Fonts

MATHEMATICAL SYMBOLS AND CYRILLIC FONTS READY FOR DISTRIBUTION

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The first general release of fonts created at the American Mathematical Society will be made in August, at about the time of the TUG meeting. This first release will consist of cyrillic and two 128-character fonts of mathematical symbols, all in various sizes and weights. It is our intention that these fonts be added to the standard distribution, and we will make an effort to provide the necessary files to all sites from which the TeX package is being distributed. It will not be possible to provide this material directly to users, since the Society's DEC 20 computer has proved singularly unsuitable for making tapes that can be read by any other kind of machine.

A master tape will be delivered to Stanford by one of the AMS attendees at the TUG meeting. This tape will contain the **METAFONT**78 sources necessary to generate the fonts in distribution format, along with several files of macros, documentation and user instructions. Actual addition of this material to distribution

	´0	´1	´2	´3	´4	´5	´6	´7	
´00x	Њ	Љ	Џ	Э	І	Є	Ђ	Ћ	″0x
´01x	њ	љ	џ	э	і	є	ђ	ћ	
´02x	Ю	Ж	Й	Ё	Ѵ	Ѳ	Ѕ	Я	″1x
´03x	ю	ж	й	ё	ѵ	ѳ	ѕ	я	
´04x	¨	!	”	Ѣ	˘	%	´	’	″2x
´05x	(	)	*	ѣ	,	-	.	/	
´06x	0	1	2	3	4	5	6	7	″3x
´07x	8	9	:	;	«	ı	»	?	
´10x	˘	А	Б	Ц	Д	Е	Ф	Г	″4x
´11x	Х	И	Ј	К	Л	М	Н	О	
´12x	П	Ч	Р	С	Т	У	В	Щ	″5x
´13x	Ш	Ы	З	[	“	]	Ь	Ъ	
´14x	‘	а	б	ц	д	е	ф	г	″6x
´15x	х	и	ј	к	л	м	н	о	
´16x	п	ч	р	с	т	у	в	щ	″7x
´17x	ш	ы	з	–	—	№	ь	ъ	
	″8	″9	″A	″B	″C	″D	″E	″F	

The AMS cyrillic font – MCYR10

Мещанский университет, находящийся на пути к Нескучному, праздновал на днях свой пятидесятилетний юблией. Кого возили в Титы или городскую больницу, тот, конечно, помнит здоровеннейший, трёхэтажный домище по правую руку с вывеской «Богадельная и Мещанские училища» и тому наверное встречались на пути вереницы ученических пар, солидно прогуливаемых надзирателями.

tapes (and PC diskettes) has not yet been fully arranged, but it should be possible to announce these arrangements at the TUG meeting.

Cyrillic

The cyrillic font contains all letters found in the modern (post-revolutionary) cyrillic alphabet, as well as others found by Mathematical Reviews to be necessary for rendering bibliographic information in Russian, Ukrainian, Serbian, Georgian, and other Slavic and non-Slavic languages ordinarily published in cyrillic. Accents which normally occur in these languages, as well as in such words as names of mathematicians whose work is regularly translated into Russian or one of the other languages covered by MR, are included in the font, as are all the digits and ordinary punctuation. Several cells are still empty: the number of such cells is not sufficient to hold all the additional pre-revolutionary Russian letters, and there is not yet enough experience to indicate what else might most usefully (for MR) be included.

The "basic" cyrillic font is `MCYR10`. Names have been assigned to a number of variations, not all of which exist yet. (In particular, there are no plans yet to create the **METAFONT** descriptions of the true "italic" letters.)

`MCYR`	lightface	`MCSL`	slanted
`MCB`	bold	`MCBSL`	bold slanted
`MCBX`	bold extended	`MCSS`	sans serif
`MCI`	italic	`MCSSB`	bold sans serif
`MCBI`	bold italic		

Font names have been assigned so that compression to 6 characters, using the first 3 and last 3 letters of longer names (a standard built into most implementations of TeX for operating systems having such a limit, and announced through TeXhax by David Fuchs), will always be unique.

Keying of cyrillic to be rendered with this font is in accord with the current MR transliteration scheme, e.g.

Khrushchëv (`Khrushch\"ev`) → Хрущёв
Zhurnal (`Zhurnal`) → Журнал
Kiïv (`Ki{\"\i}v`) → Киïв

`\font\tencyr=mcyr10 \def\cyr{\tencyr\cyracc} {\cyr ...}` sets the stage for proper transition to and from cyrillic. Most of the translation from keyed input to cyrillic is implemented by ligature instructions in the font itself. A few letters require a "chain" of ligatures: sh → ш, shc → 7 (an obvious absurdity, but the roman combination never occurs legitimately), shch → щ. Letters rendered with accents in transliteration are trapped by macros defined in the file `CYRACC.DEF`: ĭ (`\u\i`) → й, ī (`\=\i`) → i, ï (`\"\i`) → ï. Both the macro accent traps and ligatures do the right thing in ordinary roman text and in `{\cyr ...}`; however, cyrillic items in tables cannot reliably be specified in the preamble, and in individual cells `\cyr` should be preceded by `\relax` to prevent premature expansion, and thus loss, of the macro instructions.

Hyphenation is not automatically suppressed, but the patterns used will be those for English in the absence of a local override. (We do not know whether any Russian patterns exist.) For short passages, as the above sample, or isolated words, good luck may prevail.

Documentation accompanying this font will include full keying instructions, the ligature specifications, and, of course, `CYRACC.DEF`. Should the transliteration scheme in local use be different from the MR scheme (for example, an earlier MR scheme rendered щ as šč), it should be quite easy to modify `CYRACC.DEF` to accommodate it, and, if ligature changes are absolutely necessary, they may be implemented using the TeXware programs `TFtoPL` and `PLtoTF`.

Mathematical symbols

Mathematicians expanding the boundaries of their chosen areas often find that no suitably unambiguous notation exists with which to express new concepts. First attempts usually consist in seeking out ever more exotic alphabets, but this fount is rather rapidly exhausted. Non-alphabetic symbols modeled after, or constructed from combinations of, existing ones is probably the next most profitable approach. And failure in either of those attempts may yield something truly new. In any event, the net result is proliferation of symbols beyond what is available to most ordinary typesetting systems.

The original symbol fonts, `CMSY` and `CMEX` (currently `AMSY` and `AMEX`), contain the most frequently used mathematical symbols, plus whatever else was needed for *The Art of Computer Programming*, volume 2, and other projects that Don Knuth was working on at the time. Many other symbols are in common use in other subfields of mathematics, and the AMS and MR found it necessary to construct them. We have now filled one entire "extra symbols" font and most of a second.

The naming scheme devised for these "extra symbols" fonts also leaves room for a third. "Medium" and "bold" refer to the weight, medium being matched to the weight of the "basic" Computer Modern symbols in the `CMSY` font.

`MSXM`	symbols 1 medium	`MSXB`	symbols 1 bold
`MSYM`	symbols 2 medium	`MSYB`	symbols 2 bold
`MSZM`	symbols 3 medium	`MSZB`	symbols 3 bold

Following the charts of the two symbol fonts, the symbols are listed by type, corresponding to the conventions of *The TeXbook*, Appendix F. For each symbol is shown the font (1 or 2) and hex location, the symbol itself, and the symbol name. Symbol names have been assigned in accordance with Don Knuth's principles, and reviewed by him, but all responsibility for errors and misinterpretations of his comments resides with the AMS and MR staff members who worked on the font development.

	´0	´1	´2	´3	´4	´5	´6	´7	
´00x	$\boxdot$	$\boxplus$	$\boxtimes$	$\square$	$\blacksquare$	$\centerdot$	$\lozenge$	$\blacklozenge$	″0x
´01x	$\circlearrowright$	$\circlearrowleft$	$\rightleftharpoons$	$\leftrightharpoons$	$\boxminus$	$\Vdash$	$\Vvdash$	$\vDash$	
´02x	$\twoheadrightarrow$	$\twoheadleftarrow$	$\leftleftarrows$	$\rightrightarrows$	$\upuparrows$	$\downdownarrows$	$\upharpoonright$	$\downharpoonright$	″1x
´03x	$\upharpoonleft$	$\downharpoonleft$	$\rightarrowtail$	$\leftarrowtail$	$\leftrightarrows$	$\rightleftarrows$	$\Lsh$	$\Rsh$	
´04x	$\rightsquigarrow$	$\leftrightsquigarrow$	$\looparrowleft$	$\looparrowright$	$\circeq$	$\succsim$	$\gtrsim$	$\gtrapprox$	″2x
´05x	$\multimap$	$\therefore$	$\because$	$\doteqdot$	$\triangleq$	$\precsim$	$\lesssim$	$\lessapprox$	
´06x	$\eqslantless$	$\eqslantgtr$	$\curlyeqprec$	$\curlyeqsucc$	$\preccurlyeq$	$\leqq$	$\leqslant$	$\lessgtr$	″3x
´07x	$\backprime$	-	$\risingdotseq$	$\fallingdotseq$	$\succcurlyeq$	$\geqq$	$\geqslant$	$\gtrless$	
´10x	$\sqsubset$	$\sqsupset$	$\vartriangleright$	$\vartriangleleft$	$\trianglerighteq$	$\trianglelefteq$	$\bigstar$	$\between$	″4x
´11x	$\blacktriangledown$	$\blacktriangleright$	$\blacktriangleleft$	$\rightarrow$	$\leftarrow$	$\vartriangle$	$\blacktriangle$	$\triangledown$	
´12x	$\eqcirc$	$\lesseqgtr$	$\gtreqless$	$\lesseqqgtr$	$\gtreqqless$	$\yen$	$\Rrightarrow$	$\Lleftarrow$	″5x
´13x	$\checkmark$	$\veebar$	$\barwedge$	$\doublebarwedge$	$\angle$	$\measuredangle$	$\sphericalangle$	$\varpropto$	
´14x	$\smallsmile$	$\smallfrown$	$\Subset$	$\Supset$	$\Cup$	$\Cap$	$\curlywedge$	$\curlyvee$	″6x
´15x	$\leftthreetimes$	$\rightthreetimes$	$\subseteqq$	$\supseteqq$	$\bumpeq$	$\Bumpeq$	$\lll$	$\ggg$	
´16x	$\ulcorner$	$\urcorner$	$\circledR$	$\circledS$	$\pitchfork$	$\dotplus$	$\backsim$	$\backsimeq$	″7x
´17x	$\llcorner$	$\lrcorner$	$\maltese$	$\complement$	$\intercal$	$\circledcirc$	$\circledast$	$\circleddash$	
	″8	″9	″A	″B	″C	″D	″E	″F	

Extra symbols, font 1 – MSXM10

	´0	´1	´2	´3	´4	´5	´6	´7	
´00x	$\lvertneqq$	$\gvertneqq$	$\nleq$	$\ngeq$	$\nless$	$\ngtr$	$\nprec$	$\nsucc$	″0x
´01x	$\lneqq$	$\gneqq$	$\nleqslant$	$\ngeqslant$	$\lneq$	$\gneq$	$\npreceq$	$\nsucceq$	
´02x	$\precnsim$	$\succnsim$	$\lnsim$	$\gnsim$	$\nleqq$	$\ngeqq$	$\precneqq$	$\succneqq$	″1x
´03x	$\precnapprox$	$\succnapprox$	$\lnapprox$	$\gnapprox$	$\nsim$	$\ncong$	$\diagup$	$\diagdown$	
´04x	$\varsubsetneq$	$\varsupsetneq$	$\nsubseteqq$	$\nsupseteqq$	$\subsetneqq$	$\supsetneqq$	$\varsubsetneqq$	$\varsupsetneqq$	″2x
´05x	$\subsetneq$	$\supsetneq$	$\nsubseteq$	$\nsupseteq$	$\nparallel$	$\nmid$	$\nshortmid$	$\nshortparallel$	
´06x	$\nvdash$	$\nVdash$	$\nvDash$	$\nVDash$	$\ntrianglerighteq$	$\ntrianglelefteq$	$\ntriangleleft$	$\ntriangleright$	″3x
´07x	$\nleftarrow$	$\nrightarrow$	$\nLeftarrow$	$\nRightarrow$	$\nLeftrightarrow$	$\nleftrightarrow$	$\divideontimes$	$\varnothing$	
´10x	$\nexists$	$\mathbb{A}$	$\mathbb{B}$	$\mathbb{C}$	$\mathbb{D}$	$\mathbb{E}$	$\mathbb{F}$	$\mathbb{G}$	″4x
´11x	$\mathbb{H}$	$\mathbb{I}$	$\mathbb{J}$	$\mathbb{K}$	$\mathbb{L}$	$\mathbb{M}$	$\mathbb{N}$	$\mathbb{O}$	
´12x	$\mathbb{P}$	$\mathbb{Q}$	$\mathbb{R}$	$\mathbb{S}$	$\mathbb{T}$	$\mathbb{U}$	$\mathbb{V}$	$\mathbb{W}$	″5x
´13x	$\mathbb{X}$	$\mathbb{Y}$	$\mathbb{Z}$	$\widehat{\ }$	$\widehat{\ }$	$\widetilde{\ }$	$\widetilde{\ }$		
´14x	$\Finv$	$\Game$					$\mho$	$\eth$	″6x
´15x	$\eqsim$	$\beth$	$\gimel$	$\daleth$	$\lessdot$	$\gtrdot$	$\ltimes$	$\rtimes$	
´16x	$\shortmid$	$\shortparallel$	$\smallsetminus$	$\thicksim$	$\thickapprox$	$\approxeq$	$\succapprox$	$\precapprox$	″7x
´17x	$\curvearrowleft$	$\curvearrowright$	$\digamma$	$\varkappa$	$\Bbbk$	$\hslash$	$\hbar$	$\backepsilon$	
	″8	″9	″A	″B	″C	″D	″E	″F	

Extra symbols, font 2 – MSYM10

Lowercase Greek letters.

2 "7A	$\digamma$	\digamma	2 "7B	$\varkappa$	\varkappa

Uppercase blackboard bold letters.

2 "41	$\mathbb{A}$	\Bbb A			...	2 "5A	$\mathbb{Z}$	\Bbb Z

Hebrew letters.

2 "69	$\beth$	\beth	2 "6A	$\gimel$	\gimel	2 "6B	$\daleth$	\daleth

Miscellaneous symbols of type Ord.

2 "7E	$\hbar$	\hbar	1 "38	$\backprime$	\backprime	1 "39	$\prime$	\varprime
2 "7D	$\hslash$	\hslash	1 "03	$\square$	\square	1 "04	$\blacksquare$	\blacksquare
2 "3F	$\varnothing$	\varnothing	1 "46	$\bigstar$	\bigstar	1 "4E	$\blacktriangle$	\blacktriangle
1 "73	$\circledS$	\circledS	1 "4F	$\triangledown$	\triangledown	1 "48	$\blacktriangledown$	\blacktriangledown
2 "40	$\nexists$	\nexists	1 "06	$\lozenge$	\lozenge	1 "07	$\blacklozenge$	\blacklozenge
1 "7B	$\complement$	\complement	1 "5D	$\measuredangle$	\measuredangle	1 "5E	$\sphericalangle$	\sphericalangle

Binary operations.

1 "75	$\dotplus$	\dotplus	1 "65	$\Cap$	\Cap	1 "7D	$\circledcirc$	\circledcirc
2 "72	$\smallsetminus$	\smallsetminus	1 "64	$\Cup$	\Cup	1 "7E	$\circledast$	\circledast
2 "6E	$\ltimes$	\ltimes	1 "66	$\curlywedge$	\curlywedge	1 "7F	$\circleddash$	\circleddash
2 "6F	$\rtimes$	\rtimes	1 "67	$\curlyvee$	\curlyvee	1 "01	$\boxplus$	\boxplus
1 "68	$\leftthreetimes$	\leftthreetimes	1 "5A	$\barwedge$	\barwedge	1 "0C	$\boxminus$	\boxminus
1 "69	$\rightthreetimes$	\rightthreetimes	1 "59	$\veebar$	\veebar	1 "02	$\boxtimes$	\boxtimes
2 "3E	$\divideontimes$	\divideontimes	1 "5B	$\doublebarwedge$	\doublebarwedge	1 "00	$\boxdot$	\boxdot
1 "7C	$\intercal$	\intercal	1 "05	$\centerdot$	\centerdot			

Relations.

1 "35	$\leqq$	\leqq	1 "3D	$\geqq$	\geqq	1 "2B	$\doteqdot$	\doteqdot
1 "36	$\leqslant$	\leqslant	1 "3E	$\geqslant$	\geqslant	1 "24	$\circeq$	\circeq
1 "30	$\eqslantless$	\eqslantless	1 "31	$\eqslantgtr$	\eqslantgtr	1 "50	$\eqcirc$	\eqcirc
1 "2E	$\lesssim$	\lesssim	1 "26	$\gtrsim$	\gtrsim	1 "2C	$\triangleq$	\triangleq
1 "2F	$\lessapprox$	\lessapprox	1 "27	$\gtrapprox$	\gtrapprox	1 "3A	$\risingdotseq$	\risingdotseq
2 "6C	$\lessdot$	\lessdot	2 "6D	$\gtrdot$	\gtrdot	1 "3B	$\fallingdotseq$	\fallingdotseq
1 "6E	$\lll$	\lll	1 "6F	$\ggg$	\ggg	1 "76	$\backsim$	\backsim
1 "37	$\lessgtr$	\lessgtr	1 "3F	$\gtrless$	\gtrless	1 "77	$\backsimeq$	\backsimeq
1 "51	$\lesseqgtr$	\lesseqgtr	1 "52	$\gtreqless$	\gtreqless	2 "73	$\thicksim$	\thicksim
1 "53	$\lesseqqgtr$	\lesseqqgtr	1 "54	$\gtreqqless$	\gtreqqless	2 "74	$\thickapprox$	\thickapprox
1 "6A	$\subseteqq$	\subseteqq	1 "6B	$\supseteqq$	\supseteqq	2 "75	$\approxeq$	\approxeq
1 "62	$\Subset$	\Subset	1 "63	$\Supset$	\Supset	1 "6C	$\bumpeq$	\bumpeq
1 "40	$\sqsubset$	\sqsubset	1 "41	$\sqsupset$	\sqsupset	1 "6D	$\Bumpeq$	\Bumpeq
1 "34	$\preccurlyeq$	\preccurlyeq	1 "3C	$\succcurlyeq$	\succcurlyeq	1 "47	$\between$	\between
1 "32	$\curlyeqprec$	\curlyeqprec	1 "33	$\curlyeqsucc$	\curlyeqsucc	1 "74	$\pitchfork$	\pitchfork
1 "2D	$\precsim$	\precsim	1 "25	$\succsim$	\succsim	1 "5F	$\varpropto$	\varpropto
2 "77	$\precapprox$	\precapprox	2 "76	$\succapprox$	\succapprox	1 "74	$\smallamalg$	\smallamalg
1 "43	$\vartriangleleft$	var. \triangleleft	1 "42	$\vartriangleright$	var. \triangleright	1 "4A	$\blacktriangleleft$	\blacktriangleleft
1 "45	$\trianglelefteq$	\trianglelefteq	1 "44	$\trianglerighteq$	\trianglerighteq	1 "49	$\blacktriangleright$	\blacktriangleright
1 "0F	$\vDash$	\vDash	1 "0D	$\Vdash$	\Vdash	1 "0E	$\Vvdash$	\Vvdash
1 "60	$\smallsmile$	\smallsmile	2 "70	$\shortmid$	\shortmid	1 "29	$\therefore$	\therefore
1 "61	$\smallfrown$	\smallfrown	2 "71	$\shortparallel$	\shortparallel	1 "2A	$\because$	\because
2 "7F	$\backepsilon$	\backepsilon						

Negated relations.

2 "04	$\nless$	\nless	2 "05	$\ngtr$	\ngtr	2 "1C	$\nsim$	\nsim
2 "02	$\nleq$	\nleq	2 "03	$\ngeq$	\ngeq	2 "1D	$\ncong$	\napprox
2 "0A	$\nleqslant$	\nleqslant	2 "0B	$\ngeqslant$	\ngeqslant	2 "2E	$\nshortmid$	\nshortmid
2 "14	$\nleqq$	\nleqq	2 "15	$\ngeqq$	\ngeqq	2 "2F	$\nshortparallel$	\nshortparallel
2 "0C	$\lneq$	\lneq	2 "0D	$\gneq$	\gneq	2 "2D	$\nmid$	\nmid
2 "08	$\lneqq$	\lneqq	2 "09	$\gneqq$	\gneqq	2 "2C	$\nparallel$	\nparallel
2 "00	$\lvertneqq$	\lvertneqq	2 "01	$\gvertneqq$	\gvertneqq	2 "30	$\nvdash$	\nvdash
2 "12	$\lnsim$	\lnsim	2 "13	$\gnsim$	\gnsim	2 "32	$\nvDash$	\nvDash
2 "1A	$\lnapprox$	\lnapprox	2 "1B	$\gnapprox$	\gnapprox	2 "31	$\nVdash$	\nVdash
2 "06	$\nprec$	\nprec	2 "07	$\nsucc$	\nsucc	2 "33	$\nVDash$	\nVDash
2 "0E	$\npreceq$	\npreceq	2 "0F	$\nsucceq$	\nsucceq	2 "36	$\ntriangleleft$	\ntriangleleft
2 "16	$\precneqq$	\precneqq	2 "17	$\succneqq$	\succneqq	2 "37	$\ntriangleright$	\ntriangleright
2 "10	$\precnsim$	\precnsim	2 "11	$\succnsim$	\succnsim	2 "35	$\ntrianglelefteq$	\ntrianglelefteq
2 "18	$\precnapprox$	\precnapprox	2 "19	$\succnapprox$	\succnapprox	2 "34	$\ntrianglerighteq$	\ntrianglerighteq
2 "2A	$\nsubseteq$	\nsubseteq	2 "2B	$\nsupseteq$	\nsupseteq			
2 "22	$\nsubseteqq$	\nsubseteqq	2 "23	$\nsupseteqq$	\nsupseteqq			
2 "28	$\subsetneq$	\subsetneq	2 "29	$\supsetneq$	\supsetneq			
2 "20	$\varsubsetneq$	var. \subsetneq	2 "21	$\varsupsetneq$	var. \supsetneq			
2 "24	$\subsetneqq$	\subsetneqq	2 "25	$\supsetneqq$	\supsetneqq			
2 "26	$\varsubsetneqq$	var. \subsetneqq	2 "27	$\varsupsetneqq$	var. \subsetneqq			

Arrows.

1 "12	$\leftleftarrows$	\leftleftarrows	1 "13	$\rightrightarrows$	\rightrightarrows	1 "14	$\upuparrows$	\upuparrows
1 "1C	$\leftrightarrows$	\leftrightarrows	1 "1D	$\rightleftarrows$	\rightleftarrows	1 "15	$\downdownarrows$	\downdownarrows
1 "57	$\Lleftarrow$	\Lleftarrow	1 "56	$\Rrightarrow$	\Rrightarrow	1 "0A	$\rightleftharpoons$	\updownarrow
1 "11	$\twoheadleftarrow$	\twoheadleftarrow	1 "10	$\twoheadrightarrow$	\twoheadrightarrow	1 "18	$\upharpoonleft$	\upharpoonleft
1 "1B	$\leftarrowtail$	\leftarrowtail	1 "1A	$\rightarrowtail$	\rightarrowtail	1 "19	$\downharpoonleft$	\downharpoonleft
1 "22	$\looparrowleft$	\looparrowleft	1 "23	$\looparrowright$	\looparrowright	1 "16	$\upharpoonright$	\upharpoonright
2 "78	$\curvearrowleft$	\curvearrowleft	2 "79	$\curvearrowright$	\curvearrowright	1 "17	$\downharpoonright$	\downharpoonright
1 "09	$\circlearrowleft$	\circlearrowleft	1 "08	$\circlearrowright$	\circlearrowright	1 "0B	$\leftrightharpoons$	\leftrightharpoons
1 "1E	$\Lsh$	\Lsh	1 "1F	$\Rsh$	\Rsh	1 "28	$\multimap$	\multimap
1 "20	$\rightsquigarrow$	\rightsquigarrow	1 "21	$\leftrightsquigarrow$	\leftrightsquigarrow			

"Negated" arrows.

2 "38	$\nleftarrow$	\nleftarrow	2 "39	$\nrightarrow$	\nrightarrow	2 "3D	$\nleftrightarrow$	\nleftrightarrow
2 "3A	$\nLeftarrow$	\nLeftarrow	2 "3B	$\nRightarrow$	\nRightarrow	2 "3C	$\nLeftrightarrow$	\nLeftrightarrow

Delimiters.

1 "70	$\ulcorner$	\ulcorner	1 "71	$\urcorner$	\urcorner
1 "78	$\llcorner$	\llcorner	1 "79	$\lrcorner$	\lrcorner

Non-math symbols.

1 "58	✓	\checkmark	1 "72	®	\circledR
1 "7A	✠	\maltese	1 "55	¥	\yen

Alternate names.

1 "6E	$\lll$	\llless	1 "6F	$\ggg$	\gggtr	1 "2B	$\doteqdot$	\Doteq
1 "65	$\Cap$	\doublecap	1 "64	$\Cup$	\doublecup	1 "16	$\upharpoonright$	\restriction