

Ontology and Database Systems

Knowledge Representation and Ontologies

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Overview of the Part on “KR and Ontologies” I

- 1 Modeling information through ontologies
 - 1 Introduction to ontologies
 - 2 Using logic for representing knowledge
 - 3 Ontology languages
 - 4 UML class diagrams as FOL ontologies
- 2 Description Logics
 - 1 Brief introduction to computational complexity
 - 2 Introduction to Description Logics
 - 3 Description Logics and UML Class Diagrams
- 3 Query answering in databases and ontologies
 - 1 Querying databases and ontologies
 - 2 Query answering in Description Logics
- 4 Ontology-based data access
 - 1 The *DL-Lite* family of tractable Description Logics
 - 2 Linking ontologies to relational data

5 Reasoning in the *DL-Lite* family

- 1 TBox reasoning
- 2 TBox & ABox reasoning and query answering
- 3 Beyond *DL-Lite*

6 Reasoning in the *ALC* family

- 1 Properties of *ALC*
- 2 Reasoning over *ALC* concept expressions
- 3 Reasoning over *ALC* knowledge bases
- 4 Extensions of *ALC*
- 5 Reasoning in extensions of *ALC*
- 6 *SHOIQ* and *SROIQ*