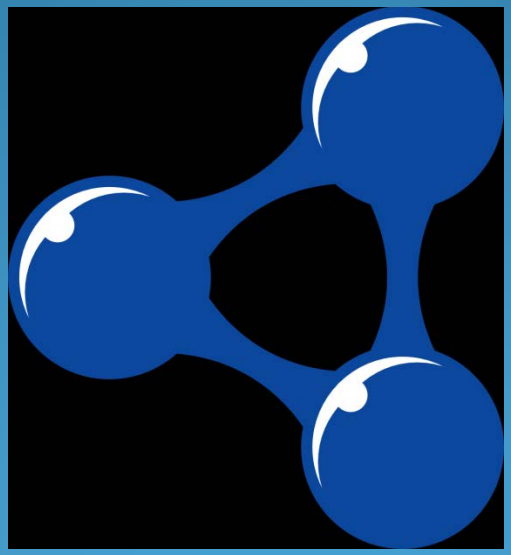
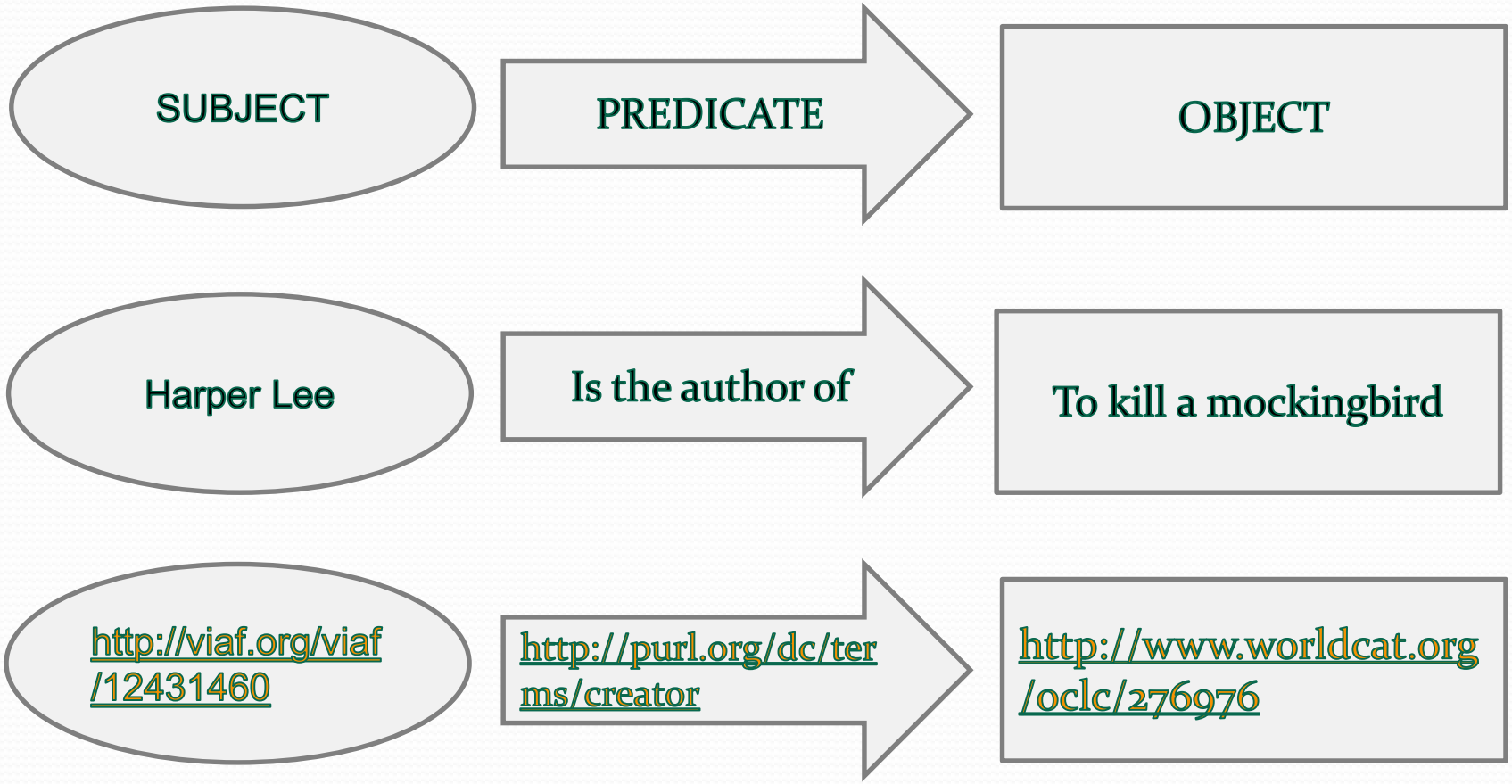
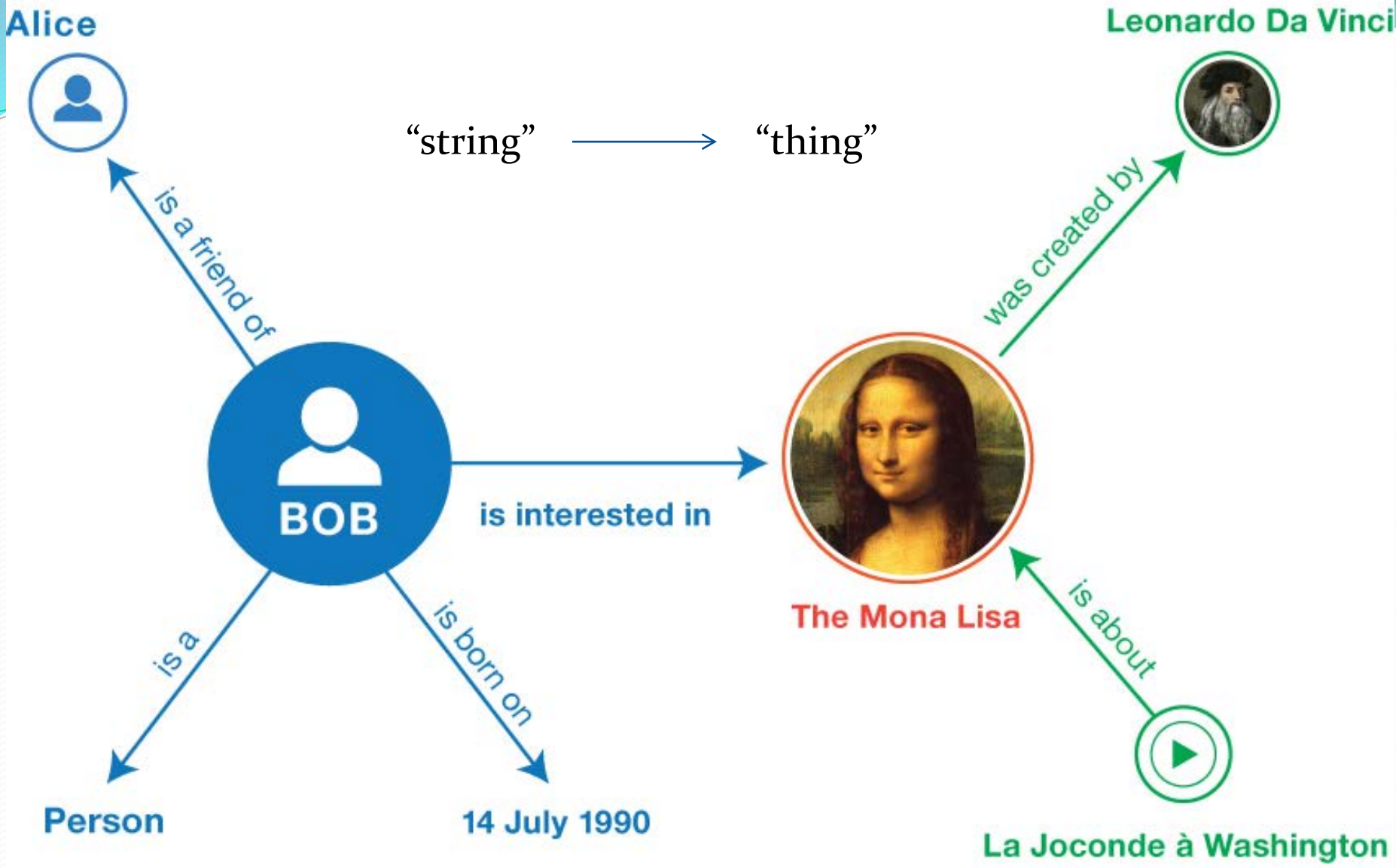
Exploring Linked Data



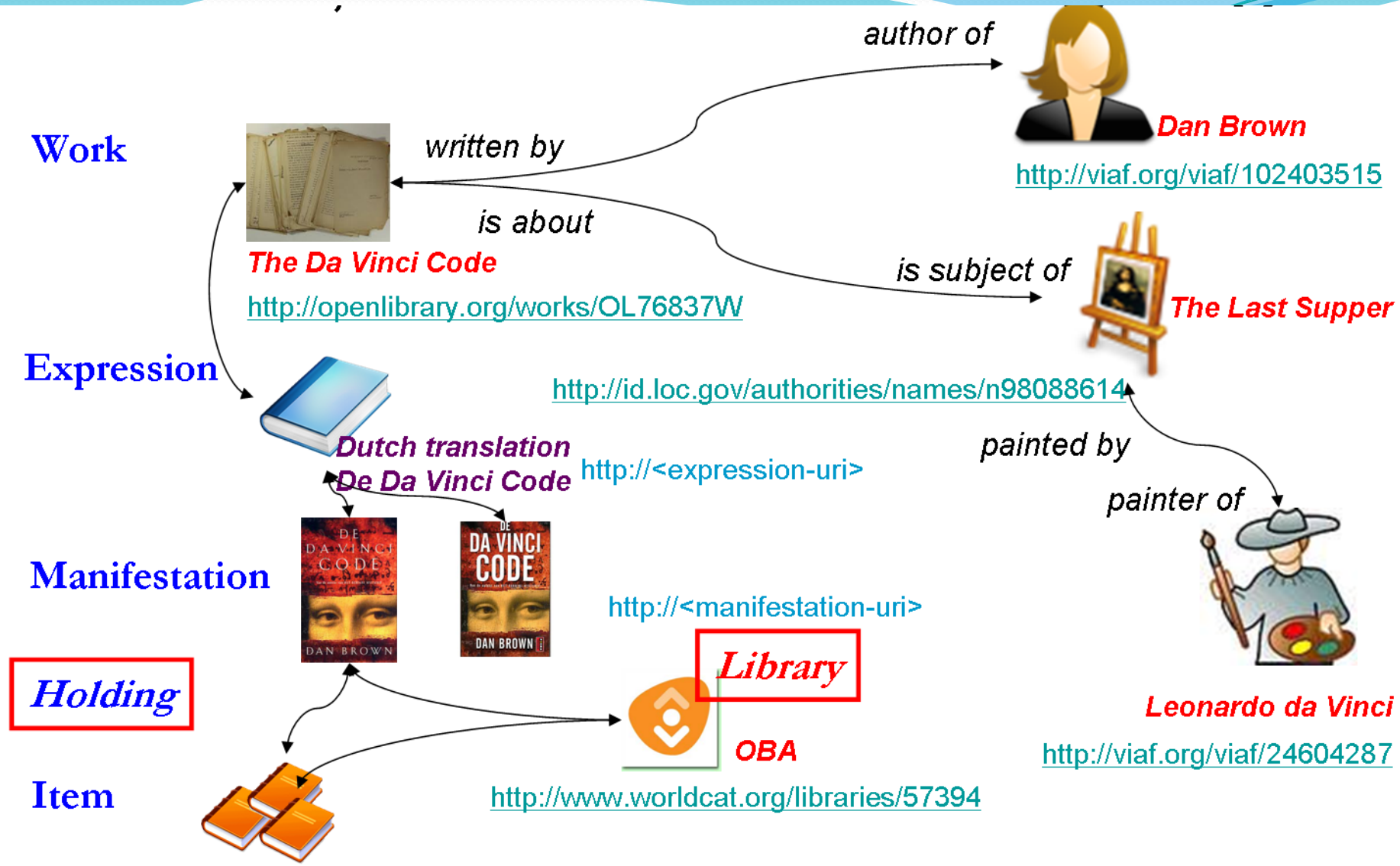
Linda Wen

Linked Data


SUBJECT
PREDICATE
OBJECT
Harper Lee
Is the author of
To kill a mockingbird
http://viaf.org/viaf/12431460
http://purl.org/dc/terms/creator
http://www.worldcat.org/oclc/276976

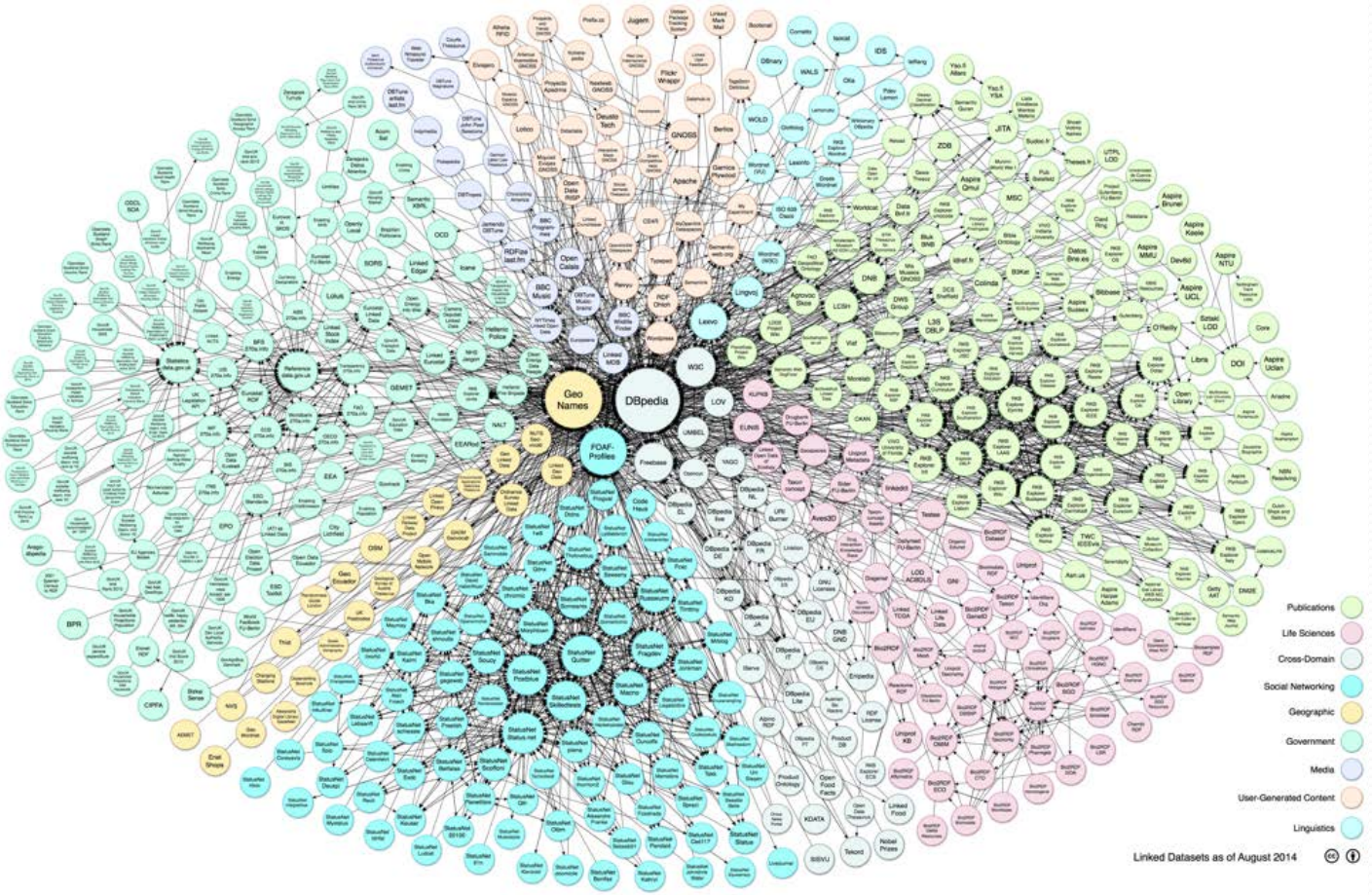


http://www.w3.org/TR/2014/NOTE-rdf11-primer-20140225/



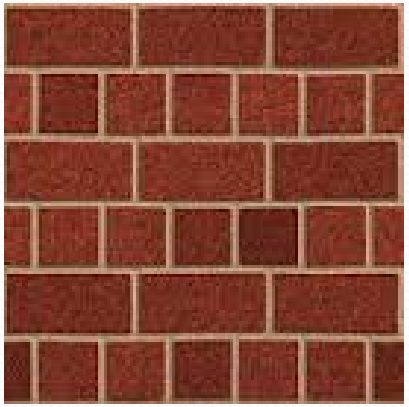
http://commonplace.net/tag/linked-data/

Linked Data cloud



Linked Data Players

- Google Knowledge Card
- Wikipedia
- BBC semantic publishing



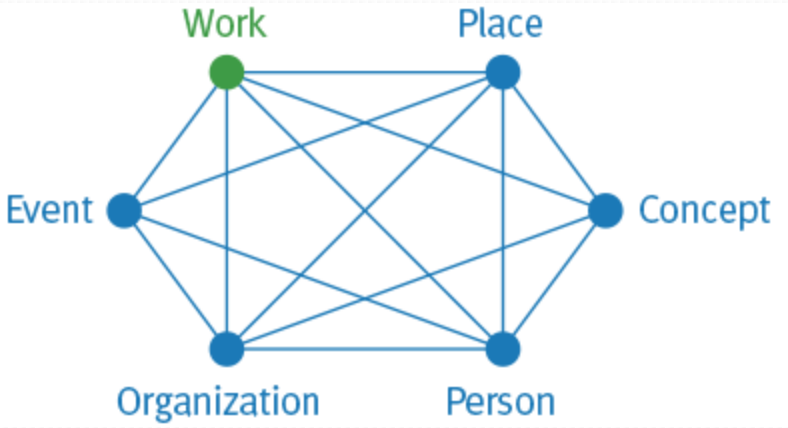
Vocabularies and Ontologies

- Core RDF vocabularies:
  - RDF Schema
  - OWL (Web Ontology Language)
  - SKOS (Simple Knowledge Organization System)
  - Schema.org
- Library of Congress and OCLC
  - BIBFRAM Vocabulary
  - FAST (Faceted Subject Term)
  - VIAF (Virtual International Authority File)
  - BiblioGraph (BGN)

Image: http://www.w3.org/DesignIssues/LinkedData.html

Library Data and Linked Data

- Entities and relationships in library data in legacy standards
  - Key entities: Person, Place, Organization, Concept, Work, and Events



Modeling Legacy Library Data to Linked Data

- Library authority files
- Labeled names
- Semi-structured text
- Unstructured text

Convert Library Authority Records

- LCSH, FAST, DDC expressed in SKOS
  - Compound headings (Copyright ǂx Law and legislation)
  - “person” as “Concept”…

Convert Library Authority Records

010			sh 85119230
040			DLC ǂb eng ǂc DLC ǂd D
053		0	GC89 ǂb GC90
150			Sea level
450			Mean sea level
450			Sea level rise
550			Oceanography ǂw g
550			Water levels ǂw g

<http://id.loc.gov/authorities/subjects/sh85119230
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skos:altLabel "Mean sea level";
skos:altLabel “Sea level rise";
skos:broader <http://id.loc.gov/authorities/subjects/sh85093937>
skos:broader <http://id.loc.gov/authorities/subjects/sh88003721>

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040			DLC ǂb eng ǂe rda ǂc DLC ǂd DLC ǂd OCl ǂd DL OCoLC ǂd DLC ǂd OCoLC ǂd UPB ǂd WaU ǂd D
046			ǂf 1947-09-21 ǂ2 edtf
053		0	PS3561.I483
100	1		King, Stephen, ǂd 1947-

400	1		King, Stiven, ǂd 1947-
400	1		King, Stivn, ǂd 1947-
400	1		Кинг, С., ǂd 1947-
400	1		Кинг, Стивен, ǂd 1947-
400	1		
400	1		
500	1		ǂi Alternate identity: ǂa Bachman, Richard ǂw r

<http://id.loc.gov/authorities/names/n79063767
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skos:altLabel "King, Stiven, ǂd 1947-";
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skos:altLabel "Кинг, Стивен, ǂd 1947-";
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skos:altLabel "Кинг, Стивен, ǂd 1947-";
rdfs:seeAlso <http://id.loc.gov/authorities/names/n2013043083>

http://example.org/foaf/person/50566653/#Stephen_Kind
a foaf:Person
foaf:givenName “Stephen”;
foaf:familyName “King”;
foaf:birthday “12-19”;
foaf:gender “Mail”;
foaf:name “Stephen King”;
foaf:name “Richard Bachman”.

Library Data and Linked Data

- British National Bibliography *
- Bibliotheque national de France
- Oslo Public Library
- Library of Congress
- OCLC WorldCat Works
- …

Library Data and Linked Data

- Zepheira's BIBFRAME Initiative
  - LibHub Initiative
- BIBFLOW
- Linked Data for Libraries (LD4L)

BIBFRAM
EWork

000 01932cam a2200505 i 450
001 13375966
005 20140102075558.0
008 130128t20132013flua b 001 0 eng
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020 __ |**a** 9781466559806 (hardback : alk. paper)
020 __ |**a** 1466559802 (hardback : alk. paper)
024 __ |**a** 23638311
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035 __ |**a** (OCoLC)ocn783168791
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042 __ |**a** pcc
049 __ |**a** EAUU
→ **050** 00 |**a** GC89 |**b** .M373 2013
082 00 |**a** 363.34 |**2** 23
→ **100** 1_ |**a** McGuire, Chad J.
→ **245** 10 |**a** Adapting to sea level rise in the coastal zone : |**b** law and policy considerations / |**c** Chad
264 _1 |**a** Boca Raton : |**b** CRC Press, Taylor & Francis Group, |**c** [2013]
264 _4 |**c** Â©2013
300 __ |**a** ix, 222 pages : |**b** illustrations ; |**c** 24 cm
→ **336** __ |**a** text |**2** rdacontent
337 __ |**a** unmediated |**2** rdamedia
338 __ |**a** volume |**2** rdacarrier
504 __ |**a** Includes bibliographical references and index.
505 00 |**t** Science behind sea level rise -- |**t** Policy options -- |**t** Legal considerations.
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→ **650** _0 |**a** Coast changes.
→ **650** _0 |**a** Coastal zone management |**x** Government policy.
→

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338 __ **|a** volume **|2** rdacarrier
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650 _0 **|a** Sea level **|x** Environmental aspects.
650 _0 **|a** Coast changes.
650 _0 **|a** Coastal zone management **|x** Government policy.
650 _0 **|a** Environmental policy.

MARC to BIBFRAME Comparison
(17604513)

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100 1_ |**a** McGuire, Chad J.
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650 _0 |**a** Coast changes.
650 _0 |**a** Coastal zone management |**x** Government policy.
650 _0 |**a** Environmental policy.

Person

Place

Organization

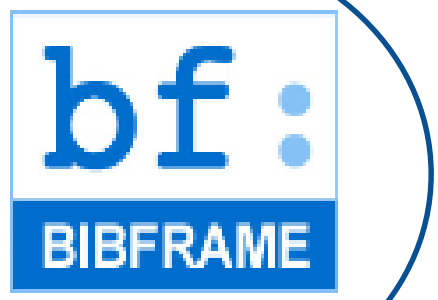
Subject

Tools

- MARC to BIBFRAME Comparison Service
  - http://bibframe.org/tools/compare/
- MARC to BIBFRAME Transformation Service
  - http://bibframe.org/tools/transform/start
- BIBFRAME Editor
  - http://bibframe.org/tools/editor/
- FRBR Display Tool
  - http://www.loc.gov/marc/marc-functional-analysis/tool.html
- MARConvert (OCLC)
- MARCNext

File Tools Add-ins Plug-ins Help

MARCNext:



BibFrame Testbed

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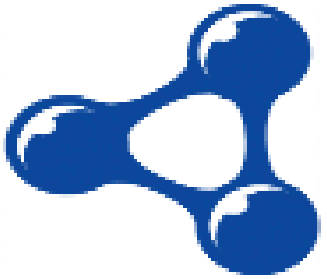
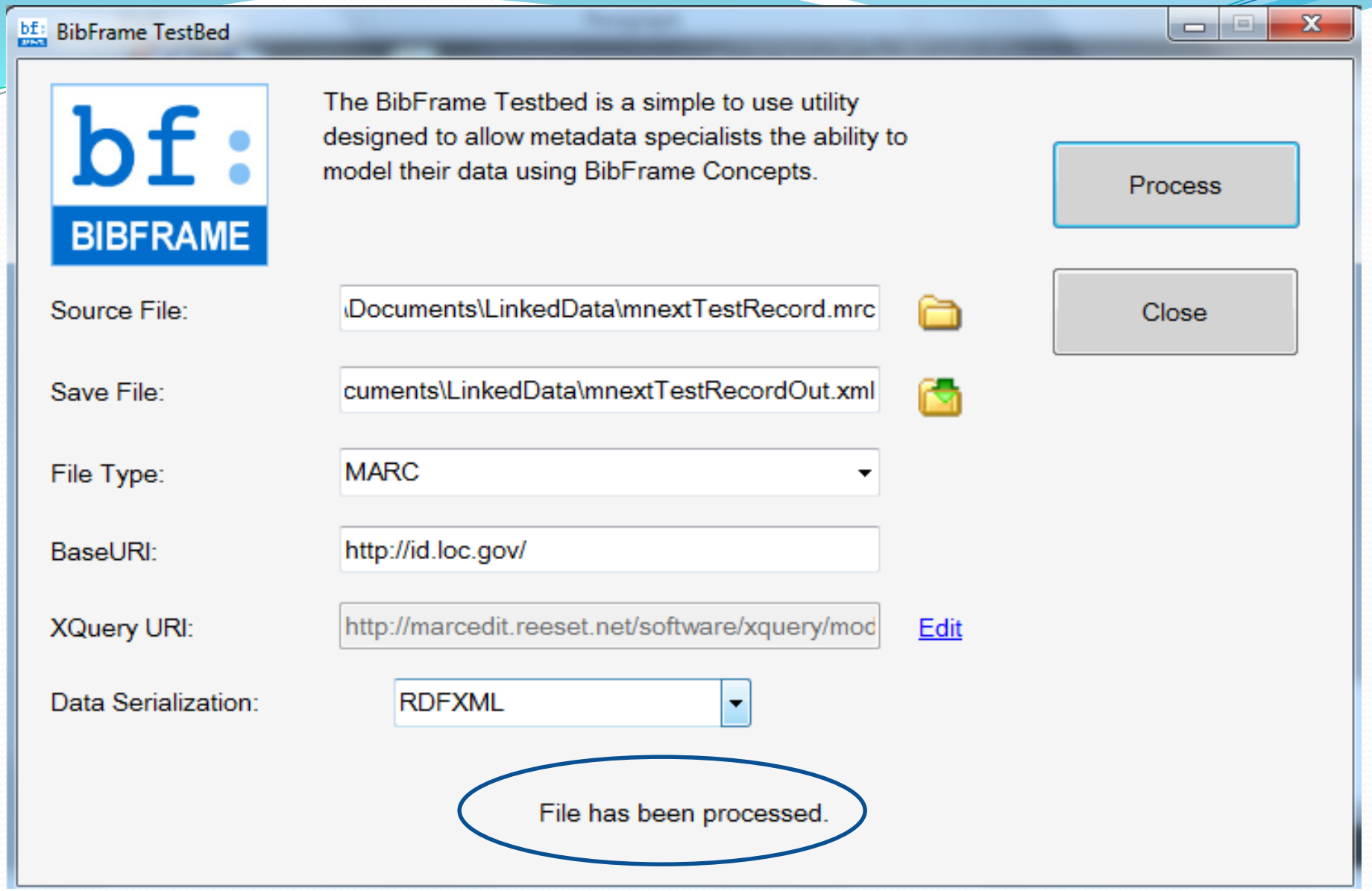


Link Identifiers

SPARQL Browser


BibFrame TestBed
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BIBFRAME
The BibFrame Testbed is a simple to use utility designed to allow metadata specialists the ability to model their data using BibFrame Concepts.
Process
Close
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Save File:
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File Type:
MARC
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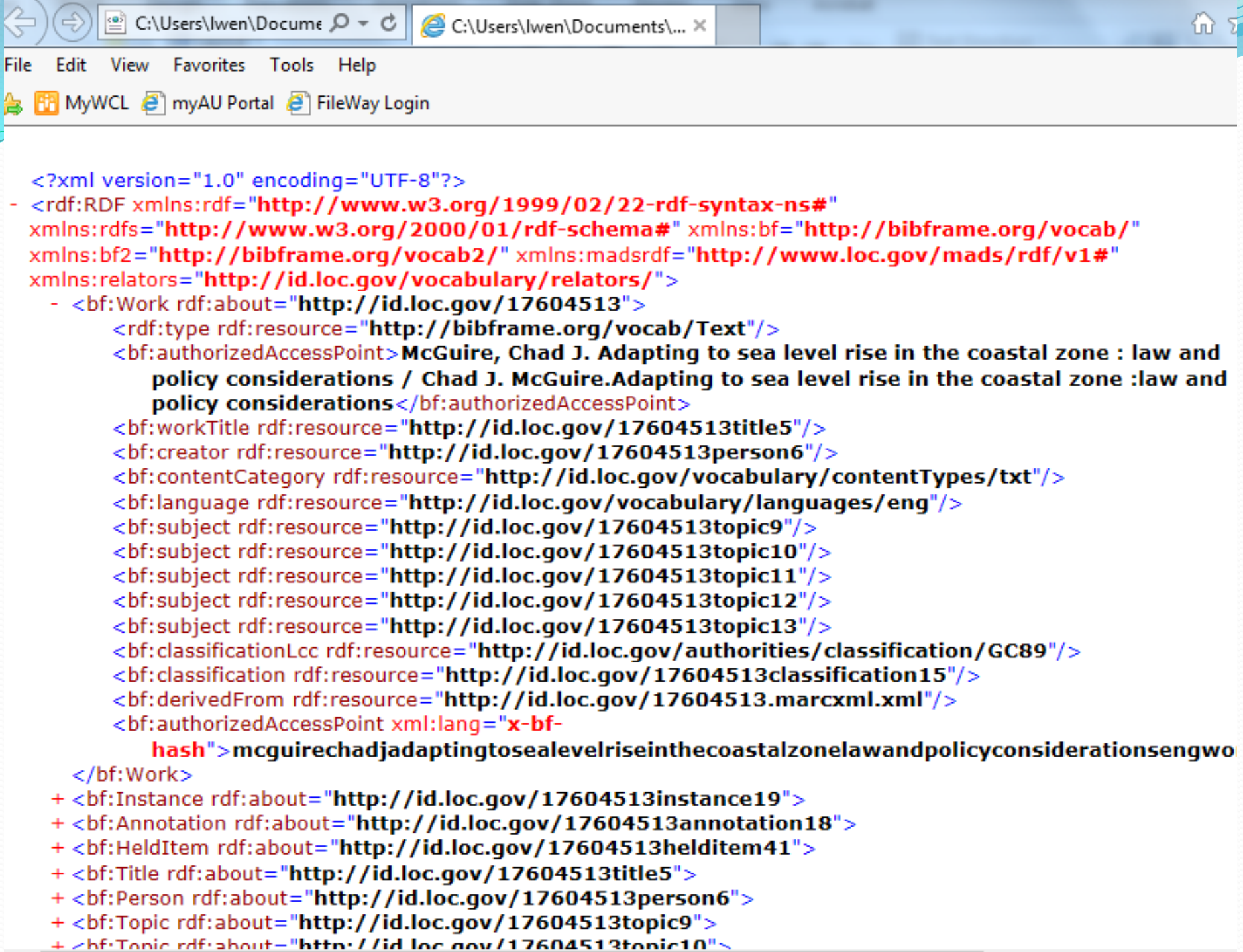
XQuery URI:
http://marcedit.reeset.net/software/xquery/mod
Edit
Data Serialization:
RDFXML
File has been processed.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C:\Users\lwen\Documents\...
File Edit View Favorites Tools Help
MyWCL myAU Portal FileWay Login
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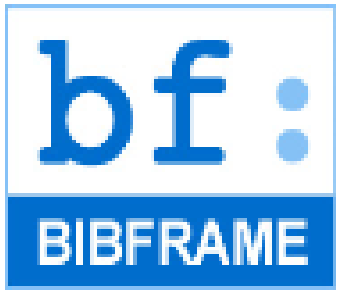
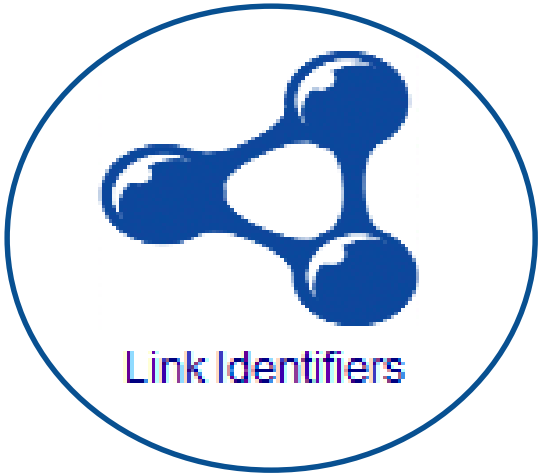
File Tools Add-ins Plug-ins Help

MARCNext:



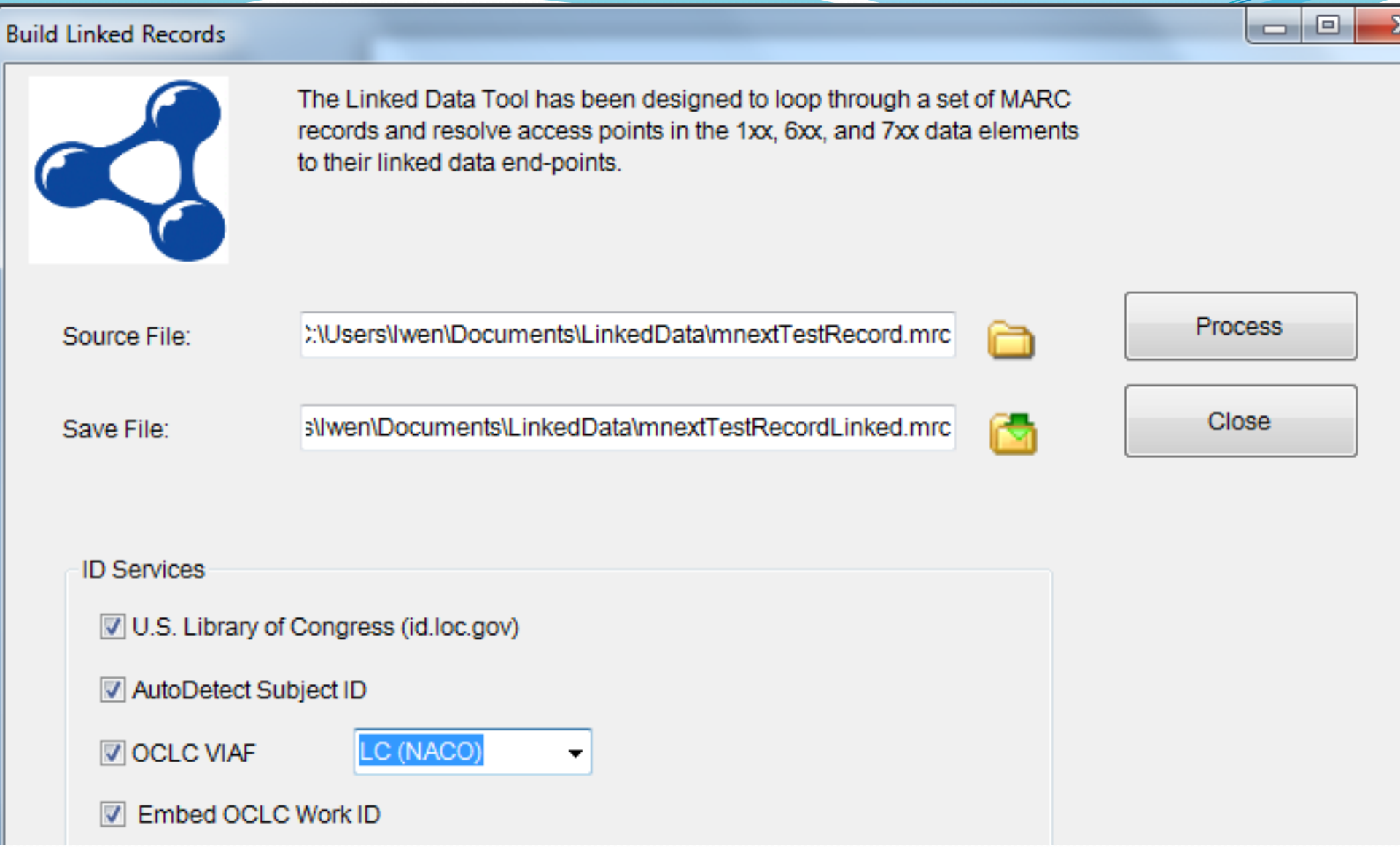
BibFrame Testbed

JSON Object Viewer



Link Identifiers

SPARQL Browser


Build Linked Records
The Linked Data Tool has been designed to loop through a set of MARC records and resolve access points in the 1xx, 6xx, and 7xx data elements to their linked data end-points.
Source File:
:\Users\lwen\Documents\LinkedData\mnextTestRecord.mrc
Save File:
s\lwen\Documents\LinkedData\mnextTestRecordLinked.mrc
Process
Close
ID Services
U.S. Library of Congress (id.loc.gov)
AutoDetect Subject ID
OCLC VIAF
LC (NACO)
Embed OCLC Work ID

```
=LDR  01640cam a2200349 i 4500
=001  17604513
=005  20130820174304.0
=008  130128t20132013flua\\\\\b\\\\001\0\eng\\
=787  0\$nOCLC Work Id$ohttp://worldcat.org/entity/work/id/15458218
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=955  \\$bre08 2013-01-28$ire08 2013-01-28 to re13$ere13 2013-02-05 to Dewey$wrd05 2013-02-11$axn09 2013-06
rec'd., to CIP ver.$fxh95 2013-06-19 to CALM$trm05 2013-08-20 Telework to CALM
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=020  \\$a9781466559806 (hardback : alk. paper)
=040  \\$aDLC$beng$cDLC$erda$dDLC
=042  \\$apcc
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=082  00$a363.34$223
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=245  10$aAdapting to sea level rise in the coastal zone :$blaw and policy considerations /$cChad J. McGuire.
=264  \1$aBoca Raton :$bCRC Press, Taylor & Francis Group,$c[2013]
=264  \4$c©2013
=300  \\$aix, 222 pages :$billustrations  ;$c24 cm
=336  \\$atext$2rdacontent
=337  \\$aunmediated$2rdamedia
=338  \\$avolume$2rdacarrier
=504  \\$aIncludes bibliographical references and index.
=650  \0$aSea level$xEnvironmental aspects.
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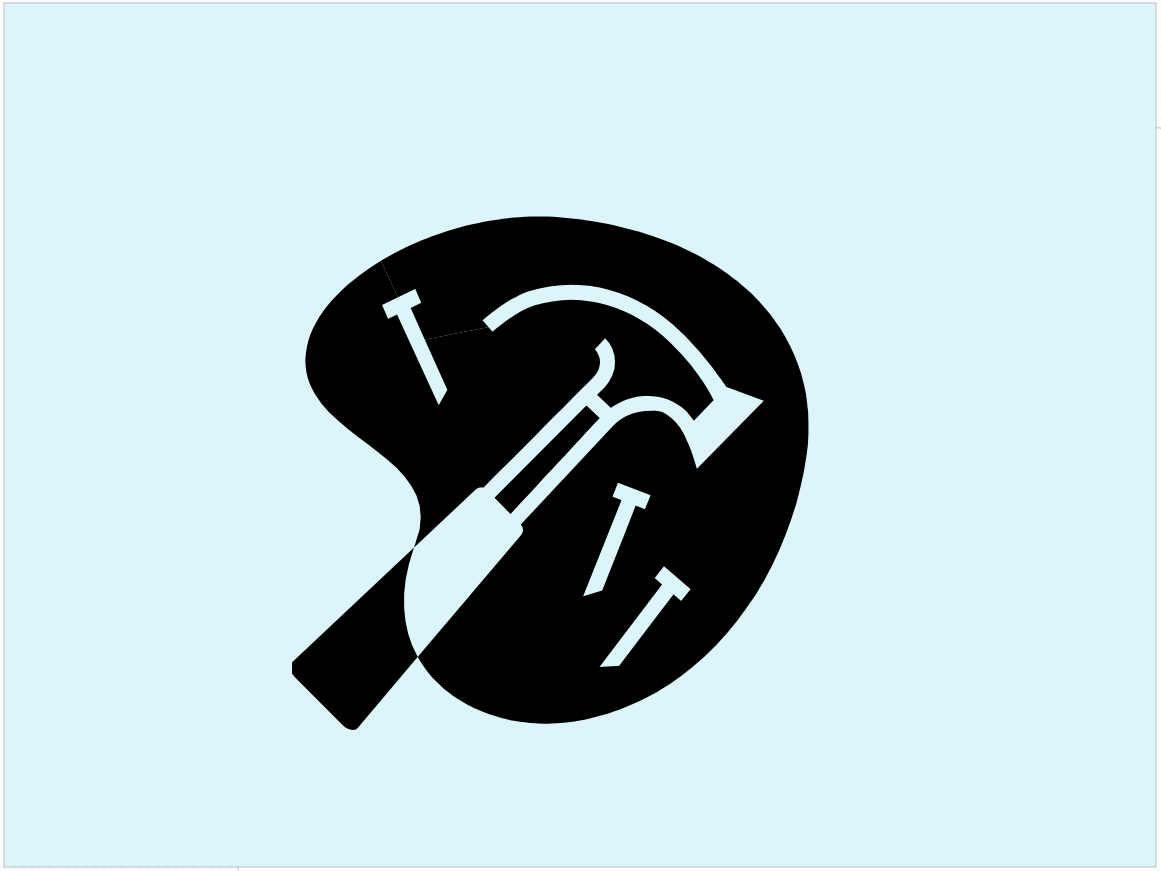
=650 \0$aEnvironmental policy.
=650 \0$aEnvironmental law.



What new skills do catalogers need in the new environment?

SPARQL

- query language of Linked Data and Semantic Web:
  - across multiple databases with a single query statement.
  - Pull values from *structured and semi-structured data*
  - Explore data by querying *unknown relationships*
  - *Transform RDF data* from one vocabulary to another

Future Descriptive Practice

- Cataloging or Library Resource Management?
- URI and Reduced Maintenance
- Expanded authority control
- Local authoritative hub
- Collaboration like VIAF and Wikipedia
- Library resource description landscape
- Model for archives, special collections, and digitized objects
- Crowdsourcing
- Compared to the level of cataloging of MARC
- Coexist?

What’s more…

- Digital or multimedia resources, theses and dissertations
- Raw data, unpublished researchers or agents
- World’s other national libraries
- "social contract“

Thank you!

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