

Package ‘Orcs’

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Type Package

Title Omnidirectional R Code Snippets

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Description I tend to repeat the same code chunks over and over again. At first, this was fine for me and I paid little attention to such redundancies. A little later, when I got tired of manually replacing Linux filepaths with the referring Windows versions, and vice versa, I started to stuff some very frequently used work-steps into functions and, even later, into a proper R package. And that's what this package is - a hodgepodge of various R functions meant to simplify (my) everyday-life coding work without, at the same time, being devoted to a particular scope of application.

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URL <https://github.com/fdetsch/Orcs>

BugReports <https://github.com/fdetsch/Orcs/issues>

LazyData TRUE

Depends R (>= 2.10), methods, raster

Imports bookdown, grDevices, grid, knitr, lattice, latticeExtra, plotrix, Rcpp (>= 0.11.3), remotes, rgdal, sf, sp, stats

LinkingTo Rcpp

RoxygenNote 7.0.2

SystemRequirements GNU make, 7zip, unix2dos

Suggests testthat, rmarkdown

VignetteBuilder knitr

Encoding UTF-8

NeedsCompilation yes

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R topics documented:

Orcs-package	3
assignSSH	3
buildBook	4
bumpVersion	5
compareDistributions	6
coords2Lines	7
coords2Polygons	8
evalMetrics	9
ext2spy	10
ifMissing	11
KiLi	12
latticeCombineGrid	12
latticeCombineLayer	14
lineEnding	15
list2df	16
loadFromGit	17
loadPkgs	17
meanDifference	18
merge	19
multiKnit	20
offsetGridText	21
OrcsCppFun	22
par7zip	23
pureBasename	24
pvalue	25
rgb2spLayout	26
rmDuplCols	27
setwdOS	28
stextGrob	29
substrC	30
trimImages	31
unlistStrsplit	32
unsortedFactor	33
Index	34

Orcs-package	<i>Omnidirectional R Code Snippets.</i>
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Description

Omnidirectional R Code Snippets

Details

The package provides a variety of functions which I regularly use during my everyday work.

Author(s)

Florian Detsch

Maintainer: Florian Detsch <florian.detsch@staff.uni-marburg.de>

assignSSH	<i>Assign SSH Key to Local Git Repository</i>
-----------	---

Description

Assign an SSH key to a local Git repository to bypass user/password prompts during `git push`. See [Generating an SSH Key](#) for further information on how to generate an SSH key and add it to your GitHub account.

Usage

```
assignSSH(user, repo)
```

Arguments

user	GitHub user name as character. If not specified, information on GitHub user and repository name is taken from the current working environment.
repo	GitHub repository name as character, see 'user'.

See Also

<https://help.github.com/articles/generating-an-ssh-key/>

Examples

```
## Not run:  
## for an arbitrary git repository  
assignSSH()  
  
## for this very git repository  
assignSSH(user = "fdetsch", repo = "Orcs")  
  
## End(Not run)
```

buildBook

Build a Book without Underscores

Description

Since the use of underscores ('_') is not permitted when streaming **bookdown** documents via [GitHub Pages](#), this wrapper function serves to remove any unwanted underscores from subfolders and link .html documents created by [render_book](#).

Usage

```
buildBook(output_dir = "book", ...)
```

Arguments

output_dir	Output directory as character.
...	Arguments passed to render_book .

Note

While all remaining arguments passed to [render_book](#) remain untouched, and hence, their specification is freely up to the user, the default value of 'output_dir' is explicitly set to "book" here. If this were not the case (i.e. if the default value were used), the output document would be created in "_book" which is not desirable for obvious reasons.

Author(s)

Florian Detsch

See Also

[render_book](#).

`bumpVersion`*Bump package 'Version:' and 'Date:' in DESCRIPTION file*

Description

This function lets you bump the version number and creation date of your package's DESCRIPTION file. Additionally, it bumps the version numbers of a NEWS.md file and automatically generates a corresponding plain NEWS file (for R-help pages). Supported versioning system is **MAJOR.MINOR.PATCH**.

Usage

```
bumpVersion(  
  element = "patch",  
  pkg.repo = ".",  
  news = file.path(pkg.repo, "NEWS.md"),  
  plain_news = TRUE  
)
```

Arguments

<code>element</code>	character, one of "major", "minor", "patch" (default) to be bumped.
<code>pkg.repo</code>	Path to package repository folder. Default is current working directory ("").
<code>news</code>	The NEWS.md file of the repo (assumed to be in top level path). If this exists, the first line of that file will be rewritten to be "<packagename> <major.minor.patch>". Note that the current implementation assumes that the NEWS file is in .md format, thus NEWS.md. A plain NEWS file (for R-help pages) will be generated automatically.
<code>plain_news</code>	whether to generate a plain NEWS file in the package root directory from the NEWS.md file supplied to argument news.

Author(s)

Tim Appelhans

See Also

<https://semver.org/>

compareDistributions *Compare two density distributions side by side*

Description

This function will produce a plot of two density functions displayed side by side

Usage

```
compareDistributions(  
  left,  
  right,  
  add.spread = TRUE,  
  print.stats = TRUE,  
  xlim = NULL,  
  ylim = NULL,  
  clr = c("purple", "lightblue"),  
  xlab = "density",  
  ylab = "value",  
  ...  
)
```

Arguments

left	numeric vector.
right	numeric vector.
add.spread	logical, whether to plot the spread (q25 to q75 and the median).
print.stats	logical, whether to print summary statistics for each distribution.
xlim, ylim	numeric axis limits, see xyplot .
clr	A character vector of length 2 specifying the colors for the filled density regions.
xlab, ylab	character axis labels, see plot .
...	Additional arguments passed to density .

Value

A trellis object.

Author(s)

Tim Appelhans

Examples

```

compareDistributions(rnorm(1000, 2, 3), rnorm(1000, -5, 1))
compareDistributions(rnorm(1000, 2, 3), rnorm(1000, -5, 1),
  add.spread = FALSE)
compareDistributions(rnorm(1000, 2, 3), rnorm(1000, -5, 1),
  add.spread = TRUE, clr = c("red", "brown"))
compareDistributions(rnorm(1000, 2, 5), rnorm(1000, -5, 4),
  print.stats = FALSE, add.spread = FALSE)

## pass additional parameters to density()
compareDistributions(rnorm(1000, 2, 5), rnorm(1000, -5, 4),
  print.stats = FALSE, add.spread = FALSE, bw = 5)
compareDistributions(rnorm(1000, 2, 5), rnorm(1000, -5, 4),
  print.stats = FALSE, add.spread = FALSE, bw = 8,
  kernel = "rectangular")
compareDistributions(rnorm(1000, 2, 5), rnorm(1000, -5, 4),
  print.stats = FALSE, add.spread = TRUE, bw = 8,
  n = 3)
compareDistributions(rnorm(1000, 2, 5), rnorm(1000, -5, 4),
  print.stats = TRUE, add.spread = TRUE, bw = 0.1)
compareDistributions(rnorm(1000, 2, 5), rnorm(1000, -5, 4),
  print.stats = TRUE, add.spread = TRUE, bw = 0.5)

```

 coords2Lines

*Convert points to SpatialLines**

Description

Create a `SpatialLines*` object from a `Line` object or set of point coordinates in one go, i.e. without being required to run through the single steps outlined in [SpatialLines](#).

Usage

```
## S4 method for signature 'matrix'
coords2Lines(coords, ID, data, match.ID = TRUE, ...)
```

```
## S4 method for signature 'Line'
coords2Lines(coords, ID, data, match.ID = TRUE, ...)
```

Arguments

coords	Line object or 2-column numeric matrix with x and y coordinates.
ID	character, see Lines .
data	data.frame with data to add to the output <code>SpatialLines*</code> object (optional).
match.ID	logical, see SpatialLinesDataFrame .
...	Further arguments passed on to SpatialLines (i.e., <code>proj4string</code>).

Value

If data is missing, a `SpatialLines` object; else a `SpatialLinesDataFrame` object.

See Also

[SpatialLines-class](#), [SpatialLinesDataFrame](#).

Examples

```
library(sp)

coords1 <- cbind(c(2, 4, 4, 1, 2), c(2, 3, 5, 4, 2))
sln1 <- coords2Lines(coords1, ID = "A")

coords2 <- cbind(c(5, 4, 2, 5), c(2, 3, 2, 2))
sln2 <- coords2Lines(coords2, ID = "B")

plot(sln1, col = "grey75")
plot(sln2, col = "grey25", add = TRUE)
```

 coords2Polygons

*Convert points to SpatialPolygons**

Description

Create a `SpatialPolygons*` object from a `Polygon` object or set of point coordinates in one go, i.e. without being required to run through the single steps outlined in [SpatialPolygons](#).

Usage

```
## S4 method for signature 'matrix'
coords2Polygons(coords, hole = NA, ID, data, match.ID = TRUE, ...)

## S4 method for signature 'Polygon'
coords2Polygons(coords, ID, data, match.ID = TRUE, ...)
```

Arguments

<code>coords</code>	Polygon object or 2-column numeric matrix with x and y coordinates.
<code>hole</code>	logical, see Polygon .
<code>ID</code>	character, see Polygons .
<code>data</code>	<code>data.frame</code> with data to add to the output <code>SpatialPolygons*</code> object (optional).
<code>match.ID</code>	logical, see SpatialPolygonsDataFrame .
<code>...</code>	Further arguments passed on to SpatialPolygons (i.e., <code>p0</code> and <code>proj4string</code>).

Value

If data is missing, a SpatialPolygons object; else a SpatialPolygonsDataFrame object.

See Also

[SpatialPolygons-class](#), [SpatialPolygonsDataFrame](#).

Examples

```
library(sp)

coords1 <- cbind(c(2, 4, 4, 1, 2), c(2, 3, 5, 4, 2))
spy1 <- coords2Polygons(coords1, ID = "A")

coords2 <- cbind(c(5, 4, 2, 5), c(2, 3, 2, 2))
spy2 <- coords2Polygons(coords2, ID = "B")

plot(spy1, col = "grey75")
plot(spy2, col = "grey25", add = TRUE)
```

evalMetrics

Compute Selected Evaluation Metrics

Description

Compute selected evaluation metrics for binary (i.e. two-class) confusion matrices.

Usage

```
evalMetrics(mat, type = c("accuracy", "precision", "recall"))
```

Arguments

mat	Binary confusion matrix (2-by-2; see Examples).
type	Target evaluation metric as character, defaults to "accuracy". Other available options are "precision" and "recall".

Value

A single numeric.

Author(s)

Florian Detsch

References

University of Michigan (2017) Applied Machine Learning in Python. Available online: <https://www.coursera.org/learn/python-machine-learning/home/welcome>.

Examples

```
in1 = matrix(c(96, 4, 8, 19), nc = 2L, byrow = TRUE)
rownames(in1) = c("Condition Positive", "Condition Negative")
colnames(in1) = c("Predicted Positive", "Predicted Negative")

evalMetrics(in1) # default: "accuracy"
evalMetrics(in1, "precision")
evalMetrics(in1, "recall")

in2 = matrix(c(26, 17, 7, 400), nc = 2, byrow = TRUE)
evalMetrics(in2, "precision")
evalMetrics(in2, "recall")
```

ext2spy

Convert Spatial Extent to Polygon

Description

Convert a spatial extent to polygons.

Usage

```
ext2spy(x, crs = "+init=epsg:4326", as_sf = TRUE)
```

Arguments

x	An Extent object, or any object from which an Extent can be extracted, e.g. Raster*.
crs	Coordinate reference system passed to proj4string .
as_sf	logical. If TRUE (default), the returned object is of class sf rather than Spatial*.

Value

Depending on 'as_sf', either a sf or SpatialPolygons object.

Author(s)

Florian Detsch

See Also

[extent](#).

Examples

```
ext = extent(c(25, 70, -5, 30))
ext2spy(ext) # 'sf' (default)
ext2spy(ext, as_sf = FALSE) # 'Spatial*'
```

ifMissing	<i>Take measures in case of nonexistent target files</i>
-----------	--

Description

If a target file already exists, it is simply being imported into R. However, if the specified target file does not exist, it is first created by a user-defined function and subsequently returned, thus rendering explicit calls to [file.exists](#) unnecessary.

Usage

```
ifMissing(ofl, fun0 = raster::brick, fun1 = raster::writeRaster, arg1, ...)
```

Arguments

ofl	Target file name as character.
fun0	If 'ofl' exists, function to be applied to it (defaults to brick).
fun1	If 'ofl' does not exist, function used to create it (defaults to writeRaster).
arg1	Argument in 'fun1' (as character) that corresponds to 'ofl', e.g. filename in writeRaster or file in write.table . If missing (default), the target file name passed to 'fun1' needs to be explicitly included via '...'. ...
...	Additional arguments passed to 'fun0,fun1'.

Value

If 'ofl' has already existed, the contents of 'ofl' derived from 'fun0'; else the output resultant from 'fun1'.

Author(s)

Florian Detsch

See Also

[file.exists](#), [do.call](#).

Examples

```
# simply import existing file
logo <- system.file("external/rlogo.grd", package = "raster")
s <- ifMissing(logo)

# create nonexisting file and import it afterwards
logo2 <- file.path(tempdir(), "rlogo.tif")
s2 <- ifMissing(logo2, arg1 = "filename", x = s, datatype = "INT1U")

# this also works with text files and more sophisticated custom functions
fun = function(x, file = "", ...) {
  write.csv(x, file, ...)
  read.csv(file)
}

data(iris)
of1 <- file.path(tempdir(), "iris.csv")
iris2 <- ifMissing(of1, fun1 = fun, x = iris, file = of1, quote = FALSE, row.names = FALSE)
```

 KiLi

Bing Aerial Image of Kilimanjaro

Description

Bing aerial image of Kilimanjaro downloaded from [OpenStreetMap](#).

Format

A "RasterStack-class" with 3 bands (red, green, blue).

Details

Copyright: OpenStreetMap contributors, see <https://www.openstreetmap.org/copyright>.

 latticeCombineGrid

Combine multiple lattice plots in a faceted grid (panels)

Description

This function combines multiple **lattice** plot objects in a faceted grid. Note that the global plot settings (e.g. xlim, ylim, ...) are taken from the first object though the user can specify whether scales should be identical or not. This is particularly useful when looping over large amounts of data using `lapply` (see examples).

Usage

```
latticeCombineGrid(  
  trellis.list,  
  between = list(y = 0.3, x = 0.3),  
  as.table = TRUE,  
  ...  
)
```

Arguments

<code>trellis.list</code>	A list containing lattice plot objects.
<code>between</code>	Space between panels.
<code>as.table</code>	If TRUE (default) drawing is top left to bottom right
<code>...</code>	Additional arguments passed to c.trellis .

Value

A single **lattice** plot object.

Author(s)

Tim Appelhans

See Also

[c.trellis](#).

Examples

```
#load data  
#Use a probability map assuming high potential for city expansion is just  
#resulting from proximity to current urban area:  
pred <- raster(system.file("extdata/probability.rst", package = "Orcs"))  
  
#observed city growth between 1990 and 2006  
obs <- raster(system.file("extdata/citygrowth.tif", package = "Orcs"))  
  
#masking current urban area since these pixels have no potential for change  
mask <- raster(system.file("extdata/citymask.tif", package = "Orcs"))  
  
#create data list  
dat <- list(pred, obs, mask)  
  
#create list of lattice plots  
plist <- lapply(seq(dat), function(i) {  
  spplot(dat[[i]], scales = list(draw = TRUE))  
})  
  
#draw individually
```

```
p1list[[1]]
p1list[[2]]
p1list[[3]]

#combine to grid, using c(1, 3) layout
p <- latticeCombineGrid(p1list, layout = c(1, 3))
print(p)
```

`latticeCombineLayer` *Combine multiple lattice plots layerwise*

Description

This function combines multiple **lattice** plot objects drawing each as a layer on top of the previous plots. Note that the global plot settings (e.g. `xlim`, `ylim`, ...) are taken from the first object. This is particularly useful when looping over large amounts of data using [lapply](#) (see examples).

Usage

```
latticeCombineLayer(trellis.list, ...)
```

Arguments

`trellis.list` A list containing **lattice** plot objects.
`...` Additional arguments passed to [as.layer](#).

Value

A single **lattice** plot object.

Author(s)

Tim Appelhans

See Also

[as.layer](#).

Examples

```
library(latticeExtra)
dat <- list(1:10,
           10:1,
           3:7,
           7:3)

p1list <- lapply(seq(dat), function(i) {
```

```
tmp <- xyplot(dat[[i]] ~ seq(dat[[i]]),
              type = "l", col = i)
})

p <- latticeCombineLayer(plist)

print(p)
```

lineEnding*Convert between DOS and UNIX line endings*

Description

This function converts between DOS and UNIX style line endings by invoking `unix2dos` (or `dos2unix`) upon a text file (see also `system("unix2dos --help")`). Note that 'unix2dos' must be installed on your local system, see Source.

Usage

```
lineEnding(infile, pattern = NULL, outfile = NULL, to = c("dos", "unix"), ...)
```

Arguments

<code>infile</code>	Input filename(s).
<code>pattern</code>	See list.files . This will be ignored if 'infile' is specified.
<code>outfile</code>	Output filename. If not supplied, 'infile' will be overwritten.
<code>to</code>	Either 'dos' or 'unix'.
<code>...</code>	Additional arguments passed to list.files , only applicable if 'infile' is not specified.

Author(s)

Florian Detsch

Source

[Dos2Unix/Unix2Dos Text file format converters](#)

See Also

[list.files](#), [system](#)

Examples

```
## input file
infile <- paste(system.file(package = "Orcs"), "DESCRIPTION", sep = "/")

## convert to dos line endings and write to output file
of1 = file.path(tempdir(), "DESCRIPTION4wd")
lineEnding(infile, outfile = of1, to = "dos")
```

list2df	<i>Create data.frame from list</i>
---------	------------------------------------

Description

Create a `data.frame` from a list directly, *i.e.* without being required to explicitly call `rbind` first.

Usage

```
list2df(x, bind = c("rows", "cols"), ...)
```

Arguments

<code>x</code>	A list object.
<code>bind</code>	Binding direction. Available options are "rows" (default) and "cols" for <code>rbind</code> and <code>cbind</code> , respectively.
<code>...</code>	Additional arguments passed to <code>data.frame</code> .

Value

A `data.frame` object.

See Also

[data.frame](#), [rbind](#), [cbind](#).

Examples

```
lst <- list(letters[1:3], letters[4:6], letters[7:9])

do.call("rbind", lst) # results in matrix
list2df(lst)         # results in data.frame created using rbind()
list2df(lst, bind = "cols") # same for cbind()
```

loadFromGit	<i>Install and load a package from GitHub</i>
-------------	---

Description

This function comprises multiple steps required to install and load a package directly from GitHub.

Usage

```
loadFromGit(repo = "fdetsch/Orcs", ...)
```

Arguments

repo	Repository address as character, defaults to "fdetsch/Orcs".
...	Additional arguments passed to install_github .

Author(s)

Florian Detsch

See Also

[install_github](#)

Examples

```
## Not run:  
## install 'Orcs' development version from GitHub  
loadFromGit("fdetsch/Orcs", ref = "develop")  
  
## End(Not run)
```

loadPkgs	<i>Load multiple packages</i>
----------	-------------------------------

Description

Load and attach multiple packages at once.

Usage

```
loadPkgs(pkgs, ...)
```

Arguments

pkgs Packages to load as character.
... Additional arguments passed to [library](#), except for 'character.only' which is set to TRUE.

Note

Package startup messages are automatically disabled.

Author(s)

Florian Detsch

See Also

[library](#).

Examples

```
loadPkgs(c("raster", "rgdal"))
```

meanDifference *Calculate mean difference between two datasets*

Description

Calculate the mean difference between two datasets as suggested by Wang *et al.* (2012).

Usage

```
## S4 method for signature 'RasterLayer'  
meanDifference(x, y)  
  
## S4 method for signature 'numeric'  
meanDifference(x, y)
```

Arguments

x, y Objects of class RasterLayer or numeric.

Value

The mean difference between the two inputs either as RasterLayer or numeric.

Source

Wang *et al.* (2012) Impact of sensor degradation on the MODIS NDVI time series. Remote Sensing of Environment 119, 55-61, doi:[10.1016/j.rse.2011.12.001](https://doi.org/10.1016/j.rse.2011.12.001).

Detsch *et al.* (2016) A Comparative Study of Cross-Product NDVI Dynamics in the Kilimanjaro Region - A Matter of Sensor, Degradation Calibration, and Significance. Remote Sensing 8(2), 159, doi:[10.3390/rs8020159](https://doi.org/10.3390/rs8020159).

Examples

```
x <- 1:10
y <- 2:11
meanDifference(x, y)
```

merge

Merge Objects Stored in a List

Description

Complementing existing merge methods, e.g. [merge](#) for Raster* objects, which typically work with one or two inputs only, this function accepts a list of objects that are to be merged together.

Usage

```
## S4 method for signature 'list,missing'
merge(x, by = 1L, all = TRUE, ...)
```

Arguments

x	A list of objects of the same type (e.g. Raster* or data.frame).
by, all	See merge.data.frame . Ignored if data stored in 'x' is not of class data.frame.
...	Additional arguments passed to the underlying merge method (e.g. arguments compatible with merge and writeRaster for Raster* input). Ignored if data stored in 'x' is of class data.frame.

Value

A merged object (e.g. a new Raster* object with a larger spatial extent).

Author(s)

Florian Detsch

See Also

[merge.data.frame](#), [do.call](#), [Reduce](#).

Examples

```
## Raster* input
dms = list.files(system.file("extdata", package = "Orcs")
                 , pattern = "ASTGMT2.*dem.tif$", full.names = TRUE)
dms = lapply(dms, raster)

dem = merge(dms, tolerance = 1e4)
plot(dem)

## data.frame input
mrg = merge(list(iris, iris, iris)
            , by = c("Species", "Sepal.Length", "Petal.Width"))
head(mrg)
```

multiKnit

Convert multiple R Markdown files to ordinary Markdown

Description

This function is a convenient wrapper around [knit](#) as it automatically converts multiple R Markdown files (.Rmd) located in a specified folder (and, optionally, matching a particular pattern) to standard Markdown (.md).

Usage

```
multiKnit(path_in = ".", path_out = path_in, pattern = "*.Rmd$", ...)
```

Arguments

<code>path_in</code>	Input file path as character, defaults to the current working directory.
<code>path_out</code>	Output file path as character, defaults to <code>'path_in'</code> .
<code>pattern</code>	Passed to list.files , defaults to <code>"*.Rmd"</code> .
<code>...</code>	Additional arguments passed to knit .

Value

Output filenames as character.

Author(s)

Florian Detsch

See Also

[knit](#)

offsetGridText *Insert offset text annotation into 'trellis' plot*

Description

This is a wrapper function around `Orcs:::calcOffsetGridText` and **grid**-based text drawing functions (currently including `grid.text` and `grid.stext`) that automatically adds offset text annotations to a 'trellis' plot.

Usage

```
offsetGridText(
  x,
  y = NULL,
  labels,
  xlim = NULL,
  ylim = NULL,
  pos = NULL,
  stext = FALSE,
  offset = 0.02,
  ...
)
```

Arguments

<code>x</code>	A numeric vector containing x coordinates, or a 2-column matrix containing x and y coordinates.
<code>y</code>	A numeric vector containing y coordinates, or NULL if 'x' is a two-column matrix.
<code>labels</code>	The text to be written as character.
<code>xlim, ylim</code>	X and Y-axis limits (c(min,max)) of the current plot. If not supplied, limits are automatically calculated from supplied x and y coordinates.
<code>pos</code>	Text position specifier(s) as integer used by <code>text</code> . If not supplied, optimal text positions will be determined with respect to neighboring locations using <code>thigmophobe</code> .
<code>stext</code>	logical, defaults to FALSE. If TRUE, shadow text will be drawn around 'labels'.
<code>offset</code>	A numeric offset in normalized parent coordinates ("npc", see <code>unit</code>).
<code>...</code>	Additional arguments passed to the respective grid text drawing function (depends on 'stext').

Author(s)

Florian Detsch

See Also

[grid.text](#), [grid.stext](#), [thigmophobe](#), `Orcs::calcOffsetGridText`.

Examples

```
stopifnot(
  require(sf)
  , require(latticeExtra)
  , require(grid)
)

# kilimanjaro peaks
peaks = data.frame(Peak = c("Kibo", "Mawenzi", "Shira")
  , Lon = c(37.359031, 37.455061, 37.210408)
  , Lat = c(-3.065053, -3.095436, -3.038222))

coordinates(peaks) = ~ Lon + Lat
proj4string(peaks) = "+init=epsg:4326"

# visualization
xlim_kili <- c(37.15, 37.55)
ylim_kili <- c(-3.25, -2.9)

p = spplot(KiLi[[1]], col.regions = "transparent", colorkey = FALSE,
  xlim = xlim_kili, ylim = ylim_kili,
  scales = list(draw = TRUE, y = list(rot = 90)),
  sp.layout = rgb2spLayout(KiLi, quantiles = c(0, 1), alpha = .8)) +
  layer(sp.points(peaks, cex = 1.5, pch = 20, col = "black"))

print(p)

downViewport(trellis.vpname(name = "figure"))
offsetGridText(x = coordinates(peaks), labels = peaks$Peak,
  xlim = xlim_kili, ylim = ylim_kili, stext = TRUE, offset = .02,
  gp = gpar(fontsize = 16))
```

OrcsCppFun

Dimensions of a data.frame

Description

Similar to base-R `nrow`, `ncol` and `dim`, this set of functions let's you retrieve the number of rows and columns of a `data.frame`.

Usage

```
nrowC(x)
```

```
ncolC(x)
```

```
dimC(x)
```

Arguments

x A data.frame.

Value

dimC returns an 'integer' vector of length 2 (number of rows and columns); nrowC (or ncolC) returns the number of rows (or columns) as a single 'integer'.

Functions

- nrowC:
- ncolC:
- dimC:

Author(s)

Florian Detsch

See Also

[nrow](#), [ncol](#), [dim](#).

Examples

```
dat <- data.frame(a = 1:4, b = 2:5, c = 3:6)
```

```
nrowC(dat)
```

par7zip

Parallelized 7-zip compression

Description

By calling the Unix terminal or Windows command prompt, this function performs parallelized 7-zip compression of selected files based on the built-in **parallel** package.

Usage

```
par7zip(outfile, nodes = 1L, ...)
```

Arguments

outfile	Target file for compression as character. A file extension compatible with 7-zip needs to be included, see Supported formats . If missing, this defaults to the found input file names with a .7z extension attached.
nodes	Number of cores to use for parallelization as integer, defaults to 1.
...	Additional arguments passed to list.files .

Value

Output filename(s) as character.

Author(s)

Florian Detsch

See Also

[list.files](#), [system](#)

pureBasename	<i>Return file name without extension</i>
--------------	---

Description

As opposed to [basename](#), this function returns the pure basename of one or multiple file names, i.e. without extension.

Usage

```
pureBasename(path, slash = FALSE)
```

Arguments

path	File name(s) as character.
slash	A logical determining whether to add a leading slash ("/") to the returned file name.

Value

File name(s) without extension as character.

Author(s)

Florian Detsch

See Also

[basename](#), [file_path_sans_ext](#).

Examples

```
fls <- system.file("external/rlogo.grd", package = "raster")
pureBasename(fl)
pureBasename(fl, slash = TRUE)
```

pvalue	<i>Get p-value from 'lm' object</i>
--------	-------------------------------------

Description

Retrieve the p -value associated with a univariate linear regression.

Usage

```
pvalue(mod)
```

Arguments

mod An object of class lm.

Value

A numeric p -value.

Source

[retrieving p-values in lm](#) on R-help mailing list (last accessed 2018-06-02).

See Also

[lm](#).

Examples

```
## taken from ?lm
ctl <- c(4.17, 5.58, 5.18, 6.11, 4.50, 4.61, 5.17, 4.53, 5.33, 5.14)
trt <- c(4.81, 4.17, 4.41, 3.59, 5.87, 3.83, 6.03, 4.89, 4.32, 4.69)
group <- gl(2, 10, 20, labels = c("Ctl", "Trt"))
weight <- c(ctl, trt)
lm.D9 <- lm(weight ~ group)

pvalue(lm.D9)
```

`rgb2spLayout`*Convert an RGB RasterBrick/Stack to use with `splot`*

Description

This function takes a red-green-blue Raster* object and produces a list with color information that can be passed on to the 'sp.layout' argument from [splot](#).

Usage

```
rgb2spLayout(x, quantiles = c(0.02, 0.98), alpha = 1)
```

Arguments

<code>x</code>	A 3-layered Raster* object.
<code>quantiles</code>	Upper and lower quantiles used for color stretching.
<code>alpha</code>	Level of transparency.

Author(s)

Tim Appelhans, Florian Detsch

See Also

[plotRGB](#)

Examples

```
library(raster)
library(sp)

b <- brick(system.file("external/rlogo.grd", package="raster"))

## using plotRGB
plotRGB(b)

## convert brick to list
lout <- rgb2spLayout(b)
lout_alph <- rgb2spLayout(b, alpha = 0.5)

## create random spatial points for plotting
df <- data.frame(dat = rnorm(100, 2, 1),
                 x = rnorm(100, 50, 20),
                 y = rnorm(100, 50, 25))
coordinates(df) <- ~x+y

## plot spatial points with rgb background
splot(df, sp.layout = lout)
splot(df, sp.layout = lout_alph)
```

rmDuplCols	<i>Remove duplicated columns from data.frame</i>
------------	--

Description

Automatically detect and remove columns from a `data.frame` based on duplicated headers.

Usage

```
rmDuplCols(x, keep_first = TRUE, ...)
```

Arguments

<code>x</code>	Input <code>data.frame</code> .
<code>keep_first</code>	A logical determining whether the first column of an otherwise duplicated header should be kept, defaults to <code>TRUE</code> .
<code>...</code>	Currently not in use.

Value

Revised `data.frame`.

Author(s)

Florian Detsch

See Also

[duplicated](#)

Examples

```
## sample data
set.seed(123)
dat <- data.frame(matrix(rnorm(28), nc = 7))
names(dat) <- c("Col1", "Col1", "Col1", "Col2", "Col3", "Col3", "Col4")

dat
rmDuplCols(dat)
rmDuplCols(dat, keep_first = FALSE)
```

setwdOS

Set working directory dependent on current OS

Description

Similar to [setwd](#), this function sets the working directory to a user-defined path. Rather than supplying a single 'dir' argument, however, both an OS-sensitive path to the desired hard disk partition and, optionally, an extension of this file path are required.

Usage

```
setwdOS(lin = "/media/permanent/", win = "C:/", ext = NULL)
```

Arguments

lin, win	Absolute file paths to the Linux and Windows partition as character.
ext	Optional file path extension as character that will be added to 'lin' or 'win' after automatic OS determination.

Author(s)

Florian Detsch

See Also

[setwd](#), [switch](#)

Examples

```
## Not run:  
# desired partition  
setwdOS()  
  
# including file path extension  
setwdOS(ext = "kilimanjaro/nubiscope")  
  
## End(Not run)
```

`stextGrob`*Draw Shadow Text*

Description

Create and draw shadow text by wrapping a textual expression into a colored framing.

Usage

```
stextGrob(  
  label,  
  x = grid::unit(0.5, "npc"),  
  y = grid::unit(0.5, "npc"),  
  col = "white",  
  fill = "black",  
  r = 0.1,  
  gp = grid::gpar(),  
  vp = NULL,  
  name = NULL,  
  ...  
)
```

Arguments

<code>label</code>	A character or expression vector, see textGrob .
<code>x, y</code>	Horizontal and vertical text position as unit objects passed to grid.text .
<code>col, fill</code>	Framing and fill color passed to gpar .
<code>r</code>	Blur radius of colored framing as numeric.
<code>name, gp, vp</code>	Graphical parameters passed to gTree .
<code>...</code>	Additional arguments passed to grid.text .

Value

A text grob created by [gTree](#).

Author(s)

Baptiste Auguie, Florian Detsch

See Also

[grid.text](#).

Examples

```
library(grid)
grid.newpage()
grid.rect(gp = gpar(fill = "grey"))
grid.stext("test")
```

substrC*Substrings of a Character Vector (C++ Style)*

Description

Extract substrings from a character vector in C++.

Usage

```
substrC(x, pos, len)
```

Arguments

x	A character vector.
pos	The start point of the substring as integer. Position indications start from 1, which is the default in R.
len	The length of the substring as integer.

Value

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

See Also

<http://www.cplusplus.com/reference/string/string/substr/>, [substr](#).

Examples

```
substrC("Hello, world!", pos = 1, len = 5)
```

trimImages	<i>Remove whitespace from images</i>
------------	--------------------------------------

Description

This is a wrapper function around `convert -trim` to automatically remove any whitespace from locally saved images. Note that 'ImageMagick' must be installed on your local system, see Source.

Usage

```
trimImages(path = ".", pattern = c(".png$", ".tiff$"))
```

Arguments

path	File path leading to image files as character, defaults to the current working directory.
pattern	Character. A regular expression as character accepted by <code>list.files</code> , defaults to <code>c(".png\$", ".tiff\$")</code> .

Value

A character vector containing the names of the processed images.

Author(s)

Florian Detsch

Source

Ooms J (2018) [The **magick** package: Advanced Image-Processing in R.](#)

See Also

[list.files](#), [system](#)

Examples

```
## Not run:
## trim image of bart simpson
download.file("http://pngimg.com/uploads/simpsons/simpsons_PNG93.png?i=1"
             , destfile = (of1 <- file.path(tempdir(), "bart.png", fsep = "\\"))
             , mode = "wb")

par(mfrow = c(1, 2))

img = brick(of1)
plotRGB(img)

jnk = trimImages(tempdir(), "bart.png")
```

```
trm = brick(jnk)
plotRGB(trm)

dev.off()

## End(Not run)
```

unlistStrsplit *Unlist the outcome of strsplit*

Description

Per default, [strsplit](#) returns a list, with each entry holding the vector of splits of the initial string(s). This function is a simple wrapper that casts [unlist](#) upon the returned list to produce a concatenated character vector consisting of the single split elements.

Usage

```
unlistStrsplit(x, split, ...)
```

Arguments

x	A character vector with elements to be split.
split	A character vector used for splitting, see strsplit .
...	Additional arguments passed to strsplit .

Author(s)

Florian Detsch

See Also

[strsplit](#)

Examples

```
## 1st example
x <- "This is a test."
unlistStrsplit(x, " ")

## 2nd example; note that 'split' defaults to 'whitespace'
x2 <- "This is a 2nd test."
unlistStrsplit(c(x, x2))
```

unsortedFactor	<i>Factor with unsorted levels</i>
----------------	------------------------------------

Description

Casting `factor` upon a (character) vector usually results in alphabetically ordered factor levels. Although this seems reasonable in most cases, the automated ordering of factor levels is seldomly desirable in the context of visualization, e.g. when working with tiled **lattice** or **ggplot2** figures. This function returns a factor with levels ordered according to their first appearance in the supplied vector.

Usage

```
unsortedFactor(x, ...)
```

Arguments

<code>x</code>	A character vector with elements to converted to factor.
<code>...</code>	Additional arguments passed to <code>factor</code> .

Author(s)

Florian Detsch

See Also

[factor](#)

Examples

```
mnth <- month.abb

## factor levels are being sorted
fc_mnth <- factor(mnth)
levels(fc_mnth)

## factor levels remain unsorted
fc_mnth2 <- unsortedFactor(mnth)
levels(fc_mnth2)
```

Index

*Topic **package**

Orcs-package, 3

as.layer, 14

assignSSH, 3

basename, 24

brick, 11

buildBook, 4

bumpVersion, 5

c.trellis, 13

cbind, 16

compareDistributions, 6

coords2Lines, 7

coords2Lines,Line-method
(coords2Lines), 7

coords2Lines,matrix-method
(coords2Lines), 7

coords2Polygons, 8

coords2Polygons,matrix-method
(coords2Polygons), 8

coords2Polygons,Polygon-method
(coords2Polygons), 8

data.frame, 16

density, 6

dim, 22, 23

dimC (OrcsCppFun), 22

do.call, 11, 19

duplicated, 27

evalMetrics, 9

expression, 29

ext2spy, 10

extent, 10

factor, 33

file.exists, 11

file_path_sans_ext, 24

gpar, 29

grid.stext, 21, 22

grid.stext (stextGrob), 29

grid.text, 21, 22, 29

gTree, 29

ifMissing, 11

install_github, 17

KiLi, 12

knit, 20

lapply, 12, 14

latticeCombineGrid, 12

latticeCombineLayer, 14

library, 18

lineEnding, 15

Lines, 7

list.files, 15, 20, 24, 31

list2df, 16

lm, 25

loadFromGit, 17

loadPkgs, 17

meanDifference, 18

meanDifference,numeric-method
(meanDifference), 18

meanDifference,RasterLayer-method
(meanDifference), 18

merge, 19, 19

merge,list,missing-method (merge), 19

merge.data.frame, 19

multiKnit, 20

ncol, 22, 23

ncolC (OrcsCppFun), 22

nrow, 22, 23

nrowC (OrcsCppFun), 22

offsetGridText, 21

Orcs-package, 3

OrcsCppFun, 22
orcspackage (Orcs-package), 3

par7zip, 23
plot, 6
plotRGB, 26
Polygon, 8
Polygons, 8
proj4string, 10
pureBasename, 24
pvalue, 25

rbind, 16
Reduce, 19
render_book, 4
rgb2splLayout, 26
rmDuplCols, 27

setwd, 28
setwdOS, 28
SpatialLines, 7
SpatialLinesDataFrame, 7, 8
SpatialPolygons, 8
SpatialPolygonsDataFrame, 8, 9
splplot, 26
stextGrob, 29
strsplit, 32
substr, 30
substrC, 30
switch, 28
system, 15, 24, 31

text, 21
textGrob, 29
thigmophobe, 21, 22
trimImages, 31

unit, 21, 29
unlist, 32
unlistStrsplit, 32
unsortedFactor, 33

write.table, 11
writeRaster, 11, 19

xyplot, 6