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"Linked-Data-Ready" Software For Libraries: The eXtensible Catalog (XC)

Jennifer Bowen, University of Rochester

CNI Spring Membership Meeting, 2012

April 3, Baltimore, MD

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EXTENSIBLE CATALOG
Organization

Linked Data for Libraries

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Why should we do it?

Who should do it?

How can we get started?

What are the possible outcomes?

…vis-à-vis the eXtensible Catalog

Linked Data for Libraries: Why?

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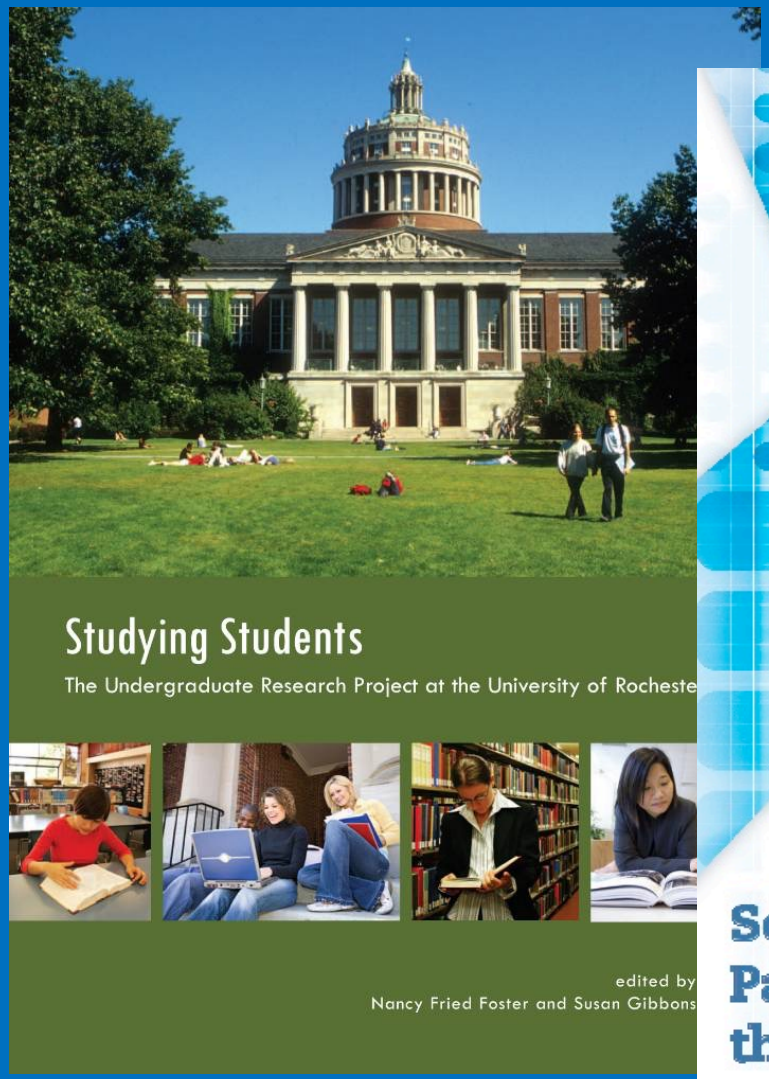
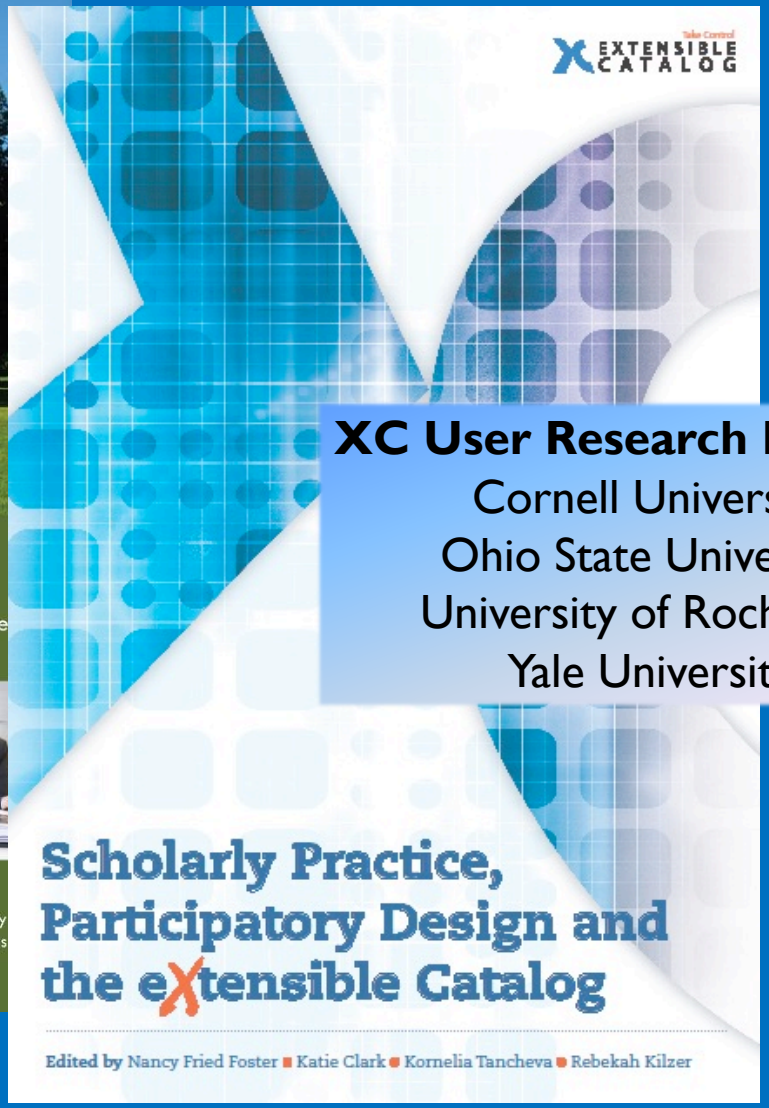
What do our users need, and can linked data help us provide that?

Are there NEW ROLES that Linked Data can help libraries fulfill?





XC User Research Partners:

Cornell University
Ohio State University
University of Rochester
Yale University

Studying scholars at the UR…

Scholars want to read everything on the topic that they are researching

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They want to be in the middle of everything they need, all organized so it is findable and usable

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Scholars want their research to be findable and usable by others.

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that are clean, renewable, and environmentally
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YF Yang, CP Feng, Y Inamori... - Resources,
... Since **algae** has the ability to accumulate l
of **algae** is an **alternative** source of **energy**,
it is reproducible with photosynthesis (Dote et
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M Fine... - ... of the Royal Society of London.
... widely documented. We suggest that amon
survival of coral species during such events are
skeleton, providing an **alternative** source of e
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All work in: UR Research

Researcher Information

Title:

Business/Economics Librarian; UR Research Projects Coordinator

Research

- Institutional Repositories
  - From Users to Software Rather than the Reverse: - PDF of PowerPoint slides presented in a webinar sponsored by the Digital Information Committee of the American Distance Education Consortium (ADEC) on November 17, 2009. The author gratefully acknowledges Nora Dimmock and Susan Gibbons for contributing some of the slides from their presentations.
  - Institutional Repositories, Policies, and Disruption
  - Institutional Repositories: What will it take to fill them?
  - Learning about grey literature by interviewing subject librarians
  - Reference Librarians and the Success of Institutional Repositories - post-print version
  - Jeremy Greenwood Gets It: Examining One Faculty Member's Creative Use of an Institutional Repository - From the Feb/March 2006 SPARC enews.
  - Re-Engineering an Institutional Repository to Engage Users - Bell, Suzanne and Nathan Sarr. *New Review of Academic Librarianship* Volume 16, Issue S1 2010 , pages 77 - 89.
  - Repository Partnerships and Faculty - Link to powerpoint for talk given at 2007 Computers in Libraries conference.
  - UR Research/IR+ colleague - Researcher page for Nathan Sarr, developer of the IR+ software that now runs UR Research.
- Other Professional Publications (various topics)
  - Fieldwork with Homo Academius: Using anthropological methods to better understand your user populations - Keynote talk given at the

Scholars want to connect to people whose work is interesting and useful to them.

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Scholars don't care *what* the technology is, as long as it helps them do their work.

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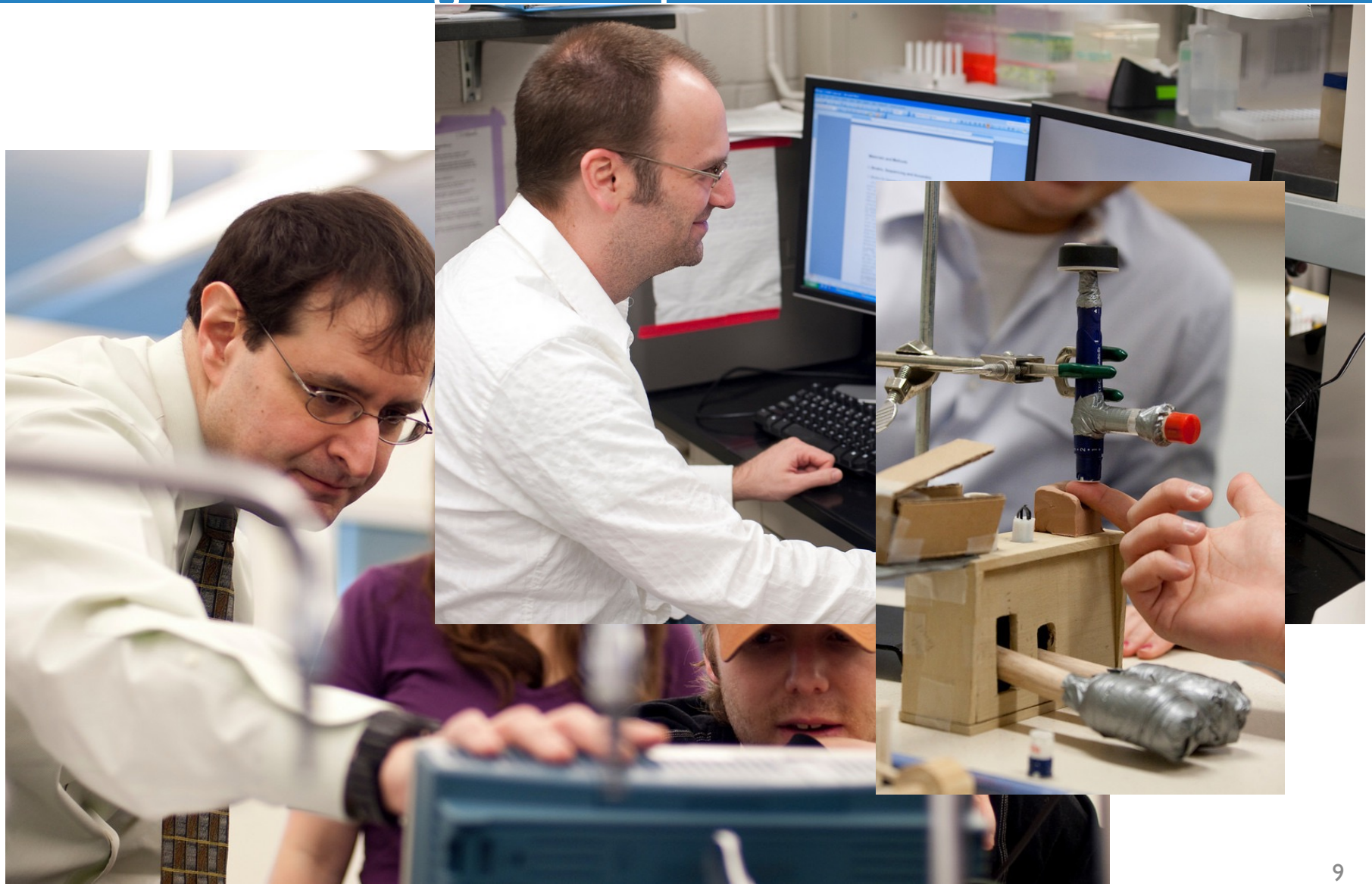

A shift in how people seek and use information

Systems that libraries provide (websites, catalogs, databases) are bypassed

…not just in favor of Google and the Web in general

…but also in favor of tailored desktop, mobile, and web applications

Beyond library finding tools

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"Even scholars who continue to use library finding tools are turning to new applications to aggregate and analyze information in ways that extend their scholarship beyond what manual searching and analyzing allows."

-- Nancy Fried Foster
Director of Anthropological Research
UR River Campus Libraries

Vision for how to address this…

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Make library resources discoverable on the open web, through applications that potential readers are already using:

- Search engines
- Mobile apps
- Social media

An example…

An example…Mt. Hope Cemetery

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Photo credits: *ROCHESTER'S SPEAKING STONES* By Th. Emil Homerin; University of Rochester Department of Religion and Classics http://www.rochester.edu/College/REL/faculty/homerin/REL167/reports.htm

An example…Mt. Hope Cemetery

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Google Mt Hope Cemetery, Rochester, NY

Get directions | My places

Mt Hope Cemetery, near **Rochester, NY**

Mount Hope Cemetery
Rochester, New York
(585) 461-3494
★★★★½ 11 reviews
frederick douglass · bausch and lomb · john jacob · civil war · famous people
"amazing **cemetery**, holds some impressive famous people, the tours are fun! ..." -

Mt Hope Cemetery & Crematory
1133 Mount Hope Ave, Rochester, NY
(585) 428-7999

all 51 results for **Mt Hope Cemetery**,

Ad
Mt Hope Cemetery
Find Fast Facts, References and More on Ask.com. Get Answers Now!
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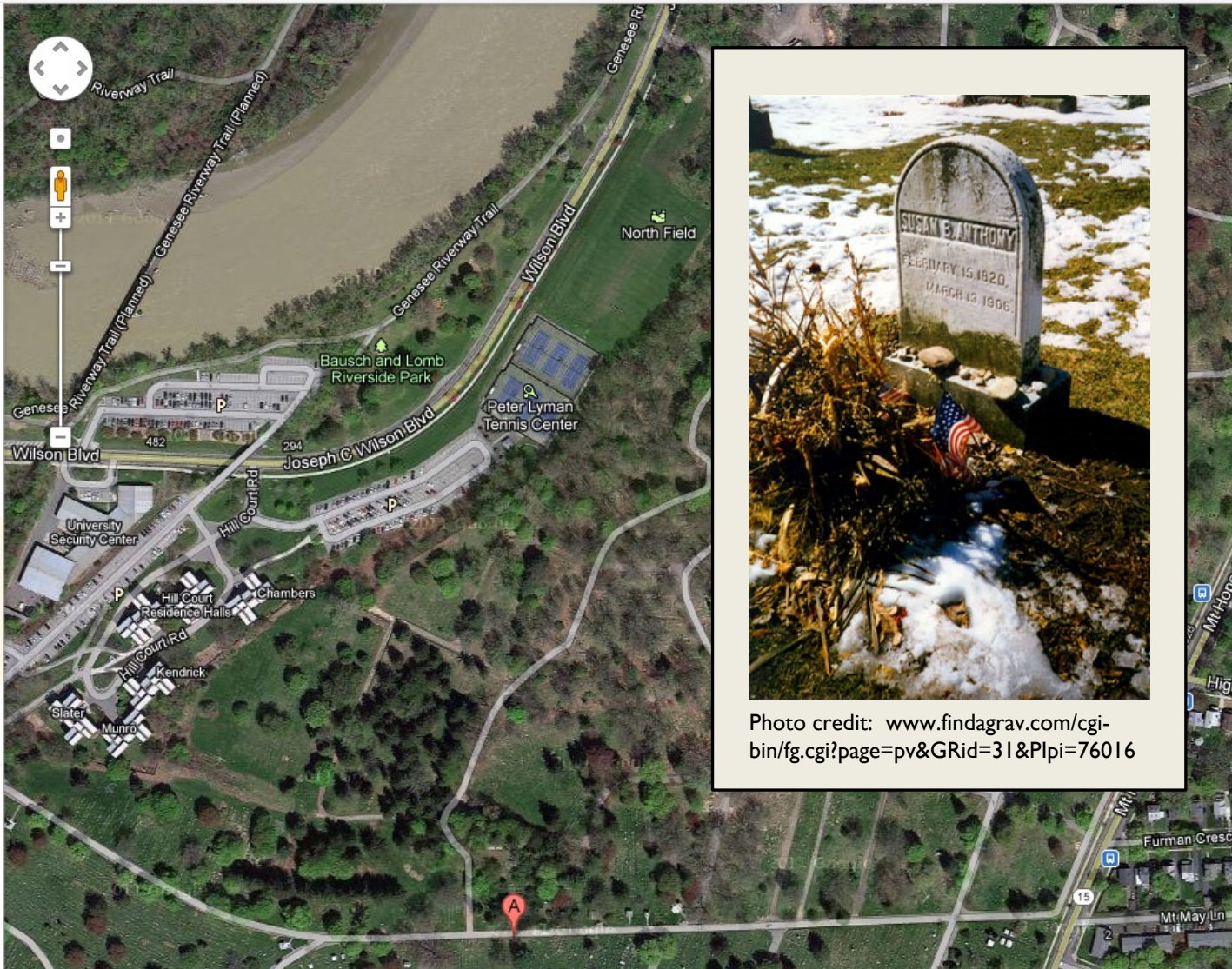

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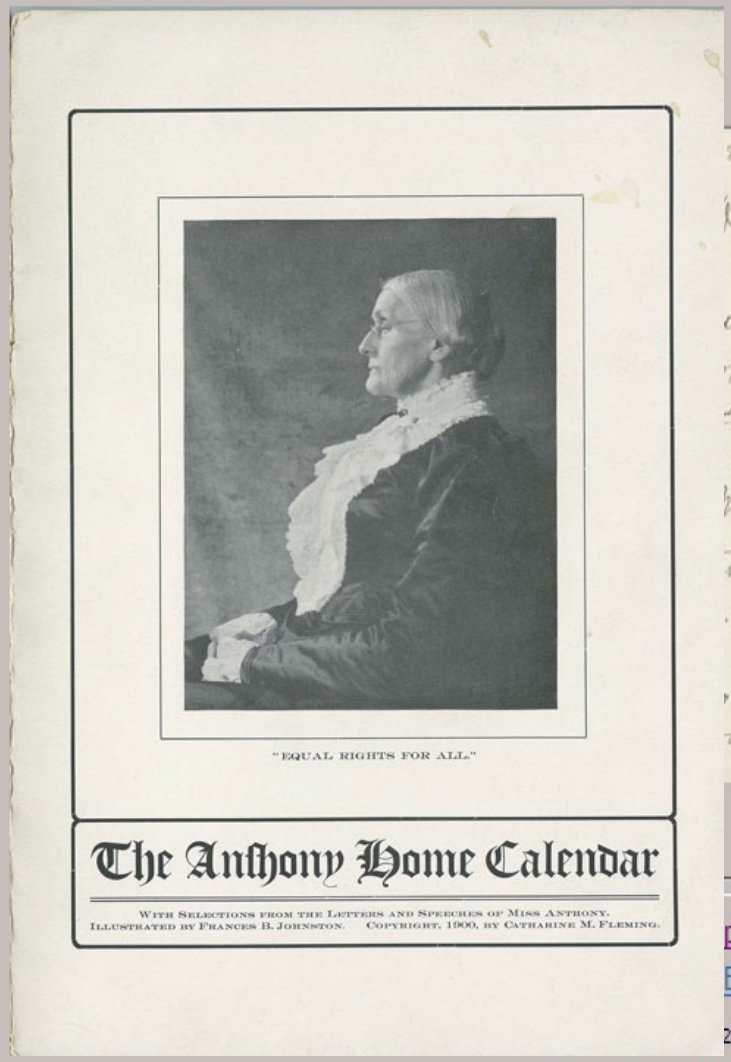
Susan B Anthony

CELEBRATING "A HEROIC LIFE"

DEPARTMENT OF RARE BOOKS & SPECIAL COLLECTIONS
UNIVERSITY OF ROCHESTER

Letter of William Channing Gannett describing Susan B. Anthony's funeral.

(page 2) *The services yesterday were simple, heart felt & impressive--college girls acting as "Honorary Bearers" and other girls as Guard of Honor as she lay in State in the Church while the people for three hours streamed through to look upon her face. The congregation filled [Central Church] --one of the largest in the city--to the doors & windows, while others stood outside in falling snow for the hour or two the service lasted...It does not seem like death, does it, --to move people so...*

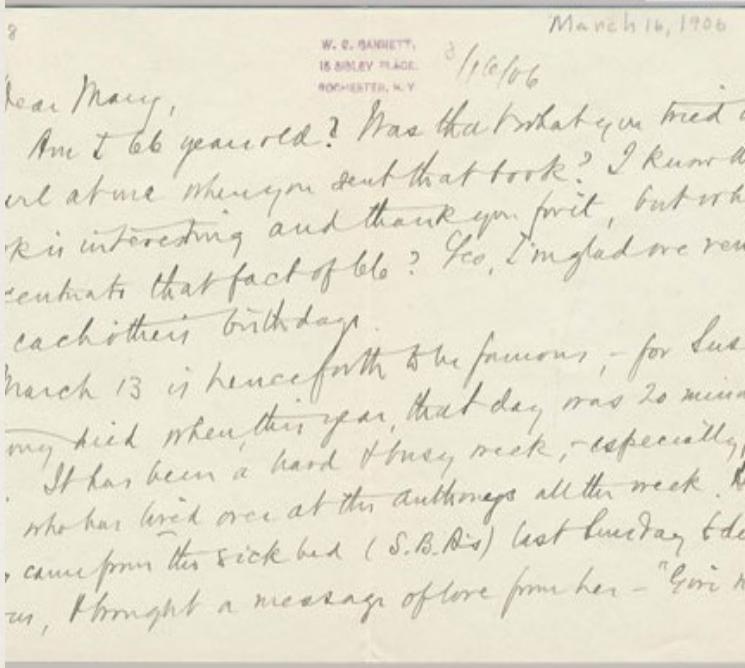


"EQUAL RIGHTS FOR ALL."

The Anthony Home Calendar

WITH SELECTIONS FROM THE LETTERS AND SPEECHES OF MISS ANTHONY.
ILLUSTRATED BY FRANCES B. JOHNSTON. COPYRIGHT, 1900, BY CATHARINE M. FLEMING.

Click for magnifier: off small



March 16, 1906

W. C. GANNETT,
15 SIBLEY PLACE,
ROCHESTER, N.Y.

3/16/06

Dear Mary,

Am I 66 years old? Was that what you tried ... [illegible] ... I know ... [illegible] ... and thank you for it, but work is interesting and thank you for it, but work ... [illegible] ... concentrate that fact of 66? Yes, I'm glad we ... [illegible] ... each other's birthdays.

March 13 is henceforth to be famous, - for Susan ... [illegible] ... died when this year that day was 20 minutes ... [illegible] ... It has been a hard & busy week, - especially ... [illegible] ... who has lived over at the Anthonys all the week. ... [illegible] ... came from the sick bed (S.B.A.'s) last Sunday & ... [illegible] ... us, I brought a message of love from her - "Give ...

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http://www.lib.rochester.edu/index.cfm?PAGE=4119

page 1
page 2

What's the role of linked data?

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Tools like this are possible today with dedicated programming.

Linked Data will enable library resources to be included in applications like this by allowing application developers access to a *"…a store of machine-actionable data on which improved services can be built".* (LOD value statement)

WHO should create library linked data?

As many libraries as possible.

Why should a library create linked data?

Libraries need to embrace a new paradigm – a new way of thinking about data.

-- We need *hands-on experience* with linked data to understand linked data's potential, and to develop best practices for linked data.

Why should a library create linked data?

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Serve the unique needs of local users:

- Create linked data for local resources (IR, etc.)
- Showcase special collections
- Develop discovery tools to address needs of local users

Why should a library create linked data?

Encourage vendors to implement linked data

- Educate them about what linked data is, why it is important to libraries.
- Get them thinking about/working on linked data NOW, not five years from now!

Why should a library create linked data?

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Create/take advantage of new opportunities, new roles for library expertise

LOD value statement: *"…opportunities for creative innovation in digital scholarship and participation."*

How can we get started?

To create linked data, we need…

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… a tool or tools that will enable us to move from legacy library metadata to library linked data.

Can eXtensible Catalog software play a part in this?

What is XC software?

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eXtensible Catalog (XC) is open source software for libraries

XC provides a ***discovery system*** and a ***set of tools*** for libraries to manage/transform metadata and build applications.

Four software toolkits available at: www.eXtensiblecatalog.org

eXtensible Catalog Funders and Sponsors

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Major Funding

Andrew W. Mellon Foundation

Sponsors

Consortium of Academic and Research Libraries in Illinois (CARLI)

Kyushu University

University of North Carolina at Charlotte

University of Rochester

First XC Sites

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Linked Data in XC

What the eXtensible Catalog offers

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XC provides a platform for experimentation with metadata transformation/reuse

– and potentially for linked data.

XC: A platform for creating linked data

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Bulk conversion of existing library metadata

Synchronize data conversion to existing systems

Provides a risk-free way to experiment with data

Can potentially make linked data available to developers in formats that they need

XC software

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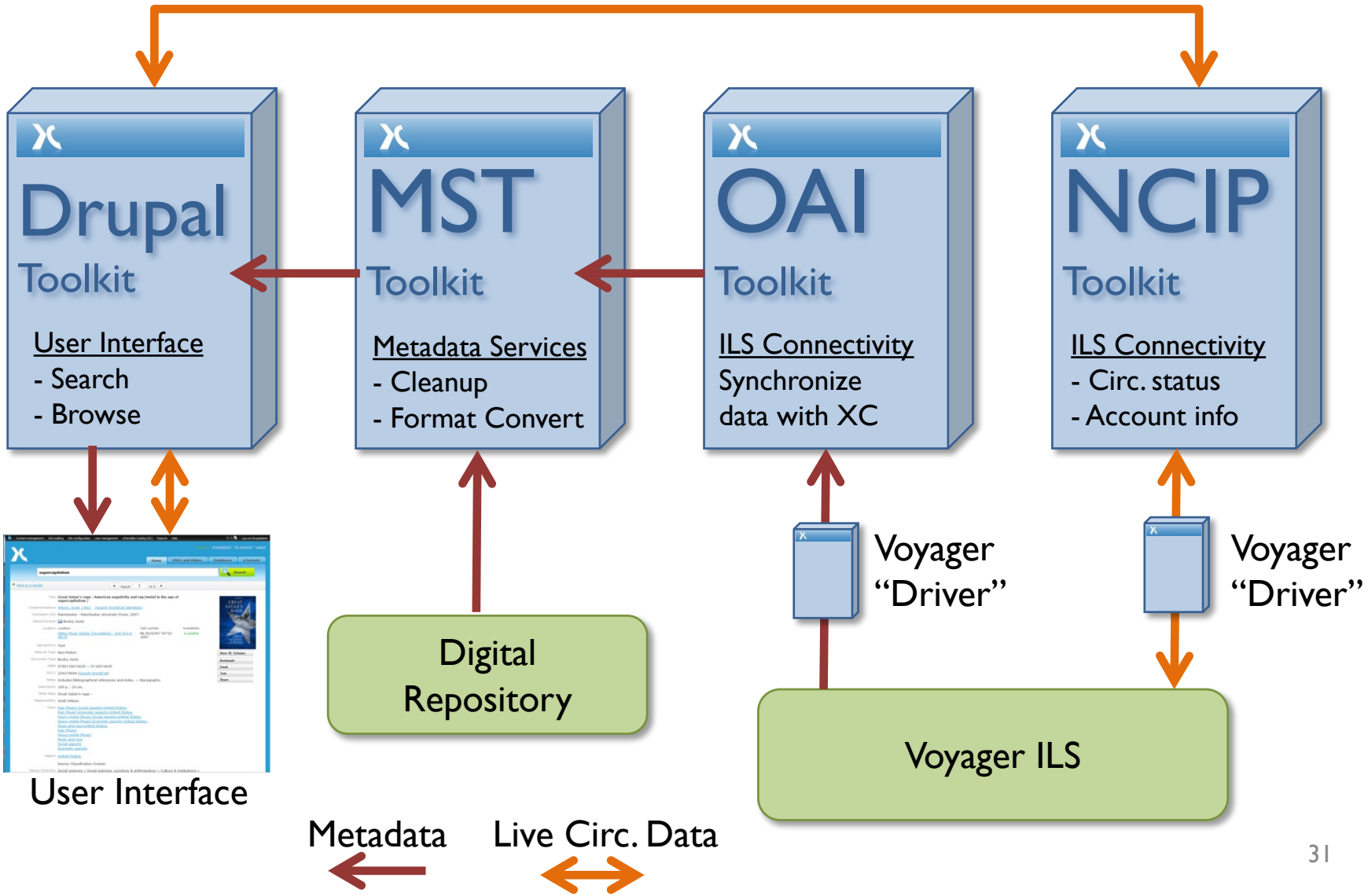

XC as Linked-Data-Ready: Options

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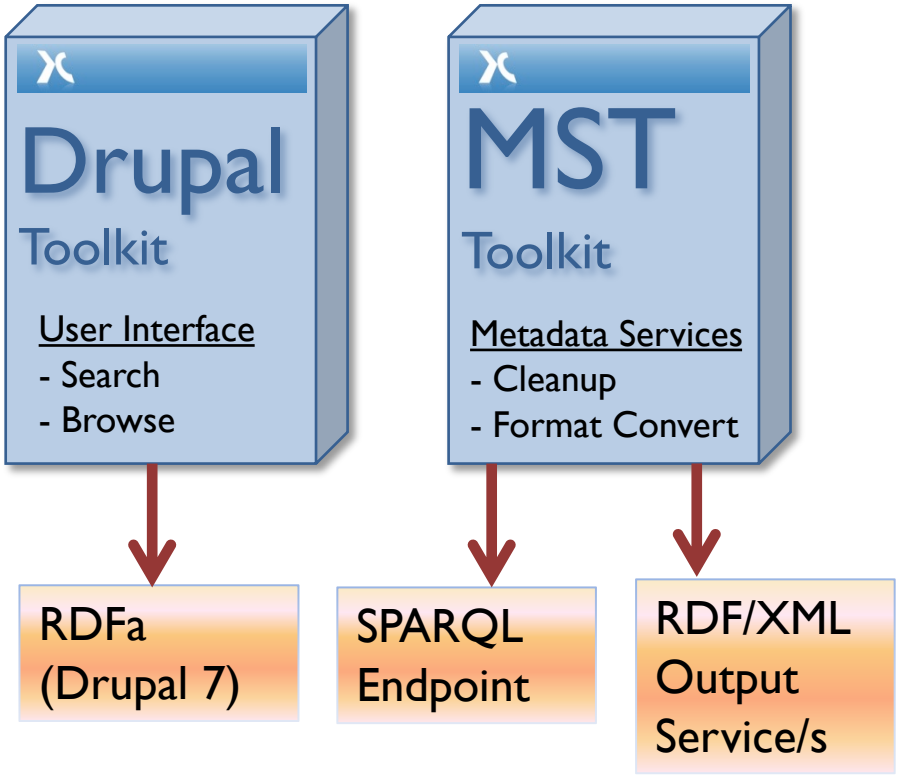

Linked Data to be created through XC's bulk metadata conversion processes:

- RDF/XML: harvestable record sets
- SPARQL Endpoint: query for information on demand

Linked Data to be created through Drupal 7 User Interface functionality:

- RDFa

XC: Making Library Metadata "Linked Data Ready"

How XC is Linked Data Ready

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The underlying schema for XC uses elements from registered element sets to facilitate conversion to RDF triples (i.e. they already have URIs)

RDF Triple - Registered Data Elements

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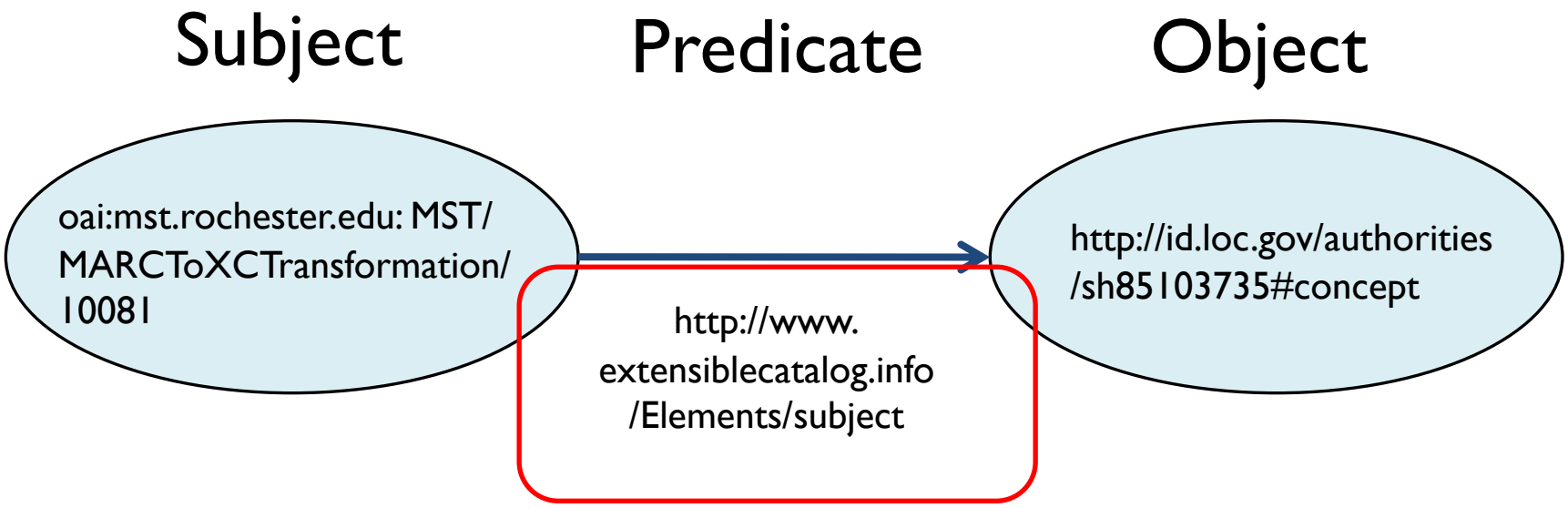

XC Schema Properties

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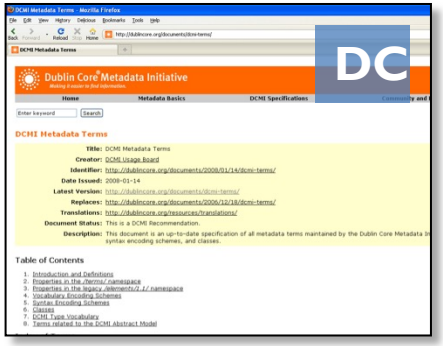
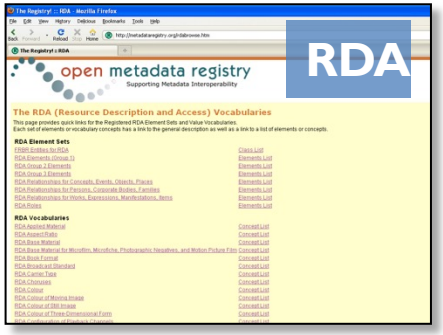
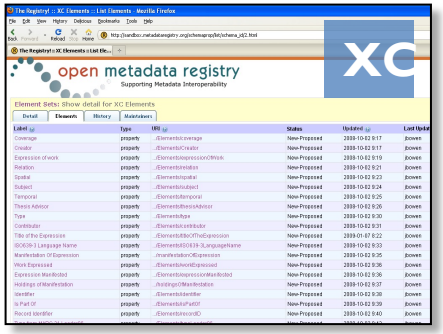
- Dublin Core terms (all)
- RDA – subset of elements and role designators
- XC elements (newly-defined) – when necessary

All properties are from registered element sets and thus already have URIs







How XC is Linked Data Ready

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XC converts MARC data to FRBR entities as an interim step. This may enable us to produce more *meaningful* linked data.

“FRBRized” MARC records

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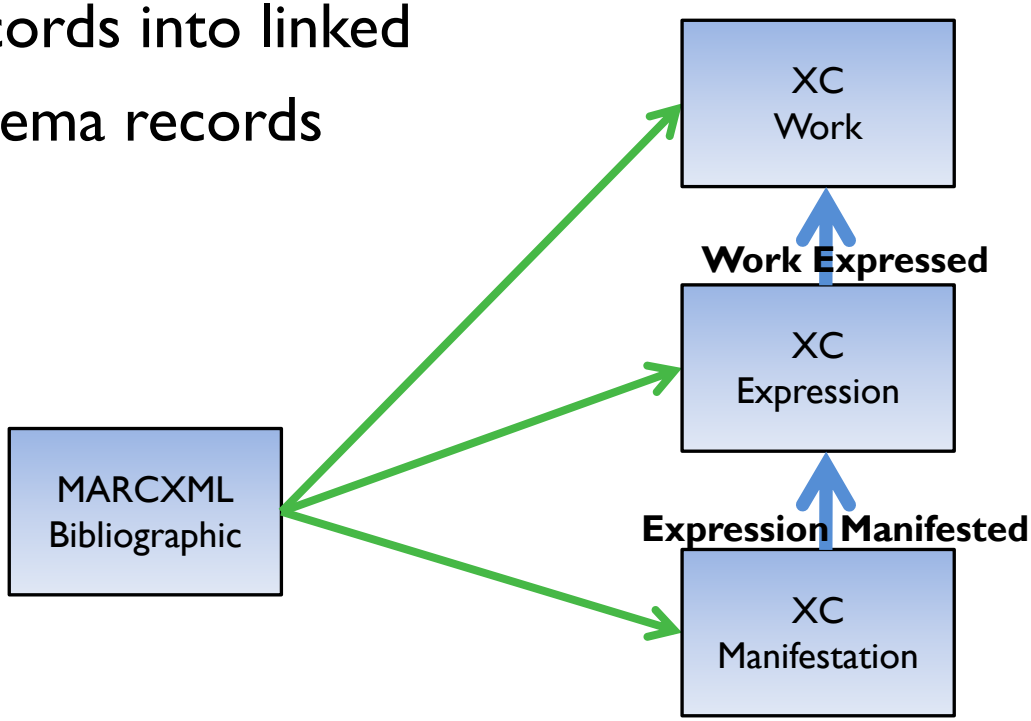
Parsing MARCXML records into linked FRBR-based XC Schema records



RDF triple

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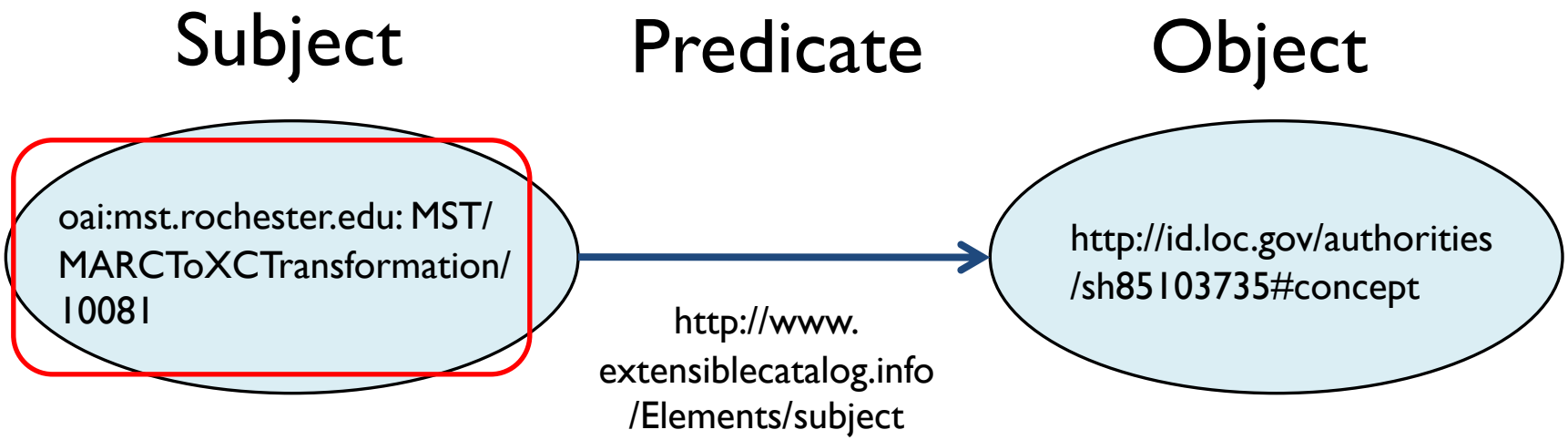

This resource | has subject | Poets, American

With and without FRBR

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Without FRBR:

<MARCBibRecord-number> has_author "J K Rowling"

With FRBR:

<Work-id> has_creator "J K Rowling"

<Expression-id> has_language "English"

<Expression-id> has_parent_work <Work-id>

<Manifestation-id> has_isbn <ISBN-number>

<Manifestation-id> has_parent_expression <Expression-id>

Why use FRBR for linked data?

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User research shows that users want to see the relationships between resources, etc.

With XC, we can explore when/how FRBR might be useful for linked data

Other data models may be more appropriate in some contexts and those can be explored as well.

Possible Outcomes

Revisiting user research findings about scholars

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Connect scholars with others whose work is interesting and useful to them

Make scholars' research findable and usable by others

Develop technology that helps scholars do their work

Create tools that use linked data to…

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Allow scholars to create linked data as part of the scholarly process

Follow citation relationships between resources and their authors, etc.

Create and manage vocabularies

Enable experts, etc. to augment metadata about a resource/dataset to make it more discoverable or understandable.

"My thesis is based on this dataset."

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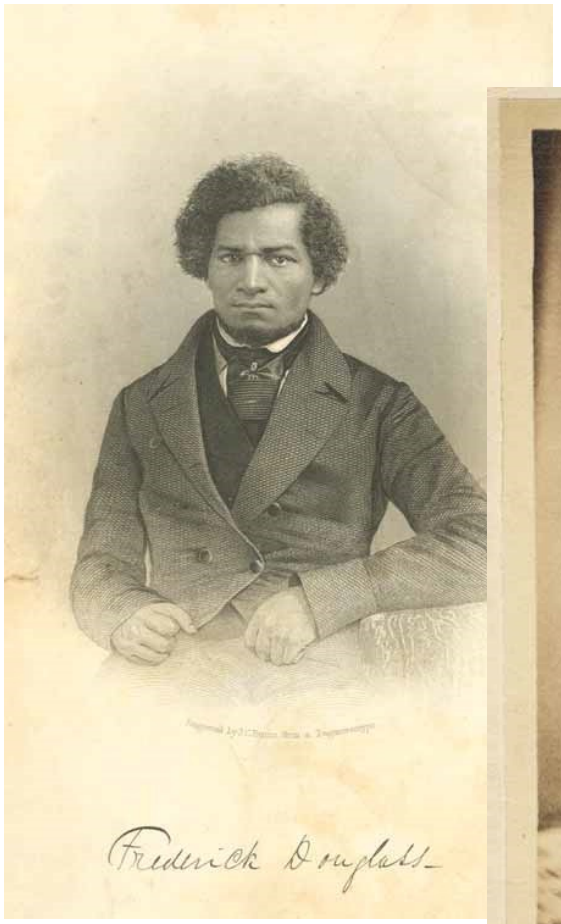

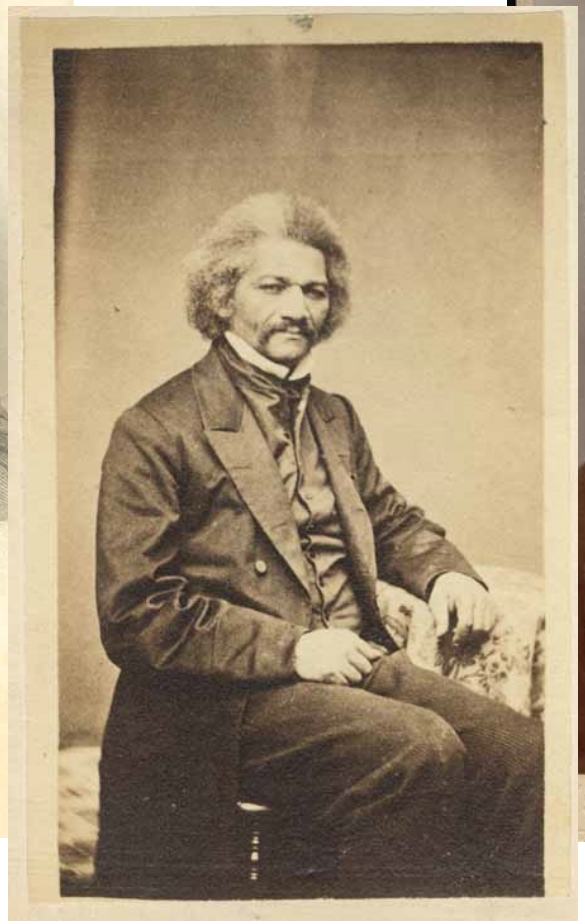

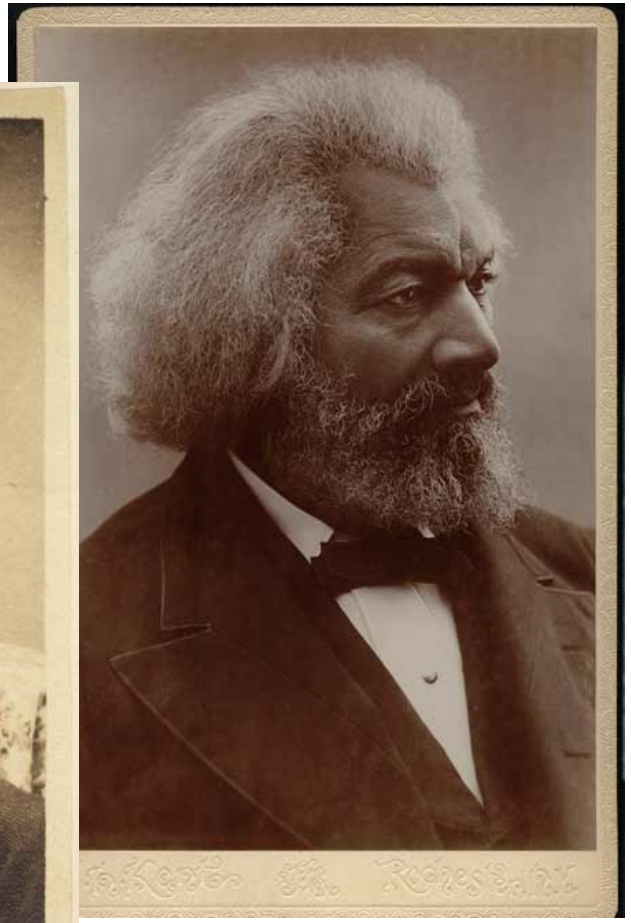

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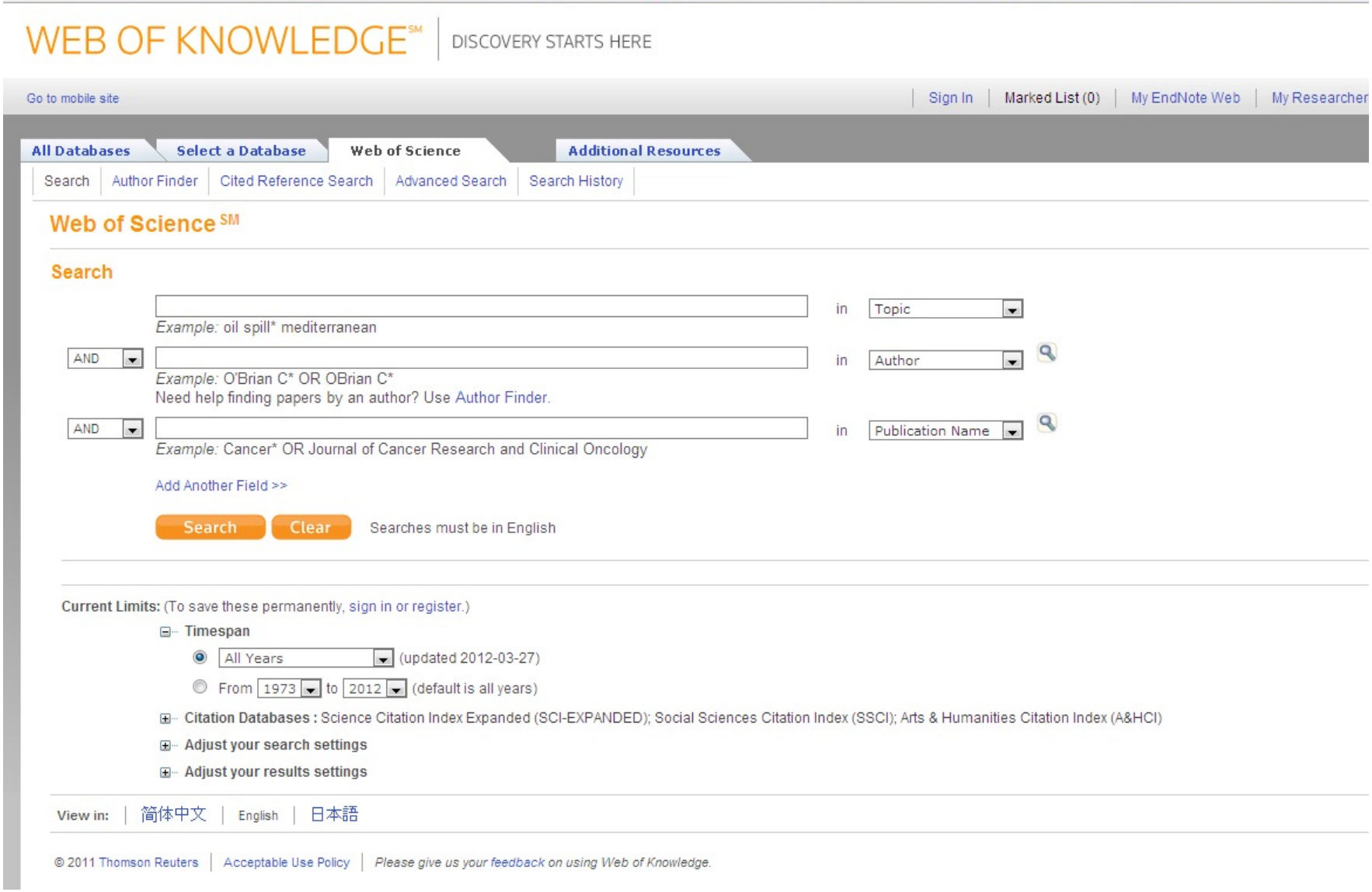
"These other researchers cite MY research…"



How XC can facilitate linked data

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- Open source software offers risk-free experimentation with MARC (and other) library metadata, data manipulation
- Potential for bulk creation of linked data in three different ways (RDF/XML, RDFa, SPARQL)
- Platform for development of Linked Data tools, to create new opportunities for libraries

Next Steps for XC and Linked Data

We are now seeking funding for more open source software development related to linked data and the needs of scholars

We invite libraries to participate/partner with us.

Jennifer Bowen
jbowen@library.rochester.edu

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