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制造系统

基于多粒度语言的动态联盟合作伙伴群决策

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摘要:
客观事物的复杂性和人类认识的局限性使得评价指标的数据很难用一个精确数表示,具有不同程度的不确定性。在比较分析现有各种表达不确定性方法的基础上,提出了基于多粒度语言的虚拟企业合作伙伴选择方法。首先将多粒度语言一致化为标准语言评价集中的语言,然后基于正态分布的方法求位置权重向量,采用扩展的二元语义组合有序加权几何平均(ET-COWGA)算子集结各专家评价值得到群体综合的各属性评价值。根据局部优化和全局优化结果得到精确的属性权重,利用加权几何平均
(ET-WGA)算子集结各属性值,得到方案的综合评价值。最后通过一个实例说明了合作伙伴选择的整个决策过程,并论证了该方法在最后优化决策过程中的有效性。

关键词:
动态联盟;多粒度语言;优化;正态分布;ET-COWGA

Decision Making of Dynamic Alliance Partner Group Based on Multi-granularity Linguistic Representation

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Abstract:
Due to the complexity of objective things and the ambiguity of human thinking,it is difficulty to value an assessment attribute with an exact value,but usually with uncertainty in varying degrees.On the basis of comparing and analyzing the existing methods of expressing uncertainty,decision making of dynamic alliance partner group based on multi-granularity linguistic representation was proposed.In this approach,multi-granularity linguistic attributes values provided by experts,were uniformed into the normalized two-tuple linguistic representation with the same granularity,and were aggregated into group integrated linguistic assessment value for each attribute using ET-COWGA operator,where the relative position weights were identified with the method of normal distribution.First through local optimization and then global optimization,the accurate attribute weight vector was derived,and then group integrated linguistic assessment values for each attribute were once again aggregated, using weighted geometric averaging(WGA) operator,into alternatives' overall value.An illustrative example was given to demonstrate the whole process of partner decision making,and to verify that the proposed method is reasonable and effective in the final process of optimization decision making.

Keywords:
dynamic alliance;multi-granularity linguistic;optimization;normal distribution;extended two-tuple combined ordered weighted geometric averaging(ET-COWGA)

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