

Craig A. Knoblock, Pedro Szekely, Shubham Gupta, Animesh Manglik, Ruben Verborgh, Fengyu Yang, Rik Van de Walle

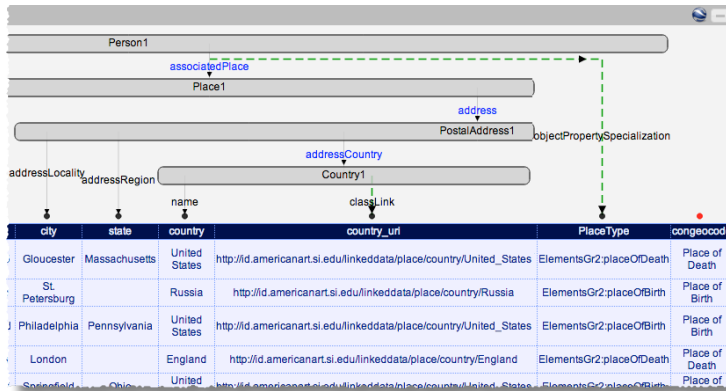
THE PROBLEM

- Museums have data about their art work that they want to publish and share
- But it is stored in proprietary formats without explicit connections
- The challenge is to relate this data to a cultural heritage ontology, create the RDF, and link the data to related sources
- Previous work on cultural heritage data required manual rules to model the data and had few links to other sources

Example Smithsonian Data

ConstituentID	City	County	State	Country	ConGeoCode
39	23 Concord	NULL	Vermont	United States	Place of Birth
40	23 New York	NULL	New York	United States	Place of Death
41	24 Taos	NULL	New Mexico	United States	Associated Place
42	24 Topeka	NULL	Kansas	United States	Place of Birth
43	24 Albuquerque	NULL	New Mexico	United States	Place of Death
44	25 NULL	Perry County	Kentucky	United States	Associated Place
45	26 NULL	Akwesasne Indian Territory	New York	United States	Associated Place
46	26 Kawehnoke	St. Regis Reservation	Ontario	Canada	Place of Birth
47	27 NULL	NULL	Colorado	United States	Associated Place
48	27 Orange	NULL	New Jersey	United States	Place of Birth
49	28 Hazard	NULL	Kentucky	United States	Place of Birth
50	29 Woodbury	NULL	New Jersey	United States	Place of Birth
51	29 New York	NULL	New York	United States	Place of Death

Example Source Model in Karma



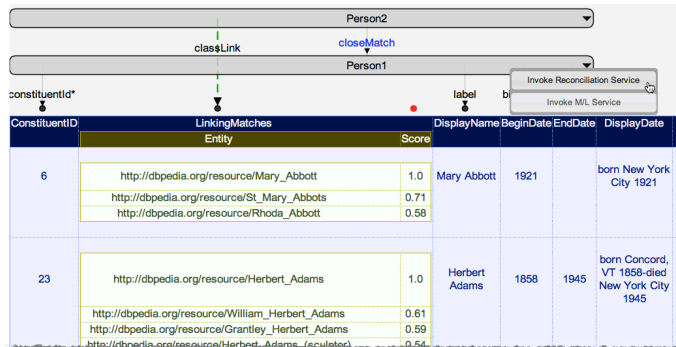
SEMI-AUTOMATIC MODELING

- We developed an approach to automatically map data to a domain ontology
- Supports complex cultural heritage ontologies including EDM and CDOC-CRM
- Handles data in a wide range of formats including relational and hierarchical data
- Learns from previous mappings to improve the system over time
- Allows the user to interactively refine the mappings if the system gets it wrong

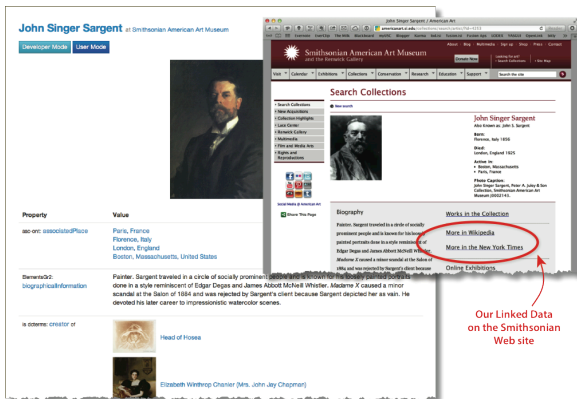
INTERACTIVE LINKING

- We integrated a linking services that allows a user to reconcile the entities (e.g., artists, locations, etc.) with other sources
- We used this service to link artists to Dbpedia and locations to Geonames
- Allows the user to view the results and curate the links to ensure the final results are correct

Example Linking in Karma



Example Visualization of Results



Our Linked Data on the Smithsonian Web site

RESULTS AND FUTURE WORK

- We mapped the data from the Smithsonian American Art Museum on their 44,000 pieces of art and linked the data to Dbpedia and Geonames
- The tools can easily be applied to new datasets from other museums
- We developed a user-friendly browser to view the data
- We are now working on tools to
 - curate data using other linked data sources
 - build virtual museums
 - build multimedia stories from the linked data

