of RDF, bypassing the ontology vocabulary layer; this is particularly true in the recent shift from rich semantic structures to the processing of huge amounts of (semantic) data. Thus, this layer cake is included here for illustration purposes, as a means of presenting a historic view of the Semantic Web.

1.4   Book Overview

In this book we concentrate on the Semantic Web technologies that have reached a reasonable degree of maturity.

In chapter 2 we discuss RDF and RDF Schema. RDF is a language in which we can express statements about objects (resources); it is a standard data model for machine-processable semantics. RDF Schema offers a number of modeling primitives for organizing RDF vocabularies in typed hierarchies.

Chapter 3 is devoted to the query language SPARQL that plays the same role in the RDF world as SQL in the relational world.

Chapter 4 discusses OWL2, the current revision of OWL, a web ontology language. It offers more modeling primitives than RDF Schema, and it has a clean, formal semantics.

Chapter 5 is devoted to rules in the framework of the Semantic Web. While rules on the semantic web have not yet reached the same level of community agreement as RDF, SPARQL, or OWL, the principles to be adopted are quite clear, so it makes sense to present them here.

Chapter 6 discusses several application domains and explains the benefits that they will draw from the materialization of the Semantic Web vision.

Chapter 7 describes various key issues regarding the development of ontology-based systems for the web.

Finally, chapter 8 discusses briefly a few issues that are currently under debate in the Semantic Web community.