

The lua-unicode-math package*

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<https://github.com/zauguin/lua-unicode-math>

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Modern fonts are usually provided in OpenType format and are designed for Unicode based input. For mathematical fonts this usually means the use of fonts with an OpenType MATH table: Fonts containing special metadata needed to make them usable in a mathematical context.

In Lua \TeX such fonts have traditionally been loaded with the `unicode-math` package. While this works, is very flexible and allows to use the same document in Xe \TeX and Lua \TeX it has performance issues and it sometimes has unexpected interactions with the use of math versions. The `lua-unicode-math` is a specific Lua \LaTeX specific alternative which aims for higher performance and better integration with native Lua \TeX features.

1 Usage instructions

1.1 Font packages

For most Opentype the recommended way to load them with `lua-unicode-math` is to use a dedicated package. Currently the following packages are shipped with `lua-unicode-math`:

Font	Package
Latin Modern Math	<code>lum-lmodern</code>
New Computer Modern Math	<code>lum-newcomputermodern</code>
New Computer Modern Sans Math	<code>lum-newcomputermodernsans</code>
STIX2	<code>lum-stix2</code>
XITS	<code>lum-xits</code>
TeX Gyre Pagella Math	<code>lum-pagella</code>
TeX Gyre DejaVu Math	<code>lum-dejavu</code>
TeX Gyre Bonum Math	<code>lum-bonum</code>
TeX Gyre Schola Math	<code>lum-schola</code>
TeX Gyre Termes Math	<code>lum-termes</code>
Fira Math	<code>lum-fira</code>
GFS Neohellenic Math	<code>lum-gfsneohellenic</code>
Erewhon Math	<code>lum-erewhon</code>
XCharter Math	<code>lum-xcharter</code>
Concrete Math	<code>lum-concrete</code>

*This document corresponds to `lua-unicode-math` v0.7, dated 2026-02-03.

1.2 Loading fonts by name

If you want to use a custom font, you can load `fontspec` and `lua-unicode-math` using

```
\usepackage{fontspec, lua-unicode-math}
```

This will load `Latin Modern Math` by default. Another math font can be loaded using `\setmathfont` using the same options as `fontspec`'s `\newfontfamily`. For example, you can use to to configure the current math font using

```
\setmathfont[AutoFakeBold=1]{Latin Modern Math}
```

1.3 Writing maths

There are two ways of entering math: You can directly input Unicode math symbols or use regular \LaTeX commands for symbols. All Unicode symbols are supported with the same commands as in `unicode-math`. For a full list see `texdoc unimath-symbols`.

1.4 Selecting math style

Selecting math style is considered experimental and the interface is not stable.

The `unicode-math` package allows to configure a math style through package options. It is used to configure which characters are upright or italic in the default math alphabet (`()`). To configure similar settings in `lua-unicode-math`, you can select an instance of the `lua-unicode-math-style` template.

There are four supported styles:

TeX Attempt to be compatible with traditional \TeX conventions. This is the default.

Everything is italic by default except for capital greek letters which are upright.

ISO80000-2 Attempt to be compliant with ISO 80000-2 rules. Everything is italic.

french Latin lowercase is italic, everything else is upright.

upright Everything is upright.

One of the styles can be selected by running `\UseInstance{lua-unicode-math-style}{<style>}` in your preamble, e.g.

```
\UseInstance{lua-unicode-math-style}{ISO80000-2}
```

2 Implementation

```
1 \ProvidesExplPackage
2   {lua-unicode-math}
3   {2026-02-03}
4   {0.7}
5   {Opentype Math support for LuaLaTeX}
6
7 <@@=l_uni_math>
8 \int_new:N \g__l_uni_math_font_count_int
9 \tl_new:N \l__l_uni_math_main_family_tl
10 \tl_new:N \l__l_uni_math_script_family_tl
11 \tl_new:N \l__l_uni_math_scriptscript_family_tl
```

```

12
13 \cs_generate_variant:Nn \tl_if_eq:nnT {o}
14
15 \msg_new:nnn { lua-unicode-math } { engine-unsupported } {
16   lua-unicode-math~can~only~be~used~with~LuaTeX.
17 }
18
19 \sys_if_engine luatex:F {
20   \msg_critical:nn { lua-unicode-math } { engine-unsupported }
21 }
22
23 \msg_new:nnn { lua-unicode-math } { unicode-math-suppressed } {
24   You~tried~to~load~both~lua-unicode-math~and~unicode-math~
25   in~the~same~document.~This~is~not~supported,~unicode-math~
26   will~be~suppressed.~There~is~a~good~chance~that~this~will~
27   break~your~document.~Change~your~document~to~only~use~lua-unicode-math~
28   so~solve~this.
29 }
30 \msg_new:nnn { lua-unicode-math } { unicode-math-loaded } {
31   You~tried~to~load~lua-unicode-math~while~unicode-math~
32   was~already~loaded.~This~does~not~work.~Please~avoid~loading~
33   unicode-math.~If~that~is~not~possible~and~you~are~feeling~adventurous~
34   you~can~try~loading~the~lua-unicode-math~package~at~the~beginning~
35   of~your~document~instead~to~suppress~unicode-math.
36 }
37 \disable@package@load{unicode-math} {
38   \msg_warning:nn { lua-unicode-math } { unicode-math-suppressed }
39 }
40 \IfPackageLoadedTF {unicode-math} {
41   \msg_critical:nn { lua-unicode-math } { unicode-math-loaded }
42 } {}
43
44
45 \IfFormatAtLeastTF{2026/01/01}{-}{-}{
46   \cs_set:Npn \DeclareMathScriptfontMapping #1 #2 #3 #4 #5 #6 {
47     \cs_gset:cpn { __nfss_mapped_scriptfont_family_sf_ #1 / #2 } { #3 / #4 }
48     \cs_gset:cpn { __nfss_mapped_scriptfont_family_ssf_ #1 / #2 } { #5 / #6 }
49   }
50 }
51
52 \hook_gput_code:nnn { package/fontspect/after } { . } {
53   \bool_gset_false:N \g__fontspec_math_bool
54
55   \NewDocumentCommand \setmathfont { O{} m O{} } {
56     \int_incr:N \g__l_uni_math_font_count_int
57     \exp_args:Nc \newfontfamily
58       { g__l_uni_math_font_ \int_use:N \g__l_uni_math_font_count_int _text_font }
59       { #2 }
60     [ #1, #3, Script = Math, Renderer = Base ]
61     \tl_set_eq:NN \l__l_uni_math_main_family_tl \l_fontspec_family_tl
62
63     \exp_args:Nc \newfontfamily
64       { g__l_uni_math_font_ \int_use:N \g__l_uni_math_font_count_int _script_font }
65       { #2 }

```

```

66     [ #1, #3, Script = Math, Renderer = Base, Style = MathScript ]
67     \tl_set_eq:NN \l__l_uni_math_script_family_tl \l_fontspec_family_tl
68
69     \exp_args:Nc \newfontfamily
70     { g__l_uni_math_font_ \int_use:N \g__l_uni_math_font_count_int _scriptscript_font }
71     { #2 }
72     [ #1, #3, Script = Math, Renderer = Base, Style = MathScriptScript ]
73     \tl_set_eq:NN \l__l_uni_math_scriptscript_family_tl \l_fontspec_family_tl
74
75     \DeclareMathScriptfontMapping {TU} {\l__l_uni_math_main_family_tl} {TU} {\l__l_uni_math_s
76
77     \exp_args:NnnV \DeclareSymbolFont {lummain} {TU} \l__l_uni_math_main_family_tl {m} {n}
78     \exp_args:NnnnV \SetSymbolFont {lummain} {bold} {TU} \l__l_uni_math_main_family_tl {b} {n
79 }
80
81 \cs_set:Nn \__fontspec_setmainfont_hook:nn
82 {
83     \tl_if_eq:onT {\g__fontspec_mathrm_tl} {\rmdefault}
84     {
85         \fontspec_gset_family:Nnn \g__fontspec_mathrm_tl {Renderer=Basic,#1} {#2}
86         \__fontspec_setmathrm_hook:nn {#1} {#2}
87     }
88 }
89 \cs_set:Nn \__fontspec_setsansfont_hook:nn
90 {
91     \tl_if_eq:onT {\g__fontspec_mathsf_tl} {\sfdefault}
92     {
93         \fontspec_gset_family:Nnn \g__fontspec_mathsf_tl {Renderer=Basic,#1} {#2}
94         \__fontspec_setmathsf_hook:nn {#1} {#2}
95     }
96 }
97 \cs_set:Nn \__fontspec_setmonofont_hook:nn
98 {
99     \tl_if_eq:onT {\g__fontspec_mathtt_tl} {\ttdefault}
100    {
101        \fontspec_gset_family:Nnn \g__fontspec_mathtt_tl {Renderer=Basic,#1} {#2}
102        \__fontspec_setmathtt_hook:nn {#1} {#2}
103    }
104 }
105 \cs_set:Nn \__fontspec_setmathrm_hook:nn
106 {
107     \SetMathAlphabet \mathrm { normal } \g_fontspec_encoding_tl \g__fontspec_mathrm_tl { \M
108     \SetMathAlphabet \mathit { normal } \g_fontspec_encoding_tl \g__fontspec_mathrm_tl { \M
109     \SetMathAlphabet \mathbf { normal } \g_fontspec_encoding_tl \g__fontspec_mathrm_tl { \M
110 }
111 \cs_set:Nn \__fontspec_setboldmathrm_hook:nn
112 {
113     \SetMathAlphabet \mathrm { bold } \g_fontspec_encoding_tl \g__fontspec_bfmathrm_tl { \M
114     \SetMathAlphabet \mathit { bold } \g_fontspec_encoding_tl \g__fontspec_bfmathrm_tl { \M
115     \SetMathAlphabet \mathbf { bold } \g_fontspec_encoding_tl \g__fontspec_bfmathrm_tl { \M
116 }
117 \cs_set:Nn \__fontspec_setmathsf_hook:nn
118 {
119     \SetMathAlphabet \mathsf { normal } \g_fontspec_encoding_tl \g__fontspec_mathsf_tl { \M

```

```

120     \SetMathAlphabet \mathsf { bold } \g_fontspec_encoding_tl \g__fontspec_mathsf_tl { \bfs
121   }
122   \cs_set:Nn \__fontspec_setmathtt_hook:nn
123     {
124     \SetMathAlphabet \mathtt { normal } \g_fontspec_encoding_tl \g__fontspec_mathtt_tl { \bfs
125     \SetMathAlphabet \mathtt { bold } \g_fontspec_encoding_tl \g__fontspec_mathtt_tl { \bfs
126   }
127   %
128   \__fontspec_setmathrm_hook:nn {} {}
129   \__fontspec_setmathsf_hook:nn {} {}
130   \__fontspec_setmathtt_hook:nn {} {}
131 }
132
133 \cs_set_protected:Npn \operator@font {
134   \@fontswitch { \font@warning{Math-mode-required-for-\string\operator@font.} } { \mathtextrm
135 }
136
137 \DeclareSymbolFont {lummain} {TU} {lmm} {m} {n}
138 \SetSymbolFont {lummain} {bold} {TU} {lmm} {b} {n}
139
140 \newattribute \mathfamattr
141
142 \cs_if_exist:NF \slimits@ {
143   \cs_set_eq:NN \slimits@ \displaylimits
144 }
145 \cs_if_exist:NF \ilimits@ {
146   \cs_set_eq:NN \ilimits@ \nolimits
147 }
148 \chardef \g_l_uni_math_dots_binary_char = `
149 \chardef \g_l_uni_math_dots_comma_char = `...
150 \chardef \g_l_uni_math_dots_int_char = `
151 \chardef \g_l_uni_math_dots_other_char = `...
152
153 \cs_set_protected:Npn \DOTSB {
154   \__l_uni_math_set_previous_dots_type:w \g_l_uni_math_dots_binary_char
155 }
156
157 \cs_set_protected:Npn \DOTSX {
158   \__l_uni_math_set_previous_dots_type:w \g_l_uni_math_dots_other_char
159 }
160
161 \cs_set_protected:Npn \DOTSI {
162   \__l_uni_math_set_previous_dots_type:w \g_l_uni_math_dots_int_char
163 }
164
165 \cs_set_protected:Npn \DOTSC {
166   \__l_uni_math_set_previous_dots_type:w \g_l_uni_math_dots_comma_char
167 }
168
169 \lua_load_module:n { lua-unicode-math }
170
171 \cs_new_protected:Npn \__l_uni_math_define_mathstyle_cmd:n #1 {
172   \cs_new_protected:cpx { sym #1 } ##1 {
173     \group_begin:

```

```

174     \mathfamattr = \use:c { c__l__uni__math__attribute__sym #1 _int }
175     ##1
176     \group_end:
177 }
178 }
179
180 \int_new:N \g__l__uni__math__max__mathstyle__int
181 \int_gset:Nn \g__l__uni__math__max__mathstyle__int { 1024 }
182 \cs_new:Npn \__l__uni__math__provide__mathstyle__id:n #1 {
183   \cs_if_exist:cF { c__l__uni__math__attribute__sym #1 _int } {
184     \int_const:cn { c__l__uni__math__attribute__sym #1 _int } { \g__l__uni__math__max__mathstyle__int
185     \int_incr:N \g__l__uni__math__max__mathstyle__int
186     \__l__uni__math__define__mathstyle__cmd:n { #1 }
187   }
188 }
189
190 % This should be
191 % \tex_Umathcharnumdef:D \c__l__uni__math__attribute__symnormal__int = -"7FFFFFFF \scan_stop
192 % but LuaTeX is too buggy to save this correctly.
193 \tex_Umathchardef:D \c__l__uni__math__attribute__symnormal__int = "0 "80 "1 \scan_stop:
194 \__l__uni__math__define__mathstyle__cmd:n {normal}
195 \cs_gset:Npn \mathnormal { \symnormal }
196
197 \seq_set_from_clist:Nn \l_tmpa_seq {
198   up, rm, it, tt, bf, sf
199 }
200 \seq_map_inline:Nn \l_tmpa_seq {
201   \cs_new_eq:cc { mathtext #1 } { math #1 }
202 }
203 \prop_set_from_keyval:Nn \l_tmpa_prop {
204   up = 0, bfup = 1, it = 2, bfit = 3,
205   sfup = 4, bfsfup = 5, sfit = 6, bfsfit = 7,
206   cal = 8, bfcalf = 9,
207   scr = 12, bfscr = 13,
208   frak = 16, bffrak = 17,
209   tt = 20,
210   bb = 24,
211 }
212 \prop_map_inline:Nn \l_tmpa_prop {
213   \int_const:cn { c__l__uni__math__attribute__sym #1 _int } { #2 }
214   \__l__uni__math__define__mathstyle__cmd:n { #1 }
215   \cs_set_eq:cc { math #1 } { sym #1 }
216 }
217 \cs_set_eq:NN \symrm \symup
218 \cs_set_eq:NN \mathtextup \mathtextrm
219 \cs_set_eq:NN \mathtextsf \mathsf
220 \cs_set:Npn \mathbfsf { \symbfsf }
221
222 \seq_map_inline:Nn \l_tmpa_seq {
223   \cs_set_eq:cc { math #1 } { mathtext #1 }
224 }
225
226 \cs_new:cpn { __l__uni__math__UnicodeMathSymbol_ \token_to_str:N \mathord :nn } #1 #2 {
227   \cs_set:Npx #1 {

```

```

228   \char_generate:nn {#2} {12}
229   }
230 }
231 \tl_map_inline:nn {\mathbin \mathclose \mathpunct \mathrel} {
232   \cs_new_eq:cc
233     { \_l\_uni\_math\_UnicodeMathSymbol\_ \token\_to\_str:N #1 :nn }
234     { \_l\_uni\_math\_UnicodeMathSymbol\_ \token\_to\_str:N \mathord :nn }
235 }
236
237 \cs_new:cpn { \_l\_uni\_math\_UnicodeMathSymbol\_ \token\_to\_str:N \mathop :nn } #1 #2 {
238   \exp_args:Nc \Umathchardef { \cs\_to\_str:N #1 op } 1~\symlummain #2~
239   \cs_set:Npx #1 {
240     \char_generate:nn {#2} {12}
241   }
242   \mathcode #2 = "8000~
243   \cs_set:cpx { \char_generate:nn {"FFFF"} {12} \char_generate:nn {#2} {12} } {
244     \_l\_uni\_math\_is\_integral\_cp:wTF #2 { \DOTSI } { \DOTSB }
245     \use:c { \cs\_to\_str:N #1 op }
246     \_l\_uni\_math\_is\_integral\_cp:wTF #2 { \ilimits@ } { \slimits@ }
247   }
248 }
249
250 \cs_new:cpn { \_l\_uni\_math\_UnicodeMathSymbol\_ \token\_to\_str:N \mathopen :nn } #1 #2 {
251   \token_if_eq_meaning:NNTF #1 \sqrt {
252     \cs_set:Npx \sqrtsign {
253       \Uradical \symlummain #2~
254     }
255     \cs_set:Npx \root ##1 \of {
256       \Uroot \symlummain #2~ { ##1 }
257     }
258   }{
259     \cs_set:Npx #1 {
260       \char_generate:nn {#2} {12}
261     }
262   }
263 }
264
265 % For a \mathalpha command starting with \mup like \mupalpha this will be called as
266 % \_l\_uni\_math\_uproot\_assign\_mup\_char:nNn {alpha} \Alpha {"...}
267 \cs_new_protected:Npn \_l\_uni\_math\_uproot\_assign\_mup\_char:nNn #1 #2 #3 {
268   \cs_set:Npx #2 {
269     \symup {\char_generate:nn {#3} {12}}
270   }
271   \cs_set:cpx {#1} {
272     \char_generate:nn {#3} {12}
273   }
274 }
275
276 % For a \mathalpha command not starting with \mup this will be called as \_l\_uni\_math\_uproot
277 \cs_new_protected:Npn \_l\_uni\_math\_uproot\_assign\_nonmup\_alpha:nNn #1 #2 #3 {
278   \cs_set:Npx #2 {
279     \char_generate:nn {#3} {12}
280   }
281 }

```

```

282
283 \group_begin:
284 \cs_set:Npn \l_tmp_cs:n #1 {
285   \group_end:
286
287   \cs_new_protected:Npn \__l_uni_math__check_mup_helper:w ##1 #1 ##2 \q_mark ##3 ##4 \q_stop
288     ##3 {##2}
289 }
290
291 \cs_new:cpn { __l_uni_math_UnicodeMathSymbol_ \token_to_str:N \mathalpha :nn } ##1 {
292   \exp_after:wN \__l_uni_math__check_mup_helper:w \token_to_str:N ##1 \q_mark \__l_uni_math
293 }
294 }
295
296 \exp_args:No \l_tmp_cs:n {
297   \token_to_str:N \mup
298 }
299
300 \cs_new:cpn { __l_uni_math_UnicodeMathSymbol_ \token_to_str:N \mathfence :nn } #1 #2 {
301   \cs_set:Npx #1 {
302     \char_generate:nn {#2} {12}
303   }
304   \cs_set:cpx {l \cs_to_str:N #1} {
305     \Udelimiter 4 ~ \symlummain #2 ~
306   }
307   \cs_set:cpx {r \cs_to_str:N #1} {
308     \Udelimiter 5 ~ \symlummain #2 ~
309   }
310 }
311
312 \cs_new:cpn { __l_uni_math_UnicodeMathSymbol_ \token_to_str:N \mathaccent :nn } #1 #2 {
313   \cs_set_protected:Npx #1 {
314     \Umathaccent fixed 0 ~ \symlummain #2 ~
315   }
316 }
317
318 \cs_new:cpn { __l_uni_math_UnicodeMathSymbol_ \token_to_str:N \mathbotaccent :nn } #1 #2 {
319   \cs_set:Npx #1 {
320     \Umathaccent bottom~fixed 0 ~ \symlummain #2 ~
321   }
322 }
323
324 \cs_new:cpn { __l_uni_math_UnicodeMathSymbol_ \token_to_str:N \mathaccentwide :nn } #1 #2 {
325   \cs_set:Npx #1 {
326     \Umathaccent 0 ~ \symlummain #2 ~
327   }
328 }
329
330 \cs_new:cpn { __l_uni_math_UnicodeMathSymbol_ \token_to_str:N \mathbotaccentwide :nn } #1 #2 {
331   \cs_set:Npx #1 {
332     \Umathaccent bottom 0 ~ \symlummain #2 ~
333   }
334 }
335

```



```

336 \cs_new:cpn { __l_uni_math_UnicodeMathSymbol_ \token_to_str:N \mathaccentoverlay :nn } #1 #2 {
337   \cs_set:Npx #1 {
338     \Umathaccent overlay 0 ~ \symlummain #2 ~
339   }
340 }
341
342 \cs_new:cpn { __l_uni_math_UnicodeMathSymbol_ \token_to_str:N \mathover :nn } #1 #2 {
343   \cs_set:Npx #1 ##1 {
344     \mathop {
345       \Udelimiterover \symlummain #2 { ##1 }
346     }
347     \limits
348   }
349 }
350
351 \cs_new:cpn { __l_uni_math_UnicodeMathSymbol_ \token_to_str:N \mathunder :nn } #1 #2 {
352   \cs_set:Npx #1 ##1 {
353     \mathop {
354       \Udelimiterunder \symlummain #2 { ##1 }
355     }
356     \limits
357   }
358 }
359
360 \cs_generate_variant:Nn \exp_args:Ne {c}
361 \cs_new:Npn \UnicodeMathSymbol #1 #2 #3 #4 {
362   \use:c { __l_uni_math_UnicodeMathSymbol_ \token_to_str:N #3 :nn }
363   {#2} {#1}
364 }
365 \input {unicode-math-table}
366 \cs_undefine:N \UnicodeMathSymbol
367
368 \cs_set_protected:Npn \triangle { \mathord { \bigtriangleup } }
369 \cs_set_protected:Npn \mathellipsis { \mathinner { \unicodeellipsis } }
370 \cs_set_protected:Npn \cdots { \mathinner { \unicodcdots } }
371
372 \clist_map_inline:nn {
373   \to \rightarrow,
374   \le \leq,
375   \ge \geq,
376   \neq \ne,
377   \bigcirc \mdlgwhtcircle,
378   \circ \vysmwhtcircle,
379   \bullet \smbkcircle,
380   \mathyen \yen,
381   \mathsterling \sterling,
382   \diamond \smwhtdiamond,
383   \emptyset \varnothing,
384   \hbar \hslash,
385   \land \wedge,
386   \lor \vee,
387   \owns \ni,
388   \gets \leftarrow,
389   \mathring \ocirc,

```

```

390 \not \neg,
391 \longdivision \longdivisionsign,
392 \backepsilon \upbackepsilon,
393 \eth \matheth,
394 \dotsb@ \cdots,
395 \@cdots \cdots,
396 } {
397 \cs_set_eq:NN #1
398 }
399
400 \cs_set_protected:cpx { \char_generate:mn {"FFFF} {12} ' } {
401 \prime_helper:w "2032~
402 }
403
404 \cs_set_protected:Npn \uproot #1 {
405 \__l_uni_math_uproot:w #1 \scan_stop:
406 }
407
408 \cs_set_protected:Npn \leftroot #1 {
409 \__l_uni_math_leftroot:w #1 \scan_stop:
410 }

```

Some fixes for amsmath: Since amsmath is defining `\leftroot`, `\uproot` and `\root` with non Unicode definitions, we need to hide our definitions and restore them afterwards. We define `\varGamma` to stop amsmath from trying to define greek letter variants.

```

411 \tl_const:Nn \c__l_uni_math_amsmath_cmds_tl {
412 \uproot
413 \leftroot
414 \iint
415 \iiint
416 \iiiiint
417 \ddddot
418 \ddddot
419 \overleftrightarrow
420 \underrightarrow
421 \underleftarrow
422 \underleftrightharpoonrightarrow
423 \hat
424 \check
425 \tilde
426 \acute
427 \grave
428 \dot
429 \ddot
430 \breve
431 \bar
432 \vec
433 \mathring
434 \DOTSC
435 \DOTSI
436 \DOTSX
437 \DOTSB
438 \mdots@
439 }

```

```

440 \tl_const:Nn \c__l_uni_math_amsmath_cmds_defined_tl {
441   \prod
442   \coprod
443   \bigwedge
444   \bigvee
445   \bigcap
446   \bigcup
447   \bigodot
448   \bigoplus
449   \bigotimes
450   \bigsqcup
451   \root
452   \int
453   \oint
454   \overrightarrow
455   \overleftarrow
456 }
457 \hook_gput_code:nnn { package/amsmath/before } { . } {
458   \tl_map_inline:Nn \c__l_uni_math_amsmath_cmds_tl {
459     \cs_new_eq:cN { __l_uni_math_saved_ \cs_to_str:N #1 } #1
460     \cs_undefine:N #1
461   }
462   \tl_map_inline:Nn \c__l_uni_math_amsmath_cmds_defined_tl {
463     \cs_new_eq:cN { __l_uni_math_saved_ \cs_to_str:N #1 } #1
464   }
465   \cs_set:Npn \varGamma { \temporary_definition_do_not_use }
466 }
467 \hook_gput_code:nnn { package/amsmath/after } { . } {
468   \tl_map_inline:Nn \c__l_uni_math_amsmath_cmds_tl {
469     \cs_set_eq:Nc #1 { __l_uni_math_saved_ \cs_to_str:N #1 }
470     \cs_undefine:c { __l_uni_math_saved_ \cs_to_str:N #1 }
471   }
472   \tl_map_inline:Nn \c__l_uni_math_amsmath_cmds_defined_tl {
473     \cs_set_eq:Nc #1 { __l_uni_math_saved_ \cs_to_str:N #1 }
474     \cs_undefine:c { __l_uni_math_saved_ \cs_to_str:N #1 }
475   }
476   \cs_undefine:N \varGamma
477 }
478 \addto@hook \every@math@size {
479   \__l_uni_math_every_math_size:
480 }

```

2.1 Customization

We defined templates to customize the behavior of lua-unicode-math. The main customization point for the user is the lua-unicode-math-style which selects how `\symnormal` and `\symbf` behave.

```

481 \NewTemplateType {lua-unicode-math-style} {0}

```

In the default interface `substyles` a `mathstyle` is defined in terms of two nested instances of type `lua-unicode-math-style-cmd`. This template allows to define or redefine a `mathstyle` like `normal`, `bf` or `up` with corresponding `\sym...` command.

```

482 \NewTemplateType {lua-unicode-math-style-cmd} {1}
483 \DeclareTemplateInterface {lua-unicode-math-style} {substyles} {0} {
484   normal: instance {lua-unicode-math-style-cmd},

```

```

485   bf: instance {lua-unicode-math-style-cmd},
486   sf: instance {lua-unicode-math-style-cmd},
487   bfsf: instance {lua-unicode-math-style-cmd},
488 }

```

By default a new style command instance is defined by defining mappings for the five main math alphabets to existing styles.

```

489 \DeclareTemplateInterface {lua-unicode-math-style-cmd} {alphabet-style-mapping} {1} {
490   Latin: tokenlist,
491   latin: tokenlist,
492   Greek: tokenlist,
493   greek: tokenlist,
494   digit: tokenlist,
495 }

```

By default a new style command instance is defined by defining mappings for the five main math alphabets to existing styles.

```

496 \DeclareTemplateCode {lua-unicode-math-style} {substyles} {0} {
497   normal = \_l\_l\_uni\_math\_instance\_normal:n,
498   bf = \_l\_l\_uni\_math\_instance\_bf:n,
499   sf = \_l\_l\_uni\_math\_instance\_sf:n,
500   bfsf = \_l\_l\_uni\_math\_instance\_bfsf:n,
501 } {
502   \_l\_l\_uni\_math\_instance\_normal:n { normal }
503   \_l\_l\_uni\_math\_instance\_bf:n { bf }
504   \_l\_l\_uni\_math\_instance\_sf:n { sf }
505   \_l\_l\_uni\_math\_instance\_bfsf:n { bfsf }
506 }
507 \cs_generate_variant:Nn \_l\_l\_uni\_math\_set\_mathstyle\_mappings:NNNNNN { cccccc }
508 \tl_new:N \l\_l\_l\_uni\_math\_Latin\_style\_tl
509 \tl_new:N \l\_l\_l\_uni\_math\_latin\_style\_tl
510 \tl_new:N \l\_l\_l\_uni\_math\_Greek\_style\_tl
511 \tl_new:N \l\_l\_l\_uni\_math\_greek\_style\_tl
512 \tl_new:N \l\_l\_l\_uni\_math\_digit\_style\_tl
513 \DeclareTemplateCode {lua-unicode-math-style-cmd} {alphabet-style-mapping} {1} {
514   Latin = \l\_l\_l\_uni\_math\_Latin\_style\_tl,
515   latin = \l\_l\_l\_uni\_math\_latin\_style\_tl,
516   Greek = \l\_l\_l\_uni\_math\_Greek\_style\_tl,
517   greek = \l\_l\_l\_uni\_math\_greek\_style\_tl,
518   digit = \l\_l\_l\_uni\_math\_digit\_style\_tl,
519 } {
520   \_l\_l\_uni\_math\_provide\_mathstyle\_id:n { #1 }
521   \_l\_l\_uni\_math\_set\_mathstyle\_mappings:ccccc
522   { c\_l\_l\_uni\_math\_attribute\_sym #1\_int }
523   { c\_l\_l\_uni\_math\_attribute\_sym \l\_l\_l\_uni\_math\_Latin\_style\_tl\_int }
524   { c\_l\_l\_uni\_math\_attribute\_sym \l\_l\_l\_uni\_math\_latin\_style\_tl\_int }
525   { c\_l\_l\_uni\_math\_attribute\_sym \l\_l\_l\_uni\_math\_Greek\_style\_tl\_int }
526   { c\_l\_l\_uni\_math\_attribute\_sym \l\_l\_l\_uni\_math\_greek\_style\_tl\_int }
527   { c\_l\_l\_uni\_math\_attribute\_sym \l\_l\_l\_uni\_math\_digit\_style\_tl\_int }
528 }

```

Finally we define some defaults.

```

529 \DeclareInstance{lua-unicode-math-style}{TeX}{substyles}{
530   normal = TeX,
531   bf = TeX-bf,

```

```

532   sf = upright-sf,
533   bfsf = upright-bfsf,
534 }
535 \DeclareInstance{lua-unicode-math-style}{ISO80000-2}{substyles}{
536   normal = ISO80000-2,
537   bf = ISO80000-2-bf,
538   sf = italic-sf,
539   bfsf = italic-bfsf,
540 }
541 \DeclareInstance{lua-unicode-math-style}{french}{substyles}{
542   normal = french,
543   bf = upright-bf,
544   sf = upright-sf,
545   bfsf = upright-bfsf,
546 }
547 \DeclareInstance{lua-unicode-math-style}{upright}{substyles}{
548   normal = upright,
549   bf = upright-bf,
550   sf = upright-sf,
551   bfsf = upright-bfsf,
552 }
553 \DeclareInstance{lua-unicode-math-style-cmd}{TeX}{alphabet-style-mapping}{
554   Latin = it,
555   latin = it,
556   Greek = up,
557   greek = it,
558   digit = up,
559 }
560 \DeclareInstance{lua-unicode-math-style-cmd}{TeX-bf}{alphabet-style-mapping}{
561   Latin = bfup,
562   latin = bfup,
563   Greek = bfup,
564   greek = bfit,
565   digit = bfup,
566 }
567 \DeclareInstance{lua-unicode-math-style-cmd}{ISO80000-2}{alphabet-style-mapping}{
568   Latin = it,
569   latin = it,
570   Greek = it,
571   greek = it,
572   digit = up,
573 }
574 \DeclareInstance{lua-unicode-math-style-cmd}{ISO80000-2-bf}{alphabet-style-mapping}{
575   Latin = bfit,
576   latin = bfit,
577   Greek = bfit,
578   greek = bfit,
579   digit = bfup,
580 }
581 \DeclareInstance{lua-unicode-math-style-cmd}{french}{alphabet-style-mapping}{
582   Latin = up,
583   latin = it,
584   Greek = up,
585   greek = up,

```

```

586   digit = up,
587 }
588 \DeclareInstance{lua-unicode-math-style-cmd}{upright}{alphabet-style-mapping}{
589   Latin = up,
590   latin = up,
591   Greek = up,
592   greek = up,
593   digit = up,
594 }
595 \DeclareInstance{lua-unicode-math-style-cmd}{upright-bf}{alphabet-style-mapping}{
596   Latin = bfup,
597   latin = bfup,
598   Greek = bfup,
599   greek = bfup,
600   digit = bfup,
601 }
602 \DeclareInstance{lua-unicode-math-style-cmd}{upright-sf}{alphabet-style-mapping}{
603   Latin = sfup,
604   latin = sfup,
605   Greek = sfup,
606   greek = sfup,
607   digit = sfup,
608 }
609 \DeclareInstance{lua-unicode-math-style-cmd}{italic-sf}{alphabet-style-mapping}{
610   Latin = sfit,
611   latin = sfit,
612   Greek = sfit,
613   greek = sfit,
614   digit = sfit,
615 }
616 \DeclareInstance{lua-unicode-math-style-cmd}{upright-bfsf}{alphabet-style-mapping}{
617   Latin = bfsfup,
618   latin = bfsfup,
619   Greek = bfsfup,
620   greek = bfsfup,
621   digit = bfsfup,
622 }
623 \DeclareInstance{lua-unicode-math-style-cmd}{italic-bfsf}{alphabet-style-mapping}{
624   Latin = bfsfit,
625   latin = bfsfit,
626   Greek = bfsfit,
627   greek = bfsfit,
628   digit = bfsfit,
629 }
630 \UseInstance {lua-unicode-math-style} {TeX}

```