(section 7.4). Section 7.5 discusses ontology mapping. Section 7.6 describes how to populate ontology instances from relational databases. Finally, section 7.7 explains how Semantic Web tools can be integrated into a single architecture to build applications.

7.2 Constructing Ontologies Manually

For our discussion of the manual construction of ontologies, we follow mainly Noy and McGuinness, "Ontology Development 101: A Guide to Creating Your First Ontology." Further references are provided in suggested reading.

We can distinguish the following main stages in the ontology development process:

1. Determine scope.
2. Consider reuse.
3. Enumerate terms.
4. Define taxonomy.
5. Define properties.
6. Define facets.
7. Define instances.
8. Check for anomalies.

Like any development process, this is in practice not linear. These steps will have to be iterated, and backtracking to earlier steps may be necessary at any point in the process. We will not further discuss this complex process management. Instead, we turn to the individual steps.

7.2.1 Determine Scope

Developing an ontology of a domain is not a goal in itself. Developing an ontology is akin to defining a set of data and its structure for other programs to use. In other words, an ontology is a *model* of a particular domain, built for a particular purpose. As a consequence, there is no *correct* ontology of a specific domain. An ontology is by necessity an abstraction of a particular domain, and there are always viable alternatives. What is included in this abstraction should be determined by the use to which the ontology will be put, and by future extensions that are already anticipated. Basic