verifiable by agents), and the rules may be a part of a shared commerce ontology or the policy of the online shop.

For logic to be useful on the web it must be usable in conjunction with other data, and it must be machine-processable as well. Therefore, there is ongoing work on representing logical knowledge and proofs in web languages. Initial approaches work at the level of XML, but in the future rules and proofs will need to be represented at the level of RDF and ontology languages.

1.2.4 The Semantic Web versus Artificial Intelligence

As we have said, most of the technologies needed for the realization of the Semantic Web build on work in the area of artificial intelligence. Given that AI has a long history, not always commercially successful, one might worry that, in the worst case, the Semantic Web will repeat AI's errors: big promises that raise too high expectations, which turn out not to be fulfilled (at least not in the promised time frame).

This worry is unjustified. The realization of the Semantic Web vision does not rely on human-level intelligence; in fact, as we have tried to explain, the challenges are approached in a different way. The full problem of AI is a deep scientific one, perhaps comparable to the central problems of physics (explain the physical world) or biology (explain the living world). So seen, the difficulties in achieving human-level Artificial Intelligence within ten or twenty years, as promised at some points in the past, should not have come as a surprise.

But on the Semantic Web partial solutions work. Even if an intelligent agent is not able to come to all conclusions that a human user might, the agent will still contribute to a web much superior to the current one. This brings us to another difference. If the ultimate goal of AI is to build an intelligent agent exhibiting human-level intelligence (and higher), the goal of the Semantic Web is to assist human users in their day-to-day online activities.