

论文

基于信息还原算子的多指标区间灰数关联决策模型

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摘要:

针对区间灰数加减逆运算结果存在偏差这一问题, 通过对加减逆运算等式两边区间灰数模之间关系的分析, 设计了区间灰数加减逆运算的信息还原算子, 并证明了该算子的正确性; 在此基础上, 根据灰色关联度的理论, 提

出了基于信息还原算子的区间灰数序列关联度的计算方法, 研究了具有区间灰数的多指标决策问题, 建立了多指标区间灰数关联决策模型; 最后, 通过实例验证了该模型的有效性与实用性.

关键词: 区间灰数; 信息还原算子; 理想点; 关联度

Incidence decision model of multi-attribute interval grey number based on information reduction operator

Abstract:

For the morbidity of addition and subtraction inverse operation for the interval grey number, the relationship of modulus on both sides of the operation equation is analyzed. A kind of optimize operator is introduced, and its accuracy and precision are proved. Based on the grey incidence degree theories, the computing method for the degree of interval grey number incidence is developed by use of the optimize operator. Meanwhile, incidence decision problems of multi-attribute interval grey number are studied, and the incidence decision making model of multi-attribute interval grey number is set up. Finally, examples illustrate the effectiveness and practicability of proposed model.

Keywords: interval grey number; information reduction operator; ideal point; relational degree

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参考文献:

- [1]Guo-dong Lia, Daisuke Yamaguchia, Masatake Nagaib. A grey-based decision-making approach to the supplier selection problem [J]. Mathematical and Computer Modeling, 2007, 46(3/4): 573-581. [2]党耀国,刘思峰,刘斌. 多指标区间数关联决策模型的研究[J].南京航空航天大学学报, 2004, 36(3):403-406. (Dang Y G, Liu S F, Liu B, et al. Study on incidence decision making model of multi-attribute interval number [J]. J of Nanjing University of Aeronautics & Astronautics, 2004, 36(3): 403-406) [3]张吉军. 区间数多指

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标决策问题的灰色关联分析法[J]. 系统工程与电子技术, 2005, 27(6): 1030-1033. (Zhang J J. The method of grey related analysis to multiple attribute decision making problems with interval numbers [J]. Systems Engineering and Electronic 2005, 27(6): 1030-1033) [4]Daisuke Yamaguchi, Guo Dong Li, Masatake Nagai. A grey-based rough approximation model for interval data processing[J]. Information Sciences, 2007, 177(21): 4727-4744. [5]刘璐, 梅国栋. 基于灰色关联分析的煤自然发火气体预报指标研究[J]. 中国煤炭, 2007, 33(11): 69-73. (Liu L, Mei G D. A study of coal spontaneous combustion gases prediction indices based on grey incidence Analysis[J]. China Coal, 2007, 33(11): 69-73) [6]刘以安, 陈松灿, 杨华明. 灰色优势分析在多雷达低空小目标跟踪中的应用[J]. 南京航空航天大学学报, 2002, 34(4): 354-358. (Liu Y A, Chen S C, Yang H M. Grey superior analysis of multi-radar low-altitude little target tracking system [J]. Journal of Naxxjing University of Aeronautics&Astronautics, 2002, 34(4): 354-358) [7]史向峰, 申卯兴. 基于灰色关联的地空导弹武器系统的使用保障能力研究[J], 弹箭与制导学报, 2007, 27(3): 83-85. (Shi X F, Shen M X. Researches on the ensuring operations ability of ground to air missile weapon system based on grey incidence analysis[J]. Journal of Projectiles, Rockets, Missiles and Guidance, 2007, 27(3): 83-85) [8]苗晓鹏, 夏新涛. 基于灰色系统理论的圆锥滚子轴承振动控制方法的研究[J]. 机床与液压, 2006, (7): 236-237. (Miao X P, Xia X T. Study on vibration control method of tapered roller bearings based on grey system theory[J]. Machine Tool&Hydraulics, 2006, (7): 236-237) [9]钟诗胜, 王体春, 丁刚. 基于多指标灰区间数关联决策模型的产品方案设计[J], 控制与决策, 2008, 23(12): 1378-1382. (Zhong S S, Wang T C, Ding G. Mechanism scheme design based on multi-attribute gray interval relevant optimized decision-making model[J], Control and Decision, 2008, 23(12): 1378-1382) [10]万树平. 区间型多属性决策的心态指标法[J]. 控制与决策, 2009, 24(1): 35-38 (Wan S P. Method of attitude index for interval multi-attribute decision-making[J], Control and Decision, 2009, 24(1): 35-38) [11]刘思峰, 谢乃明, J. Forrest. 基于相似性和接近性视角的新型灰色关联分析模型, 系统工程理论与实践, 2010, 30(5): 881-887. (Liu S F, Xie N M, J. Forrest. On new models of grey incidence analysis based on visual angle of similarity and nearness. Systems engineering-theory&practice, 2010, 30(5): 881-887) [12]刘思峰, 党耀国, 方志耕, 谢乃明. 灰色系统理论及其应用[M]. 科学出版社, 2010. (Liu S F, Dang Y G, Fang Z G, Xie N M. Grey system theory and its application. Science Press, 2010)

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