Package ‘PsyControl’

August 9, 2017

Title CUSUM Person Fit Statistics
Version 1.0.0.0
Description Person fit statistics based on Quality Control measures are provided for questionnaires and tests given a specified IRT model. Statistics based on Cumulative Sum (CUSUM) charts are provided. Options are given for banks with polytomous and dichotomous data.
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Author Maxwell Hong [aut, cre],
    Shao Can [ctb]
Maintainer Maxwell Hong <maxwell.hong@gmail.com>
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cusum


Description


Usage

cusum(dat = ex2PL)

Arguments

dat a nxp matrix with n participants and p items. Responses are in 0 1 format.
ipar a pxk matrix with given item parameters p items and k item parameters. ipar[,1] discrimination; ipar[,2] item difficulty; ipar[,3] guessing-parameter.
abi a vector n ability. If not provided, estimated using Expected a Posteriori method.
IRTmodel specify the IRT model ("1PL", "2PL", "3PL"). Default is "2PL"

Value

Returns matrix with with lower and upper cusum statistics for dat.

References


Examples

data(ex2PL)
cusum(dat = ex2PL)

cusum.cutoff

Generates critical values for CUSUM statistics.

Description

cusum.cutoff Generates a bootstrap sample for cut-off scores.

Usage

cusum.cutoff(cusum.obj, upp = 0.975, low = 0.025, Breps = 1000)
**Arguments**

- `cusum.obj`: an object returned from `cusum` or `cusum.poly`
- `upp`: user specified upper tail cut off. Default is .975
- `low`: user specified lower tail cut off. Default is .025
- `breps`: number of bootstrap samples

**Value**

Returns a matrix of lower and upper cut off values and corresponding standard deviations based on bootstrap sample.

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**cusum.flag**

*Flags aberrant participants based on CUSUM statistics.*

**Description**

Flags aberrant participants based on CUSUM statistics.

**Usage**

`cusum.flag(cusum.obj, cutoff.obj, cut = NULL)`

**Arguments**

- `cusum.obj`: an object returned from `cusum` or `cusum.poly`
- `cutoff.obj`: an object returned from `cusum.cutoff`
- `cut`: a vector for user specified cut offs (e.g c(1,1)). The first value is the upper limit. The second value is the lower limit.

**Value**

Returns a true or false matrix whether a person is aberrantly responding.
cusum.plot

Generates CUSUM plot for specified IDs.

Description
Generates CUSUM plot for specified IDs.

Usage
cusum.plot(cu.object, ID)

Arguments

  cu.object  an object returned from cusum or cusum.poly
  ID         a numeric ID.

Value
Returns a plot for specified cusum person chart.

cusum.poly


Description

Usage
cusum.poly(dat, NCat, ipar = NULL, abi = NULL, IRTmodel = "GRM")

Arguments

dat          a nxp matrix with n participants and p items. Responses are in 0 as the lowest scores format.
NCat         number of categories for each item.
ipar         a pxk matrix with given item parameters p items and k item parameters. Item difficulty under the "GRM" or item steps under "PCM" or "GPCM" are in the first columns. The last column is the discrimination parameter.
abi          a vector n ability
IRTmodel     specify the IRT model ("GRM","PCM","GPCM"). Default is "GRM".
Value

Returns matrix with lower and upper cusum statistics for dat.

References


Examples

data(exGRM)
cusum.poly(dat = exGRM, NCat = 6)

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**ex2PL**

*Example data set based on a simulated 2PL model.*

**Description**

Example data set based on a simulated 2PL model.

**Usage**

data(ex2PL)

**Format**

A data frame with 200 rows and 10 variables.

**Source**

Simulated data.

---

**exGRM**

*Example data set based on a simulated GRM model.*

**Description**

Example data set based on a simulated GRM model.

**Usage**

data(exGRM)

**Format**

A data frame with 200 rows and 10 variables.
Source

Simulated data.

Example data set based on a simulated GRM model.

Description

Example data set based on a simulated GRM model.

Usage

gh

Format

Gaussian-Hermite Quadature points

Source

ltm
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