

## D. Kostner: Set-valued quantiles for multi-criteria decision Making

A novel approach for solving a multiple judge, multiple criteria decision making (MCDM) problem is proposed. The presence of multiple criteria leads to a non-total order relation. The ranking of the alternatives in such a framework is done by reinterpreting the MCDM problem as a multivariate statistics one and by applying the set-valued quantiles for multivariate distribution as introduced in Hamel and Kostner (J. Multivar. Anal. 2018). A function that ranks alternatives as well as additional functions that categorize alternatives into sets of "good" and "bad" choices are presented. The paper shows that the properties of these functions ensure a reasonable decision making process.