The colonequals package

Heiko Oberdiek*

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.

Contents

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

---

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

colon text character is not centered around the math axis. Especially combined with the equals symbol the composed symbol does not look symmetrically. Thus this packages 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	:	`\ratio`
U+2237	PROPORTION	::	`\coloncolon`
U+2239	EXCESS	:−	`\colonminus`
U+2254	COLON EQUALS	:=	`\colonequals`
U+2255	EQUALS COLON	=:	`\equalscolon`

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

Table 2: Symbol grammar

symbols	::=	col
		col symbol
		symbol col
	;	
col	::=	':'
		'::'
	;	
symbol	::=	'='
		'−'
		'≈'
		'∼'
	;	

Table 3: All relation symbols

:	`\ratio`
::	`\coloncolon`
:=	`\colonequals`
::=	`\coloncolonequals`
=:	`\equalscolon`
=::	`\equalscoloncolon`
:−	`\colonminus`
::−	`\coloncolonminus`
−:	`\minuscolon`
−::	`\minuscoloncolon`
:≈	`\colonapprox`
::≈	`\coloncolonapprox`
≈:	`\approxcolon`

$$\approx:: \quad \texttt{\textbackslash approxcoloncolon}$$
$$:\sim \quad \texttt{\textbackslash colonsim}$$
$$::\sim \quad \texttt{\textbackslash coloncolonsim}$$
$$\sim: \quad \texttt{\textbackslash simcolon}$$
$$\sim:: \quad \texttt{\textbackslash simcoloncolon}$$

1.3 Fine tuning

The distances in composed symbols can be configured:

<div style="border:1px solid">\colonsep</div>

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

<div style="border:1px solid">\doublecolonsep</div>

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 ⟨/package⟩
```

3 Installation

3.1 Download

Package.   This package is available on CTAN[1]:

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 TeX Files" (CTAN:pkg/tds). 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

3.3 Package installation

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

    tex colonequals.dtx

---

[1][CTAN:pkg/colonequals](CTAN:pkg/colonequals)

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`.

3.4 Refresh file name databases

If your TeX distribution (TeX Live, MiKTeX, . . .) relies on file name databases, you must refresh these. For example, TeX Live users run `texhash` or `mktexlsr`.

3.5 Some details for the interested

Unpacking with LaTeX. The `.dtx` chooses its action depending on the format:

plain TeX: Run `docstrip` and extract the files.

LaTeX: Generate the documentation.

If you insist on using LaTeX for `docstrip` (really, `docstrip` does not need LaTeX), 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 pdfLaTeX:

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

4 References

[1] Young Ryu: *The TX Fonts*; 2000/12/15; CTAN:pkg/txfonts.

[2] Anthony Phan: *Mathabx font series*; 2005/05/16; CTAN:pkg/mathabx.

5 History

[2006/08/01 v1.0]

- First version.

[2016/05/16 v1.1]

- Documentation updates.

6 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.