

eXtreme Design Tutorial

Valentina Presutti and Eva Blomqvist
Semantic Technology Lab, CNR Rome (IT)
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Agenda

- Morning session
 - Introduction
 - Ontology Design Patterns (hands-on)
 - NeOn Toolkit and XD tool
- Afternoon session
 - eXtreme Design methodology
 - Hands-on

Ontology Design Patterns

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Outline – morning session

- Introduction on ontology design
- Motivation for ontology design patterns
- Types of ontology design patterns
- Catalogue of ODPs
- Content ODPs
- Logical ODPs

What is ontology design? 1/2

- Computational Ontologies are artifacts
 - Have a structure (linguistic, logical, etc.)
 - Their function is to “encode” a **description** of the world (actual, possible, counterfactual, impossible, desired, etc.) for some **purpose**

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What is ontology design? 2/2

- Ontologies must match both domain and task
 - Allow the description of the entities (“domain”) whose attributes and relations are concerned because of some purpose
 - e.g. *social events* and *agents* as entities that are considered in a *legal case*, *research topics* as entities that are dealt with by a *project*, worked on by *academic staff*, and can be topics of *documents*, etc.
 - Serve a purpose (“task”), e.g. finding entities that are considered in a same legal case, finding people that work on a same topic, matching project topics to staff competencies, time left, available funds, etc.

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Two kinds of ontologies

- Coverage-oriented ontologies
 - They cover the terminology/metadata/textual corpora/ folksonomies ... that fit a specific domain [big reengineering problem - exploited for annotation, retrieval, etc.]
- Task-oriented ontologies
 - They are able to give a structure to a knowledge base that can be used to answer competency questions [big design and reuse problem - exploited for automated reasoning and querying]
- Currently
 - a mass of heterogeneous data and ontologies, either expressed or portable to RDF (DB lifting, rdf-ized sources, etc.)
 - with generally low quality in some quality dimension/aspect

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Standard languages help

- Transform all in RDF, or even OWL
 - Cf. *Triplify* initiative
 - Datasets extracted from heterogeneous sources, and triplified
 - Semantics depends on intended task of data and relations used for linking
- Then search/visualize RDF data, or make integrating applications

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