FdSymbol: A Math Symbol Font

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Contents

1	Introduction	1	
2	Interferences with other packages		
3	Font selection	2	
4	Symbols	3	
	4.1 Ordinary symbols	3	
	4.2 Binary operators		
	4.3 Relations		
	4.4 Punctuation symbols		
	4.5 Large operators		
	4.6 Delimiters and accents		
	4.7 Faked symbols		
	4.8 Missing symbols		
5	Implementation	19	

1 Introduction

FdSymbol is a font of mathematical symbols designed as a companion to Typotheque's Fedra family¹, but it might also fit well to other contemporary type-faces. To use this font in a IATEX document, add the command

\usepackage[\(\langle options \rangle] \{ fdsymbol \}

¹http://www.typotheque.com/fonts

to the preamble of your document. This redefines most of the standard mathematical symbols and makes available many new ones (see Section 4). For the available options see Section 3.

Acknowledgements

The FdSymbol font is derived from MnSymbol², another math symbol font, designed by Achim Blumensath.

2 Interferences with other packages

The fdsymbol 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 fdsymbol or you can include the options in the \documentclass command.

3 Font selection

FdSymbol comes in four weights, which are (in increasing order) Book, Regular, Medium and Bold. Of these, Book and Regular are suitable for normal math typesetting, while Medium 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 Medium weight as the normal weight in math, add normalweight=Medium to the package options. Analogously, to use the Bold weight with \boldmath or \boldsymbol, add boldweight=Bold to the package options. By default, Book and Medium are used. Additionally, it is possible to use a suitable weight automatically depending on the font size by selecting auto. For example, if you use the option normalweight=auto, the Book weight will be used for normal and large sizes, but the Regular weight will be used for small sizes (e.g. in sub- and superscripts).

In order to use FdSymbol 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 FdSymbol with a text font that has rather tall delimiters, such as Fedra Serif B. In fact, the height of normal delimiters will match the height of text delimiters in Fedra Serif B if you select this option.

²http://www.ctan.org/tex-archive/fonts/mnsymbol/

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

Values		
Book*, Regular, auto Medium*, Bold, auto ⟨factor⟩ true, false*		

4 Symbols

The fdsymbol package provides the following symbols.

4.1 Ordinary symbols

- ··· \hdots
- : \vdots
- . · \udots, \adots
- ∴ \ddots
- : \righttherefore
- ∴ \uptherefore,\therefore
- ∴ \lefttherefore
- ∵ \downtherefore, \because
- :: \squaredots
- ¬ \neg, \lnot
- \backneg, \invnot, \invneg
- \turnedneg, \turnednot
- \turnedbackneg
- △ \largetriangleup
- √ \largetriangledown
- Ø \emptyset, \diameter,
 \varnothing
- \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

- \revmeasuredangle,
 \measuredangleleft
- ∢ \sphericalangle
- ∀ \sphericalangleup
- > \sphericalangleleft, \revsphericalangle,\gtlpar
- A \sphericalangledown
- ∟ \rightangle

\measuredrightangle ∄ \nexists \rightanglesquare, ∃ \Finv \rightanglesqr ∂ \Game \measuredrightangledot, С \complement \rightanglemdot \flat \prime å \natural \backprime \sharp # √ \checkmark א \aleph \lightning,\downzigzagarrow ם \beth ♦ \diamondsuit \gimel λ \vardiamondsuit ♡ \heartsuit \wp ♥ \varheartsuit T \top ♠ \spadesuit ⊥ \bot ♠ \clubsuit /,\mathslash ★ \maltese \backslash ☆ \starofdavid |,\vert \sector Α \forall ∥ \Vert Э \exists ∥ \Vvert

4.2 Binary operators

∓ \mp

\cdot \centerdot \plusdot \hdotdot \vdotdot \udotdot * \divideontimes · \ddotdot → \intprod -,\minus └ \intprodr \medslash, \smalldivslash \leftthreetimes \medbackslash, \smallsetminus \rightthreetimes + +, \plus × \times \dotminus x \utimes, \ttimes \minusdot \div ⋈ \lrtimes ÷ \minusfdots x \upbowtie,\hourglass \minusrdots \rightY \pm ↓\upY ±

≺ \leftY

- Y \downY
- ∧ \wedge,\land
- v \vee, \lor
- ∧ \wedgedot
- v \veedot
- m \doublewedge, \wedgeonwedge
- w \doublevee, \veeonwee
- ∧ \curlywedge
- √ \curlyvee

- ∪ \cup
- ∩ \cap
- ⊎ \doublecup, \Cup

- ∩ \capdot
- ⊎ \cupplus, \uplus
- ∩ \capplus
- ⊔ \sqcup
- п \sqcap
- □ \doublesqcup, \Sqcup
- ⊔ \sqcupdot
- ⊓ \sqcapdot

- ⊥ \pullback
- ▷ \smalltriangleright
- △ \smalltriangleup
- \smalltriangleleft
- √ \smalltriangledown
- ▶ \smallblacktriangleright
- ▲ \smallblacktriangleup
- √ \smallblacktriangleleft
- ▼ \smallblacktriangledown

- △ \medtriangleup, \triangle, \vartriangle

- \medblacktriangleright,
 \blacktriangleright
- ▲ \medblacktriangleup, \blacktriangle
- √ \medblacktriangleleft, \blacktriangleleft
- \medblacktriangledown, \blacktriangledown
- △ \bigtriangleup
- \smallcircle, \circ, \smwhtcircle
- \smallblackcircle, \bullet, \smblkcircle
- o \medcircle, \mdlgwhtcircle, \mdwhtcircle
- \medblackcircle, \mdlgblkcircle,\mdblkcircle
- ⊖ \ominus
- ⊘ \oslash
- ⊕ \oplus
- ⊗ \otimes
- ⊙ \odot

- ⊖ \odash,\circleddash
- \bigcirc
- smallsquare,\smwhtsquare
- \smallblacksquare, \smblksquare
- □ \medsquare, \square, \Box, \mdlgwhtsquare, \mdwhtsquare

\medblacksquare,
\mdlgblksquare,\mdblksquare

□ \boxminus

□ \boxvert, \boxbar

□ \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

T \intercal

\wreath,\wr

u \amalg

⊲ \lhd

⊳ \rhd

⊴ \unlhd

≥ \unrhd

/ \divslash

\setminus

4.3 Relations

≅

≅

≊

≟ \dotcong ≅ \smileeq

\approxeq \(\sigma\) \frowneq, \arceq

 $\stackrel{\scriptstyle \scriptscriptstyle \perp}{}$ \veeeq ⊑ \sqsubseteqq <u>*</u> \stareq \sqsupseteqq \triangleeq, \triangleq \Sqsubset \in \in 3 **\Sqsupset** \owns, \ni \subset ∋ \subset <,\less \supset < \supset >, \gtr \subseteq > \subseteq \leq, \le \supseteq \supseteq ≤ \geq, \ge \subseteqq ≥ \leqslant \supseteqq ≤ \geqslant **\Subset** ≽ \Supset ≦ \leqq \geqq \prec ≥ ≲ \lesssim \succ \gtrsim \preceq ≳ ≤ ≨ \lessapprox \succeq ≥ ≳ \gtrapprox \preccurlyeq ≶ \lessgtr \succcurlyeq ≷ \gtrless \preceqq ⋚ \lesseggtr \succeqq ⋛ \gtreqless \precsim VIIV VIIV \lesseqqgtr \succsim ≿ \gtreqqless \precapprox ≶ \lesseqslantgtr, \lesq \succapprox ⋛ \gtreqslantless, \gesl \lessdot ≪ \11 \gtrdot \leqdot \gg ⊴ >>> ≪ \lll, \llless \geqdot \legslantdot, \lesdot >>> \ggg, \gggtr \lessclosed, \vartriangleleft \geqslantdot, \gesdot ◁ \gtrclosed, \vartriangleright \eqslantless \triangleright \leqclosed, \trianglelefteq \eqslantgtr ⊴ \geqclosed, \trianglerighteq \curlyeqprec ⊵ \lesscc, \ltcc \curlyeqsucc ◁ \gtrcc, \gtcc \thicksim \triangleright \leqslcc, \lescc \thickapprox Ø \geqslcc, \gescc \rightarrow, \to ⊳ \sqsubset \uparrow 1

 \downarrow

\leftarrow, \gets

\downarrow

\nearrow

⊐

⊑

\sqsupset

\sqsubseteq

\sqsupseteq

- \nwarrow
- ∠ \swarrow
- \searrow
- ⇒ \Rightarrow
- ↑ \Uparrow
- ← \Leftarrow
- ↓ \Downarrow
- √ \Nwarrow
- \Searrow
- ↔ \leftrightarrow
- 1 \updownarrow
- √ \neswarrow
- \nwsearrow
- ⇔ \Leftrightarrow
- () \Updownarrow

- → \twoheadrightarrow
- ↑ \twoheaduparrow
- ← \twoheadleftarrow
- ↓ \twoheaddownarrow

- √ twoheadsearrow
- \rightarrow \rightarrowtail
- ↑ \uparrowtail
- \downarrowtail
- → \nearrowtail
- \nwarrowtail
- √ \searrowtail
- ↑ \upmapsto, \mapsup
- ← \leftmapsto, \mapsfrom
- ↓ \downmapsto, \mapsdown
- ⇒ \Rightmapsto,\Mapsto
- ↑ \Upmapsto, \Mapsup

- ← \Leftmapsto, \Mapsfrom
- → \hookrightarrow
- ↑ \hookuparrow
- ← \varhookleftarrow
- \$ \varhookdownarrow
- 5 \hooknwarrow, \hknwarrow
- ∠ \varhookswarrow
- \hooksearrow, \hksearrow
- → \varhookrightarrow
- t \varhookuparrow
- 1 \hookdownarrow
- ∠ \hooknearrow, \hknearrow
- \varhooknwarrow
- ∠ \hookswarrow, \hkswarrow
- \varhooksearrow
- → \rightharpoonup
- 1 \upharpoonleft
- ← \leftharpoondown
- l \downharpoonright
- / \neharpoonnw
- \ nwharpoonsw
- ∠ \swharpoonse
- \ \seharpoonne
- → \rightharpoondown
- \upharpoonright,\restriction
- ← \leftharpoonup
- \downharpoonleft
- ✓ \neharpoonse
- \nwharpoonne
- ✓ \swharpoonnw
- √ \seharpoonsw
- → \leftrightharpoonupdown
- 1 \updownharpoonleftright
- z \neswharpoonnwse
- \nwseharpoonnesw
- → \leftrightharpoondownup
- \updownharpoonrightleft
- ✓ \neswharpoonsenw

- \nwseharpoonswne
- 1 \updownharpoons,

\updownharpoonsleftright

- // \neswharpoons
- ≒ \leftrightharpoons
- 1 \downupharpoons,

\downupharpoonsleftright

- √ \swneharpoons
- √ \nwseharpoons
- → \rightbkarrow, \dashrightarrow, \dasharrow
- ↑ \upbkarrow
- ↓ \downbkarrow
- ^* \nebkarrow
- \nwbkarrow
- ∡′\swbkarrow
- `₄ \sebkarrow
- → \rightspoon,\multimap
- ↑ \upspoon,\cirmid
- ← \leftspoon, \multimapinv
- → \rightblackspoon
- † \upblackspoon
- ← \leftblackspoon
- ↓ \downblackspoon
- → \leftrightspoon, \dualmap
- → \leftrightblackspoon
- → \blackwhitespoon, \imageof
- → \whiteblackspoon, \origof
- → \rightpitchfork
- ₼ \uppitchfork,\pitchfork
- ← \leftpitchfork
- Ψ \downpitchfork
- ⇒ \rightrightarrows
- ↑ \upuparrows
- ↓ \downdownarrows
- ↑ \nenearrows

- √ \nwnwarrows
- √ \swswarrows
- √ \sesearrows
- ↑↓ \updownarrows
- √ \nwsearrows
- ≒ \leftrightarrows
- ↓↑ \downuparrows
- √ \swnearrows
- √ \senwarrows
- → \rightwavearrow, \leadsto, \rightsquigarrow, \rightcurvedarrow
- \varupwavearrow
- \downwavearrow
- → \varrightwavearrow
- \$ \upwavearrow

\leftcurvedarrow

- \vardownwavearrow
- \updownwavearrow
- ⇔ \varleftrightwavearrow
- \$ \varupdownwavearrow
- '\cwleftarcarrow
- \cwrightarcarrow
- - \rightupcurvedarrow
- た \cwswarcarrow, \upleftcurvedarrow
- √ \cwsearcarrow,

\leftdowncurvedarrow

\downrightcurvedarrow

- √ \acwunderarcarrow
- 5 \acwrightarcarrow
- \acwoverarcarrow,
 \curvearrowleft
- \acwleftarcarrow
- → \acwsearcarrow, \uprightcurvearrow
- \acwnearcarrow,
 \leftupcurvedarrow
- √ \acwswarcarrow, \rightdowncurvedarrow
- ₹ \bdleftarcarrow
- > \bdrightarcarrow
- ♦ \bdswarcarrow

- ⊢ \leftfootline
- → \rightfootline
- (5 \acwcirclearrowleft, \circlearrowleft, \acwopencirclearrow
- \acwcirclearrowdown,
 \acwgapcirclearrow
- C \cwcirclearrowdown, \cwgapcirclearrow
- \cwcirclearrowright,
 \circlearrowright,
 \cwopencirclearrow
- \cwcirclearrowleft
- ⇒ \Rrightarrow
- ↑ \Uuparrow
- ← \Lleftarrow
- ↓ \Ddownarrow

- → \longrightarrow
- ← \longleftarrow
- ⇒ \Longrightarrow
- ← \Longleftarrow
- ⇔ \Longleftrightarrow
- → \longmapsto
- ← \longmapsfrom
- ⇒ \Longmapsto
- ← \Longmapsfrom
- \longrightwavearrow,
 \longleadsto,
 \longrightsquigarrow
- \tag{\lambda}\longleftwavearrow,
 \longleftsquigarrow
- ├─ \longleftfootline, \vlongdash
- ─ \longrightfootline, \longdashv
- ← \Lsh
- r \Rsh
- ا \Ldsh
- \Rdsh
- → \looparrowright
- ← \looparrowleft
- ⊢ \rightvdash, \vdash
- ⊥ \upvdash, \perp
- → \leftvdash, \dashv
- ⊤ \downvdash
- ⊢ \rightassert, \assert, \shortrighttack
- ⊥ \upassert,\shortuptack
- ⊣ \leftassert, \shortlefttack
- → \downassert, \shortdowntack
- ⊨ \rightvDash,\vDash
- ╡ \leftvDash,\Dashv
- ⊨ \rightmodels, \models
- ⊥ \upmodels
- ╡ \leftmodels
- π \downmodels

 \perp \upVdash \neq \neqcirc \dashv \leftVdash, \dashV \neq \ncirceq

∃II \dashVv
\$ \nleqslant

E \vDdash
\$ \ngeqslant

∃ \Ddashv
\$ \nleqq

\$ \nequal, \neq, \ne
\$ \ngeqq

\nequiv \nlesssim ≢ ≴ \nsim \ngtrsim ≵ 4 \nbacksim \nlessapprox + ≴ \napprox \ngtrapprox ≉ \ntriplesim, \napproxident \nlessgtr

\nsimeq, \nsime
\nsimeq, \nsime
\nbacksimeq
\neqsim
\neqsim
\ncong
\nlesseqqgtr
\nbackcong
\ngtreqqless
\npackcong
\ngtreqqless

≇

#

\nDoteq # \nlessclosed, \ntriangleleft
\nfallingdotseq # \ngtrclosed, \ntriangleright
\nrisingdotseq # \nleqclosed, \ntrianglelefteq
\nsmile # \ngeqclosed, \ntrianglerighteq

/* \nfrown
/* \nfrown
/* \nsmilefrown, \nasymp
/* \nfrownsmile, \nclosure
/* \nsmileeq
/* \ngeqslcc, \ngesce
/* \ngeqslcc, \ngesce

⊉ \nsqsupseteq \lnsim ⋦ ⋢ \nsqsubseteqq ⋧ \gnsim \lnapprox ∄ \nsqsupseteqq ≨ ⊯ \nSqsubset \gnapprox ≩ \nSqsupset \sqsubsetneq ∌ ⋤ \nsubset ¢ ⋥ \sqsupsetneq ⊅ \nsupset \sqsubsetneqq ⊈ \nsubseteq \sqsupsetneqq

⊉ \nsupseteq \subsetneq, \varsubsetneq ⊊ \supsetneq, \varsupsetneq ⊈ \nsubseteqq ⊋ ⊉ \nsupsetegg \subsetnegg, \varsubsetnegg ⊊ ∉ \nSubset ⊋ \supsetneqq, \varsupsetneqq

∌ \nSupset \precneq ⋨ * \nprec \succneq ≱ * \nsucc \precneqq ≨ \npreceq ≰ \succneqq ≩ \nsucceq ¥ \precnsim ⋨ ⋠ \npreccurlyeq \succnsim ¥ \nsucccurlyeq \precnapprox ≰ \npreceqq \succnapprox ≨

\ndownarrow ≵ \nprecapprox ŧ ≵ \nsuccapprox \nnearrow **≮** \nlessdot \nnwarrow \ngtrdot \nswarrow ≯ ≰ \nleqdot \nsearrow \ngeqdot \nRightarrow ≱ \nleqslantdot, \nlesdot ≰ \nUparrow ≱ \ngeqslantdot, \ngesdot \nLeftarrow

ŧ \neqslantless \nDownarrow \neqslantgtr \nNearrow ≱ \ncurlyeqprec \nNwarrow ≠ \ncurlyeqsucc \nSwarrow * X \simneqq ≆ \nSearrow

- \nnwsearrow
- ⇔ \nLeftrightarrow
- ∄ \nUpdownarrow
- ⅓ \nNwsearrow
- → \ntwoheadrightarrow
- ↑ \ntwoheaduparrow
- \ntwoheadleftarrow
- 水 \ntwoheadnearrow
- ∿ \ntwoheadnwarrow
- پر \ntwoheadswarrow
- 🗓 \ntwoheadsearrow
- → \nrightarrowtail
- ↑ \nuparrowtail
- ⟨⟨√ ⟨ nleftarrowtail
- √ \nnearrowtail
- ∿ \nnwarrowtail
- ⅓ \nsearrowtail
- ↑ \nupmapsto, \nmapsup
- ← \nleftmapsto, \nmapsfrom
- ₹ \ndownmapsto,\nmapsdown
- ↑ \nUpmapsto, \nMapsup

- ↑ \nhookuparrow
- ↔ \nvarhookleftarrow
- √ \nvarhooknearrow
- √s \nhooknwarrow, \nhknwarrow
- ✗ \nvarhookswarrow
- ∿ \nhooksearrow, \nhksearrow
- → \nvarhookrightarrow
- ↑ \nvarhookuparrow
- ↔ \nhookleftarrow
- † \nhookdownarrow

- \nhooknearrow, \nhknearrow
- ∿ \nvarhooknwarrow
- √ \nvarhooksearrow
- → \nrightharpoonup
- 1 \nupharpoonleft
- → \nleftharpoondown
- t \ndownharpoonright
- √ \nneharpoonnw
- ∖nnwharpoonsw
- x \nswharpoonse
- ¼ \nseharpoonne
- → \nrightharpoondown
- ↓ \nupharpoonright,
 - \nrestriction
- ⊬ \nleftharpoonup
- √ \nneharpoonse
- \nnwharpoonne
- *x* \nswharpoonnw
- \nseharpoonsw
- → \nleftrightharpoonupdown
- † \nupdownharpoonleftright
- x \nneswharpoonnwse
- 🖔 \nnwseharpoonnesw
- // \nleftrightharpoondownup
- ∤ \nupdownharpoonrightleft
- \nnwseharpoonswne
- ₩ \nupdownharpoons,

\nupdownharpoonsleftright

- ♯ \nleftrightharpoons
- ∦ \ndownupharpoons,

\ndownupharpoonsleftright

- -/> \nrightbkarrow, \ndasharrow,
 \ndashrightarrow

- ↑ \nupbkarrow
- ←/- \nleftbkarrow, \ndashleftarrow
- ↓ \ndownbkarrow
- \nnebkarrow

- √ \nsebkarrow
- → \nrightspoon, \nmultimap
- ֈ \nupspoon, \ncirmid
- → \nleftspoon, \nmultimapinv
- t \ndownspoon, \nmidcir
- → \nrightblackspoon
- nupblackspoon
- → \nleftblackspoon
- → \nleftrightspoon, \ndualmap
- → \nleftrightblackspoon
- → \nblackwhitespoon, \nimageof
- → \nwhiteblackspoon, \norigof
- → \nrightpitchfork
- → \nuppitchfork, \npitchfork
- → \nleftpitchfork
- ♥ \ndownpitchfork
- ↑ \nupuparrows
- ♯ \nleftleftarrows
- ♦ \nnenearrows
- √ \nnwnwarrows
- √ \nswswarrows

- ↑ \nupdownarrows
- √ \nnwsearrows
- ♯ \nleftrightarrows
- ♯ \ndownuparrows
- ⋄ \nswnearrows

- \nvarupwavearrow
- √ \nvarleftwavearrow
- → \nvarrightwavearrow
- \$ \nupwavearrow

- ↑ \nupdownwavearrow
- ⟨→ \nvarleftrightwavearrow
- \$ \nvarupdownwavearrow
- ♠ \ncwoverarcarrow, \ncurvearrowright
- ₹ \ncwleftarcarrow
- √ \ncwunderarcarrow
- → \ncwrightarcarrow
- $noinde{\mathcal{H}}$ \ncwnwarcarrow,

\nrightupcurvedarrow

た \ncwswarcarrow,

 \nupleftcurvedarrow

√ \ncwsearcarrow,

\nleftdowncurvedarrow

√ \ncwnearcarrow,

\ndownrightcurvedarrow

- → \nacwunderarcarrow
- ኑ \nacwrightarcarrow
- h \nacwoverarcarrow,
 \ncurvearrowleft
- ⟨ \nacwleftarcarrow |
- ♪ \nacwsearcarrow,

\nuprightcurvearrow

⟨ \nacwnearcarrow,

\nleftupcurvedarrow

\ndownleftcurvedarrow

- \nacwswarcarrow,
 \nrightdowncurvedarrow
- √ \nbdoverarcarrow
- ₹ \nbdleftarcarrow
- √ \nbdunderarcarrow
- > \nbdrightarcarrow
- ♠ \nbdswarcarrow
- √ \nbdsearcarrow

- → \nrightfootline
- ♠ \nacwcirclearrowup
- \nacwcirclearrowleft,
 \ncirclearrowleft,
 \nacwopencirclearrow
- \nacwcirclearrowdown,
 \nacwgapcirclearrow

- \(\ncwcirclearrowright, \\ \ncwopencirclearrow\)
- ♠ \ncwcirclearrowup
- ∅ \ncwcirclearrowleft
- ⇒ \nRrightarrow
- ↑ \nUuparrow
- **⊭** \nLleftarrow
- → \nlongrightarrow
- ←/ \nlongleftarrow
- → \nLongrightarrow
- ← \nLongleftarrow
- ←→ \nlongleftrightarrow
- ←⇒ \nLongleftrightarrow
- ←/¬ \nlongmapsfrom
- ← \nLongmapsfrom

- - \nlongrightsquigarrow
- \mu\nlongleftwavearrow,
 \nlongleftsquigarrow
- → \nlongrightfootline,
 \nlongdashv
- ⊬ \nrightvdash,\nvdash

- ₹ \ndownvdash
- / \nrightassert, \nassert, \nshortrighttack
- # \nleftassert, \nshortlefttack
- ⊭ \nrightvDash,\nvDash
- # \nleftvDash,\nDashv
- # \nrightmodels, \nmodels
- <u></u>

 ★ \nupmodels
- # \nleftmodels
- ₮ \ndownmodels
- I⊬ \nrightVdash,\nVdash
- ₼ \nleftVdash, \ndashV
- ₹ \ndownVdash

- ∥ \nleftAssert
- → \ndownAssert, \nBarv
- ⊯ \nrightVDash,\nVDash
- # \nleftVDash, \nDashV
- ₹ \ndownVDash
- II⊬ \nVvdash
- ∦ll \ndashVv
- ⊭ \nvDdash

♯ \nDdashv \times \crossing :,\mathratio \between ∷ \Colon \shortmid \relbar \mid, \divides \nshortmid ⋈ \rJoin \nmid, \ndivides ∥ \parallel ⋈ \bowtie,\Join ∦ \nshortparallel ∦ \nparallel

4.4 Punctuation symbols

· \cdotp : \colon, \mathcolon

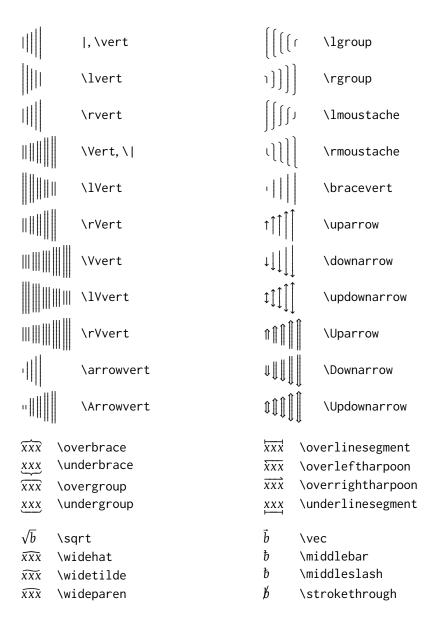
4.5 Large operators

+	+	\bigplus	+	+	\bigsqcupplus
\times	X	\bigtimes	\oplus	$\overline{\bigoplus}$	\bigoplus
\wedge	\bigwedge	\bigwedge	\otimes	\otimes	\bigotimes
V	V	\bigvee	\odot	\odot	\bigodot
\wedge	À	\bigwedgedot	\otimes	\otimes	\bigoast
\forall	\bigvee	\bigveedot	Π	П	\prod
M	$\dot{\mathbb{M}}$	\bigdoublewedge,	Ц	\coprod	\coprod
		\conjquant	Σ	\sum	\sum
W	W	\bigdoublevee,\disjquant	Σ	\sum_{i}	\osum, \modtwosum
人	人	\bigcurlywedge	ſ	ſ	\int
Υ	Υ	\bigcurlyvee	ľ	٦٦	\iint
\cap	\bigcap	\bigcap	\iint	JJ	\11111
\bigcup	\bigcup	\bigcup	\iiint		\iiint
\cap	\cap	\bigcapdot	IIII		\iiiint
\cup	\bigcup	\bigcupdot	,,,,		
+	+	\bigcapplus	J···J	J…J	\idotsint,\dotsint
+	+	\bigcupplus,\biguplus	∱·	$\oint_{\mathbf{I}}$	\landupint,\intclockwise
П		\bigsqcap	.د	ر ۔ا۔	\landdownint,\awint,
\sqcup		\bigsqcup	f	J	\intctrclockwise
lacksquare	$\lceil \cdot \rceil$	\bigsqcapdot	f	1	\intbar
oxdot		\bigsqcupdot		Ţ	\IIIcoai
+	+	\bigsqcapplus	ŧ	ŧ	\intBar

```
\varointclockwise
                                        \rcircleleftint,
                                         \varointctrclockwise
                                        \lcircleleftint,
                                          \ointclockwise
   ∰ \oiiint
                                        \sumint
                                        \smallprod
       \rcirclerightint,
                                        \smallcoprod
                                П
        \ointctrclockwise
                                        \smallint
        \lcirclerightint,
                                        \surd
```

4.6 Delimiters and accents

,		٦	
(((((,\lparen	ار _{دود} ساما	\ulrcorner
)))))),\rparen		\lsem,\lBrack
[[[[[[,\lbrack		\rsem, \rBrack
]]]]]], \rbrack	$\bigg\{ \bigg\{ \big\{ \big\{ \big\{ \big\} \bigg\}$	\lbrace,\{
	\lfloor	}}}}	\rbrace,\}
	\rfloor	$\langle \langle $	\langle
	\lceil	$\rangle\rangle\rangle\rangle$	\rangle
11]]]	\rceil	\\\(\(\)\	\lAngle
r _{rr} .	\ulcorner	»»»»»	\rAngle
7777	\urcorner	\·\\\\\	\langledot
Lucur	\llcorner	$\rangle\rangle\rangle\rangle\rangle$	\rangledot
- -	\lrcorner	/////	/,\mathslash
	\ullcorner	/////	\backslash



4.7 Faked symbols

The following symbols are taken from the text font or another math font (in case of \Re and \Im).

†	\dagger	ſ	\mathsection
‡	\ddagger	\$	\mathdollar
9	\mathparagraph	£	\mathsterling

```
Y \yen h \hslash R \Re T \Im T \Re \text{R} \circledR
```

4.8 Missing symbols

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

\mho	\varkappa	\lhook
\nabla	\Bbbk	\rhook
\eth	\backepsilon	\diagup
\digamma	\mapstochar	\diagdowr

5 Implementation

```
1 \( *style \)
2 \RequirePackage{xkeyval}
```

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

```
3\define@boolkey{fdsymbol.sty}[fdsy@]{largedelims}[true]{}
```

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

```
4 \newcommand{\fdsy@scale}{1.0}
```

```
\label{lem:commandfdsy@scale} \\ $$ \operatorname{command\fdsy@scale}{\#1} $$
```

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

```
6 \newcommand\fdsy@mweight{Book}
7 \newcommand\fdsy@msweight{Book}
8 \newcommand\fdsy@bweight{Medium}
9 \newcommand\fdsy@bsweight{Medium}
10 \define@choicekey*{fdsymbol.sty}{normalweight}[\@tempa\@tempb]{book,regular,auto}{%}
11 \ifcase\@tempb\relax
12 \renewcommand\fdsy@mweight{Book}
13 \renewcommand\fdsy@msweight{Book}
14 \or
```

- 15 \renewcommand\fdsy@mweight{Regular}
- 16 \renewcommand\fdsy@msweight{Regular}
- 17 \or
- 18 \renewcommand\fdsy@mweight{Book}
- 19 \renewcommand\fdsy@msweight{Regular}
- 20 \fi

```
21 }
22\define@choicekey*{fdsymbol.sty}{boldweight}[\@tempa\@tempb]{medium,bold,auto}{%
23
    \ifcase\@tempb\relax
      \renewcommand\fdsy@bweight{Medium}
24
      \renewcommand\fdsy@bsweight{Medium}
25
26
      \renewcommand\fdsy@bweight{Bold}
27
28
      \renewcommand\fdsy@bsweight{Bold}
29
      \renewcommand\fdsy@bweight{Medium}
30
      \renewcommand\fdsy@bsweight{Bold}
31
32
33 }
34
35 \ExecuteOptionsX{largedelims=false}
36 \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.
37 \@ifpackageloaded{amsmath}{}{\RequirePackage{amsmath}}
38 \@ifpackageloaded{textcomp}{}{\RequirePackage{textcomp}}
39 \@ifundefined{mathfrak}{\RequirePackage{eufrak}}{}
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.
40 \iffdsy@largedelims
41 \renewcommand{\Big}{\bBigg@{1.25}}
    \renewcommand{\bigg}{\bBigg@{1.66}}
43 \renewcommand{\Bigg}{\bBigg@{2.08}}
44\fi
Some symbols missing from FdSymbol can be obtained from other fonts or by
combining several other symbols.
45 \DeclareRobustCommand{\dagger}{\fdsy@text{\textdagger}}
46 \DeclareRobustCommand{\ddagger}{\fdsy@text{\textdaggerdbl}}
47 \DeclareRobustCommand{\mathparagraph}{\fdsy@text{\textparagraph}}
48 \DeclareRobustCommand{\mathsection}{\fdsy@text{\textsection}}
49 \DeclareRobustCommand{\mathdollar}{\fdsy@text{\textdollar}}
50 \DeclareRobustCommand{\mathsterling}{\fdsy@text{\textsterling}}
51 \DeclareRobustCommand{\yen}{\fdsy@text{\textyen}}
52 \DeclareRobustCommand{\circledR}{\fdsy@text{\textcircled{%
    \check@mathfonts\fontsize\sf@size\z@\math@fontsfalse\selectfont R}}}
54 \DeclareRobustCommand{\circledS}{\fdsy@text{\textcircled{%
    \check@mathfonts\fontsize\sf@size\z@\math@fontsfalse\selectfont S}}}
56 \DeclareRobustCommand{\Re}{\mathfrak{R}}
57 \DeclareRobustCommand{\Im}{\mathfrak{I}}
58 \DeclareRobustCommand{\dotcong}{\mathrel{\dot{\cong}}}
```

```
59 \DeclareRobustCommand{\thicksim}{\mathrel{\text{\boldmath$\m@th\sim$}}}
60 \DeclareRobustCommand{\thickapprox}{\mathrel{\text{\boldmath$\m@th\approx$}}}
61 \let\hbar\undefined
62 \let\hslash\undefined
63 \DeclareRobustCommand{\hbar}{\middlebar h}
64 \DeclareRobustCommand{\hslash}{\middleslash h}
65 \DeclareRobustCommand{\centerdot}{\mathbin{\rule{0.15em}{0.15em}}}
Unneeded partial symbols.
66 \let\mapstochar\undefined
67 \let\lhook\undefined
68 \let\rhook\undefined
Shorthands to simplify the definitions below.
69 \newcommand\fdsy@setslot[1]{\@tempcnta #1\relax}
70 \newcommand\fdsy@nextslot{\advance\@tempcnta 1\relax}
71 \newcommand\fdsy@prevslot{\advance\@tempcnta-1\relax}
72
73\newcommand\fdsy@@DeclareSymbol[4]{\DeclareMathSymbol{#2}{#3}{#4}{#1}}
74 \newcommand\fdsy@DeclareSymbol[3]{%
    \if\relax\noexpand#1\let#1\undefined\fi
    \expandafter\fdsy@@DeclareSymbol\expandafter{\the\@tempcnta}{#1}{#3}{#2}%
76
77 \fdsy@nextslot
79 \newcommand\fdsy@DeclareAlias[3]{\fdsy@prevslot\fdsy@DeclareSymbol{#1}{#2}{#3}}
80 \newcommand\fdsy@DeclareOperator[3]{\def#1{\DOTSB#3\slimits@}}
81\newcommand\fdsy@DeclareIntegral[3]{\def#1{\DOTSI#3\ilimits@}}
82 \newcommand\fdsy@DeclareDelimiter[4]{%
    \if\relax\noexpand#1\let#1\undefined\fi
84
    \ensuremathDelimiter{#1}{#2}{#3}{#4}{#3}{#4}%
86\newcommand\fdsy@DeclareOpen[3]{\fdsy@DeclareDelimiter{#1}{\mathopen}{#2}{#3}}
87\newcommand\fdsy@DeclareClose[3]{\fdsy@DeclareDelimiter{#1}{\mathclose}{#2}{#3}}
Font definitions.
88 \DeclareFontFamily{U}{FdSymbolA}{}
89 \DeclareFontFamily{U}{FdSymbolB}{}
90 \DeclareFontFamily{U}{FdSymbolC}{}
91 \DeclareFontFamily{U}{FdSymbolD}{}
92 \DeclareFontFamily{U}{FdSymbolE}{}
93 \DeclareFontFamily{U}{FdSymbolF}{}
95 \DeclareFontShape{U}{FdSymbolA}{m}{n}{
      <-7.1> s * [\fdsy@scale] FdSymbolA-\fdsy@msweight
      <7.1-> s * [\fdsy@scale] FdSymbolA-\fdsy@mweight
97
98 }{}
99 \DeclareFontShape{U}{FdSymbolA}{b}{n}{
```

```
<-7.1> s * [\fdsy@scale] FdSymbolA-\fdsy@bsweight
100
       <7.1-> s * [\fdsy@scale] FdSymbolA-\fdsy@bweight
101
102 }{}
\label{localize} 103 \verb|\DeclareFontShape{U}{FdSymbolB}{m}{n}{\{}
       <-7.1> s * [\fdsy@scale] FdSymbolB-\fdsy@msweight
105
       <7.1-> s * [\fdsy@scale] FdSymbolB-\fdsy@mweight
106 }{}
107 \DeclareFontShape{U}{FdSymbolB}{b}{n}{
108
       <-7.1> s * [\fdsy@scale] FdSymbolB-\fdsy@bsweight
109
       <7.1-> s * [\fdsy@scale] FdSymbolB-\fdsy@bweight
110 }{}
111 \DeclareFontShape{U}{FdSymbolC}{m}{n}{
       <-7.1> s * [\fdsy@scale] FdSymbolC-\fdsy@msweight
       <7.1-> s * [\fdsy@scale] FdSymbolC-\fdsy@mweight
113
114 }{}
115 \DeclareFontShape{U}{FdSymbolC}{b}{n}{
       <-7.1> s * [\fdsy@scale] FdSymbolC-\fdsy@bsweight
116
       <7.1-> s * [\fdsy@scale] FdSymbolC-\fdsy@bweight
117
118 } { }
119 \DeclareFontShape{U}{FdSymbolD}{m}{n}{
       <-7.1> s * [\fdsy@scale] FdSymbolD-\fdsy@msweight
120
121
       <7.1-> s * [\fdsy@scale] FdSymbolD-\fdsy@mweight
122 }{}
123 \DeclareFontShape{U}{FdSymbolD}{b}{n}{
124
       <-7.1> s * [\fdsy@scale] FdSymbolD-\fdsy@bsweight
125
       <7.1-> s * [\fdsy@scale] FdSymbolD-\fdsy@bweight
126 }{}
127 \DeclareFontShape{U}{FdSymbolE}{m}{n}{
128
       <-7.1> s * [\fdsy@scale] FdSymbolE-\fdsy@msweight
       <7.1-> s * [\fdsy@scale] FdSymbolE-\fdsy@mweight
129
130 }{}
131 \DeclareFontShape{U}{FdSymbolE}{b}{n}{
       <-7.1> s * [\fdsy@scale] FdSymbolE-\fdsy@bsweight
132
       <7.1-> s * [\fdsy@scale] FdSymbolE-\fdsy@bweight
133
134 }{}
135 \DeclareFontShape{U}{FdSymbolF}{m}{n}{
       <-7.1> s * [\fdsy@scale] FdSymbolF-\fdsy@msweight
136
       <7.1-> s * [\fdsy@scale] FdSymbolF-\fdsy@mweight
137
138 }{}
139 \DeclareFontShape{U}{FdSymbolF}{b}{n}{
140
       <-7.1> s * [\fdsy@scale] FdSymbolF-\fdsy@bsweight
141
       <7.1-> s * [\fdsy@scale] FdSymbolF-\fdsy@bweight
142 }{}
144 \DeclareSymbolFont{symbols}{U}{FdSymbolA}{m}{n}
```

```
145 \DeclareSymbolFont{relations}{U}{FdSymbolB}{m}{n}
146 \DeclareSymbolFont{arrows}{U}{FdSymbolC}{m}{n}
147 \DeclareSymbolFont{narrows}{U}{FdSymbolD}{m}{n}
148 \DeclareSymbolFont{largesymbols}{U}{FdSymbolE}{m}{n}
149 \DeclareSymbolFont{delimiters}{U}{FdSymbolF}{m}{n}
150 \SetSymbolFont{symbols}{bold}{U}{FdSymbolA}{b}{n}
151 \SetSymbolFont{relations}{bold}{U}{FdSymbolB}{b}{n}
152 \SetSymbolFont{arrows}{bold}{U}{FdSymbolC}{b}{n}
153 \SetSymbolFont{narrows}{bold}{U}{FdSymbolD}{b}{n}
\label{largesymbols} $$ \operatorname{SetSymbolFont{largesymbols}{bold}{U}{FdSymbolE}{b}{n}$ $$
155 \SetSymbolFont{delimiters}{bold}{U}{FdSymbolF}{b}{n}
At the moment, we still use cmsy for the calligraphic alphabet.
\label{lem:local} $$156 \end{constraint} $$
157 \SetMathAlphabet{\mathcal}{bold}{OMS}{cmsy}{b}{n}
A command to take math symbols from text fonts.
158 \newcommand\fdsy@bold{bold}
159 \newcommand\fdsy@text[1]{%
         \ifx\fdsy@bold\math@version
160
              \text{\bfseries#1}%
161
         \else
162
             \text{\mdseries#1}%
163
164
         \fi
165 }
FdSymbolA: binary operators and ordinary symbols
166 \fdsy@setslot{0}
167 \fdsy@DeclareSymbol{\cdot}{symbols}{\mathbin}
         \fdsy@DeclareAlias{\cdotp}{symbols}{\mathpunct}
169 \fdsy@DeclareSymbol{\hdotdot}{symbols}{\mathbin}
170 \fdsy@DeclareSymbol{\vdotdot}{symbols}{\mathbin}
         \fdsy@DeclareAlias{\colon}{symbols}{\mathpunct}
171
         \fdsy@DeclareAlias{\mathcolon}{symbols}{\mathpunct}
172
         \fdsy@DeclareAlias{\mathratio}{symbols}{\mathrel}
173
174 \fdsy@DeclareSymbol{\udotdot}{symbols}{\mathbin}
175 \fdsy@DeclareSymbol{\ddotdot}{symbols}{\mathbin}
176 \fdsy@DeclareSymbol{\hdots}{symbols}{\mathord}
         \fdsy@DeclareAlias{\@cdots}{symbols}{\mathinner}
         \let\cdots\@cdots
179 \fdsy@DeclareSymbol{\@vdots}{symbols}{\mathord}
180 \DeclareRobustCommand{\vdots}{\ifmmode\@vdots\else\hbox{$\@vdots$}\fi}
181 \fdsy@DeclareSymbol{\udots}{symbols}{\mathord}
         \fdsy@DeclareAlias{\adots}{symbols}{\mathord}
183 \fdsy@DeclareSymbol{\ddots}{symbols}{\mathord}
184 \fdsy@DeclareSymbol{\righttherefore}{symbols}{\mathord}
185 \fdsy@DeclareSymbol{\uptherefore}{symbols}{\mathord}
```

```
\fdsy@DeclareAlias{\therefore}{symbols}{\mathord}
187 \fdsy@DeclareSymbol{\lefttherefore}{symbols}{\mathord}
188 \fdsy@DeclareSymbol{\downtherefore}{symbols}{\mathord}
    \fdsy@DeclareAlias{\because}{symbols}{\mathord}
190 \fdsy@DeclareSymbol{\squaredots}{symbols}{\mathord}
    \fdsy@DeclareAlias{\Colon}{symbols}{\mathrel}
192 \fdsy@DeclareSymbol{\minus}{symbols}{\mathbin}
193 \fdsy@DeclareSymbol{\medslash}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\smalldivslash}{symbols}{\mathbin}
195 \fdsy@DeclareSymbol{\medbackslash}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\smallsetminus}{symbols}{\mathbin}
197 \fdsy@DeclareSymbol{\plus}{symbols}{\mathbin}
198 \fdsy@DeclareSymbol{\times}{symbols}{\mathbin}
199 \fdsy@DeclareSymbol{\dotminus}{symbols}{\mathbin}
200 \fdsy@DeclareSymbol{\minusdot}{symbols}{\mathbin}
201\fdsy@DeclareSymbol{\div}{symbols}{\mathbin}
202 \fdsy@DeclareSymbol{\minusfdots}{symbols}{\mathbin}
203 \fdsy@DeclareSymbol{\minusrdots}{symbols}{\mathbin}
204 \fdsy@DeclareSymbol{\dotsminusdots}{symbols}{\mathrel}
205 \fdsy@DeclareSymbol{\pm}{symbols}{\mathbin}
206 \fdsy@DeclareSymbol{\mp}{symbols}{\mathbin}
207 \fdsy@DeclareSymbol{\dotplus}{symbols}{\mathbin}
208 \fdsy@DeclareSymbol{\plusdot}{symbols}{\mathbin}
209 \fdsy@DeclareSymbol{\dottimes}{symbols}{\mathbin}
{\tt 210 \fdsy@DeclareSymbol{\times} \{symbols} {\tt \fdsy@DeclareSymbol} \\
211 \fdsy@DeclareSymbol{\divideontimes}{symbols}{\mathbin}
212 \fdsy@DeclareSymbol{\neg}{symbols}{\mathord}
    \fdsy@DeclareAlias{\lnot}{symbols}{\mathord}
213
    \fdsy@DeclareAlias{\minushookdown}{symbols}{\mathbin}
215 \fdsy@DeclareSymbol{\backneg}{symbols}{\mathord}
216
    \fdsy@DeclareAlias{\hookdownminus}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\invneg}{symbols}{\mathord}
217
    \fdsy@DeclareAlias{\invnot}{symbols}{\mathord}
218
219 \fdsy@DeclareSymbol{\intprod}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\minushookup}{symbols}{\mathbin}
220
    \fdsy@DeclareAlias{\turnedneg}{symbols}{\mathord}
    \fdsy@DeclareAlias{\turnednot}{symbols}{\mathord}
222
223 \fdsy@DeclareSymbol{\intprodr}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\hookupminus}{symbols}{\mathbin}
224
225
    \fdsy@DeclareAlias{\turnedbackneg}{symbols}{\mathord}
226 \fdsy@DeclareSymbol{\leftthreetimes}{symbols}{\mathbin}
227\fdsy@DeclareSymbol{\rightthreetimes}{symbols}{\mathbin}
228 \fdsy@DeclareSymbol{\dtimes}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\btimes}{symbols}{\mathbin}
230 \fdsy@DeclareSymbol{\rtimes}{symbols}{\mathbin}
```

```
\fdsy@DeclareAlias{\rJoin}{symbols}{\mathrel}
232 \fdsy@DeclareSymbol{\utimes}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\ttimes}{symbols}{\mathbin}
   .fdsy@DeclareSymbol{\ltimes}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\lJoin}{symbols}{\mathrel}
235
236 \fdsy@DeclareSymbol{\bowtie}{symbols}{\mathrel}
    \fdsy@DeclareAlias{\Join}{symbols}{\mathrel}
237
238
    \fdsy@DeclareAlias{\lrtimes}{symbols}{\mathbin}
239 \fdsy@DeclareSymbol{\upbowtie}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\hourglass}{symbols}{\mathbin}
240
241\fdsy@DeclareSymbol{\rightY}{symbols}{\mathbin}
242 \fdsy@DeclareSymbol{\upY}{symbols}{\mathbin}
243 \fdsy@DeclareSymbol{\leftY}{symbols}{\mathbin}
244 \fdsy@DeclareSymbol{\downY}{symbols}{\mathbin}
245 \fdsy@DeclareSymbol{\wedge}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\land}{symbols}{\mathbin}
247 \fdsy@DeclareSymbol{\vee}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\lor}{symbols}{\mathbin}
249 \fdsy@DeclareSymbol{\wedgedot}{symbols}{\mathbin}
250 \fdsy@DeclareSymbol{\veedot}{symbols}{\mathbin}
251\fdsy@DeclareSymbol{\doublewedge}{symbols}{\mathbin}
     \fdsy@DeclareAlias{\wedgeonwedge}{symbols}{\mathbin}
253 \fdsy@DeclareSymbol{\doublevee}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\veeonvee}{symbols}{\mathbin}
255 \fdsy@DeclareSymbol{\curlywedge}{symbols}{\mathbin}
256 \fdsy@DeclareSymbol{\curlyvee}{symbols}{\mathbin}
257 \fdsy@DeclareSymbol{\barwedge}{symbols}{\mathbin}
258 \fdsy@DeclareSymbol{\veebar}{symbols}{\mathbin}
259 \fdsy@DeclareSymbol{\doublebarwedge}{symbols}{\mathbin}
260 \fdsy@DeclareSymbol{\veedoublebar}{symbols}{\mathbin}
261 \fdsy@DeclareSymbol{\cup}{symbols}{\mathbin}
262 \fdsy@DeclareSymbol{\cap}{symbols}{\mathbin}
263 \fdsy@DeclareSymbol{\doublecup}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\Cup}{symbols}{\mathbin}
265 \fdsy@DeclareSymbol{\doublecap}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\Cap}{symbols}{\mathbin}
267 \fdsy@DeclareSymbol{\cupdot}{symbols}{\mathbin}
268 \fdsy@DeclareSymbol{\capdot}{symbols}{\mathbin}
269 \fdsy@DeclareSymbol{\cupplus}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\uplus}{symbols}{\mathbin}
271 \fdsy@DeclareSymbol{\capplus}{symbols}{\mathbin}
272 \fdsy@DeclareSymbol{\sqcup}{symbols}{\mathbin}
273 \fdsy@DeclareSymbol{\sqcap}{symbols}{\mathbin}
274 \fdsy@DeclareSymbol{\doublesqcup}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\Sqcup}{symbols}{\mathbin}
```

```
276 \fdsy@DeclareSymbol{\doublesqcap}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\Sqcap}{symbols}{\mathbin}
278 \fdsy@DeclareSymbol{\sqcupdot}{symbols}{\mathbin}
279 \fdsy@DeclareSymbol{\sqcapdot}{symbols}{\mathbin}
280 \fdsy@DeclareSymbol{\sqcupplus}{symbols}{\mathbin}
281 \fdsy@DeclareSymbol{\sqcapplus}{symbols}{\mathbin}
282 \fdsy@DeclareSymbol{\pullback}{symbols}{\mathbin}
283 \fdsy@DeclareSymbol{\pushout}{symbols}{\mathbin}
284 \fdsy@DeclareSymbol{\smalltriangleright}{symbols}{\mathbin}
285 \fdsy@DeclareSymbol{\smalltriangleup}{symbols}{\mathbin}
286 \fdsy@DeclareSymbol{\smalltriangleleft}{symbols}{\mathbin}
287\fdsy@DeclareSymbol{\smalltriangledown}{symbols}{\mathbin}
288 \fdsy@DeclareSymbol{\smallblacktriangleright}{symbols}{\mathbin}
289 \fdsy@DeclareSymbol{\smallblacktriangleup}{symbols}{\mathbin}
290 \fdsy@DeclareSymbol{\smallblacktriangleleft}{symbols}{\mathbin}
291\fdsy@DeclareSymbol{\smallblacktriangledown}{symbols}{\mathbin}
292 \fdsy@DeclareSymbol{\medtriangleright}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\triangleright}{symbols}{\mathbin}
294 \fdsy@DeclareSymbol{\medtriangleup}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\triangle}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\vartriangle}{symbols}{\mathbin}
296
    fdsy@DeclareSymbol{\medtriangleleft}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\triangleleft}{symbols}{\mathbin}
298
   .fdsy@DeclareSymbol{\medtriangledown}{symbols}{\mathbin}
299
300
    \fdsy@DeclareAlias{\triangledown}{symbols}{\mathbin}
   fdsy@DeclareSymbol{\medblacktriangleright}{symbols}{\mathbin}
301
    \fdsy@DeclareAlias{\blacktriangleright}{symbols}{\mathbin}
303 \fdsy@DeclareSymbol{\medblacktriangleup}{symbols}{\mathbin}
     \fdsy@DeclareAlias{\blacktriangle}{symbols}{\mathbin}
304
   fdsy@DeclareSymbol{\medblacktriangleleft}{symbols}{\mathbin}
305
    \fdsy@DeclareAlias{\blacktriangleleft}{symbols}{\mathbin}
306
    fdsy@DeclareSymbol{\medblacktriangledown}{symbols}{\mathbin}
307
    \fdsy@DeclareAlias{\blacktriangledown}{symbols}{\mathbin}
308
   fdsy@DeclareSymbol{\largetriangleup}{symbols}{\mathord}
     \fdsy@DeclareAlias{\bigtriangleup}{symbols}{\mathbin}
310
    fdsy@DeclareSymbol{\largetriangledown}{symbols}{\mathord}
     \fdsy@DeclareAlias{\bigtriangledown}{symbols}{\mathbin}
312
  \fdsy@DeclareSymbol{\smallcircle}{symbols}{\mathbin}
313
    \fdsy@DeclareAlias{\circ}{symbols}{\mathbin}
314
315
    \fdsy@DeclareAlias{\smwhtcircle}{symbols}{\mathbin}
316 \
   .fdsy@DeclareSymbol{\smallblackcircle}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\bullet}{symbols}{\mathbin}
317
    \fdsy@DeclareAlias{\smblkcircle}{symbols}{\mathbin}
318
   fdsy@DeclareSymbol{\medcircle}{symbols}{\mathbin}
319 \
    \fdsy@DeclareAlias{\mdlgwhtcircle}{symbols}{\mathbin}
```

```
321 \fdsy@DeclareSymbol{\medblackcircle}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\mdlgblkcircle}{symbols}{\mathbin}
323 \fdsy@DeclareSymbol{\ominus}{symbols}{\mathbin}
324 \fdsy@DeclareSymbol{\overt}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\circledvert}{symbols}{\mathbin}
326 \fdsy@DeclareSymbol{\oslash}{symbols}{\mathbin}
327\fdsy@DeclareSymbol{\obackslash}{symbols}{\mathbin}
     \fdsy@DeclareAlias{\obslash}{symbols}{\mathbin}
329 \fdsy@DeclareSymbol{\oplus}{symbols}{\mathbin}
330 \fdsy@DeclareSymbol{\otimes}{symbols}{\mathbin}
331 \fdsy@DeclareSymbol{\odot}{symbols}{\mathbin}
332 \fdsy@DeclareSymbol{\ocirc}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\circledcirc}{symbols}{\mathbin}
334 \fdsy@DeclareSymbol{\oast}{symbols}{\mathbin}
     \fdsy@DeclareAlias{\circledast}{symbols}{\mathbin}
   fdsy@DeclareSymbol{\odash}{symbols}{\mathbin}
337
    \fdsy@DeclareAlias{\circleddash}{symbols}{\mathbin}
    fdsy@DeclareSymbol{\oequal}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\circledequal}{symbols}{\mathbin}
339
340 \fdsy@DeclareSymbol{\emptyset}{symbols}{\mathord}
     \fdsy@DeclareAlias{\diameter}{symbols}{\mathord}
341
     \fdsy@DeclareAlias{\varnothing}{symbols}{\mathord}
343 \fdsy@DeclareSymbol{\revemptyset}{symbols}{\mathord}
344 \fdsy@DeclareSymbol{\largecircle}{symbols}{\mathord}
345
     \fdsy@DeclareAlias{\bigcirc}{symbols}{\mathord}
    \fdsy@DeclareAlias{\lgwhtcircle}{symbols}{\mathord}
346
347 \fdsy@DeclareSymbol{\largeblackcircle}{symbols}{\mathord}
     \fdsy@DeclareAlias{\lgblkcircle}{symbols}{\mathord}
348
349 \fdsy@DeclareSymbol{\smallsquare}{symbols}{\mathbin}
     \fdsy@DeclareAlias{\smwhtsquare}{symbols}{\mathbin}
350
351
   fdsy@DeclareSymbol{\smallblacksquare}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\smblksquare}{symbols}{\mathbin}
352
    fdsy@DeclareSymbol{\medsquare}{symbols}{\mathbin}
353
    \fdsy@DeclareAlias{\square}{symbols}{\mathbin}
354
    \fdsy@DeclareAlias{\Box}{symbols}{\mathbin}
355
356
    \fdsy@DeclareAlias{\mdlgwhtsquare}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\mdwhtsquare}{symbols}{\mathbin}
357
358
   fdsy@DeclareSymbol{\medblacksquare}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\mdlgblksquare}{symbols}{\mathbin}
359
360
    \fdsy@DeclareAlias{\mdblksquare}{symbols}{\mathbin}
361\fdsy@DeclareSymbol{\boxminus}{symbols}{\mathbin}
362\fdsy@DeclareSymbol{\boxvert}{symbols}{\mathbin}
     \fdsy@DeclareAlias{\boxbar}{symbols}{\mathbin}
364 \fdsy@DeclareSymbol{\boxslash}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\boxdiag}{symbols}{\mathbin}
```

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366 \fdsy@DeclareSymbol{\boxbackslash}{symbols}{\mathbin}
     \fdsy@DeclareAlias{\boxbslash}{symbols}{\mathbin}
368 \fdsy@DeclareSymbol{\boxplus}{symbols}{\mathbin}
369 \fdsy@DeclareSymbol{\boxtimes}{symbols}{\mathbin}
{\tt 370 \fdsy@DeclareSymbol{\boxdot}{symbols}{\mathbb }\{n)}
371 \fdsy@DeclareSymbol{\boxbox}{symbols}{\mathbin}
372 \fdsy@DeclareSymbol{\largesquare}{symbols}{\mathord}
     \fdsy@DeclareAlias{\lgwhtsquare}{symbols}{\mathord}
374 \fdsy@DeclareSymbol{\largeblacksquare}{symbols}{\mathord}
     \fdsy@DeclareAlias{\lgblksquare}{symbols}{\mathord}
375
376
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     \fdsy@DeclareAlias{\diamond}{symbols}{\mathbin}
377
     \fdsy@DeclareAlias{\smwhtdiamond}{symbols}{\mathbin}
378
    fdsy@DeclareSymbol{\smallblackdiamond}{symbols}{\mathbin}
379 \
380
     \fdsy@DeclareAlias{\blackdiamond}{symbols}{\mathbin}
     \fdsy@DeclareAlias{\smblkdiamond}{symbols}{\mathbin}
381
382
    fdsy@DeclareSymbol{\meddiamond}{symbols}{\mathbin}
     \fdsy@DeclareAlias{\Diamond}{symbols}{\mathbin}
383
     \fdsy@DeclareAlias{\mdlgwhtdiamond}{symbols}{\mathbin}
384
     \fdsy@DeclareAlias{\mdwhtdiamond}{symbols}{\mathbin}
385
    fdsy@DeclareSymbol{\medblackdiamond}{symbols}{\mathbin}
386 \
387
     \fdsy@DeclareAlias{\mdlgblkdiamond}{symbols}{\mathbin}
     \fdsy@DeclareAlias{\mdblkdiamond}{symbols}{\mathbin}
388
389 \fdsy@DeclareSymbol{\diamondminus}{symbols}{\mathbin}
390 \fdsy@DeclareSymbol{\diamondvert}{symbols}{\mathbin}
391\fdsy@DeclareSymbol{\diamondslash}{symbols}{\mathbin}
392 \fdsy@DeclareSymbol{\diamondbackslash}{symbols}{\mathbin}
     \fdsy@DeclareAlias{\diamondbslash}{symbols}{\mathbin}
394 \fdsy@DeclareSymbol{\diamondplus}{symbols}{\mathbin}
395 \fdsy@DeclareSymbol{\diamondtimes}{symbols}{\mathbin}
   \fdsy@DeclareSymbol{\diamonddot}{symbols}{\mathbin}
     \fdsy@DeclareAlias{\diamondcdot}{symbols}{\mathbin}
398 \fdsy@DeclareSymbol{\diamonddiamond}{symbols}{\mathbin}
399 \fdsy@DeclareSymbol{\smalllozenge}{symbols}{\mathord}
400
     \fdsy@DeclareAlias{\smwhtlozenge}{symbols}{\mathord}
    fdsy@DeclareSymbol{\smallblacklozenge}{symbols}{\mathord}
     \fdsy@DeclareAlias{\smblklozenge}{symbols}{\mathord}
402
    fdsy@DeclareSymbol{\medlozenge}{symbols}{\mathord}
403
     \fdsy@DeclareAlias{\lozenge}{symbols}{\mathord}
404
405
     \fdsy@DeclareAlias{\mdlgwhtlozenge}{symbols}{\mathord}
406
     \fdsy@DeclareAlias{\mdwhtlozenge}{symbols}{\mathord}
   .fdsy@DeclareSymbol{\medblacklozenge}{symbols}{\mathord}
407
     \fdsy@DeclareAlias{\blacklozenge}{symbols}{\mathord}
408
     \fdsy@DeclareAlias{\mdlgblklozenge}{symbols}{\mathord}
409
410
     \fdsy@DeclareAlias{\mdblklozenge}{symbols}{\mathord}
```

```
411 \fdsy@DeclareSymbol{\lozengeminus}{symbols}{\mathord}
412 \fdsy@DeclareSymbol{\smallwhitestar}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\smwhitestar}{symbols}{\mathbin}
414 \fdsy@DeclareSymbol{\smallblackstar}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\star}{symbols}{\mathbin}
416 \fdsy@DeclareSymbol{\medwhitestar}{symbols}{\mathbin}
417 \fdsy@DeclareSymbol{\medblackstar}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\medstar}{symbols}{\mathbin}
419 \fdsy@DeclareSymbol{\largewhitestar}{symbols}{\mathord}
420 \fdsy@DeclareSymbol{\largeblackstar}{symbols}{\mathord}
    \fdsy@DeclareAlias{\bigstar}{symbols}{\mathord}
422 \fdsy@DeclareSymbol{\ast}{symbols}{\mathbin}
423 \fdsy@DeclareSymbol{\infty}{symbols}{\mathord}
424 \fdsy@DeclareSymbol{\propto}{symbols}{\mathrel}
    \fdsy@DeclareAlias{\varpropto}{symbols}{\mathrel}
426 \fdsy@DeclareSymbol{\backpropto}{symbols}{\mathrel}
    \fdsy@DeclareAlias{\propfrom}{symbols}{\mathrel}
428 \fdsy@DeclareSymbol{\crossing}{symbols}{\mathrel}
429 \fdsy@DeclareSymbol{\between}{symbols}{\mathrel}
430 \fdsy@DeclareSymbol{\intercal}{symbols}{\mathbin}
\fdsy@DeclareAlias{\wr}{symbols}{\mathbin}
433 \fdsy@DeclareSymbol{\angle}{symbols}{\mathord}
434 \fdsy@DeclareSymbol{\revangle}{symbols}{\mathord}
435 \fdsy@DeclareSymbol{\measuredangle}{symbols}{\mathord}
436 \fdsy@DeclareSymbol{\revmeasuredangle}{symbols}{\mathord}
    \fdsy@DeclareAlias{\measuredangleleft}{symbols}{\mathord}
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439 \fdsy@DeclareSymbol{\sphericalangleup}{symbols}{\mathord}
440 \fdsy@DeclareSymbol{\sphericalangleleft}{symbols}{\mathord}
    \fdsy@DeclareAlias{\revsphericalangle}{symbols}{\mathord}
    \fdsy@DeclareAlias{\gtlpar}{symbols}{\mathord}
443 \fdsy@DeclareSymbol{\sphericalangledown}{symbols}{\mathord}
444 \fdsy@DeclareSymbol{\rightangle}{symbols}{\mathord}
445 \fdsy@DeclareSymbol{\measuredrightangle}{symbols}{\mathord}
446 \fdsy@DeclareSymbol{\rightanglesquare}{symbols}{\mathord}
    \fdsy@DeclareAlias{\rightanglesqr}{symbols}{\mathord}
448 \fdsy@DeclareSymbol{\measuredrightangledot}{symbols}{\mathord}
    \fdsy@DeclareAlias{\rightanglemdot}{symbols}{\mathord}
450 \fdsy@DeclareSymbol{\prime}{symbols}{\mathord}
451 \fdsy@DeclareSymbol{\backprime}{symbols}{\mathord}
452 \fdsy@DeclareSymbol{\smallprod}{symbols}{\mathop}
453 \fdsy@DeclareSymbol{\smallcoprod}{symbols}{\mathop}
    \fdsy@DeclareAlias{\amalg}{symbols}{\mathbin}
455 \fdsy@DeclareSymbol{\smallint}{symbols}{\mathop}
```

```
456 \fdsy@DeclareSymbol{\checkmark}{symbols}{\mathord}
457 \fdsy@DeclareSymbol{\lightning}{symbols}{\mathord}
    \fdsy@DeclareAlias{\downzigzagarrow}{symbols}{\mathord}
459 \fdsy@DeclareSymbol{\diamondsuit}{symbols}{\mathord}
461 \fdsy@DeclareSymbol{\heartsuit}{symbols}{\mathord}
462 \fdsy@DeclareSymbol{\varheartsuit}{symbols}{\mathord}
463 \fdsy@DeclareSymbol{\spadesuit}{symbols}{\mathord}
464 \fdsy@DeclareSymbol{\clubsuit}{symbols}{\mathord}
465 \fdsy@DeclareSymbol{\maltese}{symbols}{\mathord}
466 \fdsy@DeclareSymbol{\starofdavid}{symbols}{\mathord}
467 \fdsy@DeclareSymbol{\sector}{symbols}{\mathord}
468 \fdsy@DeclareSymbol{\forall}{symbols}{\mathord}
469 \fdsy@DeclareSymbol{\exists}{symbols}{\mathord}
470 \fdsy@DeclareSymbol{\nexists}{symbols}{\mathord}
471 \fdsy@DeclareSymbol{\Finv}{symbols}{\mathord}
472 \fdsy@DeclareSymbol{\Game}{symbols}{\mathord}
473 \fdsy@DeclareSymbol{\complement}{symbols}{\mathord}
474 \fdsy@DeclareSymbol{\flat}{symbols}{\mathord}
475 \fdsy@DeclareSymbol{\natural}{symbols}{\mathord}
476 \fdsy@DeclareSymbol{\sharp}{symbols}{\mathord}
477 \fdsy@DeclareSymbol{\aleph}{symbols}{\mathord}
478 \fdsy@DeclareSymbol{\beth}{symbols}{\mathord}
479 \fdsy@DeclareSymbol{\gimel}{symbols}{\mathord}
480 \fdsy@DeclareSymbol{\daleth}{symbols}{\mathord}
481 \fdsy@DeclareSymbol{\wp}{symbols}{\mathord}
FdSymbolB: relations
482 \fdsy@setslot{0}
483 \fdsy@DeclareSymbol{\equal}{relations}{\mathrel}
484 \fdsy@DeclareSymbol{\equiv}{relations}{\mathrel}
485 \fdsy@DeclareSymbol{\sim}{relations}{\mathrel}
486 \fdsy@DeclareSymbol{\backsim}{relations}{\mathrel}
487 \fdsy@DeclareSymbol{\approx}{relations}{\mathrel}
488 \fdsy@DeclareSymbol{\triplesim}{relations}{\mathrel}
    \fdsy@DeclareAlias{\approxident}{relations}{\mathrel}
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491\fdsy@DeclareSymbol{\backsimeq}{relations}{\mathrel}
492 \fdsy@DeclareSymbol{\eqsim}{relations}{\mathrel}
493 \fdsy@DeclareSymbol{\cong}{relations}{\mathrel}
494 \fdsy@DeclareSymbol{\backcong}{relations}{\mathrel}
495 \fdsy@DeclareSymbol{\approxeq}{relations}{\mathrel}
496 \fdsy@DeclareSymbol{\bumpeq}{relations}{\mathrel}
497 \fdsy@DeclareSymbol{\bumpeqq}{relations}{\mathrel}
498 \fdsy@DeclareSymbol{\Bumpeq}{relations}{\mathrel}
499 \fdsy@DeclareSymbol{\doteq}{relations}{\mathrel}
```

```
500 \fdsy@DeclareSymbol{\eqdot}{relations}{\mathrel}
501 \fdsy@DeclareSymbol{\Doteq}{relations}{\mathrel}
     \fdsy@DeclareAlias{\doteqdot}{relations}{\mathrel}
503 \fdsy@DeclareSymbol{\fallingdotseq}{relations}{\mathrel}
504\fdsy@DeclareSymbol{\risingdotseq}{relations}{\mathrel}
505 \fdsy@DeclareSymbol{\coloneq}{relations}{\mathrel}
     \fdsy@DeclareAlias{\coloneqq}{relations}{\mathrel}
507 \fdsy@DeclareSymbol{\eqcolon}{relations}{\mathrel}
508
     \fdsy@DeclareAlias{\eqqcolon}{relations}{\mathrel}
509 \fdsy@DeclareSymbol{\smile}{relations}{\mathrel}
     \fdsy@DeclareAlias{\smallsmile}{relations}{\mathrel}
511 \fdsy@DeclareSymbol{\frown}{relations}{\mathrel}
     \fdsy@DeclareAlias{\smallfrown}{relations}{\mathrel}
513 \fdsy@DeclareSymbol{\smilefrown}{relations}{\mathrel}
     \fdsy@DeclareAlias{\asymp}{relations}{\mathrel}
515 \fdsy@DeclareSymbol{\frownsmile}{relations}{\mathrel}
     \fdsy@DeclareAlias{\closure}{relations}{\mathrel}
517 \fdsy@DeclareSymbol{\smileeq}{relations}{\mathrel}
518 \fdsy@DeclareSymbol{\frowneq}{relations}{\mathrel}
     \fdsy@DeclareAlias{\arceq}{relations}{\mathrel}
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521 \fdsy@DeclareSymbol{\circeq}{relations}{\mathrel}
522 \fdsy@DeclareSymbol{\wedgeq}{relations}{\mathrel}
     \fdsy@DeclareAlias{\hateq}{relations}{\mathrel}
524 \fdsy@DeclareSymbol{\veeeq}{relations}{\mathrel}
525 \fdsy@DeclareSymbol{\stareq}{relations}{\mathrel}
526 \fdsy@DeclareSymbol{\triangleeq}{relations}{\mathrel}
     \fdsy@DeclareAlias{\triangleq}{relations}{\mathrel}
528 \fdsy@DeclareSymbol{\in}{relations}{\mathrel}
529 \fdsy@DeclareSymbol{\owns}{relations}{\mathrel}
     \fdsy@DeclareAlias{\ni}{relations}{\mathrel}
531 \fdsy@DeclareSymbol{\less}{relations}{\mathrel}
532 \fdsy@DeclareSymbol{\gtr}{relations}{\mathrel}
533 \fdsy@DeclareSymbol{\leq}{relations}{\mathrel}
     \fdsy@DeclareAlias{\le}{relations}{\mathrel}
535 \fdsy@DeclareSymbol{\geq}{relations}{\mathrel}
     \fdsy@DeclareAlias{\ge}{relations}{\mathrel}
537 \fdsy@DeclareSymbol{\leqslant}{relations}{\mathrel}
538 \fdsy@DeclareSymbol{\geqslant}{relations}{\mathrel}
539 \fdsy@DeclareSymbol{\leqq}{relations}{\mathrel}
540 \fdsy@DeclareSymbol{\geqq}{relations}{\mathrel}
541\fdsy@DeclareSymbol{\lesssim}{relations}{\mathrel}
542 \fdsy@DeclareSymbol{\gtrsim}{relations}{\mathrel}
543 \fdsy@DeclareSymbol{\lessapprox}{relations}{\mathrel}
544 \fdsy@DeclareSymbol{\gtrapprox}{relations}{\mathrel}
```

```
545 \fdsy@DeclareSymbol{\lessgtr}{relations}{\mathrel}
546 \fdsy@DeclareSymbol{\gtrless}{relations}{\mathrel}
547\fdsy@DeclareSymbol{\lesseqgtr}{relations}{\mathrel}
548 \fdsy@DeclareSymbol{\gtreqless}{relations}{\mathrel}
{\tt 549 \fdsy@DeclareSymbol{lesseqqgtr}{relations}{\tt \flower}} \\
550 \fdsy@DeclareSymbol{\gtreqqless}{relations}{\mathrel}
551\fdsy@DeclareSymbol{\lesseqslantgtr}{relations}{\mathrel}
552
         \fdsy@DeclareAlias{\lesg}{relations}{\mathrel}
        \label{lesseqgtrslant} $$ \end{areal} $$ \end{areal} $$ \end{areal} $$ \end{areal} $$ \end{areal} $$ \end{area} 
553
554 \fdsy@DeclareSymbol{\gtreqslantless}{relations}{\mathrel}
        \fdsy@DeclareAlias{\gesl}{relations}{\mathrel}
555
        \fdsy@DeclareAlias{\gtreqlessslant}{relations}{\mathrel}
556
557 \fdsy@DeclareSymbol{\ll}{relations}{\mathrel}
558 \fdsy@DeclareSymbol{\gg}{relations}{\mathrel}
559 \fdsy@DeclareSymbol{\111}{relations}{\mathrel}
        \fdsy@DeclareAlias{\llless}{relations}{\mathrel}
560
561\fdsy@DeclareSymbol{\ggg}{relations}{\mathrel}
        \fdsy@DeclareAlias{\gggtr}{relations}{\mathrel}
563 \fdsy@DeclareSymbol{\lessclosed}{relations}{\mathbb{}}
        \fdsy@DeclareAlias{\lhd}{relations}{\mathbin}
        \fdsy@DeclareAlias{\vartriangleleft}{relations}{\mathrel}
565
566 \fdsy@DeclareSymbol{\gtrclosed}{relations}{\mathrel}
        \fdsy@DeclareAlias{\rhd}{relations}{\mathbin}
567
        \fdsy@DeclareAlias{\vartriangleright}{relations}{\mathrel}
568
569
       fdsy@DeclareSymbol{\leqclosed}{relations}{\mathrel}
        \fdsy@DeclareAlias{\unlhd}{relations}{\mathbin}
570
        \fdsy@DeclareAlias{\trianglelefteq}{relations}{\mathrel}
571
572 \fdsy@DeclareSymbol{\geqclosed}{relations}{\mathrel}
        \fdsy@DeclareAlias{\unrhd}{relations}{\mathbin}
        \fdsy@DeclareAlias{\trianglerighteq}{relations}{\mathrel}
574
     \fdsy@DeclareSymbol{\lesscc}{relations}{\mathrel}
575
        \fdsy@DeclareAlias{\ltcc}{relations}{\mathrel}
576
577 \fdsy@DeclareSymbol{\gtrcc}{relations}{\mathrel}
        \fdsy@DeclareAlias{\gtcc}{relations}{\mathrel}
579 \fdsy@DeclareSymbol{\leqslcc}{relations}{\mathrel}
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581\fdsy@DeclareSymbol{\geqslcc}{relations}{\mathrel}
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583 \fdsy@DeclareSymbol{\sqsubset}{relations}{\mathrel}
584 \fdsy@DeclareSymbol{\sqsupset}{relations}{\mathrel}
585 \fdsy@DeclareSymbol{\sqsubseteq}{relations}{\mathrel}
586 \fdsy@DeclareSymbol{\sqsupseteq}{relations}{\mathrel}
587 \fdsy@DeclareSymbol{\sqsubseteqq}{relations}{\mathrel}
588 \fdsy@DeclareSymbol{\sqsupseteqq}{relations}{\mathrel}
589 \fdsy@DeclareSymbol{\Sqsubset}{relations}{\mathrel}
```

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590 \fdsy@DeclareSymbol{\Sqsupset}{relations}{\mathrel}
591 \fdsy@DeclareSymbol{\subset}{relations}{\mathrel}
592 \fdsy@DeclareSymbol{\supset}{relations}{\mathrel}
593 \fdsy@DeclareSymbol{\subseteq}{relations}{\mathrel}
594 \fdsy@DeclareSymbol{\supseteq}{relations}{\mathrel}
595 \fdsy@DeclareSymbol{\subseteqq}{relations}{\mathrel}
596 \fdsy@DeclareSymbol{\supseteqq}{relations}{\mathrel}
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598 \fdsy@DeclareSymbol{\Supset}{relations}{\mathrel}
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603 \fdsy@DeclareSymbol{\preccurlyeq}{relations}{\mathrel}
604 \fdsy@DeclareSymbol{\succcurlyeq}{relations}{\mathrel}
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606 \fdsy@DeclareSymbol{\succeqq}{relations}{\mathrel}
607 \fdsy@DeclareSymbol{\precsim}{relations}{\mathrel}
608 \fdsy@DeclareSymbol{\succsim}{relations}{\mathrel}
609 \fdsy@DeclareSymbol{\precapprox}{relations}{\mathrel}
610 \fdsy@DeclareSymbol{\succapprox}{relations}{\mathrel}
611 \fdsy@DeclareSymbol{\lessdot}{relations}{\mathrel}
612 \fdsy@DeclareSymbol{\gtrdot}{relations}{\mathrel}
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    \fdsy@DeclareAlias{\lesdot}{relations}{\mathrel}
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    \fdsy@DeclareAlias{\gesdot}{relations}{\mathrel}
619 \fdsy@DeclareSymbol{\eqslantless}{relations}{\mathrel}
620 \fdsy@DeclareSymbol{\eqslantgtr}{relations}{\mathrel}
621 \fdsy@DeclareSymbol{\curlyeqprec}{relations}{\mathrel}
622 \fdsy@DeclareSymbol{\curlyeqsucc}{relations}{\mathrel}
623 \fdsy@DeclareSymbol{\nequal}{relations}{\mathrel}
    \fdsy@DeclareAlias{\neq}{relations}{\mathrel}
    \fdsy@DeclareAlias{\ne}{relations}{\mathrel}
626 \fdsy@DeclareSymbol{\nequiv}{relations}{\mathrel}
627 \fdsy@DeclareSymbol{\nsim}{relations}{\mathrel}
628 \fdsy@DeclareSymbol{\nbacksim}{relations}{\mathrel}
629 \fdsy@DeclareSymbol{\napprox}{relations}{\mathrel}
630 \fdsy@DeclareSymbol{\ntriplesim}{relations}{\mathrel}
    632 \fdsy@DeclareSymbol{\nsimeq}{relations}{\mathrel}
    \fdsy@DeclareAlias{\nsime}{relations}{\mathrel}
634 \fdsy@DeclareSymbol{\nbacksimeq}{relations}{\mathrel}
```

```
635 \fdsy@DeclareSymbol{\neqsim}{relations}{\mathrel}
636 \fdsy@DeclareSymbol{\ncong}{relations}{\mathrel}
637 \fdsy@DeclareSymbol{\nbackcong}{relations}{\mathrel}
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639 \fdsy@DeclareSymbol{\nbumpeq}{relations}{\mathrel}
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643 \fdsy@DeclareSymbol{\neqdot}{relations}{\mathrel}
644 \fdsy@DeclareSymbol{\nDoteq}{relations}{\mathrel}
645 \fdsy@DeclareSymbol{\nfallingdotseq}{relations}{\mathrel}
646 \fdsy@DeclareSymbol{\nrisingdotseq}{relations}{\mathrel}
647 \fdsy@DeclareSymbol{\nsmile}{relations}{\mathrel}
648 \fdsy@DeclareSymbol{\nfrown}{relations}{\mathrel}
649 \fdsy@DeclareSymbol{\nsmilefrown}{relations}{\mathrel}
         \fdsy@DeclareAlias{\nasymp}{relations}{\mathrel}
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         \fdsy@DeclareAlias{\nclosure}{relations}{\mathrel}
653 \fdsy@DeclareSymbol{\nsmileeq}{relations}{\mathrel}
654 \fdsy@DeclareSymbol{\nfrowneq}{relations}{\mathrel}
         \fdsy@DeclareAlias{\narceq}{relations}{\mathrel}
656 \fdsy@DeclareSymbol{\neqcirc}{relations}{\mathrel}
657 \fdsy@DeclareSymbol{\ncirceq}{relations}{\mathrel}
658 \fdsy@DeclareSymbol{\nwedgeq}{relations}{\mathrel}
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660 \fdsy@DeclareSymbol{\nveeeq}{relations}{\mathrel}
661 \fdsy@DeclareSymbol{\nstareq}{relations}{\mathrel}
662\fdsy@DeclareSymbol{\ntriangleeq}{relations}{\mathrel}
663 \fdsy@DeclareSymbol{\nin}{relations}{\mathrel}
         \fdsy@DeclareAlias{\notin}{relations}{\mathrel}
665 \fdsy@DeclareSymbol{\nowns}{relations}{\mathrel}
        \fdsy@DeclareAlias{\nni}{relations}{\mathrel}
667 \fdsy@DeclareSymbol{\nless}{relations}{\mathrel}
668 \fdsy@DeclareSymbol{\ngtr}{relations}{\mathrel}
669 \fdsy@DeclareSymbol{\nleq}{relations}{\mathrel}
670 \fdsy@DeclareSymbol{\ngeq}{relations}{\mathrel}
671 \fdsy@DeclareSymbol{\nleqslant}{relations}{\mathrel}
672 \fdsy@DeclareSymbol{\ngeqslant}{relations}{\mathrel}
673 \fdsy@DeclareSymbol{\nleqq}{relations}{\mathrel}
674 \fdsy@DeclareSymbol{\ngeqq}{relations}{\mathrel}
675 \fdsy@DeclareSymbol{\nlesssim}{relations}{\mathrel}
\label{lem:condition} $$ \footnote{\coloredgeneral} {\bf \coloredgeneral} {\bf \coloredg
677 \fdsy@DeclareSymbol{\nlessapprox}{relations}{\mathrel}
678 \fdsy@DeclareSymbol{\ngtrapprox}{relations}{\mathrel}
679 \fdsy@DeclareSymbol{\nlessgtr}{relations}{\mathrel}
```

```
680 \fdsy@DeclareSymbol{\ngtrless}{relations}{\mathrel}
681\fdsy@DeclareSymbol{\nlesseqgtr}{relations}{\mathrel}
682 \fdsy@DeclareSymbol{\ngtreqless}{relations}{\mathrel}
683 \fdsy@DeclareSymbol{\nlesseqqgtr}{relations}{\mathrel}
684 \fdsy@DeclareSymbol{\ngtreqqless}{relations}{\mathrel}
685 \fdsy@DeclareSymbol{\nlesseqslantgtr}{relations}{\mathrel}
     \fdsy@DeclareAlias{\nlesg}{relations}{\mathrel}
     \fdsy@DeclareAlias{\nlesseqgtrslant}{relations}{\mathrel}
687
688 \fdsy@DeclareSymbol{\ngtreqslantless}{relations}{\mathrel}
     \fdsy@DeclareAlias{\ngesl}{relations}{\mathrel}
689
     \fdsy@DeclareAlias{\ngtreqlessslant}{relations}{\mathrel}
691 \fdsy@DeclareSymbol{\nll}{relations}{\mathrel}
692 \fdsy@DeclareSymbol{\ngg}{relations}{\mathrel}
693 \fdsy@DeclareSymbol{\nlll}{relations}{\mathrel}
694 \fdsy@DeclareSymbol{\nggg}{relations}{\mathrel}
695 \fdsy@DeclareSymbol{\nlessclosed}{relations}{\mathrel}
     \fdsy@DeclareAlias{\ntriangleleft}{relations}{\mathrel}
697\fdsy@DeclareSymbol{\ngtrclosed}{relations}{\mathrel}
     \fdsy@DeclareAlias{\ntriangleright}{relations}{\mathrel}
698
699 \fdsy@DeclareSymbol{\nleqclosed}{relations}{\mathrel}
     \fdsy@DeclareAlias{\ntrianglelefteq}{relations}{\mathrel}
700
701\fdsy@DeclareSymbol{\ngeqclosed}{relations}{\mathrel}
     \fdsy@DeclareAlias{\ntrianglerighteq}{relations}{\mathrel}
702
703 \fdsy@DeclareSymbol{\nlesscc}{relations}{\mathrel}
     \fdsy@DeclareAlias{\nltcc}{relations}{\mathrel}
705\fdsy@DeclareSymbol{\ngtrcc}{relations}{\mathrel}
     \fdsy@DeclareAlias{\ngtcc}{relations}{\mathrel}
707\fdsy@DeclareSymbol{\nleqslcc}{relations}{\mathrel}
     \fdsy@DeclareAlias{\nlescc}{relations}{\mathrel}
709 \fdsy@DeclareSymbol{\ngeqslcc}{relations}{\mathrel}
     \fdsy@DeclareAlias{\ngescc}{relations}{\mathrel}
711 \fdsy@DeclareSymbol{\nsqsubset}{relations}{\mathrel}
712 \fdsy@DeclareSymbol{\nsqsupset}{relations}{\mathrel}
713 \fdsy@DeclareSymbol{\nsqsubseteq}{relations}{\mathrel}
714 \fdsy@DeclareSymbol{\nsqsupseteq}{relations}{\mathrel}
715 \fdsy@DeclareSymbol{\nsqsubseteqq}{relations}{\mathrel}
716 \fdsy@DeclareSymbol{\nsqsupseteqq}{relations}{\mathrel}
717 \fdsy@DeclareSymbol{\nSqsubset}{relations}{\mathrel}
718 \fdsy@DeclareSymbol{\nSqsupset}{relations}{\mathrel}
719 \fdsy@DeclareSymbol{\nsubset}{relations}{\mathrel}
720 \fdsy@DeclareSymbol{\nsupset}{relations}{\mathrel}
721 \fdsy@DeclareSymbol{\nsubseteq}{relations}{\mathrel}
722 \fdsy@DeclareSymbol{\nsupseteq}{relations}{\mathrel}
723 \fdsy@DeclareSymbol{\nsubseteqq}{relations}{\mathrel}
724 \fdsy@DeclareSymbol{\nsupseteqq}{relations}{\mathrel}
```

```
725 \fdsy@DeclareSymbol{\nSubset}{relations}{\mathrel}
726 \fdsy@DeclareSymbol{\nSupset}{relations}{\mathrel}
727 \fdsy@DeclareSymbol{\nprec}{relations}{\mathrel}
728 \fdsy@DeclareSymbol{\nsucc}{relations}{\mathrel}
729 \fdsy@DeclareSymbol{\npreceq}{relations}{\mathrel}
730 \fdsy@DeclareSymbol{\nsucceq}{relations}{\mathrel}
731 \fdsy@DeclareSymbol{\npreccurlyeq}{relations}{\mathrel}
732 \fdsy@DeclareSymbol{\nsucccurlyeq}{relations}{\mathrel}
733 \fdsy@DeclareSymbol{\npreceqq}{relations}{\mathrel}
734 \fdsy@DeclareSymbol{\nsucceqq}{relations}{\mathrel}
735 \fdsy@DeclareSymbol{\nprecsim}{relations}{\mathrel}
736 \fdsy@DeclareSymbol{\nsuccsim}{relations}{\mathrel}
737 \fdsy@DeclareSymbol{\nprecapprox}{relations}{\mathrel}
738 \fdsy@DeclareSymbol{\nsuccapprox}{relations}{\mathrel}
739 \fdsy@DeclareSymbol{\nlessdot}{relations}{\mathrel}
740 \fdsy@DeclareSymbol{\ngtrdot}{relations}{\mathrel}
741\fdsy@DeclareSymbol{\nleqdot}{relations}{\mathrel}
742 \fdsy@DeclareSymbol{\ngeqdot}{relations}{\mathrel}
743 \fdsy@DeclareSymbol{\nleqslantdot}{relations}{\mathrel}
        \fdsy@DeclareAlias{\nlesdot}{relations}{\mathrel}
745 \fdsy@DeclareSymbol{\ngeqslantdot}{relations}{\mbox{\mbox{$mathrel$}}} \\
        \fdsy@DeclareAlias{\ngesdot}{relations}{\mathrel}
747 \fdsy@DeclareSymbol{\neqslantless}{relations}{\mathrel}
748 \fdsy@DeclareSymbol{\neqslantgtr}{relations}{\mathrel}
749 \fdsy@DeclareSymbol{\ncurlyeqprec}{relations}{\mathrel}
750 \fdsy@DeclareSymbol{\ncurlyeqsucc}{relations}{\mathrel}
751\fdsy@DeclareSymbol{\simneqq}{relations}{\mathrel}
752 \fdsy@DeclareSymbol{\backsimneqq}{relations}{\mathrel}
753 \fdsy@DeclareSymbol{\lneq}{relations}{\mathrel}
754 \fdsy@DeclareSymbol{\gneq}{relations}{\mathrel}
755 \fdsy@DeclareSymbol{\lneqq}{relations}{\mathrel}
        \fdsy@DeclareAlias{\lvertneqq}{relations}{\mathrel}
757 \fdsy@DeclareSymbol{\gneqq}{relations}{\mathrel}
        \fdsy@DeclareAlias{\gvertneqq}{relations}{\mathrel}
759 \fdsy@DeclareSymbol{\lnsim}{relations}{\mathrel}
760 \fdsy@DeclareSymbol{\gnsim}{relations}{\mathrel}
761\fdsy@DeclareSymbol{\lnapprox}{relations}{\mathrel}
762 \fdsy@DeclareSymbol{\gnapprox}{relations}{\mathrel}
763 \fdsy@DeclareSymbol{\sqsubsetneq}{relations}{\mathrel}
764 \fdsy@DeclareSymbol{\sqsupsetneq}{relations}{\mathrel}
765 \fdsy@DeclareSymbol{\sqsubsetneqq}{relations}{\mathrel}
\label{lem:continuous} $$766 \space{2.5cm} {\space{2.5cm} The continuous properties of the continuous
767 \fdsy@DeclareSymbol{\subsetneq}{relations}{\mathrel}
       \fdsy@DeclareAlias{\varsubsetneq}{relations}{\mathrel}
769 \fdsy@DeclareSymbol{\supsetneq}{relations}{\mathrel}
```

```
\fdsy@DeclareAlias{\varsupsetneq}{relations}{\mathrel}
771 \fdsy@DeclareSymbol{\subsetneqq}{relations}{\mathrel}
        \fdsy@DeclareAlias{\varsubsetneqq}{relations}{\mathrel}
773 \fdsy@DeclareSymbol{\supsetneqq}{relations}{\mathrel}
        775 \fdsy@DeclareSymbol{\precneq}{relations}{\mathrel}
776 \fdsy@DeclareSymbol{\succneq}{relations}{\mathrel}
777 \fdsy@DeclareSymbol{\precneqq}{relations}{\mathrel}
778 \fdsy@DeclareSymbol{\succneqq}{relations}{\mathrel}
779 \fdsy@DeclareSymbol{\precnsim}{relations}{\mathrel}
780 \fdsy@DeclareSymbol{\succnsim}{relations}{\mathrel}
781 \fdsy@DeclareSymbol{\precnapprox}{relations}{\mathrel}
782 \fdsy@DeclareSymbol{\succnapprox}{relations}{\mathrel}
 FdSymbolC: arrows and turnstile symbols
783 \fdsy@setslot{0}
784 \fdsy@DeclareSymbol{\rightarrow}{arrows}{\mathrel}
785 \fdsy@DeclareAlias{\to}{arrows}{\mathrel}
786 \fdsy@DeclareSymbol{\uparrow}{arrows}{\mbox{\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\
787 \fdsy@DeclareSymbol{\leftarrow}{arrows}{\mathrel}
788 \fdsy@DeclareAlias{\gets}{arrows}{\mathrel}
789 \fdsy@DeclareSymbol{\downarrow}{arrows}{\mathrel}
790 \fdsy@DeclareSymbol{\nearrow}{arrows}{\mathrel}
791 \fdsy@DeclareSymbol{\nwarrow}{arrows}{\mathrel}
792 \fdsy@DeclareSymbol{\swarrow}{arrows}{\mathrel}
793 \fdsy@DeclareSymbol{\searrow}{arrows}{\mathrel}
794 \fdsy@DeclareSymbol{\Rightarrow}{arrows}{\mathrel}
795 \fdsy@DeclareSymbol{\Uparrow}{arrows}{\mathrel}
796 \fdsy@DeclareSymbol{\Leftarrow}{arrows}{\mathrel}
797 \fdsy@DeclareSymbol{\Downarrow}{arrows}{\mathrel}
798 \fdsy@DeclareSymbol{\Nearrow}{arrows}{\mathrel}
799 \fdsy@DeclareSymbol{\Nwarrow}{arrows}{\mathrel}
800 \fdsy@DeclareSymbol{\Swarrow}{arrows}{\mathrel}
801 \fdsy@DeclareSymbol{\Searrow}{arrows}{\mathrel}
802\fdsy@DeclareSymbol{\leftrightarrow}{arrows}{\mathrel}
803 \fdsy@DeclareSymbol{\updownarrow}{arrows}{\mathrel}
804 \fdsy@DeclareSymbol{\neswarrow}{arrows}{\mathrel}
805 \fdsy@DeclareSymbol{\nwsearrow}{arrows}{\mathrel}
806 \fdsy@DeclareSymbol{\Leftrightarrow}{arrows}{\mathrel}
807\fdsy@DeclareSymbol{\Updownarrow}{arrows}{\mathrel}
808 \fdsy@DeclareSymbol{\Neswarrow}{arrows}{\mathrel}
809 \fdsy@DeclareSymbol{\Nwsearrow}{arrows}{\mathrel}
810 \fdsy@DeclareSymbol{\twoheadrightarrow}{arrows}{\mathrel}
\verb§311 \fdsy@DeclareSymbol{\twoheaduparrow}{arrows}{\tmathrel}
812 \fdsy@DeclareSymbol{\twoheadleftarrow}{arrows}{\mathrel}
813 \fdsy@DeclareSymbol{\twoheaddownarrow}{arrows}{\mathrel}
```

```
814 \fdsy@DeclareSymbol{\twoheadnearrow}{arrows}{\mathrel}
815 \fdsy@DeclareSymbol{\twoheadnwarrow}{arrows}{\mathrel}
816 \fdsy@DeclareSymbol{\twoheadswarrow}{arrows}{\mathrel}
817 \fdsy@DeclareSymbol{\twoheadsearrow}{arrows}{\mathrel}
818 \fdsy@DeclareSymbol{\rightarrowtail}{arrows}{\mathrel}
819 \fdsy@DeclareSymbol{\uparrowtail}{arrows}{\mathrel}
820 \fdsy@DeclareSymbol{\leftarrowtail}{arrows}{\mathrel}
821\fdsy@DeclareSymbol{\downarrowtail}{arrows}{\mathrel}
822 \fdsy@DeclareSymbol{\nearrowtail}{arrows}{\mathrel}
823 \fdsy@DeclareSymbol{\nwarrowtail}{arrows}{\mathrel}
824 \fdsy@DeclareSymbol{\swarrowtail}{arrows}{\mathrel}
825 \fdsy@DeclareSymbol{\searrowtail}{arrows}{\mathrel}
826 \fdsy@DeclareSymbol{\rightmapsto}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\mapsto}{arrows}{\mathrel}
828 \fdsy@DeclareSymbol{\upmapsto}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\mapsup}{arrows}{\mathrel}
829
830
  \fdsy@DeclareSymbol{\leftmapsto}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\mapsfrom}{arrows}{\mathrel}
832 \fdsy@DeclareSymbol{\downmapsto}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\mapsdown}{arrows}{\mathrel}
834 \fdsy@DeclareSymbol{\Rightmapsto}{arrows}{\mbox{\mathrel}}
     \fdsy@DeclareAlias{\Mapsto}{arrows}{\mathrel}
836 \fdsy@DeclareSymbol{\Upmapsto}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\Mapsup}{arrows}{\mathrel}
837
    fdsy@DeclareSymbol{\Leftmapsto}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\Mapsfrom}{arrows}{\mathrel}
839
840 \fdsy@DeclareSymbol{\Downmapsto}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\Mapsdown}{arrows}{\mathrel}
842 \fdsy@DeclareSymbol{\hookrightarrow}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\lhookrightarrow}{arrows}{\mathrel}
843
844
   \fdsy@DeclareSymbol{\hookuparrow}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\lhookuparrow}{arrows}{\mathrel}
   fdsy@DeclareSymbol{\varhookleftarrow}{arrows}{\mathrel}
846
    \fdsy@DeclareAlias{\lhookleftarrow}{arrows}{\mathrel}
848 \fdsy@DeclareSymbol{\varhookdownarrow}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\lhookdownarrow}{arrows}{\mathrel}
850 \fdsy@DeclareSymbol{\varhooknearrow}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\lhooknearrow}{arrows}{\mathrel}
851
    fdsy@DeclareSymbol{\hooknwarrow}{arrows}{\mathrel}
852
853
    \fdsy@DeclareAlias{\hknwarrow}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\lhooknwarrow}{arrows}{\mathrel}
854
855 \fdsy@DeclareSymbol{\varhookswarrow}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\lhookswarrow}{arrows}{\mathrel}
856
857 \fdsy@DeclareSymbol{\hooksearrow}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\hksearrow}{arrows}{\mathrel}
```

```
\fdsy@DeclareAlias{\lhooksearrow}{arrows}{\mathrel}
860 \fdsy@DeclareSymbol{\varhookrightarrow}{arrows}{\mbox{\mbox{$mathrel}$}} \\
     \fdsy@DeclareAlias{\rhookrightarrow}{arrows}{\mathrel}
    fdsy@DeclareSymbol{\varhookuparrow}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\rhookuparrow}{arrows}{\mathrel}
863
864 \fdsy@DeclareSymbol{\hookleftarrow}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\rhookleftarrow}{arrows}{\mathrel}
865
866 \fdsy@DeclareSymbol{\hookdownarrow}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\rhookdownarrow}{arrows}{\mathrel}
867
   \fdsy@DeclareSymbol{\hooknearrow}{arrows}{\mathrel}
868
     \fdsy@DeclareAlias{\hknearrow}{arrows}{\mathrel}
870
     \fdsy@DeclareAlias{\rhooknearrow}{arrows}{\mathrel}
871 \fdsy@DeclareSymbol{\varhooknwarrow}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\rhooknwarrow}{arrows}{\mathrel}
873 \fdsy@DeclareSymbol{\hookswarrow}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\hkswarrow}{arrows}{\mathrel}
875
     \fdsy@DeclareAlias{\rhookswarrow}{arrows}{\mathrel}
876 \fdsy@DeclareSymbol{\varhooksearrow}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\rhooksearrow}{arrows}{\mathrel}
878 \fdsy@DeclareSymbol{\rightharpoonup}{arrows}{\mathrel}
879 \fdsy@DeclareSymbol{\upharpoonleft}{arrows}{\mbox{\mathrel}}
880 \fdsy@DeclareSymbol{\leftharpoondown}{arrows}{\mathrel}
881 \fdsy@DeclareSymbol{\downharpoonright}{arrows}{\mathrel}
882 \fdsy@DeclareSymbol{\neharpoonnw}{arrows}{\mathrel}
883 \fdsy@DeclareSymbol{\nwharpoonsw}{arrows}{\mathrel}
884 \fdsy@DeclareSymbol{\swharpoonse}{arrows}{\mathrel}
885 \fdsy@DeclareSymbol{\seharpoonne}{arrows}{\mathrel}
886 \fdsy@DeclareSymbol{\rightharpoondown}{arrows}{\mathrel}
887 \fdsy@DeclareSymbol{\upharpoonright}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\restriction}{arrows}{\mathrel}
889 \fdsy@DeclareSymbol{\leftharpoonup}{arrows}{\mathrel}
890 \fdsy@DeclareSymbol{\downharpoonleft}{arrows}{\mathrel}
891\fdsy@DeclareSymbol{\neharpoonse}{arrows}{\mathrel}
892 \fdsy@DeclareSymbol{\nwharpoonne}{arrows}{\mathrel}
893 \fdsy@DeclareSymbol{\swharpoonnw}{arrows}{\mathrel}
894 \fdsy@DeclareSymbol{\seharpoonsw}{arrows}{\mathrel}
895 \fdsy@DeclareSymbol{\leftrightharpoonupdown}{arrows}{\mathrel}
896 \fdsy@DeclareSymbol{\updownharpoonleftright}{arrows}{\mathrel}
897 \fdsy@DeclareSymbol{\neswharpoonnwse} \{arrows\} \{\mathrel\} \} \\
898 \fdsy@DeclareSymbol{\nwseharpoonnesw}{arrows}{\mathrel}
899 \fdsy@DeclareSymbol{\leftrightharpoondownup}{arrows}{\mathrel}
900 \fdsy@DeclareSymbol{\updownharpoonrightleft}{arrows}{\mathrel}
901 \fdsy@DeclareSymbol{\neswharpoonsenw}{arrows}{\mathrel}
902 \fdsy@DeclareSymbol{\nwseharpoonswne}{arrows}{\mathrel}
903 \fdsy@DeclareSymbol{\rightleftharpoons}{arrows}{\mathrel}
```

```
904 \fdsy@DeclareSymbol{\updownharpoons}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\updownharpoonsleftright}{arrows}{\mathrel}
906 \fdsy@DeclareSymbol{\neswharpoons}{arrows}{\mathrel}
907 \fdsy@DeclareSymbol{\senwharpoons}{arrows}{\mathrel}
908 \fdsy@DeclareSymbol{\leftrightharpoons}{arrows}{\mathrel}
909 \fdsy@DeclareSymbol{\downupharpoons}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\downupharpoonsleftright}{arrows}{\mathrel}
911 \fdsy@DeclareSymbol{\swneharpoons}{arrows}{\mathrel}
912 \fdsy@DeclareSymbol{\nwseharpoons}{arrows}{\mathrel}
913 \fdsy@DeclareSymbol{\rightbkarrow}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\dasharrow}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\dashrightarrow}{arrows}{\mathrel}
916 \fdsy@DeclareSymbol{\upbkarrow}{arrows}{\mathrel}
917 \fdsy@DeclareSymbol{\leftbkarrow}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\dashleftarrow}{arrows}{\mathrel}
919 \fdsy@DeclareSymbol{\downbkarrow}{arrows}{\mathrel}
920 \fdsy@DeclareSymbol{\nebkarrow}{arrows}{\mathrel}
921 \fdsy@DeclareSymbol{\nwbkarrow}{arrows}{\mathrel}
922 \fdsy@DeclareSymbol{\swbkarrow}{arrows}{\mathrel}
923 \fdsy@DeclareSymbol{\sebkarrow}{arrows}{\mathrel}
924 \fdsy@DeclareSymbol{\rightspoon}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\multimap}{arrows}{\mathrel}
926 \fdsy@DeclareSymbol{\upspoon}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\cirmid}{arrows}{\mathrel}
928 \fdsy@DeclareSymbol{\leftspoon}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\multimapinv}{arrows}{\mathrel}
930 \fdsy@DeclareSymbol{\downspoon}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\midcir}{arrows}{\mathrel}
932 \fdsy@DeclareSymbol{\rightblackspoon}{arrows}{\mathrel}
933 \fdsy@DeclareSymbol{\upblackspoon}{arrows}{\mathrel}
934 \fdsy@DeclareSymbol{\leftblackspoon}{arrows}{\mathrel}
935 \fdsy@DeclareSymbol{\downblackspoon}{arrows}{\mathrel}
936 \fdsy@DeclareSymbol{\leftrightspoon}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\dualmap}{arrows}{\mathrel}
938 \fdsy@DeclareSymbol{\leftrightblackspoon}{arrows}{\mathrel}
939 \fdsy@DeclareSymbol{\blackwhitespoon}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\imageof}{arrows}{\mathrel}
941 \fdsy@DeclareSymbol{\whiteblackspoon}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\origof}{arrows}{\mathrel}
943 \fdsy@DeclareSymbol{\rightpitchfork}{arrows}{\mathrel}
944 \fdsy@DeclareSymbol{\uppitchfork}{arrows}{\mathrel}
945 \fdsy@DeclareAlias{\pitchfork}{arrows}{\mathrel}
946 \fdsy@DeclareSymbol{\leftpitchfork}{arrows}{\mathrel}
947\fdsy@DeclareSymbol{\downpitchfork}{arrows}{\mathrel}
948 \fdsy@DeclareSymbol{\rightrightarrows}{arrows}{\mathrel}
```

```
949 \fdsy@DeclareSymbol{\upuparrows}{arrows}{\mathrel}
950 \fdsy@DeclareSymbol{\leftleftarrows}{arrows}{\mathrel}
951 \fdsy@DeclareSymbol{\downdownarrows}{arrows}{\mathrel}
952 \fdsy@DeclareSymbol{\nenearrows}{arrows}{\mathrel}
953 \fdsy@DeclareSymbol{\nwnwarrows}{arrows}{\mathrel}
954 \fdsy@DeclareSymbol{\swswarrows}{arrows}{\mathrel}
955 \fdsy@DeclareSymbol{\sesearrows}{arrows}{\mathrel}
956 \fdsy@DeclareSymbol{\rightleftarrows}{arrows}{\mathrel}
957 \fdsy@DeclareSymbol{\updownarrows}{arrows}{\mathrel}
958 \fdsy@DeclareSymbol{\neswarrows}{arrows}{\mathrel}
959 \fdsy@DeclareSymbol{\nwsearrows}{arrows}{\mathrel}
960 \footnote{Mathrel} \
961 \fdsy@DeclareSymbol{\downuparrows}{arrows}{\mathrel}
962 \fdsy@DeclareSymbol{\swnearrows}{arrows}{\mathrel}
963 \fdsy@DeclareSymbol{\senwarrows}{arrows}{\mathrel}
964 \fdsy@DeclareSymbol{\rightwavearrow}{arrows}{\mathrel}
965
    \fdsy@DeclareAlias{\leadsto}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\rightsquigarrow}{arrows}{\mathrel}
966
    \fdsy@DeclareAlias{\rightcurvedarrow}{arrows}{\mathrel}
967
    \fdsy@DeclareAlias{\rightlsquigarrow}{arrows}{\mathrel}
968
969 \fdsy@DeclareSymbol{\varupwavearrow}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\uplsquigarrow}{arrows}{\mathrel}
971 \fdsy@DeclareSymbol{\varleftwavearrow}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\leftlsquigarrow}{arrows}{\mathrel}
972
    fdsy@DeclareSymbol{\downwavearrow}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\downlsquigarrow}{arrows}{\mathrel}
974
975 \fdsy@DeclareSymbol{\varrightwavearrow}{arrows}{\mathrel}
976
     \fdsy@DeclareAlias{\rightrsquigarrow}{arrows}{\mathrel}
977 \fdsy@DeclareSymbol{\upwavearrow}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\uprsquigarrow}{arrows}{\mathrel}
978
979
   fdsy@DeclareSymbol{\leftwavearrow}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\leftsquigarrow}{arrows}{\mathrel}
980
    \fdsy@DeclareAlias{\leftcurvedarrow}{arrows}{\mathrel}
981
    \fdsy@DeclareAlias{\leftrsquigarrow}{arrows}{\mathrel}
982
983 fdsy@DeclareSymbol{\vardownwavearrow}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\downrsquigarrow}{arrows}{\mathrel}
985 \fdsy@DeclareSymbol{\leftrightwavearrow}{arrows}{\mathrel}
986
    \fdsy@DeclareAlias{\leftrightsquigarrow}{arrows}{\mathrel}
   fdsy@DeclareSymbol{\updownwavearrow}{arrows}{\mathrel}
987
988
    \fdsy@DeclareAlias{\updownsquigarrow}{arrows}{\mathrel}
989 \fdsy@DeclareSymbol{\varleftrightwavearrow}{arrows}{\mathrel}
    990
991\fdsy@DeclareSymbol{\varupdownwavearrow}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\downupsquigarrow}{arrows}{\mathrel}
993 \fdsy@DeclareSymbol{\cwoverarcarrow}{arrows}{\mathrel}
```

```
\fdsy@DeclareAlias{\curvearrowright}{arrows}{\mathrel}
 994
 995
          \fdsy@DeclareAlias{\rightlcurvearrow}{arrows}{\mathrel}
        .fdsy@DeclareSymbol{\cwleftarcarrow}{arrows}{\mathrel}
 996
          \fdsy@DeclareAlias{\uplcurvearrow}{arrows}{\mathrel}
 998 \fdsy@DeclareSymbol{\cwunderarcarrow}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\leftlcurvearrow}{arrows}{\mathrel}
 999
        fdsy@DeclareSymbol{\cwrightarcarrow}{arrows}{\mathrel}
1000 \
          \fdsy@DeclareAlias{\downlcurvearrow}{arrows}{\mathrel}
1002 \
        fdsy@DeclareSymbol{\cwnwarcarrow}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\rightupcurvedarrow}{arrows}{\mathrel}
1003
          \fdsy@DeclareAlias{\nelcurvearrow}{arrows}{\mathrel}
1005 \fdsy@DeclareSymbol{\cwswarcarrow}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\upleftcurvedarrow}{arrows}{\mathrel}
1006
          \fdsy@DeclareAlias{\nwlcurvearrow}{arrows}{\mathrel}
1007
1008 \fdsy@DeclareSymbol{\cwsearcarrow}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\leftdowncurvedarrow}{arrows}{\mathrel}
1009
1010
          \fdsy@DeclareAlias{\swlcurvearrow}{arrows}{\mathrel}
        fdsy@DeclareSymbol{\cwnearcarrow}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\downrightcurvedarrow}{arrows}{\mathrel}
1012
          \fdsy@DeclareAlias{\selcurvearrow}{arrows}{\mathrel}
1014 \fdsy@DeclareSymbol{\acwunderarcarrow}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\rightrcurvearrow}{arrows}{\mathrel}
1016 \fdsy@DeclareSymbol{\acwrightarcarrow}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\uprcurvearrow}{arrows}{\mathrel}
1017
        fdsy@DeclareSymbol{\acwoverarcarrow}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\curvearrowleft}{arrows}{\mathrel}
1019
          \fdsy@DeclareAlias{\leftrcurvearrow}{arrows}{\mathrel}
1020
\label{local_local_local} $$1021 \fdsy@DeclareSymbol{\acwleftarcarrow}{arrows}{\mbox{\mbox{\mbox{$mathrel}$}}} $$
          \fdsy@DeclareAlias{\downrcurvearrow}{arrows}{\mathrel}
1023 \fdsy@DeclareSymbol{\acwsearcarrow}{arrows}{\mathrel}
1024
          \fdsy@DeclareAlias{\uprightcurvearrow}{arrows}{\mathrel}
1025
          \fdsy@DeclareAlias{\nercurvearrow}{arrows}{\mathrel}
        fdsy@DeclareSymbol{\acwnearcarrow}{arrows}{\mathrel}
1026
          \fdsy@DeclareAlias{\leftupcurvedarrow}{arrows}{\mathrel}
1027
1028
          \fdsy@DeclareAlias{\nwrcurvearrow}{arrows}{\mathrel}
        fdsy@DeclareSymbol{\acwnwarcarrow}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\downleftcurvedarrow}{arrows}{\mathrel}
1030
          \fdsy@DeclareAlias{\swrcurvearrow}{arrows}{\mathrel}
1031
        fdsy@DeclareSymbol{\acwswarcarrow}{arrows}{\mathrel}
1032
1033
          \fdsy@DeclareAlias{\rightdowncurvedarrow}{arrows}{\mathrel}
1034
          \fdsy@DeclareAlias{\sercurvearrow}{arrows}{\mathrel}
\label{loss} $$ \space{\colored} \arrows {\colored} \arrows {\colore
          \fdsy@DeclareAlias{\leftrightcurvearrow}{arrows}{\mathrel}
1037 \fdsy@DeclareSymbol{\bdleftarcarrow}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\updowncurvearrow}{arrows}{\mathrel}
```

```
1039 \fdsy@DeclareSymbol{\bdunderarcarrow}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\rightleftcurvearrow}{arrows}{\mathrel}
1041 \fdsy@DeclareSymbol{\bdrightarcarrow}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\downupcurvearrow}{arrows}{\mathrel}
1043 \fdsy@DeclareSymbol{\bdnwarcarrow}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\neswcurvearrow}{arrows}{\mathrel}
1045 \fdsy@DeclareSymbol{\bdswarcarrow}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\nwsecurvearrow}{arrows}{\mathrel}
1047 \fdsy@DeclareSymbol{\bdsearcarrow}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\swnecurvearrow}{arrows}{\mathrel}
1049 \fdsy@DeclareSymbol{\bdnearcarrow}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\senwcurvearrow}{arrows}{\mathrel}
1051 \fdsy@DeclareSymbol{\leftfootline}{arrows}{\mathrel}
1052 \fdsy@DeclareSymbol{\rightfootline}{arrows}{\mathrel}
1053 \fdsy@DeclareSymbol{\acwcirclearrowup}{arrows}{\mathrel}
1054 \fdsy@DeclareSymbol{\acwcirclearrowleft}{arrows}{\mathrel}
1055
          \fdsy@DeclareAlias{\circlearrowleft}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\acwopencirclearrow}{arrows}{\mathrel}
1057 \fdsy@DeclareSymbol{\acwcirclearrowdown}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\acwgapcirclearrow}{arrows}{\mathrel}
\label{loss} $$ \dsy@DeclareSymbol{\acwcirclearrowright}{arrows}{\mathbb R} $$ \dsymbol{\acwcirclearrowright}$$ \dsymbol{\acwcirclearrow
1060 \fdsy@DeclareSymbol{\cwcirclearrowdown}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\cwgapcirclearrow}{arrows}{\mathrel}
1062 \fdsy@DeclareSymbol{\cwcirclearrowright}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\circlearrowright}{arrows}{\mathrel}
         \fdsy@DeclareAlias{\cwopencirclearrow}{arrows}{\mathrel}
1065 \fdsy@DeclareSymbol{\cwcirclearrowup}{arrows}{\mathrel}
1066 \fdsy@DeclareSymbol{\cwcirclearrowleft}{arrows}{\mathrel}
1067 \fdsy@DeclareSymbol{\Rrightarrow}{arrows}{\mathrel}
1068 \fdsy@DeclareSymbol{\Uuparrow}{arrows}{\mathrel}
1069 \fdsy@DeclareSymbol{\Lleftarrow}{arrows}{\mathrel}
1070 \fdsy@DeclareSymbol{\Ddownarrow}{arrows}{\mathrel}
1071 \fdsy@DeclareSymbol{\longrightarrow}{arrows}{\mathrel}
1072 \fdsy@DeclareSymbol{\longleftarrow}{arrows}{\mathrel}
1073 \fdsy@DeclareSymbol{\Longrightarrow}{arrows}{\mathrel}
1074 \fdsy@DeclareSymbol{\Longleftarrow}{arrows}{\mathrel}
1075 \fdsy@DeclareSymbol{\longleftrightarrow}{arrows}{\mathrel}
1076 \fdsy@DeclareSymbol{\Longleftrightarrow}{arrows}{\mathrel}
\label{longmapsto} $$1077 \fdsy@DeclareSymbol{\longmapsto}{arrows}{\mathbb{N}}$
1078 \fdsy@DeclareSymbol{\longmapsfrom}{arrows}{\mathrel}
1079 \fdsy@DeclareSymbol{\Longmapsto}{arrows}{\mathrel}
\label{loss} $$1080 \footnote{\tt ClareSymbol{\Longmapsfrom}{arrows}{\mbox{\model}} $$
1081 \fdsy@DeclareSymbol{\longrightwavearrow}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\longleadsto}{arrows}{\mathrel}
1082
1083
          \fdsy@DeclareAlias{\longrightsquigarrow}{arrows}{\mathrel}
```

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1084 \fdsy@DeclareSymbol{\longleftwavearrow}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\longleftsquigarrow}{arrows}{\mathrel}
1086 \fdsy@DeclareSymbol{\longleftfootline}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\vlongdash}{arrows}{\mathrel}
1088 \fdsy@DeclareSymbol{\longrightfootline}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\longdashv}{arrows}{\mathrel}
1090 \fdsy@DeclareSymbol{\Lsh}{arrows}{\mathrel}
1091 \fdsy@DeclareSymbol{\Rsh}{arrows}{\mathrel}
1092 \fdsy@DeclareSymbol{\Ldsh}{arrows}{\mathrel}
1093 \fdsy@DeclareSymbol{\Rdsh}{arrows}{\mathrel}
1094 \fdsy@DeclareSymbol{\looparrowright}{arrows}{\mathrel}
1095 \fdsy@DeclareSymbol{\looparrowleft}{arrows}{\mathrel}
1096 \fdsy@setslot{224}
1097\fdsy@DeclareSymbol{\rightvdash}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\vdash}{arrows}{\mathrel}
1099 \fdsy@DeclareSymbol{\upvdash}{arrows}{\mathrel}
1100
     \fdsy@DeclareAlias{\perp}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\bot}{arrows}{\mathord}
1102 \fdsy@DeclareSymbol{\leftvdash}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\dashv}{arrows}{\mathrel}
1104\fdsy@DeclareSymbol{\downvdash}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\top}{arrows}{\mathord}
1106 \fdsy@DeclareSymbol{\rightassert}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\assert}{arrows}{\mathrel}
1107
     \fdsy@DeclareAlias{\shortrighttack}{arrows}{\mathrel}
1108
1109 \fdsy@DeclareSymbol{\upassert}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\shortuptack}{arrows}{\mathrel}
1111 \fdsy@DeclareSymbol{\leftassert}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\shortlefttack}{arrows}{\mathrel}
1113 \fdsy@DeclareSymbol{\downassert}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\shortdowntack}{arrows}{\mathrel}
    fdsy@DeclareSymbol{\rightvDash}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\vDash}{arrows}{\mathrel}
1117 \fdsy@DeclareSymbol{\upvDash}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\Vbar}{arrows}{\mathrel}
1119 \fdsy@DeclareSymbol{\leftvDash}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\Dashv}{arrows}{\mathrel}
1120
1121 \fdsy@DeclareSymbol{\downvDash}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\barV}{arrows}{\mathrel}
1123 \fdsy@DeclareSymbol{\rightmodels}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\models}{arrows}{\mathrel}
1125 \fdsy@DeclareSymbol{\upmodels}{arrows}{\mathrel}
1126 \fdsy@DeclareSymbol{\leftmodels}{arrows}{\mathrel}
1127 \fdsy@DeclareSymbol{\downmodels}{arrows}{\mathrel}
1128 \fdsy@DeclareSymbol{\rightVdash}{arrows}{\mathrel}
```

```
\fdsy@DeclareAlias{\Vdash}{arrows}{\mathrel}
1130 \fdsy@DeclareSymbol{\upVdash}{arrows}{\mathrel}
1131 \fdsy@DeclareSymbol{\leftVdash}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\dashV}{arrows}{\mathrel}
{\tt 1133 \fdsy@DeclareSymbol{\downVdash}{arrows}{\tt \mathrel}}
1134 \fdsy@DeclareSymbol{\rightAssert}{arrows}{\mathrel}
1135 \fdsy@DeclareAlias{\Assert}{arrows}{\mathrel}
1136 \fdsy@DeclareSymbol{\upAssert}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\vBar}{arrows}{\mathrel}
1138 \fdsy@DeclareSymbol{\leftAssert}{arrows}{\mathrel}
1139 \fdsy@DeclareSymbol{\downAssert}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\Barv}{arrows}{\mathrel}
1141 \fdsy@DeclareSymbol{\rightVDash}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\VDash}{arrows}{\mathrel}
1143 \fdsy@DeclareSymbol{\upVDash}{arrows}{\mathrel}
1144 \fdsy@DeclareSymbol{\leftVDash}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\DashV}{arrows}{\mathrel}
1146 \fdsy@DeclareSymbol{\downVDash}{arrows}{\mathrel}
1147 \fdsy@DeclareSymbol{\Vvdash}{arrows}{\mathrel}
1148 \fdsy@DeclareSymbol{\dashVv}{arrows}{\mathrel}
1149 \fdsy@DeclareSymbol{\vDdash}{arrows}{\mathrel}
1150 \fdsy@DeclareSymbol{\Ddashv}{arrows}{\mathrel}
1152 \DeclareRobustCommand{\relbar}{\mathrel{\smash-}}
1153 \DeclareRobustCommand{\Relbar}{\mathrel=}
1154 \let\joinrel\undefined
1155 \DeclareRobustCommand\joinrel{\mathrel{\mkern-4mu}}
 FdSymbolD: stroked arrows
1156 \fdsy@setslot{0}
1157 \fdsy@DeclareSymbol{\nrightarrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nto}{narrows}{\mathrel}
1159 \fdsy@DeclareSymbol{\nuparrow}{\narrows}{\mathrel}
1160 \fdsy@DeclareSymbol{\nleftarrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\ngets}{narrows}{\mathrel}
1162 \fdsy@DeclareSymbol{\ndownarrow}{narrows}{\mathrel}
1163 \fdsy@DeclareSymbol{\nnearrow}{\narrows}{\mathrel}
1164 \fdsy@DeclareSymbol{\nnwarrow}{\narrows}{\mathrel}
1165 \fdsy@DeclareSymbol{\nswarrow}{narrows}{\mathrel}
1166 \fdsy@DeclareSymbol{\nsearrow}{\narrows}{\mathrel}
1167 \fdsy@DeclareSymbol{\nRightarrow}{narrows}{\mathrel}
1168 \fdsy@DeclareSymbol{\nUparrow}{narrows}{\mathrel}
1169 \fdsy@DeclareSymbol{\nLeftarrow}{narrows}{\mathrel}
1170 \fdsy@DeclareSymbol{\nDownarrow}{narrows}{\mathrel}
1171 \fdsy@DeclareSymbol{\nNearrow}{narrows}{\mathrel}
1172 \fdsy@DeclareSymbol{\nNwarrow}{\narrows}{\mathrel}
```

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1173 \fdsy@DeclareSymbol{\nSwarrow}{narrows}{\mathrel}
1174 \fdsy@DeclareSymbol{\nSearrow}{narrows}{\mathrel}
1175 \fdsy@DeclareSymbol{\nleftrightarrow}{narrows}{\mathrel}
1176 \fdsy@DeclareSymbol{\nupdownarrow}{narrows}{\mathrel}
1177 \fdsy@DeclareSymbol{\nneswarrow}{\narrows}{\mathrel}
1178 \fdsy@DeclareSymbol{\nnwsearrow}{narrows}{\mathrel}
1179 \fdsy@DeclareSymbol{\nLeftrightarrow}{narrows}{\mathrel}
1180 \fdsy@DeclareSymbol{\nUpdownarrow}{narrows}{\mathrel}
1181 \fdsy@DeclareSymbol{\nNeswarrow}{narrows}{\mathrel}
1182 \fdsy@DeclareSymbol{\nNwsearrow}{narrows}{\mathrel}
1183 \fdsy@DeclareSymbol{\ntwoheadrightarrow}{narrows}{\mathrel}
{\tt 1184 \fdsy@DeclareSymbol{\ntwoheaduparrow}\{narrows\}\{\mbox{\tt mathrel}\}}
1185 \fdsy@DeclareSymbol{\ntwoheadleftarrow}{narrows}{\mathrel}
1186 \fdsy@DeclareSymbol{\ntwoheaddownarrow}{narrows}{\mathrel}
1187 \fdsy@DeclareSymbol{\ntwoheadnearrow}{narrows}{\mathrel}
1188 \fdsy@DeclareSymbol{\ntwoheadnwarrow}{narrows}{\mathrel}
1189 \fdsy@DeclareSymbol{\ntwoheadswarrow}{narrows}{\mathrel}
1190 \fdsy@DeclareSymbol{\ntwoheadsearrow}{narrows}{\mathrel}
1191 \fdsy@DeclareSymbol{\nrightarrowtail}{narrows}{\mathrel}
1192 \fdsy@DeclareSymbol{\nuparrowtail}{narrows}{\mathrel}
1193 \fdsy@DeclareSymbol{\nleftarrowtail}{narrows}{\mathrel}
1194 \fdsy@DeclareSymbol{\ndownarrowtail}{narrows}{\mathrel}
1195 \fdsy@DeclareSymbol{\nnearrowtail}{narrows}{\mathrel}
1196 \fdsy@DeclareSymbol{\nnwarrowtail}{narrows}{\mathrel}
1197 \fdsy@DeclareSymbol{\nswarrowtail}{narrows}{\mathrel}
1198 \fdsy@DeclareSymbol{\nsearrowtail}{narrows}{\mathrel}
1199 \fdsy@DeclareSymbol{\nrightmapsto}{\narrows}{\mathrel}
     \fdsy@DeclareAlias{\nmapsto}{\narrows}{\mathrel}
1201 \fdsy@DeclareSymbol{\nupmapsto}{\narrows}{\mathrel}
     \fdsy@DeclareAlias{\nmapsup}{narrows}{\mathrel}
1203 \fdsy@DeclareSymbol{\nleftmapsto}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nmapsfrom}{narrows}{\mathrel}
1205 \fdsy@DeclareSymbol{\ndownmapsto}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nmapsdown}{narrows}{\mathrel}
1207 \fdsy@DeclareSymbol{\nRightmapsto}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nMapsto}{narrows}{\mathrel}
1209 \fdsy@DeclareSymbol{\nUpmapsto}{\narrows}{\mathrel}
     \fdsy@DeclareAlias{\nMapsup}{narrows}{\mathrel}
1211 \fdsy@DeclareSymbol{\nLeftmapsto}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nMapsfrom}{narrows}{\mathrel}
1213 \fdsy@DeclareSymbol{\nDownmapsto}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nMapsdown}{narrows}{\mathrel}
1215 \fdsy@DeclareSymbol{\nhookrightarrow}{narrows}{\mathrel}
1216 \fdsy@DeclareSymbol{\nhookuparrow}{narrows}{\mathrel}
1217 \fdsy@DeclareSymbol{\nvarhookleftarrow}{narrows}{\mathrel}
```

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1218 \fdsy@DeclareSymbol{\nvarhookdownarrow}{narrows}{\mathrel}
1219 \fdsy@DeclareSymbol{\nvarhooknearrow}{narrows}{\mathrel}
1220 \fdsy@DeclareSymbol{\nhooknwarrow}{\narrows}{\mathrel}
     \fdsy@DeclareAlias{\nhknwarrow}{narrows}{\mathrel}
1222 \fdsy@DeclareSymbol{\nvarhookswarrow}{narrows}{\mathrel}
1223 \fdsy@DeclareSymbol{\nhooksearrow}{\narrows}{\mathrel}
     \fdsy@DeclareAlias{\nhksearrow}{narrows}{\mathrel}
1225 \fdsy@DeclareSymbol{\nvarhookrightarrow}{narrows}{\mathrel}
1226 \fdsy@DeclareSymbol{\nvarhookuparrow}{narrows}{\mathrel}
1227 \fdsy@DeclareSymbol{\nhookleftarrow}{narrows}{\mathrel}
1228 \fdsy@DeclareSymbol{\nhookdownarrow}{\narrows}{\mathrel}
{\tt 1229 \fdsy@DeclareSymbol\{\nhooknearrow\}\{narrows\}\{\mathrel\}}
     \fdsy@DeclareAlias{\nhknearrow}{narrows}{\mathrel}
1231 \fdsy@DeclareSymbol{\nvarhooknwarrow}{narrows}{\mathrel}
1232 \fdsy@DeclareSymbol{\nhookswarrow}{\narrows}{\mathrel}
    \fdsy@DeclareAlias{\nhkswarrow}{narrows}{\mathrel}
1234 \fdsy@DeclareSymbol{\nvarhooksearrow}{narrows}{\mathrel}
1235 \fdsy@DeclareSymbol{\nrightharpoonup}{narrows}{\mathrel}
1236 \fdsy@DeclareSymbol{\nupharpoonleft}{narrows}{\mathrel}
1237 \fdsy@DeclareSymbol{\nleftharpoondown}{narrows}{\mathrel}
1238 \fdsy@DeclareSymbol{\ndownharpoonright}{narrows}{\mathrel}
1239 \fdsy@DeclareSymbol{\nneharpoonnw}{\narrows}{\mathrel}
1240 \fdsy@DeclareSymbol{\nnwharpoonsw}{narrows}{\mathrel}
1241 \fdsy@DeclareSymbol{\nswharpoonse}{narrows}{\mathrel}
1242 \fdsy@DeclareSymbol{\nseharpoonne}{\narrows}{\mathrel}
1243 \fdsy@DeclareSymbol{\nrightharpoondown}{narrows}{\mathrel}
1244 \fdsy@DeclareSymbol{\nupharpoonright}{narrows}{\mathrel}
1246 \fdsy@DeclareSymbol{\nleftharpoonup}{narrows}{\mathrel}
1247 \fdsy@DeclareSymbol{\ndownharpoonleft}{narrows}{\mathrel}
1248 \fdsy@DeclareSymbol{\nneharpoonse}{\narrows}{\mathrel}
1249 \fdsy@DeclareSymbol{\nnwharpoonne}{narrows}{\mathrel}
1250 \fdsy@DeclareSymbol{\nswharpoonnw}{narrows}{\mathrel}
1251 \fdsy@DeclareSymbol{\nseharpoonsw}{narrows}{\mathrel}
1253 \fdsy@DeclareSymbol{\nupdownharpoonleftright}{narrows}{\mathrel}
1254 \fdsy@DeclareSymbol{\nneswharpoonnwse}{narrows}{\mathrel}
1255 \fdsy@DeclareSymbol{\nnwseharpoonnesw}{narrows}{\mathrel}
1256 \fdsy@DeclareSymbol{\nleftrightharpoondownup}{narrows}{\mathrel}
1257 \fdsy@DeclareSymbol{\nupdownharpoonrightleft}{narrows}{\mathrel}
1258 \fdsy@DeclareSymbol{\nneswharpoonsenw}{narrows}{\mathrel}
1260 \fdsy@DeclareSymbol{\nrightleftharpoons}{narrows}{\mathrel}
1261 \fdsy@DeclareSymbol{\nupdownharpoons}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nupdownharpoonsleftright}{narrows}{\mathrel}
```

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1263 \fdsy@DeclareSymbol{\nneswharpoons}{narrows}{\mathrel}
1264 \fdsy@DeclareSymbol{\nsenwharpoons}{\narrows}{\mathrel}
1265 \fdsy@DeclareSymbol{\nleftrightharpoons}{narrows}{\mathrel}
1266 \fdsy@DeclareSymbol{\ndownupharpoons}{narrows}{\mathrel}
     1268 \fdsy@DeclareSymbol{\nswneharpoons}{narrows}{\mathrel}
1269 \fdsy@DeclareSymbol{\nnwseharpoons}{narrows}{\mathrel}
1270 \fdsy@DeclareSymbol{\nrightbkarrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\ndasharrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\ndashrightarrow}{\narrows}{\mathrel}
1272
1273 \fdsy@DeclareSymbol{\nupbkarrow}{\narrows}{\mathrel}
\fdsy@DeclareAlias{\ndashleftarrow}{narrows}{\mathrel}
1276 \fdsy@DeclareSymbol{\ndownbkarrow}{narrows}{\mathrel}
1277 \fdsy@DeclareSymbol{\nnebkarrow}{narrows}{\mathrel}
1278 \fdsy@DeclareSymbol{\nnwbkarrow}{\narrows}{\mathrel}
1279 \fdsy@DeclareSymbol{\nswbkarrow}{narrows}{\mathrel}
1280 \fdsy@DeclareSymbol{\nsebkarrow}{narrows}{\mathrel}
1281 \fdsy@DeclareSymbol{\nrightspoon}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nmultimap}{narrows}{\mathrel}
{\tt 1283 \fdsy@DeclareSymbol{\nupspoon}{narrows}{\tt \{\mathrel\}}}
     \fdsy@DeclareAlias{\ncirmid}{narrows}{\mathrel}
1285 \fdsy@DeclareSymbol{\nleftspoon}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nmultimapinv}{narrows}{\mathrel}
1287 \fdsy@DeclareSymbol{\ndownspoon}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nmidcir}{narrows}{\mathrel}
1289 \fdsy@DeclareSymbol{\nrightblackspoon}{narrows}{\mathrel}
\label{localize} \begin{tabular} $$1290 \fdsy@DeclareSymbol{\nupblackspoon}{narrows}{\mbox{\mbox{$\sim$}} } $$
1291 \fdsy@DeclareSymbol{\nleftblackspoon}{narrows}{\mathrel}
1292 \fdsy@DeclareSymbol{\ndownblackspoon}{narrows}{\mathrel}
1293 \fdsy@DeclareSymbol{\nleftrightspoon}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\ndualmap}{narrows}{\mathrel}
1295 \fdsy@DeclareSymbol{\nleftrightblackspoon}{narrows}{\mathrel}
1296 \fdsy@DeclareSymbol{\nblackwhitespoon}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nimageof}{narrows}{\mathrel}
1298 \fdsy@DeclareSymbol{\nwhiteblackspoon}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\norigof}{narrows}{\mathrel}
1300 \fdsy@DeclareSymbol{\nrightpitchfork}{narrows}{\mathrel}
1301 \fdsy@DeclareSymbol{\nuppitchfork}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\npitchfork}{narrows}{\mathrel}
1303 \fdsy@DeclareSymbol{\nleftpitchfork}{narrows}{\mathrel}
1304\fdsy@DeclareSymbol{\ndownpitchfork}{narrows}{\mathrel}
1305 \fdsy@DeclareSymbol{\nrightrightarrows}{narrows}{\mathrel}
1306 \fdsy@DeclareSymbol{\nupuparrows}{narrows}{\mathrel}
1307 \fdsy@DeclareSymbol{\nleftleftarrows}{\narrows}{\mathrel}
```

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1308 \fdsy@DeclareSymbol{\ndowndownarrows}{\narrows}{\mathrel}
1309 \fdsy@DeclareSymbol{\nnenearrows}{\narrows}{\mathrel}
{\tt 1310 \fdsy@DeclareSymbol{\nnwnwarrows}\{narrows}\{\narrows\}\} \\
1311 \fdsy@DeclareSymbol{\nswswarrows}{narrows}{\mathrel}
1312 \fdsy@DeclareSymbol{\nsesearrows}{\narrows}{\mathrel}
1313 \fdsy@DeclareSymbol{\nrightleftarrows}{\narrows}{\mathrel}
1314 \fdsy@DeclareSymbol{\nupdownarrows}{\narrows}{\mathrel}
1315 \fdsy@DeclareSymbol{\nneswarrows}{\narrows}{\mathrel}
1316 \fdsy@DeclareSymbol{\nnwsearrows}{narrows}{\mathrel}
\label{lem:limit} $$1317 \fdsy@DeclareSymbol{\nleftrightarrows}{narrows}{\mbox{\modelneftrightarrows}} $$
1318 \fdsy@DeclareSymbol{\ndownuparrows}{\narrows}{\mathrel}
1319 \fdsy@DeclareSymbol{\nswnearrows}{narrows}{\mathrel}
1320 \fdsy@DeclareSymbol{\nsenwarrows}{narrows}{\mathrel}
1321 \fdsy@DeclareSymbol{\nrightwavearrow}{narrows}{\mathrel}
1322
          \fdsy@DeclareAlias{\nleadsto}{narrows}{\mathrel}
          1323
1324
          \fdsy@DeclareAlias{\nrightcurvedarrow}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\nrightlsquigarrow}{narrows}{\mathrel}
{\tt 1326 \ fdsy@DeclareSymbol{\nvarupwavearrow}\{narrows\}\{\nathrel\}}
          \fdsy@DeclareAlias{\nuplsquigarrow}{narrows}{\mathrel}
1328 \fdsy@DeclareSymbol{\nvarleftwavearrow}{narrows}{\mathrel}
          \fdsy@DeclareAlias{\nleftlsquigarrow}{narrows}{\mathrel}
1330 \fdsy@DeclareSymbol{\ndownwavearrow}{\narrows}{\mathrel}
          \fdsy@DeclareAlias{\ndownlsquigarrow}{narrows}{\mathrel}
1331
        fdsy@DeclareSymbol{\nvarrightwavearrow}{narrows}{\mathrel}
          \fdsy@DeclareAlias{\nrightrsquigarrow}{narrows}{\mathrel}
1333
1334 \fdsy@DeclareSymbol{\nupwavearrow}{\narrows}{\mathrel}
          \fdsy@DeclareAlias{\nuprsquigarrow}{narrows}{\mathrel}
1335
\label{lem:limit} 1336 \fdsy@DeclareSymbol{\nleftwavearrow} {narrows} {\mbox{$\mathrel}$} \\
          \fdsy@DeclareAlias{\nleftsquigarrow}{narrows}{\mathrel}
1337
1338
          \fdsy@DeclareAlias{\nleftcurvedarrow}{arrows}{\mathrel}
1339
          \fdsy@DeclareAlias{\nleftrsquigarrow}{narrows}{\mathrel}
1340 \fdsy@DeclareSymbol{\nvardownwavearrow}{narrows}{\mathrel}
          \fdsy@DeclareAlias{\ndownrsquigarrow}{narrows}{\mathrel}
{\tt 1342 \fdsy@DeclareSymbol{\nleftrightwavearrow}\{narrows\}\{\mbox{\tt mathrel}\}} \\
          \fdsy@DeclareAlias{\nleftrightsquigarrow}{narrows}{\mathrel}
1344 \fdsy@DeclareSymbol{\nupdownwavearrow}{narrows}{\mathrel}
          \fdsy@DeclareAlias{\nupdownsquigarrow}{narrows}{\mathrel}
        fdsy@DeclareSymbol {\nvarleftrightwavearrow} {narrows} {\normalcolor{ }} {\normalc
1347
          \fdsy@DeclareAlias{\nrightleftsquigarrow}{narrows}{\mathrel}
1348 \fdsy@DeclareSymbol{\nvarupdownwavearrow}{narrows}{\mathrel}
          \fdsy@DeclareAlias{\ndownupsquigarrow}{narrows}{\mathrel}
1349
1350 \fdsy@DeclareSymbol{\ncwoverarcarrow}{narrows}{\mathrel}
1351
          \fdsy@DeclareAlias{\ncurvearrowright}{narrows}{\mathrel}
1352
          \fdsy@DeclareAlias{\nrightlcurvearrow}{narrows}{\mathrel}
```

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1353 \fdsy@DeclareSymbol{\ncwleftarcarrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nuplcurvearrow}{narrows}{\mathrel}
\label{lem:limit} $$1355 \fdsy@DeclareSymbol{\ncwunderarcarrow}{narrows}{\mbox{\mbox{$narrows}$}} $$
      \fdsy@DeclareAlias{\nleftlcurvearrow}{narrows}{\mathrel}
1357 \fdsy@DeclareSymbol{\ncwrightarcarrow}{narrows}{\mathrel}
      \fdsy@DeclareAlias{\ndownlcurvearrow}{narrows}{\mathrel}
1358
1359 \fdsy@DeclareSymbol{\ncwnwarcarrow}{narrows}{\mathrel}
1360
      \fdsy@DeclareAlias{\nrightupcurvedarrow}{narrows}{\mathrel}
1361
     \fdsy@DeclareAlias{\nnelcurvearrow}{narrows}{\mathrel}
    .fdsy@DeclareSymbol{\ncwswarcarrow}{narrows}{\mathrel}
1362
     \fdsy@DeclareAlias{\nupleftcurvedarrow}{narrows}{\mathrel}
1364
     \fdsy@DeclareAlias{\nnwlcurvearrow}{narrows}{\mathrel}
1365 \fdsy@DeclareSymbol{\ncwsearcarrow}{narrows}{\mathrel}
      \fdsy@DeclareAlias{\nleftdowncurvedarrow}{narrows}{\mathrel}
1366
     \fdsy@DeclareAlias{\nswlcurvearrow}{narrows}{\mathrel}
1367
    fdsy@DeclareSymbol{\ncwnearcarrow}{narrows}{\mathrel}
1368 \
1369
      \fdsy@DeclareAlias{\ndownrightcurvedarrow}{narrows}{\mathrel}
      \fdsy@DeclareAlias{\nselcurvearrow}{narrows}{\mathrel}
    fdsy@DeclareSymbol {\nacwunderarcarrow} \{narrows\} {\nathrel} \\
1371 \
     \fdsy@DeclareAlias{\nrightrcurvearrow}{narrows}{\mathrel}
    fdsy@DeclareSymbol{\nacwrightarcarrow}{narrows}{\mathrel}
      \fdsy@DeclareAlias{\nuprcurvearrow}{narrows}{\mathrel}
\label{lem:limit} $$1375 \fdsy@DeclareSymbol{\nacwoverarcarrow}{narrows}{\mathbb{N}} $$
      \fdsy@DeclareAlias{\ncurvearrowleft}{narrows}{\mathrel}
1376
      \fdsy@DeclareAlias{\nleftrcurvearrow}{narrows}{\mathrel}
1378 \
    .fdsy@DeclareSymbol{\nacwleftarcarrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\ndownrcurvearrow}{narrows}{\mathrel}
1379
1380 \fdsy@DeclareSymbol{\nacwsearcarrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nuprightcurvearrow}{narrows}{\mathrel}
1382
     \fdsy@DeclareAlias{\nnercurvearrow}{narrows}{\mathrel}
1383
    fdsy@DeclareSymbol{\nacwnearcarrow}{narrows}{\mathrel}
1384
     \fdsy@DeclareAlias{\nleftupcurvedarrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nnwrcurvearrow}{narrows}{\mathrel}
1385
    .fdsy@DeclareSymbol{\nacwnwarcarrow}{narrows}{\mathrel}
1387
      \fdsy@DeclareAlias{\ndownleftcurvedarrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nswrcurvearrow}{narrows}{\mathrel}
1389 \fdsy@DeclareSymbol{\nacwswarcarrow}{narrows}{\mathrel}
      \fdsy@DeclareAlias{\nrightdowncurvedarrow}{narrows}{\mathrel}
1390
1391
     \fdsy@DeclareAlias{\nsercurvearrow}{narrows}{\mathrel}
1392 \
     fdsy@DeclareSymbol{\nbdoverarcarrow}{narrows}{\mathrel}
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      \fdsy@DeclareAlias{\nupdowncurvearrow}{narrows}{\mathrel}
1396 \fdsy@DeclareSymbol{\nbdunderarcarrow}{narrows}{\mathrel}
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1400 \fdsy@DeclareSymbol{\nbdnwarcarrow}{narrows}{\mathrel}
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1408 \fdsy@DeclareSymbol{\nleftfootline}{narrows}{\mathrel}
1409 \fdsy@DeclareSymbol{\nrightfootline}{narrows}{\mathrel}
1410 \fdsy@DeclareSymbol{\nacwcirclearrowup}{narrows}{\mathrel}
1411 \fdsy@DeclareSymbol{\nacwcirclearrowleft}{narrows}{\mathrel}
         \fdsy@DeclareAlias{\ncirclearrowleft}{narrows}{\mathrel}
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1414 \fdsy@DeclareSymbol{\nacwcirclearrowdown}{narrows}{\mathrel}
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1416 \fdsy@DeclareSymbol{\nacwcirclearrowright}{narrows}{\mathrel}
1417 \fdsy@DeclareSymbol{\ncwcirclearrowdown}{narrows}{\mathrel}
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1483 \fdsy@DeclareSymbol{\nrightAssert}{narrows}{\mathrel}
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1488 \fdsy@DeclareSymbol{\ndownAssert}{narrows}{\mathrel}
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1490 \fdsy@DeclareSymbol{\nrightVDash}{narrows}{\mathrel}
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tbigdoublevee}
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1638 \fdsy@DeclareOperator{\bigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlywedge}{\dbigdoublecurlyw
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1640 \fdsy@DeclareOperator{\bigcap}{\dbigcap}{\tbigcap}
1641 \fdsy@DeclareOperator{\bigcup}{\dbigcup}{\tbigcup}
\label{localized} $$1642 \fdsy@DeclareOperator{\bigcapdot}{\dbigcapdot}{\dbigcapdot}$$
1643 \fdsy@DeclareOperator{\bigcupdot}{\dbigcupdot}{\tbigcupdot}
1644 \fdsy@DeclareOperator{\bigcapplus}{\dbigcapplus}{\tbigcapplus}
1645 \fdsy@DeclareOperator{\bigcupplus}{\dbigcupplus}{\tbigcupplus}
1646 \fdsy@DeclareOperator{\biguplus}{\dbiguplus}{\tbiguplus}
1648 \fdsy@DeclareOperator{\bigsqcup}{\dbigsqcup}{\tbigsqcup}
1649 \fdsy@DeclareOperator{\bigsqcapdot}{\dbigsqcapdot}{\tbigsqcapdot}
1650 \fdsy@DeclareOperator{\bigsqcupdot}{\\dbigsqcupdot}{\\tbigsqcupdot}
1651 \fdsy@DeclareOperator{\bigsqcapplus}{\dbigsqcapplus}{\tbigsqcapplus}
1652 \fdsy@DeclareOperator{\bigsqcupplus}{\\dbigsqcupplus}{\\tbigsqcupplus}
1653 \fdsy@DeclareOperator{\bigoplus}{\dbigoplus}{\tbigoplus}
1654 \fdsy@DeclareOperator{\bigotimes}{\dbigotimes}{\tbigotimes}
1655 \fdsy@DeclareOperator{\bigodot}{\dbigodot}{\tbigodot}
1656 \fdsy@DeclareOperator{\bigoast}{\dbigoast}{\tbigoast}
1657 \fdsy@DeclareOperator{\sum}{\dsum}{\tsum}
1658 \fdsy@DeclareOperator{\osum}{\dosum}{\tosum}
1659 \fdsy@DeclareOperator{\modtwosum}{\dmodtwosum}{\tmodtwosum}
1660 \fdsy@DeclareOperator{\prod}{\dprod}{\tprod}
1661 \fdsy@DeclareOperator{\coprod}{\dcoprod}{\tcoprod}
1662 \fdsy@DeclareIntegral{\iint}{\diint}{\tiint}
{\tt 1663 \fdsy@DeclareIntegral{\iiint}{\diiint}{\tt tiiint}}
1664 \fdsy@DeclareIntegral{\iiiint}{\diiiint}{\tiiiint}
1665 \fdsy@DeclareIntegral{\idotsint}{\didotsint}{\tidotsint}
1666 \fdsy@DeclareIntegral{\dotsint}{\ddotsint}{\tdotsint}
```

```
1667 \fdsy@DeclareIntegral{\landupint}{\\dlandupint}{\\tlandupint}
1668 \fdsy@DeclareIntegral{\intclockwise}{\dintclockwise}{\tintclockwise}
1669 \fdsy@DeclareIntegral{\landdownint}{\dlanddownint}{\tlanddownint}
1670 \fdsy@DeclareIntegral{\awint}{\dawint}{\tawint}
1671\fdsy@DeclareIntegral{\intctrclockwise}{\dintctrclockwise}{\tintctrclockwise}
1672 \fdsy@DeclareIntegral{\landdownint}{\dlanddownint}{\tlanddownint}
1673 \fdsy@DeclareIntegral{\intbar}{\dintbar}{\tintbar}
1674 \fdsy@DeclareIntegral{\intBar}{\dintBar}{\tintBar}
1675 \fdsy@DeclareIntegral{\fint}{\dfint}{\tfint}
1676 \fdsy@DeclareIntegral{\oiint}{\doiint}{\toiint}
1677 \fdsy@DeclareIntegral{\oiiint}{\doiiint}{\toiiint}
1678 \fdsy@DeclareIntegral{\rcirclerightint}{\drcirclerightint}{\trcirclerightint}
1679 \fdsy@DeclareIntegral{\ointctrclockwise}{\dointctrclockwise}{\tointctrclockwise}
1680 \fdsy@DeclareIntegral{\lcirclerightint}{\\dlcirclerightint}{\\tlcirclerightint}
1681 \fdsy@DeclareIntegral{\varointclockwise}{\dvarointclockwise}
1682\fdsy@DeclareIntegral{\rcircleleftint}{\drcircleleftint}{\trcircleleftint}
1683 \land fdsy@DeclareIntegral \{ \varointctrclockwise \} \{ \varointctrclo
1684 \fdsy@DeclareIntegral{\lcircleleftint}{\dlcircleleftint}{\tlcircleleftint}
1685 \fdsy@DeclareIntegral{\ointclockwise}{\dointclockwise}{\tointclockwise}
1686 \fdsy@DeclareIntegral{\sumint}{\dsumint}{\tsumint}
1688 \def\intkern@{\mkern-8.5mu\mathchoice{\mkern-1mu}{}{}}
1689 \def\intdots@{\mkern-6mu%
          \mathchoice{\@cdots}%
1690
1691
          {{\cdotp}\mkern0.5mu{\cdotp}\mkern0.5mu{\cdotp}}%
          {{\cdotp}{\cdotp}}%
1692
          {{\cdotp}{\cdotp}}%
         \mkern-6mu}
1694
  Math accents.
1695 \DeclareMathAccent{\widehat}{\mathord}{largesymbols}{"72}
1696 \DeclareMathAccent{\widetilde}{\mathord}{largesymbols}{"78}
1697 \DeclareMathAccent{\wideparen}{\mathord}{\largesymbols}{\"7E}
{\tt 1698 \setminus DeclareMathAccent\{\setminus \{\{\}\}\}\}} \\
1700 \DeclareMathAccent{\middleslash}{\mathord}{largesymbols}{"86}
1701 \DeclareMathAccent{\strokethrough}{\mathord}{\largesymbols}{"87}
  FdSymbolF: delimiters
1702 \let\lfloor\undefined
1703 \let\rfloor\undefined
1704 \let\lceil\undefined
1705 \let\rceil\undefined
1706 \let\langle\undefined
1707 \let\rangle\undefined
1708 \iffdsy@largedelims
       \fdsy@DeclareOpen{(){delimiters}{"01}
```

```
\fdsy@DeclareClose{)}{delimiters}{"07}
1710
     \fdsy@DeclareOpen{\lparen}{delimiters}{"01}
1711
1712
     \fdsy@DeclareClose{\rparen}{delimiters}{"07}
1713
     \fdsy@DeclareOpen{[]{delimiters}{"13}
     \fdsy@DeclareClose{]}{delimiters}{"19}
1714
     \fdsy@DeclareOpen{\lbrack}{delimiters}{"13}
1715
     \fdsy@DeclareClose{\rbrack}{delimiters}{"19}
1716
1717
     \fdsy@DeclareOpen{\lfloor}{delimiters}{"1F}
     \fdsy@DeclareClose{\rfloor}{delimiters}{"25}
1718
1719
     \fdsy@DeclareOpen{\lceil}{delimiters}{"2B}
1720
     \fdsy@DeclareClose{\rceil}{delimiters}{"31}
     \fdsy@DeclareOpen{\ulcorner}{delimiters}{"37}
1721
     \fdsy@DeclareClose{\urcorner}{delimiters}{"3D}
1722
     \fdsy@DeclareOpen{\llcorner}{delimiters}{"43}
1723
1724
     \fdsy@DeclareClose{\lrcorner}{delimiters}{"49}
     \fdsy@DeclareOpen{\ullcorner}{delimiters}{"4F}
1725
1726
     \fdsy@DeclareClose{\ulrcorner}{delimiters}{"55}
     \fdsy@DeclareOpen{\lsem}{delimiters}{"61}
1727
     \fdsy@DeclareClose{\rsem}{delimiters}{"67}
1728
1729
     \fdsy@DeclareOpen{\lBrack}{delimiters}{"61}
     \fdsy@DeclareClose{\rBrack}{delimiters}{"67}
1730
1731
     \fdsy@DeclareOpen{\lbrace}{delimiters}{"73}
     \fdsy@DeclareClose{\rbrace}{delimiters}{"79}
1732
     \fdsy@DeclareOpen{<}{delimiters}{"86}
1733
1734
     \fdsy@DeclareClose{>}{delimiters}{"8C}
     \fdsy@DeclareOpen{\langle}{delimiters}{"86}
1735
1736
     \fdsy@DeclareClose{\rangle}{delimiters}{"8C}
     \fdsy@DeclareOpen{\lAngle}{delimiters}{"92}
1737
     \fdsy@DeclareClose{\rAngle}{delimiters}{"98}
1738
     \fdsy@DeclareOpen{\langledot}{delimiters}{"9E}
1739
     \fdsy@DeclareClose{\rangledot}{delimiters}{"A4}
1740
     \fdsy@DeclareDelimiter{/}{\mathord}{delimiters}{"AA}
1741
     \fdsy@DeclareDelimiter{\mathslash}{\mathord}{delimiters}{"AA}
1742
1743
     \DeclareMathSymbol{\divslash}{\mathbin}{delimiters}{"AA}
     \fdsy@DeclareDelimiter{\backslash}{\mathord}{delimiters}{"B0}
1744
1745
     \expandafter\DeclareMathDelimiter\@backslashchar%
        {\mathord}{delimiters}{"B0}{delimiters}{"B0}
1746
     \DeclareMathSymbol{\setminus}{\mathbin}{delimiters}{"B0}
1747
     \fdsy@DeclareDelimiter{|}{\mathord}{delimiters}{"B7}
1748
1749
     \fdsy@DeclareDelimiter{\vert}{\mathord}{delimiters}{"B7}
1750
     \fdsy@DeclareOpen{\lvert}{delimiters}{"B7}
     \fdsy@DeclareClose{\rvert}{delimiters}{"B7}
1751
     \DeclareMathSymbol{\mid}{\mathrel}{delimiters}{"B7}
1752
     \DeclareMathSymbol{\nmid}{\mathrel}{delimiters}{"BA}
1753
```

\fdsy@DeclareDelimiter{\Vert}{\mathord}{delimiters}{"BE}

1754

```
\fdsy@DeclareOpen{\lVert}{delimiters}{"BE}
1755
     \fdsy@DeclareClose{\rVert}{delimiters}{"BE}
1756
     \DeclareMathSymbol{\parallel}{\mathrel}{delimiters}{"BE}
1757
     \DeclareMathSymbol{\nparallel}{\mathrel}{delimiters}{"C1}
1758
     \fdsy@DeclareDelimiter{\Vvert}{\mathord}{delimiters}{"C4}
1759
     \fdsy@DeclareOpen{\lVvert}{delimiters}{"C4}
1760
     \fdsy@DeclareClose{\rVvert}{delimiters}{"C4}
1761
1762
    else
1763
     \fdsy@DeclareOpen{(){delimiters}{"00}
     \fdsy@DeclareClose{)}{delimiters}{"06}
1764
     \fdsy@DeclareOpen{\lparen}{delimiters}{"00}
1765
     \fdsy@DeclareClose{\rparen}{delimiters}{"06}
1766
     \fdsy@DeclareOpen{[]{delimiters}{"12}
1767
     \fdsy@DeclareClose{]}{delimiters}{"18}
1768
1769
     \fdsy@DeclareOpen{\lbrack}{delimiters}{"12}
     \fdsy@DeclareClose{\rbrack}{delimiters}{"18}
1770
     \fdsy@DeclareOpen{\lfloor}{delimiters}{"1E}
1771
     \fdsy@DeclareClose{\rfloor}{delimiters}{"24}
1772
     \fdsy@DeclareOpen{\lceil}{delimiters}{"2A}
1773
1774
     \fdsy@DeclareClose{\rceil}{delimiters}{"30}
     \fdsy@DeclareOpen{\ulcorner}{delimiters}{"36}
1775
1776
     \fdsy@DeclareClose{\urcorner}{delimiters}{"3C}
     \fdsy@DeclareOpen{\llcorner}{delimiters}{"42}
1777
     \fdsy@DeclareClose{\lrcorner}{delimiters}{"48}
1778
1779
     \fdsy@DeclareOpen{\ullcorner}{delimiters}{"4E}
1780
     \fdsy@DeclareClose{\ulrcorner}{delimiters}{"54}
1781
     \fdsy@DeclareOpen{\lsem}{delimiters}{"60}
     \fdsy@DeclareClose{\rsem}{delimiters}{"66}
1782
     \fdsy@DeclareOpen{\lBrack}{delimiters}{"60}
1783
     \fdsy@DeclareClose{\rBrack}{delimiters}{"66}
1784
     \fdsy@DeclareOpen{\lbrace}{delimiters}{"72}
1785
     \fdsy@DeclareClose{\rbrace}{delimiters}{"78}
1786
     \fdsy@DeclareOpen{<}{delimiters}{"85}
1787
     \fdsy@DeclareClose{>}{delimiters}{"8B}
1788
     \fdsy@DeclareOpen{\langle}{delimiters}{"85}
1789
1790
     \fdsy@DeclareClose{\rangle}{delimiters}{"8B}
     \fdsy@DeclareOpen{\lAngle}{delimiters}{"91}
1791
     \fdsy@DeclareClose{\rAngle}{delimiters}{"97}
1792
     \fdsy@DeclareOpen{\langledot}{delimiters}{"9D}
1793
1794
     \fdsy@DeclareClose{\rangledot}{delimiters}{"A3}
1795
     \fdsy@DeclareDelimiter{/}{\mathord}{delimiters}{"A9}
     \fdsy@DeclareDelimiter{\mathslash}{\mathord}{delimiters}{"A9}
1796
     \DeclareMathSymbol{\divslash}{\mathbin}{delimiters}{"A9}
1797
     \fdsy@DeclareDelimiter{\backslash}{\mathord}{delimiters}{"AF}
1798
```

\expandafter\DeclareMathDelimiter\@backslashchar%

```
{\mathord}{delimiters}{"AF}{delimiters}{"AF}
1800
          \DeclareMathSymbol{\setminus}{\mathbin}{delimiters}{"AF}
1801
          \fdsy@DeclareDelimiter{|}{\mathord}{delimiters}{"B6}
1802
          \fdsy@DeclareDelimiter{\vert}{\mathord}{delimiters}{"B6}
          \fdsy@DeclareOpen{\lvert}{delimiters}{"B6}
1804
          \fdsy@DeclareClose{\rvert}{delimiters}{"B6}
1805
          \DeclareMathSymbol{\mid}{\mathrel}{delimiters}{"B6}
1806
1807
          \DeclareMathSymbol{\nmid}{\mathrel}{delimiters}{"B9}
          \fdsy@DeclareDelimiter{\Vert}{\mathord}{delimiters}{"BD}
1808
          \fdsy@DeclareOpen{\lVert}{delimiters}{"BD}
1809
          \fdsy@DeclareClose{\rVert}{delimiters}{"BD}
1810
          \DeclareMathSymbol{\parallel}{\mathrel}{delimiters}{"BD}
1811
          \DeclareMathSymbol{\nparallel}{\mathrel}{delimiters}{"C0}
1812
          \fdsy@DeclareDelimiter{\Vvert}{\mathord}{delimiters}{"C3}
1813
1814
          \fdsy@DeclareOpen{\lVvert}{delimiters}{"C3}
         \fdsy@DeclareClose{\rVvert}{delimiters}{"C3}
1815
1816\fi
1817 \let\|\Vert
1818 \let\divides\mid
1819 \let\ndivides\nmid
1821 \DeclareMathSymbol{\nshortmid}{\mathrel}{delimiters}{"B8}
1822 \DeclareMathSymbol{\shortparallel}{\mathrel}{delimiters}{"BC}
1823 \DeclareMathSymbol{\nshortparallel}{\mathrel}{delimiters}{"BF}
1824 \fdsy@DeclareDelimiter{\arrowvert}{\mathord}{delimiters}{"BB}
1825 \fdsy@DeclareDelimiter{\Arrowvert}{\mathord}{delimiters}{"C2}
1826 \fdsy@DeclareClose{\lgroup}{delimiters}{"7E}
1827 \fdsy@DeclareOpen{\rgroup}{delimiters}{"7F}
1828 \fdsy@DeclareClose{\rmoustache}{delimiters}{"80}
1829 \fdsy@DeclareOpen{\lmoustache}{delimiters}{"81}
1830 \fdsy@DeclareDelimiter{\bracevert}{\mathord}{delimiters}{"84}
1831 \let\uparrow\undefined
1832 \let\downarrow\undefined
1833 \let\updownarrow\undefined
1834 \let\Uparrow\undefined
1835 \let\Downarrow\undefined
1836 \let\Updownarrow\undefined
1837 \DeclareMathDelimiter{\uparrow}{\mathrel}{arrows}{"01}{delimiters}{"C6}
\label{limiter} $$1838 \elimiter{\downarrow}{\mathrel}{arrows}{\mathrel}{arrows}{\mathrel}{arrows}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\mathrel}{\math
1839 \DeclareMathDelimiter{\updownarrow}{\mathrel}{arrows}{"11}{delimiters}{"C8}
1840 \DeclareMathDelimiter{\Uparrow}{\mathrel}{arrows}{"09}{delimiters}{"C9}
1842 \DeclareMathDelimiter{\Updownarrow}{\mathrel}{arrows}{"15}{delimiters}{"CB}
  Horizontal braces.
```

```
1844 \DeclareMathSymbol{\bracelu}{\mathord}{delimiters}{"CD}
1845 \DeclareMathSymbol{\bracerd}{\mathord}{delimiters}{"CE}
1846 \DeclareMathSymbol{\braceru}{\mathord}{delimiters}{"CF}
1847 \DeclareMathSymbol{\bracemd}{\mathord}{delimiters}{"D0}
1848 \DeclareMathSymbol{\bracemu}{\mathord}{delimiters}{"D1}
1849 \DeclareMathSymbol{\bracemid}{\mathord}{delimiters}{"D2}
1851 \det \frac{110}{1} \frac{44}{1} \frac{11}{2} \frac{10}{1} \frac{11}{2} \frac{10}{1} \frac{
1852 \def\downbracefill@\bracefill@\braceld\bracemd\bracemid}
1853 \def\upbracefill@{\bracefill@\bracelu\bracemu\braceru\bracemid}
1854 \def\downgroupfill@{\bracefill@\braceld{}\bracerd\bracemid}
1855 \def\upgroupfill@{\bracefill@\bracelu{}\braceru\bracemid}
1856 \def\linesegmentfill@{\arrowfill@\leftfootline\relbar\rightfootline}
1858 \def\rightharpoonfill@{\arrowfill@\relbar\relbar\rightharpoonup}
1859
1861 \DeclareRobustCommand{\underbrace}[1]{\mathop{\mathpalette{\underarrow@\upbracefill@}{#1}}\limi
1862 \DeclareRobustCommand{\overgroup}{\mathpalette{\overarrow@\downgroupfill@}}
1863 \DeclareRobustCommand{\undergroup}{\mathpalette{\underarrow@\upgroupfill@}}
1865 \DeclareRobustCommand{\overleftharpoon}{\mathpalette{\overarrow@\leftharpoonfill@}}
1866 \DeclareRobustCommand{\overrightharpoon}{\mathpalette{\overarrow@\rightharpoonfill@}}
1867 \DeclareRobustCommand{\underlinesegment}{\mathpalette{\underarrow@\linesegmentfill@}}
   Radical symbols.
1868 \iffdsy@largedelims
                \DeclareMathRadical{\sqrtsign}{delimiters}{"D4}{delimiters}{"D4}
                \DeclareMathSymbol{\surd}{\mathop}{delimiters}{"D4}
1871 \else
                \DeclareMathRadical{\sqrtsign}{delimiters}{"D3}{delimiters}{"D3}
1872
           \DeclareMathSymbol{\surd}{\mathop}{delimiters}{"D3}
1873
1874\fi
   In the n-th root, we don't want the n to come too close to the radical (adopted from
   package lucimatx).
1875 \def\r@@t#1#2{\setbox\z@\hbox{$\m@th#1\sqrt{#2}$}%
                \dime^{ht}z@ \advance\dime^-dp\z@
                \mkern5mu\raise.6\dimen@\copy\rootbox \mkern-8mu\box\z@}
   Mathchars.
1878 \DeclareMathSymbol{+}{\mathbin}{symbols}{"11}
1879 \DeclareMathSymbol{-}{\mathbin}{symbols}{"0E}
1880 \DeclareMathSymbol{*}{\mathbin}{symbols}{"98}
1881 \ensuremath Symbol \ensuremath Symbol \ensuremath \ensuremath Symbol \ensuremath \e
1882 \DeclareMathSymbol{=}{\mathrel}{relations}{"00}
1883 \DeclareMathSymbol{<}{\mathrel}{relations}{"24}</pre>
```

```
1884 \DeclareMathSymbol{>}{\mathrel}{relations}{"25}
1885 \iffdsy@largedelims
     \DeclareMathSymbol{|}{\mathord}{delimiters}{"B6}
1886
     \DeclareMathSymbol{(){\mathopen}{delimiters}{"01}
1887
     \DeclareMathSymbol{)){\mathclose}{delimiters}{"07}
1888
     \DeclareMathSymbol{[]{\mathopen}{delimiters}{"13}
1889
     \DeclareMathSymbol{]}{\mathclose}{delimiters}{"19}
1890
     \DeclareMathSymbol{/}{\mathord}{delimiters}{"AA}
1892 \else
1893
     \DeclareMathSymbol{|}{\mathord}{delimiters}{"B5}
     \DeclareMathSymbol{(){\mathopen}{delimiters}{"00}
1894
     \DeclareMathSymbol{)){\mathclose}{delimiters}{"06}
1895
1896
     \DeclareMathSymbol{[]{\mathopen}{delimiters}{"12}
     \DeclareMathSymbol{]}{\mathclose}{delimiters}{"18}
1897
1898
     \DeclareMathSymbol{/}{\mathord}{delimiters}{"A9}
1899\fi
 There is no \not symbol in FdSymbol since all relational symbols come with a
 stroked companion. For compatibility we define a \not command that places a
 virgule over the following symbol.
```

1900 \def\c@ncel#1#2{\m@th\ooalign{\$\hfil#1/\hfil\$\crcr\$#1#2\$}}

1902 (/style)