

The `onlyamsmath` package

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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.

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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 `fleqn` (*force left equations*) switched on:

$$a = b.$$

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

$$a = b.$$

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

$$a = b.$$

all 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 (`$$...$$`, `eqnarray`, `eqnarray*`, `displaymath`). The inlined mathematical modes (`$...$`, `\(...\)`) 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].

error 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.

warning If using `warning` `LATEX` only produces warnings and proceeds.

nodollardollar 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\ifonlyams@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}
```

Process the options:

```
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
23       environments provided by the amsmath package.}%
24   \else
25     \PackageWarning{onlyamsmath}{Environment #1 used, please use
26       \MessageBreak only the environments provided by the amsmath
27       \MessageBreak package}%
28   \fi
29 }
```

Here follows the part that is only executed when one of the options `eqnarray` or `all` is used:

```
30 \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 correspondig error message:

```
31 \let\onlyams@eqnarray\eqnarray
```

`eqnarray` Redefine the `\eqnarray` command:

```
32 \def\eqnarray{%
```

First generate an error or warning message:

```
33 \onlyams@error{eqnarray or eqnarray*}%
```

Then call the original eqnarray environment:

```
34 \onlyams@eqnarray}
35 \fi
```

Here follows the part that is only executed when the option all is used:

```
36 \ifonlyams@all
```

`displaymath` Redefine the `\displaymath` command:

```
37 \def\displaymath{%
```

First generate an error or warning message:

```
38 \onlyams@error{displaymath}%
```

Then call the `\[` environment which normally is called by the `displaymath` environment:

```
39 \[
```

```
40 \fi
```

Redefine the `$$` environment. This part was written by David Kastrup. Please don't ask me anything about it.

`\dollarcode`

```
41 \def\dollarcode{\ifx\protect\@typeset@protect
42 \expandafter\futurelet\expandafter\next\expandafter\checkdsp
43 \else \expandafter$\fi}

44 \begingroup
45 \lccode'\~='\$
46 \lowercase{\endgroup\let~}\dollarcode
```

`\defdsp`

```
47 \def\checkdsp{\ifx\next\dollarcode\expandafter\dspcomplain
48 \else\expandafter$\fi}
```

Now comes the part that I understand and in which I have made changes.

`\dspcomplain` This command controls the complaint when using `$$`.

```
49 \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 `\]`:

```
50 \ifmmode
51 \expandafter \]%
52 \else
```

If the `mathmode` isn't active the first `$$` of a mathematical environment has been found. First generate the warning or error message:

```
53 \onlyams@error{$$ $$}%
```

Then start the mathmode by using `\[`:

```
54 \expandafter \[
55 \fi}
```

Activate the complaining behaviour at `\begin{document}` to ensure that packages that internally use `$$` can do that without an error:

```
56 \ifonlyams@nodollardollar
57 \else
58 \AtBeginDocument{\catcode'\$=13 }
59 \fi
```

References

- [1] *User's Guide for the amsmath Package*. American Mathematical Society, 1999/12/13.

Change History

0.01		<code>\[...]</code>	3
	General: First version	1	0.10
0.02		General: Explicitly state date and version in <code>\ProvidesPackage</code> statement	1
	General: Added switch <code>nodollardollar</code>	2	
0.03		Update documentation	1
	General: Changed definition of <code>\dollarcode</code> , by David Kastrop	4	0.20
	Removed switches <code>dollardollar</code> and <code>nodollardollar</code>	2	
0.04		General: Added switch <code>nodollardollar</code> again (prevent from changing catcode to avoid issues with TikZ/PGF)	1
	General: Removed code that forbids		

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