The Linked Library Data Cloud

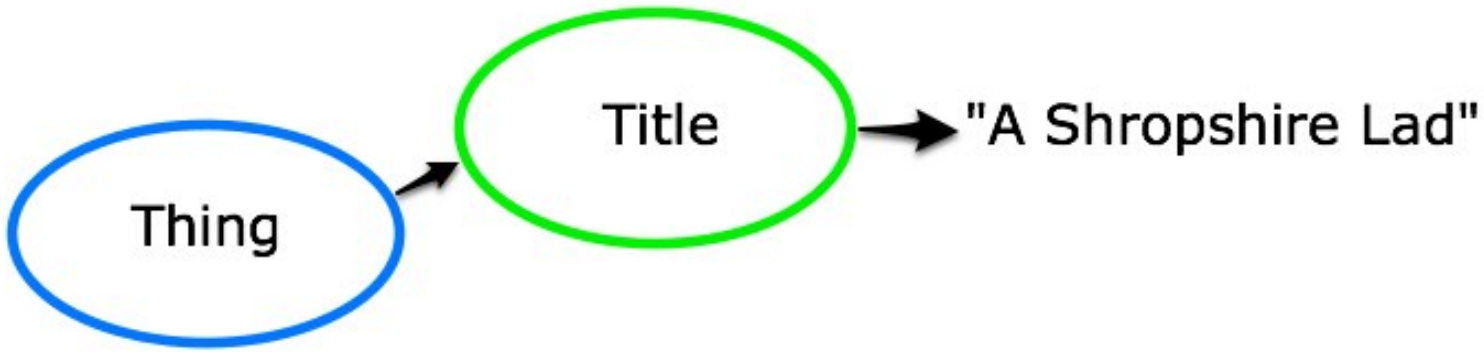
Stop Talking and Start Doing

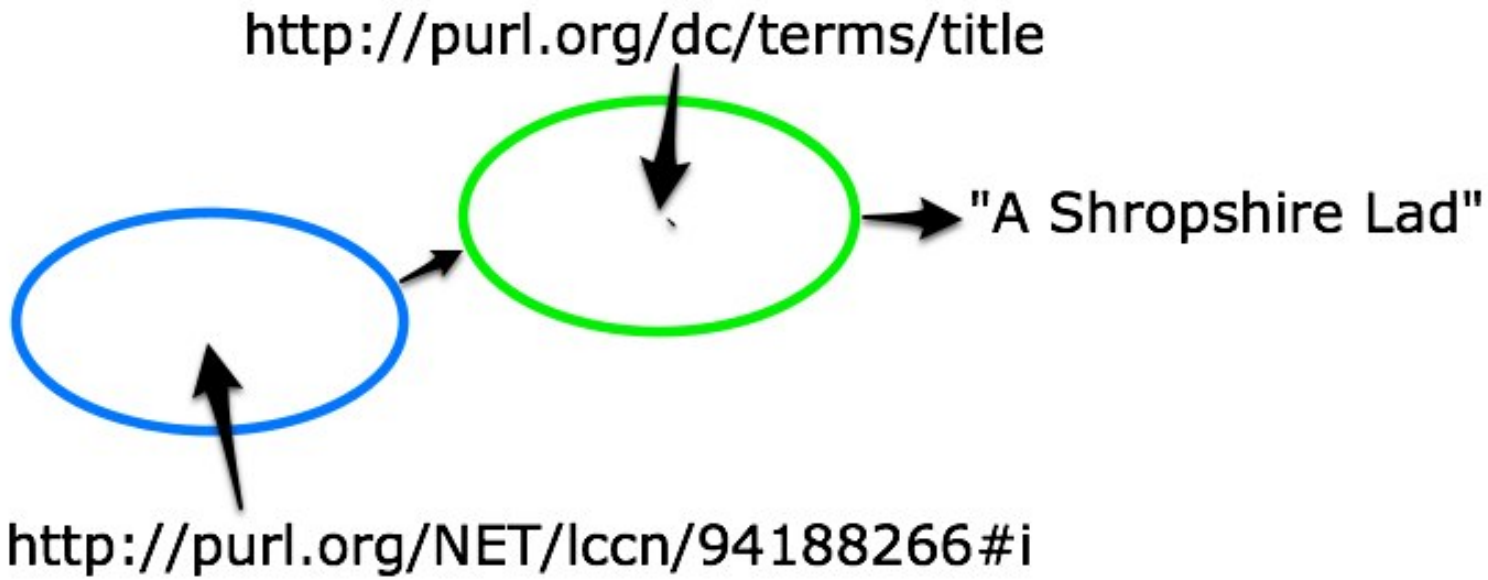
Ross Singer

Code4Lib 2010

Tim Berners-Lee's Four Rules of Linked Data

1. Use URIs as names for things
2. Use HTTP URIs so that people can look up those names.
3. When someone looks up a URI, provide useful information, using the standards (RDF, SPARQL)
4. Include links to other URIs. so that they can discover more things.
5.
6. http://www.w3.org/DesignIssues/LinkedData.html


Thing
Title
"A Shropshire Lad"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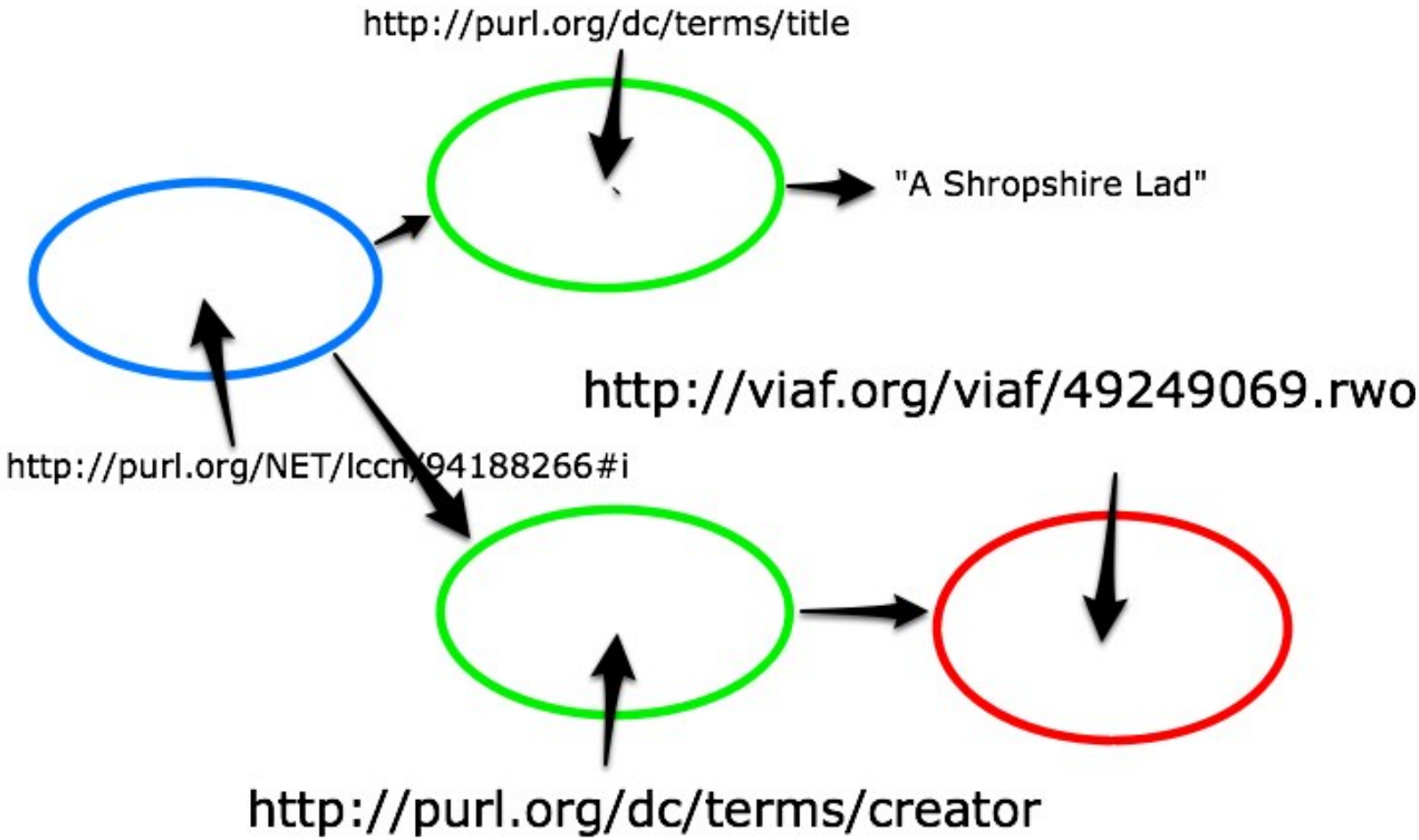
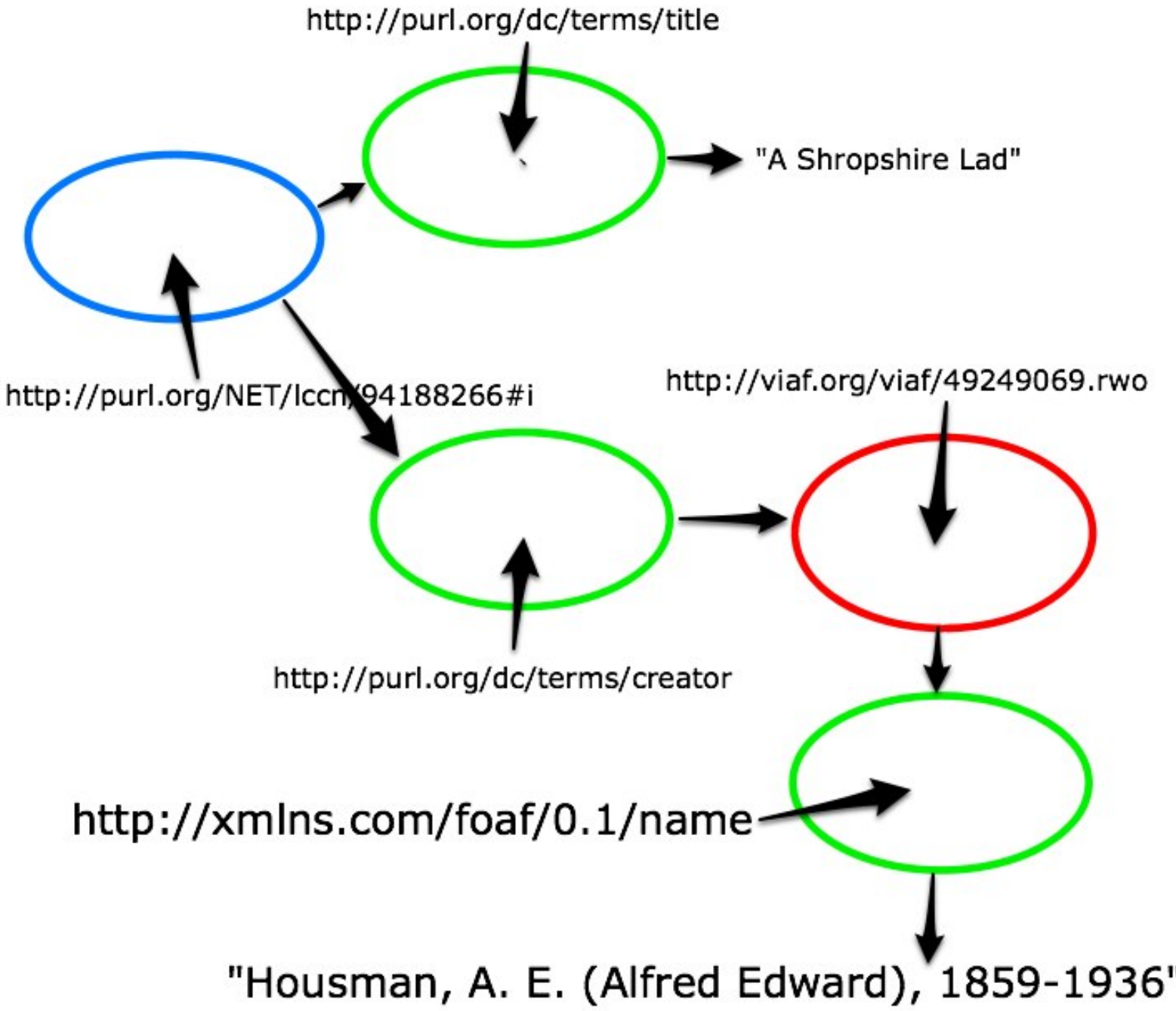
"A Shropshire Lad"
http://purl.org/NET/lccn/94188266#i


http://purl.org/dc/terms/title
"A Shropshire Lad"
http://viaf.org/viaf/49249069.rwo
http://purl.org/NET/lccn/94188266#i
http://purl.org/dc/terms/creator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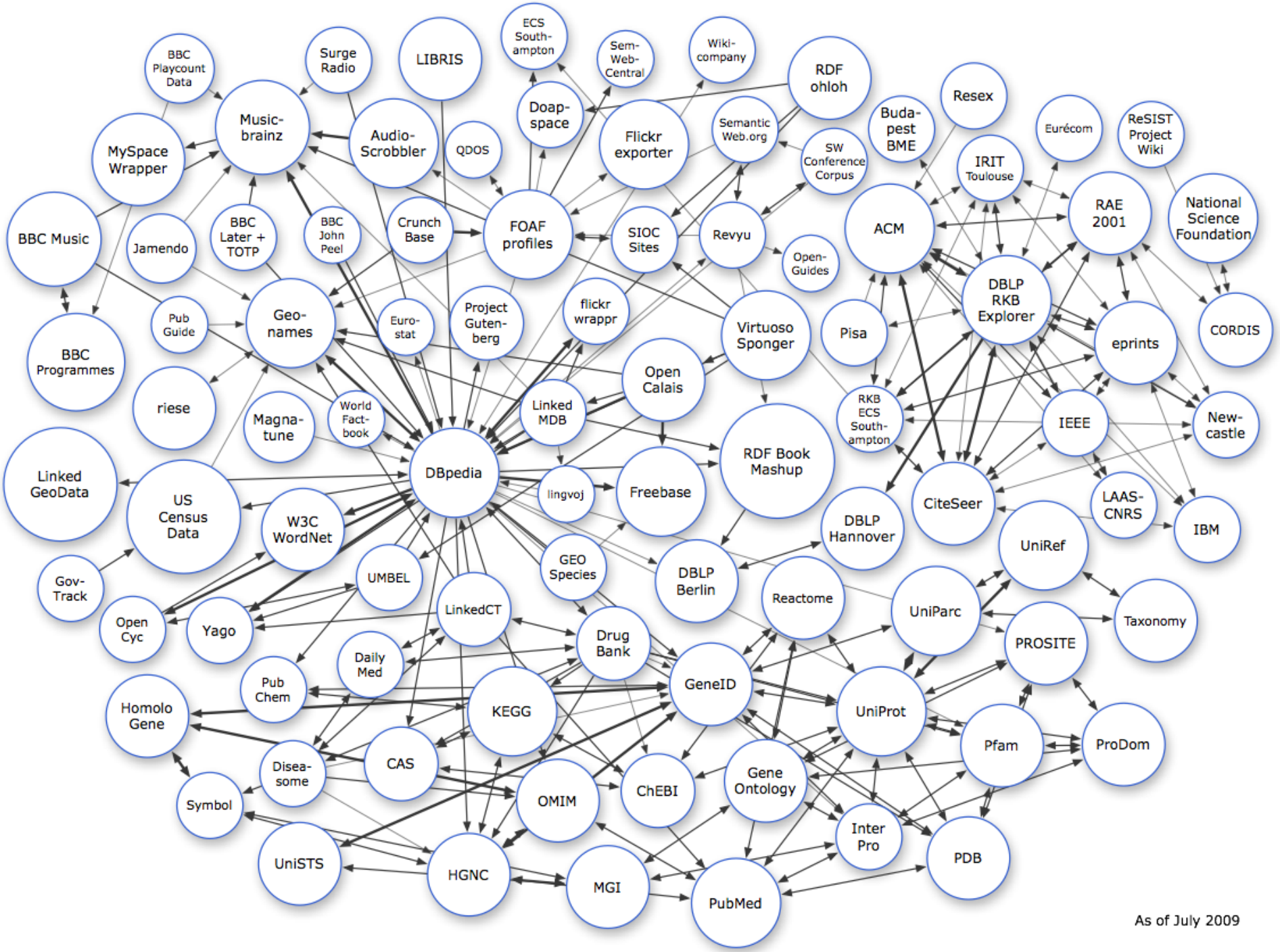
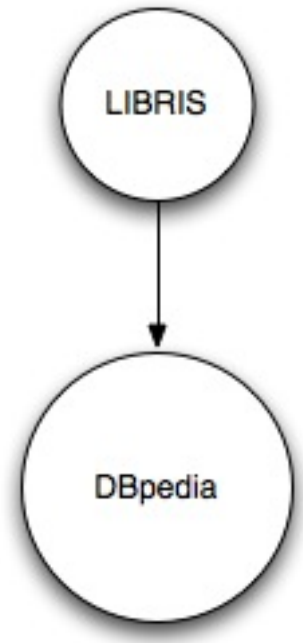
"A Shropshire Lad"
http://purl.org/NET/lccn/94188266#i
http://viaf.org/viaf/49249069.rwo
http://purl.org/dc/terms/creator
http://xmlns.com/foaf/0.1/name
"Housman, A. E. (Alfred Edward), 1859-1936"



As of July 2009



Linked Library Cloud: Code4lib 2009

Details | Visualize

Semantic Web

URI: <http://id.loc.gov/authorities/sh2002000569#concept>

Type: Topical Term

Broader Terms:

- Semantic integration (Computer systems)
- Semantic networks (Information theory)
- World Wide Web

Related Terms:

- Microformats

Sources:

- Engr. index online, May 6, 2002 (identifier: Semantic Web)
- ASTI on FirstSearch, May 6, 2002: in titles (semantic Web)
- Work cat.: 2002070545: The Semantic Web--ISWC 20002, 2002.

LC Classification: TK5105.88815

Created: 2004-04-07

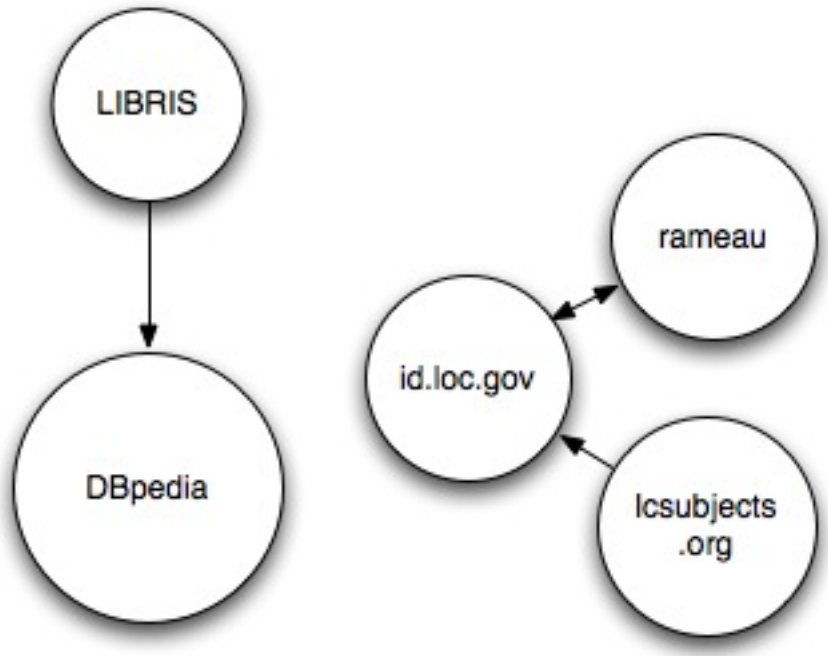
Last Modified: 2009-12-15 13:59:47

Alternate Formats: RDF/XML, N-Triples, JSON

http://id.loc.gov/authorities/sh2002000569

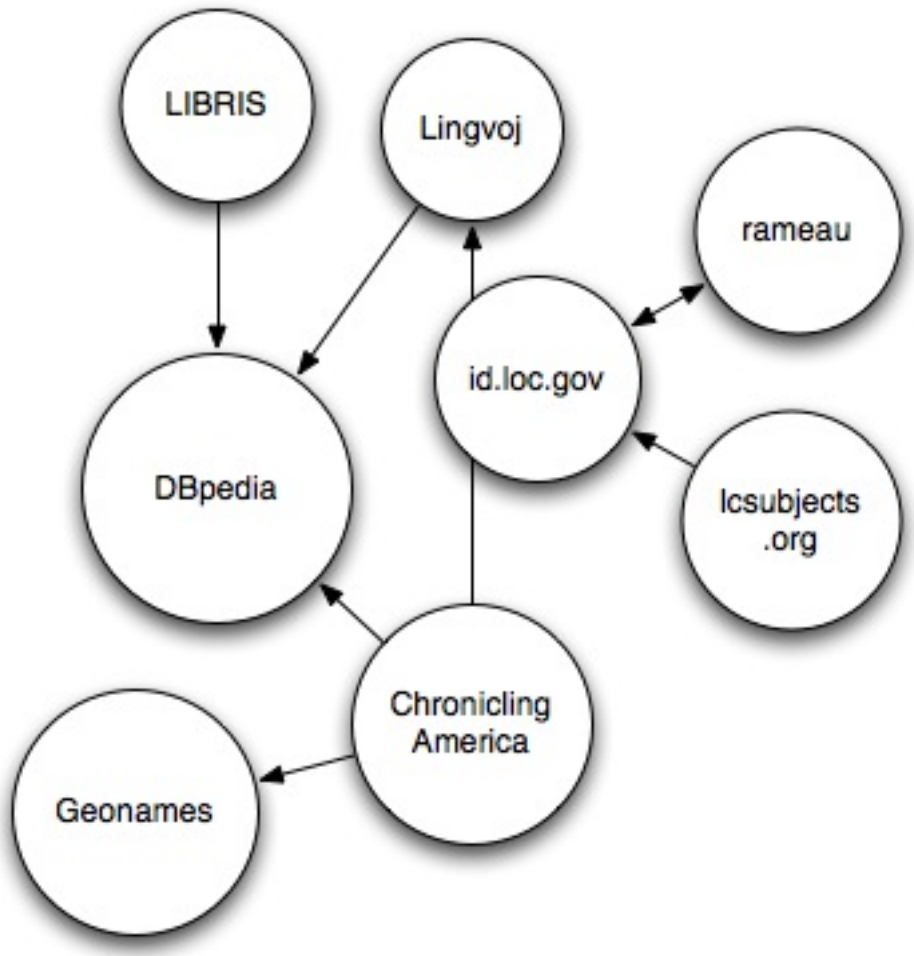
```
<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF
   xmlns:dcterms="http://purl.org/dc/terms/"
   xmlns:owl="http://www.w3.org/2002/07/owl#"
   xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
   xmlns:skos="http://www.w3.org/2004/02/skos/core#"
>
  <rdf:Description rdf:about="http://id.loc.gov/authorities/sh95000541#concept">
    <skos:prefLabel xml:lang="en">World Wide Web</skos:prefLabel>
  </rdf:Description>
  <rdf:Description rdf:about="http://id.loc.gov/authorities/sh2004000479#concept">
    <skos:prefLabel xml:lang="en">Semantic integration (Computer systems)</skos:prefLabel>
  </rdf:Description>
  <rdf:Description rdf:about="http://id.loc.gov/authorities/sh2009009406#concept">
    <skos:prefLabel xml:lang="en">Microformats</skos:prefLabel>
  </rdf:Description>
  <rdf:Description rdf:about="http://id.loc.gov/authorities/sh92004914#concept">
    <skos:prefLabel xml:lang="en">Semantic networks (Information theory)</skos:prefLabel>
  </rdf:Description>
  <rdf:Description rdf:about="http://id.loc.gov/authorities/sh2002000569#concept">
    <skos:prefLabel xml:lang="en">Semantic Web</skos:prefLabel>
    <skos:related rdf:resource="http://id.loc.gov/authorities/sh2009009406#concept"/>
    <skos:inScheme rdf:resource="http://id.loc.gov/authorities#conceptScheme"/>
    <skos:inScheme rdf:resource="http://id.loc.gov/authorities#topicalTerms"/>
    <rdf:type rdf:resource="http://www.w3.org/2004/02/skos/core#Concept"/>
    <dcterms:created rdf:datatype="http://www.w3.org
/2001/XMLSchema#dateTime">2004-04-07T00:00:00-04:00</dcterms:created>
    <dcterms:source xml:lang="en">Engr. index online, May 6, 2002 (identifier: Semantic Web)</dcterms:source>
    <dcterms:source xml:lang="en">Work cat.: 2002070545: The Semantic Web--ISWC 20002, 2002.</dcterms:source>
    <dcterms:source xml:lang="en">ASTI on FirstSearch, May 6, 2002: in titles (semantic Web)</dcterms:source>
    <owl:sameAs rdf:resource="info:lc/authorities/sh2002000569"/>
    <dcterms:modified rdf:datatype="http://www.w3.org
/2001/XMLSchema#dateTime">2009-12-15T13:59:47-04:00</dcterms:modified>
    <skos:broader rdf:resource="http://id.loc.gov/authorities/sh95000541#concept"/>
    <skos:broader rdf:resource="http://id.loc.gov/authorities/sh2004000479#concept"/>
    <skos:broader rdf:resource="http://id.loc.gov/authorities/sh92004914#concept"/>
  </rdf:Description>
</rdf:RDF>
```

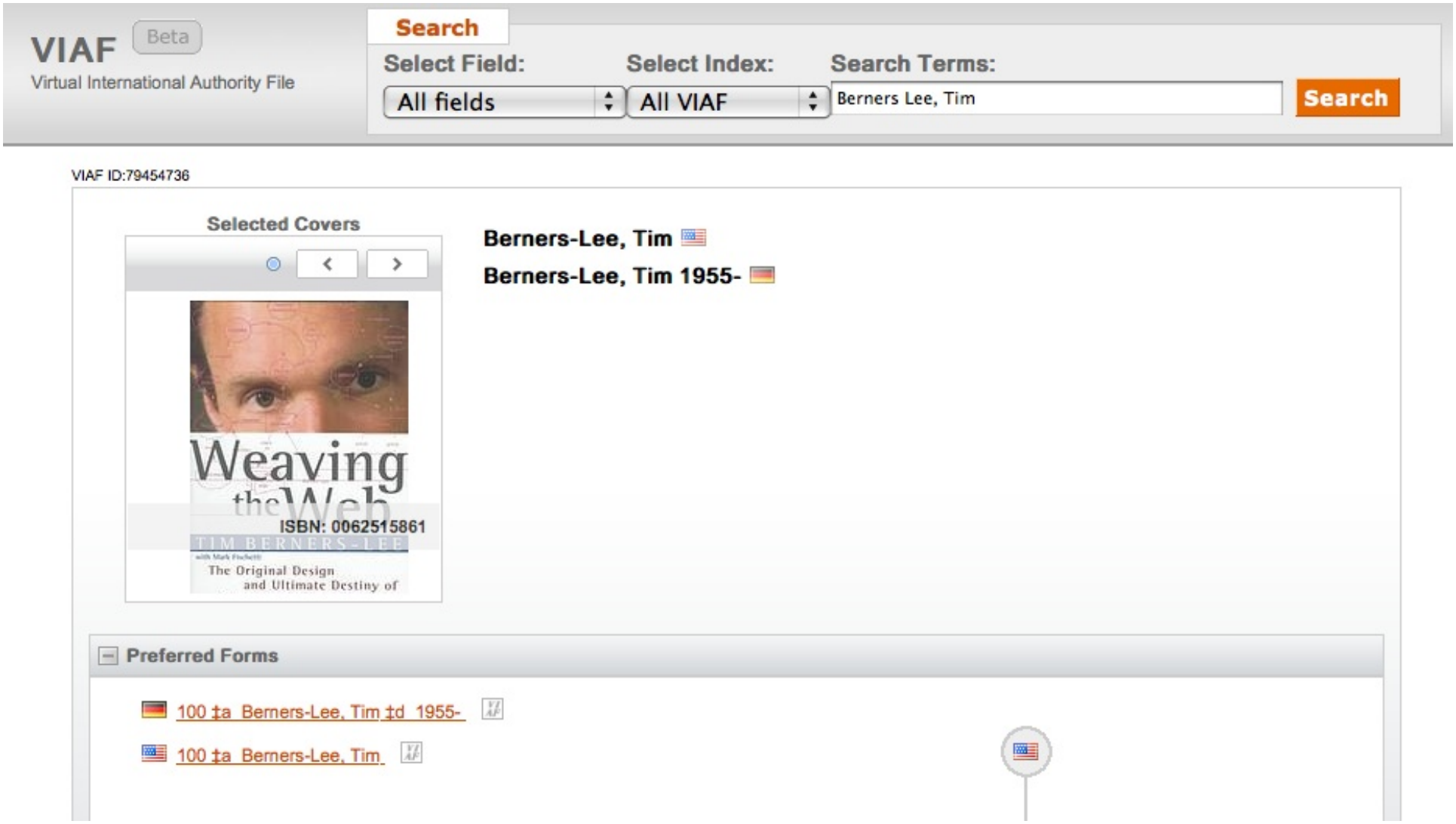
http://id.loc.gov/authorities/sh2002000569.rdf


LIBRIS
DBpedia
rameau
id.loc.gov
lcsubjects
.org

Why it matters

- URIs (identifiers) for every subject authority
- http://lcsubjects.org/subjects/sh85006071#concept
- Label lookup
- "Austrian Succession, War of, 1740-1748--Campaigns--Italy"
- http://id.loc.gov/authorities/label/Austrian%20Succession,%20War%20of,%201740-1748--Campaigns--Italy


LIBRIS
Lingvoj
rameau
id.loc.gov
DBpedia
lcsubjects
.org
Chronicling
America
Geonames



http://viaf.org/viaf/79454736

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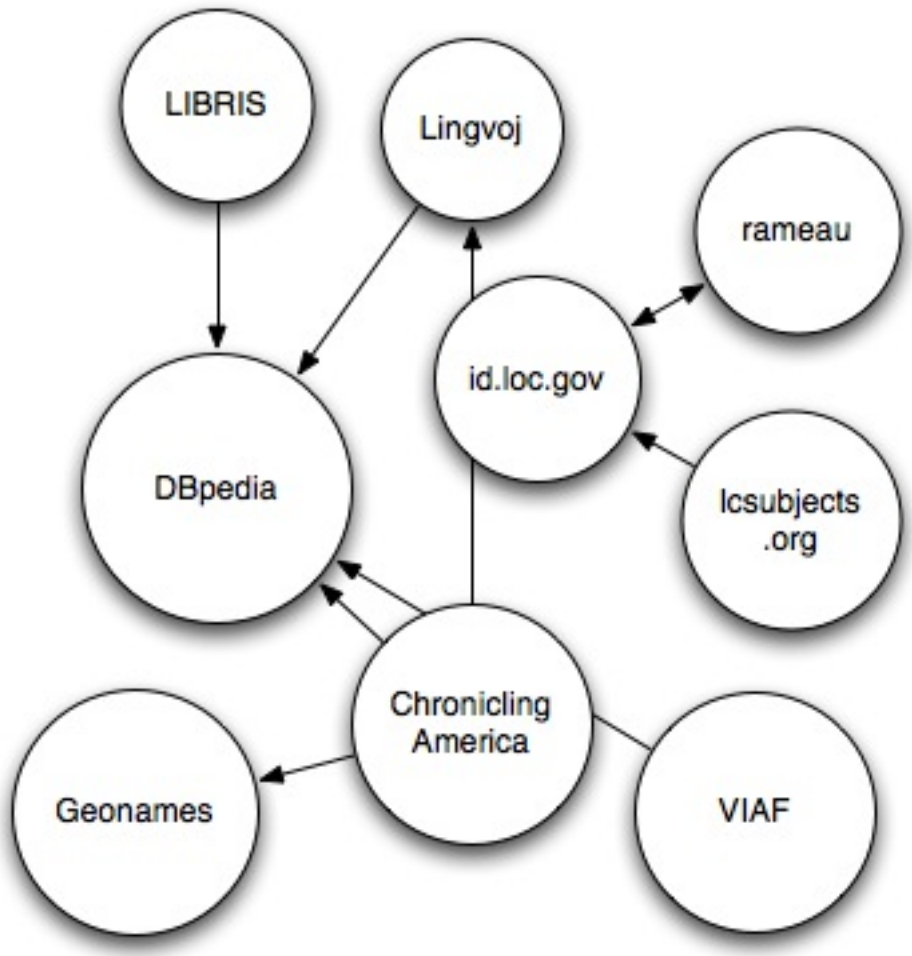
owl/2006-06-06/#" xmlns:skos="http://www.w3.org/2004/02/skos/core#" xmlns:srw="http://www.loc.gov/zing/srw/"
xmlns:dcterms="http://purl.org/dc/terms/" xmlns:bio="http://purl.org/vocab/bio/0.1/" xmlns:foaf="http://xmlns.com
/foaf/0.1/" xml:base="http://viaf.org/">
<skos:Concept rdf:about="viaf/79454736.rwo">
<skos:inScheme rdf:resource="viaf-scheme/#concept"/>
<skos:inScheme rdf:resource="viaf-scheme/#personalNames"/>
<skos:exactMatch rdf:resource="viaf/79454736.m21"/>
<skos:exactMatch rdf:resource="viaf/79454736.unimarc"/>
<skos:exactMatch rdf:resource="viaf/79454736.viaf"/>
<skos:exactMatch rdf:resource="http://en.wikipedia.org/wiki/Tim_Berners-Lee"/>
<skos:exactMatch rdf:resource="http://dbpedia.org/page/Tim_Berners-Lee"/>
<skos:changeNote xml:lang="en">Transcribed by agency: OCoLC</skos:changeNote>
<skos:changeNote xml:lang="en">Modified by agency: OCoLC</skos:changeNote>
<dcterms:identitifer>79454736</dcterms:identitifer>
<dcterms:created rdf:datatype="http://www.w3.org
/2001/XMLSchema#dateTime">2009-05-07T09:11:41+00:00</dcterms:created>
<dcterms:modified rdf:datatype="http://www.w3.org
/2001/XMLSchema#dateTime">2009-05-07T09:11:53+00:00</dcterms:modified>
<dcterms:type xml:lang="en">person</dcterms:type>
<foaf:page rdf:resource="http://en.wikipedia.org/wiki/Tim_Berners-Lee"/>
<foaf:page rdf:resource="http://dbpedia.org/page/Tim_Berners-Lee"/>
</skos:Concept>
</rdf:RDF>
```

http://viaf.org/viaf/79454736.rdf


LIBRIS
Lingvoj
rameau
id.loc.gov
DBpedia
lcsubjects
.org
Chronicling
America
Geonames
VIAF

VIAF

- SRU Service for search
- curl -H "Accept: text/xml" "http://viaf.org/search?query=cql.any+%3D+%22Berners-Lee%2C+Tim%22&version=1.1&operation=searchRetrieve&recordSchema=http%3A%2F%2Fviaf.org%2FVIAFCluster&maximumRecords=10&startRecord=1&resultSetTTL=300&recordPacking=xml&recordXPath=&sortKeys="
- VIAF schema result

Calligraphic ceramics from eastern Iran : early Islamic pottery from the ...

LC Control No.:	75624382
Type of Material:	Book (Print, Microform, Electronic, etc.)
Corporate Name:	University of Iowa. Museum of Art. » More like this
Main Title:	Calligraphic ceramics from eastern Iran : early Islamic pottery from the Collection of Ulfert Wilke : [exhibition] the University of Iowa Museum of Art, Iowa City, November 7 through December 15, 1974 / [Wendy Waldron].
Published/Created:	[Iowa City] : The Museum, [1974?]
Related Names:	Wilke, Ulfert, 1907- » More like this Waldron, Wendy. » More like this
Description:	32 p. : ill. ; 28 cm.
Subjects:	Pottery, Iranian--Exhibitions. » More like this Islamic pottery--Iran--Exhibitions. » More like this Paleography, Arabic (Cufic) in art. » More like this Wilke, Ulfert, 1907---Art collections. » More like this
LC Classification:	NK4147 .I58 1974
Dewey Class No.:	738.3/7
Geographic Area Code:	a-ir---

◀ Previous Next ▶

Brief Record | Subjects/Content | Full Record | MARC Tags

13 gurbah-yi ruī shīrvānī / kārgardān [director] ʻAlī ʻAbd...

LC Control No.: 2007379628
LCCN Permalink: http://lccn.loc.gov/2007379628

000 01909cgm a22003375a 450
001 14818487
005 20091114000031.0
007 vd czaizu
008 070423s2006 ir -- vlper
906 __ |a 0 |b ibc |c origode |d u |e ncip |f 20 |g y-movingim
925 0_ |a acquire |b 1 shelf copy |x policy default
955 __ |a wk32 2007-04-23; |c wk33 2009-11-06 to MBRS-MI
010 __ |a 2007379628
025 __ |a P-VCD-2007379628; 10
040 __ |a DLC |c DLC |e amim
042 __ |a lcode
245 00 |a 13 gurbah-yi ruī shīrvānī / |c kārgardān [director] ʻAlī ʻAbd al-ʻAlī Zādah ; tahīyahʹkunandah va mudīr-i tawlīd [producer and editor], Yūsaf Ṣamad Zādah.
246 30 |a Sīzdah gurbah-yi ruī shīrvānī
246 1_ |i English language title: |a 13 cats on the gable roof
246 30 |a Thirteen cats on the gable roof

http://lccn.loc.gov/2007379628

MARC STANDARDS

Library of Congress - Network Development and MARC Standards Office

The MARC formats are standards for the representation and communication of bibliographic and related information in machine-readable form.

New! RDA in MARC -- Summary of Additions
[MARC en ESPAÑOL]

Understanding MARC Bibliographic -- *a brief description and tutorial*
Understanding MARC Authority -- *a brief description and tutorial*

MARC Formats
Bibliographic
Authority
Holdings
Classification
Community
Translations

MARC LITE
Bibliographic

MARC Code Lists
Country
GACs
Languages
Organizations
Relators
Sources

General Information
Introductory MARC Information
News & Announcements
MARC FAQ
MARC Forum (listserv)
Unicode-MARC Forum
Recommended Reading

MARC Formats
Formats and Code Lists
Format Overview
Ordering Information
National Level Requirements
MARC Mappings
MARC User Notes

MARC in XML
MARCXML
MODS
MADS

MARC and FRBR
FRBR Display Tool

MARC Development
Overview
MARC Proposals
MARC Discussion Papers
MARC Change Form

MARC Records, Systems and Tools
MARC Record Services
MARC Systems
MARC Specialized Tools

http://www.loc.gov/marc/

MARC Codes

Geographic Areas | Languages | Countries

Iran

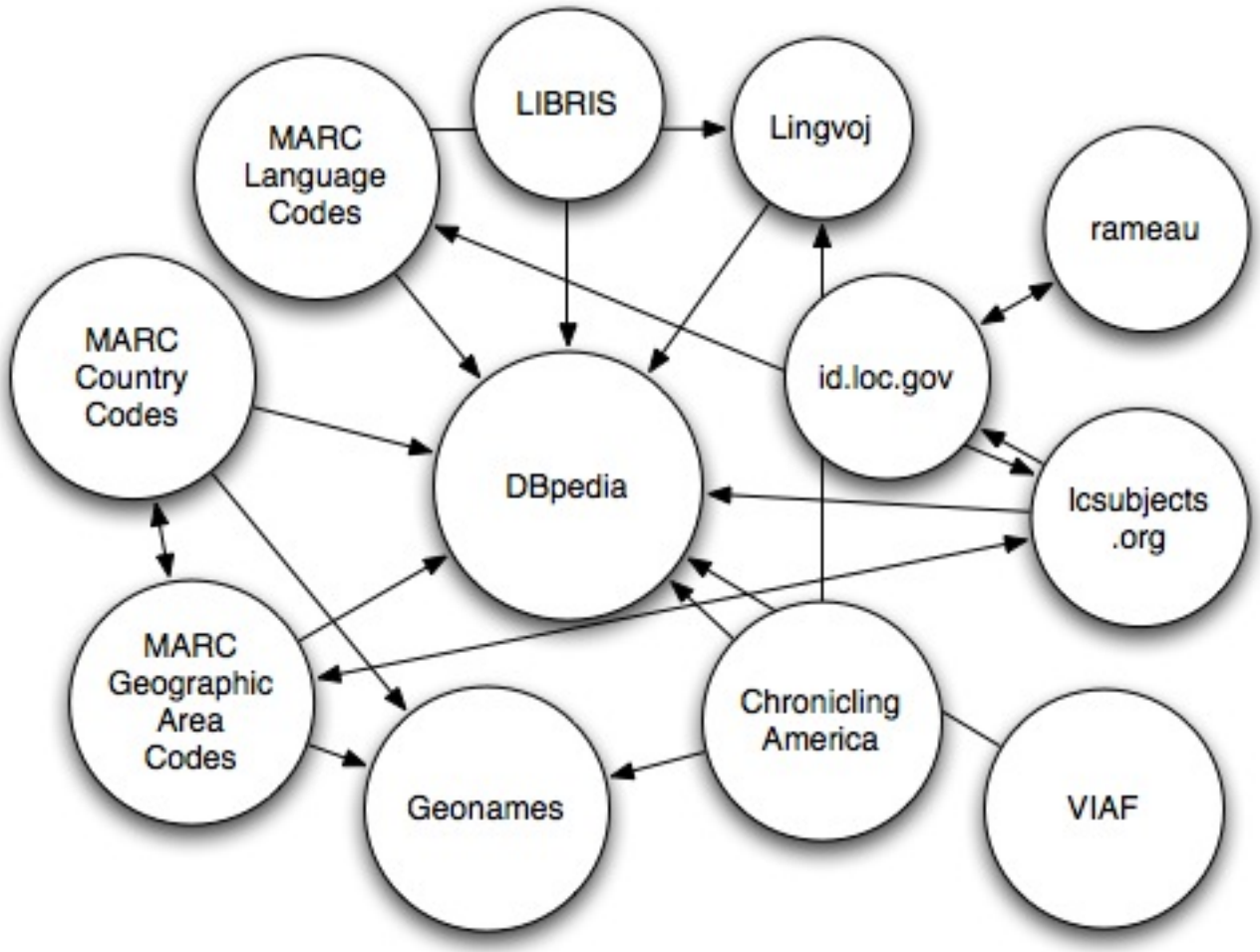
Same as:
info:lc/vocabulary/gacs/a-ir
http://purl.org/NET/marccodes/countries/ir#location
http://sws.geonames.org/130758/
http://dbpedia.org/resource/Iran

Subject concepts describing Iran
http://dbpedia.org/resource/Category:Iran

Also called:
Armenia
Persia

Is a part of: Asia

Also available as RDF

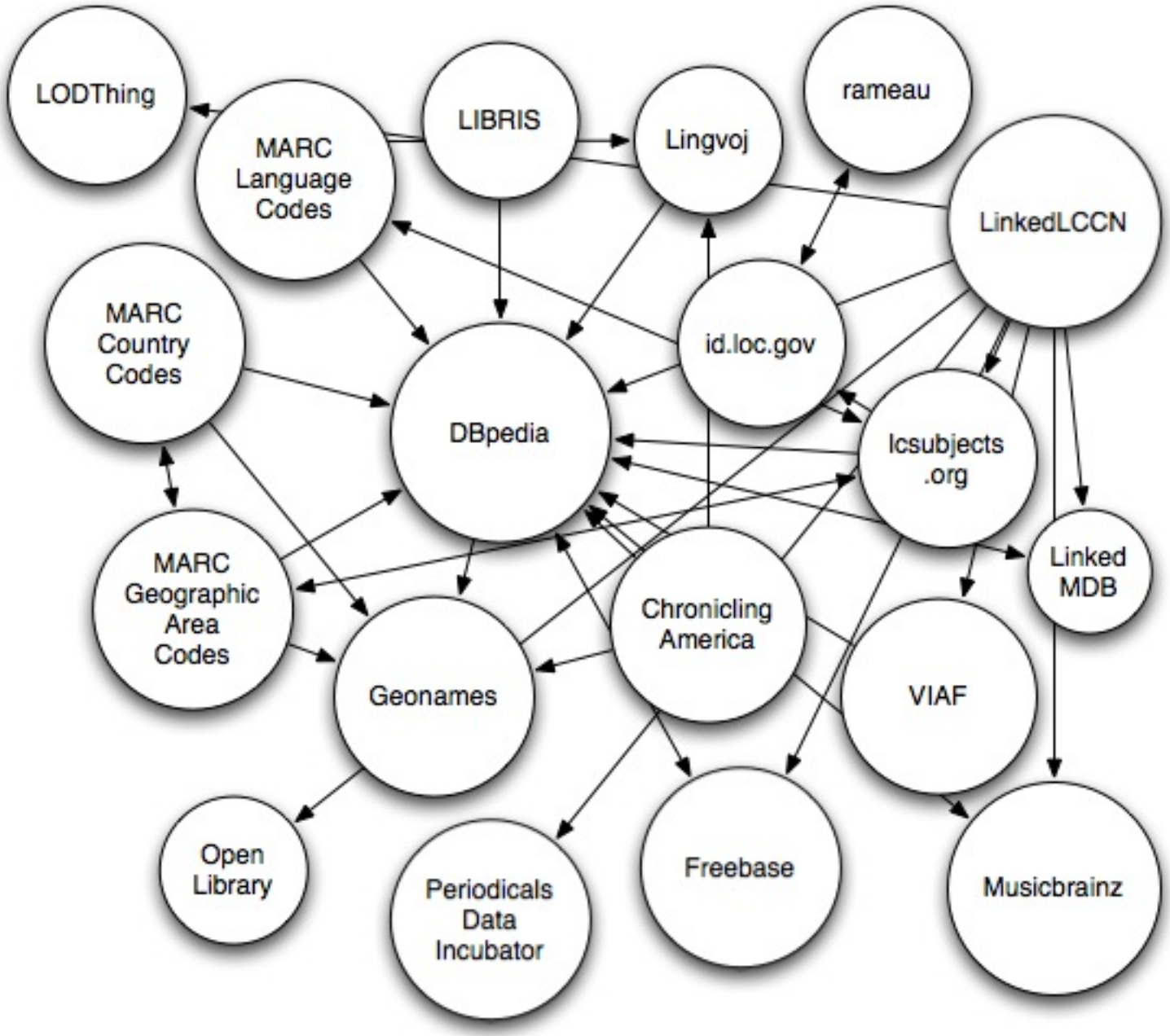

LIBRIS
Lingvoj
MARC Language Codes
rameau
MARC Country Codes
id.loc.gov
DBpedia
lcsubjects .org
MARC Geographic Area Codes
Chronicling America
Geonames
VIAF

LCCN

- LCCNs available in many (US/OCLC) MARC records
- Linking directly to MARCXML
- Made a github project: LinkedLCCN
- Partial redirect in purl.org
- Hosted at heroku.com
- Uses info:lccn URI syntax to make HTTP URIs

Blonde on Blonde

http://lccn.heroku.com/93710188#i


LODThing
MARC Language Codes
LIBRIS
Lingvoj
rameau
LinkedLCCN
MARC Country Codes
id.loc.gov
DBpedia
lcsubjects .org
MARC Geographic Area Codes
Chronicling America
Linked MDB
Geonames
VIAF
Open Library
Periodicals Data Incubator
Freebase
Musicbrainz

How to get yourself onto the cloud

- Only need as much RDF to get you to something with more data
- 010$a 99027665 can easily be made: http://purl.org/NET/lccn/99027665#i

For example

http://dilettantes.code4lib.org/vufind/

An even simpler approach

http://mirlyn.lib.umich.edu/Record/004579747

TODOs

- Agreement on data models
  - "FRBR" (or something like it)
  - "About"-ness vs. "Is"-ness
- More Linked Data available from very common identifiers
- More linkages to resources outside the library domain
  - How to get them?
  - UI issues
  - Education issues
- Sustainability/Preservation

Thank you

Any questions?

Ross Singer

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