Package: GLMBasedRaschEstimation (via r-universe)

May 20, 2026

Title What the Package Does (One Line, Title Case)

Version 0.0.0.9000

Description What the package does (one paragraph).

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Encoding UTF-8

Roxygen list(markdown = TRUE)

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Imports graphics, stats

URL https://github.com/DrAhmedSamir/GLMBasedRaschEstimation

BugReports https://github.com/DrAhmedSamir/GLMBasedRaschEstimation/issues

Repository https://drahmedsamir.r-universe.dev

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Contents

`compute_Modified_probabilities` *Compute Modified Item Response Probabilities*

Description

Compute Modified Item Response Probabilities

Usage

```
compute_Modified_probabilities(results, theta_all)
```

Arguments

`results`	The data frame returned by fit_binary_irt.
`theta_all`	A numeric vector representing ability levels (total scores).

Value

A matrix of predicted probabilities.

`extract_rasch_difficulties_ordered` *Extract Rasch Item Difficulties in Original Order*

Description

Extract Rasch Item Difficulties in Original Order

Usage

```
extract_rasch_difficulties_ordered(final_logit_matrix)
```

Arguments

`final_logit_matrix`	The matrix returned by rasch_logit.

Value

A data frame of item difficulties.

fit_binary_irt *Fit Binary IRT Model using GLM*

Description

Fit Binary IRT Model using GLM

Usage

```
fit_binary_irt(data_mat, total_score)
```

Arguments

data_mat	A numeric matrix of responses.
total_score	A numeric vector of total scores.

Value

A data frame containing Intercept, Slope, and Threshold for each item.

plot_item_curves *Plot Item Characteristic Curves (ICC)*

Description

Plot Item Characteristic Curves (ICC)

Usage

```
plot_item_curves(theta_all, Modified_prob_matrix, results)
```

Arguments

theta_all	A numeric vector of ability levels.
Modified_prob_matrix	The matrix returned by compute_Modified_probabilities.
results	The data frame returned by fit_binary_irt.

plot_rasch_curves *Plot Rasch Item Curves*

Description

Plot Rasch Item Curves

Usage

```
plot_rasch_curves(prob_matrix, final_logit_matrix)
```

Arguments

prob_matrix	The matrix returned by compute_Modified_probabilities.
final_logit_matrix	The matrix returned by rasch_logit.

prepare_data *Prepare Data for IRT Analysis*

Description

Prepare Data for IRT Analysis

Usage

```
prepare_data(data)
```

Arguments

data	A data frame or matrix of binary responses (0 and 1).

Value

A list containing the numeric matrix and the calculated total scores.

`rasch_logit` *Compute Logit and Row Means*

Description

Compute Logit and Row Means

Usage

```
rasch_logit(prob_matrix)
```

Arguments

`prob_matrix`	The matrix returned by compute_Modified_probabilities.

Value

A matrix of logits with an added column for row means (Student Ability).

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