

Package: ggbiplot (via r-universe)

September 20, 2026

Title Plots for Bipartite Networks in R
Version 0.1.3
Description Provides functions to plot bipartite ecological networks using 'ggplot2' graphics, including interaction webs, node-link layouts, and matrix representations. Species interaction data in the form of adjacency matrices, or 'network' and 'igraph' graph objects, can be plotted directly.
Depends R (>= 3.1), ggplot2 (>= 2.0.0)
License GPL-3
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bip_binplot	<i>Function bip_binplot, to plot a network object corresponding to a binary adjacency matrix.</i>
-------------	---

Description

mymat is the adjacency matrix, to get the dimensions from. net is a network object corresponding to mymat. The object net can be initialized with function bip_netinit.R

Usage

```
bip_binplot(  
  mymat,  
  net,  
  usearrows = FALSE,  
  mode = "kamadakawai",  
  displaylabels = TRUE,  
  label.cex = 0.6,  
  vertex.cex = 1,  
  edge.lty = 0.7  
)
```

Arguments

mymat	the adjacency matrix. Input can be a data.frame or a matrix, representing the adjacency matrix.
net	a network object.
usearrows	a ntework object.
mode	mde of the network object.
displaylabels	whether or not display the node labels.
label.cex	size of label fonts.
vertex.cex	size of nodes.
edge.lty	line type for the edges.

Details

Plot of a network object corresponding to a binary adjacency matrix (qualitative, presence-absence, data).

Value

A plot object.

Examples

```
mat <- as.matrix(read.csv(
  system.file("extdata", "sdw02_adj_fru.csv", package = "ggbipart"),
  comment.char = "#", row.names = 1, check.names = FALSE))
net <- bip_init_network(mat)
bip_binplot(mat, net)
```

bip_edgewt

Function to compute scaled edge weights for plotting.

Description

Function to compute scaled edge weights for plotting.

Usage

```
bip_edgewt(M, x = 30)
```

Arguments

M	the adjacency matrix. Input can be a data.frame or a matrix, representing the adjacency matrix.
x	a scaling parameter. Just tune it (x parameter) to adequate values for the specific dataset.

Value

A vector of scaled edge weights for plotting.

Examples

```
mat <- as.matrix(read.csv(
  system.file("extdata", "sdw02_adj_fru.csv", package = "ggbipart"),
  comment.char = "#", row.names = 1, check.names = FALSE))
# One scaled weight per non-zero interaction; the largest equals x.
wt <- bip_edgewt(mat, x = 30)
summary(wt)
```

bip_ggnet	<i>Plotting bipartite networks from adjacency matrix of a two-mode network.</i>
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Description

Plotting bipartite networks from adjacency matrix of a two-mode network.

Usage

```
bip_ggnet(
  net,
  mat,
  mode = "fruchtermanreingold",
  size = 9,
  palette = c(A = "grey", P = "gold"),
  color = "mode",
  label.size = 3,
  label = FALSE,
  shape = "mode",
  edge.label = NULL,
  layout.exp = 0,
  mode1 = "P",
  mode2 = "A"
)
```

Arguments

net	the network object. Either a two-mode object of class network (e.g. as returned by bip_init_network) or a bipartite object of class igraph (e.g. as returned by bip_init_igraph). igraph input is converted internally to a two-mode network object.
mat	the adjacency matrix. Input can be a data.frame or a matrix, representing the adjacency matrix. Optional: if not supplied it is extracted from net, using the edge weights when present.
mode	the type of energy-minimization algorithm to plot the network. By default it's mode= "fruchtermanreingold".
size	Specify size for nodes.
palette	Define the color palette to use.
color	Node color.
label.size	Size for node text labels.
label	Whether or not add node labels.
shape	Geometric shape to be used for nodes.
edge.label	Whether or not add edge labels.

layout.exp	Layout information.
mode1	name for the upper mode (matrix rows), used when net is an igraph object that must be converted.
mode2	name for the lower mode (matrix columns), used when net is an igraph object that must be converted.

Details

Inputs are a net object and its corresponding adjacency matrix. It uses the adjacency matrix to compute scaled weighted edges with function edgewt. Part of the code from Francois Briatte, using package ggnet. DATE: 15Jul2013. Updated to ggnet 11/11/2016. ggnet2 automatically detects two-mode graphs from their bipartite network attribute. To simplify the plotting of each mode, it understands arguments of the form [alpha, color, shape, size] = "mode", which will mark the primary mode as "actor" and the secondary mode as "event". #_____

_____ Detect and color the mode To use the mode of the nodes as the basis for their colors, all the user has to do is to pass the color = "mode" argument, and then to style the "actor" and "event" values. #_____

Value

A ggplot object.

Examples

```
mat <- as.matrix(read.csv(
  system.file("extdata", "sdw02_adj_fru.csv", package = "ggbipart"),
  comment.char = "#", row.names = 1, check.names = FALSE))
net <- bip_init_network(mat)
bip_ggnet(net, mat)
# igraph input works too, and the matrix can be omitted
g <- bip_init_igraph(mat)
bip_ggnet(g)
```

bip_igplot	<i>Plotting bipartite networks from adjacency matrix of a two-mode network.</i>
------------	---

Description

Plotting bipartite networks from adjacency matrix of a two-mode network.

Usage

```
bip_igplot(mymat, g)
```

Arguments

mymat	the adjacency matrix. Input can be a data.frame or a matrix, representing the adjacency matrix.
g	the graph object

Details

Plotting bipartite networks from adjacency weighted matrix of two-mode network. A modified version of the plotting, with package igraph. Requires input of the weighted "mymmat" matrix and its graph object, "g". #

Value

An igraph graph object.

Examples

```
mat <- as.matrix(read.csv(
  system.file("extdata", "sdw02_adj_fru.csv", package = "ggbipart"),
  comment.char = "#", row.names = 1, check.names = FALSE))
g <- bip_init_igraph(mat)
bip_igplot(mat, g)
```

bip_init_igraph	<i>Function to initialize a bipartite web for library igraph (type igraph).</i>
-----------------	---

Description

Function to initialize a bipartite web for library igraph (type igraph).

Usage

```
bip_init_igraph(mat)
```

Arguments

mat	the adjacency matrix. Input can be a data.frame or a matrix, representing the adjacency matrix.
-----	---

Details

Function to initialize a bipartite web for library igraph (type igraph), starting from a weighted adjacency matrix. Create the graph object (a bipartite, weighted graph) for igraph.

Value

A graph object.

Examples

```
mat <- as.matrix(read.csv(
  system.file("extdata", "sdw02_adj_fru.csv", package = "ggbipart"),
  comment.char = "#", row.names = 1, check.names = FALSE))
g <- bip_init_igraph(mat)
g
```

bip_init_network	<i>Function to initialize a bipartite web for library network (type network).</i>
------------------	---

Description

Function to initialize a bipartite web for library network (type network).

Usage

```
bip_init_network(mymat, mode1 = "P", mode2 = "A")
```

Arguments

mymat	the adjacency matrix. Input can be a data.frame or a matrix, representing the adjacency matrix.
mode1	name for the upper mode.
mode2	name for the lower mode.

Details

Function to initialize a bipartite web for library network (type network),

Value

A network object.

Examples

```
mat <- as.matrix(read.csv(
  system.file("extdata", "sdw02_adj_fru.csv", package = "ggbipart"),
  comment.char = "#", row.names = 1, check.names = FALSE))
net <- bip_init_network(mat)
net
```

bip_qtplot	<i>Function to plot a bipartite weighted network.</i>
------------	---

Description

Function to plot a bipartite weighted network.

Usage

```
bip_qtplot(mat)
```

Arguments

mat	the adjacency matrix. Input can be a data.frame or a matrix, representing the adjacency matrix.
-----	---

Details

Plotting a bipartite network from the weighted (quantitative) adjacency matrix of a two-mode network. Uses objects of type network and a traditional plot.

Value

A plot object.

Examples

```
mat <- as.matrix(read.csv(
  system.file("extdata", "sdw02_adj_fru.csv", package = "ggbipart"),
  comment.char = "#", row.names = 1, check.names = FALSE))
bip_qtplot(mat)
```

bip_railway	<i>Function to plot layout coordinates for railway network plot.</i>
-------------	--

Description

Function to plot layout coordinates for railway network plot.

Usage

```
bip_railway(mymat, nodesize = 9, label = FALSE)
```

Arguments

<code>mymat</code>	a matrix whose rows contain the x,y coordinates of the vertices of d.
<code>nodesize</code>	size of nodes.
<code>label</code>	should nodes be labelled?

Details

Plotting a bipartite network from the weighted (quantitative) adjacency matrix of a two-mode network.

```
# Code for separately nudging and rotating labels of modes. geom_text(aes(label= network.vertex.names(test.net)),
angle<- ifelse(network.vertex.names(test.net)[1:dim(mymat)[1]], 0, 45), nudge_x<- ifelse(network.vertex.names(test.net)[1:
0.5, -0.5))
```

Value

A plot object.

Examples

```
mat <- as.matrix(read.csv(
  system.file("extdata", "sdw02_adj_fru.csv", package = "ggbipart"),
  comment.char = "#", row.names = 1, check.names = FALSE))
bip_railway(mat, label = TRUE)
```

ggbipart

A package to plot bipartite interaction networks in R.

Description

Bipartite networks

Details

The ggbipart package includes a series of R functions aimed to plot bipartite networks within the ggplot2 environment. The library relies heavily on code developed by Francois Briatte for the ggnet library. Bipartite networks are a special type of network where nodes are of two distinct types or sets, so that connections (links) only exist among nodes of the different sets. As in other types of network, bipartite structures can be binary (only the presence/absence of the links is mapped) or quantitative (weighted), where the links can have variable importance or weight. To plot, we start with an adjacency or incidence matrix. Using matrices that illustrate ecological interactions among species, such as the mutualistic interactions of animal pollinators and plant flowers. The two sets (modes) of these bipartite networks are animals (e.g., pollinators) and plants species. From any adjacency matrix we can get a network object or an igraph object for plotting and analysis.

Installation.

```
‘# devtools::install_github("pedroj/bipartite_plots")‘
```

```
'# library(ggbipart)'
```

Suggested references:

Pocock, M.J.O., Evans, D.M., Fontaine, C., Harvey, M., Julliard, R., McLaughlin, O., Silvertown, J., Tamaddoni-Nezhad, A., White, P.C.L. and Bohan, D.A. (2016) The visualisation of ecological networks, and their use as a tool for engagement, advocacy and management. *Advances in Ecological Research*, 1st ed, pp. 41-85. Elsevier Ltd.

Bascompte, J., Jordano, P. (2014) *Mutualistic Networks*. Princeton University Press, Princeton, NJ.

Author(s)

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See Also

Useful links:

- <http://pjordanolab.ebd.csic.es/resources/>
- Report bugs at https://github.com/pedroj/bipartite_plots/issues

vectorize

Function to vectorze an adjacency matrix.

Description

Function to vectorze an adjacency matrix.

Usage

```
vectorize(mat)
```

Arguments

mat the adjacency matrix.

Details

Like in STACK: Turn table (C) into (D): The input matrix should be read with row.names=1 option and a blank entry at the upper left corner.

```
C a b c d A 3 2 . . B . . 1 1
```

```
D A a 3 A b 2 A c . A d . B a . B b . B c 1 B d 1 #
```

Value

A vector object.

Examples

```
# A weighted plant-frugivore adjacency matrix shipped with the package.
mat <- as.matrix(read.csv(
  system.file("extdata", "sdw02_adj_fru.csv", package = "ggbipart"),
  comment.char = "#", row.names = 1, check.names = FALSE))
edges <- vectorize(mat)
head(edges)
```

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