

The `rmathbr` package

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1 Introduction

Repeating of math operator at the broken line and the new line in inline equations is used in Cyrillic mathematical typography (Russian for example), but unfortunately, \LaTeX doesn't provide such an option. There was an attempt to do it many years ago [see M.I. Grinchuk "TeX and Russian Traditions of Typesetting", TUGboat 17(4) (1996) 385], but there was no ready to use package.

This package extends ideas described in the "TeX and Russian Traditions of Typesetting" and supports most of \LaTeX 's mathematical packages (some known issues are listed in the "Known issues" section below).

2 Usage

Just include the package using `\usepackage{rmathbr}` command.

$$\begin{aligned} (a+b)^2 &= a^2 + 2ab + b^2, & a^3 \pm b^3 &= (a \pm b)(a^2 \mp ab + b^2), & \int x \sin ax \, dx &= -\frac{1}{a^2}(\sin ax - x \cos ax), \\ a^2 - b^2 &= (a + b)(a - b), & (1 - x)^{-2} &= \sum_{n=0}^{\infty} (n+1)x^n, & t_1 t_2 \cos \theta &= \vec{t}_1 \cdot \vec{t}_2, \end{aligned}$$

It's recommended to load `rmathbr` after other packages because `rmathbr` has special support of many math-related packages: `amsfonts`, `amssymb`, `amstex`, `bm`,

boisik, euler, eulervm, fourier, icomma, latexsym, lucbmath, lucidabr, lucmin, lucmtime, luctime, mathbbol, mathtools, mdwmath, program, sbbm, stmaryrd, wasysym, xy.

Please, submit any found bugs to <https://github.com/dryabov/rmathbr/issues>.

3 Options

Some aspects of the `rmathbr` can be altered using package options. In most cases, it should be sufficient to load the package without extra options, but sometimes it may be necessary to change default options for compatibility with other packages.

The “key=value” scheme is used with the following possible options (default value is printed in italics):

script	noactive <i>mathactive</i> active	This option declares what way <code>rmathbr</code> will affect <code>_</code> and <code>^</code> commands (sub- and superscripts). In the “noactive” mode, they have default \TeX behavior, but it may be necessary to manually wrap some indices into curly brackets, e.g. <code>A^{\star}</code> instead of just a <code>A^{\star}</code> . In the “mathactive” mode, both <code>_</code> and <code>^</code> become commands in math mode that process arguments properly, and extra wrapping is unnecessary. And in the “active” mode these commands can be used for scripts even in the text mode (e.g. <code>H_20</code>).
run	atload atbegindocument <i>auto</i>	This option declares when to affect math commands for hyphenation, directly at package loading time, or later at the <code>\begin{document}</code> . The latter is necessary to deal with packages that declare math symbols at the <code>\begin{document}</code> . The “auto” value allows to switch to the “atbegindocument” mode automatically (currently, if <code>unicode-math</code> or <code>mathtools</code> packages are loaded).
cdottimes	true <i>false</i>	Re-declare <code>\cdot</code> command as <code>\cdott</code> (see <code>\cdott</code> description below) to hyphenate it using the <code>\times</code> character. By default, it is disabled because <code>\cdot</code> is also used for scalar products (e.g. $\vec{a} \cdot \vec{b}$), and in this case, it is wrong to replace it with <code>\times</code> on break, because <code>\times</code> is usually used for cross products.
brokencolon	true <i>false</i>	According to Russian typography traditions, math expression shouldn’t be broken on the division character (<code>:</code>). But if you like to allow it, just set this option to true.

brokenminus	<i>true</i> <i>false</i>	Usually, it's allowed to break math expression on the “minus” character, but it's possible to disable it.
brokenbin	<i>true</i> <i>false</i>	This option disables breaks on binary operations (keeping relations only). See also <code>\BrokenBinOff</code> and <code>\BrokenBinOn</code> macros.

Internally, `scripts=mathactive` assigns the `mathactive` (12) category to `^` and `_` characters, `scripts=active` assigns the `active` (13) category, and `scripts=noactive` keeps default categories to `^` and `_` characters (7 and 8, correspondingly).

For backward compatibility, `rmathbr` supports the `noactivechars` option as an alias for `scripts=noactive`, the `mathactivechars` option as an alias for `scripts=mathactive`, and the `activechars` option as an alias for `scripts=active`. These options are deprecated, and it's recommended to switch to the corresponding `script` option.

4 Macros

<code>*</code>	Macro <code>*</code> is used to mark multiplication point that is invisible and changed to \times at the break only. E.g. <code>(a+b)*(a-b)</code> .
<code>\cdott</code>	This command displays <code>\cdot</code> (\cdot) that is changed to <code>\times</code> (\times) at the break.
<code>\nobr</code>	This command is used to prevent break expression on the following math operator. E.g. <code>a\nobr-b</code> .
<code>\SetBreakableRel</code>	Declares breakable relation operator, e.g. <code>\SetBreakableRel{\MyEqual}</code> .
<code>\SetBreakableBin</code>	Declares breakable binary operator, e.g. <code>\SetBreakableBin{\MyPlus}</code> .
<code>\SetBreakableInner</code>	Declares breakable “inner” expression, e.g. <code>\SetBreakableInner{\ldots}</code> .
<code>\SetOpenBracket</code>	Declares opening bracket (<code>rmathbr</code> disables break directly after brackets), e.g. <code>\SetOpenBracket{\MyOpenBracket}</code> .
<code>\SetMathOperator</code>	Declares math operator (<code>rmathbr</code> disables break directly after operators), e.g. <code>\SetMathOperator{\MySum}</code> .
<code>\SetPunctuation</code>	Declares punctuation command (<code>rmathbr</code> disables break directly after punctuation to prevent break and duplication in the case like <code>\$1,-1\$</code>), e.g. <code>\SetPunctuation{\MyColon}</code> .
<code>\UnsetBrokenCmd</code>	Restores original command, e.g. to avoid potential issues or conflicts with other packages. Usage example: <code>\UnsetBrokenCmd{\cdot}</code> to disable break on <code>\cdot</code> . Note that in the case of <code>run=atbegindocument</code> (or <code>auto</code>) this command should be used after <code>\begin{document}</code> .

`\BrokenBinOff`

Disables break on binary operations, see also `brokenbin=false` option.

`\BrokenBinOn`

Enables break on binary operations.

5 Known issues

- `breqn` package: cannot work together with `rmathbr` (as `breqn` redefines all the math in $\mathrm{T}_{\mathrm{E}}\mathrm{X}$)

6 Changelog

1.1 (11-December-2020)

- add support of XeTeX/LuaTeX and `unicode-math` package
- add new key-value options (`script`, `run`, `cdottimes`, `brokenminus`, `brokencolon`, `brokenbin`)
- add new commands (`\UnsetBrokenCmd`, `\BrokenBinOff` and `\BrokenBinOn`)
- add support of `mathtools` package
- add a patch for `bm` package
- add a patch for `xy` package
- remove dependence on `mathstyle` package
- fix math class for `=`, `<`, `>` (`\mathrel` instead of `\mathbin`)
- fix math class for `:` (`\mathbin` instead of `\mathrel`)
- fix processing of colon-related commands (e.g. `\coloneq` from `mathtools`, etc.)
- performance optimizations

1.0.3 (10-April-2016)

- fix issue with sub-/superscripts in `\Biggl`, `\biggl`, `\Bigl`, `\bigl`

1.0.2 (23-June-2015)

- fix issue with expanding of math operators

1.0.1 (14-June-2015)

- fix `\cdott`-related issues (thanks to Bruno Le Floch)
- fix some `\SetBreakableRel` and `\SetBreakableBin` declarations
- fix mathematical operators with `\limits` or `\nolimits`

1.0 (02-June-2015)

- fix break after math operators (`\sum`, `\int`, etc.)
- add documentation

0.99 (15-November-2010)

- don't hyphenate trailing mathsign (e.g. in $\$2+2=\$$)
- don't change redefined symbols (`\le`, `\ge`, `\to`, etc.)

0.98 (31-January-2010)

- fix hyphenation on `:=`
- correct work with `icomma` package and option `[icomma]` of `eulervm` package
- correct work with `program` package
- symbols have been added from `boisik`, `euler`, `fourier`, `lucbmath`, `lucidabr`, `lucmin`, `lucmtime`, `luctime`, `mathbbol`, `mdwmath`, `sbbm`, `stmaryrd`, and `wasysym` packages.
- remove shrinking of space in math (broke `url` package)
- don't hyphenate after punctuation ("`,`", "`;`", "`\colon`" etc.)
- create broken commands as robust ones
- some fixes of redeclaring of AMS commands
- commented hyphenation on `\ldots` and `\cdots`, as \TeX doesn't break here

0.97 (08-October-2009)

- fix problem with operators like "`+^\leq`"

0.96 (29-September-2009)

- fix problem with "`-`" in AMS's `\DeclareMathOperator`
- fix problem with `\ldots` in text mode

0.95 (28-September-2009)

- fix problem with sub/sup-scripts after relations
- fix hyphenation on `\ldots`
- AMS/Lucida left brackets (`\lvert`, `\lVert`, `\ulcorner`, `\llcorner`) support
- `mathbbol` left bracket (`\Lbrack`) support
- huge code refactoring

0.91 (21-September-2009)

- fix problem with problem with space after brackets

0.90 (20-September-2009)

- first public release

7 Code**Initialization**

Load required packages.

```
1 \RequirePackage{ifetex}
2 \RequirePackage{ifluatex}
```

```

3 \RequirePackage{xkeyval}

\mathbr@kv
4 \edef\mathbr@kv{\@currname.\@currentx}

\DeclareBoolOptionX The macro to declare boolean option.
5 \def\DeclareBoolOptionX#1#2{%
6   \define@boolkey{\mathbr@kv}[mathbr@kv@]{#1}[true]{#2}%
7 }

\DeclareChoiceOptionX The macro to declare multi-choice option.
8 \def\DeclareChoiceOptionX#1[#2]#3[#4]#5{%
9   \define@choicekey{\mathbr@kv}{#1}[#2]{#3}[#4]{#5}%
10 }

    Warn about known issues.
11 \@ifpackageloaded{breqn}{%
12   \PackageError{mathbr}{'mathbr' package cannot be used together with 'breqn' package!}{}%
13 }{}

```

Interface

```

\nobr Makes next symbol nonbreakable.
14 \def\nobr{\penalty\relpenalty}

\SetBreakableRel Makes breakable relation sign.
15 \def\SetBreakableRel#1{\mathbr@setbreakable{#1}{\brokenrel}}

\SetBreakableBin Makes breakable binary operation.
16 \def\SetBreakableBin#1{\mathbr@setbreakable{#1}{\brokenbin}}

\SetBreakableInner Makes breakable inner (like \ldots).
17 \def\SetBreakableInner#1{\mathbr@setbreakable{#1}{\brokeninner}}

\SetOpenBracket Disables breaks after open bracket.
18 \def\SetOpenBracket#1{\mathbr@nobrafter{#1}}

\SetPunctuation Disables breaks after punctuation sign.
19 \def\SetPunctuation#1{\mathbr@nobrafter{#1}}

\SetMathOperator Disables breaks after math operator.
20 \def\SetMathOperator#1{\mathbr@setbreakable{#1}{\mathbr@mathop}}

\UnsetBrokenCmd Restores original command.
21 \def\UnsetBrokenCmd#1{\mathbr@unsetbroken{#1}}

\BrokenBinOff Disables break on binary operations.
22 \def\BrokenBinOff{\mathbr@brokenbinoff}

\BrokenBinOn Enables break on binary operations.
23 \def\BrokenBinOn{\mathbr@brokenbinon}

```

`\brokenrel` Makes argument as breakable relation sign.
 24 `\DeclareRobustCommand{\brokenrel}[1]{\rmathbr@brokenrel{#1}}`

`\brokenbin` Makes argument as breakable binary operation.
 25 `\DeclareRobustCommand{\brokenbin}[1]{\rmathbr@brokenbin{#1}}`

`\brokeninner` Makes argument as breakable inner.
 26 `\DeclareRobustCommand{\brokeninner}[1]{\rmathbr@brokeninner{#1}}`

Options

Start to process options.

First of all, warn about deprecated options:

```

27 \xDeclareBoolOptionX{noactivechars}{
28   \ifrmathbr@kv@noactivechars
29     \PackageWarning{rmathbr}{^^J Option 'noactivechars' is deprecated.^^J
30                               Use 'scripts=noactive' instead.^^J}
31   \ExecuteOptionsX{scripts=noactive}
32 \fi
33 }

34 \xDeclareBoolOptionX{mathactivechars}{
35   \ifrmathbr@kv@mathactivechars
36     \PackageWarning{rmathbr}{^^J Option 'mathactivechars' is deprecated.^^J
37                               Use 'scripts=mathactive' instead.^^J}
38   \ExecuteOptionsX{scripts=mathactive}
39 \fi
40 }

41 \xDeclareBoolOptionX{activechars}{
42   \ifrmathbr@kv@activechars
43     \PackageWarning{rmathbr}{^^J Option 'activechars' is deprecated.^^J
44                               Use 'scripts=active' instead.^^J}
45   \ExecuteOptionsX{scripts=active}
46 \fi
47 }

```

Process script option:

```

48 \let\rmathbr@scriptsmode=\@ne
49 \xDeclareChoiceOptionX{scripts}{\val\nr}{noactive,mathactive,active}[mathactive]{
50   \ifcase\nr\relax
51     \let\rmathbr@scriptsmode=\z@
52   \or
53     \let\rmathbr@scriptsmode=\@ne
54   \or
55     \let\rmathbr@scriptsmode=\tw@
56 \fi
57 }

```

Set when to patch math commands, at the package loading or at the `\begin{document}` (i.e. after other packages are loaded and set its macros):

```

58 \newif\ifrmathbr@patch@begindocument

```

Note that by default 'atload' is used unless 'unicode-math' or 'mathtools' are loaded.

```

59 \xDeclareChoiceOptionX{run}[\val\nr]{atload,atbegindocument,auto}[auto]{
60   \ifcase\nr\relax
61     \rmathbr@patch@begindocumentfalse
62   \or
63     \rmathbr@patch@begindocumenttrue
64   \or
65     \@ifpackageloaded{unicode-math}{\rmathbr@patch@begindocumenttrue}{\}
66     \@ifpackageloaded{mathtools}{\rmathbr@patch@begindocumenttrue}{\}
67   \fi
68 }

```

The option to make \cdot works like \cdott:

```

69 \xDeclareBoolOptionX{cdottimes}{\}
    Other options (see documentation):
70 \xDeclareBoolOptionX{brokenminus}{\}
71 \xDeclareBoolOptionX{brokencolon}{\}
72 \xDeclareBoolOptionX{brokenbin}{\%
73   \ifrmathbr@kv@brokenbin
74   \else
75     \AtBeginDocument{\BrokenBinOff}
76   \fi
77 }

```

Default values:

```

78 \ExecuteOptionsX{scripts=mathactive}
79 \ExecuteOptionsX{run=auto}
80 \ExecuteOptionsX{cdottimes=false}
81 \ExecuteOptionsX{brokenminus=true}
82 \ExecuteOptionsX{brokencolon=false}
83 \ExecuteOptionsX{brokenbin=true}

```

Execute options:

```

84 \ProcessOptionsX

```

Implementation

Switch to scripts mode

```

85 \ifcase\rmathbr@scriptsmode
86   % nop
87 \or
88   \AtBeginDocument{\catcode'\^=12\mathcode'\^=32768\catcode'\_ =12\mathcode'\_ =32768}
89 \or
90   \AtBeginDocument{\catcode'\^ \active\catcode'\_ \active}
91 \fi

```

Store original penalty values (via mathchardef trick).

```

92 \mathchardef\rmathbr@orig@relpenalty=\relpenalty
93 \mathchardef\rmathbr@orig@binoppenalty=\binoppenalty

```

Independent hyphen penalties are supported by LuaTeX only. That's why we save default penalty to \exhyphenpenalty (as \exhyphenpenalty will be actual penalty for math breaks in T_EX and XeTeX).


```

94 \ifluatex\else
95   \exhyphenpenalty=\relpenalty
96 \fi

  Disable default breaks.
97 \relpenalty=13131
98 \binoppenalty=14141

\everymath First symbol/command in equation is nonbreakable.
99 \expandafter\everymath\expandafter{\the\everymath\nobr }

  Save some characters definitions.

\rmathbr@superscript@std
100 \begingroup\catcode'\^=7 \global\let\rmathbr@superscript@std=\^ \endgroup

\rmathbr@superscript@other
101 \begingroup\catcode'\^=12\global\let\rmathbr@superscript@other=\^ \endgroup

\rmathbr@subscript@std
102 \begingroup\catcode'\_ =8 \global\let\rmathbr@subscript@std=_ \endgroup

\rmathbr@subscript@other
103 \begingroup\catcode'\_ =12\global\let\rmathbr@subscript@other=_ \endgroup

\rmathbr@prime
104 \begingroup\catcode'\ '=12\global\let\rmathbr@prime=' \endgroup

\rmathbr@superscript
105 \def\rmathbr@superscript#1{\rmathbr@superscript@std{#{1}}}

\rmathbr@subscript
106 \def\rmathbr@subscript#1{\rmathbr@subscript@std{#{1}}}

  Setup sub- and superscripts.
107 \begingroup
108   \catcode'\^ \active \gdef\rmathbr@superscript{
109   \catcode'\_ \active \gdef\rmathbr@subscript{
110 \endgroup

111 \newif\ifrmathbr@activemathchar

  Check for XeTeX/LuaTeX
112 \ifx\Umathcode \@undefined

  Standard TeX

\rmathbr@checkmathchar
113   \def\rmathbr@checkmathchar#1{%
114     \ifnum\mathcode#1<32768\relax%
115       \rmathbr@activemathcharfalse%
116     \else%
117       \rmathbr@activemathchartrue%
118     \fi}

```

`\rmathbr@mathchar`

```
119 \def\rmathbr@mathchar#1{\mathchar\number\mathcode#1}
```

`\rmathbr@makeactivemathopen`

```
120 \def\rmathbr@makeactivemathopen#1{%
121   \begingroup
122   \xdef\@tempa{\mathopen\delimiter\number\delcode#1 \noexpand\nobr }
123   \begingroup\lccode'~=#1\catcode#1\active\lowercase{\endgroup\xdef~}{\@tempa}
124   \endgroup

125 }
126 \else
```

XeTeX/LuaTeX

`\rmathbr@activemathcode`

```
127 \begingroup
128 \mathcode'\+=8000
129 \xdef\rmathbr@activemathcode{\number\Umathcodenum'\+=}
130 \endgroup
```

`\rmathbr@checkmathchar`

```
131 \def\rmathbr@checkmathchar#1{%
132   \ifnum\Umathcodenum#1=\rmathbr@activemathcode\relax%
133   \expandafter\rmathbr@activemathchartrue%
134   \else%
135   \expandafter\rmathbr@activemathcharfalse%
136   \fi}
```

`\rmathbr@mathchar`

```
137 \def\rmathbr@mathchar#1{\Umathcharnum\number\Umathcodenum#1}
```

`\rmathbr@truncdiv`

```
138 \def\rmathbr@truncdiv#1#2{((#1-(#2-1)/2)/#2)}
```

`\rmathbr@modulo`

```
139 \def\rmathbr@modulo#1#2{(#1-\rmathbr@truncdiv{#1}{#2}*#2)}
```

`\rmathbr@makeactivemathopen`

```
140 \def\rmathbr@makeactivemathopen#1{%
141   \begingroup
142   \def\@tempa{\Udelcodenum#1}
143   \ifnum\@tempa<"1000000
144   \xdef\@tempb{\mathopen\delimiter\number\@tempa\space\noexpand\nobr }
145   \else
146   \xdef\@tempb{\mathopen\Udelimiter4 %
147 \number\numexpr\rmathbr@truncdiv{\rmathbr@modulo{\@tempa}{ "40000000}}{"200000}\relax%
148 \space\number\numexpr\rmathbr@modulo{\@tempa}{ "200000}\relax\noexpand\nobr }
149   \fi
150   \begingroup\lccode'~=#1\catcode#1\active\expandafter\lowercase\expandafter%
151 {\expandafter\endgroup\expandafter\gdef\expandafter~\expandafter}\expandafter{\@tempb}
152   \endgroup

153 }
154 \fi
```

`\rmathbr@makeactivemath`

```

155 \def\rmathbr@makeactivemath#1#2#3{
156   \begingroup
157     \rmathbr@checkmathchar{#1}
158     \lccode'~=#1
159     \catcode#1\active
160     \ifrmathbr@activemathchar
161       \PackageWarning{rmathbr}{Redeclare active math #1 symbol to default mathchar value}
162       \lowercase{\gdef~}{#2{#3}}
163     \else
164       \lowercase{\xdef~}{\noexpand#2{\rmathbr@mathchar{#1}}}
165     \fi
166   \endgroup
167 }
```

`\rmathbr@makeactivemathpunct`

```

168 \def\rmathbr@makeactivemathpunct#1#2{
169   \begingroup
170     \rmathbr@checkmathchar{#1}
171     \lccode'~=#1
172     \catcode#1\active
173     \ifrmathbr@activemathchar
174       \PackageWarning{rmathbr}{Redeclare active math #1 symbol to default mathchar value}
175       \lowercase{\gdef~}{\mathpunct#2\nobr }
176     \else
177       \lowercase{\xdef~}{\mathpunct\rmathbr@mathchar{#1} \noexpand\nobr }
178     \fi
179   \endgroup
180 }
```

```

181 \newif\ifrmathbr@protected
```

`\rmathbr@ifprotected`

```

182 \def\rmathbr@ifprotected#1{%
183   \rmathbr@protectedfalse
184   \edef\str@cmd{\string#1\space}
185   \edef\meaning@cmd{\meaning#1}
186   \def\str@contains##1##2{\begingroup\edef\x{\endgroup\noexpand\in@{##1}{##2}}\x}
187   \str@contains\str@cmd\meaning@cmd
188   \ifin@
189     \str@contains{\string\protect\space}\meaning@cmd
190     \ifin@\rmathbr@protectedtrue\else
191       \str@contains{\string\x\protect\space}\meaning@cmd
192       \ifin@\rmathbr@protectedtrue\else
193         \str@contains{\string\@testopt\space}\meaning@cmd
194         \ifin@\rmathbr@protectedtrue\else
195           \str@contains{\string\@protected@testopt\space}\meaning@cmd
196           \ifin@\rmathbr@protectedtrue\fi
197         \fi
198       \fi
199     \fi
200   \fi
201 }
```

`\rmathbr@ReDeclareRobustCommand` Command without arguments

```

202 \def\rmathbr@ReDeclareRobustCommand#1#2{%
203   \begingroup
204   \ifx#1\@undefined
205   \else
206     \edef\var@orig@I{\rmathbr@orig@\expandafter\@gobble\string#1}
207     \edef\var@Ispace{\expandafter\@gobble\string#1 }
208     \expandafter\ifx\csname\var@orig@I\endcsname\relax
209     \ifetex
210       \expandafter\global\expandafter\let\csname\var@orig@I\endcsname#1
211     \else
212       \rmathbr@ifprotected#1
213       \ifrmathbr@protected
214         \expandafter\global\expandafter\let\csname\var@orig@I\expandafter\endcsname%
215 \csname\var@Ispace\endcsname
216       \else
217         \expandafter\global\expandafter\let\csname\var@orig@I\endcsname#1
218       \fi
219     \fi
220   \fi
221   \ifetex
222     \protected\gdef#1{#2}
223   \else
224     \expandafter\gdef\csname\var@Ispace\endcsname{#2}% no arguments
225     \xdef#1{\noexpand\protect\expandafter\noexpand\csname\var@Ispace\endcsname}
226   \fi
227 \fi
228 \endgroup%
229 }
```

`\mathbr@ReDeclareRobustCommandI` Command with one argument

```

230 \def\rmathbr@ReDeclareRobustCommandI#1#2{%
231   \begingroup
232   \ifx#1\@undefined
233   \else
234     \edef\var@orig@I{\rmathbr@orig@\expandafter\@gobble\string#1}
235     \edef\var@Ispace{\expandafter\@gobble\string#1\space}
236     \expandafter\ifx\csname\var@orig@I\endcsname\relax
237     \ifetex
238       \expandafter\global\expandafter\let\csname\var@orig@I\endcsname#1
239     \else
240       \rmathbr@ifprotected#1
241       \ifrmathbr@protected
242         \expandafter\global\expandafter\let\csname\var@orig@I\expandafter\endcsname%
243 \csname\var@Ispace\endcsname
244       \else
245         \expandafter\global\expandafter\let\csname\var@orig@I\endcsname#1
246       \fi
247     \fi
248   \fi
249   \ifetex
250     \protected\gdef#1##1{#2}
251   \else
252     \expandafter\gdef\csname\var@Ispace\endcsname##1{#2}% one argument
```

```

253     \xdef#1{\noexpand\protect\expandafter\noexpand\csname\var@Ispace\endcsname}
254     \fi
255     \fi
256     \endgroup%
257 }

\brokenrel
258 \rmathbr@ReDeclareRobustCommandI{\brokenrel}{\rmathbr@brokenrel{#1}}

\brokenbin
259 \rmathbr@ReDeclareRobustCommandI{\brokenbin}{\rmathbr@brokenbin{#1}}

\brokeninner
260 \rmathbr@ReDeclareRobustCommandI{\brokeninner}{\rmathbr@brokeninner{#1}}%

261 \let\rmathbr@save@brokenrel=\brokenrel
262 \let\rmathbr@save@brokenbin@on=\brokenbin
263 \let\rmathbr@save@brokenbin=\brokenbin
264 \let\rmathbr@save@brokeninner=\brokeninner

\rmathbr@brokenbinon
265 \def\rmathbr@brokenbinon{%
266   \let\rmathbr@save@brokenbin=\rmathbr@save@brokenbin@on
267   \ifx\brokenbin\@firstofone\else
268     \let\brokenbin=\rmathbr@save@brokenbin
269   \fi
270 }

\rmathbr@brokenbinoff
271 \def\rmathbr@brokenbinoff{%
272   \let\rmathbr@save@brokenbin=\mathbin
273   \ifx\brokenbin\@firstofone\else
274     \let\brokenbin=\rmathbr@save@brokenbin
275   \fi
276 }

\rmathbr@setbrokens
277 \def\rmathbr@setbrokens{%
278   \let\brokenrel=\rmathbr@save@brokenrel
279   \let\brokenbin=\rmathbr@save@brokenbin
280   \let\brokeninner=\rmathbr@save@brokeninner
281   \let\rmathbr@colontest=\rmathbr@save@colontest
282 }

\rmathbr@unsetbrokens
283 \def\rmathbr@unsetbrokens{%
284   \let\brokenrel=\@firstofone
285   \let\brokenbin=\@firstofone
286   \let\brokeninner=\@firstofone
287   \let\rmathbr@colontest=\rmathbr@colon@std
288 }

```

```

\rmathbr@brokenrel
289 \def\rmathbr@brokenrel#1{%
290   \def\rmathbr@arg{#1}
291   \let\rmathbr@this=\rmathbr@brokenrel
292   \let\rmathbr@output=\rmathbr@@brokenrel
293   \futurelet\rmathbr@let@token\rmathbr@brokenop%
294 }

\rmathbr@brokenbin
295 \def\rmathbr@brokenbin#1{%
296   \def\rmathbr@arg{#1}
297   \let\rmathbr@this=\rmathbr@brokenbin
298   \let\rmathbr@output=\rmathbr@@brokenbin
299   \futurelet\rmathbr@let@token\rmathbr@brokenop%
300 }

\rmathbr@brokeninner
301 \def\rmathbr@brokeninner#1{%
302   \def\rmathbr@arg{#1}
303   \let\rmathbr@this=\rmathbr@brokeninner
304   \let\rmathbr@output=\rmathbr@@brokeninner
305   \futurelet\rmathbr@let@token\rmathbr@brokenop%
306 }

\rmathbr@mathop
307 \def\rmathbr@mathop#1{%
308   \def\rmathbr@arg{#1}
309   \let\rmathbr@this=\rmathbr@mathop
310   \let\rmathbr@output=\rmathbr@@mathop
311   \futurelet\rmathbr@let@token\rmathbr@brokenop%
312 }

\rmathbr@@brokenrel  LuaTeX only supports per-disc-node penalties
313 \def\rmathbr@@brokenrel#1{%
314   \ifnum\lastpenalty=\relpenalty
315     \mathrel{#1}
316   \else
317     \mathrel{#1}
318     \ifx$\rmathbr@let@token
319     \else
320       \begingroup
321         \hyphenpenalty\rmathbr@orig@relpenalty
322         \rmathbr@selector{#1}
323       \endgroup
324     \fi
325   \fi
326   \rmathbr@setbrokens
327   \penalty\relpenalty %
328 }

\rmathbr@@brokenbin
329 \def\rmathbr@@brokenbin#1{%
330   \ifnum\lastpenalty=\relpenalty

```

```

331     \mathbin{#1}
332   \else
333     \mathbin{#1}
334     \ifx$\rmathbr@let@token
335     \else
336       \begingroup
337         \hyphenpenalty\rmathbr@orig@binoppenalty
338         \rmathbr@selector{#1}
339       \endgroup
340     \fi
341   \fi
342   \rmathbr@setbrokens
343   \penalty\binoppenalty %
344 }

\rmathbr@@brokeninner
345 \def\rmathbr@@brokeninner#1{%
346   \ifnum\lastpenalty=\relpenalty
347     \mathinner{#1}
348   \else
349     \mathinner{#1}
350     \ifx$\rmathbr@let@token
351     \else
352       \begingroup
353         \hyphenpenalty\rmathbr@orig@relpenalty
354         \rmathbr@selector{#1}
355       \endgroup
356     \fi
357   \fi
358   \rmathbr@setbrokens
359   \penalty\relpenalty %
360 }

\rmathbr@@mathop
361 \def\rmathbr@@mathop#1{%
362   \rmathbr@setbrokens
363   #1\nobr %
364 }

\rmathbr@selector
365 \def\rmathbr@selector#1{%
366   \mathchoice
367     {\discretionary}{\hbox{$\m@th\displaystyle#1$}}{}}
368     {\discretionary}{\hbox{$\m@th\textstyle#1$}}{}}
369     {\discretionary}{\hbox{$\m@th\scriptstyle#1$}}{}}
370     {\discretionary}{\hbox{$\m@th\scriptscriptstyle#1$}}{}}}%
371 }

\rmathbr@brokenop
372 \def\rmathbr@brokenop{%
373   \ifmmode
374     \rmathbr@unsetbrokens
375     \ifx\rmathbr@subscript@std\rmathbr@let@token
376       \let\@command=\rmathbr@brokenglue

```

```

377 \else\ifx\rmathbr@subscript@other\rmathbr@let@token
378 \let\@command=\rmathbr@brokenglue
379 \else\ifx\rmathbr@superscript@std\rmathbr@let@token
380 \let\@command=\rmathbr@brokenglue
381 \else\ifx\rmathbr@superscript@other\rmathbr@let@token
382 \let\@command=\rmathbr@brokenglue
383 \else\ifx\limits\rmathbr@let@token
384 \let\@command=\rmathbr@brokenskip
385 \else\ifx\nolimits\rmathbr@let@token
386 \let\@command=\rmathbr@brokenskip
387 \else\ifx\rmathbr@prime\rmathbr@let@token
388 \let\@command=\rmathbr@brokenskip
389 \else\ifx\relax\rmathbr@let@token
390 \let\@command=\rmathbr@brokenskip
391 \else
392 \let\@command=\rmathbr@output
393 \fi\fi\fi\fi\fi\fi\fi\fi
394 \else
395 \let\@command=\relax
396 \fi
397 \expandafter\@command\expandafter{\rmathbr@arg}%
398 }

```

`\rmathbr@brokenglue`

```

399 \def\rmathbr@brokenglue#1#2#3{%
400 \def\rmathbr@temp{#1#2#3}}
401 \expandafter\rmathbr@this\expandafter{\rmathbr@temp}%
402 }

```

`\rmathbr@brokenskip`

```

403 \def\rmathbr@brokenskip#1#2{%
404 \def\rmathbr@temp{#1#2}
405 \expandafter\rmathbr@this\expandafter{\rmathbr@temp}%
406 }

```

`\rmathbr@setbreakable`

```

407 \def\rmathbr@setbreakable#1#2{%
408 \begingroup
409 \ifx#1\@undefined
410 \else
411 \edef\rmathbr@orig{\rmathbr@orig@\expandafter\@gobble\string#1}
412 \expandafter\ifx\csname\rmathbr@orig\endcsname\relax
413 \expandafter\rmathbr@ReDeclareRobustCommand\expandafter#1\expandafter{%
414 \expandafter#2\expandafter{\csname\rmathbr@orig\endcsname}}
415 \fi
416 \fi
417 \endgroup%
418 }

```

`\rmathbr@nobrafter`

```

419 \def\rmathbr@nobrafter#1{%
420 \begingroup
421 \ifx#1\@undefined
422 \else

```



```

423     \edef\rmathbr@orig{\rmathbr@orig@\expandafter\@gobble\string#1}
424     \expandafter\ifx\csname\rmathbr@orig\endcsname\relax
425         \expandafter\rmathbr@ReDeclareRobustCommand\expandafter#1\expandafter{%
426 \csname\rmathbr@orig\endcsname\nobr}
427     \fi
428 \fi
429 \endgroup%
430 }

\rmathbr@unsetbroken

431 \def\rmathbr@unsetbroken#1{
432     \begingroup
433     \ifx#1\@undefined
434     \else
435         \edef\rmathbr@orig{\rmathbr@orig@\expandafter\@gobble\string#1}
436         \expandafter\ifx\csname\rmathbr@orig\endcsname\relax
437     \else
438         \expandafter\global\expandafter\let\expandafter#1\csname\rmathbr@orig\endcsname
439         \fi
440     \fi
441     \endgroup%
442 }
```

Redeclaration of math signs

```

\rmathbr@patch@commands

443 \def\rmathbr@patch@commands{%

    Basic math.

=
444 \rmathbr@makeactivemath{'\={}\brokenrel}{\mathchar12349}

<
445 \rmathbr@makeactivemath{'\<{}\brokenrel}{\mathchar12604}

>
446 \rmathbr@makeactivemath{'\>{}\brokenrel}{\mathchar12606}

+
447 \rmathbr@makeactivemath{'\+{}\brokenbin}{\mathchar8235}

-
448 \ifrmathbr@kv@brokenminus
449     \rmathbr@makeactivemath{'\--{}\brokenbin}{\mathchar8704}
450 \fi

*
451 \rmathbr@makeactivemath{'\*{}\brokenbin}{\mathchar8707}

(
452 \rmathbr@makeactivemathopen{'\({}
```

```

[
453 \rmathbr@makeactivemathopen{'\[}

, Check for the icomma package and the eulervm package with icomma option.
454 \@ifpackageloaded{icomma}{%
455   \expandafter\def\expandafter\sm@rtcomma\expandafter{\sm@rtcomma\nobr}
456 }{
457   \ifx\domathcomma\undefined%
458     \rmathbr@makeactivemathpunct{'\,}{\mathchar24891}
459   \else%
460     \expandafter\def\expandafter\domathcomma\expandafter{\domathcomma\nobr}
461   \fi
462 }

; Check for the program package.
463 \@ifpackageloaded{program}{%
464   \begingroup
465     \catcode'\; \active
466     \lccode'\~=' \; %
467     \lowercase{\gdef~}{\ifmmode\semicolon\; \nobr\else\@semicolon\fi}
468   \endgroup
469 }{
470   \rmathbr@makeactivemathpunct{'\;}{\mathchar24635}
471 }

: Some extra code is necessary to distinguish between binary operation : and rela-
tion :=.
472 \begingroup%
473   \catcode'\: \active%
474   \lccode'\~=' \: %
475   \lowercase{\gdef~}{\rmathbr@colontest}%
476 \endgroup

\rmathbr@colontest Check for :=.
477 \def\rmathbr@colontest{\futurelet\rmathbr@let@token\rmathbr@do@colontest}

\rmathbr@do@colontest
478 \def\rmathbr@do@colontest{%
479   \ifx=\rmathbr@let@token
480     \expandafter\rmathbr@letsign
481   \else
482     \expandafter\rmathbr@colon
483   \fi
484 }%

485 \rmathbr@checkmathchar{'\:}
486 \ifrmathbr@activemathchar
487   \PackageWarning{rmathbr}{Redeclare active math '\: symbol to default mathchar value}
488   \def\rmathbr@colon@std{\mathchar12346}

```

```

489 \ifmathbr@kv@brokencolon
490   \def\rmathbr@colon{\brokenbin{\rmathbr@colon@std}}
491 \else
492   \def\rmathbr@colon{\mathbin{\rmathbr@colon@std}}
493 \fi
494 \def\rmathbr@letsign##1{\brokenrel{\rmathbr@colon@std\mathchar12349}}
495 \else
496   \edef\rmathbr@colon@std{\rmathbr@mathchar{'\:}}
497 \ifmathbr@kv@brokencolon
498   \def\rmathbr@colon{\brokenbin{\rmathbr@colon@std}}
499 \else
500   \def\rmathbr@colon{\mathbin{\rmathbr@colon@std}}
501 \fi
502 \edef\rmathbr@letsign##1{\noexpand\brokenrel{\rmathbr@colon@std\rmathbr@mathchar{'\:}}}
503 \fi
504 \let\rmathbr@save@colontest=\rmathbr@colontest%

Support of unicode-math package
505 \@ifpackageloaded{unicode-math}{
506   \begingroup
507     \def\UnicodeMathSymbol##1##2##3##4{%
508       \ifnum\number##1>127\relax
509         \expandafter\let\expandafter\@char\Uchar\number##1\relax
510         \ifx\@char##2\relax
511           \let\cmd\relax
512           \ifx##3\mathrel
513             \def\cmd{\brokenrel}
514           \else\ifx##3\mathbin
515             \def\cmd{\brokenbin}
516           \else\ifx##3\mathop
517             \def\cmd{\rmathbr@mathop}
518           \else\ifx##3\mathpunct
519             \let\cmd=\nobr
520           \fi\fi\fi\fi
521         \ifx\cmd\relax\else
522           \edef\var@orig@name{\rmathbr@orig@\expandafter\@gobble\string##2}
523           \expandafter\def\expandafter\var@orig\expandafter{\csname\var@orig@name\endcsname}
524           \rmathbr@checkmathchar{\number##1}
525           \ifmathbr@activemathchar
526             \begingroup
527               \lccode'\~=\number##1
528               \catcode\number##1\active
529               \lowercase{\endgroup\expandafter\global\expandafter\let\var@orig~}
530           \else
531             \expandafter\xdef\var@orig{\rmathbr@mathchar{\number##1}}
532             \global\mathcode\number##1="8000
533           \fi
534           \ifx\cmd\nobr
535             \edef\@tempa{\expandafter\noexpand\var@orig\noexpand\nobr}
536           \else
537             \edef\@tempa{\expandafter\noexpand\cmd{\expandafter\noexpand\var@orig}}

```

```

538         \fi
539         \begingroup
540             \lccode'~= \number##1
541             \catcode\number##1\active
542             \lowercase{\endgroup\expandafter\gdef\expandafter~\expandafter}{\@tempa}
543         \fi
544     \fi
545 \fi
546 }
547 \let\par=\relax
548 \catcode'\ "=12
549 @@input{unicode-math-table.tex}
550 \endgroup
551 }{}

```

\not Redeclare \not.

```

552 \mathbr@ReDeclareRobustCommandI{\not}{%
553     \begingroup
554         \edef\mathbr@orig{\mathbr@orig@\expandafter\@gobble\string##1}
555         \expandafter\let\expandafter\mathbr@origmacro\csname\mathbr@orig\endcsname
556         \ifx\mathbr@origmacro##1\relax
557             \begingroup
558                 \let##1=\mathbr@origmacro
559                 \brokenrel{\mathbr@orig@not##1}
560             \endgroup
561         \else
562             \brokenrel{\mathbr@orig@not##1}
563         \fi
564     \endgroup%
565 }

```

Open brackets.

```

566 \mathbr@ReDeclareRobustCommandI{\bigl}{\mathbr@mathop{\mathopen\big##1}}
567 \mathbr@ReDeclareRobustCommandI{\Bigl}{\mathbr@mathop{\mathopen\Big##1}}
568 \mathbr@ReDeclareRobustCommandI{\biggl}{\mathbr@mathop{\mathopen\bigg##1}}
569 \mathbr@ReDeclareRobustCommandI{\Biggl}{\mathbr@mathop{\mathopen\Bigg##1}}
570 \SetOpenBracket{\lmoustache}
571 \SetOpenBracket{\langle}
572 \SetOpenBracket{\lbrace}
573 \SetOpenBracket{\lceil}
574 \SetOpenBracket{\lfloor}
575 \SetOpenBracket{\lggroup}
576 \SetOpenBracket{\lvert}
577 \SetOpenBracket{\lVert}
578 \SetOpenBracket{\ulcorner}
579 \SetOpenBracket{\llcorner}
580 \SetOpenBracket{\Lbrack}

```

Math operators.

```

581 \SetMathOperator{\coprod}
582 \SetMathOperator{\bigvee}
583 \SetMathOperator{\bigwedge}
584 \SetMathOperator{\biguplus}
585 \SetMathOperator{\bigcap}

```

```

586 \SetMathOperator{\bigcup}
587 \SetMathOperator{\int}
588 \SetMathOperator{\prod}
589 \SetMathOperator{\sum}
590 \SetMathOperator{\bigotimes}
591 \SetMathOperator{\bigoplus}
592 \SetMathOperator{\bigodot}
593 \SetMathOperator{\oint}
594 \SetMathOperator{\bigsqcup}
595 \SetMathOperator{\smallint}

```

Punctuations.

```

596 \SetPunctuation{\ldotp}
597 \SetPunctuation{\cdotp}
598 \SetPunctuation{\colon}
599 \SetPunctuation{\period}

```

Binary Operations.

```

600 \SetBreakableBin{\triangleleft}
601 \SetBreakableBin{\triangleright}
602 \SetBreakableBin{\bigtriangleup}
603 \SetBreakableBin{\bigtriangledown}
604 \SetBreakableBin{\wedge} \SetBreakableBin{\land}
605 \SetBreakableBin{\vee} \SetBreakableBin{\lor}
606 \SetBreakableBin{\cap}
607 \SetBreakableBin{\cup}
608 \SetBreakableBin{\ddagger}
609 \SetBreakableBin{\dagger}
610 \SetBreakableBin{\sqcap}
611 \SetBreakableBin{\sqcup}
612 \SetBreakableBin{\uplus}
613 \SetBreakableBin{\amalg}
614 \SetBreakableBin{\diamond}
615 \SetBreakableBin{\bullet}
616 \SetBreakableBin{\wr}
617 \SetBreakableBin{\div}
618 \SetBreakableBin{\odot}
619 \SetBreakableBin{\oslash}
620 \SetBreakableBin{\otimes}
621 \SetBreakableBin{\ominus}
622 \SetBreakableBin{\oplus}
623 \SetBreakableBin{\mp}
624 \SetBreakableBin{\pm}
625 \SetBreakableBin{\circ}
626 \SetBreakableBin{\bigcirc}
627 \SetBreakableBin{\setminus}
628 \SetBreakableBin{\ast}
629 \SetBreakableBin{\star}
630 \SetBreakableBin{\times}
631 \SetBreakableBin{\cdot}

```

`\rmathbr@cdott` `\cdott` is `\cdot` that is changed to `\times` at break point.

```

632 \def\rmathbr@cdott{%
633   $\begingroup\hyphenpenalty\rmathbr@orig@binoppenalty\discretionary%
634     {\hbox{$\mathit{\rmathbr@orig@times}$}}%

```

```

635     {\hbox{$\m@th\rmathbr@orig@times$}}}%
636     {\hbox{$\m@th\mkern\medmuskip\rmathbr@orig@cdot\mkern\medmuskip$}}\endgroup$
637 }

\cdott
638 \def\cdott{%
639   \ifmmode
640     \ifetex
641       \ifinner%
642         \ifnum\currentgrouptype=15\relax
643           \rmathbr@cdott
644         \else
645           \rmathbr@orig@cdot
646         \fi
647       \else
648         \rmathbr@orig@cdot
649       \fi
650     \else
651       \rmathbr@cdott
652     \fi
653   \else
654     \rmathbr@orig@cdot
655   \fi
656 }

\cdot
657 \ifrmathbr@kv@cdottimes
658   \let\cdot\cdott
659 \fi

\*
660 \def\*{\mathbin{}}%
661   \begingroup%
662     \hyphenpenalty\rmathbr@orig@binoppenalty%
663     \mathchoice{%
664       \discretionary{\hbox{$\m@th\displaystyle\mkern\thinmuskip\times$}}}%
665       {\hbox{$\m@th\displaystyle\times\mkern\thinmuskip$}}{\}%
666     }{%
667       \discretionary{\hbox{$\m@th\textstyle\mkern\thinmuskip\times$}}}%
668       {\hbox{$\m@th\textstyle\times\mkern\thinmuskip$}}{\}%
669     }{%
670       \discretionary{\hbox{$\m@th\scriptstyle\mkern\thinmuskip\times$}}}%
671       {\hbox{$\m@th\scriptstyle\times\mkern\thinmuskip$}}{\}%
672     }{%
673       \discretionary{\hbox{$\m@th\scriptscriptstyle\mkern\thinmuskip\times$}}}%
674       {\hbox{$\m@th\scriptscriptstyle\times\mkern\thinmuskip$}}{\}%
675     }%
676   \endgroup%
677   \penalty\binoppenalty%
678 }

Relations.
679 \SetBreakableRel{\propto}
680 \SetBreakableRel{\sqsubseteq}

```

```

681 \SetBreakableRel{\sqsupseteq}
682 \SetBreakableRel{\parallel}
683 \SetBreakableRel{\mid}
684 \SetBreakableRel{\dashv}
685 \SetBreakableRel{\vdash}
686 \SetBreakableRel{\leq} \SetBreakableRel{\le}
687 \SetBreakableRel{\geq} \SetBreakableRel{\ge}
688 \SetBreakableRel{\succ}
689 \SetBreakableRel{\prec}
690 \SetBreakableRel{\approx}
691 \SetBreakableRel{\succeq}
692 \SetBreakableRel{\preceq}
693 \SetBreakableRel{\supset}
694 \SetBreakableRel{\subset}
695 \SetBreakableRel{\supseteq}
696 \SetBreakableRel{\subseteq}
697 \SetBreakableRel{\in}
698 \SetBreakableRel{\ni} \SetBreakableRel{\owns}
699 \SetBreakableRel{\gg}
700 \SetBreakableRel{\ll}
701 \SetBreakableRel{\sim}
702 \SetBreakableRel{\simeq}
703 \SetBreakableRel{\perp}
704 \SetBreakableRel{\equiv}
705 \SetBreakableRel{\asymp}
706 \SetBreakableRel{\smile}
707 \SetBreakableRel{\frown}
708 \SetBreakableRel{\models}
709 \SetBreakableRel{\cong}
710 \SetBreakableRel{\notin}
711 \SetBreakableRel{\doteq}
712 \SetBreakableRel{\bowtie}
713 \SetBreakableRel{\neq} % Works well without \SetBreakableRel
714 \SetBreakableRel{\ne} % Works well without \SetBreakableRel

Arrows.

715 \SetBreakableRel{\nearrow}
716 \SetBreakableRel{\searrow}
717 \SetBreakableRel{\narrow}
718 \SetBreakableRel{\swarrow}
719 \SetBreakableRel{\Leftrightarrow}
720 \SetBreakableRel{\Leftarrow}
721 \SetBreakableRel{\Rightarrow}
722 \SetBreakableRel{\Leftrightarrow}
723 \SetBreakableRel{\leftarrow} \SetBreakableRel{\gets}
724 \SetBreakableRel{\rightarrow} \SetBreakableRel{\to}
725 \SetBreakableRel{\leftharpoonup}
726 \SetBreakableRel{\leftharpoondown}
727 \SetBreakableRel{\rightharpoonup}
728 \SetBreakableRel{\rightharpoondown}
729 \SetBreakableRel{\longleftarrow}
730 \SetBreakableRel{\Longleftarrow}
731 \SetBreakableRel{\longrightarrow}
732 \SetBreakableRel{\Longrightarrow}
733 \SetBreakableRel{\longleftrightarrow}

```

```

734 \SetBreakableRel{\Longleftarrow}
735 \SetBreakableRel{\mapsto}
736 \SetBreakableRel{\longmapsto}
737 \SetBreakableRel{\hookrightarrow}
738 \SetBreakableRel{\hookleftarrow}
739 \SetBreakableRel{\rightleftharpoons}

  Commands from latexsym.
740 \SetBreakableBin{\lhd}
741 \SetBreakableBin{\unlhd}
742 \SetBreakableBin{\rhd}
743 \SetBreakableBin{\unrhd}
744 \SetBreakableRel{\Join}
745 \SetBreakableRel{\leadsto}
746 \SetBreakableRel{\sqsubset}
747 \SetBreakableRel{\sqsupset}

  Support amsfonts package
748 \@ifpackageloaded{amsfonts}{
749   \SetBreakableRel{\dashrightarrow} \SetBreakableRel{\dasharrow}
750   \SetBreakableRel{\dashleftarrow}
751   \SetBreakableRel{\vartriangleright}
752   \SetBreakableRel{\vartriangleleft}
753   \SetBreakableRel{\trianglerighteq}
754   \SetBreakableRel{\trianglelefteq}
755   \SetBreakableRel{\rightsquigarrow} \SetBreakableRel{\leadsto}
756 }{}

  Support amssymb package
757 \@ifpackageloaded{amssymb}{
758   \SetBreakableBin{\boxdot}
759   \SetBreakableBin{\boxplus}
760   \SetBreakableBin{\boxtimes}
761   \SetBreakableBin{\centerdot}
762   \SetBreakableBin{\boxminus}
763   \SetBreakableBin{\veebar}
764   \SetBreakableBin{\barwedge}
765   \SetBreakableBin{\doublebarwedge}
766   \SetBreakableBin{\Cup} \SetBreakableBin{\doublecup}
767   \SetBreakableBin{\Cap} \SetBreakableBin{\doublecap}
768   \SetBreakableBin{\curlywedge}
769   \SetBreakableBin{\curlyvee}
770   \SetBreakableBin{\leftthreetimes}
771   \SetBreakableBin{\rightthreetimes}
772   \SetBreakableBin{\dotplus}
773   \SetBreakableBin{\intercal}
774   \SetBreakableBin{\circledcirc}
775   \SetBreakableBin{\circledast}
776   \SetBreakableBin{\circleddash}
777   \SetBreakableBin{\divideontimes}
778   \SetBreakableBin{\lessdot}
779   \SetBreakableBin{\gtrdot}
780   \SetBreakableBin{\ltimes}
781   \SetBreakableBin{\rtimes}
782   \SetBreakableBin{\smallsetminus}

```



```

783 \SetBreakableRel{\circlearrowright}
784 \SetBreakableRel{\circlearrowleft}
785 \SetBreakableRel{\leftrightharpoons}
786 \SetBreakableRel{\Vdash}
787 \SetBreakableRel{\Vvdash}
788 \SetBreakableRel{\vDash}
789 \SetBreakableRel{\twoheadrightarrow}
790 \SetBreakableRel{\twoheadleftarrow}
791 \SetBreakableRel{\leftleftarrows}
792 \SetBreakableRel{\rightrightarrows}
793 \SetBreakableRel{\upuparrows}
794 \SetBreakableRel{\downdownarrows}
795 \SetBreakableRel{\upharpoonright} \SetBreakableRel{\restriction}
796 \SetBreakableRel{\downharpoonright}
797 \SetBreakableRel{\upharpoonleft}
798 \SetBreakableRel{\downharpoonleft}
799 \SetBreakableRel{\rightarrowtail}
800 \SetBreakableRel{\leftarrowtail}
801 \SetBreakableRel{\leftrightarrows}
802 \SetBreakableRel{\rightleftarrows}
803 \SetBreakableRel{\Lsh}
804 \SetBreakableRel{\Rsh}
805 \SetBreakableRel{\rightsquigarrow}
806 \SetBreakableRel{\leftrightsquigarrow}
807 \SetBreakableRel{\looparrowleft}
808 \SetBreakableRel{\looparrowright}
809 \SetBreakableRel{\circeq}
810 \SetBreakableRel{\succsim}
811 \SetBreakableRel{\gtrsim}
812 \SetBreakableRel{\gtrapprox}
813 \SetBreakableRel{\multimap}
814 \SetBreakableRel{\therefore}
815 \SetBreakableRel{\because}
816 \SetBreakableRel{\doteqdot} \SetBreakableRel{\Doteq}
817 \SetBreakableRel{\triangleq}
818 \SetBreakableRel{\precsim}
819 \SetBreakableRel{\lessim}
820 \SetBreakableRel{\lessapprox}
821 \SetBreakableRel{\eqslantless}
822 \SetBreakableRel{\eqslantgtr}
823 \SetBreakableRel{\curlyeqprec}
824 \SetBreakableRel{\curlyeqsucc}
825 \SetBreakableRel{\preccurlyeq}
826 \SetBreakableRel{\leqq}
827 \SetBreakableRel{\leqslant}
828 \SetBreakableRel{\lessgtr}
829 \SetBreakableRel{\risingdotseq}
830 \SetBreakableRel{\fallingdotseq}
831 \SetBreakableRel{\succcurlyeq}
832 \SetBreakableRel{\geqq}
833 \SetBreakableRel{\geqslant}
834 \SetBreakableRel{\gtrless}
835 \SetBreakableRel{\vartriangleright}
836 \SetBreakableRel{\vartriangleleft}

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837 \SetBreakableRel{\trianglerighteq}
838 \SetBreakableRel{\trianglelefteq}
839 \SetBreakableRel{\between}
840 \SetBreakableRel{\blacktriangleright}
841 \SetBreakableRel{\blacktriangleleft}
842 \SetBreakableRel{\vartriangle}
843 \SetBreakableRel{\eqcirc}
844 \SetBreakableRel{\lesseqgtr}
845 \SetBreakableRel{\gtreqless}
846 \SetBreakableRel{\lesseqgtr}
847 \SetBreakableRel{\gtreqless}
848 \SetBreakableRel{\Rrightarrow}
849 \SetBreakableRel{\Lleftarrow}
850 \SetBreakableRel{\varpropto}
851 \SetBreakableRel{\smallsmile}
852 \SetBreakableRel{\smallfrown}
853 \SetBreakableRel{\Subset}
854 \SetBreakableRel{\Supset}
855 \SetBreakableRel{\subteq}
856 \SetBreakableRel{\supseteq}
857 \SetBreakableRel{\bumpeq}
858 \SetBreakableRel{\Bumpeq}
859 \SetBreakableRel{\lll} \SetBreakableRel{\llless}
860 \SetBreakableRel{\ggg} \SetBreakableRel{\gggtr}
861 \SetBreakableRel{\pitchfork}
862 \SetBreakableRel{\backsim}
863 \SetBreakableRel{\backsimeq}
864 \SetBreakableRel{\lvertneqq}
865 \SetBreakableRel{\gvertneqq}
866 \SetBreakableRel{\nleq}
867 \SetBreakableRel{\ngeq}
868 \SetBreakableRel{\nless}
869 \SetBreakableRel{\ngtr}
870 \SetBreakableRel{\nprec}
871 \SetBreakableRel{\nsucc}
872 \SetBreakableRel{\lneqq}
873 \SetBreakableRel{\gneqq}
874 \SetBreakableRel{\nleqslant}
875 \SetBreakableRel{\ngeqslant}
876 \SetBreakableRel{\lneq}
877 \SetBreakableRel{\gneq}
878 \SetBreakableRel{\npreceq}
879 \SetBreakableRel{\nsucceq}
880 \SetBreakableRel{\precnsim}
881 \SetBreakableRel{\succnsim}
882 \SetBreakableRel{\lnsim}
883 \SetBreakableRel{\gnsim}
884 \SetBreakableRel{\lneqq}
885 \SetBreakableRel{\ngeqq}
886 \SetBreakableRel{\precneqq}
887 \SetBreakableRel{\succneqq}
888 \SetBreakableRel{\precnapprox}
889 \SetBreakableRel{\succnapprox}
890 \SetBreakableRel{\lnapprox}

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891 \SetBreakableRel{\gnapprox}
892 \SetBreakableRel{\nsim}
893 \SetBreakableRel{\ncong}
894 \SetBreakableRel{\varsubsetneq}
895 \SetBreakableRel{\varsupsetneq}
896 \SetBreakableRel{\nsubseteqq}
897 \SetBreakableRel{\nsupseteqq}
898 \SetBreakableRel{\subseteqqq}
899 \SetBreakableRel{\supseteqqq}
900 \SetBreakableRel{\varsubsetneqq}
901 \SetBreakableRel{\varsupsetneqq}
902 \SetBreakableRel{\subsetneq}
903 \SetBreakableRel{\supsetneq}
904 \SetBreakableRel{\nsubseteq}
905 \SetBreakableRel{\nsupseteq}
906 \SetBreakableRel{\nparallel}
907 \SetBreakableRel{\nmid}
908 \SetBreakableRel{\nshortmid}
909 \SetBreakableRel{\nshortparallel}
910 \SetBreakableRel{\nvdash}
911 \SetBreakableRel{\nVdash}
912 \SetBreakableRel{\nvDash}
913 \SetBreakableRel{\nVDash}
914 \SetBreakableRel{\ntrianglerighteq}
915 \SetBreakableRel{\ntrianglelefteq}
916 \SetBreakableRel{\ntriangleleft}
917 \SetBreakableRel{\ntriangleright}
918 \SetBreakableRel{\nleftarrow}
919 \SetBreakableRel{\nrightarrow}
920 \SetBreakableRel{\nLeftarrow}
921 \SetBreakableRel{\nRightarrow}
922 \SetBreakableRel{\nLeftrightarrow}
923 \SetBreakableRel{\nleftrightharpoonup}
924 \SetBreakableRel{\eqsim}
925 \SetBreakableRel{\shortmid}
926 \SetBreakableRel{\shortparallel}
927 \SetBreakableRel{\thicksim}
928 \SetBreakableRel{\thickapprox}
929 \SetBreakableRel{\approxeq}
930 \SetBreakableRel{\succapprox}
931 \SetBreakableRel{\precapprox}
932 \SetBreakableRel{\curvearrowleft}
933 \SetBreakableRel{\curvearrowright}
934 \SetBreakableRel{\backepsilon}
935 }{}

Support amstex package
936 \@ifpackageloaded{amstex}{
937 \SetBreakableRel{\vartriangleright} \SetBreakableRel{\rhd}
938 \SetBreakableRel{\vartriangleleft} \SetBreakableRel{\lhd}
939 \SetBreakableRel{\trianglerighteq} \SetBreakableRel{\unrhd}
940 \SetBreakableRel{\trianglelefteq} \SetBreakableRel{\unlhd}
941 \SetBreakableRel{\rightsquigarrow} \SetBreakableRel{\leadsto}
942 }{}

```

Support boisik package

```

943 \@ifpackageloaded{boisik}{
944   \SetMathOperator{\intup}
945   \SetOpenBracket{\binampersand}
946   \SetBreakableRel{\upharpoonright}
947   \SetBreakableRel{\downharpoonright}
948   \SetBreakableRel{\upharpoonleft}
949   \SetBreakableRel{\downharpoonleft}
950   \SetBreakableRel{\leftrightharpoons}
951   \SetBreakableRel{\rightleftarrows}
952   \SetBreakableRel{\leftrightharpoons}
953   \SetBreakableRel{\leftleftarrows}
954   \SetBreakableRel{\rightrightarrows}
955   \SetBreakableRel{\upuparrows}
956   \SetBreakableRel{\downdownarrows}
957   \SetBreakableRel{\twoheadrightarrow}
958   \SetBreakableRel{\twoheadleftarrow}
959   \SetBreakableRel{\rightarrowtail}
960   \SetBreakableRel{\leftarrowtail}
961   \SetBreakableRel{\rightsquigarrow}
962   \SetBreakableRel{\leftrightsquigarrow}
963   \SetBreakableRel{\Lsh}
964   \SetBreakableRel{\Rsh}
965   \SetBreakableRel{\looparrowleft}
966   \SetBreakableRel{\looparrowright}
967   \SetBreakableRel{\circlearrowright}
968   \SetBreakableRel{\circlearrowleft}
969   \SetBreakableRel{\curvearrowleft}
970   \SetBreakableRel{\curvearrowright}
971   \SetBreakableRel{\nleftarrow}
972   \SetBreakableRel{\nrightarrow}
973   \SetBreakableRel{\nleftrightarrow}
974   \SetBreakableRel{\nLeftarrow}
975   \SetBreakableRel{\nRightarrow}
976   \SetBreakableRel{\nLeftrightarrow}
977   \SetBreakableRel{\Lleftarrow}
978   \SetBreakableRel{\Rrightarrow}
979   \SetBreakableRel{\nLeftrightarrow}
980   % \SetBreakableRel{\lhook}
981   % \SetBreakableRel{\rhook}
982   \SetBreakableRel{\multimap}
983   \SetBreakableRel{\multimapdot}
984   \SetBreakableRel{\therefore}
985   \SetBreakableRel{\because}
986   \SetBreakableRel{\between}
987   \SetBreakableRel{\Vdash}
988   \SetBreakableRel{\Vvdash}
989   \SetBreakableRel{\VDash}
990   \SetBreakableRel{\vDash}
991   \SetBreakableRel{\smallsmile}
992   \SetBreakableRel{\smallfrown}
993   \SetBreakableRel{\shortmid}
994   \SetBreakableRel{\shortparallel}
995   \SetBreakableRel{\thickapprox}

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```

996 \SetBreakableBin{\divideontimes}
997 \SetBreakableBin{\lessdot}
998 \SetBreakableBin{\gtrdot}
999 \SetBreakableRel{\bumpeq}
1000 \SetBreakableRel{\Bumpeq}
1001 \SetBreakableRel{\leqslant}
1002 \SetBreakableRel{\geqslant}
1003 \SetBreakableRel{\eqslantless}
1004 \SetBreakableRel{\eqslantgtr}
1005 \SetBreakableRel{\curlyeqprec}
1006 \SetBreakableRel{\curlyeqsucc}
1007 \SetBreakableRel{\preccurlyeq}
1008 \SetBreakableRel{\succcurlyeq}
1009 \SetBreakableRel{\thicksim}
1010 \SetBreakableRel{\backsim}
1011 \SetBreakableRel{\eqsim}
1012 \SetBreakableRel{\backsimeq}
1013 \SetBreakableBin{\ltimes}
1014 \SetBreakableBin{\rtimes}
1015 \SetBreakableRel{\lll} \SetBreakableRel{\llless}
1016 \SetBreakableRel{\ggg} \SetBreakableRel{\gggtr}
1017 \SetBreakableRel{\triangleq}
1018 \SetBreakableRel{\circeq}
1019 \SetBreakableRel{\eqcirc}
1020 \SetBreakableRel{\doteqdot} \SetBreakableRel{\Doteq}
1021 \SetBreakableRel{\risingdotseq}
1022 \SetBreakableRel{\fallingdotseq}
1023 \SetBreakableRel{\varpropto}
1024 \SetBreakableRel{\vartriangleright}
1025 \SetBreakableRel{\vartriangleleft}
1026 \SetBreakableRel{\trianglerighteq}
1027 \SetBreakableRel{\trianglelefteq}
1028 \SetBreakableRel{\blacktriangleright}
1029 \SetBreakableRel{\blacktriangleleft}
1030 \SetBreakableRel{\vartriangle}
1031 \SetBreakableBin{\centerdot}
1032 \SetBreakableBin{\boxplus}
1033 \SetBreakableBin{\boxminus}
1034 \SetBreakableBin{\boxtimes}
1035 \SetBreakableBin{\boxdot}
1036 \SetBreakableBin{\circledcirc}
1037 \SetBreakableBin{\circledast}
1038 \SetBreakableBin{\circleddash}
1039 \SetBreakableBin{\intercal}
1040 \SetBreakableRel{\prurel}
1041 \SetBreakableRel{\scurel}
1042 \SetBreakableRel{\disin}
1043 \SetBreakableRel{\nisd}
1044 \SetBreakableRel{\fatlash}
1045 \SetBreakableRel{\fatbslash}
1046 \SetBreakableRel{\nequiv}
1047 \SetBreakableRel{\bagmember}
1048 \SetBreakableRel{\lvertneqq}
1049 \SetBreakableRel{\gvertneqq}

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1050 \SetBreakableRel{\nleq}
1051 \SetBreakableRel{\ngeq}
1052 \SetBreakableRel{\nless}
1053 \SetBreakableRel{\ngtr}
1054 \SetBreakableRel{\nprec}
1055 \SetBreakableRel{\nsucc}
1056 \SetBreakableRel{\lneqq}
1057 \SetBreakableRel{\gneqq}
1058 \SetBreakableRel{\nleqslant}
1059 \SetBreakableRel{\ngeqslant}
1060 \SetBreakableRel{\lneq}
1061 \SetBreakableRel{\gneq}
1062 \SetBreakableRel{\npreceq}
1063 \SetBreakableRel{\nsucceq}
1064 \SetBreakableRel{\nleqq}
1065 \SetBreakableRel{\ngeqq}
1066 \SetBreakableRel{\lnsim}
1067 \SetBreakableRel{\gnsim}
1068 \SetBreakableRel{\precnsim}
1069 \SetBreakableRel{\succnsim}
1070 \SetBreakableRel{\precneqq}
1071 \SetBreakableRel{\succneqq}
1072 \SetBreakableRel{\nsim}
1073 \SetBreakableRel{\ncong}
1074 \SetBreakableRel{\lnapprox}
1075 \SetBreakableRel{\gnapprox}
1076 \SetBreakableRel{\precnapprox}
1077 \SetBreakableRel{\succnapprox}
1078 \SetBreakableRel{\nsubset}
1079 \SetBreakableRel{\nsupset}
1080 \SetBreakableRel{\varsubsetneq}
1081 \SetBreakableRel{\varsupsetneq}
1082 \SetBreakableRel{\nsubseteq}
1083 \SetBreakableRel{\nsupseteq}
1084 \SetBreakableRel{\subsetneq}
1085 \SetBreakableRel{\supsetneq}
1086 \SetBreakableRel{\varsubsetneqq}
1087 \SetBreakableRel{\varsupsetneqq}
1088 \SetBreakableRel{\subsetneq}
1089 \SetBreakableRel{\supsetneq}
1090 \SetBreakableRel{\nsubseteq}
1091 \SetBreakableRel{\nsupseteq}
1092 \SetBreakableRel{\nparallel}
1093 \SetBreakableRel{\nmid}
1094 \SetBreakableRel{\nshortmid}
1095 \SetBreakableRel{\nshortparallel}
1096 \SetBreakableRel{\nvdash}
1097 \SetBreakableRel{\nVdash}
1098 \SetBreakableRel{\nvDash}
1099 \SetBreakableRel{\nVDash}
1100 \SetBreakableRel{\ntrianglerighteq}
1101 \SetBreakableRel{\ntrianglelefteq}
1102 \SetBreakableRel{\ntriangleleft}
1103 \SetBreakableRel{\ntriangleright}

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1104 \SetBreakableRel{\precapprox}
1105 \SetBreakableRel{\succapprox}
1106 \SetBreakableRel{\preccsim}
1107 \SetBreakableRel{\succsim}
1108 \SetBreakableRel{\lessssim}
1109 \SetBreakableRel{\gtrsim}
1110 \SetBreakableRel{\lessapprox}
1111 \SetBreakableRel{\gtrapprox}
1112 \SetBreakableRel{\leqq}
1113 \SetBreakableRel{\geqq}
1114 \SetBreakableRel{\lessgtr}
1115 \SetBreakableRel{\gtrless}
1116 \SetBreakableRel{\lesseqgtr}
1117 \SetBreakableRel{\gtreqless}
1118 \SetBreakableRel{\lesseqgtr}
1119 \SetBreakableRel{\gtreqless}
1120 \SetBreakableRel{\Subset}
1121 \SetBreakableRel{\Supset}
1122 \SetBreakableBin{\Cup} \SetBreakableBin{\doublecup}
1123 \SetBreakableBin{\Cap} \SetBreakableBin{\doublecap}
1124 \SetBreakableRel{\subseteq}
1125 \SetBreakableRel{\supseteq}
1126 \SetBreakableBin{\curlywedge}
1127 \SetBreakableBin{\curlyvee}
1128 \SetBreakableBin{\veebar}
1129 \SetBreakableBin{\barwedge}
1130 \SetBreakableBin{\doublebarwedge}
1131 \SetBreakableBin{\leftthreetimes}
1132 \SetBreakableBin{\rightthreetimes}
1133 \SetBreakableBin{\smallsetminus}
1134 \SetBreakableRel{\approxeq}
1135 \SetBreakableBin{\dotplus}
1136 \SetBreakableRel{\pitchfork}
1137 \SetBreakableBin{\oblong}
1138 \SetBreakableBin{\talloblong}
1139 \SetBreakableBin{\sslash}
1140 \SetBreakableBin{\bbslash}
1141 \SetBreakableRel{\hash}
1142 \SetBreakableRel{\varhash}
1143 \SetBreakableBin{\convolution}
1144 \SetBreakableBin{\coAsterisk}
1145 \SetBreakableRel{\veeeq}
1146 \SetBreakableRel{\corresponds}
1147 \SetBreakableRel{\arceq}
1148 \SetBreakableRel{\CircledEq}
1149 \SetBreakableRel{\eqbumped}
1150 \SetBreakableRel{\dotminus}
1151 \SetBreakableRel{\kernelcontraction}
1152 \SetBreakableRel{\dotsim}
1153 \SetBreakableRel{\simdots}
1154 \SetBreakableBin{\circplus}
1155 \SetBreakableBin{\dotimes}
1156 \SetBreakableBin{\vartimes}
1157 \SetBreakableBin{\merge}

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1158 \SetBreakableBin{\veeonvee}
1159 \SetBreakableBin{\obs slash}
1160 \SetBreakableBin{\otop}
1161 \SetBreakableBin{\obot}
1162 \SetBreakableBin{\oleft}
1163 \SetBreakableBin{\oright}
1164 \SetBreakableBin{\obar}
1165 \SetBreakableBin{\otriangle}
1166 \SetBreakableBin{\olessthan}
1167 \SetBreakableBin{\ogreaterthan}
1168 \SetBreakableBin{\ovee}
1169 \SetBreakableBin{\owedge}
1170 \SetBreakableBin{\boxbslash}
1171 \SetBreakableBin{\boxtop}
1172 \SetBreakableBin{\boxbot}
1173 \SetBreakableBin{\boxleft}
1174 \SetBreakableBin{\boxright}
1175 \SetBreakableBin{\boxbar}
1176 \SetBreakableBin{\boxslash}
1177 \SetBreakableBin{\boxtriangle}
1178 \SetBreakableBin{\boxast}
1179 \SetBreakableBin{\boxcircle}
1180 \SetBreakableBin{\boxdivision}
1181 \SetBreakableBin{\boxbox}
1182 \SetBreakableBin{\diamondop}
1183 \SetBreakableBin{\diamondminus}
1184 \SetBreakableBin{\diamondbar}
1185 \SetBreakableBin{\diamondtimes}
1186 \SetBreakableBin{\diamondplus}
1187 \SetBreakableBin{\diamondtriangle}
1188 \SetBreakableBin{\diamondcircle}
1189 \SetBreakableBin{\cupleftarrow}
1190 \SetBreakableBin{\varcup}
1191 \SetBreakableBin{\varcap}
1192 \SetBreakableBin{\varsqcup}
1193 \SetBreakableBin{\varsqcap}
1194 \SetBreakableRel{\sqsubset}
1195 \SetBreakableRel{\sqsupset}
1196 \SetBreakableRel{\inplus}
1197 \SetBreakableRel{\niplus}
1198 \SetBreakableRel{\varisins}
1199 \SetBreakableRel{\varnis}
1200 \SetBreakableRel{\subsetplus}
1201 \SetBreakableRel{\supsetplus}
1202 \SetBreakableRel{\subsetpluseq}
1203 \SetBreakableRel{\supsetpluseq}
1204 \SetBreakableBin{\nplus}
1205 \SetBreakableBin{\sqplus}
1206 \SetBreakableRel{\multimapboth}
1207 \SetBreakableRel{\multimapdotboth}
1208 \SetBreakableRel{\multimapdotbothB}
1209 \SetBreakableRel{\multimapdotbothA}
1210 \SetBreakableRel{\multimapinv}
1211 \SetBreakableRel{\multimapdotinv}

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1212 \SetBreakableRel{\multimapbothvert}
1213 \SetBreakableRel{\multimapdotbothvert}
1214 \SetBreakableRel{\multimapdotbothBvert}
1215 \SetBreakableRel{\multimapdotbothAvert}
1216 \SetBreakableRel{\dfourier}
1217 \SetBreakableRel{\Dfourier}
1218 \SetBreakableRel{\ztransf}
1219 \SetBreakableRel{\Ztransf}
1220 \SetBreakableRel{\Lt}
1221 \SetBreakableRel{\Gt}
1222 \SetBreakableBin{\leftslice}
1223 \SetBreakableBin{\rightslice}
1224 \SetBreakableRel{\trianglelefteqslant}
1225 \SetBreakableRel{\trianglerighteqslant}
1226 \SetBreakableBin{\Ydown}
1227 \SetBreakableBin{\Yup}
1228 \SetBreakableBin{\Yleft}
1229 \SetBreakableBin{\Yright}
1230 \SetBreakableRel{\dashVv}
1231 \SetBreakableRel{\DashV}
1232 \SetBreakableRel{\DashV}
1233 \SetBreakableRel{\dashV}
1234 \SetBreakableBin{\lbag}
1235 \SetBreakableBin{\rbag}
1236 \SetBreakableRel{\Perp}
1237 \SetBreakableBin{\moo}
1238 \SetBreakableBin{\baro}
1239 \SetBreakableBin{\pluscirc}
1240 \SetBreakableBin{\minuso}
1241 \SetBreakableRel{\llcurly}
1242 \SetBreakableRel{\ggcurly}
1243 \SetBreakableRel{\strictfi}
1244 \SetBreakableRel{\strictif}
1245 \SetBreakableRel{\ac}
1246 \SetBreakableBin{\varintercal}
1247 \SetBreakableRel{\equalparallel}
1248 \SetBreakableBin{\plustrif}
1249 \SetBreakableBin{\smashtimes}
1250 \SetBreakableRel{\lrcir}
1251 \SetBreakableRel{\gtcir}
1252 \SetBreakableRel{\glj}
1253 \SetBreakableBin{\Vee}
1254 \SetBreakableBin{\Wedge}
1255 \SetBreakableBin{\fatsemi}
1256 \SetBreakableRel{\forkv}
1257 \SetBreakableRel{\topfork}
1258 \SetBreakableRel{\twoheaduparrow}
1259 \SetBreakableRel{\twoheaddownarrow}
1260 \SetBreakableRel{\mapsfrom}
1261 \SetBreakableRel{\mapsup}
1262 \SetBreakableRel{\mapsgdown}
1263 \SetBreakableRel{\nVleftarrow}
1264 \SetBreakableRel{\nVrightarrow}
1265 \SetBreakableRel{\rightarrowcircle}

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1266 \SetBreakableRel{\narrowcorner}
1267 \SetBreakableRel{\nearrowcorner}
1268 \SetBreakableRel{\barovernorthwestarrow}
1269 \SetBreakableRel{\carriagereturn}
1270 \SetBreakableRel{\linefeed}
1271 \SetBreakableRel{\leftzigzagarrow}
1272 \SetBreakableRel{\Narrow}
1273 \SetBreakableRel{\Nearrow}
1274 \SetBreakableRel{\Svarrow}
1275 \SetBreakableRel{\Searrow}
1276 \SetBreakableRel{\nHuparrow}
1277 \SetBreakableRel{\nHdownarrow}
1278 \SetBreakableRel{\updownarrowbar}
1279 \SetBreakableRel{\barleftarrow}
1280 \SetBreakableRel{\rightarrowbar}
1281 \SetBreakableRel{\leftsquigarrow}
1282 \SetBreakableRel{\rightsquigarrow}
1283 \SetBreakableRel{\leftrightsquigarrow}
1284 \SetBreakableRel{\downzigzagarrow}
1285 \SetBreakableRel{\rightthreearrows}
1286 \SetBreakableRel{\barleftarrowrightarrowbar}
1287 \SetBreakableRel{\leftdasharrow}
1288 \SetBreakableRel{\rightdasharrow}
1289 \SetBreakableRel{\updasharrow}
1290 \SetBreakableRel{\downdasharrow}
1291 \SetBreakableRel{\upwhitearrow}
1292 \SetBreakableRel{\downwhitearrow}
1293 \SetBreakableRel{\whitearrowupfrombar}
1294 \SetBreakableRel{\whitearrowuppedestal}
1295 \SetBreakableRel{\whitearrowuppedestalthbar}
1296 \SetBreakableRel{\whitearrowuppedestaltvbar}
1297 \SetBreakableRel{\twoheadwhiteuparrow}
1298 \SetBreakableRel{\twoheadwhiteuparrowpedestal}
1299 \SetBreakableRel{\updownwhitearrow}
1300 \SetBreakableRel{\leftblackarrow}
1301 \SetBreakableRel{\rightblackarrow}
1302 \SetBreakableRel{\upblackarrow}
1303 \SetBreakableRel{\downblackarrow}
1304 \SetBreakableRel{\leftrightblackarrow}
1305 \SetBreakableRel{\updownblackarrow}
1306 \SetBreakableRel{\curlyveeuparrow}
1307 \SetBreakableRel{\curlyveedownarrow}
1308 \SetBreakableRel{\curlywedguparrow}
1309 \SetBreakableRel{\curlywedgedownarrow}
1310 \SetBreakableRel{\Mapsfrom}
1311 \SetBreakableRel{\Mapsto}
1312 \SetBreakableRel{\leftwhitearrow}
1313 \SetBreakableRel{\rightwhitearrow}
1314 \SetBreakableRel{\leftwhiteroundarrow}
1315 \SetBreakableRel{\rightwhiteroundarrow}
1316 \SetBreakableRel{\righttoleftarrow}
1317 \SetBreakableRel{\lefttorightarrow}
1318 \SetBreakableRel{\looparrowdownleft}
1319 \SetBreakableRel{\looparrowdownright}

```

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1320 \SetBreakableRel{\uptodownarrow}
1321 \SetBreakableRel{\downtoupward}
1322 \SetBreakableRel{\nnearrow}
1323 \SetBreakableRel{\ssearrow}
1324 \SetBreakableRel{\nnwarrow}
1325 \SetBreakableRel{\sswarrow}
1326 \SetBreakableRel{\curvearrowleft}
1327 \SetBreakableRel{\curvearrowright}
1328 \SetBreakableRel{\curvearrowlefttright}
1329 \SetBreakableRel{\curvearrowbotleft}
1330 \SetBreakableRel{\curvearrowbotright}
1331 \SetBreakableRel{\curvearrowbotleftright}
1332 \SetBreakableRel{\leftrightharroweq}
1333 \SetBreakableRel{\eqleftrightharrow}
1334 \SetBreakableRel{\dlsh}
1335 \SetBreakableRel{\drsh}
1336 \SetBreakableRel{\leftarrowtriangle}
1337 \SetBreakableRel{\rightarrowtriangle}
1338 \SetBreakableRel{\leftrightharrowtriangle}
1339 \SetBreakableRel{\leftarrowtriangle}
1340 \SetBreakableRel{\rightarrowtriangle}
1341 \SetBreakableRel{\leftrightharrowtriangle}
1342 }{}

```

Support euler package

```

1343 \@ifpackageloaded{euler}{% euler
1344 \SetBreakableRel{\uparrow}
1345 \SetBreakableRel{\downarrow}
1346 \SetBreakableRel{\updownarrow}
1347 \SetBreakableRel{\Upward}
1348 \SetBreakableRel{\Downward}
1349 \SetBreakableRel{\Updownarrow}
1350 % \SetBreakableRel{\lhook}
1351 % \SetBreakableRel{\rhook}
1352 }{}

```

Support fourier package

```

1353 \@ifpackageloaded{fourier}{
1354 \SetMathOperator{\iint}
1355 \SetMathOperator{\iiint}
1356 \SetMathOperator{\oiint}
1357 \SetMathOperator{\oiint}
1358 \SetMathOperator{\slashint}
1359 \SetOpenBracket{\llbracket}
1360 \SetBreakableRel{\leqslant}
1361 \SetBreakableRel{\geqslant}
1362 \SetBreakableRel{\parallel}
1363 \SetBreakableRel{\vDash}
1364 \SetBreakableRel{\blacktriangleleft}
1365 \SetBreakableRel{\blacktriangleright}
1366 \SetBreakableRel{\nleqslant}
1367 \SetBreakableRel{\ngeqslant}
1368 \SetBreakableRel{\nparallel}
1369 \SetBreakableRel{\nparallel}
1370 \SetBreakableRel{\nvDash}

```

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1371 \SetBreakableBin{\intercal}
1372 \SetBreakableRel{\varsubsetneq}
1373 \SetBreakableRel{\notowns}
1374 \SetBreakableBin{\smallsetminus}
1375 \SetBreakableRel{\subsetneqq}
1376 \SetBreakableRel{\rightrightarrows}
1377 \SetBreakableRel{\leftleftarrows}
1378 \SetBreakableRel{\curvearrowleft}
1379 \SetBreakableRel{\curvearrowright}
1380 \SetBreakableRel{\Downarrow}
1381 }{}

Support Lucida font packages (lucbmath, lucidabr, lucmin, lucmtime, luctime)
1382 \ifnum\@ifpackageloaded{lucbmath}{1}{%
1383 \@ifpackageloaded{lucidabr}{1}{%
1384 \@ifpackageloaded{lucmin}{1}{%
1385 \@ifpackageloaded{lucmtime}{1}{%
1386 \@ifpackageloaded{luctime}{1}{0}}}}=1\relax%
1387 \SetMathOperator{\surfant}
1388 \SetMathOperator{\midint}
1389 \SetMathOperator{\midoint}
1390 \SetMathOperator{\midsurfant}
1391 \SetMathOperator{\largeint}
1392 \SetBreakableRel{\leadsfrom}
1393 \SetBreakableRel{\defineequal}
1394 \SetBreakableRel{\notequiv}
1395 \SetBreakableRel{\notapprox}
1396 \SetBreakableRel{\notasymp}
1397 \SetBreakableRel{\notsubset}
1398 \SetBreakableRel{\notsupset}
1399 \SetBreakableRel{\notsim}
1400 \SetBreakableRel{\notsubsequal}
1401 \SetBreakableRel{\notsupseteq}
1402 \SetBreakableRel{\notsimeq}
1403 \SetBreakableRel{\notsqsubseteq}
1404 \SetBreakableRel{\notsqsupseteq}
1405 \SetBreakableRel{\notcong}
1406 \SetBreakableRel{\notni}
1407 \SetBreakableBin{\boxdot}
1408 \SetBreakableBin{\boxplus}
1409 \SetBreakableBin{\boxtimes}
1410 \SetBreakableBin{\centerdot}
1411 \SetBreakableRel{\circlearrowright}
1412 \SetBreakableRel{\circlearrowleft}
1413 \SetBreakableRel{\leftrightharpoons}
1414 \SetBreakableBin{\boxminus}
1415 \SetBreakableRel{\Vdash}
1416 \SetBreakableRel{\Vvdash}
1417 \SetBreakableRel{\vDash}
1418 \SetBreakableRel{\twoheadrightarrow}
1419 \SetBreakableRel{\twoheadleftarrow}
1420 \SetBreakableRel{\leftleftarrows}
1421 \SetBreakableRel{\rightrightarrows}
1422 \SetBreakableRel{\upuparrows}
1423 \SetBreakableRel{\downdownarrows}

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1424 \SetBreakableRel{\upharpoonright}
1425 \SetBreakableRel{\downharpoonright}
1426 \SetBreakableRel{\upharpoonleft}
1427 \SetBreakableRel{\downharpoonleft}
1428 \SetBreakableRel{\rightarrowtail}
1429 \SetBreakableRel{\leftarrowtail}
1430 \SetBreakableRel{\leftrightarrows}
1431 \SetBreakableRel{\rightleftarrows}
1432 \SetBreakableRel{\Lsh}
1433 \SetBreakableRel{\Rsh}
1434 \SetBreakableRel{\rightsquigarrow}
1435 \SetBreakableRel{\leftsquigarrow}
1436 \SetBreakableRel{\leftrightsquigarrow}
1437 \SetBreakableRel{\looparrowleft}
1438 \SetBreakableRel{\looparrowright}
1439 \SetBreakableRel{\circeq}
1440 \SetBreakableRel{\succsim}
1441 \SetBreakableRel{\gtrsim}
1442 \SetBreakableRel{\gtrapprox}
1443 \SetBreakableRel{\multimap}
1444 \SetBreakableRel{\image}
1445 \SetBreakableRel{\original}
1446 \SetBreakableRel{\therefore}
1447 \SetBreakableRel{\because}
1448 \SetBreakableRel{\doteqdot}
1449 \SetBreakableRel{\triangleq}
1450 \SetBreakableRel{\precsim}
1451 \SetBreakableRel{\lessim}
1452 \SetBreakableRel{\lessapprox}
1453 \SetBreakableRel{\eqslantless}
1454 \SetBreakableRel{\eqslantgtr}
1455 \SetBreakableRel{\curlyeqprec}
1456 \SetBreakableRel{\curlyeqsucc}
1457 \SetBreakableRel{\preccurlyeq}
1458 \SetBreakableRel{\leqq}
1459 \SetBreakableRel{\leqslant}
1460 \SetBreakableRel{\lessgtr}
1461 \SetBreakableRel{\risingdotseq}
1462 \SetBreakableRel{\fallingdotseq}
1463 \SetBreakableRel{\succcurlyeq}
1464 \SetBreakableRel{\geqq}
1465 \SetBreakableRel{\geqslant}
1466 \SetBreakableRel{\gtrless}
1467 \SetBreakableRel{\vartriangleright}
1468 \SetBreakableRel{\vartriangleleft}
1469 \SetBreakableRel{\trianglerighteq}
1470 \SetBreakableRel{\trianglelefteq}
1471 \SetBreakableRel{\between}
1472 \SetBreakableRel{\blacktriangleright}
1473 \SetBreakableRel{\blacktriangleleft}
1474 \SetBreakableRel{\vartriangle}
1475 \SetBreakableRel{\eqcirc}
1476 \SetBreakableRel{\lesseqgtr}
1477 \SetBreakableRel{\gtreqless}

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1478 \SetBreakableRel{\lesseqqgtr}
1479 \SetBreakableRel{\gtreqqlless}
1480 \SetBreakableRel{\Rrightarrow}
1481 \SetBreakableRel{\Lleftarrow}
1482 \SetBreakableBin{\veebar}
1483 \SetBreakableBin{\barwedge}
1484 \SetBreakableRel{\varpropto}
1485 \SetBreakableRel{\smallsmile}
1486 \SetBreakableRel{\smallfrown}
1487 \SetBreakableRel{\Subset}
1488 \SetBreakableRel{\Supset}
1489 \SetBreakableBin{\Cup}
1490 \SetBreakableBin{\Cap}
1491 \SetBreakableBin{\curlywedge}
1492 \SetBreakableBin{\curlyvee}
1493 \SetBreakableBin{\leftthreetimes}
1494 \SetBreakableBin{\rightthreetimes}
1495 \SetBreakableRel{\subseteqq}
1496 \SetBreakableRel{\supseteqq}
1497 \SetBreakableRel{\bumpeq}
1498 \SetBreakableRel{\Bumpeq}
1499 \SetBreakableRel{\lll}
1500 \SetBreakableRel{\ggg}
1501 \SetBreakableRel{\pitchfork}
1502 \SetBreakableBin{\dotplus}
1503 \SetBreakableRel{\backsim}
1504 \SetBreakableRel{\backsimeq}
1505 \SetBreakableBin{\intercal}
1506 \SetBreakableBin{\circledcirc}
1507 \SetBreakableBin{\circledast}
1508 \SetBreakableBin{\circleddash}
1509 \SetBreakableRel{\lvertneqq}
1510 \SetBreakableRel{\gvertneqq}
1511 \SetBreakableRel{\nleq}
1512 \SetBreakableRel{\ngeq}
1513 \SetBreakableRel{\nless}
1514 \SetBreakableRel{\ngtr}
1515 \SetBreakableRel{\nprec}
1516 \SetBreakableRel{\nsucc}
1517 \SetBreakableRel{\lneqq}
1518 \SetBreakableRel{\gneqq}
1519 \SetBreakableRel{\nleqslant}
1520 \SetBreakableRel{\ngeqslant}
1521 \SetBreakableRel{\lneq}
1522 \SetBreakableRel{\gneq}
1523 \SetBreakableRel{\npreceq}
1524 \SetBreakableRel{\nsucceq}
1525 \SetBreakableRel{\precnsim}
1526 \SetBreakableRel{\succnsim}
1527 \SetBreakableRel{\lnsim}
1528 \SetBreakableRel{\gnsim}
1529 \SetBreakableRel{\nleqq}
1530 \SetBreakableRel{\ngeqq}
1531 \SetBreakableRel{\precneqq}

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1532 \SetBreakableRel{\succneqq}
1533 \SetBreakableRel{\precnapprox}
1534 \SetBreakableRel{\succnapprox}
1535 \SetBreakableRel{\lnapprox}
1536 \SetBreakableRel{\gnapprox}
1537 \SetBreakableRel{\nsim}
1538 \SetBreakableRel{\ncong}
1539 \SetBreakableRel{\diagup}
1540 \SetBreakableRel{\diagdown}
1541 \SetBreakableRel{\varsubsetneq}
1542 \SetBreakableRel{\varsupsetneq}
1543 \SetBreakableRel{\nsubseteqq}
1544 \SetBreakableRel{\nsupseteqq}
1545 \SetBreakableRel{\subsetneqq}
1546 \SetBreakableRel{\supsetneqq}
1547 \SetBreakableRel{\varsubsetneqq}
1548 \SetBreakableRel{\varsupsetneqq}
1549 \SetBreakableRel{\subsetneq}
1550 \SetBreakableRel{\supsetneq}
1551 \SetBreakableRel{\nsubseteq}
1552 \SetBreakableRel{\nsupseteq}
1553 \SetBreakableRel{\nparallel}
1554 \SetBreakableRel{\nmid}
1555 \SetBreakableRel{\nshortmid}
1556 \SetBreakableRel{\nshortparallel}
1557 \SetBreakableRel{\nvdash}
1558 \SetBreakableRel{\nVdash}
1559 \SetBreakableRel{\nvDash}
1560 \SetBreakableRel{\nVDash}
1561 \SetBreakableRel{\ntrianglerighteq}
1562 \SetBreakableRel{\ntrianglelefteq}
1563 \SetBreakableRel{\ntriangleleft}
1564 \SetBreakableRel{\ntriangleright}
1565 \SetBreakableRel{\nleftarrow}
1566 \SetBreakableRel{\nrightarrow}
1567 \SetBreakableRel{\nLeftarrow}
1568 \SetBreakableRel{\nRightarrow}
1569 \SetBreakableRel{\nLeftrightarrow}
1570 \SetBreakableRel{\nleftrightarrow}
1571 \SetBreakableBin{\divideontimes}
1572 \SetBreakableRel{\eqsim}
1573 \SetBreakableRel{\lessdot}
1574 \SetBreakableRel{\gtrdot}
1575 \SetBreakableBin{\ltimes}
1576 \SetBreakableBin{\rtimes}
1577 \SetBreakableRel{\shortmid}
1578 \SetBreakableRel{\shortparallel}
1579 \SetBreakableBin{\smallsetminus}
1580 \SetBreakableRel{\thicksim}
1581 \SetBreakableRel{\thickapprox}
1582 \SetBreakableRel{\approxeq}
1583 \SetBreakableRel{\succapprox}
1584 \SetBreakableRel{\preccapprox}
1585 \SetBreakableRel{\curvearrowleft}

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1586 \SetBreakableRel{\curvearrowright}
1587 \SetBreakableRel{\backepsilon}
1588 \fi

Support mathbbol package
1589 \ifpackageloaded{mathbbol}{
1590 \SetOpenBracket{\Langle}
1591 \SetOpenBracket{\Lparen}
1592 }{}

Support mathtools/empheq packages
1593 \ifpackageloaded{mathtools}{
1594 \SetBreakableRel{\vcentcolon}
1595 \SetBreakableRel{\dblcolon}
1596 \SetBreakableRel{\coloneqq}
1597 \SetBreakableRel{\Coloneqq}
1598 \SetBreakableRel{\coloneq}
1599 \SetBreakableRel{\Coloneq}
1600 \SetBreakableRel{\eqqcolon}
1601 \SetBreakableRel{\Eqqcolon}
1602 \SetBreakableRel{\eqcolon}
1603 \SetBreakableRel{\Eqcolon}
1604 \SetBreakableRel{\colonapprox}
1605 \SetBreakableRel{\Colonapprox}
1606 \SetBreakableRel{\colonsim}
1607 \SetBreakableRel{\Colonsim}
1608 }{}

Support mdwmath package
1609 \ifpackageloaded{mdwmath}{
1610 \SetBreakableBin{\bitand}
1611 \begingroup
1612 \catcode'\&\active
1613 \xdef&{\noexpand\brokenbin{\rmathbr@mathchar{'\&}}}
1614 \endgroup
1615 \AtBeginDocument{\mathcode'\&=32768 }
1616 }{}

Support sbmm package
1617 \ifpackageloaded{sbmm}{
1618 \SetOpenBracket{\Lparen}
1619 }{}

Support stmaryrd package
1620 \ifpackageloaded{stmaryrd}{
1621 \SetOpenBracket{\Lbag}
1622 \SetOpenBracket{\llparenthesis}
1623 \SetOpenBracket{\binampersand}
1624 \SetOpenBracket{\llfloor}
1625 \SetOpenBracket{\llceil}
1626 \SetOpenBracket{\llbracket}
1627 \SetBreakableRel{\shortleftarrow}
1628 \SetBreakableRel{\shortrightarrow}
1629 \SetBreakableRel{\shortuparrow}
1630 \SetBreakableRel{\shortdownarrow}
1631 \SetBreakableBin{\Yup}

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1632 \SetBreakableBin{\Ydown}
1633 \SetBreakableBin{\Yleft}
1634 \SetBreakableBin{\Yright}
1635 \SetBreakableBin{\varcurlyvee}
1636 \SetBreakableBin{\varcurlywedge}
1637 \SetBreakableBin{\minuso}
1638 \SetBreakableBin{\baro}
1639 \SetBreakableBin{\sslash}
1640 \SetBreakableBin{\bbslash}
1641 \SetBreakableBin{\moo}
1642 \SetBreakableBin{\varotimes}
1643 \SetBreakableBin{\varoast}
1644 \SetBreakableBin{\varobar}
1645 \SetBreakableBin{\varodot}
1646 \SetBreakableBin{\varoslash}
1647 \SetBreakableBin{\varobslash}
1648 \SetBreakableBin{\varocircle}
1649 \SetBreakableBin{\varoplus}
1650 \SetBreakableBin{\varominus}
1651 \SetBreakableBin{\boxast}
1652 \SetBreakableBin{\boxbar}
1653 \SetBreakableBin{\boxdot}
1654 \SetBreakableBin{\boxslash}
1655 \SetBreakableBin{\boxbslash}
1656 \SetBreakableBin{\boxcircle}
1657 \SetBreakableBin{\boxbox}
1658 \SetBreakableBin{\boxempty}
1659 \SetBreakableBin{\merge}
1660 \SetBreakableBin{\vartimes}
1661 \SetBreakableBin{\fatsemi}
1662 \SetBreakableRel{\sswarrow}
1663 \SetBreakableRel{\ssearrow}
1664 \SetBreakableRel{\curlywedgeuparrow}
1665 \SetBreakableRel{\curlywedgedownarrow}
1666 \SetBreakableBin{\fatslash}
1667 \SetBreakableBin{\fatbslash}
1668 \SetBreakableBin{\lbag}
1669 \SetBreakableBin{\rbag}
1670 \SetBreakableBin{\varbigcirc}
1671 \SetBreakableRel{\leftrightharroweq}
1672 \SetBreakableRel{\curlyveedownarrow}
1673 \SetBreakableRel{\curlyveeuparrow}
1674 \SetBreakableRel{\nnwarrow}
1675 \SetBreakableRel{\nnearrow}
1676 \SetBreakableBin{\leftslice}
1677 \SetBreakableBin{\rightslice}
1678 \SetBreakableBin{\varolessthan}
1679 \SetBreakableBin{\varogreaterthan}
1680 \SetBreakableBin{\varovee}
1681 \SetBreakableBin{\varowedge}
1682 \SetBreakableBin{\talloblong}
1683 \SetBreakableBin{\interleave}
1684 \SetBreakableBin{\obar}
1685 \SetBreakableBin{\obs slash}

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1686 \SetBreakableBin{\olessthan}
1687 \SetBreakableBin{\ogreaterthan}
1688 \SetBreakableBin{\ovee}
1689 \SetBreakableBin{\owedge}
1690 \SetBreakableBin{\oblong}
1691 \SetBreakableRel{\inplus}
1692 \SetBreakableRel{\niplus}
1693 \SetBreakableBin{\nplus}
1694 \SetBreakableRel{\subsetplus}
1695 \SetBreakableRel{\supsetplus}
1696 \SetBreakableRel{\subsetpluseq}
1697 \SetBreakableRel{\supsetpluseq}
1698 \SetBreakableRel{\trianglelefteqslant}
1699 \SetBreakableRel{\trianglerighteqslant}
1700 \SetBreakableRel{\ntrianglelefteqslant}
1701 \SetBreakableRel{\ntrianglerighteqslant}
1702 \SetBreakableRel{\arrownot}
1703 \SetBreakableRel{\Arrownot}
1704 \SetBreakableRel{\Mapstochar}
1705 \SetBreakableRel{\mapsfromchar}
1706 \SetBreakableRel{\Mapsfromchar}
1707 \SetBreakableBin{\leftrightharowtriangle}
1708 \SetBreakableRel{\leftarrowtriangle}
1709 \SetBreakableRel{\rightarrowtriangle}
1710 \SetBreakableRel{\longarrownot}
1711 \SetBreakableRel{\Longarrownot}
1712 \SetBreakableRel{\Mapsto}
1713 \SetBreakableRel{\mapsfrom}
1714 \SetBreakableRel{\Mapsfrom}
1715 \SetBreakableRel{\Longmapsto}
1716 \SetBreakableRel{\longmapsfrom}
1717 \SetBreakableRel{\Longmapsfrom}
1718 }{}

Support wasysym package
1719 \@ifpackageloaded{wasysym}{
1720 \SetMathOperator{\varint}
1721 \SetMathOperator{\iint}
1722 \SetMathOperator{\iiint}
1723 \SetMathOperator{\varoint}
1724 \SetMathOperator{\oiint}
1725 \SetBreakableBin{\LHD}
1726 \SetBreakableBin{\RHD}
1727 \SetBreakableRel{\apprle}
1728 \SetBreakableRel{\apprge}
1729 \SetBreakableRel{\wasypropto}
1730 \SetBreakableRel{\invneg}
1731 \SetBreakableBin{\ocircle}
1732 \SetBreakableRel{\logof}
1733 }{}

1734 } % \rmathbr@patch@commands

Execute \rmathbr@patch@commands depending on options:
1735 \ifrmathbr@patch@begindocument

```

```

1736 \AtBeginDocument{\rmathbr@patch@commands}
1737 \else
1738 \rmathbr@patch@commands
1739 \fi

Switch to active math mode at \begin{document}

1740 \AtBeginDocument{%
1741 \mathcode'\==32768% "8000
1742 \mathcode'\<=32768
1743 \mathcode'\>=32768
1744 \mathcode'\+=32768
1745 \ifrmathbr@kv@brokenminus
1746 \mathcode'\-=32768
1747 \fi
1748 \mathcode'\*=32768
1749 \mathcode'\(=32768
1750 \mathcode'\[=32768 %\]
1751 \mathcode'\,=32768
1752 \mathcode'\;=32768
1753 \mathcode'\:=32768
1754 \ifundefined{resetMathstrut@}{\% fix amsmath
1755 \let\rmathbr@orig@resetMathstrut=\resetMathstrut@
1756 \gdef\resetMathstrut@{%
1757 \mathcode'\(=16424% "4028
1758 \rmathbr@orig@resetMathstrut
1759 \mathcode'\(=32768% "8000
1760 }
1761 \gdef\newmcodes@{%
1762 \mathcode'\'=39
1763 \mathcode'\*=42
1764 \mathcode'\.=24890% "613A
1765 \mathcode'\-=45
1766 \mathcode'\/=47
1767 \mathcode'\:=24634% "603A
1768 \relax
1769 }
1770 }%
1771 }

Patch for bm package:

1772 \ifpackageloaded{bm}{\%
1773 \let\rmathbr@save@bm@general=\bm@general
1774 \def\bm@general#1#2#3#4#5{
1775 \rmathbr@save@bm@general{#1}{#2}{\%
1776 \let\nobr\copy
1777 \def\brokenrel##1{\unvcopy{\brokenrel{##1}}}
1778 \def\brokenbin##1{\unvcopy{\brokenbin{##1}}}
1779 \def\brokeninner##1{\unvcopy{\brokeninner{##1}}}
1780 \def\rmathbr@mathop##1{\unvcopy{\rmathbr@mathop{##1}}}
1781 \begingroup\catcode'\_ \active\lccode'\~'\_ \lowercase{\endgroup\def~}##1{\unvcopy{_{##1}}}
1782 \begingroup\catcode'\^ \active\lccode'\~'\^ \lowercase{\endgroup\def~}##1{\unvcopy{^{##1}}}
1783 #3}{#4}{#5}
1784 }
1785 \PackageInfo{rmathbr}{Note: 'bm' package has been patched}{\%
1786 }{}

```

Patch for xy package:

```
1787 \@ifpackageloaded{xy}{%
1788   \ifnum\rmathbr@scriptsmode>0\relax
1789     \let\rmathbr@save@xy=\xy
1790     \let\rmathbr@save@endxy=\endxy
1791     \def\xy{\begingroup\catcode'\^7\catcode'\_8\rmathbr@save@xy}
1792     \def\endxy{\rmathbr@save@endxy\endgroup}
1793     \PackageInfo{rmathbr}{Note: \string\xy and \string\endxy commands from 'xy'
1794                               package have been patched}{}%
1795   \fi
1796 }
```