Package 'vdi'

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Description A small package containing miscellaneous functions.

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LazyData yes

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URL http://vdi.xoom.it/

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`vdi-package` *Small Collection of R Scripts*

Description

A small package containing miscellaneous functions.

Details

Version:	0.14-1
Date:	2013-04-03
License:	GPL version 2 or newer

The most updated version of the package can be found at `http://vdi.xoom.it/`.

Author(s)

Vincenzo Luca Di Iorio <`v.diiorio@yahoo.it`> with contributions from Lutz O. Harnisch.

`add.plot.filename` *Prepares Environment for Plots*

Description

`add.plot.filename` prepares the environment for plots: 1) creates filesnames on a list of trellis graphs, 2) dumps the plot function into a file.

Usage

```
add.plot.filename(pp, call = match.call(call = sys.call(sys.parent())),
                  String = NULL, DIR = ".", width = 132,
                  dump.function = FALSE)
```

Arguments

`pp`	list of trellis plots.
`call`	call to create the plots, default is match.call(call = sys.call(sys.parent())).
`String`	additional string for plot filename.

DIR	directory to create plots into, default is current working directory.
width	width of the file which takes the plot function code.
dump.function	switch to prevent from dumping the function.

Value

A modified list of trellis graphs is returned.

Author(s)

Lutz O. Harnisch, <harnisch@btinternet.com>
Modified by Vincenzo Luca Di Iorio, <v.diiorio@yahoo.it>

Examples

```
tmp.fun <- function() {
   pl<-list()
   pl[[1]] <- xyplot(conc~Time, data=Theoph)
   pl[[2]] <- xyplot(conc~Time, data=Theoph, type="b", groups=Subject)
   pl <- add.plot.filename(pl)
   return(pl)
}

tmp.pl <- tmp.fun()

## updated attributes for the (first) plot
attributes(tmp.pl[[1]])
```

---

carryfwd *Carries a Value in a Vector Forward*

Description

carryfwd identifies all the missing values and return a vector of carried forward values.

Usage

```
carryfwd(x, idx = FALSE, na = NA, back = TRUE)
```

Arguments

x	a vector to be carried forward.
idx	if set to TRUE index rather than values is returned.
na	a vector of values which are also to be interpreted as 'NA' values.
back	if set to TRUE initial 'NA' values are replaced with the first not missing value carried backward.

Value

A vector of carry forwarded values or a vector of index numbers.

Author(s)

Lutz O. Harnisch, <harnisch@btinternet.com>
Modified by Vincenzo Luca Di Iorio, <v.diiorio@yahoo.it>

Examples

```
xx <- rep(c(NA,4,NA,3,0,2,5),rep(2,7))
carryfwd(xx)
carryfwd(xx,idx=TRUE)
carryfwd(xx,na=c(NA,0))
carryfwd(xx,back=FALSE)
```

---

cd *Set Working Directory and (Rgui Only) Show the Current Path*

Description

cd changes the working directory and shows the current path in the title of the Rgui window. If Rgui is not available cd is just an alias for setwd.

Usage

```
cd(path='.')
```

Arguments

path	A character string representing the directory path. Default value is the current working directory.

Value

Returns the previous working directory (invisibly).

Author(s)

Vincenzo Luca Di Iorio, <v.diiorio@yahoo.it>

---

col2hex *Color to Hexadecimal Conversion*

Description

R color to hexadecimal string conversion.

Usage

```
col2hex(col, rgb = FALSE)
```

Arguments

col	vector of any of the four kind of R colors, i.e., either a color name (an element of 'colors()'), an rgb vector, a hexadecimal string of the form '"#rrggbb"' or an integer 'i' meaning 'palette()[i]'. Non-string values are coerced to integer.
rgb	logical value indicating whether the values of 'col' are to be considered rgb vector(s) or not. Default is FALSE.

Value

A hexadecimal string or a vector of hexadecimal strings.

Author(s)

Vincenzo Luca Di Iorio, <v.diiorio@yahoo.it>

See Also

col2rgb

Examples

```
## second color in standard palette (e.g. 'red')
col2hex(2)

## vector of color names
col2hex(c('firebrick1','royalblue'))

## rgb colors
col2hex(c(21,123,56,31,68,108),rgb=TRUE)
```

---

dark *List of Settings for Trellis Plots (Black Background)*

Description

dark is a list of settings for trellis plots with black background and white axes.

Author(s)

Vincenzo Luca Di Iorio, <v.diiorio@yahoo.it>

Examples

```
xyplot(rnorm(10000)~rnorm(10000),pch='.',col='white',par.settings=dark)
```

DOS *Invoke a Command Using a Shell*

Description

DOS runs the command specified by cmd under a DOS shell in Windows. In OS other than Windows DOS is just an alias of system and the arguments shw and invis will be ignored.

Usage

```
DOS(cmd, shw = FALSE, invis = FALSE)
```

Arguments

cmd	the command to be invoked, as a string.
shw	logical (not NA), indicates whether to capture the output of the command and show it on the Rconsole (not used by Rterm, which shows the output in the terminal unless wait is FALSE). Default value is FALSE.
invis	logical (not NA), indicates whether the DOS window should be visible on the screen. Default value is FALSE.

Value

DOS returns the same output of system.

Author(s)

Vincenzo Luca Di Iorio, <v.diiorio@yahoo.it>

See Also

system, shell

Examples

```
## Not run:
## in Windows open a DOS shell for manual input
DOS("start")

## running PSN from R
## N.B. it only works if the 'execute' command is on the system PATH
DOS('execute mymodel.con -min_retries=4 -picky -tweak_inits')
## End(Not run)
```

easter *Easter Date Calculation*

Description

This function can be used to calculate the Easter dates for years in the Gregorian calendar.

Usage

```
easter(y)
```

Arguments

y	A vector of years with century. If y is missing the function returns the next Easter date using system time.

Details

The years must be greater than 1582 (Gregorian calendar).

Value

A character vector representing Easter dates.

Author(s)

Vincenzo Luca Di Iorio, <v.diiorio@yahoo.it>

ev *Concatenate and Evaluate Strings*

Description

Concatenate vectors after converting to character and evaluate the resulting string(s) as an R command.

Usage

```
ev(..., sep = "", envir = parent.frame(), exec = TRUE)
```

Arguments

...	one or more R objects, to be converted to character vectors. It may also include the optional argument collapse to be passed to paste.
sep	a character string to separate the terms (default is "", i.e. no separator).
envir	the environment to be used for the evaluation (default is parent.frame()).
exec	a logical value indicating whether the resulting string(s) should be evaluated as an R command (default is TRUE). exec can be set to FALSE to check the command(s) sintax before evaluation.

Value

ev returns the standard output of the evaluated string(s), unless exec is FALSE in which case it returns the string(s).

Author(s)

Vincenzo Luca Di Iorio, <v.diiorio@yahoo.it>

See Also

paste

Examples

```
## creates two vectors, 'vec1' and 'vec2',
## containing ten random numbers each
ev('vec', 1:2, ' <- rnorm(10)')

## shows the first vector
print(vec1)

## shows the second vector
print(vec2)

## shows the strings instead of evaluating them
ev('vec', 1:2, ' <- rnorm(10)', exec=FALSE)
```

First *First Occurence in a Vector*

Description

First returns the index of the first occurence of unique(x) in x.

Usage

```
First(x, idx = TRUE)
```

Arguments

x	A vector.
idx	A logical indicator to return either the index or logical vector indicating the position of unique(x) in x.

Value

A vector of index numbers or a logical vector.

Author(s)

Lutz O. Harnisch, <harnisch@btinternet.com>
Modified by Vincenzo Luca Di Iorio, <v.diiorio@yahoo.it>

Examples

```
letters[rep(1:4,4:1)]
First(rep(1:4,4:1))
First(letters[rep(1:4,4:1)],FALSE)
```

`logscale` *Creates a Logscale*

Description

`logscale` creates a logscale for Trellis graphs.

Usage

```
logscale(lims, upp = NULL, cex = NA, factor.lab = 1)
```

Arguments

`lims`	vector of lower and upper limit.
`upp`	if lims contains only lower, upp provides upper boundary.
`cex`	size of labels.
`factor.lab`	if labels are numeric can use factor to rescale them.

Value

a list object suitable to `scale` in Trellis graphs.

Author(s)

Lutz O. Harnisch, <harnisch@btinternet.com>
Modified by Vincenzo Luca Di Iorio, <v.diiorio@yahoo.it>

See Also

`xyplot`

Examples

```
Y <- rlnorm(100)
xyplot(Y~1:100)
xyplot(Y~1:100, scales=list(y=logscale(range(Y))))
```

News *Read vdi NEWS File or a Similar One*

Description

Read the NEWS file for package 'vdi' or a similar file for another package. Can also be used to read other files in the package subdirectory (eg. LICENCE, NAMESPACE, COPYING, INDEX, etc.).

Usage

```
News(pkg = "vdi", filename = "NEWS", shw = FALSE)
```

Arguments

pkg	the package name (default is "vdi").
filename	the file to be read (default is "NEWS"). This argument is case sensitive.
shw	a logical value indicating whether the names of the files in the package subdirectory are printed (the default is FALSE).

Author(s)

Vincenzo Luca Di Iorio, <v.diiorio@yahoo.it>

See Also

readNEWS, file.show

Examples

```
## Not run:
## 'vdi' NEWS file
News()

## 'MASS' NEWS file
News('MASS')

## 'MASS' INDEX file
News('MASS','INDEX')

## 'MASS' INDEX file and names
## of files in 'MASS' subfolder
News('MASS','INDEX',shw=TRUE)

## End(Not run)
```

panel.boxplot *Extends the Standard Lattice Panel for Boxplots*

Description

panel.boxplot is a panel function for lattice plots which extends the standard panel.bwplot.

Usage

```
panel.boxplot(x, y, varwidth = TRUE, horizontal = FALSE,
              box.ratio = 1, cex.out = 1, cex.med = 1,
              logx = FALSE, logy = FALSE, probs = NULL,
              col1 = "lightgreen", col2 = "darkgreen",
              coef = 1.5, do.out = TRUE, ...)
```

Arguments

x,y	numeric vector or factor. Boxplots drawn for each unique value of y (x) if horizontal is TRUE (FALSE).
varwidth	logical. If TRUE, widths of boxplots are proportional to the number of points used in creating it.
horizontal	logical indicating if the boxplots should be horizontal; default FALSE means vertical boxes.
box.ratio	ratio of box height to inter box space.
cex.out	size to plot outlier points in.
cex.med	size to plot median points in.
logx	logical indicating if x coordinates should be plotted in log scale. Currently logx=TRUE gives an incorrect plot; this issue will be addressed in future releases.
logy	logical indicating if y coordinates should be plotted in log scale. Currently logy=TRUE gives an incorrect plot; this issue will be addressed in future releases.
probs	use vector of probabilities instead of standard boxplot calculations.
col1	box color.
col2	notch color.
coef	this determines how far the plot "whiskers" extend out from the box. If coef is positive, the whiskers extend to the most extreme data point which is no more than coef times the length of the box away from the box. A value of zero causes the whiskers to extend to the data extremes (and no outliers be returned).
do.out	if 'do.out' is not true, the outliers are not drawn.
...	graphical parameters can be supplied.

Value

Plots boxplots into the current panel.

Author(s)

Lutz O. Harnisch, <harnisch@btinternet.com>
Modified by Vincenzo Luca Di Iorio, <v.diiorio@yahoo.it>

See Also

bwplot, panel.bwplot, boxplot, boxplot.stats

Examples

```
pl.box <- function() {

  pl <- list()

  pl[[1]] <- bwplot(CONC~DOSE,data=PKdata,notch=TRUE,xlab='Dose (mg)',
                    ylab='Concentration (ng/mL)')
  pl[[2]] <- bwplot(CONC~DOSE,data=PKdata,panel=panel.boxplot,
                    xlab='Dose (mg)',ylab='Concentration (ng/mL)')
  pl[[3]] <- bwplot(CONC~DOSE,data=PKdata,panel=panel.boxplot,
                    xlab='Dose (mg)',ylab='Concentration (ng/mL)',
                    do.out=FALSE)
  pl[[4]] <- bwplot(CONC~DOSE,data=PKdata,panel=panel.boxplot,
                    xlab='Dose (mg)',ylab='Concentration (ng/mL)',
                    col1="cyan",col2="blue")
  pl[[5]] <- bwplot(CONC~DOSE,data=PKdata,panel=panel.boxplot,
                    xlab='Dose (mg)',ylab='Concentration (ng/mL)',
                    col1="cyan",col2="blue",coef=0)
  pl[[6]] <- bwplot(DOSE~CONC,data=PKdata,panel=panel.boxplot,
                    ylab='Dose (mg)',xlab='Concentration (ng/mL)',
                    horizontal=TRUE)

  pl <- prep(pl)

  return(pl)

}

old.opt <- options(device.ask.default = FALSE)
pl.box()
on.exit(options(old.opt))
```

---

panel.lmtxt *Panel Function for Linear Fit Summary Legend*

Description

panel.lmtxt is a panel function for lattice plots which adds a legend summarising the results of a linear fit.

Usage

```
panel.lmtxt(x, y, xx = 0.04, yy = 0.97, col = "black",
            lwd = 1, lty = 1, fontface = 2, cex = 1,
            Rsquare = FALSE)
```

Arguments

x,y	variables to be plotted in the scatterplot.
xx,yy	position of the legend top-left corner in npc units (i.e. xx = 0, yy = 0 bottom-left corner of the plot region; xx = 1, yy = 1 top-right corner of the plot region). Default: xx = 0.04, yy = 0.97 (near the top-left corner of the plot region).
col	legend color (default = "black").
lwd	legend line width (default = 1).
lty	legend line type (default = 1; solid line).
fontface	legend font type (default = 2; bold).
cex	numerical value giving the amount by which the legend should be scaled relative to the default.
Rsquare	a logical value indicating whether the R squared and the adjusted R squared are also shown in the legend. The default value is FALSE.

Author(s)

Vincenzo Luca Di Iorio, <v.diiorio@yahoo.it>

---

param *Extract Parameters from a NONMEM Run*

Description

The function 'param' requires a valid PSN installation and it has been tested only in Windows with PsN 3.5.3 or older. Please report to the author any bug, especially for OS other than Windows.

Usage

```
param(path = '.', run = 1, se = FALSE, verbose = TRUE)
```

Arguments

path	the path of the folder created by PSN (e.g. modelfit_dir1). Default vaulue is the current working directory.
run	the last number in the name of the folder created by PSN (default value is 1 for modelfit_dir1)
se	should the standard errors be returned as well? Default is FALSE
verbose	a logical, indicates whether to show the results on the R console. Default is TRUE

Value

This function returns a data frame containing parameter estimates and other useful information from a NONMEM run.

Author(s)

Vincenzo Luca Di Iorio, <v.diiorio@yahoo.it>

parset *List of Settings for Trellis Plots (Bold Axes)*

Description

parset is a list of settings for trellis plots with bold axes.

Author(s)

Vincenzo Luca Di Iorio, <v.diiorio@yahoo.it>

Examples

```
xyplot(1:10~1:10,par.settings=parset)
```

PKdata *Dummy PK Dataset*

Description

PKdata is the dummy PK dataset used in the example for function panel.boxplot.

Author(s)

Vincenzo Luca Di Iorio, <v.diiorio@yahoo.it>

See Also

panel.boxplot

prep *Prepares Environment for Plots*

Description

prep prepares the environment for plots adding attributes to trellis objects.

Usage

```
prep(pl, txt = "", pth = ".")
```

Arguments

pl	list of trellis plots.
txt	(vector of) additional string(s) for plot filenames, default is the empty string "".
pth	(vector of) directory path(s) to create plots into, default is current working directory.

Value

An object of class "nmPlots" containing trellis objects with additional attributes is returned.

Author(s)

Vincenzo Luca Di Iorio, <v.diiorio@yahoo.it>

Examples

```
tmp.fun <- function() {
   pl<-list()
   pl[[1]] <- xyplot(conc~Time, data=Theoph)
   pl[[2]] <- xyplot(conc~Time, data=Theoph, type="b", groups=Subject)
   pl <- prep(pl,txt=c("A","B"))
   return(pl)
}

tmp.pl <- tmp.fun()

## 'tmp.pl' belongs to class "nmPlots"
class(tmp.pl)

## updated attributes for the first plot
attributes(tmp.pl[[1]])

## updated attributes for the second plot
attributes(tmp.pl[[2]])
```

---

print.nmPlots *A tcltk Menu to View or Print Plots*

Description

This print method produces a device control menu for a list of trellis plots preprocessed with add.plot.filename.

Usage

```
## S3 method for class 'nmPlots'
print(x, width = 765, height = 765, ...)
```

Arguments

x	list of trellis plots preprocessed with add.plot.filename.
width	starting value for the picture width slider.
height	starting value for the picture height slider.
...	extra arguments, ignored by this print method.

Details

This `print` method opens a tcltk interface to view individual plots, or print them into png or pdf files.

Options on the interface are

- `Color:` color or gray scale output.
- `Transparent:` to print with transparent background.
- `All in One:` to print all the plots at once.
- `png/pdf:` image file format.

Value

Device depedent output on either the screen or into image files.

Author(s)

Lutz O. Harnisch, <harnisch@btinternet.com>
Modified by Vincenzo Luca Di Iorio, <v.diiorio@yahoo.it>

See Also

`add.plot.filename`

`read.nonmem` *Data Input from NONMEM Output*

Description

Reads a NONMEM output file and creates a data frame from it, with cases corresponding to lines and variables to fields in the file.

Usage

```
read.nonmem(file, header = TRUE, addE = FALSE, ...)
```

Arguments

`file`	the name of the file which the data are to be read from.
`header`	a logical value indicating whether the file contains the names of the variables as its first line.
`addE`	a logical value indicating whether a capitol letter E should be added anytime a numeric digit precedes a plus or a minus sign followed by another numeric digit. That is meant to address a known issue with numbers in scientific notation in NONMEM output tables. The default setting is FALSE.
`...`	further arguments to be passed to 'read.table'.

Value

A data frame containing a representation of the data in the file.

Author(s)

Vincenzo Luca Di Iorio, <v.diiorio@yahoo.it>

See Also

read.table, read.csv

Examples

```
## Not run:
## to read a NONMEM output table with headers
d <- read.nonmem("table.tab")

## to read a NONMEM output table without headers
d <- read.nonmem("table.tab",header=FALSE)
## End(Not run)
```

---

remove.vdi *Remove the Package vdi*

Description

The remove.vdi function can be used to remove the 'vdi' package.

Usage

```
remove.vdi()
```

Value

The function returns a message to confirm the removal or an error message if something goes wrong.

Author(s)

Vincenzo Luca Di Iorio, <v.diiorio@yahoo.it>

---

ren *Rename Data Frame Column*

Description

This function can be used to rename a data frame column.

Usage

```
ren(x, y, z)
```

Arguments

x	old column name.
y	new column name.
z	data frame.

Value

NULL. This function doesn't return any value, it simply changes the column name in the data frame.

Author(s)

Vincenzo Luca Di Iorio, <v.diiorio@yahoo.it>

---

resc *Extra Padding for Trellis Plot*

Description

The function 'resc' can be used to obtain some extra padding when the arguments xlim and/or ylim are provided to a trellis plot function.

Usage

```
resc(ran, perc = 7)
```

Arguments

ran	A numeric vector of length 2.
perc	A numeric value representing the percentage of padding. Negative values are not allowed. Default value is 7.

Value

A new range for xlim and/or ylim.

Author(s)

Vincenzo Luca Di Iorio, <v.diiorio@yahoo.it>

Examples

```
## no padding: two dots are truncated!
xyplot(1:10~1:10,cex=3,pch=19,col='black',xlim=c(2,9),ylim=c(2,9))

## padding
xyplot(1:10~1:10,cex=3,pch=19,col='black',xlim=resc(c(2,9)),
       ylim=resc(c(2,9)))
```

strip.cs *Strip Customisation for Trellis Plot*

Description

'strip.cs' provides a convenient way to obtain new strip functions that differ only in the values of certain arguments, like 'strip.custom' in the packgage 'lattice', but with different default values and an easier approach to provide font related arguments.

Usage

```
strip.cs(alpha = trellis.par.get("add.text")[[1]],
         cex = trellis.par.get("add.text")[[2]],
         col = trellis.par.get("add.text")[[3]],
         font = trellis.par.get("add.text")[[4]],
         lineheight = trellis.par.get("add.text")[[5]],
         bgn, style = 1, bg, fg, ...)
```

Arguments

alpha	font transparency.
cex	font dimension.
col	font color.
font	font style (e.g. 'bold', 'italic', etc.).
lineheight	height of a line as a multiple of the font size.
bgn	a number to select one of the seven standard color schemes for the strip. Not integer, large and negative numbers are allowed but converted in integers from 1 to 7. Default is 2.
style	a number to select one of the five standard styles for the strip. Only integers from 1 to 5 are currently supported, any other number is regarded as 5. Default is 1.
bg	strip background color. Ignored if a value for 'bgn' is provided.
fg	strip foreground color. Ignored if a value for 'bgn' is provided.
...	additional arguments to be passed on to 'strip.default', overriding whatever value it would have normally assumed.

Value

'strip.cs' is called for its side-effect, which is to draw a strip appropriate for multi-panel Trellis conditioning plots.

Author(s)

Vincenzo Luca Di Iorio, <v.diiorio@yahoo.it>

See Also

strip.default, strip.custom

Examples

```
## strip.cs default
xyplot(Petal.Length ~ Petal.Width | Species, iris, strip=strip.cs())

## changing background color, font style and font size
xyplot(Petal.Length ~ Petal.Width | Species, iris,
       strip=strip.cs(font = 'bold',bg = 'gainsboro', cex = 0.9))
```

---

trim *Remove Blanks from Strings*

Description

This function (like TRIM in FORTRAN) removes blanks from strings.

Usage

```
trim(x, where = "both", more = FALSE)
```

Arguments

x	a single element, a vector or a list. Non-character type inputs elements will be coverted (NA will be converted to "", 0-length elements like NULL or numeric(0) will be ignored).
where	allowed values are: • both (default) leading and trailing blanks will be removed • right trailing blanks will be removed • left leading blanks will be removed • all all blanks will be removed.
more	if more is FALSE (default) only spaces will be removed. Set more to TRUE to remove also tabs, newlines, vertical tabs, form feeds and carriage returns.

Value

A vector or matrix of strings (depending on the input; the behaviour is the same of sapply).

Author(s)

Vincenzo Luca Di Iorio, <v.diiorio@yahoo.it>

See Also

sub, gsub and regex.

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