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Entropy-based selection with multiple objectives. (English) Zbl 0661.90086

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We present an approach to determine the initially unspecified weights in an additive measurable multiattribute value function. We formulate and solve a series of nonlinear programming problems which (1) incorporate whatever partial information concerning the attribute weights or overall relative value of alternatives the decision maker chooses to provide, yet (2) yield a specific set of weights as a result. Although each formulation is rather easily solved using the nonlinear programming software GINO (general interactive optimizer), solutions in closed form dependent on a single parameter are also provided for a number of these problems.

MSC:

90C31 Sensitivity, stability, parametric optimization

90B50 Management decision making, including multiple objectives

91B06 Decision theory

Keywords:

multiattribute decision problems; additive measurable multiattribute value function; general interactive optimizer