Package 'lshorth'

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Type Package

Title The Length of the Shorth

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Description Calculates the (localised) length of the shorth and supplies corresponding diagnostic plots.

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lshorth-package *The Length of the Shorth*

Description

Calculates the (localised) length of the shorth and supplies corresponding diagnostic plots.

Details

Package:	lshorth
Type:	Package
Version:	0.1-5
Date:	2012-03-23
License:	LGPL
URL:	http://lshorth.r-forge.r-project.org/

The p-shorth at x is the shortest interval containing the point x and a proportion p of the data. The location of the p-shorth has slow convergence and is not very useful as a location estimator.

The length of the shorth however has better convergence and, if localised, can be used as a diagnostic tool.

Author(s)

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References

Grübel, R.: The Length of the Shorth, *Annals of Statistics* **16.2**, 1988, pp 619–628

Sawitzki, G.: Diagnostic Plots for One-Dimensional Data. In: Dirschedl, P. and Ostermann, R. (eds.): *Computational Statistics. Papers collected on the Occasion of the 25th Conference on Statistical Computing at Schloss Reisensburg.* Physica-Verlag 1994 pp. 237–258
http://statlab.uni-heidelberg.de/reports/by.series/report.08.pdf

Sawitzki, G.: The Shorth Plot. Technical Report, StatLab Heidelberg 1992
(revised version included in the documentation which comes with this package. See doc/TheShorthPlot.pdf)

Examples

```
library(lshorth)
## shorth plot of normal variates
lshorth(rnorm(50))
```

`lshorth` *Length of the Shorth*

Description

For each data point, calculate the length of the shortest interval containing the point and covering a fraction p of the data.

Usage

```
lshorth(x, probs = NULL, plot = TRUE, na.rm=FALSE, ...)
```

Arguments

`x`	a vector of values for which the shorth length is to be computed.
`probs`	numeric vector of coverage probabilities with values in $[0, 1]$.
`plot`	logical. If `TRUE` (default), the length of the shorth is plotted.
`na.rm`	logical; if `TRUE`, missing values are removed from `x`. If `FALSE`, any missing values cause an error.
`...`	additional arguments passed to plot

Value

an object of class `"lshorth"`

`x`	sorted vector of data
`lshorth`	matrix of shorth length
`probs`	vector of coverage probabilities. If `probs` is not given, a dyadic scale is used based on the sample length.

Author(s)

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See Also

`plot.lshorth`,

Examples

```
## shorth plot of normal variates
lshorth(rnorm(50))
```

plot.lshorth *plot.lshorth*

Description

Plot local shorth length

Usage

```
## S3 method for class 'lshorth'
plot(x, y, xlim = NULL, ylim = NULL,
        probs = NULL,
        main = "Shorth", xlab=NULL,
ylab=NULL,
frame.plot=TRUE,
legendpos="topright",
rug=TRUE,
rescale="neg", ...)
```

Arguments

x	an object of class lshorth, or a vector of x values.
y	a matrix of shorth length, if x is not of class lshorth – not yet implemented.
xlim	passed to plot.
ylim	passed to plot.
probs	coverage probabilities, if x is not of class lshorth – not yet implemented.
main	passed as argument to title.
xlab	a label for the x axis.
ylab	a label for the y axis.
frame.plot	a logical indicating whether a box should be drawn around the plot.
legendpos	position, passed to legend, or NULL for no legend.
rug	logical. If TRUE, a rug is included.
rescale	rescaling method:one of "none","neg","std","inv".
...	additional arguments passed to plot.

Details

For each point in x the length of the shortest interval covering a fraction p of the data is marked.

The internal function legend.lshorth() gives a model how to customize the legend.

Value

an object of class lshorth. See lshorth.

Note

Scaling still under experiment

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Examples

```
library(lshorth)

shorthnorm <- lshorth(rnorm(50), plot=FALSE)
plot.lshorth(shorthnorm, legend="bottom")
```

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