Package 'focusedMDS'

October 13, 2022

Title Focused, Interactive Multidimensional Scaling

Version 1.3.3

Description Takes a distance matrix and plots it as an
interactive graph. One point is focused at the center of the graph,
around which all other points are plotted in their exact distances as
given in the distance matrix. All other non-focus points are plotted
as best as possible in relation to one another. Double click on any
point to choose a new focus point, and hover over points to see their
ID labels. If color label categories are given, hover over colors in
the legend to highlight only those points and click on colors to
highlight multiple groups. For more information on the rationale
and mathematical background, as well as an interactive introduction,
see <https://lea-urpa.github.io/focusedMDS.html>.

Depends R (>= 3.3.1)

Imports htmlwidgets, grDevices

License GNU General Public License

Encoding UTF-8

LazyData true

RoxygenNote 5.0.1

NeedsCompilation no

Author Lea Urpa [cre],
Simon Anders [aut]

Maintainer Lea Urpa <lea.urpa@helsinki.fi>

Repository CRAN

Date/Publication 2017-03-31 09:26:10 UTC

R topics documented:

Description

`focusedMDS` takes a distance matrix and plots it as an interactive graph. Double click on any point to choose a new focus point, and hover over points to see their ID labels. In this graph, one point is focused on at the center of the graph. All other points are plotted around this central point at their exact distances to the point, as given in the distance matrix. In other words, the distance between each point and the focus point are the true distances given in the distance matrix. The non focus points are plotted with respect to each other as exactly as possible. For more details, see https://lea-urpa.github.io/focusedMDS.html.

Usage

```
focusedMDS(distances, ids = NULL, color_cat = NULL, focus_point = ids[1],
  size = NULL, circles = 7, tol = 0.001, check_matrix = FALSE,
  subsampling = FALSE, color_palette = NULL, title = NULL)
```

Arguments

distances	A square, symmetric distance matrix or `dist` object.
ids	A vector with length equal to the number of rows of the matrix given in `distances`. Must be a character vector.
color_cat	A vector with length equal to the number of rows of the matrix given in `distances`. Content of the vector can be either numeric, factor, or character. Values will be assigned to color categories.
focus_point	The initial ID to be plotted at the center of the focusedMDS graph (default is the first element in the `ids` vector). Must be an element of the `ids` vector.
size	The fixed size of the focusedMDS graph, in pixels. Disables dynamic sizing.
circles	The number of background polar gridlines.
tol	The tolerance for the optimization method choosing the location of the non-focus points. Default 0.001.
check_matrix	Logical value permitting additional checks of the matrix, ensuring that the given matrix fulfills the triangle inequality. Slows down the initial graph plotting, but useful if you are not sure if your matrix is a distance matrix or has been calculated correctly.
subsampling	Logical value stating that for samples of over 100 points, each point iteratively plotted after the 100th point will be optimized to a subsample of the previously plotted data points. Recommended for plotting data sets with more than 300 points.
color_palette	Optional specification of a color palette to use when `colors` parameter is given. Must be a vector of CSS colors, with length at least as long as the number of unique variables in `colors`.
title	Optional title for plot, must be a single character string.

Examples

```
# See http://lea-urpa.github.io/focusedMDS.html for
# an illustrated version of this example.

library(datasets)
library(focusedMDS)

# Load Edgar Anderson's Iris Data
data("iris")

# Create table of measures to compare individuals on
table <- iris[ , c("Petal.Length", "Petal.Width", "Sepal.Length", "Sepal.Width")]

# Find euclidean distances based on these measures
dists <- dist(table)

# Simplest usage: only with dataset
focusedMDS(dists)

# Create labels based on flower species
colorvector <- as.vector(iris$Species)

colors <- c("firebrick", "cornflowerblue", "gold")

# Visualization with color labels
focusedMDS(dists, color_cat = colorvector, color_palette = colors )

# Create text labels
table(iris$Species)
names <- c(paste(rep("setosa", 50), 1:50, sep=""),
           paste(rep("versicolor", 50), 1:50, sep=""),
           paste(rep("virginica", 50), 1:50, sep=""))

focusedMDS(dists, ids = names, color_cat = colorvector, color_palette = colors)
```

Index