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 FdSymbol[1], 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 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`).

Furthermore with the **onlysansmath** option, MdSymbol defines the symbols that were not available before loading MdSymbol in all math versions, therefore allowing to complement but not substitute already defined symbols.

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
`normalweight`	`Light`, `Regular`*, `autolight`, `autoregular`
`boldweight`	`Semibold`*, `Bold`, `autosemibold`
`onlysansmath`	`true`, `false`*
`retainmissing`	`true`, `false`*
`scale`	⟨*factor*⟩
`largedelims`	`true`, `false`*

[2] Any 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

5 Symbols

The MdSymbol package provides the following symbols.

5.1 Ordinary symbols

⋯ \hdots
⋮ \vdots
⋰ \udots, \adots
⋱ \ddots
∵ \righttherefore
∴ \uptherefore, \therefore
∵ \leftthereforе
∵ \downtherefore, \because
∷ \squaredots
¬ \neg, \lnot
⌐ \backneg, \invnot, \invneg
⌙ \turnedneg, \turnednot
⌙ \turnedbackneg
△ \largetriangleup
▽ \largetriangledown
∅ \emptyset, \diameter, \varnothing
⦸ \revemptyset
○ \largecircle, \lgwhtcircle
● \largeblackcircle
□ \largesquare, \lgwhtsquare
■ \largeblacksquare, \lgblksquare
◊ \smalllozenge, \smwhtlozenge
⧫ \smallblacklozenge, \smblklozenge
◊ \medlozenge, \lozenge, \mdlgwhtlozenge, \mdwhtlozenge
⧫ \medblacklozenge, \blacklozenge, \mdlgblklozenge, \mdblklozenge
⧫ \lozengeminus
☆ \largewhitestar
★ \largeblackstar, \bigstar
∞ \infty
∠ \angle
⦣ \revangle
⦟ \measuredangle
⦢ \revmeasuredangle, \measuredangleleft
⦠ \sphericalangle
∀ \sphericalangleup
⦡ \sphericalangleleft, \revsphericalangle, \gtlpar
⦡ \sphericalangledown
∟ \rightangle
⦜ \measuredrightangle
⦜ \rightanglesquare, \rightanglesqr
⦜ \measuredrightangledot, \rightanglemdot

′	\prime	⅁	\Game
‵	\backprime	∁	\complement
✓	\checkmark	♭	\flat
↯	\lightning, \downzigzagarrow	♮	\natural
		♯	\sharp
◇	\diamondsuit	ℵ	\aleph
◆	\vardiamondsuit	ℶ	\beth
♡	\heartsuit	ℷ	\gimel
♥	\varheartsuit	ℸ	\daleth
♠	\spadesuit	℘	\wp
♣	\clubsuit	∇	\nabla
✠	\maltese	⊤	\top
✡	\starofdavid	⊥	\bot
▽	\sector	/	/, \mathslash
∀	\forall	\	\backslash
∃	\exists	|	|, \vert
∄	\nexists	‖	\Vert
ⅎ	\Finv	⦀	\Vvert

5.2 Binary operators

·	\cdot	∔	\plusdot
▪	\centerdot	⋇	\dottimes
‥	\hdotdot	⨲	\timesbar
:	\vdotdot	⋇	\divideontimes
∴	\udotdot	⨼	\intprod
⋱	\ddotdot	⨽	\intprodr
−	-, \minus	⋉	\leftthreetimes
⁄	\medslash, \smalldivslash	⋊	\rightthreetimes
∖	\medbackslash, \smallsetminus	⧢	\dtimes, \btimes
		⋊	\rtimes
+	+, \plus	⨴	\utimes, \ttimes
×	\times	⋉	\ltimes
∸	\dotminus	⋈	\lrtimes
∓	\minusdot	⧓	\upbowtie, \hourglass
÷	\div	≻	\rightY
≒	\minusfdots	≽	\upY
≑	\minusrdots	≺	\leftY
±	\pm	≾	\downY
∓	\mp	∧	\wedge, \land
∔	\dotplus	∨	\vee, \lor

⩑ \wedgedot
⩒ \veedot
⩓ \doublewedge, \wedgeonwedge
⩔ \doublevee, \veeonwee
⋏ \curlywedge
⋎ \curlyvee
⊼ \barwedge
⊻ \veebar
⩖ \doublebarwedge
⩚ \veedoublebar
∪ \cup
∩ \cap
⋓ \doublecup, \Cup
⋒ \doublecap, \Cap
⊍ \cupdot
⊍ \capdot
⊎ \cupplus, \uplus
⊎ \capplus
⊔ \sqcup
⊓ \sqcap
⊔ \doublesqcup, \Sqcup
⊓ \doublesqcap, \Sqcap
⊔ \sqcupdot
⊓ \sqcapdot
⊔ \sqcupplus
⊓ \sqcapplus
⌟ \pullback
⌜ \pushout
▷ \smalltriangleright
▵ \smalltriangleup
◁ \smalltriangleleft
▿ \smalltriangledown
▶ \smallblacktriangleright
▲ \smallblacktriangleup
◀ \smallblacktriangleleft
▼ \smallblacktriangledown
▷ \medtriangleright, \triangleright
△ \medtriangleup, \triangle, \vartriangle
◁ \medtriangleleft, \triangleleft
▽ \medtriangledown, \triangledown
▶ \medblacktriangleright, \blacktriangleright
▲ \medblacktriangleup, \blacktriangle
◀ \medblacktriangleleft, \blacktriangleleft
▼ \medblacktriangledown, \blacktriangledown
△ \bigtriangleup
▽ \bigtriangledown
∘ \smallcircle, \circ, \smwhtcircle
• \smallblackcircle, \bullet, \smblkcircle
○ \medcircle, \mdlgwhtcircle, \mdwhtcircle
● \medblackcircle, \mdlgblkcircle, \mdblkcircle
⊖ \ominus
⦶ \overt, \circledvert
⊘ \oslash
⦸ \obackslash, \obslash
⊕ \oplus
⊗ \otimes
⊙ \odot
◎ \ocirc, \circledcirc
⊛ \oast, \circledast
⊖ \odash, \circleddash
⊜ \oequal, \circledequal
◯ \bigcirc
▫ \smallsquare, \smwhtsquare
▪ \smallblacksquare, \smblksquare
□ \medsquare, \square, \Box, \mdlgwhtsquare, \mdwhtsquare

■ \medblacksquare, \mdlgblksquare, \mdblksquare
⊟ \boxminus
⧈ \boxvert, \boxbar
⧄ \boxslash, \boxdiag
⧅ \boxbackslash, \boxbsslash
⊞ \boxplus
⊠ \boxtimes
⊡ \boxdot
⧈ \boxbox
⋄ \smalldiamond, \diamond, \smwhtdiamond
◆ \smallblackdiamond, \blackdiamond, \smblkdiamond
◇ \meddiamond, \Diamond, \mdlgwhtdiamond, \mdwhtdiamond
◆ \medblackdiamond, \mdlgblkdiamond, \mdblkdiamond
⟐ \diamondminus
⟠ \diamondvert
⟡ \diamondslash
⟢ \diamondbackslash, \diamondbslash
⟣ \diamondplus
⟤ \diamondtimes
⟥ \diamonddot, \diamondcdot
⟦ \diamonddiamond
☆ \smallwhitestar, \smwhitestar
★ \smallblackstar, \star
☆ \medwhitestar
★ \medblackstar, \medstar
∗ *, \ast
⊺ \intercal
≀ \wreath, \wr
⨿ \amalg
◁ \lhd
▷ \rhd
⊴ \unlhd
⊵ \unrhd
/ \divslash
\ \setminus

5.3 Relations

= =, \equal, \Relbar
≡ \equiv
∼ \sim
∽ \backsim
≈ \approx
≋ \triplesim, \approxident
≃ \simeq
≌ \backsimeq
≈ \eqsim
≅ \cong
≌ \backcong
≅̇ \dotcong
≊ \approxeq
≏ \bumpeq
≎ \bumpeqq
≑ \Bumpeq
≐ \doteq
≒ \eqdot
≓ \Doteq
≒ \fallingdotseq
≓ \risingdotseq
≔ \coloneq, \coloneqq
≕ \eqcolon, \eqqcolon
⌣ \smile, \smallsmile
⌢ \frown, \smallfrown
≍ \smilefrown, \asymp
⊂ \frownsmile, \closure
≅ \smileeq
≅ \frowneq, \arceq
≗ \eqcirc

≗	\circeq	⪖	\geqslcc, \gescc
≜	\wedgeq, \hateq	⊏	\sqsubset
≚	\veeeq	⊐	\sqsupset
≛	\stareq	⊑	\sqsubseteq
≜	\triangleeq, \triangleq	⊒	\sqsupseteq
∈	\in	⫋	\sqsubseteqq
∋	\owns, \ni	⫌	\sqsupseteqq
<	<, \less	⫋	\Sqsubset
>	>, \gtr	⫌	\Sqsupset
≤	\leq, \le	⊂	\subset
≥	\geq, \ge	⊃	\supset
⩽	\leqslant	⊆	\subseteq
⩾	\geqslant	⊇	\supseteq
≦	\leqq	⫅	\subseteqq
≧	\geqq	⫆	\supseteqq
≲	\lesssim	⋐	\Subset
≳	\gtrsim	⋑	\Supset
≲	\lessapprox	≺	\prec
≳	\gtrapprox	≻	\succ
≶	\lessgtr	≼	\preceq
≷	\gtrless	≽	\succeq
⋚	\lesseqgtr	≾	\preccurlyeq
⋛	\gtreqless	≿	\succcurlyeq
⪋	\lesseqqgtr	⪷	\preceqq
⪌	\gtreqqless	⪸	\succeqq
⋚	\lesseqslantgtr, \lesq	≾	\precsim
⋛	\gtreqslantless, \gesl	≿	\succsim
≪	\ll	≾	\precapprox
≫	\gg	≿	\succapprox
⋘	\lll, \llless	⋖	\lessdot
⋙	\ggg, \gggtr	⋗	\gtrdot
◁	\lessclosed, \vartriangleleft	≤	\leqdot
		≥	\geqdot
▷	\gtrclosed, \vartriangleright	⩿	\leqslantdot, \lesdot
		⪀	\geqslantdot, \gesdot
⊴	\leqclosed, \trianglelefteq	⋜	\eqslantless
⊵	\geqclosed, \trianglerighteq	⋝	\eqslantgtr
		⋞	\curlyeqprec
◁	\lesscc, \ltcc	⋟	\curlyeqsucc
▷	\gtrcc, \gtcc	~	\thicksim
⪇	\leqslcc, \lescc	≈	\thickapprox

$\rightarrow$	\rightarrow, \to
$\uparrow$	\uparrow
$\leftarrow$	\leftarrow, \gets
$\downarrow$	\downarrow
$\nearrow$	\nearrow
$\nwarrow$	\nwarrow
$\swarrow$	\swarrow
$\searrow$	\searrow
$\Rightarrow$	\Rightarrow
$\Uparrow$	\Uparrow
$\Leftarrow$	\Leftarrow
$\Downarrow$	\Downarrow
$\nRightarrow$	\Nearrow
$\nLeftarrow$	\Nwarrow
$\nLeftarrow$	\Swarrow
$\nRightarrow$	\Searrow
$\leftrightarrow$	\leftrightarrow
$\updownarrow$	\updownarrow
$\nearrow$	\neswarrow
$\searrow$	\nwsearrow
$\Leftrightarrow$	\Leftrightarrow
$\Updownarrow$	\Updownarrow
$\nRightarrow$	\Neswarrow
$\nLeftarrow$	\Nwsearrow
$\twoheadrightarrow$	\twoheadrightarrow
$\twoheaduparrow$	\twoheaduparrow
$\twoheadleftarrow$	\twoheadleftarrow
$\twoheaddownarrow$	\twoheaddownarrow
$\nearrow$	\twoheadnearrow
$\nwarrow$	\twoheadnwarrow
$\swarrow$	\twoheadswarrow
$\searrow$	\twoheadsearrow
$\rightarrowtail$	\rightarrowtail
$\uparrowtail$	\uparrowtail
$\leftarrowtail$	\leftarrowtail
$\downarrowtail$	\downarrowtail
$\nearrow$	\nearrowtail
$\nwarrow$	\nwarrowtail
$\swarrow$	\swarrowtail
$\searrow$	\searrowtail
$\mapsto$	\rightmapsto, \mapsto
$\upmapsto$	\upmapsto, \mapsup
$\leftmapsto$	\leftmapsto, \mapsfrom
$\downmapsto$	\downmapsto, \mapsdown
$\Rightarrow$	\Rightmapsto, \Mapsto
$\Uparrow$	\Upmapsto, \Mapsup
$\Leftarrow$	\Leftmapsto, \Mapsfrom
$\Downarrow$	\Downmapsto, \Mapsdown
$\hookrightarrow$	\hookrightarrow
$\hookuparrow$	\hookuparrow
$\hookleftarrow$	\varhookleftarrow
$\hookdownarrow$	\varhookdownarrow
$\nearrow$	\varhooknearrow
$\nwarrow$	\hooknwarrow, \hknwarrow
$\swarrow$	\varhookswarrow
$\searrow$	\hooksearrow, \hksearrow
$\hookrightarrow$	\varhookrightarrow
$\hookuparrow$	\varhookuparrow
$\hookleftarrow$	\hookleftarrow
$\hookdownarrow$	\hookdownarrow
$\nearrow$	\hooknearrow, \hknearrow
$\nwarrow$	\varhooknwarrow
$\swarrow$	\hookswarrow, \hkswarrow
$\searrow$	\varhooksearrow
$\rightharpoonup$	\rightharpoonup
$\upharpoonleft$	\upharpoonleft
$\leftharpoondown$	\leftharpoondown
$\downharpoonright$	\downharpoonright
$\nearrow$	\neharpoonnw
$\nwarrow$	\nwharpoonsw
$\swarrow$	\swharpoonse
$\searrow$	\seharpoonne
$\rightharpoondown$	\rightharpoondown
$\upharpoonright$	\upharpoonright, \restriction
$\leftharpoonup$	\leftharpoonup
$\downharpoonleft$	\downharpoonleft
$\nearrow$	\neharpoonse
$\nwarrow$	\nwharpoonne
$\swarrow$	\swharpoonnw
$\searrow$	\seharpoonsw
$\leftrightharpoons$	\leftrightharpoonupdown

⥊	\updownharpoonleftright
⤢	\neswharpoonnwse
⤡	\nwseharpoonnesw
⥋	\leftrightharpoondownup
⥍	\updownharpoonrightleft
⤤	\neswharpoonsenw
⤣	\nwseharpoonswne
⇌	\rightleftharpoons
⥮	\updownharpoons, \updownharpoonsleftright
⥯	\neswharpoons
⥰	\senwharpoons
⇋	\leftrightharpoons
⥯	\downupharpoons, \downupharpoonsleftright
⥱	\swneharpoons
⥲	\nwseharpoons
⇢	\rightbkarrow, \dashrightarrow, \dasharrow
⇡	\upbkarrow
⇠	\leftbkarrow, \dashleftarrow
⇣	\downbkarrow
⬀	\nebkarrow
⬁	\nwbkarrow
⬃	\swbkarrow
⬂	\sebkarrow
⊸	\rightspoon, \multimap
⍮	\upspoon, \cirmid
⟜	\leftspoon, \multimapinv
⍫	\downspoon, \midcir
⇻	\rightblackspoon
⍏	\upblackspoon
⇺	\leftblackspoon
⍗	\downblackspoon
⧟	\leftrightspoon, \dualmap
⇹	\leftrightblackspoon
⧿	\blackwhitespoon, \imageof
⧾	\whiteblackspoon, \origof
⪬	\rightpitchfork
⫛	\uppitchfork, \pitchfork
⫷	\leftpitchfork
⫯	\downpitchfork
⇉	\rightrightarrows
⇈	\upuparrows
⇇	\leftleftarrows
⇊	\downdownarrows
⇗	\nenearrows
⇖	\nwnwarrows
⇙	\swswarrows
⇘	\sesearrows
⇄	\rightleftarrows
⇅	\updownarrows
⤯	\neswarrows
⤮	\nwsearrows
⇆	\leftrightarrows
⇵	\downuparrows
⤱	\swnearrows
⤰	\senwarrows
⇝	\rightwavearrow, \leadsto, \rightsquigarrow, \rightcurvedarrow
⥣	\varupwavearrow
⥢	\varleftwavearrow
⥥	\downwavearrow
⥤	\varrightwavearrow
⥣	\upwavearrow
⇜	\leftwavearrow, \leftsquigarrow, \leftcurvedarrow
⥥	\vardownwavearrow
↭	\leftrightwavearrow, \leftrightsquigarrow
⥯	\updownwavearrow
⥊	\varleftrightwavearrow
⥯	\varupdownwavearrow
↷	\cwoverarcarrow, \curvearrowright
⮥	\cwleftarcarrow
⮦	\cwunderarcarrow
⮧	\cwrightarcarrow

↱ \cwnwarcarrow, \rightupcurvedarrow
↰ \cwswarcarrow, \upleftcurvedarrow
↲ \cwsearcarrow, \leftdowncurvedarrow
↳ \cwnearcarrow, \downrightcurvedarrow
⤻ \acwunderarcarrow
⤵ \acwrightarcarrow
⤺ \acwoverarcarrow, \curvearrowleft
⤶ \acwleftarcarrow
⤴ \acwsearcarrow, \uprightcurvearrow
↰ \acwnearcarrow, \leftupcurvedarrow
↶ \acwnwarcarrow, \downleftcurvedarrow
↳ \acwswarcarrow, \rightdowncurvedarrow
⤼ \bdoverarcarrow
⤷ \bdleftarcarrow
⤽ \bdunderarcarrow
⤸ \bdrightarcarrow
⬐ \bdnwarcarrow
⬎ \bdswarcarrow
⬏ \bdsearcarrow
⬑ \bdnearcarrow
⊢ \leftfootline
⊣ \rightfootline
↺ \acwcirclearrowup
↺ \acwcirclearrowleft, \circlearrowleft, \acwopencirclearrow
↺ \acwcirclearrowdown, \acwgapcirclearrow
↺ \acwcirclearrowright
↻ \cwcirclearrowdown, \cwgapcirclearrow
↻ \cwcirclearrowright, \circlearrowright, \cwopencirclearrow
↻ \cwcirclearrowup
↻ \cwcirclearrowleft
⇛ \Rrightarrow
⇑ \Uuparrow
⇚ \Lleftarrow
⇓ \Ddownarrow
⟶ \longrightarrow
⟵ \longleftarrow
⟹ \Longrightarrow
⟸ \Longleftarrow
⟷ \longleftrightarrow
⟺ \Longleftrightarrow
⟼ \longmapsto
⟻ \longmapsfrom
⟾ \Longmapsto
⟽ \Longmapsfrom
⟿ \longrightwavearrow, \longleadsto, \longrightsquigarrow
⟿ \longleftwavearrow, \longleftsquigarrow
⟝ \longleftfootline, \vlongdash
⟞ \longrightfootline, \longdashv
↰ \Lsh
↱ \Rsh
↲ \Ldsh
↳ \Rdsh
↬ \looparrowright
↫ \looparrowleft
⊢ \rightvdash, \vdash
⊥ \upvdash, \perp
⊣ \leftvdash, \dashv
⊤ \downvdash
⊢ \rightassert, \assert, \shortrighttack
⊥ \upassert, \shortuptack

⊣	\leftassert, \shortlefttack	≠	\ndoteq
⊤	\downassert, \shortdowntack	≠	\neqdot
⊨	\rightvDash, \vDash	≠	\nDoteq
⫫	\upvDash, \Vbar	≠	\nfallingdotseq
⫤	\leftvDash, \Dashv	≠	\nrisingdotseq
⫪	\downvDash, \barV	≠	\nsmile
⊨	\rightmodels, \models	≠	\nfrown
⫫	\upmodels	≠	\nsmilefrown, \nasymp
⫤	\leftmodels	≠	\nfrownsmile, \nclosure
⫪	\downmodels	≠	\nsmileeq
⊩	\rightVdash, \Vdash	≠	\nfrowneq, \narceq
⫠	\upVdash	≠	\neqcirc
⫣	\leftVdash, \dashV	≠	\ncirceq
⫧	\downVdash	≠	\nwedgeq, \nhateq
⊩	\rightAssert, \Assert	≠	\nveeeq
⫠	\upAssert, \vBar	≠	\nstareq
⫣	\leftAssert	≠	\ntriangleeq
⫧	\downAssert, \Barv	≠	\nin, \notin
⊫	\rightVDash, \VDash	≠	\nowns, \nni
⫫	\upVDash	≠	\nless
⫤	\leftVDash, \DashV	≠	\ngtr
⫪	\downVDash	≠	\nleq
⊪	\Vvdash	≠	\ngeq
⫣	\dashVv	≠	\nleqslant
⊨	\vDdash	≠	\ngeqslant
⫤	\Ddashv	≠	\nleqq
≠	\nequal, \neq, \ne	≠	\ngeqq
≠	\nequiv	≠	\nlesssim
≠	\nsim	≠	\ngtrsim
≠	\nbacksim	≠	\nlessapprox
≠	\napprox	≠	\ngtrapprox
≠	\ntriplesim, \napproxident	≠	\nlessgtr
≠	\nsimeq, \nsime	≠	\ngtrless
≠	\nbacksimeq	≠	\nlesseqgtr
≠	\neqsim	≠	\ngtreqless
≠	\ncong	≠	\nlesseqqgtr
≠	\nbackcong	≠	\ngtreqqless
≠	\napproxeq	≠	\nlesseqslantgtr, \nlesg
≠	\nbumpeq	≠	\ngtreqslantless, \ngesl
≠	\nbumpeqq	≪	\nll
≠	\nBumpeq	≫	\ngg

⋘ \nlll
⋙ \nggg
⋪ \nlessclosed, \ntriangleleft
⋫ \ngtrclosed, \ntriangleright
⋬ \nleqclosed, \ntrianglelefteq
⋭ \ngeqclosed, \ntrianglerighteq
⪉ \nlesscc, \nltcc
⪊ \ngtrcc, \ngtcc
⪋ \nleqslcc, \nlescc
⪌ \ngeqslcc, \ngescc
⊄ \nsqsubset
⊅ \nsqsupset
⊈ \nsqsubseteq
⊉ \nsqsupseteq
⫋ \nsqsubseteqq
⫌ \nsqsupseteqq
⊊ \nSqsubset
⊋ \nSqsupset
⊄ \nsubset
⊅ \nsupset
⊈ \nsubseteq
⊉ \nsupseteq
⫋ \nsubseteqq
⫌ \nsupseteqq
⋐ \nSubset
⋑ \nSupset
⊀ \nprec
⊁ \nsucc
⪯̸ \npreceq
⪰̸ \nsucceq
⋠ \npreccurlyeq
⋡ \nsucccurlyeq
⪵ \npreceqq
⪶ \nsucceqq
⋨ \nprecsim
⋩ \nsuccsim
⪹ \nprecapprox
⪺ \nsuccapprox
⋦ \nlessdot
⋧ \ngtrdot
⋨ \nleqdot
⋩ \ngeqdot
⩿ \nleqslantdot, \nlesdot
⪀ \ngeqslantdot, \ngesdot
⋦ \neqslantless
⋧ \neqslantgtr
⋞ \ncurlyeqprec
⋟ \ncurlyeqsucc
≆ \simneqq
≇ \backsimneqq
≨ \lneq
≩ \gneq
≨ \lneqq, \lvertneqq
≩ \gneqq, \gvertneqq
⋦ \lnsim
⋧ \gnsim
⪉ \lnapprox
⪊ \gnapprox
⋤ \sqsubsetneq
⋥ \sqsupsetneq
⋤ \sqsubsetneqq
⋥ \sqsupsetneqq
⊊ \subsetneq, \varsubsetneq
⊋ \supsetneq, \varsupsetneq
⫋ \subsetneqq, \varsubsetneqq
⫌ \supsetneqq, \varsupsetneqq
⋠ \precneq
⋡ \succneq
⪵ \precneqq
⪶ \succneqq
⋨ \precnsim
⋩ \succnsim
⪹ \precnapprox
⪺ \succnapprox
↛ \nrightarrow, \nto
↟ \nuparrow
↚ \nleftarrow, \ngets
↡ \ndownarrow

$\nearrow$ \nnearrow
$\nwarrow$ \nnwarrow
$\swarrow$ \nswarrow
$\searrow$ \nsearrow
$\nRightarrow$ \nRightarrow
$\nUparrow$ \nUparrow
$\nLeftarrow$ \nLeftarrow
$\nDownarrow$ \nDownarrow
$\nnearrow$ \nNearrow
$\nnwarrow$ \nNwarrow
$\nswarrow$ \nSwarrow
$\nsearrow$ \nSearrow
$\nleftrightarrow$ \nleftrightarrow
$\nupdownarrow$ \nupdownarrow
$\nneswarrow$ \nneswarrow
$\nnwsearrow$ \nnwsearrow
$\nLeftrightarrow$ \nLeftrightarrow
$\nUpdownarrow$ \nUpdownarrow
$\nneswarrow$ \nNeswarrow
$\nnwsearrow$ \nNwsearrow
$\ntwoheadrightarrow$ \ntwoheadrightarrow
$\ntwoheaduparrow$ \ntwoheaduparrow
$\ntwoheadleftarrow$ \ntwoheadleftarrow
$\ntwoheaddownarrow$ \ntwoheaddownarrow
$\ntwoheadnearrow$ \ntwoheadnearrow
$\ntwoheadnwarrow$ \ntwoheadnwarrow
$\ntwoheadswarrow$ \ntwoheadswarrow
$\ntwoheadsearrow$ \ntwoheadsearrow
$\nrightarrowtail$ \nrightarrowtail
$\nuparrowtail$ \nuparrowtail
$\nleftarrowtail$ \nleftarrowtail
$\ndownarrowtail$ \ndownarrowtail
$\nnearrowtail$ \nnearrowtail
$\nnwarrowtail$ \nnwarrowtail
$\nswarrowtail$ \nswarrowtail
$\nsearrowtail$ \nsearrowtail
$\nrightmapsto$ \nrightmapsto, \nmapsto
$\nupmapsto$ \nupmapsto, \nmapsup
$\nleftmapsto$ \nleftmapsto, \nmapsfrom
$\ndownmapsto$ \ndownmapsto, \nmapsdown
$\nRightmapsto$ \nRightmapsto, \nMapsto
$\nUpmapsto$ \nUpmapsto, \nMapsup
$\nLeftmapsto$ \nLeftmapsto, \nMapsfrom
$\nDownmapsto$ \nDownmapsto, \nMapsdown
$\nhookrightarrow$ \nhookrightarrow
$\nhookuparrow$ \nhookuparrow
$\nvarhookleftarrow$ \nvarhookleftarrow
$\nvarhookdownarrow$ \nvarhookdownarrow
$\nvarhooknearrow$ \nvarhooknearrow
$\nhooknwarrow$ \nhooknwarrow, \nhknwarrow
$\nvarhookswarrow$ \nvarhookswarrow
$\nhooksearrow$ \nhooksearrow, \nhksearrow
$\nvarhookrightarrow$ \nvarhookrightarrow
$\nvarhookuparrow$ \nvarhookuparrow
$\nhookleftarrow$ \nhookleftarrow
$\nhookdownarrow$ \nhookdownarrow
$\nhooknearrow$ \nhooknearrow, \nhknearrow
$\nvarhooknwarrow$ \nvarhooknwarrow
$\nhookswarrow$ \nhookswarrow, \nhkswarrow
$\nvarhooksearrow$ \nvarhooksearrow
$\nrightharpoonup$ \nrightharpoonup
$\nupharpoonleft$ \nupharpoonleft
$\nleftharpoondown$ \nleftharpoondown
$\ndownharpoonright$ \ndownharpoonright
$\nneharpoonnw$ \nneharpoonnw
$\nnwharpoonsw$ \nnwharpoonsw
$\nswharpoonse$ \nswharpoonse
$\nseharpoonne$ \nseharpoonne
$\nrightharpoondown$ \nrightharpoondown
$\nupharpoonright$ \nupharpoonright, \nrestriction
$\nleftharpoonup$ \nleftharpoonup
$\ndownharpoonleft$ \ndownharpoonleft
$\nneharpoonse$ \nneharpoonse
$\nnwharpoonne$ \nnwharpoonne
$\nswharpoonnw$ \nswharpoonnw
$\nseharpoonsw$ \nseharpoonsw
$\nleftrightharpoonupdown$ \nleftrightharpoonupdown
$\nupdownharpoonleftright$ \nupdownharpoonleftright
$\nneswharpoonnwse$ \nneswharpoonnwse
$\nnwseharpoonnesw$ \nnwseharpoonnesw
$\nleftrightharpoondownup$ \nleftrightharpoondownup

$\nupdownharpoonrightleft$ \nupdownharpoonrightleft
$\nneswharpoonsenw$ \nneswharpoonsenw
$\nnwseharpoonswne$ \nnwseharpoonswne
$\nrightleftharpoons$ \nrightleftharpoons
$\nupdownharpoons$ \nupdownharpoons, \nupdownharpoonsleftright
$\nneswharpoons$ \nneswharpoons
$\nsenwharpoons$ \nsenwharpoons
$\nleftrightharpoons$ \nleftrightharpoons
$\ndownupharpoons$ \ndownupharpoons, \ndownupharpoonsleftright
$\nswneharpoons$ \nswneharpoons
$\nnwseharpoons$ \nnwseharpoons
$\nrightbkarrow$ \nrightbkarrow, \ndasharrow, \ndashrightarrow
$\nupbkarrow$ \nupbkarrow
$\nleftbkarrow$ \nleftbkarrow, \ndashleftarrow
$\ndownbkarrow$ \ndownbkarrow
$\nnebkarrow$ \nnebkarrow
$\nnwbkarrow$ \nnwbkarrow
$\nswbkarrow$ \nswbkarrow
$\nsebkarrow$ \nsebkarrow
$\nrightspoon$ \nrightspoon, \nmultimap
$\nupspoon$ \nupspoon, \ncirmid
$\nleftspoon$ \nleftspoon, \nmultimapinv
$\ndownspoon$ \ndownspoon, \nmidcir
$\nrightblackspoon$ \nrightblackspoon
$\nupblackspoon$ \nupblackspoon
$\nleftblackspoon$ \nleftblackspoon
$\ndownblackspoon$ \ndownblackspoon
$\nleftrightspoon$ \nleftrightspoon, \ndualmap
$\nleftrightblackspoon$ \nleftrightblackspoon
$\nblackwhitespoon$ \nblackwhitespoon, \nimageof
$\nwhiteblackspoon$ \nwhiteblackspoon, \norigof
$\nrightpitchfork$ \nrightpitchfork
$\nuppitchfork$ \nuppitchfork, \npitchfork
$\nleftpitchfork$ \nleftpitchfork
$\ndownpitchfork$ \ndownpitchfork
$\nrightrightarrows$ \nrightrightarrows
$\nupuparrows$ \nupuparrows
$\nleftleftarrows$ \nleftleftarrows
$\ndowndownarrows$ \ndowndownarrows
$\nnenearrows$ \nnenearrows
$\nnwnwarrows$ \nnwnwarrows
$\nswswarrows$ \nswswarrows
$\nsesearrows$ \nsesearrows
$\nrightleftarrows$ \nrightleftarrows
$\nupdownarrows$ \nupdownarrows
$\nneswarrows$ \nneswarrows
$\nnwsearrows$ \nnwsearrows
$\nleftrightarrows$ \nleftrightarrows
$\ndownuparrows$ \ndownuparrows
$\nswnearrows$ \nswnearrows
$\nsenwarrows$ \nsenwarrows
$\nrightwavearrow$ \nrightwavearrow, \nleadsto, \nrightsquigarrow, \nrightcurvedarrow
$\nvarupwavearrow$ \nvarupwavearrow
$\nvarleftwavearrow$ \nvarleftwavearrow
$\ndownwavearrow$ \ndownwavearrow
$\nvarrightwavearrow$ \nvarrightwavearrow
$\nupwavearrow$ \nupwavearrow
$\nleftwavearrow$ \nleftwavearrow, \nleftsquigarrow, \nleftcurvedarrow
$\nvardownwavearrow$ \nvardownwavearrow
$\nleftrightwavearrow$ \nleftrightwavearrow, \nleftrightsquigarrow
$\nupdownwavearrow$ \nupdownwavearrow
$\nvarleftrightwavearrow$ \nvarleftrightwavearrow
$\nvarupdownwavearrow$ \nvarupdownwavearrow
$\ncwoverarcarrow$ \ncwoverarcarrow, \ncurvearrowright
$\ncwleftarcarrow$ \ncwleftarcarrow
$\ncwunderarcarrow$ \ncwunderarcarrow
$\ncwrightarcarrow$ \ncwrightarcarrow
$\ncwnwarcarrow$ \ncwnwarcarrow, \nrightupcurvedarrow

$\nwarrow\!\!\!\!\searrow$ \ncwswarcarrow, \nupleftcurvedarrow

$\nearrow\!\!\!\!\searrow$ \ncwsearcarrow, \nleftdowncurvedarrow

$\nwarrow\!\!\!\!\downarrow$ \ncwnearcarrow, \ndownrightcurvedarrow

$\nwarrow\!\!\!\!\underline{}$ \nacwunderarcarrow

$\nwarrow\!\!\!\!\rightarrow$ \nacwrightarcarrow

$\nwarrow\!\!\!\!\overline{}$ \nacwoverarcarrow, \ncurvearrowleft

$\nwarrow\!\!\!\!\leftarrow$ \nacwleftarcarrow

$\nearrow\!\!\!\!\searrow$ \nacwsearcarrow, \nuprightcurvearrow

$\nearrow\!\!\!\!\uparrow$ \nacwnearcarrow, \nleftupcurvedarrow

$\nwarrow\!\!\!\!\searrow$ \nacwnwarcarrow, \ndownleftcurvedarrow

$\nearrow\!\!\!\!\searrow$ \nacwswarcarrow, \nrightdowncurvedarrow

$\nearrow\!\!\!\!\overline{}$ \nbdoverarcarrow

$\nearrow\!\!\!\!\leftarrow$ \nbdleftarcarrow

$\nearrow\!\!\!\!\underline{}$ \nbdunderarcarrow

$\nearrow\!\!\!\!\rightarrow$ \nbdrightarcarrow

$\nearrow\!\!\!\!\nwarrow$ \nbdnwarcarrow

$\nearrow\!\!\!\!\swarrow$ \nbdswarcarrow

$\nearrow\!\!\!\!\searrow$ \nbdsearcarrow

$\nearrow\!\!\!\!\nearrow$ \nbdnearcarrow

$\nmid\!\!\!\!\leftarrow$ \nleftfootline

$\nmid\!\!\!\!\rightarrow$ \nrightfootline

$\circlearrowleft\!\!\!\!\uparrow$ \nacwcirclearrowup

$\circlearrowleft\!\!\!\!\leftarrow$ \nacwcirclearrowleft, \ncirclearrowleft, \nacwopencirclearrow

$\circlearrowleft\!\!\!\!\downarrow$ \nacwcirclearrowdown, \nacwgapcirclearrow

$\circlearrowleft\!\!\!\!\rightarrow$ \nacwcirclearrowright

$\circlearrowright\!\!\!\!\downarrow$ \ncwcirclearrowdown, \ncwgapcirclearrow

$\circlearrowright\!\!\!\!\rightarrow$ \ncwcirclearrowright, \ncirclearrowright, \ncwopencirclearrow

$\circlearrowright\!\!\!\!\uparrow$ \ncwcirclearrowup

$\circlearrowright\!\!\!\!\leftarrow$ \ncwcirclearrowleft

$\nRightarrow$ \nRrightarrow

$\nUparrow$ \nUuparrow

$\nLeftarrow$ \nLleftarrow

$\nDownarrow$ \nDdownarrow

$\nleftrightarrow\!\!\!\!\rightarrow$ \nlongrightarrow

$\nleftrightarrow\!\!\!\!\leftarrow$ \nlongleftarrow

$\nLeftrightarrow\!\!\!\!\Rightarrow$ \nLongrightarrow

$\nLeftrightarrow\!\!\!\!\Leftarrow$ \nLongleftarrow

$\nleftrightarrow$ \nlongleftrightarrow

$\nLeftrightarrow$ \nLongleftrightarrow

$\mapsto\!\!\!\!\rightarrow$ \nlongmapsto

$\leftarrow\!\!\!\!\mapsto$ \nlongmapsfrom

$\mapsto\!\!\!\!\Rightarrow$ \nLongmapsto

$\Leftarrow\!\!\!\!\mapsto$ \nLongmapsfrom

$\rightsquigarrow$ \nlongrightwavearrow, \nlongleadsto, \nlongrightsquigarrow

$\leftsquigarrow$ \nlongleftwavearrow, \nlongleftsquigarrow

$\mapsto\!\!\!\!\leftarrow$ \nlongleftfootline, \nvlongdash

$\nmid\!\!\!\!\rightarrow$ \nlongrightfootline, \nlongdashv

$\nvdash$ \nrightvdash, \nvdash

$\nperp$ \nupvdash, \nperp

$\ndashv$ \nleftvdash, \ndashv

$\ndownvdash$ \ndownvdash

$\nvDash$ \nrightassert, \nassert, \nshortrighttack

$\nshortuptack$ \nupassert, \nshortuptack

$\nshortlefttack$ \nleftassert, \nshortlefttack

$\nshortdowntack$ \ndownassert, \nshortdowntack

$\nVdash$ \nrightvDash, \nvDash

$\nVbar$ \nupvDash, \nVbar

$\nDashv$ \nleftvDash, \nDashv

$\nbarV$ \ndownvDash, \nbarV

$\nmodels$ \nrightmodels, \nmodels

⫫	\nupmodels
⫤	\nleftmodels
⫬	\ndownmodels
⊮	\nrightVdash, \nVdash
⫣	\nupVdash
⫢	\nleftVdash, \ndashV
⫥	\ndownVdash
⊯	\nrightAssert, \nAssert
⫡	\nupAssert, \nvBar
⫠	\nleftAssert
⫦	\ndownAssert, \nBarv
⊭	\nrightVDash, \nVDash
⫪	\nupVDash
⫩	\nleftVDash, \nDashV
⫧	\ndownVDash
⊱	\nVvdash
⫨	\ndashVv
⫲	\nvDdash
⫱	\nDdashv

:	:, \mathratio
::	\Colon
−	\relbar
≒	\dotsminusdots
⋊	\rJoin
⋉	\lJoin
⋈	\bowtie, \Join
∝	\propto, \varpropto
∞	\backpropto, \propfrom
⤫	\crossing
≬	\between
∣	\shortmid
|	\mid, \divides
∤	\nshortmid
∦	\nmid, \ndivides
∥	\shortparallel
‖	\parallel
∦	\nshortparallel
∦	\nparallel

5.4 Punctuation symbols

·	\cdotp
:	\colon, \mathcolon

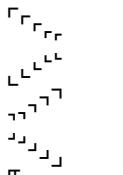
5.5 Large operators

⨦	⨦	\bigplus
⨉	⨉	\bigtimes
⋀	⋀	\bigwedge
⋁	⋁	\bigvee
⩀	⩀	\bigwedgedot
⩁	⩁	\bigveedot
⩓	⩓	\bigdoublewedge, \conjquant
⩔	⩔	\bigdoublevee, \disjquant
⩗	⩗	\bigcurlywedge
⩖	⩖	\bigcurlyvee
⋂	⋂	\bigcap
⋃	⋃	\bigcup
⨃	⨃	\bigcapdot
⨄	⨄	\bigcupdot
⨅	⨅	\bigcapplus
⨄	⨄	\bigcupplus, \biguplus
⨅	⨅	\bigsqcap
⨆	⨆	\bigsqcup
⨅	⨅	\bigsqcapdot
⨆	⨆	\bigsqcupdot
⨅	⨅	\bigsqcapplus
⨆	⨆	\bigsqcupplus
⨁	⨁	\bigoplus

$\bigotimes$	$\bigotimes$	\bigotimes
$\bigodot$	$\bigodot$	\bigodot
$\bigoast$	$\bigoast$	\bigoast
$\prod$	$\prod$	\prod
$\coprod$	$\coprod$	\coprod
$\sum$	$\sum$	\sum
$\osum$	$\osum$	\osum, \modtwosum
$\int$	$\int$	\int
$\iint$	$\iint$	\iint
$\iiint$	$\iiint$	\iiint
$\iiiint$	$\iiiint$	\iiiint
$\int\cdots\int$	$\int\cdots\int$	\idotsint, \dotsint
$\landupint$	$\landupint$	\landupint, \intclockwise
$\landdownint$	$\landdownint$	\landdownint, \awint, \intctrclockwise
$\intbar$	$\intbar$	\intbar
$\intBar$	$\intBar$	\intBar
$\fint$	$\fint$	\fint
$\oint$	$\oint$	\oint
$\oiint$	$\oiint$	\oiint
$\oiiint$	$\oiiint$	\oiiint
$\rcirclerightint$	$\rcirclerightint$	\rcirclerightint, \ointctrclockwise
$\lcirclerightint$	$\lcirclerightint$	\lcirclerightint, \varointclockwise
$\rcircleleftint$	$\rcircleleftint$	\rcircleleftint, \varointctrclockwise
$\lcircleleftint$	$\lcircleleftint$	\lcircleleftint, \ointclockwise
$\sumint$	$\sumint$	\sumint
$\smallprod$	$\smallprod$	\smallprod
$\smallcoprod$	$\smallcoprod$	\smallcoprod
$\smallint$	$\smallint$	\smallint
$\surd$	$\surd$	\surd

5.6 Delimiters and accents

$(((((($	(, \lparen
$))))))$	), \rparen
$[[[[[$	[, \lbrack
$]]]]]$	], \rbrack
$\lfloor\lfloor\lfloor\lfloor$	\lfloor
$\rfloor\rfloor\rfloor\rfloor$	\rfloor
$\lceil\lceil\lceil\lceil\lceil$	\lceil
$\rceil\rceil\rceil\rceil\rceil$	\rceil
$\ulcorner\ulcorner\ulcorner\ulcorner\ulcorner$	\ulcorner
$\urcorner\urcorner\urcorner\urcorner\urcorner$	\urcorner
$\llcorner\llcorner\llcorner\llcorner\llcorner$	\llcorner
$\lrcorner\lrcorner\lrcorner\lrcorner\lrcorner$	\lrcorner

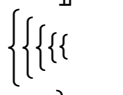


\ullcorner

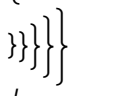
\ulrcorner

\lsem, \lBrack

\rsem, \rBrack



\lbrace, \{



\rbrace, \}

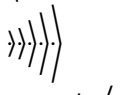
\langle

\rangle

\lAngle

\rAngle

\langledot



\rangledot

/, \mathslash

\backslash

|, \vert

\lvert

\rvert

\Vert, \|

\lVert

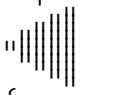
\rVert

\Vvert

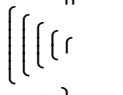
\lVvert

\rVvert

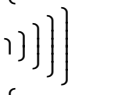
\arrowvert



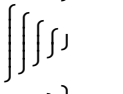
\Arrowvert



\lgroup



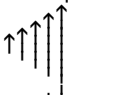
\rgroup



\lmoustache

\rmoustache

\bracevert



\uparrow

\downarrow

\updownarrow

\Uparrow

\Downarrow

\Updownarrow

$\overbrace{xxx}$ \overbrace
$\underbrace{xxx}$ \underbrace
$\overgroup{xxx}$ \overgroup
$\undergroup{xxx}$ \undergroup

$\sqrt{b}$ \sqrt
$\widehat{xxx}$ \widehat
$\widetilde{xxx}$ \widetilde
$\wideparen{xxx}$ \wideparen

$\overlinesegment{xxx}$ \overlinesegment
$\overleftharpoon{xxx}$ \overleftharpoon
$\overrightharpoon{xxx}$ \overrightharpoon
$\underlinesegment{xxx}$ \underlinesegment

$\vec{b}$ \vec
$\middlebar$ \middlebar
$\middleslash$ \middleslash
$\strokethrough$ \strokethrough

5.7 Faked symbols

The following symbols are taken from the text font.

† \dagger
‡ \ddagger
¶ \mathparagraph
§ \mathsection
$ \mathdollar
£ \mathsterling
¥ \yen

ħ \hbar
ħ \hslash
Ⓡ \circledR
Ⓢ \circledS
ƛ \lambdabar
ƛ \lambdaslash

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.

\mho
\eth
\digamma
\varkappa
\backepsilon
\mapstochar
\lhook
\rhook
\diagup
\diagdown
\Bbbk

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.

```
\define@boolkey{MdSymbol.sty}[mdsy@]{largedelims}[true]{}
```

The following option determines whether faked symbols should be defined.

```
\define@boolkey{MdSymbol.sty}[mdsy@]{retainmissing}[true]{}
```

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

```
\newcommand{\mdsy@scale}{1.0}
\define@key{MdSymbol.sty}{scale}{\renewcommand\mdsy@scale{#1}}
```

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

```
\define@boolkey{MdSymbol.sty}[mdsy@]{onlysansmath}[true]{}
```

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

```
\newcommand\mdsy@mweight@normal{Regular}
\newcommand\mdsy@mweight@small{Regular}
\newcommand\mdsy@bweight@normal{Semibold}
\newcommand\mdsy@bweight@small{Semibold}
\mdsy@choicekey{normalweight}{light,regular,autolight,autoregular}{%
  \ifcase\@tempb\relax
    \renewcommand\mdsy@mweight@normal{Light}%
    \renewcommand\mdsy@mweight@small{Light}%
  \or
    \renewcommand\mdsy@mweight@normal{Regular}%
    \renewcommand\mdsy@mweight@small{Regular}%
  \or
    \renewcommand\mdsy@mweight@normal{Light}%
    \renewcommand\mdsy@mweight@small{Regular}%
  \or
    \renewcommand\mdsy@mweight@normal{Regular}%
    \renewcommand\mdsy@mweight@small{Semibold}%
  \fi
}
\mdsy@choicekey{boldweight}{semibold,bold,autosemibold}{%
  \ifcase\@tempb\relax
    \renewcommand\mdsy@bweight@normal{Semibold}%
    \renewcommand\mdsy@bweight@small{Semibold}%
  \or
    \renewcommand\mdsy@bweight@normal{Bold}%
    \renewcommand\mdsy@bweight@small{Bold}%
  \or
    \renewcommand\mdsy@bweight@normal{Semibold}%
    \renewcommand\mdsy@bweight@small{Bold}%
  \fi
}
\ExecuteOptionsX{largedelims=false,onlysansmath=false,retainmissing=false}
\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.

```
\@ifpackageloaded{amsmath}{}{\RequirePackage{amsmath}}
\@ifpackageloaded{textcomp}{}{\RequirePackage{textcomp}}
```

Command to check whether tabular math version is available

```
\newcommand*\mdsy@if@tabular@math[1]{%
  #1%
}
```

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.

```
\ifmdsy@onlysansmath
  \DeclareMathVersion{sans}
  \DeclareMathVersion{sansbold}
  \mdsy@if@tabular@math{%
    \DeclareMathVersion{sanstabular}%
    \DeclareMathVersion{sansboldtabular}}

  \newif\if@mdsy@sans@

  \let\mathversion@old\mathversion
  \def\sans@version{sans}
  \def\sans@version@bold{sansbold}
  \def\sans@version@tab{sanstabular}
  \def\sans@version@bold@tab{sansboldtabular}
  \renewcommand{\mathversion}[1]{%
    \mathversion@old{#1}%
    \@mdsy@sans@false%
    \ifx\math@version\sans@version%
      \@mdsy@sans@true%
    \fi%
    \ifx\math@version\sans@version@bold%
      \@mdsy@sans@true%
    \fi%
    \ifx\math@version\sans@version@tab%
      \@mdsy@sans@true%
    \fi%
    \ifx\math@version\sans@version@bold@tab%
      \@mdsy@sans@true%
    \fi%
  }
\fi
\def\ifmathversionsans{%
  \if@mdsy@sans@
```

```
    \expandafter\@firstoftwo
  \else
    \expandafter\@secondoftwo
  \fi
}
```

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.

```
\RequirePackage{etoolbox}

\newcommand\mdsy@setslot[1]{\@tempcnta #1\relax}
\newcommand\mdsy@nextslot{\advance\@tempcnta 1\relax}
\newcommand\mdsy@prevslot{\advance\@tempcnta-1\relax}

\newcommand\mdsy@@DeclareSymbol[4]{\expandafter\DeclareMathSymbol\expandafter{\csname

\ifmdsy@onlysansmath
  \newcommand\mdsy@DeclareSymbol[3]{%
    \ifcsdef{#1}{%
      \csletcs{#1@old}{#1}%
    }{\expandafter\mdsy@@DeclareSymbol\expandafter{\the\@tempcnta}{#1}{#3}{#2}%
      \csletcs{#1@old}{#1}}
    \expandafter\mdsy@@DeclareSymbol\expandafter{\the\@tempcnta}{sans#1}{#3}{#2}%
%    \csletcs{#1@new}{sans#1}
    \csundef{#1}%
    \csdef{#1}{\ifmathversionsans{\csname sans#1\endcsname}{\csname#1@old\endcsname}}
    \mdsy@nextslot
  }
  \newcommand\mdsy@DeclareDelimiter[4]{%
    \ifcsdef{#1}{%
      \csletcs{#1@old}{#1}%
    }{\expandafter\DeclareMathDelimiter\expandafter{\csname#1\endcsname}{#2}{#3}{#4}{
      \csletcs{#1@old}{#1}}%
    \expandafter\DeclareMathDelimiter\expandafter{\csname sans#1\endcsname}{#2}{#3}{#
%    \csletcs{#1@new}{sans#1}
    \csundef{#1}%
    \csdef{#1}{\ifmathversionsans{\csname sans#1\endcsname}{\csname#1@old\endcsname}}
  }
  \newcommand\mdsy@DeclareOperator[3]{%
    \ifcsdef{#1}{%
      \csletcs{#1@old}{#1}%
    }{\csdef{#1}{\DOTSB#3\slimits@}
      \csletcs{#1@old}{#1}}%
    \csdef{sans#1}{\DOTSB#3\slimits@}
%    \csletcs{#1@new}{sans#1}
```

```
    \csundef{#1}%
    \csdef{#1}{\ifmathversionsans{\csname sans#1\endcsname}{\csname#1@old\endcsname}}
  }
  \newcommand\mdsy@DeclareIntegral[3]{%
    \ifcsdef{#1}{%
      \csletcs{#1@old}{#1}%
    }{\csdef{#1}{\DOTSI#3\ilimits@}
      \csletcs{#1@old}{#1}}%
    \csdef{sans#1}{\DOTSI#3\ilimits@}%
%    \csletcs{#1@new}{sans#1}
    \csundef{#1}%
    \csdef{#1}{\ifmathversionsans{\csname sans#1\endcsname}{\csname#1@old\endcsname}}
  }
  \newcommand\mdsy@DeclareMathSymbol[4]{%
    \ifcsdef{#1}{%
      \csletcs{#1@old}{#1}%
    }{\expandafter\DeclareMathSymbol\expandafter{\csname#1\endcsname}{#2}{#3}{#4}%
      \csletcs{#1@old}{#1}}%
    \expandafter\DeclareMathSymbol\expandafter{\csname sans#1\endcsname}{#2}{#3}{#4}%
%    \csletcs{#1@new}{sans#1}
    \csundef{#1}%
    \csdef{#1}{\ifmathversionsans{\csname sans#1\endcsname}{\csname#1@old\endcsname}}
  }
  \newcommand\mdsy@DeclareMathDelimiter[6]{%
    \ifcsdef{#1}{%
      \csletcs{#1@old}{#1}%
    }{\expandafter\DeclareMathDelimiter\expandafter{\csname#1\endcsname}{#2}{#3}{#4}{
      \csletcs{#1@old}{#1}}%
    \expandafter\DeclareMathDelimiter\expandafter{\csname sans#1\endcsname}{#2}{#3}{#
%    \csletcs{#1@new}{sans#1}
    \csundef{#1}%
    \csdef{#1}{\ifmathversionsans{\csname sans#1\endcsname}{\csname#1@old\endcsname}}
  }
  \newcommand\mdsy@DeclareMathAccent[4]{%
    \ifcsdef{#1}{%
      \csletcs{#1@old}{#1}%
    }{\expandafter\DeclareMathAccent\expandafter{\csname#1\endcsname}{#2}{#3}{#4}%
      \csletcs{#1@old}{#1}}%
    \expandafter\DeclareMathAccent\expandafter{\csname sans#1\endcsname}{#2}{#3}{#4}%
%    \csletcs{#1@new}{sans#1}
    \csundef{#1}%
    \csdef{#1}{\ifmathversionsans{\csname sans#1\endcsname}{\csname#1@old\endcsname}}
  }
  \newcommand\mdsy@DeclareMathRadical[5]{%
    \ifcsdef{#1}{%
```

```
      \csletcs{#1@old}{#1}%
    }{\expandafter\DeclareMathRadical\expandafter{\csname#1\endcsname}{#2}{#3}{#4}{#5
      \csletcs{#1@old}{#1}}%
    \expandafter\DeclareMathRadical\expandafter{\csname sans#1\endcsname}{#2}{#3}{#4}
%    \csletcs{#1@new}{sans#1}
    \csundef{#1}%
    \csdef{#1}{\ifmathversionsans{\csname sans#1\endcsname}{\csname#1@old\endcsname}}
  }
  \newcommand{\mdsy@DeclareActiveMathSymbol}[4]{%
    \ifnum\mathcode‘#1="8000 %
    \errmessage{‘#1’ is already active}%
    \fi
    \expandafter\mathchardef\csname#1@old\endcsname=\mathcode‘#1 %
    \expandafter\DeclareMathSymbol\csname#1@new\endcsname{#2}{#3}{#4}
    \begingroup
    \lccode‘\~=‘#1 %
    \lowercase{\endgroup
      \def~%
    }{\ifmathversionsans{\csname#1@new\endcsname}{\csname#1@old\endcsname}}%
    \mathcode‘#1="8000 %
  }
  \newcommand{\mdsy@DeclareActiveMathDelimiter}[4]{%
    % don’t know how to implement an active math delimiter; so de-
clare
    % it as an active math symbol instead
    \mdsy@DeclareActiveMathSymbol{#1}{#2}{#3}{#4}
  }
  \newcommand{\mdsy@renewcommand}[2]{%
    \ifcsdef{#1}{%
      \csletcs{#1@old}{#1}%
    }{%
      \expandafter\newcommand\csname #1@old\endcsname{#2}%
    }%
    \expandafter\newcommand\csname sans#1\endcsname{#2}%
    \csundef{#1}%
    \csdef{#1}{\ifmathversionsans{\csname sans#1\endcsname}{\csname#1@old\endcsname}}
  }
  \newcommand{\mdsy@DeclareRobustCommandArg}[3]{%
    \ifcsdef{#1}{%
      \csletcs{#1@old}{#1}%
    }{%
      \expandafter\DeclareRobustCommand\csname#1\endcsname[#2]{#3}%
      \csletcs{#1@old}{#1}%
    }%
    \expandafter\DeclareRobustCommand\csname sans#1\endcsname[#2]{#3}%
```

```
    \csundef{#1}%
    \csdef{#1}{\ifmathversionsans{\csname sans#1\endcsname}{\csname#1@old\endcsname}}
  }
  \newcommand{\mdsy@DeclareRobustCommand}[2]{%
    \ifcsdef{#1}{%
      \csletcs{#1@old}{#1}%
    }{%
      \expandafter\DeclareRobustCommand\csname#1\endcsname{#2}%
      \csletcs{#1@old}{#1}%
    }%
    \expandafter\DeclareRobustCommand\csname sans#1\endcsname{#2}%
    \csundef{#1}%
    \csdef{#1}{\ifmathversionsans{\csname sans#1\endcsname}{\csname#1@old\endcsname}}
  }
\else
  \let\ifmathversionsans\undefined
  \newcommand\mdsy@DeclareSymbol[3]{%
    \csundef{#1}%
    \expandafter\mdsy@@DeclareSymbol\expandafter{\the\@tempcnta}{#1}{#3}{#2}%
    \mdsy@nextslot
  }
  \newcommand\mdsy@DeclareDelimiter[4]{%
    \csundef{#1}%
    \expandafter\DeclareMathDelimiter\expandafter{\csname#1\endcsname}{#2}{#3}{#4}{#3
  }
  \newcommand\mdsy@DeclareOperator[3]{%
    \csdef{#1}{\DOTSB#3\slimits@}%
  }
  \newcommand\mdsy@DeclareIntegral[3]{%
    \csdef{#1}{\DOTSI#3\ilimits@}%
  }
  \newcommand\mdsy@DeclareMathSymbol[4]{%
    \expandafter\DeclareMathSymbol\expandafter{\csname#1\endcsname}{#2}{#3}{#4}%
  }
  \newcommand\mdsy@DeclareMathDelimiter[6]{%
    \expandafter\DeclareMathDelimiter\expandafter{\csname#1\endcsname}{#2}{#3}{#4}{#5
  }
  \newcommand\mdsy@DeclareMathAccent[4]{%
    \expandafter\DeclareMathAccent\expandafter{\csname#1\endcsname}{#2}{#3}{#4}%
  }
  \newcommand\mdsy@DeclareMathRadical[5]{%
    \expandafter\DeclareMathRadical\expandafter{\csname#1\endcsname}{#2}{#3}{#4}{#5}%
  }
  \newcommand\mdsy@DeclareActiveMathSymbol[4]{%
    \DeclareMathSymbol{#1}{#2}{#3}{#4}%
```

```
  }
  \newcommand\mdsy@DeclareActiveMathDelimiter[4]{%
    \DeclareMathDelimiter{#1}{#2}{#3}{#4}{#3}{#4}%
  }
  \newcommand{\mdsy@renewcommand}[2]{%
    \expandafter\providecommand\csname #1\endcsname{#2}%
  }
  \newcommand{\mdsy@DeclareRobustCommand}[2]{%
    \expandafter\DeclareRobustCommand\csname#1\endcsname{#2}%
  }
  \newcommand{\mdsy@DeclareRobustCommandArg}[3]{%
    \expandafter\DeclareRobustCommand\csname#1\endcsname[#2]{#3}%
  }
\fi

\newcommand\mdsy@DeclareAlias[3]{\mdsy@prevslot\mdsy@DeclareSymbol{#1}{#2}{#3}}

\newcommand\mdsy@DeclareOpen[3]{\mdsy@DeclareDelimiter{#1}{\mathopen}{#2}{#3}}
\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.

```
\ifmdsy@largedelims
  \mdsy@renewcommand{Big}{\bBigg@{1.25}}
  \mdsy@renewcommand{bigg}{\bBigg@{1.66}}
  \mdsy@renewcommand{Bigg}{\bBigg@{2.08}}
\fi
```

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

```
\ifmdsy@retainmissing
\else
  \mdsy@DeclareRobustCommand{dagger}{\mdsy@text{\textdagger}}
  \mdsy@DeclareRobustCommand{ddagger}{\mdsy@text{\textdaggerdbl}}
  \mdsy@DeclareRobustCommand{mathparagraph}{\mdsy@text{\textparagraph}}
  \mdsy@DeclareRobustCommand{mathsection}{\mdsy@text{\textsection}}
  \mdsy@DeclareRobustCommand{mathdollar}{\mdsy@text{\textdollar}}
  \mdsy@DeclareRobustCommand{mathsterling}{\mdsy@text{\textsterling}}
  \mdsy@DeclareRobustCommand{yen}{\mdsy@text{\textyen}}
  \mdsy@DeclareRobustCommand{circledR}{\mdsy@text{\textcircled{%
        \check@mathfonts\fontsize\sf@size\z@\math@fontsfalse\selectfont R}}}
  \mdsy@DeclareRobustCommand{circledS}{\mdsy@text{\textcircled{%
        \check@mathfonts\fontsize\sf@size\z@\math@fontsfalse\selectfont S}}}
  \mdsy@DeclareRobustCommand{Re}{\mathfrak{R}}
  \mdsy@DeclareRobustCommand{Im}{\mathfrak{I}}
  \mdsy@DeclareRobustCommand{dotcong}{\mathrel{\dot{\cong}}}
```

```
  \mdsy@DeclareRobustCommand{thicksim}{\mathrel{\text{\boldmath$\m@th\sim$}}}
  \mdsy@DeclareRobustCommand{thickapprox}{\mathrel{\text{\boldmath$\m@th\approx$}}}
  \mdsy@DeclareRobustCommand{hslash}{\middleslash h}
  \mdsy@DeclareRobustCommand{centerdot}{\mathbin{\rule{0.15em}{0.15em}}}
  \mdsy@DeclareRobustCommand{lambdabar}{\middlebar\lambda}
  \mdsy@DeclareRobustCommand{lambdaslash}{\middleslash\lambda}
  \@ifpackageloaded{MyriadPro}{}{%
    \mdsy@DeclareRobustCommand{hbar}{\middlebar h}%
  }
\fi
```

Unneeded partial symbols.

```
\ifmdsy@onlysansmath
\else
  \let\mapstochar\undefined
  \let\lhook\undefined
  \let\rhook\undefined
\fi
```

Font definitions.

```
\DeclareFontFamily{U}{MdSymbolA}{}
\DeclareFontFamily{U}{MdSymbolB}{}
\DeclareFontFamily{U}{MdSymbolC}{}
\DeclareFontFamily{U}{MdSymbolD}{}
\DeclareFontFamily{U}{MdSymbolE}{}
\DeclareFontFamily{U}{MdSymbolF}{}

\RequirePackage{fltpoint}
\fpDecimalSign{.}
\newcommand*{\mdsy@calc@bsize}[2]{\fpDiv{#1}{#2}{\mdsy@scale}}

\mdsy@calc@bsize{\mdsy@s@medium}{6}
\mdsy@calc@bsize{\mdsy@s@bold}{6}

\DeclareFontShape{U}{MdSymbolA}{m}{n}{
    <              -\mdsy@s@medium> s * [\mdsy@scale] MdSymbolA-\mdsy@mweight@small
    <\mdsy@s@medium-             > s * [\mdsy@scale] MdSymbolA-\mdsy@mweight@normal
}{}
\DeclareFontShape{U}{MdSymbolA}{b}{n}{
    <              -  \mdsy@s@bold> s * [\mdsy@scale] MdSymbolA-\mdsy@bweight@small
    <\mdsy@s@bold  -             > s * [\mdsy@scale] MdSymbolA-\mdsy@bweight@normal
}{}
\DeclareFontShape{U}{MdSymbolB}{m}{n}{
    <              -\mdsy@s@medium> s * [\mdsy@scale] MdSymbolB-\mdsy@mweight@small
    <\mdsy@s@medium-             > s * [\mdsy@scale] MdSymbolB-\mdsy@mweight@normal
}{}
\DeclareFontShape{U}{MdSymbolB}{b}{n}{
```

```
    <              -  \mdsy@s@bold> s * [\mdsy@scale] MdSymbolB-\mdsy@bweight@small
    <\mdsy@s@bold  -              > s * [\mdsy@scale] MdSymbolB-\mdsy@bweight@normal
}{}
\DeclareFontShape{U}{MdSymbolC}{m}{n}{
    <              -\mdsy@s@medium> s * [\mdsy@scale] MdSymbolC-\mdsy@mweight@small
    <\mdsy@s@medium-              > s * [\mdsy@scale] MdSymbolC-\mdsy@mweight@normal
}{}
\DeclareFontShape{U}{MdSymbolC}{b}{n}{
    <              -  \mdsy@s@bold> s * [\mdsy@scale] MdSymbolC-\mdsy@bweight@small
    <\mdsy@s@bold  -              > s * [\mdsy@scale] MdSymbolC-\mdsy@bweight@normal
}{}
\DeclareFontShape{U}{MdSymbolD}{m}{n}{
    <              -\mdsy@s@medium> s * [\mdsy@scale] MdSymbolD-\mdsy@mweight@small
    <\mdsy@s@medium-              > s * [\mdsy@scale] MdSymbolD-\mdsy@mweight@normal
}{}
\DeclareFontShape{U}{MdSymbolD}{b}{n}{
    <              -  \mdsy@s@bold> s * [\mdsy@scale] MdSymbolD-\mdsy@bweight@small
    <\mdsy@s@bold  -              > s * [\mdsy@scale] MdSymbolD-\mdsy@bweight@normal
}{}
\DeclareFontShape{U}{MdSymbolE}{m}{n}{
    <              -\mdsy@s@medium> s * [\mdsy@scale] MdSymbolE-\mdsy@mweight@small
    <\mdsy@s@medium-              > s * [\mdsy@scale] MdSymbolE-\mdsy@mweight@normal
}{}
\DeclareFontShape{U}{MdSymbolE}{b}{n}{
    <              -  \mdsy@s@bold> s * [\mdsy@scale] MdSymbolE-\mdsy@bweight@small
    <\mdsy@s@bold  -              > s * [\mdsy@scale] MdSymbolE-\mdsy@bweight@normal
}{}
\DeclareFontShape{U}{MdSymbolF}{m}{n}{
    <              -\mdsy@s@medium> s * [\mdsy@scale] MdSymbolF-\mdsy@mweight@small
    <\mdsy@s@medium-              > s * [\mdsy@scale] MdSymbolF-\mdsy@mweight@normal
}{}
\DeclareFontShape{U}{MdSymbolF}{b}{n}{
    <              -  \mdsy@s@bold> s * [\mdsy@scale] MdSymbolF-\mdsy@bweight@small
    <\mdsy@s@bold  -              > s * [\mdsy@scale] MdSymbolF-\mdsy@bweight@normal
}{}

 %\newcommand\IfUndefSymbolFont[3]{\@ifundefined{sym#1}{#2}{#3}}
\newcommand{\mdsy@DeclareSymbolFont}[3]{%
  % \IfUndefSymbolFont{#1}{%
  \DeclareSymbolFont{#1}{#2}{#3}{m}{n}
  % }{%
  %   \ifmdsy@onlysansmath%
  %     \SetSymbolFont{#1}{sans}{#2}{#3}{m}{n}%
  %     \mdsy@if@tabular@math{\SetSymbolFont{#1}{sanstabular}{#2}{#3}{m}{n}}%
  %   \else%
```

```
%     \SetSymbolFont{#1}{normal}{#2}{#3}{m}{n}%
%     \mdsy@if@tabular@math{\SetSymbolFont{#1}{tabular}{#2}{#3}{m}{n}}%
%   \fi%
% }
% \ifmdsy@onlysansmath%
%   \SetSymbolFont{#1}{sansbold}{#2}{#3}{b}{n}%
%   \mdsy@if@tabular@math{\SetSymbolFont{#1}{sansboldtabular}{#2}{#3}{b}{n}}%
% \else%
%   \SetSymbolFont{#1}{bold}{#2}{#3}{b}{n}%
%   \mdsy@if@tabular@math{\SetSymbolFont{#1}{boldtabular}{#2}{#3}{b}{n}}%
% \fi%
}

\mdsy@DeclareSymbolFont{MdSymbols}{U}{MdSymbolA}
\mdsy@DeclareSymbolFont{MdRelations}{U}{MdSymbolB}
\mdsy@DeclareSymbolFont{MdArrows}{U}{MdSymbolC}
\mdsy@DeclareSymbolFont{MdNarrows}{U}{MdSymbolD}
\mdsy@DeclareSymbolFont{MdLargesymbols}{U}{MdSymbolE}
\mdsy@DeclareSymbolFont{MdDelimiters}{U}{MdSymbolF}
```

A command for taking math symbols from the text font.

```
\def\mdsy@bold{bold}
\newcommand*\mdsy@text[1]{%
  \ifx\mdsy@bold\math@version
    \text{\sffamily\bfseries#1}%
  \else
    \text{\sffamily\mdseries#1}%
  \fi
}
```

MdSymbolA: binary operators and ordinary symbols

```
\mdsy@setslot{0}
\mdsy@DeclareSymbol{cdot}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{cdotp}{MdSymbols}{\mathpunct}
\mdsy@DeclareSymbol{hdotdot}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{vdotdot}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{colon}{MdSymbols}{\mathpunct}
  \mdsy@DeclareAlias{mathcolon}{MdSymbols}{\mathpunct}
  \mdsy@DeclareAlias{mathratio}{MdSymbols}{\mathrel}
\mdsy@DeclareSymbol{udotdot}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{ddotdot}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{hdots}{MdSymbols}{\mathord}
  \mdsy@DeclareAlias{@cdots}{MdSymbols}{\mathinner}
  \mdsy@DeclareAlias{cdots}{MdSymbols}{\mathinner}
\mdsy@DeclareSymbol{@vdots}{MdSymbols}{\mathord}
\mdsy@DeclareRobustCommand{vdots}{\ifmmode\@vdots\else\hbox{$\@vdots$}\fi}
```

```
\mdsy@DeclareSymbol{udots}{MdSymbols}{\mathord}
  \mdsy@DeclareAlias{adots}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{ddots}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{rightthere fore}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{upthere fore}{MdSymbols}{\mathord}
  \mdsy@DeclareAlias{there fore}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{leftthere fore}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{downthere fore}{MdSymbols}{\mathord}
  \mdsy@DeclareAlias{because}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{squaredots}{MdSymbols}{\mathord}
  \mdsy@DeclareAlias{Colon}{MdSymbols}{\mathrel}
\mdsy@DeclareSymbol{minus}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{medslash}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{smalldivslash}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{medbackslash}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{smallsetminus}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{plus}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{times}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{dotminus}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{minusdot}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{div}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{minusfdots}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{minusrdots}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{dotsminusdots}{MdSymbols}{\mathrel}
\mdsy@DeclareSymbol{pm}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{mp}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{dotplus}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{plusdot}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{dottimes}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{timesbar}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{divideontimes}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{neg}{MdSymbols}{\mathord}
  \mdsy@DeclareAlias{lnot}{MdSymbols}{\mathord}
  \mdsy@DeclareAlias{minushookdown}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{backneg}{MdSymbols}{\mathord}
  \mdsy@DeclareAlias{hookdownminus}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{invneg}{MdSymbols}{\mathord}
  \mdsy@DeclareAlias{invnot}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{intprod}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{minushookup}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{turnedneg}{MdSymbols}{\mathord}
  \mdsy@DeclareAlias{turnednot}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{intprodr}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{hookupminus}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{turnedbackneg}{MdSymbols}{\mathord}
```

```
\mdsy@DeclareSymbol{leftthreetimes}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{rightthreetimes}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{dtimes}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{btimes}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{rtimes}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{rJoin}{MdSymbols}{\mathrel}
\mdsy@DeclareSymbol{utimes}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{ttimes}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{ltimes}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{lJoin}{MdSymbols}{\mathrel}
\mdsy@DeclareSymbol{bowtie}{MdSymbols}{\mathrel}
  \mdsy@DeclareAlias{Join}{MdSymbols}{\mathrel}
  \mdsy@DeclareAlias{lrtimes}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{upbowtie}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{hourglass}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{rightY}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{upY}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{leftY}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{downY}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{wedge}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{land}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{vee}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{lor}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{wedgedot}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{veedot}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{doublewedge}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{wedgeonwedge}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{doublevee}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{veeonvee}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{curlywedge}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{curlyvee}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{barwedge}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{veebar}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{doublebarwedge}{MdSymbols}{\mathbin}
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\mdsy@DeclareSymbol{cap}{MdSymbols}{\mathbin}
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  \mdsy@DeclareAlias{Cup}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{doublecap}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{Cap}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{cupdot}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{capdot}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{cupplus}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{uplus}{MdSymbols}{\mathbin}
```

```
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  \mdsy@DeclareAlias{Sqcup}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{doublesqcap}{MdSymbols}{\mathbin}
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\mdsy@DeclareSymbol{smalltriangleup}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{smalltriangleleft}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{smalltriangledown}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{smallblacktriangleright}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{smallblacktriangleup}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{smallblacktriangleleft}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{smallblacktriangledown}{MdSymbols}{\mathbin}
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  \mdsy@DeclareAlias{triangleright}{MdSymbols}{\mathbin}
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  \mdsy@DeclareAlias{triangle}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{vartriangle}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{medtriangleleft}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{triangleleft}{MdSymbols}{\mathbin}
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  \mdsy@DeclareAlias{blacktriangleright}{MdSymbols}{\mathbin}
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\mdsy@DeclareSymbol{medblacktriangleleft}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{blacktriangleleft}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{medblacktriangledown}{MdSymbols}{\mathbin}
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  \mdsy@DeclareAlias{bigtriangleup}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{largetriangledown}{MdSymbols}{\mathord}
  \mdsy@DeclareAlias{bigtriangledown}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{smallcircle}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{circ}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{smwhtcircle}{MdSymbols}{\mathbin}
```

```
\mdsy@DeclareSymbol{smallblackcircle}{MdSymbols}{\mathbin}
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  \mdsy@DeclareAlias{smblkcircle}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{medcircle}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{mdlgwhtcircle}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{medblackcircle}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{mdlgblkcircle}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{ominus}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{overt}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{circledvert}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{oslash}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{obackslash}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{obslash}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{oplus}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{otimes}{MdSymbols}{\mathbin}
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  \mdsy@DeclareAlias{circledast}{MdSymbols}{\mathbin}
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  \mdsy@DeclareAlias{circleddash}{MdSymbols}{\mathbin}
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  \mdsy@DeclareAlias{lgwhtcircle}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{largeblackcircle}{MdSymbols}{\mathord}
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\mdsy@DeclareSymbol{medsquare}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{square}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{Box}{MdSymbols}{\mathbin}
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  \mdsy@DeclareAlias{mdwhtsquare}{MdSymbols}{\mathbin}
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  \mdsy@DeclareAlias{mdblksquare}{MdSymbols}{\mathbin}
```

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\mdsy@DeclareSymbol{boxbackslash}{MdSymbols}{\mathbin}
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\mdsy@DeclareSymbol{boxplus}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{boxtimes}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{boxdot}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{boxbox}{MdSymbols}{\mathbin}
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\mdsy@DeclareSymbol{diamondvert}{MdSymbols}{\mathbin}
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\mdsy@DeclareSymbol{diamondtimes}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{diamonddot}{MdSymbols}{\mathbin}
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\mdsy@DeclareSymbol{diamonddiamond}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{smalllozenge}{MdSymbols}{\mathord}
  \mdsy@DeclareAlias{smwhtlozenge}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{smallblacklozenge}{MdSymbols}{\mathord}
  \mdsy@DeclareAlias{smblklozenge}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{medlozenge}{MdSymbols}{\mathord}
  \mdsy@DeclareAlias{lozenge}{MdSymbols}{\mathord}
  \mdsy@DeclareAlias{mdlgwhtlozenge}{MdSymbols}{\mathord}
```

```
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\mdsy@DeclareSymbol{medblacklozenge}{MdSymbols}{\mathord}
  \mdsy@DeclareAlias{blacklozenge}{MdSymbols}{\mathord}
  \mdsy@DeclareAlias{mdlgblklozenge}{MdSymbols}{\mathord}
  \mdsy@DeclareAlias{mdblklozenge}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{lozengeminus}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{smallwhitestar}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{smwhitestar}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{smallblackstar}{MdSymbols}{\mathbin}
  \mdsy@DeclareAlias{star}{MdSymbols}{\mathbin}
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\mdsy@DeclareSymbol{largeblackstar}{MdSymbols}{\mathord}
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\mdsy@DeclareSymbol{ast}{MdSymbols}{\mathbin}
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\mdsy@DeclareSymbol{between}{MdSymbols}{\mathrel}
\mdsy@DeclareSymbol{intercal}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{wreath}{MdSymbols}{\mathbin}
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\mdsy@DeclareSymbol{revangle}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{measuredangle}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{revmeasuredangle}{MdSymbols}{\mathord}
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\mdsy@DeclareSymbol{sphericalangle}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{sphericalangleup}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{sphericalangleleft}{MdSymbols}{\mathord}
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  \mdsy@DeclareAlias{gtlpar}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{sphericalangledown}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{rightangle}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{measuredrightangle}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{rightanglesquare}{MdSymbols}{\mathord}
  \mdsy@DeclareAlias{rightanglesqr}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{measuredrightangledot}{MdSymbols}{\mathord}
  \mdsy@DeclareAlias{rightanglemdot}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{prime}{MdSymbols}{\mathord}
```

```
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\mdsy@DeclareSymbol{smallcoprod}{MdSymbols}{\mathop}
  \mdsy@DeclareAlias{amalg}{MdSymbols}{\mathbin}
\mdsy@DeclareSymbol{smallint}{MdSymbols}{\mathop}
\mdsy@DeclareSymbol{checkmark}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{lightning}{MdSymbols}{\mathord}
  \mdsy@DeclareAlias{downzigzagarrow}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{diamondsuit}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{vardiamondsuit}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{heartsuit}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{varheartsuit}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{spadesuit}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{clubsuit}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{maltese}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{starofdavid}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{sector}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{forall}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{exists}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{nexists}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{Finv}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{Game}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{complement}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{flat}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{natural}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{sharp}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{aleph}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{beth}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{gimel}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{daleth}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{wp}{MdSymbols}{\mathord}
\mdsy@DeclareSymbol{nabla}{MdSymbols}{\mathord}
```

MdSymbolB: relations

```
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\mdsy@DeclareSymbol{equal}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{equiv}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{sim}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{backsim}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{approx}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{triplesim}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{approxident}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{simeq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{backsimeq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{eqsim}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{cong}{MdRelations}{\mathrel}
```

```
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\mdsy@DeclareSymbol{approxeq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{bumpeq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{bumpeqq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{Bumpeq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{doteq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{eqdot}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{Doteq}{MdRelations}{\mathrel}
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\mdsy@DeclareSymbol{fallingdotseq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{risingdotseq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{coloneq}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{coloneqq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{eqcolon}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{eqqcolon}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{smile}{MdRelations}{\mathrel}
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\mdsy@DeclareSymbol{frown}{MdRelations}{\mathrel}
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\mdsy@DeclareSymbol{smilefrown}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{asymp}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{frownsmile}{MdRelations}{\mathrel}
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\mdsy@DeclareSymbol{smileeq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{frowneq}{MdRelations}{\mathrel}
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\mdsy@DeclareSymbol{eqcirc}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{circeq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{wedgeq}{MdRelations}{\mathrel}
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\mdsy@DeclareSymbol{veeeq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{stareq}{MdRelations}{\mathrel}
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\mdsy@DeclareSymbol{in}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{owns}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{ni}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{less}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{gtr}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{leq}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{le}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{geq}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{ge}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{leqslant}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{geqslant}{MdRelations}{\mathrel}
```

```
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\mdsy@DeclareSymbol{lessapprox}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{gtrapprox}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{lessgtr}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{gtrless}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{lesseqgtr}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{gtreqless}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{lesseqqgtr}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{gtreqqless}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{lesseqslantgtr}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{lesg}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{lesseqgtrslant}{MdRelations}{\mathrel}
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  \mdsy@DeclareAlias{gesl}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{gtreqlessslant}{MdRelations}{\mathrel}
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\mdsy@DeclareSymbol{gg}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{lll}{MdRelations}{\mathrel}
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\mdsy@DeclareSymbol{ggg}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{gggtr}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{lessclosed}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{lhd}{MdRelations}{\mathbin}
  \mdsy@DeclareAlias{vartriangleleft}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{gtrclosed}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{rhd}{MdRelations}{\mathbin}
  \mdsy@DeclareAlias{vartriangleright}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{leqclosed}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{unlhd}{MdRelations}{\mathbin}
  \mdsy@DeclareAlias{trianglelefteq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{geqclosed}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{unrhd}{MdRelations}{\mathbin}
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\mdsy@DeclareSymbol{lesscc}{MdRelations}{\mathrel}
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\mdsy@DeclareSymbol{gtrcc}{MdRelations}{\mathrel}
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\mdsy@DeclareSymbol{leqslcc}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{lescc}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{geqslcc}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{gescc}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{sqsubset}{MdRelations}{\mathrel}
```

```
\mdsy@DeclareSymbol{sqsupset}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{sqsubseteq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{sqsupseteq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{sqsubseteqq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{sqsupseteqq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{Sqsubset}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{Sqsupset}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{subset}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{supset}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{subseteq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{supseteq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{subseteqq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{supseteqq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{Subset}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{Supset}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{prec}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{succ}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{preceq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{succeq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{preccurlyeq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{succcurlyeq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{preceqq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{succeqq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{precsim}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{succsim}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{precapprox}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{succapprox}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{lessdot}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{gtrdot}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{leqdot}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{geqdot}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{leqslantdot}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{lesdot}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{geqslantdot}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{gesdot}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{eqslantless}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{eqslantgtr}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{curlyeqprec}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{curlyeqsucc}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nequal}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{neq}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{ne}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nequiv}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nsim}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nbacksim}{MdRelations}{\mathrel}
```

```
\mdsy@DeclareSymbol{napprox}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{ntriplesim}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{napproxident}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nsimeq}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{nsime}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nbacksimeq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{neqsim}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{ncong}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nbackcong}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{napproxeq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nbumpeq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nbumpeqq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nBumpeq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{ndoteq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{neqdot}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nDoteq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nfallingdotseq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nrisingdotseq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nsmile}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nfrown}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nsmilefrown}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{nasymp}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nfrownsmile}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{nclosure}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nsmileeq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nfrowneq}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{narceq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{neqcirc}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{ncirceq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nwedgeq}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{nhateq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nveeeq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nstareq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{ntriangleeq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nin}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{notin}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nowns}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{nni}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nless}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{ngtr}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nleq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{ngeq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nleqslant}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{ngeqslant}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nleqq}{MdRelations}{\mathrel}
```

```
\mdsy@DeclareSymbol{ngeqq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nlesssim}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{ngtrsim}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nlessapprox}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{ngtrapprox}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nlessgtr}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{ngtrless}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nlesseqgtr}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{ngtreqless}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nlesseqqgtr}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{ngtreqqless}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nlesseqslantgtr}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{nlesg}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{nlesseqgtrslant}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{ngtreqslantless}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{ngesl}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{ngtreqlessslant}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nll}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{ngg}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nlll}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nggg}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nlessclosed}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{ntriangleleft}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{ngtrclosed}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{ntriangleright}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nleqclosed}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{ntrianglelefteq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{ngeqclosed}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{ntrianglerighteq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nlesscc}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{nltcc}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{ngtrcc}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{ngtcc}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nleqslcc}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{nlescc}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{ngeqslcc}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{ngescc}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nsqsubset}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nsqsupset}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nsqsubseteq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nsqsupseteq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nsqsubseteqq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nsqsupseteqq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nSqsubset}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nSqsupset}{MdRelations}{\mathrel}
```

```
\mdsy@DeclareSymbol{nsubset}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nsupset}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nsubseteq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nsupseteq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nsubseteqq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nsupseteqq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nSubset}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nSupset}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nprec}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nsucc}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{npreceq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nsucceq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{npreccurlyeq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nsucccurlyeq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{npreceqq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nsucceqq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nprecsim}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nsuccsim}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nprecapprox}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nsuccapprox}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nlessdot}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{ngtrdot}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nleqdot}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{ngeqdot}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{nleqslantdot}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{nlesdot}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{ngeqslantdot}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{ngesdot}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{neqslantless}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{neqslantgtr}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{ncurlyeqprec}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{ncurlyeqsucc}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{simneqq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{backsimneqq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{lneq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{gneq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{lneqq}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{lvertneqq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{gneqq}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{gvertneqq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{lnsim}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{gnsim}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{lnapprox}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{gnapprox}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{sqsubsetneq}{MdRelations}{\mathrel}
```

```
\mdsy@DeclareSymbol{sqsupsetneq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{sqsubsetneqq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{sqsupsetneqq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{subsetneq}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{varsubsetneq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{supsetneq}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{varsupsetneq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{subsetneqq}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{varsubsetneqq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{supsetneqq}{MdRelations}{\mathrel}
  \mdsy@DeclareAlias{varsupsetneqq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{precneq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{succneq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{precneqq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{succneqq}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{precnsim}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{succnsim}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{precnapprox}{MdRelations}{\mathrel}
\mdsy@DeclareSymbol{succnapprox}{MdRelations}{\mathrel}
```

MdSymbolC: arrows and turnstile symbols

```
\mdsy@setslot{0}
\mdsy@DeclareSymbol{rightarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{to}{MdArrows}{\mathrel}
% \mdsy@DeclareSymbol{uparrow}{MdArrows}{\mathrel}
\mdsy@nextslot                  %uparrow defined below
\mdsy@DeclareSymbol{leftarrow}{MdArrows}{\mathrel}
\mdsy@DeclareAlias{gets}{MdArrows}{\mathrel}
% \mdsy@DeclareSymbol{downarrow}{MdArrows}{\mathrel}
\mdsy@nextslot                  %downarrow defined below
\mdsy@DeclareSymbol{nearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{nwarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{swarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{searrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{Rightarrow}{MdArrows}{\mathrel}
% \mdsy@DeclareSymbol{Uparrow}{MdArrows}{\mathrel}
\mdsy@nextslot                  %Uparrow defined below
\mdsy@DeclareSymbol{Leftarrow}{MdArrows}{\mathrel}
% \mdsy@DeclareSymbol{Downarrow}{MdArrows}{\mathrel}
\mdsy@nextslot                  %Downarrow defined below
\mdsy@DeclareSymbol{Nearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{Nwarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{Swarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{Searrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{leftrightarrow}{MdArrows}{\mathrel}
% \mdsy@DeclareSymbol{updownarrow}{MdArrows}{\mathrel}
```

```
\mdsy@nextslot                    %updownarrow defined below
\mdsy@DeclareSymbol{neswarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{nwsearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{Leftrightarrow}{MdArrows}{\mathrel}
% \mdsy@DeclareSymbol{Updownarrow}{MdArrows}{\mathrel}
\mdsy@nextslot                    %Updownarrow defined below
\mdsy@DeclareSymbol{Neswarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{Nwsearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{twoheadrightarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{twoheaduparrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{twoheadleftarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{twoheaddownarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{twoheadnearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{twoheadnwarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{twoheadswarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{twoheadsearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{rightarrowtail}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{uparrowtail}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{leftarrowtail}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{downarrowtail}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{nearrowtail}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{nwarrowtail}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{swarrowtail}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{searrowtail}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{rightmapsto}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{mapsto}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{upmapsto}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{mapsup}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{leftmapsto}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{mapsfrom}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{downmapsto}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{mapsdown}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{Rightmapsto}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{Mapsto}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{Upmapsto}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{Mapsup}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{Leftmapsto}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{Mapsfrom}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{Downmapsto}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{Mapsdown}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{hookrightarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{lhookrightarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{hookuparrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{lhookuparrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{varhookleftarrow}{MdArrows}{\mathrel}
```

```
  \mdsy@DeclareAlias{lhookleftarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{varhookdownarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{lhookdownarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{varhooknearrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{lhooknearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{hooknwarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{hknwarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{lhooknwarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{varhookswarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{lhookswarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{hooksearrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{hksearrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{lhooksearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{varhookrightarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{rhookrightarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{varhookuparrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{rhookuparrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{hookleftarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{rhookleftarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{hookdownarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{rhookdownarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{hooknearrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{hknearrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{rhooknearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{varhooknwarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{rhooknwarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{hookswarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{hkswarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{rhookswarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{varhooksearrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{rhooksearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{rightharpoonup}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{upharpoonleft}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{leftharpoondown}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{downharpoonright}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{neharpoonnw}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{nwharpoonsw}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{swharpoonse}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{seharpoonne}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{rightharpoondown}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{upharpoonright}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{restriction}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{leftharpoonup}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{downharpoonleft}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{neharpoonse}{MdArrows}{\mathrel}
```

```
\mdsy@DeclareSymbol{nwharpoonne}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{swharpoonnw}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{seharpoonsw}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{leftrightharpoonupdown}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{updownharpoonleftright}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{neswharpoonnwse}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{nwseharpoonnesw}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{leftrightharpoondownup}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{updownharpoonrightleft}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{neswharpoonsenw}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{nwseharpoonswne}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{rightleftharpoons}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{updownharpoons}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{updownharpoonsleftright}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{neswharpoons}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{senwharpoons}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{leftrightharpoons}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{downupharpoons}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{downupharpoonsleftright}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{swneharpoons}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{nwseharpoons}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{rightbkarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{dasharrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{dashrightarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{upbkarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{leftbkarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{dashleftarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{downbkarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{nebkarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{nwbkarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{swbkarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{sebkarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{rightspoon}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{multimap}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{upspoon}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{cirmid}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{leftspoon}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{multimapinv}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{downspoon}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{midcir}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{rightblackspoon}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{upblackspoon}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{leftblackspoon}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{downblackspoon}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{leftrightspoon}{MdArrows}{\mathrel}
```

```
  \mdsy@DeclareAlias{dualmap}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{leftrightblackspoon}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{blackwhitespoon}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{imageof}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{whiteblackspoon}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{origof}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{rightpitchfork}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{uppitchfork}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{pitchfork}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{leftpitchfork}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{downpitchfork}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{rightrightarrows}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{upuparrows}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{leftleftarrows}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{downdownarrows}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{nenearrows}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{nwnwarrows}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{swswarrows}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{sesearrows}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{rightleftarrows}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{updownarrows}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{neswarrows}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{nwsearrows}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{leftrightarrows}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{downuparrows}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{swnearrows}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{senwarrows}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{rightwavearrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{leadsto}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{rightsquigarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{rightcurvedarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{rightlsquigarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{varupwavearrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{uplsquigarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{varleftwavearrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{leftlsquigarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{downwavearrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{downlsquigarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{varrightwavearrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{rightrsquigarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{upwavearrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{uprsquigarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{leftwavearrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{leftsquigarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{leftcurvedarrow}{MdArrows}{\mathrel}
```

```
  \mdsy@DeclareAlias{leftrsquigarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{vardownwavearrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{downrsquigarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{leftrightwavearrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{leftrightsquigarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{updownwavearrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{updownsquigarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{varleftrightwavearrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{rightleftsquigarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{varupdownwavearrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{downupsquigarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{cwoverarcarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{curvearrowright}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{rightlcurvearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{cwleftarcarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{uplcurvearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{cwunderarcarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{leftlcurvearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{cwrightarcarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{downlcurvearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{cwnwarcarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{rightupcurvedarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{nelcurvearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{cwswarcarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{upleftcurvedarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{nwlcurvearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{cwsearcarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{leftdowncurvedarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{swlcurvearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{cwnearcarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{downrightcurvedarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{selcurvearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{acwunderarcarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{rightrcurvearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{acwrightarcarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{uprcurvearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{acwoverarcarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{curvearrowleft}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{leftrcurvearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{acwleftarcarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{downrcurvearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{acwsearcarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{uprightcurvearrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{nercurvearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{acwnearcarrow}{MdArrows}{\mathrel}
```

```
  \mdsy@DeclareAlias{leftupcurvedarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{nwrcurvearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{acwnwarcarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{downleftcurvedarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{swrcurvearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{acwswarcarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{rightdowncurvedarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{sercurvearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{bdoverarcarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{leftrightcurvearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{bdleftarcarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{updowncurvearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{bdunderarcarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{rightleftcurvearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{bdrightarcarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{downupcurvearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{bdnwarcarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{neswcurvearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{bdswarcarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{nwsecurvearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{bdsearcarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{swnecurvearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{bdnearcarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{senwcurvearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{leftfootline}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{rightfootline}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{acwcirclearrowup}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{acwcirclearrowleft}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{circlearrowleft}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{acwopencirclearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{acwcirclearrowdown}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{acwgapcirclearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{acwcirclearrowright}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{cwcirclearrowdown}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{cwgapcirclearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{cwcirclearrowright}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{circlearrowright}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{cwopencirclearrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{cwcirclearrowup}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{cwcirclearrowleft}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{Rrightarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{Uuparrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{Lleftarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{Ddownarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{longrightarrow}{MdArrows}{\mathrel}
```

```
\mdsy@DeclareSymbol{longleftarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{Longrightarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{Longleftarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{longleftrightarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{Longleftrightarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{longmapsto}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{longmapsfrom}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{Longmapsto}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{Longmapsfrom}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{longrightwavearrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{longleadsto}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{longrightsquigarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{longleftwavearrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{longleftsquigarrow}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{longleftfootline}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{vlongdash}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{longrightfootline}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{longdashv}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{Lsh}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{Rsh}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{Ldsh}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{Rdsh}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{looparrowright}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{looparrowleft}{MdArrows}{\mathrel}
\mdsy@setslot{224}
\mdsy@DeclareSymbol{rightvdash}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{vdash}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{upvdash}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{perp}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{bot}{MdArrows}{\mathord}
\mdsy@DeclareSymbol{leftvdash}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{dashv}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{downvdash}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{top}{MdArrows}{\mathord}
\mdsy@DeclareSymbol{rightassert}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{assert}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{shortrighttack}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{upassert}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{shortuptack}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{leftassert}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{shortlefttack}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{downassert}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{shortdowntack}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{rightvDash}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{vDash}{MdArrows}{\mathrel}
```

```
\mdsy@DeclareSymbol{upvDash}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{Vbar}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{leftvDash}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{Dashv}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{downvDash}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{barV}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{rightmodels}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{models}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{upmodels}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{leftmodels}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{downmodels}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{rightVdash}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{Vdash}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{upVdash}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{leftVdash}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{dashV}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{downVdash}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{rightAssert}{MdArrows}{\mathrel}
 \mdsy@DeclareAlias{Assert}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{upAssert}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{vBar}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{leftAssert}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{downAssert}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{Barv}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{rightVDash}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{VDash}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{upVDash}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{leftVDash}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{DashV}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{downVDash}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{Vvdash}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{dashVv}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{vDdash}{MdArrows}{\mathrel}
\mdsy@DeclareSymbol{Ddashv}{MdArrows}{\mathrel}

\mdsy@DeclareRobustCommand{relbar}{\mathrel{\smash-}}
\mdsy@DeclareRobustCommand{Relbar}{\mathrel=}
\mdsy@DeclareRobustCommand{joinrel}{\mathrel{\mkern-4mu}}
```

MdSymbolD: stroked arrows

```
\mdsy@setslot{0}
\mdsy@DeclareSymbol{nrightarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nto}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nuparrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nleftarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{ngets}{MdNarrows}{\mathrel}
```

```
\mdsy@DeclareSymbol{ndownarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nnearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nnwarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nswarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nsearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nRightarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nUparrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nLeftarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nDownarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nNearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nNwarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nSwarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nSearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nleftrightarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nupdownarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nneswarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nnwsearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nLeftrightarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nUpdownarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nNeswarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nNwsearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ntwoheadrightarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ntwoheaduparrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ntwoheadleftarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ntwoheaddownarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ntwoheadnearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ntwoheadnwarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ntwoheadswarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ntwoheadsearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nrightarrowtail}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nuparrowtail}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nleftarrowtail}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ndownarrowtail}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nnearrowtail}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nnwarrowtail}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nswarrowtail}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nsearrowtail}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nrightmapsto}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nmapsto}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nupmapsto}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nmapsup}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nleftmapsto}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nmapsfrom}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ndownmapsto}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nmapsdown}{MdNarrows}{\mathrel}
```

```
\mdsy@DeclareSymbol{nRightmapsto}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nMapsto}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nUpmapsto}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nMapsup}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nLeftmapsto}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nMapsfrom}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nDownmapsto}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nMapsdown}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nhookrightarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nhookuparrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nvarhookleftarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nvarhookdownarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nvarhooknearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nhooknwarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nhknwarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nvarhookswarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nhooksearrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nhksearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nvarhookrightarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nvarhookuparrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nhookleftarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nhookdownarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nhooknearrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nhknearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nvarhooknwarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nhookswarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nhkswarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nvarhooksearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nrightharpoonup}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nupharpoonleft}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nleftharpoondown}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ndownharpoonright}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nneharpoonnw}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nnwharpoonsw}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nswharpoonse}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nseharpoonne}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nrightharpoondown}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nupharpoonright}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nrestriction}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nleftharpoonup}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ndownharpoonleft}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nneharpoonse}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nnwharpoonne}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nswharpoonnw}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nseharpoonsw}{MdNarrows}{\mathrel}
```

```
\mdsy@DeclareSymbol{nleftrightharpoonupdown}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nupdownharpoonleftright}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nneswharpoonnwse}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nnwseharpoonnesw}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nleftrightharpoondownup}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nupdownharpoonrightleft}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nneswharpoonsenw}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nnwseharpoonswne}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nrightleftharpoons}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nupdownharpoons}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nupdownharpoonsleftright}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nneswharpoons}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nsenwharpoons}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nleftrightharpoons}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ndownupharpoons}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{ndownupharpoonsleftright}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nswneharpoons}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nnwseharpoons}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nrightbkarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{ndasharrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{ndashrightarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nupbkarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nleftbkarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{ndashleftarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ndownbkarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nnebkarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nnwbkarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nswbkarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nsebkarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nrightspoon}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nmultimap}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nupspoon}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{ncirmid}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nleftspoon}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nmultimapinv}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ndownspoon}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nmidcir}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nrightblackspoon}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nupblackspoon}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nleftblackspoon}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ndownblackspoon}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nleftrightspoon}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{ndualmap}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nleftrightblackspoon}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nblackwhitespoon}{MdNarrows}{\mathrel}
```

```
  \mdsy@DeclareAlias{nimageof}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nwhiteblackspoon}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{norigof}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nrightpitchfork}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nuppitchfork}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{npitchfork}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nleftpitchfork}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ndownpitchfork}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nrightrightarrows}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nupuparrows}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nleftleftarrows}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ndowndownarrows}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nnenearrows}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nnwnwarrows}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nswswarrows}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nsesearrows}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nrightleftarrows}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nupdownarrows}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nneswarrows}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nnwsearrows}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nleftrightarrows}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ndownuparrows}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nswnearrows}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nsenwarrows}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nrightwavearrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nleadsto}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nrightsquigarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nrightcurvedarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{nrightlsquigarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nvarupwavearrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nuplsquigarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nvarleftwavearrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nleftlsquigarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ndownwavearrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{ndownlsquigarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nvarrightwavearrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nrightrsquigarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nupwavearrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nuprsquigarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nleftwavearrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nleftsquigarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nleftcurvedarrow}{MdArrows}{\mathrel}
  \mdsy@DeclareAlias{nleftrsquigarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nvardownwavearrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{ndownrsquigarrow}{MdNarrows}{\mathrel}
```

```
\mdsy@DeclareSymbol{nleftrightwavearrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nleftrightsquigarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nupdownwavearrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nupdownsquigarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nvarleftrightwavearrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nrightleftsquigarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nvarupdownwavearrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{ndownupsquigarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ncwoverarcarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{ncurvearrowright}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nrightlcurvearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ncwleftarcarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nuplcurvearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ncwunderarcarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nleftlcurvearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ncwrightarcarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{ndownlcurvearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ncwnwarcarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nrightupcurvedarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nnelcurvearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ncwswarcarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nupleftcurvedarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nnwlcurvearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ncwsearcarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nleftdowncurvedarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nswlcurvearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ncwnearcarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{ndownrightcurvedarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nselcurvearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nacwunderarcarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nrightrcurvearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nacwrightarcarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nuprcurvearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nacwoverarcarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{ncurvearrowleft}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nleftrcurvearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nacwleftarcarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{ndownrcurvearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nacwsearcarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nuprightcurvearrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nnercurvearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nacwnearcarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nleftupcurvedarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nnwrcurvearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nacwnwarcarrow}{MdNarrows}{\mathrel}
```

```
  \mdsy@DeclareAlias{ndownleftcurvedarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nswrcurvearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nacwswarcarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nrightdowncurvedarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nsercurvearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nbdoverarcarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nleftrightcurvearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nbdleftarcarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nupdowncurvearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nbdunderarcarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nrightleftcurvearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nbdrightarcarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{ndownupcurvearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nbdnwarcarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nneswcurvearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nbdswarcarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nnwsecurvearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nbdsearcarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nswnecurvearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nbdnearcarrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nsenwcurvearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nleftfootline}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nrightfootline}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nacwcirclearrowup}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nacwcirclearrowleft}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{ncirclearrowleft}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nacwopencirclearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nacwcirclearrowdown}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nacwgapcirclearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nacwcirclearrowright}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ncwcirclearrowdown}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{ncwgapcirclearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ncwcirclearrowright}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{ncirclearrowright}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{ncwopencirclearrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ncwcirclearrowup}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ncwcirclearrowleft}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nRrightarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nUuparrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nLleftarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nDdownarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nlongrightarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nlongleftarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nLongrightarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nLongleftarrow}{MdNarrows}{\mathrel}
```

```
\mdsy@DeclareSymbol{nlongleftrightarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nLongleftrightarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nlongmapsto}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nlongmapsfrom}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nLongmapsto}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nLongmapsfrom}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nlongrightwavearrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nlongleadsto}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nlongrightsquigarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nlongleftwavearrow}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nlongleftsquigarrow}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nlongleftfootline}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nvlongdash}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nlongrightfootline}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nlongdashv}{MdNarrows}{\mathrel}
\mdsy@setslot{224}
\mdsy@DeclareSymbol{nrightvdash}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nvdash}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nupvdash}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nperp}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nleftvdash}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{ndashv}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ndownvdash}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nrightassert}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nassert}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nshortrighttack}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nupassert}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nshortuptack}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nleftassert}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nshortlefttack}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ndownassert}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nshortdowntack}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nrightvDash}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nvDash}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nupvDash}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nVbar}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nleftvDash}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nDashv}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ndownvDash}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nbarV}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nrightmodels}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nmodels}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nupmodels}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nleftmodels}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ndownmodels}{MdNarrows}{\mathrel}
```

```
\mdsy@DeclareSymbol{nrightVdash}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nVdash}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nupVdash}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nleftVdash}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{ndashV}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ndownVdash}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nrightAssert}{MdNarrows}{\mathrel}
 \mdsy@DeclareAlias{nAssert}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nupAssert}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nvBar}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nleftAssert}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ndownAssert}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nBarv}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nrightVDash}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nVDash}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nupVDash}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nleftVDash}{MdNarrows}{\mathrel}
  \mdsy@DeclareAlias{nDashV}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ndownVDash}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nVvdash}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{ndashVv}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nvDdash}{MdNarrows}{\mathrel}
\mdsy@DeclareSymbol{nDdashv}{MdNarrows}{\mathrel}
```

MdSymbolE: large operators

```
\mdsy@setslot{0}
\mdsy@DeclareSymbol{tbigplus}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dbigplus}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tbigtimes}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dbigtimes}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tbigwedge}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dbigwedge}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tbigvee}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dbigvee}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tbigwedgedot}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dbigwedgedot}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tbigveedot}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dbigveedot}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tbigdoublewedge}{MdLargesymbols}{\mathop}
  \mdsy@DeclareAlias{tconjquant}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dbigdoublewedge}{MdLargesymbols}{\mathop}
  \mdsy@DeclareAlias{dconjquant}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tbigdoublevee}{MdLargesymbols}{\mathop}
  \mdsy@DeclareAlias{tdisjquant}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dbigdoublevee}{MdLargesymbols}{\mathop}
  \mdsy@DeclareAlias{ddisjquant}{MdLargesymbols}{\mathop}
```

```
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\mdsy@DeclareSymbol{dbigcurlywedge}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tbigcurlyvee}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dbigcurlyvee}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tbigcap}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dbigcap}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tbigcup}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dbigcup}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tbigcapdot}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dbigcapdot}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tbigcupdot}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dbigcupdot}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tbigcapplus}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dbigcapplus}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tbigcupplus}{MdLargesymbols}{\mathop}
  \mdsy@DeclareAlias{tbiguplus}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dbigcupplus}{MdLargesymbols}{\mathop}
  \mdsy@DeclareAlias{dbiguplus}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tbigsqcap}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dbigsqcap}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tbigsqcup}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dbigsqcup}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tbigsqcapdot}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dbigsqcapdot}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tbigsqcupdot}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dbigsqcupdot}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tbigsqcapplus}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dbigsqcapplus}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tbigsqcupplus}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dbigsqcupplus}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tbigoplus}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dbigoplus}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tbigotimes}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dbigotimes}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tbigodot}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dbigodot}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tbigoast}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dbigoast}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tprod}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dprod}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tcoprod}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dcoprod}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tsum}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dsum}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tosum}{MdLargesymbols}{\mathop}
```

```
  \mdsy@DeclareAlias{tmodtwosum}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dosum}{MdLargesymbols}{\mathop}
  \mdsy@DeclareAlias{dmodtwosum}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tint}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dint}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tiint}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{diint}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tiiint}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{diiint}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tiiiint}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{diiiint}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tidotsint}{MdLargesymbols}{\mathop}
  \mdsy@DeclareAlias{tdotsint}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{didotsint}{MdLargesymbols}{\mathop}
  \mdsy@DeclareAlias{ddotsint}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tlandupint}{MdLargesymbols}{\mathop}
  \mdsy@DeclareAlias{tintclockwise}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dlandupint}{MdLargesymbols}{\mathop}
  \mdsy@DeclareAlias{dintclockwise}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tlanddownint}{MdLargesymbols}{\mathop}
  \mdsy@DeclareAlias{tawint}{MdLargesymbols}{\mathop}
  \mdsy@DeclareAlias{tintctrclockwise}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dlanddownint}{MdLargesymbols}{\mathop}
  \mdsy@DeclareAlias{dawint}{MdLargesymbols}{\mathop}
  \mdsy@DeclareAlias{dintctrclockwise}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tintbar}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dintbar}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tintBar}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dintBar}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tfint}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dfint}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{toint}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{doint}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{toiint}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{doiint}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{toiiint}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{doiiint}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{trcirclerightint}{MdLargesymbols}{\mathop}
  \mdsy@DeclareAlias{tointctrclockwise}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{drcirclerightint}{MdLargesymbols}{\mathop}
  \mdsy@DeclareAlias{dointctrclockwise}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tlcirclerightint}{MdLargesymbols}{\mathop}
  \mdsy@DeclareAlias{tvarointclockwise}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dlcirclerightint}{MdLargesymbols}{\mathop}
  \mdsy@DeclareAlias{dvarointclockwise}{MdLargesymbols}{\mathop}
```

```
\mdsy@DeclareSymbol{trcircleleftint}{MdLargesymbols}{\mathop}
  \mdsy@DeclareAlias{tvarointctrclockwise}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{drcircleleftint}{MdLargesymbols}{\mathop}
  \mdsy@DeclareAlias{dvarointctrclockwise}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tlcircleleftint}{MdLargesymbols}{\mathop}
  \mdsy@DeclareAlias{tointclockwise}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dlcircleleftint}{MdLargesymbols}{\mathop}
  \mdsy@DeclareAlias{dointclockwise}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{tsumint}{MdLargesymbols}{\mathop}
\mdsy@DeclareSymbol{dsumint}{MdLargesymbols}{\mathop}
%\let\intop\tint
%\let\ointop\toint

\mdsy@DeclareOperator{bigplus}{\dbigplus}{\tbigplus}
\mdsy@DeclareOperator{bigtimes}{\dbigtimes}{\tbigtimes}
\mdsy@DeclareOperator{bigwedge}{\dbigwedge}{\tbigwedge}
\mdsy@DeclareOperator{bigvee}{\dbigvee}{\tbigvee}
\mdsy@DeclareOperator{bigwedgedot}{\dbigwedgedot}{\tbigwedgedot}
\mdsy@DeclareOperator{bigveedot}{\dbigveedot}{\tbigveedot}
\mdsy@DeclareOperator{bigdoublewedge}{\dbigdoublewedge}{\tbigdoublewedge}
\mdsy@DeclareOperator{conjquant}{\dconjquant}{\tconjquant}
\mdsy@DeclareOperator{bigdoublevee}{\dbigdoublevee}{\tbigdoublevee}
\mdsy@DeclareOperator{disjquant}{\ddisjquant}{\tdisjquant}
\mdsy@DeclareOperator{bigcurlywedge}{\dbigcurlywedge}{\tbigcurlywedge}
\mdsy@DeclareOperator{bigcurlyvee}{\dbigcurlyvee}{\tbigcurlyvee}
\mdsy@DeclareOperator{bigcurlywedgedot}{\dbigcurlywedgedot}{\tbigcurlywedgedot}
\mdsy@DeclareOperator{bigcurlyveedot}{\dbigcurlyveedot}{\tbigcurlyveedot}
\mdsy@DeclareOperator{bigdoublecurlywedge}{\dbigdoublecurlywedge}{\tbigdoublecurlywed
\mdsy@DeclareOperator{bigdoublecurlyvee}{\dbigdoublecurlyvee}{\tbigdoublecurlyvee}
\mdsy@DeclareOperator{bigcap}{\dbigcap}{\tbigcap}
\mdsy@DeclareOperator{bigcup}{\dbigcup}{\tbigcup}
\mdsy@DeclareOperator{bigcapdot}{\dbigcapdot}{\tbigcapdot}
\mdsy@DeclareOperator{bigcupdot}{\dbigcupdot}{\tbigcupdot}
\mdsy@DeclareOperator{bigcapplus}{\dbigcapplus}{\tbigcapplus}
\mdsy@DeclareOperator{bigcupplus}{\dbigcupplus}{\tbigcupplus}
\mdsy@DeclareOperator{biguplus}{\dbiguplus}{\tbiguplus}
\mdsy@DeclareOperator{bigsqcap}{\dbigsqcap}{\tbigsqcap}
\mdsy@DeclareOperator{bigsqcup}{\dbigsqcup}{\tbigsqcup}
\mdsy@DeclareOperator{bigsqcapdot}{\dbigsqcapdot}{\tbigsqcapdot}
\mdsy@DeclareOperator{bigsqcupdot}{\dbigsqcupdot}{\tbigsqcupdot}
\mdsy@DeclareOperator{bigsqcapplus}{\dbigsqcapplus}{\tbigsqcapplus}
\mdsy@DeclareOperator{bigsqcupplus}{\dbigsqcupplus}{\tbigsqcupplus}
\mdsy@DeclareOperator{bigoplus}{\dbigoplus}{\tbigoplus}
\mdsy@DeclareOperator{bigotimes}{\dbigotimes}{\tbigotimes}
\mdsy@DeclareOperator{bigodot}{\dbigodot}{\tbigodot}
```

```
\mdsy@DeclareOperator{bigoast}{\dbigoast}{\tbigoast}
\mdsy@DeclareOperator{sum}{\dsum}{\tsum}
\mdsy@DeclareOperator{osum}{\dosum}{\tosum}
\mdsy@DeclareOperator{modtwosum}{\dmodtwosum}{\tmodtwosum}
\mdsy@DeclareOperator{prod}{\dprod}{\tprod}
\mdsy@DeclareOperator{coprod}{\dcoprod}{\tcoprod}
\mdsy@DeclareIntegral{int}{\dint}{\tint}
\mdsy@DeclareIntegral{iint}{\diint}{\tiint}
\mdsy@DeclareIntegral{iiint}{\diiint}{\tiiint}
\mdsy@DeclareIntegral{iiiint}{\diiiint}{\tiiiint}
\mdsy@DeclareIntegral{idotsint}{\didotsint}{\tidotsint}
\mdsy@DeclareIntegral{dotsint}{\ddotsint}{\tdotsint}
\mdsy@DeclareIntegral{landupint}{\dlandupint}{\tlandupint}
\mdsy@DeclareIntegral{intclockwise}{\dintclockwise}{\tintclockwise}
\mdsy@DeclareIntegral{landdownint}{\dlanddownint}{\tlanddownint}
\mdsy@DeclareIntegral{awint}{\dawint}{\tawint}
\mdsy@DeclareIntegral{intctrclockwise}{\dintctrclockwise}{\tintctrclockwise}
\mdsy@DeclareIntegral{landdownint}{\dlanddownint}{\tlanddownint}
\mdsy@DeclareIntegral{intbar}{\dintbar}{\tintbar}
\mdsy@DeclareIntegral{intBar}{\dintBar}{\tintBar}
\mdsy@DeclareIntegral{fint}{\dfint}{\tfint}
\mdsy@DeclareIntegral{oint}{\doint}{\toint}
\mdsy@DeclareIntegral{oiint}{\doiint}{\toiint}
\mdsy@DeclareIntegral{oiiint}{\doiiint}{\toiiint}
\mdsy@DeclareIntegral{rcirclerightint}{\drcirclerightint}{\trcirclerightint}
\mdsy@DeclareIntegral{ointctrclockwise}{\dointctrclockwise}{\tointctrclockwise}
\mdsy@DeclareIntegral{lcirclerightint}{\dlcirclerightint}{\tlcirclerightint}
\mdsy@DeclareIntegral{varointclockwise}{\dvarointclockwise}{\tvarointclockwise}
\mdsy@DeclareIntegral{rcircleleftint}{\drcircleleftint}{\trcircleleftint}
\mdsy@DeclareIntegral{varointctrclockwise}{\dvarointctrclockwise}{\tvarointctrclockwi
\mdsy@DeclareIntegral{lcircleleftint}{\dlcircleleftint}{\tlcircleleftint}
\mdsy@DeclareIntegral{ointclockwise}{\dointclockwise}{\tointclockwise}
\mdsy@DeclareIntegral{sumint}{\dsumint}{\tsumint}

\mdsy@renewcommand{intkern@}{\mkern-8.5mu\mathchoice{\mkern-1mu}{}{}{}}
\mdsy@renewcommand{intdots@}{\mkern-6mu%
  \mathchoice{\@cdots}%
  {{\cdotp}\mkern0.5mu{\cdotp}\mkern0.5mu{\cdotp}}%
  {{\cdotp}{\cdotp}{\cdotp}}%
  {{\cdotp}{\cdotp}{\cdotp}}%
  \mkern-6mu}
```

Math accents.

```
\mdsy@DeclareMathAccent{widehat}{\mathord}{MdLargesymbols}{"72}
\mdsy@DeclareMathAccent{widetilde}{\mathord}{MdLargesymbols}{"78}
\mdsy@DeclareMathAccent{wideparen}{\mathord}{MdLargesymbols}{"7E}
```

```
\mdsy@DeclareMathAccent{vec}{\mathord}{MdLargesymbols}{"84}
\mdsy@DeclareMathAccent{middlebar}{\mathord}{MdLargesymbols}{"85}
\mdsy@DeclareMathAccent{middleslash}{\mathord}{MdLargesymbols}{"86}
\mdsy@DeclareMathAccent{strokethrough}{\mathord}{MdLargesymbols}{"87}
```

MdSymbolF: delimiters

```
\ifmdsy@largedelims
%  \mdsy@DeclareOpen{(}{MdDelimiters}{"01}
%  \mdsy@DeclareClose{)}{MdDelimiters}{"07}
  \mdsy@DeclareOpen{lparen}{MdDelimiters}{"01}
  \mdsy@DeclareClose{rparen}{MdDelimiters}{"07}
%  \mdsy@DeclareOpen{[}{MdDelimiters}{"13}
%  \mdsy@DeclareClose{]}{MdDelimiters}{"19}
  \mdsy@DeclareOpen{lbrack}{MdDelimiters}{"13}
  \mdsy@DeclareClose{rbrack}{MdDelimiters}{"19}
  \mdsy@DeclareOpen{lfloor}{MdDelimiters}{"1F}
  \mdsy@DeclareClose{rfloor}{MdDelimiters}{"25}
  \mdsy@DeclareOpen{lceil}{MdDelimiters}{"2B}
  \mdsy@DeclareClose{rceil}{MdDelimiters}{"31}
  \mdsy@DeclareOpen{ulcorner}{MdDelimiters}{"37}
  \mdsy@DeclareClose{urcorner}{MdDelimiters}{"3D}
  \mdsy@DeclareOpen{llcorner}{MdDelimiters}{"43}
  \mdsy@DeclareClose{lrcorner}{MdDelimiters}{"49}
  \mdsy@DeclareOpen{ullcorner}{MdDelimiters}{"4F}
  \mdsy@DeclareClose{ulrcorner}{MdDelimiters}{"55}
  \mdsy@DeclareOpen{lsem}{MdDelimiters}{"61}
  \mdsy@DeclareClose{rsem}{MdDelimiters}{"67}
  \mdsy@DeclareOpen{lBrack}{MdDelimiters}{"61}
  \mdsy@DeclareClose{rBrack}{MdDelimiters}{"67}
  \mdsy@DeclareOpen{lbrace}{MdDelimiters}{"73}
  \mdsy@DeclareClose{rbrace}{MdDelimiters}{"79}
%  \mdsy@DeclareOpen{<}{MdDelimiters}{"86}
%  \mdsy@DeclareClose{>}{MdDelimiters}{"8C}
  \mdsy@DeclareOpen{langle}{MdDelimiters}{"86}
  \mdsy@DeclareClose{rangle}{MdDelimiters}{"8C}
  \mdsy@DeclareOpen{lAngle}{MdDelimiters}{"92}
  \mdsy@DeclareClose{rAngle}{MdDelimiters}{"98}
  \mdsy@DeclareOpen{langledot}{MdDelimiters}{"9E}
  \mdsy@DeclareClose{rangledot}{MdDelimiters}{"A4}
%  \mdsy@DeclareDelimiter{/}{\mathord}{MdDelimiters}{"AA}
  \mdsy@DeclareDelimiter{mathslash}{\mathord}{MdDelimiters}{"AA}
  \mdsy@DeclareMathSymbol{divslash}{\mathbin}{MdDelimiters}{"AA}
  \mdsy@DeclareDelimiter{backslash}{\mathord}{MdDelimiters}{"B0}
%  \expandafter\DeclareMathDelimiter\@backslashchar%
%    {\mathord}{MdDelimiters}{"B0}{MdDelimiters}{"B0}
  \mdsy@DeclareMathSymbol{setminus}{\mathbin}{MdDelimiters}{"B0}
```

```
%  \mdsy@DeclareDelimiter{|}{\mathord}{MdDelimiters}{"B7}
  \mdsy@DeclareDelimiter{vert}{\mathord}{MdDelimiters}{"B7}
  \mdsy@DeclareOpen{lvert}{MdDelimiters}{"B7}
  \mdsy@DeclareClose{rvert}{MdDelimiters}{"B7}
  \mdsy@DeclareMathSymbol{mid}{\mathrel}{MdDelimiters}{"B7}
  \mdsy@DeclareMathSymbol{nmid}{\mathrel}{MdDelimiters}{"BA}
  \mdsy@DeclareDelimiter{Vert}{\mathord}{MdDelimiters}{"BE}
  \mdsy@DeclareOpen{lVert}{MdDelimiters}{"BE}
  \mdsy@DeclareClose{rVert}{MdDelimiters}{"BE}
  \mdsy@DeclareMathSymbol{parallel}{\mathrel}{MdDelimiters}{"BE}
  \mdsy@DeclareMathSymbol{nparallel}{\mathrel}{MdDelimiters}{"C1}
  \mdsy@DeclareDelimiter{Vvert}{\mathord}{MdDelimiters}{"C4}
  \mdsy@DeclareOpen{lVvert}{MdDelimiters}{"C4}
  \mdsy@DeclareClose{rVvert}{MdDelimiters}{"C4}
\else
%  \mdsy@DeclareOpen{(}{MdDelimiters}{"00}
%  \mdsy@DeclareClose{)}{MdDelimiters}{"06}
  \mdsy@DeclareOpen{lparen}{MdDelimiters}{"00}
  \mdsy@DeclareClose{rparen}{MdDelimiters}{"06}
%  \mdsy@DeclareOpen{[}{MdDelimiters}{"12}
%  \mdsy@DeclareClose{]}{MdDelimiters}{"18}
  \mdsy@DeclareOpen{lbrack}{MdDelimiters}{"12}
  \mdsy@DeclareClose{rbrack}{MdDelimiters}{"18}
  \mdsy@DeclareOpen{lfloor}{MdDelimiters}{"1E}
  \mdsy@DeclareClose{rfloor}{MdDelimiters}{"24}
  \mdsy@DeclareOpen{lceil}{MdDelimiters}{"2A}
  \mdsy@DeclareClose{rceil}{MdDelimiters}{"30}
  \mdsy@DeclareOpen{ulcorner}{MdDelimiters}{"36}
  \mdsy@DeclareClose{urcorner}{MdDelimiters}{"3C}
  \mdsy@DeclareOpen{llcorner}{MdDelimiters}{"42}
  \mdsy@DeclareClose{lrcorner}{MdDelimiters}{"48}
  \mdsy@DeclareOpen{ullcorner}{MdDelimiters}{"4E}
  \mdsy@DeclareClose{ulrcorner}{MdDelimiters}{"54}
  \mdsy@DeclareOpen{lsem}{MdDelimiters}{"60}
  \mdsy@DeclareClose{rsem}{MdDelimiters}{"66}
  \mdsy@DeclareOpen{lBrack}{MdDelimiters}{"60}
  \mdsy@DeclareClose{rBrack}{MdDelimiters}{"66}
  \mdsy@DeclareOpen{lbrace}{MdDelimiters}{"72}
  \mdsy@DeclareClose{rbrace}{MdDelimiters}{"78}
%  \mdsy@DeclareOpen{<}{MdDelimiters}{"85}
%  \mdsy@DeclareClose{>}{MdDelimiters}{"8B}
  \mdsy@DeclareOpen{langle}{MdDelimiters}{"85}
  \mdsy@DeclareClose{rangle}{MdDelimiters}{"8B}
  \mdsy@DeclareOpen{lAngle}{MdDelimiters}{"91}
  \mdsy@DeclareClose{rAngle}{MdDelimiters}{"97}
```

```
  \mdsy@DeclareOpen{langledot}{MdDelimiters}{"9D}
  \mdsy@DeclareClose{rangledot}{MdDelimiters}{"A3}
%  \mdsy@DeclareDelimiter{/}{\mathord}{MdDelimiters}{"A9}
  \mdsy@DeclareDelimiter{mathslash}{\mathord}{MdDelimiters}{"A9}
  \mdsy@DeclareMathSymbol{divslash}{\mathbin}{MdDelimiters}{"A9}
  \mdsy@DeclareDelimiter{backslash}{\mathord}{MdDelimiters}{"AF}
%  \expandafter\DeclareMathDelimiter\@backslashchar%
%    {\mathord}{MdDelimiters}{"AF}{MdDelimiters}{"AF}
  \mdsy@DeclareMathSymbol{setminus}{\mathbin}{MdDelimiters}{"AF}
%  \mdsy@DeclareDelimiter{|}{\mathord}{MdDelimiters}{"B6}
  \mdsy@DeclareDelimiter{vert}{\mathord}{MdDelimiters}{"B6}
  \mdsy@DeclareOpen{lvert}{MdDelimiters}{"B6}
  \mdsy@DeclareClose{rvert}{MdDelimiters}{"B6}
  \mdsy@DeclareMathSymbol{mid}{\mathrel}{MdDelimiters}{"B6}
  \mdsy@DeclareMathSymbol{nmid}{\mathrel}{MdDelimiters}{"B9}
  \mdsy@DeclareDelimiter{Vert}{\mathord}{MdDelimiters}{"BD}
  \mdsy@DeclareOpen{lVert}{MdDelimiters}{"BD}
  \mdsy@DeclareClose{rVert}{MdDelimiters}{"BD}
  \mdsy@DeclareMathSymbol{parallel}{\mathrel}{MdDelimiters}{"BD}
  \mdsy@DeclareMathSymbol{nparallel}{\mathrel}{MdDelimiters}{"C0}
  \mdsy@DeclareDelimiter{Vvert}{\mathord}{MdDelimiters}{"C3}
  \mdsy@DeclareOpen{lVvert}{MdDelimiters}{"C3}
  \mdsy@DeclareClose{rVvert}{MdDelimiters}{"C3}
\fi
\let\|\Vert
\mdsy@renewcommand{divides}{\mid}
\mdsy@renewcommand{ndivides}{\nmid}
\mdsy@DeclareMathSymbol{shortmid}{\mathrel}{MdDelimiters}{"B5}
\mdsy@DeclareMathSymbol{nshortmid}{\mathrel}{MdDelimiters}{"B8}
\mdsy@DeclareMathSymbol{shortparallel}{\mathrel}{MdDelimiters}{"BC}
\mdsy@DeclareMathSymbol{nshortparallel}{\mathrel}{MdDelimiters}{"BF}
\mdsy@DeclareDelimiter{arrowvert}{\mathord}{MdDelimiters}{"BB}
\mdsy@DeclareDelimiter{Arrowvert}{\mathord}{MdDelimiters}{"C2}
\mdsy@DeclareClose{lgroup}{MdDelimiters}{"7E}
\mdsy@DeclareOpen{rgroup}{MdDelimiters}{"7F}
\mdsy@DeclareClose{rmoustache}{MdDelimiters}{"80}
\mdsy@DeclareOpen{lmoustache}{MdDelimiters}{"81}
\mdsy@DeclareDelimiter{bracevert}{\mathord}{MdDelimiters}{"84}

\mdsy@DeclareMathDelimiter{uparrow}{\mathrel}{MdArrows}{"01}{MdDelimiters}{"C6}
\mdsy@DeclareMathDelimiter{downarrow}{\mathrel}{MdArrows}{"03}{MdDelimiters}{"C7}
\mdsy@DeclareMathDelimiter{updownarrow}{\mathrel}{MdArrows}{"11}{MdDelimiters}{"C8}
\mdsy@DeclareMathDelimiter{Uparrow}{\mathrel}{MdArrows}{"09}{MdDelimiters}{"C9}
\mdsy@DeclareMathDelimiter{Downarrow}{\mathrel}{MdArrows}{"0B}{MdDelimiters}{"CA}
\mdsy@DeclareMathDelimiter{Updownarrow}{\mathrel}{MdArrows}{"15}{MdDelimiters}{"CB}
```

Horizontal braces.

```
\mdsy@DeclareMathSymbol{braceld}{\mathord}{MdDelimiters}{"CC}
\mdsy@DeclareMathSymbol{bracelu}{\mathord}{MdDelimiters}{"CD}
\mdsy@DeclareMathSymbol{bracerd}{\mathord}{MdDelimiters}{"CE}
\mdsy@DeclareMathSymbol{braceru}{\mathord}{MdDelimiters}{"CF}
\mdsy@DeclareMathSymbol{bracemd}{\mathord}{MdDelimiters}{"D0}
\mdsy@DeclareMathSymbol{bracemu}{\mathord}{MdDelimiters}{"D1}
\mdsy@DeclareMathSymbol{bracemid}{\mathord}{MdDelimiters}{"D2}

\mdsy@DeclareRobustCommandArg{bracefill@}{5}{%
  $\m@th#5#1\leaders\hbox{$#4$}\hfill#2\leaders\hbox{$#4$}\hfill#3$%
}
\mdsy@renewcommand{downbracefill@}{\bracefill@\braceld\bracemd\bracerd\bracemid}
\mdsy@renewcommand{upbracefill@}{\bracefill@\bracelu\bracemu\braceru\bracemid}
\mdsy@renewcommand{downgroupfill@}{\bracefill@\braceld{}\bracerd\bracemid}
\mdsy@renewcommand{upgroupfill@}{\bracefill@\bracelu{}\braceru\bracemid}
\mdsy@renewcommand{linesegmentfill@}{\arrowfill@\leftfootline\relbar\rightfootline}
\mdsy@renewcommand{leftharpoonfill@}{\arrowfill@\leftharpoondown\relbar\relbar}
\mdsy@renewcommand{rightharpoonfill@}{\arrowfill@\relbar\relbar\rightharpoonup}

\mdsy@DeclareRobustCommandArg{overbrace}{1}{%
  \mathop{\mathpalette{\overarrow@\downbracefill@}{#1}}\limits%
}
\mdsy@DeclareRobustCommandArg{underbrace}{1}{%
  \mathop{\mathpalette{\underarrow@\upbracefill@}{#1}}\limits%
}
\mdsy@DeclareRobustCommand{overgroup}{\mathpalette{\overarrow@\downgroupfill@}}
\mdsy@DeclareRobustCommand{undergroup}{\mathpalette{\underarrow@\upgroupfill@}}
\mdsy@DeclareRobustCommand{overlinesegment}{\mathpalette{\overarrow@\linesegmentfill@
\mdsy@DeclareRobustCommand{overleftharpoon}{\mathpalette{\overarrow@\leftharpoonfill@
\mdsy@DeclareRobustCommand{overrightharpoon}{\mathpalette{\overarrow@\rightharpoonfil
\mdsy@DeclareRobustCommand{underlinesegment}{\mathpalette{\underarrow@\linesegmentfil
```

Radical symbols.

```
\ifmdsy@largedelims
  \mdsy@DeclareMathRadical{sqrtsign}{MdDelimiters}{"D4}{MdDelimiters}{"D4}
  \mdsy@DeclareMathSymbol{surd}{\mathop}{MdDelimiters}{"D4}
\else
  \mdsy@DeclareMathRadical{sqrtsign}{MdDelimiters}{"D3}{MdDelimiters}{"D3}
  \mdsy@DeclareMathSymbol{surd}{\mathop}{MdDelimiters}{"D3}
\fi
```

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

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

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

```
\AtBeginDocument{%
  \mdsy@DeclareActiveMathSymbol{+}{\mathbin}{MdSymbols}{"11}
  \mdsy@DeclareActiveMathSymbol{-}{\mathbin}{MdSymbols}{"0E}
  \mdsy@DeclareActiveMathSymbol{*}{\mathbin}{MdSymbols}{"98}
  \mdsy@DeclareActiveMathSymbol{:}{\mathrel}{MdSymbols}{"02}
  \mdsy@DeclareActiveMathSymbol{=}{\mathrel}{MdRelations}{"00}
  \mdsy@DeclareActiveMathSymbol{<}{\mathrel}{MdRelations}{"24}
  \mdsy@DeclareActiveMathSymbol{>}{\mathrel}{MdRelations}{"25}
  \ifmdsy@largedelims
    \mdsy@DeclareActiveMathDelimiter{|}{\mathord}{MdDelimiters}{"B7}
    \mdsy@DeclareActiveMathDelimiter{(}{\mathopen}{MdDelimiters}{"01}
    \mdsy@DeclareActiveMathDelimiter{)}{\mathclose}{MdDelimiters}{"07}
    \mdsy@DeclareActiveMathDelimiter{[}{\mathopen}{MdDelimiters}{"13}
    \mdsy@DeclareActiveMathDelimiter{]}{\mathclose}{MdDelimiters}{"19}
    \mdsy@DeclareActiveMathDelimiter{/}{\mathord}{MdDelimiters}{"AA}
  \else
    \mdsy@DeclareActiveMathDelimiter{|}{\mathord}{MdDelimiters}{"B6}
    \mdsy@DeclareActiveMathDelimiter{(}{\mathopen}{MdDelimiters}{"00}
    \mdsy@DeclareActiveMathDelimiter{)}{\mathclose}{MdDelimiters}{"06}
    \mdsy@DeclareActiveMathDelimiter{[}{\mathopen}{MdDelimiters}{"12}
    \mdsy@DeclareActiveMathDelimiter{]}{\mathclose}{MdDelimiters}{"18}
    \mdsy@DeclareActiveMathDelimiter{/}{\mathord}{MdDelimiters}{"A9}
  \fi
  \ifmdsy@onlysansmath
```

amsmath and amsopn 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.

```
    \def\resetMathstrut@{%
      \setbox\z@\hbox{%
        \ifmathversionsans{%
          \mathchardef\@tempa\csname(@new\endcsname%
        }{%
          \mathchardef\@tempa\csname(@old\endcsname%
        }
        \def\@tempb##1"##2##3{\the\textfont"##3\char"}%
        \expandafter\@tempb\meaning\@tempa \relax
      }%
      \ht\Mathstrutbox@\ht\z@ \dp\Mathstrutbox@\dp\z@
    }
    \renewcommand{\std@minus}{-}
    \renewcommand{\std@equal}{=}
    \gdef\newmcodes@{\mathcode`\'39\mathcode`\*42\mathcode`\."613A%
```

```
      \ifnum\mathcode`\-=45 \else
        \renewcommand{\std@minus}{-}\relax
      \fi
      \mathcode`\-45\mathcode`\/47\mathcode`\:"603A\relax}
  \fi
}
```

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.

```
\mdsy@DeclareRobustCommandArg{c@ncel}{2}{\m@th\ooalign{$\hfil#1/\hfil$\crcr$#1#2$}}
\mdsy@DeclareRobustCommandArg{not}{1}{\mathrel{\m@th\mathpalette\c@ncel{#1}}}
```

⟨/style⟩