

# The latex-lab-mathtools code<sup>\*</sup>

L<sup>A</sup>T<sub>E</sub>X Project

v0.80c 2025-06-18

Abstract

## Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
<b>2</b>	<b>The Implementation</b>	<b>1</b>
2.1	File declaration . . . . .	1
2.2	Tagpdf support . . . . .	1
2.3	\shortintertext . . . . .	2
	<b>Index</b>	<b>5</b>

## 1 Introduction

This file implements adaption to the `mathtools` package needed for the tagging project.

## 2 The Implementation

<sup>1</sup> `\@@=math`

<sup>2</sup> `\*kernel`

### 2.1 File declaration

<sup>3</sup> `\ProvidesFile{latex-lab-mathtools.ltx}`

<sup>4</sup> `[2024-07-13 v0.1a mathtools adaption]`

### 2.2 Tagpdf support

To make the code independent from tagging being loaded and active we load the `tagpdf-base` package:

<sup>5</sup> `\RequirePackage{tagpdf-base}`

---

\*

## 2.3 \shortintertext

Similar to the `\intertext` command from `amsmath`, `\shortintertext` errors with active tagging as it is processed twice which leads to duplicated structures. The fix is similar but is complicated as `mathtools` defines two version (and an additional `\intertext` version) and package options to switch between the variants.

At first we redefine all the internal commands

```

6 \ExplSyntaxOn
7 \tl_new:N\l__math_mathtools_init_tl
8 \cs_if_eq:NNTF\intertext@ \MT_intertext:
9 {
10   \tl_set:Nn \l__math_mathtools_init_tl {\MT_orig_intertext_false:}
11 }
12 {
13   \tl_set:Nn \l__math_mathtools_init_tl {\MT_orig_intertext_true:}
14 }

15 \cs_if_eq:NNTF\shortintertext@ \MT_shortintertext:n
16 {
17   \tl_put_right:Nn \l__math_mathtools_init_tl
18     {\MT_orig_shortintertext_false:}
19 }
20 {
21   \tl_put_right:Nn \l__math_mathtools_init_tl
22     {\MT_orig_shortintertext_true:}
23 }

24 \def\MT_intertext: {%
25   \def\intertext##1{%
26     \ifvmode\else\\\@empty\fi
27     \noalign{%
28       \penalty\postdisplaypenalty\vskip\belowdisplayskip
29       \vskip-\lineskiplimit % CCS
30       \vskip\normallineskiplimit % CCS
31       \vskip\l_MT_above_intertext_sep
32       \vbox{%

Stop tagging when measuring:

33   \ifmeasuring@\tag_suspend:n{\measuring}\fi
34   \normalbaselines
35   \ifdim
36     \ifdim\@totalleftmargin=\z@
37       \linewidth
38     \else
39       -\maxdimen
40     \fi
41   =\columnwidth
42   \else \parshape\@ne \@totalleftmargin \linewidth
43   \fi

```

End the previous mc:

```

44   \tag_mc_end_push:

```

We are already in a par so we change now to Span:

```

45      \tagpdfsetup{para/tag=Span}
46      \noindent\ignorespaces##1\par

Restart the MC

47      \tag_mc_begin_pop:n{}}%
48      \penalty\predisplaypenalty\vskip\abovedisplayskip%
49      \vskip-\lineskiplimit      % CCS
50      \vskip\normallineskiplimit % CCS
51      \vskip\l_MT_below_intertext_sep
52  }%
53 }%
54 \MH_let:NwN \shortintertext \shortintertext@
55 }

56 \def\MT_orig_shortintertext:n #1{%
57   \ifvmode\else\\\@empty\fi
58   \noalign{%
59     \penalty\postdisplaypenalty\vskip\abovedisplayshortskip
60     \vbox{%
61       \ifmeasuring@\tag_suspend:n{\measuring}\fi
62       \normalbaselines
63       \MH_if_dim:w
64       \MH_if_dim:w \@totalleftmargin=\z@
65       \linewidth
66       \MH_else:
67       -\maxdimen
68       \MH_fi:
69       =\columnwidth
70       \MH_else:
71       \parshape\@ne \@totalleftmargin \linewidth
72       \MH_fi:
73       \tag_mc_end_push:
74       \tagpdfsetup{para/tag=Span}
75       \tagpdfparaOn
76       \noindent\ignorespaces#1\par
77       \tag_mc_begin_pop:n{}}
78   \penalty\predisplaypenalty\vskip\abovedisplayshortskip%
79 }%
80 }

81 \def\MT_shortintertext:n #1{%
82   \ifvmode\else\\\@empty\fi
83   \noalign{%
84     \penalty\postdisplaypenalty\vskip\abovedisplayshortskip
85     \vskip-\lineskiplimit
86     \vskip\normallineskiplimit
87     \vskip\l_MT_above_shortintertext_sep
88     \vbox{%
89       \ifmeasuring@\tag_suspend:n{\measuring}\fi
90       \normalbaselines
91       \MH_if_dim:w
92       \MH_if_dim:w \@totalleftmargin=\z@

```

```

93     \linewidth
94     \MH_else:
95     -\maxdimen
96     \MH_fi:
97     =\columnwidth
98     \MH_else:
99     \parshape\@ne \@totalleftmargin \linewidth
100    \MH_fi:
101    \tag_mc_end_push:
102    \tagpdfsetup{para/tag=P}

```

Why is it needed to enable paratagging??

```

103    \tagpdfparaOn
104    \noindent\ignorespaces#1\par
105    \tag_mc_begin_pop:n{}}%
106    \penalty\predisplaypenalty\vskip\abovedisplayshortskip%
107    \vskip-\lineskiplimit
108    \vskip\normallineskiplimit
109    \vskip\l_MT_below_shortintertext_sep
110  }%
111 }

```

see <https://github.com/latex3/tagging-project/issues/734>. The multlined environment still creates a few unneeded structure, perhaps triggered by empty tags.

```

112 \renewcommand*{\MT_mult_internal:n [1]{
113   \MH_if_boolean:nF {outer_mult}{\alignedspace@left} %<-- requires amsmath 2016/11/05
114   \MT_next:
115   \bgroup
116   \Let@
117   \def\l_MT_multline_lastline_fint{0 }
118   \chardef\dspbrk@context\@ne \restore@math@cr
119   \MH_let:NwN \math@cr__math\MT_mult_mathcr_atat:w
120   \MH_let:NwN \shoveleft\MT_shoveleft:wn
121   \MH_let:NwN \shoveright\MT_shoveright:wn
122   \spread@equation
123   \MH_set_boolean_F:n {mult_firstline}
124   \MT_measure_mult:n {#1}
125   \MH_if_dim:w \l_MT_multwidth_dim<\l_MT_multline_measure_fdim
126   \MH_setlength:dn \l_MT_multwidth_dim{\l_MT_multline_measure_fdim}
127   \fi
128   \MH_set_boolean_T:n {mult_firstline}
129   \MH_if_num:w \l_MT_multline_lastline_fint=\@ne
130   \MH_let:NwN \math@cr__math \MT_mult_firststandlast_mathcr:w
131   \MH_fi:
132   \ialign\bgroup
133   \hfil\strut@$\m@th\displaystyle{##}
134   \UseTaggingSocket{math/luamml/save/nNn}{ { } \displaystyle {mtd}}
135   $
136   \UseTaggingSocket{math/luamml/mtable/finalizecol}{last}
137   \hfil
138   \crrc
139   \hfilneg
140   #1
141 }

```

```

end hook

142 \l__math_mathtools_init_tl
143 \ExplSyntaxOff

144 \</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.

Symbols	L
<code>\</code> ..... 26, 57, 82	<code>\lineskiplimit</code> ..... 29, 49, 85, 107
	<code>\linewidth</code> ..... 37, 42, 65, 71, 93, 99
A	M
<code>\abovedisplayskip</code> ... 59, 78, 84, 106	<code>math@cr</code> internal commands:
<code>\abovedisplayskip</code> ..... 48	<code>\math@cr__math</code> ..... 119, 130
	<code>\maxdimen</code> ..... 39, 67, 95
	<code>\measuring</code> ..... 33, 61, 89
	MH commands:
	<code>\MH_else:</code> ..... 66, 70, 94, 98
	<code>\MH_fi:</code> ..... 68, 72, 96, 100, 131
	<code>\MH_if_boolean:nTF</code> ..... 113
	<code>\MH_if_dim:w</code> ..... 63, 64, 91, 92, 125
	<code>\MH_if_num:w</code> ..... 129
	<code>\MH_let:NwN</code> .... 54, 119, 120, 121, 130
	<code>\MH_set_boolean_F:n</code> ..... 123
	<code>\MH_set_boolean_T:n</code> ..... 128
	<code>\MH_setlength:dn</code> ..... 126
	MT commands:
	<code>\l_MT_above_intertext_sep</code> ..... 31
	<code>\l_MT_above_shortintertext_sep</code> .. 87
	<code>\l_MT_below_intertext_sep</code> ..... 51
	<code>\l_MT_below_shortintertext_sep</code> . 109
	<code>\MT_intertext:</code> ..... 8, 24
	<code>\MT_measure_mult:n</code> ..... 124
	<code>\MT_mult_firstandlast_mathcr:w</code> . 130
	<code>\MT_mult_internal:n</code> ..... 112
	<code>\MT_mult_mathcr_atat:w</code> ..... 119
	<code>\l_MT_multline_lastline_fint</code> 117, 129
	<code>\l_MT_multline_measure_fdim</code> 125, 126
	<code>\l_MT_multwidth_dim</code> ..... 125, 126
	<code>\MT_next:</code> ..... 114
	<code>\MT_orig_intertext_false:</code> ..... 10
	<code>\MT_orig_intertext_true:</code> ..... 13
	<code>\MT_orig_shortintertext:n</code> ..... 56
	<code>\MT_orig_shortintertext_false:</code> .. 18
	<code>\MT_orig_shortintertext_true:</code> ... 22
	<code>\MT_shortintertext:n</code> ..... 15, 81
	<code>\MT_shoveleft:wn</code> ..... 120
B	
<code>\belowdisplayskip</code> ..... 28	
<code>\bgroup</code> ..... 115, 132	
C	
<code>\chardef</code> ..... 118	
<code>\columnwidth</code> ..... 41, 69, 97	
<code>\crrc</code> ..... 138	
cs commands:	
<code>\cs_if_eq:NNTF</code> ..... 8, 15	
D	
<code>\def</code> ..... 24, 25, 56, 81, 117	
<code>\displaystyle</code> ..... 133, 134	
E	
<code>\else</code> ..... 26, 38, 42, 57, 82	
<code>\ExplSyntaxOff</code> ..... 143	
<code>\ExplSyntaxOn</code> ..... 6	
F	
<code>\fi</code> ..... 26, 33, 40, 43, 57, 61, 82, 89, 127	
H	
<code>\hfil</code> ..... 133, 137	
<code>\hfilneg</code> ..... 139	
I	
<code>\ialign</code> ..... 132	
<code>\ifdim</code> ..... 35, 36	
<code>\ifvmode</code> ..... 26, 57, 82	
<code>\ignorespaces</code> ..... 46, 76, 104	
<code>\intertext</code> ..... 2, 25	

<code>\MT_shoveright:wn</code> . . . . .	121	<code>\tagpdfsetup</code> . . . . .	45, 74, 102
<b>N</b>		T <sub>E</sub> X and L <sup>A</sup> T <sub>E</sub> X 2 <sub>ε</sub> commands:	
<code>\noalign</code> . . . . .	27, 58, 83	<code>\@empty</code> . . . . .	26, 57, 82
<code>\noindent</code> . . . . .	46, 76, 104	<code>\@ne</code> . . . . .	42, 71, 99, 118, 129
<code>\normalbaselines</code> . . . . .	34, 62, 90	<code>\@totalleftmargin</code> . . . . .	36, 42, 64, 71, 92, 99
<code>\normallineskiplimit</code> . . . . .	30, 50, 86, 108	<code>\alignedspace@left</code> . . . . .	113
<b>P</b>		<code>\dspbrk@context</code> . . . . .	118
<code>\par</code> . . . . .	46, 76, 104	<code>\ifmeasuring@</code> . . . . .	33, 61, 89
<code>\parshape</code> . . . . .	42, 71, 99	<code>\intertext@</code> . . . . .	8
<code>\penalty</code> . . . . .	28, 48, 59, 78, 84, 106	<code>\Let@</code> . . . . .	116
<code>\postdisplaypenalty</code> . . . . .	28, 59, 84	<code>\m@th</code> . . . . .	133
<code>\predisplaypenalty</code> . . . . .	48, 78, 106	<code>\restore@math@cr</code> . . . . .	118
<code>\ProvidesFile</code> . . . . .	3	<code>\shortintertext@</code> . . . . .	15, 54
<b>R</b>		<code>\spread@equation</code> . . . . .	122
<code>\renewcommand</code> . . . . .	112	<code>\strut@</code> . . . . .	133
<code>\RequirePackage</code> . . . . .	5	<code>\z@</code> . . . . .	36, 64, 92
<b>S</b>		tl commands:	
<code>\shortintertext</code> . . . . .	2, 54	<code>\tl_new:N</code> . . . . .	7
<code>\shoveleft</code> . . . . .	120	<code>\tl_put_right:Nn</code> . . . . .	17, 21
<code>\shoveright</code> . . . . .	121	<code>\tl_set:Nn</code> . . . . .	10, 13
<b>T</b>		tl internal commands:	
tag commands:		<code>\l_math_mathtools_init_tl</code> . . . . .	7, 10, 13, 17, 21, 142
<code>\tag_mc_begin_pop:n</code> . . . . .	47, 77, 105	<b>U</b>	
<code>\tag_mc_end_push:</code> . . . . .	44, 73, 101	<code>\UseTaggingSocket</code> . . . . .	134, 136
<code>\tag_suspend:n</code> . . . . .	33, 61, 89	<b>V</b>	
<code>\tagpdfparaOn</code> . . . . .	75, 103	<code>\vbox</code> . . . . .	32, 60, 88
		<code>\vskip</code> . . . . .	28, 29, 30, 31, 48, 49, 50, 51, 59, 78, 84, 85, 86, 87, 106, 107, 108, 109