Package ‘irrCAC’

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Title Computing Chance-Corrected Agreement Coefficients (CAC)
Description Calculates various chance-corrected agreement coefficients (CAC) among 2 or more raters are provided. Among the CAC coefficients covered are Cohen's kappa, Conger's kappa, Fleiss' kappa, Brennan-Prediger coefficient, Gwet's AC1/AC2 coefficients, and Krippendorff's alpha. Multiple sets of weights are proposed for computing weighted analyses. All of these statistical procedures are described in details in Gwet, K.L. (2014,ISBN:978-0970806284): "Handbook of Inter-Rater Reliability," 4th edition, Advanced Analytics, LLC.
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Dataset describing the Altman’s Benchmarking Scale

This dataset contains information describing the Altman scale for benchmarking chance-corrected agreement coefficients such as Gwet AC1/AC2, Kappa and many others.
altman bf

Usage
altman

Format
Each row of this dataset describes an interval and the interpretation of the magnitude it represents.

lb.AL  The interval lower bound
ub.AL  The interval upper bound
interp.AL  The interpretation

Source

Description
Computing Altman’s Benchmark Scale Membership Probabilities

Usage
altman bf(coeff, se, BenchDF = altman)

Arguments

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>coeff</td>
<td>A mandatory parameter representing the estimated value of an agreement coefficient.</td>
</tr>
<tr>
<td>se</td>
<td>A mandatory parameter representing the agreement coefficient standard error.</td>
</tr>
<tr>
<td>BenchDF</td>
<td>An optional parameter that is a 3-column data frame containing the Altman’s benchmark scale information. The 3 columns are the interval lower bound, upper bound, and their interpretation. The default value is a small file contained in the package and named altman.RData, which describes the official Altman’s scale intervals and their interpretation.</td>
</tr>
</tbody>
</table>

Value
A one-column matrix containing the membership probabilities (c.f. [http://agreestat.com/research_papers/inter-rater%20reliability%20study%20design1.pdf](http://agreestat.com/research_papers/inter-rater%20reliability%20study%20design1.pdf))
bipolar.weights | Function for computing the Bipolar Weights

**Description**

Function for computing the Bipolar Weights

**Usage**

bipolar.weights(categ)

**Arguments**

categ | A mandatory parameter representing the vector of all possible ratings.

**Value**

A square matrix of quadratic weights to be used for calculating the weighted coefficients.

bp.coeff.dist | Brennan-Prediger’s agreement coefficient among multiple raters (2, 3, +) when the input dataset is the distribution of raters by subject and category.

**Description**

Brennan-Prediger’s agreement coefficient among multiple raters (2, 3, +) when the input dataset is the distribution of raters by subject and category.

**Usage**

bp.coeff.dist(ratings, weights = "unweighted", categ = NULL, conflev = 0.95, N = Inf)

**Arguments**

ratings | An nxq matrix / data frame containing the distribution of raters by subject and category. Each cell (i,k) contains the number of raters who classified subject i into category k.

weights | is an optional parameter that is either a string variable or a matrix. The string describes one of the predefined weights and must take one of the values ("quadratic", "ordinal", "linear", "radical", "ratio", "circular", "bipolar"). If this parameter is a matrix then it must be a square matrix qxq where q is the number of possible categories where a subject can be classified. If some of the q possible categories are not used, then it is strongly advised to specify the complete list of possible categories as a vector in parameter categ. Otherwise, only the categories reported will be used.
**bp.coeff.raw**

- **categ**: An optional parameter representing all categories available to raters during the experiment. This parameter may be useful if some categories were not used by any rater in spite of being available to the raters.
- **conflev**: An optional parameter representing the confidence level associated with the confidence interval. Its default value is 0.95.
- **N**: An optional parameter representing the population size (if any). It may be used to perform the final population correction to the variance. Its default value is infinity.

**Value**

A vector containing the following information: *pa* (the percent agreement), *pe* (the percent chance agreement), *coeff* (Brennan-Prediger coefficient), *stderr* (the standard error of Brennan-Prediger coefficient), *conf.int* (the p-value of Brennan-Prediger coefficient), *p.value* (the p-value of Brennan-Prediger coefficient), *coeff.name* ("Brennan-Prediger").

**Source**


**Examples**

```r
# The dataset "distrib.6raters" comes with this package. It represents the distribution of 6 raters
# by subject and by category. Note that each row of this dataset sums to the number of raters, which
# is 6. You may this dataset as follows:

distrib.6raters

bp.coeff.dist(distrib.6raters) # BP coefficient, precision measures, weights & list of categories

bp <- bp.coeff.dist(distrib.6raters)$coeff # Yields Brennan-Prediger coefficient alone.

bp

q <- ncol(distrib.6raters) # Number of categories

bp.coeff.dist(distrib.6raters, weights = quadratic.weights(1:q)) # Weighted BP with quadratic weights
```

**Description**

Brennan & Prediger’s (BP) agreement coefficient for an arbitrary number of raters (2, 3, +) when the input data represent the raw ratings reported for each subject and each rater.

**Usage**

```r
bp.coeff.raw(ratings, weights = "unweighted", categ.labels = NULL,
conflev = 0.95, N = Inf)
```
**Arguments**

**ratings**
An nxr matrix / data frame of ratings where each column represents one rater and each row one subject.

**weights**
is a mandatory parameter that is either a string variable or a matrix. The string describes one of the predefined weights and must take one of the values ("quadratic", "ordinal", "linear", "radical", "ratio", "circular", "bipolar"). If this parameter is a matrix then it must be a square matrix qxq where q is the number of possible categories where a subject can be classified. If some of the q possible categories are not used, then it is strongly advised to specify the complete list of possible categories as a vector in parameter `categ.labels`. Otherwise, the program may not work.

**categ.labels**
An optional vector parameter containing the list of all possible ratings. It may be useful in case some of the possible ratings are not used by any rater, they will still be used when calculating agreement coefficients. The default value is NULL. In this case, only categories reported by the raters are used in the calculations.

**conflev**
An optional parameter representing the confidence level associated with the confidence interval. Its default value is 0.95.

**N**
An optional parameter representing the population size (if any). It may be used to perform the final population correction to the variance. Its default value is infinity.

**Value**

A data list containing 3 objects: (1) a one-row data frame containing various statistics including the requested agreement coefficient, (2) the weight matrix used in the calculations if any, and (3) a vector of categories used in the analysis. These could be categories reported by the raters, or those available to the raters whether they used them or not. The output data frame contains the following variables: "coeff.name" (coefficient name), "pa" (the percent agreement), "pe" (the percent chance agreement), coeff.val (Brennan-Prediger coefficient estimate), "coeff.se" (standard error), "conf.int" (the confidence interval), "p.value" (Brennan-Prediger coefficient’s p-value), "w.name" (the weights’ identification).

**References**


**Examples**

#The dataset "cac.raw4raters" comes with this package. Analyze it as follows:

cac.raw4raters
bp.coeff.raw(cac.raw4raters) #BP coefficient, precision measures, weights & categories
bp.coeff.raw(cac.raw4raters)$est #Brennan-Prediger coefficient with precision measures
bp <- bp.coeff.raw(cac.raw4raters)$est$coeff.val #Yields Brennan-Prediger coefficient alone.
bp
bp.coeff.raw(cac.raw4raters, weights = "quadratic") #weighted Brennan-Prediger coefficient
**bp2.table**

*Brennan-Prediger coefficient for 2 raters*

**Description**

Brennan-Prediger coefficient for 2 raters

**Usage**

```r
bp2.table(ratings, weights = identity.weights(1:ncol(ratings)),
          conflev = 0.95, N = Inf)
```

**Arguments**

- **ratings**: A square table of ratings (assume no missing ratings).
- **weights**: An optional matrix that contains the weights used in the weighted analysis. By default, this parameter contains the identity weight matrix, which leads to the unweighted analysis.
- **conflev**: An optional parameter that specifies the confidence level used for constructing confidence intervals. By default the function assumes the standard value of 95%.
- **N**: An optional parameter representing the finite population size if any. It is used to perform the finite population correction to the standard error. Its default value is infinity.

**Value**

A data frame containing the following 5 variables: `coeff.name` `coeff.val` `coeff.se` `coeff.ci` `coeff.pval`.

**Examples**

The dataset "cont3x3abstractors" comes with this package. Analyze it as follows:

```r
bp2.table(cont3x3abstractors) #Yields Brennan-Prediger's coefficient along with precision measures
bp <- bp2.table(cont3x3abstractors)$coeff.val #Yields Brennan-Prediger coefficient alone.
bp
q <- nrow(cont3x3abstractors) #Number of categories
bp2.table(cont3x3abstractors, weights = quadratic.weights(1:q)) #Weighted BP coefficient
```
cac.ben.gerry

Ratings of 12 units from 2 raters named Ben and Gerry

Description
This dataset contains ratings that 2 raters named Ben and Gerry assigned to 12 units distributed in 2 groups "G1" and "G2".

Usage
cac.ben.gerry

Format
Each row of this dataset describes an interval and the interpretation of the magnitude it represents.

<table>
<thead>
<tr>
<th>Group</th>
<th>Group Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Units</td>
<td>Unit number</td>
</tr>
<tr>
<td>Ben</td>
<td>Ben's Ratings</td>
</tr>
<tr>
<td>Gerry</td>
<td>Gerry's Ratings</td>
</tr>
</tbody>
</table>

The first 2 columns "Group" and "Units" play a descriptive role here and are not used by any function included in this package. One will typically use cac.ben.gerry[,c(3,4)] or cac.ben.gerry[,c("Ben","Gerry")]] as input dataset.

cac.dist.g1g2

Distribution of 4 raters by subject and by category, for 14 Subjects that belong to 2 groups "G1" and "G2"

Description
This dataset contains rating data in the form of a subject-level distribution of 4 raters by category the subject was classified into. A total of 4 raters had to classify 14 subjects into one of 5 categories "a", "b", "c", "d", and "e". This dataset is different version of the more detailed cac.raw.g1g2 dataset. While cac.raw.g1g2 tells you about the exact category into which each rater classified all subjects, cac.dist.g1g2 on the other hand, can only tell you how many raters classified a given subject into a particular category.

Usage
cac.dist.g1g2


**Format**

This dataset contains ratings obtained from an experiment where 4 raters classified 14 subjects into 5 possible categories labeled as a, b, c, d, and e. None of the 4 raters scored all 14 units. Therefore, some missing ratings appear in each of the columns associated with the 4 raters.

Note that only the the 4 last columns are to be used with the functions included in this package. The first 2 columns only play a descriptive role and are not used in any calculation.

**Group** This variable represents the group name.

**Units** This variable represents the unit number.

- **a** Number of raters who classified the subject represented by the row into category "a"
- **b** Number of raters who classified the subject represented by the row into category "b"
- **c** Number of raters who classified the subject represented by the row into category "c"
- **d** Number of raters who classified the subject represented by the row into category "d"
- **e** Number of raters who classified the subject represented by the row into category "e"

---

**Description**

This dataset summarizes the ratings assigned by 4 raters who classified 15 subjects into one of 3 categories named "a", "b", and "c".

**Usage**

cac.dist4cat

**Format**

This dataset has 15 rows (for the 15 subjects) and 4 columns. Only the last 3 columns representing the categories into which subjects are classified are used in the calculations - unless the sub-group analysis is required.

**Group** This variable represents the subject number.

- **a** category a
- **b** Category b
- **c** Category c
Dataset of raw ratings from 4 Raters on 14 Subjects that belong to 2 groups named "G1" and "G2"

Description

This dataset contains data from a reliability experiment where 4 raters identified as Rater1, Rater2, Rater3 and Rater4 scored 14 units on a 5-point alphabetical scale based on the values a, b, c, d and e. These 14 units are allocated to 2 groups named G1 and G2.

Usage

cac.raw.g1g2

Format

This dataset contains ratings obtained from an experiment where 4 raters classified 14 subjects into 5 possible categories labeled as a, b, c, d, and e. None of the 4 raters scored all 14 units. Therefore, some missing ratings appear in each of the columns associated with the 4 raters.

Note that only the the 4 last columns are to be used with the functions included in this package. The first 2 columns only play a descriptive role and are not used in any calculation.

<table>
<thead>
<tr>
<th>Group</th>
<th>This variable represents the unit number.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Units</td>
<td>This variable represents the unit number.</td>
</tr>
<tr>
<td>Rater1</td>
<td>All ratings from rater 1</td>
</tr>
<tr>
<td>Rater2</td>
<td>All ratings from rater 2</td>
</tr>
<tr>
<td>Rater3</td>
<td>All ratings from rater 3</td>
</tr>
<tr>
<td>Rater4</td>
<td>All ratings from rater 4</td>
</tr>
</tbody>
</table>

Rating Data from 4 Raters and 15 human Subjects, 9 of whom are female and 6 males.

Description

This dataset contains data from a reliability experiment where 4 raters scored 15 units on a 3-point alphabetic scale based on the values a, b, and c.

Usage

cac.raw.gender
Format

This dataset contains ratings obtained from an experiment where 4 raters classified 15 subjects into 3 possible categories labeled as a, b, and c.

Note that only the the 4 last columns are to be used with the functions included in this package. The first column only plays a descriptive role and is not to be used in any calculation.

Group  This variable represents the unit number.
RaterA  All ratings from rater 1
RaterB  All ratings from rater 2
RaterC  All ratings from rater 3
RaterD  All ratings from rater 4

Description

This dataset contains data from a reliability experiment where 5 observers scored 15 units on a 4-point numeric scale based on the values 0, 1, 2 and 3.

Usage

cac.raw4raters

Format

This dataset contains ratings obtained from an experiment where 4 raters classified 12 subjects into 5 possible categories labeled as 1, 2, 3, 4, and 5. None of the 4 raters scored all 12 units. Therefore, some missing ratings in the form of "NA" appear in each of the columns associated with the 4 raters.

Note that only the the 4 last columns are to be used with the functions included in this package. The first column only plays a descriptive role and is not used in any calculation.

Units  This variable represents the unit number.
Rater1  All ratings from rater 1
Rater2  All ratings from rater 2
Rater3  All ratings from rater 3
Rater4  All ratings from rater 4

Source

### cac.raw5obser

**Scores assigned by 5 observers to 20 experimental units.**

**Description**

This dataset contains data from a reliability experiment where 5 observers scored 15 units on a 4-point numeric scale based on the values 0, 1, 2 and 3.

**Usage**

```r
cac.raw5obser```

**Format**

This dataset has 15 rows (for the 15 subjects) and 6 columns. Only the last 5 columns associated with the 5 observers are used in the calculations. Of the 5 observers, only observer 3 scored all 15 units. Therefore, some missing ratings in the form of "NA" appear in the columns associated with the remaining 4 observers.

- **Unit**: This variable represents the unit number.
- **Observer1**: All ratings from Observer 1
- **Observer2**: All ratings from Observer 2
- **Observer3**: All ratings from Observer 3
- **Observer4**: All ratings from Observer 4
- **Observer5**: All ratings from Observer 5

**Source**

Gwet, K.L. (2014) *Handbook of Inter-Rater Reliability*, 4th Edition. Advanced Analytics, LLC. *A larger version of this table can be found on page #125*

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### circular.weights

**Function for computing the Circular Weights**

**Description**

Function for computing the Circular Weights

**Usage**

```r
circular.weights(categ)```

**Arguments**

- **categ**: A mandatory parameter representing the vector of all possible ratings.
Value
A square matrix of quadratic weights to be used for calculating the weighted coefficients.

Description
Conger’s generalized kappa coefficient for an arbitrary number of raters (2, 3, +) when the input data represent the raw ratings reported for each subject and each rater.

Usage
conger.kappa.raw(ratings, weights = "unweighted", categ.labels = NULL, conflev = 0.95, N = Inf)

Arguments
ratings
An nxr matrix / data frame of ratings where each column represents one rater and each row one subject.

weights
is a mandatory parameter that is either a string variable or a matrix. The string describes one of the predefined weights and must take one of the values (“quadratic”, “ordinal”, “linear”, “radical”, “ratio”, “circular”, “bipolar”). If this parameter is a matrix then it must be a square matrix qxq where q is the number of possible categories where a subject can be classified. If some of the q possible categories are not used, then it is strongly advised to specify the complete list of possible categories as a vector in parameter categ.labels. Otherwise, the program may not work.

categ.labels
An optional vector parameter containing the list of all possible ratings. It may be useful in case some of the possible ratings are not used by any rater, they will still be used when calculating agreement coefficients. The default value is NULL. In this case, only categories reported by the raters are used in the calculations.

conflev
An optional parameter representing the confidence level associated with the confidence interval. Its default value is 0.95.

N
An optional parameter representing the population size (if any). It may be used to perform the final population correction to the variance. Its default value is infinity.

Value
A data list containing 3 objects: (1) a one-row data frame containing various statistics including the requested agreement coefficient, (2) the weight matrix used in the calculations if any, and (3) A vector of categories used in the analysis. These could be categories reported by the raters, or those available to the raters whether they used them or not. The output data frame contains the following
variables: "coeff.name" (coefficient name), "pa" (the percent agreement), "pe" (the percent chance agreement), coeff.val (Conger’s Kappa estimate), "coeff.se" (standard error), "conf.int" (Conger Kappa’s confidence interval), "p.value" (agreement coefficient’s p-value), "w.name" (the weights’ identification).

References

Examples
#The dataset "cac.raw4raters" comes with this package. Analyze it as follows:
cac.raw4raters
conger.kappa.raw(cac.raw4raters) #Conger’s kappa, precision stats, weights & categories
cunger.kappa.raw(cac.raw4raters)$est #Conger’s kappa with precision measures
cunger <- conger.kappa.raw(cac.raw4raters)$est$coeff.val #Yields Conger’s kappa alone.
cunger
conger.kappa.raw(cac.raw4raters, weights = "quadratic") #weighted Conger’s kappa

cont3x3abstractors

Distribution of 100 pregnant women by pregnancy type and by abstractor.

Description
This dataset contains pregnancy type data collected from 100 women who entered an Emergency Room with a positive pregnancy test and a second condition, which is either abdominal pain or vaginal bleeding. After reviewing their medical records, 2 reviewers (also referred to as abstractors) classified them into one of the following three pregnancy categories: Ectopic Pregnancy (Ectopic), Abnormal Intrauterine pregnancy (AIU) and Normal Intrauterine Pregnancy (NIU).

Usage
cont3x3abstractors

Format
Each row of this dataset describes an interval and the interpretation of the magnitude it represents.

Type Pregnancy Type. This variable is shown here for information only and is never used by any function in the irrCAC package.

Ectopic Ectopic Pregnancy
AIU Abnormal Intrauterine Pregnancy
NIU Normal Intrauterine Pregnancy

Source
**Description**

This dataset shows the distribution of 223 psychiatric patients by diagnosis category and by the method used to obtain the diagnosis. The first method named “Clinical Diagnosis” (also known as “Facility Diagnosis”) is used in a service facility (e.g. public hospital, or a community unit) and does not rely on a rigorous application of research criteria. The second method known as “Research Diagnosis” is based on a strict application of research criteria. Column 1 contains the diagnosis categories into which patients are classified with Method 1. The first row on the other hand, shows categories into which patients are classified with Method 2.

**Usage**

cont4x4diagnosis

**Format**

This dataset contains a 4x4 squared table. The first column is never used in the calculations and only contains row names. Only the last 4 columns are used for computing agreement coefficients.

- **Diagnosis**  Pregnancy Type. This variable is shown here for information only and is never used by any function in the irrCAC package.
- **Schizophrenia**  Ectopic Pregnancy
- **Bipolar.Disorder**  Abnormal Intrauterine Pregnancy
- **Depression**  Normal Intrauterine Pregnancy
- **Other**  Normal Intrauterine Pregnancy

**Source**


---

**distrib.6raters**  Distribution of 6 psychiatrists by Subject/patient and diagnosis Category.

**Description**

This dataset summarizes the ratings assigned by 6 psychiatrists classifying 15 patients into one of five categories named “Depression”, “Personal Disorder”, “Schizophrenia”, “Neurosis” and “Other”.
Usage

distrib.6raters

Format

This dataset has 15 rows (for the 15 subjects) and 7 columns. Only the last 6 columns representing the categories into which subjects are classified are used in the calculations.

Subject This variable represents the subject number.
Personality.Disorder Personality disorder category
Schizophrenia Schizophrenia Category
Neurosis Neurosis category
Other "Other" category

Source


---

def
dataset describing Fleiss’ Benchmarking Scale

Description

This dataset contains information describing Fleiss’ scale for benchmarking chance-corrected agreement coefficients such as Gwet AC1/AC2, Kappa and many others.

Usage

fleiss

Format

Each row of this dataset describes an interval and the interpretation of the magnitude it represents.

lb.FL The interval lower bound
ub.FL The interval upper bound
interp.FL The interpretation

Source

Computing Fleiss Benchmark Scale Membership Probabilities

Usage

fleiss.bf(coeff, se, BenchDF = fleiss)

Arguments

coeff A mandatory parameter representing the estimated value of an agreement coefficient.

se A mandatory parameter representing the agreement coefficient standard error.

BenchDF An optional parameter that is a 3-column data frame containing the Fleiss' benchmark scale information. The 3 columns are the interval lower bound, upper bound, and their interpretation. The default value is a small file contained in the package and named fleiss.RData, which describes the fleiss' scale intervals and their interpretation.

Value

A one-column matrix containing the membership probabilities (c.f. http://agreestat.com/research_papers/inter-rater%20reliability%20study%20design1.pdf)

Fleiss' agreement coefficient among multiple raters (2, 3, +) when the input dataset is the distribution of raters by subject and category.

Usage

fleiss.kappa.dist(ratings, weights = "unweighted", categ = NULL, conflev = 0.95, N = Inf)
Arguments

ratings An \( nxq \) matrix / data frame containing the distribution of raters by subject and category. Each cell \((i,k)\) contains the number of raters who classified subject \(i\) into category \(k\).

weights is an optional parameter that is either a string variable or a matrix. The string describes one of the predefined weights and must take one of the values ("quadratic", "ordinal", "linear", "radical", "ratio", "circular", "bipolar"). If this parameter is a matrix then it must be a square matrix \(qxq\) where \(q\) is the number of possible categories where a subject can be classified. If some of the \(q\) possible categories are not used, then it is strongly advised to specify the complete list of possible categories as a vector in parametr categ. Otherwise, only the categories reported will be used.

categ An optional parameter representing all categories available to raters during the experiment. This parameter may be useful if some categories were not used by any rater inspite of being available to the raters.

conflev An optional parameter representing the confidence level associated with the confidence interval. Its default value is 0.95.

N An optional parameter representing the population size (if any). It may be use to perform the final population correction to the variance. Its default value is infinity.

Value

A vector containing the following information: pa (the percent agreement), pe (the percent chance agreement), coeff (Fleiss’ agreement coefficient), stderr (the standard error of Fleiss’ coefficient), conf.int (the confidence interval of Fleiss Kappa coefficient), p.value (the p-value of Fleiss’ coefficient), coeff.name ("Fleiss").

Source


Examples

# The dataset "distrib.6raters" comes with this package. It represents the distribution of 6 raters by subject and by category. Note that each row of this dataset sums to the number of raters, which is 6. You may this dataset as follows:
distrib.6raters
fleiss.kappa.dist(distrib.6raters) # Fleiss' kappa, precision measures, weights & list of categories
fleiss <- fleiss.kappa.dist(distrib.6raters)$coeff # Yields Fleiss' kappa alone.
fleiss
catt <- ncol(distrib.6raters) # Number of categories
fleiss.kappa.dist(distrib.6raters, weights = quadratic.weights(1:catt)) # Weighted fleiss/quadratic wts
Fleiss’ generalized kappa among multiple raters (2, 3, +) when the input data represent the raw ratings reported for each subject and each rater.

Description

Fleiss’ generalized kappa among multiple raters (2, 3, +) when the input data represent the raw ratings reported for each subject and each rater.

Usage

fleiss.kappa.raw(ratings, weights = "unweighted", categ.labels = NULL, conflev = 0.95, N = Inf)

Arguments

- **ratings**: An nxr matrix / data frame of ratings where each column represents one rater and each row one subject.
- **weights**: is a mandatory parameter that is either a string variable or a matrix. The string describes one of the predefined weights and must take one of the values ("quadratic", "ordinal", "linear", "radical", "ratio", "circular", "bipolar"). If this parameter is a matrix then it must be a square matrix q x q where q is the number of possible categories where a subject can be classified. If some of the q possible categories are not used, then it is strongly advised to specify the complete list of possible categories as a vector in parameter categ.labels. Otherwise, the program may not work.
- **categ.labels**: An optional vector parameter containing the list of all possible ratings. It may be useful in case some of the possible ratings are not used by any rater, they will still be used when calculating agreement coefficients. The default value is NULL. In this case, only categories reported by the raters are used in the calculations.
- **conflev**: An optional parameter representing the confidence level associated with the confidence interval. Its default value is 0.95.
- **N**: An optional parameter representing the population size (if any). It may be used to perform the final population correction to the variance. Its default value is infinity.

Value

A data list containing 3 objects: (1) a one-row data frame containing various statistics including the requested agreement coefficient, (2) the weight matrix used in the calculations if any, and (3) the categories used in the analysis. These could be categories reported by the raters, or those that were available to the raters whether they used them or not. The output data frame contains the following variables: "coeff.name" (coefficient name- here it will be "Fleiss’ Kappa"), "pa" (the percent agreement), "pe" (the percent chance agreement), coeff.val (the agreement coefficient estimate-Fleiss’ Kappa), "coeff.se" (the standard error), "conf.int" (Fleiss Kappa’s confidence interval), "p.value" (Fleiss Kappa’s p-value), "w.name" (the weights’ identification).
References


Examples

#The dataset "cac.raw4raters" comes with this package. Analyze it as follows:
cac.raw4raters
fleiss.kappa.raw(cac.raw4raters) #Fleiss' kappa, precision measures, weights & categories
fleiss.kappa.raw(cac.raw4raters)$est #Yields Fleiss' kappa with precision measures
fleiss <- fleiss.kappa.raw(cac.raw4raters)$est$coeff.val #Yields Fleiss' kappa alone.
fleiss
fleiss.kappa.raw(cac.raw4raters, weights = "quadratic") #Weighted Fleiss' kappa/quadratic wts

---

gwet.ac1.dist *Gwet's AC1/AC2 agreement coefficient among multiple raters (2, 3, +) when the input dataset is the distribution of raters by subject and category.*

Description

Gwet’s AC1/AC2 agreement coefficient among multiple raters (2, 3, +) when the input dataset is the distribution of raters by subject and category.

Usage

gwet.ac1.dist(ratings, weights = "unweighted", categ = NULL, conflev = 0.95, N = Inf)

Arguments

- **ratings**: An \(nxq\) matrix / data frame containing the distribution of raters by subject and category. Each cell \((i,k)\) contains the number of raters who classified subject \(i\) into category \(k\).
- **weights**: is an optional parameter that is either a string variable or a matrix. The string describes one of the predefined weights and must take one of the values ("quadratic", "ordinal", "linear", "radical", "ratio", "circular", "bipolar"). If this parameter is a matrix then it must be a square matrix \(qxq\) where \(q\) is the number of possible categories where a subject can be classified. If some of the \(q\) possible categories are not used, then it is strongly advised to specify the complete list of possible categories as a vector in parameter categ. Otherwise, only the categories reported will be used.
- **categ**: An optional parameter representing all categories available to raters during the experiment. This parameter may be useful if some categories were not used by any rater in spite of being available to the raters.
- **conflev**: An optional parameter representing the confidence level associated with the confidence interval. Its default value is 0.95.
An optional parameter representing the population size (if any). It may be used to perform the final population correction to the variance. Its default value is infinity.

Value

A vector containing the following information: pa (the percent agreement), pe (the percent chance agreement), coeff (Gwet’s AC1 or AC2 depending on whether weights are used or not), stderr (the standard error of Gwet’s coefficient), conf.int (the confidence interval of Gwet’s coefficient), p.value (the p-value of Gwet’s coefficient), coeff.name (AC1/AC2).

Source


Examples

# The dataset “distrib.6raters” comes with this package. It represents the distribution of 6 raters by subject and by category. Note that each row of this dataset sums to the number of raters, which is 6. You may this dataset as follows:
distrib.6raters
gwet.ac1.dist(distrib.6raters) # AC1 coefficient, precision measures, weights & list of categories
ac1 <- gwet.ac1.dist(distrib.6raters)$coeff # Yields AC1 coefficient alone.
ac1
q <- ncol(distrib.6raters) # Number of categories
gwet.ac1.dist(distrib.6raters, weights = quadratic.weights(1:q)) # AC2 with quadratic weights
weights is a mandatory parameter that is either a string variable or a matrix. The string describes one of the predefined weights and must take one of the values ("quadratic", "ordinal", "linear", "radical", "ratio", "circular", "bipolar"). If this parameter is a matrix then it must be a square matrix qxq where q is the number of possible categories where a subject can be classified. If some of the q possible categories are not used, then it is strongly advised to specify the complete list of possible categories as a vector in parametr categ.labels. Otherwise, the program may not work.

categ.labels An optional vector parameter containing the list of all possible ratings. It may be useful in case some of the possible ratings are not used by any rater, they will still be used when calculating agreement coefficients. The default value is NULL. In this case, only categories reported by the raters are used in the calculations.

conflev An optional parameter representing the confidence level associated with the confidence interval. Its default value is 0.95.

N An optional parameter representing the population size (if any). It may be used to perform the final population correction to the variance. Its default value is infinity.

Value

A data list containing 3 objects: (1) a one-row data frame containing various statistics including the requested agreement coefficient, (2) the weight matrix used in the calculations if any, and (3) the categories used in the analysis. These could be categories reported by the raters, or those that were available to the raters whether they used them or not. The output data frame contains the following variables: "coeff.name" (coefficient name), "pa" (the percent agreement), "pe" (the percent chance agreement), coeff.val (the agreement coefficient estimate-AC1 or AC2), "coeff.se" (the standard error), "conf.int" (AC1/AC2 confidence interval), "p.value" (Gwet AC1/AC2 p-value), "w.name" (the weights' identification).

References


Examples

#The dataset "cac.raw4raters" comes with this package. Analyze it as follows:
cac.raw4raters
gwet.ac1.raw(cac.raw4raters) #AC1 coefficient, precision measures, weights & categories
gwet.ac1.raw(cac.raw4raters)$est #Yields AC1 coefficient with precision measures
ac1 <- gwet.ac1.raw(cac.raw4raters)$est$coeff.val #Yields AC1 coefficient alone.
ac1
gwet.ac1.raw(cac.raw4raters, weights = "quadratic") #AC2 coefficient with quadratic wts
Gwet’s AC1/AC2 coefficient for 2 raters

Description

Gwet’s AC1/AC2 coefficient for 2 raters

Usage

```r
gwet.ac1.table(ratings, weights = identity.weights(1:ncol(ratings)),
               conflev = 0.95, N = Inf)
```

Arguments

- `ratings`: A square table of ratings (assume no missing ratings).
- `weights`: An optional matrix that contains the weights used in the weighted analysis. By default, this parameter contains the identity weight matrix, which leads to the unweighted analysis.
- `conflev`: An optional parameter that specifies the confidence level used for constructing confidence intervals. By default, the function assumes the standard value of 95%.
- `N`: An optional parameter representing the finite population size if any. It is used to perform the finite population correction to the standard error. Its default value is infinity.

Value

A data frame containing the following 5 variables: coeff.name coeff.val coeff.se coeff.ci coeff.pval.

Examples

# The dataset “cont3x3abstractors” comes with this package. Analyze it as follows:
```r
gwet.ac1.table(cont3x3abstractors) # Yields AC1 along with precision measures
ac1 <- gwet.ac1.table(cont3x3abstractors)$coeff.val # Yields AC1 coefficient alone.
ac1
q <- nrow(cont3x3abstractors) # Number of categories
lw <- quadratic.weights(1:q) # Quadratic weights
```

```r
gwet.ac1.table(cont3x3abstractors, weights = quadratic.weights(1:q)) # AC2 with quadratic weights
```
identity.weights  
*Function for computing the Identity Weights*

**Description**
Function for computing the Identity Weights

**Usage**
```r
identity.weights(categ)
```

**Arguments**
- `categ` A mandatory parameter representing the vector of all possible ratings.

**Value**
A square matrix of identity weights to be used for calculating the unweighted coefficients.

kappa2.table  
*Kappa coefficient for 2 raters*

**Description**
Kappa coefficient for 2 raters

**Usage**
```r
kappa2.table(ratings, weights = identity.weights(1:ncol(ratings)),
             conflev = 0.95, N = Inf)
```

**Arguments**
- `ratings` A square or contingency table of ratings (assume no missing ratings). See the 2 datasets "cont3x3abstractors" and "cont4x4diagnosis" that come with this package as examples.
- `weights` An optional matrix that contains the weights used in the weighted analysis.
- `conflev` An optional confidence level for confidence intervals. The default value is the traditional 0.95.
- `N` An optional population size. The default value is infinity.

**Value**
A data frame containing the following 5 variables: coeff.name coeff.val coeff.se coeff.ci coeff.pval.
Examples

# The dataset "cont3x3abstractors" comes with this package. Analyze it as follows:
kappa2.table(cont3x3abstractors) # Yields Cohen's kappa along with precision measures
kappa <- kappa2.table(cont3x3abstractors)$coeff.val # Yields Cohen's kappa alone.
kappa
q <- nrow(cont3x3abstractors) # Number of categories
kappa2.table(cont3x3abstractors, weights = quadratic.weights(1:q)) # Weighted kappa/quadratic wts

krippen.alpha.dist

Krippendorff's agreement coefficient among multiple raters (2, 3, +) when the input dataset is the distribution of raters by subject and category.

Description

Krippendorff's agreement coefficient among multiple raters (2, 3, +) when the input dataset is the distribution of raters by subject and category.

Usage

krippen.alpha.dist(ratings, weights = "unweighted", categ = NULL, conflev = 0.95, N = Inf)

Arguments

ratings An \( n \times q \) matrix / data frame containing the distribution of raters by subject and category. Each cell \((i,k)\) contains the number of raters who classified subject \(i\) into category \(k\).

weights is an optional parameter that is either a string variable or a matrix. The string describes one of the predefined weights and must take one of the values ("quadratic", "ordinal", "linear", "radical", "ratio", "circular", "bipolar"). If this parameter is a matrix then it must be a square matrix \(q \times q\) where \(q\) is the number of possible categories where a subject can be classified. If some of the \(q\) possible categories are not used, then it is strongly advised to specify the complete list of possible categories as a vector in parameter categ. Otherwise, only the categories reported will be used.

categ An optional parameter representing all categories available to raters during the experiment. This parameter may be useful if some categories were not used by any rater inspite of being available to the raters.

conflev An optional parameter representing the confidence level associated with the confidence interval. Its default value is 0.95.

N An optional parameter representing the population size (if any). It may be used to perform the final population correction to the variance. Its default value is infinity.
Value

A vector containing the following information: pa (the percent agreement), pe (the percent chance agreement), coeff (Krippendorff’s alpha), stderr (the standard error of Krippendorff’s coefficient), conf.int (the confidence interval of Krippendorff’s alpha coefficient), p.value (the p-value of Krippendorff’s alpha), coeff.name (“krippen alpha”).

Source


Examples

# The dataset "distrib.6raters" comes with this package. It represents the distribution of 6 raters by subject and by category. Note that each row of this dataset sums to the number of raters, which is 6. You may this dataset as follows:

distrib.6raters
krippen.alpha.dist(distrib.6raters) # Krippendorff's alpha, precision measures, weights & categories
alpha <- krippen.alpha.dist(distrib.6raters)$coeff # Yields Krippendorff's alpha coefficient alone.
alpha
q <- ncol(distrib.6raters) # Number of categories
krippen.alpha.dist(distrib.6raters, weights = quadratic.weights(1:q)) # Weighted alpha

---

**krippen.alpha.raw**

*Krippendorff’s alpha coefficient for an arbitrary number of raters (2, 3, +) when the input data represent the raw ratings reported for each subject and each rater.*

Description

Krippendorff’s alpha coefficient for an arbitrary number of raters (2, 3, +) when the input data represent the raw ratings reported for each subject and each rater.

Usage

krippen.alpha.raw(ratings, weights = "unweighted", categ.labels = NULL, conflev = 0.95, N = Inf)

Arguments

- ratings: An nxr matrix / data frame of ratings where each column represents one rater and each row one subject.
weights is a mandatory parameter that is either a string variable or a matrix. The string describes one of the predefined weights and must take one of the values ("quadratic", "ordinal", "linear", "radical", "ratio", "circular", "bipolar"). If this parameter is a matrix then it must be a square matrix q x q where q is the number of possible categories where a subject can be classified. If some of the possible categories are not used, then it is strongly advised to specify the complete list of possible categories as a vector in parameter categ.labels. Otherwise, the program may not work.

categ.labels An optional vector parameter containing the list of all possible ratings. It may be useful in cases where some of the possible ratings are not used by any rater, they will still be used when calculating agreement coefficients. The default value is NULL. In this case, only categories reported by the raters are used in the calculations.

conflev An optional parameter representing the confidence level associated with the confidence interval. Its default value is 0.95.

N An optional parameter representing the population size (if any). It may be used to perform the final population correction to the variance. Its default value is infinity.

Value

A data list containing 3 objects: (1) a one-row data frame containing various statistics including the requested agreement coefficient-in this case, Krippendorff’s alpha, (2) the weight matrix used in the calculations if any, and (3) the vector of categories used in the analysis. These could be categories reported by the raters, or those that were available to the raters whether they used them or not. The output data frame contains the following variables: "coeff.name" (coefficient name), "pa" (the percent agreement), "pe" (the percent chance agreement), coeff.val (Krippendorff’s alpha estimate), "coeff.se (standard error), conf.int" (Krippendorff alpha’s confidence interval),"p.value" (Krippendorff alpha’s p-value), "w.name" (the weights’ identification).

References


Examples

#The dataset "cac.raw4raters" comes with this package. Analyze it as follows:
cac.raw4raters
krippen.alpha.raw(cac.raw4raters) #Alpha coeff. , precision measures, weights & categories
krippen.alpha.raw(cac.raw4raters)$est #Krippendorff's alpha with precision measures
alpha <- krippen.alpha.raw(cac.raw4raters)$est$coeff.val #Krippendorff's alpha alone.
alpha
krippen.alpha.raw(cac.raw4raters, weights = "quadratic") #weighted alpha/ quadratic wts
krippen2.table

Krippendorff’s Alpha coefficient for 2 raters

Description
Krippendorff’s Alpha coefficient for 2 raters

Usage
krippen2.table(ratings, weights = identity.weights(1:ncol(ratings)),
               conflev = 0.95, N = Inf)

Arguments
ratings A square table of ratings (assume no missing ratings).
weights An optional matrix that contains the weights used in the weighted analysis. By
default, this parameter contains the identity weight matrix, which leads to the
unweighted analysis.
conflev An optional parameter that specifies the confidence level used for constructing
confidence intervals. By default the function assumes the standard value of 95%.
N An optional parameter representing the finite population size if any. It is used to
perform the finite population correction to the standard error. It’s default value
is infinity.

Value
A data frame containing the following 5 variables: coeff.name coeff.val coeff.se coeff.ci coeff.pval.

Examples
#The dataset “cont3x3abstractors” comes with this package. Analyze it as follows:
krippen2.table(cont3x3abstractors) #Krippendorff’s alpha along with precision measures
alpha <- krippen2.table(cont3x3abstractors)$coeff.val #Krippendorff’s alpha alone.
alpha
q <- nrow(cont3x3abstractors) #Number of categories
krippen2.table(cont3x3abstractors,weights = quadratic.weights(1:q)) #Weighted alpha coefficient
**landis.koch**  
*Dataset describing the Landis & Koch Benchmarking Scale*

**Description**
This dataset contains information describing the Landis & Koch scale for benchmarking chance-corrected agreement coefficients such as Gwet AC1/AC2, Kappa and many others.

**Usage**
landis.koch

**Format**
Each row of this dataset describes an interval and the interpretation of the magnitude it represents.

- `lb.LK` The interval lower bound
- `ub.LK` The interval upper bound
- `interp.LK` The interpretation

**Source**

---

**landis.koch.bf**  
*Computing Landis-Koch Benchmark Scale Membership Probabilities*

**Description**
Computing Landis-Koch Benchmark Scale Membership Probabilities

**Usage**
landis.koch.bf(coeff, se, BenchDF = landis.koch)

**Arguments**
- `coeff` A mandatory parameter representing the estimated value of an agreement coefficient.
- `se` A mandatory parameter representing the agreement coefficient standard error.
- `BenchDF` An optional parameter that is a 3-column data frame containing the Landis & Koch’s benchmark scale information. The 3 columns are the interval lower bound, upper bound, and their interpretation. The default value is a small file contained in the package and named `landis.koch.RData`, which describes the official Landis & Koch’s scale intervals and their interpretation.
ordinal.weights

Value

A one-column matrix containing the membership probabilities (c.f. [http://agreestat.com/research_papers/inter-rater%20reliability%20study%20design1.pdf](http://agreestat.com/research_papers/inter-rater%20reliability%20study%20design1.pdf))

linear.weights

Function for computing the Linear Weights

Description

Function for computing the Linear Weights

Usage

linear.weights(categ)

Arguments

categ A mandatory parameter representing the vector of all possible ratings.

Value

A square matrix of quadratic weights to be used for calculating the weighted coefficients.

ordinal.weights

Function for computing the Ordinal Weights

Description

Function for computing the Ordinal Weights

Usage

ordinal.weights(categ)

Arguments

categ A mandatory parameter representing the vector of all possible ratings.

Value

A square matrix of quadratic weights to be used for calculating the weighted coefficients.
Percent agreement coefficient among multiple raters (2, 3, +) when the input dataset is the distribution of raters by subject and category.

Arguments

- **ratings**: An \( nxq \) matrix / data frame containing the distribution of raters by subject and category. Each cell \((i,k)\) contains the number of raters who classified subject \(i\) into category \(k\).
- **weights**: is an optional parameter that is either a string variable or a matrix. The string describes one of the predefined weights and must take one of the values ("quadratic", "ordinal", "linear", "radical", "ratio", "circular", "bipolar"). If this parameter is a matrix then it must be a square matrix \(qxq\) where \(q\) is the number of possible categories where a subject can be classified. If some of the \(q\) possible categories are not used, then it is strongly advised to specify the complete list of possible categories as a vector in parameter \(categ\). Otherwise, only the categories reported will be used.
- **categ**: An optional parameter representing all categories available to raters during the experiment. This parameter may be useful if some categories were not used by any rater in spite of being available to the raters.
- **conflev**: An optional parameter representing the confidence level associated with the confidence interval. Its default value is 0.95.
- **N**: An optional parameter representing the population size (if any). It may be use to perform the final population correction to the variance. Its default value is infinity.

Value

A vector containing the following information: \(pa\)(the percent agreement), \(pe\)(the percent chance agreement), \(coeff\)(Brennan-Prediger coefficient), \(stderr\)(the standard error of Brennan-Prediger coefficient), \(conf.int\)(the p-value of Brennan-Prediger coefficient), \(p.value\)(the p-value of Brennan-Prediger coefficient), \(coeff.name\) ("Brennan-Prediger").

Source

Examples

The dataset "distrib.6raters" comes with this package. It represents the distribution of 6 raters by subject and by category. Note that each row of this dataset sums to the number of raters, which is 6. You may this dataset as follows:

distrib.6raters
pa.coeff.dist(distrib.6raters) #percent agreement, precision measures, weights& list of categories
pa <- pa.coeff.dist(distrib.6raters)$coeff #Yields the percent agreement coefficient alone.
pa
q <- ncol(distrib.6raters) #Number of categories
pa.coeff.dist(distrib.6raters,weights = quadratic.weights(1:q)) #Weighted percent agreement

pa.coeff.raw
Percent agreement among multiple raters (2, 3, +) when the input data represent the raw ratings reported for each subject and each rater.

Description

Percent agreement among multiple raters (2, 3, +) when the input data represent the raw ratings reported for each subject and each rater.

Usage

pa.coeff.raw(ratings, weights = "unweighted", categ.labels = NULL, conflev = 0.95, N = Inf)

Arguments

ratings An nxr matrix / data frame of ratings where each column represents one rater and each row one subject.
weights is a mandatory parameter that is either a string variable or a matrix. The string describes one of the predefined weights and must take one of the values ("quadratic", "ordinal", "linear", "radical", "ratio", "circular", "bipolar"). If this parameter is a matrix then it must be a square matri qxq where q is the number of possible categories where a subject can be classified. If some of the q possible categories are not used, then it is strongly advised to specify the complete list of possible categories as a vector in parametr categ.labels. Otherwise, the program may not work.
categ.labels An optional vector parameter containing the list of all possible ratings. It may be useful in case some of the possible ratings are not used by any rater, they will still be used when calculating agreement coefficients. The default value is NULL. In this case, only categories reported by the raters are used in the calculations.
conflev An optional parameter representing the confidence level associated with the confidence interval. Its default value is 0.95.
N An optional parameter representing the population size (if any). It may be used to perform the final population correction to the variance. Its default value is infinity.
Value
A data list containing 3 objects: (1) a one-row data frame containing the estimates, (2) the weight
matrix used in the calculations, and (3) the categories used in the analysis. The data frame of
estimates contains the following variables "coeff.name" (coefficient name), "pa" (the percent agree-
ment), "pe" (percent chance-agreement-always equals 0), "coeff.val" (agreement coefficient = pa),
coeff.se (the percent agreement standard error), "conf.int" (the percent agreement confidence inter-
val), "p.value"(the percent agreement p-value), “w.name”(the weights’ identification).

Examples
#The dataset "cac.raw4raters" comes with this package. Analyze it as follows:
cac.raw4raters
pa.coeff.raw(cac.raw4raters) #Percent agreement, precision measures, weights & categories
pa.coeff.raw(cac.raw4raters)$est #Yields percent agreement with precision measures
pa <- pa.coeff.raw(cac.raw4raters)$est$coeff.val #Yields percent agreement alone.

pa
pa.coeff.raw(cac.raw4raters, weights = "quadratic") #weighted percent agreement/quadratic weights

---

pa2.table Percent Agreement coefficient for 2 raters

Description
Percent Agreement coefficient for 2 raters

Usage
pa2.table(ratings, weights = identity.weights(1:ncol(ratings)),
conflev = 0.95, N = Inf)

Arguments
ratings A square table of ratings (assume no missing ratings).
weights An optional matrix that contains the weights used in the weighted analysis. By
default, this parameter contains the identity weight matrix, which leads to the
unweighted analysis.
conflev An optional parameter that specifies the confidence level used for constructing
confidence intervals. By default the function assumes the standard value of 95%.
N An optional parameter representing the finite population size if any. It is used to
perform the finite population correction to the standard error. It’s default value
is infinity.

Value
A data frame containing the following 5 variables: coeff.name coeff.val coeff.se coeff.ci coeff.pval.
Examples

#The dataset "cont3x3abstractors" comes with this package. Analyze it as follows:
pa2.table(cont3x3abstractors) #Yields percent agreement along with precision measures
pa <- pa2.table(cont3x3abstractors)$coeff.val #Yields percent agreement alone.
q <- nrow(cont3x3abstractors) #Number of categories
pa2.table(cont3x3abstractors,weights = quadratic.weights(1:q)) #Weighted percent agreement

quadric.weights

Function for computing the Quadratic Weights

Description

Function for computing the Quadratic Weights

Usage

quadratic.weights(categ)

Arguments

categ A mandatory parameter representing the vector of all possible ratings.

Value

A square matrix of quadratic weights to be used for calculating the weighted coefficients.

radical.weights

Function for computing the Radical Weights

Description

Function for computing the Radical Weights

Usage

radical.weights(categ)

Arguments

categ A mandatory parameter representing the vector of all possible ratings.

Value

A square matrix of quadratic weights to be used for calculating the weighted coefficients.
**ratio.weights**  
*Function for computing the Ratio Weights*

**Description**  
Function for computing the Ratio Weights

**Usage**  
```r
ratio.weights(categ)
```

**Arguments**
- `categ`  
  A mandatory parameter representing the vector of all possible ratings.

**Value**  
A square matrix of quadratic weights to be used for calculating the weighted coefficients.

---

**scott2.table**  
*Scott’s coefficient for 2 raters*

**Description**  
Scott’s coefficient for 2 raters

**Usage**  
```r
scott2.table(ratings, weights = identity.weights(1:ncol(ratings)),
             conflev = 0.95, N = Inf)
```

**Arguments**
- `ratings`  
  A square table of ratings (assume no missing ratings).
- `weights`  
  An optional matrix that contains the weights used in the weighted analysis. By default, this parameter contains the identity weight matrix, which leads to the unweighted analysis.
- `conflev`  
  An optional parameter that specifies the confidence level used for constructing confidence intervals. By default the function assumes the standard value of 95%.
- `N`  
  An optional parameter representing the finite population size if any. It is used to perform the finite population correction to the standard error. It’s default value is infinity.

**Value**  
A data frame containing the following 5 variables: coeff.name coeff.val coeff.se coeff.ci coeff.pval.
Examples

The dataset “cont3x3abstractors” comes with this package. Analyze it as follows:

```r
scott2.table(cont3x3abstractors) #Yields Scott’s Pi coefficient along with precision measures
scott <- scott2.table(cont3x3abstractors)$coeff.val #Yields Scott’s coefficient alone.
scott
q <- nrow(cont3x3abstractors) #Number of categories
scott2.table(cont3x3abstractors, weights = quadratic.weights(1:q)) #weighted Scott’s coefficient
```

trim

An r function for trimming leading and trailing blanks

Description

An r function for trimming leading and trailing blanks

Usage

`trim(x)`

Arguments

- `x` is a string variable.

Value

A string variable where leading and trailing blanks are trimmed.
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