Logical Modeling

The Web Ontology Language (OWL)

Research Seminar, SoSe 2017

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Web Ontology Language

OWL 2

What is an Ontology?
Web Ontology Language
OWL 2

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Ontology

An ontology is a set of *precise descriptive statements* about some part of the world (⇝ the *domain* of interest or the subject matter of the ontology).
Web Ontology Language

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An ontology is a set of precise descriptive statements about some part of the world (viz., the domain of interest or the subject matter of the ontology).

Precise Descriptive Statements?

- Avoid misunderstandings in (human) communication
- Ensure software behaves in a uniform and predictable way
- Establish software interoperability
OWL 2 is a knowledge representation language, designed to formulate, exchange and reason with knowledge about a domain of interest.
OWL 2 is a knowledge representation language, designed to *formulate*, *exchange* and *reason* with knowledge about a domain of interest.

**Basic Building Blocks**

- **Entities**: elements to refer to *real world* objects
  - Classes, Properties and Individuals

- **Expressions**: combinations of entities to form complex descriptions
  - Using logical constructors, e.g. Female *and* Professor

- **Axioms**: the basic statements an OWL ontology expresses
  - A Lecturer is someone who teaches a Course
Web Ontology Language
OWL 2 – Basic Notions

Student
- satya
- ibrahim
- richard
- ricardo

Lecturer
- lukas
- sebastian

Courses
- deduction-systems
- logical-modeling
- sw-tech

Thing
teaches
takes