Package 'Eplot'

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Type Package

Title Plotting longitudinal series

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Description Aim: Adjust the graphical parameters to create nicer longitudinal series plots. The default set of graphical parameters is very general, and can be improved upon when we are interested in plotting data points observed over time. Functions facilitate plotting those kind of series, univariate plots, bivariate plots (with vertical axis on both left and right hand sides), multivariate plots and plots which allow to examine whether a new observation is 'unusual' via construction and visualization of prediction intervals around it.

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Eplot-package *Plotting longitudinal series.*

Description

The aim is to adjust the graphical parameters to create nicer longitudinal series plots. The default set of graphical parameters is very general, and can be improved upon when we are interested in plotting data points observed over time. Functions facilitate plotting those kind of series, univariate plots, bivariate plots (with vertical axis on both left and right hand sides), multivariate plots and plots which allow to examine whether a new observation is 'unusual' via construction and visualization of prediction intervals around it.

Details

Package:	Eplot
Type:	Package
Version:	1.0
Date:	2014-07-30
License:	GPL-2

The idea is to adjust defult graphical parameters to create nicer longitudinal series plots. The user have the choice to keep the new set of graphical parameters or to revert to the initial set of graphical parameters. Other functions include multivariate plot, plot with vertical axis on both left and right hand sides, and plot which superimpose prediction intervals from an AR-ARCH model.

Author(s)

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Examples

```
par(mfrow = c(2,1))
out <- FCIplot(rnorm(100),plott=TRUE,k=30)
plott(out,main="The out-of-sample standard deviation")
```

FCIplot *FCIplot*

Description

Estimate and plot prediction standard deviation. Given the series, the function estimate point prediction based on AR(1) model and, using the resdiuals from this simple model, estimate an ARCH model to estimate the prediction standard deviation. If `plott=TRUE`, a plot of the most recent `k` values is created.

Usage

```
FCIplot(series, plott = TRUE, wind1 = 24, wind2 = 60, k = 60,
  rrr1 = "Rec", rrr2 = "Rec", main = "series")
```

Arguments

`series`	series to be plotted.
`plott`	should a plot be created? default is `plott=TRUE`.
`wind1`	window size for the AR component (see details).
`wind2`	window size for the ARCH component (see details).
`k`	if `plott=TRUE`, `tail(series,k)` will be plotted.
`rrr1`	will the AR model be estimated using Recursive ("Rec") or Rolling ("Rol") window?
`rrr2`	will the ARCH model be estimated using Recursive ("Rec") or Rolling ("Rol") window?
`main`	main title of the plot, same as in `plot.default`.

Details

Estimate and plot prediction confidence intervals based on AR-ARCH model.

Value

vector of prediction's standard deviation.

Examples

```
par(mfrow = c(2,1))
out <- FCIplot(rnorm(100),plott=TRUE,k=30)
plott(out,main="The out-of-sample standard deviation")
```

lagmat *lagmat*

Description

Creates a lagged matrix with the desired number of lags.

Usage

```
lagmat(x, lags)
```

Arguments

x	the series to be lagged
lags	number of lags desired

Value

matrix with dimension [NROW(x),length(lags)]

Examples

```
x = rnorm(100)
lx <- lagmat(x,2)
tail(lx)
tail(x)
```

linpred *linpred*

Description

Provides linear regression based predictions from a y~x type model using recursive or rolling regression.

Usage

```
linpred(y, x, h = 1, wind = NULL, rr = c("Rec"))
```

Arguments

y	a series to be predicted
x	a numeric or matrix of explanatory variables
h	The horizon for which you would like to have the prediction for (see details)
wind	the size of the rolling window or the initial training period if recursive is used
rr	recursive or rolling window? Possible values are c("Rec","Rol")

Details

The training is done using the direct method: $y_{1:(t+h-1)} = \beta x_{1:(t-1)} + \varepsilon_{1:(t+h-1)}$ and the forecast is made at time (t+h) as $\widehat{y}_{t+h} = \widehat{\beta} x_t$.

Value

vector of prediction values with the same dimension as the original series. The first `wind` values are NA's

Examples

```
x = rnorm(100)
lx <- lagmat(x,2)
tail(lx)
tail(x)
out <- linpred(x,lx)
plott(x, return.to.default=FALSE)
plott(out,add=TRUE,col=2)
```

`mplott` *mplott*

Description

Multivariate plot.

Usage

```
mplott(x, wherelegend = "bottomleft", textlegend = colnames(x), main = "",
  return.to.default = T, ...)
```

Arguments

`x`	a matrix to be plotted
`wherelegend`	where to place the legend
`textlegend`	what should the legend read (see details).
`main`	main title of the plot, same as in `plot.default`.
`return.to.default`	for reverting back to previous par settings. Default is `return.to.default=TRUE`
`...`	more graphical parameters can be given as arguments.

Details

Multivariate plot. Limited to 5 series. Legend is added automatically using `colnames(x)`.

Value

called for its side effect.

See Also

par, plot.default.

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plott *plott*

Description

Plotting longitudinal series.

Usage

```
plott(x, y = c(1:length(x)), add = FALSE, pch = 19, xlab = "",
  col = 1, main = NULL, ty = "b", return.to.default = TRUE, ...)
```

Arguments

x	series to be plotted.
y	possible second series, if provided a scatter plot is created.
add	if add = TRUE the series is added to existing active device. The active device graphical parameters must match, meaning it must be created using return.to.default=F.
pch	same as in par.
xlab	a label for the x axis, same as in plot.default.
main	main title of the plot, same as in plot.default.
col	Color of the series, same as in par.
ty	character indicating the type of plotting, any of the types as in plot.default.
return.to.default	for reverting back to previous par settings. Default is return.to.default=TRUE.
...	more graphical parameters can be given as arguments.

Details

Sets default parameters to get a nicer figure. If y is given then a scatter plot is created. y can also be of class Date. If add=TRUE, add the series to an existing device. Make a sensible choice as to which series should be plotted first so that the ylim and xlim cover are sufficient.

Value

Called for its side effect.

See Also

par, plot.default

tsideplot *tsideplot*

Description

Create a plot of two series vertical axes on both left and right side.

Usage

```
tsideplot(series1, series2, main = "", return.to.default = T,
  xaxis = NULL, col = "red", ...)
```

Arguments

series1,series2	First and second series to be plotted.
main	main title of the plot, same as in plot.default.
return.to.default	for reverting back to previous par settings.
xaxis	Optional, the xaxis to be used, see details.
col	Color of the second series, same as in par.
...	more graphical parameters can be given as arguments.

Details

Create a plot of two series with y-axes on both left and right side. Set return.to.default=TRUE to keep the new settings, otherwise default to revert to previous par values. xaxis parameter is the optional xaxis, if not provided then if(is.null(xaxis)) {xaxis= c(1:length(series1))} is used.

Value

Called for its side effect.

See Also

par, plot.default.

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