

# Package ‘ggmGraphEditor’

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**Type** Package

**Title** Interactive Graph Layout Editor for Mixed Graphs

**Version** 0.1.0

**Depends** R (>= 3.6.0)

**Imports** methods, visNetwork, shiny, igraph

**Suggests** ggm (>= 2.5.5), graph, testthat (>= 3.0.0)

**Description** Provides an interactive interface to plot and layout mixed graphs based on the adjacency matrix defined in Sadeghi and Marchetti (2012) <[doi:10.32614/RJ-2012-015](https://doi.org/10.32614/RJ-2012-015)>. Uses 'shiny' and 'visNetwork' to allow dynamic node repositioning and coordinate extraction.

**License** GPL-2

**Encoding** UTF-8

**URL** <https://github.com/StaThin/ggmGraphEditor>

**BugReports** <https://github.com/StaThin/ggmGraphEditor/issues>

**NeedsCompilation** no

**Config/roxygen2/version** 8.1.0

**Config/testthat/edition** 3

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**Repository** CRAN

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## Contents

|                       |          |
|-----------------------|----------|
| graphLayout . . . . . | 2        |
| grMAT2 . . . . .      | 3        |
| <b>Index</b>          | <b>5</b> |

**Description**

An interactive replacement for `ggm::plotGraph` using shiny and visNetwork. Allows dynamic node repositioning, handles multiple edge types, and outputs node coordinates.

**Usage**

```
graphLayout(
  ggm_matrix,
  dashed = TRUE,
  bidirected_roundness = 0.25,
  Viewer = if (Sys.getenv("RSTUDIO") == "1") "Rstudio" else "browser"
)
```

**Arguments**

|                                   |                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>ggm_matrix</code>           | <ul style="list-style-type: none"> <li>• an adjacency matrix for mixed graphs,</li> <li>• an igraph object, or</li> <li>• a descriptive character vector.</li> </ul>                                                                                                                                                        |
| <code>dashed</code>               | Logical. If TRUE (default), bidirected edges <-> are drawn as dashed lines.                                                                                                                                                                                                                                                 |
| <code>bidirected_roundness</code> | Numeric. Curvature of bidirected edges when multiple edges are present. Default is 0.25.                                                                                                                                                                                                                                    |
| <code>Viewer</code>               | character string specifying where to display the Shiny application. Valid options are "Rstudio" (to open it in a native internal window), or "browser" (to open it in the default web browser). If not specified, it automatically detects the environment, defaulting to "Rstudio" inside RStudio and "browser" elsewhere. |

**Value**

A matrix of X and Y coordinates for each node, returned after terminating the Shiny application.

**Note**

The author acknowledges the help of Google Gemini AI (2026).

**Author(s)**

Giovanni M. Marchetti

**Examples**

```

if (interactive()) {
  amat <- matrix(c(0,1,0, 0,0,1, 0,0,0), 3, 3,
                dimnames = list(c("A","B","C"), c("A","B","C")))
  coords <- graphLayout(amat)
  print(coords)

  # Generating the adjacency matrix from a vector and plotting
  exvec <- c(
    "b", 1, 2, "b", 1, 14, "a", 9, 8, "l", 9, 11,
    "a", 10, 8, "a", 11, 2, "a", 11, 9, "a", 11, 10,
    "a", 12, 1, "b", 12, 14, "a", 13, 10, "a", 13, 12
  )
  graphLayout(exvec)

  # Plotting from a direct adjacency matrix
  amat2 <- matrix(c(0, 11, 0, 0, 10, 0, 100, 0, 0, 100, 0, 1, 0, 0, 1, 0), 4, 4)
  graphLayout(amat2)

  # A graph with double and triple edges
  G <- structure(c(
    0, 101, 0, 0, 100, 0, 100, 100, 0, 100, 0, 100, 0, 111, 100, 0),
    dim = c(4L, 4L),
    dimnames = list(c("X", "Z", "Y", "W"), c("X", "Z", "Y", "W")))
  graphLayout(G)

  # A graph with 4 edges between two nodes
  G4 <- matrix(0, 2, 2)
  G4[1, 2] <- 111
  G4[2, 1] <- 111
  graphLayout(G4)
}

```

grMAT2

*Graph to adjacency matrix***Description**

grMAT2 converts graph objects to a mixed adjacency matrix.

**Usage**

```
grMAT2(agr)
```

**Arguments**

agr                    A graph object. This can be:

- a graphNEL object,
- an `igraph::igraph()` object, or

- a character vector of length  $3e$ , where  $e$  is the number of edges. If it is a vector, it must be a sequence of triples (type, node1label, node2label). The type of edge can be:
  - "a" (arrow from node1 to node2),
  - "b" (bi-directed arc),
  - "l" (undirected line), or
  - "\*" (for an isolated node with node1 == node2).

## Details

Support for graphNEL objects requires the graph package from Bioconductor, which is a suggested dependency. If the package is missing, passing a graphNEL object will trigger an informative error.

## Value

A matrix consisting of 4 different integers representing the  $ij$ -elements:

- 0 for a missing edge between  $i$  and  $j$ ,
- 1 for an arrow from  $i$  to  $j$ ,
- 10 for a full line between  $i$  and  $j$ , and
- 100 for a bi-directed arrow between  $i$  and  $j$ . These numbers are added when multiple edges of different types are present. The matrix is symmetric with respect to full lines and bi-directed arrows.

## Author(s)

Kayvan Sadeghi, Giovanni Marchetti

## Examples

```
## Generating the adjacency matrix from a vector
exvec <- c(
  "b", 1, 2, "b", 1, 14, "a", 9, 8, "l", 9, 11, "a", 10, 8,
  "a", 11, 2, "a", 11, 10, "a", 12, 1, "b", 12, 14, "a", 13, 10, "a", 13, 12)
grMAT2(exvec)

## Example with graphNEL (requires the 'graph' package from Bioconductor)
if (requireNamespace("graph", quietly = TRUE)) {
  V <- c("a", "b", "c")
  g <- graph::graphNEL(nodes = V, edgemode = "undirected")
  grMAT2(g)
}

g <- c("a", 3, 1, "l", 1, 2, "*", 4, 4)
grMAT2(g)
```

# Index

- \* **adjacency**
  - grMAT2, [3](#)
- \* **graphs**
  - grMAT2, [3](#)
- \* **matrix**
  - grMAT2, [3](#)
- \* **mixed-graph**
  - grMAT2, [3](#)
- \* **vector**
  - grMAT2, [3](#)

ggm::plotGraph, [2](#)  
graphLayout, [2](#)  
grMAT2, [3](#)

igraph::igraph(), [3](#)