VU 4 WP2.1

VU's Interests: Inference (I)

- What can inferred from ontologies?

- What is needed to be inferred?

- How it can be optimized (e.g. through approximation)?

VU's Interests:
Inference (II)

- **Pre-compilation of knowledge bases**
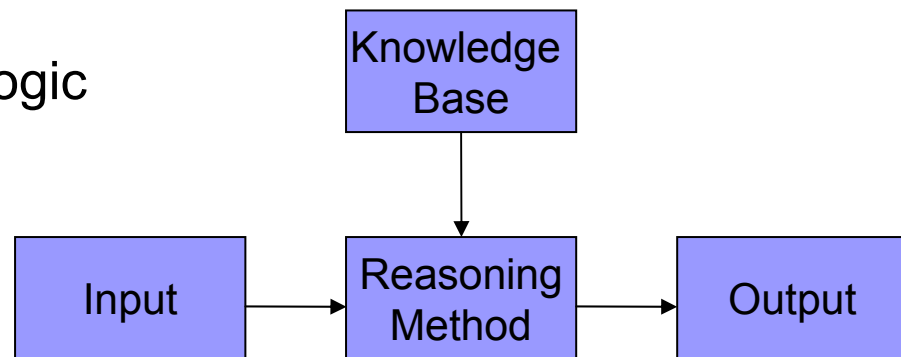 - ☐ Compile into another
    (faster, but less expressive) logic

- **Instance Classification**
  - ☐ with some kind of
    Closed World Assumption
    (Constraint propagation)
  - ☐ Approximate Instance Classification (for OWL)

- **Basic Inference: Difference Operator**
  - ☐ For ACL: undecidable
  - ☐ Approximation for OWL

| Knowledge Base |
| Input | → | Reasoning Method | → | Output |

VU's Interests → Topics WP2.1

- Instance Classification
- Difference Operator
- Precompilation of knowledge bases

- Approximate Deduction
- Knowledge Compilation
- Weakening Language for efficiency (and decidability) (may result in a trivial language?)

VU's Interests: Modularization

- How can an large ontology be divided in modules (semi-)automatically?
  - Criteria
  - Algorithms for partitioning
- How Modules can be defined?
  - Definition language
  - Inclusion mechanism

Contribution to WP2.1: Management

- Leading the working package
- Coordinating two deliverables
  - 2.1.1 (state of the art)
  - 2.1.2 (scalable methods)
- Quality Management

Contribution to WP2.1: Deliverable "State-of-the-Art" (2.1.1.)

- **Modularization**
  - Distributed theorem proving
  - Graph Partitioning (find modules)
  - Modules on Semantic Web
- **Approximation**
  - Overview
  - Knowledge compilation
  - Classification