Package: latdiag (via r-universe)

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Type Package

Title Draws Diagrams Useful for Checking Latent Scales

Version 0.3

Date 2020-04-03

Description A graph proposed by Rosenbaum is useful for checking some properties of various sorts of latent scale, this program generates commands to obtain the graph using 'dot' from 'graphviz'.

Imports Rdpack

Suggests ltm

RdMacros Rdpack

License GPL-2

LazyLoad yes

SystemRequirements dot from graphviz

NeedsCompilation no

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latdiag-package *Draws Diagrams Useful for Checking Latent Scales*

Description

A graph proposed by Rosenbaum is useful for checking some properties of various sorts of latent scale, this program generates commands to obtain the graph using 'dot' from 'graphviz'.

Details

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Version:	0.3
Date:	2020-04-03
Authors@R:	person("Michael", "Dewey", role = c("aut", "cre"), email = "lists@dewey.myzen.co.uk", comment = c
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License:	GPL-2
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SystemRequirements:	dot from graphviz
Author:	Michael Dewey [aut, cre] (<https://orcid.org/0000-0002-7522-3677>)
Maintainer:	Michael Dewey <lists@dewey.myzen.co.uk>

Index of help topics:

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latdiag-package	Draws Diagrams Useful for Checking Latent Scales

Further information is available in the following vignettes:

latdiag	Drawing diagrams useful for latent scales (source)

The package writes a file of commands for subsequent processing by the dot program from graphviz

Author(s)

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References

Rosenbaum PR (1987). "Probability inequalities for latent scales." *British Journal of Mathematical and Statistical Psychology*, **40**, 157–168.

`draw.latent` *Draw latent scale diagram*

Description

Writes a file of commands for the dot program to draw a graph proposed by (Rosenbaum 1987) and useful for checking for non-intersecting item characteristic curves which are a property of various sorts of latent scale including Guttman, Rasch and the Mokken double monotone scale.

Usage

```
draw.latent(mat, threshold = 0, which.npos = NULL,
   labels = NULL, reorder = TRUE)
## S3 method for class 'draw.latent'
print(x, rootname = NULL, ...)
## S3 method for class 'draw.latent'
plot(x, rootname = NULL, graphtype = "pdf", ...)
```

Arguments

`mat`	A matrix or data.frame of binary item responses
`threshold`	Patterns are only printed if more frequent than threshold, defaults to 0 meaning all those which actually occur are printed
`which.npos`	Which values of number of items positive to print, NULL means all and is the default. Duplicates are removed
`labels`	Labels for subgraphs, NULL means none, a character vector supplies the labels, otherwise labelled as n positive
`reorder`	logical, put the items in ascending order of prevalence, defaults to TRUE
`x`	An object of class `draw.latent`
`rootname`	Character: the rootname of the file of dot commands
`graphtype`	Character: one of the graph types supported by `dot`
`...`	Other arguments

Details

The `draw.latent` function produces the dot commands which will draw the graph.

The `print` method prints some details. If `rootname` is supplied it will be used as the rootname of the file of dot commands which will have file type `.gv`. If `rootname` is NULL (which is the default) just some details about the result are printed.

The plot method actually does the plotting and invisibly returns the result of the system command which executes dot. The output file will be named with the rootname followed by the graph type (after a dot). The routine does not draw the graph itself but leaves that to the dot program from graphviz which you need to install and have on your path.

More extensive documentation is provided in the vignette.

Value

Returns a list containing:

which.npos	which values of items positive were printed. Differs from input parameter if for some there were no valid patterns to print or duplicates have been removed
new.order	order of original items from left to right in displayed diagram. If new.order==TRUE new.order[i] is the index in the original dataset of the ith item in increasing prevalence
code	a character vector of the dot commands

Note

The parameter rootname is now supplied to the plot and print functions and not to draw.latent

Author(s)

Michael Dewey

References

Rosenbaum PR (1987). "Probability inequalities for latent scales." *British Journal of Mathematical and Statistical Psychology*, **40**, 157–168.

Examples

```
set.seed(20150114)
mat <- cbind(
   sample(0:1, 100, prob = c(0.2, 0.8), replace = TRUE),
   sample(0:1, 100, prob = c(0.4, 0.6), replace = TRUE),
   sample(0:1, 100, prob = c(0.5, 0.5), replace = TRUE),
   sample(0:1, 100, prob = c(0.6, 0.4), replace = TRUE),
   sample(0:1, 100, prob = c(0.8, 0.2), replace = TRUE)
)
res <- draw.latent(mat)
#
# now need to plot(res, rootname = "mat", graphtype = "pdf")
#
```

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