Package 'miebl'

April 25, 2025

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>.

License GPL-3

Encoding UTF-8

Depends R (>= 2.10)

RoxygenNote 7.3.2

NeedsCompilation no

Author Mark Ramos [aut, cre, cph]

Imports graphics, stats

Maintainer Mark Ramos <mlr6219@psu.edu>

Repository CRAN

Date/Publication 2025-04-25 14:50:02 UTC

Contents

miebl 2
miebl_cp 2
miebl_re 3

Index **4**

miebl — *Compute relevant probabilities and estimates for selecting performance criteria*

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 (defaul 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.
```

miebl_cp — *Compares posterior distributions from different reports*

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

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)
```

Index

miebl, 2
miebl_cp, 2
miebl_re, 3