Package 'IAT'

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Title Cleaning and Visualizing Implicit Association Test (IAT) Data

Description Implements the standard D-Scoring algorithm (Greenwald, Banaji, & Nosek, 2003) for Implicit Association Test (IAT) data and includes plotting capabilities for exploring raw IAT data.

Version 0.3

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Depends R (>= 3.0)

Imports dplyr (>= 0.4.3), ggplot2 (>= 2.1.0), lazyeval (>= 0.1.10), stats (>= 3.2.0)

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LazyData true

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R topics documented:

`cleanIAT` *Clean IAT data using the updated D-Scoring algorithm*

Description

Transform a dataframe with trial latencies (stored as one line per trial) for a standard format IAT (7 blocks) into a one line summary per subject of the IAT effect using the standard scoring algorithm recommended in Greenwald, Nosek, & Banaji (2003). The goal is to prepare IAT data for subsequent analysis. However, this does not relieve the researcher from making conceptual decisions about how best to analyze IAT data. There are decisions to make about how the function is applied, and the function does not remove participants. All subject exclusions must be made deliberately by the researcher. Note that the output of this function is identical to that of the standard SAS macro (link in reference) for all meaningful columns.

Usage

```
cleanIAT(my_data, block_name, trial_blocks, session_id, trial_latency,
  trial_error, v_error, v_extreme, v_std)
```

Arguments

`my_data`	The raw dataframe to be used
`block_name`	A string of the variable name for the blocks
`trial_blocks`	A vector of the four essential blocks in the seven-block IAT (i.e., B3, B4, B6, and B7).
`session_id`	A string of the variable name identifying each unique participant.
`trial_latency`	A string of the variable name for the latency of each trial.
`trial_error`	A string of the variable name identifying whether a trial was an error or not, where 1 indicates an error.
`v_error`	If 1 (current standard), then means are calculated for the entire set of latencies. If 2, error latencies will be replaced by the block mean + 600ms
`v_extreme`	If 1, then no extreme value treatment. If 2 (current standard), delete trial latencies < 400ms
`v_std`	If 1 (current standard), block SD is performed including error trials (corrected or not). If 2, block SD is performed on correct responses only

Value

Outputs a dataframe that must be saved to an object. The variable IAT is the calculated D-Score for each individual. SUBEXCL notes any exclusion criteria, with 0 being inclusion data, 1 for exclusion due to fast response, and 2 for exclusion due to missing blocks. C indicates standard deviation for combined blocks (correct trial only), while A indicates standard deviations for combined blocks (all trials). M (mean), E (percent error), N (number of trials used), and F (percent fast responses), are reported for each block included in the original dataframe.

References

Understanding and Using the Implicit Association Test: I. An Improved Scoring Algorithm

IAT SAS macro

Examples

```
# Get Ps who recieve Math-Male sorting task in first blocks

cong_first <- IATData[IATData$isCongruentFirst == 1, ]

dscore_first <- cleanIAT(my_data = cong_first,
                         block_name = "BLOCK_NAME_S",
                         trial_blocks = c("BLOCK2", "BLOCK3", "BLOCK5", "BLOCK6"),
                         session_id = "SESSION_ID",
                         trial_latency = "TRIAL_LATENCY",
                         trial_error = "TRIAL_ERROR",
                         v_error = 1, v_extreme = 2, v_std = 1)

# Get Ps who recieve Math-Female sorting task in first blocks

cong_second <- IATData[IATData$isCongruentFirst == 0, ]

dscore_second <- cleanIAT(my_data = cong_second,
                          block_name = "BLOCK_NAME_S",
                          trial_blocks = c("BLOCK2", "BLOCK3", "BLOCK5", "BLOCK6"),
                          session_id = "SESSION_ID",
                          trial_latency = "TRIAL_LATENCY",
                          trial_error = "TRIAL_ERROR",
                          v_error = 1, v_extreme = 2, v_std = 1)

d_score <- rbind(dscore_first, dscore_second)
```

IATData *Sample Gender Stereotype Implicit Association Test data*

Description

A dataframe containing data from a Gender Stereotype Implicit Association Test. Data was taken from college students in a differential equations classroom taught by a female professor.

Format

A dataframe with 11792 observations of 16 variables (88 students in total)

- BLOCK_NAME_S: string of blocknames
- BLOCK_PAIRING_DEFINITION_S: string of block pairings
- TRIAL_NAME_S: word/picture used in sorting trial

- SESSION_ID: ID of participant
- TRIAL_NUMBER: number of trial within block
- TRIAL_ERROR: indicates whether trial was an error (1 = YES)
- TRIAL_LATENCY: reaction time for trial
- isCongruentFirst: indicates if stereotype congruent blocks came first

Author(s)

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References

http://projectimplicit.net/fpi/researchers.html

`plotIIV` *Plot intraindividual variability of reaction time*

Description

Plot intraindividual variability in reaction time, faceted by the four essential blocks.

Usage

```
plotIIV(my_data, data_type, block_name, trial_blocks, session_id, trial_number,
  trial_latency)
```

Arguments

`my_data`	The raw dataframe to be used
`data_type`	A string of "raw" for no cleaning, or "clean" for cleaned data (no error trials, RT < 10,000ms, and RT > 180ms)
`block_name`	A string of the variable name for the blocks
`trial_blocks`	A vector of the four essential blocks in the seven-block IAT (i.e., B3, B4, B6, and B7).
`session_id`	A string of the variable name identifying each unique participant.
`trial_number`	A string of the variable identifying the trial number.
`trial_latency`	A string of the variable name for the latency of each trial.

plotIndVar *Plot individual variability in the IAT*

Description

Plot mean participant reaction time with 95% confidence intervals to see how reaction time varies by participant. The data is automatically cleaned (i.e., no error trials, trials with RT > 10000 or < 180 are deleted) to avoid over/underinflation of mean estimates and only includes trials from essential blocks.

Usage

```
plotIndVar(my_data, block_name, trial_blocks, session_id, trial_latency,
  trial_error)
```

Arguments

my_data	The raw dataframe to be used
block_name	A string of the variable name for the blocks
trial_blocks	A vector of the four essential blocks in the seven-block IAT (i.e., B3, B4, B6, and B7).
session_id	A string of the variable name identifying each unique participant.
trial_latency	A string of the variable name for the latency of each trial.
trial_error	A string of the variable name identifying whether a trial was an error or not (1 = error)

plotItemErr *Plot proportion of errors per item in the IAT*

Description

Plot proportion of errors in the IAT to see if any items yield high error rates. The data is automatically cleaned (i.e., trials with RT > 10000 or < 180 are deleted) to avoid over/underinflation of mean error estimates

Usage

```
plotItemErr(my_data, item_name, trial_latency, trial_error)
```

Arguments

my_data	The raw dataframe to be used
item_name	A string of the variable identifying the items
trial_latency	A string of the variable name for the latency of each trial.
trial_error	A string of the variable name identifying whether a trial was an error or not (1 = error)

`plotItemVar` *Plot IAT item variability*

Description

Plot mean item reaction time with 95% confidence intervals to see how reaction time varies by item. The data is automatically cleaned (i.e., no error trials, and trials with RT > 10000 or < 180 are deleted) to avoid over/underinflation of mean estimates and only includes trials from essential blocks.

Usage

```
plotItemVar(my_data, block_name, trial_blocks, item_name, trial_latency,
  trial_error)
```

Arguments

`my_data`	The raw dataframe to be used
`block_name`	A string of the variable name for the blocks
`trial_blocks`	A vector of the four essential blocks in the seven-block IAT (i.e., B3, B4, B6, and B7).
`item_name`	A string of the variable identifying the items
`trial_latency`	A string of the variable name for the latency of each trial.
`trial_error`	A string of the variable name identifying whether a trial was an error or not (1 = error)

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