Package ‘forsearch’

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Title Outlier Diagnostics for Some Linear Effects and Linear Mixed Effects Models
Description Identifies potential data outliers and their impact on estimates and analyses. Uses the forward search approach of Atkinson and Riani, “Robust Diagnostic Regression Analysis”, 2000, ISBN: 0-387-95017-6) to prepare descriptive statistics of a dataset that is to be analyzed by stats::lm(), stats::glm(), or nlme::lme(). Includes graphics functions to display the descriptive statistics.
License GPL (>= 3)
SystemRequirements gmp (>= 4.1)
Imports Hmisc (>= 4.6-0), Cairo (>= 1.5-14), ggplot2 (>= 3.3.5), nlme (>= 3.1-152), tibble (>= 3.1-152), tibble (>= 3.1.6)
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Depends R (>= 2.10)
Suggests rmarkdown, knitr
VignetteBuilder knitr
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R topics documented:

forsearch-package ......................................................... 2
forsearch_glm ............................................................ 4
forsearch_lm ............................................................... 6
forsearch_lme ............................................................. 7
identifyCoeffs ............................................................ 9
identifyFixedCoeffs .................................................... 10
forsearch-package

Diagnostic Analysis Using Forward Search Procedure for Various Models Outlier Diagnostics for Some Linear Effects and Linear Mixed Effects Models

Description

Identifies potential data outliers and their impact on estimates and analyses. Uses the forward search approach of Atkinson and Riani, "Robust Diagnostic Regression Analysis", 2000, ISBN: 0-387-95017-6) to prepare descriptive statistics of a dataset that is to be analyzed by stats::lm(), stats::glm(), or nlme::lme(). Includes graphics functions to display the descriptive statistics.

Details

The DESCRIPTION file:

Package: forsearch
Version: 2.3.0
Title: Outlier Diagnostics for Some Linear Effects and Linear Mixed Effects Models
Authors@R: person("William","Fairweather", email = "wrf343@flowervalleyconsulting.com", role = c("aut", "cre"))
Description: Identifies potential data outliers and their impact on estimates and analyses. Uses the forward search approach of Atkinson and Riani, "Robust Diagnostic Regression Analysis", 2000, ISBN: 0-387-95017-6) to prepare descriptive statistics of a dataset that is to be analyzed by stats::lm(), stats::glm(), or nlme::lme(). Includes graphics functions to display the descriptive statistics.
License: GPL (>= 3)
SystemRequirements: gmp (>= 4.1)
Imports: Hmisc(>= 4.6-0), Cairo(>= 1.5-14), ggplot2(>= 3.3.5), nlme(>= 3.1-152), tibble(>= 3.1.6)
Encoding: UTF-8
Roxygen: list(markdown = TRUE)
RoxygenNote: 7.1.2
Depends: R (>= 2.10)
LazyData: TRUE
forsearch-package

Suggests: rmarkdown, knitr
VignetteBuilder: knitr
Author: William Fairweather [aut, cre]
Maintainer: William Fairweather <wrf343@flowervalleyconsulting.com>

Index of help topics:

forsearch-package Diagnostic Analysis Using Forward Search Procedure for Various Models Outlier Diagnostics for Some Linear Effects and Linear Mixed Effects Models
forsearch_glm Create Statistics Of Forward Search in a Generalized Linear Model Database
forsearch_lm Create Statistics Of Forward Search in a Linear Model Database
forsearch_lme Create Statistics Of Forward Search In a Linear Mixed Effects Database
identifyCoeffs Index To Identify Fixed and Random Coefficients To Appear Together on Plot
identifyFixedCoeffs Index To Identify Fixed Coefficients To Appear Together on Plot
plotdiag.AICX Plot Diagnostic AIC Statistics
plotdiag.Cook Plot Diagnostic Statistics of Modified Cook's Distance
plotdiag.deviance.residuals Plot Diagnostic Statistics Of Deviance Residuals
plotdiag.deviances Plot Diagnostic Deviance Statistics
plotdiag.fit3 Plot Diagnostic Statistics of AIC, BIC, and Log Likelihood
plotdiag.leverage Plot Diagnostic Statistics Of Leverage
plotdiag.params.fixed Plot Diagnostic Statistics of Fixed Coefficients
plotdiag.params.random Plot Diagnostic Statistics Of Random Coefficients
plotdiag.phihatx Plot Diagnostic PhiHat Statistics
plotdiag.residuals Plot Diagnostic Statistics Of Residuals Or Squared Residuals
plotdiag.s2 Plot Diagnostic Statistics Of Residual Variation
plotdiag.tstats Plot Diagnostic T Statistics
search.history Create Tabular History Of Forward Search
showme Display Abbreviated Output Of FORSEARCH_LM Function
showmegl Display Abbreviated Output Of FORSEARCH_GLM Function
forsearch_glm

Create Statistics Of Forward Search in a Generalized Linear Model Database

Description

Prepares summary statistics at each stage of forward search for subsequent plotting. Forward search is conducted in three steps: Step 1 to identify minimal set of observations to estimate unknown parameters, and Step 2 to add one observation at each stage such that observations in the set are best fitting at that stage. A preliminary step (Step 0) contains code for pre-processing of the data.

Usage

forsearch_glm(initial.sample, cobs, response.cols, indep.cols, family, data, estimate.phi=TRUE, skip.step1=NULL, diagnose=FALSE, verbose=TRUE)

Arguments

  initial.sample  Number of random sets of observations in Step 1 of forward search
  cobs            Number of observations to include in each innermost subset of Step 1
  response.cols   Column number(s) of response(s)
  indep.cols      Column number(s) of independent variables
  family          Error distribution and link

Author(s)

William R. Fairweather, Flower Valley Consulting, Inc., Silver Spring MD USA NA
Maintainer: NA William R. Fairweather <wrf343 at flowervalleyconsulting.com>

References

**forsearch_glm**

- **data**
  - Name of database

- **estimate.phi**
  - TRUE causes phi to be estimated; FALSE causes phi to be set = 1

- **skip.step1**
  - NULL, or vector of observation numbers to include at end of Step 1

- **diagnose**
  - TRUE causes printing of intermediate steps of function

- **verbose**
  - TRUE causes function identifier to display before and after run

**Details**

No compounding of independent variables is performed within this function. Cross products of two or more variables, functions of single variables, etc. must be explicit and must be represented by another variable in the independent set.

**Value**

- **LIST**
  - **Rows in stage**
    - Observation numbers of rows included at each stage
  - **Family**
    - Family and link
  - **Number of model parameters**
    - Number of fixed effect parameters
  - **Fixed parameter estimates**
    - Matrix of parameter estimates at each stage
  - **Residual deviance**
    - Vector of deviances
  - **Null deviance**
    - Vector of null deviances
  - **PhiHat**
    - Vector of values of phi parameter
  - **Deviance residuals and augments**
    - Deviance residuals with indication of whether each is included in fit
  - **AIC**
    - Vector of AIC values
  - **Leverage**
    - Matrix of leverage of each observation at each stage
  - **Call**
    - Call to this function

**Author(s)**

William R. Fairweather

**References**


**Examples**
forsearch_lm

Create Statistics Of Forward Search in a Linear Model Database

**Description**

Prepares summary statistics at each stage of forward search for subsequent plotting. Forward search is conducted in two steps: Step 1 to identify minimal set of observations to estimate unknown parameters, and Step 2 to add one observation at each stage such that observations in the set are best fitting at that stage.

**Usage**

```r
forsearch_lm(formula, data, initial.sample, diagnose = FALSE, verbose = TRUE)
```

**Arguments**

- `formula`: Fixed effects formula as described in stats::lm
- `data`: Name of database
- `initial.sample`: Number of observations in Step 1 of forward search
- `diagnose`: TRUE causes printing of intermediate steps of function
- `verbose`: TRUE causes function identifier to display before and after run

**Value**

- **LIST**
  - `Rows in stage`: Observation numbers of rows included at each stage
  - `Standardized residuals`: Matrix of errors at each stage
  - `Number of model parameters`: Rank of model
  - `Sigma`: Estimate of random error at final stage; used to standardize all residuals
  - `Fixed parameter estimates`: Matrix of parameter estimates at each stage
  - `s^2`: Estimate of random error at each stage
  - `Leverage`: Matrix of leverage of each observation at each stage
  - `Modified Cook distance`: Estimate of sum of squared changes in parameter estimates at each stage
  - `Call`: Call to this function

**Author(s)**

William R. Fairweather
References


Examples

```r
forsearch_lme  # Create Statistics Of Forward Search In a Linear Mixed Effects Database
```

Description

Prepares summary statistics at each stage of forward search for subsequent plotting. Forward search is conducted in three steps: Step 0 to set up accounting for group structure, Step 1 to identify minimal set of observations to estimate unknown parameters, and Step 2 to add one observation at each stage such that observations in the set are best fitting at that stage.

Usage

```r
forsearch_lme(fixed, data, random, formula, response.column, initial.sample, robs,
   skip.step1=NULL, XmaxIter = 1000, XmsMaxIter = 1000,
   Xtolerance = 0.01, XniterEM = 1000, XmsMaxEval = 400, XmsTol = 1e-05,
   Xopt = "optim", diagnose = FALSE, verbose = TRUE)
```

Arguments

- `fixed`: 2-sided formula for fixed effects
- `data`: data frame, first column of which must be "Observation"
- `random`: 1-sided formula for random effects
- `formula`: a formula of the form `resp ~ cov | group` where `resp` is the response, `cov` is the primary covariate, and `group` is the (non-nested) grouping factor
- `response.column`: Column number of response variable
- `initial.sample`: Number of observations in Step 1 of forward search
- `robs`: Number of observations to include in Step 1 of forward search from each sub-group
- `skip.step1`: NULL or a vector of integers for rows to be included in Step 1
- `XmaxIter`: lme control parameter
- `XmsMaxIter`: lme control parameter
- `Xtolerance`: lme control parameter
- `XniterEM`: lme control parameter
- `XmsMaxEval`: lme control parameter
- `XmsTol`: lme control parameter
- `Xopt`: "optim", diagnose = FALSE, verbose = TRUE
XmsTol lme control parameter
Xopt lme control parameter
diagnose TRUE causes printing of intermediate steps of function
verbose TRUE causes function identifier to display before and after run

Details
Group structure is ignored in calculating errors of fit in Step 1. That is, predictions derive from lm fit and not lme fit. Diagnostic statistics are obtained from lme fits. Argument 'formula' is used to identify the innermost group structure and the observations in each level.

Value
LIST
  Rows in stage Observation numbers of rows included at each stage
  Standardized residuals Matrix of errors at each stage
  Number of model parameters Rank of model
  Sigma Estimate of random error at final stage; used to standardize all residuals
  Fixed parameter estimates Matrix of parameter estimates at each stage
  s^2 Estimate of random error at each stage
  Leverage Matrix of leverage of each observation at each stage
  Modified Cook distance Estimate of sum of squared changes in parameter estimates at each stage
  Fit statistics AIC, BIC, and log likelihood
  Call Call to this function

Author(s)
William R. Fairweather

References
https://CRAN.R-project.org/package=nlme

Examples
**identifyCoeffs**

Index To Identify Fixed and Random Coefficients To Appear Together on Plot

**Description**

Runs the defined, grouped linear mixed effects (lme) model. Displays the resulting fixed and random coefficients. Attaches codes for identifying them to the plotting functions of this package.

**Usage**

```r
identifyCoeffs(fixed, data, random,
    XmaxIter = 1000, XmsMaxIter = 1000,
    Xtolerance = 0.01, XniterEM = 1000, XmsMaxEval = 400, XmsTol = 1e-05,
    Xopt = "optim",
    diagnose = FALSE, verbose = TRUE)
```

**Arguments**

- `fixed`: 2-sided formula for fixed effects
- `data`: Name of file (to be) run by forsearch_lme
- `random`: 1-sided formula for random effects
- `XmaxIter`: lme control parameter
- `XmsMaxIter`: lme control parameter
- `Xtolerance`: lme control parameter
- `XniterEM`: lme control parameter
- `XmsMaxEval`: lme control parameter
- `XmsTol`: lme control parameter
- `Xopt`: lme control parameter
- `diagnose`: If TRUE, displays code to help diagnose main function errors
- `verbose`: If TRUE, indicates beginning and end of function

**Details**

Plotting functions cannot plot more than a few coefficients on one graph. This function prepares an index of the coefficients so that the user can more easily identify which ones should appear together in a plot.

**Value**

Index of fixed and random coefficients from forsearch_lme.

**Author(s)**

William R. Fairweather
identifyFixedCoeffs

Index To Identify Fixed Coefficients To Appear Together on Plot

Description

Runs the defined linear (lm) model. Displays the resulting coefficients. Attaches codes for identifying them to the plotting functions of this package.

Usage

identifyFixedCoeffs(formula, data, diagnose = FALSE, verbose = TRUE)

Arguments

formula 2-sided formula for fixed effects
data Name of file (to be) run by forsearch_lm
diagnose If TRUE, displays code to help diagnose main function errors
verbose If TRUE, indicates beginning and end of function

Details

Plotting functions cannot plot more than a few coefficients on one graph. This function prepares an index of the coefficients so that the user can more easily identify which ones should appear together in a plot.

Value

Index of coefficients from forsearch_lm.

Author(s)

William R. Fairweather

References


Examples
**Description**

Plot output from forsearch_glm to show change in AIC statistics as the number of observations in the forward search procedure increases. Save plot in folder containing working directory.

**Usage**

```r
plotdiag.AICX(forn, maintitle = "Put main title here",
subtitle = "Put subtitle here", caption="Put caption title here",
wmf = "Put_plot_file_title_here",
Cairo=TRUE, printgraph=TRUE,loess = FALSE,
diagnose = FALSE,verbose = TRUE)
```

**Arguments**

- `forn` Name of output file from forsearch_glm
- `maintitle` Main title of plot
- `subtitle` Subtitle of plot
- `caption` Content of caption
- `wmf` File name of stored plot; omit ".wmf"
- `Cairo` TRUE causes use of Cairo graphics
- `printgraph` TRUE causes graph to print to file and closes device
- `loess` TRUE causes plot of loess line, otherwise straight line
- `diagnose` If TRUE, displays code to help diagnose main function errors
- `verbose` If TRUE, indicates beginning and end of function

**Value**

Process and plot AIC statistics from forsearch_glm

**Author(s)**

William R. Fairweather

**References**


**Examples**
Description
Plot output from forsearch_lm or forsearch_lme to show change in Modified Cook’s distance as the number of observations in the forward search procedure increases. Save plot in folder containing working directory.

Usage
```
plotdiag.Cook(forn, maintitle = "Put main title here", subtitle = "Put subtitle here",
caption = "Put caption here", wmf = "Put_plot_file_title_here",
Cairo=TRUE,printgraph=TRUE, loess = FALSE,
diagnose = FALSE, verbose = TRUE)
```

Arguments
- `forn`: Name of forward search output file
- `maintitle`: Main title of plot
- `subtitle`: Subtitle of plot
- `caption`: Content of caption
- `wmf`: File name of stored plot; omit ".wmf"
- `Cairo`: TRUE causes use of Cairo graphics
- `printgraph`: TRUE causes graph to print to file and closes device
- `loess`: If TRUE, adds loess curve to plot, otherwise, straight line
- `diagnose`: If TRUE, displays code to help diagnose main function errors
- `verbose`: If TRUE, indicates beginning and end of function

Value
Process and plot Cook distance statistics from forsearch_lm or forsearch_lme

Author(s)
William R. Fairweather

References

Examples
plotdiag.deviance.residuals

Description

Plot output from forsearch_glm to show change in deviance residuals or augmented deviance residuals, either of which can be squared, as the number of observations in the forward search procedure increases. Save plot in folder containing working directory.

Usage

plotdiag.deviance.residuals(forn, squared = FALSE, augmented=TRUE, hilos = c(1, 0), maintitle="Put main title here", subtitle="Put subtitle here", caption="Put caption here", wmf= "Put_graph_title_here", Cairo=TRUE,printgraph=TRUE, legend = "Dummy legend name", diagnose = FALSE,verbose = TRUE)

Arguments

forn Name of forward search output file
squared TRUE causes residuals to be squared before plotting
augmented TRUE causes graphing of augmented deviance residuals, see Details
hilos Number of observations having high and number having low values of residuals to identify. No low values are identified for squared residual plot
maintitle Main title of plot
subtitle Subtitle of plot
caption Caption of plot
wmf File name of stored plot; omit ".wmf"
Cairo TRUE causes use of Cairo graphics
printgraph TRUE causes graph to print to file and closes device
legend Legend title
diagnose If TRUE, displays code to help diagnose main function errors
verbose If TRUE, indicates beginning and end of function

Details

We reserve the use of the term 'Deviance residuals' to deviance residuals of the observations that were used to create the model fit, and use the term 'Augmented deviance residuals' to refer to deviance residuals of all available observations. The latter are created by predicting the fit of the model to all observations.

Value

Process and plot changes in deviance residuals or squared deviance residuals from forsearch_glm
Author(s)

William R. Fairweather

References


Examples

```
plotdiag.deviances(forn = "Put main title here", devtype = "Put subtitle here",
                    caption = "Put caption here",
                    wmf = "Put_plot_file_title_here",
                    Cairo=TRUE, printgraph=TRUE, loess=FALSE,
                    diagnose = FALSE, verbose = TRUE)
```

Description

Plot output from forsearch_glm to show change in deviances as the number of observations in the forward search procedure increases. Save plot in folder containing working directory.

Usage

```
plotdiag.deviances(forn, devtype, maintitle = "Put main title here",
                   subtitle = "Put subtitle here", caption="Put caption here",
                   wmf = "Put_plot_file_title_here",
                   Cairo=TRUE, printgraph=TRUE, loess=FALSE,
                   diagnose = FALSE, verbose = TRUE)
```

Arguments

- **forn**: Name of output file from forsearch_glm
- **devtype**: Type of deviance: "R" or "N" for Residual deviance or Null deviance
- **maintitle**: Main title of plot
- **subtitle**: Subtitle of plot
- **caption**: Content of caption
- **wmf**: File name of stored plot; omit ".wmf"
- **Cairo**: TRUE causes use of Cairo graphics
- **printgraph**: TRUE causes graph to print to file and closes device
- **loess**: If TRUE, loess line is drawn through points, otherwise straight line
- **diagnose**: If TRUE, displays code to help diagnose main function errors
- **verbose**: If TRUE, indicates beginning and end of function

Value

Process and plot deviances from forsearch_glm
**Author(s)**

William R. Fairweather

**References**


**Examples**

```r
plotdiag.fit3

Plot Diagnostic Statistics of AIC, BIC, and Log Likelihood

**Description**

Plot output from forsearch_lme to show change in AIC, BIC, and log likelihood as the number of observations in the forward search procedure increases. Save plot in folder containing working directory.

**Usage**

```r
plotdiag.fit3(forn, maintitle = "Put main title here", subtitle = "Put subtitle here",
              caption = "Put caption here", wmf = "Put_graph_filename_here",
              Cairo=TRUE,printgraph=TRUE, legend="Dummy legend name",
              diagnose = FALSE, verbose = TRUE)
```

**Arguments**

- `forn` Name of output file from forsearch_lme
- `maintitle` Main title of plot
- `subtitle` Subtitle of plot
- `caption` Content of caption
- `wmf` File name of stored plot; omit ".wmf"
- `Cairo` TRUE causes use of Cairo graphics
- `printgraph` TRUE causes graph to print to file and closes device
- `legend` Legend name
- `diagnose` If TRUE, displays code to help diagnose main function errors
- `verbose` If TRUE, indicates beginning and end of function

**Value**

Process and plot trends of AIC, BIC, and log likelihood statistics from forsearch_lme
plotdiag.leverage

Author(s)

William R. Fairweather

References


Examples

plotdiag.leverage

Plot Diagnostic Statistics Of Leverage

Description

Plot output from forsearch_lm or forsearch_lme to show change in leverage of each observation as the number of observations in the forward search procedure increases. Save plot in folder containing working directory.

Usage

plotdiag.leverage(forn, hilos = c(1, 0), maintitle = "Put main title here", subtitle = "Put subtitle here", caption="Put caption here",wmf = "Put_graph_title_here", Cairo=TRUE, printgraph = TRUE,diagnose = FALSE,verbose = TRUE)

Arguments

forn Name of forward search output file
hilos Vector with number of highest observations and number of lowest observations on graph to identify
maintitle Main title of plot
subtitle Subtitle of plot
caption Content of caption
wmf File name of stored plot; omit ".wmf"
Cairo TRUE causes use of Cairo graphics
printgraph TRUE causes graph to print to file and closes device
diagnose If TRUE, displays code to help diagnose main function errors
verbose If TRUE, indicates beginning and end of function

Value

Process and plot Cook distance statistics from forsearch_lm or forsearch_lme
Author(s)

William R. Fairweather

References


Examples

plotdiag.params.fixed  Plot Diagnostic Statistics of Fixed Coefficients

Description

Plot output from forsearch_xxx to show change in random coefficients as the number of observations in the forward search procedure increases. Save plot in folder containing working directory.

Usage


Arguments

forn  Name of output file from forsearch_xxx
coeff.codenums Numeric vector of coefficients to include together on the plot. Codes are output by identifyFixedCoeffs (for lm files) or by identifyCoeffs function (for lme files)
maintitle  Main title of plot
subtitle  Subtitle of plot
caption  Content of caption
wmf  File name of stored plot; omit ".wmf"
Cairo  TRUE causes use of Cairo graphics
printgraph  TRUE causes graph to print to file and closes device
legend  Name of legend
diagnose  If TRUE, displays code to help diagnose main function errors
verbose  If TRUE, indicates beginning and end of function

Value

Process and plot fixed coefficient statistics from forsearch_lm or forsearch_lme
plotdiag.params.random

Plot Diagnostic Statistics Of Random Coefficients

Description

Plot output from forsearch_lme to show change in root mean squares of random coefficients as the number of observations in the forward search procedure increases. Save plot in folder containing working directory.

Usage

plotdiag.params.random(forn, coeff.codenums=NULL, asfacets=FALSE, facetdir=c("h","v"), maintitle = "Put maintitle here", subtitle = "Put subtitle here", caption = "Put caption here",wmf = "Put_stored_name_here", Cairo=TRUE,printgraph = TRUE, legend = "Dummy legend name", diagnose = FALSE, verbose = TRUE)

Arguments

- **forn**: Name of output file from forsearch_lme
- **coeff.codenums**: columns of output file to be included in graph
- **asfacets**: TRUE causes printing in facets
- **facetdir**: "v" lays out the facets vertically, "h" lays them out horizontally
- **maintitle**: Main title of plot
- **subtitle**: Subtitle of plot
- **caption**: Content of caption
- **wmf**: File name of stored plot; omit ".wmf"
- **Cairo**: TRUE causes use of Cairo graphics
- **printgraph**: TRUE causes graph to print to file and closes device
- **legend**: Name of legend
- **diagnose**: If TRUE, displays code to help diagnose main function errors
- **verbose**: If TRUE, indicates beginning and end of function
Value

Process and plot RMS of random coefficients from forsearch_lme

Author(s)

William R. Fairweather

References


Examples

```
plotdiag.phihatx
```

Plot Diagnostic PhiHat Statistics

Description

Plot output from forsearch_glm to show change in phiHat statistics as the number of observations in the forward search procedure increases. Save plot in folder containing working directory.

Usage

```
plotdiag.phihatx(forn, maintitle = "Put main title here",
subtitle = "Put subtitle here", caption="Put caption here",
wmf = "Put_plot_file_title_here",
Cairo=TRUE, printgraph=TRUE,loess = FALSE,
diagnose = FALSE,verbose = TRUE)
```

Arguments

- **forn**: Name of output file from forsearch_glm
- **maintitle**: Main title of plot
- **subtitle**: Subtitle of plot
- **caption**: Content of caption
- **wmf**: File name of stored plot; omit ".wmf"
- **Cairo**: TRUE causes use of Cairo graphics
- **loess**: TRUE causes print of loess line, otherwise straight line
- **printgraph**: TRUE causes graph to print to file and closes device
- **diagnose**: If TRUE, displays code to help diagnose main function errors
- **verbose**: If TRUE, indicates beginning and end of function
**plotdiag.residuals**

**Value**
Process and plot phiHat statistics from forsearch_glm

**Author(s)**
William R. Fairweather

**References**

**Examples**

```r
plotdiag.residuals # Plot Diagnostic Statistics Of Residuals Or Squared Residuals
```

**Description**
Plot output from forsearch_lm or forsearch_lme to show change in residuals or squared residuals as the number of observations in the forward search procedure increases. Save plot in folder containing working directory.

**Usage**

```r
plotdiag.residuals(form, squared = FALSE, hilos = c(1, 0), maintitle, subtitle, caption, wmf, Cairo=TRUE, printgraph=TRUE, legend = "Dummy legend name", diagnose = FALSE, verbose = TRUE)
```

**Arguments**

- `form` Name of forward search output file
- `squared` TRUE causes residuals to be squared before plotting
- `hilos` Number of observations having high and number having low values of residuals to identify. No low values are identified for squared residual plot.
- `maintitle` Main title of plot
- `subtitle` Subtitle of plot
- `caption` Caption of plot
- `wmf` File name of stored plot; omit ".wmf"
- `Cairo` TRUE causes use of Cairo graphics
- `printgraph` TRUE causes graph to print to file and closes device
- `legend` Legend title
- `diagnose` If TRUE, displays code to help diagnose main function errors
- `verbose` If TRUE, indicates beginning and end of function
Value
Process and plot changes in residuals or squared residuals from forsearch_lm or forsearch_lme

Author(s)
William R. Fairweather

References

Examples

```
plotdiag.s2
```

Plot Diagnostic Statistics Of Residual Variation

Description
Plot output from forsearch_lm to show change in residual variation as the number of observations in the forward search procedure increases. Save plot in folder containing working directory.

Usage
```
plotdiag.s2(forn, maintitle = "Put main title here", subtitle = "Put subtitle here", caption = "Put caption here", wmf = "Put_graph_filename_here", Cairo=TRUE,printgraph=TRUE, loess = FALSE, diagnose = FALSE, verbose = TRUE)
```

Arguments
- **forn**: Name of output file from forsearch_lm
- **maintitle**: Main title of plot
- **subtitle**: Subtitle of plot
- **caption**: Content of caption
- **wmf**: File name of stored plot; omit ".wmf"
- **Cairo**: TRUE causes use of Cairo graphics
- **printgraph**: TRUE causes graph to print to file and closes device
- **loess**: If TRUE, adds loess curve to plot, otherwise, straight line
- **diagnose**: If TRUE, displays code to help diagnose main function errors
- **verbose**: If TRUE, indicates beginning and end of function
Value

Process and plot residual variation statistics from forsearch_lm

Author(s)

William R. Fairweather

References


Examples

```
plotdiag.tstats
Plot Diagnostic T Statistics
```

Description

Plot output from forsearch_lm or forsearch_lme to show change in t statistics as the number of observations in the forward search procedure increases. Save plot in folder containing working directory.

Usage

```
plotdiag.tstats(forn, coeff.codenums=NULL, maintitle = "Put main title here", subtitle = "Put subtitle here", caption="Put caption here", wmf = "Put_stored_name_here", Cairo=TRUE, printgraph=TRUE,legend = "Dummy legend name", diagnose = FALSE,verbose = TRUE)
```

Arguments

- **forn**: Name of output file from forsearch_lm or forsearch_lme
- **coeff.codenums**: Numeric vector of coefficients to include together on the plot. Codes are output by identifyFixedCoeffs (for lm files) or by identifyCoeffs function (for lme files)
- **maintitle**: Main title of plot
- **subtitle**: Subtitle of plot
- **caption**: Content of caption
- **wmf**: File name of stored plot; omit ".wmf"
- **Cairo**: TRUE causes use of Cairo graphics
- **printgraph**: TRUE causes graph to print to file and closes device
- **legend**: Name of legend
- **diagnose**: If TRUE, displays code to help diagnose main function errors
- **verbose**: If TRUE, indicates beginning and end of function
**Value**

Process and plot t statistics of fixed coefficients from forsearch_lm or forsearch_lme

**Author(s)**

William R. Fairweather

**References**


**Examples**

```r
search.history

Create Tabular History Of Forward Search
```

**Description**

The forward search functions output a list of vectors, each of which indicates which observations are in the model at each stage of the search. This function processes that list to create a more easily understood matrix of the observation numbers that are newly entered into the model and any that were temporarily removed from the model over the course of the search.

**Usage**

```r
search.history(list1, diagnose = FALSE, verbose = TRUE)
```

**Arguments**

- `list1` Name of a forsearch_xxx output file
- `diagnose` If TRUE, displays code to help diagnose main function errors
- `verbose` If TRUE, indicates beginning and end of function

**Value**

Printout of matrix showing evolution of observations to enter or leave the model during the course of the forward search

**Author(s)**

William R. Fairweather

**Examples**
showme

Display Abbreviated Output Of FORSEARCH_LM Function

Description

Output of forsearch_lm function can be voluminous. This function displays the output in an abbreviated format. Primarily for programmer use.

Usage

showme(x, verbose = TRUE)

Arguments

x    Name of forsearch_lm output file
verbose If TRUE, indicates the beginning and end of function run

Value

Abbreviated printout of output of forsearch_lm function

Author(s)

William R. Fairweather

Examples

showmeg1

Display Abbreviated Output Of FORSEARCH_GLM Function

Description

Output of forsearch_glm function can be voluminous. This function displays the output in an abbreviated format. Primarily for programmer use.

Usage

showmeg1(x, verbose = TRUE)

Arguments

x    Name of forsearch_glm output file
verbose If TRUE, indicates the beginning and end of function run
showmelme

Value
Abbreviated printout of output of forsearch_glm function

Author(s)
William R. Fairweather

Examples

showmelme(x, verbose = TRUE)

Usage

Arguments

x Name of forsearch_lme output file
verbose If TRUE, indicates the beginning and end of function run

Value
Abbreviated printout of output of forsearch_lme function

Author(s)
William R. Fairweather

Examples
Index

* datagen
  forsearch_glm, 4
  forsearch_lm, 6
  forsearch_lme, 7

* hplot
  plotdiag.AICX, 11
  plotdiag.Cook, 12
  plotdiag.deviance.residuals, 13
  plotdiag.deviences, 14
  plotdiag.fit3, 15
  plotdiag.leverage, 16
  plotdiag.params.fixed, 17
  plotdiag.params.random, 18
  plotdiag.phihatx, 19
  plotdiag.residuals, 20
  plotdiag.s2, 21
  plotdiag.tstats, 22

* manip
  identifyCoeffs, 9
  identifyFixedCoeffs, 10
  search.history, 23
  showme, 24
  showmegl, 24
  showmelme, 25

* package
  forsearch-package, 2
  forsearch(forsearch-package), 2
  forsearch-package, 2
  forsearch_glm, 4
  forsearch_lm, 6
  forsearch_lme, 7

  identifyCoeffs, 9
  identifyFixedCoeffs, 10

  plotdiag.AICX, 11
  plotdiag.Cook, 12
  plotdiag.deviance.residuals, 13
  plotdiag.deviences, 14

plotdiag.fit3, 15
plotdiag.leverage, 16
plotdiag.params.fixed, 17
plotdiag.params.random, 18
plotdiag.phihatx, 19
plotdiag.residuals, 20
plotdiag.s2, 21
plotdiag.tstats, 22

search.history, 23
showme, 24
showmegl, 24
showmelme, 25