Package 'nmaplateplot'

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Type Package

Title The Plate Plot for Network Meta-Analysis Results

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Description A graphical display of results from network meta-analysis (NMA).
It is suitable for outcomes like odds ratio (OR), risk ratio (RR),
risk difference (RD) and standardized mean difference (SMD).
It also has an option to visually display and compare
the surface under the cumulative ranking (SUCRA) of different treatments.

Depends R (>= 3.5.0)

Imports ggplot2

Suggests knitr, rmarkdown, svglite

License GPL (>= 2)

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LazyData true

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NeedsCompilation no

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nmaplateplot-package   *The Plate Plot for Network Meta-Analysis Results*

Description

A graphical display of results from network meta-analysis (NMA). It is suitable for outcomes like odds ratio (OR), risk ratio (RR), risk difference (RD) and standardized mean difference (SMD). It also has an option to visually display and compare the surface under the cumulative ranking (SUCRA) of different treatments.

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ad12.eff.acc   *Network Meta-Analysis Results (Efficacy and Acceptability) on 12 Antidepressants*

Description

An example of network meta-analysis results.

Usage

```
data("ad12.eff.acc")
```

Format

A list containing 5 data frames:

Point_estimates a 12*12 data frame storing point estimates.

Interval_estimates_LB a 12*12 data frame storing lower bound of interval estimates.

Interval_estimates_UB a 12*12 data frame storing upper bound of interval estimates.

Pvalues a 12*12 data frame storing p-values.

Treatment_specific_values a 12*4 data frame storing treatment id, treatment names, treatment surface under the cumulative ranking (SUCRA) for efficacy and acceptability

Details

It contains odds ratios for efficacy (upper diagonal part) and acceptability (lower diagonal part) of 12 antidepressants based on arm-based network meta-analysis

Source

Cipriani A et al. (2009) "Comparative efficacy and acceptability of 12 new-generation antidepressants: a multiple-treatments meta-analysis." *The Lancet* **373**(9665), 746–58.

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ad12.pma.nma *Network Meta-Analysis Results (PMA and NMA) on 12 Antidepressants*

Description

An example of network meta-analysis results.

Usage

```
data("ad12.pma.nma")
```

Format

A list containing 5 data frames:

Point_estimates a 12*12 data frame storing point estimates.

Interval_estimates_LB a 12*12 data frame storing lower bound of interval estimates.

Interval_estimates_UB a 12*12 data frame storing upper bound of interval estimates.

Pvalues a 12*12 data frame storing p-values.

Treatment_specific_values a 12*3 data frame storing treatment id, treatment names, treatment surface under the cumulative ranking (SUCRA)

Details

It contains odds ratios for efficacy of 12 antidepressants based on arm-based NMA (upper diagonal part) and pairwise meta-analysis (lower diagonal part).

Source

Cipriani A et al. (2009) "Comparative efficacy and acceptability of 12 new-generation antidepressants: a multiple-treatments meta-analysis." *The Lancet* **373**(9665), 746–58.

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ad12.rr.rd   *Network Meta-Analysis Results (RR and RD) on 12 Antidepressants*

Description

An example of network meta-analysis results.

Usage

```
data("ad12.rr.rd")
```

Format

A list containing 5 data frames:

Point_estimates a 12*12 data frame storing point estimates.

Interval_estimates_LB a 12*12 data frame storing lower bound of interval estimates.

Interval_estimates_UB a 12*12 data frame storing upper bound of interval estimates.

Pvalues a 12*12 data frame storing p-values.

Treatment_specific_values a 12*4 data frame storing treatment id, treatment names, treatment surface under the cumulative ranking (SUCRA)

Details

It contains results of risk ratios (upper diagonal part) and risk differences (lower diagonal part) for efficacy of 12 antidepressants.

Source

Cipriani A et al. (2009) "Comparative efficacy and acceptability of 12 new-generation antidepressants: a multiple-treatments meta-analysis." *The Lancet* **373**(9665), 746–58.

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ad22	*Network Meta-Analysis Results on 21 Antidepressants and Placebo*

Description

An example of network meta-analysis results.

Usage

```
data("ad22")
```

Format

A list containing 5 data frames:

Point_estimates a 22*22 data frame storing point estimates.

Interval_estimates_LB a 22*22 data frame storing lower bound of interval estimates.

Interval_estimates_UB a 22*22 data frame storing upper bound of interval estimates.

Pvalues a 22*22 data frame storing p-values.

Treatment_specific_values a 22*4 data frame storing treatment id, treatment names, treatment surface under the cumulative ranking (SUCRA) for efficacy and acceptability

Details

It contains odds ratios for efficacy (upper diagonal part) and acceptability (lower diagonal part) of 21 antidepressants and placebo based on contrast-based network meta-analysis

Source

Cipriani A et al. (2018) "Comparative efficacy and acceptability of 21 antidepressant drugs for the acute treatment of adults with major depressive disorder: a systematic review and network meta-analysis." *The Lancet* **391**(10128), 1357–1366.

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plateplot	*Plotting the NMA results*

Description

plateplot plots a graphical display of results from network meta-analysis (NMA)

Usage

```
plateplot(nma_result,
          null_value_zero = c(FALSE, FALSE),
          lower_better = c(FALSE, TRUE),
          design_method = c("circle", "circle"),
          plate_circle_minsize = c(2.0, 2.0),
          plate_circle_maxsize = c(13.0, 13.0),
          plate_circle_samesize = FALSE,
          transform_rc_ullr_boolean = TRUE,
          text_size = 3.0,
          bold = FALSE,
          max_substring = 4,
          title = NA,
          upper_diagonal_name = NA,
          lower_diagonal_name = NA,
          diagonal_color = c("#F0E2E6", "#E51D8E"),
          offdiagonal_color = c("khaki", "cornsilk"),
         text_and_circle_color = c("red", "grey10", "blue", "grey70", "white"))
```

Arguments

nma_result   the network meta-analysis results. Please load attached datasets "Antidepres-
                sants12_1" for details.

null_value_zero

                a vector of two logical values for upper and lower diagonal parts respectively.
                TRUE indicates the null value of estimates is zero, and FALSE indicates the
                null value of estimates is one. Obviously, we should use FALSE and TRUE for
                risk ratio and odds ratio, and choose TRUE for risk difference and standardized
                mean difference.

lower_better   a vector of two logical values for upper and lower diagonal parts respectively.
                TRUE indicates lower estimates implying better treatment, and vice versa.

design_method   a vector of indicators for upper diagonal matrix and lower diagonal matrix. de-
                sign_method = "cicle" means plate plot is drawn; design_method = "text" means
                text is displayed. Allowed values are c(upper diagonal matrix, lower diago-
                nal matrix): c("circle", "text"), c("circle", "circle"), c("text", "circle"), c("text",
                "text").

plate_circle_minsize

                a vector of circle minimum size for upper diagonal matrix and lower diagonal
                parts.

plate_circle_maxsize

                a vector of circle maximum size for upper diagonal matrix and lower diagonal
                parts.

plate_circle_samesize

                a logical value. If you think upper and lower diagonal need to have the same
                function to adjust the circle size, you can set plate_circle_samesize = TRUE.

transform_rc_ullr_boolean

                a logical value to indicate whether you want to transform the dataset from row-
                column type to upper-left lower-right type.

text_size	a positive real number for text size in the plot.
bold	a logical value to indicate whether you want numbers to be bold or not.
max_substring	a positive number to determine to display first several (max_substring) characters of treatment names.
title	a character string fot the title.

upper_diagonal_name

a character string for the name of upper diagonal part.

lower_diagonal_name

a character string for the name of lower diagonal part.

diagonal_color	an array of two color names to define colors for SUCRA=0 and SUCRA=1.

offdiagonal_color

an array of two colors for upper and lower diagonal parts.

text_and_circle_color

an array of five color names (A, B, C, D, E). "(A, B, C)" is used to define varying colors (based on low, mid and high p-values) for texts or circles represent upper bound of interval estimate. "D" is color for circles represent point estimate. "E" is color for circles represent lower bound of interval estimate.

Details

Please read package's Vignette for details.

Value

A ggplot object is generated.

Examples

```
data("ad12.eff.acc")
plateplot(ad12.eff.acc,
design_method = c("circle", "circle"),
upper_diagonal_name = "Efficacy",
lower_diagonal_name = "Acceptability")
plateplot(ad12.eff.acc,
design_method = c("text", "text"),
upper_diagonal_name = "Efficacy",
lower_diagonal_name = "Acceptability")

data("ad12.rr.rd")
plateplot(ad12.rr.rd,
null_value_zero = c(FALSE, TRUE),
lower_better = c(FALSE, FALSE),
design_method = c("text", "text"),
text_size = 2.8, bold = TRUE,
upper_diagonal_name = "Efficacy: Risk ratio",
lower_diagonal_name = "Efficacy: Risk difference")

data("ad12.pma.nma")
plateplot(ad12.pma.nma,
```

```
       design_method = c("circle", "circle"),
       plate_circle_minsize = c(2, 2),
       plate_circle_maxsize = c(30, 30),
       plate_circle_samesize = TRUE,
       upper_diagonal_name = "Network meta-analysis",
       lower_diagonal_name = "Pairwise meta-analysis")

       data("ad22")
       plateplot(ad22,
       design_method = c("circle", "circle"),
       plate_circle_minsize = c(1.5, 1.5),
       plate_circle_maxsize = c(7, 7),
       text_size = 1.5,
       plate_circle_samesize = FALSE,
       upper_diagonal_name = "Efficacy",
       lower_diagonal_name = "Acceptability")
```

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