The Outcome of the ArtFrame Project, a Domain-Specific BIBFRAME Exploration

ARLIS/NA Conference, February 27, 2018

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Marie-Chantal L’Ecuyer-Coelho, Bibliothèque et Archives nationales du Québec
Jason Kovari, Cornell University
Maria Oldal (Moderator), Morgan Library & Museum
Melanie Wacker, Columbia University
Part 1: Background & Motivation
Linked Data for Production

Andrew W. Mellon Foundation funded

- Columbia University
- Cornell University
- Harvard University
- Princeton University
- Stanford University
- Library of Congress

Focus (selected):
- ontology extensions
- metadata production
- pipelines and workflows

http://ld4p.org/
LD4P Ontology Extensions

ArtFrame

Cartographic

Moving Image

Performed Music

Rare Materials

http://ld4p.org/
Andrew W. Mellon Foundation funded

Cornell University
Harvard University
Stanford University
University of Iowa

Focus (selected):
- VitroLib (RDF editor)
- Look-up services

https://ld4l.org/
Why Linked Data?

- Standardized technologies
- Discovery-focused
- Entity-driven
- Interoperable beyond libraries
Ontology adoption varies widely

Library-domain ontologies: limited development
Current Status of Linked Data in Library Domain

Ontology development

- BIBFRAME
- RDA-RDF
- VRA-RDF
- schema.org
- Myriad of additional ontologies

Challenge: subject domains
Current Status of Linked Data in Library Domain

- Prototyping & experimentation
- Limited in-production efforts
- Lacking out-of-the-box solutions
Call to Mobilize

Need more training
Need more collaboration
Need more tool development
Need more practitioners
Part 2: The ArtFrame Project

Slide courtesy of Roberto C. Ferrari, Curator of Art Properties, Avery Architectural & Fine Arts Library
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](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, 1824-1906, artist.
Title: Portrait of Frederick A. P. Barnard (1809-1889).
Produced: United States, 1886.
Physical: 1 painting; 40 x 30 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 1864-1889.
Credit Line: Commissioned by the Trustees, 1886.
Subjects: Barnard, Frederick A. P. (Frederick Augustus Porter), 1809-1889, depicted.
Subjects (Genre): Paintings (visual works) > American > 19th century.
Format: Art Work (Original)
Bookmark As: https://clio.columbia.edu/catalog/12003862

Available from:
- Avery Art Properties - By appt. (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
Real 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 (still ongoing), 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
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
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)
Collaboration with RareMat

- Happenstance lead to cooperation and collaboration
- Many similar and overlapping issues
  - Condition and conservation, exhibitions, custodial history, awards, accession numbers, etc
- Through the projects leads at Columbia and Cornell, the two groups began working together to define and model commonalities
  - Two in-person meetings and several joint working groups resulted in common pattern recommendation documents and ontological modeling with OWL files
First in Person Meeting 2017: ArtFrame & RareMat
Accomplishments

• **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 Analysis and **Entity Modeling**
• **Modeling**
• Creating **OWL files**
Model 1: **Accession Number**
Model 2: Activities Relating to Physical Condition
Diagram 3: One condition assessment describing one physical condition leading to one conservator activity resulting in a new physical condition.

Model 2: Activities Relating to Physical Condition
Model 3: Custodial History
ArtFrame and RareMat members were given training on how to write OWL files.

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

Some OWL files are already published on GitHub, but most are still in development. The rest will likely be published in early March.
Tools

- **Data Integration**
  - Karma

- **Editors**
  - VitroLib
  - Cedar + BiblioPortal
  - BIBFRAME Editor

- **Converter Tools**
  - MARC to BIBFRAME Converter
  - MARC to bibliotek-o Converter
Karma: Measurements Model
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

Select an existing Entity or create a new one.

LC Subject Heading

Select an existing Entity or create a new one.
VitroLib :: Instance example
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?
Part 3: The Cataloging Advisory Committee of ARLIS/NA and ARTFrame

Marie-Chantal L’Ecuyer-Coelho
Cataloguing Librarian for Graphic Materials
Cataloguing Directorate for the Heritage Collections
Bibliothèque et Archives nationales du Québec
CAC’s involvement

ArtFrame Project Team:

- Columbia’s LD4P team
- 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
  - Cataloging Advisory of ARLIS/NA (May 2016)
    - Art Institute of Chicago / Bard College / Bibliothèque et Archives nationales du Québec (BAnQ) / Metropolitan Museum of Art / Pratt Institute / Sterling and Francine Clark Art Institute / Morgan Library & Museum
Use case development

CAC expertise

- Familiar with the various kinds of cultural objects found in art institutions (prints, photographs, drawings, paintings, artists’ books, sculpture, installations, manuscripts, handicrafts, etc.)
- Sensitive to the specific needs of end-users interested in art resources
- Aware of the limitations of our data for retrieval purposes
- Familiar with the cataloguing standards in use in libraries and museums (differences between the bibliographic tradition and the cataloging practices of museums and visual resources centers)
Use cases submitted by CAC members

- Discover related works held by different institutions
- Find images showing the different states of an art print
- Find images containing visual references to well-known artworks
- Find artworks that are typical of a given style or artistic school
- Search and sort artworks by colour palette, medium, or production methods
- Find information about the weight of art objects from a given collection
- Discover artworks sold at a particular auction sale / by a particular auction house
Analysis and modelling : Style in MARC 21

=100 1\ $aLordon, Pierre Jérôme,$d1780-1838,$eartist.
=245 10 $aAtala et Chactas :$b"A la clarté de la lune, j'entrevois une grande figure blanche penchée sur moi, occupée à dénouer silencieusement mes liens ..." /$cLordon delt. ; J.P. Simon, scupt.
=264 \1 $aParis :$bchez Ostervald l'aîné, rue de la Verrerie, no. 14, ou rue Moussy, no. 7, $c[between 1801 and 1810?]
[...]
=520 8\ $aEarly 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.
[...]
=600 10 $aChateaubriand, François-René,$vcvicomte de,$d1768-1848.$tAtala.
=650 \0 $aNatchez Indians$zLouisiana.
=650 \0 $aAtala (Fictitious character)
=650 \0 $aChactas (Fictitious character)
=655 \7 $aEtchings$xFrench$y1800-1810.$2gmgpc
=700 1\ $aSimon, John Peter,$d-approximately 1810, $eetcher.
Analysis and modelling : Style in BIBFRAME

<bf:summary>
<bf:Summary>
  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>
</bf:Summary>
</bf:summary>
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
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" .
```
Importance of item-level information (Binding Model)
BIBFRAME 2.0 multi-level model

https://www.loc.gov/bibframe/docs/bibframe2-model.html
Color-content in BIBFRAME 2.0

<owl:ObjectProperty rdf:about="http://id.loc.gov/ontologies/bibframe/colorContent">
  <rdfs:range rdf:resource="http://id.loc.gov/ontologies/bibframe/ColorContent"/>
  <skos:definition>Color characteristics, e.g., black and white, multicolored.</skos:definition>
  <rdfs:comment>Used with Work or Instance</rdfs:comment>
  <rdfs:label>Color content</rdfs:label>
  <dcterms:modified>2016-04-21 (New)</dcterms:modified>
</owl:ObjectProperty>
Entity-level for colour content

work-level
Entity-level for colour content

instance-level
Entity-level for colour content

item-level
Award model

<owl:Ontology rdf:about="http://award.bibliotek-o.org/ontology/">
  <owl:OntologyIRI rdf:resource="http://award.bibliotek-o.org/ontology/"/>
  <owl:versionIRI rdf:resource="http://award.bibliotek-o.org/0.1/ontology/"/>
  <owl:OntologyInfo rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Version 0.1</owl:OntologyInfo>
  <dc:terms:issued/>
  <dc:terms:modified/>
  <owl:OnClass rdf:label>
    <skos:definition xml:lang="en">The Award Ontology models awards and their recipients.</skos:definition>
  </owl:OntologyInfo>
  <owl:OntologyTitle xml:lang="en">Award Ontology</owl:OntologyTitle>
  <owl:OntologyTitle xml:lang="en">Award Ontology</owl:OntologyTitle>
  <!-- Omitting, since bibliotek-o formally extends BIBFRAME and the relationships are transitive
  <vra:extends rdf:resource="http://id.loc.gov/ontologies/bibframe/"/>
  <vra:specializes rdf:resource="http://id.loc.gov/ontologies/bibframe/"/>
  ...
  <vra:extends rdf:resource="http://bibliotek-o.org/ontology/"/>
  <vra:specializes rdf:resource="http://bibliotek-o.org/ontology/"/>
  <owl:imports rdf:resource="http://bibliotek-o.org/ontology/1.1/ontology/>
</owl:Ontology>
Positive outcomes for the CAC

- Opportunity to network (online and in-person meetings, special working groups)
- Hands-on experience of data modelling (tutorials and training sessions, reading materials, expertise of our colleagues)
- Clearer view of the future of structure standards for art information
- Occasion to have a real impact on the development of standards used by our community
Carpeaux, Jean-Baptiste. *Neapolitan fischerboy*. 1 sculpture: marble; 92 x 42 x 47 cm. Between 1857-1861. Source: NGA images (Samuel H. Kress Collection)

*City Hall and Market Place, Montreal* [night view]. 1 postcard: color collotype on cardboard; 9 x 14 cm. Montreal: The Valentine & Sons Publishing Co., Ltd., between entre 1903 et 1918. Source: BAnQ numérique.

*City Hall and Market Place, Montreal* [daylight view]. 1 postcard: color collotype on cardboard; 9 x 14 cm. Montreal; Toronto: The Valentine & Sons' Publishing Co., Ltd., between 1903 et 1908. Source: BAnQ numérique.


Lordon, Pierre Jérôme. *Atala et Chactas*: *A la clarté de la lune, j'entrevois une grande figure blanche penchée sur moi, occupée à dénouer silencieusement mes liens*. 1 print: etching, black ink on wove paper; image 33 x 40 cm, on sheet 41 x 48 cm. Between 1801 and 1810. Source: BAnQ numérique.

Malevitch, Kasimir. *White on white*. 1 painting: oil on canvas; 80 x 80 cm. 1918. Source: Wikimedia Commons (MoMA).


Textual sources


