

Advanced Facilities for Supporting Change of Knowledge Representation

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Conventional knowledge systems, such as the first generation of expert systems, cannot revise the knowledge representation from users just by themselves. Because knowledge system's performance depends much on the knowledge representation, it is key issues to facilitate change of knowledge representation. Here in this paper, we present how to design and implement two facilities for changing knowledge representation (semi-) automatically. First, we present the facility to change a case structure in Case-Based Reasoning (CBR), using a model inference system with predicate invention. The case structure including many slots has been converted into a set of clauses and given to the model inference system. It tries to delete unnecessary slots to be deleted by generalization and add missing important slots to be added by predicate invention with interactions of a user. Thus it supports change of a case structure. Second, we present the facility to change a domain ontology, using a developed very large scale general ontology called EDR electric dictionary. After matching two ontologies, they have been compared from the following points: the number of sub-nodes, the depth of a node in each hierarchy, topological relations between two nodes in each hierarchy and concept descriptions. When the great difference would come up, the facility would give it back to a user as the key to revise a domain ontology. Thus it supports change of a domain ontology. Furthermore, experiments in legal domain show us the effectivity of two facilities.