



Ontologies

aka: your metadata elements

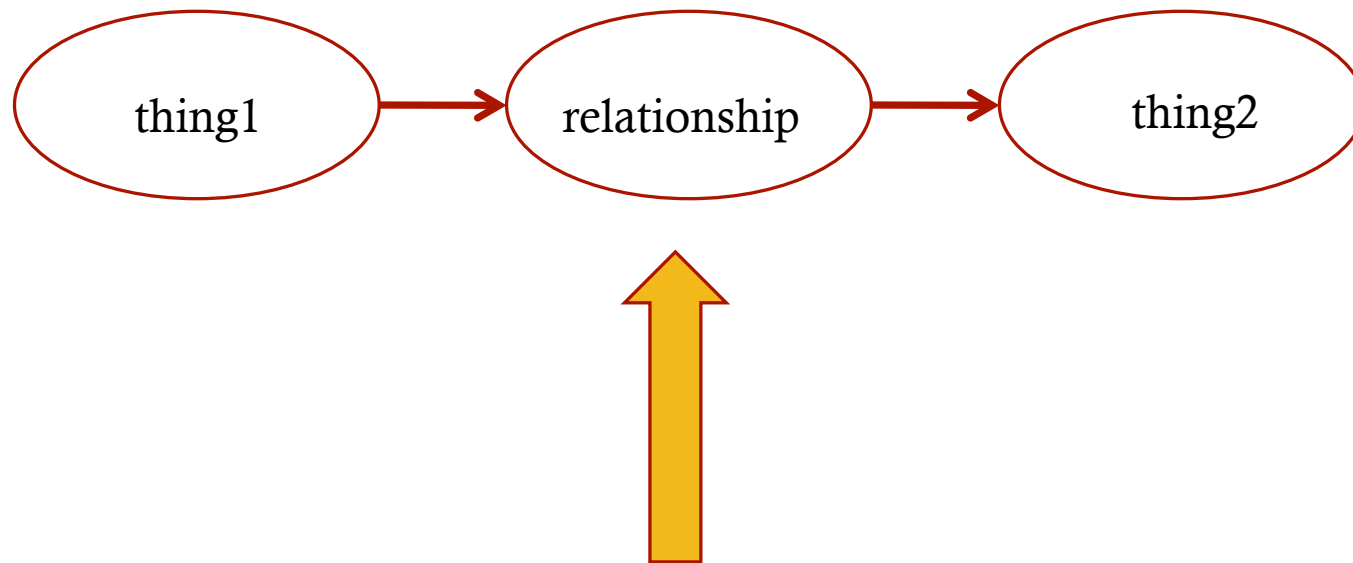
“ontology” / “vocabulary” / “term” / “element”

“...vocabularies define the concepts and relationships (also referred to as “terms”) used to describe and represent an area of concern...” (W3C)

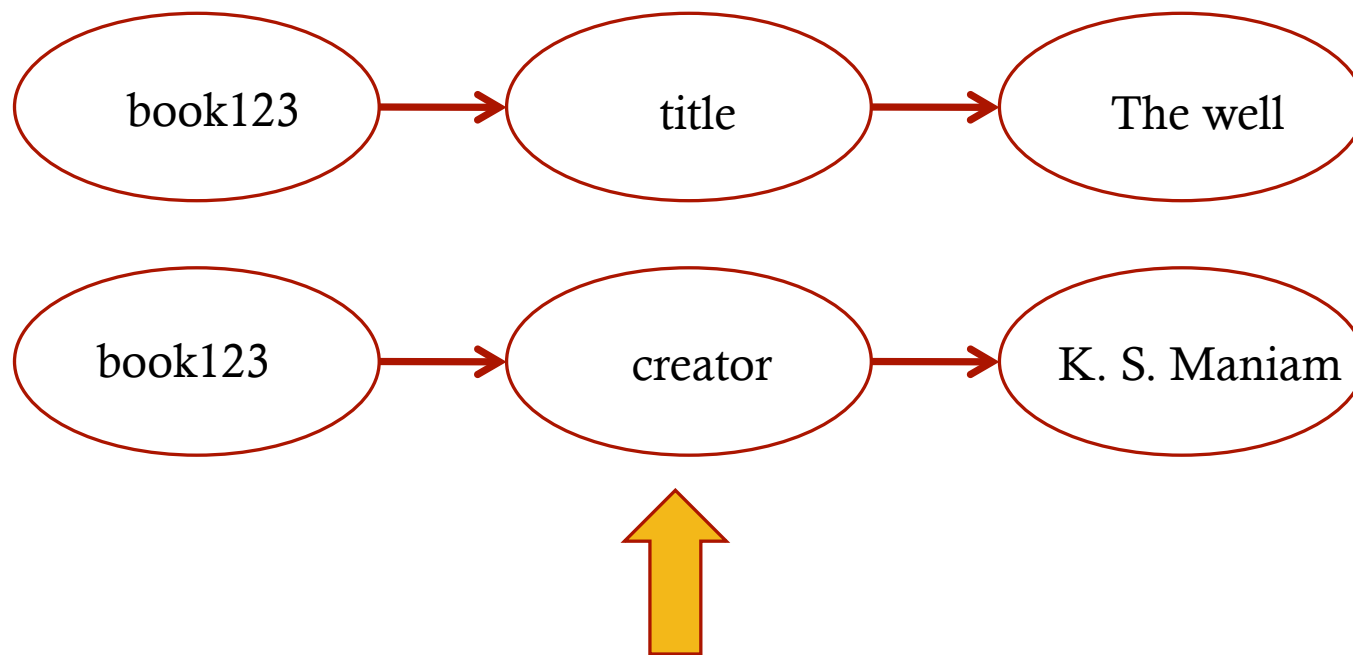
stated simply:

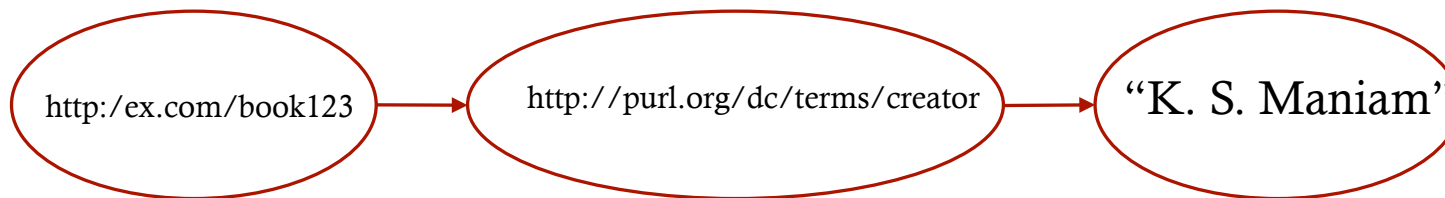
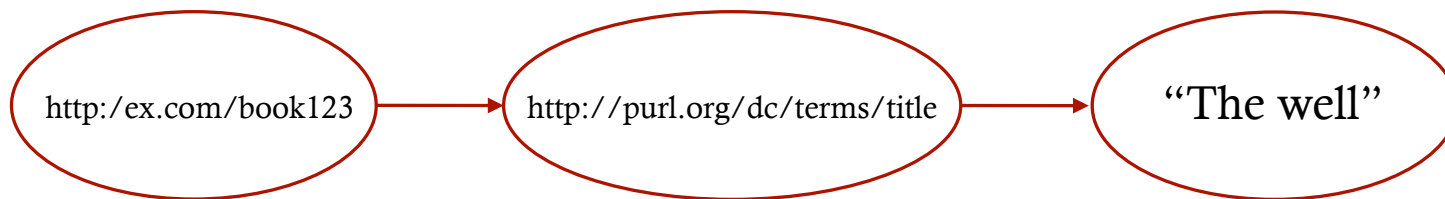
ONTOLOGY is the formal term for VOCABULARY,
which is a fancier term for TERM

ontologies represent the predicate



predicate ~ data element





Predicate



Elements v. Instances

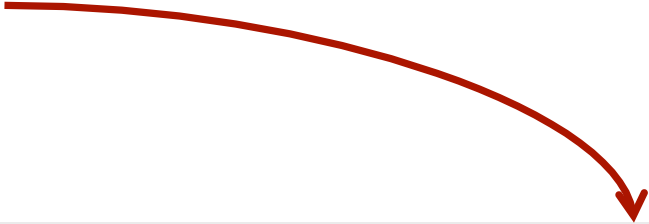
Something to keep in mind

Elements

dct:title

(an element)

(element definition)



Term Name: title	
URI:	http://purl.org/dc/terms/title
Label:	Title
Definition:	A name given to the resource.
Type of Term:	Property
Refines:	http://purl.org/dc/elements/1.1/title
Version:	http://dublincore.org/usage/terms/history/#titleT-002
Has Range:	http://www.w3.org/2000/01/rdf-schema#Literal

Instances

Instance data

dc:title = “Steve Jobs”

or

<dc:title>Steve Jobs</dc:title>

Elements



245 - Title Statement (NR)

MARC 21 Bibliographic - Concise

245

Title and statement of responsibility area of the bibliographic description of a work.

Indicators

First - Title added entry

0 - No added entry

No title added entry is made, either because no title added entry is desired or because the title added entry is not traced the same as the title in field 245.

1 - Added entry

Desired title added entry is the same as the title in field 245.

Second - Nonfiling characters

0 - No nonfiling characters

1-9 - Number of nonfiling characters

Subfield Codes

\$a - Title (NR)

\$b - Remainder of title (NR)

\$c - Statement of responsibility, etc. (NR)

\$f - Inclusive dates (NR)

Time period during which the entirety of the contents of the described materials were created.

\$g - Bulk dates (NR)

Time period during which the bulk of the described materials were created.

\$h - Medium (NR)

\$k - Form (R)

Term that is descriptive of the form of the described materials, determined by an examination of their physical character, subject of their intellectual content.

Instances

245 10 \$a Steve Jobs / \$c by Walter
Isaacson.



Defining elements

defining your elements: in text documents



245 - Title Statement (NR)

MARC 21 Bibliographic - Concise

20

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\$k - Form (R)

Term that is descriptive of the form of the described materials, determined by an examination of their physical character, subject of their intellectual content.

defining your elements: XML schema

```
<?xml version="1.0"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">

  <xs:element name="note">
    <xs:complexType>
      <xs:sequence>
        <xs:element name="to" type="xs:string"/>
        <xs:element name="from" type="xs:string"/>
        <xs:element name="heading" type="xs:string"/>
        <xs:element name="body" type="xs:string"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>

</xs:schema>
```

MACHINE ACTIONABLE

defining your elements: RDF (&/or OWL)

Dublin Core

Term Name: title	
URI:	http://purl.org/dc/terms/title
Label:	Title
Definition:	A name given to the resource.
Type of Term:	Property
Refines:	http://purl.org/dc/elements/1.1/title
Version:	http://dublincore.org/usage/terms/history/#titleT-002
Has Range:	http://www.w3.org/2000/01/rdf-schema#Literal

RDF & OWL

RDF “Resource Description Framework”

- the underlying engineering language of the Semantic Web

OWL “Web Ontology Language” *

- a special language for defining ontologies

* (and why isn't it called “WOL”?)

Contents

- bibo
- All Resources
- All Classes (69)
- All Object Properties (52)
- All Data Properties (54)
- All Individuals (14)

All Resources (189)

- owl:Thing
- bibo:abstract
- bibo:AcademicArticle
- bibo:affirmedBy
- bibo:annotates
- bibo:argued
- bibo:Article
- bibo:asin
- bibo:AudioDocument
- bibo:AudioVisualDocument
- bibo:authorList
- bibo:bdarcus
- bibo:Bill
- bibo:Book
- bibo:BookSection
- bibo:Brief
- bibo:chapter

Ontology: bibo

<http://purl.org/ontology/bibo/>

Annotations (5)

- <http://purl.org/dc/terms/creator>: bibo:bdarcus
- <http://purl.org/dc/terms/creator>: bibo:fgiasson
- <http://purl.org/dc/terms/description>: "The Bibliographic Ontology describe bibliographic things on the semantic Web in RDF. This ontology can be used as a citation ontology, as a document classification ontology, or simply as a way to describe any kind of document in RDF. It has been inspired by many existing document description metadata formats, and can be used as a common ground for converting other bibliographic data sources." (en)
- <http://purl.org/dc/terms/title>: "The Bibliographic Ontology"
- versionInfo: "http://purl.org/ontology/bibo/1.3/"

References

- Classes (69)
- Object Properties (52)
- Data Properties (54)
- Individuals (14)

OWL HTML inside

Each term must have a
unique identifier*

* unique on the web

“title”

<http://purl.org/dc/terms/title>

A name given to the resource.

<http://xmlns.com/foaf/0.1/title>

Values such as 'Mr', 'Mrs', 'Ms', 'Dr' etc. are expected.

<http://kcoyle.net/title>

Ontologies have classes and properties

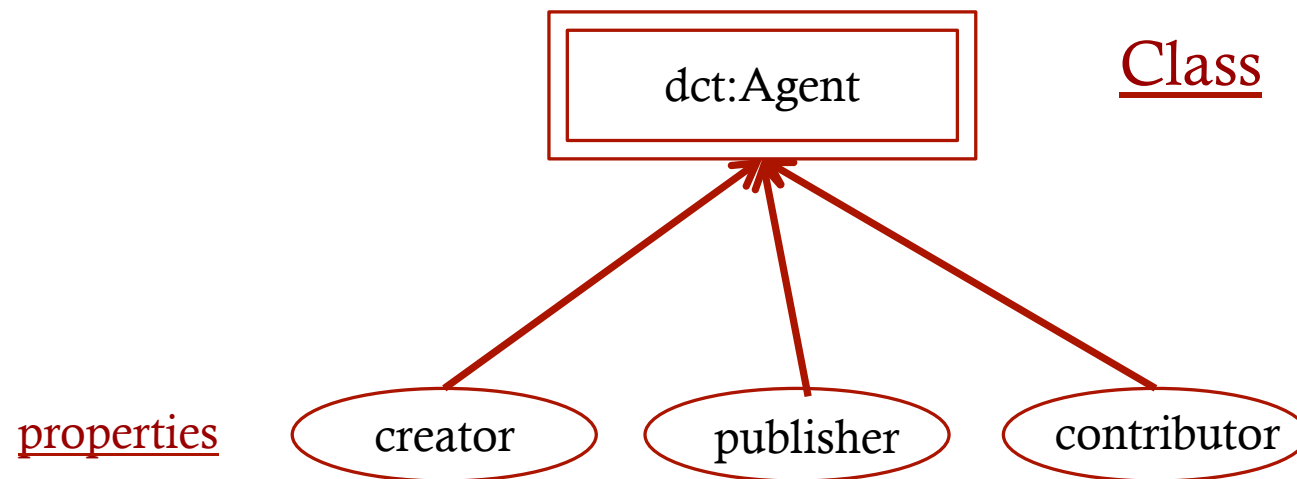
Classes are general categories, like classes in taxonomies. They provide context.

Properties can belong to one or more classes.

You can have subclasses and sub-properties.

This can become quite complex.

Dublin Core has classes





Dublin Core® Metadata Initiative

Making it easier to find information.

Home

Metadata Basics

DCMI Specifications

Index of Terms

Properties in the <i>/terms/</i> namespace	<u>abstract</u> , <u>accessRights</u> , <u>accrualMethod</u> , <u>accrualPeriodicity</u> , <u>accrualPolicy</u> , <u>alternative</u> , <u>audience</u> , <u>available</u> , <u>bibliographicCitation</u> , <u>conformsTo</u> , <u>contributor</u> , <u>coverage</u> , <u>created</u> , <u>creator</u> , <u>date</u> , <u>dateAccepted</u> , <u>dateCopyrighted</u> , <u>dateSubmitted</u> , <u>description</u> , <u>educationLevel</u> , <u>extent</u> , <u>format</u> , <u>hasFormat</u> , <u>hasPart</u> , <u>hasVersion</u> , <u>identifier</u> , <u>instructionalMethod</u> , <u>isFormatOf</u> , <u>isPartOf</u> , <u>isReferencedBy</u> , <u>isReplacedBy</u> , <u>isRequiredBy</u> , <u>issued</u> , <u>isVersionOf</u> , <u>language</u> , <u>license</u> , <u>mediator</u> , <u>medium</u> , <u>modified</u> , <u>provenance</u> , <u>publisher</u> , <u>references</u> , <u>relation</u> , <u>replaces</u> , <u>requires</u> , <u>rights</u> , <u>rightsHolder</u> , <u>source</u> , <u>spatial</u> , <u>subject</u> , <u>tableOfContents</u> , <u>temporal</u> , <u>title</u> , <u>type</u> , <u>valid</u>
Properties in the legacy <i>/elements/1.1/</i> namespace	<u>contributor</u> , <u>coverage</u> , <u>creator</u> , <u>date</u> , <u>description</u> , <u>format</u> , <u>identifier</u> , <u>language</u> , <u>publisher</u> , <u>relation</u> , <u>rights</u> , <u>source</u> , <u>subject</u> , <u>title</u> , <u>type</u>
Vocabulary Encoding Schemes	<u>DCMIType</u> , <u>DDC</u> , <u>IMT</u> , <u>LCC</u> , <u>LCSH</u> , <u>MESH</u> , <u>NLM</u> , <u>TGN</u> , <u>UDC</u>
Syntax Encoding Schemes	<u>Box</u> , <u>ISO3166</u> , <u>ISO639-2</u> , <u>ISO639-3</u> , <u>Period</u> , <u>Point</u> , <u>RFC1766</u> , <u>RFC3066</u> , <u>RFC4646</u> , <u>RFC5646</u> , <u>URI</u> , <u>W3CDTF</u>
Classes	<u>Agent</u> , <u>AgentClass</u> , <u>BibliographicResource</u> , <u>FileFormat</u> , <u>Frequency</u> , <u>Jurisdiction</u> , <u>LicenseDocument</u> , <u>LinguisticSystem</u> , <u>Location</u> , <u>LocationPeriodOrJurisdiction</u> , <u>MediaType</u> , <u>MediaTypeOrExtent</u> , <u>MethodOfAccrual</u> , <u>MethodOfInstruction</u> , <u>PeriodOfTime</u> , <u>PhysicalMedium</u> , <u>PhysicalResource</u> , <u>Policy</u> , <u>ProvenanceStatement</u> , <u>RightsStatement</u> , <u>SizeOrDuration</u> , <u>Standard</u>



Dublin Core® Metadata Initiative

Making it easier to find information.

Home

Metadata Basics

DCMI Specifications

Term Name: title

URI:	http://purl.org/dc/terms/title
Label:	Title
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Type of Term:	<u>Property</u>
Refines:	http://purl.org/dc/elements/1.1/title
Version:	http://dublincore.org/usage/terms/history/#titleT-002
Has Range:	http://www.w3.org/2000/01/rdf-schema#Literal

Element Sets: RDA Group 1 Elements

Elements: Title

[Detail](#)[Statements](#)[History](#)[sign in / register](#) | [about](#) [Search Vocabularies](#) [Search Element Sets](#)

Element Sets: RDA Group 1 Elements: Title

[Detail](#)[Statements](#)

Metadata +

Detail

Label: [Title](#)

Name: [Title](#)

URI: [Title](#)

Description: [Title](#)

Comment:

Type: [Title](#)

Domain:

Range:

Status: [Title](#)

Language: [Title](#)

Note:

Profile property

Show object

name

title

label

Title

description

A word, character, or group...

type

property

hasSubproperty

Title proper

hasSubproperty

Other title information

hasSubproperty

Parallel title proper

hasSubproperty

Parallel other title information

hasSubproperty

Variant title for the work

hasSubproperty

Earlier title proper

hasSubproperty

Later title proper

hasSubproperty

Key title

hasSubproperty

Abbreviated title

hasSubproperty

Title (Manifestation)

hasSubproperty

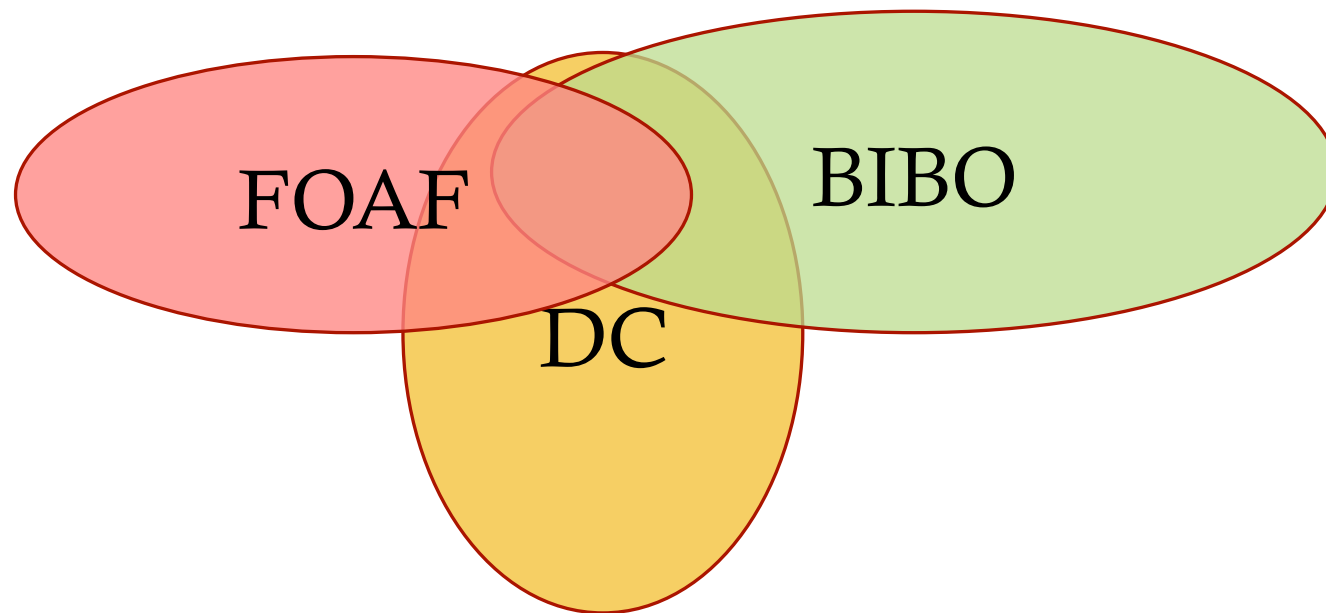
Title of the work

hasSubproperty

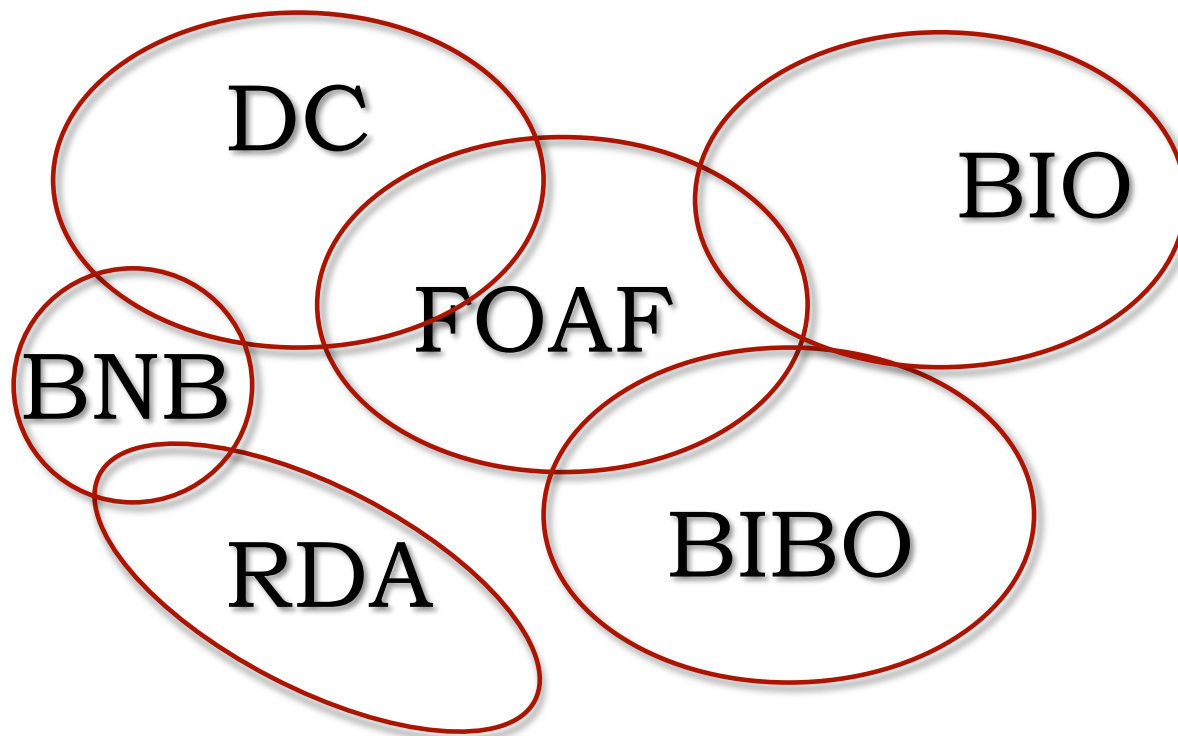
Variant title

16 results[Feedback](#)

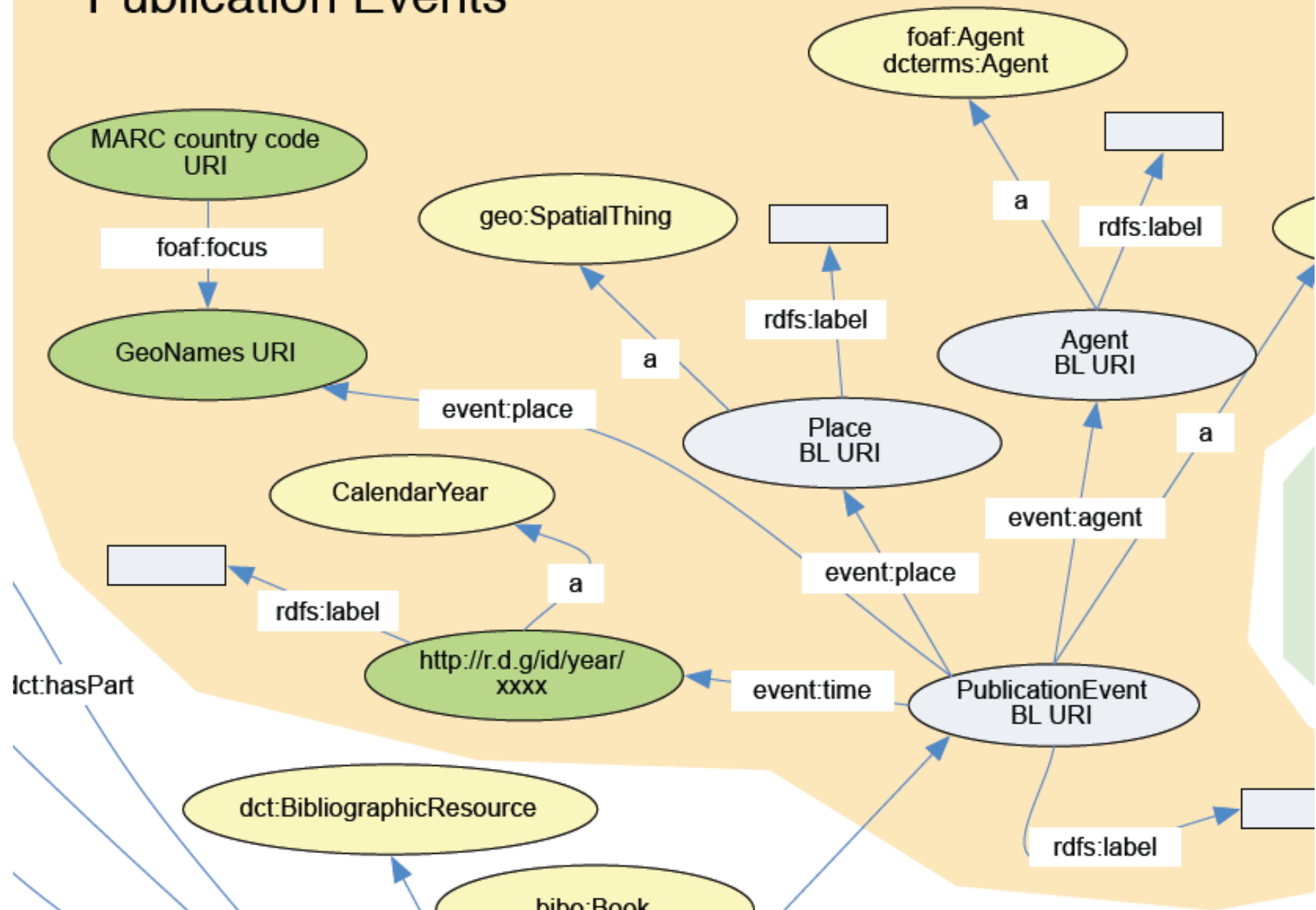
Ontologies are “mix ‘n match”

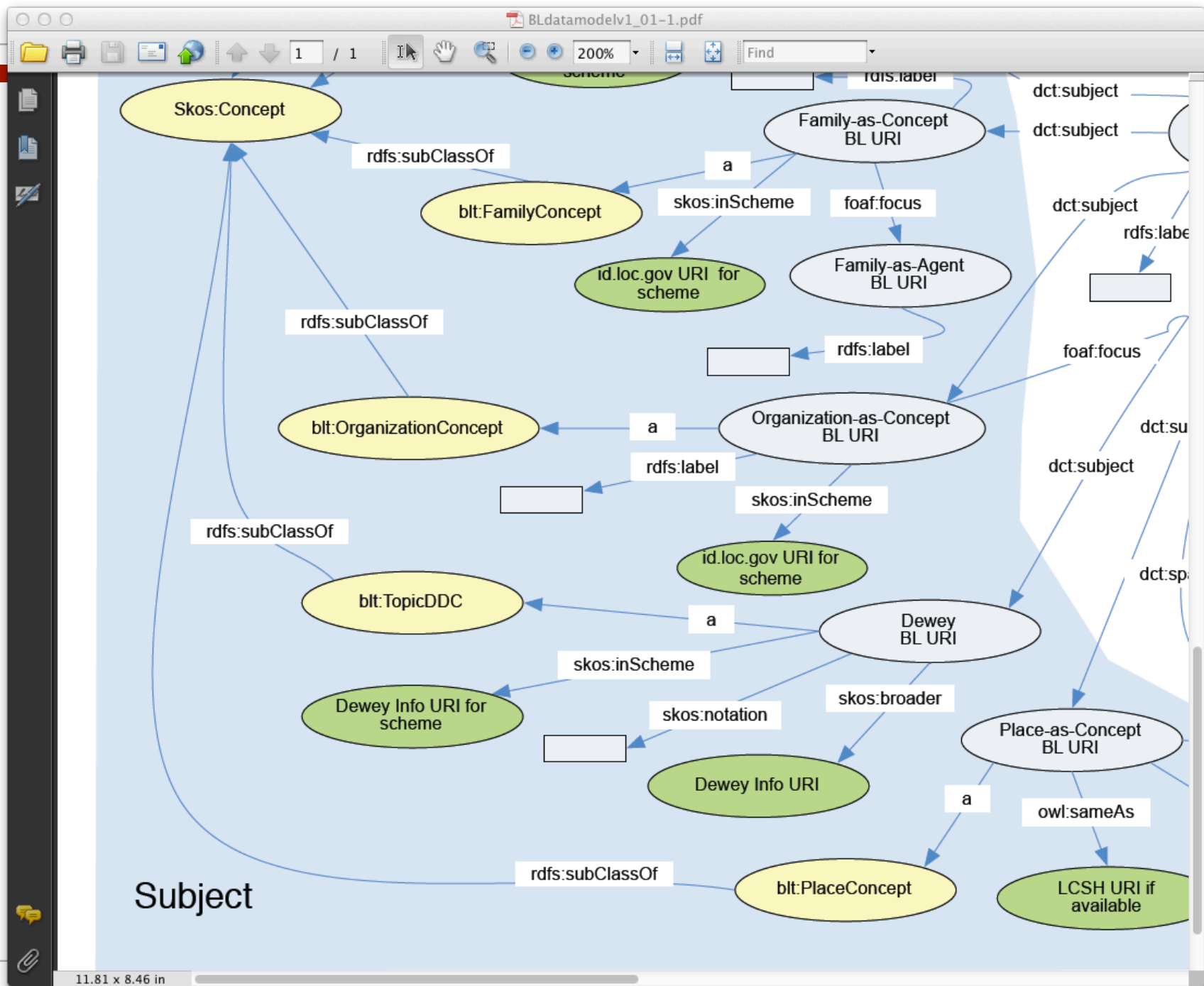


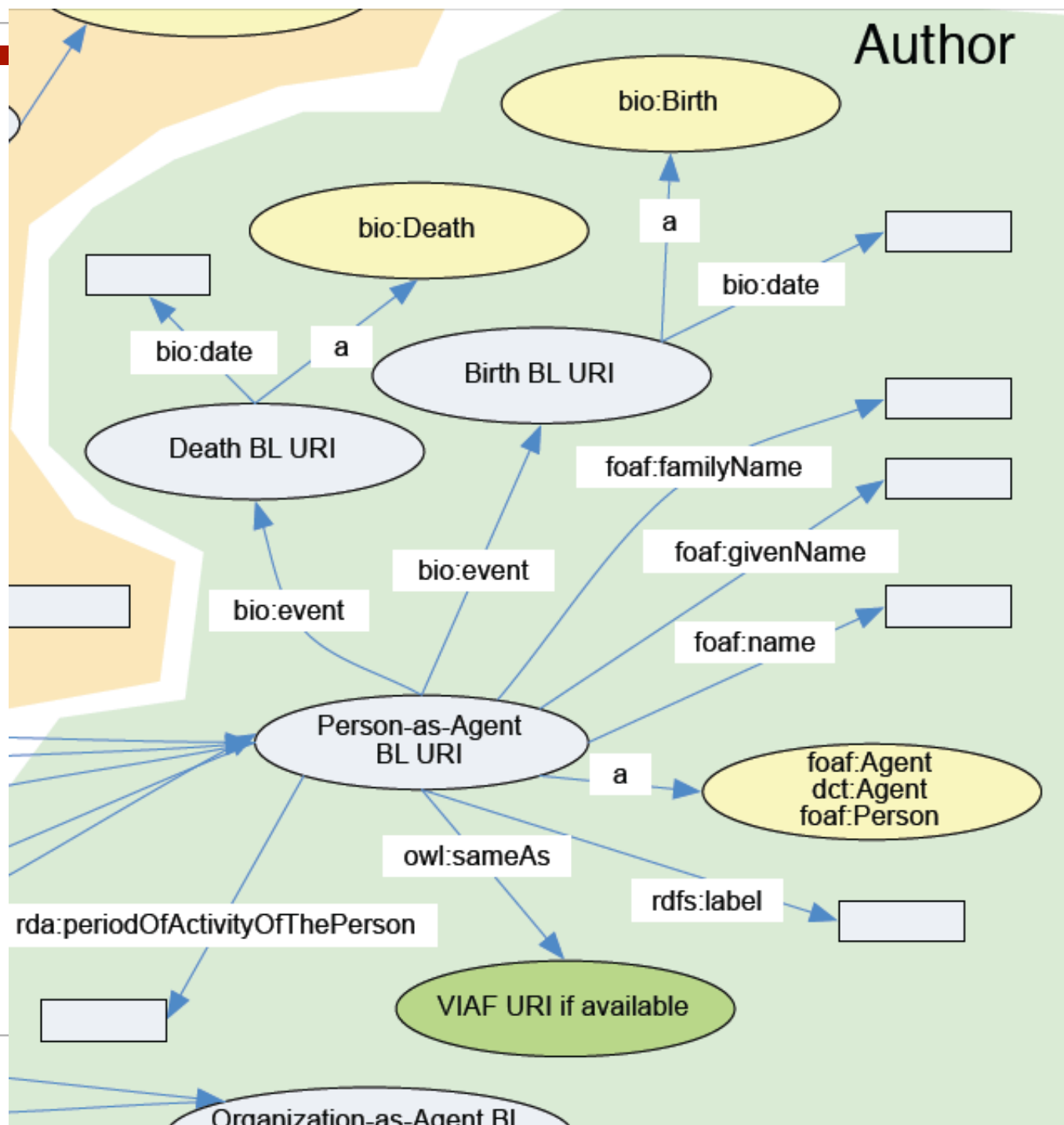
British National Bibliography in RDF



Publication Events



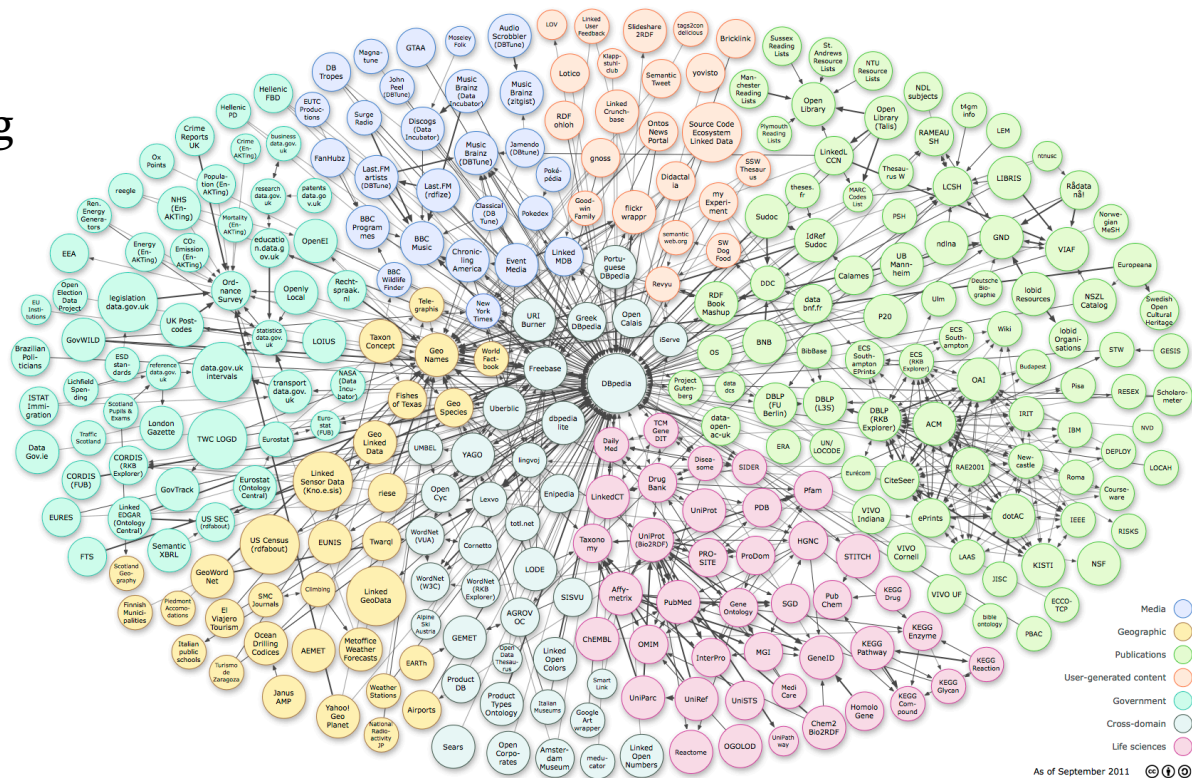




Linked data cloud diagram

<http://linkeddata.org>

Datasets of
instance data

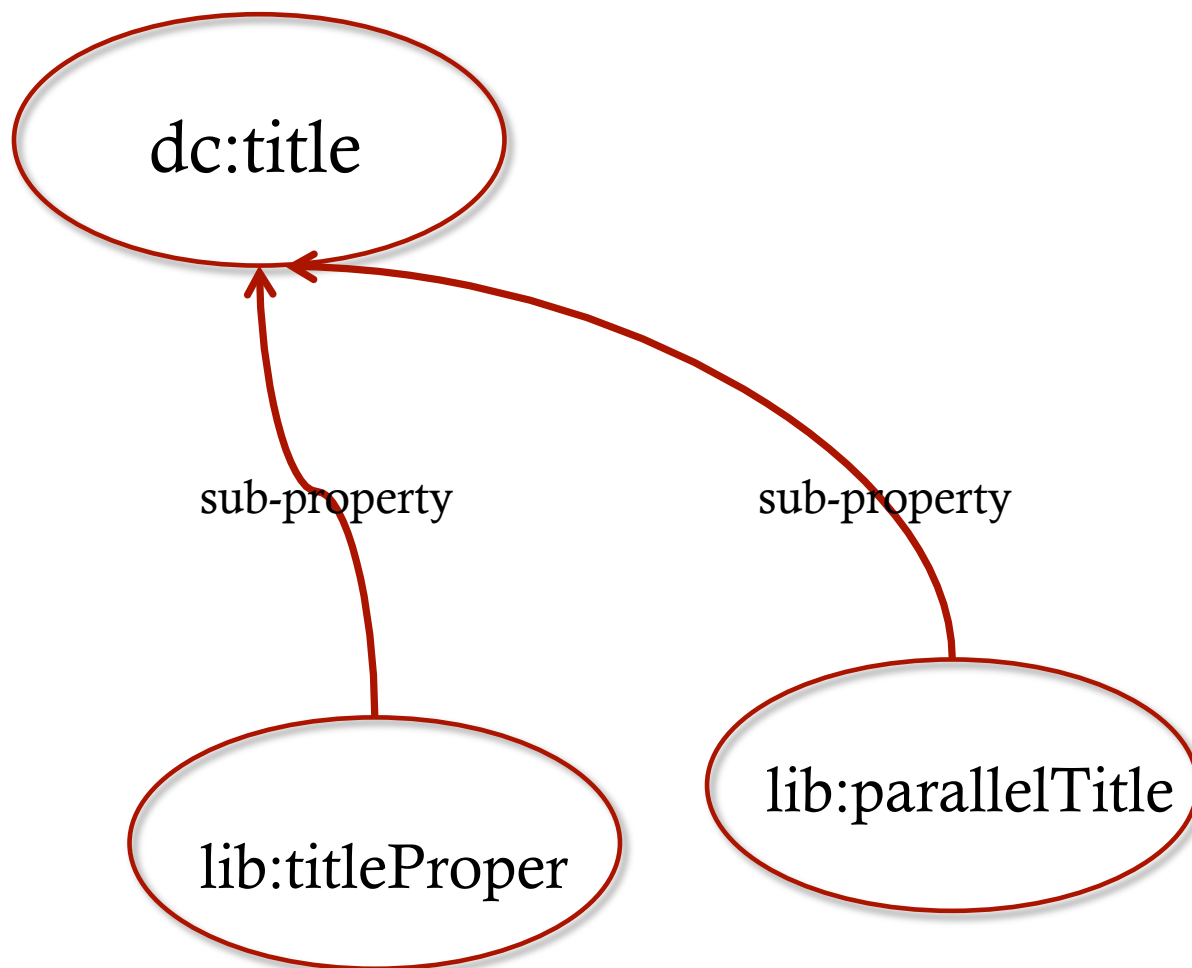


Connecting to the “cloud”

dc:title

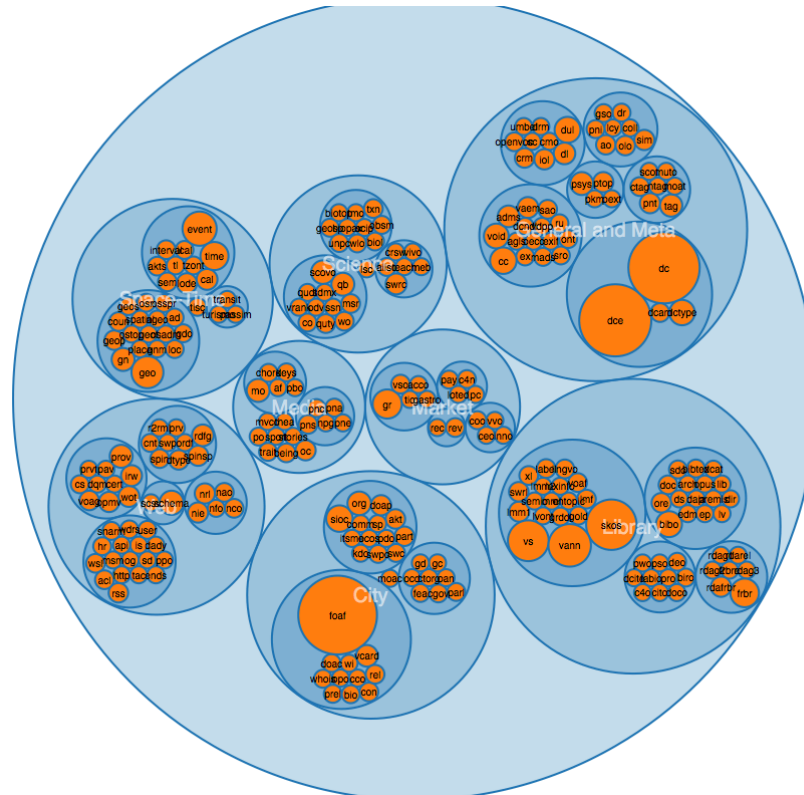
#1 Use existing and common terms

#2 Create relationships to existing and common terms





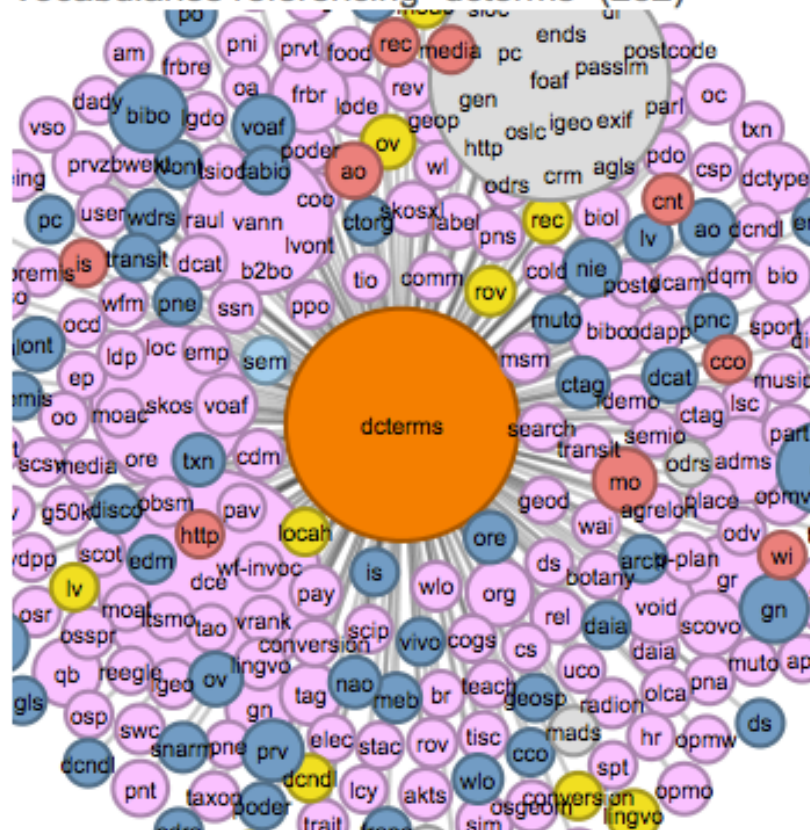
Discovering ontologies and terms



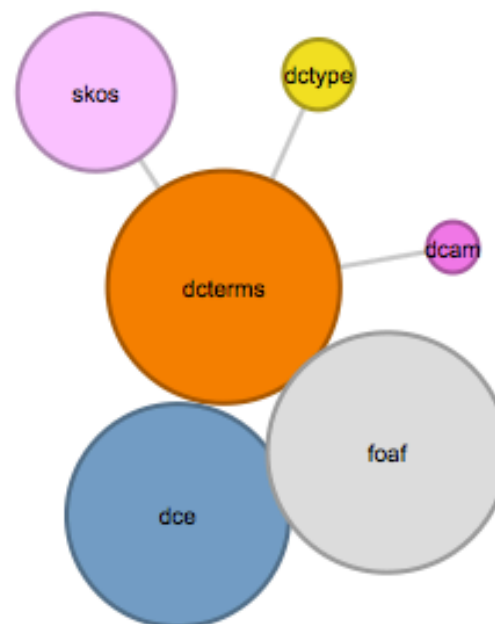
Dublin Core at LOV

Vocabulary links:

Vocabularies referencing "dcterms" (252)



Vocabularies referenced by "dcterms" (5)



Some useful ontologies

- Dublin Core – general documents, intellectual resources
- BIBO (Bibliographic Ontology) – academic articles and other resources
- FOAF (Friend of a Friend) – people, relationships
- BIO – biographical events
- GeoNames – places
- RDA elements
- MADS – for authority files
- FRBRer – official IFLA version
- ISBD – official IFLA version

<http://kcoyle.net/presentations/links.html>

Exercise: “Properties”



- This is a dog named Dewey.
 - Dewey is a golden retriever.
 - Dewey is 9 years old.
 - Dewey's birthday is 12-25
 - Dewey was born in 2003
-
- Dewey lives in Berkeley.
 - Berkeley is in California.
 - The University of California is in Berkeley



End

Ontologies