

## **A New Aggregation Operator for Trapezoidal Fuzzy Numbers Based On the Geometric Means of the Left and Right Line Slopes**

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**Abstract :** This paper is the final in a series, which has defined two new classes of aggregation operators for triangular and trapezoidal fuzzy numbers based on the geometrical characteristics of their fuzzy membership functions. In the present paper, a new aggregation operator for trapezoidal fuzzy numbers has been defined. The new operator is based on the geometric mean of the membership lines to the left and right of the maximum possibility interval. The operator is defined and the analytical relationships have been derived. Computation of the aggregate is demonstrated with a numerical example. Corresponding arithmetic and geometric aggregates as well as results from the recent work of the authors on TrFN aggregates have also been computed.

**Keywords :** LR fuzzy number, interval fuzzy number, triangular fuzzy number, trapezoidal fuzzy number, apex angle, left apex angle, right apex angle, aggregation operator, arithmetic and geometric mean

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