

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

ARLIS/NA Conference, February 27, 2018



Amber Billey, Bard College
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/>

Linked Data for Libraries - Labs



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

Standardized Technologies...

Standardized Standards

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

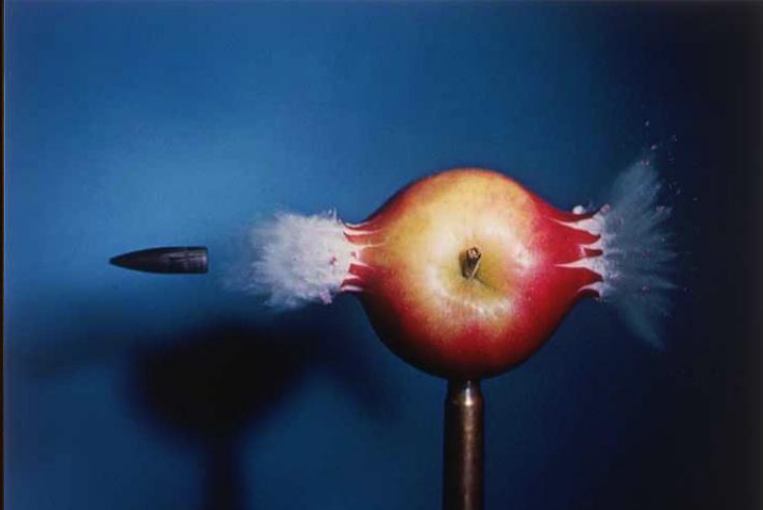
Call to Mobilize

Need more training

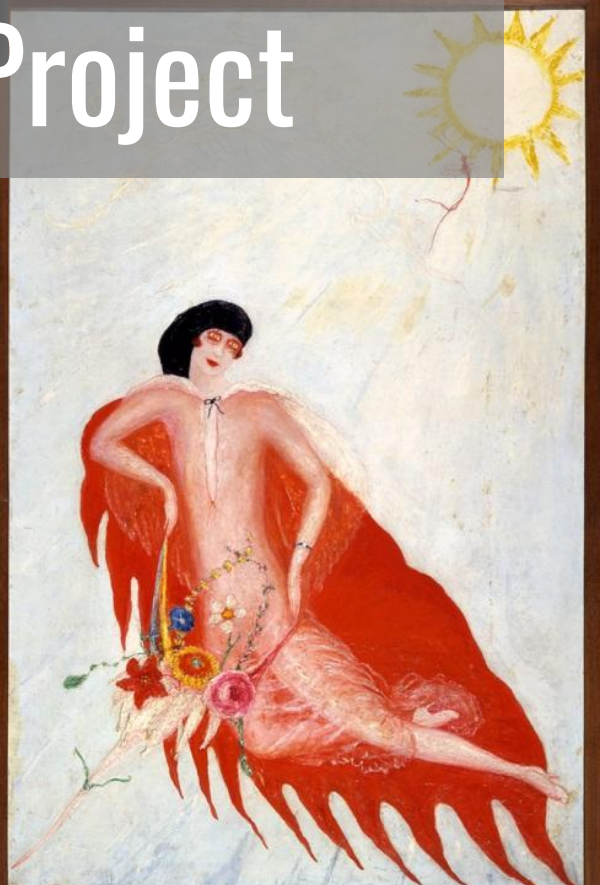
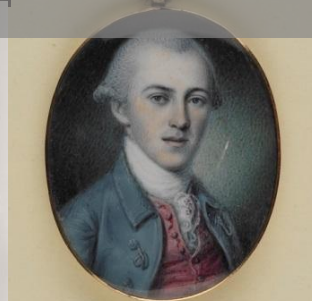
Need more collaboration

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



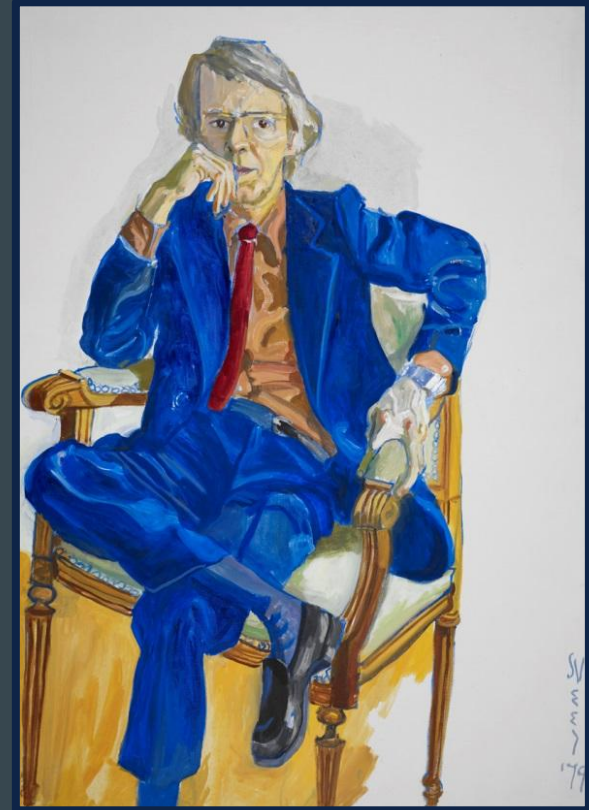
Standing Buddha, China
Northern Qi dynasty (550-577),
limestone with marble base



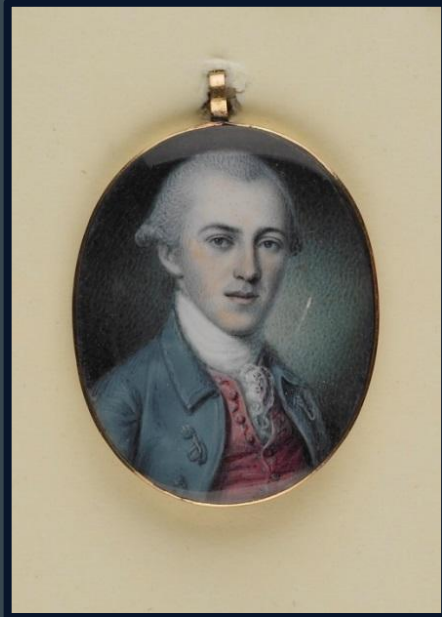
Florine Stettheimer
Landscape No. 2 with Bathers
1911, oil on canvas

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

CLIO

Art Properties

Location



Advanced

« Back to Results | « Previous | 2 of 9,618,512 | Next »

Print Email Send to Phone Add to My Saved List Export Display In Requests Start Over

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 Properties 1 painting ; 49 x 39 1/2 in. (124.4 x 100.3 cm).
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.

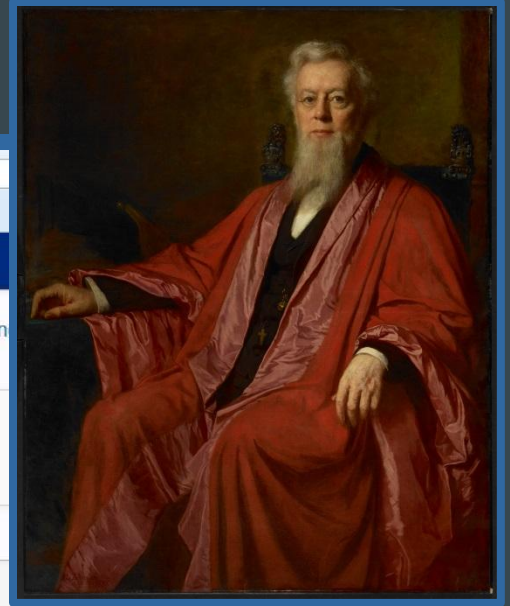
Subjects (Genre) Paintings (visual works) > American > 19th century.
Portraits > American > 19th century.

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



Virtual Shelf Browse

Show

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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

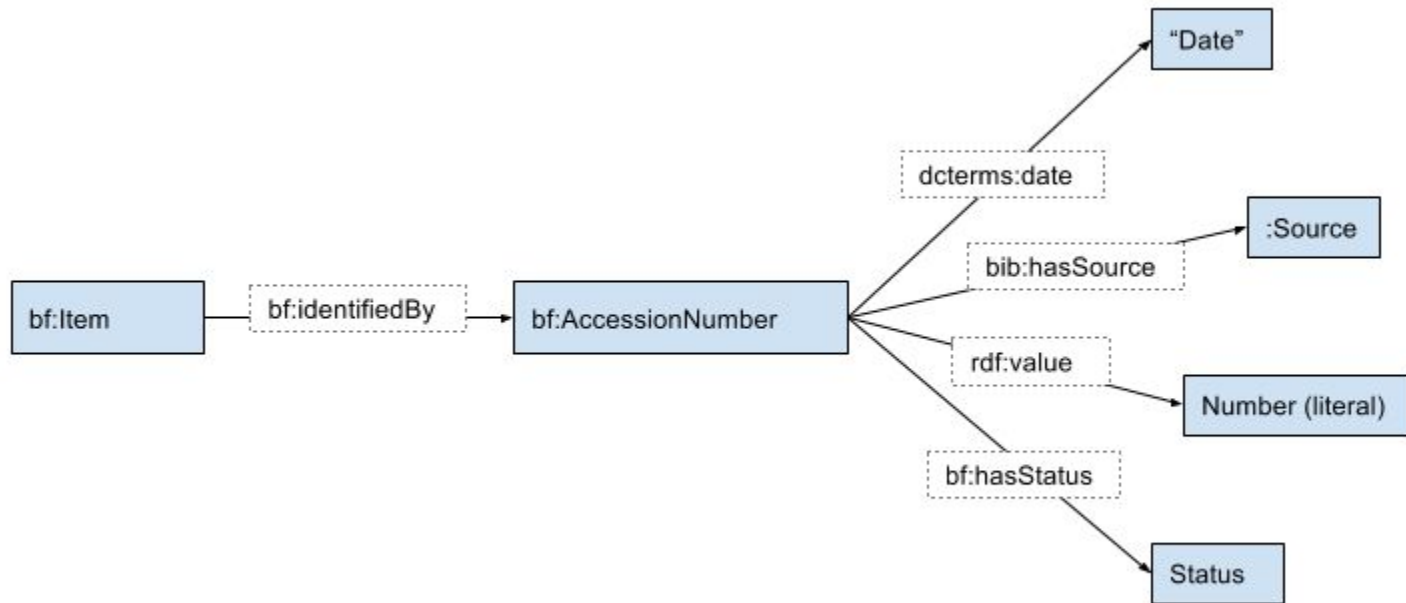
- Happenstance lead to cooperation and collaboration
- Many similar and overlapping issues
 - Condition and conservation, exhibitions, custodial history, awards, accession numbers, etc
- Through the projects leads at Columbia and Cornell, the two groups began working together to define and model commonalities
 - 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

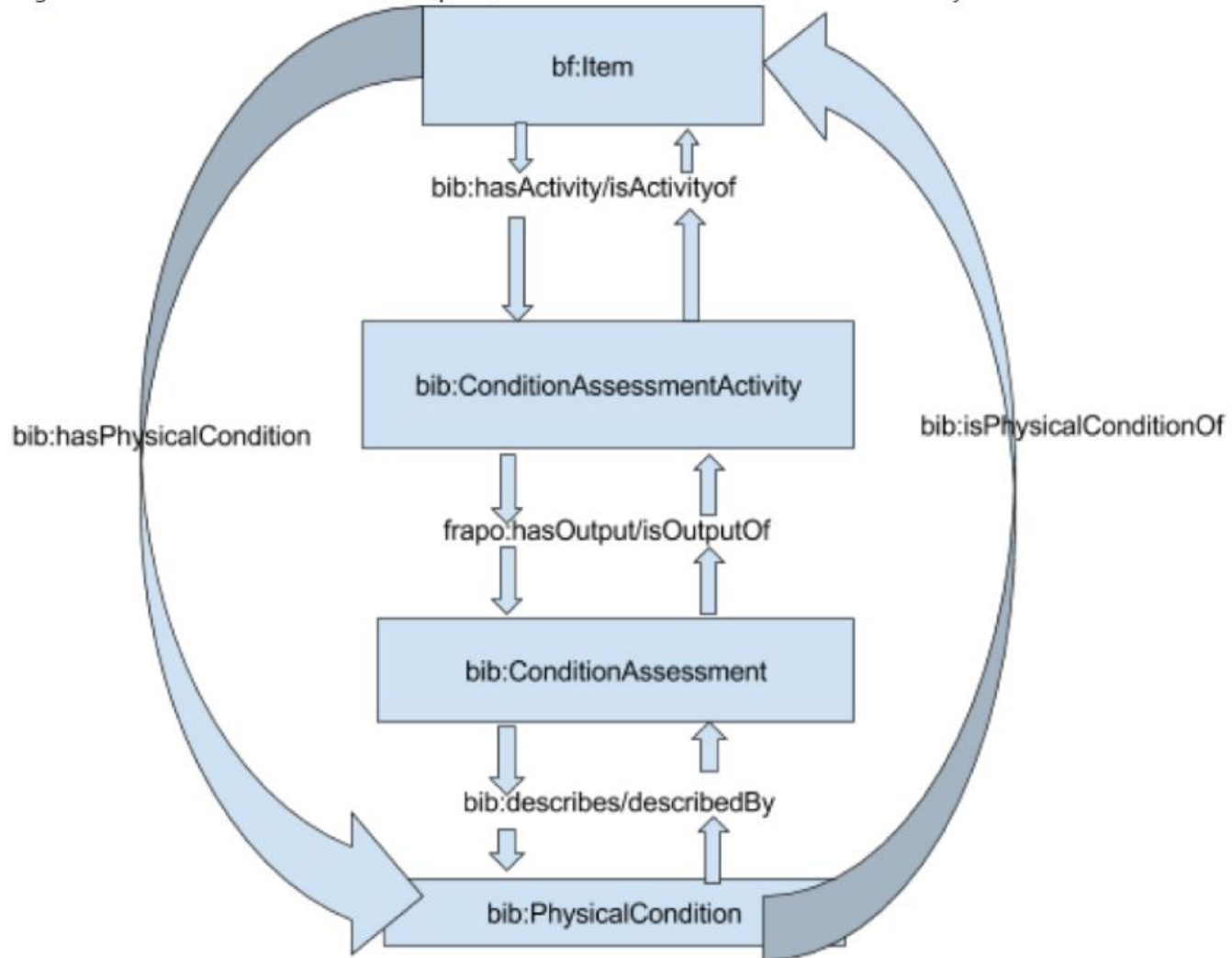
Accomplishments

- 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



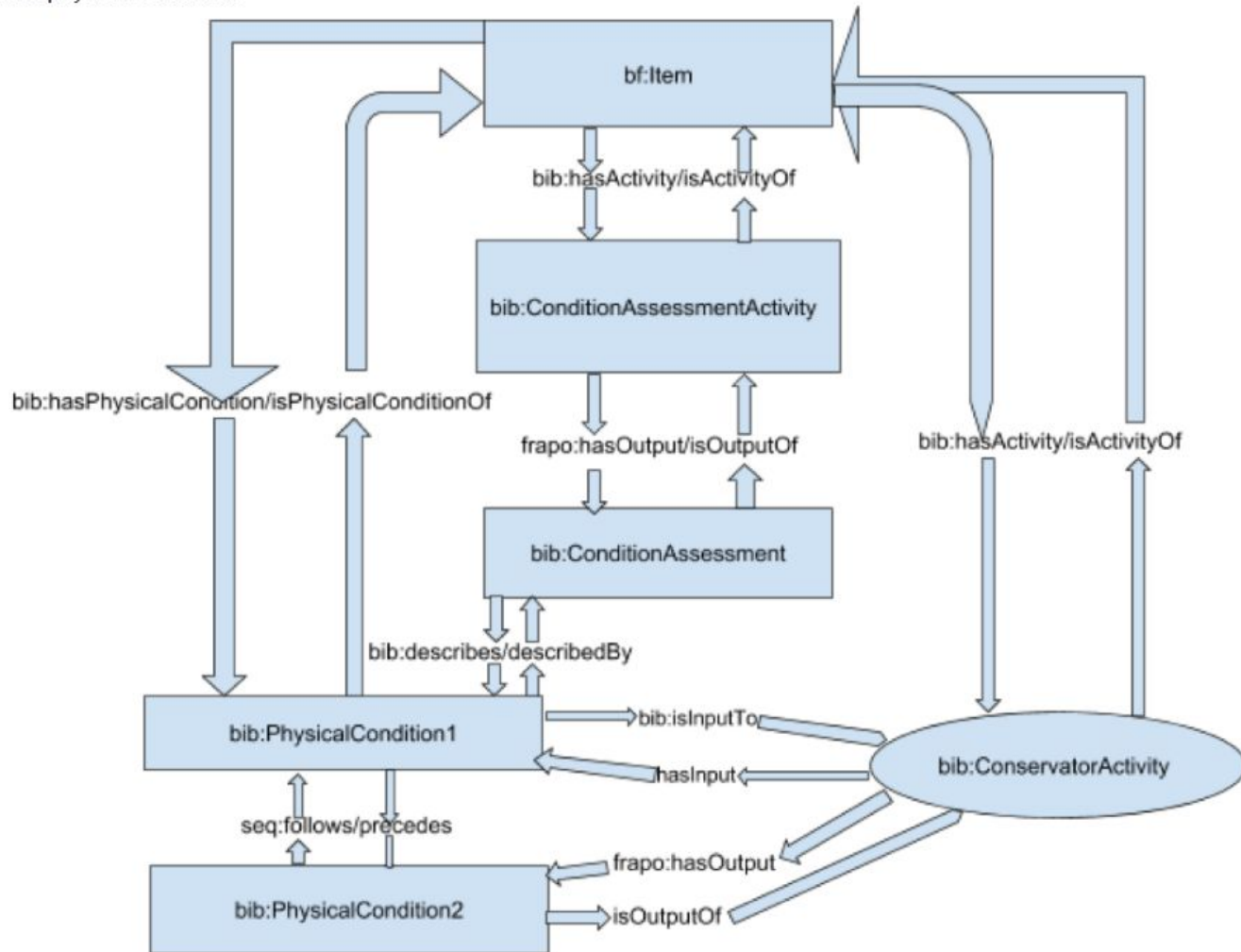
Model 1: Accession Number

Diagram 1: A condition assessment takes place, but does not result in a conservator activity.

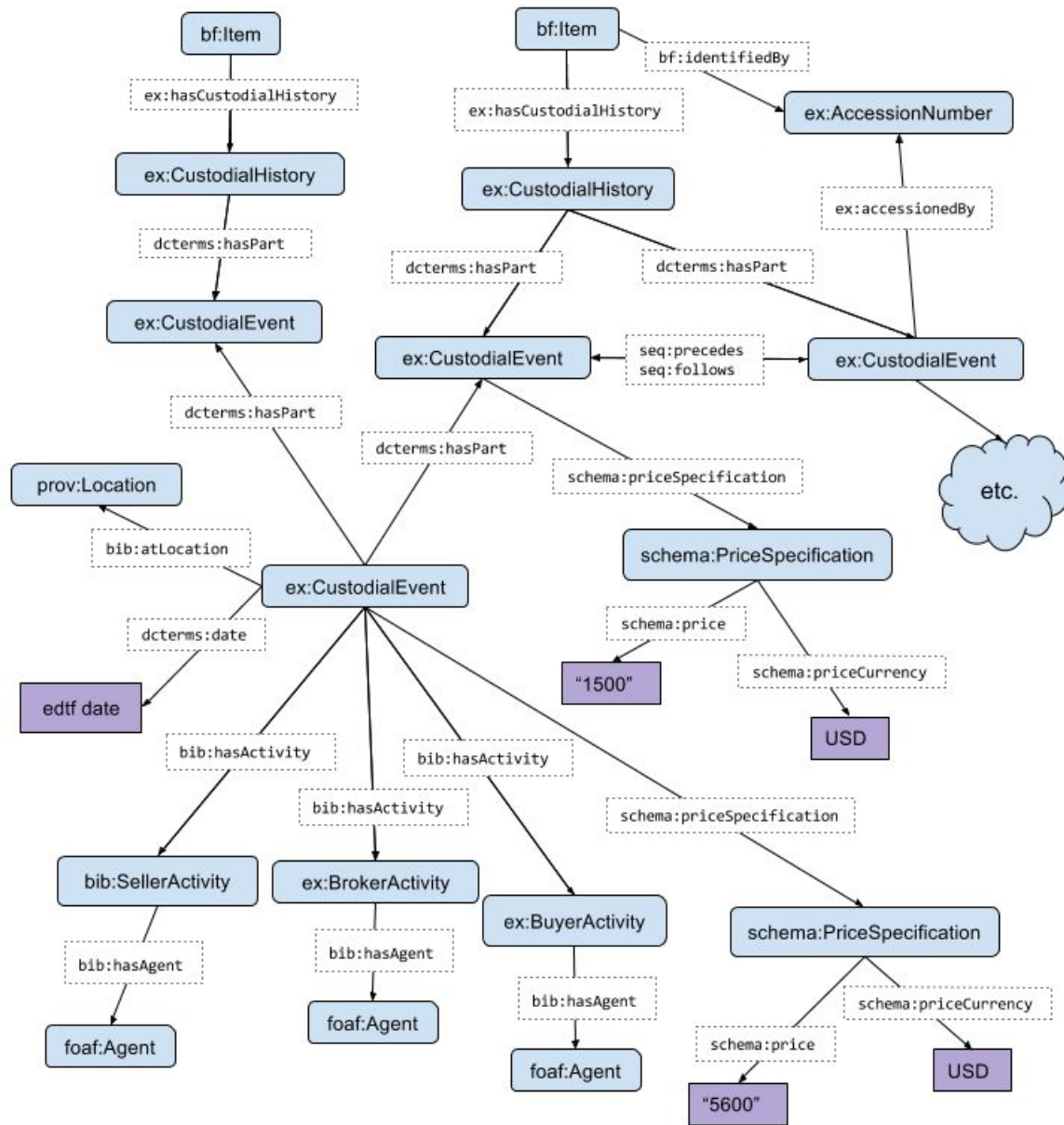


Model 2: Activities Relating to Physical Condition

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

```
<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 direc
  <dcterms:issued></dcterms:issued>
  <dcterms:modified></dcterms:modified>
</owl:Class>
```

OWL Files

```
<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 direct
  <dcterms:modified></dcterms:modified>
</owl:Class>
```

- ArtFrame and RareMat members were given training on how to write OWL files

```
<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/ontology/CustodialEvent" />
  <rdfs:subClassOf rdf:resource="http://cho.bibliotek-o.org/ontology/Item" />
  <skos:scopeNote>Typical associated Activities: AccessionerActivity.</skos:scopeNote>
  <dcterms:issued></dcterms:issued>
  <dcterms:modified></dcterms:modified>
</owl:Class>
```

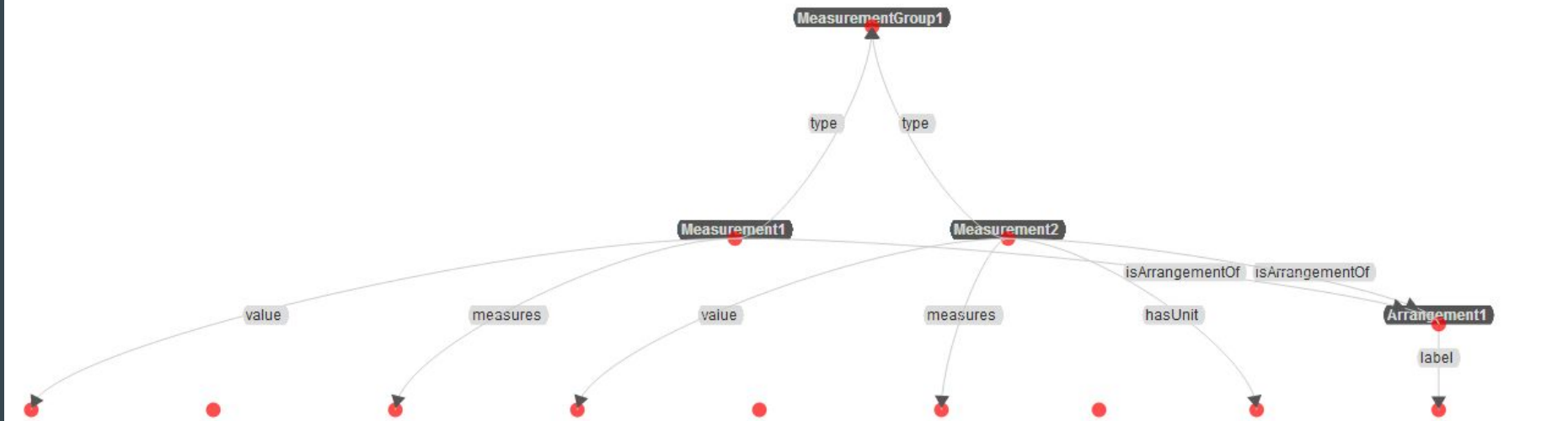
- Groups and individuals have spent the last several months creating and publishing OWL files

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

```
<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 act of transferring ownership through auction.</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>
```

Tools

- Data Integration
 - [Karma](#)
- Editors
 - [VitroLib](#)
 - [Cedar](#) + [BiblioPortal](#)
 - [BIBFRAME Editor](#)
- Converter Tools
 - [MARC to BIBFRAME Converter](#)
 - MARC to bibliotek-o Converter



measurement_value_4a	measurement_type_4a	measurement_type_uri_4a	measurement_value_4b	measurement_type_4b	measurement_type_uri_4b	unit_4	unit_uri_4	dimension_description_3_4	In
388.6	height	http://vocab.getty.... /aat/300055644	388.6	width	http://vocab.getty.... /aat/300055647	cm	http://data.nasa.gov /qudt/owl /unit#Centimeter	Open	
388.6	height	http://vocab.getty.... /aat/300055644	388.6	width	http://vocab.getty.... /aat/300055647	cm	http://data.nasa.gov /qudt/owl /unit#Centimeter	Open	

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 *

Language *

Author or Other Role *

LC Subject Heading



Admin Panel [Edit this individual](#)

Verbose property display is **on** |

Resource URI: <http://vitrolib.ld4p.library.cornell.edu/individual/n4392>

Beast Epic | Audio disc | (instance) [↗](#)

Instance Agent Information | Measurements | Audio Instance Characteristics | Other | View All

Preferred title

[Preferred title](#) is a faux property of [bibliotek-o: a BIBFRAME 2 Ontology Extension:hasPreferredTitle](#) (object property); order in group: 0; display level: all users, including public; update level: all users who can log in; publish level: all users, including public

[BE](#) | [✎](#) | [🗑️](#)

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)
 - a. Library of Congress Prints & Photographs Division
 - b. Sterling and Francine Clark Art Institute
 - c. **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 \$aA Paris :\$bchez Ostervald l'ainé, 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,\$cvicomte 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.



Public domain (BANQ numérique)

Analysis and modelling : *Style* in BIBFRAME

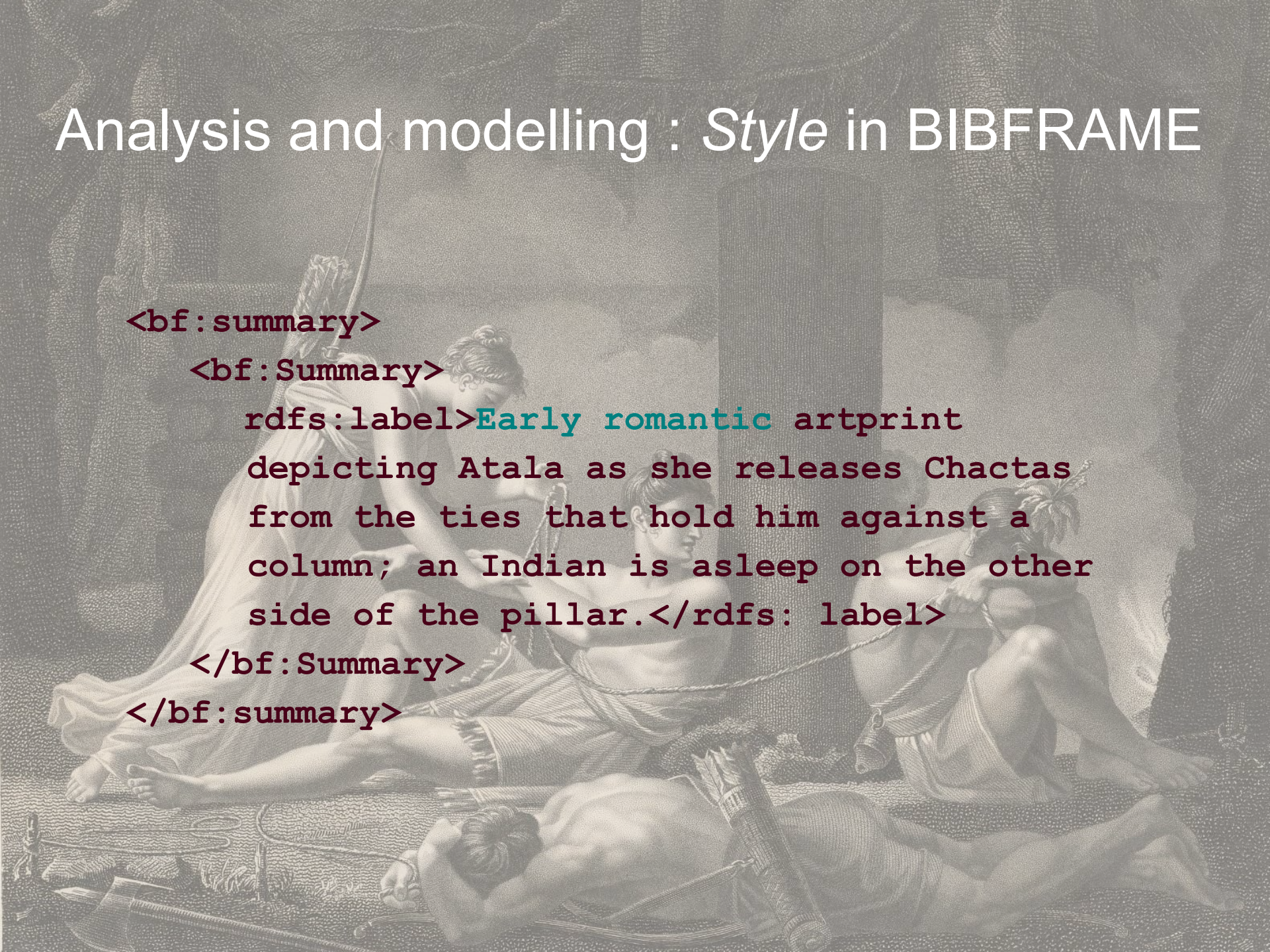
`<bf:summary>`

`<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>
```

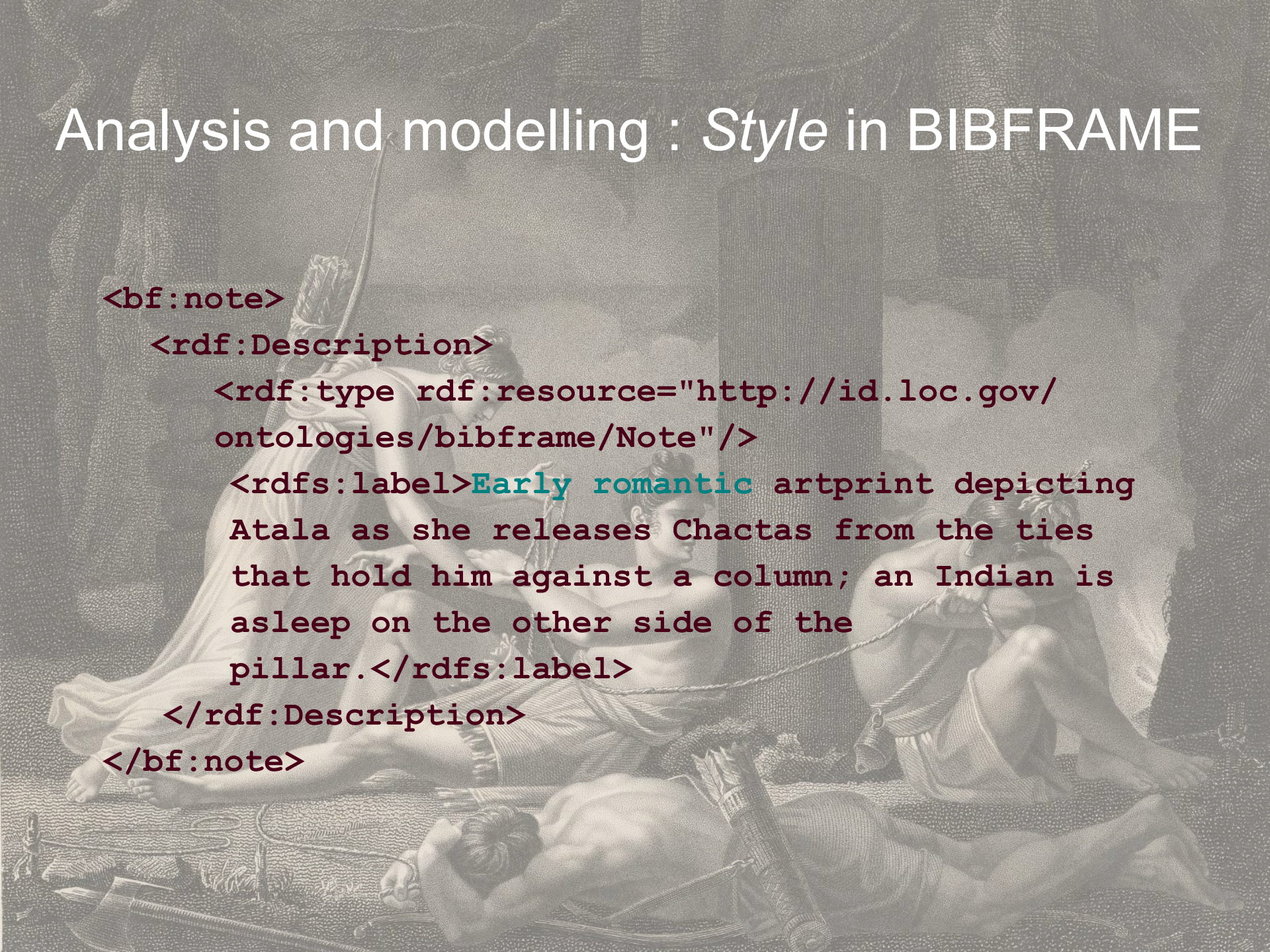
```
  <rdf:Description>
```

```
    <rdf:type rdf:resource="http://id.loc.gov/
    ontologies/bibframe/Note"/>
```

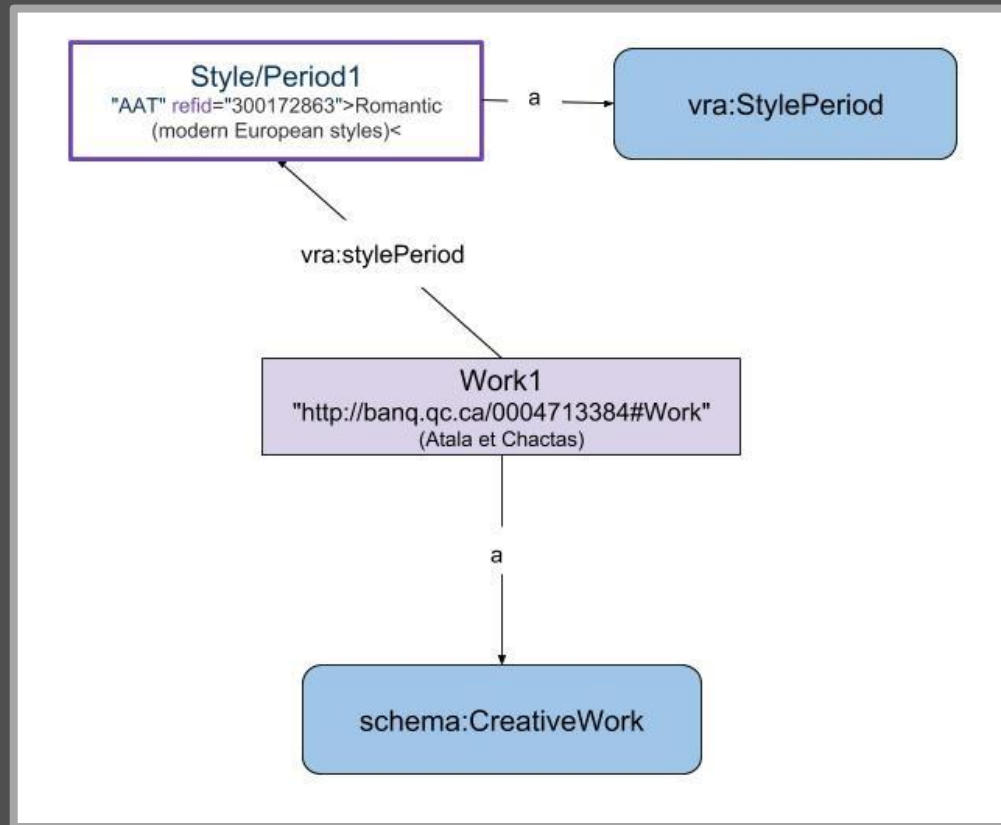
```
    <rdfs:label>Early romantic artprint depicting
    Atala as she releases Chactas from the ties
    that hold him against a column; an Indian is
    asleep on the other side of the
    pillar.</rdfs:label>
```

```
  </rdf:Description>
```

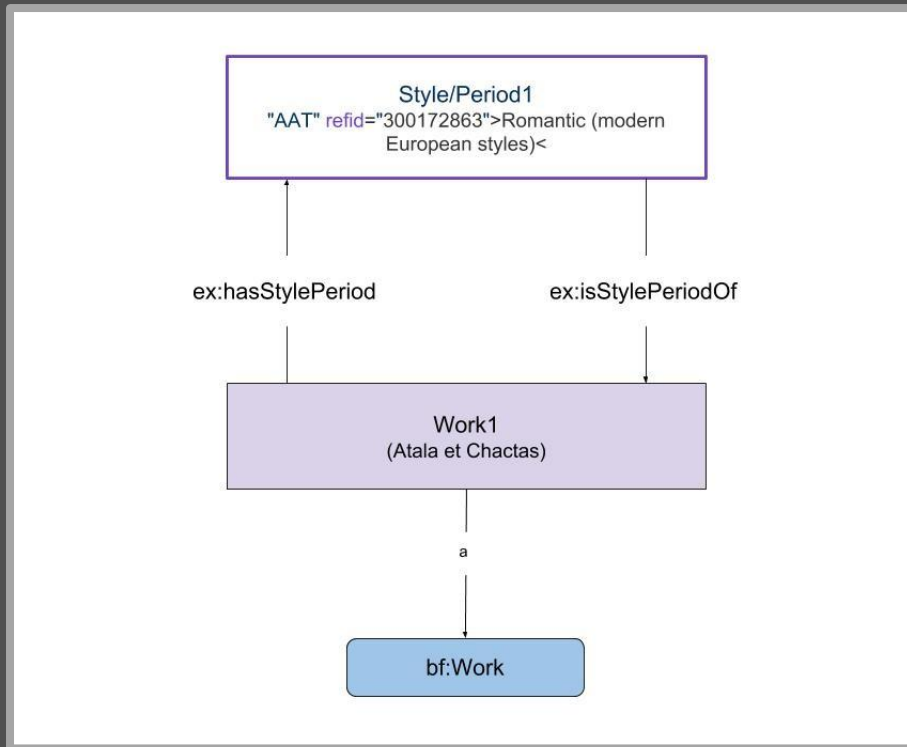
```
</bf:note>
```



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

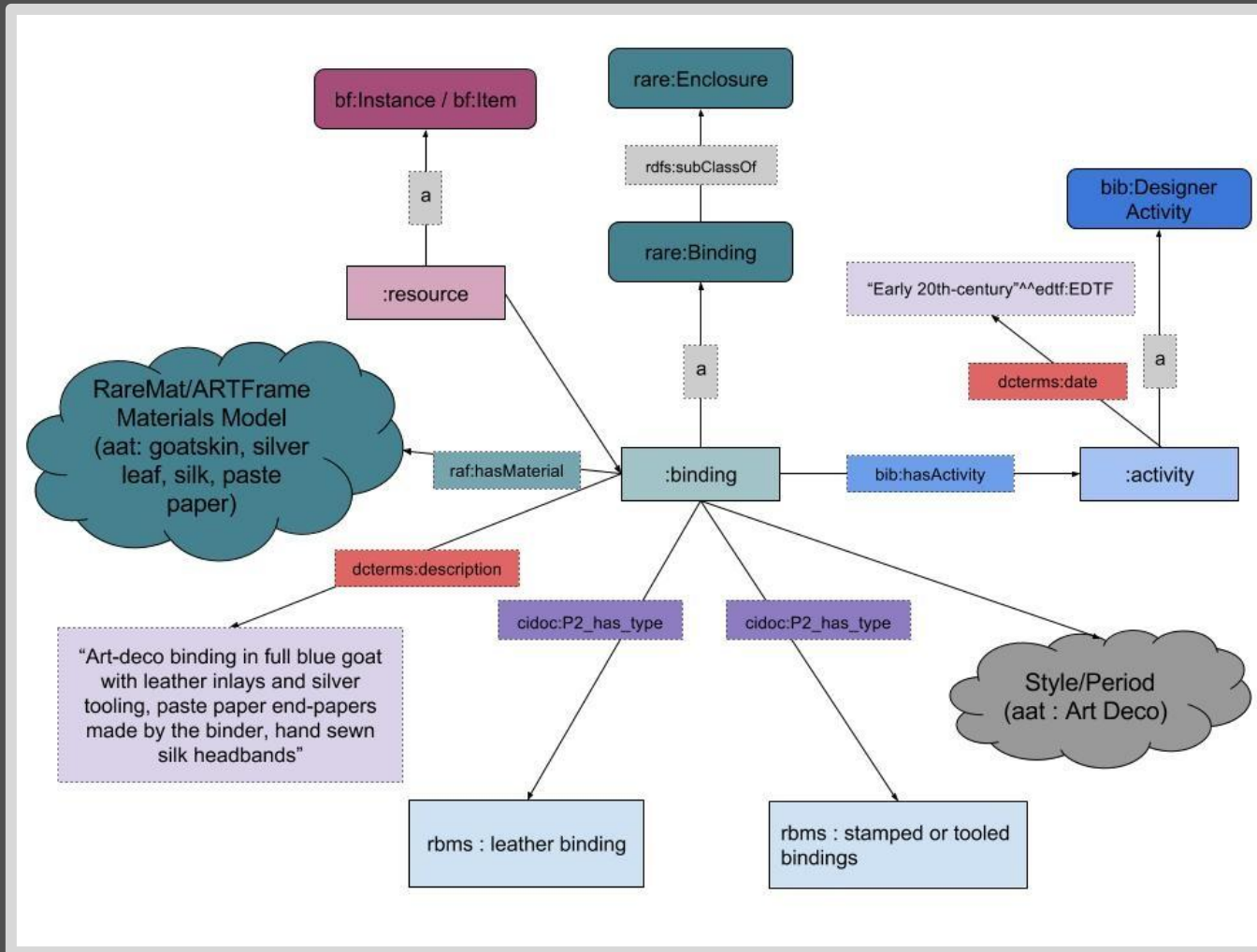
Range: unspecified

Inverse: ex:hasStylePeriod

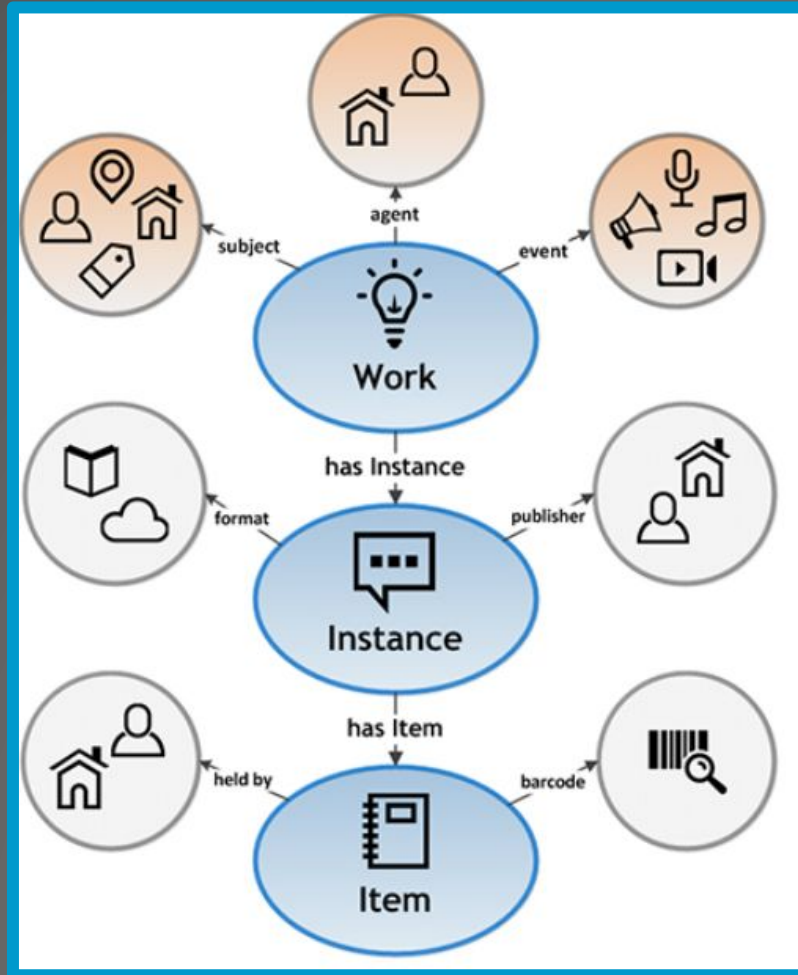
```
:work1 a bf:StillImage ;
  bf:title :title ;
  ex:hasStylePeriod <http://vocab.getty.edu/aat/300172863> .

:title rdf:value "Atala et Chactas" .
```

Importance of item-level information (Binding Model)

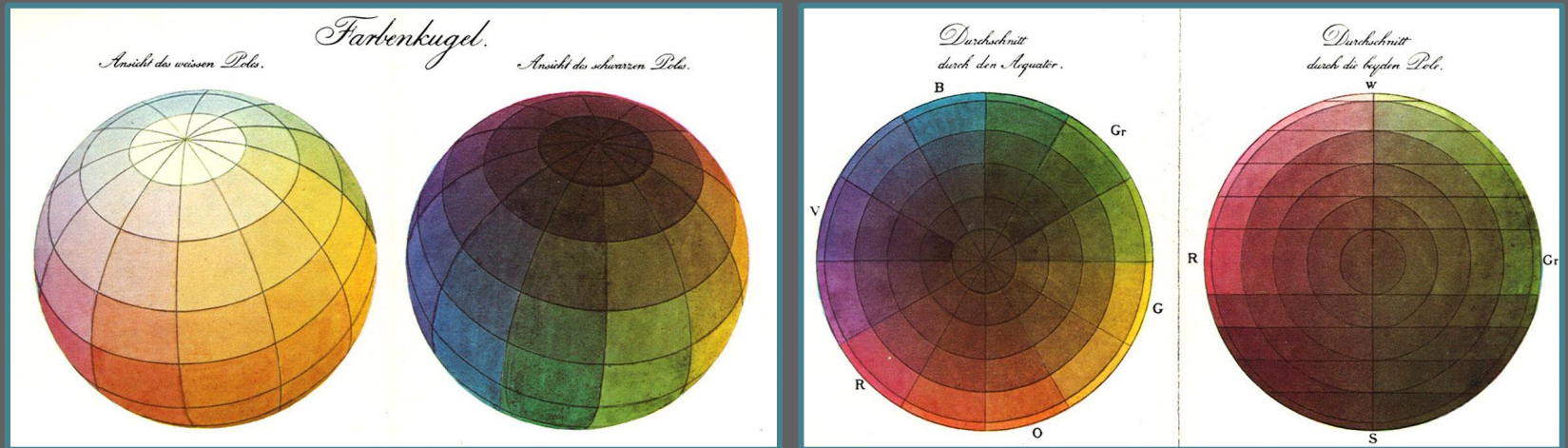


BIBFRAME 2.0 multi-level model



<https://www.loc.gov/bibframe/docs/bibframe2-model.html>

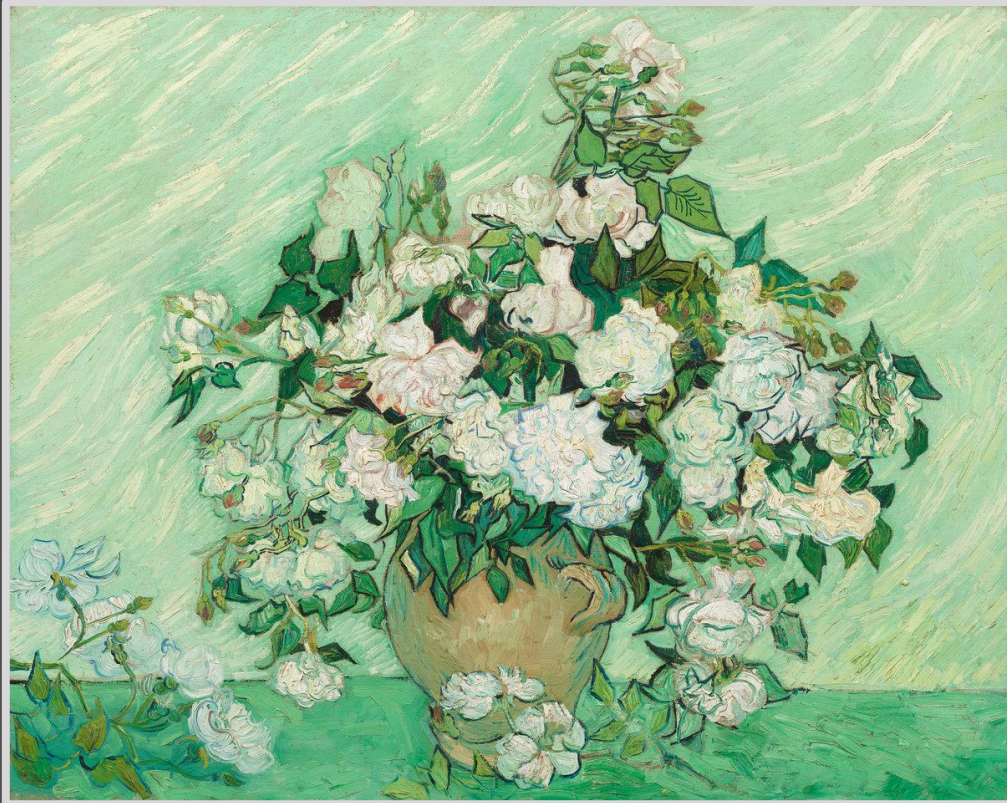
Color-content in BIBFRAME 2.0



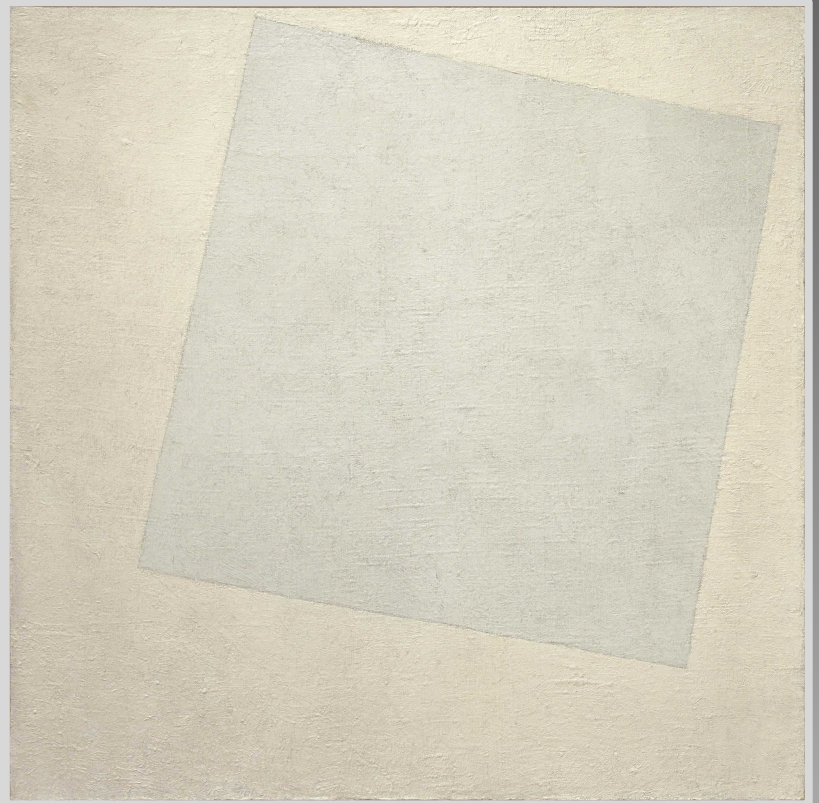
Public domain (Wikimedia Commons)

```
<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



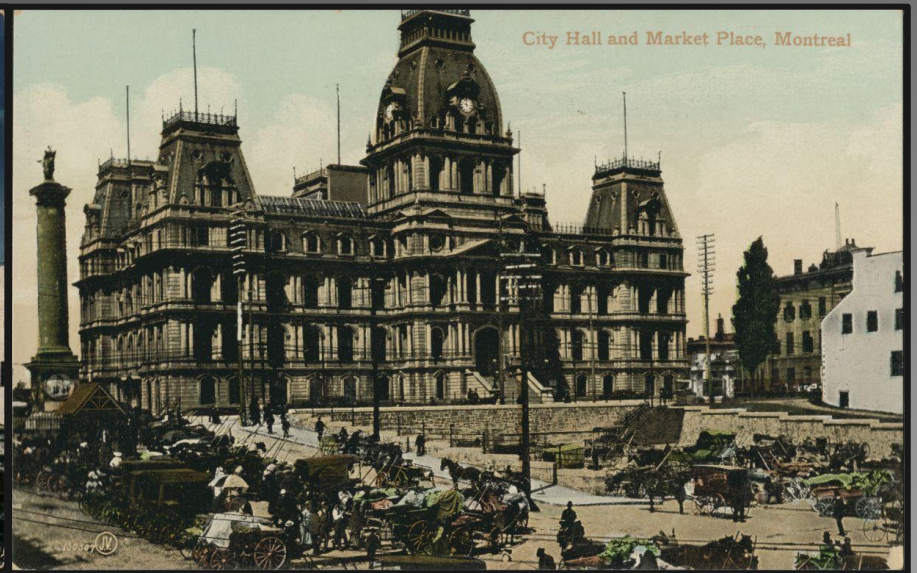
Public domain (NGA images)



Public domain (Wikimedia Commons)

work-level

Entity-level for colour content



Public domain (BAHQ numérique)

instance-level

Entity-level for colour content



Public domain (BAHQ numérique)

item-level

OWL files

```
190 8.7 KB Raw Blame Hist
1 <?xml:version="1.0"?>
2 <rdf:RDF xmlns="http://award.bibliotek-o.org/ontology/"
3   xml:base="http://award.bibliotek-o.org/ontology/"
4   xmlns:dcterms="http://purl.org/dc/terms/"
5   xmlns:rdfs="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
6   xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#"
7   xmlns:owl="http://www.w3.org/2002/07/owl#"
8   xmlns:skos="http://www.w3.org/2004/02/skos/core#"
9   xmlns:vann="http://purl.org/vocab/vann/"
10  xmlns:voaf="http://purl.org/vocommons/voaf#"
11  xmlns:xml="http://www.w3.org/XML/1998/namespace"
12  xmlns:xsd="http://www.w3.org/2001/XMLSchema#"
13 >
14
15 <!-- ONTOLOGY DECLARATION -->
16
17 <owl:Ontology rdf:about="http://award.bibliotek-o.org/ontology/">
18   <owl:ontologyIRI rdf:resource="http://award.bibliotek-o.org/ontology/">
19   <owl:versionIRI rdf:resource="http://award.bibliotek-o.org/0.1/ontology/">
20   <owl:versionInfo rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Version 0.1</owl:versionInfo>
21   <dcterms:issued></dcterms:issued>
22   <dcterms:modified></dcterms:modified>
23   <rdfs:label xml:lang="en">Award Ontology</rdfs:label>
24   <skos:definition xml:lang="en">The Award Ontology models awards and their recipients.</skos:definition>
25   <vann:preferredNamespacePrefix>award</vann:preferredNamespacePrefix>
26   <dcterms:title xml:lang="en">Award Ontology</dcterms:title>
27   <!-- Omitting, since bibliotek-o formally extends BIBFRAME and the relationships are transitive
28     <voaf:extends rdf:resource="http://id.loc.gov/ontologies/bibframe/">
29     <voaf:specializes rdf:resource="http://id.loc.gov/ontologies/bibframe/">
30   -->
31   <voaf:extends rdf:resource="http://bibliotek-o.org/ontology/">
32   <voaf:specializes rdf:resource="http://bibliotek-o.org/ontology/">
33   <owl:imports rdf:resource="http://bibliotek-o.org/1.1/ontology/">
34 </owl:Ontology>
35
```

Award model

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

Image credits

Carpeaux, Jean-Baptiste. *Neapolitan fisherboy*. 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 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.

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