The Strongest Link: Libraries and the Web of Linked Data

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Memorial University of Newfoundland

Emerging Technologies in Academic Libraries 2010
Trondheim, Norway - April 2010
What do Libraries need to do?

1. Use the RDF data model to publish structured data on the Web.

2. Use RDF links to interlink data from different data sources.
Library RDF Converters
MARC to RDF

MARC/MODS RDFizer

This is an utility tool to convert MARC records (both in MARC to a MODS representation and then from MODS to RDF.

How do I use it?

You launch the RDFizer from the command line by giving it records and a folder where to dump the resulting data.

But before you run it, you have to get the source code and both works on all platforms with freely available tools).

How do I get the source code?

You need a Subversion client. Type `svn` in your shell and so not, go to the Subversion web site and get one.
OAI to RDF

OAI-PMH RDFizer

This is an utility tool to convert the metadata contained in an OAI-PMH-capable repository to RDF.

How do I use it?

You launch the RDFizer from the command line by giving it the URL of content repository that supports OAI-PMH and the folder to where you want the harvested RDF to be dumped and the tools does the rest.

But before you run it, you have to get the source code and build it (don't worry, it's easy and works on all platforms with freely available tools).

How do I get the source code?

You need a Subversion client. Type `svn` in your shell and see if you have one.
Dublin Core to RDF

DC Elements
xmlns:dc="http://purl.org/dc/elements/1.1/"

DC Terms
xmlns:dcterms="http://purl.org/dc/terms/

DC Abstract Model
xmlns:dcam="http://purl.org/dc/dcam/"
Simile RDFizers

Ok, I'm interested, what RDFizers are there?

Here is the list of the RDFizers that we have built so far:

- JPEG -> RDF - scans a folder for JPEG files, parses the EXIF and IPCT metadata found in those files and dumps an RDF/N3 representation of it into a file.
- MARC/MODS -> RDF - transforms MARC records from Z39.2 format into MODS and then from MODS to an RDF representation of MODS.
- OAI-PMH -> RDF - harvests an OAI-PMH repository and transforms the captured metadata in an RDF representation thru pluggable XSLT stylesheets.
- OCW -> RDF - harvests metadata from the MIT OpenCourseWare web site and transforms it into an RDF representation of IEEE LOM.
- EMail -> RDF - transforms email mbox files into RDF/XML.
- BibTEX -> RDF - transforms BibTEX files into RDF/XML.
- POM -> RDF - transforms Maven POM (Project Object Model) files into RDF/N3.
- DEB -> RDF - extracts the metadata from a Debian software package and generates an RDF representation.
- CRW -> RDF - extracts the metadata from a Canon RAW image file and generates an RDF representation.
- Flat -> RDF - converts classic unix text database files, like /etc/passwd, into RDF/N3.
RDF Publishing Tools

• Many popular web publishing tools now have RDF & semantic capabilities.
Semantic Blogging: Zemanta

phrases like the social web, natural language processing, and humanities computing? Yup, putting in those words returned much more relevant related articles. I've inserted the top suggestions at the bottom of the post.

The suggested photos include the lovely one that I've inserted of the Nidaros Cathedral in Trondheim. I also have several photos of RDF graphs, one of developers working on the semantic version of Drupal, and several pictures of libraries. That's pretty good, right?

It might be better if I threw in a couple of names. Let's try Kingsley Idehen, Paul Miller, and Richard Cyganik, all actively involved in linked data architecture and evangelism. I'm getting some in-text link suggestions, but only for Paul. I've added the suggested link - it's not linking to Cloud of Data as I expected, but Mr. Miller seems to have several blogs on the go right now.
Semantic MediaWiki
Testing semantic annotation features in Semantic MediaWiki

I set up this account in order to test the semantic tagging features in mediawiki. I'm going to a conference in Trondheim, Norway next week to do a presentation on semantic web/linked data in libraries. The conference is called Emerging Technologies in Academic Libraries (EMTAACL). I'm a systems librarian in St. John's Newfoundland, so that's the sort of thing we do for fun.

So far mediawiki has not offered me any semantic annotations, so I will probably have to go and read the docs. Maybe I need to install some browser plugins.

What if I throw in a few phrases like the social web, natural language processing, and humanities computing? Drupal 7? Semantic web? Linked Data?

It might be better if I threw in a couple of names. Let’s try Kingsley Idehen, Paul Miller, and Richard Cyganiak, all actively involved in linked data architecture and evangelism.

Biographic data for Tim Berners-Lee Click to change this...

Birth date: 1955-06-08 00:00:00.0
Education: The Queen's College, Oxford
Occupation: Computer Scientist
See also: http://en.wikipedia.org/wiki/Tim_Berners-Lee
Sir Timothy John Berners-Lee, OM, KBE, FRS, FREng, FRSA (London, 8 June 1955), is an
Semantic MediaWiki
Drupal 6 CMS

Resource Description Framework (RDF)

**View**  **CVS instructions**

**Arto** - October 10, 2007 - 14:39

**RDF** is a **W3C standard** for modeling and sharing distributed knowledge based on a decentralized open-world assumption. Any knowledge about anything can be decomposed into triples (3-tuples) consisting of subject, predicate, and object; essentially, RDF is the lowest common denominator for exchanging data between systems.

This module provides comprehensive RDF functionality and interoperability for the Drupal 6.x platform. For more information, read the [introductory posting](#) or watch the [demo video](#). Be sure to subscribe to the [Semantic Web](#) group on groups.drupal.org to keep up with the latest happenings.

The module requires **PHP 5.2** or newer, makes use of the **ARC2** library if available, and will integrate with the **Views**, **FeedAPI**, **Feed Element Mapper**, **Location**, and **Services** modules if they are installed. For adding **SPARQL** query support, see the related **SPARQL** project.

Projects that rely on this module as a dependency include **Calais**, **File Framework**, **FeedAPI RDF** and the **Relations** and **DAV** APIs and their spin-offs such as the **File Relations Server**.

This project is being developed by **Arto Bendiken**, **Migilus Alaburda**, **Ben Lavender**, **Jeff Miccolis**, **Frank Febraro** and **Stéphane Corlousquet**. Development has been in part sponsored by **OpenBand** and **MakaluMedia**.
Drupal 7 with RDFa

Manfred Hauswirth

First name: Manfred
Last name: Hauswirth
Homepage: http://www.manfredhauswirth.org/
Colleagues: Aidan Hogan
Andreas Harth
Axel Polleres
Benjamin Melançon
Stefan Decker

URI: http://data.semanticweb.org/person/manfred-hauswirth
http://semanticweb.org/id/Manfred_Hauswirth

Organizations: Digital Enterprise Research Institute
National University of Ireland, Galway
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Library RDF Publishing Tools
Women as Policy Makers: Evidence from a Randomized Policy Experiment in India

Citable URI: http://hdl.handle.net/1721.1/39126

Title: Women as Policy Makers: Evidence from a Randomized Policy Experiment in India
Author: Raghabadnra Chattopadhyay; Esther Duflo
Issue Date: 2007-10-05

Abstract: This data set uses political reservations for women in India to study the impact of women's leadership on policy decisions. Using a dataset we collected on 265 village councils in West Bengal and Rajasthan, we compare the type of public goods provided in reserved and unreserved village's councils. Data sets based upon information provided by GP Prachans, local villagers, and the 1991 Indian Census

URI: http://hdl.handle.net/1721.1/39126
Other Identifiers: hdl:1902.1/USBFNOMLAT
Keywords: gender, decentralization, affirmative action, political economy, gender, decentralization, affirmative action, political economy
Welcome to Mulgara

Mulgara is a scalable RDF database written entirely in Java.

Mulgara is licensed under the Open Software License v2.0. New code is being contributed using the Apache 2.0 license.

Recent News

Mulgara v2.1.7 has been released. This release introduces interruptible queries, and better matches the SPARQL algebra requirements. For details, please see the release notes. Download from here. - February 16, 2010

Mulgara v2.1.6 has been released. This fixes a regression in nested OPTIONAL operations and introduces new functions, particularly the ARQ function extensions. For details, please see the release notes. Download from here. - December 17, 2009

Mulgara v2.1.5 has been released. SPARQL now correctly supports non-DISTINCT queries, with significant optimizations for UNION. For details, please see the release notes. Download from here. - December 11, 2009

New IRC channel. This is a new port of call for people requiring help with Mulgara. Point your IRC client to irc.freenode.net and join #mulgara. - November 9, 2009
**Title:** Rishtas: adding emotion to strategy in understanding British Pakistani transnational marriages

**Abstract:** The popularity of transnational marriages that in most cases involve first cousins or other kin distinguishes Pakistanis from other British South Asian groups. In this article we explain the popularity of such marriages. We seek to complement accounts that stress kinship obligations and socio-economic strategy by showing that transnational marriages are also motivated by the emotional ties of kinship. Central to this analysis is a focus on the Urdu/Punjabi concept of rishia, which conveys ideas about a 'good' match and about emotional connections between people. Our attention to emotional discourse between siblings, between parents and children and between prospective spouses in the context of marriage arrangements augments the understanding of what is at stake for those involved in transnational marriages. Our analysis also complements accounts that emphasize parental exegesis by offering a multigenerational perspective.

**Author:** Alison Shaw

(Alison Shaw)

Link to this archived copy: http://ora.ouls.ox.ac.uk/objects/uuid:96efaceb-fcc8-46db-94c9-c2e0bd99d34d

Relationships for "em>: adding emotion to strategy in understanding British Pakistani transnational marriages"

View full list as RDF in format:
HTML Lite HTML Full RDF/XML N-Triples N3 Turtle

Disclaimer and Data Protection statement | Accessibility statement | Download Copyright guide (100kB PDF) | Take-down procedure and...
3store: Efficient Bulk RDF Storage

Download

Abstract
The development and deployment of practical Semantic Web applications requires technologies for the storage and retrieval of RDF data that are robust and scalable. In this paper, we describe the 3store RDF storage and query engine developed within the Advanced Knowledge Technologies project, and discuss the design rationale and optimisations behind it which enable the efficient handling of large RDF knowledge bases.

Creators: Stephen Harris, Nicholas Gibbins
Item Type: Other
Keywords: H.2.8 Database Applications H.3.3 Information Search and Retrieval I.2.0 Artificial Intelligence, General
Research Groups: Intelligence, Agents, Multimedia
Eprints & RDF
Libraries & RDF

- Plenty of tools already exist to allow libraries to expose data as RDF.
- Become aware, experiment, work with vendors to develop semantically compliant tools.
RDF Linking

The Library of Congress

The New York Times

BBC

The New York Times

The Library of Congress

BBC
Library Linking Hubs

• Reuse existing URIs for entities & concepts.

• Connect resources to external data published by other data sources.
Subject linking: loc.id.gov

Fjords

URI: <http://id.loc.gov/authorities/sh85048937#concept>
Type: Topical Term
Alternate Labels: Fiords
Broader Terms:
  - Coasts
  - Glacial landforms
LC Classification: GB454.F5
Created: 1986-02-11
Last Modified: 1987-12-31 12:44:36
Similar concepts from other vocabularies:
  - <http://stitch.cs.vu.nl/vocabularies/rameau/ark:/12148/cb12009563w>
Alternate Formats: RDF/XML, N-Triples, JSON
Virtual International Authority File

Search

Select Field: Names
Select Index: All VIAF
Search Terms: sigmund freud

Selected Covers

Freud, Sigmund, 1856-1939
1856-1939, Zigmund
VIAF ID: 34456780

ISBN: 0674154231

NEWFOUNDLAND & LABRADOR, CANADA
WWW.MUN.CA
RDF Book Mashup

Book Search Results for “interpretation of dreams freud”

Search for books: interpretation of dreams freud

Note: You can use an RDF-aware user agent (e.g. Browser) to explore the RDF based Linked Data (Metadata) associated

The Interpretation Of Dreams
Sigmund Freud
http://www4.wiwiss.fu-berlin.de/bookmashup/books/8562022489

Sigmund Freud's The Interpretation of Dreams - Freud's seminal exploration of human nature (Discus
Sigmund Freud, James Strachey
http://www4.wiwiss.fu-berlin.de/bookmashup/books/

THE INTERPRETATION OF DREAMS - Freud's Seminal Exploration of Human Nature
Sigmund (James Strachey Transl.) Freud
http://www4.wiwiss.fu-berlin.de/bookmashup/books/
### Work Employment & Society

**http://periodicals.dataincubator.org/journal/work-employment-and-society**

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Basic Concepts and Taxonomy of Dependable and Secure Computing

Title: Basic Concepts and Taxonomy of Dependable and Secure Computing

Authors: Jean-Claude Laprie, Carl Landwehr, Brian Randell, Algirdas Avizienis

Abstract: This paper gives the main definitions relating to dependability, a generic concept including as special case such
RKBExplorer - Organization
What’s the promise?

• Better, smarter discovery
• Enriched content
• Enhanced personalization
Smarter linking
Data integration

ISxNs, OCLC Numbers, Title

ERM

Ontologies

Database

Library Catalogue
Disambiguation

Madonna at Raphael's nightclub (NSFW)

Raphael's Madonna (NSFW)

<img src="09821.jpg" alt="madonna">
Related Works to Relationships

Pride and Prejudice
Jane Austen

Wordsworth Classics

Complete and unabridged

Pride and Prejudice and Zombies
Carrie A. Berres

The Jane Austen Book Club
KAREN JOY FOWLER

Pride and Prejudice

Presumption: An Entertainment
Mary Shelley

MEMORIAL UNIVERSITY

Marry Street: The Confession of Fitzwilliam Darcy

Mr. & Mr. Darcy

MEMORIAL UNIVERSITY

bridget jones
the edge of reason

Helen Fielding

NEWFOUNDLAND & LABRADOR, CANADA
WWW.MUN.CA
Enriched content

http://richard.cyganiak.de/2007/10/lo
Enhanced personalization

Julie

Is patron type

Student

Has major

History

Takes course

Hist102

Has reading

Citation
The Holy Grail?
What are the obstacles?

• Trust
• Data ownership
• It’s…well…hard
The largest hurdle to library adoption of Linked Data, though, may not be educational or technological … The sticking point for librarians may be an issue of trust.

- Ross Singer, “Linked Data Now!”
Data ownership

- Digital Archive
- Repository
- Library Catalogue

≠

- Ejournal
- Database
Rocking the foundations

- MARC
- RDA
- DCMI/RDA Task Group
What can we do...now?

• Eric Miller noted in a 2004 talk that libraries have four major roles in the semantic web:
  1. exposing collections – use Semantic Web technologies to make content available;
  2. web'ifying thesaurus/mappings/services;
  3. sharing lessons learned;
  4. persistence.
Exposing collections
web'ifying thesaurii, etc.

Cataloguing
- NT
- Descriptive cataloguing
- RT
- Authority control (Local)
- Subject analysis

Charging/discharging (library materials)
USE Circulation

Circulation
- UF Borrowing (library materials)
- Charging/discharging (Library materials)
- Lending (library materials)
- Loans (library materials)
- RT
- Holds (library materials) (Local)
- Loan periods (Local)
- Recall (library materials) (Local)
- Renewals (Local)
- Reserve materials (Local)

Citations (Local)
- UF Bibliographic citations

Classification
- Classification schemes
- RT
- Controlled vocabularies

Collection development
- NT
- Selection of materials

Colleges and universities
- Computer searching
USE Online searching

<!-- XML content -->

```xml
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:skos="http://www.w3.org/2004/02/skos/core#">
  <skos:Concept rdf:about="http://staff.library.mun.ca/staff/staffdir/libweb/controlled/concept/13"/>
  <skos:prefLabel>Circulation</skos:prefLabel>
  <skos:altLabel>Borrowing</skos:altLabel>
  <skos:altLabel>Loans</skos:altLabel>
  <skos:scopeNote>Refers to functions related to circulating material, not the administrative department.</skos:scopeNote>
  <skos:narrower rdf:resource="http://staff.library.mun.ca/staff/staffdir/libweb/controlled/concept/38"/>
  <skos:narrower rdf:resource="http://staff.library.mun.ca/staff/staffdir/libweb/controlled/concept/103"/>
  <skos:narrower rdf:resource="http://staff.library.mun.ca/staff/staffdir/libweb/controlled/concept/15"/>
  <skos:inScheme rdf:resource="http://staff.library.mun.ca/staff/staffdir/libweb/controlled"/>
</skos:Concept>
</rdf:RDF>
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Sharing lessons