

VAGUE SOFT SEPARATION AXIOMS VIA VAGUE SOFT QUASI-COINCIDENT

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Abstract. Zorlutuna et al introduced the concept of soft points and studied several properties in soft topological spaces. As a generalization, in our previous study we introduced the concept of vague soft points and explored some relationships between vague soft separation axioms that contradicted the results obtained in general topological spaces. In this paper, we introduced the notions of x -vague soft points, vague soft characteristic functions and defined vague soft subspace topology. Also we make an attempt to bring the traditional relationships among vague soft separation axioms as in the case of general topological spaces by introducing the notion of vague soft quasi-coincident.

1. Introduction

Uncertainty is the root cause of hindrance in decision making. Many Mathematical theories like vague set theory [9], fuzzy set theory [30], intuitionistic fuzzy set theory [6] and rough set theory [19] have been developed to approach the problems associated with uncertainty. In spite of the development of these theories challenges do exist due to the inadequacy in parameters. Molodtsov [18] proposed the soft set theory enough parameters and Maji et al. [15] tested the applications of soft set theory in resolving the lack of certainty. Shabir and Naz [21] introduced the notion of soft topological spaces, that was studied by various authors like W. K. Min [17], S. Hussain et al.[11], I. Zorlutuna et al. [31], O. Tantawy et al. [22], D.N. Georgiou et al.[10], B.P. Varol et al.[23] and G. Senel et al.[20]. Later, researchers showed their interest in working on the combination of these fields like fuzzy soft sets [14, 13], intuitionistic fuzzy soft sets [8] and soft rough fuzzy sets and soft fuzzy rough sets[16].

In 2010, W. Xu et al.[29] developed the notion of vague soft sets to generalize the concept of soft set theory. C. Wang et al. [26] further studied the topological structure

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