

Package ‘uskewFactors’

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Type Package

Title Model-Based Clustering via Mixtures of Unrestricted Skew-t
Sactor Analyzer Models

Version 2.0

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Description Implements mixtures of unrestricted skew-t factor analyzer models via the EM algorithm.

Depends tmvtnorm, mvtnorm, MCMCpack, MASS, stats

License GPL (>= 2)

NeedsCompilation no

Repository CRAN

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Swiss Banknote Data *The Swiss Banknote Data*

Description

This package contains measurements on 200 Swiss banknotes: 100 genuine and 100 counterfeit. The variables are length of bill, width of left edge, width of right edge, bottom margin width and top margin width. All measurements are in millimetres. The data source is noted below. This data is also available in the alr package in R.

Usage

```
data(banknote)
```

References

Flury, B. and Riedwyl, H. (1988). *Multivariate Statistics: A practical approach*. London: Chapman and Hall.

Examples

```
data(banknote) # Loads the brown bread data set
head(banknote) # Displays the first six rows of the brown bread data set
```

uskewFA	<i>Mixtures of 'Unrestricted' Skew-t Factor Analyzers via the EM algorithm</i>
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Description

Fits a mixture of 'unrestricted' skew-t factor analyzers via the EM algorithm for estimation of model parameters

Usage

```
uskewFA(x, G, q, init=1, max.it=100)
```

Arguments

x	A numeric matrix.
G	The number of mixture components to fit.
q	The number of latent factors.
init	This number controls the starting values that are used: (1) k-means, or (2) random.
max.it	The maximum number of iterations of the EM algorithm.

Value

map	A vector of the maximum a posteriori group memberships.
bic	The value of the Bayesian Information Criterion.
zhat	The matrix of estimated probabilities of group membership.
likelihood	A vector containing the value of the complete-data log-likelihood computed at each iteration of the EM algorithm.

Note

This package contains measurements on 200 Swiss banknotes: 100 genuine and 100 counterfeit. The variables are length of bill, width of left edge, width of right edge, bottom margin width and top margin width. All measurements are in millimetres. The data source is noted below.

Author(s)

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References

Murray, P.M., Browne, R.P., and McNicholas, P.D. (2014), "Mixtures of 'Unrestricted' Skew-t Factor Analyzers". Arxiv preprint arXiv:1310.6224

See Also

Flury, B. and Riedwyl, H. (1988). Multivariate Statistics: A practical approach. London: Chapman and Hall.

Examples

```
data("banknote")
x=banknote[,c(5,6)]
# We let max.it=3 for a speedy illustration.
# More iterations are needed to ensure
# convergence.
results=uskewFA(x,G=2,q=1,max.it=3)
results
```

uskewFactors	<i>Model-Based Clustering via Mixtures of 'Unrestricted' Skew-t Factor Analyzers</i>
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Description

Contains the function uskewFA for fitting mixtures of 'unrestricted' skew-t factor analyzer models

Details

Package: uskewFactors
Type: Package
Version: 2.0
Date: 2016-05-20
License: WGPL (>=2)

Author(s)

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References

Murray, P.M., Browne, R.P., and McNicholas, P.D. (2014), "Mixtures of 'Unrestricted' Skew-t Factor Analyzers". Arxiv preprint arXiv:1310.6224

See Also

Details, references, and examples are given under [uskewFA](#).

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