

The Comprehensive L^AT_EX Symbol List

Scott Pakin <scott+cls1@pakin.org>*

3 January 2008

Abstract

This document lists 4947 symbols and the corresponding L^AT_EX commands that produce them. Some of these symbols are guaranteed to be available in every L^AT_EX 2_ε system; others require fonts and packages that may not accompany a given distribution and that therefore need to be installed. All of the fonts and packages used to prepare this document—as well as this document itself—are freely available from the Comprehensive T_EX Archive Network (<http://www.ctan.org/>).

Contents

1	Introduction	7
1.1	Document Usage	7
1.2	Frequently Requested Symbols	7
2	Body-text symbols	8
Table 1:	L ^A T _E X 2 _ε Escapable “Special” Characters	8
Table 2:	Predefined L ^A T _E X 2 _ε Text-mode Commands	8
Table 3:	L ^A T _E X 2 _ε Commands Defined to Work in Both Math and Text Mode	8
Table 4:	\mathcal{AMS} Commands Defined to Work in Both Math and Text Mode	8
Table 5:	Non-ASCII Letters (Excluding Accented Letters)	9
Table 6:	Letters Used to Typeset African Languages	9
Table 7:	Letters Used to Typeset Vietnamese	9
Table 8:	Punctuation Marks Not Found in OT1	9
Table 9:	pifont Decorative Punctuation Marks	9
Table 10:	tipa Phonetic Symbols	10
Table 11:	tipx Phonetic Symbols	11
Table 13:	wsuipa Phonetic Symbols	11
Table 14:	wasysym Phonetic Symbols	12
Table 15:	phonetic Phonetic Symbols	12
Table 16:	t4phonet Phonetic Symbols	13
Table 17:	semtrans Transliteration Symbols	13
Table 18:	Text-mode Accents	13
Table 19:	tipa Text-mode Accents	13
Table 20:	extraipa Text-mode Accents	15
Table 21:	wsuipa Text-mode Accents	15
Table 22:	phonetic Text-mode Accents	15
Table 23:	metre Text-mode Accents	16
Table 24:	t4phonet Text-mode Accents	16
Table 25:	arcs Text-mode Accents	16
Table 26:	semtrans Accents	16
Table 27:	wsuipa Diacritics	16
Table 28:	textcomp Diacritics	17
Table 29:	textcomp Currency Symbols	17
Table 30:	marvosym Currency Symbols	17

*The original version of this document was written by David Carlisle, with several additional tables provided by Alexander Holt. See Section 7.7 on page 104 for more information about who did what.

Table 31:	wasysym Currency Symbols	17
Table 32:	eurosym Euro Signs	17
Table 33:	textcomp Legal Symbols	18
Table 34:	cclicenses Creative Commons License Icons	18
Table 35:	textcomp Old-style Numerals	18
Table 36:	Miscellaneous textcomp Symbols	19
Table 37:	Miscellaneous wasysym Text-mode Symbols	19

3 Mathematical symbols 20

Table 38:	Math-Mode Versions of Text Symbols	20
Table 39:	cmll Unary Operators	20
Table 40:	Binary Operators	20
Table 41:	\mathcal{AMS} Binary Operators	21
Table 42:	stmaryrd Binary Operators	21
Table 43:	wasysym Binary Operators	21
Table 44:	txfonts/pxfonts Binary Operators	21
Table 45:	mathabx Binary Operators	22
Table 46:	MnSymbol Binary Operators	23
Table 47:	mathdesign Binary Operators	23
Table 48:	cmll Binary Operators	23
Table 49:	ulsy Geometric Binary Operators	24
Table 50:	mathabx Geometric Binary Operators	24
Table 51:	MnSymbol Geometric Binary Operators	24
Table 52:	Variable-sized Math Operators	25
Table 53:	\mathcal{AMS} Variable-sized Math Operators	25
Table 54:	stmaryrd Variable-sized Math Operators	25
Table 55:	wasysym Variable-sized Math Operators	25
Table 56:	mathabx Variable-sized Math Operators	26
Table 57:	txfonts/pxfonts Variable-sized Math Operators	27
Table 58:	esint Variable-sized Math Operators	28
Table 59:	MnSymbol Variable-sized Math Operators	29
Table 60:	mathdesign Variable-sized Math Operators	29
Table 61:	cmll Large Math Operators	30
Table 62:	Binary Relations	30
Table 63:	\mathcal{AMS} Binary Relations	30
Table 64:	\mathcal{AMS} Negated Binary Relations	30
Table 65:	stmaryrd Binary Relations	30
Table 66:	wasysym Binary Relations	30
Table 67:	txfonts/pxfonts Binary Relations	31
Table 68:	txfonts/pxfonts Negated Binary Relations	31
Table 69:	mathabx Binary Relations	31
Table 70:	mathabx Negated Binary Relations	32
Table 71:	MnSymbol Binary Relations	32
Table 72:	MnSymbol Negated Binary Relations	33
Table 73:	mathtools Binary Relations	34
Table 74:	turnstile Binary Relations	34
Table 75:	trsym Binary Relations	35
Table 76:	trfsigns Binary Relations	35
Table 77:	cmll Binary Relations	36
Table 78:	Subset and Superset Relations	36
Table 79:	\mathcal{AMS} Subset and Superset Relations	36
Table 80:	stmaryrd Subset and Superset Relations	36
Table 81:	wasysym Subset and Superset Relations	36
Table 82:	txfonts/pxfonts Subset and Superset Relations	36
Table 83:	mathabx Subset and Superset Relations	37
Table 84:	MnSymbol Subset and Superset Relations	37
Table 85:	Inequalities	37
Table 86:	\mathcal{AMS} Inequalities	37

Table 87:	wasysym Inequalities	38
Table 88:	txfonts/pxfonts Inequalities	38
Table 89:	mathabx Inequalities	38
Table 90:	MnSymbol Inequalities	39
Table 91:	\mathcal{AMS} Triangle Relations	39
Table 92:	stmaryrd Triangle Relations	40
Table 93:	mathabx Triangle Relations	40
Table 94:	MnSymbol Triangle Relations	40
Table 95:	Arrows	41
Table 96:	Harpoons	41
Table 97:	textcomp Text-mode Arrows	41
Table 98:	\mathcal{AMS} Arrows	41
Table 99:	\mathcal{AMS} Negated Arrows	41
Table 100:	\mathcal{AMS} Harpoons	41
Table 101:	stmaryrd Arrows	42
Table 102:	txfonts/pxfonts Arrows	42
Table 103:	mathabx Arrows	42
Table 104:	mathabx Negated Arrows	42
Table 105:	mathabx Harpoons	43
Table 106:	MnSymbol Arrows	43
Table 107:	MnSymbol Negated Arrows	44
Table 108:	MnSymbol Harpoons	46
Table 109:	MnSymbol Negated Harpoons	46
Table 110:	chemarrow Arrows	47
Table 111:	fge Arrows	47
Table 112:	MnSymbol Spoons	47
Table 113:	MnSymbol Pitchforks	47
Table 114:	MnSymbol Smiles and Frowns	48
Table 115:	ulsy Contradiction Symbols	48
Table 116:	Extension Characters	48
Table 117:	stmaryrd Extension Characters	48
Table 118:	txfonts/pxfonts Extension Characters	48
Table 119:	mathabx Extension Characters	49
Table 120:	Log-like Symbols	49
Table 121:	\mathcal{AMS} Log-like Symbols	49
Table 122:	Greek Letters	49
Table 123:	\mathcal{AMS} Greek Letters	49
Table 124:	txfonts/pxfonts Upright Greek Letters	50
Table 125:	upgreek Upright Greek Letters	50
Table 126:	txfonts/pxfonts Variant Latin Letters	50
Table 127:	\mathcal{AMS} Hebrew Letters	50
Table 128:	MnSymbol Hebrew Letters	50
Table 129:	Letter-like Symbols	51
Table 130:	\mathcal{AMS} Letter-like Symbols	51
Table 131:	txfonts/pxfonts Letter-like Symbols	51
Table 132:	mathabx Letter-like Symbols	51
Table 133:	MnSymbol Letter-like Symbols	51
Table 134:	trfsigns Letter-like Symbols	51
Table 135:	mathdesign Letter-like Symbols	51
Table 136:	fge Letter-like Symbols	52
Table 137:	\mathcal{AMS} Delimiters	52
Table 138:	stmaryrd Delimiters	52
Table 139:	mathabx Delimiters	52
Table 140:	nath Delimiters	52
Table 141:	Variable-sized Delimiters	53
Table 142:	Large, Variable-sized Delimiters	53
Table 143:	\mathcal{AMS} Variable-sized Delimiters	53

Table 144:	stmaryrd Variable-sized Delimiters	53
Table 145:	mathabx Variable-sized Delimiters	54
Table 146:	MnSymbol Variable-sized Delimiters	54
Table 147:	mathdesign Variable-sized Delimiters	55
Table 148:	nath Variable-sized Delimiters (Double)	55
Table 149:	nath Variable-sized Delimiters (Triple)	55
Table 150:	textcomp Text-mode Delimiters	56
Table 151:	metre Text-mode Delimiters	56
Table 152:	Math-mode Accents	56
Table 153:	\mathcal{AMS} Math-mode Accents	56
Table 154:	MnSymbol Math-mode Accents	56
Table 155:	fge Math-mode Accents	56
Table 156:	yhmath Math-mode Accents	57
Table 157:	Extensible Accents	57
Table 158:	overrightarrow Extensible Accents	57
Table 159:	yhmath Extensible Accents	57
Table 160:	\mathcal{AMS} Extensible Accents	58
Table 161:	MnSymbol Extensible Accents	58
Table 162:	mathtools Extensible Accents	58
Table 163:	mathabx Extensible Accents	58
Table 164:	esvect Extensible Accents	59
Table 165:	undertilde Extensible Accents	59
Table 166:	\mathcal{AMS} Extensible Arrows	59
Table 167:	mathtools Extensible Arrows	59
Table 168:	chemarr Extensible Arrows	59
Table 169:	chemarrow Extensible Arrows	60
Table 170:	trfsigns Extensible Arrows	60
Table 171:	extarrows Extensible Arrows	60
Table 172:	extpfeil Extensible Arrows	60
Table 173:	holtpolt Non-commutative Division Symbols	60
Table 174:	Dots	61
Table 175:	\mathcal{AMS} Dots	61
Table 176:	wasysym Dots	61
Table 177:	MnSymbol Dots	61
Table 178:	mathdots Dots	62
Table 179:	yhmath Dots	62
Table 180:	mathcomp Math Symbols	62
Table 181:	mathabx Mayan Digits	62
Table 182:	marvosym Digits	62
Table 183:	fge Digits	62
Table 184:	Miscellaneous $\text{\LaTeX} 2_{\epsilon}$ Math Symbols	62
Table 185:	Miscellaneous \mathcal{AMS} Math Symbols	63
Table 186:	Miscellaneous wasysym Math Symbols	63
Table 187:	Miscellaneous txfonts/pxfonts Math Symbols	63
Table 188:	Miscellaneous mathabx Math Symbols	63
Table 189:	Miscellaneous MnSymbol Math Symbols	63
Table 190:	Miscellaneous Internal MnSymbol Math Symbols	64
Table 191:	Miscellaneous textcomp Text-mode Math Symbols	64
Table 192:	Miscellaneous marvosym Math Symbols	64
Table 193:	Miscellaneous fge Math Symbols	64
Table 194:	Miscellaneous mathdesign Math Symbols	64
Table 195:	Miscellaneous arev Math Symbols	64
Table 196:	Math Alphabets	65

4	Science and technology symbols	67
	Table 197: gensymb Symbols Defined to Work in Both Math and Text Mode	67
	Table 198: wasysym Electrical and Physical Symbols	67
	Table 199: ifsym Pulse Diagram Symbols	67
	Table 200: ar Aspect Ratio Symbol	67
	Table 201: textcomp Text-mode Science and Engineering Symbols	67
	Table 202: wasysym Astronomical Symbols	68
	Table 203: marvosym Astronomical Symbols	68
	Table 204: mathabx Astronomical Symbols	68
	Table 205: wasysym APL Symbols	68
	Table 206: wasysym APL Modifiers	68
	Table 207: marvosym Computer Hardware Symbols	69
	Table 208: keystroke Computer Keys	69
	Table 209: ascii Control Characters (CP437)	69
	Table 210: marvosym Communication Symbols	69
	Table 211: marvosym Engineering Symbols	70
	Table 212: wasysym Biological Symbols	70
	Table 213: marvosym Biological Symbols	70
	Table 214: marvosym Safety-related Symbols	70
	Table 215: feyn Feynman Diagram Symbols	70
5	Dingbats	71
	Table 216: bbding Arrows	71
	Table 217: pifont Arrows	71
	Table 218: universal Arrows	71
	Table 219: marvosym Scissors	71
	Table 220: bbding Scissors	71
	Table 221: pifont Scissors	71
	Table 222: dingbat Pencils	72
	Table 223: bbding Pencils and Nibs	72
	Table 224: pifont Pencils and Nibs	72
	Table 225: dingbat Fists	72
	Table 226: bbding Fists	72
	Table 227: pifont Fists	72
	Table 228: bbding Crosses and Pluses	72
	Table 229: pifont Crosses and Pluses	72
	Table 230: bbding Xs and Check Marks	73
	Table 231: pifont Xs and Check Marks	73
	Table 232: wasysym Xs and Check Marks	73
	Table 233: universal Xs	73
	Table 234: pifont Circled Numbers	73
	Table 235: wasysym Stars	73
	Table 236: bbding Stars, Flowers, and Similar Shapes	74
	Table 237: pifont Stars, Flowers, and Similar Shapes	74
	Table 238: wasysym Geometric Shapes	74
	Table 239: MnSymbol Geometric Shapes	74
	Table 240: ifsym Geometric Shapes	75
	Table 241: bbding Geometric Shapes	75
	Table 242: pifont Geometric Shapes	75
	Table 243: universa Geometric Shapes	76
	Table 244: universal Geometric Shapes	76
	Table 245: igo Go Stones	76
	Table 246: manfnt Dangerous Bend Symbols	76
	Table 247: skull Symbols	76
	Table 248: Non-Mathematical mathabx Symbols	76
	Table 249: marvosym Information Symbols	76
	Table 250: Miscellaneous dingbat Dingbats	77
	Table 251: Miscellaneous bbding Dingbats	77

Table 252: Miscellaneous pifont Dingbats	77
6 Other symbols	78
Table 253: textcomp Genealogical Symbols	78
Table 254: wasysym General Symbols	78
Table 255: wasysym Circles	78
Table 256: wasysym Musical Symbols	78
Table 257: arev Musical Symbols	78
Table 258: harmony Musical Symbols	79
Table 259: harmony Musical Accents	79
Table 260: Miscellaneous manfnt Symbols	79
Table 261: marvosym Navigation Symbols	79
Table 262: marvosym Laundry Symbols	80
Table 263: Other marvosym Symbols	80
Table 264: Miscellaneous universa Symbols	80
Table 265: Miscellaneous universal Symbols	80
Table 266: ifsym Weather Symbols	80
Table 267: ifsym Alpine Symbols	81
Table 268: ifsym Clocks	81
Table 269: Other ifsym Symbols	81
Table 270: epsdice Dice	81
Table 271: skak Chess Informator Symbols	82
Table 272: metre Metrical Symbols	82
Table 273: metre Small and Large Metrical Symbols	82
Table 274: phaistos Symbols from the Phaistos Disk	83
Table 275: protosem Proto-Semitic Characters	83
Table 276: hieroglf Hieroglyphics	84
Table 277: dictsym Dictionary Symbols	84
Table 278: simpsons Characters from <i>The Simpsons</i>	85
Table 279: staves Magical Staves	85
7 Additional Information	87
7.1 Symbol Name Clashes	87
7.2 Resizing symbols	87
7.3 Where can I find the symbol for ...?	87
7.4 Math-mode spacing	99
7.5 Bold mathematical symbols	100
7.6 ASCII and Latin 1 quick reference	100
7.7 About this document	104
7.8 Copyright and license	106
References	106
Index	107

1 Introduction

Welcome to the Comprehensive L^AT_EX Symbol List! This document strives to be your primary source of L^AT_EX symbol information: font samples, L^AT_EX commands, packages, usage details, caveats—everything needed to put thousands of different symbols at your disposal. All of the fonts covered herein meet the following criteria:

1. They are freely available from the Comprehensive T_EX Archive Network (<http://www.ctan.org>).
2. All of their symbols have L^AT_EX 2_ε bindings. That is, a user should be able to access a symbol by name, not just by `\char<number>`.

These are not particularly limiting criteria; the Comprehensive L^AT_EX Symbol List contains samples of 4947 symbols—quite a large number. Some of these symbols are guaranteed to be available in every L^AT_EX 2_ε system; others require fonts and packages that may not accompany a given distribution and that therefore need to be installed. See <http://www.tex.ac.uk/cgi-bin/texfaq2html?label=instpackages+wherefiles> for help with installing new fonts and packages.

1.1 Document Usage

Each section of this document contains a number of font tables. Each table shows a set of symbols, with the corresponding L^AT_EX command to the right of each symbol. A table’s caption indicates what package needs to be loaded in order to access that table’s symbols. For example, the symbols in Table 35, “textcomp Old-Style Numerals”, are made available by putting “`\usepackage{textcomp}`” in your document’s preamble. “*AMS*” means to use the *AMS* packages, viz. `amssymb` and/or `amsmath`. Notes below a table provide additional information about some or all the symbols in that table.

One note that appears a few times in this document, particularly in Section 2, indicates that certain symbols do not exist in the OT1 font encoding (Donald Knuth’s original, 7-bit font encoding, which is the default font encoding for L^AT_EX) and that you should use `fontenc` to select a different encoding, such as T1 (a common 8-bit font encoding). That means that you should put “`\usepackage[<encoding>]{fontenc}`” in your document’s preamble, where `<encoding>` is, e.g., T1 or LY1. To limit the change in font encoding to the current group, use “`\fontencoding{<encoding>}\selectfont`”.

Section 7 contains some additional information about the symbols in this document. It shows which symbol names are not unique across packages, gives examples of how to create new symbols out of existing symbols, explains how symbols are spaced in math mode, presents a L^AT_EX ASCII and Latin 1 tables, and provides some information about this document itself. The Comprehensive L^AT_EX Symbol List ends with an index of all the symbols in the document and various additional useful terms.

1.2 Frequently Requested Symbols

There are a number of symbols that are requested over and over again on `comp.text.tex`. If you’re looking for such a symbol the following list will help you find it quickly.

_, as in “Spaces_are_significant.”	8	≲ and ≳	37
í, ì, î, î̄, etc. (versus í, ì, î̄, and î)	13	∴	62
¢	17	°, as in “180°” or “15°C”	64
€	17	\mathcal{L} , \mathcal{F} , etc.	65
©, ®, and ™	18	\mathbb{N} , \mathbb{Z} , \mathbb{R} , etc.	65
‰	19	<i>f</i>	92
ℱ	27	â, è, etc. (i.e., several accents per character)	94
∴	30	<, >, and | (instead of j, i, and —)	100
:= and ::=	31	^ and ~ (or ~)	101

2 Body-text symbols

This section lists symbols that are intended for use in running text, such as punctuation marks, accents, ligatures, and currency symbols.

TABLE 1: L^AT_EX 2_ε Escapable “Special” Characters

\$ \ \$ % \ % - \ _ * } \ } & \ & # \ # { \ {

* The `underscore` package redefines “_” to produce an underscore in text mode (i.e., it makes it unnecessary to escape the underscore character).

TABLE 2: Predefined L^AT_EX 2_ε Text-mode Commands

$\hat{}$	<code>\textasciicircum</code>	\lt	<code>\textless</code>
$\tilde{}$	<code>\textasciitilde</code>	a	<code>\textordfeminine</code>
*	<code>\textasteriskcentered</code>	\textcircled{o}	<code>\textordmasculine</code>
\backslash	<code>\textbackslash</code>	¶	<code>\textparagraph*</code>
	<code>\textbar</code>	.	<code>\textperiodcentered</code>
{	<code>\textbraceleft*</code>	¿	<code>\textquestiondown</code>
}	<code>\textbraceright*</code>	“	<code>\textquotedblleft</code>
•	<code>\textbullet</code>	”	<code>\textquotedblright</code>
©	<code>\textcopyright*</code>	‘	<code>\textquoteleft</code>
†	<code>\textdagger*</code>	’	<code>\textquoteright</code>
‡	<code>\textdaggerdbl*</code>	®	<code>\textregistered</code>
\$	<code>\textdollar*</code>	§	<code>\textsection*</code>
...	<code>\textellipsis*</code>	£	<code>\textsterling*</code>
—	<code>\textemdash</code>	™	<code>\texttrademark</code>
-	<code>\textendash</code>	_	<code>\textunderscore*</code>
¡	<code>\textexclamdown</code>	˘	<code>\textvisiblespace</code>
>	<code>\textgreater</code>		

Where two symbols are present, the left one is the “faked” symbol that L^AT_EX 2_ε provides by default, and the right one is the “true” symbol that `textcomp` makes available.

* It’s generally preferable to use the corresponding symbol from Table 3 because the symbols in that table work properly in both text mode and math mode.

TABLE 3: L^AT_EX 2_ε Commands Defined to Work in Both Math and Text Mode

\$	<code>\ \$</code>	-	<code>\ _</code>	‡	<code>\ ddag</code>	{	<code>\ {</code>
¶	<code>\ P</code>	©	<code>\ copyright</code>	...	<code>\ dots</code>	}	<code>\ }</code>
§	<code>\ S</code>	†	<code>\ dag</code>	£	<code>\ pounds</code>		

Where two symbols are present, the left one is the “faked” symbol that L^AT_EX 2_ε provides by default, and the right one is the “true” symbol that `textcomp` makes available.

TABLE 4: $\mathcal{A}\mathcal{M}\mathcal{S}$ Commands Defined to Work in Both Math and Text Mode

✓ `\checkmark` ® `\circledR` ✠ `\maltese`

TABLE 5: Non-ASCII Letters (Excluding Accented Letters)

ǎ	\aa	Ð	\DH*	L	\L	ø	\o	ß	\ss
Å	\AA	ð	\dh*	l	\l	Ø	\O	SS	\SS
Æ	\AE	Ð	\DJ*	l	\ng*	Œ	\OE	Þ	\TH*
æ	\ae	ð	\dj*	l	\ng*	œ	\oe	þ	\th*

* Not available in the OT1 font encoding. Use the `fontenc` package to select an alternate font encoding, such as T1.

TABLE 6: Letters Used to Typeset African Languages

Ð	\B{D}	ɔ̣	\m{c}	f	\m{f}	ƙ	\m{k}	t	\M{t}	Ʒ	\m{Z}
ɔ̣	\B{d}	Ɖ	\m{D}	F	\m{F}	Ɗ	\m{N}	Ƨ	\M{T}	Ɛ	\T{E}
H	\B{H}	ɔ̣	\M{d}	Ƴ	\m{G}	ɲ	\m{n}	t	\m{t}	ɛ̣	\T{e}
h	\B{h}	Ɖ	\M{D}	ɣ	\m{g}	ɔ̣	\m{o}	T	\m{T}	Ɔ	\T{O}
t	\B{t}	d	\m{d}	l	\m{l}	Ɔ	\m{O}	u	\m{u}	ɔ̣	\T{o}
T	\B{T}	Ɛ	\m{E}	i	\m{i}	P	\m{P}	U	\m{U}		
b	\m{b}	ɛ	\m{e}	J	\m{J}	Ɔ	\m{p}	Y	\m{Y}		
B	\m{B}	Ɛ	\M{E}	j	\m{j}	f	\m{s}	y	\m{y}		
C	\m{C}	ə	\M{e}	K	\m{K}	f	\m{S}	z	\m{z}		

These characters all need the T4 font encoding, which is provided by the `fc` package.

* `\m{v}` and `\m{V}` are synonyms for `\m{u}` and `\m{U}`.

TABLE 7: Letters Used to Typeset Vietnamese

Ō	\OHORN	ơ	\ohorn	Ū	\UHORN	ư	\uhorn
---	--------	---	--------	---	--------	---	--------

These characters all need the T5 font encoding, which is provided by the `vntex` package.

TABLE 8: Punctuation Marks Not Found in OT1

«	\guillemotleft	<	\guilsinglleft	„	\quotedblbase	"	\textquotedbl
»	\guillemotright	>	\guilsinglright	,	\quotesinglbase		

To get these symbols, use the `fontenc` package to select an alternate font encoding, such as T1.

TABLE 9: pifont Decorative Punctuation Marks

•	\ding{123}	“	\ding{125}	¶	\ding{161}	•	\ding{163}
•	\ding{124}	”	\ding{126}	•	\ding{162}		

TABLE 10: tipa Phonetic Symbols

ɣ	\textbabygamma	ʔ	\textglotstop	ɳ	\textrightn
ḅ	\textbarb	˙	\texthalflength	ɽ	\textrightl
Ḅ	\textbarc	ᶇ	\texthardsign	ɿ	\textrightails
ḅ̄	\textbard	˘	\texthooktop	ɿ̄	\textrightailt
ḅ̇	\textbardotlessj	ḅ	\texthtb	ɿ̇	\textrightailz
ḅ̈	\textbarg	f	\texthtbardotlessj	˘	\textrighthook
ḅ̈̇	\textbarglotstop	Ḅ	\texthtc	A	\texttsca
ḅ̈̈	\textbari	d	\texthtd	B	\texttscb
ḅ̈̈̇	\textbarl	ḅ	\texthtg	E	\texttsce
ḅ̈̈̈	\textbaro	ḅ	\texthth	G	\texttscg
ḅ̈̈̈̇	\textbarrevglotstop	ḅ	\texththeng	H	\texttsch
ḅ̈̈̈̈	\textbaru	k	\texthtk	ə	\textschw
ḅ̈̈̈̈̇	\textbeltl	ḅ	\texthtp	I	\textsci
ḅ̈̈̈̈̈	\textbeta	q	\texthtq	J	\textscj
ḅ̈̈̈̈̈̇	\textbullseye	ḅ	\texthtrtaild	L	\textscl
˘	\textceltpal	Ḅ	\texthtscg	N	\textscn
χ	\textchi	f	\texthtt	œ	\textscscoelig
ɐ	\textcloseepsilon	lv	\texthvlig	Ω	\textscsomega
ω	\textcloseomega	ɔ	\textinvglotstop	R	\textscr
ɐ̄	\textcloserevepsilon	ʁ	\textinvscr	ɑ	\textscripta
z	\textcommatailz	ι	\textiota	g	\textscriptg
˘	\textcorner	λ	\textlambd	υ	\textscriptv
ḅ	\textcrb	:	\textlengthmark	U	\textscu
ḅ̄	\textcrd	ḅ	\textlhookt	Y	\textscy
ḅ̇	\textcrg	l	\textlhtlongi	˘	\textsecstress
ḅ̈	\textcrh	ɥ	\textlhtlongy	ᶇ	\textsoftsign
ḅ̈̇	\textcrinvglotstop	ɽ	\textlonglegr	⌈	\textstretchc
λ	\textcrlambd	˘	\textlptr	ḅ	\texttctclig
z	\textcrtwo	ɳ	\textltailm	ḅ	\texttshlig
c	\textctc	ɳ	\textltailn	θ	\texttheta
d	\textctd	ḅ	\textltilde	ḅ	\textthorn
ḅ̄	\textctdctzlig	ḅ	\textlyoghlig	|	\texttoneletterstem
ḅ̇	\textctesh	J	\textObardotlessj	ts	\textttslig
j	\textctj	ḅ	\textOlyoghlig	e	\textturna
ɳ	\textctn	ω	\textomega	æ	\textturncelig
ḅ̄	\textctt	˘	\textopencorner	ɥ	\textturnh
ḅ̄	\textcttctclig	o	\textopeno	ɥ	\textturnk
z	\textctyogh	˘	\textpalhook	I	\textturnlonglegr
z	\textctz	φ	\textphi	uu	\textturnm
ḅ̄	\textdctzlig	|	\textpipe	uu	\textturnmrleg
f	\textdoublebaresh	˘	\textprimstress	ɽ	\textturnr
ḅ̄	\textdoublebarpipe	ʔ	\textraiseglotstop	ɽ	\textturnrrtail
≠	\textdoublebarslash	l	\textraisevibi	D	\textturnscripta
||	\textdoublepipe	ɣ	\texttramshorns	ɽ	\textturnt
||	\textdoublevertline	˘	\textrevapostrophe	Λ	\textturnv
↓	\textdownstep	ə	\textreve	Λ	\textturnw
ḅ̄	\textdyoghlig	z	\textrevepsilon	Λ	\textturny
ḅ̄	\textdzlig	ɽ	\textrevglotstop	υ	\textupsilon
ε	\textepsilon	z	\textrevyogh	↑	\textupstep
f	\textesh	z	\textrighthookrevepsilon	|	\textvertline

(continued on next page)

(continued from previous page)

r	\textfishhookr	ø	\textrhookschwa	ɿ	\textviby
g	\textg	˘	\textrhoticity	ɥ	\textviby
γ	\textgamma	>	\textrptr	ɹ	\textwynn
↘	\textglobfall	ɔ	\textrtaild	ʒ	\textyogh
↗	\textglobrise	l	\textrtaill		

tipa defines shortcut characters for many of the above. It also defines a command \tone for denoting tone letters (itches). See the tipa documentation for more information.

TABLE 11: tipx Phonetic Symbols

æ	\textaoilig	f	\texthtbardotlessjvar	ɹ	\textrthooklong
ɜ	\textbenttailyogh	ω	\textinvomega	ɹ	\textscalig
γ	\textbktailgamma	v	\textinvvca	Δ	\textscdelta
ɔ	\textctinvglotstop	σ	\textinvscripta	F	\textscf
j	\textctjvar	ɸ	\textlfishhookrlig	K	\textscK
ɛ	\textctstretchc	ʃ	\textlhookfour	M	\textscM
ç	\textctstretchcvar	ɹ	\textlhookp	P	\textscP
ɹ	\textctturnt	ı	\textlhti	Q	\textscQ
ɔ	\textdblign	l	\textlooptoprevesh	←	\textspleftarrow
≠	\textdoublebarpipevar	η	\textnrleg	ç	\textstretchcvar
	\textdoublepipevar	⊙	\textObullseye	↔	\textsubdoublearrow
↓	\textdownfullarrow	ɹ	\textpalhooklong	→	\textsubbrightarrow
♀	\textfemale	ɹ	\textpalhookvar	ɸ	\textthornvari
n	\textfrbarn	|	\textpipevar	ɸ	\textthornvarii
ɔ	\textfrhookd	ɹ	\textqplig	ɸ	\textthornvariii
ɔ	\textfrhookdvar	◻	\textrectangle	ɸ	\textthornvariv
ɔ	\textfrhookt	↔	\textretractingvar	ɔ	\textturnglotstop
γ	\textfrtailgamma	ı	\textrevscl	ɹ	\textturnsck
?	\textglotstopvari	ɹ	\textrevscr	ɹ	\textturnscu
?	\textglotstopvarii	æ	\textrhooka	ɹ	\textturnthree
?	\textglotstopvariii	ε	\textrhookε	ɹ	\textturntwo
γ	\textgrgamma	ε	\textrhookεpsilon	♀	\textuncrfemale
h	\textheng	ɹ	\textrhookopeno	↑	\textupfullarrow
h	\texthmlign	ɹ	\textrtailhth		

TABLE 13: wsuiPA Phonetic Symbols

ɹ	\babygamma	ɹ	\eng	ɹ	\labdentalnas	ə	\schwa
ɹ	\barb	ø	\er	ɸ	\latfric	I	\sci
ɔ	\bard	ɸ	\esh	ɹ	\legm	N	\scn
i	\bari	ð	\eth	ɹ	\legr	R	\scr
ɸ	\barl	ɹ	\flapr	ɸ	\lz	α	\scripta

(continued on next page)

(continued from previous page)

ø	\baro	ʔ	\glotstop	α	\nialpha	g	\scriptg
ɸ	\barp	ʙ	\hookb	β	\nibeta	ʋ	\scriptv
ɪ	\barsci	ɸ	\hookd	χ	\nichi	ʉ	\scu
ɥ	\barscu	ɸ	\hookg	ε	\niepsilon	ʏ	\scy
u	\baru	ɦ	\hookh	γ	\nigamma	ɸ	\slashb
⊙	\clickb	ɦ	\hookheng	ι	\niiota	ø	\slashc
⊙	\clickc	ʒ	\hookrepsilon	λ	\nilambda	ø	\slashd
ɿ	\clickt	ʌ	\hv	ω	\niomega	ɥ	\slashu
ω	\closedniomega	e	\inva	φ	\nipheri	ɸ	\taild
ɔ	\closedrepsilon	j	\invf	σ	\nisigma	ɿ	\tailinvr
ɸ	\crossb	ɸ	\invglotstop	θ	\nitheta	l	\taill
ɸ	\crossd	ɸ	\invh	ʉ	\niupsilon	ɸ	\tailn
ɦ	\crossh	l	\invlegr	ɸ	\nj	ɿ	\tailr
λ	\crossnilambda	u	\invm	∞	\oo	ɸ	\tails
ε	\curlyc	ɿ	\invr	ɔ	\openo	t	\tailt
ɸ	\curlyesh	ɸ	\invscr	ə	\reve	z	\tailz
ɸ	\curlyyogh	ɸ	\invscripta	ɸ	\reveject	ɸ	\tesh
z	\curlyz	ɸ	\invv	ɸ	\revespsilon	ɸ	\thorn
ɿ	\dlbari	ɸ	\invw	ɸ	\revglotstop	ɿ	\tildel
ɸ	\dz	ɸ	\invy	D	\scd	ɸ	\yogh
ɸ	\ejective	ɸ	\ipagamma	G	\scg		

TABLE 14: wasysym Phonetic Symbols

D	\DH	ð	\dh	ɔ	\openo
D	\Thorn	ə	\inve	ɸ	\thorn

TABLE 15: phonetic Phonetic Symbols

j	\barj	r	\flap	ɿ	\libar	ɸ	\rotvara	ɿ	\vari
λ	\barlambda	ʔ	\glottal	ɔ	\openo	ɸ	\rotw	ω	\varomega
ɸ	\emgma	ɸ	\hausab	ɦ	\planck	ɸ	\roty	ɔ	\varopeno
ɸ	\engma	ɸ	\hausab	ɸ	\pwedge	ə	\schwa	ɸ	\vod
ɸ	\enya	ɸ	\hausad	ɸ	\revD	ɸ	\thorn	ɦ	\voicedh
ε	\epsi	ɸ	\hausad	ɿ	\riota	ɸ	\ubar	ɸ	\yogh
f	\esh	ɸ	\hausak	u	\rotm	ɸ	\udesc		
ð	\eth	K	\hausak	ʉ	\rotOmega	ɸ	\vara		
ɦ	\fj	ɸ	\hookd	ɿ	\rotr	g	\varg		

TABLE 16: t4phonet Phonetic Symbols

đ	<code>\textcrd</code>	d'	<code>\texthtd</code>	|	<code>\textpipe</code>
h	<code>\textcrh</code>	k	<code>\texthtk</code>	ɔ	<code>\textrtaild</code>
ε	<code>\textepsilon</code>	ɸ	<code>\texthtp</code>	ʈ	<code>\textrtailt</code>
ʃ	<code>\textesh</code>	ʈ	<code>\texthtt</code>	ɹ	<code>\textschwa</code>
ʃj	<code>\textfjlig</code>	ι	<code>\textiota</code>	ʃ	<code>\textscriptv</code>
β	<code>\texthtb</code>	ɲ	<code>\textltailn</code>	ʧ	<code>\texttshlig</code>
ç	<code>\texthtc</code>	ɔ	<code>\textopeno</code>	ʒ	<code>\textyogh</code>

The idea behind the `t4phonet` package’s phonetic symbols is to provide an interface to some of the characters in the T4 font encoding (Table 6 on page 9) but using the same names as the `tipa` characters presented in Table 10 on page 10.

TABLE 17: semtrans Transliteration Symbols

›	<code>\Alif</code>	◁	<code>\Ayn</code>
---	--------------------	---	-------------------

TABLE 18: Text-mode Accents

Ää	<code>\{A}\{a}</code>	Àà	<code>\{A}\{a}</code>	Ạạ	<code>\d{A}\d{a}</code>	Ảả	<code>\r{A}\r{a}</code>
Áá	<code>\' {A}\' {a}</code>	Áá	<code>\| {A}\| {a}‡</code>	Ăă	<code>\G{A}\G{a}‡</code>	Ââ	<code>\t{A}\t{a}</code>
Ââ	<code>\. {A}\. {a}</code>	Ãã	<code>\~ {A}\~ {a}</code>	Ǻǻ	<code>\h{A}\h{a}§</code>	Ǻǻ	<code>\u{A}\u{a}</code>
Āā	<code>\= {A}\= {a}</code>	Āā	<code>\b{A}\b{a}</code>	Ǻǻ	<code>\H{A}\H{a}</code>	Ǻǻ	<code>\U{A}\U{a}‡</code>
Ââ	<code>\^ {A}\^ {a}</code>	Ạạ	<code>\c{A}\c{a}</code>	Ạạ	<code>\k{A}\k{a}†</code>	Ǻǻ	<code>\v{A}\v{a}</code>
Ââ	<code>\newtie{A}\newtie{a}*</code>	Ⓐⓐ	<code>\textcircled{A}\textcircled{a}</code>				

* Requires the `textcomp` package.

† Not available in the OT1 font encoding. Use the `fontenc` package to select an alternate font encoding, such as T1.

‡ Requires the T4 font encoding, provided by the `fc` package.

§ Requires the T5 font encoding, provided by the `vntex` package.

Also note the existence of `\i` and `\j`, which produce dotless versions of “i” and “j” (viz., “i” and “j”). These are useful when the accent is supposed to replace the dot. For example, “`na\{i}ve`” produces a correct “naïve”, while “`na\{i}ve`” would yield the rather odd-looking “naïve”. (“`na\{i}ve`” *does* work in encodings other than OT1, however.)

TABLE 19: tipa Text-mode Accents

Áá	<code>\textacutemacron{A}\textacutemacron{a}</code>
Ăă	<code>\textacutewedge{A}\textacutewedge{a}</code>

(continued on next page)

(continued from previous page)

\AA $\backslash\text{textadvancing}\{A\}\backslash\text{textadvancing}\{a\}$
 $\text{\underline{A}}$ $\backslash\text{textbottomtiebar}\{A\}\backslash\text{textbottomtiebar}\{a\}$
 \AA $\backslash\text{textbreve}\{A\}\backslash\text{textbreve}\{a\}$
 \AA $\backslash\text{textcircacutec}\{A\}\backslash\text{textcircacutec}\{a\}$
 \AA $\backslash\text{textcircumdot}\{A\}\backslash\text{textcircumdot}\{a\}$
 \AA $\backslash\text{textdotacutec}\{A\}\backslash\text{textdotacutec}\{a\}$
 \AA $\backslash\text{textdotbreve}\{A\}\backslash\text{textdotbreve}\{a\}$
 \AA $\backslash\text{textdotbreve}\{A\}\backslash\text{textdotbreve}\{a\}$
 \AA $\backslash\text{textdoublegrave}\{A\}\backslash\text{textdoublegrave}\{a\}$
 \AA $\backslash\text{textdoublevbaraccent}\{A\}\backslash\text{textdoublevbaraccent}\{a\}$
 \AA $\backslash\text{textgravecircum}\{A\}\backslash\text{textgravecircum}\{a\}$
 \AA $\backslash\text{textgravedot}\{A\}\backslash\text{textgravedot}\{a\}$
 \AA $\backslash\text{textgravemacron}\{A\}\backslash\text{textgravemacron}\{a\}$
 \AA $\backslash\text{textgravemid}\{A\}\backslash\text{textgravemid}\{a\}$
 \AA $\backslash\text{textinvsubbridge}\{A\}\backslash\text{textinvsubbridge}\{a\}$
 \AA $\backslash\text{textlowering}\{A\}\backslash\text{textlowering}\{a\}$
 \AA $\backslash\text{textmidacutec}\{A\}\backslash\text{textmidacutec}\{a\}$
 \AA $\backslash\text{textovercross}\{A\}\backslash\text{textovercross}\{a\}$
 \AA $\backslash\text{textoverw}\{A\}\backslash\text{textoverw}\{a\}$
 \AA $\backslash\text{textpolhook}\{A\}\backslash\text{textpolhook}\{a\}$
 \AA $\backslash\text{textraising}\{A\}\backslash\text{textraising}\{a\}$
 \AA $\backslash\text{textretracting}\{A\}\backslash\text{textretracting}\{a\}$
 \AA $\backslash\text{textringmacron}\{A\}\backslash\text{textringmacron}\{a\}$
 \AA $\backslash\text{textroundcap}\{A\}\backslash\text{textroundcap}\{a\}$
 \AA $\backslash\text{textseagull}\{A\}\backslash\text{textseagull}\{a\}$
 \AA $\backslash\text{textsubacute}\{A\}\backslash\text{textsubacute}\{a\}$
 \AA $\backslash\text{textsubarch}\{A\}\backslash\text{textsubarch}\{a\}$
 \AA $\backslash\text{textsubbar}\{A\}\backslash\text{textsubbar}\{a\}$
 \AA $\backslash\text{textsubbridge}\{A\}\backslash\text{textsubbridge}\{a\}$
 \AA $\backslash\text{textsubcircum}\{A\}\backslash\text{textsubcircum}\{a\}$
 \AA $\backslash\text{textsubdot}\{A\}\backslash\text{textsubdot}\{a\}$
 \AA $\backslash\text{textsubgrave}\{A\}\backslash\text{textsubgrave}\{a\}$
 \AA $\backslash\text{textsublhalfring}\{A\}\backslash\text{textsublhalfring}\{a\}$
 \AA $\backslash\text{textsubplus}\{A\}\backslash\text{textsubplus}\{a\}$
 \AA $\backslash\text{textsubrhalfring}\{A\}\backslash\text{textsubrhalfring}\{a\}$
 \AA $\backslash\text{textsubring}\{A\}\backslash\text{textsubring}\{a\}$
 \AA $\backslash\text{textsubsquare}\{A\}\backslash\text{textsubsquare}\{a\}$
 \AA $\backslash\text{textsubtilde}\{A\}\backslash\text{textsubtilde}\{a\}$
 \AA $\backslash\text{textsubumlaut}\{A\}\backslash\text{textsubumlaut}\{a\}$
 \AA $\backslash\text{textsubw}\{A\}\backslash\text{textsubw}\{a\}$
 \AA $\backslash\text{textsubwedge}\{A\}\backslash\text{textsubwedge}\{a\}$
 \AA $\backslash\text{textsuperimposetilde}\{A\}\backslash\text{textsuperimposetilde}\{a\}$

(continued on next page)

(continued from previous page)

$\overset{\cdot}{A}\overset{\cdot}{a}$ `\textsyllabic{A}\textsyllabic{a}`
 $\tilde{A}\tilde{a}$ `\texttildedot{A}\texttildedot{a}`
 $\widehat{A}\widehat{a}$ `\texttoptiebar{A}\texttoptiebar{a}`
 $\underset{\cdot}{A}\underset{\cdot}{a}$ `\textvbaraccent{A}\textvbaraccent{a}`

tipa defines shortcut sequences for many of the above. See the tipa documentation for more information.

TABLE 20: extraipa Text-mode Accents

$\overset{\cdot}{A}\overset{\cdot}{a}$	<code>\bibridge{A}\bibridge{a}</code>	$\overset{\cdot}{A}\overset{\cdot}{a}$	<code>\partvoiceless{A}\partvoiceless{a}</code>
$\overset{\cdot}{A}\overset{\cdot}{a}$	<code>\crtilde{A}\crtilde{a}</code>	$\overset{\cdot}{A}\overset{\cdot}{a}$	<code>\sliding{A}\sliding{a}</code>
$\overset{\cdot}{A}\overset{\cdot}{a}$	<code>\dottedtilde{A}\dottedtilde{a}</code>	$\overset{\cdot}{A}\overset{\cdot}{a}$	<code>\spreadlips{A}\spreadlips{a}</code>
$\overset{\cdot}{A}\overset{\cdot}{a}$	<code>\doubletilde{A}\doubletilde{a}</code>	$\overset{\cdot}{A}\overset{\cdot}{a}$	<code>\subcorner{A}\subcorner{a}</code>
$\overset{\cdot}{A}\overset{\cdot}{a}$	<code>\finpartvoice{A}\finpartvoice{a}</code>	$\overset{\cdot}{A}\overset{\cdot}{a}$	<code>\subdoublebar{A}\subdoublebar{a}</code>
$\overset{\cdot}{A}\overset{\cdot}{a}$	<code>\finpartvoiceless{A}\finpartvoiceless{a}</code>	$\overset{\cdot}{A}\overset{\cdot}{a}$	<code>\subdoublevert{A}\subdoublevert{a}</code>
$\overset{\cdot}{A}\overset{\cdot}{a}$	<code>\inipartvoice{A}\inipartvoice{a}</code>	$\overset{\cdot}{A}\overset{\cdot}{a}$	<code>\sublptr{A}\sublptr{a}</code>
$\overset{\cdot}{A}\overset{\cdot}{a}$	<code>\inipartvoiceless{A}\inipartvoiceless{a}</code>	$\overset{\cdot}{A}\overset{\cdot}{a}$	<code>\subrptr{A}\subrptr{a}</code>
$\overset{\cdot}{A}\overset{\cdot}{a}$	<code>\overbridge{A}\overbridge{a}</code>	$\overset{\cdot}{A}\overset{\cdot}{a}$	<code>\whistle{A}\whistle{a}</code>
$\overset{\cdot}{A}\overset{\cdot}{a}$	<code>\partvoice{A}\partvoice{a}</code>		

TABLE 21: wsuipa Text-mode Accents

$\overset{\cdot}{A}\overset{\cdot}{a}$ `\dental{A}\dental{a}`
 $\overset{\cdot}{A}\overset{\cdot}{a}$ `\underarch{A}\underarch{a}`

TABLE 22: phonetic Text-mode Accents

$\overset{\cdot}{A}\overset{\cdot}{a}$	<code>\hill{A}\hill{a}</code>	$\overset{\cdot}{A}\overset{\cdot}{a}$	<code>\rc{A}\rc{a}</code>	$\overset{\cdot}{A}\overset{\cdot}{a}$	<code>\ut{A}\ut{a}</code>
$\overset{\cdot}{A}\overset{\cdot}{a}$	<code>\od{A}\od{a}</code>	$\overset{\cdot}{A}\overset{\cdot}{a}$	<code>\syl{A}\syl{a}</code>		
$\overset{\cdot}{A}\overset{\cdot}{a}$	<code>\ohill{A}\ohill{a}</code>	$\overset{\cdot}{A}\overset{\cdot}{a}$	<code>\td{A}\td{a}</code>		

The phonetic package provides a few additional macros for linguistic accents. `\acbar` and `\acarc` compose characters with multiple accents; for example, `\acbar{\'}{a}` produces “á” and `\acarc{\"}{e}` produces “ë”. `\labvel` joins two characters with an arc: `\labvel{mn}` → “m̂n”. `\upbar` is intended to go between characters as in “x`\upbar`{y}” → “x̂y”. Lastly, `\uplett` behaves like `\textsuperscript` but uses a smaller font. Contrast “p`\uplett`{h}” → “p^h” with “p`\textsuperscript`{h}” → “p^h”.

TABLE 23: metre Text-mode Accents

Áá	<code>\acutus{A}\acutus{a}</code>
Ăă	<code>\breve{A}\breve{a}</code>
Ãã	<code>\circumflexus{A}\circumflexus{a}</code>
Ää	<code>\diaeresis{A}\diaeresis{a}</code>
Àà	<code>\gravis{A}\gravis{a}</code>
Āā	<code>\macron{A}\macron{a}</code>

TABLE 24: t4phonet Text-mode Accents

Ää	<code>\textdoublegrave{A}\textdoublegrave{a}</code>
Áá	<code>\textvbaraccent{A}\textvbaraccent{a}</code>
Ää	<code>\textdoublevbaraccent{A}\textdoublevbaraccent{a}</code>

The idea behind the `t4phonet` package’s text-mode accents is to provide an interface to some of the accents in the T4 font encoding (accents marked with “‡” in Table 18 on page 13) but using the same names as the `tipa` accents presented in Table 19 on page 13.

TABLE 25: arcs Text-mode Accents

Ⓐ	<code>\overarc{A}\overarc{a}</code>	Ⓐ	<code>\underarc{A}\underarc{a}</code>
---	-------------------------------------	---	---------------------------------------

The accents shown above scale only to a few characters wide. An optional macro argument alters the effective width of the accented characters. See the `arcs` documentation for more information.

TABLE 26: semtrans Accents

Ⓐ	<code>\D{A}\D{a}</code>	Ⓐ	<code>\U{A}\U{a}</code>
∇	<code>\T{A}\T{a}</code> *		

`\T` is not actually an accent but a command that rotates its argument 180° using the `graphicx` package’s `\rotatebox` command.

TABLE 27: wsuipa Diacritics

ˆ	<code>\ain</code>	<	<code>\leftp</code>	◦	<code>\overring</code>	ˊ	<code>\stress</code>	˘	<code>\underwedge</code>
⌞	<code>\corner</code>	⌞	<code>\leftt</code>	ˆ	<code>\polishhook</code>	ˆ	<code>\syllabic</code>	ˆ	<code>\upp</code>
˘	<code>\downp</code>	ː	<code>\length</code>	>	<code>\rightp</code>	˙	<code>\underdots</code>	⊥	<code>\upt</code>
⌞	<code>\downt</code>	˜	<code>\midtilde</code>	⌞	<code>\rightt</code>	◦	<code>\underring</code>		
˘	<code>\halflength</code>	˘	<code>\open</code>	ˆ	<code>\secstress</code>	˜	<code>\undertilde</code>		

The `wsuipa` package defines all of the above as ordinary characters, not as accents. However, it does provide `\diatop` and `\diaunder` commands, which are used to compose diacritics with other characters. For example, `\diatop[\overring|a]` produces “á”, and `\diaunder[\underdots|a]` produces “ä”. See the `wsuipa` documentation for more information.

TABLE 28: textcomp Diacritics

”	<code>\textacutedbl</code>	˘	<code>\textasciicaron</code>	˘	<code>\textasciimacron</code>
´	<code>\textasciiacute</code>	¨	<code>\textasciidieresis</code>	˘	<code>\textgravedbl</code>
˘	<code>\textasciibreve</code>	`	<code>\textasciigrave</code>		

The `textcomp` package defines all of the above as ordinary characters, not as accents.

TABLE 29: textcomp Currency Symbols

฿	<code>\textbaht</code>	\$	<code>\textdollar*</code>	₵	<code>\textguarani</code>	₩	<code>\textwon</code>
¢	<code>\textcent</code>	\$	<code>\textdollaroldstyle</code>	£	<code>\textlira</code>	¥	<code>\textyen</code>
¢	<code>\textcentoldstyle</code>	₫	<code>\textdong</code>	₦	<code>\textnaira</code>		
₯	<code>\textcolonmonetary</code>	€	<code>\texteuro</code>	₱	<code>\textpeso</code>		
₣	<code>\textcurrency</code>	f	<code>\textflorin</code>	£	<code>\textsterling*</code>		

* It’s generally preferable to use the corresponding symbol from Table 3 on page 8 because the symbols in that table work properly in both text mode and math mode.

TABLE 30: marvosym Currency Symbols

₴	<code>\Denarius</code>	€	<code>\EUR</code>	€	<code>\EURdig</code>	€	<code>\EURtm</code>	£	<code>\Pfund</code>
@	<code>\Ecommerce</code>	€	<code>\EURcr</code>	€	<code>\EURhv</code>	\$	<code>\EyesDollar</code>	£	<code>\Shilling</code>

The different euro signs are meant to be visually compatible with different fonts—Courier (`\EURcr`), Helvetica (`\EURhv`), Times Roman (`\EURtm`), and the `marvosym` digits listed in Table 182 (`\EURdig`). The `mathdesign` package redefines `\texteuro` to be visually compatible with one of three additional fonts: Utopia (€), Charter (€), or Garamond (€).

TABLE 31: wasysym Currency Symbols

¢	<code>\cent</code>	₣	<code>\currency</code>
---	--------------------	---	------------------------

TABLE 32: eurosym Euro Signs

€	<code>\geneuro</code>	€	<code>\geneuronarrow</code>	€	<code>\geneurowide</code>	€	<code>\officialeguro</code>
---	-----------------------	---	-----------------------------	---	---------------------------	---	-----------------------------

`\euro` is automatically mapped to one of the above—by default, `\officialeguro`—based on a `eurosym` package option. See the `eurosym` documentation for more information. The `\geneuro...` characters are generated from the current body font’s “C” character and therefore may not appear exactly as shown.

TABLE 33: textcomp Legal Symbols

\textcircled{P}	<code>\textcircledP</code>	\textcircled{C}	\textcircled{C}	<code>\textcopyright</code>		SM	<code>\textservicemark</code>
\textcircled{R}	<code>\textcircledR</code>	\textcircled{R}	\textcircled{R}	<code>\textregistered</code>		TM	<code>\texttrademark</code>

Where two symbols are present, the left one is the “faked” symbol that L^AT_EX 2_ε provides by default, and the right one is the “true” symbol that textcomp makes available.

See <http://www.tex.ac.uk/cgi-bin/texfaq2html?label=tradesyms> for solutions to common problems that occur when using these symbols (e.g., getting a “ \textcircled{P} ” when you expected to get a “ \textcircled{R} ”).

TABLE 34: ccllicenses Creative Commons License Icons

\textcircled{CC}	<code>\cc</code>	\textcircled{BY}	<code>\ccby</code>	\textcircled{NC}	<code>\ccnc*</code>	\textcircled{ND}	<code>\ccnd</code>	\textcircled{SA}	<code>\ccsa*</code>
--------------------	------------------	--------------------	--------------------	--------------------	---------------------	--------------------	--------------------	--------------------	---------------------

* These symbols utilize the rotating package and therefore display improperly in most DVI viewers.

TABLE 35: textcomp Old-style Numerals

0	<code>\textzerooldstyle</code>	4	<code>\textfouroldstyle</code>	8	<code>\texteightoldstyle</code>
1	<code>\textoneoldstyle</code>	5	<code>\textfiveoldstyle</code>	9	<code>\textnineoldstyle</code>
2	<code>\texttwooldstyle</code>	6	<code>\textsixoldstyle</code>		
3	<code>\textthreeoldstyle</code>	7	<code>\textsevenoldstyle</code>		

Rather than use the bulky `\textoneoldstyle`, `\texttwooldstyle`, etc. commands shown above, consider using `\oldstylenums{...}` to typeset an old-style number.

TABLE 36: Miscellaneous textcomp Symbols

*	<code>\textasteriskcentered</code>	ª		<code>\textordfeminine</code>
||	<code>\textbardbl</code>	º		<code>\textordmasculine</code>
○	<code>\textbigcircle</code>	¶	¶	<code>\textparagraph*</code>
	<code>\textblank</code>	·	·	<code>\textperiodcentered</code>
_	<code>\textbrokenbar</code>	‰	‰	<code>\textpertenthousand</code>
•	<code>\textbullet</code>	‰	‰	<code>\textperthousand</code>
†	<code>\textdagger*</code>	¶	¶	<code>\textpilcrow</code>
‡	<code>\textdaggerdbl*</code>	'	'	<code>\textquotesingle</code>
=	<code>\textdblhyphen</code>	,	,	<code>\textquotestraightbase</code>
=	<code>\textdblhyphenchar</code>	„	„	<code>\textquotestraightdblbase</code>
%	<code>\textdiscount</code>	℞	℞	<code>\textrecipe</code>
€	<code>\textestimated</code>	※	※	<code>\textreferencemark</code>
‡	<code>\textinterrobang</code>	§	§	<code>\textsection*</code>
‡	<code>\textinterrobangdown</code>	—	—	<code>\textthreequartersemdash</code>
♪	<code>\textmusicalnote</code>	~	~	<code>\texttildelow</code>
№	<code>\textnumero</code>	—	—	<code>\texttwelveudash</code>
◦	<code>\textopenbullet</code>			

Where two symbols are present, the left one is the “faked” symbol that L^AT_EX 2_ε provides by default, and the right one is the “true” symbol that textcomp makes available.

* It’s generally preferable to use the corresponding symbol from Table 3 on page 8 because the symbols in that table work properly in both text mode and math mode.

TABLE 37: Miscellaneous wasysym Text-mode Symbols

‰ `\permil`

3 Mathematical symbols

Most, but not all, of the symbols in this section are math-mode only. That is, they yield a “Missing \$ inserted” error message if not used within $...$, $\left[\dots \right]$, or another math-mode environment. Operators marked as “variable-sized” are taller in displayed formulas, shorter in in-text formulas, and possibly shorter still when used in various levels of superscripts or subscripts.

Alphanumeric symbols (e.g., “ \mathcal{L} ” and “ \mathbb{Z} ”) are usually produced using one of the math alphabets in Table 196 rather than with an explicit symbol command. Look there first if you need a symbol for a transform, number set, or some other alphanumeric.

Although there have been many requests on `comp.text.tex` for a contradiction symbol, the ensuing discussion invariably reveals innumerable ways to represent contradiction in a proof, including “ \blacksquare ” (`\blitza`), “ $\Rightarrow\Leftarrow$ ” (`\Rightarrow\Leftarrow`), “ \perp ” (`\bot`), “ \leftrightarrow ” (`\leftrightarrow`), and “ \ast ” (`\textreferencemark`). Because of the lack of notational consensus, it is probably better to spell out “Contradiction!” than to use a symbol for this purpose. Similarly, discussions on `comp.text.tex` have revealed that there are a variety of ways to indicate the mathematical notion of “is defined as”. Common candidates include “ \triangleq ” (`\triangleq`), “ \equiv ” (`\equiv`), “ \coloneqq ” (`\coloneqq`), and “ $\stackrel{\text{def}}{=}$ ” (`\stackrel{\text{def}}{=}`). See also the example of `\equalsfill` on page 95. Depending upon the context, disjoint union may be represented as “ \coprod ” (`\coprod`), “ \sqcup ” (`\sqcup`), “ $\dot{\cup}$ ” (`\dotcup`), “ \oplus ” (`\oplus`), or any of a number of other symbols.¹ Finally, the average value of a variable x is written by some people as “ \overline{x} ” (`\overline{x}`), by some people as “ $\langle x \rangle$ ” (`\langle x \rangle`), and by some people as “ $\varnothing x$ ” or “ $\emptyset x$ ” (`\diameter x` or `\varnothing x`). The moral of the story is that you should be careful always to explain your notation to avoid confusing your readers.

TABLE 38: Math-Mode Versions of Text Symbols

$\$$	<code>\mathdollar</code>	\P	<code>\mathparagraph</code>	\pounds	<code>\mathsterling</code>
\dots	<code>\mathellipsis</code>	\S	<code>\mathsection</code>	$-$	<code>\mathunderscore</code>

It’s generally preferable to use the corresponding symbol from Table 3 on page 8 because the symbols in that table work properly in both text mode and math mode.

TABLE 39: cml Unary Operators

$!$	<code>\oc*</code>	\uparrow	<code>\shneg</code>	$?$	<code>\wn*</code>
\downarrow	<code>\shift</code>	\downarrow	<code>\shpos</code>		

* `\oc` and `\wn` differ from “!” and “?” in terms of their math-mode spacing: $\$A=!B\$$ produces “ $A =!B$ ”, for example, while $\$A=\oc B\$$ produces “ $A = !B$ ”.

TABLE 40: Binary Operators

\amalg	<code>\amalg</code>	\cup	<code>\cup</code>	\oplus	<code>\oplus</code>	\times	<code>\times</code>
\ast	<code>\ast</code>	\dagger	<code>\dagger</code>	\oslash	<code>\oslash</code>	\triangleleft	<code>\triangleleft</code>
\bigcirc	<code>\bigcirc</code>	\ddagger	<code>\ddagger</code>	\otimes	<code>\otimes</code>	\triangleright	<code>\triangleright</code>
\bigtriangledown	<code>\bigtriangledown</code>	\diamond	<code>\diamond</code>	\pm	<code>\pm</code>	\triangleleft^*	<code>\unlhd*</code>
\bigtriangleup	<code>\bigtriangleup</code>	\div	<code>\div</code>	\triangleright^*	<code>\rhd*</code>	\triangleleft^*	<code>\unrhd*</code>
\bullet	<code>\bullet</code>	\triangleleft^*	<code>\lhd*</code>	\setminus	<code>\setminus</code>	\uplus	<code>\uplus</code>
\cap	<code>\cap</code>	\mp	<code>\mp</code>	\sqcap	<code>\sqcap</code>	\vee	<code>\vee</code>
\cdot	<code>\cdot</code>	\odot	<code>\odot</code>	\sqcup	<code>\sqcup</code>	\wedge	<code>\wedge</code>
\circ	<code>\circ</code>	\ominus	<code>\ominus</code>	\star	<code>\star</code>	\wr	<code>\wr</code>

* Not predefined in $\text{\LaTeX} 2_{\epsilon}$. Use one of the packages `latexsym`, `amsfonts`, `amssymb`, `txfonts`, `pxfonts`, or `wasy`.

¹Bob Tennent listed these and other disjoint-union symbol possibilities in a November 2007 post to `comp.text.tex`.

TABLE 41: \mathcal{AMS} Binary Operators

$\bar{\wedge}$	<code>\barwedge</code>	\odot	<code>\circledcirc</code>	\Uparrow	<code>\intercal</code>
\boxdot	<code>\boxdot</code>	\ominus	<code>\circleddash</code>	\timesleftthreetimes	<code>\leftthreetimes</code>
\boxminus	<code>\boxminus</code>	\cup	<code>\Cup</code>	\times	<code>\ltimes</code>
\boxplus	<code>\boxplus</code>	\curlyvee	<code>\curlyvee</code>	\timesrightthreetimes	<code>\rightthreetimes</code>
\boxtimes	<code>\boxtimes</code>	\curlywedge	<code>\curlywedge</code>	\times	<code>\rtimes</code>
\Cap	<code>\Cap</code>	\div	<code>\divideontimes</code>	\smallsetminus	<code>\smallsetminus</code>
\centerdot	<code>\centerdot</code>	$\dot{+}$	<code>\dotplus</code>	\veebar	<code>\veebar</code>
\circledast	<code>\circledast</code>	$\overline{\wedge}$	<code>\doublebarwedge</code>		

TABLE 42: `stmaryrd` Binary Operators

$\bar{\phi}$	<code>\baro</code>	\parallel	<code>\interleave</code>	\circledast	<code>\varoast</code>
\backslash	<code>\bbslash</code>	\triangleleft	<code>\leftslice</code>	\ominus	<code>\varobar</code>
$\&$	<code>\binampersand</code>	\M	<code>\merge</code>	\oslash	<code>\varobslash</code>
\wp	<code>\bindnasrepma</code>	\ominus	<code>\minuso</code>	\odot	<code>\varocircle</code>
\boxast	<code>\boxast</code>	\pm	<code>\moo</code>	\odot	<code>\varodot</code>
\boxbar	<code>\boxbar</code>	\oplus	<code>\nplus</code>	\otimes	<code>\varogreaterthan</code>
\boxbox	<code>\boxbox</code>	\oplus	<code>\obar</code>	\otimes	<code>\varolessthan</code>
\boxbslash	<code>\boxbslash</code>	\square	<code>\oblong</code>	\ominus	<code>\varominus</code>
\boxcircle	<code>\boxcircle</code>	\oslash	<code>\obslash</code>	\oplus	<code>\varoplus</code>
\boxdot	<code>\boxdot</code>	\otimes	<code>\ogreaterthan</code>	\oslash	<code>\varoslash</code>
\boxempty	<code>\boxempty</code>	\otimes	<code>\olessthan</code>	\otimes	<code>\varotimes</code>
\boxslash	<code>\boxslash</code>	\oslash	<code>\ovee</code>	\oslash	<code>\varovee</code>
\curlyveedownarrow	<code>\curlyveedownarrow</code>	\oslash	<code>\owedge</code>	\oslash	<code>\varowedge</code>
\curlyveeuparrow	<code>\curlyveeuparrow</code>	\triangleright	<code>\rightslice</code>	\times	<code>\vartimes</code>
\curlywedgedownarrow	<code>\curlywedgedownarrow</code>	$//$	<code>\sslash</code>	\Uparrow	<code>\Ydown</code>
\curlywedgeuparrow	<code>\curlywedgeuparrow</code>	\parallel	<code>\talloblong</code>	\triangleleft	<code>\Yleft</code>
\backslash	<code>\fatbslash</code>	\bigcirc	<code>\varbigcirc</code>	\triangleright	<code>\Yright</code>
\S	<code>\fatsemi</code>	\curlyvee	<code>\varcurlyvee</code>	\curlywedge	<code>\Yup</code>
$//$	<code>\fatslash</code>	\curlywedge	<code>\varcurlywedge</code>		

TABLE 43: `wasysym` Binary Operators

\triangleleft	<code>\lhd</code>	\circ	<code>\ocircle</code>	\blacktriangleright	<code>\RHD</code>	\triangleright	<code>\unrhd</code>
\blacktriangleleft	<code>\LHD</code>	\triangleright	<code>\rhd</code>	\trianglelefteq	<code>\unlhd</code>		

TABLE 44: `txfonts/pxfonts` Binary Operators

\oplus	<code>\circledbar</code>	\oslash	<code>\circledwedge</code>	\circ	<code>\medcirc</code>
\oslash	<code>\circledbslash</code>	\wp	<code>\invamp</code>	\boxplus	<code>\sqcapplus</code>
\oslash	<code>\circledvee</code>	\bullet	<code>\medbullet</code>	\boxplus	<code>\sqcupplus</code>

TABLE 45: mathabx Binary Operators

*	<code>\ast</code>	∧	<code>\curlywedge</code>	⊔	<code>\sqcap</code>
*	<code>\Asterisk</code>	∓	<code>\divdot</code>	⊔	<code>\sqcup</code>
∧	<code>\barwedge</code>	∗	<code>\divideontimes</code>	⊔	<code>\sqdoublecap</code>
★	<code>\bigstar</code>	÷	<code>\dotdiv</code>	⊔	<code>\sqdoublecup</code>
★	<code>\bigvarstar</code>	‡	<code>\dotplus</code>	◻	<code>\square</code>
◆	<code>\blackdiamond</code>	⋈	<code>\dottimes</code>	⊕	<code>\squplus</code>
∩	<code>\cap</code>	⌘	<code>\doublebarwedge</code>	⋅	<code>\udot</code>
‡	<code>\circplus</code>	⊔	<code>\doublecap</code>	⊕	<code>\uplus</code>
*	<code>\coasterisk</code>	∪	<code>\doublecup</code>	*	<code>\varstar</code>
*	<code>\coAsterisk</code>	⋈	<code>\ltimes</code>	∨	<code>\vee</code>
*	<code>\convolution</code>	⊕	<code>\pluscirc</code>	∨	<code>\veebar</code>
∪	<code>\cup</code>	⋈	<code>\rtimes</code>	≅	<code>\veedoublebar</code>
∨	<code>\curlyvee</code>	■	<code>\sqbullet</code>	∧	<code>\wedge</code>

Many of the above glyphs go by multiple names. `\centerdot` is equivalent to `\sqbullet`, and `\ast` is equivalent to `*`. `\asterisk` produces the same glyph as `\ast`, but as an ordinary symbol, not a binary operator. Similarly, `\bigast` produces a large-operator version of the `\Asterisk` binary operator, and `\bigcoast` produces a large-operator version of the `\coAsterisk` binary operator.

TABLE 46: MnSymbol Binary Operators

\amalg	<code>\amalg</code>	\doublecup	<code>\doublecup</code>	\therefore	<code>\righttherefore</code>
\ast	<code>\ast</code>	\doublevee	<code>\doublevee</code>	\times	<code>\rightthreetimes</code>
\backslashdiv	<code>\backslashdiv</code>	\doublewedge	<code>\doublewedge</code>	\succ	<code>\rightY</code>
\bowtie	<code>\bowtie</code>	\downdownarrows	<code>\downdownarrows</code>	\rtimes	<code>\rtimes</code>
\bullet	<code>\bullet</code>	\downarrow	<code>\downarrow</code>	\div	<code>\slashdiv</code>
\cap	<code>\cap</code>	\times	<code>\dimes</code>	\prod	<code>\smallprod</code>
\capdot	<code>\capdot</code>	\cdots	<code>\fivedots</code>	\sqcap	<code>\sqcap</code>
\capplus	<code>\capplus</code>	∞	<code>\hbipropto</code>	\sqcapdot	<code>\sqcapdot</code>
\cdot	<code>\cdot</code>	\cdots	<code>\hdotdot</code>	\sqcupplus	<code>\sqcupplus</code>
\circ	<code>\circ</code>	\lrcorner	<code>\lefthalfcap</code>	\sqcup	<code>\sqcup</code>
\curlyvee	<code>\closedcurlyvee</code>	\llcorner	<code>\lefthalfcup</code>	\sqcupdot	<code>\sqcupdot</code>
\curlywedge	<code>\closedcurlywedge</code>	\llcorner	<code>\lefttherefore</code>	\sqcupplus	<code>\sqcupplus</code>
\cup	<code>\cup</code>	\times	<code>\leftthreetimes</code>	\ddots	<code>\squaredots</code>
\cupdot	<code>\cupdot</code>	\leftarrow	<code>\leftY</code>	\times	<code>\times</code>
\cupplus	<code>\cupplus</code>	\ltimes	<code>\ltimes</code>	\cdot	<code>\udotdot</code>
\curlyvee	<code>\curlyvee</code>	\backslash	<code>\medbackslash</code>	\therefore	<code>\uptherefore</code>
\curlyveedot	<code>\curlyveedot</code>	\bigcirc	<code>\medcircle</code>	\Uparrow	<code>\upY</code>
\curlywedge	<code>\curlywedge</code>	\diagup	<code>\medslash</code>	\times	<code>\utimes</code>
\curlywedgedot	<code>\curlywedgedot</code>	\mid	<code>\medvert</code>	\wp	<code>\vbipropto</code>
\cdot	<code>\ddotdot</code>	\vdash	<code>\medvertdot</code>	$:$	<code>\vdotdot</code>
\diamond	<code>\diamonddots</code>	$-$	<code>\minus</code>	\vee	<code>\vee</code>
\div	<code>\div</code>	$\dot{-}$	<code>\minusdot</code>	\veedot	<code>\veedot</code>
$\dot{\mid}$	<code>\dotmedvert</code>	\mp	<code>\mp</code>	\bowtie	<code>\vertbowtie</code>
$\dot{-}$	<code>\dotminus</code>	\wp	<code>\neswbipropto</code>	\vdash	<code>\vertdiv</code>
\doublecap	<code>\doublecap</code>	\wp	<code>\nwsebipropto</code>	\wedge	<code>\wedge</code>
\doublecup	<code>\doublecup</code>	$+$	<code>\plus</code>	\wedge	<code>\wedgedot</code>
\doublecurlyvee	<code>\doublecurlyvee</code>	\pm	<code>\pm</code>	\wr	<code>\wreath</code>
\doublecurlywedge	<code>\doublecurlywedge</code>	\lrcorner	<code>\righthalfcap</code>		
\doublecupcup	<code>\doublecupcup</code>	\llcorner	<code>\righthalfcup</code>		

MnSymbol defines `\setminusminus` and `\smallsetminusminus` as synonyms for `\medbackslash`; `\Join` as a synonym for `\bowtie`; `\wr` as a synonym for `\wreath`; `\shortmid` as a synonym for `\medvert`; `\Cap` as a synonym for `\doublecap`; `\Cup` as a synonym for `\doublecup`; and, `\uplus` as a synonym for `\cupplus`.

TABLE 47: mathdesign Binary Operators

\times `\dimes` \times `\udimes` \times `\utimes`

The `mathdesign` package additionally provides versions of each of the binary operators shown in Table 41 on page 21.

TABLE 48: cml Binary Operators

\wp `\parr` $\&$ `\with*`

* `\with` differs from “ $\&$ ” in terms of its math-mode spacing: `\with` produces “ $A\&B$ ”, for example, while `\with` produces “ $A \& B$ ”.

TABLE 49: ulsy Geometric Binary Operators

\oplus `\odplus`

TABLE 50: mathabx Geometric Binary Operators

\blacktriangledown	<code>\blacktriangledown</code>	\boxright	<code>\boxright</code>	\ominus	<code>\ominus</code>
\blacktriangleleft	<code>\blacktriangleleft</code>	\boxslash	<code>\boxslash</code>	\oplus	<code>\oplus</code>
\blacktriangleright	<code>\blacktriangleright</code>	\boxtimes	<code>\boxtimes</code>	\otimes	<code>\otimes</code>
\blacktriangleup	<code>\blacktriangleup</code>	\boxtop	<code>\boxtop</code>	\oslash	<code>\oslash</code>
\boxast	<code>\boxast</code>	\boxtriangleup	<code>\boxtriangleup</code>	\otimes	<code>\otimes</code>
\boxbackslash	<code>\boxbackslash</code>	\boxvoid	<code>\boxvoid</code>	\oplus	<code>\oplus</code>
\boxbot	<code>\boxbot</code>	\oast	<code>\oast</code>	\triangleup	<code>\triangleup</code>
\boxcirc	<code>\boxcirc</code>	\obackslash	<code>\obackslash</code>	\circ	<code>\circ</code>
\boxcoast	<code>\boxcoast</code>	\obot	<code>\obot</code>	\blacktriangledown	<code>\blacktriangledown</code>
\boxdiv	<code>\boxdiv</code>	\ocirc	<code>\ocirc</code>	\blacktriangleleft	<code>\blacktriangleleft</code>
\boxdot	<code>\boxdot</code>	\ocoast	<code>\ocoast</code>	\blacktriangleright	<code>\blacktriangleright</code>
\boxleft	<code>\boxleft</code>	\odiv	<code>\odiv</code>	\blacktriangleup	<code>\blacktriangleup</code>
\boxminus	<code>\boxminus</code>	\odot	<code>\odot</code>		
\boxplus	<code>\boxplus</code>	\oleft	<code>\oleft</code>		

TABLE 51: MnSymbol Geometric Binary Operators

\boxbackslash	<code>\boxbackslash</code>	\filledmedtriangledown	<code>\filledmedtriangledown</code>	\ocirc	<code>\ocirc</code>
\boxbox	<code>\boxbox</code>	\filledmedtriangleleft	<code>\filledmedtriangleleft</code>	\odot	<code>\odot</code>
\boxdot	<code>\boxdot</code>	\filledmedtriangleright	<code>\filledmedtriangleright</code>	\ominus	<code>\ominus</code>
\boxminus	<code>\boxminus</code>	\filledmedtriangleup	<code>\filledmedtriangleup</code>	\oplus	<code>\oplus</code>
\boxplus	<code>\boxplus</code>	\filledsquare	<code>\filledsquare</code>	\oslash	<code>\oslash</code>
\boxslash	<code>\boxslash</code>	\filledstar	<code>\filledstar</code>	\otimes	<code>\otimes</code>
\boxtimes	<code>\boxtimes</code>	\filledtriangledown	<code>\filledtriangledown</code>	\otimes	<code>\otimes</code>
\boxvert	<code>\boxvert</code>	\filledtriangleleft	<code>\filledtriangleleft</code>	\triangle	<code>\triangle</code>
\diamondbackslash	<code>\diamondbackslash</code>	\filledtriangleright	<code>\filledtriangleright</code>	\circ	<code>\circ</code>
\diamondddiamond	<code>\diamondddiamond</code>	\filledtriangleup	<code>\filledtriangleup</code>	\star	<code>\star</code>
\diamondddot	<code>\diamondddot</code>	\meddiamond	<code>\meddiamond</code>	\diamond	<code>\diamond</code>
\diamonddminus	<code>\diamonddminus</code>	\medsquare	<code>\medsquare</code>	\square	<code>\square</code>
\diamonddplus	<code>\diamonddplus</code>	\medstar	<code>\medstar</code>	\star	<code>\star</code>
\diamonddslash	<code>\diamonddslash</code>	\medtriangledown	<code>\medtriangledown</code>	\blacktriangledown	<code>\blacktriangledown</code>
\diamonddtimes	<code>\diamonddtimes</code>	\medtriangleleft	<code>\medtriangleleft</code>	\blacktriangleleft	<code>\blacktriangleleft</code>
\diamonddvert	<code>\diamonddvert</code>	\medtriangleright	<code>\medtriangleright</code>	\blacktriangleright	<code>\blacktriangleright</code>
\downslice	<code>\downslice</code>	\medtriangleup	<code>\medtriangleup</code>	\blacktriangleup	<code>\blacktriangleup</code>
\filleddiamond	<code>\filleddiamond</code>	\oast	<code>\oast</code>	\star	<code>\star</code>
\filledmedsquare	<code>\filledmedsquare</code>	\obackslash	<code>\obackslash</code>	\triangle	<code>\triangle</code>

MnSymbol defines `\blacksquare` as a synonym for `\filledmedsquare`; `\square` and `\Box` as synonyms for `\medsquare`; `\diamond` as a synonym for `\smalldiamond`; `\Diamond` as a synonym for `\meddiamond`; `\star` as a synonym for `\thinstar`; `\circledast` as a synonym for `\oast`; `\circledcirc` as a synonym for `\ocirc`; and, `\circleddash` as a synonym for `\ominus`.

TABLE 56: `mathabx` Variable-sized Math Operators

\curlyvee	<code>\bigcurlyvee</code>	\boxslash	<code>\bigboxslash</code>	\bigoplus	<code>\bigoright</code>
\sqcap	<code>\bigsqcap</code>	\boxtimes	<code>\bigboxtimes</code>	\bigoslash	<code>\bigoslash</code>
\curlywedge	<code>\bigcurlywedge</code>	\boxplus	<code>\bigboxplus</code>	\bigotimes	<code>\bigotimes</code>
\boxast	<code>\bigboxast</code>	\boxtriangleup	<code>\bigboxtriangleup</code>	\bigtriangleup	<code>\bigtriangleup</code>
\boxbackslash	<code>\bigboxbackslash</code>	\boxvoid	<code>\bigboxvoid</code>	\bigcirc	<code>\bigovoid</code>
\boxbot	<code>\bigboxbot</code>	\complement	<code>\bigcomplement</code>	\bigplus	<code>\bigplus</code>
\boxcirc	<code>\bigboxcirc</code>	\bigcircast	<code>\bigcircast</code>	\bigsqplus	<code>\bigsqplus</code>
\boxcoasterisk	<code>\bigboxcoasterisk</code>	\bigcircbackslash	<code>\bigcircbackslash</code>	\bigtimes	<code>\bigtimes</code>
\boxdiv	<code>\bigboxdiv</code>	\bigoplus	<code>\bigoplus</code>	\iiint	<code>\iiint</code>
\boxdot	<code>\bigboxdot</code>	\bigodot	<code>\bigodot</code>	\iint	<code>\iint</code>
\boxleft	<code>\bigboxleft</code>	\bigcircast	<code>\bigcircast</code>	\int	<code>\int</code>
\boxminus	<code>\bigboxminus</code>	\bigodiv	<code>\bigodiv</code>	\oiint	<code>\oiint</code>
\boxplus	<code>\bigboxplus</code>	\bigoplus	<code>\bigoplus</code>	\oint	<code>\oint</code>
\boxright	<code>\bigboxright</code>	\bigominus	<code>\bigominus</code>		

TABLE 57: txfonts/pxfonts Variable-sized Math Operators

\boxplus	$\boxed{+}$	<code>\bigsqcapplus</code>	\oint	\oint	<code>\ointclockwise</code>
\boxplus	$\boxed{+}$	<code>\bigsqcupplus</code>	\oint	\oint	<code>\ointctrlockwise</code>
f	f	<code>\fint</code>	\int	\int	<code>\sqiiint</code>
$\int \dots \int$	$\int \dots \int$	<code>\idotsint</code>	\int	\int	<code>\sqiint</code>
\iiint	\iiint	<code>\iiiint</code>	\int	\int	<code>\sqint</code>
\iiint	\iiint	<code>\iiint</code>	\int	\int	<code>\varoiintclockwise</code>
\iint	\iint	<code>\iint</code>	\int	\int	<code>\varoiintctrlockwise</code>
\oiint	\oiint	<code>\oiintclockwise</code>	\oint	\oint	<code>\varoiintclockwise</code>
\oiint	\oiint	<code>\oiintctrlockwise</code>	\oint	\oint	<code>\varoiintctrlockwise</code>
\oiint	\oiint	<code>\oiint</code>	\oint	\oint	<code>\varointclockwise</code>
\oint	\oint	<code>\ointclockwise</code>	\oint	\oint	<code>\varointctrlockwise</code>
\oint	\oint	<code>\ointctrlockwise</code>	\times	\times	<code>\varprod</code>
\oint	\oint	<code>\oint</code>			

TABLE 58: esint Variable-sized Math Operators

$\int \cdots \int$	$\int \cdots \int$	<code>\dotsint</code>	\oint	\oint	<code>\ointclockwise</code>
\int	\int	<code>\fint</code>	\oint	\oint	<code>\ointctrlockwise</code>
\iiint	\iiint	<code>\iiiint</code>	\sqint	\sqint	<code>\sqint</code>
\iint	\iint	<code>\iiint</code>	\sqint	\sqint	<code>\sqint</code>
\iint	\iint	<code>\iint</code>	\varoiint	\varoiint	<code>\varoiint</code>
\int	\int	<code>\landdownint</code>	\oint	\oint	<code>\varointclockwise</code>
\int	\int	<code>\landupint</code>	\oint	\oint	<code>\varointctrlockwise</code>
\oint	\oint	<code>\oint</code>			

TABLE 59: MnSymbol Variable-sized Math Operators

\cap	\bigcap	<code>\bigcap</code>	\ominus	\bigominus	<code>\bigominus</code>	\complement	\mathbb{C}	<code>\complement</code>
$\cap\cdot$	$\bigcap\cdot$	<code>\bigcap\cdot</code>	\oplus	\bigoplus	<code>\bigoplus</code>	\amalg	\amalg	<code>\coprod</code>
$\cap+$	$\bigcap+$	<code>\bigcapplus</code>	\oslash	\bigoslash	<code>\bigoslash</code>	$\int\cdots\int$	$\int\cdots\int$	<code>\idotsint</code>
\bigcirc	\bigcirc	<code>\bigcircle</code>	\otimes	\bigotimes	<code>\bigotimes</code>	\iiint	\iiint	<code>\iiiint</code>
\bigcup	\bigcup	<code>\bigcup</code>	\otimes	\bigotimes	<code>\bigotimes</code>	\iiint	\iiint	<code>\iiint</code>
$\bigcup\cdot$	$\bigcup\cdot$	<code>\bigcup\cdot</code>	\bigtriangleup	\bigtriangleup	<code>\bigtriangleup</code>	\iint	\iint	<code>\iint</code>
$\bigcup+$	$\bigcup+$	<code>\bigcupplus*</code>	\bigcirc	\bigcirc	<code>\bigcirc</code>	\int	\int	<code>\int</code>
\curlyvee	\curlyvee	<code>\bigcurlyvee</code>	$+$	$+$	<code>\bigplus</code>	\int	\int	<code>\landdownint</code>
$\curlyvee\cdot$	$\curlyvee\cdot$	<code>\bigcurlyvee\cdot</code>	\sqcap	\sqcap	<code>\bigsqcap</code>	\int	\int	<code>\landupint</code>
\curlywedge	\curlywedge	<code>\bigcurlywedge</code>	$\sqcap\cdot$	$\sqcap\cdot$	<code>\bigsqcap\cdot</code>	\oint	\oint	<code>\lrcircleleftint</code>
$\curlywedge\cdot$	$\curlywedge\cdot$	<code>\bigcurlywedge\cdot</code>	$\sqcap+$	$\sqcap+$	<code>\bigsqcapplus</code>	\oint	\oint	<code>\lrcyclerightint</code>
\doublecurlyvee	\doublecurlyvee	<code>\bigdoublecurlyvee</code>	\sqcup	\sqcup	<code>\bigsqcup</code>	\oiint	\oiint	<code>\oiint</code>
\doublecurlywedge	\doublecurlywedge	<code>\bigdoublecurlywedge</code>	$\sqcup\cdot$	$\sqcup\cdot$	<code>\bigsqcup\cdot</code>	\oint	\oint	<code>\oint</code>
\doublevee	\doublevee	<code>\bigdoublevee</code>	$\sqcup+$	$\sqcup+$	<code>\bigsqcupplus</code>	\prod	\prod	<code>\prod</code>
\doublewedge	\doublewedge	<code>\bigdoublewedge</code>	\times	\times	<code>\bigtimes</code>	\oint	\oint	<code>\rcircleleftint</code>
\bigodot	\bigodot	<code>\bigodot</code>	\vee	\vee	<code>\bigvee</code>	\oint	\oint	<code>\rcyclerightint</code>
\bigoslash	\bigoslash	<code>\bigoslash</code>	$\vee\cdot$	$\vee\cdot$	<code>\bigvee\cdot</code>	\int	\int	<code>\strokedint</code>
\bigocirc	\bigocirc	<code>\bigocirc</code>	\bigwedge	\bigwedge	<code>\bigwedge</code>	Σ	Σ	<code>\sum</code>
$\bigodot\cdot$	$\bigodot\cdot$	<code>\bigodot\cdot</code>	$\bigwedge\cdot$	$\bigwedge\cdot$	<code>\bigwedge\cdot</code>	\int	\int	<code>\sumint</code>

* MnSymbol defines `\biguplus` as a synonym for `\bigcupplus`.

TABLE 60: mathdesign Variable-sized Math Operators

\int	\int	<code>\intclockwise</code>	\oint	\oint	<code>\ointclockwise</code>
\iiint	\iiint	<code>\oiint</code>	\oint	\oint	<code>\ointctrlockwise</code>
\iint	\iint	<code>\oint</code>			

The `mathdesign` package provides three versions of each integral—in fact, of every symbol—to accompany different text fonts: Utopia (\int), Garamond (\int), and Charter (\int).

TABLE 61: cml Large Math Operators

\mathcal{N} `\bigparr` $\&$ `\bigwith`

TABLE 62: Binary Relations

\approx	<code>\approx</code>	\equiv	<code>\equiv</code>	\perp	<code>\perp</code>	\smile	<code>\smile</code>
\asymp	<code>\asymp</code>	\frown	<code>\frown</code>	\prec	<code>\prec</code>	\succ	<code>\succ</code>
\bowtie	<code>\bowtie</code>	\Join^*	<code>\Join^*</code>	\preceq	<code>\preceq</code>	\succeq	<code>\succeq</code>
\cong	<code>\cong</code>	\mid	<code>\mid</code>	\propto	<code>\propto</code>	\vdash	<code>\vdash</code>
\dashv	<code>\dashv</code>	\models	<code>\models</code>	\sim	<code>\sim</code>		
\doteq	<code>\doteq</code>	\parallel	<code>\parallel</code>	\simeq	<code>\simeq</code>		

* Not predefined in L^AT_EX 2_ε. Use one of the packages latexsym, amsfonts, amssymb, mathabx, txfonts, pxfonts, or wasysym.

TABLE 63: \mathcal{AMS} Binary Relations

\approx	<code>\approxeq</code>	$\#$	<code>\eqcirc</code>	\succapprox	<code>\succapprox</code>
\backepsilon	<code>\backepsilon</code>	\fallingdotseq	<code>\fallingdotseq</code>	\succcurlyeq	<code>\succcurlyeq</code>
\backsim	<code>\backsim</code>	\multimap	<code>\multimap</code>	\succsim	<code>\succsim</code>
\backsimeq	<code>\backsimeq</code>	\pitchfork	<code>\pitchfork</code>	\therefore	<code>\therefore</code>
\because	<code>\because</code>	\precapprox	<code>\precapprox</code>	\thickapprox	<code>\thickapprox</code>
\between	<code>\between</code>	\preccurlyeq	<code>\preccurlyeq</code>	\thicksim	<code>\thicksim</code>
\bumpeq	<code>\bumpeq</code>	\precsim	<code>\precsim</code>	\varpropto	<code>\varpropto</code>
\bumpeq	<code>\bumpeq</code>	\risingdotseq	<code>\risingdotseq</code>	\Vdash	<code>\Vdash</code>
\circeq	<code>\circeq</code>	\shortmid	<code>\shortmid</code>	\Vdash	<code>\Vdash</code>
\curlyeqprec	<code>\curlyeqprec</code>	\shortparallel	<code>\shortparallel</code>	\Vvdash	<code>\Vvdash</code>
\curlyeqsucc	<code>\curlyeqsucc</code>	\smallfrown	<code>\smallfrown</code>		
\doteqdot	<code>\doteqdot</code>	\smallsmile	<code>\smallsmile</code>		

TABLE 64: \mathcal{AMS} Negated Binary Relations

\ncong	<code>\ncong</code>	\nshortparallel	<code>\nshortparallel</code>	\nVDash	<code>\nVDash</code>
\nmid	<code>\nmid</code>	\nsim	<code>\nsim</code>	\nprecapprox	<code>\nprecapprox</code>
\nparallel	<code>\nparallel</code>	\nsucc	<code>\nsucc</code>	\nprecnsim	<code>\nprecnsim</code>
\nprec	<code>\nprec</code>	\nsucceq	<code>\nsucceq</code>	\nsuccnapprox	<code>\nsuccnapprox</code>
\npreceq	<code>\npreceq</code>	\nVDash	<code>\nVDash</code>	\nsuccnsim	<code>\nsuccnsim</code>
\nshortmid	<code>\nshortmid</code>	\nvdash	<code>\nvdash</code>		

TABLE 65: stmaryrd Binary Relations

\in `\inplus` \ni `\niplus`

TABLE 66: wasysym Binary Relations

\neg	<code>\invneg</code>	\leadsto	<code>\leadsto</code>	\asymp	<code>\wasympropto</code>
\Join	<code>\Join</code>	\otimes	<code>\logof</code>		

TABLE 67: txfonts/pxfonts Binary Relations

\circledast	<code>\circledgtr</code>	\bowtie	<code>\lJoin</code>	\times	<code>\opentimes</code>
\circledcirc	<code>\circledless</code>	\rtimes	<code>\lrtimes</code>	\perp	<code>\Perp</code>
\approx	<code>\colonapprox</code>	\multimap	<code>\multimap</code>	\preceq	<code>\preceqq</code>
\Colonapprox	<code>\Colonapprox</code>	\multimap	<code>\multimapboth</code>	\precneq	<code>\precneqq</code>
\coloneq	<code>\coloneq</code>	\multimap	<code>\multimapbothvert</code>	\rJoin	<code>\rJoin</code>
\Coloneq	<code>\Coloneq</code>	\multimap	<code>\multimapdot</code>	\strictfi	<code>\strictfi</code>
\coloneqq	<code>\coloneqq</code>	\multimap	<code>\multimapdotboth</code>	\strictif	<code>\strictif</code>
\Coloneqq	<code>\Coloneqq</code>	\multimap	<code>\multimapdotbothA</code>	\strictiff	<code>\strictiff</code>
\colonsim	<code>\colonsim</code>	\multimap	<code>\multimapdotbothAvert</code>	\succeq	<code>\succeqq</code>
\Colonsim	<code>\Colonsim</code>	\multimap	<code>\multimapdotbothB</code>	\succneq	<code>\succneqq</code>
\Eqcolon	<code>\Eqcolon</code>	\multimap	<code>\multimapdotbothBvert</code>	\varparallel	<code>\varparallel</code>
\eqcolon	<code>\eqcolon</code>	\multimap	<code>\multimapdotbothvert</code>	\varparallelinv	<code>\varparallelinv</code>
\eqqcolon	<code>\eqqcolon</code>	\multimap	<code>\multimapdotinv</code>	\Vdash	<code>\Vdash</code>
\Eqqqcolon	<code>\Eqqqcolon</code>	\multimap	<code>\multimapinv</code>		
\eqsim	<code>\eqsim</code>	\times	<code>\openJoin</code>		

* As an alternative to using txfonts/pxfonts, a “:=” symbol can be constructed with “`\mathrel{\mathop:}=`”.

TABLE 68: txfonts/pxfonts Negated Binary Relations

\napprox	<code>\napproxeq</code>	\npreccurlyeq	<code>\npreccurlyeq</code>	\nthickapprox	<code>\nthickapprox</code>
\nasymp	<code>\nasymp</code>	\npreceqq	<code>\npreceqq</code>	\ntwoheadleftarrow	<code>\ntwoheadleftarrow</code>
\nbacksim	<code>\nbacksim</code>	\nprecsim	<code>\nprecsim</code>	\ntwoheadrightarrow	<code>\ntwoheadrightarrow</code>
\nbacksimeq	<code>\nbacksimeq</code>	\nsimeq	<code>\nsimeq</code>	\nvarparallel	<code>\nvarparallel</code>
$\nbump eq$	<code>\nbump eq</code>	\nsuccapprox	<code>\nsuccapprox</code>	\nvarparallelinv	<code>\nvarparallelinv</code>
$\nBump eq$	<code>\nBump eq</code>	\nsucccurlyeq	<code>\nsucccurlyeq</code>	\nVdash	<code>\nVdash</code>
\nequiv	<code>\nequiv</code>	\nsucceqq	<code>\nsucceqq</code>		
\nprecapprox	<code>\nprecapprox</code>	\nsucssim	<code>\nsucssim</code>		

TABLE 69: mathabx Binary Relations

\between	<code>\between</code>	\divides	<code>\divides</code>	\risingdotseq	<code>\risingdotseq</code>
\botdoteq	<code>\botdoteq</code>	\dotseq	<code>\dotseq</code>	\succapprox	<code>\succapprox</code>
\Bumpedeq	<code>\Bumpedeq</code>	\eqbumped	<code>\eqbumped</code>	\succcurlyeq	<code>\succcurlyeq</code>
\bumpedeq	<code>\bumpedeq</code>	\eqcirc	<code>\eqcirc</code>	\succdot	<code>\succdot</code>
\circeq	<code>\circeq</code>	\eqcolon	<code>\eqcolon</code>	\succsim	<code>\succsim</code>
\coloneq	<code>\coloneq</code>	\fallingdotseq	<code>\fallingdotseq</code>	\therefore	<code>\therefore</code>
\corresponds	<code>\corresponds</code>	\ggcurly	<code>\ggcurly</code>	\topdoteq	<code>\topdoteq</code>
\curlyeqprec	<code>\curlyeqprec</code>	\llcurly	<code>\llcurly</code>	\vDash	<code>\vDash</code>
\curlyeqsucc	<code>\curlyeqsucc</code>	\precapprox	<code>\precapprox</code>	\Vdash	<code>\Vdash</code>
\DashV	<code>\DashV</code>	\preccurlyeq	<code>\preccurlyeq</code>	\VDash	<code>\VDash</code>
\Dashv	<code>\Dashv</code>	\precdot	<code>\precdot</code>	\Vdash	<code>\Vdash</code>
\dashVv	<code>\dashVv</code>	\precsim	<code>\precsim</code>		

TABLE 70: mathabx Negated Binary Relations

\approx	<code>\napprox</code>	\nperp	<code>\notperp</code>	\nVDash	<code>\nVDash</code>
\ncong	<code>\ncong</code>	\nprec	<code>\nprec</code>	\nVdash	<code>\nVdash</code>
\ncurlyeqprec	<code>\ncurlyeqprec</code>	\nprecapprox	<code>\nprecapprox</code>	\nVdash	<code>\nVdash</code>
\ncurlyeqsucc	<code>\ncurlyeqsucc</code>	\npreccurlyeq	<code>\npreccurlyeq</code>	\nvdash	<code>\nvdash</code>
\nDashv	<code>\nDashv</code>	\npreceq	<code>\npreceq</code>	\nVdash	<code>\nVdash</code>
\ndashV	<code>\ndashV</code>	\nprecsim	<code>\nprecsim</code>	\nprecnapprox	<code>\precnapprox</code>
\ndashv	<code>\ndashv</code>	\nsim	<code>\nsim</code>	\nprecneq	<code>\precneq</code>
\nDashV	<code>\nDashV</code>	\nsimeq	<code>\nsimeq</code>	\nprecnsim	<code>\precnsim</code>
\ndashVv	<code>\ndashVv</code>	\nsucc	<code>\nsucc</code>	\nsuccnapprox	<code>\succnapprox</code>
\neq	<code>\neq</code>	\nsuccapprox	<code>\nsuccapprox</code>	\nsuccneq	<code>\succneq</code>
\notasympt	<code>\notasympt</code>	\nsucccurlyeq	<code>\nsucccurlyeq</code>	\nsuccnsim	<code>\succnsim</code>
\notdivides	<code>\notdivides</code>	\nsucceq	<code>\nsucceq</code>		
\notequiv	<code>\notequiv</code>	\nsucsim	<code>\nsucsim</code>		

The `\changenotsign` command toggles the behavior of `\not` to produce either a vertical or a diagonal slash through a binary operator. Thus, “`\not=`” can be made to produce either “ $a \nneq b$ ” or “ $a \neq b$ ”.

TABLE 71: MnSymbol Binary Relations

\approx	<code>\approx</code>	\eqcirc	<code>\eqcirc</code>	\nwfree	<code>\nwfree</code>	\shortparallel	<code>\shortparallel</code>
\approx	<code>\approx</code>	\eqdot	<code>\eqdot</code>	\nwmodels	<code>\nwmodels</code>	\sim	<code>\sim</code>
\backapprox	<code>\backapprox</code>	\eqsim	<code>\eqsim</code>	\nwModels	<code>\nwModels</code>	\simeq	<code>\simeq</code>
\backapprox	<code>\backapprox</code>	\equal	<code>\equal</code>	\nwsecrossing	<code>\nwsecrossing</code>	\succ	<code>\succ</code>
\backcong	<code>\backcong</code>	\equalclosed	<code>\equalclosed</code>	\nwseline	<code>\nwseline</code>	\succapprox	<code>\succapprox</code>
\backeqsim	<code>\backeqsim</code>	\equiv	<code>\equiv</code>	\Nwseline	<code>\Nwseline</code>	\succcurlyeq	<code>\succcurlyeq</code>
\backsim	<code>\backsim</code>	\equivclosed	<code>\equivclosed</code>	\nwvdash	<code>\nwvdash</code>	\succeq	<code>\succeq</code>
\backsimeq	<code>\backsimeq</code>	\fallingdotseq	<code>\fallingdotseq</code>	\nwVdash	<code>\nwVdash</code>	\succsim	<code>\succsim</code>
\backtriple	<code>\backtriple</code>	\hateq	<code>\hateq</code>	\prec	<code>\prec</code>	\swfootline	<code>\swfootline</code>
\between	<code>\between</code>	\hcrossing	<code>\hcrossing</code>	\precapprox	<code>\precapprox</code>	\swfree	<code>\swfree</code>
\bumpeq	<code>\bumpeq</code>	\leftfootline	<code>\leftfootline</code>	\preccurlyeq	<code>\preccurlyeq</code>	\swmodels	<code>\swmodels</code>
\Bumpeq	<code>\Bumpeq</code>	\leftfree	<code>\leftfree</code>	\preceq	<code>\preceq</code>	\swModels	<code>\swModels</code>
\circeq	<code>\circeq</code>	\leftmodels	<code>\leftmodels</code>	\precsim	<code>\precsim</code>	\swvdash	<code>\swvdash</code>
\closedequal	<code>\closedequal</code>	\leftModels	<code>\leftModels</code>	\rightfootline	<code>\rightfootline</code>	\swVdash	<code>\swVdash</code>
\closedprec	<code>\closedprec</code>	\leftpropto	<code>\leftpropto</code>	\rightfree	<code>\rightfree</code>	\triple	<code>\triple</code>
\closedsucc	<code>\closedsucc</code>	\left	<code>\left</code>	\rightmodels	<code>\rightmodels</code>	\updownline	<code>\updownline</code>
\cong	<code>\cong</code>	\left	<code>\left</code>	\rightModels	<code>\rightModels</code>	\Updownline	<code>\Updownline</code>
\curlyeqprec	<code>\curlyeqprec</code>	\leftslice	<code>\leftslice</code>	\rightpropto	<code>\rightpropto</code>	\upfootline	<code>\upfootline</code>
\curlyeqsucc	<code>\curlyeqsucc</code>	\leftvdash	<code>\leftvdash</code>	\rightslice	<code>\rightslice</code>	\upfree	<code>\upfree</code>
\doteq	<code>\doteq</code>	\leftVdash	<code>\leftVdash</code>	\rightvdash	<code>\rightvdash</code>	\upmodels	<code>\upmodels</code>
\Doteq	<code>\Doteq</code>	\nefootline	<code>\nefootline</code>	\rightVdash	<code>\rightVdash</code>	\upModels	<code>\upModels</code>
\downfootline	<code>\downfootline</code>	\nefree	<code>\nefree</code>	\risingdotseq	<code>\risingdotseq</code>	\uppropto	<code>\uppropto</code>
\downfree	<code>\downfree</code>	\nemodels	<code>\nemodels</code>	\sefootline	<code>\sefootline</code>	\upvdash	<code>\upvdash</code>
\downmodels	<code>\downmodels</code>	\neModels	<code>\neModels</code>	\sefree	<code>\sefree</code>	\upVdash	<code>\upVdash</code>
\downModels	<code>\downModels</code>	\neswline	<code>\neswline</code>	\semodels	<code>\semodels</code>	\vcrossing	<code>\vcrossing</code>
\downpropto	<code>\downpropto</code>	\neSwline	<code>\neSwline</code>	\seModels	<code>\seModels</code>	\Vdash	<code>\Vdash</code>
\downvdash	<code>\downvdash</code>	\nevDash	<code>\nevDash</code>	\separated	<code>\separated</code>		
\downVdash	<code>\downVdash</code>	\neVDash	<code>\neVDash</code>	\sevdash	<code>\sevdash</code>		
\eqbump	<code>\eqbump</code>	\nwfootline	<code>\nwfootline</code>	\seVDash	<code>\seVDash</code>		

MnSymbol additionally defines synonyms for some of the preceding symbols:

\dashv	<code>\dashv</code>	(same as <code>\leftvdash</code>)
\diagdown	<code>\diagdown</code>	(same as <code>\nwseline</code>)
\diagup	<code>\diagup</code>	(same as <code>\neswline</code>)
\div	<code>\divides</code>	(same as <code>\updownline</code>)
\doteqdot	<code>\doteqdot</code>	(same as <code>\Doteq</code>)
\models	<code>\models</code>	(same as <code>\rightmodels</code>)
\parallel	<code>\parallel</code>	(same as <code>\Updownline</code>)
\perp	<code>\perp</code>	(same as <code>\upvdash</code>)
\propto	<code>\propto</code>	(same as <code>\leftpropto</code>)
$\bar{-}$	<code>\relbar</code>	(same as <code>\leftrightline</code>)
$\bar{=}$	<code>\Relbar</code>	(same as <code>\Leftrightline</code>)
\varpropto	<code>\varpropto</code>	(same as <code>\leftpropto</code>)
\vDash	<code>\vDash</code>	(same as <code>\rightmodels</code>)
\Vdash	<code>\Vdash</code>	(same as <code>\rightModels</code>)
\vdash	<code>\vdash</code>	(same as <code>\rightvdash</code>)
\Vdash	<code>\Vdash</code>	(same as <code>\rightVdash</code>)

TABLE 72: MnSymbol Negated Binary Relations

\napprox	<code>\napprox</code>	\nneqsim	<code>\nnwModels</code>	\nsucc
\napproxeq	<code>\napproxeq</code>	\nequal	<code>\nnwseline</code>	\nsuccapprox
\nbackapprox	<code>\nbackapprox</code>	\nequalclosed	<code>\nNwseline</code>	\nsucccurlyeq
\nbackapproxeq	<code>\nbackapproxeq</code>	\nequiv	<code>\nnwvdash</code>	\nsucceq
\nbackcong	<code>\nbackcong</code>	\nequivclosed	<code>\nnwVdash</code>	\nsucssim
\nbackeqsim	<code>\nbackeqsim</code>	\neswcrossing	<code>\nprec</code>	\nswfootline
\nbacksim	<code>\nbacksim</code>	\nfallingdotseq	<code>\nprecapprox</code>	\nswfree
\nbacksimeq	<code>\nbacksimeq</code>	\nhateq	<code>\npreccurlyeq</code>	\nswmodels
\nbacktripleqsim	<code>\nbacktripleqsim</code>	\nleftfootline	<code>\npreceq</code>	\nswModels
\nbump	<code>\nbump</code>	\nleftfree	<code>\nprecsim</code>	\nswvdash
\NBump	<code>\NBump</code>	\nleftmodels	<code>\nrightfootline</code>	\nswVdash
\ncircleq	<code>\ncircleq</code>	\nleftModels	<code>\nrightfree</code>	\ntripleqsim
\nclosedequal	<code>\nclosedequal</code>	\nleftrightline	<code>\nrightmodels</code>	\nupdownline
\ncong	<code>\ncong</code>	\nLeftrightline	<code>\nrightModels</code>	\nUpdownline
\ncurlyeqprec	<code>\ncurlyeqprec</code>	\nleftvdash	<code>\nrightvdash</code>	\nupfootline
\ncurlyeqsucc	<code>\ncurlyeqsucc</code>	\nleftVdash	<code>\nrightVdash</code>	\nupfree
\ndoteq	<code>\ndoteq</code>	\nnefootline	<code>\nrisingdotseq</code>	\nupmodels
\nDoteq	<code>\nDoteq</code>	\nnefree	<code>\nsefootline</code>	\nupModels
\ndownfootline	<code>\ndownfootline</code>	\nnemodells	<code>\nsefree</code>	\nupvdash
\ndownfree	<code>\ndownfree</code>	\nneModels	<code>\nsemodels</code>	\nupVdash
\ndownmodels	<code>\ndownmodels</code>	\nneswline	<code>\nseModels</code>	\nprecnapprox
\ndownModels	<code>\ndownModels</code>	\nNeswline	<code>\nsevdash</code>	\nprecnsim
\ndownvdash	<code>\ndownvdash</code>	\nnevvdash	<code>\nseVdash</code>	\nsuccnapprox
\ndownVdash	<code>\ndownVdash</code>	\nneVdash	<code>\nshortmid</code>	\nsuccnsim
\neqbump	<code>\neqbump</code>	\nnwfootline	<code>\nshortparallel</code>	
\neqcirc	<code>\neqcirc</code>	\nnwfree	<code>\nsim</code>	
\neqdot	<code>\neqdot</code>	\nnwmodels	<code>\nsimeq</code>	

MnSymbol additionally defines synonyms for some of the preceding symbols:

#	<code>\ndashv</code>	(same as <code>\nleftvdash</code>)
×	<code>\ndiagdown</code>	(same as <code>\nnwseline</code>)
×	<code>\ndiagup</code>	(same as <code>\nneswline</code>)
†	<code>\ndivides</code>	(same as <code>\nupdownline</code>)
≠	<code>\ne</code>	(same as <code>\nequal</code>)
≠	<code>\neq</code>	(same as <code>\nequal</code>)
†	<code>\nmid</code>	(same as <code>\nupdownline</code>)
≠	<code>\nmodels</code>	(same as <code>\nrightmodels</code>)
∥	<code>\nparallel</code>	(same as <code>\nUpdownline</code>)
±	<code>\nperp</code>	(same as <code>\nupvdash</code>)
+	<code>\nrelbar</code>	(same as <code>\nleftrighthline</code>)
≠	<code>\nRelbar</code>	(same as <code>\nLeftrightline</code>)
≠	<code>\nvDash</code>	(same as <code>\nrightmodels</code>)
≠	<code>\nvdash</code>	(same as <code>\nrightvdash</code>)
≠	<code>\nVDash</code>	(same as <code>\nrightVDash</code>)
≠	<code>\nVDash</code>	(same as <code>\nrightModels</code>)

TABLE 73: mathtools Binary Relations

<code>::≈</code>	<code>\Colonapprox</code>	<code>:-</code>	<code>\coloneq</code>	<code>-::</code>	<code>\Eqcolon</code>
<code>≈</code>	<code>\colonapprox</code>	<code>~</code>	<code>\colonsim</code>	<code>=:</code>	<code>\eqqcolon</code>
<code>:=</code>	<code>\coloneqq</code>	<code>::~</code>	<code>\Colonsim</code>	<code>==:</code>	<code>\Eqqqcolon</code>
<code>::=</code>	<code>\Coloneqq</code>	<code>::</code>	<code>\dblcolon</code>		
<code>::-</code>	<code>\Coloneq</code>	<code>-:</code>	<code>\eqcolon</code>		

Similar symbols can be defined using mathtools’s `\vcentcolon`, which produces a colon centered on the font’s math axis:

$$\begin{array}{ccc} \text{=} \text{:} \text{=} & \text{vs.} & \text{=} \text{:} \text{=} \\ \text{"=:="} & & \text{"=\vcentcolon="} \end{array}$$

TABLE 74: turnstile Binary Relations

$\frac{def}{abc}$	<code>\dddtstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\nntstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\stdtstile{abc}{def}</code>
$\frac{def}{abc}$	<code>\ddststile{abc}{def}</code>	$\frac{def}{abc}$	<code>\nnttstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\stststile{abc}{def}</code>
$\frac{def}{abc}$	<code>\ddtstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\nsdtstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\sttstile{abc}{def}</code>
$\frac{def}{abc}$	<code>\ddttstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\nsststile{abc}{def}</code>	$\frac{def}{abc}$	<code>\stttstile{abc}{def}</code>
$\frac{def}{abc}$	<code>\ndtstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\nststile{abc}{def}</code>	$\frac{def}{abc}$	<code>\tdtstile{abc}{def}</code>
$\frac{def}{abc}$	<code>\dnststile{abc}{def}</code>	$\frac{def}{abc}$	<code>\nsttstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\tdststile{abc}{def}</code>
$\frac{def}{abc}$	<code>\dntstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\ntdtstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\tdtstile{abc}{def}</code>

(continued on next page)

(continued from previous page)

$\frac{def}{abc}$	<code>\dnttstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\ntststile{abc}{def}</code>	$\frac{def}{abc}$	<code>\tdtstile{abc}{def}</code>
$\frac{def}{abc}$	<code>\dsdtstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\nttstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\tndtstile{abc}{def}</code>
$\frac{def}{abc}$	<code>\dsststile{abc}{def}</code>	$\frac{def}{abc}$	<code>\ntttstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\tnststile{abc}{def}</code>
$\frac{def}{abc}$	<code>\dststile{abc}{def}</code>	$\frac{def}{abc}$	<code>\sddtstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\tntstile{abc}{def}</code>
$\frac{def}{abc}$	<code>\dsttstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\sdtstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\tnttstile{abc}{def}</code>
$\frac{def}{abc}$	<code>\dtdtstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\sdtstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\tsdtstile{abc}{def}</code>
$\frac{def}{abc}$	<code>\dtstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\sdtstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\tsstile{abc}{def}</code>
$\frac{def}{abc}$	<code>\dttstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\sntdstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\tststile{abc}{def}</code>
$\frac{def}{abc}$	<code>\dtttstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\sntstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\tsttstile{abc}{def}</code>
$\frac{def}{abc}$	<code>\nddtstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\sntstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\ttdtstile{abc}{def}</code>
$\frac{def}{abc}$	<code>\ndststile{abc}{def}</code>	$\frac{def}{abc}$	<code>\snttstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\tststile{abc}{def}</code>
$\frac{def}{abc}$	<code>\ndtstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\ssdtstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\tttstile{abc}{def}</code>
$\frac{def}{abc}$	<code>\ndttstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\ssststile{abc}{def}</code>	$\frac{def}{abc}$	<code>\ttttstile{abc}{def}</code>
$\frac{def}{abc}$	<code>\nndtstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\sststile{abc}{def}</code>		
$\frac{def}{abc}$	<code>\nnststile{abc}{def}</code>	$\frac{def}{abc}$	<code>\ssttstile{abc}{def}</code>		

Each of the above takes an optional argument that controls the size of the upper and lower expressions. See the turnstile documentation for more information.

TABLE 75: trsym Binary Relations

$\bullet \circ$	<code>\InversTransformHoriz</code>	$\circ \bullet$	<code>\TransformHoriz</code>
$\bullet \circ$	<code>\InversTransformVert</code>	$\circ \bullet$	<code>\TransformVert</code>

TABLE 76: trfsigns Binary Relations

$\circ \curvearrowright$	<code>\dfourier</code>	$\curvearrowleft \circ$	<code>\Dfourier</code>
$\circ \text{---}$	<code>\fourier</code>	$\text{---} \circ$	<code>\Fourier</code>
$\circ \text{---} \bullet$	<code>\laplace</code>	$\bullet \text{---} \circ$	<code>\Laplace</code>
$\circ \text{---} \bullet$	<code>\ztransf</code>	$\bullet \text{---} \circ$	<code>\Ztransf</code>

TABLE 77: cml Binary Relations

\subset	<code>\coh</code>	\supset	<code>\scoh</code>
\supsetneq	<code>\incoh</code>	\subsetneq	<code>\sincoh</code>

TABLE 78: Subset and Superset Relations

\sqsubset	<code>\sqsubset*</code>	\sqsupseteq	<code>\sqsupseteq</code>	\supset	<code>\supset</code>
\sqsubseteq	<code>\sqsubseteq</code>	\subset	<code>\subset</code>	\supseteq	<code>\supseteq</code>
\sqsupset	<code>\sqsupset*</code>	\subseteq	<code>\subseteq</code>		

* Not predefined in L^AT_EX 2_ε. Use one of the packages latexsym, amssymb, mathabx, txfonts, pxfonts, or wasysym.

TABLE 79: *AMS* Subset and Superset Relations

$\not\subset$	<code>\nsubseteq</code>	\subsetneqq	<code>\subsetneqq</code>	\supsetneqq	<code>\supsetneqq</code>
$\not\supset$	<code>\nsupseteq</code>	\subsetneq	<code>\subsetneq</code>	\varsubsetneq	<code>\varsubsetneq</code>
$\not\supseteq$	<code>\nsupseteqq</code>	\subsetneqq	<code>\subsetneqq</code>	\varsubsetneqq	<code>\varsubsetneqq</code>
\sqsubset	<code>\sqsubset</code>	\Supset	<code>\Supset</code>	\varsupsetneq	<code>\varsupsetneq</code>
\sqsupset	<code>\sqsupset</code>	\supseteqneqq	<code>\supseteqneqq</code>	\varsupsetneqq	<code>\varsupsetneqq</code>
\Subset	<code>\Subset</code>	\supsetneq	<code>\supsetneq</code>		

TABLE 80: stmaryrd Subset and Superset Relations

\Subsetplus	<code>\subsetplus</code>	\Supsetplus	<code>\supsetplus</code>
\Subsetpluseq	<code>\subsetpluseq</code>	\Supsetpluseq	<code>\supsetpluseq</code>

TABLE 81: wasysym Subset and Superset Relations

\sqsubset	<code>\sqsubset</code>	\sqsupset	<code>\sqsupset</code>
-------------	------------------------	-------------	------------------------

TABLE 82: txfonts/pxfonts Subset and Superset Relations

$\not\sqsubset$	<code>\nsqsubset</code>	$\not\sqsupseteq$	<code>\nsqsupseteq</code>	$\not\Supset$	<code>\nSupset</code>
$\not\sqsubseteq$	<code>\nsqsubseteq</code>	$\not\Subset$	<code>\nSubset</code>		
$\not\sqsupset$	<code>\nsqsupset</code>	$\not\subseteq$	<code>\nsubseteq</code>		

TABLE 83: mathabx Subset and Superset Relations

\subsetneq	<code>\nqssubset</code>	\supsetneq	<code>\nsupset</code>	\supseteq	<code>\sqsupseteq</code>	\supseteq	<code>\supseteq</code>
\Subset	<code>\nsqSubset</code>	\Supset	<code>\nSupset</code>	\supseteqq	<code>\sqsupseteqq</code>	\supseteqq	<code>\supseteqq</code>
\subsetneqq	<code>\nqssubseteq</code>	\supsetneqq	<code>\nsupseteq</code>	\supsetneq	<code>\sqsupsetneq</code>	\supsetneq	<code>\supsetneq</code>
\subseteqq	<code>\nqssubseteqq</code>	\supseteqq	<code>\nsupseteqq</code>	\supsetneqq	<code>\sqsupsetneqq</code>	\supsetneqq	<code>\supsetneqq</code>
\supset	<code>\nqsupset</code>	\subset	<code>\sqsubset</code>	\subset	<code>\subset</code>	\varsubsetneq	<code>\varsubsetneq</code>
\Supset	<code>\nsqSupset</code>	\sqsubset	<code>\sqSubset</code>	\Subset	<code>\Subset</code>	\varsubsetneqq	<code>\varsubsetneqq</code>
\supseteq	<code>\nqsupseteq</code>	\subseteq	<code>\sqsubseteq</code>	\subseteq	<code>\subseteq</code>	\varsubsetneqq	<code>\varsubsetneqq</code>
\supseteqq	<code>\nqsupseteqq</code>	\subseteqq	<code>\sqsubseteqq</code>	\subseteqq	<code>\subseteqq</code>	\varsubsetneqq	<code>\varsubsetneqq</code>
\subset	<code>\nsubset</code>	\supsetneq	<code>\sqsubsetneq</code>	\subsetneq	<code>\subsetneq</code>	\varsubsetneq	<code>\varsubsetneq</code>
\Subset	<code>\nSubset</code>	\supsetneqq	<code>\sqsubsetneqq</code>	\subsetneqq	<code>\subsetneqq</code>	\varsubsetneqq	<code>\varsubsetneqq</code>
\supseteq	<code>\nsupseteq</code>	\Supset	<code>\sqSupset</code>	\supset	<code>\supset</code>	\varsupsetneq	<code>\varsupsetneq</code>
\supseteqq	<code>\nsupseteqq</code>	\supset	<code>\sqsupset</code>	\supset	<code>\supset</code>	\varsupsetneqq	<code>\varsupsetneqq</code>

TABLE 84: MnSymbol Subset and Superset Relations

\sqsubset	<code>\nSqssubset</code>	\subsetneq	<code>\nsubsetneq</code>	\sqsubsetneq	<code>\sqsubsetneq</code>	\subseteq	<code>\subseteq</code>
\subsetneq	<code>\nqssubset</code>	\subsetneqq	<code>\nsubseteqq</code>	\sqsubsetneqq	<code>\sqsubsetneqq</code>	\subseteqq	<code>\subseteqq</code>
\supsetneq	<code>\nqssubseteq</code>	\Supset	<code>\nSupset</code>	\Supset	<code>\Supset</code>	\subsetneq	<code>\subsetneq</code>
\supsetneqq	<code>\nqssubseteqq</code>	\supset	<code>\nsupset</code>	\supset	<code>\supset</code>	\subsetneqq	<code>\subsetneqq</code>
\Supset	<code>\nSqsupset</code>	\supseteq	<code>\nsupseteq</code>	\supseteq	<code>\supseteq</code>	\Supset	<code>\Supset</code>
\supset	<code>\nqsupset</code>	\supseteqq	<code>\nsupseteqq</code>	\supseteqq	<code>\supseteqq</code>	\supset	<code>\supset</code>
\supseteq	<code>\nqsupseteq</code>	\sqsubset	<code>\Sqsubset</code>	\supsetneq	<code>\sqsupsetneq</code>	\supseteq	<code>\supseteq</code>
\supseteqq	<code>\nqsupseteqq</code>	\subset	<code>\sqsubset</code>	\supsetneqq	<code>\sqsupsetneqq</code>	\supseteqq	<code>\supseteqq</code>
\Subset	<code>\nSubset</code>	\subseteq	<code>\sqsubseteq</code>	\Subset	<code>\Subset</code>	\supsetneq	<code>\supsetneq</code>
\subset	<code>\nsubset</code>	\subseteqq	<code>\sqsubseteqq</code>	\subset	<code>\subset</code>	\supsetneqq	<code>\supsetneqq</code>

MnSymbol additionally defines `\varsubsetneq` as a synonym for `\subsetneq`, `\varsubsetneqq` as a synonym for `\subseteqq`, `\varsupsetneq` as a synonym for `\supsetneq`, and `\varsupsetneqq` as a synonym for `\supsetneqq`.

TABLE 85: Inequalities

\geq	<code>\geq</code>	\gg	<code>\gg</code>	\leq	<code>\leq</code>	\ll	<code>\ll</code>	\neq	<code>\neq</code>
--------	-------------------	-------	------------------	--------	-------------------	-------	------------------	--------	-------------------

TABLE 86: \mathcal{AMS} Inequalities

\gtrsim	<code>\eqslantgtr</code>	\gtrdot	<code>\gtrdot</code>	\lesseqgtr	<code>\lesseqgtr</code>	\ngeq	<code>\ngeq</code>
\lessgtr	<code>\eqslantless</code>	\gtreqless	<code>\gtreqless</code>	\lesseqqgtr	<code>\lesseqqgtr</code>	\ngeqq	<code>\ngeqq</code>
\geqq	<code>\geqq</code>	\gtreqqless	<code>\gtreqqless</code>	\lessgtr	<code>\lessgtr</code>	\ngeqslant	<code>\ngeqslant</code>
\gtrsim	<code>\geqslant</code>	\gtrless	<code>\gtrless</code>	\lesssim	<code>\lesssim</code>	\ngtr	<code>\ngtr</code>
\ggg	<code>\ggg</code>	\gtrsim	<code>\gtrsim</code>	\lll	<code>\lll</code>	\nleq	<code>\nleq</code>
\gtrapprox	<code>\gnapprox</code>	\gvertneqq	<code>\gvertneqq</code>	\lnapprox	<code>\lnapprox</code>	\nleqq	<code>\nleqq</code>
\gneq	<code>\gneq</code>	\leqq	<code>\leqq</code>	\lneq	<code>\lneq</code>	\nleqslant	<code>\nleqslant</code>
\gneqq	<code>\gneqq</code>	\leqslant	<code>\leqslant</code>	\lneqq	<code>\lneqq</code>	\nless	<code>\nless</code>
\gnsim	<code>\gnsim</code>	\lessapprox	<code>\lessapprox</code>	\lnsim	<code>\lnsim</code>		
\gtrapprox	<code>\gtrapprox</code>	\lessdot	<code>\lessdot</code>	\lvertneqq	<code>\lvertneqq</code>		

TABLE 87: wasysym Inequalities

\gtrsim `\apprge` \lesssim `\apprle`

TABLE 88: txfonts/pxfonts Inequalities

\nlessgtr	<code>\ngg</code>	\nlessgtr	<code>\ngtrsim</code>	\nlesssim	<code>\nlesssim</code>
\nlessgtr	<code>\ngtrapprox</code>	\nlessgtr	<code>\nlessapprox</code>	\nlessgtr	<code>\nll</code>
\nlessgtr	<code>\ngtrless</code>	\nlessgtr	<code>\nlessgtr</code>		

TABLE 89: mathabx Inequalities

\gtrsim	<code>\eqslantgtr</code>	\gtrsim	<code>\gtreqless</code>	\lesssim	<code>\lesssim</code>	\nlessgtr	<code>\ngtr</code>
\lessgtr	<code>\eqslantless</code>	\lessgtr	<code>\gtreqqlless</code>	\ll	<code>\ll</code>	\nlessgtr	<code>\ngtrapprox</code>
\gtrsim	<code>\geq</code>	\gtrsim	<code>\gtrless</code>	\lll	<code>\lll</code>	\nlessgtr	<code>\ngtrsim</code>
\gtrsim	<code>\geqq</code>	\gtrsim	<code>\gtrsim</code>	\lnapprox	<code>\lnapprox</code>	\nlessgtr	<code>\nleq</code>
\gtrsim	<code>\gg</code>	\gtrsim	<code>\gvertneqq</code>	\lneq	<code>\lneq</code>	\nlessgtr	<code>\nleqq</code>
\gtrsim	<code>\ggg</code>	\gtrsim	<code>\leq</code>	\lneqq	<code>\lneqq</code>	\nlessgtr	<code>\nless</code>
\gtrsim	<code>\gnapprox</code>	\gtrsim	<code>\leqq</code>	\lnsim	<code>\lnsim</code>	\nlessgtr	<code>\nlessapprox</code>
\gtrsim	<code>\gneq</code>	\gtrsim	<code>\lessapprox</code>	\lvertneqq	<code>\lvertneqq</code>	\nlessgtr	<code>\nlesssim</code>
\gtrsim	<code>\gneqq</code>	\gtrsim	<code>\lessdot</code>	\neqslantgtr	<code>\neqslantgtr</code>	\nlessgtr	<code>\nvargeq</code>
\gtrsim	<code>\gnsim</code>	\gtrsim	<code>\lesseqgtr</code>	\neqslantless	<code>\neqslantless</code>	\nlessgtr	<code>\nvarleq</code>
\gtrsim	<code>\gtrapprox</code>	\gtrsim	<code>\lesseqqgtr</code>	\ngeq	<code>\ngeq</code>	\nlessgtr	<code>\vargeq</code>
\gtrsim	<code>\gtrdot</code>	\gtrsim	<code>\lessgtr</code>	\ngeqq	<code>\ngeqq</code>	\nlessgtr	<code>\varleq</code>

`mathabx` defines `\leqslant` and `\le` as synonyms for `\leq`, `\geqslant` and `\ge` as synonyms for `\geq`, `\neqslant` as a synonym for `\neq`, and `\ngeqslant` as a synonym for `\ngeq`.

TABLE 90: MnSymbol Inequalities

\succ	<code>\eqslantgtr</code>	\succsim	<code>\gtreqqless</code>	\lesssim	<code>\lesssim</code>	\succsim	<code>\ngtreqlless</code>
\lessgtr	<code>\eqslantless</code>	\gtrless	<code>\gtrless</code>	\ll	<code>\ll</code>	\lessgtr	<code>\ngtreqllessslant</code>
\geq	<code>\geq</code>	\gtrneqqless	<code>\gtrneqqless</code>	\lll	<code>\lll</code>	\gtrneqqless	<code>\ngtreqqless</code>
\geq	<code>\geqclosed</code>	\gtrsim	<code>\gtrsim</code>	\approx	<code>\lnapprox</code>	\gtrsim	<code>\ngtrless</code>
\geq	<code>\geqdot</code>	\leq	<code>\leq</code>	\neq	<code>\lneqq</code>	\neq	<code>\lneq</code>
\geq	<code>\geqq</code>	\leq	<code>\leqclosed</code>	\sim	<code>\lnsim</code>	\sim	<code>\lneqclosed</code>
\geq	<code>\geqslant</code>	\leq	<code>\leqdot</code>	\neq	<code>\neqslantgtr</code>	\neq	<code>\lneqdot</code>
\geq	<code>\geqslantdot</code>	\leq	<code>\leqq</code>	\neq	<code>\neqslantless</code>	\neq	<code>\lneqq</code>
\gg	<code>\gg</code>	\leq	<code>\leqslant</code>	\neq	<code>\ngeq</code>	\neq	<code>\lneqslant</code>
\ggg	<code>\ggg</code>	\leq	<code>\leqslantdot</code>	\neq	<code>\ngeqclosed</code>	\neq	<code>\lneqslantdot</code>
\gtrapprox	<code>\gnapprox</code>	$<$	<code>\less</code>	\neq	<code>\ngeqdot</code>	$<$	<code>\lless</code>
\gtrneqq	<code>\gneqq</code>	\approx	<code>\lessapprox</code>	\neq	<code>\ngeqq</code>	\approx	<code>\llessclosed</code>
\gtrsim	<code>\gnsim</code>	\triangleleft	<code>\lessclosed</code>	\neq	<code>\ngeqslant</code>	$<$	<code>\llessdot</code>
$>$	<code>\gtr</code>	$<$	<code>\lessdot</code>	\neq	<code>\ngeqslantdot</code>	\neq	<code>\llesseqgtr</code>
\gtrapprox	<code>\gtrapprox</code>	\leq	<code>\lesseqgtr</code>	\gg	<code>\ngg</code>	\leq	<code>\llesseqgtrslant</code>
\gtrclosed	<code>\gtrclosed</code>	\leq	<code>\lesseqgtrslant</code>	\ggg	<code>\nggg</code>	\leq	<code>\llesseqgtr</code>
\gtrdot	<code>\gtrdot</code>	\leq	<code>\lesseqqgtr</code>	\neq	<code>\ngtr</code>	\neq	<code>\llessgtr</code>
\gtreqless	<code>\gtreqless</code>	\lessgtr	<code>\lessgtr</code>	\neq	<code>\ngtrclosed</code>	\neq	<code>\nll</code>
\gtreqlessslant	<code>\gtreqlessslant</code>	\lessneqqgtr	<code>\lessneqqgtr</code>	\neq	<code>\ngtrdot</code>	\neq	<code>\nlll</code>

MnSymbol additionally defines synonyms for some of the preceding symbols:

\ggg	<code>\gggtr</code>	(same as <code>\ggg</code>)
\gtrneqq	<code>\gvertneqq</code>	(same as <code>\gneqq</code>)
\triangleleft	<code>\lhd</code>	(same as <code>\lessclosed</code>)
\lll	<code>\llless</code>	(same as <code>\lll</code>)
\lneqq	<code>\lvertneqq</code>	(same as <code>\lneqq</code>)
\lneqclosed	<code>\ntrianglelefteq</code>	(same as <code>\lneqclosed</code>)
\llessclosed	<code>\ntriangleleft</code>	(same as <code>\llessclosed</code>)
\ngeqclosed	<code>\ntrianglerighteq</code>	(same as <code>\ngeqclosed</code>)
\ngtrclosed	<code>\ntriangleright</code>	(same as <code>\ngtrclosed</code>)
\gtrclosed	<code>\rhd</code>	(same as <code>\gtrclosed</code>)
\leqclosed	<code>\trianglelefteq</code>	(same as <code>\leqclosed</code>)
\geqclosed	<code>\trianglerighteq</code>	(same as <code>\geqclosed</code>)
\leqclosed	<code>\unlhd</code>	(same as <code>\leqclosed</code>)
\geqclosed	<code>\unrhd</code>	(same as <code>\geqclosed</code>)
\lessclosed	<code>\vartriangleleft</code>	(same as <code>\lessclosed</code>)
\gtrclosed	<code>\vartriangleright</code>	(same as <code>\gtrclosed</code>)

TABLE 91: \mathcal{AMS} Triangle Relations

\blacktriangleleft	<code>\blacktriangleleft</code>	\trianglelefteq	<code>\ntrianglelefteq</code>	\trianglelefteq	<code>\trianglelefteq</code>	\triangleleft	<code>\vartriangleleft</code>
\blacktriangleright	<code>\blacktriangleright</code>	\trianglerighteq	<code>\ntrianglerighteq</code>	\trianglelefteq	<code>\trianglelefteq</code>	\triangleright	<code>\vartriangleright</code>
\triangleleft	<code>\triangleleft</code>	\trianglerighteq	<code>\ntrianglerighteq</code>	\trianglelefteq	<code>\trianglelefteq</code>		

TABLE 92: stmaryrd Triangle Relations

\trianglelefteq	<code>\trianglelefteqslant</code>	\trianglerighteq	<code>\trianglerighteqslant</code>
\ntrianglelefteq	<code>\ntrianglelefteqslant</code>	\ntrianglerighteq	<code>\ntrianglerighteqslant</code>

TABLE 93: mathabx Triangle Relations

\ntriangleleft	<code>\ntriangleleft</code>	\ntrianglerighteq	<code>\ntrianglerighteq</code>	\triangleright	<code>\triangleright</code>	\vartriangleright	<code>\vartriangleright</code>
\ntrianglelefteq	<code>\ntrianglelefteq</code>	\triangleleft	<code>\triangleleft</code>	\trianglerighteq	<code>\trianglerighteq</code>		
\ntriangleright	<code>\ntriangleright</code>	\trianglelefteq	<code>\trianglelefteq</code>	\vartriangleleft	<code>\vartriangleleft</code>		

TABLE 94: MnSymbol Triangle Relations

\blacktriangledown	<code>\filledmedtriangledown</code>	\triangle	<code>\largetriangleup</code>	\blacktriangledown	<code>\smalltriangledown</code>
\blacktriangleleft	<code>\filledmedtriangleleft</code>	\blacktriangledown	<code>\medtriangledown</code>	\blacktriangleleft	<code>\smalltriangleleft</code>
\blacktriangleright	<code>\filledmedtriangleright</code>	\triangleleft	<code>\medtriangleleft</code>	\blacktriangleright	<code>\smalltriangleright</code>
\blacktriangleup	<code>\filledmedtriangleup</code>	\triangleright	<code>\medtriangleright</code>	\blacktriangleup	<code>\smalltriangleup</code>
\blacktriangledown	<code>\filledtriangledown</code>	\triangle	<code>\medtriangleup</code>	\trianglelefteq	<code>\trianglelefteq</code>
\blacktriangleleft	<code>\filledtriangleleft</code>	\ntrianglelefteq	<code>\ntrianglelefteq</code>	\trianglelefteq	<code>\trianglelefteq</code>
\blacktriangleright	<code>\filledtriangleright</code>	\ntriangleleft	<code>\ntriangleleft</code>	\trianglerighteq	<code>\trianglerighteq</code>
\blacktriangleup	<code>\filledtriangleup</code>	\ntrianglelefteq	<code>\ntrianglelefteq</code>	\vartriangleleft	<code>\vartriangleleft</code>
\blacktriangledown	<code>\largetriangledown</code>	\ntriangleright	<code>\ntriangleright</code>	\vartriangleright	<code>\vartriangleright</code>
\blacktriangleleft	<code>\largetriangleleft</code>	\ntrianglerighteq	<code>\ntrianglerighteq</code>		
\blacktriangleright	<code>\largetriangleright</code>	\otriangle	<code>\otriangle</code>		

MnSymbol additionally defines synonyms for many of the preceding symbols: `\trianglelefteq` is a synonym for `\trianglelefteq`; `\lhd` and `\lessclosed` are synonyms for `\vartriangleleft`; `\rhd` and `\gtrclosed` are synonyms for `\vartriangleright`; `\unlhd` and `\leqclosed` are synonyms for `\trianglelefteq`; `\unrhd` and `\geqclosed` are synonyms for `\trianglerighteq`; `\blacktriangledown`, `\blacktriangleleft`, `\blacktriangleright`, and `\blacktriangle` [*sic*] are synonyms for, respectively, `\filledmedtriangledown`, `\filledmedtriangleleft`, `\filledmedtriangleright`, and `\filledmedtriangleup`; `\triangleright` is a synonym for `\medtriangleright`; `\triangle`, `\vartriangle`, and `\bigtriangleup` are synonyms for `\medtriangleup`; `\triangleleft` is a synonym for `\medtriangleleft`; `\triangledown` and `\bigtriangledown` are synonyms for `\medtriangledown`; `\lessclosed` is a synonym for `\ntriangleleft`; `\gtrclosed` is a synonym for `\ntriangleright`; `\leqclosed` is a synonym for `\ntrianglelefteq`; and `\geqclosed` is a synonym for `\ntrianglerighteq`.

The title “Triangle Relations” is a bit of a misnomer here as only `\trianglelefteq` and `\ntrianglelefteq` are defined as TeX relations (class 3 symbols). The `\largetriangle...` symbols are defined as TeX “ordinary” characters (class 0) and all of the remaining characters are defined as TeX binary operators (class 2).

TABLE 95: Arrows

\Downarrow	<code>\Downarrow</code>	\longleftarrow	<code>\longleftarrow</code>	\nwarrow	<code>\nwarrow</code>
\downarrow	<code>\downarrow</code>	\Longleftarrow	<code>\Longleftarrow</code>	\Rightarrow	<code>\Rightarrow</code>
\hookleftarrow	<code>\hookleftarrow</code>	\longleftrightarrow	<code>\longleftrightarrow</code>	\rightarrow	<code>\rightarrow</code>
\hookrightarrow	<code>\hookrightarrow</code>	\Longleftrightarrow	<code>\Longleftrightarrow</code>	\searrow	<code>\searrow</code>
\leadsto	<code>\leadsto*</code>	\mapsto	<code>\mapsto</code>	\swarrow	<code>\swarrow</code>
\leftarrow	<code>\leftarrow</code>	\Longrightarrow	<code>\Longrightarrow</code>	\uparrow	<code>\uparrow</code>
\Leftarrow	<code>\Leftarrow</code>	\longrightarrow	<code>\longrightarrow</code>	\Uparrow	<code>\Uparrow</code>
\Leftrightarrow	<code>\Leftrightarrow</code>	\mapsto	<code>\mapsto</code>	\Updownarrow	<code>\Updownarrow</code>
\leftrightharpoonup	<code>\leftrightharpoonup</code>	\nearrow	<code>\nearrow†</code>	\Updownarrow	<code>\Updownarrow</code>

* Not predefined in L^AT_EX 2_ε. Use one of the packages latexsym, amsfonts, amssymb, txfonts, pxfonts, or wasysym.

† See the note beneath Table 157 for information about how to put a diagonal arrow across a mathematical expression (as in “ $\nabla \cdot \vec{B}$ ”).

TABLE 96: Harpoons

\leftharpoonupdown	<code>\leftharpoonupdown</code>	\rightharpoonupdown	<code>\rightharpoonupdown</code>	\rightleftharpoons	<code>\rightleftharpoons</code>
\leftharpoonup	<code>\leftharpoonup</code>	\rightharpoonup	<code>\rightharpoonup</code>		

TABLE 97: textcomp Text-mode Arrows

\downarrow	<code>\textdownarrow</code>	\rightarrow	<code>\textrightarrow</code>
\leftarrow	<code>\textleftarrow</code>	\uparrow	<code>\textuparrow</code>

TABLE 98: \mathcal{AMS} Arrows

\circlearrowleft	<code>\circlearrowleft</code>	\leftrightsquigarrow	<code>\leftrightsquigarrow</code>	\rightleftarrows	<code>\rightleftarrows</code>
\circlearrowright	<code>\circlearrowright</code>	\leftrightsquigarrow	<code>\leftrightsquigarrow</code>	\rightleftarrows	<code>\rightleftarrows</code>
\curvearrowleft	<code>\curvearrowleft</code>	\Lleftarrow	<code>\Lleftarrow</code>	\Rrightarrow	<code>\Rrightarrow</code>
\curvearrowright	<code>\curvearrowright</code>	\looparrowleft	<code>\looparrowleft</code>	\twoheadleftarrow	<code>\twoheadleftarrow</code>
\dashleftarrow	<code>\dashleftarrow</code>	\looparrowright	<code>\looparrowright</code>	\twoheadrightarrow	<code>\twoheadrightarrow</code>
\dashrightarrow	<code>\dashrightarrow</code>	\Lsh	<code>\Lsh</code>	\upuparrows	<code>\upuparrows</code>
\downdownarrows	<code>\downdownarrows</code>	\rightarrowtail	<code>\rightarrowtail</code>		
\leftarrowtail	<code>\leftarrowtail</code>				

TABLE 99: \mathcal{AMS} Negated Arrows

\nleftarrow	<code>\nleftarrow</code>	\nrightarrow	<code>\nrightarrow</code>	\nrightarrow	<code>\nrightarrow</code>
\leftarrow	<code>\leftarrow</code>	\nrightarrow	<code>\nrightarrow</code>	\rightarrow	<code>\rightarrow</code>

TABLE 100: \mathcal{AMS} Harpoons

\downharpoonleft	<code>\downharpoonleft</code>	\leftrightharpoons	<code>\leftrightharpoons</code>	\upharpoonleft	<code>\upharpoonleft</code>
\downharpoonright	<code>\downharpoonright</code>	\rightleftharpoons	<code>\rightleftharpoons</code>	\upharpoonright	<code>\upharpoonright</code>

TABLE 101: stmaryrd Arrows

\leftarrow	<code>\leftarrowtriangle</code>	\Leftrightarrow	<code>\Mapsfrom</code>	\leftarrow	<code>\shortleftarrow</code>
\Leftrightarrow	<code>\leftrightharroweq</code>	\mapsto	<code>\mapsfrom</code>	\rightarrow	<code>\shortrightarrow</code>
\leftrightarrow	<code>\leftrightharrowtriangle</code>	\mapsto	<code>\Mapsto</code>	\uparrow	<code>\shortuparrow</code>
\lightning	<code>\lightning</code>	\nearrow	<code>\nnearrow</code>	\searrow	<code>\ssearrow</code>
\Longmapsfrom	<code>\Longmapsfrom</code>	\nwarrow	<code>\nnwarrow</code>	\swarrow	<code>\sswarrow</code>
\longmapsfrom	<code>\longmapsfrom</code>	\rightarrowtriangle	<code>\rightarrowtriangle</code>		
\Longmapsto	<code>\Longmapsto</code>	\downarrow	<code>\shortdownarrow</code>		

TABLE 102: txfonts/pxfonts Arrows

\boxdotleft	<code>\boxdotLeft</code>	\circrightarrow	<code>\circleddotright</code>	\diamondleft	<code>\Diamondleft</code>
\boxdotleft	<code>\boxdotleft</code>	\circleftarrow	<code>\circleleft</code>	\diamondrightarrow	<code>\Diamondright</code>
\boxdotright	<code>\boxdotright</code>	\circrightarrow	<code>\circcleright</code>	\diamondrightarrow	<code>\DiamondRight</code>
\boxdotright	<code>\boxdotRight</code>	\dashrightarrow	<code>\dashleftrightharrow</code>	\leftsquigarrow	<code>\leftsquigarrow</code>
\boxleftarrow	<code>\boxLeft</code>	\diamondleftarrow	<code>\DiamonddotLeft</code>	\nearrow	<code>\Nearrow</code>
\boxleftarrow	<code>\boxleft</code>	\diamondleftarrow	<code>\Diamonddotleft</code>	\nwarrow	<code>\Nwarrow</code>
\boxrightarrow	<code>\boxright</code>	\diamondrightarrow	<code>\Diamonddotright</code>	\Rightarrow	<code>\Rightarrow</code>
\boxrightarrow	<code>\boxRight</code>	\diamondrightarrow	<code>\DiamonddotRight</code>	\searrow	<code>\Searrow</code>
\circleftarrow	<code>\circleddotleft</code>	\diamondleftarrow	<code>\DiamondLeft</code>	\swarrow	<code>\Swarrow</code>

TABLE 103: mathabx Arrows

\circleftarrow	<code>\circleftarrow</code>	\leftarrow	<code>\leftarrow</code>	\nearrow	<code>\nearrow</code>
\circrightarrow	<code>\circrightarrow</code>	\leftleftarrows	<code>\leftleftarrows</code>	\upharpoonright	<code>\restriction</code>
\curvearrowleft	<code>\curvearrowbotleft</code>	\leftrightarrows	<code>\leftrightarrows</code>	\rightarrow	<code>\rightarrow</code>
\curvearrowright	<code>\curvearrowbotright</code>	\leftrightsquigarrow	<code>\leftrightsquigarrow</code>	\rightleftarrows	<code>\rightleftarrows</code>
\curvearrowleft	<code>\curvearrowleft</code>	\rightleftarrows	<code>\rightleftarrows</code>	\rightrightarrows	<code>\rightrightarrows</code>
\curvearrowright	<code>\curvearrowright</code>	\leftsquigarrow	<code>\leftsquigarrow</code>	\rightsquigarrow	<code>\rightsquigarrow</code>
\curvearrowleft	<code>\curvearrowleft</code>	\rightsquigarrow	<code>\rightsquigarrow</code>	\rightarrowleftarrow	<code>\rightarrowleftarrow</code>
\curvearrowright	<code>\curvearrowright</code>	\lefttorightarrow	<code>\lefttorightarrow</code>	\rightarrow	<code>\Rsh</code>
\dls	<code>\dls</code>	\looparrowleft	<code>\looparrowleft</code>	\searrow	<code>\searrow</code>
\downdownarrows	<code>\downdownarrows</code>	\looparrowright	<code>\looparrowright</code>	\swarrow	<code>\swarrow</code>
\downtouparrow	<code>\downtouparrow</code>	\looparrowright	<code>\looparrowright</code>	\updownarrows	<code>\updownarrows</code>
\downuparrows	<code>\downuparrows</code>	\Lsh	<code>\Lsh</code>	\uptodownarrow	<code>\uptodownarrow</code>
\drsh	<code>\drsh</code>	\nearrow	<code>\nearrow</code>	\upuparrows	<code>\upuparrows</code>

TABLE 104: mathabx Negated Arrows

\nleftarrow	<code>\nleftarrow</code>	\nrightarrow	<code>\nrightarrow</code>	\rightarrow	<code>\rightarrow</code>
\nleftarrow	<code>\nleftarrow</code>	\nleftarrow	<code>\nleftarrow</code>	\rightarrow	<code>\rightarrow</code>

TABLE 105: mathabx Harpoons

\leftrightharpoonup	<code>\barleftharpoonup</code>	\leftarrow	<code>\leftharpoonupup</code>	\Leftrightarrow	<code>\rightleftharpoons</code>
\Rightarrow	<code>\barrightharpoonup</code>	\Leftarrow	<code>\leftleftharpoons</code>	\Rrightarrow	<code>\rightrightarpoons</code>
\Downarrow	<code>\downdownharpoons</code>	\leftrightarrow	<code>\leftrightharpoonup</code>	\Uparrow	<code>\updownharpoons</code>
\harpoonleft	<code>\downharpoonleft</code>	\Leftrightarrow	<code>\leftrightharpoons</code>	\Uparrow	<code>\upharpoonleft</code>
\harpoonright	<code>\downharpoonright</code>	\Rightarrow	<code>\rightbarharpoonup</code>	\Uparrow	<code>\upharpoonright</code>
\Downarrow	<code>\downupharpoons</code>	\rightarrow	<code>\rightharpoonowdown</code>	\Uparrow	<code>\upupharpoons</code>
\Leftarrow	<code>\leftbarharpoonup</code>	\rightarrow	<code>\rightharpoonupup</code>		
\leftarrow	<code>\leftharpoonowdown</code>	\leftrightarrow	<code>\rightleftharpoonup</code>		

TABLE 106: MnSymbol Arrows

\curvearrowright	<code>\curvearrowdownup</code>	\longleftarrow	<code>\longleftarrow</code>	\hookrightarrow	<code>\rhookswarrow</code>
\curvearrowleft	<code>\curvearrowleftright</code>	\Longleftarrow	<code>\Longleftarrow</code>	\uparrow	<code>\rhookuparrow</code>
\curvearrowright	<code>\curvearrownesw</code>	\longleftrightarrow	<code>\longleftrightarrow</code>	\rightarrow	<code>\rightarrow</code>
\curvearrowleft	<code>\curvearrownwse</code>	\Longleftrightarrow	<code>\Longleftrightarrow</code>	\Rightarrow	<code>\Rightarrow</code>
\curvearrowright	<code>\curvearrowrightleft</code>	\mapsto	<code>\longmapsto</code>	\rightarrowtail	<code>\rightarrowtail</code>
\curvearrowleft	<code>\curvearrowswne</code>	\rightarrow	<code>\longrightarrow</code>	\leftrightarrow	<code>\rightleftarrows</code>
\curvearrowright	<code>\curvearrowswne</code>	\Longrightarrow	<code>\Longrightarrow</code>	\rightsquigarrow	<code>\rightsquigarrow</code>
\curvearrowleft	<code>\curvearrowupdown</code>	\looparrowleft	<code>\looparrowleft</code>	\mapsto	<code>\rightmapsto</code>
\dashrightarrow	<code>\dasheddownarrow</code>	\looparrowright	<code>\looparrowright</code>	\rightarrowtail	<code>\rightrightarrowtail</code>
\dashleftarrow	<code>\dashedleftarrow</code>	\Lsh	<code>\Lsh</code>	\rightsquigarrow	<code>\righttrsquigarrow</code>
\dashrightarrow	<code>\dashednearrow</code>	\nearrow	<code>\nearrow</code>	\Rightarrow	<code>\Rightarrow</code>
\dashrightarrow	<code>\dashednwarrow</code>	\nearrow	<code>\Nearrow</code>	\rightarrow	<code>\Rrightarrow</code>
\dashrightarrow	<code>\dashedrightarrow</code>	\nearrowtail	<code>\nearrowtail</code>	\searrow	<code>\searrow</code>
\dashrightarrow	<code>\dashedsearrow</code>	\nearrow	<code>\nelsquigarrow</code>	\searrow	<code>\searrow</code>
\dashrightarrow	<code>\dashedswarrow</code>	\nearrow	<code>\nemapsto</code>	\searrowtail	<code>\searrowtail</code>
\dashrightarrow	<code>\dasheduparrow</code>	\nearrow	<code>\nenearrows</code>	\searrow	<code>\selsquigarrow</code>
\Downarrow	<code>\Downarrow</code>	\nearrow	<code>\nersquigarrow</code>	\searrow	<code>\semapsto</code>
\downarrow	<code>\downarrow</code>	\nearrow	<code>\neswarrow</code>	\searrow	<code>\senwarrows</code>
\downarrowtail	<code>\downarrowtail</code>	\nearrow	<code>\Neswarrow</code>	\searrow	<code>\sersquigarrow</code>
\Downarrow	<code>\downdownarrows</code>	\nearrow	<code>\neswarrows</code>	\searrow	<code>\sesearrows</code>
\Downarrow	<code>\downlsquigarrow</code>	\nwarrow	<code>\nwarrow</code>	\searrow	<code>\squigarrowdownup</code>
\Downarrow	<code>\downmapsto</code>	\nwarrow	<code>\Nwarrow</code>	\leftrightarrow	<code>\squigarrowleftright</code>
\Downarrow	<code>\downrsquigarrow</code>	\nwarrowtail	<code>\nwarrowtail</code>	\leftrightarrow	<code>\squigarrownesw</code>
\Downarrow	<code>\downuparrows</code>	\nwarrow	<code>\nwlsquigarrow</code>	\leftrightarrow	<code>\squigarrownwse</code>
\circlearrowright	<code>\lcirclearrowdown</code>	\nwarrow	<code>\nwmapsto</code>	\curvearrowright	<code>\squigarrowrightleft</code>
\circlearrowleft	<code>\lcirclearrowleft</code>	\nwarrow	<code>\nwnwarrows</code>	\curvearrowleft	<code>\squigarrowswne</code>
\circlearrowright	<code>\lcirclearrowright</code>	\nwarrow	<code>\nwrsquigarrow</code>	\curvearrowright	<code>\squigarrowswne</code>
\circlearrowup	<code>\lcirclearrowup</code>	\nwarrow	<code>\nwsearrow</code>	\curvearrowleft	<code>\squigarrowupdown</code>
\curvearrowright	<code>\lcurvearrowdown</code>	\nwarrow	<code>\Nwsearrow</code>	\swarrow	<code>\swarrow</code>
\curvearrowleft	<code>\lcurvearrowleft</code>	\nwarrow	<code>\nwsearrows</code>	\swarrow	<code>\swarrow</code>
\curvearrowright	<code>\lcurvearrowne</code>	\circ	<code>\partialvardlcircleleftint*</code>	\swarrowtail	<code>\swarrowtail</code>
\curvearrowleft	<code>\lcurvearrownw</code>	\circ	<code>\partialvardlclerightint*</code>	\swarrow	<code>\swlsquigarrow</code>
\curvearrowright	<code>\lcurvearrowright</code>	\circ	<code>\partialvardrcircleleftint*</code>	\swarrow	<code>\swmapsto</code>
\curvearrowleft	<code>\lcurvearrowse</code>	\circ	<code>\partialvardrcirclerightint*</code>	\swarrow	<code>\swnearrows</code>
\curvearrowright	<code>\lcurvearrowsw</code>	\circ	<code>\partialvartlcircleleftint*</code>	\swarrow	<code>\swrsquigarrow</code>
\curvearrowleft	<code>\lcurvearrowup</code>	\circ	<code>\partialvartlclerightint*</code>	\swarrow	<code>\swswarrows</code>
\Leftarrow	<code>\Leftarrow</code>	\circ	<code>\partialvartrcircleleftint*</code>	\downarrow	<code>\twoheaddownarrow</code>
\leftarrow	<code>\leftarrow</code>	\circ	<code>\partialvartrcirclerightint*</code>	\leftarrow	<code>\twoheadleftarrow</code>

(continued on next page)

(continued from previous page)

\leftarrow	<code>\leftarrowtail</code>	\circlearrowright	<code>\rcirclearrowdown</code>	\nearrow	<code>\twoheadnearrow</code>
\leftleftarrows	<code>\leftleftarrows</code>	\circlearrowleft	<code>\rcirclearrowleft</code>	\nwarrow	<code>\twoheadnwarrow</code>
\leftleftsquigarrow	<code>\leftleftsquigarrow</code>	\circlearrowright	<code>\rcirclearrowright</code>	\rightarrow	<code>\twoheadrightarrow</code>
\leftmapsto	<code>\leftmapsto</code>	\circlearrowup	<code>\rcirclearrowup</code>	\searrow	<code>\twoheadsearrow</code>
\leftrightarrows	<code>\leftrightarrows</code>	\curvearrowright	<code>\rcurvearrowdown</code>	\swarrow	<code>\twoheadswarrow</code>
\Leftrightarrow	<code>\Leftrightarrow</code>	\curvearrowleft	<code>\rcurvearrowleft</code>	\uparrow	<code>\twoheaduparrow</code>
\leftrightsquigarrow	<code>\leftrightsquigarrow</code>	\curvearrowright	<code>\rcurvearrowne</code>	\uparrow	<code>\uparrow</code>
\leftarrow	<code>\leftarrow</code>	\curvearrowright	<code>\rcurvearrownw</code>	\Uparrow	<code>\Uparrow</code>
\hookrightarrow	<code>\hookrightarrow</code>	\curvearrowright	<code>\rcurvearrowright</code>	\uparrow	<code>\uparrowtail</code>
\hookleftarrow	<code>\hookleftarrow</code>	\curvearrowleft	<code>\rcurvearrowse</code>	\updownarrow	<code>\updownarrow</code>
\hooknearrow	<code>\hooknearrow</code>	\curvearrowleft	<code>\rcurvearrowsw</code>	\Updownarrow	<code>\Updownarrow</code>
\hooknwarrow	<code>\hooknwarrow</code>	\curvearrowright	<code>\rcurvearrowup</code>	\updownarrows	<code>\updownarrows</code>
\hookrightarrow	<code>\hookrightarrow</code>	\hookrightarrow	<code>\rhookdownarrow</code>	\up	<code>\uplsquigarrow</code>
\hooksearrow	<code>\hooksearrow</code>	\leftarrow	<code>\rhookleftarrow</code>	\up	<code>\upmapsto</code>
\hookswarrow	<code>\hookswarrow</code>	\nearrow	<code>\rhooknearrow</code>	\up	<code>\uprsquigarrow</code>
\hookuparrow	<code>\hookuparrow</code>	\nwarrow	<code>\rhooknwarrow</code>	\Uparrow	<code>\upuparrows</code>
\lightning	<code>\lightning</code>	\rightarrow	<code>\rhookrightarrow</code>		
\Lleftarrow	<code>\Lleftarrow</code>	\searrow	<code>\rhooksearrow</code>		

MnSymbol additionally defines synonyms for some of the preceding symbols:

\circlearrowleft	<code>\circlearrowleft</code>	(same as <code>\rcirclearrowup</code>)
\circlearrowright	<code>\circlearrowright</code>	(same as <code>\lcirclearrowup</code>)
\curvearrowleft	<code>\curvearrowleft</code>	(same as <code>\rcurvearrowleft</code>)
\curvearrowright	<code>\curvearrowright</code>	(same as <code>\lcurvearrowright</code>)
\dashleftarrow	<code>\dashleftarrow</code>	(same as <code>\dashedleftarrow</code>)
\dashrightarrow	<code>\dashrightarrow</code>	(same as <code>\dashedrightarrow</code>)
\hookleftarrow	<code>\hookleftarrow</code>	(same as <code>\rhookleftarrow</code>)
\hookrightarrow	<code>\hookrightarrow</code>	(same as <code>\lhookrightarrow</code>)
\leadsto	<code>\leadsto</code>	(same as <code>\rightlsquigarrow</code>)
\leftrightsquigarrow	<code>\leftrightsquigarrow</code>	(same as <code>\squigarrowleftright</code>)
\mapsto	<code>\mapsto</code>	(same as <code>\rightmapsto</code>)
\rightsquigarrow	<code>\rightsquigarrow</code>	(same as <code>\rightlsquigarrow</code>)

* The `\partialvar...int` macros are intended to be used internally by MnSymbol to produce various types of integrals.

TABLE 107: MnSymbol Negated Arrows

\nrightarrow	<code>\nrightarrow</code>	\nhooknwarrow	<code>\nhooknwarrow</code>	\nrightarrow	<code>\nrightarrow</code>
\nrightarrow	<code>\nrightarrow</code>	\nhookrightarrow	<code>\nhookrightarrow</code>	\nrightarrow	<code>\nrightarrow</code>
\nrightarrow	<code>\nrightarrow</code>	\nhooksearrow	<code>\nhooksearrow</code>	\nrightarrow	<code>\nrightarrow</code>
\nrightarrow	<code>\nrightarrow</code>	\nhookswarrow	<code>\nhookswarrow</code>	\nrightarrow	<code>\nrightarrow</code>
\nrightarrow	<code>\nrightarrow</code>	\nhookuparrow	<code>\nhookuparrow</code>	\nrightarrow	<code>\nrightarrow</code>
\nrightarrow	<code>\nrightarrow</code>	\nleftarrow	<code>\nleftarrow</code>	\nrightarrow	<code>\nrightarrow</code>
\nrightarrow	<code>\nrightarrow</code>	\nrightarrow	<code>\nrightarrow</code>	\nrightarrow	<code>\nrightarrow</code>
\nrightarrow	<code>\nrightarrow</code>	\nrightarrow	<code>\nrightarrow</code>	\nrightarrow	<code>\nrightarrow</code>
\nrightarrow	<code>\nrightarrow</code>	\nrightarrow	<code>\nrightarrow</code>	\nrightarrow	<code>\nrightarrow</code>
\nrightarrow	<code>\nrightarrow</code>	\nrightarrow	<code>\nrightarrow</code>	\nrightarrow	<code>\nrightarrow</code>
\nrightarrow	<code>\nrightarrow</code>	\nrightarrow	<code>\nrightarrow</code>	\nrightarrow	<code>\nrightarrow</code>
\nrightarrow	<code>\nrightarrow</code>	\nrightarrow	<code>\nrightarrow</code>	\nrightarrow	<code>\nrightarrow</code>
\nrightarrow	<code>\nrightarrow</code>	\nrightarrow	<code>\nrightarrow</code>	\nrightarrow	<code>\nrightarrow</code>
\nrightarrow	<code>\nrightarrow</code>	\nrightarrow	<code>\nrightarrow</code>	\nrightarrow	<code>\nrightarrow</code>
\nrightarrow	<code>\nrightarrow</code>	\nrightarrow	<code>\nrightarrow</code>	\nrightarrow	<code>\nrightarrow</code>

(continued on next page)

(continued from previous page)

	<code>\ndashednearrow</code>		<code>\nnemapsto</code>		<code>\nsemapsto</code>
	<code>\ndashednwarrow</code>		<code>\nnenearrows</code>		<code>\nsenwarrows</code>
	<code>\ndashedrightarrow</code>		<code>\nnersquigarrow</code>		<code>\nsersquigarrow</code>
	<code>\ndashedsearrow</code>		<code>\nNeswarrow</code>		<code>\nsesearrows</code>
	<code>\ndashedswarrow</code>		<code>\nneswarrow</code>		<code>\nsquigarrowdownup</code>
	<code>\ndasheduparrow</code>		<code>\nneswarrows</code>		<code>\nsquigarrowleftright</code>
	<code>\ndownarrow</code>		<code>\nNwarrow</code>		<code>\nsquigarrownesw</code>
	<code>\nDownarrow</code>		<code>\nnwarrow</code>		<code>\nsquigarrownwse</code>
	<code>\ndownarrowtail</code>		<code>\nnwarrowtail</code>		<code>\nsquigarrowrightleft</code>
	<code>\ndowndownarrows</code>		<code>\nnwlsquigarrow</code>		<code>\nsquigarrowsenw</code>
	<code>\ndownlsquigarrow</code>		<code>\nnwmapsto</code>		<code>\nsquigarrowswne</code>
	<code>\ndownmapsto</code>		<code>\nnwnwarrows</code>		<code>\nsquigarrowupdown</code>
	<code>\ndownrsquigarrow</code>		<code>\nnwrsquigarrow</code>		<code>\nswarrow</code>
	<code>\ndownuparrows</code>		<code>\nnwsearrow</code>		<code>\nSswarrow</code>
	<code>\nllcirclearrowdown</code>		<code>\nNwsearrow</code>		<code>\nswarrowtail</code>
	<code>\nllcirclearrowleft</code>		<code>\nnwsearrows</code>		<code>\nswlsquigarrow</code>
	<code>\nllcirclearrowright</code>		<code>\nrcirclearrowdown</code>		<code>\nswmapsto</code>
	<code>\nllcirclearrowup</code>		<code>\nrcirclearrowleft</code>		<code>\nswnearrows</code>
	<code>\nlcurvearrowdown</code>		<code>\nrcirclearrowright</code>		<code>\nswrsquigarrow</code>
	<code>\nlcurvearrowleft</code>		<code>\nrcirclearrowup</code>		<code>\nswswarrows</code>
	<code>\nlcurvearrowne</code>		<code>\nrcurvearrowdown</code>		<code>\ntwoheaddownarrow</code>
	<code>\nlcurvearrownw</code>		<code>\nrcurvearrowleft</code>		<code>\ntwoheadleftarrow</code>
	<code>\nlcurvearrowright</code>		<code>\nrcurvearrowne</code>		<code>\ntwoheadnearrow</code>
	<code>\nlcurvearrowse</code>		<code>\nrcurvearrownw</code>		<code>\ntwoheadnwarrow</code>
	<code>\nlcurvearrowsw</code>		<code>\nrcurvearrowright</code>		<code>\ntwoheadrightarrow</code>
	<code>\nlcurvearrowup</code>		<code>\nrcurvearrowse</code>		<code>\ntwoheadsearrow</code>
	<code>\nLeftarrow</code>		<code>\nrcurvearrowsw</code>		<code>\ntwoheadswarrow</code>
	<code>\nleftarrow</code>		<code>\nrcurvearrowup</code>		<code>\ntwoheaduparrow</code>
	<code>\nleftarrowtail</code>		<code>\nrhookdownarrow</code>		<code>\nuparrow</code>
	<code>\nleftleftarrows</code>		<code>\nrhookleftarrow</code>		<code>\nUparrow</code>
	<code>\nleftlsquigarrow</code>		<code>\nrhooknearrow</code>		<code>\nuparrowtail</code>
	<code>\nleftmapsto</code>		<code>\nrhooknwarrow</code>		<code>\nupdownarrow</code>
	<code>\nleftrightarrow</code>		<code>\nrhookrightarrow</code>		<code>\nUpdownarrow</code>
	<code>\nleftrightarrows</code>		<code>\nrhooksearrow</code>		<code>\nupdownarrows</code>
	<code>\nlefrsquigarrow</code>		<code>\nrhookswarrow</code>		<code>\nuplsquigarrow</code>
	<code>\nlhookdownarrow</code>		<code>\nrhookuparrow</code>		<code>\nupmapsto</code>
	<code>\nlhookleftarrow</code>		<code>\nrightarrow</code>		<code>\nuprsquigarrow</code>
	<code>\nlhooknearrow</code>		<code>\nRightarrow</code>		<code>\nupuparrows</code>
			<code>\nrightarrowtail</code>		

MnSymbol additionally defines synonyms for some of the preceding symbols:

\circlearrowleft	<code>\ncirclearrowleft</code>	(same as <code>\nrcirclearrowup</code>)
\circlearrowright	<code>\ncirclearrowright</code>	(same as <code>\nlcirclearrowup</code>)
\curvearrowleft	<code>\ncurvearrowleft</code>	(same as <code>\nrcurvearrowleft</code>)
\curvearrowright	<code>\ncurvearrowright</code>	(same as <code>\nlcurvearrowright</code>)
\dashrightarrow	<code>\ndasharrow</code>	(same as <code>\ndashedrightarrow</code>)
\dashleftarrow	<code>\ndashleftarrow</code>	(same as <code>\ndashedleftarrow</code>)
\dashrightarrow	<code>\ndashrightarrow</code>	(same as <code>\ndashedrightarrow</code>)
\leftarrow	<code>\ngets</code>	(same as <code>\leftarrow</code>)
\hookleftarrow	<code>\nhookleftarrow</code>	(same as <code>\nrhookleftarrow</code>)
\hookrightarrow	<code>\nhookrightarrow</code>	(same as <code>\nlhookrightarrow</code>)
\leadsto	<code>\nleadsto</code>	(same as <code>\rightsquigarrow</code>)
\leftrightsquigarrow	<code>\nleftrightsquigarrow</code>	(same as <code>\nsquigarrowleftright</code>)
\mapsto	<code>\nmapsto</code>	(same as <code>\rightrightmapsto</code>)
\rightsquigarrow	<code>\nrightrightarrow</code>	(same as <code>\rightsquigarrow</code>)
\rightarrow	<code>\nto</code>	(same as <code>\rightarrow</code>)

TABLE 108: MnSymbol Harpoons

\downharpoonccw^*	\swharpoon	<code>\neswharpoons</code>	\seharpooncw
\downharpooncw^*	\swharpoon	<code>\neswharpoonsenw</code>	\senwharpoons
\downupharpoons	\swharpoonccw	<code>\nwsharpoonccw</code>	\swharpoonccw
\leftharpoonccw^*	\swharpooncw	<code>\nwsharpooncw</code>	\swharpooncw
\leftharpooncw^*	\swseharpoonsesw	<code>\nwseharpoonsesw</code>	\swseharpoons
\leftrightharpoondownup	\swseharpoons	<code>\nwseharpoons</code>	\updownharpoonleftright
\leftrightharpoons	\swseharpoonsesw	<code>\nwseharpoonsesw</code>	\updownharpoonrightleft
\leftrightharpoonupdown	\rightharpoonccw^*	<code>\rightharpoonccw^*</code>	\updownharpoons
\neharpoonccw	\rightharpooncw^*	<code>\rightharpooncw^*</code>	\upharpoonccw^*
\neharpooncw	\rightleftharpoons	<code>\rightleftharpoons</code>	\upharpooncw^*
\neswharpoonnwse	\seharpoonccw	<code>\seharpoonccw</code>	

* Where marked, the “ccw” suffix can be replaced with “up” and the “cw” suffix can be replaced with “down”. (In addition, `\upharpooncw` can be written as `\restriction`.)

TABLE 109: MnSymbol Negated Harpoons

\downharpoonccw^*	\swseharpoons	<code>\neswharpoons</code>	\seharpooncw
\downharpooncw^*	\swseharpoons	<code>\neswharpoonsenw</code>	\senwharpoons
\downupharpoons	\swseharpoonccw	<code>\nwsharpoonccw</code>	\swseharpoonccw
\leftharpoonccw^*	\swseharpooncw	<code>\nwsharpooncw</code>	\swseharpooncw
\leftharpooncw^*	\swseseharpoonsesw	<code>\nwseseharpoonsesw</code>	\swseseharpoons
\leftrightharpoondownup	\swseseharpoons	<code>\nwseseharpoons</code>	\updownharpoonleftright
\leftrightharpoons	\swseseharpoonsesw	<code>\nwseseharpoonsesw</code>	\updownharpoonrightleft
\leftrightharpoonupdown	\rightharpoonccw^*	<code>\rightharpoonccw^*</code>	\updownharpoons
\neharpoonccw	\rightharpooncw^*	<code>\rightharpooncw^*</code>	\upharpoonccw^*
\neharpooncw	\rightleftharpoons	<code>\rightleftharpoons</code>	\upharpooncw^*
\neswharpoonnwse	\seharpoonccw	<code>\seharpoonccw</code>	

* Where marked, the “ccw” suffix can be replaced with “up” and the “cw” suffix can be replaced with “down”. (In addition, `\upharpooncw` can be written as `\restriction`.)

TABLE 110: chemarrow Arrows

\rightarrow `\chemarrow`

TABLE 111: fge Arrows

\Rightarrow `\fgerightarrow` \Uparrow `\fgeuparrow`

TABLE 112: MnSymbol Spoons

\Downarrow	<code>\downfilledspoon</code>	\wp	<code>\nnespoon</code>	\nwarrow	<code>\nwfilledspoon</code>
\Downarrow	<code>\downspoon</code>	\nwarrow	<code>\nnwfilledspoon</code>	\nwarrow	<code>\nwspoon</code>
\leftarrow	<code>\leftfilledspoon</code>	\nwarrow	<code>\nnwspoon</code>	\rightarrow	<code>\rightfilledspoon</code>
\leftarrow	<code>\leftspoon</code>	\rightarrow	<code>\nrighfilledspoon</code>	\rightarrow	<code>\rightspoon*</code>
\downdownarrows	<code>\ndownfilledspoon</code>	\rightarrow	<code>\nrighspoon*</code>	\searrow	<code>\sefilledspoon</code>
\downdownarrows	<code>\ndownspoon</code>	\searrow	<code>\nsefilledspoon</code>	\searrow	<code>\sespoon</code>
\nearrow	<code>\nefilledspoon</code>	\searrow	<code>\nespoon</code>	\swarrow	<code>\swfilledspoon</code>
\nearrow	<code>\nespoon</code>	\swarrow	<code>\nswfilledspoon</code>	\swarrow	<code>\swspoon</code>
\leftarrow	<code>\nleftfilledspoon</code>	\swarrow	<code>\nswspoon</code>	\Uparrow	<code>\upfilledspoon</code>
\leftarrow	<code>\nleftspoon</code>	\Uparrow	<code>\nupfilledspoon</code>	\Uparrow	<code>\upspoon</code>
\nearrow	<code>\nnefilledspoon</code>	\Uparrow	<code>\nupspoon</code>		

* MnSymbol defines `\multimap` as a synonym for `\rightspoon` and `\nmultimap` as a synonym for `\nrighspoon`.

TABLE 113: MnSymbol Pitchforks

Ψ	<code>\downpitchfork</code>	\wp	<code>\nnwpitchfork</code>	\Rightarrow	<code>\rightpitchfork</code>
\Leftarrow	<code>\leftpitchfork</code>	\Rightarrow	<code>\nrighpitchfork</code>	\searrow	<code>\sepitchfork</code>
Ψ	<code>\ndownpitchfork</code>	\searrow	<code>\nsepitchfork</code>	\swarrow	<code>\swpitchfork</code>
\nearrow	<code>\nepitchfork</code>	\swarrow	<code>\nswpitchfork</code>	\Uparrow	<code>\uppitchfork</code>
\Leftarrow	<code>\nleftpitchfork</code>	\Uparrow	<code>\nuppitchfork</code>		
\nearrow	<code>\nnepitchfork</code>	\Uparrow	<code>\nwpitchfork</code>		

* MnSymbol defines `\pitchfork` as a synonym for `\uppitchfork` and `\npitchfork` as a synonym for `\nuppitchfork`.

TABLE 114: MnSymbol Smiles and Frowns

⋈	<code>\doublefrown</code>	⋈	<code>\nsmileeq</code>	⋈	<code>\smileeq</code>
⋉	<code>\doublefrowneq</code>	⋈	<code>\nsmileeqfrown</code>	⋉	<code>\smileeqfrown</code>
⋊	<code>\doublesmile</code>	⋈	<code>\nsmilefrown</code>	⋊	<code>\smilefrown</code>
⋋	<code>\doublesmileeq</code>	⋈	<code>\nsmilefrowneq</code>	⋋	<code>\smilefrowneq</code>
⋌	<code>\eqfrown</code>	⋈	<code>\nsqdoublefrown</code>	⋌	<code>\sqdoublefrown</code>
⋍	<code>\eqsmile</code>	⋈	<code>\nsqdoublefrowneq</code>	⋍	<code>\sqdoublefrowneq</code>
⋎	<code>\frown</code>	⋈	<code>\nsqdoublesmile</code>	⋎	<code>\sqdoublesmile</code>
⋏	<code>\frowneq</code>	⋈	<code>\nsqdoublesmileeq</code>	⋏	<code>\sqdoublesmileeq</code>
⋐	<code>\frowneqsmile</code>	⋈	<code>\nsqeqfrown</code>	⋐	<code>\sqeqfrown</code>
⋑	<code>\frownsmile</code>	⋈	<code>\nsqeqsmile</code>	⋑	<code>\sqeqsmile</code>
⋒	<code>\frownsmileeq</code>	⋈	<code>\nsqfrown</code>	⋒	<code>\sqfrown</code>
⋓	<code>\ndoublefrown</code>	⋈	<code>\nsqfrowneq</code>	⋓	<code>\sqfrowneq</code>
⋔	<code>\ndoublefrowneq</code>	⋈	<code>\nsqfrowneqsmile</code>	⋔	<code>\sqfrowneqsmile</code>
⋕	<code>\ndoublesmile</code>	⋈	<code>\nsqfrownsmile</code>	⋕	<code>\sqfrownsmile</code>
⋖	<code>\ndoublesmileeq</code>	⋈	<code>\nsqsmile</code>	⋖	<code>\sqsmile</code>
⋗	<code>\neqfrown</code>	⋈	<code>\nsqsmileeq</code>	⋗	<code>\sqsmileeq</code>
⋘	<code>\neqsmile</code>	⋈	<code>\nsqsmileeqfrown</code>	⋘	<code>\sqsmileeqfrown</code>
⋙	<code>\nfrown</code>	⋈	<code>\nsqsmilefrown</code>	⋙	<code>\sqsmilefrown</code>
⋚	<code>\nfrowneq</code>	⋈	<code>\nsqtriplefrown</code>	⋚	<code>\sqtriplefrown</code>
⋛	<code>\nfrowneqsmile</code>	⋈	<code>\nsqtriplesmile</code>	⋛	<code>\sqtriplesmile</code>
⋜	<code>\nfrownsmile</code>	⋈	<code>\ntriplefrown</code>	⋜	<code>\triplefrown</code>
⋝	<code>\nfrownsmileeq</code>	⋈	<code>\ntriplesmile</code>	⋝	<code>\triplesmile</code>
⋞	<code>\nsmile</code>	⋈	<code>\smile</code>		

* MnSymbol defines `\smallsmile` as a synonym for `\smile`, `\smallfrown` as a synonym for `\frown`, `\asymp` as a synonym for `\smilefrown`, and `\nasymp` as a synonym for `\nsmilefrown`.

TABLE 115: ulsy Contradiction Symbols

⚡	<code>\blitza</code>	⚡	<code>\blitzb</code>	⚡	<code>\blitzc</code>	⚡	<code>\blitzd</code>	⚡	<code>\blitze</code>
---	----------------------	---	----------------------	---	----------------------	---	----------------------	---	----------------------

TABLE 116: Extension Characters

— `\relbar` = `\Relbar`

TABLE 117: stmaryrd Extension Characters

/ `\Arrownot` † `\Mapsfromchar` † `\Mapstochar`
 / `\arrownot` † `\mapsfromchar`

TABLE 118: txfonts/pxfonts Extension Characters

‡ `\Mappedfromchar` ‡ `\Mmappedfromchar` ‡ `\Mmapstochar`
 ‡ `\mappedfromchar` ‡ `\mmappedfromchar` ‡ `\mmapstochar`

TABLE 119: mathabx Extension Characters

<code>\mapsfromchar</code>	<code>\mapstochar</code>
<code>\Mapsfromchar</code>	<code>\Mapstochar</code>

TABLE 120: Log-like Symbols

<code>\arccos</code>	<code>\cos</code>	<code>\csc</code>	<code>\exp</code>	<code>\ker</code>	<code>\limsup</code>	<code>\min</code>	<code>\sinh</code>
<code>\arcsin</code>	<code>\cosh</code>	<code>\deg</code>	<code>\gcd</code>	<code>\lg</code>	<code>\ln</code>	<code>\Pr</code>	<code>\sup</code>
<code>\arctan</code>	<code>\cot</code>	<code>\det</code>	<code>\hom</code>	<code>\lim</code>	<code>\log</code>	<code>\sec</code>	<code>\tan</code>
<code>\arg</code>	<code>\coth</code>	<code>\dim</code>	<code>\inf</code>	<code>\liminf</code>	<code>\max</code>	<code>\sin</code>	<code>\tanh</code>

Calling the above “symbols” may be a bit misleading.² Each log-like symbol merely produces the eponymous textual equivalent, but with proper surrounding spacing. See Section 7.4 for more information about log-like symbols. As `\bmod` and `\pmod` are arguably not symbols we refer the reader to the Short Math Guide for L^AT_EX [Dow00] for samples.

TABLE 121: \mathcal{AMS} Log-like Symbols

<code>injlim</code>	<code>\injlim</code>	\varinjlim	<code>\varinjlim</code>	$\overline{\lim}$	<code>\varlimsup</code>
<code>projlim</code>	<code>\projlim</code>	\varprojlim	<code>\varprojlim</code>	\varprojlim	<code>\varprojlim</code>

Load the `amsmath` package to get these symbols. See Section 7.4 for some additional comments regarding log-like symbols. As `\mod` and `\pod` are arguably not symbols we refer the reader to the Short Math Guide for L^AT_EX [Dow00] for samples.

TABLE 122: Greek Letters

α	<code>\alpha</code>	θ	<code>\theta</code>	o	<code>o</code>	τ	<code>\tau</code>
β	<code>\beta</code>	ϑ	<code>\vartheta</code>	π	<code>\pi</code>	υ	<code>\upsilon</code>
γ	<code>\gamma</code>	ι	<code>\iota</code>	ϖ	<code>\varpi</code>	ϕ	<code>\phi</code>
δ	<code>\delta</code>	κ	<code>\kappa</code>	ρ	<code>\rho</code>	φ	<code>\varphi</code>
ϵ	<code>\epsilon</code>	λ	<code>\lambda</code>	ϱ	<code>\varrho</code>	χ	<code>\chi</code>
ε	<code>\varepsilon</code>	μ	<code>\mu</code>	σ	<code>\sigma</code>	ψ	<code>\psi</code>
ζ	<code>\zeta</code>	ν	<code>\nu</code>	ς	<code>\varsigma</code>	ω	<code>\omega</code>
η	<code>\eta</code>	ξ	<code>\xi</code>				
Γ	<code>\Gamma</code>	Λ	<code>\Lambda</code>	Σ	<code>\Sigma</code>	Ψ	<code>\Psi</code>
Δ	<code>\Delta</code>	Ξ	<code>\Xi</code>	Υ	<code>\Upsilon</code>	Ω	<code>\Omega</code>
Θ	<code>\Theta</code>	Π	<code>\Pi</code>	Φ	<code>\Phi</code>		

The remaining Greek majuscules can be produced with ordinary Latin letters. The symbol “M”, for instance, is used for both an uppercase “m” and an uppercase “ μ ”. See Section 7.5 for examples of how to produce bold Greek letters.

TABLE 123: \mathcal{AMS} Greek Letters

<code>F</code>	<code>\digamma</code>	\varkappa	<code>\varkappa</code>
----------------	-----------------------	-------------	------------------------

²Michael J. Downes prefers the more general term, “atomic math objects”.

TABLE 124: txfonts/pxfonts Upright Greek Letters

α	<code>\alphaup</code>	θ	<code>\thetaaup</code>	π	<code>\piup</code>	ϕ	<code>\phiup</code>
β	<code>\betaaup</code>	ϑ	<code>\varthetaaup</code>	ϖ	<code>\varpiup</code>	φ	<code>\varphiup</code>
γ	<code>\gammaaup</code>	ι	<code>\iotaaup</code>	ρ	<code>\rhoup</code>	χ	<code>\chiup</code>
δ	<code>\deltaaup</code>	κ	<code>\kappaaup</code>	ϱ	<code>\varrhoup</code>	ψ	<code>\psiup</code>
ϵ	<code>\epsilonup</code>	λ	<code>\lambdaaup</code>	σ	<code>\sigmaup</code>	ω	<code>\omegaup</code>
ε	<code>\varepsilonup</code>	μ	<code>\muup</code>	ς	<code>\varsigmaup</code>		
ζ	<code>\zetaaup</code>	ν	<code>\nuup</code>	τ	<code>\tauaup</code>		
η	<code>\etaup</code>	ξ	<code>\xiup</code>	υ	<code>\upsilonup</code>		

TABLE 125: upgreek Upright Greek Letters

α	<code>\upalpha</code>	θ	<code>\uptheta</code>	π	<code>\uppi</code>	ϕ	<code>\upphi</code>
β	<code>\upbeta</code>	ϑ	<code>\upvartheta</code>	ϖ	<code>\upvarpi</code>	φ	<code>\upvarphi</code>
γ	<code>\upgamma</code>	ι	<code>\upiota</code>	ρ	<code>\uprho</code>	χ	<code>\upchi</code>
δ	<code>\updelta</code>	κ	<code>\upkappa</code>	ϱ	<code>\upvarrho</code>	ψ	<code>\uppsi</code>
ϵ	<code>\upepsilon</code>	λ	<code>\uplambda</code>	σ	<code>\upsigma</code>	ω	<code>\upomega</code>
ε	<code>\upvarepsilon</code>	μ	<code>\upmu</code>	ς	<code>\upvarsigma</code>		
ζ	<code>\upzeta</code>	ν	<code>\upnu</code>	τ	<code>\uptau</code>		
η	<code>\upeta</code>	ξ	<code>\upxi</code>	υ	<code>\upupsilon</code>		
Γ	<code>\Uppgamma</code>	Λ	<code>\Uplambda</code>	Σ	<code>\Uppsigma</code>	Ψ	<code>\Upppsi</code>
Δ	<code>\Uppdelta</code>	Ξ	<code>\Uppxi</code>	Υ	<code>\Uppupsilon</code>	Ω	<code>\Uppomega</code>
Θ	<code>\Upptheta</code>	Π	<code>\Uppi</code>	Φ	<code>\Uppphi</code>		

upgreek utilizes upright Greek characters from either the PostScript Symbol font (depicted above) or Euler Roman. As a result, the glyphs may appear slightly different from the above. Contrast, for example, “ $\Gamma\Delta\Theta\alpha\beta\gamma$ ” (Symbol) with “ $\Gamma\Delta\Theta\alpha\beta\gamma$ ” (Euler).

TABLE 126: txfonts/pxfonts Variant Latin Letters

g	<code>\varg</code>	v	<code>\varv</code>	w	<code>\varw</code>	y	<code>\vary</code>
-----	--------------------	-----	--------------------	-----	--------------------	-----	--------------------

Pass the `varg` option to txfonts/pxfonts to replace g , v , w , and y with g , v , w , and y in every mathematical expression in your document.

TABLE 127: \mathcal{AMS} Hebrew Letters

\beth	<code>\beth</code>	\gimel	<code>\gimel</code>	\daleth	<code>\daleth</code>
---------	--------------------	----------	---------------------	-----------	----------------------

\aleph (\aleph) appears in Table 184 on page 62.

TABLE 128: MnSymbol Hebrew Letters

\aleph	<code>\aleph</code>	\beth	<code>\beth</code>	\gimel	<code>\gimel</code>	\daleth	<code>\daleth</code>
----------	---------------------	---------	--------------------	----------	---------------------	-----------	----------------------

TABLE 129: Letter-like Symbols

\perp	<code>\bot</code>	\forall	<code>\forall</code>	ι	<code>\imath</code>	\ni	<code>\ni</code>	\top	<code>\top</code>
ℓ	<code>\ell</code>	\hbar	<code>\hbar</code>	\in	<code>\in</code>	∂	<code>\partial</code>	\wp	<code>\wp</code>
\exists	<code>\exists</code>	\Im	<code>\Im</code>	j	<code>\jmath</code>	\Re	<code>\Re</code>		

TABLE 130: \mathcal{AMS} Letter-like Symbols

\mathbb{k}	<code>\Bbbk</code>	\mathbb{C}	<code>\complement</code>	\hbar	<code>\hbar</code>
\textcircled{R}	<code>\circledR</code>	\Finv	<code>\Finv</code>	\hbar	<code>\hslash</code>
\textcircled{S}	<code>\circledS</code>	\Game	<code>\Game</code>	\nexists	<code>\nexists</code>

TABLE 131: txfonts/pxfonts Letter-like Symbols

\textcent	<code>\mathcent</code>	\textsterling	<code>\mathsterling*</code>	\notin	<code>\notin</code>	\notni	<code>\notni</code>
-------------	------------------------	-----------------	-----------------------------	----------	---------------------	----------	---------------------

* It's generally preferable to use the corresponding symbol from Table 3 on page 8 because the symbols in that table work properly in both text mode and math mode.

TABLE 132: mathabx Letter-like Symbols

$\bar{\in}$	<code>\barin</code>	\in	<code>\in</code>	$\not\top$	<code>\nottop</code>	\notin	<code>\varnotin</code>
\mathbb{C}	<code>\complement</code>	\nexists	<code>\nexists</code>	\owns	<code>\owns</code>	$\not\owns$	<code>\varnotowner</code>
\exists	<code>\exists</code>	$\not\bot$	<code>\notbot</code>	\ownsbar	<code>\ownsbar</code>		
\Finv	<code>\Finv</code>	\notin	<code>\notin</code>	∂	<code>\partial</code>		
\Game	<code>\Game</code>	$\not\owns$	<code>\notowner</code>	$\partial\text{/}$	<code>\partialslash</code>		

TABLE 133: MnSymbol Letter-like Symbols

\perp	<code>\bot</code>	\in	<code>\in</code>	\owns^*	<code>\owns*</code>	\top	<code>\top</code>
\exists	<code>\exists</code>	\nexists	<code>\nexists</code>	\owns	<code>\owns</code>	\wp	<code>\wp</code>
\forall	<code>\forall</code>	\in^*	<code>\in*</code>	\mathcal{P}	<code>\powerset</code>		

* MnSymbol provides synonyms `\notin` for `\nin`, `\ni` for `\owns`, and `\intercal` for `\top`.

TABLE 134: trfsigns Letter-like Symbols

e	<code>\e</code>	j	<code>\im</code>
-----	-----------------	-----	------------------

TABLE 135: mathdesign Letter-like Symbols

\in	<code>\in</code>	\owns	<code>\owns</code>
\notin	<code>\notin</code>	\in	<code>\smallin</code>
\notin	<code>\notsmallin</code>	\owns	<code>\smallowns</code>
\notin	<code>\notsmallowns</code>		

The `mathdesign` package additionally provides versions of each of the letter-like symbols shown in Table 130.

TABLE 136: fge Letter-like Symbols

\forall	<code>\fgeA</code>	g	<code>\fgeeszett</code>	m	<code>\fgeleftB</code>	U	<code>\fgeU</code>
\exists	<code>\fgeC</code>	H	<code>\fgeF</code>	C	<code>\fgeleftC</code>		
\wp	<code>\fged</code>	f	<code>\fgef</code>	B	<code>\fgerightB</code>		
$\dot{\exists}$	<code>\fgee</code>	B	<code>\fgeIb*</code>	f	<code>\fges</code>		

* The `fge` package defines `\fgeeta`, `\fgeN`, and `\fgeoverU` as synonyms for `\fgeIb`.

TABLE 137: \mathcal{AMS} Delimiters

\lrcorner	<code>\ulcorner</code>	\urcorner	<code>\urcorner</code>
\llcorner	<code>\llcorner</code>	\lrcorner	<code>\lrcorner</code>

TABLE 138: `stmaryd` Delimiters

\lrcorner	<code>\Lbag</code>	\urcorner	<code>\Rbag</code>	\llcorner	<code>\lbag</code>	\lrcorner	<code>\rbag</code>
\lceil	<code>\llceil</code>	\rceil	<code>\rrceil</code>	\lfloor	<code>\lllfloor</code>	\rfloor	<code>\rrrfloor</code>
\lparen	<code>\llparenthesis</code>	\rrparenthesis	<code>\rrparenthesis</code>				

TABLE 139: `mathabx` Delimiters

\lrcorner	<code>\lrcorners</code>	\urcorner	<code>\rccorners</code>
\lrcorner	<code>\ulcorner</code>	\urcorner	<code>\urcorner</code>
\llcorner	<code>\llcorner</code>	\lrcorner	<code>\lrcorner</code>

TABLE 140: `nath` Delimiters

\llcorner	<code>\niv</code>	\lrcorner	<code>\vin</code>
-------------	-------------------	-------------	-------------------

TABLE 141: Variable-sized Delimiters

\downarrow	\Downarrow	<code>\downarrow</code>	\Downarrow	<code>\Downarrow</code>	[[[]]]
\langle	\rangle	<code>\langle</code>	\rangle	<code>\rangle</code>						\
\lceil	\rceil	<code>\lceil</code>	\rceil	<code>\rceil</code>	\uparrow	\Uparrow	<code>\uparrow</code>	\Uparrow	<code>\Uparrow</code>	
\lfloor	\rfloor	<code>\lfloor</code>	\rfloor	<code>\rfloor</code>	\downarrow	\Downarrow	<code>\downarrow</code>	\Downarrow	<code>\Downarrow</code>	
$($	$)$	<code>(</code>	$)$	<code>)</code>	{	{	{	}	}	\}
$/$	\backslash	<code>/</code>	\backslash	<code>\backslash</code>						

When used with `\left` and `\right`, these symbols expand to the height of the enclosed math expression. Note that `\vert` is a synonym for `|`, and `\Vert` is a synonym for `||`.

ε -TeX provides a `\middle` analogue to `\left` and `\right`. `\middle` can be used, for example, to make an internal “|” expand to the height of the surrounding `\left` and `\right` symbols. (This capability is commonly needed when typesetting adjacent bras and kets in Dirac notation: “ $\langle\phi|\psi\rangle$ ”). A similar effect can be achieved in conventional L^AT_EX using the `bracket` package.

TABLE 142: Large, Variable-sized Delimiters

\int	\int	<code>\lmoustache</code>	$\}$	$\}$	<code>\rmoustache</code>	$($	$($	<code>\lgroup</code>	$)$	$)$	<code>\rgroup</code>
		<code>\arrowvert</code>			<code>\Arrowvert</code>			<code>\bracevert</code>			

These symbols *must* be used with `\left` and `\right`. The `mathabx` package, however, redefines `\lgroup` and `\rgroup` so that those symbols can work without `\left` and `\right`.

TABLE 143: \mathcal{AMS} Variable-sized Delimiters

		<code>\lvert</code>			<code>\rvert</code>
		<code>\lVert</code>			<code>\rVert</code>

According to the `amsmath` documentation [AMS99], the preceding symbols are intended to be used as delimiters (e.g., as in “ $| - z |$ ”) while the `\vert` and `\Vert` symbols (Table 141) are intended to be used as operators (e.g., as in “ $p|q$ ”).

TABLE 144: `stmaryrd` Variable-sized Delimiters

		<code>\llbracket</code>			<code>\rrbracket</code>
--	--	-------------------------	--	--	-------------------------

TABLE 145: mathabx Variable-sized Delimiters

\llbracket	\llbracket	<code>\ldbrack</code>	\rrbracket	\rrbracket	<code>\rdbrack</code>
\lrcorner	\lrcorner	<code>\lfilet</code>	\rfilet	\rfilet	<code>\rfilet</code>
\vline	\vline	<code>\thickvert</code>	\vline	\vline	<code>\vvert</code>

TABLE 146: MnSymbol Variable-sized Delimiters

\lceil	\lceil	<code>\lceil</code>	\rceil	\rceil	<code>\rceil</code>	\ulcorner	\ulcorner	<code>\ulcorner</code>	\urcorner	<code>\urcorner</code>
\lfloor	\lfloor	<code>\lfloor</code>	\rfloor	\rfloor	<code>\rfloor</code>	\llcorner	\llcorner	<code>\llcorner</code>	\lrcorner	<code>\lrcorner</code>
$\} \}$	$\} \}$	<code>\lwavey</code>	$\} \}$	$\} \}$	<code>\rwavey</code>	$\langle \langle$	$\langle \langle$	<code>\langle</code>	$\rangle \rangle$	<code>\rangle</code>
$\} \} \}$	$\} \} \}$	<code>\lWavy</code>	$\} \} \}$	$\} \} \}$	<code>\rWavy</code>	$\langle \langle \langle$	$\langle \langle \langle$	<code>\langlebar</code>	$\rangle \rangle \rangle$	<code>\ranglebar</code>
$(((((((($	$(((((((($	<code>(</code>	$))))))))$	$))))))))$	<code>)</code>	$(((((((($	$(((((((($	<code>(</code>	$))))))))$	<code>)</code>
\lllbracket	\lllbracket	<code>\lsem</code>	\rrrbracket	\rrrbracket	<code>\rsem</code>	\lllangle	\lllangle	<code>\llangle</code>	\rrrangle	<code>\rrangle</code>
$\} \} \} \}$	$\} \} \} \}$	<code>\lmoustache</code>	$\} \} \} \}$	$\} \} \} \}$	<code>\rmoustache</code>	$\{ \{ \{ \}$	$\{ \{ \{ \}$	<code>\lbrace</code>	$\} \} \} \}$	<code>\rbrace</code>
$/ / / \backslash \backslash$	$/ / / \backslash \backslash$	<code>/</code>	$\backslash \backslash \backslash \backslash \backslash \backslash$	$\backslash \backslash \backslash \backslash \backslash \backslash$	<code>\backslash</code>	$\langle \langle \langle < \rangle \rangle \rangle >$	$\langle \langle \langle < \rangle \rangle \rangle >$	<code><</code>	$\rangle \rangle \rangle >$	<code>></code>
\lllbracket	\lllbracket	\lllbracket	\rrrbracket	\rrrbracket	\lllbracket	\lllbracket	<code>\ullcorner</code>	\rrrangle	\rrrangle	<code>\ulrcorner</code>
\vline	\vline	\vline	\vline	\vline	\vline	\vline	<code>\bracevert</code>	\vline	\vline	<code>\vline</code>
\vline	\vline	<code>\arrowvert</code>	\vline	\vline	<code>\Arrowvert</code>					

`\vert` is a synonym for `|`. `\Vert` is a synonym for `\|`. `\mid` and `\mvert` produce the same symbol as `\vert` but designated as math relations instead of ordinals. `\divides` produces the same symbol as `\vert` but designated as a binary operator instead of an ordinal. `\parallel` and `\mVert` produce the same symbol as `\Vert` but designated as math relations instead of ordinals.

TABLE 147: `mathdesign` Variable-sized Delimiters

$\left\langle$	<code>\leftwave</code>	$\right\rangle$	<code>\rightwave</code>
$\left\langle$	<code>\lefttevaw</code>	$\right\rangle$	<code>\righttevaw</code>

The definitions of these symbols include a preceding `\left` or `\right`. It is therefore an error to specify `\left` or `\right` explicitly. The internal, “primitive” versions of these symbols are called `\lwave`, `\rwave`, `\levaw`, and `\revaw`.

TABLE 148: `nath` Variable-sized Delimiters (Double)

$\langle\langle$	<code>\lAngle</code>	$\rangle\rangle$	<code>\rAngle</code>
\llbracket	<code>\lBrack</code>	\rrbracket	<code>\rBrack</code>
\lceil	<code>\lCeil</code>	\rceil	<code>\rCeil</code>
\lfloor	<code>\lFloor</code>	\rfloor	<code>\rFloor</code>
\lVert	<code>\lVert*</code>	\rVert	<code>\rVert*</code>

* `nath` redefines all of the above to include implicit `\left` and `\right` commands. Hence, separate `\lVert` and `\rVert` commands are needed to disambiguate whether “|” is a left or right delimiter.

All of the symbols in Table 148 can also be expressed using the `\double` macro. See the `nath` documentation for examples and additional information.

TABLE 149: `nath` Variable-sized Delimiters (Triple)

$\langle\langle\langle$	<code>\triple<</code>	$\rangle\rangle\rangle$	<code>\triple></code>
\lllbracket	<code>\triple[</code>	\rrrbracket	<code>\triple]</code>
\lllceil	<code>\triple *</code>	\lllrfloor	<code>\triple *</code>

* Similar to `\lVert` and `\rVert` in Table 148, `\triple` and `\rtriple` must be used instead of `\triple` to disambiguate whether “|” is a left or right delimiter.

Note that `\triple`—and the corresponding `\double`—is actually a macro that takes a delimiter as an argument.

TABLE 150: textcomp Text-mode Delimiters

\langle	<code>\textlangle</code>	\rangle	<code>\textrangle</code>
\llbracket	<code>\textlbrackdbl</code>	\rrbracket	<code>\textrbrackdbl</code>
$\{$	<code>\textlquill</code>	$\}$	<code>\textrquill</code>

TABLE 151: metre Text-mode Delimiters

$\}$	<code>\alad</code>	$\}$	<code>\Alad</code>	\dagger	<code>\crux</code>	\dagger	<code>\Crux</code>
$\{$	<code>\alas</code>	$\{$	<code>\Alas</code>	$\]$	<code>\quadrad</code>	$\]$	<code>\Quadrad</code>
\rangle	<code>\angud</code>	\rangle	<code>\Angud</code>	\llbracket	<code>\quadras</code>	\llbracket	<code>\Quadras</code>
\langle	<code>\angus</code>	\langle	<code>\Angus</code>				

TABLE 152: Math-mode Accents

\acute{a}	<code>\acute{a}</code>	\check{a}	<code>\check{a}</code>	\grave{a}	<code>\grave{a}</code>	\tilde{a}	<code>\tilde{a}</code>
\bar{a}	<code>\bar{a}</code>	\ddot{a}	<code>\ddot{a}</code>	\hat{a}	<code>\hat{a}</code>	\vec{a}	<code>\vec{a}</code>
\breve{a}	<code>\breve{a}</code>	\dot{a}	<code>\dot{a}</code>	\mathring{a}	<code>\mathring{a}</code>		

Also note the existence of `\imath` and `\jmath`, which produce dotless versions of “*i*” and “*j*”. (See Table 184 on page 62.) These are useful when the accent is supposed to replace the dot. For example, “`\hat{\imath}`” produces a correct “ \hat{i} ”, while “`\hat{i}`” would yield the rather odd-looking “ \hat{i} ”.

TABLE 153: \mathcal{AMS} Math-mode Accents

\dddot{a}	<code>\dddot{a}</code>	\ddddot{a}	<code>\ddddot{a}</code>
-------------	------------------------	--------------	-------------------------

These accents are also provided by the `mathabx` and `accents` packages and are redefined by the `mathdots` package if the `amsmath` and `amssymb` packages have previously been loaded. All of the variations except for the original \mathcal{AMS} ones tighten the space between the dots (from \dddot{a} to \dddot{a}). The `mathabx` and `mathdots` versions also function properly within subscripts and superscripts ($x^{\ddot{a}}$ instead of $x^{\ddot{a}}$).

TABLE 154: MnSymbol Math-mode Accents

\vec{a}	<code>\vec{a}</code>
-----------	----------------------

TABLE 155: fge Math-mode Accents

\mathring{a}	<code>\spirituslenis{A}\spirituslenis{a}</code> *
----------------	---

* When `fge` is passed the `crescent` option, `\spirituslenis` instead uses a crescent accent as in “ \mathring{a} ”.

TABLE 156: yhmath Math-mode Accents

 $\overset{\circ}{a}$ `\ring{a}`

This symbol is largely obsolete, as standard L^AT_EX 2_ε has supported `\mathring` since June, 1998 [L^AT98].

TABLE 157: Extensible Accents

\widetilde{abc}	<code>\widetilde{abc}</code> *	\widehat{abc}	<code>\widehat{abc}</code> *
\overleftarrow{abc}	<code>\overleftarrow{abc}</code> †	\overrightarrow{abc}	<code>\overrightarrow{abc}</code> †
\overline{abc}	<code>\overline{abc}</code>	\underline{abc}	<code>\underline{abc}</code>
\overbrace{abc}	<code>\overbrace{abc}</code>	\underbrace{abc}	<code>\underbrace{abc}</code>
\sqrt{abc}	<code>\sqrt{abc}</code> ‡		

As demonstrated in a 1997 TUGboat article about typesetting long-division problems [Gib97], an extensible long-division sign (“ \overline{abc} ”) can be faked by putting a “`\big`” in a `tabular` environment with an `\hline` or `\cline` in the preceding row. The article also presents a piece of code (uploaded to CTAN as `longdiv.tex`) that automatically solves and typesets—by putting an `\overline` atop “`\big`” and the desired text—long-division problems. See also the `polynom` package, which automatically solves and typesets polynomial-division problems in a similar manner.

* These symbols are made more extensible by the `MnSymbol` package and even more extensible by the `yhmath` package.

† If you’re looking for an extensible *diagonal* line or arrow to be used for canceling or reducing mathematical subexpressions (e.g., “ $x \cancel{+} x$ ” or “ $3 \cancel{+} 2^5$ ”) then consider using the `cancel` package.

‡ With an optional argument, `\sqrt` typesets *n*th roots. For example, “`\sqrt[3]{abc}`” produces “ $\sqrt[3]{abc}$ ” and “`\sqrt[n]{abc}`” produces “ $\sqrt[n]{abc}$ ”.

TABLE 158: overrightarrow Extensible Accents

 \overrightarrow{abc} `\Overrightarrow{abc}`

TABLE 159: yhmath Extensible Accents

\wideparen{abc}	<code>\wideparen{abc}</code>	$\widehat{\triangle}abc$	<code>\widehattriangle{abc}</code>
$\overset{\circ}{abc}$	<code>\widering{abc}</code>		

TABLE 160: \mathcal{AMS} Extensible Accents

\overleftrightarrow{abc}	<code>\overleftrightharrow{abc}</code>	\underline{abc}	<code>\underleftrightharrow{abc}</code>
\underline{abc}	<code>\underleftarrow{abc}</code>	\overleftarrow{abc}	<code>\underrightharrow{abc}</code>

TABLE 161: MnSymbol Extensible Accents

\overbrace{abc}	<code>\overbrace{abc}</code>	\underbrace{abc}	<code>\underbrace{abc}</code>
\overgroup{abc}	<code>\overgroup{abc}</code>	\undergroup{abc}	<code>\undergroup{abc}</code>
\overline{abc}	<code>\overlinesegment{abc}</code>	\underline{abc}	<code>\underlinesegment{abc}</code>
\overleftarrow{abc}	<code>\overleftharpoon{abc}</code>	\overrightarrow{abc}	<code>\overrightharpoon{abc}</code>
\widehat{abc}	<code>\widehat{abc}</code>	\widetilde{abc}	<code>\widetilde{abc}</code>
\wideparen{abc}	<code>\wideparen{abc}</code>		

TABLE 162: `mathtools` Extensible Accents

\overbrace{abc}	<code>\overbrace{abc}</code>	\underbrace{abc}	<code>\underbrace{abc}</code>
\overbracket{abc}	<code>\overbracket{abc}*</code>	\underbracket{abc}	<code>\underbracket{abc}*</code>

* `\overbracket` and `\underbracket` accept optional arguments that specify the bracket height and thickness. See the `mathtools` documentation for more information.

TABLE 163: `mathabx` Extensible Accents

\overbrace{abc}	<code>\overbrace{abc}</code>	\overline{abc}	<code>\widebar{abc}</code>
\overgroup{abc}	<code>\overgroup{abc}</code>	\overcheck{abc}	<code>\widecheck{abc}</code>
\underbrace{abc}	<code>\underbrace{abc}</code>	\wideparen{abc}	<code>\wideparen{abc}</code>
\undergroup{abc}	<code>\undergroup{abc}</code>	$\overset{\circ}{abc}$	<code>\widering{abc}</code>
\overrightarrow{abc}	<code>\widearrow{abc}</code>		

The braces shown for `\overbrace` and `\underbrace` appear in their minimum size. They can expand arbitrarily wide, however.

TABLE 164: esvect Extensible Accents

\overrightarrow{abc}	<code>\vv{abc}</code> with package option a
\overrightarrow{abc}	<code>\vv{abc}</code> with package option b
\overrightarrow{abc}	<code>\vv{abc}</code> with package option c
\overrightarrow{abc}	<code>\vv{abc}</code> with package option d
\overrightarrow{abc}	<code>\vv{abc}</code> with package option e
\overrightarrow{abc}	<code>\vv{abc}</code> with package option f
\overrightarrow{abc}	<code>\vv{abc}</code> with package option g
\overrightarrow{abc}	<code>\vv{abc}</code> with package option h

esvect also defines a `\vv*` macro which is used to typeset arrows over vector variables with subscripts. See the esvect documentation for more information.

TABLE 165: undertilde Extensible Accents

\underline{abc}	<code>\utilde{abc}</code>
-------------------	---------------------------

Because `\utilde` is based on `\widetilde` it is also made more extensible by the yhm \mathcal{A} package.

TABLE 166: \mathcal{AMS} Extensible Arrows

\overleftarrow{abc}	<code>\xleftarrow{abc}</code>	\overrightarrow{abc}	<code>\xrightarrow{abc}</code>
-----------------------	-------------------------------	------------------------	--------------------------------

TABLE 167: mathtools Extensible Arrows

\overleftarrow{abc}	<code>\xhookleftarrow{abc}</code>	\overleftrightarrow{abc}	<code>\xleftrightharpoons{abc}</code>
\overrightarrow{abc}	<code>\xhookrightarrow{abc}</code>	\xmapsto{abc}	<code>\xmapsto{abc}</code>
$\overleftarrow{\overleftarrow{abc}}$	<code>\xLeftarrow{abc}</code>	$\overrightarrow{\overrightarrow{abc}}$	<code>\xRightarrow{abc}</code>
$\overleftarrow{\overrightarrow{abc}}$	<code>\xleftharpoonupdown{abc}</code>	$\overrightarrow{\overleftarrow{abc}}$	<code>\xrightarrow{\overleftarrow{abc}}</code>
$\overrightarrow{\overleftarrow{abc}}$	<code>\xleftharpoonup{abc}</code>	$\overleftarrow{\overrightarrow{abc}}$	<code>\xrightarrow{\overrightarrow{abc}}</code>
$\overleftarrow{\overleftarrow{abc}}$	<code>\xleftrightharpoonup{abc}</code>	$\overrightarrow{\overleftarrow{\overleftarrow{abc}}}$	<code>\xrightarrow{\overleftarrow{\overleftarrow{abc}}}</code>
$\overleftarrow{\overrightarrow{\overleftarrow{abc}}}$	<code>\xLeftarrow{abc}</code>		

TABLE 168: chemarr Extensible Arrows

$\overleftarrow{\overleftarrow{abc}}$	<code>\xrightleftharpoons{abc}</code>
---------------------------------------	---------------------------------------

TABLE 169: chemarrow Extensible Arrows

\xleftarrow{abc}	<code>\autoleftarrow{abc}{def}</code>	\xrightarrow{abc}	<code>\autorightarrow{abc}{def}</code>
\xleftrightarrow{abc}	<code>\autoleftrightharpoons{abc}{def}</code>	\xrightleftharpoons{abc}	<code>\autorightleftharpoons{abc}{def}</code>

In addition to the symbols shown above, `chemarrow` also provides `\larrowfill`, `\rarrowfill`, `\leftrightharpoonsfill`, and `\rightleftharpoonsfill` macros. Each of these takes a length argument and produces an arrow of the specified length.

TABLE 170: trfsigns Extensible Arrows

\vdash_a	<code>\dft{a}</code>	\dashv_a	<code>\DFT{a}</code>
------------	----------------------	------------	----------------------

TABLE 171: extarrows Extensible Arrows

\xleftrightarrow{abc}	<code>\xLeftrightarrow{abc}</code>	$\xlongleftrightarrow{abc}$	<code>\xLongleftrightarrow{abc}</code>
\xleftarrow{abc}	<code>\xleftarrow{abc}</code>	\xlongleftarrow{abc}	<code>\xlongleftarrow{abc}</code>
\xlongequal{abc}	<code>\xlongequal{abc}</code>	\xrightarrow{abc}	<code>\xrightarrow{abc}</code>
\xlongleftarrow{abc}	<code>\xlongleftarrow{abc}</code>	\xrightarrow{abc}	<code>\xrightarrow{abc}</code>
\xlongleftarrow{abc}	<code>\xlongleftarrow{abc}</code>		

TABLE 172: extpfeil Extensible Arrows

\xlongequal{abc}	<code>\xlongequal{abc}</code>	\xmapsto{abc}	<code>\xmapsto{abc}</code>
\xtwoheadleftarrow{abc}	<code>\xtwoheadleftarrow{abc}</code>	\xtwoheadrightarrow{abc}	<code>\xtwoheadrightarrow{abc}</code>

The `extpfeil` package also provides a `\newextarrow` command to help you define your own extensible arrow symbols. See the `extpfeil` documentation for more information.

TABLE 173: holtpolt Non-commutative Division Symbols

$\left| \frac{abc}{def} \right|$	<code>\holter{abc}{def}</code>	$\left| \frac{abc}{def} \right|$	<code>\polter{abc}{def}</code>
----------------------------------	--------------------------------	----------------------------------	--------------------------------

TABLE 174: Dots

\cdot	<code>\cdotp</code>	:	<code>\colon*</code>	\cdot	<code>\ldotp</code>	\vdots	<code>\vdots†</code>
\dots	<code>\cdots</code>	\ddots	<code>\ddots†</code>	\dots	<code>\ldots</code>		

* While “:” is valid in math mode, `\colon` uses different surrounding spacing. See Section 7.4 and the Short Math Guide for L^AT_EX [Dow00] for more information on math-mode spacing.

† The `mathdots` package redefines `\ddots` and `\vdots` to make them scale properly with font size. (They normally scale horizontally but not vertically.) `\fixedddots` and `\fixedvdots` provide the original, fixed-height functionality of L^AT_EX 2_ε's `\ddots` and `\vdots` macros.

TABLE 175: \mathcal{AMS} Dots

\because	<code>\because*</code>	\dots	<code>\dotsi</code>	\therefore	<code>\therefore*</code>
\dots	<code>\dotsb</code>	\dots	<code>\dotsm</code>		
\dots	<code>\dotsc</code>	\dots	<code>\dotso</code>		

* `\because` and `\therefore` are defined as binary relations and therefore also appear in Table 63 on page 30.

The \mathcal{AMS} `\dots_` symbols are named according to their intended usage: `\dotsb` between pairs of binary operators/relations, `\dotsc` between pairs of commas, `\dotsi` between pairs of integrals, `\dotsm` between pairs of multiplication signs, and `\dotso` between other symbol pairs.

TABLE 176: `wasysym` Dots

\therefore	<code>\wasytherefore</code>
--------------	-----------------------------

TABLE 177: `MnSymbol` Dots

\cdot	<code>\cdot</code>	$\ddot{\cdot}$	<code>\hdotdot</code>	\because	<code>\udots</code>
$\ddot{\cdot}$	<code>\ddotdotdot</code>	\dots	<code>\hdots</code>	\uparrow	<code>\uptherefore</code>
\ddots	<code>\ddots</code>	\leftarrow	<code>\lefttherefore</code>	\vdots	<code>\vdotdotdot</code>
\diamond	<code>\diamonddots</code>	\rightarrow	<code>\righttherefore</code>	\vdots	<code>\vdots</code>
\downarrow	<code>\downtherefore</code>	\square	<code>\squaredots</code>		
\frown	<code>\fivedots</code>	$\dot{\cdot}$	<code>\udotdot</code>		

`MnSymbol` defines `\therefore` as `\uptherefore` and `\because` as `\downtherefore`. Furthermore, `\cdotp` and `\colon` produce the same glyphs as `\cdot` and `\vdotdotdot` respectively but serve as T_EX math punctuation (class 6 symbols) instead of T_EX binary operators (class 2).

All of the above except `\hdots` and `\vdots` are defined as binary operators and therefore also appear in Table 46 on page 23. Also, unlike most of the other dot symbols in this document, `MnSymbol`'s dots are defined as single characters instead of as composites of multiple single-dot characters.

TABLE 178: mathdots Dots

\ddots `\iddots`

TABLE 179: yhmath Dots

\adots `\adots`

TABLE 180: mathcomp Math Symbols

$^{\circ}\text{C}$	<code>\tccentigrade</code>	Ω	<code>\tcohm</code>	‰	<code>\tcpertousand</code>
μ	<code>\tcmu</code>	‰‰	<code>\tcpertenthousand</code>		

TABLE 181: mathabx Mayan Digits


	<code>\maya{0}</code>	:	<code>\maya{2}</code>	:	<code>\maya{4}</code>
\cdot	<code>\maya{1}</code>	:	<code>\maya{3}</code>	:	<code>\maya{5}</code>

TABLE 182: marvosym Digits

0	<code>\MVZero</code>	2	<code>\MVTwo</code>	4	<code>\MVFour</code>	6	<code>\MVSix</code>	8	<code>\MVEight</code>
1	<code>\MVOne</code>	3	<code>\MVThree</code>	5	<code>\MVFive</code>	7	<code>\MVSeven</code>	9	<code>\MVNine</code>

TABLE 183: fge Digits

\O `\fgestruckzero` \I `\fgestruckone`

TABLE 184: Miscellaneous L^AT_EX 2_ε Math Symbols

\aleph	<code>\aleph</code>	\diamond	<code>\Diamond*</code>	∞	<code>\infty</code>	\prime	<code>\prime</code>
\angle	<code>\angle</code>	\diamond	<code>\diamondsuit</code>	\cup	<code>\mho*</code>	\sharp	<code>\sharp</code>
\backslash	<code>\backslash</code>	\emptyset	<code>\emptyset[‡]</code>	∇	<code>\nabla</code>	\spadesuit	<code>\spadesuit</code>
\square	<code>\Box^{*,†}</code>	\flat	<code>\flat</code>	\natural	<code>\natural</code>	\surd	<code>\surd</code>
\clubsuit	<code>\clubsuit</code>	\heartsuit	<code>\heartsuit</code>	\neg	<code>\neg</code>	\triangle	<code>\triangle</code>

* Not predefined in L^AT_EX 2_ε. Use one of the packages `latexsym`, `amsfonts`, `amssymb`, `txfonts`, `pxfonts`, or `wasysym`. Note, however, that `amsfonts` and `amssymb` define `\Diamond` to produce the same glyph as `\lozenge` (“ \diamond ”); the other packages produce a squarer `\Diamond` as depicted above.

† To use `\Box`—or any other symbol—as an end-of-proof (Q.E.D.) marker, consider using the `ntheorem` package, which properly juxtaposes a symbol with the end of the proof text.

‡ Many people prefer the look of $\mathcal{A}\mathcal{M}\mathcal{S}$ ’s `\varnothing` (“ \emptyset ”, Table 185) to that of L^AT_EX’s `\emptyset`.

TABLE 185: Miscellaneous $\mathcal{A}\mathcal{M}\mathcal{S}$ Math Symbols

\angle	<code>\angle</code>	\blacktriangledown	<code>\blacktriangledown</code>	\mho	<code>\mho</code>
\backprime	<code>\backprime</code>	\diagdown	<code>\diagdown</code>	\sphericalangle	<code>\sphericalangle</code>
\bigstar	<code>\bigstar</code>	\diagup	<code>\diagup</code>	\square	<code>\square</code>
\blacklozenge	<code>\blacklozenge</code>	\eth	<code>\eth</code>	\triangledown	<code>\triangledown</code>
\blacksquare	<code>\blacksquare</code>	\lozenge	<code>\lozenge</code>	\varnothing	<code>\varnothing</code>
\blacktriangle	<code>\blacktriangle</code>	\measuredangle	<code>\measuredangle</code>	\vartriangle	<code>\vartriangle</code>

TABLE 186: Miscellaneous wasysym Math Symbols

\Box	<code>\Box</code>	\Diamond	<code>\Diamond</code>	\mho^*	<code>\mho^*</code>	\varangle	<code>\varangle</code>
--------	-------------------	------------	-----------------------	----------	---------------------	-------------	------------------------

* wasysym also defines an `\agem0` symbol, which is the same glyph as `\mho` but is intended for use in text mode.

TABLE 187: Miscellaneous txfonts/pxfonts Math Symbols

\blacklozenge	<code>\Diamondblack</code>	λ	<code>\lambdaslash</code>	\heartsuit	<code>\varheartsuit</code>
\diamond	<code>\Diamonddot</code>	\clubsuit	<code>\varclubsuit</code>	\spadesuit	<code>\varspadesuit</code>
λ	<code>\lambdabar</code>	\blacklozenge	<code>\vardiamondsuit</code>		

TABLE 188: Miscellaneous mathabx Math Symbols

\circ	<code>\degree</code>	fourth	<code>\fourth</code>	\measuredangle	<code>\measuredangle</code>	second	<code>\second</code>
\diagdown	<code>\diagdown</code>	$\#$	<code>\hash</code>	\pitchfork	<code>\pitchfork</code>	\sphericalangle	<code>\sphericalangle</code>
\diagup	<code>\diagup</code>	∞	<code>\infty</code>	\propto	<code>\propto</code>	third	<code>\third</code>
\oslash	<code>\diameter</code>	leftthreetimes	<code>\leftthreetimes</code>	rightthreetimes	<code>\rightthreetimes</code>	\varhash	<code>\varhash</code>

TABLE 189: Miscellaneous MnSymbol Math Symbols

\angle	<code>\angle</code>	\diamondsuit	<code>\diamondsuit</code>	\maltese	<code>\maltese</code>	\sharp	<code>\sharp</code>
\backneg	<code>\backneg</code>	\flat	<code>\flat</code>	\measuredangle	<code>\measuredangle</code>	\smallint	<code>\smallint</code>
\backprime	<code>\backprime</code>	\heartsuit	<code>\heartsuit</code>	∇	<code>\nabla</code>	\spadesuit	<code>\spadesuit</code>
\checkmark	<code>\checkmark</code>	∞	<code>\infty</code>	\natural	<code>\natural</code>	\sphericalangle	<code>\sphericalangle</code>
\clubsuit	<code>\clubsuit</code>	\invbackneg	<code>\invbackneg</code>	\neg	<code>\neg</code>		
\oslash	<code>\diameter</code>	\invneg	<code>\invneg</code>	\prime	<code>\prime</code>		

MnSymbol defines `\emptyset` and `\varnothing` as synonyms for `\diameter`; `\lnot` and `\minushookdown` as synonyms for `\neg`; `\minushookup` as a synonym for `\invneg`; `\hookdownminus` as a synonym for `\backneg`; and, `\hookupminus` as a synonym for `\invbackneg`.

TABLE 190: Miscellaneous Internal MnSymbol Math Symbols

∂	<code>\partialvardint</code>	∂	<code>\partialvartint</code>
∂	<code>\partialvardlanddownint</code>	∂	<code>\partialvartlanddownint</code>
∂	<code>\partialvardlandupint</code>	∂	<code>\partialvartlandupint</code>
∂	<code>\partialvardlcircleleftint</code>	∂	<code>\partialvartlcircleleftint</code>
∂	<code>\partialvardlclirclerightint</code>	∂	<code>\partialvartlclirclerightint</code>
∂	<code>\partialvardoint</code>	∂	<code>\partialvartoint</code>
∂	<code>\partialvardoint</code>	∂	<code>\partialvartoint</code>
∂	<code>\partialvardrcircleleftint</code>	∂	<code>\partialvartrcircleleftint</code>
∂	<code>\partialvardrcirclerightint</code>	∂	<code>\partialvartrcirclerightint</code>
∂	<code>\partialvardstrokedint</code>	∂	<code>\partialvartstrokedint</code>
∂	<code>\partialvardsumint</code>	∂	<code>\partialvartsumint</code>

These symbols are intended to be used internally by MnSymbol to construct the integrals appearing in Table 59 on page 29 but can nevertheless be used in isolation.

TABLE 191: Miscellaneous textcomp Text-mode Math Symbols

°	<code>\textdegree*</code>	$\frac{1}{2}$	<code>\textonehalf†</code>	$\frac{3}{4}$	<code>\textthreequarters†</code>
÷	<code>\textdiv</code>	$\frac{1}{4}$	<code>\textonequarter†</code>	³	<code>\textthreesuperior</code>
/	<code>\textfractionsolidus</code>	¹	<code>\textonesuperior</code>	×	<code>\texttimes</code>
¬	<code>\textlnot</code>	±	<code>\textpm</code>	²	<code>\texttwosuperior</code>
−	<code>\textminus</code>	√	<code>\textsurd</code>		

* If you prefer a larger degree symbol you might consider defining one as “`\ensuremath{\^{\circ}}`” (“°”).

† `nicefrac` (part of the `units` package) can be used to construct vulgar fractions like “ $\frac{1}{2}$ ”, “ $\frac{1}{4}$ ”, “ $\frac{3}{4}$ ”, and even “ $\frac{c}{o}$ ”.

TABLE 192: Miscellaneous marvosym Math Symbols

∠	<code>\Anglesign</code>	·	<code>\Squaredot</code>	→	<code>\Vectorarrowhigh</code>
≡	<code>\Corresponds</code>	→	<code>\Vectorarrow</code>		

TABLE 193: Miscellaneous fge Math Symbols

\	<code>\fgebackslash</code>	∩	<code>\fgecap</code>	∪	<code>\fgecupacute</code>	∠	<code>\fgeangle</code>
⊥	<code>\fgebaracute</code>	∩	<code>\fgecapbar</code>	∪	<code>\fgecupbar</code>	⌊	<code>\fgeupbracket</code>
≈	<code>\fgebarcap</code>	∩	<code>\fgecup</code>	∞	<code>\fgeinfty</code>		

TABLE 194: Miscellaneous mathdesign Math Symbols

⊥ `\rightangle`

TABLE 195: Miscellaneous arev Math Symbols

♁	<code>\steaming</code>	◆	<code>\vardiamond</code>	♠	<code>\varspade</code>
♣	<code>\varclub</code>	♥	<code>\varheart</code>		

TABLE 196: Math Alphabets

Font sample	Generating command	Required package
ABCdef123	<code>\mathrm{ABCdef123}</code>	<i>none</i>
<i>ABCdef123</i>	<code>\mathit{ABCdef123}</code>	<i>none</i>
<i>ABCdef123</i>	<code>\mathnormal{ABCdef123}</code>	<i>none</i>
<i>ABC</i>	<code>\mathcal{ABC}</code>	<i>none</i>
<i>ABC</i>	<code>\mathscr{ABC}</code>	mathrsfs
<i>ABC</i>	<i>or</i> <code>\mathcal{ABC}</code>	calrsfs
<i>ABC</i>	<code>\mathcal{ABC}</code>	euscript with the <code>mathcal</code> option
<i>ABC</i>	<i>or</i> <code>\mathscr{ABC}</code>	euscript with the <code>mathscr</code> option
<i>ABCdef123</i>	<code>\mathpzc{ABCdef123}</code>	<i>none</i> ; manually defined*
ABC	<code>\mathbb{ABC}</code>	amsmath, [§] amssymb, txfonts, or pxfonts
ABC	<code>\varmathbb{ABC}</code>	txfonts or pxfonts
ABCdef123	<code>\mathbb{ABCdef123}</code>	bbold or mathbbol [†]
ABCdef123	<code>\mathbb{ABCdef123}</code>	mbboard [†]
ABCdef12	<code>\mathbbm{ABCdef12}</code>	bbm
ABCdef12	<code>\mathbbmss{ABCdef12}</code>	bbm
ABCdef12	<code>\mathbbmtt{ABCdef12}</code>	bbm
ABC1	<code>\mathds{ABC1}</code>	dsfont
ABC1	<code>\mathds{ABC1}</code>	dsfont with the <code>sans</code> option
$\frac{ABCdef123}{ABCdef123}$	<code>\mathfrak{ABCdef123}</code>	eufrak
$\frac{ABCdef123}{ABCdef123}$	<code>\textfrac{ABCdef123}</code>	yfonts [‡]
$\frac{ABCdef123}{ABCdef123}$	<code>\textswab{ABCdef123}</code>	yfonts [‡]
$\frac{ABCdef123}{ABCdef123}$	<code>\textgoth{ABCdef123}</code>	yfonts [‡]

* Put “`\DeclareMathAlphabet{\mathpzc}{OT1}{pzc}{m}{it}`” in your document’s preamble to make `\mathpzc` typeset its argument in Zapf Chancery. As a similar trick, you can typeset the Calligra font’s script “*z*” (or other calligraphic symbols) in math mode by loading the `calligra` package and putting “`\DeclareMathAlphabet{\mathcalligra}{T1}{calligra}{m}{n}`” in your document’s preamble to make `\mathcalligra` typeset its argument in the Calligra font. (You may also want to specify “`\DeclareFontShape{T1}{calligra}{m}{n}{<->s*[2.2]callig15}{}`” to set Calligra at 2.2 times its design size for a better blend with typical body fonts.)

[†] The `mathbbol` package defines some additional blackboard bold characters: parentheses, square brackets, angle brackets, and—if the `bbgreekl` option is passed to `mathbbol`—Greek letters. For instance, “`\mathbb{\langle\lbracket\lparen\bbalpha\bbbeta\bbgamma\rparen\lbracket\rangle}`” is produced by “`\mathbb{\langle\lbracket\lparen\bbalpha\bbbeta\bbgamma\rparen\lbracket\rangle}`”.

`mbboard` extends the blackboard bold symbol set significantly further. It supports not only the Greek alphabet—including “Greek-like” symbols such as `\bbnabla` (“ ∇ ”)—but also *all* punctuation marks, various currency symbols such as `\bbdollar` (“\$”) and `\bbeuro` (“€”), and the Hebrew alphabet (e.g., “`\bbfinalnun\bbbyod\bbqof\bbpe`” → “פּוֹקֵד”).

[‡] As their `\text...` names imply, the fonts provided by the `yfonts` package are actually text fonts. They are included in Table 196 because they are frequently used in a mathematical context.

[§] An older (i.e., prior to 1991) version of the \mathcal{AMS} 's fonts rendered \mathbb{C} , \mathbb{N} , \mathbb{R} , \mathbb{S} , and \mathbb{Z} as \mathbb{C} , \mathbb{N} , \mathbb{R} , \mathbb{S} , and \mathbb{Z} . As some people prefer the older glyphs—much to the \mathcal{AMS} 's surprise—and because those glyphs fail to build under modern versions of METAFONT, Berthold Horn uploaded PostScript fonts for the older blackboard-bold glyphs to CTAN, to the `fonts/msym10` directory. As of this writing, however, there are no $\text{\LaTeX}2_{\epsilon}$ packages for utilizing the now-obsolete glyphs.

4 Science and technology symbols

This section lists symbols that are employed in various branches of science and engineering.

TABLE 197: gensymb Symbols Defined to Work in Both Math and Text Mode

°C	<code>\celsius</code>	μ	<code>\micro</code>	‰	<code>\perthousand</code>
°	<code>\degree</code>	Ω	<code>\ohm</code>		

TABLE 198: wasysym Electrical and Physical Symbols

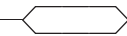

~	<code>\AC</code>	≈	<code>\VHF</code>	⋯	<code>\photon</code>	F	<code>\HF</code>	⊗	<code>\gluon</code>
---	------------------	---	-------------------	---	----------------------	---	------------------	---	---------------------

TABLE 199: ifsym Pulse Diagram Symbols

⌋	<code>\FallingEdge</code>	⌋⌋	<code>\LongPulseLow</code>	⌋⌋	<code>\PulseLow</code>	⌋⌋	<code>\ShortPulseHigh</code>
⌋⌋	<code>\LongPulseHigh</code>	⌋⌋	<code>\PulseHigh</code>	⌋⌋	<code>\RaisingEdge</code>	⌋⌋	<code>\ShortPulseLow</code>

In addition, within `\textifsym{...}`, the following codes are valid:

<code>_ l</code>	<code>- m</code>	<code>- h</code>	<code>- d</code>	<code>< <</code>	<code>> ></code>
<code>— L</code>	<code>— M</code>	<code>— H</code>	<code>— D</code>	<code>< <<</code>	<code>> >></code>

This enables one to write “`\textifsym{mm<DDD>mm}`” to get “” or “`\textifsym{L|H|L|H|L}`” to get “”. See also the `timing` package, which provides a wide variety of pulse-diagram symbols within an environment designed specifically for typesetting pulse diagrams.

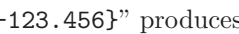
Finally, `\textifsym` supports the display of segmented digits, as would appear on an LCD: “`\textifsym{-123.456}`” produces “- ”. “`\textifsym{b}`” outputs a blank with the same width as an “**8**”.

TABLE 200: ar Aspect Ratio Symbol

\mathcal{R}	<code>\AR</code>
---------------	------------------

TABLE 201: textcomp Text-mode Science and Engineering Symbols

°C	<code>\textcelsius</code>	Ω	<code>\textmho</code>	μ	<code>\textmu</code>	Ω	<code>\textohm</code>
----	---------------------------	---	-----------------------	---	----------------------	---	-----------------------

TABLE 202: wasysym Astronomical Symbols

$\text{\textcircled{\scriptsize\textcircled{M}}}$	<code>\mercury</code>	$\text{\textcircled{\scriptsize\textcircled{E}}}$	<code>\earth</code>	$\text{\textcircled{\scriptsize\textcircled{J}}}$	<code>\jupiter</code>	$\text{\textcircled{\scriptsize\textcircled{U}}}$	<code>\uranus</code>	$\text{\textcircled{\scriptsize\textcircled{P}}}$	<code>\pluto</code>
$\text{\textcircled{\scriptsize\textcircled{V}}}$	<code>\venus</code>	$\text{\textcircled{\scriptsize\textcircled{M}}}$	<code>\mars</code>	$\text{\textcircled{\scriptsize\textcircled{S}}}$	<code>\saturn</code>	$\text{\textcircled{\scriptsize\textcircled{N}}}$	<code>\neptune</code>		
$\text{\textcircled{\scriptsize\textcircled{A}}}$	<code>\astrosun</code>	$\text{\textcircled{\scriptsize\textcircled{F}}}$	<code>\fullmoon</code>	$\text{\textcircled{\scriptsize\textcircled{L}}}$	<code>\leftmoon</code>	$\text{\textcircled{\scriptsize\textcircled{N}}}$	<code>\newmoon</code>	$\text{\textcircled{\scriptsize\textcircled{R}}}$	<code>\rightmoon</code>
$\text{\textcircled{\scriptsize\textcircled{A}}}$	<code>\aries</code>	$\text{\textcircled{\scriptsize\textcircled{C}}}$	<code>\cancer</code>	$\text{\textcircled{\scriptsize\textcircled{L}}}$	<code>\libra</code>	$\text{\textcircled{\scriptsize\textcircled{A}}}$	<code>\aquarius</code>		
$\text{\textcircled{\scriptsize\textcircled{T}}}$	<code>\taurus</code>	$\text{\textcircled{\scriptsize\textcircled{L}}}$	<code>\leo</code>	$\text{\textcircled{\scriptsize\textcircled{S}}}$	<code>\scorpio</code>	$\text{\textcircled{\scriptsize\textcircled{C}}}$	<code>\capricornus</code>		
$\text{\textcircled{\scriptsize\textcircled{G}}}$	<code>\gemini</code>	$\text{\textcircled{\scriptsize\textcircled{V}}}$	<code>\virgo</code>	$\text{\textcircled{\scriptsize\textcircled{S}}}$	<code>\sagittarius</code>	$\text{\textcircled{\scriptsize\textcircled{P}}}$	<code>\pisces</code>		
$\text{\textcircled{\scriptsize\textcircled{\Omega}}}$	<code>\ascnode</code>	$\text{\textcircled{\scriptsize\textcircled{\textcircled{U}}}}$	<code>\descnode</code>	$\text{\textcircled{\scriptsize\textcircled{\textcircled{C}}}}$	<code>\conjunction</code>	$\text{\textcircled{\scriptsize\textcircled{\textcircled{O}}}}$	<code>\opposition</code>	$\text{\textcircled{\scriptsize\textcircled{\textcircled{V}}}}$	<code>\vernal</code>

TABLE 203: marvosym Astronomical Symbols

$\text{\textcircled{\scriptsize\textcircled{M}}}$	<code>\Mercury</code>	$\text{\textcircled{\scriptsize\textcircled{E}}}$	<code>\Earth</code>	$\text{\textcircled{\scriptsize\textcircled{J}}}$	<code>\Jupiter</code>	$\text{\textcircled{\scriptsize\textcircled{U}}}$	<code>\Uranus</code>	$\text{\textcircled{\scriptsize\textcircled{P}}}$	<code>\Pluto</code>
$\text{\textcircled{\scriptsize\textcircled{V}}}$	<code>\Venus</code>	$\text{\textcircled{\scriptsize\textcircled{M}}}$	<code>\Mars</code>	$\text{\textcircled{\scriptsize\textcircled{S}}}$	<code>\Saturn</code>	$\text{\textcircled{\scriptsize\textcircled{N}}}$	<code>\Neptune</code>		
$\text{\textcircled{\scriptsize\textcircled{A}}}$	<code>\Moon</code>	$\text{\textcircled{\scriptsize\textcircled{S}}}$	<code>\Sun</code>						
$\text{\textcircled{\scriptsize\textcircled{A}}}$	<code>\Aries</code>	$\text{\textcircled{\scriptsize\textcircled{C}}}$	<code>\Cancer</code>	$\text{\textcircled{\scriptsize\textcircled{L}}}$	<code>\Libra</code>	$\text{\textcircled{\scriptsize\textcircled{A}}}$	<code>\Capricorn</code>		
$\text{\textcircled{\scriptsize\textcircled{T}}}$	<code>\Taurus</code>	$\text{\textcircled{\scriptsize\textcircled{L}}}$	<code>\Leo</code>	$\text{\textcircled{\scriptsize\textcircled{S}}}$	<code>\Scorpio</code>	$\text{\textcircled{\scriptsize\textcircled{A}}}$	<code>\Aquarius</code>		
$\text{\textcircled{\scriptsize\textcircled{G}}}$	<code>\Gemini</code>	$\text{\textcircled{\scriptsize\textcircled{V}}}$	<code>\Virgo</code>	$\text{\textcircled{\scriptsize\textcircled{S}}}$	<code>\Sagittarius</code>	$\text{\textcircled{\scriptsize\textcircled{P}}}$	<code>\Pisces</code>		

Note that `\Aries... \Pisces` can also be specified with `\Zodiac{1}... \Zodiac{12}`.

TABLE 204: mathabx Astronomical Symbols

$\text{\textcircled{\scriptsize\textcircled{M}}}$	<code>\Mercury</code>	$\text{\textcircled{\scriptsize\textcircled{E}}}$	<code>\Earth</code>	$\text{\textcircled{\scriptsize\textcircled{J}}}$	<code>\Jupiter</code>	$\text{\textcircled{\scriptsize\textcircled{U}}}$	<code>\Uranus</code>	$\text{\textcircled{\scriptsize\textcircled{P}}}$	<code>\Pluto</code>
$\text{\textcircled{\scriptsize\textcircled{V}}}$	<code>\Venus</code>	$\text{\textcircled{\scriptsize\textcircled{M}}}$	<code>\Mars</code>	$\text{\textcircled{\scriptsize\textcircled{S}}}$	<code>\Saturn</code>	$\text{\textcircled{\scriptsize\textcircled{N}}}$	<code>\Neptune</code>	$\text{\textcircled{\scriptsize\textcircled{E}}}$	<code>\varEarth</code>
$\text{\textcircled{\scriptsize\textcircled{F}}}$	<code>\fullmoon</code>	$\text{\textcircled{\scriptsize\textcircled{L}}}$	<code>\leftmoon</code>	$\text{\textcircled{\scriptsize\textcircled{N}}}$	<code>\newmoon</code>	$\text{\textcircled{\scriptsize\textcircled{R}}}$	<code>\rightmoon</code>	$\text{\textcircled{\scriptsize\textcircled{S}}}$	<code>\Sun</code>
$\text{\textcircled{\scriptsize\textcircled{A}}}$	<code>\Aries</code>	$\text{\textcircled{\scriptsize\textcircled{T}}}$	<code>\Taurus</code>	$\text{\textcircled{\scriptsize\textcircled{G}}}$	<code>\Gemini</code>				

`mathabx` also defines `\girl` as an alias for `\Venus`, `\boy` as an alias for `\Mars`, and `\Moon` as an alias for `\leftmoon`.

TABLE 205: wasysym APL Symbols

$\text{\textcircled{\scriptsize\textcircled{\square}}}$	<code>\APLbox</code>	$\text{\textcircled{\scriptsize\textcircled{\textcircled{\square}}}}$	<code>\APLin</code>	$\text{\textcircled{\scriptsize\textcircled{\star}}}$	<code>\APLstar</code>
$\text{\textcircled{\scriptsize\textcircled{\textcircled{\square}}}}$	<code>\APLcomment</code>	$\text{\textcircled{\scriptsize\textcircled{\textcircled{\leftarrow}}}}$	<code>\APLleftarrowbox</code>	$\text{\textcircled{\scriptsize\textcircled{\triangle}}}$	<code>\APLup</code>
$\text{\textcircled{\scriptsize\textcircled{\textcircled{\square}}}}$	<code>\APLdown</code>	$\text{\textcircled{\scriptsize\textcircled{\textcircled{\otimes}}}}$	<code>\APLlog</code>	$\text{\textcircled{\scriptsize\textcircled{\textcircled{\square}}}}$	<code>\APLuparrowbox</code>
$\text{\textcircled{\scriptsize\textcircled{\textcircled{\square}}}}$	<code>\APLdownarrowbox</code>	$\text{\textcircled{\scriptsize\textcircled{\textcircled{\ominus}}}}$	<code>\APLminus</code>	$\text{\textcircled{\scriptsize\textcircled{\textcircled{\backslash}}}}$	<code>\notbackslash</code>
$\text{\textcircled{\scriptsize\textcircled{\textcircled{\square}}}}$	<code>\APLin</code>	$\text{\textcircled{\scriptsize\textcircled{\textcircled{\rightarrow}}}}$	<code>\APLrightarrowbox</code>	$\text{\textcircled{\scriptsize\textcircled{\textcircled{\not\backslash}}}}$	<code>\notslash</code>

TABLE 206: wasysym APL Modifiers

$\text{\textcircled{\scriptsize\textcircled{\circ}}}$	<code>\APLcirc{}</code>	$\text{\textcircled{\scriptsize\textcircled{\sim}}}$	<code>\APLnot{}</code>	$\text{\textcircled{\scriptsize\textcircled{ }}}$	<code>\APLvert{}</code>
---	-------------------------	--	------------------------	---	-------------------------

TABLE 207: marvosym Computer Hardware Symbols

































	<code>\ComputerMouse</code>		<code>\ParallelPort</code>		<code>\SerialInterface</code>
	<code>\Keyboard</code>		<code>\Printer</code>		<code>\SerialPort</code>

TABLE 208: keystroke Computer Keys

	<code>\Alt</code>		<code>\Enter*</code>		<code>\PrtSc*</code>
	<code>\AltGr</code>		<code>\Esc*</code>		<code>\RArrow</code>
	<code>\Break*</code>		<code>\Home*</code>		<code>\Return</code>
	<code>\Bspace[†]</code>		<code>\Ins*</code>		<code>\Scroll*</code>
	<code>\Ctrl*</code>		<code>\LArrow</code>		<code>\Shift*</code>
	<code>\DArrow</code>		<code>\NumLock</code>		<code>\Spacebar</code>
	<code>\Del*</code>		<code>\PgDown*</code>		<code>\Tab[†]</code>
	<code>\End*</code>		<code>\PgUp*</code>		<code>\UArrow</code>

* Changes based on the language option passed to the keystroke package. For example, the german option makes `\Del` produce “” instead of “”.

[†] These symbols utilize the rotating package and therefore display improperly in most DVI viewers.





































The `\keystroke` command draws a key with an arbitrary label. For example, “`\keystroke{F7}`” produces “”.

TABLE 209: ascii Control Characters (CP437)

	<code>\SOH</code>		<code>\BS</code>		<code>\SI</code>		<code>\SYN</code>		<code>\GS</code>
	<code>\STX</code>		<code>\HT</code>		<code>\DLE</code>		<code>\ETB</code>		<code>\RS</code>
	<code>\ETX</code>		<code>\LF</code>		<code>\DCa</code>		<code>\CAN</code>		<code>\US</code>
	<code>\EOT</code>		<code>\VT</code>		<code>\DCb</code>		<code>\EM</code>		
	<code>\ENQ</code>		<code>\FF</code>		<code>\DCc</code>		<code>\SUB</code>		
	<code>\ACK</code>		<code>\CR</code>		<code>\DCd</code>		<code>\ESC</code>		
	<code>\BEL</code>		<code>\SO</code>		<code>\NAK</code>		<code>\FS</code>		
	<code>\DEL</code>		<code>\NBSP</code>		<code>\NUL</code>		<code>\splitvert</code>		

Code Page 437 (CP437), which was first utilized by the original IBM PC, uses the symbols `\SOH` through `\US` to depict ASCII characters 1–31 and `\DEL` to depict ASCII character 127. The `\NUL` symbol, not part of CP437, represents ASCII character 0. `\NBSP`, also not part of CP437, represents a nonbreaking space. `\splitvert` is merely the “|” character drawn as it was on the IBM PC.

TABLE 210: marvosym Communication Symbols


































	<code>\Email</code>		<code>\fax</code>		<code>\Faxmachine</code>		<code>\Lightning</code>		<code>\Pickup</code>
	<code>\Emailct</code>		<code>\FAX</code>		<code>\Letter</code>		<code>\Mobilefone</code>		<code>\Telefon</code>

TABLE 211: marvosym Engineering Symbols

	<code>\Beam</code>		<code>\Force</code>		<code>\Octosteel</code>		<code>\RoundedTTsteel</code>
	<code>\Bearing</code>		<code>\Hexasteel</code>		<code>\Rectpipe</code>		<code>\Squarepipe</code>
	<code>\Circpipe</code>		<code>\Lefttorque</code>		<code>\Rectsteel</code>		<code>\Squaresteel</code>
	<code>\Circsteel</code>		<code>\Lineload</code>		<code>\Righttorque</code>		<code>\Tsteel</code>
	<code>\Fixedbearing</code>		<code>\Loosebearing</code>		<code>\RoundedLsteel*</code>		<code>\TTsteel</code>
	<code>\Flatsteel</code>		<code>\Lsteel</code>		<code>\RoundedTsteel*</code>		

* `\RoundedLsteel` and `\RoundedTsteel` seem to be swapped, at least in the 2000/05/01 version of marvosym.

TABLE 212: wasysym Biological Symbols

	<code>\female</code>		<code>\male</code>
---	----------------------	---	--------------------

TABLE 213: marvosym Biological Symbols



































	<code>\Female</code>		<code>\FemaleMale</code>		<code>\MALE</code>		<code>\Neutral</code>
	<code>\FEMALE</code>		<code>\Hermaphrodite</code>		<code>\Male</code>		
	<code>\FemaleFemale</code>		<code>\HERMAPHRODITE</code>		<code>\MaleMale</code>		

TABLE 214: marvosym Safety-related Symbols

	<code>\Biohazard</code>		<code>\CEsign</code>		<code>\Explosionsafe</code>		<code>\Radioactivity</code>
	<code>\BSEfree</code>		<code>\Estatically</code>		<code>\Laserbeam</code>		<code>\Stopsign</code>

TABLE 215: feyn Feynman Diagram Symbols

	<code>\bigbosonloop</code>		<code>\feyn{fu}</code>		<code>\feyn{gvs}</code>		<code>\feyn{h}</code>
	<code>\feyn{a}</code>		<code>\feyn{fv}</code>		<code>\feyn{gv}</code>		<code>\feyn{ms}</code>
	<code>\feyn{c}</code>		<code>\feyn{f}</code>		<code>\feyn{g}</code>		<code>\feyn{m}</code>
	<code>\feyn{fd}</code>		<code>\feyn{glu}</code>		<code>\feyn{hd}</code>		<code>\feyn{p}</code>
	<code>\feyn{fl}</code>		<code>\feyn{gl}</code>		<code>\feyn{hs}</code>		<code>\feyn{x}</code>
	<code>\feyn{fs}</code>		<code>\feyn{gu}</code>		<code>\feyn{hu}</code>		<code>\smallbosonloop</code>

All other arguments to the `\feyn` command produce a “?” symbol.

The feyn package provides various commands for composing the preceding symbols into complete Feynman diagrams. See the feyn documentation for examples and additional information.

5 Dingbats

Dingbats are symbols such as stars, arrows, and geometric shapes. They are commonly used as bullets in itemized lists or, more generally, as a means to draw attention to the text that follows.

The `pifont` dingbat package warrants special mention. Among other capabilities, `pifont` provides a \LaTeX interface to the Zapf Dingbats font (one of the standard 35 PostScript fonts). However, rather than name each of the dingbats individually, `pifont` merely provides a single `\ding` command, which outputs the character that lies at a given position in the font. The consequence is that the `pifont` symbols can't be listed by name in this document's index, so be mindful of that fact when searching for a particular symbol.

TABLE 216: `bbding` Arrows






	<code>\ArrowBoldDownRight</code>		<code>\ArrowBoldRightShort</code>		<code>\ArrowBoldUpRight</code>
	<code>\ArrowBoldRightCircled</code>		<code>\ArrowBoldRightStrobe</code>		

TABLE 217: `pifont` Arrows











































	<code>\ding{212}</code>		<code>\ding{221}</code>		<code>\ding{230}</code>		<code>\ding{239}</code>		<code>\ding{249}</code>
	<code>\ding{213}</code>		<code>\ding{222}</code>		<code>\ding{231}</code>		<code>\ding{241}</code>		<code>\ding{250}</code>
	<code>\ding{214}</code>		<code>\ding{223}</code>		<code>\ding{232}</code>		<code>\ding{242}</code>		<code>\ding{251}</code>
	<code>\ding{215}</code>		<code>\ding{224}</code>		<code>\ding{233}</code>		<code>\ding{243}</code>		<code>\ding{252}</code>
	<code>\ding{216}</code>		<code>\ding{225}</code>		<code>\ding{234}</code>		<code>\ding{244}</code>		<code>\ding{253}</code>
	<code>\ding{217}</code>		<code>\ding{226}</code>		<code>\ding{235}</code>		<code>\ding{245}</code>		<code>\ding{254}</code>
	<code>\ding{218}</code>		<code>\ding{227}</code>		<code>\ding{236}</code>		<code>\ding{246}</code>		
	<code>\ding{219}</code>		<code>\ding{228}</code>		<code>\ding{237}</code>		<code>\ding{247}</code>		
	<code>\ding{220}</code>		<code>\ding{229}</code>		<code>\ding{238}</code>		<code>\ding{248}</code>		

TABLE 218: universal Arrows

	<code>\bauarrow</code>		<code>\bauwhitearrow</code>
---	------------------------	---	-----------------------------

TABLE 219: `marvosym` Scissors







	<code>\Cutleft</code>		<code>\Cutright</code>		<code>\Leftscissors</code>
	<code>\Cutline</code>		<code>\Kutline</code>		<code>\Rightscissors</code>

TABLE 220: `bbding` Scissors









	<code>\ScissorHollowLeft</code>		<code>\ScissorLeftBrokenTop</code>
	<code>\ScissorHollowRight</code>		<code>\ScissorRight</code>
	<code>\ScissorLeft</code>		<code>\ScissorRightBrokenBottom</code>
	<code>\ScissorLeftBrokenBottom</code>		<code>\ScissorRightBrokenTop</code>

TABLE 221: `pifont` Scissors

	<code>\ding{33}</code>		<code>\ding{34}</code>		<code>\ding{35}</code>		<code>\ding{36}</code>
---	------------------------	---	------------------------	---	------------------------	---	------------------------

TABLE 222: dingbat Pencils



	<code>\largepencil</code>		<code>\smallpencil</code>
---	---------------------------	---	---------------------------

TABLE 223: bbding Pencils and Nibs











	<code>\NibLeft</code>		<code>\PencilLeft</code>		<code>\PencilRightDown</code>
	<code>\NibRight</code>		<code>\PencilLeftDown</code>		<code>\PencilRightUp</code>
	<code>\NibSolidLeft</code>		<code>\PencilLeftUp</code>		
	<code>\NibSolidRight</code>		<code>\PencilRight</code>		

TABLE 224: pifont Pencils and Nibs






	<code>\ding{46}</code>		<code>\ding{47}</code>		<code>\ding{48}</code>		<code>\ding{49}</code>		<code>\ding{50}</code>
---	------------------------	---	------------------------	---	------------------------	---	------------------------	---	------------------------

TABLE 225: dingbat Fists








	<code>\leftpointright</code>		<code>\rightpointleft</code>		<code>\rightpointright</code>
	<code>\leftthumbsdown</code>		<code>\rightthumbsdown</code>		
	<code>\leftthumbsup</code>		<code>\rightthumbsup</code>		

TABLE 226: bbding Fists










	<code>\HandCuffLeft</code>		<code>\HandCuffRightUp</code>		<code>\HandPencilLeft</code>
	<code>\HandCuffLeftUp</code>		<code>\HandLeft</code>		<code>\HandRight</code>
	<code>\HandCuffRight</code>		<code>\HandLeftUp</code>		<code>\HandRightUp</code>

TABLE 227: pifont Fists

	<code>\ding{42}</code>		<code>\ding{43}</code>		<code>\ding{44}</code>		<code>\ding{45}</code>
---	------------------------	---	------------------------	---	------------------------	---	------------------------

TABLE 228: bbding Crosses and Plusses











	<code>\Cross</code>		<code>\CrossOpenShadow</code>		<code>\PlusOutline</code>
	<code>\CrossBoldOutline</code>		<code>\CrossOutline</code>		<code>\PlusThinCenterOpen</code>
	<code>\CrossClowerTips</code>		<code>\Plus</code>		
	<code>\CrossMaltese</code>		<code>\PlusCenterOpen</code>		

TABLE 229: pifont Crosses and Plusses









	<code>\ding{57}</code>		<code>\ding{59}</code>		<code>\ding{61}</code>		<code>\ding{63}</code>
	<code>\ding{58}</code>		<code>\ding{60}</code>		<code>\ding{62}</code>		<code>\ding{64}</code>

TABLE 230: bbding Xs and Check Marks

✓	<code>\Checkmark</code>	✕	<code>\XSolid</code>	✕	<code>\XSolidBrush</code>
✓	<code>\CheckmarkBold</code>	✕	<code>\XSolidBold</code>		

TABLE 231: pifont Xs and Check Marks

✓	<code>\ding{51}</code>	✕	<code>\ding{53}</code>	✕	<code>\ding{55}</code>
✓	<code>\ding{52}</code>	✕	<code>\ding{54}</code>	✕	<code>\ding{56}</code>

TABLE 232: wasysym Xs and Check Marks

☑	<code>\CheckedBox</code>	□	<code>\Square</code>	☒	<code>\XBox</code>
---	--------------------------	---	----------------------	---	--------------------

TABLE 233: universal Xs

✕	<code>\baucross</code>
---	------------------------

TABLE 234: pifont Circled Numbers

①	<code>\ding{172}</code>	①	<code>\ding{182}</code>	①	<code>\ding{192}</code>	①	<code>\ding{202}</code>
②	<code>\ding{173}</code>	②	<code>\ding{183}</code>	②	<code>\ding{193}</code>	②	<code>\ding{203}</code>
③	<code>\ding{174}</code>	③	<code>\ding{184}</code>	③	<code>\ding{194}</code>	③	<code>\ding{204}</code>
④	<code>\ding{175}</code>	④	<code>\ding{185}</code>	④	<code>\ding{195}</code>	④	<code>\ding{205}</code>
⑤	<code>\ding{176}</code>	⑤	<code>\ding{186}</code>	⑤	<code>\ding{196}</code>	⑤	<code>\ding{206}</code>
⑥	<code>\ding{177}</code>	⑥	<code>\ding{187}</code>	⑥	<code>\ding{197}</code>	⑥	<code>\ding{207}</code>
⑦	<code>\ding{178}</code>	⑦	<code>\ding{188}</code>	⑦	<code>\ding{198}</code>	⑦	<code>\ding{208}</code>
⑧	<code>\ding{179}</code>	⑧	<code>\ding{189}</code>	⑧	<code>\ding{199}</code>	⑧	<code>\ding{209}</code>
⑨	<code>\ding{180}</code>	⑨	<code>\ding{190}</code>	⑨	<code>\ding{200}</code>	⑨	<code>\ding{210}</code>
⑩	<code>\ding{181}</code>	⑩	<code>\ding{191}</code>	⑩	<code>\ding{201}</code>	⑩	<code>\ding{211}</code>

`pifont` (part of the `psnfss` package) provides a `dingautolist` environment which resembles `enumerate` but uses circled numbers as bullets.³ See the `psnfss` documentation for more information.

TABLE 235: wasysym Stars

☆	<code>\davidsstar</code>	*	<code>\hexstar</code>	*	<code>\varhexstar</code>
---	--------------------------	---	-----------------------	---	--------------------------

³In fact, `dingautolist` can use any set of consecutive Zapf Dingbats symbols.

TABLE 236: bbding Stars, Flowers, and Similar Shapes

















































	<code>\Asterisk</code>		<code>\FiveFlowerPetal</code>		<code>\JackStar</code>
	<code>\AsteriskBold</code>		<code>\FiveStar</code>		<code>\JackStarBold</code>
	<code>\AsteriskCenterOpen</code>		<code>\FiveStarCenterOpen</code>		<code>\SixFlowerAlternate</code>
	<code>\AsteriskRoundedEnds</code>		<code>\FiveStarConvex</code>		<code>\SixFlowerAltPetal</code>
	<code>\AsteriskThin</code>		<code>\FiveStarLines</code>		<code>\SixFlowerOpenCenter</code>
	<code>\AsteriskThinCenterOpen</code>		<code>\FiveStarOpen</code>		<code>\SixFlowerPetalDotted</code>
	<code>\DavidStar</code>		<code>\FiveStarOpenCircled</code>		<code>\SixFlowerPetalRemoved</code>
	<code>\DavidStarSolid</code>		<code>\FiveStarOpenDotted</code>		<code>\SixFlowerRemovedOpenPetal</code>
	<code>\EightAsterisk</code>		<code>\FiveStarOutline</code>		<code>\SixStar</code>
	<code>\EightFlowerPetal</code>		<code>\FiveStarOutlineHeavy</code>		<code>\SixteenStarLight</code>
	<code>\EightFlowerPetalRemoved</code>		<code>\FiveStarShadow</code>		<code>\Snowflake</code>
	<code>\EightStar</code>		<code>\FourAsterisk</code>		<code>\SnowflakeChevron</code>
	<code>\EightStarBold</code>		<code>\FourCloverOpen</code>		<code>\SnowflakeChevronBold</code>
	<code>\EightStarConvex</code>		<code>\FourCloverSolid</code>		<code>\Sparkle</code>
	<code>\EightStarTaper</code>		<code>\FourStar</code>		<code>\SparkleBold</code>
	<code>\FiveFlowerOpen</code>		<code>\FourStarOpen</code>		<code>\TwelveStar</code>

TABLE 237: pifont Stars, Flowers, and Similar Shapes


























































	<code>\ding{65}</code>		<code>\ding{74}</code>		<code>\ding{83}</code>		<code>\ding{92}</code>		<code>\ding{101}</code>
	<code>\ding{66}</code>		<code>\ding{75}</code>		<code>\ding{84}</code>		<code>\ding{93}</code>		<code>\ding{102}</code>
	<code>\ding{67}</code>		<code>\ding{76}</code>		<code>\ding{85}</code>		<code>\ding{94}</code>		<code>\ding{103}</code>
	<code>\ding{68}</code>		<code>\ding{77}</code>		<code>\ding{86}</code>		<code>\ding{95}</code>		<code>\ding{104}</code>
	<code>\ding{69}</code>		<code>\ding{78}</code>		<code>\ding{87}</code>		<code>\ding{96}</code>		<code>\ding{105}</code>
	<code>\ding{70}</code>		<code>\ding{79}</code>		<code>\ding{88}</code>		<code>\ding{97}</code>		<code>\ding{106}</code>
	<code>\ding{71}</code>		<code>\ding{80}</code>		<code>\ding{89}</code>		<code>\ding{98}</code>		<code>\ding{107}</code>
	<code>\ding{72}</code>		<code>\ding{81}</code>		<code>\ding{90}</code>		<code>\ding{99}</code>		<code>\ding{100}</code>
	<code>\ding{73}</code>		<code>\ding{82}</code>		<code>\ding{91}</code>		<code>\ding{100}</code>		

TABLE 238: wasysym Geometric Shapes






































































	<code>\hexagon</code>		<code>\octagon</code>		<code>\pentagon</code>		<code>\varhexagon</code>
---	-----------------------	---	-----------------------	---	------------------------	--	--------------------------

TABLE 239: MnSymbol Geometric Shapes

	<code>\filledlargestar</code>		<code>\largediagonal</code>		<code>\largestar</code>		<code>\smalllozenge</code>
	<code>\filledlozenge</code>		<code>\largelozenge</code>		<code>\largeststarofdavid</code>		
	<code>\filledmedlozenge</code>		<code>\largepentagram</code>		<code>\medlozenge</code>		
	<code>\largecircle</code>		<code>\largesquare</code>		<code>\medstarofdavid</code>		

MnSymbol defines `\bigcirc` as a synonym for `\largecircle`; `\bigstar` as a synonym for `\filledlargestar`; `\lozenge` as a synonym for `\medlozenge`; and, `\blacklozenge` as a synonym for `\filledmedlozenge`.

TABLE 240: ifsym Geometric Shapes

	<code>\BigCircle</code>		<code>\FilledBigTriangleRight</code>		<code>\SmallCircle</code>
	<code>\BigCross</code>		<code>\FilledBigTriangleUp</code>		<code>\SmallCross</code>
	<code>\BigDiamondshape</code>		<code>\FilledCircle</code>		<code>\SmallDiamondshape</code>
	<code>\BigHBar</code>		<code>\FilledDiamondShadowA</code>		<code>\SmallHBar</code>
	<code>\BigLowerDiamond</code>		<code>\FilledDiamondShadowC</code>		<code>\SmallLowerDiamond</code>
	<code>\BigRightDiamond</code>		<code>\FilledDiamondshape</code>		<code>\SmallRightDiamond</code>
	<code>\BigSquare</code>		<code>\FilledSmallCircle</code>		<code>\SmallSquare</code>
	<code>\BigTriangleDown</code>		<code>\FilledSmallDiamondshape</code>		<code>\SmallTriangleDown</code>
	<code>\BigTriangleLeft</code>		<code>\FilledSmallSquare</code>		<code>\SmallTriangleLeft</code>
	<code>\BigTriangleRight</code>		<code>\FilledSmallTriangleDown</code>		<code>\SmallTriangleRight</code>
	<code>\BigTriangleUp</code>		<code>\FilledSmallTriangleLeft</code>		<code>\SmallTriangleUp</code>
	<code>\BigVBar</code>		<code>\FilledSmallTriangleRight</code>		<code>\SmallVBar</code>
	<code>\Circle</code>		<code>\FilledSmallTriangleUp</code>		<code>\SpinDown</code>
	<code>\Cross</code>		<code>\FilledSquare</code>		<code>\SpinUp</code>
	<code>\DiamondShadowA</code>		<code>\FilledSquareShadowA</code>		<code>\Square</code>
	<code>\DiamondShadowB</code>		<code>\FilledSquareShadowC</code>		<code>\SquareShadowA</code>
	<code>\DiamondShadowC</code>		<code>\FilledTriangleDown</code>		<code>\SquareShadowB</code>
	<code>\Diamondshape</code>		<code>\FilledTriangleLeft</code>		<code>\SquareShadowC</code>
	<code>\FilledBigCircle</code>		<code>\FilledTriangleRight</code>		<code>\TriangleDown</code>
	<code>\FilledBigDiamondshape</code>		<code>\FilledTriangleUp</code>		<code>\TriangleLeft</code>
	<code>\FilledBigSquare</code>		<code>\HBar</code>		<code>\TriangleRight</code>
	<code>\FilledBigTriangleDown</code>		<code>\LowerDiamond</code>		<code>\TriangleUp</code>
	<code>\FilledBigTriangleLeft</code>		<code>\RightDiamond</code>		<code>\VBar</code>



The ifsym documentation points out that one can use `\rlap` to combine some of the above into useful, new symbols. For example, `\BigCircle` and `\FilledSmallCircle` combine to give “”. Likewise, `\Square` and `\Cross` combine to give “”. See Section 7.3 for more information about constructing new symbols out of existing symbols.

TABLE 241: bbding Geometric Shapes






















	<code>\CircleShadow</code>		<code>\Rectangle</code>		<code>\SquareShadowTopLeft</code>
	<code>\CircleSolid</code>		<code>\RectangleBold</code>		<code>\SquareShadowTopRight</code>
	<code>\DiamondSolid</code>		<code>\RectangleThin</code>		<code>\SquareSolid</code>
	<code>\Ellipse</code>		<code>\Square</code>		<code>\TriangleDown</code>
	<code>\EllipseShadow</code>		<code>\SquareCastShadowBottomRight</code>		<code>\TriangleUp</code>
	<code>\EllipseSolid</code>		<code>\SquareCastShadowTopLeft</code>		
	<code>\HalfCircleLeft</code>		<code>\SquareCastShadowTopRight</code>		
	<code>\HalfCircleRight</code>		<code>\SquareShadowBottomRight</code>		

TABLE 242: pifont Geometric Shapes















	<code>\ding{108}</code>		<code>\ding{111}</code>		<code>\ding{114}</code>		<code>\ding{117}</code>		<code>\ding{121}</code>
	<code>\ding{109}</code>		<code>\ding{112}</code>		<code>\ding{115}</code>		<code>\ding{119}</code>		<code>\ding{122}</code>
	<code>\ding{110}</code>		<code>\ding{113}</code>		<code>\ding{116}</code>		<code>\ding{120}</code>		

TABLE 243: universa Geometric Shapes

● `\baucircle` ■ `\bausquare` ▲ `\bautriangle`

TABLE 244: universal Geometric Shapes

◻ `\baucircle` ● `\bauhole` ■ `\bausquare`
 ● `\baueclipse` ● `\baupunct` ▲ `\bautriangle`

TABLE 245: igo Go Stones

⦿ <code>\blackstone[\igocircle]</code>	⊙ <code>\whitestone[\igocircle]</code>
⊗ <code>\blackstone[\igocross]</code>	⊗ <code>\whitestone[\igocross]</code>
● <code>\blackstone[\igonone]</code>	○ <code>\whitestone[\igonone]</code>
◼ <code>\blackstone[\igosquare]</code>	◻ <code>\whitestone[\igosquare]</code>
▲ <code>\blackstone[\igotriangle]</code>	△ <code>\whitestone[\igotriangle]</code>

In addition to the symbols shown above, igo's `\blackstone` and `\whitestone` commands accept numbers from 1 to 99 and display them circled as ①, ②, ③, ... ⑨⑨ and ①, ②, ③, ... ⑨⑨, respectively.

The igo package is intended to typeset Go boards (goban). See the igo documentation for more information.

TABLE 246: manfnt Dangerous Bend Symbols

 `\dbend`  `\lhdbend`  `\reversedvideobend`

Note that these symbols descend far beneath the baseline. manfnt also defines non-descending versions, which it calls, correspondingly, `\textdbend`, `\textlhdbend`, and `\textreversedvideobend`.

TABLE 247: skull Symbols


 `\skull`

TABLE 248: Non-Mathematical mathabx Symbols

‡ `\rip`

TABLE 249: marvosym Information Symbols














 <code>\Bicycle</code>	 <code>\Football</code>	 <code>\Pointinghand</code>
 <code>\Checkedbox</code>	 <code>\Gentsroom</code>	 <code>\Wheelchair</code>
 <code>\Clocklogo</code>	 <code>\Industry</code>	 <code>\Writinghand</code>
 <code>\Coffeecup</code>	 <code>\Info</code>	
 <code>\Crossedbox</code>	 <code>\Ladiesroom</code>	

TABLE 250: Miscellaneous dingbat Dingbats
























	<code>\anchor</code>		<code>\eye</code>		<code>\Sborder</code>
	<code>\carriagereturn</code>		<code>\filledsquarewithdots</code>		<code>\squarewithdots</code>
	<code>\checkmark</code>		<code>\satellitedish</code>		<code>\Zborder</code>

TABLE 251: Miscellaneous bding Dingbats

	<code>\Envelope</code>		<code>\Peace</code>		<code>\PhoneHandset</code>		<code>\SunshineOpenCircled</code>
	<code>\OrnamentDiamondSolid</code>		<code>\Phone</code>		<code>\Plane</code>		<code>\Tape</code>

TABLE 252: Miscellaneous pifont Dingbats

	<code>\ding{37}</code>		<code>\ding{40}</code>		<code>\ding{164}</code>		<code>\ding{167}</code>		<code>\ding{171}</code>
	<code>\ding{38}</code>		<code>\ding{41}</code>		<code>\ding{165}</code>		<code>\ding{168}</code>		<code>\ding{169}</code>
	<code>\ding{39}</code>		<code>\ding{118}</code>		<code>\ding{166}</code>		<code>\ding{170}</code>		

6 Other symbols

The following are all the symbols that didn't fit neatly or unambiguously into any of the previous sections. (Do weather symbols belong under "Science and technology"? Should dice be considered "mathematics"?) While some of the tables contain clearly related groups of symbols (e.g., musical notes), others represent motley assortments of whatever the font designer felt like drawing.

TABLE 253: textcomp Genealogical Symbols

*	<code>\textborn</code>	∅	<code>\textdivorced</code>	⊙	<code>\textmarried</code>
†	<code>\textdied</code>	☞	<code>\textleaf</code>		

TABLE 254: wasysym General Symbols

☒	<code>\ataribox</code>	⌚	<code>\clock</code>	◀	<code>\LEFTarrow</code>	☺	<code>\smiley</code>
🔔	<code>\bell</code>	∅	<code>\diameter</code>	⚡	<code>\lightning</code>	☀	<code>\sun</code>
☹	<code>\blacksmiley</code>	▼	<code>\DOWNarrow</code>	☎	<code>\phone</code>	▲	<code>\UParrow</code>
☞	<code>\Bowtie</code>	☹	<code>\frownie</code>	☞	<code>\pointer</code>	◻	<code>\wasylozenge</code>
‡	<code>\brokenvert</code>	∅	<code>\invdiameter</code>	🎵	<code>\recorder</code>		
✓	<code>\checked</code>	✝	<code>\kreuz</code>	▶	<code>\RIGHTarrow</code>		

TABLE 255: wasysym Circles

●	<code>\CIRCLE</code>	◐	<code>\LEFTcircle</code>	◑	<code>\RIGHTcircle</code>	↻	<code>\rightturn</code>
○	<code>\Circle</code>	◑	<code>\Leftcircle</code>	◐	<code>\Rightcircle</code>		
◐	<code>\LEFTCIRCLE</code>	◑	<code>\RIGHTCIRCLE</code>	↻	<code>\leftturn</code>		

TABLE 256: wasysym Musical Symbols

♪	<code>\eighthnote</code>	♩	<code>\halfnote</code>	♪	<code>\twonotes</code>	♩	<code>\fullnote</code>	♩	<code>\quarternote</code>
---	--------------------------	---	------------------------	---	------------------------	---	------------------------	---	---------------------------

See also `\flat`, `\sharp`, and `\natural` (Table 184 on page 62).

TABLE 257: arev Musical Symbols

♩	<code>\quarternote</code>	♪	<code>\eighthnote</code>	♪	<code>\sixteenthnote</code>
---	---------------------------	---	--------------------------	---	-----------------------------

See also `\flat`, `\sharp`, and `\natural` (Table 184 on page 62).

TABLE 258: harmony Musical Symbols

	<code>\AAcht</code>		<code>\DDohne</code>		<code>\Halb</code>		<code>\SechBR</code>		<code>\VM</code>
	<code>\Acht</code>		<code>\Dohne</code>		<code>\HaPa</code>		<code>\SechBr</code>		<code>\Zwdr</code>
	<code>\AchtBL</code>		<code>\Ds</code>		<code>\Pu</code>		<code>\SePa</code>		<code>\ZwPa</code>
	<code>\AchtBR</code>		<code>\DS</code>		<code>\Sech</code>		<code>\UB</code>		
	<code>\AcPa</code>		<code>\Ganz</code>		<code>\SechBL</code>		<code>\Vier</code>		
	<code>\DD</code>		<code>\GaPa</code>		<code>\SechBl</code>		<code>\ViPa</code>		

The musixtex package must be installed to use harmony.

TABLE 259: harmony Musical Accents

	<code>\Ferli{A}\Ferli{a}</code> *		<code>\Ohne{A}\Ohne{a}</code> *
	<code>\Fermi{A}\Fermi{a}</code>		<code>\Umd{A}\Umd{a}</code> *
	<code>\Kr{A}\Kr{a}</code>		

* These symbols take an optional argument which shifts the accent either horizontally or vertically (depending on the command) by the given distance.

In addition to the accents shown above, `\HH` is a special accent command which accepts five period-separated characters and typesets them such that “`\HH.X.a.b.c.d.`” produces “ X_a^b ”. All arguments except the first can be omitted: “`\HH.X....`” produces “ X ”. `\Takt` takes two arguments and composes them into a musical time signature. For example, “`\Takt{12}{8}`” produces “ $\frac{12}{8}$ ”. As two special cases, “`\Takt{c}{0}`” produces “**C**” and “`\Takt{c}{1}`” produces “**C**”.

The musixtex package must be installed to use harmony.

TABLE 260: Miscellaneous manfnt Symbols

	<code>\manboldkidney</code>		<code>\manpenkidney</code>
	<code>\manconcentriccircles</code>		<code>\manquadrifolium</code>
	<code>\manconcentricdiamond</code>		<code>\manquartercircle</code>
	<code>\mancone</code>		<code>\manrotatedquadrifolium</code>
	<code>\mancube</code>		<code>\manrotatedquartercircle</code>
	<code>\manerrarrow</code>		<code>\manstar</code>
	<code>\manfilledquartercircle</code>		<code>\mantilt pennib</code>
	<code>\manhpennib</code>		<code>\mantriangledown</code>
	<code>\manimpossiblecube</code>		<code>\mantriangleright</code>
	<code>\mankidney</code>		<code>\mantriangleup</code>
	<code>\manlhpenkidney</code>		<code>\manvpennib</code>

TABLE 261: marvosym Navigation Symbols

	<code>\Forward</code>		<code>\MoveDown</code>		<code>\RewindToIndex</code>		<code>\ToTop</code>
	<code>\ForwardToEnd</code>		<code>\MoveUp</code>		<code>\RewindToStart</code>		
	<code>\ForwardToIndex</code>		<code>\Rewind</code>		<code>\ToBottom</code>		

TABLE 262: marvosym Laundry Symbols

	<code>\AtForty</code>		<code>\Handwash</code>		<code>\ShortNinetyFive</code>
	<code>\AtNinetyFive</code>		<code>\IroningI</code>		<code>\ShortSixty</code>
	<code>\AtSixty</code>		<code>\IroningII</code>		<code>\ShortThirty</code>
	<code>\Bleech</code>		<code>\IroningIII</code>		<code>\SpecialForty</code>
	<code>\CleaningA</code>		<code>\NoBleech</code>		<code>\Tumbler</code>
	<code>\CleaningF</code>		<code>\NoChemicalCleaning</code>		<code>\WashCotton</code>
	<code>\CleaningFF</code>		<code>\NoIroning</code>		<code>\WashSynthetics</code>
	<code>\CleaningP</code>		<code>\NoTumbler</code>		<code>\WashWool</code>
	<code>\CleaningPP</code>		<code>\ShortFifty</code>		
	<code>\Dontwash</code>		<code>\ShortForty</code>		

TABLE 263: Other marvosym Symbols

	<code>\Ankh</code>		<code>\Cross</code>		<code>\Heart</code>		<code>\Smiley</code>
	<code>\Bat</code>		<code>\FHBOlogo</code>		<code>\MartinVogel</code>		<code>\Womanface</code>
	<code>\Bouquet</code>		<code>\FHBOLOGO</code>		<code>\Mundus</code>		<code>\Yinyang</code>
	<code>\Celtcross</code>		<code>\Frowny</code>		<code>\MVAt</code>		
	<code>\CircledA</code>		<code>\FullFHBO</code>		<code>\MVRrightarrow</code>		

TABLE 264: Miscellaneous universa Symbols

	<code>\bauforms</code>		<code>\bauhead</code>
--	------------------------	--	-----------------------

TABLE 265: Miscellaneous universal Symbols

	<code>\baudash</code>		<code>\bauforms</code>		<code>\bauquarter</code>		<code>\varQ</code>
	<code>\bauequal</code>		<code>\bauhead</code>		<code>\bauquestion</code>		
	<code>\bauface</code>		<code>\bauplus</code>		<code>\bauwindow</code>		

TABLE 266: ifsym Weather Symbols

	<code>\Cloud</code>		<code>\Hail</code>		<code>\Sleet</code>		<code>\WeakRain</code>
	<code>\FilledCloud</code>		<code>\HalfSun</code>		<code>\Snow</code>		<code>\WeakRainCloud</code>
	<code>\FilledRainCloud</code>		<code>\Lightning</code>		<code>\SnowCloud</code>		<code>\FilledSnowCloud</code>
	<code>\FilledSunCloud</code>		<code>\NoSun</code>		<code>\Sun</code>		
	<code>\FilledWeakRainCloud</code>		<code>\Rain</code>		<code>\SunCloud</code>		
	<code>\Fog</code>		<code>\RainCloud</code>		<code>\ThinFog</code>		

In addition, `\Thermo{0}... \Thermo{6}` produce thermometers that are between 0/6 and 6/6 full of mercury:

Similarly, `\wind{sun}{angle}{strength}` will draw wind symbols with a given amount of sun (0–4), a given angle (in degrees), and a given strength in km/h (0–100). For example, `\wind{0}{0}{0}` produces “”, `\wind{2}{0}{0}` produces “”, and `\wind{4}{0}{100}` produces “”.

TABLE 267: ifsym Alpine Symbols

























	<code>\SummitSign</code>		<code>\Summit</code>		<code>\SurveySign</code>		<code>\HalfFilledHut</code>
	<code>\StoneMan</code>		<code>\Mountain</code>		<code>\Joch</code>		<code>\VarSummit</code>
	<code>\Hut</code>		<code>\IceMountain</code>		<code>\Flag</code>		
	<code>\FilledHut</code>		<code>\VarMountain</code>		<code>\VarFlag</code>		
	<code>\Village</code>		<code>\VarIceMountain</code>		<code>\Tent</code>		

TABLE 268: ifsym Clocks

	<code>\Interval</code>		<code>\StopWatchStart</code>		<code>\VarClock</code>		<code>\Wecker</code>
	<code>\StopWatchEnd</code>		<code>\Taschenuhr</code>		<code>\VarTaschenuhr</code>		
















ifsym also exports a `\showclock` macro. `\showclock{⟨hours⟩}{⟨minutes⟩}` outputs a clock displaying the corresponding time. For instance, “`\showclock{5}{40}`” produces . `⟨hours⟩` must be an integer from 0 to 11, and `⟨minutes⟩` must be an integer multiple of 5 from 0 to 55.

TABLE 269: Other ifsym Symbols

	<code>\FilledSectioningDiamond</code>		<code>\Letter</code>		<code>\Radiation</code>
	<code>\Fire</code>		<code>\PaperLandscape</code>		<code>\SectioningDiamond</code>
	<code>\Irritant</code>		<code>\PaperPortrait</code>		<code>\Telephone</code>
	<code>\StrokeOne</code>		<code>\StrokeThree</code>		<code>\StrokeFive</code>
	<code>\StrokeTwo</code>		<code>\StrokeFour</code>		













In addition, `\Cube{1}.. \Cube{6}` produce dice with the corresponding number of spots:      

TABLE 270: epsdice Dice

	<code>\epsdice{1}</code>		<code>\epsdice{3}</code>		<code>\epsdice{5}</code>
	<code>\epsdice{2}</code>		<code>\epsdice{4}</code>		<code>\epsdice{6}</code>

The `epsdice` package does not provide a font but rather an interface to a set of graphics drawn in Encapsulated PostScript. Consequently, `epsdice` does not work with pdfL^AT_EX.

TABLE 271: skak Chess Informator Symbols

\mp	<code>\bbetter</code>	\oslash	<code>\doublepawns</code>	N	<code>\novelty</code>	R	<code>\various</code>
$\mp+$	<code>\bdecisive</code>	\perp	<code>\ending</code>	\square	<code>\onlymove</code>	\pm	<code>\wbetter</code>
\triangleleft	<code>\betteris</code>	$=$	<code>\equal</code>	\blacklozenge	<code>\opposbishops</code>	$\mp+$	<code>\wdecisive</code>
\oplus	<code>\bishoppair</code>	\parallel	<code>\etc</code>	\circ	<code>\passedpawn</code>	\times	<code>\weakpt</code>
\mp	<code>\bupperhand</code>	\Leftrightarrow	<code>\file</code>	\ll	<code>\qside</code>	\lrcorner	<code>\with</code>
\oplus	<code>\centre</code>	\gg	<code>\kside</code>	\blacklozenge	<code>\samebishops</code>	\rightarrow	<code>\withattack</code>
RR	<code>\comment</code>	\times	<code>\markera</code>	$-$	<code>\see</code>	\triangle	<code>\withidea</code>
∞	<code>\compensation</code>	\circ	<code>\markerb</code>	$\circ\circ$	<code>\seppawns</code>	\uparrow	<code>\withinit</code>
\leftarrow	<code>\counterplay</code>	$\#$	<code>\mate</code>	\oplus	<code>\timelimit</code>	\perp	<code>\without</code>
\odot	<code>\devadvantage</code>	$>$	<code>\morepawns</code>	∞	<code>\unclear</code>	\pm	<code>\wupperhand</code>
\nearrow	<code>\diagonal</code>	\circ	<code>\moreroom</code>	$\circ\circ$	<code>\unitedpawns</code>	\odot	<code>\zugzwang</code>

The preceding symbols are merely the named informant symbol. `skak` can typeset many more chess-related symbols, including those for all of the pieces (\char"2650 \char"2651 \char"2652 \char"2653 \char"2654 \char"2655 \char"2656 \char"2657 \char"2658 \char"2659 \char"265A \char"265B \char"265C \char"265D \char"265E \char"265F \char"265G \char"265H \char"265I \char"265J \char"265K \char"265L \char"265M \char"265N \char"265O \char"265P \char"265Q \char"265R \char"265S \char"265T \char"265U \char"265V \char"265W \char"265X \char"265Y \char"265Z \char"2660 \char"2661 \char"2662 \char"2663 \char"2664 \char"2665 \char"2666 \char"2667 \char"2668 \char"2669 \char"266A \char"266B \char"266C \char"266D \char"266E \char"266F \char"266G \char"266H \char"266I \char"266J \char"266K \char"266L \char"266M \char"266N \char"266O \char"266P \char"266Q \char"266R \char"266S \char"266T \char"266U \char"266V \char"266W \char"266X \char"266Y \char"266Z), but only in the context of moves and boards, not as individual, named L^AT_EX symbols.

TABLE 272: metre Metrical Symbols

\times	<code>\a</code>	\char"2700	<code>\bBm</code>	\parallel	<code>\cc</code>	\char"2701	<code>\Mbb</code>	\vdots	<code>\Pppp</code>	\otimes	<code>\t</code>
\cup	<code>\B</code>	\char"2702	<code>\bbm</code>	$\parallel\parallel$	<code>\Ccc</code>	\char"2703	<code>\mbbx</code>	\vdots	<code>\pppp</code>	\perp	<code>\tsbm</code>
\cup	<code>\b</code>	\char"2704	<code>\Bbm</code>	$-$	<code>\m</code>	$\circ\circ$	<code>\oo</code>	\vdots	<code>\Ppppp</code>	\perp	<code>\tsmb</code>
\cup	<code>\Bb</code>	\char"2705	<code>\bbmb</code>	\sphericalangle	<code>\M</code>	\cdot	<code>\p</code>	\vdots	<code>\ppppp</code>	\perp	<code>\tsmm</code>
\cup	<code>\BB</code>	\char"2706	<code>\bbmx</code>	\times	<code>\ma</code>	\cdot	<code>\pm</code>	\perp	<code>\ps</code>	\cdot	<code>\vppm</code>
\cup	<code>\bb</code>	\char"2707	<code>\bm</code>	\char"2708	<code>\Mb</code>	\cdot	<code>\pp</code>	\cdot	<code>\pxp</code>	\cdot	<code>\vpppm</code>
\cup	<code>\bB</code>	\char"2709	<code>\Bm</code>	\char"270A	<code>\mb</code>	\cdot	<code>\Pp</code>	\cdot	<code>\Pxp</code>	$\cdot\cdot$	<code>\x</code>
\times	<code>\bba</code>	$ $	<code>\c</code>	\char"270B	<code>\mBb</code>	\cdot	<code>\ppm</code>	\sim	<code>\R</code>		
\times	<code>\bbb</code>	$ $	<code>\C</code>	\char"270C	<code>\mbB</code>	\vdots	<code>\ppp</code>	\sim	<code>\r</code>		
\times	<code>\BBm</code>	\parallel	<code>\Cc</code>	\char"270D	<code>\mbb</code>	\vdots	<code>\Ppp</code>	\otimes	<code>\T</code>		

The preceding symbols are valid only within the argument to the `metre` command.

TABLE 273: metre Small and Large Metrical Symbols

\div	<code>\anaclasis</code>	\div	<code>\Anaclasis</code>
$<$	<code>\antidiple</code>	$<$	<code>\Antidiple</code>
\lessgtr	<code>\antidiple*</code>	\lessgtr	<code>\Antidiple*</code>
\supset	<code>\antisigma</code>	\supset	<code>\Antisigma</code>
\ast	<code>\asteriscus</code>	\ast	<code>\Asteriscus</code>
\wedge	<code>\catalexis</code>	\wedge	<code>\Catalexis</code>
$>$	<code>\diple</code>	$>$	<code>\Diple</code>
\gtr	<code>\diple*</code>	\gtr	<code>\Diple*</code>
$—$	<code>\obelus</code>	$—$	<code>\Obelus</code>
\div	<code>\obelus*</code>	\div	<code>\Obelus*</code>
\sim	<code>\respondens</code>	\sim	<code>\Respondens</code>
\otimes	<code>\terminus</code>	\otimes	<code>\Terminus</code>
\oplus	<code>\terminus*</code>	\oplus	<code>\Terminus*</code>

TABLE 274: phaistos Symbols from the Phaistos Disk



















































































	<code>\PHarrow</code>		<code>\PHeagle</code>		<code>\PHplumedHead</code>
	<code>\PHbee</code>		<code>\PHflute</code>		<code>\PHram</code>
	<code>\PHbeehive</code>		<code>\PHgauntlet</code>		<code>\PHrosette</code>
	<code>\PHboomerang</code>		<code>\PHgrater</code>		<code>\PHsaw</code>
	<code>\PHbow</code>		<code>\PHhelmet</code>		<code>\PHshield</code>
	<code>\PHbullLeg</code>		<code>\PHhide</code>		<code>\PHship</code>
	<code>\PHcaptive</code>		<code>\PHhorn</code>		<code>\PHsling</code>
	<code>\PHcarpentryPlane</code>		<code>\PHlid</code>		<code>\PHsmallAxe</code>
	<code>\PHcat</code>		<code>\PHlily</code>		<code>\PHstrainer</code>
	<code>\PHchild</code>		<code>\PHmanacles</code>		<code>\PHTattooedHead</code>
	<code>\PHclub</code>		<code>\PHmattock</code>		<code>\PHtiara</code>
	<code>\PHcolumn</code>		<code>\PHoxBack</code>		<code>\PHTunny</code>
	<code>\PHcomb</code>		<code>\PHpapyrus</code>		<code>\PHvine</code>
	<code>\PHdolium</code>		<code>\PHpedestrian</code>		<code>\PHwavyBand</code>
	<code>\PHdove</code>		<code>\PHplaneTree</code>		<code>\PHwoman</code>

TABLE 275: protosem Proto-Semitic Characters

	<code>\Aaleph</code>		<code>\AAhe</code>		<code>\Akaph</code>		<code>\Asamekh</code>		<code>\Aresh</code>
	<code>\AAaleph</code>		<code>\Azayin</code>		<code>\AAkaph</code>		<code>\Ape</code>		<code>\Ashin</code>
	<code>\Abeth</code>		<code>\Avav</code>		<code>\Alamed</code>		<code>\AApe</code>		<code>\Ahelmet</code>
	<code>\ABeth</code>		<code>\Aheth</code>		<code>\AAlamed</code>		<code>\Asade</code>		<code>\AAhelmet</code>
	<code>\Agimel</code>		<code>\AAheth</code>		<code>\Amem</code>		<code>\AAsade</code>		<code>\Atav</code>
	<code>\Adaleth</code>		<code>\Ateth</code>		<code>\Anun</code>		<code>\Aqoph</code>		
	<code>\AAdaleth</code>		<code>\Ayod</code>		<code>\Aayin</code>		<code>\AAqoph</code>		
	<code>\Ahe</code>		<code>\AAyod</code>		<code>\AAayin</code>		<code>\Aresh</code>		

The protosem package defines abbreviated control sequences for each of the above. In addition, single-letter shortcuts can be used within the argument to the `\textproto` command (e.g., “`\textproto{Pakyn}`” produces “`𐤀𐤁𐤂𐤃𐤄𐤅𐤆𐤇𐤈𐤉`”). See the protosem documentation for more information.

TABLE 276: hieroglf Hieroglyphics








	<code>\HA</code>		<code>\HI</code>		<code>\Hn</code>		<code>\HT</code>
	<code>\Ha</code>		<code>\Hi</code>		<code>\HO</code>		<code>\Ht</code>
	<code>\HB</code>		<code>\Hibl</code>		<code>\Ho</code>		<code>\Htongue</code>
	<code>\Hb</code>		<code>\Hibp</code>		<code>\Hp</code>		<code>\HU</code>
	<code>\Hc</code>		<code>\Hibs</code>		<code>\HP</code>		<code>\Hu</code>
	<code>\HC</code>		<code>\Hibw</code>		<code>\Hplural</code>		<code>\HV</code>
	<code>\HD</code>		<code>\HJ</code>		<code>\Hplus</code>		<code>\Hv</code>
	<code>\Hd</code>		<code>\Hj</code>		<code>\HQ</code>		<code>\Hvbar</code>
	<code>\Hdual</code>		<code>\Hk</code>		<code>\Hq</code>		<code>\Hw</code>
	<code>\He</code>		<code>\HK</code>		<code>\Hquery</code>		<code>\HW</code>
	<code>\HE</code>		<code>\HL</code>		<code>\HR</code>		<code>\HX</code>
	<code>\Hf</code>		<code>\HL</code>		<code>\Hr</code>		<code>\Hx</code>
	<code>\HF</code>		<code>\Hm</code>		<code>\Hs</code>		<code>\HY</code>
	<code>\HG</code>		<code>\HM</code>		<code>\HS</code>		<code>\Hy</code>
	<code>\Hg</code>		<code>\Hman</code>		<code>\Hscribe</code>		<code>\Hz</code>
	<code>\Hh</code>		<code>\Hms</code>		<code>\Hslash</code>		<code>\HZ</code>
	<code>\HH</code>		<code>\HN</code>		<code>\Hsv</code>		
	<code>\Hone</code>		<code>\Hhundred</code>		<code>\HXthousand</code>		<code>\Hmillion</code>
	<code>\Hten</code>		<code>\Hthousand</code>		<code>\HCthousand</code>		

The hieroglf package defines alternate control sequences and single-letter shortcuts for each of the above which can be used within the argument to the `\textpmhg` command (e.g., “`\textpmhg{Pakin}`” produces “”). See the hieroglf documentation for more information.

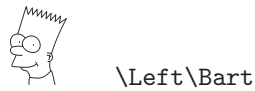
TABLE 277: dictsym Dictionary Symbols

	<code>\dsaeronautical</code>		<code>\dscommercial</code>		<code>\dsmedical</code>
	<code>\dsagricultural</code>		<code>\ds heraldical</code>		<code>\dsmilitary</code>
	<code>\dsarchitectural</code>		<code>\dsjuridical</code>		<code>\dsrailways</code>
	<code>\dsbiological</code>		<code>\dsliterary</code>		<code>\dstechnical</code>
	<code>\dschemical</code>		<code>\ds mathematical</code>		

TABLE 278: simpsons Characters from *The Simpsons*

















































	<code>\Bart</code>		<code>\Homer</code>		<code>\Maggie</code>		<code>\SNPP</code>
	<code>\Burns</code>		<code>\Lisa</code>		<code>\Marge</code>		

The location of the characters' pupils can be controlled with the `\Goofy` command. See *A METAFONT of 'Simpsons' characters* [Che97] for more information. Also, each of the above can be prefixed with `\Left` to make the character face left instead of right:























`\Left\Bart`


TABLE 279: staves Magical Staves

	<code>\staveI</code>		<code>\staveXXIV</code>		<code>\staveXLVII</code>
	<code>\staveII</code>		<code>\staveXXV</code>		<code>\staveXLVIII</code>
	<code>\staveIII</code>		<code>\staveXXVI</code>		<code>\staveXLIX</code>
	<code>\staveIV</code>		<code>\staveXXVII</code>		<code>\staveL</code>
	<code>\staveV</code>		<code>\staveXXVIII</code>		<code>\staveLI</code>
	<code>\staveVI</code>		<code>\staveXXIX</code>		<code>\staveLII</code>
	<code>\staveVII</code>		<code>\staveXXX</code>		<code>\staveLIII</code>
	<code>\staveVIII</code>		<code>\staveXXXI</code>		<code>\staveLIV</code>
	<code>\staveIX</code>		<code>\staveXXXII</code>		<code>\staveLV</code>
	<code>\staveX</code>		<code>\staveXXXIII</code>		<code>\staveLVI</code>
	<code>\staveXI</code>		<code>\staveXXXIV</code>		<code>\staveLVII</code>
	<code>\staveXII</code>		<code>\staveXXXV</code>		<code>\staveLVIII</code>
	<code>\staveXIII</code>		<code>\staveXXXVI</code>		<code>\staveLIX</code>
	<code>\staveXIV</code>		<code>\staveXXXVII</code>		<code>\staveLX</code>
	<code>\staveXV</code>		<code>\staveXXXVIII</code>		<code>\staveLXI</code>
	<code>\staveXVI</code>		<code>\staveXXXIX</code>		<code>\staveLXII</code>

(continued on next page)

(continued from previous page)

	<code>\staveXVII</code>		<code>\staveXL</code>		<code>\staveLXIII</code>
	<code>\staveXVIII</code>		<code>\staveXLI</code>		<code>\staveLXIV</code>
	<code>\staveXIX</code>		<code>\staveXLII</code>		<code>\staveLXV</code>
	<code>\staveXX</code>		<code>\staveXLIII</code>		<code>\staveLXVI</code>
	<code>\staveXXI</code>		<code>\staveXLIV</code>		<code>\staveLXVII</code>
	<code>\staveXXII</code>		<code>\staveXLV</code>		<code>\staveLXVIII</code>
	<code>\staveXXIII</code>		<code>\staveXLVI</code>		

The meanings of these symbols are described on the Web site for the Museum of Icelandic Sorcery and Witchcraft at http://www.galdrasyning.is/index.php?option=com_content&task=category§ionid=5&id=18&Itemid=60 (TinyURL: <http://tinyurl.com/25979m>). For example, `\staveL` (“

86

7 Additional Information

Unlike the previous sections of this document, Section 7 does not contain new symbol tables. Rather, it provides additional help in using the Comprehensive L^AT_EX Symbol List. First, it draws attention to symbol names used by multiple packages. Next, it provides some guidelines for finding symbols and gives some examples regarding how to construct missing symbols out of existing ones. Then, it comments on the spacing surrounding symbols in math mode. After that, it presents an ASCII and Latin 1 quick-reference guide, showing how to enter all of the standard ASCII/Latin 1 symbols in L^AT_EX. And finally, it lists some statistics about this document itself.

7.1 Symbol Name Clashes

Unfortunately, a number of symbol names are not unique; they appear in more than one package. Depending on how the symbols are defined in each package, L^AT_EX will either output an error message or replace an earlier-defined symbol with a later-defined symbol. Table 280 presents a selection of name clashes that appear in this document.

Using multiple symbols with the same name in the same document—or even merely loading conflicting symbol packages—can be tricky but, as evidenced by the existence of Table 280, not impossible. The general procedure is to load the first package, rename the conflicting symbols, and then load the second package. Examine the L^AT_EX source for this document (`symbols.tex`) for examples of this and other techniques for handling symbol conflicts. Note that `symbols.tex`'s `\savesymbol` and `\restoresymbol` macros have been extracted into the `savesym` package, which can be downloaded from CTAN.

`txfonts` and `pxfonts` redefine a huge number of symbols—essentially, all of the symbols defined by `latexsym`, `textcomp`, the various \mathcal{AMS} symbol sets, and L^AT_EX 2_ε itself. Similarly, `mathabx` redefines a vast number of math symbols in an attempt to improve their look. The `txfonts`, `pxfonts`, and `mathabx` conflicts are not listed in Table 280 because they are designed to be compatible with the symbols they replace. Table 281 on page 89 illustrates what “compatible” means in this context.

To use the new `txfonts`/`pxfonts` symbols without altering the document's main font, merely reset the default font families back to their original values after loading one of those packages:

```
\renewcommand\rmdefault{cmr}
\renewcommand\sfdefault{cmss}
\renewcommand\ttdefault{cmtt}
```

7.2 Resizing symbols

Mathematical symbols listed in this document as “variable-sized” are designed to stretch vertically. Each variable-sized symbol comes in one or more basic sizes plus a variation comprising both stretchable and nonstretchable segments. Table 282 on page 89 presents the symbols `\}` and `\uparrow` in their default size, in their `\big`, `\Big`, `\bigg`, and `\Bigg` sizes, in an even larger size achieved using `\left/\right`, and—for contrast—in a large size achieved by changing the font size using L^AT_EX 2_ε's `\fontsize` command. Because the symbols shown belong to the Computer Modern family, the `type1cm` package needs to be loaded to support font sizes larger than 24.88 pt.

Note how `\fontsize` makes the symbol wider and thicker. (The `graphicx` package's `\scalebox` or `\resizebox` commands would produce a similar effect.) Also, the `\fontsize`-enlarged symbol is vertically centered relative to correspondingly large text, unlike the symbols enlarged using `\big` et al. or `\left/\right`, which all use the same math axis regardless of symbol size. However, `\fontsize` is not limited to mathematical delimiters. Also, `\scalebox` and `\resizebox` are more robust to poorly composed symbols (e.g., two symbols made to overlap by backspacing a fixed distance) but do not work with every T_EX backend and will produce jagged symbols when scaling a bitmapped font.

All variable-sized delimiters are defined (by the corresponding `.tfm` file) in terms of up to five segments, as illustrated by Figure 1 on page 89. The top, middle, and bottom segments are of a fixed size. The top-middle and middle-bottom segments (which are constrained to be the same character) are repeated as many times as necessary to achieve the desired height.

7.3 Where can I find the symbol for ...?

If you can't find some symbol you're looking for in this document, there are a few possible explanations:

TABLE 280: Symbol Name Clashes

Symbol	L ^A T _E X 2 _ε	A _M S	stmaryrd	wasysym	mathabx	marvosym	bbding	ifsym	dingbat	wsuipa
<code>\baro</code>			φ							ø
<code>\bigtriangledown</code>	▽		▽							
<code>\bigtriangleup</code>	△		△							
<code>\checkmark</code>		✓							✓	
<code>\Circle</code>				○				○		
<code>\Cross</code>						+	+	×		
<code>\ggg</code>		≫			≈					
<code>\Letter</code>						⊠		⊠		
<code>\lightning</code>			⚡	⚡		⚡		⚡		
<code>\Lightning</code>										
<code>\lll</code>		≪			≪					
<code>\Square</code>				□			□	□		
<code>\Sun</code>						☉		☉		
<code>\TriangleDown</code>							▴	▽		
<code>\TriangleUp</code>							▾	△		

TABLE 281: Example of a Benign Name Clash

Symbol	Default (Computer Modern)	txfonts (Times Roman)
R	R	R
\textrecipe	R _x	R_x

TABLE 282: Sample resized delimiters

Symbol	Default size	\big	\Big	\bigg	\Bigg	\left/\right	\fontsize
\}	}	}	}	}	}	}	}
\uparrow	↑	↑	↑	↑	↑	↑	↑

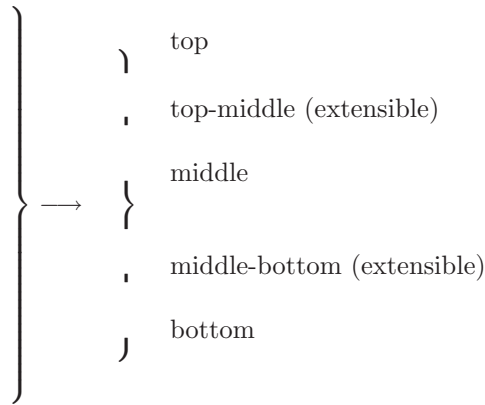


Figure 1: Implementation of variable-sized delimiters

- The symbol isn't intuitively named. As a few examples, the `ifsym` command to draw dice is “`\Cube`”; a plus sign with a circle around it (“exclusive or” to computer engineers) is “`\oplus`”; and lightning bolts in fonts designed by German speakers may have “blitz” in their names as in the `ulsy` package. The moral of the story is to be creative with synonyms when searching the index.
- The symbol is defined by some package that I overlooked (or deemed unimportant). If there's some symbol package that you think should be included in the Comprehensive L^AT_EX Symbol List, please send me e-mail at the address listed on the title page.
- The symbol isn't defined in any package whatsoever.

Even in the last case, all is not lost. Sometimes, a symbol exists in a font, but there is no L^AT_EX binding for it. For example, the PostScript Symbol font contains a “`\l`” symbol, which may be useful for representing a carriage return, but there is no package (as far as I know) for accessing that symbol. To produce an unnamed symbol, you need to switch to the font explicitly with L^AT_EX 2_ε's low-level font commands [L^AT_EX 2_ε] and use T_EX's primitive `\char` command [Knu86a] to request a specific character number in the font.⁴ In fact, `\char` is not strictly necessary; the character can often be entered symbolically. For example, the symbol for an impulse train or Tate-Shafarevich group (“`\III`”) is actually an uppercase *sha* in the Cyrillic alphabet. (Cyrillic is supported by the OT2 font encoding, for instance). While a *sha* can be defined numerically as “`{\fontencoding{OT2}\selectfont\char88}`” it may be more intuitive to use the OT2 font encoding's “SH” ligature: “`{\fontencoding{OT2}\selectfont SH}`”.

Reflecting and rotating existing symbols

A common request on `comp.text.tex` is for a reversed or rotated version of an existing symbol. As a last resort, these effects can be achieved with the `graphicx` (or `graphics`) package's `\reflectbox` and `\rotatebox` macros. For example, `\textsuperscript{\reflectbox{?}}` produces an irony mark (“`?`”; cf. http://en.wikipedia.org/wiki/Irony_mark), and `\rotatebox[origin=c]{180}{\iota}` produces the definite-description operator (“`ι`”). The disadvantage of the `graphicx/graphics` approach is that not every T_EX backend handles graphical transformations.⁵ Far better is to find a suitable font that contains the desired symbol in the correct orientation. For instance, if the `phonetic` package is available, then `\textit{\riota}` will yield a backend-independent “`ι`”. Similarly, `tipa`'s `\textrepsilon` (“`ε`”) or `wsuipa`'s `\repsilon` (“`ε`”) may be used to express the mathematical notion of “such that” in a cleaner manner than with `\reflectbox` or `\rotatebox`.⁶

Joining and overlapping existing symbols

Symbols that do not exist in any font can sometimes be fabricated out of existing symbols. The L^AT_EX 2_ε source file `fontdef.dtx` contains a number of such definitions. For example, `\models` (see Table 62 on page 30) is defined in that file with:

```
\def\models{\mathrel|\joinrel=}
```

where `\mathrel` and `\joinrel` are used to control the horizontal spacing. `\def` is the T_EX primitive upon which L^AT_EX's `\newcommand` is based. See The T_EXbook [Knu86a] for more information on all three of those commands.

With some simple pattern-matching, one can easily define a backward `\models` sign (“`=|`”):

```
\def\ismodeledby{=\joinrel\mathrel|}
```

In general, arrows/harpoons, horizontal lines (“`=`”, “`-`”, “`\relbar`”, and “`\Relbar`”), and the various math-extension characters can be combined creatively with miscellaneous other characters to produce a variety of new symbols. Of course, new symbols can be composed from *any* set of existing characters. For instance, L^AT_EX defines `\hbar` (“`ħ`”) as a “`-`” character (`\mathchar'26`) followed by a backspace of 9 math units (`\mkern-9mu`), followed by the letter “`h`”:

```
\def\hbar{\mathchar'26\mkern-9mu}h
```

⁴`pifont` defines a convenient `\Pisymbol` command for accessing symbols in PostScript fonts by number. For example, “`\Pisymbol{psy}{191}`” produces “`\l`”.

⁵As an example, Xdvi ignores both `\reflectbox` and `\rotatebox`.

⁶More common symbols for representing “such that” include “`|`”, “`:`”, and “`s.t.`”.

We can just as easily define other barred letters:

```
\def\bbar{\mathchar'26\mkern-9mu b}
\def\dbar{\mathchar'26\mkern-12mu d}
```

(The space after the “mu” is optional but is added for clarity.) `\bbar` and `\dbar` define “ \bar{b} ” and “ \bar{d} ”, respectively. Note that `\dbar` requires a greater backward math kern than `\bbar`; a -9μ kern would have produced the less-attractive “ \bar{d} ” glyph.

The `amsmath` package provides `\overset` and `\underset` commands for placing one symbol respectively above or below another. For example, `\overset{G}{\sim}`⁷ produces “ $\overset{G}{\sim}$ ” (sometimes used for “equidecomposable with respect to G ”).

Sometimes an ordinary `tabular` environment can be co-opted into juxtaposing existing symbols into a new symbol. Consider the following definition of `\asterisk` (“ \ast ”) from a June 2007 post to `comp.text.tex` by Peter Flynn:

```
\newcommand{\asterisk}{\smash{%
  \raisebox{-.5ex}{%
    \setlength{\tabcolsep}{-.5pt}%
    \begin{tabular}{@{}cc@{}}%
      \multicolumn{2c*}{\[-2ex\]*\&*\%}
    \end{tabular}}}}
```

Note how the space between columns (`\tabcolsep`) and rows (`\[-2ex\]`) is made negative to squeeze the asterisks closer together.

There is a `TeX` primitive called `\mathaccent` that centers one mathematical symbol atop another. For example, one can define `\dotcup` (“ $\dot{\cup}$ ”)—the composition of a `\cup` and a `\dot`—as follows:

```
\newcommand{\dotcup}{\ensuremath{\mathaccent\dot{\cup}}}
```

The catch is that `\mathaccent` requires the accent to be a “math character”. That is, it must be a character in a math font as opposed to a symbol defined in terms of other symbols. See *The TeXbook* [Knu86a] for more information.

Another `TeX` primitive that is useful for composing symbols is `\vcenter`. `\vcenter` is conceptually similar to “`\begin{tabular}{l}`” in `LATeX` but takes a list of vertical material instead of `\-`-separated rows. Also, it vertically centers the result on the math axis. (Many operators, such as “+” and “−” are also vertically centered on the math axis.) Enrico Gregorio posted the following symbol definition to `comp.text.tex` in March 2004 in response to a query about an alternate way to denote equivalence:

```
\newcommand*\threesim{%
  \mathrel{\vcenter{\offinterlineskip
    \hbox{\$ \sim \$}\vskip-.35ex\hbox{\$ \sim \$}\vskip-.35ex\hbox{\$ \sim \$}}}}
```

The `\threesim` symbol, which vertically centers three `\sim` (“ \sim ”) symbols with $0.35x$ -heights of space between them, is rendered as “ \approx ”. `\offinterlineskip` is a macro that disables implicit interline spacing. Without it, `\threesim` would have a full line of vertical spacing between each `\sim`. Because of `\vcenter`, `\threesim` aligns properly with other math operators: $a \div b \approx c \times d$.

A related `LATeX` command, borrowed from Plain `TeX`, is `\oalign`. `\oalign` vertically overlaps symbols and works both within and outside of math mode. Essentially, it creates a single-column `tabular` environment with zero vertical distance between rows. However, because it is based directly on `TeX`’s `\ialign` primitive, `\oalign` uses `TeX`’s tabular syntax instead of `LATeX`’s (i.e., with `\cr` as the row terminator instead of `\`). The following example of `\oalign`, a macro that defines a standard-state symbol (`\stst`, “ $\overset{\circ}{\ominus}$ ”) as a superscripted Plimsoll line (`\barcirc`, “ $\bar{\ominus}$ ”),⁸ is due to an October 2007 `comp.text.tex` post by Donald Arseneau:

```
\makeatletter
\providecommand\barcirc{\mathpalette@barred\circ}
\def@barred#1#2{\oalign{\hfil$#1-\$ \hfil\cr\hfil$#1#2\$ \hfil\cr}}
\newcommand\stst{\protect\barcirc}
\makeatother
```

⁷`LATeX`’s `\stackrel` command is similar but is limited to placing a symbol above a binary relation.

⁸While `\barcirc` illustrates how to combine symbols using `\oalign`, the `stmaryrd` package’s `\minuso` command (Table 42 on page 21) provides a similar glyph (“ \ominus ”) as a single, indivisible symbol.

In the preceding code, note the `\ooalign` call’s use of `\hfil` to horizontally center a minus sign (“−”) and a `\circ` (“o”).

As another example of `\ooalign`, consider the following code (due to Enrico Gregorio in a June 2007 post to `comp.text.tex`) that overlaps a `\ni` (“∋”) and two minus signs (“−”) to produce “∋”, an obscure variation on the infrequently used “z” symbol for “such that” discussed on page 90:

```
\newcommand{\suchthat}{%
  \mathrel{\ooalign{\ni$\cr\kern-1pt$-$\kern-6.5pt$-$}}}
```

The `slashed` package, although originally designed for producing Feynman slashed-character notation, in fact facilitates the production of *arbitrary* overlapped symbols. The default behavior is to overwrite a given character with “/”. For example, `\slashed{D}` produces “ \mathcal{D} ”. However, the `\declareslashed` command provides the flexibility to specify the mathematical context of the composite character (operator, relation, punctuation, etc., as will be discussed in Section 7.4), the overlapping symbol, horizontal and vertical adjustments in symbol-relative units, and the character to be overlapped. Consider, for example, the symbol for reduced quadrupole moment (“ I ”). This can be declared as follows:

```
\newcommand{\rqm}{%
  \declareslashed{\text{-}}{0.04}{0}{I}\slashed{I}}
```

`\declareslashed{.}{.}{.}{.}{I}` affects the meaning of all subsequent `\slashed{I}` commands in the same scope. The preceding definition of `\rqm` therefore uses an extra set of curly braces to limit that scope to a single `\slashed{I}`. In addition, `\rqm` uses `amstext`’s `\text` macro (described on the next page) to make `\declareslashed` use a text-mode hyphen (“-”) instead of a math-mode minus sign (“−”) and to ensure that the hyphen scales properly in size in subscripts and superscripts. See `slashed`’s documentation (located in `slashed.sty` itself) for a detailed usage description of the `\slashed` and `\declareslashed` commands.

Somewhat simpler than `slashed` is the `centernot` package. `centernot` provides a single command, `\centernot`, which, like `\not`, puts a slash over the subsequent mathematical symbol. However, instead of putting the slash at a fixed location, `\centernot` centers the slash over its argument:

$$\begin{array}{c} \not\rightarrow \quad \backslash\text{not}\backslash\text{longrightarrow} \\ \text{vs.} \\ \centernot\rightarrow \quad \backslash\text{centernot}\backslash\text{longrightarrow} \end{array}$$

See the `centernot` documentation for more information.

Making new symbols work in superscripts and subscripts

To make composite symbols work properly within subscripts and superscripts, you may need to use `TeX`’s `\mathchoice` primitive. `\mathchoice` evaluates one of four expressions, based on whether the current math style is display, text, script, or scriptscript. (See *The TeXbook* [Knu86a] for a more complete description.) For example, the following `LATEX` code—posted to `comp.text.tex` by Torsten Bronger—composes a sub/superscriptable “ \top ” symbol out of `\top` and `\bot` (“ \top ” and “ \perp ”):

```
\def\topbotatom#1{\hbox{\hbox to 0pt{#1\bot$\hss}$#1\top$}}
\newcommand*\topbot{\mathrel{\mathchoice{\topbotatom\displaystyle}
{\topbotatom\textstyle}
{\topbotatom\scriptstyle}
{\topbotatom\scriptscriptstyle}}}
```

The following is another example that uses `\mathchoice` to construct symbols in different math modes. The code defines a principal value integral symbol, which is an integral sign with a line through it.

```
\def\Xint#1{\mathchoice
  {\XXint\displaystyle\textstyle{#1}}%
  {\XXint\textstyle\scriptstyle{#1}}%
  {\XXint\scriptstyle\scriptscriptstyle{#1}}%
  {\XXint\scriptscriptstyle\scriptscriptstyle{#1}}%
  \!\int}
```

```

\def\XXint#1#2#3{{\setbox0=\hbox{#1{#2#3}{\int}$}
\vcenter{\hbox{#2#3$}}\kern-.5\wd0}}
\def\ddashint{\Xint=}
\def\dashint{\Xint-}

```

(The preceding code was taken verbatim from the UK T_EX Users' Group FAQ at <http://www.tex.ac.uk/faq>.) `\dashint` produces a single-dashed integral sign (“ \int ”), while `\ddashint` produces a double-dashed one (“ \int ”). The `\Xint` macro defined above can also be used to generate a wealth of new integrals: “ \int ” (`\Xint\circlearrowright`), “ \int ” (`\Xint\circlearrowleft`), “ \int ” (`\Xint\subset`), “ \int ” (`\Xint\infty`), and so forth.

L^AT_EX 2_ε provides a simple wrapper for `\mathchoice` that sometimes helps produce terser symbol definitions. The macro is called `\mathpalette` and it takes two arguments. `\mathpalette` invokes the first argument, passing it one of “`\displaystyle`”, “`\textstyle`”, “`\scriptstyle`”, or “`\scriptscriptstyle`”, followed by the second argument. `\mathpalette` is useful when a symbol macro must know which math style is currently in use (e.g., to set it explicitly within an `\mbox`). Donald Arseneau posted the following `\mathpalette`-based definition of a probabilistic-independence symbol (“ \perp ”) to `comp.text.tex` in June 2000:

```

\newcommand\independent{\protect\mathpalette{\protect\independentT}{\perp}}
\def\independentT#1#2{\mathrel{\rlap{#1#2$}\mkern2mu{#1#2}}}

```

The `\independent` macro uses `\mathpalette` to pass the `\independentT` helper macro both the current math style and the `\perp` symbol. `\independentT` typesets `\perp` in the current math style, moves two math units to the right, and finally typesets a second—overlapping—copy of `\perp`, again in the current math style. `\rlap`, which enables text overlap, is described later on this page.

Some people like their square-root signs with a trailing “hook” (i.e., “ $\sqrt{\quad}$ ”) as this helps visually distinguish expressions like “ $\sqrt{3x}$ ” from those like “ $\sqrt{3}x$ ”. In March 2002, Dan Luecking posted a `\mathpalette`-based definition of a hooked square-root symbol to `comp.text.tex`:

```

\def\hksqrt{\mathpalette\DHLhksqrt}
\def\DHLhksqrt#1#2{\setbox0=\hbox{#1\sqrt{#2},}$}\dimen0=\ht0
\advance\dimen0-0.2\ht0
\setbox2=\hbox{\vrule height\ht0 depth -\dimen0}%
{\box0\lower0.4pt\box2}}

```

Notice how `\DHLhksqrt` uses `\mathpalette` to recover the outer math style (argument #1) from within an `\hbox`. The rest of the code is simply using T_EX primitives to position a hook of height 0.2 times the `\sqrt` height at the right of the `\sqrt`. See The T_EXbook [Knu86a] for more understanding of T_EX “boxes” and “dimens”.

Sometimes, however, `amstext`'s `\text` macro is all that is necessary to make composite symbols appear correctly in subscripts and superscripts, as in the following definitions of `\neswarrow` (“ \nearrow ”) and `\nwsearrow` (“ \nwarrow ”):⁹

```

\newcommand{\neswarrow}{\mathrel{\text{\$}\nearrow$\llap{\$}\searrow$}}}
\newcommand{\nwsearrow}{\mathrel{\text{\$}\nwarrow$\llap{\$}\searrow$}}}

```

`\text` resembles L^AT_EX's `\mbox` command but shrinks its argument appropriately when used within a subscript or superscript. `\llap` (“left overlap”) and its counterpart, `\rlap` (“right overlap”), appear frequently when creating composite characters. `\llap` outputs its argument to the left of the current position, overlapping whatever text is already there. Similarly, `\rlap` overlaps whatever text would normally appear to the right of its argument. For example, “`A\llap{B}`” and “`\rlap{A}B`” each produce “**B**”. However, the result of the former is the width of “A”, and the result of the latter is the width of “B”—`\llap{...}` and `\rlap{...}` take up zero space.

In a June 2002 post to `comp.text.tex`, Donald Arseneau presented a general macro for aligning an arbitrary number of symbols on their horizontal centers and vertical baselines:

```

\makeatletter
\def\moverlay{\mathpalette\mov@rlay}

```

⁹Note that if your goal is to typeset commutative diagrams, then you should probably be using X_Y-pic.

```

\def\moverlay#1#2{\leavevmode\vtop{%
  \baselineskip\z@skip \lineskiplimit-\maxdimen
  \ialign{\hfil$#1##$\hfil\cr#2\cr}}
\makeatother

```

The `\makeatletter` and `\makeatother` commands are needed to coerce L^AT_EX into accepting “@” as part of a macro name. `\moverlay` takes a list of symbols separated by `\cr` (T_EX’s equivalent of L^AT_EX’s `\`). For example, the `\topbot` command defined on page 92 could have been expressed as “`\moverlay{\top\cr\bot}`” and the `\neswarrow` command defined on the previous page could have been expressed as “`\moverlay{\narrow\cr\swarrow}`”.

The basic concept behind `\moverlay`’s implementation is that `\moverlay` typesets the given symbols in a table that utilizes a zero `\baselineskip`. This causes every row to be typeset at the same vertical position. See The T_EXbook [Knu86a] for explanations of the T_EX primitives used by `\moverlay`.

Modifying L^AT_EX-generated symbols

Oftentimes, symbols composed in the L^AT_EX 2_ε source code can be modified with minimal effort to produce useful variations. For example, `fontdef.dtx` composes the `\ddots` symbol (see Table 174 on page 61) out of three periods, raised 7 pt., 4 pt., and 1 pt., respectively:

```

\def\ddots{\mathinner{\mkern1mu\raise7\p@
  \vbox{\kern7\p@\hbox{.}}\mkern2mu
  \raise4\p@\hbox{.}\mkern2mu\raise\p@\hbox{.}\mkern1mu}}

```

`\p@` is a L^AT_EX 2_ε shortcut for “pt” or “1.0pt”. The remaining commands are defined in The T_EXbook [Knu86a]. To draw a version of `\ddots` with the dots going along the opposite diagonal, we merely have to reorder the `\raise7\p@`, `\raise4\p@`, and `\raise\p@`:

```

\makeatletter
\def\revddots{\mathinner{\mkern1mu\raise\p@
  \vbox{\kern7\p@\hbox{.}}\mkern2mu
  \raise4\p@\hbox{.}\mkern2mu\raise7\p@\hbox{.}\mkern1mu}}
\makeatother

```

`\revddots` is essentially identical to the `mathdots` package’s `\iddots` command or the `yhmath` package’s `\adots` command.

Producing complex accents

Accents are a special case of combining existing symbols to make new symbols. While various tables in this document show how to add an accent to an existing symbol, some applications, such as transliterations from non-Latin alphabets, require *multiple* accents per character. For instance, the creator of pdfT_EX writes his name as “Hàn Th^é Thành”. The `dblaccnt` package enables L^AT_EX to stack accents, as in “H\‘an Th\’{\^e} Th\‘anh” (albeit not in the OT1 font encoding). In addition, the `wsuipa` package defines `\diatop` and `\diaunder` macros for putting one or more diacritics or accents above or below a given character. For example, `\diaunder[\diatop[\’|\=]]|\textsubdot{r}` produces “ $\underset{\cdot}{\overset{\acute{}}{r}}$ ”. See the `wsuipa` documentation for more information.

The `accents` package facilitates the fabrication of accents in math mode. Its `\accentset` command enables *any* character to be used as an accent. For instance, `\accentset{\star}{f}` produces “ f^{\star} ” and `\accentset{e}{X}` produces “ $X^{\acute{e}}$ ”. `\underaccent` does the same thing, but places the accent beneath the character. This enables constructs like `\underaccent{\tilde}{V}`, which produces “ $\underset{\tilde}{V}$ ”. `accents` provides other accent-related features as well; see the documentation for more information.

Creating extensible symbols

A relatively simple example of creating extensible symbols stems from a `comp.text.tex` post by Donald Arseneau (June 2003). The following code defines an equals sign that extends as far to the right as possible, just like L^AT_EX’s `\hrulefill` command:

```

\makeatletter
\def\equalsfill{\$ \m@th\mathord=\mkern-7mu
  \cleaders\hbox{\$!\mathord=!\$}\hfill
  \mkern-7mu\mathord=$}
\makeatother

```

TeX’s `\cleaders` and `\hfill` primitives are the key to understanding `\equalsfill`’s extensibility. Essentially, `\equalsfill` repeats a box containing “=” plus some negative space until it fills the maximum available horizontal space. `\equalsfill` is intended to be used with L^AT_EX’s `\stackrel` command, which stacks one mathematical expression (slightly reduced in size) atop another. Hence, “`\stackrel{a}{\rightarrow}`” produces “ $\overset{a}{\rightarrow}$ ” and “`X \stackrel{\text{definition}}{\hbox{\equalsfill}} Y`” produces “ $X \overset{\text{definition}}{=} Y$ ”.

If all that needs to extend are horizontal and vertical lines—as opposed to repeated symbols such as the “=” in the previous example—L^AT_EX’s `array` or `tabular` environments may suffice. Consider the following code (due to a February 1999 `comp.text.tex` post by Donald Arseneau) for typesetting annuities:

```

\DeclareRobustCommand{\annu}[1]{_f%
  \def\arraystretch{0}%
  \setlength\arraycolsep{1pt}%          adjust these
  \setlength\arrayrulewidth{.2pt}%    two settings
  \begin{array}[b]{@{}c|}\hline
  \[\arraycolsep]%
  \scriptstyle #1%
  \end{array}%
}

```

One can then use, e.g., “`\$A\annu{x:n}\$`” to produce “ $A_{\overline{x:n}}$ ”.

A more complex example of composing accents is the following definition of extensible `\overbracket`, `\underbracket`, `\overparenthesis`, and `\underparenthesis` symbols, taken from a May 2002 `comp.text.tex` post by Donald Arseneau:

```

\makeatletter
\def\overbracket#1{\mathop{\vbox{\ialign{##\crcr\noalign{\kern3\p@}
  \downbracketfill\crcr\noalign{\kern3\p@\nointerlineskip}
  \$\hfil\displaystyle{#1}\hfil$\crcr}}}\limits}
\def\underbracket#1{\mathop{\vtop{\ialign{##\crcr
  \$\hfil\displaystyle{#1}\hfil$\crcr\noalign{\kern3\p@\nointerlineskip}
  \upbracketfill\crcr\noalign{\kern3\p@}}}}}\limits}
\def\overparenthesis#1{\mathop{\vbox{\ialign{##\crcr\noalign{\kern3\p@}
  \downparenthfill\crcr\noalign{\kern3\p@\nointerlineskip}
  \$\hfil\displaystyle{#1}\hfil$\crcr}}}\limits}
\def\underparenthesis#1{\mathop{\vtop{\ialign{##\crcr
  \$\hfil\displaystyle{#1}\hfil$\crcr\noalign{\kern3\p@\nointerlineskip}
  \upparenthfill\crcr\noalign{\kern3\p@}}}}}\limits}
\def\downparenthfill{\$ \m@th\bracedl\leaders\vrule\hfill\bracerd$}
\def\upparenthfill{\$ \m@th\bracelu\leaders\vrule\hfill\braceru$}
\def\upbracketfill{\$ \m@th\makesm@sh{\llap{\vrule\@height3\p@\@width.7\p@}}%
  \leaders\vrule\@height.7\p@\hfill
  \makesm@sh{\rlap{\vrule\@height3\p@\@width.7\p@}}$}
\def\downbracketfill{\$ \m@th
  \makesm@sh{\llap{\vrule\@height.7\p@\@depth2.3\p@\@width.7\p@}}%
  \leaders\vrule\@height.7\p@\hfill
  \makesm@sh{\rlap{\vrule\@height.7\p@\@depth2.3\p@\@width.7\p@}}$}
\makeatother

```

Table 283 showcases these accents. The TeXbook [Knu86a] or another book on TeX primitives is indispensable for understanding how the preceding code works. The basic idea is that `\downparenthfill`, `\upparenthfill`, `\downbracketfill`, and `\upbracketfill` do all of the work; they output a left symbol (e.g., `\bracedl` [“ \lrcorner ”] for `\downparenthfill`), a horizontal rule that stretches as wide as possible, and a right symbol (e.g., `\bracerd` [“ \lrcorner ”] for `\downparenthfill`). `\overbracket`, `\underbracket`, `\overparenthesis`, and `\underparenthesis`

merely create a table whose width is determined by the given text, thereby constraining the width of the horizontal rules.

TABLE 283: Manually Composed Extensible Accents

\overline{abc}	<code>\overbracket{abc}</code>	\overparen{abc}	<code>\overparenthesis{abc}</code>
\underline{abc}	<code>\underbracket{abc}</code>	\underparen{abc}	<code>\underparenthesis{abc}</code>

Note that the `simplewick` package provides mechanisms for typesetting Wick contractions, which utilize `\overbracket-` and `\underbracket-` like brackets of variable width *and* height (or depth). For example, “`\acontraction{}{A}{B}{C}\acontraction[2ex]{A}{B}{C}{D}\bcontraction{}{A}{BC}{D}ABCD`” produces

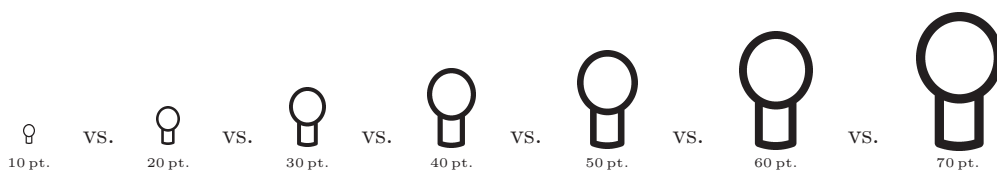


See the `simplewick` documentation for more information.

Developing new symbols from scratch

Sometimes it is simply not possible to define a new symbol in terms of existing symbols. Fortunately, most, if not all, \TeX distributions are shipped with a tool called METAFONT which is designed specifically for creating fonts to be used with \TeX . The METAFONTbook [Knu86b] is the authoritative text on METAFONT. If you plan to design your own symbols with METAFONT, The METAFONTbook is essential reading. Nevertheless, the following is an extremely brief tutorial on how to create a new \LaTeX symbol using METAFONT. Its primary purpose is to cover the \LaTeX -specific operations not mentioned in The METAFONTbook and to demonstrate that symbol-font creation is not necessarily a difficult task.

Suppose we need a symbol to represent a light bulb (“ \mathcal{Q} ”).¹⁰ The first step is to draw this in METAFONT. It is common to separate the font into two files: a size-dependent file, which specifies the design size and various font-specific parameters that are a function of the design size; and a size-independent file, which draws characters in the given size. Figure 2 shows the METAFONT code for `lightbulb10.mf`. `lightbulb10.mf` specifies various parameters that produce a 10 pt. light bulb then loads `lightbulb.mf`. Ideally, one should produce `lightbulb<size>.mf` files for a variety of $\langle size \rangle$ s. This is called “optical scaling”. It enables, for example, the lines that make up the light bulb to retain the same thickness at different font sizes, which looks much nicer than the alternative—and default—“mechanical scaling”. When a `lightbulb<size>.mf` file does not exist for a given size $\langle size \rangle$, the computer mechanically produces a wider, taller, thicker symbol:



```
font_identifier := "LightBulb10";           % Name the font.
font_size 10pt#;                           % Specify the design size.

em# := 10pt#;                               % "M" width is 10 points.
cap# := 7pt#;                               % Capital letter height is 7 points above the baseline.
sb# := 1/4pt#;                              % Leave this much space on the side of each character.
o# := 1/16pt#;                              % Amount that curves overshoot borders.

input lightbulb                             % Load the file that draws the actual glyph.
```

Figure 2: Sample METAFONT size-specific file (`lightbulb10.mf`)

`lightbulb.mf`, shown in Figure 3, draws a light bulb using the parameters defined in `lightbulb10.mf`. Note that the the filenames “`lightbulb10.mf`” and “`lightbulb.mf`” do not follow the Berry font-naming

¹⁰I’m not a very good artist; you’ll have to pretend that “ \mathcal{Q} ” looks like a light bulb.

scheme [Ber01]; the Berry font-naming scheme is largely irrelevant for symbol fonts, which generally lack bold, italic, small-caps, slanted, and other such variants.

```

mode_setup; % Target a given printer.
define_pixels(em, cap, sb); % Convert to device-specific units.
define_corrected_pixels(o); % Same, but add a device-specific fudge factor.

%% Define a light bulb at the character position for "A"
%% with width 1/2em#, height cap#, and depth 1pt#.
beginchar("A", 1/2em#, cap#, 1pt#); "A light bulb";
  pickup pencircle scaled 1/2pt; % Use a pen with a small, circular tip.

  %% Define the points we need.
  top z1 = (w/2, h + o); % z1 is at the top of a circle.
  rt z2 = (w + sb + o - x4, y4); % z2 is at the same height as z4 but the opposite side.
  bot z3 = (z1 - (0, w - sb - o)); % z3 is at the bottom of the circle.
  lft z4 = (sb - o, 1/2[y1, y3]); % z4 is on the left of the circle.
  path bulb; % Define a path for the bulb itself.
  bulb = z1 .. z2 .. z3 .. z4 .. cycle; % The bulb is a closed path.

  z5 = point 2 - 1/3 of bulb; % z5 lies on the bulb, a little to the right of z3.
  z6 = (x5, 0); % z6 is at the bottom, directly under z5.
  z7 = (x8, 0); % z7 is at the bottom, directly under z8.
  z8 = point 2 + 1/3 of bulb; % z8 lies on the bulb, a little to the left of z3.
  bot z67 = (1/2[x6, x7], pen_bot - o - 1/8pt); % z67 lies halfway between z6 and z7 but a jot lower.

  %% Draw the bulb and the base.
  draw bulb; % Draw the bulb proper.
  draw z5 -- z6 .. z67 .. z7 -- z8; % Draw the base of the bulb.

  %% Display key positions and points to help us debug.
  makegrid(0, sb, w/2, w - sb)(0, -1pt, y2, h); % Label "interesting" x and y coordinates.
  penlabels(1, 2, 3, 4, 5, 6, 67, 7, 8); % Label control points for debugging.
endchar;
end

```

Figure 3: Sample METAFONT size-independent file (`lightbulb.mf`)

The code in Figures 2 and 3 is heavily commented and should demonstrate some of the basic concepts behind METAFONT usage: declaring variables, defining points, drawing lines and curves, and preparing to debug or fine-tune the output. Again, The METAFONTbook [Knu86b] is the definitive reference on METAFONT programming.

METAFONT can produce “proofs” of fonts—large, labeled versions that showcase the logical structure of each character. In fact, proof mode is METAFONT’s default mode. To produce a proof of `lightbulb10.mf`, issue the following commands at the operating-system prompt:

```

prompt> mf lightbulb10.mf % Produces lightbulb10.2602gf
prompt> gftodvi lightbulb10.2602gf % Produces lightbulb10.dvi

```

You can then view `lightbulb10.dvi` with any DVI viewer. The result is shown in Figure 4. Observe how the grid defined with `makegrid` at the bottom of Figure 3 draws vertical lines at positions 0, `sb`, `w/2`, and `w - sb` and horizontal lines at positions 0, `-1pt`, `y2`, and `h`. Similarly, observe how the `penlabels` command labels all of the important coordinates: z_1, z_2, \dots, z_8 and z_{67} , which `lightbulb.mf` defines to lie between z_6 and z_7 .

Most, if not all, \TeX distributions include a Plain \TeX file called `testfont.tex` which is useful for testing new fonts in a variety of ways. One useful routine produces a table of all of the characters in the font:

```

prompt> tex testfont
This is TeX, Version 3.14159 (Web2C 7.3.1)
(/usr/share/texmf/tex/plain/base/testfont.tex
Name of the font to test = lightbulb10

```

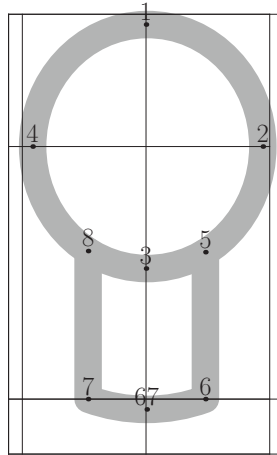


Figure 4: Proof diagram of `lightbulb10.mf`

```
Now type a test command (\help for help):)
*\table

*\bye
[1]
Output written on testfont.dvi (1 page, 1516 bytes).
Transcript written on testfont.log.
```

The resulting table, stored in `testfont.dvi` and illustrated in Figure 5, shows every character in the font. To understand how to read the table, note that the character code for “A”—the only character defined by `lightbulb10.mf`—is 41 in hexadecimal (base 16) and 101 in octal (base 8).

Test of lightbulb10 on March 11, 2003 at 1127									
	'0	'1	'2	'3	'4	'5	'6	'7	
'10x		8							"4x
'11x									
	"8	"9	"A	"B	"C	"D	"E	"F	

Figure 5: Font table produced by `testfont.tex`

The LightBulb10 font is now usable by \TeX . $\LaTeX 2_{\epsilon}$, however, needs more information before documents can use the font. First, we create a font-description file that tells $\LaTeX 2_{\epsilon}$ how to map fonts in a given font family and encoding to a particular font in a particular font size. For symbol fonts, this mapping is fairly simple. Symbol fonts almost always use the “U” (“Unknown”) font encoding and frequently occur in only one variant: normal weight and non-italicized. The filename for a font-description file important; it must be of the form “ $\langle encoding \rangle \langle family \rangle .fd$ ”, where $\langle encoding \rangle$ is the lowercase version of the encoding name (typically “u” for symbol fonts) and $\langle family \rangle$ is the name of the font family. For LightBulb10, let’s call this “bulb”. Figure 6 lists the contents of `ubulb.fd`. The document “ $\LaTeX 2_{\epsilon}$ Font Selection” [LAT00] describes `\DeclareFontFamily` and `\DeclareFontShape` in detail, but the gist of `ubulb.fd` is first to declare a U-encoded version of the `bulb` font family and then to specify that a $\LaTeX 2_{\epsilon}$ request for a U-encoded version of `bulb` with a (m)edium font series (as opposed to, e.g., bold) and a (n)ormal font shape (as opposed to, e.g., italic) should translate into a \TeX request for `lightbulb10.tfm` mechanically scaled to the current font size.

The final step is to write a $\LaTeX 2_{\epsilon}$ style file that defines a name for each symbol in the font. Because we have only one symbol our style file, `lightbulb.sty` (Figure 7), is rather trivial. Note that instead of typesetting “A” we could have had `\lightbulb typeset “\char65”`, `\char"41`, or `\char'101` (respectively, decimal, hexadecimal, and octal character offsets into the font). For a simple, one-character symbol font

```
\DeclareFontFamily{U}{bulb}{}
\DeclareFontShape{U}{bulb}{m}{n}{<-> lightbulb10}{}
```

Figure 6: L^AT_EX 2_ε font-description file (ubulb.fd)

such as LightBulb10 it would be reasonable to merge ubulb.fd into lightbulb.sty instead of maintaining two separate files. In either case, a document need only include “\usepackage{lightbulb}” to make the \lightbulb symbol available.

```
\newcommand{\lightbulb}{\usefont{U}{bulb}{m}{n}A}
```

Figure 7: L^AT_EX 2_ε style file (lightbulb.sty)

METAFONT normally produces bitmapped fonts. However, it is also possible, with the help of some external tools, to produce PostScript Type 1 fonts. These have the advantages of rendering better in Adobe[®] Acrobat[®] (at least in versions prior to 6.0) and of being more memory-efficient when handled by a PostScript interpreter. See <http://www.tex.ac.uk/cgi-bin/texfaq2html?label=textrace> for pointers to tools that can produce Type 1 fonts from METAFONT.

7.4 Math-mode spacing

Terms such as “binary operators”, “relations”, and “punctuation” in Section 3 primarily regard the surrounding spacing. (See the Short Math Guide for L^AT_EX [Dow00] for a nice exposition on the subject.) To use a symbol for a different purpose, you can use the T_EX commands \mathord, \mathop, \mathbin, \mathrel, \mathopen, \mathclose, and \mathpunct. For example, if you want to use \downarrow as a variable (an “ordinary” symbol) instead of a delimiter, you can write “ $\$3 x + \mathord{\downarrow}\$$ ” to get the properly spaced “ $3x + \downarrow$ ” rather than the awkward-looking “ $3x + \downarrow$ ”. Similarly, to create a dotted-union symbol (“ $\dot{\cup}$ ”) that spaces like the ordinary set-union symbol (\cup) it must be defined with \mathbin, just as \cup is. Contrast “ $\$A \dot{\cup} B\$$ ” (“ $A \dot{\cup} B$ ”) with “ $\$A \mathbin{\dot{\cup}} B\$$ ” (“ $A \dot{\cup} B$ ”). See The T_EXbook [Knu86a] for the definitive description of math-mode spacing.

The purpose of the “log-like symbols” in Tables 120 and 121 is to provide the correct amount of spacing around and within multiletter function names. Table 284 contrasts the output of the log-like symbols with various, naïve alternatives. In addition to spacing, the log-like symbols also handle subscripts properly. For example, “\max_{p \in P}” produces “ $\max_{p \in P}$ ” in text, but “ $\max_{p \in P}$ ” as part of a displayed formula.

TABLE 284: Spacing Around/Within Log-like Symbols

L ^A T _E X expression	Output
$\$r \sin \theta\$$	$r \sin \theta$ (best)
$\$r \sin \theta\$$	$r \sin \theta$
$\$r \mbox{sin} \theta\$$	$r \sin \theta$
$\$r \mathrm{sin} \theta\$$	$r \sin \theta$

The amsmath package makes it straightforward to define new log-like symbols:

```
\DeclareMathOperator{\atan}{atan}
\DeclareMathOperator*\lcm{lcm}
```

The difference between \DeclareMathOperator and \DeclareMathOperator* involves the handling of subscripts. With \DeclareMathOperator*, subscripts are written beneath log-like symbols in display style and to the right in text style. This is useful for limit operators (e.g., \lim) and functions that tend to map over a set (e.g., \min). In contrast, \DeclareMathOperator tells T_EX that subscripts should always be displayed to the right of the operator, as is common for functions that take a single parameter (e.g., \log and \cos). Table 285 contrasts symbols declared with \DeclareMathOperator and \DeclareMathOperator* in both text style ($\$..\$$) and display style ($\backslash[..\backslash]$).¹¹

¹¹Note that \displaystyle can be used to force display style within $\$..\$$ and \textstyle can be used to force text style within $\backslash[..\backslash]$.

TABLE 285: Defining new log-like symbols

Declaration function	$\backslash\text{newlogsym}_{\{p \in P\}}$	$\backslash[\text{newlogsym}_{\{p \in P\}}\backslash]$
$\backslash\text{DeclareMathOperator}$	$\text{newlogsym}_{p \in P}$	$\text{newlogsym}_{p \in P}$
$\backslash\text{DeclareMathOperator*}$	$\text{newlogsym}_{p \in P}$	$\text{newlogsym}_{p \in P}$

It is common to use a thin space ($\backslash,$) between the words of a multiword operators, as in $\backslash\text{DeclareMathOperator*}\{\text{argmax}\}\{\text{arg}\backslash,\text{max}\}$. $\backslash\text{liminf}$, $\backslash\text{limsup}$, and all of the log-like symbols shown in Table 121 utilize this spacing convention.

7.5 Bold mathematical symbols

\LaTeX does not normally use bold symbols when typesetting mathematics. However, bold symbols are occasionally needed, for example when naming vectors. Any of the approaches described at <http://www.tex.ac.uk/cgi-bin/texfaq2html?label=boldgreek> can be used to produce bold mathematical symbols. Table 286 contrasts the output produced by these various techniques. As the table illustrates, these techniques exhibit variation in their formatting of Latin letters (upright vs. italic), formatting of Greek letters (bold vs. normal), formatting of operators and relations (bold vs. normal), and spacing.

TABLE 286: Producing bold mathematical symbols

Package	Code	Output	
<i>none</i>	$\backslash\alpha + b = \backslash\Gamma \backslash\text{div } D$	$\alpha + b = \Gamma \div D$	(no bold)
<i>none</i>	$\backslash\text{mathbf}\{\backslash\alpha + b = \backslash\Gamma \backslash\text{div } D\}$	$\alpha + \mathbf{b} = \mathbf{\Gamma} \div \mathbf{D}$	
<i>none</i>	$\backslash\text{boldmath}\backslash\alpha + b = \backslash\Gamma \backslash\text{div } D$	$\mathbf{\alpha} + \mathbf{b} = \mathbf{\Gamma} \div \mathbf{D}$	
amsbsy	$\backslash\text{pmb}\{\backslash\alpha + b = \backslash\Gamma \backslash\text{div } D\}$	$\mathbf{\alpha} + \mathbf{b} = \mathbf{\Gamma} \div \mathbf{D}$	(faked bold)
amsbsy	$\backslash\text{boldsymbol}\{\backslash\alpha + b = \backslash\Gamma \backslash\text{div } D\}$	$\mathbf{\alpha} + \mathbf{b} = \mathbf{\Gamma} \div \mathbf{D}$	
bm	$\backslash\text{bm}\{\backslash\alpha + b = \backslash\Gamma \backslash\text{div } D\}$	$\mathbf{\alpha} + \mathbf{b} = \mathbf{\Gamma} \div \mathbf{D}$	
fixmath	$\backslash\text{mathbold}\{\backslash\alpha + b = \backslash\Gamma \backslash\text{div } D\}$	$\mathbf{\alpha} + \mathbf{b} = \mathbf{\Gamma} \div \mathbf{D}$	

7.6 ASCII and Latin 1 quick reference

Table 287 on the next page amalgamates data from various other tables in this document into a convenient reference for $\text{\LaTeX} 2_{\epsilon}$ typesetting of ASCII characters, i.e., the characters available on a typical U.S. computer keyboard. The first two columns list the character's ASCII code in decimal and hexadecimal. The third column shows what the character looks like. The fourth column lists the $\text{\LaTeX} 2_{\epsilon}$ command to typeset the character as a text character. And the fourth column lists the $\text{\LaTeX} 2_{\epsilon}$ command to typeset the character within a $\backslash\text{texttt}\{...\}$ command (or, more generally, when $\backslash\text{ttfamily}$ is in effect).

The following are some additional notes about the contents of Table 287:

- “” is not available in the OT1 font encoding.
- The characters “<”, “>”, and “|” do work as expected in math mode, although they produce, respectively, “|”, “i”, and “—” in text mode when using the OT1 font encoding.¹² The following are some alternatives for typesetting “<”, “>”, and “|”:
 - Specify a document font encoding other than OT1 (as described on page 7).
 - Use the appropriate symbol commands from Table 2 on page 8, viz. $\backslash\text{textless}$, $\backslash\text{textgreater}$, and $\backslash\text{textbar}$.
 - Enter the symbols in math mode instead of text mode, i.e., $\backslash\langle$, $\backslash\rangle$, and $\backslash|$.

¹²Donald Knuth didn't think such symbols were important outside of mathematics so he omitted them from his text fonts.

TABLE 287: L^AT_EX 2_ε ASCII Table

Dec	Hex	Char	Body text	\texttt	Dec	Hex	Char	Body text	\texttt
33	21	!	!	!	62	3E	>	\textgreater	>
34	22	"	\textquotedbl	"	63	3F	?	?	?
35	23	#	\#	\#	64	40	@	@	@
36	24	\$	\\$	\\$	65	41	A	A	A
37	25	%	\%	\%	66	42	B	B	B
38	26	&	\&	\&	67	43	C	C	C
39	27	'	'	'	⋮	⋮	⋮	⋮	⋮
40	28	(	(	(	90	5A	Z	Z	Z
41	29	)	)	)	91	5B	[[[
42	2A	*	*	*	92	5C	\	\textbackslash	\char`\
43	2B	+	+	+	93	5D]]]
44	2C	,	,	,	94	5E	^	\^{}	\^{}{}
45	2D	-	-	-	95	5F	_	_	\char`_
46	2E	.	.	.	96	60	'	'	'
47	2F	/	/	/	97	61	a	a	a
48	30	0	0	0	98	62	b	b	b
49	31	1	1	1	99	63	c	c	c
50	32	2	2	2	⋮	⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮	⋮	122	7A	z	z	z
57	39	9	9	9	123	7B	{	\{	\char`\{
58	3A	:	:	:	124	7C	|	\textbar	|
59	3B	;	;	;	125	7D	}	\}	\char`\}
60	3C	<	\textless	<	126	7E	~	\~{}{}	\~{}{}
61	3D	=	=	=					

Note that for typesetting metavariables many people prefer `\textangle` and `\texttriangle` to `\textless` and `\textgreater`, i.e., “`<filename>`” instead of “`<filename>`”.

- Although “/” does not require any special treatment, L^AT_EX additionally defines a `\slash` command which outputs the same glyph but permits a line break afterwards. That is, “`increase/decrease`” is always typeset as a single entity while “`increase\slash{}decrease`” may be typeset with “`increase/`” on one line and “`decrease`” on the next.
- `\textasciicircum` can be used instead of `\^{}{}`, and `\textasciitilde` can be used instead of `\~{}{}`. Note that `\textasciitilde` and `\~{}{}` produce raised, diacritic tildes. “Text” (i.e., vertically centered) tildes can be generated with either the math-mode `\sim` command (shown in Table 62 on page 30), which produces a somewhat wide “`~`”, or the `textcomp` package’s `\texttildebelow` (shown in Table 36 on page 19), which produces a vertically centered “`~`” in most fonts but a baseline-oriented “`~`” in Computer Modern, `txfonts`, `pxfonts`, and various other fonts originating from the T_EX world. If your goal is to typeset tildes in URLs or Unix filenames, your best bet is to use the `url` package, which has a number of nice features such as proper line-breaking of such names.
- The various `\char` commands within `\texttt` are necessary only in the OT1 font encoding. In other encodings (e.g., T1), commands such as `\{`, `\}`, `_`, and `\textbackslash` all work properly.
- The code page 437 (IBM PC) version of ASCII characters 1 to 31 can be typeset using the `ascii` package. See Table 209 on page 69.
- To replace “`“`” and “`”`” with the more computer-like (and more visibly distinct) “`“`” and “`”`” within a `verbatim` environment, use the `upquote` package. Outside of `verbatim`, you can use `\char18` and `\char13` to get the modified quote characters. (The former is actually a grave accent.)

Similar to Table 287, Table 288 on the next page is an amalgamation of data from other tables in this document. While Table 287 shows how to typeset the 7-bit ASCII character set, Table 288 shows the Latin 1 (Western European) character set, also known as ISO-8859-1.

TABLE 288: L^AT_EX 2_ε Latin 1 Table

Dec	Hex	Char	L ^A T _E X 2 _ε	Dec	Hex	Char	L ^A T _E X 2 _ε
161	A1	¡	!'	209	D1	Ñ	\~{N}
162	A2	¢	\textcent (tc)	210	D2	Ò	\' {O}
163	A3	£	\pounds	211	D3	Ó	\' {O}
164	A4	¤	\textcurrency (tc)	212	D4	Ô	\^ {O}
165	A5	¥	\textyen (tc)	213	D5	Õ	\~ {O}
166	A6	¦	\textbrokenbar (tc)	214	D6	Ö	\" {O}
167	A7	§	\S	215	D7	×	\texttimes (tc)
168	A8	¨	\textasciidieresis (tc)	216	D8	Ø	\O
169	A9	©	\textcopyright	217	D9	Ù	\' {U}
170	AA	ª	\textordfeminine	218	DA	Ú	\' {U}
171	AB	«	\guillemotleft (T1)	219	DB	Û	\^ {U}
172	AC	¬	\textlnot (tc)	220	DC	Ü	\" {U}
173	AD	-	\-	221	DD	Ý	\' {Y}
174	AE	®	\textregistered	222	DE	Þ	\TH (T1)
175	AF	ˆ	\textasciimacron (tc)	223	DF	ß	\ss
176	B0	°	\textdegree (tc)	224	E0	à	\' {a}
177	B1	±	\textpm (tc)	225	E1	á	\' {a}
178	B2	²	\texttwosuperior (tc)	226	E2	â	\^ {a}
179	B3	³	\textthreesuperior (tc)	227	E3	ã	\~ {a}
180	B4	´	\textasciiacute (tc)	228	E4	ä	\" {a}
181	B5	µ	\textmu (tc)	229	E5	å	\aa
182	B6	¶	\P	230	E6	æ	\ae
183	B7	·	\textperiodcentered	231	E7	ç	\c{c}
184	B8	,	\c{}	232	E8	è	\' {e}
185	B9	¹	\textonesuperior (tc)	233	E9	é	\' {e}
186	BA	º	\textordmasculine	234	EA	ê	\^ {e}
187	BB	»	\guillemotright (T1)	235	EB	ë	\" {e}
188	BC	¼	\textonequarter (tc)	236	EC	ì	\' {i}
189	BD	½	\textonehalf (tc)	237	ED	í	\' {i}
190	BE	¾	\textthreequarters (tc)	238	EE	î	\^ {i}
191	BF	¿	?'	239	EF	ï	\" {i}
192	C0	À	\' {A}	240	F0	ð	\dh (T1)
193	C1	Á	\' {A}	241	F1	ñ	\~ {n}
194	C2	Â	\^ {A}	242	F2	ò	\' {o}
195	C3	Ã	\~ {A}	243	F3	ó	\' {o}
196	C4	Ä	\" {A}	244	F4	ô	\^ {o}
197	C5	Å	\AA	245	F5	õ	\~ {o}
198	C6	Æ	\AE	246	F6	ö	\" {o}
199	C7	Ç	\c{C}	247	F7	÷	\textdiv (tc)
200	C8	È	\' {E}	248	F8	ø	\o
201	C9	É	\' {E}	249	F9	ù	\' {u}
202	CA	Ê	\^ {E}	250	FA	ú	\' {u}
203	CB	Ë	\" {E}	251	FB	û	\^ {u}
204	CC	Ì	\' {I}	252	FC	ü	\" {u}
205	CD	Í	\' {I}	253	FD	ý	\' {y}
206	CE	Î	\^ {I}	254	FE	þ	\th (T1)
207	CF	Ï	\" {I}	255	FF	ÿ	\" {y}
208	D0	Ð	\DH (T1)				

The following are some additional notes about the contents of Table 288:

- A “(tc)” after a symbol name means that the `textcomp` package must be loaded to access that symbol. A “(T1)” means that the symbol requires the T1 font encoding. The `fontenc` package can change the font encoding document-wide.
- Many of the `\text{...}` accents can also be produced using the accent commands shown in Table 18 on page 13 plus an empty argument. For instance, `\={}` is essentially the same as `\textasciimacron`.
- The commands in the “ $\LaTeX 2_{\epsilon}$ ” columns work both in body text and within a `\texttt{...}` command (or, more generally, when `\ttfamily` is in effect).
- The “ \pounds ” and “ $\$$ ” glyphs occupy the same slot (36) of the OT1 font encoding, with “ \pounds ” appearing in italic fonts and “ $\$$ ” appearing in roman fonts. A problem with \LaTeX ’s default handling of this double-mapping is that “`\{\sffamily\slshape\pounds}`” produces “ $\$$ ”, not “ \pounds ”. Other font encodings use separate slots for the two characters and are therefore robust to the problem of “ \pounds ”/“ $\$$ ” conflicts. Authors who use `\pounds` should select a font encoding other than OT1 (as explained on page 7) or use the `textcomp` package, which redefines `\pounds` to use the TS1 font encoding.
- Character 173, `\-`, is shown as “-” but is actually a discretionary hyphen; it appears only at the end of a line.

Microsoft[®] Windows[®] normally uses a superset of Latin 1 called “Code Page 1252” or “CP1252” for short. CP1252 introduces symbols in the Latin 1 “invalid” range (characters 128–159). Table 289 presents the characters with which CP1252 augments the standard Latin 1 table.

TABLE 289: $\LaTeX 2_{\epsilon}$ Code Page 1252 Table

Dec	Hex	Char	$\LaTeX 2_{\epsilon}$	Dec	Hex	Char	$\LaTeX 2_{\epsilon}$
128	80	€	<code>\texteuro</code> (tc)	145	91	‘	‘
130	82	,	<code>\quotesinglbase</code> (T1)	146	92	’	’
131	83	<i>f</i>	<code>\textit{f}</code>	147	93	“	“
132	84	„	<code>\quotedblbase</code> (T1)	148	94	”	”
133	85	...	<code>\dots</code>	149	95	•	<code>\textbullet</code>
134	86	†	<code>\dag</code>	150	96	–	--
135	87	‡	<code>\ddag</code>	151	97	—	---
136	88	ˆ	<code>\textasciicircum</code>	152	98	˜	<code>\textasciitilde</code>
137	89	‰	<code>\textperthousand</code> (tc)	153	99	™	<code>\texttrademark</code>
138	8A	Š	<code>\v{S}</code>	154	9A	š	<code>\v{s}</code>
139	8B	‹	<code>\guilsinglleft</code> (T1)	155	9B	›	<code>\guilsinglright</code> (T1)
140	8C	Œ	<code>\OE</code>	156	9C	œ	<code>\oe</code>
142	8E	Ž	<code>\v{Z}</code>	158	9E	ž	<code>\v{z}</code>
				159	9F	Ÿ	<code>\v{Y}</code>

The following are some additional notes about the contents of Table 289:

- As in Table 288, a “(tc)” after a symbol name means that the `textcomp` package must be loaded to access that symbol. A “(T1)” means that the symbol requires the T1 font encoding. The `fontenc` package can change the font encoding document-wide.
- Not all characters in the 128–159 range are defined.
- Look up “euro signs” in the index for alternatives to `\texteuro`.

While too large to incorporate into this document, a listing of ISO 8879:1986 SGML/XML character entities and their \LaTeX equivalents is available from <http://www.bitjungle.com/~isoent/>. Some of the characters presented there make use of `isoent`, a $\LaTeX 2_{\epsilon}$ package (available from the same URL) that fakes some of the missing ISO glyphs using the \LaTeX `picture` environment.¹³

¹³`isoent` is not featured in this document, because it is not available from CTAN and because the faked symbols are not “true” characters; they exist in only one size, regardless of the body text’s font size.

7.7 About this document

History David Carlisle wrote the first version of this document in October, 1994. It originally contained all of the native \LaTeX symbols (Tables 40, 52, 62, 95, 120, 122, 141, 142, 152, 157, 184, and a few tables that have since been reorganized) and was designed to be nearly identical to the tables in Chapter 3 of Leslie Lamport’s book [Lam86]. Even the table captions and the order of the symbols within each table matched! The \AMS symbols (Tables 41, 63, 64, 98, 99, 123, 127, 137, and 185) and an initial Math Alphabets table (Table 196) were added thereafter. Later, Alexander Holt provided the `stmaryrd` tables (Tables 42, 54, 65, 101, 117, and 138).

In January, 2001, Scott Pakin took responsibility for maintaining the symbol list and has since implemented a complete overhaul of the document. The result, now called, “The Comprehensive \LaTeX Symbol List”, includes the following new features:

- the addition of a handful of new math alphabets, dozens of new font tables, and thousands of new symbols
- the categorization of the symbol tables into body-text symbols, mathematical symbols, science and technology symbols, dingbats, and other symbols, to provide a more user-friendly document structure
- an index, table of contents, and a frequently-requested symbol list, to help users quickly locate symbols
- symbol tables rewritten to list the symbols in alphabetical order
- appendices to provide additional information relevant to using symbols in \LaTeX
- tables showing how to typeset all of the characters in the ASCII and Latin 1 font encodings

Furthermore, the internal structure of the document has been completely altered from David’s original version. Most of the changes are geared towards making the document easier to extend, modify, and reformat.

Build characteristics Table 290 lists some of this document’s build characteristics. Most important is the list of packages that \LaTeX couldn’t find, but that `symbols.tex` otherwise would have been able to take advantage of. Complete, prebuilt versions of this document are available from CTAN (<http://www.ctan.org/> or one of its many mirror sites) in the directory `tex-archive/info/symbols/comprehensive`. Table 291 shows the package date (specified in the `.sty` file with `\ProvidesPackage`) for each package that was used to build this document and that specifies a package date. Packages are not listed in any particular order in either Table 290 or 291.

TABLE 290: Document Characteristics

Characteristic	Value
Source file:	<code>symbols.tex</code>
Build date:	January 3, 2008
Symbols documented:	4947
Packages included:	<code>textcomp latexsym amssymb stmaryrd euscript wasysym pifont manfnt bbding undertilde ifsym tipa tipx extraipa wsuipa phonetic ulsy ar metre txfonts mathabx fclfont skak ascii dingbat skull eurosym esvect yfonts ymath esint mathdots trsym universa upgreek overrightarrow chemarr chemarrow nath trfsigns mathtools phaistos arcs vietnam t4phonet holtpolt semtrans dictsym extarrows protosem harmony hieroglf ccllicenses mathdesign arev MnSymbol cml extpfeil keystroke fge turnstile simpsons epsdice feyn universal staves igo accents nicefrac bm mathrsfs chancery calligra bbold mbboard dsfont bbm</code>
Packages omitted:	<i>none</i>

TABLE 291: Package versions used in the preparation of this document

Name	Date
textcomp	2005/09/27
latexsym	1998/08/17
amssymb	2002/01/22
stmaryrd	1994/03/03
euscript	2001/10/01
wasysym	2003/10/30
pifont	2005/04/12
manfnt	1999/07/01
bbding	1996/06/21
undertilde	2000/08/08
ifsym	2000/04/18
tipa	2002/08/08
tipx	2003/01/01
wsuipa	1994/07/16
metre	2001/12/05
txfonts	2005/01/03
mathabx	2003/07/29
skak	2003/09/27
ascii	2006/05/30
dingbat	2001/04/27
skull	2002/01/23
eurosym	1998/08/06
yfonts	2003/01/08
mathdots	2006/03/16
trsym	2000/06/25
universa	98/08/01
upgreek	2003/02/12
chemarr	2006/02/20
mathtools	2004/10/10
phaistos	2004/04/23
arcs	2004/05/09
t4phonet	2004/06/01
semtrans	1998/02/10
dictsym	2004/07/26
extarrows	2002/03/30
protosem	2005/03/18
harmony	2007/05/03
hieroglf	2000/09/23
ccllicenses	2005/05/20
arev	2005/06/14
MnSymbol	2007/01/21
extpfeil	2006/07/27
keystroke	2003/08/15
fge	2007/06/03
turnstile	2007/06/23
epsdice	2001/02/15
feyn	2002/04/23
universal	97/12/24
accents	2006/05/12
nicefrac	1998/08/04
bm	2004/02/26
calligra	1996/07/18

7.8 Copyright and license

The Comprehensive L^AT_EX Symbol List
Copyright © 2008, Scott Pakin

This work may be distributed and/or modified under the conditions of the L^AT_EX Project Public License, either version 1.3c of this license or (at your option) any later version. The latest version of this license is in

<http://www.latex-project.org/lppl.txt>

and version 1.3c or later is part of all distributions of L^AT_EX version 2006/05/20 or later.

This work has the LPPL maintenance status “maintained”.

The current maintainer of this work is Scott Pakin.

References

- [AMS99] American Mathematical Society. *User’s Guide for the `amsmath` Package (Version 2.0)*, December 13, 1999. Available from <ftp://ftp.ams.org/pub/tex/doc/amsmath/amsl.doc.pdf>.
- [Ber01] Karl Berry. Fontname: Filenames for T_EX fonts, June 2001. Available from <http://www.ctan.org/tex-archive/info/fontname>.
- [Che97] Raymond Chen. A METAFONT of ‘Simpsons’ characters. *Baskerville*, 4(4):19, September 1997. ISSN 1354-5930. Available from <http://tug.ctan.org/usergrps/uktug/baskervi/4.4/bask4.4.ps>.
- [Dow00] Michael Downes. Short math guide for L^AT_EX, July 19, 2000. Version 1.07. Available from <http://www.ams.org/tex/short-math-guide.html>.
- [Gib97] Jeremy Gibbons. Hey—it works! *TUGboat*, 18(2):75–78, June 1997. Available from <http://www.tug.org/TUGboat/Articles/tb18-2/tb55works.pdf>.
- [Knu86a] Donald E. Knuth. *The T_EXbook*, volume A of *Computers and Typesetting*. Addison-Wesley, Reading, MA, USA, 1986.
- [Knu86b] Donald E. Knuth. *The METAFONTbook*, volume C of *Computers and Typesetting*. Addison-Wesley, Reading, MA, USA, 1986.
- [Lam86] Leslie Lamport. *L^AT_EX: A document preparation system*. Addison-Wesley, Reading, MA, USA, 1986.
- [L^AT_EX98] L^AT_EX3 Project Team. A new math accent. *L^AT_EX News*. Issue 9, June 1998. Available from <http://www.ctan.org/tex-archive/macros/latex/doc/ltnews09.pdf> (also included in many T_EX distributions).
- [L^AT_EX00] L^AT_EX3 Project Team. L^AT_EX 2_ε font selection, January 30, 2000. Available from <http://www.ctan.org/tex-archive/macros/latex/doc/fntguide.ps> (also included in many T_EX distributions).

Index

If you're having trouble locating a symbol, try looking under "T" for "\text...". Many text-mode commands begin with that prefix. Also, accents are shown over/under a gray box, e.g., "◌" for "\'".


Some symbol entries appear to be listed repeatedly. This happens when multiple packages define identical (or nearly identical) glyphs with the same symbol name.¹⁴

Symbols	
\ " (¨)	13
\# (#)	8, 101
\\$ (\$)	8, 101
\% (%)	8, 101
\& (&)	8, 101
\' (◌)	13
( ( (	53
( ( (	54
) ()	53
) ()	54
* (*)	22
\, ,	100
\- (-)	102, 103
\. (◌)	13
/ (/)	53
/ (/)	54
< (<)	54
[ ( [	53
[ ( [	54
\\[ \[	91
] (]	53
] (]	54
\^ (◌)	13
\~{} (~)	101
\| (||)	53
\| (◌)	13
\= (◌)	13
\= {} (=)	103
| (|)	53
_ (-)	8, 101
\{ ({	8, 53, 101
\} (}	8, 53, 101
\' (◌)	13
\~ (◌)	13
\~ {} (~)	101
A	
a (esvect package option)	59
\a (x)	82
\AA (Å)	9
\aa (å)	9
\AAaleph (ℵ)	83
\AAayin (א)	83
\AAbeth (ב)	83
\AAcht (♯)	79
\AAdaleth (ד)	83
\AAhe (א)	83
\AAhelmet (Ⲁ)	83
\AAheth (ה)	83
\AAkaph (כ)	83
\AAalamed (ל)	83
\Alas (}	56
\alas (}	56
\aleph (ℵ)	50, 62
\aleph (ℵ)	50
\Alif (א)	13
\alpha (α)	49
alphabets	
African	9
Cyrillic	90
Greek	49, 50, 65
Hebrew	50, 65
hieroglyphic	84
math	65
phonetic	10–13
proto-Semitic	83
Vietnamese	9
\alphaup (α)	50
alpine symbols	81
\Alt (⌘)	69
\AltGr (⌘)	69
\amalg (∪)	20
\amalg (∪)	23
\Amem (Ⓜ)	83
ampersand	see \&
AMS 7, 8, 21, 25, 30, 36, 37, 39, 41, 49–53, 56, 58, 59, 61–63, 66, 87, 104	
amsbsy (package)	100
amsmath (package)	20, 30, 36, 41, 62, 65
amsmath (package)	7, 49, 56, 91, 99
amssymb (package)	7, 20, 30, 36, 41, 56, 62, 65, 104, 105, 107
amstext (package)	92, 93
\Anacclasis (÷)	82
\anaclasis (÷)	82
\anchor (⚓)	77
and	see \wedge
\angle (∠)	63
\angle (∠)	62
\angle (∠)	63
angles	62–64
\Anglesign (⚡)	64
Ångström unit	
math mode	see \mathring
text mode	see \AA
\Angud (∪)	56
\angud (∪)	56
angular minutes	see \prime
angular seconds	see \second
\Angus (∪)	56
\angus (∪)	56
\AAhe (א)	83
\AAhelmet (Ⲁ)	83
\AAheth (ה)	83
\AAkaph (כ)	83
\AAalamed (ל)	83
\Alad (}	56
\alad (}	56
\Alamed (ל)	83
\AAhe (א)	83
\AAhelmet (Ⲁ)	83
\AAheth (ה)	83
\AAkaph (כ)	83
\AAalamed (ל)	83
absolute value	see \lvert and \rvert
abzüglich	see \textdiscount
\AC (˜)	67
\acarc	15
\acbar	15
accents	13–17, 33–35, 44, 46, 56–60, 68, 79, 86, 94–96
any character as	94
extensible	57–60, 95–96
multiple per character	94
accents (package)	56, 94, 104, 105
\accentset	94
\Acht (♯)	79
\AchtBL (♯)	79
\AchtBR (♯)	79
\ACK (♣)	69
\acontraction	96
\AcPa (ʔ)	79
actuarial symbols	95
\acute (◌)	56
\acutus (◌)	16
\Adaleth (ד)	83
adjoint (†)	see \dag
Adobe Acrobat	99
\adots (⋯)	62, 94
advancing	see \textadvancing
\AE (Æ)	9
\ae (æ)	9
\agemO (Ů)	63
\Agimel (ג)	83
\Ahe (א)	83
\Ahelmet (Ⲁ)	83
\Aheth (ה)	83
\ain (י)	16
\Akaph (כ)	83
\Alad (}	56
\alad (}	56
\Alamed (ל)	83

¹⁴This occurs frequently between amssymb and mathabx, for example.

<code>\Ankh</code> (†)	80
<code>\annu</code> (𐎠)	95
annuity	95
<code>\Antidiple</code> (<)	82
<code>\antidiple</code> (<)	82
<code>\Antidiple*</code> (<=)	82
<code>\antidiple*</code> (<=)	82
<code>\Antisigma</code> (>)	82
<code>\antisigma</code> (>)	82
<code>\Anun</code> (𐎡)	83
<code>\Ape</code> (𐎧)	83
APL	
modifiers	68
symbols	68
<code>\APLbox</code> (□)	68
<code>\APLcirc</code> (■)	68
<code>\APLcomment</code> (⊙)	68
<code>\APLdown</code> (∇)	68
<code>\APLdownarrowbox</code> (▮)	68
<code>\APLinput</code> (□)	68
<code>\APLin</code> (⊞)	68
<code>\APLleftarrowbox</code> (⊞)	68
<code>\APLlog</code> (⊗)	68
<code>\APLminus</code> (−)	68
<code>\APLnot</code> (⊖)	68
<code>\APLrightarrowbox</code> (⊞)	68
<code>\APLstar</code> (∗)	68
<code>\APLup</code> (Δ)	68
<code>\APLuparrowbox</code> (▮)	68
<code>\APLvert</code> (‡)	68
<code>\apprge</code> (≥)	38
<code>\apprle</code> (≤)	38
<code>\approx</code> (≈)	30
<code>\approx</code> (≈)	32
<code>\approxeq</code> (≈)	30
<code>\approxeq</code> (≈)	32
<code>\Aqoph</code> (∞)	83
<code>\Aquarius</code> (♊)	68
<code>\aquarius</code> (≈)	68
<code>\AR</code> (ℛ)	67
ar (package)	67, 104
arc	<i>see</i> accents
<code>\arccos</code> (arccos)	49
arcminutes	<i>see</i> \prime
arcs (package)	16, 104, 105
arcseconds	<i>see</i> \second
<code>\arcsin</code> (arcsin)	49
<code>\arctan</code> (arctan)	49
<code>\Aresh</code> (℞)	83
arev (package)	64, 78, 104, 105
<code>\arg</code> (arg)	49
<code>\Aries</code> (♈)	68
<code>\Aries</code> (♈)	68
<code>\aries</code> (♈)	68
<code>\ArrowBoldDownRight</code> (↘)	71
<code>\ArrowBoldRightCircled</code> (↻)	71
<code>\ArrowBoldRightShort</code> (↘)	71
<code>\ArrowBoldRightStrobe</code> (⚡)	71
<code>\ArrowBoldUpRight</code> (↗)	71
<code>\Arrownot</code> (↯)	48
<code>\arrownot</code> (↯)	48

arrows	41–43, 47, 69, 71, 90
diagonal, for reducing subex- pressions	57
double-headed, diagonal	93
extendible	57–60
fetched	47, 71
negated	41, 42, 44
<code>\Arrowvert</code> (||) . . . . .	53
<code>\Arrowvert</code> (||) . . . . .	54
<code>\arrowvert</code> (|) . . . . .	53
<code>\arrowvert</code> (|) . . . . .	54
Arseneau, Donald	91, 93–95
<code>\Asade</code> (↘)	83
<code>\Asamekh</code> (◊)	83
ASCII	7, 9, 69, 100–101, 104
table	101
ascii (package)	69, 101, 104, 105
<code>\ascnode</code> (Ω)	68
<code>\Ashin</code> (ω)	83
aspect ratio	67
<code>\ast</code> (∗)	22
<code>\ast</code> (∗)	20
<code>\ast</code> (∗)	23
<code>\Asteriscus</code> (✱)	82
<code>\asteriscus</code> (✱)	82
<code>\Asterisk</code> (∗)	22
<code>\Asterisk</code> (∗)	74
<code>\asterisk</code> (∗)	22
<code>\AsteriskBold</code> (∗)	74
<code>\AsteriskCenterOpen</code> (∗)	74
<code>\AsteriskRoundedEnds</code> (∗)	74
asterisks	22, 74
<code>\AsteriskThin</code> (∗)	74
<code>\AsteriskThinCenterOpen</code> (∗)	74
<code>\asterism</code> (✱)	91
astrological symbols	68
astronomical symbols	68
<code>\astrosun</code> (☉)	68
<code>\asymp</code> (≈)	30
<code>\asymp</code> (≈)	48
<code>\atan</code> (atan)	99
<code>\ataribox</code> (⊞)	78
<code>\Atav</code> (+)	83
<code>\Ateth</code> (⊞)	83
<code>\AtForty</code> (⓴)	80
<code>\AtNinetyFive</code> (⓵)	80
atomic math objects	49, 100
<code>\AtSixty</code> (⓶)	80
<code>\autoleftarrow</code> (←)	60
<code>\autoleftrightarpoons</code> (↔)	60
<code>\autorightarrow</code> (→)	60
<code>\autorightleftharpoons</code> (↔)	60

<code>\Avav</code> (ʔ)	83
average	20
<code>\Ayn</code> (ع)	13
<code>\Ayod</code> (𐎠)	83
<code>\Azayin</code> (=)	83
B	
<code>\B</code>	9
<code>\B</code> (∪)	82
b (esvect package option)	59
<code>\b</code> (■)	13
<code>\b</code> (∪)	82
<code>\babygamma</code> (Ɑ)	11
<code>\backapprox</code> (≈)	32
<code>\backapproxeq</code> (≈)	32
<code>\backcong</code> (≅)	32
<code>\backepsilon</code> (ε)	30
<code>\backeqsim</code> (≈)	32
<code>\backneg</code> (−)	63
<code>\backprime</code> (′)	63
<code>\backprime</code> (′)	63
<code>\backsim</code> (∼)	30
<code>\backsim</code> (∼)	32
<code>\backsimeq</code> (≈)	30
<code>\backsimeq</code> (≈)	32
<code>\backslash</code> (\)	53, 62
<code>\backslash</code> (\)	54
<code>\backslashdiv</code> (÷)	23
<code>\backtriplesim</code> (≈)	32
banana brackets	
. <i>see</i> \llparenthesis and \rrparenthesis	
<code>\bar</code> (¯)	56
<code>\barb</code> (‡)	11
<code>\barcirc</code> (⊖)	91
<code>\bard</code> (‡)	11
<code>\bari</code> (ı)	11
<code>\barin</code> (̄)	51
<code>\barj</code> (ȷ)	12
<code>\barl</code> (ł)	11
<code>\barlambda</code> (λ)	12
<code>\barleftharpoon</code> (⇐)	43
<code>\baro</code> (φ)	21
<code>\baro</code> (φ vs. θ)	88
<code>\baro</code> (θ)	12
<code>\barp</code> (Ɔ)	12
barred letters	91
<code>\barriightharpoon</code> (⇒)	43
<code>\barsci</code> (‡)	12
<code>\barscu</code> (‡)	12
<code>\Bart</code> ()	85
<code>\baru</code> (𐎠)	12
<code>\barwedge</code> (⋈)	22
<code>\barwedge</code> (⋈)	21
<code>\Bat</code> (⚡)	80
<code>\bauarrow</code> (⊞)	71
<code>\baucircle</code> (⊙)	76
<code>\baucircle</code> (●)	76
<code>\baucross</code> (✱)	73

<code>\baudash</code> (≡)	80	<code>\betaup</code> (β)	50	<code>\BigHBar</code> (—)	75
<code>\baueclipse</code> (●)	76	<code>\beth</code> (⊐)	50	<code>\biginterleave</code> (|||) . . . . .	25
<code>\bauequal</code> (≡)	80	<code>\beth</code> (⊑)	50	<code>\BigLowerDiamond</code> (◊)	75
<code>\bauface</code> (∩)	80	<code>\betteris</code> (△)	82	<code>\bignplus</code> (⊕)	25
<code>\bauforms</code> (⊕)	80	<code>\between</code> (∪)	31	<code>\bigoast</code> (⊗)	29
<code>\bauforms</code> (⊕)	80	<code>\between</code> (∩)	30	<code>\bigoasterisk</code> (⊗)	26
<code>\bauhead</code> (∩)	80	<code>\between</code> (∪)	32	<code>\bigobackslash</code> (⊗)	26
<code>\bauhead</code> (∩)	80	<code>\bibridge</code> (≡)	15	<code>\bigobackslash</code> (⊗)	29
<code>\bauhole</code> (●)	76	<code>\Bicycle</code> (♫)	76	<code>\bigobot</code> (⊕)	26
<code>\bauplus</code> (⊕)	80	<code>\Big</code>	87, 89	<code>\bigocirc</code> (⊙)	26
<code>\baupunct</code> (●)	76	<code>\big</code>	87, 89	<code>\bigocirc</code> (⊙)	29
<code>\bauquarter</code> (⊕)	80	<code>\bigast</code> (*)	22	<code>\bigocoasterisk</code> (⊗)	26
<code>\bauquestion</code> (?)	80	<code>\bigbosonloop</code> ()	70	<code>\bigodiv</code> (⊕)	26
<code>\bausquare</code> (■)	76	<code>\bigbox</code> (□)	25	<code>\bigodot</code> (⊙)	25
<code>\bausquare</code> (■)	76	<code>\bigboxasterisk</code> (⊗)	26	<code>\bigodot</code> (⊙)	29
<code>\bautriangle</code> (▲)	76	<code>\bigboxbackslash</code> (⊗)	26	<code>\bigoleft</code> (⊕)	26
<code>\bautriangle</code> (▲)	76	<code>\bigboxbot</code> (⊕)	26	<code>\bigominus</code> (⊖)	26
<code>\bauwhitearrow</code> (⇒)	71	<code>\bigboxcirc</code> (⊕)	26	<code>\bigominus</code> (⊖)	29
<code>\bauwindow</code> (⊕)	80	<code>\bigboxcoasterisk</code> (⊗)	26	<code>\bigoplus</code> (⊕)	25
<code>\BB</code> (∞)	82	<code>\bigboxdiv</code> (⊕)	26	<code>\bigoplus</code> (⊕)	29
<code>\Bb</code> (∞)	82	<code>\bigboxdot</code> (⊕)	26	<code>\bigoright</code> (⊕)	26
<code>\bB</code> (∞)	82	<code>\bigboxleft</code> (⊕)	26	<code>\bigoslash</code> (⊗)	26
<code>\bb</code> (∞)	82	<code>\bigboxminus</code> (⊖)	26	<code>\bigoslash</code> (⊗)	29
<code>\bba</code> (∞)	82	<code>\bigboxplus</code> (⊕)	26	<code>\bigostar</code> (⊗)	29
<code>\bbalpha</code> (α)	65	<code>\bigboxright</code> (⊕)	26	<code>\bigotimes</code> (⊗)	25
<code>\bbar</code> (b̄)	91	<code>\bigboxslash</code> (⊗)	26	<code>\bigotimes</code> (⊗)	29
<code>\bbb</code> (∞)	82	<code>\bigboxtimes</code> (⊗)	26	<code>\bigotop</code> (⊕)	26
<code>\bbbeta</code> (β)	65	<code>\bigboxtop</code> (⊕)	26	<code>\bigotriangle</code> (⊙)	29
<code>\Bbbk</code> (k)	51	<code>\bigboxtriangleup</code> (⊕)	26	<code>\bigotriangleup</code> (⊕)	26
<code>bbding</code> (package)	71–75, 77, 88, 104, 105	<code>\bigboxvoid</code> (□)	26	<code>\bigoverv</code> (⊕)	29
<code>\bbdollar</code> (\$)	65	<code>\bigcap</code> (∩)	25	<code>\bigoverv</code> (⊖)	26
<code>\bbetter</code> (⊕)	82	<code>\bigcap</code> (∩)	29	<code>\bigparallel</code> (||) . . . . .	25
<code>\bbeuro</code> (€)	65	<code>\bigcapdot</code> (∩)	29	<code>\bigparr</code> (⌘)	30
<code>\bbfinalnun</code> (||) . . . . .	65	<code>\bigcapplus</code> (∩)	29	<code>\bigplus</code> (+)	26
<code>\bbgamma</code> (∅)	65	<code>\bigcirc</code> (○)	20	<code>\bigplus</code> (+)	29
<code>bbgreekl</code> (mathbbol package option)	65	<code>\bigcirc</code> (○)	74	<code>\BigRightDiamond</code> (◊)	75
<code>\BBm</code> (∞)	82	<code>\BigCircle</code> (○)	75	<code>\bigsqcap</code> (⊐)	26
<code>\Bbm</code> (∞)	82	<code>\bigcircle</code> (○)	29	<code>\bigsqcap</code> (⊐)	25
<code>\bBm</code> (∞)	82	<code>\bigcoast</code> (*)	22	<code>\bigsqcap</code> (⊐)	29
<code>bbm</code> (package)	65, 104	<code>\bigcomplementop</code> (⊖)	26	<code>\bigsqcapdot</code> (⊐)	29
<code>\bbm</code> (∞)	82	<code>\BigCross</code> (⊗)	75	<code>\bigsqcapplus</code> (⊕)	27
<code>\bbmb</code> (∞)	82	<code>\bigcup</code> (∪)	25	<code>\bigsqcapplus</code> (⊕)	29
<code>\bbmb</code> (∞)	82	<code>\bigcup</code> (∪)	29	<code>\bigsqcup</code> (⊐)	25
<code>\bbmx</code> (∞)	82	<code>\bigcupdot</code> (∪)	29	<code>\bigsqcup</code> (⊐)	29
<code>\bbnabla</code> (∇)	65	<code>\bigcupplus</code> (∪)	29	<code>\bigsqcupdot</code> (⊐)	29
<code>bbold</code> (package)	65, 104	<code>\bigcupplus</code> (∪)	29	<code>\bigsqcupplus</code> (⊕)	27
<code>\bbpe</code> (⊐)	65	<code>\bigcurlyvee</code> (∪)	26	<code>\bigsqcupplus</code> (⊕)	29
<code>\bbqof</code> (⊐)	65	<code>\bigcurlyvee</code> (∪)	25	<code>\BigSquare</code> (□)	75
<code>\bbslash</code> (∖)	21	<code>\bigcurlyvee</code> (∪)	29	<code>\bigsqplus</code> (⊕)	26
<code>\bbyod</code> (°)	65	<code>\bigcurlyveedot</code> (∪)	29	<code>\bigstar</code> (★)	22
<code>\bcontraction</code>	96	<code>\bigcurlywedge</code> (∩)	26	<code>\bigstar</code> (★)	63
<code>\bdecisive</code> (++)	82	<code>\bigcurlywedge</code> (∩)	25	<code>\bigstar</code> (★)	74
<code>\Beam</code> (≡)	70	<code>\bigcurlywedge</code> (∩)	29	<code>\bigtimes</code> (×)	26
<code>\Bearing</code> (△)	70	<code>\bigcurlywedgedot</code> (∩)	29	<code>\bigtimes</code> (×)	29
<code>\because</code> (∴)	30, 61	<code>\BigDiamondshape</code> (◊)	75	<code>\BigTriangleDown</code> (∇)	75
<code>\because</code> (∴)	61	<code>\bigdoublecurlyvee</code> (∪)	29	<code>\bigtriangledown</code> (∇)	25
<code>\BEL</code> (•)	69	<code>\bigdoublecurlywedge</code> (∩)	29	<code>\bigtriangledown</code> (∇ vs. ∇)	88
<code>\bell</code> (♣)	78	<code>\bigdoublevee</code> (∪)	29	<code>\bigtriangledown</code> (∇)	20
<code>Berry, Karl</code>	106	<code>\bigdoublewedge</code> (∩)	29	<code>\bigtriangledown</code> (∇)	40
<code>\beta</code> (β)	49	<code>\Bigg</code>	87, 89	<code>\BigTriangleLeft</code> (◁)	75
		<code>\bigg</code>	87, 89	<code>\BigTriangleRight</code> (▷)	75

<code>\BigTriangleUp</code> (\bigtriangleup)	75
<code>\bigtriangleup</code> (\triangle)	25
<code>\bigtriangleup</code> (\triangle vs. Δ)	88
<code>\bigtriangleup</code> (\triangle)	20
<code>\bigtriangleup</code> (\triangle)	40
<code>\biguplus</code> (\biguplus)	25
<code>\biguplus</code> (\biguplus)	29
<code>\bigvarstar</code> (\bigstar)	22
<code>\BigVBar</code> ($\Big|$)	75
<code>\bigvee</code> (\bigvee)	25
<code>\bigvee</code> (\bigvee)	29
<code>\bigveedot</code> (\bigvee)	29
<code>\bigwedge</code> (\bigwedge)	25
<code>\bigwedge</code> (\bigwedge)	29
<code>\bigwedgedot</code> (\bigwedge)	29
<code>\bigwith</code> ($\&$)	30
<code>\binampersand</code> ($\&$)	21
binary operators	20–24
binary relations	30–32, 34–39, 47, 48
negated	30–33
<code>\bindnasrepma</code> (\char"0000)	21
<code>\Biohazard</code> (\char"0000)	70
biological symbols	70
bishop	<i>see</i> chess symbols
<code>\bishoppair</code> (\char"0000)	82
blackboard bold	<i>see</i> alphabets, math
<code>\blackdiamond</code> (\blacklozenge)	22
<code>\blacklozenge</code> (\blacklozenge)	63
<code>\blacklozenge</code> (\blacklozenge)	74
<code>\blacksmiley</code> (\char"0000)	78
<code>\blacksquare</code> (\blacksquare)	63
<code>\blacksquare</code> (\blacksquare)	24
<code>\blackstone</code>	76
<code>\blacktriangle</code> (\blacktriangle)	63
<code>\blacktriangle</code> (\blacktriangle)	40
<code>\blacktriangledown</code> (\blacktriangledown)	24
<code>\blacktriangledown</code> (\blacktriangledown)	63
<code>\blacktriangledown</code> (\blacktriangledown)	40
<code>\blacktriangleleft</code> (\blacktriangleleft)	24
<code>\blacktriangleleft</code> (\blacktriangleleft)	39
<code>\blacktriangleleft</code> (\blacktriangleleft)	40
<code>\blacktriangleright</code> (\blacktriangleright)	24
<code>\blacktriangleright</code> (\blacktriangleright)	39
<code>\blacktriangleright</code> (\blacktriangleright)	40
<code>\blacktriangleup</code> (\blacktriangleup)	24
blank	<i>see</i> <code>\text{blank}</code>
<code>\Bleech</code> (\char"0000)	80
<code>\blitza</code> (\char"0000)	20, 48
<code>\blitzb</code> (\char"0000)	48
<code>\blitzc</code> (\char"0000)	48
<code>\blitzd</code> (\char"0000)	48
<code>\blitze</code> (\char"0000)	48
<code>\Bm</code> (\char"0000)	82
<code>\bm</code> (package)	100, 104, 105
<code>\bm</code>	100
<code>\bm</code> (\char"0000)	82
<code>\bmod</code>	49
body-text symbols	8–19
bold symbols	100
<code>\boldmath</code>	100

<code>\boldsymbol</code>	100
born	<i>see</i> <code>\text{born}</code>
bosons	70
<code>\bot</code> (\perp)	20, 51, 92
<code>\bot</code> (\perp)	51
<code>\botdoteq</code> (\doteq)	31
<code>\Bouquet</code> (\char"0000)	80
<code>\Bowtie</code> (\char"0000)	78
<code>\bowtie</code> (\bowtie)	30
<code>\bowtie</code> (\bowtie)	23
<code>\Box</code> (\square)	62
<code>\Box</code> (\square)	63
<code>\Box</code> (\square)	24
<code>\boxast</code> (\boxast)	21
<code>\boxasterisk</code> (\boxast)	24
<code>\boxbackslash</code> (\boxbackslash)	24
<code>\boxbackslash</code> (\boxbackslash)	24
<code>\boxbar</code> (\boxbar)	21
<code>\boxbot</code> (\boxbot)	24
<code>\boxbox</code> (\boxbox)	21
<code>\boxbox</code> (\boxbox)	24
<code>\boxbslash</code> (\boxbslash)	21
<code>\boxcirc</code> (\boxcirc)	24
<code>\boxcircle</code> (\boxcircle)	21
<code>\boxcoasterisk</code> (\boxast)	24
<code>\boxdiv</code> (\boxdiv)	24
<code>\boxdot</code> (\boxdot)	24
<code>\boxdot</code> (\boxdot)	21
<code>\boxdot</code> (\boxdot)	24
<code>\boxdotLeft</code> (\boxdotLeft)	42
<code>\boxdotLeft</code> (\boxdotLeft)	42
<code>\boxdotRight</code> (\boxdotRight)	42
<code>\boxdotRight</code> (\boxdotRight)	42
<code>\boxempty</code> (\square)	21
<code>\boxLeft</code> (\boxLeft)	42
<code>\boxleft</code> (\boxleft)	24
<code>\boxleft</code> (\boxleft)	42
<code>\boxminus</code> (\boxminus)	24
<code>\boxminus</code> (\boxminus)	21
<code>\boxminus</code> (\boxminus)	24
<code>\boxplus</code> (\boxplus)	24
<code>\boxplus</code> (\boxplus)	21
<code>\boxplus</code> (\boxplus)	24
<code>\boxRight</code> (\boxRight)	42
<code>\boxright</code> (\boxright)	24
<code>\boxright</code> (\boxright)	42
<code>\boxslash</code> (\boxslash)	24
<code>\boxslash</code> (\boxslash)	21
<code>\boxslash</code> (\boxslash)	24
<code>\boxtimes</code> (\boxtimes)	24
<code>\boxtimes</code> (\boxtimes)	21
<code>\boxtimes</code> (\boxtimes)	24
<code>\boxtop</code> (\boxtop)	24
<code>\boxtriangleup</code> (\boxtriangleup)	24
<code>\boxvert</code> (\boxvert)	24
<code>\boxvoid</code> (\square)	24
<code>\boy</code> (\char"0000)	68
bra	53
<code>\braceleft</code> ($\{$)	95
<code>\bracerd</code> ($\}$)	95
<code>\bracevert</code> ($\{$)	53
<code>\bracevert</code> ($\{$)	54

brackets	<i>see</i> delimiters
braket (package)	53
<code>\Break</code> (\char"0000)	69
breve	<i>see</i> accents
<code>\breve</code> (\char"0000)	56
<code>\breve</code> (\char"0000)	16
<code>\brokenvert</code> (\char"0000)	78
Bronger, Torsten	92
<code>\BS</code> (\char"0000)	69
<code>\BSEfree</code> (\char"0000)	70
<code>\BSPACE</code> (\char"0000)	69
<code>\bullet</code> (\bullet)	20
<code>\bullet</code> (\bullet)	23
bullseye	<i>see</i> <code>\text{bullseye}</code>
<code>\Bumpedeq</code> (\char"0000)	31
<code>\bumpedeq</code> (\char"0000)	31
<code>\Bumpeq</code> (\char"0000)	30
<code>\Bumpeq</code> (\char"0000)	32
<code>\bumpeq</code> (\char"0000)	30
<code>\bumpeq</code> (\char"0000)	32
<code>\bupperhand</code> (\char"0000)	82



<code>\Burns</code> (\char"0000)	85
---	----

C

<code>\C</code> (\char"0000)	82
c (esvect package option)	59
<code>\c</code> (\char"0000)	13, 102
<code>\c</code> (\char"0000)	82
calligra (package)	65, 104, 105
Calligra (font)	65
calrfs (package)	65
<code>\CAN</code> (\char"0000)	69
cancel (package)	57
<code>\Cancer</code> (\char"0000)	68
<code>\cancer</code> (\char"0000)	68
<code>\Cap</code> (\char"0000)	21
<code>\Cap</code> (\char"0000)	23
<code>\cap</code> (\cap)	22
<code>\cap</code> (\cap)	20
<code>\cap</code> (\cap)	23
<code>\capdot</code> (\capdot)	23
<code>\capplus</code> (\char"0000)	23
<code>\Capricorn</code> (\char"0000)	68
<code>\capricornus</code> (\char"0000)	68
card suits	62–64, 77
cardinality	<i>see</i> <code>\aleph</code>
care of (\char"0000)	64
caret	<i>see</i> <code>\^</code>
Carlisle, David	1, 104
caron	<i>see</i> accents
carriage return	69, 77, 90, <i>see also</i> <code>\hookleftarrow</code>
<code>\carriagereturn</code> (\char"0000)	77
castle	<i>see</i> chess symbols
<code>\Catalexis</code> (\char"0000)	82
<code>\catalexis</code> (\char"0000)	82
catamorphism	<i>see</i> <code>\llparenthesis</code> and <code>\rrparenthesis</code>
<code>\Cc</code> (\char"0000)	82

<code>\cc</code> (©)	18	<code>\circlearrowright</code> (↻)	41	<code>cmll</code> (package)	20, 23, 30, 36, 104
<code>\cc</code> (||) . . . . .	82	<code>\circlearrowright</code> (↻)	44	<code>\coAsterisk</code> (*)	22
<code>\ccby</code> (BY)	18	circled numbers	73, 76	<code>\coasterisk</code> (*)	22
<code>\Ccc</code> (||) . . . . .	82	<code>\CircledA</code> (A)	80	code page 1252	103
<code>cclicenses</code> (package)	18, 104, 105	<code>\circledast</code> (*)	21	table	103
<code>\ccnc</code> (S)	18	<code>\circledast</code> (⊗)	24	code page 437	69, 101
<code>\ccnd</code> (E)	18	<code>\circledbar</code> (D)	21	<code>\Coffeecup</code> (☕)	76
<code>\ccsa</code> (S)	18	<code>\circledbslash</code> (S)	21	<code>\coh</code> (C)	36
<code>\cdot</code> (·)	20, 91	<code>\circledcirc</code> (O)	21	<code>\colon</code>	61
<code>\cdot</code> (·)	23, 61	<code>\circledcirc</code> (O)	24	<code>\colon</code> (:)	61
<code>\cdotp</code> (·)	61	<code>\circleddash</code> (D)	21	<code>\colon</code> (:)	61
<code>\cdotp</code> (·)	61	<code>\circleddash</code> (D)	24	<code>\Colonapprox</code> (::≈)	31
<code>\cdotdots</code> (···)	61	<code>\circleddot</code>	<i>see</i> <code>\odot</code>	<code>\Colonapprox</code> (::≈)	34
<code>Cedi</code>	<i>see</i> <code>\textcolonmonetary</code>	<code>\circleddotleft</code> (←O)	42	<code>\Colonapprox</code> (≈)	34
<code>cedilla</code>	<i>see</i> accents	<code>\circleddotright</code> (O→)	42	<code>\Coloneq</code> (::-)	31
<code>celestial bodies</code>	68	<code>\circledgtr</code> (S)	31	<code>\Coloneq</code> (::-)	34
<code>\celsius</code> (°C)	67	<code>\circledless</code> (S)	31	<code>\coloneq</code> (:=)	31
<code>\Celtcross</code> (✠)	80	<code>\circledminus</code>	<i>see</i> <code>\ominus</code>	<code>\coloneq</code> (:-)	34
<code>\cent</code> (¢)	17	<code>\circledotleft</code>	<i>see</i>	<code>\coloneq</code> (:-)	31
<code>\centerdot</code> (▪)	22	<code>\circleddotleft</code>		<code>\Coloneqq</code> (::=)	31
<code>\centerdot</code> (▪)	21	<code>\circledotright</code>	<i>see</i>	<code>\Coloneqq</code> (::=)	34
<code>centernot</code> (package)	92	<code>\circleddotright</code>		<code>\coloneqq</code> (:=)	34
<code>\centernot</code>	92	<code>\circledplus</code>	<i>see</i> <code>\oplus</code>	<code>\coloneqq</code> (:=)	20, 31
<code>\centre</code> (⊞)	82	<code>\circledR</code> (®)	8, 51	<code>\Colonsim</code> (::~)	31
<code>cents</code>	<i>see</i> <code>\textcent</code>	<code>\circledS</code> (S)	51	<code>\Colonsim</code> (::~)	34
<code>\CEsign</code> (C€)	70	<code>\circledslash</code>	<i>see</i> <code>\oslash</code>	<code>\colonsim</code> (∩)	34
<code>chancery</code> (package)	104	<code>\circledtimes</code>	<i>see</i> <code>\otimes</code>	<code>\colonsim</code> (∩)	31
<code>\changenotsign</code>	32	<code>\circledvee</code> (V)	21	<code>\colonsim</code> (∩)	31
<code>\char</code>	7, 90	<code>\circledwedge</code> (W)	21	<code>\comment</code> (RR)	82
<code>Charter</code> (font)	17, 29	<code>\circleleft</code> (←O)	42	communication symbols	69
<code>\check</code> (☑)	56	<code>\circleleft</code> (O→)	42	<code>comp.text.tex</code> (newsgroup)	7, 20, 90–95
<code>check marks</code>	73, 76, 77	circles	75, 76, 78	<code>\compensation</code> (∞)	82
<code>\checked</code> (✓)	78	<code>\CircleShadow</code> (O)	75	<code>\complement</code> (C)	51
<code>\CheckedBox</code> (☑)	73	<code>\CircleSolid</code> (●)	75	<code>\complement</code> (C)	51
<code>\Checkedbox</code> (☑)	76	<code>\Circpipe</code> (O)	70	<code>\complement</code> (C)	29
<code>\Checkmark</code> (✓)	73	<code>\circplus</code> (†)	22	complex numbers (C)	<i>see</i>
<code>\checkmark</code> (✓)	8	<code>\Circsteel</code> (●)	70	alphabets, math	
<code>\checkmark</code> (✓)	63	circumflex	<i>see</i> accents	Comprehensive T _E X Archive Net-	
<code>\checkmark</code> (✓ vs. ✓)	88	<code>\circumflexus</code> (̂)	16	work	1, 7, 57, 66, 87, 103, 104
<code>\checkmark</code> (✓)	77	<code>\CleaningA</code> (A)	80	computer hardware symbols	69
<code>\CheckmarkBold</code> (✓)	73	<code>\CleaningF</code> (F)	80	computer keys	69
<code>chemarr</code> (package)	59, 104, 105	<code>\CleaningFF</code> (FF)	80	Computer Modern (font)	87, 89, 101
<code>chemarrow</code> (package)	47, 60, 104	<code>\CleaningP</code> (P)	80	<code>\ComputerMouse</code> (Ⓜ)	69
<code>\chemarrow</code> (→)	47	<code>\CleaningPP</code> (PP)	80	<code>\cong</code> (≅)	30
<code>Chen, Raymond</code>	106	<code>\clickb</code> (C)	12	<code>\cong</code> (≅)	32
<code>chess symbols</code>	82	<code>\clickc</code> (C)	12	conjunction	<i>see</i> <code>\wedge</code>
<code>\chi</code> (χ)	49	<code>\clickt</code> (t)	12	<code>\conjunction</code> (σ)	68
<code>\chiup</code> (χ)	50	<code>\clock</code> (C)	78	consequence relations	34
<code>\circ</code> (o)	20, 64, 92	clock symbols	81	contradiction symbols	20, 48
<code>\circ</code> (o)	23	<code>\Clocklogo</code> (C)	76	control characters	69
<code>\circeq</code> (≐)	31	<code>\closedcurlyvee</code> (V)	23	<code>\convolution</code> (*)	22
<code>\circeq</code> (≐)	30	<code>\closedcurlywedge</code> (A)	23	<code>\coprod</code> (∏)	20, 25
<code>\circeq</code> (≐)	32	<code>\closedequal</code> (≐)	32	<code>\coprod</code> (∏)	29
<code>\CIRCLE</code> (●)	78	<code>\closedniomega</code> (ω)	12	copyright	8, 18, 102
<code>\Circle</code> (O)	75	<code>\closedprec</code> (◁)	32	<code>\copyright</code> (©)	8
<code>\Circle</code> (O vs. O)	88	<code>\closedrepsilon</code> (ε)	12	<code>\corner</code> (⋈)	16
<code>\Circle</code> (O)	78	<code>\closedsucc</code> (▷)	32	<code>\Corresponds</code> (≅)	64
<code>\circlearrowleft</code> (↺)	42	<code>\Cloud</code> (☁)	80	<code>\corresponds</code> (≅)	31
<code>\circlearrowleft</code> (↺)	41	clovers	74	<code>\cos</code> (cos)	49, 99
<code>\circlearrowleft</code> (O)	44	clubs (suit)	62–64, 77	<code>\cosh</code> (cosh)	49
<code>\circlearrowright</code> (↻)	42	<code>\clubsuit</code> (♣)	62		
		<code>\clubsuit</code> (♣)	63		

<code>\cot</code> (cot)	49	<code>\curlywedgedownarrow</code> (\Downarrow) ..	21	<code>\DavidStar</code> (\star)	74
<code>\coth</code> (coth)	49	<code>\curlywedgeuparrow</code> (\Uparrow) ...	21	<code>\DavidStarSolid</code> (\blackstar)	74
<code>\counterplay</code> (\leftrightarrow)	82	<code>\curlyyogh</code> (\mathfrak{z})	12	<code>\dbar</code> (\bar{d})	91
Courier (font)	17	<code>\curlyz</code> (\mathfrak{z})	12	<code>\dbend</code> (\curvearrowright)	76
CP1252	see code page 1252	<code>\currency</code> (¤)	17	<code>dblaccnt</code> (⌘ package)	94
CP437	see code page 437	currency symbols	17, 65	<code>\dblcolon</code> (⋮)	34
<code>\CR</code> (␣)	69	<code>\curvearrowbotleft</code> (\curvearrowleft) ..	42	<code>\DCa</code> (⌂)	69
<code>\cr</code>	91	<code>\curvearrowbotletright</code> (\curvearrowright)	42	<code>\DCb</code> (⌃)	69
Creative Commons licenses ..	18	.....	42	<code>\DCc</code> (⌄)	69
crescent (fge package option)	56	<code>\curvearrowbotright</code> (\curvearrowright) ..	42	<code>\DCd</code> (⌅)	69
<code>\Cross</code> (\times)	75	<code>\curvearrowdownup</code> (\Updownarrow)	43	<code>\DD</code> (Ⓚ)	79
<code>\Cross</code> (\dagger vs. \ddagger vs. \times)	88	<code>\curvearrowleft</code> (\curvearrowleft)	42	<code>\ddag</code> (\ddagger)	8, 103
<code>\Cross</code> (\dagger)	72	<code>\curvearrowleft</code> (\curvearrowright)	41	<code>\ddagger</code> (\ddagger)	20
<code>\Cross</code> (\ddagger)	80	<code>\curvearrowleft</code> (\curvearrowleft)	44	<code>\ddashint</code> (\int)	93
<code>\crossb</code> (⌘)	12	<code>\curvearrowleft</code> (\curvearrowright)	42	<code>\ddddot</code> (⋮̇̇̇̇)	56
<code>\CrossBoldOutline</code> (⌘)	72	<code>\curvearrowleft</code> (\curvearrowright)	43	<code>\dddotted</code> (⋮̇̇̇̇)	56
<code>\CrossClowerTips</code> (⌘)	72	<code>\curvearrownesw</code> (\curvearrowright)	43	<code>\dddtstile</code> (⌘)	34
<code>\crossd</code> (⌘)	12	<code>\curvearrownwse</code> (\curvearrowleft)	43	<code>\DDohne</code> (Ⓚ)	79
<code>\Crossedbox</code> (⌘)	76	<code>\curvearrowright</code> (\curvearrowright)	42	<code>\ddot</code> ($\ddot{\text{⋮}}$)	56
crosses	72, 76, 80	<code>\curvearrowright</code> (\curvearrowleft)	41	<code>\ddotdot</code> ($\ddot{\text{⋮̇}}$)	23, 61
<code>\crossh</code> (⌘)	12	<code>\curvearrowright</code> (\curvearrowright)	44	<code>\ddots</code> (⋮̇̇̇̇)	61, 94
<code>\CrossMaltese</code> (⌘)	72	<code>\curvearrowright</code> (\curvearrowleft)	43	<code>\ddots</code> (⋮̇̇̇̇)	61
<code>\crossnilambda</code> (λ)	12	<code>\curvearrowright</code> (\curvearrowright)	43	<code>\ddststile</code> (⌘)	34
<code>\CrossOpenShadow</code> (⌘)	72	<code>\curvearrowupdown</code> (\Updownarrow)	43	<code>\ddtstile</code> (⌘)	34
<code>\CrossOutline</code> (⌘)	72	<code>\Cutleft</code> (⌘)	71	<code>\ddtstile</code> (⌘)	34
crotchet ..	see musical symbols	<code>\Cutline</code> (⌘)	71	<code>\ddttstile</code> (⌘)	34
<code>\crtilde</code> (⌘)	15	cutoff subtraction ..	see <code>\dotdiv</code>	<code>\DeclareFontFamily</code>	98
crucifixes	72, 80	<code>\Cutright</code> (⌘)	71	<code>\DeclareFontShape</code>	98
<code>\Crux</code> (\dagger)	56			<code>\DeclareMathOperator</code>	99
<code>\crux</code> (\dagger)	56			<code>\DeclareMathOperator*</code>	99
<code>\csc</code> (csc)	49			<code>\declareslashed</code>	92
CTAN	see Comprehensive T _E X			definite-description operator (⌈)	90
Archive Network .....				.....	90
<code>\Ctrl</code> (⌘)	69			definition symbols	20, 95
<code>\Cube</code>	81, 90			<code>\deg</code> (deg)	49
cube root	see <code>\sqrt</code>			<code>\degree</code> ($^{\circ}$)	63
<code>\Cup</code> (⌘)	21			<code>\degree</code> ($^{\circ}$)	67
<code>\Cup</code> (⌘)	23			degrees	see <code>\textdegree</code>
<code>\cup</code> (\cup)	22			<code>\DEL</code> (⌘)	69
<code>\cup</code> (\cup)	20, 91, 99			<code>\Del</code> (⌘)	69
<code>\cup</code> (\cup)	23			<code>\Deleatur</code>	see <code>\Denarius</code>
<code>\cupdot</code> (⌘)	23			delimiters	52–56
<code>\cupplus</code> (⌘)	23			text-mode	56
<code>\curlyc</code> (\mathfrak{c})	12			variable-sized	53–55
<code>\curlyeqprec</code> (\preccurlyeq)	31			wavy-line	54, 55
<code>\curlyeqprec</code> (\preccurlyeq)	30			<code>\Delta</code> (Δ)	49
<code>\curlyeqprec</code> (\preccurlyeq)	32			<code>\delta</code> (δ)	49
<code>\curlyeqsucc</code> (\succcurlyeq)	31			<code>\delta</code> (δ)	50
<code>\curlyeqsucc</code> (\succcurlyeq)	30			demisemiquaver	see musical
<code>\curlyeqsucc</code> (\succcurlyeq)	32			symbols	
<code>\curlyesh</code> (\mathfrak{f})	12			<code>\Denarius</code> (⌘)	17
<code>\curlyvee</code> (\vee)	22			<code>\dental</code> (⌘)	15
<code>\curlyvee</code> (\vee)	21			derivitive, partial ..	see <code>\partial</code>
<code>\curlyvee</code> (\vee)	23			<code>\descnode</code> (⌘)	68
<code>\curlyveedot</code> (⌘)	23			<code>\det</code> (det)	49
<code>\curlyveedownarrow</code> (⌘) ..	21			<code>\devadantage</code> (⌘)	82
<code>\curlyveeuparrow</code> (⌘)	21			<code>\Dfourier</code> (⌘)	35
<code>\curlywedge</code> (\wedge)	22			<code>\dfourier</code> (⌘)	35
<code>\curlywedge</code> (\wedge)	21			<code>\DFT</code> (⌘)	60
<code>\curlywedge</code> (\wedge)	23			<code>\dft</code> (⌘)	60
<code>\curlywedgedot</code> (⌘)	23				

<code>\DH</code> (Ð)	9, 102	old-style	18	<code>\dotmedvert</code> (⋮)	23
<code>\DH</code> (Đ)	12	segmented	67	<code>\dotminus</code> (⊖)	23
<code>\dh</code> (ð)	9, 102	<code>\dim</code> (dim)	49	<code>\dotplus</code> (⊕)	22
<code>\dh</code> (đ)	12	<code>\ding</code>	9, 71–75, 77	<code>\dotplus</code> (⊕)	21
diacritics	<i>see</i> accents	<code>dingbat</code> (package)	73	<code>\dots</code> (...)	8, 103
<code>\diaeresis</code> (ü)	16	<code>dingbat</code> (package)	72, 77, 88, 104, 105	dots (ellipses)	8, 61, 62, 94
diæresis	<i>see</i> accents	dingbat symbols	71–77	<code>\dotsb</code> (⋯)	61
<code>\diagdown</code> (↘)	63	<code>\Diple</code> (>)	82	<code>\dotsc</code> (...)	61
<code>\diagdown</code> (↘)	63	<code>\diple</code> (>)	82	<code>\dotseq</code> (≐)	31
<code>\diagdown</code> (↘)	33	<code>\Diple*</code> (>)	82	<code>\dotsi</code> (⋯)	61
<code>\diagonal</code> (↗)	82	<code>\diple*</code> (>)	82	<code>\dotsint</code> (∫⋯∫)	28
<code>\diagup</code> (↗)	63	Dirac notation	53	<code>\dotsm</code> (⋯)	61
<code>\diagup</code> (↗)	63	discount	<i>see</i> <code>\textdiscount</code>	<code>\dotso</code> (...)	61
<code>\diagup</code> (↗)	33	discretionary hyphen	103	dotted union (∪̇)	99
<code>\diameter</code> (∅)	63	disjoint union	20	<code>\dottedtilde</code> (ñ̇)	15
<code>\diameter</code> (∅)	20	disjunction	<i>see</i> <code>\vee</code>	<code>\dottimes</code> (⊗)	22
<code>\diameter</code> (∅)	63	<code>\displaystyle</code>	92, 93, 95, 99	<code>\double</code>	55
<code>\diameter</code> (∅)	78	ditto marks	<i>see</i> <code>\textquotedbl</code>	<code>\doublebarwedge</code> (⌘)	22
<code>\Diamond</code> (◇)	62	<code>\div</code> (÷)	20	<code>\doublebarwedge</code> (⌘)	21
<code>\Diamond</code> (◇)	63	<code>\div</code> (÷)	23	<code>\doublecap</code>	<i>see</i> <code>\Cap</code>
<code>\Diamond</code> (◇)	24	<code>\divdot</code> (÷̇)	22	<code>\doublecap</code> (⊔)	22
<code>\diamond</code> (◇)	20	<code>\divideontimes</code> (⋈)	22	<code>\doublecap</code> (⊔)	23
<code>\diamond</code> (◇)	24	<code>\divideontimes</code> (⋈)	21	<code>\doublecup</code>	<i>see</i> <code>\Cup</code>
<code>\diamondbackslash</code> (◊)	24	<code>\divides</code> (∣)	31	<code>\doublecup</code> (⊔)	22
<code>\Diamondblack</code> (◆)	63	<code>\divides</code> (∕)	33	<code>\doublecup</code> (⊔)	23
<code>\diamondddiamond</code> (◊)	24	division	20, 57	<code>\doublecurlyvee</code> (⋈)	23
<code>\Diamonddot</code> (◊)	63	non-commutative	60	<code>\doublecurlywedge</code> (⋈)	23
<code>\diamonddot</code> (◊)	24	division times	<i>see</i>	<code>\doublefrown</code> (⋈)	48
<code>\DiamonddotLeft</code> (◊)	42	<code>\divideontimes</code>		<code>\doublefrown</code> (⋈)	48
<code>\DiamonddotLeft</code> (◊)	42	divorced	<i>see</i> <code>\textdivorced</code>	<code>\doublepawns</code> (♔)	82
<code>\DiamonddotRight</code> (◊)	42	<code>\DJ</code> (Đ)	9	<code>\doublesmile</code> (☺)	48
<code>\DiamonddotRight</code> (◊)	42	<code>\dj</code> (đ)	9	<code>\doublesmileeq</code> (≅)	48
<code>\diamonddots</code> (⋮)	23, 61	<code>\dlbari</code> (†)	12	<code>\doublesqcap</code> (⊔)	23
<code>\DiamondLeft</code> (◊)	42	<code>\DLE</code> (▶)	69	<code>\doublesqcup</code> (⊔)	23
<code>\Diamondleft</code> (◊)	42	<code>\dlsh</code> (↵)	42	<code>\doubletilde</code> (ñ̃)	15
<code>\diamondminus</code> (◊)	24	<code>\dntstile</code> (⌌)	34	<code>\doublevee</code> (⋈)	23
<code>\diamondplus</code> (◊)	24	<code>\dnststile</code> (⌌)	34	<code>\doublewedge</code> (⋈)	23
<code>\DiamondRight</code> (◊)	42	<code>\dntstile</code> (⌌)	34	<code>\DOWNarrow</code> (▼)	78
<code>\Diamondright</code> (◊)	42	<code>\dnttstile</code> (⌌)	35	<code>\Downarrow</code> (⇩)	41, 53
diamonds	75	does not divide	<i>see</i> <code>\nmid</code>	<code>\Downarrow</code> (⇩)	43
diamonds (suit)	62–64, 77	does not exist	<i>see</i> <code>\nexists</code>	<code>\downarrow</code>	99
<code>\DiamondShadowA</code> (◊)	75	<code>\Dohne</code> (D)	79	<code>\downarrow</code> (↓)	41, 53
<code>\DiamondShadowB</code> (◊)	75	dollar	<i>see</i> <code>\textdollar</code>	<code>\downarrow</code> (↓)	43
<code>\DiamondShadowC</code> (◊)	75	dollar sign	<i>see</i> <code>\\$</code>	<code>\downarrowtail</code> (↵)	43
<code>\Diamondshape</code> (◇)	75	<code>\Dontwash</code> (☒)	80	<code>\downbracketfill</code>	95
<code>\diamondslash</code> (◊)	24	<code>\dot</code> (•)	56	<code>\downarrowdownarrows</code> (⇓)	42
<code>\DiamondSolid</code> (◆)	75	dot symbols	8, 61, 62, 94	<code>\downarrowdownarrows</code> (⇓)	41
<code>\diamondsuit</code> (◇)	62	<code>\dotcup</code> (∪̇)	20, 91	<code>\downarrowdownarrows</code> (⇓)	43
<code>\diamondsuit</code> (◇)	63	<code>\dotdiv</code> (÷̇)	22	<code>\downarrowdownharpoons</code> (⇓)	43
<code>\diamondtimes</code> (⊗)	24	<code>\Doteq</code>	<i>see</i> <code>\doteqdot</code>	Downes, Michael J.	49, 106
<code>\diamondvert</code> (⋈)	24	<code>\Doteq</code> (≐)	32	<code>\downfilledspoon</code> (⌌)	47
<code>\diatop</code>	16, 94	<code>\doteq</code> (≐)	30	<code>\downfootline</code> (⌌)	32
<code>\diaunder</code>	16, 94	<code>\doteq</code> (≐)	32	<code>\downfree</code> (↓)	32
dice	81, 90	<code>\doteqdot</code> (≐̇)	30	<code>\downharpoonccw</code> (↙)	46
dictionary symbols	10–13, 84	<code>\doteqdot</code> (≐̇)	33	<code>\downharpooncw</code> (↘)	46
<code>\dictsym</code> (package)	84, 104, 105	dotless <i>i</i> (<i>ı</i>)		<code>\downharpoonleft</code> (↙)	43
died	<i>see</i> <code>\textdied</code>	math mode	56, 62	<code>\downharpoonleft</code> (↙)	41
differential, inexact	<i>see</i> <code>\dbar</code>	text mode	13	<code>\downharpoonright</code> (↘)	43
<code>\digamma</code> (Ɔ)	49	dotless <i>j</i> (<i>ȷ</i>)		<code>\downharpoonright</code> (↘)	41
digits	62	math mode	56, 62	<code>\downmapsto</code> (⤵)	43
LCD	67	text mode	13	<code>\downModels</code> (⏚)	32
Mayan	62			<code>\downmodels</code> (⏚)	32

<code>\downp</code> (∨)	16	<code>\EightFlowerPetalRemoved</code> (*)	<code>\eqslantgtr</code> (≧)	37
<code>\downparentfill</code>	95	..... 74	<code>\eqslantgtr</code> (>)	39
<code>\downpitchfork</code> (Ψ)	47	eighth note <i>see</i> musical symbols	<code>\eqslantless</code> (≦)	38
<code>\downpropto</code> (∝)	32	<code>\eighthnote</code> (♩)	<code>\eqslantless</code> (<)	37
<code>\downrsquigarrow</code> (↷)	43	<code>\eighthnote</code> (♩)	<code>\eqslantless</code> (≠)	39
<code>\downslice</code> (∇)	24	<code>\EightStar</code> (*)	<code>\eqsmile</code> (☺)	48
<code>\downspoon</code> (Ⓛ)	47	<code>\EightStarBold</code> (★)	<code>\equal</code> (=)	32
<code>\downt</code> (τ)	16	<code>\EightStarConvex</code> (✱)	<code>\equal</code> (=)	82
<code>\downtherefore</code> (∴)	23, 61	<code>\EightStarTaper</code> (✱)	<code>\equalclosed</code> (≡)	32
<code>\downtouparrow</code> (⇕)	42	<code>\ejective</code> (P)	<code>\equalsfill</code>	20, 95
<code>\downuparrows</code> (⇕)	42	electrical symbols	equidecomposable	91
<code>\downuparrows</code> (⇕)	43	electromotive force (ℰ)	equilibrium	<i>see</i>
<code>\downupharpoons</code> (⇕)	43	alphabets, math	<code>\rightleftharpoons</code>	
<code>\downupharpoons</code> (⇕)	46	<code>\ell</code> (ℓ)	<code>\equiv</code> (≡)	20, 30
<code>\downVdash</code> (⊢)	32	<code>\Ellipse</code> (○)	<code>\equiv</code> (≡)	32
<code>\downvdash</code> (⊢)	32	ellipses (dots)	equivalence	<i>see</i>
<code>\downY</code> (Υ)	23	..... 8, 61, 62, 94	<code>\equiv</code> , <code>\leftrightharpoon</code> ,	
<code>\drsh</code> (↳)	42	ellipses (ovals)	<code>\and</code> <code>\threesim</code>	
<code>\DS</code> (⌘)	79	<code>\EllipseShadow</code> (○)	<code>\equivclosed</code> (≡)	32
<code>\Ds</code> (⌘)	79	<code>\EllipseSolid</code> (●)	<code>\er</code> (⊗)	11
<code>\dsaeronautical</code> (✈)	84	<code>\EM</code> (↓)	es-zet	<i>see</i> <code>\ss</code>
<code>\dsagricultural</code> (♣)	84	<code>\Email</code> (✉)	<code>\ESC</code> (←)	69
<code>\dsarchitectural</code> (⚙)	84	<code>\Emailct</code> (✉)	<code>\Esc</code> (⏏)	69
<code>\dsbiological</code> (🍄)	84	<code>\emgma</code> (Ⓜ)	escapable characters	8
<code>\dschemical</code> (⚗)	84	<code>\emptyset</code> (∅)	<code>\esh</code> (f)	11
<code>\dscommercial</code> (♣)	84	<code>\emptyset</code> (∅)	<code>\esh</code> (f)	12
<code>\dsdststile</code> (⏏)	35	<code>\End</code> (⏏)	esint (package)	28, 104
<code>dsfont</code> (package)	65, 104	end of proof	<code>\Estatically</code> (⚙)	70
<code>\ds heraldical</code> (⊙)	84	<code>\ending</code> (⊥)	estimated	<i>see</i> <code>\textestimated</code>
<code>\dsjuridical</code> (⚖)	84	<code>\eng</code> (Ⓜ)	esvect (package)	59, 104
<code>\dsliterary</code> (📖)	84	engineering symbols	<code>\eta</code> (η)	49
<code>\dsmathematical</code> (⚗)	84	..... 67, 70	<code>\etaup</code> (η)	50
<code>\dsmedical</code> (⚗)	84	<code>\engma</code> (Ⓜ)	<code>\ETB</code> (Ⓡ)	69
<code>\dsmilitary</code> (✈)	84	<code>\ENQ</code> (♣)	<code>\etc</code> (⋮)	82
<code>\dsrailways</code> (🚆)	84	entails	<code>\eth</code> (ð)	63
<code>\dsststile</code> (⏏)	35	<code>\Enter</code> (⏏)	<code>\eth</code> (ð)	11
<code>\dsttechnical</code> (⚙)	84	<code>\Envelope</code> (✉)	<code>\eth</code> (ð)	12
<code>\dststile</code> (⏏)	35	<code>\enya</code> (Ⓜ)	<code>\eth</code> (ð)	12
<code>\dsttstile</code> (⏏)	35	<code>\EOT</code> (♦)	<code>\ETX</code> (♥)	69
<code>\dtdtstile</code> (⏏)	35	epsdice (package)	eufrak (package)	65
<code>\dtimes</code> (⊗)	23	..... 81, 104, 105	Euler Roman	50
<code>\dtimes</code> (⊗)	23	<code>\epsdice</code> (⊠)	<code>\EUR</code> (€)	17
<code>\dtstile</code> (⏏)	35	<code>\epsi</code> (ε)	<code>\EURcr</code> (€)	17
<code>\dttstile</code> (⏏)	35	<code>\epsilon</code> (ε)	<code>\EURdig</code> (€)	17
<code>\dtttstile</code> (⏏)	35	<code>\epsilonup</code> (ε)	<code>\EURhvh</code> (€)	17
DVI	18, 69, 97	<code>\eqbump</code> (≡)	<code>\euro</code>	17
<code>\dz</code> (đ)	12	<code>\eqbumped</code> (≡)	euro signs	17
E				
<code>e</code> (esvect package option)	59	<code>\eqcirc</code> (≡)	blackboard bold	65
<code>\e</code> (e)	51	<code>\eqcirc</code> (≡)	<code>eurosym</code> (package)	17, 104, 105
<code>ε-TeX</code>	53	<code>\eqcirc</code> (≡)	<code>\EURtm</code> (€)	17
<code>\Earth</code> (⊕)	68	<code>\eqcolon</code> (=:)	<code>euscript</code> (package)	65, 104, 105
<code>\Earth</code> (⊕)	68	<code>\eqcolon</code> (=:)	evaluated at	<i>see</i> <code>\vert</code>
<code>\earth</code> (⊕)	68	<code>\eqcolon</code> (=:)	evil spirits	86
<code>\Ecommerce</code> (Ⓜ)	17	<code>\eqcolon</code> (=:)	exclusive or	90
<code>\EightAsterisk</code> (✱)	74	<code>\eqdot</code> (≡)	<code>\exists</code> (∃)	51
<code>\EightFlowerPetal</code> (✱)	74	<code>\eqfrown</code> (⋈)	<code>\exists</code> (∃)	51
		<code>\Eqqcolon</code> (=:)	<code>\exists</code> (∃)	51
		<code>\Eqqcolon</code> (=:)	<code>\exp</code> (exp)	49
		<code>\Eqqcolon</code> (=:)	<code>\Explosionsafe</code> (⚡)	70
		<code>\eqsim</code> (≈)	<code>extarrows</code> (package)	60, 104, 105
		<code>\eqsim</code> (≈)	extensible accents	57–60, 95–96
		<code>\eqslantgtr</code> (≧)	extensible arrows	57–60

extensible symbols, creating 94–96
 extensible tildes 57, 59
 extension characters . . . 48, 49
 extpfeil (package) . . 60, 104, 105
 extraipa (package) 15, 104
 \eye (☉) 77
 \EyesDollar (\$) 17

F

f (esvect package option) . . . 59
 faces 69, 78, 80, 85
 \fallingdotseq (≐) 31
 \fallingdotseq (≑) 30
 \fallingdotseq (≒) 32
 \FallingEdge (⌊) 67
 \fatbslash (⧄) 21
 \fatsemi (§) 21
 \fatslash (⧅) 21
 \FAX (FAX) 69
 \fax (Ⓢ) 69
 \Faxmachine (☎) 69
 fc (package) 9, 13
 fclfont (package) 104
 feet *see* \prime and \textquotesingle
 \FEMALE (♀) 70
 \Female (♀) 70
 \female (♀) 70
 \FemaleFemale (♀♀) 70
 \FemaleMale (♀♂) 70
 \Ferli (♁) 79
 \Fermi (♁) 79
 fermions 70
 feyn (package) 70, 104, 105
 Feynman slashed character notation 92
 Feynman-diagram symbols . . 70
 \feyn{a} (⤴) 70
 \feyn{c} (○) 70
 \feyn{fd} (⤵) 70
 \feyn{fl} (○) 70
 \feyn{fs} (—) 70
 \feyn{fu} (⤴) 70
 \feyn{fv} (⤵) 70
 \feyn{f} (—) 70
 \feyn{glu} (⊖) 70
 \feyn{gl} (⊖) 70
 \feyn{gu} (⊖) 70
 \feyn{gvs} (⊖) 70
 \feyn{gv} (⊖) 70
 \feyn{g} (⊖) 70
 \feyn{hd} (⤵) 70
 \feyn{hs} (—) 70
 \feyn{hu} (⤴) 70
 \feyn{h} (—) 70
 \feyn{ms} (—) 70
 \feyn{m} (—) 70
 \feyn{p} (⊖) 70
 \feyn{x} (⊗) 70

\FF (♀) 69
 fge (package) . 47, 52, 56, 62, 64, 104, 105
 fge-digits 62
 \fgeA (∇) 52
 \fgebackslash (∖) 64
 \fgebaracute (⊥) 64
 \fgebarcap (≈) 64
 \fgec (∂) 52
 \fgecap (∩) 64
 \fgecapbar (⊃) 64
 \fgecup (∪) 64
 \fgecupacute (∪) 64
 \fgecupbar (∪) 64
 \fged (p) 52
 \fgee (∂) 52
 \fgeeszett (g) 52
 \fgeeta (η) 52
 \fgeF (F) 52
 \fgef (f) 52
 \fgeinfty (∞) 64
 \fgeiangle (∠) 64
 \fgelb 52
 \fgelb (η) 52
 \fgeleftB (⊓) 52
 \fgeleftC (⊔) 52
 \fgeN (η) 52
 \fgeoverU (η) 52
 \fgerightarrow (⇒) 47
 \fgerightB (⊔) 52
 \fges (f) 52
 \fgestruckone (i) 62
 \fgestruckzero (0) 62
 \fgeU (U) 52
 \fgeuparrow (↑) 47
 \fgeupbracket (⌊) 64
 \FHBOLOGO (Ⓜ) 80
 \FHBOLogo (Ⓜ) 80
 \file (⇔) 82
 \FilledBigCircle (●) 75
 \FilledBigDiamondshape (◆) 75
 \FilledBigSquare (■) 75
 \FilledBigTriangleDown (▼) 75
 \FilledBigTriangleLeft (◀) 75
 \FilledBigTriangleRight (▶) 75
 \FilledBigTriangleUp (▲) . 75
 \FilledCircle (●) 75
 \FilledCloud (☁) 80
 \filleddiamond (◆) 24
 \FilledDiamondShadowA (◆) 75
 \FilledDiamondShadowC (◆) 75
 \FilledDiamondshape (◆) . . 75
 \FilledHut (♠) 81
 \filledlargestar (★) 74
 \filledlozenge (◊) 74
 \filledmedlozenge (◊) 74
 \filledmedsquare (■) 24
 \filledmedtriangledown (▼) 24, 40

\filledmedtriangleleft (◀) 24, 40
 \filledmedtriangleright (▶) 24, 40
 \filledmedtriangleup (▲) 24, 40
 \FilledRainCloud (☁) 80
 \FilledSectioningDiamond (◆) 81
 \FilledSmallCircle (●) . . 75
 \FilledSmallDiamondshape (◆) 75
 \FilledSmallSquare (■) . . 75
 \FilledSmallTriangleDown (▼) 75
 \FilledSmallTriangleLeft (◀) 75
 \FilledSmallTriangleRight (▶) 75
 \FilledSmallTriangleUp (▲) 75
 \FilledSnowCloud (☁) 80
 \FilledSquare (■) 75
 \filledsquare (■) 24
 \FilledSquareShadowA (■) . 75
 \FilledSquareShadowC (■) . 75
 \filledsquarewithdots (■) 77
 \filledstar (★) 24
 \FilledSunCloud (☀) 80
 \FilledTriangleDown (▼) . . 75
 \filledtriangledown (▼) 24, 40
 \FilledTriangleLeft (◀) . . 75
 \filledtriangleleft (◀) 24, 40
 \FilledTriangleRight (▶) . 75
 \filledtriangleright (▶) 24, 40
 \FilledTriangleUp (▲) . . . 75
 \filledtriangleup (▲) . 24, 40
 \FilledWeakRainCloud (☁) . 80
 finger, pointing *see* fists
 \finpartvoice (♩) 15
 \finpartvoiceless (♩) 15
 \fint (f) 27
 \fint (f) 28
 \Finv (∓) 51
 \Finv (∓) 51
 \Fire (🔥) 81
 fish hook *see* \strictif
 fists 72
 \fivedots (⋮) 23, 61
 \FiveFlowerOpen (🌸) 74
 \FiveFlowerPetal (🌸) 74
 \FiveStar (★) 74
 \FiveStarCenterOpen (☆) . . 74
 \FiveStarConvex (★) 74
 \FiveStarLines (☆) 74
 \FiveStarOpen (☆) 74
 \FiveStarOpenCircled (☆) . 74

<code>\FiveStarOpenDotted</code> (★) .. 74	<code>\FourAsterisk</code> (✚) 74	german (keystroke package option)
<code>\FiveStarOutline</code> (★) 74	<code>\FourCloverOpen</code> (☞) 74	..... 69
<code>\FiveStarOutlineHeavy</code> (★) 74	<code>\FourCloverSolid</code> (☛) 74	<code>\gets</code> <i>see</i> <code>\leftarrow</code>
<code>\FiveStarShadow</code> (★) 74	<code>\Fourier</code> (—o) 35	<code>\gg</code> (≫) 38
<code>\Fixedbearing</code> (♁) 70	<code>\fourier</code> (o—) 35	<code>\gg</code> (≫) 37
<code>\fixedddots</code> (⋯) 61	Fourier transform (ℱ) <i>see</i>	<code>\gg</code> (≫) 39
<code>\fixedvdots</code> (⋮) 61	alphabets, math	<code>\ggcurly</code> (⋈) 31
fixmath (package) 100	<code>\FourStar</code> (◆) 74	<code>\ggg</code> (≧) 38
<code>\fj</code> (fj) 12	<code>\FourStarOpen</code> (◇) 74	<code>\ggg</code> (≧) 37
<code>\Flag</code> (↑) 81	<code>\fourth</code> (iiii) 63	<code>\ggg</code> (≧ vs. ≧) 88
<code>\flap</code> (r) 12	fractions 64	<code>\ggg</code> (≧) 39
<code>\flapr</code> (r) 11	fraktur ... <i>see</i> alphabets, math	<code>\gggtr</code> <i>see</i> <code>\ggg</code>
<code>\flat</code> (b) 62, 78	Frege logic symbols 47, 52, 62, 64	<code>\gggtr</code> (≫) 39
<code>\flat</code> (b) 63	<code>\frown</code> (⌒) 30	ghosts 86
<code>\Flatsteel</code> (—) 70	<code>\frown</code> (˘) 48	Gibbons, Jeremy 106
fledged arrows 47, 71	frown symbols 48	<code>\gimel</code> (ג) 50
florin <i>see</i> <code>\textflorin</code>	<code>\frownEQ</code> (⌒) 48	<code>\gimel</code> (ג) 50
flowers 74	<code>\frownEQsmile</code> (⌒) 48	<code>\girl</code> (♀) 68
Flynn, Peter 91	<code>\frownie</code> (☹) 78	<code>\glotstop</code> (ʔ) 12
<code>\Fog</code> (☁) 80	<code>\frownsmile</code> (☺) 48	<code>\glottal</code> (ʔ) 12
font encodings 7, 100, 103	<code>\frownsmileEQ</code> (☺) 48	<code>\gluon</code> (⊗) 67
7-bit 7	<code>\Frowny</code> (☹) 80	gluons 70
8-bit 7	<code>\FS</code> (L) 69	<code>\gnapprox</code> (≈) 38
ASCII 104	<code>\FullFHBO</code> (☾) 80	<code>\gnapprox</code> (≈) 37
document 103	<code>\fullmoon</code> (☾) 68	<code>\gnapprox</code> (≈) 39
Latin 1 104	<code>\fullmoon</code> (☾) 68	<code>\gneq</code> (≧) 38
limiting scope of 7	<code>\fullnote</code> (◌) 78	<code>\gneq</code> (≧) 37
LY1 7	G	<code>\gneqq</code> (≧) 38
OT1 7, 9, 13, 94, 100, 101,	<code>\G</code> (♠) 13	<code>\gneqq</code> (≧) 37
103	g (esvect package option) ... 59	<code>\gneqq</code> (≧) 39
OT2 90	<code>\Game</code> (⊖) 51	<code>\gnsim</code> (≈) 38
T1 7, 9, 13, 101, 103	<code>\Game</code> (⊖) 51	<code>\gnsim</code> (≈) 37
T4 9, 13, 16	<code>\Gamma</code> (Γ) 49	<code>\gnsim</code> (≈) 39
T5 9, 13	<code>\gamma</code> (γ) 49	Go boards 76
TS1 103	<code>\gammaup</code> (γ) 50	Go stones 76
<code>fontdef.dtx</code> (file) 90, 94	<code>\Ganz</code> (⊖) 79	goban 76
<code>fontenc</code> (package) .. 7, 9, 13, 103	<code>\GaPa</code> (⊖) 79	<code>\Goofy</code> 85
<code>\fontencoding</code> 7	Garamond (font) 17, 29	graphics (package) 90
fonts	<code>\gcd</code> (gcd) 49	graphicx (package) ... 16, 87, 90
Calligra 65	<code>\ge</code> <i>see</i> <code>\geq</code>	<code>\grave</code> (̀) 56
Charter 17, 29	<code>\Gemini</code> (♊) 68	<code>\gravis</code> (̀) 16
Computer Modern . 87, 89,	<code>\Gemini</code> (♊) 68	greater-than signs <i>see</i>
101	<code>\gemini</code> (♊) 68	inequalities
Courier 17	genealogical symbols 78	Greek 49, 50
Garamond 17, 29	<code>\geneuro</code> (€) 17	blackboard bold 65
Helvetica 17	<code>\geneuronarrow</code> (€) 17	bold 49, 100
Symbol 50, 90	<code>\geneurwide</code> (€) 17	upright 50
Times Roman 17, 89	gensymb (package) 67	Gregorio, Enrico 91, 92
Type 1 99	<code>\Gentsroom</code> (♁) 76	<code>\GS</code> (↔) 69
Utopia 17, 29	geometric shapes 74–76	<code>\gtr</code> (>) 39
Zapf Chancery 65	<code>\geq</code> (≥) 38	<code>\gtrapprox</code> (≈) 38
Zapf Dingbats 71, 73	<code>\geq</code> (≥) 37, 38	<code>\gtrapprox</code> (≈) 37
<code>\fontsize</code> 87, 89	<code>\geq</code> (≥) 39	<code>\gtrapprox</code> (≈) 39
<code>\Football</code> (⚽) 76	<code>\geqclosed</code> (≥) 39, 40	<code>\gtrclosed</code> (▷) 39, 40
<code>\forall</code> (∀) 51	<code>\geqdot</code> (≥) 39	<code>\gtrdot</code> (▷) 38
<code>\forall</code> (∀) 51	<code>\geqq</code> (≧) 38	<code>\gtrdot</code> (▷) 37
<code>\Force</code> (↓) 70	<code>\geqq</code> (≧) 37	<code>\gtrdot</code> (▷) 39
<code>\Forward</code> (▶) 79	<code>\geqq</code> (≧) 39	<code>\gtreqless</code> (≧) 38
<code>\ForwardToEnd</code> (▶) 79	<code>\geqslant</code> (≧) 37	<code>\gtreqless</code> (≧) 37
<code>\ForwardToIndex</code> (▶▶) 79	<code>\geqslant</code> (≧) 39	<code>\gtreqless</code> (≧) 39
	<code>\geqslantdot</code> (≧) 39	<code>\gtreqqlless</code> (≧) 38










<code>\gtreqqless</code> (\gtrless)	37
<code>\gtreqqless</code> (\gtrless)	39
<code>\gtrless</code> (\gtrless)	38
<code>\gtrless</code> (\gtrless)	37
<code>\gtrless</code> (\gtrless)	39
<code>\gtrneqqless</code> (\gtrneqqless)	39
<code>\gtrsim</code> (\gtrsim)	38
<code>\gtrsim</code> (\gtrsim)	37
<code>\gtrsim</code> (\gtrsim)	39
<code>\guillemotleft</code> (\ll)	9, 102
<code>\guillemotright</code> (\gg)	9, 102
<code>\guilsinglleft</code> (\langle)	9, 103
<code>\guilsinglright</code> (\rangle)	9, 103
<code>\gvertneqq</code> (\gvertneqq)	38
<code>\gvertneqq</code> (\gvertneqq)	37
<code>\gvertneqq</code> (\gvertneqq)	39

H









<code>\H</code> (\mathbb{H})	13
<code>h</code> (esvect package option)	59
<code>\h</code> (\mathbb{h})	13
<code>\HA</code> (\mathbb{H})	84
<code>\Ha</code> (\mathbb{H})	84
<code>háček</code>	<i>see accents</i>
<code>\Hail</code> (\mathbb{H})	80
<code>\Halb</code> (\mathbb{H})	79
<code>half note</code>	<i>see musical symbols</i>
<code>\HalfCircleLeft</code> (\mathbb{H})	75
<code>\HalfCircleRight</code> (\mathbb{H})	75
<code>\HalfFilledHut</code> (\mathbb{H})	81
<code>\halflength</code> (\mathbb{H})	16
<code>\halfnote</code> (\mathbb{H})	78
<code>\HalfSun</code> (\mathbb{H})	80
<code>Hamiltonian</code> (\mathcal{H})	<i>see alphabets, math</i>
<code>\HandCuffLeft</code> (\mathbb{H})	72
<code>\HandCuffLeftUp</code> (\mathbb{H})	72
<code>\HandCuffRight</code> (\mathbb{H})	72
<code>\HandCuffRightUp</code> (\mathbb{H})	72
<code>\HandLeft</code> (\mathbb{H})	72
<code>\HandLeftUp</code> (\mathbb{H})	72
<code>\HandPencilLeft</code> (\mathbb{H})	72
<code>\HandRight</code> (\mathbb{H})	72
<code>\HandRightUp</code> (\mathbb{H})	72
<code>hands</code>	<i>see fists</i>
<code>\Handwash</code> (\mathbb{H})	80
<code>\HaPa</code> (\mathbb{H})	79
<code>harmony</code> (package)	79, 104, 105
<code>harpoons</code>	41, 43, 46
<code>\hash</code> (\mathbb{H})	63
<code>hash mark</code>	<i>see \#</i>
<code>\hat</code> (\mathbb{H})	56
<code>\hateq</code> (\mathbb{H})	32
<code>\hausA</code> (\mathbb{H})	12
<code>\hausab</code> (\mathbb{H})	12
<code>\hausAD</code> (\mathbb{H})	12
<code>\hausad</code> (\mathbb{H})	12
<code>\hausAK</code> (\mathbb{H})	12
<code>\hausak</code> (\mathbb{H})	12









<code>\HB</code> (\mathbb{H})	84
<code>\Hb</code> (\mathbb{H})	84
<code>\HBar</code> (\mathbb{H})	75
<code>\hbar</code> (\mathbb{H})	51, 90
<code>\hbipropto</code> (\mathbb{H})	23
<code>\HC</code> (\mathbb{H})	84
<code>\Hc</code> (\mathbb{H})	84
<code>\hcrossing</code> (\mathbb{H})	32
<code>\HCThousand</code> (\mathbb{H})	84
<code>\HD</code> (\mathbb{H})	84
<code>\Hd</code> (\mathbb{H})	84
<code>\hdotdot</code> (\mathbb{H})	23, 61
<code>\hdots</code> (\mathbb{H})	61
<code>\Hdual</code> (\mathbb{H})	84
<code>\HE</code> (\mathbb{H})	84
<code>\He</code> (\mathbb{H})	84
<code>heads</code>	<i>see faces</i>
<code>\Heart</code> (\mathbb{H})	80
<code>hearts</code> (suit)	62–64, 77
<code>\heartsuit</code> (\mathbb{H})	62
<code>\heartsuit</code> (\mathbb{H})	63
<code>Hebrew</code>	50, 65
<code>Helvetica</code> (font)	17
<code>\HERMAPHRODITE</code> (\mathbb{H})	70
<code>\Hermaphrodite</code> (\mathbb{H})	70
<code>\hexagon</code> (\mathbb{H})	74
<code>\Hexasteel</code> (\mathbb{H})	70
<code>\hexstar</code> (\mathbb{H})	73
<code>\HF</code> (\mathbb{H})	67
<code>\HF</code> (\mathbb{H})	84
<code>\Hf</code> (\mathbb{H})	84
<code>\hfil</code>	92
<code>\HG</code> (\mathbb{H})	84
<code>\Hg</code> (\mathbb{H})	84
<code>\HH</code>	79
<code>\HH</code> (\mathbb{H})	84
<code>\Hh</code> (\mathbb{H})	84
<code>\Hhundred</code> (\mathbb{H})	84
<code>\HI</code> (\mathbb{H})	84
<code>\Hi</code> (\mathbb{H})	84
<code>\Hibl</code> (\mathbb{H})	84
<code>\Hibp</code> (\mathbb{H})	84
<code>\Hibs</code> (\mathbb{H})	84
<code>\Hibw</code> (\mathbb{H})	84
<code>hieroglf</code> (package)	84, 104, 105
<code>hieroglyphics</code>	84
<code>Hilbert space</code> (\mathcal{H})	<i>see alphabets, math</i>
<code>\hill</code> (\mathbb{H})	15
<code>\HJ</code> (\mathbb{H})	84
<code>\Hj</code> (\mathbb{H})	84
<code>\HK</code> (\mathbb{H})	84
<code>\Hk</code> (\mathbb{H})	84
<code>\hksqrt</code> ($\sqrt{\mathbb{H}}$)	93
<code>\HL</code> (\mathbb{H})	84
<code>\Hl</code> (\mathbb{H})	84
<code>\HM</code> (\mathbb{H})	84
<code>\Hm</code> (\mathbb{H})	84




<code>\Hman</code> (\mathbb{H})	84
<code>\Hmillion</code> (\mathbb{H})	84
<code>\Hms</code> (\mathbb{H})	84
<code>\HN</code> (\mathbb{H})	84
<code>\Hn</code> (\mathbb{H})	84
<code>\HO</code> (\mathbb{H})	84
<code>\Ho</code> (\mathbb{H})	84
<code>Holt, Alexander</code>	1, 104
<code>\holter</code> (\mathbb{H})	60
<code>holtpolt</code> (package)	60, 104
<code>\hom</code> (hom)	49
<code>\Home</code> (\mathbb{H})	69
<code>\Homer</code> (\mathbb{H})	85
<code>\Hone</code> (\mathbb{H})	84
<code>\hookb</code> (\mathbb{H})	12
<code>\hookd</code> (\mathbb{H})	12
<code>\hookd</code> (\mathbb{H})	12
<code>\hookdownminus</code> (\mathbb{H})	63
<code>\hookg</code> (\mathbb{H})	12
<code>\hookh</code> (\mathbb{H})	12
<code>\hookheng</code> (\mathbb{H})	12
<code>\hookleftarrow</code> (\mathbb{H})	41
<code>\hookleftarrow</code> (\mathbb{H})	44
<code>\hookrepsilon</code> (\mathbb{H})	12
<code>\hookrightarrow</code> (\mathbb{H})	41
<code>\hookrightarrow</code> (\mathbb{H})	44
<code>\hookupminus</code> (\mathbb{H})	63
<code>Horn, Berthold</code>	66
<code>\HP</code> (\mathbb{H})	84
<code>\Hp</code> (\mathbb{H})	84
<code>\Hplural</code> (\mathbb{H})	84
<code>\Hplus</code> (\mathbb{H})	84
<code>\HQ</code> (\mathbb{H})	84
<code>\Hq</code> (\mathbb{H})	84
<code>\Hquery</code> (\mathbb{H})	84
<code>\HR</code> (\mathbb{H})	84
<code>\Hr</code> (\mathbb{H})	84
<code>\HS</code> (\mathbb{H})	84
<code>\Hs</code> (\mathbb{H})	84
<code>\Hscribe</code> (\mathbb{H})	84
<code>\Hslash</code> (\mathbb{H})	84
<code>\hslash</code> (\mathbb{H})	51
<code>\Hsv</code> (\mathbb{H})	84
<code>\HT</code> (\mathbb{H})	84
<code>\HT</code> (\mathbb{H})	69
<code>\Ht</code> (\mathbb{H})	84
<code>\Hten</code> (\mathbb{H})	84
<code>\Hthousand</code> (\mathbb{H})	84
<code>\Htongue</code> (\mathbb{H})	84
<code>\HU</code> (\mathbb{H})	84
<code>\Hu</code> (\mathbb{H})	84
<code>Hungarian umlaut</code>	<i>see accents</i>
<code>\Hut</code> (\mathbb{H})	81
<code>\HV</code> (\mathbb{H})	84

<code>\Hv</code> ()	84
<code>\hv</code> (\hookrightarrow)	12
<code>\Hvbar</code> ($\bar{\hookrightarrow}$)	84
<code>\HW</code> ()	84
<code>\Hw</code> ()	84
<code>\HX</code> ()	84
<code>\Hx</code> ()	84
<code>\HXthousand</code> ()	84
<code>\HY</code> ()	84
<code>\Hy</code> ()	84
hyphen, discretionary	103
<code>\HZ</code> ()	84
<code>\Hz</code> (\hookrightarrow)	84



I

<code>\i</code> (i)	13
<code>\ialign</code>	91, 93, 95
<code>\ibar</code> (\bar{i})	12
IBM PC	69, 101
Icelandic staves	85
<code>\IceMountain</code> ()	81
<code>\iddots</code> (\cdots)	62
<code>\iddots</code> (\dots)	94
<code>\idotsint</code> ($\int \cdots \int$)	25
<code>\idotsint</code> ($\int \cdots \int$)	27
<code>\idotsint</code> ($\int \cdots \int$)	29
<code>\iff</code> . <i>see</i> <code>\Longleftarrow</code>	
<code>ifsym</code> (package)	67, 75, 80, 81, 88, 90, 104, 105
<code>igo</code> (package)	76, 104
<code>\igocircle</code> ()	76
<code>\igocircle</code> ()	76
<code>\igocross</code> ()	76
<code>\igocross</code> ()	76
<code>\igonone</code> ()	76
<code>\igonone</code> (\circ)	76
<code>\igosquare</code> ()	76
<code>\igosquare</code> (\square)	76
<code>\igotriangle</code> ()	76
<code>\igotriangle</code> (\triangle)	76
<code>\iiint</code> (\iiint)	25
<code>\iiint</code> (\iiint)	27
<code>\iiint</code> (\iiint)	28
<code>\iiint</code> (\iiint)	29
<code>\iiint</code> (\iiint)	26
<code>\iiint</code> (\iiint)	25
<code>\iiint</code> (\iiint)	25, 27
<code>\iiint</code> (\iiint)	28
<code>\iiint</code> (\iiint)	29
<code>\iiint</code> (\iiint)	26
<code>\iiint</code> (\iiint)	25
<code>\iiint</code> (\iiint)	25, 27
<code>\iiint</code> (\iiint)	28
<code>\iiint</code> (\iiint)	29
<code>\Im</code> (\Im)	51
<code>\im</code> (j)	51
<code>\imath</code> (i)	51, 56
<code>\impliedby</code> . <i>see</i> <code>\Longleftarrow</code>	




<code>\implies</code> . <i>see</i> <code>\Longrightarrow</code> and <code>\vdash</code>	
impulse train	. <i>see</i> <code>sha</code>
<code>\in</code> (\in)	51
<code>\in</code> (\in)	51
<code>\in</code> (\in)	51
<code>\in</code> (\in)	51
inches	. <i>see</i> <code>\second</code> and <code>\textquotedbl</code>
<code>\incoh</code> (\asymp)	36
independence	
probabilistic	93
statistical	93
stochastic	. <i>see</i> <code>\bot</code>
<code>\independent</code> (\perp)	93
<code>\Industry</code> ()	76
inequalities	8, 37–39
inexact differential	. <i>see</i> <code>\dbar</code>
<code>\inf</code> (\inf)	49
infinity (∞)	. <i>see</i> <code>\infty</code>
<code>\Info</code> ()	76
information symbols	76
informer symbols	82
<code>\infty</code> (∞)	63
<code>\infty</code> (∞)	62
<code>\infty</code> (∞)	63
<code>\inipartvoice</code> ()	15
<code>\inipartvoiceless</code> ()	15
<code>\injlim</code> (injlim)	49
<code>\inplus</code> (\in)	30
<code>\Ins</code> ()	69
<code>\int</code> (\int)	26
<code>\int</code> (\int)	25
<code>\int</code> (\int)	25
<code>\int</code> (\int)	29
<code>\intclockwise</code> ()	29
integers (\mathbb{Z})	. <i>see</i> alphabets, math
integrals	25–29, 63, 92–93
integrals (wasysym package option)	25
<code>\intercal</code> (\intercal)	21
<code>\intercal</code> (\intercal)	51
<code>\interleave</code> (\lll)	21
intersection	. <i>see</i> <code>\cap</code>
<code>\Interval</code> ()	81
<code>\inva</code> (ε)	12
<code>\invamp</code> ()	21
<code>\invbackneg</code> ($\bar{-}$)	63
<code>\invdiameter</code> (\oslash)	78
<code>\inve</code> (\ominus)	12
<code>\InversTransformHoriz</code> ($\bullet \leftrightarrow$)	35
<code>\InversTransformVert</code> (\updownarrow)	35
inverted symbols	10–12, 16, 90
<code>\invf</code> (j)	12
<code>\invglotstop</code> (b)	12
<code>\invh</code> (η)	12
<code>\invlegr</code> (l)	12
<code>\invm</code> (w)	12
<code>\invneg</code> ($\bar{-}$)	30
<code>\invneg</code> ($\bar{-}$)	63
<code>\invr</code> (i)	12

<code>\invscr</code> (\mathcal{B})	12
<code>\invscripta</code> (\mathcal{D})	12
<code>\invv</code> (Λ)	12
<code>\invw</code> (\mathcal{M})	12
<code>\invy</code> (\mathcal{L})	12
<code>\iota</code> (ι)	49
<code>\iotaup</code> (ι)	50
<code>\ipagamma</code> (γ)	12
<code>\IroningI</code> ()	80
<code>\IroningII</code> ()	80
<code>\IroningIII</code> ()	80
irony mark (^)	90
<code>\Irritant</code> (\times)	81
<code>\ismodeledby</code> (\equiv)	90
ISO character entities	103
isoent (package)	103

J


<code>\j</code> (j)	13
<code>\JackStar</code> ()	74
<code>\JackStarBold</code> ()	74
Jewish star	73, 74
<code>\jmath</code> (j)	51, 56
<code>\Joch</code> (J)	81
<code>\Join</code> (\bowtie)	30
<code>\Join</code> (\bowtie)	23
<code>\joinrel</code>	90
<code>\Jupiter</code> (J)	68
<code>\Jupiter</code> (J)	68
<code>\jupiter</code> (J)	68

K

<code>\k</code> (κ)	13
<code>\kappa</code> (κ)	49
<code>\kappaup</code> (κ)	50
<code>\ker</code> (\ker)	49
ket	53
<code>\Keyboard</code> ()	69
keyboard symbols	69
keys, computer	69
keystroke (package)	69, 104, 105
<code>\keystroke</code> ()	69
king	. <i>see</i> chess symbols
knight	. <i>see</i> chess symbols
Knuth, Donald E.	7, 100, 106
symbols by	76, 79
<code>\Kr</code> ()	79
<code>\kreuz</code> (\ast)	78
<code>\kside</code> (\gg)	82
<code>\Kutline</code> (\dashrightarrow)	71

L

<code>\L</code> (L)	9
<code>\l</code> (l)	9
<code>\labdentalnas</code> (lj)	11
<code>\labvel</code>	15
<code>\Ladiesroom</code> (L)	76
Lagrangian (\mathcal{L})	. <i>see</i> alphabets, math
<code>\Lambda</code> (Λ)	49
<code>\lambda</code> (λ)	49
<code>\lambdabar</code> ($\bar{\lambda}$)	63

<code>\leqdot</code> (\leq)	39	<code>\hookrightarrow</code> (\hookrightarrow)	44	<code>\ln</code> (ln)	49
<code>\leqq</code> (\leq)	38	<code>\hooksearrow</code> (\searrow)	44	<code>\lnapprox</code> (\approx)	38
<code>\leqq</code> (\leq)	37	<code>\hookswarrow</code> (\swarrow)	44	<code>\lnapprox</code> (\approx)	37
<code>\leqq</code> (\leq)	39	<code>\hookuparrow</code> (\uparrow)	44	<code>\lnapprox</code> (\approx)	39
<code>\leslant</code> (\leq)	37	<code>\Libra</code> (Ω)	68	<code>\lneq</code> (\leq)	38
<code>\leslant</code> (\leq)	39	<code>\libra</code> (Ω)	68	<code>\lneq</code> (\leq)	37
<code>\leslantdot</code> (\leq)	39	Lie derivative (\mathcal{L})	see alphabets, math	<code>\lneqq</code> (\leq)	38
<code>\less</code> ($<$)	39	life-insurance symbols	95	<code>\lneqq</code> (\leq)	37
less-than signs	see inequalities	<code>\lightbulb</code> (\emptyset)	98	<code>\lneqq</code> (\leq)	39
<code>\lessapprox</code> (\approx)	38	<code>\lightbulb</code> .mf (file)	96, 97	<code>\lnot</code>	see <code>\neg</code>
<code>\lessapprox</code> (\approx)	37	<code>\lightbulb.sty</code> (file)	98, 99	<code>\lnot</code> (\neg)	63
<code>\lessapprox</code> (\approx)	39	<code>\lightbulb10.2602gf</code> (file)	97	<code>\lnsim</code> (\approx)	38
<code>\lessclosed</code> (\triangleleft)	39, 40	<code>\lightbulb10.dvi</code> (file)	97	<code>\lnsim</code> (\approx)	37
<code>\lessdot</code> ($<$)	38	<code>\lightbulb10.mf</code> (file)	96–98	<code>\lnsim</code> (\approx)	39
<code>\lessdot</code> ($<$)	37	<code>\lightbulb10.tfm</code> (file)	98	local ring (\mathcal{O})	see alphabets, math
<code>\lessdot</code> ($<$)	39	<code>\Lightning</code> ($\not\sim$ vs. $\not\sim$)	88	<code>\log</code> (log)	49, 99
<code>\lesseqgtr</code> (\gtrless)	38	<code>\Lightning</code> ($\not\sim$)	80	log-like symbols	49, 100
<code>\lesseqgtr</code> (\gtrless)	37	<code>\Lightning</code> ($\not\sim$)	69	logical operators	
<code>\lesseqgtr</code> (\gtrless)	39	<code>\Lightning</code> ($\not\sim$)	42	and	see <code>\wedge</code>
<code>\lesseqgtrslant</code> (\gtrless)	39	<code>\lightning</code> ($\not\sim$)	88	not	see <code>\neg</code> and <code>\sim</code>
<code>\lesseqqgtr</code> (\gtrless)	38	<code>\lightning</code> ($\not\sim$ vs. $\not\sim$)	88	or	see <code>\vee</code>
<code>\lesseqqgtr</code> (\gtrless)	37	<code>\lightning</code> ($\not\sim$)	44	<code>\logof</code> (\otimes)	30
<code>\lesseqqgtr</code> (\gtrless)	39	<code>\lim</code> (lim)	49, 99	lollipop	see <code>\multimap</code>
<code>\lessgtr</code> (\lesseqgtr)	38	<code>\liminf</code> (lim inf)	49, 100	long division	57
<code>\lessgtr</code> (\lesseqgtr)	37	limits	49	longdiv (package)	57
<code>\lessgtr</code> (\lesseqgtr)	39	<code>\limsup</code> (lim sup)	49, 100	<code>\Lrightarrow</code> (\Leftarrow)	41
<code>\lessneqqgtr</code> ($\not\lesseqgtr$)	39	linear implication	see <code>\multimap</code>	<code>\Lrightarrow</code> (\Leftarrow)	43
<code>\lesssim</code> (\lesssim)	38	linear logic symbols	20, 30, 36	<code>\longleftarrow</code> (\longleftarrow)	43
<code>\lesssim</code> (\lesssim)	37	<code>\Lineload</code> (\equiv)	70	<code>\longleftarrow</code> (\longleftarrow)	41
<code>\lesssim</code> (\lesssim)	39	linguistic symbols	10–13	<code>\Longleftarrow</code> (\Longleftarrow)	41
<code>\Letter</code> (\boxtimes)	81			<code>\Longleftarrow</code> (\Longleftarrow)	43
<code>\Letter</code> (\boxtimes vs. \boxtimes)	88	<code>\Lisa</code> ()	85	<code>\Longleftarrow</code> (\Longleftarrow)	41
<code>\Letter</code> (\boxtimes)	69	<code>\lJoin</code> (\bowtie)	31	<code>\Longmapsfrom</code> (\Leftarrow)	42
letter-like symbols	51, 52	<code>\ll</code> (\ll)	38	<code>\longmapsfrom</code> (\longleftarrow)	42
letters	see alphabets	<code>\ll</code> (\ll)	37	<code>\Longmapsto</code> (\Rightarrow)	42
barred	91	<code>\ll</code> (\ll)	39	<code>\longmapsto</code> (\mapsto)	43
non-ASCII	9	<code>\llangle</code> (\llcorner)	54	<code>\longmapsto</code> (\mapsto)	41
slashed	92	<code>\llap</code>	93	<code>\LongPulseHigh</code> (\sqcup)	67
variant Latin	50	<code>\llbracket</code> (\llbracket)	53	<code>\LongPulseLow</code> (\sqcup)	67
<code>\levaw</code> ($\left\{ \right\}$)	55	<code>\llceil</code> (\llceil)	52	<code>\Longrightarrow</code> (\Rightarrow)	41
<code>\LF</code> (\textcircled{L})	69	<code>\llcorner</code> (\llcorner)	52	<code>\Longrightarrow</code> (\Rightarrow)	43
<code>\lfilet</code> ($\left\{ \right\}$)	54	<code>\llcorner</code> (\llcorner)	52	<code>\longrightarrow</code> (\rightarrow)	43
<code>\lFloor</code> (\lfloor)	55	<code>\llcorner</code> (\llcorner)	54	<code>\longrightarrow</code> (\rightarrow)	41
<code>\lfloor</code> (\lfloor)	53	<code>\llcurly</code> (\llcurly)	31	<code>\looparrowdownleft</code> (\looparrowdownleft)	42
<code>\lfloor</code> (\lfloor)	54	<code>\lleftarrow</code> (\Leftarrow)	41	<code>\looparrowdownright</code> (\looparrowdownright)	42
<code>\lg</code> (lg)	49	<code>\lleftarrow</code> (\Leftarrow)	44	<code>\looparrowleft</code> (\looparrowleft)	42
<code>\lgroup</code> ($\left(\right)$)	53	<code>\lleftarrow</code> (\Leftarrow)	44	<code>\looparrowleft</code> (\looparrowleft)	41
<code>\lgroup</code> ($\left(\right)$)	54	<code>\llfloor</code> (\llfloor)	52	<code>\looparrowleft</code> (\looparrowleft)	43
<code>\LHD</code> (\blacktriangleleft)	21	<code>\lll</code> (\lll)	38	<code>\looparrowright</code> (\looparrowright)	42
<code>\lhd</code> (\triangleleft)	20, 21	<code>\lll</code> (\lll)	37	<code>\looparrowright</code> (\looparrowright)	41
<code>\lhd</code> (\triangleleft)	39, 40	<code>\lll</code> (\lll vs. \lll)	88	<code>\looparrowright</code> (\looparrowright)	43
<code>\lhd</code> (\triangleleft)	76	<code>\lll</code> (\lll)	39	<code>\Loosebearing</code> (\triangle)	70
<code>\hookdownarrow</code> (\downarrow)	44	<code>\llless</code>	see <code>\lll</code>	<code>\lor</code>	see <code>\vee</code>
<code>\hookleftarrow</code> (\leftarrow)	44	<code>\llless</code> (\lll)	39	<code>\LowerDiamond</code> (\blacklozenge)	75
<code>\hooknearrow</code> (\nearrow)	44	<code>\llparenthesis</code> (\llparenthesis)	52	lowering	see <code>\textlowering</code>
<code>\hooknwarrow</code> (\rightsquigarrow)	44	<code>\lmoustache</code> (\int)	53	<code>\lozenge</code> (\lozenge)	62, 63
		<code>\lmoustache</code> (\int)	54	<code>\lozenge</code> (\lozenge)	74
				<code>\Lparen</code> (\llparenthesis)	65
				<code>\lrcorner</code> (\lrcorner)	52
				<code>\lrcorner</code> (\lrcorner)	52

<code>\lrcorner</code> ()	54
<code>\lrJoin</code>	<i>see</i> <code>\Join</code>
<code>\lrtimes</code> (⋈)	31
<code>\lsem</code> ()	54
<code>\lsemantic</code>	<i>see</i> <code>\ldbrack</code>
<code>\Lsh</code> (↵)	42
<code>\Lsh</code> (↶)	41
<code>\Lsh</code> (↷)	43
<code>\Lsteel</code> (⊔)	70
<code>\ltimes</code> (⋈)	22
<code>\ltimes</code> (⋈)	21
<code>\ltimes</code> (⋈)	23
<code>\ltriple</code>	55
Luecking, Dan	93
<code>\lVert</code> (||)	53
<code>\lVert</code> (||)	55
<code>\lvert</code> (|)	53
<code>\lvertneqq</code> (≉)	38
<code>\lvertneqq</code> (≉)	37
<code>\lvertneqq</code> (≉)	39
<code>\lwave</code> ()	55
<code>\lWavy</code> ()	54
<code>\lwavy</code> ()	54
<code>\lz</code> (ℓ)	11

M

<code>\M</code>	9
<code>\M</code> (⌞)	82
<code>\m</code>	9
<code>\m</code> (⌞)	82
<code>\ma</code> (⌞)	82
macron	<i>see</i> accents
<code>\macron</code> (̄)	16
<code>\Maggie</code> ()	85
magical signs	85
majuscules	49
<code>\makeatletter</code>	94
<code>\makeatother</code>	94
<code>\MALE</code> (♂)	70
<code>\Male</code> (♂)	70
<code>\male</code> (♂)	70
<code>\MaleMale</code> (♂)	70
<code>\maltese</code> (✠)	8
<code>\maltese</code> (✠)	63
<code>\manboldkidney</code> (⊔)	79
<code>\manconcentriccircles</code> (⊗)	79
<code>\manconcentricdiamond</code> (⊠)	79
<code>\mancone</code> (∇)	79
<code>\mancube</code> (⊠)	79
<code>\manerrarrow</code> (↵)	79
<code>\manfilledquartercircle</code> (⬤)	79
manfnt (package)	76, 79, 104, 105
<code>\manhpennib</code> (↵)	79
<code>\manimpossiblecube</code> (⊠)	79
<code>\mankidney</code> (⊔)	79
<code>\manlhpennib</code> (↵)	79

<code>\manpenkidney</code> (⊔)	79
<code>\manquadrifolium</code> (⊗)	79
<code>\manquartercircle</code> (∩)	79
<code>\manrotatedquadrifolium</code> (⊗)	79
<code>\manrotatedquartercircle</code> (∩)	79
<code>\manstar</code> (☆)	79
<code>\mantiltpennib</code> (↵)	79
<code>\mantriangledown</code> (▼)	79
<code>\mantriangleright</code> (▶)	79
<code>\mantriangleup</code> (▲)	79
<code>\manvpennib</code> (⌞)	79
<code>\Mappedfromchar</code> (⌞)	48
<code>\mappedfromchar</code> (⌞)	48
<code>\Mapsfrom</code> (↔)	42
<code>\mapsfrom</code> (↔)	42
<code>\Mapsfromchar</code> (⌞)	49
<code>\Mapsfromchar</code> (⌞)	48
<code>\mapsfromchar</code> (⌞)	49
<code>\mapsfromchar</code> (⌞)	48
<code>\Mapsto</code> (⇒)	42
<code>\mapsto</code> (⇒)	41
<code>\mapsto</code> (⇒)	44
<code>\Mapstochar</code> (⌞)	49
<code>\Mapstochar</code> (⌞)	48
<code>\mapstochar</code> (⌞)	49



<code>\Marge</code> ()	85
<code>\markera</code> (X)	82
<code>\markerb</code> (O)	82
married	<i>see</i> <code>\textmarried</code>
<code>\Mars</code> (♂)	68
<code>\Mars</code> (♂)	68
<code>\mars</code> (♂)	68
<code>\MartinVogel</code> (♂)	80
marvosym (package)	17, 62, 64, 68–71, 76, 79, 80, 88
matbbol (package)	65
<code>\mate</code> (#)	82
material biconditional	<i>see</i> <code>\leftrightarrow</code> and <code>\equiv</code>
material conditional	<i>see</i> <code>\rightarrow</code> and <code>\supset</code>
material equivalence	<i>see</i> <code>\leftrightarrow</code> and <code>\equiv</code>
material implication	<i>see</i> <code>\rightarrow</code> and <code>\supset</code>
math alphabets	65
math-text	20
mathabx (package)	22, 24, 26, 30–32, 36–38, 40, 42, 43, 49, 51–54, 56, 58, 62, 63, 68, 76, 87, 88, 104, 105, 107
<code>\mathaccent</code>	91
<code>\mathbb</code>	65
<code>\mathbbm</code>	65

<code>\mathbbmss</code>	65
<code>\mathbbmtt</code>	65
mathbbol (package)	65
<code>\mathbf</code>	100
<code>\mathbin</code>	99
<code>\mathbold</code>	100
mathcal (euscript package option)	65
<code>\mathcal</code>	65
<code>\mathcent</code> (¢)	51
<code>\mathchoice</code>	92, 93
<code>\mathclose</code>	99
mathcomp (package)	62
mathdesign (package)	17, 23, 29, 51, 55, 64, 104
<code>\mathdollar</code> (\$)	20
mathdots (package)	56, 61, 62, 94, 104, 105
<code>\mathds</code>	65
<code>\mathellipsis</code> (...)	20
mathematical symbols	20–66
<code>\mathfrak</code>	65
<code>\mathit</code>	65
<code>\mathnormal</code>	65
<code>\mathop</code>	99
<code>\mathopen</code>	99
<code>\mathord</code>	99
<code>\mathpalette</code>	93
<code>\mathparagraph</code> (¶)	20
<code>\mathpunct</code>	99
<code>\mathpzc</code>	65
<code>\mathrel</code>	90, 99
<code>\mathring</code> (◊)	56, 57
<code>\mathrm</code>	65
mathrsfs (package)	65, 104
mathscr (euscript package option)	65
<code>\mathscr</code>	65
<code>\mathsection</code> (§)	20
<code>\mathsterling</code> (£)	20, 51
mathtools (package)	34, 58, 59, 104, 105
<code>\mathunderscore</code> (⏟)	20
<code>\max</code> (max)	49
Maxwell-Stefan diffusion coefficient	<i>see</i> <code>\DH</code>
<code>\maya</code>	62
<code>\Mb</code> (♣)	82
<code>\mb</code> (♣)	82
<code>\Mbb</code> (♣)	82
<code>\mBb</code> (♣)	82
<code>\mbB</code> (♣)	82
<code>\mbb</code> (♣)	82
mbboard (package)	65, 104
<code>\mbbx</code> (♣)	82
<code>\mbox</code>	93
<code>\measuredangle</code> (∠)	63
<code>\measuredangle</code> (∠)	63
<code>\measuredangle</code> (∠)	63
mechanical scaling	96, 98
<code>\medbackslash</code> (↖)	23
<code>\medbullet</code> (●)	21

<code>\medcirc</code> (\circ)	21	<code>\Moon</code> ($\text{\textcircled{M}}$)	68	<code>\nbackcong</code> ($\not\cong$)	33
<code>\medcircle</code> (\bigcirc)	23	<code>\morepawns</code> ($\text{\textcircled{>}}$)	82	<code>\nbackeqsim</code> ($\not\approx$)	33
<code>\meddiamond</code> (\diamond)	24	<code>\moreroom</code> ($\text{\textcircled{O}}$)	82	<code>\nbacksim</code> ($\not\sim$)	31
<code>\medlozenge</code> (\diamond)	74	<code>\Mountain</code> (\blacktriangle)	81	<code>\nbacksim</code> ($\not\sim$)	33
<code>\medslash</code> (\diagup)	23	mouse	<i>see</i> <code>\ComputerMouse</code>	<code>\nbacksimeq</code> ($\not\approx$)	31
<code>\medsquare</code> (\square)	24	<code>\MoveDown</code> (\blacktriangledown)	79	<code>\nbacksimeq</code> ($\not\approx$)	33
<code>\medstar</code> (\star)	24	<code>\moverlay</code>	94	<code>\nbacktriplesim</code> ($\not\approx\approx$)	33
<code>\medstarofdavid</code> (\star)	74	<code>\MoveUp</code> (\blacktriangle)	79	<code>\NBSP</code> (\textbackslash)	69
<code>\medtriangledown</code> (∇)	24, 40	<code>\mp</code> (\mp)	20	<code>\nBumpeq</code> ($\not\approx$)	31
<code>\medtriangleleft</code> (\triangleleft)	24, 40	<code>\mp</code> (\mp)	23	<code>\nBumpeq</code> ($\not\approx$)	33
<code>\medtriangleright</code> (\triangleright)	24, 40	<code>\mu</code> (μ)	49	<code>\nbumpeq</code> ($\not\approx$)	31
<code>\medtriangleup</code> (\triangle)	24, 40	<code>\multimap</code> (\multimap)	30, 31	<code>\nbumpeq</code> ($\not\approx$)	33
<code>\medvert</code> (\updownarrow)	23	<code>\multimap</code> (\multimap)	47	<code>\ncircleq</code> ($\not\cong$)	33
<code>\medvertdot</code> (\updownarrow)	23	<code>\multimapboth</code> (\multimap)	31	<code>\ncirclearrowleft</code> ($\text{\textcircled{L}}$)	46
<code>\Mercury</code> ($\text{\textcircled{H}}$)	68	<code>\multimapbothvert</code> (\updownarrow)	31	<code>\ncirclearrowright</code> ($\text{\textcircled{R}}$)	46
<code>\Mercury</code> ($\text{\textcircled{H}}$)	68	<code>\multimapdot</code> (\multimap)	31	<code>\nclosedequal</code> ($\not\equiv$)	33
<code>\mercury</code> ($\text{\textcircled{H}}$)	68	<code>\multimapdotboth</code> (\multimap)	31	<code>\ncong</code> ($\not\cong$)	32
<code>\merge</code> ($\text{\textcircled{M}}$)	21	<code>\multimapdotbothA</code> (\multimap)	31	<code>\ncong</code> ($\not\cong$)	30
METAFONT	66, 96, 97, 99	<code>\multimapdotbothAvert</code> (\updownarrow)	31	<code>\ncong</code> ($\not\cong$)	33
METAFONTbook symbols	79	<code>\multimapdotbothB</code> (\multimap)	31	<code>\ncurlyeqprec</code> ($\not\lessdot$)	32
metre (package)	16, 56, 82, 104, 105	<code>\multimapdotbothBvert</code> (\updownarrow)	31	<code>\ncurlyeqprec</code> ($\not\lessdot$)	33
metre	82	<code>\multimapdotbothvert</code> (\updownarrow)	31	<code>\ncurlyeqsucc</code> ($\not\gtrdot$)	32
metrical symbols	82	<code>\multimapdotinv</code> (\multimap)	31	<code>\ncurlyeqsucc</code> ($\not\gtrdot$)	33
<code>\mho</code> (Ω)	62, 63	<code>\multimapinv</code> (\multimap)	31	<code>\ncurvearrowdownup</code> ($\text{\textcircled{D}}$)	44
micro	<i>see</i> <code>\textmu</code>	multiple accents per character	94	<code>\ncurvearrowleft</code> (\curvearrowleft)	46
<code>\micro</code> (μ)	67	<code>\Mundus</code> ($\text{\textcircled{M}}$)	80	<code>\ncurvearrowleftright</code> (\curvearrowleft)	44
Microsoft [®] Windows [®]	103	Museum of Icelandic Sorcery and Witchcraft	86	<code>\ncurvearrownesw</code> ($\text{\textcircled{N}}$)	44
<code>\mid</code> ($|$)	30, 54	musical symbols	19, 62, 63, 78, 79	<code>\ncurvearrownwse</code> ($\text{\textcircled{N}}$)	44
<code>\middle</code>	53	musixtex (package)	79	<code>\ncurvearrowright</code> (\curvearrowright)	46
<code>\midtilde</code> ($\tilde{|}$)	16	<code>\muup</code> (μ)	50	<code>\ncurvearrowrightleft</code> ($\text{\textcircled{R}}$)	44
millesimal sign	<i>see</i> <code>\textperthousand</code>	<code>\MVAt</code> ($\text{\textcircled{A}}$)	80	<code>\ncurvearrowswne</code> ($\text{\textcircled{N}}$)	44
<code>\min</code> (min)	49, 99	<code>\MVEight</code> (8)	62	<code>\ncurvearrowswne</code> ($\text{\textcircled{N}}$)	44
minim	<i>see</i> musical symbols	<code>\MVFive</code> (5)	62	<code>\ncurvearrowupdown</code> ($\text{\textcircled{U}}$)	44
minus	<i>see</i> <code>\textminus</code>	<code>\MVFour</code> (4)	62	<code>\ndasharrow</code> (\dashrightarrow)	46
<code>\minus</code> ($-$)	23	<code>\MVNine</code> (9)	62	<code>\ndasheddownarrow</code> (\dashvdown)	44
<code>\minusdot</code> ($\dot{-}$)	23	<code>\MVOne</code> (1)	62	<code>\ndashedleftarrow</code> (\dashleftarrow)	44
<code>\minushookdown</code> ($\text{\textcircled{-}}$)	63	<code>\MVRightarrow</code> (\rightarrow)	80	<code>\ndashednearrow</code> (\dashrightarrow)	45
<code>\minushookup</code> ($\text{\textcircled{-}}$)	63	<code>\MVSeven</code> (7)	62	<code>\ndashednwarrow</code> (\dashv)	45
<code>\minuso</code> (\ominus)	21, 91	<code>\MVSix</code> (6)	62	<code>\ndashedrightarrow</code> (\dashrightarrow)	45
minutes, angular	<i>see</i> <code>\prime</code>	<code>\MVThree</code> (3)	62	<code>\ndashedsearrow</code> (\dashv)	45
miscellaneous symbols	62–64, 77–86	<code>\MVTwo</code> (2)	62	<code>\ndashedswarrow</code> (\dashv)	45
“Missing \$ inserted”	20	<code>\MVZero</code> (0)	62	<code>\ndasheduparrow</code> (\dashleftarrow)	45
<code>\Mappedfromchar</code> ($\text{\textcircled{M}}$)	48	N		<code>\ndashleftarrow</code> (\dashleftarrow)	46
<code>\mappedfromchar</code> ($\text{\textcircled{M}}$)	48	<code>\nabla</code> (∇)	62	<code>\nDashV</code> ($\text{\textcircled{N}}$)	32
<code>\Mmapstochar</code> ($\text{\textcircled{M}}$)	48	<code>\nabla</code> (∇)	63	<code>\nDashv</code> ($\text{\textcircled{N}}$)	32
<code>\mmapstochar</code> ($\text{\textcircled{M}}$)	48	<code>\NAK</code> ($\text{\textcircled{N}}$)	69	<code>\ndashV</code> ($\text{\textcircled{N}}$)	32
MnSymbol (package)	23, 24, 29, 32, 33, 37, 39, 40, 43–48, 50, 51, 54, 56–58, 61, 63, 64, 74, 104, 105	<code>\napprox</code> ($\not\approx$)	32	<code>\ndashv</code> ($\text{\textcircled{N}}$)	34
<code>\Mobilefone</code> ($\text{\textcircled{M}}$)	69	<code>\napprox</code> ($\not\approx$)	33	<code>\ndashVv</code> ($\text{\textcircled{N}}$)	32
<code>\mod</code>	49	<code>\napproxeq</code> ($\not\approx$)	31	<code>\nddtstile</code> ($\text{\textcircled{N}}$)	35
<code>\models</code> (\models)	30, 90	<code>\napproxeq</code> ($\not\approx$)	33	<code>\ndiagdown</code> (\diagdown)	34
<code>\models</code> (\models)	33	<code>\nasymp</code> ($\not\sim$)	31	<code>\ndiagup</code> (\diagup)	34
moduli space	<i>see</i> alphabets, math	<code>\nasymp</code> ($\not\sim$)	48	<code>\ndivides</code> (\mid)	34
monetary symbols	17, 65	nath (package)	52, 55, 104	<code>\nDoteq</code> ($\not\equiv$)	33
<code>\moo</code> ($\text{\textcircled{M}}$)	21	<code>\natural</code> (\natural)	62, 78	<code>\ndoteq</code> ($\not\equiv$)	33
<code>\Moon</code> ($\text{\textcircled{M}}$)	68	<code>\natural</code> (\natural)	63	<code>\ndoublefrown</code> ($\text{\textcircled{N}}$)	48
		natural numbers (N)	<i>see</i> alphabets, math	<code>\ndoublefrowneq</code> ($\not\approx$)	48
		navigation symbols	79	<code>\ndoublesmile</code> ($\text{\textcircled{N}}$)	48
		<code>\nbackapprox</code> ($\not\approx$)	33	<code>\ndoublesmileeq</code> ($\not\approx$)	48
		<code>\nbackapproxeq</code> ($\not\approx$)	33	<code>\nDownarrow</code> (\Downarrow)	45
				<code>\ndownarrow</code> (\downarrow)	45

<code>\downarrowtail</code> (\Downarrow)	45	<code>\nequiv</code> (\neq)	31	<code>\ngtrsim</code> (\gtrsim)	38
<code>\downarrowdownarrows</code> (\Downarrow)	45	<code>\nequiv</code> (\neq)	33	<code>\ngtrsim</code> (\gtrsim)	38
<code>\downarrowfilledspoon</code> (\Downarrow)	47	<code>\nequivclosed</code> (\neq)	33	<code>\nhateq</code> (\neq)	33
<code>\downarrowfootline</code> (\Downarrow)	33	<code>\nersquigarrow</code> (\curvearrowright)	43	<code>\nhookleftarrow</code> (\hookleftarrow)	46
<code>\downarrowfree</code> (\Downarrow)	33	<code>\nespoon</code> (\nearrow)	47	<code>\nhookrightarrow</code> (\hookrightarrow)	46
<code>\downarrowharpoonccw</code> (\Downarrow)	46	<code>\neswarrow</code> (\nearrow)	43	<code>\ni</code> (\ni)	51, 92
<code>\downarrowharpooncw</code> (\Downarrow)	46	<code>\neswarrow</code> (\nearrow)	93, 94	<code>\ni</code> (\ni)	51
<code>\downarrowlsquigarrow</code> (\Downarrow)	45	<code>\neswarrow</code> (\nearrow)	43	<code>\nialpha</code> (α)	12
<code>\downarrowmapsto</code> (\Downarrow)	45	<code>\neswarrows</code> (\nearrow)	43	<code>\nibar</code>	<i>see</i> <code>\ownsbar</code>
<code>\downarrowModels</code> (\Downarrow)	33	<code>\neswbipropto</code> (ρ)	23	<code>\nibeta</code> (β)	12
<code>\downarrowmodels</code> (\Downarrow)	33	<code>\neswcrossing</code> (\nearrow)	33	<code>\NibLeft</code> (\Leftarrow)	72
<code>\downarrowpitchfork</code> (\Downarrow)	47	<code>\neswharpoonnwse</code> (\nearrow)	46	<code>\NibRight</code> (\Rightarrow)	72
<code>\downarrowrsquigarrow</code> (\Downarrow)	45	<code>\neswharpoons</code> (\nearrow)	46	<code>nibs</code>	72
<code>\downarrowspoon</code> (\Downarrow)	47	<code>\neswharpoonsenw</code> (\nearrow)	46	<code>\NibSolidLeft</code> (\Leftarrow)	72
<code>\downarrowuparrows</code> (\Downarrow)	45	<code>\neswline</code> (\nearrow)	32	<code>\NibSolidRight</code> (\Rightarrow)	72
<code>\downarrowupharpoons</code> (\Downarrow)	46	<code>\neswline</code> (\nearrow)	32	<code>nicefrac</code> (package)	64, 104, 105
<code>\downarrowVdash</code> (\Downarrow)	33	<code>\Neutral</code> (\circ)	70	<code>\nichu</code> (χ)	12
<code>\downarrowvdash</code> (\Downarrow)	33	<code>\neVdash</code> (∇)	32	<code>\niepsilon</code> (ϵ)	12
<code>\dststyle</code> (\equiv)	35	<code>\nevDash</code> (∇)	32	<code>\nigamma</code> (γ)	12
<code>\tdtstyle</code> (\equiv)	35	<code>\newextarrow</code>	60	<code>\niiota</code> (ι)	12
<code>\tdttstyle</code> (\equiv)	35	<code>\newmoon</code> (\bullet)	68	<code>\nilambda</code> (λ)	12
<code>\ne</code>	<i>see</i> <code>\neq</code>	<code>\newmoon</code> (\bullet)	68	<code>\nin</code> (\notin)	51
<code>\ne</code> (\neq)	34	<code>\newtie</code> (\equiv)	13	<code>\niomega</code> (ω)	12
<code>\Nearrow</code> (\nearrow)	42	<code>\nexists</code> (\exists)	51	<code>\nipheri</code> (ϕ)	12
<code>\Nearrow</code> (\nearrow)	43	<code>\nexists</code> (\exists)	51	<code>\niplus</code> (\oplus)	30
<code>\nearrow</code> (\nearrow)	42	<code>\nfallingdotseq</code> (\fallingdotseq)	33	<code>\nisigma</code> (σ)	12
<code>\nearrow</code> (\nearrow)	41, 93, 94	<code>\nfrown</code> (\frown)	48	<code>\nitheta</code> (θ)	12
<code>\nearrow</code> (\nearrow)	43	<code>\nfrowneq</code> (\neq)	48	<code>\niupsilon</code> (υ)	12
<code>\nearrowtail</code> (\nearrow)	43	<code>\nfrowneqsmile</code> (\neq)	48	<code>\niv</code> (\mathbb{L})	52
<code>\nefilledspoon</code> (\nearrow)	47	<code>\nfrownsmile</code> (ϕ)	48	<code>\nj</code> (\mathbb{N})	12
<code>\nefootline</code> (\nearrow)	32	<code>\nfrownsmileeq</code> (ϕ)	48	<code>\nllcirclearrowdown</code> (\Downarrow)	45
<code>\nefree</code> (\nearrow)	32	<code>\NG</code> (\mathbb{N})	9	<code>\nllcirclearrowleft</code> (\Leftarrow)	45
<code>\neg</code> (\neg)	62	<code>\ng</code> (η)	9	<code>\nllcirclearrowright</code> (\Rightarrow)	45
<code>\neg</code> (\neg)	63	<code>\ngeq</code> (\geq)	38	<code>\nllcirclearrowup</code> (\Uparrow)	45
negation	<i>see</i> <code>\neg</code> and <code>\sim</code>	<code>\ngeq</code> (\geq)	37, 38	<code>\nllcurvearrowdown</code> (\Downarrow)	45
<code>\neharpoonccw</code> (\nearrow)	46	<code>\ngeq</code> (\geq)	39	<code>\nllcurvearrowleft</code> (\curvearrowleft)	45
<code>\neharpooncw</code> (\nearrow)	46	<code>\ngeqclosed</code> (\geq)	39, 40	<code>\nllcurvearrowright</code> (\curvearrowright)	45
<code>\nelsquigarrow</code> (\nearrow)	43	<code>\ngeqdot</code> (\geq)	39	<code>\nllcurvearrownw</code> (\curvearrowright)	45
<code>\nemapsto</code> (\nearrow)	43	<code>\ngeqq</code> (\geq)	38	<code>\nllcurvearrowright</code> (\curvearrowright)	45
<code>\neModels</code> (\nearrow)	32	<code>\ngeqq</code> (\geq)	37	<code>\nllcurvearrowse</code> (\curvearrowright)	45
<code>\nemodels</code> (\nearrow)	32	<code>\ngeqq</code> (\geq)	39	<code>\nllcurvearrowsw</code> (\curvearrowright)	45
<code>\nenearrows</code> (\nearrow)	43	<code>\ngeqq</code> (\geq)	39	<code>\nllcurvearrowup</code> (\Uparrow)	45
<code>\nepitchfork</code> (\nearrow)	47	<code>\ngeqslant</code> (\geq)	37	<code>\nleadsto</code> (\leadsto)	46
<code>\Neptune</code> (Ψ)	68	<code>\ngeqslant</code> (\geq)	39	<code>\nLeftarrow</code> (\Leftarrow)	42
<code>\Neptune</code> (Ψ)	68	<code>\ngeqslantdot</code> (\geq)	39	<code>\nLeftarrow</code> (\Leftarrow)	41
<code>\neptune</code> (Ψ)	68	<code>\nggets</code> (\Leftarrow)	46	<code>\nLeftarrow</code> (\Leftarrow)	45
<code>\neq</code> (\neq)	32	<code>\ngg</code> (\gg)	38	<code>\nleftarrow</code> (\leftarrow)	42
<code>\neq</code> (\neq)	37	<code>\ngg</code> (\gg)	39	<code>\nleftarrow</code> (\leftarrow)	41
<code>\neq</code> (\neq)	34	<code>\nggg</code> (\ggg)	39	<code>\nleftarrow</code> (\leftarrow)	45
<code>\neqbump</code> (\neq)	33	<code>\ngtr</code> (\gtr)	38	<code>\nleftarrowtail</code> (\leftarrow)	45
<code>\neqcirc</code> (\neq)	33	<code>\ngtr</code> (\gtr)	37	<code>\nleftfilledspoon</code> (\Leftarrow)	47
<code>\neqdot</code> (\neq)	33	<code>\ngtr</code> (\gtr)	39	<code>\nleftfootline</code> (\Leftarrow)	33
<code>\neqfrown</code> (\neq)	48	<code>\ngtrapprox</code> (\gtr)	38	<code>\nleftfree</code> (\leftarrow)	33
<code>\neqsim</code> (\neq)	33	<code>\ngtrapprox</code> (\gtr)	38	<code>\nleftharpoonccw</code> (\leftarrow)	46
<code>\neqslantgtr</code> (\neq)	38	<code>\ngtrclosed</code> (\gtr)	39, 40	<code>\nleftharpooncw</code> (\leftarrow)	46
<code>\neqslantgtr</code> (\neq)	39	<code>\ngtrdot</code> (\gtr)	39	<code>\nleftleftarrows</code> (\Leftrightarrow)	45
<code>\neqslantless</code> (\neq)	38	<code>\ngtreqlless</code> (\gtr)	39	<code>\nleftlsquigarrow</code> (\leftarrow)	45
<code>\neqslantless</code> (\neq)	39	<code>\ngtreqllesslant</code> (\gtr)	39	<code>\nleftmapsto</code> (\Leftarrow)	45
<code>\neqsmile</code> (\neq)	48	<code>\ngtreqqless</code> (\gtr)	39	<code>\nleftModels</code> (\Leftarrow)	33
<code>\nequal</code> (\neq)	33	<code>\ngtrless</code> (\gtr)	38	<code>\nleftmodels</code> (\Leftarrow)	33
<code>\nequalclosed</code> (\neq)	33	<code>\ngtrless</code> (\gtr)	39	<code>\nleftpitchfork</code> (\Leftarrow)	47
				<code>\nLeftrightarrow</code> (\Leftarrow)	42

<code>\nLeftrightarrow</code> (\Leftrightarrow)	41	<code>\nndtstile</code> (\blacksquare)	35	<code>\NoIroning</code> (Ξ)	80
<code>\nletrightarrow</code> (\Leftrightarrow)	45	<code>\nNearrow</code> (\nearrow)	44	non-commutative division	60
<code>\nletrightarrow</code> (\Leftrightarrow)	42	<code>\nnearrow</code> (\nearrow)	42	nonbreaking space	69
<code>\nletrightarrow</code> (\Leftrightarrow)	20, 41	<code>\nnearrow</code> (\nearrow)	44	norm	<i>see</i> <code>\lVert</code> and <code>\rVert</code>
<code>\nletrightarrow</code> (\Leftrightarrow)	45	<code>\nnearrowtail</code> (\nearrow)	44	<code>\NoSun</code> (\bullet)	80
<code>\nletrightarrows</code> (\Leftrightarrow)	45	<code>\nnefilledspoon</code> (\nearrow)	47	not	<i>see</i> <code>\neg</code>
<code>\nleftrightharpoondownup</code> (\nrightarrow)	46	<code>\nnefootline</code> (\nearrow)	33	<code>\not</code>	32, 92
<code>\nleftrightharpoons</code> (\nrightarrow)	46	<code>\nnefree</code> (\nearrow)	33	not equal (\neq vs. \neq)	32
<code>\nleftrightharpoonupdown</code> (\nrightarrow)	46	<code>\nneharpoonccw</code> (\nearrow)	46	<code>\notasymp</code> (\neq)	32
<code>\nLeftrightarrow</code> (\Leftrightarrow)	33	<code>\nneharpooncw</code> (\nearrow)	46	<code>\notbackslash</code> (\nrightarrow)	68
<code>\nletrightarrow</code> (\nrightarrow)	33	<code>\nnelsquigarrow</code> (\nearrow)	44	<code>\notbot</code> (\perp)	51
<code>\nleftrightsquigarrow</code> (\nrightarrow)	46	<code>\nnemapsto</code> (\nearrow)	45	<code>\notdivides</code> (\nrightarrow)	32
<code>\nleftrsquigarrow</code> (\nrightarrow)	45	<code>\nneModels</code> (\nrightarrow)	33	<code>\notequiv</code> (\nrightarrow)	32
<code>\nleftspoon</code> (\nrightarrow)	47	<code>\nnemodels</code> (\nrightarrow)	33	<code>\notin</code> (\notin)	51
<code>\nleftVdash</code> (\nrightarrow)	33	<code>\nnenearrows</code> (\nrightarrow)	45	<code>\notin</code> (\notin)	51
<code>\nleftvdash</code> (\nrightarrow)	33	<code>\nnepitchfork</code> (\nrightarrow)	47	<code>\notin</code> (\notin)	51
<code>\nleq</code> (\leq)	38	<code>\nnersquigarrow</code> (\nrightarrow)	45	<code>\notin</code> (\notin)	51
<code>\nleq</code> (\leq)	37, 38	<code>\nnespoon</code> (\nrightarrow)	47	<code>\notin</code> (\notin)	51
<code>\nleq</code> (\leq)	39	<code>\nNeswarrow</code> (\nrightarrow)	45	<code>\notin</code> (\notin)	51
<code>\nleqclosed</code> (\leq)	39, 40	<code>\nneswarrow</code> (\nrightarrow)	45	<code>\notowner</code> (\nrightarrow)	51
<code>\nleqdot</code> (\leq)	39	<code>\nneswarrows</code> (\nrightarrow)	45	<code>\notowns</code>	<i>see</i> <code>\notowner</code> and <code>\notin</code>
<code>\nleqq</code> (\leq)	38	<code>\nneswarrows</code> (\nrightarrow)	45	<code>\notperp</code> (\perp)	32
<code>\nleqq</code> (\leq)	37	<code>\nneswharpoonnwse</code> (\nrightarrow)	46	<code>\notslash</code> (\nrightarrow)	68
<code>\nleqq</code> (\leq)	39	<code>\nneswharpoons</code> (\nrightarrow)	46	<code>\notsmallin</code> (\notin)	51
<code>\nleqslant</code> (\leq)	37	<code>\nneswharpoonsenw</code> (\nrightarrow)	46	<code>\notsmallowns</code> (\notin)	51
<code>\nleqslant</code> (\leq)	39	<code>\nNeswline</code> (\nrightarrow)	33	<code>\nottop</code> (\nrightarrow)	51
<code>\nleqslantdot</code> (\leq)	39	<code>\nneswline</code> (\nrightarrow)	33	<code>\NoTumbler</code> (\nrightarrow)	80
<code>\nless</code> (\lessdot)	38	<code>\nneVdash</code> (\nrightarrow)	33	<code>\novelty</code> (N)	82
<code>\nless</code> (\lessdot)	37	<code>\nnevDash</code> (\nrightarrow)	33	<code>\nowns</code> (\nrightarrow)	51
<code>\nless</code> (\lessdot)	39	<code>\nntstile</code> (\blacksquare)	35	<code>\nparallel</code> (\parallel)	30
<code>\nlessapprox</code> (\lessdot)	38	<code>\nnttstile</code> (\blacksquare)	34	<code>\nparallel</code> (\parallel)	34
<code>\nlessapprox</code> (\lessdot)	38	<code>\nNwarrow</code> (\nrightarrow)	45	<code>\nperp</code> (\perp)	34
<code>\nlessclosed</code> (\lessdot)	39, 40	<code>\nnwarrow</code> (\nrightarrow)	42	<code>\npitchfork</code> (\nrightarrow)	47
<code>\nlessdot</code> (\lessdot)	39	<code>\nnwarrow</code> (\nrightarrow)	45	<code>\nplus</code> (\oplus)	21
<code>\nlesseqgtr</code> (\lessdot)	39	<code>\nnwarrowtail</code> (\nrightarrow)	45	<code>\nprec</code> (\prec)	32
<code>\nlesseqgtrslant</code> (\lessdot)	39	<code>\nnwfilledspoon</code> (\nrightarrow)	47	<code>\nprec</code> (\prec)	30
<code>\nlessgtr</code> (\lessdot)	38	<code>\nnwfootline</code> (\nrightarrow)	33	<code>\nprec</code> (\prec)	33
<code>\nlessgtr</code> (\lessdot)	39	<code>\nnwfree</code> (\nrightarrow)	33	<code>\nprecapprox</code> (\lessdot)	32
<code>\nlesssim</code> (\lessdot)	38	<code>\nnwlsquigarrow</code> (\nrightarrow)	46	<code>\nprecapprox</code> (\lessdot)	31
<code>\nlesssim</code> (\lessdot)	38	<code>\nnwharpoonccw</code> (\nrightarrow)	46	<code>\nprecapprox</code> (\lessdot)	33
<code>\nlhookdownarrow</code> (\nrightarrow)	45	<code>\nnwharpooncw</code> (\nrightarrow)	46	<code>\npreccurlyeq</code> (\prec)	32
<code>\nlhookleftarrow</code> (\nrightarrow)	45	<code>\nnwharpooncw</code> (\nrightarrow)	46	<code>\npreccurlyeq</code> (\prec)	31
<code>\nlhooknearrow</code> (\nrightarrow)	45	<code>\nnwlsquigarrow</code> (\nrightarrow)	45	<code>\npreccurlyeq</code> (\prec)	33
<code>\nlhooknwarrow</code> (\nrightarrow)	44	<code>\nnwmapsto</code> (\nrightarrow)	45	<code>\npreceq</code> (\preceq)	32
<code>\nlhookrightarrow</code> (\nrightarrow)	44	<code>\nnwModels</code> (\nrightarrow)	33	<code>\npreceq</code> (\preceq)	30
<code>\nlhooksearrow</code> (\nrightarrow)	44	<code>\nnwmodels</code> (\nrightarrow)	33	<code>\npreceq</code> (\preceq)	33
<code>\nlhookswarrow</code> (\nrightarrow)	44	<code>\nnwnwarrows</code> (\nrightarrow)	45	<code>\npreceq</code> (\preceq)	30
<code>\nlhookuparrow</code> (\nrightarrow)	44	<code>\nnwpitchfork</code> (\nrightarrow)	47	<code>\npreceq</code> (\preceq)	33
<code>\nll</code> (\ll)	38	<code>\nnwrsquigarrow</code> (\nrightarrow)	45	<code>\npreceqq</code> (\preceq)	31
<code>\nll</code> (\ll)	39	<code>\nnwsearrow</code> (\nrightarrow)	45	<code>\nprecsim</code> (\prec)	32
<code>\nLleftarrow</code> (\Lleftarrow)	44	<code>\nnwsearrow</code> (\nrightarrow)	45	<code>\nprecsim</code> (\prec)	31
<code>\nlll</code> (\lll)	39	<code>\nnwsearrows</code> (\nrightarrow)	45	<code>\nprecsim</code> (\prec)	33
<code>\nmapsto</code> (\mapsto)	46	<code>\nnwseharpoonnesw</code> (\nrightarrow)	46	<code>\nrcirclearrowdown</code> (\nrightarrow)	45
<code>\nmid</code> (\mid)	30	<code>\nnwseharpoons</code> (\nrightarrow)	46	<code>\nrcirclearrowleft</code> (\nrightarrow)	45
<code>\nmid</code> (\mid)	34	<code>\nnwseharpoonswe</code> (\nrightarrow)	46	<code>\nrcirclearrowright</code> (\nrightarrow)	45
<code>\nmodels</code> (\models)	34	<code>\nNwseline</code> (\nrightarrow)	33	<code>\nrcirclearrowup</code> (\nrightarrow)	45
<code>\nmultimap</code> (\multimap)	47	<code>\nnwseeline</code> (\nrightarrow)	33	<code>\nrcurvearrowdown</code> (\nrightarrow)	45
		<code>\nnwspoon</code> (\nrightarrow)	47	<code>\nrcurvearrowleft</code> (\nrightarrow)	45
		<code>\nnwVdash</code> (\nrightarrow)	33	<code>\nrcurvearrowne</code> (\nrightarrow)	45
		<code>\nnwvdash</code> (\nrightarrow)	33	<code>\nrcurvearrownw</code> (\nrightarrow)	45
		<code>\NoBleech</code> (\nrightarrow)	80	<code>\nrcurvearrowright</code> (\nrightarrow)	45
		<code>\NoChemicalCleaning</code> (\nrightarrow)	80	<code>\nrcurvearrowse</code> (\nrightarrow)	45
		<code>\nointegrals</code> (<code>wasysym</code> package option)	25	<code>\nrcurvearrowsw</code> (\nrightarrow)	45
				<code>\nrcurvearrowup</code> (\nrightarrow)	45

<code>\nRelbar</code> (\neq)	34	<code>\nshortparallel</code> ($\#$)	33	<code>\nsubset</code> (\subsetneq)	37
<code>\nrelbar</code> (\neq)	34	<code>\nsim</code> (\sim)	32	<code>\nsubset</code> (\subseteq)	37
<code>\nrestriction</code> (\upharpoonright)	46	<code>\nsim</code> (\approx)	30	<code>\nsubseteq</code> ($\not\subseteq$)	37
<code>\nrhookdownarrow</code> (\downdownarrows)	45	<code>\nsim</code> (\asymp)	33	<code>\nsubseteqeq</code> ($\not\subseteq$)	36
<code>\nrhookleftarrow</code> (\leftleftarrows)	45	<code>\nsimeq</code> (\simeq)	32	<code>\nsubseteqeq</code> (\subseteq)	37
<code>\nrhooknearrow</code> (\nearrow)	45	<code>\nsimeq</code> (\cong)	31	<code>\nsubseteqqq</code> (\subseteq)	37
<code>\nrhooknwarrow</code> (\nwarrow)	45	<code>\nsimeq</code> (\approx)	33	<code>\nsubseteqqq</code> ($\not\subseteq$)	36
<code>\nrhookrightarrow</code> (\rightarrow)	45	<code>\nsmile</code> (\smile)	48	<code>\nsubseteqqq</code> (\subseteq)	37
<code>\nrhooksearrow</code> (\searrow)	45	<code>\nsmileeq</code> (\smile)	48	<code>\nsucc</code> (\succ)	32
<code>\nrhookswarrow</code> (\swarrow)	45	<code>\nsmileeqfrown</code> (\smile)	48	<code>\nsucc</code> (\succcurlyeq)	30
<code>\nrhookuparrow</code> (\uparrow)	45	<code>\nsmilefrown</code> (\smile)	48	<code>\nsucc</code> (\succ)	33
<code>\nRightarrow</code> (\Rightarrow)	42	<code>\nsmilefrowneq</code> (\smile)	48	<code>\nsuccapprox</code> (\approx)	32
<code>\nRightarrow</code> (\Rightarrow)	41	<code>\nsqdoublefrown</code> (\frown)	48	<code>\nsuccapprox</code> (\approx)	31
<code>\nRightarrow</code> (\Rightarrow)	45	<code>\nsqdoublefrowneq</code> (\frown)	48	<code>\nsuccapprox</code> (\approx)	33
<code>\nrightharpoonrightarrow</code> (\rightarrow)	42	<code>\nsqdoublesmile</code> (\smile)	48	<code>\nsucccurlyeq</code> (\succcurlyeq)	32
<code>\nrightharpoonrightarrow</code> (\rightarrow)	41	<code>\nsqdoublesmileeq</code> (\smile)	48	<code>\nsucccurlyeq</code> (\succcurlyeq)	31
<code>\nrightharpoonrightarrow</code> (\rightarrow)	45	<code>\nsqeqfrown</code> (\frown)	48	<code>\nsucccurlyeq</code> (\succcurlyeq)	33
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	45	<code>\nsqeqsmile</code> (\smile)	48	<code>\nsucceq</code> (\succeq)	32
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	47	<code>\nsqfrown</code> (\frown)	48	<code>\nsucceq</code> (\succeq)	30
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	47	<code>\nsqfrowneq</code> (\frown)	48	<code>\nsucceq</code> (\succeq)	33
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	33	<code>\nsqfrowneqsmile</code> (\frown)	48	<code>\nsucceqq</code> (\succeq)	31
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	33	<code>\nsqfrownsmile</code> (\frown)	48	<code>\nsucssim</code> (\sim)	32
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	46	<code>\nsqsmile</code> (\smile)	48	<code>\nsucssim</code> (\sim)	31
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	46	<code>\nsqsmileeq</code> (\smile)	48	<code>\nsucssim</code> (\sim)	33
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	44	<code>\nsqsmileeqfrown</code> (\smile)	48	<code>\nSupset</code> (\supseteq)	37
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	46	<code>\nsqsmilefrown</code> (\smile)	48	<code>\nSupset</code> (\supsetneq)	36
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	44	<code>\nSqsubset</code> (\sqsubseteq)	37	<code>\nSupset</code> (\supsetneq)	37
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	44	<code>\nsqSubset</code> (\sqsubseteq)	37	<code>\nsupset</code> (\supset)	37
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	33	<code>\nsqsubset</code> (\subsetneq)	37	<code>\nsupset</code> (\supset)	37
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	33	<code>\nsqsubset</code> (\subset)	36	<code>\nsupseteq</code> (\supseteq)	37
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	47	<code>\nsqsubset</code> (\supset)	37	<code>\nsupseteq</code> (\supsetneq)	36
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	46	<code>\nsqsubseteq</code> (\supseteq)	37	<code>\nsupseteq</code> (\supsetneq)	37
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	46	<code>\nsqsubseteq</code> ($\not\supseteq$)	36	<code>\nsupseteqq</code> (\supseteq)	37
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	33	<code>\nsqsubseteq</code> ($\not\supseteq$)	37	<code>\nsupseteqq</code> (\supsetneq)	36
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	33	<code>\nsqsubseteqq</code> (\supseteq)	37	<code>\nsupseteqq</code> (\supsetneq)	37
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	33	<code>\nsqsubseteqq</code> ($\not\supseteq$)	37	<code>\nSwarrow</code> (\swarrow)	45
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	33	<code>\nsqsubsetset</code> (\supseteq)	37	<code>\nswarrow</code> (\swarrow)	45
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	33	<code>\nsqsubsetset</code> (\supset)	36	<code>\nswarrowtail</code> (\swarrowtail)	45
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	44	<code>\nsqsubsetset</code> (\supsetneq)	37	<code>\nswfilledspoon</code> (\swarrow)	47
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	44	<code>\nsqsubsetseteq</code> (\supseteq)	37	<code>\nswfootline</code> (\swarrow)	33
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	44	<code>\nsqsubsetseteq</code> ($\not\supseteq$)	36	<code>\nswfree</code> (\swarrow)	33
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	47	<code>\nsqsubsetseteq</code> ($\not\supseteq$)	37	<code>\nswharpoonccw</code> (\swarrow)	46
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	46	<code>\nsqsubsetseteqq</code> (\supseteq)	37	<code>\nswharpoonccw</code> (\swarrow)	46
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	33	<code>\nsqsubsetseteqq</code> (\supsetneq)	37	<code>\nswlsquigarrow</code> (\swarrow)	45
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	33	<code>\nsqsubsetseteqq</code> ($\not\supseteq$)	37	<code>\nswmapsto</code> (\swarrow)	45
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	46	<code>\nsqtriplefrown</code> (\frown)	48	<code>\nswModels</code> (\swarrow)	33
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	46	<code>\nsqtriplefrown</code> (\smile)	48	<code>\nswmodels</code> (\swarrow)	33
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	44	<code>\nsquigarrowdownup</code> (\swarrow)	45	<code>\nswnarrow</code> (\swarrow)	45
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	45	<code>\nsquigarrowleftright</code> (\swarrow)	45	<code>\nswnearrows</code> (\swarrow)	45
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	33	<code>\nsquigarrownesw</code> (\swarrow)	45	<code>\nswnearrows</code> (\swarrow)	46
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	33	<code>\nsquigarrownwse</code> (\swarrow)	45	<code>\nswpitchfork</code> (\swarrow)	47
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	45	<code>\nsquigarrowrightleft</code> (\swarrow)	45	<code>\nswrsquigarrow</code> (\swarrow)	45
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	46	<code>\nsquigarrowrownwse</code> (\swarrow)	45	<code>\nswspoon</code> (\swarrow)	47
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	47	<code>\nsquigarrowrownwse</code> (\swarrow)	45	<code>\nswswarrows</code> (\swarrow)	45
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	45	<code>\nsquigarrowrowswne</code> (\swarrow)	45	<code>\nswVdash</code> (\swarrow)	33
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	45	<code>\nsquigarrowrowswne</code> (\swarrow)	45	<code>\nswvdash</code> (\swarrow)	33
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	45	<code>\nsststile</code> (\equiv)	34	<code>\ntdtstile</code> (\equiv)	34
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	47	<code>\nststile</code> (\equiv)	34	<code>ntheorem</code> (package)	62
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	33	<code>\nsttstile</code> (\equiv)	34	<code>\nthickapprox</code> (\approx)	31
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	33	<code>\nSubset</code> (\subsetneq)	37	<code>\nto</code> (\rightarrow)	46
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	33	<code>\nSubset</code> (\subseteq)	36	<code>\ntrianglelefteq</code> (\triangleleft)	40
<code>\nrightharpoonrighttail</code> (\rightarrowtail)	30	<code>\nSubset</code> (\subseteq)	37	<code>\ntriangleleftleft</code> (\triangleleft)	40

<code>\ntriangleleft</code> (↶)	39	<code>\nuppitchfork</code> (⚡)	47	<code>\obackslash</code> (⊘)	24
<code>\ntriangleleft</code> (↶)	39, 40	<code>\nuprsquigarrow</code> (↗)	45	<code>\obackslash</code> (⊙)	24
<code>\ntrianglelefteq</code> (⊴)	40	<code>\nupspoon</code> (⤿)	47	<code>\obar</code> (⓪)	21
<code>\ntrianglelefteq</code> (⊴)	39	<code>\nupuparrows</code> (⇧)	45	<code>\obelus</code> (—)	82
<code>\ntrianglelefteq</code> (⊴)	39, 40	<code>\nupVdash</code> (⊥)	33	<code>\obelus</code> (—)	82
<code>\ntrianglelefteqslant</code> (⊵)	40	<code>\nupvdash</code> (⊥)	33	<code>\obelus*</code> (÷)	82
<code>\ntriangleright</code> (↷)	40	<code>\nuup</code> (ν)	50	<code>\obelus*</code> (÷)	82
<code>\ntriangleright</code> (↷)	39	<code>\nvarg eq</code> (⊧)	38	<code>\oblong</code> (▭)	21
<code>\ntriangleright</code> (↷)	39, 40	<code>\nvarleq</code> (⊩)	38	<code>\obot</code> (⊕)	24
<code>\ntrianglerighteq</code> (⊵)	40	<code>\nvarparallel</code> (∥)	31	<code>\obslash</code> (⊘)	21
<code>\ntrianglerighteq</code> (⊵)	39	<code>\nvarparallelinv</code> (∥)	31	<code>\oc ()</code>	20
<code>\ntrianglerighteqslant</code> (⊶)	40	<code>\nVDash</code> (⊥)	32	<code>\ocirc</code> (⊙)	24
<code>\ntriplefrown</code> (⤴)	48	<code>\nVDash</code> (⊥)	30	<code>\ocirc</code> (⊙)	24
<code>\ntriplesim</code> (≈)	33	<code>\nVDash</code> (⊥)	34	<code>\ocircle</code> (⊙)	21
<code>\ntriplesmile</code> (☺)	48	<code>\nVdash</code> (⊥)	32	<code>\ocoasterisk</code> (⊙)	24
<code>\ntststile</code> (≡)	35	<code>\nVdash</code> (⊥)	31	<code>\octagon</code> (◻)	74
<code>\nttstile</code> (≡)	35	<code>\nvDash</code> (⊥)	34	<code>\Octosteel</code> (●)	70
<code>\ntttstile</code> (≡||)	35	<code>\nvDash</code> (⊥)	32	<code>\od</code> (⓪)	15
<code>\ntwoheaddownarrow</code> (⇓)	45	<code>\nvDash</code> (⊥)	30	<code>\odiv</code> (⊕)	24
<code>\ntwoheadleftarrow</code> (⇐)	31	<code>\nvDash</code> (⊥)	34	<code>\odot</code> (⊙)	24
<code>\ntwoheadleftarrow</code> (⇐)	45	<code>\nvdash</code> (⊥)	32	<code>\odot</code> (⊙)	20
<code>\ntwoheadnearrow</code> (↗)	45	<code>\nvdash</code> (⊥)	30	<code>\odot</code> (⊙)	24
<code>\ntwoheadnarrow</code> (↖)	45	<code>\nvdash</code> (⊥)	34	<code>\odotplus</code> (⊕)	24
<code>\ntwoheadrightarrow</code> (⇒)	31	<code>\nVdash</code> (⊥)	32	<code>\OE</code> (Œ)	9, 103
<code>\ntwoheadrightarrow</code> (⇒)	45	<code>\Nwarrow</code> (↖)	42	<code>\oe</code> (œ)	9, 103
<code>\ntwoheadsearrow</code> (↘)	45	<code>\Nwarrow</code> (↖)	43	<code>\officialeuro</code> (€)	17
<code>\ntwoheadswarrow</code> (↙)	45	<code>\nwarrow</code> (↖)	42	<code>\offinterlineskip</code>	91
<code>\ntwoheaduparrow</code> (⇑)	45	<code>\nwarrow</code> (↖)	41, 93	<code>ogonek</code>	<i>see</i> accents
<code>\nu</code> (ν)	49	<code>\nwarrow</code> (↖)	43	<code>\ogreaterthan</code> (⊘)	21
nuclear power plant	<i>see</i> \SNPP	<code>\nwarrowtail</code> (↖)	43	<code>\ohill</code> (⓪)	15
<code>\NUL</code> (␣)	69	<code>\nwfilledspoon</code> (⤿)	47	<code>ohm</code>	<i>see</i> \textohm
null set	62, 63	<code>\nwfootline</code> (⤿)	32	<code>\ohm</code> (Ω)	67
number	<i>see</i> \textnumero	<code>\nwfree</code> (↖)	32	<code>\Ohne</code> (⓪)	79
number sets	<i>see</i> alphabets, math	<code>\nwharpoonccw</code> (↖)	46	<code>\OHORN</code> (⓪)	9
numbers	<i>see</i> digits	<code>\nwharpooncw</code> (↖)	46	<code>\ohorn</code> (⓪)	9
circled	73, 76	<code>\nwlsquigarrow</code> (↗)	43	<code>\oiint</code> (∬)	27
<code>\NumLock</code> (⌨)	69	<code>\nwmapsto</code> (↗)	43	<code>\oiint</code> (∬)	29
<code>\nUparrow</code> (⇑)	45	<code>\nwModels</code> (↗)	32	<code>\oiintclockwise</code> (∬)	27
<code>\nuparrow</code> (↑)	45	<code>\nwmodels</code> (↗)	32	<code>\oiintctrlockwise</code> (∬)	27
<code>\nuparrowtail</code> (↑)	45	<code>\nwnwarrows</code> (↖)	43	<code>\oiintctrlockwise</code> (∬)	27
<code>\nUpdownarrow</code> (⇕)	45	<code>\nwpitchfork</code> (⚡)	47	<code>\oint</code> (∮)	26
<code>\nupdownarrow</code> (⇕)	45	<code>\nwrsquigarrow</code> (↗)	43	<code>\oint</code> (∮)	25, 27
<code>\nupdownarrows</code> (⇕)	45	<code>\nwsearrow</code> (↘)	43	<code>\oint</code> (∮)	28
<code>\nupdownharpoonleftright</code> (↕)	46	<code>\nwsearrow</code> (↘)	93	<code>\oint</code> (∮)	29
<code>\nupdownharpoonleftright</code> (↕)	46	<code>\nwsearrow</code> (↘)	43	<code>\oint</code> (∮)	29
<code>\nupdownharpoons</code> (⇕)	46	<code>\nwsearrows</code> (↘)	43	<code>\ointclockwise</code> (∮)	27
<code>\nUpdownline</code> (⇕)	33	<code>\nwsebipropto</code> (⊗)	23	<code>\ointctrlockwise</code> (∮)	27
<code>\nupdownline</code> (⇕)	33	<code>\nwsecrossing</code> (⊕)	32	<code>\ointctrlockwise</code> (∮)	27
<code>\nupfilledspoon</code> (⤿)	47	<code>\nwsearpoonnesw</code> (↖)	46	<code>\oint</code> (∮)	26
<code>\nupfootline</code> (⤿)	33	<code>\nwsearpoons</code> (↖)	46	<code>\oint</code> (∮)	25
<code>\nupfree</code> (⤿)	33	<code>\nwsearpoonswne</code> (↖)	46	<code>\oint</code> (∮)	29
<code>\nupharpoonccw</code> (↑)	46	<code>\Nwseline</code> (↖)	32	<code>\ointclockwise</code> (∮)	27
<code>\nupharpooncw</code> (↑)	46	<code>\nwseline</code> (↖)	32	<code>\ointclockwise</code> (∮)	28
<code>\nuplsquigarrow</code> (↗)	45	<code>\nwspoon</code> (⤿)	47	<code>\ointclockwise</code> (∮)	29
<code>\nupmapsto</code> (↗)	45	<code>\nwVdash</code> (⊥)	32	<code>\ointctrlockwise</code> (∮)	27
<code>\nupModels</code> (↗)	33	<code>\nwvdash</code> (⊥)	32	<code>\ointctrlockwise</code> (∮)	28
<code>\nupmodels</code> (↗)	33			<code>\ointctrlockwise</code> (∮)	29
				old-style digits	18
				<code>\oldstylenums</code>	18
				<code>\oleft</code> (⊕)	24
				<code>\oasterisk</code> (⊙)	24
				<code>\olessthan</code> (⊘)	21







































$\backslash\Omega$ (Ω) 49
 $\backslash\omega$ (ω) 49
 $\backslash\omega\text{up}$ (ω) 50
 $\backslash\ominus$ (\ominus) 24
 $\backslash\ominus$ (\ominus) 20
 $\backslash\ominus$ (\ominus) 24
 $\backslash\onlymove$ (\square) 82
 $\backslash\oo$ (∞) 82
 $\backslash\oo$ (∞) 12
 $\backslash\oalign$ 91, 92
 $\backslash\open$ (\cdot) 16
open unit disk (\mathbb{D}) *see*
 alphabets, math
 $\backslash\openJoin$ (\times) 31
 $\backslash\openo$ (\circ) 12
 $\backslash\openo$ (\circ) 12
 $\backslash\openo$ (\circ) 12
 $\backslash\opentimes$ (\times) 31
operators
 binary 20–24
 logical *see* logical operators
 set *see* set operators
 unary 20
 $\backslash\oplus$ (\oplus) 24
 $\backslash\oplus$ (\oplus) 20, 90
 $\backslash\oplus$ (\oplus) 24
 $\backslash\opposbishops$ (\blacksquare) 82
 $\backslash\opposition$ (\circ°) 68
optical scaling 96
options ... *see* package options
or *see* $\backslash\vee$
 $\backslash\oright$ (\oplus) 24
 $\backslash\OrnamentDiamondSolid$ (\blacklozenge) 77
orthogonal to *see* $\backslash\bot$
 $\backslash\oslash$ (\oslash) 24
 $\backslash\oslash$ (\oslash) 20
 $\backslash\oslash$ (\oslash) 24
 $\backslash\ostar$ (\otimes) 24
 $\backslash\otimes$ (\otimes) 24
 $\backslash\otimes$ (\otimes) 20
 $\backslash\otimes$ (\otimes) 24
 $\backslash\otop$ (\oplus) 24
 $\backslash\otriangle$ (\triangle) 24, 40
 $\backslash\otriangleup$ (\triangle) 24
ovals 75
 $\backslash\ovee$ (\vee) 21
 $\backslash\overarc$ ($\overline{\square}$) 16
 $\backslash\overbrace$ ($\overbrace{\square}$) 58
 $\backslash\overbrace$ ($\overbrace{\square}$) 58
 $\backslash\overbrace$ ($\overbrace{\square}$) 58
 $\backslash\overbrace$ ($\overbrace{\square}$) 57
 $\backslash\overbracket$ ($\overbracket{\square}$) 58
 $\backslash\overbracket$ ($\overbracket{\square}$) 95, 96
 $\backslash\overbridge$ ($\overbridge{\square}$) 15
 $\backslash\overgroup$ ($\overgroup{\square}$) 58
 $\backslash\overgroup$ ($\overgroup{\square}$) 58
 $\backslash\overleftarrow$ ($\overleftarrow{\square}$) 57
 $\backslash\overleftharpoon$ ($\overleftharpoon{\square}$) 58
 $\backslash\overlefttrightharpoon$ ($\overlefttrightharpoon{\square}$) 58











































$\backslash\overline$ ($\overline{\square}$) 20, 57
 $\backslash\overlinesegment$ ($\overlinesegment{\square}$) 58
 $\backslash\overparenthesis$ ($\overparenthesis{\square}$) 95, 96
 $\backslash\Overrightarrow$ ($\Overrightarrow{\square}$) 57
overrightarrow (package) 57, 104
 $\backslash\overrightarrow$ ($\overrightarrow{\square}$) 57
 $\backslash\overrightharpoon$ ($\overrightharpoon{\square}$) 58
 $\backslash\overring$ ($\overring{\square}$) 16
 $\backslash\overset$ 91
 $\backslash\overt$ (\oplus) 24
 $\backslash\ovoid$ (\circ) 24
 $\backslash\owedge$ (\oslash) 21
 $\backslash\owns$ *see* $\backslash\ni$
 $\backslash\owns$ (\ni) 51
 $\backslash\owns$ (\ni) 51
 $\backslash\owns$ (\ni) 51
 $\backslash\ownsbar$ (\ni) 51

P






























$\backslash\mathbb{P}$ (\mathbb{P}) 8, 102
 $\backslash\mathbb{P}$ (\cdot) 82
 $\backslash\mathbb{P}$ 94
package options
 a (esvect) 59
 b (esvect) 59
 bbgreekl (mathbbol) ... 65
 c (esvect) 59
 crescent (fge) 56
 d (esvect) 59
 e (esvect) 59
 f (esvect) 59
 g (esvect) 59
 german (keystroke) ... 69
 h (esvect) 59
 integrals (wasysym) ... 25
 mathcal (euscript) 65
 mathscr (euscript) 65
 nointegrals (wasysym) .. 25
 sans (dsfont) 65
 varg (txfonts/pxfonts) .. 50
packages
 longdiv 57
 accents ... 56, 94, 104, 105
 ambsy 100
 amfonts 20, 30, 36, 41, 62,
 65
 amsmath . 7, 49, 56, 91, 99
 amssymb . 7, 20, 30, 36, 41,
 56, 62, 65, 104, 105, 107
 amstext 92, 93
 ar 67, 104
 arcs 16, 104, 105
 arev 64, 78, 104, 105
 ascii 69, 101, 104, 105
 bbding . 71–75, 77, 88, 104,
 105
 bbm 65, 104
 bbold 65, 104
 bm 100, 104, 105
 braket 53
 calligra 65, 104, 105
 calrfs 65







































cancel 57
ccllicenses 18, 104, 105
centernot 92
chancery 104
chemarr 59, 104, 105
chemarrow 47, 60, 104
cmll ... 20, 23, 30, 36, 104
dblaccnt 94
dictsym 84, 104, 105
dingbat 72, 77, 88, 104, 105
dsfont 65, 104
epsdice 81, 104, 105
esint 28, 104
esvect 59, 104
eufrak 65
eurosym 17, 104, 105
euscript 65, 104, 105
extrarrows 60, 104, 105
extpfeil 60, 104, 105
extraipa 15, 104
fc 9, 13
fclfont 104
feyn 70, 104, 105
fge . 47, 52, 56, 62, 64, 104,
 105
fixmath 100
fontenc 7, 9, 13, 103
gensymb 67
graphics 90
graphicx 16, 87, 90
harmony 79, 104, 105
hieroglf 84, 104, 105
holtplot 60, 104
ifsym 67, 75, 80, 81, 88, 90,
 104, 105
igo 76, 104
isoent 103
keystroke 69, 104, 105
latexsym . 20, 30, 36, 41, 62,
 87, 104, 105
manfnt ... 76, 79, 104, 105
marvosym 17, 62, 64, 68–71,
 76, 79, 80, 88
mathbbol 65
mathabx 22, 24, 26,
 30–32, 36–38, 40, 42, 43, 49,
 51–54, 56, 58, 62, 63, 68, 76,
 87, 88, 104, 105, 107
mathbbol 65
mathcomp 62
mathdesign . 17, 23, 29, 51,
 55, 64, 104
mathdots 56, 61, 62, 94, 104,
 105
mathrfs 65, 104
mathtools .. 34, 58, 59, 104,
 105
mboard 65, 104
metre . 16, 56, 82, 104, 105
MnSymbol ... 23, 24, 29,
 32, 33, 37, 39, 40, 43–48, 50,
 51, 54, 56–58, 61, 63, 64, 74,
 104, 105























































musixtex	79	<code>\PaperPortrait</code> ()	81	pawn	<i>see</i> chess symbols
nath	52, 55, 104	par	<i>see</i> <code>\invamp</code>	<code>\Peace</code> ()	77
nicefrac	64, 104, 105	paragraph mark	<i>see</i> <code>\P</code>	<code>\PencilLeft</code> ()	72
ntheorem	62	parallel	<i>see also</i> <code>\varparallel</code>	<code>\PencilLeftDown</code> ()	72
overrightarrow	57, 104	<code>\parallel</code> ()	30, 54	<code>\PencilLeftUp</code> ()	72
phaistos	83, 104, 105	<code>\parallel</code> ()	33	<code>\PencilRight</code> ()	72
phonetic	12, 15, 90, 104	<code>\ParallelPort</code> ()	69	<code>\PencilRightDown</code> ()	72
pifont	9, 71–75, 77, 90, 104, 105	<code>\parr</code> ()	23	<code>\PencilRightUp</code> ()	72
polynom	57	<code>\partial</code> (∂)	51	pencils	72
prosem	83, 104, 105	<code>\partial</code> (∂)	51	<code>\pentagon</code> ()	74
psnfss	73	<code>\partial</code> (∂)	51	<code>\pentagram</code> ()	24
pxfonts	20, 21, 27, 30, 31, 36, 38, 41, 42, 48, 50, 51, 62, 63, 65, 87, 101	<code>\partial</code> (∂)	51	people	<i>see</i> faces
rotating	18, 69	<code>\partial</code> (∂)	51	percent sign	<i>see</i> <code>\%</code>
savesym	87	<code>\partial</code> (∂)	51	<code>\permil</code> (‰)	19
semtrans	13, 16, 104, 105	<code>\partial</code> (∂)	51	<code>\Perp</code> (\perp)	31
simplewick	96	<code>\partial</code> (∂)	51	<code>\perp</code> (\perp)	30, 93
simpsons	85, 104	<code>\partial</code> (∂)	51	<code>\perp</code> (\perp)	33
skak	82, 104, 105	<code>\partial</code> (∂)	51	<code>\perthousand</code> (‰)	67
skull	76, 104, 105	<code>\partial</code> (∂)	51	<code>\Pfund</code> (ℳ)	17
slashed	92	<code>\partial</code> (∂)	51	<code>\PgDown</code> ()	69
staves	85, 104	<code>\partial</code> (∂)	51	<code>\PgUp</code> ()	69
stmaryrd	21, 25, 30, 36, 40, 42, 48, 52, 53, 88, 91, 104, 105	<code>\partial</code> (∂)	51	phaistos (package)	83, 104, 105
t4phonet	13, 16, 104, 105	<code>\partial</code> (∂)	51	Phaistos disk	83
textcomp	7, 8, 13, 17–19, 41, 56, 64, 67, 78, 87, 101, 103–105	<code>\partial</code> (∂)	51	pharmaceutical prescription	<i>see</i> <code>\textrecipe</code>
timing	67	<code>\partial</code> (∂)	51	<code>\PHarrow</code> ()	83
tipa	10, 11, 13, 15, 16, 90, 104, 105	<code>\partial</code> (∂)	51	<code>\PHbee</code> ()	83
tipx	11, 104, 105	<code>\partial</code> (∂)	51	<code>\PHbeehive</code> ()	83
trfsigns	35, 51, 60, 104	<code>\partial</code> (∂)	51	<code>\PHboomerang</code> ()	83
trsym	35, 104, 105	<code>\partial</code> (∂)	51	<code>\PHbow</code> ()	83
turnstile	34, 35, 104, 105	<code>\partial</code> (∂)	51	<code>\PHbullLeg</code> ()	83
txfonts	20, 21, 27, 30, 31, 36, 38, 41, 42, 48, 50, 51, 62, 63, 65, 87, 89, 101, 104, 105	<code>\partial</code> (∂)	51	<code>\PHcaptive</code> ()	83
typelcm	87	<code>\partial</code> (∂)	51	<code>\PHcarpentryPlane</code> ()	83
ulsy	24, 48, 90, 104	<code>\partial</code> (∂)	51	<code>\PHcat</code> ()	83
underscore	8	<code>\partial</code> (∂)	51	<code>\PHchild</code> ()	83
undertilde	59, 104, 105	<code>\partial</code> (∂)	51	<code>\PHclub</code> ()	83
units	64	<code>\partial</code> (∂)	51	<code>\PHcolumn</code> ()	83
universa	76, 80, 104, 105	<code>\partial</code> (∂)	51	<code>\PHcomb</code> ()	83
universal	71, 73, 76, 80, 104, 105	<code>\partial</code> (∂)	51	<code>\PHdodium</code> ()	83
upgreek	50, 104, 105	<code>\partial</code> (∂)	51	<code>\PHdove</code> ()	83
upquote	101	<code>\partial</code> (∂)	51	<code>\PHeagle</code> ()	83
url	101	<code>\partial</code> (∂)	51	<code>\PHflute</code> ()	83
vietnam	104	<code>\partial</code> (∂)	51	<code>\PHgauntlet</code> ()	83
vntex	9, 13	<code>\partial</code> (∂)	51	<code>\PHgrater</code> ()	83
wasysym	12, 17, 19–21, 25, 30, 36, 38, 41, 61–63, 67, 68, 70, 73, 74, 78, 88, 104, 105	<code>\partial</code> (∂)	51	<code>\PHhelmet</code> ()	83
wsuipa	11, 15, 16, 88, 90, 94, 104, 105	<code>\partial</code> (∂)	51	<code>\PHhide</code> ()	83
yfonts	65, 104, 105	<code>\partial</code> (∂)	51		
yhmath	57, 59, 62, 94, 104	<code>\partial</code> (∂)	51		
Pakin, Scott	1, 104	<code>\partial</code> (∂)	51		
<code>\PaperLandscape</code> ()	81	<code>\partial</code> (∂)	51		

<code>\PHorn</code> 	83	pitchfork symbols	47	<code>\precnapprox</code> ()	32
<code>\Phi</code> (Φ)	49	<code>\piup</code> (π)	50	<code>\precnapprox</code> ()	30
<code>\phi</code> (ϕ)	49	<code>\planck</code> (\hbar)	12	<code>\precnapprox</code> ()	33
<code>\phiup</code> (ϕ)	50	<code>\Plane</code> 	77	<code>\precneq</code> (\preceq)	32
<code>\PHlid</code> 	83	planets	68	<code>\precneqq</code> (\preceq)	31
<code>\PHlily</code> 	83	playing cards <i>see</i> card suits		<code>\precnsim</code> (\preceq)	32
<code>\PHmanacles</code> 	83	Plimsoll line 91, <i>see also</i> <code>\minuso</code>		<code>\precnsim</code> ()	30
<code>\PHmattock</code> 	83	<code>\Plus</code> 	72	<code>\precnsim</code> ()	33
<code>\Phone</code> 	77	<code>\plus</code> (+)	23	<code>\precnsim</code> (\preceq)	31
<code>\phone</code> 	78	plus-or-minus sign <i>see</i> <code>\pm</code>		<code>\precnsim</code> ()	30
<code>\PhoneHandset</code> 	77	<code>\PlusCenterOpen</code> 	72	<code>\precnsim</code> (\preceq)	32
phonetic (package) 12, 15, 90, 104		<code>\pluscirc</code> (\oplus)	22	prescription <i>see</i> <code>\textrecipe</code>	
phonetic symbols 10–13		<code>\PlusOutline</code> 	72	<code>\prime</code> (\prime)	62
<code>\photon</code> 	67	plusses 72		<code>\prime</code> (\prime)	63
photons 70		<code>\PlusThinCenterOpen</code> 	72	<code>\Printer</code> 	69
<code>\PHoxBack</code> 	83	<code>\Pluto</code> (\P)	68	printer's fist <i>see</i> fists	
<code>\PHpapyrus</code> 	83	<code>\Pluto</code> (\P)	68	probabilistic independence 93	
<code>\PHpedestrian</code> 	83	<code>\pluto</code> (\P)	68	<code>\prod</code> (\prod)	25
<code>\PHplaneTree</code> 	83	<code>\pluto</code> (\P)	68	<code>\prod</code> (\prod)	29
<code>\PHplumedHead</code> 	83	<code>\pm</code> (\pm)	20	<code>\projlim</code> (projlim)	49
<code>\PHram</code> 	83	<code>\pm</code> (\pm)	23	pronunciation symbols <i>see</i>	
<code>\PHrosette</code> 	83	<code>\pm</code> (\pm)	82	phonetic symbols	
<code>\PHsaw</code> 	83	<code>\pmb</code>	100	proof, end of 62	
<code>\PHshield</code> 	83	<code>\pmod</code>	49	<code>\propto</code> (\propto)	63
<code>\PHship</code> 	83	<code>\pod</code>	49	<code>\propto</code> (\propto)	30
<code>\PHsling</code> 	83	<code>\pointer</code> (ϕ)	78	<code>\propto</code> (\propto)	33
<code>\PHsmallAxe</code> 	83	pointing finger <i>see</i> fists		proto-Semitic symbols 83	
<code>\PHstrainer</code> 	83	<code>\Pointinghand</code> 	76	protosem (package) 83, 104, 105	
<code>\PHtattooedHead</code> 	83	<code>\polishhook</code> (\cdot)	16	<code>\ProvidesPackage</code>	104
<code>\PHtiara</code> 	83	<code>\polter</code> 	60	<code>\PrtSc</code> (<code>\PrtSc</code>)	69
<code>\PHtunny</code> 	83	polygons 74		<code>\ps</code> ($_$)	82
<code>\PHvine</code> 	83	polynom (package)	57	<code>\Psi</code> (Ψ)	49
<code>\PHwavyBand</code> 	83	polynomial division 57		<code>\psi</code> (ψ)	49
<code>\PHwoman</code> 	83	PostScript 50, 66, 71, 81, 90, 99		<code>\psiup</code> (ψ)	50
physical symbols 67		PostScript fonts 71, 90		psnfss (package) 73	
<code>\Pi</code> (Π)	49	<code>\pounds</code> (\P) 8, 102, 103		<code>\Pu</code> (\cdot)	79
<code>\pi</code> (π)	49	power set (\mathcal{P}) <i>see</i> alphabets,		pulse diagram symbols 67	
<code>\Pickup</code> (\P)	69	math		<code>\PulseHigh</code> (\sqcap)	67
pifont (package) 9, 71–75, 77, 90,		<code>\powerset</code> (\mathcal{P})	51	<code>\PulseLow</code> (\sqcup)	67
104, 105		<code>\Pp</code> (\cdot)	82	punctuation 9	
pillcrow <i>see</i> <code>\P</code>		<code>\pp</code> (\cdot)	82	<code>\pwedge</code> (Δ)	12
pipe <i>see</i> <code>\textpipe</code>		<code>\ppm</code> (\cdot)	82	pxfonts (package) 20, 21, 27, 30,	
<code>\Pisces</code> (\P)	68	<code>\Ppp</code> (\cdot)	82	31, 36, 38, 41, 42, 48, 50, 51,	
<code>\pisces</code> (\P)	68	<code>\ppp</code> (\cdot)	82	62, 63, 65, 87, 101	
<code>\Pisymbol</code>	90	<code>\Pppp</code> (\cdot)	82	<code>\Pxp</code> (\cdot)	82
<code>\pitchfork</code> (\P)	63	<code>\Ppppp</code> (\cdot)	82	<code>\pxp</code> (\cdot)	82
<code>\pitchfork</code> (\P)	30	<code>\Pr</code> (Pr)	49		
<code>\pitchfork</code> (\P)	47	<code>\prec</code> (\prec)	30		
		<code>\prec</code> (\prec)	32		
		<code>\precapprox</code> (\preceq)	31		
		<code>\precapprox</code> (\preceq)	30		
		<code>\precapprox</code> (\preceq)	32		
		<code>\preccurlyeq</code> (\preceq)	31		
		<code>\preccurlyeq</code> (\preceq)	30		
		<code>\preccurlyeq</code> (\preceq)	32		
		<code>\precdot</code> (\preceq)	31		
		<code>\preceq</code> (\preceq)	30		
		<code>\preceq</code> (\preceq)	32		
		<code>\preceqq</code> (\preceq)	31		

R	
<code>\R</code> (\sim)	82
<code>\r</code> (\R)	13
<code>\r</code> (\sim)	82
<code>\Radiation</code> (\R)	81
radicals .. <i>see</i> <code>\sqrt</code> and <code>\surd</code>	
<code>\Radioactivity</code> (\R)	70
<code>\Rain</code> (\R)	80
<code>\RainCloud</code> (\R)	80
raising .. <i>see</i> <code>\text{raising}</code>	
<code>\RaisingEdge</code> (\R)	67
<code>\Rangle</code> (\R)	65
<code>\rAngle</code> (\R)	55
<code>\rangle</code> (\R)	20, 53
<code>\rangle</code> (\R)	54
<code>\ranglebar</code> (\R)	54
<code>\RArrow</code> (\R)	69
<code>\rarrowfill</code>	60
rational numbers (\mathbb{Q})	<i>see</i> alphabets, math
rationalized Planck constant	<i>see</i> <code>\hbar</code>
<code>\Rbag</code> (\R)	52
<code>\rbag</code> (\R)	52
<code>\rbrace</code> (\R)	54
<code>\Rbrack</code> (\R)	65
<code>\rBrack</code> (\R)	55
<code>\rc</code> (\R)	15
<code>\rCeil</code> (\R)	55
<code>\rceil</code> (\R)	53
<code>\rceil</code> (\R)	54
<code>\rcirclearrowdown</code> (\R)	44
<code>\rcirclearrowleft</code> (\R)	44
<code>\rcirclearrowright</code> (\R)	44
<code>\rcirclearrowup</code> (\R)	44
<code>\rcircleleftint</code> (\R)	29
<code>\rcirclearightint</code> (\R)	29
<code>\rcorners</code> (\R)	52
<code>\rcurvearrowdown</code> (\R)	44
<code>\rcurvearrowleft</code> (\R)	44
<code>\rcurvearrowne</code> (\R)	44
<code>\rcurvearrownw</code> (\R)	44
<code>\rcurvearrowright</code> (\R)	44
<code>\rcurvearrowse</code> (\R)	44
<code>\rcurvearrowsw</code> (\R)	44
<code>\rcurvearrowup</code> (\R)	44
<code>\rdbrack</code> (\R)	54
<code>\Re</code> (\mathbb{R})	51
real numbers (\mathbb{R})	<i>see</i> alphabets, math
recipe .. <i>see</i> <code>\text{recipe}</code>	
<code>\recorder</code> (\R)	78
<code>\Rectangle</code> (\R)	75
<code>\RectangleBold</code> (\R)	75
rectangles	75
<code>\RectangleThin</code> (\R)	75
<code>\Rectpipe</code> (\R)	70
<code>\Rectsteel</code> (\R)	70
reduced quadrupole moment	<i>see</i> <code>\rqm</code>
<code>\reflectbox</code>	90
registered trademark	<i>see</i> <code>\text{registered}</code>
relational symbols	30
binary	30–32, 34–39, 47, 48
negated binary	30–33
triangle	39, 40
<code>\Relbar</code> (\R)	48, 90
<code>\Relbar</code> (\R)	33
<code>\relbar</code> (\R)	48, 90
<code>\relbar</code> (\R)	33
<code>\resizebox</code>	87
<code>\Respondens</code> (\R)	82
<code>\respondens</code> (\R)	82
<code>\restoresymbol</code>	87
<code>\restriction</code>	<i>see</i> <code>\upharpoonright</code>
<code>\restriction</code> (\R)	42
<code>\restriction</code> (\R)	46
retracting	<i>see</i> <code>\text{retracting}</code>
<code>\Return</code> (\R)	69
return .. <i>see</i> carriage return	
<code>\revaw</code> (\R)	55
<code>\revD</code> (\R)	12
<code>\revdots</code> (\R)	94
<code>\reve</code> (\R)	12
<code>\reveject</code> (\R)	12
<code>\revepsilon</code> (\R)	12, 90
reverse solidus	<i>see</i> <code>\text{backslash}</code>
reversed symbols	90
<code>\reversedvideobend</code> (\R)	76
<code>\revglotstop</code> (\R)	12
<code>\Rewind</code> (\R)	79
<code>\RewindToIndex</code> (\R)	79
<code>\RewindToStart</code> (\R)	79
<code>\rfilet</code> (\R)	54
<code>\rFloor</code> (\R)	55
<code>\rfloor</code> (\R)	53
<code>\rfloor</code> (\R)	54
<code>\rgroup</code> (\R)	53
<code>\rgroup</code> (\R)	54
<code>\RHD</code> (\R)	21
<code>\rhd</code> (\R)	20, 21
<code>\rhd</code> (\R)	39, 40
<code>\rho</code> (ρ)	49
<code>\rhookdownarrow</code> (\R)	44
<code>\rhookleftarrow</code> (\R)	44
<code>\rhooknearrow</code> (\R)	44
<code>\rhooknwarrow</code> (\R)	44
<code>\rhookrightarrow</code> (\R)	44
<code>\rhooksearrow</code> (\R)	44
<code>\rhookswarrow</code> (\R)	43
<code>\rhookuparrow</code> (\R)	43
<code>\rhook</code> (ρ)	50
<code>\right</code>	53, 55, 87, 89
<code>\rightangle</code> (\R)	64
<code>\RIGHTarrow</code> (\R)	78
<code>\Rightarrow</code> (\R)	20, 41
<code>\Rightarrow</code> (\R)	43
<code>\rightarrow</code> (\R)	42
<code>\rightarrow</code> (\R)	41
<code>\rightarrow</code> (\R)	43
<code>\rightarrowtail</code> (\R)	41
<code>\rightarrowtail</code> (\R)	43
<code>\rightarrowtriangle</code> (\R)	42
<code>\rightbarharpoon</code> (\R)	43
<code>\RIGHTCIRCLE</code> (\R)	78
<code>\RIGHTcircle</code> (\R)	78
<code>\Rightcircle</code> (\R)	78
<code>\RightDiamond</code> (\R)	75
<code>\rightevaw</code> (\R)	55
<code>\rightfilledspoon</code> (\R)	47
<code>\rightfootline</code> (\R)	32
<code>\rightfree</code> (\R)	32
<code>\righthalfcap</code> (\R)	23
<code>\righthalfcup</code> (\R)	23
<code>\rightharpoonccw</code> (\R)	46
<code>\rightharpooncw</code> (\R)	46
<code>\rightharpoondown</code> (\R)	43
<code>\rightharpoondown</code> (\R)	41
<code>\rightharpoonup</code> (\R)	43
<code>\rightharpoonup</code> (\R)	41
<code>\rightleftarrows</code> (\R)	42
<code>\rightleftarrows</code> (\R)	41
<code>\rightleftarrows</code> (\R)	43
<code>\rightleftharpoon</code> (\R)	43
<code>\rightleftharpoons</code> (\R)	43
<code>\rightleftharpoons</code> (\R)	41
<code>\rightleftharpoons</code> (\R)	41
<code>\rightleftharpoons</code> (\R)	46
<code>\rightleftharpoonsfill</code>	60
<code>\rightsquigarrow</code> (\R)	43
<code>\rightmapsto</code> (\R)	43
<code>\rightModels</code> (\R)	32
<code>\rightmodels</code> (\R)	32
<code>\rightmoon</code> (\R)	68
<code>\rightmoon</code> (\R)	68
<code>\rightp</code> (\R)	16
<code>\rightpitchfork</code> (\R)	47
<code>\rightpointleft</code> (\R)	72
<code>\rightpointright</code> (\R)	72
<code>\rightpropto</code> (\R)	32
<code>\rightrightarrows</code> (\R)	42
<code>\rightrightarrows</code> (\R)	41
<code>\rightrightarrows</code> (\R)	43
<code>\rightrightarpoons</code> (\R)	43
<code>\rightlsruigarrow</code> (\R)	43
<code>\Rightscissors</code> (\R)	71
<code>\rightslice</code> (\R)	21
<code>\rightslice</code> (\R)	32
<code>\rightspoon</code> (\R)	47
<code>\rightsquigarrow</code> (\R)	42
<code>\rightsquigarrow</code> (\R)	41
<code>\rightsquigarrow</code> (\R)	44

<code>\rightt</code> (⊖)	16	<code>\rtriple</code>	55	<code>\scy</code> (Υ)	12
<code>\righttherefore</code> (∴) ...	23, 61	<code>\rVert</code> (||) .....	55	<code>\sddtstile</code> ()	35
<code>\rightthreetimes</code> (×)	63	<code>\rVert</code> (||) .....	53	<code>\sdtstile</code> ()	35
<code>\rightthreetimes</code> (×)	21	<code>\rvert</code> (|) .....	53	<code>\sdtstile</code> ()	35
<code>\rightthreetimes</code> (×)	23	<code>\rwave</code> ()	55	<code>\sdtstile</code> ()	35
<code>\rightthumbsdown</code> ()	72	<code>\rWavy</code> ()	54	<code>\sdtstile</code> ()	35
<code>\rightthumbsup</code> ()	72	<code>\rWavy</code> ()	54	seagull <i>see</i> <code>\textseagull</code>	
<code>\righttoleftarrow</code> (↵)	42	<code>\rwavy</code> ()	54	<code>\Searrow</code> ()	42
<code>\Righttorque</code> (⤵)	70	S		<code>\Searrow</code> ()	43
<code>\rightturn</code> (↻)	78	<code>\S</code> (§)	8, 102	<code>\searrow</code> (↘)	41, 93
<code>\rightVdash</code> (⊨)	32	safety-related symbols	70	<code>\searrow</code> (↘)	43
<code>\rightvdash</code> (⊨)	32	<code>\Sagittarius</code> (♐)	68	<code>\searrowtail</code> (↘)	43
<code>\rightwave</code> ()	55	<code>\sagittarius</code> (♐)	68	<code>\sec</code> (sec)	49
<code>\rightY</code> (↘)	23	<code>\samebishops</code> (♚)	82	<code>\Sech</code> ()	79
<code>\ring</code> ()	57	sans (dsfont package option) .	65	<code>\SechBL</code> ()	79
ring equal to <i>see</i> <code>\circeq</code>		<code>\satellitedish</code> ()	77	<code>\SechBl</code> ()	79
ring in equal to ... <i>see</i> <code>\eqcirc</code>		<code>\Saturn</code> (♄)	68	<code>\SechBR</code> ()	79
<code>\riota</code> (ι)	12	<code>\Saturn</code> (♄)	68	<code>\SechBr</code> ()	79
<code>\rip</code> (⊥)	76	<code>\satur</code> (♄)	68	<code>\second</code> (ʹ)	63
<code>\risingdotseq</code> (≐)	31	savesym (package)	87	seconds, angular ... <i>see</i> <code>\second</code>	
<code>\risingdotseq</code> (≐)	30	<code>\savesymbol</code>	87	<code>\secstress</code> (,)	16
<code>\risingdotseq</code> (≐)	32	<code>\Sborder</code> ()	77	section mark <i>see</i> <code>\S</code>	
<code>\rJoin</code> (⌘)	31	<code>\scalebox</code>	87	<code>\SectioningDiamond</code> () ..	81
<code>\rlap</code>	75, 93	scaling		<code>\see</code> (—)	82
<code>\rmoustache</code> ()	53	mechanical	96, 98	<code>\seffilledspoon</code> (↘)	47
<code>\rmoustache</code> ()	54	optical	96	<code>\seffootline</code> (↘)	32
rook <i>see</i> chess symbols		<code>\scd</code> (D)	12	<code>\seffree</code> (↘)	32
roots <i>see</i> <code>\sqrt</code>		<code>\scg</code> (G)	12	segmented digits	67
<code>\rotatebox</code>	16, 90	<code>\schwa</code> (ə)	11	<code>\seharpoonccw</code> (↘)	46
rotated symbols ..	10–12, 16, 90	<code>\schwa</code> (ə)	12	<code>\seharpooncw</code> (↘)	46
rotating (package)	18, 69	Schwartz distribution spaces <i>see</i>		<code>\selectfont</code>	7
<code>\rotm</code> (m)	12	alphabets, math		<code>\selsquigarrow</code> (↘)	43
<code>\rotOmega</code> (v)	12	<code>\sci</code> (i)	11	semantic valuation <i>see</i>	
<code>\rotr</code> (i)	12	scientific symbols	67–70	<code>\llbracket</code> / <code>\rrbracket</code>	
<code>\rotvara</code> (D)	12	<code>\ScissorHollowLeft</code> () ..	71	<i>and</i> <code>\lbrack</code> / <code>\rbrack</code>	
<code>\rotw</code> (M)	12	<code>\ScissorHollowRight</code> () .	71	<code>\semapsto</code> (↘)	43
<code>\roty</code> (A)	12	<code>\ScissorLeft</code> (☞)	71	semibreve . <i>see</i> musical symbols	
<code>\RoundedLsteel</code> (T)	70	<code>\ScissorLeftBrokenBottom</code>		semidirect products ..	21, 22, 63
<code>\RoundedTsteel</code> (L)	70	..... 71		semiquaver <i>see</i> musical symbols	
<code>\RoundedTTsteel</code> (I)	70	<code>\ScissorLeftBrokenTop</code> (☞) 71		semitic transliteration ..	13, 16
<code>\Rparen</code> (])	65	<code>\ScissorRight</code> (☞)	71	<code>\seModels</code> ()	32
<code>\rqm</code> (f)	92	<code>\ScissorRightBrokenBottom</code>		<code>\semodels</code> ()	32
<code>\rrangle</code> (⟨⟨)	54	()	71	semtrans (package) .	13, 16, 104,
<code>\rrbracket</code> (])	53	<code>\ScissorRightBrokenTop</code> (☞) 71		105	
<code>\rrceil</code> (⌈)	52	scissors	71	<code>\senwarrows</code> (↘)	43
<code>\rrffloor</code> (⌋)	52	<code>\scn</code> (N)	11	<code>\senwharpoons</code> (↘)	46
<code>\Rrightarrow</code> (⇒)	42	<code>\scoh</code> (∩)	36	<code>\SePa</code> (Ÿ)	79
<code>\Rrightarrow</code> (⇒)	43	<code>\Scorpio</code> (♏)	68	<code>\separated</code> ()()	32
<code>\rrparenthesis</code> ())	52	<code>\scorpio</code> (♏)	68	<code>\sepitchfork</code> (⌘)	47
<code>\RS</code> (A)	69	<code>\scr</code> (R)	11	<code>\seppawns</code> (o-o)	82
<code>\rsem</code> ()	54	script letters <i>see</i> alphabets, math		<code>\SerialInterface</code> ()	69
<code>\rsemantic</code> <i>see</i> <code>\rdbrack</code>		<code>\scripta</code> (a)	11	<code>\SerialPort</code> (≡)	69
<code>\Rsh</code> (↗)	42	<code>\scriptg</code> (g)	12	<code>\sersquigarrow</code> (↘)	43
<code>\Rsh</code> (↗)	41	<code>\scriptscriptstyle</code> ..	92, 93	<code>\sesearrows</code> (↘)	43
<code>\Rsh</code> (↗)	43	<code>\scriptstyle</code>	92, 93	<code>\sespoon</code> (∖)	47
<code>\rtimes</code> (×)	22	<code>\scriptsv</code> (v)	12	set operators	
<code>\rtimes</code> (×)	21	<code>\Scroll</code> ()	69	intersection <i>see</i> <code>\cap</code>	
<code>\rtimes</code> (×)	23	<code>\scu</code> (U)	12	union <i>see</i> <code>\cup</code>	

<code>\setminusminus</code> (\setminus)	23	<code>\slashdiv</code> (\div)	23	<code>\SnowflakeChevronBold</code> ()	74
<code>\seVdash</code> (\searrow)	32	<code>slashed</code> (package)	92	<code>snowflakes</code>	74
<code>\sevdash</code> (\searrow)	32	<code>\slashed</code>	92	<code>\SNPP</code> ()	85
SGML	103	<code>slashed letters</code>	92	<code>\snststile</code> ()	35
<code>sha</code> (III)	90	<code>slashed.sty</code> (file)	92	<code>\sntstile</code> ()	35
<code>\sharp</code> (\sharp)	62, 78	<code>\slashu</code> (μ)	12	<code>\snttstile</code> ()	35
<code>\sharp</code> (\sharp)	63	<code>\Sleet</code> ($\ddot{\cdot}$)	80	<code>\SO</code> (β)	69
<code>\Shift</code> ()	69	<code>\sliding</code> ()	15	<code>\SOH</code> (\textcircled{c})	69
<code>\shift</code> (\downarrow)	20	<code>\smallbosonloop</code> ()	70	space	
<code>\Shilling</code> (β)	17	<code>\SmallCircle</code> (\circ)	75	thin	100
<code>\shneg</code> (\uparrow)	20	<code>\SmallCross</code> (\times)	75	space, visible	8
<code>\shortdownarrow</code> (\downarrow)	42	<code>\smalldiamond</code> (\diamond)	24	<code>\Spacebar</code> ()	69
<code>\ShortFifty</code> ()	80	<code>\SmallDiamondshape</code> (\diamond)	75	spades (suit)	62–64, 77
<code>\ShortForty</code> ()	80	<code>\smallfrown</code> (\frown)	30	<code>\spadesuit</code> (\spadesuit)	62
<code>\shortleftarrow</code> (\leftarrow)	42	<code>\smallfrown</code> (\frown)	48	<code>\spadesuit</code> (\spadesuit)	63
<code>\shortmid</code> (\mid)	30	<code>\SmallHBar</code> ($\bar{}$)	75	<code>\Sparkle</code> ()	74
<code>\shortmid</code> (\mid)	23	<code>\smallin</code> (ϵ)	51	<code>\SparkleBold</code> ()	74
<code>\ShortNinetyFive</code> ()	80	<code>\smallint</code> (\int)	63	sparkles	74
<code>\shortparallel</code> (II)	30	<code>\SmallLowerDiamond</code> (\blacklozenge)	75	“special” characters	8
<code>\shortparallel</code> (II)	32	<code>\smalllozenge</code> (\lozenge)	74	<code>\SpecialForty</code> ()	80
<code>\ShortPulseHigh</code> ()	67	<code>\smallowns</code> (\owns)	51	<code>\sphericalangle</code> (\sphericalangle)	63
<code>\ShortPulseLow</code> ()	67	<code>\smallpencil</code> ()	72	<code>\sphericalangle</code> (\sphericalangle)	63
<code>\shortrightarrow</code> (\rightarrow)	42	<code>\smallprod</code> (\prod)	23	<code>\sphericalangle</code> (\sphericalangle)	63
<code>\ShortSixty</code> ()	80	<code>\SmallRightDiamond</code> (\blacklozenge)	75	<code>\SpinDown</code> (\downarrow)	75
<code>\ShortThirty</code> ()	80	<code>\smallsetminus</code> (\setminus)	21	<code>\SpinUp</code> (\uparrow)	75
<code>\shortuparrow</code> (\uparrow)	42	<code>\smallsetminus</code> (\setminus)	23	<code>\spirituslenis</code> ()	56
<code>\showclock</code>	81	<code>\smallsmile</code> (\smile)	30	<code>\spirituslenis</code> ()	56
<code>\shpos</code> (\downarrow)	20	<code>\smallsmile</code> (\smile)	48	<code>\splitvert</code> (\dagger)	69
<code>\SI</code> ($*$)	69	<code>\SmallSquare</code> (\square)	75	spoon symbols	47
<code>\Sigma</code> (Σ)	49	<code>\smallsquare</code> (\square)	24	<code>\spreadlips</code> ()	15
<code>\sigma</code> (σ)	49	<code>\smallstar</code> ($*$)	24	<code>\sqbullet</code> (\blacksquare)	22
<code>\sigmaup</code> (σ)	50	<code>\SmallTriangleDown</code> (\blacktriangledown)	75	<code>\sqcap</code> (\sqcap)	22
<code>\sim</code> (\sim)	30, 91, 101	<code>\smalltriangledown</code> (\blacktriangledown)	24	<code>\sqcap</code> (\sqcap)	20
<code>\sim</code> (\sim)	32	<code>\smalltriangledown</code> (\blacktriangledown)	24, 40	<code>\sqcap</code> (\sqcap)	23
<code>\simeq</code> (\simeq)	30	<code>\SmallTriangleLeft</code> (\blacktriangleleft)	75	<code>\sqcapdot</code> (\sqcapdot)	23
<code>\simeq</code> (\simeq)	32	<code>\smalltriangleleft</code> (\blacktriangleleft)	24	<code>\sqcapplus</code> (\sqcapplus)	21
simplewick (package)	96	<code>\smalltriangleleft</code> (\blacktriangleleft)	24, 40	<code>\sqcapplus</code> (\sqcapplus)	23
simpsons (package)	85, 104	<code>\SmallTriangleRight</code> (\blacktriangleright)	75	<code>\sqcup</code> (\sqcup)	22
Simpsons characters	85	<code>\smalltriangleright</code> (\blacktriangleright)	24	<code>\sqcup</code> (\sqcup)	20
<code>\sin</code> (\sin)	49	<code>\smalltriangleright</code> (\blacktriangleright)	24, 40	<code>\sqcup</code> (\sqcup)	23
<code>\sincos</code> (\sincos)	36	<code>\SmallTriangleUp</code> (\blacktriangleup)	75	<code>\sqcupdot</code> (\sqcupdot)	23
<code>\sinh</code> (\sinh)	49	<code>\smalltriangleup</code> (\blacktriangleup)	24	<code>\sqcupplus</code> (\sqcupplus)	21
<code>\SixFlowerAlternate</code> ()	74	<code>\smalltriangleup</code> (\blacktriangleup)	24, 40	<code>\sqcupplus</code> (\sqcupplus)	23
<code>\SixFlowerAltPetal</code> ()	74	<code>\SmallVBar</code> ($\bar{}$)	75	<code>\sqdoublecap</code> (\sqdoublecap)	22
<code>\SixFlowerOpenCenter</code> ()	74	<code>\smile</code> (\smile)	30	<code>\sqdoublecup</code> (\sqdoublecup)	22
<code>\SixFlowerPetalDotted</code> ()	74	<code>\smile</code> (\smile)	48	<code>\sqdoublefrown</code> (\sqdoublefrown)	48
<code>\SixFlowerPetalRemoved</code> ()	74	<code>\smile</code> (\smile)	48	<code>\sqdoublefrown</code> (\sqdoublefrown)	48
<code>\SixFlowerRemovedOpenPetal</code>		smile symbols	48	<code>\sqdoublefrown</code> (\sqdoublefrown)	48
()	74	<code>\smileeq</code> (\simeq)	48	<code>\sqdoublefrown</code> (\sqdoublefrown)	48
<code>\SixStar</code> ()	74	<code>\smileeqfrown</code> (\simeq)	48	<code>\sqdoublemile</code> (\simeq)	48
<code>\SixteenStarLight</code> ()	74	<code>\smilefrown</code> (\simeq)	48	<code>\sqdoublemile</code> (\simeq)	48
sixteenth note	see musical symbols	<code>\smilefrown</code> (\simeq)	48	<code>\sqeqfrown</code> (\simeq)	48
<code>\sixteenthnote</code> ()	78	<code>\smilefrown</code> (\simeq)	48	<code>\sqeqsmile</code> (\simeq)	48
skak (package)	82, 104, 105	<code>\Smiley</code> (\textcircled{c})	80	<code>\sqfrown</code> (\frown)	48
skull (package)	76, 104, 105	<code>\smiley</code> (\textcircled{c})	78	<code>\sqfrown</code> (\frown)	48
<code>\skull</code> ()	76	smiley faces	69, 78, 80	<code>\sqfrown</code> (\frown)	48
<code>\slash</code> ($/$)	101	<code>\sndtstile</code> ()	35	<code>\sqfrown</code> (\frown)	48
<code>\slashb</code> (β)	12	<code>\Snow</code> ()	80	<code>\sqfrown</code> (\frown)	48
<code>\slashc</code> (\textcircled{c})	12	<code>\SnowCloud</code> ()	80	<code>\sqfrown</code> (\frown)	48
<code>\slashd</code> (\textcircled{d})	12	<code>\Snowflake</code> ()	74	<code>\sqint</code> (\int)	27
		<code>\SnowflakeChevron</code> ()	74	<code>\sqint</code> (\int)	28

<code>\sqrt</code> ($\sqrt{\square}$)	57, 93	<code>\SquareShadowTopRight</code> (\square)	75	<code>\staveLXV</code> ()	86
<code>\sqsmile</code> (\smile)	48	<code>\SquareSolid</code> (\blacksquare)	75	<code>\staveLXVI</code> ()	86
<code>\sqsmileeq</code> (\simeq)	48	<code>\Squaresteel</code> (\blacksquare)	70	<code>\staveLXVII</code> ()	86
<code>\sqsmileeqfrown</code> (\simeq)	48	<code>\squarewithdots</code> (\square)	77	<code>\staveLXVIII</code> ()	86
<code>\sqsmilefrown</code> (\simeq)	48	<code>\squigarrowdownup</code> (\curvearrowright)	43	staves	85
<code>\Sqsubset</code> (\sqsubset)	37	<code>\squigarrowleftright</code> (\leftrightarrow)	43	staves (package)	85, 104
<code>\sqSubset</code> (\sqsubset)	37	<code>\squigarrownesw</code> (\nwarrow)	43	<code>\staveV</code> ()	85
<code>\sqsubset</code> (\sqsubset)	37	<code>\squigarrownwse</code> (\swarrow)	43	<code>\staveVI</code> ()	85
<code>\sqsubset</code> (\sqsubset)	37	<code>\squigarrowrightleft</code> (\leftrightarrow)	43	<code>\staveVII</code> ()	85
<code>\sqsubsetseteq</code> (\sqsubset)	37	<code>\squigarrowsenw</code> (\nwarrow)	43	<code>\staveVIII</code> ()	85
<code>\sqsubsetseteq</code> (\sqsubset)	36	<code>\squigarrowswne</code> (\swarrow)	43	<code>\staveIX</code> ()	85
<code>\sqsubsetseteq</code> (\sqsubset)	37	<code>\squigarrowupdown</code> (\updownarrow)	43	<code>\staveXI</code> ()	85
<code>\sqsubsetseteqq</code> (\sqsubset)	37	<code>\squplus</code> (\boxplus)	22	<code>\staveXII</code> ()	85
<code>\sqsubsetseteqq</code> (\sqsubset)	37	<code>\SS</code> (SS)	9	<code>\staveXIII</code> ()	85
<code>\sqsubsetsetneq</code> (\sqsubset)	37	<code>\ss</code> (β)	9	<code>\staveXIV</code> ()	85
<code>\sqsubsetsetneq</code> (\sqsubset)	37	<code>\ssdtstile</code> (\square)	35	<code>\staveXIX</code> ()	86
<code>\sqsubsetsetneqq</code> (\sqsubset)	37	<code>\ssearrow</code> (\searrow)	42	<code>\staveXL</code> ()	86
<code>\sqsubsetsetneqq</code> (\sqsubset)	37	<code>\sslash</code> ($//$)	21	<code>\staveXLI</code> ()	86
<code>\sqsubsetsetneq</code> (\sqsubset)	37	<code>\sststile</code> (\square)	35	<code>\staveXLII</code> ()	86
<code>\sqsubsetset</code> (\sqsubset)	37	<code>\sststile</code> (\square)	35	<code>\staveXLIII</code> ()	86
<code>\sqsubsetset</code> (\sqsubset)	37	<code>\sststile</code> (\square)	35	<code>\staveXLIV</code> ()	86
<code>\sqsubsetset</code> (\sqsubset)	36	<code>\sststile</code> (\square)	35	<code>\staveXLIX</code> ()	85
<code>\sqsubsetset</code> (\sqsubset)	37	<code>\sswarrow</code> (\swarrow)	42	<code>\staveXLV</code> ()	86
<code>\sqsubsetseteq</code> (\sqsubset)	37	<code>\stackrel{\cdot}{\cdot}</code>	20, 91, 95	<code>\staveXLVI</code> ()	86
<code>\sqsubsetseteq</code> (\sqsubset)	36	<code>\stackrel{\cdot}{\cdot}</code>	91	<code>\staveXLVII</code> ()	85
<code>\sqsubsetseteq</code> (\sqsubset)	37	<code>\star</code> (\star)	20, 94	<code>\staveXLVIII</code> ()	85
<code>\sqsubsetseteqq</code> (\sqsubset)	37	<code>\star</code> (\star)	24	<code>\staveXLIX</code> ()	85
<code>\sqsubsetseteqq</code> (\sqsubset)	37	Star of David	73, 74	<code>\staveXX</code> ()	86
<code>\sqsubsetsetneq</code> (\sqsubset)	37	stars	63, 73, 74	<code>\staveXXI</code> ()	86
<code>\sqsubsetsetneq</code> (\sqsubset)	37	statistical independence	93	<code>\staveXXII</code> ()	86
<code>\sqsubsetsetneqq</code> (\sqsubset)	37	<code>\staveI</code> ()	85	<code>\staveXXIII</code> ()	86
<code>\sqsubsetsetneqq</code> (\sqsubset)	37	<code>\staveII</code> ()	85	<code>\staveXXIV</code> ()	85
<code>\sqtrianglefrown</code> (\triangle)	48	<code>\staveIII</code> ()	85	<code>\staveXXIX</code> ()	85
<code>\sqtriplestroke</code> (\cong)	48	<code>\staveIV</code> ()	85	<code>\staveXXV</code> ()	85
<code>\Square</code> (\square)	75	<code>\staveIX</code> ()	85	<code>\staveXXVI</code> ()	85
<code>\Square</code> (\square vs. \square vs. \square)	88	<code>\staveL</code> ()	85, 86	<code>\staveXXVII</code> ()	85
<code>\Square</code> (\square)	73	<code>\staveLI</code> ()	85		
<code>\Square</code> (\square)	75	<code>\staveLII</code> ()	85		
<code>\square</code> (\square)	22	<code>\staveLIII</code> ()	85		
<code>\square</code> (\square)	63	<code>\staveLIV</code> ()	85		
<code>\square</code> (\square)	24	<code>\staveLIX</code> ()	85		
square root	<i>see</i> <code>\sqrt</code>	<code>\staveLV</code> ()	85		
hooked	<i>see</i> <code>\hksqrt</code>	<code>\staveLVI</code> ()	85		
<code>\SquareCastShadowBottomRight</code>		<code>\staveLVII</code> ()	85		
\square	75	<code>\staveLVIII</code> ()	85		
<code>\SquareCastShadowTopLeft</code>		<code>\staveLX</code> ()	85		
\square	75	<code>\staveLXI</code> ()	85		
<code>\SquareCastShadowTopRight</code>		<code>\staveLXII</code> ()	85		
\square	75	<code>\staveLXIII</code> ()	86		
<code>\Squaredot</code> (\cdot)	64	<code>\staveLXIV</code> ()	86		
<code>\squaredots</code> ($::$)	23, 61				
<code>\Squarepipe</code> (\square)	70				
squares	75, 76				
<code>\SquareShadowA</code> (\square)	75				
<code>\SquareShadowB</code> (\square)	75				
<code>\SquareShadowBottomRight</code> (\square)					
\square	75				
<code>\SquareShadowC</code> (\square)	75				
<code>\SquareShadowTopLeft</code> (\square)	75				

<code>\staveXXVIII</code> (☼)	85	<code>\subseteq</code> (\subseteq)	37	<code>\supset</code> (\supset)	37
<code>\staveXXX</code> (☼)	85	<code>\subsetneq</code> (\subsetneq)	36	<code>\supseteq</code> (\supseteq)	37
<code>\staveXXXI</code> (☼)	85	<code>\subseteq</code> (\subseteq)	37	<code>\supseteq</code> (\supseteq)	36
<code>\staveXXXII</code> (☼)	85	<code>\subseteqq</code> (\subseteqq)	37	<code>\supseteq</code> (\supseteq)	37
<code>\staveXXXIII</code> (☼)	85	<code>\subseteqq</code> (\subseteqq)	36	<code>\supseteqq</code> (\supseteqq)	37
<code>\staveXXXIV</code> (☼)	85	<code>\supseteq</code> (\supseteq)	37	<code>\supseteqq</code> (\supseteqq)	36
<code>\staveXXXIX</code> (☼)	85	<code>\supsetneq</code> (\supsetneq)	37	<code>\supseteqq</code> (\supseteqq)	37
<code>\staveXXXV</code> (☼)	85	<code>\supsetneq</code> (\supsetneq)	36	<code>\supsetneq</code> (\supsetneq)	37
<code>\staveXXXVI</code> (☼)	85	<code>\supsetneq</code> (\supsetneq)	37	<code>\supsetneq</code> (\supsetneq)	36
<code>\staveXXXVII</code> (☼)	85	<code>\supsetneqq</code> (\supsetneqq)	37	<code>\supsetneqq</code> (\supsetneqq)	37
<code>\staveXXXVIII</code> (☼)	85	<code>\supsetneqq</code> (\supsetneqq)	36	<code>\supsetneqq</code> (\supsetneqq)	36
<code>\stdtstile</code> (☼)	34	<code>\supsetplus</code> (\supsetplus)	36	<code>\supsetplus</code> (\supsetplus)	36
<code>\steaming</code> (☼)	64	<code>\supsetpluseq</code> (\supsetpluseq)	36	<code>\supsetpluseq</code> (\supsetpluseq)	36
sterling <i>see</i> <code>\pounds</code>		subsets	36, 37	<code>\surd</code> (\surd)	62
<code>stmaryrd</code> (package)	21, 25, 30, 36, 40, 42, 48, 52, 53, 88, 91, 104, 105	<code>\succ</code> (\succ)	30	<code>\SurveySign</code> (Δ)	81
stochastic independence <i>see</i> <code>\bot</code>		<code>\succ</code> (\succ)	32	<code>\Swarrow</code> (\swarrow)	42
<code>\StoneMan</code> (\blacktriangle)	81	<code>\succapprox</code> (\succapprox)	31	<code>\Swarrow</code> (\swarrow)	43
<code>\Stopsign</code> (\blacksquare)	70	<code>\succapprox</code> (\succapprox)	30	<code>\swarrow</code> (\swarrow)	42
<code>\StopWatchEnd</code> (\stopwatch)	81	<code>\succapprox</code> (\succapprox)	32	<code>\swarrow</code> (\swarrow)	41, 93, 94
<code>\StopWatchStart</code> (\stopwatch)	81	<code>\succcurlyeq</code> (\succcurlyeq)	31	<code>\swarrow</code> (\swarrow)	43
<code>\stress</code> ($\grave{}$)	16	<code>\succcurlyeq</code> (\succcurlyeq)	30	<code>\swarrowtail</code> (\swarrowtail)	43
<code>\strictfi</code> (ε)	31	<code>\succcurlyeq</code> (\succcurlyeq)	32	<code>\swfilledspoon</code> (\swfilledspoon)	47
<code>\strictif</code> (ε)	31	<code>\succdot</code> (\succdot)	31	<code>\swfootline</code> (\swfootline)	32
<code>\strictiff</code> (ε)	31	<code>\succeq</code> (\succeq)	30	<code>\swfree</code> (\swfree)	32
<code>\strokedint</code> (f)	29	<code>\succeq</code> (\succeq)	32	<code>\swharpoonccw</code> (\swharpoonccw)	46
<code>\StrokeFive</code> ($\#$)	81	<code>\succeqq</code> (\succeqq)	31	<code>\swharpooncw</code> (\swharpooncw)	46
<code>\StrokeFour</code> ($\#\#$)	81	<code>\succnapprox</code> (\succnapprox)	32	<code>\swlsquigarrow</code> (\swlsquigarrow)	43
<code>\StrokeOne</code> ($\#$)	81	<code>\succnapprox</code> (\succnapprox)	30	<code>\swmapsto</code> (\swmapsto)	43
<code>\StrokeThree</code> ($\#\#\#$)	81	<code>\succnapprox</code> (\succnapprox)	33	<code>\swModels</code> (\swModels)	32
<code>\stst</code> (\circ)	91	<code>\succneq</code> (\succneq)	32	<code>\swmodels</code> (\swmodels)	32
<code>\sttstile</code> (☼)	34	<code>\succneqq</code> (\succneqq)	31	<code>\swnearrows</code> (\swnearrows)	43
<code>\sttstile</code> (☼)	34	<code>\succnsim</code> (\succnsim)	31	<code>\swneharpoons</code> (\swneharpoons)	46
<code>\STX</code> (\oplus)	69	<code>\succnsim</code> (\succnsim)	30	<code>\swpitchfork</code> (\swpitchfork)	47
<code>\SUB</code> (\rightarrow)	69	<code>\succnsim</code> (\succnsim)	33	<code>\swrsquigarrow</code> (\swrsquigarrow)	43
subatomic particles	70	<code>\succsim</code> (\succsim)	31	<code>\swspoon</code> (\swspoon)	47
<code>\subcorner</code> (\subcorner)	15	<code>\succsim</code> (\succsim)	30	<code>\swswarrows</code> (\swswarrows)	43
<code>\subdoublebar</code> (\subdoublebar)	15	<code>\succsim</code> (\succsim)	32	swung dash <i>see</i> <code>\sim</code>	
<code>\subdoublevert</code> (\subdoublevert)	15	such that	90, 92	<code>\swVdash</code> (\swVdash)	32
<code>\sublptr</code> (\sublptr)	15	<code>\suchthat</code> (\Rightarrow)	92	<code>\swvdash</code> (\swvdash)	32
<code>\subrptr</code> (\subrptr)	15	<code>\sum</code> (\sum)	25	<code>\syl</code> (¶)	15
subscripts		<code>\sum</code> (Σ)	29	<code>\syllabic</code> (,)	16
new symbols used in	92	<code>\sumint</code> (\int)	29	Symbol (font)	50, 90
<code>\Subset</code> (\Subset)	37	<code>\Summit</code> (\blacktriangle)	81	symbols	
<code>\Subset</code> (\Subset)	36	<code>\SummitSign</code> (\blacktriangle)	81	actuarial	95
<code>\Subset</code> (\Subset)	37	<code>\Sun</code> (\odot)	68	alpine	81
<code>\subset</code> (\subset)	37	<code>\Sun</code> (\odot vs. ☼ vs. \odot)	88	APL	68
<code>\subset</code> (\subset)	36	<code>\Sun</code> (☼)	80	astrological	68
<code>\subset</code> (\subset)	37	<code>\Sun</code> (\odot)	68	astronomical	68
<code>\sup</code> (sup)	49	<code>\sun</code> (☼)	78	biological	70
superscripts		<code>\SunCloud</code> (☼)	80	body-text	8–19
new symbols used in	92	<code>\SunshineOpenCircled</code> (☼)	77	bold	100
supersets	36, 37	<code>\sup</code> (sup)	49	chess	82
<code>\Supset</code> (\Supset)	37	superscripts		clock	81
<code>\Supset</code> (\Supset)	36	new symbols used in	92	communication	69
<code>\Supset</code> (\Supset)	37	supersets	36, 37	computer hardware	69
<code>\supset</code> (\supset)	37	<code>\Supset</code> (\Supset)	37	contradiction	20, 48
<code>\supset</code> (\supset)	36	<code>\supset</code> (\supset)	36	currency	17, 65
<code>\supset</code> (\supset)	37	<code>\supseteq</code> (\supseteq)	37	dangerous bend	76
<code>\supseteq</code> (\supseteq)	36	<code>\supseteq</code> (\supseteq)	36	definition	20, 95
<code>\supseteq</code> (\supseteq)	37	<code>\supseteqq</code> (\supseteqq)	37	dictionary	10–13, 84
<code>\supseteqq</code> (\supseteqq)	36	<code>\supsetplus</code> (\supsetplus)	36	dingbat	71–77
<code>\supseteqq</code> (\supseteqq)	37	<code>\supsetpluseq</code> (\supsetpluseq)	36		

dot	8, 61, 62, 94
electrical	67
engineering	67, 70
extensible	57–60, 89, 94–96
Feynman diagram	70
Frege logic	47, 52, 62, 64
frown	48
genealogical	78
general	78
Go stones	76
information	76
informator	82
inverted	10–12, 16, 90
keyboard	69
Knuth’s	76, 79
laundry	80
legal	8, 18, 102
letter-like	51, 52
life insurance	95
linear logic	20, 30, 36
linguistic	10–13
log-like	49, 100
magical signs	85
mathematical	20–66
METAFONTbook	79
metrical	82
miscellaneous	62–64, 77–86
monetary	17, 65
musical	19, 62, 63, 78, 79
navigation	79
non-commutative division	60
particle physics	70
Phaistos disk	83
phonetic	10–13
physical	67
pitchfork	47
proto-Semitic	83
pulse diagram	67
relational	30
reversed	90
rotated	10–12, 16, 90
safety-related	70
scientific	67–70
Simpsons characters	85
smile	48
spoon	47
staves	85
subset and superset	36, 37
technological	67–70
TeXbook	76, 79
transliteration	13
upside-down	10–12, 16, 90, 100–101
variable-sized	25–29, 87, 89
weather	80
zodiacal	68
symbols.tex (file)	87, 104
\SYN (–)	69
T	
\T	9
\T (■)	16
\T (⊗)	82
\t (■)	13
\t (⊗)	82
t4phonet (package)	13, 16, 104, 105
\Tab (☞)	69
\tabcolsep	91
tacks	30, 51
\taild (d)	12
\tailinvr (t)	12
\taill (l)	12
\tailn (n)	12
\tailr (r)	12
\tails (s)	12
\tailt (t)	12
\tailz (z)	12
\Takt	79
\talloblong (||)	21
tally markers	81
\tan (tan)	49
\tanh (tanh)	49
\Tape (📼)	77
\Taschenuhr (🕒)	81
Tate-Shafarevich group	see sha
\tau (τ)	49
\Taurus (♉)	68
\Taurus (♊)	68
\taurus (♋)	68
\tauup (τ)	50
\tccentigrade (°C)	62
\tcmu (μ)	62
\tcohm (Ω)	62
\tcpertenthousand (‰)	62
\tcpertousand (%)	62
\td (■)	15
\tddtstile (|||)	34
\tdststile (|||)	34
\tdtstile (|||)	34
\tdttstile (|||)	35
technological symbols	67–70
\Telefon (☎)	69
\Telephone (☎)	81
Tennent, Bob	20
\Tent (▲)	81
\Terminus (⊗)	82
\terminus (⊗)	82
\Terminus* (⊕)	82
\terminus* (⊕)	82
\tesh (ʃ)	12
testfont.dvi (file)	98
testfont.tex (file)	97, 98
TeX	40, 61, 87, 90–99, 101, 106
TeXbook, The	90–95, 99
symbols from	76, 79
\text	20, 92, 93
\textacutdbl (")	17
\textacutemacron (̂)	13
\textacutewedge (̂)	13
\textadvancing (■)	14
\textaolig (æ)	11
\textasciicircum (˘)	17, 102
\textasciibreve (˘)	17
\textasciicaron (ˇ)	17
\textasciicircum (˘)	8, 101, 103
\textasciidieresis (¨)	17, 102
\textasciigrave (˘)	17
\textasciimacron (˘)	103
\textasciimacron (˘)	17, 102
\textasciitilde (˜)	8, 101, 103
\textasteriskcentered (*)	8, 19
\textbabygamma (ϳ)	10
\textbackslash (\)	8, 101
\textbaht (฿)	17
\textbar (|)	8, 100, 101
\textbarb (b)	10
\textbarc (c)	10
\textbard (d)	10
\textbardbl (||)	19
\textbardotlessj (j)	10
\textbarg (g)	10
\textbarglotstop (ʒ)	10
\textbari (i)	10
\textbarl (l)	10
\textbaro (o)	10
\textbarrevglotstop (ʒ)	10
\textbaru (u)	10
\textbeltl (l)	10
\textbenttailyogh (z)	11
\textbeta (β)	10
\textbigcircle (○)	19
\textbktailgamma (γ)	11
\textblank (b)	19
\textborn (★)	78
\textbottomtiebar (■)	14
\textbraceleft ({)	8
\textbraceright (})	8
\textbrevemacron (̂)	14
\textbrokenbar (|)	19, 102
\textbullet (●)	8, 19, 103
\textbullseye (◎)	10
\textcelsius (°C)	67
\textceltpal (˘)	10
\textcent (¢)	17, 102
\textcentoldstyle (c)	17
\textchi (χ)	10
\textcircled (⊙)	13
\textcircledP (Ⓟ)	18
\textcircumacute (̂)	14
\textcircumdot (̂)	14
\textcloseepsilon (ε)	10
\textcloseomega (ω)	10
\textcloserevepsilon (ε)	10
\textcolonmonetary (€)	17
\textcommatailz (z)	10
textcomp (package)	7, 8, 13, 17–19, 41, 56, 64, 67, 78, 87, 101, 103–105
\textcopyleft (©)	18
\textcopyright (©)	8, 18, 102
\textcorner (˘)	10
\textcrb (b)	10

<code>\textcrd</code> (đ)	10	<code>\textepsilon</code> (ε)	13	<code>\textifsym</code>	67
<code>\textcrd</code> (ḑ)	13	<code>\textesh</code> (f)	10	<code>\textinterrobang</code> (‡)	19
<code>\textcrg</code> (g)	10	<code>\textesh</code> (f)	13	<code>\textinterrobangdown</code> (‡)	19
<code>\textcrh</code> (h)	10	<code>\textestimated</code> (€)	19	<code>\textinvglotstop</code> (b)	10
<code>\textcrh</code> (ḥ)	13	<code>\texteuro</code> (€)	17	<code>\textinvomega</code> (ω)	11
<code>\textcrinvglotstop</code> (š)	10	<code>\textexclamdown</code> (¡)	8	<code>\textinvnsca</code> (v)	11
<code>\textcrlambda</code> (λ)	10	<code>\textfemale</code> (♀)	11	<code>\textinvscr</code> (B)	10
<code>\textcrtwo</code> (2)	10	<code>\textfishhookr</code> (r)	11	<code>\textinvscripta</code> (α)	11
<code>\textctc</code> (c)	10	<code>\textfiveoldstyle</code> (5)	18	<code>\textinvsubbridge</code> (⌌)	14
<code>\textctd</code> (d)	10	<code>\textfjlig</code> (fj)	13	<code>\textiota</code> (ι)	10
<code>\textctdctzlig</code> (dz)	10	<code>\textflorin</code> (f)	17	<code>\textiota</code> (ι)	13
<code>\textctesh</code> (f)	10	<code>\textfouroldstyle</code> (4)	18	<code>\textlambda</code> (λ)	10
<code>\textctinvglotstop</code> (š)	11	<code>\textfractionsolidus</code> (/)	64	<code>\textlangle</code> (⟨)	56, 101
<code>\textctj</code> (j)	10	<code>\textfrac</code>	65	<code>\textlbrackdbl</code> (⌋)	56
<code>\textctjvar</code> (j)	11	<code>\textfrak</code>	65	<code>\textleaf</code> (♻)	78
<code>\textctn</code> (n)	10	<code>\textfrbarn</code> (n)	11	<code>\textleftarrow</code> (←)	41
<code>\textctstretchc</code> (L)	11	<code>\textfrhookd</code> (rd)	11	<code>\textlengthmark</code> (:)	10
<code>\textctstretchcvar</code> (c)	11	<code>\textfrhookdvar</code> (rd)	11	<code>\textless</code> (<)	8, 100, 101
<code>\textctt</code> (t)	10	<code>\textfrhookt</code> (t)	11	<code>\textlfishhookrlig</code> (t)	11
<code>\textcttctclig</code> (tt)	10	<code>\textfrtailgamma</code> (γ)	11	<code>\textlhbend</code> (⤵)	76
<code>\textcttturnt</code> (t)	11	<code>\textg</code> (g)	11	<code>\textlhookfour</code> (4)	11
<code>\textctyogh</code> (z)	10	<code>\textgamma</code> (γ)	11	<code>\textlhookp</code> (p)	11
<code>\textctz</code> (z)	10	<code>\textglobfall</code> (v)	11	<code>\textlhookt</code> (t)	10
<code>\textcurrency</code> (¤)	17, 102	<code>\textglabrise</code> (r)	11	<code>\textlhti</code> (i)	11
<code>\textdagger</code> (†)	8, 19	<code>\textglotstop</code> (ʔ)	10	<code>\textlhtlongi</code> (i)	10
<code>\textdaggerdbl</code> (‡)	8, 19	<code>\textglotstopvari</code> (ʔ)	11	<code>\textlhtlongy</code> (y)	10
<code>\textdbend</code> (⤵)	76	<code>\textglotstopvariii</code> (ʔ)	11	<code>\textlira</code> (₺)	17
<code>\textdblhyphen</code> (=)	19	<code>\textgoth</code>	65	<code>\textlnot</code> (¬)	64, 102
<code>\textdblhyphenchar</code> (=)	19	<code>\textgravecircum</code> (˘)	14	<code>\textlongleg</code> (r)	10
<code>\textdblig</code> (db)	11	<code>\textgravedbl</code> (˝)	17	<code>\textlooptoprevesh</code> (l)	11
<code>\textdctzlig</code> (dz)	10	<code>\textgravedot</code> (˙)	14	<code>\textlowering</code> (⌒)	14
<code>\textdegree</code> (°)	64, 102	<code>\textgravemacron</code> (ˆ)	14	<code>\textlptr</code> (ˆ)	10
<code>\textdied</code> (†)	78	<code>\textgravemid</code> (ˆ)	14	<code>\textlquill</code> (f)	56
<code>\textdiscount</code> (%)	19	<code>\textgreater</code> (>)	8, 100, 101	<code>\textltailm</code> (m)	10
<code>\textdiv</code> (÷)	64	<code>\textgrgamma</code> (γ)	11	<code>\textltailn</code> (n)	10
<code>\textdivorced</code> (¢)	78	<code>\textguarani</code> (₲)	17	<code>\textltailn</code> (n)	13
<code>\textdollar</code> (\$)	8, 17	<code>\texthalflength</code> (ˆ)	10	<code>\textltilde</code> (i)	10
<code>\textdollaroldstyle</code> (\$)	17	<code>\texthardsign</code> (ˆ)	10	<code>\textlyoghlig</code> (k)	10
<code>\textdong</code> (đ)	17	<code>\textheng</code> (h)	11	<code>\textmarried</code> (∞)	78
<code>\textdotacute</code> (˙)	14	<code>\texthmlig</code> (h)	11	<code>\textmho</code> (Ω)	67
<code>\textdotbreve</code> (˘)	14	<code>\texthooktop</code> (ˆ)	10	<code>\textmidacute</code> (ˆ)	14
<code>\textdoublebaresh</code> (f)	10	<code>\texthtb</code> (b)	10	<code>\textminus</code> (−)	64
<code>\textdoublebarpipe</code> (‡)	10	<code>\texthtb</code> (b)	13	<code>\textmu</code> (μ)	67, 102
<code>\textdoublebarpipevar</code> (‡)	11	<code>\texthtbardotlessj</code> (f)	10	<code>\textmusicalnote</code> (♩)	19
<code>\textdoublebarslash</code> (≠)	10	<code>\texthtbardotlessjvar</code> (f)	11	<code>\textnaira</code> (₦)	17
<code>\textdoublegrave</code> (˘)	14	<code>\texthtc</code> (c)	10	<code>\textnineoldstyle</code> (9)	18
<code>\textdoublegrave</code> (˘)	16	<code>\texthtc</code> (c)	13	<code>\textnrleg</code> (η)	11
<code>\textdoublepipe</code> (||) . . . . .	10	<code>\texthtd</code> (d)	10	<code>\textnumero</code> (№)	19
<code>\textdoublepipevar</code> (||) . . . . .	11	<code>\texthtd</code> (d)	13	<code>\textObardotlessj</code> (j)	10
<code>\textdoublevbaraccent</code> (˘)	14	<code>\texthtg</code> (g)	10	<code>\textObullseye</code> (⊙)	11
<code>\textdoublevbaraccent</code> (˘)	16	<code>\texthth</code> (h)	10	<code>\textohm</code> (Ω)	67
<code>\textdoublevertline</code> (||) . . . . .	10	<code>\texththeng</code> (f)	10	<code>\textOlyoghlig</code> (h)	10
<code>\textdownarrow</code> (↓)	41	<code>\texthtk</code> (k)	10	<code>\textomega</code> (ω)	10
<code>\textdownfullarrow</code> (↓)	11	<code>\texthtk</code> (k)	13	<code>\textonehalf</code> (½)	64, 102
<code>\textdownstep</code> (†)	10	<code>\texthtp</code> (p)	10	<code>\textoneoldstyle</code>	18
<code>\textdyoghlig</code> (k)	10	<code>\texthtp</code> (p)	13	<code>\textoneoldstyle</code> (i)	18
<code>\textdzlig</code> (dz)	10	<code>\texthtq</code> (q)	10	<code>\textonequarter</code> (¼)	64, 102
<code>\texteightoldstyle</code> (8)	18	<code>\texthttrtaild</code> (d)	10	<code>\textonesuperior</code> (¹)	64, 102
<code>\textellipsis</code> (⋯)	8	<code>\texthtscg</code> (g)	10	<code>\textopenbullet</code> (◦)	19
<code>\textemdash</code> (—)	8	<code>\texthtt</code> (t)	10	<code>\textopencorner</code> (ˆ)	10
<code>\textendash</code> (–)	8	<code>\texthtt</code> (t)	13	<code>\textopeno</code> (o)	10
<code>\textepsilon</code> (ε)	10	<code>\texthvlig</code> (lv)	10	<code>\textopeno</code> (o)	13

<code>\textordfeminine</code> ([♀])	8, 19, 102	<code>\textrhoticity</code> ([⋈])	11	<code>\textsubdoublearrow</code> (\leftrightarrow)	11
<code>\textordmasculine</code> ([♂])	8, 19, 102	<code>\textrightarrow</code> (\rightarrow)	41	<code>\textsubgrave</code> ($\grave{_}$)	14
<code>\textovercross</code> ($\overline{\times}$)	14	<code>\texttringmacron</code> ($\text{\~{m}}$)	14	<code>\textsublhalfring</code> (\textsublhalfring)	14
<code>\textoverw</code> (\overline{w})	14	<code>\textroundcap</code> ($\text{\textcircled{a}}$)	14	<code>\textsubplus</code> (\textsubplus)	14
<code>\textpalhook</code> (\hook)	10	<code>\textrptr</code> ($\text{\textcircled{r}}$)	11	<code>\textsubrhalfring</code> (\textsubrhalfring)	14
<code>\textpalhooklong</code> (\hooklong)	11	<code>\textrquill</code> (\textquill)	56	<code>\textsubbrightarrow</code> ($\text{\textsubbrightarrow}$)	11
<code>\textpalhookvar</code> (\hookvar)	11	<code>\textrtaild</code> (\textrtaild)	11	<code>\textsubring</code> (\textsubring)	14
<code>\textparagraph</code> (\textparagraph)	8, 19	<code>\textrtaild</code> (\textrtaild)	13	<code>\textsubsquare</code> (\textsubsquare)	14
<code>\textperiodcentered</code> (\cdot)	8, 19, 102	<code>\textrtaillhth</code> (\textrtaillhth)	11	<code>\textsubtilde</code> (\textsubtilde)	14
<code>\textpertenthousand</code> (\textperthousand)	19	<code>\textrtaill</code> (\textrtaill)	11	<code>\textsubumlaut</code> (\textsubumlaut)	14
<code>\textperthousand</code> (\textperthousand)	19, 103	<code>\textrtailln</code> (\textrtailln)	10	<code>\textsubw</code> (\textsubw)	14
<code>\textpeso</code> (\textpeso)	17	<code>\textrtaillr</code> (\textrtaillr)	10	<code>\textsubwedge</code> (\textsubwedge)	14
<code>\textphi</code> (Φ)	10	<code>\textrtaills</code> (\textrtaills)	10	<code>\textsuperimposetilde</code> ($\text{\textsuperimposetilde}$)	14
<code>\textpilcrow</code> (\textpilcrow)	19	<code>\textrtaillt</code> (\textrtaillt)	10	<code>\textsuperscript</code>	15
<code>\textpipe</code> ($|$)	10	<code>\textrtaillt</code> (\textrtaillt)	13	<code>\textsurd</code> ($\sqrt{\text{}}$)	64
<code>\textpipe</code> ($|$)	13	<code>\textrtaillz</code> (\textrtaillz)	10	<code>\textswab</code>	65
<code>\textpipevar</code> ($|$)	11	<code>\textrthook</code> (\textrthook)	10	<code>\textsyllabic</code> (\textsyllabic)	15
<code>\textpm</code> (\pm)	64, 102	<code>\textrthooklong</code> (\textrthooklong)	11	<code>\texttctclig</code> (\texttctclig)	10
<code>\textpmhg</code>	84	<code>\texttsca</code> (\texttsca)	10	<code>\texttreshlig</code> (\texttreshlig)	10
<code>\textpolhook</code> (\textpolhook)	14	<code>\texttscaolig</code> (\texttscaolig)	11	<code>\texttreshlig</code> (\texttreshlig)	13
<code>\textprimstress</code> (\textprimstress)	10	<code>\textscb</code> (\textscb)	10	<code>\texttheta</code> (θ)	10
<code>\textproto</code>	83	<code>\textscdelta</code> (Δ)	11	<code>\textthorn</code> (\textthorn)	10
<code>\textqplig</code> (\textqplig)	11	<code>\textsce</code> (\textsce)	10	<code>\textthornvari</code> (\textthornvari)	11
<code>\textquestiondown</code> (\textquestiondown)	8	<code>\textscf</code> (\textscf)	11	<code>\textthornvarii</code> (\textthornvarii)	11
<code>\textquotedbl</code> ($"$)	9, 100	<code>\textscg</code> (\textscg)	10	<code>\textthornvariii</code> (\textthornvariii)	11
<code>\textquotedblleft</code> (\textquotedblleft)	8	<code>\textsch</code> (\textsch)	10	<code>\textthornvariv</code> (\textthornvariv)	11
<code>\textquotedblright</code> ($\text{\textquotedblright}$)	8	<code>\textschwa</code> (\textschwa)	10	<code>\textthreeoldstyle</code> ($\text{\textthreeoldstyle}$)	18
<code>\textquoteleft</code> (\textquoteleft)	8	<code>\textsci</code> (\textsci)	10	<code>\textthreequarters</code> ($\text{\textthreequarters}$)	64, 102
<code>\textquoteright</code> (\textquoteright)	8	<code>\textscj</code> (\textscj)	10	<code>\textthreequartersemdash</code> ($\text{\textthreequartersemdash}$)	19
<code>\textquotesingle</code> (\textquotesingle)	19	<code>\textsck</code> (\textsck)	11	<code>\textthreesuperior</code> ($\text{\textthreesuperior}$)	64, 102
<code>\textquotestraightbase</code> ($\text{\textquotestraightbase}$)	19	<code>\textsccl</code> (\textsccl)	10	<code>\texttildedot</code> (\texttildedot)	15
<code>\textquotestraightdblbase</code> ($\text{\textquotestraightdblbase}$)	19	<code>\textscm</code> (\textscm)	11	<code>\texttildelow</code> (\texttildelow)	19, 101
<code>\textraiseglotstop</code> ($\text{\textraiseglotstop}$)	10	<code>\textscn</code> (\textscn)	10	<code>\texttimes</code> (\times)	64
<code>\textraiseviby</code> (\textraiseviby)	10	<code>\textscolig</code> (\textscolig)	10	<code>\texttoneletterstem</code> ($\text{\texttoneletterstem}$)	10
<code>\textraising</code> (\textraising)	14	<code>\textscomega</code> (\textscomega)	10	<code>\texttoptiebar</code> (\texttoptiebar)	15
<code>\textramshorns</code> (\textramshorns)	10	<code>\textscp</code> (\textscp)	11	<code>\texttrademark</code> (\texttrademark)	8, 18, 103
<code>\textrangle</code> (\rangle)	56, 101	<code>\textscq</code> (\textscq)	11	<code>\textttslig</code> (\textttslig)	10
<code>\textrbrace</code> (\textrbrace)	56	<code>\textscr</code> (\textscr)	10	<code>\textturna</code> (\textturna)	10
<code>\textrecipe</code> (\textrecipe)	19, 89	<code>\textscripta</code> (\textscripta)	10	<code>\textturncelig</code> (\textturncelig)	10
<code>\textrectangle</code> (\textrectangle)	11	<code>\textscriptg</code> (\textscriptg)	10	<code>\textturnglotstop</code> (\textturnglotstop)	11
<code>\textreferencemark</code> ($\text{\textreferencemark}$)	19, 20	<code>\textscriptv</code> (\textscriptv)	10	<code>\textturnh</code> (\textturnh)	10
<code>\textregistered</code> (\textregistered)	8, 18, 102	<code>\textscriptv</code> (\textscriptv)	13	<code>\textturnk</code> (\textturnk)	10
<code>\textretracting</code> (\textretracting)	14	<code>\textscu</code> (\textscu)	10	<code>\textturnlonglegr</code> (\textturnlonglegr)	10
<code>\textretractingvar</code> ($\text{\textretractingvar}$)	11	<code>\textscyc</code> (\textscyc)	10	<code>\textturnm</code> (\textturnm)	10
<code>\textrevapostrophe</code> ($\text{\textrevapostrophe}$)	10	<code>\textseagull</code> (\textseagull)	14	<code>\textturnmrleg</code> (\textturnmrleg)	10
<code>\textreve</code> (\textreve)	10	<code>\textsecstress</code> (\textsecstress)	10	<code>\textturnr</code> (\textturnr)	10
<code>\textrevepsilon</code> (\textrevepsilon)	10, 90	<code>\textsection</code> (\textsection)	8, 19	<code>\textturnrrtail</code> (\textturnrrtail)	10
<code>\textreversedvideobend</code> ($\text{\textreversedvideobend}$)	76	<code>\textservicemark</code> (\textservicemark)	18	<code>\textturnsck</code> (\textturnsck)	11
<code>\textrevglotstop</code> (\textrevglotstop)	10	<code>\textsevenoldstyle</code> ($\text{\textsevenoldstyle}$)	18	<code>\textturnscripta</code> (\textturnscripta)	10
<code>\textrevscl</code> (\textrevscl)	11	<code>\textsixoldstyle</code> (\textsixoldstyle)	18	<code>\textturnscu</code> (\textturnscu)	11
<code>\textrevscr</code> (\textrevscr)	11	<code>\textsoftsign</code> (\textsoftsign)	10	<code>\textturnt</code> (\textturnt)	10
<code>\textrevyogh</code> (\textrevyogh)	10	<code>\textspleftarrow</code> (\textspleftarrow)	11	<code>\textturnthree</code> (\textturnthree)	11
<code>\textrho</code> (\textrho)	11	<code>\textsterling</code> (\textsterling)	8, 17	<code>\textturntwo</code> (\textturntwo)	11
<code>\textrho</code> (\textrho)	11	<code>\textstretchc</code> (\textstretchc)	10	<code>\textturnv</code> (\textturnv)	10
<code>\textrho</code> (\textrho)	11	<code>\textstretchcvar</code> (\textstretchcvar)	11	<code>\textturnw</code> (\textturnw)	10
<code>\textrho</code> (\textrho)	11	<code>\textstyle</code>	92, 93, 99	<code>\textturny</code> (\textturny)	10
<code>\textrho</code> (\textrho)	11	<code>\textsubacute</code> (\textsubacute)	14	<code>\texttwelveudash</code> (\texttwelveudash)	19
<code>\textrho</code> (\textrho)	11	<code>\textsubarch</code> (\textsubarch)	14	<code>\texttwooldstyle</code>	18
<code>\textrho</code> (\textrho)	11	<code>\textsubbar</code> (\textsubbar)	14	<code>\texttwooldstyle</code> (\texttwooldstyle)	18
<code>\textrho</code> (\textrho)	11	<code>\textsubbridge</code> (\textsubbridge)	14	<code>\texttwosuperior</code> (\texttwosuperior)	64, 102
<code>\textrho</code> (\textrho)	11	<code>\textsubcircum</code> (\textsubcircum)	14	<code>\textuncrffemale</code> (\textuncrffemale)	10
<code>\textrho</code> (\textrho)	11	<code>\textsubdot</code> (\textsubdot)	14		

<code>\textunderscore</code> (̀) 8	<code>\tnttstile</code> (|||) . . . . . 35	<code>\tsststile</code> (|||) . . . . . 35
<code>\textuparrow</code> (↑) 41	<code>\to</code> <i>see</i> <code>\rightarrow</code>	<code>\Tsteel</code> (T) 70
<code>\textupfullarrow</code> (↑) 11	<code>\ToBottom</code> (▼) 79	<code>\tststile</code> (|||) . . . . . 35
<code>\textupsilon</code> (υ) 10	<code>\tone</code> 11	<code>\tsttstile</code> (|||) . . . . . 35
<code>\textupstep</code> (↑) 10	<code>\top</code> (T) 51, 92	<code>\ttdtstile</code> (|||) . . . . . 35
<code>\textvbaraccent</code> (⌣) 15	<code>\top</code> (T) 51	<code>\TTsteel</code> (I) 70
<code>\textvbaraccent</code> (⌣) 16	<code>\topbot</code> (I) 92, 94	<code>\tttstile</code> (|||) . . . . . 35
<code>\textvtrline</code> (|) . . . . . 10	<code>\topdoteq</code> (≐) 31	<code>\tttstile</code> (|||) . . . . . 35
<code>\textviby</code> (ı) 11	torus (T) . <i>see</i> alphabets, math	<code>\tttstile</code> (|||) . . . . . 35
<code>\textviby</code> (ı) 11	<code>\ToTop</code> (▲) 79	<code>\tttstile</code> (|||) . . . . . 35
<code>\textvisiblespace</code> (␣) 8	trademark . <i>see</i> <code>\texttrademark</code>	<code>\tttstile</code> (|||) . . . . . 35
<code>\textwon</code> (W) 17	<code>\TransformHoriz</code> (↔) 35	TUGboat 57
<code>\textwynn</code> (p) 11	transforms 35, 60, <i>see also</i>	<code>\Tumbler</code> (C) 80
<code>\textyen</code> (¥) 17, 102	alphabets, math	turnstile (package) 34, 35, 104, 105
<code>\textyogh</code> (ȝ) 11	<code>\TransformVert</code> (↕) 35	<code>\TwelveStar</code> (★) 74
<code>\textyogh</code> (ȝ) 13	transliteration	<code>\twoheaddownarrow</code> (⇓) 43
<code>\textzerooldstyle</code> (o) 18	semitic 13, 16	<code>\twoheadleftarrow</code> (⇐) 41
<code>\TH</code> (P) 9, 102	transliteration symbols 13	<code>\twoheadleftarrow</code> (⇐) 43
<code>\th</code> (p) 9, 102	transversality . <i>see</i> <code>\pitchfork</code>	<code>\twoheadnearrow</code> (↗) 44
Thành, Hàn Thê 94	trfsigns (package) 35, 51, 60, 104	<code>\twoheadnarrow</code> (↖) 44
<code>\therefore</code> (∴) 31	<code>\triangle</code> (Δ) 62	<code>\twoheadrightarrow</code> (⇒) 41
<code>\therefore</code> (∴) 30, 61	<code>\triangle</code> (Δ) 40	<code>\twoheadrightarrow</code> (⇒) 44
<code>\therefore</code> (∴) 61	triangle relations 39, 40	<code>\twoheadsearrow</code> (↘) 44
<code>\Thermo</code> 80	<code>\TriangleDown</code> (▽) 75	<code>\twoheadswarrow</code> (↙) 44
<code>\Theta</code> (Θ) 49	<code>\TriangleDown</code> (▼) vs. (▽) 88	<code>\twoheaduparrow</code> (↑) 44
<code>\theta</code> (θ) 49	<code>\TriangleDown</code> (▼) 75	<code>\twonotes</code> (♪) 78
<code>\thetaup</code> (θ) 50	<code>\triangledown</code> (∇) 63	txfonts (package) 20, 21, 27, 30, 31, 36, 38, 41, 42, 48, 50, 51, 62, 63, 65, 87, 89, 101, 104, 105
<code>\thickapprox</code> (≈) 30	<code>\triangledown</code> (∇) 40	typelcm (package) 87
<code>\thicksim</code> (∼) 30	<code>\triangleleft</code> (◁) 40	Type 1 (font) 99
<code>\thickvert</code> (|) . . . . . 54	<code>\triangleleft</code> (◁) 20	
thin space 100	<code>\triangleleft</code> (◁) 40	
<code>\ThinFog</code> (☁) 80	<code>\trianglelefteq</code> (⊲) 40	
<code>\thinstar</code> (*) 24	<code>\trianglelefteq</code> (⊲) 39	
<code>\third</code> (m) 63	<code>\trianglelefteq</code> (⊲) 39, 40	
thirty-second note . <i>see</i> musical symbols	<code>\trianglelefteqslant</code> (⊲) 40	
<code>\Thorn</code> (Ð) 12	<code>\triangleq</code> (≐) 20, 39	
<code>\thorn</code> (p) 12	<code>\triangleq</code> (≐) 40	
<code>\thorn</code> (p) 12	<code>\TriangleRight</code> (▷) 75	
<code>\thorn</code> (p) 12	<code>\triangleright</code> (▷) 40	
thousandths <i>see</i> <code>\textperthousand</code>	<code>\triangleright</code> (▷) 20	
<code>\threesim</code> (≈) 91	<code>\triangleright</code> (▷) 40	
tilde 8, 10, 11, 13, 16, 19, 56, 57, 59, 94, 101	<code>\trianglerighteq</code> (⊳) 40	
extensible 57, 59	<code>\trianglerighteq</code> (⊳) 39	
vertically centered 101	<code>\trianglerighteq</code> (⊳) 39, 40	
<code>\tilde</code> (̃) 56, 94	<code>\trianglerighteqslant</code> (⊳) 40	
<code>\tildel</code> (t) 12	triangles 63, 75, 76	
time of day 81	<code>\TriangleUp</code> (Δ) 75	
<code>\timelimit</code> (⊕) 82	<code>\TriangleUp</code> (▲) vs. (Δ) 88	
<code>\times</code> (×) 20	<code>\TriangleUp</code> (▲) 75	
<code>\times</code> (×) 23	<code>\triple</code> 55	
Times Roman (font) 17, 89	<code>\triplefrown</code> (⋈) 48	
timing (package) 67	<code>\triplesim</code> (≈) 32	
tipa (package) 10, 11, 13, 15, 16, 90, 104, 105	<code>\triplesmile</code> (☺) 48	
tipx (package) 11, 104, 105	trsym (package) 35, 104, 105	
<code>\tndtstile</code> (|||) . . . . . 35	<code>\tsbm</code> (⏟) 82	
<code>\tnststile</code> (|||) . . . . . 35	<code>\tsdtstile</code> (|||) . . . . . 35	
<code>\tntstile</code> (|||) . . . . . 35	<code>\tsmb</code> (⏟) 82	
	<code>\tsmm</code> (⏟) 82	
		<code>\U</code> (U) 16
		<code>\U</code> (U) 13
		<code>\u</code> (u) 13
		<code>\UArrow</code> (⇨) 69
		<code>\UB</code> (U) 79
		<code>\ubar</code> (u) 12
		ubulb.fd (file) 98, 99
		<code>\udesc</code> (u) 12
		<code>\udot</code> (·) 22
		<code>\udotdot</code> (··) 23, 61
		<code>\udots</code> (⋯) 61
		<code>\udtimes</code> (x) 23
		<code>\UHORN</code> (U) 9
		<code>\uhorn</code> (u) 9
		<code>\ulcorner</code> (┐) 52
		<code>\ulcorner</code> (┐) 52
		<code>\ulcorner</code> (┐) 54
		<code>\ullcorner</code> (└) 54
		<code>\ullcorner</code> (└) 54
		<code>\ulrcorner</code> (└) 54
		ulsy (package) 24, 48, 90, 104
		<code>\Umd</code> (U) 79
		umlaut <i>see</i> accents
		unary operators 20

<code>\unclear</code> (∞)	82	<code>\updownarrows</code> (\Updownarrow)	44	<code>\uptherefore</code> (\therefore)	23, 61
<code>\underaccent</code>	94	<code>\updownharpoonleftright</code> (\Updownharpoonleft)	46	<code>\Upsilon</code> (Θ)	50
<code>\underarc</code> (\underarc)	16	<code>\updownharpoonrightleft</code> (\Updownharpoonright)	46	<code>\uptheta</code> (θ)	50
<code>\underarch</code> (\underarch)	15	<code>\updownharpoons</code> (\Updownharpoons)	43	<code>\uptodownarrow</code> (\Uparrow)	42
<code>\underbrace</code> (\underbrace)	58	<code>\updownharpoons</code> (\Updownharpoons)	46	<code>\upuparrows</code> (\upuparrows)	42
<code>\underbrace</code> (\underbrace)	58	<code>\Updownline</code> (\Updownline)	32	<code>\upuparrows</code> (\upuparrows)	41
<code>\underbrace</code> (\underbrace)	58	<code>\updownline</code> (\updownline)	32	<code>\upuparrows</code> (\upuparrows)	44
<code>\underbrace</code> (\underbrace)	57	<code>\upepsilon</code> (ϵ)	50	<code>\upupharpoons</code> (\upupharpoons)	43
<code>\underbracket</code> (\underbracket)	58	<code>\upeta</code> (η)	50	<code>\Upupsilon</code> (Υ)	50
<code>\underbracket</code> (\underbracket)	95, 96	<code>\upfilledspoon</code> (\upfilledspoon)	47	<code>\upupsilon</code> (υ)	50
<code>\underdotted</code> (\underdotted)	16	<code>\upfootline</code> (\upfootline)	32	<code>\upvarepsilon</code> (ϵ)	50
<code>\undergroup</code> (\undergroup)	58	<code>\upfree</code> (\upfree)	32	<code>\upvarphi</code> (φ)	50
<code>\undergroup</code> (\undergroup)	58	<code>\Upsilon</code> (Γ)	50	<code>\upvarpi</code> (ϖ)	50
<code>\underleftarrow</code> (\underleftarrow)	58	<code>\upgreek</code> (package)	50, 104, 105	<code>\upvarrho</code> (ϱ)	50
<code>\underleftrightharpoon</code> (\underleftrightharpoon)	58	<code>\upharpoonccw</code> (\upharpoonccw)	46	<code>\upvarsigma</code> (ς)	50
<code>\underline</code> (\underline)	57	<code>\upharpoonccw</code> (\upharpoonccw)	46	<code>\upvarthetaeta</code> (ϑ)	50
<code>\underlinesegment</code> (\underlinesegment)	58	<code>\upharpoonleft</code> (\upharpoonleft)	43	<code>\upVdash</code> (\upVdash)	32
<code>\underparenthesis</code> (\underparenthesis)	95, 96	<code>\upharpoonleft</code> (\upharpoonleft)	41	<code>\upvdash</code> (\upvdash)	32
<code>\underrightarrow</code> (\underrightarrow)	58	<code>\upharpoonright</code> (\upharpoonright)	43	<code>\Upxi</code> (Ξ)	50
<code>\underring</code> (\underring)	16	<code>\upharpoonright</code> (\upharpoonright)	41	<code>\upxi</code> (ξ)	50
<code>underscore</code>	<i>see</i> <code>_</code>	<code>\upiota</code> (ι)	50	<code>\upY</code> (Υ)	23
<code>underscore</code> (package)	8	<code>\upkappa</code> (κ)	50	<code>\upzeta</code> (ζ)	50
<code>\underset</code>	91	<code>\Uplambda</code> (Λ)	50	<code>\Uranus</code> (δ)	68
<code>undertilde</code> (package)	59, 104, 105	<code>\uplambd</code> (λ)	50	<code>\Uranus</code> (δ)	68
<code>\undertilde</code> (\undertilde)	16	<code>\uplett</code>	15	<code>\uranus</code> (δ)	68
<code>\underwedge</code> (\underwedge)	16	<code>\uplsquigarrow</code> (\uplsquigarrow)	44	<code>\urcorner</code> (\urcorner)	52
<code>union</code>	<i>see</i> <code>\cup</code>	<code>\uplus</code> (\uplus)	22	<code>\urcorner</code> (\urcorner)	52
<code>unit disk</code> (\mathbb{D})	<i>see</i> alphabets, math	<code>\uplus</code> (\uplus)	20	<code>\urcorner</code> (\urcorner)	54
<code>\unitedpawns</code> (\unitedpawns)	82	<code>\upmapsto</code> (\upmapsto)	44	<code>url</code> (package)	101
<code>units</code> (package)	64	<code>\upModels</code> (\upModels)	32	<code>\US</code> (\US)	69
<code>unity</code> ($\mathbb{1}$)	<i>see</i> alphabets, math	<code>\upmodels</code> (\upmodels)	32	<code>\usepackage</code>	7
<code>universa</code> (package)	76, 80, 104, 105	<code>\upmu</code> (μ)	50	<code>\ut</code> (\ut)	15
<code>universal</code> (package)	71, 73, 76, 80, 104, 105	<code>\upnu</code> (ν)	50	<code>\utilde</code> (\utilde)	59
<code>\unlhd</code> (\unlhd)	20, 21	<code>\Upomega</code> (Ω)	50	<code>\utimes</code> (\otimes)	23
<code>\unlhd</code> (\unlhd)	39, 40	<code>\upomega</code> (ω)	50	<code>\utimes</code> (\otimes)	23
<code>\unrhd</code> (\unrhd)	20, 21	<code>\upp</code> (\wedge)	16	<code>Utopia</code> (font)	17, 29
<code>\unrhd</code> (\unrhd)	39, 40	<code>\upparentfill</code>	95		
<code>\upalpha</code> (α)	50	<code>\Upphi</code> (Φ)	50		
<code>\UParrow</code> (\UParrow)	78	<code>\upphi</code> (ϕ)	50	V	
<code>\UParrow</code> (\uparrow)	41, 53	<code>\Uppi</code> (Π)	50	<code>\v</code> (\v)	13
<code>\UParrow</code> (\uparrow)	44	<code>\uppi</code> (π)	50	<code>\vara</code> (α)	12
<code>\uparrow</code> (\uparrow)	41, 53, 87	<code>\uppitchfork</code> (\uppitchfork)	47	<code>\varangle</code> (\varangle)	63
<code>\uparrow</code> (\uparrow)	44	<code>\uppropto</code> (\propto)	32	<code>\varbigcirc</code> (\bigcirc)	21
<code>\uparrowtail</code> (\uparrowtail)	44	<code>\Upsi</code> (Ψ)	50	<code>\VarClock</code> (\varnothing)	81
<code>\upbar</code>	15	<code>\uppsi</code> (ψ)	50	<code>\varclub</code> (\clubsuit)	64
<code>\upbeta</code> (β)	50	<code>upquote</code> (package)	101	<code>\varclubsuit</code> (\clubsuit)	63
<code>\upbracketfill</code>	95	<code>\uprho</code> (ρ)	50	<code>\varcurlyvee</code> (\vee)	21
<code>\upchi</code> (χ)	50	<code>upright Greek letters</code>	50	<code>\varcurlywedge</code> (\wedge)	21
<code>\Updelta</code> (Δ)	50	<code>\uprsquigarrow</code> (\uprsquigarrow)	44	<code>\vardiamond</code> (\diamond)	64
<code>\updelta</code> (δ)	50	<code>upside-down symbols</code>	100–101	<code>\vardiamondsuit</code> (\spadesuit)	63
<code>\Updownarrow</code> (\Updownarrow)	41, 53	<code>upside-down symbols</code>	10–12, 16, 90	<code>\varEarth</code> (δ)	68
<code>\Updownarrow</code> (\Updownarrow)	44	<code>\Upsigma</code> (Σ)	50	<code>\varepsilon</code> (ϵ)	49
<code>\updownarrow</code> (\updownarrow)	41, 53	<code>\upsigma</code> (σ)	50	<code>\varepsilonup</code> (ϵ)	50
<code>\updownarrow</code> (\updownarrow)	44	<code>\Upsilon</code> (Υ)	49	<code>\VarFlag</code> ($\mathbb{1}$)	81
<code>\updownarrow</code> (\updownarrow)	44	<code>\upsilon</code> (υ)	49	<code>varg</code> (txfonts/pxfonts package option)	50
<code>\updownarrows</code> (\updownarrows)	42	<code>\upsilonup</code> (υup)	50	<code>\varg</code> (g)	50
		<code>\upslice</code> (Δ)	24	<code>\varg</code> (g)	12
		<code>\upspoon</code> (\upspoon)	47	<code>\vargeq</code> (\geq)	38
		<code>\upt</code> (\perp)	16	<code>\varhash</code> ($\#$)	63
		<code>\uptau</code> (τ)	50	<code>\varheart</code> (\heartsuit)	64
				<code>\varheartsuit</code> (\heartsuit)	63

<code>\varhexagon</code> (\circ)	74
<code>\varhexstar</code> ($*$)	73
<code>\vari</code> (ι)	12
variable-sized symbols	25–29, 87, 89
<code>\VarIceMountain</code> (\blacktriangle)	81
<code>\varinjlim</code> (\varinjlim)	49
<code>\varint</code> (\int)	25
<code>\various</code> (R)	82
<code>\varkappa</code> (\varkappa)	49
<code>\varleq</code> (\leq)	38
<code>\varliminf</code> (\varliminf)	49
<code>\varlimsup</code> (\varlimsup)	49
<code>\varmathbb</code>	65
<code>\VarMountain</code> (\blacktriangle)	81
<code>\varnothing</code> (\emptyset)	20, 62, 63
<code>\varnothing</code> (\emptyset)	63
<code>\varnotin</code> (\notin)	51
<code>\varnotowner</code> (\notin)	51
<code>\varoast</code> (\circledast)	21
<code>\varobar</code> ($\textcircled{\circ}$)	21
<code>\varobslash</code> ($\textcircled{\circ}$)	21
<code>\varocircle</code> ($\textcircled{\circ}$)	21
<code>\varodot</code> ($\textcircled{\circ}$)	21
<code>\varogreaterthan</code> ($\textcircled{>}$)	21
<code>\varoiintclockwise</code> ($\textcircled{\int}$)	27
<code>\varoiintctrackwise</code> ($\textcircled{\int}$)	27
<code>\varoiint</code> ($\textcircled{\int}$)	28
<code>\varoiintclockwise</code> ($\textcircled{\int}$)	27
<code>\varoiintctrackwise</code> ($\textcircled{\int}$)	27
<code>\varoint</code> (\oint)	25
<code>\varointclockwise</code> (\oint)	27
<code>\varointclockwise</code> (\oint)	28
<code>\varointctrackwise</code> (\oint)	27
<code>\varointctrackwise</code> (\oint)	28
<code>\varolessthan</code> ($\textcircled{<}$)	21
<code>\varomega</code> (ω)	12
<code>\varominus</code> (\ominus)	21
<code>\varopeno</code> (\circ)	12
<code>\varoplus</code> (\oplus)	21
<code>\varoslash</code> (\oslash)	21
<code>\varotimes</code> (\otimes)	21
<code>\varovee</code> ($\textcircled{\vee}$)	21
<code>\varowedge</code> ($\textcircled{\wedge}$)	21
<code>\varparallel</code> (\parallel)	31
<code>\varparallelinv</code> (\parallel)	31
<code>\varphi</code> (φ)	49
<code>\varphiup</code> (φ)	50
<code>\varpi</code> (ϖ)	49
<code>\varpiup</code> (ϖ)	50
<code>\varprod</code> (\prod)	27
<code>\varprojlim</code> (\varprojlim)	49
<code>\varpropto</code> (\propto)	30
<code>\varpropto</code> (\propto)	33
<code>\varQ</code> (Q)	80
<code>\varrho</code> (ρ)	49
<code>\varrhoup</code> (ρ)	50
<code>\varsigma</code> (ς)	49
<code>\varsigmaup</code> (ς)	50
<code>\varspade</code> (\spadesuit)	64

<code>\varspadesuit</code> (\spadesuit)	63
<code>\varsubsetneq</code> (\subsetneq)	37
<code>\varsubsetneqq</code> (\subsetneqq)	37
<code>\varsupsetneq</code> (\supsetneq)	37
<code>\varsupsetneqq</code> (\supsetneqq)	37
<code>\varstar</code> ($*$)	22
<code>\varsubsetneq</code> (\subsetneq)	37
<code>\varsubsetneq</code> (\subsetneq)	36
<code>\varsubsetneq</code> (\subsetneq)	37
<code>\varsubsetneqq</code> (\subsetneqq)	37
<code>\varsubsetneqq</code> (\subsetneqq)	36
<code>\varsubsetneqq</code> (\subsetneqq)	37
<code>\VarSummit</code> (Δ)	81
<code>\varsubsetneq</code> (\subsetneq)	37
<code>\varsubsetneq</code> (\subsetneq)	36
<code>\varsubsetneq</code> (\subsetneq)	37
<code>\varsubsetneqq</code> (\subsetneqq)	37
<code>\varsubsetneqq</code> (\subsetneqq)	36
<code>\varsubsetneqq</code> (\subsetneqq)	37
<code>\VarTaschenuhr</code> ($\textcircled{\textcircled{\circ}}$)	81
<code>\vartheta</code> (ϑ)	49
<code>\varthetaup</code> (ϑ)	50
<code>\vartimes</code> (\times)	21
<code>\vartriangle</code> (\triangle)	63
<code>\vartriangle</code> (\triangle)	40
<code>\vartriangleleft</code> (\triangleleft)	40
<code>\vartriangleleft</code> (\triangleleft)	39
<code>\vartriangleleft</code> (\triangleleft)	39, 40
<code>\vartriangleright</code> (\triangleright)	40
<code>\vartriangleright</code> (\triangleright)	39
<code>\vartriangleright</code> (\triangleright)	39, 40
<code>\varv</code> (v)	50
<code>\varw</code> (w)	50
<code>\vary</code> (y)	50
<code>\VBar</code> (\V)	75
<code>\vbipropto</code> (\propto)	23
<code>\vcentcolon</code> (\vcentcolon)	34
<code>\vcenter</code>	91
<code>\vcrossing</code> (\times)	32
<code>\VDash</code> (\text{||=})	31
<code>\VDash</code> (\text{||=})	33
<code>\VDash</code> (\text{||-})	31
<code>\VDash</code> (\text{||-})	30
<code>\VDash</code> (\text{||-})	33
<code>\vDash</code> (\text{||=})	31
<code>\vDash</code> (\text{||=})	30
<code>\vDash</code> (\text{||=})	33
<code>\vdash</code> (\text{||-})	30
<code>\vdash</code> (\text{||-})	33
<code>\vdash</code> (\text{||-})	33
<code>\vdots</code> (\vdots)	23, 61
<code>\vdots</code> (\vdots)	61
<code>\vdots</code> (\vdots)	61
<code>\vec</code> (\vec)	56
<code>\vec</code> (\vec)	56
<code>\Vectorarrow</code> (\vec)	64
<code>\Vectorarrowhigh</code> (\vec)	64
<code>\vee</code> (\vee)	22
<code>\vee</code> (\vee)	20
<code>\vee</code> (\vee)	23
<code>\veebar</code> (\veebar)	22
<code>\veebar</code> (\veebar)	21

<code>\veedot</code> (\vee)	23
<code>\veedoublebar</code> (\vee)	22
<code>\Venus</code> (\char"000026)	68
<code>\Venus</code> (\char"000026)	68
<code>\venus</code> (\char"000026)	68
<code>\vernal</code> (\Uparrow)	68
<code>\Vert</code> (\parallel)	53, 54
<code>\vert</code> ($|$)	53, 54
<code>\vertbowtie</code> (\bowtie)	23
<code>\vertdiv</code> (\div)	23
<code>\VHF</code> (\approx)	67
<code>\Vier</code> (\clubsuit)	79
vietnam (package)	104
<code>\Village</code> (\char"26)	81
<code>\vin</code> (\lrcorner)	52
vinculum	see <code>\overline</code>
<code>\ViPa</code> (\char"000026)	79
<code>\Virgo</code> (\char"000026)	68
<code>\virgo</code> (\char"000026)	68
<code>\VM</code> ($\>$)	79
vntex (package)	9, 13
<code>\vod</code> (v)	12
<code>\voicedh</code> (h)	12
<code>\vppm</code> (\pm)	82
<code>\vpppm</code> (\pm)	82
<code>\VT</code> (σ)	69
<code>\vv</code> (\equiv)	59
<code>\VvDash</code> (\text{||=})	31
<code>\Vvdash</code> (\text{||+})	31
<code>\Vvdash</code> (\text{||-})	30
<code>\Vvdash</code> (\text{||+})	32
<code>\vvvert</code> (\equiv)	54

W

<code>\WashCotton</code> (\char"000026)	80
<code>\WashSynthetics</code> (\char"000026)	80
<code>\WashWool</code> (\char"000026)	80
<code>\wasylozenge</code> (\char"000026)	78
<code>\wasypropto</code> (\propto)	30
wasysym (package)	12, 17, 19–21, 25, 30, 36, 38, 41, 61–63, 67, 68, 70, 73, 74, 78, 88, 104, 105
<code>\wasytherefore</code> (\char"000026)	61
wavy-line delimiters	54, 55
<code>\wbetter</code> (\pm)	82
<code>\wdecisive</code> (\char"000026)	82
<code>\weakpt</code> (\times)	82
<code>\WeakRain</code> (\char"000026)	80
<code>\WeakRainCloud</code> (\char"000026)	80
weather symbols	80
<code>\Wecker</code> (\char"000026)	81
<code>\wedge</code> (\wedge)	22
<code>\wedge</code> (\wedge)	20
<code>\wedge</code> (\wedge)	23
<code>\wedgedot</code> (\wedge)	23
Weierstrass \wp function	see <code>\wp</code>
<code>\Wheelchair</code> (\char"000026)	76
<code>\whistle</code> (\char"000026)	15
<code>\whitestone</code>	76
whole note	see musical symbols

