

Linked Data & Bibframe in Context

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<https://bit.ly/ldcontext>

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Session Description

This session will introduce the concept of linked data and why it is significant, explain the Bibframe data model and the current state of Bibframe, and explain how linked data and Bibframe are related. We will look at Library of Congress' Bibframe proof of concept sinopia.io, speculate on how a Bibframe/linked data environment might change our current work, and introduce some activities that allow users to contribute to linked data initiatives now.

Learning Outcomes

Participants will be able to recognize the concepts of linked data, resource description framework, and the Bibframe abstraction levels and core classes. Participants will have the information necessary to consider how they might contribute to linked data initiatives.

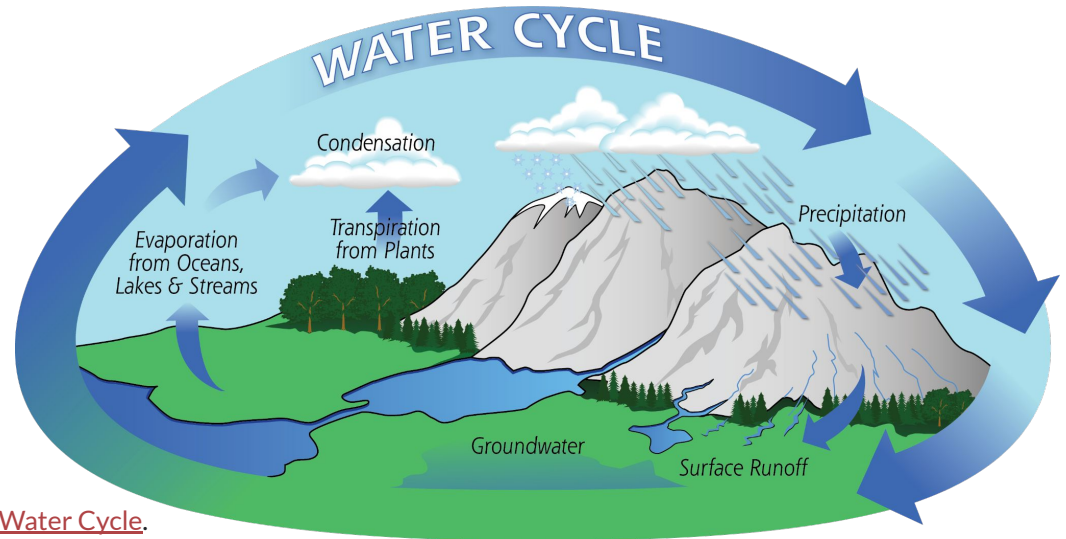
Abstraction

Abstraction Layer or Layer of Abstraction

Intended to hide high level concepts lacking in details

Rain is the abstracted concept

The water cycle is the hidden complexity of details that produce rain



weather icon - sun rain by [gnokii](#) from [Open Clip Art](#)

NASA. Water Cycle from [Precipitation Education: The Water Cycle](#).

What Is Linked Data?

Structured data linked with other structured data

- Structured data are defined by ontologies

An **ontology** defines the structure of classes, attributes, and relationships for a **domain** or subject area of interest

Data are sourced from databases of **controlled vocabularies** or **literals**

- **Literal**: information that is not part of a controlled vocabulary such as extents of the resource, dates

Why is Linked Data Significant?

Basis for the Semantic Web

- Semantic Web: structured machine readable data on the web
- Semantic Web Primer <http://www.linkeddatatools.com/semantic-web-basics>

Web 2.0 (Current iteration) relies on HTML

- HTML links web documents

Web 3.0 (Semantic Web) relies on ontologies

Ontologies give specific meaning to **Things**

- Thing: An entity or concept that exists and is acknowledged by an ontology

Resource Description Framework (RDF) is the underlying ontology of the Semantic Web

Example Ontology

Food Ontology by the BBC

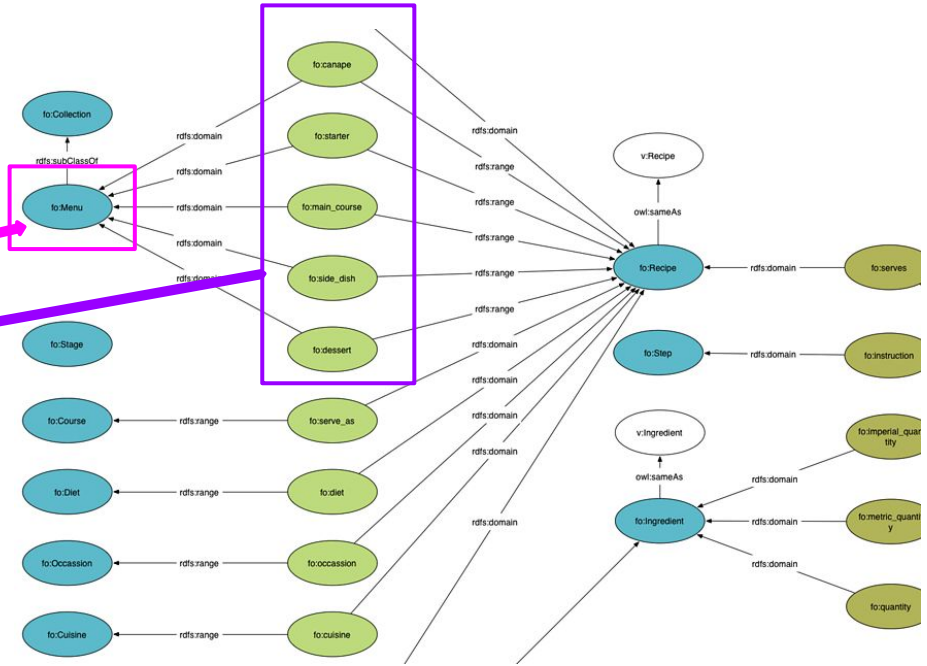
<https://www.bbc.co.uk/ontologies/fo>

Defines a structure of Classes and Properties (aka predicates, aka relationships)


Class “menu” has subclasses canape, starter, main_course, side_dish, dessert

BBC Ontology page describes it well

<https://www.bbc.co.uk/ontologies>



Linked Data in Action



The Color Purple

PG-13 2023 · Musical/Drama · 2h 21m

Overview Showtimes Cast Reviews Trailers & clips

Showtimes

Near Good Thunder

| Today Jan 2 | Wed Jan 3 | Thu Jan 4 | Fri Jan 5 | Sat Jan 6 | Sun Jan 7 | Mon Jan 8 |
|--|--------------|--------------|--------------|--------------|--------------|--------------|
| AMC CLASSIC Mankato 6 | | | | | | |
| 10.8 mi-Suite #19, 1600 Warren Street, Mankato, MN 56001 | | | | | | |
| 12:20PM | 3:40PM | 7:00PM | | | | |
| Cinemark River Hills Mall Movies 8 | | | | | | |
| 13.3 mi-1850 Adams Street #15, River Hills Mall, Mankato, MN 56001 | | | | | | |
| 12:45PM | 4:10PM | 7:30PM | | | | |
| Fairmont 5 Theatres | | | | | | |
| 30.0 mi-1201 North State Street, Fairmont, MN 56031 | | | | | | |
| 12:50PM | 3:50PM | 6:50PM | | | | |
| Northwoods Cinema 10 | | | | | | |
| 41.2 mi-300 Allan Avenue, Owatonna, MN 55060 | | | | | | |
| 4:10PM | 6:55PM | 9:40PM | | | | |

About

Already watched

The Color Purple | Official Trailer 3

2:01


95% **Fandango** | 7.9/10 **IMDb** | 70% **Metacritic**

87% liked this movie
Google users

Torn apart from her sister and her children, Celie faces many hardships in life, including an abusive husband. With support from a sultry singer named Shug Avery, as well as her stand-her-ground stepdaughter, Celie ultimately finds extraordinary strength in the unbreakable bonds of a new kind of sisterhood.

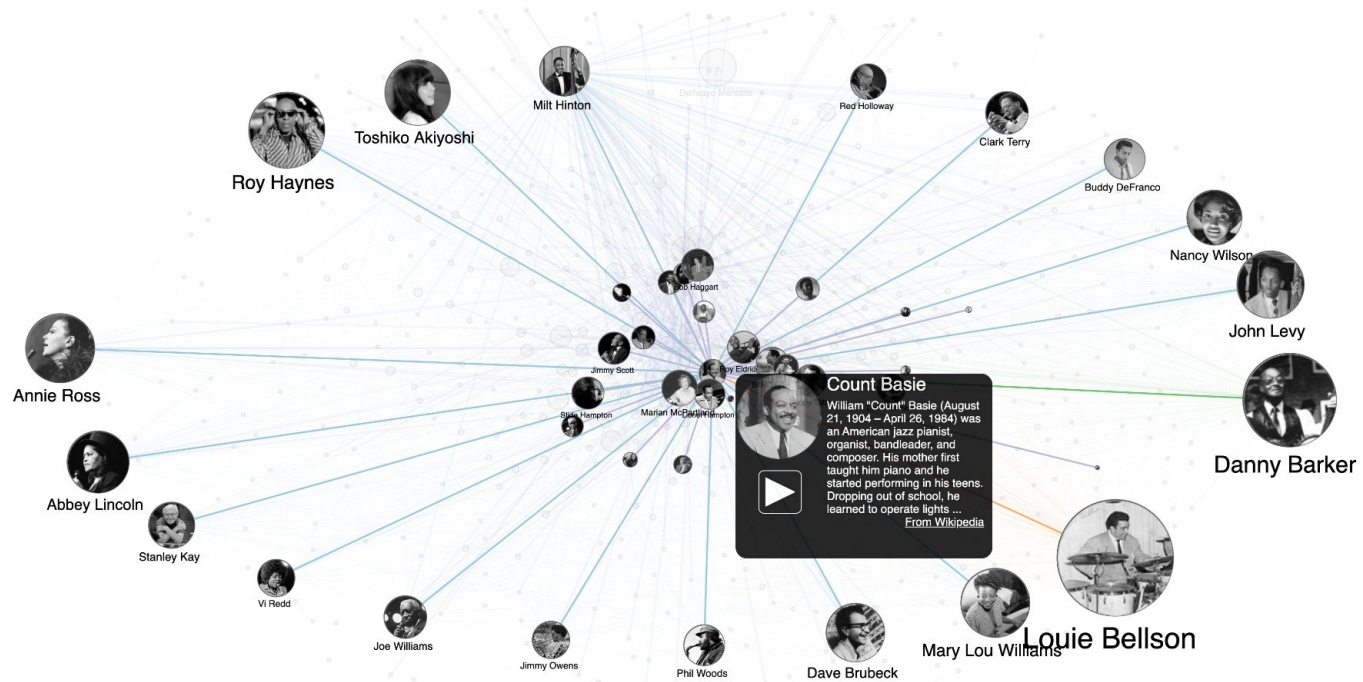
Release date: December 25, 2023 (USA)

Based on the book

 **The Color Purple**
Novel by Alice Walker

The Color Purple is a 1982 epistolary novel by American author Alice Walker that won the 1983 Pulitzer Prize for Fiction and the National Book Award for Fiction. [Wikipedia](#)

Linked Data in Action <https://linkedjazz.org/>



What is BIBFRAME?

Data model for bibliographic information

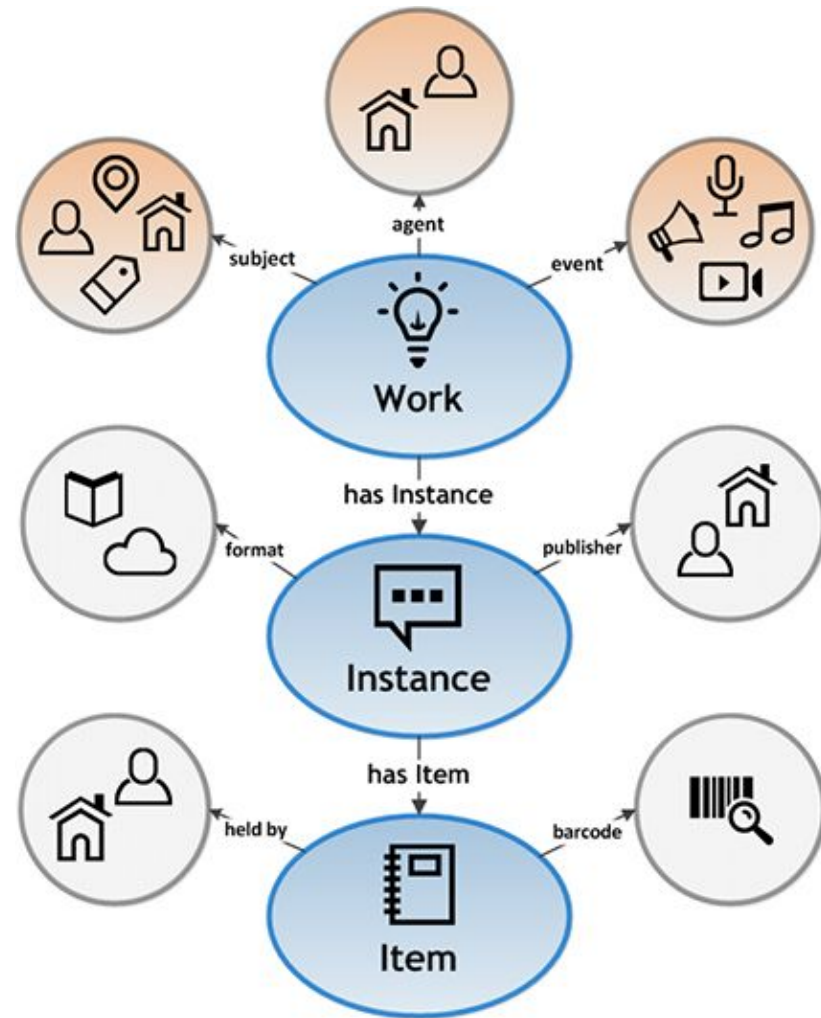
Work began in 2011

Bibframe 2.0 released in 2016

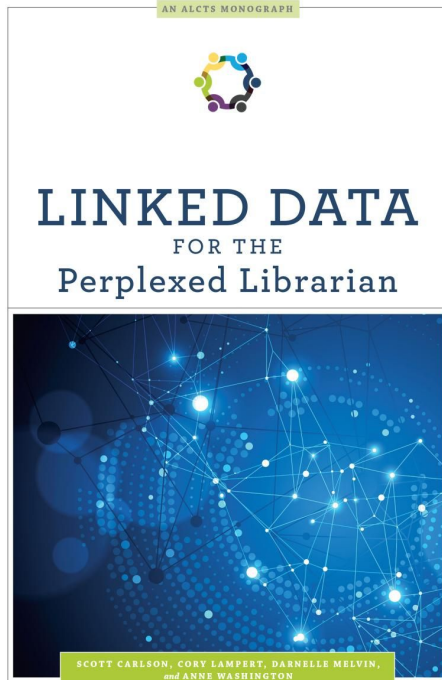
Organizes information into three core levels of abstraction: **Work**, **Instance**, and **Item**.

Agents, Subjects, & Events have relationships to Classes

Expected to employ RDF



Read All About It



Carlson, Scott, Cory Lampert, Darnelle Melvin, and Anne Washington. *Linked Data for the Perplexed Librarian*. Chicago: ALA Editions, 2020.

See also the 2024 ALA Core Interest Group Week

<https://www.ala.org/core/continuing-education/interest-group-week>

Why is BIBFRAME Significant?

RDA supports Semantic Web vocabulary

- Entities

- Attributes

- Relationships (Properties)

RDF supports IFLA-LRM (FRBR) Entities, Attributes, & Relationships

MARC cannot support these concepts

BIBFRAME employs RDF, which supports the Semantic Web

Go to <https://bibframe.org/> and select Bibframe Editor (BFE) to play

Sinopia.io

Linked data editor for the Linked Data for Production (ld4p) Initiative

LC Training for Sinopia.io <https://loc.gov/catworkshop/Sinopia-Training/index.html>

Sandbox is located here <https://stage.sinopia.io>



_Cartographic Work (BIBFRAME)

WORK

Class: <http://id.loc.gov/ontologies/bibframe/Work>

Contribution (Creator/Contributor)

Contribution

Property: <http://id.loc.gov/ontologies/bibframe/contribution>

Class: <http://id.loc.gov/ontologies/bibframe/Contribution>

[+ Add Agent](#)

[+ Add Relationship Designator \(RDA Appendix I\)](#) 

› [Contribution \(Creator/Contributor\)](#)

› [Title Information](#)

[Form of Work](#)

[\(Geographic\) Coverage of the Content](#)

[\(Time\) Coverage of the Content and Time
Period of Content \(MARC 045 field\)](#)

› [Cartographic Attributes](#)

[Intended Audience](#)

[Subject of the Work](#)

Contribution (Creator/Contributor)



Contribution

[+ Add another Contribution](#)

Property: <http://id.loc.gov/ontologies/bibframe/contribution>

Class: <http://id.loc.gov/ontologies/bibframe/Contribution>

▼ Agent



Family

[+ Add another Family](#)

Property: <http://id.loc.gov/ontologies/bibframe/agent>

Class: <http://id.loc.gov/ontologies/bibframe/Family>

[+ Add Search LCNAF](#)

[+ Add Preferred Name for Family \(RDA 10.2.2\) CORE ELEMENT !\[\]\(aab88c0d099e5d18d6533a97b13ec28d_img.jpg\)](#)

[+ Add Type of Family \(RDA 10.3\) CORE ELEMENT !\[\]\(b538fe54c1f3a7343e37e85cc2d00497_img.jpg\)](#)

[+ Add Date Associated with Family \(RDA 10.4\) !\[\]\(5abce1a84a655b073239ab33e1199487_img.jpg\)](#)

[+ Add Place Associated with Family \(RDA 10.5\) !\[\]\(21226b58c700e5231ab98d27101bac58_img.jpg\)](#)

[+ Add Prominent Member of Family \(RDA 10.6\) !\[\]\(097cdd6c9c875b64d9b8c9a2409491c4_img.jpg\)](#)

[+ Add Hereditary Title \(RDA 10.7\) !\[\]\(f9f168a9979beed8b01f8750d577d508_img.jpg\)](#)

[+ Add Language of Family \(RDA 10.8\) !\[\]\(111c5272ee3f91361f0d2e3665dd6ad0_img.jpg\)](#)

[+ Add Family History \(RDA 10.9\) !\[\]\(6befd466863f06afb75445d91429f055_img.jpg\)](#)

[+ Add Identifier for Family \(RDA 10.10\) !\[\]\(13163d77073735089069a7603de98433_img.jpg\)](#)


[+ Add Authorized Access Point Representing the Family \(RDA 10.11.1\) !\[\]\(2cf6801d0ea3db56ed897b0c35d9ff86_img.jpg\)](#)

[+ Add Variant Access Point Representing the Family \(RDA 10.11.2\) !\[\]\(21199f22b9d1b26430e2489096a820a5_img.jpg\)](#)

[+ Add Related Agents \(RDA Chapter 30\) !\[\]\(608bfbc50031d613907ec08333d4afc7_img.jpg\)](#)

[+ Add Source Consulted \(RDA 8.12\) !\[\]\(987606e59d5984b3118f78a58e78d0fb_img.jpg\)](#)

[Dashboard](#)
[Resource Templates](#)
[Actions](#)

 Search 





Filter by class

Go

Filter by group

Go

| Label / ID | Class | Group | Modified | Sort by |
|---|--|---------------------|-------------|---------|
| Silent films in St. Augustine,Silent films in Saint Augustine https://api.stage.sinopia.io/resource/0c4bd1ca-f705-47ab-8c52-792b0f710bb9 Relationships | http://id.loc.gov/ontologies/bibframe/Instance | Stanford University | Nov 8, 2021 | |
| Works | | | | |
| Silent films in St. Augustine https://api.stage.sinopia.io/resource/55e19f04-0f20-4965-bc62-cffc69b7483 | http://id.loc.gov/ontologies/bibframe/Text http://id.loc.gov/ontologies/bibframe/Work | Stanford University | Nov 8, 2021 | |
| Silent films in St. Augustine https://api.stage.sinopia.io/resource/55e19f04-0f20-4965-bc62-cffc69b7483 Relationships | http://id.loc.gov/ontologies/bibframe/Text http://id.loc.gov/ontologies/bibframe/Work | Stanford University | Nov 8, 2021 | |
| Instances | | | | |
| Silent films in St. Augustine,Silent films in Saint Augustine https://api.stage.sinopia.io/resource/0c4bd1ca-f705-47ab-8c52-792b0f710bb9 | http://id.loc.gov/ontologies/bibframe/Instance | Stanford University | Nov 8, 2021 | |

Title Information *

Title--Instance Title

Property: Title (<http://id.loc.gov/ontologies/bibframe/title>)

Class: <http://id.loc.gov/ontologies/bibframe/Title>

▼ Main Title

Silent films in St. Augustine [eng]

Title--Variant Title (Monograph)

Property: Title (<http://id.loc.gov/ontologies/bibframe/title>)

Class: <http://id.loc.gov/ontologies/bibframe/VariantTitle>

▼ Variant Title

Silent films in Saint Augustine [eng]

Statement of Responsibility

Thomas Graham ; foreword by Donna L. Hill [eng]

Transcribed Provider Statement

Gainesville : University Press of Florida, [2017] [eng]

Publication, Distribution, Manufacture, Production

Provision activity--Publication

Property: Provision Activity (<http://id.loc.gov/ontologies/bibframe/provisionActivity>)

Class: <http://id.loc.gov/ontologies/bibframe/Publication>

▼ Place

Gainesville (Fla.)@en [eng]: <http://id.loc.gov/authorities/names/n79151165>

▼ Name

Provision activity--Name

Property: <http://id.loc.gov/ontologies/bibframe/agent>

Class: <http://id.loc.gov/ontologies/bibframe/Agent>

▼ Agent

University Press of Florida@en [eng]: <http://id.loc.gov/authorities/names/n99033566>

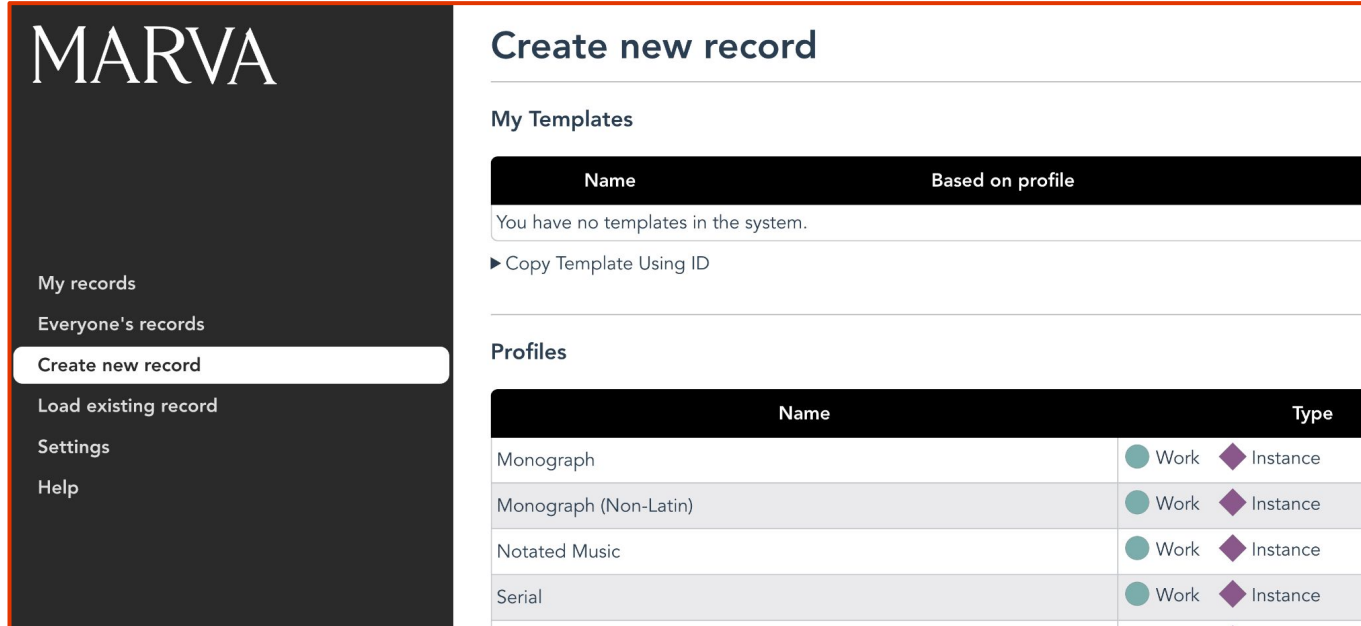
▼ Date

2017 [eng]

Marva Editor









LC has a Bibframe editor called Marva

<https://bibframe.org>



The screenshot displays the MARVA web interface. On the left is a dark sidebar with the 'MARVA' logo at the top and a menu with options: 'My records', 'Everyone's records', 'Create new record' (highlighted), 'Load existing record', 'Settings', and 'Help'. The main content area is titled 'Create new record' and contains a 'My Templates' section with a message 'You have no templates in the system.' and a link 'Copy Template Using ID'. Below this is a 'Profiles' section with a table listing record types and their associated Work and Instance icons.

| Name | Based on profile |
|--|------------------|
| You have no templates in the system. | |
| Copy Template Using ID | |

| Name | Type |
|-----------------------|---|
| Monograph |  Work  Instance |
| Monograph (Non-Latin) |  Work  Instance |
| Notated Music |  Work  Instance |
| Serial |  Work  Instance |

Marva Editor Example

The screenshot displays the Marva Editor interface for editing a work record. The interface is divided into several sections:

- Top Bar:** Contains navigation and utility icons including a menu icon, 'Options', 'Log', 'Manual', 'Saved', a grid icon, a code icon, a speech bubble icon, and a sailboat icon.
- Left Sidebar:** A dark sidebar with a 'Work' header and a list of expandable sections: 'Creator of Work', 'Title Information' (with sub-items: Work Title, Variant Title, Parallel Title), 'Form/Genre', 'Government publication', 'Date of Work', 'Place of Origin of the Work', '(Geographic) Coverage of the Content', '(Time) Coverage of the Content', 'Intended Audience', 'Other contributors', 'Notes about the Work', and 'Contents'.
- Main Content Area:** Displays the work record for the URL `/resources/works/ad44d3b2-c1e3-4691-87c5-95f6360c7a36`. It is organized into two main sections:
 - Creator of Work:** Shows a 'Person' entry for 'Pensacola News Journal' with a search LCNAF field and a relationship designator of 'Author'.
 - Title Information:** Shows the 'Work Title' as 'Ivan's wake'.
- Right Sidebar:** A light sidebar with a 'Work' header and a list of sections: 'Creator of Work' (Pensacola News Journal), 'Author', 'Title Information' (Ivan's wake), 'Form/Genre' (Illustrated works), 'Date of Work' (2005), 'Place of Origin of the Work' (Florida), '(Geographic) Coverage of the Content' (Pensacola (Fla.)), '(Time) Coverage of the Content' (2004), and 'Summary' (A selection of dramatic images from more than 2,000 photographs of Ivan's destruction by photographers for the Pensacola News Journal).

RDF Triples

| Subject | Predicate | Object |
|---|---|---|
| https://api.stage.sinopia.io/resource/55e19f04-0f20-4965-bc62-cffc69b7483 | http://sinopia.io/vocabulary/hasResourceTemplate | pcc:bf2:Monograph:Work |
| https://api.stage.sinopia.io/resource/55e19f04-0f20-4965-bc62-cffc69b7483 | http://www.w3.org/1999/02/22-rdf-syntax-ns#type | http://id.loc.gov/ontologies/bibframe/Text |
| https://api.stage.sinopia.io/resource/55e19f04-0f20-4965-bc62-cffc69b7483 | http://www.w3.org/1999/02/22-rdf-syntax-ns#type | http://id.loc.gov/ontologies/bibframe/Work |
| https://api.stage.sinopia.io/resource/55e19f04-0f20-4965-bc62-cffc69b7483 | http://id.loc.gov/ontologies/bibframe/contribution | b17 |
| https://api.stage.sinopia.io/resource/55e19f04-0f20-4965-bc62-cffc69b7483 | http://id.loc.gov/ontologies/bibframe/contribution | b18 |
| https://api.stage.sinopia.io/resource/55e19f04-0f20-4965-bc62-cffc69b7483 | http://id.loc.gov/ontologies/bibframe/title | b19 |
| https://api.stage.sinopia.io/resource/55e19f04-0f20-4965-bc62-cffc69b7483 | http://id.loc.gov/ontologies/bibframe/genreForm | http://id.loc.gov/authorities/genreForms/gf2014026113 |
| https://api.stage.sinopia.io/resource/55e19f04-0f20-4965-bc62-cffc69b7483 | http://id.loc.gov/ontologies/bibframe/originDate | 2017 [eng] |
| https://api.stage.sinopia.io/resource/55e19f04-0f20-4965-bc62-cffc69b7483 | http://id.loc.gov/ontologies/bibframe/originPlace | http://id.loc.gov/authorities/names/n79053995 |

RDF Triples

Think of triples as LEGO bricks

Think of the Brick as a Subject or Object

Think of the Knob and Tube as the Predicate (Relationship)



"Lego Blocks" by [mikecogh](#) is licensed under [CC BY-SA 2.0](#)

Future Directions

2019 Core Competencies for a Career in Cataloging Education ALA Annual

<https://connect.ala.org/core/viewdocument/annual-2019-practical-linked-data-1?CommunityKey=8360afab-32e0-4554-a28c-e5e373fa5574&tab=librarydocument>
s

Paul Frank (LC) and Tina Schrader (NLM), presenters

The intellectual work of identity management will be the main cataloging task once the linked data environment is fully formed.

Presenters stressed that playing with Wiki Data is one of the best ways to learn and contribute linked data.

Creating Wikidata Objects

Wikidata is a great way to practice real-life linked data creation

Wiki Education

<https://wikiedu.org/> has a good course for learning



- [Main page](#)
- [Community portal](#)
- [Project chat](#)
- [Create a new Item](#)
- [Recent changes](#)
- [Random Item](#)
- [Query Service](#)
- [Nearby](#)
- [Help](#)
- [Donate](#)

Lexicographical data

- [Create a new Lexeme](#)
- [Recent changes](#)
- [Random Lexeme](#)

Tools

- [What links here](#)
- [Related changes](#)
- [Special pages](#)
- [Permanent link](#)
- [Page information](#)
- [Recent LPI](#)

Item [Discussion](#)

Gwen Westerman (Q19667478)

Dakota Educator, Writer and Artist

[► Recoin: Most relevant properties which are absent](#)

[▼ In more languages](#)

| Language | Label | Description |
|----------|------------------|------------------------------------|
| English | Gwen Westerman | Dakota Educator, Writer and Artist |
| German | No label defined | No description defined |
| Spanish | Gwen Westerman | No description defined |
| French | Gwen Westerman | No description defined |

[All entered languages](#)

Statements

instance of

human

[► 1 reference](#)

Creating Authority Records

Is your institution a NACO member?

Program for Cooperative Cataloging (PCC) Name Authority Cooperative (NACO)

<https://www.loc.gov/aba/pcc/naco/>

When you create name authorities, you construct linked data

id.loc.gov triples for Gwen Westerman

```
<http://id.loc.gov/rwo/agents/n2012037476> <http://www.w3.org/1999/02/22-rdf-syntax-ns#type> <http://www.loc.gov/mads/rdf/v1#RWO> .
<http://id.loc.gov/rwo/agents/n2012037476> <http://www.w3.org/2000/01/rdf-schema#label> "Westerman, Gwen" .
<http://id.loc.gov/rwo/agents/n2012037476> <http://www.w3.org/1999/02/22-rdf-syntax-ns#type> <http://id.loc.gov/ontologies/bibframe/Person> .
<http://id.loc.gov/rwo/agents/n2012037476> <http://www.w3.org/1999/02/22-rdf-syntax-ns#type> <http://xmlns.com/foaf/0.1/Person> .
<http://id.loc.gov/rwo/agents/n2012037476> <http://www.loc.gov/mads/rdf/v1#hasAffiliation> _:b8idd0tlocd0tgovrwoagentsn2012037476 .
_:b8idd0tlocd0tgovrwoagentsn2012037476 <http://www.w3.org/1999/02/22-rdf-syntax-ns#type> <http://www.loc.gov/mads/rdf/v1#Affiliation> .
_:b8idd0tlocd0tgovrwoagentsn2012037476 <http://www.loc.gov/mads/rdf/v1#organization> _:b10idd0tlocd0tgovrwoagentsn2012037476 .
_:b10idd0tlocd0tgovrwoagentsn2012037476 <http://www.w3.org/1999/02/22-rdf-syntax-ns#type> <http://www.loc.gov/mads/rdf/v1#Organization> .
_:b10idd0tlocd0tgovrwoagentsn2012037476 <http://www.w3.org/2000/01/rdf-schema#label> "Minnesota State University, Mankato" .
<http://id.loc.gov/rwo/agents/n2012037476> <http://id.loc.gov/ontologies/bflc/contributorTo> <http://id.loc.gov/resources/works/17604729> .
<http://id.loc.gov/resources/works/17604729> <http://www.w3.org/1999/02/22-rdf-syntax-ns#type> <http://id.loc.gov/ontologies/bibframe/Work> .
<http://id.loc.gov/resources/works/17604729> <http://id.loc.gov/ontologies/bflc/aap> "Westerman, Gwen. Follow the blackbirds" .
<http://id.loc.gov/rwo/agents/n2012037476> <http://id.loc.gov/ontologies/bflc/contributorTo> <http://id.loc.gov/resources/works/17331989> .
<http://id.loc.gov/resources/works/17331989> <http://www.w3.org/1999/02/22-rdf-syntax-ns#type> <http://id.loc.gov/ontologies/bibframe/Work> .
<http://id.loc.gov/resources/works/17331989> <http://id.loc.gov/ontologies/bflc/aap> "Westerman, Gwen. Mni sota makece : the land of the Dakota" .
<http://id.loc.gov/rwo/agents/n2012037476> <http://www.loc.gov/mads/rdf/v1#isIdentifiedByAuthority> <http://id.loc.gov/authorities/names/n2012037476> .
```

Ideas for Practice

Item [Discussion](#) [Read](#) [View history](#) [☆](#) [Sea](#)

APOBEC3B and AID have similar nuclear import mechanisms (Q30514846)

scientific article [edit](#)

[Recoin: Most relevant properties which are absent](#)

[In more languages](#)

Statements

instance of [scholarly article](#) [edit](#)
[1 reference](#)
[+ add value](#)

title [APOBEC3B and AID have similar nuclear import mechanisms \(English\)](#) [edit](#)
[1 reference](#)
[+ add value](#)

author [Reuben S Harris](#) [edit](#)
series ordinal 6
stated as Reuben S Harris
[1 reference](#)
[+ add value](#)

| | | |
|--------------------|------------------------------------|---|
| author name string | Lela Lackey | |
| | series ordinal | 1 |
| | 1 reference | |
| author name string | Zachary L Demorest | |
| | series ordinal | 2 |
| | 1 reference | |
| author name string | Allison M Land | |
| | series ordinal | 3 |
| | 1 reference | |

Create/Update Names & Authorship in WikiData

Focus on locally significant names of people, places, and things

The screenshot displays the WikiData interface for a document. It is divided into two main sections: 'title' and 'author'.

Title Section:

- Property: **title** (English)
- Value: **APOBEC3B and AID have similar nuclear import mechanisms**
- Actions: [edit](#), [1 reference](#), [+ add value](#)

Author Section:

Author 1:

- Name: **Reuben S Harris**
- Series ordinal: **6** (Property: P1545)
- Stated as: **Reuben S Harris**
- Actions: [edit](#), [1 reference](#)

Author 2:

- Name: **Allison M. Land**
- Series ordinal: **3**
- Reference: [1 reference](#)
- Actions: [edit](#), [copy](#)

Additional Information:

- Property: **stated in**: Europe PubMed Central
- Property: **PMCID**: 3368237
- Property: **retrieved**: 18 October 2017

Questions

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