ArtFrame

Extending Library Ontologies for Works of Art

ALCTS series: From Marc to BIBFRAME -Enhanced
April 4, 2018

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Hosted by ALCTS, Association for Library Collections and Technical Services
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Learning outcomes

1. Introduce the Linked Data for Production (LD4P) project
2. Introduce the ArtFrame domain-specific sub-project
3. Review existing descriptive cataloging standards for works of art
4. Review use cases for describing art objects as linked data within a library environment
5. Review and outline the modeling areas for ontology development to describe art objects
6. Review tools that were used throughout the project
7. Review outcomes of the project and lessons learned

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Linked Data for Production

Andrew W. Mellon Foundation funded collaborative project

Partners:

• Columbia University (Art)
• Cornell University (Rare Materials, Hip Hop Archive)
• Harvard University (Cartographic, Geospatial, Moving Image)
• Princeton University (Derrida Archive)
• Stanford University (Performed Music, Tracer Bullets)
• Library of Congress (Metadata Production Pilot)

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The ArtFrame Project
Why Test BIBFRAME with Art Objects?

- Many libraries own art objects
- Art objects have been described in MARC
- Larger institutions often have libraries as well as museums -- lack of communication between the two
- BIBFRAME is supposed to work with “various content models” and accommodate “different needs for resource descriptions” (Library of Congress (2012). Bibliographic Framework as a Web of Data. Page 15)
John Singleton Copley
*Portrait of Myles Cooper*
ca. 1768, oil on canvas

Standing Buddha, China
Northern Qi dynasty (550-577),
limestone with marble base

Florine Stettheimer
*Landscape No. 2 with Bathers*
1911, oil on canvas

*Slide courtesy of Roberto C. Ferrari, Curator of Art Properties and Margaret Smithglass, Registrar and Digital Content Librarian, Avery Architectural & Fine Arts Library*
The Art Properties Collection

- Art collection owned by Columbia University
- 12,000+ works of art -- largely from gift or bequest
- Works are regularly loaned to exhibitions worldwide and displayed in selected areas on campus
- Art Properties home page: http://library.columbia.edu/locations/avery/art-properties.html

Alice Neel
*Portrait of Jack Beeson*
1979
Charles Willson Peale
*Portrait Miniature of Alexander Hamilton*, c.1780
watercolor on ivory

Anna Hyatt Huntington
*Cranes Rising*, 1934, bronze

Hiroshige
*The Cave Shrine of Kannon*
Japan, Edo period
1855, woodblock print

*Slide courtesy of Roberto C. Ferrari, Curator of Art Properties and Margaret Smithglass, Registrar and Digital Content Librarian, Avery Architectural & Fine Arts Library*
Portrait of Frederick A. P. Barnard (1809-1889)

Creator: Johnson, Eastman, 1824-1900, artist.
Title: Portrait of Frederick A. P. Barnard (1809-1889).
Produced: United States, 1888.
Physical: 1 painting; 49 x 39 1/2 in. (124.4 x 100.3 cm).
Properties: Oil on canvas.
Inscription: Signed and dated lower left: E. Johnson / 1886.
Notes: Plaque on frame: FREDERICK A. P. BARNARD, D.D., LITT., LL.D. / A.B. Yale College 1828 / President of the University of Mississippi 1856-1861 / President of Columbia College 1864-1869.
Credit Line: Commissioned by the Trustees, 1886.
Subjects: Barnard, Frederick A. P. (Frederick Augustus Porter), 1809-1889, depicted.
Format: Art Work (Original).
Bookmark As: https://clio.columbia.edu/catalog/12003862

Available from:
- Avery Art Properties - By appl. (Non-Circulating)
  Today's Hours: 9am - 9pm
  By appointment only. See the Avery Art Properties webpage
  Call Number: C00.0110
Original ArtFrame Timeline

Project start: March 2016

- Months 1-3: Evaluation of BIBFRAME and existing art-focused ontologies, surveying of existing art linked data developments
- Month 4: Use case development
- Months: 5-8: Focus on ontology development and data modeling
- Months: 9-11: Profile development
- Months: 11-13: Data transformation/creation
- Months: 14-16: Address local workflow
- Months: 18-21: Evaluation of project results and written summary of the findings.
- Months: 22-24: Document and share project finding via a web site, public presentations at conferences, etc.

Original project end date: March 2018
Adjusted Timeline

Project start: March 2016
Months 1-3: Evaluation of BIBFRAME and existing art-focused ontologies, surveying of existing art linked data developments
Month 4: Create Community Group, Use case development
Months 5-8: Use case development, analysis of use cases, prioritization, identify ontology requirements
Months 9-19: Modelling the identified areas, creation of OWL files
Months 19-22: Creation of OWL files, Application profiles, test descriptions
Months 23-27: Finalizing the OWL files, finalizing the application profiles, original cataloging in VitroLib, spreadsheet conversion using KARMA, sharing of project results
Project end date: Extended through June 2018
Columbia Team:

- Amber Billey (Metadata Librarian, 2015-October 2017)
- Roberto Ferrari (Curator of Art Properties)
- Kate Harcourt (Director, Original and Special Materials Cataloging)
- Erin Petrella (Metadata Assistant, 2015-September 2016)
- Robert Rendall (Principal Serials Cataloger)
- Margaret Smithglass (Registrar and Digital Content Librarian, Avery Library)
- Project Coordinator: Melanie Wacker (Metadata Coordinator)
Community & Extension Group

- The Art Extension Group
  (interested members of the art and art library community)
  - Library of Congress Prints & Photographs Division
  - Sterling and Francine Clark Art Institute
  - Morgan Library & Museum
  - Cataloging Advisory Committee of ARLIS/NA (May 2016)
  - Amber Billey (Bard College, formerly Columbia)
How do you create an extension to an existing ontology like BIBFRAME?
Survey the existing landscape
MARC-based metadata for art

- Content Standards
  - AACR2
  - RDA
  - DCRM(G)
  - CCO
- Best Practices
  - ArtMARC
  - ARLIS/NA
  - CAC
  - Local practice
Non-MARC metadata for art

**Schema**
- Dublin Core
- VRA Core
- CDWA & CDWA-Lite

**Linked Data Ontologies**
- DC Terms
- VRA Core
- LIDO
- CIDOC-CRM
- BIBFRAME?
Identify Use Cases
Use Case Development

- Reach out to domain experts, public services librarians, and end users about how they search for art and art-related information
- Draft list of use cases
  - Title (Goal)
  - Mode of use
  - Primary Stakeholders
  - Scope
  - Priority
  - Story
    - “I am a _____, and I’m trying to do _____, so that I can _____.
  - Examples and Notes
# 6.0 History of Custodianship

<table>
<thead>
<tr>
<th>Title (Goal)</th>
<th>6.0 History of custodianship</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mode of use</td>
<td>Collection management</td>
</tr>
<tr>
<td>Primary Stakeholders (who uses it)</td>
<td>Curators</td>
</tr>
<tr>
<td>Scope</td>
<td>Provenance</td>
</tr>
<tr>
<td>Priority</td>
<td>medium/low(?)</td>
</tr>
<tr>
<td>Story</td>
<td>A curator wants to find all the artworks in the collection that was at any point owned by a specific collector.</td>
</tr>
</tbody>
</table>

**Examples:**

**Remarks:** custodialHistory related to “Find artworks (any genre) that have been relocated or sequestered as a result of civil conflict or a war”

**Remarks:** CCO 5.2.1.2.5 Ownership History -- provenance (full history of ownership) recommends recording the ownership history of a work as a continuous chronological sequence (“with controlled fields for dates of ownership and methods of acquisition”)
Use Cases
A Sampling of Use Cases Developed by the Group

- Discover works by an artist along with library resources about the artist, such as catalogs, archival collections, auction catalogs, artists files or biographies.
- Discover related works held by the same institution
- Search and sort by genre (internal and external genres)
- Search and sort by artwork size
- Find all artworks that are heavily damaged in a given collection
- Identify artwork associated with alumni donors from particular schools/colleges/divisions/departments
- Find images of an art work
- Find art works to illustrate the cultural context of a specific place
- Track information about labels and marks on frames and other supports (e.g. pedestals)
- Find artworks by variant titles
- Long-term Loans
- Art works associated with an event: find art works/objects that were produced as wedding gifts for a given period
Organize Use Cases into groups

ArtFrame has 12 use case groups

- Names/Agents;
- Related Works;
- Genre, Facets, Types, Work Types, Classification, Styles;
- Physical Characteristics/Properties;
- Conditions/Alterations;
- Object History;

- Related Images;
- Subject/Aboutness;
- Annotations;
- Titles;
- Administrative Metadata;
- Related Events
Entity Modeling
<table>
<thead>
<tr>
<th>Use Case</th>
<th>Entities_1</th>
<th>Entities_2</th>
<th>Entities_3</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1 Document changes to an artwork that occurred over time</td>
<td>ConditionState</td>
<td>bf.date</td>
<td>Date</td>
</tr>
<tr>
<td>6.0 History of custodianship</td>
<td>Agent</td>
<td>marrelator:own; bf.date</td>
<td>Work</td>
</tr>
<tr>
<td>6.1 Find all artwork purchased by a particular name fund</td>
<td>Work</td>
<td>has fund</td>
<td>Fund</td>
</tr>
<tr>
<td>6.2 Identify artwork associated with alumni donors from particular</td>
<td>Work</td>
<td>marrelator:dnr</td>
<td>Agent</td>
</tr>
<tr>
<td>schools/colleges/divisions/departments</td>
<td>Agent</td>
<td>hasAffiliation</td>
<td>Agent (Corporate body)</td>
</tr>
<tr>
<td>6.2b</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.3 Discover artwork(s) sold at a particular auction sale/by a</td>
<td>Work</td>
<td>hasEvent</td>
<td>Sale</td>
</tr>
<tr>
<td>particular auction house</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.3b</td>
<td>Sale</td>
<td>hasDate</td>
<td>Date</td>
</tr>
<tr>
<td>6.3c</td>
<td>Sale</td>
<td>hasAgent</td>
<td>Agent</td>
</tr>
<tr>
<td>6.3d</td>
<td>Work</td>
<td>hasPrice</td>
<td>Price</td>
</tr>
</tbody>
</table>

Break down the use case into the entities involved
Ontology development is better with friends.

Happenstance leads to collaboration.

ArtFrame + RareMat
Conduct ontology modeling
(Literally) draw out the relationships
Using software like Google Drawing can help visualize and formalize the model, as well as make it easily shareable for collaboration and feedback.
Developing the ontology recommendation

Based on the modeling…

- Formulate Classes and properties from the nodes and relationships in the model
- List the necessary Classes and properties that are in the model
- Determine if any vocabulary reuse is possible
  o Key to extending a core ontology and reusing existing ontologies
- Define new Classes and properties as necessary
  o Label, URI, definition, domain, range, etc.
- Determine and define any necessary named individuals (aka controlled vocabularies) to support the model
**Custodial History Model**

### Classes
- schema:Event
- bf:Item
- ex:CustodialHistory
- ex:CustodialEvent

### Custodial Event SubClasses
- ex:Accessioning
- ex:Auction
- ex:Bequest
- ex:ClaimOfOwnership
- ex:Deaccessioning
- ex:Deposit
- ex:Destruction
- ex:Discarding
- ex:Donation
- ex:Inheritance
- ex:Loan
- ex:Loss
- ex:Offer
- ex:Ownership
- ex:Recovery
- ex:Repatriation
- ex:Sale
- ex:Theft
- ex:Transfer

### Activity-Related Class
- bib:Activity

### Activity SubClasses
- ex:AccessionerActivity
- ex:AcquisitionActivity
- ex:BorrowerActivity
- ex:BrokerActivity
- ex:BuyerActivity
- ex:ClaimantActivity
- ex:DeaccessionerActivity
- ex:DepositorActivity
- ex:DestructionActivity
- ex:DiscarderActivity
- ex:DisputantActivity
- ex:DonorActivity
- ex:InheritorActivity
- ex:LenderActivity
- ex:LossActivity
- ex:OfferActivity
- ex:OwnerActivity
- ex:RecipientActivity
- ex:RecovererActivity
- ex:RepatriatorActivity
- ex:SellerActivity
- ...
Custodial History Model

- CCO 5.2.1.2.5 Ownership History
- RDA 2.18 Custodial History of an Item
- MARC 561 - Ownership and Custodial History

561 #$$aOriginally collected by Paul Jones and maintained by his nephew, John Smith after Jones' death. Purchased in 1878 by Henry Green, who added prints and drawings purchased at auctions in New York and Paris, 1878-1893.

=item1 a bf:Item
    bf:custodialHistory "Originally collected by Paul Jones and maintained by his nephew, John Smith after Jones' death. Purchased in 1878 by Henry Green, who added prints and drawings purchased at auctions in New York and Paris, 1878-1893.".

Item_1 owned by Paul Jones
Item_1 inherited by John Smith
Item_1 sold at auction to Henry Green in 1878
Item_1 added to Item_2, Item_3, Item_4, etc...
Item_2, Item_2, Item_3, Item_4, purchased at auctions by Henry Green
Auctions in New York; Paris
Auctions between 1878-1893
:item1 a bf:Item;
  ex:hasCustodialHistory :history1.

:history1 a ex:CustodialHistory;
  bf:hasPart :individualEvent1;
  :individualEvent2;
  :individualEvent3;
  :individualEvent4.

:history2 a ex:CustodialHistory;
  bf:hasPart :individualEvent5.

:individualEvent1 a ex:Ownership;
  seq:precedes :individualEvent2; 
  ex:hasActivity :activity1.

:individualEvent2 a ex:Inheritance;
  seq:precedes :individualEvent3;
  ex:hasActivity :activity2.

:individualEvent3 a ex:Auction;
  seq:precedes :individualEvent4;
  bf:hasPart :subEvent1.

:subEvent1 a ex:Sale;
  ex:hasActivity :activity3;
  bf:date "1878".

:individualEvent4 a ex:Ownership;
  seq:follows :individualEvent3;
  ex:hasActivity :activity4.

:individualEvent5 a ex:Auction;
  bf:date "1878-1893";
  bf:place "New York";
  bf:place "Paris";
  bf:hasPart :activity4.

:activity1 a ex:OwnerActivity;
  bf:agent :agent1.

:activity2 a ex:OwnerActivity;

:activity3 a ex:BuyerActivity;

:activity4 a ex:OwnerActivity;

:agent1 a bf:Agent;
  rdfs:label "Paul Jones".

:agent2 a bf:Agent;
  rdfs:label "John Smith".

:agent3 a bf:Agent;
  rdfs:label "Henry Green".
Let’s explore another modeling example.

<table>
<thead>
<tr>
<th>Title (Goal)</th>
<th>3.3 Find artworks that can be characterized by a certain style</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mode of use</td>
<td>Discovery, Cataloging, Research</td>
</tr>
<tr>
<td>Primary Stakeholders</td>
<td>Curators, Researchers</td>
</tr>
<tr>
<td>Scope</td>
<td>Discovery (cross-institutional)</td>
</tr>
<tr>
<td>Priority</td>
<td>High</td>
</tr>
<tr>
<td>Story</td>
<td>A curator would like to review all Baroque paintings for an exhibition.</td>
</tr>
</tbody>
</table>
Early romantic artprint depicting Atala as she releases Chactas from the ties that hold him against a column; an Indian is asleep on the other side of the pillar.
Early romantic artprint depicting Atala as she releases Chactas from the ties that hold him against a column; an Indian is asleep on the other side of the pillar.
Analysis and modelling: *Style* in BIBFRAME

<bf:note>
  <rdf:Description>
    <rdf:type rdf:resource="http://id.loc.gov/ontologies/bibframe/Note"/>
    <rdfs:label>Early romantic artprint depicting Atala as she releases Chactas from the ties that hold him against a column; an Indian is asleep on the other side of the pillar.</rdfs:label>
  </rdf:Description>
</bf:note>
Analysis and modelling: Style in VRA/RDF

Slide credit: Marie-Chantal L'Ecuyer-Coelho
ArtFrame recommendation for Style

ex:hasStylePeriod (Object Property)
URI: TBD
Label: has style/period
Definition: A resource’s relationship to a style/period it represents.
Domain: unspecified
Range: unspecified
Inverse: ex:isStylePeriodOf

ex:isStylePeriodOf (Object Property)
URI: TBD
Label: is style/period of
Definition: A style/period’s relationship to a resource representing it.
Domain: unspecified
Range: unspecified
Inverse: ex:hasStylePeriod

:work1 a bf:StillImage ;
  bf:title :title ;
  ex:hasStylePeriod <http://vocab.getty.edu/aat/300172863> .

:title rdf:value "Atala et Chactas" .

Slide credit: Marie-Chantal L'Ecuyer-Coelho
Use Case to **Modeling**

**Use Case Groups | Related Ontology Models**

- Names/Agents | Attributions
- Related Works | Custodial History, Exhibitions, Awards, Titles
- Genre, Facets, Types, Work Types, Classification, Styles | Style/Period
- Physical Characteristics/Properties | Measurements, Materials
- Conditions/Alterations | Physical Condition, Markings
- Object History | Custodial History, Exhibitions, Awards, Titles
- Related Images
- Subject/Aboutness | Style/Period
- Annotations | Notes
- Titles | Titles
- Administrative Metadata
- Related Events | Exhibitions
Document and publish the ontology model recommendation
<table>
<thead>
<tr>
<th>File Name</th>
<th>Description</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>modeling_diagrams</td>
<td>Add files via upload</td>
<td>6 days ago</td>
</tr>
<tr>
<td>Awards.md</td>
<td>Update Awards.md</td>
<td>4 months ago</td>
</tr>
<tr>
<td>accession_numbers.md</td>
<td>Rename recommendation files</td>
<td>2 months ago</td>
</tr>
<tr>
<td>attribution.md</td>
<td>Update attribution.md</td>
<td>9 days ago</td>
</tr>
<tr>
<td>bibilographic_citations.md</td>
<td>Merge pull request #31 from timathom/citations-patch-2</td>
<td>19 days ago</td>
</tr>
<tr>
<td>bindings.md</td>
<td>Create bindings.md</td>
<td>6 days ago</td>
</tr>
<tr>
<td>carriers_and_bound_withs.md</td>
<td>Rename file</td>
<td>6 days ago</td>
</tr>
<tr>
<td>custodial_history.md</td>
<td>Add updated custodial history doc to master</td>
<td>10 days ago</td>
</tr>
<tr>
<td>exhibitions.md</td>
<td>Minor wording tweak</td>
<td>10 days ago</td>
</tr>
<tr>
<td>fonts_handwriting_notation.md</td>
<td>Another tweak to font recommendation</td>
<td>3 months ago</td>
</tr>
<tr>
<td>limitation_statements.md</td>
<td>Merge changes from develop</td>
<td>10 days ago</td>
</tr>
<tr>
<td>markings.md</td>
<td>Create markings.md</td>
<td>6 days ago</td>
</tr>
<tr>
<td>materials.md</td>
<td>Remove three classes from materials recommendaton</td>
<td>a month ago</td>
</tr>
<tr>
<td>measurements.md</td>
<td>Update measurements.md</td>
<td>5 months ago</td>
</tr>
<tr>
<td>pagination_filiation.md</td>
<td>Update pagination_filiation.md</td>
<td>3 months ago</td>
</tr>
<tr>
<td>physical_condition.md</td>
<td>adding modeling recommendations (#6)</td>
<td>8 months ago</td>
</tr>
<tr>
<td>signature_statements.md</td>
<td>Update signature_statements.md</td>
<td>5 months ago</td>
</tr>
<tr>
<td>style_period.md</td>
<td>Create style_period.md</td>
<td>6 days ago</td>
</tr>
<tr>
<td>titles_art.md</td>
<td>Remove old titles_art doc and rename new one</td>
<td>19 days ago</td>
</tr>
</tbody>
</table>
Invite feedback from the wider domain on the model
Finalize a version of the model
Custodial History : Provenance Ownership Model

RareMat & ArtFrame, 2017-10-04

Table of Contents

- Overview
- Summary of the Model
- Diagram
- RDF Sample
- Requests to Library of Congress
- Term Specifications
- Areas for Future Research
Encode the new classes and properties in a knowledge representation language like OWL
This OWL is what is seems, a W3C standard

“The W3C Web Ontology Language (OWL) is a Semantic Web language designed to represent rich and complex knowledge about things, groups of things, and relations between things. OWL is a computational logic-based language such that knowledge expressed in OWL can be exploited by computer programs, e.g., to verify the consistency of that knowledge or to make implicit knowledge explicit. OWL documents, known as ontologies, can be published in the World Wide Web and may refer to or be referred from other OWL ontologies. OWL is part of the W3C’s Semantic Web technology stack, which includes RDF, RDFS, SPARQL, etc.”

https://www.w3.org/OWL/
ArtFrame and RareMat members read the OWL Primer and were given training on how to write OWL files.

Groups and individuals have spent the last several months creating and publishing OWL files.

The OWL files are published on GitHub.
<owl:Class rdf:about="http://cho.bibliotek-o.org/0.1/ontology/CustodialHistory">
  <rdfs:label xml:lang="en">Custodial history</rdfs:label>
  <skos:definition xml:lang="en">Entity that aggregates all of the custodial events for an Item.</skos:definition>
  <skos:scopeNote>An Item has a single CustodialHistory, which is composed of one or more CustodialEvent resources. The Item is directed</skos:scopeNote>
  <dcterms:issued></dcterms:issued>
  <dcterms:modified></dcterms:modified>
</owl:Class>

<owl:Class rdf:about="http://cho.bibliotek-o.org/0.1/ontology/CustodialEvent">
  <rdfs:label xml:lang="en">Custodial event</rdfs:label>
  <skos:definition xml:lang="en">A custodial event encompassing one or more Items, such as a sale or loan.</skos:definition>
  <skos:scopeNote>A CustodialEvent may pertain to only a single Item (an individual CustodialEvent) in which case it is linked directly</skos:scopeNote>
  <dcterms:issued></dcterms:issued>
  <dcterms:modified></dcterms:modified>
</owl:Class>

<owl:Class rdf:about="http://cho.bibliotek-o.org/0.1/ontology/Accessioning">
  <rdfs:label xml:lang="en">Accessioning</rdfs:label>
  <skos:definition xml:lang="en">The act of adding an Item to the accessions records of a cultural heritage institution.</skos:definition>
  <rdfs:subClassOf rdf:resource="http://cho.bibliotek-o.org/0.1/ontology/CustodialEvent" />
  <rdfs:subClassOf rdf:resource="http://schema.org/Event" />
  <skos:scopeNote>Typical associated Activities: AccessionerActivity.</skos:scopeNote>
  <dcterms:issued></dcterms:issued>
  <dcterms:modified></dcterms:modified>
</owl:Class>

<owl:Class rdf:about="http://cho.bibliotek-o.org/0.1/ontology/Auction">
  <rdfs:label xml:lang="en">Auction</rdfs:label>
  <skos:definition xml:lang="en">The sale at auction of an Item.</skos:definition>
  <rdfs:subClassOf rdf:resource="http://bibliotek-o.org/1.1/ontology/Sale" />
  <rdfs:subClassOf rdf:resource="http://schema.org/SaleEvent" />
  <skos:scopeNote>Refers to the transfer of ownership through auction, rather than the auction in which that occurs.</skos:scopeNote>
  <skos:scopeNote>Typical associated Activities: BuyerActivity, bib: SellerActivity, BrokerActivity.</skos:scopeNote>
  <dcterms:issued></dcterms:issued>
  <dcterms:modified></dcterms:modified>
</owl:Class>
Start encoding linked data with your new ontology!
Tools: Protégé

**Class hierarchy: 'Measurement Group'**

- owl:Thing
  - Arrangement
  - Arrangement
  - Measurement
  - Measurement Group

**Annotations: 'Measurement Group'**

- rdfs:label
  - Measurement Group

- skos:definition  [language: en-us]
  
A set of measurements pertaining to a specific resource, part of a resource, or resource in a particular arrangement. For example, a book may have a specified height, width, length, and/or weight, which are all attached to a MeasurementGroup; the binding may have measurements specified independently, which would constitute another MeasurementGroup. A MeasurementGroup has one or more specific Measurements attached to it.
Tools: Editors

- **Editors**
  - Cedar + BiblioPortal
  - BIBFRAME Editor
  - VitroLib
Catalog a new resource

Work +

Statistics

104 Works
46 Instances
17 Items
99 People
52 Organizations
203 Agents
New Work

Title *

Type *
Audio

Language *
English

Author or Other Role *
Author

LC Subject Heading
Select an existing Entity or create a new one.

Select an existing Entity or create a new one.
Beast Epic | Audio disc | (instance)
Next Step: Templates for Art

Application Profile:

- Which properties/classes do we need?
- How do we group them and in which order?
  Use with: bf:Work, bf:Instance, or bf:Item?
- Which controlled vocabularies do we want to use and where?
- ... etc.
A W3C Recommendation

“... a language for validating RDF graphs against a set of conditions. These conditions are provided as shapes and other constructs expressed in the form of an RDF graph. ... As SHACL shape graphs are used to validate that data graphs satisfy a set of conditions they can also be viewed as a description of the data graphs that do satisfy these conditions. Such descriptions may be used for a variety of purposes beside validation, including user interface building, code generation and data integration.”
Shapes Constraint Language (SHaCL)

example_shapes:ArtWorkActivityForm

sh:targetClass bib:Activity ;

sh:property [ 
  sh:path rdf:type ;
  sh:order "0" ;
  sh:description "Agent role or activity type" ;
  sh:name "Agent role" ;
  sh:in ( <http://bibliotek-o.org/ontology/ArtistActivity> <http://bibliotek-o.org/ontology/ColoristActivity> .... )
]
Add activity/role

Activity Type

---Select option---
Composer
Arranger
Librettist
Lyricist
Performer
Conductor
Musician
Singer
Instrumentalist
Narrator
Commentator
Producer
Musical director
Sound designer
Recordist
Broadcaster

Select an existing entity or create a new one.

* required fields

Save OR Cancel

Create new agent

LOC Organization
ISNI
Tools: Data Integration

Karma: Measurements Model
Outcomes: Documentation

Linked Data for Production (LD4P) Wiki
https://wiki.duraspace.org/pages/viewpage.action?pageId=74515029

ArtFrame-RareMat GitHub
https://github.com/LD4P/ArtFrame-RareMat/tree/master

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Outcomes: Summary

- **Literature Review**
  - Focus on descriptive cataloging of art objects in libraries
- **Use Cases**
  - 52 Use Cases defined by the group
  - Organized into 12 groupings
- Use Case Analysis and Entity Modeling
- **Modeling**
- **OWL files** (for RareMat/ArtFrame plus modular ontologies)
- **SHACL files** for application development (to come soon!)

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Outcomes

- Community collaboration
- Practitioner involvement
- Training
Some Lessons Learned

• Ontology work takes much longer than you think
• Vocabulary reuse is not easy
• Some of our current practices need to be rethought from the ground up (bound-withs, proliferation of notes)
• Many current content standards are not linked data friendly
Next Steps & Open Questions

• Hosting
  – Where will these ontologies live on the Web?
• Maintenance
  – How will they be maintained, edited, and managed?
• Collaborations
  – Future and continued?
• Testing
  – How to test the ontologies and the new RDF data?
• Tooling
  – Do the current tools meet our needs? Do we need custom tools?
• Adoption
  – How do we promote adoption?
Questions?

Thank you!

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