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Group Decision Making through Interval-Valued Intuitionistic Fuzzy Soft Set TOPSIS Method Using New Hybrid Score Function

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Abstract : This paper presents interval-valued intuitionistic fuzzy soft sets based TOPSIS method for group decision making. The interval-valued intuitionistic fuzzy soft set is a mutation of an interval-valued intuitionistic fuzzy set and soft set. In group decision making problems IVIFSS makes the process much more algebraically elegant. We have used weighted arithmetic averaging operator for aggregating the information and define a new Hybrid Score Function as metric tool for comparison between interval-valued intuitionistic fuzzy values. In an illustrative example we have applied the developed method to a criminological problem. We have developed a group decision making model for integrating the imprecise and hesitant evaluations of multiple law enforcement agencies working on target killing cases in the country.

Keywords : group decision making, interval-valued intuitionistic fuzzy soft set, TOPSIS, score function, criminology
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