

Package ‘stackoverflow’

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Description Helper functions collected from StackOverflow.com, a question and answer site for professional and enthusiast programmers.

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URL <https://github.com/nfultz/stackoverflow> <http://stackoverflow.com>
<http://stats.stackexchange.com/>

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approxAUC	<i>Approximate AUC</i>
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Description

AUC can be computed exactly by sorting the fitted values, which is often computationally slow. Instead, we can approximate the AUC numerically using monte carlo.

Usage

```
approxAUC(y, yhat, n = 1000)
```

Arguments

y	the actual class labels [0-1]
yhat	the predicted probabilities
n	number of samples to draw

Author(s)

[erik](#), Neal Fultz

References

<http://stackoverflow.com/questions/4903092/calculate-auc-in-r>

Examples

```
g <- glm(y~x,data=data.frame(x=1:10,y=1:10))
classMethods(g)
```

approxDirichlet *Approximate CDF of Dirichlet*

Description

A monte-carlo approximation of the Dirichlet CDF.

Usage

```
approxDirichlet(a, t, N = 10000)
```

Arguments

a	Dirichlet parameters
t	the proportions
N	number of samples to draw

Author(s)

[Zen](#), Neal Fultz

References

<http://stats.stackexchange.com/questions/57262/implementation-of-dirichlet-cdf>

Examples

```
approxDirichlet(c(1,3,1), c(0.299, 0.528, 0.204))
```

bsearch7 *Efficient binary search for character vectors*

Description

Efficient binary search for character vectors

Usage

```
bsearch7(val, tab, L = 1L, H = length(tab))
```

Arguments

val	values
tab	table to find values in
L	lower bound
H	upper bound

Author(s)

Martin Morgan, Neal Fultz

References

<http://stackoverflow.com/questions/20133344/find-closest-value-in-a-vector-with-binary-search/>
and <https://stat.ethz.ch/pipermail/r-help/2011-April/274182.html>

Examples

```
bsearch7(sample(letters, 5000, replace=TRUE), letters)
```

chunk2

Split a vector into n chunks

Description

Split a vector into n chunks

Usage

```
chunk2(x, n)
```

Arguments

x	a vector
n	number of chunks

Author(s)

[mathheadinclouds](#), [Dis Shishkov](#)

References

<http://stackoverflow.com/questions/3318333/split-a-vector-into-chunks-in-r>

Examples

```
chunk2(1:30, 6)
```

`classMethods`*List all methods for an object*

Description

The built-in `methods()` function will give all available methods for a specified class, or for a specified generic function, but not for an object. Objects can have multiple classes, so this can be complicated to calculate.

Usage

```
classMethods(c1)
```

Arguments

`c1` a vector of class names, or an object

Author(s)

MrFlick

References

<http://stackoverflow.com/questions/23840404/function-to-return-all-s3-methods-applicable-to-an-object>

Examples

```
g <- glm(y~x,data=data.frame(x=1:10,y=1:10))
classMethods(g)
```

`Comment`*Multi-line Comments*

Description

Multi-line Comments

Usage

```
Comment(...)
```

Arguments

... comment, not evaluated.

Author(s)

[The11, Spacedman](#) Neal Fultz

References

<http://stackoverflow.com/questions/1231195/multiline-comment-workarounds>

Examples

```
Comment( `
# Put anything in here except back-ticks.

api_idea <- function() {
  return TRUE
}

# Just to show api_idea isn't really there...
print( api_idea )

`)
```

copyEnv

Copy objects from one environment to another

Description

Copy objects from one environment to another

Usage

```
copyEnv(from, to, names = ls(from, all.names = TRUE))
```

Arguments

from	source environment
to	target environment
names	names of objects to copy

Author(s)

Neal Fultz

References

<http://stackoverflow.com/a/33465113/986793>

Examples

```
e1 <- list2env(list(a=1, b=2))
e2 <- new.env()
copyEnv(e1, e2)
ls(e2)
```

ddensity

Distribution methods for density objects

Description

Density, distribution function, quantile function and random generation from a kernel density estimate (using linear approximation).

Usage

```
ddensity(x, d)
```

```
pdensity(q, d)
```

```
qdensity(p, d)
```

```
rdensity(n, d)
```

Arguments

x	a vector
d	a density object
q	a vector
p	a vector of probabilities
n	number of observations. If <code>length(n) > 1</code> , the length is taken to be the number of required

Author(s)

[user295691](#), Neal Fultz

References

<http://stackoverflow.com/questions/32871602/r-generate-data-from-a-probability-density-distribution>

See Also

[density](#)

[approxfun](#)

[rkde](#)

Examples

```
x <- rnorm(100, mean=0:5)
d <- density(x)
r <- rdensity(10000, d)
plot(d)
lines(density(r), new=TRUE, col='blue', lty='dashed')
```

duplicated2

Find duplicates in a vector

Description

This will find all duplicates in a run, unlike `duplicated` which finds duplicates globally.

Usage

```
duplicated2(x)
```

Arguments

x a vector

Author(s)

Josh O'Brien, Neal Fultz

References

<http://stackoverflow.com/questions/30260507/exclude-subsequent-duplicated-rows-in-r>

Examples

```
duplicated2(c(2,3,3,2,2,3,3,3,3,2,2))
```

flatten2

Flatten a list without type coercion

Description

Flatten a list without type coercion

Usage

```
flatten2(x, len = 1024)
```


Arguments

x	a nested list
len	guess of output length

Changed Feb 19, 2015 by njf

Rather than calculating length, preallocate more than needed.

Author(s)

Tommy, Joshua Ulrich, Josh O'Brien, Neal Fultz

References

<http://stackoverflow.com/questions/8139677/how-to-flatten-a-list-to-a-list-without-coercion>

invinteraction	<i>Split an interaction'ed factor back into seperate variables</i>
----------------	--

Description

Inverse of interaction

Usage

```
invinteraction(fac, ..., sep = ".")
```

Arguments

fac	the factor to split
...	optional, names for variables
sep	the separator between levels

Value

a data.frame of factors

Changes

Refactored to process the levels vector, rather than entire factor vector.

Author(s)

42, Neal Fultz

References

<http://stackoverflow.com/a/10521926/986793>

See Also[interaction](#)**Examples**

```
f1 <- gl(2, 3)
f2 <- gl(3, 2)
invinteraction(f1:f2, sep=':')

ppl <- interaction(
  eyes = as.factor(sample(colors(), 10)),
  hair = as.factor(sample(colors(), 10))
)
str(invinteraction(ppl, "eyes", "hair"))
```

invwhich*Convert indices to logical vector*

Description

Gives a logical vector which is TRUE for the indices provided

Usage

```
invwhich(ix, n = max(if (is.numeric(ix)) ix, length(nm)), nm)
```

Arguments

<code>ix</code>	an vector of indices
<code>n</code>	the length of the output vector; defaults to the maximum index
<code>nm</code>	(optional) names for the vector

Value

a logical vector of length `n` and names `nm`
If `nm` is specified, `ix` may be a character vector instead.

Changes

Rather than using a `useNames` logical to copy the names attribute from one vector to another, you may specify names via the `nm` argument.

Author(s)

Nick Sabbe, Neal Fultz

References

<http://stackoverflow.com/a/7661128/986793>

See Also

[interaction](#)

Examples

```
x <- rnorm(50) > 1
ix <- which(x)
all.equal(x, invwhich(ix, 50))

all.equal(
  invwhich(grep('0', state.abb), 50),
  grepl('0', state.abb)
)
```

logLik.kmeans

Log-Likelihood for k-means clustering (for calculating AIC and BIC)

Description

Log-Likelihood for k-means clustering (for calculating AIC and BIC)

Usage

```
## S3 method for class 'kmeans'
logLik(object, ...)
```

Arguments

object	a kmeans object
...	unused

Author(s)

Neal Fultz, inspired by Sherry Towers and [Andy Clifton](#),

References

<http://stackoverflow.com/questions/15839774/how-to-calculate-bic-for-k-means-clustering-in-r>

See Also

[logLik](#), [AIC](#), [BIC](#)

Examples

```
cl <- kmeans(iris[-5], 3)
AIC(cl)
```

lsos

Improved list of objects

Description

Improved list of objects

Usage

```
lsos(..., n = 10)
```

Arguments

...	to be passed along to internal
n	to be given to head

Author(s)

Dirk Eddelbuettel

References

<http://stackoverflow.com/questions/1358003/tricks-to-manage-the-available-memory-in-an-r-session>

match.call.defaults

Argument matching with defaults

Description

This is a version of `match.call` which also includes default arguments.

Usage

```
match.call.defaults(definition = sys.function(sys.parent()),
  call = sys.call(sys.parent()), expand.dots = TRUE,
  envir = parent.frame(2L))
```

Arguments

definition	a function, by default the function from which match.call is called. See details.
call	an unevaluated call to the function specified by definition, as generated by call.
expand.dots	logical. Should arguments matching ... in the call be included or left as a ... argument?
envir	an environment, from which the ... in call are retrieved, if any.

Value

An object of class call.

Author(s)

Neal Fultz

References

<http://stackoverflow.com/questions/14397364/match-call-with-default-arguments/>

Examples

```
foo <- function(x=NULL,y=NULL,z=4, dots=TRUE, ...) {
  match.call.defaults(expand.dots=dots)
}

foo(4, nugan='hand')
foo(dots=FALSE, who='ami')
```

Mode

Calculate mode (most common element) of a vector

Description

Calculate mode (most common element) of a vector

Usage

```
Mode(x, ux = unique(x))
```

Arguments

x	a vector
ux	vector of values x may take

Changes

Factored ux into argument – njf, May 18, 2015

Author(s)

Ken Williams

References

<http://stackoverflow.com/questions/2547402/standard-library-function-in-r-for-finding-the-mode>

parseLDAP

Parse LDAP output into dataframe

Description

Parse LDAP output into dataframe

Usage

```
parseLDAP(ldapraw)
```

Arguments

ldapraw A length-one character vector containing the raw LDAP output

Value

a data.frame with one row per person

Author(s)

[user3792484](#), rewrite by Neal Fultz

References

<https://stackoverflow.com/questions/22793855/how-do-i-run-a-ldap-query-using-r>

partial	<i>Partially apply a function</i>
---------	-----------------------------------

Description

Simplify a function by setting some arguments to pre-specified values

Usage

```
partial(f, ...)
```

Arguments

f	a function
...	arguments to capture

Author(s)

[John Silberholz](#),

References

<http://stackoverflow.com/questions/32173901/how-to-efficiently-partially-apply-a-function-in-r>

See Also

[partial](#)

[Curry](#)

Examples

```
# Example 1:
f <- function(a, b, c, d) a+b+c+d
p <- partial(f, a=2, c=3)
p(b=0, d=1)

# captures a format string for printing out sleep data
labeller <- partial(sprintf, fmt="extra=%3.2f, group=%d, ID=%d")
do.call(labeller, sleep[1, , drop=FALSE])
```

randomRows	<i>Sample rows from a dataframe or matrix</i>
------------	---

Description

Sample rows from a dataframe or matrix

Usage

```
randomRows(x, size, replace = FALSE, prob = NULL)
```

Arguments

x	a data frame or matrix
size	a non-negative integer giving the number of items to choose.
replace	Should sampling be with replacement?
prob	A vector of probability weights for obtaining the elements of the vector being sampled.

Changes

Matched parameters to sample – njf, May 18, 2015

Author(s)

[Spacedman](#)

References

<http://stackoverflow.com/questions/8273313/random-rows-in-dataframe-in-r>

See Also

[sample](#)

[sample_n](#) for dplyr users

readkey	<i>Wait for a keypress</i>
---------	----------------------------

Description

Wait for a keypress

Usage

```
readkey(prompt = "Press [enter] to continue")
```

Arguments

prompt the text to display

Changed Feb 23, 2015 by njf

prompt may be set by a parameter rather than hard coding it.

Author(s)

[nnn](#), [arulmr](#), Neal Fultz

References

<http://stackoverflow.com/questions/15272916/how-to-wait-for-a-keypress-in-r>

replace_null_recursively	<i>Replace NULLs in nested lists</i>
--------------------------	--------------------------------------

Description

Replace NULLs in nested lists

Usage

```
replace_null_recursively(x, what = NA_character_)
```

Arguments

x a nested list
what a value

Value

x with NULLs replaced with what

Author(s)

[shayaa](#),

References

<https://stackoverflow.com/a/38950427/986793>

resave

Resave a session

Description

Resave a session

Usage

```
resave(..., list = character(), file)
```

Arguments

...	symbols of objects
list	a character vector of object names; unfortunately named
file	the file to update

Author(s)

Neal Fultz and [flodel](#),

References

<http://stackoverflow.com/a/11813377/986793>

See Also

[load](#), [save](#)

rsplit	<i>Recursively split a data.frame</i>
--------	---------------------------------------

Description

When there are multiple factors to split by, Base R split returns a flattened structure by splitting on the interaction of all factors. rsplit instead returns a nested list-of-lists.

Usage

```
rsplit(x, by, drop = FALSE)
```

Arguments

x	a data.frame or vector
by	a data.frame of factors
drop	drop unused factor levels

Value

a nested list of dataframes, split by each element of by
Inspired by, but different from the below

Author(s)

Neal Fultz

References

<https://stackoverflow.com/questions/47802545/converting-data-frame-into-deeply-nested-list/47802935#47802935>

stackoverflow	<i>Stack Overflow's Greatest Hits</i>
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Description

The stackoverflow package consists of helper functions collected from StackOverflow.com, a question and answer site for professional and enthusiast programmers.

References

<http://stackoverflow.com>, <https://github.com/nfultz/stackoverflow>

strReverse	<i>Reverse each string of a vector</i>
------------	--

Description

A function which will reverse every string in a vector of strings.

Usage

```
strReverse(x)
```

Arguments

x a character vector

Author(s)

Josh O'Brien

References

<https://stackoverflow.com/questions/13612967/how-to-reverse-a-string-in-r>

Examples

```
strReverse(c("abc", "Statistics"))
```

t.list	<i>Transpose a list-of-lists</i>
--------	----------------------------------

Description

For a nested list x, returns another nested list y such that $x[[a]][[b]] == y[[b]][[a]]$ for all indices in the original list.

Usage

```
## S3 method for class 'list'  
t(x)
```

Arguments

x a list of lists

Details

Occasionally, sparse matrices are represented this way.

Author(s)

[zerweck](#), Neal Fultz

References

<https://stackoverflow.com/questions/45734380/transpose-nested-list>

See Also

[transpose](#) and [transpose](#)

unscale

Reverse a scale

Description

Computes $x = sz+c$, which is the inverse of $z = (x - c)/s$ provided by the `scale` function.

Usage

```
unscale(z, center = attr(z, "scaled:center"), scale = attr(z, "scaled:scale"))
```

Arguments

<code>z</code>	a numeric matrix(like) object
<code>center</code>	either NULL or a numeric vector of length equal to the number of columns of <code>z</code>
<code>scale</code>	either NULL or a numeric vector of length equal to the number of columns of <code>z</code>

Author(s)

Neal Fultz

References

<https://stackoverflow.com/questions/10287545/backtransform-scale-for-plotting/46840073>

See Also

[scale](#)

Examples

```
mtcs <- scale(mtcars)

all.equal(
  unscale(mtcs),
  as.matrix(mtcars),
  check.attributes=FALSE
)

oldSeed <- .Random.seed
z <- unscale(rnorm(10), 2, .5)
.Random.seed <- oldSeed
x <- rnorm(10, 2, .5)
all.equal(z, x, check.attributes=FALSE)
```

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