

# The latex-lab-mathtools code\*

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

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Abstract

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## 1 Introduction

This file implements adaptations 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 adaptations]`

### 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}`

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\*

## 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     \tagpdfpara0n  
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    \tagpdfpara0n
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* $\MT_mult_internal:n [1]{
113  \MH_if_boolean:nF {outer_mult}{\alignedspace@left} %<-- requires amsmath 2016/11/05
114  \MT_next:
115  \bgroup
116  \Let@
117  \def\l_MT_multline_lastline_fint{0 }
118  \chardef\dspbrk@context\@ne \restore@math@cr
119  \MH_let:NwN \math@cr__math\MT_mult_mathcr_atat:w
120  \MH_let:NwN \shoveleft\MT_shoveleft:wn
121  \MH_let:NwN \shoveright\MT_shoveright:wn
122  \spread@equation
123  \MH_set_boolean_F:n {mult_firstline}
124  \MT_measure_mult:n {#1}
125  \MH_if_dim:w \l_MT_multwidth_dim<\l_MT_multline_measure_fdim
126  \MH_setlength:dn \l_MT_multwidth_dim{\l_MT_multline_measure_fdim}
127  \fi
128  \MH_set_boolean_T:n {mult_firstline}
129  \MH_if_num:w \l_MT_multline_lastline_fint=\@ne
130  \MH_let:NwN \math@cr__math \MT_mult_firstandlast_mathcr:w
131  \MH_fi:
132  \ialign\bgroup
133  \hfil\strut@$\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

<sup>142</sup> `\l_math_mathtools_init_tl`

<sup>143</sup> `\ExplSyntaxOff`

<sup>144</sup> `</kernel>`

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