Package ‘asVPC’

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Type Package
Title Average Shifted Visual Predictive Checks
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Suggests Hmisc
Imports ggplot2,plyr
Description The visual predictive checks are well-known method to validate the nonlinear mixed effect model, especially in pharmacometrics area. The average shifted visual predictive checks are the newly developed method of Visual predictive checks combined with the idea of the average shifted histogram.
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asVPC.binW

calculate percentiles of original data using bin-related weight percentiles of simulated data with corresponding confidence interval

Description

calculate percentiles of original data using bin-related weight percentiles of simulated data with corresponding confidence interval

Usage

asVPC.binW(orig.data, sim.data, n.timebin, n.sim, n.hist, q.list = c(0.05, 0.5, 0.95), conf.level = 0.95, X.name = "TIME", Y.name = "DV", opt.DV.point = FALSE, weight.flag = FALSE, Y.min = NULL, Y.max = NULL, only.med = FALSE, plot.flag = TRUE)

Arguments

orig.data the original data for model fitting
sim.data the simulated data from NONMEM
n.timebin the number of bin in X axis
n.sim the number of simulation in the simulated data
n.hist the number of shifted
q.list numeric vector of probabilities with values in [0,1]
conf.level confidence level of the interval
X.name the name of X variable in the original scatter plot
Y.name the name of Y variable in the original scatter plot
opt.DV.point option to put data point in the plot
weight.flag option to use weight in average shifted calculation
Y.min minimum of Y range in the plot
Y.max maximum of Y range in the plot
only.med option to use only median
plot.flag TRUE: drawing plot / FALSE: generate data for drawing plot

Value

plot or the values to draw plot

Author(s)

Eun-Kyung Lee <lee.eunk@gmail.com>
References

new paper...

See Also

asVPC.distanceW

Examples

data(origdata)
data(simdata)
asVPC.binW(origdata, simdata, n.timebin=10, n.sim=100, n.hist=3)

asVPC.distanceW

\begin{verbatim}
calculate percentiles of original data using distance-related weight
percentiles of simulated data with corresponding confidence interval
\end{verbatim}

Description

calculate percentiles of original data using distance-related weight percentiles of simulated data
with corresponding confidence interval

Usage

\begin{verbatim}
asVPC.distanceW(orig.data, sim.data, n.timebin, n.sim, n.hist,
q.list = c(0.05, 0.5, 0.95), conf.level = 0.95, X.name = "TIME",
Y.name = "DV", opt.DV.point = FALSE, weight.flag = FALSE,
Y.min = NULL, Y.max = NULL, only.med = FALSE, plot.flag = TRUE)
\end{verbatim}

Arguments

\begin{verbatim}
orig.data the original data for model fitting
sim.data the simulated data from NONMEM
n.timebin the number of bin in X axis
n.sim the number of simulation in the simulated data
n.hist the number of shifted
q.list numeric vector of probabilities with values in [0,1]
conf.level confidence level of the interval
X.name the name of X variable in the original scatter plot
Y.name the name of Y variable in the original scatter plot
opt.DV.point option to put data point in the plot
weight.flag option to use weight in average shifted calculation
Y.min minimum of Y range in the plot
Y.max maximum of Y range in the plot
only.med option to use only median
plot.flag TRUE: drawing plot / FALSE: generate data for drawing plot
\end{verbatim}
Value
plot or the values to draw plot

Author(s)
Eun-Kyung Lee <lee.eunk@gmail.com>

References
new paper...

See Also
asVPC.binW

Examples

data(origdata)
data(simdata)
asVPC.distanceW(origdata,simdata,n.timebin=10, n.sim=100,n.hist=3)

makeCOVbin

make the bins with equal number of observations or using user-defined breaks

Description
make the bins with equal number of observations or using user-defined breaks

Usage
makeCOVbin(COV.data, N.covbin = NULL, breaks.data = NULL)

Arguments
COV.data numeric vector that need to make bins
N.covbin the number of bins
breaks.data user-defined breaks

Value
information of the binning with summary

Author(s)
Eun-Kyung Lee <lee.eunk@gmail.com>
Examples

data(origdata)
makeCOVbin(origdata$TIME, 7)

origdata sample original data

Description

sample original data

Usage

data("origdata")

Format

A data frame with 132 observations on the following 5 variables.

X.ID a numeric vector
AMT a numeric vector
TIME a numeric vector
dv a numeric vector
wt a numeric vector

Examples

data(origdata)
## maybe str(data); plot(data) ...

read_Simdata calculate percentiles of original data using bin-related weight percentiles of simulated data with corresponding confidence interval

Description

calculate percentiles of original data using bin-related weight percentiles of simulated data with corresponding confidence interval

Usage

read_Simdata(sim.file.name, data.n, sim.n, name.DV)
Arguments

sim.file.name  file name of simulation, generated from NONMEM with 'NOAPPEND ONE-HEAD' options in TABLE statement

data.n  number of observations in the original data

sim.n  number of simulation

name.DV  name of dependent variable in simulated data file

Value

data.n * sim.n matrix with simulated data

Author(s)

Eun-Kyung Lee <lee.eunk@gmail.com>

References

new paper...

See Also

asVPC.distanceW

Description

sample sim data

Usage

data("simdata")

Format

The format is: num [1:132, 1:100] 0 2.82 3.14 5.06 4.8 ...

Examples

data(simdata)

## maybe str(sim.data) ; plot(sim.data) ...
**Description**

calculate percentiles of original data using bin-related weight percentiles of simulated data with corresponding confidence interval

**Usage**

```r
VPC.graph(orig.data, sim.data, N.timebin, N.sim, q.list = c(0.05, 0.5, 0.95),
         alpha = 0.05, X.name = "TIME", Y.name = "DV", main.title = NULL,
         opt.DV.point = FALSE, opt.DV.quantile.line = TRUE,
         opt.SIM.quantile.line = FALSE, opt.SIM.quantile.CI.area = TRUE,
         Y.min = NULL, Y.max = NULL, plot.flag = TRUE)
```

**Arguments**

- `orig.data`: NONMEM data
- `sim.data`: simulated data from NONMEM
- `N.timebin`: number of time bin
- `N.sim`: number of simulation
- `q.list`: list of quantiles for VPC plot
- `alpha`: significance level of CI for each quantile
- `X.name`: x label in VPC plot
- `Y.name`: y label in VPC plot
- `main.title`: title of plot
- `opt.DV.point`: option for drawing data points
- `opt.DV.quantile.line`: option for drawing quantiles of the original data
- `opt.SIM.quantile.line`: option for drawing quantiles of simulated data
- `opt.SIM.quantile.CI.area`: options for drawing confidence area of quantiles for simulated data
- `Y.min`: minimum of y axis in VPC plot
- `Y.max`: maximum of y axis in VPC plot
- `plot.flag`: TRUE: drawing plot / FALSE: generate data for drawing plot

**Value**

plot or the values to draw plot
Author(s)
Eun-Kyung Lee <lee.eunk@gmail.com>

References
new paper...

Examples
data(origdata)
data(simdata)
VPC.graph(origdata,simdata,10,100)
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