

Package ‘latdiag’

October 13, 2022

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

Author Michael Dewey [aut, cre] (<<https://orcid.org/0000-0002-7522-3677>>)

Maintainer Michael Dewey <lists@dewey.myzen.co.uk>

Repository CRAN

Date/Publication 2020-04-06 16:02:06 UTC

R topics documented:

latdiag-package	2
draw.latent	3
Index	5

 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

```

Package:          latdiag
Type:             Package
Title:            Draws Diagrams Useful for Checking Latent Scales
Version:          0.3
Date:             2020-04-03
Authors@R:        person("Michael", "Dewey", role = c("aut", "cre"), email = "lists@dewey.myzen.co.uk", comment = c("author", "creator"))
Description:      A graph proposed by Rosenbaum is useful for checking some properties of various sorts of latent scale
Imports:          Rdpack
Suggests:         ltm
RdMacros:         Rdpack
License:          GPL-2
LazyLoad:         yes
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:

```

draw.latent      Draw latent scale diagram
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)

Michael Dewey

Maintainer: Michael Dewey <lists@dewey.myzen.co.uk>

References

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

draw.latent	<i>Draw latent scale diagram</i>
-------------	----------------------------------

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:

<code>which.npos</code>	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
<code>new.order</code>	order of original items from left to right in displayed diagram. If <code>new.order==TRUE</code> <code>new.order[i]</code> is the index in the original dataset of the <i>i</i> th item in increasing prevalence
<code>code</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")
#
```

Index

* **hplot**

draw.latent, 3

* **package**

latdiag-package, 2

draw (latdiag-package), 2

draw.latent, 3

latdiag-package, 2

plot.draw.latent (draw.latent), 3

print.draw.latent (draw.latent), 3