

The colonequals package

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2016/05/16 v1.1

Abstract

Package `colonequals` defines poor man's symbols for math relation symbols such as “colon equals”. The colon is centered around the horizontal math axis.

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1 User interface

1.1 Introduction

Math symbols consisting of the colon character can be constructed with the colon text character, if the math font lacks of the complete symbol. Often, however, the colon text character is not centered around the math axis. Especially combined with the equals symbol the composed symbol does not look symmetrically. Thus

*Please report any issues at <https://github.com/ho-tex/oberdiek/issues>

this package defines a colon math symbol `\ratio` that is centered around the horizontal math axis. Also math symbols are provided that consist of the colon symbol. The package is not necessary, if the math font contains the composed symbols. Examples are `txfonts` ([1]) or `mathabx` ([2]).

1.2 Symbols

All symbols of this package are relation symbols. The relation property can be changed by the appropriate `TEX` command `\mathbin`, `\mathord`, ...

Table 1: Unicode mathematical operators

| | | | |
|--------|--------------|----|---------------------------|
| U+2236 | RATIO | : | <code>\ratio</code> |
| U+2237 | PROPORTION | :: | <code>\coloncolon</code> |
| U+2239 | EXCESS | :− | <code>\colonminus</code> |
| U+2254 | COLON EQUALS | := | <code>\colonequals</code> |
| U+2255 | EQUALS COLON | =: | <code>\equalscolon</code> |

The following grammar generates all symbols that are supported by this package:

Table 2: Symbol grammar

| | | |
|---------|-----|-----------------------------------------------------------------------|
| symbols | ::= | col col symbol symbol col ; |
| col | ::= | ' $:$ ' ' $::$ ' ; |
| symbol | ::= | ' $=$ ' ' $_$ ' ' \approx ' ' \sim ' ; |

Table 3: All relation symbols

| | |
|--------------|--------------------------------|
| : | <code>\ratio</code> |
| :: | <code>\coloncolon</code> |
| := | <code>\colonequals</code> |
| ::= | <code>\coloncolonequals</code> |
| =: | <code>\equalscolon</code> |
| ::= | <code>\equalscoloncolon</code> |
| :− | <code>\colonminus</code> |
| ::− | <code>\coloncolonminus</code> |
| −: | <code>\minuscolon</code> |
| −:: | <code>\minuscoloncolon</code> |
| : \approx | <code>\colonapprox</code> |
| :: \approx | <code>\coloncolonapprox</code> |
| \approx : | <code>\approxcolon</code> |
| \approx :: | <code>\approxcoloncolon</code> |
| : \sim | <code>\colonsim</code> |
| :: \sim | <code>\coloncolonsim</code> |
| \sim : | <code>\simcolon</code> |
| \sim :: | <code>\simcoloncolon</code> |

1.3 Fine tuning

The distances in composed symbols can be configured:

`\colonsep`

Macro `\colonsep` is executed between the colon and the other symbol.

`\doublecolonsep`

Macro `\doublecolonsep` controls the distance between two colons.

1.3.1 Example

```
\renewcommand*{\colonsep}{\mskip-.5\thinmuskip}
```

2 Implementation

2.1 Identification

```
1 (*package)
2 \NeedsTeXFormat{LaTeX2e}
3 \ProvidesPackage{colonequals}%
4 [2016/05/16 v1.1 Colon equals symbols (HO)]%
```

2.2 Distance control

`\colonsep`

```
5 \newcommand*{\colonsep}{}
```

`\doublecolonsep`

```
6 \newcommand*{\doublecolonsep}{}
```

2.3 Centered colons

```
7 \def\@center@colon{%
8   \mathpalette\@center@math{.}%
9 }
10 \def\@center@math#1#2{%
11   \vcenter{%
12     \m@th
13     \hbox{${#1#2}$}%
14   }%
15 }
```

`\ratio` Because the name `\colon` is already in use, the Unicode name `\ratio` is used for the centered colon relation symbol. (The `\ratio` of package `calc` is not used outside `calc` expressions.)

```
16 \newcommand*{\ratio}{%
17   \ensuremath{%
18     \mathrel{%
19       \@center@colon
20     }%
21   }%
22 }
```

`\coloncolon`

```
23 \newcommand*{\coloncolon}{%
24   \ensuremath{%
25     \mathrel{%
```

```

26 \center@colon
27 \doublecolonsep
28 \center@colon
29 }%
30 }%
31 }

```

2.4 Combined symbols

```

32 \def\@make@colon@set#1#2{%
33 \begingroup
34 \let\center@colon\relax
35 \let\newcommand\relax
36 \let\ensuremath\relax
37 \let\mathrel\relax
38 \let\colonsep\relax
39 \let\doublecolonsep\relax
40 \def\csx##1{%
41 \expandafter\noexpand\csname ##1\endcsname
42 }%
43 \edef\x{\endgroup
44 \newcommand*{\csx{colon#1}}{%
45 \ensuremath{%
46 \mathrel{%
47 \center@colon
48 \colonsep
49 {#2}%
50 }%
51 }%
52 }%
53 \newcommand*{\csx{coloncolon#1}}{%
54 \ensuremath{%
55 \mathrel{%
56 \center@colon
57 \doublecolonsep
58 \center@colon
59 \colonsep
60 {#2}%
61 }%
62 }%
63 }%
64 \newcommand*{\csx{#1colon}}{%
65 \ensuremath{%
66 \mathrel{%
67 {#2}%
68 \colonsep
69 \center@colon
70 }%
71 }%
72 }%
73 \newcommand*{\csx{#1coloncolon}}{%
74 \ensuremath{%
75 \mathrel{%
76 {#2}%
77 \colonsep
78 \center@colon
79 \doublecolonsep
80 \center@colon
81 }%
82 }%
83 }%
84 }%

```

```

85 \x
86 }

87 \@make@colon@set{equals}{=}%
88 \@make@colon@set{minus}{-}%
89 \@make@colon@set{approx}{\approx}
90 \@make@colon@set{sim}{\sim}

91 \end{package}

```

3 Installation

3.1 Download

Package. This package is available on CTAN¹:

[CTAN:macros/latex/contrib/oberdiek/colonequals.dtx](#) The source file.

[CTAN:macros/latex/contrib/oberdiek/colonequals.pdf](#) Documentation.

Bundle. All the packages of the bundle ‘oberdiek’ are also available in a TDS compliant ZIP archive. There the packages are already unpacked and the documentation files are generated. The files and directories obey the TDS standard.

[CTAN:install/macros/latex/contrib/oberdiek.tds.zip](#)

TDS refers to the standard “A Directory Structure for T_EX Files” ([CTAN:tds/tds.pdf](#)). Directories with `texmf` in their name are usually organized this way.

3.2 Bundle installation

Unpacking. Unpack the `oberdiek.tds.zip` in the TDS tree (also known as `texmf` tree) of your choice. Example (linux):

```
unzip oberdiek.tds.zip -d ~/texmf
```

Script installation. Check the directory `TDS:scripts/oberdiek/` for scripts that need further installation steps. Package `attachfile2` comes with the Perl script `pdfatfi.pl` that should be installed in such a way that it can be called as `pdfatfi`. Example (linux):

```
chmod +x scripts/oberdiek/pdfatfi.pl
cp scripts/oberdiek/pdfatfi.pl /usr/local/bin/
```

3.3 Package installation

Unpacking. The `.dtx` file is a self-extracting docstrip archive. The files are extracted by running the `.dtx` through plain T_EX:

```
tex colonequals.dtx
```

TDS. Now the different files must be moved into the different directories in your installation TDS tree (also known as `texmf` tree):

```
colonequals.sty → tex/latex/oberdiek/colonequals.sty
colonequals.pdf → doc/latex/oberdiek/colonequals.pdf
colonequals.dtx → source/latex/oberdiek/colonequals.dtx
```

If you have a `docstrip.cfg` that configures and enables `docstrip`’s TDS installing feature, then some files can already be in the right place, see the documentation of `docstrip`.

¹<http://ctan.org/pkg/colonequals>

3.4 Refresh file name databases

If your $\text{T}_{\text{E}}\text{X}$ distribution (te $\text{T}_{\text{E}}\text{X}$, mik $\text{T}_{\text{E}}\text{X}$, ...) relies on file name databases, you must refresh these. For example, te $\text{T}_{\text{E}}\text{X}$ users run `texhash` or `mktextlsr`.

3.5 Some details for the interested

Unpacking with $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$. The `.dtx` chooses its action depending on the format:

plain $\text{T}_{\text{E}}\text{X}$: Run `docstrip` and extract the files.

$\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$: Generate the documentation.

If you insist on using $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$ for `docstrip` (really, `docstrip` does not need $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$), then inform the autodetect routine about your intention:

```
latex \let\install=y\input{colonequals.dtx}
```

Do not forget to quote the argument according to the demands of your shell.

Generating the documentation. You can use both the `.dtx` or the `.drv` to generate the documentation. The process can be configured by the configuration file `ltxdoc.cfg`. For instance, put this line into this file, if you want to have A4 as paper format:

```
\PassOptionsToClass{a4paper}{article}
```

An example follows how to generate the documentation with pdf $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$:

```
pdflatex colonequals.dtx
makeindex -s gind.ist colonequals.idx
pdflatex colonequals.dtx
makeindex -s gind.ist colonequals.idx
pdflatex colonequals.dtx
```

4 Catalogue

The following XML file can be used as source for the [\$\text{T}_{\text{E}}\text{X}\$ Catalogue](#). The elements `caption` and `description` are imported from the original XML file from the Catalogue. The name of the XML file in the Catalogue is `colonequals.xml`.

```
92 <?catalogue>
93 <?xml version='1.0' encoding='us-ascii'?>
94 <!DOCTYPE entry SYSTEM 'catalogue.dtd'>
95 <entry datestamp='$Date$' modifier='$Author$' id='colonequals'>
96   <name>colonequals</name>
97   <caption>Colon equals symbols.</caption>
98   <authorref id='auth:oberdiek'>/>
99   <copyright owner='Heiko Oberdiek' year='2006'>/>
100  <license type='lppl1.3'>/>
101  <version number='1.1'>/>
102  <description>
103    This package defines poor man&#x2018;s symbols for mathematical
104    relation symbols such as &#x201C;colon equals&#x201D;.
105    The colon is centered around the horizontal math axis.
106  <p/>
107    The package is part of the <xref refid='oberdiek'>oberdiek</xref>
108    bundle.
109  </description>
110  <documentation details='Package documentation'
111    href='ctan:/macros/latex/contrib/oberdiek/colonequals.pdf'>/>
112  <ctan file='true' path='/macros/latex/contrib/oberdiek/colonequals.dtx'>/>
113  <miktex location='oberdiek'>/>
```

```

114 <texlive location='oberdiek'>
115 <install path='/macros/latex/contrib/oberdiek/oberdiek.tds.zip'>
116 </entry>
117 </catalogue>

```

5 References

- [1] Young Ryu: *The TX Fonts*; 2000/12/15; [CTAN:fonts/txfonts/](#).
- [2] Anthony Phan: *Mathabx font series*; 2005/05/16; [CTAN:fonts/mathabx/](#).

6 History

[2006/08/01 v1.0]

- First version.

[2016/05/16 v1.1]

- Documentation updates.

7 Index

Numbers written in *italic* refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; plain numbers refer to the code lines where the entry is used.

| Symbols | | M | |
|-------------------------------|-------------------------------------------|-------------------------------|----------------------------------|
| <code>\@center@colon</code> | 7, 19, 26, 28, 34, 47, 56, 58, 69, 78, 80 | <code>\m@th</code> | 12 |
| <code>\@center@math</code> | 8, 10 | <code>\mathpalette</code> | 8 |
| <code>\@make@colon@set</code> | 32, 87, 88, 89, 90 | <code>\mathrel</code> | 18, 25, 37, 46, 55, 66, 75 |
| A | | N | |
| <code>\approx</code> | 89 | <code>\NeedsTeXFormat</code> | 2 |
| | | <code>\newcommand</code> | 5, 6, 16, 23, 35, 44, 53, 64, 73 |
| C | | P | |
| <code>\coloncolon</code> | 23 | <code>\ProvidesPackage</code> | 3 |
| <code>\colonsep</code> | 3, 5, 38, 48, 59, 68, 77 | | |
| <code>\csname</code> | 41 | R | |
| <code>\csx</code> | 40, 44, 53, 64, 73 | <code>\ratio</code> | 16 |
| D | | S | |
| <code>\doublecolonsep</code> | 3, 6, 27, 39, 57, 79 | <code>\sim</code> | 90 |
| E | | V | |
| <code>\endcsname</code> | 41 | <code>\vcenter</code> | 11 |
| <code>\ensuremath</code> | 17, 24, 36, 45, 54, 65, 74 | | |
| H | | X | |
| <code>\hbox</code> | 13 | <code>\x</code> | 43, 85 |