ON COMPLEX BIPOLAR FUZZY WEIGHTED AGGREGATION OPERATORS

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Abstract. This study is aim to elucidate some series weighted averaging operators for aggregating the dissimilar complex bipolar fuzzy (CBF) sets by utilizing t-norm operations. The unpredictability in the data was controlled using membership degrees that are subset of real numbers, which can reduce some useful information and therefore impact decision-making results. As a refinement to these, the complex bipolar fuzzy set controls the unpredictability with the degrees whose range is extended from the real subset to the complex with the unit disk. Hence, it handles the two-dimensional information in a single set. Finally, some new averaging aggregation operators were developed, namely; complex bipolar weighted averaging, CBF ordered weighted average, and CBF hybrid averaging. Some numerical examples are also given to illustrate the extended operators.

1. Introduction

Aggregation plays a major role in many of the technical tasks we are faced with. The ordered weighted averaging operators, a parameterized family of aggregation operators that embody many of the well-known operators like the ordered weighted aggregation (OWA) operator, was proposed by Yager [30] to supply for aggregation lying between the Min and Max operators. Xu and Yager [27] extended some new aggregation operators. Xu [28] proposed a weighted averaging operator for aggregation of the different