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Abstract

In the analytic hierarchy process (AHP), interval judgments instead of precise ratios are widely accepted and can be practically used to solve decision-making problems when uncertainty exists because of scant information available or insufficient understanding of the problem. This paper presents a simple and effective method for finding the extreme points in a range of interval ratios (such as loose articulation, minimum number of interval ratios, and general interval ratios) and ultimately for establishing the dominance relations among alternatives using the identified extreme points. This is followed by an enumeration or simulation approach to manage situations in which the best or a full ranking of alternatives remains unidentified.

Keywords: Analytic hierarchy process (AHP); Interval ratio; Extreme point; Enumeration method; Simulation analysis

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