BIBFRAME

bf:
BIBFRAME

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LIBRARY OF CONGRESS

BIBFRAME Use: Vocabulary, Conversion, Reconciliation
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BIBFRAME Ontology Patterns

- Titles

- Events

- Subjects

- Relations

- Roles/Contributions

BIBFRAME Titles

Consider this title

- Private Eyeballs -- golden treasury of bad taste

parsed into Main Title and Subtitle

bf:title [

    a bf:Title ;

    bf:**mainTitle**   "Private Eyeballs" ;

    bf:**subtitle** "golden treasury of bad taste"

] .

```
bf:title [
    a bf:Title ;
    bf:mainTitle    "Private Eyeballs" ;
    bf:subtitle "golden treasury of bad taste"
] .
```

....or ..... just express it as a label

bf:title [

rdfs:label "Private Eyeballs -- golden treasury of bad taste"] .

....or both

bf:title [

    bf:mainTitle   "Private Eyeballs" ;

    bf:subtitle "golden treasury of bad taste" ;

    rdfs:label "Private Eyeballs -- golden treasury of bad taste"] .

Now, consider this title

bf:title [
        bf:mainTitle "Sonatas"]

.... And the label

bf:title [

    bf:mainTitle "Sonatas" ;

  rdfs:label

"**Sonatas, piano, no. 13, op. 27, no.1, E major. 1986.**"]

bf:title [

     bf:mainTitle "Sonatas" ;

    rdfs:label

"**Sonatas, piano, no. 13, op. 27, no.1, E major. 1986.**"]

Where did all this come from?

bf:title [

    bf:mainTitle "**Sonatas**" ;

   rdfs:label

         "**Sonatas, piano, no. 13, op. 27,**

         no.1, E major. 1986."] ;

bf:musicNumber   "**no. 13, op. 27, no. 1**" ;
bf:musicKey   "**E major**" ;
bf:originDate   "**1986**" ;
bf:musicMedium   "**piano**" .

bf:title [

    bf:mainTitle "Sonatas" ;

   rdfs:label

        "Sonatas, piano, no. 13, op. 27,

         no.1, E major. 1986."] ;

The bf:Title resource

bf:musicNumber   "no. 13, op. 27, no. 1" ;
bf:musicKey   "E major" ;
bf:originDate   "1986" ;
bf:musicMedium   "piano" .

Properties of the Work

Subtitles

Suppose we want to:

- Indicate the order of subtitles
- Indicate the source of a subtitle

Multiple subtitles

Consider this title:

"Asia-Pacific rebalance 2025 : capabilities, presence, and partnerships : an independent review of U.S. defense strategy in the Asia-Pacific"

It has a main title and two subtitles

Main title

First subtitle

"Asia-Pacific rebalance 2025 : capabilities, presence, and partnerships : an independent review of U.S. defense strategy in the Asia-Pacific"

Second subtitle

Parsed .....

bf:title [

   bf:**mainTitle** "Asia-Pacific rebalance 2025 :" ;

   bf:**subtitle** "capabilities, presence, and partnerships :"

   bf:**subtitle**   "an independent review of U.S. defense strategy in the Asia-Pacific"] .

bf:title [

   bf:**mainTitle** "Asia-Pacific rebalance 2025 :" ;

   bf:**subtitle** "capabilities, presence, and partnerships :"

   bf:**subtitle** "an independent review of U.S. defense strategy in the Asia-Pacific"] .

How do you determine the order of the subtitles?

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- BIBFRAME does not attempt to solve this problem, because a very low percentage of bibliographic titles have multiple subtitles.

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- However it is an important feature for certain special collections.

So ....

an object property is defined in an external ontology, supporting multiple subtitles–

ex:subtitle

and class: **ex:Subtitle**

Before ….

bf:title [

  bf:mainTitle "Asia-Pacific rebalance 2025 :" ;

  bf:subtitle "capabilities, presence, and partnerships :"

   bf:subtitle   "an independent review of U.S. defense strategy in the Asia-Pacific"] .

Express each subtitle twice

bf:title [

  bf:mainTitle "Asia-Pacific rebalance 2025 :" ;

  bf:subtitle "capabilities, presence, and partnerships :"

 ex:subtitle   :subtitle1;

  bf:subtitle   "an independent review of U.S. defense strategy in the Asia-Pacific"] .

 ex:subtitle   :subtitle2.

```
:subtitle1 [
          a          ex:Subtitle  ;
 rdfs:label  "capabilities, presence, and partnerships :" ]
.


:subtitle2 [
          a          ex:Subtitle
 rdfs:label  "an independent review of U.S. defense
strategy in the Asia-Pacific"] .
```

bf:subtitle "capabilities, presence, and partnerships :"

ex:subtitle   :subtitle1;

Each subtitle is supplied twice.
        Once via bibframe bf:subtitle, a datatype property;
once via ex:subtitle, which is an object property.

If you don't care about the order of the subtitles, and don't support ex:subtitle, then as long as you support bf:subtitle you'll be able to process the subtitle.

Now that you have it expressed as an object property, assign a rank to each

:subtitle1

     a   ex:Subtitle ;

 rdfs:label "capabilities, presence, and partnerships :" ;

xyz:rank   "first"

xyz:next   ":subtitle2"

] .

:subtitle2

     a   ex:Subtitle

 rdfs:label "an independent review of U.S. defense strategy in the Asia-Pacific" ;

xyz:rank   "last"] .

Indicate the source of a subtitle

consider this title

"Penguin atlas of media and information - key issues and global trends"

Penguin atlas of media and information - key issues and global trends

main title

subtitle

100 1 Balnaves, Mark

245 14 **The Penguin atlas of media and information** :|b[key issues and global trends] /|cMark Balnaves, James Donald and Stephanie Hemelryk Donald

246 30 Atlas of media and information

246 30 Media and information

260   New York, N.Y. :|bPenguin Putnam,|c2001

300   128 pages :|bcolor illustrations, chiefly color maps ;|c25 cm

336   text|btxt|2rdacontent

337   unmediated|bn|2rdamedia

338   volume|bnc|2rdacarrier

500   **Subtitle from cover**

Source of subtitle supplied in a note

bf:title [

    bf:mainTitle **"Penguin atlas of media and information"** ;

    bf:subtitle **"key issues and global trends"** **]**

How do we indicate the Source ("cover") of the subtitle here?

bf:title [

   bf:mainTitle "Penguin atlas of media and information" ;

   bf:subtitle "key issues and global trends" ;

ex:Subtitle [rdfs:label "key issues and global trends" ;

         bf:note [rdfs:label "from cover"]]

bf:title [

   bf:mainTitle "Penguin atlas of media and information" ;

   bf:subtitle "key issues and global trends" ;

   ex:Subtitle [rdfs:label "key issues and global trends" ;

                    bf:note [rdfs:label "from cover"]]

But this isn't very linked-data friendly

A more linked-data friendly approach …

bf:title [

   bf:mainTitle "Penguin atlas of media and information" ;

   bf:subtitle "key issues and global trends" ;

   ex:Subtitle [rdfs:label "key issues and global trends" ;

        ex:titleSource   ex:cover]
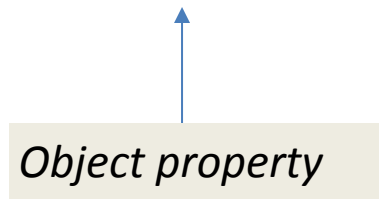
bf:title [

   bf:mainTitle "Penguin atlas of media and information" ;

   bf:subtitle "key issues and global trends" ;

   ex:Subtitle [rdfs:label "key issues and global trends" ;

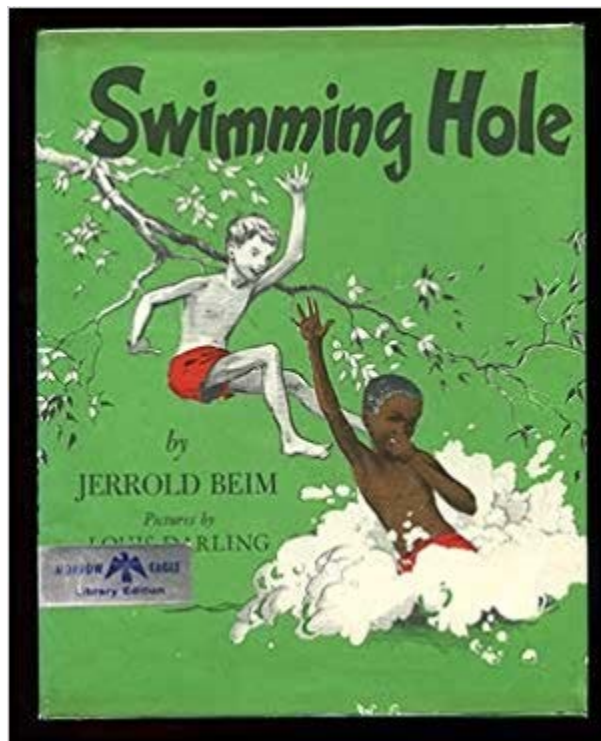   **ex:titleSource   ex:cover]**

Object property

Named individual

Indicate a title "type"

The book has two titles ….

```
<w1>
    a           bf:Work ;
    bf:title    :title1, :title2 .
```

"Swimming Hole" and *"Swimming"*

```
<w1>
    a            bf:Work ;
    bf:title     :title1, :title2 .
```

:**title1 [**rdfs:label   "Swimming Hole"] .

:**title2 [**rdfs:label   "Swimming"].

A cover title and a spine title

<w1>

    a   bf:Work ;

    bf:title   :title1, :title2 .

Cover title

:**title1 [**rdfs:label   "Swimming Hole"] .

Spine title

:**title2 [**rdfs:label   "Swimming"].

```
<w1>
    a           bf:Work ;
    bf:title    :title1, :title2 .


:title1 [
    a               bf:Title, ex:Cover ;
    rdfs:label      "Swimming Hole"  ] .


:title2 [
     a               bf:Title ; ex:Spine ;
     rdfs:label      "Swimming" ] .
```

ex:Cover and ex:Spine both defined to be Subclasses of bf:Title

Indicate which is the "preferred" title

Define property:

ex:hasPreferredTitle

```
<w1>
    a                    bf:Work ;
    bf:title             :title1, :title2 .
```

ex:hasPreferredTitle   :title1 .

:title1 [

```
    a            bf:Title, ex:cover ;
        rdfs:label    "Swimming Hole" . ]

    :title2 [
        a            bf:Title ; ex:spine ;
        rdfs:label    "Swimming" ] .
```

indicate that this is the title supplied by the author

:title1
    a   bf:Title, **ex:AuthorsTitle**
  rdfs:label   "Swimming Hole" .

Inverse Properties

   a   bf:Work ;

bf:title   **:title1**

:title1

   [rdfs:label   "Swimming Hole"] .

:w1

  a   bf:Work ;

bf:title   **:title1**

:title1

  [rdfs:label   "Swimming Hole"] .

ex:isTitleOf :w1

inverse

Abbreviated Title

Consider this title

"**Journal of Dental Research**"

…. The work has two titles ..

```
<w1>
    a          bf:Work ;
    bf:title   :title1, :title2 .
```

```
<w1>
    a           bf:Work ;
    bf:title    :title1, :title2 .
:title1 [
        a bf:Title ;
        bf:mainTitle  "Journal of Dental Research"  ] .
```

```
<w1>
    a           bf:Work ;
    bf:title    :title1, :title2 .

:title1
    a bf:Title ;
    bf:mainTitle  "Journal of Dental Research"   .
```

:title2
             a   bf:Title **bf:AbbreviatedTitle** ;

      bf:mainTitle "**J Dent Res**"   ] ;

Subclass of bf:Title

Title Types external to BIBFRAME

- af:RepositoryTitle
- af:CreatorsTitle
- af:DescriptiveTitle
- af:TranslatedTitle
- af:OriginalTitle
- af:ExhibitionTitle
- af:FormerTitle
- ex:conciseTitle
- ex:distinctiveTitle
- ex:PreferredTitle

Title Source

- :CommonlyKnownTitle
- :DevisedTitle
- :ReferenceSourceTitle
- :AnnouncedTitle
- :ContainerSpineTitle
- :ContainerTitle
- :CreditsTitle
- :EmbeddedMetadataTitle
- :MediaSurfaceTitle
- :MenuTitle
- :TitleScreenTitle

BIBFRAME Events

- There is a concert.
- The concert is recorded.
- A book is written about the concert.

- There is a concert. **The concert is an Event**.

- The concert is recorded. **The recording is a Work**.

- A book is written about the concert.

  - **The book is a Work and the concert is its subject**.

Brief digression: **BIBFRAME Subjects**

Person as subject

bf:subject [
         a   **bf:Person** ;
rdfs:label   "John Wilkes Booth"]

Work as subject

bf:subject [

    a   **bf:Work** ;

    rdfs:label   "John Wilkes Booth"] .

Place as subject

bf:subject [

    a   **bf:Geographic** ;

    rdfs:label   "France"] .

If no known class fits …

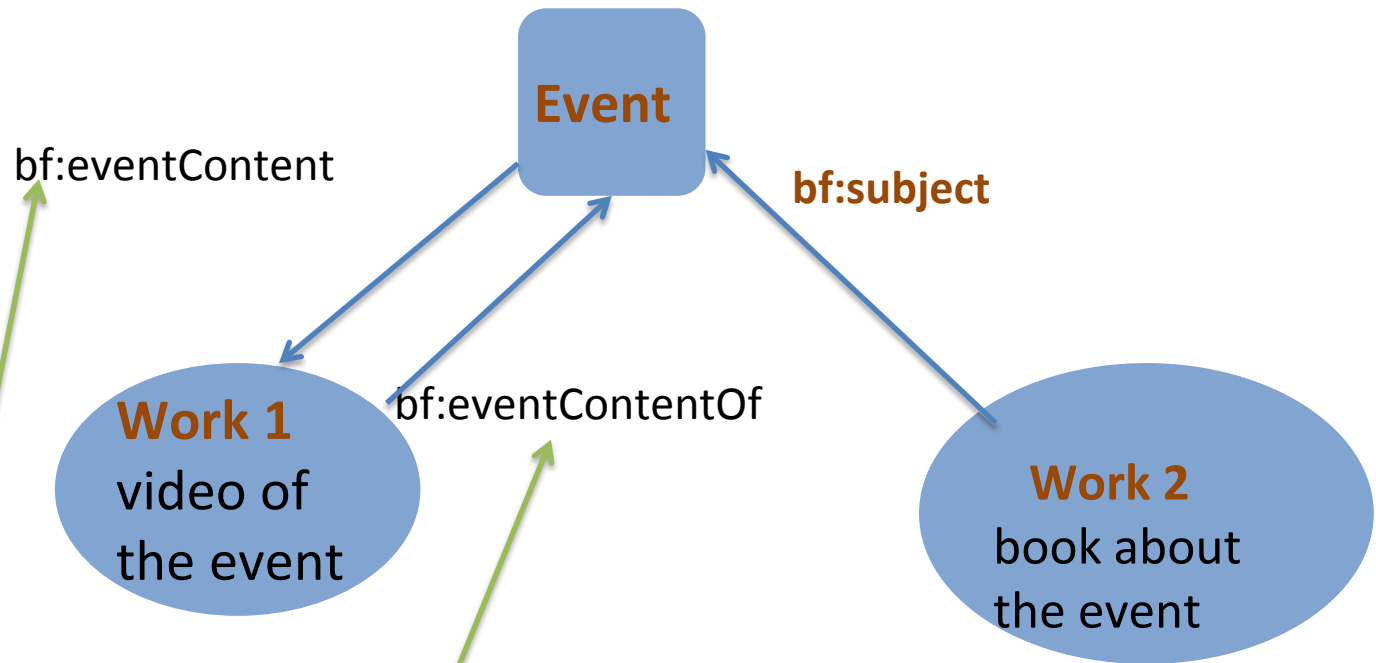# Topic as Subject

bf:subject [

      a   bf:Topic ;

      rdfs:label   "History"] .

Event as subject

bf:subject [

   a   **bf:Event** ;

   rdfs:label ""1964 U.S. Presidential Inauguration" "] .

- There is a concert.
- The concert is recorded.
- A book is written about the concert.

- There is a concert. **The concert is an Event.**

- The concert is recorded. **The recording is a Work.**

- A book is written about the concert.

  - **The book is a Work and the concert is its subject.**

Event

bf:eventContent

Work 1
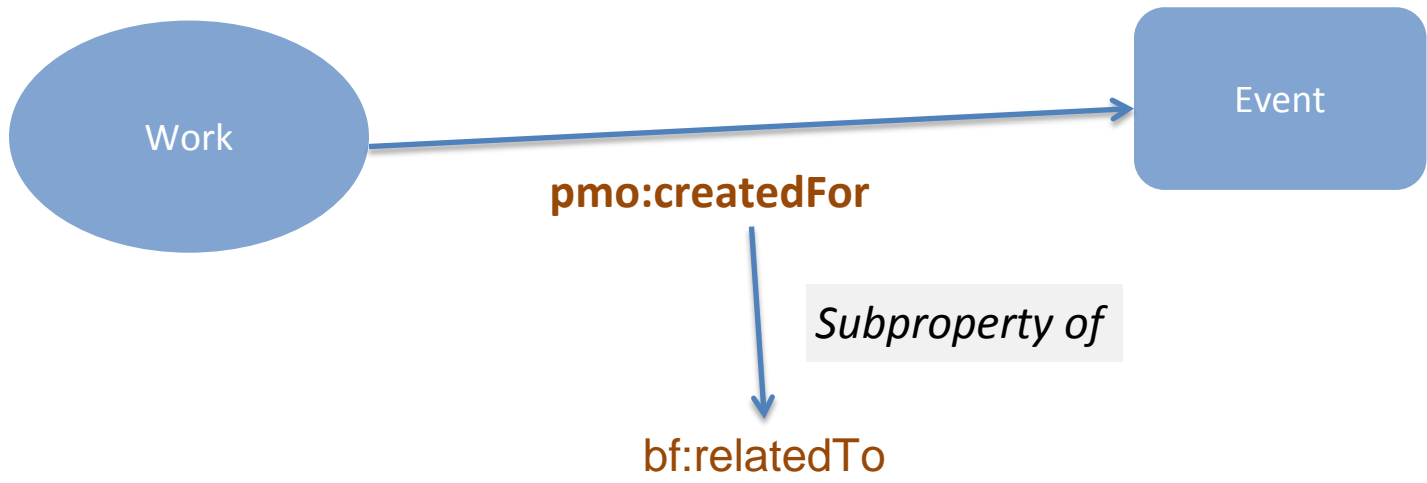video of
the event

bf:eventContentOf

bf:subject

Work 2
book about
the event

These two properties created expressly for the event model.

Property pmo:createdFor

- pmo: Performed Music Ontology

Work → **bf:relatedTo** → Event

Work

pmo:createdFor

Event

Subproperty of

bf:relatedTo

Example: a motet celebrating the inauguration of a pope

motet
(Work)

pmo:createdFor

inauguration of
a pope
(Event)

Additional pmo properties

- hasEventName

- hasInspiration

- hasPerformance *Event that is the performance of a Work. Subproperty of eventContentOf*

- recordingOf *Subproperty of eventContentOf*

Additional pmo Classes

- pmo:Concert

- pmo:Performance

- pmo:Festival   **All subclasses of bf:Event**

... and further subclassed:

- Concert
  - BenefitConcert
  - ConcertSeries
  - ConcertTour

- Performance
  - CommandPerformance
  - FirstPerformance
  - LivePerformance<
  - OpenMicPerformance
  - RecordingSession
  - Rehearsal
  - Audition

- Festival
  - MusicFestival

Rare Materials: CustodialEvent

- ex:CustodialEvent
  - **ex:Accessioning**
  - **ex:Auction**
  - **ex: Request**
  - **ex: ClaimOfOwnership**
  - **ex: Deposit**
  - **ex: Destruction**
  - **ex: Donation**
  - **ex: Inheritance**
  - **ex: Loan**
  - **ex: Loss**
  - **ex: Offer**
  - **ex: Recovery**
  - **ex: Repatriation**
  - **ex: Sale**
  - **ex: Theft**
  - **ex: Transfer**

Subclasses of bf:Event

Relationships

relatedTo

<WorkA>   relatedTo   <WorkB>

More Specifically …

<WorkA>   bf:continuedBy   <WorkB>

Subproperty of bf:relatedTo

However, you might want to supply
the date that the "continuation" took place

Introducing class bflc:Relationship, property bflc:relationship and property bflc:relation

```
<WorkA>
    bflc:relationship [
                    a                       bflc:Relationship ;
                    bflc:relation   bf:continuedBy ;
                    bflc:target     <WorkB> ;
                    bf:date          "10232017" ;
                                ]
```

```
<WorkA>
    bflc:relationship [
                a              bflc:Relationship ;
                bflc:relation  bf:continuedBy ;
                bflc:target    <WorkB> ;
                bf:date        "10232017" ;
                            ]
```

You can't express the date using the pattern:
 <WorkA>   bf:continuedBy   <WorkB>

other use cases supported by the relationship pattern.

• ## Graceful degradation.

You could say

(1)   <WorkA>   ex:xyz   <WorkB>

Or you could say:

(2)   <WorkA>   bflc:relationship [

                        bflc:target <WorkB> ;

                        bflc:relation   ex:xyz]

Assume the client receiving this rdf does not recognize the namespace ex:
  Using (1), the client will not make any sense of this.
  Using (2) it will at least know that WorkB is a resource related to WorkA,
even though it won't know the exact relation.

other use cases supported by the relationship pattern.

- ## Graceful degradation.

You could say

(1)   <WorkA>   ex:xyz   <WorkB>

Or you could say:

(2)   <WorkA>   bflc:relationship [

                        bflc:target <WorkB> ;

                        bflc:relation   ex:xyz]

Assume the client receiving this rdf does not recognize the namespace ex:
  Using (1), the client will not make any sense of this.
  Using (2) it will at least know that WorkB is a resource related to WorkA,
even though it won't know the exact relation.

no URI to express relationship

<WorkA>   bflc:relationship [

bflc:target <WorkB> ;

bflc:relation   [rdfs:label "*name of relation*"]]

Roles/Contributions

First, brief review of how roles were modeled in BIBFRAME 1.0

Roles In BIBFRAME 1.0

<work>   relators:aut   <person>

Says: *"this work has an author, and that author is this person"*

Example (still 1.0)

<http://bibframe.example.org/work/2014012522>

    relators:ill

        <http://id.loc.gov/rwo/agents/n79021035>   .

<http://bibframe.example.org/work/2014012522>

relators:ill

<http://id.loc.gov/rwo/agents/n79021035>

Illustrator

Ruth Sanderson

castle full of cats

bf1: role is modeled as a relation

bf2: as a Contribution

(BF 1) **relation**: relates a person to a Work:

*"Ruth Sanderson **is the illustrator of** 'Castle full of cats'"*

(BF 2) **contribution**: modelled more as an activity

*"Ruth Sanderson **illustrated** 'Castle full of cats'"*

What's the difference?

if you can say:
"Ruth Sanderson illustrated 'Castle full of cats'"

Then you can say:

*"Ruth Sanderson illustrated 'Castle full of cats' **in 2015**"*

Or even:

*"Ruth Sanderson illustrated 'Castle full of cats' in 2015, **in New York"***

bf:Contribution

<http://bibframe.example.org/work/2014012522>

illustrator

bf:contribution [
    a   bf:Contribution ;
    bf:role   <http://id.loc.gov/vocabulary/relators/ill > ;
    bf:agent <http://id.loc.gov/rwo/agents/n79021035 >]

Ruth Sanderson

;

Add date and place of contribution

<http://bibframe.example.org/work/2014012522>

  bf:contribution [
      bf:role   <http://id.loc.gov/vocabulary/relators/ill > ;
      bf:agent <http://id.loc.gov/rwo/agents/n79021035 >
    bf:date   "2015" ;
   bf:place <http://id.loc.gov/vocabulary/geographicAreas/n-us-ny>
]

;

….vs.   role

<http://bibframe.example.org/work/2014012522>

relators:ill

<http://id.loc.gov/rwo/agents/n79021035>   .

<http://bibframe.example.org/work/2014012522>

relators:ill

<http://id.loc.gov/rwo/agents/n79021035> .

You can't (easily) make these sort of statements,
like when or where, about this relation

And similar to the relationship model, suppose you have no URI to express the role …..

bf:contribution [

      bf:role [rdfs:label   "illustrator"] ;

      bf:agent ……..

Extensions

- **ArtFrame**   *Columbia University.*
  Art objects - paintings, photographs, sculptures, ceramics .....

- **Cartographic** *Harvard*
  printed maps, atlases, geospatial datasets ....

- **Moving Image**   *Harvard*

- **Performed Music**   *Stanford, MLA, ARSC, LC, and the PCC*
  modeling of performers, medium of performance, and events

- **Rare Materials** *Cornell*
  model the complexity of rare materials, particularly item-level description. provenance, physical description. Partnering with ArtFrame.

- **Bibliotek-o** *LD4P*