Implementing Linked Data & Discovery:
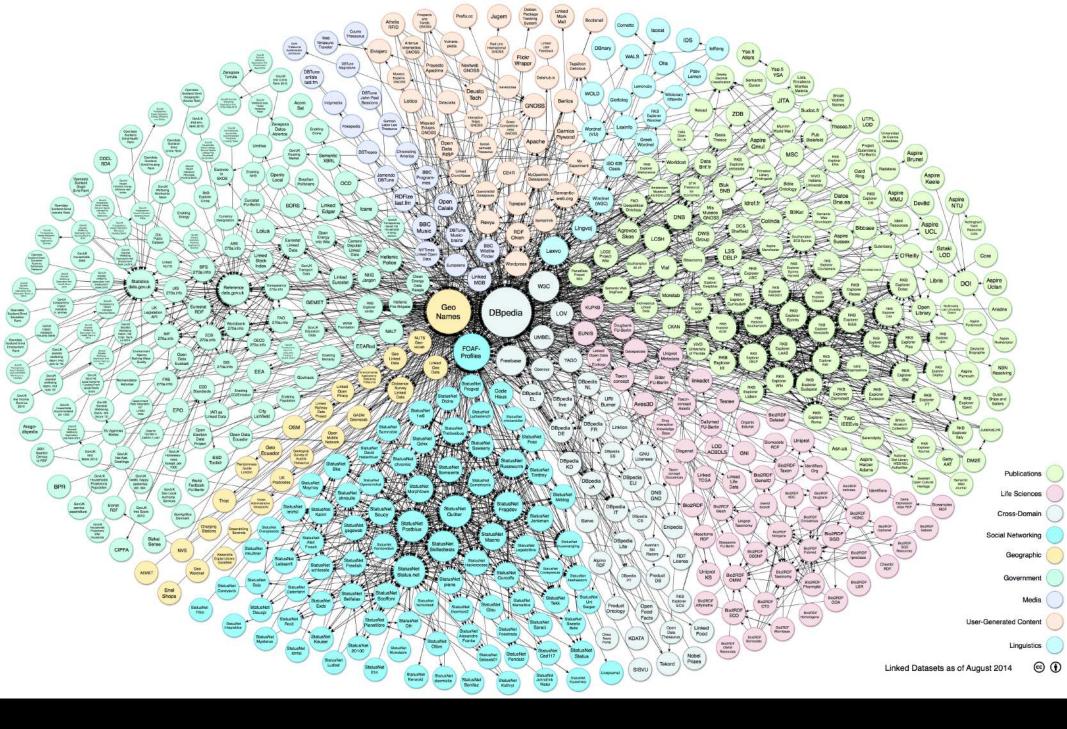## Liberating Library Data & Empowering Users

Jason A. Clark
Associate Professor
Head of Library Informatics & Computing
Montana State University (MSU) Library

ALA Annual Conference
ProQuest Exhibitor Session
June 27, 2015

pinboard.in tag

pinboard.in/u:jasonclark/t:lod/

twitter as channel (#hashtag)

@jaclark #lod

Linking Open Data cloud diagram 2014, by Max Schmachtenberg, Christian Bizer, Anja Jentzsch and Richard Cyganiak. http://lod-cloud.net/

LOD in Libraries

- UNLV Linked Data Project

  http://www.library.unlv.edu/linked-data

- Worldcat

  http://www.oclc.org/data.en.html

- Europeana Linked Open Data

  http://labs.europeana.eu/api/linked-open-data/introduction/

LOD in Libraries
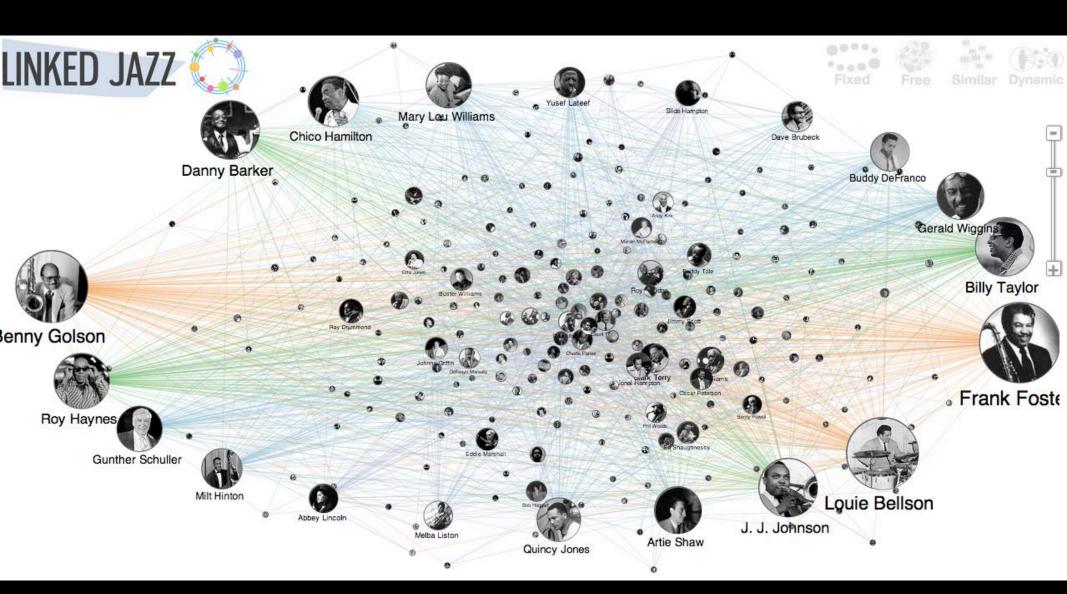
- iiiff
  http://iiif.io/

- DPLA
  http://dp.la/info/developers/codex/responses/field-reference/

- Vivo
  http://vivoweb.org

LINKED JAZZ

Fixed   Free   Similar   Dynamic

Chico Hamilton
Mary Lou Williams
Yusef Lateef
Slide Hampton
Dave Brubeck
Danny Barker
Buddy DeFranco
Andy Kirk
Marian McPartland
Gerald Wiggins
Ella Jones
Buddy Tate
Billy Taylor
Buster Williams
Roy Eldridge
Benny Golson
Ray Drummond
Jimmy Scott
Johnny Griffin
Count Basie
Charlie Parker
Delfeayo Marsalis
Clark Terry
Williams
Frank Foste
Roy Haynes
Lionel Hampton
Oscar Peterson
Gunther Schuller
Phil Woods
Benny Powell
Milt Hinton
Eddie Marshall
Ed Shaughnessy
Louie Bellson
Abbey Lincoln
Bob Higgins
Melba Liston
J. J. Johnson
Quincy Jones
Artie Shaw

http://linkedjazz.org/

VIVO | Research & Expertise Across Cornell

> Home | People | Organizations | Research | Events

Welcome to VIVO

VIVO is a research–focused discovery tool that enables collaboration among researchers across all disciplines.

Browse or search information on people, departments, courses, grants, and publications.

Log in

Log in using Cornell NetID

Search VIVO

limit search → ⌄ Search

Linked Data for Libraries: From Experimentation to Practice at Scale

Session Type: Presentation

Session Description

Libraries have been moving to embrace linked data for years now, slowly and fitfully it sometimes seems. Now the landscape is firming up as major players have begun committing to well-formed initiatives that move beyond experimentation to practice at scale. This panel presents a view of four diverse, larger-scale, linked data efforts where the "rubber is meeting the road." Each of the panelists will briefly present an overview of their efforts. A moderated discussion will follow, giving the panelists and audience a chance to compare and contrast approaches, and the larger implications for libraries of this potentially disruptive innovation.

Pages

- Project Proposal
  - Why Linked Data?
  - Previous Partner LD Work
  - Project Rationale
  - Project Description
  - Expected Outcomes
  - IP and Sustainability
- Project Timeline
- Planned LD4L Workshop
- Project Team
- Communications and Outreach
- Related Projects
- Working Documents

Pages

Linked Data for Libraries (LD4L)

Created by Anonymous, last modified by Simeon Warner on Jun 27, 2014

Welcome to the project wiki-space for the Linked Data for Libraries (LD4L) project. The projec
Cornell University Library, the Harvard Library Innovation Lab, and the Stanford University Li
nearly $1 million two-year grant from the Andrew W. Mellon Foundation.

The goal of the project is to create a Scholarly Resource Semantic Information Store (SRSIS)
individual institutions and through a coordinated, extensible network of Linked Open Data to
that librarians and other domain experts and scholars add to information resources when they
select, and use those resources, together with the social value evident from patterns of usage

Our intent is to do so using existing ontologies and Open Source technology.

Project Pages

- Project Proposal:
  - Why Linked Data?
  - Previous Library-related Linked Data work at Cornell, Harvard, and Stanford
  - Rationale for the project
  - Project Description
  - Expected Outcomes
  - Intellectual Property and Sustainability
- Project Timeline
- Planned LD4L Workshop (tentatively set for January 2015)
- Project Team

Overview

- Why Linked Open Data (LOD)?
- Truths about LOD
- LOD in Practice at MSU
- Questions

Defining Terms and Truths

What is Linked Open Data?

- Practice of publishing structured, machine actionable data with an open license for sharing and reuse.

Truths about Linked Data

Virtuoso SPARQL Query Editor

Default Data Set Name (Graph IRI)

Query Text

```
SELECT * WHERE {?s a ?o} limit 100
```

(Security restrictions of this server do not allow you to retrieve remote RDF data, see details.)

Results Format: HTML

Execution timeout: 30000 milliseconds *(values less than 1000 are ignored)*

Options: ☑ Strict checking of void variables

(The result can only be sent back to browser, not saved on the server, see details)

Run Query   Reset

Limited Interfaces

Karen Coombs @librarywebchic · Sep 29

Eureka SPARQL is starting to make sense!

Karen Coombs @librarywebchic · Sep 29

Ugh SPARQL you make my brain hurt.

★ 1

Karen Coombs @librarywebchic · Sep 29

Working on loading data into a triplestore and then running SPARQL on it at #accessYYC hackfest

★ 1

Jenn Riley
@jenlrile

Following

Learning curves are expensive, per Nannette.
#rwlod

FAVORITE
1

3:02 PM - 26 Jun 2015

Learning Curves

A Research Team Effort

Scott Young: Digital Initiatives Librarian at Montana State University @hei_scott

Jason Clark: Head, Library Informatics & Computing at Montana State University @jaclark

Patrick O'Brien: Semantic Web Research Director at Montana State University Library

Kenning Arlitsch: Dean of the Library at Montana State University @kenning_msu

Doralyn Rossmann: Head, Collection Development at Montana State University Library @doralyn

Need Staffing + Interest

Why LOD?

- Libraries as publishers in Web of Data

- Reuse of our data = Significance

- Can improve findability in search engines (search engine optimization)

- Levels of description in LOD enable entirely new applications

Why LOD at MSU?

- Semantic Publishing

- Machine Definitions

- Discovery

Principles of Publishing LOD

- Use URIs for description

- Make structured data available on WWW

- Allow for machine-actionability and sharing through common ontologies

* machine-actionable is a term used by Karen Coyle to mean readable and interpretable by computers or software agents. See her Library Technology Report on *Understanding the Semantic Web* at http://www.metapress.com/content/g212v1783607/

LOD Ontologies & Vocabularies

URIs link to:

1. Reputable machine-readable endpoints
   o E.g., Worldcat, VIAF, or DbPedia

2. Open Ontologies & Vocabularies
   o E.g., Dublin Core Terms, Library of Congress Subject Headings

* See Linked Open Vocabularies (LOV) for a list of possible ontologies and vocabularies.
http://lov.okfn.org/dataset/lov/

5 Star Linked Open Data

★ make your stuff available on the Web (whatever format) under an open license[1]

★★ make it available as structured data (e.g., Excel instead of image scan of a table)[2]

★★★ use non-proprietary formats (e.g., CSV instead of Excel)[3]

★★★★ use URIs to denote things, so that people can point at your stuff[4]

★★★★★ link your data to other data to provide context[5]

http://5stardata.info/

LOD at Montana State University (MSU)

Case Studies

1. Book as Linked Data Platform

2. Linked People

3. Web Scale Cataloging

Semantic Publishing
Book as Linked Data Platform

The Swabian

He was slow in learning how to talk. "My parents were so worried," he later recalled, "that they consulted a doctor." Even after he had begun using words, sometime after the age of 2, he developed a quirk that prompted the family maid to dub him "der Depperte," the dopey one, and others in his family to label him as "almost backwards." Whenever he had something to say, he would try it out on himself, whispering it softly until it sounded good enough to pronounce aloud. "Every sentence he uttered," his worshipful younger sister recalled, "no matter how routine, he repeated to himself softly, moving his lips." It was all very worrying, she said. "He had such difficulty with language that those around him feared he would never learn."[1]

His slow development was combined with a cheeky rebelliousness toward authority, which led

Web Book
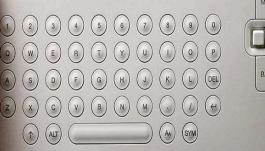
Did you mean:

Ebook

Always correct to "Ebook"

Add to personal dictionary

Ignore all

The Research

Institute of Museum and Library Services Sparks Ignition Grant

Book 1

demo: arc.lib.montana.edu/book/home-cooking-history-409

code: github.com/jasonclark/bib-template

Book 2

demo: arc.lib.montana.edu/book/opsis

code: github.com/msulibrary/bib-template-fiction

* Additional prototypes in development for textbook and an academic journal

Every Book its [machine] Reader

Apologies to Ranganathan

Gingerbread

Ingredients:

- 1/2 c. soft shortening
- 2 1/4 c. flour
- 2 T. sugar
- 1 tsp. soda
- 1 egg
- 1/2 tsp. salt
- 1 c. dark New Orleans Molasses
- 1 tsp. ginger
- 1 c. boiling water
- 1 tsp. cinnamon

Directions:

- Mix shortening, sugar and egg.
- Blend in molasses and cup of boiling water, cooled first.
- And flour, soda, salt, ginger and cinnamon.
- Beat until smooth.
- Pour into well-greased 9 inch square pan.
- Bake 45 minutes to 50 minutes at 350 degrees.

- Serve with whipped cream and applesauce.

Tradition and Travel

by Jonathan Bergh

Every winter the Bergh family celebrates the season with a special tradition. It is the time of the year when the Bergh family

young Lyle Bergh gin
was the catalyst for e
countless foodstuffs t
outside of the farm m
Lyle Bergh took his fi
gingerbread cake he k
something special. To
family gingerbread m
represented a season.
Lyle it represented so
more.

In 1960s northeas
Montana's food optio
limited. For inhabita
Plentywood, Montana
and his family, it mea
would eat farm food:
meals like steak, pota
and coffee. Lyle would
home and have farm
mother Bee cooked.
his family would go S
Washington, it would
more than just family

When the Bergh fa
headed to Seattle, Wa
the winter, it meant t
would be reunited, ar
there would be treats
going to Seattle mea

Structured Data

Data Model + Machine Readability

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        <description>Angel food cake recipe written by Laura Cameron for Montana State University's upper division history c
        <about>baking cake</about>
        <image>http://upload.wikimedia.org/wikipedia/commons/thumb/6/64/AngelFoodCake.jpg/200px-AngelFoodCake.jpg</image>
        <cookingMethod>Baking</cookingMethod>
        <ingredients>18 egg whites, 2 t. cream of tartar, 1 pinch salt, 1 1/2 cups white sugar, 1 cup cake flour, 1/2 cup co
        <recipeInstructions>&lt;li&gt;Preheat oven to 350 degrees&lt;/li&gt;
&lt;li&gt;Sift cake flour and confectioners sugar together 5 times. Set aside.&lt;/li&gt;
&lt;li&gt;In a large bowl whip egg whites with salt until foamy. Add cream of tartar and continue to beat until soft
&lt;li&gt;Quickly fold in flour mixutre.&lt;/li&gt;
&lt;li&gt;Pour into a 10 inch tube pan.&lt;/li&gt;
&lt;li&gt;Bake for 45 minutes.&lt;/li&gt;</recipeInstructions>
        <cookTime>PT45M</cookTime>
        <prepTime>PT15M</prepTime>
        <totalTime>PT60M</totalTime>
        <recipeCategory>dessert</recipeCategory>
        <recipeCuisine>American</recipeCuisine>
        <recipeYield>8 to 10 servings</recipeYield>
        <sameAs>http://dbpedia.org/page/Angel_food_cake</sameAs>
        <keywords>cream of tartar, confectioners sugar, vanilla extract, egg whites, cup cake flour, cake flour</keywords>
        <publisher>Montana State University Library</publisher>
        <dateCreated>2012-12-01T18:34Z</dateCreated>
        <dateModified>2012-12-01T18:34Z</dateModified>
        <datePublished>2012-12-01T18:34Z</datePublished>
        <inLanguage>en</inLanguage>
    </item>
</items>
```

...api?id=1&format=xml
...api?type=search&q=poetry&format=json

Schema.org

Controlled Vocabulary

What is Schema.org?

This site provides a collection of schemas that webmasters can use to markup HTML pages in ways recognized by major search providers, and that can also be used for structured data interoperability (e.g. in JSON). Search engines including Bing, Google, Yahoo! and Yandex rely on this markup to improve the display of search results, making it easier for people to find the right Web pages.

Many sites are generated from structured data, which is often stored in databases. When this data is formatted into HTML, it becomes very difficult to recover the original structured data. Many applications, especially search engines, can benefit greatly from direct access to this structured data. On-page markup enables search engines to understand the information on web pages and provide richer search results in order to make it easier for users to find relevant information on the web. Markup can also enable new tools and applications that make use of the structure.

A shared markup vocabulary makes it easier for webmasters to decide on a markup schema and get the maximum benefit for their efforts. So, in the spirit of sitemaps.org, search engines have come together to provide a shared collection of schemas that webmasters can use.

We invite you to get started!

View our blog at blog.schema.org.

Terms and conditions

About: Le Seigneur des anneaux

An Entity of Type : 1950sFantasyNovels, from Named Graph : http://dbpedia.org, within Data Space : dbpedia.org

DBpedia

Le Seigneur des anneaux (The Lord of the Rings) est un roman en trois volumes de J. R. R. Tolkien paru en 1954 et 1955.L'histoire reprend certains des personnages présentés dans Le Hobbit, premier roman de l'auteur paru en 1937, mais l'œuvre est plus complexe et plus sombre. Tolkien entreprend sa rédaction à la demande de son éditeur, Allen & Unwin, à la suite du succès critique et commercial du Hobbit.

Property	Value
dbpedia-owl:abstract	• The Lord of the Rings is an epic high fantasy novel written by English author J. R. R. Tolkien. The story began as a sequel to Tolkien's 1937 children's fantasy novel The Hobbit, but eventually developed into a much larger work. It was written in stages between 1937 and 1949, much of it during World War II. It is the second best-selling novel ever written, with over 150 million copies sold.The title of the novel refers to the story's main antagonist, the Dark Lord Sauron, who had in an earlier age created the One Ring to rule the other Rings of Power as the ultimate weapon in his campaign to conquer and rule all of Middle-earth. From quiet beginnings in the Shire, a hobbit land not unlike the English countryside, the story ranges across northwest Middle-earth, following the course of the War of the Ring through the eyes of its characters, the hobbits Frodo Baggins, Samwise "Sam" Gamgee, Meriadoc "Merry" Brandybuck and Peregrin "Pippin" Took, but also the hobbits' chief allies and travelling companions: the Men Aragorn, a Ranger of the North and Boromir, a Captain of Gondor; Gimli, a Dwarf warrior; Legolas, an Elven prince; and Gandalf, a Wizard.The work was initially intended by Tolkien to be one volume of a two-volume set, the other to be The Silmarillion, but this idea was dismissed by his publisher. For economic reasons The Lord of the Rings was published in three volumes over the course of a year from 29 July 1954 to 20 October 1955. The three volumes were titled The Fellowship of the Ring, The Two Towers, and The Return of the King. Structurally, the novel is divided internally into six books, two per volume, with several appendices of background material included at the end of the third volume. Some editions combine the entire work into a single volume. The Lord of the Rings has since been reprinted numerous times and translated into many languages.Tolkien's work has been the subject of extensive analysis of its themes and origins. Although a major work in itself, the story was only the last movement of a larger epic Tolkien had worked on since 1917, in a process he described as mythopoeia.[citation needed] Influences on this earlier work, and on the story of The Lord of the Rings, include philology, mythology, religion and the author's distaste for the effects of industrialization, as well as earlier fantasy works and Tolkien's experiences in World War I. The Lord of the Rings in its turn is considered to have had a great effect on modern fantasy; the impact of Tolkien's works is such that the use of the words "Tolkienian" and "Tolkienesque" have been recorded in the Oxford English Dictionary.The enduring popularity of The Lord of the Rings has led to numerous references in popular culture, the founding of many societies by fans of Tolkien's works, and the publication of many books about Tolkien and his works. The Lord of the Rings has inspired, and continues to inspire, artwork, music, films and television, video games, and subsequent literature. Award-winning adaptations of The Lord of the Rings have been made for radio, theatre, and film. • Le Seigneur des anneaux (The Lord of the Rings) est un roman en trois volumes de J. R. R. Tolkien paru en 1954 et 1955.L'histoire reprend certains des personnages présentés dans Le Hobbit, premier roman de l'auteur paru en 1937, mais l'œuvre est plus complexe et plus sombre. Tolkien entreprend sa rédaction à la demande de son éditeur, Allen & Unwin, à la suite du succès critique et commercial du Hobbit. Il lui faut douze ans pour parvenir à achever ce nouveau roman qu'il truffe de références et d'allusions au monde du Silmarillion, la Terre du Milieu, sur lequel il travaille depuis 1917 et dans lequel Le Hobbit a été attiré de son auteur.C'est une des œuvres fondamentales de la littérature dite de fantasy, terme que Tolkien explicite dans son essai Du conte de fées de 1939. Tolkien lui-même considérait son livre comme , écrit .Cette œuvre est composée de six livres, qui ne portent pas de titres. À l'origine, Tolkien souhaite publier Le Seigneur des anneaux en un seul volume, mais le prix du papier étant trop élevé en cette période d'après-guerre, l'œuvre est divisée en trois volumes : La Communauté de l'anneau (The Fellowship of the Ring), Les Deux Tours (The Two Towers) et Le Retour du roi (The Return of the King). On fait souvent référence à cette œuvre comme à « la trilogie du Seigneur des anneaux », terme techniquement incorrect car l'œuvre fut écrite et conçue d'un seul tenant. Néanmoins, Tolkien lui-même reprend dans ses lettres, de temps à autres, le terme de « trilogie » lorsqu'il est employé par ses correspondants.
dbpedia-owl:wikiPageExternalLink	• http://www.houghtonmifflinbooks.com/features/lordoftheringstrilogy/ • http://www.glyphweb.com/arda/ • http://www.tolkien.co.uk • http://www.tolkienlibrary.com
dbpedia-owl:wikiPageID	• 29798 (xsd:integer)
dbpedia-owl:wikiPageRevisionID	• 606679234 (xsd:integer)
dbpprop:author	• dbpedia:J._R._R._Tolkien
dbpprop:books	• *Volumes: *The Fellowship of the Ring *The Two Towers *The Return of the King
dbpprop:country	• United Kingdom
dbpprop:genre	• *High fantasy *Adventure
dbpprop:hasPhotoCollection	• http://wifo5-03.informatik.uni-mannheim.de/flickrwrappr/photos/The_Lord_of_the_Rings
dbpprop:imageCaption	• The original cover designs for each volume as illustrated by Tolkien. They were later used for the 50th anniversary edition covers.
dbpprop:language	• English
dbpprop:mediaType	• Print
dbpprop:name	• The Lord of the Rings

What if?

Books were machine indexed
for semantic discovery

Journal articles were semantically tagged at
the page level

Extracted structured data

Item

type:	http://schema.org/recipe
property:	
name:	Gingerbread
ingredients:	1/2 c. soft shortening
ingredients:	2 1/4 c. flour
ingredients:	2 T. sugar
ingredients:	1 tsp. soda
ingredients:	1 egg
ingredients:	1/2 tsp. salt
ingredients:	1 c. dark New Orleans Molasses
ingredients:	1 tsp. ginger
ingredients:	1 c. boiling water
ingredients:	1 tsp. cinnamon
recipeinstructions:	Mix shortening, sugar and egg. Blend in molasses and cup of boiling water, cooled first. And flour, soda, salt, ginger and cinnamon. Beat until smooth. Pour into well-greased 9 inch square...
cookingmethod:	Bake
cooktime:	PT45M

Gingerbread - Jonathan Bergh

arc.lib.montana.edu/book/.../article-jonathan-bergh.html ▾

45 mins

Table of Contents > Recipe and Essay **Gingerbread**. Ingredients: 1/2 c. soft shortening; 2 1/4 c. flour; 2 T. sugar; 1 tsp. soda; 1 egg; 1/2 tsp. salt; 1 c. dark New ...

Behavioral Metadata

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35        "name": "Montana State University (MSU)"
36      },
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38      "additionalType": "http://dbpedia.org/resource/Adonia",
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40        "@type": "ReadAction",
41        "actionStatus": "PendingActionStatus",
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53    },
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55  }
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https://arc.lib.montana.edu/book/opsis/item.json?id=4

Machine Definitions

Linked People
www.lib.montana.edu/people

Linked Data is People

Using Linked Data to Reshape
the Library Staff Directory

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13  <script type="application/ld+json">
14  {
15    "@context": "http://schema.org",
16    "@type": "Person",
17    "name": "Jan Zauha",
18    "jobTitle": "Outreach Librarian [Professor] ",
19    "workLocation": "Learning and Research Services",
20    "email": "jzauha@montana.edu",
21    "image": "http://shelf.lib.montana.edu/people/meta/img/photos/janzauha-thumb.jpg",
22    "telephone": "406-994-6554",
23    "address": {
24      "@type": "PostalAddress",
25      "addressLocality": "Bozeman",
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28      "streetAddress": "P.O. Box 173320"
29    },
30    "colleague": [
31      "shelf.lib.montana.edu/people/2",
32      "shelf.lib.montana.edu/people/4",
33      "shelf.lib.montana.edu/people/17",
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40      "shelf.lib.montana.edu/people/88",
41      "shelf.lib.montana.edu/people/101",
42      "shelf.lib.montana.edu/people/135",
43      "shelf.lib.montana.edu/people/138",
44    ],
45    "sameAs" : [
46    "http://scholar.google.com/citations?user=htx7S9oAAAAJ&hl=en",
47    ""
48    ],
49    "worksFor": "Montana State University (MSU)"
50  }
51  </script>
```

People in the library - individual results

Jan Zauha

Title: Outreach Librarian [Professor]

Department: Learning and Research Services,

Montana State University

Phone: 406-994-6554

Email: jzauha@montana.edu

Calendar: Schedule Appointment

Room: 117C

Vita

Get QR Embed Code

\<img src="http://chart.apis.google.com/char

Back to Staff Home page

How are people and data understood?

Create distributed, linked, flexible data systems.

Add context and dimension to data.

Demonstrate relationships among data based on standardized and reusable vocabulary

Networked data is smarter data.

Applying the concept of linked data for our local community

Finding a real-world use-case for graph modeling using open source tools

What if our people could be discovered and understood?

Where are your people?

Where are your concepts?
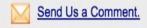
VIAF
Virtual International Authority File

Search

Select Field:
[Personal Names ▼]

Select Index:
[All VIAF ▼]

Search Terms:
[jason a clark] [Search]

2 headings found for *jason a clark*

	Heading	Type	Sample Title
1	Clark, Jason A.	Personal	Building mobile library applications
2	Clark, Jason A., 1975-	Personal	Florence

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Hosted by OCLC
About the Dataset

Send Us a Comment.

About VIAF

ORCiD

Connecting Research and Researchers

Jason A. Clark

iD http://orcid.org/0000-0002-3588-6257

Country: United States

Keywords: machine learning - information architecture

Websites:

http://www.jasonclark.info

https://github.com/jasonclark

˅ Personal Information

Biography

Associate Professor, Montana State University
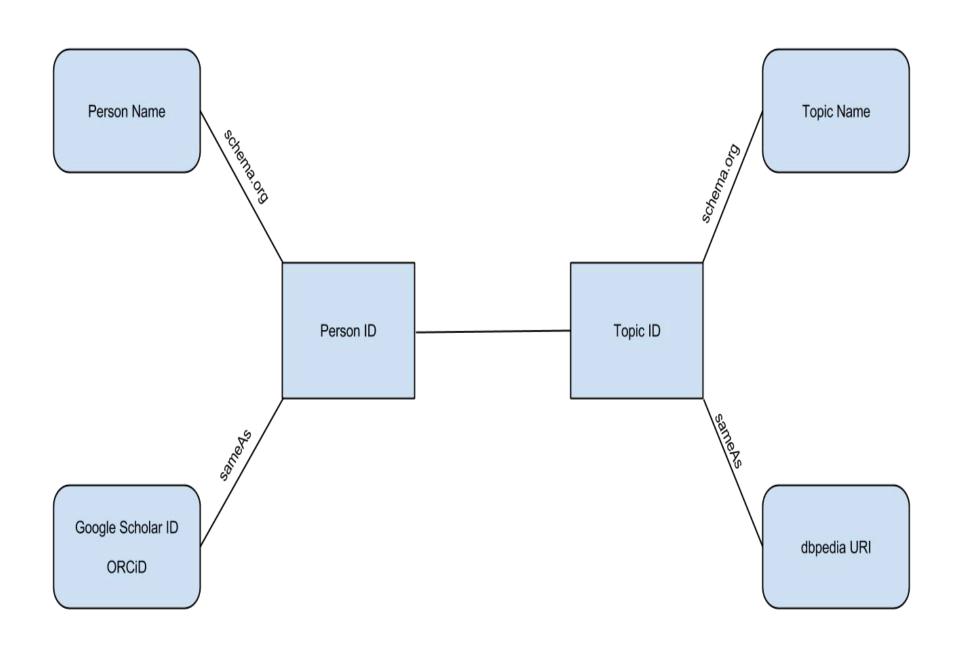
˅ Works

Building Mobile Library Applications (THE TECH Set #12), by Jason A. Clark: Chicago, IL: ALA TechSource, 2012. 114p. ISBN: 978-1-55570-783-5. $59.95. 2013-04

An Ontology

People in the library - individual results

Jan Zauha

Title: Outreach Librarian [Professor]

Department: Learning and Research Services,

Montana State University

Phone: 406-994-6554

Email: jzauha@montana.edu

Calendar: Schedule Appointment

Room: 117C

Vita

Get QR Embed Code

`<img src="http://chart.apis.google.com/char`

Back to Staff Home page

URI   Input Field

http://www.lib.montana.edu/people/about/47

Submit

Input [RDFa ▾] Output [N-Triples ▾]

Copy To Clipboard...

```
<http://www.lib.montana.edu/people/about/47> <http://schema.org/memberOf> "Montana State University (MSU)"@en .
<http://www.lib.montana.edu/people/about/47#role> <http://www.w3.org/1999/02/22-rdf-syntax-ns#type> <http://schema.org/Role>
<http://www.lib.montana.edu/people/about/47#role> <http://schema.org/OrganizationRole> "Outreach Librarian [Professor] "@en
<http://www.lib.montana.edu> <http://schema.org/sameAs> "https://www.worldcat.org/wcr/organization/data/56245"@en .
<http://www.lib.montana.edu/people/about/47> <http://schema.org/makesOffer> <http://en.wikipedia.org/wiki/Composition_(langu
<http://www.lib.montana.edu/people/about/47#knows> <http://schema.org/name> "Dave Michael"@en .
<http://www.lib.montana.edu/people/about/47> <http://www.w3.org/1999/02/22-rdf-syntax-ns#type> <http://schema.org/Person> .
<http://www.lib.montana.edu/people/about/47> <http://schema.org/worksFor> "Montana State University (MSU)"@en .
<http://www.lib.montana.edu/people/about/47> <http://schema.org/jobTitle> "Outreach Librarian [Professor] "@en .
<http://www.lib.montana.edu/people/47> <http://www.w3.org/1999/02/22-rdf-syntax-ns#type> <http://schema.org/WebPage> .
<http://www.lib.montana.edu/people/about/47> <http://schema.org/makesOffer> <http://dbpedia.org/page/American_studies> .
<http://www.lib.montana.edu/people/about/47> <http://schema.org/knows> <http://www.lib.montana.edu/people/about/47#knows> .
<http://www.lib.montana.edu/people/47> <http://www.w3.org/ns/rdfa#usesVocabulary> <http://schema.org/> .
<http://www.lib.montana.edu/people/about/47> <http://schema.org/about> "http://www.lib.montana.edu/people/about/47"@en .
<http://www.lib.montana.edu/people/about/47#knows> <http://schema.org/name> "Greg Notess"@en .
<http://www.lib.montana.edu/people/about/47#role> <http://schema.org/name> "Jan Zauha"@en .
<http://www.lib.montana.edu> <http://schema.org/sameAs> "http://www.freebase.com/m/0j3y9r1"@en .
```

Jan Zauha is defined/understood as an entity

Discovery
Web Scale Cataloging

SEO + Semantic Understanding

Designing Your Collections for Web Scale Search

James Willard Schultz

http://arc.lib.montana.edu/schultz-0010/

Introducing Semantic Markup

HTML5 semantic tags and RDFa that help classify page types and define the types of content on the page

"If Google understands the content on your pages, we can create rich snippets—detailed information intended to help users with specific queries." https://support.google.com/webmasters/answer/99170?hl=en&ref_topic=1088472

Before RDFa

After RDFa

External Enumerations

"We define here some specific integration points through which selected externally maintained vocabulary can be published as part of schema.org markup"

additionalTypes, specialty

```
<li property="additionalType" typeof="URL" resource="http://dbpedia.org/page/Sacagawea">
  <a href="./search.php?topic=Sacagawea"><span property="specialty">Sacagawea</span></a>
  <link property="url" href="http://dbpedia.org/page/Sacagawea" />
</li>
```

https://schema.org/additionalType, http://schema.org/specialty

Improved Metrics? Research in progress...

michelle gollehon 🔍

About 194,000 results (0.14 seconds)

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Michelle Gollehon | Facebook
https://www.facebook.com/**michelle.gollehon**.3 ▾
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and others you may know. Facebook gives people the power to share and ...

Michelle Gollehon | LinkedIn
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View **Michelle Gollehon's** professional profile on LinkedIn. LinkedIn is the world's
largest business network, helping professionals like **Michelle Gollehon** ...

Michelle Gollehon - Montana State University MSU Library
www.lib.montana.edu/people/about.php?id=97 ▾
Library Technician - Montana State University
People in the library - individual results. photo of **Michelle Gollehon. Michelle
Gollehon**. Title: Library Technician. Department: Collection Development, Montana ...

Web   Images   News   Shopping   Videos   More ▾   Search tools

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Michelle Gollehon - Montana State University MSU Library
www.lib.montana.edu/.../about.php?id=... ▾ Montana State University Library ▾
Michelle Gollehon. Title: Computer Support Specialist I. Department: Collection
Development, Montana State University. Phone: 406-994-3139.

Michelle Gollehon | Facebook
https://www.facebook.com/michelle.gollehon.3 ▾
Michelle Gollehon is on Facebook. Join Facebook to connect with Michelle Gollehon
and others you may know. Facebook gives people the power to share and.

Michelle Gollehon Profiles | Facebook
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connect with Michelle Gollehon and others you may know. Facebook gives ...

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Sara Mannheimer | European Union Prize for Literature
www.euprizeliterature.eu/node/279 ▾
Sara Mannheimer grew up in Gothenburg, Sweden, and was educated in the United States, the Netherlands, and the Czech Republic. She now lives in ...

Images for sara mannheimer   Report images

More images for **sara mannheimer**

Sara Mannheimer - Montana State University MSU Library
www.lib.montana.edu/people/139 ▾ Montana State University Library ▾
Sara Mannheimer. Title: Data Management Librarian [Assistant Professor]. Department: Library Informatics and Computing, Montana State University.
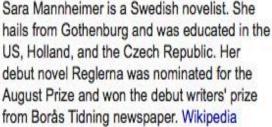
Sara Mannheimer

Novelist

Sara Mannheimer is a Swedish novelist. She hails from Gothenburg and was educated in the US, Holland, and the Czech Republic. Her debut novel Reglerna was nominated for the August Prize and won the debut writers' prize from Borås Tidning newspaper. Wikipedia

Born: 1967, Lund, Sweden

Awards: European Union Prize for Literature

People also search for   View 10+ more

Lada Žigo   Gunstein Bakke   Jana Beňová   Adda Djørup   Laurence Plazenet

New Search and Browse

Staff Directory & Departments

Enter people or topics...

People ▼   🔍

Browse by staff last name

A B C | D E F | G H I | J K L | M N O | P Q R | S T U | V W X | Y Z | Other

Browse by Liaison Area

I want help with... + full list

Browse by Expertise Topic

I want help with... + full list

Browse by Department

Administration
Collection Development
Learning and Research Services
Library Informatics and Computing
Resource Description and Metadata Services
Special Collections and Archives
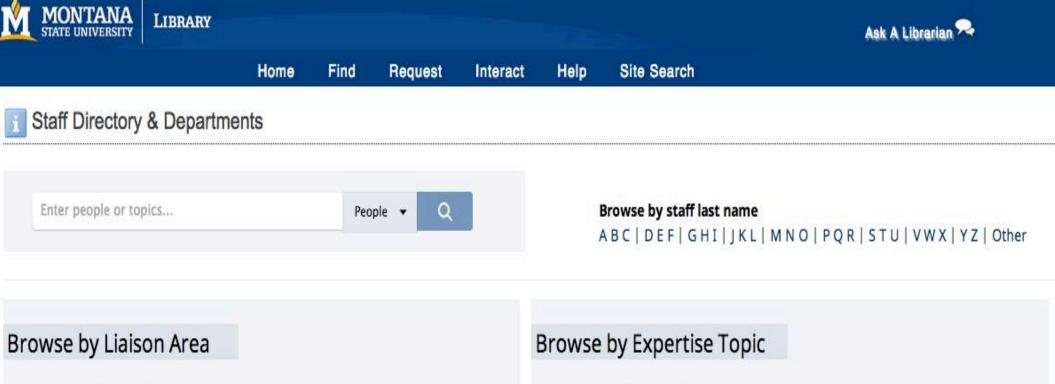
Related pages

Browse All Staff
Browse All Faculty and Professional(s)
Browse liaisons by department
Browse liaisons by name
Contact Us

People in the library - individual results

Jan Zauha

Title Outreach Librarian [Professor]

Department Learning and Research Services, Montana State University

Phone 406-994-6554

Email jzauha@montana.edu

Room 117C

Calendar Schedule Appointment

Liaison Role(s)

History

Philosophy

American studies

Writing composition

English

Expertise and Skill(s)

Information Literacy

Professional Development

Reading

Performance studies

More Information

⟳ Graph Visualization

📖 Vita

Get QR Embed Code
`<img src="http://ch`

← Back to Staff Home page

Linked Data Tools

RDF Search Engines

YAHOO! GLIMMER

Help

Dataset: [wdc ⇕] Number of results: [10 ⇕] Dereference Values: ☑

Unified search

Enter a query, e.g., name:(barack obama) birthdate:(04 08 1961)

| jason clark | **Search** |

Ontology-based search [Show]

⊞ 📁 Thing ~131 million

📄 JobPosting ~1 million

📄 SoftwareApplication ~812 thousand

📄 schema.org ~638 thousand

📄 AggregatedOffer ~266 thousand

📄 Comment ~208 thousand

📄 People ~190 thousand

📄 aggregaterating ~186 thousand

📄 website ~162 thousand

📄 Breadcrumb ~87 thousand

📄 Postaladdress ~79 thousand

📄 MobileSoftwareApplication ~57 thousand

📄 TVseries ~42 thousand

Found ~1 thousand results in 121 ms.

Showing results 1 to 10 of ~1 thousand
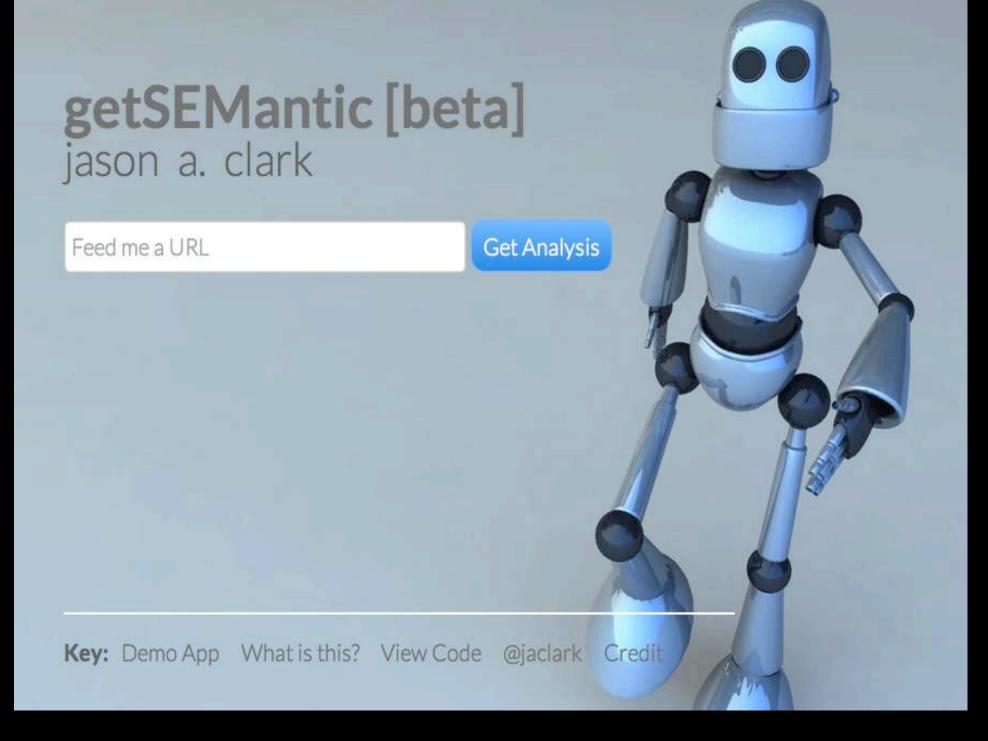
1 2 3 4 5 6 7 8 next>

1. jason clarke

http://www.examiner.com/topic/jason-clarke ->

Property	Value
label	jason clarke jason clarke jason clarke

Semantic Classifiction Tools

github.com/jasonclark/getsemantic

Linked Data Creation Tools

OPEN Refine

A free, open source, powerful tool for working with messy data

Home

Download

Documentation

Community

Post archive

Mapping OpenRefine
Ecosystem

2014 survey results

A Governance Model for
OpenRefine

Using OpenRefine: a

Welcome!

OpenRefine (formerly Google Refine) is a powerful tool for working with messy data: cleaning it; transforming it from one format into another; extending it with web services; and linking it to databases like Freebase.

Please note that since October 2nd, 2012, Google is not actively supporting this project, which has now been rebranded to OpenRefine. Project development, documentation and promotion is now fully supported by volunteers. Find out more about the history of OpenRefine and how you can help the community.

Using OpenRefine - The Book

Using OpenRefine, by Ruben Verborgh and Max De Wilde, offers a great introduction to OpenRefine. Organized by recipes with hands on examples, the book covers the following topics:

1. Import data in various formats
2. Explore datasets in a matter of seconds
3. Apply basic and advanced cell transformations
4. Deal with cells that contain multiple values

Using OpenRefine

Crosswalking Tools

RDF Translator is a multi-format conversion tool for structured markup. It provides translations between data formats ranging from RDF/XML to RDFa or Microdata. The service allows for conversions triggered either by URI or by direct text input. Furthermore it comes with a straightforward REST API for developers.

Feedback

| URI | Input Field |

http://www.ebusiness-unibw.org

Submit

Input [... automatically ↕] Output [RDFa ↕]

REST API

This on-line service provides an easily accessible API which allows for a couple of access methods:

1. Request raw code snippet served using the proper media type for the target data format:

```
http://rdf-translator.appspot.com/convert/<source>/<target>/<uri>
```

Examples:

- URI, source data format, and target data format are given
- Input format is detected automatically

rdf-translator.appspot.com

Your Website is Your API

Jan Zauha is defined/understood as an entity

The Linked Data Audience

Humans + Bots

Why LOD?

- Libraries as publishers in Web of Data

- Reuse of our data = Significance

- Can improve findability in search engines (search engine optimization)

- Levels of description in LOD enable entirely new applications

Resources

Harper, Corey. Library linked data: tuning library metadata for the semantic web. An ALCTS webcast, March 16. 2011. (open access) http://www.ala.org/alcts/confevents/upcoming/webinar/cat/031611

Berners-Lee, Tim. The next web. A TED talk, February 2009. (open access) http://www.ted.com/talks/tim_berners_lee_on_the_next_web

Koster, Lukas (2011) Brief Introduction to Linked Data (open access) https://docs.google.com/document/d/1W6UOCLgxTyM0BlPfd5hs58dh4k6CUdLW354AjjtnJfk/edit

*See also LODLAM - Linked Open Data in Libraries, Archives & Museums at http://lodlam.net/

Acknowledgements

I would like to thank Alison Hitchens for her excellent work in explaining and teaching these linked data concepts and definitions.

http://www.accessola2.com/olita/insideolita/wordpress/?p=60029

She was also gracious enough to distribute her work under the Attribution-Noncommercial-Share Alike 3.0 Unported license. And I am doing the same.

Questions?

twitter.com/jaclark
github.com/jasonclark
www.lib.montana.edu/~jason/talks.php