Package: RcmdrPlugin.HH (via r-universe)

September 3, 2024

Type Package

Title Rcmdr Support for the HH Package

Version 1.1-51

Date 2024-03-07

Author Richard M. Heiberger, with contributions from Burt Holland

Maintainer Richard M. Heiberger <rmh@temple.edu>

Depends R (>= 3.0.2), HH

Imports Rcmdr (>= 2.0-0), lattice, mgcv

Suggests car, leaps, latticeExtra, rgl

Description Rcmdr menu support for many of the functions in the HH package. The focus is on menu items for functions we use in our introductory courses.

License GPL (>= 2)

NeedsCompilation no

Date/Publication 2024-03-06 23:40:11 UTC

Repository https://rmheiberger.r-universe.dev

RemoteUrl https://github.com/cran/RcmdrPlugin.HH

RemoteRef HEAD

RemoteSha 75a1aecbcf03dab24d6cb471b44c7c70201fc5a0

Contents

`RcmdrPlugin.HH-package`

Functions added to the Rcmdr package to support the introductory course at Temple University.

Description

Our introductory course spends time on several topics that are not yet in the R Commander. Therefore we wrote the menu items and make them available.

Details

The DESCRIPTION file:

Package:	RcmdrPlugin.HH
Type:	Package
Title:	Rcmdr Support for the HH Package
Version:	1.1-51
Date:	2024-03-07
Author:	Richard M. Heiberger, with contributions from Burt Holland
Maintainer:	Richard M. Heiberger <rmh@temple.edu>
Depends:	R (>= 3.0.2), HH
Imports:	Rcmdr (>= 2.0-0), lattice, mgcv
Suggests:	car, leaps, latticeExtra, rgl
Description:	Rcmdr menu support for many of the functions in the HH package. The focus is on menu items for functions w
License:	GPL (>= 2)

Index of help topics:

BoxCox	Rcmdr BoxCox demo renamed to active function.
CloseCommanderRestart	Close Rcmdr without questions and then restart.
DotplottbRcmdr	Rcmdr menu interface to dotplot(panel=panel.dotplot.tb).
Interaction2wtRcmdr	Rcmdr menu interface to interaction2wt
MMCmenu	Menu interface to MMC plots.
PlotLikertDialog	Rcmdr Menu function to specify a likert plot.
PredictModel	Rcmdr menu interface to predict
Projector	Set Rcmdr options for good visibility on classroom projector and on netbook screen with 600 pixel height.
QQPlot.HH	Quantile-Comparison (QQ) Plot
R_options	Set R options from within R commander.
RcmdrPlugin.HH-package	Functions added to the Rcmdr package to support the introductory course at Temple University.
Regr1Plot	Rcmdr Menu function to display the squared residuals.
ResizeEtcDialog	Rcmdr Menu function to specify combining and resizing "trellis" objects.
Scatter3DDialog.HH	Rcmdr 3D Scatterplot Dialog (HH)
Xyplot.HH	Rcmdr Menu function to specify xyolot, other lattice plots, and likert plots.
anovaTableI.HH	Rcmdr interfacce to anova function
bestSubsetsRegressionModel.HH	Rcmdr interface to the regsubsets function in the leaps package.
confidenceIntervalsPlot	Rcmdr interface to plot confidence and prediction intervals in simple linear regression
latticeFunctions	Support functions for the Xyplot.HH2 function.
normal.and.t.hypotheses.plot	Rcmdr normalHypothesesPlot and tHypothesesPlot menu.
scatter3dHH	Three-Dimensional Scatterplots and Point Identification
scatterPlot.HH	Scatterplot menu with different defaults than Rcmdr.
scatterPlotMatrix.HH	Scatterplot Matrices
twoWayTable.HH	Rcmdr menu interface to chisq.test

bestSubsetsRegressionModel.HH Rcmdr interface to the regsubsets function in the leaps package.

twoWayTable.HH Pearson's Chi-squared Test for Count Data (additional formats for data input)

anovaTableI.HH Sequential sums of squares on the Rcmdr menu.

scatter3dHH add the ability to plot squared residuals. The squared residuals have been adopted into Rcmdr. This interface offers a checkbox for a new 3D window and an option to draw a non-

least-squares plane for pedagogical comparison.

`ci.plot` Plot confidence and prediction intervals for simple linear regression.

`panel.bwplot.intermediate.hh` Panel function for `bwplot` that give the user control over the placement of the boxes.

`interaction2wt` Plot all main effects and twoway interactions in a multifactor design.

`scatterPlotMatrix.HH` Similar to `scatterplotMatrix` The revision uses `row1attop=FALSE` to force the main diagonal of the scatterplot matrix to go uphill from southwest to northeast.

`QQPlot.HH` Added Shapiro-Wilk test of normality.

`norm.curve` Plot a normal curve with shaded rejection regions, optionally a second curve centered at an alternative hypothesis value can be plotted. Both `x` and `z` scales are displayed.

Author(s)

Richard M. Heiberger, with contributions from Burt Holland

Maintainer: Richard M. Heiberger <rmh@temple.edu>

References

Heiberger, Richard M. and Holland, Burt (2015). *Statistical Analysis and Data Display: An Intermediate Course with Examples in R*. Second Edition. Springer-Verlag, New York. https://link.springer.com/book/10.1007/978-1-4939-2122-5

Heiberger, Richard M. and Holland, Burt (2004). *Statistical Analysis and Data Display: An Intermediate Course with Examples in S-Plus, R, and SAS*, First Edition. Springer Texts in Statistics. Springer. https://link.springer.com/book/10.1007/978-1-4757-4284-8.

See Also

`Rcmdr`

Examples

```
## Not run:
   ## start R
   library(RcmdrPlugin.HH)        ## loads the package and opens the Rcmdr
                                  ## window with the HH menu

## End(Not run)
```

anovaTableI.HH *Rcmdr interfacce to anova function*

Description

Rcmdr interface to anova function, specifically to get the sequential sums of squares.

Usage

```
anovaTableI.HH()
anovaTableII.HH()  ## exact copy of John Fox's anovaTable from Rcmdr/R/model-menu.R
```

Author(s)

Richard M. Heiberger <rmh@temple.edu>

See Also

anova

bestSubsetsRegressionModel.HH
Rcmdr interface to the regsubsets function in the leaps package.

Description

Menu interface to the Best Subsets Regression function. Selection boxes allow one response variables and one or more predictor variables. All subsets are calculated. Only the best k, where k is menu item, are displayed. A graph displaying one of the following statistics (R^2, residual sum of squares, adjusted R^2, C_p, BIC, s) is displayed. The model with highest adjusted R^2 is made the active model and its summary is displayed.

Usage

```
bestSubsetsRegressionModel.HH()
```

Author(s)

Richard M. Heiberger <rmh@temple.edu>

See Also

regsubsets

`BoxCox` *Rcmdr BoxCox demo renamed to active function.*

Description

Rcmdr menu for Box-Cox Transformations

Usage

```
BoxCox()
```

Author(s)

John Fox <jfox@mcmaster.ca>

`CloseCommanderRestart` *Close Rcmdr without questions and then restart.*

Description

Close Rcmdr without questions. `CloseCommanderNoQuestionRestart` has absolutely no questions. `CloseCommanderRestart` asks only about saving files. Both functions restart Rcmdr immediately and therefore have the full `.GlobalEnv` from the R session still available.

Usage

```
CloseCommanderNoQuestionRestart()
CloseCommanderRestart()
```

Author(s)

Richard M. Heiberger <rmh@temple.edu>

See Also

`closeCommander`

confidenceIntervalsPlot

Rcmdr interface to plot confidence and prediction intervals in simple linear regression

Description

Rcmdr menu interface to the function `ci.plot`. Variable boxes are provided for one predictor variable, one response variable. The simple linear regression is calculated and made the active model.

Usage

```
confidenceIntervalsPlot()
```

Author(s)

Richard M. Heiberger <rmh@temple.edu>

See Also

`ci.plot`

DotplottbRcmdr

Rcmdr menu interface to dotplot(panel=panel.dotplot.tb).

Description

Rcmdr menu interface to dotplot(panel=panel.dotplot.tb).

Usage

```
DotplottbRcmdr()
```

Author(s)

Richard M. Heiberger <rmh@temple.edu>

See Also

`panel.dotplot.tb`

Interaction2wtRcmdr *Rcmdr menu interface to interaction2wt*

Description

Plot all main effects and twoway interactions in a multifactor design. The main diagonal displays boxplots for the main effects of each factor. The off-diagonals show the interaction plots for each pair of factors. The `i,j` panel shows the same factors as the `j,i` but with the trace- and x-factor roles interchanged.

Usage

```
Interaction2wtRcmdr()
```

Author(s)

Richard M. Heiberger <rmh@temple.edu>

See Also

`interaction2wt`

latticeFunctions *Support functions for the Xyplot.HH2 function.*

Description

Support functions for the Xyplot.HH2 function.

Usage

```
latticeFunctions()
latticePanelFunctions()
splomFormula(predictor, data.frame.name)
usualFormula(functionName, response, predictor, data.frame.name)
```

Arguments

`predictor`, `data.frame.name`, `functionName`, `response`
: Arguments to functions.

Value

For `latticeFunctions` and `latticePanelFunctions`, vector of function names. For `splomFormula` and `usualFormula`, a model formula containing the specified variable names.

Author(s)

Richard M. Heiberger <rmh@temple.edu>

See Also

Xyplot.HH

`MMCmenu` *Menu interface to MMC plots.*

Description

Menu interface to MMC (Mean–mean Multiple Comparison) plots.

Usage

```
MMCmenu()
MMC2menu()
AOVModelsP(n=1)
```

Arguments

`n`	Minimum number of `"aov"` models.

Author(s)

Richard M. Heiberger <rmh@temple.edu>

`normal.and.t.hypotheses.plot` *Rcmdr normalHypothesesPlot and tHypothesesPlot menu.*

Description

Rcmdr menus to draw graphs of hypotheses, critical values, and p-values.

Usage

```
normal.and.t.hypotheses.plot()


FHypothesesPlot()

ChisqHypothesesPlot()
```

Author(s)

Richard M. Heiberger <rmh@temple.edu>.

See Also

norm.curve, F.curve, chisq.curve

PlotLikertDialog *Rcmdr Menu function to specify a likert plot.*

Description

Please see likert for details on the plot.likert and related functions.

Usage

```
PlotLikertDialog()
listAllLikertCapable(envir = .GlobalEnv, ...)
LikertFormula()
LikertFormulaConstruct(functionName, response, predictor)
varPosnOriginal(variables, type = c("all", "factor", "numeric", "nonfactor",
    "twoLevelFactor"))
```

Arguments

envir, ...	Arguments to ls.
functionName, response, predictor	Arguments to functions.
variables, type	See varPosn for discussion.

Value

For listAllLikertCapable, a character vector of names of all objects that satisfy the search criteria in the specified environments. See likert for details on what objects are likert capable.

LikertFormulaConstruct constructs a model formula for use by plot.likert.formula from its input arguments.

varPosnOriginal is the same as varPosn except that it always keeps the variables in the same order as the original data.frame.

Author(s)

Richard M. Heiberger <rmh@temple.edu>

See Also

likert

PredictModel *Rcmdr menu interface to predict*

Description

Rcmdr menu interface to predict

Usage

```
PredictModel()
```

Author(s)

Richard M. Heiberger <rmh@temple.edu>

See Also

predict

Projector *Set Rcmdr options for good visibility on classroom projector and on netbook screen with 600 pixel height.*

Description

Set Rcmdr options for good visibility on classroom projector and on netbook screen with 600 pixel height.

Usage

```
Projector()
H600()
```

Author(s)

Richard M. Heiberger <rmh@temple.edu>

QQPlot.HH *Quantile-Comparison (QQ) Plot*

Description

Rcmdr menu interface to plot the qqplot of variable against one of the following distributions: normal, t, chi-square, F, other.

Usage

```
QQPlot.HH()
```

Details

The `normal` gives the option to do the Shapiro-Wilk test of normality. The `other` requires you to specify the distribution. Any distribution for which quantile and density functions exist in R (with prefixes `q` and `d`, respectively) may be used.

Value

`NULL`. These functions are used only for their side effect (to make a graph).

Author(s)

John Fox <jfox@mcmaster.ca>. Shapiro–Wilk test added by Richard M. Heiberger <rmh@temple.edu>.

See Also

`qqPlot`, `shapiro.test`

Regr1Plot *Rcmdr Menu function to display the squared residuals.*

Description

Rcmdr Menu function to display the squared residuals of a linear fit of one y variable on one x variable. The default model is simple linear regression `y ~ x`. Any other model of one y on one x may be used. See the last example in `regr1.plot` for an example of a quadratic function of x.

Usage

```
Regr1Plot()
```

Author(s)

Richard M. Heiberger <rmh@temple.edu>

See Also

regr1.plot

ResizeEtcDialog *Rcmdr Menu function to specify combining and resizing "trellis" objects.*

Description

Please see ResizeEtc for details on the combination of "trellis" and related functions.

Usage

```
ResizeEtcDialog()
listAllTrellisObjects(envir = .GlobalEnv, ...)
```

Arguments

envir, ... Arguments to ls.

Details

This dialog is a template designed to help with writing commandline code.

Value

For listAllTrellisObjects, a character vector of names of all "trellis" objects that satisfy the search criteria in the specified environments.

Author(s)

Richard M. Heiberger <rmh@temple.edu>

See Also

ResizeEtc, resizePanels

R_options *Set R options from within R commander.*

Description

Set R options from within R commander.

Usage

```
R_options()
```

Author(s)

Richard M. Heiberger <rmh@temple.edu>

Scatter3DDialog.HH *Rcmdr 3D Scatterplot Dialog (HH)*

Description

This dialog sets up a call to the `scatter3dHH` function to draw a three-dimensional scatterplot, and optionally to `Identify3d` to label points interactively with the mouse.

Details

The explanatory variables provide the "horizontal" and "out-of-screen" axes of the scatterplot, the response variable provides the "vertical" axis.

Data points are represented as spheres or points, depending upon the number of observations.

Several regression surfaces can be plotted: a linear least-squares surface; a full quadratic least-squares surface with squared and cross-product terms; a "smooth" regression surface — either a smoothing spline, if no degrees of freedom are specified (in which case the `gam` function selects the df by generalized cross validation), or a fixed-df regression spline; an additive-regression surface (also fit by `gam`), with either smoothing spline or regression spline components (again selected according to the specification of degrees of freedom). If only one surface is fit, then residuals are plotted as red (negative) and green (positive) lines from the surface to the points. If the squared residuals option is checked, then squared residuals are plotted. The sum of the area of these squares is the "residual sum of squares".

You can specify a factor defining groups by pressing the *Plot by groups* button. A separate surface or set of surfaces is plotted for each level of the groups factor. These surfaces can be constrained to be parallel.

The completed plot can be manipulated with the mouse: Click, hold, drag the left mouse button to rotate the display; click, hold, and drag the right button (or centre button on a three-button mouse) to zoom in and out.

If the box labelled *Identify observations with mouse* is checked, you may use the mouse to identify points interactively: Press the right mouse button (or the centre button on a three-button mouse), drag a rectangle around the points to be identified, and release the button. Repeat this procedure for each point or set of "nearby" points to be identified. To exit from point-identification mode, right-click (or centre-click) in an empty region of the plot.

Points may also be identified subsequently by selecting *Identify observations with mouse* from the R Commander *3D graph* menu: As above, click and drag the left mouse button to rotate the display, and click and drag the right (or centre) button to identify points.

Author(s)

John Fox <jfox@mcmaster.ca>. Squared residuals added by Richard M. Heiberger <rmh@temple.edu>.

See Also

scatter3dHH, Identify3d, rgl.open, gam

`scatter3dHH` *Three-Dimensional Scatterplots and Point Identification*

Description

The `scatter3d` function uses the `rgl` package to draw 3D scatterplots with various regression surfaces. The function `Identify3d` allows you to label points interactively with the mouse: Press the right mouse button (on a two-button mouse) or the centre button (on a three-button mouse), drag a rectangle around the points to be identified, and release the button. Repeat this procedure for each point or set of "nearby" points to be identified. To exit from point-identification mode, click the right (or centre) button an empty region of the plot.

This is a revision of the `Rcmdr` `scatter3d` to add the ability to plot squared residuals.

Usage

```
scatter3dHH(x, y, z,
    xlab=deparse(substitute(x)), ylab=deparse(substitute(y)),
    zlab=deparse(substitute(z)),
    revolutions=0, bg.col=c("white", "black"),
    axis.col=if (bg.col == "white") "black" else "white",
    surface.col=c("blue", "green", "orange", "magenta",
        "cyan", "red", "yellow", "gray"),
    neg.res.col="red", pos.res.col="green", point.col="yellow",
    text.col=axis.col,
    grid.col=if (bg.col == "white") "black" else "gray",
    fogtype=c("exp2", "linear", "exp", "none"),
    residuals=(length(fit) == 1), surface=TRUE, grid=TRUE,
    grid.lines=26, df.smooth=NULL, df.additive=NULL,
    sphere.size=1, threshold=0.01, speed=1, fov=60,
    fit="linear", groups=NULL, parallel=TRUE, model.summary=FALSE,
    squares = FALSE, square.color = "gray", coef.ratio = 1, ...)
```

Arguments

x	variable for horizontal axis.
y	variable for vertical axis (response).
z	variable for out-of-screen axis.
xlab, ylab, zlab	axis labels.
revolutions	number of full revolutions of the display.
bg.col	background colour; one of "white", "black".
axis.col	colour for axes; default is "white" for black background, "black" for white background.
surface.col	vector of colours for regression planes, used in the order specified by fit.
neg.res.col, pos.res.col	colours for lines representing negative and positive residuals.
point.col	colour of points.
text.col	colour of axis labels.
grid.col	colour of grid lines on the regression surface(s).
fogtype	type of fog effect; one of "exp2", "linear", "exp", "none".
residuals	plot residuals (TRUE or FALSE); available only when there is one surface plotted.
surface	plot surface(s) (TRUE or FALSE).
grid	plot grid lines on the regression surface(s) (TRUE or FALSE).
grid.lines	number of lines (default, 26) forming the grid, in each of the x and y directions.
df.smooth	degrees of freedom for the two-dimensional smooth regression surface; if NULL (the default), the gam function will select the degrees of freedom for a smoothing spline by generalized cross-validation; if a positive number, a fixed regression spline will be fit with the specified degrees of freedom.
df.additive	degrees of freedom for each explanatory variable in an additive regression; if NULL (the default), the gam function will select degrees of freedom for the smoothing splines by generalized cross-validation; if a positive number or a vector of two positive numbers, fixed regression splines will be fit with the specified degrees of freedom for each term.
sphere.size	relative sizes of spheres representing points; the actual size is dependent on the number of observations.
threshold	if the actual size of the spheres is less than the threshold, points are plotted instead.
speed	relative speed of revolution of the plot.
fov	field of view (in degrees); controls degree of perspective.
fit	one or more of "linear", "quadratic", "smooth", "additive"; to display fitted surface(s); partial matching is supported – e.g., c("lin", "quad").
groups	if NULL (the default), no groups are defined; if a factor, a different surface or set of surfaces is plotted for each level of the factor; in this event, the colours in plane.col are used successively for the points, surfaces, and residuals corresponding to each level of the factor.

parallel	when plotting surfaces by groups, should the surfaces be constrained to be parallel? A logical value, with default TRUE.
model.summary	print summary or summaries of the model(s) fit (TRUE or FALSE).
col	colours for the point labels, given by group. There must be at least as many colours as groups; if there are no groups, the first colour is used. Normally, the colours would correspond to the plane.col argument to scatter3d.
squares	logical. If TRUE, the residuals are plotted as squares. The sum of the area of the squares is the "residual sum of squares". If FALSE, the residuals are plotted as vertical lines.
square.color	color for the squares.
coef.ratio	number, defaults to 1. Settig coef.ratio to a number other than 1 is a primitive way of plotting squared pseudo-residuals that are not the least-squares residuals. The reason for displaying non-least-squares residuals is to compare them to the least-squares residuals and thus get a 3d visual image of what minimizing the sum of squares actually means.
...	other arguments are ignored.

Value

scatter3d not return a useful value; it is used for its side-effect of creating a 3D scatterplot. Identify3d returns the labels of the identified points.

Note

You have to install the rgl and mgcv packages to produce 3D plots.

Author(s)

John Fox <jfox@mcmaster.ca>. Squared residuals added by Richard M. Heiberger <rmh@temple.edu>.

See Also

rgl.open, gam

Examples

```
    ## Not run:
State.x77 <- as.data.frame(state.x77)
with(State.x77, scatter3d(Income, Murder, Illiteracy))
with(State.x77, Identify3d(Income, Murder, Illiteracy, labels=row.names(State.x77)))
with(State.x77,  scatter3d(Income, Murder, Illiteracy, fit=c("linear", "quadratic")))

## End(Not run)
```

scatterPlot.HH *Scatterplot menu with different defaults than Rcmdr.*

Description

Alternate menu into the scatterplot in the car package. This menu by default uses solid dots, larger fonts, and turns off marginal boxplots and smoother lines. Otherwise it is identical to the Rcmdr Scatterplot menu item.

Usage

```
scatterPlot.HH()
```

Author(s)

Richard M. Heiberger <rmh@temple.edu>

scatterPlotMatrix.HH *Scatterplot Matrices*

Description

This is variation of the `Rcmdr` interface to the `car` package `scatterplotMatrix`. The revision uses `row1attop=FALSE` to force the main diagonal of the scatterplot matrix to go uphill from southwest to northeast.

Usage

```
scatterPlotMatrix.HH()
```

Author(s)

John Fox <jfox@mcmaster.ca>. `row1attop=FALSE` added by Richard M. Heiberger <rmh@temple.edu>.

See Also

`scatterplotMatrix`

twoWayTable.HH *Rcmdr menu interface to chisq.test*

Description

Pearson's Chi-squared Test for Count Data

`twoWayTable.HH` is an original Rcmdr.HH function. It reads the active dataset and constructs the table using `xtabs`.

`enterTable.HH` is an original Rcmdr.HH function. It opens a window where the user may enter a table manually.

`analyzeTwoWayTable.HH` is an additional function. It uses the active dataset as the table.

All three produce identical output, a two-way table, row and column summaries, and the chi square test.

Usage

```
twoWayTable.HH()

enterTable.HH()

analyzeTwoWayTable.HH()
```

Author(s)

John Fox <jfox@mcmaster.ca>. additional entry options by Richard M. Heiberger <rmh@temple.edu>.

See Also

`chisq.test`

Xyplot.HH *Rcmdr Menu function to specify xyolot, other lattice plots, and likert plots.*

Description

These are enhancements of the Rcmdr `Xyplot` function (which I wrote) to include layout parameters and plot type, to force solid dots, and to distinguish between conditioning variables in the formula and group variables. `Xyplot.HH` is an interface to the `xyplot` function. `Xyplot.HH2` is an interface to many of the `lattice` functions (`xyplot`, `bwplot`, `splom`, `barchart`, `dotplot`) and to the formula method for `likert` in the `HH` package. When either `barchart` or `panel.barchart` is selected, then the argument `origin=0` is automatically set. When `panel.barchart`, the user must manually specify the limits (`xlim` or `ylim`) to include zero for the effect of `origin=0` to be visible.

Usage

```
Xyplot.HH()
Xyplot.HH2()
```

Author(s)

Richard M. Heiberger <rmh@temple.edu>

See Also

xyplot, likert

Index