Package 'extfunnel'

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Type Package

Title Additional Funnel Plot Augmentations

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Description This is a package containing the function extfunnel() which produces a funnel plot including additional augmentations such as statistical significance contours and heterogeneity contours.

Depends rmeta

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extfunnel-package   *Additional Funnel Plot Augmentations*

Description

This is a package containing the function extfunnel() which produces a funnel plot including additional augmentations such as statistical significance contours and heterogeneity contours.

Details

Package:	extfunnel
Type:	Package
Version:	1.0
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License:	What license is it under?

Author(s)

Dean Langan (author and maintainer): <dl790@york.ac.uk>

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extfunnel   *Additional Funnel Plot Augmentations*

Description

This is a package containing the function extfunnel() which produces a funnel plot including additional augmentations such as statistical significance contours and heterogeneity contours.

Usage

```
extfunnel(SS, seSS, method,
  sig.level=0.05, contour=FALSE, isquared=NULL, tausquared=NULL,
  contour.points=200, summ=FALSE, summ.pos=0, pred.interval=FALSE,
  plot.zero=FALSE, plot.summ=FALSE, ylim=NULL, xlim=NULL, legend=TRUE,
  expxticks=NULL, xticks=NULL, yticks=NULL, zero=0, xlab=NULL,
  ylab=NULL, rand.load=10, legendpos=c(xlim[2]+0.05*(xlim[2]-xlim[1]),ylim[2]),
  xpoints=NULL, ypoints=NULL, points=TRUE)
```

Arguments

SS	Effect estimates of the current studies. SS is assumed to be normally distributed meaning odds ratios, for example, should be log-transformed.
seSS	Standard errors of the study effect estimates SS.
method	Choice of fixed or random effects, method="fixed" or method="random".
sig.level	Significance level in decimal form.
contour	If contour="TRUE", displays statistical significance contours.
isquared	Values that define the I-squared contours. Must be a vector of maximum length 4 and should have elements in the range 0-100. To compute an I-squared contour based on the current I-squared, set one element of the vector to -1. The I-squared contours will not be displayed if the isquared argument is not used.
tausquared	Values that define the Tau-squared contours. Must be a vector of maximum length 4 and should have elements in the range 0-Inf. To compute a Tau-squared contour based on the current Tau-squared, set one element of the vector to -1. The Tau-squared contours will not be displayed if the tausquared argument is not used.
contour.points	The smoothing constant for any contour. A greater number means a smoother contour but this takes longer to compute.
summ	If summ="TRUE", a summary diamond including pooled effect and confidence interval is included (significance level as defined by sig.level).
summ.pos	Vertical position of the summary diamond summ.
pred.interval	Displays a predicitve interval (Higgins J, 2009) along with the summary diamond "summ" (significance level as defined by "sig.level").
plot.zero	If plot.zero="TRUE", plots a vertical line which represents the null effect (defined by zero).
plot.summ	If plot.summ="TRUE", plots a vertical line which represents the current pooled estimate.
ylim	Limits of the y-axis, in the form c(y1,y2).
xlim	Limits of the x-axis, in the form c(x1,x2).
legend	If legend="TRUE" (default), a key/legend is displayed.
expxticks	A vector of custom ticks for the x-axis on an exponential scale in the form c(x1,x2,...). If this argument is used, the input effect estimates SS are assumed to be log-transformed.
xticks	A vector of custom ticks for the x-axis in the form c(x1,x2,...).
yticks	A vector of custom ticks for the y-axis in the form c(y1,y2,...).
zero	Value for the null effect.
xlab	Label for the x-axis.
ylab	Label for the y-axis.
legendpos	Position of the legend (where legend="TRUE"). Defined at the upper left hand corner on the x and y axis scales in the form c(x,y).

xpoints	Add extra point(s) in the plot to show as an example - Values along the x-axis. Must be the same length as ypoints.
ypoints	Add extra point(s) in the plot to show as an example - Values along the y-axis. Must be the same length as xpoints.
points	If points="FALSE", the scatter of studies is not displayed.
rand.load	How often to update percentage of computations that are complete. Only when method="random".

Details

Note that this function becomes computationally intense if method="random" and contour="TRUE". Choosing as small number of contour points (i.e. contour.points=50) is recommended which produces a 'rough' graph for exploratory purposes before producing a final graph. In this case, contour.points=500 is recommended for producing smoothed/detailed graphs.

The R-package rmeta must be installed and loaded before extfunnel will work.

Author(s)

Dean Langan, Julian PT Higgins, Walter gregory, Alexander Sutton.

References

Higgins J, Thompson S, Spiegelhalter D. A re-evaluation of random-effects meta-analysis. J R Stat Soc Ser A Stat Soc Jan 2009; 172:137-159

Examples

```
#load package once installed
library(extfunnel)

####Example 1: statistical significance contours

#common effect estimate of each study (difference in the epworth score)
SS<-c(0, 4, -0.4, 0.9)

#corresponding standard errors of each study effect estimate (SS)
seSS<-c(0.566, 1.158, 0.939, 1.332)

#plots a funnel plot including statistical significance contours (contour=TRUE)
#and summary diamond (summ=TRUE)
extfunnel(SS, seSS, method="fixed", plot.summ=TRUE, plot.zero=TRUE, zero=0,
   xlab="Difference in Epworth Score", contour.points=50, contour=TRUE,
   summ=TRUE, legend=FALSE, ylim=c(1.7,0), xlim=c(-2,5), legendpos=c(5.2,0))

####Example 2: heterogeneity contours

#common effect estimate of each study (log risk ratios)
#Note: risk ratios should be log-transofrmed before input in the extfunnel() function
SS<-c(-1.95, -1.42, -2.03, -0.93, 0.024)
```

```
#corresponding standard errors of each study effect estimate (SS)
seSS<-c(1.021, 1.088, 0.718, 0.536, 0.673)

#plots a funnel plot including heterogeneity contours with the following
#I-Squared values:  6.5%, 15%, 40% and the current I-Squared value of 24.8%
extfunnel(SS, seSS, method="fixed", plot.summ=TRUE, plot.zero=TRUE, zero=0,
   xlab="Risk Ratio", contour.points=200, contour=FALSE, summ=FALSE,
   legend=TRUE, xlim=c(-3,1), expxticks=c(0.05,0.1,0.25,0.5,1,2,4),
   isquared=c(6.5,15,40,-1), ylim=c(1.4,0))
```

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