

Package ‘Romney’

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Type Package

Title Classical Cultural Consensus Analysis

Version 0.1.0

Description Implements classical cultural consensus analysis with formal, informal, and covariance agreement models, 'UCINET'-aligned minimum-residual factor extraction, competence estimation, and answer-key estimation. Based on the classical framework of Romney, Weller, and Batchelder (1986) [<doi:10.1525/aa.1986.88.2.02a00020>](https://doi.org/10.1525/aa.1986.88.2.02a00020), Romney, Batchelder, and Weller (1987) [<doi:10.1177/000276487031002003>](https://doi.org/10.1177/000276487031002003), and Weller (2007) [<doi:10.1177/1525822X07303502>](https://doi.org/10.1177/1525822X07303502).

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URL <https://github.com/wernerhertzog/Romney>

BugReports <https://github.com/wernerhertzog/Romney/issues>

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agreement_models *Agreement Matrices for Consensus Analysis*

Description

Compute respondent-by-respondent agreement matrices for the formal, informal, and covariance consensus models.

Usage

```
agreement_formal(data, n_answers = NULL)
```

```
agreement_informal(data)
```

```
agreement_covariance(data, prior = 0.5)
```

Arguments

data	A respondent-by-item matrix or data frame.
n_answers	Number of possible answers for the formal model.
prior	Prior proportion of true items for the covariance model.

Value

A square agreement matrix.

answerkey_formal *Estimate a Formal Consensus Answer Key*

Description

Estimate the most likely answer key under the formal consensus model.

Usage

```
answerkey_formal(data, competence, prior = NULL, answer_levels = NULL)
```

Arguments

data	A respondent-by-item matrix or data frame.
competence	Numeric competence scores, one per respondent.
prior	Optional prior distribution over answer levels.
answer_levels	Optional ordered vector of allowable answer levels.

Value

A list with key, probabilities, and levels.

`consensus`*Run a Cultural Consensus Analysis*

Description

Run a cultural consensus analysis using UCINET-aligned minimum-residual factor extraction for the consensus eigensystem.

Usage

```
consensus(  
  data,  
  cultures = 1,  
  method = c("formal", "informal", "covariance"),  
  prior = 0.5,  
  return_answer_key = TRUE  
)
```

Arguments

<code>data</code>	A respondent-by-item matrix or data frame.
<code>cultures</code>	Number of latent cultures to extract.
<code>method</code>	One of "formal", "informal", or "covariance".
<code>prior</code>	Prior proportion of true items for the covariance model.
<code>return_answer_key</code>	Whether to estimate the answer key for the formal model.

Value

An object of class `romney_consensus`.

`simulate_consensus_data`*Simulate Formal Consensus Data*

Description

Simulate respondent-by-item response data for the formal consensus model.

Usage

```
simulate_consensus_data(  
  n_respondents,  
  n_questions,  
  n_answers = 2,  
  competence = 0.7,  
  seed = NULL  
)
```

Arguments

<code>n_respondents</code>	Number of respondents.
<code>n_questions</code>	Number of questions/items.
<code>n_answers</code>	Number of possible answers per item.
<code>competence</code>	Scalar or vector of respondent competences.
<code>seed</code>	Optional random seed.

Value

A list with responses, key, and competence.

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