Package 'ockc'

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Type Package

Title Order Constrained Solutions in k-Means Clustering

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Description Extends 'flexclust' with an R implementation of order constrained solutions in k-means clustering (Steinley and Hubert, 2008, <doi:10.1007/s11336-008-9058-z>).

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Depends flexclust

Imports methods, parallel, modeltools, stats4

Suggests seriation

NeedsCompilation no

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R topics documented:

bootockc *Bootstrap Order Constrained k-means Clustering*

Description

Runs ockc for different numbers of clusters on bootstrap replica of the original data (maintaining the supplied order) and returns corresponding cluster assignments, centroids and Rand indices comparing pairs of partitions.

Usage

```
bootockc(x, k, nboot = 100, order = NULL, correct = TRUE, seed = NULL,
         multicore = TRUE, verbose = FALSE, ...)
```

Arguments

x, k, ...	Passed to ockc
nboot	Number of bootstrap pairs (maintaining order).
order	Order restriction of x. If NULL an initial run of ockc with order=NULL is run to calculate an order with seriate from package seriation
correct	Logical, correct the index for agreement by chance?
seed	If not NULL, a call to set.seed() is made before any clustering is done.
multicore	Use parallelization, if available. For examples and additional documentation see bootFlexclust.
verbose	Logical, show progress information during computations. Ignored if multicore=TRUE.

Value

Returns an object of class "bootFlexclust".

Author(s)

Sebastian Krey

See Also

ockc, bootFlexclust, stepFlexclust

Examples

```
x <- rbind(cbind(rnorm(10, mean=0), rnorm(10, mean=0,), rnorm(10, mean=0)),
           cbind(rnorm(10, mean=10), rnorm(10, mean=10), rnorm(10, mean=0)),
           cbind(rnorm(10, mean=10), rnorm(10, mean=0), rnorm(10, mean=10)),
           cbind(rnorm(10, mean=10), rnorm(10, mean=10), rnorm(10, mean=10))
           )
```

```
bockc <- bootockc(x, 2:4, nboot=4, order=c(1:10, 21:40, 11:20),
                  multicore=FALSE, verbose=FALSE)
bockc
```

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ockc *Order Contrained Solutions in k-Means Clustering*

Description

Calculates an order constrained clustering solution (default k-means) on a data matrix.

Usage

```
ockc(x, k, family = kccaFamily("kmeans"), order = NULL, control = NULL,
     save.data = FALSE, multicore = FALSE, ...)
```

Arguments

x	A numeric matrix of data.
k	An integer vector of number of clusters. For each element of k a clustering solution is computed (reusage of intermediate results makes this more efficient than individual calls of ockc).
family	Object of class kccaFamily.
order	Order restriction of x. If NULL an order is caluclated with seriate from package seriation
control	An object of class flexclustControl.
save.data	Save a copy of x in the return object?
multicore	Use parallelization, if available. For examples and additional documentation see bootFlexclust.
...	Additional options for seriate for order calculation.

Author(s)

Sebastian Krey, Friedrich Leisch, Sebastian Hoffmeister

References

Steinley, D. and Hubert, L. (2008). Order-Constrained Solutions in K-Means Clustering: Even Better Than Being Globally Optimal. Psychometrika, 73 (4), pp. 647-664.

See Also

kcca

Examples

```
x <- rbind(cbind(rnorm(10, mean=0), rnorm(10, mean=0,), rnorm(10, mean=0)),
           cbind(rnorm(10, mean=10), rnorm(10, mean=10), rnorm(10, mean=0)),
           cbind(rnorm(10, mean=10), rnorm(10, mean=0), rnorm(10, mean=10)),
           cbind(rnorm(10, mean=10), rnorm(10, mean=10), rnorm(10, mean=10))
           )

res <- ockc(x, k=4, nboot=4, order=c(1:10, 21:40, 11:20))
res
```

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