

The latex-lab-unicode-math code*

L^AT_EX Project
June 18, 2026

Abstract

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1 Introduction

This file implements temporary adaptations to the unicode-math package needed for the tagging project.

2 The Implementation

```

1 <@@=math>
2 <*kernel>

```

2.1 File declaration

```

3 \ProvidesExplFile
4 {latex-lab-unicode-math.ltx}
5 {2026-01-16}
6 {0.1f}
7 {unicode-math adaptions}

```

*

2.2 Sockets

Unicode glyphs like a root sign should be marked as artifacts to avoid duplication in derivation if mathml structure elements are used. This is done with a luamml socket `math/luamml/artifact` which is declared in `ltagging` and whose plug is defined in `luamml`.

2.3 Delimiters

Extensible delimiters set with `\bigl`, `\Bigl`, etc. use boxes in their definitions. This gives wrong structure elements if used with `luamml`. We therefore redefine the internal `amsmath` command to make use of the `luatex` primitive.

```
\bBigg@
8 \def\bBigg@#1#2
9 {{\ensuremath
10 {
11 \Uvextensible height~#1~ \dimexpr0.5\big@size\relax ~ depth ~#1~
12 \dimexpr0.5\big@size\relax~ axis~exact~#2
13 }
14 }}
```

(End of definition for \bBigg@. This function is documented on page ??.)

2.4 varlim-commands

The commands `\varinjlim`, `\varliminf`, `\varprojlim` and `\varlimsup` use boxes that confuse `luamml`. We redefine them to use `luatex` primitives. This slightly changes the look!

```
15 \protected\def\varinjlim
16 {\mathop{\Udelimiterunder 0 "2192 {\qopname\relax o{\luamml_ignore:\mathstrut lim}}}}
17 \protected\def\varprojlim
18 {\mathop{\Udelimiterunder 0 "2190 {\qopname\relax o{\luamml_ignore:\mathstrut lim}}}}
19 \protected\def\varlimsup
20 {\mathop{\overline{\qopname\relax o{\luamml_ignore:\mathstrut lim}}}}
21 \protected\def\varliminf
22 {\mathop{\underline{\qopname\relax o{lim}}}}
```

2.5 Roots

Roots have two problems in tagging: At first, if mathml structure elements are used, the root symbol is given twice: as Unicode char and through the `msqrt` or `mroot` mathml structure element. In derivation this leads to duplications. The glyph should be tagged as artifact in this case. At second, in some cases complicated box constructions instead of the `luatex` primitives are used which leads to wrong tagging. We redefine `\sqrtsign` and add the artifact socket for the first problem.

TODO: A root with empty argument should be tagged differently.

```
23 \AtBeginDocument
24 {
25 \ifpackageloaded{unicode-math}
26 {
27 \cs_gset_protected_nopar:Npn \sqrtsign
28 {
```

```

29     \tag_socket_use:n {math/luamml/artifact}
30     \tex_Uradical:D \symoperators "0221A\scan_stop:
31   }
32 }
33 {
34   \cs_gset_protected_nopar:Npn \sqrtsign
35   {
36     \tag_socket_use:n {math/luamml/artifact}
37     \tex_Uradical:D \symlummain "0221A\scan_stop:
38   }
39   \cs_gset_protected_nopar:Npn \root #1 \of
40   {
41     \tag_socket_use:n {math/luamml/artifact}
42     \tex_Uroot:D \symlummain "0221A~ { #1 }
43   }
44 }
45 }

```

TODO: Tagging of $\sqrt[\leftroot{-2}\uproot{2}\beta]{y}$ is currently incorrect, but setting \Umathradicaldegreerise and \Umathradicaldegreeafter does not work, so another solution must be found (or a warning must be issued).

```

46 \cs_set_nopar:Npn \plainroot@ #1 \of #2
47 {
48   \bool_if:nTF
49   {
50     \__um_int_if_zero_p:n \uproot@ && \__um_int_if_zero_p:n \leftroot@
51   }
52   {
53     \tag_socket_use:n {math/luamml/artifact}
54     \tex_Uroot:D \c__um_radical_sqrt_tl { #1 } { #2 }
55   }
56   {
57     \hbox_set:Nn \rootbox
58     {
59       \c_math_toggle_token \m@th
60       \scriptscriptstyle { #1 }
61       \c_math_toggle_token
62     }
63     \mathchoice
64     { \r@@t \displaystyle { #2 } }
65     { \r@@t \textstyle { #2 } }
66     { \r@@t \scriptstyle { #2 } }
67     { \r@@t \scriptscriptstyle { #2 } }
68   }
69   \c_group_end_token
70 }

```

2.6 Fractions

Similar to roots in fractions the rule must be marked as artifact.

```

71 \DeclareRobustCommand {\frac}[2]
72 { {\tag_socket_use:n{math/luamml/artifact}\Ustack{\begingroup#1\endgroup\@@over#2}}}
73 </kernel>

```

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The *italic* numbers denote the pages where the corresponding entry is described, numbers underlined point to the definition, all others indicate the places where it is used.

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