MdSymbol: A Math Symbol Font

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Contents

1 Introduction **1**

2 Interferences with other packages **2**

3 Options **2**
3.1 Font selection 2
3.2 Math Symbols only in sans serif math 3
3.3 Miscellaneous 3

4 Version history **4**

5 Symbols **4**
5.1 Ordinary symbols 4
5.2 Binary operators 5
5.3 Relations 7
5.4 Punctuation symbols 17
5.5 Large operators 17
5.6 Delimiters and accents 18
5.7 Faked symbols 20
5.8 Missing symbols 20

6 Implementation **21**

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 only used within these math versions. Use the command `\mathversion{sans}` or `\mathversion{sansbold}` to switch to this math version. Also single input character symbols (e.g. +, −, (,)) adapt to the math version except when used with a delimiter size increasing command like `\big(`.[2] As a workaround, use the corresponding full command instead (`\big\lparen`).

3.3 Miscellaneous

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

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

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

Key	Values
`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
Version 0.2a:

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

Version 0.3: Rename package to lower-case mdsymbol for CTAN upload
Version 0.4:

- Added overlining command
- Tuning of parameters and correction of some symbols

Version 0.5: Added symbols `\prodi` and `\coprodi`

5 Symbols

The mdsymbol package provides the following symbols.

5.1 Ordinary symbols

⋯	`\hdots`
⋮	`\vdots`
⋰	`\udots`, `\adots`
⋱	`\ddots`
∶·	`\righttherefore`
∴	`\uptherefore`, `\therefore`
·∶	`\lefttherefore`
∵	`\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
‵ \backprime
✓ \checkmark
↯ \lightning, \downzigzagarrow
♢ \diamondsuit
◆ \vardiamondsuit
♡ \heartsuit
♥ \varheartsuit
♠ \spadesuit
♣ \clubsuit
✠ \maltese
✡ \starofdavid
▵ \sector
∀ \forall
∃ \exists
∄ \nexists
⅁ \Finv
⅁ \Game
∁ \complement
♭ \flat
♮ \natural
♯ \sharp
ℵ \aleph
ℶ \beth
ℷ \gimel
ℸ \daleth
℘ \wp
∇ \nabla
⊤ \top
⊥ \bot
/ /, \mathslash
\ \backslash
| |, \vert
‖ \Vert
||| \Vvert

5.2 Binary operators

· \cdot
. \centerdot
‥ \hdotdot
: \vdotdot
∴ \udotdot
⋱ \ddotdot
− -, \minus
⁄ \medslash, \smalldivslash
∖ \medbackslash, \smallsetminus
+ +, \plus
× \times
∸ \dotminus
∓ \minusdot
÷ \div
∹ \minusfdots
≑ \minusrdots
± \pm
∓ \mp
∔ \dotplus
∔ \plusdot
⋇ \dottimes

⨴ \timesbar
⋇ \divideontimes
⨍ \intprod
⨎ \intprodr
⋋ \leftthreetimes
⋌ \rightthreetimes
⧢ \dtimes, \btimes
⋊ \rtimes
⋉ \utimes, \ttimes
⋉ \ltimes
⋈ \lrtimes
⧓ \upbowtie, \hourglass
≻ \rightY
⅄ \upY
≺ \leftY
Y \downY
∧ \wedge, \land
∨ \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, \boxbslash
⊞ \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
≙	\wedgeq, \hateq
≚	\veeeq
≛	\stareq
≜	\triangleeq, \triangleq
∈	\in
∋	\owns, \ni
<	<, \less
>	>, \gtr
≤	\leq, \le
≥	\geq, \ge
⩽	\leqslant
⩾	\geqslant
≦	\leqq
≧	\geqq
≲	\lesssim
≳	\gtrsim
≲	\lessapprox
≳	\gtrapprox
≶	\lessgtr
≷	\gtrless
≶	\lesseqgtr
≷	\gtreqless
≦	\lesseqqgtr
≧	\gtreqqless
⩽	\lesseqslantgtr, \lesq
⩾	\gtreqslantless, \gesl
≪	\ll
≫	\gg
⋘	\lll, \llless
⋙	\ggg, \gggtr
◁	\lessclosed, \vartriangleleft
▷	\gtrclosed, \vartriangleright
⊴	\leqclosed, \trianglelefteq
⊵	\geqclosed, \trianglerighteq
⋖	\lesscc, \ltcc
⋗	\gtrcc, \gtcc
⋚	\leqslcc, \lescc
⋛	\geqslcc, \gescc
⊏	\sqsubset
⊐	\sqsupset
⊑	\sqsubseteq
⊒	\sqsupseteq
⊑	\sqsubseteqq
⊒	\sqsupseteqq
⊏	\Sqsubset
⊐	\Sqsupset
⊂	\subset
⊃	\supset
⊆	\subseteq
⊇	\supseteq
⊆	\subseteqq
⊇	\supseteqq
⋐	\Subset
⋑	\Supset
≺	\prec
≻	\succ
≼	\preceq
≽	\succeq
≺	\preccurlyeq
≽	\succcurlyeq

⪷	\preceqq
⪸	\succeqq
≾	\precsim
≿	\succsim
⪷	\precapprox
⪸	\succapprox
⋖	\lessdot
⋗	\gtrdot
⪕	\leqdot
⪖	\geqdot
⪿	\leqslantdot, \lesdot
⪾	\geqslantdot, \gesdot
⪕	\eqslantless
⪖	\eqslantgtr
⋞	\curlyeqprec
⋟	\curlyeqsucc
∼	\thicksim
≈	\thickapprox
→	\rightarrow, \to
↑	\uparrow
←	\leftarrow, \gets
↓	\downarrow
↗	\nearrow
↖	\nwarrow
↙	\swarrow
↘	\searrow
⇒	\Rightarrow
⇑	\Uparrow
⇐	\Leftarrow
⇓	\Downarrow
⇗	\Nearrow
⇖	\Nwarrow
⇙	\Swarrow
⇘	\Searrow
↔	\leftrightarrow
↕	\updownarrow
⤢	\neswarrow
⤡	\nwsearrow
⇔	\Leftrightarrow
⇕	\Updownarrow
⤢	\Neswarrow

⤡	\Nwsearrow
↠	\twoheadrightarrow
↟	\twoheaduparrow
↞	\twoheadleftarrow
↡	\twoheaddownarrow
↗	\twoheadnearrow
↖	\twoheadnwarrow
↙	\twoheadswarrow
↘	\twoheadsearrow
↣	\rightarrowtail
↥	\uparrowtail
↢	\leftarrowtail
↧	\downarrowtail
↗	\nearrowtail
↖	\nwarrowtail
↙	\swarrowtail
↘	\searrowtail
↦	\rightmapsto, \mapsto
↥	\upmapsto, \mapsup
↤	\leftmapsto, \mapsfrom
↧	\downmapsto, \mapsdown
⤇	\Rightmapsto, \Mapsto
⤊	\Upmapsto, \Mapsup
⤆	\Leftmapsto, \Mapsfrom
⤋	\Downmapsto, \Mapsdown
↪	\hookrightarrow
↱	\hookuparrow
↼	\varhookleftarrow
↧	\varhookdownarrow
↗	\varhooknearrow
↖	\hooknwarrow, \hknwarrow
↙	\varhookswarrow
↘	\hooksearrow, \hksearrow
↪	\varhookrightarrow
↥	\varhookuparrow
↩	\hookleftarrow
↕	\hookdownarrow
↗	\hooknearrow, \hknearrow
↖	\varhooknwarrow
↙	\hookswarrow, \hkswarrow
↘	\varhooksearrow

⇀ \rightharpoonup
↿ \upharpoonleft
↼ \leftharpoondown
⇂ \downharpoonright
↗ \neharpoonnw
↖ \nwharpoonsw
↙ \swharpoonse
↘ \seharpoonne
⇁ \rightharpoondown
↾ \upharpoonright, \restriction
↽ \leftharpoonup
⇃ \downharpoonleft
↗ \neharpoonse
↖ \nwharpoonne
↙ \swharpoonnw
↘ \seharpoonsw
⇋ \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
Ψ \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
⊤ \downassert, \shortdowntack
⊨ \rightvDash, \vDash
⫫ \upvDash, \Vbar
⫤ \leftvDash, \Dashv
⫪ \downvDash, \barV
⊨ \rightmodels, \models
⫫ \upmodels
⫤ \leftmodels
⫪ \downmodels
⊩ \rightVdash, \Vdash
⫠ \upVdash
⫣ \leftVdash, \dashV
⫧ \downVdash
⊩ \rightAssert, \Assert
⫠ \upAssert, \vBar
⫣ \leftAssert
⫧ \downAssert, \Barv
⊩ \rightVDash, \VDash
⫢ \upVDash
⫣ \leftVDash, \DashV
⫧ \downVDash
⊪ \Vvdash
⫣ \dashVv
⊨ \vDdash
⫤ \Ddashv
≠ \nequal, \neq, \ne
≢ \nequiv
≁ \nsim
≁ \nbacksim
≉ \napprox
≉ \ntriplesim, \napproxident
≁ \nsimeq, \nsime
≁ \nbacksimeq
≁ \neqsim
≇ \ncong
≇ \nbackcong
≇ \napproxeq
≠ \nbumpeq
≢ \nbumpeqq
≠ \nBumpeq
≠ \ndoteq
≠ \neqdot
≠ \nDoteq
≒ \nfallingdotseq
≠ \nrisingdotseq
≁ \nsmile
≁ \nfrown
≉ \nsmilefrown, \nasymp
≉ \nfrownsmile, \nclosure
≉ \nsmileeq
≢ \nfrowneq, \narceq
≠ \neqcirc
≠ \ncirceq
≩ \nwedgeq, \nhateq
≠ \nveeeq
≠ \nstareq
≠ \ntriangleeq
∉ \nin, \notin
∌ \nowns, \nni
≮ \nless
≯ \ngtr
≰ \nleq
≱ \ngeq
≰ \nleqslant

$\ngeqslant$ \ngeqslant
$\nleqq$ \nleqq
$\ngeqq$ \ngeqq
$\nlesssim$ \nlesssim
$\ngtrsim$ \ngtrsim
$\nlessapprox$ \nlessapprox
$\ngtrapprox$ \ngtrapprox
$\nlessgtr$ \nlessgtr
$\ngtrless$ \ngtrless
$\nlesseqgtr$ \nlesseqgtr
$\ngtreqless$ \ngtreqless
$\nlesseqqgtr$ \nlesseqqgtr
$\ngtreqqless$ \ngtreqqless
$\nlesseqslantgtr$ \nlesseqslantgtr, \nlesg
$\ngtreqslantless$ \ngtreqslantless, \ngesl
$\nll$ \nll
$\ngg$ \ngg
$\nlll$ \nlll
$\nggg$ \nggg
$\nlessclosed$ \nlessclosed, \ntriangleleft
$\ngtrclosed$ \ngtrclosed, \ntriangleright
$\nleqclosed$ \nleqclosed, \ntrianglelefteq
$\ngeqclosed$ \ngeqclosed, \ntrianglerighteq
$\nlesscc$ \nlesscc, \nltcc
$\ngtrcc$ \ngtrcc, \ngtcc
$\nleqslcc$ \nleqslcc, \nlescc
$\ngeqslcc$ \ngeqslcc, \ngescc
$\nsqsubset$ \nsqsubset
$\nsqsupset$ \nsqsupset
$\nsqsubseteq$ \nsqsubseteq
$\nsqsupseteq$ \nsqsupseteq
$\nsqsubseteqq$ \nsqsubseteqq
$\nsqsupseteqq$ \nsqsupseteqq
$\nSqsubset$ \nSqsubset
$\nSqsupset$ \nSqsupset
$\nsubset$ \nsubset
$\nsupset$ \nsupset
$\nsubseteq$ \nsubseteq
$\nsupseteq$ \nsupseteq
$\nsubseteqq$ \nsubseteqq
$\nsupseteqq$ \nsupseteqq
$\nSubset$ \nSubset
$\nSupset$ \nSupset
$\nprec$ \nprec
$\nsucc$ \nsucc
$\npreceq$ \npreceq
$\nsucceq$ \nsucceq
$\npreccurlyeq$ \npreccurlyeq
$\nsucccurlyeq$ \nsucccurlyeq
$\npreceqq$ \npreceqq
$\nsucceqq$ \nsucceqq
$\nprecsim$ \nprecsim
$\nsuccsim$ \nsuccsim
$\nprecapprox$ \nprecapprox
$\nsuccapprox$ \nsuccapprox
$\nlessdot$ \nlessdot
$\ngtrdot$ \ngtrdot
$\nleqdot$ \nleqdot
$\ngeqdot$ \ngeqdot
$\nleqslantdot$ \nleqslantdot, \nlesdot
$\ngeqslantdot$ \ngeqslantdot, \ngesdot
$\neqslantless$ \neqslantless
$\neqslantgtr$ \neqslantgtr
$\ncurlyeqprec$ \ncurlyeqprec
$\ncurlyeqsucc$ \ncurlyeqsucc
$\simneqq$ \simneqq
$\backsimneqq$ \backsimneqq
$\lneq$ \lneq
$\gneq$ \gneq
$\lneqq$ \lneqq, \lvertneqq
$\gneqq$ \gneqq, \gvertneqq
$\lnsim$ \lnsim
$\gnsim$ \gnsim
$\lnapprox$ \lnapprox
$\gnapprox$ \gnapprox
$\sqsubsetneq$ \sqsubsetneq
$\sqsupsetneq$ \sqsupsetneq
$\sqsubsetneqq$ \sqsubsetneqq

$\not\sqsupseteqq$ \sqsupsetneqq
$\not\subseteq$ \subsetneq, \varsubsetneq
$\not\supseteq$ \supsetneq, \varsupsetneq
$\not\subseteqq$ \subsetneqq, \varsubsetneqq
$\not\supseteqq$ \supsetneqq, \varsupsetneqq
$\not\preceq$ \precneq
$\not\succeq$ \succneq
$\not\preceqq$ \precneqq
$\not\succeqq$ \succneqq
$\not\precsim$ \precnsim
$\not\succsim$ \succnsim
$\not\precapprox$ \precnapprox
$\not\succapprox$ \succnapprox
$\not\rightarrow$ \nrightarrow, \nto
$\not\uparrow$ \nuparrow
$\not\leftarrow$ \nleftarrow, \ngets
$\not\downarrow$ \ndownarrow
$\not\nearrow$ \nnearrow
$\not\nwarrow$ \nnwarrow
$\not\swarrow$ \nswarrow
$\not\searrow$ \nsearrow
$\not\Rightarrow$ \nRightarrow
$\not\Uparrow$ \nUparrow
$\not\Leftarrow$ \nLeftarrow
$\not\Downarrow$ \nDownarrow
$\not\nearrow$ \nNearrow
$\not\nwarrow$ \nNwarrow
$\not\swarrow$ \nSwarrow
$\not\searrow$ \nSearrow
$\not\leftrightarrow$ \nleftrightarrow
$\not\updownarrow$ \nupdownarrow
$\not\nearrow$ \nneswarrow
$\not\nwarrow$ \nnwsearrow
$\not\Leftrightarrow$ \nLeftrightarrow
$\not\Updownarrow$ \nUpdownarrow
$\not\nearrow$ \nNeswarrow
$\not\nwarrow$ \nNwsearrow
$\not\twoheadrightarrow$ \ntwoheadrightarrow
$\not\twoheaduparrow$ \ntwoheaduparrow
$\not\twoheadleftarrow$ \ntwoheadleftarrow
$\not\twoheaddownarrow$ \ntwoheaddownarrow
$\not\twoheadnearrow$ \ntwoheadnearrow
$\not\twoheadnwarrow$ \ntwoheadnwarrow
$\not\twoheadswarrow$ \ntwoheadswarrow
$\not\twoheadsearrow$ \ntwoheadsearrow
$\not\rightarrowtail$ \nrightarrowtail
$\not\uparrowtail$ \nuparrowtail
$\not\leftarrowtail$ \nleftarrowtail
$\not\downarrowtail$ \ndownarrowtail
$\not\nearrowtail$ \nnearrowtail
$\not\nwarrowtail$ \nnwarrowtail
$\not\swarrowtail$ \nswarrowtail
$\not\searrowtail$ \nsearrowtail
$\not\rightarrow$ \nrightmapsto, \nmapsto
$\not\uparrow$ \nupmapsto, \nmapsup
$\not\leftarrow$ \nleftmapsto, \nmapsfrom
$\not\downarrow$ \ndownmapsto, \nmapsdown
$\not\Rightarrow$ \nRightmapsto, \nMapsto
$\not\Uparrow$ \nUpmapsto, \nMapsup
$\not\Leftarrow$ \nLeftmapsto, \nMapsfrom
$\not\Downarrow$ \nDownmapsto, \nMapsdown
$\not\hookrightarrow$ \nhookrightarrow
$\not\hookuparrow$ \nhookuparrow
$\not\hookleftarrow$ \nvarhookleftarrow
$\not\hookdownarrow$ \nvarhookdownarrow
$\not\nearrow$ \nvarhooknearrow
$\not\nwarrow$ \nhooknwarrow, \nhknwarrow
$\not\swarrow$ \nvarhookswarrow
$\not\searrow$ \nhooksearrow, \nhksearrow
$\not\hookrightarrow$ \nvarhookrightarrow
$\not\hookuparrow$ \nvarhookuparrow
$\not\hookleftarrow$ \nhookleftarrow
$\not\hookdownarrow$ \nhookdownarrow
$\not\nearrow$ \nhooknearrow, \nhknearrow
$\not\nwarrow$ \nvarhooknwarrow
$\not\swarrow$ \nhookswarrow, \nhkswarrow
$\not\searrow$ \nvarhooksearrow
$\not\rightharpoonup$ \nrightharpoonup
$\not\upharpoonleft$ \nupharpoonleft
$\not\leftharpoondown$ \nleftharpoondown
$\not\downharpoonright$ \ndownharpoonright
$\not\nearrow$ \nneharpoonnw

$\nwarrow$ \nnwharpoonsw
$\swarrow$ \nswharpoonse
$\searrow$ \nseharpoonne
$\rightharpoondown$ \nrightharpoondown
$\upharpoonright$ \nupharpoonright, \nrestriction
$\leftharpoonup$ \nleftharpoonup
$\downharpoonleft$ \ndownharpoonleft
$\nearrow$ \nneharpoonse
$\nwarrow$ \nnwharpoonne
$\swarrow$ \nswharpoonnw
$\searrow$ \nseharpoonsw
$\leftrightharpoonupdown$ \nleftrightharpoonupdown
$\updownharpoonleftright$ \nupdownharpoonleftright
$\nearrow\!\!\swarrow$ \nneswharpoonnwse
$\nwarrow\!\!\searrow$ \nnwseharpoonnesw
$\leftrightharpoondownup$ \nleftrightharpoondownup
$\updownharpoonrightleft$ \nupdownharpoonrightleft
$\nearrow\!\!\swarrow$ \nneswharpoonsenw
$\nwarrow\!\!\searrow$ \nnwseharpoonswne
$\rightleftharpoons$ \nrightleftharpoons
$\updownharpoons$ \nupdownharpoons, \nupdownharpoonsleftright
$\nearrow\!\!\swarrow$ \nneswharpoons
$\nwarrow\!\!\searrow$ \nsenwharpoons
$\leftrightharpoons$ \nleftrightharpoons
$\downupharpoons$ \ndownupharpoons, \ndownupharpoonsleftright
$\nearrow\!\!\swarrow$ \nswneharpoons
$\nwarrow\!\!\searrow$ \nnwseharpoons
$\dashrightarrow$ \nrightbkarrow, \ndasharrow, \ndashrightarrow
$\nuparrow$ \nupbkarrow
$\dashleftarrow$ \nleftbkarrow, \ndashleftarrow
$\downarrow$ \ndownbkarrow
$\nearrow$ \nnebkarrow
$\nwarrow$ \nnwbkarrow
$\swarrow$ \nswbkarrow
$\searrow$ \nsebkarrow
$\rightarrow\!\!\circ$ \nrightspoon, \nmultimap
$\uparrow\!\!\circ$ \nupspoon, \ncirmid
$\leftarrow\!\!\circ$ \nleftspoon, \nmultimapinv
$\downarrow\!\!\circ$ \ndownspoon, \nmidcir
$\rightarrow\!\!\bullet$ \nrightblackspoon
$\uparrow\!\!\bullet$ \nupblackspoon
$\leftarrow\!\!\bullet$ \nleftblackspoon
$\downarrow\!\!\bullet$ \ndownblackspoon
$\circ\!\!\rightarrow\!\!\circ$ \nleftrightspoon, \ndualmap
$\bullet\!\!\rightarrow\!\!\bullet$ \nleftrightblackspoon
$\bullet\!\!\rightarrow\!\!\circ$ \nblackwhitespoon, \nimageof
$\circ\!\!\rightarrow\!\!\bullet$ \nwhiteblackspoon, \norigof
$\rightarrow\!\!\!|$ \nrightpitchfork
$\uparrow\!\!\!|$ \nuppitchfork, \npitchfork
$|\!\!\leftarrow$ \nleftpitchfork
$\downarrow\!\!|$ \ndownpitchfork
$\rightrightarrows$ \nrightrightarrows
$\upuparrows$ \nupuparrows
$\leftleftarrows$ \nleftleftarrows
$\downdownarrows$ \ndowndownarrows
$\nearrow\!\!\nearrow$ \nnenearrows
$\nwarrow\!\!\nwarrow$ \nnwnwarrows
$\swarrow\!\!\swarrow$ \nswswarrows
$\searrow\!\!\searrow$ \nsesearrows
$\rightleftarrows$ \nrightleftarrows
$\updownarrows$ \nupdownarrows
$\nearrow\!\!\swarrow$ \nneswarrows
$\nwarrow\!\!\searrow$ \nnwsearrows
$\leftrightarrows$ \nleftrightarrows
$\downuparrows$ \ndownuparrows
$\swarrow\!\!\nearrow$ \nswnearrows
$\searrow\!\!\nwarrow$ \nsenwarrows
$\rightsquigarrow$ \nrightwavearrow, \nleadsto, \nrightsquigarrow, \nrightcurvedarrow
$\upsquigarrow$ \nvarupwavearrow
$\leftsquigarrow$ \nvarleftwavearrow
$\downsquigarrow$ \ndownwavearrow
$\rightsquigarrow$ \nvarrightwavearrow
$\upsquigarrow$ \nupwavearrow

$\nleftwavearrow$, $\nleftsquigarrow$, $\nleftcurvedarrow$
$\nvardownwavearrow$
$\nleftrightwavearrow$, $\nleftrightsquigarrow$
$\nupdownwavearrow$
$\nvarleftrightwavearrow$
$\nvarupdownwavearrow$
$\ncwoverarcarrow$, $\ncurvearrowright$
$\ncwleftarcarrow$
$\ncwunderarcarrow$
$\ncwrightarcarrow$
$\ncwnwarcarrow$, $\nrightupcurvedarrow$
$\ncwswarcarrow$, $\nupleftcurvedarrow$
$\ncwsearcarrow$, $\nleftdowncurvedarrow$
$\ncwnearcarrow$, $\ndownrightcurvedarrow$
$\nacwunderarcarrow$
$\nacwrightarcarrow$
$\nacwoverarcarrow$, $\ncurvearrowleft$
$\nacwleftarcarrow$
$\nacwsearcarrow$, $\nuprightcurvearrow$
$\nacwnearcarrow$, $\nleftupcurvedarrow$
$\nacwnwarcarrow$, $\ndownleftcurvedarrow$
$\nacwswarcarrow$, $\nrightdowncurvedarrow$
$\nbdoverarcarrow$
$\nbdleftarcarrow$
$\nbdunderarcarrow$
$\nbdrightarcarrow$
$\nbdnwarcarrow$
$\nbdswarcarrow$
$\nbdsearcarrow$
$\nbdnearcarrow$
$\nleftfootline$
$\nrightfootline$
$\nacwcirclearrowup$
$\nacwcirclearrowleft$, $\ncirclearrowleft$, $\nacwopencirclearrow$
$\nacwcirclearrowdown$, $\nacwgapcirclearrow$
$\nacwcirclearrowright$
$\ncwcirclearrowdown$, $\ncwgapcirclearrow$
$\ncwcirclearrowright$, $\ncirclearrowright$, $\ncwopencirclearrow$
$\ncwcirclearrowup$
$\ncwcirclearrowleft$
$\nRrightarrow$
$\nUuparrow$
$\nLleftarrow$
$\nDdownarrow$
$\nlongrightarrow$
$\nlongleftarrow$
$\nLongrightarrow$
$\nLongleftarrow$
$\nlongleftrightarrow$
$\nLongleftrightarrow$
$\nlongmapsto$
$\nlongmapsfrom$
$\nLongmapsto$
$\nLongmapsfrom$
$\nlongrightwavearrow$, $\nlongleadsto$, $\nlongrightsquigarrow$
$\nlongleftwavearrow$, $\nlongleftsquigarrow$
$\nlongleftfootline$, $\nvlongdash$
$\nlongrightfootline$, $\nlongdashv$

⊬ \nrightvdash, \nvdash
⫠ \nupvdash, \nperp
⫤ \nleftvdash, \ndashv
⫪ \ndownvdash
⊭ \nrightassert, \nassert, \nshortrighttack
⫡ \nupassert, \nshortuptack
⫣ \nleftassert, \nshortlefttack
⫫ \ndownassert, \nshortdowntack
⊯ \nrightvDash, \nvDash
⫢ \nupvDash, \nVbar
⫥ \nleftvDash, \nDashv
⫬ \ndownvDash, \nbarV
⊮ \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

$\bigcap$ $\bigcap$ \bigcap

$\bigcup$ $\bigcup$ \bigcup

$\bigcapdot$ $\bigcapdot$ \bigcapdot

$\bigcupdot$ $\bigcupdot$ \bigcupdot

$\bigcapplus$ $\bigcapplus$ \bigcapplus

$\bigcupplus$ $\bigcupplus$ \bigcupplus, \biguplus

$\bigsqcap$ $\bigsqcap$ \bigsqcap

$\bigsqcup$ $\bigsqcup$ \bigsqcup

$\bigsqcapdot$ $\bigsqcapdot$ \bigsqcapdot

$\bigsqcupdot$ $\bigsqcupdot$ \bigsqcupdot

$\bigsqcapplus$ $\bigsqcapplus$ \bigsqcapplus

$\bigsqcupplus$ $\bigsqcupplus$ \bigsqcupplus

$\bigoplus$ $\bigoplus$ \bigoplus

$\bigotimes$ $\bigotimes$ \bigotimes

$\bigodot$ $\bigodot$ \bigodot

$\bigoast$ $\bigoast$ \bigoast

$\prod$ $\prod$ \prod

$\coprod$ $\coprod$ \coprod

$\prodi$ $\prodi$ \prodi

$\coprodi$ $\coprodi$ \coprodi

$\sum$ $\sum$ \sum

$\osum$ $\osum$ \osum, \modtwosum

$\int$ $\int$ \int

$\iint$ $\iint$ \iint

$\iiint$ $\iiint$ \iiint

$\iiiint$ $\iiiint$ \iiiint

$\idotsint$ $\idotsint$ \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, \varointctrclock-wise

$\lcircleleftint$ $\lcircleleftint$ \lcircleleftint, \ointclockwise

$\sumint$ $\sumint$ \sumint

$\smallprod$ $\smallprod$ \smallprod

$\smallcoprod$ $\smallcoprod$ \smallcoprod

$\smallprodi$ $\smallprodi$ \smallprodi

$\smallcoprodi$ $\smallcoprodi$ \smallcoprodi

$\smallint$ $\smallint$ \smallint

$\surd$ $\surd$ \surd

5.6 Delimiters and accents

$(((((x$ (, \lparen

$x)))))$), \rparen

$[[[[[x$ [, \lbrack

$x]]]]]$], \rbrack

\lfloor

\rfloor

\lceil

\rceil

\ulcorner

\urcorner

\llcorner

\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

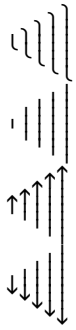
\arrowvert

\Arrowvert

\lgroup

\rgroup

\lmoustache


\rmoustache

\bracevert

\uparrow

\downarrow

\updownarrow

\Uparrow

\Downarrow

\Updownarrow

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

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

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

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

In addition to the `\overline` command, which produces a line with a height of three times the line width over its argument (and which might be to high due to that), mdsymbol also defines an command with a fixed height:

$\overlining{xxx}$ \overlining

5.7 Faked symbols

The following symbols are taken from the text font.

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

$\hbar$ \hbar
$\hslash$ \hslash
Ⓡ \circledR
Ⓢ \circledS
$\lambdabar$ \lambdabar
$\lambdaslash$ \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	\backepsilon	\diagup
\eth	\mapstochar	\diagdown
\digamma	\lhook	\Bbbk
\varkappa	\rhook	

6 Implementation

```
⟨*style⟩
\RequirePackage{xkeyval}
\newcommand*\mdsy@choicekey[3]{%
  \define@choicekey*{mdsymbol.sty}{#1}[\@tempa\@tempb]{#2}{#3}%
}
```

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]{%
  \@ifundefined{mv@tabular}{}{#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}
  \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@OrigSymbol@not@def{%
    \PackageError{mdsymbol}{Symbol is only available in sans-like math-
  versions}{%
      Define symbol before loading mdsymbol with the onlysansmath op-
  tion}
  }
  \newcommand\mdsy@DeclareSymbol[3]{%
    \ifcsdef{#1}{%
      \csletcs{#1@old}{#1}%
    }{\cslet{#1@old}{\mdsy@OrigSymbol@not@def}}
    \expandafter\mdsy@@DeclareSymbol\expandafter{\the\@tempcnta}{#1@sans}{#3}{#2}%
    \csundef{#1}%
    \csdef{#1}{\ifmathversionsans{\csname #1@sans\endcsname}{\csname#1@old\endcsname}
    \mdsy@nextslot
```

```
}
\newcommand\mdsy@DeclareDelimiter[4]{%
  \ifcsdef{#1}{%
    \csletcs{#1@old}{#1}%
  }{\cslet{#1@old}{\mdsy@OrigSymbol@not@def}}%
  \expandafter\DeclareMathDelimiter\expandafter{\csname #1@sans\endcsname}{#2}{#3}{
  \csundef{#1}%
  \csdef{#1}{\ifmathversionsans{\csname #1@sans\endcsname}{\csname#1@old\endcsname}
}
\newcommand\mdsy@DeclareOperator[3]{%
  \ifcsdef{#1}{%
    \csletcs{#1@old}{#1}%
  }{\cslet{#1@old}{\mdsy@OrigSymbol@not@def}}%
  \csdef{#1@sans}{\DOTSB#3\slimits@}
  \csundef{#1}%
  \csdef{#1}{\ifmathversionsans{\csname #1@sans\endcsname}{\csname#1@old\endcsname}
}
\newcommand\mdsy@DeclareIntegral[3]{%
  \ifcsdef{#1}{%
    \csletcs{#1@old}{#1}%
  }{\cslet{#1@old}{\mdsy@OrigSymbol@not@def}}%
  \csdef{#1@sans}{\DOTSI#3\ilimits@}%
  \csundef{#1}%
  \csdef{#1}{\ifmathversionsans{\csname #1@sans\endcsname}{\csname#1@old\endcsname}
}
\newcommand\mdsy@DeclareMathSymbol[4]{%
  \ifcsdef{#1}{%
    \csletcs{#1@old}{#1}%
  }{\cslet{#1@old}{\mdsy@OrigSymbol@not@def}}%
  \expandafter\DeclareMathSymbol\expandafter{\csname #1@sans\endcsname}{#2}{#3}{#4}
  \csundef{#1}%
  \csdef{#1}{\ifmathversionsans{\csname #1@sans\endcsname}{\csname#1@old\endcsname}
}
\newcommand\mdsy@DeclareMathDelimiter[6]{%
  \ifcsdef{#1}{%
    \csletcs{#1@old}{#1}%
  }{\cslet{#1@old}{\mdsy@OrigSymbol@not@def}}%
  \expandafter\DeclareMathDelimiter\expandafter{\csname #1@sans\endcsname}{#2}{#3}{
  \csundef{#1}%
  \csdef{#1}{\ifmathversionsans{\csname #1@sans\endcsname}{\csname#1@old\endcsname}
}
\newcommand\mdsy@DeclareMathAccent[4]{%
  \ifcsdef{#1}{%
    \csletcs{#1@old}{#1}%
  }{\cslet{#1@old}{\mdsy@OrigSymbol@not@def}}%
```

```
    \expandafter\DeclareMathAccent\expandafter{\csname #1@sans\endcsname}{#2}{#3}{#4}
    \csundef{#1}%
    \csdef{#1}{\ifmathversionsans{\csname #1@sans\endcsname}{\csname#1@old\endcsname}
  }
  \newcommand\mdsy@DeclareMathRadical[5]{%
    \ifcsdef{#1}{%
      \csletcs{#1@old}{#1}%
    }{\cslet{#1@old}{\mdsy@OrigSymbol@not@def}}%
    \expandafter\DeclareMathRadical\expandafter{\csname #1@sans\endcsname}{#2}{#3}{#4
    \csundef{#1}%
    \csdef{#1}{\ifmathversionsans{\csname #1@sans\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}%
    }{\cslet{#1@old}{\mdsy@OrigSymbol@not@def}}%
    \expandafter\newcommand\csname #1@sans\endcsname{#2}%
    \csundef{#1}%
    \csdef{#1}{\ifmathversionsans{\csname #1@sans\endcsname}{\csname#1@old\endcsname}
  }
  \newcommand{\mdsy@DeclareRobustCommandArg}[3]{%
    \ifcsdef{#1}{%
      \csletcs{#1@old}{#1}%
    }{\cslet{#1@old}{\mdsy@OrigSymbol@not@def}}%
    \expandafter\DeclareRobustCommand\csname #1@sans\endcsname[#2]{#3}%
    \csundef{#1}%
```

```
    \csdef{#1}{\ifmathversionsans{\csname #1@sans\endcsname}{\csname#1@old\endcsname}
  }
  \newcommand{\mdsy@DeclareRobustCommand}[2]{%
    \ifcsdef{#1}{%
      \csletcs{#1@old}{#1}%
    }{\cslet{#1@old}{\mdsy@OrigSymbol@not@def}}%
    \expandafter\DeclareRobustCommand\csname #1@sans\endcsname{#2}%
    \csundef{#1}%
    \csdef{#1}{\ifmathversionsans{\csname #1@sans\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}%
      \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}%
    \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{symbols}{U}{MdSymbolA}
\mdsy@DeclareSymbolFont{relations}{U}{MdSymbolB}
\mdsy@DeclareSymbolFont{arrows}{U}{MdSymbolC}
\mdsy@DeclareSymbolFont{narrows}{U}{MdSymbolD}
\mdsy@DeclareSymbolFont{largesymbols}{U}{MdSymbolE}
\mdsy@DeclareSymbolFont{delimiters}{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}{symbols}{\mathbin}
  \mdsy@DeclareAlias{cdotp}{symbols}{\mathpunct}
\mdsy@DeclareSymbol{hdotdot}{symbols}{\mathbin}
\mdsy@DeclareSymbol{vdotdot}{symbols}{\mathbin}
  \mdsy@DeclareAlias{colon}{symbols}{\mathpunct}
  \mdsy@DeclareAlias{mathcolon}{symbols}{\mathpunct}
  \mdsy@DeclareAlias{mathratio}{symbols}{\mathrel}
\mdsy@DeclareSymbol{udotdot}{symbols}{\mathbin}
\mdsy@DeclareSymbol{ddotdot}{symbols}{\mathbin}
\mdsy@DeclareSymbol{hdots}{symbols}{\mathord}
  \mdsy@DeclareAlias{@cdots}{symbols}{\mathinner}
  \mdsy@DeclareAlias{cdots}{symbols}{\mathinner}
\mdsy@DeclareSymbol{@vdots}{symbols}{\mathord}
\mdsy@DeclareRobustCommand{vdots}{\ifmmode\@vdots\else\hbox{$\@vdots$}\fi}
\mdsy@DeclareSymbol{udots}{symbols}{\mathord}
  \mdsy@DeclareAlias{adots}{symbols}{\mathord}
\mdsy@DeclareSymbol{ddots}{symbols}{\mathord}
\mdsy@DeclareSymbol{righttherefore}{symbols}{\mathord}
```

```
\mdsy@DeclareSymbol{uptherefore}{symbols}{\mathord}
  \mdsy@DeclareAlias{therefore}{symbols}{\mathord}
\mdsy@DeclareSymbol{leftthere fore}{symbols}{\mathord}
\mdsy@DeclareSymbol{downtherefore}{symbols}{\mathord}
  \mdsy@DeclareAlias{because}{symbols}{\mathord}
\mdsy@DeclareSymbol{squaredots}{symbols}{\mathord}
  \mdsy@DeclareAlias{Colon}{symbols}{\mathrel}
\mdsy@DeclareSymbol{minus}{symbols}{\mathbin}
\mdsy@DeclareSymbol{medslash}{symbols}{\mathbin}
  \mdsy@DeclareAlias{smalldivslash}{symbols}{\mathbin}
\mdsy@DeclareSymbol{medbackslash}{symbols}{\mathbin}
  \mdsy@DeclareAlias{smallsetminus}{symbols}{\mathbin}
\mdsy@DeclareSymbol{plus}{symbols}{\mathbin}
\mdsy@DeclareSymbol{times}{symbols}{\mathbin}
\mdsy@DeclareSymbol{dotminus}{symbols}{\mathbin}
\mdsy@DeclareSymbol{minusdot}{symbols}{\mathbin}
\mdsy@DeclareSymbol{div}{symbols}{\mathbin}
\mdsy@DeclareSymbol{minusfdots}{symbols}{\mathbin}
\mdsy@DeclareSymbol{minusrdots}{symbols}{\mathbin}
\mdsy@DeclareSymbol{dotsminusdots}{symbols}{\mathrel}
\mdsy@DeclareSymbol{pm}{symbols}{\mathbin}
\mdsy@DeclareSymbol{mp}{symbols}{\mathbin}
\mdsy@DeclareSymbol{dotplus}{symbols}{\mathbin}
\mdsy@DeclareSymbol{plusdot}{symbols}{\mathbin}
\mdsy@DeclareSymbol{dottimes}{symbols}{\mathbin}
\mdsy@DeclareSymbol{timesbar}{symbols}{\mathbin}
\mdsy@DeclareSymbol{divideontimes}{symbols}{\mathbin}
\mdsy@DeclareSymbol{neg}{symbols}{\mathord}
  \mdsy@DeclareAlias{lnot}{symbols}{\mathord}
  \mdsy@DeclareAlias{minushookdown}{symbols}{\mathbin}
\mdsy@DeclareSymbol{backneg}{symbols}{\mathord}
  \mdsy@DeclareAlias{hookdownminus}{symbols}{\mathbin}
  \mdsy@DeclareAlias{invneg}{symbols}{\mathord}
  \mdsy@DeclareAlias{invnot}{symbols}{\mathord}
\mdsy@DeclareSymbol{intprod}{symbols}{\mathbin}
  \mdsy@DeclareAlias{minushookup}{symbols}{\mathbin}
  \mdsy@DeclareAlias{turnedneg}{symbols}{\mathord}
  \mdsy@DeclareAlias{turnednot}{symbols}{\mathord}
\mdsy@DeclareSymbol{intprodr}{symbols}{\mathbin}
  \mdsy@DeclareAlias{hookupminus}{symbols}{\mathbin}
  \mdsy@DeclareAlias{turnedbackneg}{symbols}{\mathord}
\mdsy@DeclareSymbol{leftthreetimes}{symbols}{\mathbin}
\mdsy@DeclareSymbol{rightthreetimes}{symbols}{\mathbin}
\mdsy@DeclareSymbol{dtimes}{symbols}{\mathbin}
  \mdsy@DeclareAlias{btimes}{symbols}{\mathbin}
```

```
\mdsy@DeclareSymbol{rtimes}{symbols}{\mathbin}
  \mdsy@DeclareAlias{rJoin}{symbols}{\mathrel}
\mdsy@DeclareSymbol{utimes}{symbols}{\mathbin}
  \mdsy@DeclareAlias{ttimes}{symbols}{\mathbin}
\mdsy@DeclareSymbol{ltimes}{symbols}{\mathbin}
  \mdsy@DeclareAlias{lJoin}{symbols}{\mathrel}
\mdsy@DeclareSymbol{bowtie}{symbols}{\mathrel}
  \mdsy@DeclareAlias{Join}{symbols}{\mathrel}
  \mdsy@DeclareAlias{lrtimes}{symbols}{\mathbin}
\mdsy@DeclareSymbol{upbowtie}{symbols}{\mathbin}
  \mdsy@DeclareAlias{hourglass}{symbols}{\mathbin}
\mdsy@DeclareSymbol{rightY}{symbols}{\mathbin}
\mdsy@DeclareSymbol{upY}{symbols}{\mathbin}
\mdsy@DeclareSymbol{leftY}{symbols}{\mathbin}
\mdsy@DeclareSymbol{downY}{symbols}{\mathbin}
\mdsy@DeclareSymbol{wedge}{symbols}{\mathbin}
  \mdsy@DeclareAlias{land}{symbols}{\mathbin}
\mdsy@DeclareSymbol{vee}{symbols}{\mathbin}
  \mdsy@DeclareAlias{lor}{symbols}{\mathbin}
\mdsy@DeclareSymbol{wedgedot}{symbols}{\mathbin}
\mdsy@DeclareSymbol{veedot}{symbols}{\mathbin}
\mdsy@DeclareSymbol{doublewedge}{symbols}{\mathbin}
  \mdsy@DeclareAlias{wedgeonwedge}{symbols}{\mathbin}
\mdsy@DeclareSymbol{doublevee}{symbols}{\mathbin}
  \mdsy@DeclareAlias{veeonvee}{symbols}{\mathbin}
\mdsy@DeclareSymbol{curlywedge}{symbols}{\mathbin}
\mdsy@DeclareSymbol{curlyvee}{symbols}{\mathbin}
\mdsy@DeclareSymbol{barwedge}{symbols}{\mathbin}
\mdsy@DeclareSymbol{veebar}{symbols}{\mathbin}
\mdsy@DeclareSymbol{doublebarwedge}{symbols}{\mathbin}
\mdsy@DeclareSymbol{veedoublebar}{symbols}{\mathbin}
\mdsy@DeclareSymbol{cup}{symbols}{\mathbin}
\mdsy@DeclareSymbol{cap}{symbols}{\mathbin}
\mdsy@DeclareSymbol{doublecup}{symbols}{\mathbin}
  \mdsy@DeclareAlias{Cup}{symbols}{\mathbin}
\mdsy@DeclareSymbol{doublecap}{symbols}{\mathbin}
  \mdsy@DeclareAlias{Cap}{symbols}{\mathbin}
\mdsy@DeclareSymbol{cupdot}{symbols}{\mathbin}
\mdsy@DeclareSymbol{capdot}{symbols}{\mathbin}
\mdsy@DeclareSymbol{cupplus}{symbols}{\mathbin}
  \mdsy@DeclareAlias{uplus}{symbols}{\mathbin}
\mdsy@DeclareSymbol{capplus}{symbols}{\mathbin}
\mdsy@DeclareSymbol{sqcup}{symbols}{\mathbin}
\mdsy@DeclareSymbol{sqcap}{symbols}{\mathbin}
\mdsy@DeclareSymbol{doublesqcup}{symbols}{\mathbin}
```

```
  \mdsy@DeclareAlias{Sqcup}{symbols}{\mathbin}
\mdsy@DeclareSymbol{doublesqcap}{symbols}{\mathbin}
  \mdsy@DeclareAlias{Sqcap}{symbols}{\mathbin}
\mdsy@DeclareSymbol{sqcupdot}{symbols}{\mathbin}
\mdsy@DeclareSymbol{sqcapdot}{symbols}{\mathbin}
\mdsy@DeclareSymbol{sqcupplus}{symbols}{\mathbin}
\mdsy@DeclareSymbol{sqcapplus}{symbols}{\mathbin}
\mdsy@DeclareSymbol{pullback}{symbols}{\mathbin}
\mdsy@DeclareSymbol{pushout}{symbols}{\mathbin}
\mdsy@DeclareSymbol{smalltriangleright}{symbols}{\mathbin}
\mdsy@DeclareSymbol{smalltriangleup}{symbols}{\mathbin}
\mdsy@DeclareSymbol{smalltriangleleft}{symbols}{\mathbin}
\mdsy@DeclareSymbol{smalltriangledown}{symbols}{\mathbin}
\mdsy@DeclareSymbol{smallblacktriangleright}{symbols}{\mathbin}
\mdsy@DeclareSymbol{smallblacktriangleup}{symbols}{\mathbin}
\mdsy@DeclareSymbol{smallblacktriangleleft}{symbols}{\mathbin}
\mdsy@DeclareSymbol{smallblacktriangledown}{symbols}{\mathbin}
\mdsy@DeclareSymbol{medtriangleright}{symbols}{\mathbin}
  \mdsy@DeclareAlias{triangleright}{symbols}{\mathbin}
\mdsy@DeclareSymbol{medtriangleup}{symbols}{\mathbin}
  \mdsy@DeclareAlias{triangle}{symbols}{\mathbin}
  \mdsy@DeclareAlias{vartriangle}{symbols}{\mathbin}
\mdsy@DeclareSymbol{medtriangleleft}{symbols}{\mathbin}
  \mdsy@DeclareAlias{triangleleft}{symbols}{\mathbin}
\mdsy@DeclareSymbol{medtriangledown}{symbols}{\mathbin}
  \mdsy@DeclareAlias{triangledown}{symbols}{\mathbin}
\mdsy@DeclareSymbol{medblacktriangleright}{symbols}{\mathbin}
  \mdsy@DeclareAlias{blacktriangleright}{symbols}{\mathbin}
\mdsy@DeclareSymbol{medblacktriangleup}{symbols}{\mathbin}
  \mdsy@DeclareAlias{blacktriangle}{symbols}{\mathbin}
\mdsy@DeclareSymbol{medblacktriangleleft}{symbols}{\mathbin}
  \mdsy@DeclareAlias{blacktriangleleft}{symbols}{\mathbin}
\mdsy@DeclareSymbol{medblacktriangledown}{symbols}{\mathbin}
  \mdsy@DeclareAlias{blacktriangledown}{symbols}{\mathbin}
\mdsy@DeclareSymbol{largetriangleup}{symbols}{\mathord}
  \mdsy@DeclareAlias{bigtriangleup}{symbols}{\mathbin}
\mdsy@DeclareSymbol{largetriangledown}{symbols}{\mathord}
  \mdsy@DeclareAlias{bigtriangledown}{symbols}{\mathbin}
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MdSymbolB: relations

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  \mdsy@DeclareAlias{nltcc}{relations}{\mathrel}
\mdsy@DeclareSymbol{ngtrcc}{relations}{\mathrel}
  \mdsy@DeclareAlias{ngtcc}{relations}{\mathrel}
\mdsy@DeclareSymbol{nleqslcc}{relations}{\mathrel}
  \mdsy@DeclareAlias{nlescc}{relations}{\mathrel}
\mdsy@DeclareSymbol{ngeqslcc}{relations}{\mathrel}
  \mdsy@DeclareAlias{ngescc}{relations}{\mathrel}
\mdsy@DeclareSymbol{nsqsubset}{relations}{\mathrel}
\mdsy@DeclareSymbol{nsqsupset}{relations}{\mathrel}
\mdsy@DeclareSymbol{nsqsubseteq}{relations}{\mathrel}
\mdsy@DeclareSymbol{nsqsupseteq}{relations}{\mathrel}
\mdsy@DeclareSymbol{nsqsubseteqq}{relations}{\mathrel}
\mdsy@DeclareSymbol{nsqsupseteqq}{relations}{\mathrel}
\mdsy@DeclareSymbol{nSqsubset}{relations}{\mathrel}
\mdsy@DeclareSymbol{nSqsupset}{relations}{\mathrel}
\mdsy@DeclareSymbol{nsubset}{relations}{\mathrel}
\mdsy@DeclareSymbol{nsupset}{relations}{\mathrel}
```

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

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

MdSymbolC: arrows and turnstile symbols

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

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

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

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

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

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

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

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

```
\mdsy@DeclareSymbol{leftvDash}{arrows}{\mathrel}
  \mdsy@DeclareAlias{Dashv}{arrows}{\mathrel}
\mdsy@DeclareSymbol{downvDash}{arrows}{\mathrel}
  \mdsy@DeclareAlias{barV}{arrows}{\mathrel}
\mdsy@DeclareSymbol{rightmodels}{arrows}{\mathrel}
  \mdsy@DeclareAlias{models}{arrows}{\mathrel}
\mdsy@DeclareSymbol{upmodels}{arrows}{\mathrel}
\mdsy@DeclareSymbol{leftmodels}{arrows}{\mathrel}
\mdsy@DeclareSymbol{downmodels}{arrows}{\mathrel}
\mdsy@DeclareSymbol{rightVdash}{arrows}{\mathrel}
  \mdsy@DeclareAlias{Vdash}{arrows}{\mathrel}
\mdsy@DeclareSymbol{upVdash}{arrows}{\mathrel}
\mdsy@DeclareSymbol{leftVdash}{arrows}{\mathrel}
  \mdsy@DeclareAlias{dashV}{arrows}{\mathrel}
\mdsy@DeclareSymbol{downVdash}{arrows}{\mathrel}
\mdsy@DeclareSymbol{rightAssert}{arrows}{\mathrel}
 \mdsy@DeclareAlias{Assert}{arrows}{\mathrel}
\mdsy@DeclareSymbol{upAssert}{arrows}{\mathrel}
  \mdsy@DeclareAlias{vBar}{arrows}{\mathrel}
\mdsy@DeclareSymbol{leftAssert}{arrows}{\mathrel}
\mdsy@DeclareSymbol{downAssert}{arrows}{\mathrel}
  \mdsy@DeclareAlias{Barv}{arrows}{\mathrel}
\mdsy@DeclareSymbol{rightVDash}{arrows}{\mathrel}
  \mdsy@DeclareAlias{VDash}{arrows}{\mathrel}
\mdsy@DeclareSymbol{upVDash}{arrows}{\mathrel}
\mdsy@DeclareSymbol{leftVDash}{arrows}{\mathrel}
  \mdsy@DeclareAlias{DashV}{arrows}{\mathrel}
\mdsy@DeclareSymbol{downVDash}{arrows}{\mathrel}
\mdsy@DeclareSymbol{Vvdash}{arrows}{\mathrel}
\mdsy@DeclareSymbol{dashVv}{arrows}{\mathrel}
\mdsy@DeclareSymbol{vDdash}{arrows}{\mathrel}
\mdsy@DeclareSymbol{Ddashv}{arrows}{\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}{narrows}{\mathrel}
  \mdsy@DeclareAlias{nto}{narrows}{\mathrel}
\mdsy@DeclareSymbol{nuparrow}{narrows}{\mathrel}
\mdsy@DeclareSymbol{nleftarrow}{narrows}{\mathrel}
  \mdsy@DeclareAlias{ngets}{narrows}{\mathrel}
\mdsy@DeclareSymbol{ndownarrow}{narrows}{\mathrel}
\mdsy@DeclareSymbol{nnearrow}{narrows}{\mathrel}
```

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

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

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

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

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

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

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

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

MdSymbolE: large operators

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

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

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

```
\mdsy@DeclareSymbol{drcircleleftint}{largesymbols}{\mathop}
  \mdsy@DeclareAlias{dvarointctrclockwise}{largesymbols}{\mathop}
\mdsy@DeclareSymbol{tlcircleleftint}{largesymbols}{\mathop}
  \mdsy@DeclareAlias{tointclockwise}{largesymbols}{\mathop}
\mdsy@DeclareSymbol{dlcircleleftint}{largesymbols}{\mathop}
  \mdsy@DeclareAlias{dointclockwise}{largesymbols}{\mathop}
\mdsy@DeclareSymbol{tsumint}{largesymbols}{\mathop}
\mdsy@DeclareSymbol{dsumint}{largesymbols}{\mathop}
\mdsy@DeclareSymbol{tprodi}{largesymbols}{\mathop}
\mdsy@DeclareSymbol{dprodi}{largesymbols}{\mathop}
\mdsy@DeclareSymbol{tcoprodi}{largesymbols}{\mathop}
\mdsy@DeclareSymbol{dcoprodi}{largesymbols}{\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@DeclareOperator{prodi}{\dprodi}{\tprodi}
\mdsy@DeclareOperator{coprodi}{\dcoprodi}{\tcoprodi}
\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}{largesymbols}{"72}
\mdsy@DeclareMathAccent{widetilde}{\mathord}{largesymbols}{"78}
\mdsy@DeclareMathAccent{wideparen}{\mathord}{largesymbols}{"7E}
\mdsy@DeclareMathAccent{vec}{\mathord}{largesymbols}{"84}
\mdsy@DeclareMathAccent{middlebar}{\mathord}{largesymbols}{"85}
\mdsy@DeclareMathAccent{middleslash}{\mathord}{largesymbols}{"86}
\mdsy@DeclareMathAccent{strokethrough}{\mathord}{largesymbols}{"87}
```

MdSymbolF: delimiters

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

```
  \mdsy@DeclareDelimiter{backslash}{\mathord}{delimiters}{"B0}
%  \expandafter\DeclareMathDelimiter\@backslashchar%
%    {\mathord}{delimiters}{"B0}{delimiters}{"B0}
  \mdsy@DeclareMathSymbol{setminus}{\mathbin}{delimiters}{"B0}
%  \mdsy@DeclareDelimiter{|}{\mathord}{delimiters}{"B7}
  \mdsy@DeclareDelimiter{vert}{\mathord}{delimiters}{"B7}
  \mdsy@DeclareOpen{lvert}{delimiters}{"B7}
  \mdsy@DeclareClose{rvert}{delimiters}{"B7}
  \mdsy@DeclareMathSymbol{mid}{\mathrel}{delimiters}{"B7}
  \mdsy@DeclareMathSymbol{nmid}{\mathrel}{delimiters}{"BA}
  \mdsy@DeclareDelimiter{Vert}{\mathord}{delimiters}{"BE}
  \mdsy@DeclareOpen{lVert}{delimiters}{"BE}
  \mdsy@DeclareClose{rVert}{delimiters}{"BE}
  \mdsy@DeclareMathSymbol{parallel}{\mathrel}{delimiters}{"BE}
  \mdsy@DeclareMathSymbol{nparallel}{\mathrel}{delimiters}{"C1}
  \mdsy@DeclareDelimiter{Vvert}{\mathord}{delimiters}{"C4}
  \mdsy@DeclareOpen{lVvert}{delimiters}{"C4}
  \mdsy@DeclareClose{rVvert}{delimiters}{"C4}
\else
%  \mdsy@DeclareOpen{(}{delimiters}{"00}
%  \mdsy@DeclareClose{)}{delimiters}{"06}
  \mdsy@DeclareOpen{lparen}{delimiters}{"00}
  \mdsy@DeclareClose{rparen}{delimiters}{"06}
%  \mdsy@DeclareOpen{[}{delimiters}{"12}
%  \mdsy@DeclareClose{]}{delimiters}{"18}
  \mdsy@DeclareOpen{lbrack}{delimiters}{"12}
  \mdsy@DeclareClose{rbrack}{delimiters}{"18}
  \mdsy@DeclareOpen{lfloor}{delimiters}{"1E}
  \mdsy@DeclareClose{rfloor}{delimiters}{"24}
  \mdsy@DeclareOpen{lceil}{delimiters}{"2A}
  \mdsy@DeclareClose{rceil}{delimiters}{"30}
  \mdsy@DeclareOpen{ulcorner}{delimiters}{"36}
  \mdsy@DeclareClose{urcorner}{delimiters}{"3C}
  \mdsy@DeclareOpen{llcorner}{delimiters}{"42}
  \mdsy@DeclareClose{lrcorner}{delimiters}{"48}
  \mdsy@DeclareOpen{ullcorner}{delimiters}{"4E}
  \mdsy@DeclareClose{ulrcorner}{delimiters}{"54}
  \mdsy@DeclareOpen{lsem}{delimiters}{"60}
  \mdsy@DeclareClose{rsem}{delimiters}{"66}
  \mdsy@DeclareOpen{lBrack}{delimiters}{"60}
  \mdsy@DeclareClose{rBrack}{delimiters}{"66}
  \mdsy@DeclareOpen{lbrace}{delimiters}{"72}
  \mdsy@DeclareClose{rbrace}{delimiters}{"78}
%  \mdsy@DeclareOpen{<}{delimiters}{"85}
%  \mdsy@DeclareClose{>}{delimiters}{"8B}
```

```
  \mdsy@DeclareOpen{langle}{delimiters}{"85}
  \mdsy@DeclareClose{rangle}{delimiters}{"8B}
  \mdsy@DeclareOpen{lAngle}{delimiters}{"91}
  \mdsy@DeclareClose{rAngle}{delimiters}{"97}
  \mdsy@DeclareOpen{langledot}{delimiters}{"9D}
  \mdsy@DeclareClose{rangledot}{delimiters}{"A3}
%  \mdsy@DeclareDelimiter{/}{\mathord}{delimiters}{"A9}
  \mdsy@DeclareDelimiter{mathslash}{\mathord}{delimiters}{"A9}
  \mdsy@DeclareMathSymbol{divslash}{\mathbin}{delimiters}{"A9}
  \mdsy@DeclareDelimiter{backslash}{\mathord}{delimiters}{"AF}
%  \expandafter\DeclareMathDelimiter\@backslashchar%
%    {\mathord}{delimiters}{"AF}{delimiters}{"AF}
  \mdsy@DeclareMathSymbol{setminus}{\mathbin}{delimiters}{"AF}
%  \mdsy@DeclareDelimiter{|}{\mathord}{delimiters}{"B6}
  \mdsy@DeclareDelimiter{vert}{\mathord}{delimiters}{"B6}
  \mdsy@DeclareOpen{lvert}{delimiters}{"B6}
  \mdsy@DeclareClose{rvert}{delimiters}{"B6}
  \mdsy@DeclareMathSymbol{mid}{\mathrel}{delimiters}{"B6}
  \mdsy@DeclareMathSymbol{nmid}{\mathrel}{delimiters}{"B9}
  \mdsy@DeclareDelimiter{Vert}{\mathord}{delimiters}{"BD}
  \mdsy@DeclareOpen{lVert}{delimiters}{"BD}
  \mdsy@DeclareClose{rVert}{delimiters}{"BD}
  \mdsy@DeclareMathSymbol{parallel}{\mathrel}{delimiters}{"BD}
  \mdsy@DeclareMathSymbol{nparallel}{\mathrel}{delimiters}{"C0}
  \mdsy@DeclareDelimiter{Vvert}{\mathord}{delimiters}{"C3}
  \mdsy@DeclareOpen{lVvert}{delimiters}{"C3}
  \mdsy@DeclareClose{rVvert}{delimiters}{"C3}
\fi
\let\|\Vert
\mdsy@renewcommand{divides}{\mid}
\mdsy@renewcommand{ndivides}{\nmid}
\mdsy@DeclareMathSymbol{shortmid}{\mathrel}{delimiters}{"B5}
\mdsy@DeclareMathSymbol{nshortmid}{\mathrel}{delimiters}{"B8}
\mdsy@DeclareMathSymbol{shortparallel}{\mathrel}{delimiters}{"BC}
\mdsy@DeclareMathSymbol{nshortparallel}{\mathrel}{delimiters}{"BF}
\mdsy@DeclareDelimiter{arrowvert}{\mathord}{delimiters}{"BB}
\mdsy@DeclareDelimiter{Arrowvert}{\mathord}{delimiters}{"C2}
\mdsy@DeclareClose{lgroup}{delimiters}{"7E}
\mdsy@DeclareOpen{rgroup}{delimiters}{"7F}
\mdsy@DeclareClose{rmoustache}{delimiters}{"80}
\mdsy@DeclareOpen{lmoustache}{delimiters}{"81}
\mdsy@DeclareDelimiter{bracevert}{\mathord}{delimiters}{"84}

\mdsy@DeclareMathDelimiter{uparrow}{\mathrel}{arrows}{"01}{delimiters}{"C6}
\mdsy@DeclareMathDelimiter{downarrow}{\mathrel}{arrows}{"03}{delimiters}{"C7}
```

```
\mdsy@DeclareMathDelimiter{updownarrow}{\mathrel}{arrows}{"11}{delimiters}{"C8}
\mdsy@DeclareMathDelimiter{Uparrow}{\mathrel}{arrows}{"09}{delimiters}{"C9}
\mdsy@DeclareMathDelimiter{Downarrow}{\mathrel}{arrows}{"0B}{delimiters}{"CA}
\mdsy@DeclareMathDelimiter{Updownarrow}{\mathrel}{arrows}{"15}{delimiters}{"CB}
```

Horizontal braces.

```
\mdsy@DeclareMathSymbol{braceld}{\mathord}{delimiters}{"CC}
\mdsy@DeclareMathSymbol{bracelu}{\mathord}{delimiters}{"CD}
\mdsy@DeclareMathSymbol{bracerd}{\mathord}{delimiters}{"CE}
\mdsy@DeclareMathSymbol{braceru}{\mathord}{delimiters}{"CF}
\mdsy@DeclareMathSymbol{bracemd}{\mathord}{delimiters}{"D0}
\mdsy@DeclareMathSymbol{bracemu}{\mathord}{delimiters}{"D1}
\mdsy@DeclareMathSymbol{bracemid}{\mathord}{delimiters}{"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}{delimiters}{"D4}{delimiters}{"D4}
  \mdsy@DeclareMathSymbol{surd}{\mathop}{delimiters}{"D4}
\else
  \mdsy@DeclareMathRadical{sqrtsign}{delimiters}{"D3}{delimiters}{"D3}
  \mdsy@DeclareMathSymbol{surd}{\mathop}{delimiters}{"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}{symbols}{"11}
  \mdsy@DeclareActiveMathSymbol{-}{\mathbin}{symbols}{"0E}
  \mdsy@DeclareActiveMathSymbol{*}{\mathbin}{symbols}{"98}
  \mdsy@DeclareActiveMathSymbol{:}{\mathrel}{symbols}{"02}
  \mdsy@DeclareActiveMathSymbol{=}{\mathrel}{relations}{"00}
  \mdsy@DeclareActiveMathSymbol{<}{\mathrel}{relations}{"24}
  \mdsy@DeclareActiveMathSymbol{>}{\mathrel}{relations}{"25}
  \ifmdsy@largedelims
    \mdsy@DeclareActiveMathDelimiter{|}{\mathord}{delimiters}{"B7}
    \mdsy@DeclareActiveMathDelimiter{(}{\mathopen}{delimiters}{"01}
    \mdsy@DeclareActiveMathDelimiter{)}{\mathclose}{delimiters}{"07}
    \mdsy@DeclareActiveMathDelimiter{[}{\mathopen}{delimiters}{"13}
    \mdsy@DeclareActiveMathDelimiter{]}{\mathclose}{delimiters}{"19}
    \mdsy@DeclareActiveMathDelimiter{/}{\mathord}{delimiters}{"AA}
  \else
    \mdsy@DeclareActiveMathDelimiter{|}{\mathord}{delimiters}{"B6}
    \mdsy@DeclareActiveMathDelimiter{(}{\mathopen}{delimiters}{"00}
    \mdsy@DeclareActiveMathDelimiter{)}{\mathclose}{delimiters}{"06}
    \mdsy@DeclareActiveMathDelimiter{[}{\mathopen}{delimiters}{"12}
    \mdsy@DeclareActiveMathDelimiter{]}{\mathclose}{delimiters}{"18}
    \mdsy@DeclareActiveMathDelimiter{/}{\mathord}{delimiters}{"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}}}
```

The height of the `\overline` command is three times the `default_line_thickness` which can be too much for heavier weights. An alternative implementation follows with a fixed height. It is based on `http://tex.stackexchange.com/a/24134/11605` and `http://tex.stackexchange.com/a/43906/11605`.

```
\RequirePackage{calc}
\newsavebox\overliningbox

\def\ovlg@eat#1#2#3#4#5{\futurelet\ovlg@let@token\ovlg@eat@}
\def\ovlg@eat@#1\ovlg@eat{%
\ifx\ovlg@let@token\bgroup
\else\ifx\ovlg@let@token\mathop
  \mathop
\else\ifx\ovlg@let@token\mathbin
  \mathbin
\else\ifx\ovlg@let@token\mathrel
  \mathrel
\else\ifx\ovlg@let@token\mathopen
  \mathopen
\else\ifx\ovlg@let@token\mathop
  \mathop
\else\ifx\ovlg@let@token\mathpunct
  \mathpunct
\else\ifcat.\ifcat a\noexpand\ovlg@let@token.\else\noexpand\ovlg@let@token\fi
  \afterassignment\ovlg@mathchar\count@\mathcode`#1\relax\ovlg@eat
\else\ifx\ovlg@let@token\mathchar
  \afterassignment\ovlg@mathchar\expandafter\count@\@gobble#1\relax\ovlg@eat
\else
```

```
    \xdef\meaning@{\meaning\ovlg@let@token}%
    \expandafter\ovlg@mchar@test\meaning@""\@nil
\fi\fi\fi\fi\fi\fi\fi\fi\fi
}

\edef\ovlg@mchar@{\meaning\mathchar}

\def\ovlg@mchar@test#1"#2"#3\@nil{%
  \xdef\meaning@{#1}%
  \ifx\meaning@\ovlg@mchar@
    \count@"#2\relax
    \ovlg@mathchar\ovlg@eat
   \fi
}

\def\ovlg@mathchar#1\ovlg@eat{%
  \divide\count@"1000 }

\mdsy@DeclareRobustCommandArg{overlining}{1}{%
\begingroup
\let\protect\empty
\expandafter\ovlg@eat\romannumeral`\Q#1\relax\ovlg@eat
  \ifcase\count@
    \or
    \mathop\or
    \mathbin\or
    \mathrel\or
    \mathopen\or
    \mathclose\or
    \mathpunct\or
  \fi
  {\text{\savebox\overliningbox{$\m@th#1$}\fboxsep\z@%
      \makebox[0pt][l]{$\m@th#1$}%
      \rule[\ht\overliningbox+1.2pt]{\wd\overliningbox}{.8\fontdimen8\textfont3}}}%
\endgroup}
```
⟨/style⟩