Web Ontology Language

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Introduction

Problem

- Humans invented a way in which we can descibe Knowledge via Ontologies
- But how do we do it on a large scale? -> We need to make it machine Readable
- How does a machine understand the Ontologies we make? in order to -> define, query, and connect ontologies

Solution

- Programming Lagnuage for Ontologies
- Is the language in which Ontologies are represented and saved in order to build a knowledge Network

Basic Information

- Currrent Version OWL 2009 (OWL2)
- Builds upon RDF and RDFS and introduces a richer **logic layer** for describing knowledge
- **Protégé** is a popular Editor (such as PyCharm for Python)
- OWL API (e.g. via Pyhton package *owlready2*)

Basic Concepts

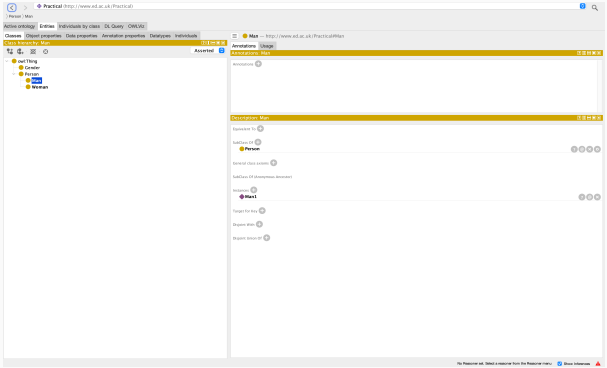
- **Classes**: Define categories within a domain.
- **Individuals**: Represent specific entities or instances.
- **Properties**: Specify relationships between classes or individuals.

Key Features

- Data Types and Data Ranges
- Object/Datatype Properties
- Property Chaining
- Inverse, Symmetric, Transitive, Asynmetric, Disjoint, Reflexiv, Functional, Inverse Functional Properties
- Boolean Class Operations: AND, OR, NOT
- Restrictions on Classes: Existential, Universal, Cardinality

Demo

- https://knowledge-representation.org/j.z.pan/data/basic-family.owl



Sources

1. https://www.w3.org/TR/2012/REC-owl2-overview-20121211/#Documentation_Roadmap
2. https://dl.acm.org/doi/10.1145/3397512

Thank you for attending my presentation!