

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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URL <http://www.rforge.net/scagnostics/>,
<http://www.cs.uic.edu/~wilkinson/>

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`scagnostics`*Calculate 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

<code>x</code>	object to calculate scagnostics on: a vector, a matrix or a data.frame
<code>...</code>	...
<code>scagnostics</code>	objects returned from the <code>scagnostics</code> 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.

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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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