PRODUCTS OF FP-SOFT SETS
AND THEIR APPLICATIONS

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Abstract

Soft set theory was firstly introduced by Molodtsov in 1999 as a general mathematical tool for dealing with fuzzy objects. In this work, t-norm and t-conorm products of fuzzy parameterized soft sets (FP-soft sets) are defined and their properties are investigated. By using these products, AND-FP-soft decision making and OR-FP-soft decision making methods are constructed. Finally, the methods are applied to solve a problems which contains uncertainties.

1. Introduction

Many fields deal with fuzzy data that may not be successfully modeled by ordinary mathematics. Probability theory, fuzzy sets [24], rough sets [18], and other mathematical theories are well-known and are often useful approaches to describe uncertainty. However, all of these theories have their own difficulties which are pointed out in [17] by Molodtsov. Molodtsov proposed a completely new approach for modeling uncertainty, free from these difficulties, this so-called *soft set theory* has potential applications in many different fields. Maji *et al.* [14] worked on a detailed theoretical study of soft sets. Later, the properties and applications of soft set theory have been studied by many authors (e.g. [3, 4, 5, 11, 15, 20, 23]). The algebraic structure of soft set theory has also been studied (e.g. [1, 2, 9, 12]). Many applications of soft set theory have been expanded by using the ideas of fuzzy sets (e.g. [6, 10, 13, 16, 19, 21, 22]).

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