

The Comprehensive L^AT_EX Symbol List

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

5 May 2021

Abstract

This document lists 18150 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

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

^{*}The original version of this document was written by David Carlisle, with several additional tables provided by Alexander Holt. See Section 11.8 on page 275 for more information about who did what.

Table 28:	combelow Accents	25
Table 29:	wsipa Diacritics	25
Table 30:	textcomp Diacritics	25
Table 31:	marvosym Diacritics	26
Table 32:	textcomp Currency Symbols	26
Table 33:	marvosym Currency Symbols	26
Table 34:	fontawesome Currency Symbols	26
Table 35:	wasysym Currency Symbols	26
Table 36:	QfNA2e Currency Symbols	27
Table 37:	teubner Currency Symbols	27
Table 38:	tfrupee Currency Symbols	27
Table 39:	eurosym Euro Signs	27
Table 40:	fourier Euro Signs	27
Table 41:	textcomp Legal Symbols	27
Table 42:	fontawesome Legal Symbols	27
Table 43:	ccllicenses Creative Commons License Icons	28
Table 44:	ccicons Creative Commons License Icons	28
Table 45:	textcomp Old-style Numerals	28
Table 46:	Miscellaneous textcomp Symbols	28
Table 47:	Miscellaneous wasysym Text-mode Symbols	28
3	Mathematical symbols	30
Table 48:	Math-mode Versions of Text Symbols	30
Table 49:	cml1 Unary Operators	30
Table 50:	Binary Operators	31
Table 51:	<i>AMS</i> Binary Operators	31
Table 52:	stmaryrd Binary Operators	31
Table 53:	wasysym Binary Operators	32
Table 54:	txfonts/pxfonts Binary Operators	32
Table 55:	mathabx Binary Operators	32
Table 56:	MnSymbol Binary Operators	32
Table 57:	fdsymbol Binary Operators	33
Table 58:	boisik Binary Operators	34
Table 59:	stix Binary Operators	35
Table 60:	mathdesign Binary Operators	35
Table 61:	cml1 Binary Operators	36
Table 62:	shuffle Binary Operators	36
Table 63:	ulsy Geometric Binary Operators	36
Table 64:	mathabx Geometric Binary Operators	36
Table 65:	MnSymbol Geometric Binary Operators	37
Table 66:	fdsymbol Geometric Binary Operators	37
Table 67:	boisik Geometric Binary Operators	38
Table 68:	stix Geometric Binary Operators	39
Table 69:	halloweenmath Halloween-Themed Math Operators	39
Table 70:	stix Small Integrals	40
Table 71:	stix Small Integrals with Explicit Slant	40
Table 72:	Variable-sized Math Operators	41
Table 73:	<i>AMS</i> Variable-sized Math Operators	41
Table 74:	stmaryrd Variable-sized Math Operators	41
Table 75:	wasysym Variable-sized Math Operators	41
Table 76:	mathabx Variable-sized Math Operators	42
Table 77:	txfonts/pxfonts Variable-sized Math Operators	43
Table 78:	esint Variable-sized Math Operators	44
Table 79:	bigints Variable-sized Math Operators	44
Table 80:	MnSymbol Variable-sized Math Operators	45
Table 81:	fdsymbol Variable-sized Math Operators	45
Table 82:	boisik Variable-sized Math Operators	46
Table 83:	stix Variable-sized Math Operators	47

Table 84:	stix Integrals with Explicit Slant	48
Table 85:	cmupint Variable-sized Upright Integrals	49
Table 86:	mathdesign Variable-sized Math Operators	50
Table 87:	prodint Variable-sized Math Operators	51
Table 88:	cml Large Math Operators	51
Table 89:	Binary Relations	51
Table 90:	<i>AMS</i> Binary Relations	51
Table 91:	<i>AMS</i> Negated Binary Relations	52
Table 92:	stmaryrd Binary Relations	52
Table 93:	wasysym Binary Relations	52
Table 94:	txfonts/pfxfonts Binary Relations	52
Table 95:	txfonts/pfxfonts Negated Binary Relations	52
Table 96:	mathabx Binary Relations	53
Table 97:	mathabx Negated Binary Relations	53
Table 98:	MnSymbol Binary Relations	53
Table 99:	MnSymbol Negated Binary Relations	55
Table 100:	fdsymbol Binary Relations	56
Table 101:	fdsymbol Negated Binary Relations	57
Table 102:	boisik Binary Relations	58
Table 103:	boisik Negated Binary Relations	58
Table 104:	stix Binary Relations	59
Table 105:	stix Negated Binary Relations	60
Table 106:	mathtools Binary Relations	60
Table 107:	turnstile Binary Relations	61
Table 108:	trs sym Binary Relations	62
Table 109:	trf signs Binary Relations	62
Table 110:	cml Binary Relations	62
Table 111:	colonequals Binary Relations	62
Table 112:	fourier Binary Relations	62
Table 113:	Subset and Superset Relations	62
Table 114:	<i>AMS</i> Subset and Superset Relations	63
Table 115:	stmaryrd Subset and Superset Relations	63
Table 116:	wasysym Subset and Superset Relations	63
Table 117:	txfonts/pfxfonts Subset and Superset Relations	63
Table 118:	mathabx Subset and Superset Relations	63
Table 119:	MnSymbol Subset and Superset Relations	64
Table 120:	fdsymbol Subset and Superset Relations	64
Table 121:	boisik Subset and Superset Relations	64
Table 122:	stix Subset and Superset Relations	65
Table 123:	Inequalities	65
Table 124:	<i>AMS</i> Inequalities	65
Table 125:	wasysym Inequalities	66
Table 126:	txfonts/pfxfonts Inequalities	66
Table 127:	mathabx Inequalities	66
Table 128:	MnSymbol Inequalities	67
Table 129:	fdsymbol Inequalities	68
Table 130:	boisik Inequalities	69
Table 131:	stix Inequalities	69
Table 132:	<i>AMS</i> Triangle Relations	70
Table 133:	stmaryrd Triangle Relations	70
Table 134:	mathabx Triangle Relations	70
Table 135:	MnSymbol Triangle Relations	71
Table 136:	fdsymbol Triangle Relations	72
Table 137:	boisik Triangle Relations	72
Table 138:	stix Triangle Relations	72
Table 139:	Arrows	73
Table 140:	Harpoons	73
Table 141:	textcomp Text-mode Arrows	73

Table 142: <i>\mathcal{MS}</i> Arrows	73
Table 143: <i>\mathcal{MS}</i> Negated Arrows	73
Table 144: <i>\mathcal{MS}</i> Harpoons	73
Table 145: <i>stmaryrd</i> Arrows	74
Table 146: <i>txfonts/pfxfonts</i> Arrows	74
Table 147: <i>mathabx</i> Arrows	74
Table 148: <i>mathabx</i> Negated Arrows	74
Table 149: <i>mathabx</i> Harpoons	75
Table 150: <i>MnSymbol</i> Arrows	75
Table 151: <i>MnSymbol</i> Negated Arrows	76
Table 152: <i>MnSymbol</i> Harpoons	78
Table 153: <i>MnSymbol</i> Negated Harpoons	78
Table 154: <i>fdsymbol</i> Arrows	79
Table 155: <i>fdsymbol</i> Negated Arrows	80
Table 156: <i>fdsymbol</i> Harpoons	82
Table 157: <i>fdsymbol</i> Negated Harpoons	83
Table 158: <i>boisik</i> Arrows	83
Table 159: <i>boisik</i> Negated Arrows	84
Table 160: <i>boisik</i> Harpoons	84
Table 161: <i>stix</i> Arrows	85
Table 162: <i>stix</i> Negated Arrows	87
Table 163: <i>stix</i> Harpoons	87
Table 164: <i>harpoon</i> Extensible Harpoons	88
Table 165: <i>chemarrow</i> Arrows	88
Table 166: <i>fge</i> Arrows	88
Table 167: <i>old-arrows</i> Arrows	88
Table 168: <i>old-arrows</i> Harpoons	89
Table 169: <i>esrelation</i> Restrictions	89
Table 170: <i>MnSymbol</i> Spoons	89
Table 171: <i>MnSymbol</i> Pitchforks	89
Table 172: <i>MnSymbol</i> Smiles and Frowns	90
Table 173: <i>fdsymbol</i> Spoons	90
Table 174: <i>fdsymbol</i> Pitchforks	91
Table 175: <i>fdsymbol</i> Smiles and Frowns	91
Table 176: <i>halloweenmath</i> Brooms and Pitchforks	91
Table 177: <i>ulsy</i> Contradiction Symbols	91
Table 178: Extension Characters	91
Table 179: <i>stmaryrd</i> Extension Characters	91
Table 180: <i>txfonts/pfxfonts</i> Extension Characters	91
Table 181: <i>mathabx</i> Extension Characters	92
Table 182: <i>stix</i> Extension Characters	92
Table 183: Log-like Symbols	92
Table 184: <i>\mathcal{MS}</i> Log-like Symbols	92
Table 185: <i>mismath</i> Log-like Symbols	93
Table 186: <i>mismath</i> Asymptotic Notation	93
Table 187: <i>QpNA2e</i> Number Sets	93
Table 188: Greek Letters	94
Table 189: <i>\mathcal{MS}</i> Greek Letters	94
Table 190: <i>txfonts/pfxfonts</i> Upright Greek Letters	95
Table 191: <i>upgreek</i> Upright Greek Letters	95
Table 192: <i>fourier</i> Variant Greek Letters	95
Table 193: <i>txfonts/pfxfonts</i> Variant Latin Letters	96
Table 194: <i>boisik</i> Variant Greek Letters	96
Table 195: <i>boisik</i> Variant Latin Letters	96
Table 196: <i>stix</i> Variant Greek Letters	96
Table 197: <i>stix</i> Transformed Greek Letters	96
Table 198: <i>\mathcal{MS}</i> Hebrew Letters	96
Table 199: <i>MnSymbol</i> Hebrew Letters	96

Table 200: <i>fdsymbol</i> Hebrew Letters	96
Table 201: <i>boisik</i> Hebrew Letters	96
Table 202: <i>stix</i> Hebrew Letters	97
Table 203: Letter-like Symbols	97
Table 204: <i>AMS</i> Letter-like Symbols	97
Table 205: <i>txfonts/pxfonts</i> Letter-like Symbols	97
Table 206: <i>mathabx</i> Letter-like Symbols	97
Table 207: <i>MnSymbol</i> Letter-like Symbols	97
Table 208: <i>fdsymbol</i> Letter-like Symbols	98
Table 209: <i>boisik</i> Letter-like Symbols	98
Table 210: <i>stix</i> Letter-like Symbols	98
Table 211: <i>trfsigns</i> Letter-like Symbols	98
Table 212: <i>mathdesign</i> Letter-like Symbols	98
Table 213: <i>fge</i> Letter-like Symbols	98
Table 214: <i>fourier</i> Letter-like Symbols	99
Table 215: <i>cml</i> Letter-like Symbols	99
Table 216: <i>AMS</i> Delimiters	99
Table 217: <i>stmaryrd</i> Delimiters	99
Table 218: <i>mathabx</i> Delimiters	99
Table 219: <i>boisik</i> Delimiters	99
Table 220: <i>stix</i> Delimiters	99
Table 221: <i>nath</i> Delimiters	99
Table 222: Variable-sized Delimiters	100
Table 223: Large, Variable-sized Delimiters	100
Table 224: <i>AMS</i> Variable-sized Delimiters	100
Table 225: <i>stmaryrd</i> Variable-sized Delimiters	100
Table 226: <i>mathabx</i> Variable-sized Delimiters	101
Table 227: <i>MnSymbol</i> Variable-sized Delimiters	101
Table 228: <i>fdsymbol</i> Variable-sized Delimiters	102
Table 229: <i>stix</i> Variable-sized Delimiters	103
Table 230: <i>mathdesign</i> Variable-sized Delimiters	104
Table 231: <i>nath</i> Variable-sized Delimiters (Double)	105
Table 232: <i>nath</i> Variable-sized Delimiters (Triple)	105
Table 233: <i>fourier</i> Variable-sized Delimiters	105
Table 234: <i>textcomp</i> Text-mode Delimiters	105
Table 235: <i>metre</i> Text-mode Delimiters	106
Table 236: Math-mode Accents	106
Table 237: <i>AMS</i> Math-mode Accents	106
Table 238: <i>MnSymbol</i> Math-mode Accents	106
Table 239: <i>fdsymbol</i> Math-mode Accents	107
Table 240: <i>boisik</i> Math-mode Accents	107
Table 241: <i>stix</i> Math-mode Accents	107
Table 242: <i>fge</i> Math-mode Accents	107
Table 243: <i>yhmath</i> Math-mode Accents	107
Table 244: <i>halloweenmath</i> Halloween-Themed Math-mode Accents	107
Table 245: <i>realhats</i> Math-mode Hat Accents	108
Table 246: Extensible Accents	108
Table 247: <i>overrightarrow</i> Extensible Accents	108
Table 248: <i>yhmath</i> Extensible Accents	109
Table 249: <i>AMS</i> Extensible Accents	109
Table 250: <i>MnSymbol</i> Extensible Accents	109
Table 251: <i>fdsymbol</i> Extensible Accents	109
Table 252: <i>stix</i> Extensible Accents	110
Table 253: <i>mathtools</i> Extensible Accents	110
Table 254: <i>mathabx</i> Extensible Accents	110
Table 255: <i>fourier</i> Extensible Accents	110
Table 256: <i>esvect</i> Extensible Accents	111
Table 257: <i>abracess</i> Extensible Accents	111

Table 258: <i>undertilde</i> Extensible Accents	111
Table 259: <i>ushort</i> Extensible Accents	111
Table 260: <i>mdwmath</i> Extensible Accents	111
Table 261: <i>actuarialangle</i> Extensible Accents	112
Table 262: <i>\mathcal{MS}</i> Extensible Arrows	112
Table 263: <i>mathtools</i> Extensible Arrows	112
Table 264: <i>chemarr</i> Extensible Arrows	112
Table 265: <i>chemarrow</i> Extensible Arrows	112
Table 266: <i>extarrows</i> Extensible Arrows	113
Table 267: <i>extpfeil</i> Extensible Arrows	113
Table 268: <i>DotArrow</i> Extensible Arrows	113
Table 269: <i>halloweenmath</i> Extensible Arrows	113
Table 270: <i>trfsigns</i> Extensible Transform Symbols	113
Table 271: <i>esrelation</i> Extensible Relations	114
Table 272: <i>halloweenmath</i> Extensible Brooms and Pitchforks	114
Table 273: <i>halloweenmath</i> Extensible Witches	114
Table 274: <i>halloweenmath</i> Extensible Ghosts	115
Table 275: <i>halloweenmath</i> Extensible Bats	115
Table 276: <i>holtpolt</i> Non-commutative Division Symbols	115
Table 277: Dots	115
Table 278: <i>\mathcal{MS}</i> Dots	115
Table 279: <i>wasysym</i> Dots	116
Table 280: <i>MnSymbol</i> Dots	116
Table 281: <i>fdsymbol</i> Dots	116
Table 282: <i>stix</i> Dots	116
Table 283: <i>mathdots</i> Dots	116
Table 284: <i>yhmath</i> Dots	117
Table 285: <i>teubner</i> Dots	117
Table 286: <i>begriff</i> Begriffsschrift Symbols	117
Table 287: <i>frege</i> Begriffsschrift Symbols	117
Table 288: <i>mathcomp</i> Math Symbols	117
Table 289: <i>marvosym</i> Math Symbols	117
Table 290: <i>marvosym</i> Digits	118
Table 291: <i>fge</i> Digits	118
Table 292: <i>dozenal</i> Base-12 Digits	118
Table 293: <i>mathabx</i> Mayan Digits	118
Table 294: <i>stix</i> Infinities	118
Table 295: <i>stix</i> Primes	118
Table 296: <i>stix</i> Empty Sets	118
Table 297: <i>\mathcal{MS}</i> Angles	118
Table 298: <i>MnSymbol</i> Angles	118
Table 299: <i>fdsymbol</i> Angles	119
Table 300: <i>boisik</i> Angles	119
Table 301: <i>stix</i> Angles	119
Table 302: Miscellaneous L ^A T _E X 2 _{&} Math Symbols	119
Table 303: Miscellaneous <i>\mathcal{MS}</i> Math Symbols	120
Table 304: Miscellaneous <i>wasysym</i> Math Symbols	120
Table 305: Miscellaneous <i>txfonts/pxfonts</i> Math Symbols	120
Table 306: Miscellaneous <i>mathabx</i> Math Symbols	120
Table 307: Miscellaneous <i>MnSymbol</i> Math Symbols	120
Table 308: Miscellaneous Internal <i>MnSymbol</i> Math Symbols	121
Table 309: Miscellaneous <i>fdsymbol</i> Math Symbols	121
Table 310: Miscellaneous <i>boisik</i> Math Symbols	121
Table 311: Miscellaneous <i>stix</i> Math Symbols	122
Table 312: <i>endofproofwd</i> End-of-Proof Symbols	122
Table 313: Miscellaneous <i>textcomp</i> Text-mode Math Symbols	122
Table 314: Miscellaneous <i>fge</i> Math Symbols	123
Table 315: Miscellaneous <i>mathdesign</i> Math Symbols	123

Table 316: Math Alphabets	124
4 Science and technology symbols	126
Table 317: <i>gensymb</i> Symbols Defined to Work in Both Math and Text Mode	126
Table 318: <i>wasysym</i> Electrical and Physical Symbols	126
Table 319: <i>ifsym</i> Pulse Diagram Symbols	126
Table 320: <i>ar</i> Aspect Ratio Symbol	126
Table 321: <i>plimsoll</i> Plimsoll Symbol	126
Table 322: <i>textcomp</i> Text-mode Science and Engineering Symbols	126
Table 323: <i>steinmetz</i> Extensible Phasor Symbol	127
Table 324: <i>emf</i> Electromotive Force Symbols	127
Table 325: <i>wasysym</i> Astronomical Symbols	127
Table 326: <i>marvosym</i> Astronomical Symbols	127
Table 327: <i>fontawesome</i> Astronomical Symbols	128
Table 328: <i>mathabx</i> Astronomical Symbols	128
Table 329: <i>stix</i> Astronomical Symbols	128
Table 330: <i>utfsym</i> Astronomical Symbols	128
Table 331: <i>starfont</i> Astronomical Symbols	129
Table 332: <i>wasysym</i> APL Symbols	129
Table 333: <i>stix</i> APL Symbols	129
Table 334: <i>apl</i> APL Symbols	130
Table 335: <i>marvosym</i> Computer Hardware Symbols	130
Table 336: <i>keystroke</i> Computer Keys	130
Table 337: <i>ascii</i> Control Characters (CP437)	131
Table 338: <i>logic</i> Logic Gates	131
Table 339: <i>marvosym</i> Communication Symbols	131
Table 340: <i>marvosym</i> Engineering Symbols	132
Table 341: <i>wasysym</i> Biological Symbols	132
Table 342: <i>stix</i> Biological Symbols	132
Table 343: <i>marvosym</i> Biological Symbols	132
Table 344: <i>utfsym</i> Biological Symbols	132
Table 345: <i>fontawesome</i> Biological Symbols	132
Table 346: <i>marvosym</i> Safety-related Symbols	133
Table 347: <i>feyn</i> Feynman Diagram Symbols	133
Table 348: <i>svrsymbols</i> Physics Ideograms	133
5 Dingbats	135
Table 349: <i>bding</i> Arrows	135
Table 350: <i>pifont</i> Arrows	135
Table 351: <i>adfsymbols</i> Arrows	135
Table 352: <i>adfrn</i> Arrows	136
Table 353: <i>arev</i> Arrows	136
Table 354: <i>utfsym</i> Arrows	136
Table 355: <i>fontawesome</i> Arrows	136
Table 356: <i>fontawesome</i> Chevrons	136
Table 357: <i>marvosym</i> Scissors	137
Table 358: <i>bding</i> Scissors	137
Table 359: <i>pifont</i> Scissors	137
Table 360: <i>utfsym</i> Scissors	137
Table 361: <i>dingbat</i> Pencils	137
Table 362: <i>arev</i> Pencils	137
Table 363: <i>fontawesome</i> Pencils	137
Table 364: <i>bding</i> Pencils and Nibs	137
Table 365: <i>pifont</i> Pencils and Nibs	138
Table 366: <i>utfsym</i> Pencils, Pens, and Nibs	138
Table 367: <i>dingbat</i> Fists	138
Table 368: <i>bding</i> Fists	138
Table 369: <i>pifont</i> Fists	138

Table 370: <code>fourier</code> Fists	138
Table 371: <code>arev</code> Fists	138
Table 372: <code>utfsym</code> Fists	139
Table 373: <code>fontawesome</code> Fists	139
Table 374: <code>bbdng</code> Crosses and Plusses	139
Table 375: <code>pifont</code> Crosses and Plusses	139
Table 376: <code>adfsymbols</code> Crosses and Plusses	139
Table 377: <code>utfsym</code> Crosses and Plusses	140
Table 378: <code>arev</code> Crosses	140
Table 379: <code>bbdng</code> Xs and Check Marks	140
Table 380: <code>pifont</code> Xs and Check Marks	140
Table 381: <code>wasysym</code> Xs and Check Marks	140
Table 382: <code>marvosym</code> Xs and Check Marks	140
Table 383: <code>arev</code> Xs and Check Marks	140
Table 384: <code>utfsym</code> Xs and Check Marks	141
Table 385: <code>fontawesome</code> Xs and Check Marks	141
Table 386: <code>pifont</code> Circled Numerals	141
Table 387: <code>utfsym</code> Circled Numerals	141
Table 388: <code>wasysym</code> Stars	142
Table 389: <code>bbdng</code> Stars, Flowers, and Similar Shapes	142
Table 390: <code>pifont</code> Stars, Flowers, and Similar Shapes	142
Table 391: <code>adfsymbols</code> Stars, Flowers, and Similar Shapes	142
Table 392: <code>utfsym</code> Stars, Flowers, and Similar Shapes	143
Table 393: <code>adorn</code> Stars	143
Table 394: <code>fontawesome</code> Stars	143
Table 395: <code>fourier</code> Fleurons and Flowers	143
Table 396: <code>adorn</code> Fleurons and Flowers	144
Table 397: <code>wasysym</code> Geometric Shapes	144
Table 398: <code>MnSymbol</code> Geometric Shapes	144
Table 399: <code>fdsymbol</code> Geometric Shapes	144
Table 400: <code>boisik</code> Geometric Shapes	145
Table 401: <code>stix</code> Geometric Shapes	145
Table 402: <code>ifsym</code> Geometric Shapes	146
Table 403: <code>bbdng</code> Geometric Shapes	147
Table 404: <code>pifont</code> Geometric Shapes	147
Table 405: <code>universa</code> Geometric Shapes	147
Table 406: <code>adfsymbols</code> Geometric Shapes	147
Table 407: <code>utfsym</code> Geometric Shapes	148
Table 408: <code>fontawesome</code> Geometric Shapes	148
Table 409: <code>oplotstyl</code> Geometric Shapes	148
Table 410: <code>adorn</code> Flourishes	149
Table 411: Miscellaneous <code>oplotstyl</code> Symbols	149
Table 412: Miscellaneous <code>dingbat</code> Dingbats	149
Table 413: Miscellaneous <code>bbdng</code> Dingbats	149
Table 414: Miscellaneous <code>pifont</code> Dingbats	150
Table 415: Miscellaneous <code>adorn</code> Dingbats	150
Table 416: Miscellaneous <code>utfsym</code> Dingbats	150
6 Ancient languages	151
Table 417: <code>phaistos</code> Symbols from the Phaistos Disk	151
Table 418: <code>protosem</code> Proto-Semitic Characters	151
Table 419: <code>hieroglif</code> Hieroglyphics	152
Table 420: <code>linearA</code> Linear A Script	152
Table 421: <code>linearB</code> Linear B Basic and Optional Letters	155
Table 422: <code>linearB</code> Linear B Numerals	155
Table 423: <code>linearB</code> Linear B Weights and Measures	155
Table 424: <code>linearB</code> Linear B Ideograms	156
Table 425: <code>linearB</code> Unidentified Linear B Symbols	156

Table 426: cypriot Cypriot Letters	156
Table 427: sarabian South Arabian Letters	157
Table 428: teubner Archaic Greek Letters and Greek Numerals	157
Table 429: boisik Archaic Greek Letters and Greek Numerals	157
Table 430: epiolmec Epi-Olmec Script	157
Table 431: epiolmec Epi-Olmec Numerals	159
Table 432: allrunes Runes	160
Table 433: allrunes Rune Separators	160
7 Musical symbols	161
Table 434: L ^A T _E X 2 _ε Musical Symbols	161
Table 435: textcomp Musical Symbols	161
Table 436: wasysym Musical Symbols	161
Table 437: MnSymbol Musical Symbols	161
Table 438: fdsymbol Musical Symbols	161
Table 439: boisik Musical Symbols	161
Table 440: stix Musical Symbols	161
Table 441: arev Musical Symbols	161
Table 442: utfsym Musical Symbols	162
Table 443: MusiX _T E _X Musical Symbols	162
Table 444: MusiX _T E _X Alternative Clefs	163
Table 445: harmony Musical Symbols	163
Table 446: musicography Musical Symbols	164
Table 447: musicography Time Signatures	164
Table 448: harmony Musical Accents	164
Table 449: <i>lilyglyphs</i> Single Notes	165
Table 450: <i>lilyglyphs</i> Beamed Notes	165
Table 451: <i>lilyglyphs</i> Clefs	166
Table 452: <i>lilyglyphs</i> Time Signatures	166
Table 453: <i>lilyglyphs</i> Accidentals	166
Table 454: <i>lilyglyphs</i> Rests	166
Table 455: <i>lilyglyphs</i> Dynamics Letters	167
Table 456: <i>lilyglyphs</i> Dynamics Symbols	167
Table 457: <i>lilyglyphs</i> Articulations	167
Table 458: <i>lilyglyphs</i> Scripts	167
Table 459: <i>lilyglyphs</i> Accordion Notation	167
Table 460: <i>lilyglyphs</i> Named Time Signatures	168
Table 461: <i>lilyglyphs</i> Named Scripts	168
Table 462: <i>lilyglyphs</i> Named Rests	169
Table 463: <i>lilyglyphs</i> Named Pedals	169
Table 464: <i>lilyglyphs</i> Named Flags	170
Table 465: <i>lilyglyphs</i> Named Custodes	170
Table 466: <i>lilyglyphs</i> Named Clefs	171
Table 467: <i>lilyglyphs</i> Named Noteheads	172
Table 468: <i>lilyglyphs</i> Named Accordion Symbols	176
Table 469: <i>lilyglyphs</i> Named Accidentals	177
Table 470: <i>lilyglyphs</i> Named Arrowheads	177
Table 471: <i>lilyglyphs</i> Named Alphanumerics and Punctuation	178
Table 472: Miscellaneous <i>lilyglyphs</i> Named Musical Symbols	178

8	Gaming symbols	179
Table 473:	<code>LATEX 2_E</code> Playing-Card Suits	179
Table 474:	<code>txfonts/pxfonts</code> Playing-Card Suits	179
Table 475:	<code>MnSymbol</code> Playing-Card Suits	179
Table 476:	<code>fdsymbol</code> Playing-Card Suits	179
Table 477:	<code>boisik</code> Playing-Card Suits	179
Table 478:	<code>stix</code> Playing-Card Suits	179
Table 479:	<code>arev</code> Playing-Card Suits	179
Table 480:	<code>twemojijs</code> Playing-Card Suits	179
Table 481:	<code>utfsym</code> Playing-Card Suits	180
Table 482:	<code>utfsym</code> Playing Cards	180
Table 483:	<code>epsdice</code> Dice	180
Table 484:	<code>hhcount</code> Dice	181
Table 485:	<code>stix</code> Dice	181
Table 486:	<code>ifsym</code> Dice	181
Table 487:	<code>utfsym</code> Dice	181
Table 488:	<code>utfsym</code> Domino Tiles	181
Table 489:	<code>utfsym</code> Mahjong Tiles	182
Table 490:	<code>utfsym</code> Chess Pieces	183
Table 491:	<code>skak</code> Chess Informator Symbols	183
Table 492:	<code>skak</code> Chess Pieces and Chessboard Squares	184
Table 493:	<code>igo</code> Go Symbols	184
Table 494:	<code>go</code> Go Symbols	185
9	Other symbols	186
Table 495:	<code>textcomp</code> Genealogical Symbols	186
Table 496:	<code>wasysym</code> General Symbols	186
Table 497:	<code>utfsym</code> Transportation Symbols	186
Table 498:	<code>twemojijs</code> Transportation Emoji	187
Table 499:	<code>manfnt</code> Dangerous Bend Symbols	188
Table 500:	Miscellaneous <code>manfnt</code> Symbols	188
Table 501:	<code>marvosym</code> Media Control Symbols	188
Table 502:	<code>marvosym</code> Laundry Symbols	189
Table 503:	<code>marvosym</code> Information Symbols	189
Table 504:	Other <code>marvosym</code> Symbols	189
Table 505:	Miscellaneous <code>universa</code> Symbols	189
Table 506:	Miscellaneous <code>fourier</code> Symbols	189
Table 507:	<code>utfsym</code> Weather Symbols	189
Table 508:	<code>twemojijs</code> Weather Symbols	190
Table 509:	<code>ifsym</code> Weather Symbols	190
Table 510:	<code>ifsym</code> Alpine Symbols	190
Table 511:	<code>ifsym</code> Clocks	190
Table 512:	<code>utfsym</code> Clocks	191
Table 513:	<code>clock</code> Clocks	191
Table 514:	<code>twemojijs</code> Clocks	191
Table 515:	<code>twemojijs</code> Animals	192
Table 516:	<code>twemojijs</code> Food Emoji	193
Table 517:	<code>hhcount</code> Tally Markers	194
Table 518:	<code>ifsym</code> Tally Markers	194
Table 519:	<code>bullcntr</code> Tally Markers	195
Table 520:	<code>dozenal</code> Tally Markers	195
Table 521:	<code>skull</code> Symbols	195
Table 522:	Non-Mathematical <code>mathabx</code> Symbols	195
Table 523:	Other <code>ifsym</code> Symbols	196
Table 524:	<code>metre</code> Metrical Symbols	196
Table 525:	<code>metre</code> Small and Large Metrical Symbols	196
Table 526:	<code>teubner</code> Metrical Symbols	196
Table 527:	<code>dictsym</code> Dictionary Symbols	197

Table 528: simpsons Characters from <i>The Simpsons</i>	197
Table 529: pmboxdraw Box-Drawing Symbols	198
Table 530: staves Magical Staves	198
Table 531: pigpen Cipher Symbols	199
Table 532: GfNA2e Phases of the Moon	199
Table 533: twemojis Phases of the Moon	200
Table 534: GfNA2e Recycling Symbols	200
Table 535: marvosym Recycling Symbols	200
Table 536: utfsym Recycling Symbols	200
Table 537: recycle Recycling Symbols	201
Table 538: Other GfNA2e Symbols	201
Table 539: soyombo Soyombo Symbols	201
Table 540: knitting Knitting Symbols	202
Table 541: countriesofeurope Country Maps	202
Table 542: rojud Maps of Romanian Counties	204
Table 543: euflag European Union Flag	206
Table 544: worldflags World Flags	206
Table 545: twemojis Flags	208
Table 546: Miscellaneous arev Symbols	211
Table 547: cookingsymbols Cooking Symbols	211
Table 548: tikzsymbols Cooking Symbols	211
Table 549: tikzsymbols Emoji	212
Table 550: tikzsymbols 3D Emoji	212
Table 551: utfsym Emoji	213
Table 552: tikzsymbols Trees	213
Table 553: Miscellaneous tikzsymbols Symbols	213
Table 554: Miscellaneous twemojis Emoji	214
Table 555: scsnowman Snowmen	226
Table 556: Miscellaneous bclogo Symbols	227
Table 557: Miscellaneous utfsym Pictographs	228
Table 558: fontawesome Web-Related Icons	231
Table 559: rubikcube Rubik's Cube Rotations	235
10 Fonts with minimal L^AT_EX support	236
Table 560: hands Fists	236
Table 561: greenpoint Recycling Symbols	236
Table 562: nkarta Map Symbols	236
Table 563: moonphase Astronomical Symbols	238
Table 564: astrosym Astronomical Symbols	238
Table 565: webomints Decorative Borders	241
Table 566: umranda Decorative Borders	242
Table 567: umrandb Decorative Borders	243
Table 568: dingbat Decorative Borders	244
Table 569: knot Celtic Knots	244
Table 570: dancers Dancing Men	248
Table 571: semaphor Semaphore Alphabet	250
Table 572: cryst Crystallography Symbols	252
Table 573: dice Dice	253
Table 574: magic Trading Card Symbols	254
Table 575: bartel-chess-fonts Chess Pieces and Chessboard Squares	254
11 Additional Information	256
11.1 Symbol Name Clashes	256
11.2 Resizing symbols	256
11.3 Where can I find the symbol for ...?	256
11.4 Math-mode spacing	269
11.5 Bold mathematical symbols	270
11.6 ASCII and Latin 1 quick reference	270

11.7 Unicode characters	272
11.8 About this document	275
11.9 Copyright and license	277
References	278
Index	279

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 (e.g., `\bigtriangleup`)

As of version 12 of the Comprehensive L^AT_EX Symbol List, that second restriction has been relaxed with the inclusion of Section 10, which showcases fonts that provide, at a minimum, either T_EX font-metric files (`.tfm`) or the METAFONT sources (`.mf`) that produce those font-metric files. Some of the Section 10 fonts do include L^AT_EX font-definition files (`.fd`). However, what sets the fonts in Section 10 apart from the fonts in rest of the document is that they lack a L^AT_EX style file (`.sty`) that individually names each of the glyphs.

The restrictions listed above are not particularly limiting criteria; the Comprehensive L^AT_EX Symbol List contains samples of 18150 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/FAQ-installthings.html> 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 45, “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 11 contains some additional information about the symbols in this document. It discusses how certain mathematical symbols can vary in height, 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, compares various schemes for boldfacing symbols, presents L^AT_EX ASCII and Latin 1 tables, shows how to input and output Unicode characters, 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.

A companion document, Raw Font Tables, also presents a large number of symbols but with a very different structure from this document. Raw Font Tables includes only symbols produced via a font file, while this document also includes composite symbols (combinations of two or more glyphs) and symbols drawn as pictures (using, e.g., TikZ). This document sorts symbols by category while Raw Font Tables sorts symbols by underlying font file. The two documents are intended to complement each other. It is usually easier to find a desired symbol in The Comprehensive L^AT_EX Symbol List, but Raw Font Tables is helpful for identifying related symbols, for finding symbols that exist in some font but are not exposed to the user via a L^AT_EX package (or that this document inadvertently overlooked), and for the font name and character position needed to typeset a single symbol in isolation. The last of those is especially important for math symbols. T_EX imposes a limitation of at most 16 math alphabets per document, but symbols typeset with `\font` and `\char` are text symbols and do not consume a math alphabet. (They are less convenient to use within a mathematical expression, however.)

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 “ <code>Spaces_are_significant.</code> ”	15	\therefore	116
\bar{i} , \tilde{i} , \check{i} , \breve{i} , etc. (versus $\bar{\mathfrak{i}}$, $\tilde{\mathfrak{i}}$, $\check{\mathfrak{i}}$, $\breve{\mathfrak{i}}$, and \mathfrak{i})	21	$^\circ$, as in “ 180° ” or “ 15°C ”	122
\textcent	26	\mathcal{L}, \mathcal{F} , etc.	124
\texteuro	26	$\mathbb{N}, \mathbb{Z}, \mathbb{R}$, etc.	124
$\text{\textcircled{C}}, \text{\textcircled{R}}$, and TM	27	\mathbf{z}	124
\textperthousand	28	f	262
\textdollar	43	\acute{a}, \grave{e} , etc. (i.e., several accents per character)	
\therefore	51	264	
\coloneqq and \coloneqq	52	$<, >$, and $ $ (instead of \mathfrak{j} , \mathfrak{z} , and —)	270
\lesssim and \gtrsim	65	$\hat{}$ and $\tilde{}$ (or \sim)	271

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

^	\textasciicircum*	<	\textless
~	\textasciitilde*	a	\textordfeminine
*	\textasteriskcentered	o	\textordmasculine
\	\textbackslash	\P	\textparagraph [†]
	\textbar	.	\textperiodcentered
	\textbardbl	\%oo	\textpertenthousand
○	\textbigcircle	\%o	\textperthousand
{	\textbraceleft [†]	\textlangle	\textquestiondown
}	\textbraceright [†]	\textrangle	\textquotedblleft
•	\textbullet	\textquoteright	\textquotedblright
(C)	\textcopyright [†]	\textquoteright	\textquotelleft
†	\textdagger [†]	,	\textquoteright
‡	\textdaggerdbl [†]	\textcircledR	\textregistered
\$	\textdollar [†]	\textsection	\textsection [†]
...	\textellipsis	\textsterling	\textsterling [†]
—	\textemdash	\textTM	\texttrademark
—	\textendash	-	\textunderscore [†]
i	\textexclamdown	\textlrcorner	\textvisible
>	\textgreater		\textspace

The first symbol column represents the—sometimes “faked”—symbol that L^AT_EX 2 _{ε} provides by default. The second symbol column represents the symbol as redefined by `textcomp` (if `textcomp` redefines it). The `textcomp` package is generally required to typeset Table 2’s symbols in italic, and some symbols additionally require the T1 font encoding for italic.

* \^{} and \~{} can be used instead of \textasciicircum and \textasciitilde. See the discussion of “~” on page 271.

[†] It’s generally preferable to use the corresponding symbol from Table 3 on the following page 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

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

The first symbol column represents the—sometimes “faked”—symbol that L^AT_EX 2 _{ε} provides by default. The second symbol column represents the symbol as redefined by `textcomp` (if `textcomp` redefines it). The `textcomp` package is generally required to typeset Table 3’s symbols in italic, and some symbols additionally require the T1 font encoding for italic.

TABLE 4: *AMS* Commands Defined to Work in Both Math and Text Mode

✓ \checkmark ® \circledR ✕ \maltese

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

å	\aa	ð	\DH*	ł	\L	ø	\o	þ	\th*
Å	\AA	ð	\DJ*	ł	\l	œ	\oe	Þ	\TH*
Æ	\AE	ð	\dj*	ð	\NG*	Œ	\OE		
æ	\ae	IJ	\IJ	ŋ	\ng*	ß	\ss		
ð	\dh*	ij	\ij	ø	\o	SS	\SS		

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

TABLE 6: `textgreek` Upright Greek Letters

α	\textalpha	η	\texteta	ν	\textnu	τ	\texttau
β	\textbeta	θ	\texttheta	ξ	\textxi	υ	\textupsilon
γ	\textgamma	ι	\textiota	ο	\textomikron	φ	\textphi
δ	\textdelta	κ	\textkappa	π	\textpi	χ	\textchi
ε	\textepsilon	λ	\textlambda	ρ	\textrho	ψ	\textpsi
ζ	\textzeta	μ	\textmu*	σ	\textsigma	ω	\textomega
A	\textAlpha	H	\textEta	N	\textNu	T	\textTau
B	\textBeta	Θ	\textTheta	Ξ	\textXi	Υ	\textUpsilon
Γ	\textGamma	I	\textIota	O	\textOmicron	Φ	\textPhi
Δ	\textDelta	K	\textKappa	Π	\textPi	X	\textChi
E	\textEpsilon	Λ	\textLambda	P	\textRho	Ψ	\textPsi
Z	\textZeta	M	\textMu	Σ	\textSigma	Ω	\textOmega

* Synonyms for `\textmu` include `\textmicro` and `\textmugreek`.

`textgreek` tries to use a Greek font that matches the body text. As a result, the glyphs may appear slightly different from the above.

Unlike `upgreek` (Table 191 on page 95), `textgreek` works in text mode.

The symbols in this table are intended to be used sporadically throughout a document (e.g., in phrases such as “ β -decay”). In contrast, Greek body text can be typeset using the `babel` package’s `greek` (or `polutonikogreek`) option—and, of course, a font that provides the glyphs for the Greek alphabet.

TABLE 7: Letters Used to Typeset African Languages

D	\B{D}	¢	\m{c}	ƒ	\m{f}	ќ	\m{k}	ќ	\M{t}	ӟ	\m{Z}
d	\B{d}	Ђ	\m{D}	Ѓ	\m{F}	Ѝ	\m{N}	Ҭ	\M{T}	Ӯ	\T{E}
H	\B{H}	Ԁ	\M{d}	Ԁ	\m{G}	Ԇ	\m{n}	Ԇ	\m{t}	Ӭ	\T{e}
һ	\B{h}	Ԁ	\M{D}	Ԁ	\m{g}	Ԇ	\m{o}	Ҭ	\m{T}	Ӯ	\T{O}
t	\B{t}	Ԁ	\m{d}	Ӆ	\m{I}	Ӆ	\m{O}	ݒ	\m{u}	Ӯ	\T{o}
T	\B{T}	Ծ	\m{E}	ւ	\m{i}	Պ	\m{P}	Ւ	\m{U}	*	
б	\m{b}	ԑ	\m{e}	ԡ	\m{J}	ԥ	\m{p}	Ƴ	\m{Y}		
ڦ	\m{B}	ڦ	\M{E}	ڻ	\m{j}	ڻ	\m{s}	ڻ	\m{y}		
ڦ	\m{C}	ڦ	\M{e}	ڪ	\m{K}	ڦ	\m{S}	ڦ	\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 8: Letters Used to Typeset Vietnamese

Ը \oHORN Ծ \ohorn Ւ \UHORN ւ \uhorn

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

TABLE 9: Punctuation Marks Not Found in OT1

```
« \guillemetleft*   < \guilsinglleft   „ \quotedblbase   " \textquotedbl
» \guillemetright*  > \guilsinglright , \quotesinglbase
```

* Older versions of L^AT_EX misspelled these as `\guillemotleft` and `\guillemotright`. The older names are still retained for backward compatibility.

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

TABLE 10: pifont Decorative Punctuation Marks

- \ding{123} “ \ding{125} ¶ \ding{161} ♪ \ding{163}
- \ding{124} ” \ding{126} ♩ \ding{162}

TABLE 11: tipa Phonetic Symbols

ȝ	\textbabygamma	ȝ	\textglotstop	ɳ	\textrtailn
þ	\textbarb	·	\texthalflength	Ծ	\textrtailr
Ҽ	\textbarc	ȝ	\texthardsign	Ը	\textrtails
Ԇ	\textbard	՞	\texthooktop	Ւ	\textrtailt
ڶ	\textbardotlessj	ڦ	\texthtb	ڙ	\textrtailz
ڳ	\textbarg	ڻ	\texthtbardotlessj	ڻ	\textrthook
ڦ	\textbarglotstop	ڦ	\texthtc	ڦ	\textsca
ڦ	\textbari	ڦ	\texthtd	ڦ	\textscb
ڦ	\textbarl	ڦ	\texthtg	ڦ	\textscce
ڦ	\textbaro	ڦ	\texthth	ڦ	\textscg
ڦ	\textbarrevglotstop	ڦ	\texthtcheng	ڦ	\textsch
ڦ	\textbaru	ڦ	\texthtk	ڦ	\textschwa
ڦ	\textbeltl	ڦ	\texthtp	ڦ	\textsci
ڦ	\textbeta	ڦ	\texthtq	ڦ	\textscj
ڦ	\textbullseye	ڦ	\texthttaild	ڦ	\textsccl
ڦ	\textcelpal	ڦ	\texthtscg	ڦ	\textscn
ڦ	\textchi	ڦ	\texthtt	ڦ	\textscelig
ڦ	\textcloseepsilon	ڦ	\texthvlig	ڦ	\textscomega
ڦ	\textcloseomega	ڦ	\textinvglotstop	ڦ	\textscr
ڦ	\textcloserevepsilon	ڦ	\textinvscr	ڦ	\textscripta
ڦ	\textcommatailz	ڦ	\textiot	ڦ	\textscriptg
ڦ	\textcorner	ڦ	\textlambda	ڦ	\textscriptv
ڦ	\textcrb	ڦ	\textlengthmark	ڦ	\textscu
ڦ	\textcrd	ڦ	\textlhookt	ڦ	\textscy
ڦ	\textcrg	ڦ	\textlhtlongi	ڦ	\textsecstress
ڦ	\textcrh	ڦ	\textlhtlongy	ڦ	\textsoftsign
ڦ	\textcrinvglotstop	ڦ	\textlonglegr	ڦ	\textstretchc
ڦ	\textcrlambda	ڦ	\textlptr	ڦ	\texttctclig
ڦ	\textcrtwo	ڦ	\textltailm	ڦ	\textteshlig
ڦ	\textctc	ڦ	\textltailn	ڦ	\texttheta
ڦ	\textctd	ڦ	\textltilde	ڦ	\textthorn
ڦ	\textctdzlig	ڦ	\textlyoghligr	ڦ	\texttoneletterstem
ڦ	\textctesh	ڦ	\textobardotlessj	ڦ	\texttslig
ڦ	\textctj	ڦ	\textolyoghligr	ڦ	\textturna
ڦ	\textctn	ڦ	\textomega	ڦ	\textturncelig
ڦ	\textctt	ڦ	\textopencorner	ڦ	\textturnh
ڦ	\textcttzlig	ڦ	\textopeno	ڦ	\textturnrnk
ڦ	\textctyogh	ڦ	\textpalhook	ڦ	\textturnlonglegr
ڦ	\textctz	ڦ	\textphi	ڦ	\textturnnm
ڦ	\textdctzlig	ڦ	\textpipe	ڦ	\textturnmrleg
ڦ	\textdoublebaresh	ڦ	\textprimstress	ڦ	\textturnr
ڦ	\textdoublebarpipe	ڦ	\textraiseglotstop	ڦ	\textturnrrtail
ڦ	\textdoublebarslash	ڦ	\textraisevibyi	ڦ	\textturnscripta
ڦ	\textdoublepipe	ڦ	\textramshorns	ڦ	\textturnrt
ڦ	\textdoublevertline	ڦ	\textrevapostrophe	ڦ	\textturnrv
ڦ	\textdownstep	ڦ	\textreve	ڦ	\textturnw
ڦ	\textdyoghligr	ڦ	\textrevesilon	ڦ	\textturny
ڦ	\textdzlig	ڦ	\textrevglotstop	ڦ	\textupsilon
ڦ	\textepsilon	ڦ	\textrevyogh	ڦ	\textupstep
ڦ	\textesh	ڦ	\textrhokrevepsilon	ڦ	\textvertline
ڦ	\textfishhookr	ڦ	\textrhookschwa	ڦ	\textvibyi

(continued on next page)

(continued from previous page)

g	\texttg	~	\textrhoticity	q	\textvibyy
γ	\texttgamma	>	\textrptr	p	\textwynn
↙	\textglobfall	ɖ	\textrtaild	ʒ	\textyogh
↗	\textglobrise	ӏ	\textrtaill		

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

TABLE 12: tipx Phonetic Symbols

ao	\textaolig	ʃ	\texthtbardotlessjvar	ڻ	\textrthooklong
ȝ	\textbenttailyogh	ȝ	\textinvomega	ڏ	\textscaolig
ȝ	\textbktailgamma	ȝ	\textinvasca	ڏ	\textscdelta
ڙ	\textctinvglotstop	ڙ	\textinvscripta	F	\textscf
j	\textctjvar	ڙ	\textlfishhookrlig	K	\textscck
ڙ	\textctstretchc	ڙ	\textlhookfour	M	\textscm
ڙ	\textctstretchcvr	ڙ	\textlhookp	P	\textscp
ڙ	\textctturnt	ڙ	\textlhti	Q	\textscq
ڙ	\textdblig	ڙ	\textlooptoprevesh	ڦ	\textspleftarrow
ڙ	\textdoublebarpipevar	ڙ	\textnrleg	C	\textstretchcvr
ڙ	\textdoublelepipevar	ڙ	\textObullseye	ڦ	\textsubdoublearrow
ڙ	\textdownfullarrow	ڙ	\textpalhooklong	ڦ	\textsubrightarrow
ڙ	\textfemale	ڙ	\textpalhookvar	ڦ	\textthornvari
n	\textfrbarn	ڙ	\textpipevar	ڦ	\textthornvarii
ڙ	\textfrhookd	ڙ	\textqlig	ڦ	\textthornvariii
ڙ	\textfrhookdvar	ڙ	\textrectangle	ڦ	\textthornvariv
t	\textfrhookt	ڙ	\textretractingvar	ڦ	\textturnglotstop
ڙ	\textfrtailgamma	ڙ	\textrevscl	ڦ	\textturnsck
ڙ	\textglotstopvari	ڙ	\textrevscr	ڦ	\textturnscu
ڙ	\textglotstopvari	ڙ	\textrhooka	ڦ	\textturnthree
ڙ	\textglotstopvari	ڙ	\textrooke	ڦ	\textturntwo
ڙ	\textgrgamma	ڙ	\textrhookepsilon	ڦ	\textuncrfemale
ڙ	\textheng	ڙ	\textrhookopeno	ڦ	\textupfullarrow
hn	\texthmlig	ڙ	\textrtailhth		

TABLE 13: wsipa Phonetic Symbols

γ	\babygamma	ŋ	\eng	ŋj	\labdentalnas	ə	\schwa
β	\barb	ɔ̄	\er	ɸ	\latfric	I	\sci
ɖ	\bard	ʃ	\esh	ɥ	\legm	N	\scn
í	\bari	ð	\eth	ɿ	\legr	R	\scr
ɬ	\barl	r	\flapr	ʒ	\lz	a	\scripta
ə̄	\baro	?	\glotstop	ɑ̄	\nialpha	g	\scriptg
ƿ	\barp	þ	\hookb	β̄	\nibeta	v	\scriptv
᷑	\barsci	ð̄	\hookd	χ̄	\nichi	U	\scu
᷒	\barscu	ȝ̄	\hookg	ɛ̄	\niepsilon	Y	\scy
ᷔ	\baru	ɦ̄	\hookh	γ̄	\nigamma	þ̄	\slashb
᷎	\clickb	ɦ̄	\hookheng	ῑ	\niota	ø̄	\slashc
᷏	\clickc	ȝ̄	\hookrevepsilon	λ̄	\nilambda	đ̄	\slashd
᷐	\clickt	hv̄		ω̄	\niomega	ȝ̄	\slashu
᷈	\closedniomega	ə̄	\inva	ɸ̄	\niphī	d̄	\taild
᷉	\closedrevepsilon	ȝ̄	\invf	σ̄	\nisigma	ł̄	\tailinvr
᷊	\crossb	ȝ̄	\invglotstop	θ̄	\nitheta	ł̄	\taill
᷋	\crossd	ɥ̄	\invh	ʊ̄	\niupsilon	ɳ̄	\tailn
᷌	\crossh	ɿ̄	\invlegr	ɲ̄	\nj	ɾ̄	\tailr
᷍	\crossnilambda	ɯ̄	\invm	œ̄	\oo	s̄	\tails
᷎	\curlyc	ɹ̄	\invr	ɔ̄	\openo	t̄	\tailt
᷏	\curlyesh	ʂ̄	\invscr	ə̄	\reve	z̄	\tailz
᷈	\curlyyogh	ɒ̄	\invscripta	ɸ̄	\reject	ʈ̄	\tesh
᷉	\curlyz	ʌ̄	\invv	ʒ̄	\revepsilon	þ̄	\thorn
᷊	\dlbari	ɯ̄	\invw	ç̄	\revglotstop	ł̄	\tildel
᷋	\dz	ʌ̄	\invy	D̄	\scd	ȝ̄	\yogh
᷌	\ejective	ȝ̄	\ipagamma	Ḡ	\scg		

TABLE 14: wasysym Phonetic Symbols

ð	\dh	ə̄	\inve	ȝ̄	\roundz	þ	\thorn
D	\DH	ɔ̄	\openo	ȝ̄	\Thorn		

TABLE 15: phonetic Phonetic Symbols

᷏	\barj	f̄	\flap	ī	\ibar	ō	\rotvara	ū	\vari
᷍	\barlambda	ȝ̄	\glottal	ɔ̄	\openo	ɯ̄	\rotw	ə̄	\varomega
᷈	\emgma	B̄	\ausaB	ɦ̄	\planck	ɸ̄	\roty	ɔ̄	\varopeno
᷉	\engma	þ̄	\ausab	ʌ̄	\pwedge	ə̄	\schwa	v̄	\vod
᷊	\enya	d̄	\ausad	D̄	\revD	þ̄	\thorn	fī	\voicedh
᷎	\epsi	D̄	\ausaD	ɪ̄	\riota	ɯ̄	\ubar	ȝ̄	\yogh
᷏	\esh	k̄	\ausak	ɯ̄	\rotm	ɥ̄	\udesc		
᷈	\eth	K̄	\ausaK	ʊ̄	\rotOmega	ā	\vara		
᷉	\fj	d̄	\hookd	ɹ̄	\rottr	ḡ	\varg		

TABLE 16: `t4phonet` Phonetic Symbols

<code>đ</code>	<code>\textcrd</code>	<code>đ</code>	<code>\texthtd</code>	<code> </code>	<code>\textpipe</code>
<code>ḥ</code>	<code>\textcrh</code>	<code>ᬁ</code>	<code>\texthtk</code>	<code>ᬁ</code>	<code>\textrtaild</code>
<code>ጀ</code>	<code>\textepsilon</code>	<code>ጀ</code>	<code>\texthtp</code>	<code>ጀ</code>	<code>\textrtailt</code>
<code>ጀ</code>	<code>\textesh</code>	<code>ጀ</code>	<code>\texthtt</code>	<code>ጀ</code>	<code>\textschwa</code>
<code>ጀ</code>	<code>\textfjlig</code>	<code>ጀ</code>	<code>\textiota</code>	<code>ጀ</code>	<code>\textscriptv</code>
<code>ጀ</code>	<code>\texthtb</code>	<code>ጀ</code>	<code>\textltailn</code>	<code>ጀ</code>	<code>\textteshlig</code>
<code>ጀ</code>	<code>\texthtc</code>	<code>ጀ</code>	<code>\textopeno</code>	<code>ጀ</code>	<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 7 on page 17) but using the same names as the `tipa` characters presented in Table 11 on page 18.

TABLE 17: `semtrans` Transliteration Symbols

`> \Alif` `< \Ayn`

TABLE 18: Text-mode Accents

<code>Ää</code>	<code>\\"{A}\\"{a}</code>	<code>Åå</code>	<code>\ {A}\ {a}‡</code>	<code>Ââ</code>	<code>\f{A}\f{a}¶</code>	<code>Ãâ</code>	<code>\t{A}\t{a}</code>
<code>Áá</code>	<code>\'{A}\'{a}</code>	<code>Ãã</code>	<code>\~{A}\~{a}</code>	<code>Ãä</code>	<code>\G{A}\G{a}‡</code>	<code>Ãă</code>	<code>\u{A}\u{a}</code>
<code>Àå</code>	<code>\.{A}\.{a}</code>	<code>Àa</code>	<code>\b{A}\b{a}</code>	<code>Àå</code>	<code>\h{A}\h{a}§</code>	<code>Ãä</code>	<code>\U{A}\U{a}‡</code>
<code>Āā</code>	<code>\={A}\={a}</code>	<code>Àq</code>	<code>\c{A}\c{a}</code>	<code>Ã�</code>	<code>\H{A}\H{a}</code>	<code>Ã�</code>	<code>\U{A}\U{a}¶</code>
<code>Ââ</code>	<code>\^{A}\^{a}</code>	<code>Àà</code>	<code>\C{A}\C{a}¶</code>	<code>Ã�</code>	<code>\k{A}\k{a}†</code>	<code>Ã�</code>	<code>\v{A}\v{a}</code>
<code>Àà</code>	<code>\'{A}\'{a}</code>	<code>Àq</code>	<code>\d{A}\d{a}</code>	<code>Ã�</code>	<code>\r{A}\r{a}</code>		
<code>Ââ</code>	<code>\newtie{A}\newtie{a}*</code>			<code>Ⓐⓐ</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.

¶ Requires one of the Cyrillic font encodings (T2A, T2B, T2C, or X2). Use the `fontenc` package to select an encoding.

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 in encodings that need to composite (i.e., combine) letters and accents. For example, “na\"{\i}ve” always produces a correct “naïve”, while “na\"{\i}ve” yields the rather odd-looking “na  ve” when using the OT1 font encoding and older versions of LATEX. Font encodings other than OT1 and newer versions of LATEX properly typeset “na\"{\i}ve” as “naïve”.

TABLE 19: tipa Text-mode Accents

Áá	\textacute{A}\textacute{a}
Áá	\textacute{e}{A}\textacute{e}{a}
Áá	\textadvancing{A}\textadvancing{a}
Áá	\textbottomtiebar{A}\textbottomtiebar{a}
Áá	\textbreve{A}\textbreve{a}
Áá	\textcircum{A}\textcircum{a}
Áá	\textcircumdot{A}\textcircumdot{a}
Áá	\textdotacute{A}\textdotacute{a}
Áá	\textdotbreve{A}\textdotbreve{a}
Áá	\textdoublegrave{A}\textdoublegrave{a}
Áá	\textdoublebaraccent{A}\textdoublebaraccent{a}
Áá	\textfallrise{A}\textfallrise{a}
Áá	\textgravecircum{A}\textgravecircum{a}
Áá	\textgravedot{A}\textgravedot{a}
Áá	\textgravemacron{A}\textgravemacron{a}
Áá	\textgravemid{A}\textgravemid{a}
Áá	\texthighrise{A}\texthighrise{a}
Áá	\textinvsubbridge{A}\textinvsubbridge{a}
Áá	\textlowering{A}\textlowering{a}
Áá	\textlowrise{A}\textlowrise{a}
Áá	\textmidacute{A}\textmidacute{a}
Áá	\textovercross{A}\textovercross{a}
Áá	\textoverw{A}\textoverw{a}
Áá	\textpolhook{A}\textpolhook{a}
Áá	\textraising{A}\textraising{a}
Áá	\textretracting{A}\textretracting{a}
Áá	\textringmacron{A}\textringmacron{a}
Áá	\textrisefall{A}\textrisefall{a}
Áá	\textroundcap{A}\textroundcap{a}
Áá	\textseagull{A}\textseagull{a}
Áá	\textsubacute{A}\textsubacute{a}
Áá	\textsubarch{A}\textsubarch{a}
Áá	\textsubbar{A}\textsubbar{a}
Áá	\textsubbridge{A}\textsubbridge{a}
Áá	\textsubcircum{A}\textsubcircum{a}
Áá	\textsubdot{A}\textsubdot{a}
Áá	\textsubgrave{A}\textsubgrave{a}
Áá	\textsublhalfing{A}\textsublhalfing{a}
Áá	\textsubplus{A}\textsubplus{a}
Áá	\textsubrhalfing{A}\textsubrhalfing{a}
Áá	\textsubring{A}\textsubring{a}

(continued on next page)

(continued from previous page)

A_{a}	<code>\textsubsquare{A}\textsubsquare{a}</code>
A_{a}	<code>\textsubtilde{A}\textsubtilde{a}</code>
A_{a}	<code>\textsubumlaut{A}\textsubumlaut{a}</code>
A_{a}	<code>\textsubw{A}\textsubw{a}</code>
A_{a}	<code>\textsubwedge{A}\textsubwedge{a}</code>
A_{a}	<code>\textsuperimpostilde{A}\textsuperimpostilde{a}</code>
A_{a}	<code>\textsyllabic{A}\textsyllabic{a}</code>
A_{a}	<code>\texttildedot{A}\texttildedot{a}</code>
A_{a}	<code>\texttoptiebar{A}\texttoptiebar{a}</code>
A_{a}	<code>\textvbaraccent{A}\textvbaraccent{a}</code>

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

TABLE 20: extraipa Text-mode Accents

A_{a}	<code>\bibbridge{A}\bibbridge{a}</code>	A_{a}	<code>\partvoiceless{A}\partvoiceless{a}</code>
A_{a}	<code>\crttilde{A}\crttilde{a}</code>	A_{a}	<code>\sliding{A}\sliding{a}</code>
A_{a}	<code>\dottedtilde{A}\dottedtilde{a}</code>	A_{a}	<code>\spreadlips{A}\spreadlips{a}</code>
A_{a}	<code>\doubletilde{A}\doubletilde{a}</code>	A_{a}	<code>\subcorner{A}\subcorner{a}</code>
A_{a}	<code>\finpartvoice{A}\finpartvoice{a}</code>	A_{a}	<code>\subdoublebar{A}\subdoublebar{a}</code>
A_{a}	<code>\finpartvoiceless{A}\finpartvoiceless{a}</code>	A_{a}	<code>\subdoublevert{A}\subdoublevert{a}</code>
A_{a}	<code>\inipartvoice{A}\inipartvoice{a}</code>	A_{a}	<code>\sublptr{A}\sublptr{a}</code>
A_{a}	<code>\inipartvoiceless{A}\inipartvoiceless{a}</code>	A_{a}	<code>\subrptr{A}\subrptr{a}</code>
A_{a}	<code>\overbridge{A}\overbridge{a}</code>	A_{a}	<code>\whistle{A}\whistle{a}</code>
A_{a}	<code>\partvoice{A}\partvoice{a}</code>		

TABLE 21: wsuipa Text-mode Accents

A_{a}	<code>\dental{A}\dental{a}</code>
A_{a}	<code>\underarch{A}\underarch{a}</code>

TABLE 22: phonetic Text-mode Accents

$\hat{A}a$	<code>\hill{A}\hill{a}</code>	$\dot{A}a$	<code>\rc{A}\rc{a}</code>	$\tilde{A}a$	<code>\ut{A}\ut{a}</code>
$\ddot{A}a$	<code>\od{A}\od{a}</code>	$\ddot{A}a$	<code>\syl{A}\syl{a}</code>		
$\hat{\dot{A}}a$	<code>\ohill{A}\ohill{a}</code>	$\ddot{\dot{A}}a$	<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 “é”. `\labvel` joins two characters with an arc: `\labvel{mn}` → “mn̄”. `\upbar` is intended to go between characters as in “x`\upbar{y}`” → “x̄y”. Lastly, `\uplett` behaves like `\textsuperscript` but uses a smaller font. Contrast “p`\uplett{h}`” → “p^h” with “p`h`” → “p^h”.

TABLE 23: metre Text-mode Accents

$\acute{A}a$	<code>\acutus{A}\acutus{a}</code>
$\check{A}a$	<code>\breve{A}\breve{a}</code>
$\tilde{A}a$	<code>\circumflexus{A}\circumflexus{a}</code>
$\ddot{A}a$	<code>\diaeresis{A}\diaeresis{a}</code>
$\grave{A}a$	<code>\gravis{A}\gravis{a}</code>
$\bar{A}a$	<code>\macron{A}\macron{a}</code>

TABLE 24: t4phonet Text-mode Accents

$\ddot{A}a$	<code>\textdoublegrave{A}\textdoublegrave{a}</code>
$\dot{A}a$	<code>\textvbaraccent{A}\textvbaraccent{a}</code>
$\ddot{\dot{A}}a$	<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 21) but using the same names as the `tipa` accents presented in Table 19 on page 22.

TABLE 25: arcs Text-mode Accents

$\widehat{A}a$	<code>\overarc{A}\overarc{a}</code>	$\underline{A}a$	<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.

At the time of this writing (2015/11/12), there exists an incompatibility between the `arcs` package and the `relsize` package, upon which `arcs` depends. As a workaround, one should apply the patch proposed by Michael Sharpe on the X_ET_EX mailing list (Subject: “The arcs package”, dated 2013/08/25) to prevent spurious text from being added to the document (as in, “5.0pt \widehat{A} ” when “ \widehat{A} ” is expected).

TABLE 26: `semtrans` Accents

Aa	\D{A}\D{a}
----	------------

Åa	\U{A}\U{a}
----	------------

V�	\T{A}\T{a}*
----	-------------

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

TABLE 27: `ogonek` Accents

Åa	\k{A}\k{a}
----	------------

TABLE 28: `combbelow` Accents

A�	\cb{A}\cb{a}
----	--------------

\cb places a comma *above* letters with descenders. Hence, while “\cb{s}” produces “ş”, “\cb{g}” produces “ ”.

TABLE 29: `wsipa` Diacritics

‘ \ain	‘ \leftp	‘ \overring	‘ \stress	‘ \underwedge
‘ \corner	‘ \lefttt	‘ \polishhook	‘ \syllabic	‘ \upp
‘ \downp	‘ \length	‘ \rightp	‘ \underdots	‘ \upt
‘ \downt	‘ \midtilde	‘ \rightt	‘ \underring	
‘ \halflength	‘ \open	‘ \secstress	‘ \undertilde	

The `wsipa` 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 “ ”, and `\diaunder[\underdots|a]` produces “ ”. See the `wsipa` documentation for more information.

TABLE 30: `textcomp` Diacritics

‘ \textacutedbl	‘ \textasciicaron	‘ \textasciimacron
‘ \textasciacute	‘ \textasciidieresis	‘ \textgravedbl
‘ \textasciibreve	‘ \textasciigrave	

The `textcomp` package defines all of the above as ordinary characters, not as accents. You can use `\llap` or `\rlap` to combine them with other characters. See the discussion of `\llap` and `\rlap` on page 263 for more information.

TABLE 31: `marvosym` Diacritics

\textarrowover	\textbarover	$\text{\textstrikethrough}$
\textArrowOver	\textBarOver	

The `marvosym` package defines all of the above as ordinary characters, not as accents. You can use `\llap` or `\rlap` to combine them with other characters. See the discussion of `\llap` and `\rlap` on page 263 for more information.

TABLE 32: `textcomp` Currency Symbols

\textbaht	\textdollar^*	\textguarani	\texttwoeuro
\textcent	$\text{\textdollaroldstyle}$	\textlira	\textyen
\textcentoldstyle	\textdong	\textnaira	
$\text{\textcolonmonetary}$	\texteuro	\textpeso	
\textcurrency	\textflorin	\textsterling^*	

* It's generally preferable to use the corresponding symbol from Table 3 on page 16 because the symbols in that table work properly in both text mode and math mode.

TABLE 33: `marvosym` Currency Symbols

\textdinar	\textDenarius	\texteuro	\textEURcr	\texteuro	\textEURtm	\texteuro	\textPfund
\texteuro	\textEcommerce	\texteuro	\textEURdig	\textdollar	\textEyesDollar	β	\textShilling
\texteuro	\textEUR	\texteuro	\textEURhv	\textphi	\textFlorin		

The different euro signs are meant to be visually compatible with different fonts—Courier (`\textEURcr`), Helvetica (`\textEURhv`), Times Roman (`\textEURtm`), and the `marvosym` digits listed in Table 290 (`\textEURdig`). The `mathdesign` package redefines `\texteuro` to be visually compatible with one of three additional fonts: Utopia (\texteuro), Charter (\texteuro), or Garamond (\texteuro).

TABLE 34: `fontawesome` Currency Symbols

\textdollar	\textfaBitcoin	\texteuro	\textfaPeso	\texteuro	\textfaKrw	\textdollar	\textfaUsd
\texteuro	\textfaEuro	\textrupee	\textfaInr	\textdollar	\textfaRub	\texteuro	\textfaViacoin
\textpound	\textfaGbp	\textyen	\textfaJpy	\textlira	\textfaTry		

`fontawesome` defines `\faBitcoin` as a synonym for `\faBtc`; `\faCny`, `\faYen`, and `\faRmb` as synonyms for `\faJpy`; `\faDollar` as a synonym for `\faUsd`; `\faEuro` as a synonym for `\faEur`; `\faRouble` and `\faRuble` as synonyms for `\faRub`; `\faRupee` as a synonym for `\faInr`; `\faShekel` and `\faSheqel` as synonyms for `\faLls`; `\faTurkishLira` as a synonym for `\faTry`; and `\faWon` as a synonym for `\faKrw`.

TABLE 35: `wasysym` Currency Symbols

\textcent	\textcurrency	\texteuro	\textwasyeuro^*
--------------------	------------------------	--------------------	--------------------------

* `\wasyeuro` is also available as `\euro` unless you specify the `noeuro` package option.

TABLE 36: Gi^NA2e Currency Symbols

€	\Euro	£	\Pound
---	-------	---	--------

TABLE 37: teubner Currency Symbols

ℳ	\denarius	c	\hemibelion
ℳ	\denarius	c	\hemibelion
ℳ	\dracma	ℳ	\stater

TABLE 38: tfrupee Currency Symbols

₹	\rupee
---	--------

TABLE 39: eurosym Euro Signs

€	\geneuro	€	\geneuronarrow
€	\geneuro	€	\geneuronarrow
€	\geneurowide	€	\official euro

\euro is automatically mapped to one of the above—by default, \official euro—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 40: fourier Euro Signs

€	\eurologo	€	\texteuro
---	-----------	---	-----------

TABLE 41: textcomp Legal Symbols

(P)	\textcircledP	(C)	(C)
(C)	\textcircledP	(C)	\textcopyright
(C)	\textcircledleft	(R)	\textregistered
		(R)	\textcopyright
			\texttm
			\textsm
			\textservicemark
			\texttm
			\texttrademark

The first symbol column represents the—sometimes “faked”—symbol that L^AT_EX 2 _{ε} provides by default. The second symbol column represents the symbol as redefined by textcomp. The textcomp package is generally required to typeset Table 41’s symbols in italic.

See <http://www.tex.ac.uk/FAQ-tradesyms.html> for solutions to common problems that occur when using these symbols (e.g., getting a “(®)” when you expected to get a “(R)”).

TABLE 42: fontawesome Legal Symbols

©	\faCopyright	®	\faRegistered
©	\faCopyright	®	\faRegistered
©	\faCreativeCommons	TM	\faTrademark

TABLE 43: `cclicenses` Creative Commons License Icons

	<code>\cc</code>		<code>\ccby</code>		<code>\ccnc*</code>		<code>\ccnd</code>		<code>\ccsa*</code>
--	------------------	--	--------------------	--	---------------------	--	--------------------	--	---------------------

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

TABLE 44: `ccicons` Creative Commons License Icons

	<code>\ccAttribution</code>		<code>\ccNonCommercialEU</code>		<code>\ccShare</code>
	<code>\ccCopy</code>		<code>\ccNonCommercialJP</code>		<code>\ccShareAlike</code>
	<code>\ccLogo</code>		<code>\ccPublicDomain</code>		<code>\ccZero</code>
	<code>\ccNoDerivatives</code>		<code>\ccRemix</code>		
	<code>\ccNonCommercial</code>		<code>\ccSampling</code>		

`ccicons` additionally defines a set of commands for typesetting many complete Creative Commons licenses (i.e., juxtapositions of two or more of the preceding icons). For example, the `\ccbyncnd` command typesets the “Attribution–Noncommercial–No Derivative Works” license (“”). See the `ccicons` documentation for more information.

TABLE 45: `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 46: Miscellaneous `textcomp` Symbols

	<code>\textblank</code>		<code>\textpilcrow</code>
	<code>\textbrokenbar</code>		<code>\textquotesignle</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>\textthreequartersemidash</code>
	<code>\textinterrobangdown</code>		<code>\texttildelow</code>
	<code>\textnumero</code>		<code>\texttwelveudash</code>
	<code>\textopenbullet</code>		

TABLE 47: Miscellaneous `wasysym` Text-mode Symbols

	<code>\longs</code>		<code>\permil</code>		<code>\wasyparagraph*</code>
--	---------------------	--	----------------------	--	------------------------------

* `wasysym` defines `\Paragraph` as a synonym for `\wasyparagraph`.

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 `$...$`, `\[...]`, 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 316 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 “ \nexists ” (`\blitza`), “ $\Rightarrow\Leftarrow$ ” (`\Rightarrow\Leftarrow`), “ \perp ” (`\bot`), “ \leftrightarrow ” (`\nleftrightarrow`), and “ $\text{\texttt{*}}$ ” (`\texttt{*}`). 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 ” (*various*¹), and “ $\stackrel{\text{def}}{=}$ ” (`\stackrel{\text{def}}{=}`). See also the example of `\equalsfill` on page 264. Depending upon the context, disjoint union may be represented as “ \coprod ”, “ \sqcup ” (`\sqcup`), “ \dotcup ” (`\dotcup`), “ \oplus ” (`\oplus`), or any of a number of other symbols.² 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 “ $\mathcal{O}x$ ” or “ $\mathcal{O}\mathcal{O}x$ ” (`\mathcal{O}x` or `\mathcal{O}\mathcal{O}x`). The moral of the story is that you should be careful always to explain your notation to avoid confusing your readers.

TABLE 48: Math-mode Versions of Text Symbols

<code>\$</code>	<code>\mathdollar</code>	<code>¶</code>	<code>\mathparagraph</code>	<code>£</code>	<code>\mathsterling</code>
...	<code>\mathellipsis</code>	<code>§</code>	<code>\mathsection</code>	<code>_</code>	<code>\mathunderscore</code>

It’s generally preferable to use the corresponding symbol from Table 3 on page 16 because the symbols in that table work properly in both text mode and math mode.

TABLE 49: cml1 Unary Operators

<code>!</code>	<code>\oc*</code>	<code>↑</code>	<code>\shneg</code>	<code>?</code>	<code>\wn*</code>
<code>‡</code>	<code>\shift</code>	<code>↓</code>	<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 “ $A = !B$ ”.

¹In `txfonts`, `pxfonts`, and `mathtools` the symbol is called `\coloneqq`. In `mathabx` and `MnSymbol` it’s called `\coloneq`. In `colonequals` it’s called `\colonequals`.

²Bob Tennent listed these and other disjoint-union symbol possibilities in a November 2007 post to `comp.text.tex`.

TABLE 50: Binary Operators

II	\amalg	U	\cup	⊕	\oplus	×	\times
*	\ast	†	\dagger	⊖	\oslash	△	\triangleleft
○	\bigcirc	‡	\ddagger	⊗	\otimes	▷	\triangleright
▽	\bigtriangledown	◊	\diamond	±	\pm	⊓	\unlhd*
△	\bigtriangleup	÷	\div	▷	\rhd*	⊔	\unrhd*
•	\bullet	□	\lhd*	＼	\setminus	⊕	\uplus
□	\cap	干	\mp	□	\sqcap	∨	\vee
·	\cdot	○	\odot	□	\sqcup	∧	\wedge
◦	\circ	⊖	\ominus	★	\star	⌚	\wr

* Not predefined by the L^AT_EX 2_ε core. Use the `latexsym` package to expose this symbol.

TABLE 51: *AMS* Binary Operators

⊸	\barwedge	◎	\circledcirc	⊤	\intercal*
⊡	\boxdot	⊖	\circleddash	⊸	\leftthreetimes
⊞	\boxminus	⊠	\Cup	⊴	\ltimes
⊞	\boxplus	⊴	\curlyvee	⊵	\rightthreetimes
⊗	\boxtimes	⊶	\curlywedge	⊶	\rtimes
⊸	\Cap	＊	\divideontimes	⊷	\smallsetminus
·	\centerdot	†	\dotplus	⊸	\veebar
⊛	\circledast	⊸	\doublebarwedge		

* Some people use a superscripted \intercal for matrix transpose: “ A^{\intercal} ” \mapsto “ A^{\intercal} ”. (See the May 2009 `comp.text.tex` thread, “raising math symbols”, for suggestions about altering the height of the superscript.) \top (Table 203 on page 97), T, and \mathsf{T} are other popular choices: “ A^{\top} ”, “ A^T ”, “ A^{\intercal} ”.

TABLE 52: stmaryrd Binary Operators

∅	\baro		\interleave	⊗	\varoast
//	\bbslash	⊲	\leftslice	⊠	\varobar
&	\binampersand	ℳ	\merge	⊖	\varobslash
⊗	\bindnasrepma	⊖	\minuso	◎	\varocircle
☒	\boxast	±	\moo	○	\varodot
☒	\boxbar	⊕	\nplus	⊗	\varogreaterthan
☒	\boxbox	⊖	\obar	⊖	\varolessthan
☒	\boxbslash	□	\oblong	⊖	\varominus
☒	\boxcircle	⊖	\obslash	⊕	\varoplus
⊡	\boxdot	⊖	\ogreaterthan	⊖	\varoslash
□	\boxempty	⊖	\olessthan	⊗	\varotimes
☒	\boxslash	⊖	\ovee	⊖	\varovee
⤻	\curlyveedownarrow	⊖	\owedge	⊖	\varowedge
⤻	\curlyveeuparrow	▷	\rightslice	✗	\vartimes
⤻	\curlywedgedownarrow	//	\sslash	⤻	\Ydown
⤻	\curlywedgeuparrow		\talloblong	⤻	\Yleft
⤻	\fatbslash	○	\varbigcirc	⤻	\Yright
⤻	\fatsemi	⤻	\varcurlyvee	⤻	\Yup
//	\fatslash	⤻	\varcurlywedge		

TABLE 53: wasysym Binary Operators

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

TABLE 54: txfonts/pxfonts Binary Operators

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

TABLE 55: mathabx Binary Operators

$*$	<code>\ast</code>	\wedge	<code>\curlywedge</code>	\square	<code>\sqcap</code>
$*$	<code>\Asterisk</code>	\div	<code>\divdot</code>	\sqcup	<code>\sqcup</code>
π	<code>\barwedge</code>	\divideontimes	<code>\divideontimes</code>	\boxminus	<code>\sqdoublecap</code>
\star	<code>\bigstar</code>	\dotdiv	<code>\dotdiv</code>	\boxplus	<code>\sqdoublecup</code>
\star	<code>\bigvarstar</code>	\dotplus	<code>\dotplus</code>	\square	<code>\square</code>
\diamond	<code>\blackdiamond</code>	\dottimes	<code>\dottimes</code>	\boxplus	<code>\sqplus</code>
\cap	<code>\cap</code>	\barwedge	<code>\doublebarwedge</code>	\cdot	<code>\udot</code>
\dagger	<code>\circoplus</code>	\barcap	<code>\doublecap</code>	\oplus	<code>\uplus</code>
$*$	<code>\coasterisk</code>	\barcup	<code>\doublecup</code>	\star	<code>\varstar</code>
$*$	<code>\coAsterisk</code>	\ltimes	<code>\ltimes</code>	\vee	<code>\vee</code>
$*$	<code>\convolution</code>	\opluscirc	<code>\pluscirc</code>	\veebar	<code>\veebar</code>
\cup	<code>\cup</code>	\rtimes	<code>\rtimes</code>	\veebar	<code>\veedoublebar</code>
\curlyvee	<code>\curlyvee</code>	\blacksquare	<code>\sqbullet</code>	\wedge	<code>\wedge</code>

Many of the preceding 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 56: MnSymbol Binary Operators

\sqcup	<code>\amalg</code>	\sqcup	<code>\doublesqcup</code>	$\sqcup\!\sqcup$	<code>\righttherefore</code>
$*$	<code>\ast</code>	\wedge	<code>\doublevee</code>	\wedge	<code>\rightthreetimes</code>
\times	<code>\backslashdiv</code>	\wedge	<code>\doublewedge</code>	\succ	<code>\rightY</code>
\bowtie	<code>\bowtie</code>	\therefore	<code>\downtherefore</code>	\succ	<code>\rtimes</code>
\bullet	<code>\bullet</code>	\succ	<code>\downY</code>	\succ	<code>\slashdiv</code>
\cap	<code>\cap</code>	\times	<code>\dtimes</code>	\prod	<code>\smallprod</code>
\capdot	<code>\capdot</code>	\therefore	<code>\fivedots</code>	\sqcap	<code>\sqcap</code>
\capplus	<code>\capplus</code>	∞	<code>\hbioproto</code>	\sqcapdot	<code>\sqcapdot</code>
\cdotp	<code>\cdotp</code>	$\cdotp\cdotp$	<code>\hddotdot</code>	\sqcapplus	<code>\sqcapplus</code>
\circ	<code>\circ</code>	\sqcap	<code>\lefthalfcap</code>	\sqcup	<code>\sqcup</code>

(continued on next page)

(continued from previous page)

⋮	\closedcurlyvee	⊓	\lefthalfcup	⊟	\sqcupdot
Ⓐ	\closedcurlywedge	⊴	\lefttherefore	⊠	\sqcupplus
∪	\cup	×	\leftthreetimes	⊡	\squaredots
⊤	\cupdot	⊲	\leftY	×	\times
⊤	\cupplus	⊷	\ltimes	..	\udotdot
▽	\curlyvee	⊸	\medbackslash	⊶	\uptherefore
▽	\curlyveedot	○	\medcircle	⊸	\upY
⋈	\curlywedge	⊹	\medslash	⊸	\utimes
⋈	\curlywedgedot	⊻	\medvert	⊸	\vbipropto
⊸	\ddotdot	⊻	\medvertdot	:	\vdotdot
⊸	\diamondddots	-	\minus	∨	\vee
÷	\div	-	\minusdot	∨	\veedot
⊸	\dotmedvert	⊷	\mp	⊸	\verbbowtie
⊖	\dotminus	∅	\neswbipropto	⊸	\vertdiv
⊠	\doublecap	∅	\nwsebipropto	∧	\wedge
⊡	\doublecup	+	\plus	^K	\wedgedot
⊸	\doublecurlyvee	±	\pm	⊸	\wreath
⋈	\doublecurlywedge	⊸	\righthalfcap		
⊠	\doublesqcap	⊸	\righthalfcup		

MnSymbol defines \setminus and \smallsetminus 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 57: fdsymbol Binary Operators

⊠	\amalg	⊣	\doublesqcup	⊸	\rightY
*	\ast	⊦	\doublevee	⊸	\rtimes
⊠	\barwedge	⊧	\doublewedge	⊸	\setminus
⊠	\bowtie	⊸	\downY	⊠	\sqcap
⊠	\cap	⊸	\dtimes	⊠	\sqcapdot
⊠	\capdot	..	\hdotdot	⊠	\sqcapplus
⊠	\capplus	⊤	\intercal	⊠	\sqcup
·	\cdot	⊸	\intprod	⊠	\sqcupdot
·	\centerdot	⊲	\intprodr	⊠	\sqcupplus
⊠	\cup	×	\leftthreetimes	×	\times
⊠	\cupdot	⊲	\leftY	⊸	\timesbar
⊠	\cupplus	⊷	\ltimes	..	\udotdot
⊸	\curlyvee	⊸	\medbackslash	⊸	\upbowtie
⋈	\curlywedge	⊹	\medslash	⊸	\upY
⊸	\ddotdot	-	\minus	⊸	\utimes
÷	\div	-	\minusdot	⊠	\varamalg
*	\divideontimes	⊸	\minusfdots	:	\vdotdot
/	\divslash	⊸	\minusrdots	:	\vdots
⊖	\dotminus	⊷	\mp	∨	\vee

(continued on next page)

(continued from previous page)

$\dot{+}$	<code>\dotplus</code>	$\dot{+}$	<code>\plus</code>	$\dot{\vee}$	<code>\veebar</code>
$\dot{\times}$	<code>\dottimes</code>	$\dot{+}$	<code>\plusdot</code>	$\dot{\vee}$	<code>\veedot</code>
$\bar{\wedge}$	<code>\doublebarwedge</code>	\pm	<code>\pm</code>	$\dot{\wedge}$	<code>\veedoublebar</code>
$\bar{\wedge}$	<code>\doublecap</code>	\lrcorner	<code>\pullback</code>	\wedge	<code>\wedge</code>
$\bar{\cup}$	<code>\doublecup</code>	\lrcorner	<code>\pushout</code>	\wedge	<code>\wedgedot</code>
$\bar{\sqcap}$	<code>\doublesqcap</code>	\times	<code>\rightthreetimes</code>	\wr	<code>\wreath</code>

`fdsymbol` defines `\btimes` as a synonym for `\dtimes`; `\Cap` as a synonym for `\doublecap`; `\Cup` as a synonym for `\doublecup`; `\hookupminus` as a synonym for `\intprod`; `\hourglass` as a synonym for `\upbowtie`; `\land` as a synonym for `\wedge`; `\lor` as a synonym for `\vee`; `\minushookup` as a synonym for `\intprod`; `\smalldivslash` as a synonym for `\medslash`; `\smallsetminus` as a synonym for `\medbackslash`; `\Sqcap` as a synonym for `\doublesqcap`; `\Sqcup` as a synonym for `\doublesqcup`; `\ttimes` as a synonym for `\utimes`; `\lJoin` as a synonym for `\ltimes`; `\rJoin` as a synonym for `\rtimes`; `\Join` and `\lrtimes` as synonyms for `\bowtie`; `\uplus` as a synonym for `\cupplus`; `\veeonvee` as a synonym for `\doublevee`; `\wedgeonwedge` as a synonym for `\doublewedge`; and `\wr` as a synonym for `\wreath`).

TABLE 58: boisik Binary Operators

$*$	<code>\ast</code>	\times	<code>\dottimes</code>	\rtimes	<code>\rtimesblack</code>
ϕ	<code>\baro</code>	$\bar{\wedge}$	<code>\doublebarwedge</code>	\smallsetminus	<code>\smallsetminus</code>
\wedge	<code>\barwedge</code>	$:$	<code>\fatsemi</code>	\divideontimes	<code>\smashtimes</code>
$\backslash\backslash$	<code>\bbslash</code>	$>$	<code>\gtrdot</code>	\sqcup	<code>\squplus</code>
$\&$	<code>\binampersand</code>	T	<code>\intercal</code>	$//$	<code>\sslash</code>
\wp	<code>\bindnasrepma</code>	$\{$	<code>\lbag</code>	\times	<code>\times</code>
\blacksquare	<code>\blackbowtie</code>	\blacksquare	<code>\lblackbowtie</code>	\uplus	<code>\uplus</code>
\bowtie	<code>\bowtie</code>	\diamond	<code>\leftslice</code>	\cap	<code>\varcap</code>
\cap	<code>\cap</code>	λ	<code>\leftthreetimes</code>	\cup	<code>\varcup</code>
\Cap	<code>\Cap</code>	\lessdot	<code>\lessdot</code>	\intercal	<code>\varintercal</code>
\cdot	<code>\cdot</code>	\ltimes	<code>\ltimes</code>	\sqcap	<code>\varsqcap</code>
\cdot	<code>\centerdot</code>	\blacksquare	<code>\ltimesblack</code>	\sqcup	<code>\varsqcup</code>
$\dot{+}$	<code>\circplus</code>	\mathbb{M}	<code>\merge</code>	\vartimes	
$*$	<code>\coAsterisk</code>	\ominus	<code>\minuso</code>	\vee	<code>\vee</code>
$*$	<code>\convolution</code>	$\ddot{+}$	<code>\moo</code>	\Vee	<code>\Vee</code>
\cup	<code>\cup</code>	\mp	<code>\mp</code>	\veebar	<code>\veebar</code>
\Cup	<code>\Cup</code>	\oplus	<code>\nplus</code>	\veebar	<code>\veeonvee</code>
\curlywedge	<code>\cupleftarrow</code>	\oplus	<code>\pluscirc</code>	\wedge	<code>\wedge</code>
\curlyvee	<code>\curlyvee</code>	\star	<code>\plustrif</code>	\wedge	<code>\Wedge</code>
λ	<code>\curlywedge</code>	\pm	<code>\pm</code>	\downarrow	<code>\Ydown</code>
\dag	<code>\dagger</code>	\int	<code>\rbag</code>	\leftarrow	<code>\Yleft</code>
\ddag	<code>\ddagger</code>	\blacksquare	<code>\rblackbowtie</code>	\rightarrow	<code>\Yright</code>
\div	<code>\div</code>	\triangleright	<code>\rightslice</code>	\uparrow	<code>\Yup</code>
$*$	<code>\divideontimes</code>	\times	<code>\rightthreetimes</code>		
$\dot{+}$	<code>\dotplus</code>	\times	<code>\rtimes</code>		

TABLE 59: stix Binary Operators

\amalg	<code>\amalg</code>	\fcmp	<code>\fcmp</code>	\sqcup	<code>\sqcup</code>
\ast	<code>\ast</code>	\fracslash	<code>\fracslash</code>	\sqcup	<code>\Sqcup</code>
\barcap	<code>\barcap</code>	\intercal	<code>\intercal</code>	\sslash	<code>\sslash</code>
\barcup	<code>\barcup</code>	\interleave	<code>\interleave</code>	\threedotcolon	<code>\threedotcolon</code>
\barvee	<code>\barvee</code>	\intprod	<code>\intprod</code>	\times	<code>\times</code>
\barwedge	<code>\barwedge</code>	\intprodr	<code>\intprodr</code>	\timesbar	<code>\timesbar</code>
\bigslopedvee	<code>\bigslopedvee</code>	\invlazys	<code>\invlazys</code>	\tminus	<code>\tminus</code>
\bigslopedwedge	<code>\bigslopedwedge</code>	\leftthreetimes	<code>\leftthreetimes</code>	\tplus	<code>\tplus</code>
\btimes	<code>\btimes</code>	\lhd	<code>\lhd</code>	\tripleplus	<code>\tripleplus</code>
\cap	<code>\cap</code>	\ltimes	<code>\ltimes</code>	\trslash	<code>\trslash</code>
\Cap	<code>\Cap</code>	\midbarvee	<code>\midbarvee</code>	\twocaps	<code>\twocaps</code>
\capbarcup	<code>\capbarcup</code>	\midbarwedge	<code>\midbarwedge</code>	\twocups	<code>\twocups</code>
\capdot	<code>\capdot</code>	\minusdot	<code>\minusdot</code>	\typecolon	<code>\typecolon</code>
\capovercup	<code>\capovercup</code>	\minusfdots	<code>\minusfdots</code>	\uminus	<code>\uminus</code>
\capwedge	<code>\capwedge</code>	\minusrdots	<code>\minusrdots</code>	\unlhd	<code>\unlhd</code>
\closedvarcap	<code>\closedvarcap</code>	\mp	<code>\mp</code>	\unrhd	<code>\unrhd</code>
\closedvarcup	<code>\closedvarcup</code>	\nhVvert	<code>\nhVvert</code>	\upand	<code>\upand</code>
\closedvarcupsmashprod	<code>\closedvarcupsmashprod</code>	\opluslhrim	<code>\opluslhrim</code>	\uplus	<code>\uplus</code>
\commaminus	<code>\commaminus</code>	\oplusrhrim	<code>\oplusrhrim</code>	\varbarwedge	<code>\varbarwedge</code>
\cup	<code>\cup</code>	\otimeslhrim	<code>\otimeslhrim</code>	\vardoublebarwedge	<code>\vardoublebarwedge</code>
\Cup	<code>\Cup</code>	\otimesrhrim	<code>\otimesrhrim</code>	\varveebar	<code>\varveebar</code>
\cupbarcap	<code>\cupbarcap</code>	\plusdot	<code>\plusdot</code>	\vectimes	<code>\vectimes</code>
\cupdot	<code>\cupdot</code>	\pluseqq	<code>\pluseqq</code>	\Vee	<code>\Vee</code>
\cupleftarrow	<code>\cupleftarrow</code>	\plushat	<code>\plushat</code>	\vee	<code>\vee</code>
\cupovercap	<code>\cupovercap</code>	\plussim	<code>\plussim</code>	\veebar	<code>\veebar</code>
\cupvee	<code>\cupvee</code>	\plussubtwo	<code>\plussubtwo</code>	\veedot	<code>\veedot</code>
\curlyvee	<code>\curlyvee</code>	\plustrif	<code>\plustrif</code>	\veedoublebar	<code>\veedoublebar</code>
\curlywedge	<code>\curlywedge</code>	\pm	<code>\pm</code>	\veemidvert	<code>\veemidvert</code>
\dagger	<code>\dagger</code>	\rhd	<code>\rhd</code>	\veeodot	<code>\veeodot</code>
\ddagger	<code>\ddagger</code>	\rightthreetimes	<code>\rightthreetimes</code>	\veeonvee	<code>\veeonvee</code>
\div	<code>\div</code>	\ringplus	<code>\ringplus</code>	\Wedge	<code>\Wedge</code>
\divideontimes	<code>\divideontimes</code>	\rsolbar	<code>\rsolbar</code>	\wedge	<code>\wedge</code>
\dotminus	<code>\dotminus</code>	\rtimes	<code>\rtimes</code>	\wedgebar	<code>\wedgebar</code>
\dotplus	<code>\dotplus</code>	\setminus	<code>\setminus</code>	\wedgedot	<code>\wedgedot</code>
\dottimes	<code>\dottimes</code>	\shuffle	<code>\shuffle</code>	\wedgedoublebar	<code>\wedgedoublebar</code>
\doublebarvee	<code>\doublebarvee</code>	\simplus	<code>\simplus</code>	\wedgemidvert	<code>\wedgemidvert</code>
\doublebarwedge	<code>\doublebarwedge</code>	\smallsetminus	<code>\smallsetminus</code>	\wedgeodot	<code>\wedgeodot</code>
\doubleplus	<code>\doubleplus</code>	\smashtimes	<code>\smashtimes</code>	\wedgeonwedge	<code>\wedgeonwedge</code>
\dsol	<code>\dsol</code>	\sqcap	<code>\sqcap</code>	\wr	<code>\wr</code>
\eqqplus	<code>\eqqplus</code>	\Sqcup	<code>\Sqcup</code>		

stix defines `\land` as a synonym for `\wedge`, `\lor` as a synonym for `\vee`, `\doublecap` as a synonym for `\Cap`, and `\doublecup` as a synonym for `\Cup`.

TABLE 60: mathdesign Binary Operators

\dtimes `\dtimes` \utimes `\utimes` \utimes `\utimes`

The `mathdesign` package additionally provides versions of each of the binary operators shown in Table 51 on page 31.

TABLE 61: cml Binary Operators

 $\wp \quad \backslash parr^*$ & $\backslash with^\dagger$

* cml defines $\backslash invamp$ as a synonym for $\backslash parr$.

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

TABLE 62: shuffle Binary Operators

 $\boxplus \quad \backslash cshuffle \quad \boxminus \quad \backslash shuffle$

TABLE 63: ulsy Geometric Binary Operators

 $\odot \quad \backslash odplus$

TABLE 64: mathabx Geometric Binary Operators

▼	$\backslash blacktriangledown$	□	$\backslash boxright$	⊖	$\backslash ominus$
◀	$\backslash blacktriangleleft$	□	$\backslash boxslash$	⊕	$\backslash oplus$
▶	$\backslash blacktriangleright$	□	$\backslash boxtimes$	⊕	$\backslash oright$
▲	$\backslash blacktriangleup$	□	$\backslash boxtop$	⊗	$\backslash oslash$
✳	$\backslash boxasterisk$	□	$\backslash boxtriangleup$	⊗	$\backslash otimes$
✉	$\backslash boxbackslash$	□	$\backslash boxvoid$	⊕	$\backslash otop$
✉	$\backslash boxbot$	✳	$\backslash oasterisk$	⊛	$\backslash otriangleup$
✉	$\backslash boxcirc$	✳	$\backslash obackslash$	○	$\backslash ovoid$
✳	$\backslash boxcoasterisk$	⊕	$\backslash obot$	▽	$\backslash smalltriangledown$
✉	$\backslash boxdiv$	⊙	$\backslash ocirc$	◀	$\backslash smalltriangleleft$
✉	$\backslash boxdot$	✳	$\backslash ocoasterisk$	▶	$\backslash smalltriangleright$
✉	$\backslash boxleft$	÷	$\backslash odiv$	△	$\backslash smalltriangleup$
✉	$\backslash boxminus$	○	$\backslash odot$		
✉	$\backslash boxplus$	⊕	$\backslash oleft$		

TABLE 65: MnSymbol Geometric Binary Operators

□	\boxbackslash	▼	\filledmedtriangledown	◎	\ocirc
▣	\boxbox	◀	\filledmedtriangleleft	○	\odot
▤	\boxdot	▶	\filledmedtriangleright	⊖	\ominus
▢	\boxminus	▲	\filledmedtriangleup	⊕	\oplus
▤	\boxplus	■	\filledsquare	⊘	\oslash
▢	\boxslash	★	\filledstar	⊗	\ostar
▢	\boxtimes	▼	\filledtriangledown	⊗	\otimes
▤	\boxvert	◀	\filledtriangleleft	⊛	\otriangle
◊	\diamondbackslash	▶	\filledtriangleright	∅	\overt
◊	\diamondiamond	▲	\filledtriangleup	☆	\pentagram
◊	\diamondddot	◊	\meddiamond	◊	\smalldiamond
◊	\diamondminus	□	\medsquare	□	\smallsquare
◊	\diamondplus	☆	\medstar	☆	\smallstar
◊	\diamondslash	▽	\medtriangledown	▽	\smalltriangledown
◊	\diamondtimes	◀	\medtriangleleft	◀	\smalltriangleleft
◊	\diamondvert	▶	\medtriangleright	▶	\smalltriangleright
▽	\downslice	△	\medtriangleup	△	\smalltriangleup
◆	\filleddiamond	⊗	\oast	★	\thinstar
■	\filledmedsquare	◎	\backslash	△	\upslice

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 66: fdsymbol Geometric Binary Operators

□	\boxbackslash	▼	\medblacktriangledown	⊕	\oplus
▣	\boxbox	◀	\medblacktriangleleft	⊘	\oslash
▤	\boxdot	▶	\medblacktriangleright	⊗	\otimes
▢	\boxminus	▲	\medblacktriangleup	∅	\overt
▤	\boxplus	○	\medcircle	●	\smallblackcircle
▢	\boxslash	◊	\meddiamond	◆	\smallblackdiamond
▢	\boxtimes	/	\medslash	■	\smallblacksquare
▤	\boxvert	□	\medsquare	★	\smallblackstar
◊	\diamondbackslash	▽	\medtriangledown	▼	\smallblacktriangledown
◊	\diamondiamond	◀	\medtriangleleft	◀	\smallblacktriangleleft
◊	\diamondddot	▶	\medtriangleright	▶	\smallblacktriangleright
◊	\diamondminus	△	\medtriangleup	▲	\smallblacktriangleup
◊	\diamondplus	☆	\medwhitestar	○	\smallcircle
◊	\diamondslash	⊗	\oast	◊	\smalldiamond
◊	\diamondtimes	◎	\backslash	□	\smallsquare
◊	\diamondvert	⊖	\ocirc	▽	\smalltriangledown
●	\medblackcircle	⊖	\odash	◀	\smalltriangleleft
◆	\medblackdiamond	○	\odot	▶	\smalltriangleright
■	\medblacksquare	⊖	\oequal	△	\smalltriangleup
★	\medblackstar	⊖	\ominus	☆	\smallwhitestar

fdsymbol defines synonyms for most of the preceding symbols:

◆	\blackdiamond	◊	\diamond	●	\smb1kcircle
▲	\blacktriangle	◇	\Diamond	◆	\smb1kdiamond
▼	\blacktriangledown	❖	\diamonddbslash	■	\smb1ksquare
◀	\blacktriangleleft	❖	\diamondcdot	☆	\smwhitestar
▶	\blacktriangleright	◆	\mdblkdiamond	○	\smwhtcircle
□	\Box	■	\mdblksquare	◊	\smwhtdiamond
▣	\boxbar	●	\mdlgb1kcircle	□	\smwhtsquare
▣	\boxbslash	◆	\mdlgb1kdiamond	□	\square
▣	\boxdiag	■	\mdlgb1ksquare	★	\star
•	\bullet	○	\mdlgwhtcircle	△	\triangle
○	\circ	◊	\mdlgwhtdiamond	▽	\triangledown
⊗	\circledast	□	\mdlgwhtsquare	◀	\triangleleft
◎	\circledcirc	◊	\mdwhtdiamond	▷	\triangleright
⊖	\circleddash	□	\mdwhtsquare	△	\vartriangle
⊖	\circledequal	★	\medstar		
∅	\circledvert	◎	\obslash		

TABLE 67: boisik Geometric Binary Operators

♦	\blacklozenge	☒	\boxright	□	\oblong
■	\blacksquare	☒	\boxslash	⊕	\obot
▲	\blacktriangle	☒	\boxtimes	⊗	\obslash
▼	\blacktriangledown	☒	\boxtop	⊗	\ogreaterthan
◀	\blacktriangleleft	☒	\boxtriangle	⊕	\oleft
▶	\blacktriangleright	⊗	\circledast	⊗	\olessthan
▣	\boxast	⊗	\circledcirc	⊖	\ominus
▣	\boxbar	⊖	\circleddash	⊕	\oplus
▣	\boxbot	◊	\diamond	⊕	\oright
▣	\boxbox	◊	\diamondbar	⊖	\oslash
▣	\boxbslash	◊	\diamondcircle	⊗	\otimes
▣	\boxcircle	◊	\diamondminus	⊕	\otop
▣	\boxdivision	◊	\diamondop	⊗	\otriangle
▣	\boxdot	⊕	\diamondplus	⊗	\ovee
▣	\boxleft	◊	\diamondtimes	⊗	\owedge
▣	\boxminus	◊	\diamondtriangle	★	\star
▣	\boxplus	⊖	\obar		\talloblong

TABLE 68: stix Geometric Binary Operators

\blacksquare	<code>\blackhourglass</code>	\diamond	<code>\concavediamondtickleleft</code>	\oplus	<code>\oplus</code>
\boxast	<code>\boxast</code>	\diamond	<code>\concavediamondtickright</code>	\oslash	<code>\oslash</code>
\boxbar	<code>\boxbar</code>	\diamond	<code>\diamond</code>	\otimes	<code>\otimes</code>
\boxbox	<code>\boxbox</code>	\triangleleft	<code>\dsub</code>	$\otimes\otimes$	<code>\otimes\otimes</code>
\boxslash	<code>\boxslash</code>	\boxtimes	<code>\hourglass</code>	$\otimes\otimes\otimes$	<code>\otimes\otimes\otimes</code>
\boxcircle	<code>\boxcircle</code>	\diamond	<code>\lozengeminus</code>	\triangleright	<code>\rsub</code>
\boxdiag	<code>\boxdiag</code>	\blacklozenge	<code>\mdlgblklozengen</code>	\bullet	<code>\smbblkcircle</code>
\boxdot	<code>\boxdot</code>	\circ	<code>\mdlghwtcircle</code>	\star	<code>\star</code>
\boxminus	<code>\boxminus</code>	\circ	<code>\obar</code>	\parallel	<code>\talloblong</code>
\boxplus	<code>\boxplus</code>	\oplus	<code>\obot^*</code>	\triangle	<code>\triangle</code>
\boxtimes	<code>\boxtimes</code>	\circ	<code>\obslash</code>	$\triangle\triangle$	<code>\triangle\triangle</code>
\circledast	<code>\circledast</code>	\oplus	<code>\odiv</code>	$\triangle\triangle\triangle$	<code>\triangle\triangle\triangle</code>
\circledcirc	<code>\circledcirc</code>	\odot	<code>\odot</code>	$\triangle\triangle\triangle\triangle$	<code>\triangleserifs</code>
\circleddash	<code>\circleddash</code>	\otimes	<code>\odotslashdot^*</code>	$\triangle\triangle\triangle\triangle$	<code>\triangletimes</code>
\circledeq	<code>\circledeq</code>	\otimes	<code>\ogreaterthan</code>	\bullet	<code>\vysmbblkcircle^\dagger</code>
\circledparallel	<code>\circledparallel</code>	\boxtimes	<code>\olcross^*</code>	\circ	<code>\vysmwhtcircle</code>
\circledvert	<code>\circledvert</code>	\otimes	<code>\olessthan</code>	\square	<code>\whitesquaretickleleft</code>
\circlearrowbar	<code>\circlearrowbar</code>	\ominus	<code>\ominus</code>	\square	<code>\whitesquaretickleright</code>
\diamond	<code>\concavediamond</code>	\circledcirc	<code>\operc</code>		

* Defined as an ordinary character, not as a binary relation. However, these symbols more closely resemble the other symbols in this table than they do the geometric shapes presented in Table 401, which is why they are included here.

[†] stix defines `\bullet` as a synonym for `\vysmbblkcircle`.

TABLE 69: halloweenmath Halloween-Themed Math Operators

\pumpkin	<code>\bigpumpkin</code> [‡]	\ghost	<code>\mathleftghost</code>	\cloud	<code>\reversemathcloud</code>
\skull	<code>\bigskull</code>	\bat	<code>\mathrightbat</code>	\witch	<code>\reversemathwitch^\dagger</code>
\bats	<code>\mathbat</code>	\ghost	<code>\mathrightghost</code>	$\witch*$	<code>\reversemathwitch*^\dagger</code>
\cloud	<code>\mathcloud</code>	\witch	<code>\mathwitch^*</code>	\skull	<code>\skull</code>
\ghost	<code>\mathghost</code>	\witch	<code>\mathwitch</code>		
\bats	<code>\mathleftbat</code>	\pumpkin			

[†] These symbols accept limits. For example, $\mathwitch_{i=0}^{\infty} f(x)$ produces “ $f(x)$ ” in text mode and



in display mode.

[‡] `\greatpumpkin` is a synonym for `\bigpumpkin`.

TABLE 70: stix Small Integrals

\int	<code>\smallawint</code>	\oint	<code>\smallintcap</code>	\oint	<code>\smalloint</code>
\int	<code>\smallcircfnint</code>	\oint	<code>\smallintclockwise</code>	\oint	<code>\smallointcclockwise</code>
\int	<code>\smallfint</code>	\oint	<code>\smallintcup</code>	\oint	<code>\smallpointint</code>
$\int\!\!\!\int$	<code>\smalliiint</code>	\oint	<code>\smallintlarhk</code>	\oint	<code>\smallrppoint</code>
$\int\!\!\!\int$	<code>\smalliiint</code>	\oint	<code>\smallintx</code>	\oint	<code>\smallscpolint</code>
$\int\!\!\!\int$	<code>\smalliiint</code>	\int	<code>\smalllowint</code>	\oint	<code>\smallsqint</code>
\int	<code>\smallint</code>	\oint	<code>\smallnoint</code>	\oint	<code>\smallsumint</code>
\int	<code>\smallintbar</code>	$\int\!\!\!\int$	<code>\smalloiint</code>	$\int\!\!\!\int$	<code>\smallupint</code>
\int	<code>\smallintBar</code>	$\int\!\!\!\int$	<code>\smalloiint</code>	\int	<code>\smallvarointclockwise</code>

By default, each of the preceding commands points to a slanted version of the glyph, as shown. The `upint` package option typesets each integral instead as an upright version. Slanted and upright integrals can be mixed, however, by explicitly using the commands shown in Table 71.

TABLE 71: stix Small Integrals with Explicit Slant

\int	<code>\smallawintsl</code>	\oint	<code>\smallawintup</code>
\int	<code>\smallcircfnintsl</code>	\oint	<code>\smallcircfnintup</code>
\int	<code>\smallfintsl</code>	\oint	<code>\smallfintup</code>
$\int\!\!\!\int$	<code>\smalliiintsl</code>	$\int\!\!\!\int$	<code>\smalliiintup</code>
$\int\!\!\!\int$	<code>\smalliiintsl</code>	$\int\!\!\!\int$	<code>\smalliiintup</code>
$\int\!\!\!\int$	<code>\smalliiintsl</code>	$\int\!\!\!\int$	<code>\smalliiintup</code>
\int	<code>\smallinttsl</code>	$\int\!\!\!\int$	<code>\smallintup</code>
\int	<code>\smallintbarsl</code>	\int	<code>\smallintBarup</code>
\int	<code>\smallintBarsl</code>	\int	<code>\smallintbarup</code>
\int	<code>\smallintcapsl</code>	\int	<code>\smallintcapup</code>
\int	<code>\smallintclockwisesl</code>	\int	<code>\smallintclockwiseup</code>
\oint	<code>\smallintcupsl</code>	\oint	<code>\smallintcupup</code>
\oint	<code>\smallintlarhksl</code>	\oint	<code>\smallintlarhkup</code>
\int	<code>\smallinttsl</code>	\int	<code>\smallintup</code>
\oint	<code>\smallintxsl</code>	\oint	<code>\smallintxup</code>
\int	<code>\smalllowintsl</code>	\int	<code>\smalllowintup</code>
\oint	<code>\smallnointsl</code>	\oint	<code>\smallnointup</code>
$\int\!\!\!\int$	<code>\smalloiintsl</code>	$\int\!\!\!\int$	<code>\smalloiintup</code>
$\int\!\!\!\int$	<code>\smalloiintsl</code>	$\int\!\!\!\int$	<code>\smalloiintup</code>
\int	<code>\smallointctrclockwisesl</code>	\int	<code>\smallointctrclockwiseup</code>
\oint	<code>\smallointsl</code>	\oint	<code>\smallointup</code>
\oint	<code>\smallpointintsl</code>	\oint	<code>\smallpointintup</code>
\oint	<code>\smallrppointsl</code>	\oint	<code>\smallrppointup</code>
\oint	<code>\smallscpolintsl</code>	\oint	<code>\smallscpolintup</code>
\oint	<code>\smallsqintsl</code>	\oint	<code>\smallsqintup</code>
\oint	<code>\smallsumintsl</code>	\oint	<code>\smallsumintup</code>
$\int\!\!\!\int$	<code>\smallupintsl</code>	$\int\!\!\!\int$	<code>\smallupintup</code>
\oint	<code>\smallvarointclockwisesl</code>	\oint	<code>\smallvarointclockwiseup</code>

Instead of using the preceding symbols directly, it is generally preferable to use the symbols listed in Table 70 either with or without the `upint` package option. Specifying `upint` selects each integral's upright (`up`) variant, while omitting `upint` selects each integral's slanted (`sl`) variant. Use the symbols shown in Table 71 only when you need to include both upright and slanted variations of a symbol in the same document.

TABLE 72: Variable-sized Math Operators

$\cap \cap$	$\backslash \bigcap$	$\otimes \otimes$	$\backslash \bigotimes$	$\wedge \wedge$	$\backslash \bigwedge$	$\prod \prod$	$\backslash \prod$
$\cup \cup$	$\backslash \bigcup$	$\sqcup \sqcup$	$\backslash \bigsqcup$	$\coprod \coprod$	$\backslash \coprod$	$\sum \sum$	$\backslash \sum$
$\odot \odot$	$\backslash \bigodot$	$\uplus \uplus$	$\backslash \biguplus$	$\int \int$	$\backslash \int$		
$\oplus \oplus$	$\backslash \bigoplus$	$\vee \vee$	$\backslash \bigvee$	$\oint \oint$	$\backslash \oint$		

 TABLE 73: *AMS* Variable-sized Math Operators

\iint	\iint	$\backslash \iint$	\iiint	\iiint	$\backslash \iiint$
\iiint	\iiint	$\backslash \iiint$	$\dots \int$	$\dots \int$	$\backslash \idotsint$

 TABLE 74: *stmaryrd* Variable-sized Math Operators

$\square \square$	$\backslash \bigbox$	$\ \ $	$\backslash \biginterleave$	$\square \square$	$\backslash \bigsqcap$
$\curlyvee \curlyvee$	$\backslash \bigcurlyvee$	$\oplus \oplus$	$\backslash \bigoplus$	$\nabla \nabla$	$\backslash \bigtriangledown$
$\curlywedge \curlywedge$	$\backslash \bigcurlywedge$	$\parallel \parallel$	$\backslash \bigparallel$	$\Delta \Delta$	$\backslash \bigtriangleup$

 TABLE 75: *wasysym* Variable-sized Math Operators

$\int \int$	$\backslash \int$	$\iint \iint$	$\backslash \iint$	$\iiint \iiint$	$\backslash \iiint$
$\oint \oint$	$\backslash \oint$	$\oint \oint$	$\backslash \oint$		

If *wasysym* is loaded without package options then none of the preceding symbols are defined. However, $\backslash \varint$ produces *wasysym*'s \int glyph, and $\backslash \varoint$ produces *wasysym*'s \oint glyph.

If *wasysym* is loaded with the *integrals* option then all of the preceding symbols are defined, but $\backslash \varint$ and $\backslash \varoint$ are left undefined.

If *wasysym* is loaded with the *nointegrals* option then none of the preceding symbols, $\backslash \varint$, or $\backslash \varoint$ are defined.

TABLE 76: `mathabx` Variable-sized Math Operators

$\forall \forall$	<code>\bigcurlyvee</code>	$\square \square$	<code>\bigboxslash</code>	$\oplus \oplus$	<code>\bigoright</code>
$\sqcap \sqcap$	<code>\bigsqcap</code>	$\boxtimes \boxtimes$	<code>\bigboxtimes</code>	$\oslash \oslash$	<code>\bigoslash</code>
$\wedge \wedge$	<code>\bigcurlywedge</code>	$\boxdot \boxdot$	<code>\bigboxtop</code>	$\ominus \ominus$	<code>\bigotop</code>
$\boxast \boxast$	<code>\bigboxasterisk</code>	$\triangle \triangle$	<code>\bigboxtriangleup</code>	$\circlearrowleft \circlearrowright$	<code>\bigotriangleup</code>
$\boxbackslash \boxbackslash$	<code>\bigboxbackslash</code>	$\square \square$	<code>\bigboxvoid</code>	$\circ \circ$	<code>\bigovoid</code>
$\boxplus \boxplus$	<code>\bigboxbot</code>	$\complement \complement$	<code>\bigcomplementtop</code>	$\dagger \dagger$	<code>\bigplus</code>
$\boxcirc \boxcirc$	<code>\bigboxcirc</code>	$\circledast \circledast$	<code>\bigoasterisk</code>	$\boxplus \boxplus$	<code>\bigsqplus</code>
$\boxast \boxast$	<code>\bigboxcoasterisk</code>	$\oslash \oslash$	<code>\bigobackslash</code>	$\times \times$	<code>\bigtimes</code>
$\boxdot \boxdot$	<code>\bigboxdiv</code>	$\oplus \oplus$	<code>\bigobot</code>	$\iiint \iiint$	<code>\iiint</code>
$\boxcdot \boxcdot$	<code>\bigboxdot</code>	$\odot \odot$	<code>\bigocirc</code>	$\iint \iint$	<code>\iint</code>
$\boxleft \boxleft$	<code>\bigboxleft</code>	$\circledast \circledast$	<code>\bigocoasterisk</code>	$\int \int$	<code>\int</code>
$\boxminus \boxminus$	<code>\bigboxminus</code>	$\div \div$	<code>\bigodiv</code>	$\oint \oint$	<code>\oint</code>
$\boxplus \boxplus$	<code>\bigboxplus</code>	$\oplus \oplus$	<code>\bigoleft</code>	$\oint \oint$	<code>\oint</code>
$\boxright \boxright$	<code>\bigboxright</code>	$\ominus \ominus$	<code>\bigominus</code>		

TABLE 77: txfonts/pfxfonts Variable-sized Math Operators

\boxplus	$\boxed{+}$	<code>\bigsqcapplus</code>	\oint	\ointclockwise
\boxplus	$\boxed{+}$	<code>\bigsqcupplus</code>	\oint	$\ointctr-clockwise$
f	f	<code>\fint</code>	\iiint	\sqiint
$\int \cdots \int$	$\int \cdots \int$	<code>\idotsint</code>	\iiint	\sqiint
\iiint	\iiint	<code>\iiiint</code>	\oint	\sqint
\iiint	\iiint	<code>\iiint</code>	\iiint	\varoiintclockwise
\iiint	\iiint	<code>\iiint</code>	\iiint	$\varoiintctr-clockwise$
\oint	\oint	<code>\oiintclockwise</code>	\oint	\varointclockwise
\oint	\oint	<code>\oiintctr-clockwise</code>	\oint	$\varointctr-clockwise$
\oint	\oint	<code>\oiint</code>	\oint	\varointclockwise
\oint	\oint	<code>\oiintclockwise</code>	\times	\varprod
\oint	\oint	<code>\oiintctr-clockwise</code>	\times	\varprod
\oint	\oint	<code>\oiint</code>		

TABLE 78: esint Variable-sized Math Operators

$\int \cdots \int$	$\dots \int$	<code>\dotsint</code>	\oint	\oint	<code>\ointclockwise</code>
f	f	<code>\fint</code>	\oint	\oint	<code>\ointctr-clockwise</code>
\iiint	\iiiiint	<code>\iiint</code>	$\oint\oint$	$\oint\oint$	<code>\sqoint</code>
\iiiiint	\iiiiiiint	<code>\iiiiint</code>	$\oint\oint$	$\oint\oint$	<code>\sqoint</code>
\iint	\iint	<code>\iint</code>	$\oint\oint$	$\oint\oint$	<code>\varoiint</code>
\oint	\oint	<code>\landdownint</code>	\oint	\oint	<code>\varointclockwise</code>
\oint	\oint	<code>\landupint</code>	\oint	\oint	<code>\varointctr-clockwise</code>
$\oint\oint$	$\oint\oint$	<code>\oiint</code>			

TABLE 79: bigints Variable-sized Math Operators

\int	\int	<code>\bigint</code>	\oint	\oint	<code>\bigoint</code>
\int	\int	<code>\bigints</code>	\oint	\oint	<code>\bigoints</code>
\int	\int	<code>\bigintss</code>	\oint	\oint	<code>\bigointss</code>
\int	\int	<code>\bigintsss</code>	\oint	\oint	<code>\bigointsss</code>
\int	\int	<code>\bigintssss</code>	\oint	\oint	<code>\bigointssss</code>

TABLE 80: MnSymbol Variable-sized Math Operators

\cap	\bigcap	$\backslash \bigcap$	\ominus	\bigominus	\complement	\complement	\bigcomplement	$\backslash \complement$
\capdot	\bigcapdot	$\backslash \bigcapdot$	\oplus	\bigoplus	\coprod	\coprod	\bigcoprod	$\backslash \coprod$
\bigcapplus	\bigcapplus	$\backslash \bigcapplus$	\oslash	\bigoslash	\idotsint	\idotsint	\bigidotsint	$\backslash \idotsint$
\bigcircle	\bigcircle	$\backslash \bigcircle$	\otimes	\bigotimes	\iiint	\iiint	\bigiiint	$\backslash \iiint$
\bigcup	\bigcup	$\backslash \bigcup$	\otimes	\bigotimes	\iiint	\iiint	\bigiiint	$\backslash \iiint$
\bigcupdot	\bigcupdot	$\backslash \bigcupdot$	\triangleleft	\bigtriangleleft	\iint	\iint	\bigiint	$\backslash \iint$
\bigcupplus^*	\bigcupplus	$\backslash \bigcupplus^*$	\bigcirc	\bigcirc	\int	\int	\bigint	$\backslash \int$
\bigcurlyvee	\bigcurlyvee	$\backslash \bigcurlyvee$	$+$	\bigplus	\landdownint	\landdownint	\biglanddownint	$\backslash \landdownint$
\bigcurlyveedot	\bigcurlyveedot	$\backslash \bigcurlyveedot$	\square	\bigsqcap	\landupint	\landupint	\biglandupint	$\backslash \landupint$
\bigcurlywedge	\bigcurlywedge	$\backslash \bigcurlywedge$	\squarecdot	\bigsqcapdot	\lcircleleftint	\lcircleleftint	\biglcircleleftint	$\backslash \lcircleleftint$
\bigcurlywedgedot	\bigcurlywedgedot	$\backslash \bigcurlywedgedot$	\squareplus	\bigsqcapplus	\lcirclerightint	\lcirclerightint	\biglcirclerightint	$\backslash \lcirclerightint$
\bigdoublecurlyvee	\bigdoublecurlyvee	$\backslash \bigdoublecurlyvee$	\squarecup	\bigsqcup	\oiint	\oiint	\bigoiint	$\backslash \oiint$
\bigdoublecurlywedge	\bigdoublecurlywedge	$\backslash \bigdoublecurlywedge$	\squarecupdot	\bigsqcupdot	\oint	\oint	\bigoint	$\backslash \oint$
\bigdoublevee	\bigdoublevee	$\backslash \bigdoublevee$	\squareplus	\bigsqcupplus	\prod	\prod	\bigprod	$\backslash \prod$
\bigdoublewedge	\bigdoublewedge	$\backslash \bigdoublewedge$	\times	\bigtimes	\rcircleleftint	\rcircleleftint	\bigrcircleleftint	$\backslash \rcircleleftint$
\bigoast	\bigoast	$\backslash \bigoast$	\vee	\bigvee	\rcirclerightint	\rcirclerightint	\bigrcirclerightint	$\backslash \rcirclerightint$
\bigobackslash	\bigobackslash	$\backslash \bigobackslash$	\forall	\bigveedot	\strokedint	\strokedint	\bigstrokedint	$\backslash \strokedint$
\bigocirc	\bigocirc	$\backslash \bigocirc$	\wedge	\bigwedge	\sum	\sum	\bigsum	$\backslash \sum$
\bigodot	\bigodot	$\backslash \bigodot$	\wedge	\bigwedge	\sumint	\sumint	\bigsumint	$\backslash \sumint$

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

TABLE 81: fdsymbol Variable-sized Math Operators

\cap	\bigcap	$\backslash \bigcap$	\squarecup	\bigsqcup	\landupint	\squarecupdot	\bigsqcupdot	\lcircleleftint
\capdot	\bigcapdot	$\backslash \bigcapdot$	\squarecupdot	\bigsqcupdot	\lcircleleftint	\squarecupplus	\bigsqcupplus	\biglcircleleftint

(continued on next page)

(continued from previous page)

\oplus	\bigcap	$\backslash \bigcapplus$	\sqcup	\bigcup	$\backslash \bigcupplus$	\oint		$\backslash lcirclerightint$
\cup	\bigcup	$\backslash \bigcup$	\times	\bigtimes	$\backslash \bigtimes$	\ointint		$\backslash oiiint$
$\dot{\cup}$	\bigcupdot	$\backslash \bigcupdot$	\vee	\bigvee	$\backslash \bigvee$	\ointint		$\backslash oiint$
$\dot{\cup}$	\bigcupplus	$\backslash \bigcupplus$	$\dot{\vee}$	\bigveedot	$\backslash \bigveedot$	\oint		$\backslash oint$
\curlyvee	\bigcurlyvee	$\backslash \bigcurlyvee$	\wedge	\bigwedge	$\backslash \bigwedge$	\osum		$\backslash osum$
\curlywedge	\bigcurlywedge	$\backslash \bigcurlywedge$	\bigwedge	\bigwedgedot	$\backslash \bigwedgedot$	\prod		$\backslash prod$
\doublevee	\bigdoublevee	$\backslash \bigdoublevee$	\coprod	\bigcoprod	$\backslash coprod$	\ointint		$\backslash rcircleleftint$
\doublewedge	\bigdoublewedge	$\backslash \bigdoublewedge$	\fint	\bigfint	$\backslash fint$	\ointint		$\backslash rcirclerightint$
\oast	\bigoast	$\backslash \bigoast$	\dotsint	\bigdotsint	$\backslash idotsint$	\sum		$\backslash sum$
\odot	\bigodot	$\backslash \bigodot$	\iiint	\bigiiint	$\backslash iiiint$	\ointint		$\backslash sumint$
\oplus	\bigoplus	$\backslash \bigoplus$	\iiint	\bigiiint	$\backslash iiint$	\varcoprod		$\backslash varcoprod$
\otimes	\bigotimes	$\backslash \bigotimes$	\iint	\bigiint	$\backslash iint$	\varosum		$\backslash varosum$
$+$	\bigplus	$\backslash \bigplus$	\int	\bigint	$\backslash int$	\varprod		$\backslash varprod$
\sqcap	\bigsqcap	$\backslash \bigsqcap$	\intbar	\bigintbar	$\backslash intbar$	\varsum		$\backslash varsum$
\sqcdot	\bigsqcdot	$\backslash \bigsqcdot$	\intbar	\bigintbar	$\backslash intBar$	\varsumint		$\backslash varsumint$
\sqcup	\bigcup	$\backslash \bigcup$	\intdown	\bigintdown	$\backslash landdownint$			

* `fdsymbol` defines `\awint` as a synonym for `\landdownint`, `\biguplus` as a synonym for `\bigcupplus`, `\conjquant` as a synonym for `\bigdoublewedge`, `\disjquant` as a synonym for `\bigdoublevee`, `\dotsint` as a synonym for `\idotsint`, `\intclockwise` as a synonym for `\landupint`, `\intctrlclockwise` as a synonym for `\landdownint`, `\modtwosum` as a synonym for `\osum`, `\ointclockwise` as a synonym for `\lcircleleftint`, `\ointctrlclockwise` as a synonym for `\rcirclerightint`, `\varmodtwosum` as a synonym for `\varosum`, `\varointclockwise` as a synonym for `\lcirclerightint`, and `\varointctrlclockwise` as a synonym for `\rcircleleftint`.

TABLE 82: `boisik` Variable-sized Math Operators

$$\int \quad \int \quad \backslash intup$$

`boisik` additionally provides all of the symbols in Table 72.

TABLE 83: stix Variable-sized Math Operators

\oint	\oint	<code>\awint</code>	\coprod	\coprod	<code>\coprod</code>	\oiint	\oiint	<code>\oiint</code>
\sum	\sum	<code>\Bbbsum</code>	\disjquant	\disjquant	<code>\disjquant</code>	\oint	\oint	<code>\oint</code>
\bigcap	\bigcap	<code>\bigcap</code>	\fint	\fint	<code>\fint</code>	\oint	\oint	<code>\oint</code>
\bigcup	\bigcup	<code>\bigcup</code>	\iiint	\iiint	<code>\iiint</code>	\ointclockwise	\ointclockwise	<code>\ointclockwise</code>
\bigcupdot	\bigcupdot	<code>\bigcupdot</code>	\iiint	\iiint	<code>\iiint</code>	\ointpoint	\ointpoint	<code>\ointpoint</code>
\bigodot	\bigodot	<code>\bigodot</code>	\iint	\iint	<code>\iint</code>	\prod	\prod	<code>\prod</code>
\bigoplus	\bigoplus	<code>\bigoplus</code>	\int	\int	<code>\int</code>	\rppoint	\rppoint	<code>\rppoint</code>
\bigotimes	\bigotimes	<code>\bigotimes</code>	\intbar	\intbar	<code>\intbar</code>	\scpoint	\scpoint	<code>\scpoint</code>
\bigsqcap	\bigsqcap	<code>\bigsqcap</code>	\intBar	\intBar	<code>\intBar</code>	\sqint	\sqint	<code>\sqint</code>
\bigsqcup	\bigsqcup	<code>\bigsqcup</code>	\intcap	\intcap	<code>\intcap</code>	\sum	\sum	<code>\sum</code>
\bigtalloblong	\bigtalloblong	<code>\bigtalloblong</code>	\intclockwise	\intclockwise	<code>\intclockwise</code>	\sumint	\sumint	<code>\sumint</code>
\bigtimes	\bigtimes	<code>\bigtimes</code>	\intcup	\intcup	<code>\intcup</code>	\upoint	\upoint	<code>\upoint</code>
\biguplus	\biguplus	<code>\biguplus</code>	\intlarhk	\intlarhk	<code>\intlarhk</code>	\varointclockwise	\varointclockwise	<code>\varointclockwise</code>
\bigvee	\bigvee	<code>\bigvee</code>	\intx	\intx	<code>\intx</code>	\xbsol	\xbsol	<code>\xbsol</code>
\bigwedge	\bigwedge	<code>\bigwedge</code>	\lowint	\lowint	<code>\lowint</code>	\xsol	\xsol	<code>\xsol</code>
\circint	\circint	<code>\circint</code>	\modtwosum	\modtwosum	<code>\modtwosum</code>			
\cong	\cong	<code>\conjquant</code>	\noint	\noint	<code>\noint</code>			

By default, each of the integral-producing commands in Table 83 points to a slanted version of the glyph, as shown. The `upint` package option typesets each integral instead as an upright version. Slanted and upright integrals can be mixed, however, by explicitly using the commands shown in Table 84.

TABLE 84: stix Integrals with Explicit Slant

$\int \int \ \backslash intsl$	$\int \int \ \backslash intup$
$\iint \iint \ \backslash iintsl$	$\iint \iint \ \backslash iintup$
$\iiint \iiint \ \backslash iiintsl$	$\iiint \iiint \ \backslash iiintup$
$\oint \oint \ \backslash ointsl$	$\oint \oint \ \backslash ointup$
$\oiint \oiint \ \backslash oiintsl$	$\oiint \oiint \ \backslash oiintup$
$\oiint \oiint \ \backslash oiiintsl$	$\oiint \oiint \ \backslash oiiintup$
$\int \int \int \ \backslash intclockwisesl$	$\int \int \int \ \backslash intclockwiseup$
$\oint \oint \int \ \backslash varointclockwisesl$	$\oint \oint \int \ \backslash varointclockwiseup$
$\oint \oint \int \ \backslash ointctrcclockwisesl$	$\oint \oint \int \ \backslash ointctrcclockwiseup$
$\sum \sum \ \backslash sumintsl$	$\sum \sum \ \backslash sumintup$
$\iiii \iiii \ \backslash iiiintsl$	$\iiii \iiii \ \backslash iiiintup$
$\int \int \int \int \ \backslash intbarsl$	$\int \int \int \int \ \backslash intbarup$
$\int \int \int \int \ \backslash intBarsl$	$\int \int \int \int \ \backslash intBarup$
$\int \int \int \int \ \backslash fintsl$	$\int \int \int \int \ \backslash fintup$
$\int \int \int \int \ \backslash cirfnintsl$	$\int \int \int \int \ \backslash cirfnintup$
$\int \int \int \int \ \backslash awintsl$	$\int \int \int \int \ \backslash awintup$
$\int \int \int \int \ \backslash rppolintsl$	$\int \int \int \int \ \backslash rppolintup$
$\int \int \int \int \ \backslash scpolintsl$	$\int \int \int \int \ \backslash scpolintup$
$\int \int \int \int \ \backslash npolintsl$	$\int \int \int \int \ \backslash npolintup$

(continued on next page)

(continued from previous page)

\oint	\oint	<code>\pointintsl</code>	\oint	\oint	<code>\pointintup</code>
\oint	\oint	<code>\sqintsl</code>	\oint	\oint	<code>\sqintup</code>
\oint	\oint	<code>\intlarhksl</code>	\oint	\oint	<code>\intlarhkup</code>
\oint	\oint	<code>\intxsl</code>	\oint	\oint	<code>\intxup</code>
\oint	\oint	<code>\intcapsl</code>	\oint	\oint	<code>\intcapup</code>
\oint	\oint	<code>\intcupsl</code>	\oint	\oint	<code>\intcupup</code>
$\overline{\int}$	$\overline{\int}$	<code>\upintsl</code>	$\overline{\int}$	$\overline{\int}$	<code>\upintup</code>
$\underline{\int}$	$\underline{\int}$	<code>\lowintsl</code>	$\underline{\int}$	$\underline{\int}$	<code>\lowintup</code>

Instead of using the preceding symbols directly, it is generally preferable to use the symbols listed in Table 83 either with or without the `upint` package option. Specifying `upint` selects each integral's upright (`up`) variant, while omitting `upint` selects each integral's slanted (`sl`) variant. Use the symbols shown in Table 84 only when you need to include both upright and slanted variations of a symbol in the same document.

TABLE 85: `cmupint` Variable-sized Upright Integrals

\oint	\oint	<code>\awint</code>	\oint	\oint	<code>\npooint</code>
\oint	\oint	<code>\barint</code>	$\oint\oint\oint$	$\oint\oint\oint$	<code>\oiiint</code>
\oint	\oint	<code>\cirfnint</code>	$\oint\oint$	$\oint\oint$	<code>\oiint</code>
\oint	\oint	<code>\doublebarint</code>	\oint	\oint	<code>\oint</code>
\oint	\oint	<code>\downint</code>	\oint	\oint	<code>\ointclockwise</code>
\oint	\oint	<code>\fint</code>	\oint	\oint	<code>\ointctrcclockwise</code>

(continued on next page)

(continued from previous page)

$\int \cdots \int$	$\int \cdots \int$	<code>\idotsint*</code>	\oint	\oint	<code>\pointint</code>
\iiint	\iiint	<code>\iiint</code>	\oint	\oint	<code>\rppolint</code>
\iiint	\iiint	<code>\iiint</code>	\oint	\oint	<code>\scpolint</code>
\iint	\iint	<code>\iint</code>	$\oint\oint$	$\oint\oint$	<code>\sqaint</code>
\int	\int	<code>\int</code>	\oint	\oint	<code>\sqint</code>
\oint	\oint	<code>\intcap</code>	\oint	\sum	<code>\sumint</code>
\oint	\oint	<code>\intclockwise</code>	\int	\int	<code>\upint</code>
\oint	\oint	<code>\intcup</code>	$\int \cdots \int$	$\int \cdots \int$	<code>\varidotsint*</code>
\oint	\oint	<code>\intlarhk</code>	\oint	\oint	<code>\varointclockwise</code>
\oint	\oint	<code>\landdownint</code>	\oint	\oint	<code>\varointctrcclockwise</code>
\oint	\oint	<code>\landupint</code>	\oint	\oint	<code>\xint</code>

`cmupint` additionally provides `\longint`, `\longiint`, `\longoint`, and `\longoiint` commands that stretch arbitrarily tall. See the `cmupint` documentation for more information.

* `\varidotsint` is always drawn as is. `\idotsint` is drawn identically to `\varidotsint` when `amsmath` is not loaded or with more space surrounding each dot when `amsmath` is loaded.

TABLE 86: `mathdesign` Variable-sized Math Operators

\oint	\oint	<code>\intclockwise</code>	\oint	\oint	<code>\ointclockwise</code>
$\oint\oint$	$\oint\oint$	<code>\oiint</code>	\oint	\oint	<code>\ointctrcclockwise</code>
$\oint\oint$	$\oint\oint$	<code>\oiint</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 87: `prodint` Variable-sized Math Operators

$$\prod_{\text{prodi}} \prod_{\text{\textbackslash Prodi}} \prod_{\text{\textbackslash PRODI}}$$

`prodint` currently requires the author to manually specify `\prodi` for inlined expressions ($\$...$$), `\Prodi` for displayed math ($\text{\{}...\text{\}}$), and `\PRODI` for displayed math involving tall integrands. The package does not define a product integral command that scales automatically akin to the symbols in Table 72.

TABLE 88: `cml` Large Math Operators

$$\mathcal{Y} \quad \text{\textbackslash bigparr}^* \quad \& \quad \text{\textbackslash bigwith}$$

* `cml` defines `\biginvamp` as a synonym for `\bigparr`.

TABLE 89: Binary Relations

\approx	<code>\approx</code>	\equiv	<code>\equiv</code>	\perp	<code>\perp</code>	\smile	<code>\smile</code>
\asymp	<code>\asymp</code>	\sim	<code>\frown</code>	\prec	<code>\prec</code>	\succ	<code>\succ</code>
\bowtie	<code>\bowtie</code>	\bowtie	<code>\Join</code> *	\preceq	<code>\preceq</code>	\succeq	<code>\succeq</code>
\cong	<code>\cong</code>	$ $	<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 by the L^AT_EX 2 _{ϵ} core. Use the `latexsym` package to expose this symbol.

† The difference between `\mid` and `|` is that the former is a binary relation while the latter is a math ordinal. Consequently, L^AT_EX typesets the two with different surrounding spacing. Contrast “ $P(A | B)$ ” \mapsto “ $P(A|B)$ ” with “ $P(A \mid B)$ ” \mapsto “ $P(A | B)$ ”.

TABLE 90: `AMS` Binary Relations

\approx	<code>\approxeq</code>	\equiv	<code>\eqcirc</code>	\asymp	<code>\succapprox</code>
\backepsilon	<code>\backepsilon</code>	\doteq	<code>\fallingdotseq</code>	\asymp	<code>\succcurlyeq</code>
\backsimeq	<code>\backsimeq</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>	\approx	<code>\approx</code>	\approx	<code>\thickapprox</code>
\between	<code>\between</code>	\preccurlyeq	<code>\preccurlyeq</code>	\sim	<code>\thicksim</code>
\Bumpeq	<code>\Bumpeq</code>	\precsim	<code>\precsim</code>	\propto	<code>\varproto</code>
\bumpeq	<code>\bumpeq</code>	\doteq	<code>\risingdotseq</code>	\Vdash	<code>\Vdash</code>
\circeq	<code>\circeq</code>	\shortmid	<code>\shortmid</code>	\vDash	<code>\vDash</code>
\curlyeqsucc	<code>\curlyeqsucc</code>	\shortparallel	<code>\shortparallel</code>	\Vvdash	<code>\Vvdash</code>
\doteqdot	<code>\doteqdot</code>	\smallfrown	<code>\smallfrown</code>		
		\smallsmile	<code>\smallsmile</code>		

TABLE 91: *AMS* Negated Binary Relations

$\not\equiv$	<code>\ncong</code>	$\not\vdash$	<code>\nshortparallel</code>	$\not\models$	<code>\nVdash</code>
$\not\vdash$	<code>\nmid</code>	$\not\sim$	<code>\nsim</code>	$\not\approx$	<code>\precnapprox</code>
$\not\parallel$	<code>\nparallel</code>	$\not\asymp$	<code>\nsucc</code>	$\not\asymp$	<code>\precnsim</code>
$\not\prec$	<code>\nprec</code>	$\not\asymp$	<code>\nsuccceq</code>	$\not\asymp$	<code>\succnapprox</code>
$\not\preceq$	<code>\npreceq</code>	$\not\models$	<code>\nvDash</code>	$\not\asymp$	<code>\succcnsim</code>
$\not\vdash$	<code>\nshortmid</code>	$\not\models$	<code>\nvDash</code>	$\not\asymp$	<code>\succnsim</code>

TABLE 92: *stmaryrd* Binary Relations

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

TABLE 93: *wasysym* Binary Relations

\sqsubset	<code>\invneg</code>	\rightsquigarrow	<code>\leadsto</code>	\propto	<code>\wasapropto</code>
\bowtie	<code>\Join</code>	\circledast	<code>\logof</code>		

TABLE 94: *txfonts/pxfonts* Binary Relations

\oslash	<code>\circledgtr</code>	\bowtie	<code>\lJoin</code>	\times	<code>\opentimes</code>
\oslash	<code>\circledless</code>	\bowtie	<code>\lRtimes</code>	$\perp\!\!\!\perp$	<code>\Perp</code>
\approx	<code>\colonapprox</code>	\multimap	<code>\multimap</code>	\leqq	<code>\preceqq</code>
\approx	<code>\Colonapprox</code>	\multimap	<code>\multimapboth</code>	\asymp	<code>\precneqq</code>
\vdash	<code>\coloneq</code>	\circ	<code>\multimapbothvert</code>	\bowtie	<code>\rJoin</code>
\vdash	<code>\Coloneq</code>	\bullet	<code>\multimapdot</code>	\triangleleft	<code>\strictfi</code>
\vdash	<code>\Coloneqq</code>	$\bullet\bullet$	<code>\multimapdotboth</code>	\rightarrowtail	<code>\strictif</code>
\vdash	<code>\Coloneqq^*</code>	$\circ\bullet$	<code>\multimapdotbothA</code>	$\bowtie\bowtie$	<code>\strictiff</code>
\vdash	<code>\Colonsim</code>	$\circ\circ$	<code>\multimapdotbothAvert</code>	\sqsubseteq	<code>\succeqq</code>
\vdash	<code>\colonsim</code>	$\circ\circ$	<code>\multimapdotbothB</code>	\asymp	<code>\succneqq</code>
\vdash	<code>\Eqcolon</code>	$\bullet\bullet$	<code>\multimapdotbothBvert</code>	\parallel	<code>\varparallel</code>
\vdash	<code>\eqcolon</code>	$\bullet\bullet$	<code>\multimapdotbothvert</code>	$\parallel\parallel$	<code>\varparallelinv</code>
\vdash	<code>\eqqcolon</code>	\bullet	<code>\multimapdotinv</code>	$\models\models$	<code>\VvDash</code>
\vdash	<code>\Eqqcolon</code>	\circ	<code>\multimapinv</code>		
\vdash	<code>\eqsim</code>	\times	<code>\openJoin</code>		

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

TABLE 95: *txfonts/pxfonts* Negated Binary Relations

$\not\equiv$	<code>\napproxeq</code>	$\not\asymp$	<code>\npreccurlyeq</code>	$\not\asymp$	<code>\nthickapprox</code>
$\not\asymp$	<code>\nasmp</code>	$\not\asymp$	<code>\preceqq</code>	$\not\Leftarrow$	<code>\ntwoheadleftarrow</code>
$\not\asymp$	<code>\backsim</code>	$\not\asymp$	<code>\precsim</code>	$\not\Rightarrow$	<code>\ntwoheadrightarrow</code>
$\not\asymp$	<code>\backsimeq</code>	$\not\asymp$	<code>\nsimeq</code>	$\not\#$	<code>\nvarparallel</code>
$\not\asymp$	<code>\bumpeq</code>	$\not\asymp$	<code>\nsuccapprox</code>	$\not\#$	<code>\nvarparallelinv</code>
$\not\asymp$	<code>\Bumpeq</code>	$\not\asymp$	<code>\nsucccurlyeq</code>	$\not\models$	<code>\nDash</code>
$\not\asymp$	<code>\nequiv</code>	$\not\asymp$	<code>\nsucceqq</code>		
$\not\asymp$	<code>\precapprox</code>	$\not\asymp$	<code>\nsuccsim</code>		

TABLE 96: mathabx Binary Relations

\between	<code>\between</code>	$ $	<code>\divides</code>	$=:$	<code>\risingdotseq</code>
\botdoteq	<code>\botdoteq</code>	\div	<code>\dotseq</code>	\approx	<code>\succapprox</code>
\Bumpedeq	<code>\Bumpedeq</code>	\sqsubset	<code>\eqbumped</code>	\asymp	<code>\succcurlyeq</code>
\bumpedeq	<code>\bumpedeq</code>	\equiv	<code>\eqcirc</code>	\triangleright	<code>\succdot</code>
\circeq	<code>\circeq</code>	$=:$	<code>\eqcolon</code>	\asymp	<code>\succsim</code>
\coloneq	<code>\coloneq</code>	\eqqcolon	<code>\fallingdotseq</code>	\therefore	<code>\therefore</code>
\corresponds	<code>\corresponds</code>	\ggcurly		\doteq	<code>\topdoteq</code>
\curlyeqprec	<code>\curlyeqprec</code>	\llcurly		\vDash	<code>\vDash</code>
\curlyeqsucc	<code>\curlyeqsucc</code>	\asymp	<code>\precapprox</code>	\Vdash	<code>\Vdash</code>
\DashV	<code>\DashV</code>	\asymp	<code>\preccurlyeq</code>	\Vdash	<code>\Vdash</code>
\Dashv	<code>\Dashv</code>	\triangleleft	<code>\precdot</code>	\Vdash	<code>\Vdash</code>
\dashVv	<code>\dashVv</code>	\asymp	<code>\precsim</code>	\Vdash	<code>\Vdash</code>

TABLE 97: mathabx Negated Binary Relations

$\not\approx$	<code>\napprox</code>	$\not\perp$	<code>\notperp</code>	$\not\models$	<code>\nvDash</code>
$\not\cong$	<code>\ncong</code>	$\not\prec$	<code>\nprec</code>	$\not\models$	<code>\nVdash</code>
$\not\curlyeqprec$	<code>\ncurlyeqprec</code>	$\not\approx$	<code>\nprefapprox</code>	$\not\models$	<code>\nVdash</code>
$\not\curlyeqsucc$	<code>\ncurlyeqsucc</code>	$\not\approx$	<code>\npreccurlyeq</code>	$\not\models$	<code>\nVdash</code>
$\not\Dashv$	<code>\nDashv</code>	$\not\perp$	<code>\npreceq</code>	$\not\models$	<code>\nVash</code>
$\not\DashV$	<code>\ndashV</code>	$\not\perp$	<code>\nprecsim</code>	$\not\models$	<code>\precnapprox</code>
$\not\Dashv$	<code>\ndashv</code>	$\not\sim$	<code>\nsim</code>	$\not\models$	<code>\precneq</code>
$\not\DashV$	<code>\nDashV</code>	$\not\approx$	<code>\nsimeq</code>	$\not\models$	<code>\precnsim</code>
$\not\DashVv$	<code>\ndashVv</code>	$\not\perp$	<code>\nsucc</code>	$\not\models$	<code>\succnapprox</code>
$\not\eq$	<code>\neq</code>	$\not\approx$	<code>\nsuccapprox</code>	$\not\models$	<code>\succneq</code>
$\not\asymp$	<code>\notasymp</code>	$\not\approx$	<code>\nsucccurlyeq</code>	$\not\models$	<code>\succnsim</code>
$\not\divides$	<code>\notdivides</code>	$\not\perp$	<code>\nsucceq</code>		
$\not\equiv$	<code>\notequiv</code>	$\not\perp$	<code>\nsuccsim</code>		

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

TABLE 98: MnSymbol Binary Relations

\approx	<code>\approx</code>	\trianglelefteq	<code>\hateq</code>	∞	<code>\rightproto</code>
\approx	<code>\approxeq</code>	\times	<code>\hcrossing</code>	\triangleright	<code>\rightslice</code>
\approx	<code>\backapprox</code>	\vdash	<code>\leftfootline</code>	\Vdash	<code>\rightVdash</code>
\approx	<code>\backapproxeq</code>	\leftarrow	<code>\leftfree</code>	\vdash	<code>\rightvdash</code>
\approx	<code>\backcong</code>	\exists	<code>\leftmodels</code>	\therefore	<code>\risingdotseq</code>
\approx	<code>\backeqsim</code>	$\exists\!\!\mid$	<code>\leftModels</code>	\searrow	<code>\sefootline</code>
\approx	<code>\backsim</code>	\propto	<code>\leftproto</code>	\searrow	<code>\sefree</code>
\approx	<code>\backsimeq</code>	\dashv	<code>\leftrightline</code>	\nwarrow	<code>\seModels</code>
\approx	<code>\backtriplesim</code>	$=$	<code>\Leftrightline</code>	\nwarrow	<code>\semodels</code>
\between	<code>\between</code>	\triangleleft	<code>\leftslice</code>	\parallel	<code>\separated</code>
\approx	<code>\bumpeq</code>	\dashv	<code>\leftVdash</code>	\nwarrow	<code>\seVdash</code>

(continued on next page)

(continued from previous page)

\triangleleft	<code>\Bumpeq</code>	\dashv	<code>\leftvdash</code>	\wedge	<code>\sevdash</code>
\triangleright	<code>\circeq</code>	\nearrow	<code>\nefootline</code>	\parallel	<code>\shortparallel</code>
\sqsupseteq	<code>\closedeq</code>	\nearrow	<code>\nefree</code>	\sim	<code>\sim</code>
\nwarrow	<code>\closedprec</code>	\asymp	<code>\neModels</code>	\approx	<code>\simeq</code>
\nwarrow	<code>\closedsucc</code>	\asymp	<code>\nemodels</code>	\succ	<code>\succ</code>
\coloneqq	<code>\coloneq</code>	$/$	<code>\neswline</code>	$\approx\!\approx$	<code>\succapprox</code>
\cong	<code>\cong</code>	\cong	<code>\Neswline</code>	$\approx\!\approx$	<code>\succcurlyeq</code>
\nwarrow	<code>\curlyeqprec</code>	\asymp	<code>\neVdash</code>	\succeq	<code>\succeq</code>
\nwarrow	<code>\curlyeqsucc</code>	\asymp	<code>\nevDash</code>	\succsim	<code>\succsim</code>
\doteq	<code>\Doteq</code>	\wedge	<code>\nwfootline</code>	\swarrow	<code>\swfootline</code>
\doteq	<code>\doteq</code>	\wedge	<code>\nwfree</code>	\swarrow	<code>\swfree</code>
\downarrow	<code>\downfootline</code>	\asymp	<code>\nwmodels</code>	\nwarrow	<code>\swModels</code>
\downarrow	<code>\downfree</code>	\asymp	<code>\nwModels</code>	\nwarrow	<code>\swmodels</code>
\Downarrow	<code>\downmodels</code>	\dagger	<code>\nwsecrossing</code>	\nwarrow	<code>\swDash</code>
\Downarrow	<code>\downModels</code>	\cong	<code>\Nweline</code>	\nwarrow	<code>\swvDash</code>
\nwarrow	<code>\downpropto</code>	\wedge	<code>\nwseline</code>	\approx	<code>\triplesim</code>
\nwarrow	<code>\downvdash</code>	\vee	<code>\nwvDash</code>	\mid	<code>\updownline</code>
\nwarrow	<code>\downVdash</code>	\asymp	<code>\nwVdash</code>	\parallel	<code>\Updownline</code>
\lhd	<code>\eqbump</code>	\prec		\top	<code>\upfootline</code>
\lhd	<code>\eqcirc</code>	\approx	<code>\precapprox</code>	\top	<code>\upfree</code>
\lhd	<code>\eqdot</code>	\asymp	<code>\preccurlyeq</code>	\perp	<code>\upModels</code>
\lhd	<code>\eqsim</code>	\leq	<code>\preceq</code>	\perp	<code>\upmodels</code>
\equiv	<code>\equal</code>	\approx	<code>\precsim</code>	\nwarrow	<code>\upproto</code>
\equiv	<code>\equalclosed</code>	\perp	<code>\rightfootline</code>	\perp	<code>\upvDash</code>
\equiv	<code>\equiviv</code>	\rightarrow	<code>\rightfree</code>	\perp	<code>\upVdash</code>
\equiv	<code>\equivivclosed</code>	\vDash	<code>\rightmodels</code>	\times	<code>\vcrossing</code>
\lhd	<code>\fallingdotseq</code>	\Vdash	<code>\rightModels</code>	\Vdash	<code>\VvDash</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>\leftproto</code>)
\relbar	<code>\relbar</code>	(same as <code>\leftrightline</code>)
\Relbar	<code>\Relbar</code>	(same as <code>\Leftrightline</code>)
\varpropto	<code>\varpropto</code>	(same as <code>\leftproto</code>)
\vDash	<code>\vDash</code>	(same as <code>\rightmodels</code>)
\VDash	<code>\VDash</code>	(same as <code>\rightModel</code>)
\vdash	<code>\vdash</code>	(same as <code>\rightvdash</code>)
\Vdash	<code>\Vdash</code>	(same as <code>\rightVdash</code>)

TABLE 99: MnSymbol Negated Binary Relations

\napprox	<code>\napprox</code>	\leftarrow	<code>\nleftfootline</code>	\neq	<code>\nrisingdotseq</code>
\napproxeq	<code>\napproxeq</code>	\leftarrow	<code>\nleftfree</code>	\times	<code>\nsefootline</code>
\nbackapprox	<code>\nbackapprox</code>	$\#$	<code>\nleftmodels</code>	\times	<code>\nsefree</code>
\nbackapproxeq	<code>\nbackapproxeq</code>	$\# $	<code>\nleftModels</code>	$\not\approx$	<code>\nseModels</code>
\nbackcong	<code>\nbackcong</code>	\dashv	<code>\nleftrightline</code>	$\not\approx$	<code>\nsemmodels</code>
\nbackeqsim	<code>\nbackeqsim</code>	\neq	<code>\nLeftrightline</code>	\times	<code>\nsevdash</code>
\nbacksim	<code>\nbacksim</code>	$\#$	<code>\nleftvdash</code>	$\not\approx$	<code>\nseVdash</code>
\nbacksimeq	<code>\nbacksimeq</code>	$\# $	<code>\nleftVdash</code>	\times	<code>\nshortmid</code>
\nbacktriplesim	<code>\nbacktriplesim</code>	\times	<code>\nnefootline</code>	\times	<code>\nshortparallel</code>
\nbumpeq	<code>\nbumpeq</code>	$\not\approx$	<code>\nnefree</code>	\sim	<code>\nsim</code>
\nBumpeq	<code>\nBumpeq</code>	$\not\approx$	<code>\nnemodels</code>	$\not\approx$	<code>\nsimeq</code>
\ncirceq	<code>\ncirceq</code>	$\not\approx$	<code>\nneModels</code>	$\not\approx$	<code>\nsucc</code>
\nclosedeql	<code>\nclosedeql</code>	\times	<code>\nneswline</code>	$\not\approx$	<code>\nsuccapprox</code>
\ncong	<code>\ncong</code>	$\not\approx$	<code>\nNeswline</code>	$\not\approx$	<code>\nsucccurlyeq</code>
\ncurlyeqprec	<code>\ncurlyeqprec</code>	$\not\approx$	<code>\nnevDash</code>	$\not\approx$	<code>\nsucceq</code>
\ncurlyeqsucc	<code>\ncurlyeqsucc</code>	$\not\approx$	<code>\nnevDash</code>	$\not\approx$	<code>\nsuccsim</code>
\ndoteq	<code>\ndoteq</code>	$\not\approx$	<code>\nnwfootline</code>	\times	<code>\nswfootline</code>
\nDoteq	<code>\nDoteq</code>	$\not\approx$	<code>\nnwfree</code>	$\not\approx$	<code>\nswfree</code>
\ndownfootline	<code>\ndownfootline</code>	$\not\approx$	<code>\nnwmodels</code>	$\not\approx$	<code>\nswModels</code>
\ndownfree	<code>\ndownfree</code>	$\not\approx$	<code>\nnwModels</code>	$\not\approx$	<code>\nswmodels</code>
\ndownModels	<code>\ndownModels</code>	$\not\approx$	<code>\nwseline</code>	\times	<code>\nswvDash</code>
\ndownmodels	<code>\ndownmodels</code>	\times	<code>\nwseline</code>	$\not\approx$	<code>\nswvDash</code>
\ndownVdash	<code>\ndownVdash</code>	$\not\approx$	<code>\nnwvDash</code>	$\not\approx$	<code>\ntriplesim</code>
\ndownvDash	<code>\ndownvDash</code>	$\not\approx$	<code>\nnwvDash</code>	$\not\approx$	<code>\nUpdownline</code>
\neqbump	<code>\neqbump</code>	$\not\approx$	<code>\nprec</code>	\dagger	<code>\nupdownline</code>
\neqcirc	<code>\neqcirc</code>	$\not\approx$	<code>\nprecapprox</code>	\dagger	<code>\nupfootline</code>
\neqdot	<code>\neqdot</code>	$\not\approx$	<code>\npreccurlyeq</code>	\dagger	<code>\nupfree</code>
\neqsim	<code>\neqsim</code>	$\not\approx$	<code>\npreceq</code>	$\not\approx$	<code>\nupModels</code>
\nequal	<code>\nequal</code>	$\not\approx$	<code>\nprecsim</code>	$\not\approx$	<code>\nupmodels</code>
\nequalclosed	<code>\nequalclosed</code>	$\not\approx$	<code>\nrightfootline</code>	$\not\approx$	<code>\nupVdash</code>
\nequiv	<code>\nequiv</code>	$\not\approx$	<code>\nrightfree</code>	$\not\approx$	<code>\nupvDash</code>
\nequivclosed	<code>\nequivclosed</code>	$\not\approx$	<code>\nrightModels</code>	$\not\approx$	<code>\precnapprox</code>
\neswcrossing	<code>\neswcrossing</code>	$\not\approx$	<code>\nrightmodels</code>	$\not\approx$	<code>\precnsim</code>
\nfallingdotseq	<code>\nfallingdotseq</code>	$\not\approx$	<code>\nrightvdash</code>	$\not\approx$	<code>\succnapprox</code>
\nhateq	<code>\nhateq</code>	$\not\approx$	<code>\nrightVdash</code>	$\not\approx$	<code>\succnsim</code>

MnSymbol additionally defines synonyms for some of the preceding symbols:

\dashv	<code>\ndashv</code>	(same as <code>\nleftvdash</code>)
\times	<code>\ndiagdown</code>	(same as <code>\nnwseline</code>)
\times	<code>\ndiagup</code>	(same as <code>\nneswline</code>)
\dagger	<code>\ndivides</code>	(same as <code>\nupdownline</code>)
\neq	<code>\ne</code>	(same as <code>\nequal</code>)
\neq	<code>\neq</code>	(same as <code>\nequal</code>)
\dagger	<code>\nmid</code>	(same as <code>\nupdownline</code>)
\neq	<code>\nmodels</code>	(same as <code>\nrightmodels</code>)
$\not\approx$	<code>\nparallel</code>	(same as <code>\nUpdownline</code>)
\pm	<code>\nperp</code>	(same as <code>\nupvDash</code>)
\dagger	<code>\nrelbar</code>	(same as <code>\nleftrightline</code>)
\neq	<code>\nRelbar</code>	(same as <code>\nLeftrightline</code>)
\neq	<code>\nvDash</code>	(same as <code>\nrightmodels</code>)
\neq	<code>\nvDash</code>	(same as <code>\nrightvdash</code>)
$\not\approx$	<code>\nVdash</code>	(same as <code>\nrightVdash</code>)
$\not\approx$	<code>\nVDash</code>	(same as <code>\nrightModels</code>)

TABLE 100: *fdsymbol* Binary Relations

\approx	<code>\approx</code>	\equiv	<code>\equiv</code>	\models	<code>\rightmodels</code>
\approx	<code>\approxeq</code>	\doteq	<code>\fallingdotseq</code>	\vdash	<code>\rightVdash</code>
\leqq	<code>\backcong</code>	\supset	<code>\frown</code>	\nvdash	<code>\rightVDash</code>
\geqq	<code>\backproto</code>	\supseteq	<code>\frowneq</code>	\vdash	<code>\rightvDash</code>
\sim	<code>\backsimeq</code>	\circ	<code>\frownsmile</code>	\nvdash	<code>\rightvDash</code>
\leq	<code>\backsimeq</code>	\in	<code>\in</code>	\doteq	<code>\risingdotseq</code>
\between	<code>\between</code>	\dashv	<code>\leftassert</code>	\mid	<code>\shortmid</code>
\bowtie	<code>\bowtie</code>	\dashv	<code>\leftAssert</code>	\parallel	<code>\shortparallel</code>
\simeq	<code>\bumpeq</code>	\vdash	<code>\leftfootline</code>	\sim	<code>\sim</code>
\simeq	<code>\Bumpeq</code>	\dashv	<code>\leftmodels</code>	\simeq	<code>\simeq</code>
\approx	<code>\bumpeqq</code>	\vdash	<code>\leftvDash</code>	\sim	<code>\smile</code>
\approx	<code>\circeq</code>	\dashv	<code>\leftvDash</code>	\simeq	<code>\smileeq</code>
\coloneqq	<code>\coloneq</code>	\dashv	<code>\leftVdash</code>	\asymp	<code>\smilefrown</code>
\cong	<code>\cong</code>	\dashv	<code>\leftVDash</code>	\star	<code>\stareq</code>
\times	<code>\crossing</code>	\dashv	<code>\longleftfootline</code>	\succ	<code>\succ</code>
\approx	<code>\curlyeqprec</code>	\iff	<code>\Longmapsfrom</code>	\approx	<code>\succapprox</code>
\approx	<code>\curlyeqsucc</code>	\iff	<code>\longmapsfrom</code>	\succ	<code>\succcurlyeq</code>
\dashv	<code>\dashVv</code>	\dashv	<code>\longrightfootline</code>	\succeq	<code>\succeq</code>
\equiv	<code>\Ddashv</code>	\mid	<code>\mid</code>	\succeqq	<code>\succeqq</code>
\approx	<code>\dotcong</code>	\ni	<code>\owns</code>	\sucssim	<code>\sucssim</code>
\doteq	<code>\doteq</code>	\parallel	<code>\parallel</code>	\approx	<code>\thickapprox</code>
\doteq	<code>\Doteq</code>	\wedge	<code>\prec</code>	\sim	<code>\thicksim</code>
\approx	<code>\dotsminusdots</code>	\approx	<code>\precapprox</code>	\approx	<code>\triplesim</code>
\vdash	<code>\downAssert</code>	\wedge	<code>\preccurlyeq</code>	\perp	<code>\upassert</code>
\vdash	<code>\downassert</code>	\wedge	<code>\preceq</code>	\perp	<code>\upAssert</code>
\vdash	<code>\downmodels</code>	\approx	<code>\preceqq</code>	\perp	<code>\upmodels</code>
\vdash	<code>\downvDash</code>	\approx	<code>\precnapprox</code>	\perp	<code>\upvDash</code>
\vdash	<code>\downVdash</code>	\approx	<code>\precneq</code>	\perp	<code>\upvDash</code>
\vdash	<code>\downvdash</code>	\approx	<code>\precneqq</code>	\perp	<code>\upVdash</code>
\vdash	<code>\downVDash</code>	\approx	<code>\precsim</code>	\perp	<code>\upVDash</code>
\eqq	<code>\eqcirc</code>	\approx	<code>\precsim</code>	\equiv	<code>\vDash</code>
\eqq	<code>\eqcolon</code>	\propto	<code>\proto</code>	\asymp	<code>\veeeq</code>
\eqq	<code>\eqdot</code>	\vdash	<code>\rightassert</code>	\dashv	<code>\Vdash</code>
\eqq	<code>\eqsim</code>	\dashv	<code>\rightAssert</code>	\trianglelefteq	<code>\wedgeq</code>
$=$	<code>\equal</code>	\dashv	<code>\rightfootline</code>		

fdsymbol defines synonyms for many of the preceding symbols:

\approx	<code>\approxident</code>	\dashv	<code>\dashV</code>	\vdash	<code>\shortrighttack</code>
\equiv	<code>\arceq</code>	\doteqdot	<code>\doteqdot</code>	\perp	<code>\shortuptack</code>
\vdash	<code>\Assert</code>	\coloneqq	<code>\eqcolon</code>	\sim	<code>\smallfrown</code>
\vdash	<code>\assert</code>	\trianglelefteq	<code>\hateq</code>	\sim	<code>\smallsmile</code>
\asymp	<code>\asymp</code>	\bowtie	<code>\Join</code>	\propto	<code>\varproto</code>
\vdash	<code>\Barv</code>	\dashv	<code>\longdashv</code>	\perp	<code>\vBar</code>
\vdash	<code>\barV</code>	\vdash	<code>\models</code>	\perp	<code>\Vbar</code>
\circ	<code>\closure</code>	\ni	<code>\ni</code>	\models	<code>\vDash</code>
\coloneqq	<code>\coloneqq</code>	\perp	<code>\perp</code>	\models	<code>\VDash</code>
\dashv	<code>\dashv</code>	\propto	<code>\propfrom</code>	\dashv	<code>\Vdash</code>
\dashv	<code>\DashV</code>	\vdash	<code>\shortdowntack</code>	\vdash	<code>\vdash</code>
\dashv	<code>\Dashv</code>	\dashv	<code>\shortlefttack</code>	\dashv	<code>\vlongdash</code>

TABLE 101: `fdsymbol` Negated Binary Relations

$\not\equiv$	<code>\backsimneqq</code>	$\not\in$	<code>\nin</code>	$\not+$	<code>\nsim</code>
$\not\approx$	<code>\napprox</code>	$\not\models$	<code>\nleftAssert</code>	$\not\equiv$	<code>\nsimeq</code>
$\not\approxeq$	<code>\napproxeq</code>	$\not\models$	<code>\nleftassert</code>	$\not\equiv$	<code>\nsmile</code>
$\not\cong$	<code>\nbackcong</code>	$\not\models$	<code>\nleftfootline</code>	$\not\equiv$	<code>\nsmileeq</code>
$\not\sim$	<code>\nbacksim</code>	$\not\models$	<code>\nleftmodels</code>	$\not\equiv$	<code>\nsmilefrown</code>
$\not\eqq$	<code>\nbacksimeq</code>	$\not\models$	<code>\nleftvDash</code>	$\not\equiv$	<code>\nstareq</code>
$\not\approx$	<code>\nbumppeq</code>	$\not\models$	<code>\nleftvDash</code>	$\not\equiv$	<code>\nsucc</code>
$\not\approx$	<code>\nBumpeq</code>	$\not\models$	<code>\nleftVdash</code>	$\not\equiv$	<code>\nsuccapprox</code>
$\not\approx$	<code>\nbumppeqq</code>	$\not\models$	<code>\nleftVDash</code>	$\not\equiv$	<code>\nsucccurlyeq</code>
$\not\approx$	<code>\ncirceq</code>	$\not\models$	<code>\nlongleftfootline</code>	$\not\equiv$	<code>\nsucceq</code>
$\not\cong$	<code>\ncong</code>	$\not\models$	<code>\nLongmapsfrom</code>	$\not\equiv$	<code>\nsucceqq</code>
$\not\approx$	<code>\ncurlyeqprec</code>	$\not\models$	<code>\nlongmapsfrom</code>	$\not\equiv$	<code>\nsuccsim</code>
$\not\approx$	<code>\ncurlyeqsucc</code>	$\not\models$	<code>\nlongrightfootline</code>	$\not\equiv$	<code>\ntriplesim</code>
$\not\models$	<code>\ndashVv</code>	$\not\models$	<code>\nmid</code>	$\not\models$	<code>\nupassert</code>
$\not\models$	<code>\nDashhv</code>	$\not\models$	<code>\nowns</code>	$\not\models$	<code>\nupAssert</code>
$\not\models$	<code>\ndoteq</code>	$\not\models$	<code>\nparallel</code>	$\not\models$	<code>\nupmodels</code>
$\not\models$	<code>\nDoteq</code>	$\not\models$	<code>\nprec</code>	$\not\models$	<code>\nupVDash</code>
$\not\models$	<code>\downassert</code>	$\not\models$	<code>\nprecapprox</code>	$\not\models$	<code>\nupvDash</code>
$\not\models$	<code>\downAssert</code>	$\not\models$	<code>\npreccurlyeq</code>	$\not\models$	<code>\nupVdash</code>
$\not\models$	<code>\downmodels</code>	$\not\models$	<code>\npreceq</code>	$\not\models$	<code>\nupvdash</code>
$\not\models$	<code>\downnvDash</code>	$\not\models$	<code>\npreceqq</code>	$\not\models$	<code>\nvDash</code>
$\not\models$	<code>\downDash</code>	$\not\models$	<code>\nrecsim</code>	$\not\models$	<code>\nveeeq</code>
$\not\models$	<code>\downVDash</code>	$\not\models$	<code>\nrightassert</code>	$\not\models$	<code>\nVdash</code>
$\not\models$	<code>\downnvDash</code>	$\not\models$	<code>\nrightAssert</code>	$\not\models$	<code>\nwedgeq</code>
$\not\models$	<code>\neqcirc</code>	$\not\models$	<code>\nrightfootline</code>	$\not\models$	<code>\precneq</code>
$\not\models$	<code>\neqdot</code>	$\not\models$	<code>\nrightmodels</code>	$\not\models$	<code>\precneqq</code>
$\not\models$	<code>\neqsim</code>	$\not\models$	<code>\nrightvDash</code>	$\not\models$	<code>\simneqq</code>
$\not\models$	<code>\nequal</code>	$\not\models$	<code>\nrightVdash</code>	$\not\models$	<code>\succnapprox</code>
$\not\models$	<code>\nequiv</code>	$\not\models$	<code>\nrightvDash</code>	$\not\models$	<code>\succneq</code>
$\not\models$	<code>\nfallingdotseq</code>	$\not\models$	<code>\nrightVDash</code>	$\not\models$	<code>\succneqq</code>
$\not\models$	<code>\nfrown</code>	$\not\models$	<code>\nrisingdotseq</code>	$\not\models$	<code>\succnsim</code>
$\not\models$	<code>\nfrownneq</code>	$\not\models$	<code>\nshortmid</code>		
$\not\models$	<code>\nfrownsmile</code>	$\not\models$	<code>\nshortparallel</code>		

`fdsymbol` defines synonyms for many of the preceding symbols:

$\not\models$	<code>\napproxident</code>	$\not\models$	<code>\ndashV</code>	$\not\models$	<code>\nshortrighttack</code>
$\not\models$	<code>\narceq</code>	$\not\models$	<code>\ne</code>	$\not\models$	<code>\nshortuptack</code>
$\not\models$	<code>\nAssert</code>	$\not\models$	<code>\neq</code>	$\not\models$	<code>\nsime</code>
$\not\models$	<code>\nassert</code>	$\not\models$	<code>\nhateq</code>	$\not\models$	<code>\nvBar</code>
$\not\models$	<code>\nasymp</code>	$\not\models$	<code>\nlongdashv</code>	$\not\models$	<code>\nVbar</code>
$\not\models$	<code>\nBarv</code>	$\not\models$	<code>\nmodels</code>	$\not\models$	<code>\nVdash</code>
$\not\models$	<code>\nbarV</code>	$\not\models$	<code>\nni</code>	$\not\models$	<code>\nvDash</code>
$\not\models$	<code>\nclosure</code>	$\not\models$	<code>\notinin</code>	$\not\models$	<code>\nVDash</code>
$\not\models$	<code>\nDashV</code>	$\not\models$	<code>\nperp</code>	$\not\models$	<code>\nvDash</code>
$\not\models$	<code>\nDashhv</code>	$\not\models$	<code>\nshortdowntack</code>	$\not\models$	<code>\nvlongdash</code>
$\not\models$	<code>\ndashv</code>	$\not\models$	<code>\nshortlefttack</code>		

TABLE 102: boisik Binary Relations

\approx	<code>\ac</code>	$\not\equiv$	<code>\fatslash</code>	\simeq	<code>\scurel</code>
\approxeq	<code>\approxeq</code>	\cap	<code>\forkv</code>	\shortmid	<code>\shortmidid</code>
\arceq	<code>\arceq</code>	\cup	<code>\frown</code>	\shortparallel	<code>\shortparallel</code>
\backsim	<code>\backsimeq</code>	\gg	<code>\ggcurly</code>	\simdot	<code>\simrdots</code>
\backsimeq	<code>\backsimeq</code>	$\#$	<code>\hash</code>	\smallfrown	<code>\smallfrown</code>
\bagmember	<code>\bagmember</code>	\in	<code>\inplus</code>	\smallsmile	<code>\smallsmile</code>
\because	<code>\because</code>	\approx	<code>\kernelcontraction</code>	\smile	<code>\smile</code>
\between	<code>\between</code>	\ll	<code>\llcurly</code>	\strictfi	<code>\strictfi</code>
\bumpeq	<code>\bumpeq</code>	\multimap	<code>\multimap</code>	\strictif	<code>\strictif</code>
\Bumpeq	<code>\Bumpeq</code>	\multimapboth	<code>\multimapboth</code>	\succapprox	<code>\succapprox</code>
\circeq	<code>\circeq</code>	\multimapbothvert	<code>\multimapbothvert</code>	\succcurlyeq	<code>\succcurlyeq</code>
\CircledEq	<code>\CircledEq</code>	\multimapdot	<code>\multimapdot</code>	\succnapprox	<code>\succnapprox</code>
\cong	<code>\cong</code>	\multimapdotboth	<code>\multimapdotboth</code>	\succneqq	<code>\succneqq</code>
\corresponds	<code>\corresponds</code>	\multimapdotbothA	<code>\multimapdotbothA</code>	\succnsim	<code>\succnsim</code>
\curlyeqprec	<code>\curlyeqprec</code>	\multimapdotbothAvert	<code>\multimapdotbothAvert</code>	\succsim	<code>\succsim</code>
\curlyeqsucc	<code>\curlyeqsucc</code>	\multimapdotbothB	<code>\multimapdotbothB</code>	\therefore	<code>\therefore</code>
\dashV	<code>\dashV</code>	\multimapdotbothBvert	<code>\multimapdotbothBvert</code>	\thickapprox	<code>\thickapprox</code>
\DashV	<code>\DashV</code>	\multimapdotbothvert	<code>\multimapdotbothvert</code>	\thicksim	<code>\thicksim</code>
\dashVv	<code>\dashVv</code>	\multimapdotinv	<code>\multimapdotinv</code>	\topfork	<code>\topfork</code>
\dfourier	<code>\dfourier</code>	\multimapinv	<code>\multimapinv</code>	\trianglelefteq	<code>\trianglelefteq</code>
\Dfourier	<code>\Dfourier</code>	\niplus	<code>\niplus</code>	\varhash	<code>\varhash</code>
\disin	<code>\disin</code>	\nisd	<code>\nisd</code>	\varisins	<code>\varisins</code>
\doteq	<code>\doteq</code>	\Perp	<code>\Perp</code>	\varnis	<code>\varnis</code>
\doteqdot	<code>\doteqdot</code>	\pitchfork	<code>\pitchfork</code>	\varpropto	<code>\varpropto</code>
\dotminus	<code>\dotminus</code>	\precapprox	<code>\precapprox</code>	\vdash	<code>\vdash</code>
\dotsim	<code>\dotsim</code>	\preccurlyeq	<code>\preccurlyeq</code>	\vDash	<code>\vDash</code>
\eqbumped	<code>\eqbumped</code>	\precnapprox	<code>\precnapprox</code>	\Vdash	<code>\Vdash</code>
\eqcirc	<code>\eqcirc</code>	\precneqq	<code>\precneqq</code>	\veeeq	<code>\veeeq</code>
\eqsim	<code>\eqsim</code>	\precnsim	<code>\precnsim</code>	\VvDash	<code>\VvDash</code>
\equalparallel	<code>\equalparallel</code>	\precsim	<code>\precsim</code>	\ztransf	<code>\ztransf</code>
\fallingdotseq	<code>\fallingdotseq</code>	\prurel	<code>\prurel</code>	\Ztransf	<code>\Ztransf</code>
\fatslash	<code>\fatslash</code>	\risingdotseq	<code>\risingdotseq</code>		

TABLE 103: boisik Negated Binary Relations

$\not\cong$	<code>\ncong</code>	$\not\preceq$	<code>\npreceq</code>	$\not\nDash$	<code>\nVDash</code>
\neq	<code>\neq</code>	$\not\shortmid$	<code>\nshortmid</code>	$\not\nDash$	<code>\nDash</code>
$\not\equiv$	<code>\nequiv</code>	$\not\shortparallel$	<code>\nshortparallel</code>	$\not\nDash$	<code>\nvDash</code>
$\not\mid$	<code>\nmid</code>	$\not\sim$	<code>\nsim</code>	$\not\nDash$	<code>\nvDash</code>
$\not\parallel$	<code>\nparallel</code>	$\not\succ$	<code>\nsucc</code>		
$\not\prec$	<code>\nprec</code>	$\not\succceq$	<code>\nsuccceq</code>		

TABLE 104: stix Binary Relations

\approx	<code>\approx</code>	$\#$	<code>\eqvparsl</code>	\rightarrow	<code>\rightfishtail</code>
\approxeq	<code>\approxeq</code>	$\vdash.$	<code>\fallingdotseq</code>	\Rightarrow	<code>\rightimply</code>
\approxeqq	<code>\approxeqq</code>	\blacktriangleright	<code>\fbowtie</code>	\succ	<code>\righttail</code>
\approxdot	<code>\approxdot</code>	\downarrow	<code>\forksnot</code>	$\vdash.$	<code>\risingdotseq</code>
\arceq	<code>\arceq</code>	\cap	<code>\forkv</code>	\sqcup	<code>\rsqhook</code>
\assert	<code>\assert</code>	$)$	<code>\frown</code>	$\rightarrow:$	<code>\ruledelayed</code>
\asteq	<code>\asteq</code>	\exists	<code>\gleichstark</code>	\succcurlyeq	<code>\scurel</code>
\asymp	<code>\asymp</code>	\approx	<code>\hatatapprox</code>	\shortdowntack	<code>\shortdowntack</code>
\backcong	<code>\backcong</code>	$\bullet\circ$	<code>\imageof</code>	\shortlefttack	<code>\shortlefttack</code>
\backsimeq	<code>\backsimeq</code>	\in	<code>\in</code>	\shortmid	<code>\shortmid</code>
\backsimeqdot	<code>\backsimeqdot</code>	$\dot{\in}$	<code>\isindot</code>	\shortparallel	<code>\shortparallel</code>
\bagmember	<code>\bagmember</code>	\equiv	<code>\isinE</code>	\shortuparrow	<code>\shortuparrow</code>
\Barv	<code>\Barv</code>	\equiv	<code>\isinobar</code>	\sim	<code>\sim</code>
\barV	<code>\barV</code>	\equiv	<code>\isins</code>	\simeq	<code>\simeq</code>
\between	<code>\between</code>	$\equiv\cap$	<code>\isinvb</code>	\approx	<code>\simminussim</code>
\bNot	<code>\bNot</code>	\rightsquigarrow	<code>\kernelcontraction</code>	$\not\approx$	<code>\simneqq</code>
\bowtie	<code>\bowtie</code>	\rightsquigleftarrow	<code>\leftdbltail</code>	\approx	<code>\simrdots</code>
\Bumpeq	<code>\Bumpeq</code>	$\rightarrow\sqcap$	<code>\leftfishtail</code>	\circ	<code>\smallfrown</code>
\bumpeq	<code>\bumpeq</code>	\rightsquigleftarrow	<code>\lefttail</code>	ϵ	<code>\smalllin</code>
\bumpeqq	<code>\bumpeqq</code>	\blacktriangleright	<code>\lfbowtie</code>	\ni	<code>\smalllni</code>
\cirbot	<code>\cirbot</code>	\blacktriangleright	<code>\lftimes</code>	\circ	<code>\smallsmile</code>
\circeq	<code>\circeq</code>	\sqcap	<code>\longdashv</code>	$\#$	<code>\smeparsl</code>
\cirmid	<code>\cirmid</code>	$\sqcap\sqcup$	<code>\lsqhook</code>	$\approx()$	<code>\smile</code>
\closure	<code>\closure</code>	$\equiv\sqcap$	<code>\measeq</code>	\star	<code>\stareq</code>
\Coloneq	<code>\Coloneq</code>	\sqcap	<code>\mid</code>	\succ	<code>\succc</code>
\coloneq	<code>\coloneq</code>	$\circ\sqcap$	<code>\midcir</code>	\gg	<code>\Succ</code>
\cong	<code>\cong</code>	$\circ\sqcap$	<code>\mlcp</code>	$\approx\approx\approx\approx\approx\approx$	<code>\succcapprox</code>
\congdot	<code>\congdot</code>	$\sqcap\sqcap$	<code>\models</code>	$\approx\approx\approx\approx\approx\approx$	<code>\succcurlyeq</code>
\curlyeqprec	<code>\curlyeqprec</code>	$\rightarrow\circ$	<code>\multimap</code>	$\approx\approx\approx\approx\approx\approx$	<code>\succceq</code>
\curlyeqsucc	<code>\curlyeqsucc</code>	$\circ\rightarrow$	<code>\multimapinv</code>	$\approx\approx\approx\approx\approx\approx$	<code>\succceqq</code>
\dashcolon	<code>\dashcolon</code>	$\ni\cap$	<code>\ni</code>	$\approx\approx\approx\approx\approx\approx$	<code>\succcnapprox</code>
\dashv	<code>\dashv</code>	\ni	<code>\niobar</code>	$\approx\approx\approx\approx\approx\approx$	<code>\succcneq</code>
\dashV	<code>\dashV</code>	$\ni\cap$	<code>\nis</code>	$\approx\approx\approx\approx\approx\approx$	<code>\succcneqq</code>
\Dashv	<code>\Dashv</code>	$\ni\cap$	<code>\nisd</code>	$\approx\approx\approx\approx\approx\approx$	<code>\succcnsim</code>
\DashV	<code>\DashV</code>	$\ni\cap$	<code>\Not</code>	$\approx\approx\approx\approx\approx\approx$	<code>\succcsim</code>
\DashVDash	<code>\DashVDash</code>	$/$	<code>\notchar</code>	$\approx\approx\approx\approx\approx\approx$	<code>\thickapprox</code>
\dashVdash	<code>\dashVdash</code>	$\circ\bullet$	<code>\origof</code>	$\approx\approx\approx\approx\approx\approx$	<code>\thicksim</code>
$\ddot{ }$	<code>\ddot{ }</code>	\equiv	<code>\parallel</code>	$\approx\approx\approx\approx\approx\approx$	<code>\topfork</code>
\disin	<code>\disin</code>	\nexists	<code>\parsim</code>	$\approx\approx\approx\approx\approx\approx$	<code>\upfishtail</code>
\Doteq	<code>\Doteq</code>	\perp	<code>\perp</code>	$\approx\approx\approx\approx\approx\approx$	<code>\upin</code>
\doteq	<code>\doteq</code>	\nexists	<code>\pitchfork</code>	$\approx\approx\approx\approx\approx\approx$	<code>\varisobar</code>
\dotequiv	<code>\dotequiv</code>	\wedge	<code>\prec</code>	$\approx\approx\approx\approx\approx\approx$	<code>\varisins</code>
\dotsim	<code>\dotsim</code>	$\approx\approx$	<code>\Prec</code>	$\approx\approx\approx\approx\approx\approx$	<code>\varniobar</code>
\dotsminusdots	<code>\dotsminusdots</code>	$\approx\approx\approx\approx$	<code>\precapprox</code>	$\approx\approx\approx\approx\approx\approx$	<code>\varnis</code>
\downfishtail	<code>\downfishtail</code>	$\approx\approx\approx\approx$	<code>\preccurlyeq</code>	$\approx\approx\approx\approx\approx\approx$	<code>\varproto</code>
\dualmap	<code>\dualmap</code>	$\approx\approx\approx\approx$	<code>\preceq</code>	$\approx\approx\approx\approx\approx\approx$	<code>\varVdash</code>
\eparsl	<code>\eparsl</code>	$\approx\approx\approx\approx$	<code>\preceqq</code>	$\approx\approx\approx\approx\approx\approx$	<code>\vBar</code>
\eqcirc	<code>\eqcirc</code>	$\approx\approx\approx\approx$	<code>\precnapprox</code>	$\approx\approx\approx\approx\approx\approx$	<code>\Vbar</code>
\eqcolon	<code>\eqcolon</code>	$\approx\approx\approx\approx$	<code>\precneq</code>	$\approx\approx\approx\approx\approx\approx$	<code>\vBarv</code>
\eqdef	<code>\eqdef</code>	$\approx\approx\approx\approx$	<code>\precneqq</code>	$\approx\approx\approx\approx\approx\approx$	<code>\Vdash</code>
\eqdot	<code>\eqdot</code>	$\approx\approx\approx\approx$	<code>\precnsim</code>	$\approx\approx\approx\approx\approx\approx$	<code>\vdash</code>

(continued on next page)

(continued from previous page)

\equiv	<code>\eqqeq</code>	\approx	<code>\precsim</code>	\vDash	<code>\vDash</code>
$\equiv\equiv$	<code>\eqqeqq</code>	\propto	<code>\proto</code>	\Vdash	<code>\VDash</code>
\approx	<code>\eqqsim</code>	\curlyeqsucc	<code>\prurel</code>	\vDash	<code>\vDash</code>
\approx	<code>\eqsim</code>	\sqsupset	<code>\pullback</code>	\vdots	<code>\vdots</code>
$\#$	<code>\equalparallel</code>	\sqcap	<code>\pushout</code>	$\vee\vee$	<code>\veeeq</code>
\equiv	<code>\equiv</code>	$\stackrel{?}{=}$	<code>\questeq</code>	\times	<code>\veeonwedge</code>
\equiv	<code>\Equiv</code>	\dagger	<code>\revnmid</code>	$ $	<code>\vertoverlay</code>
$\equiv\equiv$	<code>\equivDD</code>	\bowtie	<code>\rfbowtie</code>	$\overline{\rule{1pt}{1ex}}$	<code>\vlongdash</code>
$\#$	<code>\equivVert</code>	\bowtie	<code>\rftimes</code>	$\overline{\rule{1pt}{1ex}}$	<code>\Vvdash</code>
$\#$	<code>\equivVvert</code>	\rightarrowtail	<code>\rightdbltail</code>	\trianglelefteq	<code>\wedgeq</code>

stix defines `\owns` as a synonym for `\ni` and `\doteqdot` as a synonym for `\Doteq`.

TABLE 105: stix Negated Binary Relations

$\not\equiv$	<code>\forks</code>	$\not\#$	<code>\nhpar</code>	$\not\approx$	<code>\nsime</code>
$\not\approx$	<code>\napprox</code>	$\not\dashv$	<code>\nmid</code>	$\not\times$	<code>\nsucc</code>
$\not\approx\approx$	<code>\napproxeqq</code>	$\not\exists$	<code>\nni</code>	$\not\times$	<code>\nsucccurlyeq</code>
$\not\approx$	<code>\nasmp</code>	$\not\in$	<code>\notinin</code>	$\not\times$	<code>\nsucceq</code>
$\not\approx$	<code>\nBumpeq</code>	$\not\#$	<code>\nparallel</code>	$\not\exists$	<code>\nvarisinoar</code>
$\not\approx$	<code>\nbumpaq</code>	$\not\times$	<code>\nprec</code>	$\not\exists$	<code>\nvarniobar</code>
$\not\approx$	<code>\ncong</code>	$\not\approx$	<code>\npreccurlyeq</code>	$\not\times$	<code>\nvDash</code>
$\not\approx$	<code>\ncongdot</code>	$\not\approx$	<code>\npreceq</code>	$\not\times$	<code>\nvdash</code>
$\not\approx$	<code>\ne</code>	$\not\dashv$	<code>\nshortmid</code>	$\not\exists$	<code>\nVDash</code>
$\not\approx$	<code>\neqsim</code>	$\not\#$	<code>\nshortparallel</code>	$\not\exists$	<code>\nVdash</code>
$\not\approx$	<code>\nequiv</code>	$\not\approx$	<code>\nsim</code>		

stix defines `\neq` as a synonym for `\ne`, `\nsimeq` as a synonym for `\nsime`, and `\nforksnot` as a synonym for `\forks`.

TABLE 106: mathtools Binary Relations

$\approx\approx$	<code>\Colonapprox</code>	$\vdash\vdash$	<code>\coloneq</code>	$\dashv\dashv$	<code>\Eqcolon</code>
\approx	<code>\colonapprox</code>	$\approx\approx$	<code>\colonsim</code>	$=:=$	<code>\eqqcolon</code>
\coloneqq	<code>\coloneqq</code>	$\vdash\vdash$	<code>\Colonsim</code>	$=::$	<code>\Eqqcolon</code>
$\coloneqq\coloneqq$	<code>\Coloneqq</code>	$:::$	<code>\dblcolon</code>		
$\coloneqq\coloneqq$	<code>\Coloneqq</code>	$\vdash\vdash$	<code>\eqcolon</code>		

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

$$\text{---}:\text{---} \quad \text{vs.} \quad \text{---}:\text{---}$$

“=:=” “=\vcentscolon=”

TABLE 107: 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>\nddtstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\nststile{abc}{def}</code>	$\frac{def}{abc}$	<code>\tddtstile{abc}{def}</code>
$\frac{def}{abc}$	<code>\dnststile{abc}{def}</code>	$\frac{def}{abc}$	<code>\nstattile{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>
$\frac{def}{abc}$	<code>\dnttstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\ntststile{abc}{def}</code>	$\frac{def}{abc}$	<code>\tdttstile{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>\tnbstile{abc}{def}</code>
$\frac{def}{abc}$	<code>\dstattile{abc}{def}</code>	$\frac{def}{abc}$	<code>\sdststile{abc}{def}</code>	$\frac{def}{abc}$	<code>\tnbstile{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>\dtststile{abc}{def}</code>	$\frac{def}{abc}$	<code>\sdttstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\tsststile{abc}{def}</code>
$\frac{def}{abc}$	<code>\dttstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\sndtstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\tststile{abc}{def}</code>
$\frac{def}{abc}$	<code>\dtttstile{abc}{def}</code>	$\frac{def}{abc}$	<code>\snststile{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>\tttstile{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>\sststile{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 108: `trsymb` Binary Relations

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

TABLE 109: `trfsigns` Binary Relations

$\circ\swarrow$	<code>\dfourier</code>	$\searrow\circ$	<code>\Dfourier</code>
$\circ\overline{\circ}$	<code>\fourier</code>	$\overline{\circ}\circ$	<code>\Fourier</code>
$\circ\bullet\bullet$	<code>\laplace</code>	$\bullet\bullet\circ$	<code>\Laplace</code>
$\circ\swarrow\bullet$	<code>\ztransf</code>	$\bullet\searrow\circ$	<code>\Ztransf</code>

TABLE 110: `cml` Binary Relations

$\circ\circ$	<code>\coh</code>	$\circ\circ$	<code>\scoh</code>
$\asymp\asymp$	<code>\incoh</code>	$\asymp\asymp$	<code>\sincoh</code>
$\perp\perp$	<code>\Perp</code>	$\perp\perp$	<code>\simperp</code>
$\circ\circ\circ$	<code>\multimapboth</code>		

TABLE 111: `colonequals` Binary Relations

$\approx:$	<code>\approxcolon</code>	$::-$	<code>\coloncolonminus</code>	$=::$	<code>\equalscoloncolon</code>
$\approx::$	<code>\approxcoloncolon</code>	$::\sim$	<code>\coloncolonsim</code>	$-:$	<code>\minuscolon</code>
$\approx\approx$	<code>\colonapprox</code>	$::=$	<code>\colonequals</code>	$-::$	<code>\minuscoloncolon</code>
$::$	<code>\coloncolon</code>	$-:$	<code>\colonminus</code>	$:$	<code>\ratio</code>
$::\approx$	<code>\coloncolonapprox</code>	$\sim:$	<code>\colonsim</code>	$\sim::$	<code>\simcolon</code>
$::=:$	<code>\coloncolononequals</code>	$=:$	<code>\equalscolon</code>	$\sim::$	<code>\simcoloncolon</code>

TABLE 112: `fourier` Binary Relations

$\# \quad \nparallel \text{slant} \quad // \quad \parallel \text{slant}$

TABLE 113: 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>	\sqsubseteq	<code>\sqsubseteq</code>		

* Not predefined by the L^AT_EX 2 _{ε} core. Use the `latexsym` package to expose this symbol.

TABLE 114: *AMS* Subset and Superset Relations

$\not\subseteq$	$\backslash nsubseteq$	\subseteq	$\backslash subseteqq$	\supseteq	$\backslash supsetneqq$
$\not\supseteq$	$\backslash nsupseteq$	\subsetneq	$\backslash subsetneq$	\supsetneq	$\backslash varsubsetneq$
$\not\supseteqq$	$\backslash nsupseteqq$	\subsetneqq	$\backslash subsetneqq$	\supsetneqq	$\backslash varsubsetneqq$
\sqsubset	$\backslash sqsubset$	\sqsupset	$\backslash Supset$	\sqsupsetneq	$\backslash varsupsetneq$
\sqsupset	$\backslash sqsupset$	\sqsubseteq	$\backslash supseteqq$	\sqsupsetneqq	$\backslash varsupsetneqq$
\Subset	$\backslash Subset$	\Supset	$\backslash supsetneq$		

TABLE 115: *stmaryrd* Subset and Superset Relations

\Subset	$\backslash subsetplus$	\Supset	$\backslash supsetplus$
\Subseteq	$\backslash subsetpluseq$	\Supseteq	$\backslash supsetpluseq$

TABLE 116: *wasy sym* Subset and Superset Relations

\sqsubset	$\backslash sqsubset$	\sqsupset	$\backslash sqsupset$
-------------	-----------------------	-------------	-----------------------

TABLE 117: *txfonts/pffonts* Subset and Superset Relations

$\not\sqsubset$	$\backslash nsqsubset$	$\not\sqsupset$	$\backslash nsqsupseteq$	$\not\sqsupseteq$	$\backslash nSupset$
$\not\sqsubset$	$\backslash nsqsubseteq$	$\not\sqsupseteq$	$\backslash nSubset$		
$\not\sqsupset$	$\backslash nsqsupset$	$\not\sqsubset$	$\backslash nsubseteqq$		

TABLE 118: *mathabx* Subset and Superset Relations

\nsubseteq	$\backslash nsqsubset$	\nsubseteq	$\backslash nsupset$	\subseteq	$\backslash sqsupseteq$	\supseteq	$\backslash supseteqq$
\nsubseteq	$\backslash nsqSubset$	\nsubseteq	$\backslash nSupset$	\sqsubseteq	$\backslash sqsupseteqq$	\sqsupseteq	$\backslash supseteqq$
\nsubseteq	$\backslash nsqsubseteq$	\nsubseteq	$\backslash nsupseteq$	\sqsubsetneq	$\backslash sqsupsetneq$	\supsetneq	$\backslash supsetneq$
\nsubseteq	$\backslash nsqsubseteqq$	\nsubseteq	$\backslash nsupseteqq$	\sqsubsetneqq	$\backslash sqsupsetneqq$	\supsetneqq	$\backslash supsetneqq$
\nsubseteq	$\backslash nsqsupset$	\sqsubset	$\backslash sqsubset$	\sqsubset	$\backslash subset$	\sqsupsetneq	$\backslash varsqsubsetneq$
\nsubseteq	$\backslash nsqSupset$	\sqsubset	$\backslash sqSubset$	\sqsubset	$\backslash Subset$	\sqsupsetneq	$\backslash varsqsubsetneq$
\nsubseteq	$\backslash nsqsupseteq$	\sqsubset	$\backslash sqsubseteq$	\sqsubseteq	$\backslash subseteq$	\sqsupsetneq	$\backslash varsqsupsetneq$
\nsubseteq	$\backslash nsqsupseteqq$	\sqsubset	$\backslash sqsubseteqq$	\sqsubseteq	$\backslash subseteqq$	\sqsupsetneq	$\backslash varsqsupsetneqq$
\nsubseteq	$\backslash nsubset$	\sqsubsetneq	$\backslash sqsubsetneq$	\sqsubsetneq	$\backslash subsetneq$	\sqsupsetneq	$\backslash varsubsetneq$
\nsubseteq	$\backslash nSubset$	\sqsubsetneq	$\backslash sqsubsetneqq$	\sqsubsetneq	$\backslash subsetneqq$	\sqsupsetneq	$\backslash varsubsetneqq$
\nsubseteq	$\backslash nsubseteq$	\sqsubsetneqq	$\backslash sqSupset$	\sqsupset	$\backslash supset$	\sqsupsetneq	$\backslash varsupsetneq$
\nsubseteq	$\backslash nsubseteqq$	\sqsubsetneqq	$\backslash sqsupset$	\sqsupset	$\backslash Supset$	\sqsupsetneq	$\backslash varsupsetneqq$

TABLE 119: MnSymbol Subset and Superset Relations

$\not\subseteq$	$\backslash nSqsubset$	$\not\subseteq$	$\backslash nsubseteq$	$\not\subseteq$	$\backslash sqsubsetneq$	\subseteq	$\backslash subseteq$
$\not\subset$	$\backslash nsqsubset$	$\not\subset$	$\backslash nsubseteqq$	$\not\subset$	$\backslash sqsubsetneqq$	\subseteq	$\backslash subseteqq$
$\not\sqsubseteq$	$\backslash nsqsubseteq$	$\not\sqsubseteq$	$\backslash nSupset$	$\not\sqsubseteq$	$\backslash Sqsupset$	$\not\sqsubseteq$	$\backslash subsetneq$
$\not\sqsubset$	$\backslash nsqsubseteqq$	$\not\sqsubset$	$\backslash nSupset$	$\not\sqsubset$	$\backslash Sqsupset$	$\not\sqsubset$	$\backslash subsetneqq$
$\not\sqsupseteq$	$\backslash nSqsupset$	$\not\sqsupseteq$	$\backslash nsupseteq$	$\not\sqsupseteq$	$\backslash sqsupseteq$	\sqsupseteq	$\backslash Supset$
$\not\sqsupseteqq$	$\backslash nsqsupset$	$\not\sqsupseteqq$	$\backslash nsupseteqq$	$\not\sqsupseteqq$	$\backslash sqsupseteqq$	\sqsupseteq	$\backslash supset$
$\not\sqsupseteqq$	$\backslash nsqsupseteq$	$\not\sqsupseteqq$	$\backslash Sqsubset$	$\not\sqsupseteqq$	$\backslash sqsupsetneq$	\sqsupseteq	$\backslash supseteq$
$\not\sqsupsetneq$	$\backslash nsqsupseteqq$	$\not\sqsupsetneq$	$\backslash sqsubset$	$\not\sqsupsetneq$	$\backslash sqsupsetneqq$	\sqsupseteq	$\backslash supseteqq$
$\not\sqsubseteq$	$\backslash nSubset$	$\not\sqsubseteq$	$\backslash sqsubseteq$	$\not\sqsubseteq$	$\backslash Subset$	$\not\sqsubseteq$	$\backslash supsetneq$
$\not\sqsubset$	$\backslash nsubset$	$\not\sqsubset$	$\backslash sqsubseteqq$	$\not\sqsubset$	$\backslash subset$	$\not\sqsubset$	$\backslash supsetneqq$

MnSymbol additionally defines $\backslash varsubsetneq$ as a synonym for $\backslash subsetneq$, $\backslash varsubsetneqq$ as a synonym for $\backslash subsetneqq$, $\backslash varsupsetneq$ as a synonym for $\backslash supsetneq$, and $\backslash varsupsetneqq$ as a synonym for $\backslash supsetneqq$.

TABLE 120: fdsymbol Subset and Superset Relations

$\not\subseteq$	$\backslash nsqsubset$	$\not\subseteq$	$\backslash nsubseteq$	$\not\subseteq$	$\backslash sqsubsetneq$	\subseteq	$\backslash subseteq$
$\not\subset$	$\backslash nSqsubset$	$\not\subset$	$\backslash nsubseteqq$	$\not\subset$	$\backslash sqsubsetneqq$	\subseteq	$\backslash subseteqq$
$\not\sqsubseteq$	$\backslash nsqsubseteq$	$\not\sqsubseteq$	$\backslash nSupset$	$\not\sqsubseteq$	$\backslash Sqsupset$	$\not\sqsubseteq$	$\backslash subsetneq$
$\not\sqsubset$	$\backslash nsqsubseteqq$	$\not\sqsubset$	$\backslash nSupset$	$\not\sqsubset$	$\backslash Sqsupset$	$\not\sqsubset$	$\backslash subsetneqq$
$\not\sqsupseteq$	$\backslash nSqsupset$	$\not\sqsupseteq$	$\backslash nsupseteq$	$\not\sqsupseteq$	$\backslash sqsupseteq$	\sqsupseteq	$\backslash supset$
$\not\sqsupseteqq$	$\backslash nsqsupset$	$\not\sqsupseteqq$	$\backslash nsupseteqq$	$\not\sqsupseteqq$	$\backslash sqsupseteqq$	\sqsupseteq	$\backslash Supset$
$\not\sqsupseteqq$	$\backslash nsqsupseteq$	$\not\sqsupseteqq$	$\backslash Sqsubset$	$\not\sqsupseteqq$	$\backslash sqsupsetneq$	\sqsupseteq	$\backslash supseteq$
$\not\sqsupsetneq$	$\backslash nsqsupseteqq$	$\not\sqsupsetneq$	$\backslash sqsubset$	$\not\sqsupsetneq$	$\backslash sqsupsetneqq$	\sqsupseteq	$\backslash supseteqq$
$\not\sqsubseteq$	$\backslash nsubset$	$\not\sqsubseteq$	$\backslash sqsubseteq$	$\not\sqsubseteq$	$\backslash subset$	$\not\sqsubseteq$	$\backslash supsetneq$
$\not\sqsubset$	$\backslash nSubset$	$\not\sqsubset$	$\backslash sqsubseteqq$	$\not\sqsubset$	$\backslash Subset$	$\not\sqsubset$	$\backslash supsetneqq$

fdsymbol additionally defines $\backslash varsubsetneqq$ as a synonym for $\backslash subsetneqq$, $\backslash varsubsetneq$ as a synonym for $\backslash subsetneq$, $\backslash varsupsetneq$ as a synonym for $\backslash supsetneq$, and $\backslash varsupsetneqq$ as a synonym for $\backslash supsetneqq$.

TABLE 121: boisik Subset and Superset Relations

$\not\subseteq$	$\backslash nsubset$	\equiv	$\backslash sqSubset$	\in	$\backslash subsetplus$	\ni	$\backslash supsetplus$
$\not\subset$	$\backslash nsubseteq$	\equiv	$\backslash SqSupset$	\in	$\backslash subsetplus$	$\not\subseteq$	$\backslash varsubsetneq$
$\not\sqsubseteq$	$\backslash nsubseteqq$	\sqsubset	$\backslash Sqsupset$	\ni	$\backslash Supset$	$\not\subseteq$	$\backslash varsubsetneqq$
$\not\sqsubset$	$\backslash nsupset$	\equiv	$\backslash Subset$	\ni	$\backslash supseteqq$	$\not\subseteq$	$\backslash varsupsetneq$
$\not\sqsupseteq$	$\backslash nsupseteq$	\equiv	$\backslash subsequeq$	$\not\subseteq$	$\backslash supsetneq$	\ni	$\backslash varsupsetneq$
$\not\sqsupseteqq$	$\backslash nsupseteqq$	$\not\subseteq$	$\backslash subsetneq$	$\not\subseteq$	$\backslash supsetneqq$	\ni	$\backslash varsupsetneqq$
\sqsubset	$\backslash sqsubset$	$\not\subseteq$	$\backslash subsetneqq$	\ni	$\backslash supsetplus$		

TABLE 122: stix Subset and Superset Relations

\subset	<code>\bsolhsup</code>	\sqsupseteq	<code>\sqsupseteqq</code>	\supset	<code>\suphsup</code>
\sqsubset	<code>\csup</code>	\sqsupsetneq	<code>\sqsupsetneqq</code>	\supsetarr	<code>\suplarr</code>
\sqsubseteq	<code>\csub</code>	\subdot	<code>\subedot</code>	\supmult	<code>\supmulf</code>
\sqsupseteq	<code>\csube</code>	\submult	<code>\submult</code>	\Supset	<code>\Supset</code>
\sqsupseteqq	<code>\csupe</code>	\subrarr	<code>\subrarr</code>	\supset	<code>\supset</code>
$\leftarrow\!\!\subset$	<code>\leftarrow\!\!\subset</code>	\Subset	<code>\Subset</code>	\supsetapprox	<code>\supsetapprox</code>
\sqsubset	<code>\nsqsubset</code>	\subset	<code>\subset</code>	\supsetcirc^*	<code>\supsetcirc*</code>
\sqapprox	<code>\nsqsubseteq</code>	\approx	<code>\subsetapprox</code>	\supsetdot	<code>\supsetdot</code>
\sqsupset	<code>\nsqsupsubset</code>	\supseteq	<code>\subsetcirc</code>	\supseteq	<code>\supseteq</code>
\sqsupseteq	<code>\nsqsupsubset</code>	\supseteqq	<code>\subsetcirc</code>	\supseteqq	<code>\supseteqq</code>
\sqsupseteqq	<code>\nsqsupsubset</code>	\supsetneq	<code>\subsetneq</code>	\supsetneq	<code>\supsetneq</code>
\sqsupsetneq	<code>\nsqsupsubset</code>	\supsetneqq	<code>\subsetneqq</code>	\supsetneqq	<code>\supsetneqq</code>
\sqsupsetneqq	<code>\nsqsupsubset</code>	\supsetneqq	<code>\subsetneqq</code>	\supsetplus	<code>\supsetplus</code>
\sqsupsetneqq	<code>\nsqsupsubset</code>	\supsetneqq	<code>\subsetneqq</code>	\supsim	<code>\supsim</code>
\sqsupsetneqq	<code>\nsqsupsubset</code>	\supsetplus	<code>\subsetplus</code>	\supsub	<code>\supsub</code>
\sqsupsetneqq	<code>\nsqsupsubset</code>	\supseteqq	<code>\subseteqq</code>	\supsup	<code>\supsup</code>
$\rightarrow\!\!\supset$	<code>\rightarrowsupset</code>	\supsub	<code>\supsub</code>	\varsubsetneq	<code>\varsubsetneq</code>
\sqsubset	<code>\sqsubset</code>	\supsup	<code>\supsup</code>	\varsubsetneqq	<code>\varsubsetneqq</code>
\sqapprox	<code>\sqsubset</code>	\supdsub	<code>\supdsub</code>	\varsubsetneqq	<code>\varsubsetneqq</code>
\sqsupsetneq	<code>\sqsubset</code>	\supedot	<code>\supedot</code>	\varsubsetneqq	<code>\varsubsetneqq</code>
\sqsupset	<code>\sqsubset</code>	\suphsol	<code>\suphsol</code>		

* Defined as an ordinary character, not as a binary relation.

TABLE 123: Inequalities

\geq `\geq` \gg `\gg` \leq `\leq` \ll `\ll` \lll `\lll` \neq `\neq`

 TABLE 124: *AMS* Inequalities

\gg	<code>\eqslantgtr</code>	\gtreqdot	<code>\gtreqdot</code>	\lesseqgtr	<code>\lesseqgtr</code>	\ngeq	<code>\ngeq</code>
\ll	<code>\eqslantless</code>	\gtreqless	<code>\gtreqless</code>	\lesseqgtr	<code>\lesseqgtr</code>	\ngeq	<code>\ngeq</code>
\lll	<code>\geqq</code>	\gtreqless	<code>\gtreqless</code>	\lessgtr	<code>\lessgtr</code>	\ngeqslant	<code>\ngeqslant</code>
\gg	<code>\geqslant</code>	\gtreqless	<code>\gtreqless</code>	\lessim	<code>\lessim</code>	\ngtr	<code>\ngtr</code>
\ggg	<code>\ggg</code>	\gtreqsim	<code>\gtreqsim</code>	\lll	<code>\lll</code>	\nleq	<code>\nleq</code>
\approx	<code>\gnapprox</code>	\gvertneqq	<code>\gvertneqq</code>	\lnapprox	<code>\lnapprox</code>	\nleqq	<code>\nleqq</code>
\approx	<code>\gneq</code>	\leqq	<code>\leqq</code>	\lneg	<code>\lneg</code>	\nleqslant	<code>\nleqslant</code>
\approx	<code>\gneqq</code>	\leqslant	<code>\leqslant</code>	\lnegq	<code>\lnegq</code>	\nless	<code>\nless</code>
\approx	<code>\gnsim</code>	\lessapprox	<code>\lessapprox</code>	\lnsim	<code>\lnsim</code>		
\approx	<code>\gtrapprox</code>	\lessdot	<code>\lessdot</code>	\lvertneqq	<code>\lvertneqq</code>		

TABLE 125: *wasy sym* Inequalities
 $\gtrapprox \backslash apprge \quad \lessapprox \backslash apprle$
TABLE 126: *txfonts/pxfonts* Inequalities

$\ggtrsim \backslash ngg$	$\lltrsim \backslash ngtrsim$	$\lessapprox \backslash nlessim$
$\gtrapprox \backslash ngtrapprox$	$\lessapprox \backslash nlessapprox$	$\lessdot \backslash nll$
$\gtrless \backslash ngtrless$	$\lessgtr \backslash nlessgtr$	

TABLE 127: *mathabx* Inequalities

$\gtrlessapprox \backslash eqslantgt$	$\lessapprox \backslash gtreqless$	$\lessapprox \backslash lesssim$	$\gtrapprox \backslash ngtr$
$\lessapprox \backslash eqslantless$	$\gtrlessapprox \backslash gtreqless$	$\ll \backslash ll$	$\gtrapprox \backslash ngtrapprox$
$\gtrless \backslash geq$	$\gtrless \backslash gtrless$	$\ll \backslash lll$	$\lessapprox \backslash ngtrsim$
$\lessapprox \backslash geqq$	$\gtrlessapprox \backslash gtrsim$	$\lessapprox \backslash lnapprox$	$\lessapprox \backslash nleq$
$\gtrless \backslash gg$	$\gtrlessapprox \backslash gvertneqq$	$\lessapprox \backslash lneq$	$\lessapprox \backslash nleqq$
$\gtrless \backslash ggg$	$\lessapprox \backslash leq$	$\lessapprox \backslash lneqq$	$\lessdot \backslash nless$
$\gtrlessapprox \backslash gnapprox$	$\lessapprox \backslash leqq$	$\lessapprox \backslash lnsim$	$\lessapprox \backslash nlessapprox$
$\gtrless \backslash gneq$	$\lessapprox \backslash lessapprox$	$\lessapprox \backslash lvertneqq$	$\lessapprox \backslash nlessim$
$\lessapprox \backslash gneqq$	$\lessapprox \backslash lessdot$	$\lessdot \backslash neqslantgt$	$\lessdot \backslash nvargeq$
$\gtrlessapprox \backslash gnsim$	$\lessapprox \backslash lesseqgtr$	$\lessdot \backslash neqslantless$	$\lessdot \backslash nvarleq$
$\gtrlessapprox \backslash gtrapprox$	$\lessapprox \backslash lesseqgqgtr$	$\lessdot \backslash ngeq$	$\gtrless \backslash vargeq$
$\gtrless \backslash gtrdot$	$\lessapprox \backslash lessgtr$	$\lessdot \backslash ngeqq$	$\lessapprox \backslash varleq$

mathabx defines \leqslant and \leq as synonyms for \leq , \geqslant and \geq as synonyms for \geq , \nleqslant as a synonym for \nleq , and \ngeqslant as a synonym for \ngeq .

TABLE 128: MnSymbol Inequalities

\geq	<code>\eqslantgtr</code>	\geqslant	<code>\gtreqless</code>	\lesssim	<code>\lesssim</code>	\ngtrless
\leq	<code>\eqslantless</code>	\leqslant	<code>\gtrless</code>	\ll	<code>\ll</code>	\ngtrlessslant
\geq	<code>\geq</code>	\geqslant	<code>\gtrneqless</code>	\lll	<code>\lll</code>	\ngtrqless
\leq	<code>\geqclosed</code>	\leqslant	<code>\gtrsim</code>	\approx	<code>\lnapprox</code>	\ngtrless
\geq	<code>\geqdot</code>	\geqslant	<code>\leq</code>	\leqslant	<code>\lneqq</code>	\nleq
\leq	<code>\geqq</code>	\leqslant	<code>\leqclosed</code>	\approx	<code>\lnsim</code>	\nleqclosed
\geq	<code>\geqlant</code>	\leqslant	<code>\leqdot</code>	\approx	<code>\neqslantgtr</code>	\nleqdot
\geq	<code>\geqlantdot</code>	\leqslant	<code>\leqq</code>	\approx	<code>\neqslantless</code>	\nleqq
\gg		\leqslant	<code>\leqlant</code>	\approx	<code>\ngeq</code>	\nleqlant
\ggg		\leqslant	<code>\leqlantdot</code>	\approx	<code>\ngeqclosed</code>	\nleqlantdot
\nlessapprox	<code>\gnapprox</code>	$<$	<code>\less</code>	\approx	<code>\ngeqdot</code>	\nless
\nlessapprox	<code>\gneqq</code>	\approx	<code>\lessapprox</code>	\approx	<code>\ngeqq</code>	\nlessclosed
\nlessapprox	<code>\gnsim</code>	\triangleleft	<code>\lessclosed</code>	\approx	<code>\ngeqlant</code>	\nlessdot
\gg	<code>\gtr</code>	\triangleleft	<code>\lessdot</code>	\approx	<code>\neqslantdot</code>	\nlesseqgtr
\nlessapprox	<code>\gtrapprox</code>	$\vee\wedge$	<code>\lesseqgtr</code>	\gg	<code>\ngg</code>	\nlesseqtrslant
\gg	<code>\gtrclosed</code>	$\vee\vee\wedge$	<code>\lesseqgtrslant</code>	$\gg\gg$	<code>\nggg</code>	\nlesseqggr
\gg	<code>\gtrdot</code>	$\vee\vee\wedge$	<code>\lesseqgqtr</code>	\gg	<code>\ngtr</code>	\nlessgtr
\nlessapprox	<code>\gtreqless</code>	$\vee\vee\wedge$	<code>\lessgtr</code>	\gg	<code>\ngtrclosed</code>	\nll
\nlessapprox	<code>\gtreqlessslant</code>	$\vee\wedge\wedge$	<code>\lessneqqgtr</code>	\gg	<code>\ngtrdot</code>	\nlll

MnSymbol additionally defines synonyms for some of the preceding symbols:

\ggg	<code>\gggtr</code>	(same as <code>\ggg</code>)
\nlessapprox	<code>\gvertneqq</code>	(same as <code>\gneqq</code>)
\triangleleft	<code>\lhd</code>	(same as <code>\lessclosed</code>)
\lll	<code>\lllless</code>	(same as <code>\lll</code>)
\nlessapprox	<code>\lvertneqq</code>	(same as <code>\lneqq</code>)
\triangleleft	<code>\ntrianglerlefteq</code>	(same as <code>\neqclosed</code>)
\triangleleft	<code>\ntriangleleft</code>	(same as <code>\nlessclosed</code>)
\triangleleft	<code>\ntrianglerighteq</code>	(same as <code>\ngeqclosed</code>)
\triangleleft	<code>\ntriangleleft</code>	(same as <code>\ngtrclosed</code>)
\gg	<code>\rhd</code>	(same as <code>\gtrclosed</code>)
\gg	<code>\trianglelefteq</code>	(same as <code>\leqclosed</code>)
\gg	<code>\trianglerighteq</code>	(same as <code>\geqclosed</code>)
\gg	<code>\unlhd</code>	(same as <code>\leqclosed</code>)
\gg	<code>\unrhd</code>	(same as <code>\geqclosed</code>)
\gg	<code>\vartriangleleft</code>	(same as <code>\lessclosed</code>)
\gg	<code>\vartriangleright</code>	(same as <code>\gtrclosed</code>)

TABLE 129: `fdsymbol` Inequalities

\geq	<code>\eqslantgtr</code>	\leq	<code>\leqslantdot</code>	$\not\equiv$	<code>\ngtrapprox</code>
\leq	<code>\eqslantless</code>	\geq	<code>\leqslcc</code>	$\not\geq$	<code>\ngtrcc</code>
\geq	<code>\geq</code>	$<$	<code>\less</code>	$\not\geq$	<code>\ngtrclosed</code>
\sqsupseteq	<code>\geqclosed</code>	\approx	<code>\lessapprox</code>	$\not\approx$	<code>\ngtrdot</code>
\sqsupseteq	<code>\geqdot</code>	\triangleleft	<code>\lesscc</code>	$\not\approx$	<code>\ngtreqless</code>
\sqsupseteq	<code>\geqq</code>	\triangleleft	<code>\lessclosed</code>	$\not\approx$	<code>\ngtreqqless</code>
\geq	<code>\geqslant</code>	\triangleleft	<code>\lessdot</code>	$\not\approx$	<code>\ngtreqslantless</code>
\geq	<code>\geqslantdot</code>	$\sqsupseteq \sqsupseteq \sqsupseteq$	<code>\lesseqgtr</code>	$\not\approx$	<code>\ngtrless</code>
\geq	<code>\geqslcc</code>	$\sqsupseteq \sqsupseteq \sqsupseteq$	<code>\lesseqqgtr</code>	$\not\approx$	<code>\ngtrsim</code>
\gg		$\sqsupseteq \sqsupseteq \sqsupseteq$	<code>\lesseqslantgtr</code>	$\not\approx$	<code>\nleq</code>
\ggg		$\sqsupseteq \sqsupseteq \sqsupseteq$	<code>\lessgtr</code>	$\not\approx$	<code>\nleqclosed</code>
\napprox	<code>\gnapprox</code>	\approx	<code>\lessim</code>	$\not\approx$	<code>\nleqdot</code>
\napprox	<code>\gneq</code>	\ll	<code>\ll</code>	$\not\approx$	<code>\nleqq</code>
\napprox	<code>\gneqq</code>	\lll		$\not\approx$	<code>\nleqslant</code>
\napprox	<code>\gnsim</code>	$\not\approx$	<code>\lnapprox</code>	$\not\approx$	<code>\nleqslantdot</code>
$>$	<code>\gtr</code>	$\not\leq$	<code>\lneq</code>	$\not\geq$	<code>\nleqslcc</code>
\approx	<code>\gtrapprox</code>	$\not\leq$	<code>\lneqq</code>	$\not\geq$	<code>\nless</code>
\triangleright	<code>\gtrcc</code>	$\not\leq$	<code>\lnsim</code>	$\not\geq$	<code>\nlessapprox</code>
\triangleright	<code>\gtrclosed</code>	$\not\approx$	<code>\neqslantgtr</code>	$\not\geq$	<code>\nlesscc</code>
$>$	<code>\gtrdot</code>	$\not\approx$	<code>\neqslantless</code>	$\not\geq$	<code>\nlessclosed</code>
$\approx \approx \approx$	<code>\gtreqless</code>	$\not\approx$	<code>\ngeq</code>	$\not\approx$	<code>\nlessdot</code>
$\approx \approx \approx$	<code>\gtreqqless</code>	$\not\approx$	<code>\ngeqclosed</code>	$\not\approx$	<code>\nlesseqgtr</code>
$\approx \approx \approx$	<code>\gtreqslantless</code>	$\not\approx$	<code>\ngeqdot</code>	$\not\approx$	<code>\nlesseqqgtr</code>
$\approx \approx \approx$	<code>\gtrless</code>	$\not\approx$	<code>\ngeqq</code>	$\not\approx$	<code>\nlesseqslantgtr</code>
\approx	<code>\trsim</code>	$\not\approx$	<code>\nqslant</code>	$\not\approx$	<code>\nlessgtr</code>
\leq	<code>\leq</code>	$\not\approx$	<code>\nqslantdot</code>	$\not\approx$	<code>\nlesssim</code>
\trianglelefteq	<code>\leqclosed</code>	$\not\approx$	<code>\nqslcc</code>	$\not\approx$	<code>\nll</code>
\trianglelefteq	<code>\leqdot</code>	$\not\geq$	<code>\gg</code>	$\not\ll$	<code>\nlll</code>
\leqq	<code>\leqq</code>	\ggg			
\leq	<code>\eqslant</code>	$\not\geq$	<code>\ngtr</code>		

`fdsymbol` defines synonyms for some of the preceding symbols:

\geq	<code>\ge</code>	\leq	<code>\lesdot</code>	$\not\geq$	<code>\ngtcc</code>
\geq	<code>\gescc</code>	\leq	<code>\lesg</code>	$\not\geq$	<code>\ngtreqlessslant</code>
\geq	<code>\gesdot</code>	\leq	<code>\lesseqgtrslant</code>	$\not\geq$	<code>\nlescc</code>
\approx	<code>\gesl</code>	\triangleleft	<code>\lhd</code>	$\not\geq$	<code>\nlesdot</code>
\ggg	<code>\ggtr</code>	\lll	<code>\llless</code>	$\not\geq$	<code>\nlesg</code>
\triangleright	<code>\gtcc</code>	\triangleleft	<code>\ltcc</code>	$\not\geq$	<code>\nlesseqgtrslant</code>
\approx	<code>\gtreqlessslant</code>	$\not\geq$	<code>\lvertneqq</code>	$\not\geq$	<code>\nltcc</code>
\approx	<code>\gvertneqq</code>	$\not\geq$	<code>\ngescc</code>	\triangleright	<code>\rhd</code>

(continued on next page)

(continued from previous page)

\leq	\leq	\geq	\geq	\leq
\leqslant	\leqslant	\geqslant	\geqslant	\leqslant

TABLE 130: boisik Inequalities

\gg	\eqslantgtr	\gg	\gtcir	\ll	\lesseqgtr	$\not\equiv$	\ngeq
\ll	\eqslantless	\ll	\gtapprox	\ll	\lessgtr	$\not\equiv$	\ngeqq
\geqslant	\geqq	\geqslant	\gtreqless	\geqslant	\lessim	$\not\equiv$	\ngeqslant
\geqslant	\geqslant	\geqslant	\gtreqqless	\gg	\lll	$\not\equiv$	\ngtr
\ggg	\ggg	\gg	\gtrless	\approx	\lnapprox	$\not\equiv$	\nleq
$\not\equiv$	\glj	$\not\equiv$	\gtrsim	\approx	\lneq	$\not\equiv$	\nleqq
$\not\equiv$	\gnapprox	$\not\equiv$	\gvertneqq	$\not\approx$	\lneqq	$\not\equiv$	\nleqslant
$\not\equiv$	\gneq	$\not\equiv$	\leqq	\approx	\lnsim	$\not\equiv$	\nless
$\not\equiv$	\gneqq	$\not\equiv$	\leqslant	\ll	\lt		
$\not\equiv$	\gnsim	$\not\equiv$	\lessapprox	\ll	\ltcir		
\gg	\Gt	\gg	\lesseqgtr	$\not\ll$	$\lvert neqq$		

TABLE 131: stix Inequalities

\gg	\egsdot	\gg	\gtquest	\ll	\lnsim
\ll	\elsdot	\ll	\gtapprox	\ll	\lsime
\gg	\eqgtr	\gg	\gtrarr	\gg	\lsimg
\ll	\eqless	\gg	\gtrdot	\ll	\lt
\gg	\eqqgtr	\gg	\gtreqless	\gg	\ltcc
\ll	\eqqless	\gg	\gtreqqless	\ll	\ltcir
\gg	\eqqslantgtr	\gg	\gtrless	\gg	\ltlarr
\ll	\eqqslantless	\gg	\gtrsim	\gg	\ltquest
\gg	\eqslantgtr	\gg	\gvertneqq	$\not\ll$	$\lvert neqq$
\ll	\eqslantless	\gg	\lat	$\not\equiv$	\neqslantgtr
\geq	\geq	\geq	\late	$\not\equiv$	\neqslantless
\gg	\geqq	\gg	\leftarrowless	$\not\equiv$	\ngeq
\gg	\geqslant	\geq	\leq	$\not\equiv$	\ngeqq
\gg	\geqslant	\geq	\leqq	$\not\equiv$	\ngeqslant
\gg	\gescc	\gg	\leqslant	\gg	\ngg
\gg	\gesdot	\gg	\leqslant	\gg	\ngtr
\gg	\gesdoto	\gg	\lescc	$\not\equiv$	\ngtrless
\gg	\gesdotol	\gg	\lesdot	$\not\equiv$	\ngtrsim

(continued on next page)

(continued from previous page)

\gesles	\lesdoto	\nleq
\gg	\lesdotor	\nleqq
\ggg	\lesges	\nleqslant
\gggnest	\lessapprox	\nless
\gla	\lessdot	\nlessgtr
\glE	\lesseqgtr	\nlesssim
\glj	\lesseqqgtr	\nll
\gnapprox	\lessgtr	\partial
\gneq	\lesssim	\rightarrowarrowgtr
\gneqq	\lgE	\simgE
\gnsim	\ll	\simgtr
\gsime	\lll	\simlE
\gsiml	\lllnest	\simless
\Gt	\lnapprox	\smt
\gtcc	\lneq	\smte
\gtcir	\lneqq	

stix defines \le as a synonym for \leq, \ge as a synonym for \geq, \llless as a synonym for \lll, \gggtr as a synonym for \ggg, \nle as a synonym for \nleq, and \nge as a synonym for \ngeq.

TABLE 132: \mathcal{AM} Triangle Relations

\blacktriangleleft	$\backslash blacktriangleleft$	\triangleright	\ntriangleright	\trianglerighteq	$\backslash trianglerighteq$
\blacktriangleright	$\backslash blacktriangleright$	\trianglerighteq	\ntrianglerighteq	\triangleleft	$\backslash vartriangleleft$
\triangleleft	\ntriangleleft	\trianglelefteq	\triangleleft	\trianglelefteq	$\backslash vartriangleleft$
\triangleq	\ntriangleq	\triangleq	\triangleq	\triangleq	$\backslash triangleq$

TABLE 133: stmaryrd Triangle Relations

```

\trianglelefteqslant \trianglerighteqslant
\ntrianglelefteqslant \ntrianglerighteqslant

```

TABLE 134: mathabx Triangle Relations

```

▷ \ntriangleleft      ◇ \triangleleft      ◇ \vartriangleleft
▷ \ntrianglelefteq   ◇\trianglelefteq    ◇ \vartriangleright
▷ \ntriangleright   ◇\triangleright
▷ \ntrianglerighteq ◇\trianglerighteq

```

TABLE 135: MnSymbol Triangle Relations

▼	\filledmedtriangledown	△	\largetriangleup	▽	\smalltriangledown
◀	\filledmedtriangleleft	▽	\medtriangledown	◀	\smalltriangleleft
▶	\filledmedtriangleright	◀	\medtriangleleft	▶	\smalltriangleright
▲	\filledmedtriangleup	▷	\medtriangleright	△	\smalltriangleup
▼	\filledtriangledown	△	\medtriangleup	△	\triangleeq
◀	\filledtriangleleft	≠	\ntriangleeq	≤	\trianglelefteq
▶	\filledtriangleright	≠	\ntriangleleft	≥	\trianglerighteq
▲	\filledtriangleup	≠	\ntrianglelefteq	◀	\vartriangleleft
▽	\largetriangledown	≠	\ntriangleright	▷	\vartriangleright
◀	\largetriangleleft	≠	\ntrianglerighteq	▷	\vartrianglerighteq
▶	\largetriangleright	⊗	\otriangle		

MnSymbol additionally defines synonyms for many of the preceding symbols: \triangleq is a synonym for \triangleeq; \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; \ngtrclosed 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 \triangleeq and \ntriangleeq 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 136: *fdsymbol* Triangle Relations

\triangleright	<code>\geqclosed</code>	∇	<code>\medtriangledown</code>	\blacktriangleleft	<code>\smallblacktriangleleft</code>
\triangleright	<code>\gtrclosed</code>	\triangleleft	<code>\medtriangleleft</code>	\blacktriangleright	<code>\smallblacktriangleright</code>
\triangledown	<code>\largetriangledown</code>	\triangleright	<code>\medtriangleright</code>	\blacktriangleup	<code>\smallblacktriangleup</code>
\triangle	<code>\largetriangleup</code>	\triangleleft	<code>\medtriangleup</code>	\blacktriangledown	<code>\smalltriangledown</code>
\trianglelefteq	<code>\leqclosed</code>	$\not\equiv$	<code>\ngeqclosed</code>	\triangleleft	<code>\smalltriangleleft</code>
\triangleleft	<code>\lessclosed</code>	$\not\equiv$	<code>\ngtrclosed</code>	\triangleright	<code>\smalltriangleright</code>
\triangledown	<code>\medblacktriangledown</code>	$\not\equiv$	<code>\nleqclosed</code>	\triangleup	<code>\smalltriangleup</code>
\blacktriangleleft	<code>\medblacktriangleleft</code>	$\not\equiv$	<code>\nlessclosed</code>	\triangleq	<code>\triangleeq</code>
\triangleright	<code>\medblacktriangleright</code>	$\not\equiv$	<code>\ntriangleeq</code>		
\blacktriangleup	<code>\medblacktriangleup</code>	\triangledown	<code>\smallblacktriangledown</code>		

fdsymbol defines synonyms for almost all of the preceding symbols:

∇	<code>\bigtriangledown</code>	$\not\equiv$	<code>\ntrianglelefteq</code>	\triangleq	<code>\triangleeq</code>
\triangle	<code>\bigtriangleup</code>	$\not\equiv$	<code>\ntriangleright</code>	\triangleright	<code>\triangleright</code>
\blacktriangle	<code>\blacktriangle</code>	$\not\equiv$	<code>\ntrianglerighteq</code>	\trianglerighteq	<code>\trianglerighteq</code>
\blacktriangledown	<code>\blacktriangledown</code>	\triangle	<code>\triangle</code>	\triangle	<code>\vartriangle</code>
\blacktriangleleft	<code>\blacktriangleleft</code>	∇	<code>\medtriangledown</code>	\triangleleft	<code>\vartriangleleft</code>
\blacktriangleright	<code>\blacktriangleright</code>	\triangleleft	<code>\medtriangleleft</code>	\triangleright	<code>\vartriangleright</code>
$\not\equiv$	<code>\ntriangleleft</code>	\triangleq	<code>\trianglelefteq</code>		

The title “Triangle Relations” is a bit of a misnomer here as only `\triangleeq` and `\ntriangleeq` 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 137: *boisik* Triangle Relations

$\not\equiv$	<code>\ntriangleleft</code>	\trianglelefteq	<code>\trianglelefteq</code>	\triangleleft	<code>\varlrttriangle</code>
$\not\equiv$	<code>\ntrianglelefteq</code>	\trianglelefteqslant	<code>\trianglelefteqslant</code>	\triangle	<code>\vartriangle</code>
$\not\equiv$	<code>\ntriangleright</code>	\triangleright	<code>\triangleright</code>	\triangleleft	<code>\vartriangleleft</code>
$\not\equiv$	<code>\ntrianglerighteq</code>	\trianglerighteq	<code>\trianglerighteq</code>	\triangleright	<code>\vartriangleright</code>
\triangleleft	<code>\triangleleft</code>	\trianglerighteq	<code>\trianglerighteq</code>		

TABLE 138: *stix* Triangle Relations

\trianglelefteq	<code>\lrtriangleeq</code>	$\not\equiv$	<code>\nvartriangleright</code>	\triangle	<code>\vartriangle</code>
\triangleleft	<code>\ltrivb</code>	$\not\equiv$	<code>\rtriltri</code>	\triangleleft	<code>\vartriangleleft</code>
$\not\equiv$	<code>\ntrianglelefteq</code>	\trianglelefteq	<code>\trianglelefteq</code>	\triangleright	<code>\vartriangleright</code>
$\not\equiv$	<code>\ntrianglerighteq</code>	\triangleq	<code>\triangleq</code>	\triangleright	<code>\vbrtri</code>
$\not\equiv$	<code>\nvartriangleleft</code>	\triangleq	<code>\trianglerighteq</code>		

TABLE 139: 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>
\leftarrowtail	<code>\leftarrowtail</code>	\longleftrightarrow	<code>\longleftrightarrow</code>	\rightarrowtail	<code>\rightarrowtail</code>
\rightarrowtail	<code>\rightarrowtail</code>	\Longleftrightarrow	<code>\Longleftrightarrow</code>	\searrowtail	<code>\searrowtail</code>
\rightsquigarrow	<code>\rightsquigarrow</code>	\longmapsto	<code>\longmapsto</code>	\swarrowtail	<code>\swarrowtail</code>
\leftarrowarrow	<code>\leftarrowarrow</code>	\Longrightarrow	<code>\Longrightarrow</code>	\uparrowarrow	<code>\uparrowarrow</code>
\Leftarrowarrow	<code>\Leftarrowarrow</code>	\longrightarrow	<code>\longrightarrow</code>	\Uparrowarrow	<code>\Uparrowarrow</code>
\Leftrightarrowarrow	<code>\Leftrightarrowarrow</code>	\mapsto	<code>\mapsto</code>	\updownarrowarrow	<code>\updownarrowarrow</code>
\leftrightarrowarrow	<code>\leftrightarrowarrow</code>	\nearrowtail	<code>\nearrowtail</code>	\Updownarrowarrow	<code>\Updownarrowarrow</code>

* Not predefined by the L^AT_EX 2_ε core. Use the `latexsym` package to expose this symbol.

† See the note beneath Table 246 for information about how to put a diagonal arrow across a mathematical expression (as in “ $\nabla \cdot \overset{0}{B}$ ”).

TABLE 140: Harpoons

\leftarrowtail	<code>\leftarrowtail</code>	\rightarrowtail	<code>\rightarrowtail</code>	\rightleftharpoons	<code>\rightleftharpoons</code>
\leftarrowarrow	<code>\leftarrowarrow</code>	\rightarrowarrow	<code>\rightarrowarrow</code>		

TABLE 141: `textcomp` Text-mode Arrows

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

TABLE 142: *AMS* Arrows

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

TABLE 143: *AMS* Negated Arrows

$\not\Leftarrow$	<code>\not\Leftarrow</code>	$\not\Leftarrowtail$	<code>\not\Leftarrowtail</code>	$\not\Rightarrow$	<code>\not\Rightarrow</code>
$\not\leftarrowtail$	<code>\not\leftarrowtail</code>	$\not\rightarrowtail$	<code>\not\rightarrowtail</code>	$\not\Rightarrowtail$	<code>\not\Rightarrowtail</code>

TABLE 144: *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 145: stmaryrd Arrows

\leftarrow	<code>\leftarrowtriangle</code>	\Leftarrow	<code>\Mapsfrom</code>	\leftarrow	<code>\shortleftarrow</code>
\Leftarrow	<code>\leftrightarroweq</code>	\Leftarrow	<code>\mapsfrom</code>	\rightarrow	<code>\shortrightarrow</code>
\Leftrightarrow	<code>\leftrightarrowtriangle</code>	\Rrightarrow	<code>\Mapsto</code>	\uparrow	<code>\shortuparrow</code>
$\not\sim$	<code>\lightning</code>	\nearrow	<code>\narrow</code>	\downarrow	<code>\ssearrow</code>
\Longleftarrow	<code>\Longmapsfrom</code>	\nwarrow	<code>\nnarrow</code>	\swarrow	<code>\ssarrow</code>
\Longleftarrow	<code>\longmapsfrom</code>	\rightarrow	<code>\rightarrowtriangle</code>	\downarrow	<code>\shortdownarrow</code>
\Rrightarrow	<code>\Longmapsto</code>				

TABLE 146: txfonts/pxfonts Arrows

\Lsh	<code>\boxdotLeft</code>	\Rsh	<code>\circleddotright</code>	\Lsh	<code>\Diamondleft</code>
\Lsh	<code>\boxdotleft</code>	\Rsh	<code>\circleleft</code>	\Rsh	<code>\Diamondright</code>
\Rsh	<code>\boxdotright</code>	\Rsh	<code>\circleright</code>	\Rsh	<code>\DiamondRight</code>
\Rsh	<code>\boxdotRight</code>	\Rsh	<code>\dashleftrightarrow</code>	\rightsquigarrow	<code>\leftsquigarrow</code>
\Lsh	<code>\boxLeft</code>	\Rsh	<code>\DiamonddotLeft</code>	\nearrow	<code>\Narrow</code>
\Lsh	<code>\boxleft</code>	\Rsh	<code>\Diamonddotleft</code>	\nwarrow	<code>\Nwarrow</code>
\Rsh	<code>\boxright</code>	\Rsh	<code>\Diamonddotright</code>	\Rightarrow	<code>\Rrightarrow</code>
\Rsh	<code>\boxRight</code>	\Rsh	<code>\DiamonddotRight</code>	\searrow	<code>\Sarrow</code>
\Rsh	<code>\circleddotleft</code>	\Rsh	<code>\DiamondLeft</code>	\swarrow	<code>\Swarrow</code>

TABLE 147: mathabx Arrows

\circlearrowleft	<code>\circlearrowleft</code>	\leftarrow	<code>\leftarrow</code>	\nearrow	<code>\narrow</code>
\circlearrowright	<code>\circlearrowright</code>	\Leftarrow	<code>\leftleftarrows</code>	\restriction	<code>\restriction</code>
\curvearrowbotleft	<code>\curvearrowbotleft</code>	\Leftrightarrow	<code>\leftrightarrow</code>	\rightarrow	<code>\rightarrow</code>
\curvearrowbotleftright	<code>\curvearrowbotleftright</code>	\Leftrightarrow	<code>\leftrightsquigarrow</code>	\rightarrow	<code>\rightleftarrows</code>
\curvearrowbotright	<code>\curvearrowbotright</code>	\rightsquigarrow	<code>\leftrightsquigarrow</code>	\rightarrow	<code>\rightrightarrows</code>
\curvearrowleft	<code>\curvearrowleft</code>	\rightsquigarrow	<code>\leftsquigarrow</code>	\rightsquigarrow	<code>\rightsquigarrow</code>
\curvearrowleftright	<code>\curvearrowleftright</code>	\rightsquigarrow	<code>\lefttarrowright</code>	\curvearrowright	<code>\righttoleftarrow</code>
\curvearrowright	<code>\curvearrowright</code>	\Lsh	<code>\looparrowdownleft</code>	\Rsh	<code>\Rsh</code>
\dsh	<code>\dsh</code>	\Rsh	<code>\looparrowdownright</code>	\searrow	<code>\searrow</code>
\downdownarrows	<code>\downdownarrows</code>	\Lsh	<code>\looparrowleft</code>	\swarrow	<code>\swarrow</code>
\downtuparrow	<code>\downtuparrow</code>	\Rsh	<code>\looparrowright</code>	\updownarrows	<code>\updownarrows</code>
\downuparrows	<code>\downuparrows</code>	\Lsh	<code>\Lsh</code>	\downtuparrow	<code>\uptodownarrow</code>
\drsh	<code>\drsh</code>	\nearrow	<code>\nearrow</code>	\upuparrows	<code>\upuparrows</code>

TABLE 148: mathabx Negated Arrows

\Leftarrow	<code>\nLeftarrow</code>	\Leftrightarrow	<code>\nleftrightarrow</code>	\rightarrow	<code>\nrightarrow</code>
\Leftarrow	<code>\nleftarrow</code>	\Leftrightarrow	<code>\nLeftrightarrow</code>	\Rightarrow	<code>\nrightarrow</code>
\Leftarrow	<code>\nleftarrow</code>	\Leftrightarrow	<code>\nLeftrightarrow</code>	\Rightarrow	<code>\nrightarrow</code>

TABLE 149: mathabx Harpoons

=	\barleftharpoon	←	\leftharpoonup	⇒	\rightleftharpoons
→	\barrightharpoon	⇐	\leftleftharpoons	⇒	\rightrightharpoons
↓↓	\downdownharpoons	↔	\leftrightharpoon	⇓	\updownharpoons
↓↓	\downharpoonleft	⇒	\leftrightharpoons	↑	\upharpoonleft
↓↓	\downharpoonright	⇒	\rightbarharpoon	↑	\upharpoonright
↓↓	\downupharpoons	→	\rightharpoondown	⇓	\upupharpoons
≡≡	\leftbarharpoon	→	\rightharpoonup		
←→	\leftharpoondown	↔	\rightleftharpoon		

TABLE 150: MnSymbol Arrows

⤠	\curvearrowdownup	⤠	\longleftarrow	⤠	\rhookswarrow
⤡⤢	\curvearrowleftright	⤡⤢	\Longleftarrow	⤡⤢	\rhookuparrow
⤢⤣	\curvearrownesw	⤢⤣	\longleftrightarrow	⤢⤣	\rightarrow
⤢⤤	\curvearrownwse	⤢⤤	\Longleftrightarrow	⤢⤤	\Rightarrow
⤢⤥	\curvearrowrightleft	⤢⤥	\longmapsto	⤢⤥	\rightarrowtail
⤢⤦	\curvearrowsenw	⤢⤦	\longrightarrow	⤢⤦	\rightleftarrows
⤢⤧	\curvearrowswne	⤢⤧	\Longrightarrow	⤢⤧	\rightarrowtail
⤢⤨	\curvearrowupdown	⤢⤨	\looparrowleft	⤢⤨	\rightmapsto
⤢⤩	\dasheddownarrow	⤢⤩	\looparrowright	⤢⤩	\rightrightarrowtail
⤢⤪	\dashedleftarrow	⤢⤪	\Lsh	⤢⤪	\rightarrowsquigarrow
⤢⤫	\dashednearrow	⤢⤫	\nearrow	⤢⤫	\Rsh
⤢⤬	\dashednarrow	⤢⤬	\nearrowtail	⤢⤬	\searrow
⤢⤭	\dashedrightarrow	⤢⤭	\nearrowtail	⤢⤭	\Searrow
⤢⤮	\dashedsearrow	⤢⤮	\nelsquigarrow	⤢⤮	\searrowtail
⤢⤯	\dashedswarrow	⤢⤯	\nemapsto	⤢⤯	\selsquigarrow
⤢⤰	\dasheduparrow	⤢⤰	\nenearrows	⤢⤰	\semapsto
⤢⤱	\Downarrow	⤢⤱	\nersquigarrow	⤢⤱	\senarrows
⤢⤲	\downarrow	⤢⤲	\neswarrow	⤢⤲	\sersquigarrow
⤢⤳	\downarrowtail	⤢⤳	\Neswarrow	⤢⤳	\sesearrows
⤢⤴	\downdownarrows	⤢⤴	\neswarrows	⤢⤴	\squigarrowdownup
⤢⤵	\downlsquigarrow	⤢⤵	\narrow	⤢⤵	\squigarrowleftright
⤢⤶	\downmapsto	⤢⤶	\Narrow	⤢⤶	\squigarrownesw
⤢⤷	\downrsquigarrow	⤢⤷	\narrowtail	⤢⤷	\squigarrownwse
⤢⤸	\downuparrows	⤢⤸	\nlslsquigarrow	⤢⤸	\squigarrowrightleft
⤢⤹	\lcirclearrowdown	⤢⤹	\nwmapsto	⤢⤹	\squigarrowsewn
⤢⤺	\lcirclearrowleft	⤢⤺	\nwnwarrows	⤢⤺	\squigarrowswne
⤢⤻	\lcirclearrowright	⤢⤻	\nwsquigarrow	⤢⤻	\squigarrowupdown
⤢⤼	\lcirclearrowup	⤢⤼	\nwsearrow	⤢⤼	\swarrow
⤢⤽	\lcurvearrowdown	⤢⤽	\Nwsearrow	⤢⤽	\Swarrow
⤢⤾	\lcurvearrowleft	⤢⤾	\nwsearrows	⤢⤾	\swallowtail
⤢⤿	\lcurvearrowne	⤢⤿	\partialvardlcircleleftint*	⤢⤿	\swlsquigarrow
⤢⤿	\lcurvearrownw	⤢⤿	\partialvardlcirclerightint*	⤢⤿	\swmapsto
⤢⤿	\lcurvearrowright	⤢⤿	\partialvardrcircleleftint*	⤢⤿	\swnearrows
⤢⤿	\lcurvearrowse	⤢⤿	\partialvardrcirclerightint*	⤢⤿	\swrsquigarrow
⤢⤿	\lcurvearrowsw	⤢⤿	\partialvarlartlcircleleftint*	⤢⤿	\swwarrows
⤢⤿	\lcurvearrowup	⤢⤿	\partialvarlartlcirclerightint*	⤢⤿	\twoheaddownarrow
⤢⤿	\Leftarrow	⤢⤿	\partialvartrtcircleleftint*	⤢⤿	

(continued on next page)

(continued from previous page)

\leftarrow	$\backslash leftarrow$	\circlearrowleft	$\backslash partialvartrciclerightint^*$	\Leftarrow	$\backslash twoheadleftarrow$
\leftarrowtail	$\backslash leftarrowtail$	\circlearrowright	$\backslash rcirclearrowdown$	\nearrow	$\backslash twoheadnearrow$
\Leftarrowtail	$\backslash leftleftarrows$	\circlearrowleft	$\backslash rcirclearrowleft$	\nearrowtail	$\backslash twoheadnarrow$
\rightsquigarrow	$\backslash leftlsquigarrow$	\circlearrowright	$\backslash rcirclearrowright$	\Rightarrowtail	$\backslash twoheadrightarrowarrow$
\mapsto	$\backslash leftmapsto$	\circlearrowup	$\backslash rcirclearrowup$	\searrowtail	$\backslash twoheadsearrow$
\rightarrowtail	$\backslash leftrightarrowarrow$	\curvearrowleft	$\backslash rcurvearrowdown$	\nwarrowtail	$\backslash twoheadswarrow$
\leftrightarrowtail	$\backslash Leftrightarrowarrow$	\curvearrowright	$\backslash rcurvearrowleft$	\uparrowtail	$\backslash twoheaduparrow$
\Downarrowtail	$\backslash leftrightarrows$	\curvearrowup	$\backslash rcurvearrowne$	\uparrow	$\backslash uparrow$
\Downarrowtail	$\backslash lefrightsquigarrow$	\curvearrowupnw	$\backslash rcurvearrownw$	$\uparrow\uparrow$	$\backslash Uparrow$
\Downarrowtail	$\backslash lhookdownarrow$	\curvearrowright	$\backslash rcurvearrowright$	\uparrowtail	$\backslash uparrowtail$
\Downarrowtail	$\backslash lhookleftarrow$	\curvearrowrightse	$\backslash rcurvearrowse$	\updownarrowtail	$\backslash updownarrow$
\nearrowtail	$\backslash lhooknearrow$	\curvearrowrightsw	$\backslash rcurvearrowsw$	\Updownarrowtail	$\backslash Updownarrow$
\nearrowtail	$\backslash lhooknarrow$	\curvearrowup	$\backslash rcurvearrowup$	\updownarrows	$\backslash updownarrows$
\nearrowtail	$\backslash lhookrightarrowarrow$	\curvearrowdown	$\backslash rhookdownarrow$	\uplus	$\backslash uplsquigarrow$
\nearrowtail	$\backslash lhooksearrow$	\curvearrowleft	$\backslash rhookleftarrow$	\uparrowmapsto	$\backslash upmapsto$
\nearrowtail	$\backslash lhookswarrow$	\curvearrowright	$\backslash rhooknearrow$	$\uparrow\uparrow$	$\backslash uprsquigarrow$
\uparrowtail	$\backslash lhookuparrow$	\curvearrowup	$\backslash rhooknarrow$	\upuparrows	$\backslash upuparrows$
$\not\Downarrowtail$	$\backslash lightning$	\curvearrowright	$\backslash rhookrightarrowarrow$		
$\not\Downarrowtail$	$\backslash Lleftarrow$	\curvearrowleft	$\backslash rhooksearrow$		

`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>\rightlshingarrow</code>)
\leftrightarrow	<code>\leftrightarrow</code>	(same as <code>\leftrightsquigarrow</code>)
\mapsto	<code>\mapsto</code>	(same as <code>\rightmapsto</code>)
\rightsquigarrow	<code>\rightsquigarrow</code>	(same as <code>\rightlshingarrow</code>)

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

TABLE 151: MnSymbol Negated Arrows

\ncurvearrowdownup	\curvearrowdownup	\nlhooknwarrow	\nlhooknwarrow	\nrightleftarrows
\ncurvearrowleftright	\curvearrowleftright	\nlhookrightarrow	\nlhookrightarrow	\nrightlsquigarrow
\curvearrownesw	\curvearrownesw	\nlhooksearrow	\nlhooksearrow	\nrightmapsto
\curvearrownwse	\curvearrownwse	\nlhookswarrow	\nlhookswarrow	\nrightrightarrows
\curvearrowrightleft	\curvearrowrightleft	\nlhookuparrow	\nlhookuparrow	\nrightrsquigarrow
\curvearrowsenw	\curvearrowsenw	\nLleftarrow	\nLleftarrow	\nRightarrow
\curvearrowswne	\curvearrowswne	\nnearrow	\nnearrow	\nSearrow
\curvearrowupdown	\curvearrowupdown	\nNearrow	\nNearrow	\nsearrow

(continued on next page)

(continued from previous page)

\downarrow	<code>\ndasheddownarrow</code>	\nearrow	<code>\nnearrowtail</code>	\nwarrowtail	<code>\nsearrowtail</code>
\leftarrow	<code>\ndashedleftarrow</code>	\nwarrowtail	<code>\nnelsquigarrow</code>	\nwarrowtail	<code>\nselsquigarrow</code>
\nearrow	<code>\ndashednearrow</code>	\nwarrowtail	<code>\nnemapsto</code>	\nwarrowtail	<code>\nsemapsto</code>
\nwarrowtail	<code>\ndashednarrow</code>	\nwarrowtail	<code>\nnenarrows</code>	\nwarrowtail	<code>\nsenarrows</code>
\rightarrow	<code>\ndashedrightarrow</code>	\nwarrowtail	<code>\nnersquigarrow</code>	\nwarrowtail	<code>\nsersquigarrow</code>
\searrow	<code>\ndashedsearrow</code>	\nwarrowtail	<code>\nNeswarrow</code>	\nwarrowtail	<code>\nsesearrows</code>
\swarrow	<code>\ndashedswarrow</code>	\nwarrowtail	<code>\nneswarrow</code>	\nwarrowtail	<code>\nsquigarrowdownup</code>
\uparrow	<code>\ndasheduparrow</code>	\nwarrowtail	<code>\nneswarrows</code>	\nwarrowtail	<code>\nsquigarrowleftright</code>
\downarrow	<code>\ndownarrow</code>	\nwarrowtail	<code>\nNarrow</code>	\nwarrowtail	<code>\nsquigarrownesw</code>
$\#$	<code>\nDownarrow</code>	\nwarrowtail	<code>\nnarrow</code>	\nwarrowtail	<code>\nsquigarrownwse</code>
\Downarrow	<code>\ndownarrowtail</code>	\nwarrowtail	<code>\nnarrowtail</code>	\nwarrowtail	<code>\nsquigarrowrightleft</code>
\Downarrow	<code>\ndowndownarrows</code>	\nwarrowtail	<code>\nnwlsquigarrow</code>	\nwarrowtail	<code>\nsquigarrowsenw</code>
\Downarrow	<code>\ndownlsquigarrow</code>	\nwarrowtail	<code>\nnwmapsto</code>	\nwarrowtail	<code>\nsquigarrowswne</code>
\Downarrow	<code>\ndownmapsto</code>	\nwarrowtail	<code>\nnwnarrows</code>	\nwarrowtail	<code>\nsquigarrowupdown</code>
\Downarrow	<code>\ndownrsquigarrow</code>	\nwarrowtail	<code>\nnwrsquigarrow</code>	\nwarrowtail	<code>\nswarrow</code>
\Downarrow	<code>\ndownuparrows</code>	\nwarrowtail	<code>\nnwsearrow</code>	\nwarrowtail	<code>\nSwarrow</code>
\bullet	<code>\nlccleararrowdown</code>	\nwarrowtail	<code>\nNsearrow</code>	\nwarrowtail	<code>\nswarrowtail</code>
\bullet	<code>\nlccleararrowleft</code>	\nwarrowtail	<code>\nnwsearrows</code>	\nwarrowtail	<code>\nswlsquigarrow</code>
\bullet	<code>\nlccleararrowright</code>	\nwarrowtail	<code>\nrcleararrowdown</code>	\nwarrowtail	<code>\nswmapsto</code>
\bullet	<code>\nlccleararrowup</code>	\nwarrowtail	<code>\nrcleararrowleft</code>	\nwarrowtail	<code>\nswnearrows</code>
\curvearrowright	<code>\nlcurvearrowdown</code>	\nwarrowtail	<code>\nrcleararrowright</code>	\nwarrowtail	<code>\nswrsquigarrow</code>
\curvearrowright	<code>\nlcurvearrowleft</code>	\nwarrowtail	<code>\nrcleararrowup</code>	\nwarrowtail	<code>\nswswarrows</code>
\curvearrowright	<code>\nlcurvearrowne</code>	\nwarrowtail	<code>\nrcurvearrowdown</code>	\nwarrowtail	<code>\ntwoheaddownarrow</code>
\curvearrowright	<code>\nlcurvearrownw</code>	\nwarrowtail	<code>\nrcurvearrowleft</code>	\nwarrowtail	<code>\ntwoheadleftarrow</code>
\curvearrowright	<code>\nlcurvearrowright</code>	\nwarrowtail	<code>\nrcurvearrowne</code>	\nwarrowtail	<code>\ntwoheadnearrow</code>
\curvearrowright	<code>\nlcurvearrowse</code>	\nwarrowtail	<code>\nrcurvearrownw</code>	\nwarrowtail	<code>\ntwoheadnarrow</code>
\curvearrowright	<code>\nlcurvearrowsw</code>	\nwarrowtail	<code>\nrcurvearrowright</code>	\nwarrowtail	<code>\ntwoheadrightarrow</code>
\curvearrowright	<code>\nlcurvearrowup</code>	\nwarrowtail	<code>\nrcurvearrowse</code>	\nwarrowtail	<code>\ntwoheadsearrow</code>
\Leftarrow	<code>\nLeftarrow</code>	\nwarrowtail	<code>\nrcurvearrowsw</code>	\nwarrowtail	<code>\ntwoheadswarrow</code>
\Leftarrow	<code>\nleftarrow</code>	\nwarrowtail	<code>\nrcurvearrowup</code>	\nwarrowtail	<code>\ntwoheaduparrow</code>
\Leftarrow	<code>\nleftarrowtail</code>	\nwarrowtail	<code>\nrhookdownarrow</code>	\nwarrowtail	<code>\nuparrow</code>
\Leftarrow	<code>\nleftleftarrows</code>	\nwarrowtail	<code>\nrhookleftarrow</code>	\nwarrowtail	<code>\nUparrow</code>
\Leftarrow	<code>\nleftlsquigarrow</code>	\nwarrowtail	<code>\nrhooknearrow</code>	\nwarrowtail	<code>\nuparrowtail</code>
\Leftarrow	<code>\nleftmapsto</code>	\nwarrowtail	<code>\nrhooknarrow</code>	\nwarrowtail	<code>\nupdownarrow</code>
\Leftarrow	<code>\nleftrightarrow</code>	\nwarrowtail	<code>\nrhookrightarrow</code>	\nwarrowtail	<code>\nUpdownarrow</code>
\Leftarrow	<code>\nLeftrightarrow</code>	\nwarrowtail	<code>\nrhooksearrow</code>	\nwarrowtail	<code>\nupdownarrows</code>
\Leftarrow	<code>\nleftrightarrows</code>	\nwarrowtail	<code>\nrhookswarrow</code>	\nwarrowtail	<code>\nuplsquigarrow</code>
\Leftarrow	<code>\nlefrightsquigarrow</code>	\nwarrowtail	<code>\nrhookuparrow</code>	\nwarrowtail	<code>\nupmapsto</code>
\Leftarrow	<code>\nlhookdownarrow</code>	\nwarrowtail	<code>\nrightarrow</code>	\nwarrowtail	<code>\nuprsquigarrow</code>
\Leftarrow	<code>\nlhookleftarrow</code>	\nwarrowtail	<code>\nRightarrow</code>	\nwarrowtail	<code>\nupuparrows</code>
\Leftarrow	<code>\nlhooknearrow</code>	\nwarrowtail	<code>\nrightarrowtail</code>	\nwarrowtail	

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>\curvearrowleft</code>	(same as <code>\nrcurvearrowleft</code>)
\curvearrowright	<code>\curvearrowright</code>	(same as <code>\nlcurvearrowright</code>)
\dasharrow	<code>\ndasharrow</code>	(same as <code>\ndashedrightarrow</code>)
\dashleftarrow	<code>\dashleftarrow</code>	(same as <code>\ndashedleftarrow</code>)
\dashrightarrow	<code>\dashrightarrow</code>	(same as <code>\ndashedrightarrow</code>)
\leftarrow	<code>\ngleftarrow</code>	(same as <code>\nleftarrow</code>)
\leftarrowtail	<code>\nhookleftarrow</code>	(same as <code>\nrhookleftarrow</code>)
\rightarrowtail	<code>\nhookrightarrow</code>	(same as <code>\nlhookrightarrow</code>)
\leadsto	<code>\leadsto</code>	(same as <code>\nrightarrow</code>)
\leftrightsquigarrow	<code>\leftrightsquigarrow</code>	(same as <code>\nsquigarrowleft</code>)
\mapsto	<code>\mapsto</code>	(same as <code>\nrightarrowmapsto</code>)
\rightsquigarrow	<code>\rightsquigarrow</code>	(same as <code>\nrightarrow</code>)
\rightarrowto	<code>\rightarrowto</code>	(same as <code>\nrightarrow</code>)

TABLE 152: MnSymbol Harpoons

\downarrow	<code>\downharpoonccw*</code>	\nearrow	<code>\neswharpoons</code>	\searrow	<code>\seharpooncw</code>
\downarrow	<code>\downharpooncw*</code>	\nearrow	<code>\neswharpoonew</code>	\nwarrow	<code>\senwharpoons</code>
\updownarrow	<code>\downupharpoons</code>	\nearrow	<code>\nwharpoonccw</code>	\swarrow	<code>\swharpoonccw</code>
\leftarrow	<code>\leftharpoonccw*</code>	\nwarrow	<code>\nwharpooncw</code>	\swarrow	<code>\swharpooncw</code>
\leftarrow	<code>\leftharpooncw*</code>	\nwarrow	<code>\nwseharpoonnesw</code>	\swarrow	<code>\swneharpoons</code>
\leftarrowtail	<code>\leftrightharpoondownup</code>	\nwarrow	<code>\nwseharpoons</code>	\uparrow	<code>\updownharpoonleftright</code>
\leftarrowtail	<code>\leftrightharpoons</code>	\nwarrow	<code>\nwseharpoonswne</code>	\uparrow	<code>\updownharpoonrightleft</code>
\leftarrowtail	<code>\leftrightharpoonupdown</code>	\rightarrow	<code>\rightharpoonccw*</code>	\updownarrow	<code>\updownharpoons</code>
\nearrow	<code>\neharpoonccw</code>	\rightarrow	<code>\rightharpooncw*</code>	\uparrow	<code>\upharpoonccw*</code>
\nearrow	<code>\neharpooncw</code>	\Rightarrow	<code>\rightleftharpoons</code>	\uparrow	<code>\upharpooncw*</code>
\nearrow	<code>\neswharpoonnwse</code>	\nearrow	<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 153: MnSymbol Negated Harpoons

\dagger	<code>\ndownharpoonccw*</code>	\ddagger	<code>\nneswharpoons</code>	\times	<code>\nseharpooncw</code>
\dagger	<code>\ndownharpooncw*</code>	\ddagger	<code>\nneswharpoonew</code>	\ddagger	<code>\nsenwharpoons</code>
\ddagger	<code>\ndownupharpoons</code>	\times	<code>\nnwharpoonccw</code>	\times	<code>\nswharpoonccw</code>
\ddagger	<code>\nleftharpoonccw*</code>	\times	<code>\nnwharpooncw</code>	\times	<code>\nswharpooncw</code>
\ddagger	<code>\nleftharpooncw*</code>	\times	<code>\nnwseharpoonnesw</code>	\ddagger	<code>\nswneharpoons</code>
\ddagger	<code>\nleftrightharpoondownup</code>	\ddagger	<code>\nnwseharpoons</code>	\dagger	<code>\nupdownharpoonleftright</code>
\ddagger	<code>\nleftrightharpoons</code>	\times	<code>\nnwseharpoonswne</code>	\dagger	<code>\nupdownharpoonrightleft</code>
\ddagger	<code>\nleftrightharpoonupdown</code>	\dagger	<code>\nrightharpoonccw*</code>	\ddagger	<code>\nupdownharpoons</code>
\times	<code>\nneharpoonccw</code>	\dagger	<code>\nrightharpooncw*</code>	\dagger	<code>\nupharpoonccw*</code>
\times	<code>\nneharpooncw</code>	\ddagger	<code>\nrightleftharpoons</code>	\dagger	<code>\nupharpooncw*</code>
\times	<code>\nneswharpoonnwse</code>	\times	<code>\nseharpoonccw</code>		

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

TABLE 154: *fdsymbol* Arrows

↺	\acwcirclearrowdown	←	\leftarrow	↗	\rightrightarrows
↻	\acwcirclearrowleft	↔	\leftarrowtail	↝	\rightwavearrow
↶	\acwcirclearrowright	↔-	\leftbkarrow	⇒	\Rrightarrow
↷	\acwcirclearrowup	↔≡	\leftleftarrows	↑	\Rsh
↖	\acwlefttarcarrow	↔↑	\leftmapsto	↙	\searrow
↗	\acwnearcarrow	↔↓	\Leftmapsto	↘	\Searrow
↙	\acwnwarcarrow	↔↔	\Leftrightarrow	↙	\searrowtail
↖	\acwoverarcarrow	↔↔	\leftrightarrow	↘	\sebkarrown
↗	\acwrightarcarrow	↔⤒	\leftrightarrows	⤒	\senwarrows
⤓	\acwsearcarrow	⤓⤒	\leftrightwavearrow	⤒⤓	\sesearrows
⤔	\acwswarcarrow	⤔⤒	\leftwavearrow	⤔⤒	\Swarrow
⤖	\acwunderarcarrow	⤖⤒	\lightning	⤖⤒	\swarrow
⤗	\bdlefttarcarrow	⤗⤒	\Lleftarrow	⤗⤒	\swarrowtail
⤘	\bdnearcarrow	⤘⤒	\Longleftarrow	⤘⤒	\swbkarrown
⤙	\bdnwarcarrow	⤙⤒	\longleftarrow	⤙⤒	\swnearrows
⤚	\bdoverarcarrow	⤚⤒	\longleftrightarrow	⤚⤒	\swswarrows
⤛	\bdrightarcarrow	⤛⤒	\Longleftrightarrow	⤛⤒	\twoheaddownarrow
⤜	\bdsearcarrow	⤜⤒	\longleftwavearrow	⤜⤒	\twoheadleftarrow
⤝	\bdswarcarrow	⤝⤒	\Longmapsfrom	⤝⤒	\twoheadnearrow
⤞	\bdunderarcarrow	⤞⤒	\longmapsfrom	⤞⤒	\twoheadnarrow
⤟	\cwcirclearrowdown	⤟⤒	\Longmapsto	⤟⤒	\twoheadrightarrow
⤠	\cwcirclearrowleft	⤠⤒	\longmapsto	⤠⤒	\twoheadsearrow
⤡	\cwcirclearrowright	⤡⤒	\longrightarrow	⤡⤒	\twoheadsarrow
⤢	\cwcirclearrowup	⤢⤒	\Longrightarrow	⤢⤒	\twoheaduparrow
⤣	\cwlefttarcarrow	⤣⤒	\longrightwavearrow	⤣⤒	\uparrow
⤤	\cwnearcarrow	⤤⤒	\looparrowleft	⤤⤒	\Uparrow
⤥	\cwnwarcarrow	⤥⤒	\looparrowright	⤥⤒	\uparrowtail
⤦	\cwoverarcarrow	⤦⤒	\Lsh	⤦⤒	\upbkarrown
⤧	\cwrightarcarrow	⤧⤒	\nearrow	⤧⤒	\Updownarrow
⤨	\cwsearcarrow	⤨⤒	\Narrow	⤨⤒	\updownarrow
⤩	\cwswarcarrow	⤩⤒	\nearrowtail	⤩⤒	\updownarrows
⤪	\cwunderarcarrow	⤪⤒	\nebkarrown	⤪⤒	\updownwavearrow
⤫	\Ddownarrow	⤫⤒	\nenarrows	⤫⤒	\upmapsto
⤬	\Downarrow	⤬⤒	\Nesarrow	⤬⤒	\Upmapsto
⤭	\downarrow	⤭⤒	\nesarrow	⤭⤒	\upuparrows
⤮	\downarrowtail	⤮⤒	\neswarrows	⤮⤒	\upwavearrow
⤯	\downbkarrown	⤯⤒	\Narrow	⤯⤒	\Uparrow
⤰	\downdownarrows	⤰⤒	\narrow	⤰⤒	\vardownwavearrow
⤱	\Downmapsto	⤱⤒	\narrowtail	⤱⤒	\varhookdownarrow
⤲	\downmapsto	⤲⤒	\nwbkarrown	⤲⤒	\varhookleftarrow
⤳	\downuparrows	⤳⤒	\nwnwarrows	⤳⤒	\varhooknearrow
⤴	\downwavearrow	⤴⤒	\Nwsearrow	⤴⤒	\varhooknarrow
⤵	\hookdownarrow	⤵⤒	\nwsearrow	⤵⤒	\varhookrightarrow
⤶	\hookleftarrow	⤶⤒	\nwsearrows	⤶⤒	\varhooksearrow
⤷	\hooknearrow	⤷⤒	\Rdsh	⤷⤒	\varhookswarrow
⤸	\hooknarrow	⤸⤒	\Rightarrow	⤸⤒	\varhookuparrow
⤹	\hookrightarrow	⤹⤒	\rightarrow	⤹⤒	\varleftrightwavearrow
⤺	\hooksearrow	⤺⤒	\rightarrowtail	⤺⤒	\varleftwavearrow
⤻	\hookswarrow	⤻⤒	\rightbkarrown	⤻⤒	\varrightwavearrow
⤼	\hookuparrow	⤼⤒	\rightleftarrows	⤼⤒	\varupdownwavearrow
⤽	\Ldsh	⤽⤒	\Rightmapsto	⤽⤒	\varupwavearrow

(continued on next page)

(continued from previous page)

\Leftarrow \Leftarrow \rightmapsto

fdsymbol defines synonyms for most of the preceding symbols:

\circlearrowleft	\acwgapcirclearrow	\rightsquigarrow	\leftrightsquigarrow	\nwarrow	\rhooknarrow
\circlearrowright	\acwopencirclearrow	\leftrightsquigarrow	\leftrightsquigarrow	\rightarrowtail	\rhookrightarrow
\circlearrowleft	\circlearrowleft	\leftarrowtail	\leftarrowtail	\searrowtail	\rhooksearrow
\circlearrowright	\circlearrowright	\uparrowtail	\uparrowtail	\swarrowtail	\rhookswarrow
\curvearrowleft	\curvearrowleft	\downarrowtail	\downarrowtail	\uparrowtail	\rhookuparrow
\curvearrowright	\curvearrowright	\leftarrowtail	\leftarrowtail	\rightarrowtail	\rightcurvedarrow
\curvearrowleft	\curvearrowleft	\leftarrowtail	\leftarrowtail	\leftarrowtail	\rightdowncurvedarrow
\curvearrowright	\curvearrowright	\rightarrowtail	\rightarrowtail	\rightarrowtail	\rightlcurvearrow
\cwgapcirclearrow	\cwgapcirclearrow	\rightarrowtail	\rightarrowtail	\rightarrowtail	\rightleftcurvearrow
\cwopencirclearrow	\cwopencirclearrow	\rightarrowtail	\rightarrowtail	\rightarrowtail	\rightupcurvedarrow
\dasharrow	\dasharrow	\rightarrowtail	\rightarrowtail	\rightarrowtail	\rightleftcurvearrow
\dashleftarrow	\dashleftarrow	\rightarrowtail	\rightarrowtail	\rightarrowtail	\rightleftsquigarrow
\dashrightarrow	\dashrightarrow	\rightarrowtail	\rightarrowtail	\rightarrowtail	\rightlsquigarrow
\downarrow	\downlcurvearrow	\uparrowtail	\uparrowtail	\uparrowtail	\rightrcurvearrow
\downarrow	\downleftcurvedarrow	\rightsquigarrowtail	\longleadsto	\rightsquigarrowtail	\rightrsquigarrow
\downarrow	\downlsquigarrow	\rightsquigarrowtail	\longleftsquigarrow	\rightsquigarrowtail	\rightsquigarrow
\downarrow	\downrcurvearrow	\rightsquigarrowtail	\longrightsquigarrow	\rightsquigarrowtail	\rightupcurvedarrow
\downarrow	\downrightcurvedarrow	\downarrowtail	\mapsdown	\downarrowtail	\selcurvearrow
\downarrow	\downrsquigarrow	\downarrowtail	\Mapsdown	\downarrowtail	\senwcurvearrow
\downarrow	\downupcurvearrow	\leftarrowtail	\mapsfrom	\downarrowtail	\sercurvearrow
\downarrow	\downupsquigarrow	\leftarrowtail	\Mapsfrom	\downarrowtail	\swlcurvearrow
\downarrow	\downzigzagarrow	\rightarrowtail	\mapsto	\rightarrowtail	\swnecurvearrow
\leftarrow	\gets	\Rightarrowtail	\Mapsto	\leftarrowtail	\swrcurvearrow
\uparrow	\hknearrow	\uparrowtail	\mapsup	\rightarrowtail	\to
\uparrow	\hknarrow	\uparrowtail	\Mapsup	\uparrowtail	\updowncurvearrow
\uparrow	\hksearrow	\rightarrowtail	\nelcurvearrow	\uparrowtail	\updownsquigarrow
\uparrow	\hkswarrow	\rightarrowtail	\nercurvearrow	\uparrowtail	\uplcurvearrow
\rightarrowtail	\leadsto	\rightarrowtail	\neswcurvearrow	\uparrowtail	\upleftcurvedarrow
\leftarrowtail	\leftcurvedarrow	\leftarrowtail	\nlcurvearrow	\uparrowtail	\uplsquigarrow
\leftarrowtail	\leftdowncurvedarrow	\leftarrowtail	\nwrcurvearrow	\uparrowtail	\uprcurvearrow
\leftarrowtail	\leftlcurvearrow	\leftarrowtail	\nwsecurvearrow	\uparrowtail	\uprightcurvearrow
\leftarrowtail	\leftlsquigarrow	\downarrowtail	\rhookdownarrow	\uparrowtail	\uprsquigarrow
\leftarrowtail	\leftrccurvearrow	\leftarrowtail	\rhookleftarrow		
\leftarrowtail	\leftrightcurvearrow	\rightarrowtail	\rhooknearrow		

TABLE 155: fdsymbol Negated Arrows

$\not\circlearrowleft$	\nacwcirclearrowdown	$\not\Leftarrow$	\nleftarrow	$\not\Rightarrow$	\nRightarrow
$\not\circlearrowright$	\nacwcirclearrowleft	$\not\Rightarrow$	\nLeftarrow	$\not\Leftarrowtail$	\nsearrow
$\not\circlearrowright$	\nacwcirclearrowright	$\not\Leftarrowtail$	\nleftarrowtail	$\not\Leftarrowtail$	\nSearrow
$\not\circlearrowright$	\nacwcirclearrowup	$\not\Leftarrowtail$	\nleftbarrow	$\not\Leftarrowtail$	\nsearrowtail
$\not\curvearrowleft$	\nacwleftarcarrow	$\not\Leftarrowtail$	\nleftleftarrows	$\not\Leftarrowtail$	\nsebarrow
$\not\curvearrowright$	\nacwnearcarrow	$\not\Leftarrowtail$	\nleftmapsto	$\not\Leftarrowtail$	\nsenwarrows
$\not\curvearrowright$	\nacwnwarccarw	$\not\Leftarrowtail$	\nLeftmapsto	$\not\Leftarrowtail$	\nsesearrows
$\not\curvearrowright$	\nacwoverarcarrow	$\not\Leftarrowtail$	\nleftrightarrow	$\not\Leftarrowtail$	\nswarrow

(continued on next page)

(continued from previous page)

\nwarrow	<code>\nacwrightarcarrow</code>	\nleftrightarrow	<code>\nLeftrightarrow</code>	\nwarrow	<code>\nSwarrow</code>
\nearrow	<code>\nacwsearcarrow</code>	\nleftrightarrow	<code>\nleftrightarrows</code>	\nearrow	<code>\nswarrowtail</code>
\swarrow	<code>\nacwswarcarrow</code>	\nleftrightarrow	<code>\nleftrightwavearrow</code>	\swarrow	<code>\nswbkarrow</code>
\nwarrow	<code>\nacwunderarcarrow</code>	\nleftrightarrow	<code>\nleftwavearrow</code>	\nwarrow	<code>\nswnearrows</code>
\nwarrow	<code>\nbdbleftarcarrow</code>	\nleftrightarrow	<code>\nLeftarrow</code>	\nwarrow	<code>\nswwarrows</code>
\nwarrow	<code>\nbdbnearcarrow</code>	\nleftrightarrow	<code>\nlongleftarrow</code>	\nwarrow	<code>\ntwoheaddownarrow</code>
\nwarrow	<code>\nbdbnwarcarrow</code>	\nleftrightarrow	<code>\nLongleftarrow</code>	\nwarrow	<code>\ntwoheadleftarrow</code>
\nwarrow	<code>\nbdboverarcarrow</code>	\nleftrightarrow	<code>\nlongleftrightarrow</code>	\nwarrow	<code>\ntwoheadnearrow</code>
\nwarrow	<code>\nbdbrightarcarrow</code>	\nleftrightarrow	<code>\nLongleftrightarrow</code>	\nwarrow	<code>\ntwoheadnarrow</code>
\nwarrow	<code>\nbdssearcarrow</code>	\nleftrightarrow	<code>\nlongleftwavearrow</code>	\nwarrow	<code>\ntwoheadrightarrow</code>
\nwarrow	<code>\nbdbswarcarrow</code>	\nleftrightarrow	<code>\nlongmapsfrom</code>	\nwarrow	<code>\ntwoheadsearrow</code>
\nwarrow	<code>\nbdunderarcarrow</code>	\nleftrightarrow	<code>\nLongmapsfrom</code>	\nwarrow	<code>\ntwoheadswarrow</code>
\circlearrowleft	<code>\ncwcirclearrowdown</code>	\nleftrightarrow	<code>\nlongmapsto</code>	\nwarrow	<code>\ntwoheaduparrow</code>
\circlearrowleft	<code>\ncwcirclearrowleft</code>	\nleftrightarrow	<code>\nLongmapsto</code>	\uparrow	<code>\nuparrow</code>
\circlearrowleft	<code>\ncwcirclearrowright</code>	\nleftrightarrow	<code>\nlongrightarrow</code>	\uparrow	<code>\nUparrow</code>
\circlearrowleft	<code>\ncwcirclearrowup</code>	\nleftrightarrow	<code>\nLongrightarrow</code>	\uparrow	<code>\nuparrowtail</code>
\nwarrow	<code>\ncwleftarcarrow</code>	\nleftrightarrow	<code>\nlongrightwavearrow</code>	\uparrow	<code>\nupbkarw</code>
\nwarrow	<code>\ncwnearcarrow</code>	\nwarrow	<code>\nnearrow</code>	\uparrow	<code>\nupdownarrow</code>
\nwarrow	<code>\ncwnwarcarrow</code>	\nwarrow	<code>\nNearrow</code>	\uparrow	<code>\nUpdownarrow</code>
\nwarrow	<code>\ncwoverarcarrow</code>	\nwarrow	<code>\nnarrowtail</code>	\uparrow	<code>\nupdownarrows</code>
\nwarrow	<code>\ncwrightarcarrow</code>	\nwarrow	<code>\nnebkarw</code>	\uparrow	<code>\nupdownwavearrow</code>
\nwarrow	<code>\ncwsearcarrow</code>	\nwarrow	<code>\nnenearrows</code>	\uparrow	<code>\nupmapsto</code>
\nwarrow	<code>\ncwswarcarrow</code>	\nwarrow	<code>\nneswarw</code>	\uparrow	<code>\nUpmapsto</code>
\nwarrow	<code>\ncwunderarcarrow</code>	\nwarrow	<code>\nNeswarw</code>	\uparrow	<code>\nupuparrows</code>
\nwarrow	<code>\ndownarrow</code>	\nwarrow	<code>\nneswarrows</code>	\uparrow	<code>\nupwavearrow</code>
\nwarrow	<code>\ndownarrow</code>	\nwarrow	<code>\nnarrow</code>	\uparrow	<code>\nUparrow</code>
\nwarrow	<code>\Downarrow</code>	\nwarrow	<code>\nnarrowtail</code>	\uparrow	<code>\nvardownwavearrow</code>
\nwarrow	<code>\ndownarrowtail</code>	\nwarrow	<code>\nnarrowtail</code>	\uparrow	<code>\nvarhookdownarrow</code>
\nwarrow	<code>\ndownbkarrow</code>	\nwarrow	<code>\nnwbkarw</code>	\nwarrow	<code>\nvarhookleftarrow</code>
\nwarrow	<code>\ndowndownarrows</code>	\nwarrow	<code>\nnwnwarrows</code>	\nwarrow	<code>\nvarhooknearrow</code>
\nwarrow	<code>\downmapsto</code>	\nwarrow	<code>\nnsearrow</code>	\nwarrow	<code>\nvarhooknarrow</code>
\nwarrow	<code>\Downmapsto</code>	\nwarrow	<code>\nNsearrow</code>	\nwarrow	<code>\nvarhookrightarrow</code>
\nwarrow	<code>\downuparrows</code>	\nwarrow	<code>\nnsearrows</code>	\nwarrow	<code>\nvarhooksearrow</code>
\nwarrow	<code>\downwavearrow</code>	\nwarrow	<code>\rightarrow</code>	\nwarrow	<code>\nvarhookswarrow</code>
\nwarrow	<code>\hookdownarrow</code>	\nwarrow	<code>\Rightarrow</code>	\nwarrow	<code>\nvarhookuparrow</code>
\nwarrow	<code>\hookleftarrow</code>	\nwarrow	<code>\rightarrowtail</code>	\nwarrow	<code>\nvarleftrightwavearrow</code>
\nwarrow	<code>\hooknearrow</code>	\nwarrow	<code>\rightbkarrow</code>	\nwarrow	<code>\nvarleftwavearrow</code>
\nwarrow	<code>\hooknarrow</code>	\nwarrow	<code>\rightleftarrows</code>	\nwarrow	<code>\nvarrightwavearrow</code>
\nwarrow	<code>\hookrightarrow</code>	\nwarrow	<code>\rightmapsto</code>	\nwarrow	<code>\nvarupdownwavearrow</code>
\nwarrow	<code>\hooksearrow</code>	\nwarrow	<code>\Rightmapsto</code>	\nwarrow	<code>\nvarupwavearrow</code>
\nwarrow	<code>\hookswarrow</code>	\nwarrow	<code>\rightrightarrows</code>	\nwarrow	
\nwarrow	<code>\hookuparrow</code>	\nwarrow	<code>\rightwavearrow</code>	\nwarrow	

`fdsymbol` defines synonyms for most of the preceding symbols:

\circlearrowleft	<code>\nacwgpcirclearrow</code>	\nwarrow	<code>\leftdowncurvedarrow</code>	\nwarrow	<code>\rightcurvedarrow</code>
\circlearrowleft	<code>\nacwopencirclearrow</code>	\nwarrow	<code>\leftlcurvearrow</code>	\nwarrow	<code>\rightdowncurvedarrow</code>
\circlearrowleft	<code>\ncirclearrowleft</code>	\nwarrow	<code>\leftlsquigarrow</code>	\nwarrow	<code>\rightlcurvearrow</code>
\circlearrowleft	<code>\ncirclearrowright</code>	\nwarrow	<code>\leftrcurearrow</code>	\nwarrow	<code>\rightleftcurvearrow</code>
\nwarrow	<code>\ncurvearrowleft</code>	\nwarrow	<code>\leftrightcurvearrow</code>	\nwarrow	<code>\rightleftsquigarrow</code>
\nwarrow	<code>\ncurvearrowright</code>	\nwarrow	<code>\leftrightsquigarrow</code>	\nwarrow	<code>\rightlsquigarrow</code>
\circlearrowleft	<code>\ncwgpcirclearrow</code>	\nwarrow	<code>\leftrsquigarrow</code>	\nwarrow	<code>\rightrcurvearrow</code>
\circlearrowleft	<code>\ncwopencirclearrow</code>	\nwarrow	<code>\leftsquigarrow</code>	\nwarrow	<code>\rightrsquigarrow</code>

(continued on next page)

(continued from previous page)

\dashrightarrow	<code>\ndasharrow</code>	\nwarrow	<code>\nleftupcurvedarrow</code>	\nearrow	<code>\nrightsquigarrow</code>
\dashleftarrow	<code>\ndashleftarrow</code>	\nwswarrow	<code>\nlongleadsto</code>	\nearrow	<code>\nrightupcurvedarrow</code>
\dashrightarrow	<code>\ndashrightarrow</code>	\nwsearrow	<code>\nlongleftsquigarrow</code>	\nearrow	<code>\nselcurvearrow</code>
\dashv	<code>\ndownlcurvearrow</code>	\nwswarrow	<code>\nlongrightsquigarrow</code>	\nearrow	<code>\nsenwcurvearrow</code>
\dashleftarrow	<code>\ndownleftcurvedarrow</code>	\nwarrow	<code>\nmapsdown</code>	\nearrow	<code>\nsercurvearrow</code>
\dashv	<code>\ndownlsquigarrow</code>	\nwarrow	<code>\nMapsdown</code>	\nearrow	<code>\nswlcurvearrow</code>
\dashleftarrow	<code>\ndownrcurvearrow</code>	\nwarrow	<code>\nmapsfrom</code>	\nearrow	<code>\nswnecurvearrow</code>
\dashv	<code>\ndownrightcurvedarrow</code>	\nwarrow	<code>\nMapsfrom</code>	\nearrow	<code>\nswrcurvearrow</code>
\dashleftarrow	<code>\ndownrsquigarrow</code>	\nwarrow	<code>\nmapsto</code>	\rightarrow	<code>\nto</code>
\dashv	<code>\ndownupcurvearrow</code>	\nwarrow	<code>\nMapsto</code>	\nwarrow	<code>\nupdowncurvearrow</code>
\dashv	<code>\ndownupsquigarrow</code>	\nwarrow	<code>\nmapsup</code>	\nwarrow	<code>\nupdownsquigarrow</code>
\dashleftarrow	<code>\ngets</code>	\nwarrow	<code>\nMapsup</code>	\nwarrow	<code>\nuplcurvearrow</code>
\dashv	<code>\nhknearrow</code>	\nwarrow	<code>\nnelcurvearrow</code>	\nwarrow	<code>\nupleftcurvedarrow</code>
\dashv	<code>\nhknarrow</code>	\nwarrow	<code>\nnercurvearrow</code>	\nwarrow	<code>\nuplsquigarrow</code>
\dashv	<code>\nhksearrow</code>	\nwarrow	<code>\nneswcurvearrow</code>	\nwarrow	<code>\nuprcurvearrow</code>
\dashv	<code>\nhkswarrow</code>	\nwarrow	<code>\nnwlcurvearrow</code>	\nwarrow	<code>\nuprightcurvearrow</code>
\dashrightarrow	<code>\nleadsto</code>	\nwarrow	<code>\nnwrcurvearrow</code>	\nwarrow	<code>\nuprsquigarrow</code>
\dashleftarrow	<code>\nleftcurvedarrow</code>	\nwarrow	<code>\nnwsecurvearrow</code>		

TABLE 156: *fdsymbol* Harpoons

\downarrow	<code>\downharpoonleft</code>	\nearrow	<code>\neswharpoons</code>	\searrow	<code>\seharpoonsw</code>
\downarrow	<code>\downharpoonright</code>	\nearrow	<code>\neswharpoonsew</code>	\nwarrow	<code>\senwharpoons</code>
\Downarrow	<code>\downupharpoons</code>	\nearrow	<code>\nwharpoonne</code>	\nearrow	<code>\swharpoonnw</code>
\lrcorner	<code>\leftharpoondown</code>	\nearrow	<code>\nwharpoonsw</code>	\nearrow	<code>\swharpoonse</code>
\lrcorner	<code>\leftharpoonup</code>	\nearrow	<code>\nwseharpoonnesw</code>	\nearrow	<code>\swneharpoons</code>
\lrcorner	<code>\leftrightharpoondownup</code>	\nearrow	<code>\nwseharpoons</code>	\nearrow	<code>\updownharpoonleftright</code>
\lrcorner	<code>\leftrightharpoons</code>	\nearrow	<code>\nwseharpoonswne</code>	\nearrow	<code>\updownharpoonrightleft</code>
\lrcorner	<code>\leftrightharpoonupdown</code>	\nearrow	<code>\rightharpoondown</code>	\nearrow	<code>\updownharpoons</code>
\lrcorner	<code>\leftrightharpoonup</code>	\nearrow	<code>\rightharpoonup</code>	\nearrow	<code>\upharpoonleft</code>
\lrcorner	<code>\neharpoonnw</code>	\nearrow	<code>\rightleftharpoons</code>	\nearrow	<code>\upharpoonright</code>
\lrcorner	<code>\neharpoonse</code>	\nearrow	<code>\seharpoonne</code>		
\lrcorner	<code>\neswharpoonnwse</code>	\nearrow			

fdsymbol defines `\restriction` as a synonym for `\upharpoonright`, `\updownharpoonsleftright` as a synonym for `\updownharpoons`, and `\downupharpoonsleftright` as a synonym for `\downupharpoons`.

TABLE 157: *fdsymbol* Negated Harpoons

\nexists	<code>\ndownharpoonleft</code>	\nexists	<code>\nneswharpoons</code>	\nexists	<code>\nseharpoonsw</code>
\nexists	<code>\ndownharpoonright</code>	\nexists	<code>\nneswharpoonsenw</code>	\nexists	<code>\nsenwharpoons</code>
\nexists	<code>\ndownupharpoons</code>	\nexists	<code>\nnwharpoonne</code>	\nexists	<code>\nswharpoonnw</code>
\nexists	<code>\nleftharpoondown</code>	\nexists	<code>\nnwharpoonsw</code>	\nexists	<code>\nswharpoonse</code>
\nexists	<code>\nleftharpoonup</code>	\nexists	<code>\nnwseharpoonnesw</code>	\nexists	<code>\nswneharpoons</code>
\nexists	<code>\nleftrightharpoondownup</code>	\nexists	<code>\nnwseharpoons</code>	\nexists	<code>\nupdownharpoonleftright</code>
\nexists	<code>\nleftrightharpoons</code>	\nexists	<code>\nnwseharpoonswne</code>	\nexists	<code>\nupdownharpoonrightleft</code>
\nexists	<code>\nleftrightharpoonupdown</code>	\nexists	<code>\nrightharpoondown</code>	\nexists	<code>\nupdownharpoons</code>
\nexists	<code>\nneharpoonnw</code>	\nexists	<code>\nrightharpoonup</code>	\nexists	<code>\nupharpoonleft</code>
\nexists	<code>\nneharpoonse</code>	\nexists	<code>\nrightleftharpoons</code>	\nexists	<code>\nupharpoonright</code>
\nexists	<code>\nneswharpoonnwse</code>	\nexists	<code>\nseharpoonne</code>		

fdsymbol defines `\nrestriction` as a synonym for `\nupharpoonright`, `\ndownupharpoonsleftright` as a synonym for `\ndownupharpoons`, and `\nupdownharpoonsleftright` as a synonym for `\nupdownharpoons`.

TABLE 158: *boisik* Arrows

\leftarrow	<code>\barleftarrow</code>	\uparrow	<code>\Lsh</code>
$\overleftarrow{}$	<code>\barleftarrowrightarrowbar</code>	\downarrow	<code>\mapsdown</code>
\nearrow	<code>\barovernorthwestarrow</code>	\Leftarrow	<code>\Mapsfrom</code>
\hookleftarrow	<code>\carriagereturn</code>	\Leftarrow	<code>\mapsfrom</code>
\circlearrowleft	<code>\circlearrowleft</code>	\Rightarrow	<code>\Mapsto</code>
\circlearrowright	<code>\circlearrowright</code>	\rightarrowtail	<code>\mapsto</code>
\leftrightharpoonup	<code>\cupleftarrow</code>	\uparrowtail	<code>\mapsup</code>
\curlyveedownarrow	<code>\curlyveedownarrow</code>	\nearrowtail	<code>\Nearrow</code>
\curlyveeuparrow	<code>\curlyveeuparrow</code>	\nearrowcorner	<code>\nearrowcorner</code>
\curlywedgedownarrow	<code>\curlywedgedownarrow</code>	\nearrowtail	<code>\nnearrow</code>
\curlywedgeuparrow	<code>\curlywedgeuparrow</code>	\nwarrowtail	<code>\nnarrow</code>
\curvearrowbotleft	<code>\curvearrowbotleft</code>	\nwarrowtail	<code>\Narrow</code>
\curvearrowbotleftright	<code>\curvearrowbotleftright</code>	\nwarrowcorner	<code>\narrowcorner</code>
\curvearrowbotright	<code>\curvearrowbotright</code>	\rightarrowtail	<code>\rightarrowbar</code>
\curvearrowleft	<code>\curvearrowleft</code>	\rightarrowtail	<code>\rightarrowcircle</code>
\curvearrowleftright	<code>\curvearrowleftright</code>	\rightarrowtail	<code>\rightarrowtail</code>
\curvearrowright	<code>\curvearrowright</code>	\rightarrowtail	<code>\rightarrowTriangle</code>
\dsh	<code>\dsh</code>	\rightarrowtail	<code>\rightarrowtriangle</code>
\blackdownarrow	<code>\downblackarrow</code>	\rightarrowtail	<code>\rightblackarrow</code>
\dashdownarrow	<code>\downdasharrow</code>	\rightarrowtail	<code>\rightdasharrow</code>
\downdownarrows	<code>\downdownarrows</code>	\rightarrowtail	<code>\rightleftarrows</code>
\touparrow	<code>\downtouparrow</code>	\rightarrowtail	<code>\rightrightarrows</code>
\whitearrow	<code>\downwhitearrow</code>	\rightarrowtail	<code>\rightsquigarrow</code>
\zigzagarrow	<code>\downzigzagarrow</code>	\rightarrowtail	<code>\rightthreearrows</code>
\drsh	<code>\drsh</code>	\rightarrowtail	<code>\righttoleftarrow</code>
\eqleftrightarrow	<code>\eqleftrightarrow</code>	\rightarrowtail	<code>\rightwhitearrow</code>
\hookleftarrow	<code>\hookleftarrow</code>	\rightarrowtail	<code>\rightwhiteroundarrow</code>
\hookrightarrow	<code>\hookrightarrow</code>	\rightarrowtail	<code>\Rightarrow</code>
\leftarrowtail	<code>\leftarrowtail</code>	\rightarrowtail	<code>\Rsh</code>
\leftarrowtriangle	<code>\leftarrowtriangle</code>	\rightarrowtail	<code>\Searrow</code>

(continued on next page)

(continued from previous page)

\leftarrow	<code>\leftarrowtriangle</code>	\downarrow	<code>\ssearrow</code>
\blackleftarrow	<code>\leftarrowblackarrow</code>	\swarrow	<code>\sswarrow</code>
\dashleftarrow	<code>\lefttdasharrow</code>	$\swarrow\swarrow$	<code>\Swarrow</code>
\leftleftarrows	<code>\leftleftarrows</code>	$\downarrow\downarrow$	<code>\twoheaddownarrow</code>
\leftrightarroweq	<code>\leftrightarroweq</code>	$\leftleftarrows\leftleftarrows$	<code>\twoheadleftarrow</code>
\leftrightarrows	<code>\leftrightarrows</code>	$\rightarrow\rightarrow$	<code>\twoheadrightarrow</code>
\leftrightarrowTriangle	<code>\leftrightarrowTriangle</code>	$\uparrow\uparrow$	<code>\twoheaduparrow</code>
\leftrightarrowtriangle	<code>\leftrightarrowtriangle</code>	$\uparrow\uparrow$	<code>\twoheadwhiteuparrow</code>
\rightleftarrows	<code>\rightleftarrows</code>	$\uparrow\uparrow$	<code>\twoheadwhiteuparrowpedestal</code>
\leftrightsquigarrow	<code>\leftrightsquigarrow</code>	$\uparrow\uparrow$	<code>\upblackarrow</code>
\leftsquigarrow	<code>\leftsquigarrow</code>	$\uparrow\uparrow$	<code>\updasharrow</code>
\rightleftarrow	<code>\rightleftarrow</code>	$\updownarrow\updownarrow$	<code>\updownarrowbar</code>
\leftwhitearrow	<code>\leftwhitearrow</code>	$\updownarrow\updownarrow$	<code>\updownblackarrow</code>
\leftwhiteroundarrow	<code>\leftwhiteroundarrow</code>	$\updownarrow\updownarrow$	<code>\updownwhitearrow</code>
\leftzigzagarrow	<code>\leftzigzagarrow</code>	$\circlearrowleft\circlearrowleft$	<code>\uptodownarrow</code>
\linefeed	<code>\linefeed</code>	$\upuparrow\upuparrow$	<code>\upuparrows</code>
\Leftarrow	<code>\Leftarrow</code>	$\upuparrow\upuparrow$	<code>\upwhitearrow</code>
\looparrowdownleft	<code>\looparrowdownleft</code>	$\upuparrow\upuparrow$	<code>\whitearrowupfrombar</code>
\looparrowdownright	<code>\looparrowdownright</code>	$\upuparrow\upuparrow$	<code>\whitearrowuppedestal</code>
\looparrowleft	<code>\looparrowleft</code>	$\upuparrow\upuparrow$	<code>\whitearrowuppedestalhbar</code>
\looparrowright	<code>\looparrowright</code>	$\upuparrow\upuparrow$	<code>\whitearrowuppedestalvbar</code>

Many of these symbols are defined only if the `arrows` package option is specified.

TABLE 159: boisik Negated Arrows

\nexists	<code>\nHdownarrow</code>	\Leftrightarrow	<code>\nLeftrightarrow</code>	\Rightarrow	<code>\nRightarrow</code>
\nexists	<code>\nHuparrow</code>	\Leftrightarrow	<code>\nleftrightsquigarrow</code>	\Leftarrow	<code>\nVleftarrow</code>
\nLeftarrow	<code>\nLeftarrow</code>	\Leftrightarrow	<code>\nLeftrightarrow</code>	\Rightarrow	<code>\nVrightarrow</code>
\nLeftarrow	<code>\nleftarrow</code>	\Rightarrow	<code>\nrightarrow</code>		

Many of these symbols are defined only if the `arrows` package option is specified.

TABLE 160: boisik Harpoons

\downarrow	<code>\downharpoonleft</code>	\Rightarrow	<code>\leftrightharpoons</code>	\uparrow	<code>\upharpoonleft</code>
\downarrow	<code>\downharpoonright</code>	\rightarrow	<code>\rightharpoondown</code>	\uparrow	<code>\upharpoonright</code>
\leftarrow	<code>\leftharpoondown</code>	\rightarrow	<code>\rightharpoonup</code>		
\leftarrow	<code>\leftharpoonup</code>	\Rightarrow	<code>\rightleftharpoons</code>		

TABLE 161: stix Arrows

○	\acwcirclearrow	→	\longmapsto
○	\acwgapcirclearrow	⇒	\Longmapsto
↶	\acwleftarcarrow	→	\longrightarrow
↷	\acwoverarcarrow	⇒	\Longrightarrow
↶	\acwunderarcarrow	~~~	\longrightsquigarrow
↖	\barleftarrow	↔	\looparrowleft
↗	\barleftarrowrightarrowbar*	↑	\looparrowright
⤠	\barrightarrowdiamond	↑	\Lsh
⤡	\baruparrow	↓	\mapsdown
⤢	\bsimilarleftarrow	⤣	\Mapsfrom
⤤	\bsimilarrightarrow	⤥	\mapsfrom
⤦	\carriagereturn*	⤧	\mapsto
⤨	\ccwundercurvearrow	⤩	\Mapsto
⤩	\circlearrowleft	⤪	\mapsup
⤪	\circlearrowright	⤫	\nearrow
⤫	\circleonleftarrow	⤬	\nearrow
⤬	\circleonrightarrow	⤭	\neovnarrow*
⤮	\curvearrowleft	⤮	\neovsearrow*
⤯	\curvearrowleftplus	⤯	\nesarrow
⤰	\curvearrowright	⤱	\nwarrow
⤱	\curvearrowrightminus	⤲	\Narrow
⤲	\cwccirclearrow	⤳	\nwovnarrow*
⤳	\cwgapccirclearrow	⤴	\nwsearrow
⤴	\cwrightarcarrow	⤵	\rdiagovsearrow*
⤵	\cwundercurvearrow	⤶	\Rdsh
⤶	\dbkarow	⤷	\Rightarrow
⤷	\DDownarrow	⤸	\rightarrow
⤸	\Ddownarrow	⤹	\rightarrowapprox
⤹	\diamondleftarrow	⤺	\rightarrowbackapprox
⤺	\diamondleftarrowbar	⤻	\rightarrowbar
⤻	\downarrow	⤼	\rightarrowbsimilar
⤼	\Downarrow	⤽	\rightarrowdiamond
⤽	\downarrowbar	⤾	\rightarrowonoplus
⤾	\downarrowbarred	⤿	\rightarrowplus
⤿	\downdasharrow*	⤿	\rightarrowshortleftarrow
⤿	\downdownarrows	⤿	\rightarrowsimilar
⤿	\downrightcurvedarrow*	⤿	\rightarrowtail
⤿	\downuparrows	⤿	\rightarrowtriangle
⤿	\downwhitearrow*	⤿	\rightarrowx
⤿	\downzigzagarrow	⤿	\rightbkarow
⤿	\draftingarrow*	⤿	\rightcurvedarrow
⤿	\drbkbarow	⤿	\rightdasharrow*
⤿	\equalleftarrow	⤿	\rightdotarrow
⤿	\equalrightarrow	⤿	\rightdowncurvedarrow
⤿	\fdiagovnarrow*	⤿	\rightleftarrows
⤿	\hknarrow	⤿	\rightrightarrows
⤿	\hknwarrow	⤿	\rightsquigarrow
⤿	\hksearrow	⤿	\rightthreearrows
⤿	\hkswarow	⤿	\rightwavearrow
⤿	\hookleftarrow	⤿	\rightwhitearrow*
⤿	\hookrightarrow	⤿	\RRightarrow
⤿	\Ldsh	⤿	\Rightarrow

(continued on next page)

(continued from previous page)

\leftarrow	<code>\leftarrow</code>	\rightarrow	<code>\Rsh</code>
\Leftarrow	<code>\Leftarrow</code>	\searrow	<code>\searrow</code>
\approx	<code>\leftarrowapprox</code>	\swarrow	<code>\Searrow</code>
\lessapprox	<code>\leftarrowbackapprox</code>	\asymp	<code>\seovnearrow*</code>
\lessdot	<code>\leftarrowbsimilar</code>	\shortleftarrow	<code>\shortrightarrowleftarrow</code>
\oplus	<code>\leftarrowonoplus</code>	\simeq	<code>\similarleftarrow</code>
\dashv	<code>\leftarrowplus</code>	\Rightarrow	<code>\similarrightarrow</code>
\dashleftarrow	<code>\leftarrowshortrightarrow</code>	\swarrow	<code>\swarrow</code>
\approx	<code>\leftarrowsimilar</code>	$\not\equiv$	<code>\Swarrow</code>
\leftarrowtail	<code>\leftarrowtail</code>	\asymp	<code>\toea</code>
\leftarrowtriangle	<code>\leftarrowtriangle</code>	\asymp	<code>\tona</code>
\leftarrowx	<code>\leftarrowx</code>	\asymp	<code>\tosa</code>
\leftarrowbkarow	<code>\leftarrowbkarow</code>	\asymp	<code>\towa</code>
\leftarrowcurve	<code>\leftarrowcurve</code>	\downarrow	<code>\twoheaddownarrow</code>
\leftarrowdash	<code>\leftarrowdash</code>	$\leftarrow\downarrow$	<code>\twoheadleftarrow</code>
\leftarrowdb	<code>\leftarrowdb</code>	$\leftarrow\leftarrow$	<code>\twoheadleftarrowtail</code>
\leftarrowdot	<code>\leftarrowdot</code>	$\leftarrow\leftarrow\leftarrow$	<code>\twoheadleftdbkarow</code>
\leftarrowdowncurve	<code>\leftarrowdowncurve</code>	$\leftarrow\leftarrow\leftarrow\leftarrow$	<code>\twoheadmapsfrom</code>
\leftarrowleft	<code>\leftarrowleft</code>	$\rightarrow\leftarrow$	<code>\twoheadmapsto</code>
\leftarrowright	<code>\leftarrowright</code>	$\rightarrow\rightarrow$	<code>\twoheadrightarrow</code>
\leftarrowrightarrow	<code>\leftarrowrightarrow</code>	$\rightarrow\rightarrow\rightarrow$	<code>\twoheadrightarrowtail</code>
$\leftarrowrightarrowcircle$	<code>\leftarrowrightarrowcircle</code>	\uparrow	<code>\twoheaduparrow</code>
\leftarrowrightarrows	<code>\leftarrowrightarrows</code>	$\uparrow\uparrow$	<code>\twoheaduparrowcircle</code>
$\leftarrowrightarrowtriangle$	<code>\leftarrowrightarrowtriangle</code>	$\uparrow\uparrow\uparrow$	<code>\uparrowarrow</code>
$\leftarrowrightsquigarrow$	<code>\leftarrowrightsquigarrow</code>	$\uparrow\uparrow\uparrow\uparrow$	<code>\Uparrow</code>
\leftarrowsquigarrow	<code>\leftarrowsquigarrow</code>	$\uparrow\uparrow\uparrow\uparrow\uparrow$	<code>\uparrowarrowbarred</code>
\leftarrowthree	<code>\leftarrowthree</code>	$\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow$	<code>\updasharrow*</code>
\leftarrowwave	<code>\leftarrowwave</code>	$\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow$	<code>\Updownarrow</code>
\leftarrowwhite	<code>\leftarrowwhite</code>	$\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow$	<code>\updownarrow</code>
\linefeed	<code>\linefeed</code>	$\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow$	<code>\updownarrowbar*</code>
\Lleftarrow	<code>\Lleftarrow</code>	$\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow$	<code>\updownarrows</code>
\Lleftarrow	<code>\Lleftarrow</code>	$\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow$	<code>\uprightcurvearrow*</code>
\longleftarrow	<code>\longleftarrow</code>	$\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow$	<code>\upuparrows</code>
\Longleftarrow	<code>\Longleftarrow</code>	$\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow$	<code>\upwhitearrow*</code>
\Longleftarrow	<code>\Longleftarrow</code>	$\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow$	<code>\UUparrow</code>
\longleftrightarrow	<code>\longleftrightarrow</code>	$\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow$	<code>\Uuparrow</code>
\longleftrightarrow	<code>\longleftrightarrow</code>	$\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow$	<code>\varcarriagereturn*</code>
\longmapsfrom	<code>\longmapsfrom</code>	$\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow$	<code>\whitearrowupfrombar*</code>
\longmapsfrom	<code>\longmapsfrom</code>		

* Defined as an ordinary character, not as a binary relation.

stix defines `\acwopencirclearrow` as a synonym for `\circlearrowleft`, `\cwopencirclearrow` as a synonym for `\circlearrowright`, `\leadsto` as a synonym for `\rightsquigarrow`, `\dashleftarrow` as a synonym for `\leftarrowdbkarow`, and `\dashrightarrow` and `\dasharrow` as synonyms for `\dbkarow`.

TABLE 162: stix Negated Arrows

‡	\nHdownarrow*	‡	\nvLeftrightarrow
‡	\nHuparrow*	‡	\nVrightarrow
↔	\nleftarrow†	↔	\nvRightarrow
↔	\nLeftarrow	↔	\nvrightarrow
↔	\nleftrightarrow	↔	\nVrightarrowtail
↔	\nLeftrightarrow	↔	\nvrightarrowtail
↔	\nrightarrow	↔	\nVtwoheadleftarrow
↔	\nrightarrow	↔	\nVtwoheadleftarrow
↔	\nvleftarrow	↔	\nVtwoheadleftarrowtail
↔	\nvLeftarrow	↔	\nVtwoheadleftarrowtail
↔	\nVleftarrow	↔	\nVtwoheadrightarrow
↔	\nVrightarrowtail	↔	\nVtwoheadrightarrow
↔	\nvleftarrowtail	↔	\nVtwoheadrightarrowtail
↔	\nvLeftrightarrow	↔	\nVtwoheadrightarrowtail
↔	\nVleftrightarrow	↔	\nVtwoheadrightarrowtail

* Defined as an ordinary character, not as a binary relation.

† stix defines \ngets as a synonym for \nleftarrow.

TABLE 163: stix Harpoons

⊤	\bardownharpoonleft	⊴	\leftrightharpoons
⊤	\bardownharpoonright	⊵	\leftrightharpoonsdown
⊤	\barleftharpoondown	⊵	\leftrightharpoonsup
⊤	\barleftharpoonup	⊲	\leftrightharpoonupdown
⊤	\barrightharpoondown	⊲	\leftrightharpoonupup
⊤	\barrightharpoonup	⊳	\rightharpoondown
⊤	\barupharpoonleft	⊳	\rightharpoondownbar
⊤	\barupharpoonright	⊵	\rightharpoonsdown
⊤	\dashleftharpoondown	⊳	\rightharpoonup
⊤	\dashrightharpoondown	⊳	\rightharpoonupbar
↓	\downharpoonleft	⊵	\rightharpoonupdash
↓	\downharpoonleftbar	⊴	\rightleftharpoons
↓	\downharpoonright	⊵	\rightleftharpoonsdown
↓	\downharpoonrightbar	⊵	\rightleftharpoonsup
↓↓	\downharpoonsleftright	↓	\updownharpoonleftleft
↓↓	\downupharpoonsleftright	↓	\updownharpoonleftright
⊤	\leftharpoondown	↓	\updownharpoonrightleft
⊤	\leftharpoondownbar	↓	\updownharpoonrightright
⊤	\leftharpoonsdown		\updownharpoonsleftright
⊤	\leftharpoonup	↓	\upharpoonleft
⊤	\leftharpoonupbar	↓	\upharpoonleftbar
⊤	\leftharpoonupdash	↑	\upharpoonright*
⊤	\leftrightharpoondowndown	↓	\upharpoonrightbar
⊤	\leftrightharpoondownup		\upharpoonsleftright

* stix defines \restriction as a synonym for \upharpoonright.

TABLE 164: harpoon Extensible Harpoons

\overleftarrow{abc}	$\backslash overleftharp{abc}$	\overline{abc}	$\backslash overrightharpd{abc}$	\underline{abc}	$\backslash underrightharp{abc}$
$\overleftarrow{\overleftarrow{abc}}$	$\backslash overleftharpd{abc}$	\underline{abc}	$\backslash underleftharp{abc}$	\overline{abc}	$\backslash underrightharpd{abc}$
\overrightarrow{abc}	$\backslash overrightharp{abc}$	$\underline{\overleftarrow{abc}}$	$\backslash underleftharpd{abc}$		

All of the harpoon symbols are implemented using the `graphics` package (specifically, `graphics`'s `\resizebox` command). Consequently, only TeX backends that support graphical transformations (e.g., *not* Xdvi) can properly display these symbols.

TABLE 165: chemarrow Arrows

→ \chemarrow

TABLE 166: fge Arrows

\rightsquigarrow \fgerightarrow \uparrow \fgeuparrow

TABLE 167: old-arrows Arrows

The arrows provided by `old-arrows` represent Donald Knuth's pre-1992 Computer Modern glyphs, which feature smaller arrowheads. Contrast the following:

→ vs. →
default old-arrows

In addition to the arrows shown above, *old-arrows* also reduces the arrowhead size for *AMS*'s `\overleftarrow`, `\overrightarrow`, `\overleftrightarrow`, `\underleftarrow`, `\underrightarrow`, `\underleftrightarrow`, `\xleftarrow`, `\xrightarrow`, `\varinjlim`, and `\varprojlim` symbols (Table 246 on page 108, Table 262 on page 112, and Table 184 on page 92) and *mathtools*'s `\xleftrightarrow`, `\xhookleftarrow`, `\xhookrightarrow`, and `\xmapsto` symbols (Table 263 on page 112).

With the `new` package option, `old-arrows` prefixes all of the above with “`var`” (i.e., `\vardownarrow`, `\varhookleftarrow`, etc.) so both old and new glyphs can be used in the same document. See the `old-arrows` documentation for more information.

* Requires stmaryrd.

TABLE 168: old-arrows Harpoons

$\overleftarrow{}$	$\backslash longleftharpoondown$	$\overrightarrow{}$	$\backslash longrightharpoondown$
$\overleftarrow{}$	$\backslash longleftharpoonup$	$\overrightarrow{}$	$\backslash longrightharpoonup$

Unlike the symbols shown in Table 167 on the previous page, the new package option does not define a $\var...$ version of the symbols in this table. Also unlike the symbols shown in Table 167, the harpoon arrowheads in this table are not reduced in size (i.e., relative to the size of those shown in Table 140 on page 73).

TABLE 169: esrelation Restrictions

\downarrow	$\backslash restrictbarb$	\uparrow	$\backslash restrictmallet$	\downarrow	$\backslash restrictwand$
\uparrow	$\backslash restrictbarbup$	\uparrow	$\backslash restrictmalletup$	\uparrow	$\backslash restrictwandup$

TABLE 170: MnSymbol Spoons

\downarrow	$\backslash downfilledspoon$	\nwarrow	$\backslash nnespoon$	\nwarrow	$\backslash nwfilledspoon$
\downarrow	$\backslash downspoon$	\times	$\backslash nnwfilledspoon$	\times	$\backslash nwspoon$
\leftarrow	$\backslash leftfilledspoon$	\times	$\backslash nnwspoon$	\rightarrow	$\backslash rightfilledspoon$
\leftarrow	$\backslash leftspoon$	$\rightarrow\bullet$	$\backslash nrightfilledspoon$	$\rightarrow\circ$	$\backslash rightspoon^*$
$\dot{\leftarrow}$	$\backslash ndownfilledspoon$	$\rightarrow\circ$	$\backslash nrightspoon^*$	$\dot{\rightarrow}$	$\backslash sefilledspoon$
$\dot{\leftarrow}$	$\backslash downspoon$	\times	$\backslash nsefilledspoon$	$\dot{\rightarrow}$	$\backslash sespoon$
\nearrow	$\backslash nefilledspoon$	\times	$\backslash nsespoon$	\swarrow	$\backslash swfilledspoon$
\nearrow	$\backslash nespoon$	\times	$\backslash nswfilledspoon$	\swarrow	$\backslash swspoon$
\nearrow	$\backslash nleftfilledspoon$	\times	$\backslash nsrspoon$	\uparrow	$\backslash upfilledspoon$
\nearrow	$\backslash nleftspoon$	$\dot{\uparrow}$	$\backslash nupfilledspoon$	\uparrow	$\backslash upspoon$
\times	$\backslash nnefilledspoon$	$\dot{\uparrow}$	$\backslash nupspoon$		

* MnSymbol defines \multimap as a synonym for \rightsarrow and ∇ as a synonym for \nrightsarrow .

TABLE 171: MnSymbol Pitchforks

Ψ	$\backslash downpitchfork$	\nexists	$\backslash nnwpitchfork$	\ni	$\backslash rightpitchfork$
\Leftarrow	$\backslash leftpitchfork$	\neq	$\backslash nrightpitchfork$	\nexists	$\backslash sepitchfork$
\nexists	$\backslash ndownpitchfork$	\nexists	$\backslash nsepitchfork$	\nexists	$\backslash swpitchfork$
\nexists	$\backslash nepitchfork$	\nexists	$\backslash nswpitchfork$	\nmid	$\backslash uppitchfork$
\neq	$\backslash nleftpitchfork$	\nmid	$\backslash nuppitchfork$		
\nexists	$\backslash nnepitchfork$	\nexists	$\backslash nwpitchfork$		

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

TABLE 172: MnSymbol Smiles and Frowns

\approx	<code>\doublefrown</code>	$\not\approx$	<code>\nsmileeq</code>	\asymp	<code>\smileeq</code>
\approxeq	<code>\doublefrownneq</code>	$\not\approx$	<code>\nsmileeqfrown</code>	\asymp	<code>\smileeqfrown</code>
\asymp	<code>\doublesmile</code>	$\not\approx$	<code>\nsmilefrown</code>	\asymp	<code>\smilefrown</code>
\asymp	<code>\doublesmileeq</code>	$\not\approx$	<code>\nsmilefrownneq</code>	\asymp	<code>\smilefrownneq</code>
\asymp	<code>\eqfrown</code>	$\not\approx$	<code>\nsqdoublefrown</code>	\asymp	<code>\sqdoublefrown</code>
\sqsupseteq	<code>\eqsmile</code>	$\not\approx$	<code>\nsqdoublefrownneq</code>	\asymp	<code>\sqdoublefrownneq</code>
\sim	<code>\frown</code>	$\not\approx$	<code>\nsqdoublesmile</code>	\asymp	<code>\sqdoublesmile</code>
\sqsupseteq	<code>\frownneq</code>	$\not\approx$	<code>\nsqdoublesmileeq</code>	\asymp	<code>\sqdoublesmileeq</code>
\sqsupseteq	<code>\frownneqsmile</code>	$\not\approx$	<code>\nsqeqlfrown</code>	\asymp	<code>\sseqfrown</code>
\circ	<code>\frownsmile</code>	$\not\approx$	<code>\nsqeqlsmile</code>	\asymp	<code>\sseqsmile</code>
\sqsupseteq	<code>\frownsmileeq</code>	$\not\approx$	<code>\nsqfrown</code>	\asymp	<code>\sqfrown</code>
$\not\approx$	<code>\ndoublefrown</code>	$\not\approx$	<code>\nsqfrownneq</code>	\asymp	<code>\sqfrownneq</code>
$\not\approx$	<code>\ndoublefrownneq</code>	$\not\approx$	<code>\nsqfrownqsmile</code>	\asymp	<code>\sqfrownqsmile</code>
$\not\approx$	<code>\ndoublesmile</code>	$\not\approx$	<code>\nsqfrownsmile</code>	\asymp	<code>\sqfrownsmile</code>
$\not\approx$	<code>\ndoublesmileeq</code>	$\not\approx$	<code>\nsqsmile</code>	\asymp	<code>\sqsmile</code>
$\not\approx$	<code>\neqfrown</code>	$\not\approx$	<code>\nsqsmileeq</code>	\asymp	<code>\sqsmileeq</code>
$\not\approx$	<code>\neqsmile</code>	$\not\approx$	<code>\nsqsmileeqfrown</code>	\asymp	<code>\sqsmileeqfrown</code>
$\not\approx$	<code>\nfrown</code>	$\not\approx$	<code>\nsqsmilefrown</code>	\asymp	<code>\sqsmilefrown</code>
$\not\approx$	<code>\nfrownneq</code>	$\not\approx$	<code>\nsqtriplefrown</code>	\asymp	<code>\sqtriplefrown</code>
$\not\approx$	<code>\nfrownneqsmile</code>	$\not\approx$	<code>\nsqtriplesmile</code>	\asymp	<code>\sqtriplesmile</code>
$\not\approx$	<code>\nfrownsmile</code>	$\not\approx$	<code>\ntriplefrown</code>	\asymp	<code>\triplefrown</code>
$\not\approx$	<code>\nfrownsmileeq</code>	$\not\approx$	<code>\ntriplesmile</code>	\asymp	<code>\triplesmile</code>
$\not\approx$	<code>\nsmile</code>	\asymp	<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 173: fdsymbol Spoons

$\bullet\circ$	<code>\blackwhitespoon</code>	$\dot{\bullet}$	<code>\ndownblackspoon</code>	$\dot{\circ}$	<code>\nupblackspoon</code>
\bullet	<code>\downblackspoon</code>	$\dot{\circ}$	<code>\downspoon</code>	$\circ\bullet$	<code>\nupspoon</code>
$\circ\bullet$	<code>\downspoon</code>	$\bullet\dot{\circ}$	<code>\leftblackspoon</code>	$\circ\bullet$	<code>\nwhiteblackspoon</code>
$\bullet-$	<code>\leftblackspoon</code>	$\bullet\circ\bullet$	<code>\leftrightblackspoon</code>	$\bullet-$	<code>\rightblackspoon</code>
$\bullet\bullet$	<code>\leftrightblackspoon</code>	$\circ\bullet\circ$	<code>\leftrightspoon</code>	$\circ-$	<code>\rightspoon</code>
$\circ\circ$	<code>\leftrightspoon</code>	$\circ\bullet$	<code>\leftspoon</code>	\bullet	<code>\upblackspoon</code>
$\circ-$	<code>\leftspoon</code>	$\bullet\circ$	<code>\rightblackspoon</code>	\circ	<code>\upspoon</code>
$\bullet\circ\circ$	<code>\nblackwhitespoon</code>	$\circ\circ$	<code>\rightspoon</code>	$\circ\bullet$	<code>\whiteblackspoon</code>

fdsymbol defines synonyms for many of the preceding symbols:

$\circ\circ$	<code>\cirmid</code>	$\circ-$	<code>\multimapinv</code>	$\circ\bullet$	<code>\nmultimap</code>
$\circ\circ$	<code>\dualmap</code>	$\circ\bullet$	<code>\ncirmid</code>	$\circ\bullet$	<code>\nmultimapinv</code>
$\bullet\bullet$	<code>\imageof</code>	$\circ\circ\bullet$	<code>\ndualmap</code>	$\circ\bullet$	<code>\norigof</code>
$\circ\bullet$	<code>\midcir</code>	$\bullet\circ\bullet$	<code>\nimageof</code>	$\bullet\bullet$	<code>\origof</code>
$\circ-$	<code>\multimap</code>	$\circ\circ$	<code>\nmidcir</code>		

TABLE 174: `fdsymbol` Pitchforks

Ψ	<code>\downnpitchfork</code>	$\not\equiv$	<code>\nleftpitchfork</code>	\ni	<code>\rightpitchfork</code>
\Leftarrow	<code>\leftpitchfork</code>	$\not\equiv$	<code>\nrightpitchfork</code>	$\not\ni$	<code>\uppitchfork</code>
Ψ	<code>\ndownnpitchfork</code>	$\not\equiv$	<code>\nuppitchfork</code>		

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

TABLE 175: `fdsymbol` Smiles and Frowns

\frown	<code>\frown</code>	$\not\equiv$	<code>\nfrownneq</code>	$\not\equiv$	<code>\nsmilefrown</code>
$\frown\equiv$	<code>\frown\equiv</code>	$\not\equiv$	<code>\nfrownsmile</code>	\sim	<code>\smile</code>
$\frown\approx$	<code>\frown\approx</code>	$\not\equiv$	<code>\frownsmile</code>	\approx	<code>\smileeq</code>
$\frown\neq$	<code>\frown\neq</code>	$\not\equiv$	<code>\frownsmileeq</code>	$\not\approx$	<code>\smilefrown</code>

`fdsymbol` defines `\arceq` as a synonym for `\frownneq`, `\asymp` as a synonym for `\smilefrown`, `\closure` as a synonym for `\frownsmile`, `\narceq` as a synonym for `\nfrownneq`, `\nasymp` as a synonym for `\nsmilefrown`, `\nclosure` as a synonym for `\nfrownsmile`, `\smallfrown` as a synonym for `\frown`, and `\smallsmile` as a synonym for `\smile`.

TABLE 176: `halloweenmath` Brooms and Pitchforks

\leftarrowtail	<code>\hmleftpitchfork</code>	\rightarrowtail	<code>\leftbroom</code>
\rightarrowtail	<code>\hmrightpitchfork</code>	\rightarrowtail	<code>\rightbroom</code>

TABLE 177: `ulsy` Contradiction Symbols

$\not\models$	<code>\blitza</code>	$\not\models$	<code>\blitzb</code>	$\not\models$	<code>\blitzc</code>	$\not\models$	<code>\blitzd</code>	$\not\models$	<code>\blitze</code>
---------------	----------------------	---------------	----------------------	---------------	----------------------	---------------	----------------------	---------------	----------------------

TABLE 178: Extension Characters

$-$	<code>\relbar</code>	$=$	<code>\Relbar</code>
-----	----------------------	-----	----------------------

TABLE 179: `stmaryrd` Extension Characters

$/$	<code>\Arrownot</code>	$:$	<code>\Mapsfromchar</code>	$:$	<code>\Mapstochar</code>
\backslash	<code>\arrownot</code>	$:$	<code>\mapsfromchar</code>		

TABLE 180: `txfonts/pxfonts` Extension Characters

$:$	<code>\Mappedfromchar</code>	$\#$	<code>\Mmappedfromchar</code>	$\#$	<code>\Mmapstochar</code>
$:$	<code>\mappedfromchar</code>	$\#$	<code>\mmappedfromchar</code>	$\#$	<code>\ mmapstochar</code>

TABLE 181: *mathabx* Extension Characters

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

TABLE 182: *stix* Extension Characters

<	<code>\lhook</code>	-	<code>\relbar</code>	\equiv	<code>\RRelbar</code>
+	<code>\mapsfromchar</code>	=	<code>\Relbar</code>	\equiv	<code>\Rrelbar</code>
+	<code>\mapstochar</code>	>	<code>\rhook</code>		

TABLE 183: 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.³ Each log-like symbol merely produces the eponymous textual equivalent, but with proper surrounding spacing. See Section 11.4 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 184: *AMS* Log-like Symbols

inj lim	<code>\injlim</code>	\varinjlim	\varinjlim	\varinjlim	\varinjlim	\varinjlim
proj lim	<code>\projlim</code>	\varprojlim	\varprojlim	\varprojlim	\varprojlim	\varprojlim

Load the `amsmath` package to get these symbols. See Section 11.4 for some additional comments regarding log-like symbols. As `\mod` and `\pmod` are arguably not symbols we refer the reader to the Short Math Guide for L^AT_EX [Dow00] for samples.

³Michael J. Downes prefers the more general term, “atomic math objects”.

TABLE 185: *mismath* Log-like Symbols

adj	\adj	Conv	\Conv	id	\id	sech	\sech
arccot	\arccot	Cov	\Cov	Id	\Id	sgn	\sgn
arcosh	\arcosh	cov	\cov	im	\im	span	\spa
arcoth	\arcoth	csch	\csch	Im	\Im^*	tr	\tr
arcsch	\arcsch	\curl	\curl	lb	\lb	Var	\Var
arsech	\arsech	div	\divg	lcm	\lcm	Z	\Zu
arsinh	\arsinh	End	\End	rank	\rank		
artanh	\artanh	erf	\erf	Re	\Re^*		
Aut	\Aut	\grad	\grad	\rot	\rot		

* *mismath* renames L^AT_EX's \Re and \Im (Table 203) to \oldRe and \oldIm.

TABLE 186: *mismath* Asymptotic Notation

O	\bigo	O	\bigO	o	\lito
---	-------	---	-------	---	-------

TABLE 187: *GrN*A2e Number Sets

C	\Complex	Z	\Integer	N	\Natural	Q	\Rational	R	\Real
C	\COMPLEX	Z	\INTEGER	N	\NATURAL	Q	\RATIONAL	R	\REAL

TABLE 188: Greek Letters

α	<code>\alpha</code>	θ	<code>\theta</code>	\circ	<code>\circ</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”. To make available commands for *all* of the Greek majuscules, either use the `mathspec` package, which requires X_ET_EX, or copy `mathspec.sty`'s Greek-letter definitions to your document's preamble:

```
\DeclareMathSymbol{\Alpha}{\mathalpha}{operators}{41}
\DeclareMathSymbol{\Beta}{\mathalpha}{operators}{42}
\DeclareMathSymbol{\Epsilon}{\mathalpha}{operators}{45}
\DeclareMathSymbol{\Zeta}{\mathalpha}{operators}{5A}
\DeclareMathSymbol{\Eta}{\mathalpha}{operators}{48}
\DeclareMathSymbol{\Iota}{\mathalpha}{operators}{49}
\DeclareMathSymbol{\Kappa}{\mathalpha}{operators}{4B}
\DeclareMathSymbol{\Mu}{\mathalpha}{operators}{4D}
\DeclareMathSymbol{\Nu}{\mathalpha}{operators}{4E}
\DeclareMathSymbol{\Omicron}{\mathalpha}{operators}{4F}
\DeclareMathSymbol{\Rho}{\mathalpha}{operators}{50}
\DeclareMathSymbol{\Tau}{\mathalpha}{operators}{54}
\DeclareMathSymbol{\Chi}{\mathalpha}{operators}{58}
\DeclareMathSymbol{\omicron}{\mathord}{letters}{6F}
```

See Section 11.5 for examples of how to produce bold Greek letters.

The symbols in this table are intended to be used in mathematical typesetting. Greek body text can be typeset using the `babel` package's `greek` (or `polutonikogreek`) option—and, of course, a font that provides the glyphs for the Greek alphabet.

TABLE 189: *AMS* Greek Letters

F `\digamma` \varkappa `\varkappa`

TABLE 190: txfonts/pfxfonts Upright Greek Letters

α	\alphaup	θ	\thetaau	π	\piup	ϕ	\phiiu
β	\betaau	ϑ	\varthetaau	ϖ	\varpiup	φ	\varphiiu
γ	\gammaau	ι	\iotaau	ρ	\rhoau	χ	\chiiu
δ	\deltaau	κ	\kappaau	ϱ	\varrhoau	ψ	\psiiu
ϵ	\epsilonau	λ	\lambdaau	σ	\sigmaau	ω	\omegaau
ε	\varepsilonau	μ	\muau	ς	\varsigmaau		
ζ	\zetaau	ν	\nuau	τ	\tauau		
η	\etaau	ξ	\xiau	υ	\upsilonau		

The symbols in this table are intended to be used sporadically throughout a document (e.g., to represent mathematical units or numerical quantities—“ $\pi \approx 3.14159$ ”). In contrast, Greek body text can be typeset using the `babel` package’s `greek` (or `polutonikogreek`) option—and, of course, a font that provides the glyphs for the Greek alphabet.

TABLE 191: upgreek Upright Greek Letters

α	\upalpha	θ	\uptheta	π	\uppi	ϕ	\upphi
β	\upbeta	ϑ	\upvartheta	ϖ	\upvarpi	φ	\upvarphi
γ	\upgamma	ι	\upiota	ρ	\uprho	χ	\upchi
δ	\updelta	κ	\upkappa	ϱ	\upvarrho	ψ	\uppsi
ϵ	\upepsilon	λ	\uplambda	σ	\upsigma	ω	\upomega
ε	\upvarepsilon	μ	\upmu	ς	\upvarsigma		
ζ	\upzeta	ν	\upnu	τ	\uptau		
η	\upeta	ξ	\upxi	υ	\upupsilon		
Γ	\Upsilon	Λ	\Uplambda	Σ	\Upsilonigma	Ψ	\Uppsi
Δ	\Updelta	Ξ	\Upxi	\Upsilonigma	\Upupsilon	Ω	\Upomega
Θ	\Uptheta	Π	\Uppi	Φ	\Upphi		

`upgreek` utilizes upright Greek characters from either Euler Roman (depicted above) or the PostScript Symbol font. As a result, the glyphs may appear slightly different from the above. Contrast, for example, “ $\Gamma\Delta\Theta\alpha\beta\gamma$ ” (Euler) with “ $\Gamma\Delta\Theta\alpha\beta\gamma$ ” (Symbol). Also note that the `\var...` forms do not always produce a distinct glyph.

Unlike `textgreek` (Table 6 on page 16), `upgreek` works in math mode.

The symbols in this table are intended to be used sporadically throughout a document (e.g., to represent mathematical units or numerical quantities—“ $\pi \approx 3.14159$ ”). In contrast, Greek body text can be typeset using the `babel` package’s `greek` (or `polutonikogreek`) option—and, of course, a font that provides the glyphs for the Greek alphabet.

TABLE 192: fourier Variant Greek Letters

π	\pi	ρ	\rho
ϑ	\varpi	ϱ	\varrho
ϖ	\varvarpi	ϱ	\varvarrho

TABLE 193: `txfonts/pxfonts` Variant Latin Letters

<i>g</i>	<code>\varg</code>	<i>v</i>	<code>\varv</code>	<i>w</i>	<code>\varw</code>	<i>y</i>	<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 194: `boisik` Variant Greek Letters

<i>β</i>	<code>\varbeta</code>	<i>κ</i>	<code>\varkappa</code>	<i>ϖ</i>	<code>\varpi</code>	<i>ς</i>	<code>\varsigma</code>
<i>ε</i>	<code>\varepsilon</code>	<i>φ</i>	<code>\varphi</code>	<i>ρ</i>	<code>\varrho</code>	<i>ϑ</i>	<code>\vartheta</code>

TABLE 195: `boisik` Variant Latin Letters

<i>g</i>	<code>\varg</code>
----------	--------------------

TABLE 196: `stix` Variant Greek Letters

<i>ε</i>	<code>\varepsilon</code>	<i>φ</i>	<code>\varphi</code>	<i>ρ</i>	<code>\varrho</code>	<i>ϑ</i>	<code>\vartheta</code>
<i>κ</i>	<code>\kappa</code>	<i>ϖ</i>	<code>\pi</code>	<i>ς</i>	<code>\varsigma</code>		

TABLE 197: `stix` Transformed Greek Letters

<i>϶</i>	<code>\backepsilon</code>	<i>ι</i>	<code>\turniota</code>
<i>϶</i>	<code>\mho</code>		<code>\upbackepsilon</code>

TABLE 198: `AMS` Hebrew Letters

<i>ב</i>	<code>\beth</code>	<i>ג</i>	<code>\gimel</code>	<i>ד</i>	<code>\daleth</code>
----------	--------------------	----------	---------------------	----------	----------------------

`\aleph` (\aleph) appears in Table 302 on page 119.

TABLE 199: `MnSymbol` Hebrew Letters

<i>א</i>	<code>\aleph</code>	<i>ב</i>	<code>\beth</code>	<i>ג</i>	<code>\gimel</code>	<i>ד</i>	<code>\daleth</code>
----------	---------------------	----------	--------------------	----------	---------------------	----------	----------------------

TABLE 200: `fdsymbol` Hebrew Letters

<i>א</i>	<code>\aleph</code>	<i>ב</i>	<code>\beth</code>	<i>ג</i>	<code>\gimel</code>	<i>ד</i>	<code>\daleth</code>
----------	---------------------	----------	--------------------	----------	---------------------	----------	----------------------

TABLE 201: `boisik` Hebrew Letters

<i>ב</i>	<code>\beth</code>	<i>ג</i>	<code>\gimel</code>	<i>ד</i>	<code>\daleth</code>
----------	--------------------	----------	---------------------	----------	----------------------

TABLE 202: *stix* Hebrew Letters

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

TABLE 203: Letter-like Symbols

\bot	<code>\bot</code>	\forall	<code>\forall</code>	\imath	<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>	\jmath	<code>\jmath</code>	\Re	<code>\Re</code>		

TABLE 204: *AMS* Letter-like Symbols

\mathbb{B}	<code>\Bbbk</code>	\complement	<code>\complement</code>	\hbar	<code>\hbar</code>		
\mathbb{R}	<code>\circledR</code>	\dashv	<code>\dashv</code>	\hslash	<code>\hslash</code>		
\mathbb{S}	<code>\circledS</code>	\triangleright	<code>\triangleright</code>	\nexists	<code>\nexists</code>		

TABLE 205: *txfonts/pffonts* Letter-like Symbols

\mathfrak{c}	<code>\mathfrak{c}</code>	\mathfrak{f}	<code>\mathfrak{f}</code>	\mathfrak{g}	<code>\mathfrak{g}</code>	\mathfrak{n}	<code>\mathfrak{n}</code>	\mathfrak{t}	<code>\mathfrak{t}</code>
----------------	---------------------------	----------------	---------------------------	----------------	---------------------------	----------------	---------------------------	----------------	---------------------------

* It's generally preferable to use the corresponding symbol from Table 3 on page 16 because the symbols in that table work properly in both text mode and math mode.

TABLE 206: *mathabx* Letter-like Symbols

$\bar{\in}$	<code>\barin</code>	\in	<code>\in</code>	$\not\top$	<code>\nottop</code>	\notin	<code>\notin</code>	\varnotin	<code>\varnotin</code>
\complement	<code>\complement</code>	\nexists	<code>\nexists</code>	\owns	<code>\owns</code>	\ownsbar	<code>\ownsbar</code>	$\not\top$	<code>\varnotowner</code>
\exists	<code>\exists</code>	$\not\bot$	<code>\notbot</code>	$\not\equiv$	<code>\notequiv</code>	∂	<code>\partial</code>	$\not\partial$	<code>\notpartial</code>
\dashv	<code>\dashv</code>	$\not\in$	<code>\notin</code>	$\not\partial$	<code>\notpartial</code>	$\not\partial$	<code>\notpartial</code>	$\not\partial$	<code>\notpartial</code>
\triangleright	<code>\triangleright</code>	$\not\top$	<code>\nottop</code>	$\not\top$	<code>\nottop</code>	$\not\top$	<code>\nottop</code>	$\not\top$	<code>\nottop</code>

TABLE 207: *MnSymbol* Letter-like Symbols

\bot	<code>\bot</code>	\in	<code>\in</code>	$\not\top$	<code>\nottop</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>	$\not\in$	<code>\notin</code>	$\not\partial$	<code>\notpartial</code>		

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

TABLE 208: `fdsymbol` Letter-like Symbols

\perp	<code>\bot</code>	\forall	<code>\forallall</code>	\in	<code>\in</code>	\exists	<code>\owns</code>
\complement	<code>\complement</code>	\setminus	<code>\Game</code>	\nexists	<code>\nexists</code>	\top	<code>\top</code>
\exists	<code>\exists</code>	\hbar	<code>\hbar</code>	\notin	<code>\nin</code>	\wp	<code>\wp</code>
\exists	<code>\Finv</code>	\hbar	<code>\hslash</code>	\nexists	<code>\nowns</code>		

`fdsymbol` provides synonyms `\notin` for `\nin`, `\ni` for `\owns`, and `\nni` for `\nowns`.

TABLE 209: `boisik` Letter-like Symbols

k	<code>\Bbbk</code>	\odot	<code>\Game</code>	i	<code>\imath</code>	\nexists	<code>\nexists</code>
\complement	<code>\complement</code>	h	<code>\hbar</code>	T	<code>\intercal</code>	\wp	<code>\wp</code>
\exists	<code>\Finv</code>	h	<code>\hslash</code>	j	<code>\jmath</code>		

TABLE 210: `stix` Letter-like Symbols

\AA	<code>\Angstrom</code>	\mathcal{E}	<code>\Eulerconst</code>	i	<code>\imath</code>	T	<code>\top</code>
\mathbb{k}	<code>\Bbbk</code>	\exists	<code>\exists</code>	\intercal	<code>\intercal</code>	\topbot	<code>\topbot</code>
\perp	<code>\bot</code>	\exists	<code>\Finv</code>	j	<code>\jmath</code>	\wp	<code>\wp</code>
\circledR	<code>\circledR</code>	\forall	<code>\forallall</code>	\mathcal{S}	<code>\mathord{\mathit{\mathfrak{S}}}</code>	$\mathord{\mathit{\mathfrak{Yup}}}$	<code>\mathord{\mathit{\mathfrak{Yup}}}</code>
\circledS	<code>\circledS</code>	\setminus	<code>\Game</code>	\mathcal{P}	<code>\mathord{\mathit{\mathfrak{P}}}</code>	$\mathord{\mathit{\mathfrak{Zbar}}}$	<code>\mathord{\mathit{\mathfrak{Zbar}}}</code>
\complement	<code>\complement</code>	\hbar	<code>\hbar</code>	\mathcal{F}	<code>\mathord{\mathit{\mathfrak{F}}}</code>	$\mathord{\mathit{\mathfrak{sterling}}}$	<code>\mathord{\mathit{\mathfrak{sterling}}}</code>
F	<code>\digamma</code>	\hbar	<code>\hslash</code>	\nexists	<code>\nexists</code>		
ℓ	<code>\ell</code>	\Im		\mathcal{R}	<code>\mathord{\mathit{\mathfrak{R}}}</code>	$\mathord{\mathit{\mathfrak{Re}}}$	<code>\mathord{\mathit{\mathfrak{Re}}}</code>

TABLE 211: `trfsigns` Letter-like Symbols

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

TABLE 212: `mathdesign` Letter-like Symbols

\in	<code>\in</code>	\exists	<code>\owns</code>
\notin	<code>\notin</code>	\in	<code>\smallin</code>
$\not\in$	<code>\not\in</code>	\exists	<code>\smallowns</code>
\nexists	<code>\nexists</code>		<code>\not\smallowns</code>

The `mathdesign` package additionally provides versions of each of the letter-like symbols shown in Table 204 on the previous page.

TABLE 213: `fge` Letter-like Symbols

\mathbb{A}	<code>\fgeA</code>	\mathfrak{g}	<code>\fgeeszett</code>	\mathfrak{B}	<code>\fgeleftB</code>	\mathfrak{F}	<code>\fgeU</code>
\mathfrak{z}	<code>\fgec</code>	\mathcal{H}	<code>\fgeF</code>	\mathfrak{C}	<code>\fgeleftC</code>		
\mathfrak{p}	<code>\fged</code>	\mathcal{J}	<code>\fgef</code>	\mathfrak{D}	<code>\fgerightB</code>		
\mathfrak{z}	<code>\fgee</code>	\mathcal{Y}	<code>\fgelb^*</code>	f	<code>\fges</code>		

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

TABLE 214: fourier Letter-like Symbols

∂ \partial ∂ \varpartialdiff

TABLE 215: cmlL Letter-like Symbols

$\perp \backslash \text{Bot} \quad \wedge \backslash \text{simbot}$

TABLE 216: *AMS* Delimiters

↶ \ulcorner ↷ \urcorner
↶ \llcorner ↷ \lrcorner

TABLE 217: *stmaryrd* Delimiters

{ \Lbag	}	\Rbag	{ \lbag	}	\rbag
\llceil	\rrceil	\llfloor	\rrfloor		
(\llparenthesis)	\rrparenthesis			

TABLE 218: mathabx Delimiters

\lcorners	\rcorners
\ulcorner	\urcorner
\llcorner	\lrcorner

TABLE 219: boisik Delimiters

⌜ \ulcorner ⌞ \urcorner
⌞ \llcorner ⌞ \lrcorner

TABLE 220: stix Delimiters

\langle	$\backslash langledot$	\rangle	$\backslash rangledot$	\langle	$\backslash llangle$	\rangle	$\backslash rrangle$
$\{$	$\backslash lbag$	$\}$	$\backslash rbag$	\llcorner	$\backslash llcorner$	\lrcorner	$\backslash lrcorner$
$($	$\backslash lblkbrbrak$	$)$	$\backslash rblkbrbrak$	\llparenthesis	$\backslash llparenthesis$	\rrparenthesis	$\backslash rrparenthesis$
$[$	$\backslash lbracklltick$	$]$	$\backslash rbrackurtick$	\ast	$\backslash Lparenctr$	\ast	$\backslash Rparenless$
$[$	$\backslash lbrackubar$	$]$	$\backslash rbrackubar$	\leftarrow	$\backslash lparenless$	\rightarrow	$\backslash rparengtr$
$[$	$\backslash lbrackultick$	$]$	$\backslash rbracklrtick$	\vdots	$\backslash lvzigzag$	\vdots	$\backslash rvzigzag$
\langle	$\backslash Lbrbrak$	\rangle	$\backslash Rbrbrak$	\ddots	$\backslash Lvzigzag$	\ddots	$\backslash Rvzigzag$
\langle	$\backslash lcurvyangle$	\rangle	$\backslash rcurvyangle$	\lrcorner	$\backslash ulcorner$	\urcorner	

TABLE 221: *nath* Delimiters

\niv \vin

TABLE 222: Variable-sized Delimiters

\downarrow	\downarrow	$\backslash\downarrow$	\Downarrow	$\backslash\Downarrow$	$[$	$[$	$]$	$]$
\langle	\langle	$\backslash\langle$	\rangle	$\backslash\rangle$	$ $	$ $	\parallel	\parallel
\lceil	\lceil	$\backslash\lceil$	\rceil	$\backslash\rceil$	\uparrow	\uparrow	\Uparrow	\Uparrow
\lfloor	\lfloor	$\backslash\lfloor$	\rfloor	$\backslash\rfloor$	\updownarrow	\updownarrow	\Updownarrow	\Updownarrow
$($	$($	$\backslash($	$)$	$\backslash)$	$\{$	$\{$	$\}$	$\}$
$/$	$/$	\backslash	\backslash	\backslash	\backslash	\backslash	\backslash	\backslash

When used with $\left.$ and $\right.$, these symbols expand to the height of the enclosed math expression. Note that $\left.\right.$ is a synonym for \mid , and $\left.\right.$ is a synonym for $\backslash\mid$.

ε - \TeX provides a $\left.\middle.\right.$ analogue to $\left.\right.$ and $\left.\right.$. $\left.\middle.\right.$ can be used, for example, to make an internal “ \mid ” expand to the height of the surrounding $\left.\right.$ and $\left.\right.$ 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 \LaTeX using the `braket` package.

TABLE 223: Large, Variable-sized Delimiters

\int	\int	$\backslash\int$	$\left\{ \right\}$	$\backslash\left\{ \right\}$	$\left(\right)$	$\backslash\left(\right)$	$\left[\right]$	$\backslash\left[\right]$
\mid	\mid	$\backslash\mid$	$\left\ \right\ $	$\backslash\left\ \right\ $	$\left\langle \right\rangle$	$\backslash\left\langle \right\rangle$	$\left\{ \right\}$	$\backslash\left\{ \right\}$

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

TABLE 224: \mathcal{AM} S Variable-sized Delimiters

\mid	\mid	$\backslash\mid$	\mid	\mid	$\backslash\mid$
\parallel	\parallel	$\backslash\parallel$	\parallel	\parallel	$\backslash\parallel$

According to the `amsmath` documentation [AMS99], the preceding symbols are intended to be used as delimiters (e.g., as in “ $| -z |$ ”) while the $\left.\right.$ and $\left.\right.$ symbols (Table 222) are intended to be used as operators (e.g., as in “ $p|q$ ”).

TABLE 225: `stmaryrd` Variable-sized Delimiters

\llbracket	\llbracket	$\backslash\llbracket$	\rrbracket	\rrbracket	$\backslash\rrbracket$
--------------	--------------	------------------------	--------------	--------------	------------------------

TABLE 226: `mathabx` Variable-sized Delimiters

\llbracket	\lceil	$\backslash\ldbrack$	\rceil	\rrbracket	$\backslash\rdbrack$
\lfloor	\lvert	$\backslash\lfloor$	\rvert	\rfloor	$\backslash\rfloor$
\mid	\mid	$\backslash\thickvert$	\mid	\mid	$\backslash\vvvert$

TABLE 227: `MnSymbol` Variable-sized Delimiters

\parallel	\parallel	$\backslash\Arrowvert$	$\{$	$\left\{ \backslash lbrace$	$\}$	$\right\} \backslash rceil$
\mid	\mid	$\backslash arrowvert$	\lceil	$\left[\backslash lceil$	\rceil	$\right] \backslash rfloor$
\backslash	\backslash	$\backslash backslash$	\lfloor	$\left[\backslash lfloor$	\rfloor	$\right] \backslash rgrou$
\mid	\mid	$\backslash bracevert$	$\{$	$\left(\backslash lgroup$	$\}$	$\right) \backslash rmoustache$
$[$	$]$	$\backslash llangle$	\langle	$\langle\langle \backslash llangle$	\rangle	$\rangle\rangle \backslash rrangle$
$]$	$]$	$\backslash llcorner$	\lfloor	$\lfloor \backslash llcorner$	\rfloor	$\right\rfloor \backslash rsem$
$($	$)$	$\backslash lmoustache$	\langle	$\langle \backslash lmoustache$	\rangle	$\rangle \backslash rWavy$
$)$	$)$	$\backslash lrcorner$	\rangle	$\rangle \backslash lrcorner$	\rangle	$\rangle \backslash rwavy$
$/$	$/$	$\backslash lssem$	\lceil	$\lceil \backslash lssem$	\rceil	$\rceil \backslash ulcorner$
\langle	\langle	$\backslash lwavy$	$\{\mathcal{}$	$\{\mathcal{} \backslash lwavy$	$\}\mathcal{}$	$\}\mathcal{} \backslash ullcorner$
\rangle	\rangle	$\backslash lwavy$	$\{\mathcal{}$	$\{\mathcal{} \backslash lwavy$	$\}\mathcal{}$	$\}\mathcal{} \backslash ulrcorner$
$ $	$ $	$\backslash range$	$\}$	$\} \backslash range$	$\}$	$\} \backslash urcorner$

(continued on next page)

(continued from previous page)

```
( { \langle } \ranglebar || || \|\n( { \langlebar } \rangle } \rbrace
```

`\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 228: *fdsymbol* Variable-sized Delimiters

(continued on next page)

(continued from previous page)

`fdsymbol` defines “(” as a synonym for `\lparen`, “)” as a synonym for `\rparen`, “[” as a synonym for `\lbrack`, “]” as a synonym for `\rbrack`, “{” as a synonym for `\lbrace`, “}” as a synonym for `\rbrace`, “/” as a synonym for `\mathslash`, “|” as a synonym for `\vert`, “|” as a synonym for `\Vert`, `\lsem` as a synonym for `\lBrack`, and `\rsem` as a synonym for `\rBrack`.

TABLE 229: stix Variable-sized Delimiters

(continued on next page)

(continued from previous page)

\downarrow	\downarrow	$\backslash\text{downarrow}$	\lceil	\lceil	$\backslash\text{lceil}$	\uparrow	\uparrow	$\backslash\text{uparrow}$
\Downarrow	\Downarrow	$\backslash\text{Downarrow}$	\lfloor	\lfloor	$\backslash\text{lfloor}$	\Uparrow	\Uparrow	$\backslash\text{Uparrow}$
$[$	$[$	$[$	$($	$)$	$\backslash\text{lgroup}$	\Downarrow	\Downarrow	$\backslash\text{Updownarrow}$
$]$	$]$	$]$	\langle	\rangle	$\backslash\text{lmoustache}$	\Updownarrow	\Updownarrow	$\backslash\text{updownarrow}$
$($	$($	$($	$($	$($	$\backslash\text{lParen}$	\UpUpdownarrow	\UpUpdownarrow	$\backslash\text{Uuparrow}$
$)$	$)$	$)$	\rangle	\rangle	$\backslash\text{rAngle}$	\UpUpdownarrow	\UpUpdownarrow	$\backslash\text{UUparrow}$
$/$	$/$	$/$	$)$	$)$	$\backslash\text{rangle}$	\parallel	\parallel	$\backslash\text{Vert}$
$<$	$<$	$<$	$}$	$}$	$\backslash\text{rbrace}$	$ $	$ $	$\backslash\text{vert}$
$>$	$>$	$>$	$\}$	$\}$	$\backslash\text{rBrace}$	$\ \ $	$\ \ $	$\backslash\text{Vvert}$
$ $	$ $	$ $	$\ $	$\ $	$\backslash\text{rBrack}$			
\langle	\langle	\langle	\rangle	\rangle	$\backslash\text{rbrbrak}$			

TABLE 230: `mathdesign` Variable-sized Delimiters

$,$	$\left\{ \right\}$	$\backslash\text{leftwave}$	$,$	$\left\{ \right\}$	$\backslash\text{rightwave}$
$,$	$\left\{ \right\}$	$\backslash\text{leftevaw}$	$,$	$\left\{ \right\}$	$\backslash\text{rightevaw}$

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 231: `nath` Variable-sized Delimiter (Double)

«	«	<code>\lAngle</code>	»	»	<code>\rAngle</code>
[[<code>\lBrack</code>]]	<code>\rBrack</code>
[[<code>\lCeil</code>]]	<code>\rCeil</code>
[[<code>\lFloor</code>]]	<code>\rFloor</code>
		<code>\lVert*</code>			<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 231 can also be expressed using the `\double` macro. See the `nath` documentation for examples and additional information.

TABLE 232: `nath` Variable-sized Delimiter (Triple)

««	««	<code>\triple<</code>	»»	»»	<code>\triple></code>
[[[[<code>\triple[</code>]]	<code>\triple]</code>
		<code>\ltriple *</code>			<code>\rtriple *</code>

* Similar to `\lVert` and `\rVert` in Table 231, `\ltriple` 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 233: `fourier` Variable-sized Delimiters

[[[[<code>\llbracket</code>]]	<code>\rrbracket</code>
		<code>\VERT</code>			

TABLE 234: `textcomp` Text-mode Delimiters

<	<	<code>\textlangle</code>	>	>	<code>\textrangle</code>
[[[[<code>\textlbrackdbl</code>]]	<code>\textrbrackdbl</code>
{ {	{ {	<code>\textlquill</code>	}	}	<code>\textrquill</code>

TABLE 235: 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>	$\ $	<code>\quadras</code>	$\ $	<code>\Quadras</code>
\langle	<code>\angus</code>	\langle	<code>\Angus</code>				

TABLE 236: 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>		

Note also the existence of `\imath` and `\jmath`, which produce dotless versions of “*i*” and “*j*”. (See Table 302 on page 119.) 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 “ $\hat{\hat{i}}$ ”.

* The `\overline` command (Table 246 on page 108) produces a wider accent than `\bar`: “ \overline{A} ” vs. “ \bar{A} ”. However, unlike adjacent `\bars`, adjacent `\overlines` run together, which is often not desired: “ \overline{AB} ” vs. “ $\bar{A}\bar{B}$ ”. If wider bars than `\bar` are needed, the following code from Enrico Gregorio can be used to add the requisite inter-symbol spacing [Gre09]:

```
\newcommand{\closure}[2][3]{%
  \mkern#1mu\overline{\mkern-#1mu#2\mkern-#1mu}}
```

With that definition, “`\closure{A}\closure{B}`” produces “ $\overline{A}\overline{B}$ ”, with a visible gap between the two accents. The optional argument can be used to fine-tune the spacing.

TABLE 237: *AMS* Math-mode Accents

\ddot{a}	<code>\ddot{a}</code>	$\ddot{\dot{a}}$	<code>\ddot{\dot{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 *AMS* ones tighten the space between the dots (from \ddot{a} to $\ddot{\dot{a}}$). The `mathabx` and `mathdots` versions also function properly within subscripts and superscripts ($x^{\ddot{a}}$ instead of $x^{\ddot{\dot{a}}}$).

TABLE 238: MnSymbol Math-mode Accents

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

TABLE 239: *fdsymbol* Math-mode Accents

α	<code>\middlebar{a}</code>	$\not\alpha$	<code>\strokethrough{a}</code>
α	<code>\middleslash{a}</code>	$\vec{\alpha}$	<code>\vec{a}</code>

`\middlebar` and `\middleslash` are applied here to “ a ” for consistency with the rest of the document, but they generally look better when applied to taller lowercase characters.

TABLE 240: *boisik* Math-mode Accents

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

TABLE 241: *stix* Math-mode Accents

\acute{a}	<code>\acute{a}</code>	\hat{a}	<code>\hat{a}</code>
\overline{a}	<code>\overline{a}</code>	\overleftarrow{a}	<code>\overleftarrow{a}</code>
$\overset{*}{a}$	<code>\overset{*}{a}</code>	\overleftarrow{a}	<code>\overleftarrow{a}</code>
\bar{a}	<code>\bar{a}</code>	\overleftarrow{a}	<code>\overleftarrow{a}</code>
\breve{a}	<code>\breve{a}</code>	\mathring{a}	<code>\mathring{a}</code>
\check{a}	<code>\check{a}</code>	$\circ\!\!{\scriptstyle \text{commatopright}}$	<code>\circ\!\!{\scriptstyle \text{commatopright}}</code>
\ddot{a}	<code>\ddot{a}</code>	$\circ\!\!{\scriptstyle \text{turnedcomma}}$	<code>\circ\!\!{\scriptstyle \text{turnedcomma}}</code>
$\ddot{\ddot{a}}$	<code>\ddot{\ddot{a}}</code>	$\circ\!\!{\scriptstyle \text{ovhook}}$	<code>\circ\!\!{\scriptstyle \text{ovhook}}</code>
$\ddot{\ddot{\ddot{a}}}$	<code>\ddot{\ddot{\ddot{a}}}</code>	$\circ\!\!{\scriptstyle \text{rightharpoonaccent}}$	<code>\circ\!\!{\scriptstyle \text{rightharpoonaccent}}</code>
$\ddot{\ddot{\ddot{\ddot{a}}}}$	<code>\ddot{\ddot{\ddot{\ddot{a}}}}</code>	$\circ\!\!{\scriptstyle \text{tilde}}$	<code>\circ\!\!{\scriptstyle \text{tilde}}</code>
$\ddot{\ddot{\ddot{\ddot{\ddot{a}}}}}$	<code>\ddot{\ddot{\ddot{\ddot{\ddot{a}}}}}</code>	\vec{a}	<code>\vec{a}</code>
$\ddot{\ddot{\ddot{\ddot{\ddot{\ddot{a}}}}}}$	<code>\ddot{\ddot{\ddot{\ddot{\ddot{\ddot{a}}}}}}</code>	$\widehat{\widehat{\widehat{\widehat{\widehat{\widehat{a}}}}}}$	<code>\widehat{\widehat{\widehat{\widehat{\widehat{\widehat{a}}}}}}</code>
\grave{a}	<code>\grave{a}</code>		

TABLE 242: *fge* Math-mode Accents

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

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

TABLE 243: *yhmath* Math-mode Accents

\ddot{a}	<code>\ring{a}</code>
------------	-----------------------

This symbol is largely obsolete, as standard L^AT_EX 2 _{ε} has supported `\mathring{a}` (Table 236 on the previous page) since June 1998 [LAT98].

TABLE 244: *halloweenmath* Halloween-Themed Math-mode Accents

$\overline{\overline{a}}$	<code>\overbar{a}</code>	$\underline{\underline{a}}$	<code>\underbar{a}</code>
$\overline{\overline{\overline{a}}}$	<code>\overbar{\overline{a}}</code>	$\underline{\underline{\underline{a}}}$	<code>\underbar{\underbar{a}}</code>

TABLE 245: realhats Math-mode Hat Accents

	\hat{a}		\hat{a}

These hats are drawn by scaling a graphic image and placing it at an appropriate location.

If `\hat` is used with no argument, it selects a hat at random. Alternatively, a hat type can be passed as an option to `realhats` to specify the default hat. See the `realhats` documentation for more information.

TABLE 246: Extensible Accents

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

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. More recently, the STIX fonts include a true long-division sign. See `\longdivision` in Table 252 for a sample of this symbol. 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 (Table 250 on the following page). and even more extensible by the `yhmath` package (Table 248 on the following page).

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

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

TABLE 247: `overrightarrow` Extensible Accents

$$\overrightarrow{\overrightarrow{abc}} \quad \backslash overrightarrow{abc}$$

TABLE 248: *yhmath* Extensible Accents

\widehat{abc}	<code>\widehat{abc}</code>	\widetilde{abc}	<code>\widetilde{abc}</code>
\wideparen{abc}	<code>\wideparen{abc}</code>	\widetriangleleft	<code>\widetriangleleft{abc}</code>
$\widehat{\circ}$	<code>\widehat{\circ}</code>	\widehat{abc}	<code>\widehat{abc}</code>

TABLE 249: *AMS* Extensible Accents

\overleftrightarrow{abc}	<code>\overleftrightarrow{abc}</code>	$\underleftrightarrow{abc}$	<code>\underleftrightarrow{abc}</code>
\overleftarrow{abc}	<code>\overleftarrow{abc}</code>	\overrightarrow{abc}	<code>\overrightarrow{abc}</code>

TABLE 250: *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>
\overleftarrow{abc}	<code>\overleftarrow{abc}</code>	\widehat{abc}	<code>\widehat{abc}</code>
\overline{abc}	<code>\overline{abc}</code>	\widehat{abc}	<code>\widehat{abc}</code>
\overrightarrow{abc}	<code>\overrightarrow{abc}</code>	\widetilde{abc}	<code>\widetilde{abc}</code>
\underbrace{abc}	<code>\underbrace{abc}</code>		

TABLE 251: *fdsymbol* 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>
\overleftarrow{abc}	<code>\overleftarrow{abc}</code>	\widehat{abc}	<code>\widehat{abc}</code>
\overline{abc}	<code>\overline{abc}</code>	\widehat{abc}	<code>\widehat{abc}</code>
\overrightarrow{abc}	<code>\overrightarrow{abc}</code>	\widetilde{abc}	<code>\widetilde{abc}</code>
\underbrace{abc}	<code>\underbrace{abc}</code>		

TABLE 252: stix Extensible Accents

\overbrace{abc}	<code>\longdivision{abc}</code>	\underbrace{abc}	<code>\underbracket{abc}</code>
\overbrace{abc}	<code>\overbrace{abc}</code>	\underbrace{abc}	<code>\underleftarrow{abc}</code>
\overbracket{abc}	<code>\overbracket{abc}</code>	\underbrace{abc}	<code>\underleftharpoon{abc}</code>
\overleftarrow{abc}	<code>\overleftarrow{abc}</code>	\underbrace{abc}	<code>\underleftrightarrow{abc}</code>
\overleftarrow{abc}	<code>\overleftarrow{abc}</code>	\underbrace{abc}	<code>\underlefttharpoon{abc}</code>
\overbrace{abc}	<code>\overleftrightarrow{abc}</code>	\underbrace{abc}	<code>\underrightarrow{abc}</code>
\overbrace{abc}	<code>\overparen{abc}</code>	\underbrace{abc}	<code>\underrightharpoon{abc}</code>
\overrightarrow{abc}	<code>\overrightarrow{abc}</code>	\widecheck{abc}	<code>\widecheck{abc}</code>
\overrightarrow{abc}	<code>\overrightarrow{abc}</code>	\widehat{abc}	<code>\widehat{abc}</code>
\sqrt{abc}	<code>\sqrt{abc}</code>	\widetilde{abc}	<code>\widetilde{abc}</code>
\underbrace{abc}	<code>\underbrace{abc}</code>		

TABLE 253: mathtools Extensible Accents

\overbrace{abc}	<code>\overbrace{abc}</code>	\underbrace{abc}	<code>\underbrace{abc}</code>
\overbracket{abc}	<code>\overbracket{abc}</code> *	\underbrace{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 254: mathabx Extensible Accents

\overbrace{abc}	<code>\overbrace{abc}</code>	\widebar{abc}	<code>\widebar{abc}</code>
\overbrace{abc}	<code>\overgroup{abc}</code>	\widecheck{abc}	<code>\widecheck{abc}</code>
\underbrace{abc}	<code>\underbrace{abc}</code>	\wideparen{abc}	<code>\wideparen{abc}</code>
\underbrace{abc}	<code>\undergroup{abc}</code>	\widehat{abc}	<code>\widehat{abc}</code>
\widearrow{abc}	<code>\widearrow{abc}</code>	$\widecheck{\widehat{abc}}$	<code>\widecheck{\widehat{abc}}</code>

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

TABLE 255: fourier Extensible Accents

\widearc{abc}	<code>\widearc{abc}</code>	\wideparen{abc}	<code>\wideparen{abc}</code>
\wideOarc{abc}	<code>\wideOarc{abc}</code>	$\widehat{\circ}abc$	<code>\widehat{\circ}abc</code>

TABLE 256: **esvect** Extensible Accents

\overrightarrow{abc}	$\backslash vv\{abc\}$ with package option a
\overleftarrow{abc}	$\backslash vv\{abc\}$ with package option b
\overbrace{abc}	$\backslash vv\{abc\}$ with package option c
$\overbrace{\overbrace{abc}}$	$\backslash vvv\{abc\}$ with package option d
$\overbrace{\overbrace{\overbrace{abc}}}$	$\backslash vvvv\{abc\}$ with package option e
$\overbrace{\overbrace{\overbrace{\overbrace{abc}}}}$	$\backslash vvvv\{abc\}$ with package option f
$\overbrace{\overbrace{\overbrace{\overbrace{\overbrace{abc}}}}}$	$\backslash vvvv\{abc\}$ with package option g
$\overbrace{\overbrace{\overbrace{\overbrace{\overbrace{\overbrace{abc}}}}}}$	$\backslash vvvv\{abc\}$ with package option h

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

TABLE 257: **abracces** Extensible Accents

$$\overbrace{abc} \quad \backslash aoverbrace\{abc\} \quad \underbrace{abc} \quad \backslash aunderbrace\{abc\}$$

$\backslash aoverbrace$ and $\backslash aunderbrace$ accept optional arguments that provide a great deal of control over the braces' appearance. For example, these commands can produce braces with asymmetric endpoints, braces that span lines, dashed braces, and multicolored braces. See the **abracces** documentation for more information.

TABLE 258: **undertilde** Extensible Accents

$$\underline{abc} \quad \backslash utilde\{abc\}$$

Because $\backslash utilde$ is based on $\backslash widetilde$ it is also made more extensible by the **yhmath** package (Table 248 on page 109).

TABLE 259: **ushort** Extensible Accents

$$\underline{\underline{abc}} \quad \backslash ushortdw\{abc\} \quad \underline{abc} \quad \backslash ushortw\{abc\}$$

$\backslash ushortw$ and $\backslash ushortdw$ are intended to be used with multi-character arguments (“words”) while $\backslash ushort$ and $\backslash ushortd$ are intended to be used with single-character arguments.

The underlines produced by the **ushort** commands are shorter than those produced by the $\backslash underline$ command. Consider the output from the expression “ $\backslash ushort\{x\}\backslash ushort\{y\}\backslash underline\{x\}\backslash underline\{y\}$ ”, which looks like “xy”.

TABLE 260: **mdwmath** Extensible Accents

$$\sqrt{abc} \quad \backslash sqrt*\{abc\}$$

TABLE 261: *actuarialangle* Extensible Accents

$$\overline{abc} \quad \backslash\text{actuarialangle}\{abc\}$$

The *actuarialangle* package additionally defines `\angl` as `\actuarialangle` with a small amount of extra space to the right of the accented expression under the \lceil , `\angln` as `\angl{n}`, and `\anglr` as `\angl{r}`.

TABLE 262: *AM*S Extensible Arrows

$$\xleftarrow{abc} \quad \backslash\text{xleftarrow}\{abc\} \quad \xrightarrow{abc} \quad \backslash\text{xrightarrow}\{abc\}$$

TABLE 263: *mathtools* Extensible Arrows

\xleftarrow{abc}	<code>\xhookleftarrow{abc}</code>	\xrightleftharpoons{abc}	<code>\xleftrightharpoons{abc}</code>
\xrightarrow{abc}	<code>\xhookrightarrow{abc}</code>	\xmapsto{abc}	<code>\xmapsto{abc}</code>
\xLeftarrow{abc}	<code>\xLeftarrow{abc}</code>	\xRrightarrow{abc}	<code>\xRrightarrow{abc}</code>
$\xleftrightharpoondown{abc}$	<code>\xleftrightharpoondown{abc}</code>	$\xrightleftharpoondown{abc}$	<code>\xrightleftharpoondown{abc}</code>
$\xleftrightharpoonup{abc}$	<code>\xleftrightharpoonup{abc}</code>	$\xrightleftharpoonup{abc}$	<code>\xrightleftharpoonup{abc}</code>
$\xleftrightsquigarrow{abc}$	<code>\xleftrightsquigarrow{abc}</code>	$\xrightleftharpoons[def]{abc}$	<code>\rightleftharpoons[def]{abc}</code>
$\xrightleftharpoons[def]{abc}$	<code>\rightleftharpoons[def]{abc}</code>		

TABLE 264: *chemarr* Extensible Arrows

$$\xrightleftharpoons[def]{abc} \quad \backslash\text{xrightleftharpoons}\{abc\}$$

TABLE 265: *chemarrow* Extensible Arrows

$\xleftarrow[def]{abc}$	<code>\autoleftarrow{abc}{def}</code>	$\xrightarrow[def]{abc}$	<code>\autorightarrow{abc}{def}</code>
$\xrightleftharpoons[def]{abc}$	<code>\autoleftrightharpoons{abc}{def}</code>	$\xrightleftharpoons[def]{abc}$	<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 266: extarrows Extensible Arrows

$\xleftarrow[abc]$	<code>\xLeftrightarrow{abc}</code>	$\xrightleftarrows[abc]$	<code>\xLongleftrightarrows{abc}</code>
$\xleftarrow[abc]$	<code>\xleftrightharrow{abc}</code>	$\xrightleftarrows[abc]$	<code>\xlongleftrightharrow{abc}</code>
$\xrightleftarrows[abc]$	<code>\xlongequal{abc}</code>	$\xrightleftarrows[abc]$	<code>\xLongrightarrows{abc}</code>
$\xrightleftarrows[abc]$	<code>\xLongleftarrow{abc}</code>	$\xrightleftarrows[abc]$	<code>\xlongrightarrow{abc}</code>
$\xrightleftarrows[abc]$	<code>\xlongleftarrow{abc}</code>		

TABLE 267: extpfeil Extensible Arrows

$\xlongequal[abc]$	<code>\xlongequal{abc}</code>	$\xtwoheadleftarrow[abc]$	<code>\xtwoheadleftarrow{abc}</code>
$\xmapsto[abc]$	<code>\xmapsto{abc}</code>	$\xtwoheadrightarrow[abc]$	<code>\xtwoheadrightarrow{abc}</code>
$\xleftrightarrow[abc]$	<code>\xleftrightarrow{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 268: DotArrow Extensible Arrows

$$\xrightarrow[a]{abc} \quad \text{\dotarrow{a}}$$

The `DotArrow` package provides mechanisms for lengthening the arrow, adjusting the distance between the arrow and its symbol, and altering the arrowhead. See the `DotArrow` documentation for more information.

TABLE 269: halloweenmath Extensible Arrows

\overleftarrow{abc}	<code>\overscriptleftarrow{abc}</code>	\underleftarrow{abc}	<code>\underscriptleftarrow{abc}</code>
\overrightarrow{abc}	<code>\overscriptrightarrow{abc}</code>	\underrightarrow{abc}	<code>\underscriptrightarrow{abc}</code>
\overleftarrow{abc}	<code>\overscriptrightarrow{abc}</code>	\underrightarrow{abc}	<code>\underscriptrightarrow{abc}</code>

These commands always typeset the arrow in script (small) style, hence the “script” in their names. Contrast the size of the arrowheads in the following examples:

$$\begin{array}{ccc} \overrightarrow{abc} & \text{vs.} & \overrightarrow{abc} \\ \text{\overrightarrow{abc}} & & \text{\overscriptrightarrow{abc}} \end{array}$$

TABLE 270: trfsigns Extensible Transform Symbols

$$\overleftarrow[abc]{abc} \quad \text{\dft{abc}} \quad \overleftarrow[abc]{abc} \quad \text{\DFT{abc}}$$

TABLE 271: esrelation Extensible Relations

```

\overleftarrow{abc}  \relationleftproject{abc}    \overrightarrow{abc}  \relationrightproject{abc}
\underline{abc}      \relationlifting{abc}

```

TABLE 272: halloweenmath Extensible Brooms and Pitchforks

\overleftarrow{abc}	<code>\overleftbroom{abc}</code>	\overline{abc}	<code>\underrightbroom{abc}</code>
$\overleftarrow{\infty}$	<code>\overleftpitchfork{\infty}</code>	\overline{abc}	<code>\underrightpitchfork{abc}</code>
\overrightarrow{abc}	<code>\overrightbroom{abc}</code>	\overline{abc}	<code>\xleftbroom{abc}</code>
$\overrightarrow{\infty}$	<code>\overrightpitchfork{\infty}</code>	$\overline{\infty}$	<code>\xleftpitchfork{\infty}</code>
\overleftarrow{abc}	<code>\underleftbroom{abc}</code>	\overline{abc}	<code>\xrightbroom{abc}</code>
$\overleftarrow{\infty}$	<code>\underleftpitchfork{\infty}</code>	$\overline{\infty}$	<code>\xrightpitchfork{\infty}</code>

TABLE 273: halloweenmath Extensible Witches

	\overleftarrow{witchonbroom}{abc}		\overleftarrow{underrightwitchonbroom}{abc}
	\overleftarrow{witchonbroom*}{abc}		\overleftarrow{underrightwitchonbroom*}{abc}
	\overleftarrow{witchonpitchfork}{abc}		\overleftarrow{underrightwitchonpitchfork}{abc}
	\overleftarrow{witchonpitchfork*}{abc}		\overleftarrow{underrightwitchonpitchfork*}{abc}
	\overrightarrow{witchonbroom*}{abc}		\overrightarrow{xleftwitchonbroom*}{abc}
	\overrightarrow{witchonbroom}{abc}		\overrightarrow{xleftwitchonbroom}{abc}
	\overrightarrow{witchonpitchfork*}{abc}		\overrightarrow{xleftwitchonpitchfork*}{abc}
	\overrightarrow{witchonpitchfork}{abc}		\overrightarrow{xleftwitchonpitchfork}{abc}
	\underleftarrow{witchonbroom}{abc}		\xrightarrow{witchonbroom}{abc}
	\underleftarrow{witchonbroom*}{abc}		\xrightarrow{witchonbroom*}{abc}
	\underleftarrow{witchonpitchfork*}{abc}		\xrightarrow{witchonpitchfork*}{abc}
	\underleftarrow{witchonpitchfork}{abc}		\xrightarrow{witchonpitchfork}{abc}
	\xrightarrow{witchonbroom}{abc}		\xrightarrow{writhe}{abc}
	\xrightarrow{witchonbroom*}{abc}		\xrightarrow{writhe*}{abc}
	\xrightarrow{witchonpitchfork}{abc}		\xrightarrow{writhe}{abc}
	\xrightarrow{witchonpitchfork*}{abc}		\xrightarrow{writhe*}{abc}

TABLE 274: halloweenmath Extensible Ghosts

\overleftarrow{abc}	<code>\overleftarrow{swishingghost}{abc}</code>	\overrightarrow{abc}	<code>\overrightarrow{swishingghost}{abc}</code>
\underleftarrow{abc}	<code>\underleftarrow{swishingghost}{abc}</code>	\underrightarrow{abc}	<code>\underrightarrow{swishingghost}{abc}</code>
\xleftarrow{abc}	<code>\xleftarrow{swishingghost}{abc}</code>	\xrightarrow{abc}	<code>\xrightarrow{swishingghost}{abc}</code>

TABLE 275: halloweenmath Extensible Bats

\overleftrightarrow{abc}	<code>\overleftrightarrow{flutteringbat}{abc}</code>	\overbrace{abc}	<code>\overbrace{flutteringbat}{abc}</code>
\underbrace{abc}	<code>\underbrace{flutteringbat}{abc}</code>	\underbrace{abc}	<code>\underbrace{flutteringbat}{abc}</code>
\xleftrightarrow{abc}	<code>\xleftrightarrow{flutteringbat}{abc}</code>	\xbrace{abc}	<code>\xbrace{flutteringbat}{abc}</code>

TABLE 276: holtpolt Non-commutative Division Symbols

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

TABLE 277: Dots

.	<code>\cdotp</code>	:	<code>\colon^*</code>	.	<code>\ldotp</code>	:	<code>\vdots</code>
...	<code>\cdots</code>	..	<code>\ddots^\dagger</code>	...	<code>\ldots</code>		

* While “:” is valid in math mode, `\colon` uses different surrounding spacing. See Section 11.4 and the Short Math Guide for L^AT_EX [Dow00] for more information on math-mode spacing.

[†] The `mathdots` package redefines `\ddots` and `\vdots` (Table 283) 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_E’s `\ddots` and `\vdots` macros.

TABLE 278: *AMS* Dots

::	<code>\because^*</code>	...	<code>\dotsi</code>	...	<code>\therefore^*</code>
...	<code>\dotsb</code>	...	<code>\dotsm</code>		
...	<code>\dotsc</code>	...	<code>\dotso</code>		

* `\because` and `\therefore` are defined as binary relations and therefore also appear in Table 90 on page 51.

The *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 279: wasysym Dots

 $\therefore \backslash wasytherefore$

TABLE 280: MnSymbol Dots

\cdot	$\cdot\cdot$	\cdots	$\cdots\cdots$	$\cdots\cdots\cdots$	$\cdots\cdots\cdots\cdots$
\therefore	$\backslash ddotdot$	$\cdots\cdots$	$\backslash hdots$	$\cdots\cdots\cdots$	$\therefore \backslash uptherefore$
\therefore	$\backslash ddots$	$\cdots\cdots\cdots$	$\backslash lefttherefore$	$\cdots\cdots\cdots\cdots$	$\therefore \backslash vdotdot$
\therefore	$\backslash diamondddots$	$\cdots\cdots\cdots\cdots$	$\backslash righttherefore$	$\cdots\cdots\cdots\cdots\cdots$	$\therefore \backslash vdots$
\therefore	$\backslash downtherefore$	$\cdots\cdots\cdots\cdots\cdots$	$\backslash squaredots$	$\cdots\cdots\cdots\cdots\cdots\cdots$	
\therefore	$\backslash fivedots$	$\cdots\cdots\cdots\cdots\cdots\cdots$	$\backslash udotdot$	$\cdots\cdots\cdots\cdots\cdots\cdots\cdots$	

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

All of the above except $\backslash hdots$ and $\backslash vdots$ are defined as binary operators and therefore also appear in Table 56 on page 32.

TABLE 281: fdsymbol Dots

\cdot	$\cdot\cdot$	\cdots	$\cdots\cdots$	$\cdots\cdots\cdots$	$\cdots\cdots\cdots\cdots$
\therefore	$\backslash ddotdot$	$\cdots\cdots$	$\backslash lefttherefore$	$\cdots\cdots\cdots$	$\therefore \backslash uptherefore$
\therefore	$\backslash ddots$	$\cdots\cdots\cdots$	$\backslash righttherefore$	$\cdots\cdots\cdots\cdots$	$\therefore \backslash vdotdot$
\therefore	$\backslash downtherefore$	$\cdots\cdots\cdots\cdots$	$\backslash squaredots$	$\cdots\cdots\cdots\cdots\cdots$	
\cdots	$\backslash hdotdot$	$\cdots\cdots\cdots\cdots\cdots$	$\backslash udotdot$	$\cdots\cdots\cdots\cdots\cdots\cdots$	

fdsymbol defines $\backslash adots$ as a synonym for $\backslash udots$; $\backslash because$ as a synonym for $\backslash downtherefore$; $\backslash cdotp$ as a synonym for \cdot ; $\backslash cdots$ as a synonym for $\backslash hdots$; $\backslash Colon$ as a synonym for $\backslash squaredots$; $\backslash colon$, $\backslash mathcolon$, and $\backslash mathratio$ as synonyms for $\backslash vdotdot$; and $\backslash therefore$ as a synonym for $\backslash uptherefore$. (Some of these serve different mathematical roles, such as relations versus binary operators.)

TABLE 282: stix Dots

$\therefore \backslash adots$	$\cdots \backslash cdots$	$\cdots \backslash fourvdots$
$\therefore \backslash because$	$\cdots \backslash Colon$	$\cdots \backslash ldotp$
$\cdot \backslash cdot$	$\cdots \backslash ddots$	$\cdots \backslash mathellipsis$
$\cdot \backslash cdotp$	$\cdots \backslash enleadertwodots$	$\therefore \backslash therefore$

stix defines $\backslash centerdot$ as a synonym for $\backslash cdotp$ and $\backslash dotsb$ and $\backslash dotsm$ as synonyms for $\backslash cdots$.

TABLE 283: mathdots Dots

 $\cdots \backslash ddots \cdots \backslash iddots \cdots \backslash vdots$

Unlike the default definitions of the above (Table 277), mathdots's commands are designed to scale properly with the surrounding font size.

TABLE 284: *yhmath* Dots
 $\therefore \backslash adots$
TABLE 285: *teubner* Dots
 $:$ $\backslash :$ \vdots $\backslash ;$ $\ddot{\vdots}$ $\backslash ?$ $::$ $\backslash antilabe$
TABLE 286: *begriff* Begriffsschrift Symbols

\vdash	$\backslash BGassert$	\dashv	$\backslash BGcontent$	\top	$\backslash BGnot$
\vdash_a^b	$\backslash BGconditional\{a\}\{b\}$	\circlearrowleft_a	$\backslash BGquant\{a\}$		

The *begriff* package contains additional commands for typesetting Frege's Begriffsschrift notation for second-order logic. See the *begriff* documentation for more information.

TABLE 287: *frege* Begriffsschrift Symbols

\vdash	$\backslash Facontent$	\vdash	$\backslash Fanncontent$	\top	$\backslash Fncontent$
\vdash	$\backslash Fancontent$	\vdash	$\backslash Fcontent$	\top	$\backslash Fncontent$
\vdash_a	$\backslash Fannquant\{a\}$	\vdash_a	$\backslash Faquant\{a\}$	\top_a	$\backslash Fnquant\{a\}$
\vdash_a^\top	$\backslash Fannquantn\{a\}$	\vdash_a^\top	$\backslash Faquantn\{a\}$	\top_a^\top	$\backslash Fnquantn\{a\}$
$\vdash_a^{\top\top}$	$\backslash Fannquantnn\{a\}$	$\vdash_a^{\top\top}$	$\backslash Faquantnn\{a\}$	$\top_a^{\top\top}$	$\backslash Fnquantnn\{a\}$
\vdash_a	$\backslash Fanquant\{a\}$	\vdash_a^\top	$\backslash Fnnquant\{a\}$	\top_a^\top	$\backslash Fquantn\{a\}$
\vdash_a^\top	$\backslash Fanquantn\{a\}$	$\vdash_a^{\top\top}$	$\backslash Fnnquantn\{a\}$	$\top_a^{\top\top}$	$\backslash Fquantnn\{a\}$
$\vdash_a^{\top\top}$	$\backslash Fanquantnn\{a\}$	$\vdash_a^{\top\top\top}$	$\backslash Fnnquantnn\{a\}$		

The *frege* package contains additional commands for typesetting Frege's Begriffsschrift notation for second-order logic. See the *frege* documentation for more information.

TABLE 288: *mathcomp* Math Symbols

${}^{\circ}\text{C}$	$\backslash tccentigrade$	Ω	$\backslash tcohm$		$\%$	$\backslash tcporthousand$
μ	$\backslash tcmu$		$\%$	$\backslash tcpertenthousand$		

TABLE 289: *marvosym* Math Symbols

\triangleleft	$\backslash AngleSign$	\geq	$\backslash LargerOrEqual$	\times	$\backslash MVMultiplication$
\triangleright	$\backslash Conclusion$	\leq	$\backslash LessOrEqual$	\cdot	$\backslash MVPeriod$
\equiv	$\backslash Congruent$	\cdot	$\backslash MultiplicationDot$	$+$	$\backslash MVPlus$
\cong	$\backslash Corresponds$	$,$	$\backslash MVComma$	\rightarrow	$\backslash MVRightArrow$
$/$	$\backslash Divides$	$/$	$\backslash MVDivision$	$)$	$\backslash MVRightBracket$
$\not $	$\backslash DividesNot$	$($	$\backslash MVLeftBracket$	\neq	$\backslash NotCongruent$
\Leftrightarrow	$\backslash Equivalence$	$-$	$\backslash MVMinus$		

TABLE 290: marvosym Digits

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

TABLE 291: fge Digits

\fgestruckzero \fgestruckone

TABLE 292: dozenal Base-12 Digits

2 \x 3 \e

TABLE 293: mathabx Mayan Digits

\circledcirc	\maya{0}	:	\maya{2}	:	\maya{4}
\circledast	\maya{1}	:	\maya{3}		\maya{5}

TABLE 294: stix Infinities

\acidfree	\infty	\infnty	\tieinfty
\iinfin	\phi	\nvinfty	

TABLE 295: stix Primes

'	\prime	'	\backprime
''	\dprime	''	\backdprime
'''	\trprime	'''	\backtrprime
''''	\qprime		

TABLE 296: stix Empty Sets

\emptyset	\emptyset	\emptysetbar	\varnothing	\varnothing
\emptysetoarr	\emptysetocirc			
\emptysetoarrl	\revemptyset			

TABLE 297: *AMS* Angles

\angle \measuredangle \sphericalangle

TABLE 298: MnSymbol Angles

\angle \measuredangle \sphericalangle

TABLE 299: *fdsymbol* Angles

\angle	<code>\angle</code>	\triangleright	<code>\revangle</code>	\triangleleft	<code>\sphericalangle</code>
\triangleleft	<code>\measuredangle</code>	\triangleup	<code>\revmeasuredangle</code>	\triangleleft	<code>\sphericalangledown</code>
\triangleleft	<code>\measuredrightangle</code>	\sqsubset	<code>\rightangle</code>	\triangleright	<code>\sphericalangleleft</code>
\triangleleft	<code>\measuredrightangledot</code>	\sqsubseteq	<code>\rightanglesquare</code>	\triangleleft	<code>\sphericalangleup</code>

fdsymbol defines `\measuredangleleft` as a synonym for `\revmeasuredangle`; `\revsphericalangle` and `\gtlpar` as synonyms for `\sphericalangleleft`; `\rightanglesqr` as a synonym for `\rightanglesquare`; and `\rightanglemdot` as a synonym for `\measuredrightangledot`.

TABLE 300: *boisik* Angles

\angle	<code>\angle</code>	\sqsubset	<code>\rightangle</code>	\triangleleft	<code>\sphericalangle</code>
\triangleleft	<code>\measuredangle</code>	\triangleup	<code>\rightanglemdot</code>	\triangleleft	
\triangleleft	<code>\measuredrightangle</code>	\sqsupset	<code>\rightanglesqr</code>	\triangleleft	

TABLE 301: *stix* Angles

\angle	<code>\angdn</code>	\triangleleft	<code>\measanglerutone</code>	\triangleleft	<code>\rightanglemdot</code>
\angle	<code>\angle</code>	\triangleleft	<code>\measangleultonw</code>	\triangleleft	<code>\rightanglesqr</code>
\triangleleft	<code>\angles</code>	\triangleleft	<code>\measangleurtone</code>	\triangleleft	<code>\sphericalangle</code>
\leq	<code>\angleubar</code>	\triangleleft	<code>\measuredangle</code>	\triangleleft	<code>\sphericalangleup</code>
\triangleright	<code>\gtlpar</code>	\triangleleft	<code>\measuredangleleft</code>	\triangleleft	<code>\threedangle</code>
\triangleleft	<code>\measangledltosw</code>	\triangleleft	<code>\measuredrightangle</code>	\triangleright	<code>\turnangle</code>
\triangleleft	<code>\measangledrtose</code>	\triangleleft	<code>\rangledownzigzagarrow</code>	\sqsubset	<code>\wideangledown</code>
\triangleright	<code>\measangleldtosw</code>	\triangleright	<code>\revangle</code>	\triangleright	<code>\wideangleup</code>
\triangleleft	<code>\measanglelutronw</code>	\triangleleft	<code>\revangleubar</code>		
\triangleleft	<code>\measanglerdtose</code>	\sqsubset	<code>\rightangle</code>		

TABLE 302: Miscellaneous L^AT_EX 2_ε Math Symbols

\aleph	<code>\aleph</code>	\Box	<code>\Box^{*,†}</code>	∇	<code>\nabla</code>	\triangle	<code>\triangle</code>
\emptyset	<code>\emptyset</code>	\diamond	<code>\Diamond^{*}</code>	\neg	<code>\neg</code>		
\angle	<code>\angle</code>	∞	<code>\infty</code>	$'$	<code>\prime</code>		
\backslash	<code>\backslash</code>	\backslash	<code>\backslash</code>	\surd	<code>\surd</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` (“◊”); 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 *AMS*’s `\varnothing` (“∅”, Table 303) to that of L^AT_EX’s `\emptyset`.

TABLE 303: Miscellaneous *AMS* Math Symbols

\backprime	\blacktriangledown	\mho
\bigstar	\diagdown	\square
\blacklozenge	\diagup	\triangledown
\blacksquare	\eth	\varnothing
\blacktriangle	\lozenge	\vartriangle

TABLE 304: Miscellaneous *wasysym* Math Symbols

\Box \Diamond \mho* \varangle

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

TABLE 305: Miscellaneous *txfonts/pfxfonts* Math Symbols

\Diamondblack	\lambda	\lambdaabar
\Diamonddot	\lambda	\lambdaaslash

TABLE 306: Miscellaneous *mathabx* Math Symbols

\degree	///	\fourth	\measuredangle	//	\second
\diagdown	#	\hash	\pitchfork	\times	\sphericalangle
\diagup	\infty	\infty	\propto	///	\third
\diameter	\times	\leftthreetimes	\rightthreetimes	\#	\varhash

TABLE 307: Miscellaneous *MnSymbol* Math Symbols

\backneg	\emptyset	\diameter	\invneg	\neg
\backprime	\infty	\infty	\maltese	\prime
\checkmark	\invbackneg	\nabla	\nabla	\smallint

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 308: Miscellaneous Internal MnSymbol Math Symbols

…	\partialvardint	…	\partialvartint
˘	\partialvardlanddownint	˘	\partialvartlanddownint
˜	\partialvardlandupint	˜	\partialvartlandupint
○	\partialvardlcircleleftint	○	\partialvartlcircleleftint
○	\partialvardlcirclerightint	○	\partialvartlcirclerightint
○	\partialvardoint	○	\partialvartooint
○	\partialvardoint	○	\partialvartoint
○	\partialvardrcircleleftint	○	\partialvartrcIRCLELEFTINT
○	\partialvardrcirclerightint	○	\partialvartrcIRCLERIGHTINT
‐	\partialvardstrokedint	‐	\partialvartstrokedint
Σ	\partialvardsumint	Σ	\partialvartsumint

These symbols are intended to be used internally by MnSymbol to construct the integrals appearing in Table 80 on page 45 but can nevertheless be used in isolation.

TABLE 309: Miscellaneous fdsymbol Math Symbols

¬	\backneg	¬	\intprod	/	\prime
!	\backprime	¬	\intprodr	∅	\revemptyset
✓	\checkmark	¬	\invneg	▽	\sector
∅	\emptyset	✖	\maltese	∫	\smallint
∞	\infty	¬	\neg		

fdsymbol defines \hookdownminus, \invneg, and \invnot as synonyms for \backneg; \lnot and \minushookdown as synonyms for \neg; \hookupminus and \turnedbackneg as synonyms for \intprod; \minushookup, \turnedneg, and \turnednot as synonyms for \intprodr; and \diameter and \varnothing as synonyms for \emptyset.

TABLE 310: Miscellaneous boisik Math Symbols

϶	\backepsilon	÷	\hermitmatrix	⌿	\notbot
!	\backprime	∞	\iinfin	⌿	\nottop
✓	\checkmark	¬	\invnot	ι	\riota
□	\dalambert	λ	\lambdazbabar	~	\sinewave
⟩	\diagdown	λ	\lambdazbash	∅	\varnothing
⟨	\diagup	✖	\maltese		

TABLE 311: Miscellaneous *stix* Math Symbols

\approx	<code>\acurrent</code>	\doteq	<code>\hermitmatrix</code>	\models	<code>\PropertyLine</code>
\backslash	<code>\backslash</code>	\hyphenbullet	<code>\hyphenbullet</code>	\blacksquare	<code>\QED</code>
\equiv	<code>\bbrktbrk</code>	$\sim\sim$	<code>\hzigzag</code>	$??$	<code>\Question</code>
\perp	<code>\bigbot</code>	Δ	<code>\increment</code>	$\times\!\!\times$	<code>\rdiagovfdiag</code>
\parallel	<code>\biginterleave</code>	\blacksquare	<code>\inversebullet</code>	\bowtie	<code>\rightouterjoin</code>
\top	<code>\bigtop</code>	\neg	<code>\invnot</code>	\sqcup	<code>\sansLmirrored</code>
\odot	<code>\blacksmiley</code>	\Join	<code>\Join</code>	\sqcap	<code>\sansLturned</code>
$ $	<code>\bracevert</code>	\square	<code>\laplac</code>	\sim	<code>\sinewave</code>
\wedge	<code>\caretinsert</code>	\bowtie	<code>\leftouterjoin</code>	—	<code>\strns</code>
\checkmark	<code>\checkmark</code>	\swarrow	<code>\llarc</code>	\mp	<code>\thermod</code>
\triangleright	<code>\conictaper</code>	\searrow	<code>\lrarc</code>	\circlearrowleft	<code>\topcir</code>
\geq	<code>\danger</code>	\maltese	<code>\mathsection</code>	\lrcorner	<code>\turnednot</code>
\diagdown	<code>\diagdown</code>	$\mathord{\$}$	<code>\mathvisiblespace</code>	\lrcorner	<code>\ubrbrak</code>
\diagup	<code>\diagup</code>	$\mathord{-}$	<code>\mathord{\neg}</code>	\lrcorner	<code>\ularc</code>
\varnothing	<code>\diameter</code>	∇	<code>\nabla</code>	\urcorner	<code>\urarc</code>
$*$	<code>\dingasterisk</code>	$\mathord{\neg}$	<code>\neg</code>	$\#\#\#$	<code>\viewdata</code>
\times	<code>\elinters</code>	\lrcorner	<code>\obrbrak</code>	$\wedge\wedge\wedge$	<code>\vzigzag</code>
\eth	<code>\eth</code>	$\mathord{\perp}$	<code>\perps</code>	$\mathord{\yen}$	<code>\yen</code>
$!!$	<code>\Exclam</code>	\mp	<code>\postalmark</code>	$\mathord{\text{\zcmp}}$	<code>\zcmp</code>
\times	<code>\fdiagovrdiag</code>	\cap	<code>\proffline</code>	$\gg\gg\gg$	<code>\zpipe</code>
\bowtie	<code>\fullouterjoin</code>	$\mathord{\square}$	<code>\profsurf</code>	$\uparrow\uparrow\uparrow$	<code>\zproject</code>

* *stix* defines `\lnot` as a synonym for `\neg`.

TABLE 312: *endofproofwd* End-of-Proof Symbols



`\wasserdicht` is implemented as an external PDF graphic. The command in fact typesets the symbol flush right on the page to signify the end of proof. To use the command in inline text, simply load the underlying graphic file directly:

```
\includegraphics[width=10pt]{endofproofwd.pdf}
```

TABLE 313: Miscellaneous *textcomp* Text-mode Math Symbols

\circ	<code>\textdegree*</code>	$\frac{1}{2}$	<code>\textonehalf†</code>	$\frac{3}{4}$	<code>\textthreequarters†</code>
\div	<code>\textdiv</code>	$\frac{1}{4}$	<code>\textonequarter†</code>	$\frac{3}{8}$	<code>\textthreesuperior</code>
$/$	<code>\textfractionssolidus</code>	$\frac{1}{}$	<code>\textonesuperior</code>	\times	<code>\texttimes</code>
\vdash	<code>\textlnot</code>	\pm	<code>\textpm</code>	$\frac{2}{}$	<code>\texttwosuperior</code>
$-$	<code>\textminus</code>	$\sqrt{}$	<code>\textsurd</code>		

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

† *nicefrac* (part of the *units* package) or the newer *xfrac* package can be used to construct vulgar fractions like “ $1/2$ ”, “ $1/4$ ”, “ $3/4$ ”, and even “ $\%/\%$ ”.

TABLE 314: 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 315: Miscellaneous `mathdesign` Math Symbols

`\rightangle`

TABLE 316: Math Alphabets

Font sample	Generating command	T _E X font	Required package
ABCdef123	<code>\mathrm{ABCdef123}</code>	cmr10	<i>none</i>
<i>ABCdef123</i>	<code>\mathit{ABCdef123}</code>	cmmi10	<i>none</i>
<i>ABCdef123</i>	<code>\mathnormal{ABCdef123}</code>	cmmi10	<i>none</i>
<i>ABC</i>	<code>\mathcal{ABC}</code>	cmsy10	<i>none</i>
<i>ABC</i>	<code>\mathscr{ABC}</code>	rsfs10	<code>mathrsfs</code>
	<i>or</i> <code>\mathcal{ABC}</code>	rsfs10	<code>calrsfs</code>
<i>ABC</i>	<code>\mathcal{ABC}</code>	eusm10	<code>euscript</code> with the <code>mathcal</code> option
	<i>or</i> <code>\mathscr{ABC}</code>	eusm10	<code>euscript</code> with the <code>mathscr</code> option
<i>ABC</i>	<code>\mathcal{ABC}</code>	rsfso10	<code>rsfso</code>
	<i>or</i> <code>\mathscr{ABC}</code>	rsfso10	<code>rsfso</code> with the <code>scr</code> option
<i>ABC</i>	<code>\mathcal{ABC}</code>	urwchancal	<code>urwchancal</code> [*]
	<i>or</i> <code>\mathscr{ABC}</code>	urwchancal	<code>urwchancal</code> [*] with the <code>mathscr</code> option
<i>ABC</i>	<code>\mathbb{ABC}</code>	msbm10	<code>amsfonts</code> , [§] <code>amssymb</code> , <code>txfonts</code> , or <code>pxfonts</code>
<i>ABC</i>	<code>\varmathbb{ABC}</code>	txmia	<code>txfonts</code> or <code>pxfonts</code>
<i>ABCdef123</i>	<code>\mathbb{ABCdef123}</code>	bbold10	<code>bbold</code> or <code>mathbbol</code> [†]
<i>ABCdef123</i>	<code>\mathbb{ABCdef123}</code>	mbb10	<code>mbboard</code> [†]
<i>ABCdef12</i>	<code>\mathbbbm{ABCdef12}</code>	bbm10	<code>bbm</code>
<i>ABCdef12</i>	<code>\mathbbbmss{ABCdef12}</code>	bbmss10	<code>bbm</code>
<i>ABCdef12</i>	<code>\mathbbmtt{ABCdef12}</code>	bbmtt10	<code>bbm</code>
<i>ABC1</i>	<code>\mathds{ABC1}</code>	dsrom10	<code>dsfont</code>
<i>ABC1</i>	<code>\mathds{ABC1}</code>	dss10	<code>dsfont</code> with the <code>sans</code> option
<i>ABCdef123</i>	<code>\mathbbb{ABCdef123}</code>	DSSerif	<code>dsserif</code>
ABCdef123	<code>\mathbbbb{ABCdef123}</code>	DSSerif-Bold	<code>dsserif</code>
<i>ABC</i>	<code>\symA\symB\symC</code>	china10	china2e [‡]
<i>ABCdef123</i>	<code>\mathfrak{ABCdef123}</code>	eufm10	<code>eufrak</code>
<i>ABCdef123</i>	<code>\textfrak{ABCdef123}</code>	yfrak	<code>yfonts</code> [¶]
<i>ABCdef123</i>	<code>\textswab{ABCdef123}</code>	yswab	<code>yfonts</code> [¶]
<i>ABCdef123</i>	<code>\textgoth{ABCdef123}</code>	ygoth	<code>yfonts</code> [¶]

The “T_EX font” column lists the underlying T_EX font (or, more accurately, the `.tfm` file) that provides the math alphabet. See the corresponding table in the associated Raw Font Tables document for the math alphabet’s complete character set.

* `urwchancal` redefines `\mathcal` or `\mathscr` to use Zapf Chancery as the calligraphic or script font. However, like all `\mathcal` and `\mathscr` commands shown in Table 316, these support only uppercase letters. An alternative is to put “`\DeclareMathAlphabet{\mathpzc}{OT1}{pzc}{m}{it}`” in your document’s preamble to make `\mathpzc` typeset a wider set of characters in Zapf Chancery. Unfortunately, with this technique accents, superscripts, and subscripts don’t align as well as they do with `urwchancal`.

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, “ $\langle[\alpha\beta\gamma]\rangle$ ” is produced by “`\mathbbf{\langle}\Langle\Lbrack\Lparen\bbalpha\bbbeta\bbgamma\Rparen\Rbrack\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\bbyod\bbqof\bbpe`” → “ תְּבִנָּה ”).

[‡] The `\sym...` commands provided by the `GnA2e` package are actually text-mode commands. They are included in Table 316 because they resemble the blackboard-bold symbols that appear in the rest of the table. In addition to the 26 letters of the English alphabet, `GnA2e` provides three umlauted blackboard-bold letters: `\symAE` (“ \ddot{A} ”), `\symOE` (“ \ddot{O} ”), and `\symUE` (“ \ddot{U} ”). Note that `GnA2e` does provide math-mode commands for the most common number-set symbols. These are presented in Table 187 on page 93.

[¶] As their `\text...` names imply, the fonts provided by the `yfonts` package are actually text fonts. They are included in Table 316 because they are frequently used in a mathematical context.

[§] An older (i.e., prior to 1991) version of the `AMS`’s fonts rendered \mathbb{C} , \mathbb{N} , \mathbb{R} , \mathbb{S} , and \mathbb{Z} as C , N , R , S , and Z . As some people prefer the older glyphs—much to the `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 `LATeX 2 ϵ` 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 317: `gensymb` Symbols Defined to Work in Both Math and Text Mode

$^{\circ}\text{C}$	<code>\celsius</code>	μ	<code>\micro</code>	$\%$	<code>\perthousand</code>
$^{\circ}$	<code>\degree</code>	Ω	<code>\ohm</code>		

TABLE 318: `wasy sym` Electrical and Physical Symbols

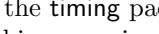
\sim	<code>\AC</code>	\approx	<code>\VHF</code>	$\sim\sim\sim$	<code>\photon</code>	\approx	<code>\HF</code>	$\sim\sim\sim\sim\sim$	<code>\gluon</code>
--------	------------------	-----------	-------------------	----------------	----------------------	-----------	------------------	------------------------	---------------------

TABLE 319: `ifsym` Pulse Diagram Symbols

\sqcup	<code>\FallingEdge</code>	$\sqcup\sqcap$	<code>\LongPulseLow</code>	\sqcap	<code>\PulseLow</code>	\sqcup	<code>\ShortPulseHigh</code>
\sqcap	<code>\LongPulseHigh</code>	$\sqcap\sqcup$	<code>\PulseHigh</code>	\sqcup	<code>\RaisingEdge</code>	\sqcap	<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.

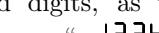
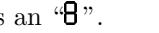
Finally, `\textifsym` supports the display of segmented digits, as would appear on an LCD: “`\textifsym{-123.456}`” produces “”. “`\textifsym{b}`” outputs a blank with the same width as an “”.

TABLE 320: `ar` Aspect Ratio Symbol

\mathcal{R} `\AR`

TABLE 321: `plimsoll` Plimsoll Symbol

\ominus `\plimsoll`

TABLE 322: `textcomp` Text-mode Science and Engineering Symbols

$^{\circ}\text{C}$	<code>\textcelsius</code>	\textcirc	<code>\textmho</code>	μ	<code>\textmu</code>	Ω	<code>\textohm</code>
--------------------	---------------------------	-------------	-----------------------	-------	----------------------	----------	-----------------------

TABLE 323: steinmetz Extensible Phasor Symbol

 \underline{abc} \phase{abc}

The `\phase` command uses the `pict2e` package to draw a horizontally and vertically scalable Steinmetz phasor symbol. Consequently, `\phase` works only with those TeX backends supported by `pict2e`. See the `pict2e` documentation for more information.

TABLE 324: emf Electromotive Force Symbols

\mathcal{E}	<code>\emf</code> with package option <code>boondox</code> (default)
\mathcal{E}	<code>\emf</code> with package option <code>cal*</code>
\mathcal{E}	<code>\emf</code> with package option <code>calligra</code>
\mathcal{E}	<code>\emf</code> with package option <code>chorus</code>
\mathcal{E}	<code>\emf</code> with package option <code>cmr</code>
\mathcal{E}	<code>\emf</code> with package option <code>fourier</code>
\mathcal{E}	<code>\emf</code> with package option <code>frcursive</code>
\mathcal{E}	<code>\emf</code> with package option <code>miama</code>
\mathcal{E}	<code>\emf</code> with package option <code>rsfs</code>

* With the `cal` package option, `\emf` uses `\mathcal{E}`. Hence, the depiction of “E” depends on the currently loaded math font.

TABLE 325: wasysym Astronomical Symbols

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

TABLE 326: marvosym Astronomical Symbols

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

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

TABLE 327: fontawesome Astronomical Symbols

$\♂$	<code>\faMars</code>	$\♀$	<code>\faMoon0</code>	$\♀$	<code>\faVenus</code>
$\♀$	<code>\faMercury</code>	\odot	<code>\faSun0</code>		

TABLE 328: mathabx Astronomical Symbols

$\♀$	<code>\Mercury</code>	\oplus	<code>\Earth</code>	$\not\equiv$	<code>\Jupiter</code>	\circlearrowleft	<code>\Uranus</code>	\circlearrowright	<code>\Pluto</code>
$\♀$	<code>\Venus</code>	δ	<code>\Mars</code>	$\not\equiv$	<code>\Saturn</code>	ψ	<code>\Neptune</code>	\circlearrowleft	<code>\varEarth</code>
\odot	<code>\fullmoon</code>	\langle	<code>\leftmoon</code>	\bullet	<code>\newmoon</code>	\rangle	<code>\rightmoon</code>	\odot	<code>\Sun</code>
\wp	<code>\Aries</code>	\wp	<code>\Taurus</code>	Π	<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 329: stix Astronomical Symbols

\odot	<code>\astrosun</code>	\langle	<code>\leftmoon</code>	\rangle	<code>\rightmoon</code>	\odot	<code>\sun</code>
---------	------------------------	-----------	------------------------	-----------	-------------------------	---------	-------------------

TABLE 330: utfsym Astronomical Symbols

\odot	<code>\usym{2609}</code>	\wp	<code>\usym{2643}</code>	\wp	<code>\usym{264F}</code>	\odot	<code>\usym{1F318}</code>
\wp	<code>\usym{260A}</code>	\wp	<code>\usym{2644}</code>	\wp	<code>\usym{2650}</code>	\odot	<code>\usym{1F319}</code>
\wp	<code>\usym{260B}</code>	\wp	<code>\usym{2645}</code>	\wp	<code>\usym{2651}</code>	\odot	<code>\usym{1F31A}</code>
\wp	<code>\usym{260C}</code>	\wp	<code>\usym{2646}</code>	\wp	<code>\usym{2652}</code>	\odot	<code>\usym{1F31B}</code>
\wp	<code>\usym{260D}</code>	\wp	<code>\usym{2647}</code>	\wp	<code>\usym{2653}</code>	\odot	<code>\usym{1F31C}</code>
\wp	<code>\usym{263C}</code>	\wp	<code>\usym{2648}</code>	\odot	<code>\usym{1F311}</code>	\odot	<code>\usym{1F31D}</code>
\odot	<code>\usym{263D}</code>	\wp	<code>\usym{2649}</code>	\odot	<code>\usym{1F312}</code>	\odot	<code>\usym{1F31E}</code>
\odot	<code>\usym{263E}</code>	Π	<code>\usym{264A}</code>	\odot	<code>\usym{1F313}</code>	\star	<code>\usym{1F31F}</code>
\wp	<code>\usym{263F}</code>	\wp	<code>\usym{264B}</code>	\odot	<code>\usym{1F314}</code>	\wp	<code>\usym{1F320}</code>
\wp	<code>\usym{2640}</code>	\wp	<code>\usym{264C}</code>	\odot	<code>\usym{1F315}</code>		
\wp	<code>\usym{2641}</code>	\wp	<code>\usym{264D}</code>	\odot	<code>\usym{1F316}</code>		
\wp	<code>\usym{2642}</code>	\wp	<code>\usym{264E}</code>	\odot	<code>\usym{1F317}</code>		

All `utfsym` symbols are implemented with TikZ graphics, not with a font. In addition to `\usym`, the `utfsym` package defines `\usymH`, which renders a symbol at a given height, and `\usymW`, which renders a symbol at a given width. See the `utfsym` documentation for more information.

TABLE 331: starfont Astronomical Symbols

\Mercury	σ	\Mars	σ	\Uranus	σ	\varTerra	
\Venus	ν	\Jupiter	ν	\Neptune	ν	\varUranus	
\Terra	\hbar	\Saturn	ν	\Pluto	Ξ	\varPluto	
\Sun	\odot	\Moon	\odot	\varMoon			
\Cupido	\ddag	\Zeus	\ddag	\Apollon	\ddag	\Vulkanus	
\Hades	\ddagger	\Kronos	\ddagger	\Admetos	\ddagger	\Poseidon	
\Lilith	\aleph	\NorthNode	\aleph	\SouthNode			
\Amor	\wp	\Eros	\wp	\Juno	\wp	\Sappho	
\Ceres	ζ	\Hidalgo	ζ	\Pallas	ζ	\Vesta	
\Chiron	ψ	\Hygiea	ψ	\Psyche			
\Fortune							
\Aries	α	\Leo	α	\Sagittarius	α	\varCapricorn	
\Taurus	β	\Virgo	β	\Capricorn			
\Gemini	γ	\Libra	γ	\Aquarius			
\Cancer	δ	\Scorpio	δ	\Pisces			
\Conjunction	\square	\Square	\vee	\Semisextile			
\Opposition	\times	\Sextile	\angle	\Semisquare			
\Trine	\wedge	\Quincunx	\boxdot	\Sesquiquadrate			
A ^{sc}	\ASC	E ^o	\EastPoint	M ^o	\MC		
D ^{sc}	\DSC	I ^c	\IC	V ^x	\Vertex		
D!	\Direct	R _x	\Retrograde	S ^t	\Station		
A	\Air	∇	\Earth	Δ	\Fire	∇	\Water
N!!	\Natal	\star	\Pentagram	R ^{ad}	\Radix		

TABLE 332: wasysym APL Symbols

□	\APLbox	□	\APLinv	★	\APLstar
▢	\APLcomment	☒	\APLleftarrowbox	△	\APLup
▽	\APLdown	⊗	\APLlog	⊤	\APLuparrowbox
⤒	\APLdownarrowbox	—	\APLminus	⤔	\notbackslash
□	\APLinput	⤓	\APLrightarrowbox	⤖	\notslash
¤	\APLcirc{a}	¤	\APLnot{a}	¤	\APLvert{a}

TABLE 333: stix APL Symbols

?\ \APLboxquestion + \APLnotbackslash
[] \APLboxupcaret / \APLnotslash

TABLE 334: apl APL Symbols

	\AB	"	\DD	\GD	\LK	\PD	\UA	\G	\ZG	\Q	\ZQ
\alpha	\AM	\perp	\DE	\geq	\GE	\circ	\LO	\boxdot	\QQ	_	\US
\backslash	\BL	\triangledown	\DL	\rightarrow	\GO	\supset	\LU	\}	\RB	\cup	\UU
\square	\BX	\diamond	\DM	\triangle	\GU	\neq	\NE	\dashv	\RK	\triangleleft	\XQ
\wedge	\CB	\boxdot	\DQ	\boxtimes	\IB	_	\NG	\rho	\RO	\AA	\ZA
\Gamma	\CE	\cap	\DU	\sim	\IO	\wedge	\NN	\c	\RU	\B	\ZB
\beth	\CO	\tau	\EN	\{	\LB	\bowtie	\NR	\phi	\RV	\C	\ZC
\circ	\CR	\epsilon	\EP	\Delta	\LD	\sim	\NT	\circ	\SO	\D	\ZD
\wedge	\CS	\lfloor	\FL	\leq	\LE	\omega	\OM	SS	\SS	\E	\ZE
\downarrow	\DA	\ast	\FM	\otimes	\LG	\vee	\OR	\&	\TR	\F	\ZF
										\P	\ZP
										\Z	\ZZ

TABLE 335: marvosym Computer Hardware Symbols

	\ComputerMouse		\ParallelPort		\SerialInterface
	\Keyboard		\Printer		\SerialPort

TABLE 336: keystroke Computer Keys

	\Alt		\Enter*		\PrtSc*
	\AltGr		\Esc*		\RArrow
	\Break*		\Home*		\Return
	\BSpace†		\Ins*		\Scroll*
	\Ctrl*		\LArrow		\Shift*
	\DArrow		\NumLock		\Spacebar
	\Del*		\PgDown*		\Tab†
	\End*		\PgUp*		\UArrow

* 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.

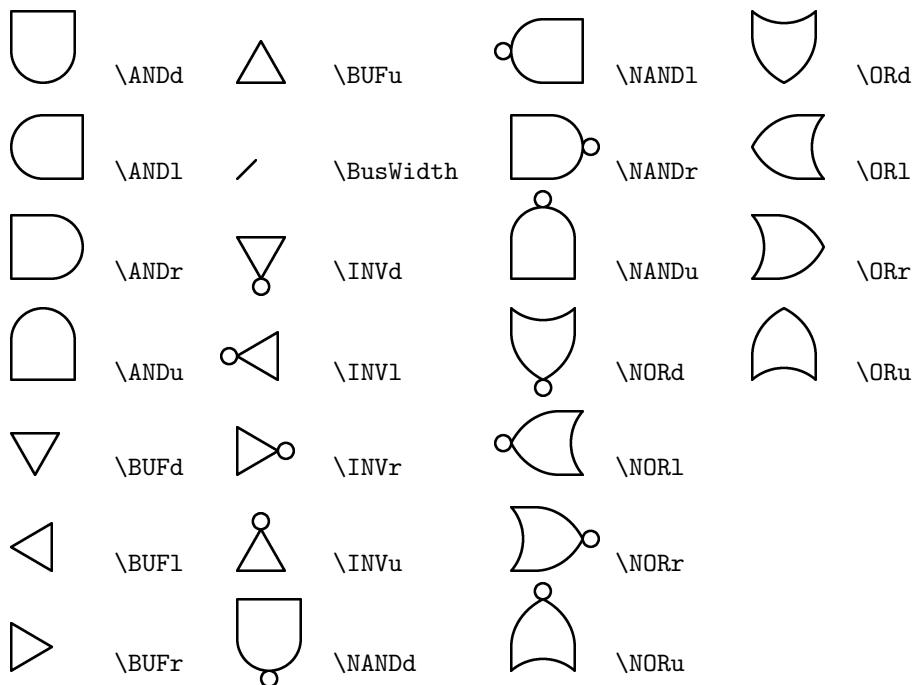
The `\keystroke` command draws a key with an arbitrary label. For example, “`\keystroke{F7}`” produces “”.

TABLE 337: ascii Control Characters (CP437)

◎	\SOH	▣	\BS	*	\SI	-	\SYN	↔	\GS
●	\STX	○	\HT	▶	\DLE	↑	\ETB	▲	\RS
♥	\ETX	▣	\LF	◀	\DCa	↑	\CAN	-	\US
♦	\EOT	♂	\VT	‡	\DCb	↓	\EM		
♣	\ENQ	♀	\FF	!!	\DCc	→	\SUB		
♠	\ACK	◊	\CR	¶	\DCd	←	\ESC		
•	\BEL	◦	\SO	§	\NAK	↳	\FS		
△	\DEL	▀	\NBSP	▀	\NUL	▀	\splitvert		

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 338: logic Logic Gates



The *logic* package implements the digital logic-gate symbols specified by the U.S. Department of Defense’s MIL-STD-806 standard. Note that on CTAN, the package is *called* *logic*, but the package is *loaded* using \usepackage{milstd}. (There was already a—completely unrelated—*milstd* package on CTAN at the time of *logic*’s release.) Consequently, package details are listed under *milstd* in Table 586 and Table 587 on page 276.

TABLE 339: marvosym Communication Symbols

✉	\Email	✉	\fax	✉	\Faxmachine	⚡	\Lightning	ଓ	\Pickup
↳	\EmailCT	✉	\FAX	✉	\Letter	⚡	\Mobilefone	✉	\Telefon

TABLE 340: marvosym Engineering Symbols

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

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

TABLE 341: wasysym Biological Symbols

♀ \female ♂ \male

TABLE 342: stix Biological Symbols

♀ \female ♂ \male
♂ \Hermaphrodite ♀ \neuter

TABLE 343: marvosym Biological Symbols

♀ \FEMALE ♂ \FemaleMale ♂ \Male ○ \Neutral
 ♀ \Female ♀ \Hermaphrodite ⚡ \MALE
 ♀ \FemaleFemale ⚡ \HERMAPHRODITE ♂ \MaleMale

TABLE 344: `utfsym` Biological Symbols

♀ \usym{26A2} ♂ \usym{26A4} ♂ \usym{26A6} ♂ \usym{26A8}
 ♀ \usym{26A3} ♂ \usym{26A5} ♂ \usym{26A7} ♂ \usym{26A9}

All `utfsym` symbols are implemented with `TikZ` graphics, not with a font. In addition to `\usym`, the `utfsym` package defines `\usymH`, which renders a symbol at a given height, and `\usymW`, which renders a symbol at a given width. See the `utfsym` documentation for more information.

TABLE 345: fontawesome Biological Symbols

○ \faGenderless ♂ \faMarsStrokeH ♀ \faTransgenderAlt
♂ \faMars ♂ \faMarsStrokeV ♀ \faVenus
⚥ \faMarsDouble ♀ \faNeuter ♀ \faVenusDouble
⚥ \faMarsStroke ♀ \faTransgender ♀ \faVenusMars

fontawesome defines \faIntersex as a synonym for \faTransgender

TABLE 346: marvosym Safety-related Symbols

	\Biohazard		\CEsign		\Explosionsafe		\Radioactivity
	\BSEfree		\Estatically		\Laserbeam		\Stopsign

TABLE 347: feyn Feynman Diagram Symbols

	\bigbosonloop		\hfermion		\smallbosonloopV
	\bigbosonloopA		\shfermion		\wfermion
	\bigbosonloopV		\smallbosonloop		\whfermion
	\gvcropped		\smallbosonloopA		
	\feyn{a}		\feyn{fu}		\feyn{glS}
	\feyn{c}		\feyn{fv}		\feyn{glu}
	\feyn{f}		\feyn{g}		\feyn{gu}
	\feyn{fd}		\feyn{g1}		\feyn{gv}
	\feyn{fl}		\feyn{gd}		\feyn{gvs}
	\feyn{f1S}		\feyn{g1}		\feyn{h}
	\feyn{fs}		\feyn{g1B}		\feyn{hd}
					\feyn{x}

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.

TABLE 348: svrsymbols Physics Ideograms

	\adsorbate		\experimentalssym		\protein
	\adsorbent		\externalsym		\proton
	\antimuon		\fermiDistrib		\quadrupole
	\antineutrino		\fermion		\quark
	\antineutron		\Gluon		\quarkb
	\antiproton		\graphene		\quarkc
	\antiquark		\graviton		\quarkd
	\antiquarkb		\hbond		\quarks
	\antiquarkc		\Higgsboson		\quarkt
	\antiquarkd		\hole		\quarku
	\antiquarks		\interaction		\reference
	\antiquarkt		\internalsym		\resistivity
	\antiquarku		\ion		\rhomesonminus

(continued on next page)

(continued from previous page)

$\#$	<code>\anyon</code>	\oplus	<code>\ionicbond</code>	ϱ^0	<code>\rhomesonnull</code>
\star	<code>\assumption</code>	\mathcal{Y}	<code>\Jpsimeson</code>	ϱ^+	<code>\rhomesonplus</code>
\circledast	<code>\atom</code>	K^-	<code>\Kaonminus</code>	\blacksquare	<code>\solid</code>
\bigstar	<code>\bigassumption</code>	K^0	<code>\Kaonnull</code>	\divideontimes	<code>\spin</code>
\bigstar	<code>\Bigassumption</code>	K^+	<code>\Kaonplus</code>	\divideontimes	<code>\spindown</code>
\bigstar	<code>\biggassumption</code>	$\nabla\rightarrow$	<code>\magnon</code>	\divideontimes	<code>\spinup</code>
B^-	<code>\Bmesonminus</code>	\mathcal{M}	<code>\maxwellDistrib</code>	Φ	<code>\surface</code>
B^0	<code>\Bmesonnull</code>	M	<code>\metalbond</code>	$\blacksquare\blacksquare$	<code>\svrexample</code>
B^+	<code>\Bmesonplus</code>	M	<code>\method</code>	f	<code>\svrphoton</code>
\longrightarrow	<code>\bond</code>	μ^-	<code>\muon</code>	t	<code>\tachyon</code>
\wp	<code>\boseDistrib</code>	ν	<code>\neutrino</code>	τ^-	<code>\tauleptonminus</code>
\wp	<code>\boson</code>	n^0	<code>\neutron</code>	τ^+	<code>\tauleptonplus</code>
\otimes	<code>\conductivity</code>	$\clubsuit\spadesuit$	<code>\nucleus</code>	T^-	<code>\Tmesonminus</code>
$\leftarrow\!\!\!-\!$	<code>\covbond</code>	\curvearrowright	<code>\orbit</code>	T^0	<code>\Tmesonnull</code>
d^0	<code>\dipole</code>	ϕ	<code>\phimeson</code>	T^+	<code>\Tmesonplus</code>
D^-	<code>\Dmesonminus</code>	ϕ^0	<code>\phimesonnull</code>	$\clubsuit\clubsuit\spadesuit$	<code>\triplecovbond</code>
D^0	<code>\Dmesonnull</code>	F	<code>\phonon</code>	γ	<code>\Upsilonilonmeson</code>
D^+	<code>\Dmesonplus</code>	π^-	<code>\pionminus</code>	\mathfrak{f}	<code>\varphoton</code>
$\leftarrow\!\!\!-\!$	<code>\doublecovbond</code>	π^0	<code>\pionnull</code>	$\bullet\bullet$	<code>\water</code>
e^-	<code>\electron</code>	π^+	<code>\pionplus</code>	W	<code>\Wboson</code>
Ξ	<code>\errorsym</code>	$\sim e_\sim$	<code>\plasmon</code>	W^-	<code>\Wbosonminus</code>
η	<code>\etameson</code>	\divideontimes	<code>\polariton</code>	W^+	<code>\Wbosonplus</code>
η'	<code>\etamesonprime</code>	$\neg\divideontimes$	<code>\polaron</code>	Z	<code>\Zboson</code>
$\neg h^+$	<code>\exciton</code>	e^+	<code>\positron</code>		

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 L^AT_EX 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 349: `bding` Arrows

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

TABLE 350: `pifont` Arrows

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

TABLE 351: `adfsymbols` Arrows

	<code>\adfarrowsw1</code>		<code>\adfarrowsw2</code>		<code>\adfarrowsw3</code>		<code>\adfarrowsw4</code>		<code>\adfarrowsw5</code>		<code>\adfarrowsw6</code>		<code>\adfarrowsw7</code>		<code>\adfarrowsw8</code>		<code>\adfarrowsw9</code>
	<code>\adfarrowsw10</code>		<code>\adfarrowsw11</code>		<code>\adfarrowsw12</code>		<code>\adfarrowsw13</code>		<code>\adfarrowsw14</code>		<code>\adfarrowsw15</code>		<code>\adfarrowsw16</code>		<code>\adfarrowsw17</code>		<code>\adfarrowsw18</code>
	<code>\adfarrowsw19</code>		<code>\adfarrowsw20</code>		<code>\adfarrowsw21</code>		<code>\adfarrowsw22</code>		<code>\adfarrowsw23</code>		<code>\adfarrowsw24</code>		<code>\adfarrowsw25</code>		<code>\adfarrowsw26</code>		<code>\adfarrowsw27</code>
	<code>\adfarrowsw28</code>		<code>\adfarrowsw29</code>		<code>\adfarrowsw30</code>		<code>\adfarrowsw31</code>		<code>\adfarrowsw32</code>		<code>\adfarrowsw33</code>		<code>\adfarrowsw34</code>		<code>\adfarrowsw35</code>		<code>\adfarrowsw36</code>
	<code>\adfarrowsw37</code>		<code>\adfarrowsw38</code>		<code>\adfarrowsw39</code>		<code>\adfarrowsw40</code>		<code>\adfarrowsw41</code>		<code>\adfarrowsw42</code>		<code>\adfarrowsw43</code>		<code>\adfarrowsw44</code>		<code>\adfarrowsw45</code>
	<code>\adfarrowsw46</code>		<code>\adfarrowsw47</code>		<code>\adfarrowsw48</code>		<code>\adfarrowsw49</code>		<code>\adfarrowsw50</code>		<code>\adfarrowsw51</code>		<code>\adfarrowsw52</code>		<code>\adfarrowsw53</code>		<code>\adfarrowsw54</code>
	<code>\adfarrowsw55</code>		<code>\adfarrowsw56</code>		<code>\adfarrowsw57</code>		<code>\adfarrowsw58</code>		<code>\adfarrowsw59</code>		<code>\adfarrowsw60</code>		<code>\adfarrowsw61</code>		<code>\adfarrowsw62</code>		<code>\adfarrowsw63</code>
	<code>\adfarrowsw64</code>		<code>\adfarrowsw65</code>		<code>\adfarrowsw66</code>		<code>\adfarrowsw67</code>		<code>\adfarrowsw68</code>		<code>\adfarrowsw69</code>		<code>\adfarrowsw70</code>		<code>\adfarrowsw71</code>		<code>\adfarrowsw72</code>
	<code>\adfarrowsw73</code>		<code>\adfarrowsw74</code>		<code>\adfarrowsw75</code>		<code>\adfarrowsw76</code>		<code>\adfarrowsw77</code>		<code>\adfarrowsw78</code>		<code>\adfarrowsw79</code>		<code>\adfarrowsw80</code>		<code>\adfarrowsw81</code>
	<code>\adfarrowsw82</code>		<code>\adfarrowsw83</code>		<code>\adfarrowsw84</code>		<code>\adfarrowsw85</code>		<code>\adfarrowsw86</code>		<code>\adfarrowsw87</code>		<code>\adfarrowsw88</code>		<code>\adfarrowsw89</code>		<code>\adfarrowsw90</code>
	<code>\adfarrowsw91</code>		<code>\adfarrowsw92</code>		<code>\adfarrowsw93</code>		<code>\adfarrowsw94</code>		<code>\adfarrowsw95</code>		<code>\adfarrowsw96</code>		<code>\adfarrowsw97</code>		<code>\adfarrowsw98</code>		<code>\adfarrowsw99</code>
	<code>\adfarrowsw100</code>		<code>\adfarrowsw101</code>		<code>\adfarrowsw102</code>		<code>\adfarrowsw103</code>		<code>\adfarrowsw104</code>		<code>\adfarrowsw105</code>		<code>\adfarrowsw106</code>		<code>\adfarrowsw107</code>		<code>\adfarrowsw108</code>
	<code>\adfarrowsw109</code>		<code>\adfarrowsw110</code>		<code>\adfarrowsw111</code>		<code>\adfarrowsw112</code>		<code>\adfarrowsw113</code>		<code>\adfarrowsw114</code>		<code>\adfarrowsw115</code>		<code>\adfarrowsw116</code>		<code>\adfarrowsw117</code>
	<code>\adfarrowsw118</code>		<code>\adfarrowsw119</code>		<code>\adfarrowsw120</code>		<code>\adfarrowsw121</code>		<code>\adfarrowsw122</code>		<code>\adfarrowsw123</code>		<code>\adfarrowsw124</code>		<code>\adfarrowsw125</code>		<code>\adfarrowsw126</code>
	<code>\adfarrowsw127</code>		<code>\adfarrowsw128</code>		<code>\adfarrowsw129</code>		<code>\adfarrowsw130</code>		<code>\adfarrowsw131</code>		<code>\adfarrowsw132</code>		<code>\adfarrowsw133</code>		<code>\adfarrowsw134</code>		<code>\adfarrowsw135</code>
	<code>\adfarrowsw136</code>		<code>\adfarrowsw137</code>		<code>\adfarrowsw138</code>		<code>\adfarrowsw139</code>		<code>\adfarrowsw140</code>		<code>\adfarrowsw141</code>		<code>\adfarrowsw142</code>		<code>\adfarrowsw143</code>		<code>\adfarrowsw144</code>
	<code>\adfarrowsw145</code>		<code>\adfarrowsw146</code>		<code>\adfarrowsw147</code>		<code>\adfarrowsw148</code>		<code>\adfarrowsw149</code>		<code>\adfarrowsw150</code>		<code>\adfarrowsw151</code>		<code>\adfarrowsw152</code>		<code>\adfarrowsw153</code>
	<code>\adfarrowsw154</code>		<code>\adfarrowsw155</code>		<code>\adfarrowsw156</code>		<code>\adfarrowsw157</code>		<code>\adfarrowsw158</code>		<code>\adfarrowsw159</code>		<code>\adfarrowsw160</code>		<code>\adfarrowsw161</code>		<code>\adfarrowsw162</code>
	<code>\adfarrowsw163</code>		<code>\adfarrowsw164</code>		<code>\adfarrowsw165</code>		<code>\adfarrowsw166</code>		<code>\adfarrowsw167</code>		<code>\adfarrowsw168</code>		<code>\adfarrowsw169</code>		<code>\adfarrowsw170</code>		<code>\adfarrowsw171</code>
	<code>\adfarrowsw172</code>		<code>\adfarrowsw173</code>		<code>\adfarrowsw174</code>		<code>\adfarrowsw175</code>		<code>\adfarrowsw176</code>		<code>\adfarrowsw177</code>		<code>\adfarrowsw178</code>		<code>\adfarrowsw179</code>		<code>\adfarrowsw180</code>
	<code>\adfarrowsw181</code>		<code>\adfarrowsw182</code>		<code>\adfarrowsw183</code>		<code>\adfarrowsw184</code>		<code>\adfarrowsw185</code>		<code>\adfarrowsw186</code>		<code>\adfarrowsw187</code>		<code>\adfarrowsw188</code>		<code>\adfarrowsw189</code>
	<code>\adfarrowsw190</code>		<code>\adfarrowsw191</code>		<code>\adfarrowsw192</code>		<code>\adfarrowsw193</code>		<code>\adfarrowsw194</code>		<code>\adfarrowsw195</code>		<code>\adfarrowsw196</code>		<code>\adfarrowsw197</code>		<code>\adfarrowsw198</code>
	<code>\adfarrowsw199</code>		<code>\adfarrowsw200</code>		<code>\adfarrowsw201</code>		<code>\adfarrowsw202</code>		<code>\adfarrowsw203</code>		<code>\adfarrowsw204</code>		<code>\adfarrowsw205</code>		<code>\adfarrowsw206</code>		<code>\adfarrowsw207</code>
	<code>\adfarrowsw208</code>		<code>\adfarrowsw209</code>		<code>\adfarrowsw210</code>		<code>\adfarrowsw211</code>		<code>\adfarrowsw212</code>		<code>\adfarrowsw213</code>		<code>\adfarrowsw214</code>		<code>\adfarrowsw215</code>		<code>\adfarrowsw216</code>
	<code>\adfarrowsw217</code>		<code>\adfarrowsw218</code>		<code>\adfarrowsw219</code>		<code>\adfarrowsw220</code>		<code>\adfarrowsw221</code>		<code>\adfarrowsw222</code>		<code>\adfarrowsw223</code>		<code>\adfarrowsw224</code>		<code>\adfarrowsw225</code>
	<code>\adfarrowsw226</code>		<code>\adfarrowsw227</code>		<code>\adfarrowsw228</code>		<code>\adfarrowsw229</code>		<code>\adfarrowsw230</code>		<code>\adfarrowsw231</code>		<code>\adfarrowsw232</code>		<code>\adfarrowsw233</code>		<code>\adfarrowsw234</code>
	<code>\adfarrowsw235</code>		<code>\adfarrowsw236</code>		<code>\adfarrowsw237</code>		<code>\adfarrowsw238</code>		<code>\adfarrowsw239</code>		<code>\adfarrowsw240</code>		<code>\adfarrowsw241</code>		<code>\adfarrowsw242</code>		<code>\adfarrowsw243</code>
	<code>\adfarrowsw244</code>		<code>\adfarrowsw245</code>		<code>\adfarrowsw246</code>		<code>\adfarrowsw247</code>		<code>\adfarrowsw248</code>		<code>\adfarrowsw249</code>		<code>\adfarrowsw250</code>		<code>\adfarrowsw251</code>		<code>\adfarrowsw252</code>
	<code>\adfarrowsw253</code>		<code>\adfarrowsw254</code>		<code>\adfarrowsw255</code>		<code>\adfarrowsw256</code>		<code>\adfarrowsw257</code>		<code>\adfarrowsw258</code>		<code>\adfarrowsw259</code>		<code>\adfarrowsw260</code>		<code>\</code>

TABLE 352: adforn Arrows

\leftarrow	<code>\adfhalfleftarrow</code>	\rightarrow	<code>\adfhalfrightarrowhead</code>
\blacktriangleleft	<code>\adfhalfleftarrowhead</code>	\blacktriangleleft	<code>\adflightarrowhead</code>
\rightarrowtail	<code>\adfhalfrightarrow</code>	\rightarrowtail	<code>\adflightarrowhead</code>

TABLE 353: arev Arrows

\triangleright	<code>\arrowbullet</code>
------------------	---------------------------

TABLE 354: utfsym Arrows

\rightarrow	<code>\usym{2794}</code>	\rightarrowtail	<code>\usym{27A1}</code>	\looparrowleft	<code>\usym{27AB}</code>	\leftarrowtail	<code>\usym{27B6}</code>
\swarrow	<code>\usym{2798}</code>	\nearrowtail	<code>\usym{27A2}</code>	\looparrowright	<code>\usym{27AC}</code>	\nwarrowtail	<code>\usym{27B7}</code>
\rightarrow	<code>\usym{2799}</code>	\nearrowtail	<code>\usym{27A3}</code>	\looparrowleft	<code>\usym{27AD}</code>	\nearrowtail	<code>\usym{27B8}</code>
\nwarrow	<code>\usym{279A}</code>	\nearrowtail	<code>\usym{27A4}</code>	\looparrowright	<code>\usym{27AE}</code>	\nwarrowtail	<code>\usym{27B9}</code>
\rightarrowtail	<code>\usym{279B}</code>	\rightarrowtail	<code>\usym{27A5}</code>	\looparrowleft	<code>\usym{27AF}</code>	\rightarrowtail	<code>\usym{27BA}</code>
\rightarrowtail	<code>\usym{279C}</code>	\rightarrowtail	<code>\usym{27A6}</code>	\looparrowright	<code>\usym{27B1}</code>	\rightarrowtail	<code>\usym{27BB}</code>
\rightarrowtail	<code>\usym{279D}</code>	\downarrow	<code>\usym{27A7}</code>	\circlearrowleft	<code>\usym{27B2}</code>	\rightarrowtail	<code>\usym{27BC}</code>
\rightarrowtail	<code>\usym{279E}</code>	\rightarrowtail	<code>\usym{27A8}</code>	$\rightarrow\!\!\!\rightarrow$	<code>\usym{27B3}</code>	\rightarrowtail	<code>\usym{27BD}</code>
\rightarrowtail	<code>\usym{279F}</code>	\rightarrowtail	<code>\usym{27A9}</code>	\rightarrowtail	<code>\usym{27B4}</code>	\rightarrowtail	<code>\usym{27BE}</code>
\rightarrowtail	<code>\usym{27A0}</code>	\rightarrowtail	<code>\usym{27AA}</code>	$\rightarrow\!\!\!\rightarrow$	<code>\usym{27B5}</code>		

All `utfsym` symbols are implemented with TikZ graphics, not with a font. In addition to `\usym`, the `utfsym` package defines `\usymH`, which renders a symbol at a given height, and `\usymW`, which renders a symbol at a given width. See the `utfsym` documentation for more information.

TABLE 355: fontawesome Arrows

\downarrow	<code>\faArrowCircleDown</code>	\downarrow	<code>\faArrowDown</code>	\downarrow	<code>\faLongArrowDown</code>
\leftarrow	<code>\faArrowCircleLeft</code>	\leftarrow	<code>\faArrowLeft</code>	\leftarrow	<code>\faLongArrowLeft</code>
\oplus	<code>\faArrowCircleODown</code>	\rightarrow	<code>\faArrowRight</code>	\rightarrow	<code>\faLongArrowRight</code>
\ominus	<code>\faArrowCircleOLeft</code>	\nexists	<code>\faArrows</code>	\uparrow	<code>\faLongArrowUp</code>
\oplus	<code>\faArrowCircleORight</code>	\times	<code>\faArrowsAlt</code>	\textcirclearrowleft	<code>\faRepeat</code>
\oplus	<code>\faArrowCircleOUp</code>	\leftrightarrow	<code>\faArrowsH</code>	\textcirclearrowright	<code>\faUndo</code>
\ominus	<code>\faArrowCircleRight</code>	\dagger	<code>\faArrowsV</code>		
\oplus	<code>\faArrowCircleUp</code>	\uparrow	<code>\faArrowUp</code>		

`fontawesome` defines `\faRotateLeft` as a synonym for `\faUndo` and `\faRotateRight` as a synonym for `\faRepeat`.

TABLE 356: fontawesome Chevrons

\checkmark	<code>\faChevronCircleDown</code>	\checkmark	<code>\faChevronCircleUp</code>	\checkmark	<code>\faChevronRight</code>
\leftarrow	<code>\faChevronCircleLeft</code>	\checkmark	<code>\faChevronDown</code>	\checkmark	<code>\faChevronUp</code>
\rightarrow	<code>\faChevronCircleRight</code>	\leftarrow	<code>\faChevronLeft</code>		

TABLE 357: marvosym Scissors

	\CutLeft	---	\CuttingLine	>	\RightScissors
	\CutRight	<	\LeftScissors		

TABLE 358: bbdng Scissors

	\ScissorHollowLeft			\ScissorLeftBrokenTop
	\ScissorHollowRight			\ScissorRight
	\ScissorLeft			\ScissorRightBrokenBottom
	\ScissorLeftBrokenBottom			\ScissorRightBrokenTop

TABLE 359: pifont Scissors

	\ding{33}		\ding{34}		\ding{35}		\ding{36}
--	-----------	--	-----------	--	-----------	--	-----------

TABLE 360: utfsym Scissors

	\usym{2700}		\usym{2702}		\usym{2704}
	\usym{2701}		\usym{2703}		

All `utsym` symbols are implemented with TikZ graphics, not with a font. In addition to `\usym`, the `utsym` package defines `\usymH`, which renders a symbol at a given height, and `\usymW`, which renders a symbol at a given width. See the `utsym` documentation for more information.

TABLE 361: dingbat Pencils



TABLE 362: arev Pencils

	\pencil
--	---------

TABLE 363: fontawesome Pencils

	\faPencil		\faPencilSquare		\faPencilSquare0
--	-----------	--	-----------------	--	------------------

TABLE 364: bbdng Pencils and Nibs

	\NibLeft		\PencilLeft		\PencilRightDown
	\NibRight		\PencilLeftDown		\PencilRightUp
	\NibSolidLeft		\PencilLeftUp		
	\NibSolidRight		\PencilRight		

TABLE 365: pifont Pencils and Nibs

\ding{46} \ding{47} \ding{48} \ding{49} \ding{50}

TABLE 366: utfsym Pencils, Pens, and Nibs

\usym{270E}	\usym{2711}	\usym{1F58A}	\usym{1F58D}
\usym{270F}	\usym{2712}	\usym{1F58B}	
\usym{2710}	\usym{1F589}	\usym{1F58C}	

All `utsym` symbols are implemented with TikZ graphics, not with a font. In addition to `\usym`, the `utsym` package defines `\usymH`, which renders a symbol at a given height, and `\usymW`, which renders a symbol at a given width. See the `utsym` documentation for more information.

TABLE 367: dingbat Fists

\leftpointright	\rightpointleft	\rightpointright
\leftthumbsdown	\rightthumbsdown	
\leftthumbsup	\rightthumbsup	

TABLE 368: bbding Fists

\HandCuffLeft	\HandCuffRightUp	\HandPencilLeft
\HandCuffLeftUp	\HandLeft	\HandRight
\HandCuffRight	\HandLeftUp	\HandRightUp

TABLE 369: pifont Fists

\ding{42} \ding{43} \ding{44} \ding{45}

TABLE 370: fourier Fists

\lefthand \righthand

TABLE 371: arev Fists

\pointright

TABLE 372: utfsym Fists

	\usym{261A}		\usym{1F447}		\usym{1F58F}		\usym{1F59A}
	\usym{261B}		\usym{1F448}		\usym{1F590}		\usym{1F59B}
	\usym{261C}		\usym{1F449}		\usym{1F591}		\usym{1F59C}
	\usym{261D}		\usym{1F44A}		\usym{1F592}		\usym{1F59D}
	\usym{261E}		\usym{1F44B}		\usym{1F593}		\usym{1F59E}
	\usym{261F}		\usym{1F44C}		\usym{1F594}		\usym{1F59F}
	\usym{270A}		\usym{1F44D}		\usym{1F595}		\usym{1F5A0}
	\usym{270B}		\usym{1F44E}		\usym{1F596}		\usym{1F5A1}
	\usym{270C}		\usym{1F44F}		\usym{1F597}		\usym{1F5A2}
	\usym{270D}		\usym{1F450}		\usym{1F598}		\usym{1F5A3}
	\usym{1F446}		\usym{1F58E}		\usym{1F599}		

All `utfsym` symbols are implemented with `TikZ` graphics, not with a font. In addition to `\usym`, the `utfsym` package defines `\usymH`, which renders a symbol at a given height, and `\usymW`, which renders a symbol at a given width. See the `utfsym` documentation for more information.

TABLE 373: fontawesome Fists

	\faHandLizard0		\faHandPaper0		\faHandSpock0
	\faHand0Down		\faHandPeace0		\faThumbsDown
	\faHand0Left		\faHandPointer0		\faThumbs0Down
	\faHand0Right		\faHandRock0		\faThumbs0Up
	\faHand0Up		\faHandScissors0		\faThumbsUp

`fontawesome` defines `\faHandGrab0` as a synonym for `\faHandRock0` and `\faHandStop0` as a synonym for `\faHandPaper0`.

TABLE 374: bbding Crosses and Plussses

	\Cross		\CrossOpenShadow		\PlusOutline
	\CrossBoldOutline		\CrossOutline		\PlusThinCenterOpen
	\CrossClowerTips		\Plus		
	\CrossMaltese		\PlusCenterOpen		

TABLE 375: pifont Crosses and Plussses

	\ding{57}		\ding{59}		\ding{61}		\ding{63}
	\ding{58}		\ding{60}		\ding{62}		\ding{64}

TABLE 376: adfsymbols Crosses and Plussses

	\adfbullet{4}		\adfbullet{6}		\adfbullet{8}		\adfbullet{10}
	\adfbullet{5}		\adfbullet{7}		\adfbullet{9}		

TABLE 377: `utfsym` Crosses and Plusses

\oplus	<code>\usym{2719}</code>	\dagger	<code>\usym{271D}</code>	\dotplus	<code>\usym{2722}</code>	\ddagger	<code>\usym{1F546}</code>
\oplus	<code>\usym{271A}</code>	\ddagger	<code>\usym{271E}</code>	$\ddot{\oplus}$	<code>\usym{2723}</code>	\ddagger	<code>\usym{1F547}</code>
\oplus	<code>\usym{271B}</code>	\ddagger	<code>\usym{271F}</code>	$\ddot{\oplus}$	<code>\usym{2724}</code>	\ddagger	<code>\usym{1F548}</code>
\oplus	<code>\usym{271C}</code>	\boxtimes	<code>\usym{2720}</code>	$\ddot{\oplus}$	<code>\usym{2725}</code>		

All `utfsym` symbols are implemented with TikZ graphics, not with a font. In addition to `\usym`, the `utfsym` package defines `\usymH`, which renders a symbol at a given height, and `\usymW`, which renders a symbol at a given width. See the `utfsym` documentation for more information.

TABLE 378: `arev` Crosses

\divideontimes `\eastcross` \divideontimes `\westcross`

TABLE 379: `bding` Xs and Check Marks

\checkmark	<code>\Checkmark</code>	\times	<code>\XSolid</code>	\times	<code>\XSolidBrush</code>
\checkmark	<code>\CheckmarkBold</code>	\times	<code>\XSolidBold</code>		

TABLE 380: `pifont` Xs and Check Marks

\checkmark	<code>\ding{51}</code>	\times	<code>\ding{53}</code>	\times	<code>\ding{55}</code>
\checkmark	<code>\ding{52}</code>	\times	<code>\ding{54}</code>	\times	<code>\ding{56}</code>

TABLE 381: `wasysym` Xs and Check Marks

\square `\CheckedBox` \square `\Square` \square `\XBox`

TABLE 382: `marvosym` Xs and Check Marks

\square `\Checkbox` \times `\CrossedBox*` \square `\HollowBox`

* `marvosym` defines `\Crossedbox` as a synonym for `\CrossedBox`.

TABLE 383: `arev` Xs and Check Marks

\checkmark `\ballotcheck` \times `\ballotx`

TABLE 384: `utfsym` Xs and Check Marks

<input type="checkbox"/>	<code>\usym{2610}</code>	<input checked="" type="checkbox"/>	<code>\usym{2713}</code>	<input checked="" type="checkbox"/>	<code>\usym{2718}</code>	<input checked="" type="checkbox"/>	<code>\usym{1F5F8}</code>
<input checked="" type="checkbox"/>	<code>\usym{2611}</code>	<input checked="" type="checkbox"/>	<code>\usym{2714}</code>	<input checked="" type="checkbox"/>	<code>\usym{1F5F4}</code>	<input checked="" type="checkbox"/>	<code>\usym{1F5F9}</code>
<input checked="" type="checkbox"/>	<code>\usym{2612}</code>	<input checked="" type="checkbox"/>	<code>\usym{2715}</code>	<input checked="" type="checkbox"/>	<code>\usym{1F5F5}</code>		
<input checked="" type="checkbox"/>	<code>\usym{2613}</code>	<input checked="" type="checkbox"/>	<code>\usym{2716}</code>	<input checked="" type="checkbox"/>	<code>\usym{1F5F6}</code>		
<input checked="" type="checkbox"/>	<code>\usym{2705}</code>	<input checked="" type="checkbox"/>	<code>\usym{2717}</code>	<input checked="" type="checkbox"/>	<code>\usym{1F5F7}</code>		

All `utfsym` symbols are implemented with TikZ graphics, not with a font. In addition to `\usym`, the `utfsym` package defines `\usymH`, which renders a symbol at a given height, and `\usymW`, which renders a symbol at a given width. See the `utfsym` documentation for more information.

TABLE 385: `fontawesome` Xs and Check Marks

<input checked="" type="checkbox"/>	<code>\faCheck</code>	<input checked="" type="checkbox"/>	<code>\faCheckSquare</code>	<input checked="" type="checkbox"/>	<code>\faTimesCircle</code>
<input checked="" type="checkbox"/>	<code>\faCheckCircle</code>	<input checked="" type="checkbox"/>	<code>\faCheckSquareO</code>	<input checked="" type="checkbox"/>	<code>\faTimesCircleO</code>
<input checked="" type="checkbox"/>	<code>\faCheckCircleO</code>	<input checked="" type="checkbox"/>	<code>\faTimes*</code>		

* `fontawesome` defines both `\faClose` and `\faRemove` as synonyms for `\faTimes`.

TABLE 386: `pifont` Circled Numerals

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

`pifont` (part of the `psnfss` package) provides a `dingautolist` environment which resembles `enumerate` but uses circled numbers as bullets.⁴ See the `psnfss` documentation for more information.

TABLE 387: `utfsym` Circled Numerals

<code>\usym{2776}</code>	<code>\usym{277E}</code>	<code>\usym{2786}</code>	<code>\usym{278E}</code>
<code>\usym{2777}</code>	<code>\usym{277F}</code>	<code>\usym{2787}</code>	<code>\usym{278F}</code>
<code>\usym{2778}</code>	<code>\usym{2780}</code>	<code>\usym{2788}</code>	<code>\usym{2790}</code>
<code>\usym{2779}</code>	<code>\usym{2781}</code>	<code>\usym{2789}</code>	<code>\usym{2791}</code>
<code>\usym{277A}</code>	<code>\usym{2782}</code>	<code>\usym{278A}</code>	<code>\usym{2792}</code>
<code>\usym{277B}</code>	<code>\usym{2783}</code>	<code>\usym{278B}</code>	<code>\usym{2793}</code>
<code>\usym{277C}</code>	<code>\usym{2784}</code>	<code>\usym{278C}</code>	
<code>\usym{277D}</code>	<code>\usym{2785}</code>	<code>\usym{278D}</code>	

All `utfsym` symbols are implemented with TikZ graphics, not with a font. In addition to `\usym`, the `utfsym` package defines `\usymH`, which renders a symbol at a given height, and `\usymW`, which renders a symbol at a given width. See the `utfsym` documentation for more information.

⁴In fact, `dingautolist` can use any set of consecutive Zapf Dingbats symbols.

TABLE 388: wasysym Stars

```
◊ \davidsstar * \hexstar * \varhexstar
```

TABLE 389: bbdng Stars, Flowers, and Similar Shapes

*	\Asterisk	❖	\FiveFlowerPetal	◆	\JackStar
**	\AsteriskBold	★	\FiveStar	◆◆	\JackStarBold
*-	\AsteriskCenterOpen	☆	\FiveStarCenterOpen	✳	\SixFlowerAlternate
✿	\AsteriskRoundedEnds	☆	\FiveStarConvex	✳	\SixFlowerAltPetal
*-	\AsteriskThin	☆	\FiveStarLines	✳	\SixFlowerOpenCenter
*-	\AsteriskThinCenterOpen	☆	\FiveStarOpen	✳	\SixFlowerPetaldotted
◊◊	\DavidStar	●★	\FiveStarOpenCircled	✳	\SixFlowerPetalRemoved
★★	\DavidStarSolid	★	\FiveStarOpenDotted	✳	\SixFlowerRemovedOpenPetal
✿	\EightAsterisk	★	\FiveStarOutline	★	\SixStar
✿	\EightFlowerPetal	★	\FiveStarOutlineHeavy	✳	\SixteenStarLight
*-	\EightFlowerPetalRemoved	★	\FiveStarShadow	✳	\Snowflake
*-	\EightStar	+	\FourAsterisk	✳	\SnowflakeChevron
★★	\EightStarBold	✿	\FourClowerOpen	✳	\SnowflakeChevronBold
✿-	\EightStarConvex	✿	\FourClowerSolid	✳	\Sparkle
*-	\EightStarTaper	◆	\FourStar	✳	\SparkleBold
✿	\FiveFlowerOpen	✿	\FourStarOpen	✳	\TwelweStar

TABLE 390: pifont Stars, Flowers, and Similar Shapes

◊	\ding{65}	★	\ding{74}	*	\ding{83}	*	\ding{92}	*	\ding{101}
+	\ding{66}	★	\ding{75}	*	\ding{84}	*	\ding{93}	*	\ding{102}
⋮	\ding{67}	★	\ding{76}	*	\ding{85}	*	\ding{94}	*	\ding{103}
⋮	\ding{68}	★	\ding{77}	*	\ding{86}	❖	\ding{95}	*	\ding{104}
⋮	\ding{69}	★	\ding{78}	*	\ding{87}	✳	\ding{96}	*	\ding{105}
◆	\ding{70}	★	\ding{79}	*	\ding{88}	✳	\ding{97}	*	\ding{106}
◊	\ding{71}	★	\ding{80}	*	\ding{89}	✳	\ding{98}	*	\ding{107}
★	\ding{72}	*	\ding{81}	*	\ding{90}	*	\ding{99}		
☆	\ding{73}	*	\ding{82}	*	\ding{91}	*	\ding{100}		

TABLE 391: adfsymbols Stars, Flowers, and Similar Shapes

◊	\adfbullet{1}	*	\adfbullet{13}	○	\adfbullet{18}	◊	\adfbullet{23}
◊	\adfbullet{2}	◊	\adfbullet{14}	○○	\adfbullet{19}	◊	\adfbullet{24}
*	\adfbullet{3}	◊	\adfbullet{15}	○○	\adfbullet{20}	*	\adfbullet{25}
*	\adfbullet{11}	◊	\adfbullet{16}	○○	\adfbullet{21}	*	\adfbullet{26}
*	\adfbullet{12}	◊	\adfbullet{17}	○○	\adfbullet{22}		

TABLE 392: `utfsym` Stars, Flowers, and Similar Shapes

★	<code>\usym{2605}</code>	★	<code>\usym{272B}</code>	*	<code>\usym{2737}</code>	*	<code>\usym{2743}</code>
★	<code>\usym{2606}</code>	★	<code>\usym{272C}</code>	*	<code>\usym{2738}</code>	*	<code>\usym{2744}</code>
★	<code>\usym{26E4}</code>	★	<code>\usym{272D}</code>	*	<code>\usym{2739}</code>	*	<code>\usym{2745}</code>
★	<code>\usym{26E5}</code>	★	<code>\usym{272E}</code>	*	<code>\usym{273A}</code>	*	<code>\usym{2746}</code>
★	<code>\usym{26E6}</code>	★	<code>\usym{272F}</code>	*	<code>\usym{273B}</code>	*	<code>\usym{2747}</code>
★	<code>\usym{26E7}</code>	★	<code>\usym{2730}</code>	*	<code>\usym{273C}</code>	*	<code>\usym{2748}</code>
◊	<code>\usym{2721}</code>	*	<code>\usym{2731}</code>	*	<code>\usym{273D}</code>	*	<code>\usym{2749}</code>
◆	<code>\usym{2726}</code>	*	<code>\usym{2732}</code>	*	<code>\usym{273E}</code>	*	<code>\usym{274A}</code>
◆	<code>\usym{2727}</code>	*	<code>\usym{2733}</code>	✿	<code>\usym{273F}</code>	*	<code>\usym{274B}</code>
◆	<code>\usym{2728}</code>	*	<code>\usym{2734}</code>	✿	<code>\usym{2740}</code>	✿	<code>\usym{1F52F}</code>
☆	<code>\usym{2729}</code>	*	<code>\usym{2735}</code>	✿	<code>\usym{2741}</code>		
☆	<code>\usym{272A}</code>	*	<code>\usym{2736}</code>	✿	<code>\usym{2742}</code>		

All `utfsym` symbols are implemented with TikZ graphics, not with a font. In addition to `\usym`, the `utfsym` package defines `\usymH`, which renders a symbol at a given height, and `\usymW`, which renders a symbol at a given width. See the `utfsym` documentation for more information.

TABLE 393: `adforn` Stars

*	<code>\adfast{1}</code>	*	<code>\adfast{3}</code>	*	<code>\adfast{5}</code>	*	<code>\adfast{7}</code>	*	<code>\adfast{9}</code>
*	<code>\adfast{2}</code>	*	<code>\adfast{4}</code>	*	<code>\adfast{6}</code>	*	<code>\adfast{8}</code>	*	<code>\adfast{10}</code>

TABLE 394: `fontawesome` Stars

★ `\faStar` ♠ `\faStarHalf` ★ `\faStarHalf0` ☆ `\faStar0`

`fontawesome` defines both `\faStarHalfEmpty` and `\faStarHalfFull` as synonyms for `\faStarHalf0`.

TABLE 395: `fourier` Fleurons and Flowers

❖	<code>\aldine</code>	❖	<code>\decoone</code>	❖	<code>\floweroneright</code>
❖	<code>\aldineleft</code>	❖	<code>\decosix</code>	❖	<code>\leafleft</code>
❖	<code>\aldineright</code>	❖	<code>\decothreeleft</code>	❖	<code>\leafNE</code>
❖	<code>\aldinesmall</code>	❖	<code>\decothreeright</code>	❖	<code>\leafright</code>
❖	<code>\decfourleft</code>	❖	<code>\decotwo</code>	+	<code>\starredbullet</code>
❖	<code>\decfourright</code>	❖	<code>\floweroneleft</code>		

TABLE 396: adforn Fleurons and Flowers

	\adfdownhalfleafleft		\adfdownhalfleafright
	\adfdownleafleft		\adfdownleafright
	\adfflatdownhalfleafleft		\adfflatdownhalfleafright
	\adfflatdownoutlineleafleft		\adfflatdownoutlineleafright
	\adfflatleafleft		\adfflatleafright
	\adfflatleafoutlineleft		\adfflatleafoutlineright
	\adfflatleafsolidleft		\adfflatleafsolidright
	\adfflowerleft		\adfflowerright
	\adffhalfleafleft		\adffhalfleafright
	\adfhangingflatleafleft		\adfhangingflatleafright
	\adfhangingingleafleft		\adfhangingingleafright
	\adfleafleft		\adfleafright
	\adfoutlineleafleft		\adfoutlineleafright
	\adfsmallhangingleafleft		\adfsmallhangingleafright
	\adfsmallleafleft		\adfsmallleafright
	\adfsolidleafleft		\adfsolidleafright

TABLE 397: wasysym Geometric Shapes

○	\Circle	○	\LEFTcircle	○	\octagon	○	\RIGHTcircle
●	\CIRCLE	●	\LEFTCIRCLE	○	\pentagon	●	\RIGHTCIRCLE
○	\hexagon	○	\Leftcircle	○	\Rightcircle	○	\varhexagon

TABLE 398: MnSymbol Geometric Shapes

★	\filledlargestar	◊	\largeiamond	◊	\medlozenge
◆	\filledlozenge	☆	\largepentagram	◊	\medstarofdavid
◆	\filledmedlozenge	□	\largesquare	◊	\smalllozenge
○	\largecircle	☆	\largestar		
◇	\argediamond	◊	\largestarofdavid		

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 399: fdsymbol Geometric Shapes

●	\largeblackcircle	▽	\largetriangledown	◊	\medlozenge
■	\largeblacksquare	△	\largetriangleup	◆	\smallblacklozenge
★	\largeblackstar	☆	\largewhitestar	◊	\smalllozenge
○	\largecircle	◊	\lozengeminus	◊	\starofdavid
□	\large square	◆	\medblacklozenge		

fdsymbol defines synonyms for almost all of the preceding symbols:

○	\bigcirc	■	\lgblk square	◊	\mdlgwhtlozenge
★	\bigstar	○	\lgwhtcircle	◊	\mdwhtlozenge
▽	\bigtriangleleft	□	\lgwhtsquare	◆	\smbblklozenge
△	\bigtriangleup	◊	\lozenge	◊	\smwhtlozenge
◆	\blacklozenge	◆	\mdblklozenge		
●	\lgblk circle	◆	\mdlgblklozenge		

TABLE 400: boisik Geometric Shapes

★	\bigstar	◊	\diamond	▽	\triangledown
◆	\blacklozenge	◊	\lozenge	◀	\triangleleft
■	\blacksquare	◊	\lozengedot	▶	\triangleright
▲	\blacktriangle	□	\square	△	\varlrttriangle
▼	\blacktriangledown	*	\star		

TABLE 401: stix Geometric Shapes

○	\acwopencirclearrow	○	\enclosecircle	◆	\smbblkdiamond
↖	\barovernorthwestarrow	◇	\enclosediamond	◆	\smbblklozenge
◎	\benznr	□	\enclosesquare	■	\smbblksquare
▼	\bigblacktriangledown	△	\enclosetriangle	☆	\smwhitestar
▲	\bigblacktriangleup	●	\errbarblackcircle	○	\smwhtcircle
★	\bigstar	◆	\errbarblackdiamond	◊	\smwhtdiamond
▽	\bigtriangledown	■	\errbarblacksquare	◊	\smwhtlozenge
◀	\bigtriangleleft	○	\errbarcircle	□	\smwhtsquare
△	\bigtriangleup	◊	\errbardiamond	□	\sqlozenge
☆	\bigwhitestar	□	\errbarsquare	■	\squarebotblack
●	\blackcircledownarrow	○	\fisheye	■	\squarecrossfill
●	\blackcircledrightdot	□	\fltns	■	\squarehfill
●	\blackcircledtwodots	○	\hexagon	■	\squarehvfill
●	\blackcircleulquadwhite	●	\hexagonblack	■	\squareleftblack
◆	\blackdiamonddownarrow	□	\house	■	\squarellblack
◆	\blackinwhitediamond	□	\hrectangle	■	\squarellquad
□	\blackinwhitesquare	■	\hrectangleblack	■	\squarelrblack
◀	\blacklefthalfcircle	○	\inversewhitecircle	■	\squarelrquad
◀	\blackpointerleft	□	\invwhitehalfcircle	■	\squareneswfill
▶	\blackpointerright	□	\invwhiteupperhalfcircle	■	\squarensewfill
▶	\blackrighthalfcircle	●	\lgblkcircle	■	\squaerightblack
▲	\blacktriangle	■	\lblksquare	■	\squaretopblack
▼	\blacktriangledown	○	\lgwhtcircle	■	\squareulblack
◀	\blacktriangleleft	□	\lgwtsquare	■	\squareulquad
▶	\blacktriangleright	◀	\llblacktriangle	■	\squaureblack
●	\blkhorzoval	□	\lltriangle	■	\squareurquad
●	\blkvertoval	◀	\lrblacktriangle	■	\squarevfill
○	\botsemicircle	□	\lrtriangle	○	\squoval
✚	\boxonbox	●	\mdblkcircle	○	\topsemicircle
◎	\bullseye	◆	\mdblkdiamond	□	\trapezium
○	\circ	◆	\mdblklozenge	△	\trianglecdot
●	\circlebottomhalfblack	■	\mdblksquare	▽	\triangledown
◎	\circledbullet	●	\mdlgbblkcircle	▲	\triangleleftblack
♀	\circledownarrow	◆	\mdlgbblkdiamond	△	\triangleodot
◎	\circledrightdot	◆	\mdlgbblklozenge	▲	\trianglerightblack
✿	\circledstar	■	\mdlgbblksquare	△	\triangles
◎	\circledtwodots	◊	\mdlgwhtdiamond	△	\triangleubar
◎	\circledwhitebullet	◊	\mdlgwhtlozenge	◀	\ulblacktriangle
●	\circlelefthalfblack	□	\mdlgwhtsquare	▶	\ultriangle
◎	\circlellquad	●	\mdsblkcircle	◊	\uparrowarrowoncircle

(continued on next page)

(continued from previous page)

⊖	\circlelrquad	■	\mdsmbblkssquare	◀	\urblacktriangle
◐	\circlerighthalfblack	○	\mdsmwhtcircle	▷	\urtriangle
◑	\circletophalfblack	□	\mdsmwhtsquare	○	\varhexagon
◑	\circleulquad	○	\mdwhtcircle	●	\varhexagonblack
◑	\circleurquad	◊	\mdwhtdiamond	○	\varhexagonrbonds
◑	\circleurquadblack	◊	\mdwhtlozenge	△	\varltriangle
◐	\circlevertfill	□	\mdwtsquare	*	\varstar
○	\cirE	★	\medblackstar	△	\vartriangleleft
○	\cirsir	☆	\medwhitestar	▷	\vartriangleright
○	\cwopencirclearrow	□	\parallelogram	□	\vrectangle
◆	\diamondbotblack	■	\parallelogramblack	■	\vrectangleblack
◇	\diamondcdot	○	\pentagon	·	\vysmblkssquare
◆	\diamondleftblack	◆	\pentagonblack	·	\vysmwhtsquare
◆	\diamondrightblack	○	\rightpentagon	△	\whiteinwhitetriangle
◆	\diamondtopblack	◆	\rightpentagonblack	△	\whitepointerleft
○	\dottedcircle	◀	\smallblacktriangleleft	▷	\whitepointerright
□	\dottedsquare	▶	\smallblacktriangleright	○	\whthorzoval
▼	\downtriangleleftblack	◀	\smalltriangleleft	○	\whtveroval
▼	\downtrianglerightblack	▶	\smalltriangleright		

stix defines \diamond as a synonym for \smwhtdiamond, \blacksquare as a synonym for \mdlgblkssquare, \square and \Box as synonyms for \mdlgwhtsquare, \triangle and \varbigtriangleup as synonyms for \bigtriangleup, \rhd as a synonym for \vartriangleright, \varbigtriangledown as a synonym for \bigtriangledown, \lhd as a synonym for \vartriangleleft, \Diamond and \lozenge as synonyms for \mdlgwhtlozenge, \bigcirc as a synonym for \mdwhtcircle, \circ as a synonym for \smwhtcircle, and \blacklozenge as a synonym for \mdlgblklozenge.

TABLE 402: ifsym Geometric Shapes

○	\BigCircle	▶	\FilledBigTriangleRight	○	\SmallCircle
✗	\BigCross	▲	\FilledBigTriangleUp	×	\SmallCross
◇	\BigDiamondshape	●	\FilledCircle	◊	\SmallDiamondshape
—	\BigHBar	◆	\FilledDiamondShadowA	—	\SmallHBar
◆	\BigLowerDiamond	◆	\FilledDiamondShadowC	◆	\SmallLowerDiamond
◆	\BigRightDiamond	◆	\FilledDiamondshape	◆	\SmallRightDiamond
□	\BigSquare	●	\FilledSmallCircle	□	\SmallSquare
▽	\BigTriangleDown	◆	\FilledSmallDiamondshape	▽	\SmallTriangleDown
◀	\BigTriangleLeft	■	\FilledSmallSquare	◀	\SmallTriangleLeft
▷	\BigTriangleRight	▼	\FilledSmallTriangleDown	▷	\SmallTriangleRight
△	\BigTriangleUp	◀	\FilledSmallTriangleLeft	△	\SmallTriangleUp
	\BigVBar	▶	\FilledSmallTriangleRight		\SmallVBar
○	\Circle	▲	\FilledSmallTriangleUp	↓	\SpinDown
✗	\Cross	■	\FilledSquare	↑	\SpinUp

(continued on next page)

(continued from previous page)

◊ \DiamondShadowA	■ \FilledSquareShadowA	□ \Square
◊ \DiamondShadowB	■ \FilledSquareShadowC	□ \SquareShadowA
◊ \DiamondShadowC	▼ \FilledTriangleDown	□ \SquareShadowB
◊ \Diamondshape	◀ \FilledTriangleLeft	□ \SquareShadowC
● \FilledBigCircle	▶ \FilledTriangleRight	▽ \TriangleDown
◆ \FilledBigDiamondshape	▲ \FilledTriangleUp	◀ \TriangleLeft
■ \FilledBigSquare	— \HBar	▶ \TriangleRight
▼ \FilledBigTriangleDown	◆ \LowerDiamond	△ \TriangleUp
◀ \FilledBigTriangleLeft	♦ \RightDiamond	\VBar

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 11.3 for more information about constructing new symbols out of existing symbols.

TABLE 403: bbdng Geometric Shapes

○ \CircleShadow	█ \Rectangle	□ \SquareShadowTopLeft
● \CircleSolid	█ \RectangleBold	□ \SquareShadowTopRight
◆ \DiamondSolid	█ \RectangleThin	█ \SquareSolid
○ \Ellipse	□ \Square	▼ \TriangleDown
○ \EllipseShadow	□ \SquareCastShadowBottomRight	▲ \TriangleUp
● \EllipseSolid	□ \SquareCastShadowTopLeft	
◀ \HalfCircleLeft	□ \SquareCastShadowTopRight	
▶ \HalfCircleRight	□ \SquareShadowBottomRight	

TABLE 404: pifont Geometric Shapes

● \ding{108}	□ \ding{111}	□ \ding{114}	◆ \ding{117}	█ \ding{121}
○ \ding{109}	□ \ding{112}	▲ \ding{115}	▷ \ding{119}	█ \ding{122}
■ \ding{110}	□ \ding{113}	▼ \ding{116}	\ding{120}	

TABLE 405: universa Geometric Shapes

● \baucircle ■ \lausquare ▲ \bautriangle

TABLE 406: adfsymbols Geometric Shapes

• \adfbullet{27}	▶ \adfbullet{32}	• \adfbullet{43}	♦ \adfbullet{48}
• \adfbullet{28}	▲ \adfbullet{33}	• \adfbullet{44}	♦ \adfbullet{49}
■ \adfbullet{29}	▼ \adfbullet{34}	◦ \adfbullet{45}	♦ \adfbullet{50}
◆ \adfbullet{30}	• \adfbullet{41}	▪ \adfbullet{46}	♦ \adfbullet{51}
◀ \adfbullet{31}	• \adfbullet{42}	▪ \adfbullet{47}	◦ \adfbullet{52}

TABLE 407: `utfsym` Geometric Shapes

●	<code>\usym{1F534}</code>	◆	<code>\usym{1F537}</code>	▲	<code>\usym{1F53A}</code>	▼	<code>\usym{1F53D}</code>
●	<code>\usym{1F535}</code>	◆	<code>\usym{1F538}</code>	▼	<code>\usym{1F53B}</code>		
◆	<code>\usym{1F536}</code>	◆	<code>\usym{1F539}</code>	▲	<code>\usym{1F53C}</code>		

All `utfsym` symbols are implemented with `TikZ` graphics, not with a font. In addition to `\usym`, the `utfsym` package defines `\usymH`, which renders a symbol at a given height, and `\usymW`, which renders a symbol at a given width. See the `utfsym` documentation for more information.

TABLE 408: `fontawesome` Geometric Shapes

●	<code>\faCircle</code>	○	<code>\faCircleNotch</code>	○	<code>\faDotCircle</code>	□	<code>\faSquare</code>
○	<code>\faCircle0</code>	○	<code>\faCircleThin</code>	■	<code>\faSquare</code>		

TABLE 409: `oplotsymbol` Geometric Shapes

○	<code>\circlet</code>	◆	<code>\rhombusfillha</code>	△	<code>\trianglepalineh</code>
⊗	<code>\circletcross</code>	◆	<code>\rhombusfillhb</code>	△	<code>\trianglepalinev</code>
○	<code>\circleldot</code>	◆	<code>\rhombusfillhl</code>	△	<code>\trianglepalinevh</code>
●	<code>\circlelfill</code>	◆	<code>\rhombusfillhr</code>	▽	<code>\trianglepb</code>
●	<code>\circlelfillha</code>	◆	<code>\rhombuslineh</code>	☒	<code>\trianglepbcross</code>
●	<code>\circlelfillhb</code>	◆	<code>\rhombuslinev</code>	▽	<code>\trianglepbdot</code>
●	<code>\circlelfillhl</code>	◆	<code>\rhombuslinevh</code>	▼	<code>\trianglepbfill</code>
●	<code>\circlelfillhr</code>	□	<code>\squad</code>	▼	<code>\trianglepbfillha</code>
⊖	<code>\circleltlineh</code>	☒	<code>\squadcross</code>	▼	<code>\trianglepbfillhb</code>
⊖	<code>\circleltlinev</code>	☒	<code>\squaddot</code>	▼	<code>\trianglepbfillhl</code>
⊕	<code>\circleltlinevh</code>	■	<code>\squadfill</code>	▼	<code>\trianglepbfillhr</code>
○	<code>\hexago</code>	■	<code>\squadfillha</code>	▽	<code>\trianglepblineh</code>
⊗	<code>\hexagocross</code>	■	<code>\squadfillhb</code>	▽	<code>\trianglepblinev</code>
○	<code>\hexagodot</code>	■	<code>\squadfillhl</code>	▽	<code>\trianglepblinevh</code>
●	<code>\hexagofill</code>	■	<code>\squadfillhr</code>	▷	<code>\trianglepl</code>
●	<code>\hexagofillha</code>	■	<code>\squadlineh</code>	☒	<code>\triangleplcross</code>
●	<code>\hexagofillhb</code>	■	<code>\squadlinev</code>	▷	<code>\trianglepldot</code>
●	<code>\hexagofillhl</code>	■	<code>\squadlinevh</code>	◀	<code>\triangleplfill</code>
●	<code>\hexagofillhr</code>	☆	<code>\starlet</code>	▷	<code>\triangleplfillha</code>
⊖	<code>\hexagolineh</code>	☆	<code>\starletcross</code>	◀	<code>\triangleplfillhb</code>
⊖	<code>\hexagolinev</code>	☆	<code>\starletedot</code>	◀	<code>\triangleplfillhl</code>
⊕	<code>\hexagolinevh</code>	★	<code>\starletfill</code>	◀	<code>\triangleplfillhr</code>
○	<code>\pentago</code>	★	<code>\starletfillha</code>	▷	<code>\trianglepllineh</code>
⊗	<code>\pentagocross</code>	★	<code>\starletfillhb</code>	▷	<code>\trianglepllinev</code>
○	<code>\pentagodot</code>	★	<code>\starletfillhl</code>	▷	<code>\trianglepllinevh</code>
●	<code>\pentagofill</code>	★	<code>\starletfillhr</code>	▷	<code>\trianglepr</code>
●	<code>\pentagofillha</code>	★	<code>\starletlineh</code>	☒	<code>\triangleprcross</code>
●	<code>\pentagofillhb</code>	★	<code>\starletlinev</code>	▷	<code>\triangleprdot</code>
●	<code>\pentagofillhl</code>	★	<code>\starletlinevh</code>	▶	<code>\triangleprfill</code>
●	<code>\pentagofillhr</code>	△	<code>\trianglepa</code>	▷	<code>\triangleprfillha</code>
⊖	<code>\pentagolineh</code>	☒	<code>\trianglepacross</code>	▷	<code>\triangleprfillhb</code>

(continued on next page)

(continued from previous page)

◊	\pentagolinev	△	\trianglepadot	►	\triangleprfillhl
◊	\pentagolinevh	▲	\trianglepafill	►	\triangleprfillhr
◊	\rhombus	△	\trianglepafillha	►	\triangleprlineh
◊	\rhombuscross	▲	\trianglepafillhb	►	\triangleprlinev
◊	\rhombusdot	△	\trianglepafillhl	►	\triangleprlinevh
◆	\rhombusfill	▲	\trianglepafillhr		

“fillha”, “fillhb”, “fillhl”, and “fillhr”, imply, respectively, “half-filled above”, “half-filled below”, “half-filled left”, and “half-filled right”. In the `\triangle...` symbols, “pa”, “pb”, “pr”, and “pl” refer respectively to “peak above”, “peak below”, “peak left”, and “peak right”.

All `oplotsymb1` symbols are implemented with TikZ graphics, not with a font.

TABLE 410: adforn Flourishes

~	\adfclosedflourishleft	~	\adfclosedflourishright
~~	\adfdoubleflourishleft	~~	\adfdoubleflourishright
~~	\adfdoublesharpflourishleft	~~	\adfdoublesharpflourishright
~	\adfflourishleft	~	\adfflourishright
~~	\adfflourishleftdouble	~~	\adfflourishrightdouble
~	\adfopenflourishleft	~	\adfopenflourishright
—	\adfsharpflourishleft	—	\adfsharpflourishright
~~	\adfsickleflourishleft	~~	\adfsickleflourishright
~	\adfsingleflourishleft	~	\adfsingleflourishright
~~	\adftripleflourishleft	~~	\adftripleflourishright
~~	\adfwavesleft	~~	\adfwavesright

TABLE 411: Miscellaneous `oplotsymb1` Symbols

— \lineh | \linev + \linevh × \scross * \scrossvh

All `oplotsymb1` symbols are implemented with TikZ graphics, not with a font.

TABLE 412: Miscellaneous dingbat Dingbats

Ĵ	\anchor	⦿	\eye	⊓	\Sborder
↷	\carriagereturn		\filledsquarewithdots	❀	\squarewithdots
✓	\checkmark	☛	\satellitedish	⊒	\Zborder

TABLE 413: Miscellaneous bbdng Dingbats

✉	\Envelope	✉	\Peace	📞	\PhoneHandset	☀	\SunshineOpenCircled
❖	\OrnamentDiamondSolid	☎	\Phone	✈	\Plane	⌚	\Tape

TABLE 414: Miscellaneous pifont Dingbats

¤	\ding{37}	♪	\ding{40}	♥	\ding{164}	¤	\ding{167}	♠	\ding{171}
⌚	\ding{38}	✉	\ding{41}	♦	\ding{165}	♣	\ding{168}	♦	\ding{169}
⌚	\ding{39}	❖	\ding{118}	❖	\ding{166}	♥	\ding{170}		

TABLE 415: Miscellaneous adforn Dingbats

- \adfbullet ◊ \adfdiamond § \adfgree § \adfsS □ \adfsquare

TABLE 416: Miscellaneous utfsym Dingbats

⌚	\usym{2706}	!	\usym{2755}	!	\usym{2762}	➤	\usym{276F}
⌚	\usym{2707}	❖	\usym{2756}	❖	\usym{2763}	◀	\usym{2770}
➔	\usym{2708}	!	\usym{2757}	♥	\usym{2764}	▶	\usym{2771}
✉	\usym{2709}	!	\usym{2758}	♦	\usym{2765}	(\usym{2772}
✖	\usym{274C}	!	\usym{2759}	❖	\usym{2766})	\usym{2773}
○	\usym{274D}	!	\usym{275A}	❖	\usym{2767}	{	\usym{2774}
✖	\usym{274E}	❶	\usym{275B}	(\usym{2768}	}	\usym{2775}
□	\usym{274F}	❷	\usym{275C})	\usym{2769}	+	\usym{2795}
□	\usym{2750}	❸	\usym{275D}	(\usym{276A}	-	\usym{2796}
□	\usym{2751}	❹	\usym{275E})	\usym{276B}	÷	\usym{2797}
□	\usym{2752}	❺	\usym{275F}	(\usym{276C}	σ	\usym{27B0}
?	\usym{2753}	❻	\usym{2760})	\usym{276D}	σσ	\usym{27BF}
?	\usym{2754}	❻	\usym{2761}	◀	\usym{276E}		

All `utsym` symbols are implemented with *TikZ* graphics, not with a font. In addition to `\usym`, the `utsym` package defines `\usymH`, which renders a symbol at a given height, and `\usymW`, which renders a symbol at a given width. See the `utsym` documentation for more information.

6 Ancient languages

This section presents letters and ideograms from various ancient scripts. Some of these symbols may also be useful in other typesetting contexts because of their pictorial nature.

TABLE 417: *phaistos* Symbols from the Phaistos Disk

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

TABLE 418: *protosem* Proto-Semitic Characters

	\Aaleph		\AAaleph		\Abeth		\AAbeth		\Agimel		\Adaleth		\AAadaleth		\Ahe
	\AAhe		\Azayin		\Akaph		\AAkaph		\Alamed		\AAAlamed		\Amem		\Anun
	\AAayin		\Ateth		\Asmekh		\AApe		\Ape		\AAape		\Asade		\AAasade
	\AAayod		\Ayod		\Asinh		\Aqoph		\Aqoph		\Aresh		\AAresh		\Ashin
	\AAayin		\Ayod		\Aresh		\Aqoph		\Aresh		\AAhelmet		\AAahelmet		\Atav

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 “”). See the *protosem* documentation for more information.

TABLE 419: hierogl^f Hieroglyphics

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

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 420: linearA Linear A Script

\LinearAI	\LinearAXCIX	\LinearACXCVII	\LinearACCXCV
\LinearAII	\LinearAC	\LinearACXCVIII	\LinearACCXCVI
\LinearAIII	\LinearACI	\LinearACXCIX	\LinearACCXCVII
\LinearAIV	\LinearACII	\LinearACC	\LinearACCXCVIII
\LinearAV	\LinearACIII	\LinearACCI	\LinearACCXCIIX
\LinearAVI	\LinearACIV	\LinearACCII	\LinearACCC
\LinearAVII	\LinearACV	\LinearACCIII	\LinearACCCI
\LinearAVIII	\LinearACVI	\LinearACCIV	\LinearACCCII
\LinearAIX	\LinearACVII	\LinearACCV	\LinearACCCIII
\LinearAX	\LinearACVIII	\LinearACCVI	\LinearACCCIV
\LinearAXI	\LinearACIX	\LinearACCVII	\LinearACCCV
\LinearAXII	\LinearACX	\LinearACCVIII	\LinearACCCVI
\LinearAXIII	\LinearACXI	\LinearACCXIX	\LinearACCCVII

(continued on next page)

(continued from previous page)

‡ \LinearAXIV	§ \LinearACXII	¶ \LinearACCX	¶ \LinearACCCVIII
ʌ \LinearAXV	≠ \LinearACXIII	¬ \LinearACCXI	¬ \LinearACCCIX
₪ \LinearAXVI	₪ \LinearACXIV	₪ \LinearACCXII	₪ \LinearACCCX
₪ \LinearAXVII	₪ \LinearACXV	₪ \LinearACCXIII	₪ \LinearACCCXI
₪ \LinearAXVIII	₪ \LinearACXVI	₪ \LinearACCXIV	₪ \LinearACCCXII
₪ \LinearAXIX	₪ \LinearACXVII	₪ \LinearACCXV	₪ \LinearACCCXIII
₪ \LinearAXX	₪ \LinearACXVIII	₪ \LinearACCXVI	₪ \LinearACCCXIV
₪ \LinearAXXI	₪ \LinearACXIX	₪ \LinearACCXVII	₪ \LinearACCCXV
₪ \LinearAXXII	₪ \LinearACXX	₪ \LinearACCXVIII	₪ \LinearACCCXVI
₪ \LinearAXXIII	₪ \LinearACXXI	₪ \LinearACCXIX	₪ \LinearACCCXVII
₪ \LinearAXXIV	₪ \LinearACXXII	₪ \LinearACCXX	₪ \LinearACCCXVIII
₪ \LinearAXXV	₪ \LinearACXXIII	₪ \LinearACCXXI	₪ \LinearACCCXIX
₪ \LinearAXXVI	₪ \LinearACXXIV	₪ \LinearACCXXII	₪ \LinearACCCXX
₪ \LinearAXXVII	₪ \LinearACXXV	₪ \LinearACCXXIII	₪ \LinearACCCXXI
₪ \LinearAXXVIII	₪ \LinearACXXVI	₪ \LinearACCXXIV	₪ \LinearACCCXXII
₪ \LinearAXXIX	₪ \LinearACXXVII	₪ \LinearACCXXV	₪ \LinearACCCXXIII
₪ \LinearAXXX	₪ \LinearACXXVIII	₪ \LinearACCXXVI	₪ \LinearACCCXXIV
₪ \LinearAXXXI	₪ \LinearACXXIX	₪ \LinearACCXXVII	₪ \LinearACCCXXV
₪ \LinearAXXXII	₪ \LinearACXXX	₪ \LinearACCXXVIII	₪ \LinearACCCXXVI
₪ \LinearAXXXIII	₪ \LinearACXXXI	₪ \LinearACCXXIX	₪ \LinearACCCXXVII
₪ \LinearAXXXIV	₪ \LinearACXXXII	₪ \LinearACCXXX	₪ \LinearACCCXXVIII
₪ \LinearAXXXV	₪ \LinearACXXXIII	₪ \LinearACCXXXI	₪ \LinearACCCXXIX
₪ \LinearAXXXVI	₪ \LinearACXXXIV	₪ \LinearACCXXXII	₪ \LinearACCCXXX
₪ \LinearAXXXVII	₪ \LinearACXXXV	₪ \LinearACCXXXIII	₪ \LinearACCCXXXI
₪ \LinearAXXXVIII	₪ \LinearACXXXVI	₪ \LinearACCXXXIV	₪ \LinearACCCXXXII
₪ \LinearAXXXIX	₪ \LinearACXXXVII	₪ \LinearACCXXXV	₪ \LinearACCCXXXIII
₪ \LinearAXL	₪ \LinearACXXXVIII	₪ \LinearACCXXXVI	₪ \LinearACCCXXXIV
₪ \LinearAXLI	₪ \LinearACXXXIX	₪ \LinearACCXXXVII	₪ \LinearACCCXXXV
₪ \LinearAXLII	₪ \LinearACXL	₪ \LinearACCXXXVIII	₪ \LinearACCCXXXVI
₪ \LinearAXLIII	₪ \LinearACXLI	₪ \LinearACCXXXIX	₪ \LinearACCCXXXVII
₪ \LinearAXLIV	₪ \LinearACXLII	₪ \LinearACCXL	₪ \LinearACCCXXXVIII
₪ \LinearAXLV	₪ \LinearACXLIII	₪ \LinearACCXLII	₪ \LinearACCCXXXIX
₪ \LinearAXLVI	₪ \LinearACXLIV	₪ \LinearACCXLII	₪ \LinearACCCXL
₪ \LinearAXLVII	₪ \LinearACXLV	₪ \LinearACCXLIII	₪ \LinearACCCXLII
₪ \LinearAXLVIII	₪ \LinearACXLVI	₪ \LinearACCXLIV	λ \LinearACCCXLII
₪ \LinearAXLIX	₪ \LinearACXLVII	₪ \LinearACCXLV	# \LinearACCCXLIII
₪ \LinearAL	₪ \LinearACXLVIII	₪ \LinearACCXLVI	↔ \LinearACCCXLIV
₪ \LinearALI	₪ \LinearACXLIX	₪ \LinearACCXLVII	₪ \LinearACCCXLV
₪ \LinearALII	₪ \LinearACL	₪ \LinearACCXLVIII	₪ \LinearACCCXLVI
₪ \LinearALIII	₪ \LinearACLI	₪ \LinearACCXLIX	₪ \LinearACCCXLVII
₪ \LinearALIV	₪ \LinearACLII	₪ \LinearACCL	₪ \LinearACCCXLVIII
₪ \LinearALV	₪ \LinearACLIII	₪ \LinearACCLI	₪ \LinearACCCXLIX
₪ \LinearALVI	₪ \LinearACLIV	₪ \LinearACCLI	↔ \LinearACCCL
₪ \LinearALVII	₪ \LinearACLV	₪ \LinearACCLIII	↔ \LinearACCCLI
₪ \LinearALVIII	₪ \LinearACLVI	₪ \LinearACCLIV	↔ \LinearACCCLI
₪ \LinearALIX	₪ \LinearACLVII	₪ \LinearACCLV	↔ \LinearACCCLIII
₪ \LinearALX	₪ \LinearACLVIII	₪ \LinearACCLVI	↔ \LinearACCCLIV
₪ \LinearALXI	₪ \LinearACLIX	₪ \LinearACCLVII	↔ \LinearACCCLV
₪ \LinearALXII	₪ \LinearACLX	₪ \LinearACLVIII	↔ \LinearACCCLVI
₪ \LinearALXIII	₪ \LinearACLXI	₪ \LinearACCLIX	↔ \LinearACCCLVII
₪ \LinearALXIV	₪ \LinearACLXII	₪ \LinearACCLX	↔ \LinearACCCLVIII
₪ \LinearALXV	₪ \LinearACLXIII	₪ \LinearACCLXI	↔ \LinearACCCLIX
₪ \LinearALXVI	₪ \LinearACLXIV	₪ \LinearACCLXII	↔ \LinearACCCLX

(continued on next page)

(continued from previous page)

¶	\LinearALXVII	¶	\LinearACLXV	¶	\LinearACCLXIII	¶	\LinearACCCLXI
¶	\LinearALXVIII	¶	\LinearACLXVI	¶	\LinearACCLXIV	¶	\LinearACCCLXII
¶	\LinearALXIX	¶	\LinearACLXVII	¶	\LinearACCLXV	¶	\LinearACCCLXIII
¶	\LinearALXX	¶	\LinearACLXVIII	¶	\LinearACCLXVI	¶	\LinearACCCLXIV
¶	\LinearALXXI	¶	\LinearACLXIX	¶	\LinearACCLXVII	¶	\LinearACCCLXV
¶	\LinearALXXII	¶	\LinearACLXX	¶	\LinearACCLXVIII	¶	\LinearACCCLXVI
¶	\LinearALXXIII	¶	\LinearACLXXI	¶	\LinearACCLXIX	¶	\LinearACCCLXVII
¶	\LinearALXXIV	¶	\LinearACLXXII	¶	\LinearACCLXX	¶	\LinearACCCLXVIII
¶	\LinearALXXV	¶	\LinearACLXXIII	¶	\LinearACCLXXI	¶	\LinearACCCLXIX
¶	\LinearALXXVI	¶	\LinearACLXXIV	¶	\LinearACCLXXII	++	\LinearACCCLXX
¶	\LinearALXXVII	¶	\LinearACLXXV	¶	\LinearACCLXXIII	¶	\LinearACCCLXXI
¶	\LinearALXXVIII	¶	\LinearACLXXVI	¶	\LinearACCLXXIV	¶	\LinearACCCLXXII
¶	\LinearALXXIX	¶	\LinearACLXXVII	¶	\LinearACCLXXV	¶	\LinearACCCLXXIII
¶	\LinearALXXX	¶	\LinearACLXXVIII	¶	\LinearACCLXXVI	¶	\LinearACCCLXXIV
¶	\LinearALXXXI	¶	\LinearACLXXIX	¶	\LinearACCLXXVII	¶	\LinearACCCLXXV
¶	\LinearALXXXII	¶	\LinearACLXXX	¶	\LinearACCLXXVIII	¶	\LinearACCCLXXVI
¶	\LinearALXXXIII	¶	\LinearACLXXXI	¶	\LinearACCLXXIX	¶	\LinearACCCLXXVII
¶	\LinearALXXXIV	¶	\LinearACLXXXII	¶	\LinearACCLXXX	¶	\LinearACCCLXXVIII
¶	\LinearALXXXV	¶	\LinearACLXXXIII	¶	\LinearACCLXXXI	¶	\LinearACCCLXXIX
¶	\LinearALXXXVI	¶	\LinearACLXXXIV	¶	\LinearACCLXXXII	¶	\LinearACCCLXXX
¶	\LinearALXXXVII	¶	\LinearACLXXXV	¶	\LinearACCLXXXIII	¶	\LinearACCCLXXXI
¶	\LinearALXXXVIII	¶	\LinearACLXXXVI	¶	\LinearACCLXXXIV	¶	\LinearACCCLXXXII
¶	\LinearALXXXIX	¶	\LinearACLXXXVII	¶	\LinearACCLXXXV	¶	\LinearACCCLXXXIII
¶	\LinearALXXXX	¶	\LinearACLXXXVIII	¶	\LinearACCLXXXVI	¶	\LinearACCCLXXXIV
¶	\LinearAXCI	¶	\LinearACLXXXIX	¶	\LinearACCLXXXVII	¶	\LinearACCCLXXXV
¶	\LinearAXCII	¶	\LinearACLXXXX	¶	\LinearACCLXXXVIII	++	\LinearACCCLXXXVI
¶	\LinearAXCIII	¶	\LinearACXCI	¶	\LinearACCLXXXIX	??	\LinearACCCLXXXVII
¶	\LinearAXCIV	¶	\LinearACXCII	¶	\LinearACCLXXXX	??	\LinearACCCLXXXVIII
¶	\LinearAXCV	¶	\LinearACXCIII	¶	\LinearACCXCI	??	\LinearACCCLXXXIX
¶	\LinearAXCVI	¶	\LinearACXCIV	¶	\LinearACCXII	??	\LinearACCCLXXXIX
¶	\LinearAXCVII	¶	\LinearACXCV	¶	\LinearACCXIII	??	\LinearACCCLXXXIX
I	\LinearAXCVIII	I	\LinearACXCVI	I	\LinearACCXIV		

TABLE 421: linearb Linear B Basic and Optional Letters

卜	\Ba	曰	\Bja	𢁊	\Bmu	𢁃	\Bpte	𢁄	\Broii	𢁅	\Bto
𠂔	\Baii	𠂔	\Bje	𢁎	\Bna	𢁆	\Bpu	𢁇	\Bru	𢁈	\Btu
𢁉	\Baiii	𢁉	\Bjo	𢁊	\Bne	𢁊	\Bpuii	𢁉	\Bsa	𢁉	\Btwo
𢁌	\Bau	𢁌	\Bju	𢁎	\Bni	𢁊	\Bqa	𢁌	\Bse	𢁌	\Bu
ト	\Bda	⊕	\Bka	𢁉	\Bno	𢁊	\Bqe	𢁉	\Bsi	𢁉	\Bwa
𢁉	\Bde	𢁉	\Bke	𢁊	\Bnu	𢁊	\Bqi	𢁉	\Bso	𢁉	\Bwe
𢁉	\Bdi	𢁉	\Bki	𢁉	\Bnwa	𢁊	\Bqo	𢁉	\Bsu	𢁉	\Bwi
𢁊	\Bdo	𢁊	\Bko	𢁉	\Bo	𢁉	\Bra	𢁊	\Bswa	𢁊	\Bwo
𢁉	\Bdu	𢁉	\Bku	𢁊	\Bpa	𢁉	\Braii	𢁉	\Bswi	𢁉	\Bza
𢁉	\Bdwe	𢁉	\Bma	𢁉	\Bpaiii	𢁉	\Braiii	𢁉	\Bta	𢁉	\Bze
𢁉	\Bdwo	𢁉	\Bme	𢁉	\Bpe	𢁉	\Bre	𢁉	\Btaii	𢁉	\Bzo
𢁌	\Be	𢁉	\Bmi	𢁉	\Bpi	𢁊	\Bri	𢁉	\Bte		
ヰ	\Bi	ヰ	\Bmo	ヰ	\Bpo	+	\Bro	ヰ	\Bti		

These symbols must appear either within the argument to `\textlinb` or following the `\linbfamily` font-selection command within a scope. Single-character shortcuts are also supported: Both “`\textlinbf{\Bpa\Bki\Bna}`” and “`\textlinb{pcn}`” produce “`ヰヰヰ`”, for example. See the `linearb` documentation for more information.

TABLE 422: linearb Linear B Numerals

I	\BNi		\BNvii	==	\BNxl	○	\BNc	oooo	\BNdcc
II	\BNii		\BNviii	==	\BNl	○	\BNcc	oooo	\BNdccc
III	\BNiii		\BNix	==	\BNlx	○	\BNccc	oooo	\BNcm
II	\BNiv	-	\BNx	==	\BNlxx	○○	\BNcd	○○	\BNm
II	\BNv	=	\BNxx	==	\BNlxxx	○○○	\BNd		
III	\BNvi	=	\BNxxx	==	\BNxc	○○○	\BNd		

These symbols must appear either within the argument to `\textlinb` or following the `\linbfamily` font-selection command within a scope.

TABLE 423: linearb Linear B Weights and Measures

𢁉	\BPTalent	†	\BPvolb	˥	\BPvolcf	ꝝ	\BPwtb	ꝝ	\BPwtd
𢁉	\BPvola	˥	\BPvolcd	ꝝ	\BPwta	ꝝ	\BPwtc		

These symbols must appear either within the argument to `\textlinb` or following the `\linbfamily` font-selection command within a scope.

TABLE 424: linearb Linear B Ideograms

🏺	\BPamphora	ڍ	\BPchassis	ߙ	\BPman	ߟ	\BPwheat
»	\BParrow	ߗ	\BPcloth	߱	\BPnanny	ܰ	\BPwheel
߲	\BPbarley	ܵ	\BPcow	ܶ	\BPolive	ܴ	\BPwine
߳	\BPbilly	ܷ	\BPcup	ܸ	\BPOx	ܹ	\BPwineiih
ߴ	\BPboar	ܸ	\BPewe	ܹ	\BPpig	ܻ	\BPwineiiih
ߵ	\BPbronze	ܹ	\BPfoal	ܺ	\BPram	ܻ	\BPwineivh
߶	\BPbull	ܻ	\BPgoat	ܻ	\BPsheep	ܻ	\BPwoman
߷	\BPcauldroni	ܻ	\BPgoblet	ܻ	\BPsow	ܻ	\BPwool
߸	\BPcauldronii	ܻ	\BPgold	ܻ	\BPspear		
߹	\BPchariot	ܻ	\BPhorse	ܻ	\BPsword		

These symbols must appear either within the argument to `\textlinb` or following the `\linbfamily` font-selection command within a scope.

TABLE 425: linearb Unidentified Linear B Symbols

ܾ	\BUi	ܭ	\BUiv	ܮ	\BUvii	ܰ	\BUx	ܼ	\Btwe
ܭ	\BUii	ܯ	\BUv	ܮ	\BUviii	ܱ	\BUxi		
ܮ	\BUiii	ܰ	\BUvi	ܰ	\BUix	ܼ	\BUxii		

These symbols must appear either within the argument to `\textlinb` or following the `\linbfamily` font-selection command within a scope.

TABLE 426: cypriot Cypriot Letters

ܶ	\Ca	ܶ	\Cku	ܶ	\Cmu	ܶ	\Cpo	ܶ	\Cso	ܶ	\Cwi
ܶ	\Ce	ܶ	\Cla	ܶ	\Cna	ܶ	\Cpu	ܶ	\Csu	ܶ	\Cwo
ܶ	\Cga	ܶ	\Cle	ܶ	\Cne	ܶ	\Cra	ܶ	\Cta	ܶ	\Cxa
ܶ	\Ci	ܶ	\Cli	ܶ	\Cni	ܶ	\Cre	ܶ	\Cte	ܶ	\Cxe
ܶ	\Cja	ܶ	\Clo	ܶ	\Cno	ܶ	\Cri	ܶ	\Cti	ܶ	\Cya
ܶ	\Cjo	ܶ	\Clu	ܶ	\Cnu	ܶ	\Cro	ܶ	\Cto	ܶ	\Cyo
ܶ	\Cka	ܶ	\Cma	ܶ	\Co	ܶ	\Cru	ܶ	\Ctu	ܶ	\Cza
ܶ	\Cke	ܶ	\Cme	ܶ	\Cpa	ܶ	\Csa	ܶ	\Cu	ܶ	\Czo
ܶ	\Cki	ܶ	\Cmi	ܶ	\Cpe	ܶ	\Cse	ܶ	\Cwa		
ܶ	\Cko	ܶ	\Cmo	ܶ	\Cpi	ܶ	\Csi	ܶ	\Cwe		

These symbols must appear either within the argument to `\textcypr` or following the `\cyprfamily` font-selection command within a scope. Single-character shortcuts are also supported: Both “`\textcypr{\Cpa\Cki\Cna}`” and “`\textcypr{pcn}`” produce “ܶܶܶ”, for example. See the cypriot documentation for more information.

TABLE 427: sarabian South Arabian Letters

◦	\SAa	ሂ	\SAz	ሃ	\SAM	ህ	\SAsd	ሇ	\SAdb
ሮ	\SAb	ለ	\SAhd	ሪ	\SAN	ሩ	\SAq	ሪ	\SATb
ሮ	\SAg	ሰ	\SATd	ሪ	\SAs	ሪ	\SAr	ሮ	\SAGa
ሮ	\SAd	ሮ	\SAy	ሮ	\SAf	ሮ	\SAsv	ሮ	\SAzd
ሮ	\SAh	ሮ	\SAk	ሮ	\SAlq	ሮ	\SAT	ሮ	\SAsa
ሮ	\SAw	ሮ	\SAI	ሮ	\SAo	ሮ	\SAhu	ሮ	\SAdd

These symbols must appear either within the argument to `\textssarab` or following the `\sarabfamily` font-selection command within a scope. Single-character shortcuts are also supported: Both “`\textssarab{\SAb\SAk\SAn}`” and “`\textssarab{bkn}`” produce “ሮሮሮ”, for example. See the `sarabian` documentation for more information.

TABLE 428: teubner Archaic Greek Letters and Greek Numerals

Ϙ	\Coppa [†]	F	\Digamma*	ϙ	\sampi*	ϙ	\varstigma
ϙ	\coppa [†]	ϙ	\kappa	Ϙ	\Stigma		
F	\digamma*.‡	ϙ	\Sampi	ϙ	\stigma*		

* Technically, these symbols do not require `teubner`; it is sufficient to load the `babel` package with the `greek` option (upon which `teubner` depends)—but use `\qoppa` for `\kappa` and `\ddigamma` for `\digamma`.

† For compatibility with other naming conventions `teubner` defines `\Koppa` as a synonym for `\Coppa` and `\varcoppa` as a synonym for `\coppa`.

‡ If both `teubner` and `amssymb` are loaded, `teubner`'s `\digamma` replaces `amssymb`'s `\digamma`, regardless of package-loading order.

TABLE 429: boisik Archaic Greek Letters and Greek Numerals

F	\Digamma	ϙ	\qoppa	ϙ	\stigma	ϙ	\varsampi
F	\digamma	Ϙ	\Qoppa	Ϙ	\Stigma		
ϙ	\heta	ϙ	\Sampi	ϙ	\vardigamma		
F	\Heta	ϙ	\sampi	ϙ	\Varsampi		

TABLE 430: epiolmec Epi-Olmec Script

	\EOafter		\EOMiddle		\EOStarWarrior
	\EOandThen		\EOmonster		\EOstep
	\EOAppear		\EOMountain		\EOSu
	\EOBeardMask		\EOmuu		\EOsu
	\EOBedeck		\EOna		\Eosun

(continued on next page)

(continued from previous page)

	\EOBlood		\EOOne		\EOsuu
	\EObrace		\EOoni		\EOSuu
	\EObuilding		\EOnow		\Eota
	\EObundle		\EOonu		\EOote
	\EOChop		\EOonuu		\EOthrone
	\EOChronI		\EOofficerI		\EOti
	\EOCloth		\EOofficerII		\EOtime
	\EODealWith		\EOofficerIII		\EOtime
	\EODeer		\EOofficerIV		\EOtitle
	\EOeat		\EOopa		\EOtitleII
	\EOflint		\EOpak		\EOtitleIV
	\EOflower		\EOPatron		\EOto
	\EOFold		\EOPatronII		\EOtu
	\EOGod		\Eope		\EOtuki
	\EOGoUp		\EOpenis		\EOtukpa
	\EOgovernor		\Eopi		\EOtturtle
	\EOGuise		\EOPierce		\EOtuu
	\EOHallow		\EOPlant		\EOtza
	\EOja		\EOPlay		\EOtze
	\EOjaguar		\EOpo		\EOTzetze
	\EOje		\EOpriest		\EOtzi
	\EOji		\EOPrince		\EOtzu
	\EOJI		\EOpu		\EOtzuu
	\EOjo		\EOPuu		\EOundef
	\EOju		\EOpuuk		\EOvarBeardMask
	\EOkak		\EORain		\EOvarja
	\EOke		\EOSa		\EOvarji
	\EOki		\EOsa		\EOvarki
	\EOkij		\EOsacrifice		\EOvarkuu
	\EOKing		\EOSaw		\EOvarni
	\EOknottedCloth		\EOScorpius		\EOvarpa

(continued on next page)

(continued from previous page)

	\EOknottedClothStraps		\EOset		\EOvarSi
	\EOko		\EOsi		\EOvarsi
	\EOku		\EOSi		\EOvartza
	\EOkuu		\EOsing		\EOvarwuu
	\EOLetBlood		\EOSini		\EOvarYear
	\EoloInCloth		\EOskin		\EOwa
	\EOlongLipII		\EOSky		\EOwe
	\EOLord		\EOSkyAnimal		\EOwi
	\EOlose		\EOSkyPillar		\EOwo
	\EOma		\EOSnake		\EOwuu
	\EOmacaw		\EOSo		\EOya
	\EOmacawi		\EOSpan		\EOyaj
	\EOme		\EOSprinkle		\EOye
	\EOMexNew		\EOstar		\EOYear
	\EOmi		\EOstarWarrior		\EOyuu

TABLE 431: epiolmec Epi-Olmec Numerals

	\EOzero		\EOvi		\EOxii		\EOxviii
	\EOi		\EOvii		\EOxiii		\EOxix
	\EOii		\EOviii		\EOxiv		\EOxx
	\EOiii		\EOix		\EOxv		
	\EOiv		\EOx		\EOxvi		
	\EOv		\EOxi		\EOxvii		

TABLE 432: `allrunes` Runes

þ	\a	Þ	E	ɸ	\ING	ℳ	m	Ψ	R	ſ	\sthree
*	\A	ȝ	F	ɸ	\ing	ȝ	n	ȝ	\RR	ȝ	T
ȝ	a	ȝ	f	ɸ	\Ing	ȝ	\NG	ȝ	\s	ȝ	t
ȝ	A	X	g	ȝ	\j	ȝ	\ng	ȝ	s	ȝ	\textsection
ȝ	b	H	\h	ȝ	j	ȝ	o	ȝ	S	ȝ	\th
ȝ	B	N	H	ȝ	J	ȝ	\p	ȝ	\seight	ȝ	U
ȝ	\d	H	h	ȝ	\k	ȝ	p	ȝ	\sfive	ȝ	u
ȝ	D	\i	i	ȝ	\K	ȝ	P	ȝ	\sfour	ȝ	w
ȝ	d	I	i	ȝ	k	ȝ	\R	ȝ	\sseven		
M	e	\j	I	ȝ	l	ȝ	r	ȝ	\ssix		

The symbols in this table should appear within the argument to `\textarc` (for common Germanic runes), `\textara` (for Anglo-Frisian runes), `\textarn` (for normal runes), `\textart` (for short-twig runes), `\textarl` (for staveless runes), `\textarm` (for medieval runes), or within a scope that sets, respectively, `\arcfamily`, `\arafamily`, `\arnfamily`, `\artfamily`, `\arlfamily`, or `\armfamily`. Each family presents slightly different glyphs and/or slightly different subsets of the available runes. (The table presents the common Germanic runes.) See the `allrunes` documentation for more information.

TABLE 433: `allrunes` Rune Separators

:	\bar	:	\doubleeye	+	\plus	:	\tripledot
*	\cross	*	\doubleplus	:	\quaddot	*	\tripleeye
.	\dot	*	\doublestar	*	\quadeye	*	\tripleplus
:	\doublebar	.	\eye	*	\star		
*	\doublecross	:	\pentdot	:	\triplebar		
:	\doubledot	+	\penteye	*	\triplecross		

See the usage comment under Table 432.

7 Musical symbols

The following symbols are used to typeset musical notation. The *lilyglyphs* package provides a large subset of the symbols in this section. Note, however, that *lilyglyphs* depends upon the *fontspec* package, OpenType (.otf) fonts, and some PDF graphics and therefore works only with *LuaLaTeX* or *XeLaTeX*.

A simple way to typeset time signatures, due to Daniel Hirst, is to attach a superscript and a subscript to an empty math object. For example, `\{{}^3_4` renders as “ $\frac{3}{4}$ ”. Because superscripts and subscripts are left-justified, some extra padding may need to be added if the beats per measure and beat unit contain different numbers of digits. A 5 mu space (“\;”) vertically centers the “8” relative to the “12” in `\{{}^{12}_8` (“ $\frac{12}{8}$ ”). For boldface time signatures (e.g., “ $\frac{4}{4}$ ”), consider the boldface-math options presented in Section 11.5. See also Table 447.

TABLE 434: *LaTeX* 2 _{ε} Musical Symbols

```
\flat \natural \sharp
```

TABLE 435: *textcomp* Musical Symbols

```
\textmusicalnote
```

TABLE 436: *wasysym* Musical Symbols

```
\eighthnote \halfnote \twonotes \fullnote \quarternote
```

TABLE 437: *MnSymbol* Musical Symbols

```
\flat \natural \sharp
```

TABLE 438: *fdsymbol* Musical Symbols

```
\flat \natural \sharp
```

TABLE 439: *boisik* Musical Symbols

```
\flat \natural \sharp
```

TABLE 440: *stix* Musical Symbols

```
\eighthnote \natural \sharp \quarternote \twonotes
```

TABLE 441: *arev* Musical Symbols

```
\quarternote \eighthnote \twonotes
```

TABLE 442: `utfsym` Musical Symbols

♪	<code>\usym{2669}</code>	♫	<code>\usym{266C}</code>	♯	<code>\usym{266F}</code>	𝄪	<code>\usym{1F3BC}</code>
♪	<code>\usym{266A}</code>	♩	<code>\usym{266D}</code>	♪	<code>\usym{1F3B5}</code>		
♪	<code>\usym{266B}</code>	♩	<code>\usym{266E}</code>	♪	<code>\usym{1F3B6}</code>		

All `utfsym` symbols are implemented with `TikZ` graphics, not with a font. In addition to `\usym`, the `utfsym` package defines `\usymH`, which renders a symbol at a given height, and `\usymW`, which renders a symbol at a given width. See the `utfsym` documentation for more information.

TABLE 443: `MusiXTEX` Musical Symbols

♩	<code>\allabreve</code>	$>$	<code>\lsf</code>	~~	<code>\shake</code>
♪	<code>\altoclef</code>	v	<code>\lsfz</code>	~~~	<code>\Shake</code>
∞	<code>\backturn</code>	=	<code>\maxima</code>	~~~~	<code>\Shakel</code>
♪	<code>\bassclef</code>	$+$	<code>\meterplus</code>	$\text{~~~} \text{~}$	<code>\Shakene</code>
$/$	<code>\caesura</code>	~w	<code>\mordent</code>	$\text{~} \text{~~~}$	<code>\Shakenw</code>
∅	<code>\coda</code>	~~w	<code>\Mordent</code>	$\text{~} \text{~~}$	<code>\Shakesw</code>
田	<code>\Coda</code>	$ $	<code>\PAUSE</code>	♪	<code>\smallaltoclef</code>
$*$	<code>\Dep</code>	$-$	<code>\PAuse</code>	♪	<code>\smallbassclef</code>
\square	<code>\doublelthumb</code>	$-$	<code>\pause</code>	♪	<code>\smalltrebleclef</code>
—	<code>\downbow</code>	Ped.	<code>\Ped</code>	♪	<code>\sPed</code>
γ	<code>\ds</code>	~	<code>\qp</code>	♪	<code>\trebleclef</code>
×	<code>\duevolte</code>	~	<code>\qqs</code>	\sim	<code>\trill</code>
○	<code>\fermatadown</code>	~	<code>\qs</code>	~	<code>\turn</code>
●	<code>\fermataup</code>	~	<code>\reverseallabreve</code>	\vee	<code>\upbow</code>
\circ	<code>\flageolett</code>	CO	<code>\reverseC</code>	$>$	<code>\usf</code>
—	<code>\hpause</code>	$*$	<code>\sDep</code>	\wedge	<code>\usfz</code>

(continued on next page)

(continued from previous page)

	\hs		\Segno		\wq
	\longa		\segno		\wqq

All of these symbols are intended to be used in the context of typesetting musical scores. See the MusiXTEX documentation for more information.

TABLE 444: MusiXTEX Alternative Clefs

	\drumclef		\gregorianFclef
	\gregorianCclef		\oldGclef

In addition to MusiXTEX, \drumclef requires the *musixer* package; \oldGclef requires the *musixlit* package; and both \gregorianCclef and \gregorianFclef require the *musixgre* package. Together with MusiXTEX, these packages provide a complete system for typesetting percussion notation (*musixer*), liturgical music (*musixlit*), and Gregorian chants (*musixgre*, including the staves and all of the necessary neumes. See the MusiXTEX documentation for more information.

TABLE 445: harmony Musical Symbols

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

The MusiXTEX package must be installed to use *harmony*.

TABLE 446: `musicography` Musical Symbols

\flat	<code>\musDoubleFlat</code>	\natural	<code>\musNatural</code>	$\frac{1}{64}$	<code>\musSixtyFourth</code>
\times	<code>\musDoubleSharp</code>	$\frac{1}{4}$	<code>\musQuarter</code>	$\frac{1}{32}$	<code>\musSixtyFourthDotted</code>
$\frac{1}{8}$	<code>\musEighth</code>	$\frac{1}{8}$	<code>\musQuarterDotted</code>	$\frac{1}{16}$	<code>\musThirtySecond</code>
$\frac{1}{16}$	<code>\musEighthDotted</code>	$\frac{1}{16}$	<code>\musSegno</code>	$\frac{1}{32}$	<code>\musThirtySecondDotted</code>
\flat	<code>\musFlat</code>	\sharp	<code>\musSharp</code>	\circ	<code>\musWhole</code>
$\frac{1}{2}$	<code>\musHalf</code>	$\frac{1}{16}$	<code>\musSixteenth</code>	$\circ.$	<code>\musWholeDotted</code>
$\frac{1}{4}$	<code>\musHalfDotted</code>	$\frac{1}{32}$	<code>\musSixteenthDotted</code>		

`musicography` defines `\fl`, `\sh`, and `\na` as shorthands for `\musFlat`, `\musSharp`, and `\musNatural`, respectively. It also defines `\musCorchea` as an alias for `\musEighth`, `\musCorcheaDotted` as an alias for `\musEighthDotted`, `\musFusa` as an alias for `\musEighth`, `\musFusaDotted` as an alias for `\musEighthDotted`, `\musMinim` as an alias for `\musHalf`, `\musMinimDotted` as an alias for `\musHalfDotted`, `\musSemibreve` as an alias for `\musWhole`, `\musSemibreveDotted` as an alias for `\musWholeDotted`, `\musSemiminim` as an alias for `\musQuarter`, and `\musSemiminiminDotted` as an alias for `\musQuarterDotted`.

The `MusiXTEX` package must be installed to use `musicography`.

TABLE 447: `musicography` Time Signatures

C	<code>\meterC</code>	C_2^3	<code>\meterCThreeTwo</code>	CZ	<code>\meterCZ</code>
C_3	<code>\meterCThree</code>	$\frac{1}{4}$	<code>\meterCutC</code>	\bigcirc	<code>\meter0</code>

Other time signatures can be specified with `\musMeter`, as in

$$\backslash\musMeter{2}{4} \rightarrow \frac{2}{4}$$

The `MusiXTEX` package must be installed to use `musicography`.

TABLE 448: `harmony` Musical Accents

$\widehat{A}\widehat{a}$	<code>\Ferli{A}\Ferli{a}</code> *	$\widehat{A}\widehat{a}$	<code>\Ohne{A}\Ohne{a}</code> *
$\widehat{\widehat{A}}\widehat{a}$	<code>\Fermi{A}\Fermi{a}</code>	$\widetilde{A}\widetilde{a}$	<code>\Umd{A}\Umd{a}</code> *
$(\widehat{A})\widehat{a}$	<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 that accepts five period-separated characters and typesets them such that “`\HH.X.a.b.c.d.`” produces “ $X_a^{b,c,d}$ ”. 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 449: *lilyglyphs* Single Notes

	\eighthNote		\quarterNoteDottedDown
	\eighthNoteDotted		\quarterNoteDown
	\eighthNoteDottedDouble		\sixteenthNote
	\eighthNoteDottedDoubleDown		\sixteenthNoteDotted
	\eighthNoteDottedDown		\sixteenthNoteDottedDouble
	\eighthNoteDown		\sixteenthNoteDottedDoubleDown
	\halfNote		\sixteenthNoteDown
	\halfNoteDotted		\thirtysecondNote
	\halfNoteDottedDouble		\thirtysecondNoteDotted
	\halfNoteDottedDoubleDown		\thirtysecondNoteDottedDouble
	\halfNoteDottedDown		\thirtysecondNoteDottedDoubleDown
	\quarterNote		\thirtysecondNoteDown
	\quarterNoteDotted		\wholeNote
	\quarterNoteDottedDouble		\wholeNoteDotted
	\quarterNoteDottedDoubleDown		

lilyglyphs defines synonyms for all of the preceding symbols:

	\crotchet		\minimDottedDown
	\crotchetDotted		\minimDown
	\crotchetDottedDouble		\quaver
	\crotchetDottedDoubleDown		\quaverDotted
	\crotchetDottedDown		\quaverDottedDouble
	\crotchetDown		\quaverDottedDoubleDown
	\demisemiquaver		\quaverDottedDown
	\demisemiquaverDotted		\quaverDown
	\demisemiquaverDottedDouble		\semibreve
	\demisemiquaverDottedDoubleDown		\semibreveDotted
	\demisemiquaverDottedDown		\semiquaver
	\demisemiquaverDown		\semiquaverDotted
	\minim		\semiquaverDottedDouble
	\minimDotted		\semiquaverDottedDoubleDown
	\minimDottedDouble		\semiquaverDottedDown
	\minimDottedDoubleDown		\semiquaverDown

TABLE 450: *lilyglyphs* Beamed Notes

	\twoBeamedQuavers		\threeBeamedQuaversII
	\threeBeamedQuavers		\threeBeamedQuaversIII
	\threeBeamedQuaversI		

TABLE 451: *lilyglyphs* Clefs

B	<code>\clefc</code>	$\text{D}:$	<code>\clefF</code>	G	<code>\clefG</code>
------------	---------------------	-------------	---------------------	------------	---------------------

Each of these symbols provides a smaller, “inline” form (`\clefCInline`, `\clefFInline`, and `\clefGInline`, respectively) intended for use within a paragraph. See the *lilyglyphs* documentation for more information.

TABLE 452: *lilyglyphs* Time Signatures

C	<code>\lilyTimeC</code>	$\text{C}\frac{1}{2}$	<code>\lilyTimeCHalf</code>
-----	-------------------------	-----------------------	-----------------------------

lilyglyphs also provides a `\lilyTimeSignature` command that lets a user typeset single and compound time signatures by specifying a numerator and a denominator. See the *lilyglyphs* documentation for more information.

TABLE 453: *lilyglyphs* Accidentals

\natural	<code>\doublesharp</code>	\sharp	<code>\sharpArrowdown</code>
\flat	<code>\flat</code>	\sharp	<code>\sharpArrowup</code>
$\flat\flat$	<code>\flatflat</code>	$\sharp\sharp$	<code>\sharpSlashslashslashslashStem</code>
$\natural\flat$	<code>\naturalflat</code>	$\sharp\sharp$	<code>\sharpSlashslashslashslashStemstem</code>
\sharp	<code>\sharp</code>	$\sharp\sharp$	<code>\sharpSlashslashStem</code>
$\sharp\sharp$	<code>\sharpArrowboth</code>	$\sharp\sharp$	<code>\sharpSlashslashStemstemstem</code>

TABLE 454: *lilyglyphs* Rests

$\text{\textit{r}}$	<code>\crotchetRest</code>	$\text{\textit{q.}}$	<code>\quaverRestDotted</code>
$\text{\textit{d}}$	<code>\crotchetRestDotted</code>	$\text{\textit{sd}}$	<code>\semiquaverRest</code>
$\text{\textit{h}}$	<code>\halfNoteRest</code>	$\text{\textit{sqd}}$	<code>\semiquaverRestDotted</code>
$\text{\textit{hd}}$	<code>\halfNoteRestDotted</code>	$\text{\textit{wd}}$	<code>\wholeNoteRest</code>
$\text{\textit{q}}$	<code>\quaverRest</code>	$\text{\textit{wd}}$	<code>\wholeNoteRestDotted</code>

Multiply dotted rests can be produced with the `\lilyPrintMoreDots` command. See the *lilyglyphs* documentation for more information.

TABLE 455: *lilyglyphs* Dynamics Letters

f	\lilyDynamics{f}	r	\lilyDynamics{r}
p	\lilyDynamics{p}	s	\lilyDynamics{s}
m	\lilyDynamics{m}	z	\lilyDynamics{z}
rf	\lilyRF	rfz	\lilyRFZ

These letters and the digits 0–9 are the only alphanumerics defined by *lilyglyphs*'s underlying Emmentaler fonts.

TABLE 456: *lilyglyphs* Dynamics Symbols

<	\creschairpin	>	\decreschairpin
-------------	---------------	-------------	-----------------

TABLE 457: *lilyglyphs* Articulations

>	\lilyAccent	^	\marcato	,	\staccatissimo
<>	\lilyEspressivo	v	\marcatoDown	-	\tenuto
.	\lilyStaccato	=	\portato		
o	\lilyThumb	=	\portatoDown		

TABLE 458: *lilyglyphs* Scripts

	\fermata
--	----------

TABLE 459: *lilyglyphs* Accordion Notation

	\accordionBayanBass		\accordionOldEE		\accordionStdBass
	\accordionDiscant		\accordionPull		
	\accordionFreeBass		\accordionPush		

TABLE 460: *lily\lyphs* Named Time Signatures

⌚	\lilyGlyph{timesig.C22}	⌚	\lilyGlyph{timesig.mensural98}
⌚	\lilyGlyph{timesig.C44}	⌚	\lilyGlyph{timesig.neomensural22}
⌚	\lilyGlyph{timesig.mensural22}	⌚	\lilyGlyph{timesig.neomensural24}
⌚	\lilyGlyph{timesig.mensural24}	⌚	\lilyGlyph{timesig.neomensural32}
⌚	\lilyGlyph{timesig.mensural32}	⌚	\lilyGlyph{timesig.neomensural34}
⌚	\lilyGlyph{timesig.mensural34}	⌚	\lilyGlyph{timesig.neomensural44}
⌚	\lilyGlyph{timesig.mensural44}	⌚	\lilyGlyph{timesig.neomensural48}
⌚	\lilyGlyph{timesig.mensural48}	⌚	\lilyGlyph{timesig.neomensural64}
⌚	\lilyGlyph{timesig.mensural64}	⌚	\lilyGlyph{timesig.neomensural68}
⌚	\lilyGlyph{timesig.mensural68}	⌚	\lilyGlyph{timesig.neomensural68alt}
⌚	\lilyGlyph{timesig.mensural68alt}	⌚	\lilyGlyph{timesig.neomensural94}
⌚	\lilyGlyph{timesig.mensural94}	⌚	\lilyGlyph{timesig.neomensural98}

lily\lyphs defines shorter names for a few of these symbols. See Table 452.

TABLE 461: *lily\lyphs* Named Scripts

↗	\lilyGlyph{scripts.arpeggio}	↖	\lilyGlyph{scripts.prallmordent}
↑	\lilyGlyph{scripts.arpeggio.arrow.1}	↑	\lilyGlyph{scripts.prallprall}
▼	\lilyGlyph{scripts.arpeggio.arrow.M1}	▼	\lilyGlyph{scripts.prallup}
↶	\lilyGlyph{scripts.augmentum}	↶	\lilyGlyph{scripts.rcomma}
ſ	\lilyGlyph{scripts.barline.kievan}	∞	\lilyGlyph{scripts.reverseturn}
〃	\lilyGlyph{scripts.caesura.curved}	〃	\lilyGlyph{scripts.rvarcomma}
〃	\lilyGlyph{scripts.caesura.straight}	‰	\lilyGlyph{scripts.segno}
.	\lilyGlyph{scripts.circulus}	>	\lilyGlyph{scripts.sforzato}
◊	\lilyGlyph{scripts.coda}	◊	\lilyGlyph{scripts.snappizzicato}
.	\lilyGlyph{scripts.daccentus}	.	\lilyGlyph{scripts.staccato}
⌚	\lilyGlyph{scripts.dfermata}	+	\lilyGlyph{scripts.stopped}
⌚	\lilyGlyph{scripts.dlongfermata}	-	\lilyGlyph{scripts.tenuto}
▼	\lilyGlyph{scripts.dmarcato}	◦	\lilyGlyph{scripts.thumb}
□	\lilyGlyph{scripts.downbow}	✓	\lilyGlyph{scripts.tickmark}
„	\lilyGlyph{scripts.downmordent}	•	\lilyGlyph{scripts.trilelement}
„	\lilyGlyph{scripts.downprall}	tr	\lilyGlyph{scripts.trill}
„	\lilyGlyph{scripts.dpedalheel}	~	\lilyGlyph{scripts.trill_element}
^	\lilyGlyph{scripts.dpedaltoe}	∞	\lilyGlyph{scripts.turn}
~	\lilyGlyph{scripts.dportato}	.	\lilyGlyph{scripts.uaccentus}
.	\lilyGlyph{scripts.dsemicirculus}	⌚	\lilyGlyph{scripts.ufermata}* ⌚
V	\lilyGlyph{scripts.dshortfermata}	▬	\lilyGlyph{scripts.ulongfermata}
S	\lilyGlyph{scripts.dsignumcongruentiae}	^	\lilyGlyph{scripts.umarcato}
·	\lilyGlyph{scripts.dstaccatissimo}	∨	\lilyGlyph{scripts.upbow}
▬	\lilyGlyph{scripts.dverylongfermata}	υ	\lilyGlyph{scripts.upedalheel}
<→	\lilyGlyph{scripts.espr}	∨	\lilyGlyph{scripts.upedaltoe}
○	\lilyGlyph{scripts.flageolet}	„	\lilyGlyph{scripts.upmordent}
ø	\lilyGlyph{scripts.halfopen}	~	\lilyGlyph{scripts.uportato}
◊	\lilyGlyph{scripts.halfopenvertical}	„	\lilyGlyph{scripts.uprall}
.	\lilyGlyph{scripts.ictus}	.	\lilyGlyph{scripts.usemicirculus}
‘	\lilyGlyph{scripts.lcomma}	À	\lilyGlyph{scripts.ushortfermata}

(continued on next page)

(continued from previous page)

\lilyGlyph{scripts.lineprall}	\lilyGlyph{scripts.usignumcongruentiae}
/ \lilyGlyph{scripts.lvarcomma}	, \lilyGlyph{scripts.ustaccatissimo}
\lilyGlyph{scripts.mordent}	\lilyGlyph{scripts.uverylongfermata}
o \lilyGlyph{scripts.open}	\lilyGlyph{scripts.varcoda}
\lilyGlyph{scripts.prall}	\lilyGlyph{scripts.varsegno}
\lilyGlyph{scripts.pralldown}	

* *lilyglypbs* defines \fermata as a shorter name for “♪” than \lilyGlyph{scripts.ufermata}. See Table 458.

TABLE 462: *lilyglypbs* Named Rests

- \lilyGlyph{rests.0}	\lilyGlyph{rests.4mensural}
- \lilyGlyph{rests.0mensural}	\lilyGlyph{rests.4neomensural}
- \lilyGlyph{rests.0neomensural}	\lilyGlyph{rests.5}
- \lilyGlyph{rests.0o}* \lilyGlyph{rests.1}	\lilyGlyph{rests.6}
- \lilyGlyph{rests.1mensural}	\lilyGlyph{rests.7}
- \lilyGlyph{rests.1neomensural}	\lilyGlyph{rests.M1}
- \lilyGlyph{rests.1o}* \lilyGlyph{rests.2}	\lilyGlyph{rests.M1mensural}
- \lilyGlyph{rests.2classical}	\lilyGlyph{rests.M1neomensural}
- \lilyGlyph{rests.2mensural}	\lilyGlyph{rests.M1o}
- \lilyGlyph{rests.2neomensural}	\lilyGlyph{rests.M2}
- \lilyGlyph{rests.3}* \lilyGlyph{rests.3mensural}	\lilyGlyph{rests.M2mensural}
- \lilyGlyph{rests.3neomensural}	\lilyGlyph{rests.M2neomensural}
- \lilyGlyph{rests.4}* \lilyGlyph{rests.4}	\lilyGlyph{rests.M3}
	\lilyGlyph{rests.M3mensural}
	\lilyGlyph{rests.M3neomensural}

* *lilyglypbs* defines shorter names for these symbols. See Table 454.

TABLE 463: *lilyglypbs* Named Pedals

* \lilyGlyph{pedal.*}	\lilyGlyph{pedal.M}
. \lilyGlyph{pedal..}	\lilyGlyph{pedal.P}
\lilyGlyph{pedal.d}	\lilyGlyph{pedal.Ped}
\lilyGlyph{pedal.e}	

TABLE 464: *lilyglyphs* Named Flags

↗ \lilyGlyph{flags.d3}	↗ \lilyGlyph{flags.mensuralu03}
↗ \lilyGlyph{flags.d4}	↗ \lilyGlyph{flags.mensuralu04}
↗ \lilyGlyph{flags.d5}	↗ \lilyGlyph{flags.mensuralu05}
↗ \lilyGlyph{flags.d6}	↗ \lilyGlyph{flags.mensuralu06}
↗ \lilyGlyph{flags.d7}	↗ \lilyGlyph{flags.mensuralu13}
↖ \lilyGlyph{flags.dgrace}	↗ \lilyGlyph{flags.mensuralu14}
↖ \lilyGlyph{flags.mensurald03}	↗ \lilyGlyph{flags.mensuralu15}
↖ \lilyGlyph{flags.mensurald04}	↗ \lilyGlyph{flags.mensuralu16}
↖ \lilyGlyph{flags.mensurald05}	↗ \lilyGlyph{flags.mensuralu23}
↖ \lilyGlyph{flags.mensurald06}	↗ \lilyGlyph{flags.mensuralu24}
↖ \lilyGlyph{flags.mensurald13}	↗ \lilyGlyph{flags.mensuralu25}
↖ \lilyGlyph{flags.mensurald14}	↗ \lilyGlyph{flags.mensuralu26}
↖ \lilyGlyph{flags.mensurald15}	↗ \lilyGlyph{flags.u3}
↖ \lilyGlyph{flags.mensurald16}	↗ \lilyGlyph{flags.u4}
↖ \lilyGlyph{flags.mensurald23}	↗ \lilyGlyph{flags.u5}
↖ \lilyGlyph{flags.mensurald24}	↗ \lilyGlyph{flags.u6}
↖ \lilyGlyph{flags.mensurald25}	↗ \lilyGlyph{flags.u7}
↖ \lilyGlyph{flags.mensurald26}	↗ \lilyGlyph{flags.ugrace}

TABLE 465: *lilyglyphs* Named Custodes

↖ \lilyGlyph{custodes.hufnagel.d0}	↖ \lilyGlyph{custodes.mensural.d0}
↖ \lilyGlyph{custodes.hufnagel.d1}	↖ \lilyGlyph{custodes.mensural.d1}
↖ \lilyGlyph{custodes.hufnagel.d2}	↖ \lilyGlyph{custodes.mensural.d2}
↙ \lilyGlyph{custodes.hufnagel.u0}	↙ \lilyGlyph{custodes.mensural.u0}
↙ \lilyGlyph{custodes.hufnagel.u1}	↙ \lilyGlyph{custodes.mensural.u1}
↙ \lilyGlyph{custodes.hufnagel.u2}	↙ \lilyGlyph{custodes.mensural.u2}
↖ \lilyGlyph{custodes.medicaea.d0}	↖ \lilyGlyph{custodes.vaticana.d0}
↖ \lilyGlyph{custodes.medicaea.d1}	↖ \lilyGlyph{custodes.vaticana.d1}
↖ \lilyGlyph{custodes.medicaea.d2}	↖ \lilyGlyph{custodes.vaticana.d2}
↖ \lilyGlyph{custodes.medicaea.u0}	↖ \lilyGlyph{custodes.vaticana.u0}
↖ \lilyGlyph{custodes.medicaea.u1}	↖ \lilyGlyph{custodes.vaticana.u1}
↖ \lilyGlyph{custodes.medicaea.u2}	↖ \lilyGlyph{custodes.vaticana.u2}

TABLE 466: *lilyglyphs* Named Clefs

	\lilyGlyph{clefs.blackmensural.c}		\lilyGlyph{clefs.mensural.g_change}
	\lilyGlyph{clefs.blackmensural.c_change}		\lilyGlyph{clefs.neomensural.c}
	\lilyGlyph{clefs.C}*		\lilyGlyph{clefs.neomensural.c_change}
	\lilyGlyph{clefs.C_change}*		\lilyGlyph{clefs.percussion}
	\lilyGlyph{clefs.F}*		\lilyGlyph{clefs.percussion_change}
	\lilyGlyph{clefs.F_change}*		\lilyGlyph{clefs.petrucci.c1}
	\lilyGlyph{clefs.G}*		\lilyGlyph{clefs.petrucci.c1_change}
	\lilyGlyph{clefs.G_change}*		\lilyGlyph{clefs.petrucci.c2}
	\lilyGlyph{clefs.hufnagel.do}		\lilyGlyph{clefs.petrucci.c2_change}
	\lilyGlyph{clefs.hufnagel.do.fa}		\lilyGlyph{clefs.petrucci.c3}
	\lilyGlyph{clefs.hufnagel.do.fa_change}		\lilyGlyph{clefs.petrucci.c3_change}
	\lilyGlyph{clefs.hufnagel.do_change}		\lilyGlyph{clefs.petrucci.c4}
	\lilyGlyph{clefs.hufnagel.fa}		\lilyGlyph{clefs.petrucci.c4_change}
	\lilyGlyph{clefs.hufnagel.fa_change}		\lilyGlyph{clefs.petrucci.c5}
	\lilyGlyph{clefs.kievan.do}		\lilyGlyph{clefs.petrucci.c5_change}
	\lilyGlyph{clefs.kievan.do_change}		\lilyGlyph{clefs.petrucci.f}
	\lilyGlyph{clefs.medicea.do}		\lilyGlyph{clefs.petrucci.f_change}
	\lilyGlyph{clefs.medicea.do_change}		\lilyGlyph{clefs.petrucci.g}
	\lilyGlyph{clefs.medicea.fa}		\lilyGlyph{clefs.petrucci.g_change}
	\lilyGlyph{clefs.medicea.fa_change}		\lilyGlyph{clefs.tab}
	\lilyGlyph{clefs.mensural.c}		\lilyGlyph{clefs.tab_change}
	\lilyGlyph{clefs.mensural.c_change}		\lilyGlyph{clefs.vaticana.do}
	\lilyGlyph{clefs.mensural.f}		\lilyGlyph{clefs.vaticana.do_change}
	\lilyGlyph{clefs.mensural.f_change}		\lilyGlyph{clefs.vaticana.fa}
	\lilyGlyph{clefs.mensural.g}		\lilyGlyph{clefs.vaticana.fa_change}

* *lilyglyphs* defines shorter names for these symbols. See Table 451.

TABLE 467: *lilyGlyphs* Named Noteheads

```
\lilyGlyph{noteheads . d0doFunk}
\lilyGlyph{noteheads . d0fa}
\lilyGlyph{noteheads . d0faFunk}
\lilyGlyph{noteheads . d0faThin}
\lilyGlyph{noteheads . d0miFunk}
\lilyGlyph{noteheads . d0reFunk}
\lilyGlyph{noteheads . d0tiFunk}
\lilyGlyph{noteheads . d1do}
\lilyGlyph{noteheads . d1doFunk}
\lilyGlyph{noteheads . d1doThin}
\lilyGlyph{noteheads . d1doWalker}
\lilyGlyph{noteheads . d1fa}
\lilyGlyph{noteheads . d1faFunk}
\lilyGlyph{noteheads . d1faThin}
\lilyGlyph{noteheads . d1faWalker}
\lilyGlyph{noteheads . d1miFunk}
\lilyGlyph{noteheads . d1re}
\lilyGlyph{noteheads . d1reFunk}
\lilyGlyph{noteheads . d1reThin}
\lilyGlyph{noteheads . d1reWalker}
\lilyGlyph{noteheads . d1ti}
\lilyGlyph{noteheads . d1tiFunk}
\lilyGlyph{noteheads . d1tiThin}
\lilyGlyph{noteheads . d1tiWalker}
\lilyGlyph{noteheads . d1triangle}
\lilyGlyph{noteheads . d2do}
\lilyGlyph{noteheads . d2doFunk}
\lilyGlyph{noteheads . d2doThin}
\lilyGlyph{noteheads . d2doWalker}
\lilyGlyph{noteheads . d2fa}
\lilyGlyph{noteheads . d2faFunk}
\lilyGlyph{noteheads . d2faThin}
\lilyGlyph{noteheads . d2faWalker}
\lilyGlyph{noteheads . d2kievan}
\lilyGlyph{noteheads . d2re}
\lilyGlyph{noteheads . d2reFunk}
\lilyGlyph{noteheads . d2reThin}
\lilyGlyph{noteheads . d2reWalker}
\lilyGlyph{noteheads . d2ti}
\lilyGlyph{noteheads . d2tiFunk}
\lilyGlyph{noteheads . d2tiThin}
\lilyGlyph{noteheads . d2tiWalker}
\lilyGlyph{noteheads . d2triangle}
\lilyGlyph{noteheads . d3kievan}
\lilyGlyph{noteheads . dM2}
\lilyGlyph{noteheads . dM2blackmensural}
\lilyGlyph{noteheads . dM2mensural}
\lilyGlyph{noteheads . dM2neomensural}
\lilyGlyph{noteheads . dM2semimensural}
\lilyGlyph{noteheads . dM3blackmensural}
```

(continued on next page)

(continued from previous page)

\lilyGlyph{noteheads.dM3mensural}
\lilyGlyph{noteheads.dM3neomensural}
\lilyGlyph{noteheads.dM3semimensural}
\lilyGlyph{noteheads.drM2mensural}
\lilyGlyph{noteheads.drM2neomensural}
\lilyGlyph{noteheads.drM2semimensural}
\lilyGlyph{noteheads.drM3mensural}
\lilyGlyph{noteheads.drM3neomensural}
\lilyGlyph{noteheads.drM3semimensural}
\lilyGlyph{noteheads.s0}
\lilyGlyph{noteheads.s0blackmensural}
\lilyGlyph{noteheads.s0blackpetrucci}
\lilyGlyph{noteheads.s0cross}
\lilyGlyph{noteheads.s0diamond}
\lilyGlyph{noteheads.s0do}
\lilyGlyph{noteheads.s0doThin}
\lilyGlyph{noteheads.s0doWalker}
\lilyGlyph{noteheads.s0faWalker}
\lilyGlyph{noteheads.s0harmonic}
\lilyGlyph{noteheads.s0kievan}
\lilyGlyph{noteheads.s0la}
\lilyGlyph{noteheads.s0laFunk}
\lilyGlyph{noteheads.s0laThin}
\lilyGlyph{noteheads.s0laWalker}
\lilyGlyph{noteheads.s0mensural}
\lilyGlyph{noteheads.s0mi}
\lilyGlyph{noteheads.s0miMirror}
\lilyGlyph{noteheads.s0miThin}
\lilyGlyph{noteheads.s0miWalker}
\lilyGlyph{noteheads.s0neomensural}
\lilyGlyph{noteheads.s0petrucci}
\lilyGlyph{noteheads.s0re}
\lilyGlyph{noteheads.s0reThin}
\lilyGlyph{noteheads.s0reWalker}
\lilyGlyph{noteheads.s0slash}
\lilyGlyph{noteheads.s0sol}
\lilyGlyph{noteheads.s0solFunk}
\lilyGlyph{noteheads.s0ti}
\lilyGlyph{noteheads.s0tiThin}
\lilyGlyph{noteheads.s0tiWalker}
\lilyGlyph{noteheads.s0triangle}
\lilyGlyph{noteheads.s1}
\lilyGlyph{noteheads.s1blackpetrucci}
\lilyGlyph{noteheads.s1cross}
\lilyGlyph{noteheads.s1diamond}
\lilyGlyph{noteheads.s1kievan}
\lilyGlyph{noteheads.s1la}
\lilyGlyph{noteheads.s1laFunk}
\lilyGlyph{noteheads.s1laThin}
\lilyGlyph{noteheads.s1laWalker}
\lilyGlyph{noteheads.s1mensural}
\lilyGlyph{noteheads.s1mi}
\lilyGlyph{noteheads.s1miMirror}

(continued on next page)

(continued from previous page)

◦ \lilyGlyph{noteheads.s1miThin}
◦ \lilyGlyph{noteheads.s1miWalker}
◦ \lilyGlyph{noteheads.s1neomensural}
◊ \lilyGlyph{noteheads.s1petrucci}
// \lilyGlyph{noteheads.s1slash}
◦ \lilyGlyph{noteheads.s1sol}
◦ \lilyGlyph{noteheads.s1solFunk}
• \lilyGlyph{noteheads.s2}
♦ \lilyGlyph{noteheads.s2blackpetrucci}
× \lilyGlyph{noteheads.s2cross}
✓ \lilyGlyph{noteheads.s2diamond}
◆ \lilyGlyph{noteheads.s2harmonic}
■ \lilyGlyph{noteheads.s2la}
■ \lilyGlyph{noteheads.s2laFunk}
■ \lilyGlyph{noteheads.s2laThin}
■ \lilyGlyph{noteheads.s2laWalker}
· \lilyGlyph{noteheads.s2mensural}
♦ \lilyGlyph{noteheads.s2mi}
♦ \lilyGlyph{noteheads.s2miFunk}
♦ \lilyGlyph{noteheads.s2miMirror}
♦ \lilyGlyph{noteheads.s2miThin}
♦ \lilyGlyph{noteheads.s2miWalker}
♦ \lilyGlyph{noteheads.s2neomensural}
♦ \lilyGlyph{noteheads.s2petrucci}
/ \lilyGlyph{noteheads.s2slash}
• \lilyGlyph{noteheads.s2sol}
• \lilyGlyph{noteheads.s2solFunk}
⊗ \lilyGlyph{noteheads.s2xcircle}
- \lilyGlyph{noteheads.shufnagel.lpes}
◦ \lilyGlyph{noteheads.shufnagel.punctum}
↑ \lilyGlyph{noteheads.shufnagel.virga}
◎ \lilyGlyph{noteheads.sM1}
■ \lilyGlyph{noteheads.sM1blackmensural}
◎ \lilyGlyph{noteheads.sM1double}
■ ■ \lilyGlyph{noteheads.sM1kievan}
■ \lilyGlyph{noteheads.sM1mensural}
■ ■ \lilyGlyph{noteheads.sM1neomensural}
■ ■ \lilyGlyph{noteheads.sM1semimensural}
■ \lilyGlyph{noteheads.sM2blackligmensural}
■ \lilyGlyph{noteheads.sM2kievan}
■ \lilyGlyph{noteheads.sM2ligmensural}
■ \lilyGlyph{noteheads.sM2semiligmensural}
■ \lilyGlyph{noteheads.sM3blackligmensural}
■ ■ \lilyGlyph{noteheads.sM3ligmensural}
■ ■ \lilyGlyph{noteheads.sM3semiligmensural}
♦ \lilyGlyph{noteheads.smedicaea.inclinatum}
■ \lilyGlyph{noteheads.smedicaea.punctum}
■ ■ \lilyGlyph{noteheads.smedicaea.rvirga}
■ \lilyGlyph{noteheads.smedicaea.virga}
■ \lilyGlyph{noteheads.sr1kievan}
■ \lilyGlyph{noteheads.srM1mensural}
■ ■ \lilyGlyph{noteheads.srM1neomensural}
■ ■ \lilyGlyph{noteheads.srM1semimensural}

(continued on next page)

(continued from previous page)

```
■      \lilyGlyph{noteheads.srM2ligmensural}
■      \lilyGlyph{noteheads.srM2semiligmensural}
■      \lilyGlyph{noteheads.srM3ligmensural}
■      \lilyGlyph{noteheads.srM3semiligmensural}
·      \lilyGlyph{noteheads.ssolesmes.auct.asc}
·      \lilyGlyph{noteheads.ssolesmes.auct.desc}
·      \lilyGlyph{noteheads.ssolesmes.incl.auctum}
·      \lilyGlyph{noteheads.ssolesmes.incl.parvum}
·      \lilyGlyph{noteheads.ssolesmes.oriscus}
·      \lilyGlyph{noteheads.ssolesmes.stropha}
·      \lilyGlyph{noteheads.ssolesmes.stropha.aucta}
·      \lilyGlyph{noteheads.svaticana.cehalicus}
·      \lilyGlyph{noteheads.svaticana.epiphonus}
·      \lilyGlyph{noteheads.svaticana.inclinatum}
·      \lilyGlyph{noteheads.svaticana.inner.cehalicus}
·      \lilyGlyph{noteheads.svaticana.linea.punctum}
·      \lilyGlyph{noteheads.svaticana.linea.punctum.cavum}
·      \lilyGlyph{noteheads.svaticana.lpes}
·      \lilyGlyph{noteheads.svaticana.plica}
·      \lilyGlyph{noteheads.svaticana.punctum}
·      \lilyGlyph{noteheads.svaticana.punctum.cavum}
·      \lilyGlyph{noteheads.svaticana.quilisma}
·      \lilyGlyph{noteheads.svaticana.reverse.plica}
·      \lilyGlyph{noteheads.svaticana.reverse.vplica}
·      \lilyGlyph{noteheads.svaticana.upes}
·      \lilyGlyph{noteheads.svaticana.vephonous}
·      \lilyGlyph{noteheads.svaticana.vlpes}
·      \lilyGlyph{noteheads.svaticana.vuples}
·      \lilyGlyph{noteheads.u0doFunk}
·      \lilyGlyph{noteheads.u0fa}
·      \lilyGlyph{noteheads.u0faFunk}
·      \lilyGlyph{noteheads.u0faThin}
·      \lilyGlyph{noteheads.u0miFunk}
·      \lilyGlyph{noteheads.u0reFunk}
·      \lilyGlyph{noteheads.u0tiFunk}
·      \lilyGlyph{noteheads.u1do}
·      \lilyGlyph{noteheads.u1doFunk}
·      \lilyGlyph{noteheads.u1doThin}
·      \lilyGlyph{noteheads.u1doWalker}
·      \lilyGlyph{noteheads.u1fa}
·      \lilyGlyph{noteheads.u1faFunk}
·      \lilyGlyph{noteheads.u1faThin}
·      \lilyGlyph{noteheads.u1faWalker}
·      \lilyGlyph{noteheads.u1miFunk}
·      \lilyGlyph{noteheads.u1re}
·      \lilyGlyph{noteheads.u1reFunk}
·      \lilyGlyph{noteheads.u1reThin}
·      \lilyGlyph{noteheads.u1reWalker}
·      \lilyGlyph{noteheads.u1ti}
·      \lilyGlyph{noteheads.u1tiFunk}
·      \lilyGlyph{noteheads.u1tiThin}
·      \lilyGlyph{noteheads.u1tiWalker}
```

(continued on next page)

(continued from previous page)

```

▷   \lilyGlyph{noteheads.u1triangle}
▲   \lilyGlyph{noteheads.u2do}
■   \lilyGlyph{noteheads.u2doFunk}
▲   \lilyGlyph{noteheads.u2doThin}
▼   \lilyGlyph{noteheads.u2doWalker}
▲   \lilyGlyph{noteheads.u2fa}
▼   \lilyGlyph{noteheads.u2faFunk}
▲   \lilyGlyph{noteheads.u2faThin}
▼   \lilyGlyph{noteheads.u2faWalker}
▲   \lilyGlyph{noteheads.u2kievan}
■   \lilyGlyph{noteheads.u2re}
▷   \lilyGlyph{noteheads.u2reFunk}
■   \lilyGlyph{noteheads.u2reThin}
▷   \lilyGlyph{noteheads.u2reWalker}
▲   \lilyGlyph{noteheads.u2ti}
■   \lilyGlyph{noteheads.u2tiFunk}
■   \lilyGlyph{noteheads.u2tiThin}
▼   \lilyGlyph{noteheads.u2tiWalker}
▷   \lilyGlyph{noteheads.u2triangle}
■   \lilyGlyph{noteheads.u3kievan}

\lilyGlyph{noteheads.uM2}
\lilyGlyph{noteheads.uM2blackmensural}
\lilyGlyph{noteheads.uM2mensural}
\lilyGlyph{noteheads.uM2neomensural}
\lilyGlyph{noteheads.uM2semimensural}
\lilyGlyph{noteheads.uM3blackmensural}
\lilyGlyph{noteheads.uM3mensural}
\lilyGlyph{noteheads.uM3neomensural}
\lilyGlyph{noteheads.uM3semimensural}
\lilyGlyph{noteheads.urM2mensural}
\lilyGlyph{noteheads.urM2neomensural}
\lilyGlyph{noteheads.urM2semimensural}
\lilyGlyph{noteheads.urM3mensural}
\lilyGlyph{noteheads.urM3neomensural}
\lilyGlyph{noteheads.urM3semimensural}

```

TABLE 468: *lilyglyphs* Named Accordion Symbols

☰	\lilyGlyph{accordion.bayanbass}	◎	\lilyGlyph{accordion.oldEE}
⊖	\lilyGlyph{accordion.discant}	˥	\lilyGlyph{accordion.pull}
.	\lilyGlyph{accordion.dot}	>	\lilyGlyph{accordion.push}
⊖	\lilyGlyph{accordion.freebass}	⊕	\lilyGlyph{accordion.stdbass}

lilyglyphs defines shorter names for all of these symbols except \lilyGlyph{accordion.dot}. See Table 459.

TABLE 469: *lilyglyp̄bs* Named Accidentals

```

\x \lilyGlyph{accidentals.doublesharp}*
\b \lilyGlyph{accidentals.flat}*
\uparrow \lilyGlyph{accidentals.flat.arrowboth}
\downarrow \lilyGlyph{accidentals.flat.arrowdown}
\uparrow\downarrow \lilyGlyph{accidentals.flat.arrowup}
\flat \lilyGlyph{accidentals.flat.slash}
\flat\flat \lilyGlyph{accidentals.flat.slashslash}
\flat\flat\flat \lilyGlyph{accidentals.flatflat}*
\flat\flat\flat\flat \lilyGlyph{accidentals.flatflat.slash}
\flat\flat\flat\flat\flat \lilyGlyph{accidentals.hufnagelM1}
\k \lilyGlyph{accidentals.kievan1}
\l \lilyGlyph{accidentals.kievanM1}
( \lilyGlyph{accidentals.leftparen}
) \lilyGlyph{accidentals.medicaeaM1}
*x \lilyGlyph{accidentals.mensural1}
\flat\flat\flat\flat\flat \lilyGlyph{accidentals.mensuralM1}
\d \lilyGlyph{accidentals.mirroredflat}
\d\flat \lilyGlyph{accidentals.mirroredflat.backslash}
\d\flat\flat \lilyGlyph{accidentals.mirroredflat.flat}
\natural \lilyGlyph{accidentals.natural}*
\uparrow\downarrow\downarrow \lilyGlyph{accidentals.natural.arrowboth}
\uparrow\downarrow\downarrow\downarrow \lilyGlyph{accidentals.natural.arrowdown}
\uparrow\uparrow\downarrow \lilyGlyph{accidentals.natural.arrowup}
) \lilyGlyph{accidentals.rightparen}
\sharp \lilyGlyph{accidentals.sharp}*
\sharp\sharp \lilyGlyph{accidentals.sharp.arrowboth}*
\sharp\sharp\sharp \lilyGlyph{accidentals.sharp.arrowdown}*
\sharp\sharp\sharp\sharp \lilyGlyph{accidentals.sharp.arrowup}*
\sharp\sharp\sharp\sharp\sharp \lilyGlyph{accidentals.sharp.slashslash.stem}*
\sharp\sharp\sharp\sharp\sharp\sharp \lilyGlyph{accidentals.sharp.slashslash.stemstem}*
\sharp\sharp\sharp\sharp\sharp\sharp\sharp \lilyGlyph{accidentals.sharp.slashslashslash.stem}*
\sharp\sharp\sharp\sharp\sharp\sharp\sharp\sharp \lilyGlyph{accidentals.sharp.slashslashslash.stemstem}*
\flat\flat\flat\flat\flat\flat \lilyGlyph{accidentals.vaticana0}
\flat\flat\flat\flat\flat\flat\flat \lilyGlyph{accidentals.vaticanaM1}

```

* *lilyglyp̄bs* defines shorter names for these symbols. See Table 453.

TABLE 470: *lilyglyp̄bs* Named Arrowheads

→ \lilyGlyph{arrowheads.close.01}	→ \lilyGlyph{arrowheads.open.01}
← \lilyGlyph{arrowheads.close.0M1}	< \lilyGlyph{arrowheads.open.0M1}
▲ \lilyGlyph{arrowheads.close.11}	^ \lilyGlyph{arrowheads.open.11}
▼ \lilyGlyph{arrowheads.close.1M1}	▼ \lilyGlyph{arrowheads.open.1M1}

TABLE 471: *lilyglyphs* Named Alphanumerics and Punctuation

0	\lilyGlyph{zero}	4	\lilyGlyph{four}	8	\lilyGlyph{eight}
1	\lilyGlyph{one}	5	\lilyGlyph{five}	9	\lilyGlyph{nine}
2	\lilyGlyph{two}	6	\lilyGlyph{six}		
3	\lilyGlyph{three}	7	\lilyGlyph{seven}		
f	\lilyGlyph{f}	p	\lilyGlyph{p}	s	\lilyGlyph{s}
m	\lilyGlyph{m}	r	\lilyGlyph{r}	z	\lilyGlyph{z}
,	\lilyGlyph{comma}	.	\lilyGlyph{period}		
-	\lilyGlyph{hyphen}	+	\lilyGlyph{plus}		

See Table 455 for an alternative way to typeset dynamics letters. *lilyglyphs* additionally provides a \lilyText command that can be useful for typesetting groups of the preceding symbols. See the *lilyglyphs* documentation for more information.

TABLE 472: Miscellaneous *lilyglyphs* Named Musical Symbols

~	\lilyGlyph{brackettips.down}	.	\lilyGlyph{dots.dotvaticana}
~	\lilyGlyph{brackettips.up}	_	\lilyGlyph{ties.lyric.default}
.	\lilyGlyph{dots.dot}	_	\lilyGlyph{ties.lyric.short}
•	\lilyGlyph{dots.dotkievan}		

8 Gaming symbols

This section presents symbols related to games and gaming: playing-card suits, dice, and symbols used to represent pieces and moves in various games. Additional gaming symbols appear in Section 10, but those symbols are delivered by packages that provide minimal L^AT_EX support.

TABLE 473: L^AT_EX 2 _{ε} Playing-Card Suits

```
♣ \clubsuit ♦ \diamondsuit ♥ \heartsuit ♠ \spadesuit
```

TABLE 474: txfonts/pxfonts Playing-Card Suits

```
◊ \varclubsuit ♦ \vardiamondsuit ♥ \varheartsuit ♣ \varsuit
```

TABLE 475: MnSymbol Playing-Card Suits

```
♣ \clubsuit ♦ \diamondsuit ♥ \heartsuit ♠ \spadesuit
```

TABLE 476: fdsymbol Playing-Card Suits

```
♣ \clubsuit ♥ \heartsuit ♦ \vardiamondsuit  
◊ \diamondsuit ♠ \spadesuit ♥ \varheartsuit
```

TABLE 477: boisik Playing-Card Suits

```
♣ \clubsuit ♦ \diamondsuit ♥ \heartsuit ♠ \spadesuit
```

TABLE 478: stix Playing-Card Suits

```
♣ \clubsuit ♥ \heartsuit ♧ \varclubsuit ♥ \varheartsuit  
◊ \diamondsuit ♠ \spadesuit ♦ \vardiamondsuit ♣ \varsuit
```

TABLE 479: arev Playing-Card Suits

```
◊ \varclub ♦ \vardiamond ♥ \varheart ♣ \varspade
```

TABLE 480: twemojis Playing-Card Suits

```
♣ \twemoji{club suit} ♥ \twemoji{heart suit}  
♦ \twemoji{diamond suit} ♠ \twemoji{spade suit}
```

Most twemojis symbols have multiple names. Only the most descriptive name for each symbol is shown in this table.

All twemojis symbols are implemented as PDF graphics, not with a font.

TABLE 481: `utfsym` Playing-Card Suits

♠	<code>\usym{2660}</code>	♦	<code>\usym{2662}</code>	♣	<code>\usym{2664}</code>	♦	<code>\usym{2666}</code>
♥	<code>\usym{2661}</code>	♣	<code>\usym{2663}</code>	♥	<code>\usym{2665}</code>	♣	<code>\usym{2667}</code>

All `utfsym` symbols are implemented with TikZ graphics, not with a font. In addition to `\usym`, the `utfsym` package defines `\usymH`, which renders a symbol at a given height, and `\usymW`, which renders a symbol at a given width. See the `utfsym` documentation for more information.

TABLE 482: `utfsym` Playing Cards

🂱	<code>\usym{1F0A0}</code>	🂲	<code>\usym{1F0B7}</code>	🂳	<code>\usym{1F0CD}</code>	🂴	<code>\usym{1F0E3}</code>
🂲	<code>\usym{1F0A1}</code>	🂳	<code>\usym{1F0B8}</code>	🂴	<code>\usym{1F0CE}</code>	🂵	<code>\usym{1F0E4}</code>
🂳	<code>\usym{1F0A2}</code>	🂴	<code>\usym{1F0B9}</code>	🂶	<code>\usym{1F0CF}</code>	🂷	<code>\usym{1F0E5}</code>
🂴	<code>\usym{1F0A3}</code>	🂵	<code>\usym{1F0BA}</code>	🂸	<code>\usym{1F0D1}</code>	🂹	<code>\usym{1F0E6}</code>
🂵	<code>\usym{1F0A4}</code>	🂶	<code>\usym{1F0BB}</code>	🂺	<code>\usym{1F0D2}</code>	🂻	<code>\usym{1F0E7}</code>
🂶	<code>\usym{1F0A5}</code>	🂺	<code>\usym{1F0BC}</code>	🂻	<code>\usym{1F0D3}</code>	🂻	<code>\usym{1F0E8}</code>
🂺	<code>\usym{1F0A6}</code>	🂻	<code>\usym{1F0BD}</code>	🂻	<code>\usym{1F0D4}</code>	🂻	<code>\usym{1F0E9}</code>
🂻	<code>\usym{1F0A7}</code>	🂻	<code>\usym{1F0BE}</code>	🂻	<code>\usym{1F0D5}</code>	🂻	<code>\usym{1F0EA}</code>
🂻	<code>\usym{1F0A8}</code>	🂻	<code>\usym{1F0BF}</code>	🂻	<code>\usym{1F0D6}</code>	🂻	<code>\usym{1F0EB}</code>
🂻	<code>\usym{1F0A9}</code>	🂻	<code>\usym{1F0C1}</code>	🂻	<code>\usym{1F0D7}</code>	🂻	<code>\usym{1F0EC}</code>
🂻	<code>\usym{1F0AA}</code>	🂻	<code>\usym{1F0C2}</code>	🂻	<code>\usym{1F0D8}</code>	🂻	<code>\usym{1F0ED}</code>
🂻	<code>\usym{1F0AB}</code>	🂻	<code>\usym{1F0C3}</code>	🂻	<code>\usym{1F0D9}</code>	🂻	<code>\usym{1F0EE}</code>
🂻	<code>\usym{1F0AC}</code>	🂻	<code>\usym{1F0C4}</code>	🂻	<code>\usym{1F0DA}</code>	🂻	<code>\usym{1F0EF}</code>
🂻	<code>\usym{1F0AD}</code>	🂻	<code>\usym{1F0C5}</code>	🂻	<code>\usym{1F0DB}</code>	🂻	<code>\usym{1F0FO}</code>
🂻	<code>\usym{1F0AE}</code>	🂻	<code>\usym{1F0C6}</code>	🂻	<code>\usym{1F0DC}</code>	🂻	<code>\usym{1F0F1}</code>
🂻	<code>\usym{1F0B1}</code>	🂻	<code>\usym{1F0C7}</code>	🂻	<code>\usym{1F0DD}</code>	🂻	<code>\usym{1F0F2}</code>
🂻	<code>\usym{1F0B2}</code>	🂻	<code>\usym{1F0C8}</code>	🂻	<code>\usym{1F0DE}</code>	🂻	<code>\usym{1F0F3}</code>
🂻	<code>\usym{1F0B3}</code>	🂻	<code>\usym{1F0C9}</code>	🂻	<code>\usym{1F0DF}</code>	🂻	<code>\usym{1F0F4}</code>
🂻	<code>\usym{1F0B4}</code>	🂻	<code>\usym{1F0CA}</code>	🂻	<code>\usym{1F0EO}</code>	🂻	<code>\usym{1F0F5}</code>
🂻	<code>\usym{1F0B5}</code>	🂻	<code>\usym{1F0CB}</code>	🂻	<code>\usym{1F0E1}</code>		
🂻	<code>\usym{1F0B6}</code>	🂻	<code>\usym{1F0CC}</code>	🂻	<code>\usym{1F0E2}</code>		

All `utfsym` symbols are implemented with TikZ graphics, not with a font. In addition to `\usym`, the `utfsym` package defines `\usymH`, which renders a symbol at a given height, and `\usymW`, which renders a symbol at a given width. For example, “`\usymH{1F0BE}{36pt}`” produces



See the `utfsym` documentation for more information.

TABLE 483: `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>

TABLE 484: hhcount Dice

<input type="checkbox"/> \fcdice{1}	<input checked="" type="checkbox"/> \fcdice{3}	<input type="checkbox"/> \fcdice{5}
<input checked="" type="checkbox"/> \fcdice{2}	<input type="checkbox"/> \fcdice{4}	<input type="checkbox"/> \fcdice{6}

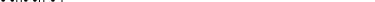
The `\fcdice` command accepts values larger than 6. For example, “`\fcdice{47}`” produces “”.

TABLE 485: stix Dice

\dicei \diceiii \dicev
 \diceii \diceiv \dicevi

TABLE 486: ifsym Dice

	\Cube{1}		\Cube{3}		\Cube{5}
	\Cube{2}		\Cube{4}		\Cube{6}

TABLE 487: utfsym Dice

\usym{2680} \usym{2682} \usym{2684}
\usym{2681} \usym{2683} \usym{2685}

All `utfsym` symbols are implemented with TikZ graphics, not with a font. In addition to `\usym`, the `utfsym` package defines `\usymH`, which renders a symbol at a given height, and `\usymW`, which renders a symbol at a given width. See the `utfsym` documentation for more information.

TABLE 488: utfsym Domino Tiles

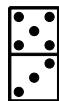
■	\usym{1F030}	▣	\usym{1F049}	■	\usym{1F062}	▣	\usym{1F07B}
□	\usym{1F031}	▣	\usym{1F04A}	□	\usym{1F063}	▣	\usym{1F07C}
□•	\usym{1F032}	▣	\usym{1F04B}	□	\usym{1F064}	▣	\usym{1F07D}
□□	\usym{1F033}	▣	\usym{1F04C}	□	\usym{1F065}	▣	\usym{1F07E}
□□	\usym{1F034}	▣	\usym{1F04D}	□	\usym{1F066}	▣	\usym{1F07F}
□□	\usym{1F035}	▣	\usym{1F04E}	□	\usym{1F067}	▣	\usym{1F080}
□□	\usym{1F036}	▣	\usym{1F04F}	□	\usym{1F068}	▣	\usym{1F081}
□□	\usym{1F037}	▣	\usym{1F050}	□	\usym{1F069}	▣	\usym{1F082}
□□	\usym{1F038}	▣	\usym{1F051}	□	\usym{1F06A}	▣	\usym{1F083}
□□	\usym{1F039}	▣	\usym{1F052}	□	\usym{1F06B}	▣	\usym{1F084}
□□	\usym{1F03A}	▣	\usym{1F053}	□	\usym{1F06C}	▣	\usym{1F085}
□□	\usym{1F03B}	▣	\usym{1F054}	□	\usym{1F06D}	▣	\usym{1F086}
□□	\usym{1F03C}	▣	\usym{1F055}	□	\usym{1F06E}	▣	\usym{1F087}
□□	\usym{1F03D}	▣	\usym{1F056}	□	\usym{1F06F}	▣	\usym{1F088}
□□	\usym{1F03E}	▣	\usym{1F057}	□	\usym{1F070}	▣	\usym{1F089}

(continued on next page)

(continued from previous page)

🀇	\usym{1F03F}	🀈	\usym{1F058}	🀉	\usym{1F071}	🀊	\usym{1F08A}
🀋	\usym{1F040}	🀌	\usym{1F059}	🀍	\usym{1F072}	🀎	\usym{1F08B}
🀏	\usym{1F041}	🀐	\usym{1F05A}	🀑	\usym{1F073}	🀒	\usym{1F08C}
🀓	\usym{1F042}	🀔	\usym{1F05B}	🀕	\usym{1F074}	🀖	\usym{1F08D}
🀔	\usym{1F043}	🀕	\usym{1F05C}	🀖	\usym{1F075}	🀗	\usym{1F08E}
🀔	\usym{1F044}	🀕	\usym{1F05D}	🀖	\usym{1F076}	🀘	\usym{1F08F}
🀔	\usym{1F045}	🀕	\usym{1F05E}	🀖	\usym{1F077}	🀙	\usym{1F090}
🀔	\usym{1F046}	🀕	\usym{1F05F}	🀖	\usym{1F078}	🀚	\usym{1F091}
🀔	\usym{1F047}	🀕	\usym{1F060}	🀖	\usym{1F079}	🀛	\usym{1F092}
🀔	\usym{1F048}	🀕	\usym{1F061}	🀖	\usym{1F07A}	🀛	\usym{1F093}

All `utfsym` symbols are implemented with TikZ graphics, not with a font. In addition to `\usym`, the `utfsym` package defines `\usymH`, which renders a symbol at a given height, and `\usymW`, which renders a symbol at a given width. For example, “`\usymH{1F089}{36pt}`” produces



See the `utfsym` documentation for more information.

TABLE 489: `utfsym` Mahjong Tiles

🀀	\usym{1F000}	🀁	\usym{1F00B}	🀂	\usym{1F016}	🀃	\usym{1F021}
🀁	\usym{1F001}	🀂	\usym{1F00C}	🀃	\usym{1F017}	🀄	\usym{1F022}
🀂	\usym{1F002}	🀃	\usym{1F00D}	🀄	\usym{1F018}	🀅	\usym{1F023}
🀃	\usym{1F003}	🀄	\usym{1F00E}	🀅	\usym{1F019}	🀆	\usym{1F024}
🀄	\usym{1F004}	🀅	\usym{1F00F}	🀆	\usym{1F01A}	🀇	\usym{1F025}
🀅	\usym{1F005}	🀆	\usym{1F010}	🀇	\usym{1F01B}	🀈	\usym{1F026}
🀆	\usym{1F006}	🀇	\usym{1F011}	🀉	\usym{1F01C}	🀊	\usym{1F027}
🀇	\usym{1F007}	🀈	\usym{1F012}	🀉	\usym{1F01D}	🀊	\usym{1F028}
🀈	\usym{1F008}	🀉	\usym{1F013}	🀊	\usym{1F01E}	🀋	\usym{1F029}
🀉	\usym{1F009}	🀊	\usym{1F014}	🀋	\usym{1F01F}	🀌	\usym{1F02A}
🀊	\usym{1F00A}	🀋	\usym{1F015}	🀌	\usym{1F020}	🀍	\usym{1F02B}

All `utfsym` symbols are implemented with TikZ graphics, not with a font. In addition to `\usym`, the `utfsym` package defines `\usymH`, which renders a symbol at a given height, and `\usymW`, which renders a symbol at a given width. For example, “`\usymH{1F00B}{36pt}`” produces



See the `utfsym` documentation for more information.

TABLE 490: *utfsym* Chess Pieces

♚	\usym{2654}	♛	\usym{2657}	♝	\usym{265A}	♜	\usym{265D}
♝	\usym{2655}	♞	\usym{2658}	♟	\usym{265B}	♟	\usym{265E}
♜	\usym{2656}	♝	\usym{2659}	♞	\usym{265C}	♟	\usym{265F}

All *utfsym* symbols are implemented with *TikZ* graphics, not with a font. In addition to \usym, the *utfsym* package defines \usymH, which renders a symbol at a given height, and \usymW, which renders a symbol at a given width. See the *utfsym* documentation for more information.

TABLE 491: *skak* Chess Informator Symbols

⊤	\bbetter	○	\doublepawns	○○	\seppawns
-+	\bdecisive	⊥	\ending	O-O	\shortcastling
▷	\betteris	=	\equal	⊕	\timelimit
¤	\bishoppair	⇒	\file	∞	\unclear
⊜	\bupperhand	»	\kside	○○	\unitedpawns
×	\capturesymbol	O-O-O	\longcastling	R	\various
O	\castlingchar	✗	\markera	±	\wbetter
-	\castlinghyphen	○	\markerb	+-	\wdecisive
田	\centre	#	\mate	✗	\weakpt
+	\checksymbol	>	\morepawns	⊓	\with
RR	\chesscomment	○	\moreroom	→	\withattack
	\chessetc	N	\novelty	△	\withidea
—	\chesssee	□	\onlymove	↑	\withinit
≈	\compensation	■	\opposbishops	⊓	\without
↶	\counterplay	◊	\passedpawn	±	\wupperhand
⟳	\devadvantage	«	\qside	⊙	\zugzwang
↗	\diagonal	■	\samebishops		

TABLE 492: *skak* Chess Pieces and Chessboard Squares

	\BlackBishopOnBlack		\BlackRookOnBlack		\WhiteKingOnBlack
	\BlackBishopOnWhite		\BlackRookOnWhite		\WhiteKingOnWhite
	\BlackEmptySquare		\symbishop		\WhiteKnightOnBlack
	\BlackKingOnBlack		\symking		\WhiteKnightOnWhite
	\BlackKingOnWhite		\symknight		\WhitePawnOnBlack
	\BlackKnightOnBlack		\sympawn		\WhitePawnOnWhite
	\BlackKnightOnWhite		\symqueen		\WhiteQueenOnBlack
	\BlackPawnOnBlack		\symrook		\WhiteQueenOnWhite
	\BlackPawnOnWhite		\WhiteBishopOnBlack		\WhiteRookOnBlack
	\BlackQueenOnBlack		\WhiteBishopOnWhite		\WhiteRookOnWhite
	\BlackQueenOnWhite				\WhiteEmptySquare

The *skak* package also provides commands for drawing complete chessboards. See the *skak* documentation for more information.

TABLE 493: *igo* Go Symbols

○	\blackstone[\igocircle]	○	\whitestone[\igocircle]
✗	\blackstone[\igocross]	✗	\whitestone[\igocross]
●	\blackstone[\igonone]	○	\whitestone[\igonone]
□	\blackstone[\igosquare]	□	\whitestone[\igosquare]
△	\blackstone[\igotriangle]	△	\whitestone[\igotriangle]

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, ..., ⑨ and ①, ②, ③, ..., ⑨, respectively.

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

TABLE 494: go Go Symbols

\bot	<code>\botborder</code>	\sqcup	<code>\lftbotcorner</code>	\sqcap	<code>\rttopcorner</code>
\vdash	<code>\emptyset</code>	\sqcap	<code>\lfttopcorner</code>	\square	<code>\square</code>
\star	<code>\hoshi</code>	\sqcup	<code>\rtborder</code>	\top	<code>\topborder</code>
\vdash	<code>\lftborder</code>	\sqcap	<code>\rtbotcorner</code>	\triangle	<code>\triangle</code>

In addition to the board fragments and stones shown above, go's `\black` and `\white` commands accept numbers from 1 to 253 and display them circled as $\textcircled{1}$, $\textcircled{2}$, $\textcircled{3}$, ..., $\textcircled{253}$ and $\textcircled{1}$, $\textcircled{2}$, $\textcircled{3}$, ..., $\textcircled{253}$, respectively. `\black` and `\white` additionally accept `\square` and `\triangle` as arguments, producing \blacksquare and \square for `\black` and \blacksquare and \triangle for `\white`.

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

9 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 tally markers be considered "mathematics"?). While some of the tables contain clearly related groups of symbols (e.g., symbols related to cooking), others represent motley assortments of whatever the font designer felt like drawing.

TABLE 495: `textcomp` Genealogical Symbols

*	<code>\textborn</code>	◊	<code>\textdivorced</code>	∞	<code>\textmarried</code>
†	<code>\textdied</code>	⊖	<code>\textleaf</code>		

TABLE 496: `wasysym` General Symbols

◊	<code>\ataribox</code>	∅	<code>\diameter</code>	⚡	<code>\lightning</code>	☼	<code>\sun</code>
▀	<code>\bell</code>	▼	<code>\DOWNarrow</code>	☎	<code>\phone</code>	▲	<code>\UParrow</code>
☻	<code>\blacksmiley</code>	☺	<code>\frownie</code>	❖	<code>\pointer</code>	⌘	<code>\wasycmd*</code>
Ⓜ	<code>\Bowtie</code>	Ⓜ	<code>\invdiameter</code>	ଓ	<code>\recorder</code>	□	<code>\wasylozenge</code>
፤	<code>\brokenvert</code>	✚	<code>\kreuz</code>	▶	<code>\RIGHTarrow</code>		
✓	<code>\checked</code>	◀	<code>\LEFTarrow</code>	⟳	<code>\rightturn</code>		
⌚	<code>\clock</code>	⌚	<code>\leftturn</code>	☺	<code>\smiley</code>		

* `wasysym` defines `\applecmd` as a synonym for `\wasycmd`.

TABLE 497: `utfsym` Transportation Symbols

🚗	<code>\usym{1F3CD}</code>	🚘	<code>\usym{1F698}</code>	🏎	<code>\usym{1F6B2}</code>	🏎	<code>\usym{1F6CC}</code>
▬	<code>\usym{1F3CE}</code>	🚐	<code>\usym{1F699}</code>	🚖	<code>\usym{1F6B3}</code>	🚖	<code>\usym{1F6CD}</code>
🚀	<code>\usym{1F680}</code>	🚐	<code>\usym{1F69A}</code>	⌯	<code>\usym{1F6B4}</code>	⌯	<code>\usym{1F6CE}</code>
🚏	<code>\usym{1F681}</code>	🚐	<code>\usym{1F69B}</code>	⌯	<code>\usym{1F6B5}</code>	🚖	<code>\usym{1F6CF}</code>
🚂	<code>\usym{1F682}</code>	🚂	<code>\usym{1F69C}</code>	🚶	<code>\usym{1F6B6}</code>	🏡	<code>\usym{1F6D0}</code>
🚊	<code>\usym{1F683}</code>	🚊	<code>\usym{1F69D}</code>	🚶	<code>\usym{1F6B7}</code>	●	<code>\usym{1F6D1}</code>
🚍	<code>\usym{1F684}</code>	🚍	<code>\usym{1F69E}</code>	🚶	<code>\usym{1F6B8}</code>	🚖	<code>\usym{1F6D2}</code>
🚏	<code>\usym{1F685}</code>	🚏	<code>\usym{1F69F}</code>	🚶	<code>\usym{1F6B9}</code>	✖	<code>\usym{1F6E0}</code>
🚏	<code>\usym{1F686}</code>	🚏	<code>\usym{1F6A0}</code>	🚶	<code>\usym{1F6BA}</code>	❤	<code>\usym{1F6E1}</code>
🌐	<code>\usym{1F687}</code>	🌐	<code>\usym{1F6A1}</code>	🚶	<code>\usym{1F6BB}</code>	✉	<code>\usym{1F6E2}</code>
🚏	<code>\usym{1F688}</code>	🚏	<code>\usym{1F6A2}</code>	🚶	<code>\usym{1F6BC}</code>	🚖	<code>\usym{1F6E3}</code>
🚏	<code>\usym{1F689}</code>	🚏	<code>\usym{1F6A3}</code>	🚖	<code>\usym{1F6BD}</code>	🚖	<code>\usym{1F6E4}</code>
🚏	<code>\usym{1F68A}</code>	🚏	<code>\usym{1F6A4}</code>	🚖	<code>\usym{1F6BE}</code>	🚢	<code>\usym{1F6E5}</code>
🚏	<code>\usym{1F68B}</code>	🚏	<code>\usym{1F6A5}</code>	🚖	<code>\usym{1F6BF}</code>	↑	<code>\usym{1F6E6}</code>
🚏	<code>\usym{1F68C}</code>	🚏	<code>\usym{1F6A6}</code>	🚖	<code>\usym{1F6C0}</code>	✈	<code>\usym{1F6E7}</code>
🚏	<code>\usym{1F68D}</code>	🚏	<code>\usym{1F6A7}</code>	🚖	<code>\usym{1F6C1}</code>	🛩	<code>\usym{1F6E8}</code>
🚏	<code>\usym{1F68E}</code>	🚏	<code>\usym{1F6A8}</code>	🚖	<code>\usym{1F6C2}</code>	🛫	<code>\usym{1F6E9}</code>
❗	<code>\usym{1F68F}</code>	❗	<code>\usym{1F6A9}</code>	🚖	<code>\usym{1F6C3}</code>	✈	<code>\usym{1F6EA}</code>
🚌	<code>\usym{1F690}</code>	🚌	<code>\usym{1F6AA}</code>	🚖	<code>\usym{1F6C4}</code>	🛬	<code>\usym{1F6EB}</code>
🚗	<code>\usym{1F691}</code>	∅	<code>\usym{1F6AB}</code>	🚖	<code>\usym{1F6C5}</code>	🛫	<code>\usym{1F6EC}</code>
🚐	<code>\usym{1F692}</code>	⌚	<code>\usym{1F6AC}</code>	△	<code>\usym{1F6C6}</code>	🚍	<code>\usym{1F6F1}</code>
🏎	<code>\usym{1F693}</code>	⌚	<code>\usym{1F6AD}</code>	⌚	<code>\usym{1F6C7}</code>	🚖	<code>\usym{1F6F2}</code>

(continued on next page)

(continued from previous page)

🚗	\usym{1F694}	🚙	\usym{1F6AE}	🚚	\usym{1F6C8}	🚐	\usym{1F6F3}
🚘	\usym{1F695}	🚖	\usym{1F6AF}	🚖	\usym{1F6C9}	🚖	\usym{1F6F4}
🚖	\usym{1F696}	🚖	\usym{1F6B0}	🚖	\usym{1F6CA}	🚖	\usym{1F6F5}
🚖	\usym{1F697}	🚖	\usym{1F6B1}	🚖	\usym{1F6CB}	🚖	\usym{1F6F6}

All `utfsym` symbols are implemented with TikZ graphics, not with a font. In addition to `\usym`, the `utfsym` package defines `\usymH`, which renders a symbol at a given height, and `\usymW`, which renders a symbol at a given width. For example, “`\usymH{1F6F3}{36pt}`” produces



See the `utfsym` documentation for more information.

TABLE 498: twemojis Transportation Emoji

🚋	\twemoji{1f6f0}	🚏	\twemoji{mountain railway}
🚋	\twemoji{aerial tramway}	🚏	\twemoji{no bicycles}
🚁	\twemoji{airplane}	🚁	\twemoji{oncoming automobile}
🛫	\twemoji{airplane arrival}	🛬	\twemoji{oncoming bus}
🛬	\twemoji{airplane departure}	🚔	\twemoji{oncoming police car}
🚑	\twemoji{ambulance}	🚍	\twemoji{oncoming taxi}
🚐	\twemoji{articulated lorry}	🛳	\twemoji{passenger ship}
🛻	\twemoji{auto rickshaw}	.Passport Control	\twemoji{passport control}
🚗	\twemoji{automobile}	🚴	\twemoji{person biking}* 🚴
🧳	\twemoji{baggage claim}	🚵	\twemoji{person mountain biking}* 🚣
🚲	\twemoji{bicycle}	🚣	\twemoji{person rowing boat}* 🚚
🚂	\twemoji{bullet train}	🚛	\twemoji{pickup truck}
🚌	\twemoji{bus}	🚓	\twemoji{police car}
🚋	\twemoji{bus stop}	🚨	\twemoji{police car light}
🛶	\twemoji{canoe}	🏎	\twemoji{racing car}
🚧	\twemoji{construction}	🛤	\twemoji{railway car}
📦	\twemoji{customs}	🛤	\twemoji{railway track}
🚚	\twemoji{delivery truck}	🚀	\twemoji{rocket}
🚒	\twemoji{fire engine}	⛸	\twemoji{roller skate}
🛸	\twemoji{flying saucer}	🚢	\twemoji{ship}
🚁	\twemoji{helicopter}	🛹	\twemoji{skateboard}
🚄	\twemoji{high-speed train}	🎿	\twemoji{sled}
🚦	\twemoji{horizontal traffic light}	🛩	\twemoji{small airplane}
🛴	\twemoji{kick scooter}	⛵	\twemoji{speedboat}
กระเป๋า	\twemoji{left luggage}	🚙	\twemoji{sport utility vehicle}
🚋	\twemoji{light rail}	🚉	\twemoji{station}
🚂	\twemoji{locomotive}	🛤	\twemoji{suspension railway}
🚴	\twemoji{man biking}* 🚴	🚕	\twemoji{taxi}

(continued on next page)

(continued from previous page)

	\twemoji{man mountain biking}* \twemoji{man rowing boat}* \twemoji{metro} \twemoji{minibus} \twemoji{monorail} \twemoji{motor boat} \twemoji{motor scooter} \twemoji{motorcycle} \twemoji{motorway} \twemoji{mountain cableway}		\twemoji{tractor} \twemoji{train2} \twemoji{tram} \twemoji{tram car} \twemoji{trolleybus} \twemoji{vertical traffic light} \twemoji{woman biking}* \twemoji{woman mountain biking}* \twemoji{woman rowing boat}* \twemoji{mountain cableway}
--	--	--	---

Most twemojis symbols have multiple names. Only the most descriptive name for each symbol is shown in this table.

All twemojis symbols are implemented as PDF graphics, not with a font.

* Variants of this symbol portraying different colors and styles are not shown. An example is presented after Table 554 on page 214. See the twemojis documentation for more information.

TABLE 499: 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 500: Miscellaneous manfnt Symbols

	\manboldkidney		\manpenkidney
	\manconcentriccircles		\manquadrifolium
	\manconcentricdiamond		\manquartercircle
	\mancone		\manrotatedquadrifolium
	\mancube		\manrotatedquartercircle
	\manerrarrow		\manstar
	\manfilledquartercircle		\mantiltPennib
	\manhpennib		\mantriangledown
	\manimpossiblecube		\mantriangleright
	\mankidney		\mantriangleup
	\manlhpennib		\manvpennib

TABLE 501: marvosym Media Control Symbols

	\Forward		\MoveDown		\RewindToIndex		\ToTop
	\ForwardToEnd		\MoveUp		\RewindToStart		
	\ForwardToIndex		\Rewind		\ToBottom		

TABLE 502: marvosym Laundry Symbols

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

TABLE 503: marvosym Information Symbols

	\Bicycle		\Gentsroom		\PointingHand
	\ClockLogo		\Industry		\Wheelchair
	\Coffeecup		\Info		\WritingHand
	\Football		\Ladiesroom		

TABLE 504: Other marvosym Symbols

	\Ankh		\Bouquet		\Heart		\PeaceDove
	\Bat		\Celtcross		\ManFace		\Smiley
	\BOLogo		\CircledA		\MineSign		\WomanFace
	\BOLogoL		\Cross		\Mundus		\Yinyang
	\BOLogoP		\Frowny		@		

TABLE 505: Miscellaneous universa Symbols

\bauforms \bauhead

TABLE 506: Miscellaneous fourier Symbols

	\bomb		\noway		\textxswdown*		\warning
	\grimace		\textthing*		\textxswup*		

* fourier defines math-mode synonyms for a few of the preceding symbols: \thething (“\textthing”), \xswordsup (“\textxswup”), and \xswordsdown (“\textxswdown”).

TABLE 507: utfsym Weather Symbols

	\usym{1F321}		\usym{1F324}		\usym{1F327}		\usym{1F32A}
	\usym{1F322}		\usym{1F325}		\usym{1F328}		\usym{1F32B}
	\usym{1F323}		\usym{1F326}		\usym{1F329}		\usym{1F32C}

All *utsym* symbols are implemented with TikZ graphics, not with a font. In addition to \usym, the *utsym* package defines \usymH, which renders a symbol at a given height, and \usymW, which renders a symbol at a given width. See the *utsym* documentation for more information.

TABLE 508: twemojis Weather Symbols

	\twemoji{cloud}		\twemoji{sun behind cloud}
	\twemoji{cloud with lightning}		\twemoji{sun behind large cloud}
	\twemoji{cloud with lightning and rain}		\twemoji{sun behind rain cloud}
	\twemoji{cloud with rain}		\twemoji{sun behind small cloud}
	\twemoji{cloud with snow}		\twemoji{thermometer}
	\twemoji{fog}		\twemoji{tornado}
	\twemoji{sun}		\twemoji{wind face}

Most twemojis symbols have multiple names. Only the most descriptive name for each symbol is shown in this table.

All twemojis symbols are implemented as PDF graphics, not with a font.

TABLE 509: ifsym Weather Symbols

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

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

Similarly, \wind{\langle sun \rangle}{\langle angle \rangle}{\langle strength \rangle} 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 510: ifsym Alpine Symbols

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

TABLE 511: ifsym Clocks

	\Interval		\StopWatchStart		\VarClock		\Wecker
	\StopWatchEnd		\Taschenuhr		\VarTaschenuhr		

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

TABLE 512: `utfsym` Clocks

⌚	\usym{1F550}	⌚	\usym{1F557}	⌚	\usym{1F55E}	⌚	\usym{1F565}
⌚	\usym{1F551}	⌚	\usym{1F558}	⌚	\usym{1F55F}	⌚	\usym{1F566}
⌚	\usym{1F552}	⌚	\usym{1F559}	⌚	\usym{1F560}	⌚	\usym{1F567}
⌚	\usym{1F553}	⌚	\usym{1F55A}	⌚	\usym{1F561}	⌚	\usym{1F570}
⌚	\usym{1F554}	⌚	\usym{1F55B}	⌚	\usym{1F562}		
⌚	\usym{1F555}	⌚	\usym{1F55C}	⌚	\usym{1F563}		
⌚	\usym{1F556}	⌚	\usym{1F55D}	⌚	\usym{1F564}		

All `utfsym` symbols are implemented with TikZ graphics, not with a font. In addition to `\usym`, the `utfsym` package defines `\usymH`, which renders a symbol at a given height, and `\usymW`, which renders a symbol at a given width. See the `utfsym` documentation for more information.

TABLE 513: `clock` Clocks

\ClockStyle	\ClockFramefalse	\ClockFrametrue
0	⌚	⌚
1	⌚	⌚
2	⌚	⌚
3	⌚	⌚

The `clock` package provides a `\clock` command to typeset an arbitrary time on an analog clock (and `\clocktime` to typeset the document's build time). For example, the clocks in the above table were produced with `\clock{15}{41}`. Clock symbols are composed from a font of clock-face fragments using one of four values for `\ClockStyle` and either `\ClockFrametrue` or `\ClockFramefalse` as illustrated above. See the `clock` documentation for more information.

TABLE 514: `twemojis` Clocks

⌚	\twemoji{one o'clock}	⌚	\twemoji{eight-thirty}
⌚	\twemoji{one-thirty}	⌚	\twemoji{nine o'clock}
⌚	\twemoji{two o'clock}	⌚	\twemoji{nine-thirty}
⌚	\twemoji{two-thirty}	⌚	\twemoji{ten o'clock}
⌚	\twemoji{three o'clock}	⌚	\twemoji{ten-thirty}
⌚	\twemoji{three-thirty}	⌚	\twemoji{eleven o'clock}
⌚	\twemoji{four o'clock}	⌚	\twemoji{eleven-thirty}
⌚	\twemoji{four-thirty}	⌚	\twemoji{twelve o'clock}
⌚	\twemoji{five o'clock}	⌚	\twemoji{twelve-thirty}
⌚	\twemoji{five-thirty}	⌚	\twemoji{alarm clock}
⌚	\twemoji{six o'clock}	⌚	\twemoji{hourglass done}
⌚	\twemoji{six-thirty}	⌚	\twemoji{hourglass not done}
⌚	\twemoji{seven o'clock}	⌚	\twemoji{mantelpiece clock}
⌚	\twemoji{seven-thirty}	⌚	\twemoji{stopwatch}
⌚	\twemoji{eight o'clock}	⌚	\twemoji{timer clock}

Most `twemojis` symbols have multiple names. Only the most descriptive name for each symbol is shown in this table.

All `twemojis` symbols are implemented as PDF graphics, not with a font.

TABLE 515: twemojis Animals

🐜 \twemoji{ant}	🦠 \twemoji{microbe}
🐤 \twemoji{baby chick}	🐒 \twemoji{monkey}
🦝 \twemoji{badger}	🐵 \twemoji{monkey face}
🦇 \twemoji{bat}	🦟 \twemoji{mosquito}
🐻 \twemoji{bear}	🐭 \twemoji{mouse face}
🦢 \twemoji{beaver}	🐁 \twemoji{mouse2}
🐞 \twemoji{beetle}	🐙 \twemoji{octopus}
🐦 \twemoji{bird}	orangutan\ orangutan\ 🦒 \twemoji{orangutan}
🐈 \twemoji{black cat}	🦴 \twemoji{otter}
🐡 \twemoji{blowfish}	🦉 \twemoji{owl}
🐗 \twemoji{boar}	🐂 \twemoji{ox}
🐛 \twemoji{bug}	🦘 \twemoji{oyster}
🦋 \twemoji{butterfly}	🐼 \twemoji{panda}
🐱 \twemoji{cat face}	🦜 \twemoji{parrot}
🐈 \twemoji{cat2}	🐾 \twemoji{paw prints}
🐔 \twemoji{chicken}	🦚 \twemoji{peacock}
🐿 \twemoji{chipmunk}	🐧 \twemoji{penguin}
蜚 \twemoji{cockroach}	🐖 \twemoji{pig face}
🐮 \twemoji{cow face}	🐽 \twemoji{pig nose}
🐄 \twemoji{cow2}	🐖 \twemoji{pig2}
🦀 \twemoji{crab}	🐻 \twemoji{polar bear}
ör \twemoji{cricket}	🐩 \twemoji{poodle}
🐊 \twemoji{crocodile}	🐰 \twemoji{rabbit face}
🦌 \twemoji{deer}	🐇 \twemoji{rabbit2}
🐦 \twemoji{dodo}	🦭 \twemoji{raccoon}
🐶 \twemoji{dog face}	🐎 \twemoji{racehorse}
🐕 \twemoji{dog2}	🐏 \twemoji{ram}
🐬 \twemoji{dolphin}	🐀 \twemoji{rat}
🐉 \twemoji{dragon}	🦏 \twemoji{rhinoceros}
🐲 \twemoji{dragon face}	🐓 \twemoji{rooster}
🐪 \twemoji{dromedary_camel}	🦕 \twemoji{sauropod}
🦆 \twemoji{duck}	🐍 \twemoji{scorpion}
🦅 \twemoji{eagle}	🦾 \twemoji{seal}
🐘 \twemoji{elephant}	🐕 \twemoji{service dog}
🐟 \twemoji{fish}	🦈 \twemoji{shark}
🦩 \twemoji{flamingo}	🐑 \twemoji{sheep}
🦞 \twemoji{fly}	🦐 \twemoji{shrimp}
🦊 \twemoji{fox}	🦫 \twemoji{skunk}
🐸 \twemoji{frog}	🦽 \twemoji{sloth}
🐥 \twemoji{front-facing baby chick}	🐌 \twemoji{snail}
🦒 \twemoji{giraffe}	🐍 \twemoji{snake}
🐐 \twemoji{goat}	🐚 \twemoji{spiral shell}
🦍 \twemoji{gorilla}	🐳 \twemoji{spouting whale}
🐕 \twemoji{guide dog}	🦑 \twemoji{squid}
🐹 \twemoji{hamster}	🦢 \twemoji{swan}
🐣 \twemoji{hatching chick}	🦖 \twemoji{T-Rex}
🦔 \twemoji{hedgehog}	🐯 \twemoji{tiger face}
🦡 \twemoji{hippopotamus}	🐅 \twemoji{tiger2}
🐝 \twemoji{honeybee}	🐠 \twemoji{tropical fish}
🐴 \twemoji{horse face}	🦃 \twemoji{turkey}

(continued on next page)

(continued from previous page)

캥	\twemoji{kangaroo}	🐢	\twemoji{turtle}
🐨	\twemoji{koala}	🐫	\twemoji{two-hump camel}
🐞	\twemoji{lady beetle}	🦄	\twemoji{unicorn}
🐆	\twemoji{leopard}	🐂	\twemoji{water buffalo}
🦁	\twemoji{lion}	🐋	\twemoji{whale2}
🦎	\twemoji{lizard}	🐺	\twemoji{wolf}
🦙	\twemoji{llama}	🦟	\twemoji{worm}
🦞	\twemoji{lobster}	🦓	\twemoji{zebra}
🐘	\twemoji{mammoth}		

Most twemojis symbols have multiple names. Only the most descriptive name for each symbol is shown in this table.

All twemojis symbols are implemented as PDF graphics, not with a font.

TABLE 516: twemojis Food Emoji

🥑	\twemoji{avocado}	☕	\twemoji{hot beverage}
🥓	\twemoji{bacon}	🌭	\twemoji{hot dog}
🥯	\twemoji{bagel}	🌶	\twemoji{hot pepper}
🥖	\twemoji{baguette bread}	🧊	\twemoji{ice}
🍌	\twemoji{banana}	🍧	\twemoji{ice cream}
🍺	\twemoji{beer mug}	🥝	\twemoji{kiwi fruit}
🍏	\twemoji{bell pepper}	🥦	\twemoji{leafy green}
🍱	\twemoji{bento box}	🍋	\twemoji{lemon}
🥤	\twemoji{beverage box}	🍭	\twemoji{lollipop}
🫐	\twemoji{blueberries}	🥭	\twemoji{mango}
🍾	\twemoji{bottle with popping cork}	🍎	\twemoji{mate}
🥣	\twemoji{bowl with spoon}	🥩	\twemoji{meat on bone}
🍞	\twemoji{bread}	🍈	\twemoji{melon}
🥦	\twemoji{broccoli}	🥮	\twemoji{moon cake}
🍵	\twemoji{bubble tea}	🍄	\twemoji{mushroom}
🌯	\twemoji{burrito}	🍢	\twemoji{oden}
🧈	\twemoji{butter}	🫒	\twemoji{olive}
🍬	\twemoji{candy}	🧅	\twemoji{onion}
罐	\twemoji{canned food}	🥞	\twemoji{pancakes}
🥕	\twemoji{carrot}	🍑	\twemoji{peach}
🧀	\twemoji{cheese wedge}	🥜	\twemoji{peanuts}
🍒	\twemoji{cherries}	🍐	\twemoji{pear}
🍫	\twemoji{chocolate bar}	🥧	\twemoji{pie}
🥢	\twemoji{chopsticks}	🍍	\twemoji{pineapple}
🍻	\twemoji{clinking beer mugs}	🍕	\twemoji{pizza}
🥂	\twemoji{clinking glasses}	🍿	\twemoji{popcorn}
🍸	\twemoji{cocktail glass}	🍣	\twemoji{pot of food}
🥥	\twemoji{coconut}	🥔	\twemoji{potato}
🍚	\twemoji{cooked rice}	🍗	\twemoji{poultry leg}
🍪	\twemoji{cookie}	🥨	\twemoji{pretzel}
🍳	\twemoji{cooking}	🍎	\twemoji{red apple}
🥐	\twemoji{croissant}	🍙	\twemoji{rice ball}

(continued on next page)

(continued from previous page)

🥒 \twemoji{cucumber}	🍘 \twemoji{rice cracker}
🥤 \twemoji{cup with straw}	🍢 \twemoji{roasted sweet potato}
🧁 \twemoji{cupcake}	🍶 \twemoji{sake}
🍛 \twemoji{curry rice}	鹾 \twemoji{salt}
🍮 \twemoji{custard}	🥪 \twemoji{sandwich}
🥩 \twemoji{cut of meat}	=>\$ \twemoji{shallow pan of food}
🍡 \twemoji{dango}	🍧 \twemoji{shaved ice}
🍩 \twemoji{doughnut}	🍰 \twemoji{shortcake}
🥟 \twemoji{dumpling}	🍦 \twemoji{soft ice cream}
🥚 \twemoji{egg}	🍝 \twemoji{spaghetti}
🍆 \twemoji{eggplant}	🍜 \twemoji{steaming bowl}
\Falafel \twemoji{falafel}	🍓 \twemoji{strawberry}
🍥 \twemoji{fish cake with swirl}	\View\leftarrow \twemoji{stuffed flatbread}
🧈 \twemoji{flatbread}	🍣 \twemoji{sushi}
🥘 \twemoji{fondue}	🌮 \twemoji{taco}
🍴 \twemoji{fork and knife}	🍱 \twemoji{takeout box}
🍽 \twemoji{fork and knife with plate}	🌯 \twemoji{tamale}
🥠 \twemoji{fortune cookie}	🍊 \twemoji{tangerine}
🍟 \twemoji{french fries}	🍵 \twemoji{teacup without handle}
🍤 \twemoji{fried shrimp}	潽 \twemoji{teapot}
🧄 \twemoji{garlic}	🍅 \twemoji{tomato}
🥛 \twemoji{glass of milk}	🍹 \twemoji{tropical drink}
🍇 \twemoji{grapes}	🥃 \twemoji{tumbler glass}
🍏 \twemoji{green apple}	🥞 \twemoji{waffle}
🥗 \twemoji{green salad}	🍉 \twemoji{watermelon}
🍔 \twemoji{hamburger}	🍷 \twemoji{wine glass}
🍯 \twemoji{honey pot}	

Most `twemoji` symbols have multiple names. Only the most descriptive name for each symbol is shown in this table.

All `twemoji` symbols are implemented as PDF graphics, not with a font.

TABLE 517: `hhcount` Tally Markers

\fcscore{1}	\fcscore{3}	\fcscore{5}
\fcscore{2}	\fcscore{4}	

The `\fcscore` command accepts values larger than 5. For example, “`\fcscore{47}`” produces “||||||||||||||||||||||”.

TABLE 518: `ifsym` Tally Markers

\StrokeOne	\StrokeThree	\StrokeFive
\StrokeTwo	\StrokeFour	

TABLE 519: `\bullcntr` Tally Markers

•	<code>\bullcntr{<1>}</code>	••	<code>\bullcntr{<4>}</code>	•••	<code>\bullcntr{<7>}</code>
••	<code>\bullcntr{<2>}</code>	•••	<code>\bullcntr{<5>}</code>	••••	<code>\bullcntr{<8>}</code>
•••	<code>\bullcntr{<3>}</code>	••••	<code>\bullcntr{<6>}</code>	•••••	<code>\bullcntr{<9>}</code>

The notation for `\bullcntr` used in the above bears explanation. `\bullcntr` does not take a number as its argument but rather a L^AT_EX counter, whose value it uses to typeset a tally marker. “`\bullcntr{<3>}`”, for example, means to invoke `\bullcntr` with a counter whose value is 3. (`\bullcntr` usage is therefore akin to that of L^AT_EX’s `\fnsymbol`.) The intention is to use `\bullcntr` indirectly via the `bullenum` package’s `bullenum` environment, which is a variation on the `enumerate` environment that uses `\bullcntr` to typeset the labels.

To typeset individual tally markers, one can define a helper command:

```
\newcounter{bull}
\newcommand{\showbullcntr}[1]{%
  \setcounter{bull}{#1}%
  \bullcntr{bull}%
}
```

`bullcntr`’s package options `smallctrbull`, `largectrbull`, and `heartctrbull` and corresponding commands `\smallctrbull`, `\largectrbull`, and `\heartctrbull` control the formatting of each tally marker:

small	large	heart
<code>\bullcntr{<5>}</code>	••	•••

The default is `smartctrbull` (`\smartctrbull`), which maps counter values 1–5 to large pips and 6–9 to small pips. It is also possible to use arbitrary symbols for `\bullcntr`’s pips. See the `bullcntr` documentation for more information.

TABLE 520: dozenal Tally Markers

	<code>\tally{1}</code>	□	<code>\tally{3}</code>	□	<code>\tally{5}</code>
└	<code>\tally{2}</code>	□	<code>\tally{4}</code>	□	<code>\tally{6}</code>

TABLE 521: skull Symbols

 `\skull`

TABLE 522: Non-Mathematical `mathabx` Symbols

 `\rip`

TABLE 523: Other ifsym Symbols

❖	\FilledSectioningDiamond	✉	\Letter	◆	\Radiation
█	\Fire	▣	\PaperLandscape	❖	\SectioningDiamond
✗	\Irritant	▤	\PaperPortrait	☎	\Telephone

TABLE 524: metre Metrical Symbols

×	\a	≤	\bBm		\cc	≤	\Mbb	:	\Pppp	⊗	\t
⌚	\B	≤	\bbm		\Ccc	≤	\mbbx	:	\pppp	—	\tsbm
◦	\b	≤	\Bbm	—	\m	oo	\oo	:	\Ppppp	—	\tsmb
⌚	\Bb	≤	\bbmb	‘	\M	.	\p	:	\ppppp	—	\tsmm
⌚	\BB	≤	\bbmx	×	\ma	—	\pm	—	\ps	—	\vppm
⌚	\bb	≤	\bm	≠	\Mb	:	\pp	:	\pxp	—	\vpppm
⌚	\bB	≤	\Bm	□	\mb	:	\Pp	:	\Pxp	—	\x
⌚	\bba		\c	≤	\mBb	—	\ppm	~	\R		
⌚	\bbb		\C	≤	\mbB	—	\ppp	~	\r		
⌚	\BBm		\Cc	≤	\mbb	—	\Ppp	⊗	\T		

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

TABLE 525: metre Small and Large Metrical Symbols

÷	\anaclasis	÷	\Anaclasis
<	\antidiple	<	\Antidiple
≤	\antidiple*	≤	\Antidiple*
▷	\antisigma	▷	\Antisigma
※	\asteriscus	※	\Asteriscus
^	\catalexis	^	\Catalexis
>	\diple	>	\Diple
≥	\diple*	≥	\Diple*
—	\obelus	—	\Obelus
÷	\obelus*	÷	\Obelus*
~	\respondens	~	\Respondens
⊗	\terminus	⊗	\Terminus
⊕	\terminus*	⊕	\Terminus*

TABLE 526: teubner Metrical Symbols

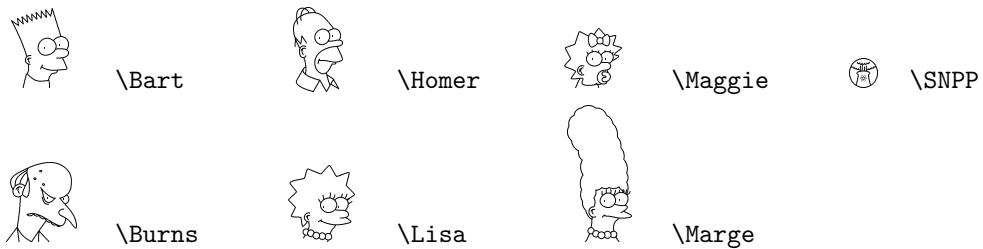
oo	\aeolicbii	□	\barbrevis	+	\ipercatal
ooo	\aeolicbiii	≤	\bbrevis	—	\longa
oooo	\aeolicbiv	◦	\brevis	≤	\ubarbbrevis
×	\anceps	^	\catal	≤	\ubarbrevis
※	\ancepsdbrevis	≤	\corona	≤	\ubarsbrevis
×	\banceps	◦	\coronainv	□	\ubrevislonga
≤	\barbbrevis	H	\hiatus		

The `teubner` package provides a `\newmetrics` command that helps users combine the preceding symbols as well as other `teubner` symbols. For example, the predefined `\pentam` symbol uses `\newmetrics` to juxtapose six `\longas`, two `\barbbrevises`, four `\brevises`, and a `\dBar` into “`_oo_oo_|_oo_oo_`”. See the `teubner` documentation for more information.

TABLE 527: dictsym Dictionary Symbols

\mathbb{E}	\dsaeronautical	\mathbb{F}	\dscommercial	\mathbb{A}	\dsmedical
\mathbb{C}	\dsagricultural	\mathbb{D}	\dsheraldical	\mathbb{X}	\dsmilitary
\mathbb{D}	\dsarchitectural	\mathbb{B}	\dsjuridical	\mathbb{B}	\dsrailways
\mathbb{G}	\dsbiological	\mathbb{U}	\dsliterary	\mathbb{D}	\dstechnical
\mathbb{R}	\dschemical	\mathbb{A}	\dsmathematical		

TABLE 528: simpsons Characters from *The Simpsons*



The location of the characters' pupils can be controlled with the \Goofy command. See *A METAFONT of 'Simpsons' characters* [Che98] for more information. Also, each of the above can be prefixed with \Left to make the character face left instead of right:



TABLE 529: `pmbboxdraw` Box-Drawing Symbols

	\textblock		\textSFli		\textSFxli		\textSFxxiii
	\textdkshade		\textSFlii		\textSFxlii		\textSFxxiv
	\textdnblock		\textSFliii		\textSFxliii		\textSFxxv
	\textlfblock		\textSFliv		\textSFxliv		\textSFxxvi
	\textltshade		\textSFv		\textSFxlix		\textSFxxvii
	\textrtblock		\textSFvi		\textSFxlv		\textSFxxviii
	\textSFi		\textSFvii		\textSFxlvi		\textSFxxxix
	\textSFii		\textSFviii		\textSFxlvii		\textSFxxxvi
	\textSFiii		\textSFx		\textSFxlviii		\textSFxxxvii
	\textSFiv		\textSFxi		\textSFxx		\textSFxxxviii
	\textSFix		\textSFxix		\textSFxxi		\textshade
	\textSFi		\textSFxl		\textSFxxii		\textupblock

Code Page 437 (CP437), which was first utilized by the original IBM PC, contains the set of box-drawing symbols (sides, corners, and intersections of single- and double-ruled boxes) shown above in character positions 176–223. These symbols also appear in the Unicode Box Drawing and Block Element tables.

The `pmbboxdraw` package draws the CP437 box-drawing symbols using `TEX` rules (specifically, `\vrule`) instead of with a font and thereby provides the ability to alter both rule width and the separation between rules. See the `pmbboxdraw` documentation for more information.

TABLE 530: `staves` Magical Staves

	\staveI		\staveXXIV		\staveXLVII
	\staveII		\staveXXV		\staveXLVIII
	\staveIII		\staveXXVI		\staveXLIX
	\staveIV		\staveXXVII		\staveL
	\staveV		\staveXXVIII		\staveLI
	\staveVI		\staveXXIX		\staveLII
	\staveVII		\staveXXX		\staveLIII
	\staveVIII		\staveXXXI		\staveLIV
	\staveIX		\staveXXXII		\staveLV
	\staveX		\staveXXXIII		\staveLVI
	\staveXI		\staveXXXIV		\staveLVII

(continued on next page)

(continued from previous page)

	\staveXII		\staveXXXV		\staveL VIII
	\staveXIII		\staveXXXVI		\staveL IX
	\staveXIV		\staveXXXVII		\staveL X
	\staveXV		\staveXXXVIII		\staveL XI
	\staveXVI		\staveXXXIX		\staveL XII
	\staveXVII		\staveXL		\staveL XIII
	\staveXVIII		\staveXLI		\staveL XIV
	\staveXIX		\staveXLII		\staveL XV
	\staveXX		\staveXLIII		\staveL XVI
	\staveXXI		\staveXLIV		\staveL XVII
	\staveXXII		\staveXLV		\staveL XVIII
	\staveXXIII		\staveXLVI		

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

TABLE 531: pigpen Cipher Symbols

└ {\\pigpenfont A}	┘ {\\pigpenfont J}	∨ {\\pigpenfont S}
└ {\\pigpenfont B}	┘ {\\pigpenfont K}	> {\\pigpenfont T}
└ {\\pigpenfont C}	┘ {\\pigpenfont L}	< {\\pigpenfont U}
└ {\\pigpenfont D}	┘ {\\pigpenfont M}	∧ {\\pigpenfont V}
└ {\\pigpenfont E}	┘ {\\pigpenfont N}	∨ {\\pigpenfont W}
└ {\\pigpenfont F}	┘ {\\pigpenfont O}	> {\\pigpenfont X}
└ {\\pigpenfont G}	┘ {\\pigpenfont P}	< {\\pigpenfont Y}
└ {\\pigpenfont H}	┘ {\\pigpenfont Q}	∧ {\\pigpenfont Z}
└ {\\pigpenfont I}	┘ {\\pigpenfont R}	

TABLE 532: Qiphae Phases of the Moon

∅ \MoonPha{1} ♀ \MoonPha{2} ☽ \MoonPha{3} ☾ \MoonPha{4}

TABLE 533: twemojis Phases of the Moon

🌙 \twemoji{crescent moon}	🌑 \twemoji{new moon}
🌓 \twemoji{first quarter moon}	🌒 \twemoji{new moon face}
🌔 \twemoji{first quarter moon face}	🌑 \twemoji{waning crescent moon}
🌕 \twemoji{full moon}	🌓 \twemoji{waning gibbous moon}
🌖 \twemoji{full moon face}	🌔 \twemoji{waxing crescent moon}
🌗 \twemoji{last quarter moon}	🌕 \twemoji{waxing gibbous moon}
🌘 \twemoji{last quarter moon face}	

Most twemojis symbols have multiple names. Only the most descriptive name for each symbol is shown in this table.

All twemojis symbols are implemented as PDF graphics, not with a font.

TABLE 534: GfNA2e Recycling Symbols

♻ \Greenpoint

TABLE 535: marvosym Recycling Symbols

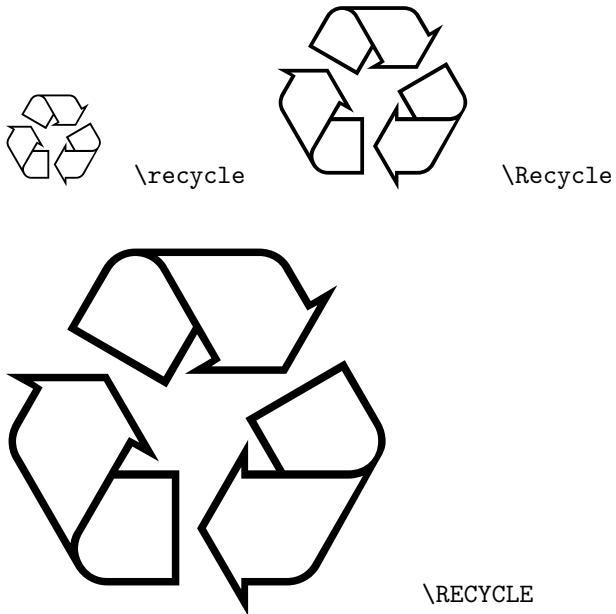
♻ \PackingWaste ☘ \Recycling

TABLE 536: utfsym Recycling Symbols

❖ \usym{2672}	▲ \usym{2676}	△ \usym{267A}	⊗ \usym{267E}
▲ \usym{2673}	▲ \usym{2677}	♻ \usym{267B}	
▲ \usym{2674}	▲ \usym{2678}	⊗ \usym{267C}	
▲ \usym{2675}	▲ \usym{2679}	⊗ \usym{267D}	

All utfsym symbols are implemented with TikZ graphics, not with a font. In addition to \usym, the utfsym package defines \usymH, which renders a symbol at a given height, and \usymW, which renders a symbol at a given width. See the utfsym documentation for more information.

TABLE 537: `recycle` Recycling Symbols



The METAFONT code that implements the recycling symbols shown above is, in the words of its author, “awful code [that] doesn’t even put the logo in a box (properly)”. Expect to receive “`Inconsistent equation (off by <number>)`” errors from METAFONT. Fortunately, if you tell METAFONT to proceed past those errors (e.g., by pressing Enter after each one or by specifying `“-interaction=nonstopmode”` on the METAFONT command line) it should produce a valid font.

The commands listed above should be used within a group (e.g., “`{\recycle}`”) because they exhibit the side effect of *changing* the font to the recycle font.

TABLE 538: Other GFSI2e Symbols

	<code>\Info</code>		<code>\Request</code>
	<code>\Postbox</code>		<code>\Telephone</code>

TABLE 539: soyombo Soyombo Symbols



* These symbols require that the Soyombo font be active (“`{\soyombo ... }`”).

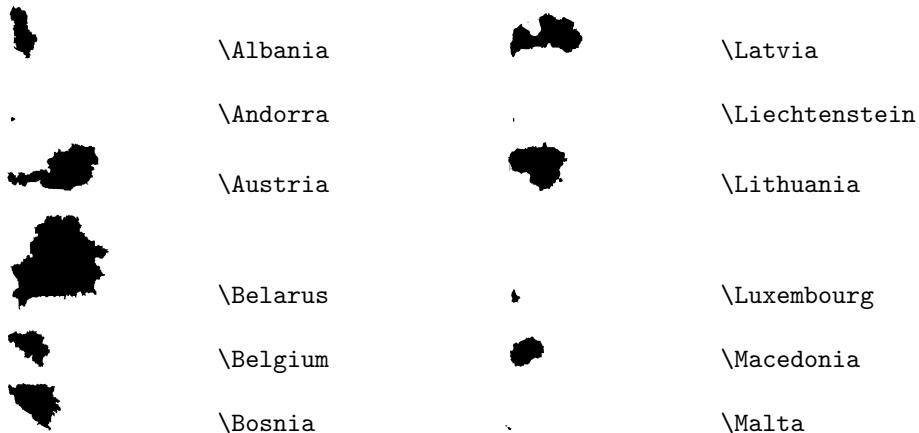
TABLE 540: knitting Knitting Symbols

\wedge	<code>\textknit{!}</code>	\rightarrow	<code>\textknit{[]}</code>	\circlearrowleft	<code>\textknit{Q}</code>
\Rightarrow	<code>\textknit{"}</code>	\leftrightarrow	<code>\textknit{}{}</code>	\circlearrowright	<code>\textknit{q}</code>
\backslash	<code>\textknit{()}</code>	$\wedge\wedge$	<code>\textknit{A}</code>	$\nearrow\wedge$	<code>\textknit{R}</code>
$/$	<code>\textknit{()}</code>	$\wedge\backslash$	<code>\textknit{a}</code>	$\nwarrow\wedge$	<code>\textknit{r}</code>
$*$	<code>\textknit{*}</code>	$\circlearrowleft\circlearrowright$	<code>\textknit{B}</code>	$\leftarrow\rightarrow$	<code>\textknit{S}</code>
$-$	<code>\textknit{-}</code>	$\circlearrowleft\circlearrowright$	<code>\textknit{b}</code>	$\rightarrow\rightarrow$	<code>\textknit{s}</code>
$\wedge\wedge$	<code>\textknit{2}</code>	$\Downarrow\Downarrow$	<code>\textknit{E}</code>	$\square\circlearrowleft$	<code>\textknit{T}</code>
$\wedge\wedge$	<code>\textknit{3}</code>	$\curvearrowleft\curvearrowright$	<code>\textknit{F}</code>	$\square\circlearrowright$	<code>\textknit{t}</code>
\times	<code>\textknit{4}</code>	$\curvearrowleft\curvearrowright$	<code>\textknit{f}</code>	$\square\curvearrowleft$	<code>\textknit{U}</code>
\times	<code>\textknit{5}</code>	$\uparrow\downarrow$	<code>\textknit{H}</code>	$\times\downarrow$	<code>\textknit{u}</code>
\forall	<code>\textknit{6}</code>	$\downarrow\uparrow$	<code>\textknit{h}</code>	$\square\vee\vee$	<code>\textknit{V}</code>
\forall	<code>\textknit{7}</code>	$\square\rightarrow\rightarrow$	<code>\textknit{I}</code>	$\vee\vee$	<code>\textknit{v}</code>
$\forall\forall$	<code>\textknit{8}</code>	$\square\rightarrow\rightarrow$	<code>\textknit{i}</code>	$\square\vee\vee$	<code>\textknit{W}</code>
$\forall\forall$	<code>\textknit{9}</code>	$\square\rightarrow\rightarrow$	<code>\textknit{j}</code>	$\vee\vee$	<code>\textknit{w}</code>
$\wedge\wedge$	<code>\textknit{:}</code>	$\square\rightarrow\rightarrow$	<code>\textknit{j}</code>	$\square\vee\vee$	<code>\textknit{X}</code>
$\wedge\wedge$	<code>\textknit{;}</code>	$\square\rightarrow\rightarrow$	<code>\textknit{l}</code>	$\square\vee\vee$	<code>\textknit{x}</code>
$\wedge\wedge$	<code>\textknit{<}</code>	$\square\rightarrow\rightarrow$	<code>\textknit{l}</code>	$\square\vee\vee$	<code>\textknit{Y}</code>
$-$	<code>\textknit{=}</code>	$\square\rightarrow\rightarrow$	<code>\textknit{m}</code>	$\vee\vee$	<code>\textknit{y}</code>
$\wedge\wedge$	<code>\textknit{>}</code>	$\square\rightarrow\rightarrow$	<code>\textknit{m}</code>	$\square\vee\vee$	<code>\textknit{Z}</code>
\bullet	<code>\textknit{@}</code>	$\square\rightarrow\rightarrow$	<code>\textknit{o}</code>	$\square\vee\vee$	<code>\textknit{z}</code>

The knitting package is intended to typeset complete knitting charts. See the knitting documentation for more information.

Some symbols behave differently when used as part of a sequence. For example, contrast `\textknit{1}` (“+”), `\textknit{11}` (“++”), and `\textknit{111}` (“+++”). Similarly, contrast `\textknit{"}` (“””) and `\textknit{"}"` (“””). Again, see the knitting documentation for more information.

TABLE 541: countriesofeurope Country Maps



(continued on next page)

(continued from previous page)



(continued on next page)

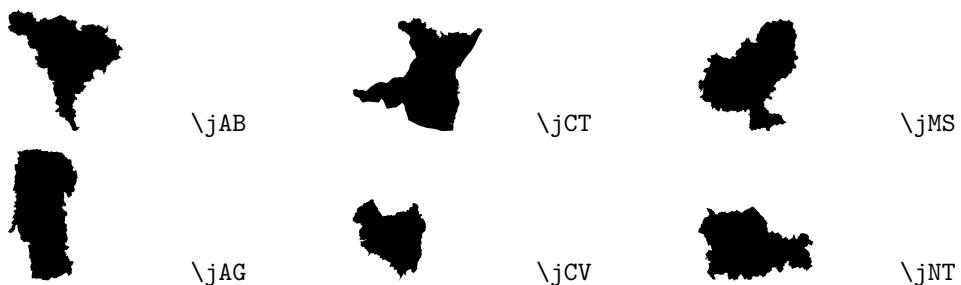
(continued from previous page)



The preceding commands work only when the `CountriesOfEurope` font family is active. For convenience, the package defines a `\countriesofeuropefamily` command that switches to that font family.

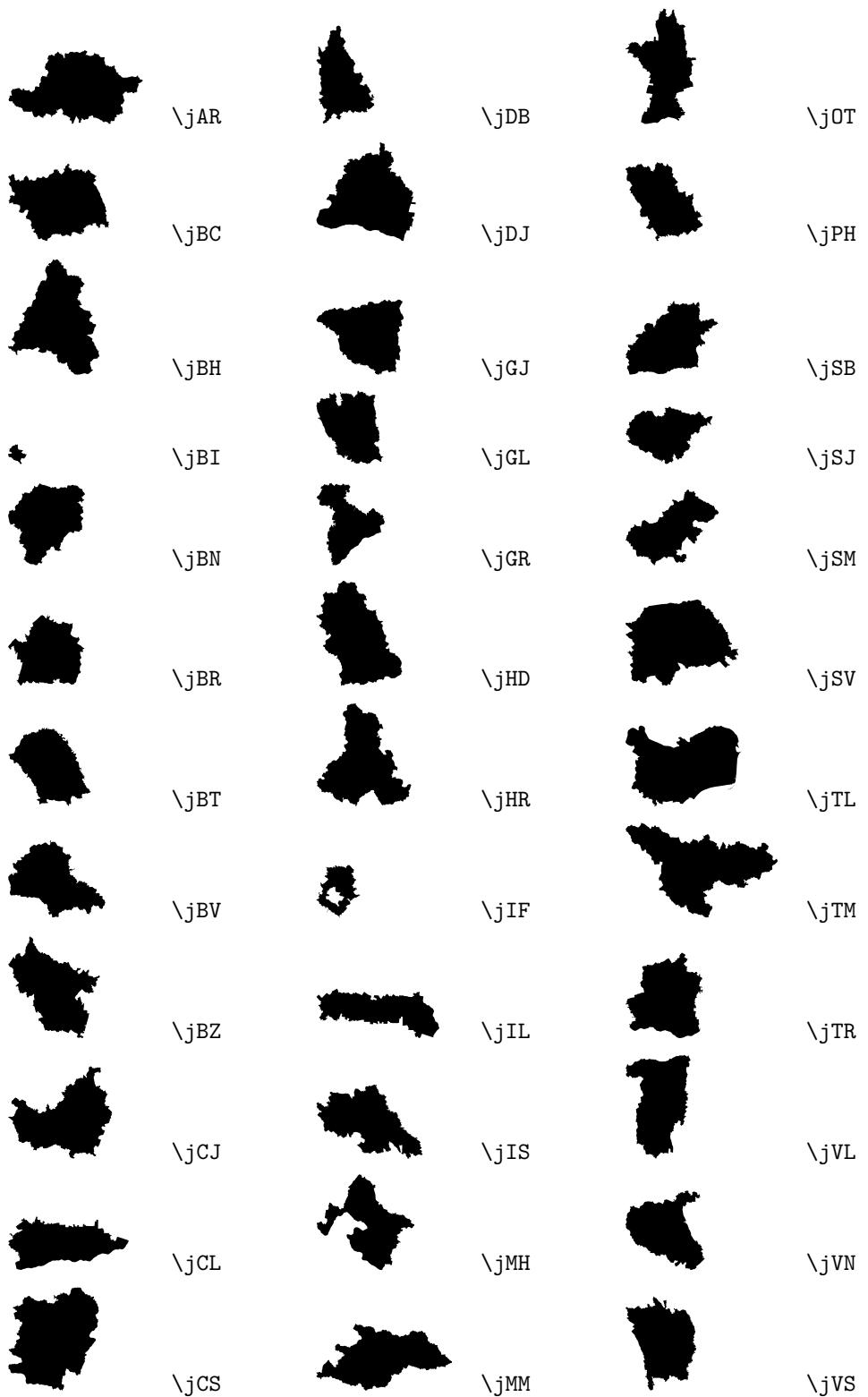
By default, countries are drawn in the current font size. Hence, “`\countriesofeuropefamily\France`” draws a nearly unrecognizable “”. For clarity of presentation, Table 541 scales each glyph to 72 pt. via an explicit `\fontsize{72}{72}`. An alternative is to specify the `scaled` package option to scale all country glyphs by a given factor of the font size.

TABLE 542: `rojud` Maps of Romanian Counties



(continued on next page)

(continued from previous page)



The preceding commands work only when the `rojud` font family is active. Use the OT1 font encodingOT1 in pdfL^AT_EX and the TU font encoding in X_LA^TE_X. (`rojud` requires one of those two T_EX engines.) For example, “{\usefont{OT1}{rojud}{m}{n}\jBI}” draws Bucharest.^a

^atechnically a municipality, not a county

TABLE 543: `euflag` European Union Flag



\euflag

The \euflag flag is drawn using the L^AT_EX `picture` environment.

TABLE 544: `worldflags` World Flags

	\worldflag{Abkhazia}		\worldflag{GL}		\worldflag{NU}
	\worldflag{AD}		\worldflag{GM}		\worldflag{NZ}
	\worldflag{AE}		\worldflag{GN}		\worldflag{Olympics}
	\worldflag{AF}		\worldflag{GQ}		\worldflag{OM}
	\worldflag{AG}		\worldflag{GR}		\worldflag{PA}
	\worldflag{AL}		\worldflag{GT}		\worldflag{PE}
	\worldflag{AM}		\worldflag{GW}		\worldflag{PG}
	\worldflag{AO}		\worldflag{GY}		\worldflag{PH}
	\worldflag{AQ}		\worldflag{HN}		\worldflag{PK}
	\worldflag{AR}		\worldflag{HR}		\worldflag{PL}
	\worldflag{Artsakh}		\worldflag{HT}		\worldflag{PS}
	\worldflag{AT}		\worldflag{HU}		\worldflag{PT}
	\worldflag{AU}		\worldflag{ID}		\worldflag{PW}
	\worldflag{AZ}		\worldflag{IE}		\worldflag{PY}
	\worldflag{BA}		\worldflag{IL}		\worldflag{QA}
	\worldflag{BB}		\worldflag{IN}		\worldflag{Rainbow}
	\worldflag{BD}		\worldflag{IQ}		\worldflag{RedCross}
	\worldflag{BE}		\worldflag{IR}		\worldflag{RO}
	\worldflag{BF}		\worldflag{IS}		\worldflag{RS}
	\worldflag{BG}		\worldflag{IT}		\worldflag{RU}
	\worldflag{BH}		\worldflag{JM}		\worldflag{RW}
	\worldflag{BI}		\worldflag{JO}		\worldflag{SA}
	\worldflag{BJ}		\worldflag{JollyRoger}		\worldflag{SB}
	\worldflag{BN}		\worldflag{JP}		\worldflag{SC}
	\worldflag{BO}		\worldflag{KE}		\worldflag{SD}
	\worldflag{BR}		\worldflag{KG}		\worldflag{SE}
	\worldflag{BS}		\worldflag{KH}		\worldflag{SG}

(continued on next page)

(continued from previous page)

	\worldflag{BT}		\worldflag{KI}		\worldflag{SI}
	\worldflag{BW}		\worldflag{KM}		\worldflag{SK}
	\worldflag{BY}		\worldflag{KN}		\worldflag{SL}
	\worldflag{BZ}		\worldflag{KO}		\worldflag{SM}
	\worldflag{CA}		\worldflag{KP}		\worldflag{SN}
	\worldflag{CD}		\worldflag{KR}		\worldflag{SO}
	\worldflag{CF}		\worldflag{KW}		\worldflag{Somaliland}
	\worldflag{CG}		\worldflag{KZ}		\worldflag{SR}
	\worldflag{CH}		\worldflag{LA}		\worldflag{SS}
	\worldflag{CI}		\worldflag{LB}		\worldflag{ST}
	\worldflag{CK}		\worldflag{LC}		\worldflag{SV}
	\worldflag{CL}		\worldflag{LI}		\worldflag{SY}
	\worldflag{CM}		\worldflag{LK}		\worldflag{SZ}
	\worldflag{CN}		\worldflag{LR}		\worldflag{TD}
	\worldflag{CO}		\worldflag{LS}		\worldflag{TG}
	\worldflag{CR}		\worldflag{LT}		\worldflag{TH}
	\worldflag{CU}		\worldflag{LU}		\worldflag{TJ}
	\worldflag{CV}		\worldflag{LV}		\worldflag{TL}
	\worldflag{CY}		\worldflag{LY}		\worldflag{TM}
	\worldflag{CZ}		\worldflag{MA}		\worldflag{TN}
	\worldflag{DE}		\worldflag{MD}		\worldflag{TO}
	\worldflag{DJ}		\worldflag{ME}		\worldflag{TR}
	\worldflag{DK}		\worldflag{MG}		\worldflag{Transnistria}
	\worldflag{DM}		\worldflag{MH}		\worldflag{TT}
	\worldflag{DO}		\worldflag{MK}		\worldflag{TV}
	\worldflag{DZ}		\worldflag{ML}		\worldflag{TW}
	\worldflag{EC}		\worldflag{MM}		\worldflag{TZ}
	\worldflag{EE}		\worldflag{MN}		\worldflag{UA}
	\worldflag{EG}		\worldflag{MR}		\worldflag{UG}
	\worldflag{EH}		\worldflag{MT}		\worldflag{UNO}
	\worldflag{ER}		\worldflag{MU}		\worldflag{US}
	\worldflag{ES}		\worldflag{MV}		\worldflag{UY}
	\worldflag{Esperanto}		\worldflag{MW}		\worldflag{UZ}
	\worldflag{ET}		\worldflag{MX}		\worldflag{VA}
	\worldflag{EU}		\worldflag{MY}		\worldflag{VC}
	\worldflag{FI}		\worldflag{MZ}		\worldflag{VE}
	\worldflag{FJ}		\worldflag{NA}		\worldflag{VN}
	\worldflag{FM}		\worldflag{NATO}		\worldflag{VU}
	\worldflag{FR}		\worldflag{NE}		\worldflag{WB}
	\worldflag{GA}		\worldflag{NG}		\worldflag{WS}
	\worldflag{GB}		\worldflag{NI}		\worldflag{YE}
	\worldflag{GD}		\worldflag{NL}		\worldflag{ZA}

(continued on next page)

(continued from previous page)

	\worldflag{GE}		\worldflag{NO}		\worldflag{ZM}
	\worldflag{GF}		\worldflag{NP}		\worldflag{ZW}
	\worldflag{GH}		\worldflag{NR}		

All worldflags symbols are implemented with TikZ graphics, not with a font.
The package provides a number of options for controlling flag size and style.
See the *worldflags* documentation for more information.

TABLE 545: twemojis Flags

	\twemoji{flag: Afghanistan}		\twemoji{flag: Libya}
	\twemoji{flag: Albania}		\twemoji{flag: Liechtenstein}
	\twemoji{flag: Algeria}		\twemoji{flag: Lithuania}
	\twemoji{flag: American Samoa}		\twemoji{flag: Luxembourg}
	\twemoji{flag: Andorra}		\twemoji{flag: Macao SAR China}
	\twemoji{flag: Angola}		\twemoji{flag: Madagascar}
	\twemoji{flag: Anguilla}		\twemoji{flag: Malawi}
	\twemoji{flag: Antarctica}		\twemoji{flag: Malaysia}
	\twemoji{flag: Antigua \& Barbuda}		\twemoji{flag: Maldives}
	\twemoji{flag: Argentina}		\twemoji{flag: Mali}
	\twemoji{flag: Armenia}		\twemoji{flag: Malta}
	\twemoji{flag: Aruba}		\twemoji{flag: Marshall Islands}
	\twemoji{flag: Ascension Island}		\twemoji{flag: Martinique}
	\twemoji{flag: Australia}		\twemoji{flag: Mauritania}
	\twemoji{flag: Austria}		\twemoji{flag: Mauritius}
	\twemoji{flag: Azerbaijan}		\twemoji{flag: Mayotte}
	\twemoji{flag: Bahamas}		\twemoji{flag: Mexico}
	\twemoji{flag: Bahrain}		\twemoji{flag: Micronesia}
	\twemoji{flag: Bangladesh}		\twemoji{flag: Moldova}
	\twemoji{flag: Barbados}		\twemoji{flag: Monaco}
	\twemoji{flag: Belarus}		\twemoji{flag: Mongolia}
	\twemoji{flag: Belgium}		\twemoji{flag: Montenegro}
	\twemoji{flag: Belize}		\twemoji{flag: Montserrat}
	\twemoji{flag: Benin}		\twemoji{flag: Morocco}
	\twemoji{flag: Bermuda}		\twemoji{flag: Mozambique}
	\twemoji{flag: Bhutan}		\twemoji{flag: Myanmar (Burma)}
	\twemoji{flag: Bolivia}		\twemoji{flag: Namibia}
	\twemoji{flag: Bosnia \& Herzegovina}		\twemoji{flag: Nauru}
	\twemoji{flag: Botswana}		\twemoji{flag: Nepal}
	\twemoji{flag: Bouvet Island}		\twemoji{flag: Netherlands}
	\twemoji{flag: Brazil}		\twemoji{flag: New Caledonia}
	\twemoji{flag: British Indian Ocean Territory}		\twemoji{flag: New Zealand}
	\twemoji{flag: British Virgin Islands}		\twemoji{flag: Nicaragua}
	\twemoji{flag: Brunei}		\twemoji{flag: Niger}

(continued on next page)

(continued from previous page)

- 🇧ulgaria \twemoji{flag: Bulgaria}
- 🇫🇷 \twemoji{flag: Burkina Faso}
- 🇧undi \twemoji{flag: Burundi}
- 🇰ampodia \twemoji{flag: Cambodia}
- 🇨ameroun \twemoji{flag: Cameroon}
- 🇨anada \twemoji{flag: Canada}
- 🇨anary Islands \twemoji{flag: Canary Islands}
- 🇨ape Verde \twemoji{flag: Cape Verde}
- 🇳etherlands Caribbean \twemoji{flag: Caribbean Netherlands}
- 🇨ayman Islands \twemoji{flag: Cayman Islands}
- 🇨entral African Republic \twemoji{flag: Central African Republic}
- 🇪spaña \twemoji{flag: Ceuta \& Melilla}
- 🇫rance \twemoji{flag: Chad}
- 🇨hile \twemoji{flag: Chile}
- 🇨hina \twemoji{flag: China}
- 🇪uropa \twemoji{flag: Christmas Island}
- 🇫rance Clipperton \twemoji{flag: Clipperton Island}
- 🇨ocos (Keeling) Islands \twemoji{flag: Cocos (Keeling) Islands}
- 🇨olombia \twemoji{flag: Colombia}
- 🇲oros \twemoji{flag: Comoros}
- 🇨ongo - Brazzaville \twemoji{flag: Congo - Brazzaville}
- 🇨ongo - Kinshasa \twemoji{flag: Congo - Kinshasa}
- 🇨o Cook Islands \twemoji{flag: Cook Islands}
- 🇨osta Rica \twemoji{flag: Costa Rica}
- 🇭roatis \twemoji{flag: Croatia}
- 🇨uba \twemoji{flag: Cuba}
- 🇨uraao \twemoji{flag: Curaao}
- 🇨yprus \twemoji{flag: Cyprus}
- 🇨zechia \twemoji{flag: Czechia}
- 🇮voire \twemoji{flag: Cte d'Ivoire}
- 🇩enmark \twemoji{flag: Denmark}
- 🇬eorgia \twemoji{flag: Diego Garcia}
- 🇩jibouti \twemoji{flag: Djibouti}
- 🇩ominica \twemoji{flag: Dominica}
- 🇩ominican Republic \twemoji{flag: Dominican Republic}
- 🇪cuador \twemoji{flag: Ecuador}
- 🇪gypt \twemoji{flag: Egypt}
- 🇸alvador \twemoji{flag: El Salvador}
- 🇬reat Britain \twemoji{flag: England}
- 🇪quatorial Guinea \twemoji{flag: Equatorial Guinea}
- 🇪ritrea \twemoji{flag: Eritrea}
- 🇪stonia \twemoji{flag: Estonia}
- 🇸waziland \twemoji{flag: Eswatini}
- 🇪thiopia \twemoji{flag: Ethiopia}
- 🇪uropean Union \twemoji{flag: European Union}
- 🇫alkland Islands \twemoji{flag: Falkland Islands}
- 🇫aroe Islands \twemoji{flag: Faroe Islands}
- 🇫iji \twemoji{flag: Fiji}
- 🇳igeria \twemoji{flag: Nigeria}
- 🇳iu \twemoji{flag: Niue}
- 🇫alkland Islands \twemoji{flag: Norfolk Island}
- 🇰orea \twemoji{flag: North Korea}
- 🇲acedonia \twemoji{flag: North Macedonia}
- 🇲arianas \twemoji{flag: Northern Mariana Islands}
- 🇳orway \twemoji{flag: Norway}
- 🇴man \twemoji{flag: Oman}
- 🇵akistan \twemoji{flag: Pakistan}
- 🇵alau \twemoji{flag: Palau}
- 🇵alestinian Territories \twemoji{flag: Palestinian Territories}
- 🇵anama \twemoji{flag: Panama}
- 🇵apua New Guinea \twemoji{flag: Papua New Guinea}
- 🇵araguay \twemoji{flag: Paraguay}
- 🇵eru \twemoji{flag: Peru}
- 🇵hilippines \twemoji{flag: Philippines}
- 🇵itcairn Islands \twemoji{flag: Pitcairn Islands}
- 🇵oland \twemoji{flag: Poland}
- 🇵ortugal \twemoji{flag: Portugal}
- 🇵uerto Rico \twemoji{flag: Puerto Rico}
- 🇶atar \twemoji{flag: Qatar}
- 🇷omania \twemoji{flag: Romania}
- 🇷ussia \twemoji{flag: Russia}
- 🇷wanda \twemoji{flag: Rwanda}
- 🇷union \twemoji{flag: Runion}
- 🇼amo \twemoji{flag: Samoa}
- 🇸an Marino \twemoji{flag: San Marino}
- 🇸audi Arabia \twemoji{flag: Saudi Arabia}
- 🇸cotland \twemoji{flag: Scotland}
- 🇸enegal \twemoji{flag: Senegal}
- 🇸erbia \twemoji{flag: Serbia}
- 🇸eychelles \twemoji{flag: Seychelles}
- 🇸ierra Leone \twemoji{flag: Sierra Leone}
- 🇸ingapore \twemoji{flag: Singapore}
- 🇸int Maarten \twemoji{flag: Sint Maarten}
- 🇸lovakia \twemoji{flag: Slovakia}
- 🇸lovenia \twemoji{flag: Slovenia}
- 🇸olomon Islands \twemoji{flag: Solomon Islands}
- 🇸omalia \twemoji{flag: Somalia}
- 🇸outh Africa \twemoji{flag: South Africa}
- 🇸outh Georgia \& South Sandwich Islands \twemoji{flag: South Georgia \& South Sandwich Islands}
- 🇸outh Korea \twemoji{flag: South Korea}
- 🇸udan \twemoji{flag: South Sudan}
- 🇸pain \twemoji{flag: Spain}
- 🇸ri Lanka \twemoji{flag: Sri Lanka}
- 🇸t. Barthlemy \twemoji{flag: St. Barthlemy}
- 🇸t. Helena \twemoji{flag: St. Helena}
- 🇸t. Kitts \& Nevis \twemoji{flag: St. Kitts \& Nevis}

(continued on next page)

(continued from previous page)

- + \twemoji{flag: Finland}
- 🇫🇷 \twemoji{flag: France}
- 🇬🇫 \twemoji{flag: French Guiana}
- 🇵🇫 \twemoji{flag: French Polynesia}
- 🇵🇫 \twemoji{flag: French Southern Territories}
- 🇬🇦 \twemoji{flag: Gabon}
- 🇬🇲 \twemoji{flag: Gambia}
- 🇬🇪 \twemoji{flag: Georgia}
- 🇩🇪 \twemoji{flag: Germany}
- 🇬🇭 \twemoji{flag: Ghana}
- 🇸🇻 \twemoji{flag: Gibraltar}
- 🇬🇷 \twemoji{flag: Greece}
- 🇮🇱 \twemoji{flag: Greenland}
- 🇬🇩 \twemoji{flag: Grenada}
- 🇫🇷 \twemoji{flag: Guadeloupe}
- 🇺🇲 \twemoji{flag: Guam}
- 🇬🇹 \twemoji{flag: Guatemala}
- 🇬🇬 \twemoji{flag: Guernsey}
- 🇬🇳 \twemoji{flag: Guinea}
- 🇬🇼 \twemoji{flag: Guinea-Bissau}
- 🇾🇹 \twemoji{flag: Guyana}
- 🇭🇹 \twemoji{flag: Haiti}
- 🇬🇸 \twemoji{flag: Heard & McDonald Islands}
- = \twemoji{flag: Honduras}
- 🇭🇰 \twemoji{flag: Hong Kong SAR China}
- 🇭🇺 \twemoji{flag: Hungary}
- 🇮🇸 \twemoji{flag: Iceland}
- 🇮🇳 \twemoji{flag: India}
- 🇮🇩 \twemoji{flag: Indonesia}
- 🇮🇷 \twemoji{flag: Iran}
- 🇮🇶 \twemoji{flag: Iraq}
- 🇮🇪 \twemoji{flag: Ireland}
- 🇮🇲 \twemoji{flag: Isle of Man}
- 🇮🇱 \twemoji{flag: Israel}
- 🇮🇹 \twemoji{flag: Italy}
- 🇯🇲 \twemoji{flag: Jamaica}
- 🇯🇵 \twemoji{flag: Japan}
- 🇯🇪 \twemoji{flag: Jersey}
- 🇯🇴 \twemoji{flag: Jordan}
- 🇰🇿 \twemoji{flag: Kazakhstan}
- 🇰🇪 \twemoji{flag: Kenya}
- 🇨🇰 \twemoji{flag: Kiribati}
- 🇽🇰 \twemoji{flag: Kosovo}
- 🇰🇼 \twemoji{flag: Kuwait}
- 🇰🇬 \twemoji{flag: Kyrgyzstan}
- 🇱🇨 \twemoji{flag: St. Lucia}
- 🇲artinique \twemoji{flag: St. Martin}
- 🇵🇷 \twemoji{flag: St. Pierre & Miquelon}
- 🇻🇨 \twemoji{flag: St. Vincent & Grenadines}
- 🇸🇩 \twemoji{flag: Sudan}
- 🇸🇷 \twemoji{flag: Suriname}
- 🇸🇯 \twemoji{flag: Svalbard & Jan Mayen}
- 🇸🇪 \twemoji{flag: Sweden}
- 🇨🇭 \twemoji{flag: Switzerland}
- 🇸🇾 \twemoji{flag: Syria}
- 🇹🇨 \twemoji{flag: So Tom & Prncipe}
- 🇹🇼 \twemoji{flag: Taiwan}
- 🇹🇯 \twemoji{flag: Tajikistan}
- 🇹🇿 \twemoji{flag: Tanzania}
- 🇹🇭 \twemoji{flag: Thailand}
- 🇹🇱 \twemoji{flag: Timor-Leste}
- 🇹🇬 \twemoji{flag: Togo}
- 🇹🇰 \twemoji{flag: Tokelau}
- 🇹🇴 \twemoji{flag: Tonga}
- 🇹🇹 \twemoji{flag: Trinidad & Tobago}
- 🇹🇹 \twemoji{flag: Tristan da Cunha}
- 🇹🇳 \twemoji{flag: Tunisia}
- 🇹🇷 \twemoji{flag: Turkey}
- 🇹🇲 \twemoji{flag: Turkmenistan}
- 🇹🇨 \twemoji{flag: Turks & Caicos Islands}
- 🇹🇻 \twemoji{flag: Tuvalu}
- 🇺🇸 \twemoji{flag: U.S. Outlying Islands}
- 🇺🇸 \twemoji{flag: U.S. Virgin Islands}
- 🇺🇬 \twemoji{flag: Uganda}
- 🇺🇦 \twemoji{flag: Ukraine}
- 🇪🇭 \twemoji{flag: United Arab Emirates}
- 🇬🇧 \twemoji{flag: United Kingdom}
- Ұ🇳 \twemoji{flag: United Nations}
- 🇺🇸 \twemoji{flag: United States}
- 🇺🇾 \twemoji{flag: Uruguay}
- Ӯ🇿 \twemoji{flag: Uzbekistan}
- 🇻🇺 \twemoji{flag: Vanuatu}
- 🇻🇦 \twemoji{flag: Vatican City}
- 🇻🇪 \twemoji{flag: Venezuela}
- 🇻🇳 \twemoji{flag: Vietnam}
- 🏴󠁧󠁢󠁥󠁮󠁧󠁿 \twemoji{flag: Wales}
- 🇼🇫 \twemoji{flag: Wallis & Futuna}
- Ӯ🇼 \twemoji{flag: Western Sahara}
- 🇾🇪 \twemoji{flag: Yemen}
- Ӯ🇿 \twemoji{flag: Zambia}

(continued on next page)

(continued from previous page)

\twemoji{flag: Laos}	\twemoji{flag: Zimbabwe}
\twemoji{flag: Latvia}	\twemoji{flag: land Islands}
\twemoji{flag: Lebanon}	\twemoji{pirate flag}
\twemoji{flag: Lesotho}	\twemoji{rainbow flag}
\twemoji{flag: Liberia}	\twemoji{transgender flag}

Most twemojis symbols have multiple names. Only the most descriptive name for each symbol is shown in this table.

All twemojis symbols are implemented as PDF graphics, not with a font.

TABLE 546: Miscellaneous arev Symbols

\anchor	\invsmileface	\skull	\warning
\biohazard	\radiation	\smileface	\yinyang
\heavyqtleft	\recycle	\steaming	
\heavyqtright	\sadface	\swords	

TABLE 547: cookingsymbols Cooking Symbols

\Bottomheat	\Fork	\Knife	\Topbottomheat
\Dish	\Gasstove	\Oven	\Topheat
\Fanoven	\Gloves	\Spoon	

TABLE 548: tikzsymbols Cooking Symbols

\bakingplate	\eggbeater	\pan	\squeezer
\blender	\fryingpan	\peeler	\trident
\bottle	\garlicpress	\pot	
\bowl	\grater	\rollingpin	
\cooker	\oven	\sieve	

tikzsymbols defines German-language aliases for each of the above: \Backblech for \bakingplate, \Bratpfanne for \fryingpan, \Dreizack for \trident, \Flasche for \bottle, \Herd for \cooker, \Kochtopf for \pot, \Knoblauchpresse for \garlicpress, \Nudelholz for \rollingpin, \Ofen for \oven, \Pfanne for \pan, \Purierstab for \blender, \Reibe for \grater, \Saftpresse for \squeezer, \Schaler for \peeler, \Schneebesen for \eggbeater, \Schussel for \bowl, and \Sieb for \sieve.

All tikzsymbols symbols are implemented with TikZ graphics, not with a font.

TABLE 549: `tikzsymbols` Emoji

☺	\Annoey	☺	\Laughey	☺	\rWalley	☺	\Tongey
🐱	\Cat	☺	\Neutrey	☺	\Sadey	☺	\Vomey
😺	\cChangey{1}	😺	\NiceReapey	😺	\SchrodingersCat{0}	😺	\Walley
☺	\Changey{1}	👺	\Ninja	☺	\Sey	☺	\Winkey
☺	\Cooley	☺	\Nursey	☺	\Sleepey	☺	\wInnocey
☺	\Innocey	☺	\oldWinkey	☺	\Smiley	☺	\Xey

All `tikzsymbols` symbols are implemented with TikZ graphics, not with a font. Hence, symbols like \Ninja can include color. In fact, most of the commands shown above accept one or more color arguments for further customization. Also note that \cChangey, \Changey, and \SchrodingersCat take a mandatory argument. See the `tikzsymbols` documentation for more information.

TABLE 550: `tikzsymbols` 3D Emoji

😊	\dAnnoey	😊	\dLaughey	😊	\dSadey	😊	\dVomey
😊	\dcChangey{1}	😊	\dNeutrey	😊	\dSey	😊	\dWalley
😊	\dChangey{1}	👺	\dNinja	😊	\dSleepey	😊	\dWinkey
😊	\dCooley	🎂	\dNursey	😊	\dSmiley	😊	\dXey
😊	\dInnocey	😺	\drWalley	😊	\dTongey	😊	\olddWinkey

All `tikzsymbols` symbols are implemented with TikZ graphics, not with a font. Hence, all of the symbols shown above can include color. In fact, each command in Table 550 accepts one or more color arguments for further customization. Note that \dcChangey and \dChangey also take a mandatory argument. See the `tikzsymbols` documentation for more information.

TABLE 551: `utfsym` Emoji

⌚	\usym{1F600}	⌚	\usym{1F614}	⌚	\usym{1F628}	⌚	\usym{1F63C}
⌚	\usym{1F601}	⌚	\usym{1F615}	⌚	\usym{1F629}	⌚	\usym{1F63D}
⌚	\usym{1F602}	⌚	\usym{1F616}	⌚	\usym{1F62A}	⌚	\usym{1F63E}
⌚	\usym{1F603}	⌚	\usym{1F617}	⌚	\usym{1F62B}	⌚	\usym{1F63F}
⌚	\usym{1F604}	⌚	\usym{1F618}	⌚	\usym{1F62C}	⌚	\usym{1F640}
⌚	\usym{1F605}	⌚	\usym{1F619}	⌚	\usym{1F62D}	⌚	\usym{1F641}
⌚	\usym{1F606}	⌚	\usym{1F61A}	⌚	\usym{1F62E}	⌚	\usym{1F642}
⌚	\usym{1F607}	⌚	\usym{1F61B}	⌚	\usym{1F62F}	⌚	\usym{1F643}
⌚	\usym{1F608}	⌚	\usym{1F61C}	⌚	\usym{1F630}	⌚	\usym{1F644}
⌚	\usym{1F609}	⌚	\usym{1F61D}	⌚	\usym{1F631}	⌚	\usym{1F645}
⌚	\usym{1F60A}	⌚	\usym{1F61E}	⌚	\usym{1F632}	⌚	\usym{1F646}
⌚	\usym{1F60B}	⌚	\usym{1F61F}	⌚	\usym{1F633}	⌚	\usym{1F647}
⌚	\usym{1F60C}	⌚	\usym{1F620}	⌚	\usym{1F634}	⌚	\usym{1F648}
⌚	\usym{1F60D}	⌚	\usym{1F621}	⌚	\usym{1F635}	⌚	\usym{1F649}
⌚	\usym{1F60E}	⌚	\usym{1F622}	⌚	\usym{1F636}	⌚	\usym{1F64A}
⌚	\usym{1F60F}	⌚	\usym{1F623}	⌚	\usym{1F637}	⌚	\usym{1F64B}
⌚	\usym{1F610}	⌚	\usym{1F624}	⌚	\usym{1F638}	⌚	\usym{1F64C}
⌚	\usym{1F611}	⌚	\usym{1F625}	⌚	\usym{1F639}	⌚	\usym{1F64D}
⌚	\usym{1F612}	⌚	\usym{1F626}	⌚	\usym{1F63A}	⌚	\usym{1F64E}
⌚	\usym{1F613}	⌚	\usym{1F627}	⌚	\usym{1F63B}	⌚	\usym{1F64F}

All `utfsym` symbols are implemented with TikZ graphics, not with a font. In addition to `\usym`, the `utfsym` package defines `\usymH`, which renders a symbol at a given height, and `\usymW`, which renders a symbol at a given width. See the `utfsym` documentation for more information.

TABLE 552: `tikzsymbols` Trees

	\Autumntree		\Summertree		\WorstTree
	\Springtree		\Wintertree		

All `tikzsymbols` symbols are implemented with TikZ graphics, not with a font. Hence, all of the symbols shown above can include color. `tikzsymbols` additionally defines a `\BasicTree` command that supports customization of trunk and leaf colors. See the `tikzsymbols` documentation for more information.

TABLE 553: Miscellaneous `tikzsymbols` Symbols

	\Bed		\Chair		\Fire		\Snowman		\Tribar
	\Candle		\Coffeecup		\Moai		\Strichmaxerl		

All `tikzsymbols` symbols are implemented with TikZ graphics, not with a font. `\Tribar` supports customization of the fill color for each bar. `\Strichmaxerl` supports customization of the angles at which the stick figure's arms and legs are drawn. See the `tikzsymbols` documentation for more information.

TABLE 554: Miscellaneous twemojis Emoji

A	\twemoji{1f1e6}	\twemoji{man in lotus position}* 以人为中心的坐姿
B	\twemoji{1f1e7}	\twemoji{man in manual wheelchair}* 以手动轮椅为中心的人
C	\twemoji{1f1e8}	\twemoji{man in motorized wheelchair}* 以电动轮椅为中心的人
D	\twemoji{1f1e9}	\twemoji{man in steamy room}* 在蒸汽房里的男人
E	\twemoji{1f1ea}	\twemoji{man in tuxedo}* 穿燕尾服的男人
F	\twemoji{1f1eb}	\twemoji{man judge}* 法官
G	\twemoji{1f1ec}	\twemoji{man juggling}* 正在杂耍的男人
H	\twemoji{1f1ed}	\twemoji{man kneeling}* 跪着的男人
I	\twemoji{1f1ee}	\twemoji{man lifting weights}* 举重的男人
J	\twemoji{1f1ef}	\twemoji{man mage}* 魔法师
K	\twemoji{1f1f0}	\twemoji{man mechanic}* 机械师
L	\twemoji{1f1f1}	\twemoji{man office worker}* 上班族
M	\twemoji{1f1f2}	\twemoji{man pilot}* 飞行员
N	\twemoji{1f1f3}	\twemoji{man playing handball}* 手球运动员
O	\twemoji{1f1f4}	\twemoji{man playing water polo}* 水球运动员
P	\twemoji{1f1f5}	\twemoji{man police officer}* 警察
Q	\twemoji{1f1f6}	\twemoji{man pouting}* 撅嘴的男人
R	\twemoji{1f1f7}	\twemoji{man raising hand}* 举手的男人
S	\twemoji{1f1f8}	\twemoji{man running}* 跑步的男人
T	\twemoji{1f1f9}	\twemoji{man scientist}* 科学家
U	\twemoji{1f1fa}	\twemoji{man shrugging}* 耸肩的男人
V	\twemoji{1f1fb}	\twemoji{man singer}* 歌手
W	\twemoji{1f1fc}	\twemoji{man standing}* 站着的男人
X	\twemoji{1f1fd}	\twemoji{man student}* 学生
Y	\twemoji{1f1fe}	\twemoji{man superhero}* 超级英雄
Z	\twemoji{1f1ff}	\twemoji{man supervillain}* 反派
⌚	\twemoji{1f468-1f3fb-200d-1f384}	\twemoji{man surfing}* 冲浪的男人
🏊	\twemoji{1f468-1f3fc-200d-1f384}	\twemoji{man swimming}* 游泳的男人
🏫	\twemoji{1f468-1f3fd-200d-1f384}	\twemoji{man teacher}* 老师
💻	\twemoji{1f468-1f3fe-200d-1f384}	\twemoji{man technologist}* 技术专家
💰	\twemoji{1f468-1f3ff-200d-1f384}	\twemoji{man tipping hand}* 给小费的男人
🧛	\twemoji{1f468-200d-1f384}	\twemoji{man vampire}* 吸血鬼
🚶	\twemoji{1f469-1f3fb-200d-1f384}	\twemoji{man walking}* 走路的男人
👳	\twemoji{1f469-1f3fc-200d-1f384}	\twemoji{man wearing turban}* 戴着头巾的男人
👰	\twemoji{1f469-1f3fd-200d-1f384}	\twemoji{man with veil}* 戴面纱的男人
🦞	\twemoji{1f469-1f3fe-200d-1f384}	\twemoji{man with white cane}* 拄拐杖的男人
🧟	\twemoji{1f469-1f3ff-200d-1f384}	\twemoji{man zombie}* 僵尸
👞	\twemoji{1f469-200d-1f384}	\twemoji{man's shoe}* 男人的鞋
♿	\twemoji{1f574-1f3fb-200d-2640-fe0f}	\twemoji{manual wheelchair} 手动轮椅
🗾	\twemoji{1f574-1f3fb-200d-2642-fe0f}	\twemoji{map of Japan} 日本地图
🍁	\twemoji{1f574-1f3fc-200d-2640-fe0f}	\twemoji{maple leaf} 枫叶
🥋	\twemoji{1f574-1f3fc-200d-2642-fe0f}	\twemoji{martial arts uniform} 武术制服
🔧	\twemoji{1f574-1f3fd-200d-2640-fe0f}	\twemoji{mechanic}* 修理工
🦵	\twemoji{1f574-1f3fd-200d-2642-fe0f}	\twemoji{mechanical arm} 机械臂
🦵	\twemoji{1f574-1f3fe-200d-2640-fe0f}	\twemoji{mechanical leg} 机械腿
🩺	\twemoji{1f574-1f3fe-200d-2642-fe0f}	\twemoji{medical symbol} 医疗符号
膚	\twemoji{1f574-1f3ff-200d-2640-fe0f}	\twemoji{medium skin tone} 中等肤色
DARK膚	\twemoji{1f574-1f3ff-200d-2642-fe0f}	\twemoji{medium-dark skin tone} 深色肤色
LIGHT膚	\twemoji{1f574-fe0f-200d-2640-fe0f}	\twemoji{medium-light skin tone} 浅色肤色
🔊	\twemoji{1f574-fe0f-200d-2642-fe0f}	\twemoji{megaphone} 扩音器

(continued on next page)

(continued from previous page)

» \twemoji{1f576}	» \twemoji{men holding hands}* » \twemoji{men with bunny ears}
» \twemoji{1f6cf}	» \twemoji{men wrestling}
» \twemoji{1st place medal}	» \twemoji{men's room}
» \twemoji{26f7-1f3fb}	» \twemoji{menorah}
» \twemoji{26f7-1f3fc}	» \twemoji{mermaid}* » \twemoji{merman}* » \twemoji{merperson}* » \twemoji{microphone}
» \twemoji{26f7-1f3fd}	» \twemoji{microscope}
» \twemoji{26f7-1f3fe}	» \twemoji{middle finger}* » \twemoji{military helmet}
» \twemoji{26f7-1f3ff}	» \twemoji{military medal}
» \twemoji{270f}	» \twemoji{milky way}
» \twemoji{2nd place medal}	» \twemoji{minus}
» \twemoji{3rd place medal}	» \twemoji{mirror}
» \twemoji{A button (blood type)}	» \twemoji{mobile phone}
» \twemoji{AB button (blood type)}	» \twemoji{mobile phone off}
» \twemoji{abacus}	» \twemoji{mobile phone with arrow}
» \twemoji{accordion}	» \twemoji{money bag}
» \twemoji{adhesive bandage}	» \twemoji{money with wings}
» \twemoji{admission tickets}	» \twemoji{money-mouth face}
» \twemoji{alembic}	» \twemoji{moon viewing ceremony}
» \twemoji{alien}	» \twemoji{mosque}
» \twemoji{alien monster}	» \twemoji{motorized wheelchair}
» \twemoji{american football}	» \twemoji{mount fuji}
» \twemoji{amphora}	» \twemoji{mountain}
» \twemoji{anatomical heart}	» \twemoji{mouse trap}
» \twemoji{anchor}	» \twemoji{mouth}
» \twemoji{anger symbol}	» \twemoji{movie camera}
» \twemoji{angry face}	» \twemoji{moyai}
» \twemoji{angry face with horns}	» \twemoji{Mrs. Claus}* » \twemoji{multiply}
» \twemoji{anguished face}	» \twemoji{musical keyboard}
» \twemoji{antenna bars}	» \twemoji{musical note}
» \twemoji{anxious face with sweat}	» \twemoji{musical notes}
» \twemoji{Aquarius}	» \twemoji{musical score}
» \twemoji{Aries}	» \twemoji{muted speaker}
» \twemoji{artist}* » \twemoji{artist palette}	» \twemoji{mx claus}* » \twemoji{nail polish}* » \twemoji{name badge}
» \twemoji{astonished face}	» \twemoji{national park}
» \twemoji{astronaut}* » \twemoji{ATM sign}	» \twemoji{nauseated face}
» \twemoji{atom symbol}	» \twemoji{nazar amulet}
» \twemoji{axe}	» \twemoji{necktie}
» \twemoji{B button (blood type)}	» \twemoji{nerd face}
» \twemoji{baby}* » \twemoji{baby angel}* » \twemoji{baby bottle}	» \twemoji{nesting dolls}
» \twemoji{baby symbol}	» \twemoji{neutral face}
» \twemoji{BACK arrow}	» \twemoji{NEW button}
» \twemoji{backhand index pointing down}* » \twemoji{backhand index pointing left}* » \twemoji{backhand index pointing right}* » \twemoji{backhand index pointing up}* » \twemoji{backslash}	

(continued on next page)

(continued from previous page)

🎒 \twemoji{backpack}	📰 \twemoji{newspaper}
🏸 \twemoji{badminton}	▶ \twemoji{next track button}
⚖ \twemoji{balance scale}	🆖 \twemoji{NG button}
👤 \twemoji{bald}	🌌 \twemoji{night with stars}
👠 \twemoji{ballet shoes}	👤 \twemoji{ninja}* 🚫 \twemoji{no entry}
🎈 \twemoji{balloon}	🚏 \twemoji{no littering}
🗳 \twemoji{ballot box with ballot}	📳 \twemoji{no mobile phones}
🎸 \twemoji{banjo}	🔞 \twemoji{no one under eighteen}
🏦 \twemoji{bank}	🚶 \twemoji{no pedestrians}
📊 \twemoji{bar chart}	🚬 \twemoji{no smoking}
💈 \twemoji{barber pole}	🚭 \twemoji{non-potable water}
⚾ \twemoji{baseball}	👃 \twemoji{nose}* 📔 \twemoji{notebook}
🏀 \twemoji{basketball}	📕 \twemoji{notebook with decorative cover}
🛁 \twemoji{bathtub}	🔧 \twemoji{nut and bolt}
🔋 \twemoji{battery}	🅾 \twemoji{O button (blood type)}
🏖 \twemoji{beach with umbrella}	🏢 \twemoji{office building}
😊 \twemoji{beaming face with smiling eyes}	👤 \twemoji{office worker}* 👹 \twemoji{ogre}
❤ \twemoji{beating heart}	🩺 \twemoji{oil drum}
🔔 \twemoji{bell}	🆗 \twemoji{OK button}
⚠ \twemoji{bell with slash}	👌 \twemoji{OK hand}* 🗝 \twemoji{old key}
🛎 \twemoji{bellhop bell}	👴 \twemoji{old man}* 👵 \twemoji{old woman}* 👳 \twemoji{older person}* ॐ \twemoji{om}
👙 \twemoji{bikini}	🔛 \twemoji{ON! arrow}
🧢 \twemoji{billed cap}	👊 \twemoji{oncoming fist}* 👙 \twemoji{one-piece swimsuit}
☣ \twemoji{biohazard}	📖 \twemoji{open book}
🎂 \twemoji{birthday cake}	📂 \twemoji{open file folder}
🐂 \twemoji{bison}	👋 \twemoji{open hands}* 📫 \twemoji{open mailbox with lowered flag}
⚫ \twemoji{black circle}	📬 \twemoji{open mailbox with raised flag}
🚩 \twemoji{black flag}	⛎ \twemoji{Ophiuchus}
❤ \twemoji{black heart}	💿 \twemoji{optical disk}
▀ \twemoji{black large square}	📙 \twemoji{orange book}
▀ \twemoji{black medium square}	🟠 \twemoji{orange circle}
▀ \twemoji{black medium-small square}	♥ \twemoji{orange heart}
✒ \twemoji{black nib}	🟠 \twemoji{orange square}
▀ \twemoji{black small square}	☦ \twemoji{orthodox cross}
▣ \twemoji{black square button}	📤 \twemoji{outbox tray}
✿ \twemoji{blossom}	🅿 \twemoji{P button}
📘 \twemoji{blue book}	📦 \twemoji{package}
🔵 \twemoji{blue circle}	📄 \twemoji{page facing up}
❤ \twemoji{blue heart}	📄 \twemoji{page with curl}
📘 \twemoji{blue square}	📠 \twemoji{pager}
💣 \twemoji{bomb}	
🏷 \twemoji{bone}	
🔖 \twemoji{bookmark}	
📑 \twemoji{bookmark tabs}	
📚 \twemoji{books}	
_EMIT \twemoji{boomerang}	
💐 \twemoji{bouquet}	
🏹 \twemoji{bow and arrow}	

(continued on next page)

(continued from previous page)

🎳	\twemoji{bowling}	🖌	\twemoji{paintbrush}
🥊	\twemoji{boxing glove}	🌴	\twemoji{palm tree}
👶	\twemoji{boy}* ↳ \twemoji{boy}	🤝	\twemoji{palms up together}* ↳ \twemoji{palms up together}
🧠	\twemoji{brain}	📎	\twemoji{paperclip}
🤱	\twemoji{breast-feeding}* ↳ \twemoji{breast-feeding}	🪂	\twemoji{parachute}
🧱	\twemoji{bricks}	〽️	\twemoji{part alternation mark}
🌉	\twemoji{bridge at night}	🎉	\twemoji{party popper}
💼	\twemoji{briefcase}	🥳	\twemoji{partying face}
📩	\twemoji{briefs}	⏸️	\twemoji{pause button}
☀️	\twemoji{bright button}	☮️	\twemoji{peace symbol}
💔	\twemoji{broken heart}	✍️	\twemoji{pen}
🧹	\twemoji{broom}	📝	\twemoji{pencil}
🟤	\twemoji{brown circle}	🤔	\twemoji{pensive face}
❤️	\twemoji{brown heart}	👫	\twemoji{people holding hands}* ↳ \twemoji{people holding hands}
🟦	\twemoji{brown square}	👬	\twemoji{people hugging}
🪧	\twemoji{bucket}	👯	\twemoji{people with bunny ears}
🏗️	\twemoji{building construction}	🤼	\twemoji{people wrestling}
🎯	\twemoji{bullseye}	🎭	\twemoji{performing arts}
👤	\twemoji{bust in silhouette}	❗️	\twemoji{persevering face}
👥	\twemoji{busts in silhouette}	😊	\twemoji{person}* ↳ \twemoji{person}
🌵	\twemoji{cactus}	🏃	\twemoji{person bouncing ball}* ↳ \twemoji{person bouncing ball}
👉	\twemoji{call me hand}* ↳ \twemoji{call me hand}	🙏	\twemoji{person bowing}* ↳ \twemoji{person bowing}
📷	\twemoji{camera}	🤸	\twemoji{person cartwheeling}* ↳ \twemoji{person cartwheeling}
📸	\twemoji{camera with flash}	🧗	\twemoji{person climbing}* ↳ \twemoji{person climbing}
🏕️	\twemoji{camping}	🤦	\twemoji{person facepalming}* ↳ \twemoji{person facepalming}
♋	\twemoji{Cancer}	🤱🏼	\twemoji{person feeding baby}* ↳ \twemoji{person feeding baby}
🕯️	\twemoji{candle}	🤺	\twemoji{person fencing}
♑	\twemoji{Capricorn}	🙍	\twemoji{person frowning}* ↳ \twemoji{person frowning}
🗃️	\twemoji{card file box}	:NO:	\twemoji{person gesturing NO}* ↳ \twemoji{person gesturing NO}
📇	\twemoji{card index}	👌	\twemoji{person gesturing OK}* ↳ \twemoji{person gesturing OK}
📇	\twemoji{card index dividers}	💇	\twemoji{person getting haircut}* ↳ \twemoji{person getting haircut}
🎠	\twemoji{carousel horse}	💆	\twemoji{person getting massage}* ↳ \twemoji{person getting massage}
🎏	\twemoji{carp streamer}	🏌️	\twemoji{person golfing}* ↳ \twemoji{person golfing}
YNAMI	\twemoji{carpentry saw}	🛌	\twemoji{person in bed}* ↳ \twemoji{person in bed}
🏰	\twemoji{castle}	🧘	\twemoji{person in lotus position}* ↳ \twemoji{person in lotus position}
😺	\twemoji{cat with tears of joy}	♿	\twemoji{person in manual wheelchair}* ↳ \twemoji{person in manual wheelchair}
😺	\twemoji{cat with wry smile}	♿	\twemoji{person in motorized wheelchair}* ↳ \twemoji{person in motorized wheelchair}
⛓️	\twemoji{chains}	👤	\twemoji{person in steamy room}* ↳ \twemoji{person in steamy room}
💺	\twemoji{chair}	🕴️	\twemoji{person in suit levitating}* ↳ \twemoji{person in suit levitating}
📉	\twemoji{chart decreasing}	🤵️	\twemoji{person in tuxedo}* ↳ \twemoji{person in tuxedo}
📈	\twemoji{chart increasing}	🤹	\twemoji{person juggling}* ↳ \twemoji{person juggling}
💹	\twemoji{chart increasing with yen}	꿇️	\twemoji{person kneeling}* ↳ \twemoji{person kneeling}
☑️	\twemoji{check box with check}	🏋️	\twemoji{person lifting weights}* ↳ \twemoji{person lifting weights}
✓️	\twemoji{check mark}	🤾	\twemoji{person playing handball}* ↳ \twemoji{person playing handball}
✅	\twemoji{check mark button}	🤽	\twemoji{person playing water polo}* ↳ \twemoji{person playing water polo}
🏁	\twemoji{chequered flag}	🙎	\twemoji{person pouting}* ↳ \twemoji{person pouting}
🌸	\twemoji{cherry blossom}	🙋	\twemoji{person raising hand}* ↳ \twemoji{person raising hand}
♟️	\twemoji{chess pawn}	🏃	\twemoji{person running}* ↳ \twemoji{person running}
🌰	\twemoji{chestnut}	🤷️	\twemoji{person shrugging}* ↳ \twemoji{person shrugging}
👶	\twemoji{child}* ↳ \twemoji{child}	standing	\twemoji{person standing}* ↳ \twemoji{person standing}
-Allow	\twemoji{children crossing}	🏄	\twemoji{person surfing}* ↳ \twemoji{person surfing}

(continued on next page)

(continued from previous page)

🎄 \twemoji{Christmas tree}	🏊 \twemoji{person swimming}* 🛀 \twemoji{person taking bath}* 🚬 \twemoji{cigarette} 🎦 \twemoji{cinema}
⛪ \twemoji{church}	⭐ \twemoji{person tipping hand}* 🚶 \twemoji{person walking}* 👳 \twemoji{person wearing turban}* 👲 \twemoji{person with skullcap}* 👳 \twemoji{person with veil}* 🚶 \twemoji{person with white cane}* 🍽 \twemoji{petri dish}
🚬 \twemoji{cigarette}	⛏ \twemoji{pick}
Ⓜ \twemoji{circled M}	💩 \twemoji{pile of poo}
🎪 \twemoji{circus tent}	💊 \twemoji{pill}
🏙 \twemoji{cityscape}	✈ \twemoji{pilot}* 👉 \twemoji{pinched fingers}* 👉 \twemoji{pinching hand}* 🎍 \twemoji{pine decoration}
🌆 \twemoji{cityscape at dusk}	🏓 \twemoji{ping pong}
🆁 \twemoji{CL button}	♓ \twemoji{Pisces}
🩹 \twemoji{clamp}	🎉 \twemoji{piata}
🎬 \twemoji{clapper board}	🚩 \twemoji{placard}
👏 \twemoji{clapping hands}* 🏛 \twemoji{classical building}	🛐 \twemoji{place of worship}
📋 \twemoji{clipboard}	▶ \twemoji{play button}
🕒 \twemoji{clockwise vertical arrows}	⏸ \twemoji{play or pause button}
📕 \twemoji{closed book}	🥺 \twemoji{pleading face}
📪 \twemoji{closed mailbox with lowered flag}	↴ \twemoji{plunger}
📫 \twemoji{closed mailbox with raised flag}	➕ \twemoji{plus}
🌂 \twemoji{closed umbrella}	👮 \twemoji{police officer}* 🎱 \twemoji{pool 8 ball}
🤡 \twemoji{clown face}	🏤 \twemoji{post office}
👝 \twemoji{clutch bag}	📇 \twemoji{postal horn}
🧥 \twemoji{coat}	📮 \twemoji{postbox}
⚰ \twemoji{coffin}	💧 \twemoji{potable water}
💰 \twemoji{coin}	🍓 \twemoji{potted plant}
🥶 \twemoji{cold face}	💷 \twemoji{pound banknote}
💥 \twemoji{collision}	😾 \twemoji{pouting cat}
☄ \twemoji{comet}	😡 \twemoji{pouting face}
🧭 \twemoji{compass}	唪 \twemoji{prayer beads}
💻 \twemoji{computer}	🤰 \twemoji{pregnant woman}* 🤴 \twemoji{prince}* 👸 \twemoji{princess}* 🖨 \twemoji{printer}
💽 \twemoji{computer disk}	🚫 \twemoji{prohibited}
🖱 \twemoji{computer mouse}	🟣 \twemoji{purple circle}
🎊 \twemoji{confetti ball}	🟤 \twemoji{purple heart}
😖 \twemoji{confounded face}	🟧 \twemoji{purple square}
nije \twemoji{confused face}	👛 \twemoji{purse}
👷 \twemoji{construction worker}* 🎛 \twemoji{control knobs}	📌 \twemoji{pushpin}
🏪 \twemoji{convenience store}	✳ \twemoji{puzzle piece}
cook \twemoji{cook}* 🆒 \twemoji{COOL button}	📻 \twemoji{radio}
_COPYRIGHT \twemoji{copyright}	🌐 \twemoji{radio button}
🛋 \twemoji{couch and lamp}	
🔃 \twemoji{counterclockwise arrows button}	
💏 \twemoji{couple with heart}* 💏 \twemoji{couplekiss}	
🤠 \twemoji{cowboy hat face}	
🖍 \twemoji{crayon}	
💳 \twemoji{credit card}	
🏏 \twemoji{cricket game}	
✗ \twemoji{cross mark}	
☒ \twemoji{cross mark button}	

(continued on next page)

(continued from previous page)

\twemoji{crossed fingers}*
\twemoji{crossed flags}
\twemoji{crossed swords}
\twemoji{crown}
\twemoji{crying cat}
\twemoji{crying face}
\twemoji{crystal ball}
\twemoji{curling stone}
\twemoji{curly hair}
\twemoji{curly loop}
\twemoji{currency exchange}
\twemoji{cyclone}
\twemoji{dagger}
\twemoji{dark skin tone}
\twemoji{dashing away}
\twemoji{date}
\twemoji{deaf man}*
\twemoji{deaf person}*
\twemoji{deaf woman}*
\twemoji{deciduous tree}
\twemoji{department store}
\twemoji{derelict house}
\twemoji{desert}
\twemoji{desert island}
\twemoji{desktop computer}
\twemoji{detective}*
\twemoji{diamond with a dot}
\twemoji{dim button}
\twemoji{disappointed face}
\twemoji{disguised face}
\twemoji{divide}
\twemoji{diving mask}
\twemoji{diya lamp}
\twemoji{dizzy}
\twemoji{dna}
\twemoji{dollar banknote}
\twemoji{door}
\twemoji{dotted six-pointed star}
\twemoji{double curly loop}
!!\twemoji{double exclamation mark}
\twemoji{dove}
\twemoji{down arrow}
\twemoji{down-left arrow}
\twemoji{down-right arrow}

\twemoji{downcast face with sweat}
\twemoji{downwards button}
\twemoji{dress}
\twemoji{drooling face}
\twemoji{drop of blood}
\twemoji{droplet}
\twemoji{drum}
\twemoji{dvd}

😡\twemoji{radioactive}
🌈\twemoji{rainbow}
✋\twemoji{raised back of hand}*
✊\twemoji{raised fist}*
✋\twemoji{raised hand}*
🙌\twemoji{raising hands}*
🔪\twemoji{razor}
📠\twemoji{receipt}
📠\twemoji{record button}
♻️\twemoji{recycling symbol}
🔴\twemoji{red circle}
📧\twemoji{red envelope}
❗\twemoji{red exclamation mark}
🔴\twemoji{red hair}
❤️\twemoji{red heart}
🏮\twemoji{red paper lantern}
❓\twemoji{red question mark}
🔴\twemoji{red square}
▼\twemoji{red triangle pointed down}
▲\twemoji{red triangle pointed up}
®\twemoji{registered}
😊\twemoji{relieved face}
🎗\twemoji{reminder ribbon}
🔁\twemoji{repeat button}
🔂\twemoji{repeat single button}
⛑\twemoji{rescue worker's helmet}
🚾\twemoji{restroom}
◀\twemoji{reverse button}
❤\twemoji{revolving hearts}
🎀\twemoji{ribbon}
🗯\twemoji{right anger bubble}
➡\twemoji{right arrow}
➡\twemoji{right arrow curving down}
➡\twemoji{right arrow curving left}
➡\twemoji{right arrow curving up}
👉\twemoji{right-facing fist}*
💍\twemoji{ring}
🪐\twemoji{ringed planet}
🤖\twemoji{robot}
🗿\twemoji{rock}
🗞\twemoji{roll of paper}
🗞\twemoji{rolled-up newspaper}
🎢\twemoji{roller coaster}
🤣\twemoji{rolling on the floor laughing}
🌹\twemoji{rose}
🎖\twemoji{rosette}
📍\twemoji{round pushpin}
🏉\twemoji{rugby football}
🎽\twemoji{running shirt}
👟\twemoji{running shoe}
😢\twemoji{sad but relieved face}
­s\twemoji{safety pin}

(continued on next page)

(continued from previous page)

✉️	\twemoji{e-mail}
🤖	\twemoji{e50a}
💡	\twemoji{ear}*
🌽	\twemoji{ear of corn}
👂	\twemoji{ear with hearing aid}*
* *	\twemoji{eight-pointed star}
✳️	\twemoji{eight-spoked asterisk}
⏏️	\twemoji{eject button}
⚡	\twemoji{electric plug}
🌐	\twemoji{elevator}
🧙	\twemoji{elf}*
➡️	\twemoji{END arrow}
✉️	\twemoji{envelope}
📩	\twemoji{envelope with arrow}
💶	\twemoji{euro banknote}
🌲	\twemoji{evergreen tree}
❗?	\twemoji{exclamation question mark}
💥	\twemoji{exploding head}
Ｚ	\twemoji{expressionless face}
👁	\twemoji{eye}
🗨	\twemoji{eye in speech bubble}
👓	\twemoji{eyeglasses}
👀	\twemoji{eyes}
😘	\twemoji{face blowing a kiss}
😋	\twemoji{face savoring food}
😱	\twemoji{face screaming in fear}
🤮	\twemoji{face vomiting}
👄	\twemoji{face with hand over mouth}
🤕	\twemoji{face with head-bandage}
😷	\twemoji{face with medical mask}
😎	\twemoji{face with monocle}
^K	\twemoji{face with open mouth}
썹	\twemoji{face with raised eyebrow}
😉	\twemoji{face with rolling eyes}
😤	\twemoji{face with steam from nose}
😡	\twemoji{face with symbols on mouth}
😂	\twemoji{face with tears of joy}
🤒	\twemoji{face with thermometer}
👅	\twemoji{face with tongue}
👄	\twemoji{face without mouth}
🏭	\twemoji{factory}
⼯	\twemoji{factory worker}*
🧚	\twemoji{fairy}*
🍂	\twemoji{fallen leaf}
👨‍👩‍👧‍👦	\twemoji{family}*
🌾	\twemoji{farmer}*
⬇️	\twemoji{fast down button}
◀️	\twemoji{fast reverse button}
⬆️	\twemoji{fast up button}
筑牢	\twemoji{safety vest}
♐️	\twemoji{Sagittarius}
⛵	\twemoji{sailboat}
🎅	\twemoji{Santa Claus}*
👗	\twemoji{sari}
📡	\twemoji{satellite antenna}
🎷	\twemoji{saxophone}
🧣	\twemoji{scarf}
🏫	\twemoji{school}
🔬	\twemoji{scientist}*
✂️	\twemoji{scissors}
♏	\twemoji{scorpius}
🔧	\twemoji{screwdriver}
📜	\twemoji{scroll}
💺	\twemoji{seat}
🙉	\twemoji{see-no-evil monkey}
🌱	\twemoji{seedling}
🤳	\twemoji{selfie}*
🧵	\twemoji{sewing needle}
☘	\twemoji{shamrock}
🌾	\twemoji{sheaf of rice}
🛡	\twemoji{shield}
⛩	\twemoji{shinto shrine}
🌠	\twemoji{shooting star}
🛍	\twemoji{shopping bags}
🛒	\twemoji{shopping cart}
👖	\twemoji{shorts}
🚿	\twemoji{shower}
🔀	\twemoji{shuffle tracks button}
쉿	\twemoji{shushing face}
🤘	\twemoji{sign of the horns}*
🎤	\twemoji{singer}*
⛷	\twemoji{skier}
🎿	\twemoji{skis}
💀	\twemoji{skull}
☠️	\twemoji{skull and crossbones}
😴	\twemoji{sleeping face}
😪	\twemoji{sleepy face}
🙁	\twemoji{slightly frowning face}
😊	\twemoji{slightly smiling face}
🎰	\twemoji{slot machine}
💠	\twemoji{small blue diamond}
🔸	\twemoji{small orange diamond}
😺	\twemoji{smiling cat with heart-eyes}
😊	\twemoji{smiling face}
光环	\twemoji{smiling face with halo}
😍	\twemoji{smiling face with heart-eyes}
🥰	\twemoji{smiling face with hearts}
🥳	\twemoji{smiling face with horns}

(continued on next page)

(continued from previous page)

▶ \twemoji{fast-forward button}	😊 \twemoji{smiling face with smiling eyes}
📠 \twemoji{fax machine}	😎 \twemoji{smiling face with sunglasses}
😨 \twemoji{fearful face}	😍 \twemoji{smiling face with tear}
✍ \twemoji{feather}	🤗 \twemoji{smirking face}
♀ \twemoji{female sign}	🤧 \twemoji{sneezing face}
🎡 \twemoji{ferris wheel}	🏔 \twemoji{snow-capped mountain}
⛴ \twemoji{ferry}	🏂 \twemoji{snowboarder}* ❄ \twemoji{snowflake}
🏒 \twemoji{field hockey}	☃ \twemoji{snowman}
🗄 \twemoji{file cabinet}	⛄ \twemoji{snowman without snow}
📁 \twemoji{file folder}	🧼 \twemoji{soap}
🎞 \twemoji{film frames}	⚽ \twemoji{soccer ball}
📽 \twemoji{film projector}	🧦 \twemoji{socks}
🔥 \twemoji{fire}	⚾ \twemoji{softball}
🔥 \twemoji{fire extinguisher}	➡ \twemoji{SOON arrow}
🧨 \twemoji{firecracker}	🆘 \twemoji{SOS button}
🚒 \twemoji{firefighter}* ☀ \twemoji{fireworks}	✨ \twemoji{sparkle}
🎣 \twemoji{fishing pole}	🎇 \twemoji{sparkler}
🚩 \twemoji{flag in hole}	💖 \twemoji{sparkles}
🔦 \twemoji{flashlight}	💖 \twemoji{sparkling heart}
👞 \twemoji{flat shoe}	🙊 \twemoji{speak-no-evil monkey}
🇫 \twemoji{fleur-de-lis}	🔊 \twemoji{speaker high volume}
💪 \twemoji{flexed biceps}* 💾 \twemoji{floppy disk}	🔉 \twemoji{speaker low volume}
🎴 \twemoji{flower playing cards}	🔈 \twemoji{speaker medium volume}
😳 \twemoji{flushed face}	🗣 \twemoji{speaking head}
🪂 \twemoji{flying disc}	💬 \twemoji{speech balloon}
🌁 \twemoji{foggy}	🕷 \twemoji{spider}
🙏 \twemoji{folded hands}* 🦶 \twemoji{foot}* 👣 \twemoji{footprints}	🕸 \twemoji{spider web}
⛲ \twemoji{fountain}	📅 \twemoji{spiral calendar}
🖋 \twemoji{fountain pen}	🗒 \twemoji{spiral notepad}
✳ \twemoji{four leaf clover}	🧽 \twemoji{sponge}
🖼 \twemoji{framed picture}	🥄 \twemoji{spoon}
🆓 \twemoji{FREE button}	🏅 \twemoji{sports medal}
(; \twemoji{frowning face}	瞞 \twemoji{squinting face with tongue}
(; \twemoji{frowning face with open mouth}	🏟 \twemoji{stadium}
⛽ \twemoji{fuel pump}	⭐ \twemoji{star}
⚱ \twemoji{funeral urn}	☪ \twemoji{star and crescent}
🎲 \twemoji{game die}	✡ \twemoji{star of David}
⚙ \twemoji{gear}	🤩 \twemoji{star-struck}
💎 \twemoji{gem stone}	🗽 \twemoji{Statue of Liberty}
♊ \twemoji{Gemini}	医用 \twemoji{stethoscope}
🧞 \twemoji{genie}	⏹ \twemoji{stop button}
👻 \twemoji{ghost}	🛑 \twemoji{stop sign}
Ｇ \twemoji{girl}* 🌐 \twemoji{globe showing Americas}	📏 \twemoji{straight ruler}
	ѧ \twemoji{student}* 🎙 \twemoji{studio microphone}
	☀ \twemoji{sun with face}
	🌻 \twemoji{sunflower}

(continued on next page)

(continued from previous page)

🌐 \twemoji{globe showing Asia-Australia}	🌅 \twemoji{sunrise}
🌐 \twemoji{globe showing Europe-Africa}	🌄 \twemoji{sunrise over mountains}
🌐 \twemoji{globe with meridians}	🌆 \twemoji{sunset}
🧤 \twemoji{gloves}	🦸 \twemoji{superhero}* 🧙 \twemoji{supervillain}* 🧟 \twemoji{sweat droplets}
⭐ \twemoji{glowing star}	🕰 \twemoji{synagogue}
📖 \twemoji{goal net}	💉 \twemoji{syringe}
👺 \twemoji{goblin}	👕 \twemoji{t-shirt}
แว \twemoji{goggles}	🎋 \twemoji{tanabata tree}
🎓 \twemoji{graduation cap}	♉ \twemoji{Taurus}
📗 \twemoji{green book}	𝕃 \twemoji{teacher}* 📅 \twemoji{tear-off calendar}
🟢 \twemoji{green circle}	🔭 \twemoji{technologist}* 🧸 \twemoji{teddy bear}
💚 \twemoji{green heart}	☎ \twemoji{telephone}
🟩 \twemoji{green square}	📞 \twemoji{telephone receiver}
,:,: \twemoji{grimacing face}	🔭 \twemoji{telescope}
😺 \twemoji{grinning cat}	📺 \twemoji{television}
😺 \twemoji{grinning cat with smiling eyes}	🎾 \twemoji{tennis}
,:,: \twemoji{grinning face}	⛺ \twemoji{tent}
,:,: \twemoji{grinning face with big eyes}	🧪 \twemoji{test tube}
,:,: \twemoji{grinning face with smiling eyes}	🤔 \twemoji{thinking face}
,:,: \twemoji{grinning face with sweat}	👡 \twemoji{thong sandal}
,:,: \twemoji{grinning squinting face}	💭 \twemoji{thought balloon}
❤ \twemoji{growing heart}	🧵 \twemoji{thread}
💂 \twemoji{guard}* 🎸 \twemoji{guitar}	👎 \twemoji{thumbs down}* 👍 \twemoji{thumbs up}* 🎫 \twemoji{ticket}
🔨 \twemoji{hammer}	😫 \twemoji{tired face}
🛠 \twemoji{hammer and pick}	🚽 \twemoji{toilet}
🛠 \twemoji{hammer and wrench}	🗼 \twemoji{Tokyo tower}
👋 \twemoji{hand with fingers splayed}* 👜 \twemoji{handbag}	👅 \twemoji{tongue}
👋 \twemoji{handshake}	💼 \twemoji{toolbox}
🎧 \twemoji{headphones}	🦷 \twemoji{tooth}
襚 \twemoji{headstone}	🦷 \twemoji{toothbrush}
医护人员 \twemoji{health worker}* 🙈 \twemoji{hear-no-evil monkey}	↑ \twemoji{TOP arrow}
❤ \twemoji{heart decoration}	🎩 \twemoji{top hat}
❤ \twemoji{heart exclamation}	👤 \twemoji{trackball}
❤ \twemoji{heart with arrow}	™ \twemoji{trade mark}
❤ \twemoji{heart with ribbon}	⚧ \twemoji{transgender symbol}
\$ \twemoji{heavy dollar sign}	🚩 \twemoji{triangular flag}
🌿 \twemoji{herb}	📐 \twemoji{triangular ruler}
🌺 \twemoji{hibiscus}	🔱 \twemoji{trident emblem}
⚡ \twemoji{high voltage}	🏆 \twemoji{trophy}
👠 \twemoji{high-heeled shoe}	🎺 \twemoji{trumpet}
🥾 \twemoji{hiking boot}	🌷 \twemoji{tulip}
⚠ \twemoji{hindu temple}	💕 \twemoji{two hearts}
🕳 \twemoji{hole}	
⭕ \twemoji{hollow red circle}	
훅 \twemoji{hook}	

(continued on next page)

(continued from previous page)

🏇	\twemoji{horse racing}* 去医院	☂️	\twemoji{umbrella} 伞
🏥	\twemoji{hot face}	☔	\twemoji{umbrella on ground} 雨伞
♨️	\twemoji{hot springs}	☔	\twemoji{umbrella with rain drops} 带雨滴的伞
🏨	\twemoji{hotel}	😊	\twemoji{unamused face}
🏡	\twemoji{house}	🔒	\twemoji{unlocked}
🏡	\twemoji{house with garden}	⬆️	\twemoji{up arrow}
🏡	\twemoji{houses}	🆙	\twemoji{UP! button}
🤗	\twemoji{hugging face}	⬆️	\twemoji{up-down arrow}
💯	\twemoji{hundred points}	⬅️	\twemoji{up-left arrow}
😯	\twemoji{hushed face}	➡️	\twemoji{up-right arrow}
🎪	\twemoji{hut}	🙃	\twemoji{upside-down face}
🏒	\twemoji{ice hockey}	👆	\twemoji{upwards button}
⛸️	\twemoji{ice skate}	🧛	\twemoji{vampire}* 吸血鬼
ID	\twemoji{ID button}	📱	\twemoji{vibration mode}
📥	\twemoji{inbox tray}	✌️	\twemoji{victory hand}* 胜利手势
📨	\twemoji{incoming envelope}	📹	\twemoji{video camera}
👉	\twemoji{index pointing up}* 上指图标	🎮	\twemoji{video game}
♾️	\twemoji{infinity}	📼	\twemoji{videocassette}
ℹ️	\twemoji{information}	🎻	\twemoji{violin}
🔤	\twemoji{input latin letters}	♍	\twemoji{Virgo}
🔤	\twemoji{input latin lowercase}	🌋	\twemoji{volcano}
🔤	\twemoji{input latin uppercase}	🏐	\twemoji{volleyball}
🔢	\twemoji{input numbers}	🆚	\twemoji{VS button}
🔏	\twemoji{input symbols}	⚠️	\twemoji{vulcan salute}* vulcan salute
🎃	\twemoji{jack-o-lantern}	❗️	\twemoji{warning}
🉑️	\twemoji{Japanese ‘‘acceptable’’ button}	🗑️	\twemoji{wastebasket}
🉑️	\twemoji{Japanese ‘‘application’’ button}	⌚️	\twemoji{watch}
🉐	\twemoji{Japanese ‘‘bargain’’ button}	🚾	\twemoji{water closet}
㊗️	\twemoji{Japanese ‘‘congratulations’’ button}	🔫	\twemoji{water pistol}
🈹	\twemoji{Japanese ‘‘discount’’ button}	🌊	\twemoji{water wave}
🆓	\twemoji{Japanese ‘‘free of charge’’ button}	👋	\twemoji{waving hand}* 挥手
🈴	\twemoji{Japanese ‘‘here’’ button}	〰️	\twemoji{wavy dash}
🈵	\twemoji{Japanese ‘‘monthly amount’’ button}	🙀	\twemoji{weary cat}
🈷️	\twemoji{Japanese ‘‘no vacancy’’ button}	😩	\twemoji{weary face}
🈸	\twemoji{Japanese ‘‘not free of charge’’ button}	👰	\twemoji{wedding}
🈹	\twemoji{Japanese ‘‘open for business’’ button}	☸️	\twemoji{wheel of dharma}
🈺	\twemoji{Japanese ‘‘passing grade’’ button}	♿	\twemoji{wheelchair symbol}
🈲️	\twemoji{Japanese ‘‘prohibited’’ button}	⠇	\twemoji{white cane}
🈯️	\twemoji{Japanese ‘‘reserved’’ button}	⚪️	\twemoji{white circle}
❗️		❗️	\twemoji{white exclamation mark}

(continued on next page)

(continued from previous page)

㊗	\twemoji{Japanese ‘‘secret’’ button}	🏳	\twemoji{white flag}
本服務	\twemoji{Japanese ‘‘service charge’’ button}	💮	\twemoji{white flower}
🈶	\twemoji{Japanese ‘‘vacancy’’ button}	鬒	\twemoji{white hair}
🏯	\twemoji{Japanese castle}	🤍	\twemoji{white heart}
🎎	\twemoji{Japanese dolls}	⬜	\twemoji{white large square}
🏣	\twemoji{Japanese post office}	▬	\twemoji{white medium square}
🔰	\twemoji{Japanese symbol for beginner}	▬▬	\twemoji{white medium-small square}
👖	\twemoji{jeans}	՞	\twemoji{white question mark}
🃏	\twemoji{joker}	▬▬▬	\twemoji{white small square}
🕹	\twemoji{joystick}	▣	\twemoji{white square button}
⚖️	\twemoji{judge}* ⚖️	🥀	\twemoji{wilted flower}
🕋	\twemoji{kaaba}	🎐	\twemoji{wind chime}
🔑	\twemoji{key}	חלון	\twemoji{window}
⌨️	\twemoji{keyboard}	瞞	\twemoji{winking face}
ⓧ	\twemoji{keycap: 0}	瞞瞞	\twemoji{winking face with tongue}
ⓨ	\twemoji{keycap: 1}	👩	\twemoji{woman}* 👩👩
ⓩ	\twemoji{keycap: 2}	👩‍❤️‍👨	\twemoji{woman and man holding hands}* 👩‍❤️‍👨👩‍❤️‍👨
⓪	\twemoji{keycap: 3}	👩‍🎨	\twemoji{woman artist}* 👩‍🎨👩‍🎨
⓪	\twemoji{keycap: 4}	👩‍🚀	\twemoji{woman astronaut}* 👩‍🚀👩‍🚀
⓪	\twemoji{keycap: 5}	👩‍-Origin	\twemoji{woman bouncing ball}* 👩‍-Origin👩‍-Origin
⓪	\twemoji{keycap: 6}	👩‍-Bow	\twemoji{woman bowing}* 👩‍-Bow👩‍-Bow
⓪	\twemoji{keycap: 7}	👩‍-Cartwheel	\twemoji{woman cartwheeling}* 👩‍-Cartwheel👩‍-Cartwheel
⓪	\twemoji{keycap: 8}	👩‍-Climb	\twemoji{woman climbing}* 👩‍-Climb👩‍-Climb
⓪	\twemoji{keycap: 9}	👩‍-Construction	\twemoji{woman construction worker}* 👩‍-Construction👩‍-Construction
⓪	\twemoji{keycap: 10}	👩‍-Cook	\twemoji{woman cook}* 👩‍-Cook👩‍-Cook
*	\twemoji{keycap: *}	👩‍-Dance	\twemoji{woman dancing}* 👩‍-Dance👩‍-Dance
#	\twemoji{keycap: #}	👩‍-Detective	\twemoji{woman detective}* 👩‍-Detective👩‍-Detective
👘	\twemoji{kimono}	👩‍-Elf	\twemoji{woman elf}* 👩‍-Elf👩‍-Elf
😘	\twemoji{kiss}* 😘	👩‍-Facepalming	\twemoji{woman facepalming}* 👩‍-Facepalming👩‍-Facepalming
😽	\twemoji{kissing cat}	👩‍-Factory	\twemoji{woman factory worker}* 👩‍-Factory👩‍-Factory
😘	\twemoji{kissing face}	👩‍-Fairy	\twemoji{woman fairy}* 👩‍-Fairy👩‍-Fairy
😘	\twemoji{kissing face with closed eyes}	👩‍-Farmer	\twemoji{woman farmer}* 👩‍-Farmer👩‍-Farmer
😍	\twemoji{kissing face with smiling eyes}	👩‍-Feeding	\twemoji{woman feeding baby}* 👩‍-Feeding👩‍-Feeding
🔪	\twemoji{kitchen knife}	👩‍-Firefighter	\twemoji{woman firefighter}* 👩‍-Firefighter👩‍-Firefighter
🎏	\twemoji{kite}	👩‍-Frown	\twemoji{woman frowning}* 👩‍-Frown👩‍-Frown
😵	\twemoji{knocked-out face}	👩‍-Genie	\twemoji{woman genie}* 👩‍-Genie👩‍-Genie
🧝	\twemoji{knot}	👩‍-No	\twemoji{woman gesturing NO}* 👩‍-No👩‍-No
白衣	\twemoji{lab coat}	👩‍-OK	\twemoji{woman gesturing OK}* 👩‍-OK👩‍-OK
🏷️	\twemoji{label}	👩‍-Haircut	\twemoji{woman getting haircut}* 👩‍-Haircut👩‍-Haircut
🥅	\twemoji{lacrosse}	👩‍-Massage	\twemoji{woman getting massage}* 👩‍-Massage👩‍-Massage
⽬	\twemoji{ladder}	👩‍-Golf	\twemoji{woman golfing}* 👩‍-Golf👩‍-Golf
◆	\twemoji{large blue diamond}	👩‍-Guard	\twemoji{woman guard}* 👩‍-Guard👩‍-Guard
◆	\twemoji{large orange diamond}	👩‍-Health	\twemoji{woman health worker}* 👩‍-Health👩‍-Health
⏮	\twemoji{last track button}	👩‍-Lotus	\twemoji{woman in lotus position}* 👩‍-Lotus👩‍-Lotus
✝	\twemoji{latin cross}	👩‍-Manual	\twemoji{woman in manual wheelchair}* 👩‍-Manual👩‍-Manual

(continued on next page)

(continued from previous page)

leaf	\twemoji{leaf fluttering in wind}
ledger	\twemoji{ledger}
left arrow	\twemoji{left arrow}
left arrow curving right	\twemoji{left arrow curving right}
left speech bubble	\twemoji{left speech bubble}
left-facing fist	\twemoji{left-facing fist}* \twemoji{left-right arrow}
leg	\twemoji{leg}* \twemoji{Leo}
level slider	\twemoji{level slider}
Libra	\twemoji{Libra}
light bulb	\twemoji{light bulb}
light skin tone	\twemoji{light skin tone}
link	\twemoji{link}
linked paperclips	\twemoji{linked paperclips}
lipstick	\twemoji{lipstick}
litter in bin sign	\twemoji{litter in bin sign}
locked	\twemoji{locked}
locked with key	\twemoji{locked with key}
locked with pen	\twemoji{locked with pen}
long drum	\twemoji{long drum}
lotion bottle	\twemoji{lotion bottle}
loudly crying face	\twemoji{loudly crying face}
loudspeaker	\twemoji{loudspeaker}
love hotel	\twemoji{love hotel}
love letter	\twemoji{love letter}
love-you gesture	\twemoji{love-you gesture}* \twemoji{luggage}
lungs	\twemoji{lungs}
lying face	\twemoji{lying face}
mage	\twemoji{mage}* \twemoji{magic wand}
magnet	\twemoji{magnet}
magnifying glass tilted left	\twemoji{magnifying glass tilted left}
magnifying glass tilted right	\twemoji{magnifying glass tilted right}
mahjong red dragon	\twemoji{mahjong red dragon}
male sign	\twemoji{male sign}
man	\twemoji{man}* \twemoji{man artist}* \twemoji{man astronaut}* \twemoji{man bouncing ball}* \twemoji{man bowing}* \twemoji{man cartwheeling}* \twemoji{man climbing}* \twemoji{man construction worker}* \twemoji{man cook}* \twemoji{man dancing}* \twemoji{man detective}* \twemoji{man elf}* \twemoji{man facepalming}* \twemoji{woman in motorized wheelchair}* \twemoji{woman in steamy room}* \twemoji{woman in tuxedo}* \twemoji{woman judge}* \twemoji{woman juggling}* \twemoji{woman kneeling}* \twemoji{woman lifting weights}* \twemoji{woman mage}* \twemoji{woman mechanic}* \twemoji{woman office worker}* \twemoji{woman pilot}* \twemoji{woman playing handball}* \twemoji{woman playing water polo}* \twemoji{woman police officer}* \twemoji{woman pouting}* \twemoji{woman raising hand}* \twemoji{woman running}* \twemoji{woman scientist}* \twemoji{woman shrugging}* \twemoji{woman singer}* \twemoji{woman standing}* \twemoji{woman student}* \twemoji{woman superhero}* \twemoji{woman supervillain}* \twemoji{woman surfing}* \twemoji{woman swimming}* \twemoji{woman teacher}* \twemoji{woman technologist}* \twemoji{woman tipping hand}* \twemoji{woman vampire}* \twemoji{woman walking}* \twemoji{woman wearing turban}* \twemoji{woman with headscarf}* \twemoji{woman with veil}* \twemoji{woman with white cane}* \twemoji{woman zombie} \twemoji{woman's boot} \twemoji{woman's clothes} \twemoji{woman's hat} \twemoji{woman's sandal} \twemoji{women holding hands}* \twemoji{women with bunny ears} \twemoji{women wrestling} \twemoji{women's room} \twemoji{wood} \twemoji{woozy face} \twemoji{world map} \twemoji{worried face} \twemoji{wrapped gift} \twemoji{wrench}

(continued on next page)

(continued from previous page)

👨 \twemoji{man factory worker}* 👩 \twemoji{man fairy}* 👨 \twemoji{man farmer}* 👨 \twemoji{man feeding baby}* 👨 \twemoji{man firefighter}* 👨 \twemoji{man frowning}* 👨 \twemoji{man genie} 👨 \twemoji{man gesturing NO}* 👨 \twemoji{man gesturing OK}* 👨 \twemoji{man getting haircut}* 👨 \twemoji{man getting massage}* 👨 \twemoji{man golfing}* 👨 \twemoji{man guard}* 👨 \twemoji{man health worker}* ...	✍ \twemoji{writing hand}* 🧶 \twemoji{yarn} 😴 \twemoji{yawning face} 🟡 \twemoji{yellow circle} 🟠 \twemoji{yellow heart} 🟨 \twemoji{yellow square} 💴 \twemoji{yen banknote} ☯ \twemoji{yin yang} 🏀 \twemoji{yo-yo} 🤡 \twemoji{zany face} 😃 \twemoji{zipper-mouth face} ;zombie \twemoji{zombie} zzz \twemoji{zzz}
--	---

Most twemojis symbols have multiple names. Only the most descriptive name for each symbol is shown in this table.

All twemojis symbols are implemented as PDF graphics, not with a font.

* Variants of this symbol portraying different colors and styles are not shown. For example, twemojis defines the following variants of “thumbs up”:



See the twemojis documentation for more information.

TABLE 555: scsnowman Snowmen

8 \scsnowman

* \scsnowman is drawn using TikZ. The command accepts a number of options for controlling the presence, appearance, and color of the snowman’s body, eyes, nose, mouth, arms, hat, and more. See the scsnowman documentation for more information, but the following examples showcase a subset of the possibilities (drawn large for clarity):



\scsnowman



\scsnowman[eyes, mouth,
nose, arms, hat, muffler,
buttons, snow, broom]

TABLE 556: Miscellaneous *bclogo* Symbols

	\bcattention		\bcetoile		\bcpanchant
	\bcbombe		\bcfemme		\bcpeaceandlove
	\bcbook		\bcfeujaune		\bcpluie
	\bccalendrier		\bcfeurouge		\bcplume
	\bccle		\bcfeutricolore		\bcpoisson
	\bcclefa		\bcfeuvert		\bcquestion
	\bcclesol		\bcfleur		\bcrecyclage
	\bccoeur		\bchomme		\bcrosevents
	\bccrayon		\bchorloge		\bcsmbh
	\bccube		\bcicosaedre		\bcsmmh
	\bcdallemande		\bcinfo		\bcsoleil
	\bcdanger		\bcinterdit		\bcspadesuit
	\bcdautriche		\bclampe		\bcstop
	\bcdbelgique		\bccloupe		\bctakecare
	\bcdbulgarie		\bcneige		\bctetraedre
	\bcdfrance		\bcnote		\bctrefle
	\bcditalie		\bcnucleaire		\bctrombone
	\bcdluxembourg		\bcoctaedre		\bcvaletcoeur
	\bcdodecaedre		\bcoeil		\bcvelo
	\bcdpaysbas		\bcorne		\bcyin
	\bcdz		\bcours		
	\bceclaircie		\bcoutil		

All *bclogo* symbols are implemented with *TikZ* (or alternatively, *PSTricks*) graphics, not with a font. This is how the symbols shown above can include color.

TABLE 557: Miscellaneous utfsym Pictographs

❶	\usym{1F300}	❷	\usym{1F3C2}	❸	\usym{1F472}	❹	\usym{1F515}
❷	\usym{1F301}	❸	\usym{1F3C3}	❹	\usym{1F473}	❺	\usym{1F516}
❹	\usym{1F302}	❻	\usym{1F3C4}	❻	\usym{1F474}	❻	\usym{1F517}
❻	\usym{1F303}	❽	\usym{1F3C5}	❽	\usym{1F475}	❽	\usym{1F518}
❽	\usym{1F304}	❾	\usym{1F3C6}	❾	\usym{1F476}	❾	\usym{1F519}
❾	\usym{1F305}	❿	\usym{1F3C7}	❿	\usym{1F477}	❿	\usym{1F51A}
❿	\usym{1F306}	❻	\usym{1F3C8}	❻	\usym{1F478}	❻	\usym{1F51B}
❻	\usym{1F307}	❻	\usym{1F3C9}	❻	\usym{1F479}	❻	\usym{1F51C}
❻	\usym{1F308}	❻	\usym{1F3CA}	❻	\usym{1F47A}	❻	\usym{1F51D}
❻	\usym{1F309}	❻	\usym{1F3CB}	❻	\usym{1F47B}	❻	\usym{1F51E}
❻	\usym{1F30A}	❻	\usym{1F3CC}	❻	\usym{1F47C}	❻	\usym{1F51F}
❻	\usym{1F30B}	❻	\usym{1F3CF}	❻	\usym{1F47D}	❻	\usym{1F520}
❻	\usym{1F30C}	❻	\usym{1F3D0}	❻	\usym{1F47E}	❻	\usym{1F521}
❻	\usym{1F30D}	❻	\usym{1F3D1}	❻	\usym{1F47F}	❻	\usym{1F522}
❻	\usym{1F30E}	❻	\usym{1F3D2}	❻	\usym{1F480}	❻	\usym{1F523}
❻	\usym{1F30F}	❻	\usym{1F3D3}	❻	\usym{1F481}	❻	\usym{1F524}
❻	\usym{1F310}	❻	\usym{1F3D4}	❻	\usym{1F482}	❻	\usym{1F525}
❻	\usym{1F32D}	❻	\usym{1F3D5}	❻	\usym{1F483}	❻	\usym{1F526}
❻	\usym{1F32E}	❻	\usym{1F3D6}	❻	\usym{1F484}	❻	\usym{1F527}
❻	\usym{1F32F}	❻	\usym{1F3D7}	❻	\usym{1F485}	❻	\usym{1F528}
❻	\usym{1F330}	❻	\usym{1F3D8}	❻	\usym{1F486}	❻	\usym{1F529}
❻	\usym{1F331}	❻	\usym{1F3D9}	❻	\usym{1F487}	❻	\usym{1F52A}
❻	\usym{1F332}	❻	\usym{1F3DA}	❻	\usym{1F488}	❻	\usym{1F52B}
❻	\usym{1F333}	❻	\usym{1F3DB}	❻	\usym{1F489}	❻	\usym{1F52C}
❻	\usym{1F334}	❻	\usym{1F3DC}	❻	\usym{1F48A}	❻	\usym{1F52D}
❻	\usym{1F335}	❻	\usym{1F3DD}	❻	\usym{1F48B}	❻	\usym{1F52E}
❻	\usym{1F336}	❻	\usym{1F3DE}	❻	\usym{1F48C}	❻	\usym{1F530}
❻	\usym{1F337}	❻	\usym{1F3DF}	❻	\usym{1F48D}	❻	\usym{1F531}
❻	\usym{1F338}	❻	\usym{1F3E0}	❻	\usym{1F48E}	❻	\usym{1F532}
❻	\usym{1F339}	❻	\usym{1F3E1}	❻	\usym{1F48F}	❻	\usym{1F533}
❻	\usym{1F33A}	❻	\usym{1F3E2}	❻	\usym{1F490}	❻	\usym{1F53E}
❻	\usym{1F33B}	❻	\usym{1F3E3}	❻	\usym{1F491}	❻	\usym{1F53F}
❻	\usym{1F33C}	❻	\usym{1F3E4}	❻	\usym{1F492}	❻	\usym{1F540}
❻	\usym{1F33D}	❻	\usym{1F3E5}	❻	\usym{1F493}	❻	\usym{1F541}
❻	\usym{1F33E}	❻	\usym{1F3E6}	❻	\usym{1F494}	❻	\usym{1F542}
❻	\usym{1F33F}	❻	\usym{1F3E7}	❻	\usym{1F495}	❻	\usym{1F543}
❻	\usym{1F340}	❻	\usym{1F3E8}	❻	\usym{1F496}	❻	\usym{1F544}
❻	\usym{1F341}	❻	\usym{1F3E9}	❻	\usym{1F497}	❻	\usym{1F545}
❻	\usym{1F342}	❻	\usym{1F3EA}	❻	\usym{1F498}	❻	\usym{1F549}
❻	\usym{1F343}	❻	\usym{1F3EB}	❻	\usym{1F499}	❻	\usym{1F54A}
❻	\usym{1F344}	❻	\usym{1F3EC}	❻	\usym{1F49A}	❻	\usym{1F54B}
❻	\usym{1F345}	❻	\usym{1F3ED}	❻	\usym{1F49B}	❻	\usym{1F54C}
❻	\usym{1F346}	❻	\usym{1F3EE}	❻	\usym{1F49C}	❻	\usym{1F54D}
❻	\usym{1F347}	❻	\usym{1F3EF}	❻	\usym{1F49D}	❻	\usym{1F54E}
❻	\usym{1F348}	❻	\usym{1F3F0}	❻	\usym{1F49E}	❻	\usym{1F54F}
❻	\usym{1F349}	❻	\usym{1F3F1}	❻	\usym{1F49F}	❻	\usym{1F568}
❻	\usym{1F34A}	❻	\usym{1F3F2}	❻	\usym{1F4A0}	❻	\usym{1F569}
❻	\usym{1F34B}	❻	\usym{1F3F3}	❻	\usym{1F4A1}	❻	\usym{1F56A}
❻	\usym{1F34C}	❻	\usym{1F3F4}	❻	\usym{1F4A2}	❻	\usym{1F56B}
❻	\usym{1F34D}	❻	\usym{1F3F5}	❻	\usym{1F4A3}	❻	\usym{1F56C}
❻	\usym{1F34E}	❻	\usym{1F3F6}	❻	\usym{1F4A4}	❻	\usym{1F56D}

(continued on next page)

(continued from previous page)

⌚	\usym{1F34F}	⌚	\usym{1F3F7}	☀	\usym{1F4A5}	📖	\usym{1F56E}
⌚	\usym{1F350}	⌚	\usym{1F3F8}	⛅	\usym{1F4A6}	👤	\usym{1F56F}
⌚	\usym{1F351}	⌚	\usym{1F3F9}	🌤	\usym{1F4A7}	👤	\usym{1F571}
⌚	\usym{1F352}	⌚	\usym{1F3FA}	🌥	\usym{1F4A8}	👤	\usym{1F572}
⌚	\usym{1F353}	⌚	\usym{1F3FB}	🌦	\usym{1F4A9}	👤	\usym{1F573}
⌚	\usym{1F354}	⌚	\usym{1F3FC}	🌧	\usym{1F4AA}	👤	\usym{1F574}
⌚	\usym{1F355}	⌚	\usym{1F3FD}	🌩	\usym{1F4AB}	⛈	\usym{1F575}
⌚	\usym{1F356}	⌚	\usym{1F3FE}	weathermap	\usym{1F4AC}	🌫	\usym{1F576}
⌚	\usym{1F357}	⌚	\usym{1F3FF}	🌫	\usym{1F4AD}	🌫	\usym{1F577}
⌚	\usym{1F358}	⌚	\usym{1F400}	🕒	\usym{1F4AE}	⭐	\usym{1F578}
⌚	\usym{1F359}	⌚	\usym{1F401}	🕒	\usym{1F4AF}	🕒	\usym{1F579}
⌚	\usym{1F35A}	⌚	\usym{1F402}	🕒	\usym{1F4B0}	🕒	\usym{1F57A}
⌚	\usym{1F35B}	⌚	\usym{1F403}	🕒	\usym{1F4B1}	🕒	\usym{1F57B}
⌚	\usym{1F35C}	⌚	\usym{1F404}	💲	\usym{1F4B2}	💲	\usym{1F57C}
⌚	\usym{1F35D}	⌚	\usym{1F405}	💳	\usym{1F4B3}	💳	\usym{1F57D}
⌚	\usym{1F35E}	⌚	\usym{1F406}	🏧	\usym{1F4B4}	🏧	\usym{1F57E}
⌚	\usym{1F35F}	⌚	\usym{1F407}	⌚	\usym{1F4B5}	⌚	\usym{1F57F}
⌚	\usym{1F360}	⌚	\usym{1F408}	⌚	\usym{1F4B6}	⌚	\usym{1F580}
⌚	\usym{1F361}	⌚	\usym{1F409}	⌚	\usym{1F4B7}	⌚	\usym{1F581}
⌚	\usym{1F362}	⌚	\usym{1F40A}	⌚	\usym{1F4B8}	⌚	\usym{1F582}
⌚	\usym{1F363}	⌚	\usym{1F40B}	⌚	\usym{1F4B9}	⌚	\usym{1F583}
⌚	\usym{1F364}	⌚	\usym{1F40C}	⌚	\usym{1F4BA}	⌚	\usym{1F584}
⌚	\usym{1F365}	⌚	\usym{1F40D}	⌚	\usym{1F4BB}	⌚	\usym{1F585}
⌚	\usym{1F366}	⌚	\usym{1F40E}	⌚	\usym{1F4BC}	⌚	\usym{1F586}
⌚	\usym{1F367}	⌚	\usym{1F40F}	⌚	\usym{1F4BD}	⌚	\usym{1F587}
⌚	\usym{1F368}	⌚	\usym{1F410}	⌚	\usym{1F4BE}	⌚	\usym{1F588}
⌚	\usym{1F369}	⌚	\usym{1F411}	⌚	\usym{1F4BF}	❤	\usym{1F5A4}
⌚	\usym{1F36A}	⌚	\usym{1F412}	⌚	\usym{1F4C0}	⌚	\usym{1F5A5}
⌚	\usym{1F36B}	⌚	\usym{1F413}	⌚	\usym{1F4C1}	⌚	\usym{1F5A6}
⌚	\usym{1F36C}	⌚	\usym{1F414}	⌚	\usym{1F4C2}	⌚	\usym{1F5A7}
⌚	\usym{1F36D}	⌚	\usym{1F415}	⌚	\usym{1F4C3}	⌚	\usym{1F5A8}
⌚	\usym{1F36E}	⌚	\usym{1F416}	⌚	\usym{1F4C4}	⌚	\usym{1F5A9}
⌚	\usym{1F36F}	⌚	\usym{1F417}	⌚	\usym{1F4C5}	⌚	\usym{1F5AA}
⌚	\usym{1F370}	⌚	\usym{1F418}	⌚	\usym{1F4C6}	⌚	\usym{1F5AB}
⌚	\usym{1F371}	⌚	\usym{1F419}	⌚	\usym{1F4C7}	⌚	\usym{1F5AC}
⌚	\usym{1F372}	⌚	\usym{1F41A}	⌚	\usym{1F4C8}	⌚	\usym{1F5AD}
⌚	\usym{1F373}	⌚	\usym{1F41B}	⌚	\usym{1F4C9}	⌚	\usym{1F5AE}
⌚	\usym{1F374}	⌚	\usym{1F41C}	⌚	\usym{1F4CA}	⌚	\usym{1F5AF}
⌚	\usym{1F375}	⌚	\usym{1F41D}	⌚	\usym{1F4CB}	⌚	\usym{1F5B0}
⌚	\usym{1F376}	⌚	\usym{1F41E}	⌚	\usym{1F4CC}	⌚	\usym{1F5B1}
⌚	\usym{1F377}	⌚	\usym{1F41F}	⌚	\usym{1F4CD}	⌚	\usym{1F5B2}
⌚	\usym{1F378}	⌚	\usym{1F420}	⌚	\usym{1F4CE}	⌚	\usym{1F5B3}
⌚	\usym{1F379}	⌚	\usym{1F421}	⌚	\usym{1F4CF}	⌚	\usym{1F5B4}
⌚	\usym{1F37A}	⌚	\usym{1F422}	⌚	\usym{1F4D0}	⌚	\usym{1F5B5}
⌚	\usym{1F37B}	⌚	\usym{1F423}	⌚	\usym{1F4D1}	⌚	\usym{1F5B6}
⌚	\usym{1F37C}	⌚	\usym{1F424}	⌚	\usym{1F4D2}	⌚	\usym{1F5B7}
⌚	\usym{1F37D}	⌚	\usym{1F425}	⌚	\usym{1F4D3}	⌚	\usym{1F5B8}
⌚	\usym{1F37E}	⌚	\usym{1F426}	⌚	\usym{1F4D4}	⌚	\usym{1F5B9}
⌚	\usym{1F37F}	⌚	\usym{1F427}	⌚	\usym{1F4D5}	⌚	\usym{1F5BA}
⌚	\usym{1F380}	⌚	\usym{1F428}	⌚	\usym{1F4D6}	⌚	\usym{1F5BB}
⌚	\usym{1F381}	⌚	\usym{1F429}	⌚	\usym{1F4D7}	⌚	\usym{1F5BC}
⌚	\usym{1F382}	⌚	\usym{1F42A}	⌚	\usym{1F4D8}	⌚	\usym{1F5BD}
⌚	\usym{1F383}	⌚	\usym{1F42B}	⌚	\usym{1F4D9}	⌚	\usym{1F5BE}

(continued on next page)

(continued from previous page)

﴿	\usym{1F384}	﴿	\usym{1F42C}	﴿	\usym{1F4DA}	﴿	\usym{1F5BF}
﴿	\usym{1F385}	﴿	\usym{1F42D}	﴿	\usym{1F4DB}	﴿	\usym{1F5C0}
﴿	\usym{1F386}	﴿	\usym{1F42E}	﴿	\usym{1F4DC}	﴿	\usym{1F5C1}
﴿	\usym{1F387}	﴿	\usym{1F42F}	﴿	\usym{1F4DD}	﴿	\usym{1F5C2}
﴿	\usym{1F388}	﴿	\usym{1F430}	﴿	\usym{1F4DE}	﴿	\usym{1F5C3}
﴿	\usym{1F389}	﴿	\usym{1F431}	﴿	\usym{1F4DF}	﴿	\usym{1F5C4}
﴿	\usym{1F38A}	﴿	\usym{1F432}	﴿	\usym{1F4E0}	﴿	\usym{1F5C5}
﴿	\usym{1F38B}	﴿	\usym{1F433}	﴿	\usym{1F4E1}	﴿	\usym{1F5C6}
﴿	\usym{1F38C}	﴿	\usym{1F434}	﴿	\usym{1F4E2}	﴿	\usym{1F5C7}
﴿	\usym{1F38D}	﴿	\usym{1F435}	﴿	\usym{1F4E3}	﴿	\usym{1F5C8}
﴿	\usym{1F38E}	﴿	\usym{1F436}	﴿	\usym{1F4E4}	﴿	\usym{1F5C9}
﴿	\usym{1F38F}	﴿	\usym{1F437}	﴿	\usym{1F4E5}	﴿	\usym{1F5CA}
﴿	\usym{1F390}	﴿	\usym{1F438}	﴿	\usym{1F4E6}	﴿	\usym{1F5CB}
﴿	\usym{1F391}	﴿	\usym{1F439}	﴿	\usym{1F4E7}	﴿	\usym{1F5CC}
﴿	\usym{1F392}	﴿	\usym{1F43A}	﴿	\usym{1F4E8}	﴿	\usym{1F5CD}
﴿	\usym{1F393}	﴿	\usym{1F43B}	﴿	\usym{1F4E9}	﴿	\usym{1F5CE}
﴿	\usym{1F394}	﴿	\usym{1F43C}	﴿	\usym{1F4EA}	﴿	\usym{1F5CF}
﴿	\usym{1F395}	﴿	\usym{1F43D}	﴿	\usym{1F4EB}	﴿	\usym{1F5D0}
﴿	\usym{1F396}	﴿	\usym{1F43E}	﴿	\usym{1F4EC}	﴿	\usym{1F5D1}
﴿	\usym{1F397}	﴿	\usym{1F43F}	﴿	\usym{1F4ED}	﴿	\usym{1F5D2}
﴿	\usym{1F398}	﴾	\usym{1F440}	﴿	\usym{1F4EE}	﴾	\usym{1F5D3}
﴿	\usym{1F399}	﴿	\usym{1F441}	﴿	\usym{1F4EF}	﴾	\usym{1F5D4}
﴿	\usym{1F39A}	﴿	\usym{1F442}	﴿	\usym{1F4F0}	﴾	\usym{1F5D5}
﴿	\usym{1F39B}	﴿	\usym{1F443}	﴿	\usym{1F4F1}	﴾	\usym{1F5D6}
﴿	\usym{1F39C}	﴿	\usym{1F444}	﴿	\usym{1F4F2}	﴾	\usym{1F5D7}
﴿	\usym{1F39D}	﴿	\usym{1F445}	﴿	\usym{1F4F3}	﴾	\usym{1F5D8}
﴿	\usym{1F39E}	﴿	\usym{1F451}	﴿	\usym{1F4F4}	﴾	\usym{1F5D9}
﴿	\usym{1F39F}	﴿	\usym{1F452}	﴿	\usym{1F4F5}	﴾	\usym{1F5DA}
﴿	\usym{1F3A0}	﴿	\usym{1F453}	﴿	\usym{1F4F6}	﴾	\usym{1F5DB}
﴿	\usym{1F3A1}	﴿	\usym{1F454}	﴿	\usym{1F4F7}	﴾	\usym{1F5DC}
﴿	\usym{1F3A2}	﴿	\usym{1F455}	﴿	\usym{1F4F8}	﴾	\usym{1F5DD}
﴿	\usym{1F3A3}	﴿	\usym{1F456}	﴿	\usym{1F4F9}	﴾	\usym{1F5DE}
﴿	\usym{1F3A4}	﴿	\usym{1F457}	﴿	\usym{1F4FA}	﴾	\usym{1F5DF}
﴿	\usym{1F3A5}	﴿	\usym{1F458}	﴿	\usym{1F4FB}	﴾	\usym{1F5EO}
﴿	\usym{1F3A6}	﴿	\usym{1F459}	﴿	\usym{1F4FC}	﴾	\usym{1F5E1}
﴿	\usym{1F3A7}	﴿	\usym{1F45A}	﴿	\usym{1F4FD}	﴾	\usym{1F5E2}
﴿	\usym{1F3A8}	﴿	\usym{1F45B}	﴿	\usym{1F4FE}	﴾	\usym{1F5E3}
﴿	\usym{1F3A9}	﴿	\usym{1F45C}	﴿	\usym{1F4FF}	﴾	\usym{1F5E4}
﴿	\usym{1F3AA}	﴿	\usym{1F45D}	﴿	\usym{1F500}	﴾	\usym{1F5E5}
﴿	\usym{1F3AB}	﴿	\usym{1F45E}	﴿	\usym{1F501}	﴾	\usym{1F5E6}
﴿	\usym{1F3AC}	﴿	\usym{1F45F}	﴿	\usym{1F502}	﴾	\usym{1F5E7}
﴿	\usym{1F3AD}	﴿	\usym{1F460}	﴿	\usym{1F503}	﴾	\usym{1F5E8}
﴿	\usym{1F3AE}	﴿	\usym{1F461}	﴿	\usym{1F504}	﴾	\usym{1F5E9}
﴿	\usym{1F3AF}	﴿	\usym{1F462}	﴿	\usym{1F505}	﴾	\usym{1F5EA}
﴿	\usym{1F3B0}	﴿	\usym{1F463}	﴿	\usym{1F506}	﴾	\usym{1F5EB}
﴿	\usym{1F3B1}	﴿	\usym{1F464}	﴿	\usym{1F507}	﴾	\usym{1F5EC}
﴿	\usym{1F3B2}	﴿	\usym{1F465}	﴿	\usym{1F508}	﴾	\usym{1F5ED}
﴿	\usym{1F3B3}	﴿	\usym{1F466}	﴿	\usym{1F509}	﴾	\usym{1F5EE}
﴿	\usym{1F3B4}	﴿	\usym{1F467}	﴿	\usym{1F50A}	﴾	\usym{1F5EF}
﴿	\usym{1F3B7}	﴿	\usym{1F468}	﴿	\usym{1F50B}	﴾	\usym{1F5F0}
﴿	\usym{1F3B8}	﴿	\usym{1F469}	﴿	\usym{1F50C}	﴾	\usym{1F5F1}
﴿	\usym{1F3B9}	﴿	\usym{1F46A}	﴿	\usym{1F50D}	﴾	\usym{1F5F2}
﴿	\usym{1F3BA}	﴿	\usym{1F46B}	﴿	\usym{1F50E}	﴾	\usym{1F5F3}

(continued on next page)

(continued from previous page)

	\usym{1F3BB}		\usym{1F46C}		\usym{1F50F}		\usym{1F5FA}
	\usym{1F3BD}		\usym{1F46D}		\usym{1F510}		\usym{1F5FB}
	\usym{1F3BE}		\usym{1F46E}		\usym{1F511}		\usym{1F5FC}
	\usym{1F3BF}		\usym{1F46F}		\usym{1F512}		\usym{1F5FD}
	\usym{1F3C0}		\usym{1F470}		\usym{1F513}		\usym{1F5FE}
	\usym{1F3C1}		\usym{1F471}		\usym{1F514}		\usym{1F5FF}

All `\usym` symbols are implemented with TikZ graphics, not with a font. In addition to `\usym`, the `utfsym` package defines `\usymH`, which renders a symbol at a given height, and `\usymW`, which renders a symbol at a given width. See the `utfsym` documentation for more information.

TABLE 558: fontawesome Web-Related Icons

	\fa500px		\faFemale		\faPlane
	\faAdjust		\faFighterJet		\faPlay
	\faAdn		\faFile		\faPlayCircle
	\faAlignCenter		\faFileArchive0		\faPlayCircle0
	\faAlignJustify		\faFileAudio0		\faPlug
	\faAlignLeft		\faFileCode0		\faPlus
	\faAlignRight		\faFileExcel0		\faPlusCircle
	\faAmazon		\faFileImage0		\faPlusSquare
	\faAmbulance		\faFile0		\faPlusSquare0
	\faAnchor		\faFilePdf0		\faPowerOff
	\faAndroid		\faFilePowerpoint0		\faPrint
	\faAngellist		\faFiles0		\faPuzzlePiece
	\faAngleDoubleDown		\faFileText		\faQq
	\faAngleDoubleLeft		\faFileText0		\faQrcode
	\faAngleDoubleRight		\faFileVideo0		\faQuestion
	\faAngleDoubleUp		\faFileWord0		\faQuestionCircle
	\faAngleDown		\faFilm		\faQuoteLeft
	\faAngleLeft		\faFilter		\faQuoteRight
	\faAngleRight		\faFire		\faRandom
	\faAngleUp		\faFireExtinguisher		\faRebel
	\faApple		\faFirefox		\faRecycle
	\faArchive		\faFlag		\faReddit
	\faAreaChart		\faFlagCheckered		\faRedditSquare
	\faAsterisk		\faFlag0		\faRefresh
	\faAt		\faFlask		\faRenren
	\faBackward		\faFlickr		\faReply
	\faBalanceScale		\faFloppy0		\faReplyAll
	\faBan		\faFolder		\faRetweet
	\faBarChart		\faFolder0		\faRoad
	\faBarcode		\faFolderOpen		\faRocket
	\faBars		\faFolderOpen0		\faRss
	\faBatteryEmpty		\faFont		\faRssSquare
	\faBatteryFull		\faFonticons		\faSafari

(continued on next page)

(continued from previous page)

(continued on next page)

(continued from previous page)

	\faCcDinersClub		\faCcDiscover		\faCcJcb		\faCcMastercard		\faCcPaypal		\faCcStripe		\faCertificate		\faChainBroken		\faChild		\faChrome		\faClipboard		\faClock0		\faClone		\faCloud		\faCloudDownload		\faCloudUpload		\faCode		\faCodeFork		\faCodepen		\faCoffee		\faCog		\faCogs		\faColumns		\faComment		\faCommenting		\faCommenting0		\faComment0		\faComments		\faComments0		\faCompass		\faCompress		\faConnectdevelop		\faContao		\faCreditCard		\faCrop		\faCrosshairs		\faCss3		\faCube		\faCubes		\faCutlery		\faDashcube		\faDatabase		\faDelicious		\faDesktop		\faDeviantart		\faDiamond		\faDigg		\faDownload		\faDribbble		\faDropbox		\faDrupal		\faEject		\faJsfiddle		\faKey		\faKeyboard0		\faLanguage		\faLaptop		\faLastfm		\faLastfmSquare		\faLeaf		\faLeanpub		\faLemon0		\faLevelDown		\faLevelUp		\faLifeRing		\faLightbulb0		\faLineChart		\faLink		\faLinkedin		\faLinkedinSquare		\faLinux		\faList		\faListAlt		\faList01		\faListUl		\faLocationArrow		\faLock		\faMagic		\faMagnet		\faMale		\faMap		\faMapMarker		\faMap0		\faMapPin		\faMapSigns		\faMaxcdn		\faMeanpath		\faMedium		\faMedkit		\faMeh0		\faMicrophone		\faMicrophoneSlash		\faMinus		\faMinusCircle		\faMinusSquare		\faMinusSquare0		\faMobile		\faMoney		\faMotorcycle		\faMousePointer		\faMusic		\faNewspaper0		\faObjectGroup		\faObjectUngroup		\faOdnoklassniki		\faStumbleuponCircle		\faSubscript		\faSubway		\faSuitcase		\faSuperscript		\faTable		\faTablet		\faTachometer		\faTag		\faTags		\faTasks		\faTaxi		\faTelevision		\faTencentWeibo		\faTerminal		\faTextHeight		\faTextWidth		\faTh		\faThLarge		\faThList		\faThumbTack		\faTicket		\faTint		\faToggleOff		\faToggleOn		\faTrain		\faTrash		\faTrash0		\faTree		\faTrello		\faTripadvisor		\faTrophy		\faTruck		\faTty		\faTumblr		\faTumblrSquare		\faTwitch		\faTwitter		\faTwitterSquare		\faUmbrella		\faUnderline		\faUniversity		\faUnlock		\faUnlockAlt		\faUpload		\faUser		\faUserMd		\faUserPlus		\faUsers		\faUserSecret		\faUserTimes		\faVideoCamera		\faVimeo
--	-----------------	--	---------------	--	----------	--	-----------------	--	-------------	--	-------------	--	----------------	--	----------------	--	----------	--	-----------	--	--------------	--	-----------	--	----------	--	----------	--	------------------	--	----------------	--	---------	--	-------------	--	------------	--	-----------	--	--------	--	---------	--	------------	--	------------	--	---------------	--	----------------	--	-------------	--	-------------	--	--------------	--	------------	--	-------------	--	-------------------	--	-----------	--	---------------	--	---------	--	---------------	--	---------	--	---------	--	----------	--	------------	--	-------------	--	-------------	--	--------------	--	------------	--	---------------	--	------------	--	---------	--	-------------	--	-------------	--	------------	--	-----------	--	----------	--	-------------	--	--------	--	--------------	--	-------------	--	-----------	--	-----------	--	-----------------	--	---------	--	------------	--	-----------	--	--------------	--	------------	--	-------------	--	---------------	--	--------------	--	---------	--	-------------	--	-------------------	--	----------	--	---------	--	------------	--	-----------	--	-----------	--	------------------	--	---------	--	----------	--	-----------	--	---------	--	--------	--	--------------	--	---------	--	-----------	--	-------------	--	-----------	--	-------------	--	-----------	--	-----------	--	---------	--	---------------	--	--------------------	--	----------	--	----------------	--	----------------	--	-----------------	--	-----------	--	----------	--	---------------	--	-----------------	--	----------	--	---------------	--	----------------	--	------------------	--	------------------	--	----------------------	--	--------------	--	-----------	--	-------------	--	----------------	--	----------	--	-----------	--	---------------	--	--------	--	---------	--	----------	--	---------	--	---------------	--	-----------------	--	-------------	--	---------------	--	--------------	--	-------	--	------------	--	-----------	--	--------------	--	-----------	--	---------	--	--------------	--	-------------	--	----------	--	----------	--	-----------	--	---------	--	-----------	--	----------------	--	-----------	--	----------	--	--------	--	-----------	--	-----------------	--	-----------	--	------------	--	------------------	--	-------------	--	--------------	--	---------------	--	-----------	--	--------------	--	-----------	--	---------	--	-----------	--	-------------	--	----------	--	---------------	--	--------------	--	----------------	--	----------

(continued on next page)

(continued from previous page)

...	\faEllipsisH	...	\faDnoklassnikiSquare	v	\faVimeoSquare
⋮	\faEllipsisV	⋮	\faOpenCart	v	\faVine
🌐	\faEmpire	🌐	\faOpenid	w	\faVk
✉️	\faEnvelope	✉️	\faOpera	🔉	\faVolumeDown
✉️	\faEnvelope0	✉️	\faOptinMonster	🔈	\faVolumeOff
✉️	\faEnvelopeSquare	✉️	\faOutdent	🔊	\faVolumeUp
erase	\faEraser	erase	\faPagelines	👤	\faWeibo
✉️	\faExchange	✉️	\faPaintBrush	👤	\faWeixin
!	\faExclamation	!	\faPaperclip	👤	\faWhatsapp
❗	\faExclamationCircle	❗	\faPaperPlane	♿	\faWheelchair
⚠	\faExclamationTriangle	⚠	\faPaperPlane0	wifi	\faWifi
↗	\faExpand	↗	\faParagraph	W	\faWikipediaW
🕒	\faExpeditedssl	🕒	\faPause	Windows	\faWindows
🔗	\faExternalLink	🔗	\faPaw	Wordpress	\faWordpress
🔗	\faExternalLinkSquare	🔗	\faPaypal	🔧	\faWrench
👁️	\faEye	👁️	\faPhone	✗	\faXing
eyedropper	\faEyedropper	eyedropper	\faPhoneSquare	✗	\faXingSquare
👁️	\faEyeSlash	👁️	\faPicture0	Y	\faYahoo
f	\faFacebook	f	\faPieChart	Y	\faYCombinator
f	\faFacebookOfficial	f	\faPiedPiper	✿	\faYelp
f	\faFacebookSquare	f	\faPiedPiperAlt	YouTube	\faYoutube
⏪	\faFastBackward	⏪	\faPinterest	▶	\faYoutubePlay
⏩	\faFastForward	⏩	\faPinterestP	YouTube	\faYoutubeSquare
📠	\faFax	📠	\faPinterestSquare		

fontawesome defines synonyms for many of the preceding symbols:

🚗	\faAutomobile	🗄	\faFileZip0	⭐	\faRa
🏦	\faBank	⚡	\faFlash	☰	\faReorder
📊	\faBarChart0	✳️	\faGe	💾	\faSave
🔋	\faBattery0	⚙️	\faGear	↗	\faSend
🔋	\faBattery1	⚙️	\faGears	↗	\faSend0
🔋	\faBattery2	✳️	\faGittip	⚽	\faSoccerBall0
🔋	\faBattery3	✳️	\faGroup	▼	\faSortDown
🔋	\faBattery4	✳️	\faHotel	▲	\faSortUp
🚕	\faCab	📷	\faImage	🌐	\faSupport
🔗	\faChain	🏛️	\faInstitution	☒	\faToggleDown
📄	\faCopy	↗	\faLegal	☒	\faToggleLeft
✂️	\faCut	⚽	\faLifeBouy	☒	\faToggleRight
💻	\faDashboard	⚽	\faLifeSaver	☒	\faToggleUp
⠇	\faDenedent	➡️	\faMailForward	📺	\faTv
✎	\faEdit	➡️	\faMailReply	🚫	\faUnlink
f	\faFacebookF	➡️	\faMailReplyAll	⬇️	\faUnsorted
RSS	\faFeed	▢	\faMobilePhone	⚠	\faWarning
🎥	\faFileMovie0	🎓	\faMortarBoard	👤	\faWechat
📷	\faFilePhoto0	☰	\faNavIcon	👤	\faYc
📷	\faFilePicture0	📄	\faPaste	👤	\faYCombinatorSquare
🔊	\faFileSound0	📷	\faPhoto	👤	\faYcSquare

TABLE 559: rubikcube Rubik's Cube Rotations

	\rrhD		\rrhF		\rrhLw		\rrhRw		\rrhU
	\rrhDa		\rrhFp		\rrhLwp		\rrhRp		\rrhUp
	\rrhDap		\rrhFw		\rrhM		\rrhSd		\rrhUap
	\rrhDp		\rrhFwp		\rrhMp		\rrhSdp		\rrhUp
	\rrhDs		\rrhL		\rrhR		\rrhS1		\rrhUs
	\rrhDsp		\rrhLa		\rrhRa		\rrhSlp		\rrhUsp
	\rrhDw		\rrhLap		\rrhRap		\rrhSr		\rrhUw
	\rrhDwp		\rrhLp		\rrhRp		\rrhSrp		\rrhUwp
	\rrhE		\rrhLs		\rrhRs		\rrhSu		
	\rrhEp		\rrhLsp		\rrhRsp		\rrhSup		

All `rubikcube` symbols are implemented with TikZ graphics, not with a font. In addition to the symbols shown above, the `rubikcube` package defines commands for combinations of textual and graphical representations of rotations (e.g., `\textRubikJa` produces “**Ua** ”) as well as commands that produce colored illustrations of Rubik's Cube configurations and rotations. See the `rubikcube` documentation for more information.

10 Fonts with minimal L^AT_EX support

The symbol fonts shown in this section are provided without a corresponding L^AT_EX 2 _{ε} style file that assigns a convenient name to each glyph. Consequently, each glyph must be accessed by number. To help with this, the pifont package defines a \Pisymbol command that typesets a specified character by number from a specified L^AT_EX font family. Alas, most of the fonts in this section do not even define a L^AT_EX font family. Hence, except where otherwise specified, a document will need to include code like the following in its preamble:

```
\usepackage{pifont}
\DeclareFontFamily{U}{<name>}{}
\DeclareFontShape{U}{<name>}{m}{n}{<-> <font>}{}
```

where $\langle font \rangle$ is the name of the .tfm font file (or .mf font file, from which a .tfm font file can be generated automatically), and $\langle name \rangle$ is a name to use to refer to that font. It's generally good practice to use the name of the font file for $\langle name \rangle$, as in the following:

```
\usepackage{pifont}
\DeclareFontFamily{U}{hands}={}
\DeclareFontShape{U}{hands}{m}{n}{<-> hands}{}
```

TABLE 560: hands Fists

⌚	\Pisymbol{hands}{65}	⌚	\Pisymbol{hands}{67}
⌚	\Pisymbol{hands}{66}	⌚	\Pisymbol{hands}{68}

TABLE 561: greenpoint Recycling Symbols

⌚ \Pisymbol{greenpoint}{71}

TABLE 562: nkarta Map Symbols

○	\Pisymbol{nkarta}{33}	×	\Pisymbol{nkarta}{96}	●	\Pisymbol{nkarta}{193}
△	\Pisymbol{nkarta}{34}	➤	\Pisymbol{nkarta}{97}	□	\Pisymbol{nkarta}{194}
△	\Pisymbol{nkarta}{35}	⬆	\Pisymbol{nkarta}{98}	■	\Pisymbol{nkarta}{195}
◇	\Pisymbol{nkarta}{36}	🌐	\Pisymbol{nkarta}{99}	ଓ	\Pisymbol{nkarta}{196}
○	\Pisymbol{nkarta}{37}	▲	\Pisymbol{nkarta}{100}	↳	\Pisymbol{nkarta}{197}
★	\Pisymbol{nkarta}{38}	★	\Pisymbol{nkarta}{101}	✈	\Pisymbol{nkarta}{198}
○	\Pisymbol{nkarta}{39}	✉	\Pisymbol{nkarta}{102}	↙	\Pisymbol{nkarta}{199}
↓	\Pisymbol{nkarta}{40}	↑	\Pisymbol{nkarta}{103}	→	\Pisymbol{nkarta}{200}
↓	\Pisymbol{nkarta}{41}	↳	\Pisymbol{nkarta}{104}	△	\Pisymbol{nkarta}{201}
★	\Pisymbol{nkarta}{42}	▷	\Pisymbol{nkarta}{105}	◆	\Pisymbol{nkarta}{202}
..	\Pisymbol{nkarta}{43}	✈	\Pisymbol{nkarta}{106}	■	\Pisymbol{nkarta}{203}
↗	\Pisymbol{nkarta}{44}	➤	\Pisymbol{nkarta}{107}	■	\Pisymbol{nkarta}{204}
✚	\Pisymbol{nkarta}{45}	□	\Pisymbol{nkarta}{108}	●	\Pisymbol{nkarta}{205}
⊗	\Pisymbol{nkarta}{46}	☰	\Pisymbol{nkarta}{109}	■■	\Pisymbol{nkarta}{206}
•	\Pisymbol{nkarta}{47}	✿	\Pisymbol{nkarta}{110}	❖	\Pisymbol{nkarta}{207}
◦	\Pisymbol{nkarta}{48}	○	\Pisymbol{nkarta}{111}	※	\Pisymbol{nkarta}{208}
↓	\Pisymbol{nkarta}{49}	◇	\Pisymbol{nkarta}{112}	▬	\Pisymbol{nkarta}{209}

(continued on next page)

(continued from previous page)

2	\Pisymbol{nkarta}{50}	Ճ	\Pisymbol{nkarta}{113}	◀	\Pisymbol{nkarta}{210}
3	\Pisymbol{nkarta}{51}	Ճ	\Pisymbol{nkarta}{114}	◀	\Pisymbol{nkarta}{211}
4	\Pisymbol{nkarta}{52}	Ճ	\Pisymbol{nkarta}{115}	▼	\Pisymbol{nkarta}{212}
5	\Pisymbol{nkarta}{53}	Ճ	\Pisymbol{nkarta}{116}	↑	\Pisymbol{nkarta}{213}
6	\Pisymbol{nkarta}{54}	Ճ	\Pisymbol{nkarta}{117}	◀	\Pisymbol{nkarta}{214}
7	\Pisymbol{nkarta}{55}	Ճ	\Pisymbol{nkarta}{118}	†	\Pisymbol{nkarta}{215}
8	\Pisymbol{nkarta}{56}	Ճ	\Pisymbol{nkarta}{119}	●	\Pisymbol{nkarta}{216}
9	\Pisymbol{nkarta}{57}	Ճ	\Pisymbol{nkarta}{120}	Ճ	\Pisymbol{nkarta}{217}
□	\Pisymbol{nkarta}{58}	Ճ	\Pisymbol{nkarta}{121}	●	\Pisymbol{nkarta}{218}
○	\Pisymbol{nkarta}{59}	Ճ	\Pisymbol{nkarta}{122}	Ճ	\Pisymbol{nkarta}{219}
○	\Pisymbol{nkarta}{60}	---	\Pisymbol{nkarta}{123}	■	\Pisymbol{nkarta}{220}
†	\Pisymbol{nkarta}{61}	Ճ	\Pisymbol{nkarta}{124}	●	\Pisymbol{nkarta}{221}
×	\Pisymbol{nkarta}{62}	Ճ	\Pisymbol{nkarta}{125}	Ճ	\Pisymbol{nkarta}{222}
■	\Pisymbol{nkarta}{63}	Ճ	\Pisymbol{nkarta}{126}	Ժ	\Pisymbol{nkarta}{223}
□	\Pisymbol{nkarta}{64}	Ճ	\Pisymbol{nkarta}{161}	■	\Pisymbol{nkarta}{224}
*	\Pisymbol{nkarta}{65}	◆	\Pisymbol{nkarta}{162}	Ճ	\Pisymbol{nkarta}{225}
●	\Pisymbol{nkarta}{66}	▲	\Pisymbol{nkarta}{163}	Ճ	\Pisymbol{nkarta}{226}
■	\Pisymbol{nkarta}{67}	—	\Pisymbol{nkarta}{164}	•	\Pisymbol{nkarta}{227}
▲	\Pisymbol{nkarta}{68}	—	\Pisymbol{nkarta}{165}	★	\Pisymbol{nkarta}{228}
☆	\Pisymbol{nkarta}{69}	—	\Pisymbol{nkarta}{166}	★	\Pisymbol{nkarta}{229}
❖	\Pisymbol{nkarta}{70}	Ճ	\Pisymbol{nkarta}{167}	○	\Pisymbol{nkarta}{230}
■	\Pisymbol{nkarta}{71}	◎	\Pisymbol{nkarta}{168}	◇	\Pisymbol{nkarta}{231}
■	\Pisymbol{nkarta}{72}	↑	\Pisymbol{nkarta}{169}	Ճ	\Pisymbol{nkarta}{232}
■	\Pisymbol{nkarta}{73}	■	\Pisymbol{nkarta}{170}	■	\Pisymbol{nkarta}{233}
+	\Pisymbol{nkarta}{74}	★	\Pisymbol{nkarta}{171}	Ժ	\Pisymbol{nkarta}{234}
)	\Pisymbol{nkarta}{75}	□	\Pisymbol{nkarta}{172}	□	\Pisymbol{nkarta}{235}
□	\Pisymbol{nkarta}{76}	Ճ	\Pisymbol{nkarta}{173}	Ճ	\Pisymbol{nkarta}{236}
■	\Pisymbol{nkarta}{77}	+	\Pisymbol{nkarta}{174}	□	\Pisymbol{nkarta}{237}
▼	\Pisymbol{nkarta}{78}	◇	\Pisymbol{nkarta}{175}	□	\Pisymbol{nkarta}{238}
■	\Pisymbol{nkarta}{79}	●	\Pisymbol{nkarta}{176}	▬	\Pisymbol{nkarta}{239}
▼	\Pisymbol{nkarta}{80}	□	\Pisymbol{nkarta}{177}	Ճ	\Pisymbol{nkarta}{240}
■	\Pisymbol{nkarta}{81}	❖	\Pisymbol{nkarta}{178}	Ճ	\Pisymbol{nkarta}{241}
■	\Pisymbol{nkarta}{82}	×	\Pisymbol{nkarta}{179}	◊	\Pisymbol{nkarta}{242}
■	\Pisymbol{nkarta}{83}	□	\Pisymbol{nkarta}{180}	Ճ	\Pisymbol{nkarta}{243}
○	\Pisymbol{nkarta}{84}	❖	\Pisymbol{nkarta}{181}	+	\Pisymbol{nkarta}{244}
○	\Pisymbol{nkarta}{85}	▫	\Pisymbol{nkarta}{182}	†	\Pisymbol{nkarta}{245}
○	\Pisymbol{nkarta}{86}	★	\Pisymbol{nkarta}{183}	Ճ	\Pisymbol{nkarta}{246}
■	\Pisymbol{nkarta}{87}	❖	\Pisymbol{nkarta}{184}	◊	\Pisymbol{nkarta}{247}
■	\Pisymbol{nkarta}{88}	▷	\Pisymbol{nkarta}{185}	Ճ	\Pisymbol{nkarta}{248}
■	\Pisymbol{nkarta}{89}	❖	\Pisymbol{nkarta}{186}	Ճ	\Pisymbol{nkarta}{249}
■	\Pisymbol{nkarta}{90}	❖	\Pisymbol{nkarta}{187}	▬	\Pisymbol{nkarta}{250}
■	\Pisymbol{nkarta}{91}	❖	\Pisymbol{nkarta}{188}	Ճ	\Pisymbol{nkarta}{251}
■	\Pisymbol{nkarta}{92}	✉	\Pisymbol{nkarta}{189}	Ճ	\Pisymbol{nkarta}{252}
■	\Pisymbol{nkarta}{93}	×	\Pisymbol{nkarta}{190}	▼	\Pisymbol{nkarta}{253}
■	\Pisymbol{nkarta}{94}	○	\Pisymbol{nkarta}{191}	▶	\Pisymbol{nkarta}{254}
■	\Pisymbol{nkarta}{95}	◊	\Pisymbol{nkarta}{192}		

TABLE 563: moonphase Astronomical Symbols

⌚	\Pisymbol{moonphase}{0}	⌚	\Pisymbol{moonphase}{2}
⌚	\Pisymbol{moonphase}{1}	⌚	\Pisymbol{moonphase}{3}

TABLE 564: astrosym Astronomical Symbols

○	\Pisymbol{astrosym}{0}	◐	\Pisymbol{astrosym}{132}
❖	\Pisymbol{astrosym}{1}	*	\Pisymbol{astrosym}{133}
♀	\Pisymbol{astrosym}{2}	❖	\Pisymbol{astrosym}{134}
♂	\Pisymbol{astrosym}{3}	↖	\Pisymbol{astrosym}{135}
♂	\Pisymbol{astrosym}{4}	↙	\Pisymbol{astrosym}{136}
☿	\Pisymbol{astrosym}{5}	♂♂	\Pisymbol{astrosym}{137}
☿	\Pisymbol{astrosym}{6}	□	\Pisymbol{astrosym}{138}
↑	\Pisymbol{astrosym}{7}	○	\Pisymbol{astrosym}{139}
↑↑	\Pisymbol{astrosym}{8}	●	\Pisymbol{astrosym}{140}
◑	\Pisymbol{astrosym}{9}	◎	\Pisymbol{astrosym}{141}
◑	\Pisymbol{astrosym}{10}	●	\Pisymbol{astrosym}{142}
▽	\Pisymbol{astrosym}{11}	●	\Pisymbol{astrosym}{143}
◑	\Pisymbol{astrosym}{12}	◑	\Pisymbol{astrosym}{144}
◑	\Pisymbol{astrosym}{13}	◑	\Pisymbol{astrosym}{145}
◑	\Pisymbol{astrosym}{14}	●	\Pisymbol{astrosym}{146}
◑	\Pisymbol{astrosym}{15}	●	\Pisymbol{astrosym}{147}
◑	\Pisymbol{astrosym}{16}	○	\Pisymbol{astrosym}{148}
◑	\Pisymbol{astrosym}{17}	+	\Pisymbol{astrosym}{149}
◑	\Pisymbol{astrosym}{18}	*	\Pisymbol{astrosym}{150}
↗	\Pisymbol{astrosym}{19}	*	\Pisymbol{astrosym}{151}
↗	\Pisymbol{astrosym}{20}	△	\Pisymbol{astrosym}{152}
❖	\Pisymbol{astrosym}{21}	□	\Pisymbol{astrosym}{153}
◑	\Pisymbol{astrosym}{22}	△	\Pisymbol{astrosym}{154}
◑	\Pisymbol{astrosym}{23}	○	\Pisymbol{astrosym}{155}
◑	\Pisymbol{astrosym}{24}	▽	\Pisymbol{astrosym}{156}
◑	\Pisymbol{astrosym}{25}	◑	\Pisymbol{astrosym}{157}
◑	\Pisymbol{astrosym}{26}	▽	\Pisymbol{astrosym}{158}
≈	\Pisymbol{astrosym}{27}	└	\Pisymbol{astrosym}{159}
≈	\Pisymbol{astrosym}{28}	*	\Pisymbol{astrosym}{160}
⊕	\Pisymbol{astrosym}{29}	△	\Pisymbol{astrosym}{161}
♂	\Pisymbol{astrosym}{30}	□	\Pisymbol{astrosym}{162}
◑	\Pisymbol{astrosym}{31}	↖	\Pisymbol{astrosym}{163}
◑	\Pisymbol{astrosym}{32}	↙	\Pisymbol{astrosym}{164}

(continued on next page)

(continued from previous page)

*	\Pisymbol{astrosym}{33}	♂	\Pisymbol{astrosym}{165}
♀	\Pisymbol{astrosym}{34}	♀♀	\Pisymbol{astrosym}{166}
↖	\Pisymbol{astrosym}{35}	Ⓛ	\Pisymbol{astrosym}{167}
⚲	\Pisymbol{astrosym}{36}	♀	\Pisymbol{astrosym}{168}
⚲	\Pisymbol{astrosym}{37}	*	\Pisymbol{astrosym}{169}
□	\Pisymbol{astrosym}{38}	☩	\Pisymbol{astrosym}{178}
○	\Pisymbol{astrosym}{39}	⊗	\Pisymbol{astrosym}{179}
●	\Pisymbol{astrosym}{40}	▽	\Pisymbol{astrosym}{180}
☽	\Pisymbol{astrosym}{41}	⊜	\Pisymbol{astrosym}{181}
☾	\Pisymbol{astrosym}{42}	*	\Pisymbol{astrosym}{182}
☽	\Pisymbol{astrosym}{43}	△	\Pisymbol{astrosym}{183}
☽	\Pisymbol{astrosym}{44}	⊠	\Pisymbol{astrosym}{184}
☽	\Pisymbol{astrosym}{45}	⊟	\Pisymbol{astrosym}{185}
☽	\Pisymbol{astrosym}{46}	⋈	\Pisymbol{astrosym}{186}
☽	\Pisymbol{astrosym}{47}	♂	\Pisymbol{astrosym}{187}
☽	\Pisymbol{astrosym}{48}	○	\Pisymbol{astrosym}{188}
☽	\Pisymbol{astrosym}{49}	Ⓛ	\Pisymbol{astrosym}{189}
*+	\Pisymbol{astrosym}{50}	♀	\Pisymbol{astrosym}{190}
*+	\Pisymbol{astrosym}{51}	*	\Pisymbol{astrosym}{191}
△+	\Pisymbol{astrosym}{52}	○	\Pisymbol{astrosym}{200}
□+	\Pisymbol{astrosym}{53}	○○	\Pisymbol{astrosym}{201}
‡	\Pisymbol{astrosym}{54}	○○	\Pisymbol{astrosym}{202}
○	\Pisymbol{astrosym}{55}	†	\Pisymbol{astrosym}{203}
☩	\Pisymbol{astrosym}{56}	♂	\Pisymbol{astrosym}{204}
⊗	\Pisymbol{astrosym}{57}	⊐	\Pisymbol{astrosym}{205}
⊜	\Pisymbol{astrosym}{58}	⊏	\Pisymbol{astrosym}{206}
⊜	\Pisymbol{astrosym}{59}	↑	\Pisymbol{astrosym}{207}
*	\Pisymbol{astrosym}{60}	↑↑	\Pisymbol{astrosym}{208}
△	\Pisymbol{astrosym}{61}	▷	\Pisymbol{astrosym}{209}
⊠	\Pisymbol{astrosym}{62}	⊓	\Pisymbol{astrosym}{210}
⊟	\Pisymbol{astrosym}{63}	⊑	\Pisymbol{astrosym}{211}
⋈	\Pisymbol{astrosym}{64}	○○	\Pisymbol{astrosym}{212}
♂	\Pisymbol{astrosym}{65}	⊒	\Pisymbol{astrosym}{213}
♀♀	\Pisymbol{astrosym}{66}	○○	\Pisymbol{astrosym}{214}
Ⓛ	\Pisymbol{astrosym}{67}	⋈	\Pisymbol{astrosym}{215}
♀	\Pisymbol{astrosym}{68}	⊓	\Pisymbol{astrosym}{216}
*	\Pisymbol{astrosym}{69}	⊏	\Pisymbol{astrosym}{217}
⊕	\Pisymbol{astrosym}{90}	⊐	\Pisymbol{astrosym}{218}
⊕	\Pisymbol{astrosym}{91}	↗	\Pisymbol{astrosym}{219}
☽	\Pisymbol{astrosym}{92}	⊔	\Pisymbol{astrosym}{220}
☽	\Pisymbol{astrosym}{93}	⋘	\Pisymbol{astrosym}{221}

(continued on next page)

(continued from previous page)

⌚	\Pisymbol{astrosym}{94}	⌚	\Pisymbol{astrosym}{222}
⌚	\Pisymbol{astrosym}{95}	⌚	\Pisymbol{astrosym}{223}
⌚	\Pisymbol{astrosym}{100}	⌚	\Pisymbol{astrosym}{224}
⌚	\Pisymbol{astrosym}{101}	⌚	\Pisymbol{astrosym}{225}
⌚	\Pisymbol{astrosym}{102}	⌚	\Pisymbol{astrosym}{226}
⌚	\Pisymbol{astrosym}{103}	⌚	\Pisymbol{astrosym}{227}
⌚	\Pisymbol{astrosym}{104}	⌚	\Pisymbol{astrosym}{228}
⌚	\Pisymbol{astrosym}{105}	⌚	\Pisymbol{astrosym}{229}
⌚	\Pisymbol{astrosym}{106}	⌚	\Pisymbol{astrosym}{230}
⌚	\Pisymbol{astrosym}{107}	⌚	\Pisymbol{astrosym}{231}
⌚	\Pisymbol{astrosym}{108}	⌚	\Pisymbol{astrosym}{232}
⌚	\Pisymbol{astrosym}{109}	⌚	\Pisymbol{astrosym}{233}
⌚	\Pisymbol{astrosym}{110}	⌚	\Pisymbol{astrosym}{234}
⌚	\Pisymbol{astrosym}{111}	⌚	\Pisymbol{astrosym}{235}
⌚	\Pisymbol{astrosym}{112}	⌚	\Pisymbol{astrosym}{236}
⌚	\Pisymbol{astrosym}{113}	⌚	\Pisymbol{astrosym}{237}
⌚	\Pisymbol{astrosym}{114}	⌚	\Pisymbol{astrosym}{238}
⌚	\Pisymbol{astrosym}{115}	⌚	\Pisymbol{astrosym}{239}
⌚	\Pisymbol{astrosym}{116}	⌚	\Pisymbol{astrosym}{240}
⌚	\Pisymbol{astrosym}{117}	⌚	\Pisymbol{astrosym}{241}
⌚	\Pisymbol{astrosym}{118}	⌚	\Pisymbol{astrosym}{242}
⌚	\Pisymbol{astrosym}{119}	⌚	\Pisymbol{astrosym}{243}
⌚	\Pisymbol{astrosym}{120}	⌚	\Pisymbol{astrosym}{244}
⌚	\Pisymbol{astrosym}{121}	⌚	\Pisymbol{astrosym}{245}
⌚	\Pisymbol{astrosym}{122}	⌚	\Pisymbol{astrosym}{246}
⌚	\Pisymbol{astrosym}{123}	⌚	\Pisymbol{astrosym}{247}
⌚	\Pisymbol{astrosym}{124}	⌚	\Pisymbol{astrosym}{248}
⌚	\Pisymbol{astrosym}{125}	⌚	\Pisymbol{astrosym}{249}
⌚	\Pisymbol{astrosym}{126}	⌚	\Pisymbol{astrosym}{250}
⌚	\Pisymbol{astrosym}{127}	⌚	\Pisymbol{astrosym}{251}
⌚	\Pisymbol{astrosym}{128}	⌚	\Pisymbol{astrosym}{252}
⌚	\Pisymbol{astrosym}{129}	⌚	\Pisymbol{astrosym}{253}
⌚	\Pisymbol{astrosym}{130}	⌚	\Pisymbol{astrosym}{254}
⌚	\Pisymbol{astrosym}{131}	⌚	\Pisymbol{astrosym}{255}

TABLE 565: webomints Decorative Borders

	\Pisymbol{WebOMintsGD}{47}		\Pisymbol{WebOMintsGD}{87}
	\Pisymbol{WebOMintsGD}{48}		\Pisymbol{WebOMintsGD}{88}
	\Pisymbol{WebOMintsGD}{49}		\Pisymbol{WebOMintsGD}{89}
	\Pisymbol{WebOMintsGD}{50}		\Pisymbol{WebOMintsGD}{90}
	\Pisymbol{WebOMintsGD}{51}		\Pisymbol{WebOMintsGD}{91}
	\Pisymbol{WebOMintsGD}{52}		\Pisymbol{WebOMintsGD}{93}
	\Pisymbol{WebOMintsGD}{53}		\Pisymbol{WebOMintsGD}{97}
	\Pisymbol{WebOMintsGD}{54}		\Pisymbol{WebOMintsGD}{98}
	\Pisymbol{WebOMintsGD}{55}		\Pisymbol{WebOMintsGD}{99}
	\Pisymbol{WebOMintsGD}{56}		\Pisymbol{WebOMintsGD}{100}
	\Pisymbol{WebOMintsGD}{57}		\Pisymbol{WebOMintsGD}{101}
	\Pisymbol{WebOMintsGD}{65}		\Pisymbol{WebOMintsGD}{102}
	\Pisymbol{WebOMintsGD}{66}		\Pisymbol{WebOMintsGD}{103}
	\Pisymbol{WebOMintsGD}{67}		\Pisymbol{WebOMintsGD}{104}
	\Pisymbol{WebOMintsGD}{68}		\Pisymbol{WebOMintsGD}{105}
	\Pisymbol{WebOMintsGD}{69}		\Pisymbol{WebOMintsGD}{106}
	\Pisymbol{WebOMintsGD}{70}		\Pisymbol{WebOMintsGD}{107}
	\Pisymbol{WebOMintsGD}{71}		\Pisymbol{WebOMintsGD}{108}
	\Pisymbol{WebOMintsGD}{72}		\Pisymbol{WebOMintsGD}{109}
	\Pisymbol{WebOMintsGD}{73}		\Pisymbol{WebOMintsGD}{110}
	\Pisymbol{WebOMintsGD}{74}		\Pisymbol{WebOMintsGD}{111}
	\Pisymbol{WebOMintsGD}{75}		\Pisymbol{WebOMintsGD}{112}
	\Pisymbol{WebOMintsGD}{76}		\Pisymbol{WebOMintsGD}{113}
	\Pisymbol{WebOMintsGD}{77}		\Pisymbol{WebOMintsGD}{114}
	\Pisymbol{WebOMintsGD}{78}		\Pisymbol{WebOMintsGD}{115}
	\Pisymbol{WebOMintsGD}{79}		\Pisymbol{WebOMintsGD}{116}
	\Pisymbol{WebOMintsGD}{80}		\Pisymbol{WebOMintsGD}{117}
	\Pisymbol{WebOMintsGD}{81}		\Pisymbol{WebOMintsGD}{118}
	\Pisymbol{WebOMintsGD}{82}		\Pisymbol{WebOMintsGD}{119}
	\Pisymbol{WebOMintsGD}{83}		\Pisymbol{WebOMintsGD}{120}
	\Pisymbol{WebOMintsGD}{84}		\Pisymbol{WebOMintsGD}{121}
	\Pisymbol{WebOMintsGD}{85}		\Pisymbol{WebOMintsGD}{122}
	\Pisymbol{WebOMintsGD}{86}		

webomints provides a `uwebo.fd` font-definition file. Instead of using `pifont` and `\Pisymbol` to typeset a glyph, a document can select the webomints font directly. For example, `\usefont{U}{webo}{x1}{n}\char73\char74`—alternatively, `\usefont{U}{webo}{x1}{n}IJ`—will typeset “”. This can be useful for typesetting a number of webomints glyphs in a row.

The `niceframe` package can be used to typeset decorative frames using fonts such as webomints.

TABLE 566: umranda Decorative Borders

	\Pisymbol{umranda}{0}		\Pisymbol{umranda}{34}		\Pisymbol{umranda}{68}
	\Pisymbol{umranda}{1}		\Pisymbol{umranda}{35}		\Pisymbol{umranda}{69}
	\Pisymbol{umranda}{2}		\Pisymbol{umranda}{36}		\Pisymbol{umranda}{70}
	\Pisymbol{umranda}{3}		\Pisymbol{umranda}{37}		\Pisymbol{umranda}{71}
	\Pisymbol{umranda}{4}		\Pisymbol{umranda}{38}		\Pisymbol{umranda}{72}
	\Pisymbol{umranda}{5}		\Pisymbol{umranda}{39}		\Pisymbol{umranda}{73}
	\Pisymbol{umranda}{6}		\Pisymbol{umranda}{40}		\Pisymbol{umranda}{74}
	\Pisymbol{umranda}{7}		\Pisymbol{umranda}{41}		\Pisymbol{umranda}{75}
	\Pisymbol{umranda}{8}		\Pisymbol{umranda}{42}		\Pisymbol{umranda}{76}
	\Pisymbol{umranda}{9}		\Pisymbol{umranda}{43}		\Pisymbol{umranda}{77}
	\Pisymbol{umranda}{10}		\Pisymbol{umranda}{44}		\Pisymbol{umranda}{78}
	\Pisymbol{umranda}{11}		\Pisymbol{umranda}{45}		\Pisymbol{umranda}{79}
	\Pisymbol{umranda}{12}		\Pisymbol{umranda}{46}		\Pisymbol{umranda}{80}
	\Pisymbol{umranda}{13}		\Pisymbol{umranda}{47}		\Pisymbol{umranda}{81}
	\Pisymbol{umranda}{14}		\Pisymbol{umranda}{48}		\Pisymbol{umranda}{82}
	\Pisymbol{umranda}{15}		\Pisymbol{umranda}{49}		\Pisymbol{umranda}{83}
	\Pisymbol{umranda}{16}		\Pisymbol{umranda}{50}		\Pisymbol{umranda}{84}
	\Pisymbol{umranda}{17}		\Pisymbol{umranda}{51}		\Pisymbol{umranda}{85}
	\Pisymbol{umranda}{18}		\Pisymbol{umranda}{52}		\Pisymbol{umranda}{86}
	\Pisymbol{umranda}{19}		\Pisymbol{umranda}{53}		\Pisymbol{umranda}{87}
	\Pisymbol{umranda}{20}		\Pisymbol{umranda}{54}		\Pisymbol{umranda}{88}
	\Pisymbol{umranda}{21}		\Pisymbol{umranda}{55}		\Pisymbol{umranda}{89}
	\Pisymbol{umranda}{22}		\Pisymbol{umranda}{56}		\Pisymbol{umranda}{90}
	\Pisymbol{umranda}{23}		\Pisymbol{umranda}{57}		\Pisymbol{umranda}{91}
	\Pisymbol{umranda}{24}		\Pisymbol{umranda}{58}		\Pisymbol{umranda}{92}
	\Pisymbol{umranda}{25}		\Pisymbol{umranda}{59}		\Pisymbol{umranda}{93}
	\Pisymbol{umranda}{26}		\Pisymbol{umranda}{60}		\Pisymbol{umranda}{94}
	\Pisymbol{umranda}{27}		\Pisymbol{umranda}{61}		\Pisymbol{umranda}{95}
	\Pisymbol{umranda}{28}		\Pisymbol{umranda}{62}		\Pisymbol{umranda}{96}
	\Pisymbol{umranda}{29}		\Pisymbol{umranda}{63}		\Pisymbol{umranda}{97}
	\Pisymbol{umranda}{30}		\Pisymbol{umranda}{64}		\Pisymbol{umranda}{98}
	\Pisymbol{umranda}{31}		\Pisymbol{umranda}{65}		\Pisymbol{umranda}{99}
	\Pisymbol{umranda}{32}		\Pisymbol{umranda}{66}		\Pisymbol{umranda}{100}
	\Pisymbol{umranda}{33}		\Pisymbol{umranda}{67}		\Pisymbol{umranda}{101}

The `niceframe` package can be used to typeset decorative frames using fonts such as `umranda`.

TABLE 567: umrandb Decorative Borders

\Pisymbol{umrandb}{0}	\Pisymbol{umrandb}{42}	\Pisymbol{umrandb}{84}
\Pisymbol{umrandb}{1}	\Pisymbol{umrandb}{43}	\Pisymbol{umrandb}{85}
\Pisymbol{umrandb}{2}	\Pisymbol{umrandb}{44}	\Pisymbol{umrandb}{86}
\Pisymbol{umrandb}{3}	\Pisymbol{umrandb}{45}	\Pisymbol{umrandb}{87}
\Pisymbol{umrandb}{4}	\Pisymbol{umrandb}{46}	\Pisymbol{umrandb}{88}
\Pisymbol{umrandb}{5}	\Pisymbol{umrandb}{47}	\Pisymbol{umrandb}{89}
\Pisymbol{umrandb}{6}	\Pisymbol{umrandb}{48}	\Pisymbol{umrandb}{90}
\Pisymbol{umrandb}{7}	\Pisymbol{umrandb}{49}	\Pisymbol{umrandb}{91}
\Pisymbol{umrandb}{8}	\Pisymbol{umrandb}{50}	\Pisymbol{umrandb}{92}
\Pisymbol{umrandb}{9}	\Pisymbol{umrandb}{51}	\Pisymbol{umrandb}{93}
\Pisymbol{umrandb}{10}	\Pisymbol{umrandb}{52}	\Pisymbol{umrandb}{94}
\Pisymbol{umrandb}{11}	\Pisymbol{umrandb}{53}	\Pisymbol{umrandb}{95}
\Pisymbol{umrandb}{12}	\Pisymbol{umrandb}{54}	\Pisymbol{umrandb}{96}
\Pisymbol{umrandb}{13}	\Pisymbol{umrandb}{55}	\Pisymbol{umrandb}{97}
\Pisymbol{umrandb}{14}	\Pisymbol{umrandb}{56}	\Pisymbol{umrandb}{98}
\Pisymbol{umrandb}{15}	\Pisymbol{umrandb}{57}	\Pisymbol{umrandb}{99}
\Pisymbol{umrandb}{16}	\Pisymbol{umrandb}{58}	\Pisymbol{umrandb}{100}
\Pisymbol{umrandb}{17}	\Pisymbol{umrandb}{59}	\Pisymbol{umrandb}{101}
\Pisymbol{umrandb}{18}	\Pisymbol{umrandb}{60}	\Pisymbol{umrandb}{102}
\Pisymbol{umrandb}{19}	\Pisymbol{umrandb}{61}	\Pisymbol{umrandb}{103}
\Pisymbol{umrandb}{20}	\Pisymbol{umrandb}{62}	\Pisymbol{umrandb}{104}
\Pisymbol{umrandb}{21}	\Pisymbol{umrandb}{63}	\Pisymbol{umrandb}{105}
\Pisymbol{umrandb}{22}	\Pisymbol{umrandb}{64}	\Pisymbol{umrandb}{106}
\Pisymbol{umrandb}{23}	\Pisymbol{umrandb}{65}	\Pisymbol{umrandb}{107}
\Pisymbol{umrandb}{24}	\Pisymbol{umrandb}{66}	\Pisymbol{umrandb}{108}
\Pisymbol{umrandb}{25}	\Pisymbol{umrandb}{67}	\Pisymbol{umrandb}{109}
\Pisymbol{umrandb}{26}	\Pisymbol{umrandb}{68}	\Pisymbol{umrandb}{110}
\Pisymbol{umrandb}{27}	\Pisymbol{umrandb}{69}	\Pisymbol{umrandb}{111}
\Pisymbol{umrandb}{28}	\Pisymbol{umrandb}{70}	\Pisymbol{umrandb}{112}
\Pisymbol{umrandb}{29}	\Pisymbol{umrandb}{71}	\Pisymbol{umrandb}{113}
\Pisymbol{umrandb}{30}	\Pisymbol{umrandb}{72}	\Pisymbol{umrandb}{114}
\Pisymbol{umrandb}{31}	\Pisymbol{umrandb}{73}	\Pisymbol{umrandb}{115}
\Pisymbol{umrandb}{32}	\Pisymbol{umrandb}{74}	\Pisymbol{umrandb}{116}
\Pisymbol{umrandb}{33}	\Pisymbol{umrandb}{75}	\Pisymbol{umrandb}{117}
\Pisymbol{umrandb}{34}	\Pisymbol{umrandb}{76}	\Pisymbol{umrandb}{118}
\Pisymbol{umrandb}{35}	\Pisymbol{umrandb}{77}	\Pisymbol{umrandb}{119}
\Pisymbol{umrandb}{36}	\Pisymbol{umrandb}{78}	\Pisymbol{umrandb}{120}
\Pisymbol{umrandb}{37}	\Pisymbol{umrandb}{79}	\Pisymbol{umrandb}{121}
\Pisymbol{umrandb}{38}	\Pisymbol{umrandb}{80}	\Pisymbol{umrandb}{122}
\Pisymbol{umrandb}{39}	\Pisymbol{umrandb}{81}	\Pisymbol{umrandb}{123}
\Pisymbol{umrandb}{40}	\Pisymbol{umrandb}{82}	
\Pisymbol{umrandb}{41}	\Pisymbol{umrandb}{83}	

The `niceframe` package can be used to typeset decorative frames using fonts such as `umrandb`.

TABLE 568: dingbat Decorative Borders

	\Pisymbol{dingbat}{69}		\Pisymbol{dingbat}{97}
	\Pisymbol{dingbat}{70}		\Pisymbol{dingbat}{98}
	\Pisymbol{dingbat}{71}		\Pisymbol{dingbat}{99}
	\Pisymbol{dingbat}{72}		\Pisymbol{dingbat}{100}
	\Pisymbol{dingbat}{74}		\Pisymbol{dingbat}{101}
	\Pisymbol{dingbat}{75}		\Pisymbol{dingbat}{102}
	\Pisymbol{dingbat}{76}		\Pisymbol{dingbat}{103}
	\Pisymbol{dingbat}{77}		\Pisymbol{dingbat}{104}

The preceding table is incomplete in that it includes only unnamed `dingbat` symbols. Named symbols are included in Table 367 and Table 412 (both intermixed with symbols from the `ark10` font).

The `dingbat` package includes a `udingbat.fd` file so a document does not need to specify the `\DeclareFontFamily` and `\DeclareFontShape` commands list at the beginning of Section 10.

The `niceframe` package can be used to typeset decorative frames using fonts such as `dingbat`.

TABLE 569: knot Celtic Knots

	\Pisymbol{knot1}{48}		\Pisymbol{knot1}{68}		\Pisymbol{knot1}{84}
	\Pisymbol{knot1}{49}		\Pisymbol{knot1}{69}		\Pisymbol{knot1}{85}
	\Pisymbol{knot1}{50}		\Pisymbol{knot1}{70}		\Pisymbol{knot1}{86}
	\Pisymbol{knot1}{51}		\Pisymbol{knot1}{71}		\Pisymbol{knot1}{87}
	\Pisymbol{knot1}{52}		\Pisymbol{knot1}{72}		\Pisymbol{knot1}{88}
	\Pisymbol{knot1}{53}		\Pisymbol{knot1}{73}		\Pisymbol{knot1}{96}
	\Pisymbol{knot1}{58}		\Pisymbol{knot1}{74}		\Pisymbol{knot1}{97}
	\Pisymbol{knot1}{59}		\Pisymbol{knot1}{75}		\Pisymbol{knot1}{98}
	\Pisymbol{knot1}{60}		\Pisymbol{knot1}{76}		\Pisymbol{knot1}{99}
	\Pisymbol{knot1}{61}		\Pisymbol{knot1}{77}		\Pisymbol{knot1}{100}

(continued on next page)

(continued from previous page)

	\Pisymbol{knot1}{62}		\Pisymbol{knot1}{78}		\Pisymbol{knot1}{101}
	\Pisymbol{knot1}{63}		\Pisymbol{knot1}{79}		\Pisymbol{knot1}{102}
	\Pisymbol{knot1}{64}		\Pisymbol{knot1}{80}		\Pisymbol{knot1}{103}
	\Pisymbol{knot1}{65}		\Pisymbol{knot1}{81}		\Pisymbol{knot1}{104}
	\Pisymbol{knot1}{66}		\Pisymbol{knot1}{82}		\Pisymbol{knot1}{105}
	\Pisymbol{knot1}{67}		\Pisymbol{knot1}{83}		
	\Pisymbol{knot2}{48}		\Pisymbol{knot2}{68}		\Pisymbol{knot2}{84}
	\Pisymbol{knot2}{49}		\Pisymbol{knot2}{69}		\Pisymbol{knot2}{85}
	\Pisymbol{knot2}{50}		\Pisymbol{knot2}{70}		\Pisymbol{knot2}{86}
◆	\Pisymbol{knot2}{51}		\Pisymbol{knot2}{71}		\Pisymbol{knot2}{87}
●	\Pisymbol{knot2}{52}		\Pisymbol{knot2}{72}		\Pisymbol{knot2}{88}
	\Pisymbol{knot2}{53}		\Pisymbol{knot2}{73}		\Pisymbol{knot2}{96}
	\Pisymbol{knot2}{58}		\Pisymbol{knot2}{74}		\Pisymbol{knot2}{97}
	\Pisymbol{knot2}{59}		\Pisymbol{knot2}{75}		\Pisymbol{knot2}{98}
	\Pisymbol{knot2}{60}		\Pisymbol{knot2}{76}		\Pisymbol{knot2}{99}
	\Pisymbol{knot2}{61}		\Pisymbol{knot2}{77}		\Pisymbol{knot2}{100}
	\Pisymbol{knot2}{62}		\Pisymbol{knot2}{78}		\Pisymbol{knot2}{101}
	\Pisymbol{knot2}{63}		\Pisymbol{knot2}{79}		\Pisymbol{knot2}{102}
	\Pisymbol{knot2}{64}		\Pisymbol{knot2}{80}		\Pisymbol{knot2}{103}
	\Pisymbol{knot2}{65}		\Pisymbol{knot2}{81}		\Pisymbol{knot2}{104}
	\Pisymbol{knot2}{66}		\Pisymbol{knot2}{82}		\Pisymbol{knot2}{105}
	\Pisymbol{knot2}{67}		\Pisymbol{knot2}{83}		
	\Pisymbol{knot3}{48}		\Pisymbol{knot3}{68}		\Pisymbol{knot3}{84}
	\Pisymbol{knot3}{49}		\Pisymbol{knot3}{69}		\Pisymbol{knot3}{85}
	\Pisymbol{knot3}{50}		\Pisymbol{knot3}{70}		\Pisymbol{knot3}{86}
◆	\Pisymbol{knot3}{51}		\Pisymbol{knot3}{71}		\Pisymbol{knot3}{87}
●	\Pisymbol{knot3}{52}		\Pisymbol{knot3}{72}		\Pisymbol{knot3}{88}
	\Pisymbol{knot3}{53}		\Pisymbol{knot3}{73}		\Pisymbol{knot3}{96}
	\Pisymbol{knot3}{58}		\Pisymbol{knot3}{74}		\Pisymbol{knot3}{97}
	\Pisymbol{knot3}{59}		\Pisymbol{knot3}{75}		\Pisymbol{knot3}{98}
	\Pisymbol{knot3}{60}		\Pisymbol{knot3}{76}		\Pisymbol{knot3}{99}
	\Pisymbol{knot3}{61}		\Pisymbol{knot3}{77}		\Pisymbol{knot3}{100}
	\Pisymbol{knot3}{62}		\Pisymbol{knot3}{78}		\Pisymbol{knot3}{101}
	\Pisymbol{knot3}{63}		\Pisymbol{knot3}{79}		\Pisymbol{knot3}{102}
	\Pisymbol{knot3}{64}		\Pisymbol{knot3}{80}		\Pisymbol{knot3}{103}
	\Pisymbol{knot3}{65}		\Pisymbol{knot3}{81}		\Pisymbol{knot3}{104}
	\Pisymbol{knot3}{66}		\Pisymbol{knot3}{82}		\Pisymbol{knot3}{105}

(continued on next page)

(continued from previous page)

	\Pisymbol{knot3}{67}		\Pisymbol{knot3}{83}	
	\Pisymbol{knot4}{48}		\Pisymbol{knot4}{68}	\Pisymbol{knot4}{84}
	\Pisymbol{knot4}{49}		\Pisymbol{knot4}{69}	\Pisymbol{knot4}{85}
	\Pisymbol{knot4}{50}		\Pisymbol{knot4}{70}	\Pisymbol{knot4}{86}
◆	\Pisymbol{knot4}{51}		\Pisymbol{knot4}{71}	\Pisymbol{knot4}{87}
●	\Pisymbol{knot4}{52}		\Pisymbol{knot4}{72}	\Pisymbol{knot4}{88}
	\Pisymbol{knot4}{53}		\Pisymbol{knot4}{73}	\Pisymbol{knot4}{96}
	\Pisymbol{knot4}{58}		\Pisymbol{knot4}{74}	\Pisymbol{knot4}{97}
	\Pisymbol{knot4}{59}		\Pisymbol{knot4}{75}	\Pisymbol{knot4}{98}
	\Pisymbol{knot4}{60}		\Pisymbol{knot4}{76}	\Pisymbol{knot4}{99}
	\Pisymbol{knot4}{61}		\Pisymbol{knot4}{77}	\Pisymbol{knot4}{100}
	\Pisymbol{knot4}{62}		\Pisymbol{knot4}{78}	\Pisymbol{knot4}{101}
	\Pisymbol{knot4}{63}		\Pisymbol{knot4}{79}	\Pisymbol{knot4}{102}
	\Pisymbol{knot4}{64}		\Pisymbol{knot4}{80}	\Pisymbol{knot4}{103}
	\Pisymbol{knot4}{65}		\Pisymbol{knot4}{81}	\Pisymbol{knot4}{104}
	\Pisymbol{knot4}{66}		\Pisymbol{knot4}{82}	\Pisymbol{knot4}{105}
	\Pisymbol{knot4}{67}		\Pisymbol{knot4}{83}	
	\Pisymbol{knot5}{48}		\Pisymbol{knot5}{68}	\Pisymbol{knot5}{84}
	\Pisymbol{knot5}{49}		\Pisymbol{knot5}{69}	\Pisymbol{knot5}{85}
	\Pisymbol{knot5}{50}		\Pisymbol{knot5}{70}	\Pisymbol{knot5}{86}
◆	\Pisymbol{knot5}{51}		\Pisymbol{knot5}{71}	\Pisymbol{knot5}{87}
●	\Pisymbol{knot5}{52}		\Pisymbol{knot5}{72}	\Pisymbol{knot5}{88}
	\Pisymbol{knot5}{53}		\Pisymbol{knot5}{73}	\Pisymbol{knot5}{96}
	\Pisymbol{knot5}{58}		\Pisymbol{knot5}{74}	\Pisymbol{knot5}{97}
	\Pisymbol{knot5}{59}		\Pisymbol{knot5}{75}	\Pisymbol{knot5}{98}
	\Pisymbol{knot5}{60}		\Pisymbol{knot5}{76}	\Pisymbol{knot5}{99}
	\Pisymbol{knot5}{61}		\Pisymbol{knot5}{77}	\Pisymbol{knot5}{100}
	\Pisymbol{knot5}{62}		\Pisymbol{knot5}{78}	\Pisymbol{knot5}{101}
	\Pisymbol{knot5}{63}		\Pisymbol{knot5}{79}	\Pisymbol{knot5}{102}
	\Pisymbol{knot5}{64}		\Pisymbol{knot5}{80}	\Pisymbol{knot5}{103}
	\Pisymbol{knot5}{65}		\Pisymbol{knot5}{81}	\Pisymbol{knot5}{104}
	\Pisymbol{knot5}{66}		\Pisymbol{knot5}{82}	\Pisymbol{knot5}{105}
	\Pisymbol{knot5}{67}		\Pisymbol{knot5}{83}	
	\Pisymbol{knot6}{48}		\Pisymbol{knot6}{68}	\Pisymbol{knot6}{84}
	\Pisymbol{knot6}{49}		\Pisymbol{knot6}{69}	\Pisymbol{knot6}{85}
	\Pisymbol{knot6}{50}		\Pisymbol{knot6}{70}	\Pisymbol{knot6}{86}
◆	\Pisymbol{knot6}{51}		\Pisymbol{knot6}{71}	\Pisymbol{knot6}{87}

(continued on next page)

(continued from previous page)

●	\Pisymbol{knot6}{52}		\Pisymbol{knot6}{72}		\Pisymbol{knot6}{88}	
□	\Pisymbol{knot6}{53}		\Pisymbol{knot6}{73}		\Pisymbol{knot6}{96}	
□	\Pisymbol{knot6}{58}		\Pisymbol{knot6}{74}		\Pisymbol{knot6}{97}	
□	\Pisymbol{knot6}{59}		\Pisymbol{knot6}{75}		\Pisymbol{knot6}{98}	
□	\Pisymbol{knot6}{60}		\Pisymbol{knot6}{76}		\Pisymbol{knot6}{99}	
□	\Pisymbol{knot6}{61}		\Pisymbol{knot6}{77}		\Pisymbol{knot6}{100}	
□	\Pisymbol{knot6}{62}		\Pisymbol{knot6}{78}		\Pisymbol{knot6}{101}	
□	\Pisymbol{knot6}{63}		\Pisymbol{knot6}{79}		\Pisymbol{knot6}{102}	
□	\Pisymbol{knot6}{64}		\Pisymbol{knot6}{80}		\Pisymbol{knot6}{103}	
□	\Pisymbol{knot6}{65}		\Pisymbol{knot6}{81}		\Pisymbol{knot6}{104}	
□	\Pisymbol{knot6}{66}		\Pisymbol{knot6}{82}		\Pisymbol{knot6}{105}	
□	\Pisymbol{knot6}{67}		\Pisymbol{knot6}{83}			
□	\Pisymbol{knot7}{48}		\Pisymbol{knot7}{68}		\Pisymbol{knot7}{84}	
□	\Pisymbol{knot7}{49}		\Pisymbol{knot7}{69}		\Pisymbol{knot7}{85}	
□	\Pisymbol{knot7}{50}		\Pisymbol{knot7}{70}		\Pisymbol{knot7}{86}	
◆	\Pisymbol{knot7}{51}		\Pisymbol{knot7}{71}		\Pisymbol{knot7}{87}	
●	\Pisymbol{knot7}{52}		\Pisymbol{knot7}{72}		\Pisymbol{knot7}{88}	
□	\Pisymbol{knot7}{53}		\Pisymbol{knot7}{73}		\Pisymbol{knot7}{96}	
□	\Pisymbol{knot7}{58}		\Pisymbol{knot7}{74}		\Pisymbol{knot7}{97}	
□	\Pisymbol{knot7}{59}		\Pisymbol{knot7}{75}		\Pisymbol{knot7}{98}	
□	\Pisymbol{knot7}{60}		\Pisymbol{knot7}{76}		\Pisymbol{knot7}{99}	
□	\Pisymbol{knot7}{61}		\Pisymbol{knot7}{77}		\Pisymbol{knot7}{100}	
□	\Pisymbol{knot7}{62}		\Pisymbol{knot7}{78}		\Pisymbol{knot7}{101}	
□	\Pisymbol{knot7}{63}		\Pisymbol{knot7}{79}		\Pisymbol{knot7}{102}	
□	\Pisymbol{knot7}{64}		\Pisymbol{knot7}{80}		\Pisymbol{knot7}{103}	
□	\Pisymbol{knot7}{65}		\Pisymbol{knot7}{81}		\Pisymbol{knot7}{104}	
□	\Pisymbol{knot7}{66}		\Pisymbol{knot7}{82}		\Pisymbol{knot7}{105}	
□	\Pisymbol{knot7}{67}		\Pisymbol{knot7}{83}			

The following is an example of a basic knot, using `\usefont{U}{knot<number>}{'m}{n}` to change fonts for multiple characters instead of `\Pisymbol` to typeset one character at a time. Note that all of the characters in the knot fonts lie conveniently within the range of printable ASCII characters.

Input	knot1	knot2	knot3	knot4	knot5	knot6	knot7
CDB							
FHG							
CEA							

The `niceframe` package can be used to typeset decorative frames using fonts such as knot, especially using characters 48–63 of each font variant.

TABLE 570: dancers Dancing Men

\Pisymbol{dancers}{0}	\Pisymbol{dancers}{86}	\Pisymbol{dancers}{172}
\Pisymbol{dancers}{1}	\Pisymbol{dancers}{87}	\Pisymbol{dancers}{173}
\Pisymbol{dancers}{2}	\Pisymbol{dancers}{88}	\Pisymbol{dancers}{174}
\Pisymbol{dancers}{3}	\Pisymbol{dancers}{89}	\Pisymbol{dancers}{175}
\Pisymbol{dancers}{4}	\Pisymbol{dancers}{90}	\Pisymbol{dancers}{176}
\Pisymbol{dancers}{5}	\Pisymbol{dancers}{91}	\Pisymbol{dancers}{177}
\Pisymbol{dancers}{6}	\Pisymbol{dancers}{92}	\Pisymbol{dancers}{178}
\Pisymbol{dancers}{7}	\Pisymbol{dancers}{93}	\Pisymbol{dancers}{179}
\Pisymbol{dancers}{8}	\Pisymbol{dancers}{94}	\Pisymbol{dancers}{180}
\Pisymbol{dancers}{9}	\Pisymbol{dancers}{95}	\Pisymbol{dancers}{181}
\Pisymbol{dancers}{10}	\Pisymbol{dancers}{96}	\Pisymbol{dancers}{182}
\Pisymbol{dancers}{11}	\Pisymbol{dancers}{97}	\Pisymbol{dancers}{183}
\Pisymbol{dancers}{12}	\Pisymbol{dancers}{98}	\Pisymbol{dancers}{184}
\Pisymbol{dancers}{13}	\Pisymbol{dancers}{99}	\Pisymbol{dancers}{185}
\Pisymbol{dancers}{14}	\Pisymbol{dancers}{100}	\Pisymbol{dancers}{186}
\Pisymbol{dancers}{15}	\Pisymbol{dancers}{101}	\Pisymbol{dancers}{187}
\Pisymbol{dancers}{16}	\Pisymbol{dancers}{102}	\Pisymbol{dancers}{188}
\Pisymbol{dancers}{17}	\Pisymbol{dancers}{103}	\Pisymbol{dancers}{189}
\Pisymbol{dancers}{18}	\Pisymbol{dancers}{104}	\Pisymbol{dancers}{190}
\Pisymbol{dancers}{19}	\Pisymbol{dancers}{105}	\Pisymbol{dancers}{191}
\Pisymbol{dancers}{20}	\Pisymbol{dancers}{106}	\Pisymbol{dancers}{192}
\Pisymbol{dancers}{21}	\Pisymbol{dancers}{107}	\Pisymbol{dancers}{193}
\Pisymbol{dancers}{22}	\Pisymbol{dancers}{108}	\Pisymbol{dancers}{194}
\Pisymbol{dancers}{23}	\Pisymbol{dancers}{109}	\Pisymbol{dancers}{195}
\Pisymbol{dancers}{24}	\Pisymbol{dancers}{110}	\Pisymbol{dancers}{196}
\Pisymbol{dancers}{25}	\Pisymbol{dancers}{111}	\Pisymbol{dancers}{197}
\Pisymbol{dancers}{26}	\Pisymbol{dancers}{112}	\Pisymbol{dancers}{198}
\Pisymbol{dancers}{27}	\Pisymbol{dancers}{113}	\Pisymbol{dancers}{199}
\Pisymbol{dancers}{28}	\Pisymbol{dancers}{114}	\Pisymbol{dancers}{200}
\Pisymbol{dancers}{29}	\Pisymbol{dancers}{115}	\Pisymbol{dancers}{201}
\Pisymbol{dancers}{30}	\Pisymbol{dancers}{116}	\Pisymbol{dancers}{202}
\Pisymbol{dancers}{31}	\Pisymbol{dancers}{117}	\Pisymbol{dancers}{203}
\Pisymbol{dancers}{32}	\Pisymbol{dancers}{118}	\Pisymbol{dancers}{204}
\Pisymbol{dancers}{33}	\Pisymbol{dancers}{119}	\Pisymbol{dancers}{205}

(continued on next page)

(continued from previous page)

\Pisymbol{dancers}{34}	\Pisymbol{dancers}{120}	\Pisymbol{dancers}{206}
\Pisymbol{dancers}{35}	\Pisymbol{dancers}{121}	\Pisymbol{dancers}{207}
\Pisymbol{dancers}{36}	\Pisymbol{dancers}{122}	\Pisymbol{dancers}{208}
\Pisymbol{dancers}{37}	\Pisymbol{dancers}{123}	\Pisymbol{dancers}{209}
\Pisymbol{dancers}{38}	\Pisymbol{dancers}{124}	\Pisymbol{dancers}{210}
\Pisymbol{dancers}{39}	\Pisymbol{dancers}{125}	\Pisymbol{dancers}{211}
\Pisymbol{dancers}{40}	\Pisymbol{dancers}{126}	\Pisymbol{dancers}{212}
\Pisymbol{dancers}{41}	\Pisymbol{dancers}{127}	\Pisymbol{dancers}{213}
\Pisymbol{dancers}{42}	\Pisymbol{dancers}{128}	\Pisymbol{dancers}{214}
\Pisymbol{dancers}{43}	\Pisymbol{dancers}{129}	\Pisymbol{dancers}{215}
\Pisymbol{dancers}{44}	\Pisymbol{dancers}{130}	\Pisymbol{dancers}{216}
\Pisymbol{dancers}{45}	\Pisymbol{dancers}{131}	\Pisymbol{dancers}{217}
\Pisymbol{dancers}{46}	\Pisymbol{dancers}{132}	\Pisymbol{dancers}{218}
\Pisymbol{dancers}{47}	\Pisymbol{dancers}{133}	\Pisymbol{dancers}{219}
\Pisymbol{dancers}{48}	\Pisymbol{dancers}{134}	\Pisymbol{dancers}{220}
\Pisymbol{dancers}{49}	\Pisymbol{dancers}{135}	\Pisymbol{dancers}{221}
\Pisymbol{dancers}{50}	\Pisymbol{dancers}{136}	\Pisymbol{dancers}{222}
\Pisymbol{dancers}{51}	\Pisymbol{dancers}{137}	\Pisymbol{dancers}{223}
\Pisymbol{dancers}{52}	\Pisymbol{dancers}{138}	\Pisymbol{dancers}{224}
\Pisymbol{dancers}{53}	\Pisymbol{dancers}{139}	\Pisymbol{dancers}{225}
\Pisymbol{dancers}{54}	\Pisymbol{dancers}{140}	\Pisymbol{dancers}{226}
\Pisymbol{dancers}{55}	\Pisymbol{dancers}{141}	\Pisymbol{dancers}{227}
\Pisymbol{dancers}{56}	\Pisymbol{dancers}{142}	\Pisymbol{dancers}{228}
\Pisymbol{dancers}{57}	\Pisymbol{dancers}{143}	\Pisymbol{dancers}{229}
\Pisymbol{dancers}{58}	\Pisymbol{dancers}{144}	\Pisymbol{dancers}{230}
\Pisymbol{dancers}{59}	\Pisymbol{dancers}{145}	\Pisymbol{dancers}{231}
\Pisymbol{dancers}{60}	\Pisymbol{dancers}{146}	\Pisymbol{dancers}{232}
\Pisymbol{dancers}{61}	\Pisymbol{dancers}{147}	\Pisymbol{dancers}{233}
\Pisymbol{dancers}{62}	\Pisymbol{dancers}{148}	\Pisymbol{dancers}{234}
\Pisymbol{dancers}{63}	\Pisymbol{dancers}{149}	\Pisymbol{dancers}{235}
\Pisymbol{dancers}{64}	\Pisymbol{dancers}{150}	\Pisymbol{dancers}{236}
\Pisymbol{dancers}{65}	\Pisymbol{dancers}{151}	\Pisymbol{dancers}{237}
\Pisymbol{dancers}{66}	\Pisymbol{dancers}{152}	\Pisymbol{dancers}{238}
\Pisymbol{dancers}{67}	\Pisymbol{dancers}{153}	\Pisymbol{dancers}{239}
\Pisymbol{dancers}{68}	\Pisymbol{dancers}{154}	\Pisymbol{dancers}{240}

(continued on next page)

(continued from previous page)

⤠ \Pisymbol{dancers}{69}	⤡ \Pisymbol{dancers}{155}	⤢ \Pisymbol{dancers}{241}
⤣ \Pisymbol{dancers}{70}	⤤ \Pisymbol{dancers}{156}	⤥ \Pisymbol{dancers}{242}
⤦ \Pisymbol{dancers}{71}	⤧ \Pisymbol{dancers}{157}	⤨ \Pisymbol{dancers}{243}
⤩ \Pisymbol{dancers}{72}	⤪ \Pisymbol{dancers}{158}	⤪ \Pisymbol{dancers}{244}
⤪ \Pisymbol{dancers}{73}	⤫ \Pisymbol{dancers}{159}	⤫ \Pisymbol{dancers}{245}
⤪ \Pisymbol{dancers}{74}	⤬ \Pisymbol{dancers}{160}	⤬ \Pisymbol{dancers}{246}
⤪ \Pisymbol{dancers}{75}	⤭ \Pisymbol{dancers}{161}	⤭ \Pisymbol{dancers}{247}
⤪ \Pisymbol{dancers}{76}	⤮ \Pisymbol{dancers}{162}	⤮ \Pisymbol{dancers}{248}
⤪ \Pisymbol{dancers}{77}	⤯ \Pisymbol{dancers}{163}	⤯ \Pisymbol{dancers}{249}
⤪ \Pisymbol{dancers}{78}	⤰ \Pisymbol{dancers}{164}	⤰ \Pisymbol{dancers}{250}
⤪ \Pisymbol{dancers}{79}	⤱ \Pisymbol{dancers}{165}	⤱ \Pisymbol{dancers}{251}
⤪ \Pisymbol{dancers}{80}	⤲ \Pisymbol{dancers}{166}	⤲ \Pisymbol{dancers}{252}
⤪ \Pisymbol{dancers}{81}	⤳ \Pisymbol{dancers}{167}	⤳ \Pisymbol{dancers}{253}
⤪ \Pisymbol{dancers}{82}	⤴ \Pisymbol{dancers}{168}	⤴ \Pisymbol{dancers}{254}
⤪ \Pisymbol{dancers}{83}	⤵ \Pisymbol{dancers}{169}	⤵ \Pisymbol{dancers}{255}
⤪ \Pisymbol{dancers}{84}	⤶ \Pisymbol{dancers}{170}	
⤪ \Pisymbol{dancers}{85}	⤷ \Pisymbol{dancers}{171}	

Fans of Sherlock Holmes mysteries will recognize these glyphs as forming the substitution cipher featured in Sir Arthur Conan Doyle's *The Adventure of the Dancing Men* (1903).

TABLE 571: semaphor Semaphore Alphabet

⤠ \Pisymbol{smfpr10}{34}	⤡ \Pisymbol{smfpr10}{116}	⤢ \Pisymbol{smfpr10}{184}
⤣ \Pisymbol{smfpr10}{35}	⤤ \Pisymbol{smfpr10}{117}	⤥ \Pisymbol{smfpr10}{185}
⤦ \Pisymbol{smfpr10}{36}	⤧ \Pisymbol{smfpr10}{118}	⤨ \Pisymbol{smfpr10}{186}
⤩ \Pisymbol{smfpr10}{42}	⤪ \Pisymbol{smfpr10}{119}	⤪ \Pisymbol{smfpr10}{187}
⤪ \Pisymbol{smfpr10}{46}	⤫ \Pisymbol{smfpr10}{120}	⤫ \Pisymbol{smfpr10}{192}
⤦⤪ \Pisymbol{smfpr10}{48}	⤬ \Pisymbol{smfpr10}{121}	⤬ \Pisymbol{smfpr10}{193}
⤦⤪ \Pisymbol{smfpr10}{49}	⤮ \Pisymbol{smfpr10}{122}	⤮ \Pisymbol{smfpr10}{194}
⤦⤪ \Pisymbol{smfpr10}{50}	⤯ \Pisymbol{smfpr10}{126}	⤯ \Pisymbol{smfpr10}{195}
⤦⤪ \Pisymbol{smfpr10}{51}	⤰ \Pisymbol{smfpr10}{128}	⤰ \Pisymbol{smfpr10}{196}
⤦⤪ \Pisymbol{smfpr10}{52}	⤱ \Pisymbol{smfpr10}{129}	⤱ \Pisymbol{smfpr10}{197}
⤦⤪ \Pisymbol{smfpr10}{53}	⤲ \Pisymbol{smfpr10}{130}	⤲ \Pisymbol{smfpr10}{199}
⤦⤪ \Pisymbol{smfpr10}{54}	⤳ \Pisymbol{smfpr10}{131}	⤳ \Pisymbol{smfpr10}{200}
⤦⤪ \Pisymbol{smfpr10}{55}	⤴ \Pisymbol{smfpr10}{132}	⤴ \Pisymbol{smfpr10}{201}
⤦⤪ \Pisymbol{smfpr10}{56}	⤵ \Pisymbol{smfpr10}{133}	⤵ \Pisymbol{smfpr10}{202}
⤦⤪ \Pisymbol{smfpr10}{57}	⤶ \Pisymbol{smfpr10}{134}	⤶ \Pisymbol{smfpr10}{203}

(continued on next page)

(continued from previous page)

\Pisymbol{smfpr10}{65}	\Pisymbol{smfpr10}{135}	\Pisymbol{smfpr10}{204}
\Pisymbol{smfpr10}{66}	\Pisymbol{smfpr10}{136}	\Pisymbol{smfpr10}{205}
\Pisymbol{smfpr10}{67}	\Pisymbol{smfpr10}{137}	\Pisymbol{smfpr10}{206}
\Pisymbol{smfpr10}{68}	\Pisymbol{smfpr10}{138}	\Pisymbol{smfpr10}{207}
\Pisymbol{smfpr10}{69}	\Pisymbol{smfpr10}{139}	\Pisymbol{smfpr10}{209}
\Pisymbol{smfpr10}{70}	\Pisymbol{smfpr10}{140}	\Pisymbol{smfpr10}{210}
\Pisymbol{smfpr10}{71}	\Pisymbol{smfpr10}{142}	\Pisymbol{smfpr10}{211}
\Pisymbol{smfpr10}{72}	\Pisymbol{smfpr10}{143}	\Pisymbol{smfpr10}{212}
\Pisymbol{smfpr10}{73}	\Pisymbol{smfpr10}{144}	\Pisymbol{smfpr10}{213}
\Pisymbol{smfpr10}{74}	\Pisymbol{smfpr10}{145}	\Pisymbol{smfpr10}{214}
\Pisymbol{smfpr10}{75}	\Pisymbol{smfpr10}{146}	\Pisymbol{smfpr10}{216}
\Pisymbol{smfpr10}{76}	\Pisymbol{smfpr10}{147}	\Pisymbol{smfpr10}{217}
\Pisymbol{smfpr10}{77}	\Pisymbol{smfpr10}{148}	\Pisymbol{smfpr10}{218}
\Pisymbol{smfpr10}{78}	\Pisymbol{smfpr10}{149}	\Pisymbol{smfpr10}{219}
\Pisymbol{smfpr10}{79}	\Pisymbol{smfpr10}{150}	\Pisymbol{smfpr10}{220}
\Pisymbol{smfpr10}{80}	\Pisymbol{smfpr10}{151}	\Pisymbol{smfpr10}{221}
\Pisymbol{smfpr10}{81}	\Pisymbol{smfpr10}{152}	\Pisymbol{smfpr10}{224}
\Pisymbol{smfpr10}{82}	\Pisymbol{smfpr10}{153}	\Pisymbol{smfpr10}{225}
\Pisymbol{smfpr10}{83}	\Pisymbol{smfpr10}{154}	\Pisymbol{smfpr10}{226}
\Pisymbol{smfpr10}{84}	\Pisymbol{smfpr10}{155}	\Pisymbol{smfpr10}{227}
\Pisymbol{smfpr10}{85}	\Pisymbol{smfpr10}{157}	\Pisymbol{smfpr10}{228}
\Pisymbol{smfpr10}{86}	\Pisymbol{smfpr10}{158}	\Pisymbol{smfpr10}{229}
\Pisymbol{smfpr10}{87}	\Pisymbol{smfpr10}{160}	\Pisymbol{smfpr10}{231}
\Pisymbol{smfpr10}{88}	\Pisymbol{smfpr10}{161}	\Pisymbol{smfpr10}{232}
\Pisymbol{smfpr10}{89}	\Pisymbol{smfpr10}{162}	\Pisymbol{smfpr10}{233}
\Pisymbol{smfpr10}{90}	\Pisymbol{smfpr10}{163}	\Pisymbol{smfpr10}{234}
\Pisymbol{smfpr10}{97}	\Pisymbol{smfpr10}{164}	\Pisymbol{smfpr10}{235}
\Pisymbol{smfpr10}{98}	\Pisymbol{smfpr10}{165}	\Pisymbol{smfpr10}{236}
\Pisymbol{smfpr10}{99}	\Pisymbol{smfpr10}{166}	\Pisymbol{smfpr10}{237}
\Pisymbol{smfpr10}{100}	\Pisymbol{smfpr10}{167}	\Pisymbol{smfpr10}{238}
\Pisymbol{smfpr10}{101}	\Pisymbol{smfpr10}{168}	\Pisymbol{smfpr10}{239}
\Pisymbol{smfpr10}{102}	\Pisymbol{smfpr10}{169}	\Pisymbol{smfpr10}{241}
\Pisymbol{smfpr10}{103}	\Pisymbol{smfpr10}{170}	\Pisymbol{smfpr10}{242}
\Pisymbol{smfpr10}{104}	\Pisymbol{smfpr10}{171}	\Pisymbol{smfpr10}{243}
\Pisymbol{smfpr10}{105}	\Pisymbol{smfpr10}{172}	\Pisymbol{smfpr10}{244}
\Pisymbol{smfpr10}{106}	\Pisymbol{smfpr10}{174}	\Pisymbol{smfpr10}{245}
\Pisymbol{smfpr10}{107}	\Pisymbol{smfpr10}{175}	\Pisymbol{smfpr10}{246}
\Pisymbol{smfpr10}{108}	\Pisymbol{smfpr10}{176}	\Pisymbol{smfpr10}{248}
\Pisymbol{smfpr10}{109}	\Pisymbol{smfpr10}{177}	\Pisymbol{smfpr10}{249}
\Pisymbol{smfpr10}{110}	\Pisymbol{smfpr10}{178}	\Pisymbol{smfpr10}{250}
\Pisymbol{smfpr10}{111}	\Pisymbol{smfpr10}{179}	\Pisymbol{smfpr10}{251}
\Pisymbol{smfpr10}{112}	\Pisymbol{smfpr10}{180}	\Pisymbol{smfpr10}{252}
\Pisymbol{smfpr10}{113}	\Pisymbol{smfpr10}{181}	\Pisymbol{smfpr10}{253}
\Pisymbol{smfpr10}{114}	\Pisymbol{smfpr10}{182}	
\Pisymbol{smfpr10}{115}	\Pisymbol{smfpr10}{183}	

`semaphor` provides a `semaf.fd` font-definition file. Instead of using `pifont` and `\Pisymbol` to typeset a glyph, a document can select the `semaphor` fonts directly, although this does require putting `\input{semaf.fd}` in the document's preamble. For example, `\usefont{OT1}{smfp}{m}{n}Hello` will typeset “`>Hello`”. This can be useful for typesetting complete messages. Roman, bold, monospace, slanted, and bold+slanted styles are all supported.

In addition, `semaphor` provides three variations of each font: a “person” version (`smfpr10`), which is what is illustrated in the preceding table, a “pillar” version (`smfr10`), which shows the flags on a pillar rather than being held by a person, and an “empty” version (`smfer10`), which shows only the flags and no pillar or person. Contrast these variations of the letter “H”:

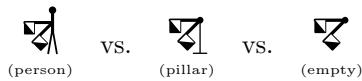


TABLE 572: `cryst` Crystallography Symbols

◦	<code>\Pisymbol{cryst}{0}</code>	♦	<code>\Pisymbol{cryst}{63}</code>	↙	<code>\Pisymbol{cryst}{138}</code>
●	<code>\Pisymbol{cryst}{2}</code>	◀	<code>\Pisymbol{cryst}{64}</code>	↖	<code>\Pisymbol{cryst}{139}</code>
▲	<code>\Pisymbol{cryst}{3}</code>	◀	<code>\Pisymbol{cryst}{65}</code>	▣	<code>\Pisymbol{cryst}{140}</code>
◆	<code>\Pisymbol{cryst}{4}</code>	◀	<code>\Pisymbol{cryst}{66}</code>	◤	<code>\Pisymbol{cryst}{141}</code>
→	<code>\Pisymbol{cryst}{5}</code>	↑	<code>\Pisymbol{cryst}{75}</code>	◥	<code>\Pisymbol{cryst}{142}</code>
◆	<code>\Pisymbol{cryst}{6}</code>	↙	<code>\Pisymbol{cryst}{77}</code>	◤	<code>\Pisymbol{cryst}{143}</code>
→	<code>\Pisymbol{cryst}{7}</code>	↑	<code>\Pisymbol{cryst}{78}</code>	↙	<code>\Pisymbol{cryst}{145}</code>
→	<code>\Pisymbol{cryst}{8}</code>	↑	<code>\Pisymbol{cryst}{79}</code>	↙	<code>\Pisymbol{cryst}{147}</code>
→	<code>\Pisymbol{cryst}{9}</code>	▣	<code>\Pisymbol{cryst}{80}</code>	↙	<code>\Pisymbol{cryst}{148}</code>
◦	<code>\Pisymbol{cryst}{10}</code>	▣	<code>\Pisymbol{cryst}{81}</code>	↙	<code>\Pisymbol{cryst}{149}</code>
○	<code>\Pisymbol{cryst}{12}</code>	▣	<code>\Pisymbol{cryst}{82}</code>	↓	<code>\Pisymbol{cryst}{155}</code>
★	<code>\Pisymbol{cryst}{15}</code>	▣	<code>\Pisymbol{cryst}{83}</code>	↓	<code>\Pisymbol{cryst}{157}</code>
◆	<code>\Pisymbol{cryst}{20}</code>	▣	<code>\Pisymbol{cryst}{84}</code>	↓	<code>\Pisymbol{cryst}{158}</code>
●	<code>\Pisymbol{cryst}{21}</code>	↖	<code>\Pisymbol{cryst}{85}</code>	↓	<code>\Pisymbol{cryst}{159}</code>
→	<code>\Pisymbol{cryst}{22}</code>	↖	<code>\Pisymbol{cryst}{87}</code>	↖	<code>\Pisymbol{cryst}{175}</code>
◆	<code>\Pisymbol{cryst}{24}</code>	↖	<code>\Pisymbol{cryst}{88}</code>	↖	<code>\Pisymbol{cryst}{177}</code>
→	<code>\Pisymbol{cryst}{25}</code>	↖	<code>\Pisymbol{cryst}{89}</code>	↖	<code>\Pisymbol{cryst}{178}</code>
→	<code>\Pisymbol{cryst}{27}</code>	↖	<code>\Pisymbol{cryst}{95}</code>	↖	<code>\Pisymbol{cryst}{179}</code>
→	<code>\Pisymbol{cryst}{28}</code>	↖	<code>\Pisymbol{cryst}{97}</code>	↖	<code>\Pisymbol{cryst}{185}</code>
→	<code>\Pisymbol{cryst}{29}</code>	↖	<code>\Pisymbol{cryst}{98}</code>	↖	<code>\Pisymbol{cryst}{187}</code>
▲	<code>\Pisymbol{cryst}{30}</code>	↖	<code>\Pisymbol{cryst}{99}</code>	↖	<code>\Pisymbol{cryst}{188}</code>
▲	<code>\Pisymbol{cryst}{31}</code>	◐	<code>\Pisymbol{cryst}{102}</code>	↖	<code>\Pisymbol{cryst}{189}</code>
▲	<code>\Pisymbol{cryst}{32}</code>	◐	<code>\Pisymbol{cryst}{103}</code>	↖	<code>\Pisymbol{cryst}{195}</code>
↗	<code>\Pisymbol{cryst}{35}</code>	■	<code>\Pisymbol{cryst}{104}</code>	↖	<code>\Pisymbol{cryst}{197}</code>
◎	<code>\Pisymbol{cryst}{36}</code>	↶	<code>\Pisymbol{cryst}{105}</code>	↖	<code>\Pisymbol{cryst}{198}</code>
↗	<code>\Pisymbol{cryst}{37}</code>	↶	<code>\Pisymbol{cryst}{107}</code>	↖	<code>\Pisymbol{cryst}{199}</code>
↗	<code>\Pisymbol{cryst}{38}</code>	↶	<code>\Pisymbol{cryst}{108}</code>	↗	<code>\Pisymbol{cryst}{202}</code>
↗	<code>\Pisymbol{cryst}{39}</code>	↶	<code>\Pisymbol{cryst}{109}</code>	↗	<code>\Pisymbol{cryst}{203}</code>
◆	<code>\Pisymbol{cryst}{40}</code>	◐	<code>\Pisymbol{cryst}{112}</code>	↖	<code>\Pisymbol{cryst}{204}</code>
◆	<code>\Pisymbol{cryst}{41}</code>	◐	<code>\Pisymbol{cryst}{113}</code>	◐	<code>\Pisymbol{cryst}{210}</code>
◆	<code>\Pisymbol{cryst}{42}</code>	◐	<code>\Pisymbol{cryst}{120}</code>	◐	<code>\Pisymbol{cryst}{212}</code>
◆	<code>\Pisymbol{cryst}{43}</code>	◐	<code>\Pisymbol{cryst}{121}</code>	↗	<code>\Pisymbol{cryst}{213}</code>

(continued on next page)

(continued from previous page)

■ \Pisymbol{cryst}{44}	☒ \Pisymbol{cryst}{45}	✓ \Pisymbol{cryst}{47}	✗ \Pisymbol{cryst}{48}	↑ \Pisymbol{cryst}{49}	❖ \Pisymbol{cryst}{50}	↑ \Pisymbol{cryst}{55}	↑ \Pisymbol{cryst}{57}	↑ \Pisymbol{cryst}{58}	↑ \Pisymbol{cryst}{59}	● \Pisymbol{cryst}{60}	☛ \Pisymbol{cryst}{61}	► \Pisymbol{cryst}{62}	☒ \Pisymbol{cryst}{123}	☒ \Pisymbol{cryst}{124}	✓ \Pisymbol{cryst}{125}	✗ \Pisymbol{cryst}{127}	↑ \Pisymbol{cryst}{128}	❖ \Pisymbol{cryst}{129}	↑ \Pisymbol{cryst}{130}	↑ \Pisymbol{cryst}{131}	↑ \Pisymbol{cryst}{132}	↑ \Pisymbol{cryst}{133}	✓ \Pisymbol{cryst}{135}	☒ \Pisymbol{cryst}{136}	↑ \Pisymbol{cryst}{137}	☒ \Pisymbol{cryst}{220}	☒ \Pisymbol{cryst}{221}	✓ \Pisymbol{cryst}{223}	✗ \Pisymbol{cryst}{224}	↑ \Pisymbol{cryst}{230}	❖ \Pisymbol{cryst}{231}	↑ \Pisymbol{cryst}{232}	↑ \Pisymbol{cryst}{233}	↑ \Pisymbol{cryst}{236}	❖ \Pisymbol{cryst}{240}	☒ \Pisymbol{cryst}{241}	↑ \Pisymbol{cryst}{242}	► \Pisymbol{cryst}{243}
------------------------	------------------------	------------------------	------------------------	------------------------	------------------------	------------------------	------------------------	------------------------	------------------------	------------------------	------------------------	------------------------	-------------------------	-------------------------	-------------------------	-------------------------	-------------------------	-------------------------	-------------------------	-------------------------	-------------------------	-------------------------	-------------------------	-------------------------	-------------------------	-------------------------	-------------------------	-------------------------	-------------------------	-------------------------	-------------------------	-------------------------	-------------------------	-------------------------	-------------------------	-------------------------	-------------------------	-------------------------

TABLE 573: dice Dice

□ \Pisymbol{dice3d}{49}	⚀ \Pisymbol{dice3d}{50}	⚁ \Pisymbol{dice3d}{51}	⚂ \Pisymbol{dice3d}{52}	⚃ \Pisymbol{dice3d}{53}	⚄ \Pisymbol{dice3d}{54}	⚅ \Pisymbol{dice3d}{97}	Ϛ \Pisymbol{dice3d}{98}	Ϛ \Pisymbol{dice3d}{99}	Ϛ \Pisymbol{dice3d}{100}	⚁ \Pisymbol{dice3d}{101}	⚁ \Pisymbol{dice3d}{102}	⚂ \Pisymbol{dice3d}{103}	⚃ \Pisymbol{dice3d}{104}	⚄ \Pisymbol{dice3d}{105}	Ϛ \Pisymbol{dice3d}{106}	Ϛ \Pisymbol{dice3d}{107}	Ϛ \Pisymbol{dice3d}{108}	Ϛ \Pisymbol{dice3d}{109}	Ϛ \Pisymbol{dice3d}{110}	⚁ \Pisymbol{dice3d}{111}	⚁ \Pisymbol{dice3d}{112}	⚂ \Pisymbol{dice3d}{113}	⚃ \Pisymbol{dice3d}{114}	⚄ \Pisymbol{dice3d}{115}	Ϛ \Pisymbol{dice3d}{116}	Ϛ \Pisymbol{dice3d}{117}	Ϛ \Pisymbol{dice3d}{118}	Ϛ \Pisymbol{dice3d}{119}	Ϛ \Pisymbol{dice3d}{120}
-------------------------	-------------------------	-------------------------	-------------------------	-------------------------	-------------------------	-------------------------	-------------------------	-------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

dice defines its symbols at a very small design size. The glyphs shown above were scaled up by a factor of four using `\DeclareFontShape{U}{dice3d}{m}{n}{<- s*[4] dice3d}{}.`

An alternative to using \Pisymbol to select a die rotation is to rely on some cleverness in the kerning tables provided by the dice font. The individual digits “1” through “6” each produce the corresponding (2D) die face: {\usefont{U}{dice3d}{m}{n}2 2 1} produces “⚀ ⚁ ⚂”, for example. When followed by a letter “a” through “d”, those pairs are kerned to produce a 3D die rotation with the digit specifying by the top face and the letter specifying one of the four possible front faces, sorted by increasing value. For example, {\usefont{U}{dice3d}{m}{n}2a 2b 1d} produces “⚁ ⚃ ⚅ ⚁”.

TABLE 574: magic Trading Card Symbols

⓪	\Pisymbol{magic}{48}	⑥	\Pisymbol{magic}{54}	⌚	\Pisymbol{magic}{82}
①	\Pisymbol{magic}{49}	⑦	\Pisymbol{magic}{55}	⌚	\Pisymbol{magic}{84}
②	\Pisymbol{magic}{50}	⑧	\Pisymbol{magic}{56}	💧	\Pisymbol{magic}{85}
③	\Pisymbol{magic}{51}	⑨	\Pisymbol{magic}{57}	☀️	\Pisymbol{magic}{87}
④	\Pisymbol{magic}{52}	⌚	\Pisymbol{magic}{66}	⊗	\Pisymbol{magic}{88}
⑤	\Pisymbol{magic}{53}	⌚	\Pisymbol{magic}{71}	⌚	\Pisymbol{magic}{90}

The preceding symbols resemble those from Wizards of the Coast's *Magic: The Gathering* trading-card game. An alternative to entering symbols numerically using \Pisymbol is to switch to the `magic` font with `\usefont{U}{magic}{m}{n}` and employ the following mnemonic characters:

⓪–⓯	0–9	Circled numerals 0–9
💀	B	Black magic symbol
:green:	G	Green magic symbol
⌚	R	Red magic symbol
⊗	T	Tap symbol (tilted "T" in a circle)
💧	U	Blue magic symbol
☀️	W	White magic symbol
⊗	X	Circled "X" (for mana cost, e.g., Fireball)
⌚	Z	Circled "10" (for mana cost, e.g., Aladdin's Lamp)

TABLE 575: bartel-chess-fonts Chess Pieces and Chessboard Squares

♙	\Pisymbol{fselch}{0}	♘	\Pisymbol{fselch}{55}	♗	\Pisymbol{fselch}{110}
♘	\Pisymbol{fselch}{1}	♞	\Pisymbol{fselch}{56}	♝	\Pisymbol{fselch}{111}
♗	\Pisymbol{fselch}{2}	♝	\Pisymbol{fselch}{57}	♜	\Pisymbol{fselch}{112}
♜	\Pisymbol{fselch}{3}	♜	\Pisymbol{fselch}{58}	♝	\Pisymbol{fselch}{113}
♚	\Pisymbol{fselch}{4}	♚	\Pisymbol{fselch}{59}	♞	\Pisymbol{fselch}{114}
♚	\Pisymbol{fselch}{5}	♞	\Pisymbol{fselch}{60}	♝	\Pisymbol{fselch}{115}
♝	\Pisymbol{fselch}{6}	♝	\Pisymbol{fselch}{61}	♜	\Pisymbol{fselch}{116}
♜	\Pisymbol{fselch}{7}	♜	\Pisymbol{fselch}{62}	♜	\Pisymbol{fselch}{117}
♜	\Pisymbol{fselch}{8}	♜	\Pisymbol{fselch}{63}	♝	\Pisymbol{fselch}{118}
♝	\Pisymbol{fselch}{9}	♝	\Pisymbol{fselch}{64}	♞	\Pisymbol{fselch}{119}
♞	\Pisymbol{fselch}{10}	♞	\Pisymbol{fselch}{65}	♞	\Pisymbol{fselch}{120}
♚	\Pisymbol{fselch}{11}	♚	\Pisymbol{fselch}{66}	♝	\Pisymbol{fselch}{121}
♝	\Pisymbol{fselch}{12}	♝	\Pisymbol{fselch}{67}	♜	\Pisymbol{fselch}{122}
♞	\Pisymbol{fselch}{13}	♞	\Pisymbol{fselch}{68}	♜	\Pisymbol{fselch}{123}
♜	\Pisymbol{fselch}{14}	♜	\Pisymbol{fselch}{69}	♝	\Pisymbol{fselch}{124}
♝	\Pisymbol{fselch}{15}	♝	\Pisymbol{fselch}{70}	♞	\Pisymbol{fselch}{125}
♞	\Pisymbol{fselch}{16}	♞	\Pisymbol{fselch}{71}	♞	\Pisymbol{fselch}{126}
♚	\Pisymbol{fselch}{17}	♚	\Pisymbol{fselch}{72}	♝	\Pisymbol{fselch}{127}
♝	\Pisymbol{fselch}{18}	♝	\Pisymbol{fselch}{73}	♞	\Pisymbol{fselch}{128}
♞	\Pisymbol{fselch}{19}	♞	\Pisymbol{fselch}{74}	♜	\Pisymbol{fselch}{129}

(continued on next page)

(continued from previous page)

	\Pisymbol{fselch}{20}		\Pisymbol{fselch}{75}		\Pisymbol{fselch}{130}
	\Pisymbol{fselch}{21}		\Pisymbol{fselch}{76}		\Pisymbol{fselch}{131}
	\Pisymbol{fselch}{22}		\Pisymbol{fselch}{77}		\Pisymbol{fselch}{132}
	\Pisymbol{fselch}{23}		\Pisymbol{fselch}{78}		\Pisymbol{fselch}{133}
	\Pisymbol{fselch}{24}		\Pisymbol{fselch}{79}		\Pisymbol{fselch}{134}
	\Pisymbol{fselch}{25}		\Pisymbol{fselch}{80}		\Pisymbol{fselch}{135}
	\Pisymbol{fselch}{26}		\Pisymbol{fselch}{81}		\Pisymbol{fselch}{136}
	\Pisymbol{fselch}{27}		\Pisymbol{fselch}{82}		\Pisymbol{fselch}{137}
	\Pisymbol{fselch}{28}		\Pisymbol{fselch}{83}		\Pisymbol{fselch}{138}
	\Pisymbol{fselch}{29}		\Pisymbol{fselch}{84}		\Pisymbol{fselch}{139}
	\Pisymbol{fselch}{30}		\Pisymbol{fselch}{85}		\Pisymbol{fselch}{140}
	\Pisymbol{fselch}{31}		\Pisymbol{fselch}{86}		\Pisymbol{fselch}{141}
	\Pisymbol{fselch}{32}		\Pisymbol{fselch}{87}		\Pisymbol{fselch}{142}
	\Pisymbol{fselch}{33}		\Pisymbol{fselch}{88}		\Pisymbol{fselch}{143}
	\Pisymbol{fselch}{34}		\Pisymbol{fselch}{89}		\Pisymbol{fselch}{144}
	\Pisymbol{fselch}{35}		\Pisymbol{fselch}{90}		\Pisymbol{fselch}{145}
	\Pisymbol{fselch}{36}		\Pisymbol{fselch}{91}		\Pisymbol{fselch}{151}
	\Pisymbol{fselch}{37}		\Pisymbol{fselch}{92}		\Pisymbol{fselch}{157}
	\Pisymbol{fselch}{38}		\Pisymbol{fselch}{93}		\Pisymbol{fselch}{163}
	\Pisymbol{fselch}{39}		\Pisymbol{fselch}{94}		\Pisymbol{fselch}{169}
	\Pisymbol{fselch}{40}		\Pisymbol{fselch}{95}		\Pisymbol{fselch}{175}
	\Pisymbol{fselch}{41}		\Pisymbol{fselch}{96}		\Pisymbol{fselch}{180}
	\Pisymbol{fselch}{42}		\Pisymbol{fselch}{97}		\Pisymbol{fselch}{186}
	\Pisymbol{fselch}{43}		\Pisymbol{fselch}{98}		\Pisymbol{fselch}{192}
	\Pisymbol{fselch}{44}		\Pisymbol{fselch}{99}		\Pisymbol{fselch}{198}
	\Pisymbol{fselch}{45}		\Pisymbol{fselch}{100}		\Pisymbol{fselch}{204}
	\Pisymbol{fselch}{46}		\Pisymbol{fselch}{101}		\Pisymbol{fselch}{210}
	\Pisymbol{fselch}{47}		\Pisymbol{fselch}{102}		\Pisymbol{fselch}{216}
	\Pisymbol{fselch}{48}		\Pisymbol{fselch}{103}		\Pisymbol{fselch}{222}
	\Pisymbol{fselch}{49}		\Pisymbol{fselch}{104}		\Pisymbol{fselch}{228}
	\Pisymbol{fselch}{50}		\Pisymbol{fselch}{105}		\Pisymbol{fselch}{234}
	\Pisymbol{fselch}{51}		\Pisymbol{fselch}{106}		\Pisymbol{fselch}{240}
	\Pisymbol{fselch}{52}		\Pisymbol{fselch}{107}		\Pisymbol{fselch}{246}
	\Pisymbol{fselch}{53}		\Pisymbol{fselch}{108}		
	\Pisymbol{fselch}{54}		\Pisymbol{fselch}{109}		

In addition to the `fselch` font showcased above, `bartel-chess-fonts` also provides a `pkelch` font which includes the same symbol set (minus some of the higher-numbered characters) but drawn in a slightly different style.

`bartel-chess-fonts` provides the `fselch` and `pkelch` fonts in various sizes (optically scaled). See “ $\text{\LaTeX} 2\epsilon$ Font Selection” [LAT19] for advice on how to expose these sorts of fonts to \LaTeX using `\DeclareFontFamily` and `\DeclareFontShape`.

11 Additional Information

Unlike the previous sections of this document, Section 11 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.

11.1 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 576 on the next page 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 576, 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 $\mathcal{A}\mathcal{M}\mathcal{S}$ 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 576 because they are designed to be compatible with the symbols they replace. Table 577 on page 258 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}
```

11.2 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 578 on page 258 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 TeX 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 258. 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.

11.3 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 576: Symbol Name Clashes

Symbol	$\text{\LaTeX} 2\epsilon$	$\mathcal{W}\mathcal{S}$	stmaryrd	wasy	mathabx	marvosym	bbding	ifsym	dingbat	wsipa
<code>\baro</code>			ϕ							Θ
<code>\bigtriangleleft</code>	\bigtriangledown			\bigtriangledown						
<code>\bigtriangleright</code>	\bigtriangleup			\bigtriangleup						
<code>\checkmark</code>		\checkmark								
<code>\Circle</code>				\circ			\bigcirc			
<code>\Cross</code>						\dagger	\dagger	\times		
<code>\ggg</code>					\gg			\boxtimes		
<code>\Letter</code>				\sharp	\sharp					
<code>\lightning</code>						ℓ				
<code>\Lightning</code>					\ll					
<code>\lll</code>						\ll				
<code>\Square</code>				\square			\square			
<code>\Sun</code>					\odot	\odot				
<code>\TriangleDown</code>						\blacktriangledown		\triangleright		
<code>\TriangleUp</code>						\blacktriangleup		\triangleright		

TABLE 577: Example of a Benign Name Clash

Symbol	Default (Computer Modern)	txfonts (Times Roman)
R	R	R
\textrecipie	R	R

TABLE 578: Sample resized delimiters

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

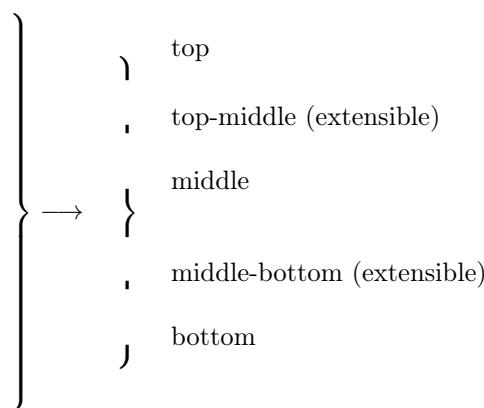


Figure 1: Implementation of variable-sized delimiters

- 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 “J” 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_E's low-level font commands [LAT19] and use TeX's primitive `\char` command [Knu86a] to request a specific character number in the font. For example, one can define a command to typeset a long s (“f”) using character 115 from the Latin Modern fonts in the TS1 font encoding:⁵

```
\newcommand{\textlongs}{%
  \fontencoding{TS1}\fontfamily{lmr}\selectfont\char115%
}
```

Then, “\textlongs ucce\textlongs sful” will produce “fuccefsl”—in the current font style (roman, italic, bold, etc.)

In fact, `\char` is not strictly necessary in all cases; 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}”. Another possibility is to use the T2A font encoding's `\CYRSH` command: “{\fontencoding{T2A}\selectfont \CYRSH}”.

For the specific case of the U font encoding, which is used for symbol or “pi” fonts, the `pifont` package defines a convenient `\Pisymbol` command. `\Pisymbol` typesets a specified character (by number) in a specified font family. For example, “\Pisymbol{psy}{191}” produces the aforementioned “J” symbol by typesetting character number 191 in the *psy* (PostScript Symbol) font family.

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 (“?”), and `\rotatebox[origin=c]{180}{ιota}` produces the definite-description operator (“i”). As noted by Marc Olschok in a July 2011 post on `comp.text.tex`, Project Gutenberg uses `\reflectbox` to typeset the part (“3”) and whole (“ε”) relations used in Dedekind's set notation:

```
\newcommand\partof{\mathrel{\raisebox{0.45ex}{$\smash{\scriptstyle\mathfrak{3}}$}}}
\newcommand\wholeof{\mathrel{\reflectbox{$\smash{\scriptstyle\mathfrak{3}}$}}}
```

The disadvantage of the `graphicx`/`graphics` approach is that not every TeX backend handles graphical transformations.⁶ 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 “i”. Similarly, `tipa`'s `\textrevespsilon` (“3”) or `wsipa`'s `\revepsilon` (“3”) may be used to express the mathematical notion of “such that” in a cleaner manner than with `\reflectbox` or `\rotatebox`.⁷

⁵Since January 2020, the `wasysym` package provides a `\longs` symbol. See Table 47.

⁶As an example, Xdvi ignores both `\reflectbox` and `\rotatebox`.

⁷More common symbols for representing “such that” include “|”, “:”, and “s.t.”.

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 89 on page 51) 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` (“*h*”) 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}}
```

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 “*b*” and “*d*”, respectively. Note that `\dbar` requires a greater backward math kern than `\bbar`; a -9 mu kern would have produced the less-attractive “*d*” glyph.

The `amsmath` package provides `\overset` and `\underset` commands for placing one symbol respectively above or below another. For example, `\overset{G}{\sim}`⁸ 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 `\asterism` (“ \ast ”) from a June 2007 post to `comp.text.tex` by Peter Flynn:

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

Note how the space between columns (`\tabcolsep`) and rows (`\vphantom{...}`) is made negative to squeeze the asterisks closer together.

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

```
\newcommand{\dotcup}{\ensuremath{\mathaccent\cdot\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 T_EXbook [Knu86a] for more information.

Another T_EX primitive that is useful for composing symbols is `\vcenter`. `\vcenter` is conceptually similar to “`\begin{tabular}{l}`” in L^AT_EX but takes a list of vertical material instead of `\vphantom{...}`-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:

⁸L^AT_EX's `\stackrel` command is similar but is limited to placing a symbol above a binary relation.

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

The `\threesim` symbol, which vertically centers three `\sim` (“~”) symbols with 0.35 *x*-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 L^AT_EX command, borrowed from Plain T_EX, 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 T_EX’s `\ialign` primitive, `\oalign` uses T_EX’s tabular syntax instead of L^AT_EX’s (i.e., with `\cr` as the row terminator instead of `\backslash`). The following example of `\oalign`, a macro that defines a standard-state symbol (`\stst`, “ \ominus ”) as a superscripted Plimsoll line (`\barcirc`, “ \ominus ”),⁹ 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{\overset{\circ}{\barcirc}}
\makeatother
```

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

As another example of `\oalign`, consider the following code (due to Enrico Gregorio in a June 2007 post to `comp.text.tex`) that overlaps a `\ni` (“ \ni ”) and two minus signs (“ $-$ ”) to produce “ \ni ”, an obscure variation on the infrequently used “3” symbol for “such that” discussed on page 259:

```
\newcommand{\suchthat}{%
  \mathrel{\oalign{$\ni$\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 “ $\not D$ ”. However, the `\declareoverlashed` command provides the flexibility to specify the mathematical context of the composite character (operator, relation, punctuation, etc., as will be discussed in Section 11.4), 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}{%
  \declareoverlashed{}{\text{-}}{0.04}{0}{I}\slashed{I}}
```

`\declareoverlashed{}{\cdot}{\cdot}{\cdot}{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 page 263) to make `\declareoverlashed` 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 `\declareoverlashed` 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. `\centernot` might be used, for example, to create a “does not imply” symbol:

```
 \not\Longrightarrow
 vs.
 \centernot\Longrightarrow
```

See the `centernot` documentation for more information.

⁹While `\barcirc` illustrates how to combine symbols using `\oalign`, the `plimsoll` package’s `\plimsoll` command (Table 321 on page 126) and the `stmaryrd` package’s `\minuso` command (Table 52 on page 31) provide a similar glyph (\ominus) as a single, indivisible symbol.

Making new symbols work in superscripts and subscripts

To make composite symbols work properly within subscripts and superscripts, you may need to use $\text{\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 $\text{\TeX}book$ [Knu86a] for a more complete description.) For example, the following \LaTeX code—posted to `comp.text.tex` by Torsten Bronger—composes a sub/superscriptable “ \topbot ” symbol out of \top and \bot (“ \top ” and “ \bot ”):$

```
\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 \TeX Users Group FAQ at <http://www.tex.ac.uk/>.) \dashint produces a single-dashed integral sign (“ \int ”), while \ddashint produces a double-dashed one (“ $\int\int$ ”). The \Xint macro defined above can also be used to generate a wealth of new integrals: “ $\int\int\int$ ” ($\text{\Xint}\text{\circlearrowright}$), “ $\int\int\int$ ” ($\text{\Xint}\text{\circlearrowleft}$), “ $\int\int\int$ ” ($\text{\Xint}\text{\subset}$), “ $\int\int\int$ ” ($\text{\Xint}\text{\infty}$), and so forth.

$\text{\LaTeX} 2_\epsilon$ 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 “ $\text{\scriptscriptstyle}$ ”, 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 (“ $\perp\!\!\!\perp$ ”) to `comp.text.tex` in June 2000:

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

The \independent macro uses \mathpalette to pass the \independenT helper macro both the current math style and the \perp symbol. \independenT 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 on the following page.

Some people like their square-root signs with a trailing “hook” (i.e., “ $\sqrt{-}$ ”) 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`. This code was subsequently refined by Max Dohse and Scott Pakin into the version shown below, which accepts a root as an optional argument, for consistency with \sqrt .

```
\newcommand{\hksqrt}[2][]{\mathpalette\DHlksqrt{[#1]{#2\,}}}
\def\DHlksqrt#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 `\hksqrt` uses `\mathpalette` to pass the current math style (`\displaystyle`, `\textstyle`, etc.) to `\DHLhksqrt` as argument #1. `\DHLhksqrt` subsequently uses that style within an `\hbox`. The rest of the code is simply using TeX primitives to position a hook of height 0.2 times the `\sqrt` height at the right of the `\sqrt`. See The TeXbook [Knu86a] for more understanding of TeX “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 `\nesarrow` (“↗”) and `\nwsearrow` (“↖”):¹⁰

```
\newcommand{\nesarrow}{\mathrel{\text{$\nearrow$\llap{$\swarrow$}}}}
\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}
\def\mov@rlay#1#2{\leavevmode\vtop{%
  \baselineskip\z@skip \lineskiplimit-\maxdimen
  \ialign{\hfil$#1##$\hfil\cr#2\crcr}}}
\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` (TeX's equivalent of L^AT_EX's `\backslash`). For example, the `\topbot` command defined on the previous page could have been expressed as “`\moverlay{\top\cr\bot}`” and the `\nesarrow` command defined above could have been expressed as “`\moverlay{\nearrow\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 TeXbook [Knu86a] for explanations of the TeX primitives used by `\moverlay`.

Steven B. Segletes answered a question on TeX Stack Exchange, “AMS inequalities: a variant of `\gtrsim` and `\lessim`” on typesetting `\gtrsim` (“ \gtrsim ”) and `\lessim` (“ \lessim ”) with the `\sim` symbol slanted to match the angle of the greater-than/less-than sign. His solution incorporates the `graphicx` package's `\rotatebox` for rotating the “ \sim ”, the `stackengine` package's `\stackengine` command for stacking two symbols on top of each other, and the `scalerel` package's `\ThisStyle`, `\SavedStyle`, and `\LMex` commands for scaling the symbol based on the surrounding context. The following code due to Segletes defines the `\gtrsimslant` (“ \gtrsim ”) and `\lessimslant` (“ \lessim ”) symbols:¹¹

```
\newcommand\lessimslant{\mathrel{\ensurestackMath{\ThisStyle{%
  \stackengine{-.4\LMex}{\SavedStyle\sim$}{U}{r}{F}{T}{S}}}}}
\newcommand\gtrsimslant{\mathrel{\ensurestackMath{\ThisStyle{%
  \stackengine{-.4\LMex}{\SavedStyle>}{U}{l}{F}{T}{S}}}}}
```

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 277 on page 115) out of three periods, raised 7pt., 4pt., and 1pt., respectively:

¹⁰Note that if your goal is to typeset commutative diagrams or pushout/pullback diagrams, then you should probably be using `Xy-pic`.

¹¹The code as posted on TeX Stack Exchange named these `\vargtrsim` and `\varlessim`. They are renamed here for naming consistency with symbols such as `\geqslant` (“ \geqslant ”).

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

`\p@` is a $\text{\LaTeX} 2_{\varepsilon}$ shortcut for “pt” or “1.0pt”. The remaining commands are defined in The $\text{\TeX}book$ [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 `pdfTeX` writes his name as “Hàn Thé Thành”. The `dblaccnt` package enables \LaTeX to stack accents, as in “H\`an Th\`e\`anh” (albeit not in the OT1 font encoding). In addition, the `wsipa` 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 “ \acute{f} ”. See the `wsipa` 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{*}{f}` produces “ \hat{f} ” and `\accentset{*}{X}` produces “ \mathring{X} ”. `\underaccent` does the same thing, but places the accent beneath the character. This enables constructs like `\underaccent{\tilde}{V}`, which produces “ \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 \LaTeX ’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 \LaTeX ’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}}{\equiv} Y`” produces “ $X\overset{\text{definition}}{\equiv} Y$ ”.

If all that needs to extend are horizontal and vertical lines—as opposed to repeated symbols such as the “=” in the previous example— \LaTeX ’s `array` or `tabular` environments may suffice. Consider the following code (due to a February 1999 `comp.text.tex` post by Donald Arseneau and subsequent modifications by Billy Yu and Scott Pakin) for typesetting annuity and life-insurance symbols:

```
\DeclareRobustCommand{\actuarial}[2][]{%
\def\arraystretch{0}%
\setlength\arraycolsep{0.5pt}%
\setlength\arrayrulewidth{0.5pt}%
%
```

```

\setbox0=\hbox{$\scriptstyle#1#2$}%
\begin{array}{b}{*2@{}>{\scriptstyle}c|}%
  \cline{2-2}%
  \rule[1.25pt]{0pt}{\ht0}%
  #1 & #2%
\end{array}%
}

```

Using the preceding definition, one can type, e.g., “`$a_{\f\actuarial{n}}$” to produce “ $a_{\bar{n}}$ ” and “$a_{\f\actuarial{x:}{n}}$” to produce “ $a_{x:\bar{n}}$ ”. This is similar in concept to how the actuarialangle package defines its \actuarialangle command (Table 261). For a more complete solution for typesetting actuarial symbols see the actuarialsymbol package.`

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{$\m@th\braceleft\leaders\vrule\hfill\braceright$}
\def\upparenthfill{$\m@th\bracel\leaders\vrule\hfill\braceru$}
\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 579 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., `\braceleft` [“ $\underline{\hspace{1em}}$ ”] for `\downparenthfill`), a horizontal rule that stretches as wide as possible, and a right symbol (e.g., `\braceright` [“ $\underline{\hspace{1em}}$ ”] for `\downbracketfill`). `\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 579: Manually Composed Extensible Accents

\overbrace{abc}	<code>\overbracket{abc}</code>	\overbrace{abc}	<code>\overparenthesis{abc}</code>
\underline{abc}	<code>\underbracket{abc}</code>	\underline{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

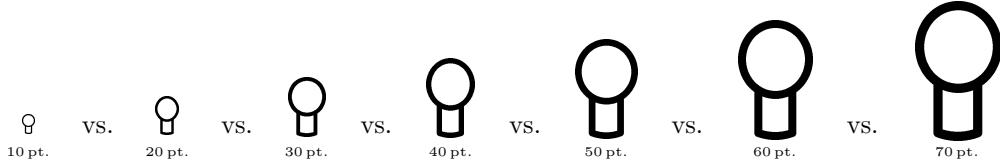


See the `simplewick` documentation for more information.

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. You may also want to read the freely available `METAFONT` primer located at <http://metafont.tutorial.free.fr/>. 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 (“`Q`”).¹² 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 `<size>`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 `<size>`, 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 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.

The code in Figures Figure 2 and Figure 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:

<pre> prompt> mf lightbulb10.mf prompt> gftodvi lightbulb10.2602gf </pre>	⇐ Produces <code>lightbulb10.2602gf</code> ⇐ Produces <code>lightbulb10.dvi</code>
---	---

¹²I'm not a very good artist; you'll have to pretend that “`Q`” looks like a light bulb.

```

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 = ( $w/2, h + o$ );                %  $z_1$  is at the top of a circle.
  rt z2 = ( $w + sb + o - x_4, y_4$ );        %  $z_2$  is at the same height as  $z_4$  but the opposite side.
  bot z3 = ( $z_1 - (0, w - sb - o)$ );       %  $z_3$  is at the bottom of the circle.
  lft z4 = ( $sb - o, 1/2[y_1, y_3]$ );        %  $z_4$  is on the left of the circle.
  path bulb;                                    % Define a path for the bulb itself.
  bulb =  $z_1 \dots z_2 \dots z_3 \dots z_4 \dots$  cycle; % The bulb is a closed path.

  z5 = point 2 -  $1/3$  of bulb;            %  $z_5$  lies on the bulb, a little to the right of  $z_3$ .
  z6 = ( $x_5, 0$ );                      %  $z_6$  is at the bottom, directly under  $z_5$ .
  z7 = ( $x_8, 0$ );                      %  $z_7$  is at the bottom, directly under  $z_8$ .
  z8 = point 2 +  $1/3$  of bulb;            %  $z_8$  lies on the bulb, a little to the left of  $z_3$ .
  bot z67 = ( $1/2[x_6, x_7], pen\_bot - o - 1/8pt$ ); %  $z_{67}$  lies halfway between  $z_6$  and  $z_7$  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, - $1pt, y_2, h$ ); % 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`)

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, $-1pt$, y_2 , 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` that 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
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).

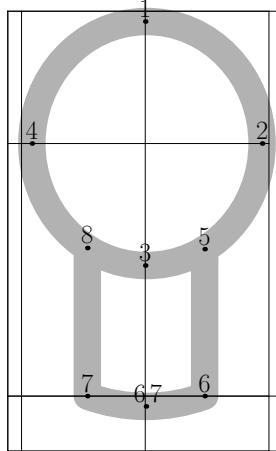


Figure 4: Proof diagram of `lightbulb10.mf`

Test of <code>lightbulb10</code> on March 11, 2003 at 1127								
	'0	'1	'2	'3	'4	'5	'6	'7
'10x		Q						
'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 . $\text{\LaTeX} 2_{\varepsilon}$, however, needs more information before documents can use the font. First, we create a font-description file that tells $\text{\LaTeX} 2_{\varepsilon}$ 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 “*<encoding><family>.fd”, where *<encoding>* is the lowercase version of the encoding name (typically “u” for symbol fonts) and *<family>* is the name of the font family. For LightBulb10, let’s call this “bulb”. Figure 6 lists the contents of `ubulb.fd`. The document “ $\text{\LaTeX} 2_{\varepsilon}$ Font Selection” [LAT19] 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 $\text{\LaTeX} 2_{\varepsilon}$ 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.*

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

Figure 6: $\text{\LaTeX} 2_{\varepsilon}$ font-description file (`ubulb.fd`)

The final step is to write a $\text{\LaTeX} 2_{\varepsilon}$ 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 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.

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

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

Figure 7: L^AT_EX 2_< style file (*lightbulb.sty*)

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/FAQ-textrace.html> for pointers to tools that can produce Type 1 fonts from METAFONT.

11.4 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 Table 183 and Table 184 is to provide the correct amount of spacing around and within multiletter function names. Table 580 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 ” as part of a displayed formula.

TABLE 580: Spacing Around/Within Log-like Symbols

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

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 581 contrasts symbols declared with `\DeclareMathOperator` and `\DeclareMathOperator*` in both text style (`$. . . $`) and display style (`\[. . . \]`).¹³

TABLE 581: Defining new log-like symbols

Declaration function	<code>\$\newlogsym_{p \in P}\$</code>	<code>\[\newlogsym_{p \in P} \]</code>
<code>\DeclareMathOperator</code>	$\newlogsym_{p \in P}$	$\newlogsym_{p \in P}$
<code>\DeclareMathOperator*</code>	$\newlogsym_{p \in P}$	$\newlogsym_{p \in P}$

¹³Note that `\displaystyle` can be used to force display style within `$. . . $` and `\textstyle` can be used to force text style within `\[. . . \]`.

It is common to use a thin space (`\,`) between the words of a multiword operators, as in `\DeclareMathOperator*{\argmax}{arg\,max}`. `\liminf`, `\limsup`, and all of the log-like symbols shown in Table 184 utilize this spacing convention.

11.5 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/FAQ-boldgreek.html> can be used to produce bold mathematical symbols. Table 582 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), and spacing. `xfakebold`'s `\setBold` command is unique in that it takes a thickness argument and supports arbitrary symbol thickness, although it works only with vector fonts, not bitmapped fonts.

TABLE 582: Producing bold mathematical symbols

Package	Code	Output	
<code>none</code>	<code>\$\alpha + b = \Gamma \div D\$</code>	$\alpha + b = \Gamma \div D$	(no bold)
<code>none</code>	<code>\$\mathbf{\alpha} + \mathbf{b} = \mathbf{\Gamma} \div \mathbf{D}\$</code>	$\alpha + \mathbf{b} = \mathbf{\Gamma} \div \mathbf{D}$	
<code>none</code>	<code>\boldsymbol{\alpha} + \boldsymbol{b} = \boldsymbol{\Gamma} \div \boldsymbol{D}</code>	$\boldsymbol{\alpha} + \boldsymbol{b} = \boldsymbol{\Gamma} \div \boldsymbol{D}$	
<code>amsbsy</code>	<code>\$\pmb{\alpha} + \pmb{b} = \Gamma \div D\$</code>	$\pmb{\alpha} + \pmb{b} = \Gamma \div D$	(faked bold)
<code>amsbsy</code>	<code>\$\boldsymbol{\alpha} + \boldsymbol{b} = \boldsymbol{\Gamma} \div \boldsymbol{D}\$</code>	$\boldsymbol{\alpha} + \boldsymbol{b} = \boldsymbol{\Gamma} \div \boldsymbol{D}$	
<code>bm</code>	<code>\$\mathbf{\bm{\alpha}} + \mathbf{\bm{b}} = \mathbf{\bm{\Gamma}} \div \mathbf{\bm{D}}\$</code>	$\mathbf{\bm{\alpha}} + \mathbf{\bm{b}} = \mathbf{\bm{\Gamma}} \div \mathbf{\bm{D}}$	
<code>fixmath</code>	<code>\$\mathbf{\mathit{\alpha}} + \mathbf{\mathit{b}} = \mathbf{\mathit{\Gamma}} \div \mathbf{\mathit{D}}\$</code>	$\mathbf{\mathit{\alpha}} + \mathbf{\mathit{b}} = \mathbf{\mathit{\Gamma}} \div \mathbf{\mathit{D}}$	
<code>xfakebold</code>	<code>\setBold[0.3] \$\alpha + b = \Gamma \div D\$ \unsetBold</code>	$\alpha + b = \Gamma \div D$	(faked bold)

11.6 ASCII and Latin 1 quick reference

Table 583 on the next page amalgamates data from various other tables in this document into a convenient reference for $\text{\LaTeX}\ 2_{\varepsilon}$ 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 $\text{\LaTeX}\ 2_{\varepsilon}$ command to typeset the character as a text character. And the fourth column lists the $\text{\LaTeX}\ 2_{\varepsilon}$ command to typeset the character within a `\textttt{...}` command (or, more generally, when `\ttfamily` is in effect).

The following are some additional notes about the contents of Table 583:

- “!” is not available in the OT1 font encoding.
- Table 583 shows a close quote for character 39 for consistency with the open quote shown for character 96. A straight quote can be typeset using `\textquotesingle` (cf. Table 46).
- The characters “<”, “>”, and “|” do work as expected in math mode, although they produce, respectively, “ \downarrow ”, “ \lrcorner ”, and “ \lrcorner ” in text mode when using the OT1 font encoding.¹⁴ The following are some alternatives for typesetting “<”, “>”, and “|”:
 - Specify a document font encoding other than OT1 (as described on page 13).
 - Use the appropriate symbol commands from Table 2 on page 15, viz. `\textless`, `\textgreater`, and `\textbar`.
 - Enter the symbols in math mode instead of text mode, i.e., `$<$`, `$>$`, and `$|$`.

¹⁴Donald Knuth didn't think such symbols were important outside of mathematics so he omitted them from his text fonts.

TABLE 583: 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	,	,	,	68	44	:	:	:
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	100	64	:	:	:
..	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 \textlangle and \textrangle 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 89 on page 51), which produces a somewhat wide “~”, or the textcomp package’s \texttildelow (shown in Table 46 on page 28), 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 337 on page 131.
- 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 583, Table 584 on the next page is an amalgamation of data from other tables in this document. While Table 583 shows how to typeset the 7-bit ASCII character set, Table 584 shows the Latin 1 (Western European) character set, also known as ISO-8859-1.

The following are some additional notes about the contents of Table 584:

- 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 21 plus an empty argument. For instance, `\={}{}` is essentially the same as `\textasciimacron`.
- The commands in the “ $\text{\LaTeX} 2_{\varepsilon}$ ” columns work both in body text and within a `\textttt{...}` command (or, more generally, when `\ttfamily` is in effect).
- The “ \mathcal{L} ” and “ \mathcal{S} ” glyphs occupy the same slot (36) of the OT1 font encoding, with “ \mathcal{L} ” appearing in italic fonts and “ \mathcal{S} ” appearing in roman fonts. A problem with \LaTeX ’s default handling of this double-mapping is that “`\sffamily\slshape\pounds`” produces “ \mathcal{S} ”, not “ \mathcal{L} ”. Other font encodings use separate slots for the two characters and are therefore robust to the problem of “ \mathcal{L} ”/“ \mathcal{S} ” conflicts. Authors who use `\pounds` should select a font encoding other than OT1 (as explained on page 13) 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 585 presents the characters with which CP1252 augments the standard Latin 1 table.

The following are some additional notes about the contents of Table 585:

- As in Table 584, 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 $\text{\LaTeX} 2_{\varepsilon}$ package (available from the same URL) that fakes some of the missing ISO glyphs using the \LaTeX `picture` environment.¹⁵

11.7 Unicode characters

Unicode is a “universal character set”—a standard for encoding (i.e., assigning unique numbers to) the symbols appearing in many of the world’s languages. While ASCII can represent 128 symbols and Latin 1 can represent 256 symbols, Unicode can represent an astonishing 1,114,112 symbols.

Because \TeX and \LaTeX predate the Unicode standard and Unicode fonts by almost a decade, support for Unicode has had to be added to the base \TeX and \LaTeX systems. Note first that \LaTeX distinguishes between *input* encoding—the characters used in the `.tex` file—and *output* encoding—the characters that appear in the generated `.dvi`, `.pdf`, etc. file.

¹⁵`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.

TABLE 584: 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	«	\guillemetleft	(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	°	\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	‘	\textasciacute	(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{c}		232	E8	è	\‘{e}	
185	B9	¹	\textonesuperior	(tc)	233	E9	é	\’{e}	
186	BA	º	\textordmasculine		234	EA	ê	\^{e}	
187	BB	»	\guillemetright	(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	Ҫ	\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	Í	\‘{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						

TABLE 585: L^AT_EX 2 _{ε} Code Page 1252 Table

Dec	Hex	Char	L ^A T _E X 2 _{ε}		Dec	Hex	Char	L ^A T _E X 2 _{ε}
128	80	€	\texteuro	(tc)	145	91	‘	‘
130	82	,	\quotesinglbase	(T1)	146	92	’	’
131	83	f	\textit{f}		147	93	“	“
132	84	„	\quotedblbase	(T1)	148	94	”	”
133	85	…	\dots		149	95	•	\textbullet
134	86	†	\dag		150	96	—	—
135	87	‡	\ddag		151	97	—	—
136	88	^	\textasciicircum		152	98	~	\textasciitilde
137	89	%	\textperthousand	(tc)	153	99	™	\texttrademark
138	8A	Š	\v{S}		154	9A	š	\v{s}
139	8B	⟨	\guilsinglleft	(T1)	155	9B	⟩	\guilsinglright (T1)
140	8C	Œ	\OE		156	9C	œ	\oe
142	8E	Ž	\v{Z}		158	9E	ž	\v{z}
					159	9F	Ÿ	\"{Y}

Inputting Unicode characters

To include Unicode characters in a `.tex` file, load the `ucs` package and load the `inputenc` package with the `utf8x` (“UTF-8 extended”) option.¹⁶ These packages enable L^AT_EX to translate UTF-8 sequences to L^AT_EX commands, which are subsequently processed as normal. For example, the UTF-8 text “Copyright © 2021”—“©” is not an ASCII character and therefore cannot be input directly without packages such as `ucs`/`inputenc`—is converted internally by `inputenc` to “Copyright \textcopyright{} 2021” and therefore typeset as “Copyright © 2021”.

The `ucs`/`inputenc` combination supports only a tiny subset of Unicode’s million-plus symbols. Additional symbols can be added manually using the `\DeclareUnicodeCharacter` command. `\DeclareUnicodeCharacter` takes two arguments: a Unicode number and a L^AT_EX command to execute when the corresponding Unicode character is encountered in the input. For example, the Unicode character “degree celsius” (“°C”) appears at character position U+2103.¹⁷ However, “°C” is not one of the characters that `ucs` and `inputenc` recognize. The following document shows how to use `\DeclareUnicodeCharacter` to tell L^AT_EX that the “°C” character should be treated as a synonym for `\textcelsius`:

```
\documentclass{article}
\usepackage{ucs}
\usepackage[utf8x]{inputenc}
\usepackage{textcomp}

\DeclareUnicodeCharacter{"2103}{\textcelsius} % Enable direct input of U+2103.

\begin{document}
It was a balmy 21°C.
\end{document}
```

which produces

It was a balmy 21°C.

See the `ucs` documentation for more information and for descriptions of the various options that control `ucs`’s behavior.

¹⁶UTF-8 is the 8-bit Unicode Transformation Format, a popular mechanism for representing Unicode symbol numbers as sequences of one to four bytes.

¹⁷The Unicode convention is to express character positions as “U+(hexadecimal number)”.

Outputting Unicode characters

Orthogonal to the ability to include Unicode characters in a L^AT_EX input file is the ability to include a given Unicode character in the corresponding output file. By far the easiest approach is to use X_EL^AT_EX instead of pdfL^AT_EX or ordinary L^AT_EX. X_EL^AT_EX handles Unicode input and output natively and can utilize system fonts directly without having to expose them via `.tfm`, `.fd`, and other such files. To output a Unicode character, a X_EL^AT_EX document can either include that character directly as UTF-8 text or use T_EX's `\char` primitive, which X_EL^AT_EX extends to accept numbers larger than 255.

Suppose we want to output the symbols for versicle (“VV”) and response (“KK”) in a document. The Unicode charts list “versicle” at position U+2123 and “response” at position U+211F. We therefore need to install a font that contains those characters at their proper positions. One such font that is freely available from CTAN is Junicode (`Junicode.ttf`) from the `junicode` package. The `fontspec` package makes it easy for a X_EL^AT_EX document to utilize a system font. The following example defines a `\textjuni` command that uses `fontspec` to typeset its argument in Junicode:

```
\documentclass{article}
\usepackage{fontspec}

\newcommand{\textjuni}[1]{\fontspec{Junicode}\#1}

\begin{document}
We use ``\textjuni{\char"2123}'' for a versicle
and ``\textjuni{\char"211F}'' for a response.
\end{document}
```

which produces

We use “VV” for a versicle and “KK” for a response.

(Typesetting the entire document in Junicode would be even easier. See the `fontspec` documentation for more information regarding font selection.) Note how the preceding example uses `\char` to specify a Unicode character by number. The double quotes before the number indicate that the number is represented in hexadecimal instead of decimal.

11.8 About this document

History David Carlisle wrote the first version of this document in October, 1994. It originally contained all of the native L^AT_EX symbols (Table 50, Table 72, Table 89, Table 139, Table 183, Table 188, Table 222, Table 223, Table 236, Table 246, Table 302, 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 (Table 51, Table 90, Table 91, Table 142, Table 143, Table 189, Table 198, Table 216, and Table 303) and an initial Math Alphabets table (Table 316) were added thereafter. Later, Alexander Holt provided the `stmaryrd` tables (Table 52, Table 74, Table 92, Table 145, Table 179, and Table 217).

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 L^AT_EX 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, ancient languages, and other symbols, to provide a more user-friendly document structure
- an index, table of contents, hyperlinks, and a frequently-requested symbol list, to help users quickly locate symbols
- symbol tables rewritten to list the symbols in alphabetical order
- appendices providing additional information relevant to using symbols in L^AT_EX

- 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 Carlisle's original version. Most of the changes are geared towards making the document easier to extend, modify, and reformat.

Build characteristics Table 586 lists some of this document's build characteristics. Most important is the list of packages that L^AT_EX 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 via <https://www.ctan.org/pkg/comprehensive/>. Table 587 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 586 or Table 587.

TABLE 586: Document Characteristics

Characteristic	Value
Source file:	<code>symbols.tex</code>
Build date:	May 5, 2021
Symbols documented:	18150
Packages included:	textcomp latexsym amssymb stmaryrd euscript wasysym pifont manfnt bbdng undertilde ifsym tipa tipx extraipa wsipa phonetic utsy ar metre txfonts mathabx fcfont skak ascii dingbat skull eurosym esvect yfonts yhmath esint mathdots trsym universa upgreek overrightarrow chemarr chemarrow nath trfsigns abracess mathtools phaistos arcs vietnam t4phonet holtpolt semtrans dictsym extarrows protosem harmony hieroglif cclicenses mathdesign arev MnSymbol fdsymbol boisik cml2 extpfeil keystroke fge turnstile simpsons epsdice feyn staves igo colonequals shuffle fourier dozenal pmboxdraw pigpen clock teubner linearA linearB cypriot sarabian china2e harpoon steinmetz milstd recycle DotArrow ushort hhcount ogonek combelow musixtex ccicons adfsymbols adform bigints soyombo tfrupee knitting textgreek begriff frege countriesofeurope cookingsymbols prodint epiolmec mdwmath rsfso fontawesome stix hands greenpoint nkarta astrosym webomints moonphase dancers semaphor umranda umrandb cryst starfont tikzsymbols dice apl go magic bartel-chess-fonts actuarialangle lilyglyphs knot bclogo bullcntr rubikcube svrsymbols halloweenmath old-arrows allrunes emf esrelation oplotsymb cmupint realhats euflag scsnowman endofproofwd mismath musicography rojud utfsym plimsoll worldflags twemojis accents nicefrac bm xfakebold junicode mathrsfs chancery urwchancal calligra bbold mbboard dsfont bbm dsserif
Packages omitted:	<i>none</i>

TABLE 587: Package versions used in the preparation of this document

Name	Date	Name	Date	Name	Date
textcomp	2020/02/02	latexsym	1998/08/17	amssymb	2013/01/14
stmaryrd	1994/03/03	euscript	2009/06/22	wasysym	2020/01/19

(continued on next page)

(continued from previous page)

Name	Date	Name	Date	Name	Date
pifont	2020/03/25	manfnt	1999/07/01	bbding	1999/04/15
undertilde	2000/08/08	ifsym	2000/04/18	tipa	2002/08/08
tipx	2003/01/01	wsuipa	1994/07/16	ar	2012/01/23
metre	2001/12/05	txfonts	2008/01/22	mathabx	2003/07/29
skak	2018/01/08	ascii	2006/05/30	dingbat	2001/04/27
skull	2002/01/23	eurosym	1998/08/06	yfonts	2019/04/04
mathdots	2014/06/11	trsym	2000/06/25	universa	2019/08/26
upgreek	2003/02/12	chemarr	2016/05/16	abraces	2021/03/31
mathtools	2021/04/12	phaistos	2004/04/23	arcs	2004/05/09
t4phonet	2004/06/01	semtrans	1998/02/10	dictsym	2004/07/26
extarrows	2020/03/12	protosem	2005/03/18	harmony	2007/05/04
hieroglf	2015/06/02	cclicenses	2005/05/20	MnSymbol	2007/01/21
fdsymbol	2011/11/01	boisik	2009/08/21	extpfeil	2009/10/31
keystroke	2010/04/23	fge	2015/05/19	turnstile	2007/06/23
epsdice	2007/02/15	feyn	2017/11/03	colonequals	2016/05/16
shuffle	2008/10/27	dozenal	2018/05/11	pmboxdraw	2019/12/05
pigpen	2008/12/07	clock	2001/04/10	teubner	2021/02/08
linearA	2006/03/13	linearb	2005/06/22	cypriot	2009/05/22
sarabian	2005/11/12	china2e	1997/06/01	harpoon	1994/11/02
steinmetz	2009/06/14	milstd	2009/06/25	DotArrow	2007/02/12
ushort	2001/06/13	hhcount	1995/03/31	ogonek	95/07/17
combelow	2010/05/02	musixtex	2001/07/08	ccicons	2017/10/30
adforn	2019/10/13	bigints	2010/02/15	soyombo	1996/09/01
tfrupee	2010/12/15	knitting	2019/04/03	textgreek	2011/10/09
frege	2012/08/04	countriesofeurope	2018/12/29	cookingsymbols	2014/12/28
epiolmec	2003/11/05	mdwmath	1996/04/11	fontawesome	2016/05/15
stix	2018/04/17	starfont	2010/09/29	tikzsymbols	2019/02/08
actuarialangle	2019/06/13	bclogo	2016/01/10	bullcntr	2007/04/02
rubikcube	2018/02/25	svrsymbols	2019/02/12	halloweenmath	2019/11/01
emf	2016/09/09	oplotssymb	2017/08/04	cmupint	2020/04/13
realhats	2019/04/14	euflag	2020/05/22	scsnowman	2018/06/07
musicography	2020/01/29	rojud	2020/10/25	utfsym	2020/10/22
plimsoll	2020/10/09	twemojis	2021/04/19	accents	2006/05/12
nicefrac	1998/08/04	bm	2019/07/24	xfakebold	2020/06/24
calligra	2012/04/10				

11.9 Copyright and license

The Comprehensive L^AT_EX Symbol List
Copyright © 2007–2021, 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.

The Twitter emoji graphics provided by twemojis are licensed under CC-BY 4.0. Copyright © 2019 Twitter, Inc. and other contributors.

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/amsldoc.pdf>.
- [Ber01] Karl Berry. Fontname: Filenames for \TeX fonts, June 2001. Available from <https://www.ctan.org/pkg/fontname>.
- [Che98] Raymond Chen. A METAFONT of ‘Simpsons’ characters. *Baskerville*, 4(4):19, February 1998. ISSN 1354-5930. Available from <http://uk.tug.org/wp-installed-content/uploads/2008/12/44.pdf>.
- [Dow00] Michael Downes. Short math guide for \LaTeX , 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>.
- [Gre09] Enrico Gregorio. *Appunti di programmazione in \LaTeX e \TeX* , second edition, June 2009. Available from <http://profsci.univr.it/~gregorio/introtex.pdf>.
- [Knu86a] Donald E. Knuth. *The $\text{\TeX}book$* , 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. *\LaTeX : A document preparation system*. Addison-Wesley, Reading, MA, USA, 1986.
- [LAT98] $\text{\LaTeX}3$ Project Team. A new math accent. *\LaTeX News*. Issue 9, June 1998. Available from <https://www.latex-project.org/news/latex2e-news/ltnews09.pdf> and also included in many \TeX distributions.
- [LAT19] $\text{\LaTeX}3$ Project Team. $\text{\LaTeX}2\epsilon$ font selection, October 2019. Available from <http://mirrors.ctan.org/macros/latex/base/fntguide.pdf> and also included in many \TeX 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., “\é” for “\v{e}”).

Some symbol entries appear to be listed repeatedly. This happens when multiple packages define identical (or nearly identical) glyphs with the same symbol name.¹⁸

Symbols	
\" (\")	21
\# (#)	15, 271
\\$ (\$)	15, 16, 271
\\$ (\$)	16
\% (%)	15, 271
\& (&)	15, 36, 271
\` (\')	21
(()	100
(()	101
(()	104
) ()	100
) ()	101
) ()	104
* (*)	32
\,	270
\- (-)	272, 273
\. (.\)	21
/ (/)	100
/ (/)	101
/ (/)	104
\: (:)	117
\; (;)	117
< (<	101
< (<	104
\? (?\)	117
[([)	100
[([)	101
[([)	104
\\\	261
\] (])	100
\] (])	101
\] (])	104
\^ (^\)	21
\^{\ } (\^)	15, 271
\ ()	100
\ ()	100, 102
\ (\)	21
\= (=\)	21
\=(\ } (-)	272
\ ()	103
\ ()	101
\ ()	104
\ ()	51, 100, 102, 105
\(()	103
\) ()	103
\/ (/)	103
\[([)	103
_	16
_ (-)	15, 271
\{ (\{)	15, 16, 100
\{ (\{)	271
\} (\})	15, 16, 100
\} (\})	271
\] (])	103
\` (\')	21
\~ (\')	21
\~{\ } (\~)	15, 271
1f1e6 (A)	214
1f1e7 (B)	214
1f1e8 (C)	214
1f1e9 (D)	214
1f1ea (E)	214
1f1eb (F)	214
1f1ec (G)	214
1f1ed (H)	214
1f1ee (I)	214
1f1ef (J)	214
1f1f0 (K)	214
1f1f1 (L)	214
1f1f2 (M)	214
1f1f3 (N)	214
1f1f4 (O)	214
1f1f5 (P)	214
1f1f6 (Q)	214
1f1f7 (R)	214
1f1f8 (S)	214
1f1f9 (T)	214
1f1fa (U)	214
1f1fb (V)	214
1f1fc (W)	214
1f1fd (X)	214
1f1fe (Y)	214
1f1ff (Z)	214
1f468-1f3fb-200d-1f384 (🎅)	214
1f468-1f3fc-200d-1f384 (🎅)	214
1f468-1f3fd-200d-1f384 (🎅)	214
1f468-1f3fe-200d-1f384 (🎅)	214
1f468-1f3ff-200d-1f384 (🎅)	214
1f468-200d-1f384 (🎅)	214
1f469-1f3fb-200d-1f384 (🎅)	214
A	
\A (අ)	160
\A (*)	160
a (esvect package option)	111
\a (ප)	160
\a (x)	196
\a (ශ)	160
A button (blood type) (A)	215
\AA (ෂ)	16
\aa (ඏ)	16
\AAaleph (፩)	151
\AAayin (߱)	151
\AAbeth (߲)	151

¹⁸This occurs frequently between `amssymb` and `mathabx`, for example.

\AAcht (♪)	163
\AAdaleth (߂)	151
\AAhe (܂)	151
\AAhelmet (܃)	151
\AAheth (܄)	151
\AAkaph (܅)	151
\AAlamed (܆)	151
\AAleph (܇)	151
\AApe (܈)	151
\AAqoph (܉)	151
\AAresh (܊)	151
\AAsade (܋)	151
\Aayin (܌)	151
\AAyod (܍)	151
\AB (܎)	130
AB button (blood type) (܏)	215
abacus (ܐ)	215
\Abeth (ܑ)	151
abracess (package)	111, 276, 277
absolute value	<i>see \lvert and \rvert</i>
abzüglich	<i>see \textdiscount</i>
\AC (ܒ)	126
\ac (ܓ)	58
\acarc	24
\acbar	24
accents	. 21–26, 106–112, 115, 164, 264–266
acute (ܔ)	21–25, 106
any character as	264
arc (ܕ)	21–24, 109, 110
breve (ܖ)	21–25, 106
caron (ܗ)	21, 25, 106, 110
cedilla (ܘ)	21
circumflex (ܙ)	21–23, 106, 108–110
comma-below (ܚ)	25
Cyrillic breve (ܔ)	21
Cyrillic flex (ܕ)	21
Cyrillic umlaut (ܖ)	21
diæresis (ܔ)	21, 24, 25, 106, 125
dot (ܚ or ܚ)	21–23, 106
double acute (ܔ)	21, 25
double grave (ܖ)	21
extensible	108–112, 115, 265–266
grave (ܖ)	21–25, 106
háček	. <i>see accents, caron</i>
hook (ܔ)	21
Hungarian umlaut	... <i>see accents, double acute</i>
inverted breve (ܖ)	21
kroužek	<i>see accents, ring</i>
macron (ܚ)	21, 24–26, 106, 108, 110
multiple per character	22–23, 264
ogonek (ܚ)	21–25
ring (ܚ)	21–23, 25, 106, 107
Romanian comma-belo accent	... <i>see accents, comma-below</i>
trema	... <i>see accents, diæresis</i>
umlaut	... <i>see accents, diæresis</i>
accents (package)	... 106, 264, 276, 277
\accentset	264
accidentals	<i>see musical symbols</i>
accordion (ܑ)	215
accordion notation	... 167
\accordionBayanBass (ܒ)	167
\accordionDiscant (ܓ)	167
\accordionFreeBass (ܔ)	167
\accordionOldEE (ܕ)	167
\accordionPull (ܖ)	167
\accordionPush (ܗ)	167
\accordionStdBass (ܑ)	167
\accurrent (ܓ)	122
\Acht (♪)	163
\AchtBL (ܒ)	163
\AchtBR (ܓ)	163
\acidfree (ܔ)	118
\ACK (ܑ)	131
\acontraction	265
\AcPa (ܒ)	163
\actuarial (ܑ)	265
actuarial symbols	112, 264–265
\actuarialangle (package)	... 112, 265, 276, 277
\actuarialangle	265
\actuarialangle (ܑ)	112
\actuarialsymbol (package)	265
\acute (ܔ)	107
\acute (ܖ)	106
acute (ܔ)	... <i>see accents</i>
\acutus (ܖ)	24
\acwcirclearrow (ܑ)	85
\acwcirclearrowdown (ܒ)	79
\acwcirclearrowleft (ܓ)	79
\acwcirclearrowright (ܔ)	79
\acwcirclearrowup (ܖ)	79
\acwgapcirclearrow (ܑ)	80
\acwgapcirclearrow (ܒ)	85
\acwlefttarcarrow (ܔ)	79
\acwlefttarcarrow (ܖ)	85
\acwnearcarrow (ܖ)	79
\acwnwarcarrow (ܖ)	79
\acwopencirclearrow (ܑ)	80
\acwopencirclearrow (ܒ)	86, 145
\acwoverarcarrow (ܖ)	79
\acwoverarcarrow (ܒ)	85
\acwrighttarcarrow (ܖ)	79
\acwsearcarrow (ܔ)	79
\acswarcarrow (ܖ)	79
\acwunderarcarrow (ܖ)	79
\acwunderarcarrow (ܔ)	85
\Adaleth (܂)	151
adeles (܂)	<i>see alphabets, math</i>
\adfarrown1 (܁)	135
\adfarrown2 (܂)	135
\adfarrown3 (܃)	135
\adfarrown4 (܄)	135
\adfarrown5 (܅)	135
\adfarrown6 (܆)	135
\adfarrown1 (܁)	135
\adfarrown2 (܂)	135
\adfarrown3 (܃)	135
\adfarrown4 (܄)	135
\adfarrown5 (܅)	135
\adfarrown6 (܆)	135
\adfarrown1 (܁)	135
\adfarrown2 (܂)	135
\adfarrown3 (܃)	135
\adfarrown4 (܄)	135
\adfarrown5 (܅)	135
\adfarrown6 (܆)	135
\adfarrown1 (܁)	135
\adfarrown2 (܂)	135
\adfarrown3 (܃)	135
\adfarrown4 (܄)	135
\adfarrown5 (܅)	135
\adfarrown6 (܆)	135
\adfarrown1 (܁)	135
\adfarrown2 (܂)	135
\adfarrown3 (܃)	135
\adfarrown4 (܄)	135
\adfarrown5 (܅)	135
\adfarrown6 (܆)	135
\adfarrows1 (܁)	135
\adfarrows2 (܂)	135
\adfarrows3 (܃)	135
\adfarrows4 (܄)	135
\adfarrows5 (܅)	135
\adfarrows6 (܆)	135
\adfarrows1 (܁)	135
\adfarrows2 (܂)	135
\adfarrows3 (܃)	135
\adfarrows4 (܄)	135
\adfarrows5 (܅)	135
\adfarrows6 (܆)	135
\adfarrows1 (܁)	135
\adfarrows2 (܂)	135
\adfarrows3 (܃)	135
\adfarrows4 (܄)	135
\adfarrows5 (܅)	135
\adfarrows6 (܆)	135
\adfarrows1 (܁)	135
\adfarrows2 (܂)	135
\adfarrows3 (܃)	135
\adfarrows4 (܄)	135
\adfarrows5 (܅)	135
\adfarrows6 (܆)	135
\adfarrows1 (܁)	135
\adfarrows2 (܂)	135
\adfarrows3 (܃)	135
\adfarrows4 (܄)	135
\adfarrows5 (܅)	135
\adfarrows6 (܆)	135
\adfast{1} (܁)	143
\adfast{2} (܁)	143
\adfast{3} (܁)	143
\adfast{4} (܁)	143
\adfast{5} (܁)	143
\adfast{6} (܁)	143
\adfast{7} (܁)	143
\adfast{8} (܁)	143
\adfast{9} (܁)	143
\adfast{10} (܁)	143
\adbullet (܂)	150
\adbullet{1} (܁)	142
\adbullet{2} (܁)	142

\adfbullet{3} (*)	142
\adfbullet{4} (■)	139
\adfbullet{5} (♦)	139
\adfbullet{6} (★)	139
\adfbullet{7} (+)	139
\adfbullet{8} (◊)	139
\adfbullet{9} (★)	139
\adfbullet{10} (◎)	139
\adfbullet{11} (★)	142
\adfbullet{12} (★)	142
\adfbullet{13} (#)	142
\adfbullet{14} (◊)	142
\adfbullet{15} (◎)	142
\adfbullet{16} (◎)	142
\adfbullet{17} (◎)	142
\adfbullet{18} (◎)	142
\adfbullet{19} (◎)	142
\adfbullet{20} (○)	142
\adfbullet{21} (●)	142
\adfbullet{22} (◎)	142
\adfbullet{23} (◊)	142
\adfbullet{24} (◊)	142
\adfbullet{25} (★)	142
\adfbullet{26} (◎)	142
\adfbullet{27} (●)	147
\adfbullet{28} (●)	147
\adfbullet{29} (■)	147
\adfbullet{30} (◆)	147
\adfbullet{31} (◀)	147
\adfbullet{32} (▶)	147
\adfbullet{33} (▲)	147
\adfbullet{34} (▼)	147
\adfbullet{41} (●)	147
\adfbullet{42} (●)	147
\adfbullet{43} (●)	147
\adfbullet{44} (●)	147
\adfbullet{45} (◎)	147
\adfbullet{46} (●)	147
\adfbullet{47} (■)	147
\adfbullet{48} (●)	147
\adfbullet{49} (●)	147
\adfbullet{50} (◆)	147
\adfbullet{51} (◊)	147
\adfbullet{52} (◊)	147
\adfclosedflourishleft (～)	149
\adfclosedflourishright (～)	149
\adfdiamond (◊)	150
\adfdoubleflourishleft (～)	149
\adfdoubleflourishright (～)	149
\adfdoublesharpflourishleft (～)	149
\adfdoublesharpflourishright (～)	149
\adfdownhalfleafleft (⌚)	144
\adfdownhalfleafright (⌚)	144
\adfflatdownhalfleafleft (⌚)	144
\adfflatdownhalfleafright (⌚)	144
\adfflatdownoutlineleafleft (⌚)	144
\adfflatdownoutlineleafright (⌚)	144
\adfflateleafleft (⌚)	144
\adfflateleafoutlineleft (⌚)	144
\adfflateleafoutlineright (⌚)	144
\adfflateleafsolidleft (⌚)	144
\adfflateleafsolidright (⌚)	144
\adfflourishleft (～)	149
\adfflourishleftdouble (～)	149
\adfflourishright (～)	149
\adfflourishrightdouble (～)	149
\adfflowerleft (❖)	144
\adfflowerright (❖)	144
\adfgee (ƒ)	150
\adfhalfarrowleft (←)	135
\adfhalfarrowleftsolid (←)	135
\adfhalfarrowright (→)	135
\adfhalfarrowrightsolid (→)	135
\adffleafleft (⌚)	144
\adffleafright (⌚)	144
\adffleftarrow (◀)	136
\adffleftarrowhead (◀)	136
\adffrightarrow (▶)	136
\adffrightarrowhead (▶)	136
\adfhangingflatleafleft (⌚)	144
\adfhangingflatleafright (⌚)	144
\adffhangingleafleft (⌚)	144
\adffhangingleafright (⌚)	144
\adffleafleft (⌚)	144
\adffleafright (⌚)	144
\adffleftarrowhead (◀)	136
\adffopenflourishleft (～)	149
\adffopenflourishright (～)	149
adform (package)	136, 143, 144, 149, 150, 276, 277
\adfoutlineleafleft (⌚)	144
\adfoutlineleafright (⌚)	144
\adffrightarrowhead (▶)	136
\adfsS (§)	150
\adfssharpflourishleft (—)	149
\adfsicklefleurishleft (⌚)	149
\adfsicklefleurishright (⌚)	149
\adfsingleflourishleft (～)	149
\adfsingleflourishright (～)	149
\adfsmallhangingleafleft (⌚)	144
\adfsmallhangingleafright (⌚)	144
\adfsquare (□)	150
adfsymbols (package)	135, 139, 142, 147, 276
\adftripleflourishleft (⌚)	149
\adftripleflourishright (⌚)	149
\adfwavesleft (⌚)	149
\adfwavesright (⌚)	149
adhesive bandage (⌚)	215
\adj (adj)	93
adjoint (†)	see \dag
\Admetos (⌚)	129
admission tickets (⌚)	215
Adobe Acrobat	269
\adots (..)	117, 264
\adots (.)	116
\adots (..)	116
\adsorbate (Δ)	133
\adsorbent (⌚)	133
advancing	see \textadvancing
\AE (Æ)	16
\ae (æ)	16
\aeolicbii (oo)	196
\aeolicbiii (ooo)	196
\aeolicbiv (ooo)	196
aerial tramway (⌚)	187
\agemo (U)	120
\Agimel (⌚)	151
\Ahe (¶)	151
\Ahelmet (Δ)	151
\Aheth (¶)	151
\ain (')	25
\Air (Δ)	129
airplane (⌚)	187
airplane arrival (⌚)	187
airplane departure (⌚)	187
airplanes	186–187, 231–234
\Akaph (Ϣ)	151
\Alad (⌚)	106
\alad (⌚)	106
\Alamed (⌚)	151
alarm clock (⌚)	191
\Alas (⌚)	106

\alas ({})	106
\Albania (,)	202
\aldine (⌚)	143
\aldineleft (⌚⌚)	143
\aldineright (⌚⌚)	143
\aldinesmall (⌚⌚)	143
alembic (⚗)	215
\aleph (ℵ)	96, 119
\aleph (ℵ)	96
\aleph (ℵ)	96
\aleph (ℵ)	97
alien (👽)	215
alien monster (👽)	215
\Alif (ؠ)	21
alla breve	162–164, 166, 168
\allabreve (߁)	162
allrunes (package)	160, 276
\Alpha (A)	94
\alpha (α)	94
alphabets	124
African	17
Cypriot	156
Cyrillic	259
Greek 16, 94, 95, 125, 157	
Hebrew	96, 97, 125
hieroglyphic	152
Linear A	152
Linear B	155
math	124
phonetic	18–21
proto-Semitic	151
South Arabian	157
Vietnamese	17
\alphaup (α)	95
alpine symbols	190
\Alt (Alt)	130
alternative denial <i>see</i> \uparrowarrow and	
\AltGr (AltGr)	130
\altoclef (߁߁)	162
\AM (܀܀)	130
\amalg (܀܀)	31
\amalg (܀܀)	33
\amalg (܀)	32
\amalg (܀܀)	35
ambulance (救护车)	187
\Amem (܀܀)	151
american football (🏈)	215
\Amor (܀܀)	129
ampersand	<i>see</i> \&
amphora (🏺)	215
\AMS (package)	13, 16, 31, 41, 51, 52, 63, 65, 70, 73, 88, 92, 94, 96, 97, 99, 100, 106, 109, 112, 115, 118–120, 125, 256, 257, 275
amsbsy (package)	270
amsfonts (package)	119, 124
amsmath (package)	13, 50, 92, 106, 260, 269
\amssymb (package)	13, 106, 119, 124, 157, 276
\amstext (package)	261, 263
\Anaclasis (÷)	196
\anaclasis (÷)	196
anatomical heart (❤)	215
\anceps (×)	196
\ancepsdbrevis (☒)	196
\anchor (⚓)	211
\anchor (⚓)	149
anchor (⚓)	215
ancient-language symbols	151–160
and	<i>see</i> \wedge
AND gates	131
	
\ANDd ()	131
	
\AND1 ()	131
\Andorra ()	202
	
\ANDr ()	131
	
\ANDu ()	131
\angdmr (ݢݢ)	119
anger symbol (😡)	215
\angl (ݢݢ)	112
\angle (ݢݢ)	118
\angle (ݢݢ)	119
\angle (ݢݢ)	119
\angle (ݢݢ)	119
\angle (ݢݢ)	119
\angle (ݢݢ)	118
\angle (ݢݢ)	119
angle notation	127
angles	117–120, 123, 129
\angles (ݢݢ)	119
\AngleSign (ݢݢ)	117
\angleubar (ݢݢ)	119
\angln (ݢݢ)	112
Anglo-Frisian runes	160
\anglr (ݢݢ)	112
angry face (😡)	215
angry face with horns (👿)	215
\Angstrom (Å)	98
Ångström unit	
math mode <i>see</i> \mathring	
text mode	<i>see</i> \AA
\Angud (܀)	106
\angud (܀)	106
anguished face (܀܀)	215
angular minutes	<i>see</i> \prime
angular seconds	<i>see</i> \second
\Angus (܀)	106
\angus (܀)	106
animals	151, 152, 156, 192–193, 228–231
\Ankh (†)	189
\Annoey (܀܀)	212
\annuity (܀܀)	107
annuity symbols	112, 264–265
ant (🐜)	192
antenna bars (📶)	215
\Antidiple (<)	196
\antidiple (<)	196
\Antidiple* (<)	196
\antidiple* (<)	196
\antilabe (,:)	117
\antimuon (μ*)	133
\antineutrino (ν)	133
\antineutron (ҧ)	133
\antiproton (p-)	133
\antiquark (ݢݢ)	133
\antiquarkb (ݢݢ)	133
\antiquarkc (ݢݢ)	133
\antiquarkd (ݢݢ)	133
\antiquarks (ݢݢ)	133
\antiquarkt (ݢݢ)	133
\antiquarku (ݢݢ)	133
\Antisigma (܀܀)	196
\antisigma (܀܀)	196
\Anun (܀܀)	151
anxious face with sweat (܀܀)	215
\anyon (܀܀)	134
\aooverbrace (܀܀)	111
\Ape (܀܀)	151
APL	
symbols	59–60
\apl (package)	130, 276
APL symbols	129, 130
\APLbox (܀܀)	129
\APLboxquestion (܀܀)	129
\APLboxupcaret (܀܀)	129
\APLcirc (܀܀)	129
\APLcomment (܀܀)	129
\APLdown (܀܀)	129
\APLdownarrowbox (܀܀)	129
\APLinput (܀܀)	129
\APLinv (܀܀)	129
\APLleftarrowbox (܀܀)	129
\APLlog (܀܀)	129
\APLminus (܀܀)	129
\APLnot (܀܀)	129
\APLnotbackslash (܀܀)	129
\APLnotslash (܀܀)	129
\APLrightarrowbox (܀܀)	129
\APLstar (܀܀)	129
\APLup (܀܀)	129
\APLuparrowbox (܀܀)	129
\APLvert (܀܀)	129
\Apollon (܀܀)	129
apostropha	<i>see</i> musixgre
\applecmd (܀܀)	186
\apprge (܀܀)	66
\apprle (܀܀)	66
\approx (܀܀)	51
\approx (܀܀)	56
\approx (܀܀)	53
\approx (܀܀)	59
\approxcolon (܀܀)	62
\approxcoloncolon (܀܀)	62
\approxeq (܀܀)	51
\approxeq (܀܀)	58
\approxeq (܀܀)	56

\approxeq (\approx)	53	
\approxeq (\approx)	59	
\approxeqq (\approx)	59	
\approxident (\approx)	56	
\approxident (\approx)	59	
\Aqoph (∞)	151	
\Aquarius (\aleph)	127	
\Aquarius (\aleph)	129	
Aquarius (\aleph)	215	
\aquarius (\approx)	127	
\AR (\mathcal{R})	126	
ar (package)	126, 276, 277	
\arafamily	160	
arc ($\hat{\alpha}$) see accents		
\arccos (arccos)	92	
\arccot (arccot)	93	
\arceq (\trianglelefteq)	58	
\arceq (\trianglelefteq)	56, 91	
\arceq (\trianglelefteq)	59	
\arcfamily	160	
arcminutes see \prime		
\arcosh (arcosh)	93	
\arcoth (arcoth)	93	
arcs (package)	24, 276, 277	
\arcsch (arcsch)	93	
arcseconds see \second		
\arcsin (arcsin)	92	
\arctan (arctan)	92	
\Aresh (\wp)	151	
arev (package)	136–138, 140, 161, 179, 211, 276	
\arg (arg)	92	
\Aries (\varPsi)	128	
\Aries (\varPsi)	127	
\Aries (\varPsi)	129	
\Aries (\varPsi)	127	
Aries ($\textcolor{violet}{\text{M}}$)	215	
\aries ($\textcolor{brown}{\text{T}}$)	127	
\arlfamily	160	
\armfamily	160	
\arnfamily	160	
\ArrowBoldDownRight (\blacktriangleright)	135	
\ArrowBoldRightCircled ($\textcolor{red}{\textcircled{D}}$)	135	
\ArrowBoldRightShort (\blacktriangleright)	135	
\ArrowBoldRightStrobe ($\textcolor{red}{\text{I}\blacksquare\text{I}}$)	135	
\ArrowBoldUpRight (\blacktriangleright)	135	
\arrowbullet (\blacktriangleright)	136	
\Arrownot ()/.	91	
\Arrownot ()/.	91	
\ArrowOver $\overline{()}$	26	
\arrowOver $\overline{()}$	26	
arrows	73–75, 79, 83–88, 108–113, 129, 130, 135, 136, 151, 156, 189, 202, 231–234, 236–237, 252–253, 259	
diagonal, for reducing subexpressions	108	
dotted	113	
double-headed, diagonal	263	
extensible	108–113	
fletched	88, 135	
negated	73, 74, 76, 80	
arrows (boisik package option)	84	
\Arrowvert (\parallel)	100	
\Arrowvert ($\textcolor{red}{\parallel}$)	101	
\Arrowvert ($\textcolor{blue}{\parallel}$)	103	
\arrowvert ($ $)	100	
\arrowvert ($ $)	101	
\arrowvert ($ $)	103	
\arsech (arsech)	93	
Arseneau, Donald	261–265	
\arsinh (arsinh)	93	
\artanh (artanh)	93	
\artfamily	160	
\arcosh (arcosh)	187	
articulations see musical symbols		
artist ($\textcolor{brown}{\text{P}}$)	215	
artist palette ($\textcolor{brown}{\text{P}}$)	215	
\Asade ($\textcolor{brown}{\text{Y}}$)	151	
\Asamekh ($\textcolor{brown}{\text{D}}$)	151	
\ASC ($\textcolor{brown}{\text{A}}^{\textcolor{brown}{\text{sc}}}$)	129	
ASCII	13, 16, 131, 247, 256, 270–272, 274, 276 table	271
ascii (package)	131, 271, 276, 277	
\ascnode ($\textcolor{brown}{\text{O}}$)	127	
\Ashin (ω)	151	
aspect ratio	126	
\Assert ($\textcolor{brown}{\text{I}}\textcolor{brown}{\text{F}}$)	56	
\assert ($\textcolor{brown}{\text{I}}$)	56	
\assert ($\textcolor{brown}{\text{I}}$)	59	
\assumption (\star)	134	
\ast (*)	32	
\ast (*)	31	
\ast (*)	34	
\ast (*)	33	
\ast (*)	32	
\ast (*)	35	
\asteq (\equiv)	59	
\asteraccent ($\textcolor{brown}{\text{I}}$)	107	
\Asteriscus ($\textcolor{brown}{\text{X}}$)	196	
\Asteriscus ($\textcolor{brown}{\text{X}}$)	196	
\Asterisk (*)	32	
\Asterisk ($\textcolor{brown}{\text{*}}$)	142	
\Asterisk (*)	32	
\AsteriskBold ($\textcolor{brown}{\text{*}}$)	142	
\AsteriskCenterOpen ($\textcolor{brown}{\text{*}}$)	142	
\AsteriskRoundedEnds ($\textcolor{brown}{\text{X}}$)	142	
asterisks	32, 142, 143	
\AsteriskThin ($\textcolor{brown}{\text{*}}$)	142	
\AsteriskThinCenterOpen ($\textcolor{brown}{\text{*}}$)	142	
\asterism ($\textcolor{brown}{\text{*}}$)	260	
asteroids	129	
astonished face ($\textcolor{brown}{\text{O}}$)	215	
astrological symbols	127–129, 238–240	
astronaut ($\textcolor{brown}{\text{P}}$)	215	
astronomical symbols	127–129, 199, 200, 238–240	
\astrosun (\odot)	128	
\astrosun (\odot)	127	
astrosym (package)	238, 276	
asymmetric braces	111	
\asymp (\asymp)	51	
\asymp (\asymp)	56, 91	
\asymp (\asymp)	90	
\asymp (\asymp)	59	
asymptotic notation	93	
\atan (atan)	269	
\ataribox ($\textcolor{brown}{\text{X}}$)	186	
\Atav (+)	151	
\Ateth ($\textcolor{brown}{\text{E}}$)	151	
\AtForty ($\textcolor{brown}{\text{F}}$)	189	
ATM sign ($\textcolor{brown}{\text{A}}$)	215	
\AtNinetyFive ($\textcolor{brown}{\text{N}}$)	189	
\atom ($\textcolor{brown}{\text{A}}$)	134	
atom symbol ($\textcolor{brown}{\text{A}}$)	215	
atomic math objects	92, 93, 270	
\AtSixty ($\textcolor{brown}{\text{S}}$)	189	
\aunderbrace ($\textcolor{brown}{\text{U}}$)	111	
\Austria ($\textcolor{brown}{\text{A}}$)	202	
\Aut (Aut)	93	
auto rickshaw ($\textcolor{brown}{\text{B}}$)	187	
\autoleftarrow (\longleftarrow)	112	
\autoleftrightharpoons	112	
\autoleftrightharpoons ($\textcolor{brown}{\text{L}}$)	112	
automobile ($\textcolor{brown}{\text{C}}$)	187	
automobiles	186–187, 231–234	
\autorightarrow (\longrightarrow)	112	
\autorightleftharpoons	112	
\autorightleftharpoons ($\textcolor{brown}{\text{R}}$)	112	
\Autumntree ($\textcolor{brown}{\text{A}}$)	213	
\Avav ($\textcolor{brown}{\text{V}}$)	151	
average	30	
avocado ($\textcolor{brown}{\text{O}}$)	193	
\awint ($\textcolor{brown}{\text{J}}$)	49	
\awint ($\textcolor{brown}{\text{J}}$)	46	
\awint ($\textcolor{brown}{\text{J}}$)	47	
\awintsl ($\textcolor{brown}{\text{J}}$)	48	
\awintup ($\textcolor{brown}{\text{J}}$)	48	
axe ($\textcolor{brown}{\text{A}}$)	215	
\Ayn ($\textcolor{brown}{\text{C}}$)	21	
\Ayod ($\textcolor{brown}{\text{L}}$)	151	
\Azayin (=)	151	

B

B ($\textcolor{brown}{\text{B}}$)	160
\B	17
\B ($\textcolor{brown}{\text{G}}$)	196

\b (esvect package option)	111
\b ()	21
\b ()	196
b (B)	160
B button (blood type) (B)	215
\Ba (T)	155
babel (package) 16, 94, 95, 157	
baby ()	215
baby angel ()	215
baby bottle ()	215
baby chick ()	192
baby symbol ()	215
\babygamma ()	20
Bachmann–Landau notation	93
BACK arrow (BACK)	215
\backapprox ()	53
\backapproxeq ()	53
\Backblech ()	211
\backcong ()	56
\backcong ()	53
\backcong ()	59
\backdprime (W)	118
\backepsilon ()	51
\backepsilon ()	121
\backepsilon ()	96
\backeqsim ()	53
backhand index pointing down ()	215
backhand index pointing left ()	215
backhand index pointing right ()	215
backhand index pointing up ()	215
\backneg ()	121
\backneg ()	120
backpack ()	216
\backprime ()	120
\backprime ()	121
\backprime (!)	121
\backprime (!)	120
\backprime (!)	118
\backproto ()	56
\backsim ()	51
\backsim ()	58
\backsim ()	56
\backsim ()	53
\backsim ()	59
\backsimeq ()	51
\backsimeq ()	58
\backsimeq ()	56
\backsimeq ()	53
\backsimeq ()	59
\backsimeq ()	57
\backslash ()	100, 119
\backslash ()	102
\backslash ()	101
\backslash ()	122
\backslash ()	103
\backslashbackslashdiv ()	32
\backslashbacktriplesim ()	53
\backlarrprime (W)	118
\backturn ()	162
bacon ()	193
badger ()	192
badminton ()	216
bagel ()	193
baggage claim ()	187
\bagmember (E)	58
\bagmember (E)	59
baguette bread ()	193
\Baii (T)	155
\Baiii (W)	155
\bakingplate ()	211
balance scale ()	216
bald ()	216
ballet shoes ()	216
balloon ()	216
ballot box with ballot ()	216
\ballotcheck ()	140
\ballotx (X)	140
banana ()	193
banana brackets	
<i>see \lparenthesis and \rparenthesis</i>	
\banceps ()	196
banjo ()	216
bank ()	216
\bar ()	107
\bar ()	106
\bar (!)	160
bar chart ()	216
\barb ()	20
\barbbrevi ()	196
barber pole ()	216
\barbrevi ()	196
\barcap ()	35
\barcirc ()	261
\barcup ()	35
\bard ()	20
\bardownharpoonleft ()	87
\bardownharpoonright ()	87
\bari (i)	20
\barin (E)	97
\barint (f)	49
\barj (j)	20
\barl (t)	20
\barlambda (X)	20
\barleftarrow ()	83
\barleftarrow ()	85
\barleftarrowrightarrowbar ()	83
\barleftarrowrightarrowbar ()	85
\barleftharpoon ()	75
\barleftharpoondown ()	87
\barleftharpoonup ()	87
\baro (phi)	31
\baro (phi vs. theta)	257
\baro (phi)	34
\baro (theta)	20
\BarOver ()	26
\barOver ()	26
\barovernorthwestarrow ()	83
\barovernorthwestarrow ()	145
\barp (p)	20
barred letters	260
\barrightarrowdiamond ()	85
\barrightharpoon ()	75
\barrightharpoondown ()	87
\barrightharpoonup ()	87
\barsci (t)	20
\barscu (t)	20
	
\Bart ()	197
bartel-chess-fonts (package) 254,	
255, 276	
\baru (u)	20
\baruparrow ()	85
\barupharpoonleft ()	87
\barupharpoonright ()	87
\Barv ()	56
\Barv ()	59
\barV ()	56
\barV ()	59
\barvee ()	35
\barwedge ()	32
\barwedge ()	31
\barwedge ()	34
\barwedge ()	33
\barwedge ()	35
base twelve numerals	118
tally markers	195
baseball ()	216
\BasicTree	213
basket ()	216
basketball ()	216
	
\bassclef ()	162
\Bat ()	189
bat ()	192
bathtub ()	216
bats	39, 115
battery ()	216
\Bau ()	155
\baucircle ()	147
\bauforms ()	189
\bauhead ()	189
\ausquare ()	147
\autriangle ()	147
\BB ()	196
\Bb ()	196
\Bb ()	196
\bb ()	196
\bba ()	196
\bbalpha ()	125
\bbar ()	260
\bbb ()	196

\bbbeta (\textcircled{\textbeta})	125
\Bbbk (\textcircled{k})	97
\Bbbk (\textcircled{k})	98
\Bbbk (\textcircled{k})	98
\Bbbsum (\textcircled{\textSigma})	47
\bding (package)	135, 137–140, 142, 147, 149, 257, 276, 277
\bdollar (\$)	125
\bbetter (\textcircled{\textpm})	183
\beuro (\textcircled{\texteuro})	125
\bbfinalnun (\textcircled{l})	125
\bbgamma (\textcircled{\textgreek{gamma}})	125
\bgreekl (mathbbol package op- tion)	125
\BBm (\textcircled{\textmu})	196
\Bbm (\textcircled{\textmu})	196
\Bbm (\textcircled{\textmu})	196
\bbm (package)	124, 276
\bbm (\textcircled{\textmu})	196
\bbmb (\textcircled{\textomega})	196
\bbmx (\textcircled{\textomega})	196
\bbnbla (\textcircled{\textnabla})	125
\bold (package)	124, 276
\bpe (\textcircled{\textsquare})	125
\bbqof (\textcircled{\textsquare})	125
\brevis (\textcircled{\textomega})	196
\brktbrk (\textcircled{\textequiv})	122
\bslash (\textcircled{\textbackslash})	31
\bslash (\textcircled{\textbackslash})	34
\byod (^)	125
 \bcattention (⚠)	227
 \cbombe (💣)	227
 \cbook (📘)	227
 \ccalendrier (📅)	227
 \ccle (⚡)	227
 \cclefaf (♪)	227
 \cclesol (♪)	227
 \ccoeur (❤)	227
 \ccrayon (🖍)	227
 \ccube (ześ)	227
 \cdallemande (🇩🇪)	227
 \cdanger (⚡)	227
 \cadautriche (🇦🇹)	227
 \cdbelgique (🇧🇪)	227
 \bcdbulgarie (🇧🇬)	227
 \bcdfrance (🇫🇷)	227
 \bcditalie (🇮🇹)	227
 \bcdluxembourg (🇱🇺)	227
 \bcdodecaedre (icosahedron)	227
 \bcdpaysbas (🇳🇱)	227
 \bcdz (⚠)	227
 \ceclaircie (🌤)	227
 \cetoile (⭐)	227
 \cfemme (♀)	227
 \cfejaune (🟡)	227
 \feuro (🇪🇺)	227
 \feutri (🏳️)	227
 \feuvert (🟢)	227
 \fleur ((Flower)	227
 \chomme (♂)	227
 \chorloge (⌚)	227
 \cicosaedre (icosahedron)	227
 \cinfo (ℹ)	227
 \cinterdit (🚫)	227
 \clampe (💡)	227
 \clogo (package)	227, 276, 277
 \cloupe (แว่นตา)	227
 \neige (❄)	227
 \note (🎵)	227
 \nucleaire (☢)	227
 \coctaedre (icosahedron)	227
 \coeil (👁)	227
 \contraction	265
 \corne (🌙)	227
 \cours (📚)	227
 \coutil (🔧)	227
 \cpanchant (🚩)	227
 \cpeaceandlove (☮)	227
 \cpluie (🌧)	227
 \cplume (羽毛)	227
 \cpoisson (🐟)	227
 \cquestion (❓)	227
 \crecyclage (♻)	227
 \crosevents (🌐)	227
 \csmbh (😊)	227
 \csmmh (😢)	227
 \csoleil (☀)	227
 \cspadesuit (♠)	227
 \cstop (STOP)	227
 \ctakecare (⚠)	227
 \ctetraedre (icosahedron)	227
 \ctrefle (♣)	227
 \ctrombone (🎷)	227
 \cvaletcoeur (🃏)	227
 \cvelo (🚲)	227
 \cyin (☯)	227
 \Daa (ㅏ)	155
 \Dde (ㅑ)	155
 \Ddecisive (ㅓ)	183
 \Ddi (ㅓ)	155
 \Dleftarrow (↶)	79
 \Dneararrow (⤠)	79
 \Dnwarrow (⤡)	79
 \Dbo (ଓ)	155
 \Doverarrow (⤢)	79
 \Drightarrow (⤡)	79
 \Dseararrow (⤣)	79
 \Dswarrow (⤤)	79
 \Ddunderarrow (⤥)	79
 \Dwe (ଓ)	155
 \Dwo (ଡ)	155
 \Be (ବେ)	155
 beach with umbrella (🏖)	216
 Beam (Beam)	132
 beaming face with smiling eyes (☺)	216
 bear (🐻)	192

\Bearing (Δ)	132
beating heart (\heartsuit)	216
beaver (\otimes)	192
\because (:.)	51, 115
\because (:.)	58
\because (:.)	116
\because (:.)	116
\because (:.)	116
\Bed (\bowtie)	213
beer mug ($\textcolor{brown}{\square}$)	193
beetle ($\textcolor{violet}{\square}$)	192
begriff (package)	117, 276
Begriffschrift symbols	117
\BEL (•)	131
\Belarus (\clubsuit)	202
\Belgium (◦)	202
\bell (█)	186
bell ($\textcolor{orange}{\triangle}$)	216
bell pepper ($\textcolor{green}{\triangle}$)	193
bell with slash ($\textcolor{red}{\triangle}$)	216
bellhop bell ($\textcolor{orange}{\triangle}$)	216
bento box ($\textcolor{brown}{\square}$)	193
\benzenr (◎)	145
beret	108
Berry, Karl	278
\Beta (B)	94
\betaa (β)	94
\betaau (β)	95
\beth (█)	96
\beth (▀)	96
\beth (▀)	96
\beth (▀)	96
\beth (▀)	96
\beth (▀)	97
better . . . see \triangleleft	
\betteris (\square)	183
\between (⟨)	53
\between (⟩)	51
\between (⟨)	58
\between (⟩)	56
\between (⟨)	53
\between (⟩)	59
beverage box ($\textcolor{brown}{\square}$)	193
\BGassert (↑)	117
\BGconditional ($\boxed{}$)	117
\BGcontent (.)	117
\BGnot (⊤)	117
\BGquant ($\boxed{}$)	117
\Bi (⌘)	155
\bibridge (▀)	23
biconditional	
... see \leftrightarrow and \equiv	
\Bicycle (🚲)	189
bicycle (🚲)	187
bicycles	186–187, 231–234
\Big	256, 258
\big	256, 258
big O (\mathcal{O}) . . . see alphabets, math	
big O notation	93
\Bigassumption (★)	134
\bigassumption (★)	134
\bigast (*)	32
\bigblacktriangledown (▼)	145
\bigblacktriangleup (▲)	145
\bigbosonloop (○)	133
\bigbosonloopA (○)	133
\bigbosonloopV (○)	133
\bigbot (⊥)	122
\bigbox (□)	41
\bigboxasterisk (✳)	42
\bigboxbackslash (✉)	42
\bigboxbot (✉)	42
\bigboxcirc (✉)	42
\bigboxcoasterisk (✳)	42
\bigboxdiv (✉)	42
\bigboxdot (✉)	42
\bigboxleft (✉)	42
\bigboxminus (✉)	42
\bigboxplus (✉)	42
\bigboxright (✉)	42
\bigboxslash (✉)	42
\bigboxtimes (✉)	42
\bigboxtop (✉)	42
\bigboxtriangleup (✉)	42
\bigboxvoid (□)	42
\bigcap (∩)	41
\bigcap (∩)	45
\bigcap (∩)	45
\bigcap (∩)	47
\bigcapdot (∩)	45
\bigcapdot (∩)	45
\bigcapplus (⊕)	46
\bigcapplus (⊕)	45
\bigcirc (○)	31
\bigcirc (○)	144
\bigcirc (○)	144
\bigcirc (○)	146
\BigCircle (○)	146
\BigCircle (○)	147
\bigcircle (○)	45
\bigcoast (*)	32
\bigcomplementop (○)	42
\BigCross (✗)	146
\bigcup (∪)	41
\bigcup (∪)	46
\bigcup (∪)	45
\bigcup (∪)	47
\bigcupdot (∪)	46
\bigcupdot (∪)	45
\bigcupdot (∪)	47
\bigcupdot (∪)	46
\bigcupplus (⊕)	46
\bigcupplus (⊕)	45
\bigcurlyvee (Υ)	42
\bigcurlyvee (Υ)	41
\bigcurlyvee (Υ)	46
\bigcurlyvee (Υ)	45
\bigcurlyvedot (Υ)	45
\bigcurlywedge (Λ)	42
\bigcurlywedge (Λ)	41
\bigcurlywedge (Λ)	46
\bigcurlywedge (Λ)	45
\bigcurlywedge (Λ)	41
\bigcurlywedge (Λ)	46
\bigcurlywedge (Λ)	45
\bigcurlywedge (Λ)	47
\bigcurlywedge (Λ)	42
\bigcurlywedge (Λ)	42
\bigdoublecurlyvee (₩)	45
\bigdoublecurlywedge (₩)	45
\bigdoublevee (₩)	46
\bigdoublevee (₩)	45
\bigdoublewedge (₩)	46
\bigdoublewedge (₩)	45
\Bigg	256, 258
\bigg	256, 258
\biggassumption (★)	134
\BigHBar (⊍)	146
\bigint (∫)	44
\biginterleave ()	41
\biginterleave ()	122
bigints (package)	44, 276, 277
\bigints (∫)	44
\bigintss (∫)	44
\bigintsss (∫)	44
\bigintssss (∫)	44
\biginvamp (⊗)	51
\BigLowerDiamond (◆)	146
\bignplus (⊕)	41
\bigO (O)	93
\bigo (O)	93
\bigoast (⊗)	46
\bigoast (⊗)	45
\bigoasterisk (⊗)	42
\bigobackslash (⊗)	42
\bigobackslash (⊗)	45
\bigobot (⊕)	42
\bigocirc (◎)	42
\bigocirc (◎)	45
\bigocoasterisk (⊗)	42
\bigodiv (÷)	42
\bigodot (⊙)	41
\bigodot (⊙)	46
\bigodot (⊙)	45
\bigodot (⊙)	45
\bigodot (⊙)	47
\bigoint (ʃ)	44
\bigoints (ʃ)	44
\bigointss (ʃ)	44
\bigointsss (ʃ)	44
\bigointssss (ʃ)	44
\bigoleft (⊖)	42
\bigominus (⊖)	42
\bigominus (⊖)	45
\bigoplus (⊕)	41
\bigoplus (⊕)	46
\bigoplus (⊕)	45
\bigoplus (⊕)	47
\bigright (⊕)	42
\bigoslash (⊖)	42

\bigoslash (⊖)	45	\bigtriangledown (▽)	145,	\Bku (†)	155
\bigostar (⊗)	45	146		\BL (＼)	130
\bigotimes (⊗)	41	\BigTriangleLeft (◀)	146	\black	185
\bigotimes (⊗)	46	\bigtriangleleft (◀)	145	black cat (🐈)	192
\bigotimes (⊗)	45	\BigTriangleRight (▶)	146	black circle (●)	216
\bigotimes (⊗)	47	\BigTriangleUp (△)	146	black flag (⚑)	216
\bigotop (⊕)	42	\bigtriangleup (Δ)	41	black heart (♥)	216
\bigotriangle (◎)	45	\bigtriangleup (Δ vs. Δ)	257	black large square (■)	216
\bigotriangleup (◎)	42	\bigtriangleup (Δ)	13, 31	black medium square (□)	216
\bigovert (○)	45	\bigtriangleup (Δ)	72, 144	black medium-small square (■)	216
\bigovoid (○)	42	\bigtriangleup (Δ)	71		
\bigparallel ()	41	\bigtriangleup (Δ)	145, 146	black nib (✒)	216
\bigparr (❀)	51	\biguplus (⊕)	41	black small square (■)	216
\bigplus (+)	42	\biguplus (⊕)	46	black square button (□)	216
\bigplus (+)	46	\biguplus (⊕)	45		
\bigplus (+)	45	\biguplus (⊕)	47		
\bigpumpkin (🎃)	39	\bigvarstar (★)	32		
\BigRightDiamond (◇)	146	\BigVBar ()	146		
\bigskull (💀)	39	\bigvee (∨)	41		
\bigslopedvee (↙)	35	\bigvee (∨)	46		
\bigslopedwedge (↗)	35	\bigvee (∨)	45		
\bigsqcap (∏)	42	\bigvee (∨)	47		
\bigsqcap (∏)	41	\bigveedot (∨)	46		
\bigsqcap (∏)	46	\bigveedot (∨)	45		
\bigsqcap (∏)	45	\bigwedge (Λ)	41		
\bigsqcap (∏)	47	\bigwedge (Λ)	46		
\bigsqcapdot (⊓)	46	\bigwedge (Λ)	45		
\bigsqcapdot (⊓)	45	\bigwedge (Λ)	45		
\bigsqcapplus (⊔)	43	\bigwedge (Λ)	47		
\bigsqcapplus (⊔)	46	\bigwedgedot (Ⓐ)	46		
\bigsqcapplus (⊔)	45	\bigwedgedot (Ⓐ)	45		
\bigsqcup (⊔)	41	\bigwhitestar (☆)	145		
\bigsqcup (⊔)	45	\bigwith (&)	51		
\bigsqcup (⊔)	45	bikini (👙)	216		
\bigsqcup (⊔)	47	billed cap (🧢)	216		
\bigsqcupdot (⊔)	45	\binampersand (&)	31		
\bigsqcupdot (⊔)	45	\binampersand (&)	34		
\bigsqcupplus (⊕)	43	binary operators	31–39		
\bigsqcupplus (⊕)	46	binary relations	51–54, 56, 58–70, 89–91		
\bigsqcupplus (⊕)	45	negated	52, 53, 55–58, 60		
\BigSquare (□)	146	\bindnasrepma (❀)	31		
\bigsquplus (⊕)	42	\bindnasrepma (❀)	34		
\bigstar (★)	32	\Biohazard (☣)	133		
\bigstar (★)	120	\biohazard (☣)	211		
\bigstar (★)	145	biological symbols	132		
\bigstar (★)	144	bird (🐦)	192		
\bigstar (★)	144	birds	152		
\bigstar (★)	145	birthday cake (🎂)	216		
\bigtalloblong (⊤)	47	bishop	183, 184, 254–255		
\bigtimes (×)	42	\bishoppair (¤)	183		
\bigtimes (×)	46	bison (🐂)	216		
\bigtimes (×)	45	\Bja (㍻)	155		
\bigtimes (×)	47	\Bje (❖)	155		
\bigtop (⊤)	122	\Bjo (Ĵ)	155		
\BigTriangleDown (▽)	146	\Bju (𝑯)	155		
\bigtriangledown (▽)	41	\Bka (⊕)	155		
\bigtriangledown (▽ vs. ▽)	257	\Bke (❖)	155		
\bigtriangledown (▽)	31	\Bki (▽)	155		
\bigtriangledown (▽)	72, 144	\Bko (ߟ)	155		
\bigtriangledown (▽)	71				

\blackpointeright (►)	145
\BlackQueenOnBlack (👑)	184
\BlackQueenOnWhite (👑)	184
\blackrighthalfcircle (◑)	145
\BlackRookOnBlack (♜)	184
\BlackRookOnWhite (♜)	184
\blacksmiley (☺)	122
\blacksmiley (☻)	186
\blacksquare (▀)	120
\blacksquare (▀)	38, 145
\blacksquare (▀)	37
\blacksquare (▀)	146
\blackstone	184
\blacktriangle (▲)	120
\blacktriangle (▲)	38, 145
\blacktriangle (▲)	38, 72
\blacktriangle (▲)	71
\blacktriangle (▲)	145
\blacktriangledown (▼)	36
\blacktriangledown (▼)	120
\blacktriangledown (▼)	38, 145
\blacktriangledown (▼)	38, 72
\blacktriangledown (▼)	71
\blacktriangledown (▼)	145
\blacktriangleleft (◀)	36
\blacktriangleleft (◀)	70
\blacktriangleleft (◀)	38
\blacktriangleleft (◀)	38, 72
\blacktriangleleft (◀)	71
\blacktriangleleft (◀)	145
\blacktriangleright (▶)	36
\blacktriangleright (▶)	70
\blacktriangleright (▶)	38
\blacktriangleright (▶)	38, 72
\blacktriangleright (▶)	71
\blacktriangleright (▶)	145
\blacktriangleright (▶)	145
\blacktriangleup (▲)	36
\blackwhitespoon (↔)	90
blank	see \textblank
\Bleech (△)	189
\blender (!)	211
\blitza (↯)	91
\blitza (↯)	30
\blitzb (↯)	91
\blitzc (↯)	91
\blitzd (↯)	91
\blitze (↯)	91
\blkhorzoval (◐)	145
\blkvertoval (◑)	145
block-element symbols	198
blossom (🌸)	216
blowfish (🐡)	192
blue book (📘)	216
blue circle (🔵)	216
blue heart (❤)	216
blue square (📘)	216
blueberries (Berry)	193
\Bm (Ⓜ)	196
\bm (package)	270, 276, 277
\bm	270
\bm (Ⓜ)	196
\Bma (Ⓜ)	155
\Bme (Ⓣ)	155
\Bmesonminus (B⁻)	134
\Bmesonnull (B⁰)	134
\Bmesonplus (B⁺)	134
\Bmi (Ⓜ)	155
\Bmo (Ⓜ)	155
\bmod	92
\Bmu (Ⓣ)	155
\Bna (Ŷ)	155
\BNc (ଓ)	155
\BNcc (ଓଓ)	155
\BNcd (ଓଓ)	155
\BNcm (ଓଓଓଓ)	155
\BNd (ଓଓ)	155
\BNdc (ଓଓ)	155
\BNdcc (ଓଓଓ)	155
\BNdccc (ଓଓଓଓ)	155
\Bne (Ⓣ)	155
\BNi (՚)	155
\Bni (՚)	155
\BNii (՚՚)	155
\BNiii (՚՚՚)	155
\BNiv (՚՚՚)	155
\BNix (՚՚՚՚)	155
\BNl (≡≡)	155
\BNlx (≡≡)	155
\BNlx (≡≡)	155
\BNlxx (≡≡)	155
\BNlxxx (≡≡)	155
\BNm (⊖)	155
\Bno (☒)	155
\bNot (☒)	59
\Bnu (চ)	155
\BNv (՚՚՚)	155
\BNvi (՚՚՚)	155
\BNvii (՚՚՚)	155
\BNviii (՚՚՚)	155
\Bnwa (☒)	155
\BNx (̄)	155
\BNxc (≡≡)	155
\BNxl (≡≡)	155
\BNxx (̄̄)	155
\BNxxx (≡≡)	155
\Bo (📘)	155
boar (🐗)	192
boats	186–187
body-text symbols	15–29
boisik (package)	34, 38, 46, 58, 64, 69, 72, 83, 84, 96, 98, 99, 107, 119, 121, 145, 157, 161, 179, 276, 277
bold symbols	270
\boldmath	270
\boldsymbol	270
\BOLogo (BO)	189
\BOLogoL (Hochschule Bochum Logo)	189
\BOLogoP (BO)	189
bomb	227
\bomb (💣)	189
bomb (💣)	216
\bond (→)	134
bone (🦴)	216
bookmark (🔖)	216
bookmark tabs (🔖)	216
books (📚)	216
Boolean domain (𝔹)	see alphabets, math
Boolean logic gates	131
boomerang (🦵)	216
boondox (emf package option)	127
borders	241–247
born	see \textborn
\boseDistrib (ঃ)	134
\Bosnia (birka)	202
\boson (ঃ)	134
bosons	133
\Bot (॥)	99
\bot (⊥)	30, 97, 262
\bot (⊥)	98
\bot (⊥)	97
\bot (⊥)	98
\botborder (⊥)	185
\botdoteq (=)	53
\botsemicircle (○)	145
\bottle (ঔ)	211
bottle with popping cork (ঔ)	193
\Bottomheat (▣)	211
\Bouquet (💐)	189
bouquet (💐)	216
bow and arrow (🏹)	216
\bowl (ઉ)	211
bowl with spoon (➕)	193
bowling (🎳)	217
\Bowtie (⊗)	186
\bowtie (⊗)	51
\bowtie (⊗)	34
\bowtie (⊗)	33, 34, 56
\bowtie (⊗)	32, 33
\bowtie (⊗)	59
\Box (□)	119
\Box (□)	120
\Box (□)	38
\Box (□)	37
\Box (□)	146
box-drawing symbols	198
\boxast (▣)	31

\boxast (✉)	38	\boxslash (☒)	36	\Bpte (✉)	155
\boxast (✉)	39	\boxslash (☒)	31	\Bpu (ਪ)	155
\boxasterisk (✳)	36	\boxslash (☒)	38	\Bpuii (ਪੁ)	155
\boxbackslash (☒)	36	\boxslash (☒)	37	\BPvola (ਵੋਲਾ)	155
\boxbackslash (☒)	37	\boxslash (☒)	37	\BPvolb (ਵੋਲਬ)	155
\boxbackslash (☒)	37	\boxtimes (☒)	36	\BPvolcd (ਵੋਲਡ)	155
\boxbar (ਮ)	31	\boxtimes (☒)	31	\BPvolcf (ਵੋਲਫ)	155
\boxbar (ਮ)	38	\boxtimes (☒)	38	\BPwheat (ਗੀਣ)	156
\boxbar (ਮ)	38	\boxtimes (☒)	37	\BPwheel (ਸੂਰਜ)	156
\boxbar (ਮ)	39	\boxtimes (☒)	37	\BPwine (ਵਿਨ)	156
\boxbot (ਮ)	36	\boxtimes (☒)	39	\BPwineih (ਵਿਨੀ)	156
\boxbot (ਮ)	38	\boxtop (ਮ)	36	\BPwineiih (ਵਿਨੀਹ)	156
\boxbox (ਮ)	31	\boxtop (ਮ)	38	\BPwineivh (ਵਿਨੀਵਿਹ)	156
\boxbox (ਮ)	38	\boxtriangle (ਮ)	38	\BPwoman (ਵੇਮਨ)	156
\boxbox (ਮ)	37	\boxtriangleup (ਮ)	36	\BPwool (ਮੂਲ)	156
\boxbox (ਮ)	37	\boxvert (ਮ)	37	\BPwt (ਵਟ)	155
\boxbox (ਮ)	39	\boxvert (ਮ)	37	\BPwtb (ਵਟਬ)	155
\boxbslash (☒)	31	\boxvoid (ਮ)	36	\BPwtc (ਵਟਚ)	155
\boxbslash (☒)	38	\boy (♂)	128	\BPwtd (ਵਟਦ)	155
\boxbslash (☒)	38	boy (☺)	217	\Bqa (ਕਾ)	155
\boxbslash (☒)	39	\Bpa (ਪਾ)	155	\Bqe (ਕੇ)	155
\boxcirc (✉)	36	\Bpaiii (ਪਾਈ)	155	\Bqi (ਕੀ)	155
\boxcircle (✉)	31	\BPamphora (ਪੰਫੋਰਾ)	156	\Bqo (ਕੋ)	155
\boxcircle (✉)	38	\BParrow (ਪੱਥਰ)	156	\Bra (ਕ੍ਰਾ)	155
\boxcircle (✉)	39	\BPbarley (ਪੱਤਰ)	156	bra	100
\boxcoasterisk (✳)	36	\BPbilly (ਪੀਲੀ)	156	\braceeld (ਕੁਲੜ)	265
\boxdiag (ਮ)	38	\BPboar (ਪੋਰ)	156	\bracerd (ਕੁਲੜ)	265
\boxdiag (ਮ)	39	\BPbronze (ਪ੍ਰਾਂਤੀ)	156	braces	15, 100–103, 108–111
\boxdiv (ਮ)	36	\BPbull (ਪੁੱਲ)	156	asymmetric	111
\boxdivision (ਮ)	38	\BPcauldroni (ਪ੍ਰਾਂਤੀ)	156	extensible	108–111
\boxdot (ਮ)	36	\BPcauldronii (ਪ੍ਰਾਂਤੀ)	156	multiline	111
\boxdot (ਮ)	31	\BPchariot (ਪੱਥਰ)	156	\bracevert (ਕੱਢ)	100
\boxdot (ਮ)	38	\BPchassis (ਪੱਥਰ)	156	\bracevert (ਕੱਢ)	101
\boxdot (ਮ)	37	\BPCloth (ਪੱਥਰ)	156	\bracevert (ਕੱਢ)	122
\boxdot (ਮ)	37	\BPCow (ਪੱਥਰ)	156	brackets	see delimiters
\boxdot (ਮ)	39	\BPCup (ਪੱਥਰ)	156	\Braii (ਕ੍ਰਾਈ)	155
\boxdotLeft (↔)	74	\BPe (ਪੇ)	155	\Braiii (ਕ੍ਰਾਈਅਈ)	155
\boxdotleft (↔)	74	\BPeve (ਪੇਵੇ)	156	brain (ਮੈਨ)	217
\boxdotRight (⇒)	74	\BPfoal (ਪੋਲ)	156	braket (package)	100
\boxdotright (⇒)	74	\BPGoat (ਪੋਤ)	156	\Bratpfanne (ਪ੍ਰਾਂਤੀ)	211
\boxempty (□)	31	\BPGoblet (ਪੋਤੀ)	156	\Bre (ਕ੍ਰੇ)	155
boxing glove (🥊)	217	\BPGold (ਪੋਤੀ)	156	bread (ਬ੍ਰੇਡ)	193
\boxLeft (↔)	74	\BPhorse (ਪੋਤੀ)	156	\Break (Break)	130
\boxleft (ਮ)	36	\Bpi (ਪੀ)	155	breast-feeding (ਨੈਟੀਂਗ)	217
\boxleft (↔)	74	\BPman (ਪੀਲੀ)	156	\breve (ਕੁਵੇਂ)	107
\boxleft (ਮ)	38	\BPnanny (ਪੀਲੀ)	156	\breve (ਕੁਵੇਂ)	106
\boxminus (ਮ)	36	\Bpo (ਪੋ)	155	\breve (ਕੁਵੇਂ)	24
\boxminus (ਮ)	31	\BPolive (ਪੋਲਿਵ)	156	breve (ਕੁਵੇਂ)	see accents
\boxminus (ਮ)	38	\BPOx (ਪੋਕ)	156	\brevis (ਕੁਵੇਂ)	196
\boxminus (ਮ)	37	\BPPig (ਪੋਕੀ)	156	\Bri (ਬ੍ਰੀ)	155
\boxminus (ਮ)	37	\BPram (ਪੋਰਮ)	156	bricks (ਬ੍ਰਿਕਸ)	217
\boxminus (ਮ)	39	\BPsheep (ਪੋਰਸ਼ੀ)	156	bridge at night (ਬ੍ਰਿਗਨਾਈਟ)	217
\boxplus (ਮ)	36	\BPsow (ਪੋਰਸ਼ੀ)	156	briefcase (ਬ੍ਰੈਫਕੇਸ)	217
\boxplus (ਮ)	31	\BPspear (ਬੋਲ)	156	briefs (ਬ੍ਰੈਫਿਜ਼)	217
\boxplus (ਮ)	38	\BPsword (ਬੋਲਡ)	156	bright button (ਬ੍ਰਿਗਟ)	217
\boxplus (ਮ)	37	\BPTalent (ਬੋਲਡੈਂਟ)	155	\Bro (ਕੁਵੇਂ)	155

broccoli (🥦) 193
 \Broii (◊) 155
 broken heart (💔) 217
 \brokenvert (׀) 186
 Bronger, Torsten 262
 broom (🧹) 217
 brooms 91, 114
 brown circle (🔴) 217
 brown heart (❤) 217
 brown square (🟠) 217
 \Bru (՞) 155
 \BS (▣) 131
 \Bsa (՚) 155
 \Bse (՞) 155
 \BSEfree (♾) 133
 \Bsi (՚) 155
 \bsimilarleftarrow (↔) 85
 \bsimilarrightarrow (↗) 85
 \Bso (՞) 155
 \bsolhsub (\C) 65
 \BSpace (◀) 130
 \Bsu (՞) 155
 \Bswa (՚) 155
 \Bswi ([x]) 155
 \Bta (՚) 155
 \Btaii (՚) 155
 \Bte (՚) 155
 \Bti (՚) 155
 \btimes (×) 34
 \btimes (×) 35
 \Bto (՚) 155
 \Btu (՚) 155
 \Btw (՚) 156
 \Btwo (՚) 155
 \Bu (՚) 155
 bubble tea (՚) 193
 Bucharest 206
 bucket (՚) 217

 \BUFd (՚) 131
 buffers 131

 \BUFl (՚) 131

 \BUFr (՚) 131

 \BUFu (՚) 131
 bug (՚) 192
 \BUi (՚) 156
 \BUii (՚) 156
 \BUiii (՚) 156
 building construction (՚) 217
 \BUiv (՚) 156
 \BUix (՚) 156
 \Bulgaria (՚) 203
 bullcntr (package) 195, 276, 277
 \bullcntr{1} (•) 195
 \bullcntr{2} (••) 195
 \bullcntr{3} (•••) 195

\bullcntr{4} (••••) 195
 \bullcntr{5} (•••••) 195
 \bullcntr{6} (••••••) 195
 \bullcntr{7} (•••••••) 195
 \bullcntr{8} (••••••••) 195
 \bullcntr{9} (•••••••••) 195
 bulletenum (package) 195
 bulletenum 195
 \bullet (•) 31
 \bullet (•) 38
 \bullet (•) 32
 \bullet (•) 39
 bullet train (՚) 187
 bullseye . *see* \textbullseye
 \bullseye (◎) 145
 bullseye (◎) 217
 \Bumpedeq (≈) 53
 \bumpedeq (≈) 53
 \Bumpeq (≈) 51
 \Bumpeq (≈) 58
 \Bumpeq (≈) 56
 \Bumpeq (≈) 54
 \Bumpeq (≈) 59
 \Bumpeq (≈) 51
 \Bumpeq (≈) 58
 \Bumpeq (≈) 56
 \Bumpeq (≈) 53
 \Bumpeq (≈) 59
 \Bumpeqq (≈) 56
 \Bumpeqq (≈) 59
 \Bumpeqq (≈) 59
 \bupperhand (՞) 183


 \Burns (՚) 197
 burrito (՚) 193
 bus (՚) 187
 bus stop (՚) 187
 buses 186–187, 231–234
 bust in silhouette (՚) 217
 busts in silhouette (՚) 217
 \BusWidth (՚) 131
 butter (՚) 193
 butterfly (՚) 192
 \BUv (՚) 156
 \BUvi (՚) 156
 \BUvii (՚) 156
 \BUviii (՚) 156
 \BUx (՚) 156
 \BUxi (՚) 156
 \BUxii (՚) 156
 \Bwa (՚) 155
 \Bwe (՚) 155
 \Bwi (՚) 155
 \Bwo (՚) 155
 \BX (□) 130
 \Bza (՚) 155
 \Bze (՚) 155
 \Bzo (՚) 155

C

\C (՚) 21
 \C (՚) 196
 c (esvect package option) 111
 \c (՚) 21, 273
 \c (՚) 196
 \Ca (՚) 156
 cactus (՚) 217
 \caesura (՚) 162
 cal (emf package option) 127
 call me hand (՚) 217
 calligra (package) 124, 276, 277
 calligra (emf package option) 127
 Calligra (font) 124
 callouts 228–231
 calrsfs (package) 124
 camera (՚) 217
 camera with flash (՚) 217
 camping (՚) 217
 \CAN (↑) 131
 cancel (package) 108
 \Cancer (՚) 127
 \Cancer (՚) 129
 Cancer (՚) 217
 \cancer (՚) 127
 \Candle (՚) 213
 candle (՚) 217
 \candra (՚) 107
 candy (՚) 193
 canned food (՚) 193
 canoe (՚) 187
 \Cap (՚) 31
 \Cap (՚) 34
 \Cap (՚) 34
 \Cap (՚) 33
 \Cap (՚) 35
 \cap (∩) 32
 \cap (∩) 31
 \cap (∩) 34
 \cap (∩) 33
 \cap (∩) 32
 \cap (∩) 35
 \capbarcup (՚) 35
 \capdot (՚) 33
 \capdot (՚) 32
 \capdot (՚) 35
 \capovercup (՚) 35
 \capplus (՚) 33
 \capplus (՚) 32
 \Capricorn (՚) 127
 \Capricorn (՚) 129
 Capricorn (՚) 217
 \capricornus (՚) 127
 \capturesymbol (×) 183
 \capwedge (՚) 35
 card file box (՚) 217
 card index (՚) 217
 card index dividers (՚) 217
 card suits 150, 179, 180, 227
 cardinality *see* \aleph
 care of (%) 122

caret	see \^
\caretinsert (˜)	122
Carlisle, David	1, 275, 276
caron (ˇ)	see accents
carousel horse (-carousel)	217
carp streamer (🐟)	217
carpentry saw (Knife)	217
carriage return	259
carriage return	83, 85–86, 130, 131, 149, 259, see also \hookleftarrow
\carriagereturn (↵)	83
\carriagereturn (↙)	85
\carriagereturn (↘)	149
carrot (🥕)	193
cars	186–187, 231–234
Cartesian product	see \times
castle	183, 184, 254–255
castle (_CASTLE)	217
\castlingchar (O)	183
\castlinghyphen (-)	183
\Cat (CAT)	212
cat face (KITTY)	192
cat with tears of joy (CAT)	217
cat with wry smile (CAT)	217
cat2 (CAT)	192
\catal (A)	196
\Catalexis (A)	196
\catalexis (A)	196
catamorphism	see \lparenthesis and \rparenthesis
\CB (BY)	130
\cb (BY)	25
\Cc (CC)	196
\cc (CC)	28
\cc (CC)	196
\ccAttribution (BY)	28
\ccb (BY NC SA)	28
\ccbyncnd (CC BY SA)	28
\Ccc (CC)	196
\ccCopy (CC)	28
\cChangey (CHANGEY)	212
ccicons (package)	28, 276, 277
cclicenses (package)	28, 276, 277
\ccLogo (BY)	28
\ccnc (BY NC)	28
\ccnd (BY NC ND)	28
\ccNoDerivatives (BY NC ND)	28
\ccNonCommercial (BY NC)	28
\ccNonCommercialEU (BY NC ND)	28
\ccNonCommercialJP (BY NC ND)	28
\ccPublicDomain (BY NC ND)	28
\ccRemix (BY NC SA)	28
\ccsa (BY NC SA)	28
\ccSampling (BY NC SA)	28
\ccShare (BY NC SA)	28
\ccShareAlike (BY NC SA)	28
\ccwundercurvearrow (G)	85
\ccZero (BY NC ND)	28
\cdot (·)	31, 260
\cdot (·)	34
\cdot (·)	33, 116
\cdot (··)	116
\cdot (·)	32, 116
\cdot (·)	116
\cdotop (·)	115
\cdotop (··)	116
\cdotop (·)	116
\cdotop (·)	116
\cdotop (·)	116
\cdotop (··)	115
\cdotop (··)	116
\cdotop (··)	116
\CE (Γ)	130
\Ce (ℳ)	156
Cedi	see \textcolonmonetary
cedilla (ç)	see accents
celestial bodies	127–129, 199, 200, 238–240
\celsius (°C)	126
\Celtcross (Φ)	189
Celtic knots	244–247
\cent (¢)	26
\centerdot (▪)	32
\centerdot (.)	33
\centerdot (.)	31
\centerdot (.)	34
\centerdot (·)	116
centernot (package)	261
\centernot	261
centigrade . see \textcelsius	
\centre (田)	183
cents	see \textcent
\Ceres (♃)	129
\CEsign (€)	133
\Cga (ꝝ)	156
chains (ꝝ)	217
\Chair (ꝝ)	213
chair (ꝝ)	217
chancery (package)	276
\changenotsign	53
\Changey (ꝝ)	212
\char	13, 259, 268, 271, 275
chart decreasing (↘)	217
chart increasing (↗)	217
chart increasing with yen (¥) 217
Charter (font)	26, 50
\check (ˇ)	107
\check (˘)	106
check box with check (✓)	217
check mark (✓)	217
check mark button (✓)	217
check marks	16, 120–122, 140, 141, 149, 186, 189, 231– 234, 257
\checked (✓)	186
\CheckedBox (☒)	140
\Checkedbox (☒)	140
\Checkmark (✓)	140
\checkmark (✓)	16
\checkmark (✓)	149
\checkmark (✓)	121
\checkmark (✓)	121
\checkmark (✓)	120
\checkmark (✓)	122
\checkmark (✓ vs. ✓)	257
\CheckmarkBold (✓)	140
\checksymbol (+)	183
cheese wedge (🧀)	193
chemarr (package)	112, 276, 277
chemarrow (package)	88, 112, 276
\chemarrow (→)	88
Chen, Raymond	278
chequered flag (❖)	217
cherries (🍒)	193
cherry blossom (벚꽃)	217
chess pawn (♟)	217
chess symbols	183, 184, 254–255
\chesscomment (RR)	183
\chessset ()	183
\chessee (—)	183
chestnut (🌰)	217
chevrons	136
\Chi (X)	94
\chi (χ)	94
chicken (🐔)	192
child (👶)	217
children crossing (⊕)	217
GNOME (package)	27, 93, 125, 199–201
china2e (package)	124, 276, 277
chipmunk (🐿)	192
\Chiron (Ƙ)	129
\chiup (χ)	95
chocolate bar (🍫)	193
chopsticks (🥢)	193
chorus (emf package option)	127
Christmas tree (🎄)	218
church (⛪)	218
\Ci (ꝫ)	156
cigarette (🚬)	218
cinema (קולנוע)	218
cipher symbols	199
\cirbot (⌚)	59
\circ (○)	31, 122, 261
\circ (○)	38
\circ (○)	32
\circ (○)	145, 146
\circeq (≈)	53
\circeq (≡)	51
\circeq (≈)	58
\circeq (≈)	56
\circeq (≈)	54
\circeq (≈)	59
\CIRCLE (●)	144
\Circle (○)	144
\Circle (○)	146
\Circle (○ vs. ○)	257
\circlearrowleft (↺)	74
\circlearrowleft (↺)	73
\circlearrowleft (↺)	83
\circlearrowleft (↺)	80

\circlearrowleft (⌚)	76
\circlearrowleft (⌚)	85, 86
\circlearrowright (⌚)	74
\circlearrowright (⌚)	73
\circlearrowright (⌚)	83
\circlearrowright (⌚)	80
\circlearrowright (⌚)	76
\circlearrowright (⌚)	85, 86
\circlebottomhalfblack (◐)	145
circled M (Ⓜ)	218
circled numerals	141, 184, 185, 254
\CircledA (Ⓐ)	189
\circledast (⊛)	31
\circledast (⊛)	38
\circledast (⊛)	38
\circledast (⊛)	37
\circledast (⊛)	39
\circledast (⊛)	39
\circledbar (◑)	32
\circledbslash (◎)	32
\circledbullet (◐)	145
\circledcirc (◎)	31
\circledcirc (◎)	38
\circledcirc (◎)	38
\circledcirc (◎)	37
\circledcirc (◎)	39
\circleddash (⊖)	31
\circleddash (⊖)	38
\circleddash (⊖)	38
\circleddash (⊖)	37
\circleddash (⊖)	39
\circleddot see \odot	
\circleddotleft (←⌚)	74
\circleddotright (⌚→)	74
\CircledEq (₌)	58
\circledequal (₌)	38
\circledequal (₌)	39
\circledgtr (◎)	52
\circledless (⊖)	52
\circledminus see \ominus	
\circledotleft see \circleddotleft	
\circledotright see \circledotright	
\circledownarrow (⌚)	145
\circledparallel (ParallelGroup)	39
\circledplus see \oplus	
\circledR (Ⓡ)	16, 97
\circledR (Ⓡ)	98
\circledrightdot (⌚)	145
\circledS (Ⓢ)	97
\circledS (Ⓢ)	98
\circledslash see \oslash	
\circledstar (⊛)	145
\circledtimes see \otimes	
\circledtwodots (◎)	145
\circledvvee (⌚)	32
\circledvert (ParallelGroup)	38
\circledvert (ParallelGroup)	39
\circledwedge (Ⓐ)	32
\circledwhitebullet (◎)	145
\circlehbar (⊖)	39
\circleleft (←⌚)	74
\circlelhalfblack (◐)	145
\circlellquad (⊕)	145
\circlelrquad (⊕)	146
\circleonleftarrow (↔)	85
\circleonrightarrow (↔)	85
\circleright (⌚→)	74
\circlerighthalfblack (◐)	146
circles	129, 144–150, 184, 185, 202, 236–237, 242, 252–253
\CircleShadow (○)	147
\CircleSolid (●)	147
\circlclet (⌚)	148
\circlcletcross (⊗)	148
\circlcletdot (⌚)	148
\circlcletfill (◐)	148
\circlcletfillha (◐)	148
\circlcletfillhb (◐)	148
\circlcetfillhl (◐)	148
\circlcetfillhr (◐)	148
\circlcetlineh (⊖)	148
\circlcetlinev (⊕)	148
\circlcetlinevh (⊕)	148
\circlcetophalfblack (◐)	146
\circleulquad (⊕)	146
\circleurquad (⌚)	146
\circleurquadblack (⌚)	146
\circclevertfill (☷)	146
\Circpipe (○)	132
\circcpplus (‡)	32
\circcpplus (‡)	34
\Circsteel (●)	132
circumflex (‸) see accents	
\circcumflexus (‸)	24
circus tent (🎪)	218
\cirE (𝕆)	146
\cirfnint (ƒ)	49
\cirfnint (ƒ)	47
\cirfnintsl (ƒ)	48
\cirfnintup (ƒ)	48
\cirmid (՞)	90
\cirmid (՞)	59
\cirscir (○)	146
cityscape (🌆)	218
cityscape at dusk (🌆)	218
\cja (Յ)	156
\cjo (Վ)	156
\cka (↑)	156
\cke (‸)	156
\cki (՚)	156
\cko (՛)	156
\cku (՞)	156
CL button (🆑)	218
\cla (Վ)	156
clamp (ܼ)	218
clapper board (ܼ)	218
clapping hands (ܼ)	218
classical building (🏛)	218
\cle (ܸ)	156
\CleaningA (ܵ)	189
\CleaningF (ܵ)	189
\CleaningFF (ܵ)	189
\CleaningP (ܵ)	189
\CleaningPP (ܵ)	189
\clefc (ܶ)	166
\clefcInline	166
\cleff (ܶ)	166
\clefFInline	166
\clefG (ܶ)	166
\clefGInline	166
clefs	162–163, 166, 171, 227
\Cli (≤)	156
\clickb (⌚)	20
\clickc (⌚)	20
\clickt (⌚)	20
clinking beer mugs (🍺)	193
clinking glasses (🍺)	193
clipboard (📋)	218
\Clo (+)	156
clock (package)	191, 276, 277
\clock (⌚)	186
\clock (⌚⌚)	191
clock symbols	186, 189–191, 227
\ClockFramefalse	191
\ClockFrametrue	191
\ClockLogo (⌚)	189
\ClockStyle	191
\clocktime	191
clockwise vertical arrows (ܵ)	218
closed book (📕)	218
closed mailbox with lowered flag (ܹ)	218
closed mailbox with raised flag (ܹ)	218
closed umbrella (ܹ)	218
\closedcurlyvee (߻)	33
\closedcurlywedge (߳)	33
\closeddequal (₌)	54
\closedniomega (ߴ)	20
\closedprec (≺)	54
\closedrevepsilon (߱)	20
\closedsucceq (≻)	54
\closedvarcap (߱)	35
\closedvarcup (߱)	35
\closedvarcupsmashprod (߱)	35
\closure (ܽ)	106
\closure (ܼ)	56, 91
\closure (ܷ)	59
\Cloud (ܲ)	190
cloud (ܲ)	190
cloud with lightning (ܲ)	190
cloud with lightning and rain (ܲ)	190
cloud with rain (ܲ)	190
cloud with snow (ܲ)	190
clouds	39

clovers	142
clown face (🤡)	218
\Clu (⌚)	156
club suit (♣)	179
clubs	150, 179, 180
\clubsuit (♣)	179
clutch bag (:green)	218
\Cma (Ⓜ)	156
\Cme (Ⓜ)	156
\Cmi (Ⓜ)	156
cml (package)	30, 36, 51, 62, 99, 276
\Cmo (Ⓜ)	156
cmr (emf package option)	127
\Cmu (Ⓜ)	156
cmupint (package)	49, 50, 276, 277
\Cna (Ⓣ)	156
\Cne (ⓘ)	156
\Cni (⤒)	156
\Cno (⤓)	156
\Cnu (⤔)	156
\CO (⌚)	130
\Co (Ⓜ)	156
\coAsterisk (*)	32
\coAsterisk (*)	34
\coasterisk (*)	32
coat (👤)	218
cockroach (🕷)	192
cocktail glass (🍹)	193
coconut (🥥)	193
\Coda (⧉)	162
\coda (⧉)	162
code page 1252	272
table	274
code page 437	131, 198, 271
\Coffeecup (☕)	189, 213
coffin (⚰)	218
\coh (⌚)	62
coin (💰)	218
coins, ancient	27
cold face (🥶)	218
collision (💥)	218
\Colon (:)	116
\Colon (:)	116
\colon	115
\colon	115
\colon	116
\colon	116
\Colonapprox (≈)	52
\Colonapprox (≈)	60
\colonapprox (≈)	62
\colonapprox (≈)	60
\colonapprox (≈)	52
\coloncolon (::)	62
\coloncolonapprox (≈)	62
\coloncolonequals (==)	62
\coloncolonminus (−)	62
\coloncolonsim (≈)	62
\Coloneq (:=)	52
\Coloneq (:=)	60
\Coloneq (==)	59
\coloneq (≈)	30, 53
\coloneq (−)	60
\coloneq (≈)	52
\coloneq (≈)	56
\coloneq (≈)	54
\coloneq (≈)	59
\Coloneqq (==)	52
\Coloneqq (==)	60
\coloneqq (≈)	60
\coloneqq (≈)	30, 52
\coloneqq (≈)	56
colonequals (package)	30, 62, 276, 277
\colonequals (≈)	30, 62
\colonminus (−)	62
\Colonsim (≈)	52
\Colonsim (≈)	60
\colonsim (≈)	62
\colonsim (≈)	60
\colonsim (≈)	52
combebelow (package)	25, 276, 277
combinatorial logic gates	131
comet (☄)	218
comma-below accent (՞)	see accents
\commaminus (⊖)	35
communication symbols	131
commutative diagrams	263
\comp{text}{tex} (newsgroup)	14, 30, 31, 259–265
compass	236–237
compass (🧭)	218
\compensation (☠)	183
\complement (⌚)	97
\complement (⌚)	97
\complement (⌚)	98
\complement (⌚)	98
\complement (⌚)	45
\complement (⌚)	98
complete shuffle product (≀)	36
\COMPLEX (⌚)	93
\Complex (⌚)	93
complex numbers (⌚)	see alphabets, math
composed accents	21
Comprehensive T _E X Archive Network	1, 13, 108, 125, 131, 256, 272, 275, 276
computer (💻)	218
computer disk (💻)	218
computer hardware symbols	130, 214–226, 228–231
computer keys	130
Computer Modern (font)	88, 256, 258, 271
computer mouse (🖱)	218
computer symbols	231–234
\ComputerMouse (🖱)	130
\concavediamond (◊)	39
\concavediamondtickleleft (◊)	39
\concavediamondtickright (◊)	39
\Conclusion (⇒)	117
\conductivity (🌡)	134
confetti ball (🎉)	218
confounded face (Ｚ)	218
confused face (Ｚ)	218
\cong (≈)	51
\cong (≈)	58
\cong (≈)	56
\cong (≈)	54
\cong (≈)	59
\congdot (≈)	59
\Congruent (≡)	117
congruent	see \equiv
\conictaper (►)	122
\conjquant (ℳ)	46
\conjquant (ℳ)	47
\Conjunction (⌿)	129
\conjunction (⌿)	127
conjunction, logical	see \wedge and \&
consequence relations	61
construction (🚧)	187
construction worker (👷)	218
contradiction symbols	30, 91
control characters	131
control knobs (🎛)	218
\Conv (Conv)	93
convenience store (🏪)	218
converse implication	see \leftarrow and \subset
converse nonimplication	see \leftarrow and \nsubset
\convolution (*)	32
\convolution (*)	34
cook (👩)	218
cooked rice (🍚)	193
\cooker (🍳)	211
cookie (🍪)	193
cooking (🍳)	193
cooking symbols	211, 231–234
cookingsymbols (package)	211, 276, 277
COOL button (🆒)	218
\Cooley (♾)	212
\Coppa (Ϙ)	157
\coppa (ϙ)	157
\coprod (⅀)	30, 41
\coprod (⅀)	46
\coprod (⅀)	45
\coprod (⅀)	47
copyright	15, 16, 27, 28, 273
\copyright (©)	16
\copyright (©)	16
copyright (©)	218

\corner (⊸)	25	\Cross (†)	139
corners, box	198	\Cross (×)	146
\corona (⤠)	196	\Cross (⤡)	147
\coronainv (⤢)	196	\Cross († vs. † vs. ×)	257
\Corresponds (≡)	117	\cross (★)	160
\corresponds (△)	53	cross mark (✗)	218
\corresponds (△)	58	cross mark button (☒)	218
\cos (cos)	92, 269	cross ratio ... <i>see</i> \textrecipie	
\cosh (cosh)	92	\crossb (⤠)	20
\cot (cot)	92	\CrossBoldOutline (†)	139
\coth (coth)	92	\CrossClowerTips (⤣)	139
couch and lamp (🛋)	218	\crossd (⤤)	20
counterclockwise arrows button (⟳)	218	crossed fingers (👉)	219
\counterplay (⤤)	183	crossed flags (🎌)	219
counties	204	crossed swords (⚔)	219
Romanian	204	\CrossedBox (☒)	140
countries	202	\CrossedBox (☒)	140
European	202	\Crossedbox (☒)	140
countriesofeurope (package)	202, 276, 277	crosses	139, 140, 149, 172–176,
\countriesofeuropefamily ..	204	184, 185, 189, 236–237	
couple with heart (❤)	218	\crossh (⤠)	20
couplekiss (🥰)	218	\crossing (⤥)	56
Courier (font)	26	\CrossMaltese (‡)	139
\Cov (Cov)	93	\crossnilambda (⤧)	20
\cov (cov)	93	\CrossOpenShadow (†)	139
\covbond (⤦)	134	\CrossOutline (†)	139
cow face (🐮)	192	crotchet <i>see</i> musical symbols	
cow2 (🐮)	192	\crotchet (♪)	165
cowboy hat	108	\crotchetDotted (♪.)	165
cowboy hat face (🐮)	218	\crotchetDottedDouble (♪..)	165
CP1252 ... <i>see</i> code page 1252		\crotchetDottedDoubleDown (♪..)	165
CP437 ... <i>see</i> code page 437		\crotchetDottedDown (♪)	165
\Cpa (†)	156	\crotchetDown (♪)	165
\Cpe (⤤)	156	\crotchetRest (⤤)	166
\Cpi (⤤)	156	\crotchetRestDotted (⤤.)	166
\Cpo (⤤)	156	crown	108
\Cpu (⤤)	156	crown (👑)	219
\CR (⌚)	130, 131	\crtilde (⤤)	23
\cr	261	\cru ()()	156
\Cra (⤤)	156	crucifixes	139, 140, 189,
crab (🦀)	192	236–237	
crayon (🖍)	218	\Crux (†)	106
\Cre (⤤)	156	\crux (†)	106
Creative Commons licenses	27, 28	crying cat (😿)	219
credit card (💳)	218	crying face (😢)	219
crescent (fge package option) ..	107	cryst (package)	252, 276
crescent moon (🌙)	200	crystal ball (🔮)	219
\creschAirpin (⤤)	167	crystallography symbols	252–253
\Cri (⤤)	156	\CS (⤤)	130
cricket (🏏)	192	\Csa (⤤)	156
cricket game (🏏)	218	\csc (csc)	92
\Cro (⤤)	156	\csch (csch)	93
\Croatia (⤤)	203	\Cse (⤤)	156
crocodile (🐊)	192	\cshuffle (⤤)	36
croissant (🥐)	193	\Csi (⤤)	156
\Cross (†)	189	\Cso (⤤)	156
		\Csu (⤤)	156
		\csub (⤤)	65
		\csube (⤤)	65
		\csup (⤤)	65
		\csupe (⤤)	65
		\Cta (⤤)	156
		CTAN <i>see</i> Comprehensive TeX Archive Network	
		\Cte (⤤)	156
		\Cti (⤤)	156
		\Cto (⤤)	156
		\Ctrl (⤤)	130
		\Ctu (⤤)	156
		\Cu (⤤)	156
		\Cube (⤤)	181, 259
		cube root ... <i>see</i> \sqrt	
		cube rotations	235
		cucumber (🥒)	194
		\Cup (⤤)	31
		\Cup (⤤)	34
		\Cup (⤤)	34
		\Cup (⤤)	33
		\Cup (⤤)	35
		\cup (⤤)	32
		\cup (⤤)	31, 260, 269
		\cup (⤤)	34
		\cup (⤤)	33
		\cup (⤤)	33
		\cup (⤤)	35
		cup with straw (🥤)	194
		\cupbarcap (⤤)	35
		cupcake (🧁)	194
		\cupdot (⤤)	33
		\cupdot (⤤)	33
		\cupdot (⤤)	35
		\Cupido (ƙ)	129
		\cupleftarrow (⤤)	34, 83
		\cupleftarrow (⤤)	35
		\cupovercap (⤤)	35
		\cupplus (⤤)	33, 34
		\cupplus (⤤)	33
		\cupvee (⤤)	35
		\curl (curl)	93
		curling stone (🎳)	219
		curly hair (CURLY HAIR)	219
		curly loop (⌚)	219
		\curlyc (ԑ)	20
		\curlyeqprec (≪)	53
		\curlyeqprec (≪)	51
		\curlyeqprec (≪)	58
		\curlyeqprec (≪)	56
		\curlyeqprec (≪)	54
		\curlyeqprec (≪)	59
		\curlyeqsucc (≫)	53
		\curlyeqsucc (≫)	51
		\curlyeqsucc (≫)	58
		\curlyeqsucc (≫)	56
		\curlyeqsucc (≫)	54
		\curlyeqsucc (≫)	59
		\curlyesh (ſ)	20
		\curlyvee (⤤)	32

\DavidStar (\diamondsuit)	142
\DavidStarSolid (\star)	142
\dBar ()	196
\dbar (\bar{d})	260
\dbend ($\hat{\zeta}$)	188
\dbkarow (→)	85, 86
dblaccnt (package)	264
\dblcolon (::)	60
\DCa (⌚)	131
\DCb (⌚)	131
\DCc (!!)	131
\dcChangey (☺)	212
\DCd (₩)	131
\dChangey (☺)	212
\dCooley (☺)	212
\DD (‘)	130, 163
\ddag (‡)	16, 274
\ddag (‡)	16
\ddagger (‡)	31
\ddagger (‡)	34
\ddagger (‡)	35
\ddashint (ƒ)	262
\Ddashv (≡)	56
\dddot (■)	107
\dddot (■)	106
\ddot (■)	107
\ddot (■)	106
\ddotstile (■)	61
\ddigamma (Ϝ)	157
\DDohne (ܦ)	163
\ddot (■)	107
\ddot (■)	106
\ddotdot (·)	33, 116
\ddotdot (·)	33, 116
\ddots (‘·)	116
\ddots (‘·)	115, 263, 264
\ddots (‘·)	116
\ddots (‘·)	116
\ddots (‘·)	116
\dotseq (≡)	59
\Downarrow (⤒)	85
\Downarrow (⤒)	103
\Downarrow (⤒)	79
\Downarrow (⤒)	85
\Downarrow (⤒)	103
\dotstile (■)	61
\dotstile (■)	61
\dotstile (■)	61
\DE (⊥)	130
deaf man (👤)	219
deaf person (👤)	219
deaf woman (👤)	219
deciduous tree (🌳)	219
\DeclareFontFamily	255, 268
\DeclareFontShape	255, 268
\DeclareMathOperator	269
\DeclareMathOperator*	269
\declaresashed	261
\DeclareUnicodeCharacter ..	274
\decofourleft (⌚)	143
\decofourright (⌚)	143
\decoone (☒)	143
decorative borders	241–247
\decosix (❖)	143
\decothreeleft (⌚)	143
\decothreeleft (⌚)	143
\decotwo (❖)	143
\decreschairpin (⇒)	167
Dedekind, Richard	259
deer (🦌)	192
definite-description operator (℩)	259
definition symbols	30, 264
\deg (deg)	92
\degree (◦)	120
\degree (°)	126
degrees	<i>see</i> \textdegree
\DEL (Δ)	131
\DEL (Δ)	131
\Del (Delete)	130
\Del (Delete)	130
\Deleatur	<i>see</i> \Denarius
delimiters	99–106
	text-mode
	variable-sized
	wavy-line
\demisemiquaver (♪)	165
\demisemiquaverDotted (♪)	165
\demisemiquaverDottedDouble (♪)	165
\demisemiquaverDottedDoubleDown (♪)	165
\demisemiquaverDottedDown (♪)	165
\demisemiquaverDown (♪)	165
\Denarius (₪)	26
\denarius (☒)	27
\Denmark (DK)	203
\dental (🦷)	23
\Dep (✖)	162
department store (🏬)	219
derelict house (🏚)	219
derivative, partial	<i>see</i> \partial
Descartes's equal sign (∞)	...
	<i>see</i> \rightpropto and \backpropto
\descnode (⦿)	127
desert (🏜)	219
desert island (🏝)	219
desktop computer (💻)	219
\det (det)	92
detective (🕵)	219
\devadvantage (₵)	183
\Dfourier (⌚)	62
\Dfourier (⌚)	58
\dfourier (⌚)	62
\dfourier (⌚)	58
\DFT (FFT)	113
\dft (FFT)	113
\DH (D)	20
\DH (D)	16, 273
\dh (ð)	20
\dh (ð)	16, 273
diacritics	<i>see</i> accents
\diaeresis (ü)	24
diæresis (ü)	<i>see</i> accents
\diagdown (╲)	120
\diagdown (╲)	120
\diagdown (╲)	121
\diagdown (╲)	54
\diagdown (╲)	122
\diagonal (↗)	183
\diagup (↗)	120
\diagup (↗)	120
\diagup (↗)	121
\diagup (↗)	54
\diagup (↗)	122
\diameter (Ø)	120
\diameter (Ø)	30
\diameter (Ø)	121
\diameter (Ø)	120
\diameter (ø)	122
\diameter (ø)	186
\Diamond (◊)	119
\Diamond (◊)	120
\Diamond (◊)	38
\Diamond (◊)	37
\Diamond (◊)	146
\diamond (◊)	31
\diamond (◊)	38, 145
\diamond (◊)	38
\diamond (◊)	37
\diamond (◊)	39, 146
diamond suit (♦)	179
diamond with a dot (◆)	219
\diamondbackslash (◊)	37
\diamondbar (◊)	37
\Diamondblack (◆)	120
\Diamondbotblack (◆)	146
\diamondbslash (◊)	38
\diamondcdot (◊)	38
\diamondcdot (◊)	146
\diamondcircle (◊)	38
\diamonddiamond (◊)	37
\diamonddiamond (◊)	37
\Diamonddot (◊)	120
\Diamonddot (◊)	37
\Diamonddot (◊)	37
\DiamonddotLeft (↔)	74
\DiamonddotLeft (↔)	74
\DiamonddotRight (↔)	74
\DiamonddotRight (↔)	74

\diamondddots (⋮)	33, 116	\ding{17}, 135, 137–142, 147,	142
\DiamondLeft (↔)	74	\ding{150}	142
\Diamondleft (↔)	74	\ding{133} (⤓)	137
\diamondleftarrow (←)	85	\ding{134} (⤔)	137
\diamondleftarrowbar (←)	85	\ding{135} (⤕)	137
\diamondleftblack (◆)	146	\ding{136} (⤖)	137
\diamondminus (⊖)	38	\ding{137} (⤗)	150
\diamondminus (⊖)	37	\ding{138} (⤘)	150
\diamondminus (⊖)	37	\ding{139} (⤙)	150
\diamondop (◊)	38	\ding{140} (⤚)	150
\diamondplus (⊕)	38	\ding{141} (⤛)	150
\diamondplus (⊕)	37	\ding{142} (⤜)	138
\diamondplus (⊕)	37	\ding{143} (⤝)	138
\DiamondRight (↔)	74	\ding{144} (⤞)	138
\Diamondright (↔)	74	\ding{145} (⤟)	138
\diamondrightblack (◆)	146	\ding{146} (⤠)	138
diamonds	see rhombuses	\ding{147} (⤡)	138
\DiamondShadowA (◇)	147	\ding{148} (⤢)	138
\DiamondShadowB (◇)	147	\ding{149} (⤣)	138
\DiamondShadowC (◇)	147	\ding{150} (⤤)	138
\Diamondshape (◊)	147	\ding{151} (⤥)	140
\diamondslash (◊)	37	\ding{152} (⤦)	140
\diamondslash (◊)	37	\ding{153} (⤧)	140
\DiamondSolid (◆)	147	\ding{154} (⤨)	140
\diamondsuit (◊)	179	\ding{155} (⤩)	140
\diamondsuit (◊)	179	\ding{156} (⤪)	140
\diamondsuit (◊)	179	\ding{157} (⤫)	139
\diamondsuit (◊)	179	\ding{158} (⤬)	139
\diamondsuit (◊)	179	\ding{159} (⤭)	139
\diamondsuit (◊)	179	\ding{160} (⤮)	139
\diamondtimes (❖)	38	\ding{161} (⤯)	139
\diamondtimes (❖)	37	\ding{162} (⤰)	139
\diamondtimes (❖)	37	\ding{163} (⤱)	139
\diamondtopblack (◆)	146	\ding{164} (⤲)	139
\diamondtriangle (◊)	38	\ding{165} (⤳)	142
\diamondvert (◊)	37	\ding{166} (⤴)	142
\diamondvert (◊)	37	\ding{167} (⤵)	142
\diatop	25, 264	\ding{168} (⤶)	142
\diaunder	25, 264	\ding{169} (⤷)	142
dice	180, 181, 253, 259	\ding{170} (⤸)	142
3D	181, 253	\ding{171} (⤹)	142
dice (package)	253, 276	\ding{172} (⤺)	142
\dicei (▣)	181	\ding{173} (⤻)	142
\diceii (▣)	181	\ding{174} (⤼)	142
\diceiii (▣)	181	\ding{175} (⤽)	142
\diceiv (▣)	181	\ding{176} (⤾)	142
\dicev (▣)	181	\ding{177} (⤿)	142
\dicevi (▣)	181	\ding{178} (⤿)	142
dictionary symbols	18–21, 197	\ding{179} (⤿)	142
\dictsym (package)	197, 276, 277	\ding{180} (⤿)	142
died	see \textdied	\ding{181} (⤿)	142
differential, inexact	see \dbar	\ding{182} (⤿)	142
\Digamma (F)	157	\ding{183} (⤿)	142
\Digamma (F)	157	\ding{184} (⤿)	142
\digamma (F)	94, 157	\ding{185} (⤿)	142
\digamma (F)	157	\ding{186} (⤿)	142
\digamma (F)	98	\ding{187} (⤿)	142
\digamma (F)	157	\ding{188} (⤿)	142
digital logic gates	131	\ding{189} (⤿)	142
digits	see numerals	\ding{190} (⤿)	142
\dim (dim)	92		
dim button (✿)	219		

\ding{191} (⌚)	141	\dingasterisk (*)	122
\ding{192} (⌚)	141	dingautolist	141
\ding{193} (⌚)	141	dingbat (package)	137, 138, 149, 244, 257, 276, 277
\ding{194} (⌚)	141	dingbat symbols	135–150
\ding{195} (⌚)	141	\dInnocey (⌚)	212
\ding{196} (⌚)	141	\Diple (>)	196
\ding{197} (⌚)	141	\dipole (>)	196
\ding{198} (⌚)	141	\Diple* (>)	196
\ding{199} (⌚)	141	\dipole* (>)	196
\ding{200} (⌚)	141	\dipole (&)	134
\ding{201} (⌚)	141	Dirac notation	100
\ding{202} (⌚)	141	\Direct (⌚)	129
\ding{203} (⌚)	141	disappointed face (⌚)	219
\ding{204} (⌚)	141	discount . <i>see</i> \textdiscount	
\ding{205} (⌚)	141	discretionary hyphen	272
\ding{206} (⌚)	141	disguised face (⌚)	219
\ding{207} (⌚)	141	\Dish (⌚)	211
\ding{208} (⌚)	141	\disin (€)	58
\ding{209} (⌚)	141	\disin (€)	59
\ding{210} (⌚)	141	disjoint union	30
\ding{211} (⌚)	141	\disjquant (₩)	46
\ding{212} (⌚)	135	\disjquant (₩)	47
\ding{213} (⌚)	135	disjunction . <i>see</i> \vee	
\ding{214} (⌚)	135	\displaystyle	262, 263, 265, 269
\ding{215} (⌚)	135	ditto marks <i>see</i> \textquotedbl	
\ding{216} (⌚)	135	\div (÷)	31
\ding{217} (⌚)	135	\div (÷)	34
\ding{218} (⌚)	135	\div (÷)	33
\ding{219} (⌚)	135	\div (÷)	33
\ding{220} (⌚)	135	\div (÷)	35
\ding{221} (⌚)	135	\divdot (÷)	32
\ding{222} (⌚)	135	\divg (div)	93
\ding{223} (⌚)	135	divide (÷)	219
\ding{224} (⌚)	135	\divideontimes (*)	32
\ding{225} (⌚)	135	\divideontimes (*)	31
\ding{226} (⌚)	135	\divideontimes (*)	34
\ding{227} (⌚)	135	\divideontimes (*)	33
\ding{228} (⌚)	135	\divideontimes (*)	35
\ding{229} (⌚)	135	\Divides (÷)	117
\ding{230} (⌚)	135	\Divides ()	53
\ding{231} (⌚)	135	\Divides (÷)	54
\ding{232} (⌚)	135	\DividesNot (✗)	117
\ding{233} (⌚)	135	diving mask (⌚)	219
\ding{234} (⌚)	135	division	31, 108, 110, 115 long
\ding{235} (⌚)	135	non-commutative	115
\ding{236} (⌚)	135	polynomial	108
\ding{237} (⌚)	135	division times	<i>see</i> \divideontimes
\ding{238} (⌚)	135	divorced . <i>see</i> \textdivorced	
\ding{239} (⌚)	135	\divslash (/)	33
\ding{240} (⌚)	135	diya lamp (⌚)	219
\ding{241} (⌚)	135	dizzy (⌚)	219
\ding{242} (⌚)	135	\DJ (⌚)	16
\ding{243} (⌚)	135	\dj (đ)	16
\ding{244} (⌚)	135	\DL (₩)	130
\ding{245} (⌚)	135	\dLaughey (⌚)	212
\ding{246} (⌚)	135	\dlbari (ି)	20
\ding{247} (⌚)	135	\DLE (►)	131
\ding{248} (⌚)	135	\dlsh (↔)	74
\ding{249} (⌚)	135	\dlsh (↔)	83
\ding{250} (⌚)	135		
\ding{251} (⌚)	135		
\ding{252} (⌚)	135		
\ding{253} (⌚)	135		
\ding{254} (⌚)	135		
		\DM (◊)	130
		\Dmesonminus (D ⁻)	134
		\Dmesonnull (D ⁰)	134
		\Dmesonplus (D ⁺)	134
		dna (⌚)	219
		\dnDtstile (⌚)	61
		\dNeutrey (⌚)	212
		\dNinja (⌚)	212
		\dnStstile (⌚)	61
		\dnTstile (⌚)	61
		\dnTtstile (⌚)	61
		\dNursey (⌚)	212
		do not enter	<i>see</i> \noway
		dodo (⌚)	192
		does not divide	<i>see</i> \nmid
		does not exist	<i>see</i> \nexists
		does not imply	261
		dog face (⌚)	192
		dog2 (⌚)	192
		\Dohne (⌚)	163
		Dohse, Max	262
		dollar . <i>see</i> \textdollar	
		dollar banknote (₪)	219
		dollar sign <i>see</i> \\$	
		dolphin (⌚)	192
		dominance <i>see</i> \prec	
		negative <i>see</i> \nprec	
		negative weak <i>see</i>	
		\npreccurlyeq	
		strict <i>see</i> \Prec	
		weak <i>see</i> \preccurlyeq	
		domino tiles	181–182
		\Dontwash (⌚)	189
		door (ଡ)	219
		\dot (⌚)	107
		\dot (⌚)	106
		\dot (·)	160
		dot accent (ି or ି) <i>see</i> accents	
		dot symbols	15, 115–117, 263–264
		DotArrow (package)	. 113, 276, 277
		\dotarrow (→)	113
		\dotcong (≈)	56
		\dotcup (∪)	30, 260
		\dotdiv (÷)	32
		\Doteq <i>see</i> \doteqdot	
		\Doteq (÷)	56
		\Doteq (÷)	54
		\Doteq (÷)	59, 60
		\doteq (≈)	51
		\doteq (≈)	58
		\doteq (≈)	56
		\doteq (≈)	54
		\doteq (≈)	54
		\doteq (≈)	59
		\doteqdot (÷)	51
		\doteqdot (÷)	58
		\doteqdot (÷)	56
		\doteqdot (÷)	56
		\doteqdot (÷)	54
		\doteqdot (÷)	54
		\dotequiv (≈)	59

dotless <i>j</i> (j)	
text mode	21
dotless <i>i</i> (i)	
math mode	106, 119
text mode	21
dotless <i>j</i> (j)	
math mode	106, 119
\dotmedvert (·)	33
\dotminus (⊖)	58
\dotminus (⊖)	33
\dotminus (⊖)	33
\dotminus (⊖)	33
\dotminus (⊖)	35
\dotplus (⊕)	32
\dotplus (⊕)	31
\dotplus (⊕)	34
\dotplus (⊕)	34
\dotplus (⊕)	35
\dots	16
\dots (...)	274
dots (ellipses)	15, 16, 115–117, 119, 263–264
\dotsb (...)	115
\dotsb (...)	116
\dotsc (...)	115
\dotseq (÷)	53
\dotsi (...)	115
\dotsim (˜)	58
\dotsim (˜)	59
\dotsint (ʃ⋯ʃ)	44
\dotsint (ʃ⋯ʃ)	46
\dotsm (...)	115
\dotsm (...)	116
\dotsminusdots (⋮)	56
\dotsminusdots (⋮)	59
\dotso (...)	115
dotted arrows	113
dotted six-pointed star (▣)	219
dotted union (∪)	269
\dottedcircle (○)	146
\dottedsquare (□)	146
\dottedtilde (˜)	23
\dottimes (×)	32
\dottimes (×)	34
\dottimes (×)	34
\dottimes (×)	35
\double	105
double acute (ˇ) . <i>see</i> accents	
double curly loop (œ)	219
double exclamation mark (!!) .	
...	219
\doublebar (⋮)	160
\doublebarint (ſ)	49
\doublebarvee (˥)	35
\doublebarwedge (˥)	32
\doublebarwedge (˥)	31
\doublebarwedge (˥)	34
\doublebarwedge (˥)	34
\doublebarwedge (˥)	35
\doublecap . <i>see</i> \Cap	
\doublecap (Ⓜ)	32
\doublecap (Ⓜ)	34
\doublecap (Ⓜ)	33
\doublecap (Ⓜ)	35
\doublecovbond (⤱)	134
\doublecross (⤲)	160
\doublecup . <i>see</i> \Cup	
\doublecup (⤳)	32
\doublecup (⤳)	34
\doublecup (⤳)	33
\doublecup (⤳)	35
\doublecurlyvee (⤴)	33
\doublecurlywedge (⤵)	33
\doubledot (⠚)	160
\doubleeye (⠚)	160
\doublefrown (⤶)	90
\doublefrownEQ (⤷)	90
\doublepawns (⤸)	183
\doubleplus (⠚)	160
\doubleplus (⠚)	35
\doublesharp (⤵)	166
\doublesmile (⤴)	90
\doublesmileEQ (⤷)	90
\doublesqcap (⤹)	34
\doublesqcap (⤹)	33
\doublesqcup (⤻)	33, 34
\doublesqcup (⤻)	32
\doublestar (⠚)	160
\doublethumb (⤵)	162
\doubletilde (˜)	23
\doublevee (⤴)	33, 34
\doublevee (⤴)	32
\doublewedge (⤵)	33, 34
\doublewedge (⤵)	32
doughnut (🍩)	194
dove (🕊)	219
down arrow (⬇)	219
down-left arrow (⤤)	219
down-right arrow (⤥)	219
\Downarrow (⤷)	186
\Downarrow (⤷)	73, 100
\Downarrow (⤷)	79
\Downarrow (⤷)	102
\Downarrow (⤷)	75
\Downarrow (⤷)	85
\Downarrow (⤷)	104
\downarrow .	269
\downarrow (↓)	73, 100
↓	
\downarrow (↓)	102
\downarrow (↓)	79
\downarrow (↓)	75
\downarrow (↓)	88
\downarrow (↓)	104
\downarrow (↓)	85
\downarrowbar (↓)	85
\downarrowbarred (⠚)	85
\downarrowtail (⤤)	79
\downarrowtail (⤤)	75
\downAssert (⤰)	56
\downassert (⤰)	56
\downbkarrow (⤤)	79
\downblackarrow (⤤)	83
\downblackspoon (⤤)	90
\downbow (⤰)	162
\downbracketfill .	265
downcast face with sweat (ocrine)	
...	219
\downdasharrow (⤧)	83
\downdasharrow (⤨)	85
\downdownarrows (⤪)	74
\downdownarrows (⤪)	73
\downdownarrows (⤪)	83
\downdownarrows (⤪)	79
\downdownarrows (⤪)	75
\downdownarrows (⤪)	85
\downdownharpoons (⤪)	75
Downes, Michael J.	92, 278
\downfilledspoon (⤤)	89
\downfishtail (⤤)	59
\downfootline (⤤)	54
\downfree (⤤)	54
\downharpoonccw (⤤)	78
\downharpooncw (⤤)	78
\downharpoonleft (⤤)	75
\downharpoonleft (⤤)	73
\downharpoonleft (⤤)	84
\downharpoonleft (⤤)	82
\downharpoonleft (⤤)	87
\downharpoonleftbar (⤤)	87
\downharpoonright (⤤)	75
\downharpoonright (⤤)	73
\downharpoonright (⤤)	84
\downharpoonright (⤤)	82
\downharpoonright (⤤)	87
\downharpoonrightbar (⤤)	87
\downharpoonsleftright (⤪)	
...	87
\downint (⤤)	49
\downlcurvearrow (⤤)	80
\downleftcurvedarrow (⤤)	80
\downlsquigarrow (⤤)	80
\downlsquigarrow (⤤)	75
\Downmapsto (⤰)	79
\downmapsto (⤤)	79
\downmapsto (⤤)	75
\downModels (⤰)	54
\downmodels (⤰)	56
\downmodels (⤰)	54
\downp (⠚)	25
\downparenthfill .	265
\downpitchfork (Ѱ)	91
\downpitchfork (Ѱ)	89
\downproto (⤤)	54
\downrcurvearrow (⤤)	80
\downrightcurvedarrow (⤤)	
...	80
\downrightcurvedarrow (⤤)	
...	85
\downrsquigarrow (⤤)	80
\downrsquigarrow (⤤)	75
\downslice (⤤)	37
\downspoon (⤤)	90
\downspoon (⤤)	89
\downt (⤤)	25
\downtherefore (⠚)	116
\downtherefore (⠚)	32, 116
\downtouparrow (⤤)	74

\ell (ℓ)	98
\Ellipse (○)	147
ellipses (dots)	15, 16, 115–117, 119, 263–264
ellipses (ovals)	147, 172–176, 236–237, 242, 252–253
\EllipseShadow (○)	147
\EllipseSolid (●)	147
\elsdot (≪)	69
\EM (↑)	131
\Email (✉)	131
\EmailCT (✉)	131
emf (package)	127, 276, 277
\emf (ℰ)	127
\emptyset (∅)	119
\emptyset (∅)	121
\emptysetset (∅)	120
\emptysetset (∅)	118
\emptysetsetoarr (∅)	118
\emptysetsetoarrl (∅)	118
\emptysetsetobar (∅)	118
\emptysetsetocirc (∅)	118
\EN (τ)	130
\enclosecircle (○)	145
\closediamond (◇)	145
\closesquare (□)	145
\enclosetriangle (△)	145
\End (End)	93
\End ([End])	130
END arrow (END)	220
end of proof	119, 122
\ending (⊥)	183
endofproofwd (package)	122, 276
\eng (ȝ)	20
engineering symbols	122, 126, 132
\engma (ȝ)	20
\enleadertwodots (..)	116
\ENQ (♣)	131
entails	<i>see \models</i>
\Enter ([Enter])	130
enter ... 130, <i>see also</i> carriage return	
enumerate	195
\Envelope (✉)	149
envelope (✉)	220
envelope with arrow (✉)	220
envelopes .	149, 201, 228–231
\enya (jn)	20
\EOafter (✉)	157
\EOandThen (✉)	157
\EOAppear (✉)	157
\EOBeardMask (✉)	157
\EOBedeck (✉)	157
\EOBlood (✉)	158
\EOBrace (✉)	158
\EObuilding (✉)	158
\EOBundle (✉)	158
\EOChop (✉)	158
\EOChronI (✉)	158
\EOCloth (✉)	158
\EODealWith (✉)	158
\EODeer (✉)	158
\EOeat (✉)	158
\EOflint (✉)	158
\EOflower (✉)	158
\EOFold (✉)	158
\EOGod (✉)	158
\EOGoUp (✉)	158
\EOgovernor (✉)	158
\EOguise (✉)	158
\EOHallow (✉)	158
\EOi (°)	159
\EOii (◦)	159
\EOiii (◦◦)	159
\EOiv (◦◦◦)	159
\EOix (◦◦◦◦)	159
\EOja (✉)	158
\EOjaguar (✉)	158
\EOje (✉)	158
\EOJI (✉)	158
\EOji (✉)	158
\EOjo (✉)	158
\EOju (✉)	158
\EOkak (✉)	158
\EOke (✉)	158
\EOki (✉)	158
\EOkij (✉)	158
\EOKing (✉)	158
\EOknottedCloth (✉)	158
\EOknottedClothStraps (✉)	159
\EOko (✉)	159
\EOku (✉)	159
\EOkuu (✉)	159
\EOLetBlood (✉)	159
\EOloinCloth (✉)	159
\EOLongLipII (✉)	159
\EOLord (✉)	159
\EOLose (✉)	159
\EOMa (✉)	159
\EOMacaw (✉)	159
\EOMacawI (✉)	159
\EOme (✉)	159
\EOMexNew (✉)	159
\EOmi (✉)	159
\EOMiddle (✉)	157
\EOmonster (✉)	157
\EOMountain (✉)	157
\EOmuu (✉)	157
\EOna (✉)	157
\EOone (✉)	158
\EOni (✉)	158
\EOnow (✉)	158
\EOnu (✉)	158
\EOnuu (✉)	158
\EOofficerI (✉)	158
\EOofficerII (✉)	158
\EOofficerIII (✉)	158
\EOofficerIV (✉)	158
\EOpa (✉)	158
\EOpak (✉)	158
\EOPatron (✉)	158
\EOPatronII (✉)	158
\EOPe (✉)	158
\EOpenis (✉)	158
\EOpi (✉)	158
\EOPierce (✉)	158
\EOPPlant (✉)	158
\EOPPlay (✉)	158
\EOPo (✉)	158
\EOpriest (✉)	158
\EOPrince (✉)	158
\EOPu (✉)	158
\EOPuu (✉)	158
\EOPuuk (✉)	158
\EORain (✉)	158

\EOSa (⌚)	158
\EOsa (⌚)	158
\EOsacrifice (⌚)	158
\EOSaw (⌚)	158
\EOscorpion (⌚)	158
\EOset (⌚)	159
\EOSi (⌚)	159
\EOSi (⌚)	159
\EOSing (⌚)	159
\EOSini (⌚)	159
\EOSkin (⌚)	159
\EOSky (⌚)	159
\EOSkyAnimal (⌚)	159
\EOSkyPillar (⌚)	159
\EUsnake (⌚)	159
\EOSo (ଓ)	159
\EOSpan (ଓ)	159
\EOSprinkle (ଓ)	159
\EOstar (ଓ)	159
\EOStarWarrior (ଓ)	157
\EOstarWarrior (ଓ)	159
\EOstep (ଓ)	157
\EOSu (ଓ)	157
\EOSu (ଓ)	157
\EOSun (ଓ)	157
\EOSuu (ଓ)	158
\EOSuu (ଓ)	158
\EOT (♦)	131
\Eota (ଓ)	158
\Eote (ଓ)	158
\EOthrone (ଓ)	158
\Eoti (ଓ)	158
\EOTime (ଓ)	158
\EOTime (ଓ)	158
\EOTitle (ଓ)	158
\EOTitleII (ଓ)	158
\EOTitleIV (ଓ)	158
\Eoto (ଓ)	158
\Eotu (ଓ)	158
\Eotuki (ଓ)	158
\Eotukpa (ଓ)	158
\EOturtle (ଓ)	158
\Eotuu (ଓ)	158
\EOtza (ଓ)	158
\EOtze (ଓ)	158
\EOtzetze (ଓ)	158
\EOtzi (ଓ)	158
\EOtzu (ଓ)	158
\EOtzuu (ଓ)	158
\EOundef (ଓ)	158
\EOv (ଓ)	159
\EOvarBeardMask (ଓ)	158
\EOvarja (ଓ)	158
\EOvarji (ଓ)	158
\EOvarki (ଓ)	158
\EOvarkuu (ଓ)	158
\EOvarni (ଓ)	158
\EOvarpa (ଓ)	158
\EOvarSi (ଓ)	159
\EOvarsi (ଓ)	159
\EOvartza (ଓ)	159
\EOvarwuu (ଓ)	159
\EOvarYear (ଓ)	159
\EOvi (ଓ)	159
\EOvii (ଓ)	159
\EOviii (ଓ)	159
\EOwa (ଓ)	159
\EOwe (ଓ)	159
\EOwi (ଓ)	159
\EOwo (ଓ)	159
\EOwuu (ଓ)	159
\EOx (ଓ)	159
\EOxi (ଓ)	159
\EOxii (ଓ)	159
\EOxiii (ଓ)	159
\EOxiv (ଓ)	159
\EOxix (ଓ)	159
\EOxv (ଓ)	159
\EOxvi (ଓ)	159
\EOxvii (ଓ)	159
\EOxviii (ଓ)	159
\EOxx (ଓ)	159
\EOya (ଓ)	159
\EOyaj (ଓ)	159
\EOye (ଓ)	159
\EOYear (ଓ)	159
\EOyuu (ଓ)	159
\EOzero (ଓ)	159
\EP (€)	130
\eparsl (#)	59
Epi-Olmec script	157–159
epiolmec (package)	157, 159, 276, 277
epsdice (package)	180, 276, 277
\epsdice (ଓ)	180
\epsi (ε)	20
\Epsilon (E)	94
\epsilon (ε)	94
\epsilonpsilonup (ε)	95
\eqbump (≈)	54
\eqbumped (≈)	53
\eqbumped (≈)	58
\eqcirc (≈)	53
\eqcirc (≈)	51
\eqcirc (≈)	58
\eqcirc (≈)	56
\eqcirc (≈)	54
\eqcirc (≈)	59
\Eqcolon (=:)	52
\Eqcolon (=:)	60
\eqcolon (=:)	53
\eqcolon (=:)	60
\eqcolon (=:)	52
\eqcolon (=:)	56
\eqcolon (=:)	59
\eqdef (≡)	59
\eqdot (≈)	56
\eqdot (≈)	54
\eqdot (≈)	59
\eqcolon (=:)	60
\eqeq (==)	60
\eqeqeq (==)	60
\eqfrown (≈)	90
\egtr (≈)	69
\eqleftarrow (↔)	83
\eqless (≺)	69
\Eqcolon (=:)	52
\Eqcolon (=:)	60
\eqcolon (=:)	60
\eqcolon (=:)	52
\eqcolon (=:)	56
\eqgtr (≈)	69
\eqless (≈)	69
\eqplus (⊕)	35
\eqsim (≈)	60
\eqslantgtr (≈)	69
\eqslantless (≈)	69
\eqsim (≈)	52
\eqsim (≈)	58
\eqsim (≈)	56
\eqsim (≈)	54
\eqsim (≈)	60
\eqslantgtr (≈)	66
\eqslantgtr (≈)	65
\eqslantgtr (≈)	69
\eqslantgtr (≈)	68
\eqslantgtr (≈)	67
\eqslantgtr (≈)	69
\eqslantless (≈)	66
\eqslantless (≈)	65
\eqslantless (≈)	69
\eqslantless (≈)	68
\eqslantless (≈)	67
\eqslantless (≈)	69
\eqsmile (≈)	90
\equal (=)	56
\equal (=)	54
\equal (=)	183
\equalclosed (≈)	54

\equalleftarrow (\Leftarrow)	85	\EUR (€)	26	\fa (⌚)	231
\equalparallel (#)	58	\EURcr (€)	26	\faAdjust (⌚)	231
\equalparallel (#)	60	\EURdig (€)	26	\faAdn (Ⓐ)	231
\equalrightarrow (\Rightarrow)	85	\EURhv (€)	26	\faAlignCenter (.TextAlignment)	231
\equalscolon (=:)	62	\Euro (€)	27	\faAlignJustify (.TextAlignment)	231
\equalscoloncolon (=::)	62	\euro	27	\faAlignLeft (.TextAlignment)	231
\equalsfill	30, 264	\euro (€)	26	\faAlignRight (.TextAlignment)	231
equidecomposable	260	euro banknote (💶)	220	\faAmazon (🅰)	231
equilibrium	see \rightleftharpoons	euro signs	26, 27	\faAmbulance (🚑)	231
		blackboard bold	125	\faAnchor (⚓)	231
\Equiv (≡)	60	\eurologo (€)	27	\faAndroid (🤖)	231
\equiv (≡)	30, 51	European countries	202	\faAngellist (👤)	231
\equiv (≡)	56	eurosym (package)	27, 276, 277	\faAngleDoubleDown (❖)	231
\equiv (≡)	54	\EURtm (€)	26	\faAngleDoubleLeft (❰)	231
\equiv (≡)	60	euscript (package)	124, 276	\faAngleDoubleRight (❱)	231
\Equivalence (\Leftrightarrow)	117	evaluated at	see \vert	\faAngleDoubleUp (❖)	231
equivalence	see \equiv, \leftrightharpoonup, and \threesim	evergreen tree (🌲)	220	\faAngleDown (⌄)	231
\equivclosed (⊤)	54	evil spirits	199	\faAngleLeft (〈)	231
\equivDD (⊤)	60	\exciton ($-sh^+$)	134	\faAngleRight (〉)	231
\equivVert (#)	60	\Exclam (!!)	122	\faAngleUp (˄)	231
\equivVvert (#)	60	exclamation question mark (?)	220	\faApple (🍎)	231
\eqvparsl (#)	59	exclusive disjunction	see \nleftrightharpoonup	\faArchive (📁)	231
\er (ə)	20	\nequiv, and \oplus		\faAreaChart (📈)	231
\erf (erf)	93	exclusive or	259	\faArrowCircleDown (⬇)	136
\Eros (Ѳ)	129	\exists (Ǝ)	97	\faArrowCircleLeft (⬅)	136
\errbarblackcircle (◐)	145	\exists (Ǝ)	97	\faArrowCircleODown (⬇)	136
\errbarblackdiamond (◑)	145	\exists (Ǝ)	98	\faArrowCircleOLeft (◐)	136
\errbarblacksquare (◑)	145	\exists (Ǝ)	97	\faArrowCircleORight (◑)	136
\errbarcircle (◑)	145	\exists (Ǝ)	98	\faArrowCircleOUp (⬆)	136
\errbardiamond (◑)	145	\exp (exp)	92	\faArrowCircleRight (◑)	136
\errbarsquare (◑)	145	\experimental (⌘)	133	\faArrowCircleUp (⬆)	136
\errorsym (☒)	134	exploding head (💥)	220	\faArrowDown (⬇)	136
es-zet	see \ss	\Explosionsafe (☒)	133	\faArrowLeft (⬅)	136
\ESC (←)	131	expressionless face (😐)	220	\faArrowRight (➡)	136
\Esc ([Esc])	130	extarrows (package)	113, 276, 277	\faArrows (➔)	136
escapable characters	15	extensible accents	108–112, 115, 265–266	\faArrowsAlt (➔)	136
\esh (ſ)	20	extensible arrows	108–113	\faArrowsH (↔)	136
\esh (ſ)	20	extensible braces	108–111	\faArrowsV (↓)	136
esint (package)	44, 276	extensible symbols, creating	264–266	\faArrowUp (↑)	136
esrelation (package)	89, 114, 276	extensible tildes	108, 111	\faAsterisk (✳)	231
\Estatically (▲)	133	extension characters	91, 92	\faAt (@)	231
estimated	see \textestimated	\externalsym (▣)	133	\faAutomobile (🚗)	234
\Estonia (🇪)	203	extpfeil (package)	113, 276, 277	\faBackward (◀)	231
esvect (package)	111, 276	extraipa (package)	23, 276	\faBalanceScale (⚖)	231
\Eta (Η)	94	\eye (👁)	160	\faBan (🚫)	231
\eta (η)	94	\eye (👁)	149	\faBank (🏛)	234
\etameson (η)	134	eye (👁)	220	\faBarChart (📊)	231
\etamesonprime (η')	134	eye in speech bubble (🗨)	220	\faBarChart0 (📊)	234
\etaup (η)	95	eyeglasses (👓)	220	\faBarcode (barcode)	231
\ETB (₺)	131	eyes (👀)	220	\faBars (☰)	231
\eth (ð)	120	\EyesDollar (\$)	26	\faBattery0 (◻)	234
\eth (ð)	20	ezh	see \roundz	\faBattery1 (◻)	234
\eth (ð)	122			\faBattery2 (◻)	234
\eth (ð)	20			\faBattery3 (◻)	234
\ETX (♥)	131			\faBattery4 (◻)	234
euflag (package)	206, 276, 277			\faBatteryEmpty (◻)	231
\euflag (🇪)	206			\faBatteryFull (.FILL)	231
eufrak (package)	124			\faBatteryHalf (◻)	232
Euler Roman	95			\faBatteryQuarter (◻)	232
\Eulerconst (ℰ)	98			\faBatteryThreeQuarters (◻)	232

\faBehance (Bē)	232
\faBehanceSquare (Be) . . .	232
\faBell (Bell)	232
\faBell10 (Bell)	232
\faBellSlash (Bell)	232
\faBellSlash0 (Bell)	232
\faBicycle (Bicycle)	232
\faBinoculars (Binoculars) .	232
\faBirthdayCake (Birthday) .	232
\faBitbucket (Bitbucket) . .	232
\faBitbucketSquare (Bitbuc .	232
\faBitcoin (Bitcoin)	26
\faBlackTie (Black Tie) . . .	232
\faBold (Bold)	232
\faBolt (Bolt)	232
\faBomb (Bomb)	232
\faBook (Book)	232
\faBookmark (Bookmark) . . .	232
\faBookmark0 (Bookmark) . .	232
\faBriefcase (Briefcase) . .	232
\faBtc (Btc)	26
\faBtc (Btc)	26
\faBug (Bug)	232
\faBuilding (Building) . . .	232
\faBuilding0 (Building) . . .	232
\faBullhorn (Bullhorn) . . .	232
\faBullseye (Bullseye) . . .	232
\faBus (Bus)	232
\faBuySellads (BuySellads)	232
\faCab (Cab)	234
\faCalculator (Calculator) .	232
\faCalendar (Calendar) . . .	232
\faCalendarCheck0 (Calendar)	232
\faCalendarMinus0 (Calendar)	232
\faCalendar0 (Calendar) . .	232
\faCalendarPlus0 (Calendar)	232
\faCalendarTimes0 (Calendar)	232
\faCamera (Camera)	232
\faCameraRetro (Camera) . .	232
\faCar (Car)	232
\faCaretDown (Caret Down) .	232
\faCaretLeft (Caret Left) . .	232
\faCaretRight (Caret Right) .	232
\faCaretSquare0Down (Caret)	232
\faCaretSquare0Left (Caret)	232
\faCaretSquare0Right (Caret)	232
\faCaretSquare0Up (Caret) . .	232
\faCaretUp (Caret Up)	232
\faCartArrowDown (Cart Arrow)	232
\faCartPlus (Cart Plus) . . .	232
\faCc (Cc)	232
\faCcAmex (CcAmex)	232
\faCcDinersClub (CcDinersClub)	233
\faCcDiscover (CcDiscover) .	233
\faCcJcb (CcJcb)	233
\faCcMastercard (CcMasterca .	233
\faCcPaypal (CcPaypal)	233
\faCcStripe (CcStripe)	233
\faCcVisa (CcVisa)	233
face blowing a kiss (Kissing) .	220
face savoring food (Food) . .	220
face screaming in fear (Fright)	220
face vomiting (Vomiting) . . .	220
face with hand over mouth (Hand)	220
face with head-bandage (Bandage)	220
face with medical mask (Medical)	220
face with monocle (Monocle) . .	220
face with open mouth (Mouth) . .	220
face with raised eyebrow (Eyebrow)	220
face with rolling eyes (Eyes) . .	220
face with steam from nose (Nose)	220
face with symbols on mouth (Mouth)	220
face with tears of joy (Joy) . .	220
face with thermometer (Thermometer)	220
face with tongue (Tongue)	220
face without mouth (Mouth) . . .	220
\faCertificate (Certificate) . .	233
faces	122, 131, 151, 186, 189, 197, 199, 200, 211–234, 238–240
\faChain (Chain)	234
\faChainBroken (Chain Broken)	233
\faCheck (Checkmark)	141
\faCheckCircle (Check Circle) . .	141
\faCheckCircle0 (Check Circle)	141
\faCheckSquare (Check Square) .	141
\faCheckSquare0 (Check Square)	141
\faChevronCircleDown (Chevron)	136
\faChevronCircleLeft (Chevron)	136
\faChevronCircleRight (Chevron)	136
\faChevronCircleUp (Chevron) .	136
\faChevronDown (Chevron Down) .	136
\faChevronLeft (Chevron Left) .	136
\faChevronRight (Chevron Right)	136
\faChevronUp (Chevron Up) . . .	136
\faChild (Child)	233
\faChrome (Chrome)	233
\faCircle (Circle)	148
\faCircle0 (Circle)	148
\faCircleONotch (Circle Notch)	148
\faCircleThin (Circle Thin) . .	148
\faClipboard (Clipboard)	233
\faClock0 (Clock)	233
\faClone (Clone)	233
\faClose (Close)	141
\faCloud (Cloud)	233
\faCloudDownload (Cloud Down)	233
\faCloudUpload (Cloud Up) . . .	233
\faCny (Cny)	26
\faCode (</>)	233
\faCodeFork (Fork)	233
\faCodepen (Codepen)	233
\faCoffee (Coffee)	233
\faCog (Cog)	233
\faCogs (Cogs)	233
\faColumns (Columns)	233
\faComment (Comment)	233
\faCommenting (Commenting) . .	233
\faCommenting0 (Commenting)	233
\faComment0 (Comment)	233
\faComments (Comments)	233
\faComments0 (Comments)	233
\faCompass (Compass)	233
\faCompress (Compress)	233
\faConnectdevelop (Connectde .	233
\faContao (Contao)	233
\faContent (Content)	117
\faCopy (Copy)	234
\faCopyright (Copyright) . . .	27
\faCreativeCommons (Creative)	27
\faCreditCard (Credit Card) . .	233
\faCrop (Crop)	233
\faCrosshairs (Crosshairs) . .	233
\faCss3 (Css3)	233
factory (Factory)	220
factory worker (Factory Work .	220
\faCube (Cube)	233
\faCubes (Cubes)	233
\faCut (Cut)	234
\faCutlery (Cutlery)	233
\faDashboard (Dashboard) . . .	234
\faDashcube (Dashcube)	233
\faDatabase (Database)	233
\faDedent (Dedent)	234
\faDelicious (Delicious) . . .	233
\faDesktop (Desktop)	233
\faDeviantart (Deviantart) . .	233
\faDiamond (Diamond)	233
\faDigg (Digg)	233
\faDollar (\$)	26
\faDotCircle0 (Dot Circle) . . .	148
\faDownload (Download)	233
\faDribbble (Dribbble)	233
\faDropbox (Dropbox)	233
\faDrupal (Drupal)	233
\faEdit (Edit)	234
\faEject (Eject)	233
\faEllipsisH (Ellipsis H) . . .	234
\faEllipsisV (Ellipsis V) . . .	234
\faEmpire (Empire)	234
\faEnvelope (Envelope)	234
\faEnvelope0 (Envelope)	234
\faEnvelopeSquare (Envelope)	234
\faEraser (Eraser)	234
\faEur (Eur)	26
\faEur (Eur)	26
\faEuro (Euro)	26
\faExchange (Exchange)	234
\faExclamation (!)	234
\faExclamationCircle (!) . . .	234
\faExclamationTriangle (Δ) .	234
\faExpand (Expand)	234
\faExpeditedssl (Expediteds .	234
\faExternalLink (External Link)	234
\faExternalLinkSquare (External)	234
\faEye (Eye)	234
\faEyedropper (Eyedropper) . .	234
\faEyeSlash (Eye Slash)	234
\faFacebook (Facebook)	234
\faFacebookF (Facebook F) . .	234
\faFacebookOfficial (Facebook)	234

\faFacebookSquare (f)	234
\faFastBackward (KK)	234
\faFastForward (MM)	234
\faFax (fax)	234
\faFeed (RSS)	234
\faFemale (woman)	231
\faFighterJet (jet)	231
\faFile (document)	231
\faFileArchive0 (file)	231
\faFileAudio0 (audio)	231
\faFileCode0 (code)	231
\faFileExcel0 (excel)	231
\faFileImage0 (image)	231
\faFileMovie0 (movie)	234
\faFile0 (empty)	231
\faFilePdf0 (pdf)	231
\faFilePhoto0 (photo)	234
\faFilePicture0 (picture)	234
\faFilePowerpoint0 (powerpoint)	231
\faFiles0 (files)	231
\faFileSound0 (sound)	234
\faFileText (text)	231
\faFileText0 (text)	231
\faFileVideo0 (video)	231
\faFileWord0 (word)	231
\faFileZip0 (zip)	234
\faFilm (film)	231
\faFilter (filter)	231
\faFire (fire)	231
\faFireExtinguisher (extinguisher)	231
\faFirefox (firefox)	231
\faFlag (flag)	231
\faFlagCheckered (checkered)	231
\faFlag0 (flag)	231
\faFlash (flash)	234
\faFlask (flask)	231
\faFlickr (flickr)	231
\faFloppy0 (floppy)	231
\faFolder (folder)	231
\faFolder0 (empty)	231
\faFolderOpen (open)	231
\faFolderOpen0 (empty)	231
\faFont (font)	231
\faFonticons (font)	231
\faForumbee (forumbee)	232
\faForward (forward)	232
\faFoursquare (foursquare)	232
\faFrown0 (frown)	232
\faFutbol0 (soccer)	232
\faGamepad (gamepad)	232
\faGavel (gavel)	232
\faGbp (gbp)	26
\faGe (ge)	234
\faGear (gear)	234
\faGears (gears)	234
\faGenderless (o)	132
\faGetPocket (get-pocket)	232
\faGg (gg)	232
\faGgCircle (gg)	232
\faGift (gift)	232
\faGit (git)	232
\faGithub (github)	232
\faGithubAlt (github-alt)	232
\faGithubSquare (github-square)	232
\faGitSquare (git)	232
\faGittip (tip)	234
\faGlass (glass)	232
\faGlobe (globe)	232
\faGoogle (google)	232
\faGooglePlus (google-plus)	232
\faGooglePlusSquare (google-plus-square)	232
\faGoogleWallet (google-wallet)	232
\faGraduationCap (graduation-cap)	232
\faGratipay (gratipay)	232
\faGroup (group)	234
\faHackerNews (hacker-news)	232
\faHandGrab0 (hand-grab)	139
\faHandLizard0 (hand-lizard)	139
\faHandODown (hand-down)	139
\faHandOLeft (hand-left)	139
\faHandORight (hand-right)	139
\faHandOUp (hand-up)	139
\faHandPaper0 (hand-paper)	139
\faHandPaper0 (hand-paper)	139
\faHandPeace0 (hand-peace)	139
\faHandPointer0 (hand-pointer)	139
\faHandRock0 (hand-rock)	139
\faHandRock0 (hand-rock)	139
\faHandScissors0 (hand-scissors)	139
\faHandSpock0 (hand-spock)	139
\faHandStop0 (hand-stop)	139
\faHdd0 (hdd)	232
\faHeader (header)	232
\faHeadphones (headphones)	232
\faHeart (heart)	232
\faHeartbeat (heartbeat)	232
\faHeart0 (heart)	232
\faHistory (history)	232
\faHome (home)	232
\faHospital0 (hospital)	232
\faHotel (hotel)	234
\faHourglass (hourglass)	232
\faHourglassEnd (hourglass-end)	232
\faHourglassHalf (hourglass-half)	232
\faHourglass0 (hourglass)	232
\faHourglassStart (hourglass-start)	232
\faHouzz (houzz)	232
\faHsquare (hsquare)	232
\faHtml5 (html5)	232
\faIcursor (icursor)	232
\faIl1s (il1s)	26
\faIl2s (il2s)	26
\faImage (image)	234
\faInbox (inbox)	232
\faIndent (indent)	232
\faIndustry (industry)	232
\faInfo (info)	232
\faInfoCircle (info-circle)	232
\faInr (inr)	26
\faInr (inr)	26
\faInstagram (instagram)	232
\faInstitution (institution)	234
\faInternetExplorer (internet-explorer)	232
\faIntersex (intersex)	132
\faIoxhost (ioxhost)	232
fairy (fairy)	220
\faItalic (italic)	232
\faJoomla (joomla)	232
\faJpy (jpy)	26
\faJpy (jpy)	26
\faJsfiddle (jsfiddle)	233
\faKey (key)	233
\faKeyboard0 (keyboard)	233
\faKrw (krw)	26
\faKrw (krw)	26
falafel (falafel)	194
\faLanguage (language)	233
\faLaptop (laptop)	233
\faLastfm (lastfm)	233
\faLastfmSquare (lastfm-square)	233
\faLeaf (leaf)	233
\faLeanpub (leanpub)	233
\faLegal (legal)	234
\faLemon0 (lemon)	233
\faLevelDown (level-down)	233
\faLevelUp (level-up)	233
\faLifeBouy (life-bouy)	234
\faLifeRing (life-ring)	233
\faLifeSaver (life-saver)	234
\faLightbulb0 (lightbulb)	233
\faLineChart (line-chart)	233
\faLink (link)	233
\faLinkedin (linkedin)	233
\faLinkedinSquare (linkedin-square)	233
\faLinux (linux)	233
\faList (list)	233
\faListAlt (list-alt)	233
\faListOl (list-ol)	233
\faListUl (list-ul)	233
fallen leaf (fallen-leaf)	220
\fallingdotseq (falling-dotseq)	53
\fallingdotseq (falling-dotseq)	51
\fallingdotseq (falling-dotseq)	58
\fallingdotseq (falling-dotseq)	56
\fallingdotseq (falling-dotseq)	54
\fallingdotseq (falling-dotseq)	59
\FallingEdge (falling-edge)	126
\faLocationArrow (location-arrow)	233
\faLock (lock)	233
\faLongArrowDown (long-arrow-down)	136
\faLongArrowLeft (long-arrow-left)	136
\faLongArrowRight (long-arrow-right)	136
\faLongArrowUp (long-arrow-up)	136
falsum	see \bot
\faMagic (magic)	233
\faMagnet (magnet)	233
\faMailForward (mail-forward)	234
\faMailReply (mail-reply)	234
\faMailReplyAll (mail-reply-all)	234
\faMale (male)	233
\faMap (map)	233
\faMapMarker (map-marker)	233
\faMap0 (map0)	233
\faMapPin (map-pin)	233
\faMapSigns (map-signs)	233
\faMars (mars)	128, 132
\faMarsDouble (mars-double)	132
\faMarsStroke (mars-stroke)	132

\faMarsStrokeH (O*)	132	\faPicture0 (🖼)	234	\faSearchPlus (⊕)	232
\faMarsStrokeV (♂)	132	\faPieChart (🥧)	234	\faSellsy (🛒)	232
\faMaxcdn (m)	233	\faPiedPiper (🤘)	234	\faSend (↗)	234
\faMeanpath (⤙)	233	\faPiedPiperAlt (🤘)	234	\faSend0 (↗)	234
\faMedium (Ⓜ)	233	\faPinterest (🇵)	234	\faServer (🌐)	232
\faMedkit (ঔ)	233	\faPinterestP (🇵)	234	\faShare (↻)	232
\faMeh0 (☺)	233	\faPinterestSquare (🇵)	234	\faShareAlt (⤙)	232
\faMercury (☿)	128	\faPlane (✈)	231	\faShareAltSquare (▢)	232
\faMicrophone (🎙)	233	\faPlay (▶)	231	\faShareSquare (▢)	232
\faMicrophoneSlash (🔇)	233	\faPlayCircle (◉)	231	\faShareSquare0 (▢)	232
family (jspb)	220	\faPlayCircle0 (◎)	231	\faShekel (₪)	26
\faMinus (⊖)	233	\faPlug (🔌)	231	\faSheqel (₪)	26
\faMinusCircle (⊖)	233	\faPlus (➕)	231	\faShield (🛡)	232
\faMinusSquare (▣)	233	\faPlusCircle (➕)	231	\faShip (🚢)	232
\faMinusSquare0 (▫)	233	\faPlusSquare (➕)	231	\faShirtsinbulk (👕)	232
\faMobile (📱)	233	\faPlusSquare0 (▫)	231	\faShoppingCart (🛒)	232
\faMobilePhone (📱)	234	\faPowerOff (📴)	231	\faSignal (📶)	232
\faMoney (💵)	233	\faPrint (🖨)	231	\faSignIn (➡)	232
\faMoon0 (🌙)	128	\faPuzzlePiece (🧩)	231	\faSignOut (➡)	232
\faMortarBoard (🎓)	234	\faQq (ʗ)	231	\faSimplybuilt (🛠)	232
\faMotorcycle (🏍)	233	\faRrcode (ܰ)	231	\faSitemap (ܰ)	232
\faMousePointer (🖱)	233	\Faquant (ܰ)	117	\faSkyatlas (ܰ)	232
\faMusic (🎵)	233	\Faquantn (ܰ)	117	\faSkype (ܰ)	232
\faNavicon (☰)	234	\Faquantnn (ܰ)	117	\faSlack (ܰ)	232
\Fancontent (ܰ)	117	\faQuestion (?)	231	\faSliders (ܰ)	232
fancy borders	241–247	\faQuestionCircle (ܰ)	231	\faSlideshare (ܰ)	232
\faNeuter (ܰ)	132	\faQuoteLeft (“)	231	\faSmile0 (ܰ)	232
\faNewspaper0 (ܰ)	233	\faQuoteRight (”)	231	\faSoccerBall0 (ܰ)	234
\Fanncontent (ܰ)	117	\faRa (ܰ)	234	\faSort (⤵)	232
\Fannquant (ܰ)	117	\faRandom (ܰ)	231	\faSortAlphaAsc (ܰ)	232
\Fannquantn (ܰ)	117	\faRebel (ܰ)	231	\faSortAlphaDesc (ܰ)	232
\Fannquantnn (ܰ)	117	\faRecycle (ܰ)	231	\faSortAmountAsc (ܰ)	232
\Fanoven (ܰ)	211	\faReddit (ܰ)	231	\faSortAmountDesc (ܰ)	232
\Fanquant (ܰ)	117	\faRedditSquare (ܰ)	231	\faSortAsc (⤵)	232
\Fanquants (ܰ)	117	\faRefresh (ܰ)	231	\faSortDesc (⤵)	232
\Fanquantnn (ܰ)	117	\faRegistered (ܰ)	27	\faSortDown (⤵)	234
\faObjectGroup (ܰ)	233	\faRemove (✖)	141	\faSortNumericAsc (ܰ)	232
\faObjectUngroup (ܰ)	233	\faRenren (ܰ)	231	\faSortNumericDesc (ܰ)	232
\faOdnoklassniki (ܰ)	233	\faReorder (☰)	234	\faSortUp (⤵)	234
\faOdnoklassnikiSquare (ܰ)	234	\faRepeat (ܰ)	136	\faSoundcloud (ܰ)	232
		\faRepeat (ܰ)	136	\faSpaceShuttle (ܰ)	232
\faOpencart (ܰ)	234	\faReply (⤵)	231	\faSpinner (ܰ)	232
\faOpenid (ܰ)	234	\faReplyAll (⤵)	231	\faSpoon (ܰ)	232
\faOpera (ܰ)	234	\faRetweet (ܰ)	231	\faSpotify (ܰ)	232
\faOptinMonster (ܰ)	234	\faRmb (ܰ)	26	\faSquare (▢)	148
\faOutdent (ܰ)	234	farmer (ܰ)	220	\faSquare0 (▢)	148
\faPagelines (ܰ)	234	\faRoad (ܰ)	231	fast down button (ܰ)	220
\faPaintBrush (ܰ)	234	\faRocket (ܰ)	231	fast reverse button (ܰ)	220
\faPaperclip (ܰ)	234	\faRotateLeft (ܰ)	136	fast up button (ܰ)	220
\faPaperPlane (ܰ)	234	\faRotateRight (ܰ)	136	fast-forward button (ܰ)	221
\faPaperPlane0 (ܰ)	234	\faRouble (ܰ)	26	\faStackExchange (ܰ)	232
\faParagraph (ܰ)	234	\faRss (ܰ)	231	\faStackOverflow (ܰ)	232
\faPaste (ܰ)	234	\faRssSquare (ܰ)	231	\faStar (★)	143
\faPause (ܰ)	234	\faRub (ܰ)	26	\faStarHalf (◐)	143
\faPaw (ܰ)	234	\faRub (ܰ)	26	\faStarHalfEmpty (★)	143
\faPaypal (ܰ)	234	\faRuble (ܰ)	26	\faStarHalfFull (★★)	143
\faPencil (ܰ)	137	\faRupee (₹)	26	\faStarHalf0 (★)	143
\faPencilSquare (ܰ)	137	\faSafari (ܰ)	231	\faStarHalf0 (★)	143
\faPencilSquare0 (ܰ)	137	\faSave (ܰ)	234	\faStar0 (☆)	143
\faPhone (ܰ)	234	\faScissors (ܰ)	232	\faSteam (ܰ)	232
\faPhoneSquare (ܰ)	234	\faSearch (ܰ)	232	\faSteamSquare (ܰ)	232
\faPhoto (ܰ)	234	\faSearchMinus (ܰ)	232	\faStepBackward (⤵)	232

\faStethoscope (⌚)	232	\fatsemi (⌚)	34
\faStickyNote (📝)	232	\fatslash (📝)	31
\faStickyNote0 (📝)	232	\fatslash (📝)	58
\faStop (⏹)	232	\faTty (⌨)	233
\faStreetView (📍)	232	\faTumblr (Tumblr)	233
\faStrikethrough (-decoration)	232	\faTumblrSquare (Tumblr)	233
\faStumbleupon (🔗)	232	\faTurkishLira (₺)	26
\faStumbleuponCircle (🌐)	233	\faTv (📺)	234
\faSubscript (x₂)	233	\faTwitch (.twitch)	233
\faSubway (🚇)	233	\faTwitter (🐦)	233
\faSuitcase (กระเป๋า)	233	\faTwitterSquare (🐦)	233
\faSun0 (☀)	128	\faUmbrella (☂)	233
\faSuperscript (x²)	233	\faUnderline (underline)	233
\faSupport (👍)	234	\faUndo (↶)	136
\faTable (tabel)	233	\faUndo (↶)	136
\faTablet (tablet)	233	\faUniversity (มหาวิทยาลัย)	233
\faTachometer (⌚)	233	\faUnlink (🔗)	234
\faTag (🏷)	233	\faUnlock (🔓)	233
\faTags (🏷)	233	\faUnlockAlt (🔒)	233
\faTasks (📝)	233	\faUnsorted (⤵)	234
\faTaxi (🚕)	233	\faUpload (📤)	233
\fatbslash (\)	31	\faUsd (\$)	26
\fatbslash (\)	58	\faUsd (\$)	26
\faTelevision (📺)	233	\faUser (👤)	233
\faTencentWeibo (Tencent Weibo)	233	\faUserMd (👤)	233
\faTerminal (>_)	233	\faUserPlus (👤+)	233
\faTextHeight (TL)	233	\faUsers (👤)	233
\faTextWidth (IW)	233	\faUserSecret (🔒)	233
\faTh (grid)	233	\faUserTimes (✖)	233
\faThLarge (grid)	233	\faVenus (♀)	128, 132
\faThList (grid)	233	\faVenusDouble (♀)	132
\faThumbsDown (👎)	139	\faVenusMars (♀)	132
\faThumbsODown (👎)	139	\faViacoin (¥)	26
\faThumbsOUp (👍)	139	\faVideoCamera (🎥)	233
\faThumbsUp (👍)	139	\faVimeo (Vimeo)	233
\faThumbTack (📌)	233	\faVimeoSquare (Vimeo)	234
\faTicket (🎫)	233	\faVine (Vine)	234
\faTimes (✗)	141	\faVkontakte (VK)	234
\faTimes (✗)	141	\faVolumeDown (🔉)	234
\faTimesCircle (✖)	141	\faVolumeOff (🔇)	234
\faTimesCircle0 (✖)	141	\faVolumeUp (🔊)	234
\faTint (🎨)	233	\faWarning (⚠)	234
\faToggleDown (▢)	234	\faWechat (wechat)	234
\faToggleLeft (▢)	234	\faWeibo (微博)	234
\faToggleOff (▢)	233	\faWeixin (weixin)	234
\faToggleOn (▢)	233	\faWhatsapp (WhatsApp)	234
\faToggleRight (▢)	234	\faWheelchair (♿)	234
\faToggleUp (▢)	234	\faWifi (Wifi)	234
\faTrademark (TM)	27	\faWikipediaW (W)	234
\faTrain (🚂)	233	\faWindows (💻)	234
\faTransgender (⚧)	132	\faWon (₩)	26
\faTransgender (⚧)	132	\faWordpress (WP)	234
\faTransgenderAlt (⚧)	132	\faWrench (🔧)	234
\faTrash (🗑)	233	\FAX (Fax)	131
\faTrash0 (🗑)	233	\fax (Fax)	131
\faTree (🌳)	233	fax machine (Fax)	221
\faTrello (rello)	233	\faXing (X)	234
\faTripadvisor (TripAdvisor)	233	\faXingSquare (X)	234
\faTrophy (🏆)	233	\Faxmachine (Fax)	131
\faTruck (🚚)	233	\faYahoo (Yahoo)	234
\faTry (retry)	26	\faY (Y)	234
\faTry (retry)	26	\faYc (YC)	234
\fatsemi (⌚)	31	\faYCombinator (YC)	234
		\faYCombinatorSquare (YC)	234

\feyn{glB} ()	133
\feyn{glS} ()	133
\feyn{glu} ()	133
\feyn{gl} ()	133
\feyn{gu} ()	133
\feyn{gvs} ()	133
\feyn{gv} ()	133
\feyn{g} ()	133
\feyn{hd} ()	133
\feyn{hs} ()	133
\feyn{hu} ()	133
\feyn{h} ()	133
\feyn{ms} ()	133
\feyn{m} ()	133
\feyn{P} ()	133
\feyn{p} ()	133
\feyn{x} ()	133
fez	108
\FF (?)	131
fge (package)	88, 98, 107, 118, 123, 276, 277
\fgeA (v)	98
\fgebackslash (\\)	123
\fgebaracute (_)	123
\fgebarcap (=)	123
\fgec (3)	98
\fgecap (~)	123
\fgecapbar (=)	123
\fgecup (.)	123
\fgecupacute (.)	123
\fgecupbar (=)	123
\fged (p)	98
\fgee (3)	98
\fgeeszett (g)	98
\fgeeta (y)	98
\fgeF (J)	98
\fgef (j)	98
\fgeinfty (w)	123
\fgelangle (n)	123
\fgelb	98
\fgelb (y)	98
\fgeleftB (m)	98
\fgeleftC (o)	98
\fgeN (y)	98
\fgeoverU (y)	98
\fgerightarrow (rightarrow)	88
\fgerightB (w)	98
\fges (f)	98
\fgestruckone (1)	118
\fgestruckzero (0)	118
\fgeU (Y)	98
\fgeuparrow (^)	88
\fgeupbracket (_)	123
field (\mathbb{F})	see alphabets, math
field hockey (hockey)	221
\file (⇒)	183
file cabinet (■)	221
file extensions	
.dvi	272
.fd	13, 268, 275
.mf	13, 236, 266
.otf	161
.pdf	272
.sty	13
.tex	272, 274
.tfm	13, 124, 236, 256, 275
file folder (blue folder)	221
file symbols	231–234
\FilledBigCircle (●)	147
\FilledBigDiamondshape (◆)	147
\FilledBigSquare (■)	147
\FilledBigTriangleDown (▼)	147
\FilledBigTriangleLeft (◀)	147
\FilledBigTriangleRight (▶)	146
\FilledBigTriangleUp (▲)	146
\FilledCircle (●)	146
\FilledCloud (cloud)	190
\filleddiamond (◆)	37
\FilledDiamondShadowA (◆)	146
\FilledDiamondShadowC (◆)	146
\FilledDiamondshape (◆)	146
\FilledHut (▲)	190
\filledlargestar (★)	144
\filledlozenge (◆)	144
\filledmedlozenge (◆)	144
\filledmedsquare (■)	37
\filledmedtriangledown (▼)	37, 71
\filledmedtriangleleft (◀)	37, 71
\filledmedtriangleright (▶)	37, 71
\filledmedtriangleup (▲)	37, 71
\FilledRainCloud (rain cloud)	190
\FilledSectioningDiamond (◆)	196
\FilledSmallCircle (●)	146
\FilledSmallCircle (●)	147
\FilledSmallDiamondshape (◆)	146
\FilledSmallSquare (■)	146
\FilledSmallTriangleDown (▼)	146
\FilledSmallTriangleLeft (◀)	146
\FilledSmallTriangleRight (▶)	146
\FilledSmallTriangleUp (▲)	146
\FilledSnowCloud (snow cloud)	190
\FilledSquare (■)	146
\filledsquare (■)	37
\FilledSquareShadowA (■)	147
\FilledSquareShadowC (■)	147
\filledsquarewithdots ()	149
\filledstar (★)	37
\FilledSunCloud (sun)	190
\FilledTriangleDown (▼)	147
\filledtriangledown (▼)	37, 71
\FilledTriangleLeft (◀)	147
\filledtriangleleft (◀)	37, 71
\FilledTriangleRight (▶)	147
\filledtriangleright (▶)	37, 71
\FilledTriangleUp (▲)	147
\filledtriangleup (▲)	37, 71
\FilledWeakRainCloud (rain cloud)	190
film frames (■)	221
film projector (camera)	221
finger, pointing	see fists
finite field (\mathbb{F})	see alphabets, math
\Finland (Finland)	203
\finpartvoice (fin part voice)	23
\finpartvoiceless (fin part voiceless)	23
\fint (f)	43
\fint (f̄)	49
\fint (f̄̄)	44
\fint (f̄̄̄)	46
\fint (f̄̄̄̄)	47
\fintsl (f̄̄̄̄̄)	48
\fintup (f̄̄̄̄̄̄)	48
\Finv (f̄̄̄̄̄̄̄)	97
\Finv (f̄̄̄̄̄̄̄̄)	97
\Finv (f̄̄̄̄̄̄̄̄̄)	98
\Finv (f̄̄̄̄̄̄̄̄̄̄)	98
\Finv (f̄̄̄̄̄̄̄̄̄̄̄)	98
\Fire (fire)	196, 213
\Fire (fire)	129
fire (fire)	221
fire engine (fire truck)	187
fire extinguisher (fire extinguisher)	221
firecracker (firecracker)	221
firefighter (firefighter)	221
fireworks (fireworks)	221
first quarter moon (first quarter moon)	200
first quarter moon face (first quarter moon face)	200
fish	242
fish (fish)	192
fish cake with swirl (fish cake with swirl)	194
fish hook	see \strictif
\fisheye (fish eye)	145
fishing pole (fishing pole)	221
fists	138, 139, 236
five o'clock (five o'clock)	191
five-thirty (five-thirty)	191
\fivedots (five dots)	32, 116

\FiveFlowerOpen (❀)	142	flag: British Virgin Islands (🇬🇧)	210
\FiveFlowerPetal (✿)	142	flag: Brunei (🇧🇳)	210
\FiveStar (★)	142	flag: Bulgaria (🇧🇬)	210
\FiveStarCenterOpen (☆)	142	flag: Burkina Faso (🇧🇫)	209
\FiveStarConvex (☆)	142	flag: Burundi (🇧🇮)	209
\FiveStarLines (☆)	142	flag: Cambodia (🇰🇭)	209
\FiveStarOpen (☆)	142	flag: Cameroon (🇨🇲)	209
\FiveStarOpenCircled (⊛)	142	flag: Canada (🇨🇦)	209
\FiveStarOutline (★)	142	flag: Canary Islands (🇮🇨)	209
\FiveStarOutlineHeavy (☆)	142	flag: Cape Verde (🇨🇻)	209
\Fixedbearing (Ѣ)	132	flag: Caribbean Netherlands (🇶🇦)	209
\fixedddots (⠄⠄)	115	flag: Cayman Islands (🇰🇾)	209
\fixedvdots (⠄⠄⠄)	115	flag: Central African Republic (🇨🇫)	209
fixmath (package)	270	flag: Ceuta & Melilla (🇪🇸)	209
\fj (ſj)	20	flag: Chad (🇹🇩)	209
\FL (⠇)	130	flag: Chile (🇨🇱)	209
\f1 (þ)	164	flag: China (🇨🇳)	209
\Flag (⚑)	190	flag: Christmas Island (🇨🇽)	209
flag in hole (🚩)	221	flag: Clipperton Island (🇲🇽)	209
flag: Afghanistan (🇦🇫)	208	flag: Cocos (Keeling) Islands (🇨🇨)	209
flag: Albania (🇦🇱)	208	flag: Colombia (🇨🇴)	209
flag: Algeria (🇩🇿)	208	flag: Comoros (🇲🇷)	209
flag: American Samoa (🇼🇸)	208	flag: Congo - Brazzaville (🇨🇬)	209
flag: Andorra (🇦🇩)	208	flag: Congo - Kinshasa (🇨🇬)	209
flag: Angola (🇦🇴)	208	flag: Cook Islands (🇨🇰)	209
flag: Anguilla (🇦🇮)	208	flag: Costa Rica (🇨🇷)	209
flag: Antarctica (🇶🇦)	208	flag: Croatia (🇭🇷)	209
flag: Antigua & Barbuda (🇦🇬)	208	flag: Cuba (🇨🇺)	209
flag: Argentina (🇦🇷)	208	flag: Curaçao (🇨🇼)	209
flag: Armenia (🇦🇲)	208	flag: Cyprus (🇨🇾)	209
flag: Aruba (🇦🇼)	208	flag: Czechia (🇨🇿)	209
flag: Ascension Island (🇦🇨)	208	flag: Côte d'Ivoire (🇮🇨)	209
flag: Australia (🇦🇺)	208	flag: Denmark (🇩🇰)	209
flag: Austria (🇦🇹)	208	flag: Diego Garcia (🇮🇩)	209
flag: Azerbaijan (🇦🇿)	208	flag: Djibouti (🇩🇯)	209
flag: Bahamas (🇧🇸)	208	flag: Dominican Republic (🇩🇴)	209
flag: Bahrain (🇧🇭)	208	flag: Ecuador (🇪🇨)	209
flag: Bangladesh (🇧🇩)	208	flag: Egypt (🇪🇬)	209
flag: Barbados (🇧🇧)	208	flag: El Salvador (🇸🇻)	209
flag: Belarus (🇧🇾)	208	flag: England (🏴󠁧󠁢󠁥󠁮󠁧󠁿)	209
flag: Belgium (🇧🇪)	208	flag: Equatorial Guinea (🇬🇶)	209
flag: Belize (🇧🇿)	208	flag: Eritrea (🇪🇷)	209
flag: Benin (🇧🇯)	208	flag: Estonia (🇪🇪)	209
flag: Bermuda (🇧🇲)	208	flag: Eswatini (🇪🇼)	209
flag: Bhutan (🇧🇹)	208	flag: Ethiopia (🇪🇹)	209
flag: Bolivia (🇧🇴)	208	flag: European Union (🇪🇺)	209
flag: Bosnia & Herzegovina (🇧🇦)	208	flag: Falkland Islands (🇦🇷)	209
flag: Botswana (🇧🇼)	208	flag: Faroe Islands (🇮🇸)	209
flag: Bouvet Island (🇧🇻)	208	flag: Fiji (🇫🇯)	209
flag: Brazil (🇧🇷)	208	flag: Finland (🇫🇮)	210
flag: British Indian Ocean Territory (🇬🇮)	208	flag: France (🇫🇷)	210
		flag: French Guiana (🇫🇷)	210
		flag: French Polynesia (🇵🇫)	210
		flag: French Southern Territories (🇵🇫)	210
		flag: Gabon (🇬🇦)	210
		flag: Gambia (🇬🇲)	210
		flag: Georgia (🇬🇪)	210
		flag: Germany (🇩🇪)	210
		flag: Ghana (🇬🇭)	210
		flag: Gibraltar (🇬🇮)	210
		flag: Greece (🇬🇷)	210
		flag: Greenland (🇩🇰)	210
		flag: Grenada (🇬🇩)	210
		flag: Guadeloupe (🇬🇱)	210
		flag: Guam (🇬Ū)	210
		flag: Guatemala (🇬🇹)	210
		flag: Guernsey (🇬🇬)	210
		flag: Guinea (🇬🇳)	210
		flag: Guinea-Bissau (🇬🇼)	210
		flag: Guyana (🇬🇾)	210
		flag: Haiti (🇭🇹)	210
		flag: Heard & McDonald Islands (🇭🇲)	210
		flag: Honduras (🇭🇳)	210
		flag: Hong Kong SAR China (🇭🇰)	210
		flag: Hungary (🇭🇺)	210
		flag: Iceland (🇮🇸)	210
		flag: India (🇮🇳)	210
		flag: Indonesia (🇮🇩)	210
		flag: Iran (🇮🇷)	210
		flag: Iraq (🇮🇶)	210
		flag: Ireland (🇮🇪)	210
		flag: Isle of Man (🇮🇲)	210
		flag: Israel (🇮🇱)	210
		flag: Italy (🇮🇹)	210
		flag: Jamaica (🇯🇲)	210
		flag: Japan (🇯🇵)	210
		flag: Jersey (🇯🇪)	210
		flag: Jordan (🇯🇴)	210
		flag: Kazakhstan (🇰🇿)	210
		flag: Kenya (🇰🇪)	210
		flag: Kiribati (🇮🇷)	210
		flag: Kosovo (🇽🇰)	210
		flag: Kuwait (🇰🇼)	210
		flag: Kyrgyzstan (🇰🇬)	210
		flag: Laos (ລາ)	211
		flag: Latvia (🇱🇻)	211
		flag: Lebanon (🇱🇧)	211
		flag: Lesotho (🇱🇸)	211
		flag: Liberia (🇱🇷)	211
		flag: Libya (🇱🇾)	208
		flag: Liechtenstein (🇱🇮)	208
		flag: Lithuania (🇱🇹)	208
		flag: Luxembourg (🇱🇺)	208
		flag: Macao SAR China (🇲🇴)	208
		flag: Madagascar (🇲🇬)	208
		flag: Malawi (🇲🇼)	208
		flag: Malaysia (🇲🇾)	208
		flag: Maldives (🇲🇻)	208
		flag: Mali (🇲🇱)	208
		flag: Malta (🇲🇹)	208
		flag: Marshall Islands (🇲🇭)	208
		flag: Martinique (🇲🇶)	208
		flag: Mauritania (🇲🇷)	208
		flag: Mauritius (🇲🇺)	208
		flag: Mayotte (🇲ಯ)	208
		flag: Mexico (🇲🇽)	208

- flag: Micronesia (FLAG) 208
 flag: Moldova (FLAG) 208
 flag: Monaco (FLAG) 208
 flag: Mongolia (FLAG) 208
 flag: Montenegro (FLAG) 208
 flag:Montserrat (FLAG) 208
 flag: Morocco (FLAG) 208
 flag: Mozambique (FLAG) 208
 flag: Myanmar (Burma) (FLAG) 208
 flag: Namibia (FLAG) 208
 flag: Nauru (FLAG) 208
 flag: Nepal (FLAG) 208
 flag: Netherlands (FLAG) 208
 flag: New Caledonia (FLAG) 208
 flag: New Zealand (FLAG) 208
 flag: Nicaragua (FLAG) 208
 flag: Niger (FLAG) 208
 flag: Nigeria (FLAG) 209
 flag: Niue (FLAG) 209
 flag: Norfolk Island (FLAG) 209
 flag: North Korea (FLAG) 209
 flag: North Macedonia (FLAG) 209
 flag: Northern Mariana Islands (FLAG) 209
 flag: Norway (FLAG) 209
 flag: Oman (FLAG) 209
 flag: Pakistan (FLAG) 209
 flag: Palau (FLAG) 209
 flag: Palestinian Territories (FLAG) 209
 flag: Panama (FLAG) 209
 flag: Papua New Guinea (FLAG) 209
 flag: Paraguay (FLAG) 209
 flag: Peru (FLAG) 209
 flag: Philippines (FLAG) 209
 flag: Pitcairn Islands (FLAG) 209
 flag: Poland (FLAG) 209
 flag: Portugal (FLAG) 209
 flag: Puerto Rico (FLAG) 209
 flag: Qatar (FLAG) 209
 flag: Romania (FLAG) 209
 flag: Russia (FLAG) 209
 flag: Rwanda (FLAG) 209
 flag: Réunion (FLAG) 209
 flag: Samoa (FLAG) 209
 flag: San Marino (FLAG) 209
 flag: Saudi Arabia (FLAG) 209
 flag: Scotland (FLAG) 209
 flag: Senegal (FLAG) 209
 flag: Serbia (FLAG) 209
 flag: Seychelles (FLAG) 209
 flag: Sierra Leone (FLAG) 209
 flag: Singapore (FLAG) 209
 flag: Sint Maarten (FLAG) 209
 flag: Slovakia (FLAG) 209
 flag: Slovenia (FLAG) 209
 flag: Solomon Islands (FLAG) 209
 flag: Somalia (FLAG) 209
 flag: South Africa (FLAG) 209
 flag: South Georgia & South Sandwich Islands (FLAG) 209
 flag: South Korea (FLAG) 209
 flag: South Sudan (FLAG) 209
 flag: Spain (FLAG) 209
 flag: Sri Lanka (FLAG) 209
 flag: St. Barthélemy (FLAG) 209
 flag: St. Helena (FLAG) 209
 flag: St. Kitts & Nevis (FLAG) 209
 flag: St. Lucia (FLAG) 210
 flag: St. Martin (FLAG) 210
 flag: St. Pierre & Miquelon (FLAG) 210
 flag: St. Vincent & Grenadines (FLAG) 210
 flag: Sudan (FLAG) 210
 flag: Suriname (FLAG) 210
 flag: Svalbard & Jan Mayen (FLAG) 210
 flag: Sweden (FLAG) 210
 flag: Switzerland (FLAG) 210
 flag: Syria (FLAG) 210
 flag: São Tomé & Príncipe (FLAG) 210
 flag: Taiwan (FLAG) 210
 flag: Tajikistan (FLAG) 210
 flag: Tanzania (FLAG) 210
 flag: Thailand (FLAG) 210
 flag: Timor-Leste (FLAG) 210
 flag: Togo (FLAG) 210
 flag: Tokelau (FLAG) 210
 flag: Tonga (FLAG) 210
 flag: Trinidad & Tobago (FLAG) 210
 flag: Tristan da Cunha (FLAG) 210
 flag: Tunisia (FLAG) 210
 flag: Turkey (FLAG) 210
 flag: Turkmenistan (FLAG) 210
 flag: Turks & Caicos Islands (FLAG) 210
 flag: Tuvalu (FLAG) 210
 flag: U.S. Outlying Islands (FLAG) 210
 flag: U.S. Virgin Islands (FLAG) 210
 flag: Uganda (FLAG) 210
 flag: Ukraine (FLAG) 210
 flag: United Arab Emirates (FLAG) 210
 flag: United Kingdom (FLAG) 210
 flag: United Nations (FLAG) 210
 flag: United States (FLAG) 210
 flag: Uruguay (FLAG) 210
 flag: Uzbekistan (FLAG) 210
 flag: Vanuatu (FLAG) 210
 flag: Vatican City (FLAG) 210
 flag: Venezuela (FLAG) 210
 flag: Vietnam (FLAG) 210
 flag: Wales (FLAG) 210
 flag: Wallis & Futuna (FLAG) 210
 flag: Western Sahara (FLAG) 210
 flag: Yemen (FLAG) 210
 flag: Zambia (FLAG) 210
 flag: Zimbabwe (FLAG) 211
 flag: Åland Islands (FLAG) 211
 \flagelett (f) 162
- flags 190, 206–211, 227, 231–234, 250–252
 flamingo (FLAMINGO) 192
 \flap (f) 20
 \flapr (f) 20
 \Flasche (F) 211
 flashlight (FLASHLIGHT) 221
 \flat (flat) 161
 \flat (flat) 161
 \flat (flat) 161
 \flat (flat) 166
 \flat (flat) 161
 \flat (flat) 161
 flat shoe (FLATSHOE) 221
 flatbread (FLATBREAD) 194
 \flatflat (flat) 166
 \Flatsteel (FLATSTEEL) 132
 fletched arrows 88, 135
 fleur-de-lis (FLEURDELIS) 221
 fleurons 143, 144, 150, 241
 flexed biceps (FLEXEDBICEPS) 221
 floppy disk (FLOPPYDISK) 221
 \Florin (FLORIN) 26
 florin see \textflorin
 flourishes 149, 150, 244
 flower playing cards (FLOWER) 221
 \floweroneleft (FLOWERONELEFT) 143
 \floweroneright (FLOWERONERIGHT) 143
 flowers 142–144, 227–231, 241–242
 \fltns (FLTN) 145
 flushed face (FLUSHEDFACE) 221
 fly (FLY) 192
 flying disc (FLYINGDISC) 221
 flying saucer (FLYINGSAUCER) 187
 Flynn, Peter 260
 \FM (FM) 130
 \Fncontent (FNCONTENT) 117
 \Fnnccontent (FNNCCONTENT) 117
 \Fnquant (FNQUANT) 117
 \Fnncquant (FNNCQUANT) 117
 \Fnncquantn (FNNCQUANTN) 117
 \Fnquantn (FNQUANTN) 117
 \Fnquann (FNQUANN) 117
 \fnnsymbol (FNNSYMBOL) 195
 \Fog (FOG) 190
 fog (FOG) 190
 foggy (FOGGY) 221
 folded hands (FOLDEDHANDS) 221
 fondue (FONDUE) 194
 \font (FONT) 13
 font encodings 13, 15–17, 21, 24, 206, 259, 264, 270–272, 276
 7-bit 13
 8-bit 13
 ASCII 276
 Cyrillic 21
 document 272
 Latin 1 276
 limiting scope of 13

LY1	13	\forkv (\bowtie)	59
OT1	13, 16, 21, 264, 270–272	forte (\mathbf{f})	167, 178
OT2	259	\Fortune (\otimes)	129
T1	13, 15–17, 21, 271, 272	fortune cookie ($\bullet\circlearrowleft$)	194
T2A	21, 259	\Forward (\blacktriangleright)	188
T2B	21	\ForwardToEnd ($\blacktriangleright\!\!\!>$)	188
T2C	21	\ForwardToIndex ($\blacktriangleright\!\!\!>\!\!\!>$)	188
T4	17, 21, 24	fountain ($\bullet\circlearrowright$)	221
T5	17, 21	fountain pen ($\bullet\circlearrowright$)	221
TS1	259, 272	four leaf clover (\clubsuit)	221
TU	206	four o'clock (\odot)	191
U	259	four-thirty (\odot)	191
X2	21	\FourAsterisk (\ddagger)	142
font families	204, 206, 236, 256, 259, 268	\FourCloverOpen (\boxtimes)	142
bulb	268	\FourCloverSolid (\clubsuit)	142
CountriesOfEurope	204	\Fourier ($\textcolor{blue}{o}$)	62
psy	259	fourier (package)	27, 62, 95, 99, 105, 110, 138, 143, 189, 276
rojud	206	fourier (emf package option)	127
fontawesome (package)	26, 27, 128, 132, 136, 137, 139, 141, 143, 148, 231, 234, 276, 277	\fourier (\circ)	62
fontdef.dtx (file)	260, 263	Fourier transform (\mathcal{F})	see alphabets, math
fontenc (package)	13, 16, 17, 21, 272	\FourStar (\blacklozenge)	142
\fontencoding	13	\FourStarOpen ($\blacklozenge\!\!\!>$)	142
fonts		\fourth ($\#\#\#$)	120
Calligra	124	\fourvdots (\vdots)	116
Charter	26, 50	fox ($\bullet\circlearrowleft$)	192
Computer Modern	88, 256, 258, 271	\Fquantn ($\overbrace{\square}^{\top}$)	117
Courier	26	\Fquantnn ($\overbrace{\square}^{\pi}$)	117
Emmentaler	167	\fracslash (/)	35
Garamond	26, 50	fractions	122
Helvetica	26	fraktur	see alphabets, math
“pi”	259	framed picture (\square)	221
Soyombo	201	\France (\blacklozenge)	203
Symbol	95, 259	frcursive (emf package option)	127
Times Roman	26, 258	FREE button ($\textcolor{blue}{FREE}$)	221
Type 1	268, 269	Freemason’s cipher	199
Utopia	26, 50	frege (package)	117, 276, 277
Zapf Chancery	124	Frege logic symbols	88, 98, 117, 118, 123
Zapf Dingbats	135, 141	Frege, Gottlob	117
\fontsize	256, 258	french fries ($\bullet\circlearrowleft$)	194
fontspec (package)	161, 275	fried shrimp ($\bullet\circlearrowleft$)	194
food	193–194	frog ($\bullet\circlearrowright$)	192
foot ($\textcolor{blue}{f}$)	221	front-facing baby chick ($\bullet\circlearrowleft$)	192
\Football (\odot)	189	\frown (\sim)	51
footprints ($\bullet\circlearrowleft$)	221	\frown (\sim)	58
\forallall (\forall)	97	\frown (\sim)	56, 91
\forallall (\forall)	98	\frown (\sim)	90
\forallall (\forall)	97	\frown (\sim)	59
\forallall (\forall)	98	frown symbols	90, 91
\Force (\downarrow)	132	\frowneq (\equiv)	56, 91
\Fork ($\textcolor{blue}{f}$)	211	\frowneq (\simeq)	90
fork and knife ($\textcolor{blue}{f}\textcolor{blue}{k}$)	194	\frowneqsmile (\approx)	90
fork and knife with plate ($\textcolor{blue}{f}\textcolor{blue}{k}\textcolor{blue}{p}$)	194	\frownie (\odot)	186
\forks ($\textcolor{blue}{f}\textcolor{blue}{s}$)	60	frowning face ($\bullet\circlearrowleft$)	221
\forksnot ($\textcolor{blue}{f}\textcolor{blue}{s}$)	59	frowning face with open mouth ($\bullet\circlearrowleft$)	221
\forkv (\bowtie)	58	\frownsmileeq (\simeq)	90
		\frownsmile (\approx)	56, 91
		\frownsmile (\approx)	90
		G	
		\G ($\bullet\circlearrowright$)	21
		g (esvect package option)	111
		g (X)	160
		gafting hook	see \strictif
		\Game (\odot)	97
		\Game (\odot)	97
		\Game (\odot)	98
		\Game (\odot)	98
		\Game (\odot)	98
		game die ($\bullet\circlearrowleft$)	221
		game-related symbols	179–185, 231–234, 253–255
		\Gammama (Γ)	94
		\gammama (γ)	94
		\gammamaup (γ)	95
		\Ganz (\circ)	163
		\GaPa ($\textcolor{blue}{m}$)	163
		Garamond (font)	26, 50
		garlic ($\bullet\circlearrowright$)	194
		\garlicpress ($\textcolor{blue}{m}$)	211
		\Gasstove ($\textcolor{blue}{m}$)	211
		\gcd (gcd)	92
		\GD ($\textcolor{blue}{V}$)	130
		\GE (\geq)	130
		\ge	see \geq
		\ge (\geq)	68
		\ge (\geq)	70
		gear ($\textcolor{blue}{g}$)	221
		gem stone ($\textcolor{blue}{t}$)	221
		\Gemini ($\textcolor{blue}{I}$)	128
		\Gemini ($\textcolor{blue}{I}$)	127
		\Gemini ($\textcolor{blue}{I}$)	129
		Gemini ($\textcolor{blue}{II}$)	221
		\gemini ($\textcolor{blue}{I}$)	127
		genealogical symbols	186
		\geneuro ($\textcolor{blue}{e}$)	27
		\geneuronarrow ($\textcolor{blue}{e}$)	27
		\geneurowide ($\textcolor{blue}{e}$)	27
		genie ($\textcolor{blue}{g}$)	221
		gensymb (package)	126
		\Gentsroom ($\textcolor{blue}{m}$)	189
		geometric shapes	129, 144–149, 172–176, 184, 185, 231– 234, 236–237, 252–253
		\geq (\geq)	66
		\geq (\geq)	65, 66

\geq (\geq)	68
\geq (\geq)	67
\geq (\geq)	69, 70
\geqclosed (\geq)	68, 72
\geqclosed (\triangleright)	67, 71
\geqdot (\geq)	68
\geqdot (\geq)	67
\geqq (\geq)	66
\geqq (\geq)	65
\geqq (\geq)	69
\geqq (\geq)	68
\geqq (\geq)	67
\geqq (\geq)	69
\geqqslant (\geq)	69
\geqlslant (\geq)	65
\geqlslant (\geq)	65, 263
\geqlslant (\geq)	69
\geqlslant (\geq)	68
\geqlslant (\geq)	67
\geqlslant (\geq)	69
\geqlslantdot (\geq)	68
\geqlslantdot (\geq)	67
\geqlslcc (\geq)	68
german (keystroke package option)	130
Germanic runes	160
\Germany ()	203
\gescc (\geq)	68
\gescc (\geq)	69
\gesdot (\geq)	68
\gesdot (\geq)	69
\gesdoto (\geq)	69
\gesdotol (\geq)	69
\gesl (\geq)	68
\gesles (\geq)	70
\gets see \leftarrow	
\gets (\leftarrow)	80
\gg (\gg)	66
\gg (\gg)	65
\gg (\gg)	68
\gg (\gg)	67
\gg (\gg)	70
\ggcurly (\gg)	53
\ggcurly (\gg)	58
\ggg (\gg)	66
\ggg (\gg)	65
\ggg (\gg) vs. \gg)	257
\ggg (\gg)	69
\ggg (\gg)	68
\ggg (\gg)	67
\ggg (\gg)	70
\gggnest (\gg)	70
\gggtr see \ggg	
\gggtr (\gg)	68
\gggtr (\gg)	67
\gggtr (\gg)	70
ghost ()	221
ghosts	39, 115, 199
Gibbons, Jeremy	278
\gimel ()	96
\gimel (\imath)	96
\gimel (λ)	96
\gimel (\jmath)	96
\gimel (λ)	97
giraffe ()	192
\girl ()	128
girl ()	221
\gla (\times)	70
glass of milk ()	194
\glE (\lessgtr)	70
\gleichstark ()	59
\glj (\times)	69
\glj (\times)	70
globe	189
globe showing Americas ()	221
globe showing Asia-Australia ()	222
globe showing Europe-Africa ()	222
globe with meridians ()	222
globes	228–231
\glotstop (r)	20
\glottal (l)	20
\Gloves ()	211
gloves ()	222
glowing star ()	222
\Gluon (g)	133
\gluon ($\infty\infty\infty$)	126
gluons	133
\gnapprox (\gtrapprox)	66
\gnapprox (\gtrapprox)	65
\gnapprox (\gtrapprox)	69
\gnapprox (\gtrapprox)	68
\gnapprox (\gtrapprox)	67
\gnapprox (\gtrapprox)	70
\gneq (\geq)	66
\gneq (\geq)	65
\gneq (\geq)	69
\gneq (\geq)	68
\gneq (\geq)	70
\gneqq (\geq)	66
\gneqq (\geq)	65
\gneqq (\geq)	65
\gneqq (\geq)	69
\gneqq (\geq)	68
\gneqq (\geq)	67
\gneqq (\geq)	70
\gneqq (\geq)	70
\gnsim (\gtrapprox)	66
\gnsim (\gtrapprox)	65
\gnsim (\gtrapprox)	69
\gnsim (\gtrapprox)	68
\gnsim (\gtrapprox)	67
\gnsim (\gtrapprox)	70
\gnsim (\gtrapprox)	70
\gnsim (\gtrapprox)	65
\gnsim (\gtrapprox)	69
\gnsim (\gtrapprox)	68
\gnsim (\gtrapprox)	67
\gnsim (\gtrapprox)	70
\GO (\rightarrow)	130
go (package)	185, 276
Go boards	184, 185
Go stones	184, 185
goal net ()	222
goat ()	192
goban	184, 185
goblin ()	222
goggles ()	222
\Goofy	197
gorilla ()	192
\grad ($\overrightarrow{\text{grad}}$)	93
graduation cap ()	222
grapes ()	194
\graphene ()	133
graphics (package)	88, 259
graphicx (package)	25, 256, 259, 263
\grater ()	211
\grave ()	107
\grave ()	106
grave ()	see accents
\gravis ()	24
\graviton (δ)	133
\GreatBritain ()	203
greater-than signs	see inequalities
greatest lower bound	see greatest lower bound
\sqcap	see \sqcap
\greatpumpkin ()	39
\Greece ()	203
Greek	16, 94, 95
blackboard bold	125
bold	94, 270
coins	27
letters	16, 94, 95, 125, 157, 270
numerals	157
polytonic	16, 94, 95
upright	16, 95
greek (babel package option)	16, 94, 95, 157
green apple ()	194
green book ()	222
green circle ()	222
Green Dot see \Greenpoint and \PackingWaste	
green heart ()	222
green salad ()	194
green square ()	222
\Greenpoint ()	200
greenpoint (package)	236, 276
Gregorian music	163
\gregorianCclef ()	163
\gregorianFclef ()	163
Gregorio, Enrico	106, 260, 261
Griffith's separation vector (α)	124
\grimace ()	189
grimacing face ()	222
grinning cat ()	222
grinning cat with smiling eyes ()	222
grinning face ()	222
grinning face with big eyes ()	222
grinning face with smiling eyes ()	222
grinning face with sweat ()	222
grinning squinting face ()	222
growing heart ()	222
Grüne Punkt see \Greenpoint and \PackingWaste	
\GS (\leftrightarrow)	131
\gsime (\gtrapprox)	70
\gsiml (\gtrapprox)	70

\Gt (»)	69	\guillemotleft	see \guillemotleft
\Gt (»)	70	\guillemotright	see \guillemotright
\gtcc (▷)	68	\guilsinglleft (⟨) . .	17, 274
\gtcc (▷)	70	\guilsinglright (⟩) . .	17, 274
\gtcir (»)	69	guitar (🎸)	222
\gtcir (»)	70	\gvccropped (↝)	133
\gtlpar (▷)	119	\gvertneqq (⤒)	66
\gtlpar (▷)	119	\gvertneqq (⤓)	65
\gtquest (⤔)	69	\gvertneqq (⤔)	69
\gtr (>)	68	\gvertneqq (⤕)	68
\gtr (>)	67	\gvertneqq (⤖)	67
\gtrapprox (⤒)	66	\gvertneqq (⤗)	69
\gtrapprox (⤒)	65		
\gtrapprox (⤒)	69		
\gtrapprox (⤒)	68		
\gtrapprox (⤒)	67		
\gtrapprox (⤒)	67		
\gtrarr (⤓)	69		
\gtrcc (▷)	68		
\gtrclosed (▷)	68, 72	H (N)	160
\gtrclosed (▷)	67, 71	\H (𠂊)	21
\gtrdot (▷)	66	h (esvect package option) .	111
\gtrdot (▷)	65	\h (𠂎)	160
\gtrdot (▷)	34	Hälsinge runes	see staveless runes
\gtrdot (▷)	68	\HA (𠂔)	152
\gtrdot (▷)	67	\Ha (𠂎)	152
\gtrdot (▷)	69	háček (ˇ)	see accents
\gtreqless (⤒)	66	\Hades (ϝ)	129
\gtreqless (⤒)	65	\Hail (߱)	190
\gtreqless (⤒)	69	\Halb (ɔ)	163
\gtreqless (⤒)	68	half note	see musical symbols
\gtreqless (⤒)	67	\HalfCircleLeft (◐) . .	147
\gtreqless (⤒)	69	\HalfCircleRight (◑) . .	147
\gtreqlessllant (⤒)	68	\HalfFilledHut (߱) . .	190
\gtreqlessllant (⤒)	67	\halflength (߱)	25
\gtreqqlless (⤒)	66	\halfNote (߱)	165
\gtreqqlless (⤒)	65	\halfnote (߱)	161
\gtreqqlless (⤒)	69	\halfNoteDotted (߱.) . .	165
\gtreqqlless (⤒)	68	\halfNoteDottedDouble (߱..) . .	165
\gtreqqlless (⤒)	67	\halfNoteDottedDoubleDown (߱..) . .	165
\gtreqqlless (⤒)	69	\halfNoteDottedDown (߱) . .	165
\gtreqslantless (⤒)	68	\halfNoteDown (߱)	165
\gtrelss (⤒)	66	\halfNoteRest (߱)	166
\gtrelss (⤒)	65	\halfNoteRestDotted (߱..) . .	166
\gtrelss (⤒)	69		
\gtreqqless (⤒)	67		
\HalfSun (߱)	190		
Halloween symbols	39, 114, 115		
halloweennmath (package)	39, 91, 107, 113–115, 276, 277		
hamburger (🍔)	194		
Hamiltonian (ℳ)	see alphabets, math		
hammer (榔)	222		
hammer and pick (榔)	222		
hammer and wrench (榔)	222		
hamster (🐹)	192		
hand with fingers splayed (👉)	222		
handbag (👜)	222		
\HandCuffLeft (⌚)	138		

\hdotdot (...)	32, 116	\HF (⌚)	152
\hdots (...)	116	\Hf (⌚)	152
\hdots (...)	116	\hfermion (⌚)	133
\Hdual (₩)	152	\hfil	261
\HE (₩)	152	\HG (₩)	152
\He (₩)	152	\Hg (₩)	152
headphones (🎧)	222	\HH	164
heads see faces		\HH (₩)	152
headstone (襚)	222	\Hh (₩)	152
health worker (₩)	222	hhcount (package)	181, 194, 276, 277
hear-no-evil monkey (₩)	222	\Hhundred (₩)	152
\Heart (♡)	189	\HI (₩)	152
heart decoration (₩)	222	\Hi (₩)	152
heart exclamation (❗)	222	\hiatus (ᴴ)	196
heart suit (❤)	179	hibiscus (₩)	222
heart with arrow (❤)	222	\Hibl (₩)	152
heart with ribbon (❤)	222	\Hibp (₩)	152
heartctrbull (bullcntr package option)	195	\Hibs (₩)	152
\heartctrbull	195	\Hibw (₩)	152
hearts	129, 150, 179, 180, 227–234	\Hidalgo (₩)	129
\heartsuit (♡)	179	hieroglf (package)	152, 276, 277
\heartsuit (♡)	179	hieroglyphics	152
\heartsuit (♡)	179	\Higgsboson (₩)	133
\heartsuit (♡)	179	high voltage (⚡)	222
\heartsuit (♡)	179	high-heeled shoe (👠)	222
heavy dollar sign (\$)	222	high-speed train (🚄)	187
\heavyqleft (₩)	211	hiking boot (🥾)	222
\heavyqright (₩)	211	Hilbert space (ℳ) see alphabets, math	
Hebrew	96, 97, 125	\hill (₩)	24
hedgehog (🦔)	192	hindu temple (ImageRelation)	222
helicopter (🚁)	187	hippopotamus (🦧)	192
helicopters	186–187	Hirst, Daniel	161
Helvetica (font)	26	\HJ (₩)	152
\hemibelion (c)	27	\Hj (₩)	152
herb (🌿)	222	\HK (₩)	152
\Herd (₩)	211	\Hk (₩)	152
\HERMAPHRODITE (⚥)	132	\hknearrow (↗)	80
\Hermaphrodite (⚥)	132	\hknearrow (↖)	85
\Hermaphrodite (⚥)	132	\hknarrow (↘)	80
\hermitmatrix (+)	121	\hknarrow (↗)	85
\hermitmatrix (+)	122	\hksearrow (⤒)	85
\Heta (Ƞ)	157	\hksearrow (⤓)	80
\heta (Ƞ)	157	\hksqrt (sqrt)	262
\hexago (₩)	148	\hkswarow (↗)	85
\hexagocross (₩)	148	\hkswarow (↖)	80
\hexagodot (₩)	148	\HL (₩)	152
\hexagofill (₩)	148	\Hl (₩)	152
\hexagofillha (₩)	148	\HM (₩)	152
\hexagofillhb (₩)	148	\Hm (₩)	152
\hexagofillhl (₩)	148	\Hman (₩)	152
\hexagofillhr (₩)	148	\Hmillion (₩)	152
\hexagolineh (₩)	148	\hmleftpitchfork (⊖)	91
\hexagolinev (₩)	148	\hmrightpitchfork (⊕)	91
\hexagolinevh (₩)	148	\Hms (₩)	152
\hexagon (₩)	145	\HN (₩)	152
\hexagon (₩)	144	\Hn (₩)	152
\hexagonblack (₩)	145	\HO (₩)	152
hexagons	148–149		
\Hexasteel (₩)	132		
\hexstar (*)	142		
\HF (≈)	126		

\hourglass (⌚)	39
hourglass done (⌚)	191
hourglass not done (⌚)	191
\house (⌂)	145
house (🏡)	223
house with garden (🏡)	223
houses (🏘)	223
\HP (_HP)	152
\Hp (Hp)	152
\hpause (▬)	162
\Hplural (ⓘ)	152
\Hplus (⊕)	152
\HQ (⌚)	152
\Hq (ߵ)	152
\Hquery (ܵ)	152
\HR (ܪ)	152
\Hr (ܽ)	152
\hrectangle (▣)	145
\hrectangleblack (■)	145
\HS (ܶ)	152
\Hs (ܷ)	152
\hs (ܷ)	163
\Hscribe (ܻ)	152
\Hslash (ܵ)	152
\hslash (ܵ)	97
\hslash (ܵ)	98
\hslash (ܵ)	98
\hslash (ܵ)	98
\Hsv (ܵ)	152
\HT (ܶ)	131
\HT (ܽ)	152
\Ht (ܶ)	152
\Hten (ܶ)	152
\Hthousand (ܵ)	152
\Htongue (ܵ)	152
\HU (ܷ)	152
\Hu (ܷ)	152
hugging face (ܹ)	223
hundred points (ܱܰܰ)	223
Hungarian umlaut (ܵ)	see accents
\Hungary (ܶ)	204
hushed face (ܹ)	223
\Hut (ܵ)	190
hut (ܵ)	223
\HV (ܵ)	152
\Hv (ܵ)	152
\hv (hv)	20
\Hvbar (ܷ)	152
\HW (ܶ)	152
\Hw (ܵ)	152
\HX (ܶ)	152
\Hx (ܷ)	152
\HXthousand (ܵ)	152
\HY (ܶ)	152
\Hy (ܵ)	152
\Hygiea (ܶ)	129
hyphen, discretionary	272
\hyphenbullet (▬)	122
\HZ (ܵ)	152
\Hz (ܵ)	152
\hzigzag (ܵ)	122
I	
\I (ܵ)	160
\i (ܵ)	21
\i (ܵ)	160
\i (ି)	21
i (ି)	160
\ialign	261, 263, 265
\IB (ܵ)	130
\ibar (ܵ)	20
IBM PC	131, 198, 271
\IC (ܲ)	129
ice (ܵ)	193
ice cream (ܵ)	193
ice hockey (ܵ)	223
ice skate (ܵ)	223
\Iceland (ܶ)	204
Icelandic staves	198
\IceMountain (ܵ)	190
\Id (Id)	93
\id (id)	93
ID button (ܵ)	223
\iddots (ܵ)	116
\iddots ()	264
\idotsint (ܵ)	41
\idotsint (ܵ)	43
\idotsint (ܵ)	50
\idotsint (ܵ)	50
\idotsint (ܵ)	46
\idotsint (ܵ)	45
\iff see \Longleftarrow	
ifsym (package)	126, 146, 147, 181, 190, 194, 196, 257, 259, 276, 277
igo (package)	184, 276
\igocircle (ܵ)	184
\igocircle (ܵ)	184
\igocross (ܵ)	184
\igocross (ܵ)	184
\igonone (ܵ)	184
\igonone (ܵ)	184
\igosquare (ܵ)	184
\igosquare (ܵ)	184
\igotriangle (ܵ)	184
\igotriangle (ܵ)	184
\iiiiint (ܵ)	41
\iiiiint (ܵ)	43
\iiiiint (ܵ)	50
\iiiiint (ܵ)	44
\iiiiint (ܵ)	46
\iiiiint (ܵ)	45
\iiiiint (ܵ)	47
\iiiiintsl (ܵ)	48
\iiiiintup (ܵ)	48
\iiint (ܵ)	42
\iiint (ܵ)	45
\iiint (ܵ)	41
\iiint (ܵ)	43
\iiint (ܵ)	50
\iiint (ܵ)	44
\iiint (ܵ)	46
\iiint (ܵ)	45
\iiint (ܵ)	47
\iiintsl (ܵ)	48
\iiintup (ܵ)	48
\iiint (ܵ)	41
\iiint (ܵ)	121
\iinfin (ܵ)	118
\iinfin (ܵ)	121
\iint (ܵ)	42
\iint (ܵ)	41
\iint (ܵ)	41
\iint (ܵ)	43
\iint (ܵ)	50
\iint (ܵ)	44
\iint (ܵ)	46
\iint (ܵ)	45
\iint (ܵ)	47
\iint (ܵ)	47
\iint (ܵ)	48
\iintup (ܵ)	48
\IJ (IJ)	16
\ij (ij)	16
\Im (ܶ)	93, 97
\Im (Im)	93
\Im (ܶ)	98
\im (im)	93
\im (j)	98
\imageof (ܶ)	90
\imageof (ܶ)	59
\imath (ି)	97, 106
\imath (ି)	98
\imath (ି)	98
immigration	186–187
\impliedby	see \Longleftarrow
\implies see \Longrightarrow	
and \vdash	
impulse train	see sha
\in (ܶ)	97
\in (ܶ)	97
\in (ܶ)	56, 98
\in (ܶ)	98
\in (ܶ)	97
\in (ܶ)	59
inbox tray (ܵ)	223
inches	see \second and \textquotedbl
\incoh (ܶ)	62
incoming envelope (ܵ)	223
\increment (Δ)	122
independence	
probabilistic	262
statistical	262
stochastic	see \bot
\independent (ܶ)	262
index pointing up (ܶ)	223
\Industry (ܵ)	189
inequalities	15, 65–70
inexact differential	see \dbar

\inf (inf)	92
infimum <i>see \inf and \sqcap</i>	
infinity	118–121, 123, 262
infinity (⌚)	223
\Info (ⓘ)	189
\Info (ⓘ)	201
information (ⓘ)	223
information symbols	189
informator symbols	183
\infy (∞)	120
\infy (∞)	119
\infy (∞)	121
\infy (∞)	120
\infy (∞)	118
\ING (◊)	160
\Ing (◊)	160
\ing (◊)	160
\inipartvoice (▣)	23
\inipartvoiceless (▣)	23
\injlim (inj lim)	92
\Innocey (⌚)	212
\inplus (€)	52
\inplus (€)	58
input latin letters (Ѐ)	223
input latin lowercase (Ѐ)	223
input latin uppercase (Ѐ)	223
input numbers (Ӯ)	223
input symbols (Ӯ)	223
inputenc (package)	274
\Ins ([Ins])	130
\int (ʃ)	42
\int (ʃ)	41
\int (ʃ)	41
\int (ʃ)	41
\int (ʃ)	41
\int (ʃ)	50
\int (ʃ)	46
\int (ʃ)	45
\int (ʃ)	47
\intBar (ʃ)	46
\intBar (ʃ)	47
\intbar (ʃ)	46
\intbar (ʃ)	47
\intBarsl (ʃ)	48
\intbarsl (ʃ)	48
\intBarup (ʃ)	48
\intbarup (ʃ)	48
\intcap (ʃ)	50
\intcap (ʃ)	47
\intcapsl (ʃ)	49
\intcapup (ʃ)	49
\intclockwise (ʃ)	50
\intclockwise (ʃ)	46
\intclockwise (ʃ)	50
\intclockwise (ʃ)	47
\intclockwisesl (ʃ)	48
\intclockwiseup (ʃ)	48
\intctrcclockwise (ʃ)	46
\intcup (ψ)	50
\intcup (ψ)	47
\intcups1 (ψ)	49
\intcupup (ψ)	49
\INTEGER (ℤ)	93
\Integer (ℤ)	93
integers (ℤ)	<i>see alphabets, math</i>
integrals	40–51, 120, 121, 262
product	51
integrals (wasysym package option)	41
\interaction (϶)	133
\intercal (⊔)	31
\intercal (⊔)	34, 98
\intercal (⊔)	33
\intercal (⊔)	97
\intercal (⊔)	35, 98
interior	<i>see \mathring{m}</i>
\interleave ()	31
\interleave ()	35
\internalsym (▣)	133
intersection	<i>see \cap</i>
\Interval (⌚)	190
\intlarhk (ƒ)	50
\intlarhk (ƒ)	47
\intlarhksl (ƒ)	49
\intlarhkup (ƒ)	49
\intprod (¬)	33, 34, 121
\intprod (¬)	35
\intprod (¬)	33, 34, 121
\intprod (¬)	35
\intsl (ʃ)	48
\intup (ʃ)	46
\intup (ʃ)	48
\intx (ɸ)	47
\intxsl (ɸ)	49
\intxup (ɸ)	49
\inva (ݒ)	20
\invamp (ߵ)	32
\invamp (ߵ)	36
\invbackneg (¬)	120
\INVd (◊)	131
\invdiameter (ߵ)	186
\inve (ߴ)	20
inverse limit <i>see \varprojlim</i>	
\inversebullet (▣)	122
\inversewhitecircle (ߵ)	145
\InversTransformHoriz (•◦)	62
\InversTransformVert (◦)	62
inverted symbols	18–20, 25, 259
inverters	131
\invf (j)	20
\invglotstop (ݏ)	20
\invh (߻)	20
\INVl (◊)	131
\invlazys (ߵ)	35
\invlegr (ڶ)	20
\invm (ݔ)	20
\invneg (¬)	52
\invneg (¬)	121
\invneg (¬)	120
\invnot (¬)	121
\invnot (¬)	121
\invnot (¬)	122
\INVr (◊)	131
\invr (ݏ)	20
\invscr (ݔ)	20
\invscripta (ݏ)	20
\invsmileface (⌚)	211
\INVu (◊)	131
\invv (ݏ)	20
\invw (ݏ)	20
\invwhitehalfcircle (ߵ)	145
\invwhiteupperhalfcircle (ߵ)	145
\invy (ݏ)	20
\IO (ݔ)	130
\ion (ଓ)	133
\ionicbond (⊕)	134
\Iota (I)	94
\iota (ݏ)	94
iota, upside-down	259
\iotaaut (ݏ)	95
\ipagamma (ݏ)	20
\ipercatal (+)	196
\Ireland (ݔ)	204
\IroningI (ݔ)	189
\IroningII (ݔ)	189
\IroningIII (ݔ)	189
irony mark (ߵ)	259
irrational numbers (J)	<i>see alphabets, math</i>
\Irritant (X)	196
\isindot (܂)	59
\isinE (܂)	59
\isinobar (܂)	59
\isins (܂)	59
\isinvb (܂)	59
\ismodeledby (=)	260
ISO character entities	272
isoent (package)	272
Isthmian script	157–159
italic	15, 16, 27, 266, 268, 270, 272
\Italy (ݔ)	204
J	
J (ݏ)	160
\j (ݏ)	160
\j (j)	21
j (ݏ)	160
\jAB (ݔ)	204
jack-o'-lantern (🎃)	223
\JackStar (♦♦)	142
\JackStarBold (♣♣)	142
\jAG (ݔ)	204
Japanese “acceptable” button (ݔ)	223
Japanese “application” button (ݔ)	223

Japanese “bargain” button (🉐) 223
 Japanese “congratulations” button (㊗) 223
 Japanese “discount” button (割) 223
 Japanese “free of charge” button (無) 223
 Japanese “here” button (➡) 223
 Japanese “monthly amount” button (月) 223
 Japanese “no vacancy” button (満) 223
 Japanese “not free of charge” button (有) 223
 Japanese “open for business” button (営) 223
 Japanese “passing grade” button (合) 223
 Japanese “prohibited” button (禁) 223
 Japanese “reserved” button (預) 223
 Japanese “secret” button (㊙) 224
 Japanese “service charge” button (サ) 224
 Japanese “vacancy” button (空) 224
 Japanese castle (城) 224
 Japanese dolls (雛) 224
 Japanese post office (郵) 224
 Japanese symbol for beginner (🔰) 224
 \jAR (🅰️) 205
 \jBC (🅱️) 205
 \jBH (🅱️) 205
 \jBI (⌚) 205
 \jBN (🅱️) 205
 \jBR (🅱️) 205
 \jBT (🅱️) 205
 \jBV (🅱️) 205
 \jBZ (🅱️) 205
 \jCJ (🅱️) 205
 \jCL (🅱️) 205
 \jCS (🅱️) 205
 \jCT (🅱️) 204
 \jCV (🅱️) 204
 \jDB (🅱️) 205
 \jDJ (🅱️) 205
 jeans (👖) 224
 Jewish star 142, 143
 \jGJ (🅱️) 205
 \jGL (🅱️) 205
 \jGR (🅱️) 205
 \jHD (🅱️) 205
 \jHR (🅱️) 205
 \jIF (🅱️) 205
 \jIL (🅱️) 205

\jIS (🅱️) 205
 \jmath (𝐣) 97, 106
 \jmath (𝐣) 98
 \jmath (𝐣) 98
 \jMH (🅱️) 205
 \jMM (🅱️) 205
 \jMS (🅱️) 204
 \jNT (🅱️) 204
 \Joch (Ӥ) 190
 \Join (ࡏ) 51, 52
 \Join (ࡏ) 34, 56
 \Join (ࡏ) 33
 \Join (ࡏ) 122
 \joinrel 260
 joint denial see \downarrowarrow
 joker (🃏) 224
 \jOT (ଡ) 205
 joystick (🕹) 224
 \jPH (ଡ) 205
 \Jpsimeson (ߖ) 134
 \jSB (ଡ) 205
 \jSJ (ଡ) 205
 \jSM (ଡ) 205
 \jSV (ଡ) 205
 \jTL (ଡ) 205
 \jTM (ଡ) 205
 \jTR (ଡ) 205
 judge (겢) 224
 junicode (package) 275, 276
 Junicode.ttf (file) 275
 \Juno (࠵) 129
 \Jupiter (࠵) 128
 \Jupiter (࠵) 127
 \Jupiter (࠵) 129
 \jupiter (࠵) 127
 \jVL (࠵) 205
 \jVN (࠵) 205
 \jVS (࠵) 205

K

\K (࠵) 160
 \k (࠵) 160
 \k (࠵) 25
 \k (࠵) 21
 k (࠵) 160
 kaaba (🕋) 224
 kangaroo (🦘) 193
 \Kaonminus (K^-) 134
 \Kaonnull (K^0) 134
 \Kaonplus (K^+) 134
 \Kappa (࠵) 94
 \kappa (࠵) 94
 \kappaup (࠵) 95
 \ker (ker) 92
 \kernelcontraction (࠵) 58
 \kernelcontraction (࠵) 59
 ket 100
 key (🔑) 224
 \Keyboard (⌨) 130
 keyboard (⌨) 224

keyboard symbols 130
 keycap: * (✳) 224
 keycap: 0 (ⓧ) 224
 keycap: 1 (❶) 224
 keycap: 10 (❽) 224
 keycap: 2 (❷) 224
 keycap: 3 (❸) 224
 keycap: 4 (❹) 224
 keycap: 5 (❺) 224
 keycap: 6 (❻) 224
 keycap: 7 (❻) 224
 keycap: 8 (❻) 224
 keycap: 9 (❻) 224
 keycap: # (">#) 224
 keys 228–231
 keys, computer 130
 keystroke (package) 130, 276, 277

\keystroke (⌨) 130
 kick scooter (🛴) 187
 kimono (👘) 224
 king 183, 184, 254–255
 kiss (ܔ) 224
 kissing cat (ܔ) 224
 kissing face (ܔ) 224
 kissing face with closed eyes (ܔ) 224

kissing face with smiling eyes (ܔ) 224
 kitchen knife (🔪) 224
 kite (ܩ) 224
 kiwi fruit (🥝) 193
 \Knife (🔪) 211
 knight 183, 184, 254–255
 knitting (package) 202, 276, 277
 knitting symbols 202
 \Knoblauchpresse (铡) 211
 knocked-out face (ܔ) 224
 knot (package) 244, 247, 276
 knot (ܔ) 224
 knots 244–247
 Knuth, Donald E. 13, 88, 270, 278

symbols by 188
 koala (🐨) 193
 \Kochtopf (饅) 211
 \Koppa (࠵) 157
 \koppa (࠵) 157
 \Kr (࠵) 164
 \kreuz (✖) 186
 Kronecker product see \otimes
 Kronecker sum see \oplus
 \Kronos (࠵) 129
 kroužek (ܔ) see accents
 \kside (») 183

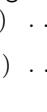
L

\L (࠵) 16
 \l (࠵) 16
 l (࠵) 160
 lab coat (白衣) 224
 \labdentalnas (mj) 20
 label (>tag) 224

\le (\leq)	70	\leftarrowcircle (◐)	144	\leftarrowpropto (∞)	53
\leadsto (\rightsquigarrow)	52, 73	\leftarrowcircle (◐)	144	\leftrarrowcurvearrow (\curvearrowleft)	80
\leadsto (\rightsquigarrow)	80	\leftarrowcircle (◐)	144	\leftarrowrightarrowarrow (\leftrightarrow)	73
\leadsto (\rightsquigarrow)	76	\leftarrowcurvedarrow (\curvearrowleft)	80	\leftarrowrightarrowarrow (\leftrightarrow)	79
\leadsto (\rightsquigarrow)	86	\leftarrowcurvedarrow (\curvearrowleft)	86	\leftarrowrightarrowarrow (\leftrightarrow)	76
leaf see \textleaf		\leftarrowdasharrow (\curvearrowleft)	84	\leftarrowrightarrowarrow (\leftrightarrow)	86
leaf fluttering in wind (🍃)	225	\leftarrowdasharrow (\curvearrowleft)	86	\leftarrowrightarrowarrow (\leftrightarrow)	74
\leafleft (\curvearrowleft)	143	\leftarrowdbkarrow (\curvearrowleft)	86	\leftarrowrightarrowarrow (\leftrightarrow)	73
\leafNE (\curvearrowright)	143	\leftarrowdbltail (\curvearrowleft)	59	\leftarrowrightarrowarrow (\leftrightarrow)	79
\leafright (\curvearrowright)	143	\leftarrowdotarrow (\curvearrowleft)	86	\leftarrowrightarrowarrow (\leftrightarrow)	76
leafy green (🌿)	193	\leftarrowdowncurvedarrow (\curvearrowleft)	80	\leftarrowrightarrowarrow (\leftrightarrow)	88
leaves	143, 144, 150, 241	\leftarrowdowncurvedarrow (\curvearrowleft)	86	\leftarrowrightarrowarrow (\leftrightarrow)	86
ledger (📒)	225	\lefteav (﴿)	104	\leftarrowrightarrowarrowaccent (﴾)	107
Lefschetz motive (\mathcal{L}) see alphabets, math					
\Left	197	\leftfilledspoon (\curvearrowleft)	89	\leftarrowrightarrowarrowcircle (\leftrightarrow)	86
\left	100, 104, 105, 256, 258	\leftfishtail (\curvearrowleft)	59	\leftarrowrightarrowarroweq (\equiv)	74
left arrow (\blacktriangleleft)	225	\leftfootline (\curvearrowleft)	56	\leftarrowrightarrowarroweq (\equiv)	84
left arrow curving right ($\textcolor{blue}{C}$)	225	\leftfootline (\curvearrowleft)	53	\leftarrowrightarrowarrows (\leftrightarrow)	74
left luggage (กระเป๋า)	187	\leftfree (\curvearrowleft)	53	\leftarrowrightarrowarrows (\leftrightarrow)	73
left speech bubble (💬)	225	\lefthalfcap (\cap)	32	\leftarrowrightarrowarrows (\leftrightarrow)	84
left-facing fist (👉)	225	\lefthalfcup (\cup)	33	\leftarrowrightarrowarrows (\leftrightarrow)	79
left-right arrow (\square)	225	\lefthand (☞)	138	\leftarrowrightarrowarrows (\leftrightarrow)	76
\LEFTarrow (\blacktriangleleft)	186	\leftharpoonaccent (﴾)	107	\leftarrowrightarrowarrows (\leftrightarrow)	86
\Leftarrow (\blackleftarrow)	30, 73	\leftharpoonccw (\curvearrowleft)	78	\leftarrowrightarrowarrowTriangle (\leftrightarrow)	84
\Leftarrow (\blackleftarrow)	80	\leftharpooncw (\curvearrowleft)	78	\leftarrowrightarrowarrowtriangle (\leftrightarrow)	74
\Leftarrow (\blackleftarrow)	75	\leftharpoondown (\curvearrowleft)	75	\leftarrowrightarrowarrowtriangle (\leftrightarrow)	84
\Leftarrow (\blackleftarrow)	86	\leftharpoondown (\curvearrowleft)	73	\leftrightblackarrow ($\blackleftarrow\blackrightarrow$)	84
\leftarrow (\leftarrow)	74	\leftharpoondown (\curvearrowleft)	84	\leftrightblackspoon ($\bullet\bullet$)	90
\leftarrow (\leftarrow)	73	\leftharpoondown (\curvearrowleft)	82	\leftrightcurvearrow ($\curvearrowleft\curvearrowright$)	80
\leftarrow (\leftarrow)	79	\leftharpoondown (\curvearrowleft)	87	\leftrightharpoon (\curvearrowleft)	75
\leftarrow (\leftarrow)	76	\leftharpoondownbar (\curvearrowleft)	87	\leftrightharpoondownload ($\curvearrowleft\curvearrowright$)	87
\leftarrow (\leftarrow)	88	\leftharpoonsupdown (\leftrightarrow)	87	\leftrightharpoon (\curvearrowleft)	75
\leftarrow (\leftarrow)	86	\leftharpoonup (\curvearrowleft)	75	\leftrightharpoon (\curvearrowleft)	73
\leftarrowaccents ($\tilde{\cdot}$)	107	\leftharpoonup (\curvearrowleft)	84	\leftrightharpoonup (\curvearrowleft)	80
\leftarrowapprox (\approx)	86	\leftharpoonup (\curvearrowleft)	82	\leftrightharpoonup (\curvearrowleft)	75
\leftarrowbackapprox (\approx)	86	\leftharpoonup (\curvearrowleft)	87	\leftrightharpoondownloadup ($\curvearrowleft\curvearrowright$)	82
\leftarrowbsimilar (\approx)	86	\leftharpoonupbar (\curvearrowleft)	87	\leftrightharpoondownloadup ($\curvearrowleft\curvearrowright$)	78
\leftarrowless (\ll)	69	\leftharpoonupdash (\curvearrowleft)	87	\leftrightharpoondownloadupup ($\curvearrowleft\curvearrowright$)	87
\leftarrowonoplus (\oplus)	86	\leftarrowcurvearrow (\curvearrowleft)	80	\leftrightharpoondownloadupup ($\curvearrowleft\curvearrowright$)	87
\leftarrowplus (\leftrightarrow)	86	\leftleftarrows (\leftrightarrow)	74	\leftrightharpoonsdown ($\curvearrowleft\curvearrowright$)	87
\leftarrowshortrightarrowarrow (\leftrightarrow)	86	\leftleftarrows (\leftrightarrow)	73	\leftrightharpoons (\leftrightarrow)	75
\leftarrowsimilar (\approx)	86	\leftleftarrows (\leftrightarrow)	84	\leftrightharpoons (\leftrightarrow)	73
\leftarrowsubset (\Subset)	65	\leftleftarrows (\leftrightarrow)	79	\leftrightharpoons (\leftrightarrow)	84
\leftarrowtail (\curvearrowleft)	73	\leftleftarrows (\leftrightarrow)	76	\leftrightharpoons (\leftrightarrow)	82
\leftarrowtail (\curvearrowleft)	83	\leftleftarrows (\leftrightarrow)	86	\leftrightharpoons (\leftrightarrow)	82
\leftarrowtail (\curvearrowleft)	79	\leftleftarrows (\leftrightarrow)	75	\leftrightharpoons (\leftrightarrow)	82
\leftarrowtail (\curvearrowleft)	76	\leftlsquigarrow (\curvearrowleft)	80	\leftrightharpoons (\leftrightarrow)	78
\leftarrowtail (\curvearrowleft)	86	\leftlsquigarrow (\curvearrowleft)	76	\leftrightharpoons (\leftrightarrow)	87
\leftarrowTriangle (\blacktriangleleft)	83	\Leftmapsto (\leftrightarrow)	79	\leftrightharpoons (\leftrightarrow)	87
\leftarrowtriangle (\blacktriangleleft)	74	\Leftmapsto (\leftrightarrow)	79	\leftrightharpoons (\leftrightarrow)	75
\leftarrowtriangle (\blacktriangleleft)	84	\Leftmapsto (\leftrightarrow)	76	\leftrightharpoons (\leftrightarrow)	78
\leftarrowtriangle (\blacktriangleleft)	86	\leftModels (\models)	53	\leftrightharpoons (\leftrightarrow)	82
\leftarrowx (\ast)	86	\leftmodels (\models)	56	\leftrightharpoons (\leftrightarrow)	78
\leftAssert (\dashv)	56	\leftmodels (\models)	53	\leftrightharpoons (\leftrightarrow)	87
\leftassert (\dashv)	56	\leftmoon (◐)	128	\leftrightharpoons (\leftrightarrow)	87
\leftbarharpoon (\Leftarrow)	75	\leftmoon (◐)	128	\leftrightharpoonsfill	112
\leftbkarrow (\leftarrow)	79	\leftmoon (◐)	127	\leftrightharpoonsup (\leftrightarrow)	87
\leftbkarrow (\leftarrow)	86	\leftouterjoin (\bowtie)	122	\leftrightharpoonupdown ($\curvearrowleft\curvearrowright$)	82
\leftblackarrow (\blacktriangleleft)	84	\leftp (\curvearrowleft)	25	\leftrightharpoonupdown ($\curvearrowleft\curvearrowright$)	78
\leftblackspoon (\blacktriangleright)	90	\leftpitchfork (ϵ)	91	\leftrightharpoonupdown ($\curvearrowleft\curvearrowright$)	87
\leftbroom (\leftarrow)	91	\leftpitchfork (ϵ)	89	\leftrightharpoonupup ($\curvearrowleft\curvearrowright$)	87

\LinearACCCLV (⌚)	153	\LinearACCCXXIX (⌚)	153	\LinearACCVII (⌚)	152
\LinearACCCLVI (⌚)	153	\LinearACCCXXV (⌚)	153	\LinearACCVIII (⌚)	152
\LinearACCCLVII (⌚)	153	\LinearACCCXXVI (⌚)	153	\LinearACCX (⌚)	153
\LinearACCCLVIII (⌚)	153	\LinearACCCXXVII (⌚)	153	\LinearACCXCI (⌚)	154
\LinearACCCLX (⌚)	153	\LinearACCCXXVIII (⌚)	153	\LinearACCXCII (⌚)	154
\LinearACCCLXI (⌚)	154	\LinearACCCXXX (⌚)	153	\LinearACCXCIII (⌚)	154
\LinearACCCLXII (⌚)	154	\LinearACCCXXXI (⌚)	153	\LinearACCXCIV (⌚)	154
\LinearACCCLXIII (⌚)	154	\LinearACCCXXXII (⌚)	153	\LinearACCXCIX (⌚)	152
\LinearACCCLXIV (⌚)	154	\LinearACCCXXXIII (⌚)	153	\LinearACCXCV (⌚)	152
\LinearACCCLXIX (⌚)	154	\LinearACCCXXXIV (⌚)	153	\LinearACCXCVI (⌚)	152
\LinearACCCLXV (⌚)	154	\LinearACCCXXXIX (⌚)	153	\LinearACCXCVII (⌚)	152
\LinearACCCLXVI (⌚)	154	\LinearACCCXXXV (⌚)	153	\LinearACCXCVIII (⌚)	152
\LinearACCCLXVII (⌚)	154	\LinearACCCXXXVI (⌚)	153	\LinearACCXI (⌚)	153
\LinearACCCLXVIII (⌚)	154	\LinearACCCXXXVII (⌚)	153	\LinearACCXII (⌚)	153
\LinearACCCLXX (⌚)	154	\LinearACCCXXXVIII (⌚)	153	\LinearACCXIII (⌚)	153
\LinearACCCLXXI (⌚)	154	\LinearACCI (⌚)	152	\LinearACCXIV (⌚)	153
\LinearACCCLXXII (⌚)	154	\LinearACCII (⌚)	152	\LinearACCXIX (⌚)	153
\LinearACCCLXXIII (⌚)	154	\LinearACCIII (⌚)	152	\LinearACCXL (⌚)	153
\LinearACCCLXXIV (⌚)	154	\LinearACCIV (⌚)	152	\LinearACCXLI (⌚)	153
\LinearACCCLXXIX (⌚)	154	\LinearACCIX (⌚)	152	\LinearACCXLII (⌚)	153
\LinearACCCLXXV (⌚)	154	\LinearACCL (⌚)	153	\LinearACCXLIII (⌚)	153
\LinearACCCLXXVI (⌚)	154	\LinearACCLI (⌚)	153	\LinearACCXLIV (⌚)	153
\LinearACCCLXXVII (⌚)	154	\LinearACCLI (⌚)	153	\LinearACCXLIX (⌚)	153
\LinearACCCLXXVIII (⌚)	154	\LinearACCLII (⌚)	153	\LinearACCXLV (⌚)	153
\LinearACCCLXXVIX (⌚)	154	\LinearACCLIII (⌚)	153	\LinearACCXLVI (⌚)	153
\LinearACCCLXXX (⌚)	154	\LinearACCLIV (⌚)	153	\LinearACCXLVII (⌚)	153
\LinearACCCLXXXI (⌚)	154	\LinearACCLIX (⌚)	153	\LinearACCXLVIII (⌚)	153
\LinearACCCLXXXII (⌚)	154	\LinearACCLV (⌚)	153	\LinearACCXV (⌚)	153
\LinearACCCLXXXIII (⌚)	154	\LinearACCLVI (⌚)	153	\LinearACCXVI (⌚)	153
\LinearACCCLXXXIV (⌚)	154	\LinearACCLVII (⌚)	153	\LinearACCXVII (⌚)	153
\LinearACCCLXXXIX (⌚)	154	\LinearACCLVIII (⌚)	153	\LinearACCXVIII (⌚)	153
\LinearACCCLXXXV (⌚)	154	\LinearACCLX (⌚)	153	\LinearACCXX (⌚)	153
\LinearACCCLXXXVI (⌚)	154	\LinearACCLXI (⌚)	153	\LinearACCXI (⌚)	153
\LinearACCCLXXXVII (⌚)	154	\LinearACCLXII (⌚)	153	\LinearACCXII (⌚)	153
\LinearACCCLXXXVIII (⌚)	154	\LinearACCLXIII (⌚)	154	\LinearACCXIII (⌚)	153
\LinearACCCV (⌚)	152	\LinearACCLXIV (⌚)	154	\LinearACCXIV (⌚)	153
\LinearACCCVI (⌚)	152	\LinearACCLXIX (⌚)	154	\LinearACCXXIX (⌚)	153
\LinearACCCVII (⌚)	152	\LinearACCLXV (⌚)	154	\LinearACCXXV (⌚)	153
\LinearACCCVIII (⌚)	153	\LinearACCLXVI (⌚)	154	\LinearACCXXVI (⌚)	153
\LinearACCCX (⌚)	153	\LinearACCLXVII (⌚)	154	\LinearACCXXVII (⌚)	153
\LinearACCCXI (⌚)	153	\LinearACCLXVIII (⌚)	154	\LinearACCXXVIII (⌚)	153
\LinearACCCXII (⌚)	153	\LinearACCLXX (⌚)	154	\LinearACCXXX (⌚)	153
\LinearACCCXIII (⌚)	153	\LinearACCLXXI (⌚)	154	\LinearACCXXXI (⌚)	153
\LinearACCCXIV (⌚)	153	\LinearACCLXXII (⌚)	154	\LinearACCXXXII (⌚)	153
\LinearACCCXIX (⌚)	153	\LinearACCLXXIII (⌚)	154	\LinearACCXXXIII (⌚)	153
\LinearACCCXL (⌚)	153	\LinearACCLXXIV (⌚)	154	\LinearACCXXXIV (⌚)	153
\LinearACCCXLII (⌚)	153	\LinearACCLXXIX (⌚)	154	\LinearACCXXXIX (⌚)	153
\LinearACCCXLIII (⌚)	153	\LinearACCLXXV (⌚)	154	\LinearACCXXXV (⌚)	153
\LinearACCCXLIV (⌚)	153	\LinearACCLXXVI (⌚)	154	\LinearACCXXXVI (⌚)	153
\LinearACCCXLIX (⌚)	153	\LinearACCLXXVII (⌚)	154	\LinearACCXXXVII (⌚)	153
\LinearACCCXLV (⌚)	153	\LinearACCLXXVIII (⌚)	154	\LinearACCXXXVIII (⌚)	153
\LinearACCCXLVI (⌚)	153	\LinearACCLXXX (⌚)	154	\LinearACI (⌚)	152
\LinearACCCXLVII (⌚)	153	\LinearACCLXXXI (⌚)	154	\LinearACII (⌚)	152
\LinearACCCXLVIII (⌚)	153	\LinearACCLXXXII (⌚)	154	\LinearACIII (⌚)	152
\LinearACCCXLIX (⌚)	153	\LinearACCLXXXIII (⌚)	154	\LinearACIV (⌚)	152
\LinearACCCXLV (⌚)	153	\LinearACCLXXXIV (⌚)	154	\LinearACIX (⌚)	152
\LinearACCCXLVI (⌚)	153	\LinearACCLXXXIX (⌚)	154	\LinearACL (⌚)	153
\LinearACCCXLVII (⌚)	153	\LinearACCLXXXV (⌚)	154	\LinearACLI (⌚)	153
\LinearACCCXLVIII (⌚)	153	\LinearACCLXXXVI (⌚)	154	\LinearACLII (⌚)	153
\LinearACCCXLIX (⌚)	153	\LinearACCLXXXVII (⌚)	154	\LinearACLIII (⌚)	153
\LinearACCCXLV (⌚)	153	\LinearACCLXXXVIII (⌚)	154	\LinearACLIV (⌚)	153
\LinearACCCXLVI (⌚)	153	\LinearACCLXXXIX (⌚)	154	\LinearACLIX (⌚)	153
\LinearACCCXLVII (⌚)	153	\LinearACCLXXXV (⌚)	154	\LinearACLV (⌚)	153

\LinearACLVII (⌚)	153	\LinearACXV (⌚)	153	\LinearALXXXXII (⌚)	154
\LinearACLVIII (⌚)	153	\LinearACXVI (⌚)	153	\LinearALXXXXIII (⌚)	154
\LinearACLVIII (⌚)	153	\LinearACXVII (⌚)	153	\LinearALXXXIV (⌚)	154
\LinearACLX (⌚)	153	\LinearACXVIII (⌚)	153	\LinearALXXXIX (⌚)	154
\LinearACLXI (⌚)	153	\LinearACXX (⌚)	153	\LinearALXXXV (⌚)	154
\LinearACLXII (⌚)	153	\LinearACXXI (⌚)	153	\LinearALXXXVI (⌚)	154
\LinearACLXIII (⌚)	153	\LinearACXXII (⌚)	153	\LinearALXXXVII (⌚)	154
\LinearACLXIV (⌚)	153	\LinearACXXIII (⌚)	153	\LinearALXXXVIII (⌚)	154
\LinearACLXIX (⌚)	154	\LinearACXXIV (⌚)	153	\LinearALXXXIX (⌚)	154
\LinearACLXV (⌚)	154	\LinearACXXIX (⌚)	153	\LinearAV (⌚)	152
\LinearACLXVI (⌚)	154	\LinearACXXV (⌚)	153	\LinearAVI (⌚)	152
\LinearACLXVII (⌚)	154	\LinearACXXVI (⌚)	153	\LinearAVII (⌚)	152
\LinearACLXVIII (⌚)	154	\LinearACXXVII (⌚)	153	\LinearAVIII (⌚)	152
\LinearACLXX (⌚)	154	\LinearACXXVIII (⌚)	153	\LinearAX (⌚)	152
\LinearACLXXI (⌚)	154	\LinearACXXX (⌚)	153	\LinearAXCI (⌚)	154
\LinearACLXXII (⌚)	154	\LinearACXXXI (⌚)	153	\LinearAXCII (⌚)	154
\LinearACLXXIII (⌚)	154	\LinearACXXXII (⌚)	153	\LinearAXCIII (⌚)	154
\LinearACLXXIV (⌚)	154	\LinearACXXXIII (⌚)	153	\LinearAXCIV (⌚)	154
\LinearACLXXIX (⌚)	154	\LinearACXXXIV (⌚)	153	\LinearAXCIX (⌚)	152
\LinearACLXXV (⌚)	154	\LinearACXXXIX (⌚)	153	\LinearAXCV (⌚)	154
\LinearACLXXVI (⌚)	154	\LinearACXXXV (⌚)	153	\LinearAXCVI (⌚)	154
\LinearACLXXVII (⌚)	154	\LinearACXXXVI (⌚)	153	\LinearAXCVII (⌚)	154
\LinearACLXXVIII (⌚)	154	\LinearACXXXVII (⌚)	153	\LinearAXCVIII (⌚)	154
\LinearACLXXX (⌚)	154	\LinearACXXXVIII (⌚)	153	\LinearAXI (⌚)	152
\LinearACLXXI (⌚)	154	\LinearAI (⌚)	152	\LinearAXII (⌚)	152
\LinearACLXXII (⌚)	154	\LinearAII (⌚)	152	\LinearAXIII (⌚)	152
\LinearACLXXIII (⌚)	154	\LinearAIII (⌚)	152	\LinearAXIV (⌚)	153
\LinearACLXXIV (⌚)	154	\LinearAIV (⌚)	152	\LinearAXIX (⌚)	153
\LinearACLXXV (⌚)	154	\LinearAIX (⌚)	152	\LinearAXL (⌚)	153
\LinearACLXXVI (⌚)	154	\LinearAL (⌚)	153	\LinearAXLI (⌚)	153
\LinearACLXXVII (⌚)	154	\LinearALI (⌚)	153	\LinearAXLII (⌚)	153
\LinearACLXXVIII (⌚)	154	\LinearALII (⌚)	153	\LinearAXLIII (⌚)	153
\LinearACLXXIX (⌚)	154	\LinearALIII (⌚)	153	\LinearAXLIV (⌚)	153
\LinearACLXXV (⌚)	154	\LinearALIV (⌚)	153	\LinearAXLIX (⌚)	153
\LinearACLXXV (⌚)	154	\LinearALIX (⌚)	153	\LinearAXLV (⌚)	153
\LinearACLXXV (⌚)	154	\LinearALV (⌚)	153	\LinearAXLVI (⌚)	153
\LinearACLXXV (⌚)	154	\LinearALVI (⌚)	153	\LinearAXLVII (⌚)	153
\LinearACLXXV (⌚)	154	\LinearALVII (⌚)	153	\LinearAXLVIII (⌚)	153
\LinearACLXXV (⌚)	154	\LinearALVIII (⌚)	153	\LinearAXX (⌚)	153
\LinearACLXXV (⌚)	154	\LinearALX (⌚)	153	\LinearAXXI (⌚)	153
\LinearACLXXV (⌚)	154	\LinearALXI (⌚)	153	\LinearAXXII (⌚)	153
\LinearACLXXV (⌚)	154	\LinearALXII (⌚)	153	\LinearAXXIII (⌚)	153
\LinearACLXXV (⌚)	154	\LinearALXIII (⌚)	153	\LinearAXXIV (⌚)	153
\LinearACLXXV (⌚)	154	\LinearALXIV (⌚)	153	\LinearAXXIX (⌚)	153
\LinearACLXXV (⌚)	154	\LinearALXV (⌚)	153	\LinearAXXV (⌚)	153
\LinearACLXXV (⌚)	154	\LinearALXVI (⌚)	153	\LinearAXXVI (⌚)	153
\LinearACLXXV (⌚)	154	\LinearALXVII (⌚)	154	\LinearAXXVII (⌚)	153
\LinearACLXXV (⌚)	154	\LinearALXVIII (⌚)	154	\LinearAXXVIII (⌚)	153
\LinearACLXXV (⌚)	154	\LinearALXX (⌚)	154	\LinearAXXIII (⌚)	153
\LinearACLXXV (⌚)	154	\LinearALXXI (⌚)	154	\LinearAXXIX (⌚)	153
\LinearACLXXV (⌚)	154	\LinearALXXII (⌚)	154	\LinearAXXV (⌚)	153
\LinearACLXXV (⌚)	154	\LinearALXXIII (⌚)	154	\LinearAXXVII (⌚)	153
\LinearACLXXV (⌚)	154	\LinearALXXIV (⌚)	154	\LinearAXXVIII (⌚)	153
\LinearACLXXV (⌚)	154	\LinearALXXV (⌚)	154	\LinearAXXIX (⌚)	153
\LinearACLXXV (⌚)	154	\LinearALXXVI (⌚)	154	\LinearAXXIV (⌚)	153
\LinearACLXXV (⌚)	154	\LinearALXXVII (⌚)	154	\LinearAXXIX (⌚)	153
\LinearACLXXV (⌚)	154	\LinearALXXVIII (⌚)	154	\LinearAXXV (⌚)	153
\LinearACLXXV (⌚)	154	\LinearALXXIX (⌚)	154	\LinearAXXVI (⌚)	153
\LinearACLXXV (⌚)	154	\LinearALXXX (⌚)	154	\LinearAXXVII (⌚)	153
\LinearACLXXV (⌚)	154	\LinearALXXXI (⌚)	154	\LinearAXXVIII (⌚)	153

\LinearAXXXVIII (†)	153
linearb (package)	155, 156, 276, 277
\linefeed (⤠)	84
\linefeed (⤡)	86
\lineh (⤢)	149
\Lineload (⤣)	132
\linev ()	149
\linevh (+)	149
linguistic symbols	18–21
link (🔗)	225
linked paperclips (📎)	225
lion (🦁)	193
lipstick (💄)	225
	
\Lisa (Lisa)	197
\Lithuania (🇱)	202
\lito (o)	93
litter in bin sign (🚭)	225
liturgical music	163
lizard (🦎)	193
\lJoin (⤥)	52
\lJoin (⤦)	34
\LK (₭)	130
\ll (<)	66
\ll (<)	65
\ll (<)	68
\ll (<)	67
\ll (<)	70
llama (🦙)	193
\llangle (⟪)	101
\llangle (⟪)	99
\llap	25, 26, 263
\llarc (⤤)	122
\llblacktriangle (⤤)	145
\llbracket (⟦)	100
\llbracket (⟦)	105
	
\llceil (⟦)	99
\llcorner (⤥)	99
\llcorner (⤦)	99
\llcorner (⤦)	99
\llcorner (⤦)	103
	
\llcorner (⤦)	101
\llcorner (⤦)	99
\llcurly (⤠)	53
\llcurly (⤠)	58
\Lleftarrow (⤠)	86
\Lleftarrow (⤠)	73
\Lleftarrow (⤠)	84
\Lleftarrow (⤠)	79
\Lleftarrow (⤠)	76
\Lleftarrow (⤠)	86
\lfloor (⟦)	99
\lll (<)	66
\lll (<)	65
\lll (<)	257
\lll (⤠)	69
\lll (⤠)	68
\lll (⤠)	67
\lll (⤠)	70
\llless	see \lll
\llless (⤠)	68
\llless (⤠)	67
\llless (⤠)	70
\llnest (⤠)	70
\llparenthesis (⤠)	99
\llparenthesis (⤠)	99
\lltriangle (⤤)	145
\LMex	263
\lmoustache (⤠)	100
	
\lmoustache (⤠)	103
\lmoustache (⤠)	101
\lmoustache (⤠)	104
\ln (ln)	92
\lnapprox (⤠)	66
\lnapprox (⤠)	65
\lnapprox (⤠)	69
\lnapprox (⤠)	68
\lnapprox (⤠)	67
\lnapprox (⤠)	70
\lneq (⤠)	66
\lneq (⤠)	65
\lneq (⤠)	69
\lneq (⤠)	68
\lneq (⤠)	70
\lneqq (⤠)	66
\lneqq (⤠)	65
\lneqq (⤠)	69
\lneqq (⤠)	68
\lneqq (⤠)	67
\lneqq (⤠)	70
\lnot	see \neg
\lnot (⤠)	121
\lnot (⤠)	120
\lnot (⤠)	122
\lnsim (⤠)	66
\lnsim (⤠)	65
\lnsim (⤠)	69
\lnsim (⤠)	68
\lnsim (⤠)	67
\lnsim (⤠)	69
\LO (ଓ)	130
lobster (LOBSTER)	193
local ring (\mathcal{O})	see alphabets, math
locked (🔒)	225
locked with key (🔑)	225
locked with pen (🖊)	225
locks	228–231
locomotive (🚂)	187
\log (log)	92, 269
log-like symbols	92, 93, 270
logic (package)	131
logic gates	131
logical operators	
and	see \wedge
not	see \neg and \sim
or	see \vee
\logof (⊗)	52
lollipop	see \multimap
lollipop (🍭)	193
long division	108, 110
long drum (🥁)	225
long s (ſ)	259
long s (ſ)	28
long-branch runes	see normal runes
\longa (🅰)	163
\longa (🅱)	196
\longcastling (O-O-O)	183
\longdashv (⤠)	56
\longdashv (⤠)	59
\longdiv (package)	108
\longdiv.tex (file)	108
\longdivision (⤠)	108, 110
\longhookrightarrow (⤠)	88
\longint (ʃ)	50
\longint (ʃ)	50
\longleadsto (⤠)	80
\Longleftarrow (⤠)	73
\Longleftarrow (⤠)	75
\Longleftarrow (⤠)	79
\Longleftarrow (⤠)	86
\Longleftarrow (⤠)	75
\Longleftarrow (⤠)	73
\Longleftarrow (⤠)	79
\Longleftarrow (⤠)	88
\Longleftarrow (⤠)	86
\Longleftarrow (⤠)	56
\Longleftharpoondown (⤠)	89
\Longleftharpoonup (⤠)	89
\Longleftarrow (⤠)	73
\Longleftarrow (⤠)	75
\Longleftarrow (⤠)	79
\Longleftarrow (⤠)	86
\Longleftarrow (⤠)	75
\Longleftarrow (⤠)	73
\Longleftarrow (⤠)	79
\Longleftarrow (⤠)	88
\Longleftarrow (⤠)	86
\Longleftarrow (⤠)	86
\Longleftarrow (⤠)	80
\Longleftarrow (⤠)	86
\Longleftarrow (⤠)	79
\Longmapsfrom (⤠)	74
\Longmapsfrom (⤠)	56, 79
\Longmapsfrom (⤠)	86
\Longmapsfrom (⤠)	74
\Longmapsfrom (⤠)	56, 79
\Longmapsfrom (⤠)	88
\Longmapsfrom (⤠)	86
\Longmapsto (⤠)	74
\Longmapsto (⤠)	79
\Longmapsto (⤠)	85
\Longmapsto (⤠)	75
\Longmapsto (⤠)	73
\Longmapsto (⤠)	79

\longmapsto (→)	88	\lozengeminus (◊)	144	Luecking, Dan	262
\longmapsto (→)	85	\lozengeminus (◊)	39	luggage (✉)	225
\longoint (ֆ)	50	lozenges see rhombuses		lungs (肺)	225
\longoint (ֆ)	50	\Lparen (⟨)	125	\Luxembourg ()	202
\LongPulseHigh (⌞)	126	\lParen (⟨)	104	\lVert ()	100
\LongPulseLow (⌞)	126	\lparen (⟨)	103	\lVert ()	105
\Longrightarrow (==>)	73	\lparen (⟨)	103	\lVert ()	102
\Longrightarrow (==>)	75	\Lparengrtr (☒)	99	\lvert ()	100
\Longrightarrow (==>)	79	\lparenless (☒)	99	\lvert ()	102
\Longrightarrow (==>)	85	\lrarc (⌢)	122	\lvertneqq (≲)	66
\Longrightarrow (→)	75	\lrblacktriangle (▲)	145	\lvertneqq (≲)	65
\Longrightarrow (→)	73	\lrcorner (⌤)	99	\lvertneqq (≲)	69
\Longrightarrow (→)	79	\lrcorner (⌤)	99	\lvertneqq (≲)	68
\Longrightarrow (→)	88	\lrcorner (⌤)	99	\lvertneqq (≲)	67
\Longrightarrow (→)	85	\lrcorner (⌤)	99	\lvertneqq (≲)	69
\Longrightfootline (→)	56	\lrcorner (⌤)	102	\lVert ()	102
\Longrightharpoondown (→)	89	\lrcorner (⌤)	101	\Lvzigzag (☲)	99
\Longrightharpoonup (→)	89	\lrcorner (⌤)	99	\lvzigzag (☲)	99
\Longrightsquigarrow (~~~)	80	\lJoin see \Join		\lwave (毛泽)	104
\Longrightsquigarrow (~~~~)	85	\lrtimes (⊗)	52	\lWavy (毛泽)	101
\Longrightwavearrow (~~~)	79	\lrtimes (⊗)	34	\lwave (毛泽)	101
\longs (f)	28, 259	\ltriangle (△)	145	lying face ({{--<})	225
\looparrowdownleft (↶)	74	\ltrianglerighteq (≣)	72	\lz (毛泽)	20
\looparrowdownleft (↶)	84	\lsem ([],])	103		
\looparrowdownright (↷)	74	\lsem ([],])	101		
\looparrowdownright (↷)	84	\lsemantic see \ldbrack			
\looparrowleft (↶)	74	\lsf (⤵)	162	M	
\looparrowleft (↶)	73	\lsfz (⤶)	162	\M	17
\looparrowleft (↶)	84	\Lsh (⤵)	74	\M (⤵)	196
\looparrowleft (↶)	79	\Lsh (⤵)	73	\m	17
\looparrowleft (↶)	75	\Lsh (⤵)	83	\m (⤵)	196
\looparrowleft (↶)	85	\Lsh (⤵)	79	\ma (⤵)	196
\looparrowright (↷)	74	\Lsh (⤵)	75	\Macedonia ()	202
\looparrowright (↷)	73	\Lsh (⤵)	85	\macron (⤵)	24
\looparrowright (↷)	84	\lsime (⤵)	69	macron (⤵) see accents	
\looparrowright (↷)	79	\lsimg (⤵)	69	mage (魔)	225
\looparrowright (↷)	75	\lsqhook (⤵)	59		
\looparrowright (↷)	85	\Lsteel (⤵)	132		
\Loosebearing (△)	132	\Lt (⤵)	69		
\lor see \vee		\Lt (⤵)	69		
\lor (∨)	34	\ltcc (⤵)	68		
\lor (∨)	35	\ltcc (⤵)	69		
lotion bottle (🧴)	225	\ltcir (⤵)	69		
loudly crying face (😭)	225	\ltcir (⤵)	69		
loudspeaker (📢)	225	\ltimes (⊗)	32		
love hotel (🏩)	225	\ltimes (⊗)	31		
love letter (💌)	225	\ltimes (⊗)	34		
love-you gesture (🤝)	225	\ltimes (⊗)	33, 34		
\LowerDiamond (♦)	147	\ltimes (⊗)	33		
lowering see \textlowering		\ltimes (⊗)	35		
\lowint (ʃ)	47	\ltimesblack (⊗)	34		
\lowints1 (ʃ)	49	\ltlarr (⤵)	69		
\lowintup (ʃ)	49	\ltquest (⤵)	69		
\lozenge (◊)	119, 120	\ltripple	105		
\lozenge (◊)	145	\ltrivb (⤵)	72		
\lozenge (◊)	144	\LU (⌚)	130		
\lozenge (◊)	144	LuaTeX	161		
\lozenge (◊)	146				
\lozengedot (◊)	145				

male	127–129, 132, 227, 231–234, 238–240	
\male (♂)	132	
\male (♂)	132	
male sign (♂)	225	
\MaleMale (⚥)	132	
\Malta ()	202	
\maltese (✠)	16	
\maltese (✠)	121	
\maltese (✠)	121	
\maltese (✠)	120	
\maltese (✠)	122	
mammoth (🐘)	193	
man (👤)	225	
man artist (👤)	225	
man astronaut (👤)	225	
man biking (_PEDALCYCLE)	187	
man bouncing ball (🏀)	225	
man bowing (揖)	225	
man cartwheeling (🤸)	225	
man climbing (🧗)	225	
man construction worker (👷)	225	
man cook (饪)	225	
man dancing (💃)	225	
man detective (🕵)	225	
man elf (🧙)	225	
man facepalming (🤦)	225	
man factory worker (⼯)	226	
man fairy (🧚)	226	
man farmer (农夫)	226	
man feeding baby (👶)	226	
man firefighter (🚒)	226	
man frowning (⊄)	226	
man genie (🧞)	226	
man gesturing NO (🚫)	226	
man gesturing OK (👌)	226	
man getting haircut (💇)	226	
man getting massage (💆)	226	
man golfing (🏌)	226	
man guard (💂)	226	
man health worker (⛑)	226	
man in lotus position (🧘)	214	
man in manual wheelchair (♿)	214	
man in motorized wheelchair (♿)	214	
man in steamy room (🧖)	214	
man in tuxedo (🤵)	214	
man judge (⚖)	214	
man juggling (🤹)	214	
man kneeling (꿇)	214	
man lifting weights (🏋)	214	
man mage (🧙)	214	
man mechanic (🔧)	214	
man mountain biking (🚵)	188	
man office worker (💼)	214	
man pilot (✈)	214	
man playing handball (🤾)	214	
man playing water polo (🤽)	214	
man police officer (👮)	214	
man pouting (🙎)	214	
man raising hand (🙋)	214	
man rowing boat (🚣)	188	
man running (🏃)	214	
man scientist (🔬)	214	
man shrugging (🤷)	214	
man singer (🎤)	214	
man standing (🕴)	214	
man student (תלמיד)	214	
man superhero (🦸)	214	
man supervillain (🦹)	214	
man surfing (🏄)	214	
man swimming (🏊)	214	
man teacher (🏫)	214	
man technologist (💻)	214	
man tipping hand (👉)	214	
man vampire (🧛)	214	
man walking (🚶)	214	
man wearing turban (👳)	214	
man with veil (👰)	214	
man with white cane (瞽)	214	
man zombie (🧟)	214	
man's shoe (👞)	214	
\manboldkidney (肾脏)	188	
\manconcentriccircles (◎)	188	
\manconcentricdiamond (❖)	188	
\mancone (❖)	188	
\mancube (立方体)	188	
\manerrarrow (↖)	188	
\ManFace (👨)	189	
\manfilledquartercircle (▣)	188	
manfnt (package)	188, 276, 277	
mango (🥭)	193	
\manhpennib (⤒)	188	
\manimpossiblecube (不可能的立方体)	188	
\mankidney (肾脏)	188	
\manlhpennkidney (肾脏)	188	
\manpenkidney (肾脏)	188	
\manquadrifolium (四叶草)	188	
\manquartercircle (▢)	188	
\manrotatedquadrifolium (◎)	188	
\manrotatedquartercircle (⤓)	188	
\manstar (⭐)	188	
mantelpiece clock (⌚)	191	
\mantiltpennib (⤒)	188	
\mantriangledown (▼)	188	
\mantriangleleft (◀)	188	
\mantriangleup (▲)	188	
manual wheelchair (♿)	214	
\manvpennib (⤒)	188	
map of Japan (🗾)	214	
map symbols	236–237	
maple leaf (🍁)	214	
\Mappedfromchar (⤒)	91	
\mappedfromchar (⤒)	91	
maps	202, 204, 228–231	
\Mapsdown (⤒)	80	
\mapsdown (⤒)	83	
\mapsdown (⤒)	80	
\mapsdown (⤒)	85	
\Mapsefrom (⤒)	74	
\Mapsfrom (⤒)	83	
\Mapsfrom (⤒)	80	
\Mapsfrom (⤒)	85	
\mapsfrom (⤒)	74	
\mapsfrom (⤒)	83	
\mapsfrom (⤒)	80	
\mapsfrom (⤒)	88	
\mapsfrom (⤒)	85	
\Mapsfromchar (⤒)	92	
\Mapsfromchar (⤒)	91	
\mapsfromchar (⤒)	92	
\mapsfromchar (⤒)	91	
\mapsfromchar (⤒)	92	
\mapsfromchar (⤒)	92	
\Mapsto (⤒)	74	
\Mapsto (⤒)	83	
\Mapsto (⤒)	80	
\Mapsto (⤒)	85	
\mapsto (⤒)	73	
\mapsto (⤒)	83	
\mapsto (⤒)	80	
\mapsto (⤒)	76	
\mapsto (⤒)	88	
\mapsto (⤒)	85	
\Mapstochar (⤒)	92	
\Mapstochar (⤒)	91	
\mapstochar (⤒)	92	
\mapstochar (⤒)	92	
\Mapsup (⤒)	80	
\mapsup (⤒)	83	
\mapsup (⤒)	80	
\mapsup (⤒)	85	
\marcato (♩)	167	
\marcatoDown (♩)	167	
		
\Marge (ℳ)	197	
\markera (✗)	183	
\markerb (>O)	183	
married	see \textmarried	
\Mars (♂)	128	
\Mars (♂)	127	
\Mars (♂)	129	
\mars (♂)	127	
martial arts uniform (🥋)	214	
marvosym (package)		
.	26, 117, 118, 127, 130–133, 137, 140, 188, 189, 200, 257	
masonic cipher	199	
\mate (#)	183	
mate (🍎)	193	
material biconditional		
.	see \leftrightarrow and \equiv	
material conditional	see	
.	\rightarrow and \supset	
material equivalence		
.	see \leftrightarrow and \equiv	

material implication	<i>see</i>	
\rightarrowarrow and \supset		
material nonimplication		
. . . <i>see</i> \nrightarrow and		
\nsupset		
math alphabets	124	
mathabx (package)	30, 32, 36,	
42, 53, 63, 66, 70, 74, 75,		
92, 97, 99–101, 106, 110,		
118, 120, 128, 195, 256,		
257, 276, 277		
\mathaccent	260	
\mathbat (⤱)	39	
\mathbb	124, 125	
\mathbbb	124	
\mathbbm	124	
\mathbbmss	124	
\mathbbmtt	124	
mathbbol (package)	124, 125	
\mathbf	270	
\mathbin	269	
\mathbold	270	
mathcal (euscript package option)	124	
\mathcal	124, 127	
\mathcent (¢)	97	
\mathchoice	262	
\mathclose	269	
\mathcloud (⤢)	39	
\mathcolon (:)	116	
mathcomp (package)	117	
mathdesign (package)	26, 35,	
50, 98, 104, 123, 276		
\mathdollar (\$)	30	
\mathdollar (\$)	98	
mathdots (package)	106, 115,	
116, 264, 276, 277		
\mathds	124	
\mathellipsis (...)	30	
\mathellipsis (...)	116	
mathematical symbols	30–125	
\mathfrak	124	
\mathghost (⤠)	39	
\mathit	124	
\mathleftbat (⤱)	39	
\mathleftghost (⤡)	39	
\mathnormal	124	
\mathop	269	
\mathopen	269	
\mathord	269	
\mathpalette	262, 263	
\mathparagraph (¶)	30	
\mathparagraph (¶)	98	
\mathpunct	269	
\mathratio (:)	116	
\mathrel	260, 269	
\mathrightbat (⤱)	39	
\mathrightghost (⤢)	39	
\mathring (⤤)	107	
\mathrm	124	
mathrsfs (package)	124, 276	
mathscr (euscript package option)	124	
mathscr (urwchancal package option)	124	
\mathscr	124	
\mathsection (§)	30	
\mathsection (§)	122	
\mathslash (／)	102	
\mathslash (／)	103	
mathspec (package)	94	
mathspec.sty (file)	94	
\mathsterling (£)	97	
\mathsterling (£)	30	
\mathsterling (£)	98	
mathtools (package)	30, 60, 88,	
110, 112, 276, 277		
\mathunderscore (_)	30	
\mathvisibleSpace (_)	122	
\mathwitch (⤣)	39	
\mathwitch* (⤣)	39	
\max (max)	92	
\maxima (⤥)	162	
Maxwell-Stefan diffusion coefficient	<i>see</i>	
\DH		
\maxwellDistrib (ℳ)	134	
\maya	118	
Mayan numerals	118	
\Mb (⤵)	196	
\mb (⤶)	196	
\Mbb (⤷)	196	
\mBb (⤸)	196	
\mbB (⤹)	196	
\mbb (⤺)	196	
mbboard (package)	124, 125,	
276		
\mbbx (⤻)	196	
\mbox	262, 263	
\MC (ℳ)	129	
\mdblkcircle (●)	145	
\mdblkdiamond (◆)	38	
\mdblkdiamond (◆)	145	
\mdblklozenge (◆)	144	
\mdblklozenge (◆)	145	
\mdblksquare (■)	38	
\mdblksquare (■)	145	
\mdblksquare (■)	145	
\mdblkcircle (●)	38	
\mdblkcircle (●)	145	
\mdblkdiamond (◆)	38	
\mdblkdiamond (◆)	145	
\mdblklozenge (◆)	144	
\mdblklozenge (◆)	39, 145,	
146		
\mdblksquare (■)	38	
\mdblksquare (■)	145, 146	
\mdgwhtcircle (○)	38	
\mdgwhtcircle (○)	39, 146	
\mdgwhtdiamond (◇)	38	
\mdgwhtdiamond (◇)	145	
\mdgwhtlozenge (◇)	144	
\mdgwhtlozenge (◇)	145, 146	
\mdgwhtsquare (□)	38	
\mdlgwhtsquare (□)	145, 146	
\mdsblkcircle (●)	145	
\mdsblksquare (■)	146	
\mdsmwhtcircle (○)	146	
\mdsmwhtsquare (□)	146	
\mdwhtcircle (○)	146	
\mdwhtdiamond (◇)	38	
\mdwhtdiamond (◇)	146	
\mdwhtlozenge (◇)	144	
\mdwhtlozenge (◇)	146	
\mdwhtsquare (□)	38	
\mdwhtsquare (□)	146	
mdwmath (package)	111, 276,	
277		
\measangledtosw (⤣)	119	
\measangledrtose (⤣)	119	
\measangleldtosw (⤣)	119	
\measangleldtose (⤣)	119	
\measanglerutone (⤣)	119	
\measangleultone (⤣)	119	
\measangleurtone (⤣)	119	
\measeq (⤣)	59	
\measuredangle (⤣)	120	
\measuredangle (⤤)	118	
\measuredangle (⤤)	119	
\measuredangle (⤤)	119	
\measuredangle (⤤)	118	
\measuredangle (⤤)	118	
\measuredangle (⤤)	119	
\measuredangleleft (⤤)	119	
\measuredangleleft (⤤)	119	
\measuredrightangle (⤤)	119	
\measuredrightangle (⤤)	119	
\measuredrightangle (⤤)	119	
\measuredrightangledot (⤤)	119	
meat on bone (⤤)	193	
mechanic (⤤)	214	
mechanical arm (⤤)	214	
mechanical leg (⤤)	214	
mechanical scaling . . .	266, 268	
\medbackslash (⤧)	33, 34	
\medbackslash (⤧)	33	
\medblackcircle (●)	37	
\medblackdiamond (◆)	37	
\medblacklozenge (◆)	144	
\medblacksquare (■)	37	
\medblackstar (★)	37	
\medblackstar (★)	146	
\medblacktriangledown (▼) .	37, 72	
\medblacktriangleleft (◀) .	37, 72	
\medblacktriangleright (▶)	37, 72	
\medbullet (●)	32	
\medcirc (○)	32	
\medcircle (○)	37	
\medcircle (○)	33	
\mediiamond (◇)	37	
\mediiamond (◇)	37	

media control symbols	188, 231–234
medical symbol (⚕)	214
medieval runes	160
medium skin tone (■)	214
medium-dark skin tone (■)	214
medium-light skin tone (■)	214
\medlozenge (◊)	144
\medlozenge (◊)	144
\medslash (/)	33, 34, 37
\medslash (/)	33
\medsquare (□)	37
\medsquare (□)	37
\medstar (★)	38
\medstar (☆)	37
\medstarofdavid (✡)	144
\medtriangledown (▽)	37, 72
\medtriangledown (▽)	37, 71
\medtriangleleft (◁)	37, 72
\medtriangleleft (◁)	37, 71
\medtriangleright (▷)	37, 72
\medtriangleright (▷)	37, 71
\medtriangleup (△)	37, 72
\medtriangleup (△)	37, 71
\medvert (↑)	33
\medvertdot (·)	33
\medwhitestar (☆)	37
\medwhitestar (☆)	146
megaphone (📣)	214
Mellin transform (\mathcal{M})	see alphabets, math
melon (🍈)	193
membership	see \in
men	151, 156, 186–187, 189, 213–226, 228–231, 236–237, 248–252
men holding hands (👬)	215
men with bunny ears (👯)	215
men wrestling (🥋)	215
men's room (🚹)	215
menorah (🕰)	215
menorahs	228–231
\Mercury (☿)	128
\Mercury (☿)	127
\Mercury (☿)	129
\mercury (☿)	127
\merge (ℳ)	31
\merge (ℳ)	34
mermaid (🧜)	215
merman (🧜)	215
merperson (🧜)	215
METAFONT	13, 125, 266–269
METAFONTbook symbols	188
\metalbond (ℳ)	134
\meterC (⌚)	164
\meterCThree (⌚⌚⌚)	164
\meterCThreeTwo (⌚⌚⌚₂)	164
\meterCutC (⌚⌚)	164
\meterCZ (⌚⌚)	164
\meterO (⌚⌚)	164
\meterplus (⊕)	162
\method (ℳ)	134
metre (package)	24, 106, 196, 276, 277
\metre	196
metrical symbols	196
metro (🚇)	188
mezzo (ｍ)	167, 178
.mf files	13, 236, 266
\mho (℧)	119, 120
\mho (℧)	96
mama (emf package option)	127
micro	see \textmu
\micro (μ)	126
microbe (🦠)	192
microphone (🎤)	215
microscope (🔬)	215
Microsoft® Windows®	272
\mid ()	51, 102
\mid ()	56
\mid ()	59
\midbarvee (݂)	35
\midbarwedge (݂)	35
\midcir (݂)	90
\midcir (݂)	59
\middle	100
middle finger (🖕)	215
\middlebar (݂)	107
\middleslash (݂)	107
\midtilde (݂)	25
MIL-STD-806	131
military helmet (_HELMET)	215
military medal (🎖)	215
milky way (🌌)	215
millesimal sign	see \textperthousand
\milstd (package)	131, 276, 277
\min (min)	92, 269
\MineSign (💣)	189
minibus (🚐)	188
minim	see musical symbols
\minim (♪)	165
\minimDotted (♪.)	165
\minimDottedDouble (♪..)	165
\minimDottedDoubleDown (♪..)	165
\minimDottedDown (♪..)	165
\minimDown (♪)	165
Minkowski space (ℳ)	see alphabets, math
minus	see \textminus
\minus (-)	33
\minus (-)	33
minus (-)	215
minus, double-dotted (÷)	see \div
\minuscolon (:-)	62
\minuscoloncolon (:-:)	62
\minusdot (‐)	33
\minusdot (‐)	33
\minusdot (‐)	35
\minusdots (‐‐‐)	33
\minusdots (‐‐‐)	35
\minushookdown (‐)	121
\minushookdown (‐)	120
\minushookup (‐)	34, 121
\minushookup (‐)	120
\minuso (ଓ)	31, 261
\minuso (ଓ)	34
\minusrdots (‐‐)	33
\minusrdots (‐‐)	35
minutes, angular	see \prime
mirror (▢)	215
miscellaneous symbols	119–121, 123, 149, 150, 186–231, 235
mismath (package)	93, 276
“Missing \$ inserted”	30
\mlcp (ℳ)	59
\Mmappedfromchar (ℳ)	91
\mmappedfromchar (ℳ)	91
\Mmapstochar (ℳ)	91
\mmapstochar (ℳ)	91
MnSymbol (package)	30, 32, 33, 37, 45, 53–55, 64, 67, 71, 75–78, 89, 90, 96, 97, 101, 106, 108, 109, 116, 118, 120, 121, 144, 161, 179, 276, 277
\Moai (🗿)	213
mobile phone (📱)	215
mobile phone off (📴)	215
mobile phone with arrow (📱)	215
\Mobilefone (📱)	131
\mod	92
\models (⊧)	51, 260
\models (⊧)	56
\models (⊧)	54
\models (⊧)	59
\modtwosum (Σ)	46
\modtwosum (Σ)	47
moduli space	see alphabets, math
\Moldova (🇲🇩)	203
monetary symbols	26, 27, 125, 214–226, 228–231
money bag (💰)	215
money with wings (💸)	215
money-mouth face (🤑)	215
monkey (🐵)	192
monkey face (🐵)	192
monorail (🚝)	188
\Montenegro (🇲🇪)	203
monus	see \dotdiv
\moo (🐮)	31
\moo (🐮)	34
\Moon (🌙)	128
\Moon (🌙)	127
\Moon (🌙)	129
moon cake (🥮)	193
moon viewing ceremony (🎑)	215
\MoonPha	199
moonphase (package)	238, 276
moons	127–129, 199, 200, 238–240
\Mordent (〽)	162
\mordent (〽)	162

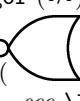
\morepawns (>)	183
\moreroom (○)	183
mosque (مسجد)	215
mosquito (蚊)	192
motor boat (汽船)	188
motor scooter (摩托车)	188
motorcycle (摩托车)	188
motorcycles	186–187
motorized wheelchair (轮椅)	215
motorway (高速公路)	188
mount fuji (富士山)	215
\Mountain (▲)	190
mountain (▲)	215
mountain cableway (缆车)	188
mountain railway (缆车)	187
mouse ... <i>see</i> \ComputerMouse	
mouse face (老鼠)	192
mouse trap (捕鼠器)	215
mouse2 (老鼠)	192
mouth (嘴)	215
\MoveDown (▼)	188
\overlay	263
\MoveUp (▲)	188
movie camera (摄像机)	215
moyai (モヤイ)	215
\mp (fff)	31
\mp (ff)	34
\mp (f)	33
\mp (f#)	33
\mp (ff#)	35
Mrs. Claus (圣诞老人)	215
\Mu (M)	94
\mu (μ)	94
multiline braces	111
\multimap (→o)	51, 52
\multimap (→o)	58
\multimap (→o)	90
\multimap (→o)	89
\multimap (→o)	59
\multimapboth (→oo)	52
\multimapboth (→oo)	58
\multimapboth (→oo)	62
\multimapbothvert (↑)	52
\multimapbothvert (↓)	58
\multimapdot (→o)	52
\multimapdot (→o)	58
\multimapdotboth (→oo)	52
\multimapdotboth (→oo)	58
\multimapdotbothA (→oo)	52
\multimapdotbothA (→oo)	58
\multimapdotbothAvvert (↑)	52
\multimapdotbothAvvert (↓)	58
\multimapdotbothB (→oo)	52
\multimapdotbothB (→oo)	58
\multimapdotbothBvert (↑)	52
\multimapdotbothBvert (↓)	58
\multimapdotbothvert (↑)	52
\multimapdotbothvert (↓)	58
\multimapdotinv (→o)	52
\multimapdotinv (→o)	58
\multimapinv (→o)	52
\multimapinv (→o)	58
\multimapinv (→o)	90
\multimapinv (→o)	59
\multimapinv (→o)	59
multiple accents per character	264
\MultiplicationDot (·)	117
multiplicative disjunction . <i>see</i>	
\bindnasrepma, \invamp, and \parr	
multiply (×)	215
\Mundus (ℳ)	189
\muon (μ⁻)	134
\musCorchea (♪)	164
\musCorcheaDotted (♪)	164
\musDoubleFlat (♭)	164
\musDoubleSharp (♯)	164
\musEighth (♪)	164
\musEighthDotted (♪)	164
Museum of Icelandic Sorcery and Witchcraft	199
\musFlat (♭)	164
\musFusa (♪)	164
\musFusaDotted (♪)	164
\musHalf (♩)	164
\musHalfDotted (♩)	164
mushroom (🍄)	193
musical keyboard (键盤)	215
musical note (音符)	215
musical notes (音符)	215
musical score (乐谱)	215
musical symbols	161–178, 227, 231–234
musicography (package)	164, 276, 277
musixgre (package)	163
musixlit (package)	163
musixper (package)	163
MusiXTEX	162–164
musixtex (package)	276, 277
\musMeter	164
\musMinim (♩)	164
\musMinimDotted (♩)	164
\musNatural (♮)	164
\musNatural (musNatural)	164
\musQuarter (♩)	164
\musQuarterDotted (♩)	164
\musSegno (§)	164
\musSemibreve (♪)	164
\musSemibreveDotted (♪)	164
\musSemiminim (♩)	164
\musSemiminiminDotted (♩)	164
\musSharp (♯)	164
\musSixteenth (♪)	164
\musSixteenthDotted (♪)	164
\musSixtyFourth (♪)	164
\musSixtyFourthDotted (♪)	164
\musThirtySecond (♪)	164
\musThirtySecondDotted (♪)	164
\musWhole (♪)	164
\musWholeDotted (♪)	164
muted speaker (🔇)	215
\muup (μ)	95
\MVAt (@)	189
\MVComma (,)	117
\MVDivision (/)	117
\MVEight (8)	118
\MVFive (5)	118
\MFFour (4)	118
\MVLBraket (())	117
\MVMMinus (-)	117
\MVMultiplication (×)	117
\MVNine (9)	118
\MVOOne (1)	118
\MVPPeriod (.)	117
\MVPlus (+)	117
\MVRRightArrow (→)	117
\MVRRightBracket ())	117
\MVSSeven (7)	118
\MVSix (6)	118
\MVTThree (3)	118
\MVTTwo (2)	118
\MVZero (0)	118
mx claus (Claus)	215
N	
n (†)	160
\na (♮)	164
\nabla (▽)	119
\nabla (▽)	120
\nabla (▽)	122
\nacwcirclearrowdown (⤵)	80
\nacwcirclearrowleft (⤴)	80
\nacwcirclearrowright (⤶)	80
\nacwcirclearrowup (⤷)	80
\nacwgapcirclearrow (⤸)	81
\nacwlefttarcarrow (⤹)	80
\nacwnearcarrow (⤻)	80
\nacwnwarcarrow (⤻)	80
\nacwopencirclearrow (⤹)	81
\nacwoverarcarrow (⤻)	80
\nacwrighttarcarrow (⤹)	81
\nacwsearcarrow (⤻)	81
\nacwswarcarrow (⤻)	81
\nacwunderarcarrow (⤻)	81
nail polish (指甲油)	215
\NAK (§)	131
name badge (胸章)	215
NAND gates	131
	
\NANDd ()	131
	
\NANDl ()	131
	
\NANDr ()	131
	
\NANDu ()	131
\napprox (≈)	53
\napprox (≈)	57
\napprox (≈)	55

\napprox (\approx)	60	\ncirceq (\circledast)	55	\nDashv ($\not\equiv$)	53
\napproxeq (\approx)	52	\ncirclearrowleft (\circlearrowleft) .	81	\nDashv ($\not\equiv$)	57
\napproxeq (\approx)	57	\ncirclearrowleft (\circlearrowleft) .	78	\ndashV ($\not\parallel$)	53
\napproxeq (\approx)	55	\ncirclearrowright (\circlearrowright) .	81	\ndashV ($\not\parallel$)	57
\napproxeqq (\approx)	60	\ncirclearrowright (\circlearrowright) .	78	\ndashv ($\not\equiv$)	53
\napproxident (\approx)	57	\ncirmid (\circ)	90	\ndashv ($\not\equiv$)	57
\narceq ($\not\equiv$)	57, 91	\nclosedequal (\circledast)	55	\ndashv ($\not\equiv$)	55
\nAssert ($\not\models$)	57	\nclosure ($\not\in$)	57, 91	\ndashVv ($\not\parallel$)	53
\nassert ($\not\models$)	57	\ncong ($\not\cong$)	53	\ndashVv ($\not\parallel$)	57
\nasym ($\not\sim$)	52	\ncong ($\not\cong$)	52	\nddashv ($\not\equiv$)	57
\nasym ($\not\sim$)	57, 91	\ncong ($\not\cong$)	58	\nddownarrow ($\not\Downarrow$)	81
\nasym ($\not\sim$)	90	\ncong ($\not\cong$)	57	\nddtstile ($\not\equiv\equiv$)	61
\nasym ($\not\sim$)	60	\ncong ($\not\cong$)	55	\ndiagdown (\times)	55
\Natal (Natal)	129	\ncong ($\not\cong$)	60	\ndiagup (\times)	55
nath (package)	99, 105, 276	\ncongdot ($\not\cong$)	60	\ndivides (\dagger)	55
national park ()	215	\ncurlyeqprec ($\not\prec$)	53	\nDoteq ($\not\equiv$)	57
\NATURAL (N)	93	\ncurlyeqprec ($\not\prec$)	57	\nDoteq ($\not\equiv$)	55
\Natural (N)	93	\ncurlyeqprec ($\not\prec$)	55	\ndoteq ($\not\equiv$)	57
\natural (\natural)	161	\ncurlyeqsucc ($\not\succ$)	53	\ndoteq ($\not\equiv$)	55
\natural (\natural)	161	\ncurlyeqsucc ($\not\succ$)	57	\ndoublefrown ($\not\smile$)	90
\natural (\natural)	161	\ncurlyeqsucc ($\not\succ$)	55	\ndoublefrownq ($\not\smile$)	90
\natural (\natural)	166	\ncurvearrowdownup (\curvearrowdownup) .	76	\ndoublesmile ($\not\smile$)	90
\natural (\natural)	161	\ncurvearrowleft (\curvearrowleft) .	81	\ndoublesmilee ($\not\smile$)	90
\natural (\natural)	161	\ncurvearrowleft (\curvearrowleft) .	78	\nDownarrow (\Downarrow)	81
natural numbers (N)	see alphabets, math	\ncurvearrowleftright (\curvearrowleftright) .	76	\nDownarrow (\Downarrow)	77
nauseated face ()	215	\ncurvearrowonesw (\curvearrowonesw) .	76	\ndownarrow (\downarrow)	81
nazar amulet ()	215	\ncurvearrowownwse (\curvearrowownwse) .	76	\ndownarrow (\downarrow)	77
\nbackapprox ($\not\approx$)	55	\ncurvearrowright (\curvearrowright) .	81	\ndownarrowtail (\downarrowtail)	81
\nbackapproxeq ($\not\approx$)	55	\ncurvearrowright (\curvearrowright) .	78	\ndownarrowtail (\downarrowtail)	77
\nbackcong ($\not\cong$)	57	\ncurvearrowrightleft (\curvearrowrightleft) .	76	\ndownAssert ($\not\models$)	57
\nbackcong ($\not\cong$)	55	\ncurvearrowsenw (\curvearrowsenw) .	76	\ndownassert ($\not\models$)	57
\nbackeqsim ($\not\approx$)	55	\ncurvearrowswe (\curvearrowswe) .	76	\ndownbkarow ($\not\rightarrow$)	81
\nbacksim ($\not\sim$)	52	\ncurvearrowupdown (\curvearrowupdown) .	76	\ndownblackspoon ($\not\leftarrow$)	90
\nbacksim ($\not\sim$)	57	\ncwcirclearrowdown (\circlearrowdown) .	81	\ndowndownarrows ($\not\Downarrow$)	81
\nbacksimeq ($\not\approx$)	55	\ncwcirclearrowleft (\circlearrowleft) .	81	\ndowndownarrows ($\not\Downarrow$)	77
\nbacksimeq ($\not\approx$)	52	\ncwcirclearrowright (\circlearrowright) .	81	\ndownfilledspoon ($\not\leftarrow$)	89
\nbacksimeq ($\not\approx$)	57	\ncwcirclearrowup (\circlearrowup) .	81	\ndownfootline ($\not\leftarrow$)	55
\nbacksimeq ($\not\approx$)	55	\ncwgapcirclearrow (\circlearrow) .	81	\ndownfree ($\not\leftarrow$)	55
\nbacktriplesim ($\not\approx$)	55	\ncwlefttararrow ($\not\rightarrow$) .	81	\ndownharpoonccw ($\not\leftarrow$)	78
\nBarv ($\not\models$)	57	\ncwnearcarrow ($\not\rightarrow$) .	81	\ndownharpooncw ($\not\leftarrow$)	78
\nbarV ($\not\models$)	57	\ncwnwarcarrow ($\not\rightarrow$) .	81	\ndownharpoonleft ($\not\leftarrow$)	83
\nbdlefttararrow ($\not\rightarrow$)	81	\ncwopencirclearrow (\circlearrow) .	81	\ndownharpoonright ($\not\leftarrow$)	83
\nbdnearcarrow ($\not\rightarrow$)	81	\ncwoverarcarrow ($\not\rightarrow$) .	81	\ndownlcurvearrow ($\not\rightarrow$)	82
\nbdnwarcarrow ($\not\rightarrow$)	81	\ncwrighttararrow ($\not\rightarrow$) .	81	\ndownleftcurvedarrow ($\not\rightarrow$)	82
\nbdoverarcarrow ($\not\rightarrow$)	81	\ncwsearcarrow ($\not\rightarrow$) .	81		
\nbdrighttararrow ($\not\rightarrow$)	81	\ncwswarcarrow ($\not\rightarrow$) .	81	\ndownlsquigarrow ($\not\rightarrow$)	82
\nbdsearcarrow ($\not\rightarrow$)	81	\ncwunderarcarrow ($\not\rightarrow$) .	81	\ndownlsquigarrow ($\not\rightarrow$)	77
\nbdswarcarrow ($\not\rightarrow$)	81	\ndasharrow ($\not\rightarrow$)	82	\nDownmapsto ($\not\mapsto$)	81
\nbdunderarcarrow ($\not\rightarrow$)	81	\ndasharrow ($\not\rightarrow$)	78	\nDownmapsto ($\not\mapsto$)	81
\nblackwhitespoon ($\bullet\circ$)	90	\ndasheddownarrow ($\not\downarrow$) .	77	\nDownmapsto ($\not\mapsto$)	77
\NBSP ()	131	\ndashedleftarrow ($\not\leftarrow$) .	77	\ndownModels ($\not\exists$)	55
\NBSP ()	131	\ndashednearrow ($\not\rightarrow$) .	77	\ndownmodels ($\not\exists$)	57
\nBumpeq ($\not\approx$)	52	\ndashednarrow ($\not\rightarrow$) .	77	\ndownmodels ($\not\exists$)	55
\nBumpeq ($\not\approx$)	57	\ndashedrightarrow ($\not\rightarrow$) .	77	\ndownpitchfork ($\not\pitchfork$)	91
\nBumpeq ($\not\approx$)	55	\ndashedsearrow ($\not\rightarrow$) .	77	\ndownpitchfork ($\not\pitchfork$)	89
\nBumpeq ($\not\approx$)	60	\ndashedswarrow ($\not\rightarrow$) .	77	\ndownrcurvearrow ($\not\rightarrow$)	82
\nbumpseq ($\not\approx$)	52	\ndasheduparrow ($\not\uparrow$) .	77	\ndownrightcurvedarrow ($\not\rightarrow$)	82
\nbumpseq ($\not\approx$)	57	\ndashleftarrow ($\not\leftarrow$) .	82		
\nbumpseq ($\not\approx$)	55	\ndashleftarrow ($\not\leftarrow$) .	78	\ndownrsquigarrow ($\not\rightarrow$)	82
\nbumpseq ($\not\approx$)	60	\ndashrightarrow ($\not\rightarrow$) .	82	\ndownrsquigarrow ($\not\rightarrow$)	77
\nbumpseqq ($\not\approx$)	57	\ndashrightarrow ($\not\rightarrow$) .	78	\downspoon ($\not\leftarrow$)	90
\ncirceq ($\not\equiv$)	57	\nDashV ($\not\models$)	53	\downspoon ($\not\leftarrow$)	89
		\nDashV ($\not\models$)	57	\downuparrows ($\not\uparrow$)	81

\ndownuparrows (⤪)	77	\Neptune (Ψ)	127
\ndownupcurvearrow (⤫)	82	\Neptune (Ψ)	129
\ndownupharpoons (⤪)	83	\neptune (ȝ)	127
\ndownupharpoons (⤪)	78	\neq (≠)	53
\ndownupharpoonsleftright (⤪)	83	\neq (≠)	65
\ndownupsquigarrow (⤬)	82	\neq (≠)	58
\ndownVDash (⤮)	57	\neq (≠)	57
\ndownVdash (⤮)	57	\neq (≠)	55
\ndownVdash (⤮)	55	\neq (≠)	60
\ndownnvDash (⤮)	57	\neqbump (≠)	55
\ndownnvDash (⤮)	57	\neqcirc (≠)	57
\ndownnvDash (⤮)	57	\neqcirc (≠)	55
\ndownnvDash (⤮)	55	\neqdot (≠)	57
\ndownwavearrow (⤯)	81	\neqdot (≠)	55
\ndststile (⤠)	61	\neqfrown (≠)	90
\ndtstile (⤠)	61	\neqsim (≠)	57
\ndttstile (⤠⤠)	61	\neqsim (≠)	55
\ndualmap (⤧⤧)	90	\neqlantgtr (≠)	66
\NE (≠)	130	\neqlantgtr (≠)	68
\ne see \neq		\neqlantgtr (≠)	67
\ne (≠)	57	\neqlantgtr (≠)	69
\ne (≠)	55	\neqlantless (≠)	66
\ne (≠)	60	\neqlantless (≠)	68
\Nearrow (⤨)	74	\neqlantless (≠)	67
\Nearrow (⤨)	83	\neqlantless (≠)	69
\Nearrow (⤨)	79	\neqsmile (≠)	90
\Nearrow (⤨)	75	\nequal (≠)	57
\Nearrow (⤨)	85	\nequal (≠)	55
\nearrow (⤧)	74	\nequalclosed (≠)	55
\nearrow (⤧)	73, 263	\nequiv (≠)	52
\nearrow (⤧)	79	\nequiv (≠)	58
\nearrow (⤧)	75	\nequiv (≠)	57
\nearrow (⤧)	88	\nequiv (≠)	55
\nearrow (⤧)	85	\nequiv (≠)	60
\nearrowcorner (⤧)	83	\nequivclosed (≠)	55
\nearrowtail (⤧)	79	\nercurvearrow (⤨)	80
\nearrowtail (⤧)	75	nerd face (〠)	215
\nebkarrow (⤧)	79	\nersquigarrow (⤨)	75
necktie (⤧)	215	\nespoon (⤧)	89
\nefilledspoon (⤧)	89	nesting dolls (⤧)	215
\nefootline (⤧)	54	\Nesarrow (⤨)	79
\nefree (⤧)	54	\Nesarrow (⤧)	75
\neg (¬)	119	\nesarrow (⤧)	263
\neg (¬)	121	\nesarrow (⤧)	79
\neg (¬)	120	\nesarrow (⤧)	75
\neg (¬)	122	\nesarrow (⤧)	85
negation . . . see \neg and \sim		\neswarrows (⤧)	79
\neharpoonccw (⤨)	78	\neswarrows (⤧)	75
\neharpooncw (⤧)	78	\neswbiproto (⤧)	33
\neharpoonnw (⤨)	82	\neswcrossing (⤧)	55
\neharpoonse (⤧)	82	\neswcurvearrow (⤧)	80
\nelcurvearrow (⤧)	80	\neswharpoonnwse (⤨)	82
\nelsquigarrow (⤧)	75	\neswharpoonnwse (⤨)	78
\nemapsto (⤧)	75	\neswharpoons (⤧)	82
\neModels (⤧)	54	\neswharpoons (⤧)	78
\nemodels (⤧)	54	\neswharpoonsew (⤧)	82
\nenearrows (⤧)	79	\neswharpoonsew (⤧)	78
\nenearrows (⤧)	75	\Nesline (⤨)	54
\neovnwarrow (⤧)	85	\nesline (⤧)	54
\neovsearrow (⤧)	85	\Netherlands (⤧)	203
\nepitchfork (⤧)	89	neumes	163
\Neptune (Ψ)	128	\neuter (ȝ)	132
		NEW button (NEW)	215
		new moon (●)	200
		new moon face (●)	200
		\newextarrow	113
		\newmetrics	196
		\newmoon (●)	128
		\newmoon (●)	127
		newspaper (⤧)	216
		\newtie (⤧)	21
		\exists (⤧)	97
		\exists (⤧)	97
		\exists (⤧)	98
		\exists (⤧)	98
		\exists (⤧)	97
		\exists (⤧)	98
		next track button (⤧)	216
		\nfallingdotseq (≠)	57
		\nfallingdotseq (≠)	55
		\nforksnot (⤧)	60
		\nfrown (⤧)	57, 91
		\nfrown (⤧)	90
		\nfrowneq (≠)	57, 91
		\nfrowneq (≠)	90
		\nfrowneqsmile (≠)	90
		\nfrownsmile (≠)	57, 91
		\nfrownsmile (≠)	90
		\nfrownsmileeq (≠)	90
		\NG (⤧)	130
		\NG (⤧)	160
		\NG (I)	16
		\ng (⤧)	160
		\ng (y)	16
		NG button (NG)	216
		\nge (≠)	70
		\ngeq (≠)	66
		\ngeq (≠)	65, 66
		\ngeq (≠)	69
		\ngeq (≠)	68
		\ngeq (≠)	67
		\ngeq (≠)	69, 70
		\ngeqclosed (≠)	68, 72
		\ngeqclosed (≠)	67, 71
		\ngeqdot (≠)	68
		\ngeqdot (≠)	67
		\ngeqq (≠)	66
		\ngeqq (≠)	65
		\ngeqq (≠)	69
		\ngeqq (≠)	68
		\ngeqq (≠)	67
		\ngeqq (≠)	69
		\ngeqq (≠)	69
		\ngeqq (≠)	68
		\ngeqq (≠)	67
		\ngeqq (≠)	67
		\ngeqlant (≠)	65
		\ngeqlant (≠)	69
		\ngeqlant (≠)	68
		\ngeqlant (≠)	68

\ngeqslant (≥)	67	\nhooksearrow (↖)	81	\nlcurvearrowup (↗)	77
\ngeqslant (≥)	69	\nhookswarrow (↙)	81	\nle (↖)	70
\ngeqslantdot (≥)	68	\nhookuparrow (↑)	81	\nleadsto (⤵)	82
\ngeqslantdot (≥)	67	\nhpar (⤶)	60	\nleadsto (⤷)	78
\ngeqlcc (≣)	68	\nHuparrow (⤸)	84	\nLeftarrow (⤲)	74
\ngesc (≣)	68	\nHuparrow (⤹)	87	\nLeftarrow (⤳)	73
\ngesdot (≣)	69	\nhVvert (⤻)	35	\nLeftarrow (⤴)	84
\ngesl (≣)	69	\ni (϶)	97, 261	\nLeftarrow (⤵)	80
\ngets (↔)	82	\ni (϶)	56	\nLeftarrow (⤶)	77
\ngets (↔)	78	\ni (϶)	98	\nLeftarrow (⤷)	87
\ngets (↔)	87	\ni (϶)	97	\nleftarrow (⤸)	74
\ngg (⤵)	66	\ni (϶)	59, 60	\nleftarrow (⤹)	73
\ngg (⤵)	68	\nialpha (϶)	20	\nleftarrow (⤺)	84
\ngg (⤵)	67	\nibar	see \ownsbar	\nleftarrow (⤻)	80
\ngg (⤵)	69	\nibeta (϶)	20	\nleftarrow (⤼)	77
\nggg (⤵⤵)	68	\NibLeft (⤸)	137	\nleftarrow (⤽)	87
\nggg (⤵⤵)	67	\NibRight (⤹)	137	\nleftarrowtail (⤸)	80
\ngtcc (⤵)	68	nibs	137, 138	\nleftarrowtail (⤹)	77
\ngtr (⤵)	66	\NibSolidLeft (⤸)	137	\nleftAssert (⤻)	57
\ngtr (⤵)	65	\NibSolidRight (⤹)	137	\nleftassert (⤻)	57
\ngtr (⤵)	69	nicefrac (package)	122, 276, 277	\nleftbkarw (⤸)	80
\ngtr (⤵)	68	niceframe (package)	. 241–244,	\nleftblackspoon (⤸)	90
\ngtr (⤵)	67	247		\nleftcurvedarrow (⤸)	82
\ngtr (⤵)	69	\NiceReapey (⤸)	212	\nleftdowncurvedarrow (⤸)	
\ngtrapprox (⤵)	66	\nichi (϶)	20	81	
\ngtrapprox (⤵)	66	\niepsilon (϶)	20	\nleftfilledspoon (⤸)	89
\ngtrapprox (⤵)	68	\nigamma (϶)	20	\nleftfootline (⤸)	57
\ngtrcc (⤵)	68	night with stars (⤸)	216	\nleftfootline (⤹)	55
\ngtrclosed (⤵)	68, 72	\niota (϶)	20	\nleftfree (⤸)	55
\ngtrclosed (⤵)	67, 71	\nilambda (϶)	20	\nleftharpoonccw (⤸)	78
\ngtrdot (⤵)	68	\nimageof (⤸)	90	\nleftharpooncw (⤸)	78
\ngtrdot (⤵)	67	\nin (϶)	57, 98	\nleftharpoondown (⤸)	83
\ngtreqless (⤵)	68	\nin (϶)	97	\nleftharpoonup (⤸)	83
\ngtreqless (⤵)	67	nine o'clock (⤸)	191	\nleftlcurvearrow (⤸)	81
\ngtreqless (⤵)	68	nine-thirty (⤸)	191	\nleftleftarrows (⤸)	80
\ngtreqless (⤵)	67	\Ninja (⤸)	212	\nleftleftarrows (⤹)	77
\ngtreqlesslant (⤵)	68	ninja (⤸)	216	\nleftlsquigarrow (⤸)	81
\ngtreqlesslant (⤵)	67	\niobar (⤸)	59	\nleftlsquigarrow (⤹)	77
\ngtreqqless (⤵)	68	\niomega (϶)	20	\nLeftmapsto (⤸)	80
\ngtreqqless (⤵)	67	\niphι (϶)	20	\nLeftmapsto (⤹)	80
\ngtreqqless (⤵)	67	\niplus (⤸)	52	\nLeftmapsto (⤻)	77
\ngtreqqless (⤵)	68	\niplus (⤹)	58	\nleftModels (⤻)	55
\ngtreqqless (⤵)	68	\nis (϶)	59	\nleftmodels (⤻)	57
\ngtreqqless (⤵)	69	\nisd (϶)	58	\nleftpitchfork (⤸)	91
\ngtrless (⤵)	66	\nisd (϶)	59	\nleftpitchfork (⤹)	89
\ngtrless (⤵)	68	\nisigma (϶)	20	\nleftrcurvearrow (⤸)	81
\ngtrless (⤵)	67	\nitheta (ߠ)	20	\nLeftrightarrow (⤸)	84
\ngtrless (⤵)	69	\niupsilon (϶)	20	\nLeftrightarrow (⤹)	74
\ngtrsim (⤵)	66	\niv (⤸)	99	\nLeftrightarrow (⤻)	73
\ngtrsim (⤵)	66	\nj (nø)	20	\nLeftrightarrow (⤼)	84
\ngtrsim (⤵)	68	\nkarta (package)	... 236, 276	\nLeftrightarrow (⤽)	81
\ngtrsim (⤵)	69	\nlcirclearrowdown (⤸)	77	\nLeftrightarrow (⤾)	81
\nhateq (≣)	57	\nlcirclearrowleft (⤸)	77	\nLeftrightarrow (⤷)	81
\nhateq (≣)	55	\nlcirclearrowright (⤸)	77	\nLeftrightarrow (⤸)	77
\nHdownarrow (⤸)	84	\nlcurvearrowdown (⤸)	77	\nLeftrightarrow (⤹)	77
\nHdownarrow (⤸)	87	\nlcurvearrowleft (⤸)	77	\nLeftrightarrow (⤻)	77
\nhknearrow (⤸)	82	\nlcurvearrowright (⤸)	77	\nLeftrightarrow (⤼)	87
\nhknwarw (⤸)	82	\nlcurvearrowup (⤸)	77	\nLeftrightarrow (⤽)	74
\nhksearrow (↖)	82	\nlcurvearrowdown (⤸)	77	\nLeftrightarrow (⤾)	30, 73
\nhkswarrow (⤸)	82	\nlcurvearrowleft (⤸)	77	\nLeftrightarrow (⤷)	84
\nhookdownarrow (⤸)	81	\nlcurvearrowright (⤸)	77	\nLeftrightarrow (⤸)	80
\nhookleftarrow (⤸)	81	\nlcurvearrownw (⤸)	77	\nLeftrightarrow (⤹)	77
\nhookleftarrow (⤸)	78	\nlcurvearrowrnw (⤸)	77	\nLeftrightarrow (⤻)	87
\nhooknearrow (⤸)	81	\nlcurvearrowright (⤸)	77	\nLeftrightarrow (⤼)	81
\nhooknwarrow (⤸)	81	\nlcurvearrowup (⤸)	77	\nLeftrightarrow (⤽)	81
\nhookrightarrow (⤸)	81	\nlcurvearrowse (⤸)	77		
\nhookrightarrow (⤸)	78	\nlcurvearrowsw (⤸)	77		

\nleftrightblackspoon ($\bullet\circ$) .	60	\nless ($\not\sim$)	66	\nLongrightarrow (\Longrightarrow)	81
.	90	\nless ($\not\sim$)	65	\nlongrightarrow ($\dashv\rightarrow$)	81
\nleftrightcurvearrow (\curvearrowleft) .	81	\nless ($\not\sim$)	69	\nlongrightfootline ($\dashv\rightarrow$)	57
\nleftrightharpoondownup (\curvearrowleft)	83	\nless ($\not\sim$)	68	\nlongrightsquigarrow ($\sim\sim$)	82
\nleftrightharpoondownup (\curvearrowleft)	78	\nless ($\not\sim$)	67	\nlongrightwavearrow ($\sim\sim$)	81
\nleftrightharpoons ($\not\sim$)	83	\nlessapprox ($\not\leq$)	66	\nltcc ($\not\sim$)	68
\nleftrightharpoons ($\not\sim$)	78	\nlessapprox ($\not\leq$)	66	\nMapsdown ($\not\downarrow$)	82
\nleftrightharpoonupdownup (\curvearrowleft)	83	\nlessapprox ($\not\leq$)	68	\nmapsdown ($\not\downarrow$)	82
\nleftrightharpoonupdownup (\curvearrowleft)	78	\nlesscc ($\not\sim$)	68	\nMapsfrom ($\not\leftrightarrow$)	82
\nleftrightharpoons ($\not\sim$)	78	\nlessclosed ($\not\sim$)	68, 72	\nmapsfrom ($\not\leftrightarrow$)	82
\nleftrightharpoonupdownup (\curvearrowleft)	83	\nlessclosed ($\not\sim$)	67, 71	\nMapsto ($\not\Rightarrow$)	82
\nleftrightharpoonupdownup (\curvearrowleft)	78	\nlessdot ($\not\sim$)	68	\nmapsto ($\not\Rightarrow$)	82
\nLeftrightline ($\not\equiv$)	55	\nlessdot ($\not\sim$)	67	\nmapsto ($\not\Rightarrow$)	78
\nleftrightline ($\not\equiv$)	55	\nlesseqtr ($\not\leq$)	68	\nMapsup ($\not\uparrow$)	82
\nleftrightspoon ($\circ\bullet$)	90	\nlesseqtr ($\not\leq$)	67	\nmapsup ($\not\uparrow$)	82
\nleftrightsquigarrow (\leftrightarrow)	81	\nlesseqtrslant ($\not\leq$)	68	\nmid ($\not\mid$)	52
\nleftrightsquigarrow (\leftrightarrow)	78	\nlesseqtrslant ($\not\leq$)	67	\nmid ($\not\mid$)	58
\nleftrightwavearrow (\leftrightarrow)	81	\nlesseqgtr ($\not\geq$)	68	\nmid ($\not\mid$)	57
\nleftrsquigarrow (\leftrightarrow)	81	\nlesseqgtr ($\not\geq$)	67	\nmid ($\not\mid$)	55
\nleftrsquigarrow (\leftrightarrow)	77	\nlesseqslantgtr ($\not\leq$)	68	\nmid ($\not\mid$)	60
\nleftspoon ($\circ\curvearrowleft$)	90	\nlessgtr ($\not\sim$)	66	\nmidcir ($\not\circ$)	90
\nleftspoon ($\circ\curvearrowleft$)	89	\nlessgtr ($\not\sim$)	68	\nmodels ($\not\#$)	57
\nleftsquigarrow (\leftrightarrow)	81	\nlessgtr ($\not\sim$)	67	\nmodels ($\not\#$)	55
\nleftupcurvedarrow (\curvearrowleft)	82	\nlessgtr ($\not\sim$)	70	\nmultimap ($\not\rightarrow$)	90
\nleftvDash ($\not\vdash$)	57	\nlesssim ($\not\sim$)	66	\nmultimap ($\not\rightarrow$)	89
\nleftVdash ($\not\vdash$)	57	\nlesssim ($\not\sim$)	66	\nmultimapinv ($\not\rightarrow$)	90
\nleftVdash ($\not\vdash$)	55	\nlesssim ($\not\sim$)	68	\NN ($\not\wedge$)	130
\nleftvDash ($\not\vdash$)	57	\nlessssim ($\not\sim$)	68	\nndtstile ($\not\parallel$)	61
\nleftvdash ($\not\vdash$)	57	\nlessssim ($\not\sim$)	70	\nNearrow ($\not\searrow$)	81
\nleftvdash ($\not\vdash$)	55	\nlhookdownarrow ($\not\downarrow$)	77	\nNearrow ($\not\searrow$)	76
\nleftwavearrow (\leftrightarrow)	81	\nlhookleftarrow ($\not\leftarrow$)	77	\nnearrow ($\not\uparrow$)	74
\nleq ($\not\leq$)	66	\nlhooknearrow ($\not\rightarrow$)	77	\nnearrow ($\not\uparrow$)	83
\nleq ($\not\leq$)	65, 66	\nlhooknwarrow ($\not\swarrow$)	76	\nnearrow ($\not\rightarrow$)	81
\nleq ($\not\leq$)	69	\nlhookrightarrow ($\not\rightarrow$)	76	\nnearrow ($\not\rightarrow$)	76
\nleq ($\not\leq$)	68	\nlhooksearrow ($\not\uparrow$)	76	\nnearrowtail ($\not\rightarrow$)	81
\nleq ($\not\leq$)	67	\nlhookswarrow ($\not\curvearrowleft$)	76	\nnearrowtail ($\not\rightarrow$)	77
\nleqclosed ($\not\#$)	68, 72	\nlhookuparrow ($\not\uparrow$)	76	\nnebkarrow ($\not\rightarrow$)	81
\nleqclosed ($\not\#$)	67, 71	\nlll ($\not\lll$)	66	\nnefilledspoon ($\not\rightarrow$)	89
\nleqdot ($\not\#$)	68	\nlll ($\not\lll$)	68	\nnefootline ($\not\rightarrow$)	55
\nleqdot ($\not\#$)	67	\nlll ($\not\lll$)	67	\nnefree ($\not\rightarrow$)	55
\nleqq ($\not\leq$)	66	\nlll ($\not\lll$)	70	\nneharpoonccw ($\not\rightarrow$)	78
\nleqq ($\not\leq$)	65	\nLleftarrow ($\not\leftarrow$)	81	\nneharpooncw ($\not\rightarrow$)	78
\nleqq ($\not\leq$)	69	\nLleftarrow ($\not\leftarrow$)	76	\nneharpoonnw ($\not\rightarrow$)	83
\nleqq ($\not\leq$)	68	\nlll ($\not\lll$)	68	\nneharpoonse ($\not\rightarrow$)	83
\nleqq ($\not\leq$)	67	\nlll ($\not\lll$)	67	\nneleftcurvearrow ($\not\rightarrow$)	82
\nleqq ($\not\leq$)	70	\nlongdashv ($\dashv\rightarrow$)	57	\nnelsquigarrow ($\not\rightarrow$)	77
\nleqslant ($\not\leq$)	65	\nlongleadsto ($\sim\sim$)	82	\nnemapsto ($\not\rightarrow$)	77
\nleqslant ($\not\leq$)	69	\nLongleftarrow ($\not\leftarrow$)	81	\nneModels ($\not\approx$)	55
\nleqslant ($\not\leq$)	68	\nlongleftarrow ($\not\leftarrow$)	81	\nnemodels ($\not\approx$)	55
\nleqslant ($\not\leq$)	70	\nlongleftfootline ($\not\rightarrow$)	57	\nnenearrows ($\not\rightarrow$)	81
\nleqslant ($\not\leq$)	65	\nLongleftrightarrow ($\not\rightleftarrows$)	81	\nnenearrows ($\not\rightarrow$)	77
\nleqslant ($\not\leq$)	69	\nlongleftrightarrow ($\not\rightleftarrows$)	81	\nnepitchfork ($\not\rightarrow$)	89
\nleqslant ($\not\leq$)	68	\nlongleftrightarrow ($\not\rightleftarrows$)	81	\nnercurvearrow ($\not\rightarrow$)	82
\nleqslant ($\not\leq$)	67	\nlongleftsquigarrow ($\not\sim\sim$)	82	\nnersquigarrow ($\not\rightarrow$)	77
\nleqslantdot ($\not\leq$)	68	\nlongleftwavearrow ($\not\sim\sim$)	81	\nnespoon ($\not\rightarrow$)	89
\nleqslantdot ($\not\leq$)	67	\nLongmapsfrom ($\not\leftrightarrow$)	57, 81	\nNeswarrow ($\not\rightarrow$)	81
\nqlslcc ($\not\#$)	68	\nlongmapsfrom ($\not\leftrightarrow$)	57, 81	\nNeswarrow ($\not\rightarrow$)	77
\nlescc ($\not\#$)	68	\nLongmapsto ($\not\Rightarrow$)	81	\nnesarrow ($\not\rightarrow$)	81
\nlesdot ($\not\#$)	68	\nlongmapsto ($\not\Rightarrow$)	81	\nneswarrows ($\not\rightarrow$)	81
\nlesg ($\not\#$)	68			\nneswarrows ($\not\rightarrow$)	77

\nneswcurvearrow (↗)	82
\nneswharpoonnwse (↖)	83
\nneswharpoonnwse (↖)	78
\nneswharpoons (↘)	83
\nneswharpoons (↘)	78
\nneswharpoonsenw (↖)	83
\nneswharpoonsenw (↖)	78
\nNeswline (↙)	55
\nneswline (↙)	55
\nneVdash (※)	55
\nnevDash (※)	55
\nni (฿)	57
\nni (Ξ)	98
\nni (₱)	60
\nnststile (▣)	61
\nntstile (▣)	61
\nnttstile (▣)	61
\nNwarrow (↖)	81
\nNwarrow (↖)	77
\nnwarrow (↑)	74
\nnwarrow (↑)	83
\nnwarrow (↖)	81
\nnwarrow (↖)	77
\nnwarrowtail (↖)	81
\nnwarrowtail (↖)	77
\nnwbkarrow (↖)	81
\nnwfilledspoon (↖)	89
\nnwfootline (↖)	55
\nnwfree (↖)	55
\nnwharpoonccw (↖)	78
\nnwharpooncw (↖)	78
\nnwharpoonne (↖)	83
\nnwharpoonsw (↖)	83
\nnwlcurvearrow (↖)	82
\nnwlsquigarrow (↖)	77
\nnwmapsto (↖)	77
\nnwModels (※)	55
\nnwmodels (※)	55
\nnwnwarrows (↖)	81
\nnwnwarrows (↖)	77
\nnwpitchfork (↖)	89
\nnwrcurvearrow (↖)	82
\nnwrsquigarrow (↖)	77
\nNwsearrow (↖)	81
\nNwsearrow (↖)	77
\nnwsearrow (↖)	81
\nnwsearrow (↖)	77
\nnwsearrows (↖)	81
\nnwsearrows (↖)	77
\nnwsecurvearrow (↖)	82
\nnwseharpoonnesw (↖)	83
\nnwseharpoonnesw (↖)	78
\nnwseharpoons (↘)	83
\nnwseharpoons (↘)	78
\nnwseharpoonswne (↖)	83
\nnwseharpoonswne (↖)	78
\nNwseline (↖)	55
\nNwseline (↙)	55
\nnwspoon (↖)	89
\nnwVdash (※)	55
\nnwvdash (↖)	55
no bicycles (🚫)	187
no entry	see \noway
no entry (🚫)	216
no littering (🚭)	216
no mobile phones (📵)	216
no one under eighteen (🔞)	216
no pedestrians (🚫)	216
no smoking (🚫)	216
\NoBleech (✗)	189
\NoChemicalCleaning (⊖)	189
noeuro (wasysym package option)	26
nointegrals (wasysym package option)	41
\NoIroning (✗)	189
non-commutative division	115
non-potable water (🚫)	216
nonbreaking space	131
NOR gates	131
	
\NORd ()	131
\norigo (Ⓐ)	90
	
\NOR1 ()	131
norm	see \lVert and \rVert
normal runes	160
	
\NORr ()	131
\NorthNode (ℳ)	129
	
\NORu ()	131
\Norway (🇳)	203
nose (👃)	216
\NoSun (☀)	190
\Not (⌐)	59
not	see \neg
\not	53, 261
not equal (≠ vs. ≡)	53
\notasymp (≝)	53
\notbackslash (⊍)	129
\notbot (⊥)	97
\notbot (⊥)	121
\notchar (⌿)	59
\NotCongruent (≡)	117
\notdivides (∤)	53
notebook (📓)	216
notebook with decorative cover (📓)	216
\notequiv (≐)	53
\notin (∉)	97
\notin (∉)	97
\notin (∉)	98
\notin (∉)	57
\notin (∉)	98
\notin (∉)	97
\notin (∉)	97
\notin (∉)	60
\notni (∉)	97
\notowner (∉)	97
\notowns	see \notowner and \notni
\notperp (⟂)	53
\notslash (⌿)	129
\notsmallin (∉)	98
\notsmallowns (∉)	98
\nottop (✗)	97
\nottop (✗)	121
\NoTumbler (☒)	189
\novelty (Ν)	183
\noway (🚫)	189
\nowns (฿)	57, 98
\nowns (Ξ)	98
\nowns (₱)	97
\parallel (平行)	52
\parallel (平行)	58
\parallel (平行)	57
\parallel (平行)	55
\parallel (平行)	60
\parallelslant (⤒)	62
\nperp (⟂)	57
\nperp (⟂)	55
\npitchfork (⤓)	91
\pitchfork (⤓)	89
\plus (⊕)	31
\plus (⊕)	34
\polint (᳚)	49
\polint (᳚)	47
\polints (᳚)	48
\polintup (᳚)	48
\prec (≺)	53
\prec (≺)	52
\prec (≺)	58
\prec (≺)	57
\prec (≺)	55
\prec (≺)	60
\precapprox (᳚)	53
\precapprox (᳚)	52
\precapprox (᳚)	57
\precapprox (᳚)	55
\preccurlyeq (᳚)	53
\preccurlyeq (᳚)	52
\preccurlyeq (᳚)	57
\preccurlyeq (᳚)	55
\preccurlyeq (᳚)	55
\preccurlyeq (᳚)	60
\preceq (᳚)	53
\preceq (᳚)	52
\preceq (᳚)	58
\preceq (᳚)	57
\preceq (᳚)	55
\preceq (᳚)	60
\preceqq (᳚)	52
\preceqq (᳚)	57
\precsim (᳚)	53
\precsim (᳚)	52
\precsim (᳚)	57
\precsim (᳚)	55
\NR (ⓧ)	130
\rcleararrowdown (⤓)	77
\rcleararrowleft (⤓)	77
\rcleararrowright (⤓)	77
\rcleararrowup (⤓)	77
\rcurvearrowdown (⤓)	77
\rcurvearrowleft (⤓)	77
\rcurvearrowone (⤓)	77
\rcurvearrownw (⤓)	77
\rcurvearrowright (⤓)	77

\nrcurvearrowse (⤘)	77	\nrightcurvearrow (⤙)	81	\nshortparallel (⤠)	57
\nrcurvearrowsw (⤙)	77	\nrightrightarrows (⤩)	81	\nshortparallel (⤡)	55
\nrcurvearrowup (⤛)	77	\nrightrightarrows (⤪)	76	\nshortparallel (⤢)	60
\nRelbar (=)	55	\nrightrsquigarrow (⤜)	81	\nshortrighttack (⤤)	57
\nrelbar (+)	55	\nrightrsquigarrow (⤝)	76	\nshortuptack (⤥)	57
\nrestriction (⤦)	83	\nrightspoon (⤧)	90	\nsim (⤧)	53
\nrestriction (⤧)	78	\nrightspoon (⤨)	89	\nsim (⤨)	52
\nrhookdownarrow (⤫)	77	\nightsquigarrow (⤚)	82	\nsim (⤚)	58
\nrhookleftarrow (⤬)	77	\nightsquigarrow (⤛)	78	\nsim (⤛)	57
\nrhooknearrow (⤗)	77	\nrightupcurvedarrow (⤖)	82	\nsim (⤛)	55
\nrhooknarrow (⤘)	77	\nrightVDash (⤭)	57	\nsim (⤛)	60
\nrhookrightarrow (⤚)	77	\nrightVdash (⤮)	57	\nsime (⤦)	57
\nrhooksearrow (⤙)	77	\nrightVdash (⤯)	55	\nsime (⤙)	60
\nrhookswarrow (⤚)	77	\nrightvDash (⤳)	57	\nsimeq (⤚)	53
\nrhookuparrow (⤩)	77	\nrightvdash (⤴)	57	\nsimeq (⤩)	52
\nRightarrow (⤱)	74	\nrightvdash (⤵)	55	\nsimeq (⤱)	57
\nRightarrow (⤱)	73	\nrightwavearrow (⤲)	81	\nsimeq (⤱)	55
\nRightarrow (⤱)	84	\nrisingdotseq (⤦)	57	\nsimeq (⤚)	60
\nRightarrow (⤱)	81	\nrisingdotseq (⤨)	55	\nsimeq (⤚)	53
\nRightarrow (⤱)	77	\nRightarrow (⤱)	80	\nsimeq (⤚)	52
\nRightarrow (⤱)	87	\nRightarrow (⤱)	76	\nsmile (⤣)	57, 91
\nrightarrow (⤱)	74	\nsdtstile (⤰)	61	\nsmile (⤣)	90
\nrightarrow (⤱)	73	\nSearrow (⤸)	80	\nsmileeq (⤰)	57, 91
\nrightarrow (⤱)	84	\nSearrow (⤹)	76	\nsmileeq (⤰)	90
\nrightarrow (⤱)	81	\nsearrow (⤸)	80	\nsmilefrown (⤠)	57, 91
\nrightarrow (⤱)	77	\nsearrow (⤹)	76	\nsmilefrown (⤠)	90
\nrightarrow (⤱)	87	\nsearrowtail (⤸)	80	\nsmilefrown (⤠)	90
\nrightarrowtail (⤱)	81	\nsearrowtail (⤹)	77	\nsmilefrown (⤠)	90
\nrightarrowtail (⤱)	77	\nsebkarow (⤸)	80	\nsmilefrown (⤠)	90
\nrightAssert (⤮)	57	\nsefilledspoon (⤸)	89	\nsmilefrown (⤠)	90
\nrightassert (⤮)	57	\nsefootline (⤸)	55	\nsmilefrown (⤠)	90
\nrightbkarow (⤱)	81	\nsefree (⤸)	55	\nsmilefrown (⤠)	90
\nrightblackspoon (⤠)	90	\nseharpoonccw (⤸)	78	\nsmilefrown (⤠)	90
\nrightcurvedarrow (⤲)	81	\nseharpooncw (⤸)	78	\nsmilefrown (⤠)	90
\nrightdowncurvedarrow (⤸)	81	\nseharponne (⤸)	83	\nsmilefrown (⤠)	90
\nrightfilledspoon (⤱)	89	\nseharpoonsw (⤸)	83	\nsmilefrown (⤠)	90
\nrightfootline (⤣)	57	\nsecurvearrow (⤸)	82	\nsmile (⤣)	90
\nrightfootline (⤣)	55	\nselsquigarrow (⤸)	77	\nsmile (⤣)	90
\nrightfree (⤱)	55	\nsemapsto (⤸)	77	\nsmileeq (⤰)	90
\nightharpoonccw (⤠)	78	\nseModels (⤰)	55	\nsmileeq (⤰)	90
\nightharpooncw (⤠)	78	\nsemodels (⤰)	55	\nsmilefrown (⤠)	90
\nightharpoondown (⤣)	83	\nsenarrows (⤰)	80	\nSqsubset (⤰)	64
\nightharpoonup (⤣)	83	\nsenarrows (⤰)	77	\nSqsubset (⤰)	64
\nrightlcurvearrow (⤣)	81	\nsenwcurvearrow (⤸)	82	\nSqsubset (⤰)	63
\nrightleftarrows (⤩)	81	\nsenwharpoons (⤰)	83	\nSqsubset (⤰)	63
\nrightleftarrows (⤩)	76	\nsenwharpoons (⤰)	78	\nSqsubset (⤰)	63
\nrightleftcurvearrow (⤣)	81	\nsepitchfork (⤸)	89	\nSqsubset (⤰)	64
\nrightleftharpoons (⤩)	83	\nsercurvearrow (⤸)	82	\nSqsubset (⤰)	64
\nrightleftharpoons (⤩)	78	\nusersquigarrow (⤸)	77	\nSqsubset (⤰)	65
\nrightleftsquigarrow (⤱)	81	\nsesearrows (⤰)	80	\nSqsubset (⤰)	63
\nrightlsquigarrow (⤱)	81	\nsesearrows (⤰)	77	\nSqsubset (⤰)	63
\nrightlsquigarrow (⤱)	76	\nsespoon (⤰)	89	\nSqsubset (⤰)	64
\nRightmapsto (⤩)	81	\nseVdash (⤰)	55	\nSqsubset (⤰)	64
\nrightmapsto (⤩)	81	\nsevdash (⤰)	55	\nSqsubset (⤰)	65
\nrightmapsto (⤩)	76	\nshortdowntack (⤠)	57	\nSqsubset (⤰)	63
\nrightModels (⤮)	55	\nshortlefttack (⤠)	57	\nSqsubset (⤰)	64
\nrightmodels (⤩)	57	\nshortmid (⤠)	52	\nSqsubset (⤰)	64
\nrightmodels (⤩)	55	\nshortmid (⤠)	58	\nSqsubset (⤰)	64
\nrightpitchfork (⤩)	91	\nshortmid (⤠)	57	\nSqsubset (⤰)	63
\nrightpitchfork (⤩)	89	\nshortmid (⤠)	55	\nSqsubset (⤰)	63
		\nshortmid (⤠)	60	\nSqsubset (⤰)	63
		\nshortparallel (⤠)	52	\nSqsubset (⤰)	64
		\nshortparallel (⤠)	58	\nSqsubset (⤰)	64

\nsqsupset (\supset)	65	\nsuccseq (\succ)	52	\nswvdash (\nexists)	55
\nsqsupseteq (\supseteq)	63	\nsuccseq (\geq)	58	\NT (\sim)	130
\nsqsupseteq (\supseteq)	63	\nsuccseq (\neq)	57	\ntdtstile ($\overline{\overline{A}}\parallel$)	61
\nsqsupseteq (\supseteq)	64	\nsuccseq (\geq)	55	ntheorem (package)	119
\nsqsupseteq (\supseteq)	64	\nsuccseq (\neq)	60	\nthickapprox (\approx)	52
\nsqsupseteq (\supseteq)	65	\nsuccseqq (\geq)	52	\nto (\rightarrow)	82
\nsqsupseteqq (\supseteqq)	63	\nsuccseqq (\neq)	57	\nto (\rightarrow)	78
\nsqsupseteqq (\supseteqq)	64	\nsuccsim (\succeq)	53	\ntriangleeq ($\#$)	72
\nsqsupseteqq (\supseteqq)	64	\nsuccsim (\leq)	52	\ntriangleeq ($\#$)	71
\nsqtriplefrown (\nexists)	90	\nsuccsim (\neq)	57	\ntriangleleft (\oplus)	70
\nsqtriplesmile (\nexists)	90	\nsuccsim (\neq)	55	\ntriangleleft (\ominus)	70
\nsquigarrowdownup (\curvearrowright)	77	\nSupset (\supseteq)	63	\ntriangleleft (\triangleleft)	72
\nsquigarrowleftright (\leftrightarrow)	77	\nSupset (\supset)	63	\ntriangleleft (\triangleleft)	72
\nsquigarrownews (\leftrightarrow)	77	\nSupset (\supseteq)	64	\ntriangleleft (\triangleleft)	67, 71
\nsquigarrownwse (\curvearrowright)	77	\nSupset (\supset)	64	\ntrianglelefteq (\oplus)	70
\nsquigarrowrightleft (\curvearrowleft)	77	\nSupset (\supseteq)	63	\ntrianglelefteq (\ominus)	70
\nsquigarrowsenw (\curvearrowright)	77	\nSupset (\supset)	64	\ntrianglelefteq (\triangleleft)	72
\nsquigarrowswne (\curvearrowleft)	77	\nSupset (\supseteq)	64	\ntrianglelefteq (\triangleleft)	67, 71
\nsquigarrowupdown (\curvearrowright)	77	\nSupseteq (\supseteqq)	63	\ntrianglelefteqslant (\triangleleft)	70
\nsststile ($\overline{\overline{A}}\parallel$)	61	\nSupseteq (\supseteq)	63	\ntriangleright (\oplus)	70
\nstareq ($\#$)	57	\nSupseteq (\supset)	64	\ntriangleright (\triangleleft)	70
\nststile ($\overline{\overline{A}}\parallel$)	61	\nSupseteq (\supseteq)	64	\ntriangleright (\triangleleft)	72
\nststile ($\overline{\overline{A}}\parallel$)	61	\nSupseteq (\supset)	65	\ntriangleright (\triangleleft)	67, 71
\nSubset (\Subset)	63	\nSupseteqq (\supseteqq)	63	\ntrianglelefteqslant (\triangleleft)	72
\nSubset (\Subset)	63	\nSupseteqq (\supseteq)	63	\ntriangleright (\triangleleft)	72
\nSubset (\Subset)	64	\nSupseteqq (\supset)	64	\ntriangleright (\triangleleft)	72
\nSubset (\Subset)	64	\nSupseteqq (\supseteqq)	64	\ntriangleright (\triangleleft)	67, 71
\nsubset (\pitchfork)	63	\nSupseteqq (\supseteq)	65	\ntrianglerighteq (\triangleleft)	70
\nsubset (\pitchfork)	64	\nSupseteqq (\supset)	65	\ntrianglerighteq (\triangleleft)	70
\nsubset (\pitchfork)	64	\nSupseteqq (\supseteqq)	63	\ntrianglerighteq (\triangleleft)	70
\nsubset (\pitchfork)	64	\nSupseteqq (\supseteq)	64	\ntrianglerighteq (\triangleleft)	70
\nsubset (\pitchfork)	64	\nSupseteqq (\supset)	64	\ntrianglerighteq (\triangleleft)	72
\nsubset (\pitchfork)	64	\nSwallow (\curvearrowright)	81	\ntrianglerighteq (\triangleleft)	72
\nsubset (\pitchfork)	64	\nSwallow (\curvearrowright)	77	\ntrianglerighteq (\triangleleft)	72
\nsubset (\pitchfork)	65	\nswarrow (\curvearrowright)	80	\ntrianglerighteq (\triangleleft)	70
\nsubseteq (\subseteq)	63	\nswarrow (\curvearrowright)	77	\ntriplefrown (\nexists)	90
\nsubseteq (\subseteq)	63	\nswarrowtail (\curvearrowright)	81	\ntriplesim ($\#$)	57
\nsubseteq (\subseteq)	64	\nswarrowtail (\curvearrowright)	77	\ntriplesim (\nexists)	55
\nsubseteq (\subseteq)	64	\nswbkarow (\curvearrowright)	81	\ntriplesmile (\nexists)	90
\nsubseteq (\subseteq)	64	\nswfilledspoon (\curvearrowright)	89	\ntdststile ($\overline{\overline{A}}\parallel$)	61
\nsubseteq (\subseteq)	65	\nswfootline (\curvearrowright)	55	\nttstile ($\overline{\overline{A}}\parallel$)	61
\nsubseteqq (\supseteqq)	63	\nswfree (\curvearrowright)	55	\ntttstile ($\overline{\overline{A}}\parallel$)	61
\nsubseteqq (\supseteqq)	63	\nswharpoonccw (\curvearrowright)	78	\ntwoheaddownarrow (\Downarrow)	81
\nsubseteqq (\supseteqq)	63	\nswharpooncw (\curvearrowright)	78	\ntwoheaddownarrow (\Downarrow)	77
\nsubseteqq (\supseteqq)	64	\nswharpoonnw (\curvearrowright)	83	\ntwoheadleftarrow (\Leftarrow)	52
\nsubseteqq (\supseteqq)	64	\nswharpoonse (\curvearrowright)	83	\ntwoheadleftarrow (\Leftarrow)	81
\nsubseteqq (\supseteqq)	65	\nswlcurvearrow (\curvearrowright)	82	\ntwoheadleftarrow (\Leftarrow)	77
\nsucc (\succ)	53	\nswlsquigarrow (\curvearrowright)	77	\ntwoheadleftarrow (\Leftarrow)	81
\nsucc (\succ)	52	\nswmapsto (\curvearrowright)	77	\ntwoheadnearrow (\nearrow)	81
\nsucc (\succ)	58	\nswModels (\models)	55	\ntwoheadnearrow (\nearrow)	77
\nsucc (\succ)	57	\nswmodels (\models)	55	\ntwoheadnarrow (\nwarrow)	81
\nsucc (\succ)	55	\nswnearrows (\curvearrowright)	81	\ntwoheadnarrow (\nwarrow)	77
\nsucc (\succ)	60	\nswnearrows (\curvearrowright)	77	\ntwoheadrightarrow (\rightarrowtail)	52
\nsuccapprox (\approx)	53	\nswnecurvearrow (\curvearrowright)	82	\ntwoheadrightarrow (\rightarrowtail)	81
\nsuccapprox (\approx)	52	\nswneharpoons (\curvearrowright)	83	\ntwoheadrightarrow (\rightarrowtail)	77
\nsuccapprox (\approx)	57	\nswneharpoons (\curvearrowright)	78	\ntwoheadsearrow (\searrow)	81
\nsuccapprox (\approx)	55	\nswpitchfork (\curvearrowright)	89	\ntwoheadsearrow (\searrow)	77
\nsucccurlyeq (\approx)	53	\nswrcurvearrow (\curvearrowright)	82	\ntwoheadswarrow (\swarrow)	81
\nsucccurlyeq (\approx)	52	\nswrsquigarrow (\curvearrowright)	77	\ntwoheadswarrow (\swarrow)	77
\nsucccurlyeq (\approx)	57	\nswspoon (\curvearrowright)	89	\ntwoheaduparrow (\uparrow)	81
\nsucccurlyeq (\approx)	55	\nswswallows (\curvearrowright)	81	\ntwoheaduparrow (\uparrow)	77
\nsucccurlyeq (\approx)	60	\nswswallows (\curvearrowright)	77	\Nu (N)	94
\nsuccseq (\approx)	53	\nswVdash (\models)	55	\nuu (ν)	94

nuclear power plant	<i>see</i> \SNPP
\nucleus (❖)	134
\Nudelholz (➡➡)	211
\NUL (%)	131
\NUL (%)	131
null infinity	<i>see</i> alphabets, math
null set	118–121
number sets	<i>see</i> alphabets, math
number sign	<i>see</i> \textnumero
numbers	<i>see</i> numerals
numerals	28, 118, 126, 141, 178, 184, 185, 236–237, 254
circled	141, 184, 185, 254
Epi-Olmec	159
Isthmian	159
LCD	126
Linear B	155
Mayan	118
old-style	28
segmented	126
\NumLock (Num)	130
\nUparrow (#)	81
\nUparrow (#)	77
\nuparrow (#)	81
\nuparrow (#)	77
\nuparrowtail (↗)	81
\nuparrowtail (↗)	77
\nupAssert (±)	57
\nupassert (±)	57
\nupbkarrow (⤒)	81
\nupblackspoon (⤒)	90
\nUpdownarrow (#)	81
\nUpdownarrow (#)	77
\nupdownarrow (#)	81
\nupdownarrow (#)	77
\nupdownarrows (#)	81
\nupdownarrows (#)	77
\nupdowncurvearrow (⤓)	82
\nupdownharpoonleft	83
\nupdownharpoonleft	78
\nupdownharpoonrightleft	83
\nupdownharpoonrightleft	78
\nupdownharpoons (#)	83
\nupdownharpoons (#)	78
\nupdownharpoonsleftright	83
\nUpdownline (#)	55
\nupdownline (#)	55
\nupdownsquigarrow (⤔)	82
\nupdownwavearrow (⤔)	81
\nupfilledspoon (#)	89
\nupfootline (#)	55
\nupfree (#)	55
\nupharpoonccw (#)	78
\nupharpooncw (#)	78
\nupharpoonleft (#)	83
\nupharpoonright (#)	83
\nuplcurvearrow (⤖)	82
\nupleftcurvedarrow (⤙)	82
\nuplsquigarrow (⤕)	82
\nuplsquigarrow (⤕)	77
\nUpmapsto (⤑)	81
\nupmapsto (⤑)	81
\nupmapsto (⤑)	77
\nupModels (⤑)	55
\nupmodels (⤑)	57
\nupmodels (⤑)	55
\nuppitchfork (⤒)	91
\nuppitchfork (⤒)	89
\nuprcurvearrow (⤖)	82
\nuprightcurvearrow (⤖)	82
\nuprsquigarrow (⤕)	82
\nuprsquigarrow (⤕)	77
\nupspoon (⤒)	90
\nupspoon (⤒)	89
\nupuparrows (⤑)	81
\nupuparrows (⤑)	77
\nupvDash (⤑)	57
\nupVdash (⤑)	57
\nupVdash (⤑)	55
\nupvDash (⤑)	57
\nupvdash (⤑)	57
\nupvdash (⤑)	55
\nupwavearrow (⤔)	81
\Nursey (⤧)	212
nut and bolt (⤧)	216
\nuup (v)	95
\nUparrow (#)	81
\nvardownwavearrow (⤔)	81
\nvargeq (⤒)	66
\nvarhookdownarrow (⤔)	81
\nvarhookleftarrow (⤧)	81
\nvarhooknearrow (⤔)	81
\nvarhooknarrow (⤔)	81
\nvarhookrightarrow (⤧)	81
\nvarhooksearrow (⤔)	81
\nvarhookswarrow (⤔)	81
\nvarhookuparrow (⤒)	81
\nvarisobar (⤒)	60
\nvarleftrightwavearrow (⤧)	81
\nvarleftwavearrow (⤧)	81
\nvarleq (⤒)	66
\nvarniobar (⤒)	60
\nvarparallel (#)	52
\nvarparallelinv (#)	52
\nvarrightwavearrow (⤧)	81
\nvartriangleleft (⤔)	72
\nvartriangleright (⤔)	72
\nvarupdownwavearrow (⤔)	81
\nvarupwavearrow (⤔)	81
\nVbar (⤑)	57
\nvBar (⤑)	57
\nVDash (⤒)	53
\nVDash (⤒)	52
\nVDash (⤒)	58
\nVDash (⠇)	57
\nVDash (⠇)	55
\nVDash (⠇)	60
\nVdash (⤒)	53
\nVdash (⤒)	52
\nVdash (⤒)	57
\nVdash (⠄⠄⠄)	57
\Narrow (⤧)	74
\Narrow (⤧)	83
\Narrow (⤧)	79
\Narrow (⤧)	75
\Narrow (⤧)	85
\narrow (⤧)	74
\narrow (⤧)	73, 263
\narrow (⤧)	79
\narrow (⤧)	75
\narrow (⤧)	88
\narrow (⤧)	85
\narrowcorner (⤧)	83
\narrowtail (⤧)	79

\narrowtail (\nwarrowtail)	75	\obelus* (\divideontimes)	196	\oiintsl (\ointsl)	48
\nbkarrow (\nwarrow)	79	\oblong (\square)	31	\oiintup (\ointup)	48
\nwedgeq (∇)	57	\oblong (\square)	38	\ointt (\ointt)	42
\nwfilledspoon (\nwarrow)	89	\obot (\oplus)	36	\ointt (\ointt)	41
\nwfootline (\nwarrow)	54	\obot (\ominus)	38	\ointt (\ointt)	43
\nwfree (\nwarrow)	54	\obot (\oplus)	39	\ointt (\ointt)	49
\nwharpoonccw (\nwarrow)	78	\obrbrak (\lrcorner)	122	\ointt (\ointt)	44
\nwharpooncw (\nwarrow)	78	\obslash (\oslash)	31	\ointt (\ointt)	46
\nwharpoonne (\nwarrow)	82	\obslash (\oslash)	38	\ointt (\ointt)	50
\nwharpoonsw (\nwarrow)	82	\obslash (\oslash)	38	\ointtclockwise (\ointclockwise)	43
\nwhiteblackspoon (\nwarrow)	90	\obslash (\oslash)	39	\ointtctrcclockwise (\ointtctrcclockwise)	43
\nlcurvearrow (\nwarrow)	80	\oc ()	30	\ointtsl (\ointtsl)	48
\nlsquigarrow (\nwarrow)	75	\ocirc (\circledcirc)	36	\ointtup (\ointtup)	48
\nmmapsto (\nwarrow)	75	\ocirc (\circledcirc)	37	oil drum (\blacksquare)	216
\nwmModels (\nwarrow)	54	\ocirc (\circledcirc)	37	\ointt (\ointt)	42
\nwmmodels (\nwarrow)	54	\ocircle (\circledcirc)	32	\ointt (\ointt)	41
\nnwwarrows (\nwarrow)	79	\ocoasterisk (\circledast)	36	\ointt (\ointt)	41
\nnwwarrows (\nwarrow)	75	\ocommatopright (\circledast)	107	\ointt (\ointt)	49
\nvnearrow (\nwarrow)	85	\octagon (\circledcirc)	144	\ointt (\ointt)	46
\npitchfork (\nwarrow)	89	octonions (\circledcirc)	see alphabets, math	\ointt (\ointt)	47
\nrcurvearrow (\nwarrow)	80	octopus (\circledcirc)	192	\ointt (\ointt)	49
\nrsquigarrow (\nwarrow)	75	\Octosteel (\bullet)	132	\ointt (\ointt)	49
\Nsearrow (\nwarrow)	79	\od (\circledcirc)	24	\ointt (\ointt)	46
\Nsearrow (\nwarrow)	75	\odash (\ominus)	37	\ointt (\ointt)	45
\nwsearrow (\nwarrow)	263	\oden (\circledcirc)	193	\ointt (\ointt)	47
\nwsearrow (\nwarrow)	79	\odiv (\circledast)	36	\ointtclockwise (\ointclockwise)	43
\nwsearrow (\nwarrow)	75	\odiv (\circledast)	39	\ointtclockwise (\ointclockwise)	49
\nwsearrow (\nwarrow)	85	\odot (\circledcirc)	36	\ointtclockwise (\ointclockwise)	44
\nwsearrows (\nwarrow)	79	\odot (\circledcirc)	31	\ointtclockwise (\ointclockwise)	46
\nwsearrows (\nwarrow)	75	\odot (\circledcirc)	37	\ointtclockwise (\ointclockwise)	50
\nwsebipropto (\nwarrow)	33	\odot (\circledcirc)	37	\ointtctrcclockwise (\ointtctrcclockwise)	43
\nwsecrossing (\nwarrow)	54	\odot (\circledcirc)	37	\ointtctrcclockwise (\ointtctrcclockwise)	49
\nwsecurearrow (\nwarrow)	80	\odot (\circledcirc)	39	\ointtctrcclockwise (\ointtctrcclockwise)	44
\nwseharpoonnesw (\nwarrow)	82	\odotslashdot (\circledast)	39	\ointtctrcclockwise (\ointtctrcclockwise)	44
\nwseharpoonnesw (\nwarrow)	78	\odplus (\circledast)	36	\ointtctrcclockwise (\ointtctrcclockwise)	46
\nwseharpoons (\nwarrow)	82	\OE (OE)	16, 274	\ointtctrcclockwise (\ointtctrcclockwise)	46
\nwseharpoons (\nwarrow)	78	\oe (\oe)	16, 274	\ointtctrcclockwise (\ointtctrcclockwise)	50
\nwseharpoonswne (\nwarrow)	82	\oequal (\circledast)	37	\ointtctrcclockwise (\ointtctrcclockwise)	47
\nwseharpoonswne (\nwarrow)	78	\Ofen (\square)	211	\ointtctrcclockwisesl (\ointtctrcclockwisesl)	48
\Nseline (\nwarrow)	54	office building (building)	216	\ointtctrcclockwiseup (\ointtctrcclockwiseup)	48
\Nseline (\nwarrow)	54	office worker (worker)	216	\ointtsl (\ointtsl)	48
\nspoon (\nwarrow)	89	\officialeuro (\euro)	27	\ointtup (\ointtup)	48
\nwVdash (\nwarrow)	54	\offinterlineskip	261	OK button (OK)	216
\nvdash (\nwarrow)	54	ogonek (package)	25, 276, 277	OK hand (OK)	216
		ogonek (ogonek)	see accents	\olcross (\times)	39
		ogre (ogre)	216	old key (oldkey)	216
		\ogreaterthan (\circledgt)	31	old man (oldman)	216
		\ogreaterthan (\circledgt)	38	old woman (oldwoman)	216
		\ogreaterthan (\circledgt)	39	old-arrows (package)	88, 89, 276
		\ohill (hill)	24	old-style numerals	28
		ohm	see \textohm	\olddWinkey (oldwinkey)	212
		\ohm (Ω)	126	older person (olderperson)	216
		\Ohne (Ohne)	164		
		\OHORN (OHORN)	17		
		\ohorn (ohorn)	17		
		\oiint (\ointoint)	43		
		\oiint (\ointoint)	49		
		\oiint (\ointoint)	46		
		\oiint (\ointoint)	50		
		\oiint (\ointoint)	47		
		\oiintclockwise (\ointclockwise)	43		
		\oiintctrlclockwise (\ointctrlclockwise)	43		

olive (▣)	193
Olschok, Marc	259
\OM (ω)	130
om (㉙)	216
\Omega (Ω)	94
\omega (ω)	94
\omegaup (ω)	95
\Omicron (O)	94
\omicron (o)	94
\ominus (⊖)	36
\ominus (⊖)	31
\ominus (⊖)	38
\ominus (⊖)	37
\ominus (⊖)	37
\ominus (⊖)	39
ON arrow (🔛)	216
oncoming automobile (🚘)	187
oncoming bus (🚍)	187
oncoming fist (👉)	216
oncoming police car (🚔)	187
oncoming taxi (🚖)	187
one o'clock (⌚)	191
one-piece swimsuit (👙)	216
one-thirty (🕒)	191
onion (🧅)	193
\onlymove (□)	183
\oo (oo)	196
\oo (oo)	20
\oalign	261
\open (.)	25
open book (📖)	216
open file folder (📁)	216
open hands (👋)	216
open mailbox with lowered flag (📭)	216
open mailbox with raised flag (📬)	216
open unit disk (𝔻)	see alphabets, math
\openJoin (×)	52
\openo (⌚)	20
\openo (⌚)	20
\openo (⌚)	20
\opentimes (×)	52
OpenType	161
operators	30–32, 35–37
binary	31–39
logical	see logical operators
set	see set operators
unary	30
\operp (⊛)	39
Ophiuchus (♏)	216
oplotsymb (package)	148, 149, 276, 277
\oplus (⊕)	36
\oplus (⊕)	30, 31, 259
\oplus (⊕)	38
\oplus (⊕)	37
\oplus (⊕)	37
\oplus (⊕)	39
\pluslhrim (⊕)	35
\plusrhrim (⊕)	35
\oppobishops (▣)	183
\Opposition (♂)	129
\opposition (♂)	127
optical disk (💽)	216
optical scaling	266
options	see package options
\OR (∨)	130
or	see \vee
OR gates	131
orange book (📘)	216
orange circle (🟠)	216
orange heart (❤)	216
orange square (🟠)	216
orangutan (🐒)	192
\orbit (⟳)	134
\ORd (ᵔ)	131
\right (⊕)	36
\right (⊕)	38
\origof (⌚)	90
\origof (⌚)	59
oriscus	see musixgre
\ORl (ᵔ)	131
\OrnamentDiamondSolid (❖)	149
ornaments	142–144, 149, 150, 241–242, 244–247
\ORr (ᵔ)	131
orthodox cross (☦)	216
orthogonal to	see \bot
\ORu (ᵔ)	131
\oslash (⊘)	36
\oslash (⊘)	31
\oslash (⊘)	38
\oslash (⊘)	37
\oslash (⊘)	37
\oslash (⊘)	39
\ostar (⊗)	37
\osum (Σ)	46
.otf files	161
\otimes (⊗)	39
\otimes (⊗)	36
\otimes (⊗)	31
\otimes (⊗)	38
\otimes (⊗)	37
\otimes (⊗)	37
\otimes (⊗)	39
\otimeshat (⊗)	39
\otimeslhrim (⊗)	35
\otimesrhrim (⊗)	35
\otop (⊕)	36
\otop (⊕)	38
\otriangle (Ⓐ)	38
\otriangle (Ⓐ)	37, 71
\otriangleup (Ⓐ)	36
otter (🦭)	192
\turnedcomma (‘)	107
outbox tray (📦)	216
outer joins	122
ovals	147, 172–176, 236–237, 242, 252–253
\ovee (ⓧ)	31
\ovee (ⓧ)	38
\Oven (熥)	211
\oven (熥)	211
\overarc (⏜)	24
\overbat (⏠)	107
\overbat* (⏠)	107
\overbrace (⏜)	110
\overbrace (⏜)	109
\overbrace (⏜)	109
\overbrace (⏜)	110
\overbrace (⏜)	110
\overbrace (⏜)	110
\overbrace (⏜)	108
\overbracket (⏠)	110
\overbracket (⏜)	110
\overbracket (⏠)	265
\overbridge (🌉)	23
\overgroup (⏜)	110
\overgroup (⏜)	109
\overgroup (⏜)	109
\overleftarrow (yleftarrow)	110
\overleftarrow (yleftarrow)	88, 108
\overleftbroom (:leftbroom)	114
\overleftflutteringbat (:leftbat)	115
\overleftharp (:leftharp)	88
\overlefthardown (:leftdown)	88
\overleftharpoon (:leftp)	109
\overleftharpoon (:leftp)	109
\overleftharpoon (:leftp)	110
\overleftpitchfork (:leftpitchfork)	114
\overleftrightarrow (:leftrightarrow)	110
\overleftrightarrow (:leftrightarrow)	88, 109
\overleftswishingghost (:leftghost)	115
\overlefttwitchonbroom (:leftbroom)	114
\overlefttwitchonbroom* (:leftbroom*)	114
\overlefttwitchonpitchfork (:leftpitchfork)	114
\overlefttwitchonpitchfork* (:leftpitchfork*)	114
\overline (⏜)	30, 106, 108
\overlinesegment (⏜)	109
\overlinesegment (⏜)	109
\overparen (⏜)	110
\overparenthesis (⏜)	265
\Overrightarrow (→)	108
overrightarrow (package)	108, 276

\overrightarrow (→) 110
 \overrightarrow (↗) 88, 108
 \overrightarrowbroom (↗) ... 114
 \overrightfluttingbat (→) 115
 \overrightsharp (♯) 88
 \overrightshartdown (♯) . 88
 \overrightsharpoon (♯) .. 109
 \overrightsharpoon (♯) .. 109
 \overrightsharpoon (♯) .. 110
 \overrightpitchfork (♯) 114
 \overrightwishingghost (♯) 115
 \overrightwitchonbroom (↗) 114
 \overrightwitchonbroom* (↗) 114
 \overrightwitchonpitchfork (↗) 114
 \overrightwitchonpitchfork* (↗) 114
 \overring (°) 25
 \overscriptleftarrow (↶) 113
 \overscriptleftrightarrow (↶) 113
 \overscriptrightarrow (↷) 113
 \overset 260
 \overt (Φ) 37
 \overt (Ω) 37
 \ovhook (՞) 107
 \ovoid (○) 36
 \owedge (օ) 31
 \owedge (օ) 38
 owl (owl) 192
 \owns see \ni
 \owns (Յ) 97
 \owns (Յ) 56, 98
 \owns (Յ) 98
 \owns (Յ) 97
 \owns (Յ) 60
 \ownsbar (Յ) 97
 ox (ox) 192
 oyster (oyster) 192

P

P (Պ) 160
 \P (¶) 16, 273
 \P (¶) 16
 \p (պ) 160
 \p (.) 196
 p (լ) 160
 P button (P) 216
 \p@ 264
 package (պ) 216
 package options
 a (esvect) 111
 arrows (boisik) 84
 b (esvect) 111
 bbgreekl (mathbbol) .. 125
 boondox (emf) 127

c (esvect) 111
 cal (emf) 127
 calligra (emf) 127
 chorus (emf) 127
 cmr (emf) 127
 crescent (fge) 107
 d (esvect) 111
 e (esvect) 111
 f (esvect) 111
 fourier (emf) 127
 frcursive (emf) 127
 g (esvect) 111
 german (keystroke) .. 130
 greek (babel) .. 16, 94, 95,
 157
 h (esvect) 111
 heartctrbull (bullcntr) .. 195
 integrals (wasysym) .. 41
 largectrbull (bullcntr) .. 195
 mathcal (euscript) .. 124
 mathscr (euscript) .. 124
 mathscr (urwchancal) .. 124
 miama (emf) 127
 new (old-arrows) .. 88, 89
 noeuro (wasysym) .. 26
 nointegrals (wasysym) 41
 polutonikogreek (babel) 16,
 94, 95
 rsfs (emf) 127
 sans (dsfont) 124
 scaled (CountriesOfEurope)
 204
 scr (rsfso) 124
 smallctrbull (bullcntr) 195
 smartctrbull (bullcntr) 195
 upint (stix) ... 40, 47, 49
 utf8x (inputenc) ... 274
 varg (txfonts/pxfonts) 96
 packages
 abrases 111, 276, 277
 accents 106, 264, 276, 277
 actuarialangle .. 112, 265,
 276, 277
 actuarialsymbol 265
 adform 136, 143, 144, 149,
 150, 276, 277
 adfsymbols 135, 139, 142,
 147, 276
 allrunes 160, 276
 \mathcal{AM} S 13, 16, 31,
 41, 51, 52, 63, 65, 70, 73,
 88, 92, 94, 96, 97, 99, 100,
 106, 109, 112, 115, 118–
 120, 125, 256, 257, 275
 amsbsy 270
 amsfonts 119, 124
 amsmath 13, 50, 92, 106,
 260, 269
 amssymb .. 13, 106, 119,
 124, 157, 276
 amstext 261, 263
 apl 130, 276
 ar 126, 276, 277
 arcs 24, 276, 277
 arev .. 136–138, 140, 161,
 179, 211, 276
 ascii .. 131, 271, 276, 277
 astrosym 238, 276
 babel .. 16, 94, 95, 157
 bartel-chess-fonts 254, 255,
 276
 bbding 135, 137–140, 142,
 147, 149, 257, 276, 277
 bbm 124, 276
 bbold 124, 276
 bclogo .. 227, 276, 277
 begriff 117, 276
 bigints 44, 276, 277
 bm 270, 276, 277
 boisik 34, 38, 46,
 58, 64, 69, 72, 83, 84, 96,
 98, 99, 107, 119, 121, 145,
 157, 161, 179, 276, 277
 braket 100
 bullcntr .. 195, 276, 277
 bulletenum 195
 calligra 124, 276, 277
 calrsfs 124
 cancel 108
 ccicons 28, 276, 277
 cclicenses .. 28, 276, 277
 centernot 261
 chancery 276
 chemarr .. 112, 276, 277
 chemarrow .. 88, 112, 276
 GԻAՅe .. 27, 93, 125,
 199–201
 china2e .. 124, 276, 277
 clock 191, 276, 277
 cmlt 30, 36, 51, 62, 99, 276
 cmupint .. 49, 50, 276, 277
 colonequals .. 30, 62, 276,
 277
 combelow .. 25, 276, 277
 cookingsymbols .. 211, 276,
 277
 countriesofeurope 202, 276,
 277
 cryst 252, 276
 cyript .. 156, 276, 277
 dancers 248, 276
 dblaccnt 264
 dice 253, 276
 dictsym .. 197, 276, 277
 dingbat 137, 138, 149, 244,
 257, 276, 277
 DotArrow .. 113, 276, 277
 dozenal 118, 195, 276, 277
 dsfont 124, 276
 dsserif 124, 276
 emf 127, 276, 277
 endofproofwd .. 122, 276
 epioltmec .. 157, 159, 276,
 277
 epsdice .. 180, 276, 277
 esint 44, 276

- esrelation 89, 114, 276
 esvect 111, 276
 euflag 206, 276, 277
 eufraik 124
 eurosym 27, 276, 277
 euscript 124, 276
 extarrows 113, 276, 277
 extpfeil 113, 276, 277
 extraipa 23, 276
 fc 17, 21
 fclfont 276
 fdsymbol 33, 34, 37, 45, 46,
 56, 57, 64, 68, 72, 79–83,
 90, 91, 96, 98, 102, 103,
 107, 109, 116, 119, 121,
 144, 161, 179, 276, 277
 feyn 133, 276, 277
 fge 88, 98, 107, 118, 123,
 276, 277
 fixmath 270
 fontawesome 26, 27, 128,
 132, 136, 137, 139, 141,
 143, 148, 231, 234, 276,
 277
 fontenc 13, 16, 17, 21, 272
 fontspec 161, 275
 fourier 27, 62, 95, 99, 105,
 110, 138, 143, 189, 276
 frege 117, 276, 277
 gensymb 126
 go 185, 276
 graphics 88, 259
 graphicx 25, 256, 259, 263
 greenpoint 236, 276
 halloweenmath 39, 91, 107,
 113–115, 276, 277
 hands 236, 276
 harmony 163, 164, 276,
 277
 harpoon 88, 276, 277
 hhcount 181, 194, 276, 277
 hierogl 152, 276, 277
 holtpolt 115, 276
 ifsym 126, 146, 147, 181,
 190, 194, 196, 257, 259,
 276, 277
 igo 184, 276
 inputenc 274
 isoent 272
 junicode 275, 276
 keystroke 130, 276, 277
 knitting 202, 276, 277
 knot 244, 247, 276
 latexsym 31, 51, 62, 73,
 119, 256, 276
lilyglyphs 161, 165–172,
 176–178
 lilyglyphs 276
 linearA 152, 276, 277
 linearb 155, 156, 276, 277
 logic 131
 longdiv 108
 magic 254, 276
 manfnt 188, 276, 277
 marvosym
 26, 117, 118, 127, 130–
 133, 137, 140, 188, 189,
 200, 257
 mathabx 30, 32, 36,
 42, 53, 63, 66, 70, 74, 75,
 92, 97, 99–101, 106, 110,
 118, 120, 128, 195, 256,
 257, 276, 277
 mathbbol 124, 125
 mathcomp 117
 mathdesign 26, 35, 50, 98,
 104, 123, 276
 mathdots 106, 115, 116,
 264, 276, 277
 mathrsfs 124, 276
 mathspec 94
 mathtools 30, 60, 88, 110,
 112, 276, 277
 mbboard 124, 125, 276
 mdwmath 111, 276, 277
 metre 24, 106, 196, 276,
 277
 milstd 131, 276, 277
 mismatch 93, 276
 MnSymbol 30, 32, 33,
 37, 45, 53–55, 64, 67, 71,
 75–78, 89, 90, 96, 97, 101,
 106, 108, 109, 116, 118,
 120, 121, 144, 161, 179,
 276, 277
 moonphase 238, 276
 musicography 164, 276,
 277
 musixgre 163
 musixlit 163
 musixper 163
 musixtex 276, 277
 nath 99, 105, 276
 nicefrac 122, 276, 277
 niceframe 241–244, 247
 nkarta 236, 276
 ntheorem 119
 ogonek 25, 276, 277
 old-arrows 88, 89, 276
 oplotsyml 148, 149, 276,
 277
 overrightarrow 108, 276
 phaistos 151, 276, 277
 phonetic 20, 24, 259, 276
 pict2e 127
 pifont 17, 135, 137–142,
 147, 150, 236, 241, 252,
 259, 276, 277
 pigpen 199, 276, 277
 plimsoll 126, 261, 276, 277
 pmboxdraw 198, 276, 277
 polynom 108
 prodint 51, 276
 protosem 151, 276, 277
 psnfss 141
 PSTricks 227
 pxfonts 30, 32, 43, 52,
 63, 66, 74, 91, 95–97, 119,
 120, 124, 179, 256, 271
 realhats 108, 276, 277
 recycle 201, 276
 relsize 24
 rojud 204, 206, 276, 277
 rotating 28, 130
 rsfso 124, 276
 rubikcube 235, 276, 277
 sarabian 157, 276, 277
 savesym 256
 scalarel 263
 sscsnowman 226, 276, 277
 semaphor 250, 252, 276
 semtrans 21, 25, 276, 277
 shuffle 36, 276, 277
 simplewick 265, 266
 simpsons 197, 276
 skak 183, 184, 276, 277
 skull 195, 276, 277
 slashed 261
 soyombo 201, 276, 277
 stackengine 263
 starfont 129, 276, 277
 staves 198, 276
 steinmetz 127, 276, 277
 stix 35, 39, 40, 47, 48, 59,
 60, 65, 69, 70, 72, 85–87,
 92, 96–99, 103, 107, 110,
 116, 118, 119, 122, 128,
 129, 132, 145, 146, 161,
 179, 181, 276, 277
 stmaryrd 31, 41, 52,
 63, 70, 74, 88, 91, 99, 100,
 257, 261, 275, 276
 svrsymbols 133, 276, 277
 t4phonet 21, 24, 276, 277
 teubner 27, 117, 157, 196,
 276, 277
 textcomp 13, 15, 16, 21,
 25–28, 73, 105, 122, 126,
 161, 186, 256, 271, 272,
 276
 textgreek 16, 95, 276, 277
 tfruepee 27, 276, 277
 TikZ 13, 128,
 132, 136–141, 143, 148–
 150, 162, 180–183, 187,
 189, 191, 200, 208, 211–
 213, 226, 227, 231, 235
 tikzsymbols 211–213, 276,
 277
 timing 126
 tipa 18, 19, 21–24, 259,
 276, 277
 tipx 19, 276, 277
 trfsigns 62, 98, 113, 276
 trsym 62, 276, 277
 turnstile 61, 276, 277
 twemojis
 179, 187, 188, 190–194,

200, 208, 211, 214, 226,	\parallel ()	56
276, 277	\parallel ()	54
txfonts	\parallel ()	59
30, 32, 43, 52, 63, 66, 74, 91,	parallel lines, slanted	see
95–97, 119, 120, 124, 179,	\varparallel	
256, 258, 271, 276, 277	\parallelogram (□)	146
type1cm	\parallelogramblack (■)	146
ucs	parallelograms	145–146,
ulsy	252–253	
umranda	\ParallelPort (▣)	130
umrandb	\parallelslant (//)	62
underscore	\parr (❀)	36
undertilde	parrot (✿)	192
units	\parsim (₩)	59
universa	part alternation mark (〽)	217
upgreek	\partial (ð)	97
upquote	\partial (ð)	97
url	\partial (ð)	99
urwchancal	\partialmeetcontraction (≤)	70
ushort	\partialslash (∅)	97
utfsym	\partialvardint (⋯)	121
128, 132, 136–141,	\partialvardlanddownint (⌞)	121
143, 148, 150, 162, 180–	\partialvardlandupint (⌞)	121
183, 186, 187, 189, 191,	\partialvardlcircleleftint (⌚)	121
200, 213, 228, 231, 276,	\partialvardlcircleleftint (⌚)	75
277	\partialvardlcirclerightint (⌚)	121
vietnam	\partialvardlcirclerightint (⌚)	75
vntex	\partialvardoint (⌚)	121
wasysym	\partialvardrcircleleftint (⌚)	121
20, 26, 28, 32,	\partialvardrcircleleftint (⌚)	75
41, 52, 63, 66, 116, 119,	\partialvardrcirclerightint (⌚)	121
120, 126, 127, 129, 132,	\partialvardrcirclerightint (⌚)	75
140, 142, 144, 161, 186,	\partialvardstrokedint (⌞)	121
257, 259, 276	\partialvardsumint (Σ)	121
webomints	\partialvardtint (⋯)	121
worldflags	\partialvardlanddownint (⌞)	121
wsuipa	\partialvardlandupint (⌞)	121
20, 23, 25, 257,	\partialvardlcircleleftint (⌚)	121
259, 264, 276, 277	\partialvardlcircletint (⌚)	75
xfakebold	\partialvardrcircleleftint (⌚)	121
xfrac	\partialvardrcircletint (⌚)	75
yfonts	\partialvardoint (⌚)	121
124, 125, 276, 277	\partialvardrcirclerightint (⌚)	121
yhmath	\partialvardrcircletint (⌚)	75
107–109, 111, 117,	\partialvardstrokedint (⌞)	121
264, 276	\partialvardsumint (Σ)	121
\PackingWaste (⌚)	\partialvardtint (⋯)	121
page facing up (☰)	\partialvardlanddownint (⌞)	121
page with curl (☰)	\partialvardlandupint (⌞)	121
pager (☷)	\partialvardlcircleleftint (⌚)	121
paintbrush (🖌)	\partialvardlcircletint (⌚)	75
Pakin, Scott	\partialvardrcircleleftint (⌚)	121
1, 262, 264, 275	\partialvardrcircletint (⌚)	75
\Pallas (♀)	\partialvardoint (⌚)	121
palm tree (🌴)	\partialvardrcirclerightint (⌚)	121
palms up together (牚)	\partialvardrcircletint (⌚)	75
\pan (⤵)	\partialvardstrokedint (⌞)	121
pancakes (🥞)	\partialvardsumint (Σ)	121
panda (🐼)	\partialvardtint (⋯)	121
paperclip	\partialvardlanddownint (⌞)	121
paperclip (📎)	\partialvardlandupint (⌞)	121
\PaperLandscape (☰)	\partialvardlcircleleftint (⌚)	121
\PaperPortrait (☷)	\partialvardlcircletint (⌚)	75
par	\partialvardrcircleleftint (⌚)	121
see \bindnasrepma,	\partialvardrcircletint (⌚)	121
\invamp, and \parr	\partialvardrcirclerightint (⌚)	121
parachute (ԑ)	\partialvardrcircletint (⌚)	75
\Paragraph (§)	\partialvardoint (⌚)	121
paragraph mark	\partialvardrcirclerightint (⌚)	121
see \P	\partialvardtoint (⌚)	121
\parallel ()	\partialvardtoint (⌚)	121
200, 208, 211, 214, 226,	\partialvartrcircleleftint (⌚)	121
276, 277	\partialvartrcircleleftint (⌚)	75
txfonts	\partialvartrcirclerightint (⌚)	121
30, 32, 43, 52, 63, 66, 74, 91,	\partialvartrcirclerightint (⌚)	76
95–97, 119, 120, 124, 179,	\partialvarstrokedint (⌞)	121
256, 258, 271, 276, 277	\partialvarsumint (Σ)	121
type1cm	\partialvarsumint (Σ)	121
ucs	\partialvarvoice (☞)	23
ulsy	\partialvarvoiceless (☞)	23
umranda	party popper (🎉)	217
umrandb	partying face (🥳)	217
underscore	\passedpawn (♙)	183
undertilde	passenger ship (🚢)	187
units	passport control	186–187
universa	passport control ((passport)	187
upgreek	\PAUSE (⏸)	162
upquote	\PAuse (⏸)	162
url	\pause (⏸)	162
urwchancal	pause button (⏸)	217
ushort	paw prints (🐾)	192
utfsym	pawn	183, 184, 254–255
128, 132, 136–141,	\PD (ණ)	130
143, 148, 150, 162, 180–	PDF	161, 179, 188, 190, 191,
183, 186, 187, 189, 191,	193, 194, 200, 211, 226	
200, 213, 228, 231, 276,	.pdf files	272
277	pdfTEX	206, 275
vietnam	\Peace (☮)	149
vntex	peace symbol (☮)	217
wasysym	\PeaceDove (🕊)	189
20, 26, 28, 32,	peach (🍑)	193
41, 52, 63, 66, 116, 119,	peacock (🦚)	192
120, 126, 127, 129, 132,	peanuts (🥜)	193
140, 142, 144, 161, 186,	pear (🍐)	193
257, 259, 276	\Ped (_PED)	162
webomints	\peeler (剃)	211
worldflags	pen (ปากกา)	217
wsuipa	\pencil (✏)	137
20, 23, 25, 257,	pencil (ปากกา)	217
259, 264, 276, 277	\PencilLeft (👈)	137
xfakebold	\PencilLeftDown (⬇️)	137
xfrac	\PencilLeftUp (⬆️)	137
yfonts	\PencilRight (👉)	137
124, 125, 276, 277	\PencilRightDown (⬇️)	137
yhmath	\PencilRightUp (⬆️)	137
107–109, 111, 117,	pencils	137, 138
264, 276	penguin (🐧)	192
\PackingWaste (⌚)	pensive face (🤔)	217
page facing up (☰)	\pentago (◇)	148
page with curl (☰)	\pentagocross (⊗)	148
pager (☷)	\pentagodot (◐)	148
paintbrush (🖌)	\pentagofill (●)	148
Pakin, Scott	\pentagofillha (◐)	148
1, 262, 264, 275	\pentagofillhb (◑)	148

\pentagofillhl (⌚)	148
\pentagofillhr (⌚)	148
\pentagolineh (⌚)	148
\pentagolinev (⌚)	149
\pentagolinevh (⌚)	149
\pentagon (⌚)	146
\pentagon (⌚)	144
\pentagonblack (⌚)	146
pentagons	148–149
\Pentagram (★)	129
\pentagram (★)	37
\pentam (—○—○— —○—○—)	196
\pentdot (⌚)	160
\penteye (⌚)	160
people	see faces
people holding hands (⌚)	217
people hugging (⌚)	217
people with bunny ears (⌚)	217
people wrestling (⌚)	217
percent sign	see \%
percussion	163
performing arts (⌚)	217
permanent paper	200
\permil (‰)	28
\Perp (⊥)	52
\Perp (⊤)	58
\Perp (⊤)	62
\perp (⊥)	51, 262
\perp (⊥)	56
\perp (⊥)	54
\perp (⊥)	59
\perps (⊥)	122
persevering face (⌚)	217
person (⌚)	217
person biking (⌚)	187
person bouncing ball (⌚)	217
person bowing (⌚)	217
person cartwheeling (⌚)	217
person climbing (⌚)	217
person facepalming (⌚)	217
person feeding baby (⌚)	217
person fencing (⌚)	217
person frowning (⌚)	217
person gesturing NO (⌚)	217
person gesturing OK (⌚)	217
person getting haircut (⌚)	217
person getting massage (⌚)	217
person golfing (⌚)	217
person in bed (⌚)	217
person in lotus position (⌚)	217
person in manual wheelchair (⌚)	217
person in motorized wheelchair (⌚)	217
person in steamy room (⌚)	217
person in suit levitating (⌚)	217
person in tuxedo (⌚)	217
person juggling (⌚)	217
person kneeling (⌚)	217
person lifting weights (⌚)	217
person mountain biking (⌚)	187
person playing handball (⌚)	217
person playing water polo (⌚)	217
person pouting (⌚)	217
person raising hand (⌚)	217
person rowing boat (⌚)	187
person running (⌚)	217
person shrugging (⌚)	217
person standing (⌚)	217
person surfing (⌚)	217
person swimming (⌚)	218
person taking bath (⌚)	218
person tipping hand (⌚)	218
person walking (⌚)	218
person wearing turban (⌚)	218
person with skullcap (⌚)	218
person with veil (⌚)	218
person with white cane (⌚)	218
\perthousand (‰)	126
petri dish (⌚)	218
\Pfanne (⌚)	211
\Pfund (⌚)	26
\PgDown (Page↓)	130
\PgUp (Page↑)	130
phaistos (package)	151, 276, 277
Phaistos disk	151
pharmaceutical prescription	see \textrecip
\PHarrow (⌚)	151
\phase (⌚)	127
phasor	127
\PHbee (⌚)	151
\PHbeehive (⌚)	151
\PHboomerang (⌚)	151
\PHbow (⌚)	151
\PHbullLeg (⌚)	151
\PHcaptive (⌚)	151
\PHcarpentryPlane (⌚)	151
\PHcat (⌚)	151
\PHchild (⌚)	151
\PHclub (⌚)	151
\PHcolumn (⌚)	151
\PHcomb (⌚)	151
\PHdolium (⌚)	151
\PHdove (⌚)	151
\PHeagle (⌚)	151
\PHflute (⌚)	151
\PHgauntlet (⌚)	151
\PHgrater (⌚)	151
\PHhelmet (⌚)	151
\PHhide (⌚)	151
\PHhorn (⌚)	151
\Phi (Φ)	94
\phi (φ)	94
\phimeson (φ)	134
\phimesonnull (φ')	134
\phiip (φ)	95
\PHlid (⌚)	151
\PHlily (⌚)	151
\PHmanacles (⌚)	151
\PHmattock (⌚)	151
\Phone (☎)	149
\phone (☎)	186
\PhoneHandset (⌚)	149
phonetic (package)	20, 24, 259, 276
phonetic symbols	18–21
\phonon (F)	134
\photon (~~~~)	126
photons	126, 133–134
\PHoxBack (⌚)	151
\PHpapyrus (⌚)	151
\PHpedestrian (⌚)	151
\PHplaneTree (⌚)	151
\PHplumedHead (⌚)	151
\PHram (⌚)	151
\PHrosette (⌚)	151
\PHsaw (⌚)	151
\PHshield (⌚)	151
\PHship (⌚)	151
\PHsling (⌚)	151
\PHsmallAxe (⌚)	151
\PHstrainer (⌚)	151
\PHtattooedHead (⌚)	151
\PHtiara (⌚)	151
\PHtunny (⌚)	151
\PHvine (⌚)	151
\PHwavyBand (⌚)	151
\PHwoman (⌚)	151
physical symbols	126
\Pi (Π)	94
\pi (π)	94
\pi (π)	95
“pi” fonts	259
piano (p)	167, 178
pick (⌚)	218
\Pickup (⌚)	131

\pickup truck (🚗)	187	\Pisymbol{astrosym}{0} (○)	238
\pict2e (package)	127	\Pisymbol{astrosym}{1} (♀)	238
pie (🥧)	193	\Pisymbol{astrosym}{2} (♀)	238
\pifont (package) . . 17, 135, 137–		\Pisymbol{astrosym}{3} (♂)	238
142, 147, 150, 236, 241,		\Pisymbol{astrosym}{4} (♂)	238
252, 259, 276, 277		\Pisymbol{astrosym}{5} (🕓)	238
pig face (hog)	192	\Pisymbol{astrosym}{6} (🕖)	238
pig nose (🐽)	192	\Pisymbol{astrosym}{7} (⌚)	238
pig2 (🐽)	192	\Pisymbol{astrosym}{8} (↑↑)	238
\pigpen (package) . . 199, 276, 277		\Pisymbol{astrosym}{9} (▶)	238
\pigpen cipher	199	\Pisymbol{astrosym}{10} (⌚⌚)	238
{\pigpenfont A} (✉)	199	\Pisymbol{astrosym}{11} (⚡)	238
{\pigpenfont B} (✉✉)	199	\Pisymbol{astrosym}{12} (𝟎)	238
{\pigpenfont C} (✉✉✉)	199	\Pisymbol{astrosym}{13} (𝟑)	238
{\pigpenfont D} (✉✉✉✉)	199	\Pisymbol{astrosym}{14} (𝟋)	238
{\pigpenfont E} (✉✉✉✉✉)	199	\Pisymbol{astrosym}{15} (𝟌)	238
{\pigpenfont F} (✉✉✉✉✉✉)	199	\Pisymbol{astrosym}{16} (𝟍)	238
{\pigpenfont G} (✉✉✉✉✉✉✉)	199	\Pisymbol{astrosym}{17} (𝟅)	238
{\pigpenfont H} (✉✉✉✉✉✉✉✉)	199	\Pisymbol{astrosym}{18} (𝟆)	238
{\pigpenfont I} (✉✉✉✉✉✉✉✉✉)	199	\Pisymbol{astrosym}{19} (𝟇)	238
{\pigpenfont J} (✉✉✉✉✉✉✉✉✉✉)	199	\Pisymbol{astrosym}{20} (𝟈)	238
{\pigpenfont K} (✉✉✉✉✉✉✉✉✉✉✉)	199	\Pisymbol{astrosym}{21} (𝟉)	238
{\pigpenfont L} (✉✉✉✉✉✉✉✉✉✉✉✉)	199	\Pisymbol{astrosym}{22} (𝟊)	238
{\pigpenfont M} (✉✉✉✉✉✉✉✉✉✉✉✉✉)	199	\Pisymbol{astrosym}{23} (𝟋)	238
{\pigpenfont N} (✉✉✉✉✉✉✉✉✉✉✉✉✉✉)	199	\Pisymbol{astrosym}{24} (𝟌)	238
{\pigpenfont O} (✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉)	199	\Pisymbol{astrosym}{25} (𝟄)	238
{\pigpenfont P} (✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉)	199	\Pisymbol{astrosym}{26} (𝟅)	238
{\pigpenfont Q} (✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉)	199	\Pisymbol{astrosym}{27} (𝟆)	238
{\pigpenfont R} (✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉)	199	\Pisymbol{astrosym}{28} (𝟈)	238
{\pigpenfont S} (✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉)	199	\Pisymbol{astrosym}{29} (𝟉)	238
{\pigpenfont T} (✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉)	199	\Pisymbol{astrosym}{30} (𝟊)	238
{\pigpenfont U} (✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉)	199	\Pisymbol{astrosym}{31} (𝟋)	238
{\pigpenfont V} (✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉)	199	\Pisymbol{astrosym}{32} (𝟌)	238
{\pigpenfont W} (✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉)	199	\Pisymbol{astrosym}{33} (𝟕)	239
{\pigpenfont X} (✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉)	199	\Pisymbol{astrosym}{34} (𝟏)	239
{\pigpenfont Y} (✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉)	199	\Pisymbol{astrosym}{35} (𝟒)	239
{\pigpenfont Z} (✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉✉)	199	\Pisymbol{astrosym}{36} (𝟋)	239
pilcrow	see \P	\Pisymbol{astrosym}{37} (𝟋)	239
pile of poo (💩)	218	\Pisymbol{astrosym}{38} (□)	239
pill (💊)	218	\Pisymbol{astrosym}{39} (○)	239
pilot (🚁)	218	\Pisymbol{astrosym}{40} (●)	239
pinched fingers (👉)	218	\Pisymbol{astrosym}{41} (⌚)	239
pinching hand (👉👉)	218	\Pisymbol{astrosym}{42} (⌚⌚)	239
pine decoration (🎍)	218	\Pisymbol{astrosym}{43} (⌚⌚⌚)	239
pineapple (🍍)	193	\Pisymbol{astrosym}{44} (⌚⌚⌚⌚)	239
ping pong (🏓)	218	\Pisymbol{astrosym}{45} (⌚⌚⌚⌚⌚)	239
\pionminus (π^-)	134	\Pisymbol{astrosym}{46} (⌚⌚⌚⌚⌚⌚)	239
\pionnull (π^0)	134	\Pisymbol{astrosym}{47} (⌚⌚⌚⌚⌚⌚⌚)	239
\pionplus (π^+)	134	\Pisymbol{astrosym}{48} (⌚⌚⌚⌚⌚⌚⌚⌚)	239
pipe	see \textpipe	\Pisymbol{astrosym}{49} (⌚⌚⌚⌚⌚⌚⌚⌚⌚)	239
pirate flag (🏴)	211	\Pisymbol{astrosym}{50} (𝟔)	239
\Pisces (♓)	127	\Pisymbol{astrosym}{51} (𝟗)	239
\Pisces (♓)	129	\Pisymbol{astrosym}{52} (♒)	239
\Pisces (♓)	127	\Pisymbol{astrosym}{53} (♓)	239
Pisces (♓)	218	\Pisymbol{astrosym}{54} (♓)	239
\pisces (♓)	127	\Pisymbol{astrosym}{55} (○)	239
\Pisymbol	236–255, 259	\Pisymbol{astrosym}{28} (𝟈)	238

\Pisymbol{cryst}{39} (↗)	252	\Pisymbol{cryst}{112} (↖)	.	\Pisymbol{cryst}{178} (↘)	252
\Pisymbol{cryst}{40} (◆)	252	252	\Pisymbol{cryst}{179} (↖)	.
\Pisymbol{cryst}{41} (◆)	..	\Pisymbol{cryst}{113} (↖)	252
.....	252	252	\Pisymbol{cryst}{185} (↘)	..
\Pisymbol{cryst}{42} (◆)	252	\Pisymbol{cryst}{120} (↔)	252
\Pisymbol{cryst}{43} (◆)	252	\Pisymbol{cryst}{187} (↖)	.
.....	252	\Pisymbol{cryst}{121} (↔)	252
\Pisymbol{cryst}{44} (■)	253	252	\Pisymbol{cryst}{188} (↘)	..
\Pisymbol{cryst}{45} (↙)	253	\Pisymbol{cryst}{123} (↖)	252
\Pisymbol{cryst}{47} (↖)	253	253	\Pisymbol{cryst}{189} (↖)	.
\Pisymbol{cryst}{48} (↑)	253	\Pisymbol{cryst}{124} (↓)	253	252
\Pisymbol{cryst}{49} (↑)	253	\Pisymbol{cryst}{125} (↖)	..	\Pisymbol{cryst}{195} (↖)	..
\Pisymbol{cryst}{50} (✿)	253	253	252
\Pisymbol{cryst}{55} (↑)	253	\Pisymbol{cryst}{127} (↙)	.	\Pisymbol{cryst}{197} (↖)	.
\Pisymbol{cryst}{57} (↑)	253	253	252
\Pisymbol{cryst}{58} (↑)	253	\Pisymbol{cryst}{128} (↖)	..	\Pisymbol{cryst}{198} (↖)	..
\Pisymbol{cryst}{59} (↑)	253	253	252
\Pisymbol{cryst}{60} (✿)	253	\Pisymbol{cryst}{129} (↖)	.	\Pisymbol{cryst}{199} (↖)	.
\Pisymbol{cryst}{61} (✿)	253	252
.....	253	\Pisymbol{cryst}{130} (↘)	.	\Pisymbol{cryst}{202} (⊕)	.
\Pisymbol{cryst}{62} (✿)	253	252
.....	253	\Pisymbol{cryst}{131} (↖)	.	\Pisymbol{cryst}{203} (↖)	.
\Pisymbol{cryst}{63} (✿)	252	253	\Pisymbol{cryst}{204} (←)	.
\Pisymbol{cryst}{64} (◀)	..	\Pisymbol{cryst}{132} (↖)	252
.....	252	253	\Pisymbol{cryst}{210} (↓)	..
\Pisymbol{cryst}{65} (✿)	..	\Pisymbol{cryst}{133} (↖)	252
.....	252	253	\Pisymbol{cryst}{212} (⊕)	.
\Pisymbol{cryst}{66} (✿)	252	\Pisymbol{cryst}{135} (↖)	252
\Pisymbol{cryst}{75} (↖)	252	253	\Pisymbol{cryst}{213} (↖)	.
\Pisymbol{cryst}{77} (↖)	252	\Pisymbol{cryst}{136} (↘)	252
\Pisymbol{cryst}{78} (↖)	252	253	\Pisymbol{cryst}{220} (⊕)	.
\Pisymbol{cryst}{79} (↖)	252	\Pisymbol{cryst}{137} (↙)	253
\Pisymbol{cryst}{80} (■)	253	\Pisymbol{cryst}{221} (⊕)	.
.....	252	\Pisymbol{cryst}{138} (↖)	253
\Pisymbol{cryst}{81} (■)	252	\Pisymbol{cryst}{223} (↖)	.
.....	252	\Pisymbol{cryst}{139} (↖)	253
\Pisymbol{cryst}{82} (■)	252	\Pisymbol{cryst}{224} (↖)	.
.....	252	\Pisymbol{cryst}{140} (▣)	253
\Pisymbol{cryst}{83} (■)	252	\Pisymbol{cryst}{230} (↗)	.
.....	252	\Pisymbol{cryst}{141} (↑)	253
\Pisymbol{cryst}{84} (▣)	252	252	\Pisymbol{cryst}{231} (↖)	.
\Pisymbol{cryst}{85} (↖)	252	\Pisymbol{cryst}{142} (←)	253
\Pisymbol{cryst}{87} (↖)	252	252	\Pisymbol{cryst}{232} (↖)	.
\Pisymbol{cryst}{88} (↖)	252	\Pisymbol{cryst}{143} (↓)	253
\Pisymbol{cryst}{89} (↖)	252	252	\Pisymbol{cryst}{233} (↖)	.
\Pisymbol{cryst}{95} (↖)	252	\Pisymbol{cryst}{145} (↙)	252	253
\Pisymbol{cryst}{97} (↖)	252	\Pisymbol{cryst}{147} (↙)	..	\Pisymbol{cryst}{236} (↖)	.
\Pisymbol{cryst}{98} (↖)	252	252	253
\Pisymbol{cryst}{99} (↖)	252	\Pisymbol{cryst}{148} (↖)	252	\Pisymbol{cryst}{240} (✿)	.
\Pisymbol{cryst}{102} (↔)	252	253
.....	252	\Pisymbol{cryst}{155} (↑)	..	\Pisymbol{cryst}{241} (←)	.
\Pisymbol{cryst}{103} (↖)	252	253
.....	252	\Pisymbol{cryst}{157} (↓)	..	\Pisymbol{cryst}{242} (↓)	.
\Pisymbol{cryst}{104} (↓)	252	252	253
\Pisymbol{cryst}{105} (←)	.	\Pisymbol{cryst}{158} (↑)	..	\Pisymbol{cryst}{243} (←)	.
.....	252	252	253
\Pisymbol{cryst}{107} (←)	.	\Pisymbol{cryst}{159} (↓)	..	\Pisymbol{dancers}{0} (↑)	248
.....	252	252	\Pisymbol{dancers}{1} (↑)	248
\Pisymbol{cryst}{108} (←)	.	\Pisymbol{cryst}{175} (↖)	..	\Pisymbol{dancers}{2} (↑)	248
.....	252	252	\Pisymbol{dancers}{3} (↑)	248
\Pisymbol{cryst}{109} (←)	.	\Pisymbol{cryst}{177} (↖)	..	\Pisymbol{dancers}{4} (↑)	248
.....	252	252	\Pisymbol{dancers}{5} (↑)	248

\Pisymbol{dice3d}{119} (⚇)	253	\Pisymbol{fselch}{2} (⚈)	254	\Pisymbol{fselch}{30} (⚉)	255
\Pisymbol{dice3d}{120} (⚈)	253	\Pisymbol{fselch}{3} (⚊)	254	\Pisymbol{fselch}{31} (⚋)	255
\Pisymbol{dingbat}{69}	(244	\Pisymbol{fselch}{4} (⚌)	254	\Pisymbol{fselch}{32} (⚍)	255
\Pisymbol{dingbat}{70}	(244	\Pisymbol{fselch}{5} (⚎)	254	\Pisymbol{fselch}{33} (⚏)	255
\Pisymbol{dingbat}{71}	(244	\Pisymbol{fselch}{6} (⚐)	254	\Pisymbol{fselch}{34} (⚑)	255
\Pisymbol{dingbat}{72}	(244	\Pisymbol{fselch}{7} (⚒)	254	\Pisymbol{fselch}{35} (⚓)	255
\Pisymbol{dingbat}{74}	(244	\Pisymbol{fselch}{8} (⚔)	254	\Pisymbol{fselch}{36} (⚔)	255
\Pisymbol{dingbat}{75}	(244	\Pisymbol{fselch}{9} (⚕)	254	\Pisymbol{fselch}{37} (⚖)	255
\Pisymbol{dingbat}{76}	(244	\Pisymbol{fselch}{10} (⚗)	254	\Pisymbol{fselch}{38} (⚘)	255
\Pisymbol{dingbat}{77}	(244	\Pisymbol{fselch}{11} (⚙)	254	\Pisymbol{fselch}{39} (⚙)	255
\Pisymbol{dingbat}{97}	(244	\Pisymbol{fselch}{12} (⚚)	254	\Pisymbol{fselch}{40} (⚚)	255
\Pisymbol{dingbat}{98}	(244	\Pisymbol{fselch}{13} (⚛)	254	\Pisymbol{fselch}{41} (⚛)	255
\Pisymbol{dingbat}{99}	(244	\Pisymbol{fselch}{14} (⚜)	254	\Pisymbol{fselch}{42} (⚜)	255
\Pisymbol{dingbat}{100}	(244	\Pisymbol{fselch}{15} (⚝)	254	\Pisymbol{fselch}{43} (⚝)	255
\Pisymbol{dingbat}{101}	(244	\Pisymbol{fselch}{16} (⚞)	254	\Pisymbol{fselch}{44} (⚞)	255
\Pisymbol{dingbat}{102}	(244	\Pisymbol{fselch}{17} (⚟)	254	\Pisymbol{fselch}{45} (⚟)	255
\Pisymbol{dingbat}{103}	(244	\Pisymbol{fselch}{18} (⚠)	254	\Pisymbol{fselch}{46} (⚠)	255
\Pisymbol{dingbat}{104}	(244	\Pisymbol{fselch}{19} (⚡)	254	\Pisymbol{fselch}{47} (⚢)	255
\Pisymbol{fselch}{0} (⚄)	254	\Pisymbol{fselch}{20} (⚤)	255	\Pisymbol{fselch}{48} (⚤)	255
\Pisymbol{fselch}{1} (⚆)	254	\Pisymbol{fselch}{21} (⚥)	255	\Pisymbol{fselch}{49} (⚦)	255
			\Pisymbol{fselch}{22} (⚧)	255	\Pisymbol{fselch}{50} (⚨)	255
			\Pisymbol{fselch}{23} (⚩)	255	\Pisymbol{fselch}{51} (⚪)	255
			\Pisymbol{fselch}{24} (⚫)	255	\Pisymbol{fselch}{52} (⚫)	255
			\Pisymbol{fselch}{25} (⚬)	255	\Pisymbol{fselch}{53} (⚬)	255
			\Pisymbol{fselch}{26} (⚭)	255	\Pisymbol{fselch}{54} (⚮)	255
			\Pisymbol{fselch}{27} (⚯)	255	\Pisymbol{fselch}{55} (⚯)	254
			\Pisymbol{fselch}{28} (⚰)	255	\Pisymbol{fselch}{56} (⚰)	254
			\Pisymbol{fselch}{29} (⚱)	255	\Pisymbol{fselch}{57} (⚱)	254

\Pisymbol{fselch}{142} (■) 255	\Pisymbol{knot1}{50} (■) 244	\Pisymbol{knot1}{79} (■) 245
\Pisymbol{fselch}{143} (■) 255	\Pisymbol{knot1}{51} (◆) 244	\Pisymbol{knot1}{80} (◆) 245
\Pisymbol{fselch}{144} (■) 255	\Pisymbol{knot1}{52} (●) 244	\Pisymbol{knot1}{81} (●) 245
\Pisymbol{fselch}{145} (○) 255	\Pisymbol{knot1}{53} (□) 244	\Pisymbol{knot1}{82} (□) 245
\Pisymbol{fselch}{151} (●) 255	\Pisymbol{knot1}{58} (□) 244	\Pisymbol{knot1}{83} (□) 245
\Pisymbol{fselch}{157} (●) 255	\Pisymbol{knot1}{59} (□) 244	\Pisymbol{knot1}{84} (□) 244
\Pisymbol{fselch}{163} (○) 255	\Pisymbol{knot1}{60} (□) 244	\Pisymbol{knot1}{85} (□) 244
\Pisymbol{fselch}{169} (○) 255	\Pisymbol{knot1}{61} (□) 244	\Pisymbol{knot1}{86} (△) 244
\Pisymbol{fselch}{175} (●) 255	\Pisymbol{knot1}{62} () 245	\Pisymbol{knot1}{87} (△) 244
\Pisymbol{fselch}{180} (☒) 255	\Pisymbol{knot1}{63} (==) 245	\Pisymbol{knot1}{88} (△) 244
\Pisymbol{fselch}{186} (☒) 255	\Pisymbol{knot1}{64} (△) 245	\Pisymbol{knot1}{96} (△) 244
\Pisymbol{fselch}{192} (☒) 255	\Pisymbol{knot1}{65} (△) 245	\Pisymbol{knot1}{97} (△) 244
\Pisymbol{fselch}{198} (☒) 255	\Pisymbol{knot1}{66} (△) 245	\Pisymbol{knot1}{98} (△) 244
\Pisymbol{fselch}{204} (☒) 255	\Pisymbol{knot1}{67} (△) 245	\Pisymbol{knot1}{99} (△) 244
\Pisymbol{fselch}{210} (☒) 255	\Pisymbol{knot1}{68} (△) 244	\Pisymbol{knot1}{100} (△) 244
\Pisymbol{fselch}{216} (☒) 255	\Pisymbol{knot1}{69} (△) 244	\Pisymbol{knot1}{101} (△) 245
\Pisymbol{fselch}{222} (☒) 255	\Pisymbol{knot1}{70} (△) 244	\Pisymbol{knot1}{102} (△) 245
\Pisymbol{fselch}{228} (☒) 255	\Pisymbol{knot1}{71} (△) 244	\Pisymbol{knot1}{103} (△) 245
\Pisymbol{fselch}{234} (☒) 255	\Pisymbol{knot1}{72} (△) 244	\Pisymbol{knot1}{104} (▬) 245
\Pisymbol{fselch}{240} (☒) 255	\Pisymbol{knot1}{73} (△) 244	\Pisymbol{knot1}{105} (▬) 245
\Pisymbol{fselch}{246} (☒) 255	\Pisymbol{knot1}{74} (△) 244	\Pisymbol{knot2}{48} (□) 245
\Pisymbol{greenpoint}{71} (○) 236	\Pisymbol{knot1}{75} (△) 244	\Pisymbol{knot2}{49} (□) 245
\Pisymbol{hands}{65} (☞) 236	\Pisymbol{knot1}{76} (△) 244	\Pisymbol{knot2}{50} (□) 245
\Pisymbol{hands}{66} (☜) 236	\Pisymbol{knot1}{77} (△) 244	\Pisymbol{knot2}{51} (◆) 245
\Pisymbol{hands}{67} (☜) 236	\Pisymbol{knot1}{78} (△) 245	\Pisymbol{knot2}{52} (●) 245
\Pisymbol{hands}{68} (☜) 236				

\Pisymbol{knot3}{85} (\Pisymbol{knot4}{63} (\Pisymbol{knot4}{88} (
..... 245 246 246
\Pisymbol{knot3}{86} (\Pisymbol{knot4}{64} (\Pisymbol{knot4}{96} (
..... 245 246 246
\Pisymbol{knot3}{87} (\Pisymbol{knot4}{65} (\Pisymbol{knot4}{97} (
..... 245 246 246
\Pisymbol{knot3}{88} (\Pisymbol{knot4}{66} (\Pisymbol{knot4}{98} (
..... 245 246 246
\Pisymbol{knot3}{96} (\Pisymbol{knot4}{67} (\Pisymbol{knot4}{99} (
..... 245 246 246
\Pisymbol{knot3}{97} (\Pisymbol{knot4}{68} (\Pisymbol{knot4}{100} (
..... 245 246 246
\Pisymbol{knot3}{98} (\Pisymbol{knot4}{69} (\Pisymbol{knot4}{101} (
..... 245 246 246
\Pisymbol{knot3}{99} (\Pisymbol{knot4}{70} (\Pisymbol{knot4}{102} (
..... 245 246 246
\Pisymbol{knot3}{100} (\Pisymbol{knot4}{71} (\Pisymbol{knot4}{103} (
..... 245 246 246
\Pisymbol{knot3}{101} (\Pisymbol{knot4}{72} (\Pisymbol{knot4}{104} (
..... 245 246 246
\Pisymbol{knot3}{102} (\Pisymbol{knot4}{73} (\Pisymbol{knot4}{105} (
..... 245 246 246
\Pisymbol{knot3}{103} (\Pisymbol{knot4}{74} (\Pisymbol{knot5}{48} (
..... 245 246 246
\Pisymbol{knot3}{104} (\Pisymbol{knot4}{75} (\Pisymbol{knot5}{49} (
..... 245 246 246
\Pisymbol{knot3}{105} (\Pisymbol{knot4}{76} (\Pisymbol{knot5}{50} (
..... 245 246 246
\Pisymbol{knot4}{48} (\Pisymbol{knot4}{77} (\Pisymbol{knot5}{51} (
..... 246 246 246
\Pisymbol{knot4}{49} (\Pisymbol{knot4}{78} (\Pisymbol{knot5}{52} (
..... 246 246 246
\Pisymbol{knot4}{50} (\Pisymbol{knot4}{79} (\Pisymbol{knot5}{53} (
..... 246 246 246
\Pisymbol{knot4}{51} (\Pisymbol{knot4}{80} (\Pisymbol{knot5}{58} (
..... 246 246 246
\Pisymbol{knot4}{52} (\Pisymbol{knot4}{81} (\Pisymbol{knot5}{59} (
..... 246 246 246
\Pisymbol{knot4}{53} (\Pisymbol{knot4}{82} (\Pisymbol{knot5}{60} (
..... 246 246 246
\Pisymbol{knot4}{58} (\Pisymbol{knot4}{83} (\Pisymbol{knot5}{61} (
..... 246 246 246
\Pisymbol{knot4}{59} (\Pisymbol{knot4}{84} (\Pisymbol{knot5}{62} (
..... 246 246 246
\Pisymbol{knot4}{60} (\Pisymbol{knot4}{85} (\Pisymbol{knot5}{63} (
..... 246 246 246
\Pisymbol{knot4}{61} (\Pisymbol{knot4}{86} (\Pisymbol{knot5}{64} (
..... 246 246 246
\Pisymbol{knot4}{62} (\Pisymbol{knot4}{87} (\Pisymbol{knot5}{65} (
..... 246 246 246

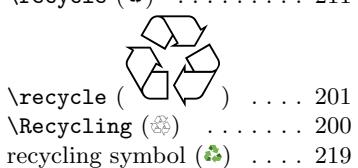
\Pisymbol{knot6}{101} (ⓘ) 247	\Pisymbol{knot7}{72} (ⓘ) 247	\Pisymbol{knot7}{104} (ⓘ) 247
\Pisymbol{knot6}{102} (ⓘ) 247	\Pisymbol{knot7}{73} (ⓘ) 247	\Pisymbol{knot7}{105} (ⓘ) 247
\Pisymbol{knot6}{103} (ⓘ) 247	\Pisymbol{knot7}{74} (ⓘ) 247	\Pisymbol{magic}{48} (ⓘ) 254
\Pisymbol{knot6}{104} (ⓘ) 247	\Pisymbol{knot7}{75} (ⓘ) 247	\Pisymbol{magic}{49} (ⓘ) 254
\Pisymbol{knot6}{105} (ⓘ) 247	\Pisymbol{knot7}{76} (ⓘ) 247	\Pisymbol{magic}{50} (ⓘ) 254
\Pisymbol{knot7}{48} (ⓘ) 247	\Pisymbol{knot7}{77} (ⓘ) 247	\Pisymbol{magic}{51} (ⓘ) 254
\Pisymbol{knot7}{49} (ⓘ) 247	\Pisymbol{knot7}{78} (ⓘ) 247	\Pisymbol{magic}{52} (ⓘ) 254
\Pisymbol{knot7}{50} (ⓘ) 247	\Pisymbol{knot7}{79} (ⓘ) 247	\Pisymbol{magic}{53} (ⓘ) 254
\Pisymbol{knot7}{51} (ⓘ) 247	\Pisymbol{knot7}{80} (ⓘ) 247	\Pisymbol{magic}{54} (ⓘ) 254
\Pisymbol{knot7}{52} (ⓘ) 247	\Pisymbol{knot7}{81} (ⓘ) 247	\Pisymbol{magic}{55} (ⓘ) 254
\Pisymbol{knot7}{53} (ⓘ) 247	\Pisymbol{knot7}{82} (ⓘ) 247	\Pisymbol{magic}{56} (ⓘ) 254
\Pisymbol{knot7}{58} (ⓘ) 247	\Pisymbol{knot7}{83} (ⓘ) 247	\Pisymbol{magic}{57} (ⓘ) 254
\Pisymbol{knot7}{59} (ⓘ) 247	\Pisymbol{knot7}{84} (ⓘ) 247	\Pisymbol{magic}{66} (ⓘ) 254
\Pisymbol{knot7}{60} (ⓘ) 247	\Pisymbol{knot7}{85} (ⓘ) 247	\Pisymbol{magic}{71} (ⓘ) 254
\Pisymbol{knot7}{61} (ⓘ) 247	\Pisymbol{knot7}{86} (ⓘ) 247	\Pisymbol{magic}{82} (ⓘ) 254
\Pisymbol{knot7}{62} (ⓘ) 247	\Pisymbol{knot7}{87} (ⓘ) 247	\Pisymbol{magic}{84} (ⓘ) 254
\Pisymbol{knot7}{63} (ⓘ) 247	\Pisymbol{knot7}{88} (ⓘ) 247	\Pisymbol{magic}{85} (ⓘ) 254
\Pisymbol{knot7}{64} (ⓘ) 247	\Pisymbol{knot7}{96} (ⓘ) 247	\Pisymbol{magic}{87} (ⓘ) 254
\Pisymbol{knot7}{65} (ⓘ) 247	\Pisymbol{knot7}{97} (ⓘ) 247	\Pisymbol{magic}{88} (ⓘ) 254
\Pisymbol{knot7}{66} (ⓘ) 247	\Pisymbol{knot7}{98} (ⓘ) 247	\Pisymbol{magic}{90} (ⓘ) 254
\Pisymbol{knot7}{67} (ⓘ) 247	\Pisymbol{knot7}{99} (ⓘ) 247	\Pisymbol{moonphase}{0} (ⓘ) 238
\Pisymbol{knot7}{68} (ⓘ) 247	\Pisymbol{knot7}{100} (ⓘ) 247	\Pisymbol{moonphase}{1} (ⓘ) 238
\Pisymbol{knot7}{69} (ⓘ) 247	\Pisymbol{knot7}{101} (ⓘ) 247	\Pisymbol{moonphase}{2} (ⓘ) 238
\Pisymbol{knot7}{70} (ⓘ) 247	\Pisymbol{knot7}{102} (ⓘ) 247	\Pisymbol{moonphase}{3} (ⓘ) 238
\Pisymbol{knot7}{71} (ⓘ) 247	\Pisymbol{knot7}{103} (ⓘ) 247	\Pisymbol{nkarta}{33} (ⓘ) 236

\Pisymbol{nkarta}{38} (★) 236	\Pisymbol{nkarta}{76} (□) 237	\Pisymbol{nkarta}{107} (») 236
\Pisymbol{nkarta}{39} (○) 236	\Pisymbol{nkarta}{77} (◊) 237	\Pisymbol{nkarta}{108} (□) 236
\Pisymbol{nkarta}{40} (I) .	236	\Pisymbol{nkarta}{78} (•) 237	\Pisymbol{nkarta}{109} (目) 236
\Pisymbol{nkarta}{41} (I) .	236	\Pisymbol{nkarta}{79} (○) 237	\Pisymbol{nkarta}{110} (⊗) 236
\Pisymbol{nkarta}{42} (★) .	236	\Pisymbol{nkarta}{80} (▽) 237	\Pisymbol{nkarta}{111} (○) 236
..... 236		\Pisymbol{nkarta}{81} (■) 237	\Pisymbol{nkarta}{112} (◇) 236
\Pisymbol{nkarta}{44} (⊗) .	236	\Pisymbol{nkarta}{82} (⊗) 237	\Pisymbol{nkarta}{113} (△) 237
..... 236		\Pisymbol{nkarta}{83} (▼) 237	\Pisymbol{nkarta}{114} (⊕) 237
\Pisymbol{nkarta}{45} (I) .	236	\Pisymbol{nkarta}{84} (◎) 237	\Pisymbol{nkarta}{115} (♪) 237
..... 236		\Pisymbol{nkarta}{85} (□) 237	\Pisymbol{nkarta}{116} (●) 237
\Pisymbol{nkarta}{46} (⊗) .	236	\Pisymbol{nkarta}{86} (↑) 237	\Pisymbol{nkarta}{117} (🕒) 237
..... 236		\Pisymbol{nkarta}{87} (★) 237	\Pisymbol{nkarta}{118} (▲) 237
\Pisymbol{nkarta}{47} (◎) .	236	\Pisymbol{nkarta}{88} (△) 237	\Pisymbol{nkarta}{119} (❖) 237
..... 236		\Pisymbol{nkarta}{89} (⊕) 237	\Pisymbol{nkarta}{120} (⊖) 237
\Pisymbol{nkarta}{48} (○) .	236	\Pisymbol{nkarta}{90} (⌚) .	237	\Pisymbol{nkarta}{121} (🕒) 237
\Pisymbol{nkarta}{49} (I) .	236	\Pisymbol{nkarta}{91} (▲) 237	\Pisymbol{nkarta}{122} (i) 237
\Pisymbol{nkarta}{50} (2) .	237	\Pisymbol{nkarta}{92} (🕒) 237	\Pisymbol{nkarta}{123}	(—)
\Pisymbol{nkarta}{51} (3) .	237	\Pisymbol{nkarta}{93} (⌚)	237		237
\Pisymbol{nkarta}{52} (4) .	237	\Pisymbol{nkarta}{94} (★) 237	\Pisymbol{nkarta}{124} (↗) 237
\Pisymbol{nkarta}{53} (5) .	237	\Pisymbol{nkarta}{95} (↑) 237	\Pisymbol{nkarta}{125} (↖) 237
\Pisymbol{nkarta}{54} (6) .	237	\Pisymbol{nkarta}{96} (↖) 236	\Pisymbol{nkarta}{126} (⊗) 237
\Pisymbol{nkarta}{55} (7) .	237	\Pisymbol{nkarta}{97} (←) 236	\Pisymbol{nkarta}{161} (♥) 237
\Pisymbol{nkarta}{56} (8) .	237	\Pisymbol{nkarta}{98} (↑) 236	\Pisymbol{nkarta}{162} (♦) 237
\Pisymbol{nkarta}{57} (9) .	237	\Pisymbol{nkarta}{99} (⊗) 236	\Pisymbol{nkarta}{163} (▲) 237
\Pisymbol{nkarta}{58} (□) .	237	\Pisymbol{nkarta}{100} (△) 236	\Pisymbol{nkarta}{164}	(—)
..... 237		\Pisymbol{nkarta}{101} (★) 236		237
\Pisymbol{nkarta}{59} (◎) .	237	\Pisymbol{nkarta}{102} (▲) 236	\Pisymbol{nkarta}{165}	(→)
..... 237		\Pisymbol{nkarta}{103} (↑) 236		237
\Pisymbol{nkarta}{60} (⊖) .	237	\Pisymbol{nkarta}{104} (↓) 236	\Pisymbol{nkarta}{166}	(↙)
..... 237		\Pisymbol{nkarta}{105} (🕒) 236		237
\Pisymbol{nkarta}{61} (⌚) .	237	\Pisymbol{nkarta}{106} (▲) 236	\Pisymbol{nkarta}{167} (◀) 237
..... 237					
\Pisymbol{nkarta}{62} (⊗) .	237			\Pisymbol{nkarta}{168} (⊗) 237
..... 237				\Pisymbol{nkarta}{169} (▲) 237
\Pisymbol{nkarta}{63} (▣) .	237			\Pisymbol{nkarta}{170} (■) 237
..... 237				\Pisymbol{nkarta}{171} (*) 237
\Pisymbol{nkarta}{64} (□) .	237				
..... 237					
\Pisymbol{nkarta}{65} (⊗) .	237				
..... 237					
\Pisymbol{nkarta}{66} (♦) .	237				
..... 237					
\Pisymbol{nkarta}{67} (▲) .	237				
..... 237					
\Pisymbol{nkarta}{68} (▲) .	237				
..... 237					
\Pisymbol{nkarta}{69} (☆) .	237				
..... 237					
\Pisymbol{nkarta}{70} (⊗) .	237				
..... 237					
\Pisymbol{nkarta}{71} (■) .	237				
..... 237					
\Pisymbol{nkarta}{72} (▬) .	237				
..... 237					
\Pisymbol{nkarta}{73} (□) .	237				
..... 237					
\Pisymbol{nkarta}{74} (±) .	237				
..... 237					
\Pisymbol{nkarta}{75} (I) .	237				

\Pisymbol{nkarta}{172} (□)	237
\Pisymbol{nkarta}{173} (■)	237
\Pisymbol{nkarta}{174} (+)	237
\Pisymbol{nkarta}{175} (△)	237
\Pisymbol{nkarta}{176} (●)	237
\Pisymbol{nkarta}{177} (□)	237
\Pisymbol{nkarta}{178} (□)	237
\Pisymbol{nkarta}{179} (×)	237
\Pisymbol{nkarta}{180} (○)	237
\Pisymbol{nkarta}{181} (■)	237
\Pisymbol{nkarta}{182} (△)	237
\Pisymbol{nkarta}{183} (*)	237
\Pisymbol{nkarta}{184} (⊕)	237
\Pisymbol{nkarta}{185} (▷)	237
\Pisymbol{nkarta}{186} (◐)	237
\Pisymbol{nkarta}{187} (◑)	237
\Pisymbol{nkarta}{188} (◑)	237
\Pisymbol{nkarta}{189} (▣)	237
\Pisymbol{nkarta}{190} (×	237
\Pisymbol{nkarta}{191} (○)	237
\Pisymbol{nkarta}{192} (※)	237
\Pisymbol{nkarta}{193} (●)	236
\Pisymbol{nkarta}{194} (□)	236
\Pisymbol{nkarta}{195} (■)	236
\Pisymbol{nkarta}{196} (△)	236
\Pisymbol{nkarta}{197} (⊕)	236
\Pisymbol{nkarta}{198} (→)	236
\Pisymbol{nkarta}{199} (↙)	236
\Pisymbol{nkarta}{200} (→)	236
\Pisymbol{nkarta}{201} (△)	236
\Pisymbol{nkarta}{202} (◆)	236
\Pisymbol{nkarta}{203} (■)	236
\Pisymbol{nkarta}{204} (■)	236
\Pisymbol{nkarta}{205} (●)	236
\Pisymbol{nkarta}{206} (■)	236
\Pisymbol{nkarta}{207} (■)	236
\Pisymbol{nkarta}{208} (⊗)	236
\Pisymbol{nkarta}{209} (↔)	236
\Pisymbol{nkarta}{210} (↖)	237
\Pisymbol{nkarta}{211} (↖)	237
\Pisymbol{nkarta}{212} (↓)	237
\Pisymbol{nkarta}{213} (↑)	237
\Pisymbol{nkarta}{214} (←)	237
\Pisymbol{nkarta}{215} (↑)	237
\Pisymbol{nkarta}{216} (●)	237
\Pisymbol{nkarta}{217} (●)	237
\Pisymbol{nkarta}{218} (●)	237
\Pisymbol{nkarta}{219} (●)	237
\Pisymbol{nkarta}{220} (■)	237
\Pisymbol{nkarta}{221} (●)	237
\Pisymbol{nkarta}{222} (●)	237
\Pisymbol{nkarta}{223} (◐)	237
\Pisymbol{nkarta}{224} (■)	237
\Pisymbol{nkarta}{225} (●)	237
\Pisymbol{nkarta}{226} (■)	237
\Pisymbol{nkarta}{227} (●)	237
\Pisymbol{nkarta}{228} (★)	237
\Pisymbol{nkarta}{229} (★)	237
\Pisymbol{nkarta}{230} (○)	237
\Pisymbol{nkarta}{231} (△)	237
\Pisymbol{nkarta}{232} (○)	237
\Pisymbol{nkarta}{233} (■)	237
\Pisymbol{smfpr10}{34} ()	250
\Pisymbol{smfpr10}{35} (↑)	250
\Pisymbol{smfpr10}{36} (↑)	250
\Pisymbol{smfpr10}{42} (※)	250
\Pisymbol{smfpr10}{46} (□)	250
\Pisymbol{smfpr10}{48} (□)	250
\Pisymbol{smfpr10}{49} (□)	250
\Pisymbol{smfpr10}{50} (□)	250
\Pisymbol{smfpr10}{51} (□)	250
\Pisymbol{smfpr10}{52} (□)	250

\Pisymbol{WebOMintsGD}{102} (⌚)	241
\Pisymbol{WebOMintsGD}{103} (⌚)	241
\Pisymbol{WebOMintsGD}{104} (⌚)	241
\Pisymbol{WebOMintsGD}{105} (⌚)	241
\Pisymbol{WebOMintsGD}{106} (⌚)	241
\Pisymbol{WebOMintsGD}{107} (⌚)	241
\Pisymbol{WebOMintsGD}{108} (⌚)	241
\Pisymbol{WebOMintsGD}{109} (⌚)	241
\Pisymbol{WebOMintsGD}{110} (⌚)	241
\Pisymbol{WebOMintsGD}{111} (⌚)	241
\Pisymbol{WebOMintsGD}{112} (⌚)	241
\Pisymbol{WebOMintsGD}{113} (⌚)	241
\Pisymbol{WebOMintsGD}{114} (⌚)	241
\Pisymbol{WebOMintsGD}{115} (⌚)	241
\Pisymbol{WebOMintsGD}{116} (⌚)	241
\Pisymbol{WebOMintsGD}{117} (⌚)	241
\Pisymbol{WebOMintsGD}{118} (⌚)	241
\Pisymbol{WebOMintsGD}{119} (⌚)	241
\Pisymbol{WebOMintsGD}{120} (⌚)	241
\Pisymbol{WebOMintsGD}{121} (⌚)	241
\Pisymbol{WebOMintsGD}{122} (⌚)	241
\pitchfork (⤠)	120
\pitchfork (⤠)	51
\pitchfork (⤠)	58
\pitchfork (⤠)	91
\pitchfork (⤠)	89
\pitchfork (⤠)	59
pitchforks	51, 89, 91, 114, 120
Pitman's base 12 symbols	118, 195
\piup (π)	95
pizza (🍕)	193
piñata (🎉)	218
placard (🚩)	218
place of worship (🛐)	218
\planck (\hbar)	20
\Plane (✈)	149
planes	186–187, 231–234
planets	127–129, 238–240
plants	228–231
\plasmon (~e.)	134
play button (▶)	218
play or pause button (⏸)	218
playing cards	179, 180
pleading face (🤔)	218
plimsoll (package)	126, 261, 276, 277
\plimsoll (⊖)	126, 261
Plimsoll line	126, 261
plunger (⟲)	218
\plus (⊕)	139
\plus (+)	160
\plus (+)	34
\plus (+)	33
plus (+)	218
plus-or-minus sign	see \pm
\PlusCenterOpen (⊕)	139
\pluscirc (⊕)	32
\pluscirc (⊕)	34
\plusdot (+)	34
\plusdot (+)	35
\plusdot (±)	35
\pluseqq (±)	35
\plushat (†)	35
\PlusOutline (⊕)	139
plusses	139, 140, 149, 236–237
\plussim (±)	35
\plussubtwo (±)	35
\PlusThinCenterOpen (⊕)	139
\plustrif (*)	34
\plustrif (*)	35
\Pluto (♃)	128
\Pluto (♃)	127
\Pluto (♃)	129
\pluto (♃)	127
\pm (±)	31
\pm (±)	34
\pm (±)	34
\pm (±)	33
\pm (±)	35
\pm (±)	196
\pmb	270
\pmboxdraw (package)	198, 276, 277
\pmod	92
\pointer (◊)	186
pointing finger	see fists
\PointingHand (☞)	189
\pointint (⌚)	50
\pointint (⌚)	47
\pointintsl (⌚)	49
\pointintup (⌚)	49
\pointright (☞)	138
\Poland (🇵🇱)	203
polar bear (🐻)	192
\polariton (☒)	134
\polaron (~☒)	134
police car (🚓)	187
police car light (🚨)	187
police officer (👮)	218
\polishhook („)	25
\polter (████)	115
polotonikogreek (babel package option)	16, 94, 95
polygons	144–146, 148–149, 172–176, 236–237, 252–253
\polynom (package)	108
polynomial division	108
polytonic Greek	16, 94, 95
poodle (🐩)	192
pool 8 ball (🎱)	218
popcorn (🍿)	193
\portato (♪)	167
\portatoDown (♩)	167
\Portugal (🇵🇹)	203
\Poseidon (Ὠ)	129
\positron (e*)	134
post office (🏣)	218
postal horn (📯)	218
\postalmark (〒)	122
\Postbox (✉)	201
postbox (📮)	218
PostScript	95, 125, 135, 259, 268, 269
PostScript fonts	135
\pot (🍲)	211
pot of food (🍲)	193
potable water (🚰)	218
potato (🥔)	193
potted plant (🌿)	218
poultry leg (🍗)	193
\Pound (💷)	27
pound banknote (💷)	218
\pounds	16
\pounds (£)	272, 273
pouting cat (😾)	218
pouting face (😡)	218
power set	see alphabets, math
\powerset (℘)	97
\Pp (:).	196
\pp (:).	196
\ppm (〽).	196
\Ppp (:).	196
\ppp (:).	196
\Pppp (:).	196
\pppp (:).	196
\Ppppp (:).	196
\ppppp (:).	196
\Pr (Pr)	92
prayer beads (📿)	218
\Prec (≪)	59
\prec (≺)	51
\prec (≺)	56
\prec (≺)	54
\prec (≺)	59
\precapprox (≾)	53
\precapprox (≿)	51
\precapprox (≾)	58
\precapprox (≿)	56
\precapprox (≾)	54
\precapprox (≿)	59
\preccurlyeq (≾)	53
\preccurlyeq (≿)	51
\preccurlyeq (≾)	58
\preccurlyeq (≿)	56
\preccurlyeq (≾)	54
\preccurlyeq (≿)	59

\quaverDottedDoubleDown (♪)	165
\quaverDottedDown (♪)	165
\quaverDown (♪)	165
\quaverRest (♩)	166
\quaverRestDotted (♩)	166
queen	183, 184, 254–255
\questeq (≡)	60
\Question (??)	122
quilisma	see <i>musixgre</i>
\Quincunx (¶)	129
Quine corners (⌜ ⌞)	see \ulcorner and \urcorner
quotation marks	15, 17, 28, 211, 271, 274
\quotedblbase („)	17, 274
\quotesinglbase („)	17, 274
R	
R (Ψ)	160
\R (අ)	160
\R (߂)	196
\r (߁)	21
\r (߂)	196
r (܂)	160
r (܂)	124
rabbit face (🐰)	192
rabbit2 (🐰)	192
raccoon (܂)	192
racehorse (܂)	192
racing car (🏎)	187
\Radiation (☢)	196
\radiation (☢)	211
radicals . see \sqrt and \surd	
radio (܂)	218
radio button (ଓ)	218
radioactive (ଓ)	219
\Radioactivity (☢)	133
\Radix (܂)	129
railway car (܂)	187
railway track (܂)	187
\Rain (܂)	190
rainbow (܂)	219
rainbow flag (܂)	211
\RainCloud (܂)	190
raindrop	254
raised back of hand (܂)	219
raised fist (܂)	219
raised hand (܂)	219
raising . see \textraising	
raising hands (܂)	219
\RaisingEdge (܂)	126
ram (܂)	192
\Rangle (܂)	125
\rAngle (܂)	105
\rAngle (܂)	102
\rAngle (܂)	104
\rangle (܂)	30, 100
R	
\rangle (܂)	102
\rangle (܂)	101
\rangle (܂)	104
\ranglebar (܂)	102
\rangledot (܂)	102
\rangledot (܂)	99
\rangledownzigzagarrow (܂)	119
\rank (rank)	93
\RArrow (܂)	130
\arrowfill	112
rat (܂)	192
\ratio (:)	62
\RATIONAL (܂)	93
\Rational (܂)	93
rational numbers (܂)	see alphabets, math
rationalized Planck constant	see \hbar
Raw Font Tables	13, 124
razor (܂)	219
\RB (܂)	130
\Rbag (܂)	99
\rbag (܂)	99
\rbag (܂)	34
\rbag (܂)	99
\rblackbowtie (܂)	34
\rlblkbrbrak (܂)	99
\rBrace (܂)	104
\rbrace (܂)	102
\rbrace (܂)	103
\rbrace (܂)	102
\rbrace (܂)	104
\Rbrack (܂)	125
\rBrack (܂)	105
\rBrack (܂)	103
\rBrack (܂)	103
\rBrack (܂)	104
\rbrack (܂)	103
\rbrak (܂)	103
\recorder (܂)	186
\Rectangle (܂)	147
\RectangleBold (܂)	147
rectangles	147, 172–176, 236–237
\RectangleThin (܂)	147
\Rectpipe (܂)	132
\Rectsteel (܂)	132
recycle (package)	201, 276
\recycle (܂)	211
R	
\rbrak (܂)	104
\rc (܂)	24
\rceil (܂)	105
\rceil (܂)	100
\rceil (܂)	103
\rceil (܂)	101
\rceil (܂)	103
\rcirclearrowdown (܂)	76
\rcirclearrowleft (܂)	76
\rcirclearrowright (܂)	76
\rcirclearrowup (܂)	76
\rcircleleftint (܂)	46
\rcircleleftint (܂)	45
\rcirclerightint (܂)	46
\rcirclerightint (܂)	45
\rcorners (܂)	99
\curvearrowdown (܂)	76
\curvearrowleft (܂)	76
\curvearrowone (܂)	76
\curvearrownw (܂)	76
\curvearrowright (܂)	76
\curvearrowse (܂)	76
\curvearrowsw (܂)	76
\curvearrowup (܂)	76
\curvyangle (܂)	99
\rdbrack (܂)	101
\rdiagovfdiag (܂)	122
\rdiagovsearrow (܂)	85
\Rdsh (܂)	79
\Rdsh (܂)	85
\Re (Re)	93
\Re (܂)	93, 97
\Re (܂)	98
\REAL (R)	93
\Real (R)	93
real numbers (܂)	see alphabets, math
realhats (package)	108, 276, 277
receipt (܂)	219
recipe . see \textrecipe	
record button (܂)	219
\recorder (܂)	186
\Rectangle (܂)	147
\RectangleBold (܂)	147
rectangles	147, 172–176, 236–237
\RectangleThin (܂)	147
\Rectpipe (܂)	132
\Rectsteel (܂)	132
recycle (package)	201, 276
\recycle (܂)	211
R	
\recycle (܂)	201
\Recycling (܂)	200
recycling symbol (܂)	219

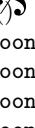


recycling symbols	200, 201, 211, 214–227, 231–234, 236
red apple (🍎)	193
red circle (🔴)	219
red envelope (封)	219
red exclamation mark (!)	219
red hair (pecia)	219
red heart (❤)	219
red paper lantern (🏮)	219
red question mark (?)	219
red square (■)	219
red triangle pointed down (▼)	219
red triangle pointed up (▲)	219
reduced quadrupole moment	<i>see</i> <code>\rqm</code>
\reference (<i>R</i>)	133
\reflectbox	259
registered (®)	219
registered trademark	15, 27, 273
\Reibe (ゑ)	211
relational database symbols	122
relational symbols	51
binary	51–54, 56, 58–70, 89–91
negated binary	52, 53, 55–58, 60
triangle	70–72
\relationleftproject (⤵)	114
\relationlifting (⤶)	114
\relationrightproject (⤷)	114
relations	114
\Relbar (=)	91, 260
\Relbar (≡)	54
\Relbar (≐)	92
\relbar (–)	91, 260
\relbar (–)	54
\relbar (‐)	92
relieved face (ଓ)	219
relsize (package)	24
reminder ribbon (💡)	219
repeat button (⟳)	219
repeat single button (🔂)	219
\Request (✉)	201
rescue worker's helmet (⛑)	219
\resistivity (⎓)	133
\resizebox	88, 256
\Respondens (~)	196
\respondens (~)	196
response (𝑹)	275
\restoresymbol	256
\restrictbarb (⤧)	89
\restrictbarbup (⤨)	89
\restriction (⤩)	74
\restriction (⤪)	82
\restriction (⤫)	78
\restriction (⤬)	87
restrictions	74, 78, 82, 83, 87, 89
\restrictmallet (⤠)	89
\restrictmalletup (⤡)	89
\restrictwand (⤢)	89
\restrictwandup (⤣)	89
restroom (🚻)	219
rests	<i>see</i> musical symbols
retracting	<i>see</i> <code>\textretracting</code>
\Retrograde (℞)	129
\Return (⏎)	130
return	<i>see</i> carriage return
\revangle (⤤)	119
\revangle (⤥)	119
\revangleubar (⤦)	119
\revaw (⤧)	104
\revD (⤧)	20
\revddots (⤧)	264
\reve (⤧)	20
\reveject (⤧)	20
\revemptyset (⤧)	121
\revemptyset (⤧)	118
\revepsilon (⤧)	20
\revepsilon (⤧)	259
reverse button (⤵)	219
reverse solidus	<i>see</i> <code>\textbackslash</code>
\reverseallabreve (⤧)	162
\reverseC (⤧)	162
reversed symbols	259
\reversedvideobend (⤧)	188
\reversemathcloud (⤧)	39
\reversemathwitch (⤧)	39
\reversemathwitch* (⤧)	39
\revglotstop (⤧)	20
\revmeasuredangle (⤤)	119
\revnmid (⤧)	60
revolving hearts (❤)	219
\revsphericalangle (⤤)	119
\Rewind (⤧)	188
\RewindToIndex (⤧)	188
\RewindToStart (⤧)	188
\rfbowtie (⤧)	60
\rfilet (⤧)	101
\rfloor (⤧)	105
\rfloor (⤧)	100
\rfloor (⤧)	103
\rfloor (⤧)	101
\rfloor (⤧)	103
\rftimes (⤧)	60
\rgroup (⤧)	100
\rgroup (⤧)	103
\rgroup (⤧)	101
\rgroup (⤧)	103
\right	100, 104, 105, 256, 258
right anger bubble (😡)	219
right arrow (⤧)	219
right arrow curving down (⤧)	219
right arrow curving left (⤧)	219
right arrow curving up (⤧)	219
right-facing fist (🤜)	219
\rightangle (⤧)	119
\rightangle (⤧)	119
\rightangle (⤧)	123
\rightangle (⤧)	119
\rightanglemdot (⤧)	119

\rightanglemeddot (✉)	119	\rightevaw (⌚)	104
\rightanglemeddot (✉)	119	\rightfilledspoon (→)	89
\rightanglesqr (✉)	119	\rightfishtail (→)	59
\rightanglesqr (✉)	119	\rightfootline (→)	56
\rightanglesquare (✉)	119	\rightfootline (→)	54
\RIGHTarrow (►)	186	\rightfree (→)	54
\Rightarrow (⇒)	30, 73	\righthalfcap (⌚)	33
\Rightarrow (⇒)	79	\righthalfcup (⌚)	33
\Rightarrow (⇒)	75	\righthand (⌚)	138
\Rightarrow (⇒)	85	\rightharpoonaccent (▨)	107
\rightarrowarrow (→)	74	\rightharpoonccw (→)	78
\rightarrowarrow (→)	73	\rightharpooncw (→)	78
\rightarrowarrow (→)	79	\rightharpoondown (→)	75
\rightarrowarrow (→)	75	\rightharpoondown (→)	73
\rightarrowarrow (→)	88	\rightharpoondown (→)	84
\rightarrowarrow (→)	85	\rightharpoondown (→)	82
\rightarrowarrowapprox (↝)	85	\rightharpoondown (→)	87
\rightarrowarrowbackapprox (↝)	85	\rightharpoondownbar (→)	87
\rightarrowarrowbar (→)	83	\rightharpoonsupdown (⇒)	87
\rightarrowarrowbar (→)	85	\rightharpoonup (→)	75
\rightarrowarrowbsimilar (↝)	85	\rightharpoonup (→)	73
\rightarrowarrowcircle (↔)	83	\rightharpoonup (→)	84
\rightarrowarrowdiamond (→)	85	\rightharpoonup (→)	82
\rightarrowarrowgtr (⤠)	70	\rightharpoonup (→)	87
\rightarrowarrowonoplus (⊕)	85	\rightharpoonupbar (→)	87
\rightarrowarrowplus (⤠)	85	\rightharpoonupdash (⤠)	87
\rightarrowarrowshortleftarrow (⤠)	85	\rightimply (⇒)	59
\rightarrowarrowsimilar (↝)	85	\rightlcurvearrow (↝)	80
\rightarrowarrowsupset (⤠)	65	\rightleftarrows (⤠)	74
\rightarrowarrowtail (⤠)	73	\rightleftarrows (⤠)	73
\rightarrowarrowtail (⤠)	83	\rightleftarrows (⤠)	83
\rightarrowarrowtail (⤠)	79	\rightleftarrows (⤠)	79
\rightarrowarrowtail (⤠)	75	\rightleftarrows (⤠)	75
\rightarrowarrowtail (⤠)	85	\rightleftarrows (⤠)	85
\rightarrowarrowTriangle (⤠)	83	\rightleftcurvearrow (↝)	80
\rightarrowarrowtriangle (⤠)	74	\rightleftharpoon (→)	75
\rightarrowarrowtriangle (⤠)	83	\rightleftharpoons (⤠)	75
\rightarrowarrowtriangle (⤠)	85	\rightleftharpoons (⤠)	73
\rightarrowx (⤠)	85	\rightleftharpoons (⤠)	73
\rightAssert (⊦)	56	\rightleftharpoons (⤠)	84
\rightassert (⊦)	56	\rightleftharpoons (⤠)	82
\rightbarharpoon (⤠)	75	\rightleftharpoons (⤠)	78
\rightbkarrow (⤠)	79	\rightleftharpoons (⤠)	87
\rightbkarrow (⤠)	85	\rightleftharpoonsfill .	112
\rightblackarrow (⤠)	83	\rightleftharpoonsup (⤠)	87
\rightblackspoon (⤠)	90	\rightleftsquigarrow (⤠)	80
\rightbroom (⤠)	91	\rightlsquigarrow (↝)	80
\RIGHTCIRCLE (⦿)	144	\rightlsquigarrow (↝)	75
\RIGHTcircle (⦿)	144	\Rightmapsto (⤠)	79
\Rightcircle (⦿)	144	\Rightmapsto (⤠)	80
\rightcurvedarrow (⤠)	80	\Rightmapsto (⤠)	75
\rightcurvedarrow (⤠)	85	\rightModels (⊦)	54
\rightdasharrow (⤠)	83	\rightmodels (⊦)	56
\rightdasharrow (⤠)	85	\rightmodels (⤠)	54
\rightdbltail (⤠)	60	\rightmoon (☽)	128
\RightDiamond (◆)	147	\rightmoon (☽)	128
\rightdotarrow (⤠)	85	\rightmoon (☽)	127
\rightdowncurvedarrow (⤠)	80	\rightouterjoin (☒)	122
\rightdowncurvedarrow (⤠)	85	\rightp (՞)	25
		\rightpentagon (◇)	146

\rinforzando ()	167	\rot (rot)	93	\rrhLs (↓↓)	235
\ring (⌚)	107	\rotvara (Ԁ)	20	\rrhLsp (↑↑)	235
ring (⌚)	see accents	\rotw (₩)	20	\rrhLw (₩)	235
ring (⌚)	219	\roty (߳)	20	\rrhLwp (₩)	235
ring equal to	see \circceq	round pushpin (܍)	219	\rrhM (܍)	235
ring in equal to	see \eqcirc	\RoundedLsteel (܂)	132	\rrhMp (܍)	235
ring sum	see \oplus	\RoundedLsteel (܂)	132	\rrhR (܍)	235
ringed planet (܍)	219	\RoundedTsteel (܄)	132	\rrhRa (܍)	235
\ringplus (܍)	35	\RoundedTsteel (܄)	132	\rrhRap (܍)	235
\riota (܀)	121	\RoundedTTsteel (܆)	132	\rrhRp (܍)	235
\riota (܀)	20	\roundz (܃)	20	\rrhRs (܍)	235
\rip (܁)	195	\Rparen (܂)	125	\rrhRsp (܍)	235
\risingdotseq (=)	53	\rParen (܂)	103	\rrhRw (܍)	235
\risingdotseq (=)	51	\rparen (܂)	102	\rrhRwp (܍)	235
\risingdotseq (=)	58	\rparen ()	103	\rrhSd (܂)	235
\risingdotseq (=)	56	\rparengtr (܂)	99	\rrhSdp (܂)	235
\risingdotseq (=)	53	\Rparenless (܂)	99	\rrhS1 (܍)	235
\risingdotseq (=)	59	\rppoint (܂)	50	\rrhSlp (܍)	235
\rJoin (܂)	52	\rppoint (܂)	47	\rrhSr (܍)	235
\rJoin (܂)	34	\rppoints1 (܂)	48	\rrhSrp (܍)	235
\RK (܍)	130	\rppointup (܂)	48	\rrhSu (܂)	235
\rlap	25, 26, 147, 262, 263	\rqn (܂)	261	\rrhSup (܂)	235
\rmoustache (܂)	100	\RR (܂)	160	\rrhU (܂)	235
\rmoustache (܂)	103	\rrangle (܂)	101	\rrhUa (܂)	235
\rmoustache (܂)	101	\rrangle (܂)	99	\rrhUap (܂)	235
\rmoustache (܂)	103	\rrbracket (܂)	100	\rrhUp (܂)	235
\R0 (܂)	130	\rrbracket (܂)	105	\rrhUs (܂)	235
roasted sweet potato (܍)	194	\rrceil (܂)	99	\rrhUsp (܂)	235
robot (܂)	219	\RRelbar (܂)	92	\rrhUw (܂)	235
rock (܂)	219	\Rrelbar (܂)	92	\rrhUwp (܂)	235
rock/paper/scissors	139	\rrfloor (܂)	99	\RRightarrow (⇒)	85
rocket (܍)	187	\rrhD (܂)	235	\Rrightarrow (⇒)	74
rockets	186–187	\rrhDa (܂)	235	\Rrightarrow (⇒)	83
rojud (package)	204, 206, 276, 277	\rrhDap (܂)	235	\Rrightarrow (⇒)	79
roll of paper (܂)	219	\rrhDp (܂)	235	\Rrightarrow (⇒)	75
rolled-up newspaper (܂)	219	\rrhDs (܂)	235	\Rrightarrow (⇒)	85
roller coaster (܂)	219	\rrhDsp (܂)	235	\rrparenthesis (܂)	99
roller skate (܂)	187	\rrhDw (܂)	235	\rrparenthesis (܂)	99
rolling on the floor laughing (܍)	219	\rrhDwp (܂)	235	\RS (܂)	131
\rollingpin (⇒⇒)	211	\rrhE (܂)	235	\rsem (܂)	103
Roman coins	27	\rrhEp (܂)	235	\rsem (܂)	101
\Romania (܂)	203	\rrhF (܂)	235	\rsemantic	see \rdbrack
Romanian comma-belo accent (܂)	see accents	\rrhFp (܂)	235	\rsfs (emf package option)	127
Romanian counties	204	\rrhFw (܂)	235	\rsfso (package)	124, 276
rook	183, 184, 254–255	\rrhFwp (܂)	235	\Rsh (܂)	74
rooster (܍)	192	\rrhL (܂)	235	\Rsh (܂)	73
roots	see \sqrt	\rrhLa (܂)	235	\Rsh (܂)	83
rose (܍)	219	\rrhLap (܂)	235	\Rsh (܂)	79
rosette (܍)	219	\rrhLp (܂)	235	\Rsh (܂)	75
roshambo	139				
\rot (rot)	93				
\rotatebox	25, 259, 263				
rotated symbols	18–20, 25, 259				
rotating (package)	28, 130				
\rotm (܂)	20				
\rotOmega (܂)	20				

\Rsh (†)	86	\S (§)	16
\rsolbar (⤠)	35	\s (ⓘ)	160
\rsqhook (⤡)	59	s (ⓘ)	160
\rsub (⤢)	39		
\rtborder (⤣)	185	\sA (ⓘ)	201
\rtbotcorner (⤤)	185	\SAa (ⓘ)	157
\rtimes (⤥)	32	\SAb (ⓘ)	157
\rtimes (⤥)	31	\SAd (ⓘ)	157
\rtimes (⤥)	34	sad but relieved face (悰)	219
\rtimes (⤥)	34	\SAdb (ⓘ)	157
\rtimes (⤥)	33, 34	\SAdd (ⓘ)	157
\rtimes (⤥)	32	\Sadey (ⓘ)	212
\rtimes (⤥)	35	\sadface (ⓘ)	211
\rtimesblack (⤥)	34	\SAf (ⓘ)	157
\rtriltri (⤥)	72	safety pin (ⓘ)	219
\rtriple	105	safety vest (ⓘ)	220
\rttopcorner (⤦)	185	safety-related symbols	133
\RU (ⓘ)	130	\Saftpresse (ⓘ)	211
Rubik's Cube	235	\SAg (ⓘ)	157
rubikcube (package)	235, 276, 277	\SAgA (ⓘ)	157
rugby football (⚽)	219	\Sagittarius (⚿)	129
\ruledelayed (⤧)	59	\Sagittarius (⚿)	127
runes	160	Sagittarius (⚿)	220
Anglo-Frisian	160	\sagittarius (⚿)	127
Danish see normal runes		\SAh (ⓘ)	157
Germanic	160	\SAhd (ⓘ)	157
Hälsinge see staveless runes		\SAhu (ⓘ)	157
long-branch see normal runes		\sailboat (⚓)	220
medieval	160	\SAk (ⓘ)	157
normal	160	sake (ⓘ)	194
short-twig	160	\SAI (ⓘ)	157
staveless	160	\SAIq (ⓘ)	157
Swedo-Norwegian see short-twig runes		salt (ⓘ)	194
running shirt (⚙)	219	\SAM (ⓘ)	157
running shoe (⚚)	219	\samebishops (⚘)	183
\rupee (₹)	27	\Sampi (ⓘ)	157
\RV (ⓘ)	130	\Sampi (ⓘ)	157
\rVert ()	105	\sampli (ⓘ)	157
\rVert ()	100	\sandwich (悰)	194
.		\sans (dsfont package option)	124
.		\sansLmirrored (⌞)	122
\rVert ()	102	\sansLturned (⌟)	122
\rvvert ()	100	Santa Claus (悰)	220
.		\SAo (ⓘ)	157
.		\Sappho (ⓘ)	129
\rvvert ()	102	\SAq (ⓘ)	157
\Rzigzag ()	99	\SAr (ⓘ)	157
\rvzigzag ()	99	\sarabfamily	157
\rWalley (⚔)	212	sarabian (package)	157, 276, 277
⠄⠄⠄		sari (ⓘ)	220
\rwave (⚖)	104	\SAs (ⓘ)	157
⠄⠄⠄		\SAsa (ⓘ)	157
\rWavy (⚗)	101	\SAsd (ⓘ)	157
⠄⠄⠄		\SAsv (ⓘ)	157
\rwavey (⚗)	101	\SAT (ⓘ)	157
⠄⠄⠄		\SATb (ⓘ)	157
⠄⠄⠄		\SATd (ⓘ)	157
⠄⠄⠄		\SATe (ⓘ)	157
⠄⠄⠄		satellite antenna (ⓘ)	220
⠄⠄⠄		\satellitedish (⚖)	149
⠄⠄⠄		satisfies see \models	
S (ⓘ)	160		
\S (§)	16, 273		
S			
\scn (n)	20	\Saturn (ⓘ)	128
\scoh (ⓘ)	62	\Saturn (ⓘ)	129
scooters	186–187	\Saturn (ⓘ)	127
\Scorpio (♏)	129	\scorpio (♏)	127
\Scorpio (♏)	127	scorpion (ⓘ)	192
\scorpio (♏)	127	scorpius (♏)	220
\scpolint (ⓘ)	50	\scpolint (ⓘ)	47
\scpolint (ⓘ)	47	\scpolintsl (ⓘ)	48

\scpolintup (§)	48
\scr (rsfs package option)	124
\scr (R)	20
screwdriver (◆)	220
script letters	<i>see alphabets, math</i>
\scripta (a)	20
\scriptg (g)	20
\scriptscriptstyle	262
\scriptstyle	262
\scriptv (v)	20
\Scroll ([Scroll])	130
scroll (█)	220
\scross (X)	149
\scrossvh (*)	149
scsnowman (package)	226, 276, 277
\scsnowman (♂)	226
\scsnowman (♀)	226
\scu (U)	20
\scurel (≥)	58
\scurel (≤)	59
\scy (Y)	20
\sddtstile (█)	61
\sDep (⌘)	162
\sdststile (█)	61
\sdtstile (█)	61
\sdttstile (█)	61
seagull	<i>see \textseagull</i>
seal (hog)	192
\Searrow (↘)	74
\Searrow (⤙)	83
\Searrow (⤚)	79
\Searrow (⤛)	75
\Searrow (⤜)	86
\searrow (⤚)	74
\searrow (⤛)	73, 263
\searrow (⤚)	79
\searrow (⤜)	75
\searrow (⤚)	88
\searrow (⤛)	86
\searrowtail (⤛)	79
\searrowtail (⤜)	75
seat (👤)	220
\sebkarrow (⤚)	79
\sec (sec)	92
\Sech (♪)	163
\sech (sech)	93
\SechBL (♪)	163
\SechBl (♪)	163
\SechBR (♪)	163
\SechBr (♪)	163
\second (〃)	120
seconds, angular	<i>see \second</i>
\secstress (,)	25
section mark	<i>see \S</i>
\SectioningDiamond (❖)	196
\sector (▽)	121
sedenions (⌚)	<i>see alphabets, math</i>
see-no-evil monkey (Ⓐ)	220
seedling (🌿)	220
\sefilledspoon (⦿)	89
\sefootline (⦿)	53
\sefree (⦿)	53
Segletes, Steven B.	263
segmented numerals	126
	
\Segno (♪)	163
	
\segno (♪)	163
\seharpoonccw (⤚)	78
\seharpooncw (⤛)	78
\seharpoonne (⤚)	82
\seharpoonsw (⤛)	82
\seight (ⓘ)	160
\selcurvearrow (⤚)	80
\selectfont	13
selfie (🤳)	220
\selsquigarrow (⤚)	75
semaf.fd (file)	252
semantic valuation	100, 101, 105
semaphor (package)	250, 252, 276
semaphore symbols	250–252
\semapsto (⤚)	75
semibreve	<i>see musical symbols</i>
\semibreve (●)	165
\semibreveDotted (●.)	165
semidirect products 31, 32, 120	
semiquaver	<i>see musical symbols</i>
\semiquaver (♪)	165
\semiquaverDotted (♪.)	165
\semiquaverDottedDouble (♪..)	165
\semiquaverDottedDoubleDown (♪..)	165
\semiquaverDottedDown (♪')	165
\semiquaverDown (♪)	165
\semiquaverRest (♪)	166
\semiquaverRestDotted (♪.)	166
\Semisextile (☒)	129
\Semisquare (⦿)	129
semitic transliteration	21, 25
\seModels (ℳ)	53
\semmodels (ℳ)	53
semtrans (package)	21, 25, 276, 277
\senwarrows (⤙)	79
\senwarrows (⤚)	75
\sencurvearrow (⤚)	80
\senharpoons (⤚)	82
\senharpoons (⤛)	78
\seovnearrow (⤚)	86
\SePa (♪)	163
\separated (☒)	53
separation vector (⤚)	124
\sepitchfork (⤚)	89
\seppawns (○○)	183
\Serbia (●)	203
\sercurvearrow (⤚)	80
\SerialInterface (▣)	130
\SerialPort (≡)	130
\sersquigarrow (⤚)	75
service dog (🐕)	192
\sesearrows (⤙)	79
\sesearrows (⤚)	75
\sespoon (⤚)	89
\Sesquiquadrat (▣)	129
set interior	<i>see \mathring{}</i>
set operators	
intersection	<i>see \cap</i>
membership	<i>see \in</i>
union	<i>see \cup</i>
\setBold	270
\setminus (＼)	31
\setminus (＼)	33
\setminus (＼)	33
\setminus (＼)	35
\seVdash (⤚)	53
\seVdash (⤚)	54
seven o'clock (🕒)	191
seven-thirty (🕒)	191
sewing needle (🧵)	220
\Sextile (☒)	129
\Sey (⌚)	212
\sfive (ⓘ)	160
\sfour (ⓘ)	160
SGML	272
\sgn (sgn)	93
\sh (#)	164
sha (III)	259
\Shake (⤚)	162
\shake (⤚)	162
\Shakel (⤚)	162
\Shakene (⤚)	162
\Shakenw (⤚)	162
\Shakesw (⤚)	162
shallow pan of food (🥘)	194
shamrock (☘)	220
shark (🦈)	192
\sharp (#)	161
\sharp (#)	161
\sharp (#)	161
\sharp (#)	166
\sharp (#)	161
\sharp (#)	161
\sharp (#)	161
\sharp Arrowboth (⤚)	166
\sharp Arrowdown (⤚)	166
\sharp Arrowup (⤚)	166
Sharpe, Michael	24
\sharpSlashslashslashstem (⤚)	166
\sharpSlashslashslashslashstem (⤚)	166
\sharpSlashslashslashslashstem (⤚)	166

\sharpSlashslashStemstemstem	166
shaved ice (医治)	194
sheaf of rice (稻)	220
sheep (绵羊)	192
\shfermion (费米子)	133
shield (盾牌)	220
\Shift ([Shift ↑])	130
\shift (↑)	30
\Shilling (β)	26
shinto shrine (神社)	220
ship (船)	187
ships	186–187
\shneg (↑)	30
shooting star (流星)	220
shopping bags (购物袋)	220
shopping cart (购物车)	220
short-twig runes	160
shortcake (蛋糕)	194
\shortcastling (O-O)	183
\shortdownarrow (↓)	74
\shortdowntack (⊤)	56
\shortdowntack (⊤)	59
\ShortFifty (⌚)	189
\ShortForty (⌚)	189
\shortleftarrow (←)	74
\shortlefttack (⊣)	56
\shortlefttack (⊣)	59
\shortmid ()	51
\shortmid ()	58
\shortmid ()	56
\shortmid ()	33
\shortmid ()	59
\ShortNinetyFive (⌚)	189
\shortparallel ()	51
\shortparallel ()	58
\shortparallel ()	56
\shortparallel ()	54
\shortparallel ()	59
\ShortPulseHigh (JL)	126
\ShortPulseLow (JT)	126
\shortrightarrow (→)	74
\shortrightarrowleftarrow (↔)	86
\shortrighttack (⊣)	56
shorts (短裤)	220
\ShortSixty (⌚)	189
\ShortThirty (⌚)	189
\shortuparrow (↑)	74
\shortuptack (⊥)	56
\shortuptack (⊥)	59
\showclock	190
shower (淋浴)	220
\shpos (↓)	30
shrimp (虾)	192
shuffle (package)	36, 276, 277
\shuffle (洗牌)	35
\shuffle (洗牌)	36
shuffle product (乱洗)	36
shuffle tracks button (播放列表)	220
shushing face (害羞)	220
\SI (*)	131
\Sieb (筛子)	211
\sieve (筛子)	211
\Sigma (Σ)	94
\sigma (σ)	94
\sigmaup (σ)	95
sign of the horns (牛角)	220
\sim (~)	51, 261, 263, 271
\sim (~)	56
\sim (~)	54
\sim (~)	59
\simbot (人形)	99
\simcolon (~:)	62
\simcoloncolon (~::)	62
\simeq (~)	51
\simeq (~)	56
\simeq (~)	54
\simeq (~)	59
\simgE (≈)	70
\simgtr (≥)	70
\similarleftarrow (∽)	86
\similarrightarrow (∽)	86
\simlE (≤)	70
\simless (≲)	70
\simminussim (≈)	59
\simneqq (≠)	57
\simneqq (≠)	59
\simperp (⊥)	62
simplewick (package)	265, 266
\simplus (⋮)	35
simpsons (package)	197, 276
Simpsons characters	197
\simrdots (~~)	58
\simrdots (~~)	59
\sin (sin)	92
\sincoh (sinh)	62
\sinewave (~)	121
\sinewave (~)	122
singer (歌手)	220
\sinh (sinh)	92
six o'clock (①)	191
six-thirty (②)	191
\SixFlowerAlternate (✿)	142
\SixFlowerAltPetal (✿)	142
\SixFlowerOpenCenter (✿)	142
\smallaltoclef (alto clef)	162
\smallawint (f)	40
\smallawintsl (f)	40
\smallawintup (f)	40
\smallbassclef (bass clef)	162
\smallblackcircle (●)	37
\smallblackdiamond (◆)	37
\smallblacklozenge (◆)	144
\smallblacksquare (■)	37
\smallblackstar (★)	37
\smallblacktriangledown (▼)	37, 72
\smallblacktriangleleft (◀)	37, 72
\smallblacktriangleleft (◀)	146
\smallblacktriangleright (▶)	37, 72

\smallblacktriangleright (►)	146
\smallblacktriangleup (▲)	37, 72
\smallbosonloop{}`	133
\smallbosonloopA{}`	133
\smallbosonloopV{}`	133
\SmallCircle (○)	146
\smallcircle (օ)	37
\smallcirfnint (ƒ)	40
\smallcirfnintsl (ƒ)	40
\smallcirfnintup (ƒ)	40
\SmallCross (×)	146
smallctrbull (bullcntr package option)	195
\smallctrbull	195
\smalldiamond (◊)	37
\smalldiamond (◊)	37
\SmallDiamondshape (◊)	146
\smalldivslash (/)	34
\smallfint (ƒ)	40
\smallfintsl (ƒ)	40
\smallfintup (ƒ)	40
\smallfrown (¬)	51
\smallfrown (¬)	58
\smallfrown (¬)	56, 91
\smallfrown (¬)	90
\smallfrown (¬)	59
\SmallHBar (‐)	146
\smalliiint (fff)	40
\smalliiints (fff)	40
\smalliiintup (fff)	40
\smalliiint (fff)	40
\smalliiints (fff)	40
\smalliiintup (fff)	40
\smallint (ε)	98
\smallint (ε)	59
\smallint (ƒ)	121
\smallint (ƒ)	120
\smallint (ƒ)	40
\smallintBar (ƒ)	40
\smallintbar (ƒ)	40
\smallintBarsl (ƒ)	40
\smallintbarsl (ƒ)	40
\smallintBarup (ƒ)	40
\smallintbarup (ƒ)	40
\smallintcap (ƒ)	40
\smallintcapsl (ƒ)	40
\smallintcapup (ƒ)	40
\smallintclockwise (ƒ)	40
\smallintclockwisesl (ƒ)	40
\smallintclockwiseup (ƒ)	40
\smallintcup (ƒ)	40
\smallintcups (ƒ)	40
\smallintcupup (ƒ)	40
\smallintlarhk (ƒ)	40
\smallintlarhksl (ƒ)	40
\smallintlarhkup (ƒ)	40
\smallintsl (ƒ)	40
\smallintup (ƒ)	40
\smallintx (ƒ)	40
\smallintxsl (ƒ)	40
\smallintxup (ƒ)	40
\SmallLowerDiamond (◆)	146
\smalllowint (ƒ)	40
\smalllowintsl (ƒ)	40
\smalllowintup (ƒ)	40
\smalllozenge (◊)	144
\smalllozenge (◊)	144
\smalllni (✉)	59
\smallnpoint (ƒ)	40
\smallnpoints (ƒ)	40
\smallnpointup (ƒ)	40
\smalloiint (fff)	40
\smalloiints (fff)	40
\smalloiintup (fff)	40
\smalloiint (ƒ)	40
\smalloiints (ƒ)	40
\smalloint (ƒ)	40
\smallointcclockwise (ƒ)	40
\smallointctrclockwisesl (ƒ)	40
\smallointctrclockwiseup (ƒ)	40
\smallointsl (ƒ)	40
\smallointup (ƒ)	40
\smallowns (✉)	98
\smallpencil (铅笔)	137
\smallpointint (ƒ)	40
\smallpointints (ƒ)	40
\smallpointintup (ƒ)	40
\smallprod (Π)	32
\SmallRightDiamond (♦)	146
\smallrppoint (ƒ)	40
\smallrppoints (ƒ)	40
\smallrppointup (ƒ)	40
\smallscpolint (ƒ)	40
\smallscpolints (ƒ)	40
\smallscpolintup (ƒ)	40
\smallsetminus (¬)	31
\smallsetminus (¬)	34
\smallsetminus (¬)	34
\smallsetminus (¬)	34
\smallsetminus (¬)	33
\smallsetminus (¬)	33
\smallsetminus (¬)	35
\smallsmile (¬)	51
\smallsmile (¬)	58
\smallsmile (¬)	56, 91
\smallsmile (¬)	90
\smallsmile (¬)	59
\smallsqint (ƒ)	40
\smallsqints (ƒ)	40
\smallsqintup (ƒ)	40
\SmallSquare (□)	146
\smallsquare (▫)	37
\smallsquare (▫)	37
\smallstar (★)	37
\smallsumint (ƒ)	40
\smallsumints (ƒ)	40
\smallsumintup (ƒ)	40
\smalltrebleclef (♪)	162
\SmallTriangleDown (▽)	146
\smalltriangledown (▽)	36
\smalltriangledown (▽)	37, 72
\smalltriangledown (▽)	37, 71
\SmallTriangleLeft (◀)	146
\smalltriangleleft (◀)	36
\smalltriangleleft (◀)	37, 72
\smalltriangleleft (◀)	37, 71
\smalltriangleleft (◀)	146
\SmallTriangleRight (▶)	146
\smalltriangleright (▶)	36
\smalltriangleright (▶)	37, 72
\smalltriangleright (▶)	37, 71
\smalltriangleright (▶)	146
\SmallTriangleUp (△)	146
\smalltriangleup (△)	36
\smalltriangleup (△)	37, 72
\smalltriangleup (△)	37, 71
\smallupint (ʃ)	40
\smallupints (ʃ)	40
\smallupintup (ʃ)	40
\smallvarointclockwise (ƒ)	40
\smallvarointclockwisesl (ƒ)	40
\smallvarointclockwiseup (ƒ)	40
\smallvarointclockwise (ƒ)	40
\smallvarointclockwisesl (ƒ)	40
\smallvarointclockwiseup (ƒ)	40
\SmallVBar ()	146
\smallwhitestar (★)	37
smartctrbull (bullcntr package option)	195
\smartctrbull	195
\smashtimes (※)	34
\smashtimes (※)	35
\smblkcircle (●)	38
\smblkcircle (●)	39
\smblkdiamond (◆)	38
\smblkdiamond (◆)	145
\smblklozenge (♦)	144
\smblklozenge (♦)	145
\smblkssquare (■)	38
\smblkssquare (■)	145
\smeparsl (#)	59
\smile (¬)	51
\smile (¬)	58
\smile (¬)	56, 91
\smile (¬)	90
\smile (¬)	59
smile symbols	90, 91
\smileeq (≈)	56, 91
\smileeq (≈)	90
\smileeqfrown (≷)	90
\smileface (☺)	211
\smilefrown (≷)	56, 91
\smilefrown (≷)	90
\smilefrownq (≷)	90

\Smiley (☺)	189, 212	\spindown (⌚)	134
\smiley (☺)	186	\SpinUp (↑)	146
smiley faces	122, 131, 186, 189, 199, 200, 211–227, 231–234, 238–240	\spinup (↑)	134
smiling cat with heart-eyes (😍)	220	spiral calendar (📅)	221
smiling face (😊)	220	spiral notepad (📅)	221
smiling face with halo (😇)	220	spiral shell (🐚)	192
smiling face with heart-eyes (😍)	220	spirals	242
smiling face with hearts (💖)	220	\spirituslenis (֍)	107
smiling face with horns (😈)	220	\spirituslenis (֍)	107
smiling face with smiling eyes (😊)	221	\splitvert (⋮)	131
smiling face with sunglasses (😎)	221	sponge (🧽)	221
smiling face with tear (😢)	221	\Spoon (🍴)	211
smirking face (😉)	221	spoon (🍴)	221
smoking	186–187	spoon symbols	89, 90
\smt (≪)	70	sport utility vehicle (🚙)	187
\smte (≤)	70	sporting symbols	214–226, 228–231
\smwhitestar (☆)	38	sports medal (🏅)	221
\smwhitestar (☆)	145	spouting whale (🐳)	192
\smwhtcircle (○)	38	\spreadlips (_GAP_)	23
\smwhtcircle (○)	145, 146	\Springtree (🌳)	213
\smwhtdiamond (◊)	38	\sqbullet (■)	32
\smwhtdiamond (◊)	145, 146	\Sqcap (☶)	34
\smwhtlozenge (◊)	144	\Sqcap (☶)	35
\smwhtlozenge (◊)	145	\sqcap (□)	32
\smwhtsquare (▣)	38	\sqcap (□)	31
\smwhtsquare (▣)	145	\sqcap (□)	33
snail (🐌)	192	\sqcap (□)	32
snake (🐍)	192	\sqcap (□)	35
snakes	242	\sqcapdot (□)	33
\sndtstile (▣)	61	\sqcapdot (□)	32
sneezing face (🤧)	221	\sqcapplus (▣)	32
\Snow (❄)	190	\sqcapplus (▣)	33
snow-capped mountain (🏔)	221	\sqcapplus (▣)	32
snowboarder (🏂)	221	\Sqcup (☱)	34
\SnowCloud (☃)	190	\Sqcup (☱)	35
\Snowflake (❄)	142	\sqcup (□)	32
snowflake (❄)	221	\sqcup (□)	30, 31
\SnowflakeChevron (❄)	142	\sqcup (□)	33
\SnowflakeChevronBold (❄)	142	\sqcup (□)	32
snowflakes	142, 143	\sqcup (□)	35
\Snowman (⛄)	213	\sqcup (□)	35
snowman (⛄)	221	\sqcup (□)	33
snowman without snow (⛄)	221	\sqcupdot (□)	33
snowmen	213–226	\sqcupdot (□)	33
\SNPP (📠)	197	\sqcupplus (▣)	32
\snststile (▣)	61	\sqcupplus (▣)	33
\sntstile (▣)	61	\sqcupplus (▣)	33
\snttstile (▣)	61	\sqdoublecap (☶)	32
\sP (𝔓)	162	\sqdoublecup (☱)	32
speech balloon (💬)	221	\sqdoublefrown (߂)	90
speedboat (🚤)	187	\sqdoublefrowneq (߂)	90
\sphericalangle (⦿)	120	\sqdoublesmile (߂)	90
\sphericalangle (⦿)	118	\sqdoublesmileeq (߂)	90
\sphericalangle (⦿)	119	\squefrown (߂)	90
\sphericalangle (⦿)	119	\squefrown (߂)	90
\sphericalangle (⦿)	118	\squefrown (߂)	90
\sphericalangle (⦿)	119	\squefrown (߂)	90
\sphericalangledown (⦾)	119	\squefrown (߂)	90
\sphericalangleleft (⦿)	119	\squefrown (߂)	90
\sphericalangleup (⦿)	119	\squefrown (߂)	90
\sphericalangleup (⦿)	119	\sqfrown (߂)	90
spider (🕷)	221	\sqfrown (߂)	90
spider web (🕸)	221	\sqfrown (߂)	90
\spin (↗)	134	\sqfrownsmile (߂)	90
\spinDown ()	146	\sqfrownsmile (߂)	90

\sqint (◊)	50	\sqtriplefrown (❀)	90	\SquareShadowTopRight (□)	.
\sqint (◊)	44	\sqtriplesmile (❀)	90	\SquareSolid (■)	147
\sqint (◊)	47	\squad (□)	148	\Squaresteel (■)	132
\sqints1 (◊)	49	\squadcross (☒)	148	\squaretopblack (□)	145
\sqintup (◊)	49	\squaddot (▣)	148	\squareulblack (▣)	145
\sqlozenge (¤)	145	\squadfill (■)	148	\squareulquad (▣)	145
\sqrt (✓)	110	\squadfillha (▣)	148	\squareurblack (▣)	145
\sqrt (✓)	108, 262–263	\squadfillhb (▣)	148	\squareurquad (▣)	145
\sqrt* (✓)	111	\squadfillhl (▣)	148	\squarevfill (☲)	145
\sqsmile (˘)	90	\squadfillhr (▣)	148	\squarewithdots (❖)	149
\sqsmileeq (˘)	90	\squadlineh (▤)	148	\squeeler (▲)	211
\sqsmileeqfrown (˘)	90	\squadlinev (▤)	148	\squid (Ｒ)	192
\sqsmilefrown (˘)	90	\squadlinevh (▤)	148	\squigarrowdownup (↖)	75
\Sqsubset (⊑)	64	\Square (□)	129	\squigarrowleftright (↔)	75
\Sqsubset (⊑)	64	\Square (□)	140	\squigarrownesw (↔)	75
\sqSubset (⊑)	63	\Square (□)	147	\squigarrownwse (⤒)	75
\sqSubset (⊑)	64	\Square (□)	147	\squigarrowrightleft (⤓)	75
\sqsubset (⊑)	63	\Square (□)	147	\squigarrowsenw (↖)	75
\sqsubset (⊑)	62, 63	\Square (□ vs. □ vs. □)	257	\squigarrowswne (⤓)	75
\sqsubset (⊑)	64	\square (▫)	32	\squigarrowupdown (⤒)	75
\sqsubset (⊑)	64	\square (□)	120	squinting face with tongue (Ｚ)	221
\sqsubset (⊑)	65	\square (□)	145	\squoval (○)	145
\sqsubsetseteq (⊑)	63	\square (□)	38	\squplus (⊕)	32
\sqsubsetseteq (⊑)	62	\square (○)	185	\squplus (⊕)	34
\sqsubsetseteq (⊑)	64	\square (□)	37	\SS (SS)	16, 130
\sqsubsetseteq (⊑)	64	\square (□)	146	\ss (ß)	16
\sqsubsetseteq (⊑)	65	square impulse	126	\ssdtstile (▨)	61
\sqsubsetseteqq (⊑)	63	square root	see \sqrt	\ssearrow (⤗)	74
\sqsubsetseteqq (⊑)	64	hooked	see \hksqrt	\ssearrow (⤘)	84
\sqsubsetseteqq (⊑)	64	\squarebotblack (▣)	145	\sseven (⌚)	160
\sqsubsetsetneq (⊑)	63	\SquareCastShadowBottomRight (□)	147	\ssix (⌚)	160
\sqsubsetsetneq (⊑)	64	\SquareCastShadowTopLeft (□)	147	\sslash (//)	31
\sqsubsetsetneq (⊑)	64	\SquareCastShadowTopRight (□)	147	\sslash (//)	34
\sqsubsetsetneq (⊑)	65	\squarecrossfill (■)	145	\sststile (▨)	61
\sqsubsetsetneqq (⊑)	63	\squaredots (,:)	116	\sststile (▨)	61
\sqsubsetsetneqq (⊑)	64	\squaredots (,:)	33, 116	\ssarrow (⤗)	74
\sqsubsetsetneqq (⊑)	64	\squarehfill (▤)	145	\ssarrow (⤘)	84
\sqsubsetsetneqq (⊑)	65	\squarehvfill (▤)	145	\staccatissimo (♪)	167
\sqsubsetsetneqq (⊑)	63	\squareleftblack (■)	145	stackengine (package)	263
\sqsubsetsetneqq (⊑)	64	\squarellblack (■)	145	\stackengine	263
\sqsubsetsetneqq (⊑)	64	\squarellquad (▣)	145	\stackrel	30, 260, 264
\sqsubsetsetneqq (⊑)	64	\squarerlblack (■)	145	stadium (🏟)	221
\sqsubsetsetneqq (⊑)	65	\squarerlquad (▣)	145	standard state	126, 261
\sqsubsetseteq (⊑)	63	\squareeneswfill (▨)	145	\star (★)	31, 264
\sqsubsetseteq (⊑)	64	\squareenwsefill (▨)	145	\star (★)	160
\sqsubsetseteq (⊑)	64	\Squarepipe (▣)	132	\star (★)	38, 145
\sqsubsetseteq (⊑)	65	\squarerightblack (▣)	145	\star (★)	38
\sqsubsetseteq (⊑)	65	squares	144–150, 172–176, 184, 185, 236–237, 242, 252– 253	\star (★)	37
\sqsubsetseteqq (⊑)	63	\SquareShadowA (□)	147	\star (★)	39
\sqsubsetseteqq (⊑)	64	\SquareShadowB (□)	147	star (★)	221
\sqsubsetsetneq (⊑)	63	\SquareShadowBottomRight (□)	147	star and crescent (☪)	221
\sqsubsetsetneq (⊑)	64	\SquareShadowC (□)	147	Star of David	142, 143
\sqsubsetsetneq (⊑)	64	\SquareShadowTopLeft (□)	147	star of David (✡)	221
\sqsubsetsetneq (⊑)	64			star-struck (Ｚ)	221
\sqsubsetsetneqq (⊑)	63			\stareq (≐)	56
\sqsubsetsetneqq (⊑)	64			\stareq (≐)	59
\sqsubsetsetneqq (⊑)	64			starfont (package)	129, 276, 277
\sqsubsetsetneqq (⊑)	64			\starlet (☆)	148

\starletcross (★)	148	\staveVI (◎)	198	\staveXXXV (❖)	199
\starleddot (☆)	148	\staveVII (❖)	198	\staveXXXVI (❖)	199
\starleffill (★)	148	\staveVIII (❖)	198	\staveXXXVII (❖)	199
\starleffillha (★)	148	\staveX (❖)	198	\staveXXXVIII (❖)	199
\starleffillhb (★)	148	\staveXI (❖)	198	\stdtstile (❖)	61
\starleffillhl (★)	148	\staveXII (❖)	199	\steaming (❖)	211
\starleffillhr (★)	148	\staveXIII (❖)	199	steaming bowl (❖)	194
\starleffineh (★)	148	\staveXIV (❖)	199	steinmetz (package)	127, 276, 277
\starleffinev (★)	148	\staveXIX (❖)	199	Steinmetz phasor notation	127
\starleffinevh (★)	148	\staveXL (❖)	199	sterling	<i>see \pounds</i>
\starofdavid (✡)	144	\staveXLI (❖)	199	stethoscope (❖)	221
\starredbullet (+)	143	\staveXLII (❖)	199	\sthree (⌚)	160
stars	120, 129, 142–146, 148–149, 236–237	\staveXLIII (❖)	199	stick figures	151, 213, 248–252
\stater (⌚)	27	\staveXLIV (❖)	199	\Stigma (Ϛ)	157
\Station (ﬆ)	129	\staveXLIX (❖)	198	\Stigma (Gamma)	157
station (ﬆ)	187	\staveXLV (❖)	199	\stigma (ϲ)	157
statistical independence	262	\staveXLVI (❖)	199	\stigma (ϙ)	157
Statue of Liberty (🗽)	221	\staveXLVII (❖)	198	stix (package)	35, 39, 40, 47, 48, 59, 60, 65, 69, 70, 72, 85–87, 92, 96–99, 103, 107, 110, 116, 118, 119, 122, 128, 129, 132, 145, 146, 161, 179, 181, 276, 277
\staveI (❖)	198	\staveXLVIII (❖)	198	stmaryrd (package)	31, 41, 52, 63, 70, 74, 88, 91, 99, 100, 257, 261, 275, 276
\staveII (❖)	198	\staveXV (❖)	199	stochastic independence	<i>see \bot</i>
\staveIII (❖)	198	\staveXVI (❖)	199	\StoneMan (▲)	190
\staveIV (❖)	198	\staveXVII (❖)	199	stop button (❖)	221
\staveIX (❖)	198	\staveXVIII (❖)	199	stop sign (●)	221
\staveL (❖)	198	\staveXX (❖)	199	\Stopsign (✖)	133
\staveL (❖)	199	\staveXXI (❖)	199	stopwatch (⌚)	191
staveless runes	160	\staveXXII (❖)	199	\StopWatchEnd (⌚)	190
\staveLI (❖)	198	\staveXXIII (❖)	199	\StopWatchStart (⌚)	190
\staveLII (❖)	198	\staveXXIV (❖)	198	straight ruler (❖)	221
\staveLIII (❖)	198	\staveXXIX (❖)	198	strawberry (🍓)	194
\staveLIV (❖)	198	\staveXXV (❖)	198	\stress ()	25
\staveLIX (❖)	199	\staveXXVI (❖)	198	\Strichmaxerl (⌘)	213
\staveLV (❖)	198	\staveXXVII (❖)	198	strict implication	<i>see \strictif</i>
\staveLVI (❖)	198	\staveXXVIII (❖)	198	\strictfi (϶)	52
\staveLVII (❖)	198	\staveXXIX (❖)	198	\strictfi (϶)	58
\staveLVIII (❖)	199	\staveXXV (❖)	198	\strictif (϶)	52
\staveLX (❖)	199	\staveXXVI (❖)	198	\strictif (϶)	58
\staveLXI (❖)	199	\staveXXVII (❖)	198	\strictiff (϶϶)	52
\staveLXII (❖)	199	\staveXXVIII (❖)	198	\StrikingThrough ()	26
\staveLXIII (❖)	199	\staveXXX (❖)	198	\strns (—)	122
\staveLXIV (❖)	199	\staveXXXI (❖)	198	\strokedint (ƒ)	45
\staveLXV (❖)	199	\staveXXXII (❖)	198	\StrokeFive (❖)	194
\staveLXVI (❖)	199	\staveXXXIII (❖)	198	\StrokeFour (❖)	194
\staveLXVII (❖)	199	\staveXXXIV (❖)	198	\StrokeOne (,)	194
\staveLXVIII (❖)	199	\staveXXXIX (❖)	199	\StrokeThree (❖)	194
staves	198			\strokethrough (❖)	107
staves (package)	198, 276			\StrokeTwo (❖)	194
\staveV (❖)	198			\stst (°)	261

\sttststile (61	subsets	62–65
\sttstile (61	\subsim (65
\sttstile (61	\subsub (65
\sttstile (61	\subsup (65
student (221	\Succ (»)	59
studio microphone (221	\succ (>)	51
stuffed flatbread (194	\succ (>)	56
\STX (131	\succ (>)	54
.sty files	13	\succ (>)	59
\SUB (→)	131	\succapprox (≈)	53
subatomic particles . .	133–134	\succapprox (≈)	51
\subcorner (23	\succapprox (≈)	58
\subdoublebar (23	\succapprox (≈)	56
\subdoublevert (23	\succapprox (≈)	54
\subdot (↓)	65	\succapprox (≈)	59
\sublptr (23	\succcurlyeq (≥)	53
\submult (✉)	65	\succcurlyeq (≥)	51
\subrarr (⌚)	65	\succcurlyeq (≥)	58
\subrptr (⌚)	23	\succcurlyeq (≥)	56
subscripts		\succcurlyeq (≥)	54
new symbols used in .	262	\succcurlyeq (≥)	59
\Subset (⊆)	63	\succdot (>)	53
\Subset (⊇)	63	\succeq (⊇)	51
\Subset (⊑)	64	\succeq (⊇)	56
\Subset (⊒)	64	\succeq (⊇)	54
\Subset (⊏)	64	\succeq (⊇)	59
\Subset (⊐)	65	\succeqq (⊇⊇)	52
\Subset (⊑⊐)	65	\succeqq (⊇⊇)	56
\subset (⊂)	63	\succeqq (⊇⊇)	59
\subset (⊊)	62	\succcnapprox (≈)	53
\subset (⊊)	64	\succcnapprox (≈)	52
\subset (⊊)	64	\succcnapprox (≈)	58
\subset (⊊)	65	\succcnapprox (≈)	57
\subsetapprox (≈)	65	\succcnapprox (≈)	55
\subsetcirc (©)	65	\succcnapprox (≈)	59
\subsetdot (⊑)	65	\succcneq (≠)	53
\subseteq (⊆)	63	\succcneq (≠)	57
\subseteq (⊇)	62	\succcneq (≠)	59
\subseteq (⊑)	64	\succcneq (≠)	52
\subseteq (⊒)	64	\succcneqq (≠≠)	58
\subseteq (⊏)	65	\succcneqq (≠≠)	57
\subseteqq (≈)	63	\succcneqq (≠≠)	59
\subseteqq (≈)	63	\succcnsim (≈)	53
\subseteqq (≈)	64	\succcnsim (≈)	52
\subseteqq (≈)	64	\succcnsim (≈)	58
\subseteqq (≈)	64	\succcnsim (≈)	57
\subseteqq (≈)	65	\succcnsim (≈)	55
\subsetneq (⊏)	63	\succcnsim (≈)	59
\subsetneq (⊏)	63	\succcsim (≈)	53
\subsetneq (⊏)	64	\succcsim (≈)	51
\subsetneq (⊏)	64	\succcsim (≈)	58
\subsetneq (⊏)	65	\succcsim (≈)	56
\subsetneqq (≈)	63	\succcsim (≈)	54
\subsetneqq (≈)	63	\succcsim (≈)	59
\subsetneqq (≈)	64	such that	259, 261
\subsetneqq (≈)	64	\suchthat (⇒)	261
\subsetneqq (≈)	64	\sum (Σ)	41
\subsetneqq (≈)	64	\sum (Σ)	46
\subsetneqq (≈)	65	\sum (Σ)	45
\subsetplus (⊕)	63	\sum (Σ)	47
\subsetplus (⊕)	64	\sumint (ʃ)	50
\subsetplus (⊕)	65	\sumint (ʃ)	46
\subsetplus (⊕)	63	\sumint (ʃ)	45
\subsetplus (⊕)	64	\sumint (ʃ)	45

\supseteqq (⊇)	64	\swModels (ℳ)	54
\supseteqq (⊇)	64	\swmodels (ℳ)	54
\supseteqq (⊇)	64	\swnearrows (↗)	79
\supseteqq (⊇)	65	\swnearrows (↖)	75
\supsetneq (⊈)	63	\swneararrow (↗)	80
\supsetneq (⊈)	63	\swneararrow (↖)	82
\supsetneq (⊈)	64	\swneararrow (↙)	78
\supsetneq (⊈)	64	swords	189
\supsetneq (⊈)	64	\swords (⚔)	211
\supsetneq (⊈)	65	\swpitchfork (⚔)	89
\supsetneqq (⊉)	63	\swrcurvearrow (↙)	80
\supsetneqq (⊉)	63	\swrsquigarrow (↴)	75
\supsetneqq (⊉)	63	\swspoon (↴)	89
\supsetneqq (⊉)	64	\swwarrows (↴)	79
\supsetneqq (⊉)	64	\swwarrows (↴)	75
\supsetneqq (⊉)	64	swung dash	see \sim
\supsetplus (⊕)	63	\swVdash (ℳ)	54
\supsetplus (⊕)	64	\swvDash (ℳ)	54
\supsetplus (⊕)	65	\syl (𢂔)	24
\supsetpluseq (⊕)	63	\syllabic (𠁧)	25
\supsetpluseq (⊕)	64	\symA (Ⓐ)	124
\supsim (≿)	65	\symAE (Ā)	125
\supsub (⌞)	65	\symB (Ⓑ)	124
\supsup (⌞)	65	\symbol{bishop} (KING)	184
\surd (∜)	119	Symbol (font)	95, 259
\surface (Φ)	134	symbols	15–151, 161–236, 238,
\SurveySign (△)	190	253, 254, 256, 258, 264,	
sushi (🍣)	194	270, 273	
suspension railway (🚤)	187	actuarial	112, 264–265
\svrexample (Ϣ)	134	alpine	190
\svrphoton (f)	134	ancient language	151–160
svrsymbols (package)	133, 276, 277	annuity	112, 264–265
swan (🦆)	192	APL	59–60, 129, 130
\Swallow (ߝ)	74	astrological	127–129, 238–240
\Swallow (ߝ)	84	astronomical	127–129, 199, 200, 238–240
\Swallow (ߝ)	79	Begriffsschrift	117
\Swallow (ߝ)	75	biological	132
\Swallow (ߝ)	86	block-element	198
\swarrow (↗)	74	body-text	15–29
\swarrow (↗)	73, 263	bold	270
\swarrow (↖)	79	box-drawing	198
\swarrow (↖)	75	chess	183, 184, 254–255
\swarrow (↖)	88	cipher	199
\swarrow (↖)	86	clock	186, 189–191, 227
\swarrowtail (↗)	79	communication	131
\swarrowtail (↗)	75	computer	231–234
\swbkarrow (↖)	79	computer hardware	130, 214–226, 228–231
sweat droplets (💦)	222	contradiction	30, 91
\Sweden (🇸)	204	cooking	211, 231–234
Swedo-Norwegian runes	see short-twigs	counties	204
\swfilledspoon (ߝ)	89	countries	202
\swfootline (ߝ)	54	crystallography	252–253
\swfree (ߝ)	54	currency	26, 27, 122, 125, 214–226, 228–231
\swharpoonccw (ߝ)	78	dangerous bend	188
\swharpooncw (ߝ)	78	database	122
\swharpooncw (ߝ)	78	definition	30, 264
\swharpoonnw (ߝ)	82	dictionary	18–21, 197
\swharpoonse (ߝ)	82	dingbat	135–150
\Switzerland (🇨)	204	dot	15, 115–117, 263–264
\swlcurvearrow (↴)	80	electrical	126
\swlsquigarrow (↴)	75	engineering	122, 126, 132
\swmapsto (↴)	75	Epi-Olmec	157–159
		extensible	88, 108–115, 127, 258, 264–266
		Feynman diagram	133
		file	231–234
		Frege logic	88, 98, 117, 118, 123
		frown	90, 91
		game-related	179–185, 231–234, 253–255
		gates, digital logic	131
		genealogical	186
		general	186
		Go stones	184, 185
		Halloween	39, 114, 115
		information	189
		informator	183
		inverted	18–20, 25, 259
		Isthmian	157–159
		keyboard	130
		knitting	202
		Knuth's	188
		laundry	189
		legal	15, 16, 27, 28, 273
		letter-like	97–99, 231–234
		life insurance	112, 264–265
		linear logic	30–32, 36, 37, 41, 45–46, 51, 62, 97, 98
		linguistic	18–21
		log-like	92, 93, 270
		logic	131
		<i>Magic: The Gathering</i>	254
		magical signs	198
		map	236–237
		maps	202, 204, 228–231
		mathematical	30–125
		media control	188, 231–234
		METAFONTbook	188
		metrical	196
		miscellaneous	119– 121, 123, 149, 150, 186– 231, 235
		monetary	26, 27, 125, 214–226, 228–231
		musical	161–178, 227, 231–234
		non-commutative division	115
		particle physics	133–134
		Phaistos disk	151
		phonetic	18–21
		physical	126
		Pitman's base 12	118, 195
		present value	112, 264–265
		proto-Semitic	151
		pulse diagram	126
		recycling	200, 201, 211, 214–227, 231–234, 236
		relational	51

\textbardbl ()	15	\textctc (c)	18	\textepsilon (ε)	21
\textbardbl ()	15	\textctd (d)	18	\textepsilon (ε)	16, 18
\textbardotlessj (Ɽ)	18	\textctdctzlig (ꝑ)	18	\textesh (ʃ)	21
\textbarg (g)	18	\textctesh (ʃ)	18	\textesh (ʃ)	18
\textbarglotstop (ʢ)	18	\textctinvglotstop (ȝ)	19	\textestimated (ᴱ)	28
\textbari (i)	18	\textctj (j)	18	\textEta (H)	16
\textbarl (ł)	18	\textctjvar (j)	19	\texteta (η)	16
\textbaro (ø)	18	\textctn (n)	18	\texteuro (€)	27
\textbarrevglotstop (ڻ)	18	\textctstretchc (ڦ)	19	\texteuro (€)	26
\textbaru (ڻ)	18	\textctstretchcvar (c)	19	\texteuro (€)	26, 272, 274
\textbeltl (ෂ)	18	\textctt (t)	18	\textexclamdown	15
\textbentailyogh (ڙ)	19	\textcttctclig (ڪ)	18	\textfallrise (۾)	22
\textBeta (B)	16	\textctturnt (ڦ)	19	\textfemale (♀)	19
\textbeta (β)	16, 18	\textctyogh (ڙ)	18	\textfishhookr (r)	18
\textbigcircle (○)	15	\textcz (ڙ)	18	\textfiveoldstyle (៥)	28
\textbigcircle (○)	15	\textcurrency (؋)	26, 273	\textfjlig (ڦ)	21
\textbktailgamma (ڙ)	19	\textcypr	156	\textflorin (f)	26
\textblank (b)	28	\textdagger (†)	15	\textfouroldstyle (૪)	28
\textblock (■)	198	\textdagger (†)	15	\textfractionsolidus (/)	122
\textborn (★)	186	\textdaggerdbl (‡)	15	\textfrak	124
\textbottomtiebar (▬)	22	\textdaggerdbl (‡)	15	\textfrbarn (n)	19
\textbraceleft	15	\textdbend (ڦ)	188	\textfrhookd (d)	19
\textbraceright	15	\textdblyhyphen (=)	28	\textfrhookdvar (d)	19
\textbrevemacron (ڻ)	22	\textdblyhyphenchar (₌)	28	\textfrhookt (t)	19
\textbrokenbar (፤)	28, 273	\textdblylig (ڏ)	19	\textfrtailgamma (ڙ)	19
\textbullet (●)	15	\textdctzlig (ꝑ)	18	\textg (g)	19
\textbullet (●)	15, 274	\textdegree (°)	122, 273	\textGamma (Γ)	16
\textbullseye (ଓ)	18	\textDelta (Δ)	16	\textgamma (γ)	16, 19
\textcelsius (°C)	126, 274	\textdelta (δ)	16	\textglobfall (˯)	19
\textceltpal (՚)	18	\textdied (+)	186	\textglobrise (˯)	19
\textcent (¢)	26, 273	\textdiscount (٪)	28	\textglotstop (?)	18
\textcentoldstyle (₵)	26	\textdiv (÷)	122	\textglotstopvari (?)	19
\textChi (X)	16	\textdivorced (ڍ)	186	\textglotstopvarii (?)	19
\textchi (χ)	16, 18	\textdkshade (■)	198	\textglotstopvariii (?)	19
\textcircled (ଓ)	21	\textdnblock (■)	198	\textgoth	124
\textcircledP	27	\textdollar (\$)	15	\textgravecircum (߮)	22
\textcircledP (ଓ)	27	\textdollar (\$)	15, 26	\textgravedbl (߰)	25
\textcircumacute (߱)	22	\textdollaroldstyle (\$)	26	\textgravedot (߳)	22
\textcircumdot (߲)	22	\textdong (ද)	26	\textgravemacron (߮)	22
\textclosepsilon (ୟ)	18	\textdotacute (܊)	22	\textgravemid (߳)	22
\textcloseomega (୧)	18	\textdotbreve (܉)	22	\textgreater	15
\textcloserevepsilon (ୟ)	18	\textdoublebaresh (ଫ)	18	\textgreater (>)	270, 271
\textcolonmonetary (ଓ)	26	\textdoublebarpipe (ଫ)	18	\textgreek (package)	16, 95, 276, 277
\textcommatailz (ଜ)	18	\textdoublebarpipevar (ଫ)	19	\textrgamma (ୟ)	19
\textcomp (package)	13, 15, 16, 21, 25–28, 73, 105, 122, 126, 161, 186, 256, 271, 272, 276	\textdoublebarslash (ଫ)	18	\textguarani (₲)	26
\textcopyright	27	\textdoublegrave (߱)	22	\texthalflength (߹)	18
\textcopyright (ଓ)	27	\textdoublegrave (߱)	24	\texthardsign (ܵ)	18
\textcopyright (ଓ)	15, 27	\textdoublelepipe ()	18	\textheng (ହ)	19
\textcopyright (ଓ)	15, 27, 273	\textdoublelepipevar ()	19	\texthighrise (۾)	22
\textcorner (߸)	18	\textdoublelevbaraccent (߱)	22	\texthmlig (ିନ)	19
\textcrb (ବ)	18	\textdoublelevbaraccent (߱)	24	\texthooktop (߶)	18
\textcrd (ଦ)	21	\textdoublevertline ()	18	\texthtb (ବ)	21
\textcrd (ଦ)	18	\textdownarrow (↓)	73	\texthtb (ବ)	18
\textcrg (ଗ)	18	\textdownfullarrow (↓)	19	\texthtbardotlessj (ଫ)	18
\textcrh (ହ)	21	\textdownstep (߹)	18	\texthtbardotlessjvar (ଫ)	19
\textcrh (ହ)	18	\textdyoghlig (ଫ୍ୟ)	18	\texthtc (ୱ)	21
\textcrinvglotstop (ڻ)	18	\textdzlig (ꝑ)	18	\texthtc (ୱ)	18
\textcrlambda (କ)	18	\texteightoldstyle (୮)	28	\texthtd (ଫ୍ର)	21
\textcrtwo (୨)	18	\textellipsis	15	\texthtd (ଫ୍ର)	18
\textcrtwo (୨)	18	\textemdash	15	\texthtg (ଗ୍ର)	18
		\textemdash	15	\texthth (ଫୀ)	18
		\textEpsilon (ଏ)	16	\texththeng (ଫ୍ର)	18

\texthtk (f)	21	\textknit{l} (λ)	202	\textmicro (μ)	16
\texthtk (f̄)	18	\textknit{M} (m̄)	202	\textmidacute (ˇ)	22
\texthtp (p̄)	21	\textknit{m} (m̄)	202	\textminus (−)	122
\texthtp (p̄)	18	\textknit{O} (Ō)	202	\textMu (M̄)	16
\texthtq (q̄)	18	\textknit{Q} (Q̄)	202	\textmu (μ̄)	126, 273
\texthtraild (d̄)	18	\textknit{q} (q̄)	202	\textmu (μ̄)	16
\texthtscg (Ḡ)	18	\textknit{R} (Ā)	202	\textmugreek (μ̄)	16
\texthtt (t̄)	21	\textknit{r} (K̄)	202	\textmusicalnote (♪)	161
\texthtt (t̄)	18	\textknit{S} (←)	202	\textnaira (₦)	26
\texthvlig (hv̄)	18	\textknit{s} (→)	202	\textnineoldstyle (9̄)	28
\textifsym	126	\textknit{T} (Q̄)	202	\textnrleg (ŋ̄)	19
\textinterrobang (?)	28	\textknit{t} (Q̄)	202	\textNu (N̄)	16
\textinterrobangdown (ī)	28	\textknit{U} (L̄)	202	\textnu (ν̄)	16
\textinvglotstop (ɔ̄)	18	\textknit{u} (X̄)	202	\textnumero (№̄)	28
\textinvomega (ō)	19	\textknit{V} (V̄)	202	\textObardotlessj (J̄)	18
\textinvscsa (v̄)	19	\textknit{w} (W̄)	202	\textObullseye (○̄)	19
\textinvscri (s̄)	18	\textknit{x} (Q̄)	202	\textohm (Ω̄)	126
\textinvscripa (ā)	19	\textknit{y} (Ȳ)	202	\textOlyoghlig (ḥ̄)	18
\textinvsbridge (ɔ̄)	22	\textknit{z} (Ω̄)	202	\textOmega (Ω̄)	16
\textIota (Ī)	16	\textLambda (Λ̄)	16	\textomega (ω̄)	16, 18
\textiota (ī)	21	\textlambda (λ̄)	16, 18	\textOmikron (Ō)	16
\textiota (ī)	16, 18	\textangle (⟨)	105, 271	\textomikron (ō)	16
\textKappa (K̄)	16	\textlbrackdbl (⟦)	105	\textonehalf (½̄)	122, 273
\textkappa (x̄)	16	\textleaf (∅̄)	186	\textoneoldstyle (1̄)	28
\textknit	202	\textleftarrow (←)	73	\textonequarter (¼̄)	122, 273
\textknit{2} (Λ̄)	202	\textlengthmark (:)	18	\textonesuperior (¹̄)	122, 273
\textknit{3} (Λ̄)	202	\textless	15	\textopenbullet (○̄)	28
\textknit{4} (Λ̄)	202	\textless (<)	270, 271	\textopencorner (⌇̄)	18
\textknit{5} (Λ̄)	202	\textlfblock (█̄)	198	\textopeno (ɔ̄)	21
\textknit{6} (Λ̄)	202	\textlfhookrlig (h̄)	19	\textopeno (ɔ̄)	18
\textknit{7} (Λ̄)	202	\textlhbend (Ł̄)	188	\textordfeminine (²̄)	15
\textknit{8} (Λ̄)	202	\texthookfour (Ɽ̄)	19	\textordfeminine (²̄)	15, 273
\textknit{9} (Λ̄)	202	\texthookp (p̄)	19	\textordmasculine (º̄)	15
\textknit{"} (Ḡ)	202	\texthookt (t̄)	18	\textordmasculine (º̄)	15, 273
\textknit{()} (\`)	202	\textlhti (n̄)	19	\textovercross (☒̄)	22
\textknit{()} (\`)	202	\textlhtlongi (l̄)	18	\textoverw (☒̄)	22
\textknit{()} (\`)	202	\textlhtlongy (ȳ)	18	\textpalhook („̄)	18
\textknit{[]} (↗̄)	202	\textlinb	155, 156	\textpalhooklong („̄)	19
\textknit{[]} (↖̄)	202	\textlira (ƒ̄)	26	\textpalhookvar („̄)	19
\textknit{A} (Λ̄)	202	\textlnot (¬̄)	122, 273	\textparagraph (¶̄)	15
\textknit{a} (Ł̄)	202	\textlongegr (r̄)	18	\textparagraph (¶̄)	15
\textknit{B} (Đ̄)	202	\textlooptoprevesh (ł̄)	19	\textperiodcentered (·̄)	15
\textknit{b} (Đ̄)	202	\textlowering (ȝ̄)	22	\textperiodcentered (·̄)	15, 273
\textknit{E} (Վ̄)	202	\textlowrise (ȝ̄)	22	\textpertenthousand (%̄)	15
\textknit{F} (՛̄)	202	\textlptr (՞̄)	18	\textpertenthousand (%̄)	15
\textknit{f} (՞̄)	202	\textlquill (վ̄)	105	\textperthousand (%̄)	15
\textknit{H} (↑̄)	202	\textltailm (յ̄)	18	\textperthousand (%̄)	15, 274
\textknit{h} (↓̄)	202	\textltailn (յ̄)	21	\textpeso (P̄)	26
\textknit{I} (↗̄)	202	\textltailn (յ̄)	18	\textPhi (Φ̄)	16
\textknit{i} (↗̄)	202	\textltilde (ł̄)	18	\textphi (φ̄)	16, 18
\textknit{J} (↖̄)	202	\textltshade (՞̄)	198	\textPi (Π̄)	16
\textknit{j} (↖̄)	202	\textlyoghlig (ḥ̄)	18	\textpi (π̄)	16
\textknit{L} (Ր̄)	202	\textmarried (օ̄)	186	\textpilcrow (¶̄)	28
		\textmho (օ̄)	126	\textpipe (̄)	21

\textproto	151	\textrtaillz (z)	18	\textSFxlix (¶)	198
\textPsi (\Psi)	16	\textrtblock (█)	198	\textFxlvi (॥)	198
\textpsi (\psi)	16	\textrthook ()	18	\textFxlvii (〒)	198
\textqplig (qp)	19	\textrthooklong (.)	19	\textFxlviii (〒)	198
\textquestiondown	15	\textRubikUa (Ua █)	235	\textFxx ()	198
\textquotedbl (")	17, 270	\textsarab	157	\textFxxi (¶)	198
\textquotedblleft	15	\textsca (A)	18	\textFxxii (〽)	198
\textquotedblright	15	\textscaolig (¤)	19	\textFxxiii (Ⓜ)	198
\textquoteleft	15	\textscb (B)	18	\textFxxiv ()	198
\textquoteright	15	\textscdelta (Δ)	19	\textFxxv (〽)	198
\textquotesingle (')	28, 270	\textscce (E)	18	\textFxxvi (〽)	198
\textquotestraightbase (,)	28	\textscf (F)	19	\textFxxvii (〽)	198
\textquotestraightdblbase („)	28	\textscg (G)	18	\textFxxviii (අ)	198
\textraiseglotstop (?)	18	\textsch (H)	18	\textFxxxix (ර)	198
\textraisevibyi (ල)	18	\textschwa (d̥)	21	\textFxxxvi (ඡ)	198
\textraising (එ)	22	\textschwa (ə)	18	\textFxxxvii (ඊ)	198
\textramshorns (ර)	18	\textsci (I)	18	\textFxxxviii (ල)	198
\textrangle ()	105, 271	\textscj (J)	18	\textshade (█)	198
\textrbrackdbl (〕)	105	\textscck (K)	19	\textSigma (Σ)	16
\textrecipe (R)	28, 258	\textsccl (L)	18	\textsigma (σ)	16
\textrectangle (°)	19	\textscm (M)	19	\textsixoldstyle (6)	28
\textreferencemark (⌘)	28, 30	\textscn (N)	18	\textsoftsign (ں)	18
\textregistered (®)	15, 27	\textscœlig (Œ)	18	\textpleftarrow (↑)	19
\textregistered (®)	15, 27, 273	\textscomega (Ω)	18	\textsterling (£)	15
\textretracting (〽)	22	\textscp (P)	19	\textstretchc (⌚)	18
\textretractingvar (〽)	19	\textscq (Q)	19	\textstretchcvar (⌚)	19
\textrevapostrophe (‘)	18	\textscr (R)	18	\textstyle	262, 263, 269
\textreve (ə)	18	\textscripta (a)	18	\textsubacute (ܲ)	22
\textrevepsilon (ܵ)	18	\textscriptg (g)	18	\textsubarch (ܲ)	22
\textreversedvideobend (ܲ)	188	\textscriptv (f)	21	\textsubbar (ܲ)	22
\textrevglotstop (ܰ)	18	\textscu (u)	18	\textsubbridge (ܲ)	22
\textrevscl (ܱ)	19	\textscy (y)	18	\textsubcircum (ܲ)	22
\textrevscr (ܳ)	19	\textseagull (ܲ)	22	\textsubdot (ܲ)	22
\textrevyogh (ܴ)	18	\textsecstress (.)	18	\textsubdoublearrow (↔)	19
\textRho (P)	16	\textsection (ܫ)	160	\textsubgrave (ܲ)	22
\textrho (ρ)	16	\textsection (ܮ)	15	\textsublhalfing (ܲ)	22
\textrhooka (ܱ)	19	\textservicemark	27	\textsubplus (ܲ)	22
\textrhooke (ܱ)	19	\textservicemark (ܶ)	27	\textsubrhalfing (ܲ)	22
\textrhookepsilon (ܱ)	19	\textsevenoldstyle (7)	28	\textsubrightarrow (→)	19
\textrhookrevespsilon (ܵ)	18	\textSFi (ܫ)	198	\textsubring (ܲ)	22
\textrhookschwa (ܱ)	18	\textSFii (ܪ)	198	\textsubsquare (ܲ)	23
\textrhoticity (ܼ)	19	\textSFiii (ܭ)	198	\textsubtilde (ܲ)	23
\textrightarrow (→)	73	\textSFiv (ܩ)	198	\textsubumlaut (ܲ)	23
\textringmacron (ܲ)	22	\textSFix (ܲ)	198	\textsubw (ܽ)	23
\textrisefall (ܲ)	22	\textSFiI (ܪ)	198	\textsubwedge (ܲ)	23
\textroundcap (ܲ)	22	\textSFli (ܫ)	198	\textsuperimpostilde (ܲ)	23
\textrptr (ܼ)	19	\textSFliI (ܪ)	198	\textsuperscript	24
\textrquill {)	105	\textSFliIi (ܪ)	198	\textsurd (ܻ)	122
\textrtaild (ܱ)	21	\textSFliv (ܪ)	198	\textswab	124
\textrtaild (ܱ)	19	\textSFv (ܪ)	198	\textsyllabic (ܲ)	23
\textrtailhth (ܱ)	19	\textSFvi (ܪ)	198	\textTau (T)	16
\textrtaill (ܱ)	19	\textSFvii (ܪ)	198	\texttau (τ)	16
\textrtailn (ܱ)	18	\textSFviii (ܪ)	198	\texttctclig (ܱ)	18
\textrtailr (ܱ)	18	\textSFx (-)	198	\textteshlig (ܻ)	21
\textrtails (ܱ)	18	\textSFxi (ܪ)	198	\textteshlig (ܻ)	18
\textrtailt (ܱ)	21	\textSFix (-)	198	\textTheta (Θ)	16
\textrtailt (ܱ)	18	\textSFxii (ܪ)	198	\textththeta (ܹ)	16, 18
		\textSFxl (ܪ)	198	\textthing (ܺ)	189
		\textSFxiI (ܪ)	198	\textthhorn (ܱ)	18
		\textSFxli (ܪ)	198	\textthhornvari (ܱ)	19
		\textSFxlii (ܪ)	198	\textthhornvarii (ܱ)	19
		\textSFxliii (=)	198	\textthorn (ܱ)	19
		\textSFxliv (ܪ)	198		

\textthornvariii (þ)	19	\textyogh (ȝ)	19	\threeBeamedQuavers (♪♪♪)	.
\textthornvariv (þ)	19	\textzerooldstyle (o)	28	165
\textthreeoldstyle (ȝ)	28	\textZeta (Ζ)	16	\threeBeamedQuaversI (♪♪♪)	.
\textthreequarters (ȝ)	122,	\textzeta (ȝ)	16	165
273		.tfm files	13, 124, 236, 256, 275	\threeBeamedQuaversII	
\textthreequartersemdash	(—)	tfrupee (package)	27, 276, 277	(♪♪♪)	165
(—)	28	\TH (Þ)	16, 273	\threeBeamedQuaversIII	
\textthreesuperior (ȝ)	122,	\th (þ)	160	(♪♪♪)	165
273		\th (þ)	16, 273	\threedangle (ȝ)	119
\texttildedor (ȝ)	23	Thành, Hàm Thé	264	\threedotcolon (:)	35
\texttildelow (~)	28, 271	\therefore (∴)	53	\threesim (≈)	261
\texttimes (×)	122	\therefore (∴)	51, 115	thumb pizzicato	see
\texttonewletterstem (l)	18	\therefore (∴)	58	\lilyThumb	
\texttoptiebar (֍)	23	\therefore (∴)	116	thumbs down (👉)	222
\texttrademark (TM)	15, 27	\therefore (∴)	116	thumbs up (👉)	222, 226
\texttrademark (TM)	15, 27,	\therefore (∴)	116	thumbs up: dark skin tone (👉)	
274		\thermo	190	226
\texttslig (ts)	18	\thermod (‡)	122	thumbs up: light skin tone (👉)	
\textturna (e)	18	thermometer (🌡)	190	226
\textturncelig (œ)	18	\Theta (Θ)	94	thumbs up: medium skin tone	
\textturnglotstop (Ξ)	19	\theta (θ)	94	(👉)	226
\textturnh (ɥ)	18	\thetaetaup (θ̄)	95	thumbs up: medium-dark skin	
\textturnk (ʞ)	18	\thething (ȝ̄)	189	tone (👉)	226
\textturnlonglegr (I)	18	\thickapprox (≈)	51	thumbs up: medium-light skin	
\textturnnm (ɯ)	18	\thickapprox (≈)	58	tone (👉)	226
\textturnmrleg (ɰ)	18	\thickapprox (≈)	56	tick	see check marks
\textturnr (ɹ)	18	\thickapprox (≈)	59	ticket (🎫)	222
\textturnrrtail (ɹ̄)	18	\thicksim (～)	51	\tieinfinity (∞)	118
\textturnsck (ɹ)	19	\thicksim (～)	58	tiger face (🐯)	192
\textturnscripta (ƿ)	18	\thicksim (～)	56	tiger2 (🐯)	192
\textturnscu (ȝ)	19	\thicksim (～)	59	TikZ (package)	13, 128,
\textturnt (ɹ̄)	18	\thickvert ()	101	132, 136–141, 143, 148–	
\textturnthre (ȝ̄)	19	thin space	270	150, 162, 180–183, 187,	
\textturntwo (ȝ̄)	19	\ThinFog (🌫)	190	189, 191, 200, 208, 211–	
\textturnv (ʌ)	18	thinking face (🤔)	222	213, 226, 227, 231, 235	
\textturnw (ʍ)	18	\thinstar (*)	37	tikzsymbols (package)	211–213,
\textturny (ȝ̄)	18	\third (☰)	120	276, 277	
\texttwelvedash (—)	28	thirty-second note	see musical		
\texttwooldstyle	28	symbols			
\texttwooldstyle (ȝ)	28	\thirtysecondNote (♪)	165		
\texttwosuperior (ȝ̄)	122, 273	\thirtysecondNoteDotted (♪.)	165		
\textuncrfemale (ϙ)	19	\thirtysecondNoteDottedDouble			
\textunderscore	15	(♪..)	165		
\textuparrowarrow (↑)	73	\thirtysecondNoteDottedDoubleDown			
\textupblock (█)	198	(♪..)	165		
\textupfullarrow (↑)	19	\thirtysecondNoteDottedDown			
\textUpsilon (Υ)	16	(♪)	165		
\textupsilon (υ)	16, 18	\thirtysecondNoteDown (♪)	165		
\textupstep (↑)	18				
\textvbaraccent (֍)	23	\ThisStyle	263		
\textvbaraccent (֍)	24	thong sandal (👞)	222		
\textvertline ()	18	\Thorn (Þ)	20		
\textvibyi (ȝ̄)	18	\thorn (þ)	20		
\textvibyy (ȝ̄)	19	\thorn (þ)	20		
\textvisiblespace	15	thought balloon (💭)	222		
\textwon (W)	26	thousandths	see		
\textwynn (ƿ)	19	\textperthousand			
\textXi (Ξ)	16	thread (🧵)	222		
\textxi (ξ)	16	three o'clock (🕒)	191		
\textxswdown (☒)	189	three-thirty (🕒)	191		
\textxswup (☒)	189				
\textyen (¥)	26, 273				
\textyogh (ȝ)	21				

\Timesonnull (T^0)	134
\Timesonplus (T^+)	134
\tminus (-)	35
\tnotststile ()	61
\tnststile ()	61
\tntstile ()	61
\tnntstile ()	61
\to	see \rightarrow
\to (→)	80
\ToBottom (▀)	188
\toea (☒)	86
toilet (🚽)	222
Tokyo tower (🗼)	222
tomato (🍅)	194
\tona (☒)	86
\tone	19
\Tongey (⌚)	212
tongue (👅)	222
toolbox (.toolbox)	222
tools	228–231
tooth (🦷)	222
toothbrush (🦷)	222
\top (⊤)	31, 97, 262
\top (⊤)	98
\top (⊤)	97
\top (⊤)	98
TOP arrow (🔝)	222
top hat	108
top hat (🎩)	222
\topborder (⊸)	185
\topbot (⊠)	262, 263
\topbot (⊠)	98
\Topbottomheat (▣)	211
\topcir (⌚)	122
\topdoteq (⊒)	53
\topfork (⊅)	58
\topfork (⊅)	59
\Topheat (▣)	211
\topsemicircle (⏜)	145
tornado (🌪)	190
torus (𝕋)	see alphabets, math
\tosa (☒)	86
\ToTop (⤏)	188
\towa (☒)	86
\tplus (+)	35
\TR (Ϙ)	130
\tr (tr)	93
trackball (🌐)	222
tractor (🚜)	188
trade mark (™)	222
trademark	15, 27, 273, 274
registered	15, 27, 273
train2 (🚂)	188
trains	186–187, 231–234
tram (🚊)	188
tram car (🚋)	188
\TransformHoriz (∘•)	62
transforms	62, 113, see also alphabets, math
\TransformVert (⌚)	62
transgender flag (🏳)	211
transgender symbol (⚧)	222
transliteration	21, 25
semitic	21, 25
transliteration symbols	21
transportation symbols	186– 188, 231–234
transpose	31
transversal intersection	see \pitchfork
\trapezium (▢)	145
	162
\trebleclef (♩)	162
trees	213, 254
trema (֍)	see accents
trfsigns (package)	62, 98, 113, 276
\triangle (△)	119
\triangle (△)	38, 72
\triangle (◊)	185
\triangle (△)	71
\triangle (△)	39, 146
triangle relations	70–72
\trianglecdot (△)	145
\TriangleDown (▼)	147
\TriangleDown (▽)	147
\TriangleDown (▼ vs. ▽)	257
\triangledown (▽)	120
\triangledown (▽)	145
\triangledown (▽)	38, 72
\triangledown (▽)	71
\triangledown (▽)	145
\triangleeq (⊒)	72
\triangleeq (⊒)	71
\TriangleLeft (◀)	147
\triangleleft (◀)	70
\triangleleft (◀)	31
\triangleleft (◀)	72, 145
\triangleleft (◀)	38, 72
\triangleleft (◀)	71
\triangleleftblack (▲)	145
\trianglelefteq (⊒)	70
\trianglelefteq (⊒)	70
\trianglelefteq (⊒)	72
\trianglelefteq (⊒)	72
\trianglelefteq (⊒)	67, 71
\trianglelefteq (⊒)	72
\trianglelefteqslant (⊒)	70
\trianglelefteqslant (⊒)	72
\triangleleminus (△)	39
\triangleledot (△)	145
\trianglepa (△)	148
\trianglepacross (☒)	148
\trianglepadot (△)	149
\trianglepafill (▲)	149
\trianglepafillha (△)	149
\trianglepafillhb (▲)	149
\trianglepafillhl (▲)	149
\trianglepafillhr (▲)	149
\trianglepalineh (△)	148
\trianglepalinev (△)	148
\trianglepalinevh (▲)	148
\trianglepb (▽)	148
\trianglepbcross (☒)	148
\trianglepbdot (▽)	148
\trianglepbfill (▼)	148
\trianglepbfillha (▽)	148
\trianglepbfillhb (▼)	148
\trianglepbfillhl (▼)	148
\trianglepbfillhr (▼)	148
\trianglepblineh (▽)	148
\trianglepblinev (▽)	148
\trianglepblinevh (▽)	148
\trianglepl (◀)	148
\triangleplcross (☒)	148
\trianglepldot (◀)	148
\triangleplfill (◀)	148
\triangleplfillha (◀)	148
\triangleplfillhb (◀)	148
\triangleplfillhl (◀)	148
\triangleplfillhr (◀)	148
\trianglepllineh (◀)	148
\trianglepllinev (◀)	148
\trianglepllinevh (◀)	148
\triangleplus (▲)	39
\trianglepr (▷)	148
\triangleprcross (☒)	148
\triangleprdot (▷)	148
\triangleprfill (▶)	148
\triangleprfillha (▶)	148
\triangleprfillhb (▶)	148
\triangleprfillhl (▶)	149
\triangleprfillhr (▶)	149
\triangleprlineh (▶)	149
\triangleprlinev (▶)	149
\triangleprlinevh (▶)	149
\triangleeq (⊒)	30, 70
\triangleeq (⊒)	58
\triangleeq (⊒)	72
\triangleeq (⊒)	71
\triangleeq (⊒)	72
\TriangleRight (▷)	147
\triangleright (▷)	70
\triangleright (▷)	31
\triangleright (▷)	72, 145
\triangleright (▷)	38, 72
\triangleright (▷)	71
\trianglerightblack (▲)	145
\trianglelefteq (⊒)	70
\trianglelefteq (⊒)	70
\trianglelefteq (⊒)	72
\trianglelefteq (⊒)	72
\trianglelefteq (⊒)	67, 71
\trianglelefteq (⊒)	72
\trianglelefteqslant (⊒)	70
\trianglelefteqslant (⊒)	72
\triangleleminus (△)	39
\triangleledot (△)	145
\trianglepa (△)	148
\trianglepacross (☒)	148
\trianglepadot (△)	149
\trianglepafill (▲)	149
\trianglepafillha (△)	149
\trianglepafillhb (▲)	149
\trianglepafillhl (▲)	149
\trianglepafillhr (▲)	149
\trianglepalineh (△)	148
\trianglepalinev (△)	148
\trianglepalinevh (▲)	148
\trianglepb (▽)	148
\triangleright (▷)	70
\triangleright (▷)	70
\triangleright (▷)	72
\triangleright (▷)	72
\triangleright (▷)	67, 71
\triangleright (▷)	72
\trianglerighteq (⊒)	70
\trianglerighteq (⊒)	70
\trianglerighteq (⊒)	72
\trianglerighteq (⊒)	72
\trianglerighteq (⊒)	67, 71
\trianglerighteq (⊒)	72
\trianglerighteqslant (▷)	70
\trianglerighteqslant (▷)	72
triangles	120, 129, 131, 144–149, 172–176, 184, 185, 236– 237, 252–253
\triangles (△)	145
\trianglerififs (△)	39
\triangleletimes (△)	39
\triangleubar (△)	145
\TriangleUp (▲)	147
\TriangleUp (△)	147

\twemoji{anger symbol} (😡)	215	
\twemoji{angry face with horns} (Pussy)	215	
\twemoji{angry face} (😠)	215		
\twemoji{anguished face}	(😧) 215	
\twemoji{antenna bars} (📶)	215	
\twemoji{ant} (🐜)	192	
\twemoji{anxious face with sweat}	(😰) 215	
\twemoji{Aquarius} (♒)	..	215	
\twemoji{Aries} (♈)	..	215	
\twemoji{articulated lorry}	(🚚) 187	
\twemoji{artist palette}	(🎨) 215	
\twemoji{artist} (🎨)	..	215	
\twemoji{astonished face}	(😲) 215	
\twemoji{astronaut} (🚀)	215		
\twemoji{ATM sign} (🏧)	..	215	
\twemoji{atom symbol} (⚛) 215	
\twemoji{auto rickshaw} (嘟)	187	
\twemoji{automobile} (🚗)	187		
\twemoji{avocado} (鲕)	..	193	
\twemoji{axe} (🔪)	215	
\twemoji{B button (blood type)}	(💯) 215	
\twemoji{baby angel} (👼)	215		
\twemoji{baby bottle} (🍼) 215	
\twemoji{baby chick} (🐤)	192		
\twemoji{baby symbol} (👶) 215	
\twemoji{baby} (👶)	215	
\twemoji{BACK arrow} (🔙)	215		
\twemoji{backhand index pointing down}	(👩) 215	
\twemoji{backhand index pointing left}	(👩) 215	
\twemoji{backhand index pointing right}	(👩) 215	
\twemoji{backhand index pointing up}	(👩) 215	
\twemoji{backpack} (🎒)	..	216	
\twemoji{bacon} (🥓)	..	193	
\twemoji{badger} (獾)	..	192	
\twemoji{badminton} (🏸)	216		
\twemoji{bagel} (🥯)	..	193	
\twemoji{baggage claim} (🧳)	187	
\twemoji{baguette bread}	(🥖) 193	
\twemoji{balance scale} (⚖)	216	
\twemoji{bald} (颅)	216	
\twemoji{ballet shoes} (靰)	216	
\twemoji{balloon} (🎈)	..	216	
\twemoji{ballot box with ballot} \twemoji{blue circle} (🌐)	(🗳️) 216	
\twemoji{banana} (🍌)	..	193	
\twemoji{banjo} (🎸)	..	216	
\twemoji{bank} (🏦)	..	216	
\twemoji{bar chart} (📊)	216		
\twemoji{barber pole} (💈) 216	
\twemoji{baseball} (⚾)	..	216	
\twemoji{basketball} (🏀)	216		
\twemoji{basket} (🥃)	..	216	
\twemoji{bathtub} (🛁)	..	216	
\twemoji{battery} (🔋)	..	216	
\twemoji{bat} (🦇)	192	
\twemoji{beach with umbrella}	(🌿) 216	
\twemoji{beaming face with smiling eyes}	(😊) 216	
\twemoji{bear} (🐻)	..	192	
\twemoji{beating heart} (❤) 216	
\twemoji{beaver} (鼴)	..	192	
\twemoji{beer mug} (🍺)	..	193	
\twemoji{beetle} (🐞)	..	192	
\twemoji{bell pepper} (icum) 193	
\twemoji{bell with slash}	(🔔) 216	
\twemoji{bellhop bell}	(🔔) 216	
\twemoji{bell}	(🔔)	216
\twemoji{bento box} (🍱)	193		
\twemoji{beverage box} (🥤) 193	
\twemoji{bicycle} (🚲)	..	187	
\twemoji{bikini} (👙)	..	216	
\twemoji{billed cap} (🧢)	216		
\twemoji{biohazard} (☣)	216		
\twemoji{bird} (🐦)	..	192	
\twemoji{birthday cake} (🎂) 216	
\twemoji{bison} (🐂)	..	216	
\twemoji{black cat} (🐈)	192		
\twemoji{black circle} (●) 216	
\twemoji{black flag} (🏴)	216		
\twemoji{black heart} (🖤) 216	
\twemoji{black large square}	(■) 216	
\twemoji{black medium square}	(▓) 216	
\twemoji{black medium-small square}	(▒) 216	
\twemoji{black nib} (✒)	216		
\twemoji{black small square}	(▓) 216	
\twemoji{black square button}	(□) 216	
\twemoji{blossom} (🌸)	..	216	
\twemoji{blowfish} (🐡)	..	192	
\twemoji{blue book} (📘)	216		
\twemoji{blue heart} (💙)	216		
\twemoji{blue square} (📘) 216	
\twemoji{blueberries} (苺) 193	
\twemoji{boar} (🐗)	..	192	
\twemoji{bomb} (💣)	..	216	
\twemoji{bone} (🦴)	..	216	
\twemoji{bookmark tabs} (📎) 216	
\twemoji{bookmark} (🔖)	..	216	
\twemoji{books} (📚)	..	216	
\twemoji{boomerang} (↗)	216		
\twemoji{bottle with popping cork}	(🍹) 193	
\twemoji{bouquet} (💐)	..	216	
\twemoji{bow and arrow} (🏹) 216	
\twemoji{bowl with spoon}	(🍲) 193	
\twemoji{boy} (👦)	..	217	
\twemoji{brain} (🧠)	..	217	
\twemoji{bread} (🍞)	..	193	
\twemoji{breast-feeding}	(🤴) 217	
\twemoji{brick} (🧱)	..	217	
\twemoji{bricks} (🧱)	..	217	
\twemoji{bridge at night}	(🛚) 217	
\twemoji{briefcase} (💼)	217		
\twemoji{briefs} (👙)	..	217	
\twemoji{bright button} (💡) 217	
\twemoji{broccoli} (🥦)	..	193	
\twemoji{broken heart} (💔) 217	
\twemoji{broom} (🧹)	..	217	
\twemoji{brown circle} (🟠) 217	
\twemoji{brown heart} (❤) 217	
\twemoji{brown square} (🟠) 217	
\twemoji{bubble tea} (🥤)	193		
\twemoji{bucket} (_BUCKET)	..	217	
\twemoji{bug} (🐛)	..	192	
\twemoji{building construction}	(🏗) 217	
\twemoji{bullet train} (🚂)	..	217	
\twemoji{black medium-small square} 187	
\twemoji{bullseye} (🎯)	..	217	
\twemoji{burrito} (🌯)	..	193	
\twemoji{bus stop} (🚑)	..	187	
\twemoji{bust in silhouette}	(🚑) 217	
\twemoji{busts in silhouette}	(🚑) 217	
\twemoji{bus} (🚌)	..	187	
\twemoji{butterfly} (🦋)	192		

\twemoji{butter} (-pane)	193
\twemoji{cactus} (🌵)	217
\twemoji{call me hand} (👉)	217
\twemoji{camera with flash} (📸)	217
\twemoji{camera} (📷)	217
\twemoji{camping} (🏕)	217
\twemoji{Cancer} (♋)	217
\twemoji{candle} (🕯)	217
\twemoji{candy} (🍬)	193
\twemoji{canned food} (🥫)	193
\twemoji{canoe} (🛶)	187
\twemoji{Capricorn} (♑)	217
\twemoji{card file box} (🗃)	217
\twemoji{card index dividers} (כרטיס)	217
\twemoji{card index} (📋)	217
\twemoji{carousel horse} (🎠)	217
\twemoji{carp streamer} (🎏)	217
\twemoji{carpentry saw} (🪚)	217
\twemoji{carrot} (🥕)	193
\twemoji{castle} (🏰)	217
\twemoji{cat face} (😺)	192
\twemoji{cat with tears of joy} (😿)	217
\twemoji{cat with wry smile} (😾)	217
\twemoji{cat2} (😾)	192
\twemoji{chains} (⛓)	217
\twemoji{chair} (🪑)	217
\twemoji{chart decreasing} (📉)	217
\twemoji{chart increasing with yen} (💹)	217
\twemoji{chart increasing} (📈)	217
\twemoji{check box with check} (☑)	217
\twemoji{check mark button} (☑)	217
\twemoji{check mark} (✓)	217
\twemoji{cheese wedge} (🧀)	193
\twemoji{chequered flag} (🏁)	217
\twemoji{cherries} (🍒)	193
\twemoji{cherry blossom} (🌸)	217
\twemoji{chess pawn} (♟)	217
\twemoji{chestnut} (🌰)	217
\twemoji{chicken} (🐔)	192
\twemoji{children crossing} (🚠)	217
\twemoji{child} (👶)	217
\twemoji{chipmunk} (🐿)	192
\twemoji{chocolate bar} (🍫)	193
\twemoji{chopsticks} (🥢)	193
\twemoji{Christmas tree} (🎄)	218
\twemoji{church} (⛪)	218
\twemoji{cigarette} (🚬)	218
\twemoji{cinema} (🎥)	218
\twemoji{circled M} (Ⓜ)	218
\twemoji{circus tent} (🎪)	218
\twemoji{cityscape at dusk} (🌆)	218
\twemoji{cityscape} (🏙)	218
\twemoji{CL button} (🆁)	218
\twemoji{clamp} (_CLAMP)	218
\twemoji{clapper board} (🎬)	218
\twemoji{clapping hands} (👏)	218
\twemoji{classical building} (🏛)	218
\twemoji{clinking beer mugs} (🍻)	193
\twemoji{clinking glasses} (🥂)	193
\twemoji{clipboard} (📋)	218
\twemoji{clockwise vertical arrows} (🔃)	218
\twemoji{closed book} (📕)	218
\twemoji{closed mailbox with lower left flap} (📪)	218
\twemoji{closed mailbox with raised right flap} (📫)	218
\twemoji{cow face} (🐮)	192
\twemoji{cow2} (🐄)	192
\twemoji{cowboy hat face} (🤠)	218
\twemoji{crab} (🦀)	192
\twemoji{crayon} (🖍)	218
\twemoji{cloud with lightning and rain} (🌩)	190
\twemoji{cloud with lightning} (⚡)	190
\twemoji{cloud with rain} (🌧)	190
\twemoji{cloud with snow} (🌨)	190
\twemoji{cloud} (☁)	190
\twemoji{clown face} (🤡)	218
\twemoji{club suit} (♠)	179
\twemoji{clutch bag} (👝)	218
\twemoji{coat} (🧥)	218
\twemoji{cockroach} (蜚)	192
\twemoji{cocktail glass} (🍸)	193
\twemoji{coconut} (🥥)	193
\twemoji{coffin} (⚰)	218
\twemoji{coin} (💰)	218
\twemoji{cold face} (🥶)	218
\twemoji{collision} (💥)	218
\twemoji{comet} (☄)	218
\twemoji{compass} (🧭)	218
\twemoji{computer disk} (💿)	218
\twemoji{computer mouse} (🖱)	218
\twemoji{computer} (💻)	218
\twemoji{confetti ball} (🎉)	218
\twemoji{confounded face} (😖)	218
\twemoji{confused face} (🤔)	218
\twemoji{construction worker} (👷)	218
\twemoji{construction} (🚧)	187
\twemoji{control knobs} (🎛)	218
\twemoji{convenience store} (🏪)	218
\twemoji{cooked rice} (🍙)	193
\twemoji{cookie} (🍪)	193
\twemoji{cooking} (🍳)	193
\twemoji{cook} (饪)	218
\twemoji{COOL button} (🆒)	218
\twemoji{copyright} (©)	218
\twemoji{couch and lamp} (🛋)	218
\twemoji{counterclockwise arrows button} (🔃)	218
\twemoji{couple with heart} (控股集团)	218
\twemoji{couplekiss} (💏)	218
\twemoji{cow face} (🐮)	192
\twemoji{cow2} (🐄)	192
\twemoji{cowboy hat face} (🤠)	218
\twemoji{crab} (🦀)	192
\twemoji{crayon} (🖍)	218
\twemoji{credit card} (💳)	218
\twemoji{crescent moon} (🌙)	200
\twemoji{cricket game} (🏏)	218
\twemoji{cricket} (🏏)	192
\twemoji{crocodile} (🐊)	192
\twemoji{croissant} (🥐)	193
\twemoji{cross mark button} (☒)	218
\twemoji{cross mark} (✗)	218
\twemoji{crossed fingers} (🤞)	219
\twemoji{crossed flags} (🎌)	219
\twemoji{crossed swords} (⚔)	219
\twemoji{crown} (👑)	219
\twemoji{crying cat} (😿)	219
\twemoji{crying face} (😢)	219
\twemoji{crystal ball} (🔮)	219
\twemoji{cucumber} (🥒)	194
\twemoji{cup with straw} (🥤)	194
\twemoji{cupcake} (🧁)	194

\twemoji{curling stone} (⌚)	219
\twemoji{curly hair} (mainBundle)	219	
\twemoji{curly loop} (mainBundle)	219	
\twemoji{currency exchange} (mainBundle)	219
\twemoji{curry rice} (mainBundle)	194	
\twemoji{custard} (mainBundle)	..	194
\twemoji{customs} (mainBundle)	..	187
\twemoji{cut of meat} (mainBundle)	194
\twemoji{cyclone} (mainBundle)	..	219
\twemoji{dagger} (mainBundle)	..	219
\twemoji{dango} (mainBundle)	..	194
\twemoji{dark skin tone} (mainBundle)	219
\twemoji{dashing away} (mainBundle)	219
\twemoji{date} (mainBundle)	219
\twemoji{deaf man} (mainBundle)	(mainBundle)	..
\twemoji{deaf person} (mainBundle)	219
\twemoji{deaf woman} (mainBundle)	(mainBundle)	219
\twemoji{deciduous tree} (mainBundle)	219
\twemoji{deer} (mainBundle)	(mainBundle)	..
\twemoji{delivery truck} (mainBundle)	187
\twemoji{department store} (mainBundle)	219
\twemoji{derelict house} (mainBundle)	219
\twemoji{desert island} (mainBundle)	219
\twemoji{desert} (mainBundle)	219
\twemoji{desktop computer} (mainBundle)	219
\twemoji{detective} (mainBundle)	(mainBundle)	219
\twemoji{diamond suit} (mainBundle)	(mainBundle)
\twemoji{diamond with a dot} (mainBundle)	(mainBundle)	219
\twemoji{dim button} (mainBundle)	(mainBundle)	219
\twemoji{disappointed face} (mainBundle)	(mainBundle)
\twemoji{disguised face} (mainBundle)	(mainBundle)
\twemoji{divide} (mainBundle)	(mainBundle)	..
\twemoji{diving mask} (mainBundle)	(mainBundle)
\twemoji{diya lamp} (mainBundle)	(mainBundle)	219
\twemoji{dizzy} (mainBundle)	(mainBundle)	219
\twemoji{dna} (mainBundle)	(mainBundle)
\twemoji{dodo} (mainBundle)	(mainBundle)	..
\twemoji{dog face} (mainBundle)	(mainBundle)	..
\twemoji{dog2} (mainBundle)	(mainBundle)	..
\twemoji{dollar banknote} (mainBundle)	(mainBundle)
\twemoji{dolphin} (mainBundle)	(mainBundle)	..
\twemoji{door} (mainBundle)	(mainBundle)	..
\twemoji{dotted six-pointed star} (mainBundle)	(mainBundle)
\twemoji{double curly loop} (mainBundle)	(mainBundle)
\twemoji{double exclamation mark} (mainBundle)	(mainBundle)
\twemoji{doughnut} (mainBundle)	(mainBundle)	..
\twemoji{dove} (mainBundle)	(mainBundle)	..
\twemoji{down arrow} (mainBundle)	(mainBundle)	219
\twemoji{down-left arrow} (mainBundle)	(mainBundle)
\twemoji{down-right arrow} (mainBundle)	(mainBundle)
\twemoji{downcast face with sweat} (mainBundle)	(mainBundle)
\twemoji{downwards button} (mainBundle)	(mainBundle)
\twemoji{dragon face} (mainBundle)	(mainBundle)
\twemoji{dragon} (mainBundle)	(mainBundle)	..
\twemoji{dress} (mainBundle)	(mainBundle)	..
\twemoji{dromedary_camel} (mainBundle)	(mainBundle)
\twemoji{drooling face} (mainBundle)	(mainBundle)
\twemoji{drop of blood} (mainBundle)	(mainBundle)
\twemoji{droplet} (mainBundle)	(mainBundle)	..
\twemoji{drum} (mainBundle)	(mainBundle)	..
\twemoji{duck} (mainBundle)	(mainBundle)	..
\twemoji{dumppling} (mainBundle)	(mainBundle)	..
\twemoji{dvd} (mainBundle)	(mainBundle)	..
\twemoji{e-mail} (mainBundle)	(mainBundle)	..
\twemoji{e50a} (mainBundle)	(mainBundle)	..
\twemoji{eagle} (mainBundle)	(mainBundle)	..
\twemoji{ear of corn} (mainBundle)	(mainBundle)
\twemoji{ear with hearing aid} (mainBundle)	(mainBundle)
\twemoji{ear} (mainBundle)	(mainBundle)	..
\twemoji{eggplant} (mainBundle)	(mainBundle)	..
\twemoji{egg} (mainBundle)	(mainBundle)	..
\twemoji{eight o'clock} (mainBundle)	(mainBundle)
\twemoji{eight-pointed star} (mainBundle)	(mainBundle)
\twemoji{eight-spoked asterisk} (mainBundle)	(mainBundle)
\twemoji{eight-thirty} (mainBundle)	(mainBundle)
\twemoji{eject button} (mainBundle)	(mainBundle)
\twemoji{electric plug} (mainBundle)	(mainBundle)
\twemoji{elephant} (mainBundle)	(mainBundle)	..
\twemoji{elevator} (mainBundle)	(mainBundle)	..
\twemoji{eleven o'clock} (mainBundle)	(mainBundle)
\twemoji{eleven-thirty} (mainBundle)	(mainBundle)
\twemoji{elf} (mainBundle)	(mainBundle)	..
\twemoji{END arrow} (mainBundle)	(mainBundle)	220
\twemoji{envelope with arrow} (mainBundle)	(mainBundle)
\twemoji{factory} (mainBundle)	(mainBundle)	..
\twemoji{factory worker} (mainBundle)	(mainBundle)	..
\twemoji{fairy} (mainBundle)	(mainBundle)	..
\twemoji{falafel} (mainBundle)	(mainBundle)	..
\twemoji{fallen leaf} (mainBundle)	(mainBundle)
\twemoji{family} (mainBundle)	(mainBundle)	..
\twemoji{farmer} (mainBundle)	(mainBundle)	..
\twemoji{fast down button} (mainBundle)	(mainBundle)
\twemoji{fast reverse button} (mainBundle)	(mainBundle)	220

\twemoji{fast up button}	(⤒)	220
\twemoji{fast-forward button}	(⤓)	221
\twemoji{fax machine}	(📠)	221
\twemoji{fearful face}	(愀)	221
\twemoji{feather}	(⠇) ..	221
\twemoji{female sign}	(♀) ..	221
\twemoji{ferris wheel}	(🎡)	221
\twemoji{ferry}	(⛴) ... 221	221
\twemoji{field hockey}	(🏑)	221
\twemoji{file cabinet}	(🗄)	221
\twemoji{file folder}	(📁)	221
\twemoji{film frames}	(🎞)	221
\twemoji{film projector}	(📽)	221
\twemoji{fire engine}	(🚒)	187
\twemoji{fire extinguisher}	(滅)	221
\twemoji{firecracker}	(🧨)	221
\twemoji{firefighter}	(🚒)	221
\twemoji{fireworks}	(🎆) 221	221
\twemoji{fire}	(🔥) ... 221	221
\twemoji{first quarter moon face}	(🌙)	200
\twemoji{first quarter moon}	(🌓)	200
\twemoji{fish cake with swirl}	(🍥)	194
\twemoji{fishing pole}	(🎣)	221
\twemoji{fish}	(🐟) ... 192	192
\twemoji{five o'clock}	(🕒)	191
\twemoji{five-thirty}	(🕒)	191
\twemoji{flag in hole}	(🚩)	221
\twemoji{flag: Afghanistan}	(🇦🇫)	208
\twemoji{flag: Albania}	(🇦🇱)	208
\twemoji{flag: Algeria}	(🇩🇿)	208
\twemoji{flag: American Samoa}	(🇼🇸)	208
\twemoji{flag: Andorra}	(🇦🇩)	208
\twemoji{flag: Angola}	(🇦🇴)	208
\twemoji{flag: Anguilla}	(🇬🇮)	208
\twemoji{flag: Antarctica}	(🇶🇦)	208
\twemoji{flag: Antigua & Barbuda}	(🇦🇬)	208
\twemoji{flag: Argentina}	(🇦🇷)	208
\twemoji{flag: Armenia}	(🇦🇲)	208
\twemoji{flag: Aruba}	(🇦🇼)	208
\twemoji{flag: Ascension Island}	(🇦🇨)	208
\twemoji{flag: Australia}	(🇦🇺)	208
\twemoji{flag: Austria}	(🇦🇹)	208
\twemoji{flag: Azerbaijan}	(🇦🇿)	208
\twemoji{flag: Bahamas}	(🇧🇸)	208
\twemoji{flag: Bahrain}	(🇧🇭)	208
\twemoji{flag: Bangladesh}	(🇧🇩)	208
\twemoji{flag: Barbados}	(🇧🇧)	208
\twemoji{flag: Belarus}	(🇧🇾)	208
\twemoji{flag: Belgium}	(🇧🇪)	208
\twemoji{flag: Belize}	(🇧🇿)	208
\twemoji{flag: Benin}	(🇧🇯)	208
\twemoji{flag: Bermuda}	(🇧🇲)	208
\twemoji{flag: Bhutan}	(🇧🇹)	208
\twemoji{flag: Bolivia}	(🇧🇴)	208
\twemoji{flag: Bosnia & Herzegovina}	(🇧🇦)	208
\twemoji{flag: Botswana}	(🇧🇼)	208
\twemoji{flag: Bouvet Island}	(🇧🇻)	208
\twemoji{flag: Brazil}	(🇧🇷)	208
\twemoji{flag: British Indian Ocean Territory}	(🇧🇮)	208
\twemoji{flag: British Virgin Islands}	(🇧🇻)	208
\twemoji{flag: Brunei}	(🇧🇳)	208
\twemoji{flag: Bulgaria}	(🇧🇬)	209
\twemoji{flag: Burkina Faso}	(🇧🇫)	209
\twemoji{flag: Burundi}	(🇧🇮)	209
\twemoji{flag: Cambodia}	(柬)	209
\twemoji{flag: Cameroon}	(🇨🇲)	209
\twemoji{flag: Canary Islands}	(🇨🇻)	209
\twemoji{flag: Cape Verde}	(🇨🇻)	209
\twemoji{flag: Caribbean Netherlands}	(🇨🇼)	209
\twemoji{flag: Cayman Islands}	(🇨🇰)	209
\twemoji{flag: Central African Republic}	(🇨🇫)	209
\twemoji{flag: Ceuta & Melilla}	(🇨🇾)	209
\twemoji{flag: Chad}	(🇹🇩) 209	209
\twemoji{flag: Chile}	(🇹CHASE) ..	209
\twemoji{flag: China}	(🇨🇳) ..	209
\twemoji{flag: Christmas Island}	(🇨🇽)	209
\twemoji{flag: Clipperton Island}	(🇨🇵)	209
\twemoji{flag: Cocos (Keeling) Islands}	(🇨🇨)	209
\twemoji{flag: Colombia}	(🇨🇴)	209
\twemoji{flag: Comoros}	(🇨🇲)	209
\twemoji{flag: Congo - Brazzaville}	(🇨🇬)	209
\twemoji{flag: Congo - Kinshasa}	(🇨🇩)	209
\twemoji{flag: Cook Islands}	(🇨🇰)	209
\twemoji{flag: Costa Rica}	(🇨🇷)	209
\twemoji{flag: Croatia}	(🇭🇷)	209
\twemoji{flag: Czechia}	(🇨🇿)	209
\twemoji{flag: Côte d'Ivoire}	(🇨🇮)	209
\twemoji{flag: Denmark}	(🇩🇰)	209
\twemoji{flag: Diego Garcia}	(🇮🇩)	209
\twemoji{flag: Djibouti}	(🇩🇯)	209
\twemoji{flag: Dominican Republic}	(🇩🇴)	209
\twemoji{flag: Dominica}	(🇩🇲)	209
\twemoji{flag: Ecuador}	(🇪🇨)	209

\twemoji{flag: Egypt} (🇪🇬) 209
\twemoji{flag: El Salvador} (🇸🇻) 209
\twemoji{flag: England} (🏴󠁧󠁢󠁳󠁥󠁮󠁧󠁿) 209
\twemoji{flag: Equatorial Guinea} (🇪🇬) 209
\twemoji{flag: Eritrea} (🇪🇷) 209
\twemoji{flag: Estonia} (🇪ſ) 209
\twemoji{flag: Eswatini} (🇪🇼) 209
\twemoji{flag: Ethiopia} (🇪🇹) 209
\twemoji{flag: European Union} (🇪🇺) 209
\twemoji{flag: Falkland Islands} (🇫🇰) 209
\twemoji{flag: Faroe Islands} (+F) 209
\twemoji{flag: Fiji} (🇫🇯) 209
\twemoji{flag: Finland} (🇫🇮) 210
\twemoji{flag: France} (🇫🇷) 210
\twemoji{flag: French Guiana} (🇫🇷) 210
\twemoji{flag: French Polynesia} (🇫🇷) 210
\twemoji{flag: French Southern Territories} (🇫🇷) 210
\twemoji{flag: Gabon} (🇬🇦) 210
\twemoji{flag: Gambia} (🇬🇲) 210
\twemoji{flag: Georgia} (🇬🇪) 210
\twemoji{flag: Germany} (🇩🇪) 210
\twemoji{flag: Ghana} (🇬🇭) 210
\twemoji{flag: Gibraltar} (🇬🇮) 210
\twemoji{flag: Greece} (🇬🇷) 210
\twemoji{flag: Greenland} (:green heart:) 210
\twemoji{flag: Grenada} (🇬🇩) 210
\twemoji{flag: Guadeloupe} (🇬🇱) 210
\twemoji{flag: Guam} (🇬Ū) 210
\twemoji{flag: Guatemala} (🇬🇹) 210
\twemoji{flag: Guernsey} (🇬🇬) 210
\twemoji{flag: Guinea-Bissau} (🇬🇼) 210
\twemoji{flag: Guinea} (🇬🇳) 210
\twemoji{flag: Guyana} (🇬🇾) 210
\twemoji{flag: Haiti} (🇭🇹) 210
\twemoji{flag: Heard & McDonald Islands} (🇭Ⓜ️) 210
\twemoji{flag: Honduras} (🇭🇳) 210
\twemoji{flag: Hong Kong SAR China} (🇭🇰) 210
\twemoji{flag: Hungary} (🇭🇺) 210
\twemoji{flag: Iceland} (🇭🇮) 210
\twemoji{flag: India} (🇮🇳) 210
\twemoji{flag: Indonesia} (🇮🇩) 210
\twemoji{flag: Iran} (🇮🇷) 210
\twemoji{flag: Iraq} (🇮🇶) 210
\twemoji{flag: Ireland} (🇮🇪) 210
\twemoji{flag: Isle of Man} (🇮ମ୍ପାଣିଆନା) 210
\twemoji{flag: Israel} (🇮🇱) 210
\twemoji{flag: Italy} (🇮ତାଲୀନା) 210
\twemoji{flag: Jamaica} (🇯🇲) 210
\twemoji{flag: Japan} (🇯🇵) 210
\twemoji{flag: Jersey} (🇯ୟରେଜ୍) 210
\twemoji{flag: Jordan} (🇯🇴) 210
\twemoji{flag: Kazakhstan} (🇰🇿) 210
\twemoji{flag: Kenya} (🇰🇪) 210
\twemoji{flag: Kiribati} (କିରିବାଟି) 210
\twemoji{flag: Kosovo} (🇽ୋସୋ) 210
\twemoji{flag: Kuwait} (କୁଵୈତ) 210
\twemoji{flag: Kyrgyzstan} (🇰ର୍ଜିସ୍ତାନ) 210
\twemoji{flag: Laos} (ລາວ) 211
\twemoji{flag: Latvia} (🇱🇻) 211
\twemoji{flag: Lebanon} (🇱🇧) 211
\twemoji{flag: Lesotho} (Լୋସୋ) 211
\twemoji{flag: Liberia} (ລିବେରିଆ) 211
\twemoji{flag: Libya} (ລିବୀଆ) 208
\twemoji{flag: Liechtenstein} (ລିଏଚ୍ଟେନ୍ସ୍ଟେ�ଇନ) 208
\twemoji{flag: Lithuania} (ଲିଥୁଅନୀଆ) 208
\twemoji{flag: Luxembourg} (ລୁକ୍ୟାଂବାର୍ଡ) 208
\twemoji{flag: Macao SAR China} (ລୁକ୍ୟାଂବାର୍ଡ) 208
\twemoji{flag: Madagascar} (ମାଦଗାସକାର) 208
\twemoji{flag: Malawi} (ମାଲାଵି) 208
\twemoji{flag: Malaysia} (ମାଲେସୀଆ) 208
\twemoji{flag: Maldives} (ମାଲିଵି) 208
\twemoji{flag: Mali} (ମାଲି) 208
\twemoji{flag: Malta} (ମାଲତୀଆ) 208
\twemoji{flag: Marshall Islands} (ମାର୍ଶାଲ୍ ଇଲ୍ଯାନ୍ସ୍‌ରୁଷିଆ) 208
\twemoji{flag: Martinique} (ମାର୍ଟିନିକ) 208
\twemoji{flag: Mauritania} (ମାଉରିଟେନ୍ସିଆ) 208
\twemoji{flag: Mauritius} (ମାଉରିଟୁସିଆ) 208
\twemoji{flag: Mayotte} (ମୋତେ) 208
\twemoji{flag: Mexico} (ମେକ୍ସିକୋ) 208
\twemoji{flag: Micronesia} (ମିକ୍ରୋନେସିଆ) 208
\twemoji{flag: Moldova} (ମୋଲ୍ଡୋଭା) 208
\twemoji{flag: Monaco} (ମୋନାକୋ) 208
\twemoji{flag: Mongolia} (ମୋଙ୍ଗୋଆ) 208
\twemoji{flag: Montenegro} (ମନ୍ଟେନେଗ୍ରୋ) 208
\twemoji{flag: Montserrat} (ମନ୍ଟ୍ରେସର୍ଟାର୍ଡ) 208
\twemoji{flag: Morocco} (ମୋରକୋକୋ) 208
\twemoji{flag: Mozambique} (ମୋସିକ୍କୋ) 208
\twemoji{flag: Myanmar (Burma)} (ମିଯାନମାର) 208
\twemoji{flag: Namibia} (ନାମିବିଆ) 208
\twemoji{flag: Nauru} (ନାଉରୁ) 208
\twemoji{flag: Nepal} (ନେପାଲ) 208
\twemoji{flag: Netherlands} (ନେଟ୍ୱେରିଲାନ୍ଡ) 208
\twemoji{flag: New Caledonia} (ନେସ୍ କେଲାନ୍ଡିଆ) 208
\twemoji{flag: New Zealand} (ନେସ୍ ଜେଲ୍ଫିନ୍ଡନ୍ଡ) 208
\twemoji{flag: Nicaragua} (ନିକାରାଗୁଆ) 208
\twemoji{flag: Nigeria} (ନିଗେରିଆ) 209
\twemoji{flag: Niger} (ନିଜର) 208

\twemoji{flag: Niue} (🇳🇷) 209
 \twemoji{flag: Norfolk Island} (🇫🇰) 209
 \twemoji{flag: North Korea} (🇰🇵) 209
 \twemoji{flag: North Macedonia} (🇲🇰) 209
 \twemoji{flag: Northern Mariana Islands} (🇲🇵) 209
 \twemoji{flag: Norway} (🇳🇴) 209
 \twemoji{flag: Oman} (🇴🇲) 209
 \twemoji{flag: Pakistan} (🇵🇰) 209
 \twemoji{flag: Palau} (🇵🇼) 209
 \twemoji{flag: Palestinian Territories} (🇵🇸) 209
 \twemoji{flag: Panama} (🇵🇦) 209
 \twemoji{flag: Papua New Guinea} (🇵🇬) 209
 \twemoji{flag: Paraguay} (🇵🇾) 209
 \twemoji{flag: Peru} (🇵🇪) 209
 \twemoji{flag: Philippines} (🇵🇭) 209
 \twemoji{flag: Pitcairn Islands} (🇵🇨) 209
 \twemoji{flag: Poland} (🇵🇱) 209
 \twemoji{flag: Portugal} (🇵🇹) 209
 \twemoji{flag: Puerto Rico} (🇵🇷) 209
 \twemoji{flag: Qatar} (🇶🇦) 209
 \twemoji{flag: Romania} (🇷🇴) 209
 \twemoji{flag: Russia} (🇷🇺) 209
 \twemoji{flag: Rwanda} (🇷🇼) 209
 \twemoji{flag: Réunion} (🇷🇪) 209
 \twemoji{flag: Samoa} (🇼🇸) 209
 \twemoji{flag: San Marino} (🇸🇲) 209
 \twemoji{flag: Saudi Arabia} (🇸🇦) 209
 \twemoji{flag: Scotland} (🏴󠁧󠁢󠁳󠁣󠁤󠁥󠁧󠁩󠁻󠁽󠁿) 209
 \twemoji{flag: Senegal} (🇸🇳) 209
 \twemoji{flag: Serbia} (🇷🇸) 209
 \twemoji{flag: Seychelles} (🇮🇨) 209
 \twemoji{flag: Sierra Leone} (🇸🇱) 209
 \twemoji{flag: Singapore} (🇸🇬) 209
 \twemoji{flag: Sint Maarten} (🇸🇽) 209
 \twemoji{flag: Slovakia} (🇸🇰) 209
 \twemoji{flag: Slovenia} (🇸🇮) 209
 \twemoji{flag: Solomon Islands} (🇸🇧) 209
 \twemoji{flag: Somalia} (🇸🇴) 209
 \twemoji{flag: South Africa} (🇿🇦) 209
 \twemoji{flag: South Georgia & South Sandwich Islands} (🇿🇼) 209
 \twemoji{flag: South Korea} (🇰🇷) 209
 \twemoji{flag: South Sudan} (🇿҃) 209
 \twemoji{flag: Spain} (🇪🇸) 209
 \twemoji{flag: Sri Lanka} (ලං) 209
 \twemoji{flag: St. Barthélemy} (🇧🇱) 209
 \twemoji{flag: St. Helena} (🇭ශ) 209
 \twemoji{flag: St. Kitts & Nevis} (\${({})) 209
 \twemoji{flag: St. Lucia} (\${({)) 209
 \twemoji{flag: St. Martin} (\${({)) 209
 \twemoji{flag: St. Pierre & Miquelon} (\${({)) 209
 \twemoji{flag: St. Vincent & the Grenadines} (\${({)) 209
 \twemoji{flag: Sudan} (🇸🇩) 209
 \twemoji{flag: Suriname} (🇸🇷) 209
 \twemoji{flag: Svalbard & Jan Mayen} (\${({)) 209
 \twemoji{flag: Sweden} (🇸🇪) 210
 \twemoji{flag: Switzerland} (🇨🇭) 210
 \twemoji{flag: Syria} (🇸🇾) 210
 \twemoji{flag: São Tomé & Príncipe} (\${({)) 210
 \twemoji{flag: Taiwan} (🇹🇼) 210
 \twemoji{flag: Tajikistan} (🇹🇯) 210
 \twemoji{flag: Tanzania} (🇹🇿) 210
 \twemoji{flag: Thailand} (🇹🇭) 210
 \twemoji{flag: Timor-Leste} (🇹🇱) 210
 \twemoji{flag: Togo} (🇹🇬) 210
 \twemoji{flag: Tokelau} (🇹🇰) 210
 \twemoji{flag: Tonga} (🇹🇴) 210
 \twemoji{flag: Trinidad & Tobago} (🇹🇹) 210
 \twemoji{flag: Tristan da Cunha} (🇹🇨) 210
 \twemoji{flag: Tunisia} (🇹🇳) 210
 \twemoji{flag: Turkey} (🇹🇷) 210
 \twemoji{flag: Turkmenistan} (🇹🇲) 210
 \twemoji{flag: Tuvalu} (🇹🇻) 210
 \twemoji{flag: U.S. Outlying Islands} (\${({)) 210
 \twemoji{flag: U.S. Virgin Islands} (\${({)) 210
 \twemoji{flag: Uganda} (🇺🇬) 210
 \twemoji{flag: Ukraine} (🇺🇦) 210
 \twemoji{flag: United Arab Emirates} (\${({)) 210
 \twemoji{flag: United Kingdom} (🇬🇧) 210
 \twemoji{flag: United Nations} (\${({)) 210
 \twemoji{flag: United States} (🇺🇸) 210
 \twemoji{flag: Uzbekistan} (ӭӮ) 210
 \twemoji{flag: Vanuatu} (🇻🇺) 210
 \twemoji{flag: Vatican City} (🇻🇦) 210
 \twemoji{flag: Venezuela} (🇻🇪) 210
 \twemoji{flag: Vietnam} (🇻🇳) 210
 \twemoji{flag: Wales} (🏴󠁧󠁢󠁳󠁣󠁤󠁥󠁩󠁻󠁽󠁿) 210
 \twemoji{flag: Wallis & Futuna} (🇼🇫) 210
 \twemoji{flag: Western Sahara} (\${({)) 210
 \twemoji{flag: Yemen} (🇾🇪) 210
 \twemoji{flag: Zambia} (🇿🇲) 210
 \twemoji{flag: Zimbabwe} (🇿🇼) 211
 \twemoji{flag: Åland Islands} (\${({)) 211
 \twemoji{flamingo} (🦩) 192
 \twemoji{flashlight} (🔦) 221
 \twemoji{flat shoe} (👞) 221
 \twemoji{flatbread} (🧈) 194

\twemoji{fleur-de-lis} (✿)	221
.....	221
\twemoji{flexed biceps} (💪)	221
.....	221
\twemoji{floppy disk} (💾)	221
.....	221
\twemoji{flower playing cards} (🎴)	221
.....	221
\twemoji{flushed face} (😳)	221
.....	221
\twemoji{flying disc} (🏀)	221
.....	221
\twemoji{flying saucer} (🛸)	187
.....	187
\twemoji{fly} (鼯)	192
\twemoji{foggy} (🌁)	221
\twemoji{fog} (🌫)	190
\twemoji{folded hands} (Ἁ)	221
.....	221
\twemoji{fondue} (%[)	194
\twemoji{footprints} (👣)	221
\twemoji{foot} (🦶)	221
\twemoji{fork and knife with plate} (🍴)	194
.....	194
\twemoji{fork and knife}	194
(🍴)	194
\twemoji{fortune cookie} (🥠)	194
.....	194
\twemoji{fountain pen} (✍)	221
.....	221
\twemoji{fountain} (⛲)	221
\twemoji{four leaf clover} (🍀)	221
\twemoji{four o'clock} (🕒)	191
.....	191
\twemoji{four-thirty} (🕒)	191
.....	191
\twemoji{fox} (🦊)	192
\twemoji{framed picture} (🖼)	221
.....	221
\twemoji{FREE button} (🆓)	221
.....	221
\twemoji{french fries} (🍟)	194
.....	194
\twemoji{fried shrimp} (🍤)	194
.....	194
\twemoji{frog} (🐸)	192
\twemoji{front-facing baby chick} (🐥)	192
.....	192
\twemoji{frowning face with open mouth} (😃)	221
.....	221
\twemoji{frowning face} (😃)	221
.....	221
\twemoji{fuel pump} (⛽)	221
\twemoji{full moon face} (🌙)	200
.....	200
\twemoji{full moon} (🌙)	200
\twemoji{funeral urn} (⚱️)	221
.....	221
\twemoji{game die} (🎲)	221
\twemoji{garlic} (🧅)	194
\twemoji{gear} (⚙)	221
\twemoji{gem stone} (💎)	221
\twemoji{Gemini} (♊)	221
\twemoji{genie} (🧞)	221
\twemoji{ghost} (👻)	221
\twemoji{giraffe} (🦒)	192
\twemoji{girl} (👧)	221
\twemoji{glass of milk} (🥛)	194
.....	194
\twemoji{globe showing Americas} (🌐)	221
.....	221
\twemoji{globe showing Asia-Australia} (🌐)	222
.....	222
\twemoji{globe showing Europe-Africa} (🌐)	222
.....	222
\twemoji{globe with meridians} (🌐)	222
.....	222
\twemoji{gloves} (🧤)	222
\twemoji{glowing star} (🌟)	222
.....	222
\twemoji{goal net} (🥅)	222
\twemoji{goat} (🐐)	192
\twemoji{goblin} (👺)	222
\twemoji{goggles} (แว)	222
\twemoji{gorilla} (🦍)	192
\twemoji{graduation cap} (🎓)	222
.....	222
\twemoji{grapes} (🍇)	194
\twemoji{green apple} (🍏)	194
\twemoji{green book} (📘)	222
\twemoji{green circle} (🟢)	222
.....	222
\twemoji{green heart} (❤)	222
.....	222
\twemoji{green salad} (🥗)	194
\twemoji{green square} (🟩)	222
\twemoji{grimacing face} (😆)	222
.....	222
\twemoji{grinning cat with smiling eyes} (😺)	222
.....	222
\twemoji{grinning cat} (😺)	222
.....	222
\twemoji{grinning face with big eyes} (😆)	222
.....	222
\twemoji{grinning face with smiling eyes} (☺)	222
.....	222
\twemoji{grinning face with sweat} (😅)	222
.....	222
\twemoji{grinning face} (😊)	222
.....	222
\twemoji{grinning squinting face} (😆)	222
.....	222
\twemoji{growing heart} (❤)	222
.....	222
\twemoji{guard} (💂)	222
.....	222
\twemoji{guide dog} (🐕)	192
\twemoji{guitar} (🎸)	222
\twemoji{hamburger} (🍔)	194
\twemoji{hammer and pick} (⚒)	222
.....	222
\twemoji{hammer and wrench} (⚒)	222
.....	222
\twemoji{hammer} (🔨)	222
.....	222
\twemoji{hamster} (🐹)	192
\twemoji{hand with fingers splayed} (👉)	222
.....	222
\twemoji{handbag} (👜)	222
\twemoji{handshake} (🤝)	222
\twemoji{hatching chick} (🐣)	192
\twemoji{headphones} (🎧)	222
\twemoji{headstone} (圹)	222
\twemoji{health worker} (.DO)	222
\twemoji{hear-no-evil monkey} (🙉)	222
\twemoji{heart decoration} (.ribbon)	222
\twemoji{heart exclamtion} (心脏病)	222
\twemoji{heart suit} (心脏病)	179
\twemoji{heart with arrow} (心脏病)	222
\twemoji{heart with ribbon} (心脏病)	222
\twemoji{heavy dollar sign} (💲)	222
\twemoji{hedgehog} (🦔)	192
\twemoji{helicopter} (🚁)	187
\twemoji{herb} (🌿)	222
\twemoji{hibiscus} (🌺)	222
\twemoji{high voltage} (⚡)	222
\twemoji{high-heeled shoe} (👠)	222
\twemoji{high-speed train} (🚄)	187
\twemoji{hiking boot} (🥾)	222
\twemoji{hindu temple} (🛈)	222
\twemoji{hippopotamus} (🦧)	192
\twemoji{hole} (🕳)	222
\twemoji{hollow red circle} (🔴)	222
\twemoji{grinning face with big eyes} (😆)	222
.....	222
\twemoji{honey pot} (🍯)	194
\twemoji{honeybee} (🐝)	192
\twemoji{hook} (훅)	222
\twemoji{horizontal traffic light} (🚠)	187
\twemoji{horse face} (🐴)	192
\twemoji{horse racing} (🏇)	223
\twemoji{grinning squinting face} (😆)	223
.....	223
\twemoji{hospital} (🏥)	223
\twemoji{hot beverage} (☕)	193
\twemoji{hot dog} (🌭)	193
\twemoji{hot face} (🥵)	223
\twemoji{hot pepper} (🌶)	193
\twemoji{hot springs} (♨)	223
\twemoji{hotel} (🏨)	223
\twemoji{hourglass done} (⌛)	191

\twemoji{hourglass not done} (⌚)	191
\twemoji{house with garden} (🏡)	223
\twemoji{houses} (🏘)	223
\twemoji{house} (🏚)	223
\twemoji{hugging face} (🤗)	223
\twemoji{hundred points} (💯)	223
\twemoji{hushed face} (😌)	223
\twemoji{hut} (🎪)	223
\twemoji{ice cream} (🍧)	193
\twemoji{ice hockey} (🏒)	223
\twemoji{ice skate} (⛸)	223
\twemoji{ice} (氷)	193
\twemoji{ID button} (🆔)	223
\twemoji{inbox tray} (📥)	223
\twemoji{incoming envelope} (✉️)	223
\twemoji{index pointing up} (☝️)	223
\twemoji{infinity} (♾️)	223
\twemoji{information} (ⓘ)	223
\twemoji{input latin letters} (🔤)	223
\twemoji{input latin lowercase} (🔤)	223
\twemoji{input latin uppercase} (🔤)	223
\twemoji{input numbers} (🔢)	223
\twemoji{input symbols} (🔏)	223
\twemoji{jack-o-lantern} (🎃)	223
\twemoji{Japanese ‘‘acceptable’’ button} (🉑️)	223
\twemoji{Japanese ‘‘application’’ button} (📲)	223
\twemoji{Japanese ‘‘bargain’’ button} (🉐)	223
\twemoji{Japanese ‘‘congratulations’’ button} (㊗️)	223
\twemoji{Japanese ‘‘discount’’ button} (🈹️)	223
\twemoji{Japanese ‘‘free of charge’’ button} (🆓️)	223
\twemoji{Japanese ‘‘here’’ button} (➡️)	223
\twemoji{Japanese ‘‘monthly amount’’ button} (💴️)	223
\twemoji{Japanese ‘‘no vacancy’’ button} (🈚️)	223
\twemoji{Japanese ‘‘not free of charge’’ button} (🈚️)	223
\twemoji{Japanese ‘‘open for business’’ button} (🏪)	223
\twemoji{Japanese ‘‘passing grade’’ button} (合)	223
\twemoji{Japanese ‘‘prohibited’’ button} (🈲️)	223
\twemoji{Japanese ‘‘reserved’’ button} (🈯️)	223
\twemoji{Japanese ‘‘secret’’ button} (㊙️)	224
\twemoji{Japanese ‘‘service charge’’ button} (本服務)	224
\twemoji{Japanese ‘‘vacancy’’ button} (🈳)	224
\twemoji{Japanese castle} (🏯)	224
\twemoji{Japanese dolls} (🎎)	224
\twemoji{Japanese post office} (🏣)	224
\twemoji{Japanese symbol for beginning} (〽️)	224
\twemoji{jeans} (👖)	224
\twemoji{joker} (🃏)	224
\twemoji{joystick} (🕹️)	224
\twemoji{judge} (⚖️)	224
\twemoji{kaaba} (🕋)	224
\twemoji{kangaroo} (🦘)	193
\twemoji{keyboard} (⌨️)	224
\twemoji{keycap: *} (✳️)	224
\twemoji{keycap: 0} (⓪)	224
\twemoji{keycap: 10} (🔟)	224
\twemoji{keycap: 1} (➊)	224
\twemoji{keycap: 2} (➋)	224
\twemoji{keycap: 3} (➌)	224
\twemoji{keycap: 4} (➍)	224
\twemoji{keycap: 5} (➎)	224
\twemoji{keycap: 6} (➏)	224
\twemoji{keycap: 7} (➐)	224
\twemoji{keycap: 8} (➑)	224
\twemoji{keycap: 9} (➒)	224
\twemoji{keycap: \#} (">#)	224
\twemoji{key} (🔑)	224
\twemoji{kick scooter} (🛴)	187
\twemoji{leg} (🦵)	225
\twemoji{lemon} (🍋)	193
\twemoji{leopard} (🐆)	193
\twemoji{Leo} (♌)	225
\twemoji{level slider} (🎽)	225
\twemoji{Libra} (♎)	225
\twemoji{light bulb} (💡)	225
\twemoji{light rail} (🚋)	187
\twemoji{light skin tone} (膚)	225
\twemoji{linked paperclips} (🖇️)	225
\twemoji{link} (🔗)	225
\twemoji{lion} (🦁)	193
\twemoji{lipstick} (💄)	225
\twemoji{litter in bin sign} (🚤)	225
\twemoji{lizard} (🦎)	193
\twemoji{llama} (🦙)	193
\twemoji{lobster} (🦞)	193
\twemoji{locked with key} (🔒)	225
\twemoji{locked with pen} (锁定)	225
\twemoji{locked} (🔒)	225
\twemoji{locomotive} (🚂)	187
\twemoji{lollipop} (🍭)	193
\twemoji{long drum} (🥁)	225
\twemoji{lotion bottle} (🧴)	225
\twemoji{loudly crying face} (😭)	225

\twemoji{loudspeaker} (📢) 225
\twemoji{love hotel} (🏩) 225
\twemoji{love letter} (💌) 225
\twemoji{love-you gesture} (🤟) 225
\twemoji{luggage} (🧳) 225
\twemoji{lungs} (肺) 225
\twemoji{lying face} (🤥) 225
\twemoji{mage} (🧙) 225
\twemoji{magic wand} (.magic) 225
\twemoji{magnet} (🧲) 225
\twemoji{magnifying glass tilted} (🔍) 225
\twemoji{magnifying glass tilted} (🔍) 225
\twemoji{mahjong red dragon} (🀄) 225
\twemoji{male sign} (♂) 225
\twemoji{mammoth} (🦕) 193
\twemoji{man artist} (🎨) 225
\twemoji{man astronaut} (👨‍🚀) 225
\twemoji{man biking} (🚴) 187
\twemoji{man bouncing ball} (⛹️) 225
\twemoji{man bowing} (🙇) 225
\twemoji{man cartwheeling} (🤸) 225
\twemoji{man climbing} (🧗) 225
\twemoji{man construction worker} (👷) 225
\twemoji{man cook} (饪) 225
\twemoji{man dancing} (🕺) 225
\twemoji{man detective} (🕵) 225
\twemoji{man elf} (🧙) 225
\twemoji{man facepalming} (🤦) 225
\twemoji{man factory worker} (⼯) 226
\twemoji{man fairy} (🧚) 226
\twemoji{man farmer} (👨‍🌾) 226
\twemoji{man feeding baby} (🤱) 226
\twemoji{man firefighter} (🚒) 226
\twemoji{man frowning} (🙍) 226
\twemoji{man genie} (🧞) 226
\twemoji{man gesturing NO} (🚫) 226
\twemoji{man gesturing OK} (👌) 226
\twemoji{man getting haircut} (💇) 226
\twemoji{man getting massage} (💆) 226
\twemoji{man golfing} (🏌️) 226
\twemoji{man guard} (💂) 226
\twemoji{man health worker} (👤) 226
\twemoji{man in lotus position} (🧘) 214
\twemoji{man in manual wheelchair} (♿) 214
\twemoji{man in motorized wheelchair} (自理) 214
\twemoji{man in steamy room} (🧖) 214
\twemoji{man in tuxedo} (🤵) 214
\twemoji{man judge} (UDGE) 214
\twemoji{man juggling} (🤹) 214
\twemoji{man kneeling} (꿇는) 214
\twemoji{man lifting weights} (🏋️) 214
\twemoji{man mage} (🧙) 214
\twemoji{man mechanic} (🔧) 214
\twemoji{man mountain biking} (🚵) 188
\twemoji{man office worker} (💼) 214
\twemoji{man pilot} (✈) 214
\twemoji{man playing handball} (🤾) 214
\twemoji{man playing water polo} (🤽) 214
\twemoji{man police officer} (👮) 214
\twemoji{man pouting} (🙎) 214
\twemoji{man raising hand} (🙋) 214
\twemoji{man rowing boat} (🚣) 188
\twemoji{man running} (🏃) 214
\twemoji{man scientist} (🔬) 214
\twemoji{man shrugging} (🤷) 214
\twemoji{man singer} (🎤) 214
\twemoji{man standing} (standen) 214
\twemoji{man student} (תלמיד) 214
\twemoji{man superhero} (🦸) 214
\twemoji{man supervillain} (超级反派) 214
\twemoji{man surfing} (🏄) 214
\twemoji{man swimming} (🏊) 214
\twemoji{man teacher} (👨‍🏫) 214
\twemoji{man technologist} (👨‍💻) 214
\twemoji{man tipping hand} (👉) 214
\twemoji{man walking} (🚶) 214
\twemoji{man wearing turban} (👳) 214
\twemoji{man with veil} (👰) 214
\twemoji{man with white cane} (⽩杖) 214
\twemoji{man zombie} (🧟) 214
\twemoji{man's shoe} (👞) 214
\twemoji{mango} (🥭) 193
\twemoji{mantelpiece clock} (⌚) 191
\twemoji{manual wheelchair} (♿) 214
\twemoji{map of Japan} (🗾) 214
\twemoji{maple leaf} (🍁) 214
\twemoji{martial arts uniform} (🥋) 214
\twemoji{mate} (🍎) 193
\twemoji{meat on bone} (🍖) 193
\twemoji{mechanical arm} (🦾) 214
\twemoji{mechanical leg} (🦵) 214
\twemoji{mechanic} (🔧) 214
\twemoji{medical symbol} (⚕) 214
\twemoji{medium skin tone} (膚色) 214
\twemoji{medium-dark skin tone} (膚色) 214
\twemoji{medium-light skin tone} (膚色) 214
\twemoji{megaphone} (📣) 214
\twemoji{melon} (🍈) 193
\twemoji{men holding hands} (👬) 215
\twemoji{men with bunny ears} (🐰) 215
\twemoji{men wrestling} (🤼) 215
\twemoji{men's room} (🚹) 215
\twemoji{menorah} (🕎) 215
\twemoji{mermaid} (🧜) 215
\twemoji{merman} (🧜) 215
\twemoji{merperson} (🧜) 215
\twemoji{metro} (🚇) 188
\twemoji{microbe} (🦠) 192
\twemoji{microphone} (🎙) 215
\twemoji{microscope} (🔬) 215
\twemoji{middle finger} (🖕) 215
\twemoji{military helmet} (⛑) 215

\twemoji{military medal} (🎖) 215
\twemoji{milky way} (🌌) 215
\twemoji{minibus} (🚐) .. 188
\twemoji{minus} (⊖) ... 215
\twemoji{mirror} (▢) ... 215
\twemoji{mobile phone off} (📴) 215
\twemoji{mobile phone with arrow} (📲) 215
\twemoji{mobile phone} (📱) 215
\twemoji{money bag} (💰) 215
\twemoji{money with wings} (💸) 215
\twemoji{money-mouth face} (🤑) 215
\twemoji{monkey face} (🐵) 192
\twemoji{monkey} (🐒) ... 192
\twemoji{monorail} (🚝) . 188
\twemoji{moon cake} (🥮) 193
\twemoji{moon viewing ceremony} (🎑) 215
\twemoji{mosque} (🛐) ... 215
\twemoji{mosquito} (虼) . 192
\twemoji{motor boat} (🛥) 188
\twemoji{motor scooter} (🛵) 188
\twemoji{motorcycle} (🏍) 188
\twemoji{motorized wheelchair} (🦢) 215
\twemoji{motorway} (🛣) . 188
\twemoji{mount fuji} (🗻) 215
\twemoji{mountain cableway} (缆) 188
\twemoji{mountain railway} (🛤) 187
\twemoji{mountain} (🏔) . 215
\twemoji{mouse face} (🐭) 192
\twemoji{mouse trap} (🐁) 215
\twemoji{mouse2} (🐁) ... 192
\twemoji{mouth} (👄) ... 215
\twemoji{movie camera} (🎥) 215
\twemoji{moyai} (ߜ) ... 215
\twemoji{Mrs. Claus} (🤶) 215
\twemoji{multiply} (✖) . 215
\twemoji{mushroom} (🍄) . 193
\twemoji{musical keyboard} (🎹) 215
\twemoji{musical notes} (🎶) 215
\twemoji{musical note} (🎵) 215
\twemoji{musical score} (🎼) 215
\twemoji{muted speaker} (🔇) 215
\twemoji{mx claus} (🎅) . 215
\twemoji{nail polish} (💅) .. 215
\twemoji{name badge} (📛) 215
\twemoji{national park} (🏞) 215
\twemoji{nauseated face} (🤢) 215
\twemoji{nazar amulet} (🧿) 215
\twemoji{necktie} (👔) .. 215
\twemoji{nerd face} (🤓) 215
\twemoji{nesting dolls} (/xml) 215
\twemoji{neutral face} (😐) 215
\twemoji{NEW button} (🆕) 215
\twemoji{new moon face} (🌙) 200
\twemoji{new moon} (🌚) . 200
\twemoji{newspaper} (📰) 216
\twemoji{next track button} (⏭) 216
\twemoji{NG button} (🆖) 216
\twemoji{night with stars} (🌃) 216
\twemoji{nine o'clock} (🕒) 191
\twemoji{nine-thirty} (🕒) .. 191
\twemoji{ninja} (🥋) ... 216
\twemoji{no bicycles} (🚫) 187
\twemoji{no entry} (🚫) . 216
\twemoji{no littering} (🚷) 216
\twemoji{no mobile phones} (🚫) 216
\twemoji{no one under eighteen} (🔞) 216
\twemoji{no pedestrains} (_PED) 216
\twemoji{no smoking} (🚫) 216
\twemoji{non-potable water} (🚫) 216
\twemoji{nose} (👃) ... 216
\twemoji{notebook with decorative cover} (📔) 216
\twemoji{notebook} (📓) . 216
\twemoji{nut and bolt} (🔩) 216
\twemoji{O button (blood type)} (🅾) 216
\twemoji{octopus} (🐙) .. 192
\twemoji{oden} (🍢) ... 193
\twemoji{office building} (🏢) 216
\twemoji{office worker} (👤) 216
\twemoji{ogre} (Ogre) ... 216
\twemoji{oil drum} (🛢) . 216
\twemoji{OK button} (🆗) 216
\twemoji{OK hand} (👌) .. 216
\twemoji{old key} (🗝) .. 216
\twemoji{old man} (👴) .. 216
\twemoji{old woman} (👵) 216
\twemoji{older person} (👵) 216
\twemoji{olive} (🫒) ... 193
\twemoji{om} (ॐ) 216
\twemoji{ON arrow} (🔛) .. 216
\twemoji{oncoming automobile} (🚘) 187
\twemoji{oncoming bus} (🚍) 187
\twemoji{oncoming fist} (👊) 216
\twemoji{oncoming police car} (🚔) 187
\twemoji{oncoming taxi} (🚖) 187
\twemoji{one o'clock} (🕒) .. 191
\twemoji{one-piece swimsuit} (👙) 216
\twemoji{one-thirty} (🕒) 191
\twemoji{onion} (🧅) ... 193
\twemoji{open book} (📖) 216
\twemoji{open file folder} (📁) 216
\twemoji{open hands} (👐) 216
\twemoji{open mailbox with lowered flag} (📭) 216
\twemoji{open mailbox with raised flag} (📬) 216
\twemoji{Ophiuchus} (♏) 216
\twemoji{optical disk} (💿) 216
\twemoji{orange book} (📙) .. 216
\twemoji{orange circle} (🟠) 216
\twemoji{orange heart} (🟠) 216
\twemoji{orange square} (🟠) 216
\twemoji{orangutan} (🦍) 192
\twemoji{orthodox cross} (☦) 216
\twemoji{otter} (🦦) ... 192
\twemoji{outbox tray} (📤) .. 216
\twemoji{owl} (🦉) 192
\twemoji{ox} (🐂) 192
\twemoji{oyster} (🐚) ... 192
\twemoji{P button} (🅿) . 216
\twemoji{package} (📦) .. 216
\twemoji{page facing up} (📄) 216
\twemoji{page with curl} (📄) 216
\twemoji{pager} (📟) ... 216
\twemoji{paintbrush} (🖌) 217
\twemoji{palm tree} (🌴) 217
\twemoji{palms up together} (ǘ) 217
\twemoji{pancakes} (🥞) . 193
\twemoji{panda} (🐼) ... 192
\twemoji{paperclip} (📎) 217

\twemoji{parachute} (✈)	217	\twemoji{person getting massage} \twemoji{pickup truck} (🚗)	187	
\twemoji{parrot} (🦜)	192	(👤)	217	
\twemoji{part alternation mark} (〽)	217	\twemoji{person golfing}	218	
\twemoji{party popper} (🎉)	217	(👤)	217	
\twemoji{partying face} (🥳)	217	\twemoji{person in bed} (🛌)	192	
\twemoji{passenger ship} (🚢)	187 217	\twemoji{pig face} (🐖)	192
\twemoji{passport control} (🛂)	187	\twemoji{pig nose} (🐽)	192	
\twemoji{pause button} (⏸)	217	\twemoji{person in lotus position}	\twemoji{pig2} (🐖)	192
\twemoji{paw prints} (🐾)	192	(👤)	217	
\twemoji{peace symbol} (☮)	217	\twemoji{pile of poo} (💩)	
\twemoji{peach} (🍑)	193	\twemoji{person in manual wheelchair}	218	
\twemoji{peacock} (🦚)	192	(👤)	217	
\twemoji{peanuts} (🥜)	193	\twemoji{pill} (💊)	218	
\twemoji{pear} (🍐)	193	\twemoji{person in motorized wheelchair}	\twemoji{pilot} (👤)	218
\twemoji{pencil} (-pencil)	217	(👤)	217	
\twemoji{penguin} (🐧)	192	\twemoji{pinched fingers}	
\twemoji{pensive face} (🤔)	217	\twemoji{person in steamy room}	(🧖)	218
\twemoji{pen} (📝)	217	(👤)	217	
\twemoji{people holding hands} (👭)	217	\twemoji{pinching hand} (👉)	
\twemoji{people hugging} (🤗)	217	\twemoji{person in suit levitating}	
\twemoji{people with bunny ears} (🐰)	217	(👤)	217	
\twemoji{people wrestling} (🤼)	217	\twemoji{pine decoration}	(🎍)	218
\twemoji{performing arts} (🎭)	217	\twemoji{person in tuxedo}	(🤵)	193
\twemoji{persevering face} (💪)	217	\twemoji{ping pong} (🏓)	218	
\twemoji{person biking} (🚴)	187	\twemoji{pirate flag} (🏴)	
\twemoji{person bouncing ball} (⛹)	217	\twemoji{person kneeling}	
\twemoji{person bowing} (🙇)	217	(👤)	217	
\twemoji{person cartwheeling} (🤸)	217	\twemoji{Pisces} (♓)	218	
\twemoji{person climbing} (🧗)	217	\twemoji{person lifting weights}	(🏋)	193
\twemoji{person facepalming} (🤦)	217	(🏋)	217	
\twemoji{person feeding baby} (🤱)	217	\twemoji{person mountain biking}	(🚵)	218
\twemoji{person fencing} (🤺)	217	\twemoji{person playing handball}	(🤾)
\twemoji{person frowning} (🙍)	217	(🤾)	217	
\twemoji{person gesturing NO} (🚫)	217	\twemoji{person playing water polo}	(🤽)	218
\twemoji{person gesturing OK} (👌)	217	(🤽)	217	
\twemoji{person getting haircut} (💇)	217	\twemoji{play or pause button}	(⏯)	218
\twemoji{petri dish} (皿)	218	\twemoji{pleading face} (🥺)	
		(🥺)	218	
		\twemoji{plunger} (搋)	218	
		\twemoji{plus} (➕)	218	
		\twemoji{polar bear} (🐻)	192	
		\twemoji{police car light}	(🚨)	187
		\twemoji{police car} (🚓)	187	
		\twemoji{police officer}	(👮)	218
		\twemoji{poodle} (🐩)	192	
		\twemoji{pool 8 ball} (🎱)	
		(🎱)	218	
		\twemoji{popcorn} (🍿)	193	
		\twemoji{post office} (🏣)	
		(🏣)	218	
		\twemoji{postal horn} (📇)	
		(📇)	218	
		\twemoji{postbox} (📮)	218	
		\twemoji{pot of food} (🍲)	
		(🍲)	193	
		\twemoji{potable water} (💧)	
		(💧)	218	
		\twemoji{potato} (🥔)	193	
		\twemoji{potted plant} (🌿)	
		(🌿)	218	
		\twemoji{poultry leg} (🍗)	
		(🍗)	193	
		\twemoji{person with white cane}	\twemoji{pound banknote}
		(👤)	(💷)	218
		\twemoji{petri dish}	(皿)	218
		(皿)	218	

\twemoji{pouting face} ():-	218
\twemoji{prayer beads} ():-	218
\twemoji{pregnant woman} ():-	218
\twemoji{pretzel} ():-	193
\twemoji{princess} ():-	218
\twemoji{prince} ():-	218
\twemoji{printer} ():-	218
\twemoji{prohibited} ():-	218
\twemoji{purple circle} ():-	218
\twemoji{purple heart} ():-	218
\twemoji{purple square} ():-	218
\twemoji{purse} ():-	218
\twemoji{pushpin} ():-	218
\twemoji{puzzle piece} ():-	218
\twemoji{rabbit face} ():-	192
\twemoji{rabbit2} ():-	192
\twemoji{raccoon} ():-	192
\twemoji{racehorse} ():-	192
\twemoji{racing car} ():-	187
\twemoji{radio button} ():-	218
\twemoji{radioactive} ():-	219
\twemoji{radio} ():-	218
\twemoji{railway car} ():-	187
\twemoji{railway track} ():-	187
\twemoji{rainbow flag} ():-	211
\twemoji{rainbow} ():-	219
\twemoji{raised back of hand} ():-	219
\twemoji{raised fist} ():-	219
\twemoji{raised hand} ():-	219
\twemoji{raising hands} ():-	219
\twemoji{ram} ():-	192
\twemoji{rat} ():-	192
\twemoji{razor} ():-	219
\twemoji{receipt} ():-	219
\twemoji{record button} ():-	219
\twemoji{recycling symbol} ():-	219
\twemoji{red apple} ():-	193
\twemoji{red circle} ():-	219
\twemoji{red envelope} ():-	219
\twemoji{red exclamation mark} ():-	219
\twemoji{red hair} ():-	219
\twemoji{red heart} ():-	219
\twemoji{red paper lantern} ():-	219
\twemoji{red question mark} ():-	219
\twemoji{red square} ():-	219
\twemoji{red triangle pointed down} ():-	219
\twemoji{red triangle pointed up} ():-	219
\twemoji{registered} ():-	219
\twemoji{relieved face} ():-	219
\twemoji{reminder ribbon} ():-	219
\twemoji{repeat button} ():-	219
\twemoji{repeat single button} ():-	219
\twemoji{rescue worker's helmet} ():-	219
\twemoji{restroom} ():-	219
\twemoji{reverse button} ():-	219
\twemoji{revolving hearts} ():-	219
\twemoji{right anger bubble} ():-	219
\twemoji{right arrow curving} ():-	219
\twemoji{right arrow curving left} ():-	219
\twemoji{right arrow curving up} ():-	219
\twemoji{right arrow} ():-	219
\twemoji{right-facing fist} ():-	219
\twemoji{ring} ():-	219
\twemoji{roasted sweet potato} ():-	194
\twemoji{ringed planet} ():-	219
\twemoji{roll of paper} ():-	219
\twemoji{rolled-up newspaper} ():-	219
\twemoji{roller coaster} ():-	219
\twemoji{roller skate} ():-	187
\twemoji{rolling on the floor laughing} ():-	219
\twemoji{rooster} ():-	192
\twemoji{rosette} ():-	219
\twemoji{rose} ():-	219
\twemoji{round pushpin} ():-	219
\twemoji{rugby football} ():-	219
\twemoji{running shirt} ():-	219
\twemoji{running shoe} ():-	219
\twemoji{sad but relieved face} ():-	219
\twemoji{safety pin} ():-	219
\twemoji{safety vest} ():-	220
\twemoji{Sagittarius} ():-	220
\twemoji{sailboat} ():-	220
\twemoji{sake} ():-	194
\twemoji{salt} ():-	194
\twemoji{sandwich} ():-	194
\twemoji{Santa Claus} ():-	220
\twemoji{sari} ():-	220
\twemoji{satellite antenna} ():-	220
\twemoji{sauropod} ():-	192
\twemoji{saxophone} ():-	220
\twemoji{scarf} ():-	220
\twemoji{school} ():-	220
\twemoji{scientist} ():-	220
\twemoji{scissors} ():-	220
\twemoji{scorpion} ():-	192
\twemoji{scorpius} ():-	220
\twemoji{screwdriver} ():-	220
\twemoji{scroll} ():-	220
\twemoji{seal} ():-	192
\twemoji{seat} ():-	220
\twemoji{see-no-evil monkey} ():-	220
\twemoji{seedling} ():-	220
\twemoji{selfie} ():-	220
\twemoji{service dog} ():-	192
\twemoji{seven o'clock} ():-	191
\twemoji{seven-thirty} ():-	191
\twemoji{sewing needle} ():-	220
\twemoji{shallow pan of food} ():-	194
\twemoji{shamrock} ():-	220
\twemoji{shark} ():-	192
\twemoji{shaved ice} ():-	194
\twemoji{sheaf of rice} ():-	220
\twemoji{sheep} ():-	192
\twemoji{shield} ():-	220
\twemoji{shinto shrine} ():-	220
\twemoji{ship} ():-	187
\twemoji{shooting star} ():-	220

\twemoji{shopping bags} (🛍)	192
..... 220	
\twemoji{shopping cart} (🛒)	192
..... 220	
\twemoji{shortcake} (🍰)	194
\twemoji{shorts} (:green shorts:)	220
\twemoji{shower} (🚿)	220
\twemoji{shrimp} (🦐)	192
\twemoji{shuffle tracks button} (🔀)	220
\twemoji{shushing face} (쉿)	220
\twemoji{sign of the horns} (🤘)	220
\twemoji{singer} (🎤)	220
\twemoji{six o'clock} (🕒)	191
\twemoji{six-thirty} (🕒)	191
\twemoji{skateboard} (🛹)	187
\twemoji{skier} (⛷)	220
\twemoji{skis} (🎿)	220
\twemoji{skull and crossbones} (☠)	220
\twemoji{skull} (💀)	220
\twemoji{skunk} (🦨)	192
\twemoji{sled} (🛈)	187
\twemoji{sleeping face} (😴)	220
\twemoji{sleepy face} (😪)	220
\twemoji{slightly frowning face}	220
\twemoji{slightly smiling face}	220
\twemoji{slot machine} (🎰)	220
\twemoji{sloth} (🦽)	192
\twemoji{small airplane} (🛩)	187
\twemoji{small blue diamond} (💠)	220
\twemoji{small orange diamond} (🔸)	220
\twemoji{smiling cat with heart-eyes} (😻)	220
\twemoji{smiling face with halo} (👼)	220
\twemoji{smiling face with heart-eyes}	220
\twemoji{smiling face with heart-eyes}	220
\twemoji{smiling face with heart-eyes}	220
\twemoji{smiling face with horns} (😈)	220
\twemoji{smiling face with smirking mouth} (☺)	221
\twemoji{smiling face with sunglasses} (😎)	221
\twemoji{smiling face with tear} (😢)	221
\twemoji{smiling face}	220
\twemoji{smirking face} (☺)	221
\twemoji{snail} (🐌)	192
\twemoji{snake} (🐍)	192
\twemoji{sneezing face} (🤧)	221
\twemoji{snow-capped mountain} (🏔)	221
\twemoji{snowboarder} (🏂)	221
\twemoji{snowflake} (❄)	221
\twemoji{snowman without snow} (⛄)	221
\twemoji{snowman} (⛄)	221
\twemoji{soap} (🧼)	221
\twemoji{soccer ball} (⚽)	221
\twemoji{socks} (🧦)	221
\twemoji{soft ice cream} (🍦)	194
\twemoji{softball} (⚾)	221
\twemoji{SOON arrow} (🔜)	221
\twemoji{SOS button} (🆘)	221
\twemoji{spade suit} (♠)	179
\twemoji{spaghetti} (🍝)	194
\twemoji{sparkler} (🎇)	221
\twemoji{sparkles} (✨)	221
\twemoji{sparkle} (✳️)	221
\twemoji{sparkling heart} (❤)	221
\twemoji{speaker high volume}	221
\twemoji{speaker low volume}	221
\twemoji{speaker medium volume}	221
\twemoji{speaking head} (🗣)	221
\twemoji{speech balloon} (💬)	221
\twemoji{speedboat} (⛵)	187
\twemoji{spider web} (🕸)	221
\twemoji{spider} (🕷)	221
\twemoji{spiral calendar} (📅)	221
\twemoji{spiral notepad} (📅)	221
\twemoji{spiral shell} (🐚)	192
\twemoji{sponge} (🧽)	221
\twemoji{spoon} (🥄)	221
\twemoji{sport utility vehicle} (🚙)	187
\twemoji{sports medal} (🏅)	221
\twemoji{spouting whale} (🐳)	192
\twemoji{squinting face with tongue} (👅)	221
\twemoji{stadium} (🏟)	221
\twemoji{star and crescent} (☪️)	221
\twemoji{star of David} (✡)	221
\twemoji{star-struck} (🤩)	221
\twemoji{star} (⭐)	221
\twemoji{station} (🚉)	187
\twemoji{Statue of Liberty} (🗽)	221
\twemoji{steaming bowl} (🍜)	194
\twemoji{stethoscope} (🩺)	221
\twemoji{stop button} (⏹)	221
\twemoji{stop sign} (🛑)	221
\twemoji{stopwatch} (⌚)	191
\twemoji{straight ruler} (📏)	221
\twemoji{strawberry} (🍓)	194
\twemoji{student} (תלמיד)	221
\twemoji{studio microphone} (🎙)	221
\twemoji{stuffed flatbread} (_FILLING)	194
\twemoji{sun behind cloud} (☀)	190
\twemoji{sun behind large cloud} (☀)	190
\twemoji{sun behind rain cloud} (☀)	190
\twemoji{sun behind small cloud} (☀)	190
\twemoji{sun with face} (☀)	221
\twemoji{sunflower} (🌻)	221
\twemoji{sunrise over mountains} (🌄)	222
\twemoji{sunrise} (🌅)	222
\twemoji{sunset} (🌇)	222
\twemoji{sun} (☀)	190
\twemoji{superhero} (🦸)	222
\twemoji{supervillain} (🦸)	222
\twemoji{sushi} (🍣)	194
\twemoji{suspension railway} (🚝)	187
\twemoji{swan} (天鹅)	192
\twemoji{sweat droplets} (💦)	222
\twemoji{synagogue} (🕰)	222
\twemoji{syringe} (💉)	222
\twemoji{T-Rex} (🦖)	192
\twemoji{t-shirt} (👕)	222
\twemoji{taco} (🌮)	194
\twemoji{takeout box} (🍱)	194
\twemoji{tamale} (🥟)	194
\twemoji{tanabata tree} (🎋)	222
\twemoji{tangerine} (🍊)	194
\twemoji{Taurus} (♉)	222
\twemoji{taxi} (🚕)	187
\twemoji{teacher} (🏫)	222

\twemoji{teacup without handle} (⌚)	194
\twemoji{teapot} (铞)	194
\twemoji{tear-off calendar} (📅)	222
\twemoji{technologist} (👨)	222
\twemoji{teddy bear} (🧸)	222
\twemoji{telephone receiver} (📞)	222
\twemoji{telephone} (☎)	222
\twemoji{telescope} (🔭)	222
\twemoji{television} (📺)	222
\twemoji{ten o'clock} (🕒)	191
\twemoji{ten-thirty} (🕒)	191
\twemoji{tennis} (🎾)	222
\twemoji{tent} (⛺)	222
\twemoji{test tube} (🧪)	222
\twemoji{thermometer} (🌡)	190
\twemoji{thinking face} (🤔)	222
\twemoji{thong sandal} (👡)	222
\twemoji{thought balloon} (💭)	222
\twemoji{thread} (🧵)	222
\twemoji{three o'clock} (🕒)	191
\twemoji{three-thirty} (🕒)	191
\twemoji{thumbs down} (👎)	222
\twemoji{thumbs up} (👍)	222
\twemoji{ticket} (🎫)	222
\twemoji{tiger face} (🐯)	192
\twemoji{tiger2} (🐅)	192
\twemoji{timer clock} (🕒)	191
\twemoji{tired face} (😩)	222
\twemoji{toilet} (🚽)	222
\twemoji{Tokyo tower} (🗼)	222
\twemoji{tomato} (🍅)	194
\twemoji{tongue} (👅)	222
\twemoji{toolbox} (🔧)	222
\twemoji{toothbrush} (🦷)	222
\twemoji{tooth} (🦷)	222
\twemoji{TOP arrow} (🔝)	222
\twemoji{top hat} (🎩)	222
\twemoji{tornado} (🌪)	190
\twemoji{trackball} (🖱)	222
\twemoji{tractor} (🚜)	188
\twemoji{trade mark} (™)	222
\twemoji{train2} (🚂)	188
\twemoji{tram car} (🚊)	188
\twemoji{tram} (🚊)	188
\twemoji{transgender flag} (🏳️)	211
\twemoji{transgender symbol} (⚧)	222
\twemoji{triangular flag} (🚩)	222
\twemoji{triangular ruler} (📐)	222
\twemoji{trident emblem} (🔱)	222
\twemoji{trolleybus} (🚋)	188
\twemoji{trophy} (🏆)	222
\twemoji{tropical drink} (🍹)	194
\twemoji{tropical fish} (🐠)	192
\twemoji{trumpet} (🎺)	222
\twemoji{tulip} (🌷)	222
\twemoji{tumbler glass} (🥃)	194
\twemoji{turkey} (🦃)	192
\twemoji{turtle} (🐢)	193
\twemoji{twelve o'clock} (🕒)	191
\twemoji{twelve-thirty} (🕒)	191
\twemoji{two hearts} (❤)	222
\twemoji{two o'clock} (🕒)	191
\twemoji{two-hump camel} (🐫)	193
\twemoji{two-thirty} (🕒)	191
\twemoji{umbrella on ground} (☂)	223
\twemoji{umbrella with rain drops} (☂)	223
\twemoji{umbrella} (☂)	223
\twemoji{unamused face} (😒)	223
\twemoji{unicorn} (🦄)	193
\twemoji{unlocked} (🔓)	223
\twemoji{up arrow} (⬆)	223
\twemoji{UP button} (🆙)	223
\twemoji{up-down arrow} (↕)	223
\twemoji{up-left arrow} (⬅)	223
\twemoji{up-right arrow} (➡)	223
\twemoji{upside-down face} (🙃)	223
\twemoji{upwards button} (🔼)	223
\twemoji{vampire} (🧛)	223
\twemoji{vertical traffic light} (🚦)	188
\twemoji{vibration mode} (📵)	223
\twemoji{victory hand} (👉)	223
\twemoji{video camera} (📹)	223
\twemoji{video game} (🎮)	223
\twemoji{videocassette} (📼)	223
\twemoji{violin} (🎻)	223
\twemoji{Virgo} (♍)	223
\twemoji{volcano} (🌋)	223
\twemoji{volleyball} (🏐)	223
\twemoji{VS button} (🆚)	223
\twemoji{vulcan salute} (🖖)	223
\twemoji{waffle} (🥞)	194
\twemoji{waning crescent moon} (🌒)	200
\twemoji{waning gibbous moon} (🌓)	200
\twemoji{warning} (⚠)	223
\twemoji{wastebasket} (🗑)	223
\twemoji{watch} (⌚)	223
\twemoji{water buffalo} (🐃)	193
\twemoji{water closet} (🚾)	223
\twemoji{water pistol} (🔫)	223
\twemoji{water wave} (🌊)	223
\twemoji{watermelon} (🍉)	194
\twemoji{waving hand} (👋)	223
\twemoji{wavy dash} (〰)	223
\twemoji{waxing crescent moon} (🌒)	200
\twemoji{waxing gibbous moon} (🌓)	200
\twemoji{weary cat} (😿)	223
\twemoji{weary face} (😩)	223
\twemoji{wedding} (👰)	223
\twemoji{whale2} (🐋)	193
\twemoji{wheel of dharma} (☸)	223
\twemoji{wheelchair symbol} (♿)	223
\twemoji{white cane} (🦺)	223
\twemoji{white circle} (⚪)	223
\twemoji{white exclamation mark} (❕)	223
\twemoji{white flag} (:white flag:)	224
\twemoji{white flower} (💮)	224
\twemoji{white hair} (:white hair:)	224
\twemoji{white heart} (:white heart:)	224
\twemoji{white large square} (:white large square:)	224
\twemoji{white medium square} (:white medium square:)	224
\twemoji{white medium-small square} (:white medium-small square:)	224
\twemoji{white question mark} (՞)	224
\twemoji{white small square} (:white small square:)	224
\twemoji{white square button} (▣)	224
\twemoji{wilted flower} (🥀)	224
\twemoji{wind chime} (🎐)	224

\twemoji{wind face} (☞)	190	\twemoji{woman in lotus position}\twemoji{woman tipping hand}	
\twemoji{window} (חלון)	224	(👩)	224
\twemoji{wine glass} (🍷)	194	\twemoji{woman in manual wheelchair}\twemoji{woman vampire}	(acula)
\twemoji{winking face with tongue} (☺)	224	(👩)	225
\twemoji{winking face} (☺)	224	\twemoji{woman in motorized wheelchair}\twemoji{woman walking}	(🚶)
\twemoji{wolf} (🐺)	193	(👩)	225
\twemoji{woman and man holding hands}	224	\twemoji{woman in tuxedo}	(👩)
(👫)	224	(👩)	225
\twemoji{woman artist} (🎨)	224	\twemoji{woman judge}	(⚖)
	224	(👩)	225
\twemoji{woman astronaut}	224	\twemoji{woman juggling}	(🤹)
(👩)	224	(👩)	225
\twemoji{woman biking}	188	\twemoji{woman kneeling}	(꿇은)
(🚴)	188	(👩)	225
\twemoji{woman bouncing ball}	224	\twemoji{woman lifting weights}	(🏋)
(⛹)	224	(👩)	225
\twemoji{woman bowing}	224	\twemoji{woman mage}	(🧙)
(躬)	224	225	
\twemoji{woman cartwheeling}	224	\twemoji{woman mechanic}	(🔧)
(🤸)	224	(👩)	225
\twemoji{woman climbing}	224	\twemoji{woman mountain biking}	(🚵)
(🧗)	224	(👩)	188
\twemoji{woman construction worker}	224	\twemoji{woman office worker}	(💼)
(👷)	224	(👩)	225
\twemoji{woman cook}	224	\twemoji{woman pilot}	(✈)
(🍳)	224	(👩)	225
\twemoji{woman dancing}	224	\twemoji{woman playing handball}	(🤾)
(💃)	224	(👩)	225
\twemoji{woman detective}	224	\twemoji{woman playing water polo}	(🤽)
(🕵)	224	(👩)	225
\twemoji{woman elf}	224	\twemoji{woman police officer}	(👮)
(🧚)	224	(👩)	225
\twemoji{woman facepalming}	224	\twemoji{woman pouting}	(🙎)
(🤦)	224	(👩)	225
\twemoji{woman factory worker}	224	\twemoji{woman raising hand}	(🙋)
(⼯)	224	(👩)	225
\twemoji{woman fairy}	224	\twemoji{woman rowing boat}	(🚣)
(🧚)	224	(👩)	188
\twemoji{woman farmer}	224	\twemoji{woman running}	(🏃)
(🌾)	224	(👩)	225
\twemoji{woman feeding baby}	224	\twemoji{woman scientist}	(🔬)
(🤱)	224	(👩)	225
\twemoji{woman firefighter}	224	\twemoji{woman shrugging}	(🤷)
(🚒)	224	(👩)	225
\twemoji{woman frowning}	224	\twemoji{woman singer}	(🎤)
(🙍)	224	(👩)	225
\twemoji{woman genie}	224	\twemoji{woman standing}	(⽴)
(🧞)	224	(👩)	225
\twemoji{woman gesturing NO}	224	\twemoji{woman student}	(תלמידה)
(🚫)	224	(👩)	225
\twemoji{woman gesturing OK}	224	\twemoji{woman superhero}	(🦸)
(🆗)	224	(👩)	225
\twemoji{woman getting haircut}	224	\twemoji{woman supervillain}	(boss)
(💇)	224	(👩)	225
\twemoji{woman getting massage}	224	\twemoji{woman surfing}	(🏄)
(💆)	224	(👩)	225
\twemoji{woman golfing}	224	\twemoji{woman swimming}	(🏊)
(🏌)	224	(👩)	225
\twemoji{woman guard}	224	\twemoji{woman teacher}	(🏫)
(💂)	224	(👩)	225
\twemoji{woman health worker}	224	\twemoji{woman technologist}	(💻)
(医护人员)	224	(👩)	225

twiddle	see tilde	130
two hearts (♥)	222	163
two o'clock (⌚)	191	20
two-hump camel (🐫)	193	196
two-thirty (⌚)	191	196
\twoBeamedQuavers (♪)	165	196
\twocaps (ℳ)	35	122
\twocups (ℳ)	35	196
\twoheaddownarrow (⤵)	84	268
\twoheaddownarrow (⤶)	79	274
\twoheaddownarrow (⤷)	75	20
\twoheaddownarrow (⤸)	86	244
\twoheadleftarrow (⤹)	73	32
\twoheadleftarrow (⤺)	84	33, 116
\twoheadleftarrow (⤻)	79	33, 116
\twoheadleftarrow (⤼)	76	116
\twoheadleftarrow (⤽)	86	116
\twoheadleftarrowtail (⤾)	86	35
\twoheadleftdbkarrow (⤿)	86	17
\twoheadmapsfrom (⤿)	86	17
\twoheadmapsto (⤿)	86	122
\twoheadnearrow (⤾)	79	145
\twoheadnearrow (⤿)	76	99
\twoheadnarrow (⤿)	79	99
\twoheadnarrow (⤿)	76	99
\twoheadrightarrow (⤿)	73	102
\twoheadrightarrow (⤿)	84	101
\twoheadrightarrow (⤿)	79	99
\twoheadrightarrow (⤿)	76	102
\twoheadrightarrow (⤿)	86	101
\twoheadrightarrowtail (⤿)	86	101
\twoheadsearrow (⤿)	79	102
\twoheadsearrow (⤿)	76	102
\twoheadswarrow (⤿)	79	101
\twoheadswarrow (⤿)	76	101
\twoheaduparrow (⤿)	84	101
\twoheaduparrow (⤿)	79	101
\twoheaduparrow (⤿)	76	102
\twoheaduparrow (⤿)	86	101
\twoheaduparrowcircle (⤿)	86	101
\twoheadwhiteuparrow (⤿)	84	145
\twoheadwhiteuparrowpedestal (⤿)	84	223
\twonotes (♪)	161	223
\twonotes (♪)	161	164
txfonts (package)	30, 32, 43, 52, 63, 66, 74, 91, 95–97, 119, 120, 124, 179, 256, 258, 271, 276, 277	35
type1cm (package)	256	145
\typecolon (ঃ)	35	223
Type 1 (font)	268, 269	223
U		
U (ࠈ)	160	109
\U (ࠉ)	25	110
\U (ࠊ)	21	110
\U (ࠋ)	21	108
\u (ࠌ)	21	110
u (ࠍ)	160	265
\UA (↑)	130	110
U		
U (ࠈ)	160	110
\U (ࠉ)	25	109
\U (ࠊ)	21	109
\U (ࠋ)	21	109
\u (ࠌ)	21	110
u (ࠍ)	160	110
\UA (↑)	130	110

\upmodels (⊤)	56	\upVdash (⊤)	54	\usym{2652} (ℳ)	128
\upmodels (⊤)	54	\upvDash (⊤)	56	\usym{2653} (ℳ)	128
\upmu (μ)	95	\upvdash (⊤)	56	\usym{2654} (ℳ)	183
\upnu (ν)	95	\upvdash (⊤)	54	\usym{2655} (ℳ)	183
\Upomega (Ω)	95	upwards button (▲)	223	\usym{2656} (ℳ)	183
\upomega (ω)	95	\upwavearrow (⤳)	79	\usym{2657} (ℳ)	183
\upp (^)	25	\upwhitearrow (⤴)	84	\usym{2658} (ℳ)	183
\upparenthfill	265	\upwhitearrow (⤵)	86	\usym{2659} (ℳ)	183
\Upphi (Φ)	95	\Upxi (Ξ)	95	\usym{2660} (ℳ)	180
\upphi (φ)	95	\upxi (Ξ)	95	\usym{2661} (ℳ)	180
\Uppi (Π)	95	\upY (⤶)	33	\usym{2662} (ℳ)	180
\uppi (π)	95	\upY (⤶)	33	\usym{2663} (ℳ)	180
\uppitchfork (⋪)	91	\upzeta (ζ)	95	\usym{2664} (ℳ)	180
\uppitchfork (⋪)	89	\Uranus (ℳ)	128	\usym{2665} (ℳ)	180
\upproto (ℳ)	54	\Uranus (ℳ)	129	\usym{2666} (ℳ)	180
\Uppsi (Ψ)	95	\Uranus (ℳ)	127	\usym{2667} (ℳ)	180
\uppsi (ψ)	95	\uranus (ℳ)	127	\usym{2669} (ℳ)	162
upquote (package)	271	\urarc (ℳ)	122	\usym{2672} (ℳ)	200
\uprcurvearrow (⤳)	80	\urblacktriangle (ℳ)	146	\usym{2673} (ℳ)	200
\uprho (ρ)	95	\urcorner (⤶)	99	\usym{2674} (ℳ)	200
upright Greek letters	16, 95	\urcorner (⤷)	99	\usym{2675} (ℳ)	200
\uprightcurvearrow (⤳)	80	\urcorner (⤷)	99	\usym{2676} (ℳ)	200
\uprightcurvearrow (⤳)	86	\urcorner (⤷)	103	\usym{2677} (ℳ)	200
\uprsquigarrow (⤳)	80	\urcorner (⤷)	101	\usym{2678} (ℳ)	200
\uprsquigarrow (⤳)	76	\urcorner (⤷)	99	\usym{2679} (ℳ)	200
upside-down symbols	270–271	\url (package)	271	\usym{2680} (ℳ)	181
upside-down face (⤻)	223	\urtriangle (ℳ)	146	\usym{2681} (ℳ)	181
upside-down symbols	18–20,	urwchancal (package)	124, 276	\usym{2682} (ℳ)	181
25, 259		\US (ℳ)	130, 131	\usym{2683} (ℳ)	181
\Upsigma (Σ)	95	\US (ℳ)	131	\usym{2684} (ℳ)	181
\upsigma (σ)	95	\usepackage	13	\usym{2685} (ℳ)	181
\Upsilon (Υ)	94	\usf (ℳ)	162	\usym{2700} (ℳ)	137
\upsilon (υ)	94	\usfz (ℳ)	162	\usym{2701} (ℳ)	137
\Upsilononmeson (Υ)	134	ushort (package)	111, 276, 277	\usym{2702} (ℳ)	137
\upsilonup (υ)	95	\ushort (ℳ)	111	\usym{2703} (ℳ)	137
\upslice (Δ)	37	\ushortdw (ℳ)	111	\usym{2704} (ℳ)	137
\upspoon (⤰)	90	\ushortw (ℳ)	111	\usym{2705} (ℳ)	141
\upspoon (⤰)	89	\usym	128, 132, 136–141,	\usym{2706} (ℳ)	150
\upt (⊥)	25	143, 148, 150, 162, 180–		\usym{2707} (ℳ)	150
\uptau (τ)	95	183, 186, 187, 189, 191,		\usym{2708} (ℳ)	150
\uptherefore (∴)	116	200, 213, 228–231		\usym{2709} (ℳ)	150
\uptherefore (∴)	33, 116	\usym{2605} (★)	143	\usym{2710} (ℳ)	138
\Uptheta (Θ)	95	\usym{2606} (★)	143	\usym{2711} (ℳ)	138
\uptheta (θ)	95	\usym{2609} (ℳ)	128	\usym{2712} (ℳ)	138
\uptodownarrow (ℳ)	74	\usym{2610} (ℳ)	141	\usym{2713} (ℳ)	141
\uptodownarrow (ℳ)	84	\usym{2611} (ℳ)	141	\usym{2714} (ℳ)	141
\upuparrows (⤱)	74	\usym{2612} (ℳ)	141	\usym{2715} (ℳ)	141
\upuparrows (⤱)	73	\usym{2613} (ℳ)	141	\usym{2716} (ℳ)	141
\upuparrows (⤱)	84	\usym{2640} (ℳ)	128	\usym{2717} (ℳ)	141
\upuparrows (⤱)	79	\usym{2641} (ℳ)	128	\usym{2718} (ℳ)	141
\upuparrows (⤱)	76	\usym{2642} (ℳ)	128	\usym{2719} (ℳ)	140
\upuparrows (⤱)	86	\usym{2643} (ℳ)	128	\usym{2720} (ℳ)	140
\upupharpoons (⤱)	75	\usym{2644} (ℳ)	128	\usym{2721} (ℳ)	143
\Upupsilon (Υ)	95	\usym{2645} (ℳ)	128	\usym{2722} (ℳ)	140
\upupsilon (υ)	95	\usym{2646} (ℳ)	128	\usym{2723} (ℳ)	140
\upvarepsilon (ε)	95	\usym{2647} (ℳ)	128	\usym{2724} (ℳ)	140
\upvarphi (φ)	95	\usym{2648} (ℳ)	128	\usym{2725} (ℳ)	140
\upvarpi (ω)	95	\usym{2649} (ℳ)	128	\usym{2726} (ℳ)	143
\upvarrho (ρ)	95	\usym{2650} (ℳ)	128	\usym{2727} (ℳ)	143
\upvarsigma (σ)	95	\usym{2651} (ℳ)	128	\usym{2728} (ℳ)	143
\upvartheta (ϑ)	95			\usym{2729} (ℳ)	143
\upVDash (⊤)	56			\usym{2730} (ℳ)	143
\upVdash (⊤)	56			\usym{2731} (ℳ)	143

\usym{2732} (✿)	143	\usym{2795} (⊕)	150	\usym{1F036} (▣)	181
\usym{2733} (✳)	143	\usym{2796} (⊖)	150	\usym{1F037} (▣)	181
\usym{2734} (✳)	143	\usym{2797} (÷)	150	\usym{1F038} (▣)	181
\usym{2735} (✳)	143	\usym{2798} (↶)	136	\usym{1F039} (▣)	181
\usym{2736} (✳)	143	\usym{2799} (↷)	136	\usym{1F03A} (▣)	181
\usym{2737} (✳)	143	\usymH{...}	128, 132, 136–141, 143, 148, 150, 162, 180– 183, 187, 189, 191, 200, 213, 231	\usym{1F03B} (▣)	181
\usym{2738} (✳)	143	\usymW{...}	128, 132, 136–141, 143, 148, 150, 162, 180– 183, 187, 189, 191, 200, 213, 231	\usym{1F03C} (▣)	181
\usym{2739} (✳)	143			\usym{1F03D} (▣)	181
\usym{2740} (❀)	143			\usym{1F03E} (▣)	181
\usym{2741} (❀)	143			\usym{1F03F} (▣)	182
\usym{2742} (⌚)	143			\usym{1F040} (▣)	182
\usym{2743} (✳)	143			\usym{1F041} (▣)	182
\usym{2744} (✳)	143			\usym{1F042} (▣)	182
\usym{2745} (✳)	143	\usym{1F000} (▣)	182	\usym{1F043} (▣)	182
\usym{2746} (✳)	143	\usym{1F001} (▣)	182	\usym{1F044} (▣)	182
\usym{2747} (✳)	143	\usym{1F002} (▣)	182	\usym{1F045} (▣)	182
\usym{2748} (✳)	143	\usym{1F003} (▣)	182	\usym{1F046} (▣)	182
\usym{2749} (✳)	143	\usym{1F004} (▣)	182	\usym{1F047} (▣)	182
\usym{2750} (▣)	150	\usym{1F005} (▣)	182	\usym{1F048} (▣)	182
\usym{2751} (▣)	150	\usym{1F006} (▣)	182	\usym{1F049} (▣)	181
\usym{2752} (▣)	150	\usym{1F007} (▣)	182	\usym{1F04A} (▣)	181
\usym{2753} (՞)	150	\usym{1F008} (▣)	182	\usym{1F04B} (▣)	181
\usym{2754} (՞)	150	\usym{1F009} (▣)	182	\usym{1F04C} (▣)	181
\usym{2755} (՞)	150	\usym{1F00A} (▣)	182	\usym{1F04D} (▣)	181
\usym{2756} (❖)	150	\usym{1F00B} (▣)	182	\usym{1F04E} (▣)	181
\usym{2757} (՞)	150	\usym{1F00C} (▣)	182	\usym{1F04F} (▣)	181
\usym{2758} (՞)	150	\usym{1F00D} (▣)	182	\usym{1F050} (▣)	181
\usym{2759} (՞)	150	\usym{1F00E} (▣)	182	\usym{1F051} (▣)	181
\usym{2760} (՞)	150	\usym{1F00F} (▣)	182	\usym{1F052} (▣)	181
\usym{2761} (՞)	150	\usym{1F010} (▣)	182	\usym{1F053} (▣)	181
\usym{2762} (՞)	150	\usym{1F011} (▣)	182	\usym{1F054} (▣)	181
\usym{2763} (՞)	150	\usym{1F012} (▣)	182	\usym{1F055} (▣)	181
\usym{2764} (♥)	150	\usym{1F013} (▣)	182	\usym{1F056} (▣)	181
\usym{2765} (♦)	150	\usym{1F014} (▣)	182	\usym{1F057} (▣)	181
\usym{2766} (♧)	150	\usym{1F015} (▣)	182	\usym{1F058} (▣)	182
\usym{2767} (✿)	150	\usym{1F016} (▣)	182	\usym{1F059} (▣)	182
\usym{2768} (⌚)	150	\usym{1F017} (▣)	182	\usym{1F05A} (▣)	182
\usym{2769} (⌚)	150	\usym{1F018} (▣)	182	\usym{1F05B} (▣)	182
\usym{2770} (⌚)	150	\usym{1F019} (▣)	182	\usym{1F05C} (▣)	182
\usym{2771} (⌚)	150	\usym{1F01A} (▣)	182	\usym{1F05D} (▣)	182
\usym{2772} (⌚)	150	\usym{1F01B} (▣)	182	\usym{1F05E} (▣)	182
\usym{2773} (⌚)	150	\usym{1F01C} (▣)	182	\usym{1F05F} (▣)	182
\usym{2774} (⌚)	150	\usym{1F01D} (▣)	182	\usym{1F060} (▣)	182
\usym{2775} (⌚)	150	\usym{1F01E} (▣)	182	\usym{1F061} (▣)	182
\usym{2776} (⌚)	141	\usym{1F01F} (▣)	182	\usym{1F062} (▣)	181
\usym{2777} (⌚)	141	\usym{1F020} (▣)	182	\usym{1F063} (▣)	181
\usym{2778} (⌚)	141	\usym{1F021} (▣)	182	\usym{1F064} (▣)	181
\usym{2779} (⌚)	141	\usym{1F022} (▣)	182	\usym{1F065} (▣)	181
\usym{2780} (⌚)	141	\usym{1F023} (▣)	182	\usym{1F066} (▣)	181
\usym{2781} (⌚)	141	\usym{1F024} (▣)	182	\usym{1F067} (▣)	181
\usym{2782} (⌚)	141	\usym{1F025} (▣)	182	\usym{1F068} (▣)	181
\usym{2783} (⌚)	141	\usym{1F026} (▣)	182	\usym{1F069} (▣)	181
\usym{2784} (⌚)	141	\usym{1F027} (▣)	182	\usym{1F06A} (▣)	181
\usym{2785} (⌚)	141	\usym{1F028} (▣)	182	\usym{1F06B} (▣)	181
\usym{2786} (⌚)	141	\usym{1F029} (▣)	182	\usym{1F06C} (▣)	181
\usym{2787} (⌚)	141	\usym{1F02A} (▣)	182	\usym{1F06D} (▣)	181
\usym{2788} (⌚)	141	\usym{1F02B} (▣)	182	\usym{1F06E} (▣)	181
\usym{2789} (⌚)	141	\usym{1F030} (▣)	181	\usym{1F06F} (▣)	181
\usym{2790} (⌚)	141	\usym{1F031} (▣)	181	\usym{1F070} (▣)	181
\usym{2791} (⌚)	141	\usym{1F032} (▣)	181	\usym{1F071} (▣)	182
\usym{2792} (⌚)	141	\usym{1F033} (▣)	181	\usym{1F072} (▣)	182
\usym{2793} (⌚)	141	\usym{1F034} (▣)	181	\usym{1F073} (▣)	182
\usym{2794} (➔)	136	\usym{1F035} (▣)	181	\usym{1F074} (▣)	182

\usym{1F4C6} (☒)	229	\usym{1F505} (⊛)	230	\usym{1F544} (⊛)	228
\usym{1F4C7} (☒)	229	\usym{1F506} (⊛)	230	\usym{1F545} (☒)	228
\usym{1F4C8} (☒)	229	\usym{1F507} (⊛)	230	\usym{1F546} (⊛)	140
\usym{1F4C9} (☒)	229	\usym{1F508} (⊛)	230	\usym{1F547} (⊛)	140
\usym{1F4CA} (☒)	229	\usym{1F509} (⊛)	230	\usym{1F548} (⊛)	140
\usym{1F4CB} (□)	229	\usym{1F50A} (⊛)	230	\usym{1F549} (⊛)	228
\usym{1F4CC} (▢)	229	\usym{1F50B} (⊛)	230	\usym{1F54A} (⊛)	228
\usym{1F4CD} (▢)	229	\usym{1F50C} (⊛)	230	\usym{1F54B} (▢)	228
\usym{1F4CE} (▢)	229	\usym{1F50D} (⊛)	230	\usym{1F54C} (▢)	228
\usym{1F4CF} (▢)	229	\usym{1F50E} (⊛)	230	\usym{1F54D} (▢)	228
\usym{1F4D0} (▢)	229	\usym{1F50F} (⊛)	231	\usym{1F54E} (▢)	228
\usym{1F4D1} (▢)	229	\usym{1F510} (⊛)	231	\usym{1F54F} (▢)	228
\usym{1F4D2} (▢)	229	\usym{1F511} (⊛)	231	\usym{1F550} (⊛)	191
\usym{1F4D3} (▢)	229	\usym{1F512} (⊛)	231	\usym{1F551} (⊛)	191
\usym{1F4D4} (▢)	229	\usym{1F513} (⊛)	231	\usym{1F552} (⊛)	191
\usym{1F4D5} (▢)	229	\usym{1F514} (⊛)	231	\usym{1F553} (⊛)	191
\usym{1F4D6} (▢)	229	\usym{1F515} (⊛)	228	\usym{1F554} (⊛)	191
\usym{1F4D7} (▢)	229	\usym{1F516} (⊛)	228	\usym{1F555} (⊛)	191
\usym{1F4D8} (▢)	229	\usym{1F517} (⊛)	228	\usym{1F556} (⊛)	191
\usym{1F4D9} (▢)	229	\usym{1F518} (⊛)	228	\usym{1F557} (⊛)	191
\usym{1F4DA} (▢)	230	\usym{1F519} (⊛)	228	\usym{1F558} (⊛)	191
\usym{1F4DB} (▢)	230	\usym{1F51A} (⊛)	228	\usym{1F559} (⊛)	191
\usym{1F4DC} (▢)	230	\usym{1F51B} (⊛)	228	\usym{1F55A} (⊛)	191
\usym{1F4DD} (▢)	230	\usym{1F51C} (⊛)	228	\usym{1F55B} (⊛)	191
\usym{1F4DE} (▢)	230	\usym{1F51D} (⊛)	228	\usym{1F55C} (⊛)	191
\usym{1F4DF} (▢)	230	\usym{1F51E} (⊛)	228	\usym{1F55D} (⊛)	191
\usym{1F4E0} (▢)	230	\usym{1F51F} (⊛)	228	\usym{1F55E} (⊛)	191
\usym{1F4E1} (▢)	230	\usym{1F520} (⊛)	228	\usym{1F55F} (⊛)	191
\usym{1F4E2} (▢)	230	\usym{1F521} (⊛)	228	\usym{1F560} (⊛)	191
\usym{1F4E3} (▢)	230	\usym{1F522} (⊛)	228	\usym{1F561} (⊛)	191
\usym{1F4E4} (▢)	230	\usym{1F523} (⊛)	228	\usym{1F562} (⊛)	191
\usym{1F4E5} (▢)	230	\usym{1F524} (⊛)	228	\usym{1F563} (⊛)	191
\usym{1F4E6} (▢)	230	\usym{1F525} (⊛)	228	\usym{1F564} (⊛)	191
\usym{1F4E7} (▢)	230	\usym{1F526} (⊛)	228	\usym{1F565} (⊛)	191
\usym{1F4E8} (▢)	230	\usym{1F527} (⊛)	228	\usym{1F566} (⊛)	191
\usym{1F4E9} (▢)	230	\usym{1F528} (⊛)	228	\usym{1F567} (⊛)	191
\usym{1F4EA} (▢)	230	\usym{1F529} (⊛)	228	\usym{1F568} (▢)	228
\usym{1F4EB} (▢)	230	\usym{1F52A} (⊛)	228	\usym{1F569} (▢)	228
\usym{1F4EC} (▢)	230	\usym{1F52B} (⊛)	228	\usym{1F56A} (▢)	228
\usym{1F4ED} (▢)	230	\usym{1F52C} (⊛)	228	\usym{1F56B} (▢)	228
\usym{1F4EE} (▢)	230	\usym{1F52D} (⊛)	228	\usym{1F56C} (▢)	228
\usym{1F4EF} (▢)	230	\usym{1F52E} (⊛)	228	\usym{1F56D} (▢)	228
\usym{1F4F0} (▢)	230	\usym{1F52F} (⊛)	143	\usym{1F56E} (▢)	229
\usym{1F4F1} (▢)	230	\usym{1F530} (⊛)	228	\usym{1F56F} (▢)	229
\usym{1F4F2} (▢)	230	\usym{1F531} (⊛)	228	\usym{1F570} (▢)	191
\usym{1F4F3} (▢)	230	\usym{1F532} (⊛)	228	\usym{1F571} (▢)	229
\usym{1F4F4} (▢)	230	\usym{1F533} (⊛)	228	\usym{1F572} (⊛)	229
\usym{1F4F5} (⊛)	230	\usym{1F534} (⊛)	148	\usym{1F573} (▢)	229
\usym{1F4F6} (⊛)	230	\usym{1F535} (⊛)	148	\usym{1F574} (▢)	229
\usym{1F4F7} (⊛)	230	\usym{1F536} (⊛)	148	\usym{1F575} (▢)	229
\usym{1F4F8} (⊛)	230	\usym{1F537} (⊛)	148	\usym{1F576} (▢)	229
\usym{1F4F9} (⊛)	230	\usym{1F538} (⊛)	148	\usym{1F577} (▢)	229
\usym{1F4FA} (▢)	230	\usym{1F539} (⊛)	148	\usym{1F578} (▢)	229
\usym{1F4FB} (▢)	230	\usym{1F53A} (⊛)	148	\usym{1F579} (▢)	229
\usym{1F4FC} (▢)	230	\usym{1F53B} (⊛)	148	\usym{1F57A} (▢)	229
\usym{1F4FD} (▢)	230	\usym{1F53C} (⊛)	148	\usym{1F57B} (▢)	229
\usym{1F4FE} (▢)	230	\usym{1F53D} (⊛)	148	\usym{1F57C} (▢)	229
\usym{1F4FF} (▢)	230	\usym{1F53E} (⊛)	228	\usym{1F57D} (▢)	229
\usym{1F500} (☒)	230	\usym{1F53F} (⊛)	228	\usym{1F57E} (▢)	229
\usym{1F501} (☒)	230	\usym{1F540} (⊛)	228	\usym{1F57F} (▢)	229
\usym{1F502} (☒)	230	\usym{1F541} (⊛)	228	\usym{1F580} (▢)	229
\usym{1F503} (☒)	230	\usym{1F542} (⊛)	228	\usym{1F581} (▢)	229
\usym{1F504} (☒)	230	\usym{1F543} (⊛)	228	\usym{1F582} (▢)	229

\varlrttriangle (\triangleleft)	72, 145
\varmapsfrom (\leftrightarrow)	88
\varmapsto (\rightarrow)	88
\varmathbb	124
\varmodtwosum (Σ)	46
\varMoon (\mathbb{C})	129
\VarMountain (\blacktriangle)	190
\varnearrow (\nearrow)	88
\varniobar (\exists)	59
\varnis (\ni)	58
\varnis (\ni)	59
\varnothingthing (\emptyset)	30, 119, 120
\varnothingthing (\emptyset)	121
\varnothingthing (\emptyset)	121
\varnothingthing (\emptyset)	120
\varnothingthing (\emptyset)	118
\varnotin (\notin)	97
\varnotowner (\nexists)	97
\varnwarrow (\nwarrow)	88
\varoast (\circledast)	31
\varobar (\odot)	31
\varobslash (\oslash)	31
\varocircle (\odot)	31
\varodot (\odot)	31
\varogreaterthan (\circledgt)	31
\varoiintclockwise (\oint)	43
\varoiintctrcclockwise (\oint)	43
\varoiint (\oint)	44
\varoiintclockwise (\oint)	43
\varoiintctrcclockwise (\oint)	43
\varoint (\oint)	41
\varointclockwise (\oint)	43
\varointclockwise (\oint)	50
\varointclockwise (\oint)	44
\varointclockwise (\oint)	46
\varointclockwise (\oint)	47
\varointclockwisesl (\oint)	48
\varointclockwiseup (\oint)	48
\varointctrcclockwise (\oint)	43
\varointctrcclockwise (\oint)	50
\varointctrcclockwise (\oint)	44
\varointctrcclockwise (\oint)	46
\varolessthan (\circledlt)	31
\varomega (ω)	20
\varominus (\ominus)	31
\varopeno (\circ)	20
\varoplus (\oplus)	31
\varoslash (\oslash)	31
\varosum (Σ)	46
\varotimes (\otimes)	31
\varovee (\oslash)	31
\varowedge (\oslash)	31
\varparallel ($//$)	52
\varparallelinv ($\backslash\backslash$)	52
\varpartialdiff (∂)	99
\varphi (φ)	94
\varphi (φ)	96
\varphi (φ)	96
\varphi (φ)	95
\varphiup (φ)	95
\varphoton (f)	134
\varpi (ϖ)	94
\varpi (ϖ)	96
\varpi (ϖ)	95
\varpiup (ϖ)	95
\varPluto (\mathbb{P})	129
\varprod (\times)	43
\varprod (\prod)	46
\varprojlim (\varprojlim)	88, 92
\varpropto (\propto)	51
\varpropto (\propto)	58
\varpropto (\propto)	56
\varpropto (\propto)	54
\varpropto (\propto)	59
\varrho (ϱ)	94
\varrho (ϱ)	96
\varrho (ϱ)	95
\varrho (ϱ)	96
\varrho (ϱ)	95
\varrhoup (ϱ)	95
\varrightarrow (\rightarrow)	88
\varrightwavearrow (\rightsquigarrow)	79
\Varsampi (\mathcal{V})	157
\varsampi (\mathcal{V})	157
\varsearrow (\searrow)	88
\varsigma (ς)	94
\varsigma (ς)	96
\varsigma (ς)	96
\varsigmaup (ς)	95
\varspade (\spadesuit)	179
\varspadesuit (\spadesuit)	179
\varspadesuit (\spadesuit)	179
\varsqcap (\sqcap)	34
\varsqcup (\sqcup)	34
\varsqsubsetneq (\varsubsetneq)	63
\varsqsubsetneqq (\varsubsetneqq)	63
\varsqsupsetneq (\varsupsetneq)	63
\varsqsupsetneqq (\varsupsetneqq)	63
\varstar (*)	32
\varstar (*)	146
\varstigma (\varstigma)	157
\varsubsetneq (\varsubsetneq)	63
\varsubsetneqq (\varsubsetneqq)	63
\varsubsetneq (\varsubsetneq)	64
\varsubsetneq (\varsubsetneq)	64
\varsubsetneq (\varsubsetneq)	64
\varsubsetneq (\varsubsetneq)	65
\varsubsetneqq (\varsubsetneqq)	63
\varsubsetneqq (\varsubsetneqq)	63
\varsubsetneqq (\varsubsetneqq)	64
\varsubsetneqq (\varsubsetneqq)	64
\varsubsetneqq (\varsubsetneqq)	65
\varsum (\sum)	46
\varsumint (\oint)	46
\VarSummit (\triangle)	190
\varsupsetneq (\varsupsetneq)	63
\varsupsetneq (\varsupsetneq)	63
\varsupsetneq (\varsupsetneq)	64
\varsupsetneq (\varsupsetneq)	64
\varsupsetneq (\varsupsetneq)	64
\varsupsetneq (\varsupsetneq)	65
\varsupsetneq (\varsupsetneq)	63
\varsupsetneq (\varsupsetneq)	63
\varsupsetneq (\varsupsetneq)	63
\varsupsetneq (\varsupsetneq)	63
\varsupsetneqq (\varsupsetneqq)	63
\VarTaschenuhr (\mathfrak{T})	190
\varTerra (\mathfrak{E})	129
\varthetaeta (ϑ)	94
\varthetaeta (ϑ)	96
\varthetaeta (ϑ)	96
\varthetaetaup (ϑ)	95
\vartimes (\times)	31
\vartimes (\times)	34
\vartriangle (\triangle)	120
\vartriangle (\triangle)	72
\vartriangle (\triangle)	38, 72
\vartriangle (\triangle)	71
\vartriangle (\triangle)	72
\vartriangleleft (\triangleleft)	70
\vartriangleleft (\triangleleft)	70
\vartriangleleft (\triangleleft)	72
\vartriangleleft (\triangleleft)	72
\vartriangleleft (\triangleleft)	72
\vartriangleleft (\triangleleft)	67, 71
\vartriangleleft (\triangleleft)	72, 146
\vartriangleright (\triangleright)	70
\vartriangleright (\triangleright)	70
\vartriangleright (\triangleright)	72
\vartriangleright (\triangleright)	72
\vartriangleright (\triangleright)	67, 71
\vartriangleright (\triangleright)	72, 146
\vartriangleright (\triangleright)	146
\varuparrowarrow (\uparrow)	88
\varupdownarrow (\Downarrow)	88
\varupdownwavearrow (\Downarrow)	79
\varupwavearrow (\Downarrow)	79
\varUranus (\mathfrak{U})	129
\varv (v)	96
\varvarpi (ϖ)	95
\varvarrho (ϱ)	95
\varVdash (\Vdash)	59
\varveebar (\vee)	35
\varw (w)	96
\vary (y)	96
\VBar (\mid)	147
\Vbar ($\mid\mid$)	56
\Vbar ($\mid\mid$)	59
\vBar (\pm)	56
\vBar (\pm)	59
\vBarv (\pm)	59
\vbiproto (\mathfrak{B})	33
\vbrtri (\mathfrak{D})	72
\vcntcolon (:)	60
\vcnter	260, 261
\vcrossing (\times)	54
\VDash (\Vdash)	53
\VDash (\Vdash)	58
\VDash (\Vdash)	56
\VDash (\Vdash)	54
\VDash (\Vdash)	60
\Vdash (\Vdash)	53
\Vdash (\Vdash)	51
\Vdash (\Vdash)	58

\Vdash ()	56	\VERT ()	105
\Vdash ()	54	\Vert ()	100, 102
\Vdash ()	59	\Vert ()	103
\vDash (=)	53	\Vert ()	103
\vDash (=)	51	\Vert ()	104
\vDash (=)	58	\vert ()	100, 102
\vDash (=)	56	\vert ()	103
\vDash (=)	54	\vert ()	103
\vDash (=)	60	\vert ()	103
\vdash (-)	51	\vert ()	103
\vdash (-)	56	\vert ()	103
\vdash (-)	54	\vert ()	103
\vdash (-)	59	\vert ()	103
\vDdash (=)	56	\vert ()	104
\vDdash (=)	60	\vertbowtie (x)	33
\vdotdot (:)	33, 116	\vertdiv (·)	33
\vdotdot (:)	33, 116	\Vertex (V ^X)	129
\vdots (:)	116	vertical traffic light (🚠)	188
\vdots (:)	115	\vertoverlay ()	60
\vdots (:)	33	\Vesta (▽)	129
\vdots (:)	116	\VHF (≈)	126
\vdots (:)	60	vibration mode (▣)	223
\vec (vec)	107	victory hand (👉)	223
\vec (vec)	107	video camera (📹)	223
\vec (vec)	106	video game (🎮)	223
\vec (vec)	107	videocassette (📼)	223
\vec (vec)	106	\Vier (♩)	163
\vectimes (×)	35	vietnam (package)	276
\Vee (⤵)	34	\viewdata (#)	122
\Vee (⤵)	35	\Village (◇◇)	190
\vee (∨)	32	\vin (⤶)	99
\vee (∨)	31	vinculum <i>see</i> \overline	
\vee (∨)	34	violin (🎻)	223
\vee (∨)	33, 34	\ViPa (♪)	163
\vee (∨)	33	virga <i>see</i> musixgre	
\vee (∨)	35	\Virgo (♍)	129
\veebar (⤱)	32	\Virgo (♍)	127
\veebar (⤲)	31	Virgo (♍)	223
\veebar (⤳)	34	\virgo (♍)	127
\veebar (⤳)	34	\vlongdash (—)	56
\veebar (⤳)	35	\vlongdash (—)	60
\veebar (⤳)	35	\VM (>)	163
\veedot (⦿)	34	\vntex (package)	17, 21
\veedot (⦿)	33	\vod (y)	20
\veedot (⦿)	35	\voicedh (fi)	20
\veedoublebar (⤰)	32	volcano (🌋)	223
\veedoublebar (⤰)	34	volleyball (🏐)	223
\veedoublebar (⤰)	35	\Vomey (⤵)	212
\veeq (≐)	58	\vppm (⋮)	196
\veeq (≐)	56	\vpppm (⋮)	196
\veeq (≐)	60	\vrectangle (□)	146
\veemidvert (⤵)	35	\vrectangleblack (■)	146
\veedot (⦿)	35	\vrule	198
\veeonvee (⤷)	34	VS button (☒)	223
\veeonvee (⤷)	34	\VT (σ)	131
\veeonvee (⤷)	35	vulcan salute (👉)	223
\veeonwedge (⤸)	60	\Vulkanus (ꝝ)	129
\Venus (♀)	128	\vv (⤵)	111
\Venus (♀)	129	\VvDash (=)	52
\Venus (♀)	127	\Vvdash (=)	53
\venus (♀)	127	\Vvdash (=)	51
\vernal (↑)	127	\Vvdash (=)	58
versicle (⤷)	275	\Vvdash (=)	56
		\Vvdash (=)	54
		\Vvdash (=)	60
		\Vvert ()	103
		\Vvert ()	104
		\vvvert ()	101
		\vysmblkcircle (●)	39
		\vysmblksquare (◐)	146
		\vysmhtcircle (◑)	39
		\vysmhtsquare (◑)	146
		\vzigzag (⤷)	122
		W	
w (ƿ)	160		
waffle (🥞)	194		
\Walley (₩)	212		
waning crescent moon (☽)	200		
waning gibbous moon (☾)	200		
\warning (⚠)	211		
\warning (⚠)	189		
warning (⚠)	223		
\WashCotton (👕)	189		
\WashSynthetics (👖)	189		
\WashWool (🧣)	189		
\wasserdicht (▢▢)	122		
wastebasket (☒)	223		
\wasycmd (⌘)	186		
\wasyeuro (€)	26		
\wasylozenge (▢)	186		
\wasyparagraph (§)	28		
\wasypyropto (∞)	52		
wasysym (package)	20, 26,		
	28, 32, 41, 52, 63, 66, 116,		
	119, 120, 126, 127, 129,		
	132, 140, 142, 144, 161,		
	186, 257, 259, 276		
\wasytherefore (∴)	116		
watch (⌚)	223		
\Water (∇)	129		
\water (💧)	134		
water buffalo (犏)	193		
water closet (🚾)	223		
water pistol (🔫)	223		
water wave (🌊)	223		
watermelon (🍉)	194		
waving hand (👋)	223		
wavy dash (〰)	223		
wavy-line delimiters .	101–104		
waxing crescent moon (☽)	200		
waxing gibbous moon (☾)	200		
\wbetter (±)	183		
\Wboson (W)	134		
\Wbosonminus (W⁻)	134		
\Wbosonplus (W⁺)	134		
\wdecisive (+−)	183		
\weakpt (⊗)	183		
\WeakRain (🌧)	190		
\WeakRainCloud (⛈)	190		
weary cat (😿)	223		
weary face (😩)	223		
weather symbols	189, 190, 227		
Web symbols	231–234		

\webomints (package)	241, 276	
\Wecker (⌚)	190	
wedding (👰)	223	
\Wedge (Ⓐ)	34	
\Wedge (Ⓐ)	35	
\wedge (Ⓐ)	32	
\wedge (Ⓐ)	31	
\wedge (Ⓐ)	34	
\wedge (Ⓐ)	34	
\wedge (Ⓐ)	33	
\wedge (Ⓐ)	35	
\wedgebar (△)	35	
\wedgedot (Ⓐ)	34	
\wedgedot (Ⓐ)	33	
\wedgedot (Ⓐ)	35	
\wedgedoublebar (△)	35	
\wedgemidvert (Ⓐ)	35	
\wedgeodot (Ⓐ)	35	
\wedgeonwedge (Ⓜ)	34	
\wedgeonwedge (Ⓜ)	35	
\wedgeq (≒)	56	
\wedgeq (△)	60	
Weierstrass \wp function	see \wp	
\westcross (₩)	140	
\wfermion (⦵)	133	
whale2 (🐋)	193	
wheel of dharma (☸)	223	
\Wheelchair (♿)	189	
wheelchair symbol (♿)	223	
\whfermion (⦵)	133	
\whistle (🎵)	23	
\white	185	
white cane (瞽)	223	
white circle (⚪)	223	
white exclamation mark (!)	223	
white flag (🏳)	224	
white flower (💮)	224	
white hair (髢)	224	
white heart (❤)	224	
white large square (◻)	224	
white medium square (▢)	224	
white medium-small square (▢)	224	
white question mark (?)	224	
white small square (▫)	224	
white square button (▣)	224	
\whitearrowupfrombar (↑)	84	
\whitearrowupfrombar (↑)	86	
\whitearrowuppedestal (↑)	84	
\whitearrowuppedestalbar (↑)	84	
\whitearrowuppedestalvbar (↑)	84	
\WhiteBishopOnBlack (♝)	184	
\WhiteBishopOnWhite (♝)	184	
\whiteblackspoon (⦿)	90	
\WhiteEmptySquare (◻)	184	
\whiteinwhitetriangle (▲)	146	
\WhiteKingOnBlack (♚)	184	
\WhiteKingOnWhite (♔)	184	
\WhiteKnightOnBlack (♞)	184	
\WhiteKnightOnWhite (♞)	184	
\WhitePawnOnBlack (♟)	184	
\WhitePawnOnWhite (♟)	184	
\whitepointerleft (◁)	146	
\whitepointerright (▷)	146	
\WhiteQueenOnBlack (♛)	184	
\WhiteQueenOnWhite (♛)	184	
\WhiteRookOnBlack (♜)	184	
\WhiteRookOnWhite (♜)	184	
\whitesquareleft (□)	39	
\whitesquareright (□)	39	
\whitestone	184	
whole note	see musical symbols	
\wholeNote (●)	165	
\wholeNoteDotted (●.)	165	
\wholeNoteRest (—)	166	
\wholeNoteRestDotted (—.)	166	
\wholeof (ξ)	259	
\whthorzoval (○)	146	
\whtvertoval (○)	146	
Wick contractions	265	
\wideangledown (↙)	119	
\wideangleup (↖)	119	
\widearc (⏜)	110	
\widearrow (⏜)	110	
\widebar (⏜)	110	
\widebridgeabove (⏜)	107	
\widecheck (⏜)	110	
\widecheck (⏜)	110	
\widehat (⏜)	109	
\widehat (⏜)	109	
\widehat (⏜)	110	
\widehat (⏜)	109	
\widehat (⏜)	108	
\wide0arc (⏜)	110	
\wideparen (⏜)	110	
\wideparen (⏜)	109	
\wideparen (⏜)	110	
\wideparen (⏜)	109	
\wideparen (⏜)	109	
\wideparen (⏜)	110	
\widering (ଓ)	110	
\widering (ଓ)	110	

woman in lotus position (🧘)	224
woman in manual wheelchair (🦢)	224
woman in motorized wheelchair (🦣)	225
woman in steamy room (🧖)	225
woman in tuxedo (🤵)	225
woman judge (⚖)	225
woman juggling (🤹)	225
woman kneeling (꿇)	225
woman lifting weights (🏋)	225
woman mage (🧙)	225
woman mechanic (🔧)	225
woman mountain biking (🚵)	188
woman office worker (@})	225
woman pilot (🛩)	225
woman playing handball (🤾)	225
woman playing water polo (🤽)	225
woman police officer (👮)	225
woman pouting (,GL)	225
woman raising hand (🙋)	225
woman rowing boat (🚣)	188
woman running (🏃)	225
woman scientist (🔬)	225
woman shrugging (🤷)	225
woman singer (🎤)	225
woman standing (🕴)	225
woman student (🎓)	225
woman superhero (🦸)	225
woman supervillain (🦹)	225
woman surfing (🏄)	225
woman swimming (🏊)	225
woman teacher (🏫)	225
woman technologist (💻)	225
woman tipping hand (👉)	225
woman vampire (แว)	225
woman walking (🚶)	225
woman wearing turban (👳)	225
woman with headscarf (👳)	225
woman with veil (,GL)	225
woman with white cane (♿)	225
woman zombie (🧟)	225
woman's boot (👢)	225
woman's clothes (👚)	225
woman's hat (👒)	225
woman's sandal (👡)	225
\WomanFace (👩)	189
women	151, 156, 186–187, 189, 214–226, 228–231
women holding hands (👭)	225
women with bunny ears (🐰)	225
women wrestling (🤼)	225
women's room (🚽)	225
won	see \textwon
wood (🪵)	225
woozy face (🥴)	225
word balloons	228–231
world	189
world map (🌐)	225
\worldflag	206–208, 276
\worldflag{Abkhazia}	(
\worldflag{AD}	(
\worldflag{AE}	(
\worldflag{AF}	(
\worldflag{AG}	(
\worldflag{AL}	(
\worldflag{AM}	(
\worldflag{AO}	(
\worldflag{AQ}	(
\worldflag{Artsakh}	(
\worldflag{AR}	(
\worldflag{AT}	(
\worldflag{AU}	(
\worldflag{AZ}	(
\worldflag{BA}	(
\worldflag{BB}	(
\worldflag{BD}	(
\worldflag{BE}	(
\worldflag{BF}	(
\worldflag{BG}	(
\worldflag{BH}	(
\worldflag{BI}	(
\worldflag{BJ}	(
\worldflag{BN}	(
\worldflag{BO}	(
\worldflag{BR}	(
\worldflag{BS}	(
\worldflag{BT}	(
\worldflag{BW}	(
\worldflag{BY}	(
\worldflag{BZ}	(
\worldflag{CA}	(
\worldflag{CD}	(
\worldflag{CF}	(
\worldflag{CG}	(
\worldflag{CH}	(
\worldflag{CI}	(
\worldflag{CK}	(
\worldflag{CL}	(
\worldflag{CM}	(
\worldflag{CN}	(
\worldflag{CO}	(
\worldflag{CR}	(
\worldflag{CU}	(
\worldflag{CV}	(
\worldflag{CY}	(
\worldflag{CZ}	(
\worldflag{DE}	(
\worldflag{DJ}	(
\worldflag{DK}	(
\worldflag{DM}	(
\worldflag{DO}	(
\worldflag{DZ}	(
\worldflag{EC}	(
\worldflag{EE}	(
\worldflag{EG}	(
\worldflag{EH}	(
\worldflag{ER}	(
\worldflag{Esperanto}	(
\worldflag{ES}	(
\worldflag{ET}	(
\worldflag{EU}	(
\worldflag{FI}	(
\worldflag{FJ}	(
\worldflag{FM}	(
\worldflag{FR}	(
\worldflag{GA}	(
\worldflag{GB}	(
\worldflag{GD}	(
\worldflag{GE}	(
\worldflag{GF}	(
\worldflag{GH}	(
\worldflag{GL}	(
\worldflag{GM}	(
\worldflag{GN}	(
\worldflag{GQ}	(
\worldflag{GR}	(
\worldflag{GT}	(
\worldflag{GW}	(
\worldflag{GY}	(
\worldflag{HN}	(
\worldflag{HR}	(
\worldflag{HT}	(
\worldflag{HU}	(
\worldflag{ID}	(
\worldflag{IE}	(
\worldflag{IL}	(
\worldflag{IN}	(
\worldflag{IQ}	(
\worldflag{IR}	(
\worldflag{IS}	(
\worldflag{IT}	(
\worldflag{JM}	(
\worldflag{JollyRoger}	(
\worldflag{JO}	(
\worldflag{JP}	(

\worldflag{KE} (🇰🇪) . . .	206
\worldflag{KG} (🇰🇬) . . .	206
\worldflag{KH} (🇰🇭) . . .	206
\worldflag{KI} (🇰🇮) . . .	207
\worldflag{KM} (🇰🇲) . . .	207
\worldflag{KN} (🇰🇳) . . .	207
\worldflag{KO} (🇰🇷) . . .	207
\worldflag{KP} (🇰🇵) . . .	207
\worldflag{KR} (🇰🇷) . . .	207
\worldflag{KW} (🇰🇼) . . .	207
\worldflag{KZ} (🇰🇿) . . .	207
\worldflag{LA} (🇱🇦) . . .	207
\worldflag{LB} (🇱🇧) . . .	207
\worldflag{LC} (🇱🇨) . . .	207
\worldflag{LI} (🇱🇮) . . .	207
\worldflag{LK} (ලංකා) . . .	207
\worldflag{LR} (ລາວ) . . .	207
\worldflag{LS} (ລາສ) . . .	207
\worldflag{LT} (ລາຕ්‍ය) . . .	207
\worldflag{LU} (ລາວ) . . .	207
\worldflag{LV} (ລ🇻) . . .	207
\worldflag{LY} (ລෙඛිත්‍රා) . . .	207
\worldflag{MA} (ລາංඡා) . . .	207
\worldflag{MD} (ມධ්‍යජාත්‍රා) . . .	207
\worldflag{ME} (ມධ්‍යජාත්‍රා) . . .	207
\worldflag{MG} (මධ්‍යජාත්‍රා) . . .	207
\worldflag{MH} (මධ්‍යජාත්‍රා) . . .	207
\worldflag{MK} (ມක්‍රාන්ති) . . .	207
\worldflag{ML} (මළුගා) . . .	207
\worldflag{MM} (මළුගා) . . .	207
\worldflag{MN} (මළුගා) . . .	207
\worldflag{MR} (මළුගා) . . .	207
\worldflag{MT} (මළුගා) . . .	207
\worldflag{MU} (මළුගා) . . .	207
\worldflag{MV} (මළුගා) . . .	207
\worldflag{MW} (මළුගා) . . .	207
\worldflag{MX} (මළුගා) . . .	207
\worldflag{MY} (මළුගා) . . .	207
\worldflag{MZ} (මළුගා) . . .	207
\worldflag{NATO} (北约) . . .	207
\worldflag{NA} (ນາතැත්‍රා) . . .	207
\worldflag{NE} (ນෑත්‍රා) . . .	207
\worldflag{NG} (ນෑත්‍රා) . . .	207
\worldflag{NI} (ນෑත්‍රා) . . .	207
\worldflag{NL} (නෑත්‍රා) . . .	207
\worldflag{NO} (නෑත්‍රා) . . .	208
\worldflag{NP} (නෑත්‍රා) . . .	208
\worldflag{NR} (නෑත්‍රා) . . .	208
\worldflag{NU} (නෑත්‍රා) . . .	206
\worldflag{NZ} (නෑත්‍රා) . . .	206
\worldflag{Olympics} (IOC) . . .	206
\worldflag{OM} (ଓମାନ) . . .	206
\worldflag{PA} (ଓପାନ) . . .	206
\worldflag{PE} (ଓପାନ) . . .	206
\worldflag{PG} (ଓପାନ) . . .	206
\worldflag{PH} (ଓପାନ) . . .	206
\worldflag{PK} (ଓପାନ) . . .	206
\worldflag{PL} (ଓପାନ) . . .	206
\worldflag{PS} (ଓପାନ) . . .	206
\worldflag{PT} (ଓପାନ) . . .	206
\worldflag{PW} (ଓପାନ) . . .	206
\worldflag{PY} (ଓପାନ) . . .	206
\worldflag{QA} (ଓପାନ) . . .	206
\worldflag{Rainbow} (Rainbow) . . .	206
\worldflag{RedCross} (Red Cross) . . .	206
\worldflag{RO} (ଓପାନ) . . .	206
\worldflag{RS} (ଓପାନ) . . .	206
\worldflag{RU} (ଓପାନ) . . .	206
\worldflag{RW} (ଓପାନ) . . .	206
\worldflag{SA} (ଓପାନ) . . .	206
\worldflag{SB} (ଓପାନ) . . .	206
\worldflag{SC} (ଓପାନ) . . .	206
\worldflag{SD} (ଓପାନ) . . .	206
\worldflag{SE} (ଓପାନ) . . .	206
\worldflag{SG} (ଓପାନ) . . .	206
\worldflag{SI} (ଓପାନ) . . .	207
\worldflag{SK} (ଓପାନ) . . .	207
\worldflag{SL} (ଓପାନ) . . .	207
\worldflag{SM} (ଓପାନ) . . .	207
\worldflag{SN} (ଓପାନ) . . .	207
\worldflag{Somaliland} (ଓପାନ) . . .	207
\worldflag{SO} (ଓପାନ) . . .	207
\worldflag{SR} (ଓପାନ) . . .	207
\worldflag{SS} (ଓପାନ) . . .	207
\worldflag{ST} (ଓପାନ) . . .	207
\worldflag{SV} (ଓପାନ) . . .	207
\worldflag{SY} (ଓପାନ) . . .	207
\worldflag{SZ} (ଓପାନ) . . .	207
\worldflag{TD} (ଓପାନ) . . .	207
\worldflag{TG} (ଓପାନ) . . .	207
\worldflag{TH} (ଓପାନ) . . .	207
\worldflag{TJ} (ଓପାନ) . . .	207
\worldflag{TL} (ଓପାନ) . . .	207
\worldflag{TM} (ଓପାନ) . . .	207
\worldflag{TN} (ଓପାନ) . . .	207
\worldflag{TO} (ଓପାନ) . . .	207
\worldflag{Transnistria} (ଓପାନ) . . .	207
\worldflag{TR} (ଓପାନ) . . .	207
\worldflag{TT} (ଓପାନ) . . .	207
\worldflag{TV} (ଓପାନ) . . .	207
\worldflag{TW} (ଓପାନ) . . .	207
\worldflag{TZ} (ଓପାନ) . . .	207
\worldflag{UA} (ଓପାନ) . . .	207
\worldflag{UG} (ଓପାନ) . . .	207
\worldflag{UNO} (ଓପାନ) . . .	207
\worldflag{US} (ଓପାନ) . . .	207
\worldflag{UY} (ଓପାନ) . . .	207
\worldflag{UZ} (ଓପାନ) . . .	207
\worldflag{VA} (ଓପାନ) . . .	207
\worldflag{VC} (ଓପାନ) . . .	207
\worldflag{VE} (ଓପାନ) . . .	207
\worldflag{VN} (ଓପାନ) . . .	207
\worldflag{VU} (ଓପାନ) . . .	207
\worldflag{WB} (ଓପାନ) . . .	207
\worldflag{WS} (ଓପାନ) . . .	207
\worldflag{YE} (ଓପାନ) . . .	207
\worldflag{ZA} (ଓପାନ) . . .	207
\worldflag{ZM} (ଓପାନ) . . .	208
\worldflag{ZW} (ଓପାନ) . . .	208
worm (worm) . . .	193
worried face (担忧) . . .	225
\WorstTree (糟糕树) . . .	213
\wp (wp) . . .	97
\wp (wp) . . .	98
\wp (wp) . . .	98
\wp (wp) . . .	97
\wp (wp) . . .	98
\wq (wq) . . .	163
\wqq (wq) . . .	163
\wr (wr) . . .	31
\wr (wr) . . .	34
\wr (wr) . . .	33
\wr (wr) . . .	35
wrapped gift (礼物) . . .	225
\wreath (wreath) . . .	34
\wreath (wreath) . . .	33
wreath product . . .	see \wr
wrench (扳手) . . .	225
writing hand (书写) . . .	226
\WritingHand (书写) . . .	189
wsuipa (package) . . .	20, 23, 25, 257, 259, 264, 276, 277
\wupperhand (±) . . .	183
X	
\x (x) . . .	118
\x (::) . . .	196
\XBox (☒) . . .	140
\xbsol (\) . . .	47
Xdvi . . .	88, 259
X _{EL} AT _E X . . .	94, 161, 206, 275
X _{HT} E _X . . .	24

\ZwPa (\mathfrak{Y})	163	\ZY (\mathbb{Y})	130	zzz ($\textcolor{blue}{z}^{\mathbb{Z}}$)	226
\ZX (\mathbb{X})	130	\ZZ (\mathbb{Z})	130		