

# Package ‘useful’

October 8, 2018

**Type** Package

**Title** A Collection of Handy, Useful Functions

**Version** 1.2.6

**Date** 2018-10-07

**Description** A set of little functions that have been found useful to do little odds and ends such as plotting the results of K-means clustering, substituting special text characters, viewing parts of a data.frame, constructing formulas from text and building design and response matrices.

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**Depends** ggplot2

**Imports** plyr, dplyr (>= 0.5.0), magrittr, purrr (>= 0.1.0), stats, scales, utils, Matrix, assertthat

**LazyLoad** yes

**ByteCompile** TRUE

**Suggests** testthat, tibble, covr

**URL** <https://github.com/jaredlander/useful>

**BugReports** <https://github.com/jaredlander/useful/issues>

**RoxygenNote** 6.1.0

**NeedsCompilation** no

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**Repository** CRAN

**Date/Publication** 2018-10-08 16:00:03 UTC

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autoplot.acf                      *autoplot.acf*

**Description**

Plot acf objects

**Usage**

```
## S3 method for class 'acf'
autoplot(object, xlab = x, ylab = y,
         title = sprintf("%s Plot", y), ...)
```

**Arguments**

object	An <a href="#">acf</a> object.
xlab	X-axis label.
ylab	y-axis label.
title	Graph title.
...	Further arguments.

**Details**

Plot acf (and pacf) objects.

**Value**

A ggplot object.

**Author(s)**

Jared P. Lander

**Examples**

```
autoplot(acf(sunspot.year, plot=FALSE))
autoplot(pacf(sunspot.year, plot=FALSE))
```

---

`binary.flip`*binary.flip*

---

**Description**

Flip binary numbers

**Usage**

```
binary.flip(x)
```

**Arguments**

`x` A vector of 0/1 numbers.

**Value**

X with 0's flipped to 1's and 1's flipped to 0's

**Author(s)**

Jared P. Lander

**Examples**

```
binary.flip(c(1,1,0,1,0,0,1))
```

---

`bottomleft`*Grabs the bottom left corner of a data set*

---

**Description**

Display the bottom left corner of a rectangular data set

**Usage**

```
bottomleft(x, r = 5L, c = 5L, ...)
```

**Arguments**

x	The data
r	Number of rows to display
c	Number of columns to show
...	Arguments passed on to other functions

**Details**

Displays the bottom left corner of a rectangular data set.

This is a wrapper function for [corner](#)

**Value**

... The bottom left corner of the data set that was requested. The size depends on r and c.

**Author(s)**

Jared P. Lander [www.jaredlander.com](http://www.jaredlander.com)

**See Also**

[head](#) [tail](#) [corner](#) [topright](#) [topleft](#) [bottomright](#) [left](#) [right](#)

**Examples**

```
data(diamonds)
head(diamonds)      # displays all columns
bottomleft(diamonds) # displays last 5 rows and only the first 5 columns
```

---

bottomright

*Grabs the bottom right corner of a data set*

---

**Description**

Display the bottom right corner of a rectangular data set

**Usage**

```
bottomright(x, r = 5L, c = 5L, ...)
```

**Arguments**

x	The data
r	Number of rows to display
c	Number of columns to show
...	Arguments passed on to other functions

**Details**

Displays the bottom right corner of a rectangular data set.

This is a wrapper function for [corner](#)

**Value**

... The bottom right corner of the data set that was requested. The size depends on r and c.

**Author(s)**

Jared P. Lander [www.jaredlander.com](http://www.jaredlander.com)

**See Also**

[head](#) [tail](#) [corner](#) [topright](#) [bottomleft](#) [topleft](#) [left](#) [right](#)

**Examples**

```
data(diamonds)
head(diamonds)      # displays all columns
bottomright(diamonds) # displays last 5 rows and only the last 5 columns
```

---

build.formula

*Formula Builder*

---

**Description**

Formula Builder

**Usage**

```
build.formula(lhs, rhs)
```

**Arguments**

lhs	Character vector for left side of formula
rhs	Character vector for right side of formula

**Details**

Builds a formula easily given the left and right hand sides. Right now it only handles additive formulas and not interactions unless that is specified in the character.

**Value**

A formula object

**Author(s)**

Jared P. Lander [www.jaredlander.com](http://www.jaredlander.com)

**See Also**

`formula` as `formula`

**Examples**

```
build.formula("Y", "X")
build.formula(c("Y", "Z"), "X")
build.formula("Z", c("X", "Q"))
build.formula(c("Y", "Z"), c("X", "Q"))
```

---

`build.x`

*build.x*

---

**Description**

Build the x matrix for a glmnet model

**Usage**

```
build.x(formula, data, contrasts = TRUE, sparse = FALSE)
```

**Arguments**

<code>formula</code>	A formula
<code>data</code>	A <code>data.frame</code>
<code>contrasts</code>	Logical indicating whether a factor's base level is removed. Can be either one single value applied to every factor or a value for each factor. Values will be recycled if necessary.
<code>sparse</code>	Logical indicating if result should be sparse.

**Details**

Given a formula and a `data.frame` build the predictor matrix

**Value**

A matrix of the predictor variables specified in the formula

**Author(s)**

Jared P. Lander

**Examples**

```

require(ggplot2)
head(mpg)
head(build.x(hwy ~ class + cyl + year, data=mpg))

testFrame <- data.frame(First=sample(1:10, 20, replace=TRUE),
  Second=sample(1:20, 20, replace=TRUE),
  Third=sample(1:10, 20, replace=TRUE),
  Fourth=factor(rep(c("Alice", "Bob", "Charlie", "David"), 5)),
  Fifth=ordered(rep(c("Edward", "Frank", "Georgia", "Hank", "Isaac"), 4)),
  Sixth=factor(rep(c("a", "b"), 10)), stringsAsFactors=F)
head(build.x(First ~ Second + Fourth + Sixth, testFrame,
  contrasts=c("Fourth"=TRUE, "Fifth"=FALSE, "Sixth"=TRUE)))
head(build.x(First ~ Second + Fourth + Fifth + Sixth, testFrame,
  contrasts=c(Fourth=TRUE, Fifth=FALSE, Sixth=TRUE)))
head(build.x(First ~ Second + Fourth + Fifth + Sixth, testFrame, contrasts=TRUE))
head(build.x(First ~ Second + Fourth + Fifth + Sixth, testFrame,
  contrasts=FALSE))
head(build.x(First ~ Second + Fourth + Fifth + Sixth - 1, testFrame,
  contrasts=TRUE))
build.x(First ~ Second + Fourth + Fifth + Sixth - 1, testFrame,
  contrasts=TRUE, sparse=TRUE)
head(build.x(First ~ Second + Fourth + Fifth + Fourth*Sixth, testFrame, contrasts=TRUE))
head(build.x(First ~ Second + Fourth + Fifth + Third*Sixth, testFrame, contrasts=TRUE))
#' head(build.x(First ~ Second + Fourth + Fifth + Fourth*Sixth, testFrame, contrasts=FALSE))
head(build.x(First ~ Second + Fourth + Fifth + Third*Sixth, testFrame, contrasts=FALSE))
build.x(First ~ Second + Fourth + Fifth + Third*Sixth, testFrame, contrasts=FALSE, sparse=TRUE)

## if contrasts is a list then you can specify just certain factors

```

---

*build.y**build.y*

---

**Description**

Build the y object from a formula and data

**Usage**

```
build.y(formula, data)
```

**Arguments**

formula	A formula
data	A data.frame

**Details**

Given a formula and a data.frame build the y object

**Value**

The y object from a formula and data

**Author(s)**

Jared P. Lander

**Examples**

```
require(ggplot2)
head(mpg)
head(build.y(hwy ~ class + cyl + year, data=mpg))
```

---

cart2pol

*cart2pol*

---

**Description**

Converts polar coordinates to cartesian coordinates

**Usage**

```
cart2pol(x, y, degrees = FALSE)
```

**Arguments**

x	The x-coordinate of the point
y	The y-coordinate of the point
degrees	Logical indicating if theta should be returned in degrees

**Details**

Converts polar coordinates to cartesian coordinates using a simple conversion. The angle, theta must be in radians.

Somewhat inspired by <http://www.r-bloggers.com/convert-polar-coordinates-to-cartesian/> and <https://www.mathsisfun.com/polar-coordinates.html>

**Value**

A data.frame holding the polar coordinates and the original (x,y) coordinates

**Author(s)**

Jared P. Lander

**Examples**

```

library(dplyr)
x1 <- c(1, sqrt(3)/2, sqrt(2)/2, 1/2, 0)
y1 <- c(0, 1/2, sqrt(2)/2, sqrt(3)/2, 1)
d1 <- data_frame(x=x1, y=y1, Q='I')

x2 <- c(0, -1/2, -sqrt(2)/2, -sqrt(3)/2, -1)
y2 <- c(1, sqrt(3)/2, sqrt(2)/2, 1/2, 0)
d2 <- data_frame(x=x2, y=y2, Q='II')

x3 <- c(-1, -sqrt(3)/2, -sqrt(2)/2, -1/2, 0)
y3 <- c(0, -1/2, -sqrt(2)/2, -sqrt(3)/2, -1)
d3 <- data_frame(x=x3, y=y3, Q='III')

x4 <- c(0, 1/2, sqrt(2)/2, sqrt(3)/2, 1)
y4 <- c(-1, -sqrt(3)/2, -sqrt(2)/2, -1/2, 0)
d4 <- data_frame(x=x4, y=y4, Q='IV')

dAll <- bind_rows(d1, d2, d3, d4)

cart2pol(dAll$x, dAll$y)
cart2pol(dAll$x, dAll$y, degrees=TRUE)

```

---

classdf

*classdf*


---

**Description**

Get class information for each column in a [data.frame](#).

**Usage**

```
classdf(data, cols)
```

**Arguments**

`data` link{[data.frame](#)} that is to be inspected.  
`cols` The columns (named or numeric) to be included in the check.

**Details**

Get class information for each column in a [data.frame](#).

**Value**

A vector detailing the class of each column.

**Author(s)**

Jared P. Lander

**Examples**

```
classdf(CO2)
classdf(iris)
classdf(mtcars)
```

---

colsToFront

*colsToFront*

---

**Description**

Moves column names to the front or back of the names

**Usage**

```
colsToFront(data, cols = names(data))
colsToBack(data, cols = names(data))
```

**Arguments**

data	data.frame or tbl
cols	Columns that should be moved

**Details**

Moves column names to the front or back of the names

**Value**

Character vector of column names

**Author(s)**

Jared P. Lander

**Examples**

```
theDF <- data.frame(A=1:10, B=11:20, C=1:10, D=11:20)
colsToFront(theDF, c('B', 'C'))
colsToFront(theDF, c('C', 'B'))
colsToFront(theDF, c('C', 'C'))
colsToBack(theDF, c('C', 'C'))
colsToBack(theDF, c('C', 'B'))
colsToBack(theDF, c('C', 'C'))
```

compare.list

*List Comparison*

---

**Description**

List Comparison

**Usage**`compare.list(a, b)`**Arguments**

a	A List
b	A List

**Details**

Compare elements of two equal length lists.

**Value**A vector with a logical indicator for equality of each element author Jared P. Lander [www.jaredlander.com](http://www.jaredlander.com)**Examples**

```
vect <- c(mean, mode, mean)
vect2 <- c(mean, mode, max)
vect3 <- c(mean, mean)
compare.list(vect, vect)
compare.list(vect, vect2)
tryCatch(compare.list(vect, vect3), error=function(e) print("Caught error"))
```

---

ComputeHartigan*Compute Hartigan's Number*

---

**Description**Runs the computation found in <http://www.stat.columbia.edu/~madigan/DM08/descriptive.ppt.pdf>**Usage**`ComputeHartigan(FitActualWSS, FitPlus1WSS, nrow)`

**Arguments**

FitActualWSS	the WSS from a kmeans fit
FitPlus1WSS	the WSS from a kmeans fit
nrow	the number of rows in the original dataset

**Details**

Not exported, only used by [FitKMeans](#)

**Value**

The computed Hartigan Number

**Author(s)**

Jared P. Lander [www.jaredlander.com](http://www.jaredlander.com)

**References**

<http://www.stat.columbia.edu/~madigan/DM08/descriptive.ppt.pdf>

**See Also**

[kmeans](#) [FitKMeans](#)

**Examples**

```
data(iris)
hartiganResults <- FitKMeans(iris[, -ncol(iris)])
PlotHartigan(hartiganResults)
```

---

constant

*constant*

---

**Description**

Helper function for imputing constants

**Usage**

```
constant(n = 1)
```

**Arguments**

n	The value to return
---	---------------------

**Details**

Returns a function that always returns the value of n.

**Value**

A function that when used simply returns n.

**Author(s)**

Jared P. Lander

**Examples**

```
constant(4)(1:10)

theDF <- data.frame(A=1:10, B=1:10, C=1:10)
theDF[c(1, 4, 6), c(1)] <- NA
theDF[c(3, 4, 8), c(3)] <- NA
simple.impute(theDF, constant(4))
```

---

corner

*corner*

---

**Description**

Display a corner section of a rectangular data set

**Usage**

```
corner(x, ...)

## S3 method for class 'data.frame'
corner(x, r = 5L, c = 5L, corner = "topleft",
  ...)

## S3 method for class 'matrix'
corner(x, r = 5L, c = 5L, corner = "topleft", ...)

## S3 method for class 'table'
corner(x, r = 5L, c = 5L, corner = "topleft", ...)

## Default S3 method:
corner(x, r = 5L, ...)
```

**Arguments**

x	The data
...	Arguments passed on to other functions
r	Number of rows to display
c	Number of columns to show
corner	Which corner to grab. Possible values are c("topleft", "bottomleft", "topright", "bottomright")

**Details**

Grabs a corner of a data set

Display a corner section of a rectangular data set

Displays a corner of a rectangular data set such as a data.frame, matrix or table. If showing the right side or bottom, the order of the data is preserved.

The default method reverts to simply calling [head](#)

corner of a rectangular data set such as a data.frame, matrix or table. If showing the right side or bottom, the order of the data is preserved.

**Value**

... The part of the data set that was requested. The size depends on r and c and the position depends on corner.

**Author(s)**

Jared P. Lander

**See Also**

[head](#) [tail](#) [topleft](#) [topright](#) [bottomleft](#) [bottomright](#) [left](#) [right](#)

**Examples**

```
data(diamonds)
head(diamonds)      # displays all columns
corner(diamonds)    # displays first 5 rows and only the first 5 columns
corner(diamonds, corner="bottomleft")  # displays the last 5 rows and the first 5 columns
corner(diamonds, corner="topright")     # displays the first 5 rows and the last 5 columns
```

---

find.case	<i>find.case</i>
-----------	------------------

---

**Description**

Checks if strings are all upper or all lower case

**Usage**

```
find.case(string, case = c("upper", "lower", "mixed", "numeric"))
```

**Arguments**

string	Character vector of strings to check cases
case	Whether checking for upper or lower case

**Details**

Checks if strings are all upper or all lower case. If string is all numbers it returns TRUE.

**Value**

A vector of TRUE AND FALSE

**Author(s)**

Jared P. Lander

**See Also**

upper.case lower.case numeric.case mixed.case

**Examples**

```
toCheck <- c('BIG', 'little', 'Mixed', 'BIG WITH SPACE', 'little with space', 'MIXED with SPACE')
find.case(toCheck, 'upper')
find.case(toCheck, 'lower')
```

FitKMeans

*Fit a series of kmeans clusterings and compute Hartigan's Number***Description**

Given a numeric dataset this function fits a series of kmeans clusterings with increasing number of centers. k-means is compared to k+1-means using Hartigan's Number to determine if the k+1st cluster should be added.

**Usage**

```
FitKMeans(x, max.clusters = 12L, spectral = FALSE, nstart = 1L,
  iter.max = 10L, algorithm = c("Hartigan-Wong", "Lloyd", "Forgy",
    "MacQueen"), seed = NULL)
```

**Arguments**

x	The data, numeric, either a matrix or data.frame
max.clusters	The maximum number of clusters that should be tried
spectral	logical; If the data being fit are eigenvectors for spectral clustering
nstart	The number of random starts for the kmeans algorithm to use
iter.max	Maximum number of tries before the kmeans algorithm gives up on conversion
algorithm	The desired algorithm to be used for kmeans. Options are c("Hartigan-Wong", "Lloyd", "Forgy", "MacQueen"). See <a href="#">kmeans</a>
seed	If not null, the random seed will be reset before each application of the kmeans algorithm

**Details**

A consecutive series of kmeans is computed with increasing k (number of centers). Each result for k and k+1 are compared using Hartigan's Number. If the number is greater than 10, it is noted that having k+1 clusters is of value.

**Value**

A data.frame consisting of columns, for the number of clusters, the Hartigan Number and whether that cluster should be added, based on Hartigan's Number.

**Author(s)**

Jared P. Lander [www.jaredlander.com](http://www.jaredlander.com)

**References**

<http://www.stat.columbia.edu/~madigan/DM08/descriptive.ppt.pdf>

**See Also**

[kmeans PlotHartigan](#)

**Examples**

```
data(iris)
hartiganResults <- FitKMeans(iris[, -ncol(iris)])
PlotHartigan(hartiganResults)
```

---

ForceDataFrame

*ForceDataFrame*

---

**Description**

Force matrix and arrays to data.frame

**Usage**

```
ForceDataFrame(data)
```

**Arguments**

data                   matrix, data.frame, array, list, etc. . .

**Details**

This is a helper function for `build.x` and `build.y` to convert arrays and matrices—which are not accepted in `model.frame`—into `data.frames`

**Value**

a data.frame of the data

**Author(s)**

Jared P. Lander

---

fortify.acf	<i>fortify.acf</i>
-------------	--------------------

---

**Description**

Fortify an acf/pacf object

**Usage**

```
## S3 method for class 'acf'  
fortify(model, data = NULL, ...)
```

**Arguments**

model	An <a href="#">acf</a> object.
data	Not used. Just for consistency with the fortify method.
...	Other arguments

**Details**

Prepares acf (and pacf) objects for plotting with ggplot.

**Value**

[data.frame](#) for plotting with ggplot.

**Author(s)**

Jared P. Lander

**Examples**

```
fortify(acf(sunspot.year, plot=FALSE))  
fortify(pacf(sunspot.year, plot=FALSE))
```

fortify.kmeans      *fortify.kmeans*

---

## Description

Fortify a kmeans model with its data

## Usage

```
## S3 method for class 'kmeans'  
fortify(model, data = NULL, ...)
```

## Arguments

model	<a href="#">kmeans</a> model
data	Data used to fit the model
...	Not Used

## Details

Prepares a kmeans object to be plotted using [cmdscale](#) to compute the projected x/y coordinates. If data is not provided, then just the center points are calculated.

## Value

The original data with extra columns:

.x	The projected x position.
.y	The projected y position.
.Cluster	The cluster that point belongs to.

## Author(s)

Jared P. Lander

## See Also

[kmeans](#) [fortify](#) [ggplot](#) [plot.kmeans](#)

## Examples

```
k1 <- kmeans(x=iris[, 1:4], centers=3)  
hold <- fortify(k1, data=iris)  
head(hold)  
hold2 <- fortify(k1)  
head(hold2)
```

---

`fortify.ts`*fortify.ts*

---

**Description**

Fortify a ts object.

**Usage**

```
## S3 method for class 'ts'  
fortify(model, data = NULL, name = as.character(m[[2]]),  
  ...)
```

**Arguments**

<code>model</code>	A <code>ts</code> object.
<code>data</code>	A vector of the same length of <code>x</code> that specifies the time component of each element of <code>x</code> .
<code>name</code>	Character specifying the name of <code>x</code> if it is to be different than the variable being inputed.
<code>...</code>	Further arguments.

**Details**

Prepares a ts object for plotting with ggplot.

**Value**

`data.frame` for plotting with ggplot.

**Author(s)**

Jared P. Lander

**Examples**

```
fortify(sunspot.year)
```

---

indexToPosition	<i>indexToPosition</i>
-----------------	------------------------

---

### Description

Given a long matrix index convert to row and column positions

### Usage

```
indexToPosition(x, nrow = 1)
```

### Arguments

x	Position of indices
nrow	The number of rows in the matrix

### Details

Using [which](#) on a matrix returns a number that iterates down rows then across columns. This function returns the (row, column) position of that index.

### Value

A Matrix with row and column columns and a row for each value of x

### Author(s)

Jared P. Lander

### Examples

```
indexToPosition(3, 2)
indexToPosition(c(1, 4, 5, 7, 9), 3)
indexToPosition(1:16, 4)
indexToPosition(c(1, 3, 5, 6, 8, 10, 11, 13, 15), 5)
```

---

interval.check	<i>interval.check</i>
----------------	-----------------------

---

## Description

Check which interval a number belongs to

## Usage

```
interval.check(data, input = "Stop", times, fun = "<=")
```

## Arguments

data	data.frame
input	character name of column we wish to compare
times	vector in ascending order where the differences between sequential elements are the intervals
fun	character containing comparator

## Details

This function takes in a data.frame with a specified column and compares that to a vector of times

## Value

Vector indicating which element of times that row belongs to. If the row is beyond any element NA is in it's spot.

## Author(s)

Jared P. Lander

## Examples

```
head(cars)
interval.check(cars, input="speed", times=seq(min(cars$speed), max(cars$speed), length=10))
```

---

left	<i>Grabs the left side of a data set</i>
------	--

---

**Description**

Display the left side of a rectangular data set

**Usage**

```
left(x, c = 5L, ...)
```

**Arguments**

x	The data
c	Number of columns to show
...	Arguments passed on to other functions

**Details**

Displays the left side of a rectangular data set.

This is a wrapper function for [corner](#)

**Value**

... The left side of the data set that was requested. The size depends on c.

**Author(s)**

Jared P. Lander [www.jaredlander.com](http://www.jaredlander.com)

**See Also**

[head](#) [tail](#) [corner](#) [topright](#) [bottomleft](#) [bottomright](#) [topleft](#) [right](#)

**Examples**

```
data(diamonds)
head(diamonds)      # displays all columns
left(diamonds)     # displays all rows and only the first 5 columns
```

---

load_packages	<i>load_packages</i>
---------------	----------------------

---

**Description**

Loads multiple packages

**Usage**

```
load_packages(packages)
```

**Arguments**

packages      A 'character' vector of packages to be installed

**Details**

Allows the user to load multiple packages with one line of code. Delivers a message saying which packages have been loaded. If a user requests packages that are not installed there is an error.

**Value**

Nothing, loads packages

**Author(s)**

Jared P. Lander

**Examples**

```
load_packages('ggplot2')  
load_packages(c('ggplot2', 'dplyr'))
```

---

lower.case	<i>lower.case</i>
------------	-------------------

---

**Description**

Checks if strings are all lower case

**Usage**

```
lower.case(string)
```

**Arguments**

string            Character vector of strings to check cases

**Details**

Checks if strings are all lower case. This is a wrapper for `find.case('text', 'lower')`. If string is all numbers it returns TRUE.

**Value**

A vector of TRUE AND FALSE

**Author(s)**

Jared P. Lander

**See Also**

`find.case` `upper.case` `mixed.case` `numeric.case`

**Examples**

```
toCheck <- c('BIG', 'little', 'Mixed', 'BIG WITH SPACE', 'little with space', 'MIXED with SPACE')
lower.case(toCheck)
```

---

MapToInterval

*Map numbers to interval*

---

**Description**

Maps a range of numbers to a given interval

**Usage**

```
MapToInterval(nums, start = 1, stop = 10)
```

**Arguments**

nums            The vector of numbers to be mapped

start           The start of the interval

stop            The end of the interval

**Details**

formula:  $a + (x - \min(x)) * (b - a) / (\max(x) - \min(x))$

**Value**

The original numbers mapped to the given interval

**Author(s)**

Jared P. Lander [www.jaredlander.com](http://www.jaredlander.com)

**See Also**

[mapping](#)

**Examples**

```
MapToInterval(1:10, start=0, stop=1)
mapping(1:10, start=0, stop=1)
```

---

mixed.case

*mixed.case*

---

**Description**

Checks if strings are all lower case

**Usage**

```
mixed.case(string)
```

**Arguments**

string            Character vector of strings to check cases

**Details**

Checks if strings are a mix of upper and lower case. This is a wrapper for `find.case('text', 'mixed')`. If string is all numbers it returns FALSE.

**Value**

A vector of TRUE AND FALSE

**Author(s)**

Jared P. Lander

**See Also**

`find.case` `all.upper`

**Examples**

```
toCheck <- c('BIG', 'little', 'Mixed', 'BIG WITH SPACE', 'little with space', 'MIXED with SPACE')
mixed.case(toCheck)
```

---

moveToFront

*moveToFront*

---

**Description**

Rearranges column order by moving specified columns to the front or back.

**Usage**

```
moveToFront(data, cols)
```

```
moveToBack(data, cols)
```

**Arguments**

data            data.frame

cols            Character vector specifying the columns to be moved to the front or back

**Details**

Rearranges column order by moving specified columns to the front or back.

**Value**

A data.frame with the columns in the right order

**Author(s)**

Jared P. Lander

**Examples**

```
theDF <- data.frame(A=1:10, B=11:20, C=1:10, D=11:20)
moveToFront(theDF, c('B', 'C'))
moveToFront(theDF, c('C', 'B'))
moveToFront(theDF, c('C', 'C'))
moveToBack(theDF, c('C', 'C'))
moveToBack(theDF, c('C', 'B'))
moveToBack(theDF, c('C', 'C'))
```

---

multiple	<i>multiple</i>
----------	-----------------

---

## Description

Order of Magnitude Formatter

## Usage

```
multiple(x, multiple = c("K", "M", "B", "T", "H", "k", "m", "b", "t",  
  "h"), big.mark = ",", extra, digits = 0, prefix = "",  
  scientific = FALSE)
```

## Arguments

x	Vector of numbers to be formatted.
multiple	The multiple to display numbers in. This symbol will be added to the end of the numbers.
big.mark	Character specifying the thousands separator
extra	DEPRECATED, use big.mark and prefix instead: Function for perform any further formatting.
digits	Number of decimal places for rounding.
prefix	Symbol to put in front of the numbers such as a dollar sign.
scientific	Logical (default: FALSE) indicating if the numbers should be returned in scientific notation.

## Details

This divides the number by the appropriate amount and adds on the corresponding symbol at the end of the number.

## Value

Character vector of formatted numbers.

## Author(s)

Jared P. Lander

## Examples

```
require(scales)  
vect <- c(1000, 1500, 23450, 21784, 875003780)  
multiple(vect)  
multiple(vect, extra=dollar)
```

```
multiple(vect, extra=identity)

require(ggplot2)
data(diamonds)
ggplot(diamonds, aes(x=x, y=y, color=price*100)) + geom_point() +
scale_color_gradient2(labels=multiple)
```

---

multiple.comma

*multiple.comma*

---

## Description

Order of Magnitude Formatter

## Usage

```
multiple.comma(x, ...)
```

## Arguments

x	Vector of numbers to be formatted.
...	Further arguments to be passed on to <code>link{multiple}</code>

## Details

Simply a wrapper for `multiple` that prespecifies the extra comma.

## Value

Character vector of comma formatted numbers.

## Author(s)

Jared P. Lander

## Examples

```
require(scales)
vect <- c(1000, 1500, 23450, 21784, 875003780)
multiple.comma(vect)
multiple.comma(vect, multiple="k")
multiple.comma(vect, multiple="h")

require(ggplot2)
data(diamonds)
ggplot(diamonds, aes(x=x, y=y, color=price*100)) + geom_point() +
scale_color_gradient2(labels=multiple.comma)
```

---

multiple.dollar	<i>multiple.dollar</i>
-----------------	------------------------

---

**Description**

Order of Magnitude Formatter

**Usage**

```
multiple.dollar(x, ...)
```

**Arguments**

x	Vector of numbers to be formatted.
...	Further arguments to be passed on to <a href="#">multiple</a>

**Details**

Simply a wrapper for multiple that prespecifies the extra dollar.

**Value**

Character vector of dollar formatted numbers.

**Author(s)**

Jared P. Lander

**Examples**

```
require(scales)
vect <- c(1000, 1500, 23450, 21784, 875003780)
multiple.dollar(vect)
multiple.dollar(vect, multiple="k")
multiple.dollar(vect, multiple="h")

require(ggplot2)
data(diamonds)
ggplot(diamonds, aes(x=x, y=y, color=price*100)) + geom_point() +
  scale_color_gradient2(labels=multiple.dollar)
```

multiple.identity      *multiple.identity*

---

## Description

Order of Magnitude Formatter

## Usage

```
multiple.identity(x, ...)
```

## Arguments

x	Vector of numbers to be formatted.
...	Further arguments to be passed on to link{multiple}

## Details

Simply a wrapper for multiple that prespecifies the extra identity.

## Value

Character vector of formatted numbers.

## Author(s)

Jared P. Lander

## Examples

```
vect <- c(1000, 1500, 23450, 21784, 875003780)
multiple.identity(vect)
multiple.identity(vect, multiple="k")
multiple.identity(vect, multiple="h")

require(ggplot2)
data(diamonds)
ggplot(diamonds, aes(x=x, y=y, color=price*100)) + geom_point() +
  scale_color_gradient2(labels=multiple.identity)
```

---

multiple_format	<i>multiple_format</i>
-----------------	------------------------

---

## Description

Multiple Style Formatting

## Usage

```
multiple_format(...)
```

## Arguments

... Arguments to be passed onto [multiple](#)

## Details

Since ggplot requires a function for formatting this allows the user to specify the function's arguments, which will return a function that can be used by ggplot.

## Value

The function [multiple](#).

## Author(s)

Jared P. Lander

## Examples

```
library(scales)
vect <- c(1000, 1500, 23450, 21784, 875003780)
multiple_format()(vect)
multiple_format(extra=dollar)(vect)
multiple_format(extra=identity)(vect)

require(ggplot2)
data(diamonds)
ggplot(diamonds, aes(x=x, y=y, color=price*100)) + geom_point() +
  scale_color_gradient2(labels=multiple_format(extra=dollar))
```

---

numeric.case	<i>numeric.case</i>
--------------	---------------------

---

**Description**

Checks if strings are all numbers or spaces

**Usage**

```
numeric.case(string)
```

**Arguments**

string            Character vector of strings to check cases

**Details**

Checks if strings are all numbers and spaces. This is a wrapper for `find.case('text', 'numeric')`.

**Value**

A vector of TRUE AND FALSE

**Author(s)**

Jared P. Lander

**See Also**

`find.case` `upper.case` `lower.case` `numeric.case`

**Examples**

```
toCheck <- c('BIG', 'little', 'Mixed', 'BIG WITH SPACE',  
            'little with space', 'MIXED with SPACE', '17')  
numeric.case(toCheck)
```

---

`plot.acf`*plot.acf*

---

**Description**

Plotting an ACF object

**Usage**

```
## S3 method for class 'acf'  
plot(x, ...)
```

**Arguments**

<code>x</code>	An ACF object
<code>...</code>	Arguments passed on to autoplot

**Details**

This function has been deprecated in favor of autoplot

**Value**

A ggplot2 object

**Author(s)**

Jared P. Lander

---

`plot.kmeans`*plot.kmeans*

---

**Description**

Plot the results from a k-means object

**Usage**

```
## S3 method for class 'kmeans'  
plot(x, data = NULL, class = NULL, size = 2,  
      legend.position = c("right", "bottom", "left", "top", "none"),  
      title = "K-Means Results", xlab = "Principal Component 1",  
      ylab = "Principal Component 2", ...)
```

**Arguments**

x	A <code>kmeans</code> object.
data	The data used to fit the <code>kmeans</code> object.
class	Character name of the "true" classes of the data.
size	Numeric size of points
legend.position	Character indicating where the legend should be placed.
title	Title for the plot.
xlab	Label for the x-axis.
ylab	Label for the y-axis.
...	Not Used.

**Details**

Plots the results of k-means with color-coding for the cluster membership. If data is not provided, then just the center points are calculated.

**Value**

A ggplot object

**Author(s)**

Jared P. Lander

**See Also**

`kmeans` `fortify` `ggplot` `plot.kmeans`

**Examples**

```
k1 <- kmeans(x=iris[, 1:4], centers=3)
plot(k1)
plot(k1, data=iris)
```

---

`PlotHartigan`*Plot a series of Hartigan's Numbers*

---

**Description**

After fitting a series of Hartigan's Numbers (see [FitKMeans](#)) this will plot the results so it is easy to visualize

**Usage**

```
PlotHartigan(hartigan, title = "Hartigan's Rule", smooth = FALSE,  
             linecolor = "grey", linetype = 2L, linesize = 1L, minor = TRUE)
```

**Arguments**

<code>hartigan</code>	The results from <a href="#">FitKMeans</a>
<code>title</code>	Title to be used in the plot
<code>smooth</code>	logical; if true a smoothed line will be fit to the points, otherwise it will be a piecewise line
<code>linecolor</code>	Color of the horizontal line denoting 10
<code>linetype</code>	Type of the horizontal line denoting 10
<code>linesize</code>	Size of the horizontal line denoting 10
<code>minor</code>	logical; if true minor grid lines will be plotted

**Details**

Displays a graphical representation of the results of [FitKMeans](#)

**Value**

a ggplot object

**Author(s)**

Jared P. Lander [www.jaredlander.com](http://www.jaredlander.com)

**References**

#' <http://www.stat.columbia.edu/~madigan/DM08/descriptive.ppt.pdf>

**See Also**

[kmeans](#) [FitKMeans](#)

**Examples**

```
data(iris)
hartiganResults <- FitKMeans(iris[, -ncol(iris)])
PlotHartigan(hartiganResults)
```

---

plotTimesSeries      *plotTimesSeries*

---

**Description**

Plot ts object

**Usage**

```
plotTimesSeries(x, time = NULL, acf = FALSE, lag.max = NULL,
  na.action = na.fail, demean = TRUE, title = sprintf("%s Plot",
  name), xlab = "Time", ylab = name, ...)
```

**Arguments**

x	a <a href="#">ts</a> object.
time	A vector of the same length of x that specifies the time component of each element of x.
acf	Logical indicating if the acf and pacf should be plotted.
lag.max	maximum lag at which to calculate the acf. Default is $10 \cdot \log_{10}(N/m)$ where N is the number of observations and m the number of series. Will be automatically limited to one less than the number of observations in the series.
na.action	function to be called to handle missing values. na.pass can be used.
demean	logical. Should the covariances be about the sample means?
title	Graph title.
xlab	X-axis label.
ylab	Y-axis label.
...	Further arguments.

**Details**

Plot a ts object and, if desired, it's acf and pacf.

**Value**

A ggplot object if acf is FALSE, otherwise TRUE indicating success.

**Author(s)**

Jared P. Lander

**See Also**

ts.plotter plot.acf fortify.ts

**Examples**

```
plot(sunspot.year)
plot(sunspot.year, acf=TRUE)
```

---

pol2cart	<i>pol2cart</i>
----------	-----------------

---

**Description**

Converts polar coordinates to cartesian coordinates

**Usage**

```
pol2cart(r, theta, degrees = FALSE)
```

**Arguments**

- r                   The radius of the point
- theta               The angle of the point, in radians
- degrees             Logical indicating if theta is specified in degrees

**Details**

Converts polar coordinates to cartesian coordinates using a simple conversion. The angle, theta must be in radians.

Somewhat inspired by <http://www.r-bloggers.com/convert-polar-coordinates-to-cartesian/> and <https://www.mathsisfun.com/polar-coordinates.html>

**Value**

A data.frame holding the (x,y) coordinates and original polar coordinates

**Author(s)**

Jared P. Lander

**Examples**

```

polarRadPosTop <- data.frame(r=c(3, 5, 3, 5, 4, 6, 4, 6, 2),
  theta=c(0, pi/6, pi/4, pi/3, pi/2, 2*pi/3, 3*pi/4, 5*pi/6, pi))
polarRadPosBottom <- data.frame(r=c(3, 5, 3, 5, 4, 6, 4, 6, 2),
  theta=c(pi, 7*pi/6, 5*pi/4, 4*pi/3, 3*pi/2, 5*pi/3, 7*pi/4, 9*pi/6, 2*pi))
polarRadNegTop <- data.frame(r=c(3, 5, 3, 5, 4, 6, 4, 6, 2),
  theta=-1*c(0, pi/6, pi/4, pi/3, pi/2, 2*pi/3, 3*pi/4, 5*pi/6, pi))
polarRadNegBottom <- data.frame(r=c(3, 5, 3, 5, 4, 6, 4, 6, 2),
  theta=-1*c(pi, 7*pi/6, 5*pi/4, 4*pi/3, 3*pi/2, 5*pi/3, 7*pi/4, 9*pi/6, 2*pi))

pol2cart(polarRadPosTop$r, polarRadPosTop$theta)
pol2cart(polarRadPosBottom$r, polarRadPosBottom$theta)
pol2cart(polarRadNegTop$r, polarRadNegTop$theta)
pol2cart(polarRadNegBottom$r, polarRadNegBottom$theta)

```

---

`positionToIndex`      *positionToIndex*

---

**Description**

Given row and column positions calculate the index.

**Usage**

```
positionToIndex(row, col, nrow = max(row))
```

**Arguments**

<code>row</code>	Vector specifying row positions
<code>col</code>	Vector specifying column positions
<code>nrow</code>	The number of rows in the matrix

**Details**

With row and column positions this computes the index, starting at (1,1) working down rows then across columns.

**Value**

A vector of indices

**Author(s)**

Jared P. Lander

**Examples**

```
positionToIndex(1, 2, 2)
positionToIndex(row=c(1, 1, 2, 1, 3), col=c(1, 2, 2, 3, 3), nrow=3)
positionToIndex(rep(1:4, 4), rep(1:4, each=4), nrow=4)
positionToIndex(rep(c(1, 3, 5), 3), rep(1:3, each=3), nrow=5)
```

---

reclass	<i>reclass</i>
---------	----------------

---

**Description**

Adds a class to an x.

**Usage**

```
reclass(x, value)

reclass(x) <- value
```

**Arguments**

x	The x getting the new class
value	The new class

**Details**

Adds a class to an x by putting the new class at the front of the vector of classes for the x.

**Value**

The original x with the class containing value in addition to the previous class(es)

**Author(s)**

Jared P. Lander

**Examples**

```
theDF <- data.frame(A=1:10, B=1:10)
reclass(theDF) <- 'newclass'
class(theDF)
theDF <- reclass(theDF, 'another')
class(theDF)
```

---

right *Grabs the right side of a data set*

---

**Description**

Display the right side of a rectangular data set

**Usage**

```
right(x, c = 5L, ...)
```

**Arguments**

x	The data
c	Number of columns to show
...	Arguments passed on to other functions

**Details**

Displays the right side of a rectangular data set.

This is a wrapper function for [corner](#)

**Value**

... The left side of the data set that was requested. The size depends on c.

**Author(s)**

Jared P. Lander [www.jaredlander.com](http://www.jaredlander.com)

**See Also**

[head](#) [tail](#) [corner](#) [topright](#) [bottomleft](#) [bottomright](#) [topleft](#) [topleft](#)

**Examples**

```
data(diamonds)
head(diamonds)      # displays all columns
right(diamonds)    # displays all rows and only the last 5 columns
```

---

shift.column	<i>shift.column</i>
--------------	---------------------

---

**Description**

Shift a column of data

**Usage**

```
shift.column(data, columns, newNames = sprintf("%s.Shifted", columns),
             len = 1L, up = TRUE)
```

**Arguments**

data	<a href="#">data.frame</a>
columns	Character vector specifying which columns to shift.
newNames	Character vector specifying new names for the columns that will be created by the shift. Must be same length as columns.
len	Integer specifying how many rows to shift the data.
up	logical indicating if rows should be shifted up or down.

**Details**

Shifts a column of data up or down a certain number of rows

**Value**

[data.frame](#) with the specified columns shifted.

**Author(s)**

Jared P. Lander

**Examples**

```
myData <- data.frame(Upper=LETTERS, lower=letters)
shift.column(data=myData, columns="lower")
shift.column(data=myData, columns="lower", len=2)
```

---

simple.impute	<i>simple.impute</i>
---------------	----------------------

---

## Description

Generic function for simple imputation.

## Usage

```
simple.impute(x, fun = median, ...)
```

## Arguments

x	An object to be imputed
fun	The function with which to fill in missing values
...	Further arguments

## Details

Provides the ability to simply impute data based on a simple measure such as mean or median. For more robust imputation see the packages *Amelia*, *mice* or *mi*.

## Value

An object with the missing values imputed.

## Author(s)

Jared P. Lander

## Examples

```
theDF <- data.frame(A=1:10, B=1:10, C=1:10)
theDF[c(1, 4, 6), c(1)] <- NA
theDF[c(3, 4, 8), c(3)] <- NA

simple.impute(theDF$A)
simple.impute(theDF$A, mean)
simple.impute(theDF$A, constant(4))
simple.impute(theDF)
simple.impute(theDF, mean)
simple.impute(theDF, constant(4))
```

---

```
simple.impute.data.frame  
      simple.impute.data.frame
```

---

## Description

Function for imputing a data.frame with missing data.

## Usage

```
## S3 method for class 'data.frame'  
simple.impute(x, fun = stats::median, ...)
```

## Arguments

x	A data.frame
fun	The function with which to fill in missing values
...	Further arguments

## Details

Provides the ability to simply impute data based on a simple measure such as mean or median. For more robust imputation see the packages *Amelia*, *mice* or *mi*.

Each column is imputed independently.

## Value

A data.frame with the missing values imputed.

## Author(s)

Jared P. Lander

## Examples

```
theDF <- data.frame(A=1:10, B=1:10, C=1:10)  
theDF[c(1, 4, 6), c(1)] <- NA  
theDF[c(3, 4, 8), c(3)] <- NA  
  
simple.impute.data.frame(theDF)  
simple.impute.data.frame(theDF, mean)  
simple.impute.data.frame(theDF, constant(4))
```

---

`simple.impute.default` *simple.impute.default*

---

**Description**

Function for imputing a vector with missing data.

**Usage**

```
## Default S3 method:  
simple.impute(x, fun = median, ...)
```

**Arguments**

<code>x</code>	A numeric or integer vector
<code>fun</code>	The function with which to fill in missing values
<code>...</code>	Further arguments

**Details**

Provides the ability to simply impute data based on a simple measure such as mean or median. For more robust imputation see the packages *Amelia*, *mice* or *mi*.

**Value**

An object with the missing values imputed.

**Author(s)**

Jared P. Lander

**Examples**

```
theDF <- data.frame(A=1:10, B=1:10, C=1:10)  
theDF[c(1, 4, 6), c(1)] <- NA  
theDF[c(3, 4, 8), c(3)] <- NA  
  
simple.impute.default(theDF$A)  
simple.impute.default(theDF$A, mean)  
simple.impute.default(theDF$A, constant(4))
```

---

`simple.impute.tbl_df` *simple.impute.tbl\_df*

---

## Description

Function for imputing a `tbl_df` with missing data.

## Usage

```
## S3 method for class 'tbl_df'  
simple.impute(x, fun = median, ...)
```

## Arguments

<code>x</code>	A <code>data.frame</code>
<code>fun</code>	The function with which to fill in missing values
<code>...</code>	Further arguments

## Details

Provides the ability to simply impute data based on a simple measure such as mean or median. For more robust imputation see the packages *Amelia*, *mice* or *mi*.

Each column is imputed independently.

## Value

A `data.frame` with the missing values imputed.

## Author(s)

Jared P. Lander

## Examples

```
theDF <- data.frame(A=1:10, B=1:10, C=1:10)  
theDF[c(1, 4, 6), c(1)] <- NA  
theDF[c(3, 4, 8), c(3)] <- NA  
  
simple.impute.data.frame(theDF)  
simple.impute.data.frame(theDF, mean)  
simple.impute.data.frame(theDF, constant(4))
```

---

`subOut`*Sub special characters out of a character vector.*

---

**Description**

Converts each of the special characters to their escaped equivalents in each element of a single vector.

**Usage**

```
subOut(toAlter, specialChars = c("!", "(", ")", "-", "=", "*", "."))
```

**Arguments**

<code>toAlter</code>	Character vector that will be altered by subbing the special characters with their escaped equivalents
<code>specialChars</code>	The characters to be subbed out

**Details**

Each element in the `specialChar` vector is subbed for its escaped equivalent in each of the elements of `toAlter`

**Value**

`toAlter` is returned with any of the defined `specialChars` subbed out for their escaped equivalents

**Author(s)**

Jared P. Lander [www.jaredlander.com](http://www.jaredlander.com)

**See Also**

[sub subSpecials](#)

**Examples**

```
subOut(c("Hello", "(parens)", "Excited! Mark"))
subOut(c("Hello", "(parens)", "Excited! Mark"), specialChars=c("!", "("))
```

---

subSpecials	<i>Sub special characters out of character vectors.</i>
-------------	---

---

### Description

Converts each of the special characters to their escaped equivalents in each element of each vector.

### Usage

```
subSpecials(..., specialChars = c("!", "(", ")", "-", "=", "*", "."))
```

### Arguments

...	Character vectors that will be altered by subbing the special characters with their escaped equivalents
specialChars	The characters to be subbed out

### Details

Each element in the specialChar vector is subbed for its escaped equivalent in each of the elements of each vector passed in

### Value

The provided vectors are returned with any of the defined specialChars subbed out for their escaped equivalents. Each vector is returned as an element of a list.

### Author(s)

Jared P. Lander [www.jaredlander.com](http://www.jaredlander.com)

### See Also

[sub subOut](#)

### Examples

```
subSpecials(c("Hello", "(parens)", "Excited! Mark"))
subSpecials(c("Hello", "(parens)", "Excited! Mark"), specialChars=c("!", "("))
subSpecials(c("Hello", "(parens)", "Excited! Mark"),
  c("This is a period. And this is an asterisk *"), specialChars=c("!", "("))
subSpecials(c("Hello", "(parens)", "Excited! Mark"),
  c("This is a period. And this is an asterisk *"), specialChars=c("!", "(", "*"))
```

---

subVector	<i>subVector</i>
-----------	------------------

---

**Description**

Substitutes multiple patterns and corresponding replacements

**Usage**

```
subVector(x, toSub)
```

```
subMultiple(x, pattern, replacement)
```

**Arguments**

x	Vector of text to search
toSub	Named vector where the elements are the pattern and the names are the replacement values
pattern	Vector of patterns to find in each element of x
replacement	Vector of replacement values corresponding to each value of pattern

**Details**

Given a vector of text replaces all patterns each each element

**Value**

The text in x with substitutions made

**Author(s)**

Jared P. Lander

**Examples**

```
theText <- c('Hi Bob & Cooper how is life today',  
'Anything happening now?',  
'Sally & Dave are playing with Jess & Julio | with their kids')  
subVector(theText, toSub=c("and"='&', 'or'='\\|'))  
subVector(theText)
```

```
theText <- c('Hi Bob & Cooper how is life today',  
'Anything happening now?',  
'Sally & Dave are playing with Jess & Julio | with their kids')  
subMultiple(theText, pattern=c('&', '\\|'), replacement=c('and', 'or'))
```

---

timeSingle	<i>timeSingle</i>
------------	-------------------

---

**Description**

Convenience function that takes in a time object and calculates a difference with a user specified prompt

**Usage**

```
timeSingle(string = "Time difference", startTime, endTime = Sys.time(),
           sep = ":")
```

**Arguments**

string	string of what was timed
startTime	"POSIXct" "POSIXt" object, usually from <a href="#">Sys.time</a>
endTime	"POSIXct" "POSIXt" object, usually from <a href="#">Sys.time</a>
sep	string, usually character that is used as the separator between user prompt and time difference

**Value**

prompt\_string string user prompt with time difference

**Author(s)**

Daniel Y. Chen

**Examples**

```
x <- 3.14
strt <- Sys.time()
sq <- x ** 2
timeSingle('Squaring value', strt)
```

---

`topleft`*Grabs the top left corner of a data set*

---

**Description**

Display the top left corner of a rectangular data set

**Usage**

```
topleft(x, r = 5L, c = 5L, ...)
```

**Arguments**

<code>x</code>	The data
<code>r</code>	Number of rows to display
<code>c</code>	Number of columns to show
<code>...</code>	Arguments passed on to other functions

**Details**

Displays the top left corner of a rectangular data set.

This is a wrapper function for [corner](#)

**Value**

... The top left corner of the data set that was requested. The size depends on `r` and `c`.

**Author(s)**

Jared P. Lander [www.jaredlander.com](http://www.jaredlander.com)

**See Also**

[head](#) [tail](#) [corner](#) [topright](#) [bottomleft](#) [bottomright](#) [left](#) [right](#)

**Examples**

```
data(diamonds)
head(diamonds)      # displays all columns
topleft(diamonds)  # displays first 5 rows and only the first 5 columns
```

---

topright	<i>Grabs the top right corner of a data set</i>
----------	---

---

**Description**

Display the top right corner of a rectangular data set

**Usage**

```
topright(x, r = 5L, c = 5L, ...)
```

**Arguments**

x	The data
r	Number of rows to display
c	Number of columns to show
...	Arguments passed on to other functions

**Details**

Displays the top right corner of a rectangular data set.

This is a wrapper function for [corner](#)

**Value**

... The top right corner of the data set that was requested. The size depends on r and c.

**Author(s)**

Jared P. Lander [www.jaredlander.com](http://www.jaredlander.com)

**See Also**

[head](#) [tail](#) [corner](#) [topleft](#) [bottomleft](#) [bottomright](#) [left](#) [right](#)

**Examples**

```
data(diamonds)
head(diamonds)      # displays all columns
topright(diamonds)  # displays first 5 rows and only the last 5 columns
```

---

`ts.plotter`*ts.plotter*

---

### Description

Plot a ts object

### Usage

```
ts.plotter(data, time = NULL, title = "Series Plot", xlab = "Time",  
           ylab = "Rate")
```

### Arguments

<code>data</code>	A <code>ts</code> object to be plotted.
<code>time</code>	A vector of the same length of data that specifies the time component of each element of data.
<code>title</code>	Title of plot.
<code>xlab</code>	X-axis label.
<code>ylab</code>	Y-axis label.

### Details

Fortifies, then plots a `ts` object.

### Value

A `ggplot` object

### Author(s)

Jared P. Lander

### Examples

```
ts.plotter(sunspot.year)
```

---

uniqueBidirection	<i>uniqueBidirection</i>
-------------------	--------------------------

---

**Description**

Find unique rows of a data.frame regardless of the order they appear

**Usage**

```
uniqueBidirection(x)
```

**Arguments**

x                    a data.frame

**Details**

Sorts individual rows to get uniques regardless of order of appearance.

**Value**

A data.frame that is unique regardless of direction

**Author(s)**

Jared P. Lander

**Examples**

```
ex <- data.frame(One=c('a', 'c', 'a', 'd', 'd', 'c', 'b'),
  Two=c('b', 'd', 'b', 'e', 'c', 'd', 'a'),
  stringsAsFactors=FALSE)

# make a bigger version
exBig <- ex
for(i in 1:1000)
{
  exBig <- rbind(exBig, ex)
}

dim(exBig)

uniqueBidirection(ex)
uniqueBidirection(exBig)

ex3 <- dplyr::bind_cols(ex, dplyr::data_frame(Three=rep('a', nrow(ex))))
uniqueBidirection(ex3)
```

`upper.case`*upper.case*

---

**Description**

Checks if strings are all upper case

**Usage**

```
upper.case(string)
```

**Arguments**

`string`            Character vector of strings to check cases

**Details**

Checks if strings are all upper case. This is a wrapper for `find.case('text', 'upper')`. If string is all numbers it returns TRUE.

**Value**

A vector of TRUE AND FALSE

**Author(s)**

Jared P. Lander

**See Also**

`find.case` `lower.case` `mixed.case` `numeric.case`

**Examples**

```
toCheck <- c('BIG', 'little', 'Mixed', 'BIG WITH SPACE', 'little with space', 'MIXED with SPACE')
upper.case(toCheck)
```

---

`useful`*Helper functions*

---

**Description**

A collection of handy, helper functions

---

`vplayout`*vplayout*

---

**Description**

Viewport

**Usage**`vplayout(x, y)`**Arguments**

`x`                    The x cell of the viewport to push into.  
`y`                    The y cell of the viewport to push into.

**Details**

Creates viewport for pushing ggplot objects to parts of a console.

**Value**

An R object of class viewport.

**Author(s)**

Jared P. Lander

**Examples**

```
library(ggplot2)
library(grid)
```

---

`WhichCorner`*WhichCorner*

---

**Description**

Function to build the right row selection depending on the desired corner.

**Usage**

```
WhichCorner(corner = c("topleft", "bottomleft", "topright",
  "bottomright"), r = 5L, c = 5L, object = "x")
```

**Arguments**

corner	(character) which corner to display c("topleft", "bottomleft", "topright", "bottomright")
r	(numeric) the number of rows to show
c	(numeric) the number of columns to show
object	The name of the object that is being subsetted

**Details**

Function to build the right row selection depending on the desired corner. Helper function for getting the indexing for data.frame's, matrices

**Value**

An expression that is evaluated to return the proper portion of the data

**Author(s)**

Jared P. Lander

**Examples**

```
## Not run:
WhichCorner('topleft')
WhichCorner('bottomleft')
WhichCorner('topright')
WhichCorner('bottomright')

WhichCorner('topleft', r=6)
WhichCorner('bottomleft', r=6)
WhichCorner('topright', r=6)
WhichCorner('bottomright', r=6)

WhichCorner('topleft', c=7)
WhichCorner('bottomleft', c=7)
WhichCorner('topright', c=7)
WhichCorner('bottomright', c=7)

WhichCorner('topleft', r=8, c=3)
WhichCorner('bottomleft', r=8, c=3)
WhichCorner('topright', r=8, c=3)
WhichCorner('bottomright', r=8, c=3)

## End(Not run)
```

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