Package ‘Deducer’

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Title Deducer: A data analysis GUI for R
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Description An intuitive, cross-platform graphical data analysis system. It uses menus and
dialogs to guide the user efficiently through the data manipulation and analysis pro-
cess, and has an excel like spreadsheet for easy data frame visualization and editing. De-
cucer works best when used with the Java based R GUI JGR, but the di-
alog can be called from the command line. Dialogs have also been integrated into the Win-
dows Rgui.

Depends R (>= 2.15.0), ggplot2 (>= 0.9.3), JGR(>= 1.7-10), car, MASS
Imports rJava, e1071, scales, plyr, foreign, multcomp, effects
Suggests lawstat, Hmisc, XLConnect
SystemRequirements Java (>= 1.4), JRI
License GPL-2

R topics documented:

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add.crostrainstratatest

Apply a Stratified test to a Contingency Table

Description

Applies and adds a hypothesis test to a contingency.tables object.

Usage

add.cross.strata.test(tables, name, htests, types=c("asymptotic", "monte.carlo", "exact"))
Arguments

- `tables` - An object of class `contingency.tables`
- `name` - The name of the hypothesis test
- `htests` - A function or list of functions which take a three dimensional array as its argument and returns an object of class `htest`
- `types` - A character vector with the same number of items as `htests`, indicating what type of test was done

Value

A `contingency.tables` object identical to `tables`, but with the test applied to each table.

See Also

- `add.mantel.haenszel`
- `add.test`

Examples

```r
dat <- data.frame(a=rnorm(100)>.5, b=rnorm(100)>0, c=rnorm(100)>-.5)
tables <- contingency.tables(
  row.vars = a,
  col.vars = b,
  stratum.var = c, data = dat)
add.cross.strata.test(tables, "Mantel-Haenszel", list(function(x) mantelhaen.test(x, correct=FALSE)),
  "asymptotic")
tables
```

---

### add.mantel.haenszel

**Apply the Mantel-Haenszel test to a Contingency Table**

**Description**

Applies and adds the Cochran-Mantel-Haenszel test to a `contingency.tables` object. The Cochran-Mantel-Haenszel tests the independence of two nominal variables, stratified by a third nominal variable, assuming no three way interaction.

**Usage**

```r
add.mantel.haenszel(tables, conservative=FALSE)
```

**Arguments**

- `tables` - An object of class `contingency.tables`
- `conservative` - Should a continuity 'correction' be applied
Details

This is a convenience function wrapping mantelhaen.test in a add.cross.strata.test call. See mantelhaen.test for further details.

Value

A contingency.tables object identical to tables, but with the test applied to each table.

See Also

add.cross.strata.test add.test mantelhaen.test

Examples

dat <- data.frame(a=rnorm(100), b=rnorm(100), c=rnorm(100)>(-.5))
tables1 <- contingency.tables(
  row.vars=a,
  col.vars=b,
  stratum.var=c, data=dat)
tables1 <- add.mantel.haenszel(tables1)
print(tables1, prop.r=TRUE, prop.c=TRUE, prop.t=FALSE)
**Arguments**

- **tables**: An object of class `contingency.tables`
- **name**: Name of the test
- **htests**: A function or list of functions which take a matrix as its argument and return an object of class `htest`
- **types**: A character vector with the same number of items as `htests`, indicating what type of test was done
- **conservative**: Should a conservative p-value be computed, i.e., one with a continuity correction for asymptotic tests and not using the mid p-value for exact and approximate tests
- **simulate.p.value**: If `TRUE` p-values will be computed via Monte Carlo simulation
- **B**: The number of samples for the Monte Carlo simulation
- **method**: The type of correlation
- **nominal**: Should the rows or columns be considered nominal.

**Details**

`add.test` applies a supplied list of tests to all of the tables in `tables`.

- `add.chi.squared` is a wrapper function applying the `chisq.test` function to each table. `add.likelihood.ratio` is a wrapper function applying the `likelihood.test` function to each table. `add.fishers.exact` is a wrapper function applying the `fisher.test` function to each table. `add.correlation` is a wrapper function applying the `cor.test` function to each table. `add.kruskal` is a wrapper function applying the `kruskal.test` function to each table.

**Value**

A `contingency.tables` object identical to `tables`, but with the test applied to each table.

**See Also**

- `add.cross.strata.test`
- `likelihood.test`
- `cor.test`
- `kruskal.test`

**Examples**

```r
dat <- data.frame(a=rnorm(100)>-.5,b=rnorm(100)>0,c=rnorm(100)>-.5)
tables <- contingency.tables(
  row.vars=a,
  col.vars=b,
  stratum.var=c,
  data=dat)
tables <- add.chi.squared(tables, simulate.p.value=TRUE, B=10000)
tables <- add.likelihood.ratio(tables)
tables <- add.fishers.exact(tables)
tables <- add.correlation(tables, method='kendall')
tables <- add.kruskal(tables)
tables <- add.mantel.haenszel(tables)
print(tables)
remove(tables)
```
as.matrix.cor.matrix  as.matrix method

Description

as matrix

Usage

## S3 method for class 'cor.matrix'
as.matrix(x,...)

Arguments

x Object of class "cor.matrix".
... further arguments. unused

Value

a matrix

chi.noncentral.conf  Non-central Chi-Squared Confidence Interval

Description

Confidence interval for the Non-centrality parameter of Non-central chi-squared distribution

Usage

chi.noncentral.conf(chival,df,conf,prec=.00001)

Arguments

chival The observed Chi-Squared value
conf The confidence level (e.g. .95)
df Degrees of freedom
prec Precision of estimate

Value

A 2X2 matrix whose rows represent the upper and lower bounds, and whose columns represent the parameter value and upper tail percentiles.
References


See Also

Chisquare

Examples

chi.noncentral.conf(6,1,.95)
#   Result:
# Non-Central   %
#Lower  0.2089385 0.97500899
#Upper  19.4443359 0.02499302

contin.tests.to.table

Description

Makes a nice table out of a contin.tests object

Usage

contin.tests.to.table(tests,test.digits=3,...)

Arguments

tests a contin.tests object

test.digits The number of digits to round to

Value

A nice table
contingency.tables  

Contingency Tables

Description

Creates a contingency.tables object

Usage

contingency.tables(row.vars, col.vars, stratum.var, data=NULL, missing.include=FALSE)

Arguments

row.vars  A variable or data frame evaluated in data
col.vars  A variable or data frame evaluated in data
stratum.var  A variable evaluated in data
data  A data.frame
missing.include  A logical indicating whether a missing category should be included in the table

Value

A list with class "contingency.tables." Each element of the list is a single contingency table of class "contin.table" corresponding to each combination of elements of row.vars and col.vars stratified by stratum.var

See Also

extract.counts

Examples

temp.data<-data.frame(a=rnorm(100)>0,b=rnorm(100)>0,gender=rep(c("male","female"),50))
# a vs. b stratified by gender
tab<-contingency.tables(a,b,gender,data=temp.data)
tab

# add in chi-squared tests
tab<-add.chi.squared(tab)
tab
Description

Creates a correlation matrix

Usage

cor.matrix(variables, with.variables, data=NULL, test=cor.test,...)

Arguments

variables variables
with.variables An optional set of variables to correlate with variables. If nothing is specified, all variables in variables are correlated with themselves.
data A data.frame from which the variables and factor will be selected.
test A function whose first two arguments are the variables upon which the correlation will be calculated, and whose result is an object of class htest.
... further arguments for test.

Value

A multi.test object, representing a table of the results of func applied to each of the variables.

See Also

cor.test as.matrix.cor.matrix

Examples

dat<-data.frame(aa=rnorm(100),bb=rnorm(100),cc=rnorm(100),dd=rnorm(100))
dat$aa<-dat$aa+dat$dd
dat$cc<-dat$cc+dat$aa
cor.matrix(dat,test=cor.test)
cor.matrix(d(aa,cc),data=dat,test=cor.test,method="kendall")
cor.matrix(d(aa,cc),d(dd,bb),data=dat,test=cor.test,method="spearman")
**Description**

This function creates data frames, tightly coupled collections of variables which share many of the properties of matrices and of lists, used as the fundamental data structure by most of R’s modeling software. It is a keystroke saving wrapper for the `data.frame` function. The only difference is that `check.names` and `stringsAsFactors` are `FALSE` by default.

**Usage**

```r
d(..., row.names = NULL, check.rows = FALSE,
    check.names = FALSE,
    stringsAsFactors = FALSE)
```

**Arguments**

- `...` items
- `row.names` NULL or a single integer or character string specifying a column to be used as row names, or a character or integer vector giving the row names for the data frame.
- `check.rows` if `TRUE` then the rows are checked for consistency of length and names.
- `check.names` logical. If `TRUE` then the names of the variables in the data frame are checked to ensure that they are syntactically valid variable names and are not duplicated. If necessary they are adjusted (by `make.names`) so that they are.
- `stringsAsFactors` logical: should character vectors be converted to factors?

**See Also**

`data.frame`

**Examples**

```r
x <- d(rnorm(10), 1:10)
```
## deducer

### GUI Access functions

#### Description

splits a variable into two groups

#### Usage

```r
deducer(cmd=NULL)

data.viewer()
```

#### Arguments

- **cmd**: The command to be executed

---

## deducer.addMenu

### Controls Deducer’s command line menus

#### Description

Controls Deducer’s command line menus

#### Usage

```r
deducer.addMenu(name, pos=length(menus)+1)
deducer.setMenus(newMenus)
deducer.getMenus()
deducer.addMenuItem(name, pos=NULL, command, menuName, silent=TRUE)
menuFunctions()
```

#### Arguments

- **name**: name of item or menu to add
- **pos**: position at which to add the item or menu
- **menuName**: the name of the menu to add the item to
- **command**: A character vector representing the R command to be run
- **silent**: Should the command be executed silently
- **newMenus**: new menus
Examples

```r
def addmenu("TestMenu")
def addmenuitem("test1", "cat('test1 selected')", "TestMenu")
def addmenuitem("test2", "print(summary(lm(rnorm(100)-rnorm(100))))", "TestMenu")

# Add menu to gui if applicable
if (.windowsGUI){
  winMenuAdd("TestMenu")
  winMenuAddItem("TestMenu", "test1", "cat('test1 selected')")
  winMenuAddItem("TestMenu", "test2", "print(summary(lm(rnorm(100)-rnorm(100))))")
} else if (.jgr){
  jgr.addMenu("TestMenu")
  jgr.addMenuItem("TestMenu", "test1", "cat('test1 selected')")
  jgr.addMenuItem("TestMenu", "test2", "print(summary(lm(rnorm(100)-rnorm(100))))")
}
```

---

**Table of Descriptives**

### Description

Table of descriptive statistics, possibly stratified

### Usage

```r
```

### Arguments

- **vars**: A variable or data.frame containing variables on which to run descriptive statistics.
- **data**: The data frame in which `vars` is evaluated.
- **strata**: A variable or data.frame containing variables on which to stratify.
- **func.names**: A character vector of built-in statistics
- **func.additional**: A named list of functions. Each function should take a numeric vector as its argument, and return a single value.
Value

Returns a list of matrix objects containing descriptive information on all variables in `dat`. One for each level or combination of levels in `strata`.

See Also

`frequencies` `mean` `by`

Examples

data(mtcars)

```r
# means and standard deviations
descriptive.table(vars = d(mpg, hp), data = mtcars, func.names = c("Mean", "St. Deviation", "Valid N"))
# stratifying by `cyl`
descriptive.table(vars = d(mpg, hp), strata = d(cyl), data = mtcars, func.names = c("Mean", "St. Deviation", "Valid N"))
```

```r
func.list = list(mean.deviance = function(x) mean(abs(x - mean(x))))

# Adding deviance as a statistic
descriptive.table(vars = d(mpg, hp), strata = d(cyl), data = mtcars, func.names = c("Mean", "St. Deviation", "Valid N"), func.additional = func.list)
```

---

devel

**Deducer’s plug-in development tools**

Description

functions pertaining to GUI development

Usage

```r
addComponent(container, component, top, right, bottom, left, topType = "REL", rightType = "REL", bottomType = "REL", leftType = "REL")
getSize(component)
setSize(component, width, height)
execute(cmd)
```

**ButtonGroupWidget**
**CheckBoxesWidget**
**DeducerMain**
**JLabel**
**RDialog**
SimpleRDialog
SimpleRSubDialog
SingleVariableWidget
SliderWidget
TextAreaWidget
VariableListWidget
VariableSelectorWidget
ComboBoxWidget
RDialoMonitor
ListWidget
AddRemoveButtons
TextFieldWidget
ObjectChooserWidget

Arguments

container A Java Swing container with Anchor layout
component a Java Swing component
top location of top of component 0 - 1000
right location of right of component 0 - 1000
bottom location of bottom of component 0 - 1000
left location of left of component 0 - 1000
topType Type of constraint on top of component. Can be "REL", "ABS", or "NONE"
rightType Type of constraint on right of component. Can be "REL", "ABS", or "NONE"
bottomType Type of constraint on bottom of component. Can be "REL", "ABS", or "NONE"
leftType Type of constraint on left of component. Can be "REL", "ABS", or "NONE"
height new height of component or window in pixels
width new width of component or window in pixels
cmd the command to be executed

Details

addComponent adds a Java object of class Component to a container (usually an RDialog or SimpleRDialog). the location of the component is determined by the top, right, bottom, and left arguments, which are numbers between 1 and 1000 indicating the distance from either the top (or left) of the container, with 1000 indicating the opposite side of the container. Each side can be constrained in three different ways. If the Type is "REL", the side will scale proportional to the container when the container is resized. If it is "ABS", it is not rescaled. If it is "NONE", the location of that side is determined by the componet’s preferred size, which can be set with the "setPreferedSize" method.

getSize gets the height and width

setSize sets the height and width

execute executes a character representing a command, as if it were entered into the console

The rest of the items are references to the Java classes of commonly used GUI components. see www.deducer.org for more details and usage.
**dich**

Description

splits a variable into two groups

Usage

dich(variables, data=NULL, cut=NULL, group1=NULL, group2=NULL)

Arguments

variables variables to be dichotomized
data A data.frame
cut An optional cut point dividing factor into two groups.
group1 An optional vector of levels of factor defining group 1.
group2 An optional vector of levels of factor defining group 2.

Value

a data.frame containing the variables, recoded into two groups.

**extractNcounts**

Extract Contingency Table Arrays

Description

Extracts the counts of a contingency.tables object

Usage

extractNcounts(tables)

Arguments

tables A contingency.table object

Value

A named list of three dimensional arrays. One for each cont.in.table in tables

See Also

contingency.tables
frequencies

Examples

```
temp.data <- data.frame(a=rnorm(100)>0,b=rnorm(100)>0,gender=rep(c("male","female"),50))
# a vs. b stratified by gender
tab <- contingency.tables(a,b,gender,data=temp.data)
tab
```

```
# extract counts
extract.counts(tab)
```

```
# Yields something like the following:
#$'a by b'
#$, , female
#$
#$     FALSE  TRUE
#$FALSE  11    9
#$TRUE   15   15
#$
#$, , male
#$
#$     FALSE  TRUE
#$FALSE  10   10
#$TRUE   22    8
```

---

frequencies  Frequency Tables

Description

Creates a set of frequency tables.

Usage

```
frequencies(data,r.digits=1)
```

Arguments

- `data`: A data.frame containing the variables on which to run frequencies
- `r.digits`: how many digits should the percentages be rounded to

Value

Returns a list of freq. table objects. One for each variable in data.

See Also

- `table`
- `xtabs`
- `descriptive.table`
- `prop.table`
**get.objects**

**Examples**

```r
dat <- data.frame(rnorm(100) > 0, trunc(runif(100, 0, 5)))
# rounding to 1
frequencies(dat)
# rounding to 4
frequencies(dat, 4)
```

**get.objects**

**Description**

Enumerates all objects of a certain class

**Usage**

```r
get.objects(cn, env = globalenv(), includeInherited = TRUE)
```

**Arguments**

- `cn`: The name of the class
- `env`: Environment to look in
- `includeInherited`: Should objects inheriting `cn` be included

**Value**

A character vector

---

**ggcorplot**

**Correlation matrix**

**Description**

Plots a correlation matrix

**Usage**

```r
ggcorplot(cor.mat, data = NULL, lines = TRUE, line.method = c("lm", "loess"), type = "points", alpha = .25, main = "auto", var_text_size = 5, cor_text_limits = c(5, 25), level = .05)
```
Arguments

- cor.mat: a cor.matrix object to plot
- data: the data.frame used to compute the correlation matrix
- lines: Logical. Should regression lines be drawn.
- type: type of plot. "points" or "bins"
- line.method: Character. Type of regression line.
- alpha: numeric. Level of alpha transparency for the points.
- main: Title of the plot. Defaults to the method of cor.mat.
- var_text_size: size of the diagonal variable names.
- cor_text_limits: lower and upper bounds for the size of the correlation text.
- level: the size of the test differentiated by text color.

Author(s)

Mike Lawrence and Ian Fellows

See Also

cor.matrix qscatter_array

Examples

data(mtcars)
corr.mat1<-cor.matrix(variables=d(mpg,carb,carb+rnorm(length(carb))),
data=mtcars,
test=cor.test,
method='spearman',
alternative="two.sided",exact=FALSE)
p<-ggcorplot(corr.mat1,data = mtcars)
print(p)
## Not run:

has.hex<-require("hexbin")
if(has.hex){
data(diamonds)
corr.mat<-cor.matrix(variables=d(price,carat,color),,
data=diamonds,
test=cor.test,
method='spearman',
alternative="two.sided")

p1 <- ggcorplot(corr.mat=corr.mat,data=diamonds,type="bins",
cor_text_limits=c(5,15),
lines=FALSE)
print(p1)
rm('corr.mat')
k.sample.test

}

## End(Not run)

---

**k.sample.test**  
*K Sample Test*

---

**Description**

Performs a K independent sample test.

**Usage**

```r
k.sample.test(formula, data, test=oneway.test,...)
```

**Arguments**

- `formula`: A formula, the left hand side of which indicated the outcomes, and the right hand side of which contains the factor
- `data`: A data.frame
- `test`: A function whose first argument is a formula with the outcome on the lhs and the factor on the rhs. The second argument should be the data to be used for the formula. The result of the function should be an object of class `htest`.
- `...`: further arguments for `func`

**Value**

A `multi.test` object, representing a table of the results of `func` applied to each of the variables.

**See Also**

- `oneway.test`
- `kruskal.test`
- `wilcox.test`

**Examples**

```r
dat<-data.frame(a=rnorm(100), b=rnorm(100), c=rnorm(100), d=cut(rnorm(100), 4))
k.sample.test(d(a,b)-d,dat)
k.sample.test(dat[-4]-dat$d, var.equal=TRUE)
k.sample.test(d(a,c)-d, dat, kruskal.test)
```
likelihood.test  
*Likelihood Ratio (G test) for contingency tables*

**Description**

Performs a likelihood ratio test of independence

**Usage**

`likelihood.test(x, y=NULL, conservative=FALSE)`

**Arguments**

- `x` A vector or a matrix
- `y` A vector that is ignored if `x` is a matrix and required if `x` is a vector
- `conservative` If `true`, the Williams’ continuity correction is used

**Value**

A list with class "htest" containing the following components:

- `statistic` the value the chi-squared test statistic.
- `parameter` the degrees of freedom of the approximate chi-squared distribution of the test statistic.
- `p.value` the p-value for the test.
- `method` a character string indicating the type of test performed, and whether the continuity correction was used.
- `data.name` a character string giving the name(s) of the data.

**Author(s)**

Pete Hurd and Ian Fellows

**See Also**

`chisq.test`

**Examples**

```r
data(InsectSprays)
likelihood.test(InsectSprays$count > 7, InsectSprays$spray)
```
multi.test

Description

Creates a table from a list of htests

Usage

multi.test(tests)

Arguments

tests A named list of htest objects representing the same test applied to a number of different conditions or variables.

Value

A multi.test object, representing a table of the htest objects.

one.sample.test

One Sample Test

Description

Performs a one sample test.

Usage

one.sample.test(variables,data=NULL,test=t.test,...)

Arguments

variables A variable or dataframe of variables
data The data frame in which variables is evaluated
test A function whose first argument is the sample to be tested, and whose result is an object of class htest.
... further arguments for func

Value

A multi.test object, representing a table of the results of test applied to each of the variables.

See Also

t.test shapiro.test
Examples

```r
data(anorexia)

# are subjects' weights at baseline and endpoint significantly different from normal
one.sample.test(variables=d(Prewt,Postwt),
    data=anorexia,
    test=shapiro.test)

# does CBT work at increasing mean wt
anorexia.sub <- subset(anorexia, Treat == "CBT")
one.sample.test(variables=Postwt-Prewt,
    data=anorexia.sub,
    test=t.test)
```

Description

plots for one sample tests

Usage

```r
onesample.plot(variables, data=NULL, test.value, scale=FALSE, type="hist", alpha=.2)
```

Arguments

- **variables**: An expression denoting a set of variable.
- **data**: A data.frame from which the variables will be selected.
- **test.value**: null hypothesis test value
- **scale**: scale variables
- **type**: type of plot. 'hist' or 'box' are allowed
- **alpha**: transparency of points for box plot

Examples

```r
data(mtcars)
onesample.plot(variables=d(mpg,cyl,disp,hp,drat,wt,qsec,vs,am,
    gear,carb),data=mtcars,type="hist")

onesample.plot(variables=d(mpg,cyl,disp,hp,drat,wt,qsec,vs,am,
    gear,carb),data=mtcars,type="box",alpha=1)
```
one-way.plot

**Description**

plots a categorical variable against a series of continuous variables

**Usage**

```r
one-way.plot(formula, data=NULL, alpha=.2,
box=TRUE, points=TRUE, scale=FALSE)
```

**Arguments**

- **formula**: A formula, the left hand side of which indicated the outcomes, and the right hand side of which contains the factor.
- **data**: A data.frame.
- **alpha**: alpha transparency level for the points.
- **box**: prints boxplot.
- **points**: prints jitter plot.
- **scale**: standardize the variables prior to plotting.

**Value**

a ggplot object

**Examples**

```r
one-way.plot(d(DriversKilled, drivers, front, rear, kms, PetrolPrice)-law, as.data.frame(Seatbelts))
```

---

perm

**Vector Permutations**

**Description**

Enumerates all permutations of a vector

**Usage**

```r
perm(vec, duplicates=FALSE)
```
Arguments

vec The vector to permute
duplicates Should duplicate permutations be listed

Value

Returns a matrix where each row is a permutation of vec. All possible permutations are listed, and if duplicates=TRUE non-unique permutations are also listed.

See Also

sample

Examples

perm(1:4)
perm(LETTERS[4:8])

perm.t.test  Permutation t-test

Description

Two Sample t-test via monte-carlo permutation

Usage

perm.t.test(x, y, statistic=character("t", "mean"),
alternative=character("two.sided", "less", "greater"),
midp=TRUE, B=10000)

Arguments

x a numeric vector containing the first sample
y a numeric vector containing the second sample
statistic The statistic to be permuted. See details
alternative The alternative hypothesis
midp should the mid p-value be used
B The number of monte-carlo samples to be generated

Details

This function performs a two sample permutation test. If the mean is permuted, then the test assumes exchangability between the two samples. If the t-statistic is used, the test assumes either exchangability or a sufficiently large sample size. Because there is little lost in the way of power, and the assumptions are weaker, the t-statistic is used by default.
Value

A list with class "htest" containing the following components:

- statistic: The observed value of the statistic.
- p.value: the p-value for the test.
- method: a character string indicating the type of test performed.
- data.name: a character string giving the name(s) of the data.
- B: The number of samples generated
- alternative: the direction of the test

See Also

t.test

Examples

```r
perm.t.test(rnorm(100),runif(100,-.5,.5))
```

plot.cor.matrix

Plot method

Description

Produces a circle plot for an object of class "plot.cor.matrix"

Usage

```r
## S3 method for class 'cor.matrix'
plot(x,y=NULL,size=10,...)
```

Arguments

- x: Object of class "cor.matrix".
- y: unused
- size: maximum radius size
- ...: further arguments, unused

Value

a ggplot object
print.contin.table

Print method

Description

Print object of class "contin.table" in nice layout.

Usage

```r
## S3 method for class 'contin.table'
print(
x, digits=3, prop.r=TRUE, prop.c=TRUE, prop.t=TRUE,
expected.n=FALSE, residuals=FALSE, std.residuals=FALSE,
adj.residuals=FALSE, no.tables=FALSE, ...)
```

Arguments

- `x` Object of class "contin.table".
- `digits` Number of digits to round to.
- `prop.r` Logical. print row proportions.
- `prop.c` Logical. print column proportions.
- `prop.t` Logical. print proportions.
- `expected.n` Logical print expected cell counts.
- `residuals` Logical print residuals.
- `std.residuals` Logical print standardized residuals.
- `adj.residuals` Logical. Print Adjusted residuals
- `no.tables` Logical. Suppress tables
- `...` further arguments

Value

none

Author(s)

Ian Fellows based on the CrossTable function from the gmodels package maintained by Gregory R. Warnes
### print.contin.tests

*Print method*

**Description**

Print object of class "contin.tests" in nice layout.

**Usage**

```r
## S3 method for class 'contin.tests'
print(x, test.digits, ...)
```

**Arguments**

- `x`: Object of class "contin.tests".
- `test.digits`: Number of digits to be printed
- `...`: further arguments to be passed to or from methods.

**Value**

`none`

---

### print.contingency.tables

*Print method*

**Description**

Print object of class "contingency.tables" in nice layout.

**Usage**

```r
## S3 method for class 'contingency.tables'
print(x, digits=3, prop.r=TRUE, prop.c=TRUE, prop.t=TRUE, expected.n=FALSE, no.tables=FALSE, ...)
```

**Arguments**

- `x`: Object of class "contin.table".
- `digits`: Number of digits to round to.
- `prop.r`: Logical. print row proportions.
- `prop.c`: Logical. print column proportions.
- `prop.t`: Logical. print proportions.
- `expected.n`: Logical print expected cell counts.
- `no.tables`: Logical. Suppress tables
- `...`: further arguments
Value

none

print.cor.matrix  Print method

Description

Print object of class "cor.matrix" in nice layout.

Usage

## S3 method for class 'cor.matrix'
print(x,digits=4,N=TRUE,CI=TRUE,stat=TRUE,p.value=TRUE,...)

Arguments

x  Object of class "cor.matrix".
digits  Number of digits to round to.
N  Logical. print a row for sample size.
CI  Logical. print a row for confidence intervals if they exist.
stat  Logical. print a row for test statistics.
p.value  Logical. print a row for p-values.
...  further arguments

Value

none

print.freq.table  Print method

Description

Print object of class "freq.table" in nice layout.

Usage

## S3 method for class 'freq.table'
print(x,...)
print.multi.test

Arguments
  x          Object of class "freq.table".
  ...        further arguments

Value
  none

print.multi.test    Print method

Description
  Print object of class "multi.test" in nice layout.

Usage
  ## S3 method for class 'multi.test'
  print(x,...)

Arguments
  x          Object of class "multi.test".
  ...        further arguments

Value
  none

qscatter_array    qscatter_array

Description
  Creates an array of scatterplots

Usage
  qscatter_array(variables,with.variables,data,x.lab="",y.lab="", main="Correlation Array",common.scales=TRUE,alpha=.25)
recode.variables

Arguments

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>variables</td>
<td>variables</td>
</tr>
<tr>
<td>with.variables</td>
<td>An optional set of variables to correlate with variables. If nothing is specified, all variables in variables are correlated with themselves.</td>
</tr>
<tr>
<td>data</td>
<td>A data.frame from which the variables will be selected.</td>
</tr>
<tr>
<td>x.lab</td>
<td>A label for the x axis</td>
</tr>
<tr>
<td>y.lab</td>
<td>A label for the y axis</td>
</tr>
<tr>
<td>main</td>
<td>A label for the plot</td>
</tr>
<tr>
<td>common.scales</td>
<td>should common x and y scales be used.</td>
</tr>
<tr>
<td>alpha</td>
<td>alpha transparency</td>
</tr>
</tbody>
</table>

Examples

```r
data(mtcars)
qscatter_array(d(cyl, disp, hp, drat), data=mtcars) + geom_smooth(method="lm")
qscatter_array(d(cyl, disp, hp, drat), d(wt, carb), data=mtcars, common.scales=FALSE)
```

rerecode.variables     Recode

Description

Recode a set of variables according to a set of rules

Usage

```r
recode.variables(data, recodes)
```

Arguments

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>data</td>
<td>A data.frame to be recoded</td>
</tr>
<tr>
<td>recodes</td>
<td>Definition of the recoding rules. See details</td>
</tr>
</tbody>
</table>

Details

recode contains a set of recoding rules separated by ";". There are three different types of recoding rules:

1. The simplest codes one value to another. If we wish to recode 1 into 2, we could use the rule "1->2;".
2. A range of values can be coded to a single value using "1:3->4;". This rule would code all values between 1 and 3 inclusive into 4. For factors, a value is between two levels if it is between them in the factor ordering. One sided ranges can be specified using the Lo and Hi key words (e.g."Lo:3->0; 4:Hi->1")
3. Default conditions can be coded using "else." For example, if we wish to recode all values >=0 to 1 and all values <0 to missing, we could use ("0:Hi->1; else->NA")
rocplot

Value
returns a recoded data.frame

Author(s)
Ian Fellows adapted from code by John Fox

See Also
cut recode in package `car`

Examples
data<-data.frame(a=rnorm(100),b=rnorm(100),male=rnorm(100)>0)
recode.variables(data[c("a","b")], "Lo:0 -> 0;Hi:1 -> 1;"
)  
data[c("male")]<-recode.variables(data[c("male")], "1 -> 'Male';0 -> 'Female';else -> NA;")

---

rocplot  ROC Plot for a logistic regression model

Description
Plots the ROC Curve

Usage
rocplot(logistic.model, diag=TRUE, pred.prob.labels=FALSE, prob.label.digits=3, AUC=TRUE)

Arguments

logistic.model  a glm object with binomial link function.
diag  a logical value indicating whether a diagonal reference line should be displayed.
pred.prob.labels  a logical value indicating whether the predictive probabilities should be displayed
prob.label.digits
The number of digits of the predictive probabilities to be displayed.
AUC  a logical value indicating whether the estimated area under the curve should be displayed

Value
a ggplot object

Author(s)
Ian Fellows adapted from the lroc function by Virasakdi Chongsuvivatwong
Examples

```r
model.glm <- glm(formula=income~5930.5 - education + women + type, 
                 family=binomial(),data=Prestige,na.action=na.omit) 
rocplot(model.glm)
```

---

sort.data.frame  
Sort Data

Description

Sorts a data frame

Usage

```r
## S3 method for class 'data.frame'
sort(x, decreasing, by, ...)
```

Arguments

- `x`: A data.frame to be sorted
- `decreasing`: unused
- `by`: A character, a one sided formula, or an expression indicating the sorting order
- `...`: further arguments

Details

If `by` is a formula, or a character vector coerced into a formula, `x` is sorted by each element of the formula, with ties broken by subsequent elements. Elements preceded by a `-` indicate descending order, otherwise ascending order is used. Parentheses or any formula operator other than `+` and `-` are ignored, so sorting by `a*b` will sort based on the product of `a` and `b`.

If `by` is not a formula, a `~` is appended to the left hand side of the call, and coerced into a formula. The decreasing argument is included for generic method consistency, and is not used.

Value

returns `x`, sorted.

Author(s)

Ian Fellows adapted from code by Ari Friedman and Kevin Wright

See Also

`sort.order`
Examples

data(mtcars)

# sort by the number of cylinders
sort(mtcars, by = ~cyl)
# identical: no need for ~

# sort in descending order
sort(mtcars, by = -cyl)

# break ties with horse power
sort(mtcars, by = cyl + hp )
sort(mtcars, by = cyl - hp )

# randomly permute the data
sort(mtcars, by = rnorm(nrow(mtcars)) )

# reverse order
sort(mtcars, by = nrow(mtcars):1 )

# sort by squared deviation from mean hp
sort(mtcars, by = -(hp-mean(hp))^2 )
# identical

summary.lm

---

**Summary table for a linear model**

---

**Description**

Computes the coefficients, std. errors, t values, and p-values for a linear model in the presence of possible heteroskedasticity.

**Usage**

```r
## S3 method for class 'lm'
summary(object, correlation=FALSE, symbolic.cor = FALSE, white.adjust=FALSE, ...)
```

**Arguments**

- `object` an object of class lm.
- `correlation` a logical value indicating whether parameter correlations should be printed.
- `symbolic.cor` logical. If TRUE, print the correlations in a symbolic form (see symnum) rather than as numbers. Effective only if white.adjust is FALSE.
- `white.adjust` value passed to `hccm` indicating the type of robust adjustment to be used. If TRUE, type is assumed to be 'hc3'
- `...` additional parameters passed to stats::summary.lm
Details

If white.adjust is false, the function returns a value identical to stats::summary.lm. Otherwise, robust summaries are computed.

Value

A summary table

Examples

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-mean(ctl))*10+mean(ctl), trt)
lm.D9 <- lm(weight ~ group)
summary(lm.D9,white.adjust=TRUE)

describe

Table –> data.frame

Description

Creates a data.frame from a table

Usage

table.to.data(x)

Arguments

x

A matrix or table representing the cross tabulation of two variables

Value

A two column data.frame where each row is an observation and each column is a variable.

See Also

xtabs

Examples

tab<-matrix(c(4,5,6,9,7,3),ncol=3)
tab
table.to.data(tab)
two.sample.test

Description
Performs a two independent sample test.

Usage
two.sample.test(formula, data=NULL, test=t.test, ...)

Arguments

formula A formula, the left hand side of which indicated the outcomes, and the right hand side of which contains the factor
data A data.frame
test A function whose first two arguments are the two-samples to be tested, and whose result is an object of class htest.
... further arguments for test

Value
A multi.test object, representing a table of the results of test applied to each of the variables.

See Also
t.test ks.test wilcox.test

Examples
dat<-data.frame(a=rnorm(100), b=rnorm(100), c=rnorm(100), d=rnorm(100)>-.5)
two.sample.test(d(a,b) ~ d, dat, ks.test)
two.sample.test(a ~ dich(b, cut=0) , dat, t.test)
two.sample.test(d(a*2, abs(b), c)~d, dat, wilcox.test)
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