The Comprehensive LaTeX Symbol List

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Abstract

This document lists 2590 symbols and the corresponding LaTeX commands that produce them. Some of these symbols are guaranteed to be available in every LaTeX 2ε 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 TeX Archive Network (http://www.ctan.org).

Contents

*The original version of this document was written by David Carlisle, with several additional tables provided by Alexander Holt. See Section 7.5 on page 54 for more information about who did what.

1 Introduction

Welcome to the Comprehensive LaTeX Symbol List! This document strives to be your primary source of LaTeX symbol information: font samples, LaTeX 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 TeX Archive Network (`http://www.ctan.org`).
2. All of their symbols have LaTeX 2_ε bindings. That is, a user should be able to access a symbol by name, not just by `\char`⟨*number*⟩.

These are not particularly limiting criteria; the Comprehensive LaTeX Symbol List contains samples of 2590 symbols—quite a large number. Some of these symbols are guaranteed to be available in every LaTeX 2_ε system; others require fonts and packages that may not accompany a given distribution and that therefore need to be installed. See `http://www.tex.ac.uk/cgi-bin/texfaq2html?label=instpackages+wherefiles` for help with installing new fonts and packages.

1.1 Document Usage

Each section of this document contains a number of font tables. Each table shows a set of symbols, with the corresponding LaTeX 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 21, "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 LaTeX) and that you should use fontenc to select a different encoding, such as T1 (a common 8-bit font encoding). That means that you should put "`\usepackage[`⟨*encoding*⟩`]{fontenc}`" in your document's preamble, where ⟨*encoding*⟩ is, e.g., `T1` or `LY1`. To limit the change in font encoding to the current group, use "`\fontencoding{`⟨*encoding*⟩`}\selectfont`".

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

1.2 Frequently Requested Symbols

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

- ␣, as in "Spaces␣are␣significant." 7
- í, ì, ī, î, etc. (versus i̇́, i̇̀, i̇̄, and i̇̂) 10
- ¢ 12
- € 13
- ©, ®, and ™ 13
- ‰ 14
- ∯ 19
- ∴ 20
- := and ::= 21
- ⋰ 33
- °, as in "180°" or "15℃" 34
- $\mathscr{L}$, $\mathscr{F}$, etc. 35
- $\mathbb{N}$, $\mathbb{Z}$, $\mathbb{R}$, etc. 35
- ấ, ḕ, etc. (i.e., several accents per character) 52
- ƒ 50
- < and > (instead of ¡ and ¿) 53
- ˜ (or ∼) 53

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: LaTeX 2ε Escapable "Special" Characters

$	`\$`	%	`\%`	_	`\_`	}	`\}`	&	`\&`	#	`\#`	{	`\{`

Table 2: LaTeX 2ε Commands Defined to Work in Both Math and Text Mode

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

Where two symbols are present, the left one is the "faked" symbol that LaTeX 2ε provides by default, and the right one is the "true" symbol that textcomp makes available.

Table 3: Predefined LaTeX 2ε Text-Mode Commands

	ˆ	`\textasciicircum`		<	`\textless`
	˜	`\textasciitilde`	a	ª	`\textordfeminine`
	∗	`\textasteriskcentered`	o	º	`\textordmasculine`
	\	`\textbackslash`		¶	`\textparagraph`
	|	`\textbar`		·	`\textperiodcentered`
	{	`\textbraceleft`		¿	`\textquestiondown`
	}	`\textbraceright`		"	`\textquotedblleft`
	•	`\textbullet`		"	`\textquotedblright`
©	©	`\textcopyright`		'	`\textquoteleft`
	†	`\textdagger`		'	`\textquoteright`
	‡	`\textdaggerdbl`	®	®	`\textregistered`
	$	`\textdollar`		§	`\textsection`
	...	`\textellipsis`		£	`\textsterling`
	—	`\textemdash`	TM	™	`\texttrademark`
	–	`\textendash`		_	`\textunderscore`
	¡	`\textexclamdown`		␣	`\textvisiblespace`
	>	`\textgreater`			

Where two symbols are present, the left one is the "faked" symbol that LaTeX 2ε provides by default, and the right one is the "true" symbol that textcomp makes available.

Table 4: Non-ASCII Letters (Excluding Accented Letters)

å	`\aa`	Ð	`\DH`*	Ł	`\L`	ø	`\o`	ß	`\ss`
Å	`\AA`	ð	`\dh`*	ł	`\l`	Ø	`\O`	SS	`\SS`
Æ	`\AE`	Đ	`\DJ`*	Ŋ	`\NG`*	Œ	`\OE`	Þ	`\TH`*
æ	`\ae`	đ	`\dj`*	ŋ	`\ng`*	œ	`\oe`	þ	`\th`*

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

Table 5: Letters Used to Typeset African Languages

Đ	`\B{D}`	ƈ	`\m{c}`	ƒ	`\m{f}`	ƙ	`\m{k}`	ƫ	`\M{t}`	Ʒ	`\m{Z}`
đ	`\B{d}`	Ɗ	`\m{D}`	Ƒ	`\m{F}`	Ŋ	`\m{N}`	Ʈ	`\M{T}`	Ɛ̃	`\T{E}`
Ħ	`\B{H}`	ᶑ	`\M{d}`	Ɣ	`\m{G}`	ŋ	`\m{n}`	ƭ	`\m{t}`	ɛ̃	`\T{e}`
ħ	`\B{h}`	Ɖ	`\M{D}`	ɣ	`\m{g}`	ɔ	`\m{o}`	Ƭ	`\m{T}`	Ɔ̃	`\T{O}`
ŧ	`\B{t}`	ɗ	`\m{d}`	Ɩ	`\m{I}`	Ɔ	`\m{O}`	ʋ	`\m{u}`*	ɔ̃	`\T{o}`
Ŧ	`\B{T}`	Ɛ	`\m{E}`	ɩ	`\m{i}`	Ƥ	`\m{P}`	Ʊ	`\m{U}`*		
ɓ	`\m{b}`	ɛ	`\m{e}`	Ɲ	`\m{J}`	ƥ	`\m{p}`	Ƴ	`\m{Y}`		
Ɓ	`\m{B}`	Ǝ	`\M{E}`	ɲ	`\m{j}`	ʃ	`\m{s}`	ƴ	`\m{y}`		
Ƈ	`\m{C}`	ə	`\M{e}`	Ƙ	`\m{K}`	Ʃ	`\m{S}`	ʒ	`\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 6: Punctuation Marks Not Found in OT1

«	`\guillemotleft`	‹	`\guilsinglleft`	„	`\quotedblbase`	"	`\textquotedbl`
»	`\guillemotright`	›	`\guilsinglright`	‚	`\quotesinglbase`		

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

Table 7: pifont Decorative Punctuation Marks

❛	`\ding{123}`	❝	`\ding{125}`	❡	`\ding{161}`	❣	`\ding{163}`
❜	`\ding{124}`	❞	`\ding{126}`	❢	`\ding{162}`		

Table 8: wasysym Phonetic Symbols

Ð	`\DH`	ð	`\dh`	ɔ	`\openo`
Þ	`\Thorn`	ə	`\inve`	þ	`\thorn`

Table 9: tipa Phonetic Symbols

ɤ	`\textbabygamma`	ʔ	`\textglotstop`	ɳ	`\textrtailn`
ƀ	`\textbarb`	ˑ	`\texthalflength`	ɽ	`\textrtailr`
ꞓ	`\textbarc`	ъ	`\texthardsign`	ʂ	`\textrtails`
đ	`\textbard`	ʻ	`\texthooktop`	ʈ	`\textrtailt`
ɟ	`\textbardotlessj`	ɓ	`\texthtb`	ʐ	`\textrtailz`
ǥ	`\textbarg`	ʄ	`\texthtbardotlessj`	̢	`\textrthook`
ʡ	`\textbarglotstop`	ƈ	`\texthtc`	ᴀ	`\textsca`
ɨ	`\textbari`	ɗ	`\texthtd`	ʙ	`\textscb`

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ƚ	\textbarl	ɠ	\texthtg	ᴇ	\textsce
ɵ	\textbaro	ɦ	\texthth	ɢ	\textscg
ʢ	\textbarrevglotstop	ɧ	\texththeng	ʜ	\textsch
ʉ	\textbaru	ƙ	\texthtk	ə	\textschwa
ɬ	\textbeltl	ƥ	\texthtp	ɪ	\textsci
β	\textbeta	ʠ	\texthtq	ᴊ	\textscj
ʘ	\textbullseye	ᶑ	\texthtrtaild	ʟ	\textscl
ˊ	\textceltpal	ʛ	\texthtscg	ɴ	\textscn
χ	\textchi	ƭ	\texthtt	ɶ	\textscoelig
ʚ	\textcloseepsilon	ƕ	\texthvlig	ꭥ	\textscomega
ɷ	\textcloseomega	ʖ	\textinvglotstop	ʀ	\textscr
ɞ	\textcloserevepsilon	ʁ	\textinvscr	ɑ	\textscripta
ȥ	\textcommatailz	ɩ	\textiota	ɡ	\textscriptg
˺	\textcorner	λ	\textlambda	ʋ	\textscriptv
ƀ	\textcrb	ː	\textlengthmark	ᴜ	\textscu
đ	\textcrd	ƫ	\textlhookt	ʏ	\textscy
ǥ	\textcrg	ɿ	\textlhtlongi	ˌ	\textsecstress
ħ	\textcrh	ʮ	\textlhtlongy	ь	\textsoftsign
ʡ	\textcrinvglotstop	ɼ	\textlonglegr	ʗ	\textstretchc
ƛ	\textcrlambda	˂	\textlptr	ʨ	\textttctclig
ƻ	\textcrtwo	ɱ	\textltailm	ʧ	\textteshlig
ɕ	\textctc	ɲ	\textltailn	θ	\texttheta
ȡ	\textctd	ɫ	\textltilde	þ	\textthorn
ʥ	\textctdctzlig	ɮ	\textlyoghlig	˥	\texttoneletterstem
ʆ	\textctesh	ɟ	\textObardotlessj	ʦ	\texttslig
ʝ	\textctj	ɮ	\textOlyoghlig	ɐ	\textturna
ȵ	\textctn	ω	\textomega	ᴔ	\textturncelig
ȶ	\textctt	⌜	\textopencorner	ɥ	\textturnh
ʨ	\textcttctclig	ɔ	\textopeno	ʞ	\textturnk
ʓ	\textctyogh	̡	\textpalhook	ɺ	\textturnlonglegr
ʑ	\textctz	ɸ	\textphi	ɯ	\textturnm
ʣ	\textdctzlig	|	\textpipe	ɰ	\textturnmrleg
ʃ̶	\textdoublebaresh	ˈ	\textprimstress	ɹ	\textturnr
ǂ	\textdoublebarpipe	ˀ	\textraiseglotstop	ɻ	\textturnrrtail
≠	\textdoublebarslash	ɿ	\textraisevibyi	ɒ	\textturnscripta
ǁ	\textdoublepipe	ɤ	\textramshorns	ʇ	\textturnt
‖	\textdoublevertline	ʽ	\textrevapostrophe	ʌ	\textturnv
ꜜ	\textdownstep	ɘ	\textreve	ʍ	\textturnw
ʤ	\textdyoghlig	ɜ	\textrevepsilon	ʎ	\textturny
ʣ	\textdzlig	ʕ	\textrevglotstop	ʊ	\textupsilon
ɛ	\textepsilon	ƹ	\textrevyogh	ꜛ	\textupstep
ʃ	\textesh	ɝ	\textrhookrevepsilon	|	\textvertline
ɾ	\textfishhookr	ɚ	\textrhookschwa	ʅ	\textvibyi
ɡ	\textg	˞	\textrhoticity	ʯ	\textvibyy
ɣ	\textgamma	˃	\textrptr	ƿ	\textwynn
↘	\textglobfall	ɖ	\textrtaild	ʒ	\textyogh
↗	\textglobrise	ɭ	\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 10: wsuipa Phonetic Symbols

ɤ	`\babygamma`	ŋ	`\eng`	ɱ	`\labdentalnas`	ə	`\schwa`
ƀ	`\barb`	ɚ	`\er`	ɬ	`\latfric`	ɪ	`\sci`
đ	`\bard`	ʃ	`\esh`	ɰ	`\legm`	ɴ	`\scn`
ɨ	`\bari`	ð	`\eth`	ɼ	`\legr`	ʀ	`\scr`
ƚ	`\barl`	ɾ	`\flapr`	ɮ	`\lz`	ɑ	`\scripta`
ɵ	`\baro`	ʔ	`\glotstop`	α	`\nialpha`	ɡ	`\scriptg`
ᵽ	`\barp`	ɓ	`\hookb`	β	`\nibeta`	ʋ	`\scriptv`
ᵻ	`\barsci`	ɗ	`\hookd`	χ	`\nichi`	ᴜ	`\scu`
ᵾ	`\barscu`	ɠ	`\hookg`	ε	`\niepsilon`	ʏ	`\scy`
ʉ	`\baru`	ɦ	`\hookh`	γ	`\nigamma`	b̸	`\slashb`
ʘ	`\clickb`	ɧ	`\hookheng`	ι	`\niiota`	¢	`\slashc`
ʗ	`\clickc`	ɝ	`\hookrevepsilon`	λ	`\nilambda`	d̸	`\slashd`
ʇ	`\clickt`	ƕ	`\hv`	ω	`\niomega`	u̸	`\slashu`
ɷ	`\closedniomega`	ɐ	`\inva`	ϕ	`\niphi`	ɖ	`\taild`
ʚ	`\closedrevepsilon`	ɟ	`\invf`	σ	`\nisigma`	ɻ	`\tailinvr`
ƀ	`\crossb`	ʖ	`\invglotstop`	θ	`\nitheta`	ɭ	`\taill`
đ	`\crossd`	ɥ	`\invh`	ʊ	`\niupsilon`	ɳ	`\tailn`
ħ	`\crossh`	ɺ	`\invlegr`	ɲ	`\nj`	ɽ	`\tailr`
ƛ	`\crossnilambda`	ɯ	`\invm`	∞	`\oo`	ʂ	`\tails`
ɕ	`\curlyc`	ɹ	`\invr`	ɔ	`\openo`	ʈ	`\tailt`
ʆ	`\curlyesh`	ʁ	`\invscr`	ɘ	`\reve`	ʐ	`\tailz`
ʓ	`\curlyyogh`	ɒ	`\invscripta`	ʢ	`\reveject`	ʧ	`\tesh`
ʑ	`\curlyz`	ʌ	`\invv`	ɜ	`\revepsilon`	þ	`\thorn`
ɟ	`\dlbari`	ʍ	`\invw`	ʕ	`\revglotstop`	ɫ	`\tildel`
ʤ	`\dz`	ʎ	`\invy`	ᴅ	`\scd`	ʒ	`\yogh`
ˀ	`\ejective`	ɣ	`\ipagamma`	ɢ	`\scg`		

Table 11: Text-Mode Accents

Ää	`\"{A}\"{a}`	Àà	``\`{A}\`{a}``	A̋a̋	`\H{A}\H{a}`	Ăă	`\u{A}\u{a}`
Áá	`\'{A}\'{a}`	A̲a̲	`\b{A}\b{a}`	Ąą	`\k{A}\k{a}`†	Ǎǎ	`\v{A}\v{a}`
Ȧȧ	`\.{A}\.{a}`	A̧a̧	`\c{A}\c{a}`	Åå	`\r{A}\r{a}`	Ãã	`\~{A}\~{a}`
Āā	`\={A}\={a}`	Ạạ	`\d{A}\d{a}`	A͡a	`\t{A}\t{a}`		
Ââ	`\^{A}\^{a}`	Ä ä	`\G{A}\G{a}`‡	Ä ä	`\U{A}\U{a}`‡		

Â â `\newtie{A}\newtie{a}`* Ⓐⓐ `\textcircled{A}\textcircled{a}`

* 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.

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

Table 12: tipa Text-Mode Accents

Ā́ā́	\textacutemacron{A}\textacutemacron{a}
Ǎ́ǎ́	\textacutewedge{A}\textacutewedge{a}
A̟a̟	\textadvancing{A}\textadvancing{a}
A͜a	\textbottomtiebar{A}\textbottomtiebar{a}
Ā̆ā̆	\textbrevemacron{A}\textbrevemacron{a}
Ấấ	\textcircumacute{A}\textcircumacute{a}
Â̇â̇	\textcircumdot{A}\textcircumdot{a}
Ȧ́ȧ́	\textdotacute{A}\textdotacute{a}
Ă̇ă̇	\textdotbreve{A}\textdotbreve{a}
Ă̇ă̇	\textdotbreve{A}\textdotbreve{a}
Ȁȁ	\textdoublegrave{A}\textdoublegrave{a}
A̎a̎	\textdoublevbaraccent{A}\textdoublevbaraccent{a}
Ầầ	\textgravecircum{A}\textgravecircum{a}
Ȧ̀ȧ̀	\textgravedot{A}\textgravedot{a}
Ā̀ā̀	\textgravemacron{A}\textgravemacron{a}
A᷅a᷅	\textgravemid{A}\textgravemid{a}
A̺a̺	\textinvsubbridge{A}\textinvsubbridge{a}
A̞a̞	\textlowering{A}\textlowering{a}
A᷄a᷄	\textmidacute{A}\textmidacute{a}
A̽a̽	\textovercross{A}\textovercross{a}
A͐a͐	\textoverw{A}\textoverw{a}
A̜a̜	\textpolhook{A}\textpolhook{a}
A̝a̝	\textraising{A}\textraising{a}
A̠a̠	\textretracting{A}\textretracting{a}
Å̄å̄	\textringmacron{A}\textringmacron{a}
Ââ	\textroundcap{A}\textroundcap{a}
A̼a̼	\textseagull{A}\textseagull{a}
A̗a̗	\textsubacute{A}\textsubacute{a}
A̯a̯	\textsubarch{A}\textsubarch{a}
A̱a̱	\textsubbar{A}\textsubbar{a}
A̪a̪	\textsubbridge{A}\textsubbridge{a}
A̭a̭	\textsubcircum{A}\textsubcircum{a}
Ạạ	\textsubdot{A}\textsubdot{a}
A̖a̖	\textsubgrave{A}\textsubgrave{a}
A̜a̜	\textsublhalfring{A}\textsublhalfring{a}
A̟a̟	\textsubplus{A}\textsubplus{a}
A̹a̹	\textsubrhalfring{A}\textsubrhalfring{a}
Ḁḁ	\textsubring{A}\textsubring{a}
A̻a̻	\textsubsquare{A}\textsubsquare{a}
A̰a̰	\textsubtilde{A}\textsubtilde{a}
A̤a̤	\textsubumlaut{A}\textsubumlaut{a}
A̫a̫	\textsubw{A}\textsubw{a}

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A̬a̬	\textsubwedge{A}\textsubwedge{a}
A̴a̴	\textsuperimposetilde{A}\textsuperimposetilde{a}
A̩a̩	\textsyllabic{A}\textsyllabic{a}
Ã̇ã̇	\texttildedot{A}\texttildedot{a}
A͡a͡	\texttoptiebar{A}\texttoptiebar{a}
A̍a̍	\textvbaraccent{A}\textvbaraccent{a}

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

Table 13: wsuipa Text-Mode Accents

A̪a̪	\dental{A}\dental{a}
A̯a̯	\underarch{A}\underarch{a}

Table 14: wsuipa Diacritics

ʿ	\ain	˂	\leftp	˚	\overring	ˈ	\stress	ˬ	\underwedge
˥	\corner	˧	\leftt	˛	\polishhook	ˌ	\syllabic	˄	\upp
˅	\downp	ː	\length	˃	\rightp	̤	\underdots	⊥	\upt
⊤	\downt	˜	\midtilde	˫	\rightt	˳	\underring		
ˑ	\halflength	˛	\open	ˌ	\secstress	˷	\undertilde		

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

Table 15: textcomp Diacritics

″	\textacutedbl	ˇ	\textasciicaron	¯	\textasciimacron
´	\textasciiacute	¨	\textasciidieresis	‶	\textgravedbl
˘	\textasciibreve	`	\textasciigrave	˷	\texttildelow

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

Table 16: textcomp Currency Symbols

฿	\textbaht	$	\textdollar	₲	\textguarani	₩	\textwon
¢	\textcent	$	\textdollaroldstyle	₤	\textlira	¥	\textyen
¢	\textcentoldstyle	₫	\textdong	₦	\textnaira		
₡	\textcolonmonetary	€	\texteuro	₱	\textpeso		
¤	\textcurrency	f	\textflorin	£	\textsterling		

Table 17: marvosym Currency Symbols

₰	`\Denarius`	€	`\EUR`	€	`\EURdig`	€	`\EURtm`	₶	`\Pfund`
@	`\Ecommerce`	€	`\EURcr`	€	`\EURhv`	$	`\EyesDollar`	ß	`\Shilling`

The different euro signs are meant to be compatible with different fonts—Courier (`\EURcr`), Helvetica (`\EURhv`), Times (`\EURtm`), and the marvosym digits listed in Table 117 (`\EURdig`).

Table 18: wasysym Currency Symbols

¢	`\cent`	¤	`\currency`

Table 19: eurosym Euro Signs

€	`\geneuro`	€	`\geneuronarrow`	€	`\geneurowide`	€	`\officialeuro`

`\euro` is automatically mapped to one of the above—by default, `\officialeuro`—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 20: textcomp Legal Symbols

Ⓟ	`\textcircledP`	©	©	`\textcopyright`		℠	`\textservicemark`
🄯	`\textcopyleft`	®	®	`\textregistered`	™	™	`\texttrademark`

Where two symbols are present, the left one is the "faked" symbol that $\LaTeX\,2_\varepsilon$ provides by default, and the right one is the "true" symbol that textcomp makes available.

Table 21: textcomp Old-Style Numerals

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

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

Table 22: Miscellaneous textcomp Symbols

∗	\textasteriskcentered	◦	\textopenbullet
‖	\textbardbl	ª ª	\textordfeminine
◯	\textbigcircle	º º	\textordmasculine
␢	\textblank	¶	\textparagraph
¦	\textbrokenbar	·	\textperiodcentered
•	\textbullet	‱	\textpertenthousand
†	\textdagger	‰	\textperthousand
‡	\textdaggerdbl	¶	\textpilcrow
⹀	\textdblhyphen	'	\textquotesingle
⹀	\textdblhyphenchar	‚	\textquotestraightbase
⁒	\textdiscount	„	\textquotestraightdblbase
℮	\textestimated	℞	\textrecipe
‽	\textinterrobang	※	\textreferencemark
⸘	\textinterrobangdown	§	\textsection
♪	\textmusicalnote	—	\textthreequartersemdash
№	\textnumero	–	\texttwelveudash

Where two symbols are present, the left one is the "faked" symbol that LaTeX 2$_\varepsilon$ provides by default, and the right one is the "true" symbol that textcomp makes available.

Table 23: Miscellaneous wasysym Text-Mode Symbols

‰	\permil

Table 24: AMS Commands Defined to Work in Both Math and Text Mode

✓	\checkmark	®	\circledR	✠	\maltese

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., "$\mathscr{L}$" and "$\mathbb{Z}$") are usually produced using one of the math alphabets in Table 118 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 "↯" (`\blitza`), "$\Rightarrow\Leftarrow$" (`\Rightarrow\Leftarrow`), "$\bot$" (`\bot`), "$\nleftrightarrow$" (`\nleftrightarrow`), and "※" (`\textreferencemark`). Because of the lack of notational consensus, it is probably better to spell out "Contradiction!" than to use a symbol for this purpose. Similarly, discussions on `comp.text.tex` have revealed that there are a variety of ways to indicate the mathematical notion of "is defined as". Common candidates include "$\triangleq$" (`\triangleq`), "$\equiv$" (`\equiv`), "$\coloneqq$" (`\coloneqq`), and "$\stackrel{\text{def}}{=}$" (`\stackrel{\text{\tiny def}}{=}`).

Table 25: Binary Operators

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

* Not predefined in LaTeX 2ε. Use one of the packages latexsym, amsfonts, amssymb, txfonts, pxfonts, or wasysym.

Table 26: $\mathcal{AMS}$ Binary Operators

$\barwedge$	`\barwedge`	$\circledcirc$	`\circledcirc`	$\intercal$	`\intercal`
$\boxdot$	`\boxdot`	$\circleddash$	`\circleddash`	$\leftthreetimes$	`\leftthreetimes`
$\boxminus$	`\boxminus`	$\Cup$	`\Cup`	$\ltimes$	`\ltimes`
$\boxplus$	`\boxplus`	$\curlyvee$	`\curlyvee`	$\rightthreetimes$	`\rightthreetimes`
$\boxtimes$	`\boxtimes`	$\curlywedge$	`\curlywedge`	$\rtimes$	`\rtimes`
$\Cap$	`\Cap`	$\divideontimes$	`\divideontimes`	$\smallsetminus$	`\smallsetminus`
$\centerdot$	`\centerdot`	$\dotplus$	`\dotplus`	$\veebar$	`\veebar`
$\circledast$	`\circledast`	$\doublebarwedge$	`\doublebarwedge`		

Table 27: stmaryrd Binary Operators

$\baro$	\baro	$\interleave$	\interleave	$\varoast$	\varoast
$\bbslash$	\bbslash	$\leftslice$	\leftslice	$\varobar$	\varobar
$\binampersand$	\binampersand	$\merge$	\merge	$\varobslash$	\varobslash
$\bindnasrepma$	\bindnasrepma	$\minuso$	\minuso	$\varocircle$	\varocircle
$\boxast$	\boxast	$\moo$	\moo	$\varodot$	\varodot
$\boxbar$	\boxbar	$\nplus$	\nplus	$\varogreaterthan$	\varogreaterthan
$\boxbox$	\boxbox	$\obar$	\obar	$\varolessthan$	\varolessthan
$\boxbslash$	\boxbslash	$\oblong$	\oblong	$\varominus$	\varominus
$\boxcircle$	\boxcircle	$\obslash$	\obslash	$\varoplus$	\varoplus
$\boxdot$	\boxdot	$\ogreaterthan$	\ogreaterthan	$\varoslash$	\varoslash
$\boxempty$	\boxempty	$\olessthan$	\olessthan	$\varotimes$	\varotimes
$\boxslash$	\boxslash	$\ovee$	\ovee	$\varovee$	\varovee
$\curlyveedownarrow$	\curlyveedownarrow	$\owedge$	\owedge	$\varowedge$	\varowedge
$\curlyveeuparrow$	\curlyveeuparrow	$\rightslice$	\rightslice	$\vartimes$	\vartimes
$\curlywedgedownarrow$	\curlywedgedownarrow	$\sslash$	\sslash	$\Ydown$	\Ydown
$\curlywedgeuparrow$	\curlywedgeuparrow	$\talloblong$	\talloblong	$\Yleft$	\Yleft
$\fatbslash$	\fatbslash	$\varbigcirc$	\varbigcirc	$\Yright$	\Yright
$\fatsemi$	\fatsemi	$\varcurlyvee$	\varcurlyvee	$\Yup$	\Yup
$\fatslash$	\fatslash	$\varcurlywedge$	\varcurlywedge		

Table 28: wasysym Binary Operators

$\lhd$	\lhd	$\ocircle$	\ocircle	$\RHD$	\RHD	$\unrhd$	\unrhd
$\LHD$	\LHD	$\rhd$	\rhd	$\unlhd$	\unlhd		

Table 29: txfonts/pxfonts Binary Operators

$\circledbar$	\circledbar	$\circledwedge$	\circledwedge	$\medcirc$	\medcirc
$\circledbslash$	\circledbslash	$\invamp$	\invamp	$\sqcapplus$	\sqcapplus
$\circledvee$	\circledvee	$\medbullet$	\medbullet	$\sqcupplus$	\sqcupplus

TABLE 30: mathabx Binary Operators

$\ast$	\ast	$\curlywedge$	\curlywedge	$\sqcap$	\sqcap
$\Asterisk$	\Asterisk	$\divdot$	\divdot	$\sqcup$	\sqcup
$\barwedge$	\barwedge	$\divideontimes$	\divideontimes	$\sqdoublecap$	\sqdoublecap
$\bigstar$	\bigstar	$\dotdiv$	\dotdiv	$\sqdoublecup$	\sqdoublecup
$\bigvarstar$	\bigvarstar	$\dotplus$	\dotplus	$\square$	\square
$\blackdiamond$	\blackdiamond	$\dottimes$	\dottimes	$\squplus$	\squplus
$\cap$	\cap	$\doublebarwedge$	\doublebarwedge	$\udot$	\udot
$\circplus$	\circplus	$\doublecap$	\doublecap	$\uplus$	\uplus
$\coasterisk$	\coasterisk	$\doublecup$	\doublecup	$\varstar$	\varstar
$\coAsterisk$	\coAsterisk	$\ltimes$	\ltimes	$\vee$	\vee
$\convolution$	\convolution	$\pluscirc$	\pluscirc	$\veebar$	\veebar
$\cup$	\cup	$\rtimes$	\rtimes	$\veedoublebar$	\veedoublebar
$\curlyvee$	\curlyvee	$\sqbullet$	\sqbullet	$\wedge$	\wedge

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

TABLE 31: ulsy Geometric Binary Operators

$\odplus$	\odplus

TABLE 32: mathabx Geometric Binary Operators

$\blacktriangledown$	\blacktriangledown	$\boxright$	\boxright	$\ominus$	\ominus
$\blacktriangleleft$	\blacktriangleleft	$\boxslash$	\boxslash	$\oplus$	\oplus
$\blacktriangleright$	\blacktriangleright	$\boxtimes$	\boxtimes	$\oright$	\oright
$\blacktriangleup$	\blacktriangleup	$\boxtop$	\boxtop	$\oslash$	\oslash
$\boxasterisk$	\boxasterisk	$\boxtriangleup$	\boxtriangleup	$\otimes$	\otimes
$\boxbackslash$	\boxbackslash	$\boxvoid$	\boxvoid	$\otop$	\otop
$\boxbot$	\boxbot	$\oasterisk$	\oasterisk	$\otriangleup$	\otriangleup
$\boxcirc$	\boxcirc	$\obackslash$	\obackslash	$\ovoid$	\ovoid
$\boxcoasterisk$	\boxcoasterisk	$\obot$	\obot	$\smalltriangledown$	\smalltriangledown
$\boxdiv$	\boxdiv	$\ocirc$	\ocirc	$\smalltriangleleft$	\smalltriangleleft
$\boxdot$	\boxdot	$\ocoasterisk$	\ocoasterisk	$\smalltriangleright$	\smalltriangleright
$\boxleft$	\boxleft	$\odiv$	\odiv	$\smalltriangleup$	\smalltriangleup
$\boxminus$	\boxminus	$\odot$	\odot		
$\boxplus$	\boxplus	$\oleft$	\oleft		

TABLE 33: Variable-sized Math Operators

$\textstyle\bigcap\ \displaystyle\bigcap$	\bigcap	$\textstyle\bigotimes\ \displaystyle\bigotimes$	\bigotimes	$\textstyle\bigwedge\ \displaystyle\bigwedge$	\bigwedge	$\textstyle\prod\ \displaystyle\prod$	\prod
$\textstyle\bigcup\ \displaystyle\bigcup$	\bigcup	$\textstyle\bigsqcup\ \displaystyle\bigsqcup$	\bigsqcup	$\textstyle\coprod\ \displaystyle\coprod$	\coprod	$\textstyle\sum\ \displaystyle\sum$	\sum
$\textstyle\bigodot\ \displaystyle\bigodot$	\bigodot	$\textstyle\biguplus\ \displaystyle\biguplus$	\biguplus	$\textstyle\int\ \displaystyle\int$	\int		
$\textstyle\bigoplus\ \displaystyle\bigoplus$	\bigoplus	$\textstyle\bigvee\ \displaystyle\bigvee$	\bigvee	$\textstyle\oint\ \displaystyle\oint$	\oint		

Table 34: $\mathcal{AMS}$ Variable-sized Math Operators

$\idotsint$ $\displaystyle\idotsint$	`\idotsint`	$\iiint$ $\displaystyle\iiint$	`\iiint`
$\iiiint$ $\displaystyle\iiiint$	`\iiiint`	$\iint$ $\displaystyle\iint$	`\iint`

Table 35: stmaryrd Variable-sized Math Operators

$\bigbox$	`\bigbox`	$\biginterleave$	`\biginterleave`	$\bigsqcap$	`\bigsqcap`
$\bigcurlyvee$	`\bigcurlyvee`	$\bignplus$	`\bignplus`	$\bigtriangledown$	`\bigtriangledown`
$\bigcurlywedge$	`\bigcurlywedge`	$\bigparallel$	`\bigparallel`	$\bigtriangleup$	`\bigtriangleup`

Table 36: wasysym Variable-sized Math Operators

$\iiint$	`\iiint`	$\oiint$	`\oiint`	$\varoint$	`\varoint`
$\iint$	`\iint`	$\varint$	`\varint`		

Table 37: mathabx Variable-sized Math Operators

$\bigcurlyvee$	`\bigcurlyvee`	$\bigboxslash$	`\bigboxslash`	$\bigoright$	`\bigoright`
$\bigsqcap$	`\bigsqcap`	$\bigboxtimes$	`\bigboxtimes`	$\bigoslash$	`\bigoslash`
$\bigcurlywedge$	`\bigcurlywedge`	$\bigboxtop$	`\bigboxtop`	$\bigotop$	`\bigotop`
$\bigboxasterisk$	`\bigboxasterisk`	$\bigboxtriangleup$	`\bigboxtriangleup`	$\bigotriangleup$	`\bigotriangleup`
$\bigboxbackslash$	`\bigboxbackslash`	$\bigboxvoid$	`\bigboxvoid`	$\bigovoid$	`\bigovoid`
$\bigboxbot$	`\bigboxbot`	$\bigcomplementop$	`\bigcomplementop`	$\bigplus$	`\bigplus`
$\bigboxcirc$	`\bigboxcirc`	$\bigoasterisk$	`\bigoasterisk`	$\bigsquplus$	`\bigsquplus`
$\bigboxcoasterisk$	`\bigboxcoasterisk`	$\bigobackslash$	`\bigobackslash`	$\bigtimes$	`\bigtimes`
$\bigboxdiv$	`\bigboxdiv`	$\bigobot$	`\bigobot`	$\iiint$	`\iiint`
$\bigboxdot$	`\bigboxdot`	$\bigocirc$	`\bigocirc`	$\iint$	`\iint`
$\bigboxleft$	`\bigboxleft`	$\bigocoasterisk$	`\bigocoasterisk`	$\int$	`\int`
$\bigboxminus$	`\bigboxminus`	$\bigodiv$	`\bigodiv`	$\oiint$	`\oiint`
$\bigboxplus$	`\bigboxplus`	$\bigoleft$	`\bigoleft`	$\oint$	`\oint`
$\bigboxright$	`\bigboxright`	$\bigominus$	`\bigominus`		

Table 38: txfonts/pxfonts Variable-sized Math Operators

$\bigsqcapplus$	$\displaystyle\bigsqcapplus$	`\bigsqcapplus`	$\ointclockwise$	$\displaystyle\ointclockwise$	`\ointclockwise`
$\bigsqcupplus$	$\displaystyle\bigsqcupplus$	`\bigsqcupplus`	$\ointctrclockwise$	$\displaystyle\ointctrclockwise$	`\ointctrclockwise`
$\fint$	$\displaystyle\fint$	`\fint`	$\sqiiint$	$\displaystyle\sqiiint$	`\sqiiint`
$\idotsint$	$\displaystyle\idotsint$	`\idotsint`	$\sqiint$	$\displaystyle\sqiint$	`\sqiint`
$\iiiint$	$\displaystyle\iiiint$	`\iiiint`	$\sqint$	$\displaystyle\sqint$	`\sqint`
$\iiint$	$\displaystyle\iiint$	`\iiint`	$\varoiiintclockwise$	$\displaystyle\varoiiintclockwise$	`\varoiiintclockwise`
$\iint$	$\displaystyle\iint$	`\iint`	$\varoiiintctrclockwise$	$\displaystyle\varoiiintctrclockwise$	`\varoiiintctrclockwise`
$\oiiintclockwise$	$\displaystyle\oiiintclockwise$	`\oiiintclockwise`	$\varoiintclockwise$	$\displaystyle\varoiintclockwise$	`\varoiintclockwise`
$\oiiintctrclockwise$	$\displaystyle\oiiintctrclockwise$	`\oiiintctrclockwise`	$\varoiintctrclockwise$	$\displaystyle\varoiintctrclockwise$	`\varoiintctrclockwise`
$\oiiint$	$\displaystyle\oiiint$	`\oiiint`	$\varointclockwise$	$\displaystyle\varointclockwise$	`\varointclockwise`
$\oiintclockwise$	$\displaystyle\oiintclockwise$	`\oiintclockwise`	$\varointctrclockwise$	$\displaystyle\varointctrclockwise$	`\varointctrclockwise`
$\oiintctrclockwise$	$\displaystyle\oiintctrclockwise$	`\oiintctrclockwise`	$\varprod$	$\displaystyle\varprod$	`\varprod`
$\oiint$	$\displaystyle\oiint$	`\oiint`			

Table 39: esint Variable-sized Math Operators

$\dotsint$	$\displaystyle\dotsint$	`\dotsint`	$\ointclockwise$	$\displaystyle\ointclockwise$	`\ointclockwise`
$\fint$	$\displaystyle\fint$	`\fint`	$\ointctrclockwise$	$\displaystyle\ointctrclockwise$	`\ointctrclockwise`
$\iiiint$	$\displaystyle\iiiint$	`\iiiint`	$\sqiint$	$\displaystyle\sqiint$	`\sqiint`
$\iiint$	$\displaystyle\iiint$	`\iiint`	$\sqint$	$\displaystyle\sqint$	`\sqint`
$\iint$	$\displaystyle\iint$	`\iint`	$\varoiint$	$\displaystyle\varoiint$	`\varoiint`
$\landdownint$	$\displaystyle\landdownint$	`\landdownint`	$\varointclockwise$	$\displaystyle\varointclockwise$	`\varointclockwise`
$\landupint$	$\displaystyle\landupint$	`\landupint`	$\varointctrclockwise$	$\displaystyle\varointctrclockwise$	`\varointctrclockwise`
$\oiint$	$\displaystyle\oiint$	`\oiint`			

Table 40: Binary Relations

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

* Not predefined in LaTeX 2ε. Use one of the packages latexsym, amsfonts, amssymb, mathabx, txfonts, pxfonts, or wasysym.

Table 41: AMS Binary Relations

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

Table 42: AMS Negated Binary Relations

$\ncong$	\ncong	$\nshortparallel$	\nshortparallel	$\nVDash$	\nVDash
$\nmid$	\nmid	$\nsim$	\nsim	$\precnapprox$	\precnapprox
$\nparallel$	\nparallel	$\nsucc$	\nsucc	$\precnsim$	\precnsim
$\nprec$	\nprec	$\nsucceq$	\nsucceq	$\succnapprox$	\succnapprox
$\npreceq$	\npreceq	$\nvDash$	\nvDash	$\succnsim$	\succnsim
$\nshortmid$	\nshortmid	$\nvdash$	\nvdash		

Table 43: stmaryrd Binary Relations

$\inplus$	\inplus	$\niplus$	\niplus

Table 44: wasysym Binary Relations

$\invneg$	\invneg	$\leadsto$	\leadsto	$\wasypropto$	\wasypropto
$\Join$	\Join	$\logof$	\logof		

Table 45: txfonts/pxfonts Binary Relations

$\circledgtr$	\circledgtr	$\lJoin$	\lJoin	$\opentimes$	\opentimes
$\circledless$	\circledless	$\lrtimes$	\lrtimes	$\Perp$	\Perp
$\colonapprox$	\colonapprox	$\multimap$	\multimap	$\preceqq$	\preceqq
$\Colonapprox$	\Colonapprox	$\multimapboth$	\multimapboth	$\precneqq$	\precneqq
$\coloneq$	\coloneq	$\multimapbothvert$	\multimapbothvert	$\rJoin$	\rJoin
$\Coloneq$	\Coloneq	$\multimapdot$	\multimapdot	$\strictfi$	\strictfi
$\Coloneqq$	\Coloneqq	$\multimapdotboth$	\multimapdotboth	$\strictif$	\strictif
$\coloneqq$	\coloneqq	$\multimapdotbothA$	\multimapdotbothA	$\strictiff$	\strictiff
$\Colonsim$	\Colonsim	$\multimapdotbothAvert$	\multimapdotbothAvert	$\succeqq$	\succeqq
$\colonsim$	\colonsim	$\multimapdotbothB$	\multimapdotbothB	$\succneqq$	\succneqq
$\Eqcolon$	\Eqcolon	$\multimapdotbothBvert$	\multimapdotbothBvert	$\varparallel$	\varparallel
$\eqcolon$	\eqcolon	$\multimapdotbothvert$	\multimapdotbothvert	$\varparallelinv$	\varparallelinv
$\eqqcolon$	\eqqcolon	$\multimapdotinv$	\multimapdotinv	$\VvDash$	\VvDash
$\Eqqcolon$	\Eqqcolon	$\multimapinv$	\multimapinv		
$\eqsim$	\eqsim	$\openJoin$	\openJoin		

Table 46: txfonts/pxfonts Negated Binary Relations

$\napproxeq$	\napproxeq	$\npreccurlyeq$	\npreccurlyeq	$\nthickapprox$	\nthickapprox
$\nasymp$	\nasymp	$\npreceqq$	\npreceqq	$\ntwoheadleftarrow$	\ntwoheadleftarrow
$\nbacksim$	\nbacksim	$\nprecsim$	\nprecsim	$\ntwoheadrightarrow$	\ntwoheadrightarrow
$\nbacksimeq$	\nbacksimeq	$\nsimeq$	\nsimeq	$\nvarparallel$	\nvarparallel
$\nbumpeq$	\nbumpeq	$\nsuccapprox$	\nsuccapprox	$\nvarparallelinv$	\nvarparallelinv
$\nBumpeq$	\nBumpeq	$\nsucccurlyeq$	\nsucccurlyeq	$\nVdash$	\nVdash
$\nequiv$	\nequiv	$\nsucceqq$	\nsucceqq		
$\nprecapprox$	\nprecapprox	$\nsuccsim$	\nsuccsim		

Table 47: mathabx Binary Relations

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

Table 48: mathabx Negated Binary Relations

$\napprox$	`\napprox`	$\notperp$	`\notperp`	$\nvDash$	`\nvDash`
$\ncong$	`\ncong`	$\nprec$	`\nprec`	$\nVDash$	`\nVDash`
$\ncurlyeqprec$	`\ncurlyeqprec`	$\nprecapprox$	`\nprecapprox`	$\nVdash$	`\nVdash`
$\ncurlyeqsucc$	`\ncurlyeqsucc`	$\npreccurlyeq$	`\npreccurlyeq`	$\nvdash$	`\nvdash`
$\nDashv$	`\nDashv`	$\npreceq$	`\npreceq`	$\nVvash$	`\nVvash`
$\ndashV$	`\ndashV`	$\nprecsim$	`\nprecsim`	$\precnapprox$	`\precnapprox`
$\ndashv$	`\ndashv`	$\nsim$	`\nsim`	$\precneq$	`\precneq`
$\nDashV$	`\nDashV`	$\nsimeq$	`\nsimeq`	$\precnsim$	`\precnsim`
$\ndashVv$	`\ndashVv`	$\nsucc$	`\nsucc`	$\succnapprox$	`\succnapprox`
$\neq$	`\neq`	$\nsuccapprox$	`\nsuccapprox`	$\succneq$	`\succneq`
$\notasymp$	`\notasymp`	$\nsucccurlyeq$	`\nsucccurlyeq`	$\succnsim$	`\succnsim`
$\notdivides$	`\notdivides`	$\nsucceq$	`\nsucceq`		
$\notequiv$	`\notequiv`	$\nsuccsim$	`\nsuccsim`		

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 "$a \nmid= b$" or "$a \neq b$".

Table 49: Subset and Superset Relations

$\sqsubset$	`\sqsubset`*	$\sqsupseteq$	`\sqsupseteq`	$\supset$	`\supset`
$\sqsubseteq$	`\sqsubseteq`	$\subset$	`\subset`	$\supseteq$	`\supseteq`
$\sqsupset$	`\sqsupset`*	$\subseteq$	`\subseteq`		

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

Table 50: AMS Subset and Superset Relations

$\nsubseteq$	`\nsubseteq`	$\subseteqq$	`\subseteqq`	$\supsetneqq$	`\supsetneqq`
$\nsupseteq$	`\nsupseteq`	$\subsetneq$	`\subsetneq`	$\varsubsetneq$	`\varsubsetneq`
$\nsupseteqq$	`\nsupseteqq`	$\subsetneqq$	`\subsetneqq`	$\varsubsetneqq$	`\varsubsetneqq`
$\sqsubset$	`\sqsubset`	$\Supset$	`\Supset`	$\varsupsetneq$	`\varsupsetneq`
$\sqsupset$	`\sqsupset`	$\supseteqq$	`\supseteqq`	$\varsupsetneqq$	`\varsupsetneqq`
$\Subset$	`\Subset`	$\supsetneq$	`\supsetneq`		

Table 51: stmaryrd Subset and Superset Relations

$\subsetplus$	`\subsetplus`	$\supsetplus$	`\supsetplus`
$\subsetpluseq$	`\subsetpluseq`	$\supsetpluseq$	`\supsetpluseq`

Table 52: wasysym Subset and Superset Relations

$\sqsubset$	`\sqsubset`	$\sqsupset$	`\sqsupset`

Table 53: txfonts/pxfonts Subset and Superset Relations

$\nsqsubset$	\nsqsubset	$\nsqsupseteq$	\nsqsupseteq	$\nSupset$	\nSupset
$\nsqsubseteq$	\nsqsubseteq	$\nSubset$	\nSubset		
$\nsqsupset$	\nsqsupset	$\nsubseteqq$	\nsubseteqq		

Table 54: mathabx Subset and Superset Relations

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

Table 55: Inequalities

$\geq$	\geq	$\gg$	\gg	$\leq$	\leq	$\ll$	\ll	$\neq$	\neq

Table 56: $\mathcal{AMS}$ Inequalities

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

Table 57: wasysym Inequalities

$\apprge$	\apprge	$\apprle$	\apprle

Table 58: txfonts/pxfonts Inequalities

$\ngg$	`\ngg`	$\ngtrsim$	`\ngtrsim`	$\nlesssim$	`\nlesssim`
$\ngtrapprox$	`\ngtrapprox`	$\nlessapprox$	`\nlessapprox`	$\nll$	`\nll`
$\ngtrless$	`\ngtrless`	$\nlessgtr$	`\nlessgtr`		

Table 59: mathabx Inequalities

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

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

Table 60: AMS Triangle Relations

$\blacktriangleleft$	`\blacktriangleleft`	$\ntrianglelefteq$	`\ntrianglelefteq`	$\trianglelefteq$	`\trianglelefteq`	$\vartriangleleft$	`\vartriangleleft`
$\blacktriangleright$	`\blacktriangleright`	$\ntriangleright$	`\ntriangleright`	$\triangleq$	`\triangleq`	$\vartriangleright$	`\vartriangleright`
$\ntriangleleft$	`\ntriangleleft`	$\ntrianglerighteq$	`\ntrianglerighteq`	$\trianglerighteq$	`\trianglerighteq`		

Table 61: stmaryrd Triangle Relations

$\trianglelefteqslant$	`\trianglelefteqslant`	$\trianglerighteqslant$	`\trianglerighteqslant`
$\ntrianglelefteqslant$	`\ntrianglelefteqslant`	$\ntrianglerighteqslant$	`\ntrianglerighteqslant`

Table 62: mathabx Triangle Relations

$\ntriangleleft$	`\ntriangleleft`	$\ntrianglerighteq$	`\ntrianglerighteq`	$\triangleright$	`\triangleright`	$\vartriangleright$	`\vartriangleright`
$\ntrianglelefteq$	`\ntrianglelefteq`	$\triangleleft$	`\triangleleft`	$\trianglerighteq$	`\trianglerighteq`		
$\ntriangleright$	`\ntriangleright`	$\trianglelefteq$	`\trianglelefteq`	$\vartriangleleft$	`\vartriangleleft`		

Table 63: Arrows

$\Downarrow$	`\Downarrow`	$\longleftarrow$	`\longleftarrow`	$\nwarrow$	`\nwarrow`
$\downarrow$	`\downarrow`	$\Longleftarrow$	`\Longleftarrow`	$\Rightarrow$	`\Rightarrow`
$\hookleftarrow$	`\hookleftarrow`	$\longleftrightarrow$	`\longleftrightarrow`	$\rightarrow$	`\rightarrow`
$\hookrightarrow$	`\hookrightarrow`	$\Longleftrightarrow$	`\Longleftrightarrow`	$\searrow$	`\searrow`
$\leadsto$	`\leadsto`*	$\longmapsto$	`\longmapsto`	$\swarrow$	`\swarrow`
$\leftarrow$	`\leftarrow`	$\Longrightarrow$	`\Longrightarrow`	$\uparrow$	`\uparrow`
$\Leftarrow$	`\Leftarrow`	$\longrightarrow$	`\longrightarrow`	$\Uparrow$	`\Uparrow`
$\Leftrightarrow$	`\Leftrightarrow`	$\mapsto$	`\mapsto`	$\updownarrow$	`\updownarrow`
$\leftrightarrow$	`\leftrightarrow`	$\nearrow$	`\nearrow`	$\Updownarrow$	`\Updownarrow`

* Not predefined in LaTeX 2$_\varepsilon$. Use one of the packages latexsym, amsfonts, amssymb, txfonts, pxfonts, or wasysym.

Table 64: Harpoons

$\leftharpoondown$	`\leftharpoondown`	$\rightharpoondown$	`\rightharpoondown`	$\rightleftharpoons$	`\rightleftharpoons`
$\leftharpoonup$	`\leftharpoonup`	$\rightharpoonup$	`\rightharpoonup`		

Table 65: textcomp Text-Mode Arrows

↓	`\textdownarrow`	→	`\textrightarrow`
←	`\textleftarrow`	↑	`\textuparrow`

Table 66: AMS Arrows

$\circlearrowleft$	`\circlearrowleft`	$\leftleftarrows$	`\leftleftarrows`	$\rightleftarrows$	`\rightleftarrows`
$\circlearrowright$	`\circlearrowright`	$\leftrightarrows$	`\leftrightarrows`	$\rightrightarrows$	`\rightrightarrows`
$\curvearrowleft$	`\curvearrowleft`	$\leftrightsquigarrow$	`\leftrightsquigarrow`	$\rightsquigarrow$	`\rightsquigarrow`
$\curvearrowright$	`\curvearrowright`	$\Lleftarrow$	`\Lleftarrow`	$\Rsh$	`\Rsh`
$\dashleftarrow$	`\dashleftarrow`	$\looparrowleft$	`\looparrowleft`	$\twoheadleftarrow$	`\twoheadleftarrow`
$\dashrightarrow$	`\dashrightarrow`	$\looparrowright$	`\looparrowright`	$\twoheadrightarrow$	`\twoheadrightarrow`
$\downdownarrows$	`\downdownarrows`	$\Lsh$	`\Lsh`	$\upuparrows$	`\upuparrows`
$\leftarrowtail$	`\leftarrowtail`	$\rightarrowtail$	`\rightarrowtail`		

Table 67: AMS Negated Arrows

$\nLeftarrow$	`\nLeftarrow`	$\nLeftrightarrow$	`\nLeftrightarrow`	$\nRightarrow$	`\nRightarrow`
$\nleftarrow$	`\nleftarrow`	$\nleftrightarrow$	`\nleftrightarrow`	$\nrightarrow$	`\nrightarrow`

Table 68: AMS Harpoons

$\downharpoonleft$	`\downharpoonleft`	$\leftrightharpoons$	`\leftrightharpoons`	$\upharpoonleft$	`\upharpoonleft`
$\downharpoonright$	`\downharpoonright`	$\rightleftharpoons$	`\rightleftharpoons`	$\upharpoonright$	`\upharpoonright`

Table 69: stmaryrd Arrows

$\leftarrowtriangle$	`\leftarrowtriangle`	$\Mapsfrom$	`\Mapsfrom`	$\shortleftarrow$	`\shortleftarrow`
$\leftrightarroweq$	`\leftrightarroweq`	$\mapsfrom$	`\mapsfrom`	$\shortrightarrow$	`\shortrightarrow`
$\leftrightarrowtriangle$	`\leftrightarrowtriangle`	$\Mapsto$	`\Mapsto`	$\shortuparrow$	`\shortuparrow`
$\lightning$	`\lightning`	$\nnearrow$	`\nnearrow`	$\ssearrow$	`\ssearrow`
$\Longmapsfrom$	`\Longmapsfrom`	$\nnwarrow$	`\nnwarrow`	$\sswarrow$	`\sswarrow`
$\longmapsfrom$	`\longmapsfrom`	$\rightarrowtriangle$	`\rightarrowtriangle`		
$\Longmapsto$	`\Longmapsto`	$\shortdownarrow$	`\shortdownarrow`		

Table 70: txfonts/pxfonts Arrows

$\boxdotLeft$	`\boxdotLeft`	$\circleddotright$	`\circleddotright`	$\Diamondleft$	`\Diamondleft`
$\boxdotleft$	`\boxdotleft`	$\circleleft$	`\circleleft`	$\Diamondright$	`\Diamondright`
$\boxdotright$	`\boxdotright`	$\circleright$	`\circleright`	$\DiamondRight$	`\DiamondRight`
$\boxdotRight$	`\boxdotRight`	$\dashleftrightarrow$	`\dashleftrightarrow`	$\leftsquigarrow$	`\leftsquigarrow`
$\boxLeft$	`\boxLeft`	$\DiamonddotLeft$	`\DiamonddotLeft`	$\Nearrow$	`\Nearrow`
$\boxleft$	`\boxleft`	$\Diamonddotleft$	`\Diamonddotleft`	$\Nwarrow$	`\Nwarrow`
$\boxright$	`\boxright`	$\Diamonddotright$	`\Diamonddotright`	$\Rrightarrow$	`\Rrightarrow`
$\boxRight$	`\boxRight`	$\DiamonddotRight$	`\DiamonddotRight`	$\Searrow$	`\Searrow`
$\circleddotleft$	`\circleddotleft`	$\DiamondLeft$	`\DiamondLeft`	$\Swarrow$	`\Swarrow`

Table 71: mathabx Arrows

$\circlearrowleft$	`\circlearrowleft`	$\leftarrow$	`\leftarrow`	$\nwarrow$	`\nwarrow`
$\circlearrowright$	`\circlearrowright`	$\leftleftarrows$	`\leftleftarrows`	$\restriction$	`\restriction`
$\curvearrowbotleft$	`\curvearrowbotleft`	$\leftrightarrow$	`\leftrightarrow`	$\rightarrow$	`\rightarrow`
$\curvearrowbotleftright$	`\curvearrowbotleftright`	$\leftrightarrows$	`\leftrightarrows`	$\rightleftarrows$	`\rightleftarrows`
$\curvearrowbotright$	`\curvearrowbotright`	$\leftrightsquigarrow$	`\leftrightsquigarrow`	$\rightrightarrows$	`\rightrightarrows`
$\curvearrowleft$	`\curvearrowleft`	$\leftsquigarrow$	`\leftsquigarrow`	$\rightsquigarrow$	`\rightsquigarrow`
$\curvearrowleftright$	`\curvearrowleftright`	$\lefttorightarrow$	`\lefttorightarrow`	$\righttoleftarrow$	`\righttoleftarrow`
$\curvearrowright$	`\curvearrowright`	$\looparrowdownleft$	`\looparrowdownleft`	$\Rsh$	`\Rsh`
$\dlsh$	`\dlsh`	$\looparrowdownright$	`\looparrowdownright`	$\searrow$	`\searrow`
$\downdownarrows$	`\downdownarrows`	$\looparrowleft$	`\looparrowleft`	$\swarrow$	`\swarrow`
$\downtouparrow$	`\downtouparrow`	$\looparrowright$	`\looparrowright`	$\updownarrows$	`\updownarrows`
$\downuparrows$	`\downuparrows`	$\Lsh$	`\Lsh`	$\uptodownarrow$	`\uptodownarrow`
$\drsh$	`\drsh`	$\nearrow$	`\nearrow`	$\upuparrows$	`\upuparrows`

Table 72: mathabx Negated Arrows

$\nLeftarrow$	`\nLeftarrow`	$\nleftrightarrow$	`\nleftrightarrow`	$\nrightarrow$	`\nrightarrow`
$\nleftarrow$	`\nleftarrow`	$\nLeftrightarrow$	`\nLeftrightarrow`	$\nRightarrow$	`\nRightarrow`

Table 73: mathabx Harpoons

$\barleftharpoon$	\barleftharpoon	$\leftharpoonup$	\leftharpoonup	$\rightleftharpoons$	\rightleftharpoons
$\barrightharpoon$	\barrightharpoon	$\leftleftharpoons$	\leftleftharpoons	$\rightrightharpoons$	\rightrightharpoons
$\downdownharpoons$	\downdownharpoons	$\leftrightharpoon$	\leftrightharpoon	$\updownharpoons$	\updownharpoons
$\downharpoonleft$	\downharpoonleft	$\leftrightharpoons$	\leftrightharpoons	$\upharpoonleft$	\upharpoonleft
$\downharpoonright$	\downharpoonright	$\rightbarharpoon$	\rightbarharpoon	$\upharpoonright$	\upharpoonright
$\downupharpoons$	\downupharpoons	$\rightharpoondown$	\rightharpoondown	$\upupharpoons$	\upupharpoons
$\leftbarharpoon$	\leftbarharpoon	$\rightharpoonup$	\rightharpoonup		
$\leftharpoondown$	\leftharpoondown	$\rightleftharpoon$	\rightleftharpoon		

Table 74: ulsy Contradiction Symbols

$\blitza$	\blitza	$\blitzb$	\blitzb	$\blitzc$	\blitzc	$\blitzd$	\blitzd	$\blitze$	\blitze

Table 75: Extension Characters

$\relbar$	\relbar	$\Relbar$	\Relbar

Table 76: stmaryrd Extension Characters

$\Arrownot$	\Arrownot	$\Mapsfromchar$	\Mapsfromchar	$\Mapstochar$	\Mapstochar
$\arrownot$	\arrownot	$\mapsfromchar$	\mapsfromchar		

Table 77: txfonts/pxfonts Extension Characters

$\Mappedfromchar$	\Mappedfromchar	$\Mmappedfromchar$	\Mmappedfromchar	$\Mmapstochar$	\Mmapstochar
$\mappedfromchar$	\mappedfromchar	$\mmappedfromchar$	\mmappedfromchar	$\mmapstochar$	\mmapstochar

Table 78: mathabx Extension Characters

$\mapsfromchar$	\mapsfromchar	$\mapstochar$	\mapstochar
$\Mapsfromchar$	\Mapsfromchar	$\Mapstochar$	\Mapstochar

Table 79: Log-like Symbols

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

Calling the above "symbols" may be a bit misleading.[1] Each log-like symbol merely produces the eponymous textual equivalent, but with proper surrounding spacing. See Section 7.3 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 LaTeX [Dow00] for samples.

Table 80: $\mathcal{AMS}$ Log-like Symbols

$\operatorname{inj\,lim}$	`\injlim`	$\varinjlim$	`\varinjlim`	$\varlimsup$	`\varlimsup`
$\operatorname{proj\,lim}$	`\projlim`	$\varliminf$	`\varliminf`	$\varprojlim$	`\varprojlim`

Load the amsmath package to get these symbols. See Section 7.3 for some additional comments regarding log-like symbols. As `\mod` and `\pod` are arguably not symbols we refer the reader to the Short Math Guide for LaTeX [Dow00] for samples.

Table 81: Greek Letters

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

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".

Table 82: $\mathcal{AMS}$ Greek Letters

$\digamma$	`\digamma`	$\varkappa$	`\varkappa`

Table 83: txfonts/pxfonts Upright Greek Letters

α	`\alphaup`	θ	`\thetaup`	π	`\piup`	ϕ	`\phiup`
β	`\betaup`	ϑ	`\varthetaup`	ϖ	`\varpiup`	φ	`\varphiup`
γ	`\gammaup`	ι	`\iotaup`	ρ	`\rhoup`	χ	`\chiup`
δ	`\deltaup`	κ	`\kappaup`	ϱ	`\varrhoup`	ψ	`\psiup`
ϵ	`\epsilonup`	λ	`\lambdaup`	σ	`\sigmaup`	ω	`\omegaup`
ε	`\varepsilonup`	μ	`\muup`	ς	`\varsigmaup`		
ζ	`\zetaup`	ν	`\nuup`	τ	`\tauup`		
η	`\etaup`	ξ	`\xiup`	υ	`\upsilonup`		

Table 84: txfonts/pxfonts Variant Latin Letters

g	`\varg`	v	`\varv`	w	`\varw`	y	`\vary`

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.

[1]Michael J. Downes prefers the more general term, "atomic math objects".

Table 85: $\mathcal{AMS}$ Hebrew Letters

$\beth$	`\beth`	$\gimel$	`\gimel`	$\daleth$	`\daleth`

`\aleph` appears in Table 109 on page 33.

Table 86: Letter-like Symbols

$\bot$	`\bot`	$\forall$	`\forall`	$\imath$	`\imath`	$\ni$	`\ni`	$\top$	`\top`
ℓ	`\ell`	$\hbar$	`\hbar`	$\in$	`\in`	∂	`\partial`	$\wp$	`\wp`
$\exists$	`\exists`	$\Im$	`\Im`	$\jmath$	`\jmath`	$\Re$	`\Re`		

Table 87: $\mathcal{AMS}$ Letter-like Symbols

$\Bbbk$	`\Bbbk`	$\complement$	`\complement`	$\hbar$	`\hbar`
®	`\circledR`	$\Finv$	`\Finv`	$\hslash$	`\hslash`
Ⓢ	`\circledS`	$\Game$	`\Game`	$\nexists$	`\nexists`

Table 88: txfonts/pxfonts Letter-like Symbols

¢	`\mathcent`	£	`\mathsterling`	$\notin$	`\notin`	$\not\ni$	`\notni`

Table 89: mathabx Letter-like Symbols

∈̄	`\barin`	$\in$	`\in`	$\not\top$	`\nottop`	$\notin$	`\varnotin`
$\complement$	`\complement`	$\nexists$	`\nexists`	$\ni$	`\owns`	$\not\ni$	`\varnotowner`
$\exists$	`\exists`	$\not\bot$	`\notbot`	∋̲	`\ownsbar`		
$\Finv$	`\Finv`	$\notin$	`\notin`	∂	`\partial`		
$\Game$	`\Game`	$\not\ni$	`\notowner`	$\not\partial$	`\partialslash`		

Table 90: $\mathcal{AMS}$ Delimiters

$\ulcorner$	`\ulcorner`	$\urcorner$	`\urcorner`
$\llcorner$	`\llcorner`	$\lrcorner$	`\lrcorner`

Table 91: stmaryrd Delimiters

⟅	`\Lbag`	⟆	`\Rbag`	⟅	`\lbag`	⟆	`\rbag`
⌈⌈	`\llceil`	⌉⌉	`\rrceil`	⌊⌊	`\llfloor`	⌋⌋	`\rrfloor`
⦅	`\llparenthesis`	⦆	`\rrparenthesis`				

Table 92: mathabx Delimiters

⌜⌞	`\lcorners`	⌝⌟	`\rcorners`
$\ulcorner$	`\ulcorner`	$\urcorner$	`\urcorner`
$\llcorner$	`\llcorner`	$\lrcorner$	`\lrcorner`

Table 93: Variable-sized Delimiters

$\downarrow$	$\Big\downarrow$	`\downarrow`	$\Downarrow$	$\Big\Downarrow$	`\Downarrow`	$[$	$\Big[$	`[`	$]$	$\Big]$	`]`
$\langle$	$\Big\langle$	`\langle`	$\rangle$	$\Big\rangle$	`\rangle`	$\vert$	$\Big\vert$	`|`*	$\Vert$	$\Big\Vert$	`|`
$\lceil$	$\Big\lceil$	`\lceil`	$\rceil$	$\Big\rceil$	`\rceil`	$\uparrow$	$\Big\uparrow$	`\uparrow`	$\Uparrow$	$\Big\Uparrow$	`\Uparrow`
$\lfloor$	$\Big\lfloor$	`\lfloor`	$\rfloor$	$\Big\rfloor$	`\rfloor`	$\updownarrow$	$\Big\updownarrow$	`\updownarrow`	$\Updownarrow$	$\Big\Updownarrow$	`\Updownarrow`
$($	$\Big($	`(`	$)$	$\Big)$	`)`	$\{$	$\Big\{$	`\{`	$\}$	$\Big\}$	`\}`
$/$	$\Big/$	`/`	$\backslash$	$\Big\backslash$	`\backslash`						

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

* e-TEX provides a `\middle` analogue to `\left` and `\right` that can be used to make an internal "|" expand to the height of the surrounding `\left` and `\right` symbols. A similar effect can be achieved in conventional LATEX using the braket package.

Table 94: Large, Variable-Sized Delimiters

$\lmoustache$	$\Bigg\lmoustache$	`\lmoustache`	$\rmoustache$	$\Bigg\rmoustache$	`\rmoustache`	$\lgroup$	$\Bigg\lgroup$	`\lgroup`	$\rgroup$	$\Bigg\rgroup$	`\rgroup`
$\arrowvert$	$\Bigg\arrowvert$	`\arrowvert`	$\Arrowvert$	$\Bigg\Arrowvert$	`\Arrowvert`	$\bracevert$	$\Bigg\bracevert$	`\bracevert`			

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

Table 95: Variable-Sized stmaryrd Delimiters

$\llbracket$	$\Big\llbracket$	`\llbracket`	$\rrbracket$	$\Big\rrbracket$	`\rrbracket`

Table 96: mathabx Variable-Sized Delimiters

$\lbbbrack$	$\Big\lbbbrack$	`\lbbbrack`	$\rbbbrack$	$\Big\rbbbrack$	`\rbbbrack`
$\lfilet$	$\Big\lfilet$	`\lfilet`	$\rfilet$	$\Big\rfilet$	`\rfilet`
$\thickvert$	$\Big\thickvert$	`\thickvert`	$\vvvert$	$\Big\vvvert$	`\vvvert`

Table 97: textcomp Text-Mode Delimiters

〈	`\textlangle`	〉	`\textrangle`
⟦	`\textlbrackdbl`	⟧	`\textrbrackdbl`
⁅	`\textlquill`	⁆	`\textrquill`

Table 98: Math-Mode Accents

$\acute{a}$	`\acute{a}`	$\check{a}$	`\check{a}`	$\grave{a}$	`\grave{a}`	$\tilde{a}$	`\tilde{a}`
$\bar{a}$	`\bar{a}`	$\ddot{a}$	`\ddot{a}`	$\hat{a}$	`\hat{a}`	$\vec{a}$	`\vec{a}`
$\breve{a}$	`\breve{a}`	$\dot{a}$	`\dot{a}`	$\mathring{a}$	`\mathring{a}`		

Also note the existence of `\imath` and `\jmath`, which produce dotless versions of "i" and "j". (See Table 109 on page 33.) These are useful when the accent is supposed to replace the dot. For example, "`\hat{\imath}`" produces a correct "$\hat{\imath}$", while "`\hat{i}`" would yield the rather odd-looking "$\hat{i}$".

Table 99: $\mathcal{AMS}$ Math-Mode Accents

$\dddot{a}$	`\dddot{a}`	$\ddddot{a}$	`\ddddot{a}`

These accents are also provided by the mathabx package.

Table 100: yhmath Math-Mode Accents

$\mathring{a}$	`\ring{a}`

This symbol is largely obsolete, as standard LaTeX 2ε has supported `\mathring` since June, 1998 [LAT98].

Table 101: 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}`	$\sqrt[n]{abc}$	`\sqrt[n]{abc}`

* Made more extensible by the yhmath package.

Table 102: yhmath Extensible Accents

$\wideparen{abc}$	`\wideparen{abc}`	$\widetriangle{abc}$	`\widetriangle{abc}`
$\widering{abc}$	`\widering{abc}`		

Table 103: $\mathcal{A}\mathcal{M}\mathcal{S}$ Extensible Accents

$\overleftrightarrow{abc}$	`\overleftrightarrow{abc}`	$\underleftrightarrow{abc}$	`\underleftrightarrow{abc}`
$\underleftarrow{abc}$	`\underleftarrow{abc}`	$\underrightarrow{abc}$	`\underrightarrow{abc}`

The following are a sort of "reverse accent" in that the argument text serves as a superscript to the arrow. In addition, the optional first argument (not shown) serves as a subscript to the arrow. See the Short Math Guide for LaTeX [Dow00] for further examples.

$\xleftarrow{abc}$	`\xleftarrow{abc}`	$\xrightarrow{abc}$	`\xrightarrow{abc}`

Table 104: mathabx Extensible Accents

$\overbrace{abc}$	`\overbrace{abc}`	$\overline{abc}$	`\widebar{abc}`
$\overgroup{abc}$	`\overgroup{abc}`	$\widecheck{abc}$	`\widecheck{abc}`
$\underbrace{abc}$	`\underbrace{abc}`	$\wideparen{abc}$	`\wideparen{abc}`
$\undergroup{abc}$	`\undergroup{abc}`	$\overset{\circ}{\wideparen{abc}}$	`\widering{abc}`
$\overrightarrow{abc}$	`\widearrow{abc}`		

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

Table 105: esvect Extensible Accents

$\vec{abc}$	`\vv{abc}` with package option a
$\vec{abc}$	`\vv{abc}` with package option b
$\vec{abc}$	`\vv{abc}` with package option c
$\vec{abc}$	`\vv{abc}` with package option d
$\vec{abc}$	`\vv{abc}` with package option e
$\vec{abc}$	`\vv{abc}` with package option f
$\vec{abc}$	`\vv{abc}` with package option g
$\vec{abc}$	`\vv{abc}` with package option h

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

Table 106: Dots

$\cdotp$	\cdotp	$\colon$	\colon*	$\ldotp$	\ldotp	$\vdots$	\vdots
$\cdots$	\cdots	$\ddots$	\ddots	$\ldots$	\ldots		

* While ":" is valid in math mode, \colon uses different surrounding spacing. See Section 7.3 and the Short Math Guide for LaTeX [Dow00] for more information on math-mode spacing.

Table 107: AMS Dots

$\dotsb$	\dotsb	$\dotsi$	\dotsi	$\dotso$	\dotso
$\dotsc$	\dotsc	$\dotsm$	\dotsm		

The AMS dot 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 108: yhmath Dots

$\adots$	\adots

Table 109: Miscellaneous LaTeX 2ε Symbols

$\aleph$	\aleph	$\Diamond$	\Diamond*	∞	\infty	$\prime$	\prime
$\angle$	\angle	$\diamondsuit$	\diamondsuit	$\mho$	\mho*	$\sharp$	\sharp
$\backslash$	\backslash	$\emptyset$	\emptyset	∇	\nabla	$\spadesuit$	\spadesuit
$\Box$	\Box*	$\flat$	\flat	$\natural$	\natural	$\surd$	\surd
$\clubsuit$	\clubsuit	$\heartsuit$	\heartsuit	$\neg$	\neg	$\triangle$	\triangle

* Not predefined in LaTeX 2ε. Use one of the packages latexsym, amsfonts, amssymb, txfonts, pxfonts, or wasysym.

Table 110: Miscellaneous AMS Symbols

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

Table 111: Miscellaneous wasysym Symbols

□	`\Box`	℧	`\mho`*	∴	`\wasytherefore`
◇	`\Diamond`	∢	`\varangle`		

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

Table 112: Miscellaneous txfonts/pxfonts Symbols

◆	`\Diamondblack`	ƛ	`\lambdaslash`	♥	`\varheartsuit`
⟐	`\Diamonddot`	♧	`\varclubsuit`	♤	`\varspadesuit`
ƛ	`\lambdabar`	♦	`\vardiamondsuit`		

Table 113: Miscellaneous mathabx Symbols

∘	`\degree`	⁗	`\fourth`	∡	`\measuredangle`	″	`\second`
╲	`\diagdown`	⋕	`\hash`	⋔	`\pitchfork`	∢	`\sphericalangle`
╱	`\diagup`	∞	`\infty`	∝	`\propto`	‴	`\third`
∅	`\diameter`	⋋	`\leftthreetimes`	⋌	`\rightthreetimes`	#	`\varhash`

Table 114: Miscellaneous textcomp Text-Mode Math Symbols

°	`\textdegree`	½	`\textonehalf`	¾	`\textthreequarters`
÷	`\textdiv`	¼	`\textonequarter`	³	`\textthreesuperior`
⁄	`\textfractionsolidus`	¹	`\textonesuperior`	×	`\texttimes`
¬	`\textlnot`	±	`\textpm`	²	`\texttwosuperior`
−	`\textminus`	√	`\textsurd`		

Table 115: mathcomp Math Symbols

℃	`\tccentigrade`	Ω	`\tcohm`	‰	`\tcperthousand`
µ	`\tcmu`	‱	`\tcpertenthousand`		

Table 116: mathabx Mayan Digits

◍	`\maya{0}`	:	`\maya{2}`	⁞	`\maya{4}`
·	`\maya{1}`	⋮	`\maya{3}`	ǀ	`\maya{5}`

Table 117: marvosym Math Symbols

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

∢	`\Anglesign`	·	`\Squaredot`	→	`\Vectorarrowhigh`
≘	`\Corresponds`	→	`\Vectorarrow`		

Table 118: Math Alphabets

		Required package
$\mathrm{ABCdef123}$	`\mathrm{ABCdef123}`	*none*
$\mathit{ABCdef123}$	`\mathit{ABCdef123}`	*none*
$\mathnormal{ABCdef123}$	`\mathnormal{ABCdef123}`	*none*
$\mathcal{ABC}$	`\mathcal{ABC}`	*none*
$\mathscr{ABC}$	`\mathscr{ABC}`	mathrsfs
$\mathcal{ABC}$	`\mathcal{ABC}`	euscript with the mathcal option
or	`\mathscr{ABC}`	euscript with the mathscr option
$\mathpzc{ABCdef123}$	`\mathpzc{ABCdef123}`	*none*; manually defined*
$\mathbb{ABC}$	`\mathbb{ABC}`	amsfonts, amssymb, txfonts, or pxfonts
$\varmathbb{ABC}$	`\varmathbb{ABC}`	txfonts or pxfonts
$\mathbb{ABCdef123}$	`\mathbb{ABCdef123}`	bbold or mathbbol†
$\mathbbm{ABCdef12}$	`\mathbbm{ABCdef12}`	bbm
$\mathbbmss{ABCdef12}$	`\mathbbmss{ABCdef12}`	bbm
$\mathbbmtt{ABCdef12}$	`\mathbbmtt{ABCdef12}`	bbm
$\mathds{ABC1}$	`\mathds{ABC1}`	dsfont
$\mathds{ABC1}$	`\mathds{ABC1}`	dsfont with the sans option
$\mathfrak{ABCdef123}$	`\mathfrak{ABCdef123}`	eufrak
$\textfrak{ABCdef123}$	`\textfrak{ABCdef123}`	yfonts
$\textswab{ABCdef123}$	`\textswab{ABCdef123}`	yfonts

* Put "`\DeclareMathAlphabet{\mathpzc}{OT1}{pzc}{m}{it}`" in your document's preamble to make `\mathpzc` typeset its argument in Zapf Chancery.

† The mathbbol package defines some additional blackboard bold characters: parentheses, square brackets, angle brackets, and—if the bbgreekl option is passed to matbbol—Greek letters. For instance, "⟪⟦⦅αβγ⦆⟧⟫" is produced by "`\mathbb{\Langle\Lbrack\Lparen\bbalpha\bbbeta\bbgamma\Rparen \Rbrack\Rangle}`".

4 Science and technology symbols

This section lists symbols that are employed in various branches of science and engineering (and, because we were extremely liberal in our classification, astrology, too).

Table 119: wasysym Electrical and Physical Symbols

∼	\AC	≋	\VHF	∿∿∿	\photon	≈	\HF	ℓℓℓℓℓ	\gluon

Table 120: ifsym Pulse Diagram Symbols

⎤_	\FallingEdge	⎤_⎡	\LongPulseLow	⎤_⎡	\PulseLow	_⎡⎤_	\ShortPulseHigh
_⎡‾⎤_	\LongPulseHigh	_⎡⎤_	\PulseHigh	_⎡	\RaisingEdge	‾⎤⎡‾	\ShortPulseLow

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

_	l	‾	m	‾	h	‾_	d	〈	<	〉	>
__	L	‾‾	M	‾‾	H	‾‾__	D	<	<<	>	>>

This enables one to write “\textifsym{mm<DDD>mm}” to get “” or “\textifsym{L|H|L|H|L}” to get “”.

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

Table 121: ar Aspect Ratio Symbol

Æ	\AR

Table 122: textcomp Text-Mode Science and Engineering Symbols

℃	\textcelsius	℧	\textmho	µ	\textmu	Ω	\textohm

Table 123: wasysym Astronomical Symbols

☊	\ascnode	♃	\jupiter	●	\newmoon	♀	\venus
☉	\astrosun	☾	\leftmoon	♇	\pluto	♈	\vernal
☋	\descnode	♂	\mars	☽	\rightmoon		
♁	\earth	☿	\mercury	♄	\saturn		
○	\fullmoon	♆	\neptune	♅	\uranus		

Table 124: marvosym Astronomical Symbols

☿	\Mercury	♂	\Mars	♅	\Uranus	☉	\Sun
♀	\Venus	♃	\Jupiter	♆	\Neptune	☽	\Moon
♁	\Earth	♄	\Saturn	♇	\Pluto		

Table 125: mathabx Astronomical Symbols

☿	`\Mercury`	⊕	`\Earth`	♃	`\Jupiter`	⛢	`\Uranus`	♇	`\Pluto`
♀	`\Venus`	♂	`\Mars`	♄	`\Saturn`	♆	`\Neptune`		

○	`\fullmoon`	☾	`\leftmoon`	●	`\newmoon`	☽	`\rightmoon`
☉	`\Sun`	♁	`\varEarth`				

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

Table 126: wasysym Astrological Symbols

♈	`\aries`	♋	`\cancer`	♎	`\libra`	♑	`\capricornus`
♉	`\taurus`	♌	`\leo`	♏	`\scorpio`	♒	`\aquarius`
♊	`\gemini`	♍	`\virgo`	♐	`\sagittarius`	♓	`\pisces`

☌	`\conjunction`	☍	`\opposition`

Table 127: marvosym Astrological Symbols

♈	`\Aries`	♋	`\Cancer`	♎	`\Libra`	♑	`\Capricorn`
♉	`\Taurus`	♌	`\Leo`	♏	`\Scorpio`	♒	`\Aquarius`
♊	`\Gemini`	♍	`\Virgo`	♐	`\Sagittarius`	♓	`\Pisces`

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

Table 128: mathabx Astrological Symbols

♈	`\Aries`	♉	`\Taurus`	♊	`\Gemini`

Table 129: wasysym APL Symbols

⎕	`\APLbox`	⌹	`\APLinv`	⋆	`\APLstar`
⍝	`\APLcomment`	⍇	`\APLleftarrowbox`	∆	`\APLup`
∇	`\APLdown`	⍟	`\APLlog`	⍐	`\APLuparrowbox`
⍗	`\APLdownarrowbox`	¯	`\APLminus`	⍀	`\notbackslash`
⍞	`\APLinput`	⍈	`\APLrightarrowbox`	⌿	`\notslash`

Table 130: wasysym APL Modifiers

∘	`\APLcirc{}`	∼	`\APLnot{}`	$\vert$	`\APLvert{}`

Table 131: marvosym Computer Hardware Symbols

🖱	`\ComputerMouse`		`\ParallelPort`		`\SerialInterface`
⌨	`\Keyboard`	🖨	`\Printer`		`\SerialPort`

Table 132: ascii Control Characters (IBM)

☺	`\SOH`	•	`\BEL`	♪	`\CR`	‼	`\DCc`	↓	`\EM`	▼	`\US`
☻	`\STX`	◘	`\BS`	♫	`\SO`	¶	`\DCd`	→	`\SUB`	¦	`\splitvert`
♥	`\ETX`	○	`\HT`	☼	`\SI`	§	`\NAK`	←	`\ESC`	⌂	`\DEL`
♦	`\EOT`	◙	`\LF`	►	`\DLE`	▬	`\SYN`	∟	`\FS`		
♣	`\ENQ`	♂	`\VT`	◄	`\DCa`	↨	`\ETB`	↔	`\GS`		
♠	`\ACK`	♀	`\FF`	↕	`\DCb`	↑	`\CAN`	▲	`\RS`		

`SOH`, `STX`, `ETX`, ..., `US` are the names of ASCII characters 1–31. `DEL` is the name of ASCII character 127. `\splitvert` doesn't correspond to a control character but is merely the "|" character shown IBM style.

These characters must be entered with the `ascii` font in effect, for example, "`{\ascii\STX}`". See the ascii package documentation for more information.

Table 133: marvosym Communication Symbols

	`\Email`	FAX	`\fax`		`\Faxmachine`	ϟ	`\Lightning`		`\Pickup`
	`\Emailct`	FAX	`\FAX`	✉	`\Letter`		`\Mobilefone`	☎	`\Telefon`

Table 134: marvosym Engineering Symbols

	`\Beam`	↓	`\Force`	●	`\Octosteel`	I	`\RoundedTTsteel`
	`\Bearing`	⬣	`\Hexasteel`	▯	`\Rectpipe`	□	`\Squarepipe`
○	`\Circpipe`		`\Lefttorque`	▮	`\Rectsteel`	■	`\Squaresteel`
●	`\Circsteel`		`\Lineload`		`\Righttorque`	T	`\Tsteel`
	`\Fixedbearing`		`\Loosebearing`	T	`\RoundedLsteel`*	I	`\TTsteel`
▬	`\Flatsteel`	L	`\Lsteel`	L	`\RoundedTsteel`*		

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

Table 135: wasysym Biological Symbols

♀	`\female`	♂	`\male`

Table 136: marvosym Biological Symbols

♀	`\Female`	⚤	`\FemaleMale`		`\MALE`	○	`\Neutral`
	`\FEMALE`	⚥	`\Hermaphrodite`	♂	`\Male`		
⚢	`\FemaleFemale`		`\HERMAPHRODITE`	⚣	`\MaleMale`		

Table 137: marvosym Safety-Related Symbols

☣	`\Biohazard`	CE	`\CEsign`		`\Explosionsafe`	☢	`\Radioactivity`
	`\BSEfree`		`\Estatically`		`\Laserbeam`		`\Stopsign`

5 Dingbats

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

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

Table 138: bbding Arrows

`\ArrowBoldDownRight`	`\ArrowBoldRightShort`	`\ArrowBoldUpRight`
`\ArrowBoldRightCircled`	`\ArrowBoldRightStrobe`	

Table 139: pifont Arrows

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

Table 140: marvosym Scissors

`\Cutleft`	`\Cutright`	`\Leftscissors`
`\Cutline`	`\Kutline`	`\Rightscissors`

Table 141: bbding Scissors

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

Table 142: pifont Scissors

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

Table 143: dingbat Pencils

`\largepencil`	`\smallpencil`

Table 144: bbding Pencils and Nibs

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

Table 145: pifont Pencils and Nibs

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

Table 146: dingbat Hands

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

Table 147: bbding Hands

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

Table 148: pifont Hands

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

Table 149: bbding Crosses and Plusses

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

Table 150: pifont Crosses and Plusses

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

Table 151: bbding Xs and Check Marks

\Checkmark	\XSolid	\XSolidBrush
\CheckmarkBold	\XSolidBold	

Table 152: pifont Xs and Check Marks

✓	\ding{51}	✕	\ding{53}	✗	\ding{55}
✔	\ding{52}	✖	\ding{54}	✘	\ding{56}

Table 153: wasysym Xs and Check Marks

☑	\CheckedBox	☐	\Square	☒	\XBox

Table 154: pifont Circled Numbers

①	\ding{172}	❶	\ding{182}	➀	\ding{192}	➊	\ding{202}
②	\ding{173}	❷	\ding{183}	➁	\ding{193}	➋	\ding{203}
③	\ding{174}	❸	\ding{184}	➂	\ding{194}	➌	\ding{204}
④	\ding{175}	❹	\ding{185}	➃	\ding{195}	➍	\ding{205}
⑤	\ding{176}	❺	\ding{186}	➄	\ding{196}	➎	\ding{206}
⑥	\ding{177}	❻	\ding{187}	➅	\ding{197}	➏	\ding{207}
⑦	\ding{178}	❼	\ding{188}	➆	\ding{198}	➐	\ding{208}
⑧	\ding{179}	❽	\ding{189}	➇	\ding{199}	➑	\ding{209}
⑨	\ding{180}	❾	\ding{190}	➈	\ding{200}	➒	\ding{210}
⑩	\ding{181}	❿	\ding{191}	➉	\ding{201}	➓	\ding{211}

pifont (part of the psnfss package) provides a dingautolist environment which resembles enumerate but uses circled numbers as bullets.[2] See the psnfss documentation for more information.

Table 155: wasysym Stars

✡	\davidsstar	✳	\hexstar	✳	\varhexstar

Table 156: bbding 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

[2]In fact, dingautolist can use any set of consecutive Zapf Dingbats symbols.

Table 157: 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 158: wasysym Geometric Shapes

⬡	`\hexagon`	⯃	`\octagon`	⬠	`\pentagon`	⎔	`\varhexagon`

Table 159: 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`	ˈ	`\SmallVBar`
○	`\Circle`	▴	`\FilledSmallTriangleUp`	↓	`\SpinDown`
×	`\Cross`	■	`\FilledSquare`	↑	`\SpinUp`
◇	`\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 7.2 for more information about constructing new symbols out of existing symbols.

Table 160: bbding Geometric Shapes

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

Table 161: 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 162: manfnt Dangerous Bend Symbols

`\dbend`	`\lhdbend`	`\reversedvideodbend`

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

Table 163: skull Symbols

`\skull`

Table 164: Non-Mathematical mathabx Symbols

`\rip`

Table 165: marvosym Information Symbols

`\Bicycle`	`\Football`	`\Pointinghand`
`\Checkedbox`	`\Gentsroom`	`\Wheelchair`
`\Clocklogo`	`\Industry`	`\Writinghand`
`\Coffeecup`	`\Info`	
`\Crossedbox`	`\Ladiesroom`	

Table 166: Miscellaneous dingbat Dingbats

`\anchor`	`\eye`	`\Sborder`
`\carriagereturn`	`\filledsquarewithdots`	`\squarewithdots`
`\checkmark`	`\satellitedish`	`\Zborder`

Table 167: Miscellaneous bbding Dingbats

✉	\Envelope	✌	\Peace	✆	\PhoneHandset	❂	\SunshineOpenCircled
❖	\OrnamentDiamondSolid	☎	\Phone	✈	\Plane	✇	\Tape

Table 168: 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}		

6 Other symbols

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

Table 169: textcomp Genealogical Symbols

★	\textborn	⚮	\textdivorced	⚭	\textmarried
†	\textdied	🍃	\textleaf		

Table 170: wasysym General Symbols

◙	\ataribox	◷	\clock	◀	\LEFTarrow	☺	\smiley
🔔	\bell	⌀	\diameter	ϟ	\lightning	☼	\sun
☻	\blacksmiley	▼	\DOWNarrow	☎	\phone	▲	\UParrow
⋈	\Bowtie	☹	\frownie	➪	\pointer	⌑	\wasylozenge
¦	\brokenvert	⦰	\invdiameter	⌕	\recorder		
✓	\checked	✠	\kreuz	▶	\RIGHTarrow		

Table 171: wasysym Musical Notes

♪	\eighthnote	𝅗𝅥	\halfnote	♫	\twonotes	𝅝	\fullnote	♩	\quarternote

See also \flat, \sharp, and \natural (Table 109 on page 33).

Table 172: wasysym Circles

●	\CIRCLE	◐	\LEFTcircle	◑	\RIGHTcircle	↻	\rightturn
○	\Circle	ᗡ	\Leftcircle	D	\Rightcircle		
◖	\LEFTCIRCLE	◗	\RIGHTCIRCLE	↺	\leftturn		

Table 173: Miscellaneous manfnt Symbols

⬭	\manboldkidney	⬭	\manpenkidney
◎	\manconcentriccircles	✤	\manquadrifolium
◈	\manconcentricdiamond	◝	\manquartercircle
▽	\mancone	✥	\manrotatedquadrifolium
⧉	\mancube	◜	\manrotatedquartercircle
↝	\manerrarrow	☆	\manstar
◣	\manfilledquartercircle	⁄	\mantiltpennib
▬	\manhpennib	▼	\mantriangledown
⧉	\manimpossiblecube	▸	\mantriangleright
⬭	\mankidney	▲	\mantriangleup
⬭	\manlhpenkidney	❘	\manvpennib

Table 174: marvosym Navigation Symbols

▶	\Forward	▼	\MoveDown	⏮	\RewindToIndex		\ToTop
⏭	\ForwardToEnd	▲	\MoveUp	⏮	\RewindToStart		
⏭	\ForwardToIndex	◀	\Rewind		\ToBottom		

Table 175: 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 176: Other marvosym Symbols

☥	\Ankh	✝	\Cross	♡	\Heart	☺	\Smiley
	\Bat		\FHBOlogo		\MartinVogel		\Womanface
	\Bouquet		\FHBOLOGO		\Mundus	☯	\Yinyang
	\Celtcross	☹	\Frowny	@	\MVAt		
Ⓐ	\CircledA		\FullFHBO	➔	\Rightarrow*		

* Standard LaTeX 2ε defines \Rightarrow to display "⇒", while marvosym redefines it to display "➔" (or ":" in math mode). This conflict can be problematic for math symbols defined in terms of \Rightarrow, such as \Longleftrightarrow, which ends up looking like "⇐:".

Table 177: 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{⟨*sun*⟩}{⟨*angle*⟩}{⟨*strength*⟩} will draw wind symbols with a given amount of sun (0–4), a given angle (in degrees), and a given strength in km/h (0–100). For example, \wind{0}{0}{0} produces " ", \wind{2}{0}{0} produces " ", and \wind{4}{0}{100} produces " ".

Table 178: ifsym Alpine Symbols

`\SummitSign`	`\Summit`	`\SurveySign`	`\HalfFilledHut`
`\StoneMan`	`\Mountain`	`\Joch`	`\VarSummit`
`\Hut`	`\IceMountain`	`\Flag`	
`\FilledHut`	`\VarMountain`	`\VarFlag`	
`\Village`	`\VarIceMountain`	`\Tent`	

Table 179: ifsym Clocks

`\Interval`	`\StopWatchStart`	`\VarClock`	`\Wecker`
`\StopWatchEnd`	`\Taschenuhr`	`\VarTaschenuhr`	

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

Table 180: Other ifsym Symbols

`\FilledSectioningDiamond`	`\Letter`	`\Radiation`
`\Fire`	`\PaperLandscape`	`\SectioningDiamond`
`\Irritant`	`\PaperPortrait`	`\Telephone`
`\StrokeOne`	`\StrokeThree`	`\StrokeFive`
`\StrokeTwo`	`\StrokeFour`	

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

7 Additional Information

Unlike the previous sections of this document, Section 7 does not contain new symbol tables. Rather, it provides additional help in using the Comprehensive LaTeX 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 LaTeX. And finally, it lists some statistics about this document itself.

7.1 Symbol Name Clashes

Unfortunately, a number of symbol names are not unique; they appear in more than one package. Depending on how the symbols are defined in each package, LaTeX will either output an error message or replace an earlier-defined symbol with a later-defined symbol. Table 181 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 181, not impossible. The general procedure is to load the first package, rename the conflicting symbols, and then load the second package. Examine the LaTeX source for this document (`symbols.tex`)—especially the `\savesymbol` and `\restoresymbol` macros and their subsequent usage—to see one possible way to handle symbol conflicts.

txfonts and pxfonts redefine a huge number of symbols—essentially, all of the symbols defined by latexsym, textcomp, the various AMS symbol sets, and LaTeX 2ε 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 181 because they are designed to be compatible with the symbols they replace. Table 182 on page 50 illustrates what "compatible" means in this context.

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

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

7.2 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:

- The symbol isn't intuitively named. As a few examples, the 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. 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 LaTeX 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 LaTeX binding for it. For example, the PostScript Symbol font contains a "↵" symbol, which may be useful for representing a carriage return, but there is no package for accessing that symbol (as far as I know). To produce an unnamed symbol, you need to switch to the font explicitly with LaTeX 2ε's low-level font commands [LAT00] and use TeX's primitive `\char` command [Knu86] to request a specific character number in the font.[3]

Symbols that do not exist in any font can sometimes be fabricated out of existing symbols. The LaTeX 2ε source file `fontdef.dtx` contains a number of such definitions. For example, `\models` (see Table 40 on page 20) is defined in that file with:

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

[3] pifont defines a convenient `\Pisymbol` command for accessing symbols in PostScript fonts by number. For example, "`\Pisymbol{psy}{191}`" produces "↵".

Table 181: Symbol Name Clashes

Symbol	LaTeX 2$_\varepsilon$	$\mathcal{AMS}$	stmaryrd	wasysym	mathabx	marvosym	bbding	ifsym	dingbat	wsuipa
`\baro`			ɸ							ɵ
`\bigtriangledown`	▽		∇							
`\bigtriangleup`	△		∆							
`\checkmark`		✓							✔	
`\Circle`				○				○		
`\Cross`						†	✝	×		
`\ggg`		⋙			⋙					
`\Letter`						✉		✉		
`\lightning`			↯	↯						
`\Lightning`						↯		↯		
`\lll`		⋘			⋘					
`\Rightarrow`	⇒				⇒	➔				
`\Square`				□			□	□		
`\Sun`					⊙	☉		☼		
`\TriangleDown`							▼	▽		
`\TriangleUp`							▲	△		

Table 182: Example of a Benign Name Clash

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

where \mathrel and \joinrel are used to control the horizontal spacing. (See The TEXbook [Knu86] for more information on 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, LATEX defines \hbar ("$\hbar$") as a bar character (\mathchar'26) followed by a backspace of 9 math units (\mkern-9mu), followed by the letter "h":

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

We can just as easily define other barred letters:

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

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

To make composite symbols work properly within subscripts and superscripts, you may need to use TEX's \mathchoice primitive. \mathchoice evaluates one of four expressions, based on whether the current math style is display, text, script, or scriptscript. (See The TEXbook [Knu86] for a more complete description.) For example, the following LATEX code—posted to comp.text.tex by Torsten Bronger—composes a sub/superscriptable "⌶" 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-}
```

\dashint produces a single-dashed integral sign ("⨍"), while \ddashint produces a double-dashed one ("⨎"). The same technique can be used to produce, for example, clockwise and counterclockwise contour integrals. (Search the comp.text.tex archives for a post by Donald Arseneau that says exactly how.) The preceding code was taken verbatim from the UK TEX Users' Group FAQ (http://www.tex.ac.uk/faq).

Sometimes, however, amstext's \text macro is all that is necessary to make composite symbols appear correctly in subscripts and superscripts, as in the following definitions of \neswarrow ("⤢") and \nwsearrow ("⤡"):[4]

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

\text resembles LATEX'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 "AB" (overlapped). 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.

As another example, fontdef.dtx composes the \ddots symbol (see Table 106 on page 33) out of three periods, raised 7 pt., 4 pt., and 1 pt., respectively:

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

\p@ is a LATEX 2_ε shortcut for "pt" or "1.0pt". The remaining commands are defined in The TEXbook [Knu86]. 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
```

(The \makeatletter and \makeatother commands are needed to coerce LATEX into accepting "@" as part of a macro name.) \revddots is essentially identical to the yhmath package's \adots command.

A more complex example of composing new symbols from existing symbols is the following definition of extensible \overbracket, \underbracket, \overparenthesis, and \underparenthesis symbols, taken from a 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{$\m@th\braceld\leaders\vrule\hfill\bracerd$}
\def\upparenthfill{$\m@th\bracelu\leaders\vrule\hfill\braceru$}
\def\upbracketfill{$\m@th\makesm@sh{\llap{\vrule\@height3\p@\@width.7\p@}}%
  \leaders\vrule\@height.7\p@\hfill
```

[4]Note that if your goal is to typeset commutative diagrams, then you probably want to use XY-pic.

```
  \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 183 showcases these accents. The TEXbook [Knu86] or another book on TEX primitives is indispensible 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., `\braceld` ["⌢"] for `\downparenthfill`), a horizontal rule that stretches as wide as possible, and a right symbol (e.g., `\bracerd` ["⌢"] for `\downparenthfill`). `\overbracket`, `\underbracket`, `\overparenthesis`, and `\underparenthesis` merely create a table whose width is determined by the given text, thereby constraining the width of the horizontal rules.

TABLE 183: Manually Composed Extensible Accents

$\overline{abc}$	`\overbracket{abc}`	$\overset{\frown}{abc}$	`\overparenthesis{abc}`
$\underline{abc}$	`\underbracket{abc}`	$\underset{\smile}{abc}$	`\underparenthesis{abc}`

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 Thế Thành". The wsuipa package defines `\diatop` and `\diaunder` macros for putting one or more diacritics or accents above or below a given character. For example, `\diaunder[{\diatop[\'|\=]}|\textsubdot{r}]` produces "ṝ́". See the wsuipa documentation for more information.

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

7.3 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 LATEX [Dow00] for a nice exposition on the subject.) To use an symbol for a different purpose, you can use the TEX 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 "$3x+\downarrow$". See The TEXbook [Knu86] for more information.

The purpose of the "log-like symbols" in Tables 79 and 80 is to provide the correct amount of spacing around and within multiletter function names. Table 184 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 "$\displaystyle\max_{p \in P}$" as part of a displayed formula.

TABLE 184: Spacing Around/Within Log-like Symbols

LATEX expression	Output
`$r \sin \theta$`	$r \sin \theta$ (best)
`$r sin \theta$`	$r sin \theta$
`$r \mbox{sin} \theta$`	$r\mbox{sin}\theta$

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 TEX 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 185 contrasts symbols declared with `\DeclareMathOperator` and `\DeclareMathOperator*` in both text style (`$...$`) and display style (`\[...\]`).

TABLE 185: Defining new log-like symbols

Declaration function	`$\newlogsym_{p \in P}$`	`\[ \newlogsym_{p \in P} \]`
`\DeclareMathOperator`	$\mathrm{newlogsym}_{p \in P}$	$\mathrm{newlogsym}_{p \in P}$
`\DeclareMathOperator*`	$\mathrm{newlogsym}_{p \in P}$	$\displaystyle\operatorname*{newlogsym}_{p \in P}$

7.4 ASCII and Latin 1 quick reference

Table 186 on the following page amalgamates data from various other tables in this document into a convenient reference for LATEX 2ε typesetting of ASCII characters, i.e., the characters available on a typical[5] 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 LATEX 2ε command to typeset the character as a text character. And the fourth column lists the LATEX 2ε command to typeset the character within a `\texttt{...}` command (or, more generally, when `\ttfamily` is in effect).

The following are some additional notes about the contents of Table 186:

- `"` is not available in the OT1 font encoding.
- The characters “`<`”, “`>`”, and “`|`” do work as expected in math mode, although they produce, respectively, “¡”, “¿”, and “—” in text mode.[6] Hence, `$<$`, `$>$`, and `$|$` serve as a terser alternative to `\textless`, `\textgreater`, and `\textbar`. Note that for typesetting metavariables many people prefer `\textlangle` and `\textrangle` to `\textless` and `\textgreater`, i.e., “⟨*filename*⟩” instead of “<*filename*>”.
- 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.
- `\textasciicircum` can be used instead of `\^{}`, and `\textasciitilde` can be used instead of `\~{}`. For typesetting tildes in URLs and Unix filenames, some people prefer `\sim` (see Table 40 on page 20), which produces a larger symbol. However, a superior approach for typesetting URLs is to use the url package, which has a number of additional nice features.
- The IBM version of ASCII characters 1 to 31 can be typeset using the ascii package. See Table 132 on page 38.
- 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 186, Table 187 on page 55 is an amalgamation of data from other tables in this document. While Table 186 shows how to typeset the 7-bit ASCII character set, Table 187 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 187:

[5]typical for the United States, at least

[6]Donald Knuth didn't think such symbols were important outside of mathematics, so he omitted them from the OT1 font encoding.

Table 186: LaTeX 2ε ASCII Table

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

- 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 11 on page 10 plus an empty argument. For instance, \={} is essentially the same as \textasciimacron.
- The commands in the “LaTeX 2ε” columns work both in body text and within a \texttt{...} command (or, more generally, when \ttfamily is in effect).
- Microsoft® Windows® normally uses a superset of Latin 1 called “CP1252” (Code Page 1252). CP1252 adds codes in the range 128–159 (hexadecimal 80–9F), including characters such as dashes, daggers, and quotation marks. If there’s sufficient interest, a future version of the Comprehensive LaTeX Symbol List may include a CP1252 table.

While too large to incorporate into this document, a listing of ISO 8879:1986 SGML/XML character entities and their LaTeX equivalents is available from `http://www.bitjungle.com/~isoent/`. Some of the characters presented there make use of isoent, a LaTeX 2ε package (available from the same URL) that fakes some of the missing ISO glyphs using the LaTeX picture environment.[7]

7.5 About this document

History David Carlisle wrote the first version of this document in October, 1994. It originally contained all of the native LaTeX symbols (Tables 25, 33, 40, 63, 79, 81, 93, 94, 98, 101, 109, 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

[7] 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 187: $\LaTeX\,2_\varepsilon$ Latin 1 Table

Dec	Hex	Char	$\LaTeX\,2_\varepsilon$	
161	A1	¡	!‘	
162	A2	¢	\textcent	(tc)
163	A3	£	\pounds	
164	A4	¤	\textcurrency	(tc)
165	A5	¥	\textyen	(tc)
166	A6	¦	\textbrokenbar	(tc)
167	A7	§	\S	
168	A8	¨	\textasciidieresis	(tc)
169	A9	©	\textcopyright	
170	AA	ª	\textordfeminine	
171	AB	«	\guillemotleft	(T1)
172	AC	¬	\textlnot	(tc)
174	AE	®	\textregistered	
175	AF	¯	\textasciimacron	(tc)
176	B0	°	\textdegree	(tc)
177	B1	±	\textpm	(tc)
178	B2	²	\texttwosuperior	(tc)
179	B3	³	\textthreesuperior	(tc)
180	B4	´	\textasciiacute	(tc)
181	B5	µ	\textmu	(tc)
182	B6	¶	\P	
183	B7	·	\textperiodcentered	
184	B8	¸	\c{}	
185	B9	¹	\textonesuperior	(tc)
186	BA	º	\textordmasculine	
187	BB	»	\guillemotright	
188	BC	¼	\textonequarter	(tc)
189	BD	½	\textonehalf	(tc)
190	BE	¾	\textthreequarters	(tc)
191	BF	¿	?‘	
192	C0	À	\‘{A}	
193	C1	Á	\’{A}	
194	C2	Â	\^{A}	
195	C3	Ã	\~{A}	
196	C4	Ä	\"{A}	
197	C5	Å	\AA	
198	C6	Æ	\AE	
199	C7	Ç	\c{C}	
200	C8	È	\‘{E}	
201	C9	É	\’{E}	
202	CA	Ê	\^{E}	
203	CB	Ë	\"{E}	
204	CC	Ì	\‘{I}	
205	CD	Í	\’{I}	
206	CE	Î	\^{I}	
207	CF	Ï	\"{I}	
208	D0	Đ	\DH	(T1)

Dec	Hex	Char	$\LaTeX\,2_\varepsilon$	
209	D1	Ñ	\~{N}	
210	D2	Ò	\‘{O}	
211	D3	Ó	\’{O}	
212	D4	Ô	\^{O}	
213	D5	Õ	\~{O}	
214	D6	Ö	\"{O}	
215	D7	×	\texttimes	(tc)
216	D8	Ø	\O	
217	D9	Ù	\‘{U}	
218	DA	Ú	\’{U}	
219	DB	Û	\^{U}	
220	DC	Ü	\"{U}	
221	DD	Ý	\’{Y}	
222	DE	Þ	\TH	(T1)
223	DF	ß	\ss	
224	E0	à	\‘{a}	
225	E1	á	\’{a}	
226	E2	â	\^{a}	
227	E3	ã	\~{a}	
228	E4	ä	\"{a}	
229	E5	å	\aa	
230	E6	æ	\ae	
231	E7	ç	\c{c}	
232	E8	è	\‘{e}	
233	E9	é	\’{e}	
234	EA	ê	\^{e}	
235	EB	ë	\"{e}	
236	EC	ì	\‘{ı}	
237	ED	í	\’{ı}	
238	EE	î	\^{ı}	
239	EF	ï	\"{ı}	
240	F0	ð	\dh	(T1)
241	F1	ñ	\~{n}	
242	F2	ò	\‘{o}	
243	F3	ó	\’{o}	
244	F4	ô	\^{o}	
245	F5	õ	\~{o}	
246	F6	ö	\"{o}	
247	F7	÷	\textdiv	(tc)
248	F8	ø	\o	
249	F9	ù	\‘{u}	
250	FA	ú	\’{u}	
251	FB	û	\^{u}	
252	FC	ü	\"{u}	
253	FD	ý	\’{y}	
254	FE	þ	\th	(T1)
255	FF	ÿ	\"{y}	

symbols (Tables 26, 41, 42, 66, 67, 82, 85, 90, and 110) and an initial Math Alphabets table (Table 118) were added thereafter. Later, Alexander Holt provided the stmaryrd tables (Tables 27, 35, 43, 69, 76, and 91).

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

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

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

Build characteristics Table 188 lists some of this document's build characteristics. Most important is the list of packages that LaTeX couldn't find, but that `symbols.tex` otherwise would have been able to take advantage of. Complete, prebuilt versions of this document are available from CTAN (`http://www.ctan.org/` or one of its many mirror sites) in the directory `tex-archive/info/symbols/comprehensive`. Table 189 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 188 or 189.

TABLE 188: Document Characteristics

Characteristic	Value
Source file:	`symbols.tex`
Build date:	October 8, 2002
Symbols documented:	2590
Packages included:	textcomp latexsym amssymb stmaryrd euscript wasysym pifont mathcomp marvosym manfnt bbding ifsym tipa wsuipa ulsy ar txfonts mathabx fclfont ascii dingbat skull eurosym esvect yfonts yhmath esint accents mathrsfs zapfchan bbold dsfont bbm
Packages omitted:	*none*

Table 189: Package versions used in the preparation of this document

Name	Date
textcomp	2000/08/30
latexsym	1998/08/17
amssymb	1996/11/03
stmaryrd	1994/03/03
euscript	1995/01/06
wasysym	1999/05/13
pifont	2000/01/12
marvosym	2000/05/01
manfnt	1999/07/01
bbding	1999/04/15
ifsym	2000/04/18
tipa	2001/12/31
txfonts	2000/12/15
dingbat	2001/04/27
skull	2002/01/23
eurosym	1998/08/06
yfonts	1999/05/12
accents	2000/08/06

References

[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`.

[Knu86] Donald E. Knuth. *The TeXbook*, volume A of *Computers and Typesetting*. Addison-Wesley, Reading, MA, USA, 1986.

[Lam86] Leslie Lamport. *LaTeX: A document preparation system*. Addison-Wesley, Reading, MA, USA, 1986.

[LT98] LaTeX3 Project Team. A new math accent. *LaTeX News*. Issue 9, June 1998. Available from `http://www.ctan.org/tex-archive/macros/latex/doc/ltnews09.pdf` (also included in many TeX distributions).

[LT00] LaTeX3 Project Team. LaTeX 2ε font selection, January 30, 2000. Available from `http://www.ctan.org/tex-archive/macros/latex/doc/fntguide.ps` (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 black box, e.g., "■́" for "\'".

Some symbol entries appear to be listed repeatedly. This happens when multiple packages define identical (or nearly identical) glyphs with the same symbol name.[8]

[8]This occurs frequently with amssymb and mathabx.