Package 'Keng'

October 17, 2024

Title Keng's Axe and Firewood

Version 2024.10.16

Description Miscellaneous functions and data used in Qingyao's psychological research and teaching.

License CC BY 4.0

Encoding UTF-8

RoxygenNote 7.3.2

Imports stats

Suggests testthat (>= 3.0.0)

Config/testthat/edition 3

NeedsCompilation no

Author Qingyao Zhang [aut, cre] (<https://orcid.org/0000-0002-6891-5982>)

Maintainer Qingyao Zhang <qingyaozhang@outlook.com>

Repository CRAN

Date/Publication 2024-10-17 12:40:05 UTC

Contents

---

cut_r   *Cut-off values of r given the sample size n.*

Description

Cut-off values of r given the sample size n.

Usage

```
cut_r(n)
```

Arguments

n   Sample size of the *r*.

Details

Given *n* and *p*, *t* and then *r* could be determined. The formula used could be found in `test_r()`'s documentation.

Value

A data.frame including the cut-off values of *r* at the significance levels of $p = 0.1, 0.05, 0.01, 0.001$. *r* with the absolute value larger than the cut-off value is significant at the corresponding significance level.

Examples

```
cut_r(193)
```

---

test_PRE   *Compute PRE and test it using the F-test.*

Description

Compute PRE and test it using the F-test.

Usage

```
test_PRE(
  fitC = NULL,
  fitA = NULL,
  n = NULL,
  PC = NULL,
  PA = NULL,
  SSEC = NULL,
  SSEA = NULL
)
```

Arguments

`fitC`	The result of `lm()` of the Compact model (Model C).
`fitA`	The result of `lm()` of the Augmented model (Model A).
`n`	Sample size of the Model C or Model A. Model C and Model A must use the same sample, and hence have the same sample size.
`PC`	The number of parameters in Model C.
`PA`	The number of parameters in Model A. PA must be larger than PC.
`SSEC`	The Sum of Squared Errors of Model C.
`SSEA`	The Sum of Squared Errors of Model A.

Details

`test_PRE()` tests the PRE (Proportional Reduction in Error) of Model A compared with Model C. There are two ways of using `test_PRE()`. The first is giving `test_PRE()` fitC and fitA. The second is giving *n*, *PC*, *PA*, *SSEC*, and *SSEA*. The first way is more convenient, and it minimizes precision loss by omitting copying and pasting SSEC and SSEA. Please refer to Judd et al. (2017) for more details about *PRE*.

Value

A data.frame including *SSEC*, *SSEA*, *PRE*, *F*, *df1*, *df2*, and *p*.

References

Judd, C. M., McClelland, G. H., & Ryan, C. S. (2017). *Data analysis: A model comparison approach to regression, ANOVA, and beyond*. Routledge.

Examples

```
x <- rnorm(193)
y <- 0.3 + 0.2*x + rnorm(193)
dat <- data.frame(y, x)
fitC <- lm(y ~ 1, dat)
fitA <- lm(y ~ x, dat)
test_PRE(fitC, fitA)
```

---

test_r *Test r using the t-test given r and n.*

Description

Test r using the t-test given r and n.

Usage

```
test_r(r, n)
```

Arguments

r	Pearson correlation.
n	Sample size of *r*.

Details

To test the significance of the *r* using one-sample *t*-test, the *SE* of the r is determined by the following formula: `SE = sqrt((1 - r^2)/(n - 2))`.

Value

A data.frame including *r*, *se* of *r*, *t*, and *p*.

Examples

```
test_r(0.2, 193)
```

Index