CS 6795 Project Proposal

Translating Between Subsets of RuleML and Jess

By

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October 28, 2004

1 Introduction

RuleML is an XML-based language that can serve as a specification for immediate rule interchange. It permits both forward (bottom-up) and backward (top-down) rules in XML for deduction, rewriting, and further inferential-transformational tasks. jDREW is an easily configured, powerful deductive reasoning engine for clausal first order logic (facts and rules) written in Java and well integrated with the Web. Currently, jDREW provides modules to process rules in Prolog and RuleML format.

Jess is a rule engine for building a type of intelligent software called Expert Systems, which supports Jess rule language. Since Jess rule language and RuleML have different format, Jess and jDREW can not share the same knowledge repository, which has significantly limited the application of both engines. Our works aim to relax this limitation.

The rest of this report is organized as follows: Section 2 proposes our works on this project. Section 3 introduces the development tool and environment that we need in this project. Section 4 is the project timetable.

2 Proposed work

We propose to develop a translator between JessML and RuleML 0.8 by using XSLT. The transformation will be tested in Jess engine and jDREW. To manage this project easily, we separate this project into the following four modules.

1. **Module1:** Update (part of) the RuleML 0.7 ”Animals Knowledge Base” to conform to the current version of Datalog RuleML 0.8, but also allow a priority role in an imp, as illustrated by the rule base below. This will serve you as a test base. Adapt the j-DREW RuleML parser to handle the roles rbaselab, rlab, and priority, initially by ignoring their contents. Then read in our AnimalsKB and run queries in j-DREW (bottom-up).

2. **Module2:** Download the Jess rule engine and scripting environment. Consider the (small) subset of Jess corresponding to the Datalog RuleML subset needed for our AnimalsKB. Basically, the head atom of a RuleML imp becomes an assert action in Jess. Apply the XSLT stylesheet to the original RuleML 0.7 ”Animals Knowledge Base”.

3. **Module3:** Then modify it for our RuleML 0.8 AnimalsKB to produce the above Jess subset. Run our translated example in the Jess engine. Document our problems and solutions in this experiment.

4. **Module3:** Background review, related work in translator for rule engine, and report conclusion.

3 Tool and Environment

1. Jess: A rule engine.

2. jDREW: A deductive reasoning engine.

3. Jbuilder: Java IDE environment.

4. XML Spy: A popular editor for XML. It comprises the visual editor for XML Schemas, XSLT and XSL, some convenient and efficient debuggers. We can use it to translate our taxonomy to the RDFS version via XSLT, also to translate our taxonomy to the format of RuleML.

4 Timetable

Table 1below shows the proposed schedule for completion of this work:

Table 1. Timetable

	Task	Duration (days)	Start (dd/mm/yy)	Finish (dd/mm/yy)
1	Module1	15	01/11/2004	15/11/2004
2	Module2	15	01/11/2004	15/11/2004
3	Module3	15	01/11/2004	15/11/2004
4	Module4	15	01/11/2004	15/11/2004
6	Report Writing	15	01/12/2004	15/12/2004
7	Presentation	1		25/12/2004