

Package ‘RMCriteria’

January 17, 2019

Type Package

Title Multicriteria Package

Version 0.2.0

Author Pedro Albuquerque and Gustavo Monteiro

BugReports <https://github.com/lamfo-unb/RMCriteria>

Maintainer Pedro Albuquerque <pedroa@unb.br>

Description Provides a methodology to solve most of multicriteria ranking problems using partial and total pre-order from Promethee methods. Albuquerque & Montenegro (2015) <doi:10.1080/03610926.2014.942432>.

Depends R (>= 3.1.0)

License GPL-2

LazyData TRUE

LinkingTo Rcpp, RcppEigen, RcppNumerical

Imports Rcpp, RcppNumerical, linprog, lpSolve, ggplot2, gridExtra, ggnetwork, network, pastecs, methods, graphics, stats, utils, dplyr

SystemRequirements GNU make

RoxygenNote 6.0.1

NeedsCompilation yes

Repository CRAN

Date/Publication 2019-01-17 15:50:25 UTC

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brutePrometheeIVKernel

Calculates PROMETHEE IV KERNEL method.

Description

Calculates PROMETHEE IV KERNEL method.

Usage

```
brutePrometheeIVKernel(datMat_temp, vecWeights, prefFunction, parms, band, normalize)
```

Arguments

datMat_temp	A matrix containing the data from criterias and alternatives.
vecWeights	A vector of weights for each criteria.
prefFunction	A numerical vector to indicate the type of the Preference Function: <ul style="list-style-type: none"> • prefFunction = 0 Gaussian Preference Function • prefFunction = 1 Usual Preference Function • prefFunction = 2 U-Shape Preference Function • prefFunction = 3 V-Shape Preference Function • prefFunction = 4 Level Preference Function • prefFunction = 5 V-Shape Preference and Indifference Function
parms	a numerical matrix with parameters associated to the Preference Function. They're defined as a matrix of n columns and m rows. The maximum number of parameters is 3 and m is the number of criterias. The parameters are: <ul style="list-style-type: none"> • Indifference Threshold (q) • Preference Threshold (p) • Gaussian Threshold (s)

band	A numerical matrix with m rows corresponding to each criteria and one column corresponding to the bandwidth estimated for that criteria. This bandwidth is used for Kernel Density Estimation in Promethee IV Kernel. By default, it is calculated using bw.nrd0.
normalize	A boolean to normalize the index.

Value

Preference Matrix

plot,RPrometheeI-method

NetworkPlot

Description

Shows the relationship among alternatives using a net graph, where the arrows come from the alternative with biggest PhiPlus and smallest PhiMinus.

Plots PhiPlus and PhiMinus resulting from RPrometheeI results.

Usage

```
## S4 method for signature 'RPrometheeI'
plot(x, y, ...)
```

Arguments

x	the RPromethee object to be plotted.
y	not used in this context.
...	not used in this context.
RPrometheeI	An object resulting from RPrometheeI method.

Author(s)

Pedro Henrique Melo Albuquerque, <pedroa@unb.br>

Gustavo Monteiro Pereira, <monteirogustavop@gmail.com>

References

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 Management science, v. 31, n. 6, p. 647-656, 1985.
<https://pdfs.semanticscholar.org/edd6/f5ae9c1bfb2fdd5c9a5d66e56bdb22770460.pdf>

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PROMETHEE methods. In: Figueria J, Greco S, Ehrgott M (eds) Multiple criteria decision analysis: state of the art surveys.
 Springer Science, Business Media Inc., Boston pp 163??195.
<http://www.springer.com/la/book/9780387230818>

See Also

Other RPromethee methods: [PrometheeIIIPlot](#), [PrometheeIIPlot](#), [PrometheeIPlot](#), [PrometheeIVPlot](#), [RPrometheeConstructor](#), [RPrometheeIII](#), [RPrometheeII](#), [RPrometheeIVKernel](#), [RPrometheeIV](#), [RPrometheeI](#), [RPrometheeV](#), [SensitivityAnalysis](#), [UpdateRPrometheeAlternatives](#), [UpdateRPrometheeArguments](#), [WalkingWeightsPlot](#)

plot,RPrometheeII-method

Plots RPrometheeII objects

Description

Plots the net Phi, resulting from RPrometheeII method.

Usage

```
## S4 method for signature 'RPrometheeII'
plot(x, y, ...)
```

Arguments

x	the RPromethee object to be plotted.
y	not used in this context.
...	not used in this context.

plot,RPrometheeIII-method

Plots RPrometheeIII objects

Description

Plots the Phi interval for each alternative and also its Phi dot.

Usage

```
## S4 method for signature 'RPrometheeIII'
plot(x, y, ...)
```

Arguments

x	the RPromethee object to be plotted.
y	not used in this context.
...	not used in this context.

plot,RPrometheeIV-method

Plots RPrometheeIV objects

Description

Plots PhiPlus and PhiMinus resulting from RPrometheeIV results

Usage

```
## S4 method for signature 'RPrometheeIV'
plot(x, y, ...)
```

Arguments

x	the RPromethee object to be plotted.
y	not used in this context.
...	not used in this context.

print,RPrometheeArguments-method

Prints a RPromethee object.

Description

Prints main information from a RPrometheeArguments object.

Usage

```
## S4 method for signature 'RPrometheeArguments'
print(x)
```

Arguments

x	A RPromethee object.
...	Not used in this context.

print,RPrometheeI-method
Prints a RPromethee object.

Description

Prints main information from a RPrometheeI object.

Usage

```
## S4 method for signature 'RPrometheeI'  
print(x)
```

Arguments

x	A RPromethee object.
...	Not used in this context.

print,RPrometheeII-method
Prints a RPromethee object.

Description

Prints main information from a RPrometheeII object.

Usage

```
## S4 method for signature 'RPrometheeII'  
print(x)
```

Arguments

x	A RPromethee object.
...	Not used in this context.

print,RPrometheeIII-method

Prints a RPromethee object.

Description

Prints main information from a RPrometheeIII object.

Usage

```
## S4 method for signature 'RPrometheeIII'  
print(x)
```

Arguments

x	A RPromethee object.
...	Not used in this context.

print,RPrometheeIV-method

Prints a RPromethee object.

Description

Prints main information from a RPrometheeIV object.

Usage

```
## S4 method for signature 'RPrometheeIV'  
print(x)
```

Arguments

x	A RPromethee object.
...	Not used in this context.

`print,RPrometheeIVKernel-method`
Prints a RPromethee object.

Description

Prints main information from a RPrometheeIVKernel object.

Usage

```
## S4 method for signature 'RPrometheeIVKernel'  
print(x)
```

Arguments

x	A RPromethee object.
...	Not used in this context.

`print,RPrometheeV-method`
Prints a RPromethee object.

Description

Prints main information from a RPrometheeV object.

Usage

```
## S4 method for signature 'RPrometheeV'  
print(x)
```

Arguments

x	A RPromethee object.
...	Not used in this context.

```
print,SensitivityAnalysis-method
    Prints a RPromethee object.
```

Description

Prints main information from a SensitivityAnalysis object.

Usage

```
## S4 method for signature 'SensitivityAnalysis'
print(x)
```

Arguments

x	A RPromethee object.
...	Not used in this context.

```
PrometheeII    Calculates PROMETHEE II method.
```

Description

Calculates PROMETHEE II method.

Usage

```
PrometheeII(datMat, vecWeights, prefFunction, parms, normalize)
```

Arguments

datMat	A matrix containing the data from criterias and alternatives.
vecWeights	A vector of weights for each criteria.
prefFunction	A numerical vector to indicate the type of the Preference Function: <ul style="list-style-type: none"> • prefFunction = 0 Gaussian Preference Function • prefFunction = 1 Usual Preference Function • prefFunction = 2 U-Shape Preference Function • prefFunction = 3 V-Shape Preference Function • prefFunction = 4 Level Preference Function • prefFunction = 5 V-Shape Preference and Indifference Function
parms	a numerical matrix with parameters associated to the Preference Function. They're defined as a matrix of n columns and m rows. The maximum number of parameters is 3 and m is the number of criterias. The parameters are:

- Indifference Threshold (q)
 - Preference Threshold (p)
 - Gaussian Threshold (s)
- normalize A boolean to normalize the index.

Value

Preference Matrix

PrometheeIII

*Calculates PROMETHEE III method.***Description**

Calculates PROMETHEE III method.

Usage

PrometheeIII(datMat, vecWeights, prefFunction, alphaVector, parms)

Arguments

- datMat A matrix containing the data from criterias and alternatives.
- vecWeights A vector of weights for each criteria.
- prefFunction A numerical vector to indicate the type of the Preference Function:
- prefFunction = 0 Gaussian Preference Function
 - prefFunction = 1 Usual Preference Function
 - prefFunction = 2 U-Shape Preference Function
 - prefFunction = 3 V-Shape Preference Function
 - prefFunction = 4 Level Preference Function
 - prefFunction = 5 V-Shape Preference and Indifference Function
- alphaVector A numerical vector to indicate the size of the interval for each alternative in Promethee III ranking.
- parms a numerical matrix with parameters associated to the Preference Function. They're defined as a matrix of n columns and m rows. The maximum number of parameters is 3 and m is the number of criterias. The parameters are:
- Indifference Threshold (q)
 - Preference Threshold (p)
 - Gaussian Threshold (s)

Value

Preference Matrix

PrometheeIIIPlot

PrometheeIIIPlot

Description

Plots the Phi interval for each alternative and also its Phi dot.

Usage

PrometheeIIIPlot(RPrometheeIII)

Arguments

RPrometheeIII An object resulting from RPrometheeIII method.

Author(s)

Pedro Henrique Melo Albuquerque, <pedroa@unb.br>

Gustavo Monteiro Pereira, <monteirogustavop@gmail.com>

References

- J. P. Brans, Ph. Vincke
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Using Fuzzy Preference Method for Group Package Tour Based on the Risk Perception.
Group Decision and Negotiation, v. 23, n. 2, p. 299-323, 2014.
<http://link.springer.com/article/10.1007/s10726-012-9313-7>

See Also

Other RPromethee methods: [PrometheeIIPlot](#), [PrometheeIPlot](#), [PrometheeIVPlot](#), [RPrometheeConstructor](#), [RPrometheeIII](#), [RPrometheeII](#), [RPrometheeIVKernel](#), [RPrometheeIV](#), [RPrometheeI](#), [RPrometheeV](#), [SensitivityAnalysis](#), [UpdateRPrometheeAlternatives](#), [UpdateRPrometheeArguments](#), [WalkingWeightsPlot](#), [plot](#), [RPrometheeI-method](#)

PrometheeIIPlot	<i>PrometheeIIPlot</i>
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Description

Plots the net Phi, resulting from RPrometheeII method.

Usage

```
PrometheeIIPlot(RPrometheeII)
```

Arguments

RPrometheeII An object resulting from RPrometheeII method.

Author(s)

Pedro Henrique Melo Albuquerque, <pedroa@unb.br>

Gustavo Monteiro Pereira, <monteirogustavop@gmail.com>

References

- J. P. Brans, Ph. Vincke
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<https://pdfs.semanticscholar.org/edd6/f5ae9c1bfb2fdd5c9a5d66e56bdb22770460.pdf>
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Springer Science, Business Media Inc., Boston pp 163-195.
<http://www.springer.com/la/book/9780387230818>

See Also

Other RPromethee methods: [PrometheeIIPlot](#), [PrometheeIPlot](#), [PrometheeIVPlot](#), [RPrometheeConstructor](#), [RPrometheeIII](#), [RPrometheeII](#), [RPrometheeIVKernel](#), [RPrometheeIV](#), [RPrometheeI](#), [RPrometheeV](#), [SensitivityAnalysis](#), [UpdateRPrometheeAlternatives](#), [UpdateRPrometheeArguments](#), [WalkingWeightsPlot](#), [plot](#), [RPrometheeI-method](#)

PrometheeIPlot

PrometheeIPlot

Description

Plots PhiPlus and PhiMinus resulting from RPrometheeI results.

Usage

PrometheeIPlot(RPrometheeI)

Arguments

RPrometheeI An object resulting from RPrometheeI method.

Author(s)

Pedro Henrique Melo Albuquerque, <pedroa@unb.br>

Gustavo Monteiro Pereira, <monteirogustavop@gmail.com>

References

- J. P. Brans, Ph. Vincke
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Management science, v. 31, n. 6, p. 647-656, 1985.
<https://pdfs.semanticscholar.org/edd6/f5ae9c1bfb2fdd5c9a5d66e56bdb22770460.pdf>
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Springer Science, Business Media Inc., Boston pp 163-195.
<http://www.springer.com/la/book/9780387230818>

See Also

Other RPromethee methods: [PrometheeIIPlot](#), [PrometheeIIPlot](#), [PrometheeIVPlot](#), [RPrometheeConstructor](#), [RPrometheeIII](#), [RPrometheeII](#), [RPrometheeIVKernel](#), [RPrometheeIV](#), [RPrometheeI](#), [RPrometheeV](#), [SensitivityAnalysis](#), [UpdateRPrometheeAlternatives](#), [UpdateRPrometheeArguments](#), [WalkingWeightsPlot](#), [plot](#), [RPrometheeI-method](#)

PrometheeIV	<i>Calculates PROMETHEE IV method.</i>
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Description

Calculates PROMETHEE IV method.

Usage

```
PrometheeIV(datMat, vecWeights, prefFunction, parms, normalize)
```

Arguments

datMat	A matrix containing the data from criterias and alternatives.
vecWeights	A vector of weights for each criteria.
prefFunction	A numerical vector to indicate the type of the Preference Function: <ul style="list-style-type: none"> • prefFunction = 0 Gaussian Preference Function • prefFunction = 1 Usual Preference Function • prefFunction = 2 U-Shape Preference Function • prefFunction = 3 V-Shape Preference Function • prefFunction = 4 Level Preference Function • prefFunction = 5 V-Shape Preference and Indifference Function
parms	A numerical matrix with parameters associated to the Preference Function. They're defined as a matrix of n columns and m rows. The maximum number of parameters is 3 and m is the number of criterias. The parameters are: <ul style="list-style-type: none"> • Indifference Threshold (q) • Preference Threshold (p) • Gaussian Threshold (s)
normalize	A boolean to normalize the index.

Value

Preference Matrix

PrometheeIVKernel *Calculates PROMETHEE IV KERNEL method.*

Description

Calculates PROMETHEE IV KERNEL method.

Usage

```
PrometheeIVKernel(datMat, vecWeights, prefFunction, parms, band, normalize)
```

Arguments

datMat	A matrix containing the data from criterias and alternatives.
vecWeights	A vector of weights for each criteria.
prefFunction	A numerical vector to indicate the type of the Preference Function: <ul style="list-style-type: none"> • prefFunction = 0 Gaussian Preference Function • prefFunction = 1 Usual Preference Function • prefFunction = 2 U-Shape Preference Function • prefFunction = 3 V-Shape Preference Function • prefFunction = 4 Level Preference Function • prefFunction = 5 V-Shape Preference and Indifference Function
parms	a numerical matrix with parameters associated to the Preference Function. They're defined as a matrix of n columns and m rows. The maximum number of parameters is 3 and m is the number of criterias. The parameters are: <ul style="list-style-type: none"> • Indifference Threshold (q) • Preference Threshold (p) • Gaussian Threshold (s)
band	A numerical matrix with m rows corresponding to each criteria and one column corresponding to the bandwidth estimated for that criteria. This bandwidth is used for Kernel Density Estimation in Promethee IV Kernel. By default, it is calculated using bw.nrd0.
normalize	A boolean to normalize the index.

Value

Preference Matrix

PrometheeIVPlot

PrometheeIVPlot

Description

Plots PhiPlus and PhiMinus resulting from RPrometheeIV results.

Usage

PrometheeIVPlot(RPrometheeIV)

Arguments

RPrometheeIV An object resulting from RPrometheeIV method.

Author(s)

Pedro Henrique Melo Albuquerque, <pedroa@unb.br>

Gustavo Monteiro Pereira, <monteirogustavop@gmail.com>

References

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PROMETHEE: A comprehensive literature review on methodologies and applications
European Journal of Operational Research v. 200, p.198-215, 2010.
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<https://pdfs.semanticscholar.org/edd6/f5ae9c1bfb2fdd5c9a5d66e56bdb22770460.pdf>
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Springer Science, Business Media Inc., Boston pp 163-195.
<http://www.springer.com/la/book/9780387230818>
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Group Decision and Negotiation, v. 23, n. 2, p. 299-323, 2014.
<http://link.springer.com/article/10.1007/s10726-012-9313-7>

See Also

Other RPromethee methods: [PrometheeIIIPlot](#), [PrometheeIIPlot](#), [PrometheeIPlot](#), [RPrometheeConstructor](#), [RPrometheeIII](#), [RPrometheeII](#), [RPrometheeIVKernel](#), [RPrometheeIV](#), [RPrometheeI](#), [RPrometheeV](#), [SensitivityAnalysis](#), [UpdateRPrometheeAlternatives](#), [UpdateRPrometheeArguments](#), [WalkingWeightsPlot](#), [plot](#), [RPrometheeI-method](#)

RMCriteria

RMCriteria: Solves MCDA problems using Promethee methods.

Description

RMCriteria solves Multiple-Criteria Decision Analysis (MCDA) problems. For now, it only supports Promethee methods, but other methods may be developed in the future.

Details

RMCriteria supports Promethees I, II, III, IV, IV Kernel and V.

RPrometheeArguments-class

An S4 class to be used by all RPromethee methods.

Description

An S4 class to be used by all RPromethee methods.

Slots

`datMat` A matrix containing the data from criterias and alternatives.

`vecWeights` A vector of weights for each criteria.

`vecMaximiz` A logical vector to indicate if the criteria should be maximized or minimized.

`prefFunction` A numerical vector to indicate the type of the Preference Function

`parms` a numerical matrix with parameters associated to the Preference Function. They're defined as a matrix of n columns and m rows. The maximum number of parameters is 3 and m is the number of criterias.

`normalize` A boolean to normalize the index.

`alphaVector` A numerical vector to indicate the size of the interval for each alternative in Promethee III ranking.

`band` A numerical matrix with m rows corresponding to each criteria and one column corresponding to the bandwitch estimated for that criteria.

`constraintDir` A character vector with the direction of constraints to be optimized in Promethee V.

`bounds` A numeric vector used in Promethee V for the right-hand sides of the constraints.

`alternatives` A character vector with alternatives names.

`criterias` A character vector with criterias names.

 RPrometheeConstructor *RPrometheeConstructor*

Description

Create a RPrometheeArguments object to be used by RPromethee methods.

Usage

```
RPrometheeConstructor(datMat, vecWeights, vecMaximiz, prefFunction, parms,
  normalize, alphaVector = NULL, band = NULL, constraintDir = NULL,
  bounds = NULL, alternatives = NULL, criterias = NULL)
```

Arguments

datMat	A matrix containing the data from criterias and alternatives.
vecWeights	A vector of weights for each criteria.
vecMaximiz	A logical vector to indicate if the criteria should be maximized or minimized.
prefFunction	A numerical vector to indicate the type of the Preference Function: <ul style="list-style-type: none"> • prefFunction=0 Gaussian Preference Function • prefFunction=1 Usual Preference Function • prefFunction=2 U-Shape Preference Function • prefFunction=3 V-Shape Preference Function • prefFunction=4 Level Preference Function • prefFunction=5 V-Shape Preference and Indifference Function
parms	a numerical matrix with parameters associated to the Preference Function. They're defined as a matrix of n columns and m rows. The maximum number of parameters is 3 and m is the number of criterias. The parameters are: <ul style="list-style-type: none"> • Indifference Threshold (q) • Preference Threshold (p) • Gaussian Threshold (s)
normalize	A boolean to normalize the index.
alphaVector	A numerical vector to indicate the size of the interval for each alternative in Promethee III ranking.
band	A numerical matrix with m rows corresponding to each criteria and one column corresponding to the bandwidth estimated for that criteria. This bandwidth is used for Kernel Density Estimation in Promethee IV Kernel. By default, it is calculated using bw.nrd0.
constraintDir	A character vector with the direction of constraints to be optimized in Promethee V. The values must be combinations of >, < and = operators. If missing, it's calculated using "<=" for all criterias.
bounds	A numeric vector used in Promethee V for the right-hand sides of the constraints.
alternatives	A character vector with alternatives names.
criterias	A character vector with criterias names.

Details

This function is used to create a `RPrometheeArguments` object. This object is used by all `RPromethee` methods, being necessary to include only the arguments that are used by the desired method. The arguments `datMat`, `vecWeights`, `vecMaximiz`, `prefFunction`, `parms`, `normalize` must be specified for all methods. The following methods use additional arguments:

- `RPrometheeIII` uses `alphaVector`
- `RPrometheeIVKernel` uses `band`
- `RPrometheeV` uses `constraintDir` and `bounds`

Author(s)

Pedro Henrique Melo Albuquerque, <pedroa@unb.br>

Gustavo Monteiro Pereira, <monteirogustavop@gmail.com>

See Also

[RPrometheeI](#), [RPrometheeII](#), [RPrometheeIII](#), [RPrometheeIV](#), [RPrometheeIVKernel](#), [RPrometheeV](#)

Other `RPromethee` methods: [PrometheeIIIPlot](#), [PrometheeIIPlot](#), [PrometheeIPlot](#), [PrometheeIVPlot](#), [RPrometheeIII](#), [RPrometheeII](#), [RPrometheeIVKernel](#), [RPrometheeIV](#), [RPrometheeI](#), [RPrometheeV](#), [SensitivityAnalysis](#), [UpdateRPrometheeAlternatives](#), [UpdateRPrometheeArguments](#), [WalkingWeightsPlot](#), [plot](#), [RPrometheeI-method](#)

RPrometheeI

RPrometheeI

Description

Proposed by Brans and Vincke (1985), PROMETHEE I method aims to solve sorting problems. According to PROMETHEE I the better alternative is the one with the higher leaving flow and the lower entering flow. Through this result it is possible to obtain a partial preorder where some alternatives remain incomparable.

Usage

```
RPrometheeI(RPrometheeArguments)
```

Arguments

`RPrometheeArguments`

An object with all `RPromethee` arguments. See [RPrometheeConstructor](#) for more information.

Details

The method created by Brans et al. (1985) is based on a set of alternatives $A = a_1, a_2, \dots, a_n$ that will be ordered and a set of criteria $F = f_1, f_2, \dots, f_m$. Two alternatives, a_i and a_j , will be pairwise compared. The intensity of the preference between a_i over a_j ($P_k(dk)$, $dk = f_k(a_i) - f_k(a_j)$) is determined. P_k is considered the preference function for the k th criterion. The evaluation of the alternative a_i , which corresponds to criterion f_k , is $f_k(a_i)$ (Hsu, Lin, 2014).

Six types of preference functions were proposed by Brans et al. (1985). The preference scales values range from 0 (no preference) to 1 (strong preference).

While analysing the entering and leaving flows, it can be observed that an alternative is better than the other when it has the higher leaving flow and the lower entering flow. PROMETHEE I method create a partial pre-order that can be acquired by comparing the leaving and entering flow (Brans and Mareschal 2005).

Value

- PhiPlus The resulting PhiPlus from the alternatives for all criterias.
- PhiMinus The resulting PhiMinus from the alternatives for all criterias
- alternatives The alternatives names.

Author(s)

Pedro Henrique Melo Albuquerque, <pedroa@unb.br>

Gustavo Monteiro Pereira, <monteirogustavop@gmail.com>

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<http://link.springer.com/article/10.1007/s10726-012-9313-7>

See Also

Other RPromethee methods: [PrometheeIIIPlot](#), [PrometheeIIPlot](#), [PrometheeIPlot](#), [PrometheeIVPlot](#), [RPrometheeConstructor](#), [RPrometheeIII](#), [RPrometheeII](#), [RPrometheeIVKernel](#), [RPrometheeIV](#), [RPrometheeV](#), [SensitivityAnalysis](#), [UpdateRPrometheeAlternatives](#), [UpdateRPrometheeArguments](#), [WalkingWeightsPlot](#), [plot](#), [RPrometheeI-method](#)

Examples

```

library(RMCriteria)
## Create objects for each argument
data <- matrix(c(5.2, -3.5,
                4.3, -1.2,
                6.7, -2.0), byrow = TRUE, ncol = 2, nrow = 3)

parms <- matrix(c(NA, NA), byrow = TRUE, ncol = 1, nrow = 2)
vecWeights <- c(0.3, 0.7)
vecMaximiz <- c(FALSE, TRUE)
prefFunction <- c(0, 0)
normalize <- FALSE
alternatives <- c("Alt 1", "Alt 2", "Alt 3")

## Create RPrometheeArguments object
PromObj <- RPrometheeConstructor(datMat = data, vecWeights = vecWeights,
vecMaximiz = vecMaximiz, prefFunction = prefFunction,
parms = parms, normalize = normalize, alternatives = alternatives)

## Run RPrometheeI
(result <- RPrometheeI(PromObj))

## There are two alternatives two plot a RPrometheeI object:
plot(result)
PrometheeIPlot(result)

## Updating alternatives name using UpdateRPrometheeAlternatives
newAlternatives <- c("A", "B", "C")
result <- UpdateRPrometheeAlternatives(result, newAlternatives)

## Updating any argument using UpdateRPrometheeArguments
newWeights <- c(0.5, 0.5)
PromObj <- UpdateRPrometheeArguments(PromObj, "vecWeights", newWeights)
(results <- RPrometheeI(PromObj))

```

RPrometheeI-class *An S4 class to store results from RPrometheeI.*

Description

An S4 class to store results from RPrometheeI.

Slots

PhiPlus A numeric vector with the PhiPlus result from Promethee.

PhiMinus A numeric vector with the PhiMinus result from Promethee.

alternatives A character vector with alternatives names.

criterias A character vector with criterias names.
 datMat A matrix containing the data from criterias and alternatives.

 RPrometheeII

RPrometheeII

Description

Proposed by Brans and Vincke (1985), PROMETHEE II method aims to solve sorting problems. The PROMETHEE II method performs a total ordering of the alternatives set by calculating the net outranking flow (HENDRIKS et al., 1992), with the objective of solving the problem that no unambiguous solution can be given due to incomparability.

Usage

RPrometheeII(RPrometheeArguments)

Arguments

RPrometheeArguments

An object with all RPromethee arguments. See [RPrometheeConstructor](#) for more information.

Details

The method created by Brans et al. (1985) is based on a set of alternatives $A = a_1, a_2, \dots, a_n$ that will be ordered and a set of criteria $F = f_1, f_2, \dots, f_m$. Two alternatives, a_i and a_j , will be pairwise compared. The intensity of the preference between a_i over a_j ($P_k(a_i, a_j)$, $dk = f_k(a_i) - f_k(a_j)$) is determined. P_k is considered the preference function for the k th criterion. The evaluation of the alternative a_i , which corresponds to criterion f_k , is $f_k(a_i)$ (Hsu, Lin, 2014).

Six types of preference functions were proposed by Brans et al. (1985). The preference scales values range from 0 (no preference) to 1 (strong preference).

While analysing the entering and leaving flows, it can be observed that an alternative is better than the other when it has the higher leaving flow and the lower entering flow. PROMETHEE I method create a partial pre-order that can be acquired by comparing the leaving and entering flow (Brans and Mareschal 2005).

Value

- Phi The resulting net Phi from the alternatives for all criterias.
- alternatives The alternatives names.
- criterias The criterias names.
- datMat The data used corresponding to criterias and alternatives.

Author(s)

Pedro Henrique Melo Albuquerque, <pedroa@unb.br>

Gustavo Monteiro Pereira, <monteirogustavop@gmail.com>

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<http://www.springer.com/la/book/9780387230818>
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<http://link.springer.com/article/10.1007/s10726-012-9313-7>

See Also

Other RPromethee methods: [PrometheeIIIPlot](#), [PrometheeIIPlot](#), [PrometheeIPlot](#), [PrometheeIVPlot](#), [RPrometheeConstructor](#), [RPrometheeIII](#), [RPrometheeIVKernel](#), [RPrometheeIV](#), [RPrometheeI](#), [RPrometheeV](#), [SensitivityAnalysis](#), [UpdateRPrometheeAlternatives](#), [UpdateRPrometheeArguments](#), [WalkingWeightsPlot](#), [plot](#), [RPrometheeI-method](#)

Examples

```
## Create objects for each argument
data <- matrix(c(5.2, -3.5,
                4.3, -1.2,
                6.7, -2.0), byrow = TRUE, ncol = 2, nrow = 3)

parms <- matrix(c(NA, NA), byrow = TRUE, ncol = 1, nrow = 2)
vecWeights <- c(0.3, 0.7)
vecMaximiz <- c(FALSE, TRUE)
prefFunction <- c(0, 0)
normalize <- FALSE
alternatives <- c("Alt 1", "Alt 2", "Alt 3")

## Create RPrometheeArguments object
PromObj <- RPrometheeConstructor(datMat = data, vecWeights = vecWeights,
vecMaximiz = vecMaximiz, prefFunction = prefFunction, parms = parms,
normalize = normalize, alternatives = alternatives)

## Run RPrometheeII
(result <- RPrometheeII(PromObj))

## There are two alternatives two plot a RPrometheeII object:
plot(result)
PrometheeIIPlot(result)
```



```
## Updating alternatives name using UpdateRPrometheeAlternatives
newAlternatives <- c("A", "B", "C")
result <- UpdateRPrometheeAlternatives(result, newAlternatives)

## Updating any argument using UpdateRPrometheeArguments
newWeights <- c(0.5, 0.5)
PromObj <- UpdateRPrometheeArguments(PromObj, "vecWeights", newWeights)
(results <- RPrometheeII(PromObj))
```

RPrometheeII-class *An S4 class to store results from RPrometheeII.*

Description

An S4 class to store results from RPrometheeII.

Slots

Phi A numeric vector with the net Phi from Promethee.
 vecWeights A numeric vector with the weights for each criteria.
 alternatives A character vector with alternatives names.
 criterias A character vector with criterias names.
 datMat A matrix containing the data from criterias and alternatives.

RPrometheeIII *RPrometheeIII*

Description

PROMETHEE III method includes a tolerance region in the preordering of alternatives. That is, an indifference region is created, different from PROMETHEE I and II, where indifference only occurs when the performance of two alternatives is exactly the same.

Usage

```
RPrometheeIII(RPrometheeArguments)
```

Arguments

RPrometheeArguments
 an object with all RPromethee arguments. In this method, the object must have the argument `alphaVector` to indicate the size of the interval for each alternative. See [RPrometheeConstructor](#) for more information.

Value

- limInf The inferior limit for the interval defined for each flow.
- limSup The superior limit for the interval defined for each flow.
- Phi The resulting net Phi from the alternatives for all criterias.
- alternatives The alternatives names.
- criterias The criterias names.
- datMat The data used corresponding to criterias and alternatives.

Author(s)

Pedro Henrique Melo Albuquerque, <pedroa@unb.br>

Gustavo Monteiro Pereira, <monteirogustavop@gmail.com>

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<http://link.springer.com/article/10.1007/s10726-012-9313-7>

See Also

Other RPromethee methods: [PrometheeIIIPlot](#), [PrometheeIIPlot](#), [PrometheeIPlot](#), [PrometheeIVPlot](#), [RPrometheeConstructor](#), [RPrometheeII](#), [RPrometheeIVKernel](#), [RPrometheeIV](#), [RPrometheeI](#), [RPrometheeV](#), [SensitivityAnalysis](#), [UpdateRPrometheeAlternatives](#), [UpdateRPrometheeArguments](#), [WalkingWeightsPlot](#), [plot](#), [RPrometheeI-method](#)

Examples

```

## Create objects for each argument
data <-matrix(c(5.2, -3.5,
              4.3, -1.2,
              6.7, -2.0), byrow = TRUE, ncol = 2, nrow = 3)

parms <- matrix(c(NA, NA), byrow = TRUE, ncol = 1, nrow = 2)
vecWeights <- c(0.3, 0.7)
vecMaximiz <- c(FALSE, TRUE)
prefFunction <- c(0,0)
alphaVector <- c(1, 2, 1)
normalize <- FALSE
alternatives <- c("Alt 1", "Alt 2", "Alt 3")

## Create RPrometheeArguments object
PromObj <- RPrometheeConstructor(datMat = data, vecWeights = vecWeights,
vecMaximiz = vecMaximiz, prefFunction = prefFunction, parms = parms,
normalize = normalize, alternatives = alternatives, alphaVector = alphaVector)

## Run RPrometheeIII
(result <- RPrometheeIII(PromObj))

## There are two alternatives two plot a RPrometheeIII object:
plot(result)
PrometheeIIIPlot(result)

## Updating alternatives name using UpdateRPrometheeAlternatives
newAlternatives <- c("A", "B", "C")
result <- UpdateRPrometheeAlternatives(result, newAlternatives)

## Updating any argument using UpdateRPrometheeArguments
newAlphaVector <- c(1, 1, 1)
PromObj <- UpdateRPrometheeArguments(PromObj, "alphaVector", newAlphaVector)
result <- RPrometheeIII(PromObj)

```

RPrometheeIII-class *An S4 class to store results from RPrometheeIII.*

Description

An S4 class to store results from RPrometheeIII.

Slots

limInf A numeric vector with the inferior limit for the interval defined for each flow.

limSup A numeric vector with the superior limit for the interval defined for each flow

Phi A numeric vector with the net Phi from Promethee.

alternatives A character vector with alternatives names.

criteria A character vector with criteria names.

datMat A matrix containing the data from criteria and alternatives.

RPrometheeIV

RPrometheeIV

Description

Proposed by Brans and Vincke (1985), PROMETHEE II method aims to solve sorting problems. The PROMETHEE II method performs a total ordering of the alternatives set by calculating the net outranking flow (HENDRIKS et al., 1992), with the objective of solving the problem that no unambiguous solution can be given due to incomparability.

Usage

RPrometheeIV(RPrometheeArguments)

Arguments

RPrometheeArguments

An object with all RPromethee arguments. It's important that parms argument isn't compound of NA values. See [RPrometheeConstructor](#) for more information.

Value

- PhiPlus The resulting PhiPlus from the alternatives for all criteria.
- PhiMinus The resulting PhiMinus from the alternatives for all criteria
- Index The index resulting from the lp solution.
- alternatives The alternatives names.
- criteria The criteria names.
- datMat The data used corresponding to criteria and alternatives.

Author(s)

Pedro Henrique Melo Albuquerque, <pedroa@unb.br>

Gustavo Monteiro Pereira, <monteirogustavop@gmail.com>

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<http://link.springer.com/article/10.1007/s10726-012-9313-7>

See Also

Other RPromethee methods: [PrometheeIIIPlot](#), [PrometheeIIPlot](#), [PrometheeIPlot](#), [PrometheeIVPlot](#), [RPrometheeConstructor](#), [RPrometheeIII](#), [RPrometheeII](#), [RPrometheeIVKernel](#), [RPrometheeI](#), [RPrometheeV](#), [SensitivityAnalysis](#), [UpdateRPrometheeAlternatives](#), [UpdateRPrometheeArguments](#), [WalkingWeightsPlot](#), [plot](#), [RPrometheeI-method](#)

Examples

```
## Create objects for each argument
data <- matrix(c(5.2, -3.5,
                4.3, -1.2,
                6.7, -2.0), byrow = TRUE, ncol = 2, nrow = 3)

parms <- matrix(c(1.0, 1.3), byrow = TRUE, ncol = 1, nrow = 2)
vecWeights <- c(0.3, 0.7)
vecMaximiz <- c(FALSE, TRUE)
prefFunction <- c(0, 0)
normalize <- FALSE
alternatives <- c("Alt 1", "Alt 2", "Alt 3")

## Create RPrometheeArguments object
PromObj <- RPrometheeConstructor(datMat = data, vecWeights = vecWeights,
vecMaximiz = vecMaximiz, prefFunction = prefFunction, parms = parms,
normalize = normalize, alternatives = alternatives)

## Run RPrometheeIV
(result <- RPrometheeIV(PromObj))

## There are two alternatives two plot a RPrometheeIV object:
plot(result)
PrometheeIVPlot(result)

## Updating alternatives name using UpdateRPrometheeAlternatives
newAlternatives <- c("A", "B", "C")
```

```

result <- UpdateRPrometheeAlternatives(result, newAlternatives)

## Updating any argument using UpdateRPrometheeArguments
newPrefFunction <- c(1, 1)
PromObj <- UpdateRPrometheeArguments(PromObj, "prefFunction", newPrefFunction)
(result <- RPrometheeIV(PromObj))

```

RPrometheeIV-class *An S4 class to store results from RPrometheeIV.*

Description

An S4 class to store results from RPrometheeIV.

Slots

PhiPlus A numeric vector with the PhiPlus result from Promethee.

PhiMinus A numeric vector with the PhiMinus result from Promethee.

Index The index resulting from the lp solution.

alternatives A character vector with alternatives names.

criteria A character vector with criterias names.

datMat A matrix containing the data from criterias and alternatives.

RPrometheeIVKernel *RPrometheeIVKernel*

Description

The PROMETHEE IV KERNEL method was developed by Albuquerque and Montenegro (2015), as an alternative method to estimate PROMETHEE IV. It considers the empirical distribution of the criteria through kernel density estimation to evaluate alternatives.

Usage

```
RPrometheeIVKernel(RPrometheeArguments)
```

Arguments

RPrometheeArguments

An object with all RPromethee arguments. For PROMETHEE IV KERNEL, the object must be supplied with a band argument, for Kernel Density Estimation. See [RPrometheeConstructor](#) for more information.

Value

- PhiPlus The resulting PhiPlus from the alternatives for all criterias.
- PhiMinus The resulting PhiMinus from the alternatives for all criterias
- Index The resulting Index from the alternatives for all criterias
- alternatives The alternatives names.
- criterias The criterias names.
- datMat The data used corresponding to criterias and alternatives.

Author(s)

Pedro Henrique Melo Albuquerque, <pedroa@unb.br>

Gustavo Monteiro Pereira, <monteirogustavop@gmail.com>

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See Also

Other RPromethee methods: [PrometheeIIIPlot](#), [PrometheeIIPlot](#), [PrometheeIPlot](#), [PrometheeIVPlot](#), [RPrometheeConstructor](#), [RPrometheeIII](#), [RPrometheeII](#), [RPrometheeIV](#), [RPrometheeI](#), [RPrometheeV](#), [SensitivityAnalysis](#), [UpdateRPrometheeAlternatives](#), [UpdateRPrometheeArguments](#), [WalkingWeightsPlot](#), [plot](#), [RPrometheeI-method](#)

Examples

```

## Create objects for each argument
data <- matrix(c(5.2, -3.5,
                4.3, -1.2,
                6.7, -2.0,
                5.4, -5.0,
                4.8,  0.0,
                2.8, -3.4), byrow = TRUE, ncol = 2)

parms <- matrix(c(1.0, 5.0), byrow = TRUE, ncol = 1, nrow = 2)
vecWeights <- c(0.3, 0.7)
vecMaximiz <- c(FALSE, TRUE)
prefFunction <- c(0, 0)
band <- as.matrix(apply(data, 2, bw.nrd0))
normalize <- FALSE
alternatives <- c("Alt 1", "Alt 2", "Alt 3")

## Create RPrometheeArguments object
PromObj <- RPrometheeConstructor(datMat = data, vecWeights = vecWeights,
vecMaximiz = vecMaximiz, prefFunction = prefFunction, parms = parms,
normalize = normalize, alternatives = alternatives, band = band)

## Run RPrometheeIVKernel
result <- RPrometheeIVKernel(PromObj)

## Updating alternatives name using UpdateRPrometheeAlternatives
newAlternatives <- c("A", "B", "C", "D", "E", "F")
result <- UpdateRPrometheeAlternatives(result, newAlternatives)

## Updating any argument using UpdateRPrometheeArguments
newParms <- matrix(c(1.6, 4.2), byrow = TRUE, ncol = 1)
PromObj <- UpdateRPrometheeArguments(PromObj, "parms", newParms)
result <- RPrometheeIVKernel(PromObj)

```

RPrometheeIVKernel-class

An S4 class to store results from RPrometheeIVKernel.

Description

An S4 class to store results from RPrometheeIVKernel.

Slots

PhiPlus A numeric vector with the PhiPlus result from Promethee.

PhiMinus A numeric vector with the PhiMinus result from Promethee.

Index A numeric vector with the Index result from Promethee.

alternatives A character vector with alternatives names.

`criteria` A character vector with criterias names.
`datMat` A matrix containing the data from criterias and alternatives.

 RPrometheeV

RPrometheeV

Description

PROMETHEE V deals with a subset of alternatives considering a set of restrictions. First, the PROMETHEE II is calculated to get a complete pre-order. Then, binary linear programming is used to select a subset that maximizes the net outranking flow, according to restrictions. The first step can be calculated using PROMETHEE II or PROMETHEE IV, this is defined by the user through the argument `method`. The second step is done using the package [lp](#).

Usage

```
RPrometheeV(RPrometheeArguments, method = "PrometheeII")
```

Arguments

<code>RPrometheeArguments</code>	An object with all RPromethee arguments. In PROMETHEE V, the object must have the arguments <code>constraintDir</code> and <code>bounds</code> , in order to create the subset of alternatives. See RPrometheeConstructor for more information.
<code>method</code>	a character object used to choose how the RPrometheeV is going to be calculated. The method can be "PrometheeII" or "PrometheeIV". The standard is "RPrometheeII".

Value

- `Phi` The resulting net Phi from the alternatives for all criterias.
- `Solution` The solution resulting from linear programming problem.
- `alternatives` The alternatives names.
- `criterias` The criterias names.
- `datMat` The data used corresponding to criterias and alternatives.

Author(s)

Pedro Henrique Melo Albuquerque, <pedroa@unb.br>

Gustavo Monteiro Pereira, <monteirogustavop@gmail.com>

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See Also

Other RPromethee methods: [PrometheeIIIPlot](#), [PrometheeIIPlot](#), [PrometheeIPlot](#), [PrometheeIVPlot](#), [RPrometheeConstructor](#), [RPrometheeIII](#), [RPrometheeII](#), [RPrometheeIVKernel](#), [RPrometheeIV](#), [RPrometheeI](#), [SensitivityAnalysis](#), [UpdateRPrometheeAlternatives](#), [UpdateRPrometheeArguments](#), [WalkingWeightsPlot](#), [plot](#), [RPrometheeI-method](#)

Examples

```
## Create objects for each argument
data <- matrix(c(5.2, -3.5,
                4.3, -1.2,
                6.7, -2.0,
                5.4, -5.0,
                4.8,  0.0,
                2.8, -3.4), byrow = TRUE, ncol = 2)

parms <- matrix(c(1.0, 5.0), byrow = TRUE, ncol = 1, nrow = 2)
vecWeights <- c(0.3, 0.7)
vecMaximiz <- c(FALSE, TRUE)
prefFunction <- c(0, 0)
constraintDir <- rep("<=", ncol(data))
bounds <- c(7,-1)
normalize <- FALSE
alternatives <- c("Alt 1", "Alt 2", "Alt 3")

## Create RPrometheeArguments object
PromObj <- RPrometheeConstructor(datMat = data, vecWeights = vecWeights,
```

```

vecMaximiz = vecMaximiz, prefFunction = prefFunction, parms = parms,
normalize = normalize, alternatives = alternatives, bounds = bounds,
constraintDir = constraintDir)

## Run RPrometheeV using standard method ("RPrometheeII")
result <- RPrometheeV(PromObj)

## Run RPrometheeV using "RPrometheeIV"
result <- RPrometheeV(PromObj, method = "RPrometheeIV")

## Updating alternatives name using UpdateRPrometheeAlternatives
newAlternatives <- c("A", "B", "C", "D", "E", "F")
result <- UpdateRPrometheeAlternatives(result, newAlternatives)

## Updating any argument using UpdateRPrometheeArguments
newBounds <- c(5, -2)
PromObj <- UpdateRPrometheeArguments(PromObj, "bounds", newBounds)
(result <- RPrometheeV(PromObj))

```

RPrometheeV-class *An S4 class to store results from RPrometheeV.*

Description

An S4 class to store results from RPrometheeV.

Slots

Phi A numeric vector with the net Phi from Promethee.
Solution The solution resulting from the linear programming problem.
alternatives A character vector with alternatives names.
criteria A character vector with criterias names.
datMat A matrix containing the data from criterias and alternatives.

SensitivityAnalysis *SensitivityAnalysis*

Description

Sensitivity Analysis is a method developed by Wolters & Mareschal (1995) to evaluate how [RPrometheeII](#) and [RPrometheeIV](#) results are sensitive to changes in weights of criterias. That is, how the solution to the decision problem can be affected by the distribution of criterias weights.

Usage

```
SensitivityAnalysis(RPrometheeArguments, method = "RPrometheeII")
```

Arguments

RPrometheeArguments	An object with all RPromethee arguments. For PROMETHEE IV, it's important that parms argument isn't compound of NA values. See RPrometheeConstructor for more information.
method	A character object used to choose how the SensitivityAnalysis is going to be calculated. The method can be "RPrometheeII" or "RPrometheeIV". The standard is "RPrometheeII"

Value

- Solution The solution resulting from linear programming problem.
- alternatives The alternatives names.
- criterias The criterias names.
- datMat The data used corresponding to criterias and alternatives.

Author(s)

Pedro Henrique Melo Albuquerque, <pedroa@unb.br>

Gustavo Monteiro Pereira, <monteirogustavop@gmail.com>

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See Also

Other RPromethee methods: [PrometheeIIIPlot](#), [PrometheeIIPlot](#), [PrometheeIPlot](#), [PrometheeIVPlot](#), [RPrometheeConstructor](#), [RPrometheeIII](#), [RPrometheeII](#), [RPrometheeIVKernel](#), [RPrometheeIV](#), [RPrometheeI](#), [RPrometheeV](#), [UpdateRPrometheeAlternatives](#), [UpdateRPrometheeArguments](#), [WalkingWeightsPlot](#), [plot](#), [RPrometheeI-method](#)

Examples

```
## Create objects for each argument
data <- matrix(c(5.2, -3.5,
                4.3, -1.2,
                6.7, -2.0,
                5.4, -5.0,
                4.8,  0.0,
                2.8, -3.4), byrow = TRUE, ncol = 2)

parms<-matrix(c(1.0, -2.3), byrow = TRUE, ncol = 1, nrow = 2)
vecWeights <- c(0.3, 0.7)
vecMaximiz <- c(FALSE, TRUE)
prefFunction <- c(0, 0)
constraintDir <- rep("<=", ncol(data))
bounds <- c(7,-1)
normalize <- FALSE
alternatives <- c("Alt 1", "Alt 2", "Alt 3")

## Create RPrometheeArguments object
PromObj <- RPrometheeConstructor(datMat = data, vecWeights = vecWeights,
vecMaximiz = vecMaximiz, prefFunction = prefFunction, parms = parms,
normalize = normalize, alternatives = alternatives, bounds = bounds,
constraintDir = constraintDir)

## Run RPrometheeV using standard method ("RPrometheeII")
(result <- SensitivityAnalysis(PromObj))

## Run RPrometheeV using RPrometheeIV
(result <- SensitivityAnalysis(PromObj, "RPrometheeIV"))

## Updating alternatives name using UpdateRPrometheeAlternatives
newAlternatives <- c("A", "B", "C", "D", "E", "F")
result <- UpdateRPrometheeAlternatives(result, newAlternatives)

## Updating any argument using UpdateRPrometheeArguments
newParms <- matrix(c(1.6, 4.2), byrow = TRUE, ncol = 1)
PromObj <- UpdateRPrometheeArguments(PromObj, "parms", newParms)
(result <- SensitivityAnalysis(PromObj))
```

SensitivityAnalysis-class

An S4 class to store results from RPrometheeV.

Description

An S4 class to store results from RPrometheeV.

Slots

`Solution` The solution resulting from the linear programming problem.

`alternatives` A character vector with alternatives names.

`criteria` A character vector with criterias names.

`datMat` A matrix containing the data from criterias and alternatives.

show,RPrometheeArguments-method

Shows a RPromethee object.

Description

Shows data and some results for RPrometheeArguments object.

Usage

```
## S4 method for signature 'RPrometheeArguments'
show(object)
```

Arguments

`object` A RPromethee object.

show,RPrometheeI-method

Show a RPromethee object

Description

Shows data and some results for RPrometheeI.

Usage

```
## S4 method for signature 'RPrometheeI'
show(object)
```

Arguments

`object` A RPromethee object.

show,RPrometheeII-method

Show a RPromethee object

Description

Shows data and some results for RPrometheeII.

Usage

```
## S4 method for signature 'RPrometheeII'  
show(object)
```

Arguments

object A RPromethee object.

show,RPrometheeIII-method

Show a RPromethee object

Description

Shows data and some results for RPrometheeIII.

Usage

```
## S4 method for signature 'RPrometheeIII'  
show(object)
```

Arguments

object A RPromethee object.

show,RPrometheeIV-method

Show a RPromethee object

Description

Shows data and some results for RPrometheeIV.

Usage

```
## S4 method for signature 'RPrometheeIV'  
show(object)
```

Arguments

object A RPromethee object.

show,RPrometheeIVKernel-method

Show a RPromethee object

Description

Shows data and some results for RPrometheeIVKernel.

Usage

```
## S4 method for signature 'RPrometheeIVKernel'  
show(object)
```

Arguments

object A RPromethee object.

show,RPrometheeV-method

Show a RPromethee object

Description

Shows data and some results for RPrometheeV.

Usage

```
## S4 method for signature 'RPrometheeV'  
show(object)
```

Arguments

object A RPromethee object.

show,SensitivityAnalysis-method

Show a RPromethee object

Description

Shows data and some results for SensitivityAnalysis.

Usage

```
## S4 method for signature 'SensitivityAnalysis'  
show(object)
```

Arguments

object A RPromethee object.

summary,RPrometheeArguments-method
Summarize a RPromethee object.

Description

Produce some useful statistics for a RPromethee object.

Usage

```
## S4 method for signature 'RPrometheeArguments'  
summary(object)
```

Arguments

object	A RPromethee object.
...	Not used in this context.

summary,RPrometheeI-method
Summarize a RPromethee object.

Description

Produce some useful statistics for a RPromethee object.

Usage

```
## S4 method for signature 'RPrometheeI'  
summary(object)
```

Arguments

object	A RPromethee object.
...	Not used in this context.

summary,RPrometheeII-method
Summarize a RPromethee object.

Description

Produce some useful statistics for a RPromethee object.

Usage

```
## S4 method for signature 'RPrometheeII'  
summary(object)
```

Arguments

object	A RPromethee object.
...	Not used in this context.

summary,RPrometheeIII-method
Summarize a RPromethee object.

Description

Produce some useful statistics for a RPromethee object.

Usage

```
## S4 method for signature 'RPrometheeIII'  
summary(object)
```

Arguments

object	A RPromethee object.
...	Not used in this context.

summary,RPrometheeIV-method

Summarize a RPromethee object.

Description

Produce some useful statistics for a RPromethee object.

Usage

```
## S4 method for signature 'RPrometheeIV'  
summary(object)
```

Arguments

object	A RPromethee object.
...	Not used in this context.

summary,RPrometheeIVKernel-method

Summarize a RPromethee object.

Description

Produce some useful statistics for a RPromethee object.

Usage

```
## S4 method for signature 'RPrometheeIVKernel'  
summary(object)
```

Arguments

object	A RPromethee object.
...	Not used in this context.

summary,RPrometheeV-method

Summarize a RPromethee object.

Description

Produce some useful statistics for a RPromethee object.

Usage

```
## S4 method for signature 'RPrometheeV'  
summary(object)
```

Arguments

object	A RPromethee object.
...	Not used in this context.

summary,SensitivityAnalysis-method

Summarize a RPromethee object.

Description

Produce some useful statistics for a RPromethee object.

Usage

```
## S4 method for signature 'SensitivityAnalysis'  
summary(object)
```

Arguments

object	A RPromethee object.
...	Not used in this context.

UpdateRPrometheeAlternatives

UpdateRPrometheeAlternatives

Description

Updates alternatives names from RPromethee objects.

Usage

UpdateRPrometheeAlternatives(object, alternatives)

Arguments

object An object from a RPromethee class. It can be any of the 6 methods.
 alternatives A character vector with the alternatives new names.

Details

It's possible to update alternatives names for: RPrometheeI, RPrometheeII, RPrometheeIII, RPrometheeIV, RPrometheeIVKernel and RPrometheeV

Author(s)

Pedro Henrique Melo Albuquerque, <pedroa@unb.br>
 Gustavo Monteiro Pereira, <monteirogustavop@gmail.com>

See Also

Other RPromethee methods: [PrometheeIIIPlot](#), [PrometheeIIPlot](#), [PrometheeIPlot](#), [PrometheeIVPlot](#), [RPrometheeConstructor](#), [RPrometheeIII](#), [RPrometheeII](#), [RPrometheeIVKernel](#), [RPrometheeIV](#), [RPrometheeI](#), [RPrometheeV](#), [SensitivityAnalysis](#), [UpdateRPrometheeArguments](#), [WalkingWeightsPlot](#), [plot](#), [RPrometheeI-method](#)

UpdateRPrometheeAlternatives,RPrometheeI-method

UpdateRPrometheeAlternatives

Description

Updates alternatives names from RPromethee objects.

Usage

S4 method for signature 'RPrometheeI'
 UpdateRPrometheeAlternatives(object, alternatives)

Arguments

object An object from a RPromethee class.
alternatives A character vector with the alternatives new names.

UpdateRPrometheeAlternatives,RPrometheeII-method
UpdateRPrometheeAlternatives

Description

Updates alternatives names from RPromethee objects.

Usage

```
## S4 method for signature 'RPrometheeII'  
UpdateRPrometheeAlternatives(object, alternatives)
```

Arguments

object An object from a RPromethee class.
alternatives A character vector with the alternatives new names.

UpdateRPrometheeAlternatives,RPrometheeIII-method
UpdateRPrometheeAlternatives

Description

Updates alternatives names from RPromethee objects.

Usage

```
## S4 method for signature 'RPrometheeIII'  
UpdateRPrometheeAlternatives(object, alternatives)
```

Arguments

object An object from a RPromethee class.
alternatives A character vector with the alternatives new names.

UpdateRPrometheeAlternatives,RPrometheeIV-method
UpdateRPrometheeAlternatives

Description

Updates alternatives names from RPromethee objects.

Usage

```
## S4 method for signature 'RPrometheeIV'  
UpdateRPrometheeAlternatives(object, alternatives)
```

Arguments

object An object from a RPromethee class.
alternatives A character vector with the alternatives new names.

UpdateRPrometheeAlternatives,RPrometheeIVKernel-method
UpdateRPrometheeAlternatives

Description

Updates alternatives names from RPromethee objects.

Usage

```
## S4 method for signature 'RPrometheeIVKernel'  
UpdateRPrometheeAlternatives(object,  
  alternatives)
```

Arguments

object An object from a RPromethee class.
alternatives A character vector with the alternatives new names.

UpdateRPrometheeAlternatives,RPrometheeV-method
UpdateRPrometheeAlternatives

Description

Updates alternatives names from RPromethee objects.

Usage

```
## S4 method for signature 'RPrometheeV'  
UpdateRPrometheeAlternatives(object, alternatives)
```

Arguments

object An object from a RPromethee class.
alternatives A character vector with the alternatives new names.

UpdateRPrometheeAlternatives,SensitivityAnalysis-method
UpdateRPrometheeAlternatives

Description

Updates alternatives names from RPromethee objects.

Usage

```
## S4 method for signature 'SensitivityAnalysis'  
UpdateRPrometheeAlternatives(object,  
  alternatives)
```

Arguments

object An object from a RPromethee class.
alternatives A character vector with the alternatives new names.

UpdateRPrometheeArguments

UpdateRPrometheeArguments

Description

Updates slots from RPrometheeArguments objects.

Usage

```
UpdateRPrometheeArguments(object, element, newValue)
```

Arguments

object	A RPrometheeArguments object.
element	A character value to indicate which slot is going to be updated. The name must be exactly the same as the name of the argument.
newValue	An object of the class of the element that is being updated. For example, if it is parms, newValue must be a numeric vector.

Details

The updated arguments can be datMat, vecWeights, vecMaximiz, prefFunction, parms, normalize, alphaVector, band, constraintDir or bounds.

Author(s)

Pedro Henrique Melo Albuquerque, <pedroa@unb.br>

Gustavo Monteiro Pereira, <monteirogustavop@gmail.com>

See Also

Other RPromethee methods: [PrometheeIIIPlot](#), [PrometheeIIPlot](#), [PrometheeIPlot](#), [PrometheeIVPlot](#), [RPrometheeConstructor](#), [RPrometheeIII](#), [RPrometheeII](#), [RPrometheeIVKernel](#), [RPrometheeIV](#), [RPrometheeI](#), [RPrometheeV](#), [SensitivityAnalysis](#), [UpdateRPrometheeAlternatives](#), [WalkingWeightsPlot](#), [plot](#), [RPrometheeI-method](#)

UpdateRPrometheeArguments,RPrometheeArguments-method
UpdateRPrometheeArguments

Description

Updates slots from RPrometheeArguments objects.

Usage

```
## S4 method for signature 'RPrometheeArguments'
UpdateRPrometheeArguments(object, element,
  newValue)
```

Arguments

object	A RPrometheeArguments object
element	A character value to indicate which slot is going to be updated. The name must be exactly the same as the name of the argument.
newValue	An object of the class of the element that is being updated. For example, if it is parms, newValue must be a numeric vector. A character vector with the alternatives new names.

WalkingWeightsPlot *WalkingWeightsPlot*

Description

Plots the net Phi for each alternative and how the criterias are weighted.

Usage

```
WalkingWeightsPlot(RPrometheeII)
```

Arguments

RPrometheeII	An object resulting from RPrometheeII method.
--------------	---

Author(s)

Pedro Henrique Melo Albuquerque, <pedroa@unb.br>

Gustavo Monteiro Pereira, <monteirogustavop@gmail.com>

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See Also

Other RPromethee methods: [PrometheeIIIPlot](#), [PrometheeIIPlot](#), [PrometheeIPlot](#), [PrometheeIVPlot](#), [RPrometheeConstructor](#), [RPrometheeIII](#), [RPrometheeII](#), [RPrometheeIVKernel](#), [RPrometheeIV](#), [RPrometheeI](#), [RPrometheeV](#), [SensitivityAnalysis](#), [UpdateRPrometheeAlternatives](#), [UpdateRPrometheeArguments](#), [plot](#), [RPrometheeI-method](#)

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