Knowledge and Software Engineering with Prolog

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(abstract)

In this talk we discuss works of the GEIST research team in the area of knowledge engineering and software engineering with Prolog. The first thread concerns rule modeling, analysis and execution. We developed a knowledge representation combining decision rules and decision tables called XTT2. The conceptual design of the components in the knowledge base was supported by the ARD method. The prototype implementation for both of these development tools was delivered in Prolog. ARD design was supported by an interactive shell, offering real time visualization with GraphViz. Once a rule base is fully designed it can be analyzed by HalVA verification tool. A verified knowledge base can be executed by the HeaRT rule engine. HeaRT processes a textual serialization of XTT2 called the HMR rule language. It is human-readable, yet fully executable thanks to a Prolog parser thta supports meta programming. More recent works included the development of a web-based tool, a semantic wiki called Plwiki, and then Loki. It is a web server side extension to a Dokuwiki engine. It allows for authoring of knowledge bases in a distributed and collaborative manner. It supports Prolog code, and XTT2 rules. Furthermore, thanks to additional plugins it can serve as a requirements engineering platform for authoring SBVR rules, as well as simple business process models in BPMN. During the talk we give a brief demonstration of the selected tools and discuss their applications.