

The latex-lab-unicode-math code*

L^AT_EX Project

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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 {2025-05-25}
6 {0.1d}
7 {unicode-math adaptations}
```

*

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.

```

8 \str_if_exist:cF { l__socket_tagsupport/math/luamml/artifact_plug_str }
9 {
10   \NewTaggingSocket{math/luamml/artifact}{0}
11 }

```

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@`

```

12 \def\bBigg@#1#2
13 {\ensurermath {\Uvextensible height~#1 \big@size axis~exact~#2}}

```

(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!

```

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

```

22 \AtBeginDocument
23 {
24   \cs_gset_protected_nopar:Npn \sqrtsign
25   {
26     \tag_socket_use:n {math/luamml/artifact}
27     \tex_Uradical:D \symoperators "0221A\scan_stop:

```

```

28     }
29 }

```

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

```

30 \cs_set_nopar:Npn \plainroot@ #1 \of #2
31 {
32   \bool_if:nTF
33   {
34     \__um_int_if_zero_p:n \uproot@ && \__um_int_if_zero_p:n \leftroot@
35   }
36   {
37     \tag_socket_use:n {math/luamml/artifact}
38     \Uroot \c__um_radical_sqrt_tl { #1 } { #2 }
39   }
40   {
41     \hbox_set:Nn \rootbox
42     {
43       \c_math_toggle_token \m@th
44       \scriptscriptstyle { #1 }
45       \c_math_toggle_token
46     }
47     \mathchoice
48     { \r@@t \displaystyle { #2 } }
49     { \r@@t \textstyle { #2 } }
50     { \r@@t \scriptstyle { #2 } }
51     { \r@@t \scriptscriptstyle { #2 } }
52   }
53   \c_group_end_token
54 }

```

2.6 Fractions

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

```

55 \DeclareRobustCommand {\frac}[2]
56 { {\tag_socket_use:n{math/luamml/artifact}\Ustack{\begingroup#1\endgroup\@@over#2}}}
57 \</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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