Package: tactile (via r-universe)

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Title New and Extended Plots, Methods, and Panel Functions for 'lattice'

Version 0.2.1

Description Extensions to 'lattice', providing new high-level functions, methods for existing functions, panel functions, and a theme.

Depends R (>= 3.4.0), lattice

Imports grDevices, grid, gridExtra, latticeExtra, MASS, RColorBrewer, stats, utils

Suggests covr, forecast, knitr, rmarkdown, spelling, testthat, zoo

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Contents

`bubbleplot` *Bubbleplots*

Description

Draws bubbleblots – trivariate plots where the third dimension is mapped to the size of the points drawn on the screen.

Usage

```
bubbleplot(x, data = NULL, ...)

## S3 method for class 'formula'
bubbleplot(
  x,
  data = NULL,
  maxsize = 3,
  bubblekey = TRUE,
  panel = panel.bubbleplot,
  groups = NULL,
  subset = TRUE,
  drop.unused.levels = lattice.getOption("drop.unused.levels"),
  ...,
  outer,
  allow.multiple
)
```

Arguments

x	A formula of the form z ~ x * y, where x and y have the usual interpretation in trellis graphics (see lattice::xyplot()) and z is mapped to the size of bubbles.
data	A data.frame, list or environment wherein the formula and groups arguments can be evaluated.
...	Further arguments to pass to lattice::xyplot().
maxsize	Maximum size (in cex) for the bubbles.
bubblekey	Set to TRUE to draw an informative legend about the bubbles. Uses lattice::draw.key(). See the **key** section of the documentation in lattice::xyplot(). If both auto.key and bubblekey are given and their space arguments (positions) conflict, bubblekey will silently override the position of auto.key.
panel	See lattice::xyplot(). Here, we are passing an additional variable, z, which is then used in panel.bubbleplot().
groups	See lattice::xyplot()
subset	See lattice::xyplot()
drop.unused.levels	See lattice::xyplot()
outer	Ignored.
allow.multiple	Ignored.

Value

An object of class "trellis". The update method can be used to update components of the object and the print method (usually called by default) will plot it on an appropriate plotting device.

Author(s)

Johan Larsson

Examples

```
bubbleplot(disp ~ hp * wt, groups = cyl, data = mtcars, auto.key = TRUE)
bubbleplot(disp ~ hp * mpg | factor(cyl), groups = gear, data = mtcars,
           auto.key = TRUE)
```

---

bwplot2 *An extended box and whiskers plot*

Description

An extended version of lattice::bwplot(). The only modification is to group and stack box plots if groups is provided.

Usage

```
bwplot2(x, data = NULL, ...)

## S3 method for class 'formula'
bwplot2(
  x,
  data = NULL,
  allow.multiple = is.null(groups) || outer,
  outer = FALSE,
  auto.key = FALSE,
  groups = NULL,
  drop.unused.levels = lattice.getOption("drop.unused.levels"),
  ...,
  subset = TRUE
)

## S3 method for class 'numeric'
bwplot2(x, data = NULL, xlab = deparse(substitute(x)), ...)
```

Arguments

x	see lattice::bwplot()
data	see lattice::bwplot()
...	arguments passed down to lattice::bwplot()
allow.multiple	see lattice::bwplot()
outer	see lattice::bwplot()
auto.key	see lattice::bwplot()
groups	see lattice::bwplot()
drop.unused.levels	see lattice::bwplot()
subset	see lattice::bwplot()
xlab	see lattice::bwplot()

Value

An object of class "trellis". The update method can be used to update components of the object and the print method (usually called by default) will plot it on an appropriate plotting device.

Examples

```
bwplot2(variety ~ yield,
        groups = site,
        data = barley,
        par.settings = tactile.theme())
```

`diag.panel.splom.density` *Diagonal Density Panels*

Description

Plots univariate density estimates estimates to be used in a `lattice::splom()` call with the `diag.panel` argument.

Usage

```
diag.panel.splom.density(
  x,
  bw = "nrd0",
  adjust = 1,
  kernel = "gaussian",
  weights = NULL,
  n = 512,
  ...
)
```

Arguments

`x`	data vector corresponding to that row / column (which will be the same for diagonal 'panels').
`bw`	the smoothing bandwidth to be used. The kernels are scaled such that this is the standard deviation of the smoothing kernel. (Note this differs from the reference books cited below, and from S-PLUS.) `bw` can also be a character string giving a rule to choose the bandwidth. See `bw.nrd`. The default, `"nrd0"`, has remained the default for historical and compatibility reasons, rather than as a general recommendation, where e.g., `"SJ"` would rather fit, see also Venables and Ripley (2002). The specified (or computed) value of `bw` is multiplied by `adjust`.
`adjust`	the bandwidth used is actually `adjust*bw`. This makes it easy to specify values like 'half the default' bandwidth.
`kernel`	the smoothing kernel to be used. See `stats::density()` for options.
`weights`	numeric vector of non-negative observation weights, hence of same length as `x`. The default `NULL` is equivalent to `weights = rep(1/nx, nx)` where `nx` is the length of (the finite entries of) `x[]`. If `na.rm = TRUE` and there are `NA`'s in `x`, they *and* the corresponding weights are removed before computations. In that case, when the original weights have summed to one, they are re-scaled to keep doing so. Note that weights are *not* taken into account for automatic bandwidth rules, i.e., when `bw` is a string. When the weights are proportional to true counts `cn`, `density(x = rep(x, cn))` may be used instead of `weights`.

n	the number of equally spaced points at which the density is to be estimated. When n > 512, it is rounded up to a power of 2 during the calculations (as fft is used) and the final result is interpolated by approx. So it almost always makes sense to specify n as a power of two.
...	Further arguments passed on to lattice::diag.panel.splom() and lattice::panel.lines().

See Also

lattice::diag.panel.splom(), lattice::splom(), stats::density().

Examples

```
splom(~ iris[1:4],
  data = iris,
  diag.panel = diag.panel.splom.density,
  pscales = 0
)
```

---

feldspar *Ternary feldspar experiments and thermodynamic models*

Description

A data set that has been manually transcribed from Table 5 of Elkins and Grove's *Ternary feldspar experiments and thermodynamic models*.

Usage

```
feldspar
```

Format

A data frame of 40 rows and 7 columns:

Experiment The ID of the experiment

Feldspar Coexisting feldspars, *Alkali* or *Plagioclase*

Or Proportion of orthoclase

An Proportion of anorthite

Ab Proportion of albite

Temperature Temperature of the reaction (degrees centigrade)

Pressure Pressure of the reaction (bars)

Abstract

This paper reports the results of 20 experiments in which mixes of two or three feldspars were reacted to produce coexisting plagioclase feldspar (PF) and alkali feldspar (AF). Starting materials with similar bulk compositions were prepared using different combinations of two and three minerals, and experiments were designed to produce similar AF and PF minerals in the experimental products from different starting binary and ternary compositions. The coexisting AF and PF compositions produced as products define compositional fields that are elongate parallel to the ternary solvus. In 11 experiments reaction was sufficient to product fields of coexisting AF and PF, or AF, PF, and melt with a bulk composition close to that of the starting mixture. In six experiments significant reaction occurred in the form of reaction rim overgrowths on seeds of the starting materials. Three experiments produced AF, PF, and melt from a natural granite starting material. A two-feldspar thermometer is presented in which temperature is constrained by equilibria among all three components - Albite, Orthoclase, and Anorthite - in coexisting ternary feldspars.

Source

Elkins LT, Grove TL. Ternary feldspar experiments and thermodynamic models. American Mineralogist. 1990;75(5-6):544-59.

`panel.bubbleplot` *Panel Function for Bubble Plots*

Description

Panel Function for Bubble Plots

Usage

```
panel.bubbleplot(x, y, z, groups = NULL, subscripts, cex = NULL, ...)
```

Arguments

`x, y`	variables to be plotted in the scatterplot
`z`	A numeric vector that areas of circles will be mapped to.
`groups`	Grouping variable (see `lattice::xyplot()`).
`subscripts`	A vector of indexes to specify which observation to plot. Normally does not need to be provided by the user.
`cex`	Is used internally and user settings will be ignored.
`...`	Further arguments to pass to `lattice::panel.xyplot()`.

Value

Plots a layer inside a panel of a `lattice` plot.

panel.ci *Panel function for confidence interval*

Description

Panel function for confidence interval

Usage

```
panel.ci(
  x,
  y,
  lower,
  upper,
  groups = NULL,
  subscripts,
  col,
  fill = if (is.null(groups)) plot.line$col else superpose.line$col,
  alpha = 0.15,
  lty = 0,
  lwd = if (is.null(groups)) plot.line$lwd else superpose.line$lwd,
  grid = FALSE,
  ...,
  col.line = if (is.null(groups)) plot.line$col else superpose.line$col
)
```

Arguments

x, y	variables to be plotted in the scatterplot
lower	lower confidence limits
upper	upper confidence limits
groups	an optional grouping variable. If present, panel.superpose will be used instead to display each subgroup
subscripts	see lattice::xyplot()
col	line color
fill	fill color
alpha	opacity for the fill
lty	line type
lwd	line width
grid	A logical flag, character string, or list specifying whether and how a background grid should be drawn. This provides the same functionality as type="g", but is the preferred alternative as the effect type="g" is conceptually different from that of other type values (which are all data-dependent). Using the grid argument also allows more flexibility.

Most generally, `grid` can be a list of arguments to be supplied to `panel.grid`, which is called with those arguments. Three shortcuts are available:

`TRUE`: roughly equivalent to `list(h = -1, v = -1)`

`"h"`: roughly equivalent to `list(h = -1, v = 0)`

`"v"`: roughly equivalent to `list(h = 0, v = -1)`

No grid is drawn if `grid = FALSE`.

`...` Extra arguments, if any, for `panel.xyplot`. Usually passed on as graphical parameters to low level plotting functions, or to the panel functions performing smoothing, if applicable.

`col.line` line color. Supersedes `col` if both are specified.

Examples

```
mod <- lm(Petal.Width ~ Petal.Length * Species, data = iris)
newdat <- expand.grid(
  Petal.Length = seq(1, 7, by = 0.1),
  Species = c("setosa", "versicolor", "virginica")
)
pred <- predict(mod, newdat, interval = "confidence")
dd <- cbind(newdat, pred)

xyplot(
  fit ~ Petal.Length,
  groups = Species, data = dd,
  prepanel = prepanel.ci, auto.key = list(lines = TRUE, points = FALSE),
  ylab = "Petal Width",
  xlab = "Petal Length",
  lower = dd$lwr, upper = dd$upr, type = "l",
  panel = function(...) {
    panel.ci(..., alpha = 0.15, grid = TRUE)
    panel.xyplot(...)
  }
)
```

`panel.qqmathci` *Q-Q Diagram Confidence Intervals Panels*

Description

Panel function to go along with `lattice::qqmath()` and `lattice::panel.qqmathline()`. Adds filled confidence bands to the Q-Q-plot.

Usage

```
panel.qqmathci(
  x,
  y = x,
  distribution = qnorm,
  probs = c(0.25, 0.75),
  qtype = 7,
  groups = NULL,
  ci = 0.95,
  alpha = 0.25,
  col = trellis.par.get("plot.line")$col,
  ...,
  col.line
)
```

Arguments

x	The original sample, possibly reduced to a fewer number of quantiles, as determined by the f.value argument to qqmath
y	an alias for x for backwards compatibility
distribution	quantile function for reference theoretical distribution.
probs	numeric vector of length two, representing probabilities. Corresponding quantile pairs define the line drawn.
qtype	the type of quantile computation used in quantile
groups	optional grouping variable. If non-null, a line will be drawn for each group.
ci	Confidence level
alpha	Alpha level for the color fill
col	Color fill for the confidence bands.
...	Arguments passed to lattice::panel.superpose() and lattice::panel.polygon()
col.line	Color fill for the confidence bands. Is used internally by lattice::panel.superpose() and should generally not be changed.

Details

The function tries to figure out the density function counterpart to that provided in the argument distribution by regular expressions.

Value

Augments a trellis plot panel, such as that created by lattice::qqmath(), with confidence levels.

Author(s)

Johan Larsson.

See Also

lattice::panel.qqmathline(), lattice::qqmath(), and lattice::panel.qqmath().

Examples

```
qqmath(~ height | voice.part, aspect = "xy", data = singer,
       prepanel = prepanel.qqmathline,
       panel = function(x, ...) {
         panel.qqmathci(x, ...)
         panel.qqmathline(x, ...)
         panel.qqmath(x, ...)
       })
```

---

panel.ternaryplot *Panel Function for Ternary Plots*

Description

Panel Function for Ternary Plots

Usage

```
panel.ternaryplot(
  x,
  y,
  z,
  subscripts,
  response = NULL,
  density = FALSE,
  region = density || !is.null(response),
  contour = density || !is.null(response),
  labels = !is.null(response),
  points = TRUE,
  grid = TRUE,
  density_breaks = NULL,
  xlab,
  ylab,
  zlab,
  xlab.default,
  ylab.default,
  zlab.default,
  ...
)
```

Arguments

x	Numeric vector
y	Numeric vector
z	Numeric vector
subscripts	See lattice::panel.xyplot().
response	An optional response variable
density	Compute two-dimensional density estimates via MASS::kde2d().
region	Fill density or response estimates with a color gradient.
contour	Draw contour lines for density and response estimates.
labels	Label contour lines.
points	Draw points (via panel.ternaryplot.xyplot()).
grid	Draw a reference grid.
density_breaks	Breaks for the density plot if used (see panel.ternaryplot.density()).
xlab	X axis label (the left dimension)
ylab	Y axis label (the right dimension)
zlab	Z axis label (the top dimension)
xlab.default	Internal argument
ylab.default	Internal argument
zlab.default	Internal argument
...	Arguments passed down to subsequent panel functions.

Value

Plots a layer inside a panel of a lattice plot.

See Also

The building blocks of this function are available as the separate panel functions panel.ternaryplot.xyplot(), panel.ternaryplot.grid(), panel.ternaryplot.scales(), panel.ternaryplot.clip(), panel.ternaryplot.respo and panel.ternaryplot.density() in case the user would like to get complete control of the customization.

---

panel.ternaryplot.clip

Plot Region Clipping for Ternary Plots

Description

Plot Region Clipping for Ternary Plots

Usage

```
panel.ternaryplot.clip(
  xl = current.panel.limits()$x,
  yl = current.panel.limits()$y,
  border = "transparent",
  col = if (background$col == "transparent") "#FFFFFF" else background$col
)
```

Arguments

xl	X axis limits
yl	Y axis limits
border	Border color
col	Polygon fill

Value

Plots a layer inside a panel of a lattice plot.

---

panel.ternaryplot.density

Two-Dimensional Density Estimation for Ternary Plots

Description

Two-Dimensional Density Estimation for Ternary Plots

Usage

```
panel.ternaryplot.density(
  x,
  y,
  z,
  subscripts,
  n = 100,
  region = TRUE,
  contour = FALSE,
  labels = isTRUE(contour),
  density_breaks = NULL,
  ...
)
```

Arguments

x	Numeric vector
y	Numeric vector
z	Numeric vector
subscripts	See lattice::panel.xyplot().
n	Number of grid points in each direction. Can be scalar or a length-2 integer vector.
region	Fill density or response estimates with a color gradient.
contour	Draw contour lines for density and response estimates.
labels	Label contour lines.
density_breaks	Breaks for the density plot if used (see panel.ternaryplot.density()).
...	Arguments that will be passed on to lattice::panel.lines(), lattice::panel.polygon(), and lattice::panel.text().

Value

Plots a layer inside a panel of a lattice plot.

---

panel.ternaryplot.grid

Reference Grid for Ternary Plot

Description

Reference Grid for Ternary Plot

Usage

```
panel.ternaryplot.grid(
  at = seq.int(0, 1, by = 0.2),
  alpha = reference.line$alpha,
  col = reference.line$col,
  lty = reference.line$lty,
  lwd = reference.line$lwd
)
```

Arguments

at	Where to draw the reference lines
alpha	Alpha
col	Color
lty	Line type
lwd	Line weight

Value

Plots a layer inside a panel of a `lattice` plot.

`panel.ternaryplot.response` *Response Panels for Ternary Plots*

Description

Response Panels for Ternary Plots

Usage

```
panel.ternaryplot.response(
  x,
  y,
  z,
  subscripts,
  response,
  region = TRUE,
  contour = TRUE,
  labels = isTRUE(contour),
  fun = c("glm", "lm"),
  formula = response ~ poly(x, y),
  ...
)
```

Arguments

`x`	Numeric vector
`y`	Numeric vector
`z`	Numeric vector
`subscripts`	See `lattice::panel.xyplot()`.
`response`	An optional response variable
`region`	Fill density or response estimates with a color gradient.
`contour`	Draw contour lines for density and response estimates.
`labels`	Label contour lines.
`fun`	Function to apply to the response variable.
`formula`	Formula for the function.
`...`	Arguments passed on to `lattice::panel.lines()`, `lattice::panel.polygon()`, `lattice::panel.text()`.

Value

Plots a layer inside a panel of a `lattice` plot.

panel.ternaryplot.scales

Axes and Labels for Ternary Plots

Description

Axes and Labels for Ternary Plots

Usage

```
panel.ternaryplot.scales(
  xlab,
  ylab,
  zlab,
  xlab.default,
  ylab.default,
  zlab.default,
  at = seq.int(0, 1, by = 0.2),
  ...
)
```

Arguments

xlab, ylab, zlab	Labels, have to be lists. Typically the user will not manipulate these, but instead control this via arguments to cloud directly.
xlab.default	for internal use
ylab.default	for internal use
zlab.default	for internal use
at	Where to draw tick marks.
...	Currently ignored.

Value

Plots a layer inside a panel of a lattice plot.

panel.ternaryplot.xyplot

Ternary Plot Wrapper for lattice::xyplot

Description

This mainly exists to enable users to string together their own ternary plot functions.

Usage

```
panel.ternaryplot.xyplot(x, y, z, subscripts, ...)
```

Arguments

x	Numeric vector of values in the original space
y	Numeric vector of values in the original space
z	Numeric vector of values in the original space
subscripts	see lattice::xyplot().
...	Arguments that are passed on to lattice::panel.xyplot().

Value

Plots a layer inside a panel of a lattice plot.

---

prepanel.ci *Prepanel for ciplot*

Description

Prepanel for ciplot

Usage

```
prepanel.ci(x, y, lower, upper, subscripts, groups = NULL, ...)
```

Arguments

x, y	x and y values, numeric or factor
lower	lower confidence limits
upper	upper confidence limits
groups, subscripts	See xyplot. Whenever appropriate, calculations are done separately for each group and then combined.
...	other arguments, usually ignored

Examples

```
mod <- lm(Petal.Width ~ Petal.Length * Species, data = iris)
newdat <- expand.grid(
  Petal.Length = seq(1, 7, by = 0.1),
  Species = c("setosa", "versicolor", "virginica")
)
pred <- predict(mod, newdat, interval = "confidence")
dd <- cbind(newdat, pred)
```

```
xyplot(
  fit ~ Petal.Length,
  groups = Species, data = dd,
  prepanel = prepanel.ci,
  ylab = "Petal Width",
  xlab = "Petal Length",
  lower = dd$lwr, upper = dd$upr, alpha = 0.3,
  panel = function(...) {
    panel.ci(..., grid = TRUE)
    panel.xyplot(type = "l", ...)
  }
)
```

`qqmath.zoo` *Q-Q Plots for Zoo Objects*

Description

Draw quantile-Quantile plots of a sample against a theoretical distribution, possibly conditioned on other variables.

Usage

```
## S3 method for class 'zoo'
qqmath(
  x,
  data = NULL,
  xlab = "Theoretical quantiles",
  ylab = "Sample quantiles",
  ref = TRUE,
  ci = TRUE,
  ...
)
```

Arguments

`x`	A zoo object
`data`	Ignored
`xlab`	X axis label
`ylab`	Y axis label
`ref`	Plot a reference line via `lattice::panel.qqmathline()`.
`ci`	Plot confidence levels via `panel.qqmathci()`.
`...`	Parameters to pass on to `lattice::qqmath()`.

Value

Plots and returns a `trellis` object.

Author(s)

Original by Deepayan Sarkar.

See Also

`lattice::qqmath()`, `zoo::zoo()`, `lattice::panel.qqmathline()`.

Examples

```
if (require(zoo))
  qqmath(zoo(lh))
```

`tactile.theme` *Tactile Theme*

Description

A custom theme for lattice that tries to make away with some of the (in this author's opinion) excessive margins that result from the default settings. It also provides a different color theme based partly on `latticeExtra::custom.theme()`.

Usage

```
tactile.theme(fontsize = c(12, 8), color = TRUE, ...)
```

Arguments

`fontsize`	A vector of two numeric scalars for text and symbols respectively.
`color`	Colorized theme.
`...`	Additional named options.

Details

The theme currently modifies the default lattice theme so that

- paddings (margins) are minimized,
- axis tick lengths are halved, and
- title size is decreased *slightly*.

Value

A list of graphical parameters that for instance could be supplied inside a call to `lattice::xyplot()` or set via `lattice::lattice.options()`.

Examples

```
xyplot(speed ~ dist, data = cars, par.settings = tactile.theme())
opars <- trellis.par.get()
trellis.par.set(tactile.theme())
show.settings()
trellis.par.set(opars)
```

---

ternaryplot *Ternary Plot*

Description

A ternary plot is a triangular diagram that displays proportions of three variables. It can be used to map three-dimensional data to a two-dimensional surface with the caveat that the data's original scales are lost (unless it was proportional data to begin with).#'

Usage

```
ternaryplot(x, data, ...)

## S3 method for class 'formula'
ternaryplot(
  x,
  data = NULL,
  response = NULL,
  groups = NULL,
  density = FALSE,
  region = density || !is.null(response),
  contour = density || !is.null(response),
  labels = !is.null(response),
  colorkey = region,
  xlab,
  ylab,
  zlab,
  xlim = c(-0.15, 1.15),
  ylim = c(-0.3, 1),
  panel = panel.ternaryplot,
  default.prepanel = lattice.getOption("prepanel.default.xyplot"),
  drop.unused.levels = lattice.getOption("drop.unused.levels"),
  subset = TRUE,
  ...
)

## S3 method for class 'data.frame'
ternaryplot(x, data = NULL, ...)

## S3 method for class 'matrix'
ternaryplot(x, data = NULL, ...)
```

Arguments

x	See **Methods (by class)**.
data	A data frame in which the formula, groups, and conditioning variables are evaluated.
...	Arguments that are passed on to other methods, particularly panel.ternaryplot().
response	An optional response variable
groups	A variable or expression to be evaluated in data and used to distinguish groups by varying graphical parameters.
density	Compute two-dimensional density estimates via MASS::kde2d().
region	Fill density or response estimates with a color gradient.
contour	Draw contour lines for density and response estimates.
labels	Label contour lines.
colorkey	if TRUE automatically computes a colorkey for density or response estimates. Can also be a list (see lattice::levelplot() for details on this).
xlab	X axis label (the left dimension)
ylab	Y axis label (the right dimension)
zlab	Z axis label (the top dimension)
xlim	X limits for the plot region.
ylim	Y limits for the plot region.
panel	The panel function.
default.prepanel	The default prepanel function.
drop.unused.levels	Drop unused conditioning or groups levels.
subset	An expression that evaluates to a logical or integer indexing vector. Like groups, it is evaluated in data. Only the resulting rows of data are used for the plot.

Value

An object of class "trellis". The update method can be used to update components of the object and the print method (usually called by default) will plot it on an appropriate plotting device.

Methods (by class)

- ternaryplot(formula): A formula of the form top ~ left * right. Variables will be evaluated inside data if provided.
- ternaryplot(data.frame): A data frame for which the first three columns will be mapped to the *left*, *right*, and *top* dimensions of the ternary plot respectively.
- ternaryplot(matrix): A matrix for which the first three columns will be mapped to the *left*, *right*, and *top* dimensions of the ternary plot respectively.

Examples

```
ternaryplot(Fertility ~ Agriculture * Catholic, data = swiss)
ternaryplot(Catholic ~ Examination * Education, response = Infant.Mortality,
            data = swiss, contour = FALSE)

ternaryplot(Or ~ An * Ab | Feldspar, data = feldspar)

ternaryplot(Or ~ An * Ab, groups = Feldspar, data = feldspar, density = TRUE)
```

---

xyplot.acf *Plot Autocovariance and Autocorrelation Functions*

Description

This is a version of `stats::plot.acf()`.

Usage

```
## S3 method for class 'acf'
xyplot(
  x,
  data = NULL,
  ci = 0.95,
  ci_type = c("white", "ma"),
  ci_col = trellis.par.get("add.line")$col,
  ci_lty = 2,
  ...
)
```

Arguments

`x`	An 'acf' object.
`data`	Ignored
`ci`	Confidence level.
`ci_type`	Type of confidence level.
`ci_col`	Line color for the confidence levels.
`ci_lty`	Line type for the confidence levels.
`...`	Arguments passed on to `lattice::xyplot()`.

Value

Returns and plots a `trellis` object.

Author(s)

Original by Brian Ripley.

See Also

lattice::xyplot(), stats::plot.acf(), stats::acf().

Examples

```
z <- ts(matrix(rnorm(400), 100, 4), start = c(1961, 1), frequency = 12)
xyplot(acf(z))
```

---

xyplot.Arima *Diagnostic Plots for ARIMA Models*

Description

Diagnostic plots modelled after stats::tsdiag() with some modifications and corrections of p-values in the Box–Ljung test.

Usage

```
## S3 method for class 'Arima'
xyplot(
  x,
  data = NULL,
  which = 1:4,
  lag.max = NULL,
  gof.lag = NULL,
  qq.aspect = "iso",
  na.action = na.pass,
  main = NULL,
  layout = NULL,
  ...
)
```

Arguments

x	A fitted time-series model of class Arima.
data	Ignored
which	A sequence of integers between 1 and 4, identifying the plots to be shown.
lag.max	Number of lags to compute ACF for.
gof.lag	The maximum number of lags for the Ljung–Box test.
qq.aspect	Aspect of Q-Q plot (see lattice::qqmath()).
na.action	Treatment of NAs.
main	Optional titles for the plots. Can also be TRUE, in which case a default list of titles will be added.
layout	Either a numeric vector with (columns, rows) to use in the call to gridExtra::grid.arrange(), or a layout matrix which will then be passed as the layout_matrix in grid.arrange().
...	Parameters to pass to xyplot().

Value

Plots a lattice plot and returns a `trellis` object.

See Also

`stats::tsdiag()`, `stats::arima()`, `lattice::xyplot()`, `gridExtra::grid.arrange()`, `stats::Box.test()`.

Examples

```
fit <- arima(lh, order = c(1, 1, 0))
xyplot(fit, layout = c(2, 2))
xyplot(fit, which = c(1:2, 4), layout = rbind(c(1, 1), c(2, 3)))
```

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xyplot.forecast *Plot Forecasts with Trellis Graphics*

Description

Plot forecasts from `forecast::forecast()`. It is built mostly to resemble the `forecast::autoplot.forecast()` and `forecast::plot.forecast()` functions, but in addition tries to plot the predictions on the original scale.

Usage

```
## S3 method for class 'forecast'
xyplot(
  x,
  data = NULL,
  ci = TRUE,
  ci_levels = x$level,
  ci_key = ci,
  ci_pal = hcl(0, 0, 45:100),
  ci_alpha = trellis.par.get("regions")$alpha,
  ...
)
```

Arguments

`x`	An object of class `forecast`.
`data`	Data of observations left out of the model fit, usually "future" observations.
`ci`	Plot confidence intervals for the predictions.
`ci_levels`	The prediction levels to plot as a subset of those forecasted in `x`.
`ci_key`	Set to `TRUE` to draw a key automatically or provide a list (if `length(ci_levels)` > 5 should work with `lattice::draw.colorkey()` and otherwise with `lattice::draw.key()`)
`ci_pal`	Color palette for the confidence bands.
`ci_alpha`	Fill alpha for the confidence interval.
`...`	Arguments passed on to `lattice::panel.xyplot()`.

Details

This function requires the **zoo** package.

Value

An object of class `"trellis"`. The `update` method can be used to update components of the object and the `print` method (usually called by default) will plot it on an appropriate plotting device.

See Also

`lattice::panel.xyplot()`, `forecast::forecast()`, `lattice::xyplot.ts()`.

Examples

```
if (require(forecast)) {
  train <- window(USAccDeaths, c(1973, 1), c(1977, 12))
  test <- window(USAccDeaths, c(1978, 1), c(1978, 12))
  fit <- arima(train, order = c(0, 1, 1),
               seasonal = list(order = c(0, 1, 1)))
  fcast1 <- forecast(fit, 12)
  xyplot(fcast1, test, grid = TRUE, auto.key = list(corner = c(0, 0.99)),
         ci_key = list(title = "PI Level"))

  # A fan plot
  fcast2 <- forecast(fit, 12, level = seq(0, 95, 10))
  xyplot(fcast2, test, ci_pal = heat.colors(100))
}
```

---

xyplot.lm *Lattice plot diagnostics for lm objects*

Description

Lattice plot diagnostics for `lm` objects, mostly mimicking the behavior of `stats::plot.lm()` but based on `lattice::xyplot()` instead.

Usage

```
## S3 method for class 'lm'
xyplot(
  x,
  data = NULL,
  which = c(1:3, 5),
  main = FALSE,
  id.n = 3,
  labels.id = names(residuals(x)),
  cex.id = 0.75,
  cook.levels = c(0.5, 1),
```

```
  label.pos = c(4, 2),
  layout = NULL,
  ...
)
```

Arguments

x	lm object, typically result of lm or glm.
data	Only provided for method consistency and is ignored.
which	if a subset of the plots is required, specify a subset of the numbers 1:6
main	if TRUE plots default titles. Can also be a list or character vector of length 6.
id.n	number of points to be labelled in each plot, starting with the most extreme.
labels.id	vector of labels, from which the labels for extreme points will be chosen. NULL uses observation numbers.
cex.id	magnification of point labels.
cook.levels	levels of Cook's distance at which to draw contours.
label.pos	positioning of labels, for the left half and right half of the graph respectively, for plots 1-3, 5, 6.
layout	a numeric vector with [columns, rows] to use in the call to gridExtra::grid.arrange(), or a layout matrix which will then be passed as the layout_matrix in grid.arrange().
...	arguments to be passed to lattice::xyplot().

Value

A list of trellis objects or a single trellis object.

Author(s)

Original by John Maindonald and Martin Maechler. Adaptation to lattice by Johan Larsson.

See Also

stats::lm(), stats::plot.lm(), lattice::xyplot()

Examples

```
fit <- lm(Sepal.Length ~ Sepal.Width, data = iris)
xyplot(fit)
xyplot(fit, which = 5)
```

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