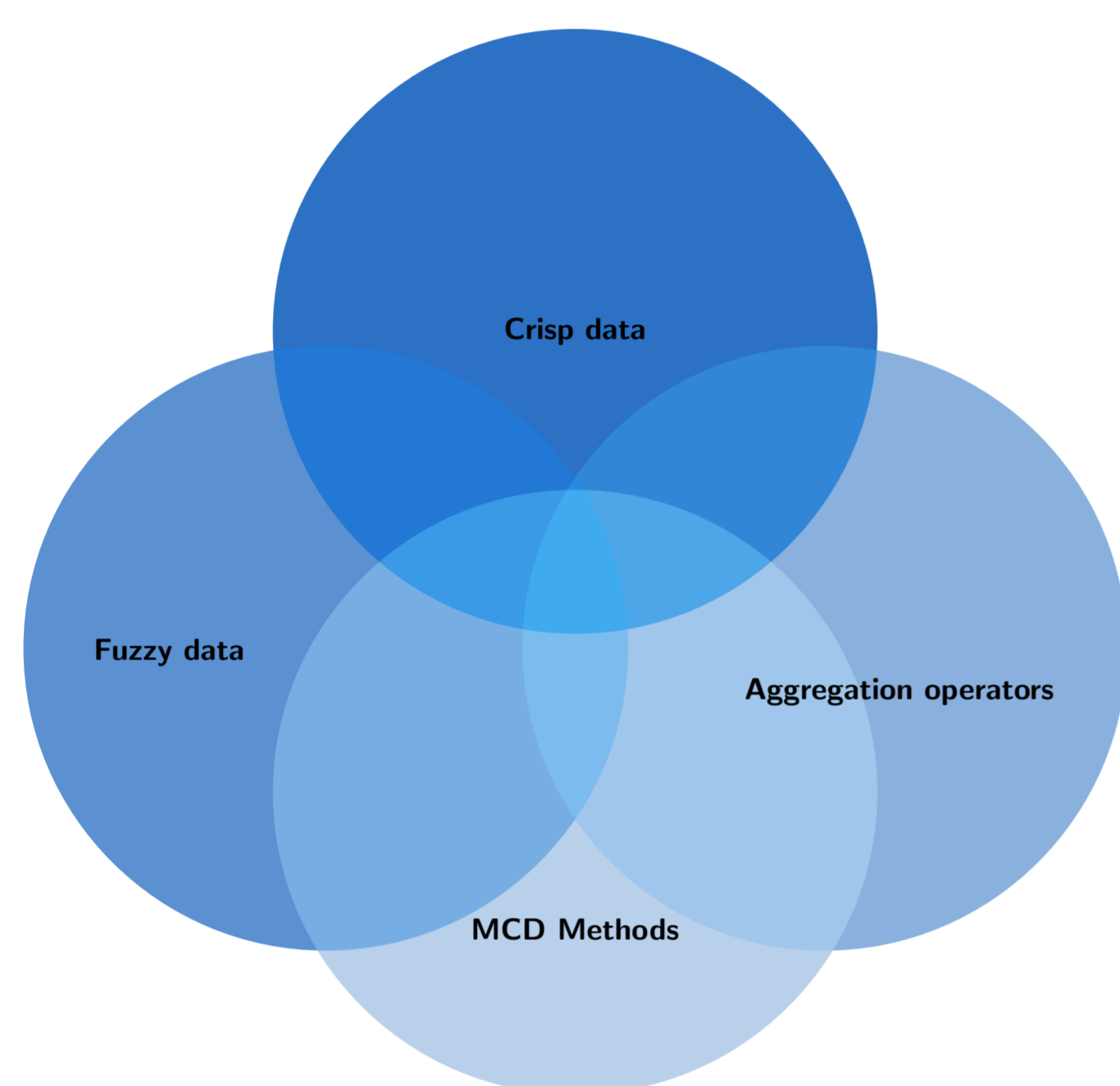


# R packages for decision - making problems

useR!2017 BRUSSELS

## Why?

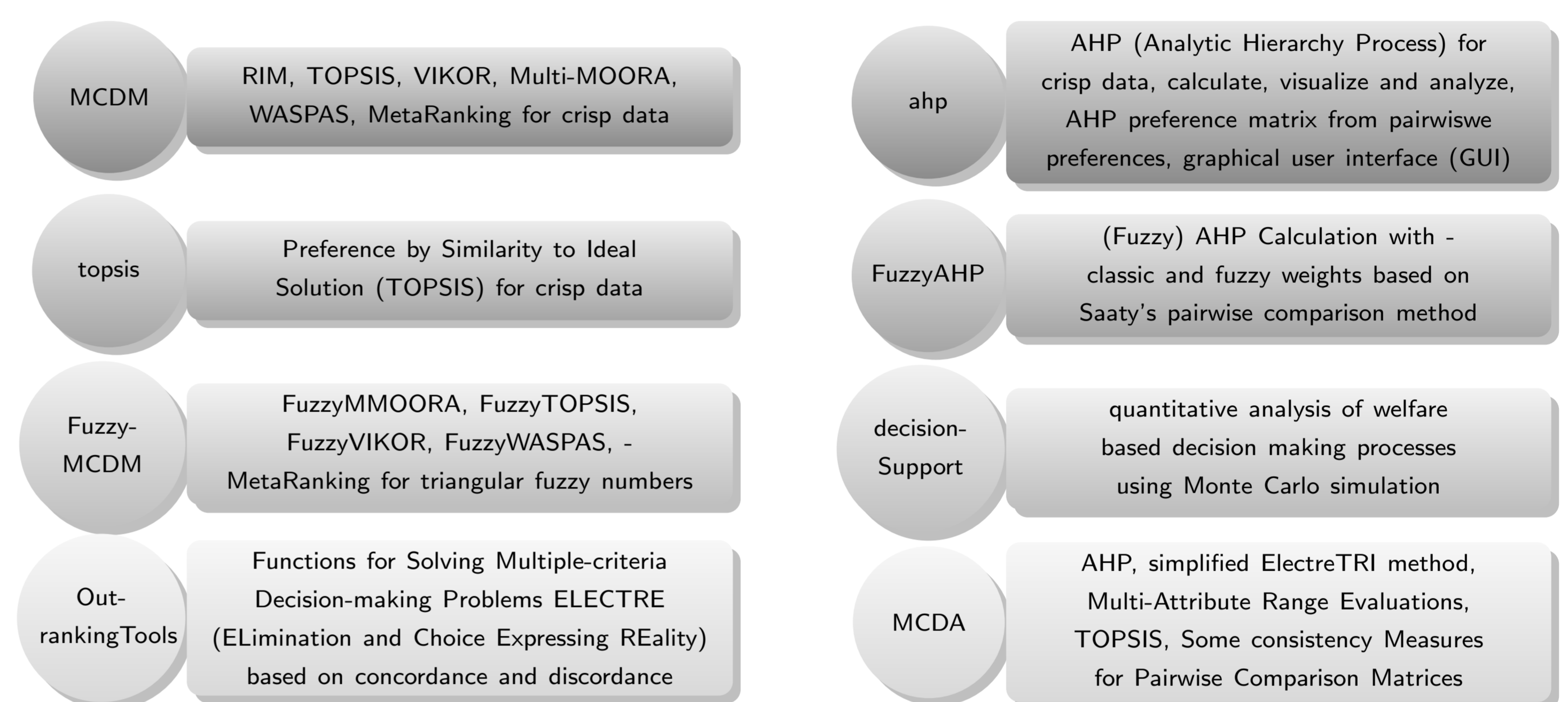
- > Significant field nowadays
- > Increasing number of developments of decision support tools
- > R is not extensively used among users of Decision Making Theory
- > There is no a unique free software for all these methods that is sufficiently comprehensive
- > Using R makes integration among diverse analyses easy
- > Other advantages of the R environment/project are already well-known



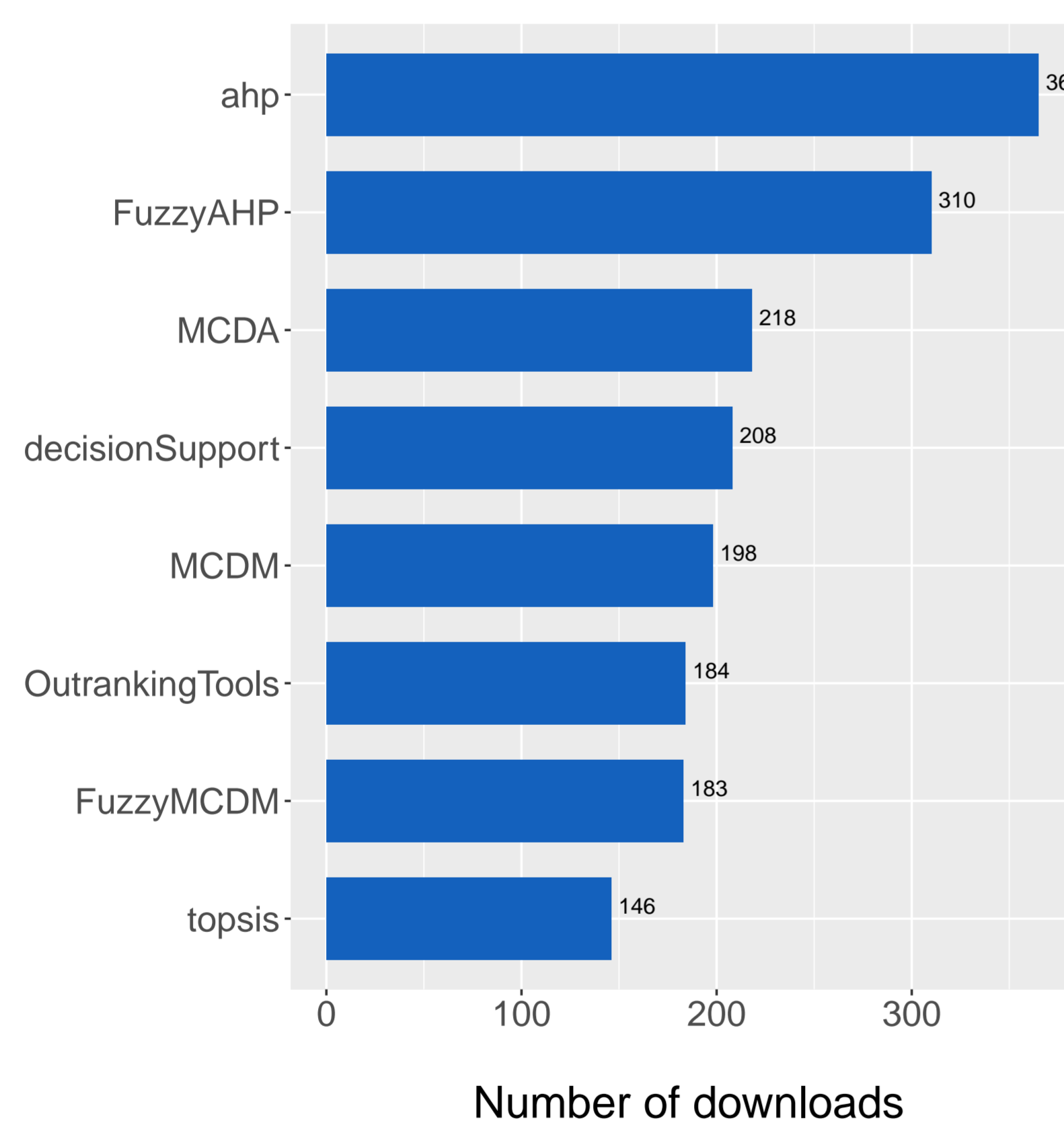
Simplified classification of elements in group decision - making problems

## What?

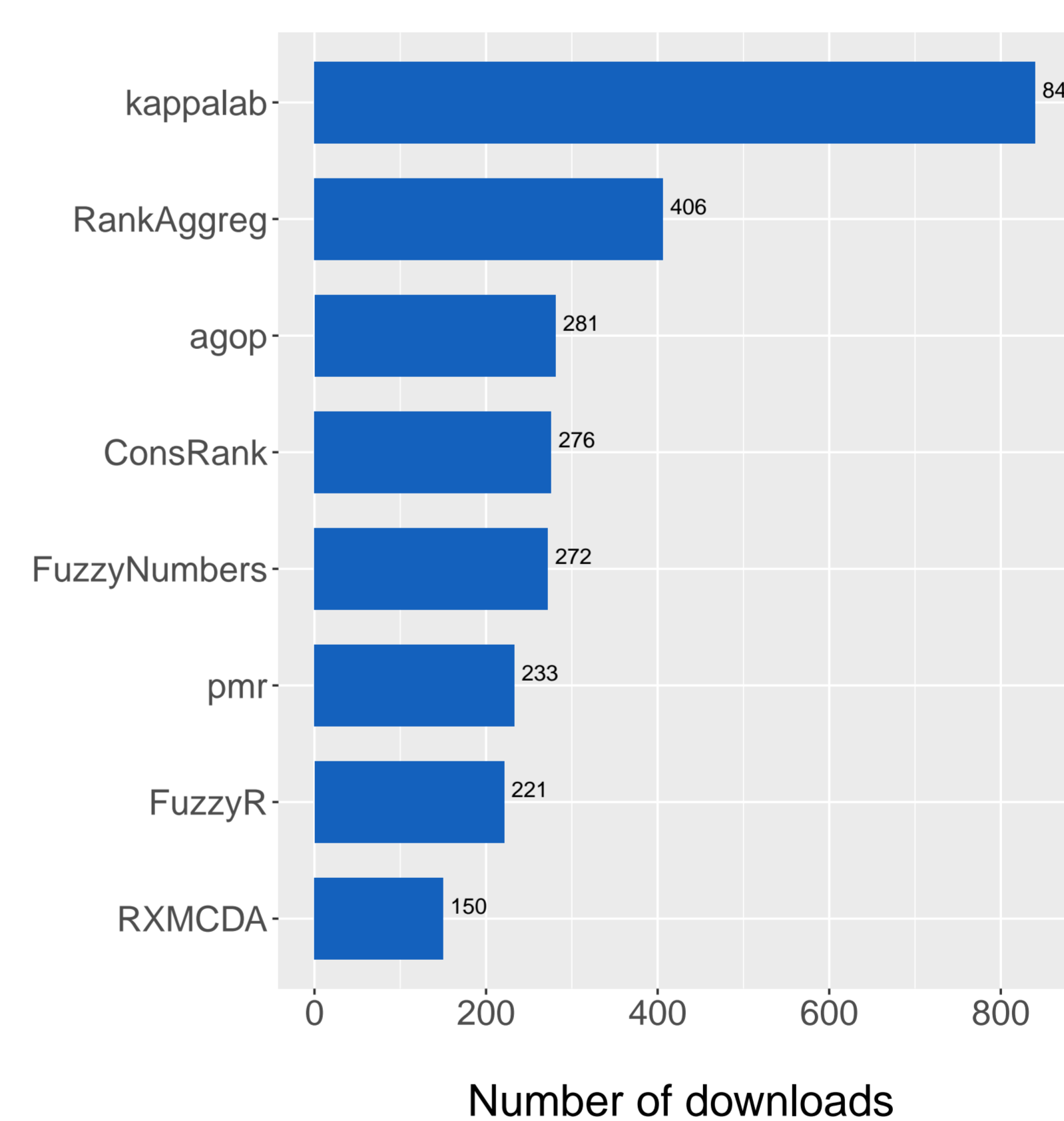
- > Showing how R could help decision - making researchers and practitioners
- > General overview of different useful R packages for GDMP
- > Base R offers a lot of functionality useful in the field, and complemented by several packages on CRAN.
- > These packages can be roughly structured into those with more fundamental methods and those with extremely useful utilities
- > Some packages are outside CRAN like GDM-R and GDM-ViewR<sup>(1)</sup>



Specific R packages for decision - making problems available in CRAN repository



Number of downloads of specific packages from CRAN during a month (12/05/2017 up to 12/06/2017)  
Data from <https://www.rdocumentation.org>



Packages including relevant useful utilities for decision - making problems  
Number of downloads of some packages from CRAN (12/05/2017 up to 12/06/2017)  
Data from <https://www.rdocumentation.org>

## Ideas for future packages

- PROMETHEE (Preference Ranking Organization METHod for Enrichment of Evaluations)
- MACBETH (Measuring Attractiveness by a categorical Based Evaluation Technique)
- DEMATEL ( Decision-Making Trial and Evaluation Laboratory)

## References:

- Mardani, A. Jusoh A., Kazimieras E. (2015). Fuzzy multiple criteria decision-making techniques and applications: Two decades review from 1994 to 2014. *Expert Systems with Applications* 42, pp. 4126-4148.
- Cengiz Kahraman, Sezi Cevik Onar & Basar Oztaysi (2015) Fuzzy multicriteria decision-making: A literature review, *International Journal of Computational Intelligence Systems* 8, pp. 637-666.
- Kabak, O., Ervural, B. (2017). Multiple attribute group decision making: A generic conceptual framework and a classification scheme. *Knowledge-Based Systems* 123, pp. 13-30.
- <sup>(1)</sup> Ureña, R. et al. (2015). GDM-ViewR: A new tool in R to visualize the evolution of fuzzy consensus processes. *Intelligent Software Methodologies, Tools and Techniques*, pp. 319-332.



T. González-Arteaga  
teresag@eio.uva.es



R. de Andrés Calle  
rocioc@usal.es