

The unicodefonttable package*

Frank Mittelbach

Abstract A package for typesetting font tables for larger fonts, e.g., TrueType or OpenType Unicode fonts. To produce a one-off table, a standalone version is available as well.

Sommario Un pacchetto per comporre tabelle di caratteri per font di grosse dimensioni, per esempio font TrueType o OpenType a codifica Unicode. È disponibile anche una versione autonoma per produrre tabelle *una tantum*.

1. Introduction

When I started to write a new chapter for the third edition of The \LaTeX Companion on modern fonts available for different \LaTeX engines, I was a bit surprised that I couldn't find a way to easily typeset tables showing the glyphs available in TrueType or OpenType fonts. The `nfssfont` package available with \LaTeX only supports fonts from the 8-bit world, but modern fonts that can be used with $X\TeX$ or $\text{Lua}\TeX$ can contain thousands of glyphs and having a method to display what is available in them was important for me.

I therefore set out to write my own little package and what started as an afternoon exercise ended up being this package, offering plenty of bells and whistles for typesetting such font tables.

As there can be many glyphs in such fonts a tabular representation of them might run for several pages, so the package internally uses the `longtable` package to handle that. In most cases the glyphs inside the fonts are indexed by their Unicode numbers so it is natural to display them sorted by their position in the Unicode character set. Unicode is organised in named blocks such as “Basic Latin”, “Latin-1 Supplement”, etc., typically consisting of 265 characters each.¹ It is therefore helpful to use these block names as subtitles within the table, to more easily find the information one is looking for.

A common way to represent the number of a single Unicode character is U+ followed by four (or more) hexadecimal digits. For example, U+0041 represents the letter “A” and U+20AC the Euro currency symbol “€”. We use this convention by showing a Unicode range of sixteen characters at the left of each table row, e.g., U+0040 - 004F, followed by the sixteen glyphs in the range. Thus that particular table row from the “Basic Latin” block would show something like

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
U+0040 - 004F	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O

If a Unicode character has no glyph representation in a given font then this is indicated

* This is version v1.0e of the package, dated 2021/10/29; the license is LPPL.

1. Some blocks are smaller, while those containing the Asian ideographs are much larger.

by a special symbol (by default a colored hyphen). By default some color is used, but we've grey scaled the output for $\text{\texttt{Ar\TeX nica}}$. In order to easily locate any Unicode character the table shows by default sixteen hex digits as a column heading. For example, to find Euro currency symbol (U+20AC) one first finds the right row, which is the range U+20A0 - 20AF, and then the C column in that row, and the glyph is there (or an indication that the font is missing that glyph; the line shows that for some of the other slots).

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
U+20A0 - 20AF	-	¢	-	-	£	-	¤	-	-	¥	-	¦	€	-	-	-

It can be useful to compare two fonts with each other by filling the table with glyphs from a secondary font if the primary font is missing them. For example, the next display shows two rows of Latin Modern Math (black glyphs) and instead of showing a missing glyph symbol in most slots, we use the glyphs from New Computer Modern Math, which has a much larger glyph set (normally red glyphs with grey background but again, grey scaled for $\text{\texttt{Ar\TeX nica}}$).

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
U+2A00 - 2A0F	⊙	⊕	⊗	⊘	⊙	⊕	⊗	⊘	⊙	⊕	⊗	⊘	⊙	⊕	⊗	⊘
U+2A10 - 2A1F	ℱ	ℱ	ℱ	ℱ	ℱ	ℱ	ℱ	ℱ	ℱ	ℱ	ℱ	ℱ	ℱ	ℱ	ℱ	ℱ

2. The user interface

The package offers one command to typeset a font table. The appearance of the table can be customised by specifying key/value pairs.

```
\displayfonttable * [key/value-list] {font-name} [font-features]
```

The *font-name* is the font to be displayed. This and the *font-features* argument are passed to `fontspec`, thus they should follow the conventions of that package for specifying a font. The *key/value-list* offers customisation possibilities discussed below. The `\displayfonttable*` is a variant of the command, intended for use with 8-bit legacy fonts. It presets some keys, but otherwise behaves identically. The preset values are:

```
nostatistics, display-block=none, hex-digits=head, range-end=FF
```

For details see the next section.

```
\fonttablesetup {key/value-list}
```

Instead of or in addition to specifying key/values to `\displayfonttable` it is possible to set them up as defaults. Inside `\displayfonttable` the defaults are applied first, so one can still overwrite their values for an individual table.

```
\fonttableglyphcount
```

While typesetting a font table the package keeps track of the number of glyphs it finds in the

font. After the table has finished, this value is available in `\fonttableglyphcount` and it is, for example, used when statistics are produced. At the start of the next table it is reset to zero.

2.1. Keys and their values

Several of the available keys are booleans accepting `true` or `false`. They usually exist in pairs so that one can specify the desired behaviour without needing to provide a value, e.g., specifying `header` is equivalent to specifying `header=true` or `noheader=false`, etc. In the lists below the default settings are indicated by an underline.

The first set of keys is concerned with the overall look and feel of the generated table.

header, noheader These keys determine whether a header to the table is produced.

title-format, title-format-cont These keys define what is provided as a header title or continuation title if the table consists of several pages. They expect code as their value. This code can contain `#1` and `#2` to denote the `<font-name>` and `<font-features>` arguments, respectively.

By default a title using the `\caption` command is produced; on continuation titles, the `<font-features>` are not shown. This is typeset as a `longtable` header row, so you need to use either `\multicolumn` or a `\caption` command — otherwise everything ends up in the first column.

These keys handle the inner parts of the table.

display-block The Unicode dataset is organised in named blocks that are typically 128 or 256 characters, though some are noticeably larger and a few are smaller. With the `display-block` key it is possible to specify if and how such blocks should be made visible. The following values are supported:

titles Above each display block that contains glyphs the Unicode title of the block is displayed.

rules Display blocks are indicated only by a `\midrule`.

none Display blocks are not indicated at all.

hex-digits To ease reading the table, rows of hex digits are added to it. Where or if this happens is controlled by this key. Allowed values for it are the following:

block A row of hex digits is placed at the beginning of each Unicode block containing glyphs in the displayed font.

foot A row is added to the foot of each table page.

head A row is added to the top of each table page.

head+foot A row is added to the top and the foot of each table page.

none All hex digit rows are suppressed.

hex-digits-font The font to use for the hex digits, by default `\ttfamily\scriptsize`.

color This key determines the color for parts of the table (hex digits and Unicode ranges).

It can be either `none` or a color specification as understood by the `\color` command. The default is `blue`.

The next set of keys allows altering the statistics that are produced.

`statistics, nostatistics` These keys determine whether some statistics are listed at the end of the table.

`statistics-font` The font used to typeset the statistics; the default is `\normalfont\small`.

`statistics-format` Code (text) to specify what should be typeset in the statistics. One can use #1 for the `<font-name>` and #2 for the glyph count. The material is typeset on a single line at the end of the table. If several lines are needed you need to use `\parbox` or a similar construct.

Another set of keys deals with customisation on the glyph level.

`glyph-width` All glyphs are typeset in a box with the same width, the default value is `6pt` which is suitable for most 10pt fonts and make the table fit comfortably into the text width of a typical document.

`missing-glyph` If a slot in a row doesn't have a glyph in the font you may still want display something to indicate this state. By giving the key a value any arbitrary glyph or material can be typeset. The default is to typeset a - (hyphen) in a special color.

Rows that contain no glyph whatsoever are not displayed at all. Instead a small vertical space is added to indicate the one or more rows are omitted.

`missing-glyph-font` The font used for displaying the missing glyphs (the default value is `\ttfamily\scriptsize`).

`missing-glyph-color` If not specified it uses the value specified with the `color` key. If you want a different color, e.g., `red`, you can use a color value or you can specify `none` to use no coloring.

You can make comparisons between two fonts, which is useful, for example when dealing with incomplete math fonts and you need to see how well the symbols from one font blend with the supplementary symbols from another font.

`compare-with` If given, the value is a `<comparison-font-name>` that is used to supply missing glyphs. This means that if the `<font-name>` to be displayed is missing a glyph in a slot, then the `<comparison-font-name>` is checked, and if that font has the glyph in question, it will be displayed instead of showing a missing glyph indicator.

`compare-color, compare-bgcolor` To distinguish real glyphs from missing but substituted glyphs, they can be colored specially (default `red`) and/or you can have their background colored (default is `black!10`, i.e., a light grey).

`statistics-compare-format` Code (text) to specify what should be typeset in the statistics when comparing two fonts. One can use #1 for the `<font-name>` and #2 for its glyph

count, #3 is the name of the comparison font, #4 its glyph count, #5 for the number of glyphs missing in this font and #6 the number of extra glyphs in it. This code is used instead of `statistics-format` when comparisons are made.

The material is typeset on a single line at the end of the table. If several lines are needed you need to use `\parbox` or a similar construct.

Finally there are two keys for restricting the display range.

range-start, range-end The full Unicode set of characters is huge and checking every slot to see if the current font contains a glyph in the slot takes a long time. If you know that font contains only a certain subset then you can speed up the table generation considerably by limiting the search (and consequently the output generation). The `range-start` specifies where to start with the search (default `0000`) and `range-end` gives the last slot that is tested (default `FFFF`).

Thus, by default we restrict the display to slots below 10000, because text fonts seldom contain glyphs in the higher planes. But if you want to see everything of the font (as far as supported by this package) and are prepared to wait for the higher planes to be scanned, you can go up to a value of `FFFFF`.

These keys are also quite useful in combination with the previous `compare-with` key, to display only, for example, the Greek letters and see how glyphs from two fonts blend with each other.

2.2. A standalone interactive version

If you want to quickly display a single font, you can run `unicodefont.tex` through Lua \TeX (or X \TeX). Similar to `nfssfont.tex` (which is for 8-bit fonts with PDF \TeX) it asks you a few questions and then generates the font table for you. There are fewer configuration options available, but this workflow saves you writing a document to get a one-off table.

Most font tables need several runs due to the use of `longtable`, which has to find the right width for the columns across several pages. The `unicodefont` file therefore remembers your selection from the previous run and asks you if you want to reapply it to speed up the process.

3. Notes on table data

If you look at some parts of a Unicode font table you see a number of slots that do not show a “missing glyph” sign, but nonetheless appear to be empty. For example:

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
U+0020 - 002F		!	"	#	\$	%	&	'	()	*	+	,	-	.	/
U+0030 - 003F	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
U+0040 - 004F	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
U+0050 - 005F	P	Q	R	S	T	U	V	W	X	Y	Z	[\]	^	_
U+0060 - 006F	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
U+0070 - 007F	p	q	r	s	t	u	v	w	x	y	z	{		}	~	-
U+00A0 - 00AF		ı	¢	£	¤	¥	¦	§	¨	©	ª	«	¬		®	-

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
U+00B0 - 00BF	°	±	²	³	´	µ	¶	·	,	¹	²	»	¼	½	¾	¿

The reason is that Unicode contains a lot of special spaces or otherwise invisible characters, e.g., U+0020 is the normal space, U+00A0 is a non-breaking space, U+00AD is a soft-hyphen (what \LaTeX users would indicate with $\-$), and so forth. Especially the row U+2000–200F in Table 6 looks strange as it appears to be totally empty, but in fact most of its slots contain spaces of different width.

General Punctuation

U+2000 - 200F																
U+2010 - 201F	-	-	-	-	-	-		=	'	'	,	-	“	”	„	-
U+2020 - 202F	†	‡	•	-	-	-	...	-	-	-	-	-	-	-	-	-
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F

Another somewhat surprising area is the “Mathematical Alphanumeric Symbols” block in math fonts, starting at U+1D400. There you see a number of missing characters, the first two being U+1D455 (math italic small h) and U+1D49D (math script B).

Mathematical Alphanumeric Symbols

U+1D400 - 1D40F	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
U+1D410 - 1D41F	Q	R	S	T	U	V	W	X	Y	Z	a	b	c	d	e	f
U+1D420 - 1D42F	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v
U+1D430 - 1D43F	w	x	y	z	A	B	C	D	E	F	G	H	I	J	K	L
U+1D440 - 1D44F	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	a	b
U+1D450 - 1D45F	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>	<i>g</i>	-	<i>i</i>	<i>j</i>	<i>k</i>	<i>l</i>	<i>m</i>	<i>n</i>	<i>o</i>	<i>p</i>	<i>q</i>	<i>r</i>
U+1D460 - 1D46F	<i>s</i>	<i>t</i>	<i>u</i>	<i>v</i>	<i>w</i>	<i>x</i>	<i>y</i>	<i>z</i>	A	B	C	D	E	F	G	H
U+1D470 - 1D47F	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
U+1D480 - 1D48F	Y	Z	a	b	c	d	e	f	g	h	i	j	k	l	m	n
U+1D490 - 1D49F	o	p	q	r	s	t	u	v	w	x	y	z	A	-	C	D
U+1D4A0 - 1D4AF	-	-	G	-	-	J	K	-	-	N	O	P	Q	-	S	T
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F

In this case the reason is *not* that the font fails to implement the characters, but that these characters have already been defined in earlier revisions of the Unicode standard in the lower Unicode plane. For example, the “h” is the Planck constant U+210E and U+212C is the script capital B, etc. The Unicode Consortium decided not to encode the *same* character twice, hence the apparent holes.

A. Examples

In this section we show the results of a few calls to `\displayfonttable`. The tables are a bit easier to navigate if they use color in some places, but for $\text{\texttt{4r\TeX nica}}$ this is not practical, so we use black and grey.

A.1. Computer modern Sans — 7-bit font

Our first example is the original Computer Modern Sans, with character codes ≤ 127 .

Command used:

```
\displayfonttable*[color=none, range-end=7F]{cmss10}
```

Table 1. cmss10

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
U+0000-000F	Γ	Δ	Θ	Λ	Ξ	Π	Σ	Υ	Φ	Ψ	Ω	ff	fi	fl	ffi	ffl
U+0010-001F	ı	ı	`	´	˘	˙	-	°	,	β	æ	œ	ø	Æ	Œ	Ø
U+0020-002F	-	!	"	#	\$	%	&	'	()	*	+	,	-	.	/
U+0030-003F	0	1	2	3	4	5	6	7	8	9	:	;	ı	=	ı	?
U+0040-004F	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
U+0050-005F	P	Q	R	S	T	U	V	W	X	Y	Z	["]	^	.
U+0060-006F	'	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
U+0070-007F	p	q	r	s	t	u	v	w	x	y	z	-	—	"	~	..

A.2. T_EX Gyre Heros — 8-bit font

This example shows the T_EX Gyre Heros 8-bit font, in the T1 encoding, with character codes ≤ 255 . Command used:

```
\displayfonttable*[color=none]{ec-qhvr}
```

Table 2. ec-qhvr

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
U+0000-000F	`	´	^	~	¨	˘	˙	˚	˛	˜	.	B	C	D	E	F
U+0010-001F	“	”	„	«	»	-	—	o	ı	ı	ı	ı	ı	ı	ı	ı
U+0020-002F	ı	!	"	#	\$	%	&	'	()	*	+	,	-	.	/
U+0030-003F	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
U+0040-004F	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
U+0050-005F	P	Q	R	S	T	U	V	W	X	Y	Z	[\]	^	_
U+0060-006F	'	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
U+0070-007F	p	q	r	s	t	u	v	w	x	y	z	{		}	~	-
U+0080-008F	Ă	Ą	Ć	Č	Ď	Ě	Ě	Ĝ	Ł	Ł	Ł	Ń	Ń	Ń	Œ	Ŕ
U+0090-009F	Ř	Ś	Š	Ş	Ť	Ť	Ů	Ů	Ÿ	Ž	Ž	Ž	ı	ı	ı	ı
U+00A0-00AF	ă	ą	ć	č	d’	ě	ę	ğ	ı	ı	ı	ı	ı	ı	ı	ı
U+00B0-00BF	ř	ś	š	ş	ť	ť	ů	ů	ÿ	ž	ž	ž	ıı	ı	ı	ı
U+00C0-00CF	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
U+00D0-00DF	Ð	Ñ	Ò	Ó	Ô	Õ	Ö	Œ	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß
U+00E0-00EF	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
U+00F0-00FF	ð	ñ	ò	ó	ô	õ	ö	œ	ø	ù	ú	û	ü	ý	þ	ß

A.3. Latin Modern Math — 8-bit fonts

The traditional Latin Modern Math Italic, Symbol and Extension fonts. The symbol font (`lmsy10`) has two characters added to the Computer Modern symbol repertoire, seen in the last row of the table. Commands used:

```
\displayfonttable*[color=none]{lmml10}
\displayfonttable*[color=none]{lmsy10}
\displayfonttable*[color=none]{lmex10}
```

Table 3. `lmml10`

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
U+0000-000F	Γ	Δ	Θ	Λ	Ξ	Π	Σ	Υ	Φ	Ψ	Ω	α	β	γ	δ	ϵ
U+0010-001F	ζ	η	θ	ι	κ	λ	μ	ν	ξ	π	ρ	σ	τ	υ	ϕ	χ
U+0020-002F	ψ	ω	ε	ϑ	ϖ	ϱ	ς	φ	\leftarrow	\rightarrow	\rightarrow	\rightarrow	\leftarrow	\rightarrow	\triangleright	\triangleleft
U+0030-003F	0	1	2	3	4	5	6	7	8	9	.	,	<	/	>	*
U+0040-004F	∂	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
U+0050-005F	P	Q	R	S	T	U	V	W	X	Y	Z	b	h	$\#$	\smile	\frown
U+0060-006F	ℓ	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
U+0070-007F	p	q	r	s	t	u	v	w	x	y	z	ι	j	\wp	\rightarrow	\sim

Table 4. `lmsy10`

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
U+0000-000F	—	·	×	*	÷	◇	±	∓	⊕	⊖	⊗	⊙	⊛	⊜	⊝	⊞
U+0010-001F	≠	≡	⊆	⊇	≤	≥	≲	≳	≈	≈	⊂	⊃	⊆	⊇	⊈	⊉
U+0020-002F	←	→	↑	↓	↔	↗	↘	≈	⇐	⇒	↑	↓	⇄	↖	↗	∞
U+0030-003F	∞	∞	∈	∋	Δ	∇	/	∣	∨	∃	¬	∅	ℜ	ℑ	ℒ	ℓ
U+0040-004F	ℵ	ℵ	ℵ	ℵ	ℵ	ℵ	ℵ	ℵ	ℵ	ℵ	ℵ	ℵ	ℵ	ℵ	ℵ	ℵ
U+0050-005F	ℵ	ℵ	ℵ	ℵ	ℵ	ℵ	ℵ	ℵ	ℵ	ℵ	ℵ	ℵ	ℵ	ℵ	ℵ	ℵ
U+0060-006F	⊢	⊣	⊥	⊥	⊥	⊥	{	}	<	>			↕	↕	\	?
U+0070-007F	√	∏	∇	∫	⊔	⊓	⊆	⊆	§	†	‡	♣	♣	◇	♥	♠
U+00A0-00AF	-	-	-	-	-	-	-	-	-	-	-	-	≤	≥	-	-

Table 5. `lmex10`

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
U+0000-000F	()	[]	[]	[]	{	}	<	>			/	\
U+0010-001F	()	()	[]	[]	[]	{	}	<	>	/	\

Table 5. *lmex10 cont.*

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
U+0020 - 002F	()	[]	[]	[]	{	}	<	>	/	\	/	\
U+0030 - 003F	()	[]	[]	'	'	'	'	'	'	'	'	'	'
U+0040 - 004F	()	'	'	<	>	U	U	ƒ	ƒ	⊙	⊙	⊕	⊕	⊗	⊗
U+0050 - 005F	Σ	Π	∫	∪	∩	⊕	∧	∨	Σ	Π	∫	∪	∩	⊕	∧	∨
U+0060 - 006F	∏	∏	ˆ	ˆ	ˆ	˜	˜	˜	[]	[]	[]	{	}
U+0070 - 007F	√	√	√	√	√		Γ	∥	↑	↓	˘	˘	˘	˘	↑	↓

A.4 Latin Modern Math compared to New Computer Modern Math

This example shows the extra symbols available in New Computer Modern Math in comparison to Latin Modern Math as the base font. We use the following setup (including settings for the greyscaled \LaTeX output, as an example of color overrides):

```
\displayfonttable[hex-digits=head+foot, range-end=1FFFF,
  compare-with=NewComputerModernMath-Book,
  title-format=\caption{Latin Modern Math compared
    to New Computer Modern Math},
  title-format-cont=\caption{LM Math vs.\ NewCM Math,
    \emph{cont.}},
  compare-color=black, compare-bgcolor=black!10,
  missing-glyph-color=black!50, color=black!75]
{Latin Modern Math}
```

That is, glyphs only in NewCM are shown with a light grey background. We also extended the range to cover U+10000 to U+1FFFF in order to include the Unicode Math alphabets.

Table 6. Latin Modern Math compared to New Computer Modern Math

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
	Basic Latin															
U+0020 - 002F	!	"	#	\$	%	&	'	()	*	+	,	-	.	/	
U+0030 - 003F	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
U+0040 - 004F	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F

Table 6. LM Math vs. NewCM Math, *cont.*

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
U+0050-005F	P	Q	R	S	T	U	V	W	X	Y	Z	[\]	^	_
U+0060-006F	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
U+0070-007F	p	q	r	s	t	u	v	w	x	y	z	{		}	~	DEL
Latin-1 Supplement																
U+00A0-00AF		ı	ċ	£	¤	¥		§	¨	©	ª	«	¬	¸	®	ˆ
U+00B0-00BF	°	±	²	³	´	µ	¶	·	¸	¹	º	»	¼	½	¾	¿
U+00C0-00CF	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
U+00D0-00DF	Ð	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß
U+00E0-00EF	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
U+00F0-00FF	ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ý	þ	ÿ
Latin Extended-A																
U+0100-010F	Ā	ā	Ă	ă	Ą	ą	Ć	ć	Ĉ	ĉ	Č	č	Ď	ď		
U+0110-011F	Đ	đ	Ē	ē	Ĕ	ĕ	È	é	Ě	ě	Ĝ	ĝ	Ğ	ğ		
U+0120-012F	Ġ	ġ	Ģ	ģ	Ĥ	ĥ	Ħ	ħ	Ĩ	ĩ	Ī	ī	Ĵ	ĵ	Į	į
U+0130-013F	Ĭ	ĭ	Ĳ	ĳ	Ĵ	ĵ	Қ	қ	κ	Ł	ł	Ł	ł	Ł	ł	Ł
U+0140-014F	Ĺ	ĺ	Ń	ń	Ņ	ņ	Ň	ň	ŋ	Ŋ	ŋ	Ō	ō	Ŏ	ö	
U+0150-015F	Œ	œ	Ŕ	ŕ	Ŗ	ŗ	Ř	ř	Ś	ś	Ŝ	ŝ	Ş	ş		
U+0160-016F	Š	š	Ţ	ţ	Ť	ť	Ŧ	ŧ	Ū	ū	Ū	ū	Ŭ	ŭ	Ů	ů
U+0170-017F	Ű	ű	Ų	ų	Ŵ	ŵ	Ŷ	ŷ	Ÿ	Ž	ž	Ž	ž	Ž	ž	f
Latin Extended-B																
U+0180-018F	ƀ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
U+01A0-01AF	Ŏ	σ	-	-	-	-	-	-	-	-	-	-	-	-	-	Ů
U+01B0-01BF	ƒ	-	-	-	-	Ƶ	-	-	-	-	-	-	-	-	-	-
U+0210-021F	-	-	-	-	-	-	-	-	Ş	ş	Ţ	ţ	-	-	-	-
U+0230-023F	-	-	-	-	-	-	-	J	-	-	-	-	-	-	-	-
Spacing Modifier Letters																
U+02C0-02CF	-	-	-	-	-	-	^	˘	-	-	-	-	-	-	-	-
U+02D0-02DF	-	-	-	-	-	-	-	˙	˚	˛	˜	˝	-	-	-	-
Combining Diacritical Marks																
U+0300-030F	ˆ	˜	˘	˙	˚	˛	˜	˝	˞	˟	ˠ	ˡ	ˢ	ˣ	ˤ	˥
U+0310-031F	˦	˧	˨	˩	˪	˫	ˬ	˭	ˮ	˯	˰	˱	˲	˳	˴	˵
U+0320-032F	˶	˷	˸	˹	˺	˻	˼	˽	˾	˿	˿	˿	˿	˿	˿	˿
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F

Table 6. LM Math vs. NewCM Math, *cont.*

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
U+0330–033F	~	-	-	=	-	-	-	-	/	-	-	-	-	-	-	=
U+0340–034F	-	-	-	-	-	-	-	-	-	-	-	-	-	↔	-	-
Greek and Coptic																
U+0390–039F	-	Α	Β	Γ	Δ	Ε	Ζ	Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο
U+03A0–03AF	Π	Ρ	-	Σ	Τ	Υ	Φ	Χ	Ψ	Ω	-	-	-	-	-	-
U+03B0–03BF	-	α	β	γ	δ	ε	ζ	η	θ	ι	κ	λ	μ	ν	ξ	ο
U+03C0–03CF	π	ρ	ς	σ	τ	υ	φ	χ	ψ	ω	-	-	-	-	-	-
U+03D0–03DF	-	ϑ	-	-	-	ϕ	ϖ	-	-	-	-	-	Ϝ	ϝ	-	-
U+03F0–03FF	Ϻ	ϻ	-	-	Ϙ	ϙ	Ϛ	-	-	-	-	-	-	-	-	-
Latin Extended Additional																
U+1EA0–1EAF	À	à	Ả	ả	Á	á	À	à	Ả	ả	Ã	ã	Â	â	Á	á
U+1EB0–1EBF	Ă	ă	Ȃ	ȃ	Ȧ	ȧ	Ẹ	ẹ	Ẻ	ẻ	Ê	ê	É	é	Ê	é
U+1EC0–1ECF	È	è	Ẽ	ẽ	Ě	ě	Ĭ	ĭ	Į	į	İ	ı	Ȫ	ȫ	Ȭ	ȭ
U+1ED0–1EDF	Ó	ó	Ȯ	ȯ	Ȱ	ȱ	Ȳ	ȳ	ȴ	ȵ	ȶ	ȷ	ȸ	ȹ	Ⱥ	Ȼ
U+1EE0–1EEF	ȼ	Ƚ	Ⱦ	ȿ	Ⱥ	Ȼ	ȼ	Ƚ	Ⱦ	ȿ	Ⱥ	Ȼ	ȼ	Ƚ	Ⱦ	ȿ
U+1EF0–1EFF	Ⱥ	Ȼ	ȼ	Ƚ	Ⱦ	ȿ	Ⱥ	Ȼ	ȼ	Ƚ	Ⱦ	ȿ	Ⱥ	Ȼ	ȼ	Ƚ
General Punctuation																
U+2000–200F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
U+2010–201F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
U+2020–202F	†	‡	•	▶	•	••	•••	•	-	-	-	-	-	-	-	-
U+2030–203F	‰	‱	′	″	‴	′	″	‴	∧	<	>	※	!!	?	-	☺
U+2040–204F	⌒	⌘	⌘	•	/	{	}	??	?!	!?	⌋	⌋	⌋	⌋	⌋	⌋
U+2050–205F	⊖	*	%	~	⌒	*	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
U+2060–206F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Currency Symbols																
U+20A0–20AF	-	⌠	-	-	-	-	-	-	-	-	-	-	-	€	-	-
Combining Diacritical Marks for Symbols																
U+20D0–20DF	ˆ	ˆ			ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ
U+20E0–20EF	-	↔	-	-	△	\		⌋	...	⌋	←	//	-	-	←	→
U+20F0–20FF	*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Letterlike Symbols																
U+2100–210F	ℳ	ℳ	ℳ	ℳ	ℳ	ℳ	ℳ	ℳ	ℳ	ℳ	ℳ	ℳ	ℳ	ℳ	ℳ	ℳ
U+2110–211F	ℳ	ℳ	ℳ	ℳ	ℳ	ℳ	ℳ	ℳ	ℳ	ℳ	ℳ	ℳ	ℳ	ℳ	ℳ	ℳ
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F

Table 6. LM Math vs. NewCM Math, *cont.*

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
U+2120 - 212F	SM	TEL	TM	Y	Z	z	Ω	U	3	ı	K	Å	B	€	€	e
U+2130 - 213F	ℰ	ℱ	ℋ	ℳ	ℴ	ℵ	ℶ	ℷ	ℸ	ı	Ⓚ	FAX	Ⓜ	Ⓝ	ℓ	ℓ
U+2140 - 214F	Σ	Ⓞ	ℓ	ℓ	ℓ	ℓ	ℓ	ℓ	ℓ	ℓ	ℓ	ℓ	ℓ	ℓ	ℓ	ℓ

Arrows

U+2190 - 219F	←	↑	→	↓	↔	↕	↗	↘	↙	↘	↔	↔	↔	↔	↔	↔
U+21A0 - 21AF	→	↓	←	→	←	↑	→	↓	↕	↔	↔	↔	↔	↔	↔	↔
U+21B0 - 21BF	↖	↗	↘	↙	↘	↙	↘	↙	↘	↙	↘	↙	↘	↙	↘	↙
U+21C0 - 21CF	→	→	↓	↓	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
U+21D0 - 21DF	←	↑	⇒	↓	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
U+21E0 - 21EF	←	↑	→	↓	←	→	←	↑	→	↓	↑	↑	↑	↑	↑	↑
U+21F0 - 21FF	⇒	↖	↘	↕	⇒	↕	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔

Mathematical Operators

U+2200 - 220F	∇	∂	∃	∄	∅	Δ	∇	∈	∉	∈	∋	∉	∋	∋	∋	∋
U+2210 - 221F	∏	Σ	−	⊖	÷	/	\	*	∘	⋅	√	∛	∜	∝	∞	∟
U+2220 - 222F	∠	∠	∠					∧	∨	∩	∪	∫	∫	∫	∫	∫
U+2230 - 223F	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫
U+2240 - 224F	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫
U+2250 - 225F	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫
U+2260 - 226F	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫
U+2270 - 227F	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫
U+2280 - 228F	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫
U+2290 - 229F	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫
U+22A0 - 22AF	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫
U+22B0 - 22BF	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫
U+22C0 - 22CF	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫
U+22D0 - 22DF	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫
U+22E0 - 22EF	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫
U+22F0 - 22FF	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫

Miscellaneous Technical

U+2300 - 230F	∅	⚡	⏏	^	v	π	π	}								
U+2310 - 231F	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫
U+2320 - 232F	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫
U+2330 - 233F	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫
U+2340 - 234F	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫	∫
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F

Table 6. LM Math vs. NewCM Math, *cont.*

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
U+2350 - 235F																
U+2360 - 236F																
U+2370 - 237F																
U+2380 - 238F																
U+2390 - 239F																
U+23A0 - 23AF																
U+23B0 - 23BF																
U+23C0 - 23CF																
U+23D0 - 23DF																
U+23E0 - 23EF																
U+23F0 - 23FF																

Control Pictures

U+2420 - 242F	-	-	̂	□	-	-	-	-	-	-	-	-	-	-	-	-
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Box Drawing

U+2500 - 250F	—	—			---	---	⋮	⋮	---	---	⋮	⋮	⋮	⋮	┌	┌	┌	┌	
U+2510 - 251F	┐	┐	┐	┐	└	└	└	└	└	└	└	└	└	└	└	└	└	└	└
U+2520 - 252F	┌	┌	┌	┌	┐	┐	┐	┐	┐	┐	┐	┐	┐	┐	┐	┐	┐	┐	┐
U+2530 - 253F	└	└	└	└	┌	┌	┌	┌	┌	┌	┌	┌	┌	┌	┌	┌	┌	┌	┌
U+2540 - 254F	┐	┐	┐	┐	└	└	└	└	└	└	└	└	└	└	---	---	⋮	⋮	
U+2550 - 255F	═	║	┌	┌	┌	┐	┐	┐	┐	┐	┐	┐	┐	┐	┐	┐	┐	┐	
U+2560 - 256F	┌	┌	┌	┌	└	└	└	└	└	└	└	└	└	└	└	└	└	└	
U+2570 - 257F	└	/	\	X	-		-		-		-		-		-		-		

Block Elements

U+2580 - 258F	■	—	—	—	—	■	■	■	■	■	■	■	■	■	■	■
U+2590 - 259F	■	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒

Geometric Shapes

U+25A0 - 25AF	■	□	○	■	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒
U+25B0 - 25BF	▴	▴	▴	▴	▴	▴	▴	▴	▴	▴	▴	▴	▴	▴	▴	▴
U+25C0 - 25CF	▾	▾	▾	▾	▾	▾	▾	▾	▾	▾	▾	▾	▾	▾	▾	▾
U+25D0 - 25DF	◐	◑	◒	◓	◔	◕	◖	◗	◘	◙	◚	◛	◜	◝	◞	◟

Table 6. LM Math vs. NewCM Math, *cont.*

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
U+25E0 – 25EF																
U+25F0 – 25FF																
Miscellaneous Shapes																
U+2600 – 260F		-	-	-	-			-	-		-	-	-	-	-	-
U+2620 – 262F	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-
U+2630 – 263F	-	-	-	-	-	-	-	-	-							-
U+2640 – 264F		-		-	-	-	-	-	-	-	-	-	-	-	-	-
U+2660 – 266F									-				-			
U+2670 – 267F	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
U+2680 – 268F													-	-	-	-
U+26A0 – 26AF	-	-	-	-	-		-	-	-	-						-
U+26B0 – 26BF	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-
Dingbats																
U+2710 – 271F	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
U+2720 – 272F		-	-	-	-	-	-	-	-	-		-	-	-	-	-
U+2730 – 273F	-	-	-	-	-	-		-	-	-	-	-	-		-	-
U+2750 – 275F	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-
U+2770 – 277F	-	-			-	-	-	-	-	-	-	-	-	-	-	-
U+2790 – 279F	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-
U+27A0 – 27AF		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous Mathematical Symbols-A																
U+27C0 – 27CF																
U+27D0 – 27DF																
U+27E0 – 27EF																
Supplemental Arrows-A																
U+27F0 – 27FF																
Supplemental Arrows-B																
U+2900 – 290F																
U+2910 – 291F																
U+2920 – 292F																
U+2930 – 293F																
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F

Table 6. LM Math vs. NewCM Math, *cont.*

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
U+2940 – 294F																
U+2950 – 295F																
U+2960 – 296F																
U+2970 – 297F																

Miscellaneous Mathematical Symbols-B

U+2980 – 298F																
U+2990 – 299F																
U+29A0 – 29AF																
U+29B0 – 29BF																
U+29C0 – 29CF																
U+29D0 – 29DF																
U+29E0 – 29EF																
U+29F0 – 29FF																

Supplemental Mathematical Operators

U+2A00 – 2A0F																
U+2A10 – 2A1F																
U+2A20 – 2A2F																
U+2A30 – 2A3F																
U+2A40 – 2A4F																
U+2A50 – 2A5F																
U+2A60 – 2A6F																
U+2A70 – 2A7F																
U+2A80 – 2A8F																
U+2A90 – 2A9F																
U+2AA0 – 2AAF																
U+2AB0 – 2ABF																
U+2AC0 – 2ACF																
U+2AD0 – 2ADF																
U+2AE0 – 2AEF																
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F

Table 6. LM Math vs. NewCM Math, *cont.*

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
U+2AF0 – 2AFF																

Miscellaneous Symbols and Arrows

U+2B00 – 2B0F																
U+2B10 – 2B1F																
U+2B20 – 2B2F																
U+2B30 – 2B3F																
U+2B40 – 2B4F																
U+2B50 – 2B5F																
U+2B60 – 2B6F																
U+2B70 – 2B7F																
U+2B80 – 2B8F																
U+2B90 – 2B9F																
U+2BA0 – 2BAF																
U+2BB0 – 2BBF																
U+2BC0 – 2BCF																
U+2BD0 – 2BDF																
U+2BE0 – 2BEF																
U+2BF0 – 2BFF																

Supplemental Punctuation

U+2E10 – 2E1F	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-
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CJK Symbols and Punctuation

U+3010 – 301F	-	-		-	-	-			-	-	-	-	-	-	-	-
U+3030 – 303F		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Private Use Area

U+E000 – E00F	A	B	Γ	Δ	E	Z	H	Θ	I	K	Λ	M	N	Ξ	O	Π
U+E010 – E01F	P	Σ	T	Υ	Φ	X	Ψ	Ω	α	β	γ	δ	ε	ζ	η	θ
U+E020 – E02F	ι	κ	λ	μ	ν	ξ	ο	π	ρ	ς	σ	τ	υ	φ	χ	ψ
U+E030 – E03F	ω	€			-	-	-	-	-	-	-	-	-	-	-	-
U+E040 – E04F	-	A	B	Γ	Δ	E	Z	H	Θ	I	K	Λ	M	N	Ξ	O
U+E050 – E05F	Π	P	Σ	T	Υ	Φ	X	Ψ	Ω	α	β	γ	δ	ε	ζ	η
U+E060 – E06F	θ	ι	κ	λ	μ	ν	ξ	ο	π	ρ	ς	σ	τ	υ	φ	χ
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F

Table 6. LM Math vs. NewCM Math, *cont.*

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
U+E070 – E07F	ψ	ω	€	-	-	-	-	-	-	-	-	-	-	-	-	-
U+E370 – E37F	-	-	-	-	-	-	ƒ	ƒ	-	-	-	-	-	-	-	-
U+E390 – E39F	-	-	-	-	-	ƒ	-	ƒ	ƒ	ƒ	ƒ	ƒ	-	-	-	-
U+E3D0 – E3DF	-	-	-	ƒ	-	-	-	-	-	-	-	-	-	-	-	-
U+EA50 – EA5F	-	-	-	-	-	-	-	ƒ	-	-	-	-	-	-	-	-
Alphabetic Presentation Forms																
U+FB00 – FB0F	ff	fi	fl	ffi	ffl	-	-	-	-	-	-	-	-	-	-	-
Arabic Presentation Forms-B																
U+FEF0 – FEF7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mathematical Alphanumeric Symbols																
U+1D400 – 1D40F	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
U+1D410 – 1D41F	Q	R	S	T	U	V	W	X	Y	Z	a	b	c	d	e	f
U+1D420 – 1D42F	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v
U+1D430 – 1D43F	w	x	y	z	A	B	C	D	E	F	G	H	I	J	K	L
U+1D440 – 1D44F	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	a	b
U+1D450 – 1D45F	c	d	e	f	g	-	i	j	k	l	m	n	o	p	q	r
U+1D460 – 1D46F	s	t	u	v	w	x	y	z	A	B	C	D	E	F	G	H
U+1D470 – 1D47F	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
U+1D480 – 1D48F	Y	Z	a	b	c	d	e	f	g	h	i	j	k	l	m	n
U+1D490 – 1D49F	o	p	q	r	s	t	u	v	w	x	y	z	A	-	C	D
U+1D4A0 – 1D4AF	-	-	g	-	-	J	K	-	-	N	O	P	Q	-	S	T
U+1D4B0 – 1D4BF	U	V	W	X	Y	Z	a	b	c	d	-	f	-	h	i	j
U+1D4C0 – 1D4CF	k	l	m	n	-	p	q	r	s	t	u	v	w	x	y	z
U+1D4D0 – 1D4DF	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
U+1D4E0 – 1D4EF	Q	R	S	T	U	V	W	X	Y	Z	a	b	c	d	e	f
U+1D4F0 – 1D4FF	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v
U+1D500 – 1D50F	w	x	y	z	Α	Β	-	Δ	Ε	Ϝ	Ϟ	-	-	Ϟ	Ϡ	ϡ
U+1D510 – 1D51F	Μ	Ν	Ο	Ρ	Ω	-	Ϟ	Ϡ	ϡ	Ϣ	ϣ	Ϥ	ϥ	Ϧ	-	a
U+1D520 – 1D52F	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r
U+1D530 – 1D53F	s	t	u	v	w	x	y	z	A	B	-	D	E	F	G	-
U+1D540 – 1D54F	I	J	K	L	M	-	O	-	-	S	T	U	V	W	X	-
U+1D550 – 1D55F	Y	-	a	b	c	d	e	f	g	h	i	j	k	l	m	n
U+1D560 – 1D56F	o	p	q	r	s	t	u	v	w	x	y	z	Α	Β	Γ	Δ
U+1D570 – 1D57F	Ε	Ϝ	Ϟ	Ϡ	ϡ	Ϣ	ϣ	Ϥ	ϥ	Ϧ	ϧ	Ϩ	ϩ	Ϫ	ϫ	Ϭ
U+1D580 – 1D58F	Μ	Ν	Ξ	ϰ	ϱ	α	β	γ	δ	ε	ζ	η	θ	ι	ϰ	ϱ
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F

Table 6. LM Math vs. NewCM Math, *cont.*

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
U+1D590 - 1D59F	℔	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
U+1D5A0 - 1D5AF	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
U+1D5B0 - 1D5BF	Q	R	S	T	U	V	W	X	Y	Z	a	b	c	d	e	f
U+1D5C0 - 1D5CF	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v
U+1D5D0 - 1D5DF	w	x	y	z	A	B	C	D	E	F	G	H	I	J	K	L
U+1D5E0 - 1D5EF	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	a	b
U+1D5F0 - 1D5FF	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r
U+1D600 - 1D60F	s	t	u	v	w	x	y	z	A	B	C	D	E	F	G	H
U+1D610 - 1D61F	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
U+1D620 - 1D62F	Y	Z	a	b	c	d	e	f	g	h	i	j	k	l	m	n
U+1D630 - 1D63F	o	p	q	r	s	t	u	v	w	x	y	z	A	B	C	D
U+1D640 - 1D64F	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
U+1D650 - 1D65F	U	V	W	X	Y	Z	a	b	c	d	e	f	g	h	i	j
U+1D660 - 1D66F	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
U+1D670 - 1D67F	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
U+1D680 - 1D68F	Q	R	S	T	U	V	W	X	Y	Z	a	b	c	d	e	f
U+1D690 - 1D69F	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v
U+1D6A0 - 1D6AF	w	x	y	z	ι	ϱ	-	-	A	B	Γ	Δ	E	Z	H	Θ
U+1D6B0 - 1D6BF	I	K	Λ	M	N	Ξ	O	Π	P	Θ	Σ	T	Υ	Φ	X	Ψ
U+1D6C0 - 1D6CF	Ω	∇	α	β	γ	δ	ε	ζ	η	θ	ι	κ	λ	μ	ν	ξ
U+1D6D0 - 1D6DF	ο	π	ρ	ς	σ	τ	υ	φ	χ	ψ	ω	ϑ	ε	ϑ	κ	φ
U+1D6E0 - 1D6EF	ϱ	ϖ	A	B	Γ	Δ	E	Z	H	Θ	I	K	Λ	M	N	Ξ
U+1D6F0 - 1D6FF	O	Π	P	Θ	Σ	T	Υ	Φ	X	Ψ	Ω	∇	α	β	γ	δ
U+1D700 - 1D70F	ε	ζ	η	θ	ι	κ	λ	μ	ν	ξ	ο	π	ρ	ς	σ	τ
U+1D710 - 1D71F	υ	φ	χ	ψ	ω	ϑ	ε	ϑ	κ	φ	ϱ	ϖ	A	B	Γ	Δ
U+1D720 - 1D72F	E	Z	H	Θ	I	K	Λ	M	N	Ξ	O	Π	P	Θ	Σ	T
U+1D730 - 1D73F	Υ	Φ	X	Ψ	Ω	∇	α	β	γ	δ	ε	ζ	η	θ	ι	κ
U+1D740 - 1D74F	λ	μ	ν	ξ	ο	π	ρ	ς	σ	τ	υ	φ	χ	ψ	ω	ϑ
U+1D750 - 1D75F	ε	ϑ	κ	φ	ϱ	ϖ	A	B	Γ	Δ	E	Z	H	Θ	I	K
U+1D760 - 1D76F	Λ	M	N	Ξ	O	Π	P	Θ	Σ	T	Υ	Φ	X	Ψ	Ω	∇
U+1D770 - 1D77F	α	β	γ	δ	ε	ζ	η	θ	ι	κ	λ	μ	ν	ξ	ο	π
U+1D780 - 1D78F	ρ	ς	σ	τ	υ	φ	χ	ψ	ω	ϑ	ε	ϑ	κ	φ	ϱ	ϖ
U+1D790 - 1D79F	A	B	Γ	Δ	E	Z	H	Θ	I	K	Λ	M	N	Ξ	O	Π
U+1D7A0 - 1D7AF	P	Θ	Σ	T	Υ	Φ	X	Ψ	Ω	∇	α	β	γ	δ	ε	ζ
U+1D7B0 - 1D7BF	η	θ	ι	κ	λ	μ	ν	ξ	ο	π	ρ	ς	σ	τ	υ	φ
U+1D7C0 - 1D7CF	χ	ψ	ω	ϑ	ε	ϑ	κ	φ	ϱ	ϖ	F	F	-	-	0	1
U+1D7D0 - 1D7DF	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7
U+1D7E0 - 1D7EF	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3
U+1D7F0 - 1D7FF	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9

Table 6. LM Math vs. NewCM Math, cont.

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Arabic Mathematical Alphabetic Symbols																
U+1EE00 - 1EE0F	ا	ب	ج	د	هـ	و	ز	ح	ط	ي	ك	ل	م	ن	س	ع
U+1EE10 - 1EE1F	ف	ص	ق	ر	ش	ت	ث	خ	ذ	ض	ظ	غ	س	ع	ف	و
U+1EE20 - 1EE2F	و	ب	ج	-	هـ	-	-	ح	-	ي	ك	ل	م	ن	س	ع
U+1EE30 - 1EE3F	ف	ص	ق	-	ش	ت	ث	خ	-	ذ	-	غ	-	-	-	-
U+1EE40 - 1EE4F	-	-	ج	-	-	-	-	ح	-	ي	-	ل	-	ن	س	ع
U+1EE50 - 1EE5F	-	ص	ق	-	ش	-	-	خ	-	ض	-	غ	-	س	-	ع
U+1EE60 - 1EE6F	-	با	جا	-	ها	-	-	حا	طا	يا	كا	-	ما	نا	سا	عا
U+1EE70 - 1EE7F	فا	صا	قا	-	شا	تا	ثا	خا	-	ذا	ضا	ظا	غا	-	سا	عا
U+1EE80 - 1EE8F	ها	با	جا	هـ	هـ	و	ز	ح	ط	ي	-	ل	م	ن	س	ع
U+1EE90 - 1EE9F	ف	ص	ق	ر	ش	ت	ث	خ	ذ	ض	ظ	غ	-	-	-	-
U+1EEA0 - 1EEAF	-	ب	ج	د	-	و	ز	ح	ط	ي	-	ل	م	ن	س	ع
U+1EEB0 - 1EEBF	ف	ص	ق	ر	ش	ت	ث	خ	ذ	ض	ظ	غ	-	-	-	-
U+1EEF0 - 1EEFF	حـ	حـ	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Geometric Shapes Extended

U+1F780 - 1F78F	◀	▶	◀	▶	◦	◯	◯	◯	◯	◯	◯	◉	◉	◉	◉	◉
U+1F790 - 1F79F	◻	◻	◻	◻	◻	◻	◻	◻	◻	◻	◻	◻	◻	◻	◻	◻
U+1F7A0 - 1F7AF	◊	+	+	+	+	+	+	+	×	×	×	×	×	×	×	×
U+1F7B0 - 1F7BF	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★
U+1F7C0 - 1F7CF	♠	♠	♠	♠	♠	♠	♠	♠	♠	♠	♠	♠	♠	♠	♠	♠
U+1F7D0 - 1F7DF	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱
U+1F7E0 - 1F7EF	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Supplemental Arrows-C

U+1F800 - 1F80F	←	↑	→	↓	↔	↕	↔	↕	↔	↕	↔	↕	-	-	-	-
U+1F810 - 1F81F	←	↑	→	↓	↔	↕	↔	↕	↔	↕	↔	↕	↔	↕	↔	↕
U+1F820 - 1F82F	←	↑	→	↓	↔	↕	↔	↕	↔	↕	↔	↕	↔	↕	↔	↕
U+1F830 - 1F83F	←	↑	→	↓	↔	↕	↔	↕	↔	↕	↔	↕	↔	↕	↔	↕
U+1F840 - 1F84F	↔	↕	↔	↕	↔	↕	↔	↕	-	-	-	-	-	-	-	-
U+1F850 - 1F85F	←	↑	→	↓	↔	↕	↔	↕	↔	↕	-	-	-	-	-	-
U+1F860 - 1F86F	←	↑	→	↓	↔	↕	↔	↕	↔	↕	↔	↕	↔	↕	↔	↕
U+1F870 - 1F87F	←	↑	→	↓	↔	↕	↔	↕	↔	↕	↔	↕	↔	↕	↔	↕

Table 6. LM Math vs. NewCM Math, *cont.*

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
U+1F880 - 1F88F	←	↑	→	↓	↖	↗	↘	↙	-	-	-	-	-	-	-	-
U+1F890 - 1F89F	◀	▲	▶	▼	◀	▲	▶	▼	←	↑	→	↓	—	—	—	—
U+1F8A0 - 1F8AF	⇌	⇌	⇌	⇌	⇌	⇌	⇌	⇌	⇌	⇌	⇌	⇌	⇌	⇌	⇌	⇌
U+1F8B0 - 1F8BF	↵	↶	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Total number of glyphs in Latin Modern Math: 2045

Comparison font NewComputerModernMath-Book has 0 missing and 1959 extra glyphs

A.5.

Garamond Libre’s Byzantine Musical symbols

As a final example we exhibit the Byzantine Musical Symbols as provided by Garamond Libre. Command used:

```
\displayfonttable[range-start=1D000, range-end=1D0FF,
  hex-digits=block,
  missing-glyph-color=black!50, color=black!75,
  statistics-format=Total number of glyphs in
    this block of #1 is #2]
{Garamond Libre}
```

Note that we have altered the text produced by the statistics, because the default is somewhat misleading if only a portion of the font is displayed. This produces the following table:

Table 7. Garamond Libre

	Byzantine Musical Symbols															
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
U+1D000 - 1D00F	Ⲁ	ⲁ	Ⲃ	ⲃ	Ⲅ	ⲅ	Ⲇ	ⲇ	Ⲉ	ⲉ	Ⲋ	ⲋ	Ⲍ	ⲍ	Ⲏ	ⲏ
U+1D010 - 1D01F	Ⲑ	ⲑ	Ⲓ	ⲓ	Ⲕ	ⲕ	Ⲍ	ⲍ	Ⲏ	ⲏ	Ⲑ	ⲑ	Ⲓ	ⲓ	Ⲕ	ⲕ
U+1D020 - 1D02F	ⲍ	Ⲏ	ⲏ	Ⲑ	ⲑ	Ⲓ	ⲓ	Ⲕ	ⲕ	Ⲍ	ⲍ	Ⲏ	ⲏ	Ⲑ	ⲑ	Ⲓ
U+1D030 - 1D03F	ⲓ	Ⲕ	ⲕ	Ⲍ	ⲍ	Ⲏ	ⲏ	Ⲑ	ⲑ	Ⲓ	ⲓ	Ⲕ	ⲕ	Ⲍ	ⲍ	Ⲏ
U+1D040 - 1D04F	ⲏ	Ⲑ	ⲑ	Ⲓ	ⲓ	Ⲕ	ⲕ	Ⲍ	ⲍ	Ⲏ	ⲏ	Ⲑ	ⲑ	Ⲓ	ⲓ	Ⲕ
U+1D050 - 1D05F	ⲑ	Ⲓ	ⲓ	Ⲕ	ⲕ	Ⲍ	ⲍ	Ⲏ	ⲏ	Ⲑ	ⲑ	Ⲓ	ⲓ	Ⲕ	ⲕ	Ⲍ
U+1D060 - 1D06F	Ⲓ	ⲓ	Ⲕ	ⲕ	Ⲍ	ⲍ	Ⲏ	ⲏ	Ⲑ	ⲑ	Ⲓ	ⲓ	Ⲕ	ⲕ	Ⲍ	ⲍ
U+1D070 - 1D07F	ⲓ	Ⲕ	ⲕ	Ⲍ	ⲍ	Ⲏ	ⲏ	Ⲑ	ⲑ	Ⲓ	ⲓ	Ⲕ	ⲕ	Ⲍ	ⲍ	Ⲏ
U+1D080 - 1D08F	Ⲕ	ⲕ	Ⲍ	ⲍ	Ⲏ	ⲏ	Ⲑ	ⲑ	Ⲓ	ⲓ	Ⲕ	ⲕ	Ⲍ	ⲍ	Ⲏ	ⲏ
U+1D090 - 1D09F	ⲕ	Ⲍ	ⲍ	Ⲏ	ⲏ	Ⲑ	ⲑ	Ⲓ	ⲓ	Ⲕ	ⲕ	Ⲍ	ⲍ	Ⲏ	ⲏ	Ⲑ
U+1D0A0 - 1D0AF	Ⲍ	ⲍ	Ⲏ	ⲏ	Ⲑ	ⲑ	Ⲓ	ⲓ	Ⲕ	ⲕ	Ⲍ	ⲍ	Ⲏ	ⲏ	Ⲑ	ⲑ
U+1D0B0 - 1D0BF	ⲍ	Ⲏ	ⲏ	Ⲑ	ⲑ	Ⲓ	ⲓ	Ⲕ	ⲕ	Ⲍ	ⲍ	Ⲏ	ⲏ	Ⲑ	ⲑ	Ⲓ
U+1D0C0 - 1D0CF	Ⲏ	ⲏ	Ⲑ	ⲑ	Ⲓ	ⲓ	Ⲕ	ⲕ	Ⲍ	ⲍ	Ⲏ	ⲏ	Ⲑ	ⲑ	Ⲓ	ⲓ
U+1D0D0 - 1D0DF	ⲏ	Ⲑ	ⲑ	Ⲓ	ⲓ	Ⲕ	ⲕ	Ⲍ	ⲍ	Ⲏ	ⲏ	Ⲑ	ⲑ	Ⲓ	ⲓ	Ⲕ

Table 7. Garamond Libre *cont.*

U+1D0E0 – 1D0EF	ø	ö	ı	ı	ı̇	ı̇	ı̇	ı̇	ı̇	ı̇	ı̇	ı̇	ı̇	ı̇	ı̇	ı̇	ı̇	ı̇	ı̇
U+1D0F0 – 1D0FF	”	”	”	”	”	”	”	”	”	”	”	”	”	”	”	”	”	”	”

Total number of glyphs in this block of Garamond Libre is 246

Frank Mittelbach
 MAINZ, GERMANY
<https://www.latex-project.org>
<https://ctan.org/pkg/unicodefonttable>