

Package: semnova (via r-universe)

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Type Package

Title Latent Repeated Measures ANOVA

Version 0.2.9001

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Imports Matrix, parallel, MASS, stats, methods, vctrs, ggdag, styler,
ggraph, kableExtra, tidygraph

Suggests testthat, knitr, rmarkdown

Depends R (>= 4.0.0), R6 (>= 2.0.0), tidyverse (>= 1.3.0), lavaan (>= 0.6.2)

Description Latent repeated measures ANOVA is a structural equation modeling based alternative to traditional repeated measures ANOVA proposed by Langenberg et al. [doi:10.1080/00273171.2020.1803038](https://doi.org/10.1080/00273171.2020.1803038) allowing to analyse ANOVA designs with latent variables.

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Encoding UTF-8

LazyData true

RoxygenNote 7.1.2.9000

VignetteBuilder knitr

Repository <https://langenberg.r-universe.dev>

RemoteUrl <https://github.com/langenberg/semnova>

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anova.Lgc *Compares the lavaan objects contained in Lgc objects.*

Description

Compares the lavaan objects contained in Lgc objects.

Usage

```
## S3 method for class 'Lgc'
anova(object, ...)
```

Arguments

object Object of class Lgc.
 ... Additional arguments passed down to anova(lavaan_object, ...).

plot.Lgc *Wrapper method for lgc\$plot()*

Description

Wrapper method for lgc\$plot()

Usage

```
## S3 method for class 'Lgc'
plot(x, ...)
```

Arguments

x Object of class Lgc.
 ... Arguments passed down to lgc\$plot().

| | |
|------------|---|
| plot.Power | <i>Wrapper method for power\$plot()</i> |
|------------|---|

Description

Wrapper method for power\$plot()

Usage

```
## S3 method for class 'Power'  
plot(x, ...)
```

Arguments

| | |
|-----|---|
| x | Object of class Power. |
| ... | Arguments passed down to power\$plot(). |

| | |
|-------|--------------------|
| Power | <i>Power class</i> |
|-------|--------------------|

Description

Some description

Active bindings

expose Read only. Returns the private structure of the object. For debugging purposes only.

Methods**Public methods:**

- [Power\\$new\(\)](#)
- [Power\\$get_results\(\)](#)
- [Power\\$power_script_lgc\(\)](#)
- [Power\\$power_script_semnova\(\)](#)
- [Power\\$power_analysis_lgc\(\)](#)
- [Power\\$power_analysis_semnova\(\)](#)
- [Power\\$print\(\)](#)
- [Power\\$summary\(\)](#)
- [Power\\$plot\(\)](#)
- [Power\\$clone\(\)](#)

Method new():

Usage:

Power\$new()

Method get_results(): Returns a list of detailed results.

Usage:

Power\$get_results()

Method power_script_lgc(): Creates a power script for the Lgc class.

Usage:

Power\$power_script_lgc(..., out_file = NULL, print = FALSE)

Method power_script_semnova(): Creates a power script for the Semnova class.

Usage:

Power\$power_script_semnova(..., out_file = NULL, print = FALSE)

Method power_analysis_lgc():

Usage:

Power\$power_analysis_lgc(..., data_syntax, sample_size, replications)

Method power_analysis_semnova():

Usage:

Power\$power_analysis_semnova(..., data_syntax, sample_size, replications)

Method print(): Prints the power for each of the model parameters.

Usage:

Power\$print(...)

Method summary(): Prints the power for the hypotheses.

Usage:

Power\$summary(...)

Method plot(): Plots the Lgc dummy object.

Usage:

Power\$plot(...)

Method clone(): The objects of this class are cloneable with this method.

Usage:

Power\$clone(deep = FALSE)

Arguments:

deep Whether to make a deep clone.

power_analysis_lgc *Wrapper method for Power\$get_power_semnova_script()*

Description

Wrapper method for Power\$get_power_semnova_script()

Usage

```
power_analysis_lgc(...)
```

Arguments

... Additional arguments passed to Power\$get_power_semnova_script().

power_analysis_semnova
Wrapper method for Power\$get_power_semnova_script()

Description

Wrapper method for Power\$get_power_semnova_script()

Usage

```
power_analysis_semnova(...)
```

Arguments

... Additional arguments passed to Power\$get_power_semnova_script().

power_script_lgc *Wrapper method for Power\$get_power_lgc_script()*

Description

Wrapper method for Power\$get_power_lgc_script()

Usage

```
power_script_lgc(...)
```

Arguments

... Additional arguments passed to Power\$get_power_lgc_script().

power_script_semnova *Wrapper method for Power\$get_power_semnova_script()*

Description

Wrapper method for Power\$get_power_semnova_script()

Usage

```
power_script_semnova(...)
```

Arguments

... Additional arguments passed to Power\$get_power_semnova_script().

print.Lgc *Wrapper method for lgc\$print()*

Description

Wrapper method for lgc\$print()

Usage

```
## S3 method for class 'Lgc'  
print(x, ...)
```

Arguments

x Object of class Lgc.
... Arguments passed down to lgc\$print().

| | |
|-------------|--|
| print.Power | <i>Wrapper method for power\$print()</i> |
|-------------|--|

Description

Wrapper method for power\$print()

Usage

```
## S3 method for class 'Lgc'
print(x, ...)
```

Arguments

| | |
|-----|--|
| x | Object of class Power. |
| ... | Arguments passed down to power\$print(). |

| | |
|-------------|--|
| reading_raw | <i>Example data from reading research.</i> |
|-------------|--|

Description

Example data from reading research.

Usage

```
reading_raw
reading_latent
reading_manifest
```

Format

id Unique identifier.

dv Continuous dependent variable. The variable is on its raw scale for reading_raw. The variable is log-transformed and standardized (grouped by indicator) for reading_latent.

indicator Includes the names of three indicators measuring reading skills (also see gaze_dur, tv_dur and ini_fix_dur).

sentence The type of the sentence: sentence vs. landolt.

grade Grade variable: grade0 to grade5.

gaze_dur Mean gaze duration per participant.

tv_dur Mean total viewing duration per participant

ini_fix_dur Mean initial fixation duration per participant.
age_t0 Age at grade 0.
sex Sex.
grade_t0 Grade at grade 0. Important if participant had to repeat a year.
iq IQ.
cbcl_ges_tw_t0 Child Behavior Checklist. Overall t-score at grade 0.
cbcl_int_verh_tw_t0 Child Behavior Checklist. Internalizing behavior t-score at grade 0.
cbcl_ext_verh_tw_t0 Child Behavior Checklist. Externalizing behavior t-score at grade 0.
cbcl_ges_rw_t0 Child Behavior Checklist. Overall raw score at grade 0.
cbcl_int_verh_rw_t0 Child Behavior Checklist. Internalizing behavior raw score at grade 0.
cbcl_ext_verh_rw_t0 Child Behavior Checklist. Externalizing behavior raw score at grade 0.
cbcl_ges_tw_t5 Child Behavior Checklist. Overall t-score at grade 5.
cbcl_int_verh_tw_t5 Child Behavior Checklist. Internalizing behavior t-score at grade 5.
cbcl_ext_verh_tw_t5 Child Behavior Checklist. Externalizing behavior t-score at grade 5.
cbcl_ges_rw_t5 Child Behavior Checklist. Overall raw score at grade 5.
cbcl_int_verh_rw_t5 Child Behavior Checklist. Internalizing behavior raw score at grade 5.
cbcl_ext_verh_rw_t5 Child Behavior Checklist. Externalizing behavior raw score at grade 5.

Details

reading_raw is the raw data in long data format.

reading_latent is based on reading_raw but the variable dv was log-transformed and standardized. The data set only includes measurements at grade 1, 2 and 4.

reading_manifest is based on reading_latent and was transposed to wide format introducing the three additional variables: gaze_dur, tv_dur and ini_fix_dur. The names for the variables were taken from indicator and the values were taken from dv.

reliabilities

Prints the reliabilities of the indicators of latent variables.

Description

Prints the reliabilities of the indicators of latent variables.

Usage

```
reliabilities(lgc)
```

Arguments

lgc Object of class Lgc.

| | |
|-------------|--|
| summary.Lgc | <i>Wrapper method for lgc\$summary()</i> |
|-------------|--|

Description

Wrapper method for lgc\$summary()

Usage

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

Arguments

| | |
|--------|--|
| object | Object of class Lgc. |
| ... | Arguments passed down to lgc\$summary(). |

| | |
|---------------|--|
| summary.Power | <i>Wrapper method for power\$summary()</i> |
|---------------|--|

Description

Wrapper method for power\$summary()

Usage

```
## S3 method for class 'Power'  
summary(x, ...)
```

Arguments

| | |
|-----|--|
| x | Object of class Power. |
| ... | Arguments passed down to power\$summary(). |

| | |
|-----------------|----------------------------|
| test_hypothesis | <i>Tests a hypothesis.</i> |
|-----------------|----------------------------|

Description

Tests a hypothesis.

Usage

```
test_hypothesis(lgc, hypothesis)
```

Arguments

| | |
|------------|-----------------------------|
| lgc | Object of class Lgc. |
| hypothesis | Object of class Hypothesis. |

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