



Opening Brief at the OOR-initiative meeting on

Meta-Ontology for Ontology Categories

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http://ontolog.cim3.net/cgi-bin/wiki.pl?OOR/ConferenceCall_2013_10_08

Outline

- 1. The role of meta-ontology categories in the OOR context**
- 2. The OOR examples (BioPortal, SOCoP, COLORE, Ontohub)**
- 3. Criteria to classify ontologies (OMV, LoLa, etc.)**
- 4. OOR consensus on categories: questions and actions**

Meta-ontology categories in the OOR context

...besides giving a complete specification of an ontology

Meta-ontology categories play several important roles in an OOR

Primary roles

- Organising ontology collection
- Facilitating ontology retrieval

Related roles

- exchange and advancement of knowledge
e.g. smart grouping (task, type, logics etc.) allows
- novel interoperability scenarios
 - ontology reuse across domains



Impacts OOR functionality
e.g. via User Interface (browsing and uploading ontology by accessing meta-data)

Should we foster an agreement on the (meta) categories for classification of ontologies (across OOR)?

Categories	Advantage	Disadvantage
OOR independent	<ul style="list-style-type: none">•domain centred application (e.g. biomed, geo, logics)	<ul style="list-style-type: none">•interoperability issue•closed community
OOR aligned	<ul style="list-style-type: none">•interoperable across OOR•comprehensive•enhances reusability	<ul style="list-style-type: none">•paternalistic•impact specificity of categories

The OOR examples: COLORE categories



Ontologies

The ontologies in the repository are organized into hierarchies:

- [algebra](#)
- [approximate_point](#)
- [between](#)
- [between_quaternary](#)
- [betweenness_bundle](#)
- [bipartite_incidence](#)
- [boxworld](#)
- [cardworld](#)
- [cayley_graph](#)
- [cimos](#)
- [combinatorial_magma](#)
- [combined_time](#)
- [contact_algebras](#)
- [cyclic_arithmetic](#)
- [cyclic_geometry](#)
- [cyclic_ordering](#)
- [date_time_vocabulary](#)
- [dolce](#)
- [dolce_constitution](#)

> 100

Checkout Browse Changes

Source path: svn/

- ▼ tags
 - ▼ colore_0.9.1
 - ▼ ontologies
 - ▼ domain
 - ▼ computer_vision
 - card_world
 - mapsee
 - ▼ foundational
 - algebra
 - contact_algebras
 - graphs
 - incidence_structures
 - lattices
 - linear_and_partial_orderings
 - ▼ generic
 - duration
 - mereotopologies
 - ▼ process
 - event_calculus
 - onto_stit
 - process_specification_language
 - time

colore

An open repository of first-order ontologies represented in Common Logic.

Project Home Downloads Wiki Issues Source

Checkout Browse Changes

Source path: [svn/](#) [trunk/](#) [ontologies/](#) algebra [r1085](#)

Directories	Filename	Size	Rev	Date	Author
▼ algebra	module.clif	404 bytes	1085	May 29, 2013	carmens
▶ consistency	module.xml	1.3 KB	642	Feb 7, 2012	allegrista
▶ definitions					
▶ entailment	vectorspace.clif	410 bytes	1085	May 29, 2013	carmens
▶ interprets	vectorspace.xml	1.1 KB	642	Feb 7, 2012	allegrista
▶ mappings					
▶ theorems					

The OOR examples: BioPortal categories

BioPortal

Updating and parsing of ontologies is now fully on-line. Please be patient while the system processes the backlog. [show]

Browse
Browse the library of ontologies

FILTER BY CATEGORY All Categories

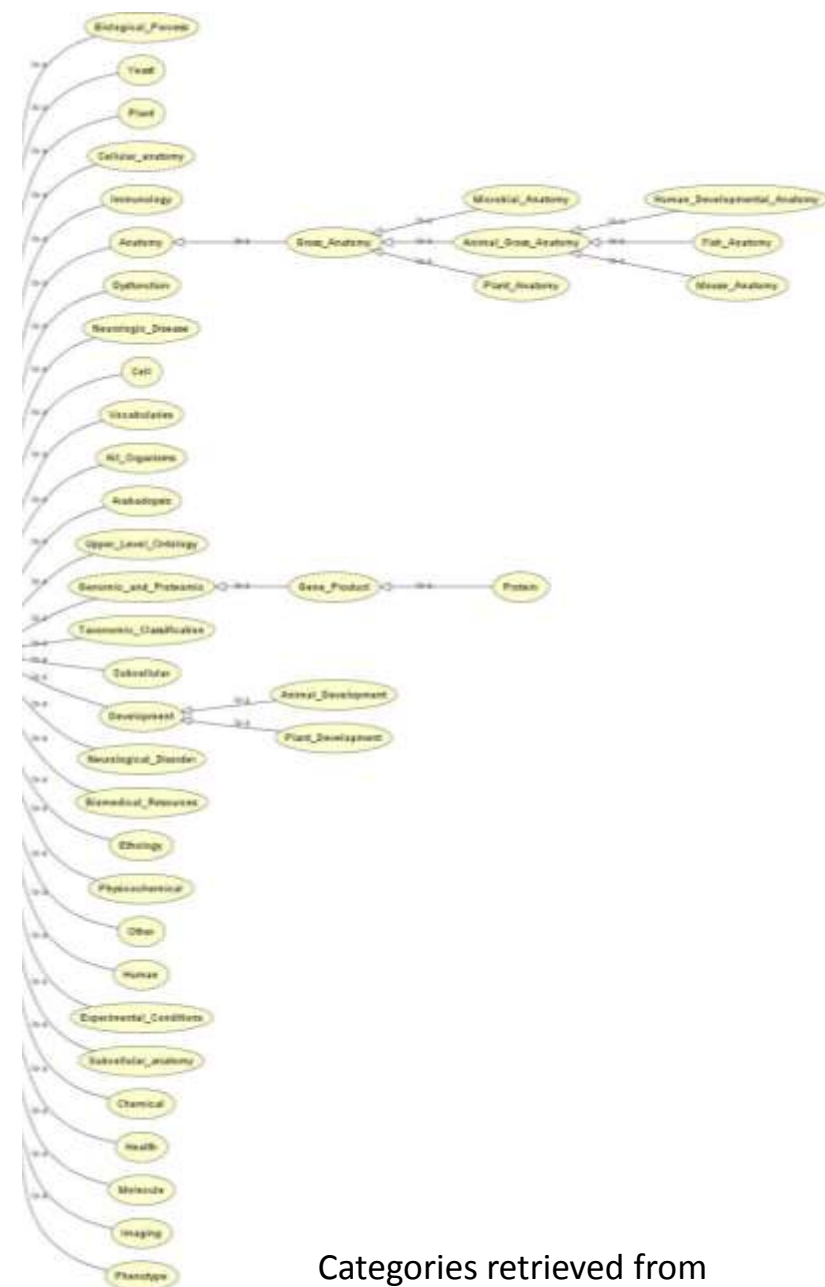
FILTER BY GROUP All Categories

FILTER BY TEXT

Submit New Ontology

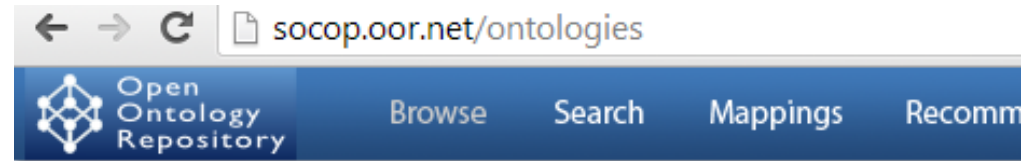
ONTOLOGY NAME	CLASSES	NOTES	REVIEWS	PROJECTS	UP
Adverse Event Reporting Ontology	298	0	0	1	09
African Traditional Medicine	222	2	0	1	06
Allen Brain Atlas (ABA) Adult ABA-AMB	912	0	0	2	08
Alzheimer's disease ontology	1,565	0	0	0	07
Amino Acid Ontology AMBIO	46	0	0	2	07
Amphibian Gross Anatomy Ontology	1,603	0	0	2	07
Amphibian Taxonomy Ontology	6,125	0	0	1	11

http://www.bioontology.org/wiki/index.php/BioPortal_Metadata



Categories retrieved from
XML file via NCBO_REST_service
July 2013

The OOR examples: SOCoP categories



Browse

Access all ontologies that are available in SOCoP OOR: You can filter this list to SOCoP OOR using the Submit New Ontology link.

BioPortal platform

List of (Mike Dean) categories

- general; not (so much) domain-specific
- more systematic than BioPortal
- arbitrary in limiting choices
- uncertainty in categorising subjects e.g. architecture, agriculture etc.
- 'enriched' with (uploaded) meta-data

FILTER BY CATEGORY	All Categories
FILTER BY GROUP ?	All Categories
FILTER BY TEXT	Commercial
	Cultural
	Defense
	Financial
	Geospatial
	Government
	Literature
	Metadata
	Other
	Process
	Provenance
	Science
	Social Networking
	Standards
	Technology
	Upper Ontologies
	Public

ONTOLOGY NAME
Abstract Geometry (AG)
Basic Formal Ontology (BFO)
DOLCE+DnS Ultralite (DUL)
Friend of a Friend (FOAF)
Geoconcepts ontology Lite (GeOC)
GeoFeatures (GeoF)
Geography (Geog)

The OOR examples: Ontohub categories

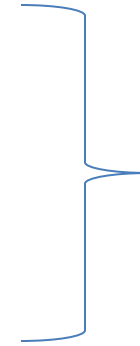
Ontohub metadata ontology (work in progress) [Download](#)

Imports :

Domain-fields ontology ([Core](#) and [Extension](#))

Bioportal meta data ontology (N. Noy)

including [OMV](#), ChAo, Protégé Mappings Ontology



Task:

integration of [LoLa](#)

LoLa - the ontology of logics and languages

Domain-Fields can be aligned with BioPortal and SOCoP categories

LoLa integration should provide interoperability with COLORE categories

Alignment of LoLa and OMV categories:

OntologyLanguage, OntologySyntax, FormalityLevel, KnowledgeRepresentationParadigm

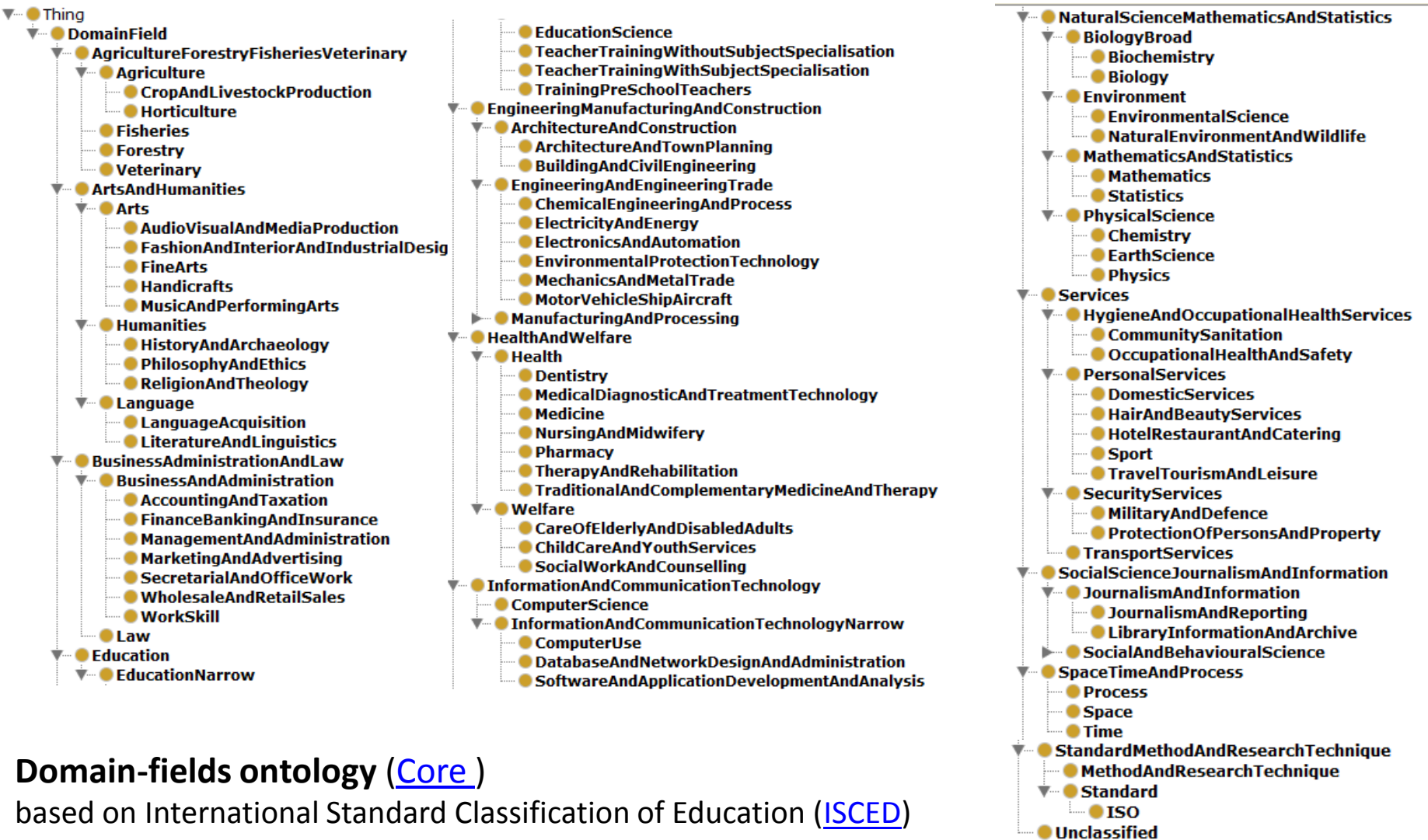
Open questions:

OMV – LoLa [alignment](#) (ref. Christoph Lange)

Classification of Domain-Fields (Core and Extension); platform choice

Interoperability across OOR, e.g. BioPortal, COLORE, SOCoP etc.

The OOR examples: Ontohub (domain) categories



Domain-fields ontology ([Core](#))

based on International Standard Classification of Education ([ISCED](#))
a member of the UNESCO family of classificatory systems

Criteria to classify ontologies

Questions to ask while classifying an ontology: **What?** **Why?** **How?**



OMV - Ontology Metadata Vocabulary

Scope: metadata
Includes properties of ontologies e.g.

- | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| OntologyType
<ul style="list-style-type: none"> ◆ 'Application Ontology' ◆ 'Core Ontology' ◆ 'Domain Ontology' ◆ 'Task Ontology' ◆ 'Upper Level Ontology' | FormalityLevel
<ul style="list-style-type: none"> ◆ Schema ◆ Taxonomy ◆ Terminology ◆ Thesaurus ◆ Vocabulary | KR Paradigm
<ul style="list-style-type: none"> ◆ 'Description Logics' ◆ DAG ◆ Frames |
| OntologyLanguage
<ul style="list-style-type: none"> ◆ 'RDF(S)' ◆ CASL ◆ CASL_DL ◆ CoCASL ◆ CommonLogic ◆ ConstraintCASL ◆ CoreCASL | OntologyTask
<ul style="list-style-type: none"> ◆ AnnotationTask ◆ ConfigurationTask ◆ FilteringTask ◆ IndexingTask ◆ IntegrationTask ◆ MatchingTask ◆ MediationTask ◆ PersonalizationTask ◆ QueryFormulationTask ◆ QueryRewritingTask ◆ SearchTask | |
| OntologySyntax
<ul style="list-style-type: none"> ◆ OWL/XML ◆ RDF/XML | | |

LoLA – an ontology of ontologies
Scope: logics and languages

Ontology of Ontology Domains
Should we have one, more or none?
Can the Domain-Fields Ontology (Core) support interoperability across OOR (domain) categories?
The extension – left to the domain experts

OOR consensus on categories: questions and actions

1. Should we foster a consensus on the (meta) categories for classification of ontologies (across OOR)?
2. Should a standardisation of ontology meta-data also include categories of ontology domains?
3. Action: Proposing a minimum of requirements for a meta-ontology that
 - provides interoperability across OOR categories
 - and the OOR community wants to endorse them

References :

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Palma, Raul, Jens Hartmann, and Peter Haase. *OMV-Ontology Metadata Vocabulary for the Semantic Web*. Technical report, Universidad Politécnica de Madrid, University of Karlsruhe, 2008. Version 2.4. Available at <http://omv.ontoware.org>, 2008.

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Mossakowski, Till, Oliver Kutz, and Mihai Codescu. "Ontohub-a repository engine for heterogeneous ontologies and alignments." (preprint) [PDF](#)