Description

The package `ttutils` contains some auxiliary functions.

See section ‘Index’ for a list of exported functions. Section ‘Internals’ lists the internal functions of the package, which are not exported but may be referenced by `ttutils:::functionName`.

Details
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check : Generic function to check the validity of a given object
interval : Interval class
isInteger : Test for integrity
liesWithin : Test for interval coverage
merge.list : Merge two lists
plotAndSave : Display and save a plot

Internals

.parseRelation : Parse a relation symbol and return the result of the comparison
.saveDevice : Save a plot on a given device

Author(s)
Thorn Thaler <thorn.thaler@thothal.com>
Maintainer: Thorn Thaler <thorn.thaler@thothal.com>

check Check Objects

Description
check is a generic function that tests the validity of a given object.

Usage
check(object, ...)

Arguments
object : an object to be tested for validity.
... : further arguments to be passed to the particular dispatched function.
Details

check tests if a given object meets the formal requirements of being a valid object of its class. If the test fails, additional warnings should be provided, giving some information why the test failed.

Value

returns TRUE if object passes the validity test for the specific class and FALSE otherwise.

Note

R’s dispatching mechanism determines the class of a given object and then calls the function check.<class-name>. If no specific check function is found, check.default is called. The function check.default does not make much sense, for the purpose of check is to test the validity for a specific class. Hence, check.default simply returns FALSE together with a warning message that no specific check.<class-name> function was found.

The dispatching mechanism has immediately two consequences:

1. a class specific check routine need not to check whether the object belongs to the class itself, because if it would not, the function would not have been called.

2. if no specific check routine is found, the result for a call of check will be FALSE, since in this case the default function is called which will return FALSE in any case.

Author(s)

Thorn Thaler

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**interval**

*Interval Class*

**Description**

interval constructs an object of class interval representing an interval.

liesWithin checks if a number lies within a given interval.

**Usage**

interval(lower, upper, left=c("\geq", ">"), right=c("\leq", "<"))

liesWithin(x, int)
Arguments

lower the lower boundary of the interval. Can be set to \(-\text{Inf}\).
upper the upper boundary of the interval. Can be set to \(\text{Inf}\).
left, right a comparison symbol. Must be one of \(\text{"\geq", "\rangle"}\) for left and \(\text{"\leq", "\langle"}\) for right, respectively. Determines whether the boundary values are included in the interval or not. The default is \(\text{"\geq"}\) and \(\text{"\leq"}\), respectively.
x a numeric vector or array giving the numbers to be checked.
int an interval object.

Value

interval returns an object of class \text{interval} containing the following components:

lower the lower boundary of the interval
upper the upper boundary of the interval
left the left comparison operator
right the right comparison operator

liesWithin returns \text{TRUE} if the given number lies within the interval and \text{FALSE} otherwise.

Author(s)
Thorn Thaler

Examples

\begin{verbatim}
i <- interval(-3, 3, left=">")
liesWithin(-3:5, i)
\end{verbatim}

\begin{verbatim}

\textbf{isInteger} \hspace{3cm} \textit{Test For Integrity}

Description

\texttt{isInteger} tests if a given number is an integer.

Usage

\texttt{isInteger(n, tol = .Machine$double.eps)}

Arguments

\begin{verbatim}
n \hspace{1cm} \text{a vector or an array of values to be tested.}
tol \hspace{1cm} \text{a numeric value giving the tolerance level.}
\end{verbatim}
isInteger

Details

As opposed to `is.integer` this function tests for integrity of a given value, rather than being of type `integer`.

In R integers are specified by the suffix `L` (e.g. `1L`), whereas all other numbers are of class `numeric` independent of their value. The function `is.integer` does not test whether a given variable has an integer value, but whether it belongs to the class `integer`.

In contrast, the function `isInteger` compares the difference between its argument and its rounded argument. If it is smaller than some predefined tolerance level, the variable is regarded as integer.

Value

`TRUE` if the argument `n` has an integer value, `FALSE` otherwise.

Note

The R function `c` concatenates its argument and forms a vector. In doing so, it coerces the values to a common type. Hence, attention has to be paid, because `isInteger` may give some unexpected results in this case. The R command `list`, however, does not coerce its arguments (see the example).

Author(s)

Thorn Thaler

See Also

`is.integer`

Examples

```r
# isInteger tests if the _value_ of a variable is an integer
# 'c' as opposed to 'list' coerces its arguments!
isInteger(c("test", 1, 2, 2.1))   # FALSE FALSE FALSE FALSE
isInteger(list("test", 1, 2, 2.1)) # FALSE TRUE TRUE FALSE

class(1L)   # integer
typeof(1L)  # integer
class(1)    # numeric
typeof(1)   # double

# is.integer tests if the _class_ of a variable is 'integer'
is.integer(c("test", 1, 2))     # FALSE
is.integer(list("test", 1, 2))  # FALSE
is.integer(1)                    # FALSE
is.integer(1L)                   # TRUE
```
merge.list

Merge Two Lists

Description

merge.list merges two lists. If there are identical names in both lists, only the elements of the first list are considered.

Usage

## S3 method for class 'list'
merge(x, y = NULL, mergeUnnamed = TRUE, ...

Arguments

- **x**: a list of possibly named elements. All of these are in the merged list.
- **y**: a list of possibly named elements or any object, which can be coerced to list. If an element has a name occurring also in the argument x, it will not be included in the merged list to avoid duplicate names. If NULL, x is returned.
- **mergeUnnamed**: logical. If TRUE (the default) unnamed elements in the second list are always included.
- **...**: arguments to be passed to or from methods.

Details

The purpose of this function is to merge two lists (e.g. argument lists). If a named element is found as well in the first list as in the second, only the value of the element in the first list is considered. One can think of the second list as a list of default values, which should be considered only if they are not set explicitly in the first list.

Unnamed elements in y are included in the merged list only if mergeUnnamed is TRUE.

Value

a list containing all elements of the argument x and those of y having names not occurring in x.

Author(s)

Thorn Thaler

Examples

merge(list(a=1, b="test"), list(3, b=2)) # list(a=1, b="test", 3)
merge(list(), "test") # list("test")
merge(list(), "test", FALSE) # list()
merge(list()) # list()
merge(list(1, a=2, b=3), list(2, b=4)) # list(1, a=2, b=3, 2)
merge(list(1), list(2, b=3), FALSE) # list(1, b=3)
a <- list(1, 2, 3)
b <- list("a", "b", "c")
names(a)[2] <- names(b)[2] <- "z"
all.equal(merge(a, b), list(1, z=2, 3, "a", "c")) # TRUE

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**plotAndSave**

*Display And Save A Plot*

**Description**

plotAndSave saves a plot as "pdf", "(e)ps", "jp(e)g", "png", "bmp", "tiff", "emf" and/or "wmf" and additionally displays the plot.

**Usage**

```r
plotAndSave(plot.func, plot.name, ..., folder=getwd(),
            format=c("eps", "pdf"),
            options=list(eps = list(onefile=TRUE, horizontal=FALSE,
                                   paper="special",
                                   width=7, height=7),
                       ps = list(onefile=TRUE, horizontal=FALSE,
                                paper="special",
                                width=7, height=7),
                       pdf = list(onefile=TRUE)),
            do.plot=TRUE, do.return=do.plot)
```

**Arguments**

- `plot.func` either a function or a non-empty character string naming the plotting function to be called.
- `plot.name` a character string (without any suffix such as ".pdf" or ".eps") giving the name of the file where the plot should be saved to.
- `...` additional arguments to be passed to the plotting function.
- `folder` a character string giving the name of the folder to which the plot should be saved. The default is the current directory.
- `format` output format. Must be a subset of ("pdf", "(e)ps", "jp(e)g", "png", "bmp", "tiff", "emf", "wmf"). The latter two can be used only on a Windows OS. The default is to produce both an eps-file and a pdf-file. Can be abbreviated.
- `options` named list of options to be passed to the respective device driver. Each entry of the list is an option list for the device corresponding to the name of the list item.
- `do.plot` logical. If TRUE (the default) the plot is displayed.
- `do.return` logical. If TRUE the return value of the plotting function is returned. Defaults to the value of the parameter do.plot.
Details
The purpose of this function is to produce a plot on the monitor and to save it to a file simultaneously. The file name must be given without any file-suffix. Depending on the argument format the function then generates the respective file with the appropriate suffix. The path should not be included in the file name, since the location where the files should be saved to is controlled by the parameter folder.

The function needs a plotting function to be defined, which actually does the plotting itself. Additional arguments (e.g. further graphical parameters) can be passed to `plotAndSave`, which in turn, passes these arguments down to the plotting function.

The parameters of devices are controlled by the arguments options.

Value
the return value of the plotting function.

Note
When using Trellis plots from package `lattice` one has to assure that the plotting function actually does the plotting. Since the default behaviour of Trellis plots is just to return the Trellis object, one should wrap the call to the particular `lattice` function in a call of the function print. The generic function `print` ensures that the plot is displayed and not just returned as an object.

Author(s)
Thorn Thaler

See Also
`pdf`, `postscript`, `jpeg`, `png`, `bmp`, `tiff`

Examples
```r
## Not run:
## Plotting Function
# For 'lattice' graphics:
# WRONG:
# f <- function(x, ...) xyplot(x~sin(x), ...)
# CORRECT:
# f <- function(x, ...) print(xyplot(x~sin(x), ...))

f <- function(x, ...) plot(x, sin(x), col=2, type="l", ...)

# Save the plot as "Sine_Function.pdf" in the current folder
# and add a title to the plot

plotAndSave(f, "Sine_Function", x=seq(-pi, pi, length=100),
            main="Sine-Function", format="pd")

## End(Not run)
```
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