Knowledge Sharing

➤ If more than one person is building a knowledge base, they must be able to share the conceptualisation.

➤ A conceptualization is a map from the problem domain into the representation. A conceptualization specifies:

➤ What sorts of objects are being modelled

➤ The vocabulary for specifying objects, relations and attributes

➤ The meaning or intention of the realtions or attributes

➤ An ontology is a specification of a conceptualization.

Semantic Web

➤ Ontologies are published on the web in machine readable form and are publically readable.

➤ Builders of knowledge bases or web sits adhere to and refer to a publised ontology:

  ➢ the same symbol means the same thing across the various web sites that obey the ontology.

  ➢ if someone wants to refer to some other object or relation, the ontology is expanded. The community needs to agree to the new terminology.

Challenges of building ontologies

➤ They can be huge: finding the appropriate terminology for a concept may be difficult.

➤ How one divides the world can depend on the application. Different ontologies describe the world in different ways.

➤ People can fundamentally disagree about the appropriate structure.

➤ Different knowledge bases can use different ontologies.

➤ To allow KBs based on different ontologies to interoperate, there must be mapping between different ontologies.

➤ It has to be in user's interests to use an ontology.

➤ The computer doesn't understand the meaning of the symbols. The formalism can constrain the meaning, but can't define it.

Concept Hierarchy

➤ The core of an ontology are concept hierachies.

➤ A concept hierarchy is a tree (or trees) where

➢ the nodes correspond to concepts or classes and

➢ the parents of a node correspond to a more general concept

➢ children of a node are mutually exclusive

Example Concepts in an Ontology

The following are some of the concepts in an ontology for documents.

http://www.cs.umd.edu/projects/plus/DAML/onts/docmnt1.0.daml

homepage	correspondence	publication
letter	periodical	article
book	letter	magazine
journal	document	communication
workshopPaper	journalPaper	discussion
newspaper	PersonalHomepage	Speech