FdSymbol: A Math Symbol Font

Michael Ummels michael.ummels@rwth-aachen.de

v0.7 - 2011/08/28

Contents

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 typefaces. To use this font in a L⁴TEX document, add the command

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

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.

http://www.typotheque.com/fonts

²http://www.ctan.org/pkg/mnsymbol/

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.

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.

Key	Values
normalweight	Book*, Regular, auto
boldweight	Medium*, Bold, auto
scale	(factor)
largedelims	true, false*

4 Symbols

The fdsymbol package provides the following symbols.

4.1 Ordinary symbols

- ··· \hdots
- : \vdots
- . · \udots, \adots
- ∴ \ddots
- : \righttherefore
- ∴ \uptherefore, \therefore
- \cdot : \lefttherefore
- \because \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
- ∡ \measuredangle

- \revmeasuredangle,
 \measuredangleleft
- ∢ \sphericalangle
- ∀ \sphericalangleup
- - \revsphericalangle, \gtlpar
- A \sphericalangledown
- ∟ \rightangle
- ⊾ \rightanglesquare, \rightanglesqr
- \measuredrightangledot,
 - \rightanglemdot
- \prime
- \backprime
- √ \checkmark
- // \lightning, \downzigzagarrow
- ♦ \diamondsuit
- ♦ \vardiamondsuit
- ♡ \heartsuit
- ♥ \varheartsuit
- ♠ \spadesuit
- ♠ \clubsuit
- **★** \maltese
- ☆ \starofdavid
- √ \sector
- ∀ \forall
- ∃ \exists
- ∄ \nexists
- ∃ \Finv
- ∂ \Game
- C \complement
- ♭ \flat
- կ \natural
- # \sharp
- א \aleph
- ם \beth
- λ \gimel
- gw/wp
- T \top

4.2 Binary operators

∴ \minusfdots∴ \minusrdots∪ \cup∴ \cap

∔ \dotplus÷ \plusdot⊖ \cupdot∩ \capdot

 $\underline{\times}$ \timesbar $\begin{tabular}{lll} & & \label{eq:capplus} \\ & & \label{eq:capplus} & \label{eq:capplus} \\ & & \label{eq:capplus} & \label{eq:capplus} \\ & & \label{eq:capplus} & \label{eq:capplus} \\ & \labe$

- √ \smalltriangledown
- ▶ \smallblacktriangleright
- ▲ \smallblacktriangleup
- √ \smallblacktriangleleft
- ▼ \smallblacktriangledown
- △ \medtriangleup,\triangle, \vartriangle
- \medtriangleleft,
 \triangleleft
- \medblacktriangleright,
 \blacktriangleright
- ▲ \medblacktriangleup, \blacktriangle
- ▼ \medblacktriangledown, \blacktriangledown
- ∧ \bigtriangleup
- o \smallcircle, \circ, \smwhtcircle
- \smallblackcircle, \bullet, \smblkcircle
- o \medcircle, \mdlgwhtcircle, \mdwhtcircle
- \medblackcircle, \mdlgblkcircle,\mdblkcircle
- ⊖ \ominus
- ∅ \oslash
- ⊕ \oplus
- ⊗ \otimes
- ⊙ \odot
- ⊚ \ocirc,\circledcirc
- ⊖ \odash,\circleddash

- ⊜ \oequal,\circledequal
- O \bigcirc
- \smallsquare, \smwhtsquare
- \smallblacksquare, \smblksquare
- \medsquare, \square, \Box,
 \mdlgwhtsquare, \mdwhtsquare
- \medblacksquare,
 \mdlgblksquare,\mdblksquare
- ⊟ \boxminus
- □ \boxvert, \boxbar

- \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

4.3 Relations

\simeq ≤ \leq, \le \simeq \backsimeq \geq, \ge \eqsim \legslant \cong ≽ \geqslant ≅ \backcong ≦ \leqq \dotcong \geqq ≧ \approxeq ≲ \lesssim ≊ \gtrsim ≏ \bumpeq ≳ \lessapprox ≘ \bumpeqq ≨ ≎ \Bumpeq ≋ \gtrapprox ÷ \doteq

 $\begin{array}{lll} & \text{ \ \ } & \text{ \ \ } \\ & \text{ \ \ } & \text{ \ \ } & \text{ \ \ } \\ & \text{ \ \ } \\ & \text{ \ \ } \\ & \text{ \ \ } \\ & \text{ \ \ } \\ & \text{ \ \ } \\ & \text{ \ \ } \\ & \text{ \ \ } \\ & \text{ \ \ } \\ & \text{ \ \ } \\ & \text{ \ \ } \\ & \text{ \ \ } \\ & \text{ \ \ } \\ & \text{ \ \ } \\ & \text{ \ \ } \\ & \text{ \ \ } & \text{ \ \ } & \text{ \ \ } \\ & \text{ \ \ } & \text{ \ \ } & \text{ \ \ } \\ & \text{ \ \ } & \text{ \ \ } & \text{ \ \ } \\ & \text{ \ \ } & \text{ \ \ } & \text{ \ \ } \\ & \text{ \ \ } & \text{ \ \ } & \text{ \ \ } \\ & \text{ \ \ } & \text{ \ \ } \\ & \text{ \ \ } & \text{ \ \ } & \text{ \ \ } \\ & \text{ \ \ } & \text{ \ \ } & \text{ \ \ } \\ & \text{ \ \ } & \text{ \ \ } \\ & \text{ \ \ } & \text{ \ \ } & \text{ \ \ } \\ & \text{ \ \ } & \text{ \ \ } & \text{ \ \ } \\ & \text{ \ \ } & \text{ \ \ } \\ & \text{ \ \ } & \text{ \ \ } & \text{ \ \ } \\ & \text{ \ \ } & \text{ \ \ } & \text{ \ \ } \\ & \text{ \ \ } & \text{ \ \ } & \text{ \ \ } \\ & \text{ \ \ } & \text{ \ \ } & \text{ \ \ } \\ & \text{ \ \ } & \text{ \ \ } & \text{ \ \ } \\ & \text{ \ \ } & \text{ \ \ } \\ & \text{ \ \ } & \text{ \ \ } \\ & \text{ \ \ } & \text{ \ \ } \\ & \text{ \ \ } & \text{ \ \ } \\ & \text{ \ \ } & \text{ \ \ } \\ & \text{ \ \ } \\ & \text{ \ \ } & \text{ \ \ } \\ & \text{ \ \ } & \text{ \ \ } \\ & \text{ \ \ } & \text{ \ \ } \\ & \text{ \ \ } & \text{ \ \ } \\ & \text{ \ \ } & \text{ \ \ } \\ & \text{ \ \ } & \text{ \ \ } \\ & \text{ \ \ } & \text{ \ \ } \\ & \text{ \ \ } & \text{ \ \ } \\ & \text{ \ \ } & \text{ \ \ } \\ & \text$

 ⊳ \gtrcc,\gtcc

⊲ \leqslcc,\lescc

⊳ \geqslcc,\gescc

□ \sqsubset

□ \sqsupset⊑ \sqsubseteq⊒ \sqsupseteq

\sqsubseteqq

 \sqsupseteqq

\Sqsupset
 \subset

⊃ \supset

⊆ \subseteq
⊇ \supseteq

⊆ \subseteqq

≧ \supseteqq

≺ \prec

> \succ
≤ \preceq

≥ \succeq

< \preccurlyeq</pre>

> \succcurlyeq

≤ \preceqq

\succeqq

≾ \precsim

≿ \succsim

≿ \succapprox

< \lessdot
> \gtrdot

≤ \leqdot

≥ \geqdot

< \leqslantdot, \lesdot</pre>

> \geqslantdot, \gesdot

< \eqslantless</p>

> \eqslantgtr

≼ \curlyeqprec

> \curlyeqsucc

~ \thicksim

→ \rightarrow,\to

↑ \uparrow

← \leftarrow,\gets

↓ \downarrow

\nwarrow

∠ \swarrow

↑ \Uparrow

← \Leftarrow

∥ \Downarrow

Nwarrow
 \Swarrow

.

 \leftrightarrow \leftrightarrow

\$ \updownarrow

∠ \neswarrow

\nwsearrow

 \Leftrightarrow \Leftrightarrow

↑ \Updownarrow

→ \twoheadrightarrow

↑ \twoheaduparrow

← \twoheadleftarrow

↓ \twoheaddownarrow

→ \twoheadnearrow

∖twoheadsearrow

→ \rightarrowtail

1 \uparrowtail

\downarrowtail

¹ \nearrowtail

⊦ \nwarrowtail

- √ \searrowtail
- 1 \upmapsto, \mapsup
- ← \leftmapsto, \mapsfrom
- ↓ \downmapsto, \mapsdown
- ⇒ \Rightmapsto, \Mapsto
- ↑ \Upmapsto, \Mapsup
- ← \Leftmapsto, \Mapsfrom

- ↑ \hookuparrow
- \$ \varhookdownarrow
- √ \varhooknearrow
- \hooknwarrow, \hknwarrow
- ∠ \varhookswarrow
- \hooksearrow, \hksearrow
- → \varhookrightarrow
- t \varhookuparrow
- \hookdownarrow
- ∠ \hooknearrow, \hknearrow
- √ \varhooknwarrow
- ∠ \hookswarrow, \hkswarrow
- √ \varhooksearrow
- → \rightharpoonup
- 1 \upharpoonleft
- ← \leftharpoondown
- l \downharpoonright
- / \neharpoonnw
- \nwharpoonsw
- ∠ \swharpoonse
- √ \seharpoonne
- → \rightharpoondown
- \upharpoonright, \restriction
- ← \leftharpoonup
- ↓ \downharpoonleft
- \nwharpoonne
- ✓ \swharpoonnw
- √ \seharpoonsw

- → \leftrightharpoonupdown
- 1 \updownharpoonleftright
- z \neswharpoonnwse
- \nwseharpoonnesw
- → \leftrightharpoondownup
- \updownharpoonrightleft
- ✓ \neswharpoonsenw
- \nwseharpoonswne
- 1 \updownharpoons,

\updownharpoonsleftright

- ≒ \leftrightharpoons
- \downupharpoons,

\downupharpoonsleftright

- √ \swneharpoons
- → \rightbkarrow, \dashrightarrow, \dasharrow
- † \upbkarrow
- \leftbkarrow, \dashleftarrow
- ↓ \downbkarrow
- ^* \nebkarrow
- \nwbkarrow
- ∡′ \swbkarrow
- `₄ \sebkarrow
- → \rightspoon,\multimap
- ↑ \upspoon,\cirmid
- ← \leftspoon, \multimapinv
- ↓ \downspoon,\midcir
- → \rightblackspoon
- ↑ \upblackspoon
- \leftblackspoon
- ↓ \downblackspoon
- → \leftrightspoon, \dualmap
- → \leftrightblackspoon
- ⊶ \whiteblackspoon, \origof
- → \rightpitchfork
- ₼ \uppitchfork,\pitchfork

- ← \leftpitchfork
- Ψ \downpitchfork
- ⇒ \rightrightarrows
- ↑ \upuparrows
- ← \leftleftarrows
- .□ \downdownarrows
- → \nenearrows
- √ \nwnwarrows
- √ \swswarrows
- √ \sesearrows
- ↑↓ \updownarrows
- √ \nwsearrows
- ≒ \leftrightarrows
- ↓↑ \downuparrows
- √swnearrows
- √ \senwarrows
- → \rightwavearrow, \leadsto, \rightsquigarrow, \rightcurvedarrow
- \varupwavearrow

- → \varrightwavearrow
- \$ \upwavearrow
- ← \leftwavearrow, \leftsquigarrow, \leftcurvedarrow
- \vardownwavearrow
- 1 \updownwavearrow
- \$ \varupdownwavearrow
- ₹ \cwleftarcarrow
- \cwrightarcarrow

- \cwswarcarrow,
 \upleftcurvedarrow
- √ \cwsearcarrow,
 \leftdowncurvedarrow
- \cwnearcarrow,
 \downrightcurvedarrow
- → \acwunderarcarrow
- 5 \acwrightarcarrow
- \acwoverarcarrow,
 \curvearrowleft
- (\acwleftarcarrow
- → \acwsearcarrow, \uprightcurvearrow
- \acwnearcarrow,
 \leftupcurvedarrow
- \acwswarcarrow,
 \rightdowncurvedarrow
- ₹ \bdleftarcarrow
- 5 \bdrightarcarrow
- √ \bdnwarcarrow
- ♦ \bdswarcarrow
- → \bdsearcarrow
- ⊢ \leftfootline
- → \rightfootline
- () \acwcirclearrowleft, \circlearrowleft, \acwopencirclearrow
- \acwcirclearrowdown, \acwgapcirclearrow
- C \cwcirclearrowdown, \cwgapcirclearrow

 \longrightarrow \longrightarrow \perp \up\dash

 $\Longrightarrow \verb|\Longrightarrow| \qquad \qquad \overline{\top} \quad \verb|\downVdash|$

├── \longleftfootline, \vlongdash ≠ \nequal, \neq, \ne

\longleftsquigarrow

 ↓ \Rdsh
 \$ \ntriplesim, \napproxident

\Ddashv

\$\looparrowright # \nsimeq, \nsime
\$\phi\$ \looparrowleft # \nbacksimeq
\$\rightarrow\$ \neqsim
\$\pm\$ \upvdash, \perp # \ncong
\$\pm\$ \leftvdash, \dashv # \nbackcong

d \leftassert, \shortlefttack # \ndoteq
downassert, \shortdowntack # \neqdot

\nDoteq \nlessclosed, \ntriangleleft \nfallingdotseq \ngtrclosed, \ntriangleright \nrisingdotseq \nleqclosed, \ntrianglelefteq ≠ 4 \nsmile ⋭ \ngeqclosed, \ntrianglerighteq \nfrown \nlesscc, \nltcc + ⋪

\nsmilefrown, \nasymp \ngtrcc, \ngtcc * \nfrownsmile, \nclosure \nleqslcc, \nlescc # \nsmileeq \ngeqslcc, \ngescc ¥ 单

\nfrowneq, \narceq # \nsqsubset \nsqsupset \neqcirc ⊅ # # \ncirceq \nsqsubseteq # \nwedgeq, \nhateq ⊉ \nsqsupseteq \nveeeq \nsqsubseteqq \nstareq ∄ \nsqsupseteqq

¥ # # \ntriangleeq \nSqsubset ⊯ ∉ \nin, \notin ∌ \nSqsupset ∌ \nowns, \nni \nsubset ¢ \nless \nsupset * ⊅ \ngtr * ⊈ \nsubseteq \nleq ≰ ⊉ \nsupseteq ≱ \ngeq \nsubseteqq \nleqslant ≰ \nsupsetegg

≱ \ngeqslant \nSubset ≰ \nleqq \nSupset ≱ \ngeqq \nprec \nlesssim \nsucc ≴ * ≵ \ngtrsim ≰ \npreceq ≴ \nlessapprox \nsucceq ¥ ≵ \ngtrapprox \npreccurlyeq

≴ \nlessgtr \nsucccurlyeq ¥ ≵ \ngtrless ≰ \npreceqq ≸ \nlesseggtr \nsucceqq ≹ \ngtreqless ≴ \nprecsim ≸ \nlesseqqgtr ž \nsuccsim \ngtreqqless \nprecapprox

. ≹ ≸ \nlesseqslantgtr, \nlesg \nsuccapprox ≹ \ngtreqslantless, \ngesl \nlessdot **≮**: ≮ \nll \ngtrdot ≫ \ngg \nleqdot ✓ \nlll \ngeqdot

\nleqslantdot, \nlesdot ≫ \nggg

≱

≆ \simneqq

≆ \backsimneqq

≤ \lneq

≥ \gneq

≨ \lneqq,\lvertneqq

\gneqq,\gvertneqq

\$ \lnsim

\gnsim

\$ \lnapprox

⊊ \sqsubsetneq

⊋ \sqsupsetneq

\sqsubsetneqq

\sqsupsetneqq

⊊ \subsetneq, \varsubsetneq

⇒ \supsetneq, \varsupsetneq

\$\subsetneqq,\varsubsetneqq

\supsetneqq,\varsupsetneqq

\succneqq

≿ \succnsim

\succnapprox

→ \nrightarrow, \nto

↑ \nuparrow

← \nleftarrow, \ngets

t \ndownarrow

√ \nnearrow

∿ \nnwarrow

∡ \nswarrow

⅓ \nsearrow

→ \nRightarrow

↑ \nUparrow

← \nLeftarrow

t \nDownarrow

√ \nNearrow

∖nNwarrow

↔ \nleftrightarrow

† \nupdownarrow

√ \nneswarrow

\nnwsearrow

⇔ \nLeftrightarrow

↑ \nUpdownarrow

\nNwsearrow

/> \ntwoheadrightarrow

\$ \ntwoheaduparrow

\ntwoheadleftarrow

↓ \ntwoheaddownarrow

 $\ensuremath{\mathcal{A}}$ \ntwoheadnearrow

∿ \ntwoheadnwarrow

∡ \ntwoheadswarrow

\
\[\ntwoheadsearrow
\[\nrightarrowtail \]
\[\]
\[\nrightarrowtail \]
\[\nrightar

₹ \ndownarrowtail

ኊ \nnwarrowtail

⅓ \nsearrowtail

↑ \nupmapsto, \nmapsup

← \nleftmapsto, \nmapsfrom

₹ \ndownmapsto, \nmapsdown

 \Rightarrow \nRightmapsto, \nMapsto

↑ \nUpmapsto, \nMapsup

⋈ \nLeftmapsto, \nMapsfrom

♪ \nhookuparrow

→ \nvarhookleftarrow

- ∢ \nvarhooknearrow

- % \nhooksearrow, \nhksearrow
- → \nvarhookrightarrow
- ↑ \nvarhookuparrow
- ← \nhookleftarrow
- 1 \nhookdownarrow
- \text{nhooknearrow}, \nhknearrow
- ∿ \nvarhooknwarrow
- √ \nvarhooksearrow
- → \nrightharpoonup
- 1 \nupharpoonleft
- → \nleftharpoondown
- t \ndownharpoonright
- √ \nneharpoonnw
- ∖nnwharpoonsw
- x \nswharpoonse
- \nseharpoonne
- → \nrightharpoondown
- ∤ \nupharpoonright, \nrestriction
- ← \nleftharpoonup

- \nnwharpoonne
- *x* \nswharpoonnw
- \nseharpoonsw
- → \nleftrightharpoonupdown
- 1 \nupdownharpoonleftright
- x \nneswharpoonnwse
- ∖nnwseharpoonnesw
- ᢢ \nleftrightharpoondownup
- ↑ \nupdownharpoonrightleft
- x \nnwseharpoonswne
- # \nupdownharpoons,
 - \nupdownharpoonsleftright

- ∧ \nsenwharpoons
- ♯ \nleftrightharpoons
- ∦ \ndownupharpoons,
 - \ndownupharpoonsleftright

- -/> \nrightbkarrow, \ndasharrow,
 \ndashrightarrow
- \nupbkarrow
- </- \nleftbkarrow, \ndashleftarrow</pre>
- √ \nnebkarrow
- √ \nnwbkarrow
- √ \nswbkarrow
- √ \nsebkarrow
- √ \nrightspoon, \nmultimap
- ♀ \nupspoon, \ncirmid
- → \nleftspoon, \nmultimapinv
- t \ndownspoon, \nmidcir
- √ \nrightblackspoon
- ♪ \nupblackspoon
- → \nleftblackspoon
- ⋄
 \nleftrightspoon, \ndualmap
- \nleftrightblackspoon
- → \nblackwhitespoon, \nimageof
- →• \nwhiteblackspoon, \norigof
- → \nrightpitchfork
- ₼ \nuppitchfork,\npitchfork
- -∉ \nleftpitchfork
- ♥ \ndownpitchfork
- ↑ \nupuparrows
- ⊭ \nleftleftarrows
- t \ndowndownarrows
- ♦ \nnenearrows
- \nnwnwarrows
- % \nswswarrows
- → \nrightleftarrows

- ↑ \nupdownarrows
- √ \nnwsearrows
- ☆ \nleftrightarrows
- ⋄ \nswnearrows

- \nvarupwavearrow

- → \nvarrightwavearrow
- \$ \nupwavearrow

- ⟨→ \nleftrightwavearrow, \nleftrightsquigarrow
- \$ \nupdownwavearrow
- \nvarleftrightwavearrow
- \$ \nvarupdownwavearrow
- ↑ \ncwoverarcarrow, \ncurvearrowright
- ₹ \ncwleftarcarrow
- √ \ncwunderarcarrow
- → \ncwrightarcarrow
- % \ncwswarcarrow,
 \nupleftcurvedarrow
- \ncwnearcarrow,
 \ndownrightcurvedarrow
- \checkmark \nacwunderarcarrow
- ኑ \nacwrightarcarrow
- ₼ \nacwoverarcarrow, \ncurvearrowleft

- ⟨ \nacwleftarcarrow
- % \nacwnearcarrow,
 \nleftupcurvedarrow
- \nacwnwarcarrow,
 \ndownleftcurvedarrow
- \nacwswarcarrow,
 \nrightdowncurvedarrow
- √ \nbdoverarcarrow
- ₹ \nbdleftarcarrow
- √ \nbdunderarcarrow
- \nbdrightarcarrow
- \nbdswarcarrow

- → \nrightfootline
- ♠ \nacwcirclearrowup
- \nacwcirclearrowleft,
 \ncirclearrowleft,
 \nacwopencirclearrow
- ♦ \nacwcirclearrowdown, \nacwgapcirclearrow
- ⟨ \nacwcirclearrowright
- \ncwcirclearrowdown,
 \ncwgapcirclearrow
- \ncwcirclearrowright,
 \ncirclearrowright,
 \ncwopencirclearrow
- ♠ \ncwcirclearrowup
- ∅ \ncwcirclearrowleft
- ⇒ \nRrightarrow
- ↑ \nUuparrow
- **⊭** \nLleftarrow
- → \nlongrightarrow
- ←/ \nlongleftarrow
- → \nLongrightarrow
- ← \nLongleftarrow

←→ \nlongleftrightarrow ⊬ \nleftVdash, \ndashV ⇔ \nLongleftrightarrow \ndown\Vdash ←→ \nlongmapsfrom ∦ \nleftAssert ← \nLongmapsfrom ₹ \ndownAssert,\nBarv √→ \nlongrightwavearrow, \nlongleadsto, 业 \nupVDash \nlongrightsquigarrow # \nleftVDash, \nDashV \nlongleftwavearrow, \ndownVDash \nlongleftsquigarrow II \nVvdash ∦ll \ndashVv \nvlongdash ⊭ \nvDdash → \nlongrightfootline, **♯** \nDdashv \nlongdashv :,\mathratio ⊬ \nrightvdash, \nvdash ∷ \Colon \relbar \dotsminusdots ::₹ \ndownvdash ⋈ \rJoin \nrightassert, \nassert, \nshortrighttack ⋈ \bowtie,\Join \propto, \varpropto ₦ \nleftassert, \nshortlefttack \backpropto, \propfrom ⊭ \nrightvDash,\nvDash \between 业 \nupvDash, \nVbar \shortmid ♯ \nleftvDash, \nDashv \mid, \divides \nshortmid ¥ \nrightmodels, \nmodels \nmid, \ndivides <u>★</u> \nupmodels \shortparallel # \nleftmodels \parallel \ndownmodels 퐈

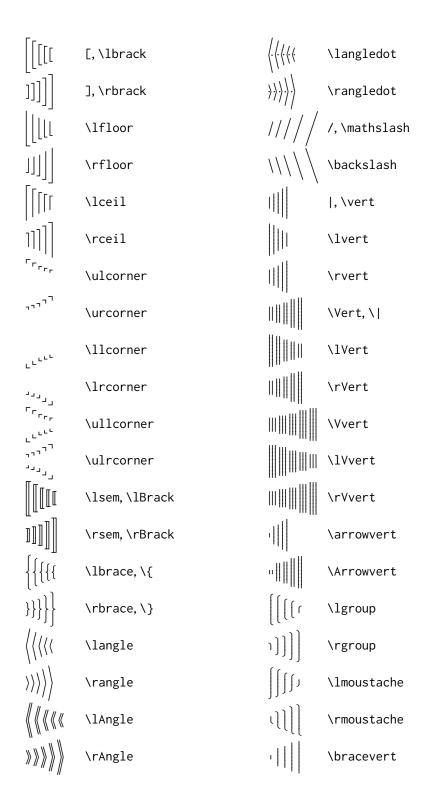
4.4 Punctuation symbols

· \cdotp : \colon, \mathcolon

4.5 Large operators

∦ \nparallel

```
\bigplus
                                                 \int
         \bigtimes
                                                 \iint
         \bigwedge
                                                 \iiint
         \bigvee
٨
         \bigwedgedot
                                                \iiiint
٧
         \bigveedot
                                                \idotsint, \dotsint
         \bigdoublewedge,
M
           \conjquant
                                                \landupint,\intclockwise
         \bigdoublevee, \disjquant
W
                                                \landdownint, \awint,
人
         \bigcurlywedge
                                                  \intctrclockwise
Υ
         \bigcurlyvee
                                       f
                                                \intbar
\bigcap
         \bigcap
                                       £
                                                \intBar
U
         \bigcup
\bigcirc
         \bigcapdot
                                                \fint
\bigcup
         \bigcupdot
                                                \oint
+
         \bigcapplus
\forall
         \bigcupplus, \biguplus
                                                \oiint
П
         \bigsqcap
                                                \oiiint
Ш
         \bigsqcup
                                                \rcirclerightint,
         \bigsqcapdot
\ointctrclockwise
\Box
         \bigsqcupdot
                                                \lcirclerightint,
+
         \bigsqcapplus
                                                  \varointclockwise
+
         \bigsqcupplus
                                                \rcircleleftint,
\oplus
         \bigoplus
                                                  \varointctrclockwise
\otimes
         \bigotimes
                                                \lcircleleftint,
\odot
         \bigodot
                                                  \ointclockwise
\otimes
         \bigoast
                                       ţ
                                                \sumint
П
         \prod
                                                \smallprod
                                       П
                                            П
Ц
         \coprod
                                                \smallcoprod
                                       П
                                            П
Σ
          \sum
                                                \smallint
                                       ſ
                                            ſ
\mathbf{\Sigma}
          \osum, \modtwosum
                                                \surd
4.6 Delimiters and accents
          (,\lparen
                                                ), \rparen
```



$\uparrow \uparrow \uparrow \uparrow \uparrow \uparrow \uparrow \uparrow$	\uparrow	$\operatorname{tr} = \operatorname{tr} = \operatorname{tr}$	\Uparrow
$\downarrow \downarrow \downarrow \downarrow \downarrow \downarrow$	\downarrow	A	\Downarrow
	\updownarrow		<pre>↓ \Updownarrow</pre>
$ \begin{array}{c} \overrightarrow{x}\overrightarrow{x}\overrightarrow{x}\\ \overrightarrow{x}\overrightarrow{x}\\ \overrightarrow{x}\overrightarrow{x} \end{array} $	\overbrace \underbrace \overgroup \undergroup	xxx xxx xxx xxx	\overlinesegment \overleftharpoon \overrightharpoon \underlinesegment
$ \sqrt{b} $ $ \widehat{xxx} $ $ \widetilde{xxx} $ $ \widehat{xxx} $	\sqrt \widehat \widetilde \wideparen	і́ Б Б В	\vec \middlebar \middleslash \strokethrough

4.7 Faked symbols

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

†	\dagger	\Bbbk	\Bbbk
‡	\ddagger	\mathfrak{R}	\Re
9	\mathparagraph	\mathfrak{I}	\Im
\int	\mathsection	ħ	\hbar
\$	\mathdollar	ħ	\hslash
£	\mathsterling	R	\circledR
¥	\yen	(S)	\circledS

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	\rhook
\nabla	\backepsilon	\diagup
\eth	\mapstochar	\diagdown
\digamma	\lhook	

5 Implementation

```
1 (*style)
 2 \RequirePackage{xkeyval}
 3 \newcommand*\fdsy@choicekey[3]{%
    5 }
We use xkeyval's key mechanism to declare all options. The first options deter-
mines the size of delimiters.
 6\define@boolkey{fdsymbol.sty}[fdsy@]{largedelims}[true]{}
The next option allows to scale the fonts by an arbitrary factor.
7 \newcommand{\fdsy@scale}{1.0}
8\define@key{fdsymbol.sty}{scale}{\renewcommand\fdsy@scale{#1}}
The following two options control which weights are used for which math version
and font size.
9 \newcommand\fdsy@mweight@normal{Book}
10 \newcommand\fdsy@mweight@small{Book}
11 \newcommand\fdsy@bweight@normal{Medium}
12 \newcommand\fdsy@bweight@small{Medium}
13 \fdsy@choicekey{normalweight}{book,regular,auto}{%
    \ifcase\@tempb\relax
      \renewcommand\fdsy@mweight@normal{Book}%
15
      \renewcommand\fdsy@mweight@small{Book}%
16
17
    \or
18
      \renewcommand\fdsy@mweight@normal{Regular}%
      \renewcommand\fdsy@mweight@small{Regular}%
19
20
      \renewcommand\fdsy@mweight@normal{Book}%
21
      \renewcommand\fdsy@mweight@small{Regular}%
22
23
24 }
25\fdsy@choicekey{boldweight}{medium,bold,auto}{%
    \ifcase\@tempb\relax
27
      \renewcommand\fdsy@bweight@normal{Medium}%
      \renewcommand\fdsy@bweight@small{Medium}%
28
29
      \renewcommand\fdsy@bweight@normal{Bold}%
30
      \renewcommand\fdsy@bweight@small{Bold}%
31
32
      \renewcommand\fdsy@bweight@normal{Medium}%
33
34
      \renewcommand\fdsy@bweight@small{Bold}%
35
36 }
37 \ExecuteOptionsX{largedelims=false}
```

```
38 \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.

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

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

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.

```
41\iffdsy@largedelims
```

```
42 \renewcommand{\Big}{\bBigg@{1.25}}
```

- 43 \renewcommand{\bigg}{\bBigg@{1.66}}
- 44 \renewcommand{\Bigg}{\bBigg@{2.08}}

45\fi

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

```
46 \DeclareRobustCommand{\dagger}{\fdsy@text{\textdagger}}
```

- 47 \DeclareRobustCommand{\ddagger}{\fdsy@text{\textdaggerdbl}}
- 48 \DeclareRobustCommand{\mathparagraph}{\fdsy@text{\textparagraph}}
- 49 \DeclareRobustCommand{\mathsection}{\fdsy@text{\textsection}}
- 50 \DeclareRobustCommand{\mathdollar}{\fdsy@text{\textdollar}}
- 51 \DeclareRobustCommand{\mathsterling}{\fdsy@text{\textsterling}}
- 52 \DeclareRobustCommand{\yen}{\fdsy@text{\textyen}}
- 53 \DeclareRobustCommand{\circledR}{\fdsy@text{\textcircled{%
- $\verb|\check@mathfonts\fontsize\sf@size\z@\mathbb{R}||$
- 55 \DeclareRobustCommand{\circledS}{\fdsy@text{\textcircled{%
- 56 \check@mathfonts\fontsize\sf@size\z@\math@fontsfalse\selectfont S}}}
- 57 \DeclareRobustCommand{\Re}{\mathfrak{R}}
- 58 \DeclareRobustCommand{\Im}{\mathfrak{I}}
- 59 \DeclareRobustCommand{\dotcong}{\mathrel{\dot{\cong}}}
- $\label{lem:command} $$ 0 \ellow {\mathrel{\texttext}\boldsymbol {\math}} $$ 0 \ellow {\mathrel{\texttext}\boldsymbol {\math}} $$$
- $61 \end{thickapprox} {\mathbf \{\hat \mathbb \{\hat \mathbb \}}} \}$
- 62 \let\hbar\undefined
- 63 \let\hslash\undefined
- 64 \DeclareRobustCommand{\hbar}{\middlebar h}
- 65 \DeclareRobustCommand{\hslash}{\middleslash h}
- 66 \DeclareRobustCommand{\centerdot}{\mathbin{\rule{0.15em}{0.15em}}}

Unneeded partial symbols.

- 67 \let\mapstochar\undefined
- 68 \let\lhook\undefined
- 69 \let\rhook\undefined

Shorthands to simplify the definitions below.

- 70 \newcommand\fdsy@setslot[1]{\@tempcnta #1\relax}
- 71 \newcommand\fdsy@nextslot{\advance\@tempcnta 1\relax}
- 72 \newcommand\fdsy@prevslot{\advance\@tempcnta-1\relax}

```
73
74\newcommand\fdsy@@DeclareSymbol[4]{\DeclareMathSymbol{#2}{#3}{#4}{#1}}
75 \newcommand\fdsy@DeclareSymbol[3]{%
    \if\relax\noexpand#1\let#1\undefined\fi
    \expandafter\fdsy@@DeclareSymbol\expandafter{\the\@tempcnta}{#1}{#3}{#2}%
77
    \fdsy@nextslot
79 }
80 \newcommand\fdsy@DeclareAlias[3]{\fdsy@prevslot\fdsy@DeclareSymbol{#1}{#2}{#3}}
81 \newcommand\fdsy@DeclareOperator[3]{\def#1{\DOTSB#3\slimits@}}
82 \newcommand\fdsy@DeclareIntegral[3]{\def#1{\DOTSI#3\ilimits@}}
83 \newcommand\fdsy@DeclareDelimiter[4]{%
    \if\relax\noexpand#1\let#1\undefined\fi
    \DeclareMathDelimiter{#1}{#2}{#3}{#4}{#3}{#4}%
86 }
87\newcommand\fdsy@DeclareOpen[3]{\fdsy@DeclareDelimiter{#1}{\mathopen}{#2}{#3}}
88 \newcommand\fdsy@DeclareClose[3]{\fdsy@DeclareDelimiter{#1}{\mathclose}{#2}{#3}}
Font definitions.
89 \DeclareFontFamily{U}{FdSymbolA}{}
90 \DeclareFontFamily{U}{FdSymbolB}{}
91 \DeclareFontFamily{U}{FdSymbolC}{}
92 \DeclareFontFamily{U}{FdSymbolD}{}
93 \DeclareFontFamily{U}{FdSymbolE}{}
94 \DeclareFontFamily{U}{FdSymbolF}{}
96 \DeclareFontShape{U}{FdSymbolA}{m}{n}{
97
      <-7.1> s * [\fdsy@scale] FdSymbolA-\fdsy@mweight@small
      <7.1-> s * [\fdsy@scale] FdSymbolA-\fdsy@mweight@normal
98
99 }{}
100 \DeclareFontShape{U}{FdSymbolA}{b}{n}{
       <-7.1> s * [\fdsy@scale] FdSymbolA-\fdsy@bweight@small
101
      <7.1-> s * [\fdsy@scale] FdSymbolA-\fdsy@bweight@normal
102
103 }{}
104 \DeclareFontShape{U}{FdSymbolB}{m}{n}{
      <-7.1> s * [\fdsy@scale] FdSymbolB-\fdsy@mweight@small
105
106
      <7.1-> s * [\fdsy@scale] FdSymbolB-\fdsy@mweight@normal
107 }{}
108 \DeclareFontShape{U}{FdSymbolB}{b}{n}{
      <-7.1> s * [\fdsy@scale] FdSymbolB-\fdsy@bweight@small
109
       <7.1-> s * [\fdsy@scale] FdSymbolB-\fdsy@bweight@normal
110
111 }{}
112 \DeclareFontShape{U}{FdSymbolC}{m}{n}{
      <-7.1> s * [\fdsy@scale] FdSymbolC-\fdsy@mweight@small
113
       <7.1-> s * [\fdsy@scale] FdSymbolC-\fdsy@mweight@normal
114
115 }{}
116 \DeclareFontShape{U}{FdSymbolC}{b}{n}{
```

```
<-7.1> s * [\fdsy@scale] FdSymbolC-\fdsy@bweight@small
117
              <7.1-> s * [\fdsy@scale] FdSymbolC-\fdsy@bweight@normal
118
119 }{}
120 \DeclareFontShape{U}{FdSymbolD}{m}{n}{
              <-7.1> s * [\fdsy@scale] FdSymbolD-\fdsy@mweight@small
              <7.1-> s * [\fdsy@scale] FdSymbolD-\fdsy@mweight@normal
122
123 }{}
124 \DeclareFontShape{U}{FdSymbolD}{b}{n}{
              <-7.1> s * [\fdsy@scale] FdSymbolD-\fdsy@bweight@small
125
126
              <7.1-> s * [\fdsy@scale] FdSymbolD-\fdsy@bweight@normal
127 }{}
128 \DeclareFontShape{U}{FdSymbolE}{m}{n}{
              <-7.1> s * [\fdsy@scale] FdSymbolE-\fdsy@mweight@small
129
              <7.1-> s * [\fdsy@scale] FdSymbolE-\fdsy@mweight@normal
130
131 }{}
132 \DeclareFontShape{U}{FdSymbolE}{b}{n}{
              <-7.1> s * [\fdsy@scale] FdSymbolE-\fdsy@bweight@small
              <7.1-> s * [\fdsy@scale] FdSymbolE-\fdsy@bweight@normal
134
135 }{}
\label{localize} \begin{tabular}{l} 136 \verb+\DeclareFontShape{U}{FdSymbolF}{m}{n}{\{} \end{tabular}
              <-7.1> s * [\fdsy@scale] FdSymbolF-\fdsy@mweight@small
137
              <7.1-> s * [\fdsy@scale] FdSymbolF-\fdsy@mweight@normal
138
139 } { }
140 \DeclareFontShape{U}{FdSymbolF}{b}{n}{
              <-7.1> s * [\fdsy@scale] FdSymbolF-\fdsy@bweight@small
141
              <7.1-> s * [\fdsy@scale] FdSymbolF-\fdsy@bweight@normal
142
143 }{}
144
145 \DeclareSymbolFont{symbols}{U}{FdSymbolA}{m}{n}
146 \DeclareSymbolFont{relations}{U}{FdSymbolB}{m}{n}
147 \DeclareSymbolFont{arrows}{U}{FdSymbolC}{m}{n}
148 \DeclareSymbolFont{narrows}{U}{FdSymbolD}{m}{n}
150 \DeclareSymbolFont{delimiters}{U}{FdSymbolF}{m}{n}
151 \SetSymbolFont{symbols}{bold}{U}{FdSymbolA}{b}{n}
152 \SetSymbolFont{relations}{bold}{U}{FdSymbolB}{b}{n}
\label{localize} $$153 \end{{\tt U}{FdSymbolC}{b}{n}} $$
154 \SetSymbolFont{narrows}{bold}{U}{FdSymbolD}{b}{n}
155 \SetSymbolFont{largesymbols}{bold}{U}{FdSymbolE}{b}{n}
156 \SetSymbolFont{delimiters}{bold}{U}{FdSymbolF}{b}{n}
 At the moment, we still use cmsy for the calligraphic alphabet, msb for the black-
 board bold alphabet, and euf for the Fraktur alphabet.
157 \DeclareMathAlphabet{\mathcal}{OMS}{cmsy}{m}{n}
\label{local} IS8 \end{athAlphabet{\mathbb{GMS}{cmsy}{b}{n}}} is $$ \e
159 \DeclareMathAlphabet{\mathbb}{U}{msb}{m}{n}
```

```
160 \DeclareMathAlphabet{\mathfrak}{U}{euf}{m}{n}
161 \SetMathAlphabet{\mathfrak}{bold}{U}{euf}{b}{n}
162 \let\Bbbk\undefined
163 \newcommand{\Bbbk}{\mathbb{\mathchar"717C}}
A command for taking math symbols from the text font.
164 \def\fdsy@bold{bold}
165 \newcommand*\fdsy@text[1]{%
    \footnotemark \ifx\fdsy@bold\math@version
      \text{\normalfont\bfseries#1}%
167
168
169
      \text{\normalfont\mdseries#1}%
    \fi
170
171 }
FdSymbolA: binary operators and ordinary symbols
172 \fdsy@setslot{0}
173 \fdsy@DeclareSymbol{\cdot}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\cdotp}{symbols}{\mathpunct}
175 \fdsy@DeclareSymbol{\hdotdot}{symbols}{\mathbin}
176 \fdsy@DeclareSymbol{\vdotdot}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\colon}{symbols}{\mathpunct}
    \fdsy@DeclareAlias{\mathcolon}{symbols}{\mathpunct}
178
    \fdsy@DeclareAlias{\mathratio}{symbols}{\mathrel}
180 \fdsy@DeclareSymbol{\udotdot}{symbols}{\mathbin}
181 \fdsy@DeclareSymbol{\ddotdot}{symbols}{\mathbin}
182 \fdsy@DeclareSymbol{\hdots}{symbols}{\mathord}
    \fdsy@DeclareAlias{\@cdots}{symbols}{\mathinner}
    \let\cdots\@cdots
185 \fdsy@DeclareSymbol{\@vdots}{symbols}{\mathord}
\fdsy@DeclareAlias{\adots}{symbols}{\mathord}
189 \fdsy@DeclareSymbol{\ddots}{symbols}{\mathord}
190 \fdsy@DeclareSymbol{\righttherefore}{symbols}{\mathord}
191 \fdsy@DeclareSymbol{\uptherefore}{symbols}{\mathord}
    \fdsy@DeclareAlias{\therefore}{symbols}{\mathord}
193 \fdsy@DeclareSymbol{\lefttherefore}{symbols}{\mathord}
194 \fdsy@DeclareSymbol{\downtherefore}{symbols}{\mathord}
    \fdsy@DeclareAlias{\because}{symbols}{\mathord}
196 \fdsy@DeclareSymbol{\squaredots}{symbols}{\mathord}
    \fdsy@DeclareAlias{\Colon}{symbols}{\mathrel}
198 \fdsy@DeclareSymbol{\minus}{symbols}{\mathbin}
199 \fdsy@DeclareSymbol{\medslash}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\smalldivslash}{symbols}{\mathbin}
201 \fdsy@DeclareSymbol{\medbackslash}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\smallsetminus}{symbols}{\mathbin}
```

```
203 \fdsy@DeclareSymbol{\plus}{symbols}{\mathbin}
204 \fdsy@DeclareSymbol{\times}{symbols}{\mathbin}
205 \fdsy@DeclareSymbol{\dotminus}{symbols}{\mathbin}
206 \fdsy@DeclareSymbol{\minusdot}{symbols}{\mathbin}
{\tt 207 \fdsy@DeclareSymbol{\div}{symbols}{\mathbb }} 
208 \fdsy@DeclareSymbol{\minusfdots}{symbols}{\mathbin}
209 \fdsy@DeclareSymbol{\minusrdots}{symbols}{\mathbin}
210 \fdsy@DeclareSymbol{\dotsminusdots}{symbols}{\mathrel}
211 \fdsy@DeclareSymbol{\pm}{symbols}{\mathbin}
212 \fdsy@DeclareSymbol{\mp}{symbols}{\mathbin}
213 \fdsy@DeclareSymbol{\dotplus}{symbols}{\mathbin}
214 \fdsy@DeclareSymbol{\plusdot}{symbols}{\mathbin}
215 \fdsy@DeclareSymbol{\dottimes}{symbols}{\mathbin}
216 \fdsy@DeclareSymbol{\timesbar}{symbols}{\mathbin}
217 \fdsy@DeclareSymbol{\divideontimes}{symbols}{\mathbin}
218 \fdsy@DeclareSymbol{\neg}{symbols}{\mathord}
219
     \fdsy@DeclareAlias{\lnot}{symbols}{\mathord}
     \fdsy@DeclareAlias{\minushookdown}{symbols}{\mathbin}
221 \fdsy@DeclareSymbol{\backneg}{symbols}{\mathord}
    \fdsy@DeclareAlias{\hookdownminus}{symbols}{\mathbin}
222
    \fdsy@DeclareAlias{\invneg}{symbols}{\mathord}
223
    \fdsy@DeclareAlias{\invnot}{symbols}{\mathord}
225 \fdsy@DeclareSymbol{\intprod}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\minushookup}{symbols}{\mathbin}
226
    227
    \fdsy@DeclareAlias{\turnednot}{symbols}{\mathord}
228
229 \fdsy@DeclareSymbol{\intprodr}{symbols}{\mathbin}
     \fdsy@DeclareAlias{\hookupminus}{symbols}{\mathbin}
230
     \fdsy@DeclareAlias{\turnedbackneg}{symbols}{\mathord}
232 \fdsy@DeclareSymbol{\leftthreetimes}{symbols}{\mathbin}
233 \fdsy@DeclareSymbol{\rightthreetimes}{symbols}{\mathbin}
234 \fdsy@DeclareSymbol{\dtimes}{symbols}{\mathbin}
     \fdsy@DeclareAlias{\btimes}{symbols}{\mathbin}
236 \fdsy@DeclareSymbol{\rtimes}{symbols}{\mathbin}
     \fdsy@DeclareAlias{\rJoin}{symbols}{\mathrel}
238 \fdsy@DeclareSymbol{\utimes}{symbols}{\mathbin}
     \fdsy@DeclareAlias{\ttimes}{symbols}{\mathbin}
239
240 \fdsy@DeclareSymbol{\ltimes}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\lJoin}{symbols}{\mathrel}
241
242 \fdsy@DeclareSymbol{\bowtie}{symbols}{\mathrel}
243
    \fdsy@DeclareAlias{\Join}{symbols}{\mathrel}
    \fdsy@DeclareAlias{\lrtimes}{symbols}{\mathbin}
244
   fdsy@DeclareSymbol{\upbowtie}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\hourglass}{symbols}{\mathbin}
247 \fdsy@DeclareSymbol{\rightY}{symbols}{\mathbin}
```

```
248 \fdsy@DeclareSymbol{\upY}{symbols}{\mathbin}
{\tt 249 \fdsy@DeclareSymbol{\leftY}\{symbols\}\{\mathbin\}}
250 \fdsy@DeclareSymbol{\downY}{symbols}{\mathbin}
251 \fdsy@DeclareSymbol{\wedge}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\land}{symbols}{\mathbin}
253 \fdsy@DeclareSymbol{\vee}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\lor}{symbols}{\mathbin}
255 \fdsy@DeclareSymbol{\wedgedot}{symbols}{\mathbin}
256 \fdsy@DeclareSymbol{\veedot}{symbols}{\mathbin}
257 \fdsy@DeclareSymbol{\doublewedge}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\wedgeonwedge}{symbols}{\mathbin}
259 \fdsy@DeclareSymbol{\doublevee}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\veeonvee}{symbols}{\mathbin}
261 \fdsy@DeclareSymbol{\curlywedge}{symbols}{\mathbin}
262 \fdsy@DeclareSymbol{\curlyvee}{symbols}{\mathbin}
263 \fdsy@DeclareSymbol{\barwedge}{symbols}{\mathbin}
264 \fdsy@DeclareSymbol{\veebar}{symbols}{\mathbin}
265 \fdsy@DeclareSymbol{\doublebarwedge}{symbols}{\mathbin}
266 \fdsy@DeclareSymbol{\veedoublebar}{symbols}{\mathbin}
267 \fdsy@DeclareSymbol{\cup}{symbols}{\mathbin}
{\tt 268 \fdsy@DeclareSymbol{\cap}{symbols}{\mathbin}}
269 \fdsy@DeclareSymbol{\doublecup}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\Cup}{symbols}{\mathbin}
271 \fdsy@DeclareSymbol{\doublecap}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\Cap}{symbols}{\mathbin}
273 \fdsy@DeclareSymbol{\cupdot}{symbols}{\mathbin}
274 \fdsy@DeclareSymbol{\capdot}{symbols}{\mathbin}
275 \fdsy@DeclareSymbol{\cupplus}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\uplus}{symbols}{\mathbin}
277 \fdsy@DeclareSymbol{\capplus}{symbols}{\mathbin}
278 \fdsy@DeclareSymbol{\sqcup}{symbols}{\mathbin}
279 \fdsy@DeclareSymbol{\sqcap}{symbols}{\mathbin}
280 \fdsy@DeclareSymbol{\doublesqcup}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\Sqcup}{symbols}{\mathbin}
282 \fdsy@DeclareSymbol{\doublesqcap}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\Sqcap}{symbols}{\mathbin}
284 \fdsy@DeclareSymbol{\sqcupdot}{symbols}{\mathbin}
285 \fdsy@DeclareSymbol{\sqcapdot}{symbols}{\mathbin}
286 \fdsy@DeclareSymbol{\sqcupplus}{symbols}{\mathbin}
287 \fdsy@DeclareSymbol{\sqcapplus}{symbols}{\mathbin}
288 \fdsy@DeclareSymbol{\pullback}{symbols}{\mathbin}
289 \fdsy@DeclareSymbol{\pushout}{symbols}{\mathbin}
290 \fdsy@DeclareSymbol{\smalltriangleright}{symbols}{\mathbin}
291 \fdsy@DeclareSymbol{\smalltriangleup}{symbols}{\mathbin}
292 \fdsy@DeclareSymbol{\smalltriangleleft}{symbols}{\mathbin}
```

```
293 \fdsy@DeclareSymbol{\smalltriangledown}{symbols}{\mathbin}
294 \fdsy@DeclareSymbol{\smallblacktriangleright}{symbols}{\mathbin}
295 \fdsy@DeclareSymbol{\smallblacktriangleup}{symbols}{\mathbin}
296 \fdsy@DeclareSymbol{\smallblacktriangleleft}{symbols}{\mathbin}
297 \fdsy@DeclareSymbol{\smallblacktriangledown}{symbols}{\mathbin}
298 \fdsy@DeclareSymbol{\medtriangleright}{symbols}{\mathbin}
     \fdsy@DeclareAlias{\triangleright}{symbols}{\mathbin}
300 \fdsy@DeclareSymbol{\medtriangleup}{symbols}{\mathbin}
301
    \fdsy@DeclareAlias{\triangle}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\vartriangle}{symbols}{\mathbin}
302
303
    fdsy@DeclareSymbol{\medtriangleleft}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\triangleleft}{symbols}{\mathbin}
304
305 \fdsy@DeclareSymbol{\medtriangledown}{symbols}{\mathbin}
     \fdsy@DeclareAlias{\triangledown}{symbols}{\mathbin}
306
307 \fdsy@DeclareSymbol{\medblacktriangleright}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\blacktriangleright}{symbols}{\mathbin}
309
   .fdsy@DeclareSymbol{\medblacktriangleup}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\blacktriangle}{symbols}{\mathbin}
   fdsy@DeclareSymbol{\medblacktriangleleft}{symbols}{\mathbin}
311 \
     \fdsy@DeclareAlias{\blacktriangleleft}{symbols}{\mathbin}
   fdsy@DeclareSymbol{\medblacktriangledown}{symbols}{\mathbin}
     \fdsy@DeclareAlias{\blacktriangledown}{symbols}{\mathbin}
   fdsy@DeclareSymbol{\largetriangleup}{symbols}{\mathord}
315
     \fdsy@DeclareAlias{\bigtriangleup}{symbols}{\mathbin}
316
    fdsy@DeclareSymbol{\largetriangledown}{symbols}{\mathord}
    \fdsy@DeclareAlias{\bigtriangledown}{symbols}{\mathbin}
318
319 \fdsy@DeclareSymbol{\smallcircle}{symbols}{\mathbin}
     \fdsy@DeclareAlias{\circ}{symbols}{\mathbin}
320
     \fdsy@DeclareAlias{\smwhtcircle}{symbols}{\mathbin}
321
   fdsy@DeclareSymbol{\smallblackcircle}{symbols}{\mathbin}
322 \
    \fdsy@DeclareAlias{\bullet}{symbols}{\mathbin}
323
    \fdsy@DeclareAlias{\smblkcircle}{symbols}{\mathbin}
324
   fdsy@DeclareSymbol{\medcircle}{symbols}{\mathbin}
325 \
    \fdsy@DeclareAlias{\mdlgwhtcircle}{symbols}{\mathbin}
327 \fdsy@DeclareSymbol{\medblackcircle}{symbols}{\mathbin}
     \fdsy@DeclareAlias{\mdlgblkcircle}{symbols}{\mathbin}
329 \fdsy@DeclareSymbol{\ominus}{symbols}{\mathbin}
330 \fdsy@DeclareSymbol{\overt}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\circledvert}{symbols}{\mathbin}
332 \fdsy@DeclareSymbol{\oslash}{symbols}{\mathbin}
333 \fdsy@DeclareSymbol{\obackslash}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\obslash}{symbols}{\mathbin}
335 \fdsy@DeclareSymbol{\oplus}{symbols}{\mathbin}
336 \fdsy@DeclareSymbol{\otimes}{symbols}{\mathbin}
337 \fdsy@DeclareSymbol{\odot}{symbols}{\mathbin}
```

```
338 \fdsy@DeclareSymbol{\ocirc}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\circledcirc}{symbols}{\mathbin}
340 \fdsy@DeclareSymbol{\oast}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\circledast}{symbols}{\mathbin}
{\tt 342 \fdsy@DeclareSymbol{\odash}{symbols}{\omathbin}}
     \fdsy@DeclareAlias{\circleddash}{symbols}{\mathbin}
344 \fdsy@DeclareSymbol{\oequal}{symbols}{\mathbin}
     \fdsy@DeclareAlias{\circledequal}{symbols}{\mathbin}
346 \fdsy@DeclareSymbol{\emptyset}{symbols}{\mathord}
     \fdsy@DeclareAlias{\diameter}{symbols}{\mathord}
347
    \fdsy@DeclareAlias{\varnothing}{symbols}{\mathord}
349 \fdsy@DeclareSymbol{\revemptyset}{symbols}{\mathord}
350 \fdsy@DeclareSymbol{\largecircle}{symbols}{\mathord}
     \fdsy@DeclareAlias{\bigcirc}{symbols}{\mathord}
351
352
     \fdsy@DeclareAlias{\lgwhtcircle}{symbols}{\mathord}
   fdsy@DeclareSymbol{\largeblackcircle}{symbols}{\mathord}
353 \
354
    \fdsy@DeclareAlias{\lgblkcircle}{symbols}{\mathord}
    fdsy@DeclareSymbol{\smallsquare}{symbols}{\mathbin}
355
    \fdsy@DeclareAlias{\smwhtsquare}{symbols}{\mathbin}
356
   .fdsy@DeclareSymbol{\smallblacksquare}{symbols}{\mathbin}
     \fdsy@DeclareAlias{\smblksquare}{symbols}{\mathbin}
358
    fdsy@DeclareSymbol{\medsquare}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\square}{symbols}{\mathbin}
360
    \fdsy@DeclareAlias{\Box}{symbols}{\mathbin}
361
    \fdsy@DeclareAlias{\mdlgwhtsquare}{symbols}{\mathbin}
362
    \fdsy@DeclareAlias{\mdwhtsquare}{symbols}{\mathbin}
363
   fdsy@DeclareSymbol{\medblacksquare}{symbols}{\mathbin}
     \fdsy@DeclareAlias{\mdlgblksquare}{symbols}{\mathbin}
365
    \fdsy@DeclareAlias{\mdblksquare}{symbols}{\mathbin}
366
367 \fdsy@DeclareSymbol{\boxminus}{symbols}{\mathbin}
  \fdsy@DeclareSymbol{\boxvert}{symbols}{\mathbin}
     \fdsy@DeclareAlias{\boxbar}{symbols}{\mathbin}
   fdsy@DeclareSymbol{\boxslash}{symbols}{\mathbin}
370 \
     \fdsy@DeclareAlias{\boxdiag}{symbols}{\mathbin}
372 \fdsy@DeclareSymbol{\boxbackslash}{symbols}{\mathbin}
     \fdsy@DeclareAlias{\boxbslash}{symbols}{\mathbin}
374 \fdsy@DeclareSymbol{\boxplus}{symbols}{\mathbin}
375 \fdsy@DeclareSymbol{\boxtimes}{symbols}{\mathbin}
376 \fdsy@DeclareSymbol{\boxdot}{symbols}{\mathbin}
377 \fdsy@DeclareSymbol{\boxbox}{symbols}{\mathbin}
378 \fdsy@DeclareSymbol{\largesquare}{symbols}{\mathord}
     \fdsy@DeclareAlias{\lgwhtsquare}{symbols}{\mathord}
380 \fdsy@DeclareSymbol{\largeblacksquare}{symbols}{\mathord}
    \fdsy@DeclareAlias{\lgblksquare}{symbols}{\mathord}
382 \fdsy@DeclareSymbol{\smalldiamond}{symbols}{\mathbin}
```

```
\fdsy@DeclareAlias{\diamond}{symbols}{\mathbin}
383
    \fdsy@DeclareAlias{\smwhtdiamond}{symbols}{\mathbin}
384
   fdsy@DeclareSymbol{\smallblackdiamond}{symbols}{\mathbin}
385
386
    \fdsy@DeclareAlias{\blackdiamond}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\smblkdiamond}{symbols}{\mathbin}
387
    fdsy@DeclareSymbol{\meddiamond}{symbols}{\mathbin}
388
     \fdsy@DeclareAlias{\Diamond}{symbols}{\mathbin}
389
390
     \fdsy@DeclareAlias{\mdlgwhtdiamond}{symbols}{\mathbin}
391
    \fdsy@DeclareAlias{\mdwhtdiamond}{symbols}{\mathbin}
   fdsy@DeclareSymbol{\medblackdiamond}{symbols}{\mathbin}
392
393
    \fdsy@DeclareAlias{\mdlgblkdiamond}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\mdblkdiamond}{symbols}{\mathbin}
394
395 \fdsy@DeclareSymbol{\diamondminus}{symbols}{\mathbin}
396 \fdsy@DeclareSymbol{\diamondvert}{symbols}{\mathbin}
397 \fdsy@DeclareSymbol{\diamondslash}{symbols}{\mathbin}
398 \fdsy@DeclareSymbol{\diamondbackslash}{symbols}{\mathbin}
     \fdsy@DeclareAlias{\diamondbslash}{symbols}{\mathbin}
400 \fdsy@DeclareSymbol{\diamondplus}{symbols}{\mboin}
401 \fdsy@DeclareSymbol{\diamondtimes}{symbols}{\mathbin}
402 \fdsy@DeclareSymbol{\diamonddot}{symbols}{\mathbin}
     \fdsy@DeclareAlias{\diamondcdot}{symbols}{\mathbin}
404 \fdsy@DeclareSymbol{\diamonddiamond}{symbols}{\mathbin}
   .fdsy@DeclareSymbol{\smalllozenge}{symbols}{\mathord}
     \fdsy@DeclareAlias{\smwhtlozenge}{symbols}{\mathord}
406
    fdsy@DeclareSymbol{\smallblacklozenge}{symbols}{\mathord}
407
    \fdsy@DeclareAlias{\smblklozenge}{symbols}{\mathord}
408
409 \fdsy@DeclareSymbol{\medlozenge}{symbols}{\mathord}
     \fdsy@DeclareAlias{\lozenge}{symbols}{\mathord}
410
    \fdsy@DeclareAlias{\mdlgwhtlozenge}{symbols}{\mathord}
    \fdsy@DeclareAlias{\mdwhtlozenge}{symbols}{\mathord}
412
413
   fdsy@DeclareSymbol{\medblacklozenge}{symbols}{\mathord}
    \fdsy@DeclareAlias{\blacklozenge}{symbols}{\mathord}
414
     \fdsy@DeclareAlias{\mdlgblklozenge}{symbols}{\mathord}
415
    \fdsy@DeclareAlias{\mdblklozenge}{symbols}{\mathord}
416
417 \fdsy@DeclareSymbol{\lozengeminus}{symbols}{\mathord}
    fdsy@DeclareSymbol{\smallwhitestar}{symbols}{\mathbin}
     \fdsy@DeclareAlias{\smwhitestar}{symbols}{\mathbin}
420 \fdsy@DeclareSymbol{\smallblackstar}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\star}{symbols}{\mathbin}
422 \fdsy@DeclareSymbol{\medwhitestar}{symbols}{\mathbin}
423 \fdsy@DeclareSymbol{\medblackstar}{symbols}{\mathbin}
     \fdsy@DeclareAlias{\medstar}{symbols}{\mathbin}
425 \fdsy@DeclareSymbol{\largewhitestar}{symbols}{\mathord}
426 \fdsy@DeclareSymbol{\largeblackstar}{symbols}{\mathord}
    \fdsy@DeclareAlias{\bigstar}{symbols}{\mathord}
```

```
428 \fdsy@DeclareSymbol{\ast}{symbols}{\mathbin}
429 \fdsy@DeclareSymbol{\infty}{symbols}{\mathord}
430 \fdsy@DeclareSymbol{\propto}{symbols}{\mathrel}
    \fdsy@DeclareAlias{\varpropto}{symbols}{\mathrel}
432 \fdsy@DeclareSymbol{\backpropto}{symbols}{\mathrel}
    \fdsy@DeclareAlias{\propfrom}{symbols}{\mathrel}
434 \fdsy@DeclareSymbol{\crossing}{symbols}{\mathrel}
435 \fdsy@DeclareSymbol{\between}{symbols}{\mathrel}
436 \fdsy@DeclareSymbol{\intercal}{symbols}{\mathbin}
437 \fdsy@DeclareSymbol{\wreath}{symbols}{\mathbin}
    \fdsy@DeclareAlias{\wr}{symbols}{\mathbin}
439 \fdsy@DeclareSymbol{\angle}{symbols}{\mathord}
440 \fdsy@DeclareSymbol{\revangle}{symbols}{\mathord}
441 \fdsy@DeclareSymbol{\measuredangle}{symbols}{\mathord}
442 \fdsy@DeclareSymbol{\revmeasuredangle}{symbols}{\mathord}
    \fdsy@DeclareAlias{\measuredangleleft}{symbols}{\mathord}
444 \fdsy@DeclareSymbol{\sphericalangle}{symbols}{\mathord}
445 \fdsy@DeclareSymbol{\sphericalangleup}{symbols}{\mathord}
446 \fdsy@DeclareSymbol{\sphericalangleleft}{symbols}{\mathord}
    \fdsy@DeclareAlias{\revsphericalangle}{symbols}{\mathord}
    \fdsy@DeclareAlias{\gtlpar}{symbols}{\mathord}
449 \fdsy@DeclareSymbol{\sphericalangledown}{symbols}{\mathord}
450 \fdsy@DeclareSymbol{\rightangle}{symbols}{\mathord}
451 \fdsy@DeclareSymbol{\measuredrightangle}{symbols}{\mathord}
452 \fdsy@DeclareSymbol{\rightanglesquare}{symbols}{\mathord}
    \fdsy@DeclareAlias{\rightanglesqr}{symbols}{\mathord}
454 \fdsy@DeclareSymbol{\measuredrightangledot}{symbols}{\mathord}
    \fdsy@DeclareAlias{\rightanglemdot}{symbols}{\mathord}
456 \fdsy@DeclareSymbol{\prime}{symbols}{\mathord}
457 \fdsy@DeclareSymbol{\backprime}{symbols}{\mathord}
458 \fdsy@DeclareSymbol{\smallprod}{symbols}{\mathop}
459 \fdsy@DeclareSymbol{\smallcoprod}{symbols}{\mathop}
    \fdsy@DeclareAlias{\amalg}{symbols}{\mathbin}
461 \fdsy@DeclareSymbol{\smallint}{symbols}{\mathop}
462 \fdsy@DeclareSymbol{\checkmark}{symbols}{\mathord}
463 \fdsy@DeclareSymbol{\lightning}{symbols}{\mathord}
    \fdsy@DeclareAlias{\downzigzagarrow}{symbols}{\mathord}
465 \fdsy@DeclareSymbol{\diamondsuit}{symbols}{\mathord}
466 \fdsy@DeclareSymbol{\vardiamondsuit}{symbols}{\mathord}
467 \fdsy@DeclareSymbol{\heartsuit}{symbols}{\mathord}
468 \fdsy@DeclareSymbol{\varheartsuit}{symbols}{\mathord}
469 \fdsy@DeclareSymbol{\spadesuit}{symbols}{\mathord}
470 \fdsy@DeclareSymbol{\clubsuit}{symbols}{\mathord}
471 \fdsy@DeclareSymbol{\maltese}{symbols}{\mathord}
472 \fdsy@DeclareSymbol{\starofdavid}{symbols}{\mathord}
```

```
473 \fdsy@DeclareSymbol{\sector}{symbols}{\mathord}
474 \fdsy@DeclareSymbol{\forall}{symbols}{\mathord}
475 \fdsy@DeclareSymbol{\exists}{symbols}{\mathord}
476 \fdsy@DeclareSymbol{\nexists}{symbols}{\mathord}
477 \fdsy@DeclareSymbol{\Finv}{symbols}{\mathord}
478 \fdsy@DeclareSymbol{\Game}{symbols}{\mathord}
479 \fdsy@DeclareSymbol{\complement}{symbols}{\mathord}
480 \fdsy@DeclareSymbol{\flat}{symbols}{\mathord}
481 \fdsy@DeclareSymbol{\natural}{symbols}{\mathord}
482 \fdsy@DeclareSymbol{\sharp}{symbols}{\mathord}
483 \fdsy@DeclareSymbol{\aleph}{symbols}{\mathord}
484 \fdsy@DeclareSymbol{\beth}{symbols}{\mathord}
485 \fdsy@DeclareSymbol{\gimel}{symbols}{\mathord}
486 \fdsy@DeclareSymbol{\daleth}{symbols}{\mathord}
487 \fdsy@DeclareSymbol{\wp}{symbols}{\mathord}
FdSymbolB: relations
488 \fdsy@setslot{0}
489 \fdsy@DeclareSymbol{\equal}{relations}{\mathrel}
490 \fdsy@DeclareSymbol{\equiv}{relations}{\mathrel}
491 \fdsy@DeclareSymbol{\sim}{relations}{\mathrel}
492 \fdsy@DeclareSymbol{\backsim}{relations}{\mathrel}
493 \fdsy@DeclareSymbol{\approx}{relations}{\mathrel}
494 \fdsy@DeclareSymbol{\triplesim}{relations}{\mathrel}
   \fdsy@DeclareAlias{\approxident}{relations}{\mathrel}
496 \fdsy@DeclareSymbol{\simeq}{relations}{\mathrel}
497 \fdsy@DeclareSymbol{\backsimeq}{relations}{\mathrel}
498 \fdsy@DeclareSymbol{\eqsim}{relations}{\mathrel}
499 \fdsy@DeclareSymbol{\cong}{relations}{\mathrel}
500 \fdsy@DeclareSymbol{\backcong}{relations}{\mathrel}
501 \fdsy@DeclareSymbol{\approxeq}{relations}{\mathrel}
502 \fdsy@DeclareSymbol{\bumpeq}{relations}{\mathrel}
503 \fdsy@DeclareSymbol{\bumpeqq}{relations}{\mathrel}
504 \fdsy@DeclareSymbol{\Bumpeq}{relations}{\mathrel}
505 \fdsy@DeclareSymbol{\doteq}{relations}{\mathrel}
506 \fdsy@DeclareSymbol{\eqdot}{relations}{\mathrel}
507 \fdsy@DeclareSymbol{\Doteq}{relations}{\mathrel}
    \fdsy@DeclareAlias{\doteqdot}{relations}{\mathrel}
509 \fdsy@DeclareSymbol{\fallingdotseq}{relations}{\mathrel}
510 \fdsy@DeclareSymbol{\risingdotseq}{relations}{\mathrel}
511 \fdsy@DeclareSymbol{\coloneq}{relations}{\mathrel}
    \fdsy@DeclareAlias{\coloneqq}{relations}{\mathrel}
513 \fdsy@DeclareSymbol{\eqcolon}{relations}{\mathrel}
    \fdsy@DeclareAlias{\eqqcolon}{relations}{\mathrel}
515 \fdsy@DeclareSymbol{\smile}{relations}{\mathrel}
    \fdsy@DeclareAlias{\smallsmile}{relations}{\mathrel}
```

```
517 \fdsy@DeclareSymbol{\frown}{relations}{\mathrel}
        \fdsy@DeclareAlias{\smallfrown}{relations}{\mathrel}
519 \fdsy@DeclareSymbol{\smilefrown}{relations}{\mathrel}
         \fdsy@DeclareAlias{\asymp}{relations}{\mathrel}
521 \fdsy@DeclareSymbol{\frownsmile}{relations}{\mathrel}
         \fdsy@DeclareAlias{\closure}{relations}{\mathrel}
523 \fdsy@DeclareSymbol{\smileeq}{relations}{\mathrel}
524 \fdsy@DeclareSymbol{\frowneq}{relations}{\mathrel}
         \fdsy@DeclareAlias{\arceq}{relations}{\mathrel}
526\fdsy@DeclareSymbol{\eqcirc}{relations}{\mathrel}
527 \fdsy@DeclareSymbol{\circeq}{relations}{\mathrel}
528\fdsy@DeclareSymbol{\wedgeq}{relations}{\mathrel}
         \fdsy@DeclareAlias{\hateq}{relations}{\mathrel}
530 \fdsy@DeclareSymbol{\veeeq}{relations}{\mathrel}
531 \fdsy@DeclareSymbol{\stareq}{relations}{\mathrel}
532 \fdsy@DeclareSymbol{\triangleeq}{relations}{\mathrel}
         \fdsy@DeclareAlias{\triangleq}{relations}{\mathrel}
534 \fdsy@DeclareSymbol{\in}{relations}{\mathrel}
535 \fdsy@DeclareSymbol{\owns}{relations}{\mathrel}
         \fdsy@DeclareAlias{\ni}{relations}{\mathrel}
\label{less} $$ \space{1.25} \end{1.25} $$ \space{1.25} \space{1.25}
538 \fdsy@DeclareSymbol{\gtr}{relations}{\mathrel}
539 \fdsy@DeclareSymbol{\leq}{relations}{\mathrel}
         \fdsy@DeclareAlias{\le}{relations}{\mathrel}
541 \fdsy@DeclareSymbol{\geq}{relations}{\mathrel}
        \fdsy@DeclareAlias{\ge}{relations}{\mathrel}
543 \fdsy@DeclareSymbol{\leqslant}{relations}{\mathrel}
544 \fdsy@DeclareSymbol{\geqslant}{relations}{\mathrel}
545 \fdsy@DeclareSymbol{\leqq}{relations}{\mathrel}
546 \fdsy@DeclareSymbol{\geqq}{relations}{\mathrel}
547 \fdsy@DeclareSymbol{\lesssim}{relations}{\mathrel}
548 \fdsy@DeclareSymbol{\gtrsim}{relations}{\mathrel}
549 \fdsy@DeclareSymbol{\lessapprox}{relations}{\mathrel}
550 \fdsy@DeclareSymbol{\gtrapprox}{relations}{\mathrel}
551 \fdsy@DeclareSymbol{\lessgtr}{relations}{\mathrel}
552 \fdsy@DeclareSymbol{\gtrless}{relations}{\mathrel}
553 \fdsy@DeclareSymbol{\lesseqgtr}{relations}{\mathrel}
554\fdsy@DeclareSymbol{\gtreqless}{relations}{\mathrel}
555 \fdsy@DeclareSymbol{\lesseqqgtr}{relations}{\mathrel}
556 \fdsy@DeclareSymbol{\gtreqqless}{relations}{\mathrel}
557 \fdsy@DeclareSymbol{\lesseqslantgtr}{relations}{\mathrel}
         \fdsy@DeclareAlias{\lesg}{relations}{\mathrel}
558
         \fdsy@DeclareAlias{\lesseqgtrslant}{relations}{\mathrel}
560 \fdsy@DeclareSymbol{\gtreqslantless}{relations}{\mathrel}
         \fdsy@DeclareAlias{\gesl}{relations}{\mathrel}
```

```
\fdsy@DeclareAlias{\gtreqlessslant}{relations}{\mathrel}
563 \fdsy@DeclareSymbol{\ll}{relations}{\mathrel}
564 \fdsy@DeclareSymbol{\gg}{relations}{\mathrel}
\fdsy@DeclareAlias{\llless}{relations}{\mathrel}
567 \fdsy@DeclareSymbol{\ggg}{relations}{\mathrel}
    \fdsy@DeclareAlias{\gggtr}{relations}{\mathrel}
568
569 \fdsy@DeclareSymbol{\lessclosed}{relations}{\mathrel}
570
    \fdsy@DeclareAlias{\lhd}{relations}{\mathbin}
    \fdsy@DeclareAlias{\vartriangleleft}{relations}{\mathrel}
571
572
    fdsy@DeclareSymbol{\gtrclosed}{relations}{\mathrel}
    \fdsy@DeclareAlias{\rhd}{relations}{\mathbin}
573
    \fdsy@DeclareAlias{\vartriangleright}{relations}{\mathrel}
575 \fdsy@DeclareSymbol{\leqclosed}{relations}{\mathrel}
576
    \fdsy@DeclareAlias{\unlhd}{relations}{\mathbin}
    \fdsy@DeclareAlias{\trianglelefteq}{relations}{\mathrel}
577
578 \fdsy@DeclareSymbol{\geqclosed}{relations}{\mathrel}
    \fdsy@DeclareAlias{\unrhd}{relations}{\mathbin}
579
    \fdsy@DeclareAlias{\trianglerighteq}{relations}{\mathrel}
580
581 \fdsy@DeclareSymbol{\lesscc}{relations}{\mathrel}
    \fdsy@DeclareAlias{\ltcc}{relations}{\mathrel}
582
583 \fdsy@DeclareSymbol{\gtrcc}{relations}{\mathrel}
    \fdsy@DeclareAlias{\gtcc}{relations}{\mathrel}
584
  \fdsy@DeclareSymbol{\leqslcc}{relations}{\mathrel}
585
    \fdsy@DeclareAlias{\lescc}{relations}{\mathrel}
587 \fdsy@DeclareSymbol{\geqslcc}{relations}{\mathrel}
    \fdsy@DeclareAlias{\gescc}{relations}{\mathrel}
589 \fdsy@DeclareSymbol{\sqsubset}{relations}{\mathrel}
590 \fdsy@DeclareSymbol{\sqsupset}{relations}{\mathrel}
591 \fdsy@DeclareSymbol{\sqsubseteq}{relations}{\mathrel}
592 \fdsy@DeclareSymbol{\sqsupseteq}{relations}{\mathrel}
593 \fdsy@DeclareSymbol{\sqsubseteqq}{relations}{\mathrel}
594 \fdsy@DeclareSymbol{\sqsupseteqq}{relations}{\mathrel}
595 \fdsy@DeclareSymbol{\Sqsubset}{relations}{\mathrel}
596 \fdsy@DeclareSymbol{\Sqsupset}{relations}{\mathrel}
597 \fdsy@DeclareSymbol{\subset}{relations}{\mathrel}
598 \fdsy@DeclareSymbol{\supset}{relations}{\mathrel}
599 \fdsy@DeclareSymbol{\subseteq}{relations}{\mathrel}
600 \fdsy@DeclareSymbol{\supseteq}{relations}{\mathrel}
601 \fdsy@DeclareSymbol{\subseteqq}{relations}{\mathrel}
602 \fdsy@DeclareSymbol{\supseteqq}{relations}{\mathrel}
603 \fdsy@DeclareSymbol{\Subset}{relations}{\mathrel}
604 \fdsy@DeclareSymbol{\Supset}{relations}{\mathrel}
605 \fdsy@DeclareSymbol{\prec}{relations}{\mathrel}
606 \fdsy@DeclareSymbol{\succ}{relations}{\mathrel}
```

```
607 \fdsy@DeclareSymbol{\preceq}{relations}{\mathrel}
608 \fdsy@DeclareSymbol{\succeq}{relations}{\mathrel}
609 \fdsy@DeclareSymbol{\preccurlyeq}{relations}{\mathrel}
610 \fdsy@DeclareSymbol{\succcurlyeq}{relations}{\mathrel}
611 \fdsy@DeclareSymbol{\preceqq}{relations}{\mathrel}
612 \fdsy@DeclareSymbol{\succeqq}{relations}{\mathrel}
613 \fdsy@DeclareSymbol{\precsim}{relations}{\mathrel}
614 \fdsy@DeclareSymbol{\succsim}{relations}{\mathrel}
615 \fdsy@DeclareSymbol{\precapprox}{relations}{\mathrel}
616 \fdsy@DeclareSymbol{\succapprox}{relations}{\mathrel}
617 \fdsy@DeclareSymbol{\lessdot}{relations}{\mathrel}
618 \fdsy@DeclareSymbol{\gtrdot}{relations}{\mathrel}
619 \fdsy@DeclareSymbol{\leqdot}{relations}{\mathrel}
620 \fdsy@DeclareSymbol{\geqdot}{relations}{\mathrel}
621 \fdsy@DeclareSymbol{\leqslantdot}{relations}{\mathrel}
    \fdsy@DeclareAlias{\lesdot}{relations}{\mathrel}
623 \fdsy@DeclareSymbol{\geqslantdot}{relations}{\mathrel}
    \fdsy@DeclareAlias{\gesdot}{relations}{\mathrel}
625 \fdsy@DeclareSymbol{\eqslantless}{relations}{\mathrel}
626 \fdsy@DeclareSymbol{\eqslantgtr}{relations}{\mathrel}
627 \fdsy@DeclareSymbol{\curlyeqprec}{relations}{\mathrel}
628 \fdsy@DeclareSymbol{\curlyeqsucc}{relations}{\mathrel}
629 \fdsy@DeclareSymbol{\nequal}{relations}{\mathrel}
    \fdsy@DeclareAlias{\neq}{relations}{\mathrel}
    \fdsy@DeclareAlias{\ne}{relations}{\mathrel}
632 \fdsy@DeclareSymbol{\nequiv}{relations}{\mathrel}
633 \fdsy@DeclareSymbol{\nsim}{relations}{\mathrel}
\label{lem:continuous} $$634 \footnote{\mbacksim}{relations}{\mathbb{Z}} $$
635 \fdsy@DeclareSymbol{\napprox}{relations}{\mathrel}
636 \fdsy@DeclareSymbol{\ntriplesim}{relations}{\mathrel}
    \fdsy@DeclareAlias{\napproxident}{relations}{\mathrel}
638 \fdsy@DeclareSymbol{\nsimeq}{relations}{\mathrel}
    \fdsy@DeclareAlias{\nsime}{relations}{\mathrel}
640 \fdsy@DeclareSymbol{\nbacksimeq}{relations}{\mathrel}
641 \fdsy@DeclareSymbol{\neqsim}{relations}{\mathrel}
642 \fdsy@DeclareSymbol{\ncong}{relations}{\mathrel}
643 \fdsy@DeclareSymbol{\nbackcong}{relations}{\mathrel}
644 \fdsy@DeclareSymbol{\napproxeq}{relations}{\mathrel}
645 \fdsy@DeclareSymbol{\nbumpeq}{relations}{\mathrel}
646 \fdsy@DeclareSymbol{\nbumpeqq}{relations}{\mathrel}
647 \fdsy@DeclareSymbol{\nBumpeq}{relations}{\mathrel}
{\tt 648 \fdsy@DeclareSymbol{\ndoteq}{relations}{\tt \mathrel}}
649 \fdsy@DeclareSymbol{\neqdot}{relations}{\mathrel}
650 \fdsy@DeclareSymbol{\nDoteq}{relations}{\mathrel}
651 \fdsy@DeclareSymbol{\nfallingdotseq}{relations}{\mathrel}
```

```
652 \fdsy@DeclareSymbol{\nrisingdotseq}{relations}{\mathrel}
653 \fdsy@DeclareSymbol{\nsmile}{relations}{\mathrel}
654 \fdsy@DeclareSymbol{\nfrown}{relations}{\mathrel}
655 \fdsy@DeclareSymbol{\nsmilefrown}{relations}{\mathrel}
    \fdsy@DeclareAlias{\nasymp}{relations}{\mathrel}
657 \fdsy@DeclareSymbol{\nfrownsmile}{relations}{\mathrel}
    \fdsy@DeclareAlias{\nclosure}{relations}{\mathrel}
659 \fdsy@DeclareSymbol{\nsmileeq}{relations}{\mathrel}
660 \fdsy@DeclareSymbol{\nfrowneq}{relations}{\mathrel}
    \fdsy@DeclareAlias{\narceq}{relations}{\mathrel}
662 \fdsy@DeclareSymbol{\neqcirc}{relations}{\mathrel}
663 \fdsy@DeclareSymbol{\ncirceq}{relations}{\mathrel}
664 \fdsy@DeclareSymbol{\nwedgeq}{relations}{\mathrel}
    \fdsy@DeclareAlias{\nhateq}{relations}{\mathrel}
666 \fdsy@DeclareSymbol{\nveeeq}{relations}{\mathrel}
667 \fdsy@DeclareSymbol{\nstareq}{relations}{\mathrel}
668 \fdsy@DeclareSymbol{\ntriangleeq}{relations}{\mathrel}
669 \fdsy@DeclareSymbol{\nin}{relations}{\mathrel}
    \fdsy@DeclareAlias{\notin}{relations}{\mathrel}
671 \fdsy@DeclareSymbol{\nowns}{relations}{\mathrel}
    \fdsy@DeclareAlias{\nni}{relations}{\mathrel}
673 \fdsy@DeclareSymbol{\nless}{relations}{\mathrel}
674 \fdsy@DeclareSymbol{\ngtr}{relations}{\mathrel}
675 \fdsy@DeclareSymbol{\nleq}{relations}{\mathrel}
676 \fdsy@DeclareSymbol{\ngeq}{relations}{\mathrel}
677 \fdsy@DeclareSymbol{\nleqslant}{relations}{\mathrel}
678 \fdsy@DeclareSymbol{\ngeqslant}{relations}{\mathrel}
679 \fdsy@DeclareSymbol{\nleqq}{relations}{\mathrel}
680 \fdsy@DeclareSymbol{\ngeqq}{relations}{\mathrel}
681 \fdsy@DeclareSymbol{\nlesssim}{relations}{\mathrel}
682 \fdsy@DeclareSymbol{\ngtrsim}{relations}{\mathrel}
683 \fdsy@DeclareSymbol{\nlessapprox}{relations}{\mathrel}
684 \fdsy@DeclareSymbol{\ngtrapprox}{relations}{\mathrel}
685 \fdsy@DeclareSymbol{\nlessgtr}{relations}{\mathrel}
686 \fdsy@DeclareSymbol{\ngtrless}{relations}{\mathrel}
687 \fdsy@DeclareSymbol{\nlesseqgtr}{relations}{\mathrel}
688 \fdsy@DeclareSymbol{\ngtreqless}{relations}{\mathrel}
689 \fdsy@DeclareSymbol{\nlesseqqgtr}{relations}{\mathrel}
690 \fdsy@DeclareSymbol{\ngtreqqless}{relations}{\mathrel}
691 \fdsy@DeclareSymbol{\nlesseqslantgtr}{relations}{\mathrel}
692
    \fdsy@DeclareAlias{\nlesg}{relations}{\mathrel}
    \fdsy@DeclareAlias{\nlesseqgtrslant}{relations}{\mathrel}
693
694 \fdsy@DeclareSymbol{\ngtreqslantless}{relations}{\mathrel}
    \fdsy@DeclareAlias{\ngesl}{relations}{\mathrel}
695
696
    \fdsy@DeclareAlias{\ngtreqlessslant}{relations}{\mathrel}
```

```
697 \fdsy@DeclareSymbol{\nll}{relations}{\mathrel}
698 \fdsy@DeclareSymbol{\ngg}{relations}{\mathrel}
699 \fdsy@DeclareSymbol{\nlll}{relations}{\mathrel}
700 \fdsy@DeclareSymbol{\nggg}{relations}{\mathrel}
\label{lem:condition} $$701 \footnote{\colored}{relations}{\mathbb {L}} $$
    \fdsy@DeclareAlias{\ntriangleleft}{relations}{\mathrel}
703 \fdsy@DeclareSymbol{\ngtrclosed}{relations}{\mathrel}
    \fdsy@DeclareAlias{\ntriangleright}{relations}{\mathrel}
705 \fdsy@DeclareSymbol{\nleqclosed}{relations}{\mathrel}
    \fdsy@DeclareAlias{\ntrianglelefteq}{relations}{\mathrel}
706
707 \fdsy@DeclareSymbol{\ngeqclosed}{relations}{\mathrel}
    \fdsy@DeclareAlias{\ntrianglerighteq}{relations}{\mathrel}
708
709 \fdsy@DeclareSymbol{\nlesscc}{relations}{\mathrel}
    \fdsy@DeclareAlias{\nltcc}{relations}{\mathrel}
711 \fdsy@DeclareSymbol{\ngtrcc}{relations}{\mathrel}
    \fdsy@DeclareAlias{\ngtcc}{relations}{\mathrel}
713 \fdsy@DeclareSymbol{\nleqslcc}{relations}{\mathrel}
    \fdsy@DeclareAlias{\nlescc}{relations}{\mathrel}
715 \fdsy@DeclareSymbol{\ngeqslcc}{relations}{\mathrel}
    \fdsy@DeclareAlias{\ngescc}{relations}{\mathrel}
717 \fdsy@DeclareSymbol{\nsqsubset}{relations}{\mathrel}
718 \fdsy@DeclareSymbol{\nsqsupset}{relations}{\mathrel}
\label{lem:condition} $$ 19 \end{\nsqsubseteq}{relations}{\mathbb{Z}} $$
720 \fdsy@DeclareSymbol{\nsqsupseteq}{relations}{\mathrel}
721 \fdsy@DeclareSymbol{\nsqsubseteqq}{relations}{\mathrel}
722 \fdsy@DeclareSymbol{\nsqsupseteqq}{relations}{\mathrel}
723 \fdsy@DeclareSymbol{\nSqsubset}{relations}{\mathrel}
724 \fdsy@DeclareSymbol{\nSqsupset}{relations}{\mathrel}
725 \fdsy@DeclareSymbol{\nsubset}{relations}{\mathrel}
726 \fdsy@DeclareSymbol{\nsupset}{relations}{\mathrel}
727 \fdsy@DeclareSymbol{\nsubseteq}{relations}{\mathrel}
728 \fdsy@DeclareSymbol{\nsupseteq}{relations}{\mathrel}
729 \fdsy@DeclareSymbol{\nsubseteqq}{relations}{\mathrel}
730 \fdsy@DeclareSymbol{\nsupseteqq}{relations}{\mathrel}
731 \fdsy@DeclareSymbol{\nSubset}{relations}{\mathrel}
732 \fdsy@DeclareSymbol{\nSupset}{relations}{\mathrel}
733 \fdsy@DeclareSymbol{\nprec}{relations}{\mathrel}
734 \fdsy@DeclareSymbol{\nsucc}{relations}{\mathrel}
735 \fdsy@DeclareSymbol{\npreceq}{relations}{\mathrel}
736 \fdsy@DeclareSymbol{\nsucceq}{relations}{\mathrel}
737 \fdsy@DeclareSymbol{\npreccurlyeq}{relations}{\mathrel}
738 \fdsy@DeclareSymbol{\nsucccurlyeq}{relations}{\mathrel}
739 \fdsy@DeclareSymbol{\npreceqq}{relations}{\mathrel}
740 \fdsy@DeclareSymbol{\nsucceqq}{relations}{\mathrel}
741 \fdsy@DeclareSymbol{\nprecsim}{relations}{\mathrel}
```

```
742 \fdsy@DeclareSymbol{\nsuccsim}{relations}{\mathrel}
743 \fdsy@DeclareSymbol{\nprecapprox}{relations}{\mathrel}
744 \fdsy@DeclareSymbol{\nsuccapprox}{relations}{\mathrel}
745 \fdsy@DeclareSymbol{\nlessdot}{relations}{\mathrel}
746 \fdsy@DeclareSymbol{\ngtrdot}{relations}{\mathrel}
747 \fdsy@DeclareSymbol{\nleqdot}{relations}{\mathrel}
748 \fdsy@DeclareSymbol{\ngeqdot}{relations}{\mathrel}
749 \fdsy@DeclareSymbol{\nleqslantdot}{relations}{\mathrel}
    \fdsy@DeclareAlias{\nlesdot}{relations}{\mathrel}
751 \fdsy@DeclareSymbol{\ngeqslantdot}{relations}{\mathrel}
    \fdsy@DeclareAlias{\ngesdot}{relations}{\mathrel}
753 \fdsy@DeclareSymbol{\neqslantless}{relations}{\mathrel}
754 \fdsy@DeclareSymbol{\neqslantgtr}{relations}{\mathrel}
755 \fdsy@DeclareSymbol{\ncurlyeqprec}{relations}{\mathrel}
756 \fdsy@DeclareSymbol{\ncurlyeqsucc}{relations}{\mathrel}
757 \fdsy@DeclareSymbol{\simneqq}{relations}{\mathrel}
758 \fdsy@DeclareSymbol{\backsimneqq}{relations}{\mathrel}
759 \fdsy@DeclareSymbol{\lneq}{relations}{\mathrel}
760 \fdsy@DeclareSymbol{\gneq}{relations}{\mathrel}
761 \fdsy@DeclareSymbol{\lneqq}{relations}{\mathrel}
    \fdsy@DeclareAlias{\lvertneqq}{relations}{\mathrel}
763 \fdsy@DeclareSymbol{\gneqq}{relations}{\mathrel}
    \fdsy@DeclareAlias{\gvertneqq}{relations}{\mathrel}
765 \fdsy@DeclareSymbol{\lnsim}{relations}{\mathrel}
766 \fdsy@DeclareSymbol{\gnsim}{relations}{\mathrel}
767 \fdsy@DeclareSymbol{\lnapprox}{relations}{\mathrel}
768 \fdsy@DeclareSymbol{\gnapprox}{relations}{\mathrel}
769 \fdsy@DeclareSymbol{\sqsubsetneq}{relations}{\mathrel}
770 \fdsy@DeclareSymbol{\sqsupsetneq}{relations}{\mathrel}
771 \fdsy@DeclareSymbol{\sqsubsetneqq}{relations}{\mathrel}
772 \fdsy@DeclareSymbol{\sqsupsetneqq}{relations}{\mathrel}
773 \fdsy@DeclareSymbol{\subsetneq}{relations}{\mathrel}
    \fdsy@DeclareAlias{\varsubsetneq}{relations}{\mathrel}
775 \fdsy@DeclareSymbol{\supsetneq}{relations}{\mathrel}
    \fdsy@DeclareAlias{\varsupsetneq}{relations}{\mathrel}
777 \fdsy@DeclareSymbol{\subsetneqq}{relations}{\mathrel}
    \fdsy@DeclareAlias{\varsubsetneqq}{relations}{\mathrel}
778
779 \fdsy@DeclareSymbol{\supsetneqq}{relations}{\mathrel}
    \fdsy@DeclareAlias{\varsupsetneqq}{relations}{\mathrel}
781 \fdsy@DeclareSymbol{\precneq}{relations}{\mathrel}
782 \fdsy@DeclareSymbol{\succneq}{relations}{\mathrel}
783 \fdsy@DeclareSymbol{\precneqq}{relations}{\mbox{\mathrel}}
784 \fdsy@DeclareSymbol{\succneqq}{relations}{\mathrel}
785 \fdsy@DeclareSymbol{\precnsim}{relations}{\mathrel}
786 \fdsy@DeclareSymbol{\succnsim}{relations}{\mathrel}
```

```
787 \fdsy@DeclareSymbol{\precnapprox}{relations}{\mathrel}
788 \fdsy@DeclareSymbol{\succnapprox}{relations}{\mathrel}
FdSymbolC: arrows and turnstile symbols
789 \fdsy@setslot{0}
790 \fdsy@DeclareSymbol{\rightarrow}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\to}{arrows}{\mathrel}
792 \fdsy@DeclareSymbol{\uparrow}{arrows}{\mathrel}
793 \fdsy@DeclareSymbol{\leftarrow}{arrows}{\mathrel}
794 \fdsy@DeclareAlias{\gets}{arrows}{\mathrel}
795 \fdsy@DeclareSymbol{\downarrow}{arrows}{\mathrel}
796 \fdsy@DeclareSymbol{\nearrow}{arrows}{\mathrel}
797 \fdsy@DeclareSymbol{\nwarrow}{arrows}{\mathrel}
798 \fdsy@DeclareSymbol{\swarrow}{arrows}{\mathrel}
799 \fdsy@DeclareSymbol{\searrow}{arrows}{\mathrel}
800 \fdsy@DeclareSymbol{\Rightarrow}{arrows}{\mathrel}
801 \fdsy@DeclareSymbol{\Uparrow}{arrows}{\mathrel}
802 \fdsy@DeclareSymbol{\Leftarrow}{arrows}{\mathrel}
{\tt 803 \fdsy@DeclareSymbol{\Downarrow}{arrows}{\mbox{\mathrel}}}
804 \fdsy@DeclareSymbol{\Nearrow}{arrows}{\mathrel}
805 \fdsy@DeclareSymbol{\Nwarrow}{arrows}{\mathrel}
806 \fdsy@DeclareSymbol{\Swarrow}{arrows}{\mathrel}
807 \fdsy@DeclareSymbol{\Searrow}{arrows}{\mathrel}
808 \fdsy@DeclareSymbol{\leftrightarrow}{arrows}{\mathrel}
809 \fdsy@DeclareSymbol{\updownarrow}{arrows}{\mathrel}
810 \fdsy@DeclareSymbol{\neswarrow}{arrows}{\mathrel}
811 \fdsy@DeclareSymbol{\nwsearrow}{arrows}{\mathrel}
{\tt 812 \fdsy@DeclareSymbol{\Leftrightarrow}\{arrows\}\{\mbox{\tt mathrel}\}} \\
813 \fdsy@DeclareSymbol{\Updownarrow}{arrows}{\mathrel}
814 \fdsy@DeclareSymbol{\Neswarrow}{arrows}{\mathrel}
815 \fdsy@DeclareSymbol{\Nwsearrow}{arrows}{\mathrel}
816 \fdsy@DeclareSymbol{\twoheadrightarrow}{arrows}{\mathrel}
817 \fdsy@DeclareSymbol{\twoheaduparrow}{arrows}{\mathrel}
818 \fdsy@DeclareSymbol{\twoheadleftarrow}{arrows}{\mathrel}
819 \fdsy@DeclareSymbol{\twoheaddownarrow}{arrows}{\mathrel}
820 \fdsy@DeclareSymbol{\twoheadnearrow}{arrows}{\mathrel}
821 \fdsy@DeclareSymbol{\twoheadnwarrow}{arrows}{\mathrel}
822 \fdsy@DeclareSymbol{\twoheadswarrow}{arrows}{\mathrel}
823 \fdsy@DeclareSymbol{\twoheadsearrow}{arrows}{\mathrel}
824 \fdsy@DeclareSymbol{\rightarrowtail}{arrows}{\mathrel}
825 \fdsy@DeclareSymbol{\uparrowtail}{arrows}{\mathrel}
826 \fdsy@DeclareSymbol{\leftarrowtail}{arrows}{\mathrel}
827 \fdsy@DeclareSymbol{\downarrowtail}{arrows}{\mathrel}
828 \fdsy@DeclareSymbol{\nearrowtail}{arrows}{\mathrel}
829 \fdsy@DeclareSymbol{\nwarrowtail}{arrows}{\mathrel}
830 \fdsy@DeclareSymbol{\swarrowtail}{arrows}{\mathrel}
```

```
831 \fdsy@DeclareSymbol{\searrowtail}{arrows}{\mathrel}
832 \fdsy@DeclareSymbol{\rightmapsto}{arrows}{\mathrel}
         \fdsy@DeclareAlias{\mapsto}{arrows}{\mathrel}
       fdsy@DeclareSymbol{\upmapsto}{arrows}{\mathrel}
         \fdsy@DeclareAlias{\mapsup}{arrows}{\mathrel}
836 \fdsy@DeclareSymbol{\leftmapsto}{arrows}{\mathrel}
         \fdsy@DeclareAlias{\mapsfrom}{arrows}{\mathrel}
837
       fdsy@DeclareSymbol{\downmapsto}{arrows}{\mathrel}
         \fdsy@DeclareAlias{\mapsdown}{arrows}{\mathrel}
       fdsy@DeclareSymbol{\Rightmapsto}{arrows}{\mathrel}
840
         \fdsy@DeclareAlias{\Mapsto}{arrows}{\mathrel}
842 \fdsy@DeclareSymbol{\Upmapsto}{arrows}{\mbox{\mbox{$mathrel}}} \\
         \fdsy@DeclareAlias{\Mapsup}{arrows}{\mathrel}
844 \fdsy@DeclareSymbol{\Leftmapsto}{arrows}{\mathrel}
         \fdsy@DeclareAlias{\Mapsfrom}{arrows}{\mathrel}
       fdsy@DeclareSymbol{\Downmapsto}{arrows}{\mathrel}
847
         \fdsy@DeclareAlias{\Mapsdown}{arrows}{\mathrel}
       fdsy@DeclareSymbol{\hookrightarrow}{arrows}{\mathrel}
         \fdsy@DeclareAlias{\lhookrightarrow}{arrows}{\mathrel}
849
       fdsy@DeclareSymbol{\hookuparrow}{arrows}{\mathrel}
         \fdsy@DeclareAlias{\lhookuparrow}{arrows}{\mathrel}
851
       fdsy@DeclareSymbol{\varhookleftarrow}{arrows}{\mathrel}
         \fdsy@DeclareAlias{\lhookleftarrow}{arrows}{\mathrel}
853
       .fdsy@DeclareSymbol{\varhookdownarrow}{arrows}{\mathrel}
854
855
         \fdsy@DeclareAlias{\lhookdownarrow}{arrows}{\mathrel}
       fdsy@DeclareSymbol{\varhooknearrow}{arrows}{\mathrel}
856
         \fdsy@DeclareAlias{\lhooknearrow}{arrows}{\mathrel}
{\tt 858 \fdsy@DeclareSymbol{\hooknwarrow}{arrows}{\mbox{\mbox{$\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{$}\mbox{$}\m
         \fdsy@DeclareAlias{\hknwarrow}{arrows}{\mathrel}
         \fdsy@DeclareAlias{\lhooknwarrow}{arrows}{\mathrel}
860
861
       fdsy@DeclareSymbol{\varhookswarrow}{arrows}{\mathrel}
         \fdsy@DeclareAlias{\lhookswarrow}{arrows}{\mathrel}
862
       fdsy@DeclareSymbol{\hooksearrow}{arrows}{\mathrel}
863
         \fdsy@DeclareAlias{\hksearrow}{arrows}{\mathrel}
864
         \fdsy@DeclareAlias{\lhooksearrow}{arrows}{\mathrel}
865
       fdsy@DeclareSymbol{\varhookrightarrow}{arrows}{\mathrel}
         \fdsy@DeclareAlias{\rhookrightarrow}{arrows}{\mathrel}
867
868
       fdsy@DeclareSymbol{\varhookuparrow}{arrows}{\mathrel}
         \fdsy@DeclareAlias{\rhookuparrow}{arrows}{\mathrel}
869
870
       fdsy@DeclareSymbol{\hookleftarrow}{arrows}{\mathrel}
         \fdsy@DeclareAlias{\rhookleftarrow}{arrows}{\mathrel}
{\tt 872 \fdsy@DeclareSymbol{\hookdownarrow}{arrows}{\mbox{\mbox{$mathrel}$}} \\
         \fdsy@DeclareAlias{\rhookdownarrow}{arrows}{\mathrel}
       fdsy@DeclareSymbol{\hooknearrow}{arrows}{\mathrel}
         \fdsy@DeclareAlias{\hknearrow}{arrows}{\mathrel}
```

```
\fdsy@DeclareAlias{\rhooknearrow}{arrows}{\mathrel}
877 \fdsy@DeclareSymbol{\varhooknwarrow}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\rhooknwarrow}{arrows}{\mathrel}
879 \fdsy@DeclareSymbol{\hookswarrow}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\hkswarrow}{arrows}{\mathrel}
880
    \fdsy@DeclareAlias{\rhookswarrow}{arrows}{\mathrel}
881
882 \fdsy@DeclareSymbol{\varhooksearrow}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\rhooksearrow}{arrows}{\mathrel}
884 \fdsy@DeclareSymbol{\rightharpoonup}{arrows}{\mathrel}
885 \fdsy@DeclareSymbol{\upharpoonleft}{arrows}{\mathrel}
886 \fdsy@DeclareSymbol{\leftharpoondown}{arrows}{\mathrel}
887 \fdsy@DeclareSymbol{\downharpoonright} {arrows} {\mbox{\mbox{$mathrel}$}} \\
888 \fdsy@DeclareSymbol{\neharpoonnw}{arrows}{\mathrel}
889 \fdsy@DeclareSymbol{\nwharpoonsw}{arrows}{\mathrel}
890 \fdsy@DeclareSymbol{\swharpoonse} {arrows}{\mbox{\mathrel}}
891 \fdsy@DeclareSymbol{\seharpoonne}{arrows}{\mathrel}
892 \fdsy@DeclareSymbol{\rightharpoondown} {arrows} {\mbox{\mbox{$mathrel}}} \\
893 \fdsy@DeclareSymbol{\upharpoonright}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\restriction}{arrows}{\mathrel}
895 \fdsy@DeclareSymbol{\leftharpoonup}{arrows}{\mathrel}
896 \fdsy@DeclareSymbol{\downharpoonleft}{arrows}{\mathrel}
897 \fdsy@DeclareSymbol{\neharpoonse}{arrows}{\mathrel}
898 \fdsy@DeclareSymbol{\nwharpoonne}{arrows}{\mathrel}
899 \fdsy@DeclareSymbol{\swharpoonnw}{arrows}{\mathrel}
900 \fdsy@DeclareSymbol{\seharpoonsw}{arrows}{\mathrel}
901 \fdsy@DeclareSymbol{\leftrightharpoonupdown}{arrows}{\mathrel}
902 \fdsy@DeclareSymbol{\updownharpoonleftright}{arrows}{\mathrel}
903 \fdsy@DeclareSymbol{\neswharpoonnwse}{arrows}{\mathrel}
904 \fdsy@DeclareSymbol{\nwseharpoonnesw}{arrows}{\mathrel}
905 \fdsy@DeclareSymbol{\leftrightharpoondownup}{arrows}{\mathrel}
906 \fdsy@DeclareSymbol{\updownharpoonrightleft}{arrows}{\mathrel}
907 \fdsy@DeclareSymbol{\neswharpoonsenw}{arrows}{\mathrel}
908 \fdsy@DeclareSymbol{\nwseharpoonswne}{arrows}{\mathrel}
909 \fdsy@DeclareSymbol{\rightleftharpoons}{arrows}{\mathrel}
910 \fdsy@DeclareSymbol{\updownharpoons}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\updownharpoonsleftright}{arrows}{\mathrel}
912 \fdsy@DeclareSymbol{\neswharpoons}{arrows}{\mathrel}
913 fdsy@DeclareSymbol{\senwharpoons}{arrows}{\mathrel}
914 \fdsy@DeclareSymbol{\leftrightharpoons}{arrows}{\mathrel}
915 \fdsy@DeclareSymbol{\downupharpoons}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\downupharpoonsleftright}{arrows}{\mathrel}
917 \footnote{Mathrel} \
918 \fdsy@DeclareSymbol{\nwseharpoons}{arrows}{\mathrel}
919 \fdsy@DeclareSymbol{\rightbkarrow}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\dasharrow}{arrows}{\mathrel}
```

```
\fdsy@DeclareAlias{\dashrightarrow}{arrows}{\mathrel}
922 \fdsy@DeclareSymbol{\upbkarrow}{arrows}{\mathrel}
923 \fdsy@DeclareSymbol{\leftbkarrow}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\dashleftarrow}{arrows}{\mathrel}
925 \fdsy@DeclareSymbol{\downbkarrow}{arrows}{\mathrel}
926 \fdsy@DeclareSymbol{\nebkarrow}{arrows}{\mathrel}
927 \fdsy@DeclareSymbol{\nwbkarrow}{arrows}{\mathrel}
928 \fdsy@DeclareSymbol{\swbkarrow}{arrows}{\mathrel}
929 \fdsy@DeclareSymbol{\sebkarrow}{arrows}{\mathrel}
930 \fdsy@DeclareSymbol{\rightspoon}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\multimap}{arrows}{\mathrel}
932 \fdsy@DeclareSymbol{\upspoon}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\cirmid}{arrows}{\mathrel}
934 \fdsy@DeclareSymbol{\leftspoon}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\multimapinv}{arrows}{\mathrel}
936 \fdsy@DeclareSymbol{\downspoon}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\midcir}{arrows}{\mathrel}
938 \fdsy@DeclareSymbol{\rightblackspoon}{arrows}{\mathrel}
939 \fdsy@DeclareSymbol{\upblackspoon}{arrows}{\mathrel}
940 \fdsy@DeclareSymbol{\leftblackspoon}{arrows}{\mathrel}
941 \fdsy@DeclareSymbol{\downblackspoon}{arrows}{\mathrel}
942 \fdsy@DeclareSymbol{\leftrightspoon}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\dualmap}{arrows}{\mathrel}
944 \fdsy@DeclareSymbol{\leftrightblackspoon}{arrows}{\mathrel}
945 \fdsy@DeclareSymbol{\blackwhitespoon}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\imageof}{arrows}{\mathrel}
947 \fdsy@DeclareSymbol{\whiteblackspoon}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\origof}{arrows}{\mathrel}
949 \fdsy@DeclareSymbol{\rightpitchfork}{arrows}{\mathrel}
950 \fdsy@DeclareSymbol{\uppitchfork}{arrows}{\mathrel}
    \fdsy@DeclareAlias{\pitchfork}{arrows}{\mathrel}
952 \fdsy@DeclareSymbol{\leftpitchfork}{arrows}{\mathrel}
953 \fdsy@DeclareSymbol{\downpitchfork}{arrows}{\mathrel}
954 \fdsy@DeclareSymbol{\rightrightarrows}{arrows}{\mathrel}
955 \fdsy@DeclareSymbol{\upuparrows}{arrows}{\mathrel}
956 \fdsy@DeclareSymbol{\leftleftarrows}{arrows}{\mathrel}
957 \fdsy@DeclareSymbol{\downdownarrows}{arrows}{\mathrel}
958 \footnote{\verb| nenearrows|{arrows}{arrows}{mathrel}|} \\
959 \fdsy@DeclareSymbol{\nwnwarrows}{arrows}{\mathrel}
960 \fdsy@DeclareSymbol{\swswarrows}{arrows}{\mathrel}
961 \fdsy@DeclareSymbol{\sesearrows}{arrows}{\mathrel}
962 \fdsy@DeclareSymbol{\rightleftarrows}{arrows}{\mathrel}
963 \fdsy@DeclareSymbol{\updownarrows}{arrows}{\mathrel}
964 \fdsy@DeclareSymbol{\neswarrows}{arrows}{\mathrel}
965 \fdsy@DeclareSymbol{\nwsearrows}{arrows}{\mathrel}
```

```
966 \fdsy@DeclareSymbol{\leftrightarrows}{arrows}{\mathrel}
967 \fdsy@DeclareSymbol{\downuparrows}{arrows}{\mathrel}
968 \fdsy@DeclareSymbol{\swnearrows}{arrows}{\mathrel}
969 \fdsy@DeclareSymbol{\senwarrows}{arrows}{\mathrel}
970 \fdsy@DeclareSymbol{\rightwavearrow}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\leadsto}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\rightsquigarrow}{arrows}{\mathrel}
972
     \fdsy@DeclareAlias{\rightcurvedarrow}{arrows}{\mathrel}
973
974
     \fdsy@DeclareAlias{\rightlsquigarrow}{arrows}{\mathrel}
    fdsy@DeclareSymbol{\varupwavearrow}{arrows}{\mathrel}
975
     \fdsy@DeclareAlias{\uplsquigarrow}{arrows}{\mathrel}
977 \fdsy@DeclareSymbol{\varleftwavearrow}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\leftlsquigarrow}{arrows}{\mathrel}
    .fdsy@DeclareSymbol{\downwavearrow}{arrows}{\mathrel}
979 \
980
     \fdsy@DeclareAlias{\downlsquigarrow}{arrows}{\mathrel}
    fdsy@DeclareSymbol{\varrightwavearrow}{arrows}{\mathrel}
981 \
982
     \fdsy@DeclareAlias{\rightrsquigarrow}{arrows}{\mathrel}
983
    fdsy@DeclareSymbol{\upwavearrow}{arrows}{\mathrel}
     \label{limiting} $$ \grows_{\arrows}{\arrows}_{\arrows}(\arrows) $$
984
    fdsy@DeclareSymbol{\leftwavearrow}{arrows}{\mathrel}
985 \
     \fdsy@DeclareAlias{\leftsquigarrow}{arrows}{\mathrel}
986
987
     \fdsy@DeclareAlias{\leftcurvedarrow}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\leftrsquigarrow}{arrows}{\mathrel}
988
    fdsy@DeclareSymbol{\vardownwavearrow}{arrows}{\mathrel}
989
990
     \fdsy@DeclareAlias{\downrsquigarrow}{arrows}{\mathrel}
    fdsy@DeclareSymbol{\leftrightwavearrow}{arrows}{\mathrel}
991
     \fdsy@DeclareAlias{\leftrightsquigarrow}{arrows}{\mathrel}
   \fdsy@DeclareSymbol{\updownwavearrow}{arrows}{\mathrel}
993
     \fdsy@DeclareAlias{\updownsquigarrow}{arrows}{\mathrel}
    fdsy@DeclareSymbol{\varleftrightwavearrow}{arrows}{\mathrel}
995 \
996
     \fdsy@DeclareAlias{\rightleftsquigarrow}{arrows}{\mathrel}
    fdsy@DeclareSymbol{\varupdownwavearrow}{arrows}{\mathrel}
997
     \fdsy@DeclareAlias{\downupsquigarrow}{arrows}{\mathrel}
998
999 \fdsy@DeclareSymbol{\cwoverarcarrow}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\curvearrowright}{arrows}{\mathrel}
1000
1001
     \fdsy@DeclareAlias{\rightlcurvearrow}{arrows}{\mathrel}
    fdsy@DeclareSymbol{\cwleftarcarrow}{arrows}{\mathrel}
1002
     \fdsy@DeclareAlias{\uplcurvearrow}{arrows}{\mathrel}
1003
    fdsy@DeclareSymbol{\cwunderarcarrow}{arrows}{\mathrel}
1004
1005
     \fdsy@DeclareAlias{\leftlcurvearrow}{arrows}{\mathrel}
1006 \fdsy@DeclareSymbol{\cwrightarcarrow}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\downlcurvearrow}{arrows}{\mathrel}
1007
1008 \fdsy@DeclareSymbol{\cwnwarcarrow}{arrows}{\mathrel}
1009
     \fdsy@DeclareAlias{\rightupcurvedarrow}{arrows}{\mathrel}
1010
     \fdsy@DeclareAlias{\nelcurvearrow}{arrows}{\mathrel}
```

```
1011 \fdsy@DeclareSymbol{\cwswarcarrow}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\upleftcurvedarrow}{arrows}{\mathrel}
1013
          \fdsy@DeclareAlias{\nwlcurvearrow}{arrows}{\mathrel}
        .fdsy@DeclareSymbol{\cwsearcarrow}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\leftdowncurvedarrow}{arrows}{\mathrel}
1015
          \fdsy@DeclareAlias{\swlcurvearrow}{arrows}{\mathrel}
1016
1017 \fdsy@DeclareSymbol{\cwnearcarrow}{arrows}{\mathrel}
1018
          \fdsy@DeclareAlias{\downrightcurvedarrow}{arrows}{\mathrel}
1019
          \fdsy@DeclareAlias{\selcurvearrow}{arrows}{\mathrel}
1020 \fdsy@DeclareSymbol{\acwunderarcarrow}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\rightrcurvearrow}{arrows}{\mathrel}
1022 \fdsy@DeclareSymbol{\acwrightarcarrow}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\uprcurvearrow}{arrows}{\mathrel}
1024 \fdsy@DeclareSymbol{\acwoverarcarrow}{arrows}{\mathrel}
1025
          \fdsy@DeclareAlias{\curvearrowleft}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\leftrcurvearrow}{arrows}{\mathrel}
1026
1027 \fdsy@DeclareSymbol{\acwleftarcarrow}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\downrcurvearrow}{arrows}{\mathrel}
{\tt 1029 \ fdsy@DeclareSymbol{\acwsearcarrow}\{arrows}\{\mbox{\mbox{$mathrel}}\} \\
          \fdsy@DeclareAlias{\uprightcurvearrow}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\nercurvearrow}{arrows}{\mathrel}
1031
1032 \fdsy@DeclareSymbol{\acwnearcarrow}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\leftupcurvedarrow}{arrows}{\mathrel}
1033
          \fdsy@DeclareAlias{\nwrcurvearrow}{arrows}{\mathrel}
1034
1035
        fdsy@DeclareSymbol{\acwnwarcarrow}{arrows}{\mathrel}
          1036
          \fdsy@DeclareAlias{\swrcurvearrow}{arrows}{\mathrel}
1037
1038 \fdsy@DeclareSymbol{\acwswarcarrow}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\rightdowncurvedarrow}{arrows}{\mathrel}
1039
1040
          \fdsy@DeclareAlias{\sercurvearrow}{arrows}{\mathrel}
1041 \fdsy@DeclareSymbol{\bdoverarcarrow}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\leftrightcurvearrow}{arrows}{\mathrel}
        fdsy@DeclareSymbol{\bdleftarcarrow}{arrows}{\mathrel}
1043
          \fdsy@DeclareAlias{\updowncurvearrow}{arrows}{\mathrel}
1045 \fdsy@DeclareSymbol{\bdunderarcarrow}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\rightleftcurvearrow}{arrows}{\mathrel}
1047 \fdsy@DeclareSymbol{\bdrightarcarrow}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\downupcurvearrow}{arrows}{\mathrel}
{\tt 1049 \fdsy@DeclareSymbol{\bdnwarcarrow}{arrows}{\mbox{\mbox{$\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{
1050
          \fdsy@DeclareAlias{\neswcurvearrow}{arrows}{\mathrel}
1051 \fdsy@DeclareSymbol{\bdswarcarrow}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\nwsecurvearrow}{arrows}{\mathrel}
1053 \fdsy@DeclareSymbol{\bdsearcarrow}{arrows}{\mathrel}
          \fdsy@DeclareAlias{\swnecurvearrow}{arrows}{\mathrel}
1055 \fdsy@DeclareSymbol{\bdnearcarrow}{arrows}{\mathrel}
```

```
\fdsy@DeclareAlias{\senwcurvearrow}{arrows}{\mathrel}
1057 \fdsy@DeclareSymbol{\leftfootline}{arrows}{\mathrel}
1058 \fdsy@DeclareSymbol{\rightfootline}{arrows}{\mathrel}
1059 \fdsy@DeclareSymbol{\acwcirclearrowup}{arrows}{\mathrel}
\label{localized} 1060 \fdsy@DeclareSymbol{\acwcirclearrowleft} {arrows}{\mbox{\mbox{$\mbox{$mathrel$}$}}} \\
     \fdsy@DeclareAlias{\circlearrowleft}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\acwopencirclearrow}{arrows}{\mathrel}
1062
1063 \fdsy@DeclareSymbol{\acwcirclearrowdown}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\acwgapcirclearrow}{arrows}{\mathrel}
1065 \fdsy@DeclareSymbol{\acwcirclearrowright}{arrows}{\mathrel}
1066 \fdsy@DeclareSymbol{\cwcirclearrowdown}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\cwgapcirclearrow}{arrows}{\mathrel}
1068 \fdsy@DeclareSymbol{\cwcirclearrowright}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\circlearrowright}{arrows}{\mathrel}
1070
     \fdsy@DeclareAlias{\cwopencirclearrow}{arrows}{\mathrel}
1071 \fdsy@DeclareSymbol{\cwcirclearrowup}{arrows}{\mathrel}
1072 \fdsy@DeclareSymbol{\cwcirclearrowleft}{arrows}{\mathrel}
1073 \fdsy@DeclareSymbol{\Rrightarrow}{arrows}{\mathrel}
1074 \fdsy@DeclareSymbol{\Uuparrow}{arrows}{\mathrel}
1075 \fdsy@DeclareSymbol{\Lleftarrow}{arrows}{\mathrel}
\label{localized} 1076 \fdsy@DeclareSymbol{\Ddownarrow}{arrows}{\mbox{\mathrel}}
1077 \fdsy@DeclareSymbol{\longrightarrow}{arrows}{\mathrel}
1078 \fdsy@DeclareSymbol{\longleftarrow}{arrows}{\mathrel}
1079 \fdsy@DeclareSymbol{\Longrightarrow}{arrows}{\mathrel}
1080 \fdsy@DeclareSymbol{\Longleftarrow}{arrows}{\mathrel}
1081 \fdsy@DeclareSymbol{\longleftrightarrow}{arrows}{\mathrel}
1082 \fdsy@DeclareSymbol{\Longleftrightarrow}{arrows}{\mathrel}
1083 \fdsy@DeclareSymbol{\longmapsto}{arrows}{\mathrel}
1084 \fdsy@DeclareSymbol{\longmapsfrom}{arrows}{\mathrel}
1085 \fdsy@DeclareSymbol{\Longmapsto}{arrows}{\mathrel}
1086 \fdsy@DeclareSymbol{\Longmapsfrom}{arrows}{\mathrel}
1087 \fdsy@DeclareSymbol{\longrightwavearrow}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\longleadsto}{arrows}{\mathrel}
1088
     \fdsy@DeclareAlias{\longrightsquigarrow}{arrows}{\mathrel}
1090 \fdsy@DeclareSymbol{\longleftwavearrow}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\longleftsquigarrow}{arrows}{\mathrel}
1092 \fdsy@DeclareSymbol{\longleftfootline}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\vlongdash}{arrows}{\mathrel}
1094 \fdsy@DeclareSymbol{\longrightfootline}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\longdashv}{arrows}{\mathrel}
1096 \fdsy@DeclareSymbol{\Lsh}{arrows}{\mathrel}
1097 \fdsy@DeclareSymbol{\Rsh}{arrows}{\mathrel}
1098 \fdsy@DeclareSymbol{\Ldsh}{arrows}{\mathrel}
1099 \fdsy@DeclareSymbol{\Rdsh}{arrows}{\mathrel}
1100 \fdsy@DeclareSymbol{\looparrowright}{arrows}{\mathrel}
```

```
1101 \fdsy@DeclareSymbol{\looparrowleft}{arrows}{\mathrel}
1102 \fdsy@setslot{224}
1103 \fdsy@DeclareSymbol{\rightvdash}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\vdash}{arrows}{\mathrel}
1105 \fdsy@DeclareSymbol{\upvdash}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\perp}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\bot}{arrows}{\mathord}
1107
1108 \fdsy@DeclareSymbol{\leftvdash}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\dashv}{arrows}{\mathrel}
1110 \fdsy@DeclareSymbol{\downvdash}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\top}{arrows}{\mathord}
1112 \fdsy@DeclareSymbol{\rightassert}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\assert}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\shortrighttack}{arrows}{\mathrel}
1115 \fdsy@DeclareSymbol{\upassert}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\shortuptack}{arrows}{\mathrel}
1117 \fdsy@DeclareSymbol{\leftassert}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\shortlefttack}{arrows}{\mathrel}
1119 \fdsy@DeclareSymbol{\downassert}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\shortdowntack}{arrows}{\mathrel}
1121 \fdsy@DeclareSymbol{\rightvDash}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\vDash}{arrows}{\mathrel}
1123 \fdsy@DeclareSymbol{\upvDash}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\Vbar}{arrows}{\mathrel}
1125 \fdsy@DeclareSymbol{\leftvDash}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\Dashv}{arrows}{\mathrel}
1127 \fdsy@DeclareSymbol{\downvDash}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\barV}{arrows}{\mathrel}
1129 \fdsy@DeclareSymbol{\rightmodels}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\models}{arrows}{\mathrel}
1131 \fdsy@DeclareSymbol{\upmodels}{arrows}{\mathrel}
1132 \fdsy@DeclareSymbol{\leftmodels}{arrows}{\mathrel}
1133 \fdsy@DeclareSymbol{\downmodels}{arrows}{\mathrel}
1134 \fdsy@DeclareSymbol{\rightVdash}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\Vdash}{arrows}{\mathrel}
1136 \fdsy@DeclareSymbol{\upVdash}{arrows}{\mathrel}
1137 \fdsy@DeclareSymbol{\leftVdash}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\dashV}{arrows}{\mathrel}
1139 \fdsy@DeclareSymbol{\downVdash}{arrows}{\mathrel}
1140 \fdsy@DeclareSymbol{\rightAssert}{arrows}{\mathrel}
1141 \fdsy@DeclareAlias{\Assert}{arrows}{\mathrel}
1142 \fdsy@DeclareSymbol{\upAssert}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\vBar}{arrows}{\mathrel}
1144 \fdsy@DeclareSymbol{\leftAssert}{arrows}{\mathrel}
1145 \fdsy@DeclareSymbol{\downAssert}{arrows}{\mathrel}
```

```
\fdsy@DeclareAlias{\Barv}{arrows}{\mathrel}
1147 \fdsy@DeclareSymbol{\rightVDash}{arrows}{\mathrel}
1148 \fdsy@DeclareAlias{\VDash}{arrows}{\mathrel}
1149 \fdsy@DeclareSymbol{\upVDash}{arrows}{\mathrel}
\fdsy@DeclareAlias{\DashV}{arrows}{\mathrel}
1152 \fdsy@DeclareSymbol{\downVDash}{arrows}{\mathrel}
1153 \fdsy@DeclareSymbol{\Vvdash}{arrows}{\mathrel}
1154 \fdsy@DeclareSymbol{\dashVv}{arrows}{\mathrel}
1155 \fdsy@DeclareSymbol{\vDdash}{arrows}{\mathrel}
1156 \fdsy@DeclareSymbol{\Ddashv}{arrows}{\mathrel}
1158 \DeclareRobustCommand{\relbar}{\mathrel{\smash-}}
1159 \DeclareRobustCommand{\Relbar}{\mathrel=}
1160 \let\joinrel\undefined
1161 \DeclareRobustCommand\joinrel{\mathrel{\mkern-4mu}}
 FdSymbolD: stroked arrows
1162 \fdsy@setslot{0}
1163 \fdsy@DeclareSymbol{\nrightarrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nto}{narrows}{\mathrel}
1165 \fdsy@DeclareSymbol{\nuparrow}{narrows}{\mathrel}
1166 \fdsy@DeclareSymbol{\nleftarrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\ngets}{narrows}{\mathrel}
1168 \fdsy@DeclareSymbol{\ndownarrow}{\narrows}{\mathrel}
1169 \fdsy@DeclareSymbol{\nnearrow}{\narrows}{\mathrel}
1170 \fdsy@DeclareSymbol{\nnwarrow}{narrows}{\mathrel}
1171 \fdsy@DeclareSymbol{\nswarrow}{\narrows}{\mathrel}
1172 \fdsy@DeclareSymbol{\nsearrow}{\narrows}{\mathrel}
1173 \fdsy@DeclareSymbol{\nRightarrow}{narrows}{\mathrel}
1174 \fdsy@DeclareSymbol{\nUparrow}{narrows}{\mathrel}
1175 \fdsy@DeclareSymbol{\nLeftarrow}{narrows}{\mathrel}
1176 \fdsy@DeclareSymbol{\nDownarrow}{narrows}{\mathrel}
1177 \fdsy@DeclareSymbol{\nNearrow}{narrows}{\mathrel}
1178 \fdsy@DeclareSymbol{\nNwarrow}{narrows}{\mathrel}
1179 \fdsy@DeclareSymbol{\nSwarrow}{narrows}{\mathrel}
1180 \fdsy@DeclareSymbol{\nSearrow}{narrows}{\mathrel}
1181 \fdsy@DeclareSymbol{\nleftrightarrow}{narrows}{\mathrel}
1182 \fdsy@DeclareSymbol{\nupdownarrow}{\narrows}{\mathrel}
1183 \fdsy@DeclareSymbol{\nneswarrow}{\narrows}{\mathrel}
1184 \fdsy@DeclareSymbol{\nnwsearrow}{narrows}{\mathrel}
1185 \fdsy@DeclareSymbol{\nLeftrightarrow}{narrows}{\mathrel}
1186 \fdsy@DeclareSymbol{\nUpdownarrow}{narrows}{\mathrel}
1187 \fdsy@DeclareSymbol{\nNeswarrow}{narrows}{\mathrel}
1188 \fdsy@DeclareSymbol{\nNwsearrow}{narrows}{\mathrel}
1189 \fdsy@DeclareSymbol{\ntwoheadrightarrow}{narrows}{\mathrel}
```

```
1190 \fdsy@DeclareSymbol{\ntwoheaduparrow}{narrows}{\mathrel}
1191 \fdsy@DeclareSymbol{\ntwoheadleftarrow}{narrows}{\mathrel}
1192 \fdsy@DeclareSymbol{\ntwoheaddownarrow}{narrows}{\mathrel}
1193 \fdsy@DeclareSymbol{\ntwoheadnearrow}{\narrows}{\mathrel}
1194 \fdsy@DeclareSymbol{\ntwoheadnwarrow}{narrows}{\mathrel}
1195 \fdsy@DeclareSymbol{\ntwoheadswarrow}{narrows}{\mathrel}
1196 \fdsy@DeclareSymbol{\ntwoheadsearrow}{narrows}{\mathrel}
1197 \fdsy@DeclareSymbol{\nrightarrowtail}{narrows}{\mathrel}
1198 \fdsy@DeclareSymbol{\nuparrowtail}{narrows}{\mathrel}
1199 \fdsy@DeclareSymbol{\nleftarrowtail}{narrows}{\mathrel}
1200 \fdsy@DeclareSymbol{\ndownarrowtail}{narrows}{\mathrel}
1201 \fdsy@DeclareSymbol{\nnearrowtail}{narrows}{\mathrel}
1202 \fdsy@DeclareSymbol{\nnwarrowtail}{narrows}{\mathrel}
1203 \fdsy@DeclareSymbol{\nswarrowtail}{narrows}{\mathrel}
1204 \fdsy@DeclareSymbol{\nsearrowtail}{narrows}{\mathrel}
1205 \fdsy@DeclareSymbol{\nrightmapsto}{\narrows}{\mathrel}
          \fdsy@DeclareAlias{\nmapsto}{\narrows}{\mathrel}
1207 \fdsy@DeclareSymbol{\nupmapsto}{\narrows}{\mathrel}
          \fdsy@DeclareAlias{\nmapsup}{narrows}{\mathrel}
1209 \fdsy@DeclareSymbol{\nleftmapsto}{narrows}{\mathrel}
          \fdsy@DeclareAlias{\nmapsfrom}{narrows}{\mathrel}
1211 \fdsy@DeclareSymbol{\ndownmapsto}{narrows}{\mathrel}
          \fdsy@DeclareAlias{\nmapsdown}{narrows}{\mathrel}
1213 \fdsy@DeclareSymbol{\nRightmapsto}{narrows}{\mathrel}
          \fdsy@DeclareAlias{\nMapsto}{\narrows}{\mathrel}
1215 \fdsy@DeclareSymbol{\nUpmapsto}{narrows}{\mathrel}
          \fdsy@DeclareAlias{\nMapsup}{narrows}{\mathrel}
1217 \fdsy@DeclareSymbol{\nLeftmapsto}{narrows}{\mathrel}
          \fdsy@DeclareAlias{\nMapsfrom}{narrows}{\mathrel}
1219 \fdsy@DeclareSymbol{\nDownmapsto}{narrows}{\mathrel}
          \fdsy@DeclareAlias{\nMapsdown}{narrows}{\mathrel}
1221 \fdsy@DeclareSymbol{\nhookrightarrow}{narrows}{\mathrel}
1222 \fdsy@DeclareSymbol{\nhookuparrow}{\narrows}{\mathrel}
1223 \fdsy@DeclareSymbol{\nvarhookleftarrow}{narrows}{\mathrel}
{\tt 1224 \fdsy@DeclareSymbol{\nvarhookdownarrow}\{narrows}\{{\tt Nmathrel}\}{\tt Nmathrel}{\tt Nma
1225 \fdsy@DeclareSymbol{\nvarhooknearrow}{narrows}{\mathrel}
1226 \fdsy@DeclareSymbol{\nhooknwarrow}{narrows}{\mathrel}
          \fdsy@DeclareAlias{\nhknwarrow}{narrows}{\mathrel}
1229 \fdsy@DeclareSymbol{\nhooksearrow}{\narrows}{\mathrel}
          \fdsy@DeclareAlias{\nhksearrow}{narrows}{\mathrel}
1232 \fdsy@DeclareSymbol{\nvarhookuparrow}{narrows}{\mathrel}
1233 \fdsy@DeclareSymbol{\nhookleftarrow}{narrows}{\mathrel}
1234 \fdsy@DeclareSymbol{\nhookdownarrow}{narrows}{\mathrel}
```

```
1235 \fdsy@DeclareSymbol{\nhooknearrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nhknearrow}{narrows}{\mathrel}
1237 \fdsy@DeclareSymbol{\nvarhooknwarrow}{narrows}{\mathrel}
1238 \fdsy@DeclareSymbol{\nhookswarrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nhkswarrow}{narrows}{\mathrel}
1240 \fdsy@DeclareSymbol{\nvarhooksearrow}{narrows}{\mathrel}
1241 \fdsy@DeclareSymbol{\nrightharpoonup}{narrows}{\mathrel}
1242 \fdsy@DeclareSymbol{\nupharpoonleft}{narrows}{\mathrel}
1243 \fdsy@DeclareSymbol{\nleftharpoondown}{narrows}{\mathrel}
1244 \fdsy@DeclareSymbol{\ndownharpoonright}{narrows}{\mathrel}
1245 \fdsy@DeclareSymbol{\nneharpoonnw}{\narrows}{\mathrel}
1246 \fdsy@DeclareSymbol{\nnwharpoonsw}{narrows}{\mathrel}
1247 \fdsy@DeclareSymbol{\nswharpoonse}{narrows}{\mathrel}
1248 \fdsy@DeclareSymbol{\nseharpoonne}{narrows}{\mathrel}
1249 \fdsy@DeclareSymbol{\nrightharpoondown}{narrows}{\mathrel}
1250 \fdsy@DeclareSymbol{\nupharpoonright}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nrestriction}{narrows}{\mathrel}
1252 \fdsy@DeclareSymbol{\nleftharpoonup}{narrows}{\mathrel}
1253 \fdsy@DeclareSymbol{\ndownharpoonleft}{narrows}{\mathrel}
1254 \fdsy@DeclareSymbol{\nneharpoonse}{\narrows}{\mathrel}
1255 \fdsy@DeclareSymbol{\nnwharpoonne}{narrows}{\mathrel}
1256 \fdsy@DeclareSymbol{\nswharpoonnw}{narrows}{\mathrel}
1257 \fdsy@DeclareSymbol{\nseharpoonsw}{narrows}{\mathrel}
1258 \fdsy@DeclareSymbol{\nleftrightharpoonupdown}{\narrows}{\mathrel}
1259 \fdsy@DeclareSymbol{\nupdownharpoonleftright}{narrows}{\mathrel}
1260 \fdsy@DeclareSymbol{\nneswharpoonnwse}{narrows}{\mathrel}
1261 \fdsy@DeclareSymbol{\nnwseharpoonnesw}{narrows}{\mathrel}
{\tt 1262 \fdsy@DeclareSymbol{\nleftrightharpoondownup}\{narrows\}\{\nathrel\}}
1263 \fdsy@DeclareSymbol{\nupdownharpoonrightleft}{narrows}{\mathrel}
1264 \fdsy@DeclareSymbol{\nneswharpoonsenw}{narrows}{\mathrel}
1265 \fdsy@DeclareSymbol{\nnwseharpoonswne}{narrows}{\mathrel}
1266 \fdsy@DeclareSymbol{\nrightleftharpoons}{narrows}{\mathrel}
1267 \fdsy@DeclareSymbol{\nupdownharpoons}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nupdownharpoonsleftright}{narrows}{\mathrel}
1269 \fdsy@DeclareSymbol{\nneswharpoons}{narrows}{\mathrel}
1270 \fdsy@DeclareSymbol{\nsenwharpoons}{narrows}{\mathrel}
1271 \fdsy@DeclareSymbol{\nleftrightharpoons}{narrows}{\mathrel}
1272 \fdsy@DeclareSymbol{\ndownupharpoons}{narrows}{\mathrel}
     1274 \fdsy@DeclareSymbol{\nswneharpoons}{narrows}{\mathrel}
1275 \fdsy@DeclareSymbol{\nnwseharpoons}{narrows}{\mathrel}
\fdsy@DeclareAlias{\ndasharrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\ndashrightarrow}{narrows}{\mathrel}
1279 \fdsy@DeclareSymbol{\nupbkarrow}{narrows}{\mathrel}
```

```
1280 \fdsy@DeclareSymbol{\nleftbkarrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\ndashleftarrow}{narrows}{\mathrel}
1282 \fdsy@DeclareSymbol{\ndownbkarrow}{\narrows}{\mathrel}
1283 \fdsy@DeclareSymbol{\nnebkarrow}{narrows}{\mathrel}
1284 \fdsy@DeclareSymbol{\nnwbkarrow}{\narrows}{\mathrel}
1285 \fdsy@DeclareSymbol{\nswbkarrow}{narrows}{\mathrel}
1286 \fdsy@DeclareSymbol{\nsebkarrow}{narrows}{\mathrel}
1287 \fdsy@DeclareSymbol{\nrightspoon}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nmultimap}{narrows}{\mathrel}
1289 \fdsy@DeclareSymbol{\nupspoon}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\ncirmid}{narrows}{\mathrel}
1291 \fdsy@DeclareSymbol{\nleftspoon}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nmultimapinv}{narrows}{\mathrel}
1293 \fdsy@DeclareSymbol{\ndownspoon}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nmidcir}{narrows}{\mathrel}
1295 \fdsy@DeclareSymbol{\nrightblackspoon}{narrows}{\mathrel}
1296 \fdsy@DeclareSymbol{\nupblackspoon}{narrows}{\mathrel}
1298 \fdsy@DeclareSymbol{\ndownblackspoon}{narrows}{\mathrel}
1299 \fdsy@DeclareSymbol{\nleftrightspoon}{narrows}{\mathrel}
     1301 \fdsy@DeclareSymbol{\nleftrightblackspoon}{narrows}{\mathrel}
1302 \fdsy@DeclareSymbol{\nblackwhitespoon}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nimageof}{narrows}{\mathrel}
\label{localize} 1304 $$ \end{\nwhiteblackspoon} {$narrows} $$ \mathrel $$ $$
     \fdsy@DeclareAlias{\norigof}{narrows}{\mathrel}
1306 \fdsy@DeclareSymbol{\nrightpitchfork}{narrows}{\mathrel}
1307 \fdsy@DeclareSymbol{\nuppitchfork}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\npitchfork}{narrows}{\mathrel}
1309 \fdsy@DeclareSymbol{\nleftpitchfork}{narrows}{\mathrel}
1310 \fdsy@DeclareSymbol{\ndownpitchfork}{narrows}{\mathrel}
1311 \fdsy@DeclareSymbol{\nrightrightarrows}{narrows}{\mathrel}
1312 \fdsy@DeclareSymbol{\nupuparrows}{narrows}{\mathrel}
1313 \fdsy@DeclareSymbol{\nleftleftarrows}{\narrows}{\mathrel}
1314 \fdsy@DeclareSymbol{\ndowndownarrows}{narrows}{\mathrel}
1315 \fdsy@DeclareSymbol{\nnenearrows}{\narrows}{\mathrel}
1316 \fdsy@DeclareSymbol{\nnwnwarrows}{\narrows}{\mathrel}
1317 \fdsy@DeclareSymbol{\nswswarrows}{\narrows}{\mathrel}
{\tt 1318 \fdsy@DeclareSymbol{\nsesearrows}\{narrows\}\{\narrows\}\}} \\
1319 \fdsy@DeclareSymbol{\nrightleftarrows}{\narrows}{\mathrel}
1320 \fdsy@DeclareSymbol{\nupdownarrows}{\narrows}{\mathrel}
\label{limit} \begin{tabular} $$1321 \fdsy@DeclareSymbol{nneswarrows}{narrows}{\mbox{mathrel}}$
1322 \fdsy@DeclareSymbol{\nnwsearrows}{\narrows}{\mathrel}
1323 \fdsy@DeclareSymbol{\nleftrightarrows}{\narrows}{\mathrel}
1324 \fdsy@DeclareSymbol{\ndownuparrows}{narrows}{\mathrel}
```

```
1325 \fdsy@DeclareSymbol{\nswnearrows}{\narrows}{\mathrel}
1326 \fdsy@DeclareSymbol{\nsenwarrows}{narrows}{\mathrel}
{\tt 1327 \ fdsy@DeclareSymbol{\nrightwavearrow}\{narrows}\{\narrows\}\{\narrows\}\}
     \fdsy@DeclareAlias{\nleadsto}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nrightsquigarrow}{narrows}{\mathrel}
1329
     \fdsy@DeclareAlias{\nrightcurvedarrow}{arrows}{\mathrel}
1330
     \fdsy@DeclareAlias{\nrightlsquigarrow}{narrows}{\mathrel}
1331
1332 \
    .fdsy@DeclareSymbol{\nvarupwavearrow}{narrows}{\mathrel}
1333
     \fdsy@DeclareAlias{\nuplsquigarrow}{narrows}{\mathrel}
1334\fdsy@DeclareSymbol{\nvarleftwavearrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nleftlsquigarrow}{narrows}{\mathrel}
1336 \fdsy@DeclareSymbol{\ndownwavearrow}{\narrows}{\mathrel}
     \fdsy@DeclareAlias{\ndownlsquigarrow}{narrows}{\mathrel}
1338 \fdsy@DeclareSymbol{\nvarrightwavearrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nrightrsquigarrow}{narrows}{\mathrel}
1340 \fdsy@DeclareSymbol{\nupwavearrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nuprsquigarrow}{narrows}{\mathrel}
    fdsy@DeclareSymbol{\nleftwavearrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nleftsquigarrow}{narrows}{\mathrel}
1343
     \fdsy@DeclareAlias{\nleftcurvedarrow}{arrows}{\mathrel}
     \fdsy@DeclareAlias{\nleftrsquigarrow}{narrows}{\mathrel}
1345
\label{lem:linear_loss} $$1346 \fdsy@DeclareSymbol{\nvardownwavearrow}{narrows}{\mathbb{N}}$
     \fdsy@DeclareAlias{\ndownrsquigarrow}{narrows}{\mathrel}
1347
1348 \fdsy@DeclareSymbol{\nleftrightwavearrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nleftrightsquigarrow}{narrows}{\mathrel}
\fdsy@DeclareAlias{\nupdownsquigarrow}{\narrows}{\mathrel}
1352 \fdsy@DeclareSymbol{\nvarleftrightwavearrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nrightleftsquigarrow}{narrows}{\mathrel}
1354 \fdsy@DeclareSymbol{\nvarupdownwavearrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\ndownupsquigarrow}{narrows}{\mathrel}
    fdsy@DeclareSymbol{\ncwoverarcarrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\ncurvearrowright}{narrows}{\mathrel}
1357
     \fdsy@DeclareAlias{\nrightlcurvearrow}{narrows}{\mathrel}
{\tt 1359 \fdsy@DeclareSymbol{\ncwleftarcarrow}\{narrows}\{\narrows\}\{\narrows\}\}
     \fdsy@DeclareAlias{\nuplcurvearrow}{narrows}{\mathrel}
1361 \fdsy@DeclareSymbol{\ncwunderarcarrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nleftlcurvearrow}{narrows}{\mathrel}
1362
    fdsy@DeclareSymbol{\ncwrightarcarrow}{narrows}{\mathrel}
1364
     \fdsy@DeclareAlias{\ndownlcurvearrow}{narrows}{\mathrel}
1365 \fdsy@DeclareSymbol{\ncwnwarcarrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nrightupcurvedarrow}{narrows}{\mathrel}
1366
     \fdsy@DeclareAlias{\nnelcurvearrow}{narrows}{\mathrel}
1367
1368 \fdsy@DeclareSymbol{\ncwswarcarrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nupleftcurvedarrow}{narrows}{\mathrel}
```

```
\fdsy@DeclareAlias{\nnwlcurvearrow}{narrows}{\mathrel}
1371 \fdsy@DeclareSymbol{\ncwsearcarrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nleftdowncurvedarrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nswlcurvearrow}{narrows}{\mathrel}
1374 \fdsy@DeclareSymbol{\ncwnearcarrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\ndownrightcurvedarrow}{narrows}{\mathrel}
1375
     \fdsy@DeclareAlias{\nselcurvearrow}{narrows}{\mathrel}
1376
1377 \fdsy@DeclareSymbol{\nacwunderarcarrow}{narrows}{\mathrel}
1378
     \fdsy@DeclareAlias{\nrightrcurvearrow}{narrows}{\mathrel}
1379 \fdsy@DeclareSymbol{\nacwrightarcarrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nuprcurvearrow}{narrows}{\mathrel}
1381 \fdsy@DeclareSymbol{\nacwoverarcarrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\ncurvearrowleft}{narrows}{\mathrel}
1382
     \fdsy@DeclareAlias{\nleftrcurvearrow}{narrows}{\mathrel}
1383
1384 \fdsy@DeclareSymbol{\nacwleftarcarrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\ndownrcurvearrow}{narrows}{\mathrel}
1385
1386 \fdsy@DeclareSymbol{\nacwsearcarrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nuprightcurvearrow}{narrows}{\mathrel}
1387
     \fdsy@DeclareAlias{\nnercurvearrow}{narrows}{\mathrel}
1388
1389 \fdsy@DeclareSymbol{\nacwnearcarrow}{\narrows}{\mathrel}
     \fdsy@DeclareAlias{\nleftupcurvedarrow}{narrows}{\mathrel}
1390
1391
     \fdsy@DeclareAlias{\nnwrcurvearrow}{narrows}{\mathrel}
1392 \fdsy@DeclareSymbol{\nacwnwarcarrow}{\narrows}{\mathrel}
     \fdsy@DeclareAlias{\ndownleftcurvedarrow}{narrows}{\mathrel}
1393
1394
     \fdsy@DeclareAlias{\nswrcurvearrow}{narrows}{\mathrel}
1395
    .fdsy@DeclareSymbol{\nacwswarcarrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nrightdowncurvedarrow}{narrows}{\mathrel}
1396
     \fdsy@DeclareAlias{\nsercurvearrow}{narrows}{\mathrel}
1397
\label{localized} $$1398 \end{\mathbf \mathbb{C}\nbdoverarcarrow}{narrows}{\mathbf \mathbb{C}\nbdoverarcarrow}$$
1399
     \fdsy@DeclareAlias{\nleftrightcurvearrow}{narrows}{\mathrel}
1400
   \fdsy@DeclareSymbol{\nbdleftarcarrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nupdowncurvearrow}{narrows}{\mathrel}
    fdsy@DeclareSymbol{\nbdunderarcarrow}{narrows}{\mathrel}
1402
     \fdsy@DeclareAlias{\nrightleftcurvearrow}{narrows}{\mathrel}
1404 \fdsy@DeclareSymbol{\nbdrightarcarrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\ndownupcurvearrow}{narrows}{\mathrel}
1406 \fdsy@DeclareSymbol{\nbdnwarcarrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nneswcurvearrow}{narrows}{\mathrel}
\fdsy@DeclareAlias{\nnwsecurvearrow}{narrows}{\mathrel}
1410 \fdsy@DeclareSymbol{\nbdsearcarrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nswnecurvearrow}{narrows}{\mathrel}
1412 \fdsy@DeclareSymbol{\nbdnearcarrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nsenwcurvearrow}{narrows}{\mathrel}
1414 \fdsy@DeclareSymbol{\nleftfootline}{narrows}{\mathrel}
```

```
1415 \fdsy@DeclareSymbol{\nrightfootline}{narrows}{\mathrel}
1416 \fdsy@DeclareSymbol{\nacwcirclearrowup}{narrows}{\mathrel}
1417 \fdsy@DeclareSymbol{\nacwcirclearrowleft}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\ncirclearrowleft}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nacwopencirclearrow}{\narrows}{\mathrel}
1420 \fdsy@DeclareSymbol{\nacwcirclearrowdown}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nacwgapcirclearrow}{narrows}{\mathrel}
1422 \fdsy@DeclareSymbol{\nacwcirclearrowright}{narrows}{\mathrel}
1423 \fdsy@DeclareSymbol{\ncwcirclearrowdown}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\ncwgapcirclearrow}{\narrows}{\mathrel}
1425 \fdsy@DeclareSymbol{\ncwcirclearrowright}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\ncirclearrowright}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\ncwopencirclearrow}{narrows}{\mathrel}
1428 \fdsy@DeclareSymbol{\ncwcirclearrowup}{narrows}{\mathrel}
1429 \fdsy@DeclareSymbol{\ncwcirclearrowleft}{narrows}{\mathrel}
1430 \fdsy@DeclareSymbol{\nRrightarrow}{narrows}{\mathrel}
1431 \fdsy@DeclareSymbol{\nUuparrow}{narrows}{\mathrel}
1432 \fdsy@DeclareSymbol{\nLleftarrow}{narrows}{\mathrel}
1433 \fdsy@DeclareSymbol{\nDdownarrow}{narrows}{\mathrel}
1434 \fdsy@DeclareSymbol{\nlongrightarrow}{narrows}{\mathrel}
1436 \fdsy@DeclareSymbol{\nLongrightarrow}{narrows}{\mathrel}
1437 \fdsy@DeclareSymbol{\nLongleftarrow}{narrows}{\mathrel}
1438 \fdsy@DeclareSymbol{\nlongleftrightarrow}{narrows}{\mathrel}
1439 \fdsy@DeclareSymbol{\nLongleftrightarrow}{narrows}{\mathrel}
1440 \fdsy@DeclareSymbol{\nlongmapsto}{\narrows}{\mathrel}
1441 \fdsy@DeclareSymbol{\nlongmapsfrom}{narrows}{\mathrel}
1442 \fdsy@DeclareSymbol{\nLongmapsto}{narrows}{\mathrel}
1443 \fdsy@DeclareSymbol{\nLongmapsfrom}{narrows}{\mathrel}
1444 \fdsy@DeclareSymbol{\nlongrightwavearrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nlongleadsto}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nlongrightsquigarrow}{narrows}{\mathrel}
1447 \fdsy@DeclareSymbol{\nlongleftwavearrow}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nlongleftsquigarrow}{narrows}{\mathrel}
1449 \fdsy@DeclareSymbol{\nlongleftfootline}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nvlongdash}{narrows}{\mathrel}
1451 \fdsy@DeclareSymbol{\nlongrightfootline}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nlongdashv}{narrows}{\mathrel}
1453 \fdsy@setslot{224}
1454 \fdsy@DeclareSymbol{\nrightvdash}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nvdash}{narrows}{\mathrel}
1456 \fdsy@DeclareSymbol{\nupvdash}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nperp}{narrows}{\mathrel}
1458 \fdsy@DeclareSymbol{\nleftvdash}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\ndashv}{narrows}{\mathrel}
```

```
1460 \fdsy@DeclareSymbol{\ndownvdash}{narrows}{\mathrel}
\fdsy@DeclareAlias{\nassert}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nshortrighttack}{narrows}{\mathrel}
{\tt 1464 \fdsy@DeclareSymbol{\nupassert}\{narrows\}\{\mbox{\tt mathrel}\}} \\
     \fdsy@DeclareAlias{\nshortuptack}{narrows}{\mathrel}
1466 \fdsy@DeclareSymbol{\nleftassert}{narrows}{\mathrel}
1467
     \fdsy@DeclareAlias{\nshortlefttack}{narrows}{\mathrel}
1468 \fdsy@DeclareSymbol{\ndownassert}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nshortdowntack}{narrows}{\mathrel}
1470 \fdsy@DeclareSymbol{\nrightvDash}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nvDash}{narrows}{\mathrel}
1472 \fdsy@DeclareSymbol{\nupvDash}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nVbar}{narrows}{\mathrel}
1474 \fdsy@DeclareSymbol{\nleftvDash}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nDashv}{narrows}{\mathrel}
1476 \fdsy@DeclareSymbol{\ndownvDash}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nbarV}{narrows}{\mathrel}
1478 \fdsy@DeclareSymbol{\nrightmodels}{\narrows}{\mathrel}
     \fdsy@DeclareAlias{\nmodels}{\narrows}{\mathrel}
1480 \fdsy@DeclareSymbol{\nupmodels}{narrows}{\mathrel}
1481 \fdsy@DeclareSymbol{\nleftmodels}{narrows}{\mathrel}
1482 \fdsy@DeclareSymbol{\ndownmodels}{narrows}{\mathrel}
1483 \fdsy@DeclareSymbol{\nrightVdash}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nVdash}{narrows}{\mathrel}
1485 \fdsy@DeclareSymbol{\nupVdash}{narrows}{\mathrel}
1486 \fdsy@DeclareSymbol{\nleftVdash}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\ndashV}{narrows}{\mathrel}
1488 \fdsy@DeclareSymbol{\ndownVdash}{narrows}{\mathrel}
1489 \fdsy@DeclareSymbol{\nrightAssert}{narrows}{\mathrel}
    \fdsy@DeclareAlias{\nAssert}{narrows}{\mathrel}
1491 \fdsy@DeclareSymbol{\nupAssert}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nvBar}{narrows}{\mathrel}
1493 \fdsy@DeclareSymbol{\nleftAssert}{narrows}{\mathrel}
1494 \fdsy@DeclareSymbol{\ndownAssert}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nBarv}{narrows}{\mathrel}
1496 \fdsy@DeclareSymbol{\nrightVDash}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nVDash}{narrows}{\mathrel}
1498 \fdsy@DeclareSymbol{\nupVDash}{narrows}{\mathrel}
1499 \fdsy@DeclareSymbol{\nleftVDash}{narrows}{\mathrel}
     \fdsy@DeclareAlias{\nDashV}{narrows}{\mathrel}
1501 \fdsy@DeclareSymbol{\ndownVDash}{narrows}{\mathrel}
1502 \fdsy@DeclareSymbol{\nVvdash}{narrows}{\mathrel}
1503 \fdsy@DeclareSymbol{\ndashVv}{narrows}{\mathrel}
1504 \fdsy@DeclareSymbol{\nvDdash}{narrows}{\mathrel}
```

```
1505 \fdsy@DeclareSymbol{\nDdashv}{narrows}{\mathrel}
  FdSymbolE: large operators
1506 \fdsy@setslot{0}
1507 \fdsy@DeclareSymbol{\tbigplus}{largesymbols}{\mathop}
1508 \fdsy@DeclareSymbol{\dbigplus}{largesymbols}{\mathop}
1509 \fdsy@DeclareSymbol{\tbigtimes}{largesymbols}{\mathop}
1510 \fdsy@DeclareSymbol{\dbigtimes}{largesymbols}{\mathop}
1511 \fdsy@DeclareSymbol{\tbigwedge}{largesymbols}{\mathop}
1513 \fdsy@DeclareSymbol{\tbigvee}{largesymbols}{\mathop}
1514 \fdsy@DeclareSymbol{\dbigvee}{largesymbols}{\mathop}
1515 \fdsy@DeclareSymbol{\tbigwedgedot}{largesymbols}{\mathop}
\label{largesymbol} $$1516 \footnote{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{
1517 \fdsy@DeclareSymbol{\tbigveedot}{largesymbols}{\mathop}
1518 \fdsy@DeclareSymbol{\dbigveedot}{largesymbols}{\mathop}
1519 \fdsy@DeclareSymbol{\tbigdoublewedge}{largesymbols}{\mathop}
         \fdsy@DeclareAlias{\tconjquant}{largesymbols}{\mathop}
\fdsy@DeclareAlias{\dconjquant}{largesymbols}{\mathop}
1523 \fdsy@DeclareSymbol{\tbigdoublevee}{largesymbols}{\mathop}
         \fdsy@DeclareAlias{\tdisjquant}{largesymbols}{\mathop}
1525 \fdsy@DeclareSymbol{\dbigdoublevee}{largesymbols}{\mathop}
         \fdsy@DeclareAlias{\ddisjquant}{largesymbols}{\mathop}
1527 \fdsy@DeclareSymbol{\tbigcurlywedge}{largesymbols}{\mathop}
1528 \fdsy@DeclareSymbol{\dbigcurlywedge}{largesymbols}{\mathop}
1529 \fdsy@DeclareSymbol{\tbigcurlyvee}{largesymbols}{\mathop}
1530 \fdsy@DeclareSymbol{\dbigcurlyvee}{largesymbols}{\mathop}
1531 \fdsy@DeclareSymbol{\tbigcap}{largesymbols}{\mathop}
1532 \fdsy@DeclareSymbol{\dbigcap}{largesymbols}{\mathop}
1533 \fdsy@DeclareSymbol{\tbigcup}{largesymbols}{\mathop}
1534 \fdsy@DeclareSymbol{\dbigcup}{largesymbols}{\mathop}
1535 \fdsy@DeclareSymbol{\tbigcapdot}{largesymbols}{\mathop}
1536 \fdsy@DeclareSymbol{\dbigcapdot}{largesymbols}{\mathop}
1537 \fdsy@DeclareSymbol{\tbigcupdot}{largesymbols}{\mathop}
1538 \fdsy@DeclareSymbol{\dbigcupdot}{largesymbols}{\mathop}
1539 \fdsy@DeclareSymbol{\tbigcapplus}{largesymbols}{\mathop}
1540 \fdsy@DeclareSymbol{\dbigcapplus}{largesymbols}{\mathop}
1541 \fdsy@DeclareSymbol{\tbigcupplus}{largesymbols}{\mathop}
         \fdsy@DeclareAlias{\tbiguplus}{largesymbols}{\mathop}
\label{largesymbol} $$1543 \doing cupplus { large symbols } {\mathbb R} $$
         \fdsy@DeclareAlias{\dbiguplus}{largesymbols}{\mathop}
1545 \fdsy@DeclareSymbol{\tbigsqcap}{largesymbols}{\mathop}
1546 \fdsy@DeclareSymbol{\dbigsqcap}{largesymbols}{\mathop}
1547 \fdsy@DeclareSymbol{\tbigsqcup}{largesymbols}{\mathop}
1548 \fdsy@DeclareSymbol{\dbigsqcup}{largesymbols}{\mathop}
```

```
1549 \fdsy@DeclareSymbol{\tbigsqcapdot}{largesymbols}{\mathop}
\label{largesymbol} $$1550 \fdsy@DeclareSymbol{\dbigsqcapdot}{largesymbols}{\mathbb R}$
1551 \fdsy@DeclareSymbol{\tbigsqcupdot}{largesymbols}{\mathop}
1552 \fdsy@DeclareSymbol{\dbigsqcupdot}{largesymbols}{\mathop}
{\tt 1553 \fdsy@DeclareSymbol{\tbigsqcapplus}{largesymbols}{\tt \fdsy@DeclareSymbol}{\tt \fdsymbol}{\tt \f
1554\fdsy@DeclareSymbol{\dbigsqcapplus}{largesymbols}{\mathop}
1555 \fdsy@DeclareSymbol{\tbigsqcupplus}{largesymbols}{\mathop}
1556\fdsy@DeclareSymbol{\dbigsqcupplus}{largesymbols}{\mathop}
1557 \fdsy@DeclareSymbol{\tbigoplus}{largesymbols}{\mathop}
1558 \fdsy@DeclareSymbol{\dbigoplus}{largesymbols}{\mathop}
1559 \fdsy@DeclareSymbol{\tbigotimes}{largesymbols}{\mathop}
1560 \fdsy@DeclareSymbol{\dbigotimes}{largesymbols}{\mathop}
1561 \fdsy@DeclareSymbol{\tbigodot}{largesymbols}{\mathop}
1562 \fdsy@DeclareSymbol{\dbigodot}{largesymbols}{\mathop}
1563 \fdsy@DeclareSymbol{\tbigoast}{largesymbols}{\mathop}
1564 \fdsy@DeclareSymbol{\dbigoast}{largesymbols}{\mathop}
1565 \fdsy@DeclareSymbol{\tprod}{largesymbols}{\mathop}
1566 \fdsy@DeclareSymbol{\dprod}{largesymbols}{\mathop}
1567 \fdsy@DeclareSymbol{\tcoprod}{largesymbols}{\mathop}
1568 \fdsy@DeclareSymbol{\dcoprod}{largesymbols}{\mathop}
\label{largesymbols} $$1569 \footnote{\colored} $$1569 \footnote{\colored
1570 \fdsy@DeclareSymbol{\\dsum}{\largesymbols}{\\mathop}
1571 \fdsy@DeclareSymbol{\tosum}{largesymbols}{\mathop}
               \fdsy@DeclareAlias{\tmodtwosum}{largesymbols}{\mathop}
1573 \fdsy@DeclareSymbol{\dosum}{largesymbols}{\mathop}
              \fdsy@DeclareAlias{\dmodtwosum}{largesymbols}{\mathop}
1575 \fdsy@DeclareSymbol{\tint}{largesymbols}{\mathop}
1576 \fdsy@DeclareSymbol{\dint}{largesymbols}{\mathop}
1577 \fdsy@DeclareSymbol{\tiint}{largesymbols}{\mathop}
1578 \fdsy@DeclareSymbol{\diint}{largesymbols}{\mathop}
1579 \fdsy@DeclareSymbol{\tiiint}{largesymbols}{\mathop}
1580 \fdsy@DeclareSymbol{\diiint}{largesymbols}{\mathop}
1581 \fdsy@DeclareSymbol{\tiiiint}{largesymbols}{\mathop}
1582 \fdsy@DeclareSymbol{\diiiint}{largesymbols}{\mathop}
1583 \fdsy@DeclareSymbol{\tidotsint}{largesymbols}{\mathop}
               \fdsy@DeclareAlias{\tdotsint}{largesymbols}{\mathop}
1585 \fdsy@DeclareSymbol{\didotsint}{largesymbols}{\mathop}
               \fdsy@DeclareAlias{\ddotsint}{largesymbols}{\mathop}
1587 \fdsy@DeclareSymbol{\tlandupint}{largesymbols}{\mathop}
1588
               \fdsy@DeclareAlias{\tintclockwise}{largesymbols}{\mathop}
1589 \fdsy@DeclareSymbol{\dlandupint}{largesymbols}{\mathop}
               \fdsy@DeclareAlias{\dintclockwise}{largesymbols}{\mathop}
1590
1591 \fdsy@DeclareSymbol{\tlanddownint}{largesymbols}{\mathop}
               \fdsy@DeclareAlias{\tawint}{largesymbols}{\mathop}
1592
1593
               \fdsy@DeclareAlias{\tintctrclockwise}{largesymbols}{\mathop}
```

```
1594 \fdsy@DeclareSymbol{\dlanddownint}{largesymbols}{\mathop}
     \fdsy@DeclareAlias{\dawint}{largesymbols}{\mathop}
     \fdsy@DeclareAlias{\dintctrclockwise}{largesymbols}{\mathop}
1597 \fdsy@DeclareSymbol{\tintbar}{largesymbols}{\mathop}
1598 \fdsy@DeclareSymbol{\dintbar}{largesymbols}{\mathop}
1599 \fdsy@DeclareSymbol{\tintBar}{largesymbols}{\mathop}
1600 \fdsy@DeclareSymbol{\dintBar}{largesymbols}{\mathop}
1601 \fdsy@DeclareSymbol{\tfint}{largesymbols}{\mathop}
1602 \fdsy@DeclareSymbol{\dfint}{largesymbols}{\mathop}
1603 \fdsy@DeclareSymbol{\toint}{largesymbols}{\mathop}
1604 \fdsy@DeclareSymbol{\doint}{largesymbols}{\mathop}
1605 \fdsy@DeclareSymbol{\toiint}{largesymbols}{\mathop}
1606 \fdsy@DeclareSymbol{\doiint}{largesymbols}{\mathop}
1607 \fdsy@DeclareSymbol{\toiiint}{largesymbols}{\mathop}
1608 \fdsy@DeclareSymbol{\doiiint}{largesymbols}{\mathop}
1609 \fdsy@DeclareSymbol{\trcirclerightint}{largesymbols}{\mathop}
     \fdsy@DeclareAlias{\tointctrclockwise}{largesymbols}{\mathop}
1611 \fdsy@DeclareSymbol{\drcirclerightint}{largesymbols}{\mathop}
     \fdsy@DeclareAlias{\dointctrclockwise}{largesymbols}{\mathop}
1613 \fdsy@DeclareSymbol{\tlcirclerightint}{largesymbols}{\mathop}
     \fdsy@DeclareAlias{\tvarointclockwise}{largesymbols}{\mathop}
1615 \fdsy@DeclareSymbol{\dlcirclerightint}{largesymbols}{\mathop}
     \fdsy@DeclareAlias{\dvarointclockwise}{largesymbols}{\mathop}
1617 \fdsy@DeclareSymbol{\trcircleleftint}{largesymbols}{\mathop}
     \fdsy@DeclareAlias{\tvarointctrclockwise}{largesymbols}{\mathop}
1619 \fdsy@DeclareSymbol{\drcircleleftint}{largesymbols}{\mathop}
     \fdsy@DeclareAlias{\dvarointctrclockwise}{largesymbols}{\mathop}
1621 \fdsy@DeclareSymbol{\tlcircleleftint}{largesymbols}{\mathop}
     \fdsy@DeclareAlias{\tointclockwise}{largesymbols}{\mathop}
1623 \fdsy@DeclareSymbol{\dlcircleleftint}{largesymbols}{\mathop}
     \fdsy@DeclareAlias{\dointclockwise}{largesymbols}{\mathop}
1625 \fdsy@DeclareSymbol{\tsumint}{largesymbols}{\mathop}
1626 \fdsy@DeclareSymbol{\dsumint}{largesymbols}{\mathop}
1627 \let\intop\tint
1628 \let\ointop\toint
1630 \fdsy@DeclareOperator{\bigplus}{\dbigplus}{\tbigplus}
1631 \fdsy@DeclareOperator{\bigtimes}{\dbigtimes}{\tbigtimes}
1632 \fdsy@DeclareOperator{\bigwedge}{\dbigwedge}{\tbigwedge}
1633 \fdsy@DeclareOperator{\bigvee}{\dbigvee}{\tbigvee}
1634\fdsy@DeclareOperator{\bigwedgedot}{\\dbigwedgedot}{\\tbigwedgedot}
{\tt 1635 \fdsy@DeclareOperator\{\bigveedot\}\{\dbigveedot\}\{\dbigveedot\}\{\dbigveedot\}\}} \\
1636 \fdsy@DeclareOperator{\bigdoublewedge}{\dbigdoublewedge}{\tbigdoublewedge}
1637 \fdsy@DeclareOperator{\conjquant}{\dconjquant}{\tconjquant}
1638 \fdsy@DeclareOperator{\bigdoublevee}{\dbigdoublevee}{\tbigdoublevee}
```

```
1639 \fdsy@DeclareOperator{\disjquant}{\ddisjquant}{\tdisjquant}
1640 \fdsy@DeclareOperator{\bigcurlywedge}{\dbigcurlywedge}{\tbigcurlywedge}
1641 \fdsy@DeclareOperator{\bigcurlyvee}{\dbigcurlyvee}{\tbigcurlyvee}
1642 \fdsy@DeclareOperator{\bigcurlywedgedot}{\dbigcurlywedgedot}{\tbigcurlywedgedot}
{\tt 1643 \fdsy@DeclareOperator\{\bigcurlyveedot\}\{\dbigcurlyveedot\}\{\dbigcurlyveedot\}\}} \\
1644 \fdsy@DeclareOperator{\bigdoublecurlywedge}{\dbigdoublecurlywedge}{\tbigdoublecurlywedge}
1645 \fdsy@DeclareOperator{\bigdoublecurlyvee}{\dbigdoublecurlyvee}{\tbigdoublecurlyvee}
1646 \fdsy@DeclareOperator{\bigcap}{\dbigcap}{\tbigcap}
1647 \fdsy@DeclareOperator{\bigcup}{\dbigcup}{\tbigcup}
1648 \fdsy@DeclareOperator{\bigcapdot}{\dbigcapdot}{\tbigcapdot}
1649 \fdsy@DeclareOperator{\bigcupdot}{\dbigcupdot}{\tbigcupdot}
1650 \fdsy@DeclareOperator{\bigcapplus}{\dbigcapplus}{\tbigcapplus}
1651 \fdsy@DeclareOperator{\bigcupplus}{\dbigcupplus}{\tbigcupplus}
1652 \fdsy@DeclareOperator{\biguplus}{\dbiguplus}{\tbiguplus}
1653 \fdsy@DeclareOperator{\bigsqcap}{\dbigsqcap}{\tbigsqcap}
{\tt 1654 \fdsy@DeclareOperator\{\bigsqcup\}{\dbigsqcup}{\tbigsqcup}} \\
1655 \fdsy@DeclareOperator{\bigsqcapdot}{\dbigsqcapdot}{\tbigsqcapdot}
1656\fdsy@DeclareOperator{\bigsqcupdot}{\dbigsqcupdot}{\tbigsqcupdot}
1657 \fdsy@DeclareOperator{\bigsqcapplus}{\\dbigsqcapplus}{\\tbigsqcapplus}
1658\fdsy@DeclareOperator{\bigsqcupplus}{\dbigsqcupplus}{\tbigsqcupplus}
{\tt 1659 \fdsy@DeclareOperator\{\bigoplus\}\{\tbigoplus\}\{\tbigoplus\}\{\tbigoplus\}\{\tbigoplus\}\}} \\
1660 \fdsy@DeclareOperator{\bigotimes}{\\dbigotimes}{\\tbigotimes}
1661 \fdsy@DeclareOperator{\bigodot}{\dbigodot}{\tbigodot}
1662 \fdsy@DeclareOperator{\bigoast}{\dbigoast}{\tbigoast}
1663 \fdsy@DeclareOperator{\sum}{\dsum}{\tsum}
1664 \fdsy@DeclareOperator{\osum}{\dosum}{\tosum}
1665 \fdsy@DeclareOperator{\modtwosum}{\dmodtwosum}{\tmodtwosum}
1666 \fdsy@DeclareOperator{\prod}{\dprod}{\tprod}
1667 \fdsy@DeclareOperator{\coprod}{\dcoprod}{\tcoprod}
1668 \fdsy@DeclareIntegral{\iint}{\diint}{\tiint}
{\tt 1669 \fdsy@DeclareIntegral{\iiint}{\diiint}{\tt tiiint}}
1670 \fdsy@DeclareIntegral{\iiiint}{\diiiint}{\tiiiint}
1671 \fdsy@DeclareIntegral{\idotsint}{\didotsint}{\tidotsint}
1672 \fdsy@DeclareIntegral{\dotsint}{\ddotsint}{\tdotsint}
1673 \fdsy@DeclareIntegral{\landupint}{\dlandupint}{\tlandupint}
1674 \fdsy@DeclareIntegral{\intclockwise}{\dintclockwise}{\tintclockwise}
1675 \fdsy@DeclareIntegral{\landdownint}{\tlanddownint}
1676 \fdsy@DeclareIntegral{\awint}{\dawint}{\tawint}
1677 \fdsy@DeclareIntegral{\intctrclockwise}{\dintctrclockwise}{\tintctrclockwise}
1678 \fdsy@DeclareIntegral{\landdownint}{\\dlanddownint}{\\tlanddownint}
1679 \fdsy@DeclareIntegral{\intbar}{\dintbar}{\tintbar}
1681 \fdsy@DeclareIntegral{\fint}{\dfint}{\tfint}
1682 \fdsy@DeclareIntegral{\oiint}{\doiint}{\toiint}
{\tt 1683 \fdsy@DeclareIntegral{\oiint}(\odoiiint){\otoiiint}}
```

```
1684 \fdsy@DeclareIntegral{\rcirclerightint}{\drcirclerightint}{\trcirclerightint}
1685 \fdsy@DeclareIntegral{\ointctrclockwise}{\dointctrclockwise}{\tointctrclockwise}
1686 \fdsy@DeclareIntegral{\lcirclerightint}{\\dlcirclerightint}{\\dlcirclerightint}
1687 \fdsy@DeclareIntegral{\varointclockwise}{\dvarointclockwise}{\tvarointclockwise}
{\tt 1688 \fdsy@DeclareIntegral{\rcircleleftint}{\drcircleleftint}} \\
1689 \fdsy@DeclareIntegral{\varointctrclockwise}{\dvarointctrclockwise}{\tvarointctrclockwise}
1690 \fdsy@DeclareIntegral{\lcircleleftint}{\dlcircleleftint}{\tlcircleleftint}
1691 \fdsy@DeclareIntegral{\ointclockwise}{\dointclockwise}{\tointclockwise}
1692 \fdsy@DeclareIntegral{\sumint}{\dsumint}{\tsumint}
1693
1695 \def\intdots@{\mkern-6mu%
     \mathchoice{\@cdots}%
     {{\cdotp}\mkern0.5mu{\cdotp}}%
1697
1698
     {{\cdotp}{\cdotp}}%
     {{\cdotp}{\cdotp}}%
1699
1700
     \mkern-6mu}
 Math accents.
1701 \DeclareMathAccent{\widehat}{\mathord}{largesymbols}{"72}
1702 \DeclareMathAccent{\widetilde}{\mathord}{largesymbols}{"78}
1703 \DeclareMathAccent{\wideparen}{\mathord}{\largesymbols}{"7E}
1704 \DeclareMathAccent{\vec}{\mathord}{largesymbols}{"84}
1705 \DeclareMathAccent{\middlebar}{\mathord}{largesymbols}{"85}
1706 \DeclareMathAccent{\middleslash}{\mathord}{largesymbols}{"86}
1707 \DeclareMathAccent{\strokethrough}{\mathord}{\largesymbols}{"87}
 FdSymbolF: delimiters
1708 \let\lfloor\undefined
1709 \let\rfloor\undefined
1710 \let\lceil\undefined
1711 \let\rceil\undefined
1712 \let\langle\undefined
1713 \let\rangle\undefined
1714 \iffdsy@largedelims
     \fdsy@DeclareOpen{(){delimiters}{"01}
     \fdsy@DeclareClose{)}{delimiters}{"07}
1716
     \fdsy@DeclareOpen{\lparen}{delimiters}{"01}
1717
     \fdsy@DeclareClose{\rparen}{delimiters}{"07}
1718
     \fdsy@DeclareOpen{[]{delimiters}{"13}
1719
     \fdsy@DeclareClose{]}{delimiters}{"19}
1720
     \fdsy@DeclareOpen{\lbrack}{delimiters}{"13}
1721
     \fdsy@DeclareClose{\rbrack}{delimiters}{"19}
1722
     \fdsy@DeclareOpen{\lfloor}{delimiters}{"1F}
1723
     \fdsy@DeclareClose{\rfloor}{delimiters}{"25}
1724
     \fdsy@DeclareOpen{\lceil}{delimiters}{"2B}
1725
     \fdsy@DeclareClose{\rceil}{delimiters}{"31}
```

```
\fdsy@DeclareOpen{\ulcorner}{delimiters}{"37}
1727
     \fdsy@DeclareClose{\urcorner}{delimiters}{"3D}
1728
1729
     \fdsy@DeclareOpen{\llcorner}{delimiters}{"43}
1730
     \fdsy@DeclareClose{\lrcorner}{delimiters}{"49}
     \fdsy@DeclareOpen{\ullcorner}{delimiters}{"4F}
1731
     \fdsy@DeclareClose{\ulrcorner}{delimiters}{"55}
1732
     \fdsy@DeclareOpen{\lsem}{delimiters}{"61}
1733
1734
     \fdsy@DeclareClose{\rsem}{delimiters}{"67}
1735
     \fdsy@DeclareOpen{\lBrack}{delimiters}{"61}
     \fdsy@DeclareClose{\rBrack}{delimiters}{"67}
1736
1737
     \fdsy@DeclareOpen{\lbrace}{delimiters}{"73}
     \fdsy@DeclareClose{\rbrace}{delimiters}{"79}
1738
     \fdsy@DeclareOpen{<}{delimiters}{"86}
1739
     \fdsy@DeclareClose{>}{delimiters}{"8C}
1740
1741
     \fdsy@DeclareOpen{\langle}{delimiters}{"86}
     \fdsy@DeclareClose{\rangle}{delimiters}{"8C}
1742
1743
     \fdsy@DeclareOpen{\lAngle}{delimiters}{"92}
     \fdsy@DeclareClose{\rAngle}{delimiters}{"98}
1744
     \fdsy@DeclareOpen{\langledot}{delimiters}{"9E}
1745
1746
     \fdsy@DeclareClose{\rangledot}{delimiters}{"A4}
     \fdsy@DeclareDelimiter{/}{\mathord}{delimiters}{"AA}
1747
1748
     \fdsy@DeclareDelimiter{\mathslash}{\mathord}{delimiters}{"AA}
     \DeclareMathSymbol{\divslash}{\mathbin}{delimiters}{"AA}
1749
     \fdsy@DeclareDelimiter{\backslash}{\mathord}{delimiters}{"B0}
1750
1751
     \expandafter\DeclareMathDelimiter\@backslashchar%
        {\mathord}{delimiters}{"B0}{delimiters}{"B0}
1752
1753
     \DeclareMathSymbol{\setminus}{\mathbin}{delimiters}{"B0}
     \fdsy@DeclareDelimiter{|}{\mathord}{delimiters}{"B7}
1754
     \fdsy@DeclareDelimiter{\vert}{\mathord}{delimiters}{"B7}
1755
     \fdsy@DeclareOpen{\lvert}{delimiters}{"B7}
1756
     \fdsy@DeclareClose{\rvert}{delimiters}{"B7}
1757
     \DeclareMathSymbol{\mid}{\mathrel}{delimiters}{"B7}
1758
     \DeclareMathSymbol{\nmid}{\mathrel}{delimiters}{"BA}
1759
     \fdsy@DeclareDelimiter{\Vert}{\mathord}{delimiters}{"BE}
1760
     \fdsy@DeclareOpen{\lVert}{delimiters}{"BE}
1761
1762
     \fdsy@DeclareClose{\rVert}{delimiters}{"BE}
     \DeclareMathSymbol{\parallel}{\mathrel}{delimiters}{"BE}
1763
     \DeclareMathSymbol{\nparallel}{\mathrel}{delimiters}{"C1}
1764
     \fdsy@DeclareDelimiter{\Vvert}{\mathord}{delimiters}{"C4}
1765
1766
     \fdsy@DeclareOpen{\lVvert}{delimiters}{"C4}
1767
     \fdsy@DeclareClose{\rVvert}{delimiters}{"C4}
1768 \else
     \fdsy@DeclareOpen{(){delimiters}{"00}
1769
     \fdsy@DeclareClose{)){delimiters}{"06}
1770
```

\fdsy@DeclareOpen{\lparen}{delimiters}{"00}

```
1772 \fdsy@DeclareClose{\rparen}{delimiters}{"06}
```

- 1773 \fdsy@DeclareOpen{[}{delimiters}{"12}
- 1774 \fdsy@DeclareClose{]}{delimiters}{"18}
- 1775 \fdsy@DeclareOpen{\lbrack}{delimiters}{"12}
- $\label{loss} \begin{tabular}{ll} 1776 & $$\delimiters${"18}$ \\ \end{tabular}$
- 1777 \fdsy@DeclareOpen{\lfloor}{delimiters}{"1E}
- 1778 \fdsy@DeclareClose{\rfloor}{delimiters}{"24}
- 1779 \fdsy@DeclareOpen{\lceil}{delimiters}{"2A}
- 1780 \fdsy@DeclareClose{\rceil}{delimiters}{"30}
- 1781 \fdsy@DeclareOpen{\ulcorner}{delimiters}{"36}
- 1782 \fdsy@DeclareClose{\urcorner}{delimiters}{"3C}
- 1783 \fdsy@DeclareOpen{\llcorner}{delimiters}{"42}
- 1784 \fdsy@DeclareClose{\lrcorner}{delimiters}{"48}
- $\label{localine} $$1785 \ \fdsy@DeclareOpen{\ullcorner}{delimiters}{"4E}$$
- 1786 \fdsy@DeclareClose{\ulrcorner}{delimiters}{"54}
- 1787 \fdsy@DeclareOpen{\lsem}{delimiters}{"60}
- 1788 \fdsy@DeclareClose{\rsem}{delimiters}{"66}
- 1789 \fdsy@DeclareOpen{\lBrack}{delimiters}{"60}
- 1790 \fdsy@DeclareClose{\rBrack}{delimiters}{"66}
- $\label{localized} $$1791 \ \fdsy@DeclareOpen{\localized} (272) $$$
- 1792 \fdsy@DeclareClose{\rbrace}{delimiters}{"78}
- 1793 \fdsy@DeclareOpen{<}{delimiters}{"85}
- 1794 \fdsy@DeclareClose{>}{delimiters}{"8B}
- 1795 \fdsy@DeclareOpen{\langle}{delimiters}{"85}
- 1796 \fdsy@DeclareClose{\rangle}{delimiters}{"8B}
- 1797 \fdsy@DeclareOpen{\lAngle}{delimiters}{"91}
- 1798 \fdsy@DeclareClose{\rAngle}{delimiters}{"97}
- 1799 \fdsy@DeclareOpen{\langledot}{delimiters}{"9D}
- 1800 \fdsy@DeclareClose{\rangledot}{delimiters}{"A3}
- 1801 \fdsy@DeclareDelimiter{/}{\mathord}{delimiters}{"A9}

- \fdsy@DeclareDelimiter{\backslash}{\mathord}{delimiters}{"AF}
- 1805 \expandafter\DeclareMathDelimiter\@backslashchar%
- 1806 {\mathord}{delimiters}{"AF}{delimiters}{"AF}
- 1807 \DeclareMathSymbol{\setminus}{\mathbin}{delimiters}{"AF}
- 1808 \fdsy@DeclareDelimiter{|}{\mathord}{delimiters}{"B6}
- 1809 \fdsy@DeclareDelimiter{\vert}{\mathord}{delimiters}{"B6}
- 1810 \fdsy@DeclareOpen{\lvert}{delimiters}{"B6}
- 1811 \fdsy@DeclareClose{\rvert}{delimiters}{"B6}
- 1812 \DeclareMathSymbol{\mid}{\mathrel}{delimiters}{"B6}
- 1813 \DeclareMathSymbol{\nmid}{\mathrel}{delimiters}{"B9}
- 1814 \fdsy@DeclareDelimiter{\Vert}{\mathord}{delimiters}{"BD}
- 1815 \fdsy@DeclareOpen{\lVert}{delimiters}{"BD}
- 1816 \fdsy@DeclareClose{\rVert}{delimiters}{"BD}

```
\DeclareMathSymbol{\parallel}{\mathrel}{delimiters}{"BD}
1817
              \DeclareMathSymbol{\nparallel}{\mathrel}{delimiters}{"C0}
1818
              \fdsy@DeclareDelimiter{\Vvert}{\mathord}{delimiters}{"C3}
1819
              \fdsy@DeclareOpen{\lVvert}{delimiters}{"C3}
\fdsy@DeclareClose{\rVvert}{delimiters}{"C3}
1822\fi
1823 \let\|\Vert
1824 \let\divides\mid
1825 \let\ndivides\nmid
1826 \DeclareMathSymbol{\shortmid}{\mathrel}{delimiters}{"B5}
1827 \DeclareMathSymbol{\nshortmid}{\mathrel}{delimiters}{"B8}
1828 \DeclareMathSymbol{\shortparallel}{\mathrel}{delimiters}{"BC}
1829 \DeclareMathSymbol{\nshortparallel}{\mathrel}{delimiters}{"BF}
1830 \fdsy@DeclareDelimiter{\arrowvert}{\mathord}{delimiters}{"BB}
1831 \fdsy@DeclareDelimiter{\Arrowvert}{\mathord}{delimiters}{"C2}
1832 \fdsy@DeclareClose{\lgroup}{delimiters}{"7E}
1833 \fdsy@DeclareOpen{\rgroup}{delimiters}{"7F}
1834 \fdsy@DeclareClose{\rmoustache}{delimiters}{"80}
1835 \fdsy@DeclareOpen{\lmoustache}{delimiters}{"81}
1836 \fdsy@DeclareDelimiter{\bracevert}{\mathord}{delimiters}{"84}
1837 \let\uparrow\undefined
1838 \let\downarrow\undefined
1839 \let\updownarrow\undefined
1840 \let\Uparrow\undefined
1841 \let\Downarrow\undefined
1842 \let\Updownarrow\undefined
1843 \DeclareMathDelimiter{\uparrow}{\mathrel}{arrows}{"01}{delimiters}{"C6}
1844 \ensuremath Delimiter {\ensuremath \ensuremath} {\ensuremath \ensuremath \ensuremath} {\ensuremath \ensuremath} {\ensuremath \ensuremath \ensuremath} {\ensuremath \ensuremath \ensuremath \ensuremath} {\ensuremath \ensuremath \e
1845 \DeclareMathDelimiter{\updownarrow}{\mathrel}{arrows}{"11}{delimiters}{"C8}
1846 \DeclareMathDelimiter{\Uparrow}{\mathrel}{arrows}{"09}{delimiters}{"C9}
1848 \label{limiters} \label{limiters}
   Horizontal braces.
1849 \DeclareMathSymbol{\braceld}{\mathord}{delimiters}{"CC}
1850 \DeclareMathSymbol{\bracelu}{\mathord}{delimiters}{"CD}
1851 \DeclareMathSymbol{\bracerd}{\mathord}{delimiters}{"CE}
1852 \DeclareMathSymbol{\braceru}{\mathord}{delimiters}{"CF}
1853 \DeclareMathSymbol{\bracemd}{\mathord}{delimiters}{"D0}
1854 \DeclareMathSymbol{\bracemu}{\mathord}{delimiters}{"D1}
1855 \DeclareMathSymbol{\bracemid}{\mathord}{delimiters}{"D2}
1856
1857 \def\bracefill@#1#2#3#4#5{%
              \med th #5#1\leq \hbox{$#4$}\hfill#2\leq \hbox{$#4$}\hfill#3$%
1858
1859 }
1860 \def\downbracefill@\bracefill@\braceld\bracemd\bracemid}
```

```
1861 \def\upbracefill@{\bracefill@\bracelu\bracemu\braceru\bracemid}
1862 \def\downgroupfill@{\bracefill@\braceld{}\bracerd\bracemid}
1863 \def\upgroupfill@{\bracefill@\bracelu{}\braceru\bracemid}
1865 \def\leftharpoonfill@{\arrowfill@\leftharpoondown\relbar\relbar}
1866 \def\rightharpoonfill@{\arrowfill@\relbar\relbar\rightharpoonup}
1868 \DeclareRobustCommand{\overbrace}[1]{%
1869
    \mathop{\mathpalette{\overarrow@\downbracefill@}{#1}}\limits%
1870 }
1871 \DeclareRobustCommand{\underbrace}[1]{%
    1874 \DeclareRobustCommand{\overgroup}{\mathpalette{\overarrow@\downgroupfill@}}
1875 \DeclareRobustCommand{\undergroup}{\mathpalette{\underarrow@\upgroupfill@}}
1876 \DeclareRobustCommand{\overlinesegment}{\mathpalette{\overarrow@\linesegmentfill@}}
1878 \DeclareRobustCommand{\overrightharpoon}{\mathpalette{\overarrow@\rightharpoonfill@}}
1879 \DeclareRobustCommand{\underlinesegment}{\mathpalette{\underarrow@\linesegmentfill@}}
 Radical symbols.
1880 \iffdsy@largedelims
    \DeclareMathRadical{\sqrtsign}{delimiters}{"D4}{delimiters}{"D4}
    \DeclareMathSymbol{\surd}{\mathop}{delimiters}{"D4}
1882
1883 \else
    \DeclareMathRadical{\sqrtsign}{delimiters}{"D3}{delimiters}{"D3}
1884
1885
    \DeclareMathSymbol{\surd}{\mathop}{delimiters}{"D3}
1886 \fi
 In the n-th root, we don't want the n to come too close to the radical (adopted from
 package lucimatx).
1887 \def\r@@t#1#2{\setbox\z@\hbox{$\m@th#1\sqrt{#2}$}%
    \dime^{ht}z@ \advance\dime^-dp\z@
1889
    \mkern5mu\raise.6\dimen@\copy\rootbox \mkern-8mu\box\z@}
 Mathchars.
1890 \DeclareMathSymbol{+}{\mathbin}{symbols}{"11}
1892 \DeclareMathSymbol{*}{\mathbin}{symbols}{"98}
1893 \DeclareMathSymbol{:}{\mathrel}{symbols}{"02}
1894 \DeclareMathSymbol{=}{\mathrel}{relations}{"00}
1895 \DeclareMathSymbol{<}{\mathrel}{relations}{"24}</pre>
1896 \DeclareMathSymbol{>}{\mathrel}{relations}{"25}
1897 \iffdsy@largedelims
    1898
    \DeclareMathSymbol{(){\mathopen}{delimiters}{"01}
    \DeclareMathSymbol{)}{\mathclose}{delimiters}{"07}
1900
```

```
\DeclareMathSymbol{[]{\mathopen}{delimiters}{"13}
1901
     \DeclareMathSymbol{]]{\mathclose}{delimiters}{"19}
1902
     \DeclareMathSymbol{/}{\mathord}{delimiters}{"AA}
1903
1904 \else
     \DeclareMathSymbol{|}{\mathord}{delimiters}{"B5}
1905
     \DeclareMathSymbol{(){\mathopen}{delimiters}{"00}
1906
     \DeclareMathSymbol{)){\mathclose}{delimiters}{"06}
1907
     \DeclareMathSymbol{[]{\mathopen}{delimiters}{"12}
     \DeclareMathSymbol{]}{\mathclose}{delimiters}{"18}
1909
1910
     \DeclareMathSymbol{/}{\mathord}{delimiters}{"A9}
1911\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.