Special Collection Ontology Language Project
S636: Semantic Web

Hesham Alsarhan
Abdallah Mohamed
Tanzil Malek
Brian Norberg
Introduction:

The goal of our project was to create an ontology for searching bibliographic information of special collections located in repositories around the world. Because the project intended to link the records of similar collections that spanned various repositories, it had to reconceptualize the perception of special collections. What is more, the project needed to find a language that would help capture this expression. Ultimately, the project decided to utilize elements from the Functional Requirements for Bibliographic Records (FRBR) ontology ([http://vocab.org/frbr/core.html](http://vocab.org/frbr/core.html)) with its ontology. FRBR is a conceptual model for defining an artistic creation and its embodiments. It distinguishes the concept of an artistic creation from its various physical embodiments with the use of four entities, Work, Expression, Manifestation and Item. A Work represents the name given to an artistic creation, such as the novel by Henry James, *The Ambassadors*. Any translation or new edition of this original creation is an example of an Expression. For instance, an Expression of *The Ambassadors* can be a text version of a Japanese translation of the book from its original English form. This Expression is then embodied in a Manifestation that represents a Japanese version of the book with a translator, which is exemplified by an Item, an actual book with an ISBN and a specific translator's name.

The FRBR model provides a good framework for creating an ontology for special collections. It allows the project to conceptualize a larger entity for each collection and, thus, connect various collections with similar content and form under one general collection name. For example, there are many special collections that contain content about the nineteenth century writer, Walt Whitman. Using FRBR, we are able to conceptualize one large special collection of works and objects by and about Walt Whitman that represents the many collections that contain works and objects by and about this writer. These many collections then become Manifestations of the Work, *Walt Whitman Collection*. The Library of Congress’ *Walt Whitman papers in the Charles E. Feinberg collection, 1806-1981* and its *Whitman Portraits* are two Manifestation of this larger *Walt Whitman Collection*. Each manifested collection includes several individual objects which represent Items that exemplify the Manifestation, such as a painting of Whitman by Robert Cole and a daguerreotype of Whitman by anonymous exemplifying the *Whitman Portraits* collection. The Expression entity also allows us to make a key distinction between various special collections of the same subject. Only some special collections are brought together because its items have the same subject. Other collections are brought together because they were in the possession of a person or institution (provenance), and still others are brought together because of similar language or format. Using FRBR Expression, we are able to distinguishing between these subject, provenance, format, and language collection in order to give the special collection bibliographic data an extra needed layer of granularity for searching.

It was ultimately this need for the most granular mark up that lead to the our project’s exclusion of the majority of Group 2 and 3 entities of the FRBR model. These group entities define the relationship between creator and subjects of the described works to their Group 1 entities, Work, Expression, Manifestation, and Item. The only relationship necessary to show in our data was when a collection had a slight connection to another larger collection, as in the example below.
where the Related Endeavor entity is used to show how the Kirkor Minassian and Sultan Abdul
Hamid II Collections are tangentially related to the Turkish Language Collection.

Rather, the data we had to represent was more geared to describing information about the
collections. We looked into using existing ontological languages, such as Dublin Core, RDA,
SKOS, AND FOAF. However, none of these languages effectively represented bibliographic
records about special collections. SKOS and FOAF do not contain the classes needed to describe
bibliographic data. RDA, though perfectly fit for bibliographic description, is catered
specifically to cataloging music. And Dublin Core does not have the granularity needed for in
depth library cataloging. The standard model for describing bibliographic information is the
Metadata Object Description Schema (MODS). Unlike Dublin Core, MODS contains more
elements and utilizes attributes that allow the encoder to make necessary distinctions between types of titles, creators, dates, etc. Yet there is no RDF representation of MODS. Therefore our project team decided to create our own Special Collections Ontological Language (SCOL) in order to create both an RDF expression of MODS and a language that would most accurately represent bibliographic data about special collections.

Schema Creation:

Using the Enterprise method, an attempt was made to develop an ontology that can describe several random resources from various special collections repositories.

Steps of the Enterprise Model:

- **Identify Purpose & Scope**
  The main purpose of the ontology is to support the semantic search in a website devoted for the community of researchers interested in special collections. The ontology should provide the proper conceptual model to represent resources in a way that support knowledge sharing, querying data, and reasoning. The scope of the ontology is limited to providing adequate representations of different resources that were selected randomly from a few different repositories. The ontology is structured to support the inclusion of additional collection or items in different locations to create a comprehensive gateway of searching collections or items on a specific subject.

- **Building the ontology**
  - **Capture**
    Capturing the key elements of the domain of knowledge was based on the informal techniques that were described in the Enterprise method. Initially, the project team worked together using brainstorming and grouping methods to come up with the proper elements (concepts and relationships) that can describe the domain of interest. Nevertheless, these elements were adjusted and modified until the final product met all requirements specified in the statement of purpose.
  - **Code**
    The coding process was based on creating a special ontology for adequate representations of sample resources. During this process, groups of classes and object properties were identified and defined in the system. The objective was to explicitly represent all elements in a formal language in addition to assumptions and axioms. Moreover, all elements were defined and described using the comment property in RDF.
  - **Integrate existing ontology**
    While building the ontology, the possibilities of integrating exiting ontology, specifically Dublin Core <dc>, Metadata Object Description Schema <mods>, and Functional Requirements for Bibliographic Records <frbr> were discussed and it was decided to exclude <mods> due to the complexity of integrating its elements with RDF. However, elements from <frbr> and <dc> were studied and considered to represent the collections and the relationship between collections. Other required elements were created as the Special Collection Ontology Language <scol>. Later on
in the process, it was decided to exclude <dc> and create the needed elements from <dc> in <scol> schema to simplify the coding of resources and better represent the standard cataloging encoding language, MODS.

- **Evaluation**
  At this stage of the design process, the evaluation has been carried out as a verification process with reference the five design criteria suggested by the Enterprise method. Throughout the engineering process, a continuous check has been performed to ensure clarity, coherence, extensibility, minimal ontological commitment, and minimal encoding bias in the ontology. For example, using elements similar to other elements from existing ontologies, i.e. <dc>, would support the extensibility of the proposed ontology.

- **Documentation**
  In addition to description process provided in this assignment, Portege serve as a documenting tool for ontology structure. However, further documentation would be required as the project team advance in the engineering process for this project. Appendix A includes he scol schema while Appendix B includes the RDF document describing the resources (collections) used in this project.

1. **Ontology Schemas Used for Describing Resources**
   
i. **The Special Collection Ontology Language <scol>:**

<table>
<thead>
<tr>
<th>Properties</th>
<th>Classes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>Creator</td>
</tr>
<tr>
<td>altCollectionTitle</td>
<td>Location</td>
</tr>
<tr>
<td>City</td>
<td>Type</td>
</tr>
<tr>
<td>collectionInfo</td>
<td>Provenance (subclass of Type)</td>
</tr>
<tr>
<td>collectionTitle</td>
<td>Subject (subclass of Type)</td>
</tr>
<tr>
<td>collectionType</td>
<td>Format (subclass of Type)</td>
</tr>
<tr>
<td>Country</td>
<td>Language (subclass of Type)</td>
</tr>
<tr>
<td>Creator</td>
<td></td>
</tr>
<tr>
<td>digitalLocation</td>
<td></td>
</tr>
<tr>
<td>endDateIssued</td>
<td></td>
</tr>
<tr>
<td>extent</td>
<td></td>
</tr>
<tr>
<td>findingAid</td>
<td></td>
</tr>
<tr>
<td>form</td>
<td></td>
</tr>
<tr>
<td>generalCollectionTitle</td>
<td></td>
</tr>
</tbody>
</table>
**Properties** | **Classes**
--- | ---
• issuance |  
• itemTitle |  
• language |  
• lcshNamePart |  
• location |  
• normalizedName |  
• physicalLocation |  
• startDateIssued |  
• state |  
• typeOfResource |  
• zipCode |  

**ii. Functional Requirements for Bibliographic Records <frbr>**

| Properties | Classes |
--- | ---|
• Realization | • Work |
• Embodiment | • Expression |
• Exemplar | • Manifestation |
• relatedEndeavor | • Item |

**Instance Creation:**

The project team used data about special collections at the Library of Congress compiled by one of our members who worked there over the summer and information gathered from the National Archives web site to encode 10 sample collections. These resources were vital in helping the project implement the FRBR model for special collections by providing information about multiple collections of the same subject in different form and at different locations. Both the FRBR ontology and the Special Collections Ontological Language allowed the project to create more granular records by representing not only the relationship between different collections but also the relationship between data about the collections. A Work contained a general collection title and at least one Expression of the collection. An Expression contained a collection type and at least one Manifestation of the collection. And the Manifestation included in depth information about specific collection titles, location, form, other bibliographic data, and occasionally one or more Items. When Items occurred, they too included bibliographic
information about that particular object. The image below shows a set of instances that demonstrate the relations between these collections and their bibliographic data.

```xml
<rdf:Description rdf:ID="henry_harrisse_coll">
  <rdf:type rdf:resource="http://purl.org/vocab/frbr/core#Work"/>
  <scol:generalCollectionTitle>Henry Harrisse Collection</scol:generalCollectionTitle>
  <frbr:realization rdf:resource="http://ella.slis.indiana.edu/~brinorbe/scol#Expression2"/>
</rdf:Description>

<rdf:Description rdf:ID="Expression2">
  <scol:collectionType>Subject</scol:collectionType>
  <frbr:embodiment rdf:resource="http://ella.slis.indiana.edu/~brinorbe/scol#loc.natlib.misc.100000021"/>
</rdf:Description>

<rdf:Description rdf:ID="loc.natlib.misc.100000021">
  <rdf:type rdf:resource="http://purl.org/vocab/frbr/core#Manifestation"/>
  <scol:collectionTitle>Henry Harrisse Collection</scol:collectionTitle>
  <scol:AltCollectionTitle>Bibliotheca Americana Vetusissima</scol:AltCollectionTitle>
  <scol:creator rdf:resource="#n85012955"/>
  <scol:typeOfResource>text</scol:typeOfResource>
  <scol:language>mul</scol:language>
  <scol:form>regular print</scol:form>
  <scol:extent>220</scol:extent>
  <scol:extent>25 linear feet</scol:extent>
  <scol:abstract>
    Perhaps best known for Bibliotheca Americana Vetusissima, a description of over three hundred writings on America published between 1492 and 1551, Henry Harrisse (1829-1910) wrote extensively on Christopher and Ferdinand Columbus, John and Sebastian Cabot, and the early voyages of American exploration. Through his bequest, the Library of Congress acquired in 1915 his personal copies of his publications, complete with marginal comments and interleaved notes. In addition to over two hundred volumes, the collection preserves correspondence pertaining to Harrisse's research, an original letter by Pietro Martire d'Anghiera, and a manuscript (ca. 1533) describing a voyage along the northern coast of South America.
  </scol:abstract>
  <scol:location rdf:resource="#DLC-RB"/>
</rdf:Description>

<rdf:Description rdf:ID="#n85012955">
  <rdf:type rdf:resource="http://ella.slis.indiana.edu/~brinorbe/scol.rdf#Creator"/>
  <scol:lcshNamePart>Harrisse, Henry</scol:lcshNamePart>
  <scol:lcshNamePartDate>1829-1910</scol:lcshNamePartDate>
  <scol:normalizedName>Henry Harrisse</scol:normalizedName>
</rdf:Description>
```
Data Query:

Encoding the data in a granular way permits searches that meet the needs of users better. A researcher who uses works in a special collection is not typically looking for a specific item. Rather, the researcher is seeking as much information about a subject as possible. Although this ontology does allow for searching specific items if marked up to the Item level, it is better suited for aiding a user in general subject searches. Not only can researchers find all the collections that pertain to their subject and in what form, but they can also find the specific locations of any of these collections, including a digital location if one exists. They can also find collections that fall within a date range, collections that have finding aids, and collections related to other larger collections. The SPARQL queries below demonstrate some of the potential searches that are permitted due to using the FRBR/SCOL ontology.

- **Retrieving all collection in the Work, “Walt Whitman Collection” and their locations:**

```sparql
PREFIX scol: <http://ella.slis.indiana.edu/~brinorbe/scol.rdf#>
PREFIX frbr: <http://purl.org/vocab/frbr/core#>

SELECT ?generalTitle ?title ?location ?state
WHERE
{ 
  ?x scol:generalCollectionTitle "Walt Whitman Collection" .
  ?x scol:generalCollectionTitle ?generalTitle .
  ?x frbr:realization ?z .
  ?b scol:physicalLocation ?location .
  ?b scol:state ?state .
}
```

---

<table>
<thead>
<tr>
<th>title</th>
<th>location</th>
<th>state</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Walt Whitman portraits&quot;</td>
<td>&quot;Library of Congress Prints and Photographs Division&quot;</td>
<td>&quot;D.C.&quot;</td>
</tr>
<tr>
<td>&quot;Walt Whitman Poetry Manuscripts in The Pierpont Morgan Library, New York&quot;</td>
<td>&quot;The Pierpont Morgan Library&quot;</td>
<td>&quot;NY&quot;</td>
</tr>
<tr>
<td>&quot;Walt Whitman papers, 1837-1957 (bulk 1840-1891)&quot;</td>
<td>&quot;Library of Congress Manuscript Division&quot;</td>
<td>&quot;D.C.&quot;</td>
</tr>
<tr>
<td>&quot;Walt Whitman Collection&quot;</td>
<td>&quot;Library of Congress Rare Book and Special Collections Division&quot;</td>
<td>&quot;D.C.&quot;</td>
</tr>
</tbody>
</table>
• Retrieving Collections and their related works:

PREFIX `scol`: <http://ella.slis.indiana.edu/~brinorbe/scol.rdf#>
PREFIX `frbr`: <http://purl.org/vocab/frbr/core#>

SELECT ?title ?relatedEndeavor
WHERE {
  ?x `scol:generalCollectionTitle` ?title .
  ?x `frbr:realization` ?z .
  ?s `scol:collectionTitle` ?relatedEndeavor .
}

<table>
<thead>
<tr>
<th>title</th>
<th>relatedEndeavor</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Turkish Language Collection&quot;</td>
<td>&quot;Kirkor Minassian Collection&quot;</td>
</tr>
<tr>
<td>&quot;Turkish Language Collection&quot;</td>
<td>&quot;Sultan Abdul Hamid II Collection&quot;</td>
</tr>
</tbody>
</table>

• Retrieving collections in the “Henry James Collection” that have are brought together because of subject similarity:

PREFIX `scol`: <http://ella.slis.indiana.edu/~brinorbe/scol.rdf#>
PREFIX `frbr`: <http://purl.org/vocab/frbr/core#>

SELECT ?GeneralTitle ?Type ?Collection ?Location
WHERE {
  ?x `scol:generalCollectionTitle` ?GeneralTitle.
  ?y `scol:collectionType` ?Type.
  ?z `scol:location` ?j.
  ?j `scol:physicalLocation` ?Location.

  FILTER `regex`(?Type, "Subject")
  FILTER `regex`(?Collection, "James")
}
ORDER BY ?Type
Retrieving all collections that have a coverage range between 1799-1940:

PREFIX scol: <http://ella.slis.indiana.edu/~brinorbe/scol.rdf#>
PREFIX frbr: <http://purl.org/vocab/frbr/core#>
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

SELECT ?name ?startDate ?endDate ?location
WHERE {
?x scol:collectionTitle ?name .
?x scol:startDateIssued ?startDate .
FILTER (?startDate > "1799")
?x scol:endDateIssued ?endDate .
FILTER (?endDate < "1940")
?x scol:location ?y .
?y scol:physicalLocation ?location .
FILTER regex(?location, "Library of Congress")
}
Problems Facing the Ontology and its future Implementation:

Encoding data using the FRBR/SCOL ontology is a very time consuming process so the first step in its development is the creation of a dedicated community. The information about bibliographic data for special collections is scattered throughout repositories and on the Web, so a large workforce is required to gather this information even before encoding can begin. What is more, repositories have to be willing to mark up their own current and incoming collections in the FRBR/SCOL ontology in order for it to be an effective tool for searching special collections. Another challenge facing the project is whether to have repositories encode their data or invest in a content manager that automates the encoding. Because the data is so dispersed, issues will arise about how to standardize the creation of IDs for Expressions, Manifestations, Items, and general practices for encoding collections in the language if repositories are required to create the records. For this reason, thorough documentation would have to be created and made easily accessible on the Internet. Also, a record of all the Works that have been created must be made public for repositories in order to avoid the repetition of general collection names. If the project decides to invest in a content manager, it would need software that contains the tools to query a database of special collection records, an interface for searching these records, and another interface for repositories to upload their data.

Though the development of this project will be a large, multifaceted, multi-corporation task, the potential outcome for repositories of special collections offers a great motivation. Special collections are being used less and less by researchers and the repositories that contain them are in danger of becoming nothing more than museums that store cultural histories. It is time for these repositories to stand up and do something about their changing role in the dissemination of information caused by technology. This ontology will not only improve the ability to search special collections, but it also offers a chance for repositories to market their collections better and show the value of their services to the research community.
Appendix A: The scol Schema.

<?xml version="1.0" encoding="UTF-8"?>

<rdf:RDF
    xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
    xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#"
    xmlns:dc="http://dublincore.org/2008/01/14/dcterms.rdf#"
    xmlns:scol="http://ella.slis.indiana.edu/~brinorbe/scol.rdf#"
    xmlns:base="http://ella.slis.indiana.edu/~brinorbe/scol.rdf">
    <rdf:Description rdf:about="http://www.example.edu/RBC.rdfs">
        <rdf:type rdf:resource="http://www.w3.org/2000/01/rdf-schema#Resource"/>
        <dc:title>Special Collection Ontology Language</dc:title>
        <dc:creator>
            <rdf:Bag>
                <rdf:li>Hesham</rdf:li>
                <rdf:li>Brian</rdf:li>
                <rdf:li>Tanzil</rdf:li>
                <rdf:li>Abdullah</rdf:li>
            </rdf:Bag>
        </dc:creator>
        <dc:description>The Special Collection Ontology Language (scol) is a set of elements (classes and properties) to describe the rare book collections at the Library of Congress</dc:description>
        <dc:date>2009-11-21</dc:date>
    </rdf:Description>

    <rdfs:Description rdf:ID="Creator">
        <rdfs:label xml:lang="en">Creator</rdfs:label>
        <rdfs:comment>An entity that is responsible for creating the collection.</rdfs:comment>
    </rdfs:Description>

    <rdfs:Description rdf:ID="Location">
        <rdfs:label xml:lang="en">Location</rdfs:label>
        <rdfs:comment>Specifies the physical location of the collection.</rdfs:comment>
    </rdfs:Description>

    <rdfs:Description rdf:ID="Type">
        <rdfs:label xml:lang="en">Type</rdfs:label>
        <rdfs:comment>Specifies the type of the collection.</rdfs:comment>
    </rdfs:Description>

    <scol:Type rdf:ID="Provenance">
        <rdfs:comment>Collection based on the source of origin</rdfs:comment>
    </scol:Type>

    <scol:Type rdf:ID="Subject">
        <rdfs:comment>Collection based on the subject of the items</rdfs:comment>
    </scol:Type>

    <scol:Type rdf:ID="Format">
        <rdfs:comment>Collection based on the format of the items</rdfs:comment>
    </scol:Type>
<rdfs:comment>Specify the country of the location of the collection.</rdfs:comment>
<rdfs:domain rdf:resource="#Location"/>
<rdfs:range rdf:resource="http://www.w3.org/2000/01/rdf-schema#Literal"/>
</rdf:Property>

<rdf:Property rdf:ID="creator">
<rdf:type rdf:resource="http://www.w3.org/2000/01/rdf-schema#Property"/>
<rdfs:label xml:lang="en">creator</rdfs:label>
<rdfs:comment>An entity primarily responsible for making the resource.</rdfs:comment>
<rdfs:domain rdf:resource="http://purl.org/vocab/frbr/core#Manifestation"/>
<rdfs:range rdf:resource="#Creator"/>
</rdf:Property>

<rdf:Property rdf:ID="digitalLocation">
<rdf:type rdf:resource="http://www.w3.org/2000/01/rdf-schema#Property"/>
<rdfs:label xml:lang="en">Digital Location</rdfs:label>
<rdfs:comment>Specifies the digital location of the resource.</rdfs:comment>
</rdf:Property>

<rdf:Property rdf:ID="endDateIssued">
<rdf:type rdf:resource="http://www.w3.org/2000/01/rdf-schema#Property"/>
<rdfs:label xml:lang="en">End Date Issued</rdfs:label>
<rdfs:comment>Specifies the latest publication date of an object in a collection in the form of YYYY.</rdfs:comment>
<rdfs:domain rdf:resource="http://purl.org/vocab/frbr/core#Manifestation"/>
<rdfs:range rdf:resource="http://www.w3.org/2000/01/rdf-schema#Literal"/>
</rdf:Property>

<rdf:Property rdf:ID="extent">
<rdf:type rdf:resource="http://www.w3.org/2000/01/rdf-schema#Property"/>
<rdfs:label xml:lang="en">extent</rdfs:label>
<rdfs:comment>Specify the number of items in the collection.</rdfs:comment>
<rdfs:domain rdf:resource="http://purl.org/vocab/frbr/core#Manifestation"/>
<rdfs:range rdf:resource="http://www.w3.org/2000/01/rdf-schema#Literal"/>
</rdf:Property>

<rdf:Property rdf:ID="findingAid">
<rdf:type rdf:resource="http://www.w3.org/2000/01/rdf-schema#Property"/>
<rdfs:label xml:lang="en">Finding Aid</rdfs:label>
<rdfs:comment>Specifies the digital location of a finding aid for a particular collection.</rdfs:comment>
<rdfs:domain rdf:resource="http://purl.org/vocab/frbr/core#Manifestation"/>
</rdf:Property>

<rdf:Property rdf:ID="form">
<rdf:type rdf:resource="http://www.w3.org/2000/01/rdf-schema#Property"/>
<rdfs:label xml:lang="en">form</rdfs:label>
<rdfs:comment>An entity to represents the material type in the resource</rdfs:comment>
<rdfs:range rdf:resource="http://www.w3.org/2000/01/rdf-schema#Literal"/>
</rdf:Property>

<rdf:Property rdf:ID="generalCollectionTitle">
<rdf:type rdf:resource="http://www.w3.org/2000/01/rdf-schema#Property"/>
<rdfs:label xml:lang="en">General Collection Title</rdfs:label>
<rdfs:comment>The general name of one or many collections.</rdfs:comment>
<rdfs:domain rdf:resource="http://purl.org/vocab/frbr/core#Work"/>
<rdfs:range rdf:resource="http://www.w3.org/2000/01/rdf-schema#Literal"/>
<rdf:Property rdf:ID="physicallLocation">
  <rdf:type rdf:resource="http://www.w3.org/2000/01/rdf-schema#Property"/>
  <rdfs:label xml:lang="en">Physical Location</rdfs:label>
  <rdfs:comment>Specifies the name of the physical location of the collection.</rdfs:comment>
  <rdfs:domain rdf:resource="#Location"/>
  <rdfs:range rdf:resource="http://www.w3.org/2000/01/rdf-schema#Literal"/>
</rdf:Property>

<rdf:Property rdf:ID="startDateIssued">
  <rdf:type rdf:resource="http://www.w3.org/2000/01/rdf-schema#Property"/>
  <rdfs:label xml:lang="en">Start Date Issued</rdfs:label>
  <rdfs:comment>Specifies the earliest publication date of an object in a collection in the form of YYYY.</rdfs:comment>
  <rdfs:domain rdf:resource="http://purl.org/vocab/frbr/core#Manifestation"/>
  <rdfs:range rdf:resource="http://www.w3.org/2000/01/rdf-schema#Literal"/>
</rdf:Property>

<rdf:Property rdf:ID="state">
  <rdf:type rdf:resource="http://www.w3.org/2000/01/rdf-schema#Property"/>
  <rdfs:label xml:lang="en">State</rdfs:label>
  <rdfs:comment>Specify the name of the state for the location of the resource</rdfs:comment>
  <rdfs:domain rdf:resource="#Location"/>
  <rdfs:range rdf:resource="http://www.w3.org/2000/01/rdf-schema#Literal"/>
</rdf:Property>

<rdf:Property rdf:ID="typeOfResource">
  <rdf:type rdf:resource="http://www.w3.org/2000/01/rdf-schema#Property"/>
  <rdfs:label xml:lang="en">Type Of Resource</rdfs:label>
  <rdfs:comment>Specifies the type of resources in the collection.</rdfs:comment>
  <rdfs:domain rdf:resource="http://purl.org/vocab/frbr/core#Manifestation"/>
  <rdfs:range rdf:resource="http://www.w3.org/2000/01/rdf-schema#Literal"/>
</rdf:Property>

<rdf:Property rdf:ID="zipCode">
  <rdf:type rdf:resource="http://www.w3.org/2000/01/rdf-schema#Property"/>
  <rdfs:label xml:lang="en">Zip Code</rdfs:label>
  <rdfs:comment>Specify the zip code for the location of the resource</rdfs:comment>
  <rdfs:domain rdf:resource="#Location"/>
  <rdfs:range rdf:resource="http://www.w3.org/2000/01/rdf-schema#Literal"/>
</rdf:Property>
Appendix B: RDF Document of Special Collections.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:frbr="http://purl.org/vocab/frbr/core#"
  xmlns:scol="http://ella.slis.indiana.edu/~brinorbe/scol.rdf#"
  xml:base="http://ella.slis.indiana.edu/~brinorbe/scol">
  <rdf:Description rdf:ID="A_Edward_Newton_Coll">
    <rdf:type rdf:resource="http://purl.org/vocab/frbr/core#Work"/>
    <scol:generalCollectionTitle>A. Edward Newton Collection</scol:generalCollectionTitle>
    <frbr:realization rdf:resource="http://ella.slis.indiana.edu/~brinorbe/scol#Expression1"/>
  </rdf:Description>
  <rdf:Description rdf:ID="Expression1">
    <rdf:type rdf:resource="http://purl.org/vocab/frbr/core#Expression"/>
    <scol:collectionType>Provenance</scol:collectionType>
    <frbr:embodiment rdf:resource="http://ella.slis.indiana.edu/~brinorbe/scol#loc.natlib.misc.100000001"/>
  </rdf:Description>
  <rdf:Description rdf:ID="loc.natlib.misc.100000001">
    <rdf:type rdf:resource="http://purl.org/vocab/frbr/core#Manifestation"/>
    <scol:collectionTitle>A. Edward Newton Collection</scol:collectionTitle>
    <scol:creator rdf:resource="http://ella.slis.indiana.edu/~brinorbe/scol#n50006003"/>
    <scol:typeOfResource>text</scol:typeOfResource>
    <scol:startDateIssued>1900</scol:startDateIssued>
    <scol:endDateIssued>1940</scol:endDateIssued>
    <scol:issuance>monographic</scol:issuance>
    <scol:language>eng</scol:language>
    <scol:form>regular print</scol:form>
    <scol:extent>94</scol:extent>
    <scol:abstract>Material from the library of A. Edward Newton.</scol:abstract>
    <scol:location rdf:resource="http://ella.slis.indiana.edu/~brinorbe/scol#DLC-RB"/>
  </rdf:Description>
  <rdf:Description rdf:ID="n50006003">
    <rdf:type rdf:resource="http://ella.slis.indiana.edu/~brinorbe/scol.rdf#Creator"/>
    <scol:lcshNamePart>Newton, A. Edward</scol:lcshNamePart>
    <scol:lcshNamePartDate>1864-1940</scol:lcshNamePartDate>
    <scol:normalizedName>A. Edward Newton</scol:normalizedName>
  </rdf:Description>
  <rdf:Description rdf:ID="DLC-RB">
    <rdf:type rdf:resource="http://ella.slis.indiana.edu/~brinorbe/scol.rdf#Location"/>
    <scol:physicalLocation>Library of Congress Rare Book and Special Collections Division</scol:physicalLocation>
    <scol:city>Washington</scol:city>
    <scol:state>D.C.</scol:state>
    <scol:zipCode>20540</scol:zipCode>
    <scol:country>USA</scol:country>
  </rdf:Description>
  <rdf:Description rdf:ID="henry_harrisse_coll">
    <rdf:type rdf:resource="http://purl.org/vocab/frbr/core#Work"/>
    <scol:generalCollectionTitle>Henry Harrisse Collection</scol:generalCollectionTitle>
    <frbr:realization rdf:resource="http://ella.slis.indiana.edu/~brinorbe/scol#Expression2"/>
  </rdf:Description>
  <rdf:Description rdf:ID="Expression2">
    <rdf:type rdf:resource="http://purl.org/vocab/frbr/core#Expression"/>
  </rdf:Description>
</rdf:RDF>
```
Perhaps best known for Bibliotheca Americana Vetusissima, a description of over three hundred writings on America published between 1492 and 1551, Henry Harrisse (1829-1910) wrote extensively on Christopher and Ferdinand Columbus, John and Sebastian Cabot, and the early voyages of American exploration. Through his bequest, the Library of Congress acquired in 1915 his personal copies of his publications, complete with marginal comments and interleaved notes. In addition to over two hundred volumes, the collection preserves correspondence pertaining to Harrisse's research, an original letter by Pietro Martire d'Anghiera, and a manuscript (ca. 1533) describing a voyage along the northern coast of South America.
The outstanding Whitman collection formed by Carolyn Wells Houghton (D. 1942), American mystery writer and anthologist, was received by bequest in 1942. Miss Wells secured copies of every publication cited in A Concise Bibliography of the Works of Walt Whitman, With a Supplement of Fifty Books About Whitman (New York and Boston: Houghton Mifflin Co., 1922. 106 p. Z8971.5.W45; reprint, New York: B. Franklin [1968]), which she compiled with Alfred F. Goldsmith. The collection contains nearly one hundred copies of Leaves of Grass, included both issues of the first edition published in Brooklyn in 1855; an autographed copy of the exceedingly rare Memoranda During the War (Camden, N.J.: 1875-76); and one of the five known copies (the Library received a second copy through copyright deposit) of Letters Written by Walt Whitman to his Mother from 1866 to 1872 (New York and London: G.P. Putnam's Sons, 1902), a work which was edited by Thomas B. Harned, Whitman's close friend and an executor of his literary estate. The Wells bequest is shelved in the Rare Book and Special Collections Division with other Whitman publications (some copyright deposit copies) selected from the Library's general collections.
<scol:physicalLocation>Library of Congress Manuscript Division</scol:physicalLocation>
<scol:city>Washington</scol:city>
<scol:state>D.C.</scol:state>
<scol:zipCode>20540</scol:zipCode>
<scol:country>USA</scol:country>


<scol:creator rdf:resource="http://ella.slis.indiana.edu/~brinorbe/scol#n79081476"/>
<scol:creator rdf:resource="http://ella.slis.indiana.edu/~brinorbe/scol#n85006435"/>
<scol:typeOfResource>text</scol:typeOfResource>
<scol:language>eng</scol:language>
<scol:form>regular print</scol:form>
<scol:startDateIssued>1841</scol:startDateIssued>
<scol:endDateIssued>1881</scol:endDateIssued>
<scol:issuance>monographic</scol:issuance>
<scol:extent>28,000</scol:extent>
<scol:findingAid rdf:resource="http://hdl.loc.gov/loc.mss/eadmss.ms004014"/>


<scol:location rdf:resource="http://ella.slis.indiana.edu/~brinorbe/scol#DLC-MM"/>

<scol:creator rdf:resource="http:// ella.slis.indiana.edu/~brinorbe/scol#n85389249"/>
<scol:typeOfResource>still image</scol:typeOfResource>
<scol:language>eng</scol:language>
<scol:form>graphic</scol:form>
<scol:form>photoprint</scol:form>
<scol:form>print</scol:form>
<scol:startDateIssued>1849</scol:startDateIssued>
Portraits of Whitman by various artists and photographers, arranged by Saunders Number.
Books ten centimeters or less in height.

Contains vernacular materials in the various Turkic languages, dialects, and scripts. The
collection is strong in both modern works as well as works printed in Arabic scripts and continues to gain more renowned early imprints. At present, the collection contains over 50,000 volumes of monographs and serials, which includes approximately one hundred Turkish manuscripts, most of which serve researchers of religion. Among these is the section's earliest Turkish manuscript, Muhammed Haravi's Tzekiret-Evliya (History of the saints) (1526), one of only three copies known to exist. Yazicioglu Mehmed's Muhamediyiye (1583) and Zakariya Qazwini's Ajaib al-Makhluqat (The wonders of creation) also from the sixteenth century, are other notable examples. The earliest of published works in the collection is Vankulu Lugati (Vankulu's dictionary), printed in Istanbul in 1729. Other early publications include a number of the important and rare books printed by Ibrahim Muteferikka during the 1730s as well as works from the press of the Imperial Engineering School. Among the more recent publications held by the section are complete runs of most of the academic serials and series published by Turkish universities and scholarly societies, such as the Turkish Historical Society's Belletin. The section further holds complete or nearly complete runs of serials published by the Turkic peoples of the Soviet Union since 1955. Included among these are all the journals of the various writers' unions. The Turkish serial collection consists of approximately four hundred Ottoman and republican titles, such as Servet-i Funun (Istanbul, 1895-1901), Turk Kulturu (Ankara, 1963-present), and Turk Dili (Ankara, 1935-present). Major modern newspaper titles include Aksam (Istanbul, 1942-64), Baris (Ankara, 1971-present), Cumnhuriyet (Istanbul, 1924-present), and Milliyet (Istanbul, 1962-65, 1970-present).
The collection consists of 402 volumes in Turkish and Arabic representing a wide spectrum of important topics.

This site allows you to search and read digitized newspaper pages from 1880-1922 and find information about American newspapers published between 1690-present. Chronicling America is sponsored jointly by the National Endowment for the Humanities and the Library of Congress as part of the National Digital Newspaper Program (NDNP). Currently, content is available from the following geographic areas: California, Florida, Hawaii, Kentucky, Minnesota, Missouri, Nebraska, New York, Texas, Utah, Virginia, and the District of Columbia.
In 1922, through the bequest of Mrs. Clarence W. Jones of Brookline, Massachusetts, the Library received a collection devoted to the writings of the American novelist, Henry James (1843-1916). Around this nucleus, the Library formed the Henry James Collection, adding books selected from the general collections and proof pages of several James novels were deposited for copyright protection. The James Collection contains first English and American editions of James' writing, significant later editions of books he revised, publications to which James contributed prefaces, stories, or essays, and critical studies by James scholars. One of the rarest items in the collection is a dramatization of Daisy Miller that was privately printed in 1882.
Snapshots primarily documenting sound recording expeditions carried out by John Avery Lomax, Alan Lomax, and Ruby Terrill Lomax for the Archive of American Folk Song from 1934 to ca. 1950. Photographs depict African American, white, and Latino musicians, singers and dancers, in the southern United States (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, Texas, and Virginia) and the Bahamas (Nassau, Andros Island, and Cat Island). Includes portraits of musicians posed with and without their instruments; many photos show musicians in various settings and activities—at homes, working in prison yards, working on chain
gangs, performing outside and on stage at the Asheville Mountain Music Festival, North Carolina. Some photos
depict daily life, including domestic activities, baptisms, and farming. Also includes some landscape and marine
views, houses, and children playing singing games. Musicians depicted include, among others, Henry Truvillion,
James "Iron Head" Baker, Moses "Clear Rock" Platt, Leadbelly, Crockett "Davy" Ward, Bill Hensley, Uncle Bob
Ledbetter, and Bascom Lamar Lunsford. Folklorist Zora Neale Hurston, who assisted the Lomaxes on expeditions
to Georgia and Florida, is identified in four photographs in subdivisions 7414-C and 7414-G. </scol:abstract>
<scol:location rdf:resource="http://ella.slis.indiana.edu/~brinorbe/scol#DLC-RS"/>
</rdf:Description>
<rdf:Description rdf:ID="n79075059">
  <rdf:type rdf:resource="http://ella.slis.indiana.edu/~brinorbe/scol.rdf#Creator"/>
  <scol:lcshNamePart>Library of Congress</scol:lcshNamePart>
  <scol:lcshNamePart>Motion Picture, Broadcasting, and Recorded Sound Division</scol:lcshNamePart>
  <scol:normalizedName>Library of Congress Motion Picture, Broadcast and Recorded Sound Division</scol:normalizedName>
</rdf:Description>
<rdf:Description rdf:ID="DLC-RS">
  <rdf:type rdf:resource="http://ella.slis.indiana.edu/~brinorbe/scol.rdf#Location"/>
  <scol:physicalLocation>Library of Congress Motion Picture, Broadcast and Recorded Sound Division</scol:physicalLocation>
  <scol:city>Washington</scol:city>
  <scol:state>D.C.</scol:state>
  <scol:zipCode>20540</scol:zipCode>
  <scol:country>USA</scol:country>
</rdf:Description>
</rdf:RDF>