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SELECTING SPORTS ONTOLOGIES FOR REUSE: A MCDA APPROACH

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Knowledge resource reuse has become a popular approach within the ontology engineering field, mainly because it can speed up the ontology development process, saving time and money and promoting the application of good practices. In this context, the *NeOn Methodology* specifies, among others, some guidelines for reusing different types of knowledge resources (ontologies, non-ontological resources, and ontology design patterns). These guidelines prescribe how to perform the different activities involved in any of the diverse types of reuse processes. One such activity is to select the most appropriate ontologies for reuse in an ontology development, which is a complex decision-making problem where different conflicting objectives have to be taken into account simultaneously, like understandability, integration or reliability. Understandability and integration efforts are estimates of the workload involved in understanding the candidate ontology and for integrating the candidate ontology into the ontology under development, respectively; while reliability refers to an analysis of whether ontology developers can trust the candidate ontology for reuse.

This work illustrates the application of the decision analysis methodology to select a subset of ontologies for reuse in the development of a new ontology in the sports domain. To allay the operational difficulties involved in the decision analysis methodology we use the GMAA system, a user-friendly PC-based decision support system based on an additive multi-attribute utility model. The sensitivity analyses provided by GMAA to exploit imprecise information on the inputs (ontology performances and decision-makers' preferences) are proved to be useful tools for making a final selection, such as the assessment of non-dominated and potentially optimal ontologies and the utilization of Monte Carlo simulation techniques.