The **onlyamsmath** package

Harald Harders
harald.harders@gmx.de

Version v0.20, 2016/12/18, printed January 8, 2017

**Abstract**
This package inhibits the usage of plain \TeX and on demand of standard \LaTeX math environments. This is useful for class writers who want to force their clients to use the environments provided by the amsmath package.

**Contents**

1 Usage of the package 1

2 The implementation 2
   2.1 Options 2
   2.2 Commands 3

**Copyright**

This program can be redistributed and/or modified under the terms of the \LaTeX Project Public License Distributed from CTAN archives in directory macros/latex/base/lppl.txt; either version 1 of the License, or any later version.

1 Usage of the package

Just load the package using `\usepackage[options]{onlyamsmath}`. If no option is given only the plain \TeX environment `$$ . . . $$` is “destroyed”. This environment leads to centred equations even with the global option `\texttt{fleqn (force left equations)}` switched on:

\[
  a = b .
\]

One further option is `\texttt{eqnarray}` to switch off the `\texttt{eqnarray}` and `\texttt{eqnarray*}` environments that add an unwished space before and after the aligned part of the formula as shown here:

\[
  a = b .
\]

1
A better result is achieved using the `align` environment provided by `amsmath.sty`:

\[ a = b. \]

The most brutal option is all that inhibits the writer to use any of the \TeX and \LaTeX math environments for non-inlined equations I know (\$\ldots\$, `eqnarray`, `eqnarray*`, `displaymath`). The inlined mathematical modes (\$, \ldots\$, `\(`\ldots\`\)`\) still work.

Then instead use the environments provided by `amsmath.sty`: `equation`, `align`, `gather`, `flalign`, `multiline`, `alignat`, and `split`. All environments except `split` have a starred variant. See the User’s Guide of the `amsmath` package for further details [1].

There are two more options that control the behaviour of the package if you still use one of the “forbidden” environments. If using `error` which is the default \LaTeX generates an error message that reminds you to use the environments of the `amsmath` package.

If using `warning` \LaTeX only produces warnings and proceeds.

If `nodollardollar` is used, the `\$` catcode is not changed. This way, the plain \TeX \$\$ macro can still be used. This option helps to avoid issues with recent versions of TikZ/PGF but might have other side effects.

**Acknowledgement**

David Kastrup (David.Kastrup@t-online.de) has written the part handling \$. I just have changed the call of the command producing the error message. Since I do not understand his code please don’t ask me things regarding it.

Reinhard Kotucha has reported the problem with recent TikZ/PGF and also identified that changing the `\$` catcode caused the issues. The class option `nodollardollar` has been introduced to resolve this incompatibility.

**2 The implementation**

Package header:

1 (package)\ProvidesPackage{onlyamsmath}
2 (version)\ProvidesFile{onlyamsmath-v.tex}
3 (package,version) [2016/12/18 v0.20 Destroy the standard math environments]

Load `amsmath` package:

4 \RequirePackage{amsmath}

**2.1 Options**

All options set a boolean variable which is named similar to the option name.

Define the `eqnarray` option:

5 \newif\onlyams@eqnarray
6 \DeclareOption{eqnarray}{\onlyams@eqnarraytrue}
Define the all option:
7 \newif\ifonlyams@all
8 \DeclareOption{all}{
9 \onlyams@alltrue
10 \onlyams@eqnarraytrue
11 }

Define the error and warning options:
12 \newif\ifonlyams@error
13 \onlyams@errortrue
14 \DeclareOption{error}{\onlyams@errortrue}
15 \DeclareOption{warning}{\onlyams@errorfalse}

Define the nodollardollar option:
16 \newif\ifonlyams@nodollardollar
17 \DeclareOption{nodollardollar}{\onlyams@nodollardollartrue}

Set the default options:
18 \ExecuteOptions{error}
19 \ProcessOptions\relax

2.2 Commands
\onlyams@error
  Define a command that produces the error resp. warning messages. The argument specifies the name of the environment that produced the message.
20 \newcommand{\onlyams@error}[1]{%
21 \ifonlyams@error
22 \PackageError{onlyamsmath}{Environment #1 used}{Please use only the environments provided by the amsmath package.}%
23 \else
24 \PackageWarning{onlyamsmath}{Environment #1 used, please use \MessageBreak only the environments provided by the amsmath \MessageBreak package}%
25 \fi
26 }
27
28 Here follows the part that is only executed when one of the options eqnarray or all is used:
29 \ifonlyams@eqnarray

\onlyams@eqnarray
  Copy the original \eqnarray command which is called by the commands \begin{eqnarray} and \begin{eqnarray*} to be able to call it after producing the corresponding error message:
30 \let\onlyams@eqnarray\eqnarray

\eqnarray
  Redefine the \eqnarray command:
32 \def\eqnarray{%
First generate an error or warning message:
\onlyams@error{eqnarray or eqnarray*}%

Then call the original eqnarray environment:
\onlyams@eqnarray}
\fi

Here follows the part that is only executed when the option all is used:
\ifonlyams@all
\displaymath
Redefine the \displaymath command:
\def\displaymath{%
First generate an error or warning message:
\onlyams@error{displaymath}%
Then call the \[ environment which normally is called by the displaymath environment:
\}\}
\fi
Redefine the $$ environment. This part was written by David Kastrup. Please don’t ask me anything about it.

\dollarcode
\def\dollarcode{\ifx\protect\@typeset@protect
\expandafter\futurelet\expandafter
\next\expandafter\checkdsp
\else \expandafter$\fi}
\begingroup
\lccode’\~’\$\lowercase{\endgroup\let\~}
dollarcode
\def\checkdsp{\ifx\next\dollarcode\expandafter\dspcomplain
\else$\fi}

Now comes the part that I understand and in which I have made changes.
\dspcomplain
This command controls the complaint when using $$.%
\def\dspcomplain#1{%
If mathmode is active the code has found the second $$ of the environment. The complaint has already made and it is not necessary to do generate one. The environment has to be closed by using \):
\ifmmode
\expandafter \]%
\else
\]}% 
If the mathmode isn’t active the first $$ of a mathematical environment has been found. First generate the warning or error message:
\onlyams@error{$$ $$}%
Then start the mathmode by using $\[\$:$
\begin{verbatim}
\expandafter \[55
\fi}
\begin{document}
\iffontyams@nodollardollar
\else
\AtBeginDocument{\catcode\$=13 }
\fi
\end{document}
\end{verbatim}

References


Change History

0.01
General: First version
0.02
General: Added switch nodollardollar
0.03
General: Changed definition of \dollarcode, by David Kas-trup
General: Removed switches dollardollar and nodollardollar
0.04
General: Removed code that forbids

Index

Numbers written in italic refer to the page where the corresponding entry is de-scribed; numbers underlined refer to the code line of the definition; numbers in roman refer to the code lines where the entry is used.

<table>
<thead>
<tr>
<th>Symbols</th>
<th>A</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>$</td>
<td>45, 58</td>
<td>\all</td>
</tr>
<tr>
<td>@typeset@protect</td>
<td>41</td>
<td>\AtBeginDocument</td>
</tr>
<tr>
<td>[</td>
<td>39, 54</td>
<td>\checkdsp</td>
</tr>
</tbody>
</table>
| \] | 51 | \catcode | \displaymath (environ-
| \^ | 45 | | ment) |