Package 'ura'

July 22, 2025

Type Package

Title Monitoring Rater Reliability

Version 1.0.1

Description Provides researchers with a simple set of diagnostic tools for monitoring the progress and reliability of raters conducting content coding tasks. Goehring (2024) <https://bengoehring.github.io/improving-content-analysis-tools-for-working-with-undergraduate-research-assistants.pdf> argues that supervisors---especially supervisors of small teams---should utilize computational tools to monitor reliability in real time. As such, this package provides easy-to-use functions for calculating inter-rater reliability statistics and measuring the reliability of one coder compared to the rest of the team.

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Encoding UTF-8

LazyData true

RoxygenNote 7.3.2

Depends R (>= 2.10)

Imports dplyr, irr, magrittr, rlang (>= 0.4.11), tibble, tidyr

Suggests roxygen2, stringr, testthat (>= 3.0.0)

Config/testthat/edition 3

URL https://github.com/bengoehring/ura

BugReports https://github.com/bengoehring/ura/issues

NeedsCompilation no

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Contents

`anxiety` *Anxiety ratings*

Description

Simulated data from three raters rating the anxiety of 20 individuals. The codings range from 1 (no anxiety) to 6 (extremely anxious). The data are forked directly from the irr package, with the only difference being the shape of the dataset.

Usage

```
anxiety
```

Format

'anxiety' A data frame with 60 rows and 3 columns:

subject_id The subject being screened for anxiety (numeric).

rater_id The rater evaluating the subject for anxiety (numeric).

anxiety_level The level of anxiety observed in the subject by the rater (numeric).

Source

<https://cran.r-project.org/package=irr>

`diagnoses` *Psychiatric diagnoses of patients*

Description

Data from Fleiss (1971) concerning the psychiatric conditions of thirty patients as evaluated by six raters. The data are forked directly from the irr package, with the only difference being the shape of the dataset.

Usage

```
diagnoses
```

Format

'diagnoses' A data frame with 180 rows and 3 columns:

patient_id The patient being screened for a psychiatric condition (numeric).

rater_id The rater evaluating the patient for a psychiatric condition (numeric).

diagnosis The psychiatric diagnosis of the patient (factor).

Source

Fleiss, J.L. (1971). Measuring nominal scale agreement among many raters. Psychological Bulletin, 76, 378-382.

References

Fleiss, J.L. (1971). Measuring nominal scale agreement among many raters. Psychological Bulletin, 76, 378-382.

`int_return_dbl_coded` *int_return_dbl_coded*

Description

`int_return_dbl_coded` An internal function to return the subjects double-coded by the raters. It runs a number of checks along the way

Usage

```
int_return_dbl_coded(
  in_object_name,
  in_rater_column,
  in_subject_column,
  in_coding_column
)
```

Arguments

`in_object_name`	A dataframe or tibble containing raters' codings. Each row should contain the assigned coding from a given rater-subject.
`in_rater_column`	The name of the column containing the raters' names as a string.
`in_subject_column`	The name of the column containing the names of the subjects being coded as a string.
`in_coding_column`	The name of the column containing the codings assigned by the raters as a string.

Author(s)

Benjamin Goehring <bengoehr@umich.edu>

`irr_stats` *irr_stats*

Description

`irr_stats` calculates a variety of IRR statistics.

Usage

```
irr_stats(
  object_name,
  rater_column,
  subject_column,
  coding_column,
  round_digits = 2,
  stats_to_include = c("Percentage agreement", "Krippendorf's Alpha")
)
```

Arguments

`object_name`	A dataframe or tibble containing raters' codings. Each row should contain the assigned coding from a given rater-subject.
`rater_column`	The name of the column containing the raters' names as a string.
`subject_column`	The name of the column containing the names of the subjects being coded as a string.
`coding_column`	The name of the column containing the codings assigned by the raters as a string.
`round_digits`	The number of decimals to round the IRR values by. The default is 2.
`stats_to_include`	The IRR statistics to include in the output. Currently only supports percent agreement and Krippendorf's Alpha. See the documentation of the irr package for more information about specific IRR statistics.

Value

A tibble containing the IRR statistic, the statistic's value, and the number of subjects used to calculate the statistic.

Author(s)

Benjamin Goehring <bengoehr@umich.edu>

Examples

```
# Return IRR statistics for the diagnoses dataset:
irr_stats(diagnoses,
          rater_column = 'rater_id',
          subject_column = 'patient_id',
          coding_column = 'diagnosis')

# And IRR statistics for the anxiety dataset:
irr_stats(anxiety,
          rater_column = 'rater_id',
          subject_column = 'subject_id',
          coding_column = 'anxiety_level')
```

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rater_agreement *rater_agreement*

Description

rater_agreement calculates the percent agreement between each rater and the other raters who coded the same subjects.

Usage

```
rater_agreement(object_name, rater_column, subject_column, coding_column)
```

Arguments

object_name	A dataframe or tibble containing raters' codings. Each row should contain the assigned coding from a given rater-subject.
rater_column	The name of the column containing the raters' names as a string.
subject_column	The name of the column containing the names of the subjects being coded as a string.
coding_column	The name of the column containing the codings assigned by the raters as a string.

Value

A tibble where each row notes the percent agreement between rater i and all other raters who coded the same subjects (percent_agree). The n_multi_coded column notes how many subjects have been coded by rater i that have also been coded by other raters (i.e., the denominator for the percent_agree value).

Author(s)

Benjamin Goehring <bengoehr@umich.edu>

Examples

```
# Example data: 3 raters assigning binary values to 10 subjects
example_data <- tibble::tribble(
  ~rater,~subject,~coding,
  1,1,1,
  1,2,0,
  1,3,1,
  1,4,0,
  2,3,1,
  2,9,0,
  2,10,1,
  2,4,1,
  2,5,1,
  2,6,1,
  3,5,1,
  3,6,1,
  3,7,1,
  3,8,1,
)

# Find percent agreement by rater
rater_agreement(example_data,
                rater_column = 'rater',
                subject_column = 'subject',
                coding_column = 'coding')
```

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