

Package ‘semNested’

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Type Package

Title Test if two latent models are nested

Version 1.0.0

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Description This package contains the function 'semNested'. It provides an easy solution for researchers to determine if two latent variable models are nested in each other. This is useful in determining whether one is allowed to compare the two models.

The output of the function will contain the following outcomes:

- a. model 1 is nested in model 2
- b. model 2 is nested in model 1
- c. model 2 and model 1 are equal
- d. model 1 and 2 are not nested in each other

The function is compatable with lavaan objects.

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Encoding UTF-8

LazyData true

Imports lavaan,
semPlot,
graphics,
methods,
crayon

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semNested

*semNested***Description**

This package tests whether two latent models are (likely) nested in each other, equal to each other or not nested in each other. Note: this package is only compatible with Lavaan objects!

Usage

```
semNested(fit1, fit2, model1, model2)
```

Arguments

fit1	A Lavaan object containing the cfa model fit or sem model fit of model 1
fit2	A Lavaan object containing the cfa model fit or sem model fit of model 2
model1	A character vector specifying model 1
model2	A character vector specifying model 1

Details

The objects fit1 and fit2 are Lavaan objects associated with model1 and model2. The objects model1 and model2 are character objects specifying the latent models to be compared.

Value

Conclusion	Main output regarding nesting
DF1	Degrees of freedom fit1
DF2	Degrees of freedom fit2
Chisq. statistic model 1 based on model 2	Chisquare statistic model 1 based on model 2. If value equals zero, likely perfect fit.
Chisq. statistic model 2 based on model 1	Chisquare statistic model 2 based on model 1. If value equals zero, likely perfect fit.
P-value model 1 based on model 2	If p equals 1, then this is likely a perfect fit.
P-value model 2 based on model 1	If p equals 1, then this is likely a perfect fit.

Note

Note, this package was build as part of a Structural Equation Modeling course taught by dr. Sacha Epskamp at the University of Amsterdam in 2018-2019. ~~

Author(s)

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References

General Lavaan website: <http://lavaan.ugent.be/>

Examples

```
## Utilizing the Industrialization And Political Democracy Dataset from the Lavaan package
# Example 1: Model 1 nested in model 2. Note: model 2 is a higher-order model.
library(lavaan)
model1 <- ' latent1 =~ y1 + y2 + y3 + y4 + y5 + y6 + y7 + y8
          latent2 =~ x1 + x2 + x3'

model2 <- ' latent1 =~ y1 + y2 + y3 + y4 + y5 + y6 + y7 + y8
          latent2 =~ x1 + x2 + x3
          latent3 =~ latent1 + latent2'

fit1 <- cfa(model = model1, data = PoliticalDemocracy)
fit2 <- cfa(model = model2, data = PoliticalDemocracy)

semNested(fit1, fit2, model1, model2)

# Example 2: Model 1 nested in model 3. Note: model 1 and fit 1 are already specified above.
model3 <- ' latent1 =~ y1 + y2 + y3 + y4 + y5 + y6 + y7 + y8
          latent2 =~ x1 + x2 + x3 + y8'

fit3 <- cfa(model = model3, data = PoliticalDemocracy)

semNested(fit1, fit3, model1, model3)

# Example 2: Model 4 is equal to model 1. Note: model 1 and fit 1 are already specified above.
model4 <- ' latent1 =~ y1 + y2 + y3 + y4 + y5 + y6 + y7
          latent2 =~ x1 + x2 + x3 + y8'

fit4 <- cfa(model = model4, data = PoliticalDemocracy)

semNested(fit1, fit4, model1, model4)
#
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