

Package ‘SimTools’

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Title Toolkit for Simulation output including Monte Carlo and MCMC

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Imports mcmcse

Description Toolkit for Simulation output including Monte Carlo and MCMC

License GPL (>= 2)

Encoding UTF-8

RoxygenNote 7.1.1

NeedsCompilation no

R topics documented:

plot.Smcmc 1

Index 3

plot.Smcmc	<i>Plot Smcmc</i>
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Description

Density plots with simultaenous error bars around means and quantiles for MCMC data. The error bars account for the correlated nature of the process.

Usage

```
## S3 method for class 'Smcmc'
plot(x, Q = c(0.1, 0.9), alpha = 0.05, thresh = 0.001, iid = FALSE, plot = TRUE, mean = TRUE, border
```

Arguments

<code>x</code>	: a ‘Smcmc’ class object
<code>Q</code>	: vector of quantiles
<code>alpha</code>	: confidence level of simultaneous confidence intervals
<code>thresh</code>	: numeric typically less than .005 for the accuracy of the simultaneous procedure
<code>iid</code>	: logical argument for constructing density plot for iid samples. Defaults to FALSE
<code>plot</code>	: logical argument for is plots are to be returned
<code>mean</code>	: logical argument whether the mean is to be plotted
<code>border</code>	: whether a border is required for the simultaneous confidence intervals
<code>mean.col</code>	: color for the mean confidence interval
<code>quan.col</code>	: color for the quantile confidence intervals
<code>opaq</code>	: opacity of <code>mean.col</code> and <code>quan.col</code> . A value of 0 is transparent and 1 is completely opaque.
<code>auto.layout</code>	: logical argument for an automatic layout of plots
<code>ask</code>	: activating interactive plots

Value

returns a plot of the univariate density estimates with simultaneous confidence intervals wherever asked. If `plot == FALSE` a list of estimates and simultaneous confidence intervals.

References

Robertson, N., Flegal, J. M., Vats, D., and Jones, G. L., “Assessing and Visualizing Simultaneous Simulation Error”, *Journal of Computational and Graphical Statistics*, 2020.

Examples

```
# Producing Markov chain
chain <- numeric(length = 1e3)
chain[1] <- 0
err <- rnorm(1e3)
for(i in 2:1e3)
{
  chain[i] <- .3*chain[i-1] + err[i]
}
plot(chain)
```

Index

`plot.Smcmc`, [1](#)