

Package ‘iccde’

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Type Package

Title Computation of the Double-Entry Intraclass Correlation

Version 0.3.8

Description

The functions compute the double-entry intraclass correlation, which is an index of profile similarity (Furr, 2010; McCrae, 2008). The double-entry intraclass correlation is a more precise index of the agreement of two empirically observed profiles than the often-used intraclass correlation (McCrae, 2008). Profiles comprising correlations are automatically transformed according to the Fisher z-transformation before the double-entry intraclass correlation is calculated. If the profiles comprise scores such as sum scores from various personality scales, it is recommended to standardize each individual score prior to computation of the double-entry intraclass correlation (McCrae, 2008). See Furr (2010) <[doi:10.1080/00223890903379134](https://doi.org/10.1080/00223890903379134)> or McCrae (2008) <[doi:10.1080/00223890701845104](https://doi.org/10.1080/00223890701845104)> for details.

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Author Christian Blötner [aut, cre],
Michael Paul Grosz [aut]

Maintainer Christian Blötner <c.bloetner@gmail.com>

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icc.de.boot

*Bootstrap Confidence Intervals for Double-Entry Intraclass Correlations)***Description**

For different applications, confidence intervals for the double- entry intraclass correlation can be useful. Bootstrap confidence intervals are computed by means of repeated resampling from the original data at hand.

Usage

```
icc.de.boot(data, n.sim = 1000, alpha = .05, use = "pairwise", digit = 3)
```

Arguments

data	A data frame with participants in rows and variables in columns. Users should restrict the data set to the variables of concrete interest because the all available information in the data frame will be used to compute bootstrapped confidence intervals. Thus, it is advisable to create a new data frame that entails only the variables on which the matrix of ICCDEs should be based. Computations in a data set with 56 variables on a Windows device (i5 CPU, 8 GB RAM) and a Macbook Pro (M3 Pro CPU, 36 GB RAM), for instance, took about two minutes, given 1,000 iterations.
n.sim	The number of iterations to be carried out. Default is 1,000.
alpha	Type I error. Default is .05.
use	Optional character string specifying how to deal with missing values. The input will be forwarded to the base cor function and can be one of the following strings, including abbreviation: "everything", "all.obs", "complete.obs", "na.or.complete", or "pairwise.complete.obs". The default is use = "pairwise".
digit	Number of digits in the output. Default is 3.

Value

The output provides a list of matrices of double-entry intraclass correlations.

Mean	A matrix of the bootstrapped point estimates of the bootstrapped double-entry intraclass correlations.
LL	A matrix providing the lower limits of the bootstrap confidence intervals, given the desired alpha level.
UL	A matrix providing the upper limits of the bootstrap confidence intervals, given the selected alpha level.

Author(s)

Christian Blötner, Michael Paul Grosz <c.bloetner@gmail.com>

References

- Furr, R. M. (2010). The Double-Entry Intraclass Correlation as an index of profile similarity: Meaning, limitations, and alternatives. *Journal of Personality Assessment*, 92(1), 1–15. <<https://doi.org/10.1080/00223890903379>>
- McCrae, R. R. (2008). A note on some measures of profile agreement. *Journal of Personality Assessment*, 90(2), 105–109. <<https://doi.org/10.1080/00223890701845104>>

Examples

```
df <- data.frame(a = rnorm(100), b = rnorm(100), c = rnorm(100),
                x = rnorm(100), y = rnorm(100), z = rnorm(100))
icc.de.boot(data = df,
            n.sim = 1000,
            alpha = .01,
            digit = 2)
```

icc.de.mat	<i>Computation of Double-Entry Intraclass Correlations for correlation matrices</i>
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Description

This function computes pairwise double-entry intraclass correlations among all entries of a data frame. Correlations between the compared variables as well as correlations of the constructs with themselves are thereby excluded from the calculation (i.e., correlations between X and Y, correlation between X and X, and correlation between Y and Y).

Usage

```
icc.de.mat(data, use = "pairwise", digit)
```

Arguments

data	A data frame with participants in rows and variables in columns.
use	Optional character string specifying how to deal with missing values. The input will be forwarded to the base <code>cor</code> function and can be one of the following strings, including abbreviation: "everything", "all.obs", "complete.obs", "na.or.complete", or "pairwise.complete.obs". The default is <code>use = "pairwise"</code> .
digit	Number of digits in the output. The default is 3.

Value

A matrix of double-entry intraclass correlations among the entered variables.

Author(s)

Christian Blötner, Michael Paul Grosz <c.bloetner@gmail.com>

References

- Furr, R. M. (2010). The Double-Entry Intraclass Correlation as an Index of Profile Similarity: Meaning, Limitations, and Alternatives. *Journal of Personality Assessment*, 92(1), 1–15. <https://doi.org/10.1080/00223890903379134>
- McCrae, R. R. (2008). A Note on Some Measures of Profile Agreement. *Journal of Personality Assessment*, 90(2), 105–109. <https://doi.org/10.1080/00223890701845104>

Examples

```
df <- data.frame(a = rnorm(100), b = rnorm(100), c = rnorm(100),
                x = rnorm(100), y = rnorm(100), z = rnorm(100))
icc.de.mat(df)
```

iccde	<i>Computation of the Double-Entry Intraclass Correlation between two profiles</i>
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Description

The function computes the double-entry intraclass correlation, which is an index of profile similarity (Furr, 2010; McCrae, 2008). The double-entry intraclass correlation is a more precise index of the agreement of two empirically observed profiles than the often-used intraclass correlation (McCrae, 2008). The function transforms profiles comprising correlations according to the Fisher z-transformation before the double-entry intraclass correlation is calculated. If the profiles comprise scores such as sum scores from various personality scales, it is recommended to standardize each individual score prior to computation of the double-entry intraclass correlation (McCrae, 2008). See Furr (2010) <[doi:10.1080/00223890903379134](https://doi.org/10.1080/00223890903379134)> or McCrae (2008) <[doi:10.1080/00223890701845104](https://doi.org/10.1080/00223890701845104)> for details.

Usage

```
icc.de(prof1, prof2, input = c("cor", "score"), use = "pairwise", digits = 2)
```

Arguments

prof1	Vector of components of the nomological network of the first variable (input = "cor") or vector of components of the first profile (input = "score").
prof2	Vector of components of the nomological network of the second variable (input = "cor") or vector of components of the second profile (input = "score").
input	Do the profiles contain correlations (e.g., from nomological network; input = "cor") or scores from different scales (e.g., sum scores from diverse personality tests; input = "score")? The default is input = "cor".
use	Optional character string specifying how to deal with missing values. The input will be forwarded to the base cor function and can be one of the following strings, including abbreviation: "everything", "all.obs", "complete.obs", "na.or.complete", or "pairwise.complete.obs". The default is use = "pairwise".
digits	Number of digits in the output. The default is digits = 2.

Value

iccde Double-Entry Intraclass Correlation for two given profiles

Author(s)

Christian Blötner, Michael Paul Grosz <c.bloetner@gmail.com>

References

- Furr, R. M. (2010). The Double-Entry Intraclass Correlation as an Index of Profile Similarity: Meaning, Limitations, and Alternatives. *Journal of Personality Assessment*, 92(1), 1–15. <https://doi.org/10.1080/00223890903222222>
- McCrae, R. R. (2008). A Note on Some Measures of Profile Agreement. *Journal of Personality Assessment*, 90(2), 105–109. <https://doi.org/10.1080/00223890701845104>

Examples

```
icc.de(prof1 = c(.59, .48, .23), prof2 = c(.52, .76, .22), input = "cor")  
  
icc.de(prof1 = c(-1, -0.85, 2), prof2 = c(-0.93, 1, 1.26), input = "score",  
digits = 4)
```

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