

# Package ‘sapevom’

October 14, 2022

**Type** Package

**Title** Group Ordinal Method for Multiple Criteria Decision-Making

**Version** 0.2.0

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**Description** Implementation of SAPEVO-M, a Group Ordinal Method for Multiple Criteria Decision-Making (MCDM). SAPEVO-M is an acronym for Simple Aggregation of Preferences Expressed by Ordinal Vectors Group Decision Making. This method provides alternatives ranking given decision makers' preferences: criteria preferences and alternatives preferences for each criterion. This method is described in Gomes et al. (2020) <doi: 10.1590/0101-7438.2020.040.00226524 >.

**Imports** stats

**License** GPL-3

**Encoding** UTF-8

**LazyData** true

**Suggests** knitr, rmarkdown

**VignetteBuilder** knitr

**NeedsCompilation** no

**Repository** CRAN

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sapevom

*SAPEVO-M*


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### Description

Implements SAPEVO-M method

### Usage

```
sapevom(criteriaEvaluations, alternativesEvaluations)
```

### Arguments

criteriaEvaluations

a list of matrices with pairwise comparison of criteria, one matrix for each decisor.

alternativesEvaluations

a list of lists of matrices with pairwise comparison of alternatives, one list for each criterion containing one matrix for each decisor.

### Details

Criteria and alternatives must be in the same order on all the matrices. Define row names for all matrices, like on documentation example, to have a more understandable output. The pairwise comparisons must be made with a scale of seven values, from -3 to 3, to represent the preferences.

### Value

a vector with criteria weights and a dataframe with SAPEVO-M results.

### Author(s)

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### References

GOMES, C. F. S., DOS SANTOS, M., TEIXEIRA, L. F. H. S. B., SANSEVERINO, A. M. and BARCELOS, M.R. S. (2020). SAPEVO-M: a group multicriteria ordinal ranking method. Pesquisa Operacional. 40. 1-20. DOI: 10.1590/0101-7438.2020.040.00226524.

### Examples

```
criteria<- c("C1", "C2", "C3")
alternatives<- c("A1", "A2", "A3")

listofmatrices<-list(matrix(c(0,1,1,-1,0,0,-1,0,0),
                           byrow=TRUE, ncol=3, dimnames=list(criteria)),
                    matrix(c(0,2,1,-2,0,1,-1,-1,0),
```

```
        byrow=TRUE, ncol=3, dimnames=list(criteria))
    )

listoflistsofmatrices<-list(list(matrix(c(0,0,-1,0,0,2,1,-2,0),
        byrow=TRUE, ncol=3, dimnames=list(alternatives)),
        matrix(c(0,-1,2,1,0,0,-2,0,0),
        byrow=TRUE, ncol=3, dimnames=list(alternatives))),
    list(matrix(c(0,1,0,-1,0,0,0,0,0),
        byrow=TRUE, ncol=3, dimnames=list(alternatives)),
        matrix(c(0,2,1,-2,0,1,-1,-1,0),
        byrow=TRUE, ncol=3, dimnames=list(alternatives))),
    list(matrix(c(0,3,2,-3,0,1,-2,-1,0),
        byrow=TRUE, ncol=3, dimnames=list(alternatives)),
        matrix(c(0,0,3,0,0,-1,-3,1,0),
        byrow=TRUE, ncol=3, dimnames=list(alternatives))))
)

sapevom(criteriaEvaluations= listofmatrices, alternativesEvaluations= listoflistsofmatrices)
```

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