

# Chapter 5

## Logic and Inference: Rules

### 5.1 Introduction

#### 5.1.1 Logic and Rules

From an abstract viewpoint, the subjects of chapters 2 and 4 were related to the *representation of knowledge*: knowledge about the content of web resources, and knowledge about the concepts of a domain of discourse and their relationships (ontology).

Knowledge representation had been studied long before the emergence of the World Wide Web, in the area of artificial intelligence and, before that, in philosophy. In fact, it can be traced back to ancient Greece; Aristotle is considered to be the father of logic. Logic is still the foundation of knowledge representation, particularly in the form of *predicate logic* (also known as *first-order logic*). Here we list a few reasons for the popularity and importance of logic:

- It provides a high-level language in which knowledge can be expressed in a transparent way. And it has a high expressive power.
- It has a well-understood formal semantics, which assigns an unambiguous mean-