# Package ‘stackoverflow’

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**Author** Neal Fultz &lt;nfultz@gmail.com&gt; and the StackOverflow.com community

**Maintainer** Neal Fultz &lt;nfultz@gmail.com&gt;

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Approximate AUC

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

```r
approxAUC(y, yhat, n = 1000)
```
**approxDirichlet**

**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))
Multi-indicators / "Bag o Words"

Description

This creates an indicator matrix from several columns.

Usage

```r
bag(..., prefix = ".", levels = NULL)
```

Arguments

- `...`: the columns to bag
- `prefix`: a prefix for the column names
- `levels`: levels shared among all columns

Value

- a n*p indicator matrix

Author(s)

Neal Fultz

References


Examples

```r
```
Y <- 1:nrow(df2)
m <- lm(Y~bag(Dx1, Dx2, Dx3), df2)
summary(m)
```
Description

Data from a study on the effect of light on bats.

Usage

data(bat_passes)

Format

A data.frame with 80 observations and 5 variables.

Location  Five locations in the study
AI.N  Dark or Light condition
Buzzes  Count of buzzes per day
Passes  Count of passes per day
Date  Date of observation

Source

https://stats.stackexchange.com/q/325334

References

nausicaa (https://stats.stackexchange.com/users/190274/nausicaa), poisson glm to ob-
erve whether effects of artificial light on the number of bat passes in each location were significant,

Examples

data(bat_passes)
head(bat_passes)
bsearch7  
*Efficient binary search for character vectors*

**Description**

Efficient binary search for character vectors

**Usage**

```r
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**


**Examples**

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

---

calcBMI  
*Calculate Body Mass Index*

**Description**

This calculates Body Mass Index

**Usage**

```r
calcBMI(w = 204, f = 6, i = 1)
```
chunk2

Arguments

\- \textit{w} \quad \text{Weight (in pounds)}
\- \textit{f} \quad \text{Height (feet)}
\- \textit{i} \quad \text{Height (inches)}

Value

BMI

Author(s)

Ben Bolker

References

https://stackoverflow.com/questions/16782598/declaring-dynamic-variable-in-r/16782661#
16782661

See Also

\textsf{sprintf}

Examples

\texttt{calcBMI(199, 5, 9)}

\begin{center}
\begin{tabular}{ll}
\hline
\textbf{chunk2} & \textit{Split a vector into n chunks} \\
\hline
\end{tabular}
\end{center}

Description

Split a vector into \( n \) chunks

Usage

\texttt{chunk2(x, n)}

Arguments

\- \textit{x} \quad \text{a vector}
\- \textit{n} \quad \text{number of chunks}

Author(s)

\texttt{mathheadinclouds, Dis Shishkov}
clamp

 Clamp a value into a range

Description

Splits paths into folders.

Usage

clamp(x, e1, e2 = -e1)

Arguments

x    vector
e1   the first edge
e2   the other edge, defaults to the negation of e1.

Value

x, with values outside the boundaries replaced with the boundary points.

Author(s)

josliber,

References

https://stackoverflow.com/questions/32599695/clamp-variable-within-range

Examples

clamp(-10:10, 2, -2)
clamp(-10:10, -2)
clamp(-10:10, 2)
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(cl)

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)

coalesce

Replace NAs in parallel vectors

Description
Replaces NA elements of x with corresponding element of y, and NA elements of that with corre-
sponding element from dots.

Usage

cradesce(x, y, ...)

Arguments

x a vector
y replacement values
... further replacement values

Value

x with NAs replaced with y

Changes

Rather than using eagerly evaluating the dot arguments and Reducing over them, instead we use recursion to evaluate them lazily.

Author(s)

Gregor Thomas,

References

https://stackoverflow.com/a/19254510/986793

Examples

x <- c(1:4, NA, 1:4, NA)
y <- c(1:9, NA)
z <- c(NA, NA, 1:8)
coalesce(x, y, z)

Comment Multi-line Comments

Description

Multi-line Comments

Usage

Comment(...)
copyEnv

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)

---
cor2cov  Back transform correlation matrix to variance-covariance matrix

Description
Compute a variance-covariance matrix from a correlation matrix and standard deviations.

Usage
```
cor2cov(V, sd = sqrt(diag(V)))
```

Arguments
- `V`: a variance covariance matrix
- `sd`: a vector of standard deviations - if omitted, use the sqrt of the diagonal of `V`

Value
a variance-covariance matrix

Author(s)
S4M,

References

See Also
cor

Examples
```
stopifnot(all.equal(
  cor2cov(cor(mtcars), sapply(mtcars, sd)),
  cov(mtcars)
))
```
Density, distribution function, quantile function and random generation from a kernel density estimate (using linear approximation).

Usage

\texttt{ddensity(x, d)}
\texttt{pdensity(q, d)}
\texttt{qdensity(p, d)}
\texttt{rdensity(n, d)}

Arguments

\texttt{x} a vector
\texttt{d} a density object
\texttt{q} a vector
\texttt{p} a vector of probabilities
\texttt{n} number of observations. If \texttt{length(n) > 1}, the length is taken to be the number of required

Author(s)

\texttt{user295691, Neal Fultz}

References

\url{http://stackoverflow.com/questions/32871602/r-generate-data-from-a-probability-density-distribution}

See Also

density
approxfun
rkde
Examples

```r
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

```r
duplicated2(x)
```

Arguments

- `x`: a vector

Author(s)

Josh O'Brien, Neal Fultz

References


Examples

```r
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

```r
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

---

frontier Find efficient frontier

Description

A predicate that is TRUE if a point is on the efficient frontier.

Usage

`frontier(...)`

Arguments

... coordinates to scan

Value

logical vector, TRUE if point is on efficient frontier

Author(s)

Neal Fultz

References

https://stackoverflow.com/a/36209989/986793
horner.poly

Examples

```r
df <- data.frame(x=rnorm(100), y=rnorm(100))
plot(df)
points(subset(df, frontier(x,y)), col='red', pch=15)
points(subset(df, frontier(-x,y)), col='green', pch=15)
points(subset(df, frontier(x,-y)), col='blue', pch=15)
points(subset(df, frontier(-x,-y)), col='orange', pch=15)
```

horner.poly  Evaluate Polynomial and Rational Functions using Horner's method

Description

Calculate

Usage

```r
horner.poly(x, P)
horner.rational(x, P, Q)
```

Arguments

- `x` a vector
- `P` the coefficients of the polynomial in the numerator, in increasing order
- `Q` the coefficients of the polynomial in the denominator

Details

\[ y = \frac{(P_1 + P_2 * x + P_3 * x^2 + \ldots)}{(Q_1 + Q_2 * x + Q_3 * x^2 + \ldots)} \]

If the coefficients have zeros as highest powers, those are ignored.

Value

a vector

Author(s)

torvin

References

https://stackoverflow.com/questions/53256945/evaluate-polynomial-function
invinteraction

Examples

```r
P <- c(1,-2,1)
horner.poly(polyroot(P), P)
```

invinteraction Split an interaction’ed factor back into separate variables

Description
Inverse of interaction

Usage

```r
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(  
en = 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

ix an vector of indices
n the length of the output vector; defaults to the maximum index
nm (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
logLik.kmeans

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


See Also

logLik, AIC, BIC

Examples

c1 <- kmeans(iris[-5], 3)
AIC(c1)
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


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.
Mode

Value

An object of class call.

Author(s)

Neal Fultz

References


Examples

```r
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

```r
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

**na.dummy**

*Handle Missing Values with Fill + Dummy*

**Description**

Handles missing values by filling in with mean, and adding a dummy variable.

**Usage**

```r
na.dummy(object, ...)
```

```r
fix_predvars(object)
```

**Arguments**

- `object` an R object, typically a `data.frame`
- `...` other arguments (not used)

**Author(s)**

Neal Fultz

**References**

[https://stackoverflow.com/questions/54642599/impute-constant-and-create-missingness-dummy/54757973#54757973](https://stackoverflow.com/questions/54642599/impute-constant-and-create-missingness-dummy/54757973#54757973)

**Examples**

```r
df <- structure(list(Y = c(3.83, 22.73, 13.85, 14.09, 20.55, 18.51, 17.76, 9.42, 15.88, 27.81), X1 = 1:10, X2 = c(2L, NA, NA, 4L, 8L, 7L, 6L, 1L, 3L, 9L)), .Names = c("Y", "X1", "X2"), row.names = c(NA, -10L), class = "data.frame")

(m <- lm(Y~X1+X2, df, na.action = na.dummy))
m2 <- fix_predvars(m)
attr(terms(m2), "predvars")
predict(m2, newdata = data.frame(X1=2,X2=NA_real_))
```
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

partial
Partially apply a function

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, A Webb
permutations

Generate all distinct permutations of a vector

Description

Generate all distinct permutations of a vector

Usage

permutations(x)

Arguments

x  
vector to permute

Value

A matrix of all distinct permutations (by row)

Author(s)

Museful

References

https://stackoverflow.com/a/31900149/986793
randomRows

Examples

permutations(LETTERS[1:4])

randomRows  Sample rows from a dataframe or matrix

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


See Also

sample

sample_n for dplyr users
**readkey**

*Wait for a keypress*

**Description**

Wait for a keypress

**Usage**

```r
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**


---

**reflect_triangle**

*Reflect upper/lower triangle across diagonal*

**Description**

Create a new matrix by copying the lower(upper) triangle to the other half.

**Usage**

```r
reflect_triangle(m, from = c("lower", "upper"))
```

**Arguments**

- `m` a square matrix
- `from` lower or upper triangle

**Value**

a symmetric square matrix
replace_null_recursively

Author(s)

Josh O’Brien

References

https://stackoverflow.com/questions/26166569/copy-upper-triangle-to-lower-triangle-for-several-matrices-in-a-list

Examples

```r
x <- matrix(1:9,3,3)
reflect_triangle(x, "lower")
reflect_triangle(x, "upper")
```

---

replace_null_recursively

*Replace NULLs in nested lists*

Description

Replace NULLs in nested lists

Usage

```r
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**

```r
call 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](http://stackoverflow.com/a/11813377/986793)

**See Also**

`load`, `save`

---

**rsplit**

*Recursivly split a data.frame*

**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**

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

**Arguments**

- `x`: a data.frame or vector
- `by`: a data.frame of factors
- `drop`: drop unused factor levels
sincos

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

sincos

sin/cos pairs for modeling

Description

Compute the sin and cos of x.

Usage

sincos(x, period = 168/2/pi)

Arguments

x a vector
period a scalar, which x is scaled by

Value

a matrix containing a _sin and _cos column

Author(s)

Neal Fultz

References

https://stackoverflow.com/questions/51874305/tuple-variable-in-r-regression-model/54393605

Examples

data(sunspots)
lm(sunspots~sincos(time(sunspots), 5/pi))
split_path

Description
Splits paths into folders.

Usage
split_path(x)

Arguments
x character vector of file paths

Author(s)
James, Neal Fultz for vectorized version

References
https://stackoverflow.com/questions/29214932/split-a-file-path-into-folder-names-vector/29232017

Examples
split_path("~")

sprintf_named

Description
This converts named references in a format string (marked by curly braces), and passes through to sprintf.

Usage
sprintf_named(fmt, ...)

Arguments
fmt a character vector of format strings, each of up to 8192 bytes.
... values to be interpolated, optionally with names.
Value

a character vector.

Author(s)

Neal Fultz

References


See Also

sprintf

Examples

```
sprintf_named("%{HIA}s!!! %{RYLAH}s", RYLAH="Rock You Like a Hurricane", HIA="Here I Am")
```

---

stackoverflow  
*Stack Overflow’s Greatest Hits*

---

Description

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

References


---

strReverse  
*Reverse each string of a vector*

---

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"))

substituteExpr

Substitute on an expression in a value

Description

If expr’s value is an expression, substitute in any variables bound in env.

Usage

substituteExpr(expr, env)

Arguments

expr an expression value
env an environment or a list object.

Details

Differs in that substitute uses expr’s expression and not value.

Author(s)

G. Grothendieck

References

https://stackoverflow.com/questions/47780150/use-variable-in-r-substitute/986793

See Also

substitute

Examples

a <- expression(z = y + x + 2)
substituteExpr(a, list(x=4))
t.list

Transpose a list-of-lists

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
```r
## 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](https://stackoverflow.com/questions/45734380/transpose-nested-list)

See Also
transpose and transpose

Tarone.test

Tarone's Z Test

Description
Tests the goodness of fit of the binomial distribution.

Usage
```r
Tarone.test(N, M)
```
Arguments

- **N**: Trials
- **M**: Counts

Value

- `ahtest` object

Author(s)

- Ben O’Neill

References


Examples

```r
#Generate example data
N <- c(30, 32, 40, 28, 29, 35, 30, 34, 31, 39)
M <- c( 9, 10, 22, 15, 8, 19, 16, 19, 15, 10)
Tarone.test(N, M)
```

---

**trim_trailing**  
*Strip leading / trailing zeros*

Description

- Removes value from rightmost/leftmost elements of a vector.

Usage

```r
trim_trailing(x, value = 0)
trim_leading(x, value = 0)
```

Arguments

- **x**: a vector
- **value**: a value to strip from x

Value

- a new vector, with values at the right removed
**unique_columns**

**Author(s)**

Neal Fultz

**References**


**Examples**

```r
trim_leading(c(0,0,0,0,1:5))
```

<table>
<thead>
<tr>
<th>unique_columns</th>
<th>Remove duplicated columns</th>
</tr>
</thead>
</table>

**Description**

Drops duplicated columns from a data.frame (or other list-like object).

**Usage**

```r
unique_columns(df)
```

**Arguments**

- `df` a data.frame

**Value**

data.frame without duplicated columns

**Author(s)**

akrun

**References**

https://stackoverflow.com/a/58475153/986793

**Examples**

```r
df <- data.frame(a=1:10, b=1:10, c=2:11)
unique_columns(df)
```
unscale  Reverse a scale

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

Usage
\[
\text{unscale}(z, \text{center} = \text{attr}(z, "scaled:center"), \text{scale} = \text{attr}(z, "scaled:scale"))
\]

Arguments
- \( z \) a numeric matrix(like) object
- \( \text{center} \) either NULL or a numeric vector of length equal to the number of columns of \( z \)
- \( \text{scale} \) either NULL or a numeric vector of length equal to the number of columns of \( z \)

Author(s)
Neal Fultz

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

See Also
scale

Examples
\[
\text{mtcs} \leftarrow \text{scale(mtcars)}
\]
\[
\text{all.equal(}
\quad \text{unscale(mtcs),}
\quad \text{as.matrix(mtcars),}
\quad \text{check.attributes=FALSE}
\quad \}
\]
\[
\text{oldSeed} \leftarrow .\text{Random.seed}
\text{z} \leftarrow \text{unscale(rnorm(10), 2, .5)}
.\text{Random.seed} \leftarrow \text{oldSeed}
\text{x} \leftarrow \text{rnorm(10, 2, .5)}
\text{all.equal(z, x, check.attributes=FALSE)}
\]
zip2  

**Description**  
zip2s together parallel lists into a list-of-lists. It is named zip2 to not collide with utils.

**Usage**  
zip2(...)  
enumerate(...)  

**Arguments**  
...  
Objects to be zipped together.

**Details**  
enumerate zips together a list with it’s indices.

**Value**  
a list of lists

**Author(s)**  
Neal Fultz

**References**  
https://stackoverflow.com/questions/9281323/zip-or-enumerate-in-r/57564884#57564884

**Examples**  
zip2(1:5,1:10)  
enumerate(l=LETTERS)
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