examples involved *rules* of the form, "If conditions, then conclusion," where conditions and conclusion are simple statements, and only a finite number of objects need to be considered. This subset of logic, called Horn logic, is tractable and supported by efficient reasoning tools.

An important advantage of logic is that it can provide *explanations* for conclusions: the series of inference steps can be retraced. Moreover, AI researchers have developed ways of presenting an explanation in a human-friendly way, by organizing a proof as a natural deduction and by grouping a number of low-level inference steps into metasteps that a person will typically consider a single proof step. Ultimately an explanation will trace an answer back to a given set of facts and the inference rules used.

Explanations are important for the Semantic Web because they increase users' confidence in Semantic Web agents (see the previous physiotherapy example). Tim Berners-Lee speaks of an "Oh yeah?" button that would ask for an explanation.

Explanations will also be necessary for activities between agents. While some agents will be able to draw logical conclusions, others will only have the capability to *validate proofs*, that is, to check whether a claim made by another agent is substantiated. Here is a simple example. Suppose agent 1, representing an online shop, sends a message "You owe me $80" (not in natural language, of course, but in a formal, machine-processable language) to agent 2, representing a person. Then agent 2 might ask for an explanation, and agent 1 might respond with a sequence of the form

Web log of a purchase over $80

Proof of delivery (for example, tracking number of UPS)

Rule from the shop's terms and conditions:

$$purchase(X, Item) \land price(Item, Price) \land delivered(Item, X)$$
$$\rightarrow owes(X, Price)$$

Thus facts will typically be traced to some web addresses (the trust of which will be