

Package ‘miebl’

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Title Performance Criteria Modeler for Discrete Trial Training

Version 0.1.0

Description Provides a tool for computing probabilities and other quantities that are relevant in selecting performance criteria for discrete trial training. The main function, `miebl()`, computes Bayesian and frequentist probabilities and bounds for each of n possible performance criterion choices when attempting to determine a student's true mastery level by counting their number of successful attempts at displaying learning among n trials. The reporting function `miebl_re()` takes output from `miebl()` and prepares it into a brief report for a specific criterion. `miebl_cp()` combines 2 to 5 distributions of true mastery level given performance criterion in one plot for comparison. Ramos (2025) <[doi:10.1007/s40617-025-01058-9](https://doi.org/10.1007/s40617-025-01058-9)>.

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Encoding UTF-8

Depends R (>= 2.10)

RoxygenNote 7.3.2

NeedsCompilation no

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Imports graphics, stats

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| miebl | <i>Compute relevant probabilities and estimates for selecting performance criteria</i> |
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Description

Compute relevant probabilities and estimates for selecting performance criteria

Usage

```
miebl(n, tr = 0.9, shape1 = 0.5, shape2 = shape1, a = 0.05)
```

Arguments

| | |
|--------|---|
| n | number of trials |
| tr | true desired mastery level (default is 90%) |
| shape1 | shape1 parameter for beta prior (default is 0.5) |
| shape2 | shape2 parameter for beta prior (default is shape1 which means default is Jeffreys prior) |
| a | significance level (default is 0.05) |

Value

A list of tables

Examples

```
miebl(n=5, tr=0.8, shape1=1, a=0.10)
# Creates results for 5 trials for 80% true mastery level w/ uniform prior and 0.10 significance.
```

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|----------|--|
| miebl_cp | <i>Compares posterior distributions from different reports</i> |
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Description

Compares posterior distributions from different reports

Usage

```
miebl_cp(R1, R2, R3 = NULL, R4 = NULL, R5 = NULL)
```

Arguments

| | |
|----|---|
| R1 | object produced by miebl_re; start from highest performance criterion to lowest |
| R2 | object produced by miebl_re |
| R3 | object produced by miebl_re |
| R4 | object produced by miebl_re |
| R5 | object produced by miebl_re |

Value

a combined plot of the posterior distributions for each performance criterion

Examples

```
#create a miebl output for default 90% desired true mastery
xx<-miebl(10)
#Uses the miebl output for miebl_re for 90% and 80% performance criterion
r1<-miebl_re(xx,mc=90)
r2<-miebl_re(xx,mc=80)
miebl_cp(r1,r2)
```

| | |
|----------|--|
| miebl_re | <i>Creates a report for a specific performance criterion from a miebl output</i> |
|----------|--|

Description

Creates a report for a specific performance criterion from a miebl output

Usage

```
miebl_re(mb, X = nrow(mb) - 1, mc = 100)
```

Arguments

| | |
|----|---|
| mb | object produced by miebl |
| X | Number of correct responses for the performance criterion |
| mc | performance criterion expressed as percent e.g. 90% performance criterion is 90 |

Value

a report on the performance criterion selected with respect to the true mastery level desired

Examples

```
#create a miebl output for default 90% desired true mastery
xx<-miebl(10)
#Uses the miebl output for miebl_re for 90% performance criterion
miebl_re(xx,mc=90)
```

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