**Mining Maps of Information Objects: An Exploratory Ontological Excursion:** Sergey Zherebchovsky, Nicolette Ceo, Michiko Tanaka, David Jank, Richard Smiraglia and Stephen Stead

**Abstract:**
The societal archive (virtual though it might be) is made up of information objects of all kinds—everything from stories to telegrams to bibles to films to documents. To date the boundaries around domains within which these objects are stored have dictated both the ways in which we classify objects and the ways in which, therefore, they can be retrieved and used for scholarship. According to Hipeland (2003, 98), rationally deduced schema predetermine the potential use of intellectual content by limiting its retrieval. The empirical derivation of units of classification, on the other hand, particularly in developing or existing systems, provides a basis upon which conceptual systems can be built.

We wish to suggest an approach to the mapping of information objects—that is, all artifacts that are considered informative and therefore might be retrievable through an information system such as a catalog, database, or search engine—that will reveal undiscovered semantic relationships. In this presentation we will use the CIDOC Conceptual Reference Model (hereafter CIDOC CRM) to map selected sets of information objects. The CIDOC CRM is an ontology designed for the representation of artifacts and the integration of cultural information.

**What is an information object?**

An artifact that is considered informative, and also is potentially retrievable

**Examples:**
document, painting, vase, audio, motion picture, etc.

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**What is the CRM?**

A meta-level ontology for representing artifacts for information sharing

**Mapping with the CRM**

**Satyr Head**

(http://www.museum.upenn.edu/new_worlds_interlinked/etnuscan/architecture.shtml)

**Material** E22 (P48) E57, E14, P310 → P1018, E12 → P1018 → E57

**Artwork** E22 → P26, E55

**Item Number** E22 → P88, E42

**Source** E22 (E23 P80) E10 → P290 E40 → P311 E126 E126 P24 E8 → P22 E40 → P131 E23(E10 E30) E75 E975 E978 E40 (E55 → P27) E96 E25 E98 E46 E40 (E55 − P341, E55)

**Date** E11 (P108) E22 → P4 E52 → P18 E490, E52 → P182 − E53

**Image** E12 (P1081, E301, E150, E75)

**Deck Log**

([United States Merchant Marine Academy, Class of 1942 Archives, Series IX])

**Collection** E76 → P46, E76

**Item** E22 (E21 P80) E12 → P142 E2514, E155 → P311 E23 E823

**Creator** E22 (E719, E138) P141 E823 P141 E155 → P311 E23

**Image** E21 (P1081, E301, E75)

**1. Mise the Mappings**

**Calculate the probability of occurrence of:**

- Properties (forward, backward)

- Classes

**Calculate the probability of co-occurrence of:**

- Properties (forward, backward)

- Classes

**Generate "conceptual" classes using probabilities as "feel" set descriptors**

**Examples—Constitute the classes that include all objects for which the following are true:**

- PMS Consists of co-occurs with P24

- Changed ownership

- P108 was produced by co-occurs with P10 transfer of custody

**2. Match the Mappings**

**Discover hereafter unknown similarities among multi-epistemological matches by matching mappings**

Such that the Satyr Head and the Deck Log both fall within the class:

E22 → P108 Item was produced by Etc.

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**Potential List of Mapped Collections**

American National Standards Institute (Washington)

Art Museums Image Consortium (AMICO) (Toronto) ceased operation but maintains project data at http://www.amico.org

Cantabria (Spain) Cultural Heritage Project http://www.fundacionmbotin.org

The Centre de Recherche et de Restauration des Musées de France* (Paris)

Centre for Cultural Informatics (ICS-FORTH) (Heraklion, Crete, Greece)

Chinese Military Academy of Management (Beijing)

COVRA (European Contemporary Culture Virtual Archives) http://www.covra.org

MILAVCE (Manuscripts and Letters Via Integrated Networks in Europe) http://www.milavce.org

Musee de Dendermonde members of SCELUSEUR Project (Paris)

Museum of Finland (FINONTO Project) (Helsinki)

The Museum Project (Oulu, Norway)

NASA (Washington)

National Chi-Nan University (Taiwan)

The National Gallery* (London)

National Museum and Heritage Board (Singapore)

Norwegian University Museums Database Project (Oslo)

Uffizi Museum* (Florence)

The Victoria and Albert Museum* (London)

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**Works Cited**


http://cidoc.is.forth.gr/crm_for_glasgow_2008.ppt


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*Retrieved May 2008*