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Linking to Our Future: Cataloging & Metadata in Transition

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Linking to Our Future **Cataloging & Metadata in Transition**

April 8, 2015

Rm. 352

11:00-12:30 pm,

Sherry Vellucci

Today's Presentation

Part 1: Everything you need to know about the Web in (almost) 3 slides

Part 2: Linked data on the Web and in Libraries (almost)



Linked Data Overview



Output Using the Web to create defined (typed) links between data from different sources that weren't previously linked.



A method for sharing data—within and outside a library environment in a non-library-centered exchange format

O Depends on everyone using standards that enable data exchange



Identifying relationships between entities is essential to the success of a linked data environment



Sherry Vellucci

Some Key Terms



O Semantics: The study of the meanings of words and phrases in language; the meanings of words and phrases in a particular context

ORelationship: The way in which two or more people or things are connected.

• Link: An *identifier* attached to an element in a system to indicate or permit connection with other similarly identified elements, *especially* a hyperlink in a computer file

More Key Terms



Olata: The primary building block of information; factual statements or figures presented in a form that can be understood, interpreted, and communicated by a human being or processed by a computer; when contextualized by its use, data becomes information.

O Entity: Independent, separate, or self-contained existence
 O Record: A collection of related items of information (as in a database) treated as a unit

Evolution of the Web or, How Did We Get Here?

Everything you need to know about the Web in 5 slides!



Sherry Vellucci





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The World-Wide-Web

OHTTP developed in 1991 **OWeb of Documents** Pages (HTML documents with hyperlinks) **OWeb of Discovery** O Search engines index and infer relevance Implicit relationships between documents O Lack of semantics (not "typed" links) *•* All are designed for humans



"The semantic web is a vision of information that is understandable by computers, so computers can perform more of the tedious work involved in finding, combining, and acting upon information on the web." – Wikipedia



The Semantic Web of Linked Data

Linked Data is *not* about searching for specific documents or visiting particular websites, it's about identifying and connecting things

Ø Making connections between related data (entities) from different sources
Ø Computer programs understand connections (for humans & machines)
Ø Data is sharable, extensible, and reusable
Ø Entity-based Architecture



Linked Data, or, How I Learned to Stop Worrying and love Cyber-Vagueness

Sherry Vellucci





What Do Computers Like?

Unique Identifiers (they confuse easily, & need specific

directions & information)

Controlled Vocabularies (See previous likes. They need the same language to play with other computers) **Consistent**, **Predictable**, Non-human-language Data

(See Unique IDs; they are also verbally To Understand Relationships challenged) (They are really into genealogy & don't like



... and the answer is ...

URIs!!!

Sherry Vellucci

4108/2015

Adapted from Dorothea Salo: Libraries Storming Linked Data!

blind dates)

Four Rules of Linked Data

NKED DEFIN DATA On the web OPENING Machine-readable des Non-proprietary forms RDF standards Linked RDF SYOUR DATA 5

2. Use HTTP URIs so that people can look up those names <u>http://id.loc.gov/authorities/names/n87929612</u>

▶ 1. Use URIs as names for things

id.loc.gov/authorities/names/n87929612

- 3. When someone looks up a URI, provide useful information, using the standards (RDF, SPARQL)
- ➤4. Include links to other URIs so that they can discover more things

Tim Berners-Lee







>Richard Smiraglia

> Martha Yee

Sherry Vellucci

> Allyson Carlyle



Library Research: It's About Relationships, Stupid!

The Library Perspective

Deconstruct MARC records into individual entities (bits of data)

Create RDF statements that link entities by identifying relationships



Linked Data Basics Records Entities Link entities – → Statements **Resource Description Framework (RDF) Relationships defined in "triples"** Entity A \longrightarrow Has relationship to \longrightarrow Entity B Record becomes a **graph** formed by triples Entities represented by URIs (or verbal values) Catalog (closed) \longrightarrow Web (open) Not limited to libraries or bibliographic records Sherry Vellucco

- **O** RDF is a Data Model that makes statements about [Web] resources
- OLiteral/String = Value expressed as natural language
- O Statements have 3 parts and are called triples:

What we're describing (entity 1)

Verb describes relationship between 2 entities

Value of what we're describing (Entity 2)



4/08/2015





Library Data: Stored As Records



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Library Data Stored as Entities Library Knowledge Graph



Graph of Relationships

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Adapted from: Richard Wallis. <u>Linked Data:</u> <u>From Library Entities to the Web of Data</u>.

http://id.loc.gov/authorities/names/n91123848



4/08/2015

http://id.loc.gov/authorities/subjects/sh85075480

<rdf:Description rdf:about="<u>http://viaf.org/viaf/113142467/</u>">

<rdf:type rdf:resource="http://schema.org/Person"/><schema:name>Collins, James C.</schema:name></rdf:Description>

<rdf:Description rdf:about="<u>http://id.loc.gov/authorities/subjects/sh85075480</u>"> <rdf:type rdf:resource="<u>http://schema.org/Topic</u>"/> <schema:name> Leadership</schema:name></rdf:Description>

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Jane Austen - Wikipedia, the free encyclopedia en.wikipedia.org/wiki/Jane_Austen - Wikipedia

Jane Austen was an English novelist whose works of romantic fiction, set among the landed gentry, earned her a place as one of the most widely read writers in ... Sense and Sensibility - Mansfield Park - Persuasion - Northanger Abbey

Jane Austen - Biography - Writer - Biography.com www.biography.com/people/jane-austen-9192819 - FYI -

4 days ago - Jane Austen's novels of manners, including Pride and Prejudice and Sense and Sensibility, are literary classics. Learn more about her literary





Jane Austen

Jane Austen was an English novelist whose works of romantic fiction, set among the landed gentry, earned her a place as one of the most widely read writers in English literature. Wikipedia

Virginia Woolf Feedback

Where are our users?



"When my community searches the Web for something we have [in the library], we better show up as an option." -- Chuck Gibson, Director & CEO Worthington Public

Adapted from: Richard Wallis. Linked Data: From Library Entities to the Web of Data.

Not in Google Why? Google does not understand: MARC - ISBD - RDA - Z39.50 etc.

Adapted from: Richard Wallis. <u>Linked Data:</u> <u>From Library Entities to the Web of Data</u>.

Sherry Vellucci

The real problem is that we don't expose our collections very well on the web!

- Locked in library catalog silos that are not searchable on the Web, or
- Available from aggregator's database—No direct access from Web search



O Transforms library data so that it is of the web
O Becomes easily searchable
O Libraries can integrate outside data into what they already have
O Anyone can reuse library data to create their own

applications

Fact: *BnF* converted to LD
80% + users now come from search engines

Unlock Library Data

Sherry Vellucci

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Connect different parts of the library's system

- O Different parts of the library structure (ILS, ERMS, Archive Finding Aids, LibGuides, etc.) would be able to share data more easily, allowing searches to easily jump from one area to another
- O Link to outside information relevant to a search



Google search results

Jane Austen - Wikipedia, the free encyclopedia en.wikipedia.org/wiki/Jane Austen - Wikipedia -Jane Austen was an English novelist whose works of romantic fiction, set among the landed gentry, earned her a place as one of the most widely read writers in ... Sense and Sensibility - Mansfield Park - Persuasion - Northanger Abbey

Jane Austen - Biography - Writer - Biography.com www.biography.com/people/jane-austen-9192819 * FYI *

4 days ago - Jane Austen's novels of manners, including Pride and Prejudice and Sense and Sensibility, are literary classics. Learn more about her life and ...

Jane Austen - Biography, Life Timeline, Books, Movies www.janeausten.org/ -Detailing the life and works of English Author Jane Austen.

The Jane Austen Society of North America - About Jane ...

www.jasna.org/.../about_austen.ht... - Jane Austen Society of North America -Jan 16, 2015 - Jane Austen, one of England's foremost novelists, was never publicly acknowledged as a writer during her lifetime. She was born on December ...

Jane Austen Info Page

www.pemberley.com/janeinfo/janeinfo.html *

Compendious page devoted to Jane Austen, English novelist 1775-1817; has illustrated hypertext of Pride and Prejudice, HTML e-texts of her letters and many ...

Jane Austen's Biography: Life (1775-1817) and Family www.pemberley.com/janeinfo/janelife.html *

The main source of information about Jane Austen's life is family letters, especially those of Jane Austen to her sister Cassandra from 1796 onwards. ...

JANE'S WORLD - The New Yorker



newyorker.com - Jan 1996 Currently, it seems, Jane Austen is hotter than Quentin Tarantino. But before we try to establish what the Austen phenomenon is, let us first establish what it is not. About eighteen ...

Terry Castle reviews 'Jane Austen's Letters' edited by ... Irb.co.uk



It is impossible for the lover of Jane Austen - and lover is the operative word here - to have anything but mixed feelings about Austen's older sister

When I teach Jane Austen's Pride and Prejudice, I take great pains to

un-sully it from students' film-adaptation Thuced miscore that it's a "romantic" novel. As a satirist, even if a ...



I Learned Everything I Needed to Know About ... theatlantic.com - Nov 2013





Jane Austen

Novelist

Jane Austen was an English novelist whose works of romantic fiction, set among the landed gentry, earned her a place as one of the most widely read writers in English literature. Wikipedia

Born: December 16, 1775, Steventon, United Kingdom

Died: July 18, 1817, Winchester, United Kingdom

Full name: Jane Austen

Movies: Becoming Jane, Pride & Prejudice, Clueless, Persuasion, More Nationality: English, British



People also search for





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Brontë

Jane Austen Centre The Jane Austen Centre at 40 Gay Street in Bath, Somerset, England, is a permanent exhibition





Jane Austen

Novelist

Jane Austen was an English novelist whose works of romantic fiction, set among the landed gentry, earned her a place as one of the most widely read writers in English literature. Wikipedia

Born: December 16, 1775, Steventon, United Kingdom Died: July 18, 1817, Winchester, United Kingdom Full name: Jane Austen Movies: Becoming Jane, Pride & Prejudice, Clueless, Persuasion, More Nationality: English, British



Library data stored as entities





Born: Steventon, UK on December 16, 1775.

Library

University of

New Hampshire

English novelist whose timeless works of love among the landed gentry are lauded as social commentaries of her time.

Novels

SENSE

Sense &

Sensibility





Pride & Prejudice Audiobook

Emma

Sense & Sensibility

Subjects

English fiction | Courtship—England—Fiction | England— Social Life and customs—19th century—Fiction | Man-women relationships—England—19th century—Fiction | Young women--Fiction Ouotes

"I do not want people to be very agreeable, as it saves me the trouble of liking them a great deal."

- Jane Austen, Jane Austen's Letters

Sherry Vellucci Knowledge Cards for Libraries

Is linked data and the Semantic Web achievable?
Will it bring substantial benefits to libraries?
Is linked data something we can ignore?



So, How Do We Get There?



Being developed by <u>Zepheira</u> and the Library of Congress

- The foundation for future bibliographic information
- Eventual replacement for MARC

>A data model based on identifying information entities with URIs

92	[a pI:Topic ;
93	<pre>bf:authorizedAccessPoint "Organizational change" ;</pre>
94	<pre>bf:hasAuthority [a madsrdf:Authority,</pre>
95	<pre>madsrdf:Topic ;</pre>
96	<pre>madsrdf:authoritativeLabel "Organizational change" ;</pre>
97	<pre>madsrdf:isMemberOfMADSScheme <<u>http://id.loc.gov/authorities/subjects</u>>] ;</pre>
98	<pre>bf:label "Organizational change"] ;</pre>
99	<pre>bf:workTitle [a bf:Title ;</pre>
100	bf:subtitle "why some companies make the leapand others don't ";
101	bf:titleValue "Good to great :"] .
102	
103	

Bibframe: One Solution



What is schema.org?

A shared markup vocabulary

Used with HTML and RDFa

Developed by:

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Provides a hierarchical structure to identify specific types of :

Things

- Creative Work (Book, Movie, MusicRecording, Recipe, TVSeries ...
- Person (alive, dead, undead, fictional)

Schema.org: Another Solution

Thing > Person A person (alive, dead, undead, or fictional).

D

Property	Expected Type	Description
Properties from Person		
additionalName	Text	An additional name for a Person, can be used for a middle name.
address	PostalAddress	Physical address of the item.
affiliation	Organization	An organization that this person is affiliated with. For example, a school/university, a club, or a team.
alumniOf	EducationalOrganization	An educational organizations that the person is an alumni of. Inverse property: <mark>alumni</mark> .
award	Text	An award won by this person or for this creative work. Supersedes awards.
birthDate	Date	Date of birth.
birthPlace	Place	The place where the person was born.
brand	Organization or Brand	The brand(s) associated with a product or service, or the brand(s) maintained by an organization or business person.
children	Person	A child of the person.
colleague	Person	A colleague of the person. Supersedes colleagues.
contactPoint	ContactPoint	A contact point for a person or organization. Supersedes contactPoints.
deathDate	Date	Date of death.
deathPlace	Place	The place where the person died.
duns	Text	The Dun & Bradstreet DUNS number for identifying an organization or business person.
email	Text	Email address.
familyName	Text	Family name. In the U.S., the last name of an Person. This can be used along with givenName instead of the name property.
LaxNumber	Text	The fax number. Sherry Vellucci

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	Good to g others do Author: Publisher: Edition/Format: Database: Summary: Rating: Subjects	preat : why some companies make the leapand n't James C Collins New York, NY : HarperBusiness, 2001. Print book : English : 1st ed View all editions and formats WorldCat Answers to commonly asked questions about how good-to-great principles can help social sector organizations make the leap to greatness, using interviews with over 100 social sector leaders.	Nearby libraries to 03824 UNH Durham Durham, New Hampshire 03824-3592, United States < 1 m / km Lee Public Library Lee, New Hampshire 03861, United States < 1 m / km Langdon Public Library Newington, New Hampshire 03801, United States
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You are connected to Hide local services for Request item throug	the UNH Durha	In network	Borrow / obtain a copy Buy it through ILL

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Schema Creator for Book

-schema.org/Book

Name

Good to Great

URL

prary.worldcat.org/title/good-to-great-why-some-con

Description

Book by Jim Collins

Author

James C Collins

Date published

2001

Publisher

HarperBusiness

Book edition

first

ISBN

http://schema-creator.org/book.php

Preview

Good to Great

Book by Jim Collins Written by: James C Collins Published by: HarperBusiness Date published: undefined/undefined/2001 Edition: first Available in Hardcover

Code

Sherry Vellucci

<div itemscope itemtype="http://schema.org /Book"> <a itemprop="url"

href="http://unhlibrary.worldcat.org/title
/good-to-great-why-some-companies-make-theleap-and-others-dont/oclc/46835556&
referer=brief_results"><div itemprop="name">
Good to Great</div>

<div itemprop="description">Book by Jim Collins</div>

<div itemprop="author" itemscope
itemtype="http://schema.org/Person">
Written by: James C

Collins</div>

<div itemprop="publisher" itemscope</pre>

4/08/2015



Libraries should use

schema.org

to Describe & Link to the Web

BUT

Continue to apply other vocabularies & standards



Are we there yet?

4/08/2015

Phases of Linked Data / BIBFRAME Adoption



4/08/2015

Anything Else We Need?

*O*An ILS vendor that lets us control our own HTML! Ocan't take advantage of Linked Data without that! EVER *O*How do we get there? **OBother current vendor OWrite microdata into RFPs O**Collaboration Skoha



Where Do We Go From Here?

o "If all of this sounds otherworldly and vague, it is because there is no specific vision of where these changes will lead us. The crystal ball is unfortunately shortsighted... The few things that are certain, however, point to the Web, and its eventual successors, as the place to be. For libraries, this means yet another evolutionary step in the library of our catalog: from metadata to metaDATA."



<u>Understanding the Semantic Web: Bibliographic Data and Metadata</u>, by Karen Coyle. ALA Library Technology Reports, January, 2010 Eric Miller - Zepheira

Libraries are moving from Cataloging to Catalinking!



Thank you! Questions? Comments?

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