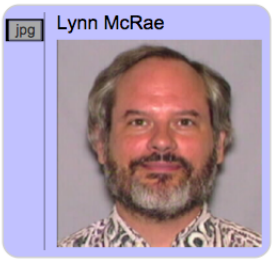
Ontology Overview

Linked Data for Libraries (LD4L) Workshop
February 23, 2015

Jon Corson-Rikert

The team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Lynn McRae


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Jonathan Kennedy


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Robin Wendler


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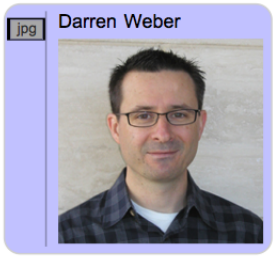
Michelle Durocher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Darren Weber


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Paul Deschner


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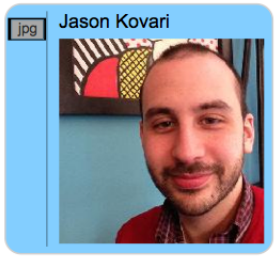
Steven Folsom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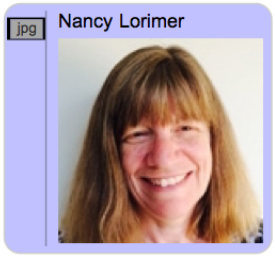
Jason Kovari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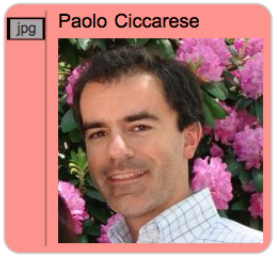
Nancy Lorimer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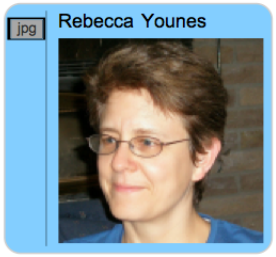
Paolo Ciccarese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Rebecca Younes


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Chew Chiat Naun


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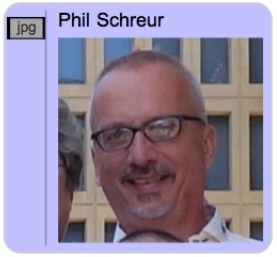
Rob Sanderson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Phil Schreur


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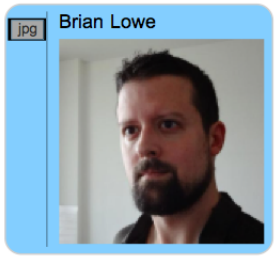
Jon Corson-Rikert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Brian Lowe

Goals for an LD4L ontology framework

(from our 2013 proposal)

- *reuse appropriate parts of currently available ontologies while introducing extensions and additions where necessary*
- *be sufficiently expressive to encompass traditional catalog metadata from the 3 partners*
- *maintain compatibility with VIVO and research networking ontologies*
- *include usage and other contextual elements*

Early discussions

- What library information is local vs. global?
- How do we add links to external identifiers, authorities, and real world objects (RWOs)?
- How do we link across our libraries?
- What existing ontologies should we use?
- What services and workflows do we need?
- Which services are (or aren't) ready for prime time?

Other starting points

- LD4L is not about original cataloging
- LD4L is not about reconciling the different approaches of Schema.org and BIBFRAME
- Linking to data beyond library catalogs **is** a focus
  - Predisposed to re-use ontologies appropriate to the domain involved
- Ontology work has focused on our use cases

BIBFRAME and Schema.org in LD4L

- We considered the needs of our project and our libraries
- Our libraries will likely need the greater expressiveness that BIBFRAME offers
  - Technical services units are actively participating in BIBFRAME training and trials
- Libraries also want broader discoverability
  - Value in exposing bibliographic metadata on the web with Schema.org tags

Conversations continue on the BF list …

- “Much of Bibframe’s problems seem to come from trying to keep everything from the past (MARC) while moving to something fit for the future, an ambition that has I think also afflicted RDA” (Thomas Meehan)
- “We can’t possibly formalize the rules if nobody can even describe his examples in natural language” (Jeff Young rephrasing Ronald Murray)
- “Why do the 'powers that be' think that we even want our local catalogs to be semantically connected to the web or have all of our data linked?!” (Michael Ayres)
- “The whole linking idea is great, but really, after 40 years using MARC21, some yahoo wants to unravel everything and bill me for it? I don’t think so.” (Jeffrey Trimble)

Open questions

- Limitations of a work-centric model for event-centric content
  - Abandoning the 'record' for independent entities and the architecture of the web
  - Not every library resource even has a work
  - "A resource may be of several types, and all may be specified."[1]
- Granularity distinctions
  - E.g., archiving and preservation vs. discovery
  - Where is the right point of crossover from BIBFRAME to existing (or modified) content standards?
- Tensions between consistency and flexibility
  - E.g., string/literal values vs. URIs vs. placeholders for future URIs
  - Availability of data

1. BIBFRAME AV Modeling Study: Defining a Flexible Model for Description of Audiovisual Resources, Kara Van Malssen, AVPreserve, May, 2014, p. 42

Local vs. global identifiers

- Establishing local identifiers allows libraries to make their own assertions about resources and authorities
  - Assigning stable linked data URIs are accessible anywhere
- Shared references to global identifiers enable both direct and indirect linkages
- OCLC, VIAF, ISNI, ORCID and others are addressing global identifiers at scale

Local linked data identifiers

- For library resources but also local or unique information on people, organizations, events, collections
  - There is value and credibility in the institutional namespace
- Supplement with locally-sourced and/or locally-targeted annotations
  - Not restricted to local generation or visibility
- Does not require exposing all operational data

From strings to things

- People
- Organizations
- Places
- Subjects
- Events
- Works
- Datasets

Image: designyoutrust.com

Reliance on strings alone is problematic

- Using reliable external URIs will improve data quality and connectivity, enabling interoperability
  - We will need to assign local URIs even to unknown things
- There will be challenges in resolving duplicate URIs
  - And owl:sameAs may not always be the appropriate relationship
- The development and dissemination of resolution services and tools to use them is paramount
  - To support new cataloging as well as legacy metadata

Converting MARC to RDF

- The LOC Converter continues to evolve and there will be other editors and converters
- We have focused on the data required for our use cases
- Three workflow phases
  - Pre-processing to adapt local anomalies or augment MARC with additional authorities
  - Conversion to BIBFRAME plus minimal extensions
  - Post-processing to add additional entity references and support interoperability with other linked data

Addressing complexity

- Ontologies such as PROV-O and VIVO support both simple and reified relationships
  - Reified relationships allow linking spatial or temporal extent, roles, outcomes, provenance, or multiple parties
- Levels of detail and quality vary widely in existing library metadata
- Search indexing and application display both need to accommodate variation in data structure and completeness
  - Balancing representational granularity and consistency

Working with non-MARC metadata

- Faculty research profiles (CAP, Faculty Finder, VIVO)
- Library guides and other library-sourced web content
- Digital collections that vary widely in size and complexity, and that encompass diverse subject domains
- Pilot projects
  - Cornell's Hip Hop flyers
  - Harvard's Visual Image Access metadata

Entity resolution

- Can potentially happen before, during, or after MARC to RDF conversion
- Can draw on existing authorities directly and indirectly
  - Local sources may involve custom workflows and services
  - Remote sources are likely shared and can more likely benefit from standardized services
- Assess potential to loop back
  - From non-MARC sources to other catalog resources
  - From external sources to local

Annotations and online collections

- Personal/individual annotations for integration into current local discovery systems
  - Use case 1.1
  - Persisted in triple store using ActiveTriples
- Online collection management
  - Use case 1.2
  - To improve the functionality of the Curated Lists of Library Resources (CuLLR) project at Cornell
  - For more general collection identification, management, and sharing by patrons and/or library staff
- Annotations can reference any URI on the web and link together physically disjoint collections

Usage data

- Inspiration
  - Harvard's Stacklife
- Goals
  - To supplement library discovery interfaces
  - To inform collection review and additions
- Challenges
  - Data availability
  - Concerns for patron privacy
- Potential for a normalized stack score across institutions

StackLife

196 items

Click a book to dive into the stacks

Search

Go!

Advanced Search

Welcome to StackLife, a new way to browse the Harvard Library collection.

This is a prototype. We're eager to hear from you about what works, what doesn't, and what you'd like to see. Email us at lil@law.harvard.edu!

How it works

About

Continuing work

- Improving the quality and consistency of search by exposing more nuanced metadata in more consistent and controllable ways
  - Express important user-facing distinctions semantically rather than only through opaque, black box workflows
  - Facets such as genre, uniform title, online availability
- Further leveraging linked data
- Further cross-linking among our 3 institutions and other partners

Remaining challenges

- Scalability
- Moving beyond pilots to production services
- Entity resolution, both locally and at global scale
- ROI
- Sustainability

Q&A