

Abstract 78 – Paper ID: 043**A Comparative Study on Binary Composition in Fuzzy Relations**

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Abstract

In complex systems, fuzzy relations play a vital role in modeling uncertainty and vagueness. The concept of binary composition of fuzzy relations is fundamental in fuzzy logic, decision-making, control systems, and artificial intelligence. Various binary composition operators such as max-min, max-product and max-average have been proposed to handle different application requirements. This paper dealt with a comparative study of these operators in fundamental relational properties, namely reflexivity, symmetry and transitivity. Further, an illustrative example is also provided for each composition by using a 3×3 order of matrix.

Keywords: Fuzzy sets, fuzzy relations, composition of fuzzy relations, order of matrix