Package 'SIMPLE.REGRESSION'

October 7, 2021

Type Package

Title Multiple Regression and Moderated Regression Made Simple

Version 0.1.2

Date 2021-10-06

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Description Provides SPSS- and SAS-like output for least squares multiple regression and moderated regression, as well as interaction plots and Johnson-Neyman regions of significance for interactions. The output includes standardized coefficients, partial and semi-partial correlations, collinearity diagnostics, plots of residuals, and detailed information about simple slopes for interactions. There are numerous options for designing interaction plots, including plots of interactions for both lm and lme models.

Imports graphics, stats, utils, nlme

LazyLoad yes

LazyData yes

License GPL (>= 2)

NeedsCompilation no

Repository CRAN

Date/Publication 2021-10-07 10:30:02 UTC

R topics documented:

`SIMPLE.REGRESSION-package` *SIMPLE.REGRESSION*

Description

Provides SPSS- and SAS-like output for least squares multiple regression and moderated regression, as well as interaction plots and Johnson-Neyman regions of significance for interactions. The output includes standardized coefficients, partial and semi-partial correlations, collinearity diagnostics, plots of residuals, and detailed information about simple slopes for interactions. There are numerous options for designing interaction plots.

The REGIONS_OF_SIGNIFICANCE function also provides Johnson-Neyman regions of significance and plots of interactions for both lm and lme models (lme models are from the nlme package).

References

Bauer, D. J., & Curran, P. J. (2005). Probing interactions in fixed and multilevel regression: Inferential and graphical techniques. *Multivariate Behavioral Research, 40(3),* 373-400.

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Lawrence Erlbaum Associates Publishers.

Darlington, R. B., & Hayes, A. F. (2017). *Regression analysis and linear models: Concepts, applications, and implementation.* New York: The Guilford Press.

Hayes, A. F. (2018a). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (2nd ed.). New York, NY: Guilford Press.

Huitema, B. (2011). *The analysis of covariance and alternatives: Statistical methods for experiments, quasi-experiments, and single-case studies.* Hoboken, NJ: Wiley.

Johnson, P. O., & Fey, L. C. (1950). The Johnson-Neyman technique, its theory, and application. *Psychometrika, 15,* 349-367.

Lorah, J. A. & Wong, Y. J. (2018). Contemporary applications of moderation analysis in counseling psychology. *Counseling Psychology, 65(5),* 629-640.

O'Connor, B. P. (1998). All-in-one programs for exploring interactions in moderated multiple regression. *Educational and Psychological Measurement, 58,* 833-837.

Pedhazur, E. J. (1997). *Multiple regression in behavioral research: Explanation and prediction.* (3rd ed.). Fort Worth, Texas: Wadsworth Thomson Learning

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`data_Bauer_Curran_2005` *data_Bauer_Curran_2005*

Description

Multilevel moderated regression data from Bauer and Curran (2005).

Usage

```
data(data_Bauer_Curran_2005)
```

Source

Bauer, D. J., & Curran, P. J. (2005). Probing interactions in fixed and multilevel regression: Inferential and graphical techniques. *Multivariate Behavioral Research, 40(3),* 373-400.

Examples

```
head(data_Bauer_Curran_2005)


HSBmod <-nlme::lme(MathAch ~ Sector + CSES + CSES:Sector,
                   data = data_Bauer_Curran_2005,
                   random = ~1 + CSES|School, method = "ML")
summary(HSBmod)

REGIONS_OF_SIGNIFICANCE(model=HSBmod,
                        IV_range=NULL, MOD_range=NULL,
                        PLOT_title=NULL, Xaxis_label=NULL,
                        Yaxis_label=NULL, LEGEND_label=NULL,
                        namesIVMOD_raw=NULL, namesIVMOD_model=NULL)
```

data_Bodner_2016 *data_Bodner_2016*

Description

Moderated regression data used by Bodner (2016) to illustrate the tumble graphs method of plotting interactions. The data were also used by Bauer and Curran (2005).

Usage

```
data(data_Bodner_2016)
```

Source

Bodner, T. E. (2016). Tumble Graphs: Avoiding misleading end point extrapolation when graphing interactions from a moderated multiple regression analysis. *Journal of Educational and Behavioral Statistics, 41(6),* 593-604.

Bauer, D. J., & Curran, P. J. (2005). Probing interactions in fixed and multilevel regression: Inferential and graphical techniques. *Multivariate Behavioral Research, 40(3),* 373-400.

Examples

```
head(data_Bodner_2016)


# replicates p 599 of Bodner_2016
SIMPLE.REGRESSION(data=data_Bodner_2016, DV='math90',
       IV='Anti90', IV_type = 'numeric', IV_range='tumble',
       MOD='Hyper90', MOD_type = 'numeric', MOD_levels='quantiles',
       quantiles_IV=c(.1, .9), quantiles_MOD=c(.25, .5, .75),
       CENTER = FALSE, COVARS=c('age90month','female','grade90','minority'),
       PLOT_type = 'interaction', PLOT_title=NULL,
       Xaxis_label=NULL, Yaxis_label=NULL,
       JN_type = 'Huitema', verbose=TRUE )
```

data_Chapman_Little_2016
data_Chapman_Little_2016

Description

Moderated regression data from Chapman and Little (2016).

Usage

```
data(data_Chapman_Little_2016)
```

Source

Chapman, D. A., & Little, B. (2016). Climate change and disasters: How framing affects justifications for giving or withholding aid to disaster victims. *Social Psychological and Personality Science, 7,* 13-20.

Examples

```
head(data_Chapman_Little_2016)


SIMPLE.REGRESSION(data=data_Chapman_Little_2016, DV='justify',
       IV='frame', IV_type = 'numeric', IV_range='tumble',
       MOD='skeptic', MOD_type = 'numeric', MOD_levels='AikenWest', MOD_range=NULL,
       quantiles_IV=c(.1, .9), quantiles_MOD=c(.25, .5, .75),
       CENTER = TRUE, COVARS=NULL,
       PLOT_type = 'regions', PLOT_title=NULL,
       Xaxis_label=NULL, Yaxis_label=NULL, LEGEND_label=NULL,
       JN_type = 'Huitema', verbose=TRUE )
```

---

data_Cohen_Aiken_West_2003_7

data_Cohen_Aiken_West_2003_7

Description

Moderated regression data for a continuous predictor and a continuous moderator from Cohen, Cohen, West, & Aiken (2003, Chapter 7).

Usage

```
data(data_Cohen_Aiken_West_2003_7)
```

Source

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Lawrence Erlbaum Associates Publishers.

Examples

```
head(data_Cohen_Aiken_West_2003_7)


# replicates p 276 of Chapter 7 of Cohen, Cohen, West, & Aiken (2003)
```

```
SIMPLE.REGRESSION(data=data_Cohen_Aiken_West_2003_7, DV='yendu',
                  IV='xage', IV_type = 'numeric', IV_range='tumble',
                  MOD='zexer', MOD_type = 'numeric', MOD_levels='quantiles',
                  MOD_range=NULL,
                  quantiles_IV=c(.1, .9), quantiles_MOD=c(.25, .5, .75),
                  CENTER = TRUE, COVARS=NULL,
                  PLOT_type = 'regions', PLOT_title=NULL,
                  Xaxis_label=NULL, Yaxis_label=NULL, LEGEND_label=NULL,
                  JN_type = 'Huitema', verbose=TRUE )
```

`data_Cohen_Aiken_West_2003_9`

data_Cohen_Aiken_West_2003_9

Description

Moderated regression data for a continuous predictor and a categorical moderator from Cohen, Cohen, West, & Aiken (2003, Chapter 9).

Usage

```
data(data_Cohen_Aiken_West_2003_9)
```

Source

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Lawrence Erlbaum Associates Publishers.

Examples

```
head(data_Cohen_Aiken_West_2003_9)


SIMPLE.REGRESSION(data=data_Cohen_Aiken_West_2003_9, DV='SALARY', forced=c('PUB','DEPART_f'))

# replicates p 376 of Chapter 9 of Cohen, Cohen, West, & Aiken (2003)
SIMPLE.REGRESSION(data=data_Cohen_Aiken_West_2003_9, DV='SALARY', forced=NULL,
                  IV='PUB', IV_type = 'numeric', IV_range='tumble',
                  MOD='DEPART_f', MOD_type = 'factor', MOD_levels='AikenWest',
                  MOD_range=NULL,
                  quantiles_IV=c(.1, .9), quantiles_MOD=c(.25, .5, .75),
                  CENTER = TRUE, COVARS=NULL,
                  PLOT_type = 'regions', PLOT_title=NULL,
                  Xaxis_label=NULL, Yaxis_label=NULL, LEGEND_label=NULL,
                  JN_type = 'Huitema', verbose=TRUE )
```

data_Green_Salkind_2008 *data_Green_Salkind_2008*

Description

Mutiple regression data from Green and Salkind (2018).

Usage

```
data(data_Green_Salkind_2008)
```

Source

Green, S. B., & Salkind, N. J. (2008). Lesson 34: Multiple linear regression (pp. 285-299). In, *Using SPSS for Windows and Macintosh: Analyzing and understanding data.* New York, NY: Pearson.

Examples

```
head(data_Green_Salkind_2008)


SIMPLE.REGRESSION(data=data_Green_Salkind_2008, DV='injury',
                  forced=c('quads','gluts','abdoms','arms','grip'))
```

data_Huitema_2011 *data_Huitema_2011*

Description

Moderated regression data for a continuous predictor and a dichotomous moderator from Huitema (2011, p. 253).

Usage

```
data(data_Huitema_2011)
```

Source

Huitema, B. (2011). *The analysis of covariance and alternatives: Statistical methods for experiments, quasi-experiments, and single-case studies.* Hoboken, NJ: Wiley.

Examples

```
head(data_Huitema_2011)


SIMPLE.REGRESSION(data=data_Huitema_2011, DV='Y',
                  IV='X', IV_type = 'numeric', IV_range='tumble',
                  MOD='D', MOD_type = 'numeric', MOD_levels='quantiles',
                  MOD_range=NULL,
                  quantiles_IV=c(.1, .9), quantiles_MOD=c(.25, .5, .75),
                  CENTER = FALSE, COVARS=NULL,
                  PLOT_type = 'interaction', PLOT_title=NULL,
                  Xaxis_label=NULL, Yaxis_label=NULL, LEGEND_label=NULL,
                  JN_type = 'Huitema', verbose=TRUE )
```

---

data_Lorah_Wong_2018 *data_Lorah_Wong_2018*

Description

Moderated regression data from Lorah and Wong (2018).

Usage

```
data(data_Lorah_Wong_2018)
```

Source

Lorah, J. A. & Wong, Y. J. (2018). Contemporary applications of moderation analysis in counseling psychology. *Journal of Counseling Psychology, 65(5),* 629-640.

Examples

```
head(data_Lorah_Wong_2018)


SIMPLE.REGRESSION(data=data_Lorah_Wong_2018, DV='sis',
       IV='burden', IV_type = 'numeric', IV_range='tumble',
       MOD='belong', MOD_type = 'numeric', MOD_levels='quantiles', MOD_range=NULL,
       quantiles_IV=c(.1, .9), quantiles_MOD=c(.25, .5, .75),
       CENTER = TRUE, COVARS='dep',
       PLOT_type = 'regions', PLOT_title=NULL,
       Xaxis_label=NULL, Yaxis_label=NULL, LEGEND_label=NULL,
       JN_type = 'Huitema', verbose=TRUE )
```

data_Pedhazur_1997 *data_Pedhazur_1997*

Description

Moderated regression data for a continuous predictor and a dichotomous moderator from Pedhazur (1997, p. 588).

Usage

```
data(data_Pedhazur_1997)
```

Source

Pedhazur, E. J. (1997). *Multiple regression in behavioral research: Explanation and prediction.* (3rd ed.). Fort Worth, Texas: Wadsworth Thomson Learning.

Examples

```
head(data_Pedhazur_1997)


SIMPLE.REGRESSION(data=data_Pedhazur_1997, DV='Y',
                  IV='X', IV_type = 'numeric', IV_range='tumble',
                  MOD='Directive', MOD_type = 'factor', MOD_levels='quantiles',
                  MOD_range=NULL,
                  quantiles_IV=c(.1, .9), quantiles_MOD=c(.25, .5, .75),
                  CENTER = FALSE, COVARS=NULL,
                  PLOT_type = 'interaction', PLOT_title=NULL,
                  Xaxis_label=NULL, Yaxis_label=NULL, LEGEND_label=NULL,
                  JN_type = 'Pedhazur', verbose=TRUE )
```

PARTIAL_COEFS *Standardized coefficients and partial correlations for multiple regression*

Description

Produces standardized regression coefficients, partial correlations, and semi-partial correlations for a correlation matrix in which one variable is a dependent or outcome variable and the other variables are independent or predictor variables.

Usage

```
PARTIAL_COEFS(cormat, modelRsq=NULL, verbose=TRUE)
```

Arguments

cormat	A correlation matrix. The DV (the dependent or outcome variable) must be in the first row/column of cormat.
modelRsq	optional. The model Rsquared, which makes the computations slightly faster when it is available.
verbose	Should detailed results be displayed in console? The options are: TRUE (default) or FALSE.

Value

An object of class "data.frame" containing with the standardized regression coefficients (betas), the Pearson correlations, the partial correlations, and the semi-partial correlations for each variable with the DV.

Author(s)

Brian P. O'Connor

References

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Lawrence Erlbaum Associates Publishers.

Examples

```
PARTIAL_COEFS(cormat = cor(data_Green_Salkind_2008))
```

REGIONS_OF_SIGNIFICANCE

Plots of Johnson-Neyman regions of significance for interactions

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Description

Plots of Johnson-Neyman regions of significance for interactions in moderated multiple regression, for both SIMPLE.REGRESSION models (objects) and for lme models from the nlme package.

Usage

```
REGIONS_OF_SIGNIFICANCE(model,
                        IV_range=NULL, MOD_range=NULL,
                        PLOT_title=NULL, Xaxis_label=NULL,
                        Yaxis_label=NULL, LEGEND_label=NULL,
                        namesIVMOD_raw=NULL, namesIVMOD_model=NULL)
```

Arguments

model	The name of a SIMPLE.REGRESSION model, or of an lme model from the nlme package.
IV_range	(optional) The range of the IV to be used in the plot.
MOD_range	(optional) The range of the MOD values to be used in the
PLOT_title	(optional) The plot title.
Xaxis_label	(optional) A label for the X axis to be used in the requested plot.
Yaxis_label	(optional) A label for the Y axis to be used in the requested plot.
LEGEND_label	(optional) The legend label for a moderated regression.
namesIVMOD_raw	optional, and for lme/nlme models only. If model is an lme object & IV is a two-level factor, then namesIVMOD_model must be specified (because lme alters the variable names).
namesIVMOD_model	optional, and for lme/nlme models only. The namesIVMOD_model argument can be used to id the key terms () from an lme model that involved more than IV, MOD, & Xn terms. The argument is used only to create the key B and S objects for the J-N analyses. Other terms in the model are ignored.

Value

An object of class "SIMPLE.REGRESSION". The object is a list containing the following possible components:

JN.data	The Johnson-Neyman results for a moderated regression.
ros	The Johnson-Neyman regions of significance for a moderated regression.

Author(s)

Brian P. O'Connor

References

Bauer, D. J., & Curran, P. J. (2005). Probing interactions in fixed and multilevel regression: Inferential and graphical techniques. *Multivariate Behavioral Research, 40(3),* 373-400.

Huitema, B. (2011). *The analysis of covariance and alternatives: Statistical methods for experiments, quasi-experiments, and single-case studies.* Hoboken, NJ: Wiley.

Johnson, P. O., & Neyman, J. (1936). Tests of certain linear hypotheses and their application to some educational problems. *Statistical Research Memoirs, 1,* 57-93.

Johnson, P. O., & Fey, L. C. (1950). The Johnson-Neyman technique, its theory, and application. *Psychometrika, 15,* 349-367.

Pedhazur, E. J. (1997). *Multiple regression in behavioral research: Explanation and prediction.* (3rd ed.). Fort Worth, Texas: Wadsworth Thomson Learning

Rast, P., Rush, J., Piccinin, A. M., & Hofer, S. M. (2014). The identification of regions of significance in the effect of multimorbidity on depressive symptoms using longitudinal data: An application of the Johnson-Neyman technique. *Gerontology, 60,* 274-281.

Examples

```
head(data_Cohen_Aiken_West_2003_7)

CAW_7 <-
SIMPLE.REGRESSION(data=data_Cohen_Aiken_West_2003_7, DV='yendu',
                  IV='xage', IV_type = 'numeric', IV_range='tumble',
                  MOD='zexer', MOD_type = 'numeric', MOD_levels='quantiles',
                  MOD_range=NULL,
                  quantiles_IV=c(.1, .9), quantiles_MOD=c(.25, .5, .75),
                  CENTER = TRUE, COVARS=NULL,
                  PLOT_type = 'interaction', PLOT_title=NULL,
                  Xaxis_label=NULL, Yaxis_label=NULL, LEGEND_label=NULL,
                  JN_type = 'Huitema', verbose=TRUE )

REGIONS_OF_SIGNIFICANCE(model=CAW_7,
        IV_range=NULL, MOD_range='minmax',
        PLOT_title=NULL, Xaxis_label=NULL, Yaxis_label=NULL, LEGEND_label=NULL,
        namesIVMOD_raw=NULL, namesIVMOD_model=NULL)



head(data_Bauer_Curran_2005)

HSBmod <- nlme::lme(MathAch ~ Sector + CSES + CSES:Sector ,
        data = data_Bauer_Curran_2005,
        random = ~1 + CSES|School, method = "ML")
summary(HSBmod)

REGIONS_OF_SIGNIFICANCE(model=HSBmod,
        IV_range=NULL, MOD_range=NULL,
        PLOT_title=NULL, Xaxis_label=NULL, Yaxis_label=NULL, LEGEND_label=NULL,
        namesIVMOD_raw=NULL, namesIVMOD_model=NULL)
```

SIMPLE.REGRESSION *Multiple regression and moderated multiple regression*

Description

Provides SPSS- and SAS-like output for least squares simultaneous entry regression, hierarchical entry regression, and moderated regression, as well as interaction plots and Johnson-Neyman regions of significance for interactions. The output includes standardized coefficients, partial and semi-partial correlations, collinearity diagnostics, plots of residuals, and detailed information about simple slopes for interactions.

Usage

```
SIMPLE.REGRESSION(data, DV, forced=NULL, hierarchical=NULL,
        IV=NULL, IV_type = 'numeric', IV_range='tumble',
        MOD=NULL, MOD_type = 'numeric', MOD_levels='quantiles', MOD_range=NULL,
        quantiles_IV=c(.1, .9), quantiles_MOD=c(.25, .5, .75),
        CENTER = TRUE, COVARS=NULL,
        PLOT_type = 'regions', PLOT_title=NULL,
        Xaxis_label=NULL, Yaxis_label=NULL, LEGEND_label=NULL,
        JN_type = 'Huitema', verbose=TRUE )
```

Arguments

data	A dataframe where the rows are cases and the columns are the variables.
DV	The name of the dependent variable, e.g., DV = 'outcomeVar'.
forced	(optional) A vector of the names of the predictor variables for a forced/simultaneous entry regression, e.g., forced = c('VarA', 'VarB', 'VarC'). The variables can be numeric or factors.
hierarchical	(optional) A list with the names of the predictor variables for each step of a hierarchical regression, e.g., hierarchical = list(step1=c('VarA', 'VarB'), step2=c('VarC', 'VarD'), step3=c('VarE', 'VarF')). The variables can be numeric or factors.
IV	(optional) The name of the independent variable for a moderated regression. Not required for forced or hierarchical regression.
IV_type	(optional) The type of independent variable for a moderated regression. The options are 'numeric' (the default) or 'factor'. Not required for forced or hierarchical regression.
IV_range	(optional) The independent variable range for a moderated regression plot. The options are: 'tumble' (the default), for tumble graphs following Bodner (2016); 'quantiles', in which case the 10th and 90th quantiles of the IV will be used (alternative values can be specified using the quantiles_IV argument); NULL, in which case the minimum and maximum IV values will be used; 'AikenWest', in which case the IV mean - one SD, and the IV mean + one SD, will be used; and a vector of two user-provided values (e.g., c(1, 10)).
MOD	(optional) The name of the moderator variable for a moderated regression. Not required for a regular (non moderated) multiple regression.
MOD_type	(optional) The type of moderator variable for a moderated regression. The options are 'numeric' (the default) or 'factor'. Not required for forced or hierarchical regression.
MOD_levels	(optional) The levels of the moderator variable to be used in a moderated regression, if MOD is continuous. Not required for a regular (non moderated) multiple regression. The options are: 'quantiles', in which case the .25, .5, and .75 quantiles of the MOD variable will be used (alternative values can be specified using the quantiles_MOD argument); 'AikenWest', in which case the mean of MOD, the mean of MOD - one SD, and the mean of MOD + one SD, will be used; and a vector of two user-provided values (e.g., c(1, 10)).

MOD_range	(optional) The range of the MOD values to be used in the Johnson-Neyman regions of significance analyses. The options are: NULL (the default), in which case the minimum and maximum MOD values will be used; and a vector of two user-provided values (e.g., c(1, 10)).
quantiles_IV	(optional) The quantiles the independent variable to be used as the IV range for a moderated regression plot.
quantiles_MOD	(optional) The quantiles the moderator variable to be used as the MOD simple slope values in the moderated regression analyses.
CENTER	(optional) Logical indicating whether the IV and MOD variables should be centered in a moderated regression analysis (default = TRUE).
COVARS	(optional) The name(s) of possible covariates variable for a moderated regression analysis, e.g., COVARS = c('CovarA', 'CovarB', 'CovarC').
PLOT_type	(optional) The kind of plot for a moderated regression. The options are 'interaction' for a traditional interaction plot, and 'regions', for a Johnson-Neyman regions of significance plot.
PLOT_title	(optional) The plot title for a moderated regression.
Xaxis_label	(optional) A label for the X axis to be used in the requested plot.
Yaxis_label	(optional) A label for the Y axis to be used in the requested plot.
LEGEND_label	(optional) The legend label for a moderated regression.
JN_type	(optional) The formula to be used in computing the critical F value for the Johnson-Neyman regions of significance analyses. The options are 'Huitema' (the default), or 'Pedhazur'.
verbose	Should detailed results be displayed in console? The options are: TRUE (default) or FALSE. If TRUE, plots of residuals are also produced.

Details

This function relies heavily on the lm function from the stats package. It supplements the lm function output with additional statistics and it formats the output so that it resembles SPSS and SAS regression output. The predictor variables can be numeric or factors. Only least squares regressions are performed.

Value

An object of class "SIMPLE.REGRESSION". The object is a list containing the following possible components:

modelMAIN	All of the lm function output for the regression model without interaction terms.
modelMAINsum	All of the summary.lm function output for the regression model without interaction terms.
mainRcoefs	Predictor coefficients for the model without interaction terms.
modeldata	All of the predictor and outcome raw data that were used in the model, along with regression diagnostic statistics for each case.

collin_diags	Collinearity diagnostic coefficients for models without interaction terms.
modelXNsum	Regression model statistics with interaction terms.
RsqchXn	Rsquared change for the interaction.
fsquaredXN	fsquared change for the interaction.
xnRcoefs	Predictor coefficients for the model with interaction terms.
simslop	The simple slopes.
simslopZ	The standardized simple slopes.
plotdon	The plot data for a moderated regression.
JN.data	The Johnson-Neyman results for a moderated regression.
ros	The Johnson-Neyman regions of significance for a moderated regression.

Author(s)

Brian P. O'Connor

References

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Lawrence Erlbaum Associates Publishers.

Darlington, R. B., & Hayes, A. F. (2017). *Regression analysis and linear models: Concepts, applications, and implementation.* New York: The Guilford Press.

Hayes, A. F. (2018a). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (2nd ed.). New York, NY: Guilford Press.

Hayes, A. F., & Montoya, A. K. (2016). A tutorial on testing, visualizing, and probing an interaction involving a multicategorical variable in linear regression analysis. *Communication Methods and Measures, 11,* 1-30.

Pedhazur, E. J. (1997). *Multiple regression in behavioral research: Explanation and prediction.* (3rd ed.). Fort Worth, Texas: Wadsworth Thomson Learning

Examples

```
# forced (simultaneous) entry
head(data_Green_Salkind_2008)
SIMPLE.REGRESSION(data=data_Green_Salkind_2008, DV='injury',
                  forced = c('quads','gluts','abdoms','arms','grip'))


# hierarchical entry
SIMPLE.REGRESSION(data=data_Green_Salkind_2008, DV='injury',
            hierarchical = list( step1=c('quads','gluts','abdoms'), step2=c('arms','grip')) )


# moderated regression
```

```
head(data_Lorah_Wong_2018)
SIMPLE.REGRESSION(data=data_Lorah_Wong_2018, DV='sis',
       IV='burden', IV_type = 'numeric', IV_range='tumble',
       MOD='belong', MOD_type = 'numeric', MOD_levels='quantiles', MOD_range=NULL,
       quantiles_IV=c(.1, .9), quantiles_MOD=c(.25, .5, .75),
       CENTER = TRUE, COVARS='dep',
       PLOT_type = 'regions', PLOT_title=NULL,
       Xaxis_label=NULL, Yaxis_label=NULL, LEGEND_label=NULL,
       JN_type = 'Huitema', verbose=TRUE )
```

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