

The Comprehensive L^AT_EX Symbol List

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Abstract

This document lists 2013 symbols and the corresponding L^AT_EX commands that produce them. Some of these symbols are guaranteed to be available in every L^AT_EX 2_ε system; others require fonts and packages that may not accompany a given distribution and that therefore need to be installed. All of the fonts and packages used to prepare this document—as well as this document itself—are freely available from the Comprehensive T_EX Archive Network (<http://www.ctan.org>).

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1 Body-text symbols

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

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

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

TABLE 2: L^AT_EX 2_ε 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 L^AT_EX 2_ε provides by default, and the right one is the “true” symbol that `textcomp` makes available.

TABLE 3: Non-ASCII Letters (Excluding Accented Letters)

ā	\aa	Ð	\DH*	Ł	\L	ø	\o	ß	\ss
Å	\AA	ð	\dh*	ł	\l	Ø	\O	SS	\SS
Æ	\AE	Đ	\DJ*	Ŭ	\NG*	Œ	\OE	Þ	\TH*
æ	\ae	đ	\dj*	ŵ	\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 4: Predefined L^AT_EX 2_ε Text-Mode Commands

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

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

TABLE 5: Punctuation Marks Not Found in OT1

«	<code>\guillemotleft</code>	‹	<code>\guilsinglleft</code>	„	<code>\quotedblbase</code>	”	<code>\textquotedbl</code>
»	<code>\guillemotright</code>	›	<code>\guilsinglright</code>	,	<code>\quotesinglbase</code>		

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

TABLE 6: Text-Mode Accents

Ää	<code>\{"A\}"{a}</code>	Ââ	<code>\^{A}\^{a}</code>	Ạạ	<code>\d{A}\d{a}</code>	Ââ	<code>\t{A}\t{a}</code>
Áá	<code>\'{A}\'{a}</code>	Àà	<code>\`{A}\`{a}</code>	Ǻǻ	<code>\H{A}\H{a}</code>	Ǫǫ	<code>\u{A}\u{a}</code>
Ăă	<code>\.{A}\.{a}</code>	Ăă	<code>\b{A}\b{a}</code>	Ạạ	<code>\k{A}\k{a}</code> [†]	Ǻǻ	<code>\v{A}\v{a}</code>
Āā	<code>\={A}\={a}</code>	Ạạ	<code>\c{A}\c{a}</code>	Ả ả	<code>\r{A}\r{a}</code>	Ãã	<code>\~{A}\~{a}</code>
Ââ	<code>\newtie{A}\newtie{a}</code> *	Ⓐ ⓐ	<code>\textcircled{A}\textcircled{a}</code>				

* Requires the `textcomp` package.

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

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

TABLE 7: tipa Text-Mode Accents

Ăă	\textacutemacron{A}\textacutemacron{a}
Ȧȧ	\textacutewedge{A}\textacutewedge{a}
Ȧȧ	\textadvancing{A}\textadvancing{a}
Ȧȧ	\textbottomtiebar{A}\textbottomtiebar{a}
Ăă	\textbreve{A}\textbreve{a}
Ȧȧ	\textcircumacute{A}\textcircumacute{a}
Ȧȧ	\textcircumdot{A}\textcircumdot{a}
Ȧȧ	\textdotacute{A}\textdotacute{a}
Ȧȧ	\textdotbreve{A}\textdotbreve{a}
Ȧȧ	\textdoublegrave{A}\textdoublegrave{a}
Ȧȧ	\textdoublevbaraccent{A}\textdoublevbaraccent{a}
Ȧȧ	\textgravecircum{A}\textgravecircum{a}
Ȧȧ	\textgravedot{A}\textgravedot{a}
Ȧȧ	\textgravemid{A}\textgravemid{a}
Ȧȧ	\textinvsubbridge{A}\textinvsubbridge{a}
Ȧȧ	\textlowering{A}\textlowering{a}
Ȧȧ	\textmidacute{A}\textmidacute{a}
Ȧȧ	\textovercross{A}\textovercross{a}
Ȧȧ	\textoverw{A}\textoverw{a}
Ȧȧ	\textpolhook{A}\textpolhook{a}
Ȧȧ	\textraising{A}\textraising{a}
Ȧȧ	\textretracting{A}\textretracting{a}
Ȧȧ	\textringmacron{A}\textringmacron{a}
Ȧȧ	\textroundcap{A}\textroundcap{a}
Ȧȧ	\textseagull{A}\textseagull{a}
Ȧȧ	\textsubarch{A}\textsubarch{a}
Ȧȧ	\textsubbar{A}\textsubbar{a}
Ȧȧ	\textsubbridge{A}\textsubbridge{a}
Ȧȧ	\textsubdot{A}\textsubdot{a}
Ȧȧ	\textsublhalfring{A}\textsublhalfring{a}
Ȧȧ	\textsubplus{A}\textsubplus{a}
Ȧȧ	\textsubrhalfring{A}\textsubrhalfring{a}
Ȧȧ	\textsubring{A}\textsubring{a}
Ȧȧ	\textsubsquare{A}\textsubsquare{a}
Ȧȧ	\textsubtilde{A}\textsubtilde{a}
Ȧȧ	\textsubumlaut{A}\textsubumlaut{a}
Ȧȧ	\textsubw{A}\textsubw{a}
Ȧȧ	\textsubwedge{A}\textsubwedge{a}
Ȧȧ	\textsuperimposetilde{A}\textsuperimposetilde{a}

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\AA	<code>\textsyllabic{A}\textsyllabic{a}</code>
$\tilde{\text{A}}$	<code>\texttildedot{A}\texttildedot{a}</code>
$\widehat{\text{a}}$	<code>\textttopatiebar{A}\textttopatiebar{a}</code>
\AA	<code>\textvbaraccent{A}\textvbaraccent{a}</code>

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

TABLE 8: `textcomp` Symbols

$"$	<code>\textacutedbl</code>	∞	<code>\textmarried</code>
$'$	<code>\textasciiaacute</code>	\mathcal{U}	<code>\textmho</code>
`	<code>\textasciibreve</code>	$-$	<code>\textminus</code>
~	<code>\textasciicaron</code>	μ	<code>\textmu</code>
¨	<code>\textasciidieresis</code>	♪	<code>\textmusicalnote</code>
˘	<code>\textasciigrave</code>	ℕ	<code>\textnaira</code>
ˉ	<code>\textasciimacron</code>	9	<code>\textnineoldstyle</code>
$*$	<code>\textasteriskcentered</code>	N°	<code>\textnumero</code>
B	<code>\textbaht</code>	Ω	<code>\textohm</code>
 	<code>\textbardbl</code>	$\frac{1}{2}$	<code>\textonehalf</code>
\bigcirc	<code>\textbigcircle</code>	1	<code>\textoneoldstyle</code>
b	<code>\textblank</code>	$\frac{1}{4}$	<code>\textonequarter</code>
\star	<code>\textborn</code>	1	<code>\textonesuperior</code>
⎓	<code>\textbrokenbar</code>	\circ	<code>\textopenbullet</code>
\bullet	<code>\textbullet</code>	a	<code>\textordfeminine</code>
$^{\circ}\text{C}$	<code>\textcelsius</code>	o	<code>\textordmasculine</code>
¢	<code>\textcent</code>	¶	<code>\textparagraph</code>
¢	<code>\textcentoldstyle</code>	\cdot	<code>\textperiodcentered</code>
Ⓟ	<code>\textcircledP</code>	‰	<code>\textpertenthousand</code>
₤	<code>\textcolonmonetary</code>	‰	<code>\textperthousand</code>
Ⓒ	<code>\textcopyrightleft</code>	₱	<code>\textpeso</code>
Ⓒ	<code>\textcopyrightright</code>	¶	<code>\textpilcrow</code>
₱	<code>\textcurrency</code>	\pm	<code>\textpm</code>
†	<code>\textdagger</code>	$'$	<code>\textquotesingle</code>
‡	<code>\textdaggerdbl</code>	,	<code>\textquotestraightbase</code>
$=$	<code>\textdblhyphen</code>	''	<code>\textquotestraightdblbase</code>
=	<code>\textdblhyphenchar</code>	>	<code>\textrangle</code>
$^{\circ}$	<code>\textdegree</code>]]	<code>\textrbrackdbl</code>
†	<code>\textdied</code>	R	<code>\textrecipe</code>
$\%$	<code>\textdiscount</code>	※	<code>\textreferencemark</code>
\div	<code>\textdiv</code>	®	<code>\textregistered</code>
dp	<code>\textdivorced</code>	\rightarrow	<code>\textrightarrow</code>
$\text{\$}$	<code>\textdollar</code>	$\text{}$	<code>\textrquill</code>
$\text{\$}$	<code>\textdollaroldstyle</code>	§	<code>\textsection</code>

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đ	<code>\textdong</code>	SM	<code>\textservicemark</code>
\downarrow	<code>\textdownarrow</code>	7	<code>\textsevenoldstyle</code>
8	<code>\texteightoldstyle</code>	6	<code>\textsixoldstyle</code>
E	<code>\textestimated</code>	£	<code>\textsterling</code>
€	<code>\texteuro</code>	√	<code>\textsurd</code>
5	<code>\textfiveoldstyle</code>	3	<code>\textthreeoldstyle</code>
f	<code>\textflorin</code>	$\frac{3}{4}$	<code>\textthreequarters</code>
4	<code>\textfouroldstyle</code>	—	<code>\textthreequartersemdash</code>
/	<code>\textfractionsolidus</code>	³	<code>\textthreesuperior</code>
“	<code>\textgravedbl</code>	~	<code>\texttildelow</code>
Ⓔ	<code>\textguarani</code>	×	<code>\texttimes</code>
‡	<code>\textinterrobang</code>	™	<code>\texttrademark</code>
‡	<code>\textinterrobangdown</code>	—	<code>\texttwelveudash</code>
<	<code>\textlangle</code>	2	<code>\texttwooldstyle</code>
⌋	<code>\textlbrackdbl</code>	²	<code>\texttwosuperior</code>
🍃	<code>\textleaf</code>	↑	<code>\textuparrow</code>
←	<code>\textleftarrow</code>	₩	<code>\textwon</code>
£	<code>\textlira</code>	¥	<code>\textyen</code>
¬	<code>\textlnot</code>	0	<code>\textzerooldstyle</code>
{	<code>\textlquill</code>		

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

These symbols are also available in math mode through the use of the `mathcomp` package. See the `mathcomp` documentation for usage information.

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

TABLE 9: wasysym Phonetic Symbols

Ð	<code>\DH</code>	ð	<code>\dh</code>	ɔ	<code>\openo</code>
Þ	<code>\Thorn</code>	ə	<code>\inve</code>	þ	<code>\thorn</code>

TABLE 10: tipa Phonetic Symbols

ɣ	<code>\textbabygamma</code>	ʔ	<code>\textglotstop</code>	l	<code>\textrtaill</code>
ɸ	<code>\textbarb</code>	˙	<code>\texthalflength</code>	ɳ	<code>\textrtailn</code>
ɕ	<code>\textbarc</code>	ɸ	<code>\texthardsign</code>	ɿ	<code>\textrtailr</code>
ɖ	<code>\textbard</code>	˘	<code>\texthooktop</code>	ʂ	<code>\textrtails</code>
ɟ	<code>\textbardotlessj</code>	ɓ	<code>\texthtb</code>	ɿ	<code>\textrtailt</code>

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g	\textbarg	f	\texthtbardotlessj	z	\textrtailz
?	\textbarglotstop	c	\texthtc	,	\textrthook
i	\textbari	d	\texthtd	A	\textasca
l	\textbarl	g	\texthtg	B	\textscb
o	\textbaro	h	\texthth	E	\textsce
f	\textbarrevglotstop	j	\texththeng	G	\textscg
u	\textbaru	k	\texthtk	H	\textsch
t	\textbeltl	β	\texthtp	ə	\textschwa
β	\textbeta	q	\texthtq	I	\textsci
⊙	\textbullseye	g	\texthtscg	J	\textscj
'	\textceltpal	t	\texthtt	L	\textscL
χ	\textchi	h	\texthvlig	N	\textscn
ε	\textcloseepsilon	s	\textinvglotstop	œ	\textscœlig
ω	\textcloseomega	B	\textinvscr	Ω	\textscΩ
ε	\textcloserevepsilon	i	\textiota	Q	\textscq
z	\textcommatailz	λ	\textlambda	R	\textscr
˘	\textcorner	:	\textlengthmark	α	\textscripta
b	\textcrb	‡	\textlhookt	U	\textscriptv
d	\textcrd	ı	\textlhti	U	\textscu
g	\textcrg	l	\textlhtlongi	Y	\textscy
h	\textcrh	r	\textlonglegr	,	\textsecstress
s	\textcrinvglotstop	<	\textlptr	ˆ	\textsoftsign
λ	\textcrlambda	η	\textltailm	⌈	\textstetchc
2	\textcrtwo	η	\textltailn	⋈	\texttctclig
ε	\textctc	ı	\textltilde	ſ	\texttshlig
d	\textctd	h	\textlyoghlig	θ	\texttheta
dz	\textctdctzlig	η	\textnrleg	þ	\textthorn
f	\textctesh	J	\textObardotlessj	ts	\texttslig
j	\textctj	h	\textOlyoghlig	e	\textturna
n	\textctn	ω	\textomega	œ	\textturnœlig
t	\textctt	˘	\textopencorner	ı	\textturnh
⋈	\textcttctclig	o	\textopeno	ı	\textturnk
z	\textctyogh	,	\textpalhook	I	\textturnlonglegr
z	\textctz	φ	\textphi	ıı	\textturnm
dz	\textdctzlig		\textpipe	ıı	\textturnmrleg
f	\textdoublebaresh	'	\textprimstress	ı	\textturnr
‡	\textdoublebarpipe	?	\textraiseglotstop	ı	\textturnrrtail
≠	\textdoublebarslash	ı	\textraiseviby	D	\textturnscripta
	\textdoublepipe	γ	\texttramshorns	ı	\textturnt
	\textdoublevertline	°	\textrectangle	Λ	\textturnv
↓	\textdownstep	˘	\textrevapostrophe	Λ	\textturnw
đ	\textdyoghlig	ə	\textreve	Λ	\textturny
dz	\textdzlig	z	\textrevepsilon	U	\textupsilon
ε	\textepsilon	f	\textrevglotstop	↑	\textupstep
f	\textesh	z	\textrevyogh		\textvertline
r	\textfishhookr	z	\textrhookrevepsilon	ı	\textviby
g	\textg	z	\textrhookschwa	ı	\textvibyy
γ	\textgamma	˘	\textrhoticity	p	\textwynn
↘	\textglobfall	>	\textrptr	z	\textyogh

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↗ `\textglobrise` d `\textrtaild`

`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 11: `marvosym` Currency Symbols

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

Note that:

- `\Deleatur` is another macro name for `\Denarius`.
- 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 50 (`\EURdig`).

2 Mathematical symbols

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

Alphanumeric symbols (e.g., “ \mathcal{L} ” and “ \mathbb{Z} ”) are usually produced using one of the math alphabets in Table 53 rather than with an explicit symbol command. Look there first if you need a symbol for a transform, number set, or some other alphanumeric.

TABLE 12: Binary Operators

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

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

TABLE 13: Relation Symbols

\approx	<code>\approx</code>	\in	<code>\in</code>	$<$	<code>\prec</code>	\subset	<code>\subset</code>
\asymp	<code>\asymp</code>	\Join *	<code>\Join*</code>	\leq	<code>\preceq</code>	\subseteq	<code>\subseteq</code>
\bowtie	<code>\bowtie</code>	\leq	<code>\leq</code>	\propto	<code>\propto</code>	$>$	<code>\succ</code>
\cong	<code>\cong</code>	\ll	<code>\ll</code>	\sim	<code>\sim</code>	\geq	<code>\succeq</code>
\dashv	<code>\dashv</code>	\mid	<code>\mid</code>	\simeq	<code>\simeq</code>	\supset	<code>\supset</code>
\doteq	<code>\doteq</code>	\models	<code>\models</code>	\smile	<code>\smile</code>	\supseteq	<code>\supseteq</code>
\equiv	<code>\equiv</code>	\neq	<code>\neq</code>	\sqsubset *	<code>\sqsubset*</code>	\vdash	<code>\vdash</code>
\frown	<code>\frown</code>	\ni	<code>\ni</code>	\sqsubseteq	<code>\sqsubseteq</code>		
\geq	<code>\geq</code>	\parallel	<code>\parallel</code>	\sqsupset *	<code>\sqsupset*</code>		
\gg	<code>\gg</code>	\perp	<code>\perp</code>	\sqsupseteq	<code>\sqsupseteq</code>		

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

TABLE 14: Punctuation Symbols (Math Mode)

$,$	<code>,</code>	$;$	<code>;</code>	$:$	<code>\colon*</code>	\ldotp	<code>\ldotp</code>
\cdot	<code>\cdot</code>					\cdotp	<code>\cdotp</code>

* While “ $:$ ” is valid in math mode, `\colon` uses different surrounding spacing. See Section 5.3 and the Short Math Guide for L^AT_EX [Dow00] for more information on math-mode spacing.

TABLE 15: Arrow Symbols

\Downarrow	<code>\Downarrow</code>	\longleftarrow	<code>\longleftarrow</code>	\Rightarrow	<code>\Rightarrow</code>
\downarrow	<code>\downarrow</code>	\Longleftarrow	<code>\Longleftarrow</code>	\rightarrow	<code>\rightarrow</code>
\hookleftarrow	<code>\hookleftarrow</code>	\longleftrightarrow	<code>\longleftrightarrow</code>	\rightharpoonup	<code>\rightharpoonup</code>
\hookrightarrow	<code>\hookrightarrow</code>	\Longleftrightarrow	<code>\Longleftrightarrow</code>	\leftharpoonups	<code>\leftharpoonups</code>
\leadsto	<code>\leadsto</code>	\longmapsto	<code>\longmapsto</code>	\searrow	<code>\searrow</code>
\Leftarrow	<code>\Leftarrow</code>	\longrightarrow	<code>\longrightarrow</code>	\swarrow	<code>\swarrow</code>
\leftarrow	<code>\leftarrow</code>	\Longrightarrow	<code>\Longrightarrow</code>	\Uparrow	<code>\Uparrow</code>
\leftharpoonup	<code>\leftharpoonup</code>	\mapsto	<code>\mapsto</code>	\Uparrow	<code>\Uparrow</code>
\leftharpoonup	<code>\leftharpoonup</code>	\nearrow	<code>\nearrow</code>	\Updownarrow	<code>\Updownarrow</code>
\Leftrightarrow	<code>\Leftrightarrow</code>	\nwarrow	<code>\nwarrow</code>	\Updownarrow	<code>\Updownarrow</code>
\leftrightarrow	<code>\leftrightarrow</code>	\rightarrow	<code>\rightarrow</code>		

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

TABLE 16: Miscellaneous $\text{\LaTeX}2_{\epsilon}$ Symbols

\aleph	<code>\aleph</code>	ℓ	<code>\ell</code>	\jmath	<code>\jmath</code>	\spadesuit	<code>\spadesuit</code>
\angle	<code>\angle</code>	\emptyset	<code>\emptyset</code>	\dots	<code>\ldots</code>	\surd	<code>\surd</code>
\backslash	<code>\backslash</code>	\exists	<code>\exists</code>	\mathcal{U}	<code>\mho*</code>	\top	<code>\top</code>
\bot	<code>\bot</code>	\flat	<code>\flat</code>	∇	<code>\nabla</code>	\triangle	<code>\triangle</code>
\Box	<code>\Box*</code>	\forall	<code>\forall</code>	\natural	<code>\natural</code>	\vdots	<code>\vdots</code>
\cdots	<code>\cdots</code>	\hbar	<code>\hbar</code>	\neg	<code>\neg</code>	\wp	<code>\wp</code>
\clubsuit	<code>\clubsuit</code>	\heartsuit	<code>\heartsuit</code>	∂	<code>\partial</code>		
\ddots	<code>\ddots</code>	\Im	<code>\Im</code>	\prime	<code>\prime</code>		
\diamond	<code>\Diamond*</code>	\imath	<code>\imath</code>	\Re	<code>\Re</code>		
\diamondsuit	<code>\diamondsuit</code>	∞	<code>\infty</code>	\sharp	<code>\sharp</code>		

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

TABLE 17: Variable-sized Math Operators

\bigcap	<code>\bigcap</code>	\bigotimes	<code>\bigotimes</code>	\bigwedge	<code>\bigwedge</code>	\prod	<code>\prod</code>
\bigcup	<code>\bigcup</code>	\bigsqcup	<code>\bigsqcup</code>	\coprod	<code>\coprod</code>	\sum	<code>\sum</code>
\bigodot	<code>\bigodot</code>	\biguplus	<code>\biguplus</code>	\int	<code>\int</code>		
\bigoplus	<code>\bigoplus</code>	\bigvee	<code>\bigvee</code>	\oint	<code>\oint</code>		

TABLE 18: Log-like Symbols

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

Calling the above “symbols” may be a bit misleading.¹ Each log-like symbol merely produces the eponymous textual equivalent, but with proper surrounding spacing. See Section 5.3 for more information.

TABLE 19: Variable-sized Delimiters

<code>(</code>	<code>(</code>	<code>)</code>	<code>)</code>	<code>↑</code>	<code>↑</code>	<code>\uparrow</code>	<code>↗</code>	<code>↗</code>	<code>\Uparrow</code>
<code>[</code>	<code>[</code>	<code>]</code>	<code>]</code>	<code>↓</code>	<code>↓</code>	<code>\downarrow</code>	<code>↘</code>	<code>↘</code>	<code>\Downarrow</code>
<code>{</code>	<code>{</code>	<code>}</code>	<code>}</code>	<code>↕</code>	<code>↕</code>	<code>\updownarrow</code>	<code>↕</code>	<code>↕</code>	<code>\Updownarrow</code>
<code>⌊</code>	<code>⌊</code>	<code>⌋</code>	<code>⌋</code>	<code>⌈</code>	<code>⌈</code>	<code>\lceil</code>	<code>⌈</code>	<code>⌈</code>	<code>\rceil</code>
<code><</code>	<code><</code>	<code>></code>	<code>></code>	<code>/</code>	<code>/</code>	<code>/</code>	<code>\</code>	<code>\</code>	<code>\backslash</code>
<code> </code>	<code> </code>	<code> </code>	<code> </code>	<code>\ </code>					

When used with `\left` and `\right`, these symbols expand to the height of the inner math expression.

TABLE 20: Large, Variable-sized Delimiters

<code>\left(</code>	<code>\rmoustache</code>	<code>\right)</code>	<code>\lmoustache</code>	<code>\rgroup</code>	<code>\left(</code>	<code>\lgroup</code>
<code>\left </code>	<code>\arrowvert</code>	<code>\right </code>	<code>\Arrowvert</code>	<code>\bracevert</code>		

These symbols *must* be used with `\left` and `\right`.

TABLE 21: Math-Mode Accents

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

Also note the existence of `\imath` and `\jmath`, which produce dotless versions of “*i*” and “*j*”. (See Table 16 on the preceding page.) These are useful when the accent is supposed to replace the dot. For example, “`\hat{\imath}`” produces a correct “*î*”, while “`\hat{i}`” would yield the rather odd-looking “*î*”.

¹Michael J. Downes prefers the more general term, “atomic math objects”.

TABLE 22: Some Other Constructions

\widetilde{abc}	<code>\widetilde{abc}</code>	\widehat{abc}	<code>\widehat{abc}</code>
\overleftarrow{abc}	<code>\overleftarrow{abc}</code>	\overrightarrow{abc}	<code>\overrightarrow{abc}</code>
\overline{abc}	<code>\overline{abc}</code>	\underline{abc}	<code>\underline{abc}</code>
\overbrace{abc}	<code>\overbrace{abc}</code>	\underbrace{abc}	<code>\underbrace{abc}</code>
\sqrt{abc}	<code>\sqrt{abc}</code>	$\sqrt[n]{abc}$	<code>\sqrt[n]{abc}</code>
f'	<code>f'</code>	$\frac{abc}{xyz}$	<code>\frac{abc}{xyz}</code>

TABLE 23: Greek Letters

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

The remaining Greek majuscules can be produced with ordinary Latin letters. The symbol “M”, for instance, is used for both an uppercase “m” and an uppercase “μ”.

TABLE 24: AMS Delimiters

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

TABLE 25: AMS Arrows

\circlearrowleft	<code>\circlearrowleft</code>	\leftrightsquigarrow	<code>\leftrightsquigarrow</code>	\rightleftarrows	<code>\rightleftarrows</code>
\circlearrowright	<code>\circlearrowright</code>	\leftrightharpoons	<code>\leftrightharpoons</code>	\rightleftharpoons	<code>\rightleftharpoons</code>
\curvearrowleft	<code>\curvearrowleft</code>	\leftrightsquigarrow	<code>\leftrightsquigarrow</code>	\rightsquigarrow	<code>\rightsquigarrow</code>
\curvearrowright	<code>\curvearrowright</code>	\Lleftarrow	<code>\Lleftarrow</code>	\Rrightarrow	<code>\Rrightarrow</code>
\dashleftarrow	<code>\dashleftarrow</code>	\Lrightarrow	<code>\Lrightarrow</code>	\twoheadleftarrow	<code>\twoheadleftarrow</code>
\dashrightarrow	<code>\dashrightarrow</code>	\looparrowleft	<code>\looparrowleft</code>	\twoheadrightarrow	<code>\twoheadrightarrow</code>
\downdownarrows	<code>\downdownarrows</code>	\looparrowright	<code>\looparrowright</code>		
\downharpoonleft	<code>\downharpoonleft</code>	\Lsh	<code>\Lsh</code>	\upharpoonleft	<code>\upharpoonleft</code>
\downharpoonright	<code>\downharpoonright</code>	\multimap	<code>\multimap</code>	\upharpoonright	<code>\upharpoonright</code>
\leftarrowtail	<code>\leftarrowtail</code>	\rightarrowtail	<code>\rightarrowtail</code>	\upuparrows	<code>\upuparrows</code>

TABLE 26: AMS Negated Arrows

\nLeftarrow	<code>\nLeftarrow</code>	\nLeftrightarrow	<code>\nLeftrightarrow</code>	\nRightarrow	<code>\nRightarrow</code>
\nleftarrow	<code>\nleftarrow</code>	\nleftrightarrow	<code>\nleftrightarrow</code>	\nrightarrow	<code>\nrightarrow</code>

TABLE 27: AMS Greek

\digamma	<code>\digamma</code>	\varkappa	<code>\varkappa</code>
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TABLE 28: AMS Hebrew

\beth	<code>\beth</code>	\daleth	<code>\daleth</code>	\gimel	<code>\gimel</code>
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Recall that `\aleph` appears in Table 16 on page 12.

TABLE 29: AMS Log-like Symbols

\injlim	<code>\injlim</code>	\varinjlim	<code>\varinjlim</code>	\varinjlim	<code>\varinjlim</code>
\projlim	<code>\projlim</code>	\varprojlim	<code>\varprojlim</code>	\varprojlim	<code>\varprojlim</code>

Load the `amsmath` package to get these symbols. See Section 5.3 for some additional comments regarding log-like symbols.

TABLE 30: Miscellaneous AMS Symbols

\angle	<code>\angle</code>	\complement	<code>\complement</code>	\measuredangle	<code>\measuredangle</code>
\backprime	<code>\backprime</code>	\diagdown	<code>\diagdown</code>	\mho	<code>\mho</code>
\Bbbk	<code>\Bbbk</code>	\diagup	<code>\diagup</code>	\nexists	<code>\nexists</code>
\bigstar	<code>\bigstar</code>	\eth	<code>\eth</code>	\sphericalangle	<code>\sphericalangle</code>
\blacklozenge	<code>\blacklozenge</code>	\Finv	<code>\Finv</code>	\square	<code>\square</code>
\blacksquare	<code>\blacksquare</code>	\Game	<code>\Game</code>	\triangledown	<code>\triangledown</code>
\blacktriangle	<code>\blacktriangle</code>	\hbar	<code>\hbar</code>	\varnothing	<code>\varnothing</code>
\blacktriangledown	<code>\blacktriangledown</code>	\hslash	<code>\hslash</code>	\vartriangle	<code>\vartriangle</code>
\circledS	<code>\circledS</code>	\lozenge	<code>\lozenge</code>		

TABLE 31: AMS Commands Defined to Work in Both Math and Text Mode

\checkmark	<code>\checkmark</code>	\circledR	<code>\circledR</code>	\maltese	<code>\maltese</code>
--------------	-------------------------	-------------	------------------------	------------	-----------------------

TABLE 32: AMS Binary Operators

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

TABLE 33: AMS Binary Relations

\approx	<code>\approxeq</code>	\gtrdot	<code>\gtrdot</code>	\smile	<code>\smallsmile</code>
\backsimeq	<code>\backepsilon</code>	\gtreqless	<code>\gtreqless</code>	\sqsubset	<code>\sqsubset</code>
\sim	<code>\backsim</code>	\gtreqgless	<code>\gtreqgless</code>	\sqsupset	<code>\sqsupset</code>
\backsimeq	<code>\backsim</code>	\gtrless	<code>\gtrless</code>	\Subset	<code>\Subset</code>
\because	<code>\because</code>	\gtrsim	<code>\gtrsim</code>	\subseteq	<code>\subseteq</code>
\between	<code>\between</code>	\leq	<code>\leq</code>	\supseteq	<code>\supseteq</code>
\blacktriangleleft	<code>\blacktriangleleft</code>	\leqslant	<code>\leqslant</code>	\succapprox	<code>\succapprox</code>
\blacktriangleright	<code>\blacktriangleright</code>	\lessapprox	<code>\lessapprox</code>	\succsim	<code>\succsim</code>
\bumpeq	<code>\Bumpeq</code>	\lessdot	<code>\lessdot</code>	\Supset	<code>\Supset</code>
\bumpeq	<code>\bumpeq</code>	\lesseqgtr	<code>\lesseqgtr</code>	\supseteq	<code>\supseteq</code>
\circeq	<code>\circeq</code>	\lesseqgtr	<code>\lesseqgtr</code>	\therefore	<code>\therefore</code>
\curlyeqprec	<code>\curlyeqprec</code>	\lessgtr	<code>\lessgtr</code>	\thickapprox	<code>\thickapprox</code>
\curlyeqsucc	<code>\curlyeqsucc</code>	\lesssim	<code>\lesssim</code>	\thicksim	<code>\thicksim</code>
\doteqdot	<code>\doteqdot</code>	\lll	<code>\lll</code>	\trianglelefteq	<code>\trianglelefteq</code>
\eqcirc	<code>\eqcirc</code>	\pitchfork	<code>\pitchfork</code>	\trianglelefteq	<code>\trianglelefteq</code>
\eqslantgtr	<code>\eqslantgtr</code>	\precapprox	<code>\precapprox</code>	\trianglerighteq	<code>\trianglerighteq</code>
\eqslantless	<code>\eqslantless</code>	\preccurlyeq	<code>\preccurlyeq</code>	\varpropto	<code>\varpropto</code>
\fallingdotseq	<code>\fallingdotseq</code>	\precsim	<code>\precsim</code>	\vartriangleleft	<code>\vartriangleleft</code>
\geqq	<code>\geqq</code>	\risingdotseq	<code>\risingdotseq</code>	\vartriangleright	<code>\vartriangleright</code>
\geqslant	<code>\geqslant</code>	\shortmid	<code>\shortmid</code>	\Vdash	<code>\Vdash</code>
\ggg	<code>\ggg</code>	\shortparallel	<code>\shortparallel</code>	\Vdash	<code>\Vdash</code>
\gtrapprox	<code>\gtrapprox</code>	\smallfrown	<code>\smallfrown</code>	\Vdash	<code>\Vdash</code>

TABLE 34: AMS Negated Binary Relations

\napprox	<code>\gnapprox</code>	\nleqslant	<code>\nleqslant</code>	\ntrianglerighteq	<code>\ntrianglerighteq</code>
\gneq	<code>\gneq</code>	\nless	<code>\nless</code>	\nvdash	<code>\nvdash</code>
\gneqq	<code>\gneqq</code>	\nmid	<code>\nmid</code>	\nvDash	<code>\nvDash</code>
\gnsim	<code>\gnsim</code>	\nparallel	<code>\nparallel</code>	\nVDash	<code>\nVDash</code>
\gvertneqq	<code>\gvertneqq</code>	\nprec	<code>\nprec</code>	\precnapprox	<code>\precnapprox</code>
\lnapprox	<code>\lnapprox</code>	\npreceq	<code>\npreceq</code>	\precnsim	<code>\precnsim</code>
\lneq	<code>\lneq</code>	\nshortmid	<code>\nshortmid</code>	\subsetneq	<code>\subsetneq</code>
\lneqq	<code>\lneqq</code>	\nshortparallel	<code>\nshortparallel</code>	\subsetneqq	<code>\subsetneqq</code>
\lnsim	<code>\lnsim</code>	\nsim	<code>\nsim</code>	\succnapprox	<code>\succnapprox</code>
\lvertneqq	<code>\lvertneqq</code>	\nsubseteq	<code>\nsubseteq</code>	\succnsim	<code>\succnsim</code>
\ncong	<code>\ncong</code>	\nsucc	<code>\nsucc</code>	\supsetneq	<code>\supsetneq</code>
\ngeq	<code>\ngeq</code>	\nsucceq	<code>\nsucceq</code>	\supsetneqq	<code>\supsetneqq</code>
\ngeqq	<code>\ngeqq</code>	\nsupseteq	<code>\nsupseteq</code>	\varsubsetneq	<code>\varsubsetneq</code>
\ngeqslant	<code>\ngeqslant</code>	\nsupseteqq	<code>\nsupseteqq</code>	\varsubsetneqq	<code>\varsubsetneqq</code>
\ngtr	<code>\ngtr</code>	\ntriangleleft	<code>\ntriangleleft</code>	\varsupsetneq	<code>\varsupsetneq</code>
\nleq	<code>\nleq</code>	\ntrianglelefteq	<code>\ntrianglelefteq</code>	\varsupsetneqq	<code>\varsupsetneqq</code>
\nleqq	<code>\nleqq</code>	\ntriangleright	<code>\ntriangleright</code>		

TABLE 35: stmaryrd Delimiters

$\{$	<code>\Lbag</code>	$\}$	<code>\Rbag</code>	$\{$	<code>\lbag</code>	$\}$	<code>\rbag</code>
\lceil	<code>\llceil</code>	\rceil	<code>\rrceil</code>	\lfloor	<code>\llfloor</code>	\rfloor	<code>\rrfloor</code>
\llbracket	<code>\llbracket</code>	\rrbracket	<code>\rrbracket</code>				

TABLE 36: stmaryrd Arrows

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

TABLE 37: stmaryrd Extension Characters

\nearrow	<code>\Arrownot</code>	\mapsto	<code>\Mapsfromchar</code>	\mapsto	<code>\Mapstochar</code>
\nearrow	<code>\arrownot</code>	\mapsto	<code>\mapsfromchar</code>		

TABLE 38: stmaryrd Binary Operators

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

TABLE 39: Variable-sized stmaryrd Math Operators

$\square\square$	<code>\bigbox</code>	$\parallel\parallel$	<code>\biginterleave</code>	$\square\square$	<code>\bigsqcap</code>
\curlyvee	<code>\bigcurlyvee</code>	$\oplus\oplus$	<code>\bignplus</code>	$\nabla\nabla$	<code>\bigtriangledown</code>
\curlywedge	<code>\bigcurlywedge</code>	$\parallel\parallel$	<code>\bigparallel</code>	$\triangle\triangle$	<code>\bigtriangleup</code>

TABLE 40: stmaryrd Binary Relations

\in	<code>\inplus</code>	\subseteq	<code>\subsetpluseq</code>	\trianglelefteq	<code>\trianglelefteqslant</code>
\ni	<code>\niplus</code>	\supseteq	<code>\supsetplus</code>	\trianglerighteq	<code>\trianglerighteqslant</code>
\subseteq	<code>\subsetplus</code>	\supseteq	<code>\supsetpluseq</code>		

TABLE 41: stmaryrd Negated Binary Relations

\ntrianglelefteq	<code>\ntrianglelefteqslant</code>	\ntrianglerighteq	<code>\ntrianglerighteqslant</code>
--------------------	------------------------------------	---------------------	-------------------------------------

TABLE 42: Variable-sized wasysym Math Operators

\iiint	<code>\iiint</code>	\oiint	<code>\oiint</code>	\varoiint	<code>\varoiint</code>
\iint	<code>\iint</code>	$\int\int$	<code>\varint</code>		

TABLE 43: Other wasysym Math-Mode Symbols

\gtrsim	<code>\apprge</code>	\Join	<code>\Join</code>	\mho	<code>\mho</code>	\sqsupset	<code>\sqsupset</code>
\lesssim	<code>\apprle</code>	\leadsto	<code>\leadsto</code>	\circ	<code>\ocircle</code>	\unlhd	<code>\unlhd</code>
\Box	<code>\Box</code>	\lhd	<code>\lhd</code>	\rhd	<code>\rhd</code>	\unrhd	<code>\unrhd</code>
\Diamond	<code>\Diamond</code>	\LHD	<code>\LHD</code>	\RHD	<code>\RHD</code>	\asymp	<code>\asymp</code>
\neg	<code>\invneg</code>	\oplus	<code>\logof</code>	\sqsubset	<code>\sqsubset</code>		

TABLE 44: txfonts/pxfonts Binary Operators

$\textcircled{\rule{0.5pt}{0.5pt}}$	<code>\circledbar</code>	$\textcircled{\rule{0.5pt}{0.5pt} \rule{0.5pt}{0.5pt}}$	<code>\circledwedge</code>	$\textcircled{\rule{0.5pt}{0.5pt} \rule{0.5pt}{0.5pt}}$	<code>\medcirc</code>
$\textcircled{\rule{0.5pt}{0.5pt} \rule{0.5pt}{0.5pt}}$	<code>\circledbslash</code>	$\textcircled{\rule{0.5pt}{0.5pt} \rule{0.5pt}{0.5pt}}$	<code>\invamp</code>	$\textcircled{\rule{0.5pt}{0.5pt} \rule{0.5pt}{0.5pt}}$	<code>\sqcapplus</code>
$\textcircled{\rule{0.5pt}{0.5pt} \rule{0.5pt}{0.5pt}}$	<code>\circledvee</code>	\bullet	<code>\medbullet</code>	$\textcircled{\rule{0.5pt}{0.5pt} \rule{0.5pt}{0.5pt}}$	<code>\sqcupplus</code>

TABLE 45: txfonts/pxfonts Binary Relations

\boxdotleft	<code>\boxdotLeft</code>	\lrcorner	<code>\lrcorner</code>	\npreceq	<code>\npreceq</code>
\boxdotleft	<code>\boxdotleft</code>	$\textcircled{\rule{0.5pt}{0.5pt}}$	<code>\Mappedfromchar</code>	\nprecsim	<code>\nprecsim</code>
\boxdotright	<code>\boxdotright</code>	$\textcircled{\rule{0.5pt}{0.5pt}}$	<code>\mappedfromchar</code>	\nsimeq	<code>\nsimeq</code>
\boxdotright	<code>\boxdotRight</code>	$\textcircled{\rule{0.5pt}{0.5pt}}$	<code>\mmappedfromchar</code>	\nsqsubset	<code>\nsqsubset</code>
\boxleft	<code>\boxleft</code>	$\textcircled{\rule{0.5pt}{0.5pt}}$	<code>\Mmappedfromchar</code>	\nsqsubseq	<code>\nsqsubseq</code>
\boxLeft	<code>\boxLeft</code>	$\textcircled{\rule{0.5pt}{0.5pt}}$	<code>\mmapstochar</code>	\nsqsupset	<code>\nsqsupset</code>
\boxRight	<code>\boxRight</code>	$\textcircled{\rule{0.5pt}{0.5pt}}$	<code>\Mmapstochar</code>	\nsqsupseq	<code>\nsqsupseq</code>
\boxright	<code>\boxright</code>	$\textcircled{\rule{0.5pt}{0.5pt}}$	<code>\multimapboth</code>	\nsubset	<code>\nsubset</code>
\circledleft	<code>\circledleft</code>	$\textcircled{\rule{0.5pt}{0.5pt}}$	<code>\multimapbothvert</code>	\nsubseteq	<code>\nsubseteq</code>
\circledright	<code>\circledright</code>	$\textcircled{\rule{0.5pt}{0.5pt}}$	<code>\multimapdot</code>	\nsuccapprox	<code>\nsuccapprox</code>
\circledgtr	<code>\circledgtr</code>	$\textcircled{\rule{0.5pt}{0.5pt}}$	<code>\multimapdotboth</code>	\nsucccurlyeq	<code>\nsucccurlyeq</code>
\circledless	<code>\circledless</code>	$\textcircled{\rule{0.5pt}{0.5pt}}$	<code>\multimapdotbothA</code>	\nsucceq	<code>\nsucceq</code>
\circleft	<code>\circleft</code>	$\textcircled{\rule{0.5pt}{0.5pt}}$	<code>\multimapdotbothAvert</code>	\nsuccsim	<code>\nsuccsim</code>
\circright	<code>\circright</code>	$\textcircled{\rule{0.5pt}{0.5pt}}$	<code>\multimapdotbothB</code>	\nsupset	<code>\nsupset</code>
\colonapprox	<code>\colonapprox</code>	$\textcircled{\rule{0.5pt}{0.5pt}}$	<code>\multimapdotbothBvert</code>	\nthickapprox	<code>\nthickapprox</code>
\Colonapprox	<code>\Colonapprox</code>	$\textcircled{\rule{0.5pt}{0.5pt}}$	<code>\multimapdotbothvert</code>	\twoheadleftarrow	<code>\twoheadleftarrow</code>
\coloneq	<code>\coloneq</code>	$\textcircled{\rule{0.5pt}{0.5pt}}$	<code>\multimapdotinv</code>	\twoheadrightarrow	<code>\twoheadrightarrow</code>
\Coloneq	<code>\Coloneq</code>	$\textcircled{\rule{0.5pt}{0.5pt}}$	<code>\multimapinv</code>	\nvarparallel	<code>\nvarparallel</code>
\coloneqq	<code>\coloneqq</code>	$\textcircled{\rule{0.5pt}{0.5pt}}$	<code>\napproxeq</code>	\nvarparallelinv	<code>\nvarparallelinv</code>
\Coloneqq	<code>\Coloneqq</code>	$\textcircled{\rule{0.5pt}{0.5pt}}$	<code>\nasymp</code>	\nVdash	<code>\nVdash</code>
\colonsim	<code>\colonsim</code>	$\textcircled{\rule{0.5pt}{0.5pt}}$	<code>\nbacksim</code>	\nWarrow	<code>\nWarrow</code>
\Colonsim	<code>\Colonsim</code>	$\textcircled{\rule{0.5pt}{0.5pt}}$	<code>\nbacksimeq</code>	\openjoin	<code>\openjoin</code>
\dashleftarrow	<code>\dashleftarrow</code>	$\textcircled{\rule{0.5pt}{0.5pt}}$	<code>\nbumpeq</code>	\opentimes	<code>\opentimes</code>
\Diamondleft	<code>\Diamondleft</code>	$\textcircled{\rule{0.5pt}{0.5pt}}$	<code>\nbumpeq</code>	\perp	<code>\perp</code>
\DiamondLeft	<code>\DiamondLeft</code>	$\textcircled{\rule{0.5pt}{0.5pt}}$	<code>\Nearrow</code>	\preceq	<code>\preceq</code>
\Diamondright	<code>\Diamondright</code>	$\textcircled{\rule{0.5pt}{0.5pt}}$	<code>\nequiv</code>	\precneq	<code>\precneq</code>
\DiamondRight	<code>\DiamondRight</code>	$\textcircled{\rule{0.5pt}{0.5pt}}$	<code>\ngg</code>	\rJoin	<code>\rJoin</code>
\Diamondleft	<code>\Diamondleft</code>	$\textcircled{\rule{0.5pt}{0.5pt}}$	<code>\ngtrapprox</code>	\rightarrow	<code>\rightarrow</code>
\DiamondLeft	<code>\DiamondLeft</code>	$\textcircled{\rule{0.5pt}{0.5pt}}$	<code>\ngtrless</code>	\searrow	<code>\searrow</code>
\Diamondright	<code>\Diamondright</code>	$\textcircled{\rule{0.5pt}{0.5pt}}$	<code>\ngtrsim</code>	\strictfi	<code>\strictfi</code>

(continued on next page)

(continued from previous page)

$\Diamond\Rightarrow$	<code>\DiamondRight</code>	\nlessapprox	<code>\nlessapprox</code>	\neg	<code>\strictif</code>
$\equiv::$	<code>\Eqcolon</code>	\nlessgtr	<code>\nlessgtr</code>	\equiv	<code>\strictiff</code>
$\approx::$	<code>\eqcolon</code>	\nlessssim	<code>\nlessssim</code>	\geq	<code>\succeqq</code>
$\equiv::$	<code>\Eqqcolon</code>	\nll	<code>\nll</code>	\geq	<code>\succneqq</code>
$\equiv::$	<code>\eqqcolon</code>	\notin	<code>\notin</code>	\swarrow	<code>\Swarrow</code>
\approx	<code>\eqsim</code>	\notni	<code>\notni</code>	\parallel	<code>\varparallel</code>
\leftsquigarrow	<code>\leftsquigarrow</code>	\nprecapprox	<code>\nprecapprox</code>	\parallel	<code>\varparallelinv</code>
\Join	<code>\lJoin</code>	$\nprec curlyeq$	<code>\nprec curlyeq</code>	\Vdash	<code>\VvDash</code>

TABLE 46: txfonts/pxfonts Upright Greek Letters

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

TABLE 47: txfonts/pxfonts Variant Latin Letters

g	<code>\varg</code>	v	<code>\varv</code>	w	<code>\varw</code>	y	<code>\vary</code>
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Pass the `varg` option to txfonts/pxfonts to replace g , v , w , and y with g , v , w , and y in every mathematical expression in your document.

TABLE 48: Variable-sized txfonts/pxfonts Math Operators

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

TABLE 49: Miscellaneous txfonts/pxfonts Symbols

\blacklozenge	<code>\Diamondblack</code>	λ	<code>\lambdaslash</code>	\clubsuit	<code>\varclubsuit</code>	\spadesuit	<code>\varspadesuit</code>
\diamond	<code>\Diamonddot</code>	\mathfrak{c}	<code>\mathcent</code>	\blacklozenge	<code>\vardiamondsuit</code>		
λ	<code>\lambdabar</code>	\mathfrak{f}	<code>\mathsterling</code>	\heartsuit	<code>\varheartsuit</code>		

TABLE 50: marvosym Math Symbols

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

\angle	<code>\Anglesign</code>	\cdot	<code>\Squaredot</code>	$\vec{}$	<code>\Vectorarrowhigh</code>
\cong	<code>\Corresponds</code>	$\vec{}$	<code>\Vectorarrow</code>		

TABLE 51: ar Aspect Ratio Symbol

\mathcal{R}	<code>\AR</code>
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TABLE 52: ulsy Contradiction and Other Symbols

⚡ `\blitza` ⚡ `\blitzb` ⚡ `\blitzc` ⚡ `\blitzd` ⚡ `\blitze` \oplus `\odplus`

TABLE 53: Math Alphabets

		Required package
$ABCdef123$	<code>\mathrm{ABCdef123}</code>	<i>none</i>
$ABCdef123$	<code>\mathit{ABCdef123}</code>	<i>none</i>
$ABCdef123$	<code>\mathnormal{ABCdef123}</code>	<i>none</i>
\mathcal{ABC}	<code>\mathcal{ABC}</code>	<i>none</i>
\mathscr{ABC}	<code>\mathscr{ABC}</code>	<code>mathrsfs</code>
\mathcal{ABC}	<code>\mathcal{ABC}</code>	<code>euscript</code> with option: <code>mathcal</code>
\mathcal{ABC}	<i>or</i> <code>\mathscr{ABC}</code>	<code>euscript</code> with option: <code>mathcr</code>
$ABCdef123$	<code>\mathpzc{ABCdef123}</code>	<i>none</i> ; manually defined*
\mathbf{ABC}	<code>\mathbf{ABC}</code>	<code>amsfonts</code> , <code>amssymb</code> , <code>txfonts</code> , or <code>pxfonts</code>
\mathbf{ABC}	<code>\varmathbf{ABC}</code>	<code>txfonts</code> or <code>pxfonts</code>
$\mathbf{ABCdef123}$	<code>\mathbf{ABCdef123}</code>	<code>bbold</code>
$\mathbf{ABCdef12}$	<code>\mathbf{ABCdef12}</code>	<code>bbm</code>
$\mathbf{ABCdef12}$	<code>\mathbf{ABCdef12}</code>	<code>bbm</code>
$\mathbf{ABCdef12}$	<code>\mathbf{ABCdef12}</code>	<code>bbm</code>
$\mathbf{ABCdef12}$	<code>\mathbf{ABCdef12}</code>	<code>bbm</code>
$\mathbf{ABC1}$	<code>\mathbf{ABC1}</code>	<code>dsfont</code>
$\mathbf{ABC1}$	<code>\mathbf{ABC1}</code>	<code>dsfont</code> with option: <code>sans</code>
$\mathbf{ABCdef123}$	<code>\mathbf{ABCdef123}</code>	<code>eufrak</code>
$\mathbf{ABCdef123}$	<code>\mathbf{ABCdef123}</code>	<code>yfonts</code>
$\mathbf{ABCdef123}$	<code>\mathbf{ABCdef123}</code>	<code>yfonts</code>

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

3 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 54: wasysym Electrical and Physical Symbols

\sim	<code>\AC</code>	\approx	<code>\VHF</code>	$\sim\sim\sim$	<code>\photon</code>	\approx	<code>\HF</code>	∞	<code>\gluon</code>
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TABLE 55: wasysym Astronomical Symbols

Ω	<code>\ascnode</code>	$\♃$	<code>\jupiter</code>	\bullet	<code>\newmoon</code>	$\♀$	<code>\venus</code>
\odot	<code>\astrosun</code>	$\♁$	<code>\leftmoon</code>	$\♇$	<code>\pluto</code>	$\♈$	<code>\vernal</code>
\oslash	<code>\descnode</code>	$\♂$	<code>\mars</code>	$\♄$	<code>\rightmoon</code>		
\oplus	<code>\earth</code>	$\♂$	<code>\mercury</code>	$\♄$	<code>\saturn</code>		
\bigcirc	<code>\fullmoon</code>	$\♆$	<code>\neptune</code>	$\♅$	<code>\uranus</code>		

TABLE 56: wasysym APL Symbols

\square	<code>\APLbox</code>	\boxminus	<code>\APLinv</code>	\star	<code>\APLstar</code>
\pitchfork	<code>\APLcomment</code>	\boxleftarrow	<code>\APLleftarrowbox</code>	\triangle	<code>\APLup</code>
∇	<code>\APLdown</code>	\boxplus	<code>\APLlog</code>	\boxrightarrow	<code>\APLuparrowbox</code>
\boxdot	<code>\APLdownarrowbox</code>	$-$	<code>\APLminus</code>	\nbackslash	<code>\notbackslash</code>
\boxtimes	<code>\APLinput</code>	\boxrightarrow	<code>\APLrightarrowbox</code>	\nslash	<code>\notslash</code>

TABLE 57: wasysym APL Modifiers

\circ	<code>\APLcirc{}</code>	\sim	<code>\APLnot{}</code>	$ $	<code>\APLvert{}</code>
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TABLE 58: marvosym Engineering Symbols

\equiv	<code>\Beam</code>	\downarrow	<code>\Force</code>	\bullet	<code>\Octosteel</code>	I	<code>\RoundedTTsteel</code>
\triangle	<code>\Bearing</code>	\bullet	<code>\Hexasteel</code>	\square	<code>\Rectpipe</code>	\square	<code>\Squarepipe</code>
\bigcirc	<code>\Circpipe</code>	\hookleftarrow	<code>\Lefttorque</code>	\blacksquare	<code>\Rectsteel</code>	\blacksquare	<code>\Squaresteel</code>
\bullet	<code>\Circsteel</code>	\equiv	<code>\Lineload</code>	\hookrightarrow	<code>\Righttorque</code>	T	<code>\Tsteel</code>
\triangle	<code>\Fixedbearing</code>	\triangle	<code>\Loosebearing</code>	T	<code>\RoundedLsteel</code>	I	<code>\TTsteel</code>
$-$	<code>\Flatsteel</code>	L	<code>\Lsteel</code>	L	<code>\RoundedTsteel</code>		

TABLE 59: marvosym Biological Symbols

$\♀$	<code>\Female</code>	$\♂$	<code>\FemaleMale</code>	$\♂$	<code>\MALE</code>	\bigcirc	<code>\Neutral</code>
$\♂$	<code>\FEMALE</code>	$\♂$	<code>\Hermaphrodite</code>	$\♂$	<code>\Male</code>		
$\♂$	<code>\FemaleFemale</code>	$\♂$	<code>\HERMAPHRODITE</code>	$\♂$	<code>\MaleMale</code>		

TABLE 60: marvosym Astronomical Symbols
























	<code>\Mercury</code>		<code>\Mars</code>		<code>\Uranus</code>		<code>\Sun</code>
	<code>\Venus</code>		<code>\Jupiter</code>		<code>\Neptune</code>		<code>\Moon</code>
	<code>\Earth</code>		<code>\Saturn</code>		<code>\Pluto</code>		

TABLE 61: marvosym Astrological Symbols

	<code>\Aries</code>		<code>\Cancer</code>		<code>\Libra</code>		<code>\Capricorn</code>
	<code>\Taurus</code>		<code>\Leo</code>		<code>\Scorpio</code>		<code>\Aquarius</code>
	<code>\Gemini</code>		<code>\Virgo</code>		<code>\Sagittarius</code>		<code>\Pisces</code>

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

TABLE 62: marvosym Communication Symbols











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

TABLE 63: marvosym Safety-Related Symbols



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

TABLE 64: marvosym Computer Hardware Symbols







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

TABLE 65: ifsym Pulse Diagram Symbols

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

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

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

This enables one to write “`\textifsym{mm<DDD>mm}`” 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”.

4 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"? Are checkboxes and smiley faces possibly body-text symbols?) 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 66: wasysym General Symbols

⌚	<code>\agem0</code>	⌚	<code>\clock</code>	◀	<code>\LEFTarrow</code>	☺	<code>\smiley</code>
☒	<code>\ataribox</code>	☒	<code>\currency</code>	⚡	<code>\lightning</code>	☼	<code>\sun</code>
🔔	<code>\bell</code>	∅	<code>\diameter</code>	♂	<code>\male</code>	▲	<code>\UParrow</code>
☹	<code>\blacksmiley</code>	▼	<code>\DOWNarrow</code>	‰	<code>\permil</code>	↗	<code>\varangle</code>
☒	<code>\Bowtie</code>	♀	<code>\female</code>	☎	<code>\phone</code>	◻	<code>\wasylozenge</code>
!	<code>\brokenvert</code>	☹	<code>\frownie</code>	☞	<code>\pointer</code>	∴	<code>\wasytherefore</code>
¢	<code>\cent</code>	⌀	<code>\invdiameter</code>	📻	<code>\recorder</code>		
✓	<code>\checked</code>	✝	<code>\kreuz</code>	▶	<code>\RIGHTarrow</code>		

TABLE 67: wasysym Polygons and Stars

☑	<code>\CheckedBox</code>	☆	<code>\davidstar</code>	◯	<code>\octagon</code>	✱	<code>\varhexstar</code>
□	<code>\Square</code>	⬡	<code>\hexagon</code>	⬠	<code>\pentagon</code>		
☒	<code>\XBox</code>	✱	<code>\hexstar</code>	⬢	<code>\varhexagon</code>		

TABLE 68: wasysym Musical Notes

♪ `\eighthnote` ♪ `\halfnote` 🎵 `\twonotes` . `\fullnote` ♩ `\quarternote`

See also `\flat`, `\sharp`, and `\natural` (Table 16).

TABLE 69: wasysym Circles

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

TABLE 70: pifont Commands for Accessing Zapf Dingbats

(continued on next page)

(continued from previous page)

	\ding{33}		\ding{71}		\ding{109}		\ding{181}		\ding{219}
	\ding{34}		\ding{72}		\ding{110}		\ding{182}		\ding{220}
	\ding{35}		\ding{73}		\ding{111}		\ding{183}		\ding{221}
	\ding{36}		\ding{74}		\ding{112}		\ding{184}		\ding{222}
	\ding{37}		\ding{75}		\ding{113}		\ding{185}		\ding{223}
	\ding{38}		\ding{76}		\ding{114}		\ding{186}		\ding{224}
	\ding{39}		\ding{77}		\ding{115}		\ding{187}		\ding{225}
	\ding{40}		\ding{78}		\ding{116}		\ding{188}		\ding{226}
	\ding{41}		\ding{79}		\ding{117}		\ding{189}		\ding{227}
	\ding{42}		\ding{80}		\ding{118}		\ding{190}		\ding{228}
	\ding{43}		\ding{81}		\ding{119}		\ding{191}		\ding{229}
	\ding{44}		\ding{82}		\ding{120}		\ding{192}		\ding{230}
	\ding{45}		\ding{83}		\ding{121}		\ding{193}		\ding{231}
	\ding{46}		\ding{84}		\ding{122}		\ding{194}		\ding{232}
	\ding{47}		\ding{85}		\ding{123}		\ding{195}		\ding{233}
	\ding{48}		\ding{86}		\ding{124}		\ding{196}		\ding{234}
	\ding{49}		\ding{87}		\ding{125}		\ding{197}		\ding{235}
	\ding{50}		\ding{88}		\ding{126}		\ding{198}		\ding{236}
	\ding{51}		\ding{89}		\ding{161}		\ding{199}		\ding{237}
	\ding{52}		\ding{90}		\ding{162}		\ding{200}		\ding{238}
	\ding{53}		\ding{91}		\ding{163}		\ding{201}		\ding{239}
	\ding{54}		\ding{92}		\ding{164}		\ding{202}		\ding{241}
	\ding{55}		\ding{93}		\ding{165}		\ding{203}		\ding{242}
	\ding{56}		\ding{94}		\ding{166}		\ding{204}		\ding{243}
	\ding{57}		\ding{95}		\ding{167}		\ding{205}		\ding{244}
	\ding{58}		\ding{96}		\ding{168}		\ding{206}		\ding{245}
	\ding{59}		\ding{97}		\ding{169}		\ding{207}		\ding{246}
	\ding{60}		\ding{98}		\ding{170}		\ding{208}		\ding{247}
	\ding{61}		\ding{99}		\ding{171}		\ding{209}		\ding{248}
	\ding{62}		\ding{100}		\ding{172}		\ding{210}		\ding{249}
	\ding{63}		\ding{101}		\ding{173}		\ding{211}		\ding{250}
	\ding{64}		\ding{102}		\ding{174}		\ding{212}		\ding{251}
	\ding{65}		\ding{103}		\ding{175}		\ding{213}		\ding{252}
	\ding{66}		\ding{104}		\ding{176}		\ding{214}		\ding{253}
	\ding{67}		\ding{105}		\ding{177}		\ding{215}		\ding{254}
	\ding{68}		\ding{106}		\ding{178}		\ding{216}		
	\ding{69}		\ding{107}		\ding{179}		\ding{217}		
	\ding{70}		\ding{108}		\ding{180}		\ding{218}		

TABLE 71: marvosym Information Symbols

	\Bicycle		\Cutleft		\Industry		\Pointinghand
	\Checkedbox		\Cutline		\Info		\Rightscissors
	\Clocklogo		\Cutright		\Kutline		\Wheelchair
	\Coffeecup		\Football		\Ladiesroom		\Writinghand
	\Crossedbox		\Gentsroom		\Leftscissors		

TABLE 72: marvosym Navigation Symbols

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

TABLE 73: 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 74: Other marvosym Symbols

†	\Ankh	†	\Cross	♥	\Heart	☺	\Smiley
	\Bat		\FHBLogo		\MartinVogel		\Womanface
	\Bouquet		\FHBOLGO		\Mundus	☯	\Yinyang
☩	\Celtcross	☹	\Frowny	@	\MVat		
Ⓐ	\CircledA		\FullFHB	→	\Rightarrow*		

* Standard L^AT_EX 2_ε 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 \Longlefttrightarrow, which ends up looking like “⇐:”.

TABLE 75: manfnt Dangerous Bend Symbols

	\dbend		\lhdbend		\reversedvideobend
--	--------	--	----------	--	--------------------

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

TABLE 76: Other manfnt Symbols

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

TABLE 77: bbding Scissors

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

TABLE 78: bbding Hands

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

TABLE 79: bbding Pencils and Nibs

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

TABLE 80: bbding Crosses, Plusses, and Xs

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

TABLE 81: bbding Stars, Flowers, Snowflakes, and Similar Shapes

















































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

TABLE 82: bbding Geometric Shapes























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

TABLE 83: Other bbding Symbols











































	<code>\ArrowBoldDownRight</code>		<code>\Checkmark</code>		<code>\PhoneHandset</code>
	<code>\ArrowBoldRightCircled</code>		<code>\CheckmarkBold</code>		<code>\Plane</code>
	<code>\ArrowBoldRightShort</code>		<code>\Envelope</code>		<code>\SunshineOpenCircled</code>
	<code>\ArrowBoldRightStrobe</code>		<code>\Peace</code>		<code>\Tape</code>
	<code>\ArrowBoldUpRight</code>		<code>\Phone</code>		

TABLE 84: ifsym Weather Symbols

	<code>\Blitz</code>		<code>\FilledWeakRainCloud</code>		<code>\Rain</code>		<code>\ThinFog</code>
	<code>\Cloud</code>		<code>\Fog</code>		<code>\RainCloud</code>		<code>\WeakRain</code>
	<code>\FilledCloud</code>		<code>\Graupel</code>		<code>\Snow</code>		<code>\WeakRainCloud</code>
	<code>\FilledRainCloud</code>		<code>\Hagel</code>		<code>\SnowCloud</code>		
	<code>\FilledSnowCloud</code>		<code>\HalfSun</code>		<code>\Sun</code>		
	<code>\FilledSunCloud</code>		<code>\NoSun</code>		<code>\SunCloud</code>		

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




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

TABLE 85: ifsym Alpine Symbols

























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

TABLE 86: ifsym Clocks

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


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

TABLE 87: ifsym Geometric Shapes

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

The ifsym documentation points out that one can use `\rlap` to combine some of the above into useful, new symbols. For example, `\BigCircle` and `\FilledSmallCircle` combine to give “”. Likewise, `\Square` and `\Cross` combine to give “”. See Section 5.2 for more information about constructing new symbols out of existing symbols.

TABLE 88: Other ifsym Symbols

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

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

5 Additional Information

Unlike the previous sections of this document, Section 5 does not contain lists of symbols. Rather, it provides additional help in using the Comprehensive L^AT_EX Symbol List. First, it makes a few points about symbol names used by multiple packages. Then, it provides some guidelines for finding symbols and gives some examples regarding how to construct missing symbols out of existing ones. Next, it comments on spacing around symbols in math mode. And finally, it lists some statistics about this document itself.

5.1 Symbol Name Clashes

Unfortunately, a number of symbol names are not unique; they appear in more than one package. Depending on how the symbols are defined in each package, L^AT_EX will either output an error message or replace an earlier-defined symbol with a later-defined symbol. Table 89 lists the name clashes that appear in this document. The symbol “_{N/A}” is used to indicate that the corresponding package was not available when `symbols.tex` was compiled.

TABLE 89: Symbol Name Clashes

Symbol	L ^A T _E X 2 _ε	AMS	stmaryrd	wasysym	marvosym	bbding	ifsym
<code>\angle</code>	\angle	\angle					
<code>\bigtriangledown</code>	∇		\bigtriangledown				
<code>\bigtriangleup</code>	\triangle		\bigtriangleup				
<code>\Circle</code>				\bigcirc			\bigcirc
<code>\Cross</code>					\dagger	\dagger	\times
<code>\Letter</code>					\boxtimes		\boxtimes
<code>\lightning</code>			\lightning	\lightning			
<code>\Rightarrow</code>	\Rightarrow				\rightarrow		
<code>\rightleftharpoons</code>	\rightleftharpoons	\rightleftharpoons					
<code>\Square</code>				\square		\square	\square
<code>\Sun</code>					\odot		\odot
<code>\TriangleDown</code>						\blacktriangledown	∇
<code>\TriangleUp</code>						\blacktriangle	\triangle

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 this document, not impossible. The general procedure is to load the first package, rename the conflicting symbols, and then load the second package. Examine the L^AT_EX source for this document—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 the symbols defined by `latexsym`, `textcomp`, the various AMS symbol sets, and L^AT_EX 2_ε itself. The `txfonts` and `pxfonts` conflicts are not listed in Table 89 because they are designed to be compatible with the symbols they replace. Table 90 illustrates what “compatible” means in this context.

TABLE 90: Example of a Benign Name Clash

Symbol	Default (Computer Modern)	txfonts (Times Roman)
\mathbb{R}	\mathbb{R}	\mathbb{R}
<code>\textrecipe</code>	\mathbb{R}	\mathbb{R}

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\sfddefault{cmss}
\renewcommand\ttdefault{cmtt}
```

5.2 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 was overlooked (or deemed unimportant) by the authors of this document. If there’s some symbol package you think should be included in the Comprehensive L^AT_EX Symbol List, please send e-mail to 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; some symbols can be fabricated out of existing symbols. The L^AT_EX 2_ε source file called `fontdef.dtx` contains a number of such definitions. For example, `\models` (see Table 13 on page 11) is defined in that file with:

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

where `\mathrel` and `\joinrel` are used to control the horizontal spacing. (See The T_EXbook [Knu86] for more information on those commands.)

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

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

As another example, `fontdef.dtx` composes the `\ddots` symbol (see Table 16 on page 12) out of three periods, raised 7 pt., 4 pt., and 1 pt., respectively:

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

`\p@` is a L^AT_EX 2_ε shortcut for “pt” or “1.0pt”. The remaining commands are defined in The T_EXbook [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 L^AT_EX into accepting “@” as part of a macro name.)

As a final example of creating new symbols out of existing ones, the following 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 (“ \int ”), while `\ddashint` produces a double-dashed one (“ \int ”). 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 T_EX Users’ Group FAQ (<http://www.tex.ac.uk/faq>).

5.3 Math-mode spacing

Terms such as “binary operators”, “relations”, and “punctuation” in Section 2 primarily regard the surrounding spacing. (See the Short Math Guide for L^AT_EX [Dow00] for a nice exposition on the subject.) To use an symbol for a different purpose, you can use the T_EX commands `\mathord`, `\mathop`, `\mathbin`, `\mathrel`, `\mathopen`, `\mathclose`, and `\mathpunct`. For example, if you want to use `\downarrow` as a variable (an “ordinary” symbol) instead of a delimiter, you can write “ $3x + \mathord{\downarrow}$ ” to get the properly spaced “ $3x + \downarrow$ ” rather than the awkward-looking “ $3x + \downarrow$ ”. See The T_EXbook [Knu86] for more information.

The purpose of the “log-like symbols” in Tables 18 and 29 is to provide the correct amount of spacing around and within multiletter function names. Table 91 contrasts the output of the log-like symbols with various, naïve alternatives. In addition to spacing, the log-like symbols also handle subscripts properly. For example, “`\max_{p \in P}`” produces “ $\max_{p \in P}$ ” in text, but “ \max ” as part of a displayed formula.

TABLE 91: Spacing Around/Within Log-like Symbols

L ^A T _E X expression	Output
<code>\$r \sin \theta\$</code>	$r \sin \theta$ (best)
<code>\$r \sin \theta\$</code>	$r \sin \theta$
<code>\$r \mbox{sin} \theta\$</code>	$r \sin \theta$

5.4 ASCII quick reference

Table 92 on the following page amalgamates data from various other tables in this document into a convenient reference for L^AT_EX 2_ε typesetting of ASCII characters, i.e., the characters available on a typical² 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 L^AT_EX 2_ε command to typeset the character as a text character. And the fourth column lists the L^AT_EX 2_ε 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 92:

- `\textquotedbl` is not available in the OT1 font encoding.
- The characters “<”, “>”, and “|” do work properly in math mode. Hence, instead of using `\textless`, `\textgreater`, and `\textbar`, an alternative is to use `$<$`, `$>$`, and `$|`. Note that for typesetting metavariables, many people prefer `\texttriangleleft` and `\texttriangleright` to `\textless` and `\textgreater`, i.e., “`\langle filename \rangle`” versus “`<filename>`”.

²typical for the United States, at least

TABLE 92: L^AT_EX 2_ε ASCII Table

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

- The various `\char` commands within `\texttt` are necessary only in the OT1 font encoding. Using other encodings (e.g., T1), commands such as `\^`, `_`, `\{`, `\}`, and `\~` 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 13 on page 11), which produces a larger symbol. But if you don’t mind the tilde produced by `\~{}` , you should use the `url` package to typeset URLs—it has a number of nice features.

5.5 About this document

Table 93 on the following page lists some of this document’s build characteristics. Most important is the list of packages that L^AT_EX couldn’t find, but that `symbols.tex` otherwise would have been able to take advantage of. Complete, prebuilt versions of this document are available from CTAN (<http://www.ctan.org>) in the directory `info/symbols/comprehensive`.

References

- [Dow00] Michael Downes. Short math guide for L^AT_EX, July 19, 2000. Version 1.07. Available from <http://www.ams.org/tex/short-math-guide.html>.
- [Knu86] Donald E. Knuth. *The T_EXbook*, volume A of *Computers and Typesetting*. Addison-Wesley, Reading, MA, USA, 1986.

TABLE 93: Document Characteristics

Characteristic	Value
Source file:	<code>symbols.tex</code>
Build date:	March 14, 2001
Symbols documented:	2013
Packages included:	textcomp latexsym amssymb stmaryrd euscript wasysym pi- font marvosym manfnt bbding ifsym tipa ulsy ar txfonts yfonts mathrsfs zapfchan bbold dsfont bbm
Packages omitted:	<i>none</i>

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If you're having trouble locating a symbol, try looking under "T" for "\text...". Many text-mode commands begin with that prefix.

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