

基于差别信息树的rough set 属性约简算法

蒋瑜

成都信息工程大学软件工程学院, 成都610225.

Attribute reduction with rough set based on discernibility information tree

JIANG Yu

College of Software Engineering, Chengdu University of Information Technology, Chengdu 610225, China.

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摘要

差别矩阵为粗糙集属性约简提供了很好的思路,但差别矩阵中存在冗余的重复和父集元素.为了消除这些冗余元素,提出一棵有序树:差别信息树,该树能消除差别矩阵中的重复元素,同时在大多数情况下也能完全消除父集元素,实现对差别矩阵中非空元素的压缩存储.为了验证差别信息树的有效性,提出一种属性约简完备算法,并使该算法的时间复杂度降为 $O(n^2)$.

关键词: 粗糙集, 差别矩阵, 属性约简, 差别信息树

Abstract:

Attribute reduction plays an essential role in rough set. Discernibility matrix provides a good way for attribute reduction in rough set, but there are many redundancy and pointless nonempty elements in discernibility matrix, such as duplications and supersets. In order to eliminate these redundancies and pointless elements, a discernibility information tree is proposed, which is an extended order-tree, and can be easy to fully and partly eliminate duplicates of elements and supersets of elements in discernibility matrix efficiently. In order to efficiently utilize the discernibility information tree structure for attribute reduction, an attribute reduction complete algorithm is developed, and it's complexity is reduced to $O(n^2)$.

Key words: rough set discernibility matrix attribute reduction discernibility information tree

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通讯作者: 蒋瑜 E-mail: jiangyu@cuit.edu.cn

作者简介: 蒋瑜(1980?), 男, 副教授, 硕士, 从事粗糙集理论和数据挖掘等研究.

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