Testing the Extracting Metadata for Preservation project's Named-Entity Recognizer on metadata

Larry S. Jackson, Ph.D.
University of Illinois
Graduate School of Library and Information Science
http://www.isrl.illinois.edu/~lsjackso/
lsjackso@illinois.edu
+1-217-333-0949
February 4, 2010

Under Library of Congress National Digital Information and Infrastructure Preservation Program (NDIIPP-2) grant\(^1\) funding, in the Extracting Metadata for Preservation (EMP) project [Unsworth, Sandore, et al, 2009], we have recently completed the development and deployment of an open-source machine learning software package to identify various forms of names encountered in text [Cognitive Computation Group, 2009] [Godby, et al, 2009]. The EMP Named Entity Recognizer (NER) software\(^2\) markedly outperformed those using other approaches, and displayed considerable robustness when employed on documents outside the domain of those used in training [Ratinov & Roth, 2009].

I tested the online form of the tool using 31 of the 293 collection-level descriptive metadata files OAI-harvested from the Grainger Engineering Library’s federation of IMLS-sponsored digital collections under the IMLS Digital Collections and Content "Opening History" project\(^3\). The collection records used in this test were those also being used as test data by the Collection-Item Metadata Relationships (CIMR) project at GSLIS [Renear, Urban, Wickett, Palmer & Dubin, 2008]. RDF-formatted metadata was obtained from CIMR, who in turn obtained it by OAI-harvesting the metadata from Grainger. An example XML file is shown in Attachment 1. An example RDF file is shown in Attachment 2. This metadata was written by the owners/operators of the various digital collections, and was automatically handled by the harvesting processes, and as such may or may not reflect much standardization.

Of the metadata fields available, the following two were utilized, in expectation their contents would be largely based on natural language;

1. `dcterms:abstract` - The abstract description of the collection -- typically a paragraph in length.
2. `dc:title` - The formal title of the collection -- typically a sentence fragment.

\(^1\) http://www.digitalpreservation.gov/
\(^2\) http://l2r.cs.uiuc.edu/~cogcomp/LbjNer.php
\(^3\) http://imlsdcc.grainger.uiuc.edu/history/.
The abstracts processed here in much the same way as the whole-text previously tried in the EMP project. Titles, however, engendered problems in correct delineation of field values (discussed and illustrated following). In both cases, strings like 'XYZ Collection' were generally labeled as being an ORG. That seems to me to be the best choice from among the available tags, and may even match the name of the curatorial group.

Other fields were only briefly examined as being either unlikely to contain text which included names (e.g., dates, URIs), or which probably contained only a name (e.g., publisher identification), enclosed between the XML tags, making name recognition basically a foregone conclusion. However, it is clear from the results obtained that the EMP project default training data did not address street/mailing addresses much, as the initial numbers are generally omitted from the recognized location (LOC) substrings. So, there was no point in belaboring that issue.

Abstracts

The abstracts of collection-level metadata are generally quite narrative in character, and as such fit the design assumptions for whole-text processing quite well. Error rates and types did not seem appreciably different than in EMP project tests using the NER tool.

Titles

Initial-upper-case characters in words are no longer 'special' indicators the recognizer may rely on, when processing within this field. Generally all the words here, except very frequently used connectors, are typed using an initial upper case letter. Taken over 31 separate collection-summary statements, this is either a widely distributed metadata-authoring convention, or perhaps it is a tool-driven side-effect of the federation processing performed.

The default training of the recognizer produced errors in title data, specifically in knowing when to terminate a phrase. Further, different style guides specify different treatment of case in titles, so, with other data, variance in case usage within titles from various sources is also possible. The list following shows representative recognition errors. The number followed by a colon identifies the collection within the Grainger aggregation. The italicized, last of all, are my remarks.

2424: [PER Charles W. Cushman Photograph Collection ] In my opinion, the only error here is that a collection is not a person, per se. Further, the best ‘fit’ of a tag label for a collection seems to be ‘ORG’. Although “Charles W. Cushman” might have been recognized as a personal name, there is also the need to recognize what seems to appropriately be an organizational name, of which the individual’s name is only a part.

2688: [ORG Pullman Company Car Drawings ] If the word 'drawings' were replaced with 'collection', I would like this result just fine. Maybe 'drawings' just seems informal to me -- not
implying it was deliberately 'collected'. Or, maybe 'collection of drawings' would have been a more accurate title to have used.

2799: [ORG Doc Horrell Photo Collection ] I like this.
... as contrasted with ...

69968: [LOC New York State Historical Literature Collection ] This similar string of initially-capitalized words wound up being labeled a LOC, possibly having something to do with the occurrence of 'New York' in the string.

70930: Church and [LOC Congregational History ] in [LOC Illinois ] 'Congregational history' certainly isn't a LOC, but probably should be another ORG (like 'collection'). But, the phrase should have also included the words 'Church and'.

70947: [ORG Historical Treasures of San Bernardino ] This could be OK -- another ORG, reminiscent of 'collection'. Note that, if initial capital letters are de-emphasized by the recognizer, San Bernardino may be split off as a LOC, which would be undesirable, IMO.

70965: [LOC St. Francis Wood Virtual Collection ] Acceptable as an ORG, but not as a LOC. Are there seeded examples, or training data, so that the word 'wood' raised an assumption of a geographical context?

70967: [PER Chung Sai Yat ] [ORG Po Newspaper Collection ] 'Po' should be grouped with the PER element. It looks like a personal name, so let's suppose it is one. If so, then the whole thing should have been one long ORG.

70975: [PER Gayle Morrison Files ] on [MISC Southeast Asian Refugees ] Gayle's surname is presumably 'Morrison', not 'Files'. But, if 'files' is like 'collection', that that element is OK, except for needing to be an ORG instead of a PER.

70991: [ORG California Indian Baskets ] ca . 1800s-1900s Good, assuming this is another case like 'collection' (e.g., "baskets collection" or "collection of baskets").

70994: [PER Augustus F. Hawkins Papers ] His surname is probably 'Hawkins'. Or, this could be another collection-like ORG.


81147: Shorty [PER Fuller Photographs ] 'Shorty' is a nickname, to be paired with 'Fuller'. Photographs is not a surname. Or, 'photographs' may also be treated like 'collection', making this more appropriately an ORG.

81185: [PER William Edward Hook Glass Negatives ] 'Hook' is presumably the surname. Or, the whole thing is another collection-like ORG.
Item-Level Metadata

In addition to collection-level metadata (i.e., metadata describing the collection as a whole), the Opening History project has also federated metadata specific to individual items ("item-level metadata") within each processed collection. However, as currently utilized, there are generally no plain-text fields in item-level metadata, and as such that metadata was not processed in these trials. Individual items, it seems, are not described but rather identified, an implementation more in keeping with archival practice than librarianship.

Some fields did contain text, often varying widely in conventions concerning their content, which might be processed by name recognizers, e.g.:

<source>

<source>
</source>

<contributor>
Bolton, Herbert Eugene, 1870-1953 (editor and introduction)
</contributor>

<publisher>Wisconsin Historical Society</publisher>

Unfortunately, the 'description' field of item-level metadata records is occupied by URLs. These URLs might be thought to start the reader on a quest which will ultimately disclose an item description (e.g., <description>http://www.americanjourneys.org/aj-017/summary/</description>, though this particular URL leads to a collection-level description, with five paragraphs and four cited references -- collection-level metadata which, strangely, is not available in the metadata fields of the collection-level record). In addition to varying practices of the institutions entering the metadata, there are also curatorial choices made in the federation process. These variations, selections, and omissions can be difficult to fathom after-the-fact, and detached from the organization making the original choices.
Conclusions

The EMP NER tool can benefit, particularly in metadata application contexts, from expanded training data including:

1. capitalization practices typical of titles,
2. by implication, completely-capitalized strings (e.g., such as may be imported from other databases), and
3. street addresses.

References


ATTACHMENTS

Attachment 1: Collection-level metadata harvested from Grainger for collection #2419, "American Journeys" of the Wisconsin Historical Society

 xmlns:xsi='http://www.w3.org/2001/XMLSchema-instance'
 xsi:schemaLocation='http://imlsdcc.grainger.uiuc.edu/profile#http://imlsdcc.grainger.uiuc.edu/registry/imlsdccprofile2.xsd'>
  <responseDate>2010-01-14T16:17:45Z</responseDate>
  <request
  verb="GetRecord"
  identifier="oai:imlsdcc.grainger.uiuc.edu:2419"
  metadataPrefix="imlsdcc">http://imlsdcc.grainger.uiuc.edu/registry/oai/oai.aspx</request>
  xmlns:xsi='http://www.w3.org/2001/XMLSchema-instance'
 xsi:schemaLocation='http://imlsdcc.grainger.uiuc.edu/profile#http://imlsdcc.grainger.uiuc.edu/registry/imlsdccprofile2.xsd'>
    <imlsdccProf:collectionDescription xmlns:dc='http://purl.org/dc/elements/1.1/'
    xmlns:dcterms='http://purl.org/dc/terms/'
    xmlns:cld='http://purl.org/cld/terms/'
    xmlns:imlsdcc='http://imlsdcc.grainger.uiuc.edu/types#'
    xmlns:marcrel='http://www.loc.gov/marc.relators/'
    xmlns:xsi='http://www.w3.org/2001/XMLSchema-instance'
    xsi:schemaLocation='http://imlsdcc.grainger.uiuc.edu/profile#
http://imlsdcc.grainger.uiuc.edu/registry/imlsdccprofile2.xsd'>
      <dcterms:identifier xsi:type='dcterms:URI'>http://imlsdcc.grainger.uiuc.edu/Registry/Collection/?2419</dcterms:identifier>
      <!-- SELECT * FROM CollectionProperties WHERE collectionID=2419 UNION SELECT 0,
      collectionID,'collection_number','collectionNumber' FROM Collections WHERE collectionID=2419
      UNION SELECT 0, collectionID,'collection_type','LTrim(RTrim(isnull(ih,''))+ '+ISNULL(dlf,''))+'+ISNULL(imls,''))+ '+'+ISNULL(hist, '') FROM Collections WHERE collectionID=2419 ORDER BY property, propertyType -->
      <dcterms:accrualPeriodicity
      xsi:type='cld:DCCDAccrualPeriodicity'>Irregularly</dcterms:accrualPeriodicity>

<dc:relation>General public</dc:relation>
<dc:relation>K-12 students</dc:relation>
<dc:relation>K-12 teachers and administrators</dc:relation>
<dc:relation>Scholars/Researchers/Graduate Students</dc:relation>

<dc:contributor>National History Day [Other], Maryland, 20742</dc:contributor>

<dc:spatial>Midwest U.S. (general region)</dc:spatial>
<dc:spatial>United States (nation)</dc:spatial>
<dc:spatial>Wisconsin (state)</dc:spatial>

<dc:temporal>Pre-1400</dc:temporal>
<dc:temporal>1400s-1699</dc:temporal>
<dc:temporal>1700-1799</dc:temporal>
<dc:temporal>1800-1849</dc:temporal>


<dc:abstract>American Journeys contains more than 18,000 pages of eyewitness accounts of North American exploration, from the sagas of Vikings in Canada in AD1000 to the diaries of mountain men in the Rockies 800 years later. Read the words of explorers, Indians, missionaries, traders and settlers as they lived through the founding moments of American history. View, search, print, or download more than 150 rare books, original manuscripts, and classic travel narratives from the library and archives of the Wisconsin Historical Society.</dc:abstract>

<imlsdcc:interactivity>Search</imlsdcc:interactivity>
<imlsdcc:interactivity>Browse</imlsdcc:interactivity>
<imlsdcc:interactivity>Interactive learning objects</imlsdcc:interactivity>

<imlsdcc:managedBy>XXXXXX XXXXXX, XXXXXX@whs.wisc.edu, Wisconsin Historical Society</imlsdcc:managedBy>

<dc:language>eng</dc:language>

<imlsdcc:supplement>Teacher and student resources</imlsdcc:supplement>
<imlsdcc:supplement>Historical highlights</imlsdcc:supplement>

<dc:rights>Please see http://www.americanjourneys.org/about.asp#rights for information
about rights, reproductions, and permissions.</p>

<dc:rights>
<dc:extent>18,000 pages</dc:extent>
</dc:rights>

<dc:subject xsi:type='imlsdcc:GEM'>Social Studies--Geography</dc:subject>
<dc:subject xsi:type='imlsdcc:GEM'>Social Studies--United States history</dc:subject>
<dc:subject xsi:type='imlsdcc:GEM'>Social Studies--World history</dc:subject>
<dc:subject>Early American history and exploration (to 1840)</dc:subject>
<dc:title>American Journeys</dc:title>

<clld:itemType xsi:type='imlsdcc:Type'>Books and pamphlets</clld:itemType>
<clld:itemType xsi:type='imlsdcc:Type'>Photographs / slides / negatives</clld:itemType>
<clld:itemType xsi:type='imlsdcc:Type'>Prints and drawings</clld:itemType>
<clld:itemType xsi:type='imlsdcc:Type'>Diaries</clld:itemType>
<clld:itemType xsi:type='imlsdcc:Type'>Travel narratives</clld:itemType>
<clld:itemType xsi:type='imlsdcc:Type'>Maps</clld:itemType>

<imlsdcc:managedBy xsi:type='dcterms:URI'>http://imlsdcc.grainger.uiuc.edu/Registry/Person/?771</imlsdcc:managedBy>
<dc:creator xsi:type='dcterms:URI'>http://imlsdcc.grainger.uiuc.edu/Registry/Project/?2700</dc:creator>
</imlsdccProf:collectionDescription>
<vcard:CATEGORIES>Person</vcard:CATEGORIES>
<vcard:UID xsi:type='URI'>http://imlsdcc.grainger.uiuc.edu/Registry/Person/?771</vcard:UID>

<!--
For reasons of privacy, personal identification has been suppressed.
If you need the name or email address of the person identified by this record, you can
contact Sarah Shreeves (shreeve@uiuc.edu), and provide the vcard:UID shown below.
-->

<vcard:UID>
http://imlsdcc.grainger.uiuc.edu/registry/vcard.xsd'
>
</vcard:UID>
<vcard:N>
  <vcard:Family>XXXXXX</vcard:Family>
  <vcard:Given>XXXXXX</vcard:Given>
</vcard:N>
<vcard:FN>XXXXXX XXXXXX</vcard:FN>
<vcard:EMAIL>XXXXXX@whs.wisc.edu</vcard:EMAIL>
<vcard:ORG><vcard:Orgname>Wisconsin Historical Society</vcard:Orgname></vcard:ORG>
</vcard:VCARD>

<imlsdccProf:projectDescription
  xml:base='http://imlsdcc.grainger.uiuc.edu/Registry/Project/?2700'
  xmlns:imlsdccProf='http://imlsdcc.grainger.uiuc.edu/profile#'
  xmlns:dc='http://purl.org/dc/elements/1.1/
  xmlns:dcterms='http://purl.org/dc/terms/
  xmlns:cld='http://purl.org/cld/terms/
  xmlns:imlsdcc='http://imlsdcc.grainger.uiuc.edu/types#'
  xmlns:marcrel='http://www.loc.gov/marc.relators/
  xmlns:xsi='http://www.w3.org/2001/XMLSchema-instance'
  xsi:schemaLocation='http://imlsdcc.grainger.uiuc.edu/profile#
  http://imlsdcc.grainger.uiuc.edu/registry/imlsdccprofile2.xsd'
>
  <dc:identifier xsi:type='dcterms:URI'>http://imlsdcc.grainger.uiuc.edu/Registry/Project/?2700</dc:identifier>
  <dc:identifier>IMLS Grant Number: LG-03-02-0112</dc:identifier>
  <dc:title>American Journeys: Eyewitness Accounts of No. American Exploration &amp; Settlement</dc:title>
  <cld:isLocatedAt xsi:type='dcterms:URI'>http://www.americanjourneys.org/about.asp</cld:isLocatedAt>
  <imlsdcc:administeredBy xsi:type='dcterms:URI'>http://imlsdcc.grainger.uiuc.edu/Registry/Institution/?577</imlsdcc:administeredBy>
  <imlsdcc:participatedBy xsi:type='dcterms:URI'>http://imlsdcc.grainger.uiuc.edu/Registry/Institution/?709</imlsdcc:participatedBy>
</imlsdccProf:projectDescription>
<vcard:VCARD
  xmlns:vcard='http://www.w3.org/2001/vcard-rdf/3.0#'
  xml:base='http://imlsdcc.grainger.uiuc.edu/Registry/Institution/?577'
  xmlns:xsi='http://www.w3.org/2001/XMLSchema-instance'
  xsi:schemaLocation='http://www.w3.org/2001/vcard-rdf/3.0#
  http://imlsdcc.grainger.uiuc.edu/registry/vcard.xsd'
>
  <vcard:CATEGORIES>Institution</vcard:CATEGORIES>
  <vcard:UID

vcard:TYPE='URI'>http://imldscc.grainger.uiuc.edu/Registry/Institution/?577</vcard:UID>
  <vcard:FN>Wisconsin Historical Society</vcard:FN>
  <vcard:ROLE>Historical society</vcard:ROLE>
  <vcard:ADR>
   <vcard:Region>Wisconsin</vcard:Region>
   <vcard:Pcode>53706</vcard:Pcode>
   <vcard:Country>United States</vcard:Country>
  </vcard:ADR>
</vcard:VCARD>
<vcard:VCARD xmlns:vcard='http://www.w3.org/2001/vcard-rdf/3.0#'
  xmlns:xsi='http://www.w3.org/2001/XMLSchema-instance'
  xsi:schemaLocation='http://www.w3.org/2001/vcard-rdf/3.0#'
  xml:base='http://imldscc.grainger.uiuc.edu/Registry/Institution/?709'
  xmlns:imlsdccProf='http://imldscc.grainger.uiuc.edu/Registry/Institution'/>
  <vcard:CATEGORIES>Institution</vcard:CATEGORIES>
  <vcard:UID
vcard:TYPE='URI'>http://imldscc.grainger.uiuc.edu/Registry/Institution/?709</vcard:UID>
  <vcard:FN>National History Day</vcard:FN>
  <vcard:ROLE>Other</vcard:ROLE>
  <vcard:ADR>
   <vcard:Region>Maryland</vcard:Region>
   <vcard:Pcode>20742</vcard:Pcode>
   <vcard:Country>United States</vcard:Country>
  </vcard:ADR>
</vcard:VCARD>
</imlsdccProf:collectionProfile>
</metadata></record></GetRecord></OAI-PMH>
Attachment 2: Collection-level metadata converted into RDF by CIMR, for collection #2419, "American Journeys" of the Wisconsin Historical Society

<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF xmlns:foaf="http://xmlns.com/foaf/0.1/"
  xmlns:imlsdcc="http://imlsdcc.grainger.uiuc.edu/types#"
  xmlns:imlsdccProf="http://imlsdcc.grainger.uiuc.edu/profile#"
  xmlns:marcrel="http://www.loc.gov/marc.relators/
  xmlns:cimr="http://projects.lis.illinois.edu/~cimr-testbed/cimr/ns#"
  xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:dateNorm="java:org.cdlib.framework.harvest.drivers.DateNormalizationSaxonExtn"
  xmlns:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:imls:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/">
  <rdf:Description rdf:about="cimr:oai:imlsdcc.grainger.uiuc.edu:2419">
    <cimr:hasOaiItem rdf:resource="oai:imlsdcc.grainger.uiuc.edu:2419"/>
    <dc:type>
      <dcterms:dcmitype rdf:about="http://purl.org/dc/dcmitype/Collection">
        <rdf:value>Collection</rdf:value>
      </dcterms:dcmitype>
    </dc:type>
    <cimr:temporal.normalize rdf:datatype="http://www.w3.org/2001/XMLSchema#gYear">1400-1409, 1700-1849</cimr:temporal.normalize>
    <dcterms:temporal rdf:datatype="http://www.w3.org/2001/XMLSchema#gYear">1400</dcterms:temporal>
    <dcterms:temporal rdf:datatype="http://www.w3.org/2001/XMLSchema#gYear">1849</dcterms:temporal>
    <dcterms:audience>General public</dcterms:audience>
    <dcterms:audience>K-12 students</dcterms:audience>
    <dcterms:audience>K-12 teachers and administrators</dcterms:audience>
    <dcterms:audience>Scholars/Researchers/Graduate Students</dcterms:audience>
    <dc:contributor>National History Day [Other], Maryland, 20742</dc:contributor>
    <dcterms:spatial>Midwest U.S. (general region)</dcterms:spatial>
  </rdf:Description>
</rdf:RDF>
American Journeys contains more than 18,000 pages of eyewitness accounts of North American exploration, from the sagas of Vikings in Canada in AD1000 to the diaries of mountain men in the Rockies 800 years later. Read the words of explorers, Indians, missionaries, traders and settlers as they lived through the founding moments of American history. View, search, print, or download more than 150 rare books, original manuscripts, and classic travel narratives from the library and archives of the Wisconsin Historical Society.

Please see http://www.americanjourneys.org/about.asp#rights for information about rights, reproductions, and permissions.

American Journeys

Books and pamphlets

Photographs / slides / negatives

Prints and drawings

Diaries

Travel narratives

Maps
<foaf:Organization rdf:type="cimr:Other"
    rdf:about="http://imlsdcc.grainger.uiuc.edu/Registry/Institution/?709">
    <foaf:Name>National History Day</foaf:Name>
</foaf:Organization>
<foaf:Project rdf:about="cimr:http://imlsdcc.grainger.uiuc.edu/Registry/Project/?2700 IMLS Grant Number: LG-03-02-0112">
    <foaf:Name>American Journeys: Eyewitness Accounts of No. American Exploration &amp; Settlement</foaf:Name>
    <cld:isLocatedAt rdf:resource="http://www.americanjourneys.org/about.asp"/>
    <imlsdcc:administeredBy>http://imlsdcc.grainger.uiuc.edu/Registry/Institution/?577</imlsdcc:administeredBy>
    <imlsdcc:participatedBy>http://imlsdcc.grainger.uiuc.edu/Registry/Institution/?709</imlsdcc:participatedBy>
    <foaf:homepage rdf:resource="http://www.americanjourneys.org/about.asp"/>
</foaf:Project>
</rdf:RDF>