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数据库、信号与信息处理

# 基于信息熵的二进制差别矩阵属性约简算法

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摘要 给出一个简化的二进制差别矩阵的属性约简定义，并证明该属性约简的定义与基于信息熵的属性约简的定义是等价的。为求出简化的二进制差别矩阵，设计了一个快速求简化决策表的算法，其时间复杂度为O（|C||U|）。在此基础上，设计了基于信息熵的简化二进制差别矩阵的快速属性约简算法，其时间复杂度和空间复杂度分别为max{O（|C||U|），O（|C|$^2$|U/C|$^2$）}和max{O（|C||U/C|$^2$），O（|U|）}，最后用一个实例说明了新算法的高效性。

关键词 粗糙集 信息熵 简化的二进制差别矩阵 属性约简 算法复杂度

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# Attribution reduction algorithm based on binary discernibility matrix of information entropy

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**Abstract**

The definition of attribution reduction of simplified binary discernibility matrix is provided.At the same time，it is proved that the above definition of attribution reduction is the same as the definition of attribution reduction based on information entropy.In order to compute simplified binary discernibility matrix，a quick algorithm for simplified decision table is designed，its time complexity is O（|C||U|）.In this condition，a quick attribution reduction algorithm based on simplified binary discernibility matrix of information entropy is designed，the time complexity and space complexity of the new algorithm are max{O（|C||U|），O（|C|$^2$|U/C|$^2$）} and max{O（|C||U/C|$^2$），O（|U|）} respectively.At last，an example is used to illustrate the efficiency of the new algorithm.

**Key words** rough set information entropy simplified binary discernibility matrix attribution reduction algorithm complexity

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