“MLA Technologies and Trends Workshop.” Michigan Library Association.
Bay City, MI. 25 May 2016

Taking the Long View of Library Linked Data

Carol Jean Godby

Senior Research Scientist, OCLC Research

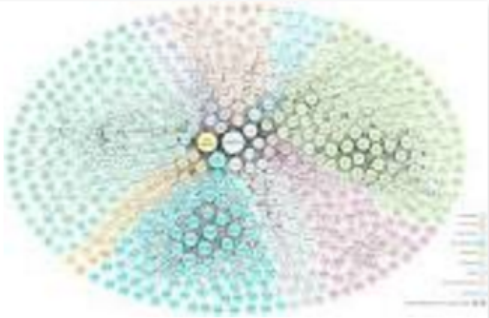
Google

what is linked data

All News Videos Images Shopping More Search tools

About 34,600,000 results (0.40 seconds)

In computing, **linked data** (often capitalized as **Linked Data**) is a method of publishing structured **data** so that it can be interlinked and become more useful through semantic queries.



Linked data - Wikipedia, the free encyclopedia

https://en.wikipedia.org/wiki/**Linked_data** Wikipedia

About this result • Feedback

Linked Data | Linked Data - Connect Distributed Data across ...

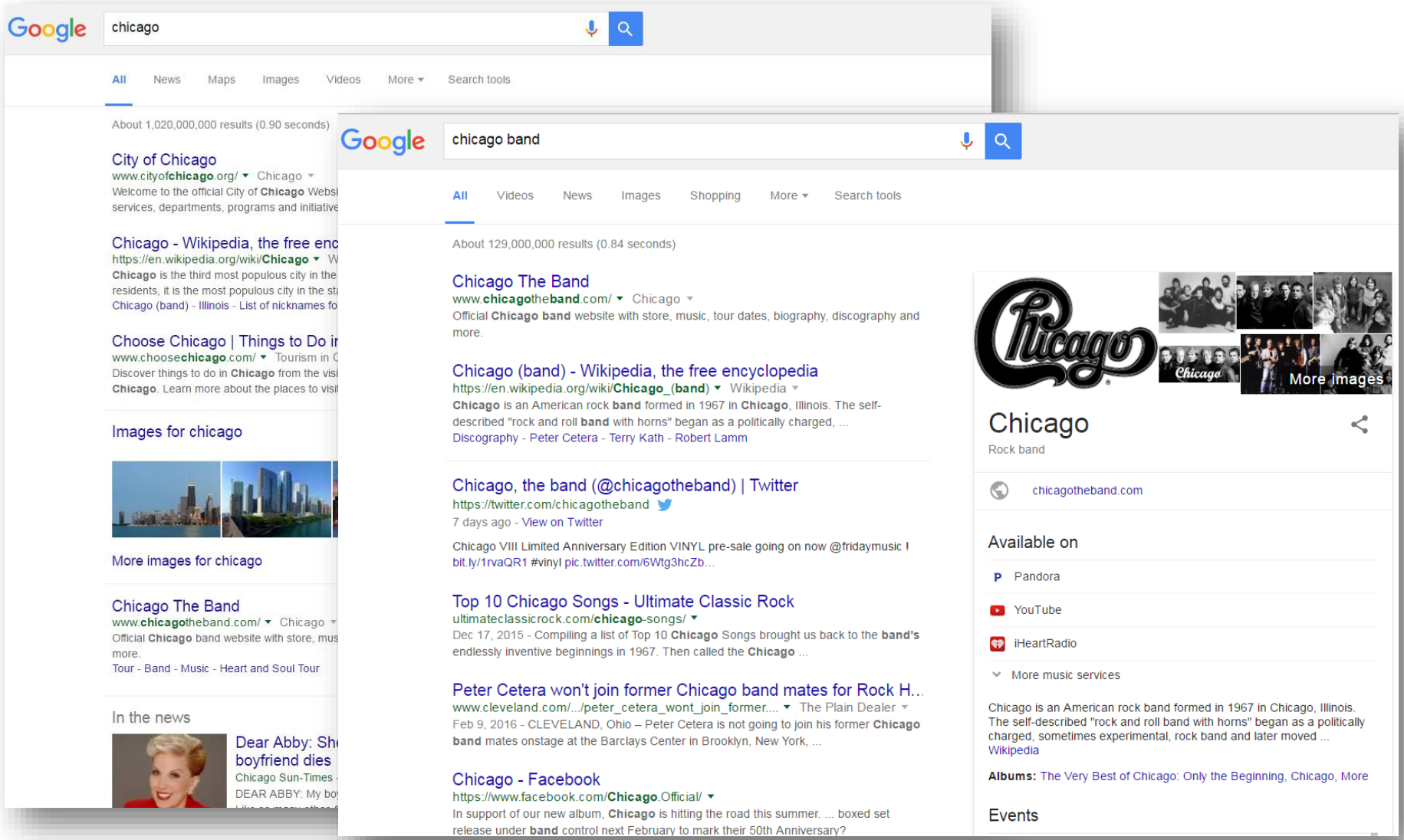
linkeddata.org/

More specifically, Wikipedia defines **Linked Data** as "a term used to describe a recommended best practice for exposing, sharing, and connecting pieces of **data**, information, and knowledge on the Semantic Web using URIs and RDF."

Data Sets - Guides and Tutorials - Frequently Asked Questions - Tools

You've visited this page 2 times. Last visit: 5/8/14

An example: a Knowledge Card



The two models of the Web

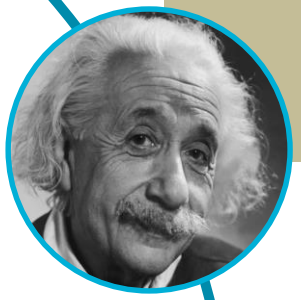
Web of Documents

- Web pages or other documents
- Human-readable text
- Independent
- Static

Web of Data

- Statements about entities, or ‘Things’
- Machine-processable data
- Integrated
- Actionable

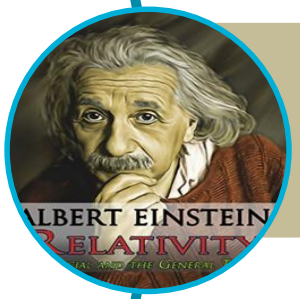
Entities and relationships



Albert Einstein

Person

author



Relativity: The Special and General Theory

Work

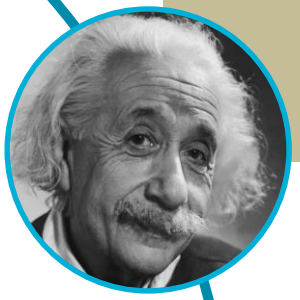
about

Physics

Concept

OCLC

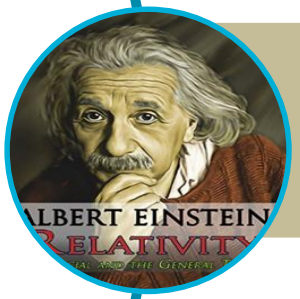
…described in entity hubs and “linked”



https://www.wikidata.org/wiki/Q937 and
http://viaf.org/viaf/75121530

Wikidata and VIAF

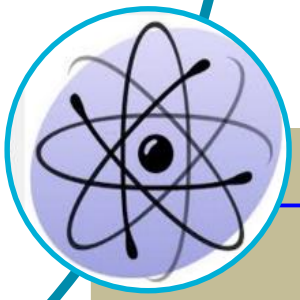
author



http://experiment.worldcat.org/entity/work/data/369081611

WorldCat Works

about

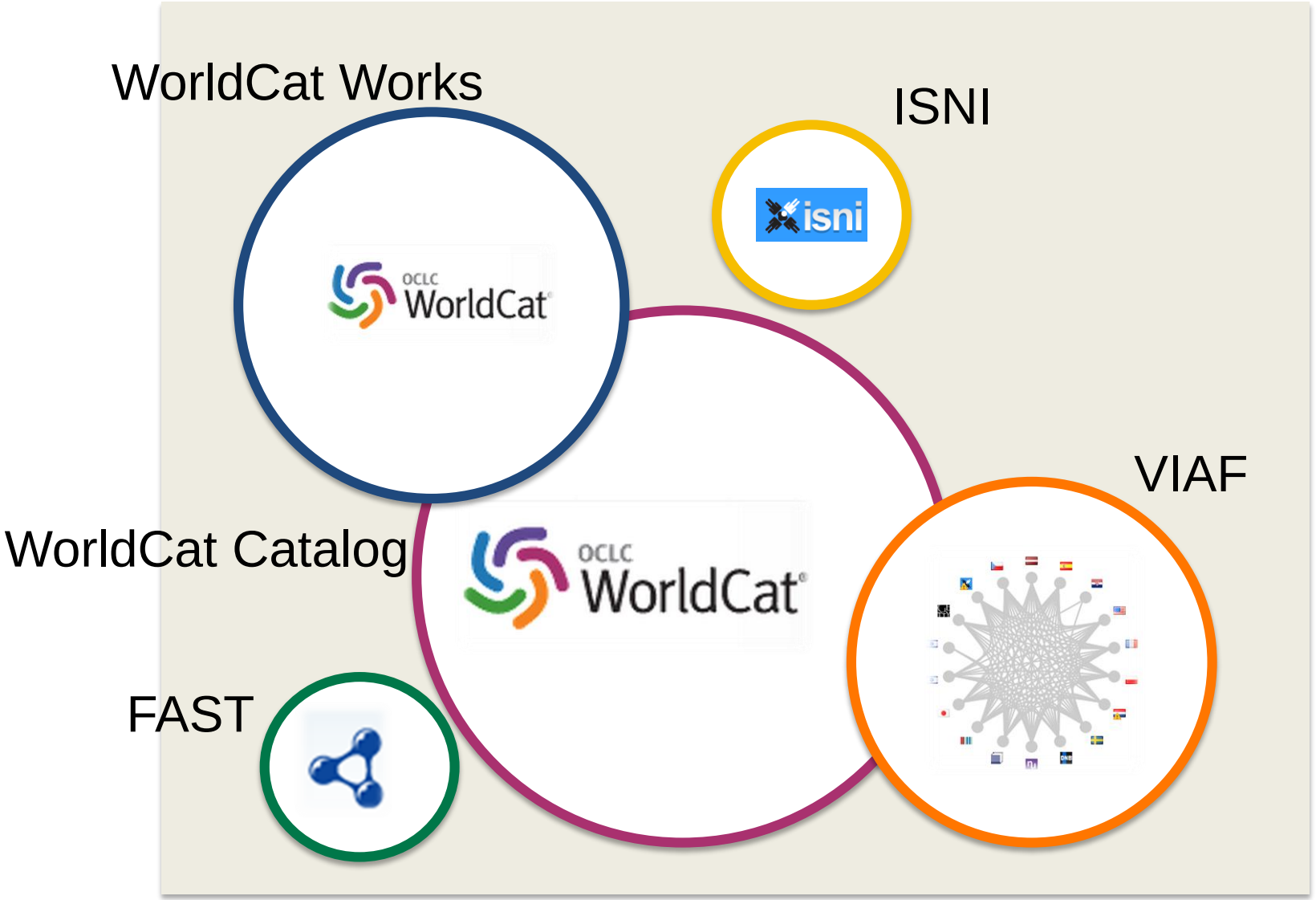


http://id.loc.gov/authorities/subjects/sh85101653.html

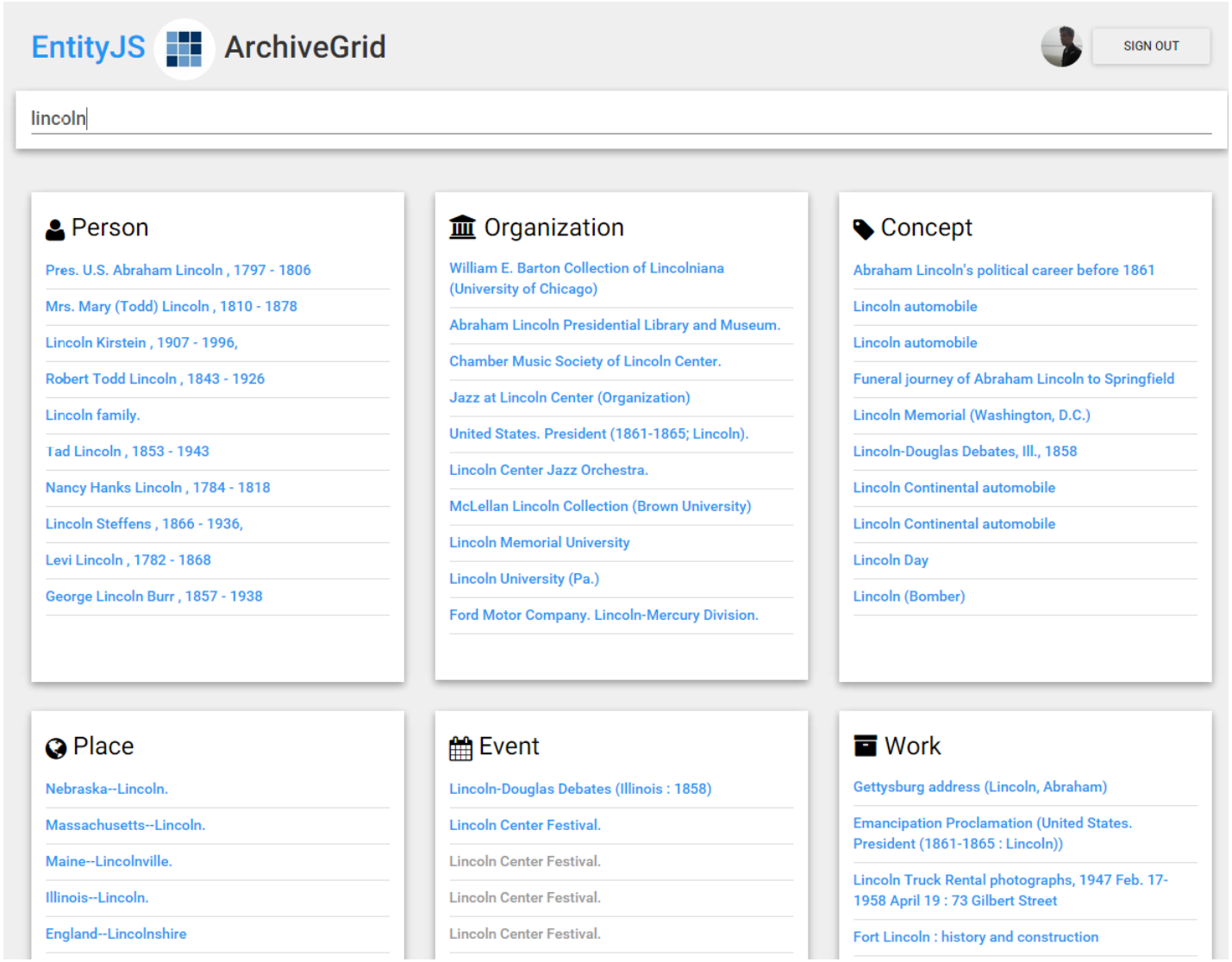
Library of Congress Subject Headings

OCLC

OCLC's linked data resources



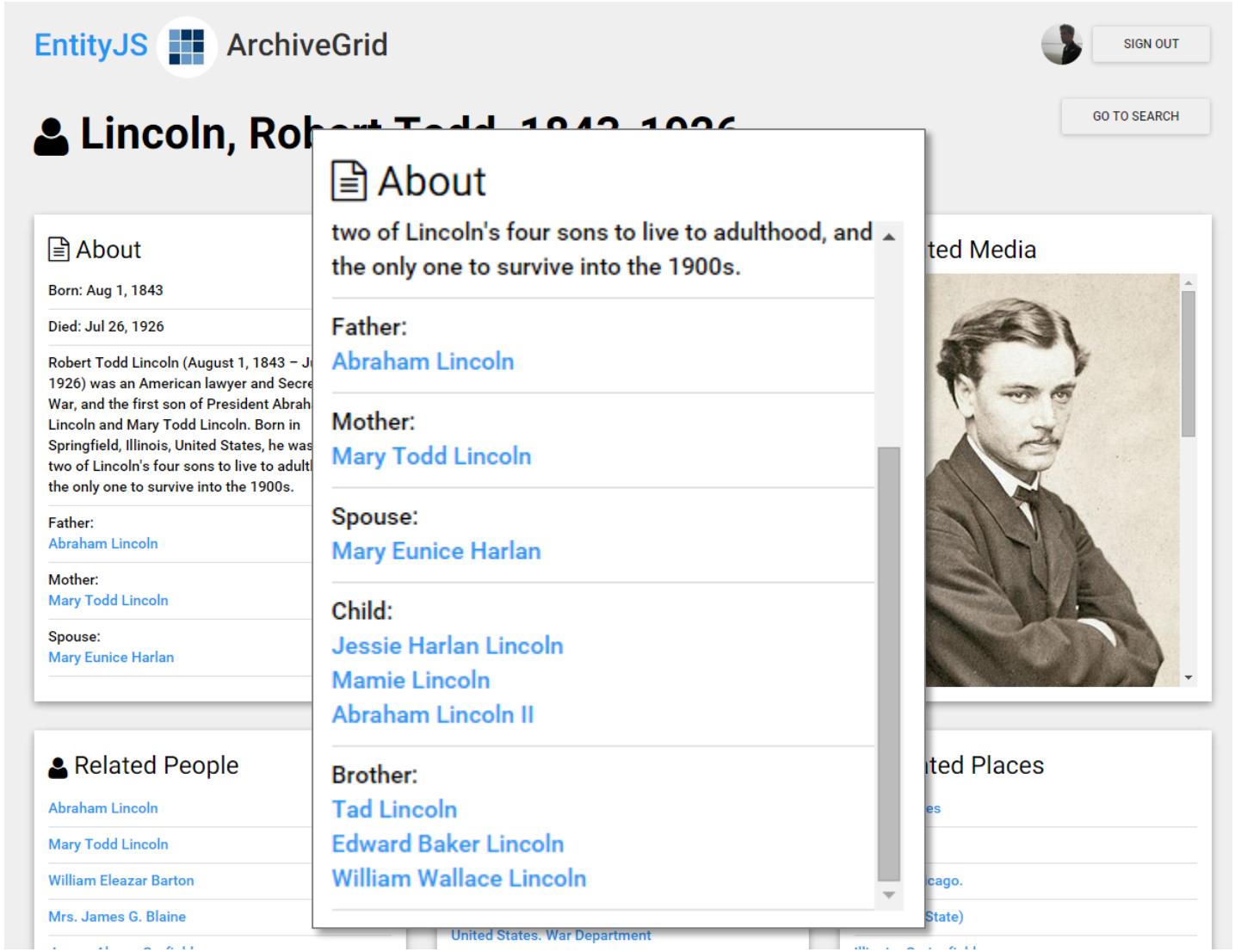
The EntityJS explorer



Source: Jeff Mixter and Bruce Washburn

OCLC

Show related entities



Two “flavors” of linked data

Schema.org

- Retail structure
- Very general
- Extensible
- “Front office” uses
- Developed by major search engines Google, Yahoo, Yandex

BIBFRAME

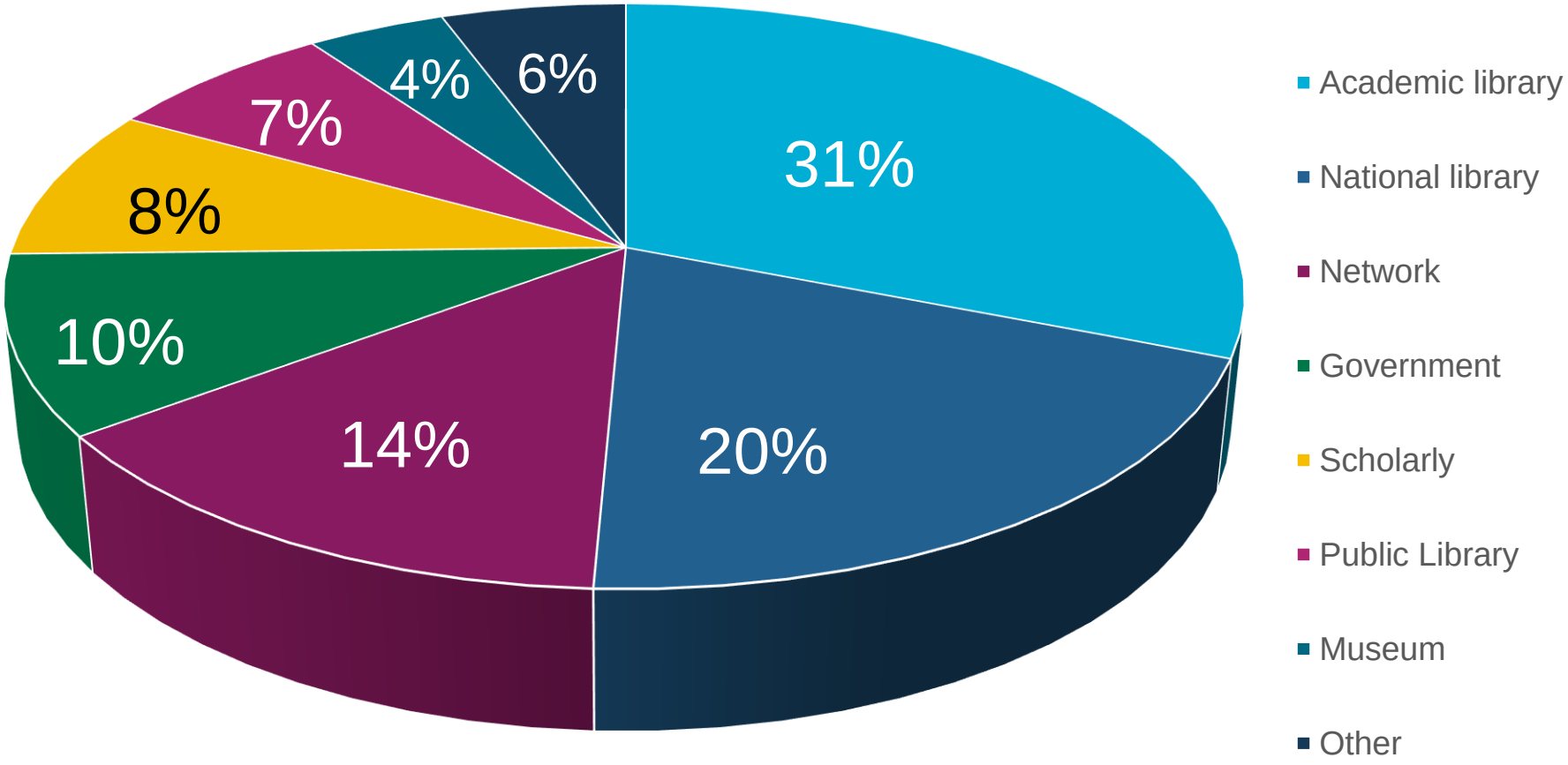
- Library structure
- Very specific
- Industry-focused
- “Back office” uses
- Developed by the Library of Congress and others in the library community

OCLC'S 2015 INTERNATIONAL LINKED DATA SURVEY

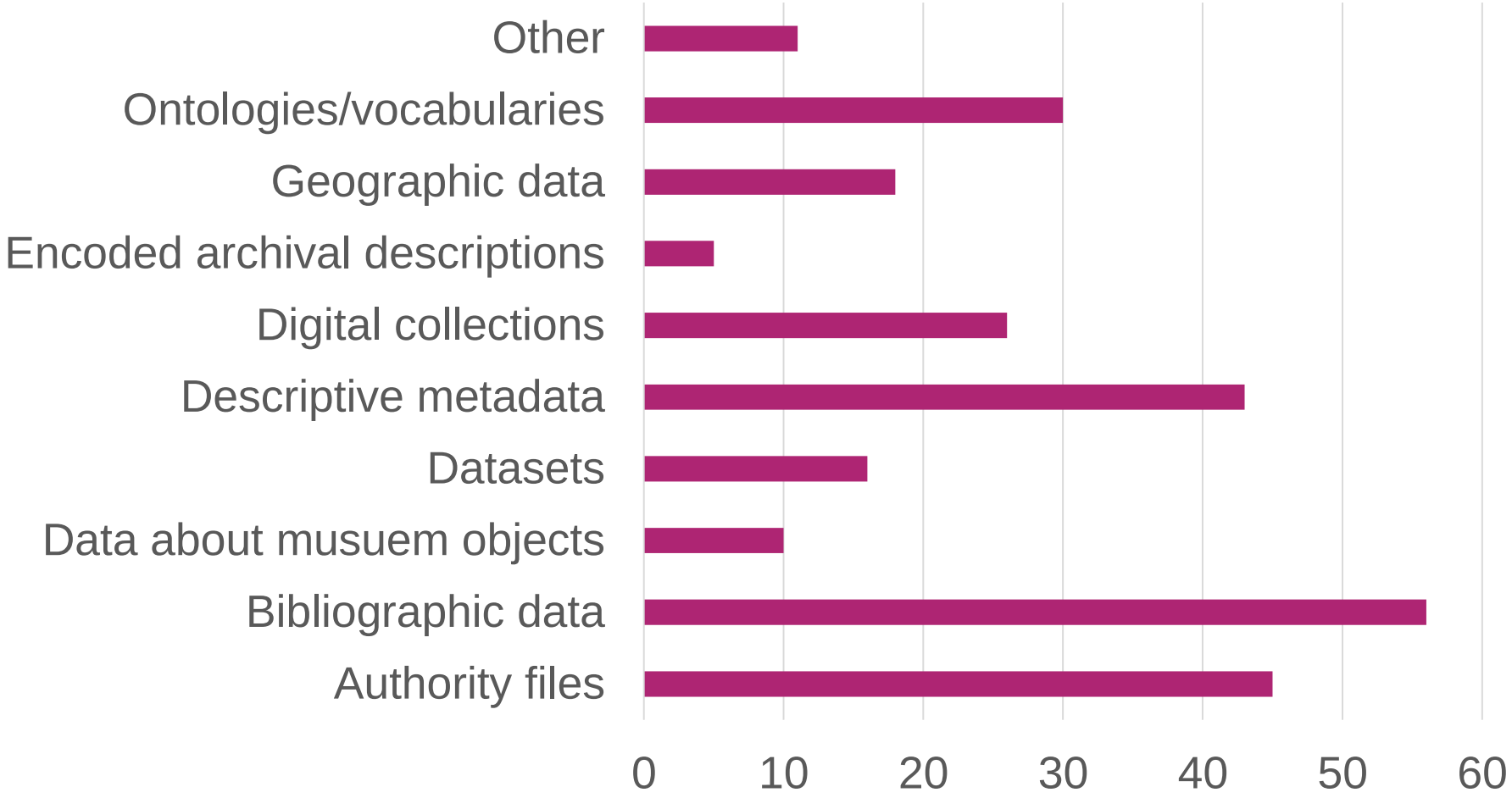
SOURCE: KAREN SMITH-YOSHIMURA

OCLC

2015 responding institutions by type



What is published as linked data



Linked data resources most consumed

VIAF
DBpedia
GeoNames
id.loc.gov
“Resources we convert to linked data ourselves”
Getty's Art and Architecture Thesaurus
FAST (Faceted Application of Subject Terminology)
WorldCat.org
data.bnf.fr
Deutsche National Bib Linked Data Service

OCLC

LIBRARY OF CONGRESS
LINKED DATA SERVICE

- Linked Data Service
- About
- Main Dataset Descriptions
- Preservation Dataset Descriptions
- Small Datasets Descriptions
- Search
- Download
- Technical Center
- Contact Us

LC Linked Data Service
Authorities and Vocabularies

Search

Enter Keyword or Phrase

All
LC Subject Headings
LC Name Authority File
LC Classification
LC Children's Subject Headings

**Please Note: LC Classification entries are not included in general search results. You must explicitly select LC Classification in order to search the scheme. This is temporary while the impact of adding LCC to the current system is better understood.

Search Reset

Available Datasets

The Linked Data Service provides access to commonly found standards and vocabularies promulgated by the Library of Congress. This includes data values and the controlled vocabularies that house them. The following are currently offered as part of this service:

- LC Subject Headings
- LC Name Authority File
- LC Classification
- LC Children's Subject Headings
- LC Genre/Form Terms
- LC Medium of Performance Thesaurus for Music
- LC Demographic Group Terms
- Thesaurus for Graphic Materials
- AFS Ethnographic Thesaurus
- Cultural Heritage Organizations
- MARC Relators
- MARC Countries
- MARC Geographic Areas
- MARC Languages
- ISO639-1 Languages
- ISO639-2 Languages
- ISO639-5 Languages
- Extended Date/Time Format

Schemes and smaller codelists

- Identifiers
- Carriers
- Content Types
- Media Types
- Resource Types
- Description Convention
- Publication Frequencies
- MARC Genre/Form Schemes
- MARC Subject Schemes
- Classification Schemes
- ...more

Preservation Vocabularies

SERVICES FOR LIBRARY PATRONS

BRITISH LIBRARY

RDF/XML | RDF/JSON | Turtle | Simple JSON | Simple XML | html

British National Bibliography

At this time, this dataset is not guaranteed to be stable; its contents may change at any time without warning

Churchill, Winston, 1874-1965

http://bnb.data.bl.uk/id/person/ChurchillWinston1874-1965

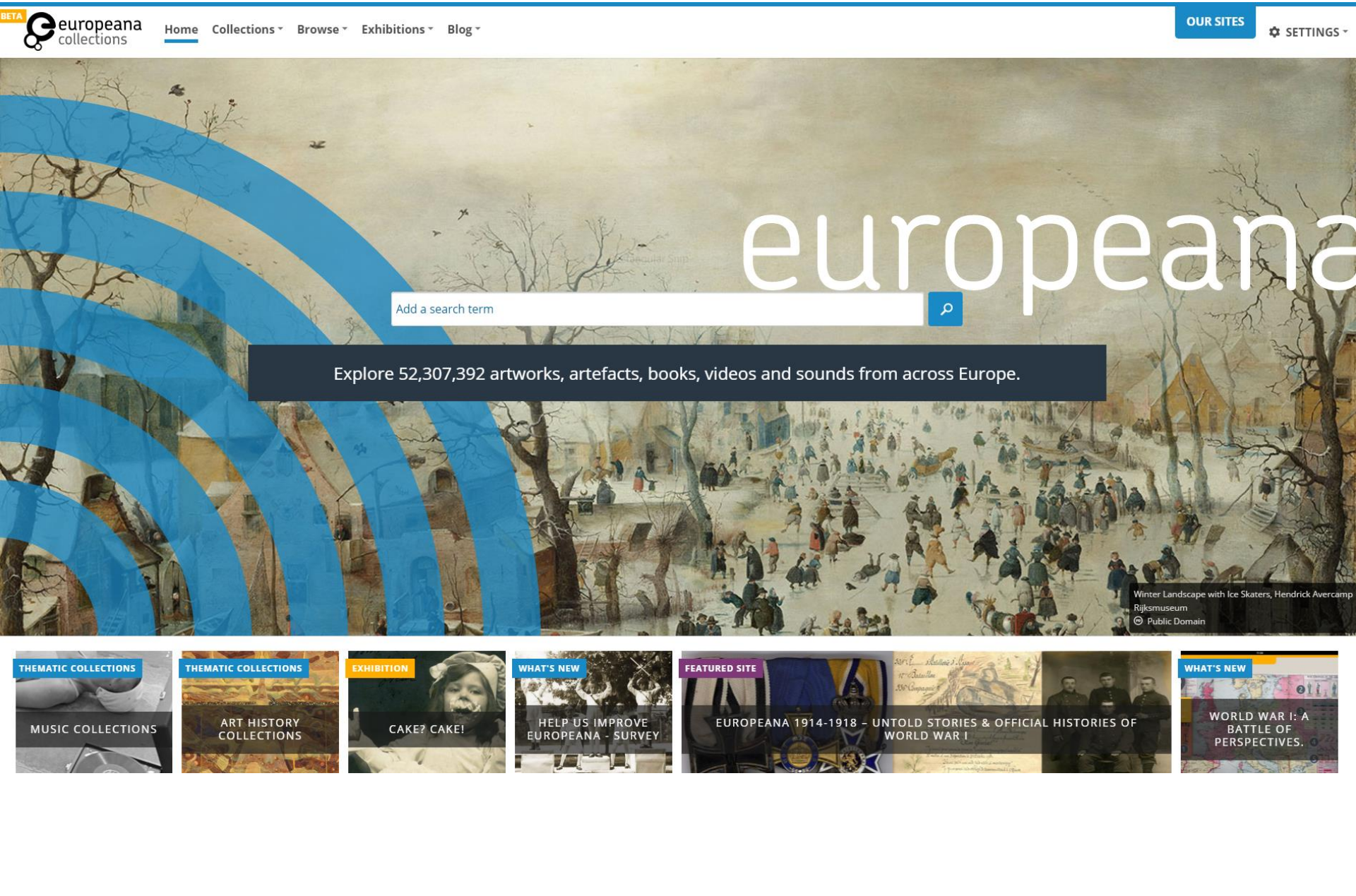
event	1874 1965
family name	Churchill
given name	Winston
has contributed to	Defending the West / Harry S. Truman If it had happened otherwise / John Collings Squire Meetings in Marrakech / Hassan El Glaoui Roosevelt and Churchill / Franklin D. Roosevelt Serfdom or ethnic cleansing? The Churchill coalition and wartime politics, 1940-1945 / Kevin Jefferys The manifesto of the Conservative and Unionist Party
has created	A Churchill anthology / Winston Churchill A history of the English speaking peoples / Winston Churchill A history of the English speaking peoples / Winston Churchill
name	
type	Agent

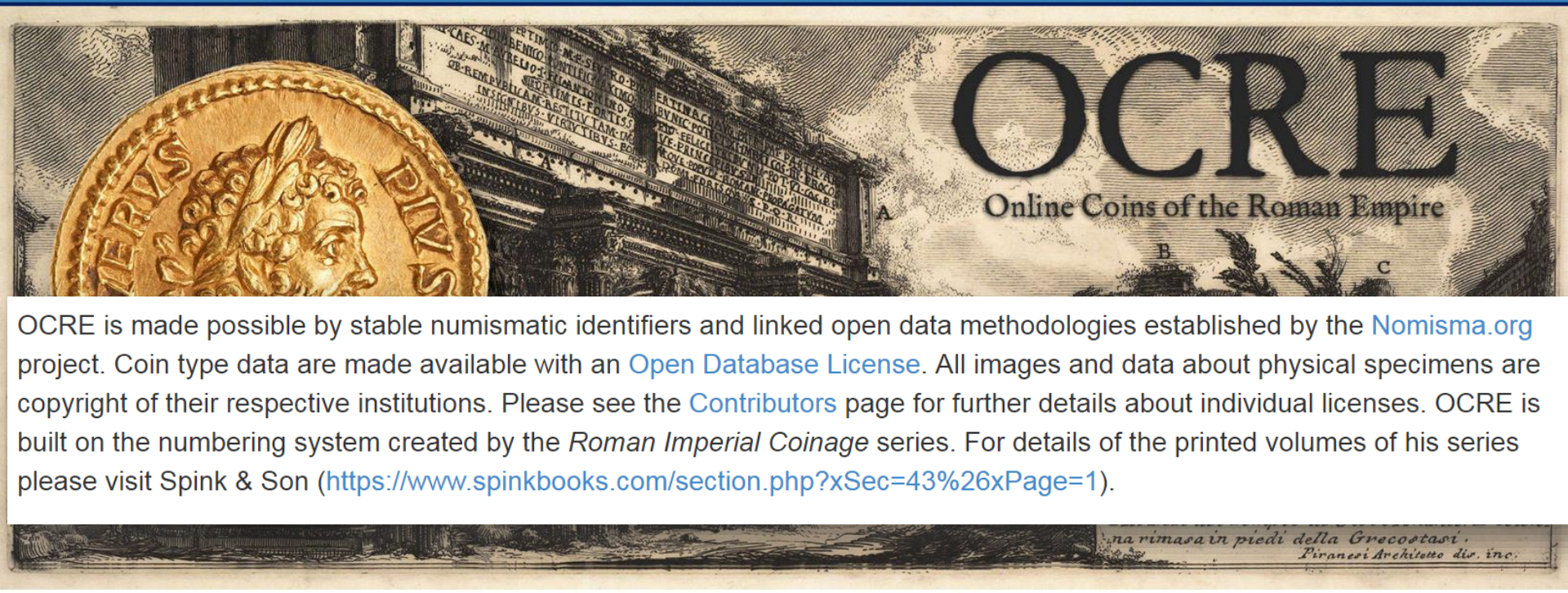
View ?

» publicationViewer » all

- label
- event
- family name
- given name
- has contributed to
- has created
- name
- type
- is identified by authority
- same as

http://bnb.data.bl.uk


BETA
europeana collections
Home
Collections
Browse
Exhibitions
Blog
OUR SITES
SETTINGS
europeana
Add a search term
Explore 52,307,392 artworks, artefacts, books, videos and sounds from across Europe.
Winter Landscape with Ice Skaters, Hendrick Avercamp
Rijksmuseum
Public Domain
THEMATIC COLLECTIONS
MUSIC COLLECTIONS
THEMATIC COLLECTIONS
ART HISTORY COLLECTIONS
EXHIBITION
CAKE? CAKE!
WHAT'S NEW
HELP US IMPROVE EUROPEANA - SURVEY
FEATURED SITE
EUROPEANA 1914-1918 – UNTOLD STORIES & OFFICIAL HISTORIES OF WORLD WAR I
WHAT'S NEW
WORLD WAR I: A BATTLE OF PERSPECTIVES.



OCRE is made possible by stable numismatic identifiers and linked open data methodologies established by the Nomisma.org project. Coin type data are made available with an Open Database License. All images and data about physical specimens are copyright of their respective institutions. Please see the Contributors page for further details about individual licenses. OCRE is built on the numbering system created by the *Roman Imperial Coinage* series. For details of the printed volumes of his series please visit Spink & Son (https://www.spinkbooks.com/section.php?xSec=43%26xPage=1).

Online Coins of the Roman Empire (OCRE), a joint project of the American Numismatic Society and the Institute for the Study of the Ancient World at New York University, is a revolutionary new tool designed to help in the identification, cataloging, and research of the rich and varied coinage of the Roman Empire. The project will ultimately record every published type of Roman Imperial Coinage from Augustus in 31 BC, until the death of Zeno in AD 491. This will create an easy to use digital corpus, with downloadable catalog entries, incorporating almost 50,000 types of coins. To date, about 20,000 coin types are described, from 30 BC until AD 238, effectively covering the entire High Empire until the Crisis of the Third Century.

The current version provides links to examples present in the ANS collection, the Münzkabinett of the State Museums of Berlin, the University of Virginia Art Museum, and the British Museum, now totalling nearly 25,000 physical specimens. Between these collections, OCRE is now able to illustrate 50% of the imperial coin types that it contains. Moving forward, as more collections join the project, it will eventually incorporate and display almost all recorded Roman Imperial coin types. Furthermore, it draws findspot information from another ANS-developed resource, Coin Hoards of the Roman Republic, enabling the mapping of the distribution of early Augustan types.

OCRE is made possible by stable numismatic identifiers and linked open data methodologies established by the Nomisma.org project. Coin type data are made available with an Open Database License. All images and data about physical specimens are copyright of their respective institutions. Please see the Contributors page for further details about individual licenses. OCRE is built on the numbering system created by the *Roman Imperial Coinage* series. For details of the printed volumes of his series please visit Spink & Son (https://www.spinkbooks.com/section.php?xSec=43%26xPage=1).

Share

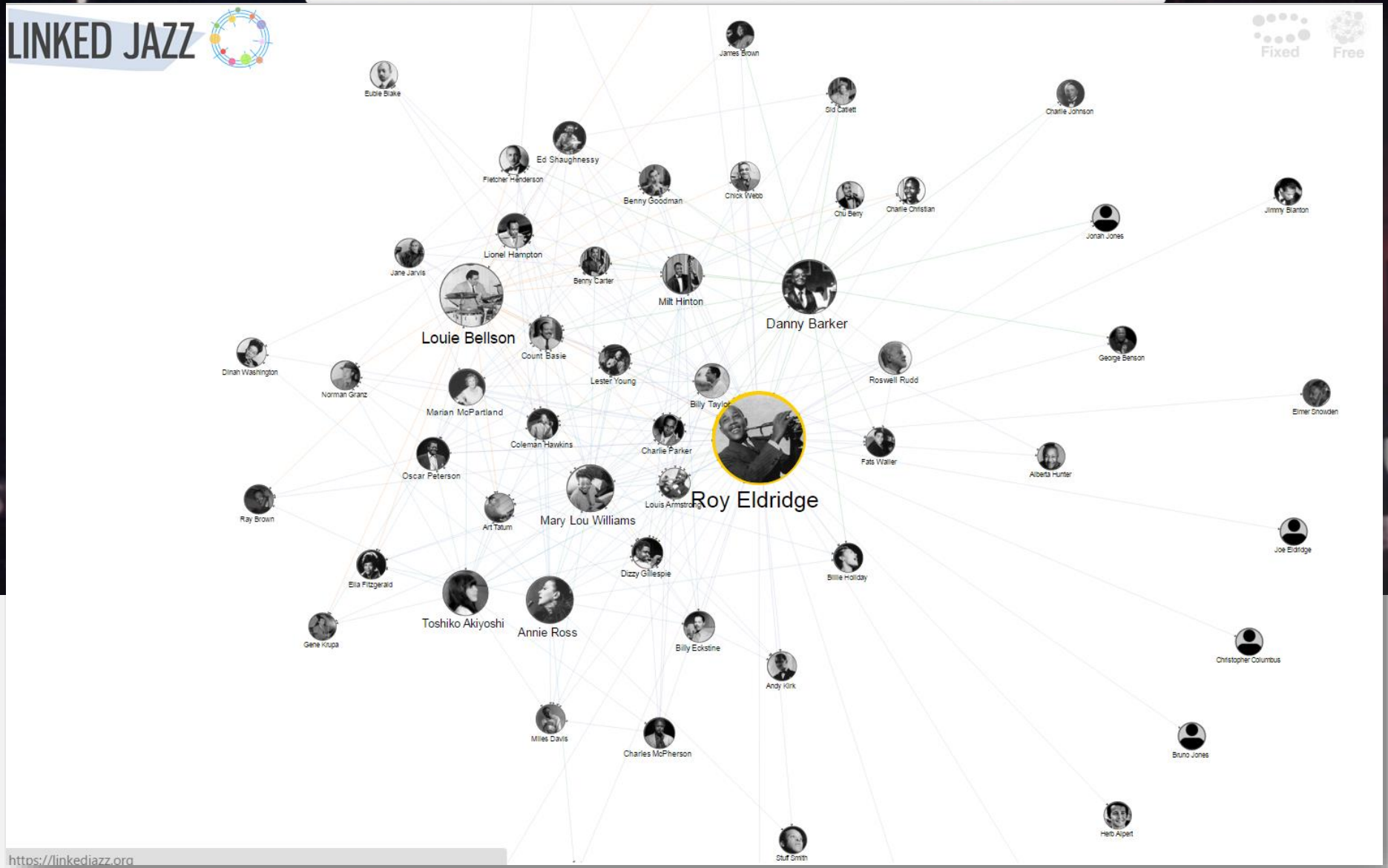
124

Linked Data

OCLC

LINKED JAZZ 52nd ST

Revealing the relationships of the jazz community



LINKED DATA AND PUBLIC LIBRARIES

OCLC

Google oslo public library

All News Maps Images Shopping More Search tools

About 764,000 results (0.74 seconds)

In English | Deichmanske bibliotek
https://www.deichman.no/side/in-english ▾ Oslo Public Library ▾
Deichmanske bibliotek / **Oslo Public Library**. The library serves the municipality of Oslo and is Norway´s largest public library, founded in 1785. Our services are ...

Oslo Public Library - Wikipedia, the free encyclopedia
https://en.wikipedia.org/wiki/**Oslo_Public_Library** ▾ Wikipedia ▾
Oslo Public Library, formally known as the Deichman Library (Norwegian: Deichmanske bibliotek), is the municipal public library serving Oslo, Norway and is the ...

Deichmanske bibliotek / Oslo Public Library, Main Branch
www.visit**oslo**.com/en/product/?TLp=182580 ▾ Guide to Oslo ▾
Deichman is **Oslo's public library** and consists of a main library and 16 other branches. At the main library in the city centre you will find...

Libraries in Oslo - Practical information - Oslo - visitoslo.com
www.visit**oslo**.com/en/**oslo**/practical-information/**library**/ ▾ Guide to Oslo ▾
Deichmanske bibliotek / **Oslo Public Library**, Grünerløkka Branch ... Deichman is **Oslo's public library** and consists of a main library and 16 other branches.

The new Deichman library - On the horizon - Oslo's new ...
www.visit**oslo**.com/en/your-**oslo**/.../new-deichman-**library**/ ▾ Guide to Oslo ▾
VisitOSLO logo Official travel guide to Oslo. VisitOSLO ..... The new main branch of Deichman, **Oslo's public library**, is currently under construction in Bjørvika.

Deichmanske bibliotek / Oslo Public Library, Grünerløkka ...
www.visit**oslo**.com/en/product/?TLp=169285 ▾ Guide to Oslo ▾
Branch of the main **public library**, centrally located at Grünerløkka, with a special comic book section. Computers with internet access....

Oslo Public Library ★

Website Directions

Public Library

Oslo Public Library, formally known as the Deichman Library, is the municipal public library serving Oslo, Norway and is the country's first and largest library. Wikipedia

Located in: Sandaker senter

Address: Sandaker senter, Sandakerveien 59, 0477 Oslo, Norway

Hours: Closed now ▾

Phone: +47 22 22 29 84

Suggest an edit

Reviews Write a review Add a photo

Be the first to review

Send to your phone Send

OCLC

DPLA DIGITAL PUBLIC LIBRARY OF AMERICA

Home Exhibitions Map Timeline Bookshelf Apps

A Wealth of Knowledge

explore 11,685,553 items from libraries, archives, and museums

Search the Library

Exhibitions

View all »

Explore by Place

Map »

Explore by Date

Timeline »

Apps

The DPLA is a platform. Developers make apps that use the library's data in many different ways. Here are just a few. App Library »

WUD
Medicine & Society chair at the University of Fribourg (Switzerland)

Color Browse
Chad Nelson

News

Announcing our fourth class of Community Reps
Mar 17

Job Opportunity: DPLA Network Manager
Mar 16

All News »

@dpla on Twitter

Hear from Eric Miller and learn more about the Libhub Initiative

Libhub

Leading, Learning, and Linking

"I believe everyone benefits from the visibility of libraries and their content on the Web." - The Libhub Initiative Pledge

The Libhub Initiative aims to raise the visibility of Libraries on the Web by actively exploring the promise of BIBFRAME and Linked Data.

Like, follow, get involved, and share to show your support.

Show your support, stay informed

Like 183 G+1 13 Share 183 Tweet Share 45

"I believe everyone benefits from the visibility of libraries and their content on the Web."

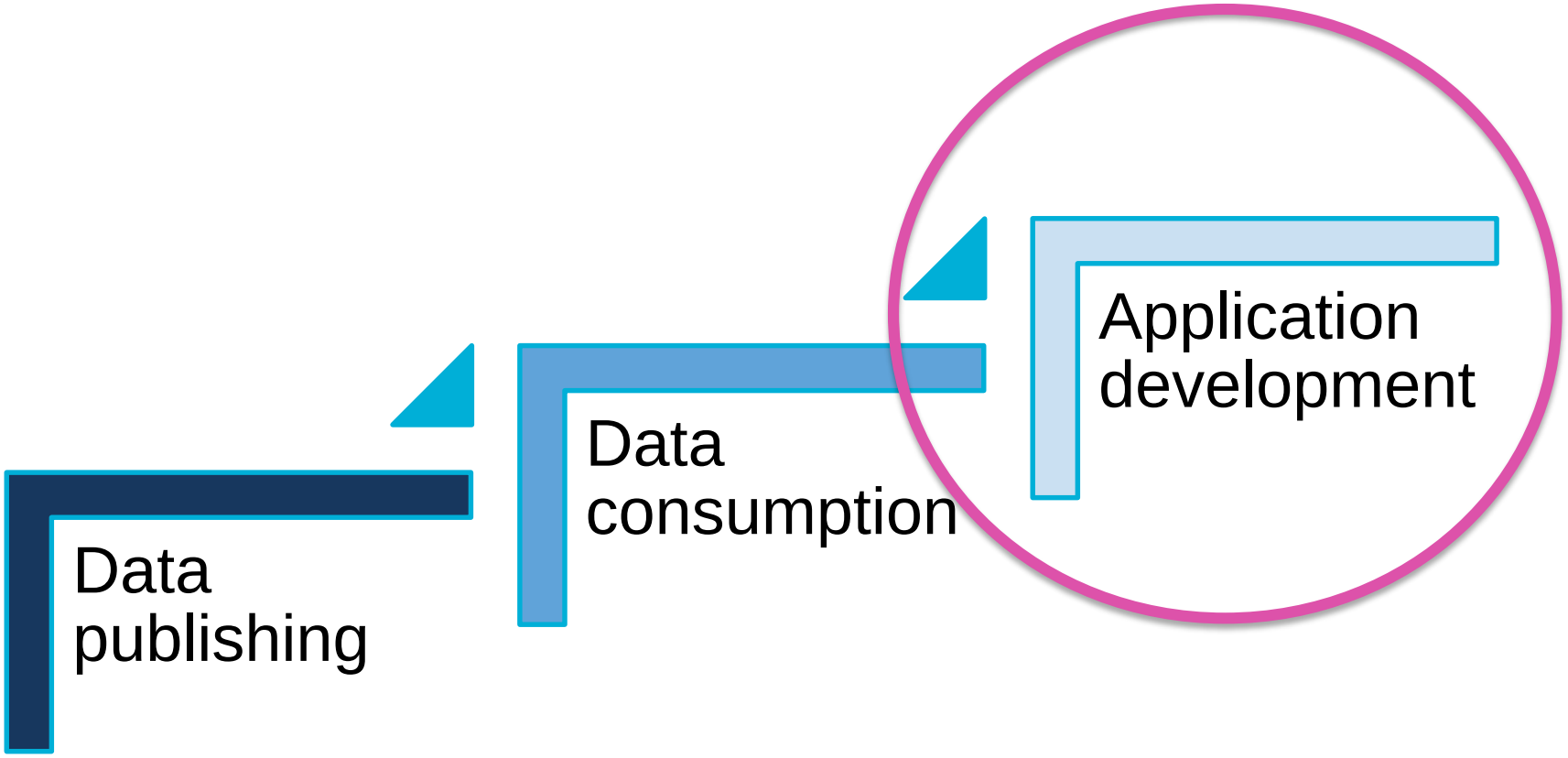
Libraries and memory organizations have rich content and resources the Web can't see or use today -- effectively making them dark collections and invisible archives.

> ***IMAGINE if libraries could represent themselves together in a way the Web could see and understand.***

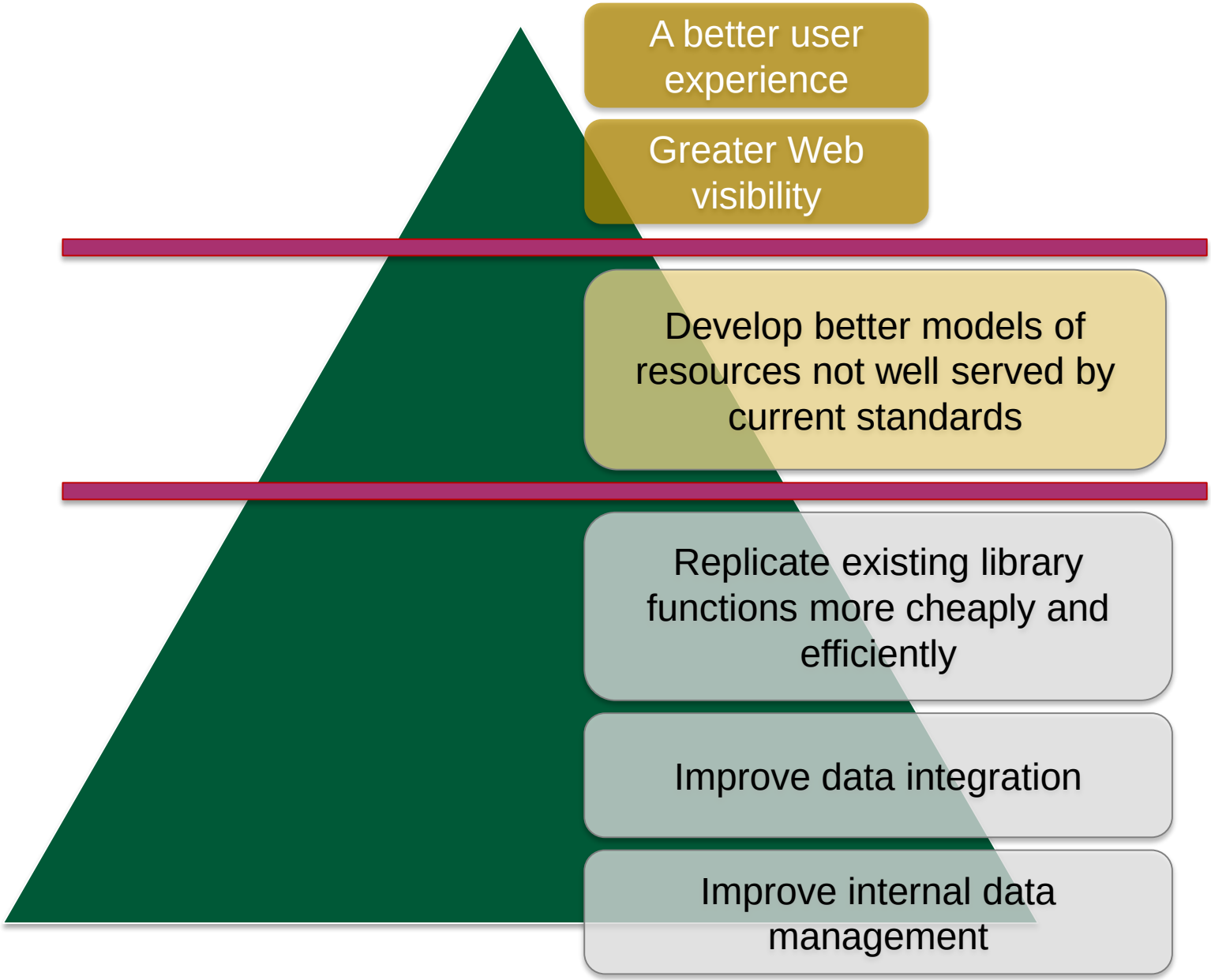
This unified voice and utility is among the core promises of BIBFRAME and the Linked Data in Libraries movement.

The Libhub Initiative focuses on exploring this promise through action and working to collectively understand the problem space around raising the visibility of libraries on the Web. Join us and take the pledge of Libhub Initiative supporters, participants, partners & sponsors.

Linked data in the library community



Why linked data?



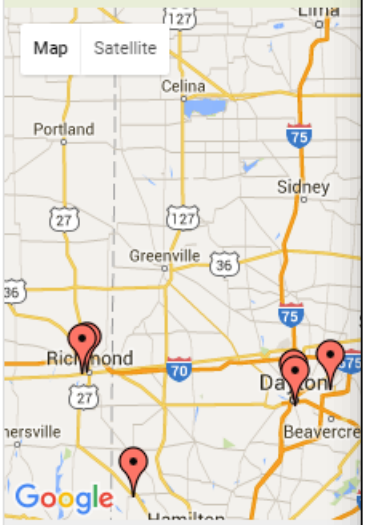
OCLC

Looking through Linked Data Glasses

ARCHIVEGRID

Search

FIND ARCHIVES NEAR YOU



Search for a location or zip

United States

- Alabama
- Alaska
- Arizona
- Arkansas
- California
- Colorado
- Connecticut
- Delaware
- District of Columbia
- Florida
- Georgia
- Guam
- Hawaii
- Idaho

© 2011-2016 OCLC Online Comput

About ArchiveGrid | How to Search | Contact Us | Include Your Collections | Saved [0]

ARCHIVEGRID

lincoln Search

68,918 lincoln

LIST VIEW | SUMMARY VIEW

Records 1 to 10 of 68,918 1 2 3 4 5 > >> Show: 10

Lincoln.

Milwaukee Public Library
items in folder ;
Canadian steamer built in 1872 at St. Catharines, Ont. by M. Simpson. Owned by James Norris.

Contact Information | Read More | Save

Lincoln.

Milwaukee Public Library
items in folder ;
Canadian paddle steamer built in 1861 at Sorel, Quebec by McCarthy. Owned by McNaughton & Co., Montreal.

Contact Information | Read More | Save

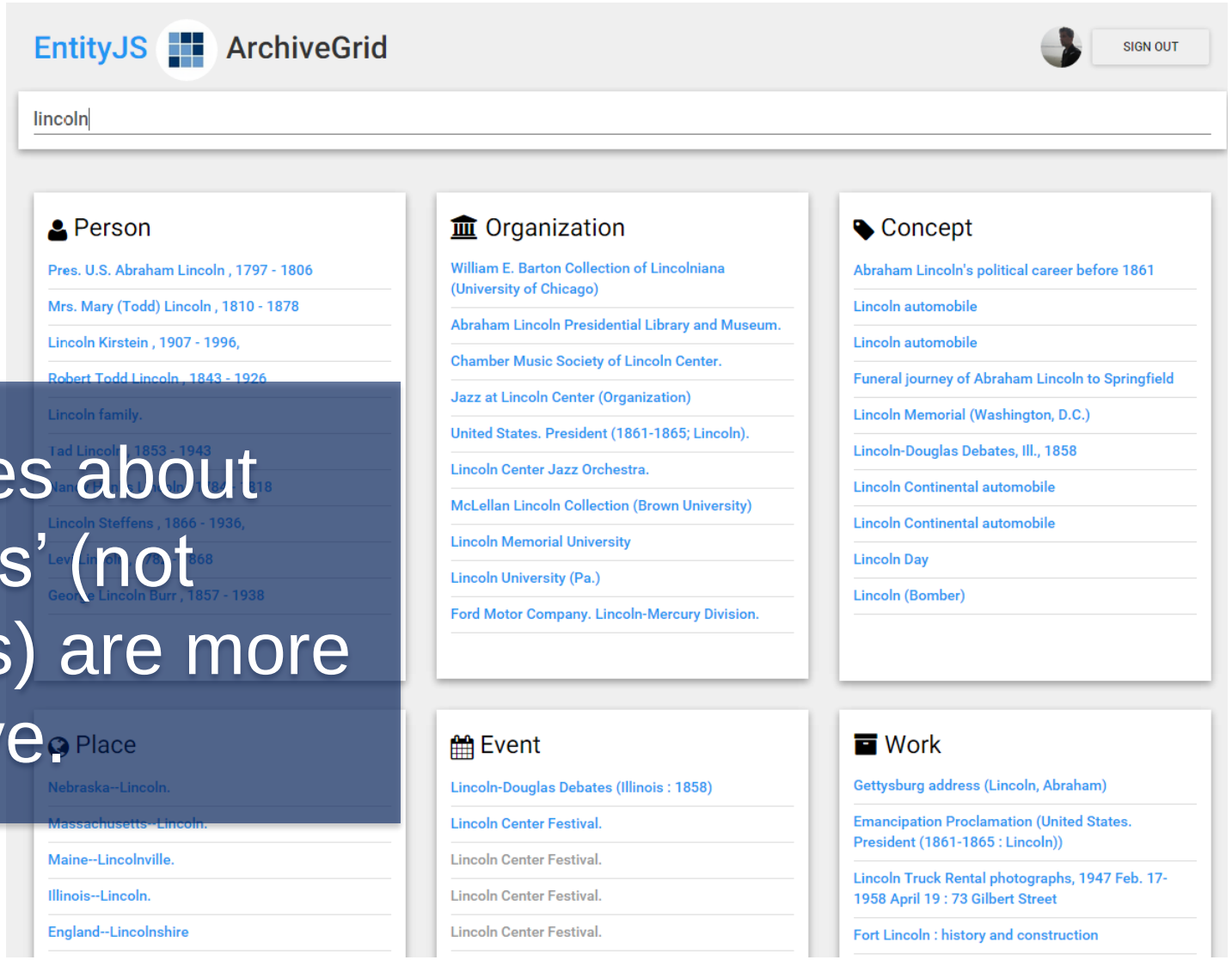
Lincoln.

Milwaukee Public Library
items in folder ;
Passenger steamboat built in 1866 at Eureka, Wis. Owned by Capt. Dean and J.F. Morse & Co.

Contact Information | Read More | Save

Speeches honoring Abraham Lincoln. William Lowe Bryan.

Allen County Public Library - Genealogy Center
1 piece on 4 leaves ;



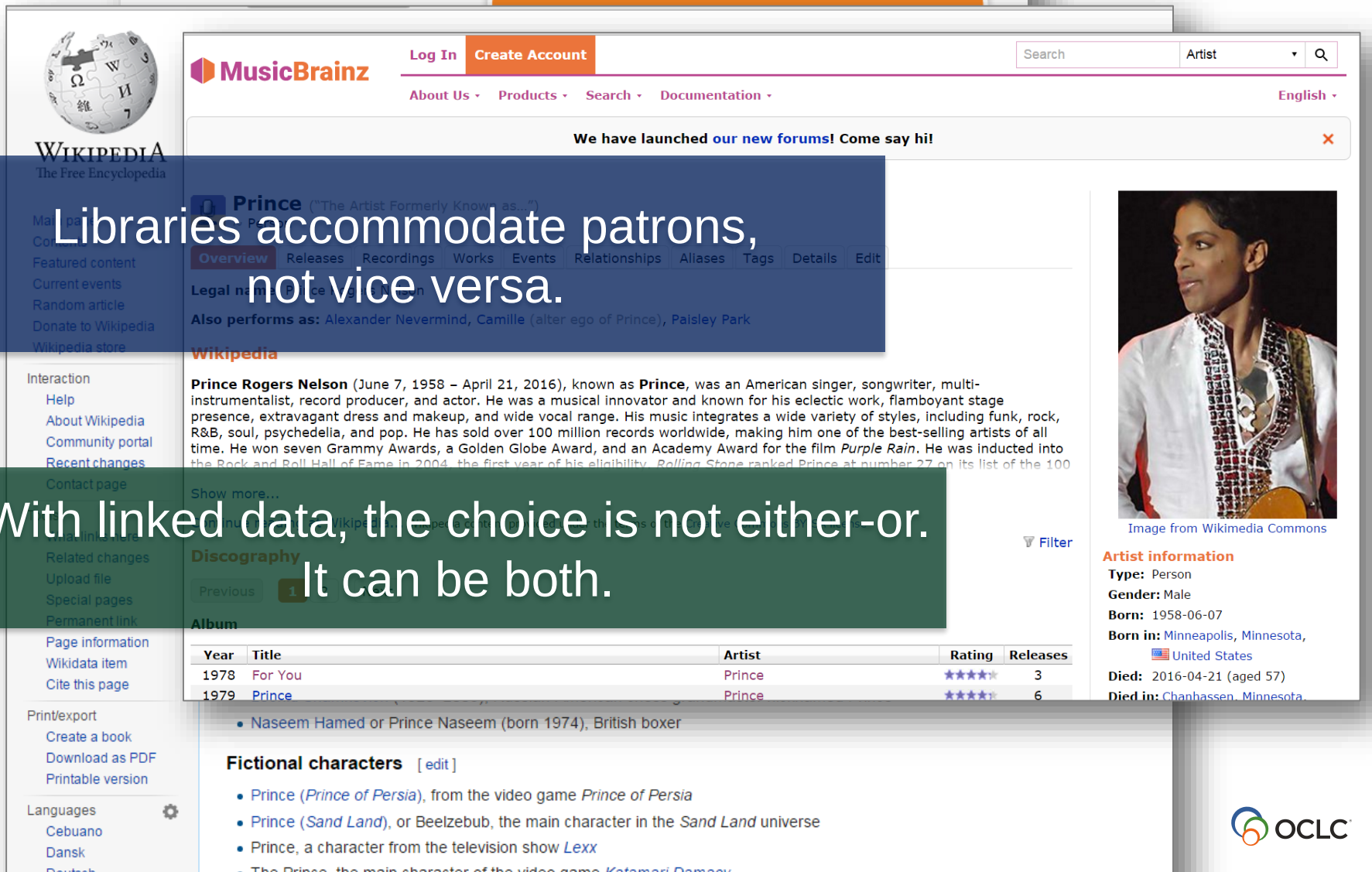
Queries about ‘Things’ (not strings) are more intuitive.

OCLC

Thinking about the “Dewey or Don’t We?” movement in public libraries

Libraries accommodate patrons, not vice versa.

With linked data, the choice is not either-or. It can be both.



OCLC

From Ranganathan--reordered

Ranganathan's Original Conception	Our Interpretation and Reordering
Save the time of the reader.	Embed library systems and services into users' existing workflows.
Every person his or her book.	Know your community and its needs.
Books are for use.	Develop the physical and technical infrastructure needed to deliver physical and digital materials.
Every book its reader.	Increase the discoverability, access and use of resources within users' existing workflows.
A library is a growing organism.	

Source: Lynn Connaway and Ixchel Faniel, 2014, 105

WHAT YOU CAN DO RIGHT NOW

NEXT SPACE

Current Issue | Issues | Articles | By The Numbers | Downlo

RESEARCH Explore trends that shape our future

Is your library a 'Thing'?

Jean Godby / **15 February 2015**

Like 0 Tweet G+1 0 Share

That was the question asked by Anna Neatrour in a post on the Mountain West Digital Library blog after reading about a group of librarians at Montana State University in Bozeman. The team, headed by Kenning Arlitsch, was startled to discover that a Google search for "Montana State University Library" returned a Knowledge Graph, complete with a map, which incorrectly located their library in Billings, 145 miles away.

Interact with the linked data ecosystem.

Register your library.

OCLC

Source: Jeff Young, OCLC

WIKIDATA

User page | Discussion

User:Realworldobject/ShowTell

1 Library related

1.26 Cookbooks
1.27 Russian scifi
1.28 Properties related to various aspects of Vegetarian
1.29 Properties related to New York City

Not logged in Talk Contributions Create account Log in

Article | Talk | Read | Edit | View history | Search

WIKIPEDIA
The Free Encyclopedia

Main page
Contents
Featured content
Current events
Random article
Donate to Wikipedia
Wikipedia store

Interaction
Help
About Wikipedia
Community portal
Recent changes
Contact page

Tools
What links here
Related changes
Upload file
Special pages
Permanent link
Page information
Wikidata item
Cite this page

Print/export
Create a book
Download as PDF

Bluestar's Prophecy

From Wikipedia, the free encyclopedia

This article has multiple issues. Please help **improve it** (see how) or discuss these issues on the **talk page**. [hide]

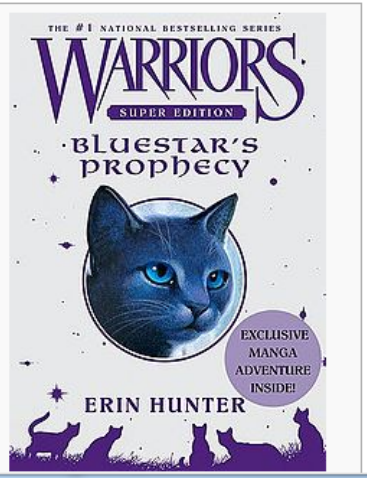
- This article **needs additional citations for verification**. *(July 2015)*
- This article's plot summary **may be too long or excessively detailed.** *(July 2015)*

Bluestar's Prophecy is a children's fantasy novel in the *Warriors* series by Erin Hunter. This is the second *Warriors* Super Edition, the first being *Firestar's Quest*. The book follows Bluefur as she matures from kithood and eventually becomes the leader of ThunderClan, also revealing a prophecy she receives from Goosefeather: *"You are fire, Bluepaw, and you will blaze through the forest. But beware! Even the most powerful flames can be destroyed by water."* It was published by HarperCollins and released on July 28, 2009. It was released in China on July 31, 2010.[2]

Bluestar's Prophecy tells the story of Bluekit, a blue-gray she-cat born into ThunderClan along with her white sister, Snowkit. A few moons (months) after becoming apprentices (Bluekit's name being changed to "Bluepaw"), ThunderClan attacks another Clan named WindClan because of stolen food. Bluepaw's silvery grey mother, Moonflower, is killed during the raid. At a Gathering, Bluepaw meets a tabby apprentice named Crookedpaw (later Crookedjaw and then Crookedstar), an apprentice from RiverClan, and they quickly become friends. But their friendship doesn't last long when the two angry Clans battle over territory, and Bluepaw defeats Crookedpaw with the help of Snowpaw.

Bluepaw then goes on a hunting patrol with Snowpaw. Bluepaw chases a rabbit into a hole, along with Snowpaw (Snowkit), and they end up at a place called Snakerocks, where a fox had already killed the rabbit. Bluepaw runs toward the camp with

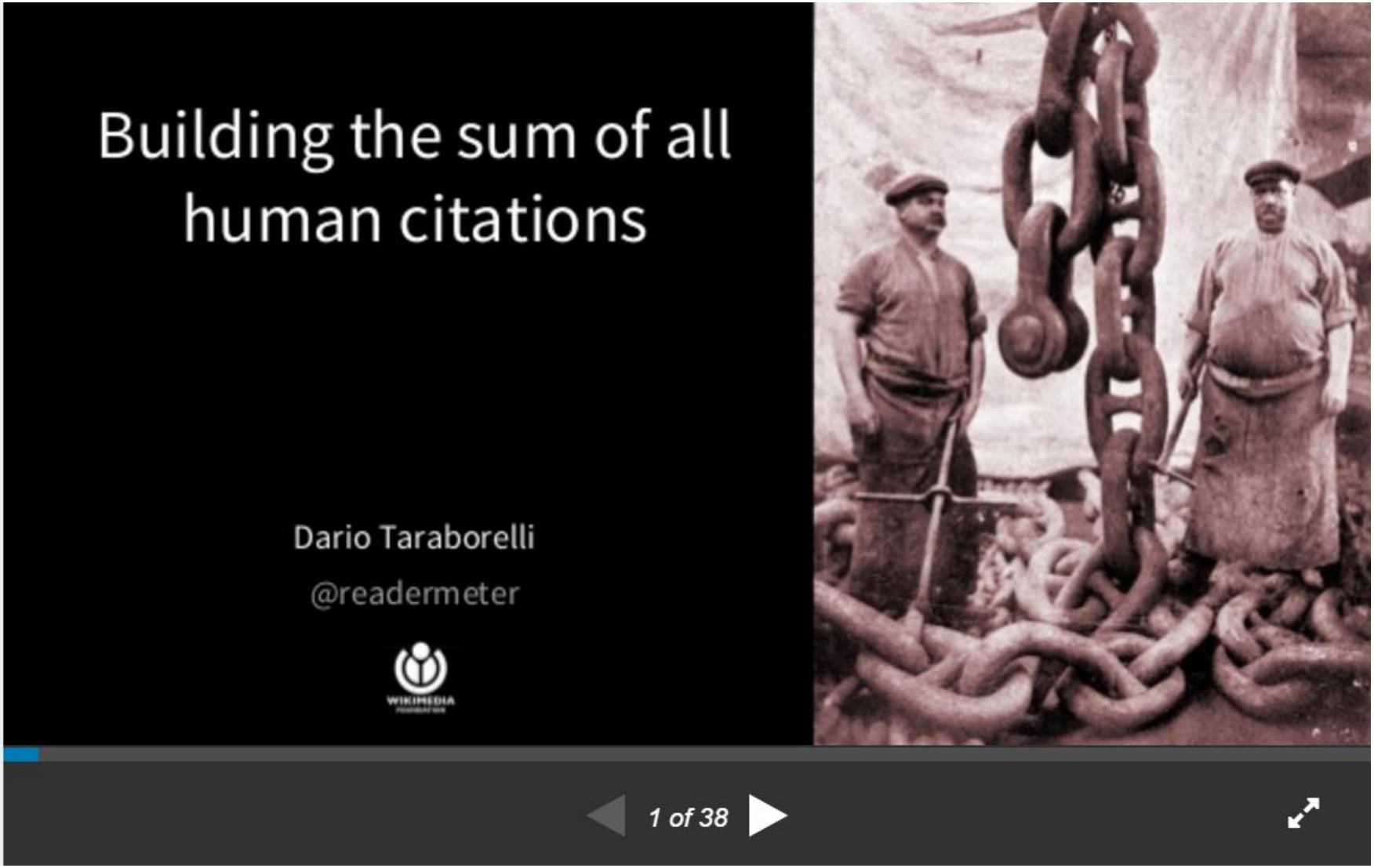
Bluestar's Prophecy



…and some interesting things in your collection.

OCLC

A Wikimedia project



“Know your community and its needs”

- Listen to your patrons
- Find out what their favorite websites are.
- Collect their questions, queries, and complaints.
- Talk to colleagues in your community who have unique materials about the same Entities as yours.
- Participate in community formation.

Or: Ranganathan’s second law, reordered and re-interpreted.

Linked data makes resource curation is radically local.

But the results can be shared with the world.

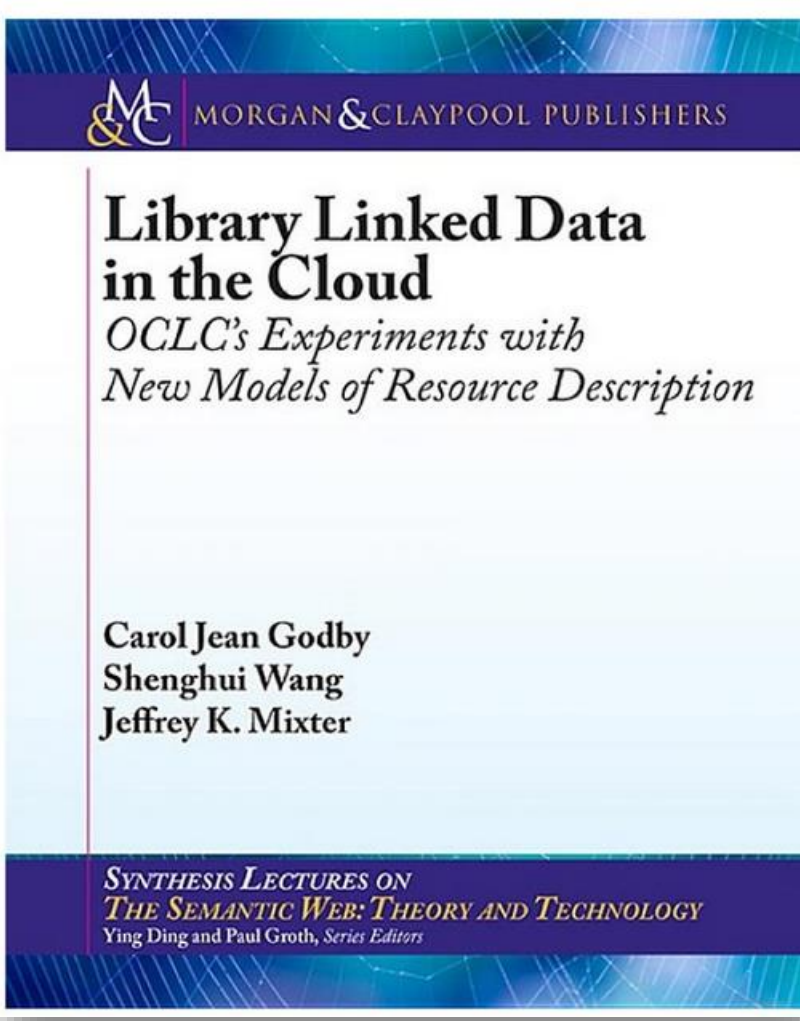
Thank you!

Carol Jean Godby

godby@oclc.org

Together we make breakthroughs possible.

OCLC



Data Science

The Web is the native environment of information seekers. OCLC Research recognizes that to be integrated into the Web, traditional library data must be transformed in various ways. We are analyzing the data in WorldCat and other sources to derive new meaning, insights, and services for use by libraries and others on the Web. Our work includes:

Overview | All Theme Projects | Reports | Applications | What in the WorldCat?

Aggregating library-created data

Leveraging OCLC members' collected knowledge investment for efficiency and re-use by libraries and other organizations.

Recent work:

VIAF: Virtual International Authority File

http://www.oclc.org/research/themes/data-science.html

Enhance aggregated data

Adding insights and information from library-created data pools and non-library sources to increase data impact.

Recent work:

Multilingual Bibliographic Structure

Mine data to create new knowledge

Making associations that improve library operations and provide users with new insights.

Recent work:

Cookbook Finder

Exposing and extending data

Transforming and optimizing data so it can be better utilized by Web applications to deliver library services and assets to information seekers.

Recent work:

OCLC Linked Data Research

OCLC The world's libraries. Connected.

References

- Connaway, Lynn Silipigni, and Ixchel M. Faniel. 2014. *Reordering Ranganathan: Shifting user behaviors, shifting priorities*. Dublin, OH: OCLC Research. http://www.oclc.org/content/dam/research/publications/library/2014/oclcresearch-reordering-ranganathan-2014.pdf.
- Godby, Carol Jean, Shenghui Wang and Jeffrey K. Mixter. 2015. *Library Linked Data in the Cloud: OCLC's Experiments with New Models of Resource Description*. Morgan & Claypool, in press. http://www.morganclaypool.com/toc/wbe.1/1/1
- Ranganathan, Shiyali Ramamrita. 1931. *The five laws of library science*. London: Edward Goldston, Ltd.
- Taraborelli, Dario. 2016. "Building the Sum of all Human Citations." http://www.slideshare.net/dartar/building-the-sum-of-all-human-citations
- Smith-Yoshimura, Karen. 2016. "Linked Data Implementations—Who, What and Why?" CNI Spring Membership Meeting, 4 April 2016, San Antonio, Texas (USA)