

Package ‘tabulergm’

October 7, 2026

Title Publication-Ready Tables and Summaries for Exponential-Family
Random Graph Models

Version 0.2.0

Description Creates publication-ready tables documenting
exponential-family random graph models (ERGMs), a class of statistical
models for social networks (Robins et al., 2007,
<[doi:10.1016/j.socnet.2006.08.002](https://doi.org/10.1016/j.socnet.2006.08.002)>). Tables describe model terms
through their definitions, mathematical representations, and graphical
representations, and can be generated from ERGM formulas or from
models fitted with the 'ergm' package (Hunter et al., 2008,
<[doi:10.18637/jss.v024.i03](https://doi.org/10.18637/jss.v024.i03)>). Resulting tables can be integrated into
'quarto' and 'rmarkdown' documents.

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Encoding UTF-8

Depends R (>= 4.2)

Imports base64enc, ergm (>= 4.0), netplot (>= 0.4-0), network, yaml

Suggests knitr, rmarkdown, rstudioapi, tinytest

URL <https://gvegayon.github.io/tabulergm/>,
<https://github.com/gvegayon/tabulergm>

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Author George Vega Yon [aut, cre] (ORCID:
<<https://orcid.org/0000-0002-3171-0844>>)

Maintainer George Vega Yon <g.vegayon@gmail.com>

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parse_ergm_formula	<i>Parse an ERGM Formula</i>
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Description

Extracts ERGM term names and attributes from a formula. No fitted model is required. Returns a standardized data frame with metadata from the ERGM term database where available.

Usage

```
parse_ergm_formula(  
  formula,  
  directed = NULL,  
  override = NULL,  
  override.title = NULL,  
  override.desc = NULL,  
  override.math = NULL,  
  override.figure = NULL,  
  override.citation = NULL  
)
```

Arguments

formula	An ERGM formula .
directed	Logical or NULL. Whether the network is directed, used to select the matching term metadata (math and figures). When NULL (the default), directedness is inferred from the network on the left-hand side of the formula if it can be evaluated; otherwise the lookup tries undirected metadata first, then directed.
override	A named list keyed by term name, each element a named list of fields to replace, e.g. <code>list(edges = list(title = "Density", citation = "doi:10.1234/x"))</code> . Valid fields are title, description (or desc), math, figure, and citation.

`override.title`, `override.desc`, `override.math`, `override.figure`
 Named character vectors keyed by term name, e.g. `override.title = c(edges = "Density")`. These take precedence over `override`.

`override.citation`
 A named list keyed by term name whose elements are citation specifications in the same form the `YAML citation` field accepts: a bare key ("hunter2007"), a prefixed identifier ("doi:10.1016/j.socnet.2006.08.005"), a single entry list (`list(key = "hunter2007", doi = "10.1016/j.socnet.2006.08.005")`), or a list of such entries.

Details

Metadata is resolved from the same three sources, and with the same precedence, as `parse_ergm_model()`; see its “Metadata sources” section.

Value

A data frame with columns:

term Character. The canonical ERGM term name.

attribute Character or NA. The attribute(s) used in the term, comma-separated when multiple.

estimate Numeric. Always NA for formula-only parsing.

se Numeric. Always NA for formula-only parsing.

pvalue Numeric. Always NA for formula-only parsing.

title Character or NA. Short one-line label for the term.

description Character or NA. Prose description of the term.

math Character or NA. The LaTeX definition of the statistic.

figure Character or NA. Path to the rendered term figure.

citation Character or NA. Citation key(s) for the term, comma-separated when several. The corresponding bibliography is attached to the data frame as the “`tabulergm_citations`” attribute.

See Also

`parse_ergm_model()` for parsing fitted models, `ergm::search.ergmTerms()` for the underlying term database.

Examples

```
library(ergm)
parse_ergm_formula(network ~ edges + nodematch("gender"))

# Directedness can be stated explicitly when the formula has no
# network on its left-hand side
parse_ergm_formula(~ edges + mutual, directed = TRUE)

# Attach a citation to a term that has none in the term dictionary
parse_ergm_formula(
  ~ edges + concurrent,
```

```

directed = FALSE,
override.citation = list(
  concurrent = list(
    key = "morris1997", doi = "10.1097/00002030-199705000-00012"
  )
)
)

```

parse_ergm_model	<i>Parse an ERGM Model Object</i>
------------------	-----------------------------------

Description

Extracts terms, coefficients, standard errors, p-values, and term metadata from a fitted [ergm](#) object. Returns a standardized data frame for use in publication-ready tables.

Usage

```

parse_ergm_model(
  object,
  override = NULL,
  override.title = NULL,
  override.desc = NULL,
  override.math = NULL,
  override.figure = NULL,
  override.citation = NULL
)

```

Arguments

object	A fitted ergm object.
override	A named list keyed by term name, each element a named list of fields to replace, e.g. <code>list(edges = list(title = "Density", citation = "doi:10.1234/x"))</code> . Valid fields are title, description (or desc), math, figure, and citation.
override.title, override.desc, override.math, override.figure	Named character vectors keyed by term name, e.g. <code>override.title = c(edges = "Density")</code> . These take precedence over <code>override</code> .
override.citation	A named list keyed by term name whose elements are citation specifications in the same form the YAML citation: field accepts: a bare key ("hunter2007"), a prefixed identifier ("doi:10.1016/j.socnet.2006.08.005"), a single entry list (<code>list(key = "hunter2007", doi = "10.1016/j.socnet.2006.08.005")</code>), or a list of such entries.

Details

The coefficient names produced by `ergm` (which may expand terms into multiple rows, e.g., `nodefactor.race.Black`) are mapped back to the canonical term names from the formula.

Value

A data frame with columns:

term Character. The canonical ERGM term name.

coef_name Character. The full coefficient name from the model.

attribute Character or NA. The attribute(s) used in the term, comma-separated when multiple.

estimate Numeric. The coefficient estimate.

se Numeric. The standard error.

pvalue Numeric. The p-value.

title Character or NA. Short one-line label for the term.

description Character or NA. Prose description of the term.

math Character or NA. The LaTeX definition of the statistic.

figure Character or NA. Path to the rendered term figure.

citation Character or NA. Citation key(s) for the term, comma-separated when several. The corresponding bibliography is attached to the data frame as the "tabulergm_citations" attribute.

Metadata sources

Each metadata field is resolved from three sources, in increasing order of precedence: the ergm term database (via `ergm::search.ergmTerms()`, which supplies title and description), the YAML term database shipped in `inst/terms/` (which may supply title, description, math, figure, and citation), and the `override*` arguments documented below.

Override names are matched against the term column first and against coef_name second, so an expanded coefficient such as `nodefactor.race.Black` can be targeted individually. Names matching no row produce a warning.

See Also

`parse_ergm_formula()` for formula-only parsing, `ergm::search.ergmTerms()` for the underlying term database.

Examples

```
library(ergm)
fit <- readRDS(system.file("fits", "fit_nodematch.rds", package = "tabulergm"))
parse_ergm_model(fit)

# Replace the title and description of a single term
parse_ergm_model(
  fit,
  override.title = c(edges = "Density"),
  override.desc = c(edges = "Baseline propensity to form ties.")
)
```

tabulergm_default_plotfun

Default Plot Function for Term Figures

Description

Draws a network figure using `netplot::nplot()`. This is the default plot function used by `tabulergm` when generating term figures.

Usage

```
tabulergm_default_plotfun(
  netobj,
  layout,
  vcolor,
  vshape,
  vrotation,
  ecolor,
  directed,
  vsize,
  elinetype,
  ...
)
```

Arguments

<code>netobj</code>	A <code>network::network</code> object.
<code>layout</code>	A two-column numeric matrix of node coordinates (x, y).
<code>vcolor</code>	Character vector of vertex colors.
<code>vshape</code>	Character or numeric vector of vertex shapes, such as "circle"/"square" or polygon side counts.
<code>vrotation</code>	Numeric vector of vertex rotations (in degrees).
<code>ecolor</code>	Character vector of edge colors.
<code>directed</code>	Logical. Whether the network is directed.
<code>vsize</code>	Numeric vector of vertex sizes.
<code>elinetype</code>	Numeric or character vector of edge line types.
<code>...</code>	Additional arguments (currently unused).

Details

A plot function must accept the arguments `netobj`, `layout`, `vcolor`, `ecolor`, `directed`, and `...`, and draw on the current graphics device.

Value

Called for its side-effect of drawing a plot on the current graphics device. Returns invisibly.

See Also

[tabulergm_set_plotfun\(\)](#), [tabulergm_get_plotfun\(\)](#)

Examples

```
# See the default implementation
tabulergm_default_plotfun

# Use a custom plot function
my_plotfun <- function(netobj, layout, vcolor, ecolor, directed, vshape, vrotation, vsize, ...) {
  netplot::nplot(netobj, vertex.color = vcolor, edge.color = ecolor,
    layout = layout)
}
old <- tabulergm_get_plotfun()
tabulergm_set_plotfun(my_plotfun)
# Restore the previous plot function
tabulergm_set_plotfun(old)
```

`tabulergm_get_plotfun` *Get the Current Plot Function*

Description

Returns the function currently used to draw term figures. If no custom function has been set, returns [tabulergm_default_plotfun\(\)](#).

Usage

```
tabulergm_get_plotfun()
```

Value

A function (the active plot function).

See Also

[tabulergm_default_plotfun\(\)](#), [tabulergm_set_plotfun\(\)](#)

tabulergm_save	<i>Save a tabulergm Table and Figure Assets</i>
----------------	---

Description

Saves the table code produced by tabulergm and copies the generated term figures out of the temporary cache into a user-controlled directory. The exported table references the copied image files with relative paths, making the result easier to reuse in another document or project.

Usage

```
tabulergm_save(object, path, ...)

## S3 method for class 'ergm'
tabulergm_save(
  object,
  path,
  format = c("markdown", "latex"),
  filename = "tabulergm-table",
  images_dir = "figures",
  overwrite = TRUE,
  latex_image_width = "0.7in",
  ...
)

## S3 method for class 'formula'
tabulergm_save(
  object,
  path,
  format = c("markdown", "latex"),
  filename = "tabulergm-table",
  images_dir = "figures",
  overwrite = TRUE,
  latex_image_width = "0.7in",
  ...
)

## S3 method for class 'data.frame'
tabulergm_save(
  object,
  path,
  format = c("markdown", "latex"),
  filename = "tabulergm-table",
  images_dir = "figures",
  overwrite = TRUE,
  latex_image_width = "0.7in",
  ...
)
```

```
)

## S3 method for class 'tabulergm_kable'
tabulergm_save(object, path, ...)
```

Arguments

<code>object</code>	A fitted ergm object, an ERGM formula , or a table object returned by tabulergm_table() (including a styled <code>knitr_kable</code>).
<code>path</code>	Target directory. It is created recursively when needed.
<code>...</code>	For <code>ergm</code> and <code>formula</code> methods, additional arguments passed to tabulergm_table() . For the <code>data.frame</code> method, additional arguments are ignored.
<code>format</code>	Character vector of output formats to write. Supported values are "markdown" and "latex". By default both are written.
<code>filename</code>	File name stem for the table code files, without extension. Defaults to "tabulergm-table".
<code>images_dir</code>	Directory, relative to <code>path</code> , where copied images should be stored. Use "." to place images directly in <code>path</code> .
<code>overwrite</code>	Logical. Overwrite existing table code and image files? Default TRUE.
<code>latex_image_width</code>	Character width passed to <code>\includegraphics</code> in plain LaTeX output. Default "0.7in"; the compact name-over-formula style uses its fixed 0.4\linewidth layout.

Value

Invisibly returns a list with:

path The normalized export directory.

files Named character vector of written table code files.

figures Named character vector of copied figure files, where names are the relative paths used in the table.

table The data frame used for export, with figure paths rewritten to the copied relative paths.

Methods (by class)

- `tabulergm_save(ergm)`: Method for fitted `ergm` objects.
- `tabulergm_save(formula)`: Method for `formula` objects.
- `tabulergm_save(data.frame)`: Method for data frames returned by [tabulergm_table\(\)](#).
- `tabulergm_save(tabulergm_kable)`: Method for formatted tables returned by [tabulergm_table\(\)](#).

See Also

[tabulergm_table\(\)](#)

Examples

```
if (requireNamespace("knitr", quietly = TRUE)) {
  fit <- readRDS(system.file("fits", "fit_edges.rds", package = "tabulergm"))
  out_dir <- tempfile("tabulergm-export-")
  tabulergm_save(fit, out_dir, include_math = TRUE)
}
```

tabulergm_set_plotfun *Set the Plot Function for Term Figures*

Description

Replaces the current plot function used when drawing term figures. The function must accept `netobj`, `layout`, `vcolor`, `ecolor`, `directed`, and `...`. Setting a plot function invalidates previously cached term figures, so subsequent renders use the new function.

Usage

```
tabulergm_set_plotfun(plotfun)
```

Arguments

`plotfun` A function with signature `function(netobj, layout, vcolor, ecolor, directed, ...)`.

Value

Invisibly returns the previous plot function.

See Also

[tabulergm_default_plotfun\(\)](#), [tabulergm_get_plotfun\(\)](#)

Examples

```
my_plotfun <- function(netobj, layout, vcolor, ecolor, directed, ...) {
  netplot::nplot(netobj, vertex.color = vcolor, edge.color = ecolor,
    layout = layout)
}
old <- tabulergm_get_plotfun()
tabulergm_set_plotfun(my_plotfun)
# Restore the previous plot function
tabulergm_set_plotfun(old)
```

tabulergm_table	<i>Generate a Publication-Ready Table from an ERGM Object</i>
-----------------	---

Description

S3 generic that dispatches to methods for fitted [ergm](#) objects or plain [formula](#) objects, calling the internal parsing engine and returning a formatted table.

Usage

```
tabulergm_table(object, ...)

## S3 method for class 'ergm'
tabulergm_table(
  object,
  include_description = FALSE,
  include_math = FALSE,
  include_attribute = FALSE,
  include_title = FALSE,
  digits = 2L,
  format = c("data.frame", "html", "markdown"),
  figures_dir = NULL,
  override = NULL,
  override.title = NULL,
  override.desc = NULL,
  override.math = NULL,
  override.figure = NULL,
  override.citation = NULL,
  ...
)

## S3 method for class 'formula'
tabulergm_table(
  object,
  format = c("data.frame", "html", "markdown"),
  figures_dir = NULL,
  directed = NULL,
  include_title = FALSE,
  include_description = TRUE,
  override = NULL,
  override.title = NULL,
  override.desc = NULL,
  override.math = NULL,
  override.figure = NULL,
  override.citation = NULL,
  ...
)
```

Arguments

<code>object</code>	A fitted ergm object or an ERGM formula .
<code>...</code>	Additional arguments passed to methods.
<code>include_description</code>	Logical. Include the term description column? Default FALSE.
<code>include_math</code>	Logical. Include the mathematical notation column? Default FALSE.
<code>include_attribute</code>	Logical. Include the attribute column? Default FALSE.
<code>include_title</code>	Logical. Include the short term-title column? Default FALSE.
<code>digits</code>	Non-negative whole number of decimal places used to display every numeric column of a fitted-model table (estimates, standard errors, and p-values; p-values below $10^{-\text{digits}}$ display as " <0.01 "-style bounds). Default 2. Use NULL to retain full precision. Parsed model data always retain full precision.
<code>format</code>	Character. Output format: "data.frame" (default), "html", or "markdown". HTML and Markdown output require the knitr package.
<code>figures_dir</code>	Optional directory for figure assets when <code>format = "markdown"</code> . When NULL, figures are copied automatically to the active knitr/Quarto/R Markdown figure path during non-interactive document rendering.
<code>override</code>	A named list keyed by term name, each element a named list of fields to replace, e.g. <code>list(edges = list(title = "Density", citation = "doi:10.1234/x"))</code> . Valid fields are title, description (or desc), math, figure, and citation.
<code>override.title</code> , <code>override.desc</code> , <code>override.math</code> , <code>override.figure</code>	Named character vectors keyed by term name, e.g. <code>override.title = c(edges = "Density")</code> . These take precedence over <code>override</code> .
<code>override.citation</code>	A named list keyed by term name whose elements are citation specifications in the same form the YAML citation: field accepts: a bare key ("hunter2007"), a prefixed identifier ("doi:10.1016/j.socnet.2006.08.005"), a single entry list (<code>list(key = "hunter2007", doi = "10.1016/j.socnet.2006.08.005")</code>), or a list of such entries.
<code>directed</code>	Logical or NULL. Whether the network is directed. Passed to parse_ergm_formula() ; when NULL (the default), directedness is inferred from the network on the left-hand side of the formula when possible.

Value

A `data.frame` (default), or a `knitr_kable` object when `format` is "html" or "markdown"; these additionally inherit from internal `tabulergm_table` and `tabulergm_kable` classes so styles can be safely applied after rendering. When the term figures use drawing conventions (orange for focal attributes, orange/teal for mixing, squares/circles for bipartite modes), an explanatory note is appended below "html" and "markdown" tables. Terms carrying a citation get a (key) marker next to their description, and the matching [key] identifier lines are appended below the table.

Methods (by class)

- `tabulergm_table(ergm)`: Method for fitted ergm objects.
Calls `parse_ergm_model()` and returns a table with default columns `term`, `figure`, `estimate`, `se`, and `pvalue`. Optional columns (`title`, `description`, `math`, `attribute`) can be included via logical arguments. The `title` column, when included, is placed immediately after `term`. Estimates and standard errors are rounded for display according to `digits`, and p-values are formatted as strings with the same number of decimal places, showing values below the display precision as an upper bound (e.g. " <0.01 "). The attached table specification retains the full-precision values.
- `tabulergm_table(formula)`: Method for formula objects.
Calls `parse_ergm_formula()` and returns a table with columns `term`, `figure`, `math`, and, by default, `description`. Coefficient statistics are excluded because no fitted model is available.

See Also

`tabulergm_table.ergm()`, `tabulergm_table.formula()`

Examples

```
library(ergm)
fit <- readRDS(system.file("fits", "fit_edges.rds", package = "tabulergm"))
tabulergm_table(fit)
tabulergm_table(fit, include_description = TRUE)
tabulergm_table(fit, format = "markdown")

# Replace the shipped title and description for one term
tabulergm_table(
  fit,
  include_title = TRUE,
  include_description = TRUE,
  override.title = c(edges = "Density"),
  override.desc = c(edges = "Baseline propensity to form ties.")
)
library(ergm)
tabulergm_table(network ~ edges + nodematch("gender"))
```

tabulergm_view

View an ERGM Table in the RStudio Viewer or System Browser

Description

Builds a self-contained HTML page containing the formatted ERGM table (with MathJax for LaTeX math rendering) and opens it in the RStudio viewer pane when available, falling back to `utils::browseURL()`.

Usage

```
tabulergm_view(object, ...)

## S3 method for class 'ergm'
tabulergm_view(object, ...)

## S3 method for class 'formula'
tabulergm_view(object, ...)

## S3 method for class 'tabulergm_table'
tabulergm_view(object, ...)

## S3 method for class 'tabulergm_kable'
tabulergm_view(object, ...)
```

Arguments

object	A fitted ergm object, an ERGM formula , or a table returned by tabulergm_table() .
...	Additional arguments passed to tabulergm_table() .

Value

Invisibly returns the path to the temporary HTML file.

Methods (by class)

- `tabulergm_view(ergm)`: Method for fitted ergm objects.
- `tabulergm_view(formula)`: Method for formula objects.
- `tabulergm_view(tabulergm_table)`: Method for table data frames returned by [tabulergm_table\(\)](#).
- `tabulergm_view(tabulergm_kable)`: Method for formatted tables returned by [tabulergm_table\(\)](#).

See Also

[tabulergm_table\(\)](#)

Examples

```
library(ergm)
fit <- readRDS(system.file("fits", "fit_edges.rds", package = "tabulergm"))
tabulergm_view(fit)

# Also works with a formula (shows term metadata only)
tabulergm_view(network ~ edges + triangle)
```

with_style_name_over_formula

Stack Term Names over Mathematical Formulae

Description

Reorganizes a `tabulergm_table()` result into a compact presentation layout. The Name column contains the curated term title (or the canonical term name when no title is available) followed by its formula; Representation contains the term figure. Model statistics and metadata columns explicitly included in the source table are retained after those two presentation columns.

Usage

```
with_style_name_over_formula(x, column_widths = NULL, figure_height = NULL)
```

Arguments

- | | |
|---------------|--|
| x | A data frame or knitr_kable object returned by <code>tabulergm_table()</code> or one of the <code>with_style_*</code> () helpers. |
| column_widths | Optional named numeric vector of table-width fractions keyed by displayed compact-table column names (for example, <code>c(Name = .5, Representation = .2)</code>). Values must be in $(0, 1]$ and total no more than one. NULL uses automatic column widths. |
| figure_height | Optional positive numeric height, in inches, for term figures. NULL retains the default width-based figure sizing. |

Details

HTML output uses a responsive HTML table. Markdown requests also use HTML, because pipe tables cannot reliably represent the multi-line cells needed by this style. Width and figure-height settings are stored on the returned table object, so they also apply to previews and saved output. The saved LaTeX snippet requires the `array`, `booktabs`, and `graphicx` packages.

Value

An object in the same requested output format as x; Markdown requests return HTML table markup suitable for HTML-capable Markdown renderers.

Examples

```
tabulergm_table(~ edges + triangle, include_description = FALSE) |>
  with_style_name_over_formula(
    column_widths = c(Name = .5, Representation = .2),
    figure_height = .8
  )
```

with_style_plain	<i>Restore the Plain tabulergm Table Style</i>
------------------	--

Description

Restores the default column layout of a table returned by `tabulergm_table()`. This is useful after applying another table style in a pipe.

Usage

```
with_style_plain(x)
```

Arguments

x	A data frame or knitr_kable object returned by <code>tabulergm_table()</code> or one of the <code>with_style_*</code> () helpers.
---	---

Value

An object in the same requested output format as x.

Examples

```
tbl <- tabulergm_table(~ edges)
tbl |> with_style_name_over_formula() |> with_style_plain()
```

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