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基于不确定规则推理的云制造知识服务方法

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Knowledge service method of cloud manufacturing based on uncertain rule reasoning

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摘要 针对知识服务的模糊性和随机性,提出知识服务的多维多条件云映射不确定规则推理方法。基于知识服务过程分析,建立了知识服务云模型,通过对不同任务需求前件和知识规则后件的云模型进行多元组合,完成了云制造知识服务从定量输入到定性推理再到定量输出的映射变换,构造了知识服务云模型的多维多规则推理结构,并给出了推理算法。通过应用算例,分析总结了云制造中业务需求与知识资源之间不确定映射关系在值域空间和确定度空间的分布,为实现云制造知识服务精确配送提供了新思路。

关键词 : 云制造, 知识服务云模型, 不确定规则推理, 映射变换, 精确配送

Abstract : Aiming at the randomness and fuzziness of knowledge service, an uncertain multi-dimension and multi-rule reasoning method for knowledge service cloud mapping was presented. The cloud model of knowledge service was established based on requirements analysis of knowledge service. Through combining the service demand antecedent with the knowledge rule consequent, the transition process that the knowledge service from quantitative input to qualitative reasoning and then to quantitative output could be realized, the multi-dimensions and multi-rules reasoning was constructed on the basis of the mapping, and the reasoning algorithm was put forward. The distribution of uncertain mapping relation between service demand and knowledge resource was analyzed in the range space and certainty space in the case. The research result provided a novel approach for realizing the precise knowledge pushing of cloud manufacturing.

Key words : cloud manufacturing knowledge service cloud model uncertain rules reasoning mapping transition precise pushing

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