STRUCTURE STUDY OF SYMMETRIC FUZZY NUMBERS

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Abstract. In many practical situations, intervals or fuzzy numbers are used to model imprecise observations derived from uncertain measurements or linguistic assessments. When using fuzzy numbers the shape of the membership function is important in modelling. In this paper, we consider the fuzzy numbers whose membership function is symmetric with respect to a vertical axis. For $\alpha \in (0, 1]$ the $\alpha-$ cuts of such fuzzy numbers will have a constant mid-point and the upper end of the interval will be a non-increasing function of α, the lower end will be the image of this function. Hence these symmetric fuzzy numbers can be fully described by a constant and a non-increasing function. Based on this description, we define the arithmetic operations and a ranking technique to order the symmetric fuzzy numbers. We also discuss various properties of interest. Using Radstorm embedding theorem[5], we conduct a structure study on symmetric fuzzy numbers.