Package ‘overlapping’

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Type Package
Title Estimation of Overlapping in Empirical Distributions
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Description Functions for estimating the overlapping area of two or more empirical distributions.
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    cutnumeric       Numerical conversion

Description

    It divides a numerical variable x in classes, and returns for each class the central value.
    Internal function, generally not to be called by the user.

Usage

    cutnumeric(x, n = 1000)
Arguments

x   numeric vector
n   number of classes

Details

It calls the cut function, and then converts factor classes in numeric classes, returning for each class its central value.

Value

It returns a numerical vector. The values are the central points of classes obtained by the function cut.

Note

This function is called from the function overlap.

Author(s)

Massimiliano Pastore

See Also

cut

Examples

x <- rnorm(50)
cutnumeric(x, 5)

Description

Graphical representation of estimated densities and overlapping area.

Usage

final.plot(x, OV = NULL)

Arguments

x   list of distributions to be compared; each distribution is an element of the list, see overlap
OV  Optional vector of overlapping areas obtained by overlap
**overlap**

**Details**

It requires the package ggplot2.

**Author(s)**

Massimiliano Pastore

**Examples**

```r
set.seed(20150605)
x <- list(X1=rnorm(100),X2=rt(50,8),X3=rchisq(80,2))
out <- overlap(x)
final.plot(x,out$OV)
```

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**overlap**  
*Overlapping estimation*

**Description**

It gives the overlapped estimated area of two or more empirical distributions.

**Usage**

```r
overlap(x, nbins = 1000, plot = FALSE, partial.plot = FALSE)
```

**Arguments**

- **x**  
  list of distributions to be compared; each distribution is an element of the list
- **nbins**  
  number of equally spaced points at which the overlapping density is evaluated
- **plot**  
  logical, if TRUE, final plot of estimated densities and overlapped areas is produced
- **partial.plot**  
  logical, if TRUE, partial paired distributions are plotted

**Details**

If the list `x` contains more than two elements (i.e. more than two distributions) it computes all overlapping between all paired distributions. Partial plots refer to these coupled distributions.

If `plot=TRUE`, all overlapped areas are plotted. It requires lattice.
Value

It returns a list containing the following components:

- **DD**: Data frame with information used for computing overlapping, containing the following variables: x, coordinates of the points where the density is estimated; y, density; j, index of the distribution in the list x; xclass, class of x; xnum, numerical class of x (obtained by `cutnumeric`); dominance, indicates which distribution has the highest density; w, flag 0-1 for normalizing area; k, label indicating which distributions are compared.

- **OV**: Estimates of overlapped areas relative to each couple of distributions.

- **xpoints**: Abscissas of intersection points among the density curves.

Note

Call functions `cutnumeric` e `final.plot`.

Author(s)

Massimiliano Pastore

Examples

```r
set.seed(20150605)
x <- list(X1=rnorm(100),X2=rt(50,8),X3=rchisq(80,2))
out <- overlap(x,plot=TRUE)
```
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