CIMI/Harmony Collaboration

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Acknowledgements/Resources

- Dan Brickley (ILRT, W3C)
- Jane Hunter (DSTC)
- Libby Miller (ILRT)

- http://metadata.net/harmony
- http://www.cs.cornell.edu/cdlrg

Harmony Project

- DSTC (Australia), JISC (U.K.), NSF (U.S.)
- Motivations
  - inadequacy of simple attribute/value metadata models for rich resource description
  - need for "normalization" principles in digital libraries of mixed media objects
- Goals
  - Understand and develop cross-media modeling principles
  - Exercise those principles as a means of facilitating interoperability among metadata vocabularies

Multi-entity nature of object description
Attribute/Value approaches to metadata…

• Recognizing inherent lifecycle aspects of description (esp. of digital content)
• Modeling incorporates time (events and situations) as first-class objects
  – Supplies clear attachment points for agents, roles, occurrent properties
• Resource description as a “story-telling” activity

ABC/Harmony Event-aware metadata model
CIMI Experiments

- Participating Museums
  - AMOL (Australia Museums and Galleries Online)
  - Natural History Museum of London
  - National History Museum of Denmark
  - Library of Congress/RLG
- Records collected at:

Observations

- Supplied records are extremely idiosyncratic
- "Standards" such as the CIMI DC recommendations are freely interpreted
- Understanding and using the records has required significant human effort
- Achieving automated interoperability amongst idiosyncratic metadata is akin to natural language comprehension

Results

- CIMI records provided fertile input for refinement of ABC model
- ABC model will hopefully provide:
  - A cleaner foundation for representing the type of information that has been confounded Dublin Core, MARC, etc. (e.g., agents, actions, changes, derivations)
  - A basis for more precise queries across this data.

ABC Model

- Entity/relationship foundation
  - A world of typed and identified entities, that are interrelated in multiple, rich ways
- Time and transformation as first-class concepts
  - Objects have properties (*adjectives*) that are "constant" and time-dependent (*stateful*)
  - Agents and their actions (*verbs*) occur in *events* that modify the state of objects
- http://metadata.net/harmony
Resource-centric Metadata

<table>
<thead>
<tr>
<th>Title</th>
<th>Anna Karenina</th>
</tr>
</thead>
<tbody>
<tr>
<td>Author</td>
<td>Leo Tolstoy</td>
</tr>
<tr>
<td>Illustrator</td>
<td>Orest Vereisky</td>
</tr>
<tr>
<td>Translator</td>
<td>Margaret Wettlin</td>
</tr>
<tr>
<td>Date Created</td>
<td>1877</td>
</tr>
<tr>
<td>Date Translated</td>
<td>1978</td>
</tr>
<tr>
<td>Description</td>
<td>Tragic adultery and the search for meaningful love</td>
</tr>
</tbody>
</table>

Birthplace: Moscow
Birthdate: 1828

AMOL Vase

<AMOLOldID>W54/1</AMOLOldID>
<Name>Vase</Name>
<Designed>Mark, Stephen, Adelaide, South Australia</Designed>
<Made>Heidenreich, Mark, Sydney, New South Wales</Made>
<Date>1989-1994</Date>
<DateType>Manufacture</DateType>

<Description>`Vase, `Chintz vase with Cockatoos', made by Mark Horzniack, Sydney, 1989 and decorated by Stephen Bowers, Adelaide, 1993-1994. Terracotta earthenware blend vase, wheelmade (thrown), with a wide flat base, raised rims at the foot, narrowing above the base then swelling out to a large ovoid body, with rounded shoulders, and topped by a short narrow neck below a wide thick rim. The foot and rim are decorated with underglaze-black bands of a thin and braided motif. ......`
1. Convert CIMI Records to ABC

<table>
<thead>
<tr>
<th>ABC Metadata Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Powerhouse Museum</td>
</tr>
<tr>
<td>Natural History Museum</td>
</tr>
<tr>
<td>National Museum Denmark</td>
</tr>
<tr>
<td>Library of Congress</td>
</tr>
</tbody>
</table>

2. Single Search Interface

- Enables More Advanced Queries
  - Find me images of objects which were acquired as gifts?
  - Tell me all of the previous owners of a particular object?
  - Give me images of people born before 1950?

Rudolf Squish – http://swordfish.rdfweb.org/rdlfquery
RDF Query Demos

Rudolf Squish – http://swordfish.rdfweb.org/bdfquery

List details of events where Lagoze is a participating agent

SELECT ?title, ?type, ?time, ?place, ?name
FROM http://ilt.org/discovery/harmony/oai.rdf
WHERE
  (web::type ?event abc::Event)
  (abc::context ?event ?context)
  AND ?name ~ lagoze
USING web FOR http://www.w3.org/1999/02/22-rdf-syntax-ns#

Ontology Harmonization

- CIDOC CRM Ontology – museum objects
- ABC Ontology – RDF Schema
  – Describe digital objects and their life history
- MPEG-7 – multimedia object description
- Merge to enable descriptions of museum multimedia objects
- Formal methods for merging
Current Work

- Creating more ABC records
  - Human input
  - "Story-based" user interface
- Experimentation with querying over ABC descriptions – Squish RDF queries vs. XML queries
- DELOS/CIDOC/Harmony workshop on ontology harmonization
  - http://metadata.net/harmony/DELOS_Workshop.doc

References

http://metadata.net/harmony/Collaboration.htm
http://swordfish.rdfweb.org/discovery/2001/03/demos/image.html