R documentation

of 'BANOVA.simple.Rd'

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BANOVA.simple *Simple effects calculation*

Description

BANOVA.simple is a function for probing interaction effects in models where both moderator and explanatory variables are factors with an arbitrary number of levels. The function estimates and tests simple or partial effects, also known as simple main or conditional effects. Both single-level and multi-level models with any of the distributions accommodated in the package can be analyzed.

Usage

```
BANOVA.simple(BANOVA_output, base = NULL, quantiles = c(0.025, 0.975),
dep_var_name = NULL, return_posterior_samples = FALSE)
```

Arguments

BANOVA_output	an object of class "BANOVA" returned by BANOVA.run function with an outcome of the hierarchical Bayesian ANOVA analysis.
base	a character string which specifies the name of the mediator variable used as a base for calculation.
quantiles	a numeric vector with quantiles for the posterior interval of the simple effects. Must include two elements with values between 0 and 1 in ascending order, default c(0.025, 0.975)
dep_var_name	a character string with a name of the dependent variable, for the Multinomial model only, default NULL.
return_posterior_samples	logical indicator of whether samples of the posterior simple effects distributions should be returned, default FALSE.

Details

The function identifies all factors and their combinations that are interacting with a moderating of "base" variable. For each interaction, it determines all possible level combinations of the involved regressors, which are further used to combine the posterior samples of the selected regression coefficients to calculate simple effects.

When the default effect coding scheme is used the simple effects are calculated for all levels of the interacting variables, as specified in the data. If a user specifies different contrasts for any of the interacting variables the simple effects for these variables are reported for the user-defined regressors. This distinction is reflected in the labels of the reported results: in the default case labels from the original factors are displayed; in the case of user-defined contrasts, the name of the regressor is displayed instead.

The summary of the posterior distribution of each simple effect contains the mean, standard deviation, posterior interval, which by default reports a central 95% interval, but can also be specified by the user, and a two-sided Bayesian p-value.

Note that for a Multinomial model intercepts and between-subject regressors have choice specific coefficients and thus simple effects are reported for each possible choice outcome. To perform the calculation for a Multinomial model an additional argument `dep_var_name` with a name of the dependent variable must be specified.

Value

Returns a list with the summary tables of the results; optionally returns the samples drawn from the posterior simple effects distributions.

`results_summary`
: a list of tables with summaries of the posterior simple effects distributions for all factors and their combinations that are interacting with a moderating variable.

`samples_simple_effects`
: if `return_posterior_samples` is set to `TRUE` a list of tables with samples of the posterior simple effects is returned. The tables include results for all levels of all factors and their combinations that are interacting with a moderating variable.

Author(s)

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Examples

```
# Use the colorad data set
data(colorad)

# Build and analyze the model
model <- BANOVA.model('Binomial')
banova_model <- BANOVA.build(model)
res_1 <- BANOVA.run(y ~ typic, ~ color*blurfac, fit = banova_model,
                    data = colorad, id = 'id', num_trials = as.integer(16),
                    iter = 2000, thin = 1, chains = 2)
# Calculate simple effects with "blurfac" as a moderating vriable
simple_effects <- BANOVA.simple(BANOVA_output = res_1, base = "blurfac")
```