Package ‘dualScale’

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dualScale-package

Dual Scaling for Multiple Choice Data

Description

This package includes dsMC and dsFC for several versions of dual scaling of multiple-choice data.

Details

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With dsMC and dsFC a ds class object is created. It can be analyzed later with print.ds, plot.ds or summary.ds

Author(s)

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References

Nishisato and Clavel (2014), Nishisato (2007)

See Also

dsMC, dsFC, dsCHECK, plot.ds, print.ds, summary.ds

Examples

data(singapore)
ciuca<-dsFC(singapore, 2, 6)
plot(ciuca)
bea<-dsMC(singapore)
print(bea)
Description

18 subjects and 5 items with different numbers of options.

Usage

data(baba)

Format

A data frame with 18 subjects on 5 items with the following numbers of options:

V1  2 options
V2  3 options
V3  4 options
V4  5 options
V5  6 options

Source


References


Examples

data(baba)

Description

10 observation and 3 variables erroneously coded.

Usage

data(badCoded)
Format

A data frame with 10 observations on the following 3 variables.

V2  Option 1 is omitted
V3  Options go from 1 to 8
V4  Option 1 omitted, other are not consecutive and there is NA

Source


References


Examples

data(badCoded)
dsexamine(badCoded, 'rad')

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Description

Nishisato’s widely used artificial data on 15 subjects answering 6 questions on their health.

Usage

data(blood)

Format

A frame 15x6 multiple-choice table of chosen option numbers.

V1  How would you rate your blood pressure? (1=low, 2=medium, 3=high)
V2  Do you get migraines? (1=rarely, 2=sometimes, 3=often)
V3  What is your age group? (1=20-34, 2=35-49, 3=50-65)
V4  How would you rate your daily level of anxiety? (1=low, 2=medium, 3=high)
V5  How would you rate your weight? (1=light, 2=medium, 3=heavy)
V6  What about your height? (1= short, 2=medium, 3= tall)

Details

The data were used for the first time in Nishisato (1999), and have been used in a number of his papers.
Source


References

Nishisato S (1999), cited above.

Examples
data(blood)

dsCHECK  Transforming data appropriate for dual scaling

Description

Initial data-polishing and handling of missing responses

Usage
dsCHECK(X, mode='rad')

Arguments

X The input data, a multiple choice table.
mode There are two options: "rad" (default) for radical imputation and "act" for active imputation.

Details

With option "rad," those subjects with NA (no answer) responses are discarded from analysis. With option "act," the NA responses were placed into newly created options so that missing responses are also subjected to analysis.

Value

InitialData The Initial Data.
TData The transformed data, ready for dsMC or dsFC

References

See Also
dsMC, dsFC

Examples

data(badCoded)
dCHECK(badCoded, mode='act')

Forced Classification Analysis

Description
This program is for forced classification of dual scaling.

Usage
dsFC(x, crit, dim)

Arguments

x The Initial Data.
crit The criterion item for forced classification.
dim The maximum number of components to be extracted.

Details
There are three types of outputs: Forced classification of the criterion item (type A); dual scaling of non-criterion items by ignoring the criterion item (type B); dual scaling of non-criterion items after eliminating the influence of the criterion item (type C). These three types correspond to, respectively, dual scaling of data projected onto the subspace of the criterion item, dual scaling of non-criterion items, and dual scaling of data in the complementary space of the criterion item.

Value

Match Match-mismatch tables
Predict Correct prediction percentages
Proj.Op_A Projected options weights
Proj.Su_A Projected subject scores
Inf_A Distribution of information over components
ItemStat_A Item statistics
Out_A Results obtained by forced classification
Rij_A Inter-item correlation
Norm.Op_A Normed options weights
Norm.Su_A Normed subject scores
dsMC

References


See Also
dsmc, dscheck, summary.ds, plot.ds

Examples

data(singapore)
dsfC(singapore, 2, 6)

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dsmc

Dual Scaling for Multiple Choice Data

Description

The traditional analysis

Usage

dsmc(x, dim = NA)

Arguments

x The data
dim is the number of components one wishes to extract. If no value is provided, the entire components will be extracted.

Value

Tot.Op Total Number of Options
Proj.Op_0 Projected options weights
Proj.Su_0 Projected subject scores
Inf_0 Distribution of information over components
ItemStat_0 Item statistics
Out_0 Results
Rij_0 Inter-item correlation
Norm.Op_0 Normed options weights
Norm.Su_0 Normed subject scores

References

plot.ds

Plotting 2D graphs for ds objects

Description

Produces a two-dimensional graph of dual scaling results.

Usage

```r
plot(x, dim1=1, dim2=2, type="Asy", ...)  
```

Arguments

- `x` Dual scaling object from dsMC or dsFC
- `dim1` Component for the horizontal axis
- `dim2` Component for the vertical axis
- `type` Graph types: "Sym" for symmetric graph; "Asy" for assymmetric graph (default); "Sub" for only subjects; "Ite" for only item options.
- `...` Arguments to be passed to methods

Details

The function plot.ds makes a two-dimensional representation of the object ds created by dsFC or dsMC.

See Also

dsMC, dsFC, summary.ds

Examples

```r
data(singapore)
bea<-dsFC(singapore,1,6)
plot(bea)
plot(bea,1,2,"Asy")
```
Description

Printing dual scaling objects

Usage

## S3 method for class 'ds'
print(x, type, ...)

Arguments

- `x`: dual scaling object from dsFC or dsMC
- `type`: Specific dsFC outputs: 'B' = results from ignoring the criterion item; 'C' = results from the subspace of the criterion item and from its complementary subspace.
- `...`: Arguments to be passed to methods

Details

The function print.ds provides basic statistics of the ds object. The function summary.ca offers all available information from analysis.

Note

Regarding all available information, please refer to Clavel and Nishisato (2014).

See Also

dsMC, dsFC, summary.ds, plot.ds

Examples

data(singapore)
oscar<-dsFC(singapore,2,6)
print(oscar)
print(oscar, 'B')
print(oscar, 'C')
bea<-dsMC(singapore)
print(bea)
Singaparean children as viewed by adults

Description

A short survey on children in Singapore.

Usage

data(singapore)

Format

A data set of 23 subjects on 4 multiple-choice questions.

V1  How old are you? (1 = 20-29, 2 = 30-39, 3 = 40 or over)
V2  Children today are not as disciplined as when I was a child. (1 = agree, 2 = disagree, 3 = I cannot tell)
V3  Children today are not as fortunate as when I was a child. (1 = agree, 2 = disagree, 3 = I cannot tell)
V4  Religions should be taught at school. (1 = agree, 2 = disagree, 3 = Indifferent)

Details

The data were collected from 23 participants at a workshop in Singapore in 1985

Source


References


Examples

data(singapore)
Summary of Dual Scaling Analysis

Description

This generic function is used to produce results of several applications of dsFC and dsMC.

Usage

```
## S3 method for class 'ds'
summary(object,...)
```

Arguments

- **object**: Dual scaling object from dsMC or dsFC.
- **...**: Arguments to be passed to methods

Details

Available results available from different applications.

Value

For Ordinary Dual Scaling (dsMC)
- **InitDat**: Initial Data
- **ItONa**: Item options labels
- **N.Comp**: Total number of Components
- **N.Item**: Total number of items
- **N.Op**: Number of options of each item
- **N.Ss**: Total number of subjects
- **SubNa**: Subject labels
- **Tot.Op**: Total number of options
- **Inf_o**: Distribution of information over components
- **ItemStat_o**: Item statistics
- **Out_o**: Results obtained
- **Rij_o**: Inter item correlation
- **Norm.Op_o**: Normed option weights
- **Norm.Su_o**: Normed subjects scores
- **Proj.Op_o**: Projected option weights
- **Proj.Su_o**: Projected subjects scores

For Force Classification Dual Scaling (dsFC). (NOTE: '_B' and '_C' values also available).
InIDat  Initial data
CramerV  Cramer's coefficient V
CritItem  The criterion item for forced classification
ItONa  Item options labels
Match  Match-mismatch tables
N.Comp  Total number of components
N.Item  Total number of items
NSs  Total number of subjects
NOpt  Number of options of each item
Predict  Percentage of correct classification
SubNa  Subject labels
Tot.Op  Total number of options
Inf_A  Distribution of information over components
ItemStat_A  Item statistics
Out_A  Results obtained by forced classification in the criterion subspace
Rij_A  Inter item correlation
Norm.Op_A  Normed option weights
Norm.Su_A  Normed subject scores
Proj.Op_A  Projected option weights
Proj.Su_A  Projected subject scores
Out_B  Results obtained by ignoring the criterion item
Out_C  Results obtained in subspace complimentary to the criterion item

Author(s)
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References

See Also
dsFC, dsMC, print.ds, plot.ds

Examples
data(singapore)
ole<-dsMC(singapore)
summary(ole)
ole$IniDa
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