Package ‘questionr’

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License GPL (>= 2)
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Title  Functions to Make Surveys Processing Easier
Description  Set of functions to make the processing and analysis of
surveys easier : interactive shiny apps and addins for data recoding,
contingency tables, dataset metadata handling, and several convenience
functions.
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R topics documented:

addNAstr .................................................. 3
children .................................................... 4
chisq.residuals ............................................ 4
clipcopy ..................................................... 5
cprop ......................................................... 6
cramer.v ..................................................... 8
cross.multi.table ......................................... 8
describe ...................................................... 10
duplicated2 ................................................ 11
enfants ....................................................... 12
escape_regex ............................................... 12
fecondite ................................................... 13
femmes ...................................................... 13
fertility ..................................................... 14
first_non_null ............................................. 14
format.proptab .......................................... 15
desc ......................................................... 15
freq.na ..................................................... 17
ggsurvey .................................................. 18
happy ....................................................... 19
hdv2003 ..................................................... 20
households ................................................ 20
icut .......................................................... 20
ifunc_get_css ............................................ 21
ifunc_run_as_addin ....................................... 21
ifunc_show_alert ......................................... 22
iorder ....................................................... 22
irec ........................................................ 23
ltabs ....................................................... 24
menages ..................................................... 25
multi.split ............................................... 25
multi.table ............................................... 26
na.rm ........................................................ 27
odds.ratio ............................................... 28
print.proptab ............................................ 29
prop ........................................................ 30
qload ........................................................ 32
qscan ........................................................ 33
quant.cut .................................................. 34
recode.na .................................................. 35
rename.variable ......................................... 36
rm.unused.levels ......................................... 36
rp2012 ...................................................... 37
rp99 ........................................................ 38
rprop ....................................................... 38
tabs ........................................................ 40
addNAstr

Transform missing values of a factor to an extra level

Description
This function modifies a factor by turning NA into an extra level (so that NA values are counted in tables, for instance). This version of addNA extends the same function provided in R by allowing to specify a string name for the extra level (see examples).

Usage
addNAstr(x, value = "NA", ...)

Arguments
x a vector of data, usually taking a small number of distinct values.
value string to use for the extra level name. If NULL, the extra level is created as NA, and the result is the same as the one of the addNA function.
... arguments passed to addNA.

Value
an object of class "factor", original missing values being coded as an extra level named NA if as.string=FALSE, "NA" if as.string=TRUE, as specified by as.string if as.string is a string.

Source
Adapted from James (https://stackoverflow.com/a/5817181) by Joseph Larmarange <joseph@larmarange.net>

See Also
addNA (base).

Examples
f <- as.factor(c("a","b",NA,"a","b")))
f
addNAstr(f)
addNAstr(f, value="missing")
addNAstr(f, value=NULL)
children A fertility survey - "children" table

Description

Some fictive results from a fertility survey.

Format

a data frame containing one record for each child of the surveyed women in the fertility survey.

chisq.residuals Return the chi-squared residuals of a two-way frequency table.

Description

Return the raw, standardized or Pearson’s residuals (the default) of a chi-squared test on a two-way frequency table.

Usage

chisq.residuals(tab, digits = 2, std = FALSE, raw = FALSE)

Arguments

tab frequency table
digits number of digits to display
std if TRUE, returns the standardized residuals. Otherwise, returns the Pearson residuals. Incompatible with raw.
raw if TRUE, returns the raw (observed - expected) residuals. Otherwise, returns the Pearson residuals. Incompatible with std.

Details

This function is just a wrapper around the chisq.test base R function. See this function’s help page for details on the computation.

See Also

chisq.test
Examples

```r
## Sample table
data(Titanic)
tab <- apply(Titanic, c(1,4), sum)
## Pearson residuals
chisq.residuals(tab)
## Standardized residuals
chisq.residuals(tab, std = TRUE)
## Raw residuals
chisq.residuals(tab, raw = TRUE)
```

---

**Description**

This function transforms its argument to HTML with knitr::kable and then copy it to the clipboard or to a file for later use in an external application.

**Usage**

```r
clipcopy(obj, ...)
```

---

**Arguments**

- `obj` object to be copied
- `append` if TRUE, append to the file instead of replacing it
- `file` if TRUE, export to a file instead of the clipboard
- `filename` name of the file to export to
- `clipboard.size` under Windows, size of the clipboard in kB
- `percent` whether to add a percent sign in each cell
- `digits` number of digits to display
- `justify` justification
Details

Under Linux, this function requires that xclip is installed on the system to copy to the clipboard.

Value

NULL
NULL

See Also

kable, format.proptab
clipcopy, format.proptab

Examples

data(iris)
tab <- table(cut(iris$Sepal.Length, 8), cut(iris$Sepal.Width, 4))
## Not run: copie(tab)
ptab <- rprop(tab, percent=TRUE)
## Not run: clipcopy(ptab)

cprop

Column percentages of a two-way frequency table.

Description

Return the column percentages of a two-way frequency table with formatting and printing options.

Usage

cprop(tab, ...)

## S3 method for class 'table'
cprop(
  tab,
  digits = 1,
  total = TRUE,
  percent = FALSE,
  drop = TRUE,
  n = FALSE,
  ...
)

## S3 method for class 'data.frame'
cprop(
  tab,
  digits = 1,
cprop

    total = TRUE,
    percent = FALSE,
    drop = TRUE,
    n = FALSE,
    ...
)

## S3 method for class 'matrix'
cprop(
  tab,
  digits = 1,
  total = TRUE,
  percent = FALSE,
  drop = TRUE,
  n = FALSE,
  ...
)

## S3 method for class 'tabyl'
cprop(tab, digits = 1, total = TRUE, percent = FALSE, n = FALSE, ...)

Arguments

- **tab**: frequency table
- **...**: parameters passed to other methods.
- **digits**: number of digits to display
- **total**: if TRUE, add a row with the sum of percentages and a column with global percentages
- **percent**: if TRUE, add a percent sign after the values when printing
- **drop**: if TRUE, lines or columns with a sum of zero, which would generate NaN percentages, are dropped.
- **n**: if TRUE, display number of observations per column.

Value

The result is an object of class table and proptab.

See Also

rprop, prop, table, prop.table

Examples

    ## Sample table
data(Titanic)
tab <- apply(Titanic, c(4,1), sum)
    ## Column percentages
cprop(tab)
## Column percentages with custom display
cprop(tab, digits=2, percent=TRUE, total=FALSE)

---

### cramer.v

**Compute Cramer’s V of a two-way frequency table**

**Description**

This function computes Cramer’s V for a two-way frequency table

**Usage**

```r
cramer.v(tab)
```

**Arguments**

- **tab**: table on which to compute the statistic

**Examples**

```r
data(Titanic)
tab <- apply(Titanic, c(4,1), sum)
# print(tab)
cramer.v(tab)
```

---

### cross.multi.table

**Two-way frequency table between a multiple choices question and a factor**

**Description**

This function allows to generate a two-way frequency table from a multiple choices question and a factor. The question’s answers must be stored in a series of binary variables.

**Usage**

```r
cross.multi.table(
  df,
  crossvar,
  weights = NULL,
  digits = 1,
  freq = FALSE,
  tfreq = "col",
  n = FALSE,
  na.rm = TRUE,
  ...
)
```
**Arguments**

- **df**  
  data frame with the binary variables
- **crossvar**  
  factor to cross the multiple choices question with
- **weights**  
  optional weighting vector
- **digits**  
  number of digits to keep in the output
- **freq**  
  display percentages
- **tfreq**  
  type of percentages to compute ("row" or "col")
- **n**  
  if TRUE, and freq is TRUE, display number of observations per row or column
- **na.rm**  
  Remove any NA values in crossvar
- **...**  
  arguments passed to multi.table

**Details**

See the multi.table help page for details on handling of the multiple choices question and corresponding binary variables.

If freq is set to TRUE, the resulting table gives the columns percentages based on the contingency table of crossvar in the respondents population.

**Value**

Object of class table.

**See Also**

multi.table, multi.split, table

**Examples**

```r
## Sample data frame
set.seed(1337)
sex <- sample(c("Man", "Woman"), 100, replace=TRUE)
jazz <- sample(c(0,1), 100, replace=TRUE)
rock <- sample(c(TRUE, FALSE), 100, replace=TRUE)
extronic <- sample(c("Y","N"),100,replace=TRUE)
weights <- runif(100)*2
df <- data.frame(sex,jazz,rock,electronic,weights)
## Two-way frequency table on 'music' variables by sex
cross.multi.table(df[,c("jazz", "rock","electronic")], df$sex, true.codes=list("Y"))
## Column percentages based on respondents
cross.multi.table(df[,c("jazz", "rock","electronic")], df$sex, true.codes=list("Y"), freq=TRUE)
## Row percentages based on respondents
cross.multi.table(df[,c("jazz", "rock","electronic")],
  df$sex, true.codes=list("Y"), freq=TRUE, tfreq="row", n=TRUE)
```
describe

Describe the variables of a data.frame

Description
This function describes the variables of a vector or a dataset that might include labels imported with haven packages.

Usage
describe(x, ...)

## S3 method for class 'factor'
describe(x, n = 10, show.length = TRUE, freq.n.max = 10, ...)

## S3 method for class 'numeric'
describe(x, n = 10, show.length = TRUE, freq.n.max = 10, ...)

## S3 method for class 'character'
describe(x, n = 10, show.length = TRUE, freq.n.max = 10, ...)

## Default S3 method:
describe(x, n = 10, show.length = TRUE, freq.n.max = 10, ...)

## S3 method for class 'haven_labelled'
describe(x, n = 10, show.length = TRUE, freq.n.max = 10, ...)

## S3 method for class 'data.frame'
describe(x, ..., n = 10, freq.n.max = 0)

## S3 method for class 'description'
print(x, ...)

Arguments
x
object to describe

... further arguments passed to or from other methods, see details

n number of first values to display

show.length display length of the vector?

freq.n.max display a frequency table if the number of unique values is less than this value, 0 to hide

Details
When describing a data.frame, you can provide variable names as character strings. Using the "*" or "\" wildcards in a variable name will search for it using a regex match. The search will also take into account variable labels, if any. See examples.
duplicated2

Value
an object of class description.

Author(s)
Joseph Larmarange <joseph@larmarange.net>

See Also
lookfor

Examples
data(hdv2003)
describe(hdv2003$sexe)
describe(hdv2003$age)
describe(hdv2003)
describe(hdv2003, "cuisine", "heures.tv")
describe(hdv2003, "trav*")
describe(hdv2003, "trav|lecture")
describe(hdv2003, "trav", "lecture")
data(fertility)
describe(women$residency)
describe(women)
describe(women, "id")

duplicated2  Determine all duplicate elements

Description
The native duplicated function determines which elements of a vector or data frame are duplicates of elements already observed in the vector or the data frame provided. Therefore, only the second occurrence (or third or nth) of an element is considered as a duplicate. duplicated2 is similar but will also mark the first occurrence as a duplicate (see examples).

Usage
duplicated2(x)

Arguments
x a vector, a data frame or a matrix

Value
A logical vector indicated which elements are duplicated in x.
Source


See Also

duplicated

Examples

def <- data.frame(x=c("a","b","c","b","d","c"), y=c(1,2,3,2,4,3))
def
duplicated(df)
duplicated2(df)

---

enfants  

* A fertility survey - "enfants" table

Description

Some fictive results from a fecondity survey.

Format

a data frame containing one record for each child of the surveyed women in the fecondite survey.

---

escape_regex  

* Escape regex special chars Code directly taken from Hmisc::escapeRegex

Description

Escape regex special chars Code directly taken from Hmisc::escapeRegex

Usage

escape_regex(s)

Arguments

s  
string to escape regex special chars from
**fecondite**

---

**Description**

Some fictive results from a fecondity survey, with French labels.

**Format**

3 data frames with labelled data (as if data would have been imported from SPSS with **haven**):

- **menages** contains some information from the households selected for the survey;
- **femmes** contains the questionnaire administered to all 15-49 years old women living in the selected households;
- **enfants** contains one record for each child of the surveyed women.

Data can be linked using the variables *id_menage* and *id_femme*.

**See Also**

[fertility](#) for an English version of this dataset.

**Examples**

```r
data(fecondite)
describe(menages)
describe(femmes)
describe(enfants)
```

---

**DESCRIPTION**

Some fictive results from a fecondity survey.

**Format**

a data frame containing the questionnaire administered to all 15-49 years old women living in the selected households for the **fecondite** survey.
Description

Some fictive results from a fecondity survey, with English labels.

Format

3 data frames with labelled data (as if data would have been imported from SPSS with haven):

- households contains some information from the households selected for the survey;
- women contains the questionnaire administered to all 15-49 years old women living in the selected households;
- children contains one record for each child of the surveyed women.

Data can be linked using the variables id_household and id_woman.

See Also

fecondite for an French version of this dataset.

Examples

data(fertility)
describe(households)
describe(women)
describe(children)

first_non_null

Return first non-null of two values

Description

Return first non-null of two values

Usage

\[ x \%||\% y \]

Arguments

\[
\begin{align*}
  x & \quad \text{first object} \\
  y & \quad \text{second object}
\end{align*}
\]
format.proptab

S3 format method for proptab objects.

Description

Format an object of class proptab for printing depending on its attributes.

Usage

## S3 method for class 'proptab'
format(x, digits = NULL, percent = NULL, justify = "right", ...)

Arguments

- `x`: object of class proptab
- `digits`: number of digits to display
- `percent`: if not NULL, add a percent sign after each value
- `justify`: justification of character vectors. Passed to `format.default`
- `...`: other arguments to pass to `format.default`

Details

This function is designed for internal use only.

See Also

- `format.default`
- `print.proptab`

freq

Generate frequency tables.

Description

Generate and format frequency tables from a variable or a table, with percentages and formatting options.
Usage

freq(
  x,
  digits = 1,
  cum = FALSE,
  total = FALSE,
  exclude = NULL,
  sort = "",
  valid = !(NA %in% exclude),
  levels = c("prefixed", "labels", "values"),
  na.last = TRUE
)

Arguments

  x          either a vector to be tabulated, or a table object
  digits     number of digits to keep for the percentages
  cum        if TRUE, display cumulative percentages
  total      if TRUE, add a final row with totals
  exclude    vector of values to exclude from the tabulation (if \texttt{x} is a vector)
  sort       if specified, allow to sort the table by increasing ("inc") or decreasing ("dec")
              frequencies
  valid      if TRUE, display valid percentages
  levels     the desired levels for the factor in case of labelled vector (\texttt{labelled} package
              must be installed): "labels" for value labels, "values" for values or "prefixed" for
              labels prefixed with values
  na.last    if TRUE, NA values are always be last table row

Value

  The result is an object of class \texttt{data.frame}.

See Also

  \texttt{table, prop, cprop, rprop}

Examples

# factor
data(hdv2003)
freq(hdv2003$qualif)
freq(hdv2003$qualif, cum = TRUE, total = TRUE)
freq(hdv2003$qualif, cum = TRUE, total = TRUE, sort ="dec")

# labelled data
data(fecondite)
freq(femmes$region)
freq.na

freq(femmes$region, levels = "l")
freq(femmes$region, levels = "v")

---

**freq.na**

*Generate frequency table of missing values.*

---

**Description**

Generate a frequency table of missing values as raw counts and percentages.

**Usage**

```r
freq.na(data, ...)
```

**Arguments**

- `data`:
  - either a vector or a data frame object
- `...`:
  - if `x` is a data frame, the names of the variables to examine or keywords to search for such variables. See `lookfor` for more details.

**Value**

The result is an object of class `data.frame`.

**See Also**

- `table`,
- `is.na`

**Examples**

```r
data(hdv2003)
## Examine a single vector.
freq.na(hdv2003$qualif)
## Examine a data frame.
freq.na(hdv2003)
## Examine several variables.
freq.na(hdv2003, "nivetud", "trav.satisf")
## To see only variables with the most number of missing values
head(freq.na(hdv2003))
```
**Description**

A function to facilitate ggplot2 graphs using a survey object. It will initiate a ggplot and map survey weights to the corresponding aesthetic.

**Usage**

```r
ggsurvey(design = NULL, mapping = NULL, ...)
```

**Arguments**

- `design`: A survey design object, usually created with `survey::svydesign()`.
- `mapping`: Default list of aesthetic mappings to use for plot, to be created with `ggplot2::aes()`.
- `...`: Other arguments passed on to methods. Not currently used.

**Details**

Graphs will be correct as long as only weights are required to compute the graph. However, statistic or geometry requiring correct variance computation (like `ggplot2::geom_smooth()`) will be statistically incorrect.

**Examples**

```r
if (require(survey) & require(ggplot2)) {
  data(api)
  dstrat <- svydesign(
    id = ~1, strata = ~stype,
    weights = ~pw, data = apistrat,
    fpc = ~fpc
  )
  ggsurvey(dstrat) +
    aes(x = cnum, y = dnum) +
    geom_count()

d <- as.data.frame(Titanic)
dw <- svydesign(ids = ~1, weights = ~Freq, data = d)
ggsurvey(dw) +
  aes(x = Class, fill = Survived) +
  geom_bar(position = "fill")
}
```
Data related to happiness from the General Social Survey, 1972-2006.

Description

This data extract is taken from Hadley Wickham’s productplots package. The original description follows, with minor edits.

The data is a small sample of variables related to happiness from the General Social Survey (GSS). The GSS is a yearly cross-sectional survey of Americans, run from 1972. We combine data for 25 years to yield 51,020 observations, and of the over 5,000 variables, we select nine related to happiness:

Format

A data frame with 51020 rows and 10 variables

Details

- age. age in years: 18–89.
- degree. highest education: lt high school, high school, junior college, bachelor, graduate.
- finrela. relative financial status: far above, above average, average, below average, far below.
- happy. happiness: very happy, pretty happy, not too happy.
- health. health: excellent, good, fair, poor.
- marital. marital status: married, never married, divorced, widowed, separated.
- sex. sex: female, male.
- wtsall. probability weight. 0.43–6.43.

References

**hdv2003**  
*Histoire de vie 2003*

**Description**
Sample from 2000 people and 20 variables taken from the *Histoire de Vie* survey, produced in France in 2003 by INSEE.

**Format**
A data frame with 2000 rows and 20 variables

**Source**
https://www.insee.fr/fr/statistiques/2532244

---

**households**  
*A fertility survey - "households" table*

**Description**
Some fictive results from a fecondity survey.

**Format**
a data frame containing some information from the households selected for the fertility survey.

---

**icut**  
*Interactive conversion from numeric to factor*

**Description**
This function launches a shiny app in a web browser in order to do interactive conversion of a numeric variable into a categorical one.

**Usage**

```r
icut(obj = NULL, var_name = NULL)
```

**Arguments**

- `obj` vector to recode or data frame to operate on
- `var_name` if `obj` is a data frame, name of the column to be recoded, as a character string (possibly without quotes)
Value

The function launches a shiny app in the system web browser. The recoding code is returned in the console when the app is closed with the "Done" button.

Examples

```r
## Not run:
data(hdv2003)
icut(hdv2003, "age")
irec(hdv2003, heures.tv)

## End(Not run)
```

Ifunc_get_css  
Returns custom CSS content

Description

Returns custom CSS content

Usage

`ifunc_get_css()`

Ifunc_run_as_addin  
Check if we are currently running as an rstudio addin

Description

Check if we are currently running as an rstudio addin

Usage

`ifunc_run_as_addin()`
ifunc_show_alert  
*Display an alert, only on first launch for the current session*

**Description**
Display an alert, only on first launch for the current session

**Usage**
ifunc_show_alert(run_as_addin)

**Arguments**
- **run_as_addin**: TRUE if the function is running as an rstudio addin

iorder  
*Interactive reordering of factor levels*

**Description**
This function launches a shiny app in a web browser in order to do interactive reordering of the levels of a categorical variable (character or factor).

**Usage**
iorder(obj = NULL, var_name = NULL)

**Arguments**
- **obj**: vector to recode or data frame to operate on
- **var_name**: if obj is a data frame, name of the column to be recoded, as a character string (possibly without quotes)

**Details**
The generated convert the variable into a factor, as only those allow for levels ordering.

**Value**
The function launches a shiny app in the system web browser. The reordering code is returned in the console when the app is closed with the "Done" button.
**irec**

**Interactive recoding**

## Description

This function launches a shiny app in a web browser in order to do interactive recoding of a categorical variable (character or factor).

## Usage

```
irec(obj = NULL, var_name = NULL)
```

## Arguments

- **obj**: vector to recode or data frame to operate on
- **var_name**: if obj is a data frame, name of the column to be recoded, as a character string (possibly without quotes)

## Value

The function launches a shiny app in the system web browser. The recoding code is returned in the console when the app is closed with the "Done" button.

## Examples

```r
## Not run:
data(hdv2003)
iorder(hdv2003, "qualif")

## End(Not run)
```
ltabs  

Cross tabulation with labelled variables

Description

This function is a wrapper around \texttt{xtabs}, adding automatically value labels for labelled vectors if \texttt{labelled} package eis installed.

Usage

\begin{verbatim}
ltabs(
  formula,
  data,
  levels = c("prefixed", "labels", "values"),
  variable_label = TRUE,
  ...
)
\end{verbatim}

Arguments

- \texttt{formula}  
a formula object (see \texttt{xtabs})
- \texttt{data}  
a data frame
- \texttt{levels}  
the desired levels in case of labelled vector: "labels" for value labels, "values" for values or "prefixed" for labels prefixed with values
- \texttt{variable_label}  
display variable label if available?
- ...  
additional arguments passed to \texttt{xtabs}

See Also

\texttt{xtabs}.

Examples

\begin{verbatim}
data(fecundite)
ltabs(~radio, femmes)
ltabs(~radio+tv, femmes)
ltabs(~radio+tv, femmes, "l")
ltabs(~radio+tv, femmes, "v")
ltabs(~radio+tv+journal, femmes)
ltabs(~radio+tv, femmes, variable_label = FALSE)
\end{verbatim}
Description
Some fictive results from a fertility survey.

Format
a data frame containing some information from the households selected for the fecondite survey.

multi.split

Description
Split a multiple choices variable in a series of binary variables

Usage
multi.split(var, split.char = "/", mnames = NULL)

Arguments
var variable to split
split.char character to split at
mnames names to give to the produced variables. If NULL, the name are computed from the original variable name and the answers.

Details
This function takes as input a multiple choices variable where choices are recorded as a string and separated with a fixed character. For example, if the question is about the favourite colors, answers could be "red/blue", "red/green/yellow", etc. This function splits the variable into as many variables as the number of different choices. Each of these variables as a 1 or 0 value corresponding to the choice of this answer. They are returned as a data frame.

Value
Returns a data frame.

See Also
multi.table
Examples

```r
v <- c("red/blue","green","red/green","blue/red")
multi.split(v)
## One-way frequency table of the result
multi.table(multi.split(v))
```

---

```r
tab <- data.frame(x = c("red/blue", "green", "red/green", "blue/red"),
                  y = c(2, 3, 5, 1))
multi.table(tab)
```

---

multi.table

**One-way frequency table for multiple choices question**

Description

This function allows to generate a frequency table from a multiple choices question. The question's answers must be stored in a series of binary variables.

Usage

```r
multi.table(df, true.codes = NULL, weights = NULL, digits = 1, freq = TRUE)
```

Arguments

- `df` : data frame with the binary variables
- `true.codes` : optional list of values considered as 'true' for the tabulation
- `weights` : optional weighting vector
- `digits` : number of digits to keep in the output
- `freq` : add a percentage column

Details

The function is applied to a series of binary variables, each one corresponding to a choice of the question. For example, if the question is about seen movies among a movies list, each binary variable would correspond to a movie of the list and be true or false depending of the choice of the answer.

By default, only '1' and 'TRUE' as considered as 'true' values for the binary variables, and counted in the frequency table. It is possible to specify other values to be counted with the `true.codes` argument. Note than '1' and 'TRUE' are always considered as true values even if `true.codes` is provided.

If `freq` is set to TRUE, a percentage column is added to the resulting table. This percentage is computed by dividing the number of TRUE answers for each value by the total number of (potentially weighted) observations. Thus, these percentages sum can be greater than 100.

Value

Object of class table.
See Also

cross.multi.table, multi.split.table

Examples

```r
## Sample data frame
set.seed(1337)
sex <- sample(c("Man","Woman"),100,replace=TRUE)
jazz <- sample(c(0,1),100,replace=TRUE)
rock <- sample(c(TRUE, FALSE),100,replace=TRUE)
electronic <- sample(c("Y","N"),100,replace=TRUE)
weights <- runif(100)*2
df <- data.frame(sex,jazz,rock,electronic,weights)
## Frequency table on 'music' variables
multi.table(df[,c("jazz", "rock","electronic")], true.codes=list("Y"))
## Weighted frequency table on 'music' variables
multi.table(df[,c("jazz", "rock","electronic")], true.codes=list("Y"), weights=df$weights)
## No percentages
multi.table(df[,c("jazz", "rock","electronic")], true.codes=list("Y"), freq=FALSE)
```

---

**na.rm**

Remove observations with missing values

**Description**

`na.rm` is similar to `na.omit` but allows to specify a list of variables to take into account.

**Usage**

```r
na.rm(x, v = NULL)
```

**Arguments**

- `x` a data frame
- `v` a list of variables

**Details**

If `v` is not specified, the result of `na.rm` will be the same as `na.omit`. If a list of variables is specified through `v`, only observations with a missing value (NA) for one of the specified variables will be removed from `x`. See examples.

**Author(s)**

Joseph Larmarange <joseph@larmarange.net>

**See Also**

`na.omit`
Examples

```r
df <- data.frame(x = c(1, 2, 3), y = c(0, 10, NA), z = c("a", NA, "b"))
df
na.omit(df)
na.rm(df)
na.rm(df, c("x", "y"))
na.rm(df, "z")
```

### Description

S3 method for odds ratio

### Usage

```r
odds.ratio(x, ...)  
## S3 method for class 'glm'  
odds.ratio(x, level = 0.95, ...)  
## S3 method for class 'multinom'  
odds.ratio(x, level = 0.95, ...)  
## S3 method for class 'factor'  
odds.ratio(x, fac, level = 0.95, ...)  
## S3 method for class 'table'  
odds.ratio(x, level = 0.95, ...)  
## S3 method for class 'matrix'  
odds.ratio(x, level = 0.95, ...)  
## S3 method for class 'numeric'  
odds.ratio(x, y, level = 0.95, ...)  
## S3 method for class 'odds.ratio'  
print(x, signif.stars = TRUE, ...)
```

### Arguments

- `x`: object from whom odds ratio will be computed
- `...`: further arguments passed to or from other methods
- `level`: the confidence level required
- `fac`: a second factor object
- `y`: a second numeric object
- `signif.stars`: logical; if TRUE, p-values are encoded visually as 'significance stars'
Details

For models calculated with \texttt{glm}, \texttt{x} should have been calculated with \texttt{family=binomial}. \texttt{p-value} are the same as \texttt{summary(x)$coefficients[,4]}. Odds ratio could also be obtained with \texttt{exp(coef(x))} and confidence intervals with \texttt{exp(confint(x))}.

For models calculated with \texttt{multinom (nnet)}, \texttt{p-value} are calculated according to \url{https://stats.idre.ucla.edu/r/dae/multinomial-logistic-regression/}.

For 2x2 table, factor or matrix, \texttt{odds.ratio} uses \texttt{fisher.test} to compute the odds ratio.

Value

Returns a data.frame of class \texttt{odds.ratio} with odds ratios, their confidence interval and \texttt{p-values}.

If \texttt{x} and \texttt{y} are proportions, \texttt{odds.ratio} simply returns the value of the odds ratio, with no confidence interval.

Author(s)

Joseph Larmarange <joseph@larmarange.net>

See Also

\texttt{glm} in the \texttt{stats} package.
\texttt{multinom} in the \texttt{nnet} package.
\texttt{fisher.test} in the \texttt{stats} package.
\texttt{printCoefmat} in the \texttt{stats} package.

Examples

\begin{verbatim}
data(hdv2003)
reg <- glm(cinema ~ sexe + age, data=hdv2003, family=binomial)
odds.ratio(reg)
odds.ratio(hdv2003$sport, hdv2003$cuisine)
odds.ratio(table(hdv2003$sport, hdv2003$cuisine))
M <- matrix(c(759, 360, 518, 363), ncol = 2)
odds.ratio(M)
odds.ratio(0.26, 0.42)
\end{verbatim}

---

\texttt{print.proptab} \hspace{1cm} \emph{S3 print method for proptab objects.}

---

Description

Print an object of class proptab.

Usage

\begin{verbatim}
## S3 method for class 'proptab'
print(x, digits = NULL, percent = NULL, justify = "right", ...)
\end{verbatim}
Arguments

- **x**: object of class proptab
- **digits**: number of digits to display
- **percent**: if not NULL, add a percent sign after each value
- **justify**: justification of character vectors. Passed to `format.default`
- **...**: other arguments to pass to `format.default`

See Also

- `format.proptab`

---

prop  
*Global percentages of a two-way frequency table.*

Description

Return the percentages of a two-way frequency table with formatting and printing options.

Usage

```
prop(tab, ...)  
prop_table(
  tab,
  digits = 1,
  total = TRUE,
  percent = FALSE,
  drop = TRUE,
  n = FALSE,
  ...
)
```

```
## S3 method for class 'data.frame'
prop(
  tab,
  digits = 1,
  total = TRUE,
  percent = FALSE,
  drop = TRUE,
  n = FALSE,
  ...
)
```

```
## S3 method for class 'matrix'
prop(
```
```
prop

```r
prop(tab, digits = 1, total = TRUE, percent = FALSE, drop = TRUE, n = FALSE, ...)
```

## S3 method for class 'tabyl'
prop(tab, digits = 1, total = TRUE, percent = FALSE, n = FALSE, ...)

### Arguments
- **tab**: frequency table
- **digits**: number of digits to display
- **total**: if TRUE, add a column with the sum of percentages and a row with global percentages
- **percent**: if TRUE, add a percent sign after the values when printing
- **drop**: if TRUE, lines or columns with a sum of zero, which would generate NaN percentages, are dropped.
- **n**: if TRUE, display number of observations per row and per column.

### Value
The result is an object of class `table` and `proptab`.

### See Also
- `rprop`, `cprop`, `table`, `prop.table`

### Examples
```r
## Sample table
data(Titanic)
tab <- apply(Titanic, c(1,4), sum)
## Percentages
prop(tab)
## Percentages with custom display
prop(tab, digits=2, percent=TRUE, total=FALSE, n=TRUE)
```
qload

Load one or more packages, installing them first if necessary

Description
This function quickly loads one or more packages, installing them quietly if necessary.

Usage
qload(..., load = TRUE, silent = TRUE)

Arguments
...
the packages to load/install. Packages are loaded with library and installed first with install.packages if necessary.
load
load the packages. Set to FALSE to just install any missing packages. Defaults to TRUE.
silent
keep output as silent as possible. Defaults to TRUE.

Details
The function probably requires R 3.0.0 or above to make use of the quiet argument when calling install.packages. It is not clear what the argument previously achieved in older versions of R.

Value
The result is a list of packages cited in the scripts.

Author(s)
François Briatte <f.briatte@gmail.com>

See Also
qscan, install.packages, library

Examples
qload("questionr")
qload("questionr", silent = FALSE)
qscan

Scan R scripts and load/install all detected packages

Description

This function scans one or more R scripts and tries to quick-load/install the packages mentioned by library or require functions.

Usage

qscan(..., load = TRUE, detail = TRUE)

Arguments

... the scripts to scan. Defaults to all R scripts in the current working directory.
load quick-load/install the cited packages (see details). Defaults to TRUE.
detail show the list of packages found in each script. Defaults to TRUE.

Details

The function calls the qload function to quick-load/install the packages.

Value

The result is a list of packages cited in the scripts.

Author(s)

François Briatte <f.briatte@gmail.com>

See Also

qload, library

Examples

## Scan the working directory.
## Not run: qscan()
quant.cut

Transform a quantitative variable into a qualitative variable

Description

This function transforms a quantitative variable into a qualitative one by breaking it into classes with the same frequencies.

Usage

quant.cut(var, nbclass, include.lowest = TRUE, right = FALSE, dig.lab = 5, ...)

Arguments

var variable to transform
nbclass number of classes
include.lowest argument passed to the cut function
right argument passed to the cut function
dig.lab argument passed to the cut function
... arguments passed to the cut function

Details

This is just a simple wrapper around the cut and quantile functions.

Value

The result is a factor.

See Also

cut, quantile

Examples

data(iris)
sepal.width3cl <- quant.cut(iris$Sepal.Width, 3)
table(sepal.width3cl)
recode.na

Recode values of a variable to missing values, using exact or regular expression matching.

Description

This function recodes selected values of a quantitative or qualitative variable by matching its levels to exact or regular expression matches.

Usage

recode.na(x, ..., verbose = FALSE, regex = TRUE, as.numeric = FALSE)

Arguments

- **x**: variable to recode. The variable is coerced to a factor if necessary.
- **...**: levels to recode as missing in the variable. The values are coerced to character strings, meaning that you can pass numeric values to the function.
- **verbose**: print a table of missing levels before recoding them as missing. Defaults to FALSE.
- **regex**: use regular expressions to match values that include the "*" or "|" wildcards. Defaults to TRUE.
- **as.numeric**: coerce the recoded variable to numeric. The function recommends the option when the recode returns only numeric values. Defaults to FALSE.

Value

The result is a factor with properly encoded missing values. If the recoded variable contains only numeric values, it is converted to an object of class numeric.

Author(s)

François Briatte <f.briatte@gmail.com>

See Also

regex

Examples

data(hdv2003)
## With exact string matches.
hdv2003$nivetud = recode.na(hdv2003$nivetud, "Inconnu")
## With regular expressions.
hdv2003$relig = recode.na(hdv2003$relig, "[A|a]ppartenance", "Rejet|NSP")
## Showing missing values.
hdv2003$clso = recode.na(hdv2003$clso, "Ne sait pas", verbose = TRUE)
## Test results with freq.
freq(recode.na(hdv2003$trav.satisf, "Equilibre"))

## Truncate a count variable (recommends numeric conversion).
freq(recode.na(hdv2003$freres.soeurs, 5:22))

---

### rename.variable

**Rename a data frame column**

**Description**

Rename a data frame column

**Usage**

`rename.variable(df, old, new)`

**Arguments**

- `df`: data frame
- `old`: old name
- `new`: new name

**Value**

A data frame with the column named "old" renamed as "new"

**Examples**

```r
data(iris)
str(iris)
iris <- rename.variable(iris, "Species", "especes")
str(iris)
```

---

### rm.unused.levels

**Remove unused levels**

**Description**

This function removes unused levels of a factor or in a data.frame. See examples.

**Usage**

`rm.unused.levels(x, v = NULL)`
Arguments

x          a factor or a data frame
v          a list of variables (optional, if x is a data frame)

Details

If x is a data frame, only factor variables of x will be impacted. If a list of variables is provided through v, only the unused levels of the specified variables will be removed.

Author(s)

Joseph Larmarange <joseph@larmarange.net>

Examples

df <- data.frame(v1=c("a","b","a","b"),v2=c("x","x","y","y"))
df$v1 <- factor(df$v1,c("a","b","c"))
df$v2 <- factor(df$v2,c("x","y","z"))
df
str(df)
str(rm.unused.levels(df))
str(rm.unused.levels(df,"v1"))

Description

Sample from the 2012 national french census. It contains results for every french city of more than 2000 inhabitants, and a small subset of variables, both in population counts and proportions.

Format

A data frame with 5170 rows and 60 variables

Source

https://www.insee.fr/fr/information/2008354
Description

Sample from the 1999 french census for the cities of the Rhône state.

Format

A data frame with 301 rows and 21 variables

Source

https://www.insee.fr/fr/information/2008354

rprop

Row percentages of a two-way frequency table.

Description

Return the row percentages of a two-way frequency table with formatting and printing options.

Usage

rprop(tab, ...)

## S3 method for class 'table'

rprop(
  tab,
  digits = 1,
  total = TRUE,
  percent = FALSE,
  drop = TRUE,
  n = FALSE,
  ...
)

## S3 method for class 'data.frame'

rprop(
  tab,
  digits = 1,
  total = TRUE,
  percent = FALSE,
  drop = TRUE,
  n = FALSE,
rprop

... )

## S3 method for class 'matrix'

rprop(
  tab,
  digits = 1,
  total = TRUE,
  percent = FALSE,
  drop = TRUE,
  n = FALSE,
  ...
)

## S3 method for class 'tabyl'

rprop(tab, digits = 1, total = TRUE, percent = FALSE, n = FALSE, ...)

Arguments

  tab frequency table
  ... parameters passed to other methods.
  digits number of digits to display
  total if TRUE, add a column with the sum of percentages and a row with global percentages
  percent if TRUE, add a percent sign after the values when printing
  drop if TRUE, lines or columns with a sum of zero, which would generate NaN percentages, are dropped.
  n if TRUE, display number of observations per row.

Value

The result is an object of class table and proptab.

See Also

cprop, prop, table, prop.table

Examples

## Sample table
data(Titanic)
tab <- apply(Titanic, c(1,4), sum)
## Column percentages
rprop(tab)
## Column percentages with custom display
rprop(tab, digits=2, percent=TRUE, total=FALSE)
Description

Generate table with multiple weighted crossresult (full sample is first column). `kable()`, which is found in library(knitr), is recommended for use with RMarkdown.

Usage

```
tabs(
  df, 
  x, 
  y, 
  type = "percent", 
  percent = FALSE, 
  weight = NULL, 
  normwt = FALSE, 
  na.rm = TRUE, 
  na.show = FALSE, 
  exclude = NULL, 
  digits = 1
)
```

Arguments

- **df**: A data.frame that contains x and (optionally) y and weight.
- **x**: variable name (found in df). `tabs(my.data, x = 'q1')`.
- **y**: one (or more) variable names. `tabs(my.data, x = 'q1', y = c('sex', 'job'))`.
- **type**: 'percent' (default ranges 0-100), 'proportion', or 'counts' (type of table returned).
- **percent**: if TRUE, add a percent sign after the values when printing
- **weight**: variable name for weight (found in df).
- **normwt**: if TRUE, normalize weights so that the total weighted count is the same as the unweighted one
- **na.rm**: if TRUE, remove NA values before computation
- **na.show**: if TRUE, show NA count in table output
- **exclude**: values to remove from x and y. To exclude NA, use na.rm argument.
- **digits**: Number of digits to display; `?format.proptab for formatting details`.

Details

tabs calls wtd.table on ‘x’ and, as applicable, each variable named by ‘y’.
Author(s)

Pete Mohanty

Examples

data(hdv2003)
tabs(hdv2003, x = "relig", y = c("qualif", "trav.imp"), weight = "poids")
result <- tabs(hdv2003, x = "relig", y = c("qualif", "trav.imp"), type = "counts")
format(result, digits = 3)

# library(knitr)
# xt <- tabs(hdv2003, x = "relig", y = c("qualif", "trav.imp"), weight = "poids")
# kable(format(xt))  # to use with RMarkdown...

A fertility survey - "women" table

Description

Some fictive results from a fertility survey.

Format

A data frame containing the questionnaire administered to all 15-49 years old women living in the selected households for the fertility survey.

wtd.mean

Weighted mean and variance of a vector

Description

Compute the weighted mean or weighted variance of a vector. Exact copies of Hmisc functions.

Usage

wtd.mean(x, weights = NULL, na.rm = TRUE)

Arguments

x Numeric data vector
weights Numeric weights vector. Must be the same length as x
na.rm if TRUE, delete NA values.

Details

If weights is NULL, then an uniform weighting is applied.
Author(s)

These functions are exact copies of the \texttt{wtd.mean} and \texttt{wtd.var} function from the \texttt{wtd.stats} package. They have been created by Frank Harrell, Department of Biostatistics, Vanderbilt University School of Medicine, <f.harrell@vanderbilt.edu>.

See Also

\texttt{mean}, \texttt{var}, \texttt{wtd.table} and the \texttt{survey} package.

Examples

\begin{verbatim}
data(hdv2003)
mean(hdv2003$age)
wtd.mean(hdv2003$age, weights=hdv2003$poids)
\end{verbatim}

---

**wtd.table**

\textit{Weighted one-way and two-way frequency tables.}

Description

Generate weighted frequency tables, both for one-way and two-way tables.

Usage

\begin{verbatim}
\texttt{wtd.table(}
  \texttt{x},
  \texttt{y = NULL,}
  \texttt{weights = NULL,}
  \texttt{digits = 3,}
  \texttt{normwt = FALSE,}
  \texttt{useNA = c("no", "ifany", "always"),}
  \texttt{na.rm = TRUE,}
  \texttt{na.show = FALSE,}
  \texttt{exclude = NULL}
\texttt{)}
\end{verbatim}

Arguments

- \texttt{x} \hspace{1cm} a vector
- \texttt{y} \hspace{1cm} another optional vector for a two-way frequency table. Must be the same length as \texttt{x}
- \texttt{weights} \hspace{1cm} vector of weights, must be the same length as \texttt{x}
- \texttt{digits} \hspace{1cm} Number of significant digits.
- \texttt{normwt} \hspace{1cm} if \texttt{TRUE}, normalize weights so that the total weighted count is the same as the unweighted one
- \texttt{useNA} \hspace{1cm} whether to include NA values in the table
na.rm  (deprecated) if TRUE, remove NA values before computation
na.show (deprecated) if TRUE, show NA count in table output
exclude values to remove from x and y. To exclude NA, use na.rm argument.

Details
If weights is not provided, an uniform weighting is used.

Value
If y is not provided, returns a weighted one-way frequency table of x. Otherwise, returns a weighted two-way frequency table of x and y

See Also
wtd.table, table, and the survey package.

Examples
data(hdv2003)
wtd.table(hdv2003$sexe, weights=hdv2003$poids)
wtd.table(hdv2003$sexe, weights=hdv2003$poids, normwt=TRUE)
table(hdv2003$sexe, hdv2003$hard.rock)
wtd.table(hdv2003$sexe, hdv2003$hard.rock, weights=hdv2003$poids)
Index

* connection
  clipcopy, 5
* datasets
  children, 4
  enfants, 12
  fecondite, 13
  femmes, 13
  fertility, 14
  happy, 19
  hdv2003, 20
  households, 20
  menages, 25
  rp2012, 37
  rp99, 38
  women, 41
* manip
  rename.variable, 36
* univar
  cramer.v, 8
  addNA, 3
  addNAstr, 3
  children, 4
  chisq.residuals, 4
  chisq.test, 4
  clipcopy, 5, 6
  copie (clipcopy), 5
  cprop, 6, 16, 31, 39
  cramer.v, 8
  cross.multi.table, 8, 27
  cut, 34
  describe, 10
  duplicated, 11, 12
  duplicated2, 11
  enfants, 12
  escape.regex, 12
  fecondite, 12, 13, 13, 14, 25

femmes, 13
fertility, 4, 13, 14, 20, 41
first_non_null, 14
fisher.test, 29
format.default, 15
format.proptab, 6, 15, 30
freq, 15
freq.na, 17
ggplot2::aes(), 18
ggplot2::geom_smooth(), 18
ggsurvey, 18
glm, 29

happy, 19
hdv2003, 20
households, 20

icut, 20
ifunc_get_css, 21
ifunc_run_as_addin, 21
ifunc_show_alert, 22
install.packages, 32
iorder, 22
irec, 23
is.na, 17

kable, 6

library, 32, 33
lookfor, 11, 17
lprop (rprop), 38
ltabs, 24

mean, 42
menages, 25
multi.split, 9, 25, 27
multi.table, 9, 25, 26
multinom, 29

na.omit, 27
INDEX

na.rm, 27
nnet, 29

odds.ratio, 28

print.description (describe), 10
print.odds.ratio (odds.ratio), 28
print.proptab, 15, 29
printCoefmat, 29
prop, 7, 16, 30, 39
prop.table, 7, 31, 39
prop_table (prop), 30

qload, 32, 33
qscan, 32, 33
quant.cut, 34
quantile, 34

recode.na, 35
regex, 35
rename.variable, 36
renomme.variable (rename.variable), 36
residus (chisq.residuals), 4
rm.unused.levels, 36
rp2012, 37
rp99, 38
rprop, 7, 16, 31, 38

stats, 29
survey::svydesign(), 18

table, 7, 9, 16, 17, 27, 31, 39, 43
tabs, 40

var, 42

women, 41
wtd.mean, 41
wtd.stats, 42
wtd.table, 42, 42, 43
wtd.var (wtd.mean), 41

xtabs, 24