5.1.2 Rules on the Semantic Web

Rule technology has been around for decades, has found extensive use in practice, and has reached significant maturity. And this deployment has led to a broad variety of approaches. As a result, it is far more difficult to standardize this area in the context of the (semantic) web. A W3C working group has developed the Rule Interchange Format (RIF) standard. It is important to understand how it is different from RDF and OWL: whereas the latter are languages meant for directly representing knowledge, RIF was designed primarily for the exchange of rules across different applications. For example, an online store might wish to make its pricing, refund, and privacy policies, which are expressed using rules, accessible to intelligent agents. The Semantic Web approach is to express the knowledge in a machine-accessible way using one of the web languages we have already discussed.

Due to the underlying aim of serving as an interchange format among different rule systems, RIF combines many of their features, and is quite complex. Therefore there are some doubts as to whether it will really be used widely as the primary language for expressing knowledge. Indeed, those wishing to develop rule systems for the Semantic Web have various alternatives:

- Rules over RDF can be expressed in an elegant way using SPARQL constructs; one recent proposal in this direction is SPIN.[2]
- Those wishing to use rules in the presence of rich semantic structures can use SWRL, which couples OWL DL functionalities with certain types of rules.
- Those who wish to model in terms of OWL but use rule technology for implementation purposes may use OWL2 RL.

This plurality of approaches is the reason why this chapter looks very different from the previous ones, which were based on one, or a family of, very stable and widely

[2]However, SPARQL is not a rule language, as basically it carries out one application of a rule. A rule system has to be developed on top of, say, SPIN.