Package 'yhat'

May 28, 2020

Type Package

Title Interpreting Regression Effects

Version 2.0-2

Date 2020-05-27

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Depends R (>= 2.7.0)

Imports yacca, miscTools, plotrix, boot

Suggests MBESS

Description The purpose of this package is to provide methods to interpret multiple linear regression and canonical correlation results including beta weights,structure coefficients, validity coefficients, product measures, relative weights, all-possible-subsets regression, dominance analysis, commonality analysis, and adjusted effect sizes.

License GPL (>= 2)

LazyData true

NeedsCompilation no

Repository CRAN

Date/Publication 2020-05-27 22:00:02 UTC

R topics documented:

`yhat-package` *Interpreting Regression Effects*

Description

The purpose of this package is to provide methods to interpret multiple linear regression and canonical correlation results including beta weights, structure coefficients, validity coefficients, product measures, relative weights, all-possible-subsets regression, dominance analysis, commonality analysis, and adjusted effect sizes.

Details

Package:	yhat
Type:	Package
Version:	2.0-2
Date:	2020-05-27
License:	GPL (>= 2)
LazyLoad:	yes

Author(s)

Kim Nimon <kim.nimon@gmail.com>, Fred L. Oswald, J. Kyle Roberts

References

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Butts, C. T. (2009). *yacca: Yet Another Canonical Correlation Analysis Package*. R package version 1.1.

Mood, A. M. (1969) Macro-analysis of the American educational system. *Operations Research*, **17**, 770-784.

Nimon, K., Lewis, M., Kane, R. & Haynes, R. M. (2008) An R package to compute commonality coefficients in the multiple regression case: An introduction to the package and a practical example. *Behavior Research Methods*, **40**(2), 457-466.

Nimon, K., & Oswald, F. L. (2013). Understanding the results of multiple linear regression: Beyond standardized regression coefficients. *Organizational Research Methods*, *16*, 650-674.

See Also

regr commonalityCoefficients canonCommonality calc.yhat boot.yhat booteval.yhat plotCI.yhat aps commonality dominance dombin rlw

---

`aps` *All Possible Subsets Regression*

Description

The function runs all possible subsets regression and returns data needed to run commonality and dominance analysis.

Usage

```
aps(dataMatrix, dv, ivlist)
```

Arguments

`dataMatrix`	Dataset containing the dependent and independent variables
`dv`	The dependent variable named in the dataset
`ivlist`	List of independent variables named in the dataset

Details

Function returns all possible subset information that is used by `commonality` and `dominance`. If data are missing, non-missing data are eliminated based on listwise deletion for full model.

Value

`ivID`	Matrix containing independent variable IDS.
`PredBitMap`	All possible subsets predictor bit map.
`apsBitMap`	Index into all possible subsets predictor bit map.
`APSMatrix`	Table containing the number of predictors and Multiple R^2 for each possible set of predictors.

Author(s)

Kim Nimon <kim.nimon@gmail.com>

References

Nimon, K., & Oswald, F. L. (2013). Understanding the results of multiple linear regression: Beyond standardized regression coefficients. *Organizational Research Methods*, *16*, 650-674.

See Also

`calc.yhat` `commonality` `dominance` `rlw`

Examples

```
## APS regression predicting miles per gallon based
## on vehicle weight, type of
## carborator, & number of engine cylinders
   apsOut<-aps(mtcars,"mpg",list("wt","carb","cyl"))

## APS regression predicting paragraph comprehension based
## on thre verbal tests: general info, sentence comprehension,
## & word classification

## Use HS dataset in MBESS
   require ("MBESS")
   data(HS)
## APS
 apsOut<-aps(HS,"t6_paragraph_comprehension",list("t5_general_information","t7_sentence",
                                        "t8_word_classification"))
```

`boot.yhat` *Bootstrap metrics produced from /codecalc.yhat*

Description

This function is input to `boot` to bootstrap metrics computed from `calc.yhat`.

Usage

```
boot.yhat(data, indices, lmOut,regrout0)
```

Arguments

`data`	Original dataset
`indices`	Vector of indices which define the bootstrap sample
`lmOut`	Ouput of /codelm
`regrout0`	Output of /codecalc.yhat

Details

This function is input to `boot` to bootstrap metrics computed from `calc.yhat`.

Value

The output of `boot.yhat` when used in conjunction with `boot` is of class `boot` and is not further described here. The output is designed to be useful as input for `booteval.yhat`

Author(s)

Kim Nimon <kim.nimon@gmail.com>

References

Nimon, K., & Oswald, F. L. (2013). Understanding the results of multiple linear regression: Beyond standardized regression coefficients. *Organizational Research Methods*, *16*, 650-674.

See Also

`lm` `calc.yhat` `boot` `booteval.yhat`

Examples

```
## Bootstrap regression results predicting paragraph
## comprehension based on three verbal tests: general info,
## sentence comprehension, & word classification

## Use HS dataset in MBESS
   require ("MBESS")
   data(HS)

## Regression
   lm.out<-lm(t6_paragraph_comprehension~
              t5_general_information+t7_sentence+t8_word_classification,data=HS)

## Calculate regression metrics
   regrOut<-calc.yhat(lm.out)

## Bootstrap results
   require ("boot")
   boot.out<-boot(HS,boot.yhat,100,lmOut=lm.out,regrout0=regrOut)
```

`booteval.yhat` *Evaluate bootstrap metrics produced from /codecalc.yhat*

Description

This function evaluates the bootstrap metrics produced from /codeboot.yhat.

Usage

```
booteval.yhat(regrOut, boot.out, bty, level, prec)
```

Arguments

regrOut	Output from calc.yhat
boot.out	Output from boot in conjunction with boot.yhat
bty	Type of confidence interval. Only types "perc", "norm", "basic", and "bca" supported.
level	Confidence level (e.g., .95)
prec	Integer indicating number of decimal places to be used.

Details

This function evaluates the bootstrap metrics produced from boot.yhat.

Value

Confidence intervals are reported for predictor and all possible subset metrics as well as differences between appropriate predictors and all possible subset metrics. The function also output the means, standard errors, probabiltites, and reproducibility metrics for the dominance comparisons. Means and standard deviations are reported for Kendall's tau correlation between sample predictor metrics and the bootstrap statistics of like metrics.

combCIpm	Upper and lower CIs for predictor metrics
lowerCIpm	Lower CIs for predictor metrics
upperCIpm	Upper CIs for predictor metrics
combCIaps	Upper and lower CIs for APS metrics
lowerCIaps	Lower CIs for APS metrics
upperCIaps	Upper CIs for APS metrics
domBoot	Dominance analysis bootstrap results
tauDS	Descriptive statistics for Kendall's tau
combCIpmDiff	Upper and lower CIs for differences between predictor metrics
lowerCIpmDiff	Lower CIs for differences between predictor metrics
upperCIpmDiff	Upper CIs for differences between predictor metrics
combCIapsDiff	Upper and lower CIs for differences between APS metrics
lowerCIapsDiff	Lower CIs for differences between APS metrics
upperCIapsDiff	Upper CIs for differences between APS metrics
combCIincDiff	Upper and lower CIs for differences between incremental validity metrics
lowerCIincDiff	Lower CIs for differences between incremental validity metrics
upperCIincDiff	Upper CIs for differences between incremental validity metrics

Author(s)

Kim Nimon <kim.nimon@gmail.com>

References

Nimon, K., & Oswald, F. L. (2013). Understanding the results of multiple linear regression: Beyond standardized regression coefficients. *Organizational Research Methods*, *16*, 650-674.

See Also

`lm` `calc.yhat` `boot` `plotCI.yhat`

Examples

```
## Bootstrap regression results predicting paragraph
## comprehension based on four verbal tests: general info,
## sentence comprehension, & word classification

## Use HS dataset in MBESS
   require ("MBESS")
   data(HS)

## Regression
   lm.out<-lm(t6_paragraph_comprehension~
              t5_general_information+t7_sentence+t8_word_classification,data=HS)

## Calculate regression metrics
   regrOut<-calc.yhat(lm.out)

## Bootstrap results
   require ("boot")
   boot.out<-boot(HS,boot.yhat,100,lmOut=lm.out,regrout0=regrOut)

## Evaluate bootstrap results
   result<-booteval.yhat(regrOut,boot.out,bty="perc")
```

`calc.yhat` *More regression indices for lm class objects*

Description

Reports beta weights, validity coefficients, structure coefficients, product measures, commonality analysis coefficients, and dominance analysis weights for `lm` class objects.

Usage

```
calc.yhat(lm.out,prec=3)
```

Arguments

`lm.out`	lm class object
`prec`	level of precision for rounding, defaults to 3

Details

Takes the lm class object and reports beta weights, validity coefficients, structure coefficients, product measures, commonality analysis coefficients, and dominance analysis weights.

Value

`PredictorMetrics`
: Predictor metrics associated with lm class object

`OrderedPredictorMetrics`
: Rank order of predictor metrics

`PairedDominanceMetrics`
: Dominance analysis for predictor pairs

`APSRelatedMetrics`
: APS metrics associated with lm class object

Author(s)

Kim Nimon <kim.nimon@gmail.com>

References

Nimon, K., & Oswald, F. L. (2013). Understanding the results of multiple linear regression: Beyond standardized regression coefficients. *Organizational Research Methods*, *16*, 650-674.

Thomas, D. R., Zumbo, B. D., Kwan, E., & Schweitzer, L. (2014). On Johnson's (2000) relative weights method for assessing variable importance: A reanalysis. *Multivariate Behavioral Research*, *16*, 49(4), 329-338.

Examples

```
## Predict paragraph comprehension based on three verbal
## tests: general info, sentence comprehension, & word
## classification

## Use HS dataset in MBESS
   require ("MBESS")
   data(HS)

## Regression
   lm.out<-lm(t6_paragraph_comprehension~
              t5_general_information+t7_sentence+t8_word_classification,data=HS)

## Regression Indices
   regr.out<-calc.yhat(lm.out)
```

canonCommonality *Commonality Coefficents for Canonical Correlation*

Description

The canonCommonality function produces commonality data for both canonical variables sets. Variables in a given canonical set are used to partition the variance of the canonical variates produced from the *other* canonical set and vica versa. Commonality data is supplied for the number of canonical functions requested.

Usage

```
canonCommonality(A, B, nofns = 1)
```

Arguments

A	Matrix containing variable set A
B	Matrix containing variable set B
nofns	Number of canonical functions to analyze

Details

The function canonCommonality has two required arguments and one optional argument. The first two arguments contain the two variable sets. The third argument is optional and defnes the number of canonical functions to analyze. Unless specifed, the number of canonical functions defaults to 1.

The function canonCommonality calls a function canonVariate to decompose canonical varites twice: the first time for the variable set identified in the first argument, the second time for the variable set identified in the second argument.

Value

The function canonCommonality returns commonality data for both canonical variable sets. For the number of functions requested, both canonical variates are analyzed. For each canonical variate analyzed, two tables are returned. The first table lists the commonality coefficients and their contribution to the total effect, while the second table lists the unique and common effects for each regressor. The function returns the resulting output ordering the output according to the function's paramaeters.

Author(s)

Kim Nimon <kim.nimon@gmail.com>

References

Nimon, K., Henson, R., & Gates, M. (2010). Revisiting interpretation of canonical correlation analysis: A tutorial and demonstration of canonical commonality analysis. *Multivariate Behavioral Research*, *45*,702-724.

See Also

canonVariate

Examples

```
## Example parallels the R builtin cancor and the
## yacca cca example
   data(LifeCycleSavings)
   pop <- LifeCycleSavings[, 2:3]
   oec <- LifeCycleSavings[, -(2:3)]
## Perform Commonality Coefficient Analysis
   canonCommonData<-canonCommonality(pop,oec,1)

## Use HS dataset in MBESS
   require ("MBESS")
   data(HS)
   attach(HS)
## Create canonical variable sets
   MATH_REASON<-HS[,c("t20_deduction","t22_problem_reasoning")]
   MATH_FUND<-HS[,c("t21_numerical_puzzles","t24_woody_mccall","t10_addition")]
## Perform Commonality Coefficient Analysis
   canonCommonData<-canonCommonality(MATH_FUND,MATH_REASON,1)
   detach(HS)
```

---

canonVariate *Canonical Commonality Analysis*

Description

The canonCommonality function produces commonality data for a given canonical variable set. Using the variables in a given canonical set to partition the variance of the canonical variates produced from the *other* canonical set, commonality data is supplied for the number of canonical functions requested.

Usage

```
canonVariate(A, B, nofns)
```

Arguments

A	Matrix containing variable set A
B	Matrix containing variable set B
nofns	Number of canonical functions to analyze

Details

For each canonical function, canonVariate: (a) creates a dataset that combines the matrix of variables for a given canonical set and the canonicate variate for the *other* canonical set; (b) calls commonalityCoefficients, passing the dataset, the name of the canonical variate, and the names of the variates in a given canonical set; (c) saves resultant output.

Value

The function `canonVariate` returns commonality data for the canonical variable set input. For the number of functions requested, two tables are returned. The first table lists the commonality coefficients for each canonical function together with its contribution to the total effect, while the second table lists the unique and common effects for each regressor.

Note

This function is internal to `canonCommonality`, called during runtime and passed the appropriate parameters. This is not an end-user function.

Author(s)

Kim Nimon <kim.nimon@gmail.com>

References

Nimon, K., Henson, R., & Gates, M. (2010). Revisiting interpretation of canonical correlation analysis: A tutorial and demonstration of canonical commonality analysis. *Multivariate Behavioral Research*, *45*,702-724.

See Also

`canonCommonality`

`ci.yhat` *Compute CI*

Description

This function retrieves the proper elements from boot.ci.

Usage

```
ci.yhat(bty, CI)
```

Arguments

`bty`	Type of CI
`CI`	CI

Details

This function retrieves the proper elements from boot.ci.

Value

This function returns the proper elements from boot.ci.

Note

This function is internal to the yhat package and not intended to be an end-user function.

Author(s)

Kim Nimon <kim.nimon@gmail.com>

References

Nimon, K., & Oswald, F. L. (2013). Understanding the results of multiple linear regression: Beyond standardized regression coefficients. *Organizational Research Methods*, *16*, 650-674.

---

combCI *Combine upper and lower confidence intervals*

Description

This function combines upper and lower confidence intervals along with sample statistics and optionally stars intervals that do not contain 0.

Usage

```
combCI(lowerCI, upperCI, est, star=FALSE )
```

Arguments

lowerCI	Lower CI
upperCI	Upper CI
est	Estimate
star	Boolean to indicate whether CIs that do not contain zero should be starred.

Details

This function evaluates the bootstrap metrics produced from /codeboot.yhat.

Value

Returns estimate with confidence interval in ( ). Optionally, confidence interval not containing 0 is starred.

Note

This function is internal to the yhat package and not intended to be an end-user function.

Author(s)

Kim Nimon <kim.nimon@gmail.com>

References

Nimon, K., & Oswald, F. L. (2013). Understanding the results of multiple linear regression: Beyond standardized regression coefficients. *Organizational Research Methods*, *16*, 650-674.

`commonality` *Commonality Analysis*

Description

This function conducts commonality analyses based on an all-possible-subsets regression.

Usage

```
commonality(apsOut)
```

Arguments

`apsOut`	Output from /codeaps

Details

This function conducts commonality analyses based on an all-possible-subsets regression.

Value

The function returns a matrix containing commonality coefficients and percentage of regression effect for each each possible set of predictors.

Author(s)

Kim Nimon <kim.nimon@gmail.com>

References

Nimon, K., Lewis, M., Kane, R. & Haynes, R. M. (2008) An R package to compute commonality coefficients in the multiple regression case: An introduction to the package and a practical example.*Behavior Research Methods*, *40*, 457-466.

Nimon, K., & Oswald, F. L. (2013). Understanding the results of multiple linear regression: Beyond standardized regression coefficients. *Organizational Research Methods*, *16*, 650-674.

See Also

`aps` `calc.yhat` `dominance` `rlw`

Examples

```
## Predict paragraph comprehension based on three verbal
## tests: general info, sentence comprehension, & word
## classification

## Use HS dataset in MBESS
   require ("MBESS")
   data(HS)

## All-possible-subsets regression
   apsOut=aps(HS,"t6_paragraph_comprehension",
               list("t5_general_information", "t7_sentence","t8_word_classification"))

## Commonality analysis
   commonality(apsOut)
```

`commonalityCoefficients`

Commonality Coefficents

Description

Commonality Coefficients returns a list of two tables. The first table `CC` contains the list of commonality coefficients and the percent variance for each effect. The second `CCTotByVar` totals the unique and common effects for each independent variable.

Usage

```
commonalityCoefficients(dataMatrix, dv, ivlist, imat=FALSE)
```

Arguments

`dataMatrix`	Dataset containing the dependent and independent variables
`dv`	The dependent variable named in the dataset
`ivlist`	List of independent variables named in the dataset
`imat`	Echo flag, default to FALSE

Details

When echo flag is true, transitional matrices during commonality coefficient calculation are sent to output window. Default for this option is false. When set to true, the intermediate matrices for each commonality coefficient and regression combinations are printed in the output window.

Value

`CC`	Matrix containing commonality coefficients and percentage of variance for each effect.
`CCTotalByVar`	Table of unique and common effects for each independent variable.

Author(s)

Kim Nimon <kim.nimon@gmail.com>

References

Nimon, K., Lewis, M., Kane, R. & Haynes, R. M. (2008) An R package to compute commonality coefficients in the multiple regression case: An introduction to the package and a practical example.*Behavior Research Methods*, *40*, 457-466.

See Also

canonCommonality genList odd setBits

Examples

```
## Predict miles per gallon based on vehicle weight, type of
## carborator, & number of engine cylinders
   commonalityCoefficients(mtcars,"mpg",list("wt","carb","cyl"))

## Predict paragraph comprehension based on four verbal
## tests: general info, sentence comprehension, word
## classification, & word type
## Use HS dataset in MBESS
   require ("MBESS")
   data(HS)
## Commonality Coefficient Analysis
 commonalityCoefficients(HS,"t6_paragraph_comprehension",list("t5_general_information",
     "t7_sentence","t8_word_classification","t9_word_meaning"))
```

---

dombin *Dominance Analysis*

Description

For each level of dominance and pairs of predictors in the full model, this function indicates whether a predictor "x1" dominates "x2", predictor "x2" dominates "x1", or that dominance cannot be established between predictors.

Usage

```
dombin(domOut)
```

Arguments

domOut	Output from /codedominance

Details

For each level of dominance and pairs of predictors in the full model, this function indicates whether a predictor "x1" dominates "x2", predictor "x2" dominates "x1", or that dominance cannot be established between predictors.

Value

The function return a matrix that contains dominance level decisions (complete, conditional, and general) for each pair of predictors in the full model.

Author(s)

Kim Nimon <kim.nimon@gmail.com>

References

Nimon, K., & Oswald, F. L. (2013). Understanding the results of multiple linear regression: Beyond standardized regression coefficients. *Organizational Research Methods*, *16*, 650-674.

See Also

aps calc.yhat commonality dominance rlw

Examples

```
## Predict paragraph comprehension based on three verbal
## tests: general info, sentence comprehension, & word
## classification

## Use HS dataset in MBESS
   require ("MBESS")
   data(HS)

## All-possible-subsets regression
   apsOut=aps(HS,"t6_paragraph_comprehension",
              list("t5_general_information", "t7_sentence","t8_word_classification"))

## Dominance analysis
   domOut=dominance(apsOut)

## Dominance analysis
   dombin(domOut)
```

`dominance` *Dominance Weights*

Description

Computes dominance weights including conditional and general.

Usage

```
dominance(apsOut)
```

Arguments

`apsOut`	Output from /codeaps

Details

Provides full dominance weights table that are used to compute conditional and general dominance weights as well as reports conditional and general dominance weights.

Value

`DA`	Dominance analysis table
`CD`	Conditional dominance weights
`GD`	General dominance weights

Author(s)

Kim Nimon <kim.nimon@gmail.com>

References

Nimon, K., & Oswald, F. L. (2013). Understanding the results of multiple linear regression: Beyond standardized regression coefficients. *Organizational Research Methods*, *16*, 650-674.

See Also

`aps` `calc.yhat` `dombin` `rlw`

Examples

```
## Predict paragraph comprehension based on three verbal
## tests: general info, sentence comprehension, & word
## classification

## Use HS dataset in MBESS
   require ("MBESS")
   data(HS)
```

```
## All-possible-subsets regression
   apsOut=aps(HS,"t6_paragraph_comprehension",
          list("t5_general_information", "t7_sentence","t8_word_classification"))

## Dominance weights
   dominance(apsOut)
```

`effect.size` *Effect Size Computation for lm*

Description

Creates adjusted effect sizes for linear regression.

Usage

```
effect.size(lm.out)
```

Arguments

`lm.out`	Output from lm class object

Details

The function `effect.size` produces a family of effect size corrections for the R-squared metric produced from an `lm` class object. Suggestions for recommended correction are supplied, based on Yin and Fan (2001).

Value

Returns adjusted R-squared metric.

Author(s)

J. Kyle Roberts <kyler@smu.edu>

References

Yin, P., & Fan. X. (2001) Estimated R^2 shrinkage in multiple regression: A comparison of different analytical methods. *The Journal of Experimental Education*, *69*, 203-224.

See Also

`regr`,`yhat`

Examples

```
require ("MBESS")
data(HS)
attach(HS)
lm.out<-lm(t20_deduction~t10_addition*t24_woody_mccall)
effect.size(lm.out)
detach(HS)
```

`genList` *Generate List R^2 Values*

Description

Use the bitmap matrix to generate the list of *R^2* values needed.

Usage

```
genList(ivlist, value)
```

Arguments

`ivlist`	List of independent variables in dataset
`value`	Number of variables

Details

Returns the number of *R^2* values that will be calculated in output tables.

Value

Returns `newlist` from generate list function call.

Note

This function is internal to `commonalityCoefficients`, called during runtime and passed the appropriate parameters. This is not an end-user function.

Author(s)

Kim Nimon <kim.nimon@gmail.com>

odd *isOdd Function*

Description

Function receives value and returns true if value is odd.

Usage

```
odd(val)
```

Arguments

val	Value to check

Details

Determines value of parameter in argument.

Value

Returns `true` when value checked is odd. Otherwise, function returns a value `false`.

Note

This function is internal to `commonalityCoefficients`, called during runtime and passed the appropriate parameters. This is not an end-user function.

Author(s)

Kim Nimon <kim.nimon@gmail.com>

plotCI.yhat *Plot CIs from yhat*

Description

This function plots CIs that have been produced from /codebooteval.yhat.

Usage

```
plotCI.yhat(sampStat, upperCI, lowerCI, pid=1:ncol(sampStat), nr=2, nc=2)
```

Arguments

sampStat	Set of sample statistics
upperCI	Set of upper CIs
lowerCI	Set of lower CIs
pid	Which set of Metrics to plot (default to all)
nr	Number of rows (default = 2)
nc	Number of columns(default = 2)

Details

This function plots CIs that have been produced from /codebooteval.yhat.

Value

This returns a plot of CIs that have been produced from /codebooteval.yhat.

Author(s)

Kim Nimon <kim.nimon@gmail.com>

References

Nimon, K., & Oswald, F. L. (2013). Understanding the results of multiple linear regression: Beyond standardized regression coefficients. *Organizational Research Methods*, *16*, 650-674.

See Also

lm calc.yhat boot booteval.yhat

Examples

```
## Bootstrap regression results predicting paragraph
## comprehension based on three verbal tests: general info,
## sentence comprehension, & word classification

## Use HS dataset in MBESS
   require ("MBESS")
   data(HS)

## Regression
   lm.out<-lm(t6_paragraph_comprehension~
              t5_general_information+t7_sentence+t8_word_classification,data=HS)

## Calculate regression metrics
   regrOut<-calc.yhat(lm.out)

## Bootstrap results
   require ("boot")
   boot.out<-boot(HS,boot.yhat,100,lmOut=lm.out,regrout0=regrOut)
```

```
## Evaluate bootstrap results
   result<-booteval.yhat(regrOut,boot.out,bty="perc")

## Plot results
## plotCI.yhat(regrOut$PredictorMetrics[-nrow(regrOut$PredictorMetrics),],
## result$upperCIpm,result$lowerCIpm, pid=which(colnames(regrOut$PredictorMetrics)
## %in% c("Beta","rs","CD:0","CD:1","CD:2","GenDom","Pratt","RLW") == TRUE),nr=3,nc=3)
```

---

regr *Regression effect reporting for lm class objects*

Description

The regr reports beta weights, standardized beta weights, structure coefficients, adjusted effect sizes, and commonality coefficients for lm class objects.

Usage

```
regr(lm.out)
```

Arguments

lm.out	lm class object

Details

The function regr takes the lm class object and reports beta weights, standardized beta weights, structure coefficients, adjusted effect sizes, and commonality coefficients for lm class objects.

Value

LM_Output	The summary of the output from the lm class object
Beta_Weights	Beta weights for the regression effects
Structure_Coefficients	Structure coefficients for the regression effects
Commonality_Data	Commonality coefficients for the regression effects. The output only produces a parsed version of CCdata
Effect_Size	Adjusted effect size computations based on R^2 adjustments

Author(s)

J. Kyle Roberts <kyler@smu.edu>, Kim Nimon <kim.nimon@gmail.com>

References

Kraha, A., Turner, H., Nimon, K., Zientek, L., Henson, R. (2012). Tools to support multiple regression in the face of multicollinearity.*Frontiers in Psychology*, *3*(102), 1-13.

See Also

commonalityCoefficients, effect.size

Examples

```
require("MBESS")
data(HS)
attach(HS)
lm.out<-lm(t20_deduction~t10_addition*t24_woody_mccall)
regr(lm.out)
detach(HS)
```

---

rlw *Relative Weights*

Description

The function computes relative weights.

Usage

```
rlw(dataMatrix, dv, ivlist)
```

Arguments

dataMatrix	Dataset containing the dependent and independent variables
dv	The dependent variable named in the dataset
ivlist	List of independent variables named in the dataset

Details

The function computes relative weights.

Value

The function returns relative weights for each predictor.

Author(s)

Kim Nimon <kim.nimon@gmail.com>

References

Nimon, K., & Oswald, F. L. (2013). Understanding the results of multiple linear regression: Beyond standardized regression coefficients. *Organizational Research Methods*, *16*, 650-674.

Thomas, D. R., Zumbo, B. D., Kwan, E., & Schweitzer, L. (2014). On Johnson's (2000) relative weights method for assessing variable importance: A reanalysis. *Multivariate Behavioral Research*, *16*, 49(4), 329-338.

See Also

aps calc.yhat commonality dominance

Examples

```
## Relative weights from regression model predicting paragraph
## comprehension based on three verbal tests: general info,
## sentence comprehension, & word classification

## Use HS dataset in MBESS
   require("MBESS")
   data(HS)

## Relative Weights
   rwlOut<-rlw(HS,"t6_paragraph_comprehension",
                  c("t5_general_information","t7_sentence","t8_word_classification"))
```

---

setBits *Decimal to Binary*

Description

Creates the binary representation of n and stores it in the nth column of the matrix.

Usage

```
setBits(col, effectBitMap)
```

Arguments

col	Column of matrix to represent in binary image
effectBitMap	Matrix of mean combinations in binary form

Details

Creates the binary representation of col and stores it in its associated column.

Value

Returns matrix effectBitMap of mean combinations in binary form.

Note

This function is internal to commonalityCoefficients, called during runtime and passed the appropriate parameters. This is not an end-user function.

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