

Package: catekappa (via r-universe)

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Type Package

Title Design and Analysis of Consistency Tests Based on Kappa
Statistic

Version 0.1.0

Description Provides a 'Shiny' application and supporting functions
for the design and analysis of consistency tests based on Kappa
statistic with categorical responses. Wraps 'irr' and
'kappaSize' packages.

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catekappa-package	<i>catekappa: Design and Analysis of Categorical Agreement Tests Based on Kappa Statistics</i>
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Description

CATEKAPPA (Categorical Agreement Test Evaluation) provides a Shiny interactive application and supporting functions for the design and analysis of categorical agreement tests.

Details

This package wraps the core functionality of the `irr` and `kappaSize` packages:

- **Design stage:** Use [calc_sample_size_kappa](#) to calculate sample size, supporting 2–5 categories and 2+ raters.
- **Analysis stage:** Use [analyze_kappa](#) to compute Cohen’s, Fleiss’, and Light’s Kappa statistics.
- **Interactive app:** Use [run_cate_app](#) to launch the Shiny interface.

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See Also

[run_cate_app](#), [calc_sample_size_kappa](#), [analyze_kappa](#)

analyze_kappa	<i>Analyze Agreement Using Kappa Statistics</i>
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Description

Analyze consistency between raters using Cohen’s, Fleiss’, or Light’s Kappa. Wraps functions from the `irr` package.

Usage

```
analyze_kappa(data, type = "cohen", detail = FALSE)
```

Arguments

data	A data frame or matrix with subjects as rows and raters as columns.
type	Type of kappa: "cohen" (2 raters), "fleiss" (3+ raters), or "light" (3+ raters, pairwise).
detail	Logical. If TRUE, returns detailed output including individual scores.

Value

A list with kappa results, interpretation, and data summary.

Examples

```
data <- data.frame(
  Rater1 = c("Yes", "No", "Yes", "Yes", "No"),
  Rater2 = c("Yes", "No", "Yes", "No", "No")
)
analyze_kappa(data, type = "cohen")
```

calc_sample_size_kappa

Calculate Sample Size for Kappa Statistic

Description

Calculate required sample size for consistency tests. Directly wraps kappaSize::PowerBinary / Power3Cats / Power4Cats / Power5Cats.

Usage

```
calc_sample_size_kappa(
  kappa0 = 0.4,
  kappa1 = 0.6,
  props = c(0.5, 0.5),
  alpha = 0.05,
  power = 0.8,
  raters = 2
)
```

Arguments

kappa0	Null hypothesis value of kappa (H0).
kappa1	Alternative hypothesis value of kappa (H1).
props	Expected proportions of categories. Must sum to 1.
alpha	Significance level. Default 0.05.
power	Desired power. Default 0.8.
raters	Number of raters (>=2). Default 2.

Value

A list with sample size n and parameters.

Examples

```
calc_sample_size_kappa(kappa0 = 0.4, kappa1 = 0.6, props = c(0.5, 0.5))
calc_sample_size_kappa(kappa0 = 0.4, kappa1 = 0.6,
  props = c(0.6, 0.3, 0.1), raters = 3)
```

interpret_kappa	<i>Interpret Kappa Value</i>
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Description

Interpret the strength of agreement based on Landis and Koch criteria.

Usage

```
interpret_kappa(kappa)
```

Arguments

kappa Numeric value of Kappa statistic.

Value

A named list with level, description, and color code.

Examples

```
interpret_kappa(0.3)
interpret_kappa(0.75)
```

kappa_fixed_n	<i>Fixed N Analysis for Kappa Statistic</i>
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Description

Given a fixed sample size, estimate the lower confidence bound. Wraps kappaSize::FixedNBinary / FixedN3Cats / FixedN4Cats / FixedN5Cats.

Usage

```
kappa_fixed_n(n, kappa0 = 0.4, props = c(0.5, 0.5), alpha = 0.05, raters = 2)
```

Arguments

n	Sample size.
kappa0	Anticipated value of kappa.
props	Category proportions.
alpha	Significance level.
raters	Number of raters.

Value

List with kappaSize raw result and parameters.

print.cate_analysis *Print Method for cate_analysis Objects*

Description

Print Method for cate_analysis Objects

Usage

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

Arguments

x	An object of class cate_analysis.
...	Additional arguments.

print.cate_design *Print Method for cate_design Objects*

Description

Print Method for cate_design Objects

Usage

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

Arguments

x	An object of class cate_design.
...	Additional arguments.

`print_cate_fixed_n` *Print Method for cate_fixed_n Objects*

Description

Print Method for cate_fixed_n Objects

Usage

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

Arguments

`x` An object of class cate_fixed_n.
`...` Additional arguments.

`run_cate_app` *Run CATE Shiny Application*

Description

Launch the Shiny application for design and analysis of consistency tests based on Kappa statistic with categorical responses.

Usage

```
run_cate_app(
  port = getOption("shiny.port"),
  launch.browser = getOption("shiny.launch.browser", interactive()),
  host = getOption("shiny.host", "127.0.0.1")
)
```

Arguments

`port` The TCP port for the application. Defaults to random available port.
`launch.browser` Logical. Whether to launch browser automatically.
`host` The IPv4 address to listen on.

Value

A Shiny application object (invisible).

Examples

```
if(interactive()){  
  run_cate_app()  
}
```

summary.cate_analysis *Summary Method for cate_analysis Objects*

Description

Summary Method for cate_analysis Objects

Usage

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

Arguments

object	An object of class cate_analysis.
...	Additional arguments.

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