THE PROGRESS OF BIBFRAME

Angela Kroeger

Archives and Special Collections Associate Dr. C.C. and Mabel L. Criss Library University of Nebraska at Omaha

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Please interrupt me!

Comments, questions, and discussions are welcome and encouraged at any time

What is **BIBFRAME**?

- Breaks apart the bibliographic record
- Resources are described with an assembly of metadata pieces which can be mixed and matched as needed
- The relationships between these pieces pulls them together into a coherent display for the end user

BIBFRAME Development

- 2012 Data model released to public
- 2013 Early experimenters

Vocabulary testing, transformation tools

- 2014 Implementation Testbed
 - Stable RDF vocabulary, refined transformation, draft specifications, input tools
- 2015 (planned) Pilot project

Profile creation and editing, search and display

Software Coming Soon

Tools have been made/are being made/will be made by

- Library of Congress
- Zepheira
- Traditional ILS vendors
- Individual libraries
- e.g.: Stanford, Cornell, and Harvard Universities are working on a suite of open source software tools

Source:

Wiggins, Beacher J.E., Sally Hart McCallum, Kevin Ford, Phil E. Schreur, and Andrea Leigh. "Bibliographic Framework Initiative (BIBFRAME) Update Forum, June 2014." Presentation by the Library of Congress, June 29, 2014.

http://www.loc.gov/today/cyberlc/feature_wdesc.php?rec=6323

Bibliographic Exchange Environment

- BIBFRAME is a data model for resource description
- Just one small piece of the bibliographic information exchange environment, which also includes:
 - Content standards
 - Input standards
 - Interchange methodologies
 - Trust/provenance frameworks
 - Policies
 - Fiscal incentives
 - Much more

Why is it needed?

- MARC is not suitable for the Semantic Web
 - Text strings are difficult for machines to interpret
- RDA and FRBR are designed to work with a linked data system
 - Each element contains only one piece of information and one type of information ("atomistic")

OLAC Work-Centric Moving Image Discovery Interface Prototype (2008)

http://olac-demo.herokuapp.com/

- Extracted machine-understandable, machineactionable data from MARC records to identify FRBR Works
- Found data scattered over several different text MARC fields, with variant forms and spellings

Source:

McGrath, Kelley, and Lynne Bisko. "Identifying FRBR Work-Level Data in MARC Bibliographic Records for Manifestations of Moving Images." code *4lib Journal* 5 (December 15, 2008). http://journal.code4lib.org/articles/775



Linked Data

- Structured data for the Semantic Web
- Term "linked data" coined by Tim Berners-Lee in 2006
- Linked data concepts date back to the 1960s, with early systems that included
 - Hierarchical views
 - Relationships between terms
 - Rudimentary hyperlinks

How library data could look in Google search results

Now:

Predictably Irrational: The Hidden Forces That ... - Barnes & Noble www.barnesandnoble.com/.../predictably-irrational-dan-... ▼ Barnes & Noble ▼ ★★★★ Rating: 4 - 177 votes - \$9.91 to \$11.49 "PREDICTABLY IRRATIONAL is a charmer-filled with clever experiments, engaging ideas, and delightful anecdotes. Dan Ariely is a wise and amusing guide to ...

In a fully-realized BIBFRAME environment:

Predictably Irrational: The Hidden Forces That ...- DCPL catalog.dclibrary.org/.../Record/u682456... - DC Public Library -Call Number: 330.01 A698

Special Location: SE Library, NE library, MLK ...

"PREDICTABLY IRRATIONAL is a charmer-filled with clever experiments, engaging ideas, and delightful anecdotes. Dan Ariely is a wise and amusing guide to ...

Images created by Kevin Ford. Appeared in:

Frank, Paul. "BIBFRAME: Why? What? Who?" Library of Congress, Washington, D.C., May 1, 2014.

http://www.loc.gov/pcc/bibframe/BIBFRAME%20paper%2020140501.docx

No Library Data in Google's Knowledge Graph. Could BIBFRAME Change That?



About 5,060,000 results (0.38 seconds)

The Official Web Site of Ella Fitzgerald

www.ellafitzgerald.com/ - Ella Fitzgerald -The Official Web Site of Ella Fitzgerald with links to her biography, fast facts, pictures and much more.

Ella Fitzgerald - Wikipedia, the free encyclopedia

en.wikipedia.org/wiki/Ella_Fitzgerald ▼ Wikipedia ▼ Ella Jane Fitzgerald (April 25, 1917 – June 15, 1996) was an American jazz vocalist with a vocal range spanning three octaves (Db3 to Db6). Often referred to Discography - Great American Songbook - Ray Brown - Ray Brown, Jr.

Ella Fitzgerald discography - Wikipedia, the free encyclopedia

en.wikipedia.org/wiki/Ella_Fitzgerald_discography
Wikipedia
This article presents the discography of the jazz singer Ella Fitzgerald, covering ...

Ella Fitzgerald - Biography - Singer - Biography.com

www.biography.com/people/**ella-fitzgerald**-9296210 ▼ Fyi ▼ 'First Lady of Song' **Ella Fitzgerald** is one of the most beloved jazz singers of all time. She became the first African-American woman to win a Grammy Award in ...

Ella Fitzgerald – Free listening, videos, concerts, stats and ... www.last.fm/music/Ella+Fitzgerald -

Watch videos & listen free to Ella Fitzgerald: Dream a Little Dream of Me, Cheek to Cheek & more, plus 83 pictures. Ella Jane Fitzgerald (April 25, 1917 – June ...

Ella Fitzgerald - IMDb

www.imdb.com/name/nm0280228/
Internet Movie Database
Ella Fitzgerald, Soundtrack: The Master. On Saturday, June 15th, 1996, an era in jazz singing came to an end, with the death of Ella Fitzgerald at her home in ...

Ella Fitzgerald - PBS

www.pbs.org/.../artist_id_fitzgerald_ella.htm
Public Broadcasting Service
Ella Fitzgerald was orphaned in early childhood and moved to New York to attend an orphanage school in Yonkers. In 1934, she was discovered in an amateur ...

Ella Elizaber and del Esperato a de



Ella Jane Fitzgerald was an American jazz vocalist with a vocal range spanning three octaves. Often referred to as the "First Lady of Song," the "Queen of Jazz" and "Lady Ella," she was noted for her ... Wikipedia

Born: April 25, 1917, Newport News, VA

Children: Ray Brown, Jr.

Spouse: Ray Brown (m. 1947–1953), Benny Kornegay (m. 1941–1943)

Songs

Ella

Dream a Little Dream of Me

.

Linked Data Triples

RDF subject—predicate—object FRBR entity—relationship—attribute BIBFRAME resource—relationship—property "The Missouri-Kansas Conflict: Civil War on the Western Border"

<u>http://www.civilwaronthewesternborder.org/c</u> <u>ontent/relationship-viewer</u>

- Site designed with FRBR, RDA, BIBFRAME, and Drupal
- Relationship viewer shows data triples in action

Source:

Enis, Matt. "Putting the Pieces Together: Library Systems Landscape." *The Digital Shift* (April 10, 2014). <u>http://www.thedigitalshift.com/2014/04/ils/putting-pieces-together-library-systems-landscape/</u>

BIBFRAME Linked Data Possibilities

- One-click reciprocal linking?
- Elements added by non-library organizations and patrons?
- Resolution to the latest-entry versus successive-entry debate for serials?
- Better collaborative, distributed cataloging?

MARC/XML vs. BIBFRAME RDF/XML

Author of a book, expressed in MARC/XML:

The same author, expressed in BIBFRAME RDF/XML:

```
<br/>
<bf:creator>
<bf:Person>
<bf:label>Erman, Adolf, 1854-1937.</bf:label>
<bf:label>Erman, Adolf, 1854-1937.</bf:authorizedAccessPoint>
<bf:authorizedAccessPoint>Erman, Adolf, 1854-1937.</bf:authorizedAccessPoint>
<bf:hasAuthority>
<madsrdf:Authority xmlns:madsrdf="http://www.loc.gov/mads/rdf/v1#">
<madsrdf:Authority xmlns:madsrdf="http://www.loc.gov/madsrdf:authoritativeLabel></madsrdf:Authority>
</madsrdf:Authority>
</bf:hasAuthority>
</bf:hasAuthority>
</bf:hasAuthority>
</bf:creator>
```

Example: BIBID 4541231 (The literature of the ancient Egyptians) BIBFRAME Comparison Tool: <u>http://bibframe.org/tools/compare/</u>

BIBFRAME Core Classes

- Creative Work
 - Properties applicable to all editions and formats
- Instance
 - Properties specific to one edition or format
- Authority
 - Agent, place, temporal, or topic
- Annotation
 - Summaries, reviews, holding information, etc.

BIBFRAME Model



Source:

United States Library of Congress & Zepheira. *BIBFRAME.ORG Technical Site*. Website for the Bibliographic Framework Initiative project, accessed August 15, 2014. <u>http://bibframe.org/</u>

Work - Class

BIBFRAME Work = FRBR Work + Expression Resource reflecting a conceptual essence of the cataloging resource.

Properties used with Work : Resource reflecting a conceptual essence of the cataloging resource.

accompaniedBy	Accompanied by / Resource that has an accompanying resource which adds to it	relatedTo
accompanies	Accompanies / Resource that adds to or is issued with the described resource	relatedTo

expressionOf	Expression of / Expression has a related work. For use to	relatedTo	Work
	connect Works under FRBR/RDA rules.		

hasExpression	Expressed as / Work has a related expression. For use to connect Works under FRBR/RDA rules.	relatedTo	Work
hasInstance	Instance of Work / Work has a related Instance/manifestation. For use to connect Works to Instances in the BIBFRAME structure.	relatedTo	Instance

Composite screen shot from: <u>http://bibframe.org/vocab/Work.html</u>

Home / Documentation / BIBFRAME Resource Types Discuss

Pack to LC BIBFRAME Site Vocabulary

Not a one-to-one correspondence with RDA content types

BIBFRAME Resource Types Discussion Paper

25 June 2013

RDA content type value	BIBFRAME Work subclass
Text	Language material
Tactile text	Language material + Tactile
Performed music	Audio with subtype: musical
Sounds	Audio with subtype: nonmusical + sounds
Spoken word	Audio with subtype: nonmusical + spoken word
2-dimensional moving image	Moving image with subtype: Two dimensional
3-dimensional moving image	Moving image with subtype: Three dimensional
Still image	Still image

Composite screen shot from: <u>http://bibframe.org/documentation/resource-types/</u>

Home / Vocab / Resource / Instance

Instance - Class

BIBFRAME Instance = FRBR Manifestation Resource reflecting an individual, material embodiment of the Work.

Properties used with Instance : Resource reflecting an individual, material embodiment of the Work.

manufacture	Manufacture event / Information relating to manufacture of an instance.	provider	Provider
matrixNumber	Audio matrix number / Matrix number from the master from which a specific sound recording was pressed.	identifier	Identifier
mediaCategory	Media type / Categorization reflecting the general type of intermediation device required to view, play, run, etc., the content of a resource.		Category
modeOflssuance	Mode of issuance / Categorization reflecting whether a resource is issued in one or more parts, the way it is updated, and its intended termination.		Literal
musicKey	Music Key / Pitch and mode for music.		Literal
musicMedium	Music medium / Instrumental, vocal, and/or other medium of performance for which a musical resource was originally conceived, written or performed.		URL

Composite screen shot from: <u>http://bibframe.org/vocab/Instance.html</u>

BIBFRAME.ORG	« Bacht	Vocabulary
More specific Inst	tance types	
Resort class.	Likely need to mix and match we have below to learn more about t	at property or
Property -	Label / Description	Subclass Of ÷
Archival	Archival controlled / Resource that is controlled archivally.	Instance
Collection	Collection / Aggregation of resources, generally gathered together artificially.	Instance
Electronic	Electronic / Resources organically created, accumulated, and/or used by a person, family, or organization in the course of conduct of affairs and preserved because of their continuing value.	Instance
Integrating	Integrating / Cataloging resource that is added to or changed by means of updates that do not remain discrete but are integrated into the whole.	Instance
Manuscript	Manuscript / Resource that is written in handwriting or typescript. These are generally unique resources.	Instance
Monograph	Single unit / Single unit cataloging resource.	Instance
MultipartMonograph	Multiple units / Multiple unit cataloging resource that is complete or intended to be completed within a finite number of parts.	Instance
Print	Printed / Resource that is printed.	Instance

Serial / Multiple unit cataloging resource issued in successive parts that has no Instance predetermined conclusion.

Screen shot from: http://bibframe.org/vocab/Instance.html

Serial

Home / Vocab / Resource / Authority

Familiar concept, with a little twist ...

Authority - Class

Resource reflecting key authority concepts that have defined relationships reflected in the Work and Instance.

More specific Authority types

Resort a column by clicking the column header. Select a linked element below to learn more about that property or class.

Property -	Label / Description +	Subclass Of	÷
Agent	Agent / Entity having a role in a resource (Person, Organization, etc.).	Authority	
Place	Place / Controlled term for a geographic area.	Authority	
Temporal	Temporal Concept / Controlled term for a chronological period.	Authority	
Торіс	Topic / Controlled term for a subject/topic.	Authority	

Composite screen shot from: <u>http://bibframe.org/vocab/Authority.html</u>

Lightweight Abstraction Layer

- Can serve as a sort of local authority layer
- May connect to controlled vocabularies from many sources
- Easy to create a new URI for authority concepts lacking existing URIs
- Linkback to notify the Library of Congress of a proposed new authority

Home / Vocab / Resource / Annotation

Little bit of this, little bit of that

Annotation - Class

Resource that asserts additional information about other BIBFRAME resource.

More specific Annotation types

Resort a column by clicking the column header. Select a linked element below to learn more about that property or class.

Property -	Label / Description +	Subclass Of +
CoverArt	Cover Art Annotation / Link to a cover illustration of an instance.	Annotation
HeldMaterial	Material held / Summary holdings information.	Annotation
Review	Review Annotation / Critique of a resource, such as a book review, analysis, etc.	Annotation
Summary	Summary Annotation / Description of the content of a resource, such as an abstract, summary, etc	Annotation
TableOfContents	Table of Contents Annotation / Table of Contents information for a resource	Annotation

Composite screen shot from: http://bibframe.org/vocab/Annotation.html

Holdings Information

- HeldMaterial is a subclass of Annotation
 - Properties apply to every copy of an Instance owned by the library
- HeldItem is a subclass of HeldMaterial
 - Unique, copy-specific information
 - Here is the FRBR Item entity, an annotation of an annotation in BIBFRAME

Is it bad that BIBFRAME doesn't strictly follow RDA/FRBR?

- Strict adherence to FRBR's Work-Expression hierarchy can be problematic
- "Work" means different things to different communities
- FRBR isn't optimal for audiovisual resources, for which work and primary expression are not easily separable
- FRBR isn't optimal for serials, which must be described at journal level and article level

Development Path of Linked Open Data in Libraries, Archives, and Museums

- Phase 1: define specifications, data models, focus on metadata quality (example: BIBFRAME)
- Phase 2: aggregate resources, harmonize, distribution, implement user services (ex: DPLA)
- Phase 3: increase scale, wider distribution, enhanced data models, merge into commercial or open-source info sector (ex: Europeana)
- □ Phase 4? No one is there yet.

Source:

Mitchell, Erik T. "Three Case Studies in Linked Open Data." *Library Technology Reports* 49, no. 5 (July 2013): 26-43.

BIBFRAME and Schema.org

- Not rivals, but complements
- Schema.org extension vocabulary by OCLC and W3C Schema Bib Extend Community Group
- OCLC working to align their Schema.org vocabulary with BIBFRAME
 - Schema.org for discovery
 - BIBFRAME for curation and management

Source:

Godby, Carol Jean. "The Relationship Between BIBFRAME and OCLC's Linked-Data Model of Bibliographic Description: A Working Paper." Working paper, OCLC, Dublin, Ohio, September 2013. <u>http://oclc.org/content/dam/research/publications/library/2013/2013-05.pdf</u>

BIBFRAME AV Modeling Study

- Comparative analysis of FRBR, RDA, OLAC Moving Image Work-Level Records Task Force Recommendations, and many other standards
- No existing content model met all needs, but most met some
- BIBFRAME... has the potential to offer a logical but flexible data model, and a strong core set of vocabularies that are extensible as needed."

Source:

Van Malssen, Kara, with Caitlin Hunter and Andrea Leigh. "BIBFRAME AV Modeling Study: Defining a Flexible Model for Description of Audiovisual Resources." Model analysis, Library of Congress, Washington, D.C., May 15, 2014.

BIBFRAME AV Modeling Study

- Common needs of LC's MBRS Moving Image Section and Recorded Sound Section:
 - Option for event-centric content
 - Collections of different types of content
- MBRS Content Creation Domain Model
 - Work or Event
 - Instance created via Affix Process

Source:

Van Malssen, Kara, with Caitlin Hunter and Andrea Leigh. "BIBFRAME AV Modeling Study: Defining a Flexible Model for Description of Audiovisual Resources." Model analysis, Library of Congress, Washington, D.C., May 15, 2014.

AV Modeling Study: Content Data Description Model



Source:

Van Malssen, Kara, with Caitlin Hunter and Andrea Leigh. "BIBFRAME AV Modeling Study: Defining a Flexible Model for Description of Audiovisual Resources." Model analysis, Library of Congress, Washington, D.C., May 15, 2014.

BIBFRAME AV Modeling Study

Recommendations include:

- Add bf:Event as an optional core class
- Superclass bf:Content encompassing bf:Work and bf:Event
- Clarify multiple types for bf:Work and bf:Instance
- Technical metadata for preservation
- Sequencing

Source:

Van Malssen, Kara, with Caitlin Hunter and Andrea Leigh. "BIBFRAME AV Modeling Study: Defining a Flexible Model for Description of Audiovisual Resources." Model analysis, Library of Congress, Washington, D.C., May 15, 2014.

Two Official BIBFRAME Websites

Bibliographic Framework Initiative <u>http://www.loc.gov/bibframe/</u> General information, reports, webcasts, etc.

BIBFRAME.ORG Technical Site

http://bibframe.org/

Vocabulary and tools

Demonstrations

http://bibframe.org/demos/

Sample collections from the early experimenters

Test Suite Harness

http://bibframe.org/tools/tests/

Potential solutions for specific challenges

MARC to BIBFRAME Comparison Service

http://bibframe.org/tools/compare/

Enter a Library of Congress BIBID to see MARC/XML and BIBFRAME for same record

MARC to BIBFRAME Transformation Service

http://bibframe.org/tools/transform/start

Sample MARC/XML records available on the Library of Congress website: <u>http://www.loc.gov/standards/marcxml/Sandburg/sandburg.xml</u> <u>http://www.loc.gov/standards/marcxml/xml/collection.xml</u>

MarcEdit by Terry Reese

<u>http://marcedit.reeset.net/</u>

MARCNext includes BibFrame Testbed

Convert a source file of MARC records to BIBFRAME RDF/XML

BIBFRAME Editor

http://bibframe.org/tools/editor/

Code written in JavaScript to work on any browser

BIBFRAME Scribe

<u>http://editor.bibframe.zepheira.com/static/</u>

Zepheira's prototype BIBFRAME editor

Libhub Initiative

http://www.libhub.org/

- Zepheira's new BIBFRAME project
- To publish bibliographic records from participant libraries as BIBFRAME resources
- To track visibility of those resources in search engines
- To adjust linking and publishing to improve said visibility in search engines



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Thank You!

Q&A and Discussion

Contact:

Angela Kroeger

<u>akroeger@unomaha.edu</u>

Archives and Special Collections Associate

Dr. C.C. and Mabel L. Criss Library

University of Nebraska at Omaha

(402) 554-4159