

Package ‘VADIS’

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Title Variation-Based Distance & Similarity Modeling

Version 0.0.0.9000

Description Provides functions for computing the three lines of evidence used in the VADIS method. Includes vignette illustrating how to use the package.

Depends R (>= 3.5.1)

License GPL-3

Encoding UTF-8

Imports plyr (>= 1.8), magrittr (>= 1.5), dplyr (>= 0.7.6), readr (>= 1.1), reshape2 (>= 1.4), lme4 (>= 1.1), party (>= 1.2), ranger (>= 0.10), phangorn (>= 2.4), ade4 (>= 1.7), rstan (>= 2.17), brms (>= 2.4), e1071 (>= 1.7)

Suggests tidyverse (>= 1.2.1), broom (>= 0.5), edarf (>= 1.1.1), ggplot2 (>= 3.0), ggeffects (>= 0.5), scales (>= 1.0), knitr (>= 1.2), rmarkdown

LazyData true

RoxygenNote 6.1.0

VignetteBuilder knitr

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create_coef_table	<i>Create Table of Coefficients for VADIS analysis</i>
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Description

Create Table of Coefficients for VADIS analysis

Usage

```
create_coef_table(mod_list)
```

Arguments

mod_list	A list of regression model objects.
path	Path in which to save the output (as .csv file). If NULL, defaults to the current working directory. Set path = FALSE if you do not wish to save to file.

Details

The function loops through a list of model objects, extracts the coefficient estimates, and compiles them in a single dataframe.

Value

A dataframe

Author(s)

Jason Grafmiller

Examples

```
## Not run:
lm_fnc <- function(x) lm(Sepal.Length ~ Petal.Length + Petal.Width, data = x)
rm_list <- fit.vadis.RM(iris, split.by = "Species", fit.func = lm_fnc,
  path = FALSE)
summary(rm_list[[1]])

create_coef_table(rm_list, path = FALSE)

## End(Not run)
```

create_rank_table	<i>Create Table of Variable Importance Rankings for VADIS analysis</i>
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Description

Create Table of Variable Importance Rankings for VADIS analysis

Usage

```
create_rank_table(mod_list, conditional = FALSE)
```

Arguments

mod_list	A list of random forest model objects, generated with <code>fit_vadis_rf()</code> . Currently supports objects of RandomForest-class , ranger , and randomForest
conditional	logical. Should unconditional (default) or conditional permutation variable importance be computed. Only applies to <code>RandomForest-class</code> models from the party package.
path	Path in which to save the output (as .csv file). If NULL, defaults to the current working directory. Set <code>path = FALSE</code> if you do not wish to save to file.

Details

The function loops through a list of random forest objects, extracts the variable importance estimates, and compiles them in a single dataframe. For forests fit with `ranger` or `randomForest`, the `importance` argument must be specified. #'

Value

A dataframe

Author(s)

Jason Grafmiller

Examples

```
## Not run:
fm1a <- Type ~ PossrAnimacyBin + PossrWordC + PossmWordC + FinalSibilant +
  TypeTokenRatio + ProtoSemanticRelation + PossrExpType

rf_fnc <- function(x) ranger::ranger(fm1a, data = x, importance = "permutation")

rf_list <- fit_models(brown_genitives, split.by = "Genre", fit.func = rf_fnc, path = FALSE)

create_rank_table(rf_list, path = FALSE)

## End(Not run)
```

create_signif_table	<i>Create Table of Significant Effects for VADIS analysis</i>
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Description

Create Table of Significant Effects for VADIS analysis

Usage

```
create_signif_table(mod_list)
```

Arguments

mod_list	A list of regression model objects.
path	Path in which to save the output (as .csv file). If NULL, defaults to the current working directory. Set path = FALSE if you do not wish to save to file.

Details

The function loops through a list of model objects, extracts the coefficient estimates, and compiles them in a single dataframe.

Value

A dataframe

Author(s)

Jason Grafmiller

Examples

```
## Not run:
lm_fnc <- function(x) lm(Sepal.Length ~ Petal.Length + Petal.Width, data = x)
rm_list <- fit.vadis.RM(iris, split.by = "Species", fit.func = lm_fnc,
  path = FALSE)
summary(rm_list[[1]])

create_coef_table(rm_list, path = FALSE)

## End(Not run)
```

vadis_line1	<i>Calculate the first line of evidence for the VADIS method</i>
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Description

Calculate the first line of evidence for the VADIS method

Usage

```
vadis_line1(mod_list, path = NULL)
```

Arguments

mod_list	A list of regression model objects.
path	Path in which to save the output as an R data file (.rds). If NULL, defaults to the current working directory. Set path = FALSE if you do not wish to save to file.

Details

The function loops through a list of model objects, extracts the coefficient estimates, and compiles them in a single dataframe.

Value

A list of length 3.

Author(s)

Jason Grafmiller

Examples

```
## Not run:
lm_fnc <- function(x) lm(Sepal.Length ~ Petal.Length + Petal.Width + Sepal.Width, data = x)
rm_list <- fit.vadis.RM(iris, split.by = "Species", fit.func = lm_fnc,
  path = FALSE)
summary(rm_list[[1]])

line1 <- calc_line1(rm_list, path = FALSE)

## End(Not run)
```

vadis_line2	<i>Calculate the second line of evidence for the VADIS method</i>
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Description

Calculate the second line of evidence for the VADIS method

Usage

```
vadis_line2(mod_list, path = NULL)
```

Arguments

mod_list	A list of regression model objects.
path	Path in which to save the output as an R data file (.rds). If NULL, defaults to the current working directory. Set path = FALSE if you do not wish to save to file.

Details

The function loops through a list of model objects, extracts the coefficient estimates, and compiles them in a single dataframe.

Value

A dataframe

Author(s)

Jason Grafmiller

Examples

```
## Not run:
lm_fnc <- function(x) lm(Sepal.Length ~ Petal.Length + Petal.Width + Sepal.width, data = x)
rm_list <- fit.vadis.RM(iris, split.by = "Species", fit.func = lm_fnc,
  path = FALSE)
summary(rm_list[[1]])

line2 <- calc_line2(rm_list, path = FALSE)

## End(Not run)
```

vadis_line3	<i>Calculate the third line of evidence for the VADIS method</i>
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Description

Calculate the third line of evidence for the VADIS method

Usage

```
vadis_line3(mod_list, path = NULL, conditional = FALSE)
```

Arguments

mod_list	A list of random forest model objects.
path	Path in which to save the output as an R data file (.rds). If NULL, defaults to the current working directory. Set path = FALSE if you do not wish to save to file.
conditional	logical. Should unconditional (default) or conditional permutation variable importance be computed. Only applies to RandomForest-class models from the party package.

Details

The function loops through a list of model objects, extracts the coefficient estimates, and compiles them in a single dataframe.

Value

A list of length 3

Author(s)

Jason Grafmiller

Examples

```
## Not run:
lm_fnc <- function(x) lm(Sepal.Length ~ Petal.Length + Petal.Width, data = x)
rm_list <- fit.vadis.RM(iris, split.by = "Species", fit.func = lm_fnc,
  path = FALSE)
summary(rm_list[[1]])

line3 <- calc_line3(rm_list, path = FALSE)

## End(Not run)
```

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