

Package: bazar (via r-universe)

October 31, 2024

Type Package

Title Miscellaneous Basic Functions

Version 1.1.0

Date 2019-03-27

Description A collection of miscellaneous functions for copying objects to the clipboard ('Copy'); manipulating strings ('concat', 'mgsub', 'trim', 'verlan'); loading or showing packages ('library_with_dep', 'require_with_dep', 'sessionPackages'); creating or testing for named lists ('nlist', 'as_nlist', 'is_nlist'), formulas ('is_formula'), empty objects ('as_empty', 'is_empty'), whole numbers ('as_wholenumber', 'is_wholenumber'); testing for equality ('almost_equal', 'almost_zero') and computing uniqueness ('almost_unique'); getting modified versions of usual functions ('rle2', 'sumNA'); making a pause or a stop ('pause', 'stopif'); converting into a function ('as_fun'); providing a C like ternary operator ('condition %?% true %:% false'); finding packages and functions ('get_all_pkgs', 'get_all_funs'); and others ('erase', '%nin%', 'unwhich', 'top', 'bot', 'normalize').

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LazyData TRUE

Depends R (>= 3.1.3)

Imports rlang, stats, tibble, tools, utils

Suggests knitr, testthat

URL <https://github.com/paulponcet/bazar>

BugReports <https://github.com/paulponcet/bazar/issues>

RoxygenNote 6.1.0

Repository <https://paulponcet.r-universe.dev>

RemoteUrl <https://github.com/paulponcet/bazar>

RemoteRef HEAD

RemoteSha caccfed36ed5650dbef2e78f584e0c07c321581

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almost_equal	<i>Test (almost) equality of numeric values</i>
--------------	---

Description

The function `almost_equal` tests if two numeric vectors have equal values up to a tolerance.

Usage

```
almost_equal(x, y, tolerance = sqrt(.Machine$double.eps))
```

```
almost.equal(x, y, tolerance = sqrt(.Machine$double.eps))
```

Arguments

x	numeric vector.
y	numeric vector of the same length as x.
tolerance	numeric. Differences smaller than tolerance are considered as equal. The default value is close to $1.5e-8$.

Value

A logical vector of the same length as x and y.

Author(s)

Tommy on StackOverflow, see <http://stackoverflow.com/a/7667703>.

Examples

```
almost_equal(x = 1:3,
             y = 1:3 + c(10^(-6), 10^(-7), 10^(-8)))
```

almost_unique	<i>Almost unique elements</i>
---------------	-------------------------------

Description

The function `almost_unique` extracts elements of a vector x that are unique up to a tolerance factor.

Usage

```
almost_unique(x, ...)
```

```
almost.unique(x, ...)
```

```
## Default S3 method:
```

```
almost_unique(x, tolerance = sqrt(.Machine$double.eps),
             ...)
```

Arguments

x	numeric. The vector of numeric values at stake.
...	Additional arguments to be passed to the function <code>duplicated</code> , which is used internally by <code>almost_unique</code> .
tolerance	numeric. Relative differences smaller than tolerance are considered as equal. The default value is close to $1.5e-8$.

Value

A vector of the same type as x.

See Also

[unique](#), [duplicated](#).

Examples

```
almost_unique(c(1, 1.01), tol = 0.1)
almost_unique(c(1, 1.01), tol = 0.01)

almost_unique(c(1, 2, 3), tol = 10)
almost_unique(c(1, 2, 3), tol = 5)
almost_unique(c(1, 2, 3), tol = 1)
```

almost_zero	<i>Test if values of a vector are almost zero</i>
-------------	---

Description

The function `almost_zero` tests if values of the numeric vector x are equal to zero up to a tolerance.

Usage

```
almost_zero(x, tolerance = sqrt(.Machine$double.eps))

almost.zero(x, tolerance = sqrt(.Machine$double.eps))
```

Arguments

x	numeric. The vector of numeric values at stake.
tolerance	numeric. Differences smaller than tolerance are considered as equal. The default value is close to $1.5e-8$.

Value

A logical vector of the same length as x.

See Also

[all.equal](#).

Examples

```
almost_zero(c(0, 10^(-7), 10^(-8)))
```

as_empty

Convert to an empty object

Description

Convert x to an empty object.

Usage

```
as_empty(x, ...)
```

```
as.empty(x, ...)
```

```
## Default S3 method:  
as_empty(x, ...)
```

```
## S3 method for class 'data.frame'  
as_empty(x, ...)
```

Arguments

x An object.

... Additional parameterS.

Value

An empty object

See Also

[is_empty](#) in this package.

Examples

```
x <- c("a", "b", "c")
as_empty(x)
class(as_empty(x)) # still a character
```

```
x <- factor(LETTERS)
as_empty(x) # levels are kept
class(as_empty(x)) # still a factor
```

```
x <- data.frame(x = 1:3, y = 2:4)
as_empty(x)
```

as_fun

Convert object to function

Description

as_fun is a generic function that does the same as as.function from package **base**, with the additional feature that as_fun.character converts a string into the function it names.

Usage

```
as_fun(x, ...)

as.fun(x, ...)

## Default S3 method:
as_fun(x, envir = parent.frame(), ...)

## S3 method for class 'character'
as_fun(x, ...)

## S3 method for class 'formula'
as_fun(x, ...)

## S3 method for class 'name'
as_fun(x, ...)

## S3 method for class 'call'
as_fun(x, ...)

## S3 method for class 'numeric'
as_fun(x, ...)

## S3 method for class 'logical'
as_fun(x, ...)
```

```
## S3 method for class 'factor'
as_fun(x, ...)

## S3 method for class 'complex'
as_fun(x, ...)

## S3 method for class 'data.frame'
as_fun(x, ...)

## S3 method for class 'lm'
as_fun(x, ...)

## S3 method for class 'rpart'
as_fun(x, ...)
```

Arguments

x	The object to convert.
...	Additional arguments (currently not used).
envir	Environment in which the function should be defined.

Value

The desired function.

Author(s)

as_fun.character is adapted from MrFlick, see <https://stackoverflow.com/a/38984214> on StackOverflow.

See Also

[as_function](#) in package **rlang**.

Examples

```
as_fun(mean)
as_fun("mean")
as_fun("edit")
as_fun("stats::predict")

## Uses 'rlang::as_function()' for formulas under the hood:
f <- as_fun(~ . + 1)
f(10) # 11

## the constant function '1'
f <- as_fun(1)
f(2) # 1
f("a") # 1
```

```
## the constant function 'FALSE'
f <- as_fun(FALSE)
f(2) # FALSE
f("a") # FALSE

f <- as_fun(data.frame(x = 1:2, y = 2:3))
f("x") # 'x' column
f("y") # 'y' column
```

as_na

Transform values to NA

Description

These methods transform values to [NA](#) for different classes of objects.

Usage

```
as_na(x, ...)
```

```
as.na(x, ...)
```

```
## Default S3 method:
as_na(x, ...)
```

```
## S3 method for class 'data.frame'
as_na(x, ...)
```

```
## S3 method for class 'list'
as_na(x, ...)
```

Arguments

x	The object at stake.
...	Additional arguments (unused).

Value

An object of the same class as x; the attributes of x are passed unchanged to the result.

Examples

```
x <- c("a", "b", "c")
as_na(x)
class(as_na(x)) # still a character
```



```
x <- factor(LETTERS)
as_na(x)      # levels are kept
class(as_na(x)) # still a factor

x <- data.frame(x = 1:3, y = 2:4)
as_na(x)
dim(as_na(x))

x <- matrix(1:6, 2, 3)
attr(x, "today") <- Sys.Date()
as_na(x)      # attributes are kept
```

bazar

bazar: miscellaneous basic functions

Description

bazar provides a collection of miscellaneous functions for

- copying objects to the clipboard ([Copy](#));
- manipulating strings ([concat](#), [mgsub](#), [trim](#), [verlan](#));
- loading or showing packages ([library_with_dep](#), [require_with_dep](#), [sessionPackages](#));
- creating or testing for named lists ([nlist](#), [as_nlist](#), [is_nlist](#)), formulas ([is_formula](#)), empty objects ([as_empty](#), [is_empty](#)), whole numbers ([as_wholenumber](#), [is_wholenumber](#));
- testing for equality ([almost_equal](#), [almost_zero](#));
- getting modified versions of usual functions ([rle2](#), [sumNA](#));
- making a pause or a stop ([pause](#), [stopif](#));
- and others ([erase](#), [%in%](#), [unwhich](#)).

concat

String concatenation

Description

The function `concat` concatenates character vectors all together.

`concat0(.)` is a wrapper for `concat(., sep = "")`. `concat_(.)` is a wrapper for `concat(., sep = "_")`.

Usage

```
concat(..., sep = " ", na.rm = TRUE)
```

```
concat0(..., na.rm = TRUE)
```

```
concat_(... , na.rm = TRUE)
```

Arguments

... One or more objects, to be converted to character vectors and concatenated.
 sep character. The character to use to separate the result.
 na.rm logical. If TRUE (the default), missing values are removed before concatenation.

Value

Always a character value (vector of length 1).

See Also

[paste](#).

Examples

```
v <- c("Florence", "Julie", "Angela")
concat0(v)
concat_(v)
concat(v, sep = "^^")
concat0(c("a", "b"), c(1, NA, 3), NA)
concat(c(NA, NA))
concat(c(NA, NA), na.rm = FALSE) # usually not desirable
```

Copy

Copy data to the clipboard

Description

The function Copy can typically be used to copy data from a data frame, in order to paste it somewhere else (in Excel for instance).

Usage

```
Copy(x, size = 128L, quote = TRUE, sep = "\t", na = "",
     dec = ".", ...)
```

Arguments

x An object.
 size integer. Number of kilobytes. Increase this value if the object x is too big.
 quote See the eponymous argument in [write.table](#).
 sep character. The field separator string.
 na character. The string to use for missing values.
 dec character. The string to use for decimal points in numeric or complex columns.
 ... Additional arguments to be passed to [write.table](#).

erase	<i>Delete objects</i>
-------	-----------------------

Description

The function `erase` deletes all objects that live in the calling environment.

Usage

```
erase(ask = TRUE)
```

Arguments

`ask` logical. If TRUE (the default), a confirmation is interactively asked to the user.

Warning

use this function with care!

<code>get_all_funs</code>	<i>Functions exported by a package</i>
---------------------------	--

Description

`get_all_funs` provides all the functions exported by a given installed package.

Usage

```
get_all_funs(pkg)
```

Arguments

`pkg` character. The package of interest. (Must be installed already.)

Value

A character vector, the functions exported.

Examples

```
get_all_funs("stats")
```

get_all_pkgs *Packages exporting a function*

Description

get_all_pkgs provides all packages (belonging to a given list of packages) exported by a given function.

Usage

```
get_all_pkgs(fun, packages = NULL)
```

Arguments

fun	function or character. The function of interest.
packages	The packages to look into. If NULL, the list of currently attached packages is explored.

Value

A character vector, the packages.

Examples

```
## Not run:  
get_all_pkgs("as.fun")  
get_all_pkgs(as.fun)  
get_all_pkgs("stats::median")  
  
## End(Not run)
```

get_vars *Get formula variables*

Description

The function get_vars extracts variable names from a formula.

Usage

```
get_vars(formula, data = NULL, intersection = TRUE)
```

Arguments

formula a formula.
 data data.frame or matrix. If not NULL, formulas with a dot . are permitted.
 intersection logical. If TRUE and data is not NULL, the intersection between variables found in the formula and data column names is returned.

Value

a character vector, the variables found.

See Also

[all.vars](#), [get.vars](#)

Examples

```
get_vars(y ~ x1 + x2 - x1)
get_vars(y ~ . - x1, data = data.frame(y = 1, x1 = 2, x2 = 3))
get_vars(y + z ~ x1 + x2 - x1 | x3)
get_vars(y ~ x1 + I(log(x2)))
get_vars(y ~ x1*x2)
get_vars(y ~ x1:x2)
get_vars(~ x1 + x2)
```

 isNA

Test if NA

Description

isNA tests if an object x is identical to one of NA, NA_character_, NA_complex_, NA_integer_, NA_real_, or NaN.

Usage

```
isNA(x)
```

Arguments

x An R object.

Value

TRUE or FALSE.

See Also

[isTRUE](#).

`is_empty`*Test emptiness*

Description

These methods test if an object `x` is empty.

Usage

```
is_empty(x)
```

```
is.empty(x)
```

```
## Default S3 method:
```

```
is_empty(x)
```

```
## S3 method for class 'data.frame'
```

```
is_empty(x)
```

Arguments

`x` An object to be tested.

Value

TRUE if `x` is empty, FALSE otherwise.

See Also

[as_empty](#) in this package.

Examples

```
is_empty(4)
is_empty(c())
is_empty(new.env())
is_empty(character(0))
is_empty(list())
is_empty(integer(0))
is_empty(data.frame())
```

is_formula	<i>Test if an object is a formula</i>
------------	---------------------------------------

Description

The function `is_formula` tests if the object `x` is a formula.

Usage

```
is_formula(x)
```

```
is.formula(x)
```

Arguments

`x` An object.

Value

A logical, TRUE if `x` is a formula.

Examples

```
is_formula("this is a formula")
is_formula(f <- formula("y ~ x"))
is_formula(update(f, ~ . -1))
```

is_wholenumber	<i>Test if the values of a vector are whole numbers</i>
----------------	---

Description

The function `is_wholenumber` tests if values of the numeric vector `x` are all whole numbers (up to a tolerance).

The function `as_wholenumber` is a synonym for [as.integer](#).

Usage

```
is_wholenumber(x, tolerance = sqrt(.Machine$double.eps))
```

```
is.wholenumber(x, tolerance = sqrt(.Machine$double.eps))
```

```
as_wholenumber(x, ...)
```

```
as.wholenumber(x, ...)
```

Arguments

x	a vector to be tested.
tolerance	numeric. Differences smaller than tolerance are considered as equal. The default value is close to 1.5e-8.
...	Additional arguments passed to or from other methods.

Value

A logical, TRUE if all values of x are (finite) whole numbers. If x contains NA or NaN, then NA is returned.

Examples

```
x = c(1L, 10L)
is.integer(x)
is_wholenumber(x)

x = c(1, 10)
is.integer(x)
is_wholenumber(x) # here is the difference with 'is.integer'

is_wholenumber(1+10^(-7))
is_wholenumber(1+10^(-8))
```

library_with_dep

Loading/Attaching and listing of packages with dependencies

Description

library_with_dep and require_with_dep behave respectively like [library](#) and [require](#), but also load and attach dependent packages (typically packages listed in the Imports field of the DESCRIPTION file).

Usage

```
library_with_dep(package, help, pos = 2, lib.loc = NULL,
  character.only = FALSE, logical.return = FALSE,
  warn.conflicts = TRUE, quietly = FALSE,
  verbose = getOption("verbose"), which = "Imports",
  recursive = FALSE, reverse = FALSE)

require_with_dep(package, lib.loc = NULL, quietly = FALSE,
  warn.conflicts = TRUE, character.only = FALSE, which = "Imports",
  recursive = FALSE, reverse = FALSE, verbose = getOption("verbose"))
```


Arguments

package	the name of a package, given as a name or literal character string, or a character string, depending on whether <code>character.only</code> is <code>FALSE</code> (default) or <code>TRUE</code> .
help	the name of a package, given as a name or literal character string, or a character string, depending on whether <code>character.only</code> is <code>FALSE</code> (default) or <code>TRUE</code> .
pos	the position on the search list at which to attach the loaded namespace. Can also be the name of a position on the current search list as given by <code>search()</code> .
lib.loc	character. A vector describing the location of R library trees to search through, or <code>NULL</code> . The default value of <code>NULL</code> corresponds to all libraries currently known to <code>.libPaths()</code> . Non-existent library trees are silently ignored.
character.only	logical. Indicates whether <code>package</code> or <code>help</code> can be assumed to be character strings.
logical.return	logical. If it is <code>TRUE</code> , then <code>FALSE</code> or <code>TRUE</code> is returned to indicate success.
warn.conflicts	logical. If <code>TRUE</code> , warnings are printed about conflicts from attaching the new package. A conflict is a function masking a function, or a non-function masking a non-function.
quietly	logical. If <code>TRUE</code> , no message confirming package attaching is printed, and most often, no errors/warnings are printed if package attaching fails.
verbose	logical. If <code>TRUE</code> , additional diagnostics are printed.
which	character. A vector listing the types of dependencies, a subset of <code>c("Depends", "Imports", "LinkingTo", "Suggests", "Enhances")</code> . Character string <code>"all"</code> is shorthand for that vector, character string <code>"most"</code> for the same vector without <code>"Enhances"</code> .
recursive	logical. Should (reverse) dependencies of (reverse) dependencies (and so on) be included?
reverse	logical. If <code>FALSE</code> (default), regular dependencies are calculated, otherwise reverse dependencies.

See Also

`library` and `require` from package **base**; `package_dependencies` from **tools**; `installed.packages` from **utils**.

mgsub

Multiple gsub

Description

The function `mgsub` is a ‘multiple’ version of `gsub`.

Usage

```
mgsub(pattern, replacement, x, ...)
```

Arguments

pattern	character vector containing regular expressions to be matched in the given character vector.
replacement	a replacement vector of the same length as pattern for matched pattern. Coerced to character if possible.
x	vector or NULL: the values to be matched against.
...	additional parameters to be passed to gsub.

Value

A character vector of the same length as x.

Author(s)

Theodore Lytras on StackOverflow, see <http://stackoverflow.com/a/15254254/3902976>

See Also

[gsub](#) from package **base**.

Examples

```
mgsub(c("aa", "AA"), c("bb", "BB"), c("XXaaccAACC", "YYaaccAACC", "ZZaaccAACC"))
```

nlist

Named lists

Description

Functions to construct, coerce and check for named lists.

Usage

```
nlist(...)
```

```
as_nlist(x, ...)
```

```
is_nlist(x)
```

```
as.nlist(x, ...)
```

```
is.nlist(x)
```

Arguments

...	Named objects.
x	Object to be coerced or tested.

Value

A named list.

Examples

```
x <- nlist(x = 2, y = c("a", "b"))
is_nlist(x)
```

normalize	<i>Normalize a numeric vector</i>
-----------	-----------------------------------

Description

This function divides x by the result of $\text{fun}(x)$.

Usage

```
normalize(x, fun = "max", na.rm = TRUE, ...)
```

Arguments

x	numeric. A vector.
fun	character or function. Should own an <code>na.rm</code> argument. $\text{fun}(x)$ should return either one unique value, or a numeric vector of the same length as x .
<code>na.rm</code>	Should missing values be removed in the calculation of $\text{fun}(x)$?
<code>...</code>	Additional arguments to be passed to fun .

Value

A numeric vector of the same length as x .

Examples

```
x <- rnorm(10)
normalize(x)
```

pause	<i>Have a rest, make a pause</i>
-------	----------------------------------

Description

The pause function stops momentarily the execution of a program. Pressing <Enter> continues the execution; typing 'stop' (without quotation marks) ends the program.

Usage

```
pause(duration = Inf)
```

Arguments

duration	numeric or infinite. If duration is infinite (the default), then a pause is made until the user presses <Enter> or types 'stop'. Else if x = duration is a number, then a pause is made during x seconds.
----------	---

See Also

[Sys.sleep](#).

rle2	<i>Run length encoding (modified version)</i>
------	---

Description

Compute the lengths and values of runs of [almost_equal](#) values in a vector.

Usage

```
rle2(x, tolerance = sqrt(.Machine$double.eps))
```

Arguments

x	numeric vector.
tolerance	numeric. Differences smaller than tolerance are considered as equal. The default value is close to 1.5e-8.

Value

An object of class "rle" which is a list with components:

- lengths: an integer vector containing the length of each run.
- values: a vector of the same length as lengths with the corresponding values.

See Also

[almost_equal](#) in this package; [rle](#) in package **base**.

rollfun	<i>Moving windows with custom function</i>
---------	--

Description

Windowed / rolling operations on a vector, with a custom function fun provided as input.

Usage

```
rollfun(x, k, fun = "mean", ..., .idx = NULL)
make_idx(k, n)
```

Arguments

x	A vector.
k	integer. Width of moving window; must be an integer between one and length(x).
fun	character or function. The function to be applied on moving subvectors of x.
...	Additional arguments to be passed to fun.
.idx	integer. A vector of indices that can be precalculated with the function make_idx.
n	integer. Length of the input vector x.

See Also

Functions roll_mean and others in package **RcppRoll** for a more efficient implementation of rollfun to specific values of fun.

Similarly, see functions rollmean and others in package **zoo** and functions runmean and others in package **caTools**.

Examples

```
set.seed(1)
x <- sample(1:10)
rollfun(x, k = 3)
rollfun(x, k = 3, fun = max)
```

sessionPackages	<i>Shows packages attached to the current R session</i>
-----------------	---

Description

The function `sessionPackages` prints the list of packages attached to the current R session.

Usage

```
sessionPackages(package = NULL)
```

Arguments

`package` a character vector naming installed packages, or `NULL` (the default) meaning all attached packages.

Details

This function reuses part of the code from [sessionInfo](#).

Value

A list with the following components:

- `basePkgs`: a character vector of base packages which are attached.
- `otherPkgs` (not always present): a character vector of other attached packages.

See Also

[sessionInfo](#) from package **utils**, [R.version](#) from package **base**.

Examples

```
sessionPackages()
```

stopif	<i>Ensure that R expressions are false</i>
--------	--

Description

If any of the expressions in ... are not all FALSE, stop is called, producing an error message indicating the first of the elements of ... which were not false.

Usage

```
stopif(...)
```

Arguments

... Any number of (logical) R expressions, which should evaluate to TRUE.

Value

(NULL if all statements in ... are FALSE.)

See Also

[stopifnot](#) from package **base**.

Examples

```
## Not run:  
stopif(is.empty(c(2,1)), 4 < 3) # all FALSE  
stopif(is.empty(numeric(0)))  
  
## End(Not run)
```

sumNA	<i>Modified sum of vector elements</i>
-------	--

Description

The function sumNA returns the sum of all the values in its arguments. Contrarily to [sum](#), it returns NA instead of 0 when the input contains only missing values and missing values are removed.

Usage

```
sumNA(..., na.rm = FALSE)
```

Arguments

... numeric or complex or logical vectors.
na.rm logical. Should missing values (including NaN) be removed?

Value

The sum. Returns NA if x contains only missing values and na.rm = TRUE.

See Also

[sum](#).

Examples

```
x <- c(NA, NA)
sum(x)
sumNA(x)
sum(x, na.rm = TRUE)
sumNA(x, na.rm = TRUE) # here is the difference with 'sum()'

sum(c())
sumNA(c())
```

top

Top or bottom element of an object

Description

top(x) is an alias for head(x, 1L). bot(x) is an alias for tail(x, 1L).

Usage

```
top(x)
```

```
bot(x)
```

Arguments

x an object.

Value

An object (usually) like x but generally smaller.

See Also

[head](#) and [head](#) from package **utils**

trim	<i>Removes extra whitespaces from a string</i>
------	--

Description

The function `trim` removes unnecessary whitespaces from a character vector.

Usage

```
trim(x)
```

Arguments

`x` character. The character vector at stake.

Value

A character vector of the same length as `x`.

See Also

[gsub](#), [trimws](#).

Examples

```
trim(c(" a b", "Hello World "))
```

unwhich	<i>Quasi-inverse of the 'which' function</i>
---------	--

Description

The `unwhich` function is a kind of inverse of the [which](#) function.

Usage

```
unwhich(w, n)
```

Arguments

`w` A vector of integers; morally the result of a call to `which`.
`n` integer. The length of the result; morally the length of the `x` argument of a call to `which`.

Value

A logical vector of length n.

See Also

[which](#).

Examples

```
x1 <- c(TRUE, FALSE, TRUE, TRUE)
x2 <- unwhich(which(x1), length(x1))
identical(x1, x2) # TRUE

w1 <- c(2, 4, 5, 1, 1)
w2 <- which(unwhich(w1, 10))
identical(sort(unique(as.integer(w1))), w2) # TRUE
```

verlan

Back slang

Description

The `verlan` function reverses the order of the characters in a string.

Usage

```
verlan(x)
```

Arguments

`x` character. A vector of strings.

Value

A character vector of the same length as `x`.

Examples

```
verlan("baba") ## "abab"
verlan(c("radar", "paul")) ## c("radar", "luap")
```

%nin%

Value matching

Description

The function %nin% is the negation of the function %in%.

Usage

```
x %nin% table
```

Arguments

x	vector or NULL: the values to be matched.
table	vector or NULL: the values to be matched against.

Value

A logical vector, indicating if a non-match was located for each element of x: thus the values are TRUE or FALSE and never NA.

See Also

[match](#).

Examples

```
1:10 %nin% c(1,3,5,9)
```

%%?

If-Then-Else ternary operator

Description

This is a C like ternary operator, the syntax being condition %%? true %:% false.

Usage

```
condition %%? true
```

```
lhs %:% false
```

Arguments

condition	logical. A vector.
true, false	Values to use for TRUE and FALSE values of condition. They must be either the same length as condition, or length 1.
lhs	Left-hand side of %:%, which should come from the result of a %?? call.

Value

If `length(x) > 1`, then `ifelse` is used.

Author(s)

Richie Cotton, see <https://stackoverflow.com/a/8791496/3902976>; Paul Poncet for the small modifications introduced.

Examples

```
(capitalize <- sample(c(TRUE, FALSE), 1))
capitalize %?? LETTERS[1:3] %:% letters[1:2]

# Does not work
## Not run:
capitalize %?? 1*1:3 %:% 1:2

## End(Not run)

# Does work
capitalize %?? {1*1:3} %:% 1:2

# Does work too
capitalize %?? (1*1:3) %:% 1:2

# Vectorized version also works
c(capitalize,!capitalize) %?? "A" %:% c("b","c")

# Chaining operators is permitted
FALSE %?? "a" %:%
  (FALSE %?? "b") %:%
  (capitalize %?? "C") %:% "c"
```

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