bigsqcap | <code>\bigsqcap</code> | \int | \int | <code>\landdownint, \awint,</code> |
| \bigsqcup | \bigsqcup | <code>\bigsqcup</code> | | | <code>\intctrckwise</code> |
| \bigsqcapdot | \bigsqcapdot | <code>\bigsqcapdot</code> | f | f | <code>\intbar</code> |
| \bigsqcupdot | \bigsqcupdot | <code>\bigsqcupdot</code> | \neq | \neq | <code>\intBar</code> |
| \bigsqcapplus | \bigsqcapplus | <code>\bigsqcapplus</code> | f | f | <code>\fint</code> |
| \bigsqcupplus | \bigsqcupplus | <code>\bigsqcupplus</code> | ϕ | ϕ | <code>\oint</code> |
| \bigoplus | \bigoplus | <code>\bigoplus</code> | $\$$ | $\$$ | <code>\oiint</code> |
| \bigotimes | \bigotimes | <code>\bigotimes</code> | $\$$ | $\$$ | <code>\oiint</code> |
| \bigodot | \bigodot | <code>\bigodot</code> | $\$$ | $\$$ | <code>\oiint</code> |
| \bigcircast | \bigcircast | <code>\bigcircast</code> | $\$$ | $\$$ | <code>\rcircclerightint,</code> |
| \prod | \prod | <code>\prod</code> | | | <code>\ointctrckwise</code> |
| \coprod | \coprod | <code>\coprod</code> | ϕ | ϕ | <code>\lcircclerightint,</code> |
| \sum | \sum | <code>\sum</code> | | | <code>\varointclockwise</code> |
| \osum | \osum | <code>\osum, \modtwosum</code> | ϕ | ϕ | <code>\rcircleleftint,</code> |
| \int | \int | <code>\int</code> | | | <code>\varointctrckwise</code> |
| \iint | \iint | <code>\iint</code> | ϕ | ϕ | <code>\lcircleleftint,</code> |
| \iiint | \iiint | <code>\iiint</code> | | | <code>\ointclockwise</code> |
| \iiiint | \iiiint | <code>\iiiint</code> | \neq | \neq | <code>\sumint</code> |
| $\int\cdots\int$ | $\int\cdots\int$ | <code>\idotsint, \dotsint</code> | π | π | <code>\smallprod</code> |
| \int | \int | <code>\int</code> | μ | μ | <code>\smallcoprod</code> |
| \int | \int | <code>\int</code> | \int | \int | <code>\smallint</code> |
| \int | \int | <code>\int</code> | $\sqrt{}$ | $\sqrt{}$ | <code>\surd</code> |

5.6 Delimiters and accents

| | | | |
|---------|-------------------------|--------------------------------|----------------------|
| $((((($ | <code>(, \lparen</code> | $\lfloor\lfloor\lfloor\lfloor$ | <code>\lfloor</code> |
| $))))$ | <code>), \rparen</code> | $\rfloor\rfloor\rfloor\rfloor$ | <code>\rfloor</code> |
| $[[[[[$ | <code>[, \lbrack</code> | $\lceil\lceil\lceil\lceil$ | <code>\lceil</code> |
| $]]]]]$ | <code>], \rbrack</code> | $\rceil\rceil\rceil\rceil$ | <code>\rceil</code> |

| | | | |
|---|-----------------------------|---|----------------------------|
|  | <code>\ulcorner</code> |  | <code> , \vert</code> |
|  | <code>\urcorner</code> |  | <code>\lvert</code> |
|  | <code>\llcorner</code> |  | <code>\rvert</code> |
|  | <code>\lrcorner</code> |  | <code>\Vert, \lvert</code> |
|  | <code>\ullcorner</code> |  | <code>\lVert</code> |
|  | <code>\ulrcorner</code> |  | <code>\rVert</code> |
|  | <code>\lsem, \lBrack</code> |  | <code>\Vvert</code> |
|  | <code>\rsem, \rBrack</code> |  | <code>\lVvert</code> |
|  | <code>\lbrace, \{</code> |  | <code>\rVvert</code> |
|  | <code>\rbrace, \}</code> |  | <code>\arrowvert</code> |
|  | <code>\langle</code> |  | <code>\Arrowvert</code> |
|  | <code>\rangle</code> |  | <code>\lgroup</code> |
|  | <code>\lAngle</code> |  | <code>\rgroup</code> |
|  | <code>\rAngle</code> |  | <code>\lmoustache</code> |
|  | <code>\langedot</code> |  | <code>\rmoustache</code> |
|  | <code>\rangedot</code> |  | <code>\bracevert</code> |
|  | <code>/, \mathslash</code> |  | <code>\uparrow</code> |
|  | <code>\backslash</code> |  | <code>\downarrow</code> |

| | | | |
|---|------------------------------|---|------------------------------------|
|  | <code>\updownarrow</code> |  | <code>\Downarrow</code> |
|  | <code>\Uparrow</code> |  | <code>\Updownarrow</code> |
| \overbrace{xxx} | <code>\overbrace</code> | \overline{xxx} | <code>\overline{segment}</code> |
| \underbrace{xxx} | <code>\underbrace</code> | \overleftarrow{xxx} | <code>\overleftarrow{poon}</code> |
| \overgroup{xxx} | <code>\overgroup</code> | \overrightarrow{xxx} | <code>\overrightarrow{poon}</code> |
| \undergroup{xxx} | <code>\undergroup</code> | \underline{xxx} | <code>\underline{segment}</code> |
| \sqrt{b} | <code>\sqrt{b}</code> | \vec{b} | <code>\vec{b}</code> |
| \widehat{xxx} | <code>\widehat{xxx}</code> | \bar{b} | <code>\middlebar{b}</code> |
| \widetilde{xxx} | <code>\widetilde{xxx}</code> | $\text{\textbackslash}b$ | <code>\middleslash{b}</code> |
| \wideparen{xxx} | <code>\wideparen{xxx}</code> | $\text{\textbackslash}b$ | <code>\strokethrough{b}</code> |

5.7 Faked symbols

The following symbols are taken from the text font.

| | | | |
|------------|-----------------------------|--------------------------|---------------------------|
| \dagger | <code>\dagger</code> | \hbar | <code>\hbar</code> |
| \ddagger | <code>\ddagger</code> | \hslash | <code>\hslash</code> |
| \P | <code>\mathparagraph</code> | $\text{\textcircled{R}}$ | <code>\circledR</code> |
| \S | <code>\mathsection</code> | $\text{\textcircled{S}}$ | <code>\circledS</code> |
| $\$$ | <code>\mathdollar</code> | λ | <code>\lambdabar</code> |
| \pounds | <code>\mathsterling</code> | λ | <code>\lambdaslash</code> |
| \yen | <code>\yen</code> | | |

5.8 Missing symbols

The following symbols from Computer Modern or the AMS fonts are missing in MdSymbol. If available, they should be taken from the text font.

| | | |
|------------------------|---------------------------|------------------------|
| <code>\mho</code> | <code>\backepsilon</code> | <code>\diagup</code> |
| <code>\eth</code> | <code>\mapstochar</code> | <code>\diagdown</code> |
| <code>\digamma</code> | <code>\lhook</code> | <code>\Bbbk</code> |
| <code>\varkappa</code> | <code>\rhook</code> | |

6 Implementation

```

1 \{*\style\}
2 \RequirePackage{xkeyval}

```

```

3 \newcommand*\mdsy@choicekey[3]{%
4   \define@choicekey*{mdsymbol.sty}{#1}[\@tempa\@tempb]{#2}{#3}%
5 }

```

We use xkeyval's key mechanism to declare all options. The first options determines the size of delimiters.

```

6 \define@boolkey{mdsymbol.sty}[mdsy@]{largedelims}[true]{}

```

The following option determines whether faked symbols should be defined.

```

7 \define@boolkey{mdsymbol.sty}[mdsy@]{retainmissing}[true]{}

```

The next option allows to scale the fonts by an arbitrary factor.

```

8 \newcommand{\mdsy@scale}{1.0}
9 \define@key{mdsymbol.sty}{scale}{\renewcommand\mdsy@scale{#1}}

```

The next option controls whether only the sans and sansbold mathversions are modified.

```

10 \define@boolkey{mdsymbol.sty}[mdsy@]{onlysansmath}[true]{}

```

The following two options control which weights are used for which math version and font size.

```

11 \newcommand\mdsy@mweight@normal{Regular}
12 \newcommand\mdsy@mweight@small{Regular}
13 \newcommand\mdsy@bweight@normal{Semibold}
14 \newcommand\mdsy@bweight@small{Semibold}
15 \mdsy@choicekey{normalweight}{light,regular,autolight,autoregular}{%
16   \ifcase\@tempb\relax
17     \renewcommand\mdsy@mweight@normal{Light}%
18     \renewcommand\mdsy@mweight@small{Light}%
19   \or
20     \renewcommand\mdsy@mweight@normal{Regular}%
21     \renewcommand\mdsy@mweight@small{Regular}%
22   \or
23     \renewcommand\mdsy@mweight@normal{Light}%
24     \renewcommand\mdsy@mweight@small{Regular}%
25   \or
26     \renewcommand\mdsy@mweight@normal{Regular}%
27     \renewcommand\mdsy@mweight@small{Semibold}%
28   \fi
29 }
30 \mdsy@choicekey{boldweight}{semibold,bold,autosemibold}{%
31   \ifcase\@tempb\relax
32     \renewcommand\mdsy@bweight@normal{Semibold}%
33     \renewcommand\mdsy@bweight@small{Semibold}%
34   \or
35     \renewcommand\mdsy@bweight@normal{Bold}%
36     \renewcommand\mdsy@bweight@small{Bold}%
37   \or
38     \renewcommand\mdsy@bweight@normal{Semibold}%

```

```

39   \renewcommand\mdsy@bweight@small{Bold}%
40   \fi
41 }
42 \ExecuteOptionsX{largedelims=false,onlysansmath=false,retainmissing=false}
43 \ProcessOptionsX

```

Load external packages, but only if they are not already loaded in order to avoid warning messages about loading a package twice with different options.

```

44 \@ifpackageloaded{amsmath}{-}{\RequirePackage{amsmath}}
45 \@ifpackageloaded{textcomp}{-}{\RequirePackage{textcomp}}

```

Command to check whether tabular math version is available

```

46 \newcommand*\mdsy@if@tabular@math[1]{%
47   \ifundefined{mv@tabular}{-}{#1}%
48 }

```

Add an additional switch into the mathversion command to indicate sans or sansbold math. Putting this into the \ifmathversionsans command does not work with the delimiter definition below.

```

49 \ifmdsy@onlysansmath
50   \DeclareMathVersion{sans}
51   \DeclareMathVersion{sansbold}
52   \DeclareMathVersion{sanstabular}
53   \DeclareMathVersion{sansboldtabular}
54
55   \newif\if@mdsy@sans@
56
57   \let\mathversion@old\mathversion
58   \def\sans@version{sans}
59   \def\sans@version@bold{sansbold}
60   \def\sans@version@tab{sanstabular}
61   \def\sans@version@bold@tab{sansboldtabular}
62   \renewcommand{\mathversion}[1]{%
63     \mathversion@old{#1}%
64     \@mdsy@sans@false%
65     \ifx\math@version\sans@version%
66       \@mdsy@sans@true%
67     \fi%
68     \ifx\math@version\sans@version@bold%
69       \@mdsy@sans@true%
70     \fi%
71     \ifx\math@version\sans@version@tab%
72       \@mdsy@sans@true%
73     \fi%
74     \ifx\math@version\sans@version@bold@tab%
75       \@mdsy@sans@true%
76     \fi%

```

```

77 }
78 \fi
79 \def\ifmathversionsans{%
80   \if@mdsy@sans@
81     \expandafter\@firstoftwo
82   \else
83     \expandafter\@secondoftwo
84   \fi
85 }

```

The following shorthands simplify the definition of commands which have different output depending on the mathversion in the case of `onlysansmath`. Without that option, they just normally define the commands.

```

86 \RequirePackage{etoolbox}
87
88 \newcommand\mdsy@setslot[1]{\@tempcnta #1\relax}
89 \newcommand\mdsy@nextslot{\advance\@tempcnta 1\relax}
90 \newcommand\mdsy@prevslot{\advance\@tempcnta -1\relax}
91
92 \newcommand\mdsy@@DeclareSymbol[4]{\expandafter\DeclareMathSymbol\expandafter{\csname
93
94 \ifmdsy@onlysansmath
95   \newcommand\mdsy@OrigSymbol@not@def{%
96     \PackageError{mdsymbol}{Symbol is only available in sans-like math-
97     versions}{%
98       Define symbol before loading mdsymbol with the onlysansmath op-
99       tion}
100   }
101   \newcommand\mdsy@DeclareSymbol[3]{%
102     \ifcsdef{#1}{%
103       \csletcs{#1@old}{#1}%
104     }\cslet{#1@old}{\mdsy@OrigSymbol@not@def}}
105     \expandafter\mdsy@@DeclareSymbol\expandafter{\the\@tempcnta}{#1@sans}{#3}{#2}%
106     \csundef{#1}%
107     \csdef{#1}{\ifmathversionsans{\csname #1@sans\endcsname}{\csname#1@old\endcsname}}
108     \mdsy@nextslot
109   }
110 \newcommand\mdsy@DeclareDelimiter[4]{%
111   \ifcsdef{#1}{%
112     \csletcs{#1@old}{#1}%
113   }\cslet{#1@old}{\mdsy@OrigSymbol@not@def}}%
114   \expandafter\DeclareMathDelimiter\expandafter{\csname #1@sans\endcsname}{#2}{#3}{
115   \csundef{#1}%
116   \csdef{#1}{\ifmathversionsans{\csname #1@sans\endcsname}{\csname#1@old\endcsname}}
117   }
118 \newcommand\mdsy@DeclareOperator[3]{%

```

```

117 \ifcsdef{#1}{%
118   \csletcs{#1@old}{#1}%
119 }{\cslet{#1@old}{\mdsy@OrigSymbol@not@def}}%
120 \csdef{#1@sans}{\DOTSB#3\slimits@}
121 \csundef{#1}%
122 \csdef{#1}{\ifmathversionsans{\csname #1@sans\endcsname}{\csname#1@old\endcsname}}
123 }
124 \newcommand\mdsy@DeclareIntegral[3]{%
125   \ifcsdef{#1}{%
126     \csletcs{#1@old}{#1}%
127   }{\cslet{#1@old}{\mdsy@OrigSymbol@not@def}}%
128   \csdef{#1@sans}{\DOTSI#3\ilimits@}%
129   \csundef{#1}%
130   \csdef{#1}{\ifmathversionsans{\csname #1@sans\endcsname}{\csname#1@old\endcsname}}
131 }
132 \newcommand\mdsy@DeclareMathSymbol[4]{%
133   \ifcsdef{#1}{%
134     \csletcs{#1@old}{#1}%
135   }{\cslet{#1@old}{\mdsy@OrigSymbol@not@def}}%
136   \expandafter\DeclareMathSymbol\expandafter{\csname #1@sans\endcsname}{#2}{#3}{#4}%
137   \csundef{#1}%
138   \csdef{#1}{\ifmathversionsans{\csname #1@sans\endcsname}{\csname#1@old\endcsname}}
139 }
140 \newcommand\mdsy@DeclareMathDelimiter[6]{%
141   \ifcsdef{#1}{%
142     \csletcs{#1@old}{#1}%
143   }{\cslet{#1@old}{\mdsy@OrigSymbol@not@def}}%
144   \expandafter\DeclareMathDelimiter\expandafter{\csname #1@sans\endcsname}{#2}{#3}{#4}%
145   \csundef{#1}%
146   \csdef{#1}{\ifmathversionsans{\csname #1@sans\endcsname}{\csname#1@old\endcsname}}
147 }
148 \newcommand\mdsy@DeclareMathAccent[4]{%
149   \ifcsdef{#1}{%
150     \csletcs{#1@old}{#1}%
151   }{\cslet{#1@old}{\mdsy@OrigSymbol@not@def}}%
152   \expandafter\DeclareMathAccent\expandafter{\csname #1@sans\endcsname}{#2}{#3}{#4}%
153   \csundef{#1}%
154   \csdef{#1}{\ifmathversionsans{\csname #1@sans\endcsname}{\csname#1@old\endcsname}}
155 }
156 \newcommand\mdsy@DeclareMathRadical[5]{%
157   \ifcsdef{#1}{%
158     \csletcs{#1@old}{#1}%
159   }{\cslet{#1@old}{\mdsy@OrigSymbol@not@def}}%
160   \expandafter\DeclareMathRadical\expandafter{\csname #1@sans\endcsname}{#2}{#3}{#4}%
161   \csundef{#1}%

```



```

162   \csdef{#1}{\ifmathversionsans{\csname #1@sans\endcsname}{\csname#1@old\endcsname}}
163 }
164 \newcommand{\mdsy@DeclareActiveMathSymbol}[4]{%
165   \ifnum\mathcode'#1="8000 %
166     \errmessage{'#1' is already active}%
167   \fi
168   \expandafter\mathchardef\csname#1@old\endcsname=\mathcode'#1 %
169   \expandafter\DeclareMathSymbol\csname#1@new\endcsname{#2}{#3}{#4}
170   \begingroup
171   \lccode'\~='#1 %
172   \lowercase{\endgroup
173     \def~%
174   }{\ifmathversionsans{\csname#1@new\endcsname}{\csname#1@old\endcsname}}%
175   \mathcode'#1="8000 %
176 }
177 \newcommand{\mdsy@DeclareActiveMathDelimiter}[4]{%
178   % don't know how to implement an active math delimiter; so de-
179   clare
180   % it as an active math symbol instead
181   \mdsy@DeclareActiveMathSymbol{#1}{#2}{#3}{#4}
182 }
183 \newcommand{\mdsy@renewcommand}[2]{%
184   \ifcsdef{#1}{%
185     \csletcs{#1@old}{#1}%
186   }{\cslet{#1@old}{\mdsy@OrigSymbol@not@def}}%
187   \expandafter\newcommand\csname #1@sans\endcsname{#2}%
188   \csundef{#1}%
189   \csdef{#1}{\ifmathversionsans{\csname #1@sans\endcsname}{\csname#1@old\endcsname}}
190 }
191 \newcommand{\mdsy@DeclareRobustCommandArg}[3]{%
192   \ifcsdef{#1}{%
193     \csletcs{#1@old}{#1}%
194   }{\cslet{#1@old}{\mdsy@OrigSymbol@not@def}}%
195   \expandafter\DeclareRobustCommand\csname #1@sans\endcsname[#2]{#3}%
196   \csundef{#1}%
197   \csdef{#1}{\ifmathversionsans{\csname #1@sans\endcsname}{\csname#1@old\endcsname}}
198 }
199 \newcommand{\mdsy@DeclareRobustCommand}[2]{%
200   \ifcsdef{#1}{%
201     \csletcs{#1@old}{#1}%
202   }{\cslet{#1@old}{\mdsy@OrigSymbol@not@def}}%
203   \expandafter\DeclareRobustCommand\csname #1@sans\endcsname{#2}%
204   \csundef{#1}%
205   \csdef{#1}{\ifmathversionsans{\csname #1@sans\endcsname}{\csname#1@old\endcsname}}
206 }

```

```

206 \else
207   \let\ifmathversionsans\undefined
208   \newcommand\mdsy@DeclareSymbol[3]{%
209     \csundef{#1}%
210     \expandafter\mdsy@@DeclareSymbol\expandafter{\the\@tempcnta}{#1}{#3}{#2}%
211     \mdsy@nextslot
212   }
213   \newcommand\mdsy@DeclareDelimiter[4]{%
214     \csundef{#1}%
215     \expandafter\DeclareMathDelimiter\expandafter{\csname#1\endcsname}{#2}{#3}{#4}{#3}
216   }
217   \newcommand\mdsy@DeclareOperator[3]{%
218     \csdef{#1}{\DOTSB#3\slimits@}%
219   }
220   \newcommand\mdsy@DeclareIntegral[3]{%
221     \csdef{#1}{\DOTSI#3\ilimits@}%
222   }
223   \newcommand\mdsy@DeclareMathSymbol[4]{%
224     \expandafter\DeclareMathSymbol\expandafter{\csname#1\endcsname}{#2}{#3}{#4}%
225   }
226   \newcommand\mdsy@DeclareMathDelimiter[6]{%
227     \expandafter\DeclareMathDelimiter\expandafter{\csname#1\endcsname}{#2}{#3}{#4}{#5}
228   }
229   \newcommand\mdsy@DeclareMathAccent[4]{%
230     \expandafter\DeclareMathAccent\expandafter{\csname#1\endcsname}{#2}{#3}{#4}%
231   }
232   \newcommand\mdsy@DeclareMathRadical[5]{%
233     \expandafter\DeclareMathRadical\expandafter{\csname#1\endcsname}{#2}{#3}{#4}{#5}%
234   }
235   \newcommand\mdsy@DeclareActiveMathSymbol[4]{%
236     \DeclareMathSymbol{#1}{#2}{#3}{#4}%
237   }
238   \newcommand\mdsy@DeclareActiveMathDelimiter[4]{%
239     \DeclareMathDelimiter{#1}{#2}{#3}{#4}{#3}{#4}%
240   }
241   \newcommand{\mdsy@renewcommand}[2]{%
242     \expandafter\providecommand\csname #1\endcsname{#2}%
243   }
244   \newcommand{\mdsy@DeclareRobustCommand}[2]{%
245     \expandafter\DeclareRobustCommand\csname#1\endcsname{#2}%
246   }
247   \newcommand{\mdsy@DeclareRobustCommandArg}[3]{%
248     \expandafter\DeclareRobustCommand\csname#1\endcsname[#2]{#3}%
249   }
250 \fi

```

```

251
252 \newcommand\mdsy@DeclareAlias[3]{\mdsy@prevslot\mdsy@DeclareSymbol{#1}{#2}{#3}}
253
254 \newcommand\mdsy@DeclareOpen[3]{\mdsy@DeclareDelimiter{#1}{\mathopen}{#2}{#3}}
255 \newcommand\mdsy@DeclareClose[3]{\mdsy@DeclareDelimiter{#1}{\mathclose}{#2}{#3}}

```

If the option `largedelims` has been selected, we readjust the scaling factors of big delimiters, so that `\Big`, `\bigg` and `\Bigg` do not change their size.

```

256 \ifmdsy@largedelims
257   \mdsy@renewcommand\Big{\bBigg@{1.25}}
258   \mdsy@renewcommand\bigg{\bBigg@{1.66}}
259   \mdsy@renewcommand\Bigg{\bBigg@{2.08}}
260 \fi

```

Some symbols missing from `MdSymbol` can be obtained from other fonts or by combining several other symbols.

```

261 \ifmdsy@retainmissing
262 \else
263   \mdsy@DeclareRobustCommand\dagger{\mdsy@text{\textdagger}}
264   \mdsy@DeclareRobustCommand\ddagger{\mdsy@text{\textdaggerdbl}}
265   \mdsy@DeclareRobustCommand\mathparagraph{\mdsy@text{\textparagraph}}
266   \mdsy@DeclareRobustCommand\mathsection{\mdsy@text{\textsection}}
267   \mdsy@DeclareRobustCommand\mathdollar{\mdsy@text{\textdollar}}
268   \mdsy@DeclareRobustCommand\mathsterling{\mdsy@text{\textsterling}}
269   \mdsy@DeclareRobustCommand\yen{\mdsy@text{\textyen}}
270   \mdsy@DeclareRobustCommand\circledR{\mdsy@text{\textcircled{%
271     \check@mathfonts\fontsize\sf@size\z@ \math@fontsfalse\selectfont R}}}
272   \mdsy@DeclareRobustCommand\circledS{\mdsy@text{\textcircled{%
273     \check@mathfonts\fontsize\sf@size\z@ \math@fontsfalse\selectfont S}}}
274   \mdsy@DeclareRobustCommand\Re{\mathfrak{R}}
275   \mdsy@DeclareRobustCommand\Im{\mathfrak{I}}
276   \mdsy@DeclareRobustCommand\dotcong{\mathrel{\dot{\cong}}}
277   \mdsy@DeclareRobustCommand\thicksim{\mathrel{\text{\boldmath$\m@th\sim$}}}
278   \mdsy@DeclareRobustCommand\thickapprox{\mathrel{\text{\boldmath$\m@th\approx$}}}
279   \mdsy@DeclareRobustCommand\hslash{\middleslash h}
280   \mdsy@DeclareRobustCommand\centerdot{\mathbin{\rule{0.15em}{0.15em}}}
281   \mdsy@DeclareRobustCommand\lambdabar{\middlebar\lambda}
282   \mdsy@DeclareRobustCommand\lambdaslash{\middleslash\lambda}
283   \ifpackageloaded{MyriadPro}{\%
284     \mdsy@DeclareRobustCommand\hbar{\middlebar h}\%
285   }
286 \fi

```

Unneeded partial symbols.

```

287 \ifmdsy@onlysansmath
288 \else
289   \let\mapstochar\undefined

```

```

290 \let\lhook\undefined
291 \let\rhook\undefined
292 \fi

Font definitions.
293 \DeclareFontFamily{U}{MdSymbolA}{}
294 \DeclareFontFamily{U}{MdSymbolB}{}
295 \DeclareFontFamily{U}{MdSymbolC}{}
296 \DeclareFontFamily{U}{MdSymbolD}{}
297 \DeclareFontFamily{U}{MdSymbolE}{}
298 \DeclareFontFamily{U}{MdSymbolF}{}
299
300 \RequirePackage{fltpoint}
301 \fpDecimalSign{.}
302 \newcommand*{\mdsy@calc@bsize}[2]{\fpDiv{#1}{#2}{\mdsy@scale}}
303
304 \mdsy@calc@bsize{\mdsy@s@medium}{6}
305 \mdsy@calc@bsize{\mdsy@s@bold}{6}
306
307 \DeclareFontShape{U}{MdSymbolA}{m}{n}{
308     < -\mdsy@s@medium> s * [\mdsy@scale] MdSymbolA-\mdsy@mweight@small
309     <\mdsy@s@medium- > s * [\mdsy@scale] MdSymbolA-\mdsy@mweight@normal
310 }{}
311 \DeclareFontShape{U}{MdSymbolA}{b}{n}{
312     < - \mdsy@s@bold> s * [\mdsy@scale] MdSymbolA-\mdsy@bweight@small
313     <\mdsy@s@bold - > s * [\mdsy@scale] MdSymbolA-\mdsy@bweight@normal
314 }{}
315 \DeclareFontShape{U}{MdSymbolB}{m}{n}{
316     < -\mdsy@s@medium> s * [\mdsy@scale] MdSymbolB-\mdsy@mweight@small
317     <\mdsy@s@medium- > s * [\mdsy@scale] MdSymbolB-\mdsy@mweight@normal
318 }{}
319 \DeclareFontShape{U}{MdSymbolB}{b}{n}{
320     < - \mdsy@s@bold> s * [\mdsy@scale] MdSymbolB-\mdsy@bweight@small
321     <\mdsy@s@bold - > s * [\mdsy@scale] MdSymbolB-\mdsy@bweight@normal
322 }{}
323 \DeclareFontShape{U}{MdSymbolC}{m}{n}{
324     < -\mdsy@s@medium> s * [\mdsy@scale] MdSymbolC-\mdsy@mweight@small
325     <\mdsy@s@medium- > s * [\mdsy@scale] MdSymbolC-\mdsy@mweight@normal
326 }{}
327 \DeclareFontShape{U}{MdSymbolC}{b}{n}{
328     < - \mdsy@s@bold> s * [\mdsy@scale] MdSymbolC-\mdsy@bweight@small
329     <\mdsy@s@bold - > s * [\mdsy@scale] MdSymbolC-\mdsy@bweight@normal
330 }{}
331 \DeclareFontShape{U}{MdSymbolD}{m}{n}{
332     < -\mdsy@s@medium> s * [\mdsy@scale] MdSymbolD-\mdsy@mweight@small
333     <\mdsy@s@medium- > s * [\mdsy@scale] MdSymbolD-\mdsy@mweight@normal

```

```

334 }{}
335 \DeclareFontShape{U}{MdSymbolD}{b}{n}{
336     < - \mdsy@s@bold> s * [\mdsy@scale] MdSymbolD-\mdsy@bweight@small
337     <\mdsy@s@bold - > s * [\mdsy@scale] MdSymbolD-\mdsy@bweight@normal
338 }{}
339 \DeclareFontShape{U}{MdSymbolE}{m}{n}{
340     < -\mdsy@s@medium> s * [\mdsy@scale] MdSymbolE-\mdsy@mweight@small
341     <\mdsy@s@medium- > s * [\mdsy@scale] MdSymbolE-\mdsy@mweight@normal
342 }{}
343 \DeclareFontShape{U}{MdSymbolE}{b}{n}{
344     < - \mdsy@s@bold> s * [\mdsy@scale] MdSymbolE-\mdsy@bweight@small
345     <\mdsy@s@bold - > s * [\mdsy@scale] MdSymbolE-\mdsy@bweight@normal
346 }{}
347 \DeclareFontShape{U}{MdSymbolF}{m}{n}{
348     < -\mdsy@s@medium> s * [\mdsy@scale] MdSymbolF-\mdsy@mweight@small
349     <\mdsy@s@medium- > s * [\mdsy@scale] MdSymbolF-\mdsy@mweight@normal
350 }{}
351 \DeclareFontShape{U}{MdSymbolF}{b}{n}{
352     < - \mdsy@s@bold> s * [\mdsy@scale] MdSymbolF-\mdsy@bweight@small
353     <\mdsy@s@bold - > s * [\mdsy@scale] MdSymbolF-\mdsy@bweight@normal
354 }{}
355
356 \newcommand\IfUndefSymbolFont[3]{\@ifundefined{sym#1}{#2}{#3}}
357 \newcommand{\mdsy@DeclareSymbolFont}[3]{%
358     \IfUndefSymbolFont{#1}{%
359         \DeclareSymbolFont{#1}{#2}{#3}{m}{n}
360     }{%
361         \ifmdsy@onlysansmath%
362             \SetSymbolFont{#1}{sans}{#2}{#3}{m}{n}%
363             \SetSymbolFont{#1}{sanstabular}{#2}{#3}{m}{n}%
364         \else%
365             \SetSymbolFont{#1}{normal}{#2}{#3}{m}{n}%
366             \mdsy@if@tabular@math{\SetSymbolFont{#1}{tabular}{#2}{#3}{m}{n}}%
367             \fi%
368         }
369         \ifmdsy@onlysansmath%
370             \SetSymbolFont{#1}{sansbold}{#2}{#3}{b}{n}%
371             \SetSymbolFont{#1}{sansboldtabular}{#2}{#3}{b}{n}%
372         \else%
373             \SetSymbolFont{#1}{bold}{#2}{#3}{b}{n}%
374             \mdsy@if@tabular@math{\SetSymbolFont{#1}{boldtabular}{#2}{#3}{b}{n}}%
375             \fi%
376     }
377
378 \mdsy@DeclareSymbolFont{symbols}{U}{MdSymbolA}

```

```

379 \mdsy@DeclareSymbolFont{relations}{U}{MdSymbolB}
380 \mdsy@DeclareSymbolFont{arrows}{U}{MdSymbolC}
381 \mdsy@DeclareSymbolFont{narrows}{U}{MdSymbolD}
382 \mdsy@DeclareSymbolFont{largesymbols}{U}{MdSymbolE}
383 \mdsy@DeclareSymbolFont{delimiters}{U}{MdSymbolF}
384

```

A command for taking math symbols from the text font.

```

385 \def\mdsy@bold{bold}
386 \newcommand*\mdsy@text[1]{%
387   \ifx\mdsy@bold\math@version
388     \text{\sffamily\bfseries#1}%
389   \else
390     \text{\sffamily\mdseries#1}%
391   \fi
392 }

```

MdSymbolA: binary operators and ordinary symbols

```

393 \mdsy@setslot{0}
394 \mdsy@DeclareSymbol{cdot}{symbols}{\mathbin}
395 \mdsy@DeclareAlias{cdotp}{symbols}{\mathpunct}
396 \mdsy@DeclareSymbol{hdotdot}{symbols}{\mathbin}
397 \mdsy@DeclareSymbol{vdotdot}{symbols}{\mathbin}
398 \mdsy@DeclareAlias{colon}{symbols}{\mathpunct}
399 \mdsy@DeclareAlias{mathcolon}{symbols}{\mathpunct}
400 \mdsy@DeclareAlias{mathratio}{symbols}{\mathrel}
401 \mdsy@DeclareSymbol{udotdot}{symbols}{\mathbin}
402 \mdsy@DeclareSymbol{ddotdot}{symbols}{\mathbin}
403 \mdsy@DeclareSymbol{hdots}{symbols}{\mathord}
404 \mdsy@DeclareAlias{@cdots}{symbols}{\mathinner}
405 \mdsy@DeclareAlias{cdots}{symbols}{\mathinner}
406 \mdsy@DeclareSymbol{@vdots}{symbols}{\mathord}
407 \mdsy@DeclareRobustCommand{vdots}{\ifmmode\vdots\else\hbox{$\vdots$}\fi}
408 \mdsy@DeclareSymbol{udots}{symbols}{\mathord}
409 \mdsy@DeclareAlias{adots}{symbols}{\mathord}
410 \mdsy@DeclareSymbol{ddots}{symbols}{\mathord}
411 \mdsy@DeclareSymbol{righttherefore}{symbols}{\mathord}
412 \mdsy@DeclareSymbol{uptherefore}{symbols}{\mathord}
413 \mdsy@DeclareAlias{therefore}{symbols}{\mathord}
414 \mdsy@DeclareSymbol{lefttherefore}{symbols}{\mathord}
415 \mdsy@DeclareSymbol{downtherefore}{symbols}{\mathord}
416 \mdsy@DeclareAlias{because}{symbols}{\mathord}
417 \mdsy@DeclareSymbol{squaredots}{symbols}{\mathord}
418 \mdsy@DeclareAlias{Colon}{symbols}{\mathrel}
419 \mdsy@DeclareSymbol{minus}{symbols}{\mathbin}
420 \mdsy@DeclareSymbol{medslash}{symbols}{\mathbin}
421 \mdsy@DeclareAlias{smalldivslash}{symbols}{\mathbin}

```

```

422 \mdsy@DeclareSymbol{medbackslash}{symbols}{\mathbin}
423 \mdsy@DeclareAlias{smallsetminus}{symbols}{\mathbin}
424 \mdsy@DeclareSymbol{plus}{symbols}{\mathbin}
425 \mdsy@DeclareSymbol{times}{symbols}{\mathbin}
426 \mdsy@DeclareSymbol{dotminus}{symbols}{\mathbin}
427 \mdsy@DeclareSymbol{minusdot}{symbols}{\mathbin}
428 \mdsy@DeclareSymbol{div}{symbols}{\mathbin}
429 \mdsy@DeclareSymbol{minusfdots}{symbols}{\mathbin}
430 \mdsy@DeclareSymbol{minusrdots}{symbols}{\mathbin}
431 \mdsy@DeclareSymbol{dotsminusdots}{symbols}{\mathrel}
432 \mdsy@DeclareSymbol{pm}{symbols}{\mathbin}
433 \mdsy@DeclareSymbol{mp}{symbols}{\mathbin}
434 \mdsy@DeclareSymbol{dotplus}{symbols}{\mathbin}
435 \mdsy@DeclareSymbol{plusdot}{symbols}{\mathbin}
436 \mdsy@DeclareSymbol{dottimes}{symbols}{\mathbin}
437 \mdsy@DeclareSymbol{timesbar}{symbols}{\mathbin}
438 \mdsy@DeclareSymbol{divideontimes}{symbols}{\mathbin}
439 \mdsy@DeclareSymbol{neg}{symbols}{\mathord}
440 \mdsy@DeclareAlias{lnot}{symbols}{\mathord}
441 \mdsy@DeclareAlias{minushookdown}{symbols}{\mathbin}
442 \mdsy@DeclareSymbol{backneg}{symbols}{\mathord}
443 \mdsy@DeclareAlias{hookdownminus}{symbols}{\mathbin}
444 \mdsy@DeclareAlias{invneg}{symbols}{\mathord}
445 \mdsy@DeclareAlias{invnot}{symbols}{\mathord}
446 \mdsy@DeclareSymbol{intprod}{symbols}{\mathbin}
447 \mdsy@DeclareAlias{minushookup}{symbols}{\mathbin}
448 \mdsy@DeclareAlias{turnedneg}{symbols}{\mathord}
449 \mdsy@DeclareAlias{turnednot}{symbols}{\mathord}
450 \mdsy@DeclareSymbol{intprodr}{symbols}{\mathbin}
451 \mdsy@DeclareAlias{hookupminus}{symbols}{\mathbin}
452 \mdsy@DeclareAlias{turnedbackneg}{symbols}{\mathord}
453 \mdsy@DeclareSymbol{leftthreetimes}{symbols}{\mathbin}
454 \mdsy@DeclareSymbol{rightthreetimes}{symbols}{\mathbin}
455 \mdsy@DeclareSymbol{dtimes}{symbols}{\mathbin}
456 \mdsy@DeclareAlias{btimes}{symbols}{\mathbin}
457 \mdsy@DeclareSymbol{rtimes}{symbols}{\mathbin}
458 \mdsy@DeclareAlias{rJoin}{symbols}{\mathrel}
459 \mdsy@DeclareSymbol{utimes}{symbols}{\mathbin}
460 \mdsy@DeclareAlias{ttimes}{symbols}{\mathbin}
461 \mdsy@DeclareSymbol{ltimes}{symbols}{\mathbin}
462 \mdsy@DeclareAlias{lJoin}{symbols}{\mathrel}
463 \mdsy@DeclareSymbol{bowtie}{symbols}{\mathrel}
464 \mdsy@DeclareAlias{Join}{symbols}{\mathrel}
465 \mdsy@DeclareAlias{lrtimes}{symbols}{\mathbin}
466 \mdsy@DeclareSymbol{upbowtie}{symbols}{\mathbin}

```

```

467 \mdsy@DeclareAlias{hourglass}{symbols}{\mathbin}
468 \mdsy@DeclareSymbol{rightY}{symbols}{\mathbin}
469 \mdsy@DeclareSymbol{upY}{symbols}{\mathbin}
470 \mdsy@DeclareSymbol{leftY}{symbols}{\mathbin}
471 \mdsy@DeclareSymbol{downY}{symbols}{\mathbin}
472 \mdsy@DeclareSymbol{wedge}{symbols}{\mathbin}
473 \mdsy@DeclareAlias{land}{symbols}{\mathbin}
474 \mdsy@DeclareSymbol{vee}{symbols}{\mathbin}
475 \mdsy@DeclareAlias{lor}{symbols}{\mathbin}
476 \mdsy@DeclareSymbol{wedgedot}{symbols}{\mathbin}
477 \mdsy@DeclareSymbol{veedot}{symbols}{\mathbin}
478 \mdsy@DeclareSymbol{doublewedge}{symbols}{\mathbin}
479 \mdsy@DeclareAlias{wedgeonwedge}{symbols}{\mathbin}
480 \mdsy@DeclareSymbol{doublevee}{symbols}{\mathbin}
481 \mdsy@DeclareAlias{veeonvee}{symbols}{\mathbin}
482 \mdsy@DeclareSymbol{curlywedge}{symbols}{\mathbin}
483 \mdsy@DeclareSymbol{curlyvee}{symbols}{\mathbin}
484 \mdsy@DeclareSymbol{barwedge}{symbols}{\mathbin}
485 \mdsy@DeclareSymbol{veebar}{symbols}{\mathbin}
486 \mdsy@DeclareSymbol{doublebarwedge}{symbols}{\mathbin}
487 \mdsy@DeclareSymbol{veedoublebar}{symbols}{\mathbin}
488 \mdsy@DeclareSymbol{cup}{symbols}{\mathbin}
489 \mdsy@DeclareSymbol{cap}{symbols}{\mathbin}
490 \mdsy@DeclareSymbol{doublecup}{symbols}{\mathbin}
491 \mdsy@DeclareAlias{Cup}{symbols}{\mathbin}
492 \mdsy@DeclareSymbol{doublecap}{symbols}{\mathbin}
493 \mdsy@DeclareAlias{Cap}{symbols}{\mathbin}
494 \mdsy@DeclareSymbol{cupdot}{symbols}{\mathbin}
495 \mdsy@DeclareSymbol{capdot}{symbols}{\mathbin}
496 \mdsy@DeclareSymbol{cupplus}{symbols}{\mathbin}
497 \mdsy@DeclareAlias{uplus}{symbols}{\mathbin}
498 \mdsy@DeclareSymbol{capplus}{symbols}{\mathbin}
499 \mdsy@DeclareSymbol{sqcup}{symbols}{\mathbin}
500 \mdsy@DeclareSymbol{sqcap}{symbols}{\mathbin}
501 \mdsy@DeclareSymbol{doublesqcup}{symbols}{\mathbin}
502 \mdsy@DeclareAlias{Sqcup}{symbols}{\mathbin}
503 \mdsy@DeclareSymbol{doublesqcap}{symbols}{\mathbin}
504 \mdsy@DeclareAlias{Sqcap}{symbols}{\mathbin}
505 \mdsy@DeclareSymbol{sqcupdot}{symbols}{\mathbin}
506 \mdsy@DeclareSymbol{sqcapdot}{symbols}{\mathbin}
507 \mdsy@DeclareSymbol{sqcupplus}{symbols}{\mathbin}
508 \mdsy@DeclareSymbol{sqcapplus}{symbols}{\mathbin}
509 \mdsy@DeclareSymbol{pullback}{symbols}{\mathbin}
510 \mdsy@DeclareSymbol{pushout}{symbols}{\mathbin}
511 \mdsy@DeclareSymbol{smalltrangleright}{symbols}{\mathbin}

```



```

512 \mdsy@DeclareSymbol{smalltriangleup}{symbols}{\mathbin}
513 \mdsy@DeclareSymbol{smalltriangleleft}{symbols}{\mathbin}
514 \mdsy@DeclareSymbol{smalltriangledown}{symbols}{\mathbin}
515 \mdsy@DeclareSymbol{smallblacktriangleright}{symbols}{\mathbin}
516 \mdsy@DeclareSymbol{smallblacktriangleup}{symbols}{\mathbin}
517 \mdsy@DeclareSymbol{smallblacktriangleleft}{symbols}{\mathbin}
518 \mdsy@DeclareSymbol{smallblacktriangledown}{symbols}{\mathbin}
519 \mdsy@DeclareSymbol{medtriangleright}{symbols}{\mathbin}
520 \mdsy@DeclareAlias{triangleright}{symbols}{\mathbin}
521 \mdsy@DeclareSymbol{medtriangleup}{symbols}{\mathbin}
522 \mdsy@DeclareAlias{triangle}{symbols}{\mathbin}
523 \mdsy@DeclareAlias{vartriangle}{symbols}{\mathbin}
524 \mdsy@DeclareSymbol{medtriangleleft}{symbols}{\mathbin}
525 \mdsy@DeclareAlias{triangleleft}{symbols}{\mathbin}
526 \mdsy@DeclareSymbol{medtriangledown}{symbols}{\mathbin}
527 \mdsy@DeclareAlias{triangledown}{symbols}{\mathbin}
528 \mdsy@DeclareSymbol{medblacktriangleright}{symbols}{\mathbin}
529 \mdsy@DeclareAlias{blacktriangleright}{symbols}{\mathbin}
530 \mdsy@DeclareSymbol{medblacktriangleup}{symbols}{\mathbin}
531 \mdsy@DeclareAlias{blacktriangle}{symbols}{\mathbin}
532 \mdsy@DeclareSymbol{medblacktriangleleft}{symbols}{\mathbin}
533 \mdsy@DeclareAlias{blacktriangleleft}{symbols}{\mathbin}
534 \mdsy@DeclareSymbol{medblacktriangledown}{symbols}{\mathbin}
535 \mdsy@DeclareAlias{blacktriangledown}{symbols}{\mathbin}
536 \mdsy@DeclareSymbol{largetriangleup}{symbols}{\mathord}
537 \mdsy@DeclareAlias{bigtriangleup}{symbols}{\mathbin}
538 \mdsy@DeclareSymbol{largetriangledown}{symbols}{\mathord}
539 \mdsy@DeclareAlias{bigtriangledown}{symbols}{\mathbin}
540 \mdsy@DeclareSymbol{smallcircle}{symbols}{\mathbin}
541 \mdsy@DeclareAlias{circ}{symbols}{\mathbin}
542 \mdsy@DeclareAlias{smwhtcircle}{symbols}{\mathbin}
543 \mdsy@DeclareSymbol{smallblackcircle}{symbols}{\mathbin}
544 \mdsy@DeclareAlias{bullet}{symbols}{\mathbin}
545 \mdsy@DeclareAlias{smbllkcircle}{symbols}{\mathbin}
546 \mdsy@DeclareSymbol{medcircle}{symbols}{\mathbin}
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926 \mdsy@DeclareAlias{ntriangleright}{relations}{\mathrel}
927 \mdsy@DeclareSymbol{nleqclosed}{relations}{\mathrel}
928 \mdsy@DeclareAlias{ntrianglelefteq}{relations}{\mathrel}
929 \mdsy@DeclareSymbol{ngeqclosed}{relations}{\mathrel}
930 \mdsy@DeclareAlias{ntrianglerighteq}{relations}{\mathrel}
931 \mdsy@DeclareSymbol{nlesscc}{relations}{\mathrel}
932 \mdsy@DeclareAlias{nltcc}{relations}{\mathrel}
933 \mdsy@DeclareSymbol{ngtrcc}{relations}{\mathrel}
934 \mdsy@DeclareAlias{ngtcc}{relations}{\mathrel}
935 \mdsy@DeclareSymbol{nleqslcc}{relations}{\mathrel}
936 \mdsy@DeclareAlias{nlescc}{relations}{\mathrel}
937 \mdsy@DeclareSymbol{ngeqslcc}{relations}{\mathrel}
938 \mdsy@DeclareAlias{ngescc}{relations}{\mathrel}
939 \mdsy@DeclareSymbol{nsqsubset}{relations}{\mathrel}
940 \mdsy@DeclareSymbol{nsqsupset}{relations}{\mathrel}
941 \mdsy@DeclareSymbol{nsqsubseteq}{relations}{\mathrel}
942 \mdsy@DeclareSymbol{nsqsupseteq}{relations}{\mathrel}
943 \mdsy@DeclareSymbol{nsqsubseteqq}{relations}{\mathrel}
944 \mdsy@DeclareSymbol{nsqsupseteqq}{relations}{\mathrel}
945 \mdsy@DeclareSymbol{nSqsubset}{relations}{\mathrel}
946 \mdsy@DeclareSymbol{nSqsupset}{relations}{\mathrel}
947 \mdsy@DeclareSymbol{nsubset}{relations}{\mathrel}
948 \mdsy@DeclareSymbol{nsubseteq}{relations}{\mathrel}
949 \mdsy@DeclareSymbol{nsubseteqq}{relations}{\mathrel}
950 \mdsy@DeclareSymbol{nsubseteqq}{relations}{\mathrel}
951 \mdsy@DeclareSymbol{nsubseteqq}{relations}{\mathrel}
952 \mdsy@DeclareSymbol{nsubseteqq}{relations}{\mathrel}
953 \mdsy@DeclareSymbol{nSubset}{relations}{\mathrel}
954 \mdsy@DeclareSymbol{nSupset}{relations}{\mathrel}
955 \mdsy@DeclareSymbol{nprec}{relations}{\mathrel}
956 \mdsy@DeclareSymbol{nsucc}{relations}{\mathrel}
957 \mdsy@DeclareSymbol{npreceq}{relations}{\mathrel}
958 \mdsy@DeclareSymbol{nsucceq}{relations}{\mathrel}
959 \mdsy@DeclareSymbol{npreccurlyeq}{relations}{\mathrel}
960 \mdsy@DeclareSymbol{nsucccurlyeq}{relations}{\mathrel}

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961 \mdsy@DeclareSymbol{npreceqq}{relations}{\mathrel}
962 \mdsy@DeclareSymbol{nsucceqq}{relations}{\mathrel}
963 \mdsy@DeclareSymbol{nprecsim}{relations}{\mathrel}
964 \mdsy@DeclareSymbol{nsuccsim}{relations}{\mathrel}
965 \mdsy@DeclareSymbol{nprecapprox}{relations}{\mathrel}
966 \mdsy@DeclareSymbol{nsuccapprox}{relations}{\mathrel}
967 \mdsy@DeclareSymbol{nlessdot}{relations}{\mathrel}
968 \mdsy@DeclareSymbol{ngtrdot}{relations}{\mathrel}
969 \mdsy@DeclareSymbol{nleqdot}{relations}{\mathrel}
970 \mdsy@DeclareSymbol{ngeqdot}{relations}{\mathrel}
971 \mdsy@DeclareSymbol{nleqslantdot}{relations}{\mathrel}
972 \mdsy@DeclareAlias{nlesdot}{relations}{\mathrel}
973 \mdsy@DeclareSymbol{ngeqslantdot}{relations}{\mathrel}
974 \mdsy@DeclareAlias{ngesdot}{relations}{\mathrel}
975 \mdsy@DeclareSymbol{neqslantless}{relations}{\mathrel}
976 \mdsy@DeclareSymbol{neqslantgtr}{relations}{\mathrel}
977 \mdsy@DeclareSymbol{ncurlyeqprec}{relations}{\mathrel}
978 \mdsy@DeclareSymbol{ncurlyeqsucc}{relations}{\mathrel}
979 \mdsy@DeclareSymbol{simneqq}{relations}{\mathrel}
980 \mdsy@DeclareSymbol{backsimneqq}{relations}{\mathrel}
981 \mdsy@DeclareSymbol{lneq}{relations}{\mathrel}
982 \mdsy@DeclareSymbol{gneq}{relations}{\mathrel}
983 \mdsy@DeclareSymbol{lneqq}{relations}{\mathrel}
984 \mdsy@DeclareAlias{lvertneqq}{relations}{\mathrel}
985 \mdsy@DeclareSymbol{gneqq}{relations}{\mathrel}
986 \mdsy@DeclareAlias{gvertneqq}{relations}{\mathrel}
987 \mdsy@DeclareSymbol{lnsim}{relations}{\mathrel}
988 \mdsy@DeclareSymbol{gnsim}{relations}{\mathrel}
989 \mdsy@DeclareSymbol{lnapprox}{relations}{\mathrel}
990 \mdsy@DeclareSymbol{gnapprox}{relations}{\mathrel}
991 \mdsy@DeclareSymbol{sqsubsetneq}{relations}{\mathrel}
992 \mdsy@DeclareSymbol{sqsupsetneq}{relations}{\mathrel}
993 \mdsy@DeclareSymbol{sqsubsetneqq}{relations}{\mathrel}
994 \mdsy@DeclareSymbol{sqsupsetneqq}{relations}{\mathrel}
995 \mdsy@DeclareSymbol{subsetneq}{relations}{\mathrel}
996 \mdsy@DeclareAlias{varsubsetneq}{relations}{\mathrel}
997 \mdsy@DeclareSymbol{supsetneq}{relations}{\mathrel}
998 \mdsy@DeclareAlias{varsupsetneq}{relations}{\mathrel}
999 \mdsy@DeclareSymbol{subsetneqq}{relations}{\mathrel}
1000 \mdsy@DeclareAlias{varsubsetneqq}{relations}{\mathrel}
1001 \mdsy@DeclareSymbol{supsetneqq}{relations}{\mathrel}
1002 \mdsy@DeclareAlias{varsupsetneqq}{relations}{\mathrel}
1003 \mdsy@DeclareSymbol{precneq}{relations}{\mathrel}
1004 \mdsy@DeclareSymbol{succneq}{relations}{\mathrel}
1005 \mdsy@DeclareSymbol{precneqq}{relations}{\mathrel}

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1006 \mdsy@DeclareSymbol{succneqq}{relations}{\mathrel}
1007 \mdsy@DeclareSymbol{precnsim}{relations}{\mathrel}
1008 \mdsy@DeclareSymbol{succnsim}{relations}{\mathrel}
1009 \mdsy@DeclareSymbol{precnapprox}{relations}{\mathrel}
1010 \mdsy@DeclareSymbol{succnapprox}{relations}{\mathrel}

MdSymbolC: arrows and turnstile symbols
1011 \mdsy@setslot{0}
1012 \mdsy@DeclareSymbol{rightarrow}{arrows}{\mathrel}
1013 \mdsy@DeclareAlias{to}{arrows}{\mathrel}
1014 % \mdsy@DeclareSymbol{uparrow}{arrows}{\mathrel}
1015 \mdsy@nextslot %uparrow defined below
1016 \mdsy@DeclareSymbol{leftarrow}{arrows}{\mathrel}
1017 \mdsy@DeclareAlias{gets}{arrows}{\mathrel}
1018 % \mdsy@DeclareSymbol{downarrow}{arrows}{\mathrel}
1019 \mdsy@nextslot %downarrow defined below
1020 \mdsy@DeclareSymbol{nearrow}{arrows}{\mathrel}
1021 \mdsy@DeclareSymbol{nwarrow}{arrows}{\mathrel}
1022 \mdsy@DeclareSymbol{swarrow}{arrows}{\mathrel}
1023 \mdsy@DeclareSymbol{searrow}{arrows}{\mathrel}
1024 \mdsy@DeclareSymbol{Rightarrow}{arrows}{\mathrel}
1025 % \mdsy@DeclareSymbol{Uparrow}{arrows}{\mathrel}
1026 \mdsy@nextslot %Uparrow defined below
1027 \mdsy@DeclareSymbol{Leftarrow}{arrows}{\mathrel}
1028 % \mdsy@DeclareSymbol{Downarrow}{arrows}{\mathrel}
1029 \mdsy@nextslot %Downarrow defined below
1030 \mdsy@DeclareSymbol{Nearrow}{arrows}{\mathrel}
1031 \mdsy@DeclareSymbol{Nwarrow}{arrows}{\mathrel}
1032 \mdsy@DeclareSymbol{Swarrow}{arrows}{\mathrel}
1033 \mdsy@DeclareSymbol{Searrow}{arrows}{\mathrel}
1034 \mdsy@DeclareSymbol{leftrightharrow}{arrows}{\mathrel}
1035 % \mdsy@DeclareSymbol{updownarrow}{arrows}{\mathrel}
1036 \mdsy@nextslot %updownarrow defined below
1037 \mdsy@DeclareSymbol{neswarrow}{arrows}{\mathrel}
1038 \mdsy@DeclareSymbol{nwsearrow}{arrows}{\mathrel}
1039 \mdsy@DeclareSymbol{Leftrightarrow}{arrows}{\mathrel}
1040 % \mdsy@DeclareSymbol{Updownarrow}{arrows}{\mathrel}
1041 \mdsy@nextslot %Updownarrow defined below
1042 \mdsy@DeclareSymbol{Neswarrow}{arrows}{\mathrel}
1043 \mdsy@DeclareSymbol{Nwsearrow}{arrows}{\mathrel}
1044 \mdsy@DeclareSymbol{twoheadrightarrow}{arrows}{\mathrel}
1045 \mdsy@DeclareSymbol{twoheaduparrow}{arrows}{\mathrel}
1046 \mdsy@DeclareSymbol{twoheadleftarrow}{arrows}{\mathrel}
1047 \mdsy@DeclareSymbol{twoheaddownarrow}{arrows}{\mathrel}
1048 \mdsy@DeclareSymbol{twoheadnearrow}{arrows}{\mathrel}
1049 \mdsy@DeclareSymbol{twoheadnwarrow}{arrows}{\mathrel}

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1050 \mdsy@DeclareSymbol{twoheadswarrow}{arrows}{\mathrel}
1051 \mdsy@DeclareSymbol{twoheadsearrow}{arrows}{\mathrel}
1052 \mdsy@DeclareSymbol{rightarrowtail}{arrows}{\mathrel}
1053 \mdsy@DeclareSymbol{uparrowtail}{arrows}{\mathrel}
1054 \mdsy@DeclareSymbol{leftarrowtail}{arrows}{\mathrel}
1055 \mdsy@DeclareSymbol{downarrowtail}{arrows}{\mathrel}
1056 \mdsy@DeclareSymbol{nearrowtail}{arrows}{\mathrel}
1057 \mdsy@DeclareSymbol{nwarrowtail}{arrows}{\mathrel}
1058 \mdsy@DeclareSymbol{swarrowtail}{arrows}{\mathrel}
1059 \mdsy@DeclareSymbol{searrowtail}{arrows}{\mathrel}
1060 \mdsy@DeclareSymbol{rightmapsto}{arrows}{\mathrel}
1061 \mdsy@DeclareAlias{mapsto}{arrows}{\mathrel}
1062 \mdsy@DeclareSymbol{upmapsto}{arrows}{\mathrel}
1063 \mdsy@DeclareAlias{mapsup}{arrows}{\mathrel}
1064 \mdsy@DeclareSymbol{leftmapsto}{arrows}{\mathrel}
1065 \mdsy@DeclareAlias{mapsfrom}{arrows}{\mathrel}
1066 \mdsy@DeclareSymbol{downmapsto}{arrows}{\mathrel}
1067 \mdsy@DeclareAlias{mapsdown}{arrows}{\mathrel}
1068 \mdsy@DeclareSymbol{Rightmapsto}{arrows}{\mathrel}
1069 \mdsy@DeclareAlias{Mapsto}{arrows}{\mathrel}
1070 \mdsy@DeclareSymbol{Upmapsto}{arrows}{\mathrel}
1071 \mdsy@DeclareAlias{Mapsup}{arrows}{\mathrel}
1072 \mdsy@DeclareSymbol{Leftmapsto}{arrows}{\mathrel}
1073 \mdsy@DeclareAlias{Mapsfrom}{arrows}{\mathrel}
1074 \mdsy@DeclareSymbol{Downmapsto}{arrows}{\mathrel}
1075 \mdsy@DeclareAlias{Mapsdown}{arrows}{\mathrel}
1076 \mdsy@DeclareSymbol{hookrightarrow}{arrows}{\mathrel}
1077 \mdsy@DeclareAlias{lhookrightarrow}{arrows}{\mathrel}
1078 \mdsy@DeclareSymbol{hookuparrow}{arrows}{\mathrel}
1079 \mdsy@DeclareAlias{lhookuparrow}{arrows}{\mathrel}
1080 \mdsy@DeclareSymbol{varhookleftarrow}{arrows}{\mathrel}
1081 \mdsy@DeclareAlias{lhookleftarrow}{arrows}{\mathrel}
1082 \mdsy@DeclareSymbol{varhookdownarrow}{arrows}{\mathrel}
1083 \mdsy@DeclareAlias{lhookdownarrow}{arrows}{\mathrel}
1084 \mdsy@DeclareSymbol{varhooknearrow}{arrows}{\mathrel}
1085 \mdsy@DeclareAlias{lhooknearrow}{arrows}{\mathrel}
1086 \mdsy@DeclareSymbol{hooknwarrow}{arrows}{\mathrel}
1087 \mdsy@DeclareAlias{hknwarrow}{arrows}{\mathrel}
1088 \mdsy@DeclareAlias{lhooknwarrow}{arrows}{\mathrel}
1089 \mdsy@DeclareSymbol{varhookswarrow}{arrows}{\mathrel}
1090 \mdsy@DeclareAlias{lhookswarrow}{arrows}{\mathrel}
1091 \mdsy@DeclareSymbol{hooksearrow}{arrows}{\mathrel}
1092 \mdsy@DeclareAlias{hksearrow}{arrows}{\mathrel}
1093 \mdsy@DeclareAlias{lhooksearrow}{arrows}{\mathrel}
1094 \mdsy@DeclareSymbol{varhookrightarrow}{arrows}{\mathrel}

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1095 \mdsy@DeclareAlias{rhookrightarrow}{arrows}{\mathrel}
1096 \mdsy@DeclareSymbol{varhookuparrow}{arrows}{\mathrel}
1097 \mdsy@DeclareAlias{rhookuparrow}{arrows}{\mathrel}
1098 \mdsy@DeclareSymbol{hookleftarrow}{arrows}{\mathrel}
1099 \mdsy@DeclareAlias{rhookleftarrow}{arrows}{\mathrel}
1100 \mdsy@DeclareSymbol{hookdownarrow}{arrows}{\mathrel}
1101 \mdsy@DeclareAlias{rhookdownarrow}{arrows}{\mathrel}
1102 \mdsy@DeclareSymbol{hooknearrow}{arrows}{\mathrel}
1103 \mdsy@DeclareAlias{hknearrow}{arrows}{\mathrel}
1104 \mdsy@DeclareAlias{rhooknearrow}{arrows}{\mathrel}
1105 \mdsy@DeclareSymbol{varhooknwarrow}{arrows}{\mathrel}
1106 \mdsy@DeclareAlias{rhooknwarrow}{arrows}{\mathrel}
1107 \mdsy@DeclareSymbol{hookswarrow}{arrows}{\mathrel}
1108 \mdsy@DeclareAlias{hkswarrow}{arrows}{\mathrel}
1109 \mdsy@DeclareAlias{rhookswarrow}{arrows}{\mathrel}
1110 \mdsy@DeclareSymbol{varhooksearrow}{arrows}{\mathrel}
1111 \mdsy@DeclareAlias{rhooksearrow}{arrows}{\mathrel}
1112 \mdsy@DeclareSymbol{rightharpoonup}{arrows}{\mathrel}
1113 \mdsy@DeclareSymbol{upharpoonleft}{arrows}{\mathrel}
1114 \mdsy@DeclareSymbol{leftharpoondown}{arrows}{\mathrel}
1115 \mdsy@DeclareSymbol{downharpoonright}{arrows}{\mathrel}
1116 \mdsy@DeclareSymbol{neharpoonnw}{arrows}{\mathrel}
1117 \mdsy@DeclareSymbol{nwharpoonsw}{arrows}{\mathrel}
1118 \mdsy@DeclareSymbol{swharpoonse}{arrows}{\mathrel}
1119 \mdsy@DeclareSymbol{seharpoonne}{arrows}{\mathrel}
1120 \mdsy@DeclareSymbol{rightharpoondown}{arrows}{\mathrel}
1121 \mdsy@DeclareSymbol{upharpoonright}{arrows}{\mathrel}
1122 \mdsy@DeclareAlias{restriction}{arrows}{\mathrel}
1123 \mdsy@DeclareSymbol{leftharpoonup}{arrows}{\mathrel}
1124 \mdsy@DeclareSymbol{downharpoonleft}{arrows}{\mathrel}
1125 \mdsy@DeclareSymbol{neharpoonse}{arrows}{\mathrel}
1126 \mdsy@DeclareSymbol{nwharpoonne}{arrows}{\mathrel}
1127 \mdsy@DeclareSymbol{swharpoonnw}{arrows}{\mathrel}
1128 \mdsy@DeclareSymbol{seharpoonsw}{arrows}{\mathrel}
1129 \mdsy@DeclareSymbol{leftrightharpoonupdown}{arrows}{\mathrel}
1130 \mdsy@DeclareSymbol{updownharpoonleftright}{arrows}{\mathrel}
1131 \mdsy@DeclareSymbol{neswharpoonnwse}{arrows}{\mathrel}
1132 \mdsy@DeclareSymbol{nwseharpoonnesw}{arrows}{\mathrel}
1133 \mdsy@DeclareSymbol{leftrightharpoondownup}{arrows}{\mathrel}
1134 \mdsy@DeclareSymbol{updownharpoonrightleft}{arrows}{\mathrel}
1135 \mdsy@DeclareSymbol{neswharpoonsenw}{arrows}{\mathrel}
1136 \mdsy@DeclareSymbol{nwseharpoonswne}{arrows}{\mathrel}
1137 \mdsy@DeclareSymbol{rightleftharpoons}{arrows}{\mathrel}
1138 \mdsy@DeclareSymbol{updownharpoons}{arrows}{\mathrel}
1139 \mdsy@DeclareAlias{updownharpoonsleftright}{arrows}{\mathrel}

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1140 \mdsy@DeclareSymbol{neswharpoons}{arrows}{\mathrel}
1141 \mdsy@DeclareSymbol{senwharpoons}{arrows}{\mathrel}
1142 \mdsy@DeclareSymbol{leftrightharpoons}{arrows}{\mathrel}
1143 \mdsy@DeclareSymbol{downupharpoons}{arrows}{\mathrel}
1144 \mdsy@DeclareAlias{downupharpoonsleftright}{arrows}{\mathrel}
1145 \mdsy@DeclareSymbol{swneharpoons}{arrows}{\mathrel}
1146 \mdsy@DeclareSymbol{nwseharpoons}{arrows}{\mathrel}
1147 \mdsy@DeclareSymbol{rightbkarrow}{arrows}{\mathrel}
1148 \mdsy@DeclareAlias{dashedarrow}{arrows}{\mathrel}
1149 \mdsy@DeclareAlias{dashedrightarrow}{arrows}{\mathrel}
1150 \mdsy@DeclareSymbol{upbkarrow}{arrows}{\mathrel}
1151 \mdsy@DeclareSymbol{leftbkarrow}{arrows}{\mathrel}
1152 \mdsy@DeclareAlias{dashleftarrow}{arrows}{\mathrel}
1153 \mdsy@DeclareSymbol{downbkarrow}{arrows}{\mathrel}
1154 \mdsy@DeclareSymbol{nebkarrow}{arrows}{\mathrel}
1155 \mdsy@DeclareSymbol{nwbkarrow}{arrows}{\mathrel}
1156 \mdsy@DeclareSymbol{swbkarrow}{arrows}{\mathrel}
1157 \mdsy@DeclareSymbol{sebkarrow}{arrows}{\mathrel}
1158 \mdsy@DeclareSymbol{rightspoon}{arrows}{\mathrel}
1159 \mdsy@DeclareAlias{multimap}{arrows}{\mathrel}
1160 \mdsy@DeclareSymbol{upspoon}{arrows}{\mathrel}
1161 \mdsy@DeclareAlias{cirmid}{arrows}{\mathrel}
1162 \mdsy@DeclareSymbol{leftspoon}{arrows}{\mathrel}
1163 \mdsy@DeclareAlias{multimapinv}{arrows}{\mathrel}
1164 \mdsy@DeclareSymbol{downspoon}{arrows}{\mathrel}
1165 \mdsy@DeclareAlias{midcir}{arrows}{\mathrel}
1166 \mdsy@DeclareSymbol{rightblackspoon}{arrows}{\mathrel}
1167 \mdsy@DeclareSymbol{upblackspoon}{arrows}{\mathrel}
1168 \mdsy@DeclareSymbol{leftblackspoon}{arrows}{\mathrel}
1169 \mdsy@DeclareSymbol{downblackspoon}{arrows}{\mathrel}
1170 \mdsy@DeclareSymbol{leftrightspoon}{arrows}{\mathrel}
1171 \mdsy@DeclareAlias{dualmap}{arrows}{\mathrel}
1172 \mdsy@DeclareSymbol{leftrightblackspoon}{arrows}{\mathrel}
1173 \mdsy@DeclareSymbol{blackwhitespoon}{arrows}{\mathrel}
1174 \mdsy@DeclareAlias{imageof}{arrows}{\mathrel}
1175 \mdsy@DeclareSymbol{whiteblackspoon}{arrows}{\mathrel}
1176 \mdsy@DeclareAlias{origof}{arrows}{\mathrel}
1177 \mdsy@DeclareSymbol{rightpitchfork}{arrows}{\mathrel}
1178 \mdsy@DeclareSymbol{uppitchfork}{arrows}{\mathrel}
1179 \mdsy@DeclareAlias{pitchfork}{arrows}{\mathrel}
1180 \mdsy@DeclareSymbol{leftpitchfork}{arrows}{\mathrel}
1181 \mdsy@DeclareSymbol{downpitchfork}{arrows}{\mathrel}
1182 \mdsy@DeclareSymbol{rightrightarrow}{arrows}{\mathrel}
1183 \mdsy@DeclareSymbol{upuparrows}{arrows}{\mathrel}
1184 \mdsy@DeclareSymbol{leftleftarrows}{arrows}{\mathrel}

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1185 \mdsy@DeclareSymbol{downdownarrows}{arrows}{\mathrel}
1186 \mdsy@DeclareSymbol{nene arrows}{arrows}{\mathrel}
1187 \mdsy@DeclareSymbol{nnwnarrows}{arrows}{\mathrel}
1188 \mdsy@DeclareSymbol{swswarrows}{arrows}{\mathrel}
1189 \mdsy@DeclareSymbol{sese arrows}{arrows}{\mathrel}
1190 \mdsy@DeclareSymbol{rightleftarrows}{arrows}{\mathrel}
1191 \mdsy@DeclareSymbol{updownarrows}{arrows}{\mathrel}
1192 \mdsy@DeclareSymbol{neswarrows}{arrows}{\mathrel}
1193 \mdsy@DeclareSymbol{nwse arrows}{arrows}{\mathrel}
1194 \mdsy@DeclareSymbol{leftrightharrows}{arrows}{\mathrel}
1195 \mdsy@DeclareSymbol{downuparrows}{arrows}{\mathrel}
1196 \mdsy@DeclareSymbol{swnearrows}{arrows}{\mathrel}
1197 \mdsy@DeclareSymbol{senwarrows}{arrows}{\mathrel}
1198 \mdsy@DeclareSymbol{rightwve arrow}{arrows}{\mathrel}
1199 \mdsy@DeclareAlias{leadsto}{arrows}{\mathrel}
1200 \mdsy@DeclareAlias{rightsquigarrow}{arrows}{\mathrel}
1201 \mdsy@DeclareAlias{rightcurvedarrow}{arrows}{\mathrel}
1202 \mdsy@DeclareAlias{rightlsquigarrow}{arrows}{\mathrel}
1203 \mdsy@DeclareSymbol{varupwve arrow}{arrows}{\mathrel}
1204 \mdsy@DeclareAlias{uplsquigarrow}{arrows}{\mathrel}
1205 \mdsy@DeclareSymbol{varleftwve arrow}{arrows}{\mathrel}
1206 \mdsy@DeclareAlias{leftlsquigarrow}{arrows}{\mathrel}
1207 \mdsy@DeclareSymbol{downwve arrow}{arrows}{\mathrel}
1208 \mdsy@DeclareAlias{downlsquigarrow}{arrows}{\mathrel}
1209 \mdsy@DeclareSymbol{varrightwve arrow}{arrows}{\mathrel}
1210 \mdsy@DeclareAlias{rightrsquigarrow}{arrows}{\mathrel}
1211 \mdsy@DeclareSymbol{upwve arrow}{arrows}{\mathrel}
1212 \mdsy@DeclareAlias{uprsquigarrow}{arrows}{\mathrel}
1213 \mdsy@DeclareSymbol{leftwve arrow}{arrows}{\mathrel}
1214 \mdsy@DeclareAlias{leftsquigarrow}{arrows}{\mathrel}
1215 \mdsy@DeclareAlias{leftcurvedarrow}{arrows}{\mathrel}
1216 \mdsy@DeclareAlias{leftrsquigarrow}{arrows}{\mathrel}
1217 \mdsy@DeclareSymbol{vardownwve arrow}{arrows}{\mathrel}
1218 \mdsy@DeclareAlias{downrsquigarrow}{arrows}{\mathrel}
1219 \mdsy@DeclareSymbol{leftrightwve arrow}{arrows}{\mathrel}
1220 \mdsy@DeclareAlias{leftrightsquigarrow}{arrows}{\mathrel}
1221 \mdsy@DeclareSymbol{updownwve arrow}{arrows}{\mathrel}
1222 \mdsy@DeclareAlias{updownsquigarrow}{arrows}{\mathrel}
1223 \mdsy@DeclareSymbol{varleftrightwve arrow}{arrows}{\mathrel}
1224 \mdsy@DeclareAlias{rightleftsquigarrow}{arrows}{\mathrel}
1225 \mdsy@DeclareSymbol{varupdownwve arrow}{arrows}{\mathrel}
1226 \mdsy@DeclareAlias{downupsquigarrow}{arrows}{\mathrel}
1227 \mdsy@DeclareSymbol{cwoverarc arrow}{arrows}{\mathrel}
1228 \mdsy@DeclareAlias{curvearrowright}{arrows}{\mathrel}
1229 \mdsy@DeclareAlias{rightlcurve arrow}{arrows}{\mathrel}

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1230 \mdsy@DeclareSymbol{cwleftarccarrow}{arrows}{\mathrel}
1231 \mdsy@DeclareAlias{uplcurvearrow}{arrows}{\mathrel}
1232 \mdsy@DeclareSymbol{cwunderarccarrow}{arrows}{\mathrel}
1233 \mdsy@DeclareAlias{leftlcurvearrow}{arrows}{\mathrel}
1234 \mdsy@DeclareSymbol{cwrightarccarrow}{arrows}{\mathrel}
1235 \mdsy@DeclareAlias{downlcurvearrow}{arrows}{\mathrel}
1236 \mdsy@DeclareSymbol{cwnwarccarrow}{arrows}{\mathrel}
1237 \mdsy@DeclareAlias{rightupcurvedarrow}{arrows}{\mathrel}
1238 \mdsy@DeclareAlias{nelcurvearrow}{arrows}{\mathrel}
1239 \mdsy@DeclareSymbol{cswwarccarrow}{arrows}{\mathrel}
1240 \mdsy@DeclareAlias{upleftcurvedarrow}{arrows}{\mathrel}
1241 \mdsy@DeclareAlias{nwlccurvearrow}{arrows}{\mathrel}
1242 \mdsy@DeclareSymbol{cwsearccarrow}{arrows}{\mathrel}
1243 \mdsy@DeclareAlias{leftdowncurvedarrow}{arrows}{\mathrel}
1244 \mdsy@DeclareAlias{swlccurvearrow}{arrows}{\mathrel}
1245 \mdsy@DeclareSymbol{cwnearccarrow}{arrows}{\mathrel}
1246 \mdsy@DeclareAlias{downrightcurvedarrow}{arrows}{\mathrel}
1247 \mdsy@DeclareAlias{selcurvearrow}{arrows}{\mathrel}
1248 \mdsy@DeclareSymbol{acwunderarccarrow}{arrows}{\mathrel}
1249 \mdsy@DeclareAlias{rightrcurvearrow}{arrows}{\mathrel}
1250 \mdsy@DeclareSymbol{acwrightarccarrow}{arrows}{\mathrel}
1251 \mdsy@DeclareAlias{uprccurvearrow}{arrows}{\mathrel}
1252 \mdsy@DeclareSymbol{acwoverarccarrow}{arrows}{\mathrel}
1253 \mdsy@DeclareAlias{curvearrowleft}{arrows}{\mathrel}
1254 \mdsy@DeclareAlias{leftrcurvearrow}{arrows}{\mathrel}
1255 \mdsy@DeclareSymbol{acwleftarccarrow}{arrows}{\mathrel}
1256 \mdsy@DeclareAlias{downrcurvearrow}{arrows}{\mathrel}
1257 \mdsy@DeclareSymbol{acwsearccarrow}{arrows}{\mathrel}
1258 \mdsy@DeclareAlias{uprightcurvearrow}{arrows}{\mathrel}
1259 \mdsy@DeclareAlias{nercurvearrow}{arrows}{\mathrel}
1260 \mdsy@DeclareSymbol{acwnearccarrow}{arrows}{\mathrel}
1261 \mdsy@DeclareAlias{leftupcurvedarrow}{arrows}{\mathrel}
1262 \mdsy@DeclareAlias{nwrccurvearrow}{arrows}{\mathrel}
1263 \mdsy@DeclareSymbol{acwnwarccarrow}{arrows}{\mathrel}
1264 \mdsy@DeclareAlias{downleftcurvedarrow}{arrows}{\mathrel}
1265 \mdsy@DeclareAlias{swrccurvearrow}{arrows}{\mathrel}
1266 \mdsy@DeclareSymbol{acswwarccarrow}{arrows}{\mathrel}
1267 \mdsy@DeclareAlias{rightdowncurvedarrow}{arrows}{\mathrel}
1268 \mdsy@DeclareAlias{sercurvearrow}{arrows}{\mathrel}
1269 \mdsy@DeclareSymbol{bdoverarccarrow}{arrows}{\mathrel}
1270 \mdsy@DeclareAlias{leftrightcurvearrow}{arrows}{\mathrel}
1271 \mdsy@DeclareSymbol{bdleftarccarrow}{arrows}{\mathrel}
1272 \mdsy@DeclareAlias{updowncurvearrow}{arrows}{\mathrel}
1273 \mdsy@DeclareSymbol{bdunderarccarrow}{arrows}{\mathrel}
1274 \mdsy@DeclareAlias{rightleftcurvearrow}{arrows}{\mathrel}

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1275 \mdsy@DeclareSymbol{bdrigharcarrow}{arrows}{\mathrel}
1276 \mdsy@DeclareAlias{downupcurvearrow}{arrows}{\mathrel}
1277 \mdsy@DeclareSymbol{bdnwarcarrow}{arrows}{\mathrel}
1278 \mdsy@DeclareAlias{neswcurvearrow}{arrows}{\mathrel}
1279 \mdsy@DeclareSymbol{bdswarcarrow}{arrows}{\mathrel}
1280 \mdsy@DeclareAlias{nwsecurvearrow}{arrows}{\mathrel}
1281 \mdsy@DeclareSymbol{bdsearcarrow}{arrows}{\mathrel}
1282 \mdsy@DeclareAlias{swnecurvearrow}{arrows}{\mathrel}
1283 \mdsy@DeclareSymbol{bdnearcarrow}{arrows}{\mathrel}
1284 \mdsy@DeclareAlias{senwcurvearrow}{arrows}{\mathrel}
1285 \mdsy@DeclareSymbol{leftfootline}{arrows}{\mathrel}
1286 \mdsy@DeclareSymbol{rightfootline}{arrows}{\mathrel}
1287 \mdsy@DeclareSymbol{acwcirclearrowup}{arrows}{\mathrel}
1288 \mdsy@DeclareSymbol{acwcirclearrowleft}{arrows}{\mathrel}
1289 \mdsy@DeclareAlias{circlearrowleft}{arrows}{\mathrel}
1290 \mdsy@DeclareAlias{acwopencirclearrow}{arrows}{\mathrel}
1291 \mdsy@DeclareSymbol{acwcirclearrowdown}{arrows}{\mathrel}
1292 \mdsy@DeclareAlias{acwgapcirclearrow}{arrows}{\mathrel}
1293 \mdsy@DeclareSymbol{acwcirclearrowright}{arrows}{\mathrel}
1294 \mdsy@DeclareSymbol{cwcirclearrowdown}{arrows}{\mathrel}
1295 \mdsy@DeclareAlias{cwgapcirclearrow}{arrows}{\mathrel}
1296 \mdsy@DeclareSymbol{cwcirclearrowright}{arrows}{\mathrel}
1297 \mdsy@DeclareAlias{circlearrowright}{arrows}{\mathrel}
1298 \mdsy@DeclareAlias{cwopencirclearrow}{arrows}{\mathrel}
1299 \mdsy@DeclareSymbol{cwcirclearrowup}{arrows}{\mathrel}
1300 \mdsy@DeclareSymbol{cwcirclearrowleft}{arrows}{\mathrel}
1301 \mdsy@DeclareSymbol{Rrightarrow}{arrows}{\mathrel}
1302 \mdsy@DeclareSymbol{Uparrow}{arrows}{\mathrel}
1303 \mdsy@DeclareSymbol{Lleftarrow}{arrows}{\mathrel}
1304 \mdsy@DeclareSymbol{Ddownarrow}{arrows}{\mathrel}
1305 \mdsy@DeclareSymbol{longrightarrow}{arrows}{\mathrel}
1306 \mdsy@DeclareSymbol{longleftarrow}{arrows}{\mathrel}
1307 \mdsy@DeclareSymbol{Longrightarrow}{arrows}{\mathrel}
1308 \mdsy@DeclareSymbol{Longleftarrow}{arrows}{\mathrel}
1309 \mdsy@DeclareSymbol{longleftrightarrow}{arrows}{\mathrel}
1310 \mdsy@DeclareSymbol{Longleftrightarrow}{arrows}{\mathrel}
1311 \mdsy@DeclareSymbol{longmapsto}{arrows}{\mathrel}
1312 \mdsy@DeclareSymbol{longmapsfrom}{arrows}{\mathrel}
1313 \mdsy@DeclareSymbol{Longmapsto}{arrows}{\mathrel}
1314 \mdsy@DeclareSymbol{Longmapsfrom}{arrows}{\mathrel}
1315 \mdsy@DeclareSymbol{longrightwvearrow}{arrows}{\mathrel}
1316 \mdsy@DeclareAlias{longleadsto}{arrows}{\mathrel}
1317 \mdsy@DeclareAlias{longrightsquigarrow}{arrows}{\mathrel}
1318 \mdsy@DeclareSymbol{longleftwvearrow}{arrows}{\mathrel}
1319 \mdsy@DeclareAlias{longleftsquigarrow}{arrows}{\mathrel}

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1320 \mdsy@DeclareSymbol{longleftfootline}{arrows}{\mathrel}
1321 \mdsy@DeclareAlias{vlongdash}{arrows}{\mathrel}
1322 \mdsy@DeclareSymbol{longrightfootline}{arrows}{\mathrel}
1323 \mdsy@DeclareAlias{longdashv}{arrows}{\mathrel}
1324 \mdsy@DeclareSymbol{Lsh}{arrows}{\mathrel}
1325 \mdsy@DeclareSymbol{Rsh}{arrows}{\mathrel}
1326 \mdsy@DeclareSymbol{Ldsh}{arrows}{\mathrel}
1327 \mdsy@DeclareSymbol{Rdsh}{arrows}{\mathrel}
1328 \mdsy@DeclareSymbol{looparrowright}{arrows}{\mathrel}
1329 \mdsy@DeclareSymbol{looparrowleft}{arrows}{\mathrel}
1330 \mdsy@setslot{224}
1331 \mdsy@DeclareSymbol{rightvdash}{arrows}{\mathrel}
1332 \mdsy@DeclareAlias{vdash}{arrows}{\mathrel}
1333 \mdsy@DeclareSymbol{upvdash}{arrows}{\mathrel}
1334 \mdsy@DeclareAlias{perp}{arrows}{\mathrel}
1335 \mdsy@DeclareAlias{bot}{arrows}{\mathord}
1336 \mdsy@DeclareSymbol{leftvdash}{arrows}{\mathrel}
1337 \mdsy@DeclareAlias{dashv}{arrows}{\mathrel}
1338 \mdsy@DeclareSymbol{downvdash}{arrows}{\mathrel}
1339 \mdsy@DeclareAlias{top}{arrows}{\mathord}
1340 \mdsy@DeclareSymbol{rightassert}{arrows}{\mathrel}
1341 \mdsy@DeclareAlias{assert}{arrows}{\mathrel}
1342 \mdsy@DeclareAlias{shorttrighttack}{arrows}{\mathrel}
1343 \mdsy@DeclareSymbol{upassert}{arrows}{\mathrel}
1344 \mdsy@DeclareAlias{shortuptack}{arrows}{\mathrel}
1345 \mdsy@DeclareSymbol{leftassert}{arrows}{\mathrel}
1346 \mdsy@DeclareAlias{shortlefttack}{arrows}{\mathrel}
1347 \mdsy@DeclareSymbol{downassert}{arrows}{\mathrel}
1348 \mdsy@DeclareAlias{shortdowntack}{arrows}{\mathrel}
1349 \mdsy@DeclareSymbol{rightvDash}{arrows}{\mathrel}
1350 \mdsy@DeclareAlias{vDash}{arrows}{\mathrel}
1351 \mdsy@DeclareSymbol{upvDash}{arrows}{\mathrel}
1352 \mdsy@DeclareAlias{Vbar}{arrows}{\mathrel}
1353 \mdsy@DeclareSymbol{leftvDash}{arrows}{\mathrel}
1354 \mdsy@DeclareAlias{Dashv}{arrows}{\mathrel}
1355 \mdsy@DeclareSymbol{downvDash}{arrows}{\mathrel}
1356 \mdsy@DeclareAlias{barV}{arrows}{\mathrel}
1357 \mdsy@DeclareSymbol{rightmodels}{arrows}{\mathrel}
1358 \mdsy@DeclareAlias{models}{arrows}{\mathrel}
1359 \mdsy@DeclareSymbol{upmodels}{arrows}{\mathrel}
1360 \mdsy@DeclareSymbol{leftmodels}{arrows}{\mathrel}
1361 \mdsy@DeclareSymbol{downmodels}{arrows}{\mathrel}
1362 \mdsy@DeclareSymbol{rightVdash}{arrows}{\mathrel}
1363 \mdsy@DeclareAlias{Vdash}{arrows}{\mathrel}
1364 \mdsy@DeclareSymbol{upVdash}{arrows}{\mathrel}

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1365 \mdsy@DeclareSymbol{leftVdash}{arrows}{\mathrel}
1366 \mdsy@DeclareAlias{dashV}{arrows}{\mathrel}
1367 \mdsy@DeclareSymbol{downVdash}{arrows}{\mathrel}
1368 \mdsy@DeclareSymbol{rightAssert}{arrows}{\mathrel}
1369 \mdsy@DeclareAlias{Assert}{arrows}{\mathrel}
1370 \mdsy@DeclareSymbol{upAssert}{arrows}{\mathrel}
1371 \mdsy@DeclareAlias{vBar}{arrows}{\mathrel}
1372 \mdsy@DeclareSymbol{leftAssert}{arrows}{\mathrel}
1373 \mdsy@DeclareSymbol{downAssert}{arrows}{\mathrel}
1374 \mdsy@DeclareAlias{Barv}{arrows}{\mathrel}
1375 \mdsy@DeclareSymbol{rightVDash}{arrows}{\mathrel}
1376 \mdsy@DeclareAlias{VDash}{arrows}{\mathrel}
1377 \mdsy@DeclareSymbol{upVDash}{arrows}{\mathrel}
1378 \mdsy@DeclareSymbol{leftVDash}{arrows}{\mathrel}
1379 \mdsy@DeclareAlias{DashV}{arrows}{\mathrel}
1380 \mdsy@DeclareSymbol{downVDash}{arrows}{\mathrel}
1381 \mdsy@DeclareSymbol{Vvdash}{arrows}{\mathrel}
1382 \mdsy@DeclareSymbol{dashVv}{arrows}{\mathrel}
1383 \mdsy@DeclareSymbol{vDdash}{arrows}{\mathrel}
1384 \mdsy@DeclareSymbol{Ddashv}{arrows}{\mathrel}
1385
1386 \mdsy@DeclareRobustCommand{relbar}{\mathrel{\smash-}}
1387 \mdsy@DeclareRobustCommand{Relbar}{\mathrel=}
1388 \mdsy@DeclareRobustCommand{joinrel}{\mathrel{\mkern-4mu}}

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MdSymbolD: stroked arrows

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1389 \mdsy@setslot{0}
1390 \mdsy@DeclareSymbol{nrightarrow}{narrows}{\mathrel}
1391 \mdsy@DeclareAlias{nto}{narrows}{\mathrel}
1392 \mdsy@DeclareSymbol{nuparrow}{narrows}{\mathrel}
1393 \mdsy@DeclareSymbol{nleftarrow}{narrows}{\mathrel}
1394 \mdsy@DeclareAlias{ngets}{narrows}{\mathrel}
1395 \mdsy@DeclareSymbol{ndownarrow}{narrows}{\mathrel}
1396 \mdsy@DeclareSymbol{nnearrow}{narrows}{\mathrel}
1397 \mdsy@DeclareSymbol{nnwarrow}{narrows}{\mathrel}
1398 \mdsy@DeclareSymbol{nswarrow}{narrows}{\mathrel}
1399 \mdsy@DeclareSymbol{nsearrow}{narrows}{\mathrel}
1400 \mdsy@DeclareSymbol{nrightarrow}{narrows}{\mathrel}
1401 \mdsy@DeclareSymbol{nUparrow}{narrows}{\mathrel}
1402 \mdsy@DeclareSymbol{nLeftarrow}{narrows}{\mathrel}
1403 \mdsy@DeclareSymbol{nDownarrow}{narrows}{\mathrel}
1404 \mdsy@DeclareSymbol{nNearrow}{narrows}{\mathrel}
1405 \mdsy@DeclareSymbol{nNwarrow}{narrows}{\mathrel}
1406 \mdsy@DeclareSymbol{nSvarrow}{narrows}{\mathrel}
1407 \mdsy@DeclareSymbol{nSearrow}{narrows}{\mathrel}
1408 \mdsy@DeclareSymbol{nleftrightharpoonup}{narrows}{\mathrel}

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1409 \mdsy@DeclareSymbol{nupdownarrow}{narrows}{\mathrel}
1410 \mdsy@DeclareSymbol{nneswarrow}{narrows}{\mathrel}
1411 \mdsy@DeclareSymbol{nnwsearrow}{narrows}{\mathrel}
1412 \mdsy@DeclareSymbol{nLefttrightharpoon}{narrows}{\mathrel}
1413 \mdsy@DeclareSymbol{nUpdownarrow}{narrows}{\mathrel}
1414 \mdsy@DeclareSymbol{nNeswarrow}{narrows}{\mathrel}
1415 \mdsy@DeclareSymbol{nNwsearrow}{narrows}{\mathrel}
1416 \mdsy@DeclareSymbol{ntwoheadrightarrow}{narrows}{\mathrel}
1417 \mdsy@DeclareSymbol{ntwoheaduparrow}{narrows}{\mathrel}
1418 \mdsy@DeclareSymbol{ntwoheadleftarrow}{narrows}{\mathrel}
1419 \mdsy@DeclareSymbol{ntwoheaddownarrow}{narrows}{\mathrel}
1420 \mdsy@DeclareSymbol{ntwoheadnearrow}{narrows}{\mathrel}
1421 \mdsy@DeclareSymbol{ntwoheadnwarrow}{narrows}{\mathrel}
1422 \mdsy@DeclareSymbol{ntwoheadswarrow}{narrows}{\mathrel}
1423 \mdsy@DeclareSymbol{ntwoheadsearrow}{narrows}{\mathrel}
1424 \mdsy@DeclareSymbol{nrightarrowtail}{narrows}{\mathrel}
1425 \mdsy@DeclareSymbol{nuparrowtail}{narrows}{\mathrel}
1426 \mdsy@DeclareSymbol{nleftarrowtail}{narrows}{\mathrel}
1427 \mdsy@DeclareSymbol{ndownarrowtail}{narrows}{\mathrel}
1428 \mdsy@DeclareSymbol{nnearrowtail}{narrows}{\mathrel}
1429 \mdsy@DeclareSymbol{nnwarrowtail}{narrows}{\mathrel}
1430 \mdsy@DeclareSymbol{nswarrowtail}{narrows}{\mathrel}
1431 \mdsy@DeclareSymbol{nsearrowtail}{narrows}{\mathrel}
1432 \mdsy@DeclareSymbol{nrightmapsto}{narrows}{\mathrel}
1433 \mdsy@DeclareAlias{nmapsto}{narrows}{\mathrel}
1434 \mdsy@DeclareSymbol{nupmapsto}{narrows}{\mathrel}
1435 \mdsy@DeclareAlias{nmapsup}{narrows}{\mathrel}
1436 \mdsy@DeclareSymbol{nleftmapsto}{narrows}{\mathrel}
1437 \mdsy@DeclareAlias{nmapsf}{narrows}{\mathrel}
1438 \mdsy@DeclareSymbol{ndownmapsto}{narrows}{\mathrel}
1439 \mdsy@DeclareAlias{nmapsd}{narrows}{\mathrel}
1440 \mdsy@DeclareSymbol{nRightmapsto}{narrows}{\mathrel}
1441 \mdsy@DeclareAlias{nMapsto}{narrows}{\mathrel}
1442 \mdsy@DeclareSymbol{nUpmapsto}{narrows}{\mathrel}
1443 \mdsy@DeclareAlias{nMapsup}{narrows}{\mathrel}
1444 \mdsy@DeclareSymbol{nLeftmapsto}{narrows}{\mathrel}
1445 \mdsy@DeclareAlias{nMapsf}{narrows}{\mathrel}
1446 \mdsy@DeclareSymbol{nDownmapsto}{narrows}{\mathrel}
1447 \mdsy@DeclareAlias{nMapsd}{narrows}{\mathrel}
1448 \mdsy@DeclareSymbol{nhookrightarrow}{narrows}{\mathrel}
1449 \mdsy@DeclareSymbol{nhookuparrow}{narrows}{\mathrel}
1450 \mdsy@DeclareSymbol{nvarhookleftarrow}{narrows}{\mathrel}
1451 \mdsy@DeclareSymbol{nvarhookdownarrow}{narrows}{\mathrel}
1452 \mdsy@DeclareSymbol{nvarhooknearrow}{narrows}{\mathrel}
1453 \mdsy@DeclareSymbol{nhooknwarrow}{narrows}{\mathrel}

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1454 \mdsy@DeclareAlias{nhknwarrow}{narrows}{\mathrel}
1455 \mdsy@DeclareSymbol{nvarhookswarrow}{narrows}{\mathrel}
1456 \mdsy@DeclareSymbol{nhooksearrow}{narrows}{\mathrel}
1457 \mdsy@DeclareAlias{nhksearrow}{narrows}{\mathrel}
1458 \mdsy@DeclareSymbol{nvarhookrightarrow}{narrows}{\mathrel}
1459 \mdsy@DeclareSymbol{nvarhookuparrow}{narrows}{\mathrel}
1460 \mdsy@DeclareSymbol{nhookleftarrow}{narrows}{\mathrel}
1461 \mdsy@DeclareSymbol{nhookdownarrow}{narrows}{\mathrel}
1462 \mdsy@DeclareSymbol{nhooknearrow}{narrows}{\mathrel}
1463 \mdsy@DeclareAlias{nhknearrow}{narrows}{\mathrel}
1464 \mdsy@DeclareSymbol{nvarhooknwarrow}{narrows}{\mathrel}
1465 \mdsy@DeclareSymbol{nhookswarrow}{narrows}{\mathrel}
1466 \mdsy@DeclareAlias{nhkswarrow}{narrows}{\mathrel}
1467 \mdsy@DeclareSymbol{nvarhooksearrow}{narrows}{\mathrel}
1468 \mdsy@DeclareSymbol{nrightharpoonup}{narrows}{\mathrel}
1469 \mdsy@DeclareSymbol{nupharpoonleft}{narrows}{\mathrel}
1470 \mdsy@DeclareSymbol{nleftharpoondown}{narrows}{\mathrel}
1471 \mdsy@DeclareSymbol{ndownharpoonright}{narrows}{\mathrel}
1472 \mdsy@DeclareSymbol{nneharpoonnw}{narrows}{\mathrel}
1473 \mdsy@DeclareSymbol{nnwharpoonsw}{narrows}{\mathrel}
1474 \mdsy@DeclareSymbol{nswharpoonse}{narrows}{\mathrel}
1475 \mdsy@DeclareSymbol{nseharpoonne}{narrows}{\mathrel}
1476 \mdsy@DeclareSymbol{nrightharpoondown}{narrows}{\mathrel}
1477 \mdsy@DeclareSymbol{nupharpoonright}{narrows}{\mathrel}
1478 \mdsy@DeclareAlias{nrestriction}{narrows}{\mathrel}
1479 \mdsy@DeclareSymbol{nleftharpoonup}{narrows}{\mathrel}
1480 \mdsy@DeclareSymbol{ndownharpoonleft}{narrows}{\mathrel}
1481 \mdsy@DeclareSymbol{nneharpoonse}{narrows}{\mathrel}
1482 \mdsy@DeclareSymbol{nnwharpoonne}{narrows}{\mathrel}
1483 \mdsy@DeclareSymbol{nswharpoonnw}{narrows}{\mathrel}
1484 \mdsy@DeclareSymbol{nseharpoonsw}{narrows}{\mathrel}
1485 \mdsy@DeclareSymbol{nleftrightharpoonupdown}{narrows}{\mathrel}
1486 \mdsy@DeclareSymbol{nupdownharpoonleftright}{narrows}{\mathrel}
1487 \mdsy@DeclareSymbol{nneswharpoonnwse}{narrows}{\mathrel}
1488 \mdsy@DeclareSymbol{nnwseharpoonesw}{narrows}{\mathrel}
1489 \mdsy@DeclareSymbol{nleftrightharpoondownup}{narrows}{\mathrel}
1490 \mdsy@DeclareSymbol{nupdownharpoonrightleft}{narrows}{\mathrel}
1491 \mdsy@DeclareSymbol{nneswharpoonsenw}{narrows}{\mathrel}
1492 \mdsy@DeclareSymbol{nnwseharpoonswne}{narrows}{\mathrel}
1493 \mdsy@DeclareSymbol{nrightleftharpoons}{narrows}{\mathrel}
1494 \mdsy@DeclareSymbol{nupdownharpoons}{narrows}{\mathrel}
1495 \mdsy@DeclareAlias{nupdownharpoonsleftright}{narrows}{\mathrel}
1496 \mdsy@DeclareSymbol{nneswharpoons}{narrows}{\mathrel}
1497 \mdsy@DeclareSymbol{nsenwharpoons}{narrows}{\mathrel}
1498 \mdsy@DeclareSymbol{nleftrightharpoons}{narrows}{\mathrel}

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1499 \mdsy@DeclareSymbol{ndownupharpoons}{narrows}{\mathrel}
1500 \mdsy@DeclareAlias{ndownupharpoonsleftright}{narrows}{\mathrel}
1501 \mdsy@DeclareSymbol{nsweharpoons}{narrows}{\mathrel}
1502 \mdsy@DeclareSymbol{nnwseharpoons}{narrows}{\mathrel}
1503 \mdsy@DeclareSymbol{nrightbkarrow}{narrows}{\mathrel}
1504 \mdsy@DeclareAlias{ndasharrow}{narrows}{\mathrel}
1505 \mdsy@DeclareAlias{ndashrightarrow}{narrows}{\mathrel}
1506 \mdsy@DeclareSymbol{nupbkarrow}{narrows}{\mathrel}
1507 \mdsy@DeclareSymbol{nleftbkarrow}{narrows}{\mathrel}
1508 \mdsy@DeclareAlias{ndashleftarrow}{narrows}{\mathrel}
1509 \mdsy@DeclareSymbol{ndownbkarrow}{narrows}{\mathrel}
1510 \mdsy@DeclareSymbol{nnbkarrow}{narrows}{\mathrel}
1511 \mdsy@DeclareSymbol{nnwbkarrow}{narrows}{\mathrel}
1512 \mdsy@DeclareSymbol{nswbkarrow}{narrows}{\mathrel}
1513 \mdsy@DeclareSymbol{nsebkarrow}{narrows}{\mathrel}
1514 \mdsy@DeclareSymbol{nrightspoon}{narrows}{\mathrel}
1515 \mdsy@DeclareAlias{nmultimap}{narrows}{\mathrel}
1516 \mdsy@DeclareSymbol{nupspoon}{narrows}{\mathrel}
1517 \mdsy@DeclareAlias{ncirmid}{narrows}{\mathrel}
1518 \mdsy@DeclareSymbol{nleftspoon}{narrows}{\mathrel}
1519 \mdsy@DeclareAlias{nmultimapinv}{narrows}{\mathrel}
1520 \mdsy@DeclareSymbol{ndownspoon}{narrows}{\mathrel}
1521 \mdsy@DeclareAlias{nmidcir}{narrows}{\mathrel}
1522 \mdsy@DeclareSymbol{nrightblackspoon}{narrows}{\mathrel}
1523 \mdsy@DeclareSymbol{nupblackspoon}{narrows}{\mathrel}
1524 \mdsy@DeclareSymbol{nleftblackspoon}{narrows}{\mathrel}
1525 \mdsy@DeclareSymbol{ndownblackspoon}{narrows}{\mathrel}
1526 \mdsy@DeclareSymbol{nleftrightspoon}{narrows}{\mathrel}
1527 \mdsy@DeclareAlias{ndualmap}{narrows}{\mathrel}
1528 \mdsy@DeclareSymbol{nleftrightblackspoon}{narrows}{\mathrel}
1529 \mdsy@DeclareSymbol{nblackwhitespoon}{narrows}{\mathrel}
1530 \mdsy@DeclareAlias{nimageof}{narrows}{\mathrel}
1531 \mdsy@DeclareSymbol{nwhiteblackspoon}{narrows}{\mathrel}
1532 \mdsy@DeclareAlias{norigof}{narrows}{\mathrel}
1533 \mdsy@DeclareSymbol{nrightpitchfork}{narrows}{\mathrel}
1534 \mdsy@DeclareSymbol{nuppitchfork}{narrows}{\mathrel}
1535 \mdsy@DeclareAlias{npitchfork}{narrows}{\mathrel}
1536 \mdsy@DeclareSymbol{nleftpitchfork}{narrows}{\mathrel}
1537 \mdsy@DeclareSymbol{ndownpitchfork}{narrows}{\mathrel}
1538 \mdsy@DeclareSymbol{nrightarrows}{narrows}{\mathrel}
1539 \mdsy@DeclareSymbol{nuparrows}{narrows}{\mathrel}
1540 \mdsy@DeclareSymbol{nleftleftarrows}{narrows}{\mathrel}
1541 \mdsy@DeclareSymbol{ndowndownarrows}{narrows}{\mathrel}
1542 \mdsy@DeclareSymbol{nnenearrows}{narrows}{\mathrel}
1543 \mdsy@DeclareSymbol{nnwnwarrows}{narrows}{\mathrel}

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1544 \mdsy@DeclareSymbol{nswswarrows}{narrows}{\mathrel}
1545 \mdsy@DeclareSymbol{nsesearrows}{narrows}{\mathrel}
1546 \mdsy@DeclareSymbol{nrightleftarrows}{narrows}{\mathrel}
1547 \mdsy@DeclareSymbol{nupdownarrows}{narrows}{\mathrel}
1548 \mdsy@DeclareSymbol{nneswarrows}{narrows}{\mathrel}
1549 \mdsy@DeclareSymbol{nnwsearrows}{narrows}{\mathrel}
1550 \mdsy@DeclareSymbol{nleftrightharrows}{narrows}{\mathrel}
1551 \mdsy@DeclareSymbol{ndownuparrows}{narrows}{\mathrel}
1552 \mdsy@DeclareSymbol{nswnearrows}{narrows}{\mathrel}
1553 \mdsy@DeclareSymbol{nsenwarrows}{narrows}{\mathrel}
1554 \mdsy@DeclareSymbol{nrightwavearrow}{narrows}{\mathrel}
1555 \mdsy@DeclareAlias{nleadsto}{narrows}{\mathrel}
1556 \mdsy@DeclareAlias{nrightsquigarrow}{narrows}{\mathrel}
1557 \mdsy@DeclareAlias{nrightcurvedarrow}{arrows}{\mathrel}
1558 \mdsy@DeclareAlias{nrightlsquigarrow}{narrows}{\mathrel}
1559 \mdsy@DeclareSymbol{nvarupwavearrow}{narrows}{\mathrel}
1560 \mdsy@DeclareAlias{nuplsquigarrow}{narrows}{\mathrel}
1561 \mdsy@DeclareSymbol{nvarleftwavearrow}{narrows}{\mathrel}
1562 \mdsy@DeclareAlias{nleftlsquigarrow}{narrows}{\mathrel}
1563 \mdsy@DeclareSymbol{ndownwavearrow}{narrows}{\mathrel}
1564 \mdsy@DeclareAlias{ndownlsquigarrow}{narrows}{\mathrel}
1565 \mdsy@DeclareSymbol{nvarrightwavearrow}{narrows}{\mathrel}
1566 \mdsy@DeclareAlias{nrightrsquigarrow}{narrows}{\mathrel}
1567 \mdsy@DeclareSymbol{nupwavearrow}{narrows}{\mathrel}
1568 \mdsy@DeclareAlias{nuprsquigarrow}{narrows}{\mathrel}
1569 \mdsy@DeclareSymbol{nleftwavearrow}{narrows}{\mathrel}
1570 \mdsy@DeclareAlias{nleftsquigarrow}{narrows}{\mathrel}
1571 \mdsy@DeclareAlias{nleftcurvedarrow}{arrows}{\mathrel}
1572 \mdsy@DeclareAlias{nleftrsquigarrow}{narrows}{\mathrel}
1573 \mdsy@DeclareSymbol{nvardownwavearrow}{narrows}{\mathrel}
1574 \mdsy@DeclareAlias{ndownrsquigarrow}{narrows}{\mathrel}
1575 \mdsy@DeclareSymbol{nleftrightwavearrow}{narrows}{\mathrel}
1576 \mdsy@DeclareAlias{nleftrightsquigarrow}{narrows}{\mathrel}
1577 \mdsy@DeclareSymbol{nupdownwavearrow}{narrows}{\mathrel}
1578 \mdsy@DeclareAlias{nupdownsquigarrow}{narrows}{\mathrel}
1579 \mdsy@DeclareSymbol{nvarleftrightwavearrow}{narrows}{\mathrel}
1580 \mdsy@DeclareAlias{nrightleftsquigarrow}{narrows}{\mathrel}
1581 \mdsy@DeclareSymbol{nvarupdownwavearrow}{narrows}{\mathrel}
1582 \mdsy@DeclareAlias{ndownupsquigarrow}{narrows}{\mathrel}
1583 \mdsy@DeclareSymbol{ncwoverarcarrow}{narrows}{\mathrel}
1584 \mdsy@DeclareAlias{ncurvearrowright}{narrows}{\mathrel}
1585 \mdsy@DeclareAlias{nrightlcurvearrow}{narrows}{\mathrel}
1586 \mdsy@DeclareSymbol{ncwleftarcarrow}{narrows}{\mathrel}
1587 \mdsy@DeclareAlias{nuplcurvearrow}{narrows}{\mathrel}
1588 \mdsy@DeclareSymbol{ncwunderarcarrow}{narrows}{\mathrel}

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1589 \mdsy@DeclareAlias{nleftlcurvearrow}{narrows}{\mathrel}
1590 \mdsy@DeclareSymbol{ncwrightarcarrow}{narrows}{\mathrel}
1591 \mdsy@DeclareAlias{ndownlcurvearrow}{narrows}{\mathrel}
1592 \mdsy@DeclareSymbol{ncwnwarcarrow}{narrows}{\mathrel}
1593 \mdsy@DeclareAlias{nrightupcurvedarrow}{narrows}{\mathrel}
1594 \mdsy@DeclareAlias{nnelcurvearrow}{narrows}{\mathrel}
1595 \mdsy@DeclareSymbol{ncwswarcarrow}{narrows}{\mathrel}
1596 \mdsy@DeclareAlias{nupleftcurvedarrow}{narrows}{\mathrel}
1597 \mdsy@DeclareAlias{nnwlcurvearrow}{narrows}{\mathrel}
1598 \mdsy@DeclareSymbol{ncwsearcarrow}{narrows}{\mathrel}
1599 \mdsy@DeclareAlias{nleftdowncurvedarrow}{narrows}{\mathrel}
1600 \mdsy@DeclareAlias{nswlcurvearrow}{narrows}{\mathrel}
1601 \mdsy@DeclareSymbol{ncwnearcarrow}{narrows}{\mathrel}
1602 \mdsy@DeclareAlias{ndownrightcurvedarrow}{narrows}{\mathrel}
1603 \mdsy@DeclareAlias{nsecurvearrow}{narrows}{\mathrel}
1604 \mdsy@DeclareSymbol{nacwunderarcarrow}{narrows}{\mathrel}
1605 \mdsy@DeclareAlias{nrightrcurvearrow}{narrows}{\mathrel}
1606 \mdsy@DeclareSymbol{nacwrightarcarrow}{narrows}{\mathrel}
1607 \mdsy@DeclareAlias{nuprcurvearrow}{narrows}{\mathrel}
1608 \mdsy@DeclareSymbol{nacwoverarcarrow}{narrows}{\mathrel}
1609 \mdsy@DeclareAlias{ncurvearrowleft}{narrows}{\mathrel}
1610 \mdsy@DeclareAlias{nleftrcurvearrow}{narrows}{\mathrel}
1611 \mdsy@DeclareSymbol{nacwleftarcarrow}{narrows}{\mathrel}
1612 \mdsy@DeclareAlias{ndownrcurvearrow}{narrows}{\mathrel}
1613 \mdsy@DeclareSymbol{nacwsearcarrow}{narrows}{\mathrel}
1614 \mdsy@DeclareAlias{nuprightcurvearrow}{narrows}{\mathrel}
1615 \mdsy@DeclareAlias{nnercurvearrow}{narrows}{\mathrel}
1616 \mdsy@DeclareSymbol{nacwnearcarrow}{narrows}{\mathrel}
1617 \mdsy@DeclareAlias{nleftupcurvedarrow}{narrows}{\mathrel}
1618 \mdsy@DeclareAlias{nnwrcurvearrow}{narrows}{\mathrel}
1619 \mdsy@DeclareSymbol{nacwnwarcarrow}{narrows}{\mathrel}
1620 \mdsy@DeclareAlias{ndownleftcurvedarrow}{narrows}{\mathrel}
1621 \mdsy@DeclareAlias{nswrcurvearrow}{narrows}{\mathrel}
1622 \mdsy@DeclareSymbol{nacwswarcarrow}{narrows}{\mathrel}
1623 \mdsy@DeclareAlias{nrightdowncurvedarrow}{narrows}{\mathrel}
1624 \mdsy@DeclareAlias{nsercurvearrow}{narrows}{\mathrel}
1625 \mdsy@DeclareSymbol{nbdoverarcarrow}{narrows}{\mathrel}
1626 \mdsy@DeclareAlias{nleftrightcurvearrow}{narrows}{\mathrel}
1627 \mdsy@DeclareSymbol{nbdleftarcarrow}{narrows}{\mathrel}
1628 \mdsy@DeclareAlias{nupdowncurvearrow}{narrows}{\mathrel}
1629 \mdsy@DeclareSymbol{nbdunderarcarrow}{narrows}{\mathrel}
1630 \mdsy@DeclareAlias{nrightleftcurvearrow}{narrows}{\mathrel}
1631 \mdsy@DeclareSymbol{nbdrightarcarrow}{narrows}{\mathrel}
1632 \mdsy@DeclareAlias{ndownupcurvearrow}{narrows}{\mathrel}
1633 \mdsy@DeclareSymbol{nbdnwarcarrow}{narrows}{\mathrel}

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1634 \mdsy@DeclareAlias{nneswcurvearrow}{narrows}{\mathrel}
1635 \mdsy@DeclareSymbol{nbdswarcarrow}{narrows}{\mathrel}
1636 \mdsy@DeclareAlias{nnwsecurvearrow}{narrows}{\mathrel}
1637 \mdsy@DeclareSymbol{nbdsearcarrow}{narrows}{\mathrel}
1638 \mdsy@DeclareAlias{nswnecurvearrow}{narrows}{\mathrel}
1639 \mdsy@DeclareSymbol{nbdnearcarrow}{narrows}{\mathrel}
1640 \mdsy@DeclareAlias{nsewcurvearrow}{narrows}{\mathrel}
1641 \mdsy@DeclareSymbol{nleftfootline}{narrows}{\mathrel}
1642 \mdsy@DeclareSymbol{nrightfootline}{narrows}{\mathrel}
1643 \mdsy@DeclareSymbol{nacwcirculararrowup}{narrows}{\mathrel}
1644 \mdsy@DeclareSymbol{nacwcirculararrowleft}{narrows}{\mathrel}
1645 \mdsy@DeclareAlias{ncirculararrowleft}{narrows}{\mathrel}
1646 \mdsy@DeclareAlias{nacwopencirculararrow}{narrows}{\mathrel}
1647 \mdsy@DeclareSymbol{nacwcirculararrowdown}{narrows}{\mathrel}
1648 \mdsy@DeclareAlias{nacwgapcirculararrow}{narrows}{\mathrel}
1649 \mdsy@DeclareSymbol{nacwcirculararrowright}{narrows}{\mathrel}
1650 \mdsy@DeclareSymbol{ncwcirculararrowdown}{narrows}{\mathrel}
1651 \mdsy@DeclareAlias{ncwgapcirculararrow}{narrows}{\mathrel}
1652 \mdsy@DeclareSymbol{ncwcirculararrowright}{narrows}{\mathrel}
1653 \mdsy@DeclareAlias{ncirculararrowright}{narrows}{\mathrel}
1654 \mdsy@DeclareAlias{ncwopencirculararrow}{narrows}{\mathrel}
1655 \mdsy@DeclareSymbol{ncwcirculararrowup}{narrows}{\mathrel}
1656 \mdsy@DeclareSymbol{ncwcirculararrowleft}{narrows}{\mathrel}
1657 \mdsy@DeclareSymbol{nRrightarrow}{narrows}{\mathrel}
1658 \mdsy@DeclareSymbol{nUparrow}{narrows}{\mathrel}
1659 \mdsy@DeclareSymbol{nLleftarrow}{narrows}{\mathrel}
1660 \mdsy@DeclareSymbol{nDdownarrow}{narrows}{\mathrel}
1661 \mdsy@DeclareSymbol{nlongrightarrow}{narrows}{\mathrel}
1662 \mdsy@DeclareSymbol{nlongleftarrow}{narrows}{\mathrel}
1663 \mdsy@DeclareSymbol{nLongrightarrow}{narrows}{\mathrel}
1664 \mdsy@DeclareSymbol{nLongleftarrow}{narrows}{\mathrel}
1665 \mdsy@DeclareSymbol{nlongleftrightharpoonrightarrow}{narrows}{\mathrel}
1666 \mdsy@DeclareSymbol{nLongleftrightharpoonrightarrow}{narrows}{\mathrel}
1667 \mdsy@DeclareSymbol{nlongmapsto}{narrows}{\mathrel}
1668 \mdsy@DeclareSymbol{nlongmapsfrom}{narrows}{\mathrel}
1669 \mdsy@DeclareSymbol{nLongmapsto}{narrows}{\mathrel}
1670 \mdsy@DeclareSymbol{nLongmapsfrom}{narrows}{\mathrel}
1671 \mdsy@DeclareSymbol{nlongrightwvearrow}{narrows}{\mathrel}
1672 \mdsy@DeclareAlias{nlongleadsto}{narrows}{\mathrel}
1673 \mdsy@DeclareAlias{nlongrightsquigarrow}{narrows}{\mathrel}
1674 \mdsy@DeclareSymbol{nlongleftwvearrow}{narrows}{\mathrel}
1675 \mdsy@DeclareAlias{nlongleftsquigarrow}{narrows}{\mathrel}
1676 \mdsy@DeclareSymbol{nlongleftfootline}{narrows}{\mathrel}
1677 \mdsy@DeclareAlias{nvlongdash}{narrows}{\mathrel}
1678 \mdsy@DeclareSymbol{nlongrightfootline}{narrows}{\mathrel}

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1679 \mdsy@DeclareAlias{nlongdashv}{narrows}{\mathrel}
1680 \mdsy@setslot{224}
1681 \mdsy@DeclareSymbol{nrightvdash}{narrows}{\mathrel}
1682 \mdsy@DeclareAlias{nvDash}{narrows}{\mathrel}
1683 \mdsy@DeclareSymbol{nupvdash}{narrows}{\mathrel}
1684 \mdsy@DeclareAlias{nperp}{narrows}{\mathrel}
1685 \mdsy@DeclareSymbol{nleftvdash}{narrows}{\mathrel}
1686 \mdsy@DeclareAlias{ndashv}{narrows}{\mathrel}
1687 \mdsy@DeclareSymbol{ndownvdash}{narrows}{\mathrel}
1688 \mdsy@DeclareSymbol{nrightassert}{narrows}{\mathrel}
1689 \mdsy@DeclareAlias{nassert}{narrows}{\mathrel}
1690 \mdsy@DeclareAlias{nshortrighttack}{narrows}{\mathrel}
1691 \mdsy@DeclareSymbol{nupassert}{narrows}{\mathrel}
1692 \mdsy@DeclareAlias{nshortuptack}{narrows}{\mathrel}
1693 \mdsy@DeclareSymbol{nleftassert}{narrows}{\mathrel}
1694 \mdsy@DeclareAlias{nshortlefttack}{narrows}{\mathrel}
1695 \mdsy@DeclareSymbol{ndownassert}{narrows}{\mathrel}
1696 \mdsy@DeclareAlias{nshortdowntack}{narrows}{\mathrel}
1697 \mdsy@DeclareSymbol{nrightVDash}{narrows}{\mathrel}
1698 \mdsy@DeclareAlias{nvDash}{narrows}{\mathrel}
1699 \mdsy@DeclareSymbol{nupVDash}{narrows}{\mathrel}
1700 \mdsy@DeclareAlias{nVbar}{narrows}{\mathrel}
1701 \mdsy@DeclareSymbol{nleftVDash}{narrows}{\mathrel}
1702 \mdsy@DeclareAlias{nDashv}{narrows}{\mathrel}
1703 \mdsy@DeclareSymbol{ndownvDash}{narrows}{\mathrel}
1704 \mdsy@DeclareAlias{nbarV}{narrows}{\mathrel}
1705 \mdsy@DeclareSymbol{nrightmodels}{narrows}{\mathrel}
1706 \mdsy@DeclareAlias{nmodels}{narrows}{\mathrel}
1707 \mdsy@DeclareSymbol{nupmodels}{narrows}{\mathrel}
1708 \mdsy@DeclareSymbol{nleftmodels}{narrows}{\mathrel}
1709 \mdsy@DeclareSymbol{ndownmodels}{narrows}{\mathrel}
1710 \mdsy@DeclareSymbol{nrightVdash}{narrows}{\mathrel}
1711 \mdsy@DeclareAlias{nVdash}{narrows}{\mathrel}
1712 \mdsy@DeclareSymbol{nupVdash}{narrows}{\mathrel}
1713 \mdsy@DeclareSymbol{nleftVdash}{narrows}{\mathrel}
1714 \mdsy@DeclareAlias{ndashV}{narrows}{\mathrel}
1715 \mdsy@DeclareSymbol{ndownVdash}{narrows}{\mathrel}
1716 \mdsy@DeclareSymbol{nrightAssert}{narrows}{\mathrel}
1717 \mdsy@DeclareAlias{nAssert}{narrows}{\mathrel}
1718 \mdsy@DeclareSymbol{nupAssert}{narrows}{\mathrel}
1719 \mdsy@DeclareAlias{nvBar}{narrows}{\mathrel}
1720 \mdsy@DeclareSymbol{nleftAssert}{narrows}{\mathrel}
1721 \mdsy@DeclareSymbol{ndownAssert}{narrows}{\mathrel}
1722 \mdsy@DeclareAlias{nBarv}{narrows}{\mathrel}
1723 \mdsy@DeclareSymbol{nrightVDash}{narrows}{\mathrel}

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1724 \mdsy@DeclareAlias{nVDash}{narrows}{\mathrel}
1725 \mdsy@DeclareSymbol{nupVDash}{narrows}{\mathrel}
1726 \mdsy@DeclareSymbol{nleftVDash}{narrows}{\mathrel}
1727 \mdsy@DeclareAlias{nDashV}{narrows}{\mathrel}
1728 \mdsy@DeclareSymbol{ndownVDash}{narrows}{\mathrel}
1729 \mdsy@DeclareSymbol{nVvdash}{narrows}{\mathrel}
1730 \mdsy@DeclareSymbol{ndashVv}{narrows}{\mathrel}
1731 \mdsy@DeclareSymbol{nvDdash}{narrows}{\mathrel}
1732 \mdsy@DeclareSymbol{nDdashv}{narrows}{\mathrel}

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MdSymbolE: large operators

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1733 \mdsy@setslot{0}
1734 \mdsy@DeclareSymbol{tbigplus}{largesymbols}{\mathop}
1735 \mdsy@DeclareSymbol{dbigplus}{largesymbols}{\mathop}
1736 \mdsy@DeclareSymbol{tbigtimes}{largesymbols}{\mathop}
1737 \mdsy@DeclareSymbol{dbigtimes}{largesymbols}{\mathop}
1738 \mdsy@DeclareSymbol{tbigwedge}{largesymbols}{\mathop}
1739 \mdsy@DeclareSymbol{dbigwedge}{largesymbols}{\mathop}
1740 \mdsy@DeclareSymbol{tbigvee}{largesymbols}{\mathop}
1741 \mdsy@DeclareSymbol{dbigvee}{largesymbols}{\mathop}
1742 \mdsy@DeclareSymbol{tbigwedgedot}{largesymbols}{\mathop}
1743 \mdsy@DeclareSymbol{dbigwedgedot}{largesymbols}{\mathop}
1744 \mdsy@DeclareSymbol{tbigveedot}{largesymbols}{\mathop}
1745 \mdsy@DeclareSymbol{dbigveedot}{largesymbols}{\mathop}
1746 \mdsy@DeclareSymbol{tbigdoublewedge}{largesymbols}{\mathop}
1747 \mdsy@DeclareAlias{tconjquant}{largesymbols}{\mathop}
1748 \mdsy@DeclareSymbol{dbigdoublewedge}{largesymbols}{\mathop}
1749 \mdsy@DeclareAlias{dconjquant}{largesymbols}{\mathop}
1750 \mdsy@DeclareSymbol{tbigdoublevee}{largesymbols}{\mathop}
1751 \mdsy@DeclareAlias{tdisjquant}{largesymbols}{\mathop}
1752 \mdsy@DeclareSymbol{dbigdoublevee}{largesymbols}{\mathop}
1753 \mdsy@DeclareAlias{ddisjquant}{largesymbols}{\mathop}
1754 \mdsy@DeclareSymbol{tbigcurlywedge}{largesymbols}{\mathop}
1755 \mdsy@DeclareSymbol{dbigcurlywedge}{largesymbols}{\mathop}
1756 \mdsy@DeclareSymbol{tbigcurlyvee}{largesymbols}{\mathop}
1757 \mdsy@DeclareSymbol{dbigcurlyvee}{largesymbols}{\mathop}
1758 \mdsy@DeclareSymbol{tbigcap}{largesymbols}{\mathop}
1759 \mdsy@DeclareSymbol{dbigcap}{largesymbols}{\mathop}
1760 \mdsy@DeclareSymbol{tbigcup}{largesymbols}{\mathop}
1761 \mdsy@DeclareSymbol{dbigcup}{largesymbols}{\mathop}
1762 \mdsy@DeclareSymbol{tbigcapdot}{largesymbols}{\mathop}
1763 \mdsy@DeclareSymbol{dbigcapdot}{largesymbols}{\mathop}
1764 \mdsy@DeclareSymbol{tbigcupdot}{largesymbols}{\mathop}
1765 \mdsy@DeclareSymbol{dbigcupdot}{largesymbols}{\mathop}
1766 \mdsy@DeclareSymbol{tbigcapplus}{largesymbols}{\mathop}
1767 \mdsy@DeclareSymbol{dbigcapplus}{largesymbols}{\mathop}

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1768 \mdsy@DeclareSymbol{tbigcupplus}{largesymbols}{\mathop}
1769 \mdsy@DeclareAlias{tbiguplus}{largesymbols}{\mathop}
1770 \mdsy@DeclareSymbol{dbigcupplus}{largesymbols}{\mathop}
1771 \mdsy@DeclareAlias{dbiguplus}{largesymbols}{\mathop}
1772 \mdsy@DeclareSymbol{tbigsqcap}{largesymbols}{\mathop}
1773 \mdsy@DeclareSymbol{dbigsqcap}{largesymbols}{\mathop}
1774 \mdsy@DeclareSymbol{tbigsqcup}{largesymbols}{\mathop}
1775 \mdsy@DeclareSymbol{dbigsqcup}{largesymbols}{\mathop}
1776 \mdsy@DeclareSymbol{tbigsqcapdot}{largesymbols}{\mathop}
1777 \mdsy@DeclareSymbol{dbigsqcapdot}{largesymbols}{\mathop}
1778 \mdsy@DeclareSymbol{tbigsqcupdot}{largesymbols}{\mathop}
1779 \mdsy@DeclareSymbol{dbigsqcupdot}{largesymbols}{\mathop}
1780 \mdsy@DeclareSymbol{tbigsqcapplus}{largesymbols}{\mathop}
1781 \mdsy@DeclareSymbol{dbigsqcapplus}{largesymbols}{\mathop}
1782 \mdsy@DeclareSymbol{tbigsqcupplus}{largesymbols}{\mathop}
1783 \mdsy@DeclareSymbol{dbigsqcupplus}{largesymbols}{\mathop}
1784 \mdsy@DeclareSymbol{tbigoplus}{largesymbols}{\mathop}
1785 \mdsy@DeclareSymbol{dbigoplus}{largesymbols}{\mathop}
1786 \mdsy@DeclareSymbol{tbigotimes}{largesymbols}{\mathop}
1787 \mdsy@DeclareSymbol{dbigotimes}{largesymbols}{\mathop}
1788 \mdsy@DeclareSymbol{tbigodot}{largesymbols}{\mathop}
1789 \mdsy@DeclareSymbol{dbigodot}{largesymbols}{\mathop}
1790 \mdsy@DeclareSymbol{tbigooast}{largesymbols}{\mathop}
1791 \mdsy@DeclareSymbol{dbigoast}{largesymbols}{\mathop}
1792 \mdsy@DeclareSymbol{tprod}{largesymbols}{\mathop}
1793 \mdsy@DeclareSymbol{dprod}{largesymbols}{\mathop}
1794 \mdsy@DeclareSymbol{tcoprod}{largesymbols}{\mathop}
1795 \mdsy@DeclareSymbol{dcoprod}{largesymbols}{\mathop}
1796 \mdsy@DeclareSymbol{tsum}{largesymbols}{\mathop}
1797 \mdsy@DeclareSymbol{dsum}{largesymbols}{\mathop}
1798 \mdsy@DeclareSymbol{tosum}{largesymbols}{\mathop}
1799 \mdsy@DeclareAlias{tmodtwosum}{largesymbols}{\mathop}
1800 \mdsy@DeclareSymbol{dosum}{largesymbols}{\mathop}
1801 \mdsy@DeclareAlias{dmodtwosum}{largesymbols}{\mathop}
1802 \mdsy@DeclareSymbol{tint}{largesymbols}{\mathop}
1803 \mdsy@DeclareSymbol{dint}{largesymbols}{\mathop}
1804 \mdsy@DeclareSymbol{tiint}{largesymbols}{\mathop}
1805 \mdsy@DeclareSymbol{diint}{largesymbols}{\mathop}
1806 \mdsy@DeclareSymbol{tiiint}{largesymbols}{\mathop}
1807 \mdsy@DeclareSymbol{diiint}{largesymbols}{\mathop}
1808 \mdsy@DeclareSymbol{tiiiint}{largesymbols}{\mathop}
1809 \mdsy@DeclareSymbol{diiiint}{largesymbols}{\mathop}
1810 \mdsy@DeclareSymbol{tidotsint}{largesymbols}{\mathop}
1811 \mdsy@DeclareAlias{tdotsint}{largesymbols}{\mathop}
1812 \mdsy@DeclareSymbol{didotsint}{largesymbols}{\mathop}

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1813 \mdsy@DeclareAlias{ddotsint}{largesymbols}{\mathop}
1814 \mdsy@DeclareSymbol{tlandupint}{largesymbols}{\mathop}
1815 \mdsy@DeclareAlias{tintclockwise}{largesymbols}{\mathop}
1816 \mdsy@DeclareSymbol{dlandupint}{largesymbols}{\mathop}
1817 \mdsy@DeclareAlias{dintclockwise}{largesymbols}{\mathop}
1818 \mdsy@DeclareSymbol{tlanddownint}{largesymbols}{\mathop}
1819 \mdsy@DeclareAlias{tawint}{largesymbols}{\mathop}
1820 \mdsy@DeclareAlias{tintctrcclockwise}{largesymbols}{\mathop}
1821 \mdsy@DeclareSymbol{dlanddownint}{largesymbols}{\mathop}
1822 \mdsy@DeclareAlias{dawint}{largesymbols}{\mathop}
1823 \mdsy@DeclareAlias{dintctrcclockwise}{largesymbols}{\mathop}
1824 \mdsy@DeclareSymbol{tintbar}{largesymbols}{\mathop}
1825 \mdsy@DeclareSymbol{dintbar}{largesymbols}{\mathop}
1826 \mdsy@DeclareSymbol{tintBar}{largesymbols}{\mathop}
1827 \mdsy@DeclareSymbol{dintBar}{largesymbols}{\mathop}
1828 \mdsy@DeclareSymbol{tfint}{largesymbols}{\mathop}
1829 \mdsy@DeclareSymbol{dfint}{largesymbols}{\mathop}
1830 \mdsy@DeclareSymbol{toint}{largesymbols}{\mathop}
1831 \mdsy@DeclareSymbol{doint}{largesymbols}{\mathop}
1832 \mdsy@DeclareSymbol{toiint}{largesymbols}{\mathop}
1833 \mdsy@DeclareSymbol{doiint}{largesymbols}{\mathop}
1834 \mdsy@DeclareSymbol{toiiiint}{largesymbols}{\mathop}
1835 \mdsy@DeclareSymbol{doiiiint}{largesymbols}{\mathop}
1836 \mdsy@DeclareSymbol{trcircularrightint}{largesymbols}{\mathop}
1837 \mdsy@DeclareAlias{tointctrcclockwise}{largesymbols}{\mathop}
1838 \mdsy@DeclareSymbol{drcircularrightint}{largesymbols}{\mathop}
1839 \mdsy@DeclareAlias{dointctrcclockwise}{largesymbols}{\mathop}
1840 \mdsy@DeclareSymbol{tlcircularrightint}{largesymbols}{\mathop}
1841 \mdsy@DeclareAlias{tvarointclockwise}{largesymbols}{\mathop}
1842 \mdsy@DeclareSymbol{dlcircularrightint}{largesymbols}{\mathop}
1843 \mdsy@DeclareAlias{dvarointclockwise}{largesymbols}{\mathop}
1844 \mdsy@DeclareSymbol{trcircleleftint}{largesymbols}{\mathop}
1845 \mdsy@DeclareAlias{tvarointctrcclockwise}{largesymbols}{\mathop}
1846 \mdsy@DeclareSymbol{drcircleleftint}{largesymbols}{\mathop}
1847 \mdsy@DeclareAlias{dvarointctrcclockwise}{largesymbols}{\mathop}
1848 \mdsy@DeclareSymbol{tlcircleleftint}{largesymbols}{\mathop}
1849 \mdsy@DeclareAlias{tointclockwise}{largesymbols}{\mathop}
1850 \mdsy@DeclareSymbol{dlcircularleftint}{largesymbols}{\mathop}
1851 \mdsy@DeclareAlias{dointclockwise}{largesymbols}{\mathop}
1852 \mdsy@DeclareSymbol{tsumint}{largesymbols}{\mathop}
1853 \mdsy@DeclareSymbol{dsumint}{largesymbols}{\mathop}
1854 %\let\intop\tint
1855 %\let\ointop\toint
1856
1857 \mdsy@DeclareOperator{bigplus}{\dbigplus}{\tbigplus}

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1858 \mdsy@DeclareOperator{bigtimes}{\dbigtimes}{\tbigtimes}
1859 \mdsy@DeclareOperator{bigwedge}{\dbigwedge}{\tbigwedge}
1860 \mdsy@DeclareOperator{bigvee}{\dbigvee}{\tbigvee}
1861 \mdsy@DeclareOperator{bigwedgedot}{\dbigwedgedot}{\tbigwedgedot}
1862 \mdsy@DeclareOperator{bigveedot}{\dbigveedot}{\tbigveedot}
1863 \mdsy@DeclareOperator{bigdoublewedge}{\dbigdoublewedge}{\tbigdoublewedge}
1864 \mdsy@DeclareOperator{conjquant}{\dconjquant}{\tconjquant}
1865 \mdsy@DeclareOperator{bigdoublevee}{\dbigdoublevee}{\tbigdoublevee}
1866 \mdsy@DeclareOperator{disjquant}{\ddisjquant}{\tdisjquant}
1867 \mdsy@DeclareOperator{bigcurlywedge}{\dbigcurlywedge}{\tbigcurlywedge}
1868 \mdsy@DeclareOperator{bigcurlyvee}{\dbigcurlyvee}{\tbigcurlyvee}
1869 \mdsy@DeclareOperator{bigcurlywedgedot}{\dbigcurlywedgedot}{\tbigcurlywedgedot}
1870 \mdsy@DeclareOperator{bigcurlyveedot}{\dbigcurlyveedot}{\tbigcurlyveedot}
1871 \mdsy@DeclareOperator{bigdoublecurlywedge}{\dbigdoublecurlywedge}{\tbigdoublecurlywed}
1872 \mdsy@DeclareOperator{bigdoublecurlyvee}{\dbigdoublecurlyvee}{\tbigdoublecurlyvee}
1873 \mdsy@DeclareOperator{bigcap}{\dbigcap}{\tbigcap}
1874 \mdsy@DeclareOperator{bigcup}{\dbigcup}{\tbigcup}
1875 \mdsy@DeclareOperator{bigcapdot}{\dbigcapdot}{\tbigcapdot}
1876 \mdsy@DeclareOperator{bigcupdot}{\dbigcupdot}{\tbigcupdot}
1877 \mdsy@DeclareOperator{bigcapplus}{\dbigcapplus}{\tbigcapplus}
1878 \mdsy@DeclareOperator{bigcupplus}{\dbigcupplus}{\tbigcupplus}
1879 \mdsy@DeclareOperator{biguplus}{\dbiguplus}{\tbiguplus}
1880 \mdsy@DeclareOperator{bigsqcap}{\dbigsqcap}{\tbigsqcap}
1881 \mdsy@DeclareOperator{bigsqcup}{\dbigsqcup}{\tbigsqcup}
1882 \mdsy@DeclareOperator{bigsqcapdot}{\dbigsqcapdot}{\tbigsqcapdot}
1883 \mdsy@DeclareOperator{bigsqcupdot}{\dbigsqcupdot}{\tbigsqcupdot}
1884 \mdsy@DeclareOperator{bigsqcapplus}{\dbigsqcapplus}{\tbigsqcapplus}
1885 \mdsy@DeclareOperator{bigsqcupplus}{\dbigsqcupplus}{\tbigsqcupplus}
1886 \mdsy@DeclareOperator{bigoplus}{\dbigoplus}{\tbigoplus}
1887 \mdsy@DeclareOperator{bigotimes}{\dbigotimes}{\tbigotimes}
1888 \mdsy@DeclareOperator{bigodot}{\dbigodot}{\tbigodot}
1889 \mdsy@DeclareOperator{bigoast}{\dbigoast}{\tbigoast}
1890 \mdsy@DeclareOperator{sum}{\dsum}{\tsum}
1891 \mdsy@DeclareOperator{osum}{\dosum}{\tosum}
1892 \mdsy@DeclareOperator{modtwosum}{\dmodtwosum}{\tmodtwosum}
1893 \mdsy@DeclareOperator{prod}{\dprod}{\tprod}
1894 \mdsy@DeclareOperator{coprod}{\dcoprod}{\tcoprod}
1895 \mdsy@DeclareIntegral{int}{\dint}{\tint}
1896 \mdsy@DeclareIntegral{iint}{\diint}{\tiint}
1897 \mdsy@DeclareIntegral{iiint}{\diiint}{\tiiint}
1898 \mdsy@DeclareIntegral{iiiint}{\diiiint}{\tiiiint}
1899 \mdsy@DeclareIntegral{idotsint}{\didotsint}{\tidotsint}
1900 \mdsy@DeclareIntegral{dotsint}{\ddotsint}{\tdotsint}
1901 \mdsy@DeclareIntegral{landupint}{\dlandupint}{\tlandupint}
1902 \mdsy@DeclareIntegral{intclockwise}{\dintclockwise}{\tintclockwise}

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1903 \mdsy@DeclareIntegral{landdownint}{\dlanddownint}{\tlanddownint}
1904 \mdsy@DeclareIntegral{awint}{\dawint}{\tawint}
1905 \mdsy@DeclareIntegral{intctrclockwise}{\dintctrclockwise}{\tintctrclockwise}
1906 \mdsy@DeclareIntegral{landdownint}{\dlanddownint}{\tlanddownint}
1907 \mdsy@DeclareIntegral{intbar}{\dintbar}{\tintbar}
1908 \mdsy@DeclareIntegral{intBar}{\dintBar}{\tintBar}
1909 \mdsy@DeclareIntegral{fint}{\dfint}{\tfint}
1910 \mdsy@DeclareIntegral{ooint}{\dooint}{\tooint}
1911 \mdsy@DeclareIntegral{oiint}{\doiint}{\toiint}
1912 \mdsy@DeclareIntegral{oiint}{\doiint}{\toiint}
1913 \mdsy@DeclareIntegral{rcircclerightint}{\drcircclerightint}{\trcircclerightint}
1914 \mdsy@DeclareIntegral{oointctrclockwise}{\doointctrclockwise}{\toointctrclockwise}
1915 \mdsy@DeclareIntegral{lccircclerightint}{\dlccircclerightint}{\tlccircclerightint}
1916 \mdsy@DeclareIntegral{varointclockwise}{\dvarointclockwise}{\tvarointclockwise}
1917 \mdsy@DeclareIntegral{rcircleleftint}{\drcircleleftint}{\trcircleleftint}
1918 \mdsy@DeclareIntegral{varointctrclockwise}{\dvarointctrclockwise}{\tvarointctrclockwise}
1919 \mdsy@DeclareIntegral{lccircleleftint}{\dlccircleleftint}{\tlccircleleftint}
1920 \mdsy@DeclareIntegral{oointclockwise}{\doointclockwise}{\toointclockwise}
1921 \mdsy@DeclareIntegral{sumint}{\dsumint}{\tsumint}
1922
1923 \mdsy@renewcommand{intkern@}{\mkern-8.5mu\mathchoice{\mkern-1mu}{\mkern-1mu}{\mkern-1mu}}
1924 \mdsy@renewcommand{intdots@}{\mkern-6mu%
1925   \mathchoice{\@cdots}%
1926   {\mkern0.5mu\cdotp\mkern0.5mu\cdotp}%
1927   {\mkern0.5mu\cdotp\mkern0.5mu\cdotp}%
1928   {\mkern0.5mu\cdotp\mkern0.5mu\cdotp}%
1929   \mkern-6mu}

Math accents.
1930 \mdsy@DeclareMathAccent{widehat}{\mathord}{\largesymbols}{72}
1931 \mdsy@DeclareMathAccent{widetilde}{\mathord}{\largesymbols}{78}
1932 \mdsy@DeclareMathAccent{wideparen}{\mathord}{\largesymbols}{7E}
1933 \mdsy@DeclareMathAccent{vec}{\mathord}{\largesymbols}{84}
1934 \mdsy@DeclareMathAccent{middlebar}{\mathord}{\largesymbols}{85}
1935 \mdsy@DeclareMathAccent{middleslash}{\mathord}{\largesymbols}{86}
1936 \mdsy@DeclareMathAccent{strokethrough}{\mathord}{\largesymbols}{87}

MdSymbolF: delimiters
1937 \ifmdsy@largedelims
1938 % \mdsy@DeclareOpen{()}{delimiters}{01}
1939 % \mdsy@DeclareClose{)}{delimiters}{07}
1940 \mdsy@DeclareOpen{lparen}{delimiters}{01}
1941 \mdsy@DeclareClose{rparen}{delimiters}{07}
1942 % \mdsy@DeclareOpen{[]}{delimiters}{13}
1943 % \mdsy@DeclareClose{[]}{delimiters}{19}
1944 \mdsy@DeclareOpen{lbrack}{delimiters}{13}
1945 \mdsy@DeclareClose{rbrack}{delimiters}{19}

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1946 \mdsy@DeclareOpen{lfloor}{delimiters}{1F}
1947 \mdsy@DeclareClose{rfloor}{delimiters}{25}
1948 \mdsy@DeclareOpen{lceil}{delimiters}{2B}
1949 \mdsy@DeclareClose{rceil}{delimiters}{31}
1950 \mdsy@DeclareOpen{ulcorner}{delimiters}{37}
1951 \mdsy@DeclareClose{urcorner}{delimiters}{3D}
1952 \mdsy@DeclareOpen{llcorner}{delimiters}{43}
1953 \mdsy@DeclareClose{lrcorner}{delimiters}{49}
1954 \mdsy@DeclareOpen{ullcorner}{delimiters}{4F}
1955 \mdsy@DeclareClose{ulrcorner}{delimiters}{55}
1956 \mdsy@DeclareOpen{lsem}{delimiters}{61}
1957 \mdsy@DeclareClose{rsem}{delimiters}{67}
1958 \mdsy@DeclareOpen{lBrack}{delimiters}{61}
1959 \mdsy@DeclareClose{rBrack}{delimiters}{67}
1960 \mdsy@DeclareOpen{lbrace}{delimiters}{73}
1961 \mdsy@DeclareClose{rbrace}{delimiters}{79}
1962 % \mdsy@DeclareOpen{<}{delimiters}{86}
1963 % \mdsy@DeclareClose{>}{delimiters}{8C}
1964 \mdsy@DeclareOpen{langle}{delimiters}{86}
1965 \mdsy@DeclareClose{rangle}{delimiters}{8C}
1966 \mdsy@DeclareOpen{lAngle}{delimiters}{92}
1967 \mdsy@DeclareClose{rAngle}{delimiters}{98}
1968 \mdsy@DeclareOpen{langledot}{delimiters}{9E}
1969 \mdsy@DeclareClose{rangledot}{delimiters}{A4}
1970 % \mdsy@DeclareDelimiter{/}{\mathord}{delimiters}{AA}
1971 \mdsy@DeclareDelimiter{mathslash}{\mathord}{delimiters}{AA}
1972 \mdsy@DeclareMathSymbol{divslash}{\mathbin}{delimiters}{AA}
1973 \mdsy@DeclareDelimiter{backslash}{\mathord}{delimiters}{B0}
1974 % \expandafter\DeclareMathDelimiter\@backslashchar%
1975 % {\mathord}{delimiters}{B0}{delimiters}{B0}
1976 \mdsy@DeclareMathSymbol{setminus}{\mathbin}{delimiters}{B0}
1977 % \mdsy@DeclareDelimiter{|}{\mathord}{delimiters}{B7}
1978 \mdsy@DeclareDelimiter{vert}{\mathord}{delimiters}{B7}
1979 \mdsy@DeclareOpen{lvert}{delimiters}{B7}
1980 \mdsy@DeclareClose{rvert}{delimiters}{B7}
1981 \mdsy@DeclareMathSymbol{mid}{\mathrel}{delimiters}{B7}
1982 \mdsy@DeclareMathSymbol{nmid}{\mathrel}{delimiters}{BA}
1983 \mdsy@DeclareDelimiter{Vert}{\mathord}{delimiters}{BE}
1984 \mdsy@DeclareOpen{lVert}{delimiters}{BE}
1985 \mdsy@DeclareClose{rVert}{delimiters}{BE}
1986 \mdsy@DeclareMathSymbol{parallel}{\mathrel}{delimiters}{BE}
1987 \mdsy@DeclareMathSymbol{nparallel}{\mathrel}{delimiters}{C1}
1988 \mdsy@DeclareDelimiter{Vvert}{\mathord}{delimiters}{C4}
1989 \mdsy@DeclareOpen{lVvert}{delimiters}{C4}
1990 \mdsy@DeclareClose{rVvert}{delimiters}{C4}

```

```

1991 \else
1992 % \mdsy@DeclareOpen{(){delimiters}{00}
1993 % \mdsy@DeclareClose{)}{delimiters}{06}
1994 \mdsy@DeclareOpen{lparen}{delimiters}{00}
1995 \mdsy@DeclareClose{rparen}{delimiters}{06}
1996 % \mdsy@DeclareOpen{[]}{delimiters}{12}
1997 % \mdsy@DeclareClose{[]}{delimiters}{18}
1998 \mdsy@DeclareOpen{lbrack}{delimiters}{12}
1999 \mdsy@DeclareClose{rbrack}{delimiters}{18}
2000 \mdsy@DeclareOpen{lffloor}{delimiters}{1E}
2001 \mdsy@DeclareClose{rffloor}{delimiters}{24}
2002 \mdsy@DeclareOpen{lceil}{delimiters}{2A}
2003 \mdsy@DeclareClose{rceil}{delimiters}{30}
2004 \mdsy@DeclareOpen{ulcorner}{delimiters}{36}
2005 \mdsy@DeclareClose{urcorner}{delimiters}{3C}
2006 \mdsy@DeclareOpen{llcorner}{delimiters}{42}
2007 \mdsy@DeclareClose{lrcorner}{delimiters}{48}
2008 \mdsy@DeclareOpen{ullcorner}{delimiters}{4E}
2009 \mdsy@DeclareClose{ulrcorner}{delimiters}{54}
2010 \mdsy@DeclareOpen{lsem}{delimiters}{60}
2011 \mdsy@DeclareClose{rsem}{delimiters}{66}
2012 \mdsy@DeclareOpen{lBrack}{delimiters}{60}
2013 \mdsy@DeclareClose{rBrack}{delimiters}{66}
2014 \mdsy@DeclareOpen{lbrace}{delimiters}{72}
2015 \mdsy@DeclareClose{rbrace}{delimiters}{78}
2016 % \mdsy@DeclareOpen{<}{delimiters}{85}
2017 % \mdsy@DeclareClose{>}{delimiters}{8B}
2018 \mdsy@DeclareOpen{langle}{delimiters}{85}
2019 \mdsy@DeclareClose{rangle}{delimiters}{8B}
2020 \mdsy@DeclareOpen{lAngle}{delimiters}{91}
2021 \mdsy@DeclareClose{rAngle}{delimiters}{97}
2022 \mdsy@DeclareOpen{langledot}{delimiters}{9D}
2023 \mdsy@DeclareClose{rangledot}{delimiters}{A3}
2024 % \mdsy@DeclareDelimiter{/}{\mathord}{delimiters}{A9}
2025 \mdsy@DeclareDelimiter{mathslash}{\mathord}{delimiters}{A9}
2026 \mdsy@DeclareMathSymbol{divslash}{\mathbin}{delimiters}{A9}
2027 \mdsy@DeclareDelimiter{backslash}{\mathord}{delimiters}{AF}
2028 % \expandafter\DeclareMathDelimiter\@backslashchar%
2029 % {\mathord}{delimiters}{AF}{delimiters}{AF}
2030 \mdsy@DeclareMathSymbol{setminus}{\mathbin}{delimiters}{AF}
2031 % \mdsy@DeclareDelimiter{|}{\mathord}{delimiters}{B6}
2032 \mdsy@DeclareDelimiter{vert}{\mathord}{delimiters}{B6}
2033 \mdsy@DeclareOpen{lvert}{delimiters}{B6}
2034 \mdsy@DeclareClose{rvert}{delimiters}{B6}
2035 \mdsy@DeclareMathSymbol{mid}{\mathrel}{delimiters}{B6}

```

```

2036 \mdsy@DeclareMathSymbol{\nmid}{\mathrel}{delimiters}{B9}
2037 \mdsy@DeclareDelimiter{Vert}{\mathord}{delimiters}{BD}
2038 \mdsy@DeclareOpen{lVert}{delimiters}{BD}
2039 \mdsy@DeclareClose{rVert}{delimiters}{BD}
2040 \mdsy@DeclareMathSymbol{\parallel}{\mathrel}{delimiters}{BD}
2041 \mdsy@DeclareMathSymbol{\nparallel}{\mathrel}{delimiters}{C0}
2042 \mdsy@DeclareDelimiter{Vvert}{\mathord}{delimiters}{C3}
2043 \mdsy@DeclareOpen{lVvert}{delimiters}{C3}
2044 \mdsy@DeclareClose{rVvert}{delimiters}{C3}
2045 \fi
2046 \let\\Vert
2047 \mdsy@renewcommand{divides}{\mid}
2048 \mdsy@renewcommand{ndivides}{\nmid}
2049 \mdsy@DeclareMathSymbol{\shortmid}{\mathrel}{delimiters}{B5}
2050 \mdsy@DeclareMathSymbol{\nshortmid}{\mathrel}{delimiters}{B8}
2051 \mdsy@DeclareMathSymbol{\shortparallel}{\mathrel}{delimiters}{BC}
2052 \mdsy@DeclareMathSymbol{\nshortparallel}{\mathrel}{delimiters}{BF}
2053 \mdsy@DeclareDelimiter{arrowvert}{\mathord}{delimiters}{BB}
2054 \mdsy@DeclareDelimiter{Arrowvert}{\mathord}{delimiters}{C2}
2055 \mdsy@DeclareClose{lgroup}{delimiters}{7E}
2056 \mdsy@DeclareOpen{rgroup}{delimiters}{7F}
2057 \mdsy@DeclareClose{rmoustache}{delimiters}{80}
2058 \mdsy@DeclareOpen{lmoustache}{delimiters}{81}
2059 \mdsy@DeclareDelimiter{bracevert}{\mathord}{delimiters}{84}
2060
2061 \mdsy@DeclareMathDelimiter{uparrow}{\mathrel}{arrows}{01}{delimiters}{C6}
2062 \mdsy@DeclareMathDelimiter{downarrow}{\mathrel}{arrows}{03}{delimiters}{C7}
2063 \mdsy@DeclareMathDelimiter{updownarrow}{\mathrel}{arrows}{11}{delimiters}{C8}
2064 \mdsy@DeclareMathDelimiter{Uparrow}{\mathrel}{arrows}{09}{delimiters}{C9}
2065 \mdsy@DeclareMathDelimiter{Downarrow}{\mathrel}{arrows}{0B}{delimiters}{CA}
2066 \mdsy@DeclareMathDelimiter{Updownarrow}{\mathrel}{arrows}{15}{delimiters}{CB}

Horizontal braces.
2067 \mdsy@DeclareMathSymbol{\braceld}{\mathord}{delimiters}{CC}
2068 \mdsy@DeclareMathSymbol{\bracelu}{\mathord}{delimiters}{CD}
2069 \mdsy@DeclareMathSymbol{\bracerd}{\mathord}{delimiters}{CE}
2070 \mdsy@DeclareMathSymbol{\braceru}{\mathord}{delimiters}{CF}
2071 \mdsy@DeclareMathSymbol{\bracemd}{\mathord}{delimiters}{D0}
2072 \mdsy@DeclareMathSymbol{\bracemu}{\mathord}{delimiters}{D1}
2073 \mdsy@DeclareMathSymbol{\bracemid}{\mathord}{delimiters}{D2}
2074
2075 \mdsy@DeclareRobustCommandArg{bracefill@}{5}{%
2076   $\m@th#5#1\leaders\hbox{$$4$}\hfill#2\leaders\hbox{$$4$}\hfill#3$%
2077 }
2078 \mdsy@renewcommand{downbracefill@}{\bracefill@\braceld\bracemd\bracerd\bracemid}
2079 \mdsy@renewcommand{upbracefill@}{\bracefill@\bracelu\bracemu\braceru\bracemid}

```

```

2080 \mdsy@renewcommand{downgroupfill@}{\bracefill@\braceld{}\bracerd\bracemid}
2081 \mdsy@renewcommand{upgroupfill@}{\bracefill@\bracelu{}\braceru\bracemid}
2082 \mdsy@renewcommand{linesegmentfill@}{\arrowfill@leftfootline\relbar\rightfootline}
2083 \mdsy@renewcommand{leftharpoonfill@}{\arrowfill@leftharpoondown\relbar\relbar}
2084 \mdsy@renewcommand{rightharpoonfill@}{\arrowfill@\relbar\relbar\rightharpoonup}
2085
2086 \mdsy@DeclareRobustCommandArg{overbrace}{1}{%
2087   \mathop{\mathpalette{\overarrow@downbracefill@}{#1}}\limits%
2088 }
2089 \mdsy@DeclareRobustCommandArg{underbrace}{1}{%
2090   \mathop{\mathpalette{\underarrow@upbracefill@}{#1}}\limits%
2091 }
2092 \mdsy@DeclareRobustCommand{overgroup}{\mathpalette{\overarrow@downgroupfill@}}
2093 \mdsy@DeclareRobustCommand{undergroup}{\mathpalette{\underarrow@upgroupfill@}}
2094 \mdsy@DeclareRobustCommand{overlinesegment}{\mathpalette{\overarrow@linesegmentfill@}}
2095 \mdsy@DeclareRobustCommand{overleftharpoon}{\mathpalette{\overarrow@leftharpoonfill@}}
2096 \mdsy@DeclareRobustCommand{overrightharpoon}{\mathpalette{\overarrow@rightharpoonfill@}}
2097 \mdsy@DeclareRobustCommand{underlinesegment}{\mathpalette{\underarrow@linesegmentfill@}}

```

Radical symbols.

```

2098 \ifmdsy@largedelims
2099   \mdsy@DeclareMathRadical{sqrtsgn}{delimiters}{D4}{delimiters}{D4}
2100   \mdsy@DeclareMathSymbol{surd}{\mathop}{delimiters}{D4}
2101 \else
2102   \mdsy@DeclareMathRadical{sqrtsgn}{delimiters}{D3}{delimiters}{D3}
2103   \mdsy@DeclareMathSymbol{surd}{\mathop}{delimiters}{D3}
2104 \fi

```

In the n -th root, we don't want the n to come too close to the radical (adopted from package lucimtx).

```

2105 \mdsy@DeclareRobustCommandArg{r@t}{2}{\setbox\z@hbox{\$m@th#1\sqrt{#2}$}%
2106   \dimen@ht\z@ \advance\dimen@-\dp\z@
2107   \mkern5mu\raise.6\dimen@copy\rootbox \mkern-8mu\box\z@}

```

Mathchars. If onlysansmath, we make certain single characters active to react on the mathversion.

```

2108 \AtBeginDocument{%
2109   \mdsy@DeclareActiveMathSymbol{+}{\mathbin}{symbols}{11}
2110   \mdsy@DeclareActiveMathSymbol{-}{\mathbin}{symbols}{0E}
2111   \mdsy@DeclareActiveMathSymbol{*}{\mathbin}{symbols}{98}
2112   \mdsy@DeclareActiveMathSymbol{:}{\mathrel}{symbols}{02}
2113   \mdsy@DeclareActiveMathSymbol{=}{\mathrel}{relations}{00}
2114   \mdsy@DeclareActiveMathSymbol{<}{\mathrel}{relations}{24}
2115   \mdsy@DeclareActiveMathSymbol{>}{\mathrel}{relations}{25}
2116   \ifmdsy@largedelims
2117     \mdsy@DeclareActiveMathDelimiter{|}{\mathord}{delimiters}{B7}
2118     \mdsy@DeclareActiveMathDelimiter{()}{\mathopen}{delimiters}{01}

```

```

2119 \mdsy@DeclareActiveMathDelimiter{}{\mathclose}{delimiters}"07}
2120 \mdsy@DeclareActiveMathDelimiter{[]{\mathopen}{delimiters}"13}
2121 \mdsy@DeclareActiveMathDelimiter{[]{\mathclose}{delimiters}"19}
2122 \mdsy@DeclareActiveMathDelimiter{/}{\mathord}{delimiters}"AA}
2123 \else
2124 \mdsy@DeclareActiveMathDelimiter{||{\mathord}{delimiters}"B6}
2125 \mdsy@DeclareActiveMathDelimiter{(){\mathopen}{delimiters}"00}
2126 \mdsy@DeclareActiveMathDelimiter{}{\mathclose}{delimiters}"06}
2127 \mdsy@DeclareActiveMathDelimiter{[]{\mathopen}{delimiters}"12}
2128 \mdsy@DeclareActiveMathDelimiter{[]{\mathclose}{delimiters}"18}
2129 \mdsy@DeclareActiveMathDelimiter{/}{\mathord}{delimiters}"A9}
2130 \fi
2131 \ifmdsy@onlysansmath

```

amsmath and amspn define commands which use the mathcode of some of the symbols above to define new math characters. Since the mathcode is out of the range (made active), this fails. So change the commands and make the definitions at the begin of the document.

```

2132 \def\resetMathstrut@{%
2133 \setbox\z@\hbox{%
2134 \ifmathversionsans{%
2135 \mathchardef\@tempa\csname{@new\endcsname}%
2136 }{%
2137 \mathchardef\@tempa\csname{@old\endcsname}%
2138 }
2139 \def\@tempb##1"##2##3{\the\textfont"##3\char"%
2140 \expandafter\@tempb\meaning\@tempa \relax
2141 }%
2142 \ht\Mathstrutbox@ht\z@ \dp\Mathstrutbox@dp\z@
2143 }
2144 \renewcommand{\std@minus}{-}
2145 \renewcommand{\std@equal}{=}
2146 \gdef\newmcode@{\mathcode'\39\mathcode'\42\mathcode'\613A%
2147 \ifnum\mathcode'\45 \else
2148 \renewcommand{\std@minus}{-}\relax
2149 \fi
2150 \mathcode'\45\mathcode'\47\mathcode'\603A\relax}
2151 \fi
2152 }

```

There is no `\not` symbol in MdSymbol since all relational symbols come with a stroked companion. For compatibility we define a `\not` command that places a virgule over the following symbol.

```

2153 \mdsy@DeclareRobustCommandArg{c@ncel}{2}{\m@th\oalign{$\hfil#1/\hfil$\crrc$#1#2$}}
2154 \mdsy@DeclareRobustCommandArg{not}{1}{\mathrel{\m@th\mathpalette{c@ncel}{#1}}}
2155 (/style)

```