Package 'scagnostics'

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Title Compute scagnostics - scatterplot diagnostics

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Depends rJava

Description Calculates graph theoretic scagnostics. Scagnostics describe various measures of interest for pairs of variables, based on their appearance on a scatterplot. They are useful tool for discovering interesting or unusual scatterplots from a scatterplot matrix, without having to look at every individual plot.

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Repository CRAN

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`scagnostics` *Calculcate scagnostics for pairs of variables*

Description

Scagnostics (scatterplot diagnostics) summarize potentially interesting patterns in 2d scatterplots.

Usage

```
scagnostics(x, ...)
scagnosticsOutliers(scagnostics)
scagnosticsExemplars(scagnostics)
scagnosticsGrid(scagnostics)
```

Arguments

x	object to calculate scagnostics on: a vector, a matrix or a data.frame
...	...
scagnostics	objects returned from the scagnostics function

Value

scagnostics returns a vector (for a pair) or a matrix consisting of scagnostics (rows) by variable pairs (columns).

scagnostics.outliers and scagnostics.exemplars return a logical vector.

scagnostics.grid returns a data frame with columns x and y which as a pair define the index of variables corresponding to the entries in the scagnostics matrix. Hence it has as many rows as there are columns in the scagnostics matrix and each row defines one pair of variables.

Author(s)

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References

Wilkinson L., Anand, A., and Grossman, R. (2006). *High-Dimensional visual analytics: Interactive exploration guided by pairwise views of point distributions*. IEEE Transactions on Visualization and Computer Graphics, November/December 2006 (Vol. 12, No. 6) pp. 1363-1372.

Wilkinson L., Anand, A., and Grossman, R. (2005). *Graph-Theoretic Scagnostics*. Proceedings of the 2005 IEEE Symposium on Information Visualization, p. 21.

https://www.cs.uic.edu/~wilkinson/

Examples

```
# tesing various forms
scagnostics(1:10, 1:10)
scagnostics(rnorm(100), rnorm(100))
scagnostics(as.matrix(mtcars))

# more real use on a dataset
s <- scagnostics(mtcars)

# look at outliers
o <- scagnosticsOutliers(s)
o[o]
```

```
# one outlier, let's plot it
g <- scagnosticsGrid(s)
go <- g[o,]
plot(mtcars[[go$x]], mtcars[[go$y]], pch=19,
     xlab=names(mtcars)[go$x], ylab=names(mtcars)[go$y])

# find and plot exemplars
e <- scagnosticsExemplars(s)
e[e]
ge <- g[e,]
par(mfrow = c(2,2))
for (i in 1:dim(ge)[1])
  plot(mtcars[[ge$x[i]]], mtcars[[ge$y[i]]], pch=19,
       xlab=names(mtcars)[ge$x[i]], ylab=names(mtcars)[ge$y[i]])
```

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∗ **hplot**
scagnostics, 1

scagnostics, 1
scagnosticsExemplars *(*scagnostics*)*, 1
scagnosticsGrid *(*scagnostics*)*, 1
scagnosticsOutliers *(*scagnostics*)*, 1