

# OntoHub Perspectives

The Ontohub team

12.12.12

# Time plan

10h	Intro / Motivation / Know-How
10.30h	Ontohub and its background (OntoOp ISO standard, OOR community, Hets community)
11h	Ontohub.org web portal demo
11.30h	Ontohub architecture and data model
13h	Lunch
14h	Aims
14.30h	Motivation / Know-How / Work areas
15h	Organisation (regular meetings, programming sessions, github, issue tracker)
15.30h	Setup of development environment
ca. 16h	End

- Ontology = shared (formal) conceptualisation (of a domain)
- Example: Pizza ontology
  - using Web Ontology Language OWL
  - tool for editing OWL ontologies: Protégé  
<http://protege.stanford.edu/>

# Applications of Ontologies

- Medicine (Snomed)
- Biology, Biochemistry (molecules ...)
- Semantic Web
  - Semantic Mediawiki
    - better categories for Wikipedia
  - schema.org (Google, Yahoo, Microsoft)
    - structured content for HTML pages

- ambitious goals:
  - establishing a hosted registry-repository;
  - enabling and facilitating open, federated, collaborative ontology repositories, and
  - establishing best practices for expressing interoperable ontology and taxonomy work in registry-repositories.
- lots of OOR presentations at conferences
- regular Skype conferences
- implementation: only through Bioportal, only for OWL
- <http://www.oor.net>

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### Most Viewed Ontologies (October, 2012)

Ontology	Views
<a href="#">National Drug File</a>	8441
<a href="#">SNOMED Clinical Terms</a>	6277
<a href="#">International Classification of Diseases</a>	4638
<a href="#">MedDRA</a>	4144
<a href="#">NCI Thesaurus</a>	1759

### Latest Notes

[Suggest synonym removal \(Human disease ontology\)](#) about 1 month ago by ceyockey  
Suggest removing "cancer of prostate" as a synonym and associate this with the present term's par...

[Please use the tracker for this ontology to make notes \(Zebrafish anatomy and development\)](#) about 1 month ago by cervus  
Please make comments, new term requests, issue reports etc for this ontology using the official t...

[Languages \(BRENDA tissue / enzyme source\)](#) about 1 month ago by anonymous  
does the ontology contain terms in different languages?

[Terms \(BRENDA tissue / enzyme source\)](#) about 1 month ago by anonymous  
How many terms does the BTO include?

[Please use the tracker for this ontology to make notes \(Uber anatomy ontology\)](#) about 1 month ago by cmungall  
Please make comments, new term requests, issue reports etc for this ontology using the

### Latest Mappings

[Neoplasm of uncertain behavior of testis \(MedDRA\) => Neoplasm of uncertain behavior of testis \(International Classification of Diseases\)](#)  
NLM UMLS (MRMAP) 11/05/12 loom

[BALANITIS \(COSTART\) => Balanitis \(MedDRA\)](#)  
NLM UMLS (MRMAP) 11/05/12 loom

[Poisoning by bromine compounds \(International Classification of Diseases\) => Poisoning by bromine compounds \(MedDRA\)](#)  
NLM UMLS (MRMAP) 11/05/12 loom

[Radial styloid tenosynovitis \(MedDRA\) => Radial styloid tenosynovitis \(International Classification of Diseases\)](#)  
NLM UMLS (MRMAP) 11/05/12 loom

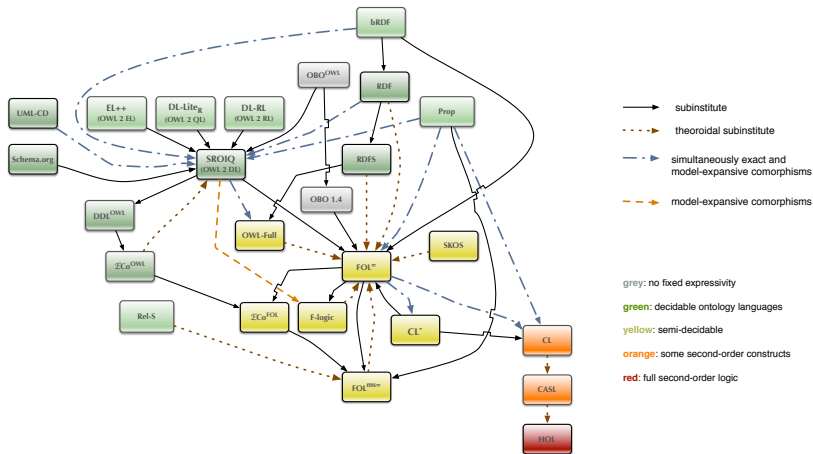
[Hair transplant \(International Classification of Diseases\) => Hair transplant \(MedDRA\)](#)  
NLM UMLS (MRMAP) 11/05/12 loom

### Statistics

Ontologies	329
Terms	5,484,331
Resources Indexed	28
Indexed Records	4,567,151
Direct Annotations	2,342,121,419
Direct Plus Expanded Annotations	17,816,182,671



# OntoOp Logic Graph



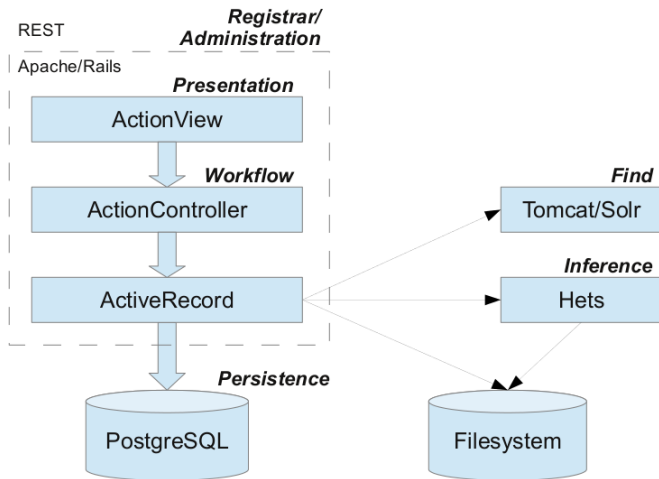


## Heterogeneous Tool Set (Hets)

- Logic backend for OntoHub
- can parse and analyse all involved languages
- implements logic translations
- interface to about 15 proof tools
- anchored in algebraic specification community (WADT, CoFI, IFIP WG 1.3)
- <http://www.dfki.de/cps/hets>

- generalise Bioportal and OOR  
⇒ provide a repository for heterogeneous ontologies
- provide a repository for OntoOp/DOL
- provide a web-frontend for Hets

# Ontohub architecture

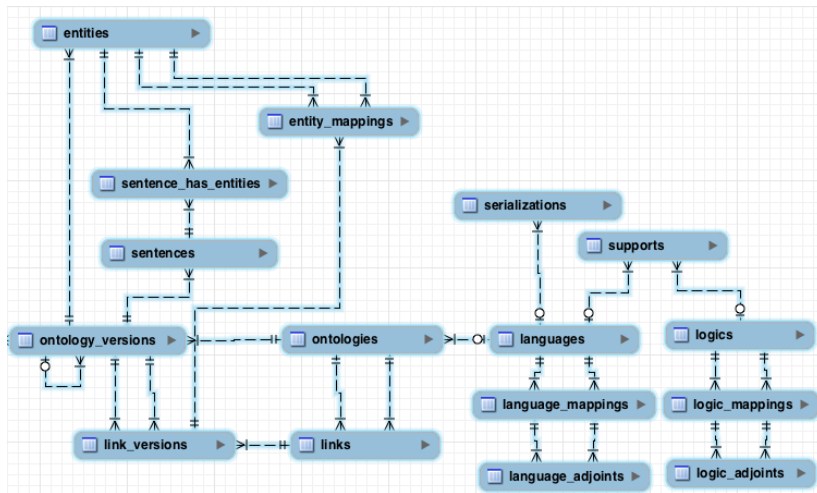


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**SPATIAL COGNITION**

# Ontohub data model



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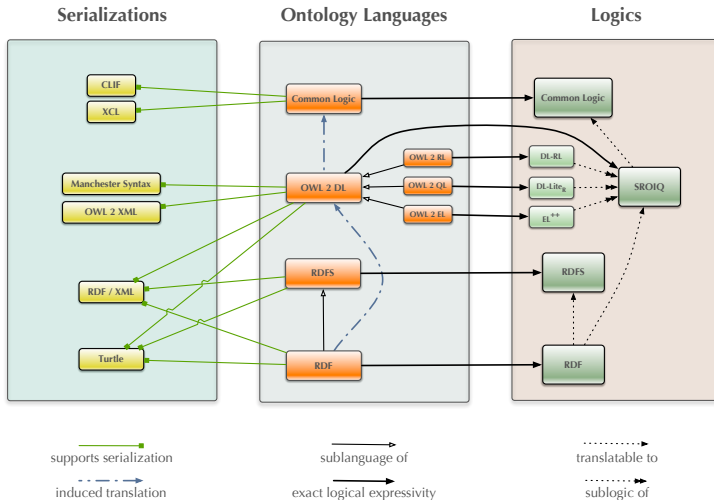
# OntoHub short-term and long-term goals

- Keep functionality through tests
- CRUD functionality not only for ontologies, but also for logics, translations, ...
- display graph of ontologies and links (and logic graph)
- Reasoning (provide Hets GUI)
- Git backend (distributed development of ontologies)
- long-term goal: OOR architecture

## No line of code without test

- Fixtures: provide data for tests
- Unit tests: test single methods of models
- Functional tests: test controller actions
- Integration tests: test sessions (sequences of actions)

- re-use existing functionality for ontologies
- transfer this to links, logics, logic mappings, languages, language mappings, and serializations
- involve further tables like supports
- display lists of these things: see display of graphs
- read in logic graph from OntoOp registry (RDF)

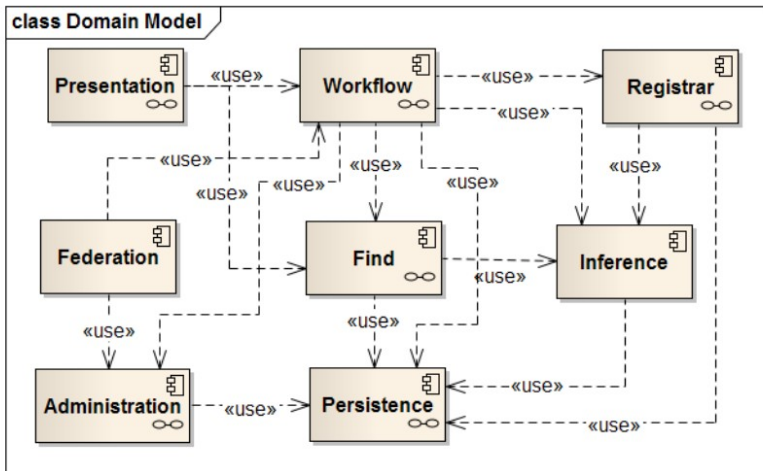




- use graphviz / dot to generate svg from graph
- html and javascript can be embedded to svg
- use this to realise menus for nodes and links
- long-term goal: re-use Bioportal's fancy display



## Revised Architecture



- New Rails model “repository”, which simultaneously provides namespace for ontologies
- underlying git or svn repositories
- permissions per repository (not per ontology)
- only contents of master branch is displayed in Ontohub
- store who has pushed when what
- server side git hooks

- who does what?
- meetings
- shared office in Cartesium