Abstract

In the literature on MCDM, many methods have been proposed in order to sort alternatives evaluated on several attributes into ordered categories. Most of them were proposed on an ad hoc basis. The purpose of this paper is to contribute to a recent trend of research aiming at giving these methods sound theoretical foundations. Using tools from conjoint measurement, we provide an axiomatic analysis of the partitions of alternatives into two categories that can be obtained using what we call “noncompensatory sorting models”. These models have strong links with the pessimistic version of ELECTRE TRI. Our analysis allows to pinpoint what appears to be the main distinctive features of ELECTRE TRI when compared to other sorting methods. It also gives hints on the various methods that have been proposed to assess the parameters of ELECTRE TRI on the basis of assignment examples.

**Keywords:** Decision with multiple attributes, Sorting, Conjoint measurement, Noncompensatory sorting methods, ELECTRE TRI.