

The latex-lab-unicode-math code*

L^AT_EX Project
June 19, 2026

Abstract

Contents

1 Introduction 1
2 The Implementation 1
2.1 File declaration 1
2.2 Sockets 2
2.3 Delimiters 2
2.4 varlim-commands 2
2.5 Roots 2
2.6 Fractions 3
Index 4

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>

```

Index

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.

A		P	
<code>\AtBeginDocument</code>	23	<code>\protected</code>	15, 17, 19, 21
B		<code>\ProvidesExplFile</code>	3
<code>\begingroup</code>	72	Q	
<code>\Bigl</code>	2	<code>\qopname</code>	16, 18, 20, 22
<code>\bigl</code>	2	R	
bool commands:		<code>\relax</code>	11, 12, 16, 18, 20, 22
<code>\bool_if:nTF</code>	48	<code>\root</code>	39
C		<code>\rootbox</code>	57
cs commands:		S	
<code>\cs_gset_protected_nopar:Npn</code>	27, 34, 39	scan commands:	
<code>\cs_set_nopar:Npn</code>	46	<code>\scan_stop:</code>	30, 37
D		<code>\scriptscriptstyle</code>	60, 67
<code>\DeclareRobustCommand</code>	71	<code>\scriptstyle</code>	66
<code>\def</code>	8, 15, 17, 19, 21	<code>\sqrtsign</code>	2, 27, 34
<code>\dimexpr</code>	11, 12	<code>\symlummain</code>	37, 42
<code>\displaystyle</code>	64	<code>\symoperators</code>	30
E		T	
<code>\endgroup</code>	72	tag commands:	
<code>\ensuremath</code>	9	<code>\tag_socket_use:n</code>	29, 36, 41, 53, 72
F		TeX and L ^A T _E X 2 _ε commands:	
<code>\frac</code>	71	<code>\@@over</code>	72
G		<code>\ifpackageloaded</code>	25
group commands:		<code>\bBigg@</code>	8
<code>\c_group_end_token</code>	69	<code>\big@size</code>	11, 12
H		<code>\leftroot@</code>	50
hbox commands:		<code>\m@th</code>	59
<code>\hbox_set:Nn</code>	57	<code>\plainroot@</code>	46
L		<code>\r@t</code>	64, 65, 66, 67
luamml commands:		<code>\uproot@</code>	50
<code>\luamml_ignore:</code>	16, 18, 20	tex commands:	
M		<code>\tex_Uradical:D</code>	30, 37
<code>\mathchoice</code>	63	<code>\tex_Uroot:D</code>	42, 54
<code>\mathop</code>	16, 18, 20, 22	<code>\textstyle</code>	65
<code>\mathstrut</code>	16, 18, 20	token commands:	
O		<code>\c_math_toggle_token</code>	59, 61
<code>\of</code>	39, 46	U	
<code>\overline</code>	20	<code>\Udelimiterunder</code>	16, 18
		um internal commands:	
		<code>__um_int_if_zero_p:n</code>	50
		<code>\c_um_radical_sqrt_tl</code>	54
		<code>\Umathradicaldegreeafter</code>	3
		<code>\Umathradicaldegreeerraise</code>	3
		<code>\underline</code>	22

$\backslash Ustack$	72	$\backslash varliminf$	2, 21
$\backslash Uvextensible$	11	$\backslash varlimsup$	2
V		$\backslash varlimsup$	19
$\backslash varinjlim$	2, 15	$\backslash varprojlim$	2, 17