Package ‘Dominance’

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Title ADI (average dominance index), social network graphs with dual directions, and music notation graph
Depends R (>= 2.14.0)
Imports igraph,chron,gdata
Suggests
Description The package can calculate ADI (Average Dominance Index) and can build social network graphs with dual directions, can build a Music Notation Graph
License GPL (>= 2)
BugReports see maintainer
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**Description**

The package can calculate ADI (Average Dominance Index) and can build social network graphs with dual directions, can build a Music Notation Graph.

**Details**

The following are sources of information on `Dominance` package:

DESCRIPTION file

library(help=BdominanceBI

This file package?Dominance

Some help files

ADI
Sociogram
Musicnotation

**Author(s)**

Knut Krueger

Maintainer: Who to complain to <Knut.Krueger@equine-science.de>

**ADI**

*Average Dominance Index*

**Description**

computes the Average Dominance Index

**Usage**

ADI(data_sheet, bytes, ...)

**Dominance-package**

*Dominance Calculation and Graphs in Animals*
Arguments

data_sheet
either a data.frame f.e imported from a data sheet containing 
"Name","item.number" 
"action.from ","action.to","kind.of.action" 
"name.of.action","action.number","classification","weighting" 

or only "action.from ","action.to","kind.of.action"if exists actions and items 
actions: with "name.of.action","action.number","classification","weighting 
items with "Name","item.number"

bytes 
a string where each enabled action is set to 1 and each disabled action is set to 0

dots : actions with "name.of.action","action.number","classification","weighting"

Classification 1 for aggresive behaviour 2 for non aggresive behaviour like retreat

Weighting the factor which should be used to calsulate the behavior (1 for aggresive -1 for none aggressiv)

Setting a aggresiv behaviour to 2 means it is count double

colors as much colors as items, colors will returned as sorted ADI colors means color 1 = item rank 1, color 2 = item rank 2, and so on

Value

ADI returns a list with 
ADI - the Average Dominance index
Colors - the colors supported by colors sorted by ADI of the items
ADI_count_matrix - the counts from which the ADI was calulated

Author(s)

Knut Krueger, Prof. Dr. Konstanze Krueger

References

http://www.jstor.org/stable/4536286

On using the DomWorld model to evaluate dominance ranking methods , de Vries, Han, Behaviour, Volume 146, Number 6, 2009 , pp. 843-869(27)
http://dx.doi.org/10.1163/156853909X412241
data_ADI

Examples

```r
## you can either use:
data_sheet = data.frame("action.from" = c(1, 4, 2, 3, 4, 3, 4, 3, 4, 3, 4, 3, 4, 3, 4, 3, 4, 3, 4, 3, 4),
  "action.to" = c(1, 4, 1, 4, 3, 4, 3, 4, 3, 4, 3, 4, 3, 4, 3, 4, 3, 4, 3, 4),
  "kind.of.action" = c(4, 1, 1, 4, 3, 4, 3, 4, 3, 4, 3, 4, 3, 4, 3, 4, 3, 4, 3, 4),
  stringsAsFactors = FALSE)
items = data.frame("Name" = c("item1", "item2", "item3", "item4", "item5", "item6"),
  "item.number" = c(1:6), stringsAsFactors = FALSE)
actions = data.frame("name.of.action" = c("leading", "following", "approach", "bite", "threat to bite",
  "kick", "threat to kick", "chase", "retreat"),
  "action.number" = c(1:9),
  "classification" = c(1, 2, 1, 1, 1, 1, 1, 2),
  "weighting" = c(1, -1, 1, 1, 1, 1, 1, -1), stringsAsFactors = FALSE)
## all encounters without leading and following
bytes = "001111111"
ADI(data_sheet, items = items, actions = actions, bytes)
## or you can use a complete file Excel sheet
## you can save this data as basic excel sheet to work with
data(data_ADI)
bytes = "001111111"
ADI(data_ADI, bytes)
```

Data_ADI

Demodata for ADI

Description

Demodata to calculate an ADI

Usage

```r
data(data_ADI)
```

Format

A data frame with 17 observations on the following 10 variables.

- Name: a character vector
- item.number: a numeric vector
- action.from: a numeric vector
- action.to: a numeric vector
- kind.of.action: a numeric vector
- observation.number: a numeric vector
- name.of.action: a character vector
- action.number: a numeric vector
- classification: a numeric vector
- weighting: a numeric vector
data_Musicnotation

Examples

data(data_AD1)

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data_Musicnotation  Demodata for Musicnotation

Description

Demodata to show an Musicnotation Graph

Usage

data(data_Musicnotation)

Format

A data frame with 15 observations on the following 11 variables.

- action.from a numeric vector
- action.to a numeric vector
- kind.of.action a numeric vector
- Time a character vector
- Name a character vector
- item.number a numeric vector
- dominance.order a numeric vector
- name.of.action a character vector
- action.number a numeric vector
- classification a numeric vector
- weighting a numeric vector

Examples

data(data_Musicnotation)
Description

A dataset to show a bigger sociogramm

Usage

data(data_network_1)

Format

A data frame with 800 observations on the following 16 variables.

Name  a numeric vector
Beschreibung  a character vector
item.number  a numeric vector
dominance.order  a character vector
age  a character vector
sex  a character vector
action.from  a numeric vector
action.to  a numeric vector
kind.of.action  a numeric vector
time  a POSIXct
test.2.kind.of.action  a numeric vector
test.3.kind.of.action  a numeric vector
name.of.action  a character vector
action.number  a numeric vector
classification  a numeric vector
weighting  a numeric vector

Examples

data(data_network_1)
Description
A dataset to show a bigger sociogramm

Usage
```
data(data_network_R)
```

Format
A data frame with 800 observations on the following 16 variables.

- Name a numeric vector
- Beschreibung a character vector
- item.number a numeric vector
- dominance.order a character vector
- age a character vector
- sex a character vector
- action.from a numeric vector
- action.to a numeric vector
- kind.of.action a numeric vector
- time a POSIXct
- test.2.kind.of.action a numeric vector
- test.3.kind.of.action a numeric vector
- name.of.action a character vector
- action.number a numeric vector
- classification a numeric vector
- weighting a numeric vector

Examples
```
data(data_network_R)
```
detect_bits

**Description**
for internal use only

**Usage**
detect_bits(bits, set = TRUE)

**Arguments**
bits
set if set = TRUE returns all true bits if set = false returns all false bits

**Author(s)**
Knut krueger

**Examples**

```
print('for internal use only')
```

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**Musicnotation**

**Music Notation Graph**

**Description**
computes Music Notation graphs

**Usage**

```
Musicnotation(data_sheet, ...)
```
Arguments
data_sheet either a data.frame f.e imported from a data sheet containing
"Name","item.number"
"action.from.","action.to","kind.of.action"
"name.of.action","action.number","classification","weighting"
or only "action.from.","action.to","kind.of.action" if exists actions and items
actions: with "name.of.action","action.number","classification","weighting
items with "Name","item.number"

colors: a factor of colors as much as actions
lwd: line width if lwd_arrows is not used also for line width arrows
show_items: items to be shown -
angel_arrows: The angel aof the arrow head default 20
length_arrows: the lenght of the arrow default 0.05
lwd_arrows: the line width of the arrows default 1
actions_colors: a vector of colors for actions f.e to show one special action
starting_time:
ending_time: builds the graph with data bewteen starting and ending time
sort_dominace: sort the graph by ADI if sort_dominance is present
user_colors: a vector of colors as much as items to show differetn colors for
items
color_bits: a vector of colors as much as items 1 shows the horse colored 0 in
black (defined with actions_colors)

Value
returns the ADI

Author(s)
Knut Krueger

References
humans. Front Zool, 3, 18.
http://dx.doi.org/10.1186%2F1742-9994-3-18

Examples
## you can eihther use:
dataM=data.frame ("action.from"=c(1,2,3,4,5,1,1,1,1,1,1,1,1,3,4),
"action.to"= c(2,3,4,5,6,2,3,4,5,6,3,4,3,4,3),
"kind.of.action"= c(4,1,1,4,3,4,3,4,3,4,3,4,3,4,3),
"Time"=c("03:15:00","03:17:30","03:20:00","03:20:30","03:21:00","03:21:30",
"03:22:00","03:22:30","03:23:00","03:23:30","03:25:00","03:25:30"),
"name.of.action"=c(1,1,1,1,1,1,1,1,1,1,1,1,1,1,1),
"action.number"=c(1,1,1,1,1,1,1,1,1,1,1,1,1,1,1),
"classification"=c(1,1,1,1,1,1,1,1,1,1,1,1,1,1,1),
"weighting"=c(1,1,1,1,1,1,1,1,1,1,1,1,1,1,1),
"item.number"=c(1,1,1,1,1,1,1,1,1,1,1,1,1,1,1))

## }
search.win.lose

Description

counts the wins and loses

Usage

search.win.lose(data_sheet, ...)

Arguments

data_sheet

...

Author(s)

Knut Krueger

Examples

print('for internal use only')
Sociogram

Social Network Graphs

Description

computes social network graphs with igraph

Usage

Sociogram(data_sheet, bits, ...)

Arguments

data_sheet: either a data.frame f.e imported from a data sheet containing
"Name","item.number"
"action.from","action.to","kind.of.action"
"name.of.action","action.number","classification","weighting"
or only "action.from","action.to","kind.of.action" if exists actions and items
data_sheet: with "action.from","action.to","kind.of.action"
items with "Name","item.number"

bits: as string where each enabled action is set to 1 and each disabled action is set to 0

...: Postscript: FALSE (default) or path to PS output file
soziogram_layout: layout.auto,layout.random,layout.circle,layout.sphere,layout.fruchterman.reingold,lay-
curved: how much the lines between the nodes are curved 0 is straight, default is
0.2
scal_value: the multiplicator of the nodes, default: 1/3
linesize_add: value to add to the linesize (helpful for a graph with thin lines.
default 0
log: log2 size of linewidth, default= false
canvas.width: default 1000
canvas.height: default 800
tkplot: interactive tkplot, default = true

Value

sociogram: the igraph object
counts_circles: the count of circles
count_interactions: the count of interactions
line_size: the used linesize
counts_circles: vector of min and max line size
the last four are helpful to change circle size and linewidth
Author(s)
Knut Krueger

Examples

```r
## you can either use:
data_sheet=data.frame ("action.from"=c(1,4,2,3,4,3,4,3,4,3,4,3,4,3,4,3,4),
   "action.to"=c(4,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1),
   "kind.of.action"= c(4,1,1,4,3,4,3,4,3,4,3,4,3,4,3),stringsAsFactors=FALSE)
items= data.frame ("Name"=c("item1","item2","item3","item4","item5","item6"),
   "item.number"=c(1:6),stringsAsFactors=FALSE)
actions=data.frame("name.of.action"= c("leading","following","approach","bite","threat to bite",
   "kick","threat to kick","chase","retreat"),
   "action.number"=c(1:9),
   "classification"=c(1,2,1,1,1,1,1,1,2),
   "weighting"=c(1,-1,1,1,1,1,1,1,-1),stringsAsFactors=FALSE)
## all encounters without leading and following
bytes= "001111111"
Sociogram(data_sheet,items=items,actions=actions,bytes)
## more you can use a complete f.e Excel sheet
## you can save this data as basic excel sheet to work with
data(data_network_1)
## set 1 for action you want to show
bytes= "00111111111000000000"
Sociogram(data_Network_1,b=1)
```
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