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Title: Interacting criteria in MultiCriteria Decision Making

18 hours

Description :

Aggregation procedures involving criteria interactions such as the Choquet and Sugeno integrals or the GAI networks have drawn the attention of many researchers and generated a wealth of contributions. Yet, in practical decision problems, the concept of criteria interactions is not that clear. Beyond the common sense intuition that criteria sometimes can show positive or negative synergies, can we observe clear manifestations of criteria interactions ? Can they be detected by queries to a decision maker formulated in terms of comparisons of alternatives ? Is it possible to differentiate the types of interactions at work in the different aggregation models (Choquet, Sugeno, multilinear utility models, ...) ? The goal of this lecture is to discuss and provide answers to such questions through the concept of necessary and possible interactions. We give also some real world applications, like the Nutri-score, where the interactions among some nutrients component are necessary

References:

M. Grabisch. *Set Functions, Games and Capacities in Decision Making*. Springer, Theory and Decision Library C -- Game Theory, Social Choice, Decision Theory, and Optimization, 2016.

Mayag B., Bouyssou D. (2020), Necessary and possible interaction between criteria in a 2-additive Choquet integral model, *European Journal of Operational Research*, vol. 283,

n°1, p. 308-320