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Variable precision rough sets on interval set information system with three-layer granular structure. (Chinese. English summary) [Zbl 07448781]

Summary: As an extension of traditional information system, interval set information system has more expressive power for uncertain information. Variable precision rough set theory on interval set information system is worth discussing. Three kinds of granular structures (similar granular vector, similar granular covering and similar equivalence class) on interval set information system are mined. Based on these three granular structures, variable precision rough set theory on interval set information system is studied. The upper and lower approximations of variable precision rough sets on interval set information system are defined, and three variable precision domains are induced by the upper and lower approximations. Finally, the uncertainty measurement variable precision dependence degree, attribute inner importance degree and outer importance degree are obtained. The model and uncertainty measurement are verified by an example.

MSC:
68T37 Reasoning under uncertainty in the context of artificial intelligence

Keywords:
uncertainty measurement; variable precision rough set; interval set information system; granular structure