Package ‘fpCompare’

June 12, 2018

Type Package
Title Reliable Comparison of Floating Point Numbers
URL https://github.com/PredictiveEcology/fpCompare
Version 0.2.2
Date 2018-06-07
Description Comparisons of floating point numbers are problematic due to errors
associated with the binary representation of decimal numbers.
Despite being aware of these problems, people still use numerical methods
that fail to account for these and other rounding errors (this pitfall is
the first to be highlighted in Circle 1 of Burns (2012)
This package provides new relational operators useful for performing
floating point number comparisons with a set tolerance.

Depends R (>= 3.1.0)
Suggests knitr, rmarkdown, testthat
License GPL-3
VignetteBuilder knitr
ByteCompile yes

BugReports https://github.com/PredictiveEcology/fpCompare/issues
RoxygenNote 6.0.1
NeedsCompilation no
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Repository CRAN
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R topics documented:

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Description

Binary operators which allow the comparison of values in numeric vectors.

Usage

x `%>=%` y
x `%>>%` y
x `%<=%` y
x `%<<%` y
x `%==%` y
x `%!=%` y

Arguments

x Any numeric object.
y Any numeric object.

Details

These are similar to their counterparts in `base`, except a tolerance `fpCompare.tolerance` can be specified via options to account for floating point rounding errors:

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<td><code>%!=%</code></td>
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Inspired by R FAQ 7.31 (http://ow.ly/LiU7K) and this post (http://stackoverflow.com/a/2769618/1380598).
Value

A logical vector indicating the result of the element by element comparison. The elements of shorter vectors are recycled as necessary.

Author(s)

Alex Chubaty

See Also

all.equal, .Machine

Examples

```r
x1 <- 0.5 - 0.3
x2 <- 0.3 - 0.1
x1 == x2               # FALSE on most machines
x1 %==% x2             # TRUE everywhere
identical(all.equal(x1, x2), TRUE) # TRUE everywhere

set.seed(123)
a <- 1:6
b <- jitter(1:6, 1e-7)
print(rbind(a, b), digits = 16)

b %<=% a
b %<% a
b %>=% a
b %>>% a
b %==% a
b %!=% a
```
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