# The Linked Data for Libraries Project: A Progress Report

Dean B. Krafft and Tom Cramer

DLF Forum

October 27, 2015

Cornell University Library

HARVARD LIBRARY

STANFORD UNIVERSITY LIBRARIES

# Linked Data for Libraries (LD4L)

- Nearing the end of a two-year $999K grant to Cornell, Harvard, and Stanford
- Partners have worked together to assemble ontologies and data sources that provide relationships, metadata, and broad context for Scholarly Information Resources
- Leverages existing work by both the VIVO project and the Hydra Partnership

# Vision: Create a LOD standard to exchange all that libraries know about their resources

Courtesy National Gallery of Art, Washington

# Overview

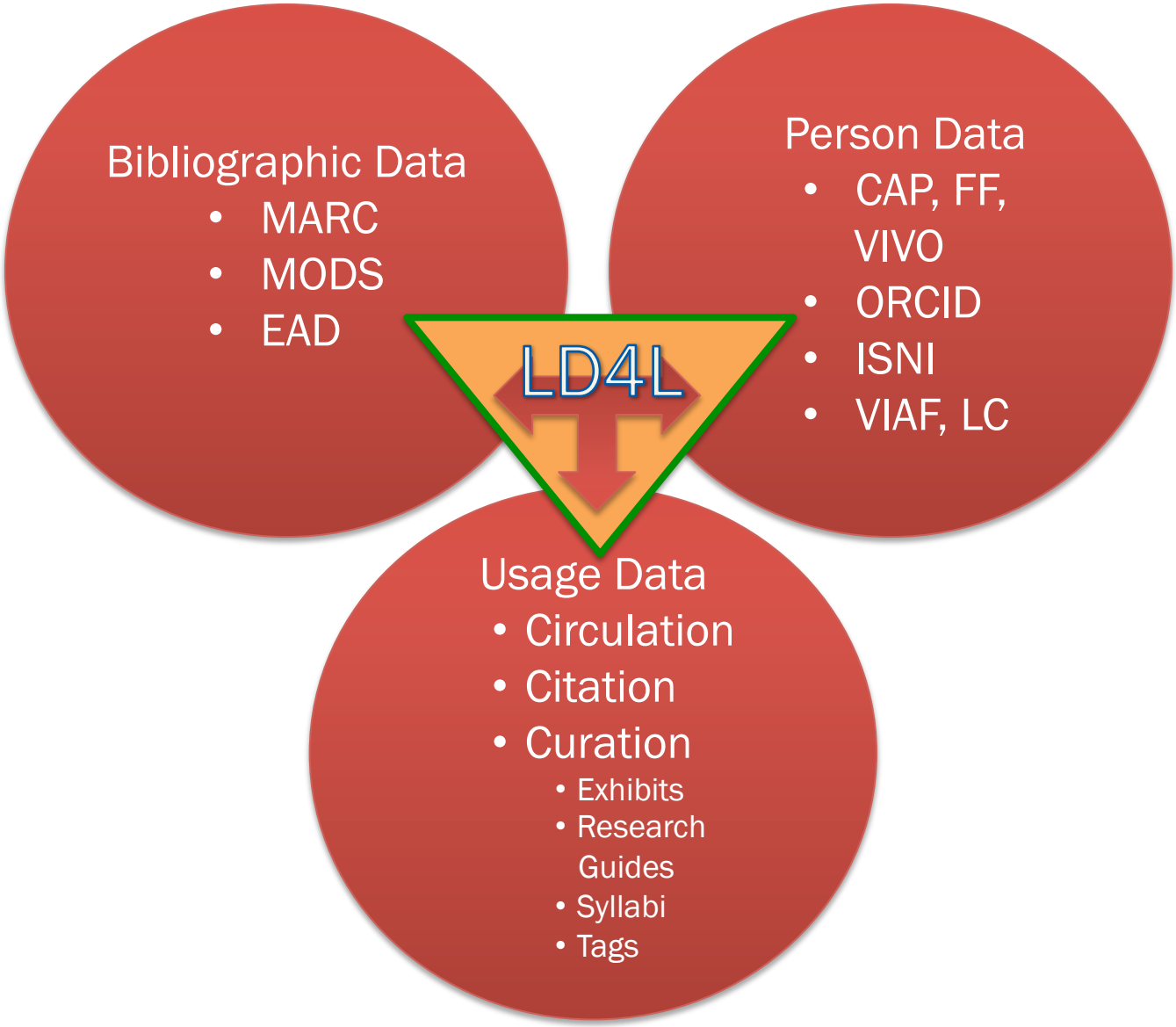
# Specific LD4L goals

- Free information from existing library system silos to provide context and enhance discovery of scholarly information resources
- Leverage usage information about resources
- Link bibliographic data about resources with academic profile systems and other external linked data sources
- Assemble (and where needed create) a flexible, extensible LD ontology to capture all this information about our library resources
- Demonstrate combining and reconciling the assembled LD across our three institutions

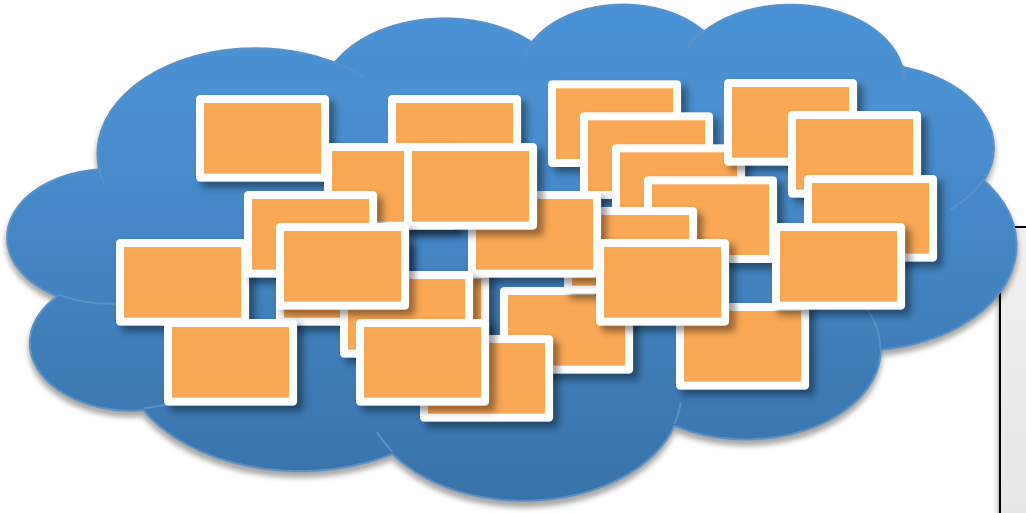
# LD4L working assumptions

- Trying to do conversion and relation work at scale--with full sets of enterprise data
  - Harvard: 13.6 million bibliographic records
  - Stanford and Cornell: roughly 8 million bib records in each collection
- Trying to understand the pipeline / workflows that will be needed for this
- Looking to build useful, value-added services on top of the assembled triples

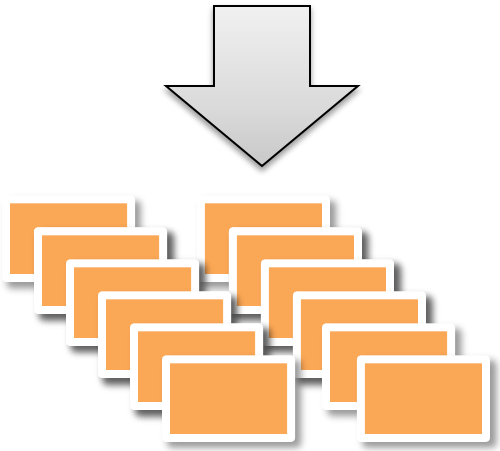
# LD4L data sources



# Selected Use Cases



42 raw use cases



12 refined use cases
in 6 clusters…

LD4L Use Case Clusters

1. Bibliographic + curation data
2. Bibliographic + person data
3. Leveraging external data including authorities
4. Leveraging the deeper graph (via queries or patterns)
5. Leveraging usage data
6. Three-site services, e.g. cross-site search

# 1.1 Build a virtual collection

- Goal: allowing librarians and patrons to create and share virtual collections by tagging and optionally annotating resources
- Implementations
  - Cornell
  - Stanford

Cornell University L... | Archery in SearchW... | Archery. (Book, 198... | 1999 South Dakota... | World Book Encyclo... | DNB, Katalog der D...
http://localhost:3000/vc/my_virtual_collections/http:%2F%2Flocalhost%2Fag4bed9f37-ef81-4ad4
Search
Most Visited | Mine | CUL-IT | Google | Active Dev | Dev | Terminology | Coursera | Reference | Research Tools | Social



Collection was successfully created. ×

## My Virtual Collections

- Linked Data for Libraries
- Archery

## Watched Collections

*No watched collections. Click ⊕ to find collections to watch.*

# Archery

⊕ Add External Resource



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Search Results | Cornell U...

http://localhost:3000/?utf8=✓&q=Archery&search_field=all_fields

Search

Most Visited | Mine | CUL-IT | Google | Active Dev | Dev | Terminology | Coursera | Reference | Research Tools | Social

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Home | About Us | Libraries and Hours | Courses | Research | Services | Ask a Librarian | Help | My Account

# Search / Catalog

My Virtual Collections | Selected Items | Search History | Borrow Direct | Interlibrary Loan

## Looking for more?

- Request from Libraries Worldwide (+)
- Search Articles & Full Text (8,186)
- Recommend a Purchase

## Refine your results

**Access**

| | |
|---|---|
| At the Library | 114 |
| Online | 81 |

**Format**

| | |
|---|---|
| Book | 179 |
| Microform | 12 |
| Musical Recording | 7 |
| Journal/Periodical | 3 |
| Map or Globe | 2 |
| Non-musical Recording | 2 |
| Manuscript/Archive | 1 |
| Video | 1 |

**Author/Creator**

**Publication Year**

**Language**

**Subject/Genre**

Archery | All Fields | Search

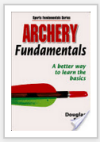
Advanced Search | Search Tips

or Start over

All Fields: Archery ✖

« Previous | 1 - 20 of 195 | Next »

20 per page | Sort by relevance

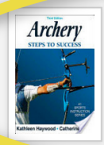



1. Archery fundamentals c2005

Book Champaign, IL : Human Kinetics, c2005. English

Olin Library Oversize GV1185 .A74 2005 +

Select




2. Archery : steps to success c2006

Haywood, Kathleen.

Book Champaign, IL : Human Kinetics, c2006. English 3rd ed.

Olin Library Oversize GV1185 .H38 2006 +

Select

3. Japanese archery [1965]

Nasu, Toshisuke.

Book Rutland, Vt. : C.E. Tuttle Co., [1965] English

Kroch Library Asia GV1185 .A18 1965

Select

« Previous | Next » | 1 | 2 | 3 | 4 | 5 | ... | 9 | 10

Archery – Cornell Universi...

http://localhost:3000/catalog/5681270

Search

Most Visited | Mine | CUL-IT | Google | Active Dev | Dev | Terminology | Coursera | Reference | Research Tools | Social

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# Search / Catalog

My Virtual Collections | Selected Items | Search History | Borrow Direct | Interlibrary Loan

Back to catalog results

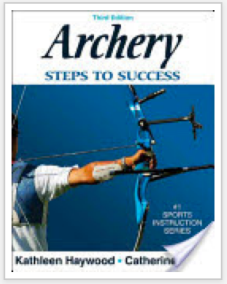
Search... | All Fields | Search

Advanced Search | Search Tips

« Previous | 2 of 195 | Next »

Select | Add to Virtual Collection | Email | Export | Print

Linked Data for Libraries
Archery




## Archery

*steps to success*

*Kathleen M. Haywood, Catherine F. Lewis*

| | |
|---|---|
| Author/Creator | Haywood, Kathleen. |
| Format | Book |
| Language | English |
| Edition | 3rd ed. |
| Published | Champaign, IL : Human Kinetics, c2006. |
| Subject | Archery |
| Description | 196 p. : ill. ; 28 cm. |
| ISBN | 0736055428 (soft cover) |
| Other author/creator | Lewis, Catherine, 1957- |

Olin Library | Hours/Map

Oversize GV1185 .H38 2006 + Text

Available 1 copy

Request

Item was successfully created. ×

## My Virtual Collections

- Linked Data for Libraries
- Archery

## Watched Collections

*No watched collections. Click ⊕ to find collections to watch.*

# Archery

Add External Resource

« Previous | 1 - 1 of 1 | Next »

20 per page | Sort by relevance

1. Archery : steps to success

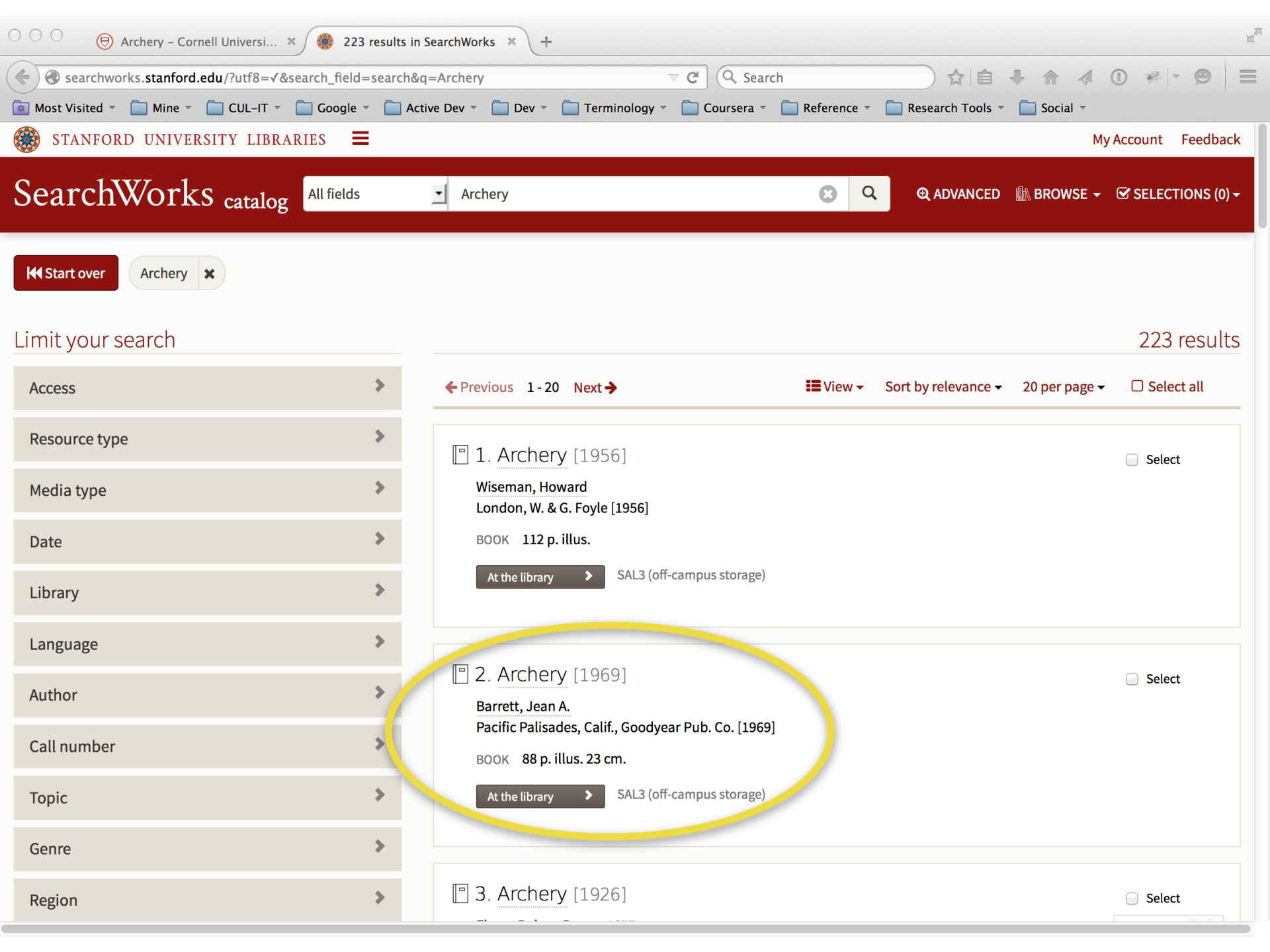
Haywood, Kathleen.

Book Champaign, IL : Human Kinetics, c2006. 3rd ed.

Source: Cornell Catalog

Show/Hide Notes and Tags

Remove


Archery – Cornell Universi...
223 results in SearchWorks
searchworks.stanford.edu/?utf8=✓&search_field=search&q=Archery
Search
Most Visited
Mine
CUL-IT
Google
Active Dev
Dev
Terminology
Coursera
Reference
Research Tools
Social
STANFORD UNIVERSITY LIBRARIES
My Account
Feedback
SearchWorks catalog
All fields
Archery
ADVANCED
BROWSE
SELECTIONS (0)
Start over
Archery
Limit your search
Access
Resource type
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Date
Library
Language
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Topic
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Region
223 results
Previous
1 - 20
Next
View
Sort by relevance
20 per page
Select all
1. Archery [1956]
Wiseman, Howard
London, W. & G. Foyle [1956]
BOOK 112 p. illus.
At the library
SAL3 (off-campus storage)
Select
2. Archery [1969]
Barrett, Jean A.
Pacific Palisades, Calif., Goodyear Pub. Co. [1969]
BOOK 88 p. illus. 23 cm.
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3. Archery [1926]
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Archery – Cornell Universi...
Archery in SearchWorks catalog
searchworks.stanford.edu/view/2219806
Search
Most Visited | Mine | CUL-IT | Google | Dev | Terminology | Coursera | Reference | Research Tools | Social
STANFORD UNIVERSITY LIBRARIES
My Account | Feedback
SearchWorks catalog
All fields
ADVANCED | BROWSE | SELECTIONS (0)



# Archery

| | |
|---|---|
| AUTHOR/CREATOR | Barrett, Jean A. |
| LANGUAGE | English. |
| IMPRINT | Pacific Palisades, Calif., Goodyear Pub. Co. [1969] |
| PHYSICAL DESCRIPTION | 88 p. illus. 23 cm. |

SAL3 (off-campus storage)
No public access

**Stacks** Request
371.3615 .B274

More options

Find it at other libraries via WorldCat

## Contents/Summary

BIBLIOGRAPHY
Bibliography: p. [87]-88.

## Subjects

SUBJECT
Archery.

## Bibliographic information

PUBLICATION DATE
1969

RESPONSIBILITY
[by] Jean A. Barrett.

SERIES
Goodyear physical activities series

Item was successfully created. ×

## My Virtual Collections

- Linked Data for Libraries
- Archery

## Watched Collections

*No watched collections. Click ⊕ to find collections to watch.*

# Archery

Add External Resource

« Previous | 1 - 1 of 1 | Next »

20 per page | Sort by relevance

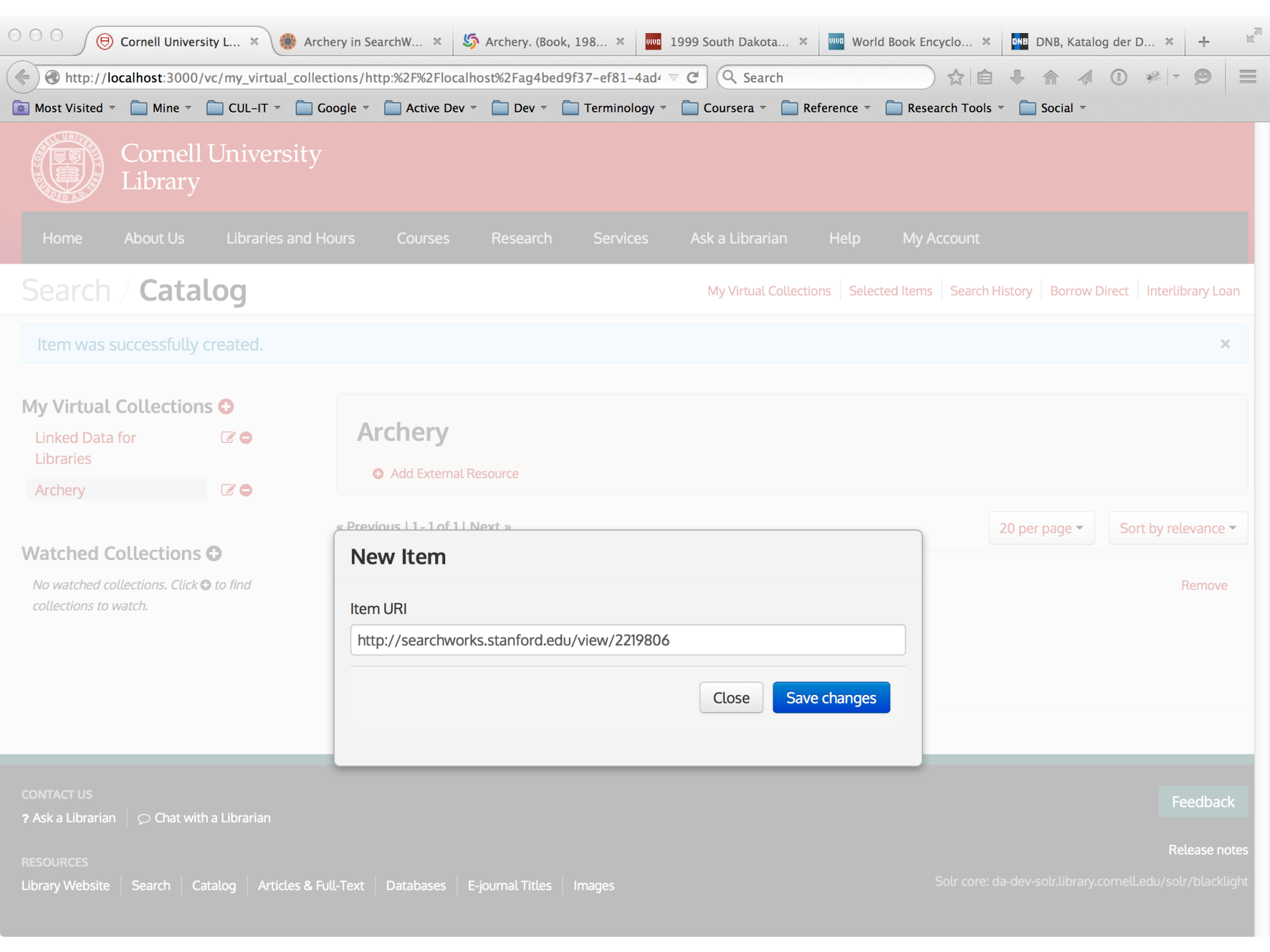
1. Archery : steps to success — Remove

Haywood, Kathleen.

Book Champaign, IL : Human Kinetics, c2006. 3rd ed.

Source: Cornell Catalog

Show/Hide Notes and Tags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Archery in SearchW...
Archery. (Book, 198...
1999 South Dakota...
World Book Encyclo...
DNB, Katalog der D...
http://localhost:3000/vc/my_virtual_collections/http:%2F%2Flocalhost%2Fag4bed9f37-ef81-4ad4
Search
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Terminology
Coursera
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Research Tools
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Cornell University Library
Home
About Us
Libraries and Hours
Courses
Research
Services
Ask a Librarian
Help
My Account
Search / Catalog
My Virtual Collections
Selected Items
Search History
Borrow Direct
Interlibrary Loan
Item was successfully created.
My Virtual Collections
Linked Data for Libraries
Archery
Watched Collections
No watched collections. Click to find collections to watch.
Archery
Add External Resource
« Previous | 1 - 1 of 1 | Next »
20 per page
Sort by relevance
Remove
New Item
Item URI
http://searchworks.stanford.edu/view/2219806
Close
Save changes
CONTACT US
? Ask a Librarian
Chat with a Librarian
Feedback
RESOURCES
Library Website
Search
Catalog
Articles & Full-Text
Databases
E-journal Titles
Images
Release notes
Solr core: da-dev-solr.library.cornell.edu/solr/blacklight

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## My Virtual Collections

- Linked Data for Libraries
- Archery

## Watched Collections

*No watched collections. Click ⊕ to find collections to watch.*

# Archery

⊕ Add External Resource

« Previous | 1 - 2 of 2 | Next »

20 per page | Sort by relevance

1. Archery : steps to success — Remove

Haywood, Kathleen.

Book Champaign, IL : Human Kinetics, c2006. 3rd ed.

Source: Cornell Catalog

Show/Hide Notes and Tags

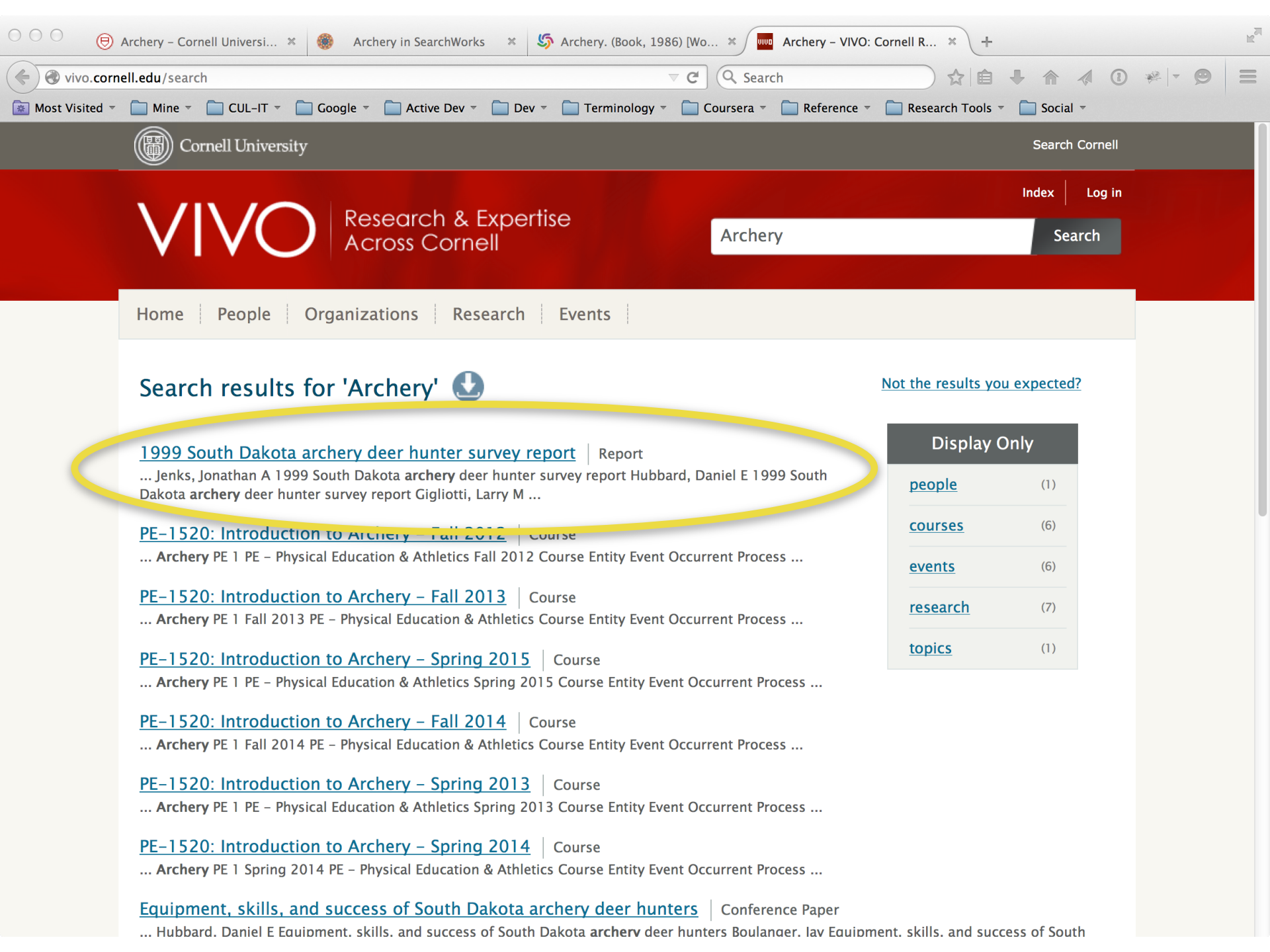
2. Archery [1969] — Remove

Barrett, Jean A.

Book Pacific Palisades, Calif., Goodyear Pub. Co. 1969

Source: Stanford Catalog

Show/Hide Notes and Tags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Archery – VIVO: Cornell R...
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Coursera
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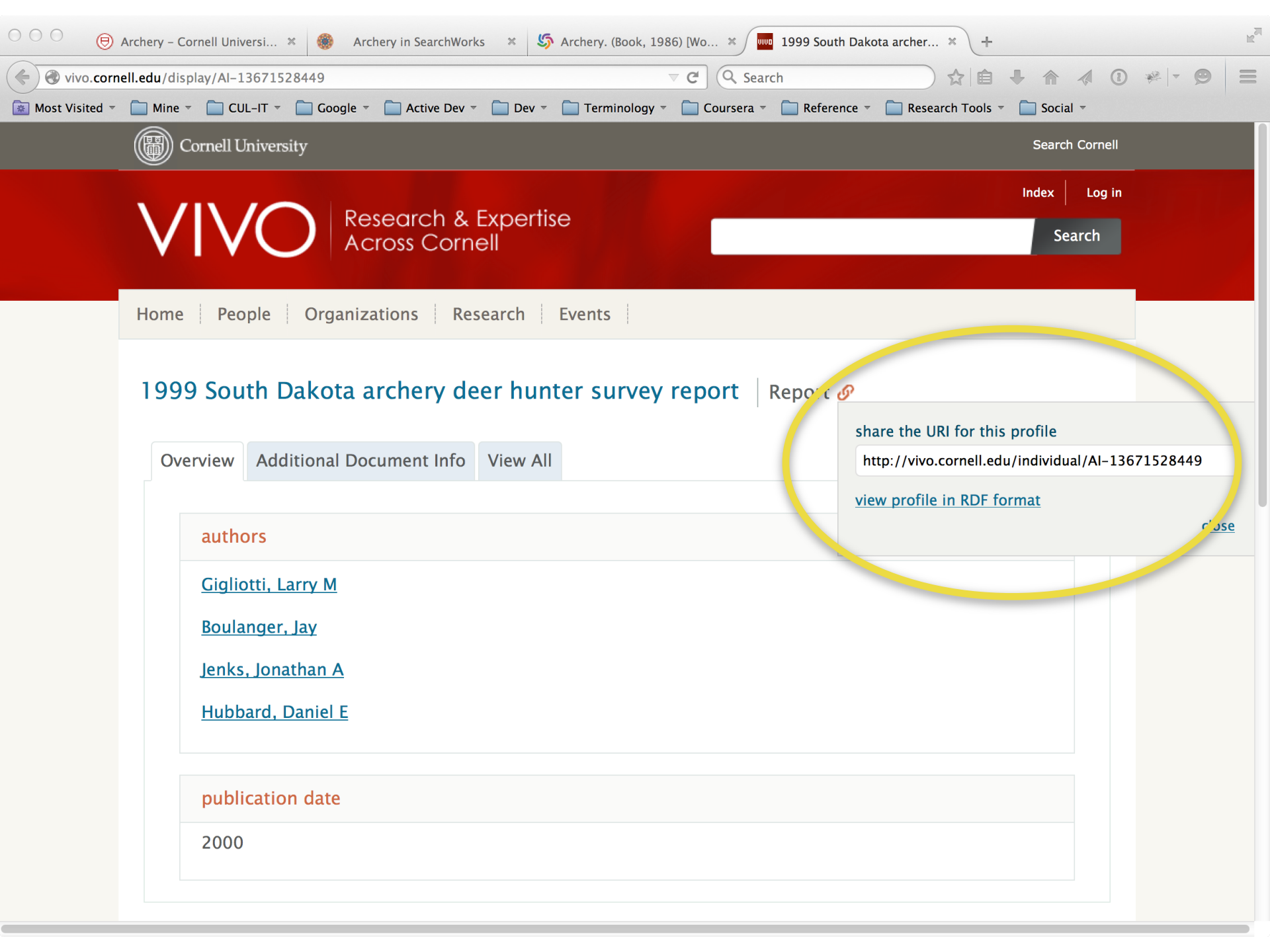
VIVO
Research & Expertise Across Cornell
Archery
Search
Home
People
Organizations
Research
Events
Search results for 'Archery'
Not the results you expected?
1999 South Dakota archery deer hunter survey report | Report
... Jenks, Jonathan A 1999 South Dakota archery deer hunter survey report Hubbard, Daniel E 1999 South Dakota archery deer hunter survey report Gigliotti, Larry M ...
PE-1520: Introduction to Archery – Fall 2012 | Course
... Archery PE 1 PE – Physical Education & Athletics Fall 2012 Course Entity Event Occurrent Process ...
PE-1520: Introduction to Archery – Fall 2013 | Course
... Archery PE 1 Fall 2013 PE – Physical Education & Athletics Course Entity Event Occurrent Process ...
PE-1520: Introduction to Archery – Spring 2015 | Course
... Archery PE 1 PE – Physical Education & Athletics Spring 2015 Course Entity Event Occurrent Process ...
PE-1520: Introduction to Archery – Fall 2014 | Course
... Archery PE 1 Fall 2014 PE – Physical Education & Athletics Course Entity Event Occurrent Process ...
PE-1520: Introduction to Archery – Spring 2013 | Course
... Archery PE 1 PE – Physical Education & Athletics Spring 2013 Course Entity Event Occurrent Process ...
PE-1520: Introduction to Archery – Spring 2014 | Course
... Archery PE 1 Spring 2014 PE – Physical Education & Athletics Course Entity Event Occurrent Process ...
Equipment, skills, and success of South Dakota archery deer hunters | Conference Paper
... Hubbard, Daniel E Equipment, skills, and success of South Dakota archery deer hunters Boulanger, Jay Equipment, skills, and success of South
Display Only
people (1)
courses (6)
events (6)
research (7)
topics (1)


Archery – Cornell Universi...
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Archery. (Book, 1986) [Wo...
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vivo.cornell.edu/display/AI-13671528449
Search
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Google
Active Dev
Dev
Terminology
Coursera
Reference
Research Tools
Social
Cornell University
Search Cornell
VIVO
Research & Expertise Across Cornell
Index
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Search
Home
People
Organizations
Research
Events
1999 South Dakota archery deer hunter survey report
Report
share the URI for this profile
http://vivo.cornell.edu/individual/AI-13671528449
view profile in RDF format
close
Overview
Additional Document Info
View All
authors
Gigliotti, Larry M
Boulanger, Jay
Jenks, Jonathan A
Hubbard, Daniel E
publication date
2000

## My Virtual Collections

- Linked Data for Libraries
- Archery

## Watched Collections

*No watched collections. Click ⊕ to find collections to watch.*

# Archery

Add External Resource

« Previous | 1 - 4 of 4 | Next »

20 per page | Sort by relevance

1. Archery : steps to success — Remove

Haywood, Kathleen.

Book Champaign, IL : Human Kinetics, c2006. 3rd ed.

Source: Cornell Catalog

Show/Hide Notes and Tags

2. Archery [1969] — Remove

Barrett, Jean A.

Book Pacific Palisades, Calif., Goodyear Pub. Co. 1969

Source: Stanford Catalog

Show/Hide Notes and Tags

3. Archery. 1986 — Remove

Book default : default, 1986 en 1986 revision.

Source: OCLC Worldcat

Show/Hide Notes and Tags

4. 1999 South Dakota archery deer hunter survey report — Remove

Book

Source: Cornell VIVO

Show/Hide Notes and Tags

# 1.2 Tag scholarly information resources to support reuse

- Goal: provide librarians tools to create and manage larger online collections of catalog resources
- Implementation
  - More automation
  - Batch processes as well as individual editing

## My Virtual Collections

- Linked Data for Libraries
- Archery

## Watched Collections

*No watched collections. Click ⊕ to find collections to watch.*

# Archery

Add External Resource

« Previous | 1 - 6 of 6 | Next »

20 per page | Sort by relevance

1. Archery : steps to success — Remove

Haywood, Kathleen.

Book Champaign, IL : Human Kinetics, c2006. 3rd ed.

Source: Cornell Catalog

Show/Hide Notes and Tags

Note:

This is an excellent resource on archery technique.

Set Note Reset

Tags:

archery; technique

*NOTE: Separate tags with semicolons.*

Set Tags Reset

2. Archery [1969] — Remove

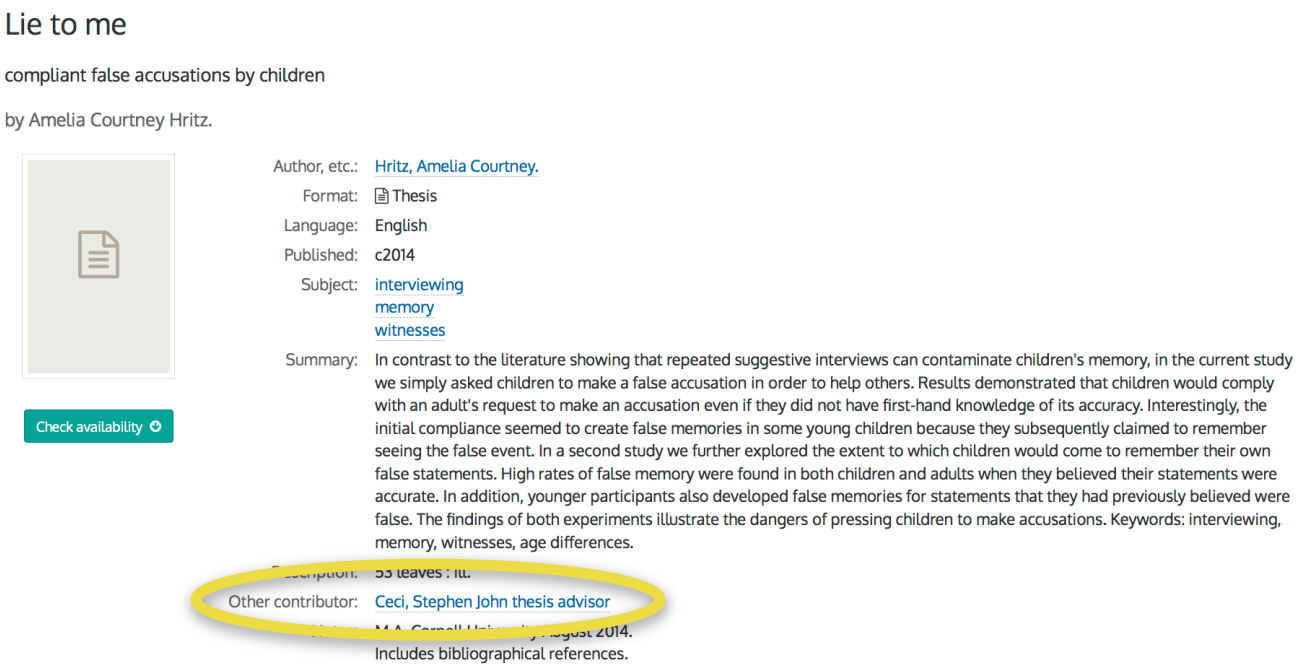
Discussion: How is this approach relevant to my needs and library?

# 2.1 See and search on works by people to discover more works and better understand people

- Goal: link catalog search results to researcher networking systems to provide current articles, courses
- Implementation
  - Adding VIVO URIs to MARC records for thesis advisors
  - Adding links to VIVO records linking back to faculty works and their students' theses
  - Raises important issues about URI stability

# Thesis Advisors and VIVO

- Cornell Technical Services is including thesis advisors in MARC records using NetIDs from the Graduate school database e.g., 700 1 ‡a Ceci, Stephen John ‡e thesis advisor ‡0
- Advisors are looked up against VIVO to get URIs for the faculty members



VIVO Research & Expertise Across Cornell

Index | Log in

Search

Home | People | Organizations | Research | Events

## Ceci, Stephen John | Helen L. Carr Professor of Developmental Psychology

### Positions

- Professor, Human Development (HD), College of Human Ecology (CHE)

Currently, with Wendy Williams, I am in the throe
differences in cognitive performance, which has
two chapters, and a review article (*Current Direc*
created the Cornell Institute for Women in Scienc
accepted in the Proceedings of the National Acad
as a feature article ("This week in PNAS", or TWIP

### Websites

Human Ecology profile
Cornell Institute for Women in Science
Cornell Library: Books authored
Cornell Library: Theses advised

### Networks

Co-author Network

Map of Science

## Library Catalog

stephen ceci | All Fields | ADVANCED SEARCH | BROWSE | MY ACCOUNT

Start over | All Fields: stephen ceci | Format: Thesis

Limit your search

Access
At the Library 2
Online 2

Format
Thesis 15
Book 13

Author, etc.
Publication Year
Language
Fiction/Non-Fiction
Library Location

1 - 15 of 15 | Sort by relevance | 20 per page

1. Lie to me : compliant false accusations by children c2014
Hritz, Amelia Courtney.
Thesis c2014 English
Online
Multiple locations
Select

2. The suggestive influence of lineups on memory : a comparative study of children and adults c2014
Royer, Caisa Elizabeth.
Thesis c2014 English
Online
Multiple locations
Select

3. Individual differences in children's recall and suggestibility: The effect of intelligence, temperament, and self-perceptions
Chae, Yoo Jin.
Thesis
Book English
Select

4. Conquering the perfect girl myth: Achievement based role models and adolescent girls
Shull, Megan.
Thesis
Book English
Select

5. Narrative skills as a predictor of suggestibility and memory accuracy
Kulkofsky, Sarah Christine.
Thesis
Book English
Select

# 4.1 Identifying related works

- Goal: finding additional resources beyond those directly related to any single work using queries or patterns, as for example changes in illustrations over a series of editions of a work
- Implementation
  - Explored by modeling non-MARC metadata from Cornell Hip Hop Flyer collection using LinkedBrainz
  - Availability of data will influence richness of discoverable context

# Hip Hop flyers

# Pilot: linking Hip Hop flyer metadata to MusicBrainz/LinkedBrainz data

- Model non-MARC metadata from Cornell Hip Hop Flyer Collection in RDF
  - Test LD4L BIBFRAME for describing flyers originally catalogued using ARTstor's Shared Shelf
  - Use Getty Art & Architecture Thesaurus to create bf:Work sub-classes
  - Test the use of other ontologies for describing other entities including Event ontology and Schema.org

- Use of URIs for performers to recursively discover relationships to other entities via dates, events, venues, graphic designers, work types and categories

# MusicBrainz

## Afrika Bambaataa

~ Person

Overview | Releases | Recordings | Works | Events | Relationships | Aliases | Tags | Details | Edit

**Legal name:** Kevin Donovan

### Wikipedia

**Kevin Donovan** (born April 19, 1957), better known by the stage name **Afrika Bambaataa**, is an American DJ from the South Bronx, New York. He is notable for releasing a series of genre-defining electro tracks in the 1980s that influenced the development of hip hop culture. Afrika Bambaataa is one of the originators of breakbeat DJing and is respectfully known as "The Godfather" and "Amen Ra of Hip Hop Kulture," as well as the father of electro funk. Through his co-opting of the street gang the Black Spades into the music and culture-oriented Universal Zulu Nation, he has helped spread Hip Hop Culture throughout the world.

Continue reading at Wikipedia... Wikipedia content provided under the terms of the Creative Commons BY-SA license

Filter

### Discography

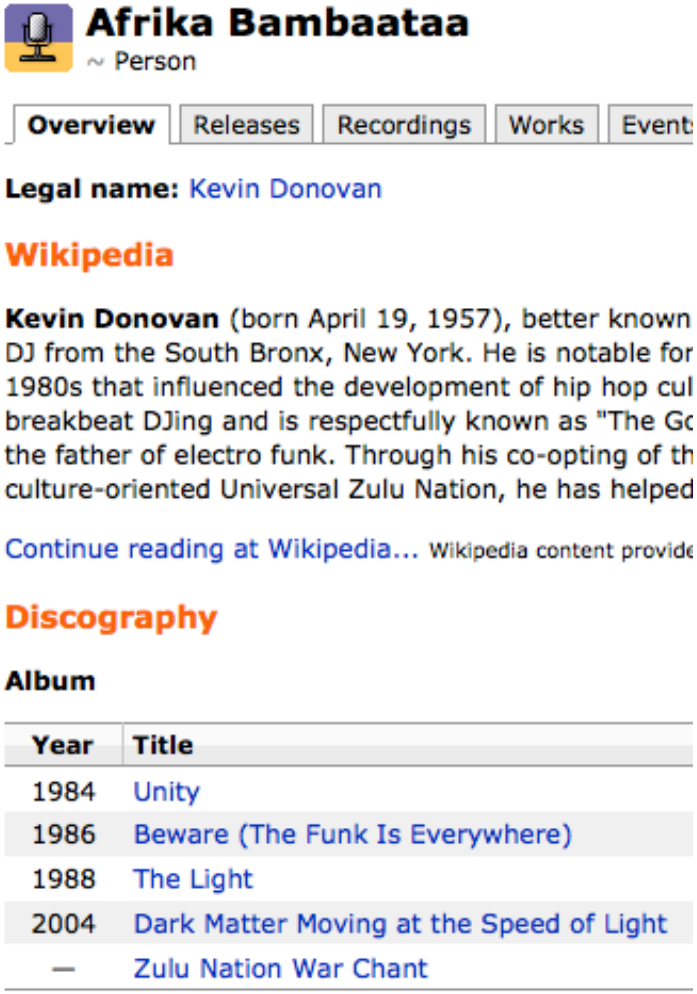
**Album**

| Year | Title | Artist | Rating | Releases |
|---|---|---|---|---|
| 1984 | Unity | Afrika Bambaataa & James Brown | ★☆☆☆☆ | 1 |
| 1986 | Beware (The Funk Is Everywhere) | Afrika Bambaataa | ★☆☆☆☆ | 2 |
| 1988 | The Light | Afrika Bambaataa | ★☆☆☆☆ | 1 |
| 2004 | Dark Matter Moving at the Speed of Light | Afrika Bambaataa | ★★☆☆☆ | 2 |
| — | Zulu Nation War Chant | Afrika Bambaataa | ★☆☆☆☆ | 1 |

**Album + Compilation**

| Year | Title | Artist | Rating | Releases |
|---|---|---|---|---|
| 1997 | Zulu Groove | Afrika Bambaataa | ★★★☆☆ | 1 |
| 1999 | Electro Funk Breakdown | Afrika Bambaataa | ★★★☆☆ | 2 |
| 1999 | The 12" Mixes | Afrika Bambaataa | ★☆☆☆☆ | 1 |
| 2001 | Looking for the Perfect Beat 1980-1985 | Afrika Bambaataa | ★★★★★ | 3 |
| 2003 | Afrika Bambaataa Presents Eastside | Afrika Bambaataa | ★☆☆☆☆ | 1 |

# Reconciling mo:Release with bf:Audio



**Afrika Bambaataa**

~ Person

Overview | Releases | Recordings | Works | Event

**Legal name:** Kevin Donovan

## Wikipedia

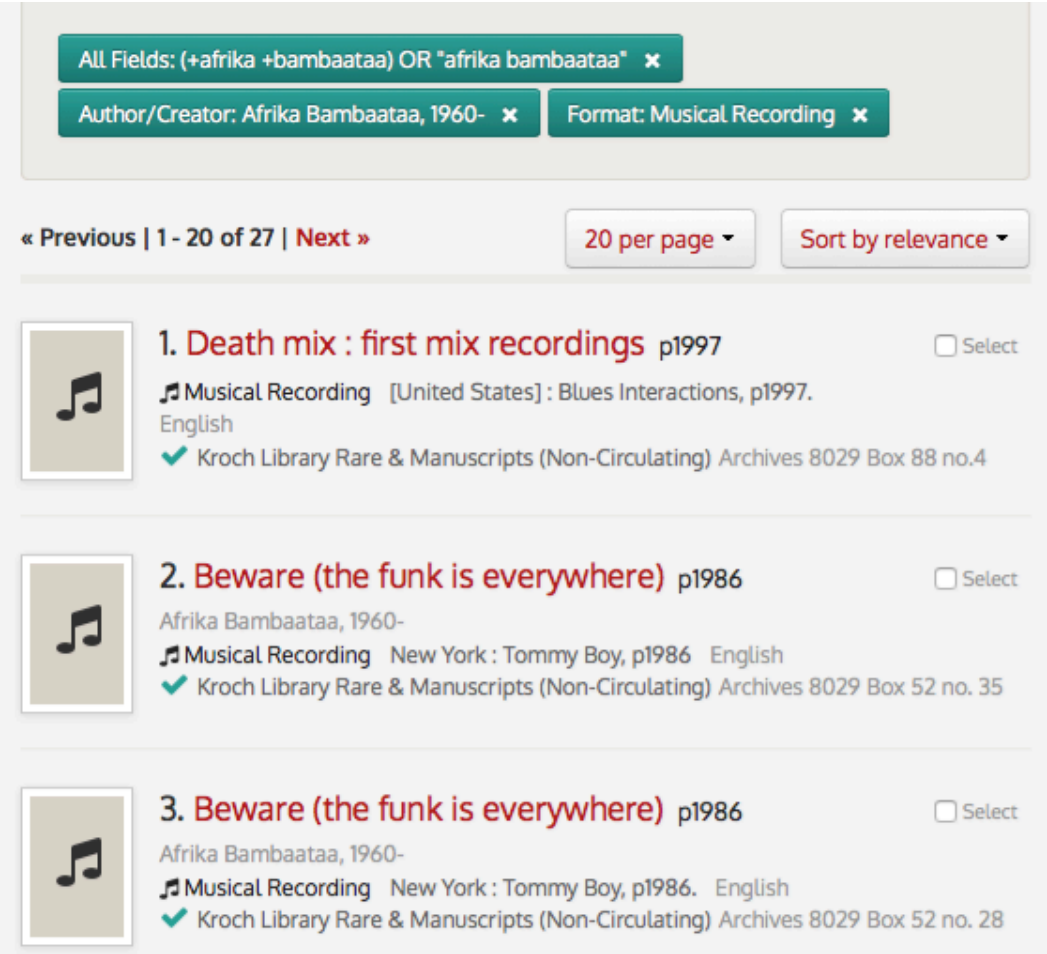
**Kevin Donovan** (born April 19, 1957), better known
DJ from the South Bronx, New York. He is notable for
1980s that influenced the development of hip hop cul
breakbeat DJing and is respectfully known as "The Gc
the father of electro funk. Through his co-opting of th
culture-oriented Universal Zulu Nation, he has helped

Continue reading at Wikipedia... Wikipedia content provide

## Discography

**Album**

| Year | Title |
|---|---|
| 1984 | Unity |
| 1986 | Beware (The Funk Is Everywhere) |
| 1988 | The Light |
| 2004 | Dark Matter Moving at the Speed of Light |
| — | Zulu Nation War Chant |



All Fields: (+afrika +bambaataa) OR "afrika bambaataa" ×

Author/Creator: Afrika Bambaataa, 1960- × | Format: Musical Recording ×

« Previous | 1 - 20 of 27 | Next »

20 per page | Sort by relevance

1. Death mix : first mix recordings p1997 Select
Musical Recording [United States] : Blues Interactions, p1997.
English
Kroch Library Rare & Manuscripts (Non-Circulating) Archives 8029 Box 88 no.4

2. Beware (the funk is everywhere) p1986 Select
Afrika Bambaataa, 1960-
Musical Recording New York : Tommy Boy, p1986 English
Kroch Library Rare & Manuscripts (Non-Circulating) Archives 8029 Box 52 no. 35

3. Beware (the funk is everywhere) p1986 Select
Afrika Bambaataa, 1960-
Musical Recording New York : Tommy Boy, p1986. English
Kroch Library Rare & Manuscripts (Non-Circulating) Archives 8029 Box 52 no. 28

# Takeaways

- Able to map large parts of our metadata to RDF using multiple ontologies to discover more relationships to more entities (still some mapping and reconciliation work to do)
- Largely predicated on manual workflows for preprocessing, URI lookups, and unstable software for RDF creation
- Need more URIs for both linking to and linking from in order to take advantage of queries and patterns

Discussion: What other kinds of context do libraries have that we could add as linked data to aid in discovery and understanding?

# Assembling the Ontology

# LD4L data sources

Bibliographic Data
- MARC
- MODS
- EAD

Person Data
- CAP, FF, VIVO
- ORCID
- ISNI
- VIAF, LC

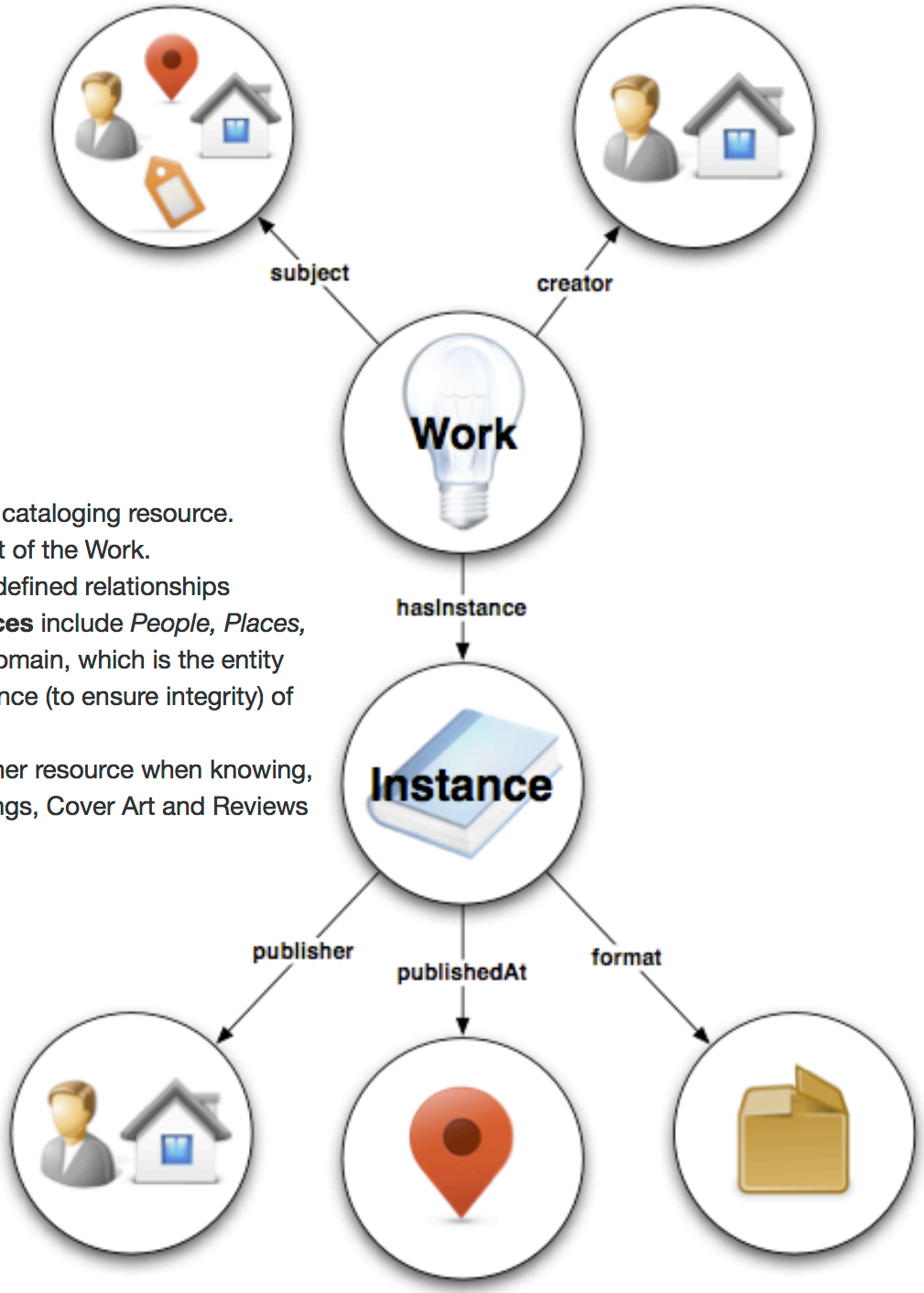
LD4L

Usage Data
- Circulation
- Citation
- Curation

# BIBFRAME basic entities and relationships

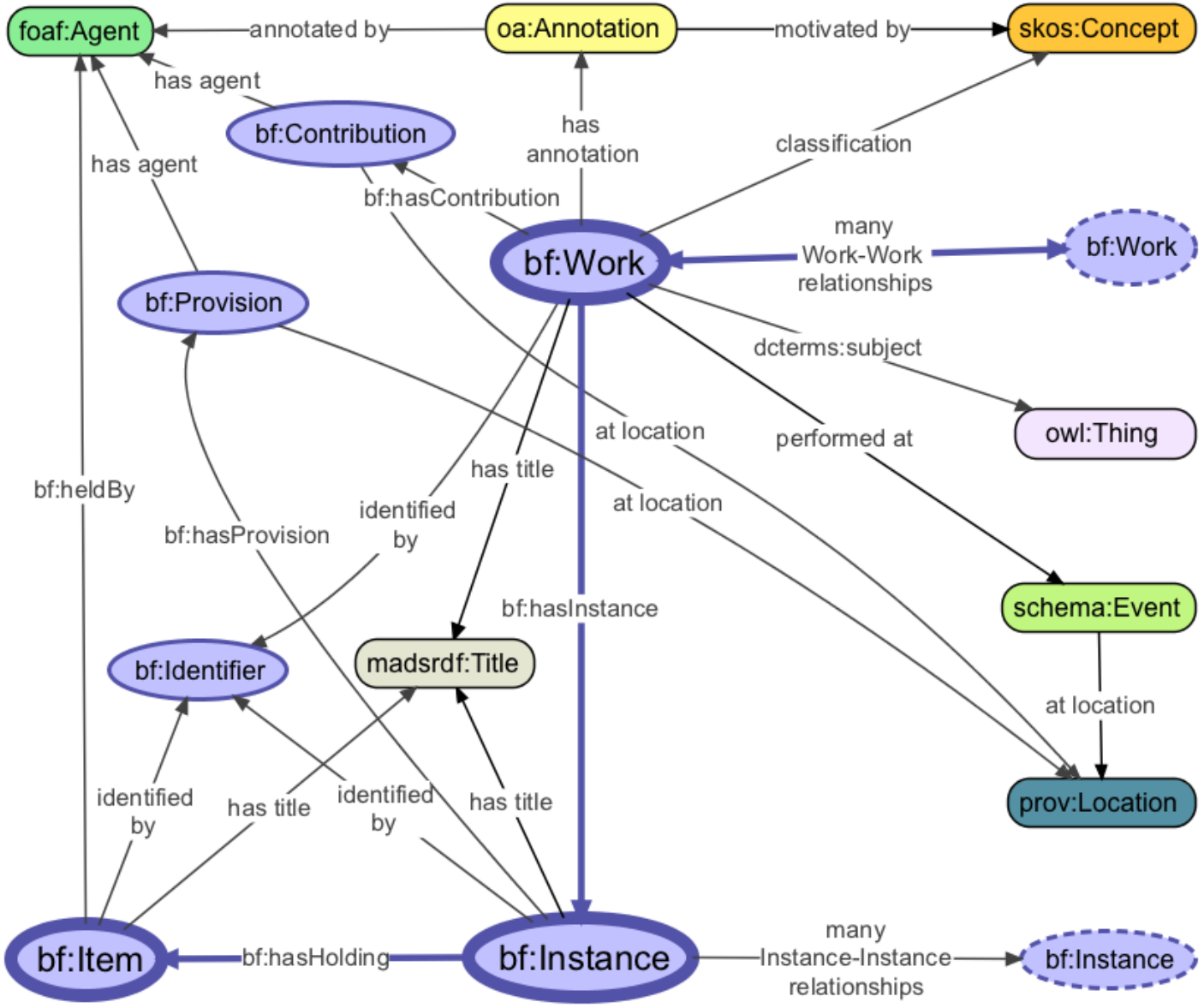
- **Creative Work** - a resource reflecting a conceptual essence of the cataloging resource.
- **Instance** - a resource reflecting an individual, material embodiment of the Work.
- **Authority** - a resource reflecting key authority concepts that have defined relationships reflected in the Work and **Instance**. Example of **Authority Resources** include *People, Places, Topics, Organizations,* etc. One important concept in Authority is domain, which is the entity taking responsibility for the recognition, organization and maintenance (to ensure integrity) of the authoritative resources.
- **Annotation** - a resource that enhances our knowledge about another resource when knowing, minimally, 'who' is doing the annotating is important. Library Holdings, Cover Art and Reviews are examples types.

http://bibframe.org/vocab-model/



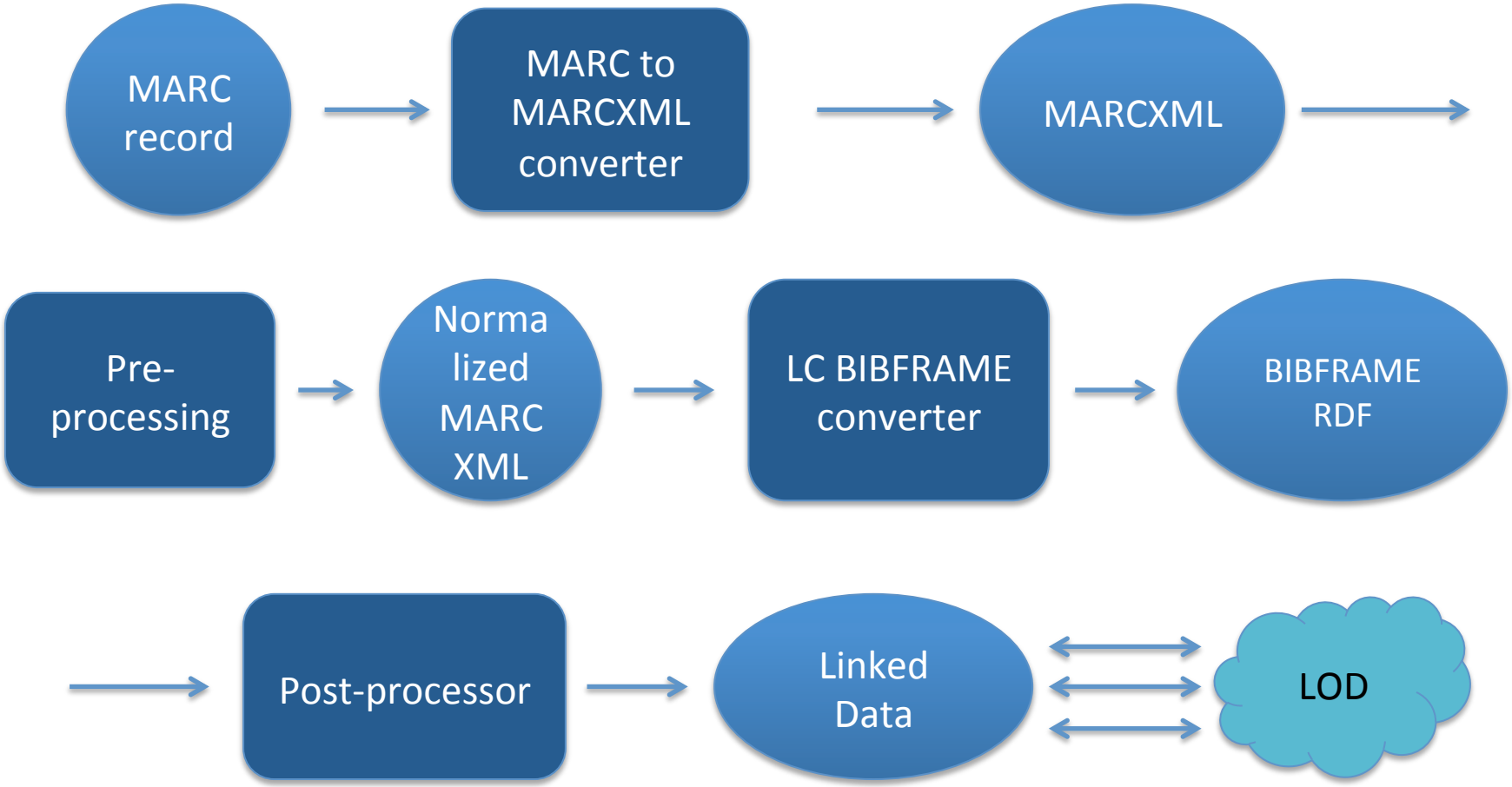
# Linked data best practices (partial) from Sanderson report

- Clarify and limit scope
- Use URIs in place of strings (identification of the resource itself vs. resource description)
- Reuse existing vocabularies and relate new terms to existing ones
- Only define what matters (and inverse relationships do)
- Remove authorities as entities in favor of real world URIs
- Reuse the Open Annotation ontology vs. reinventing the wheel




**LD4L Ontology**
(simplified for display)

# Stages of LD4L data transformation



# Future processing challenges

- Join with VIVO/CAP/Profiles data as a coherent, richer local authority picture
- Extend to full variety of different types of catalog records
- Address issues of entity resolution and linking in the real world for works, people, organizations, events, places, and subjects
- Integrate with other linked data sources via common global identifiers and shared ontologies

# LD4L Workshop: Discussion and Outcomes

# LD4L Workshop

- February, 2015 at Stanford
- 50 attendees doing leading work in linked data related to libraries, from around the world
- Review & vet the LD4L work done to date
  - Use cases
  - Ontology
  - Technology
  - Prototypes
- Plot development moving forward

https://wiki.duraspace.org/display/ld4l/LD4L+Workshop+Agenda

# Topics

- Curation of Linked Data
- Techniques & Technology
  - Entity resolution (strings to things)
  - Reconciliation (things to things)
  - Converters & validators
- New Uses, Use Cases & Services (WHY?)
- Community (WHO)

# Workshop Recommendations

- Our goal should be that others outside the library community use the linked data that we produce
- We must create applications that let people do things they couldn't do before – don't talk about linked data, talk about what we will be able to do
- Local original assertions (new vs. copy cataloging) should use local URIs even when global URIs exist
- Look to LD to bring together physically/organizationally dispersed but related collections
- Libraries must create a critical mass of shared linked data to ensure efficiency and benefit all of us

# Opportunity

LD4L -> LD4Everyone

Library data on the Web, **fed** and **used** by the entire Web

# Current Capacity

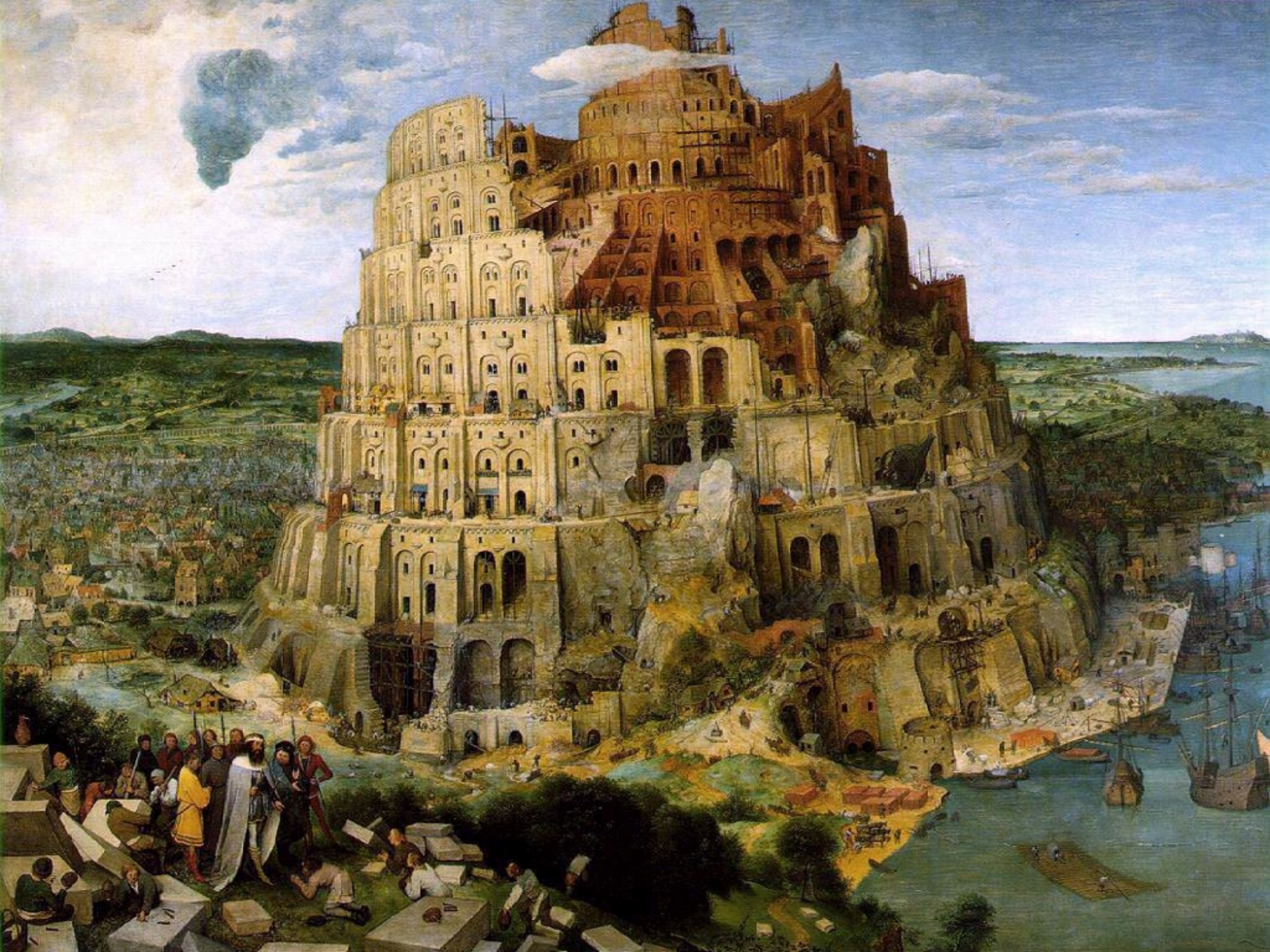
- Clear business case / value proposition
- Ontology
- Community (who is “we”?)
- Tools & Infrastructure

# Challenges

- Ontology & vocabulary mapping
- Demonstrate uses & services
- Build / polish tools for everything! conversion, reconciliation, management, publishing, editing, and more!
- Develop Community
  - Knowledge experts with technologists
  - Among libraries
  - Among LAMs
  - With Industry
  - With Internet

# Discussion: What are the challenges for my library in moving forward toward a Linked Data future?

# Summary



# Project Outcomes

- Open source extensible LD4L ontology compatible with VIVO ontology, BIBFRAME, and other existing library LOD efforts
- Open source LD4L semantic editing, display, and discovery system
- Project Hydra compatible interface to LD4L, using ActiveTriples to support Blacklight search across multiple LD4L instances

# LD4L Team

# Questions?

More Info: http://ld4l.org