

7.4.1 Natural Language Ontologies

Natural language ontologies (NLOs) contain lexical relations between language concepts; they are large in size and do not require frequent updates. Usually they represent the background knowledge of the system and are used to expand user queries. The state of the art in NLO learning looks quite optimistic: not only does a stable general-purpose NLO exist but so do techniques for automatically or semiautomatically constructing and enriching domain-specific NLOs.

7.4.2 Domain Ontologies

Domain ontologies capture knowledge of one particular domain, such as pharmacological or printer knowledge. These ontologies provide a detailed description of the domain concepts in a restricted domain. Usually, they are constructed manually, but different learning techniques can assist the (especially the inexperienced) knowledge engineer. Learning domain ontologies is far less developed than NLO improvement. The acquisition of domain ontologies is still guided by a human knowledge engineer, and automated learning techniques play a minor role in knowledge acquisition. They have to find statistically valid dependencies in the domain texts and suggest them to the knowledge engineer.

7.4.3 Ontology Instances

Ontology instances can be generated automatically and frequently updated (e.g., a company profile in the Yellow Pages will be updated frequently) while the ontology remains unchanged. The task of learning of the ontology instances fits nicely into a machine learning framework, and there are several successful applications of machine learning algorithms for this. But these applications are either strictly dependent on the domain ontology or populate the markup without relating to any domain theory. A general-purpose technique for extracting ontology instances from texts given the domain ontol-