

Discovering Ontologies And Instance Data

RareMat Meeting | 2018.01.11 | Columbia University

Why is reuse important?

Without reuse of shared models and reuse of instance data from those shared models, there is no “linked data”.

Not to mention... ontology engineering is expensive. :)

Reuse: Identify your collaborators and their data models.

- What data do you want to consume or integrate with?
 - Is the modeling for those datasets good enough to meet your prioritized use cases?
 - Or do you need to extend it?
 - Or engage to influence changes for the better?

Reuse: SKOS is Ubiquitous in GLAM's

- Central is the SKOS is the `skos:Concept`
 - conceptualizations in a particular scheme to build thesauri (similar semantics as Authority Records)
- Strategically limited semantics
 - broader/narrower
 - `pref/alt` labels
 - alignment properties, like `skos:closeMatch`
 - `skos:inScheme`

Tools

- Example of an Instance Data Discovery Tool:
[Lotus](#) from the LOD Laundromat
- Examples of Ontology Discovery Tools:
 - [Linked Open Vocabularies](#) (LOV, cross domain)
 - [Bioportal](#) (began with a Biomedical Focus, but expanding)

Navigating LOV: Searching for Vocabularies



VOCABS

TERMS

AGENTS

SPARQL/DUMP

VOCABS

family

7
results

plink - PersonLink Ontology

<http://cedric.cnam.fr/sid/ontologies/PersonLink.owl>

A Multilingual and Multicultural Ontology Representing Family Relationships. @en

prov - W3C PROVENANCE Interchange

<http://www.w3.org/ns/prov#>

The namespace name <http://www.w3.org/ns/prov#> is intended for use with the PROV family of documents that support the interchange of provenance on the web.

@en

rdac - RDA Classes

<http://rdaregistry.info/Elements/c>

The Classes element set consists of classes representing the RDA entities, including Work, Expression, Manifestation, Item, Person, Family, Corporate Body, and Agent. @en

xhv - XHTML Vocabulary

<http://www.w3.org/1999/xhtml/vocab>

This is a vocabulary collection utilized by XHTML Family modules and document types using XHTML Modularization, including XHTML Role and XHTML Roles as

Type

vocabulary (7)

property/class >

agent >

Tag

FRBR (2)

People (2)

API (1)

Navigating LOV: Searching for Specific Terms



VOCABS

TERMS

AGENTS

SPARQL/DUMP

TERMS

sister

Sister of
SisterOf
sister college
sister newspaper
sister station

8
results

shoah:sister

n/a (use in LOD)
<http://dati.cbec.it/ont/shoah/sisterOf>

rdfs:label Sister of @en
localName sisterOf

1.821

dbpedia-owl:sisterNewspaper (dbpedia-owl)

n/a (use in LOD)
<http://dbpedia.org/ontology/sisterNewspaper>

rdfs:label sister newspaper @en
localName sisterNewspaper

1.520

dbpedia-owl:sisterCollege (dbpedia-owl)

n/a (use in LOD)
<http://dbpedia.org/ontology/sisterCollege>

rdfs:label sister college @en
localName sisterCollege

1.519

Type

vocabulary >

property/class

property (7)

class (1)

agent >

Tag

General & Upper (3)

Navigating LOV: Searching for Ontologies by Agents



VOCABS

TERMS

AGENTS

SPARQL/DUMP



AGENTS

Library of Congress

1

result

Library of Congress

http://dbpedia.org/resource/library_of_Congress

has role in vocab bf, mrel, mads, premis

1

Type

vocabulary >

property/class >

agent

organization (1)

Tag

Catalogs (1)

Metadata (1)

Navigating LOV: Faceting

The screenshot displays the LOD Browser interface with a search for 'sister'. A red arrow points from the title to the 'Type' facet on the right. The main results table lists various entities and their counts.

URI	Count
shoah:sister newspaper	1.821
dbpedia-owl:sisterNewspaper (dbpedia-owl)	1.520
dbpedia-owl:sisterCollege (dbpedia-owl)	1.519
dbpedia-owl:sisterStation (dbpedia-owl)	1.456
pext:hasSister (pext)	1.456

Facet: Type

- vocabulary >
- property/class
 - property (7)
 - class (1)
- agent >

Facet: Tag

- General & Upper (3)
- PROTON (3)
- People (1)
- Society (1)

Facet: Vocabulary

- dbpedia (3)
- owl (3)
- ptop (2)

Navigating LOV: Context for Decision Making

The screenshot displays the LOV interface with a search for 'sister'. A red arrow points from the top navigation bar to the search results. The interface includes a search bar, a dropdown menu with suggestions, a results list, and sidebars for 'Type' and 'Tag'.

Navigation: VOCABS, TERMS, AGENTS, SPARQL/DUMP

Search: TERMS sister

Results: 8 results

- shoah:sister** (1,821)
 - n/a (use in LOD)
 - http://dati.cuneo.it/roa/sister
 - rdfs:label Sister of @en
 - localName sisterOf
- dbpedia-owl:sisterNewspaper** (dbpedia-owl) (1,520)
 - n/a (use in LOD)
 - http://dbpedia.org/ontology/sisterNewspaper
 - rdfs:label sister newspaper @en
 - localName sisterNewspaper
- dbpedia-owl:sisterCollege** (dbpedia-owl) (1,519)
 - n/a (use in LOD)
 - http://dbpedia.org/ontology/sisterCollege
 - rdfs:label sister college @en
 - localName sisterCollege
- dbpedia-owl:sisterStation** (dbpedia-owl) (1,456)
 - n/a (use in LOD)
 - http://dbpedia.org/ontology/sisterStation
 - rdfs:label sister station @en
 - localName sisterStation
- pext:hasSister** (pext) (1,456)
 - n/a (use in LOD)
 - http://www.ontotext.com/proton/protonext#hasSister
 - rdfs:label has Sister @en
 - rdfs:comment Relates a person to his/her sister. @en
 - localName hasSister
- ptop:hasSibling** (ptop) (0,304)
 - n/a (use in LOD)

Type: vocabulary >, property/class, property (7), class (1), agent >

Tag: General & Upper (3), PROTON (3), People (1), Society (1)

Vocabulary: dbpedia (3), owl (3), ptop (2), pext (1)

Navigating LOV: Context for Decision Making

Metadata

URI	http://www.ontotext.com/proton/protontop
Namespace	http://www.ontotext.com/proton/protontop#
isDefinedBy	http://ontotext.com/documents/proton/protontop.ttl
homepage	http://www.ontotext.com/proton-ontology
Description	The PROTON Top module represents the most general classes @en
Language	English <small>en</small>
Creator	Ontotext http://dbpedia.org/resource/Ontotext
Publisher	Ontotext http://dbpedia.org/resource/Ontotext
Comment	<p>(2012-05-21) Bernard Vatant: Change URI and namespace. Replaces http://proton.semanticweb.org/2005/04/proton, which is now offline. Too bad the current documentation page does not provide any information on this change.</p> <p>(2014-12-02) Bernard Vatant: Annual review OK</p> <p>(2013-11-30) Bernard Vatant: This is the top of the Proton Ontology family. Usage of this ontology in the Linked Data cloud is unknown.</p> <p>(2016-01-14) Ghislain Atezeming: Added the Turtle file access page.</p>

⋮ n3

Statistics

Classes 25

Properties 77

Datatypes 0

Instances 0

Expressivity

RDF RDFS OWL

Tags

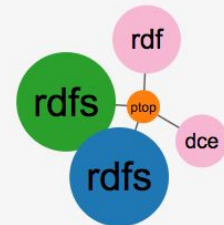
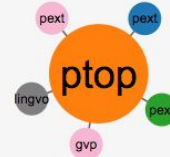
← PROTON

LOD

Vocabulary used in 0 datasets

5 Incoming Links

4 Outgoing Links



As an Ontology Owner: Registering New Ontologies

- <http://lov.okfn.org/dataset/lov/suggest>
 - Supply an ontology URI that LOV can then index
- http://lov.okfn.org/Recommendations_Vocabulary_Design.pdf
 - Guidelines for metadata *about the ontology*
 - Title
 - Version URIs, version information, modifications
 - Creators, rights, licenses
- <http://biblio.ontportal.org/>
 - New initiative coming out of LD4P
 - Based on same infrastructure as BioPortal

Readings on LOV & Reuse

Discovery/Evaluation Ontologies for Reuse

- non-Academic description of Linked Open Vocabularies:
 - <http://ercim-news.ercim.eu/en96/special/linked-open-vocabularies>
- Academic Article on LOV:
 - <http://www.semantic-web-journal.net/system/files/swj1127.pdf>
- *Very Academic* Article on Ontology Reuse (available through Hollis):
 - Survey on Common Strategies of Vocabulary Reuse in Linked Open Data Modeling:
http://link.springer.com/chapter/10.1007/978-3-319-07443-6_31

Discovering Linked Data (Instance Data) for Reuse

- Academic Article on LOTUS: <http://ceur-ws.org/Vol-1426/paper-06.pdf>
- From DLib's In Brief section: Identifier Hubs: OCLC Launches New Person Entity Lookup Pilot: <http://www.dlib.org/dlib/november15/11inbrief.html>

Reuse isn't easy

Reasons one might not reuse from an existing model

- A definition isn't what is needed, often a judgement call
 - Terms might have a looser definition than is desired... possible candidate for reuse with an application profile.
 - Properties may have unwanted entailments... some are more critical than others
- Lack of trust in the sustainability of the ontology maintainers
- Lack of trust in the versioning practices by ontology maintainers

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Ontology Design Patterns (ODPs)

Plan A: Reuse

PlanB: Follow established Ontology Design Patterns

- ODP's- effort to establish modularized *patterns* for reuse to enable easier alignment with other models and combat anti-patterns
- Lack of trust in the sustainability of the ontology maintainers
- Lack of trust in the versioning practices by ontology maintainers

Related Links

- Website: http://ontologydesignpatterns.org/wiki/Main_Page
 - ISWC Workshop: <http://ontologydesignpatterns.org/wiki/WOP:2017>
- ODP google group, <https://groups.google.com/forum/#!forum/ontology-design-patterns>

Ontology Design Patterns (ODPs)

- List of patterns: <http://ontologydesignpatterns.org/wiki/Community:ListPatterns>

These are lists for available ODP catalogues.

Submissions

This area aims at collecting Ontology Design Pattern proposals from ODP users.

After the author has finished the submission and asked for a review, the proposals are assigned to at least two members of the ODP Quality Committee, who are expected to provide a review.

Positive reviews can be accompanied with guidelines for fixing possible problems of the proposed Content OP.

Once such problems have been addressed, the proposed Content OP can be certified and published in the [official catalogue](#).

See the submissions list:

- Content ODPs
- Reengineering ODPs
- Alignment ODPs
- Logical ODPs
- Architectural ODPs
- Lexico-Syntactic ODPs



	Catalogue	Submissions	All
Content ODPs	0	147	147
Reengineering ODPs	0	12	12
Alignment ODPs	0	14	14
Logical ODPs	0	18	18
Architectural ODPs	0	1	1
Lexico-Syntactic ODPs	0	20	20

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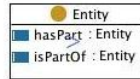


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ODP Example: Parts

Graphical representation

Diagram



General description

Name:	part of
Submitted by:	ValentinaPresutti
Also Known As:	part whole
Intent:	To represents entities and their parts.
Domains:	Parts and Collections
Competency Questions:	<ul style="list-style-type: none">■ what is this entity part of?■ What are the parts of this entity?
Solution description:	--
Reusable OWL Building Block:	http://www.ontologydesignpatterns.org/cp/owl/partof.owl (493)
Consequences:	This Content OP allows designers to represent entities and their parts i.e., part-whole relations, with transitivity. The temporal aspect of this relations cannot be expressed with this Content OP; in order to solve this issue the time indexed part of Content OP can be used. For an intransitive part-of Content OP see componency .
Scenarios:	Brain and heart are parts of the human body, substantia nigra is part of brain.
Known Uses:	
Web References:	
Other References:	
Examples (OWL files):	<ul style="list-style-type: none">■ http://www.ontologydesignpatterns.org/cp/examples/partof/humanbodyparts.owl ↗

Questions and Answers?

Tour of LOV and ODP's?

Both?